# GAME MANUAL


MATRIX GAMES

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# FOREWORD

*by Alejandro Carneiro (Piteas)*

Why did I participate in the development of the War in Spain 1936-39 game? I wanted to help in the creation of a game that many Spanish wargamers and other fans have wanted for a long time: a deep and detailed game about the civil war that devastated my country during three long years of war and massacres. A war that confronted the three most relevant ideologies of its time and served as a test of tactics and weapons for three powers that would fight in the world war that was coming: Germany, Italy and USSR

But why was there a civil war in Spain? Currently, there are still many Spanish historians who discuss the causes of the start of this civil war and, therefore, there is no clear consensus on what were the main reasons that led to the military uprising. Depending on the academic and, sometimes, their ideology, they give more importance to some facts than others.

The indisputable fact is that the conflict was caused by a military coup against the Spanish legal government, which had the purpose of establishing a dictatorship. The coup began with the uprising of Spanish troops who were in north Africa, between July 17-18, 1936. However, the coup failed, and the country fell into a civil war.

Spain had become a republic in 1931, after the expulsion of king Alfonso Xlll, but the ideological division in the country, reflecting Europe led to several protests and revolts by both left-wing and right-wing activists. In February 1936, the left won the elections and many army officers, closer to the right, did not agree with the result. So, they decided to take power. The reaction by the government of the republic, at first, was to downplay the issue. The military revolt did not triumph in the main cities and more than half of the country. The government thought that the coup d'ětat would soon be over, but that was not the case.

The war reached an international scale. The fascist governments of Germany and Italy quickly helped the coup plotters by sending weapons (later by sending military units), which strengthened their positions and they began to conquer territory. The Government of the Republic had no help from the English or French democracies, only international volunteers. But Stalin saw an opportunity to create an ally on the other side of Europe. However, their help would take months to arrive. Furthermore, in the government of the republic there was a power vacuum in the first months of the war, because the workers and union members, who had ended the military coup in cities like Madrid and Barcelona took justice into their own hands, by not obeying the orders of the government. Violence was unleashed against the "allies of the fascists": clerics, rich people, landowners, right-wing politicians, etc. On the opposite side, the military (now "nationalists") began to shoot the 'tallies of communism": workers, union members, government officials, schoolteachers, etc. There were more killed behind the front than on the front line. As general Franco said in an interview with the american journalist Jay Allen: "I will save Spain from Marxism at any price". "Do you mean that you will shoot half of Spain if necessary?" l said at any price.

The War in Spain 1936-39 would not be like the American Civil War. It would have more deaths in a country the size of California. Mercy or forgiveness were replaced by political and religious hatred.

From a military point of view, the War in Spain 1936-39 was a test or proving ground for the tactics of the future World War. The use of tanks, bombing of cities, air support for ground units where all tests the Germans drew many conclusions from. They later would apply these lessons against Poland and France. But this war was also a trench war in the style of World War l, with more modern weapons and popular participation.

The main battles took place around Madrid in the first months, which prevented Franco from conquering the capital. They were the only republican victories, rather draws, in epic and savage battles.As

Artur Koestler (Spanish Testament, 1937) said: ('I can no longer aspire to be objective... Anyone who has lived in the hell of Madrid with their eyes, their nerves, their heart, their stomach, and then pretends to be objective, he is a liar. If those who have machines and printing ink to express their opinions remain neutral and objective in the face of such bestiality, then Europe is lost."

Franco, after the failure of Madrid, decided to prolong the war, gradually conquering the rest of the country. With the help of German units (Condor Legion) and Italian units (CTV).

On the republican side, socialists and communists argued with the anarchists about how to wage war, until the conflict broke out in Barcelona in May 1937, like a civil war within the civil war. The communists and socialists won the struggle, forcing the anarchists to integrate into the republican army, increasingly under communist influence, because Stalin was the main supplier of weapons and instructors to the republic.

In 1937, the nationalists conquered the north slowly, regardless of the losses or destruction caused (bombing of Guernica).

Franco's repression is brutal. Few prisoners are taken. The republicans counterattacked by taking the strategic Teruel at the beginning of 1938, after a long winter battle, which historians will title the "Spanish Stalingrad."

Franco becomes obsessed with recovering Teruel, and he achieved it in just over a month. In April 1938, the nationalist advance reached the Mediterranean Sea and cuts the republican territory in two parts.

The war seems like a loss for the Republicans, but they decide to carry out a last attack on the Ebro River with their best troops to recover the union between both sides. It was the hard Ebro Battle (July-November 1938). The final great battle. The result will be a republican defeat. The war is already lost and the Russian aid is no longer enough.

But the republicans were trying to prolong the war, because they suspected, rightly, that Europe could enter into conflict soon and they would be able to receive help from the enemies of Germany and Italy. However,

they didn't hold out long enough, because the troops and material were scarce for the resistance. Barcelona was conquered by Franco in January 1939 and in March a coup d'état triumphed against the communists within the republican side. The new republican government surrendered to Franco hoping for clemency. They didn't know the "Generalissimo" well, because there would be no forgiveness for almost anyone.


The defeated republicans will suffer long repression for decades: shootings, prison or exile. So, the consequences of the civil war are still very present in Spanish society today. The War in Spain 1936-39 is a topic of conversation that can be the cause of strong debates at dinners or gatherings of friends.

But this wargame tries to reconstruct the conflict in its military aspect. In my opinion, in a historical way that is respectful of both sides. A small masterpiece for wargamers.

# 1. INTRODUCTION

*War in Spain 1936-39* is a game where players may choose to direct the Republicans or Nationalists war efforts in one of several smaller scenarios that cover a portion of the war, or you may choose the campaign scenario that encompass the War in Spain from 17 July 1936 to 1 April 1939. Although there is a scenario that runs until the beginning of September 1939.

**A famous radio message (for Spaniards):**

*"Today, the Red Army is captive and disarmed and the nationalist troops have reached their latest military objectives. The War is over."*

## 1.1 NEW GAME ENGINE

**Notes from the creator**

Some of you might notice some visual similarity to the game "War in the Pacific – Admirals Edition". In fact, this is an entirely new game engine. I never got close to even a single line of code of "WITP AE". But I am a huge fan of the "Admirals Edition" game myself, which mirrors my creation. It is a huge project, and it has taken a decade to code it thus far. I started with it seriously in 2016. The game is compiled in 32 bit and should thus run on older and brand-new machines alike. It is designed to allow a very detailed control of the forces and economy of one or more nations during the war. So much detail is possible that *War in Spain 1936-39* does not even fully exploit the possibilities of the game engine. Especially the economic and naval combat models. Another distinct characteristic is that the games AI does not need any external scripts. Though it is possible to predefine certain actions to enforce historical behavior, especially in short scenarios. Almost the entire code

is AI. The AI will respond to your actions. Both in attack and defense. It writes its own scripts, assigns units to missions and organizes it's forces towards the strategic goals it decides on. Due to this fact it is not easily possible to switch the player side in a single player game. The units of the AI will be bound to the scripts and keep executing their tasks even if you load the game with the human player in control of the former AI controlled side. This independent AI allows us to use the game engine for a broad variety of wargames taking place in different theaters. *War in Spain 1936-39* is the first one to be completed, and I hope you have as much fun playing it as it was to create it.

Enjoy the game,

Alessandro

## 1.2 GAME MANUAL

The *War in Spain 1936-39* manual is divided into sections with a table of contents and index to assist in locating essential information.

## 1.3 EDITOR MANUAL

*War in Spain 1936-39* has an editor feature that allows you to create your own scenarios anywhere on the *War in Spain 1936-39* map. Details on how to use the editor are contained in the separate PDF editor manual file which is in the manuals sub directory of your *War in Spain 1936-39* installation. Access to the editor itself is through the scenario editor button within the game.

### 1.3.1 USER CREATED SCENARIOS

Any user created scenarios can only be saved to a slot after 25, as the first 25 scenario slots are reserved exclusively for official scenarios.

# 1.4 INSTALLATION

If you have purchased the game from our store, follow this procedure:

Navigate to the download file location. If the file you downloaded is a zip file, first extract all files within the zip archive, then go to that location. Double-click on the installation (executable, exe) file. The correct file name will typically include the words "SetupRelease". Follow all on-screen prompts to enter your serial key and complete the installation.

If you have purchased your game from the Steam Store, you can download the game by finding it in your Steam library and then pressing the INSTALL button.

Any games purchased from the Slitherine or Matrix stores available on Steam can also be registered for a Steam Key (as long as the game is part of our Steam catalog), allowing you to add the game to your Steam library.

**If you purchased the game from our store while already logged into your site account, your game will have been automatically registered for you.** Otherwise, go to https://www.matrixgames.com/member/mypage , or click on MY PAGE in the top navigation bar on our site and choose REGISTER SERIAL, pick the name of this game and enter your serial number that came with the download to register.

In either case, once registered you will see your game in your list of Registered Games and a button labeled **STEAM KEY: GET YOUR KEY!**. Click on that to get a Steam Key which you can activate to also get this product added to your Steam account.

## MINIMUM SPECS

**OS:** Windows 7 or newer
**CPU:** 1.5 GHz+
**RAM:** 1GB
**Video Card:** 1 GB DirectX 7+ Compatible (Some Intel GPUs have an issue, see note below)
**Sound Card:** 16-bit DirectX 7+ Compatible
**Hard Drive Space:** 3 GB Free
DirectX 7.0 or higher

## RECOMMENDED SPECS

**OS:** Windows 10
**CPU:** 2.0GHz+ (or multi-core equivalent)
**RAM:** 3GB
**Video Card:** 2 GB DirectX 7+ Compatible (Some Intel GPUs have an issue, see note below)
**Sound Card:** 16-bit DirectX 7+ Compatible
**Hard Drive Space:** 4 GB Free
DirectX 7.0 or higher

**Note:** Intel GPU issue. Some Intel graphics chips have an issue in which game graphics do not render correctly. If this happens the map may appear solid green, with large green areas with no land features, or even black. Other areas may have areas of pink. Many computers with an Intel GPU also have another GPU. If you do have another GPU on your system, you can switch the GPU so the game will run. There are several ways to do this, the easiest is to open Control Panel, select Device Manager, then expand the Display Adapters section. If there is more than 1 GPU, you can disable the Intel GPU by right clicking on that item and select Disable Device. You can later turn it back on with the same process and click Enable Device.

This game uses 5nm hexes which cover a much smaller area than prior games in this genre. The smaller scale provides a richer experience in land combat. However, Air and Naval Campaigns take place over a much larger area.

Play testing has revealed that a useful method of playing is to "zoom in" for land combat/order creation and "zoom out" for air/naval combat/order creation.

When you first begin to play this game, you may think "the hexes are too small" or "the hexes are too large". We've heard comments in both directions. But we've also heard that many testers adapted to this by using the zoom feature and liked it.

The game reads your computer display resolution settings and attempts to select game resolution settings that are optimal for your computer and the game.

You may wish to change these settings. This can be done on the PREFERENCES screen. Also, fine tuning and display options other than the standard options can be set by using the INI file for display configuration and setting up the desired values right there (see the readme.txt file for more details).

Be aware that in this game engine, larger maps take more time to zoom out, perhaps 300ms vs 50ms for smaller screens. The primary variables involved are the size of the map and the amount of video memory available on the card.

For best results, we recommend a minimum of 2 GB VRAM on the card. Less memory on the card could result in the operating system repurposing regular computer RAM as video memory. This will result in slower performance. Hence the recommendation of 2 GB minimum VRAM to minimize any decrease in frame rate and game response time to user input.

## 1.5 UNINSTALLING THE GAME

Please use the Add/Remove Programs or Programs and Features option from the Windows Control Panel or the "Uninstall" link in the game's Windows START menu to uninstall the game. Uninstalling through any other method will not correctly uninstall the game.

## 1.6 PRODUCT UPDATES

To maintain our product excellence, Matrix Games and Slitherine release updates containing new features, enhancements, and corrections to any known issues. All our updates are free on our website (see more details in the section below) and can also be downloaded quickly and easily by clicking on the Check for Updates link in your Game Launcher.

## 1.7 REGISTER YOUR GAME, RE-DOWNLOAD YOUR GAME, BETA UPDATES

We also periodically make beta (preview) updates and other content available to registered owners. Keeping up with these special updates is easy and accessible by signing up for a Slitherine Group Member account. When you are signed up, you can then register your Slitherine Group products to receive access to these game-related materials. Doing so is a simple two-step process:

**Sign up for a Slitherine Group Member account** – THIS IS A ONE-TIME PROCEDURE; once you have signed up for an account, you are in the system and will not need to sign up again. Go to www.slitherine.com and click the SIGN UP button on the top-right, then click "Register" on the subsequent page after filling in your personal information. When you're finished, a confirmation email will be sent to your specified email account.

**Register a New Game Purchase** – Once you have signed up for a Slitherine Group Member account, you can register any Slitherine/Matrix title you own in your new account. To do so, log in to your account on either the Matrix Games website (www.matrixgames.com) or the Slitherine website (www.slitherine.com). Click MY PAGE at the top and then REGISTER SERIAL on the right to register your new purchase.

We strongly recommend registering your game, as it will give you a backup location for your serial number should you lose it in the future.

**If you have already logged into your main member account when you purchased your game, it will be automatically registered for you as part of the purchase process.**

Once you've registered your game, when you log in to the Members section, you can view your list of registered titles by clicking My Page. Each game title is a hyperlink that will take you to an information page on the game (including all the latest news on that title). Also on this list is a Downloads hyperlink that takes you to a page with all the latest public and registered downloads, including patches, for that particular title.

You can also access patches and updates via www.matrixgames.com/member/mypage Once there, select the game you wish to check updates for, then check the downloads link. Certain valuable content and additional downloads will be restricted to Group Members, so signing up there is always worthwhile.

Remember, once you have signed up for a Member account, you do not have to sign up again, though you may need to login again if you have signed out. At that point, you are free to register any product you purchase.

## 1.8 UNIFIED LOGIN SYSTEM

Slitherine and Matrix now have a new "Unified Login System". This system allows you to access the Slitherine and Matrix Games sites using just one username and password.

To merge your accounts so that they work for all Slitherine Group sites, go to (http://samelogin.slitherine.com/) and enter the details of one of your accounts (ie, either your Matrix or your Slitherine login).

You will then be presented with the option to merge your accounts (listed as "[Merge my accounts]"), which will then allow you to combine any other accounts you have or generate a user for another website using the exact details (For instance, if you were called "JohnSmith123" on the Slitherine site but had no account on Matrix, you could enter the details into the site and it would create a "JohnSmith123" account for Matrix as well, with the same password as the Slitherine login.)

## 1.9 GAME FORUMS

Our forums are one of the best things about Matrix Games. Every game has its forum with our designers, developers, and gamers playing the game. If you are experiencing a problem, have a question, or have an idea on improving the game, post a message there. Go to **http://www.matrixgames.com** and click on **COMMUNITY** and then **FORUM** in the top site navigation bar.

## 1.10 TECHNICAL SUPPORT

Should you have a technical problem with the game, the best way to get help is to post a note in the Technical Support sub-forum of the main game forum at http://www.matrixgames.com/forums. You'll then hear back from either our Matrix Games Staff, the development team, or one of the many helpful players of the game. This method is usually the fastest way to get help. Alternatively, you can contact our Help Desk at http://www.matrixgames.com/support/ or support@matrixgames.com. Support requests will generally be answered within 24 hours, except on weekends or US/UK national holidays.

**Thank you and enjoy your game!**

# 2. GETTING STARTED

Playing *War in Spain 1936-39* is a task that may seem daunting at first with lots of information and the ability to direct the War in Spain 1936-39 all the way down to individual air squadrons, ships, and ground units. With practice, the information screens, and orders to be issued will become second nature. However, playing this game will require a thorough knowledge of the rules, which will take some time. This manual describes the various game menus and mechanics involved in the game.

The major nations in *War in Spain 1936-39* are:

**Nationalist:** Germany, Italy and Nationalist Spain

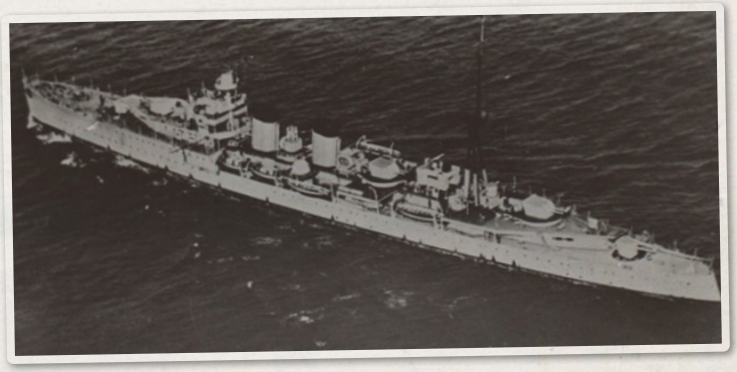
**Republicans:** USSR, Republican Spain and Republic of the North

## 2.1 INTERFACE

The interface for *War in Spain 1936-39* is built around five types of input:

- **Filter Switches** – These turn on and off associated options by left clicking on them. On some filter switches a right mouse click accesses additional options.
- **Icon Buttons** – These are found on the menu bar which runs along the top of the main map display and also in the hex command display which runs along the bottom of the main map display. There are also icon buttons found on the base information screen. A left mouse click on these icon buttons brings up lists or menu screens that may, in turn, bring you to additional screens where you give orders.
- **Unit Icons** – These are most commonly found on the tactical map but also in the hex command display and the base information screen. Unit icons represent individual units in the hex where the cursor is located. Click on a unit icon to open its unit information screen to order the unit to undertake a particular action.

- **Directional Arrows** – These are the small left and right arrows next to many items. By clicking on them you can scroll through the list of available choices. When there is a single arrow pointing to the right it either launches another menu, as in "form task forces," or it toggles orders such as "automatic convoy off/on."
- **Colored Text** – Colored text indicates additional information is available. Players can click on the colored text and bring up lists or menu screens that may in turn take you to additional screens where you can give orders.



## 2.2 MAIN GAME MENU

This is where *War in Spain 1936-39* begins and where all your important game-defining decisions will be made, although some can be changed in game. From here all game parameters are defined including the selection of sides, various realism options, and display preferences. Below is the Main Menu screen which appears after the opening *War in Spain 1936-39* video.


## 2.2.1 GAME PLAY OPTIONS

*War in Spain 1936-39* has 4 game play options. (See section 3.0 for a detailed explanation). They are:

- **Republican or Nationalist vs AI** – Play as the Republican or Nationalist side against the computer AI.
- **Play by Email** – Play a game against a human via email. (PBEM)
- **Head-to-Head** – Two players playing on the same computer taking turns.
- **WEGO Team Play** – Play with teams via email. This is for 3 to 6 players.

## 2.2.2 PREFERENCES SCREEN

The preferences screen is divided into two sections. The first section is available by clicking on the Preferences button on the top left of the main screen. The second part of the preferences is accessed by clicking on the Advanced Prefs button described below. Each section allows you to set certain settings and balancing modifiers that belong to it.

Take note that most settings, modifiers and rules can be changed during a running game. Also, these settings are Global. Meaning that if you set one, you are setting it for all sides.

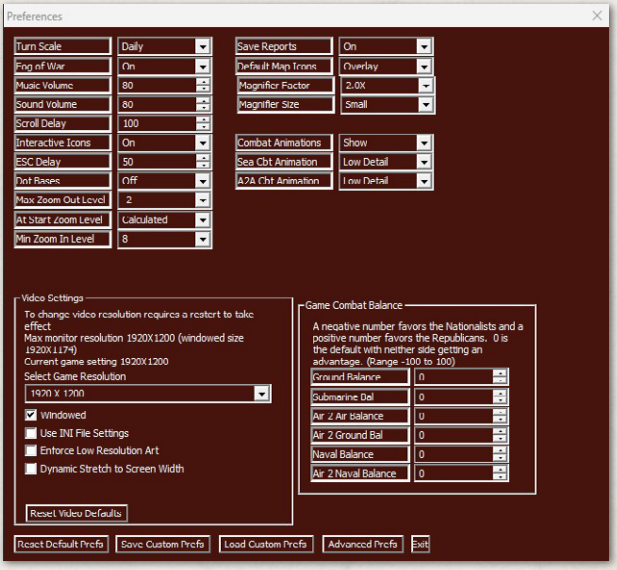
**Note:** *Rule changes and even scenario data changes are possible during multiplayer game (3 to 6 player games), but only upon agreement of all players. This is done by a "keycode" system where a player has access to 1 part of the keycode. The complete keycode can be used by the master player to execute such changes to rules and data. See section 3.4.*

### 2.2.2.1 GENERAL GAME RULE SETTINGS (PREFERENCES)

These are the General Game Rules (Preferences). See descriptions below.

Starting from to top left of the screen overleaf:

- **Turn Scale** – 0 is hourly turns only. Can be used verse the AI and H2H only. 1+ is the number of day('s) per game turn for multi-player games.
- **Fog of War** – If set to Off, all units will be shown on the map. If set to On, you will see only spotted units.
- **Music Volume** – Controls background music volume.
- **Sound Volume** – Controls FX sound volume.
- **Scroll Delay** – Action delay in milliseconds until the scroll command is executed again.
- **Interactive Icons** – Allows you to click the symbols and icons in the hexes to open the respective windows.
- **ESC Delay** – The delay in milliseconds until the next [Esc] keystroke will be executed.
- **Dot Bases** – Turns Dot Base Flags on and off.
- **Max Zoom Out Level** – Sets the Maximum Zoom Out Level for the game.




- **At Start Zoom Level** – The zoom level set for starting the game.
- **Min Zoom in Level** – Sets the Min Zoom in Level for the Game.

The top right of the screen has these settings:

- **Save Reports** – Saves Game Reports from turn to turn.
- **Default Map Icons –** Here, you can select classic AE style or the new style with the hex AV showing.
- **Magnifier Factor** – Turn this on with the [M] key.
- **Magnifier Size** – This is the size of the magnifier window. Small, medium and large. The large size is not that much bigger than the small size.
- **Combat Animations** – Turns Combat Animations on and off.
- **Sea Cbt Animation** – Turns Sea Combat into Low Detail and High Detail.
- **A2A Cbt Animation** – Turns A2A Combat into Low Detail and High Detail.

In the bottom left corner is the Video Settings Box. In this box you can select a game resolution other than the resolution selected by your game. You can also select on and off for Windowed mode, Using INI file settings, Enforcing low resolution art and the Dynamic stretching of the screen width. Also, you can turn DPI Awareness on and off. Finally, there is a reset video defaults button which sets all these buttons to their original settings.

In the lower right side is the Game Combat Balance box. In *War in Spain 1936-39*, you can set one side at a disadvantage in various parts of the combat results. These settings generally weaken the side it is not biased towards. See below:

**Ground Combat** – The ground combat arrows set a side at a disadvantage in ground combat power. For example, a value of – 25 (biased towards Nationalist) will take away 25% of the Republican ground combat power.

**Submarine Balance** – These arrows set a side at a disadvantage in submarine combat power. For example, a value of – 25 (biased towards Nationalist) will take away 25% of the Republican submarine combat power.

**Air 2 Air Balance** – sets a side at a disadvantage in air combat power. For example, a value of – 25 (biased towards Nationalist) will take away 25% of the Republican air combat power.

**Air 2 Ground Balance** – These arrows set a side at a disadvantage in air to ground bombing power. For example, a value of – 25 (biased towards Nationalist) will take away 25% of the Republican air to ground bombing power.

**Note:** *Attacks on disbanded ships use the ground bombing skill (immobile target) and thus fall under this difficulty modifier.*

**Naval Balance** – These arrows set a side at a disadvantage in reduced naval to naval combat power. Since naval combat works by simulating

actual shell flight paths, it is a setting that increases inaccuracy in aiming of the shots. Or in other words the deviation of desired impact points to real impact points. For example, a value of – 30 (biased towards Nationalist) add 3x the inaccuracy to Republican ship-based gunnery.

**Air to Naval Balance** – These arrows set a side at a disadvantage in air to naval bombing power. For example, a value of – 25 (biased towards Nationalist) will take away 25% of the Republican air to naval bombing power. This includes dropping torpedoes.

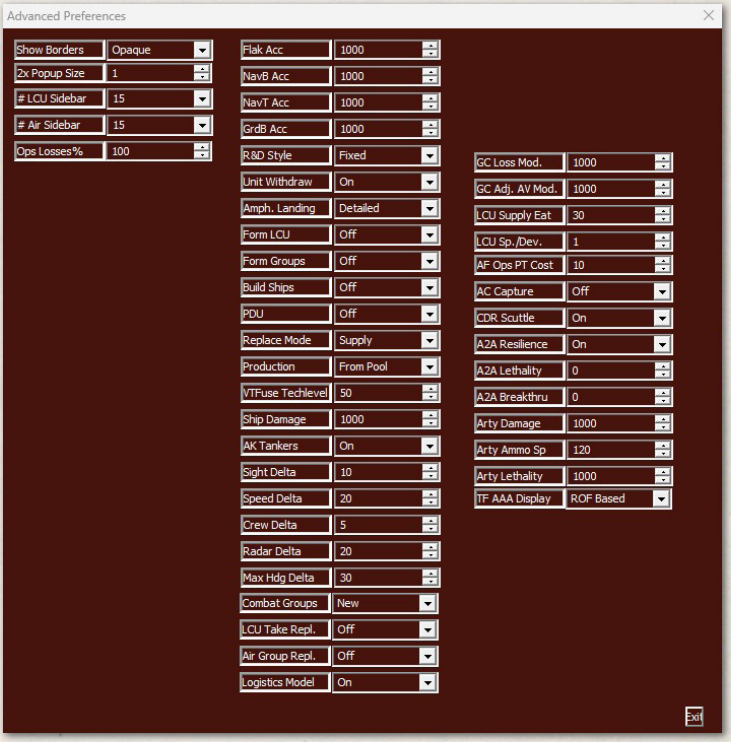
**Note:** *Attacks on disbanded ships use the ground bombing skill (immobile target) and thus fall under a different difficulty modifier.*

At the very bottom of this screen are five buttons:

- **Reset Default Prefs** – Sets all Preferences to the game default settings.
- **Save Custom Prefs** – This saves your current settings to be loaded at your next session from a file called MyWISPrefs.
- **Load Custom Prefs** – This loads your previously saved custom preferences.
- **Advanced Prefs** – Clicking this button takes you to the Advanced Preferences Screen. This section is described in section 2.2.2.1.1 below.
- **Exit** – This button exits to the Preferences window.

### 2.2.2.1.1 ADVANCED PREFERENCES SCREEN

Below is the Advanced Preferences Screen. This is accessed by clicking on the Advanced Prefs button in the Preferences screen shown in section 2.2.2.1. Below the screen is the descriptions of the items:




Starting on the left-hand column:

**Show Borders** – This turns border graphics transparent, opaque or off.

**2x Popup Size** – This increases the size of the game UI, such as screen message boxes, by the indicated factor.

**# LCU Sidebar** – The number of boxes shown on the Sidebar.

**# Air Sidebar** – The number of boxes shown on the Sidebar.

**Ops Losses %** – This is the percentage of normal operational losses in aircraft that a group may suffer through ditching, crash landings and other hazards that may happen to aircraft and pilots outside of combat actions. 0 means no such losses at all, 100 is the default, 200 means twice as many such losses than the default.

Next is the center part of the Advanced Preferences Screen.

**Flak Acc** – The chance to hit aircraft with AAA fire. Ranges from 0 upward, with 0 being no chance. 1000 being the default, 2000 being twice the default chance and so on.

**NavB Acc** – The chance to hit ships with bombs. Ranges from 0 upward, with 0 being no chance. 1000 being the default, 2000 being twice the default chance and so on.

**NavT Acc** – The chance to hit ships with aerial torpedoes. Ranges from 0 upward, with 0 being no chance, 1000 being the default, 2000 being twice the default chance and so on.

**GrdB Acc** – The chance to hit land targets with bombs. Ranges from 0 upward, with 0 being no chance, 1000 being the default, 2000 being twice the default chance and so on.

**R&D Style** – There are two choices, Fixed and Custom. **Fixed** – This means the progress of technology levels happens at a preset speed. Availability of naval, air and ground devices is set at historic dates. **Custom** – This is an option for user created scenarios where nations might have a full-on map economy and production model. In this case the progress on availability dates and weapon technology depends on the nations Heavy Industry output, and how the research points from this output are allocated.

**Unit Withdraw** – All units will withdraw or disband on their historical date, if set to ON. If set to OFF, no units will withdraw.

**Amph. Landing** – This has two settings and are described as follows: **Standard:** With this rule Amphibious Landings are very simplified.

All transport ships are assumed to carry a number of barges. **Detailed:** This is the more Detailed Amphibious rule. You need to have Landing Barges in the pool of the nations that are conducting the assault. Nations with a relationship of 90 or higher will share barges. The barges and LC are assigned to ships able to carry them when either an amphibious, fast transport or sub transport mission is formed. Barges and LC used in landings can be lost during that operation. In this mode, a possible national amphibious bonus determines whether xAK and xAP type ships can carry barges or LC. The size and capacity of the Barges in use determines if and what devices can be unloaded over the beach by them.

**Form LCU** – Allows for the creation of any custom LCU during the game. These custom LCU's draw replacements from the pools just like any other LCU.

**Form Groups** – Allows for the creation of any custom air unit during the game. These custom air units draw replacements from the pools just like any other air unit.

**Build Ships** – Allows for the construction of new ships for nations with a full economy. Construction cost depends on national economy settings in the fields for "Input" of the shipyard industries.

**PDU** – PDU or Player Defined Upgrades on or off.

**Replace Mode** – There are three types for Replacement Modes. See section 16 for more details on replacement modes. They are as follows: **Pool:** This is a mode where abstract production points from the industry are shipped. these can turn into any device as required by LCU's or Air Units to create replacements. **Supply:** The player does not have to do more than to ensure the bases are in good supply. This supply is spent to "teleport" replacements from the pool into the units. **Device Ship:** This is a detailed system using reserve units (RSV), which must be created on map to fill air and ground units.

**Production** – There are two production methods. They are: **From Pool:** This is the simple model where AFV and armament factories produce points which are spent to create devices for LCU's for unit

replacement. **From Factories:** Is the detailed model where there are factories on the map for each type of device. This includes AFV's, guns of all kinds, Vehicles, torpedoes, mines, etc. The factories are handled much like the aircraft factories. They can be upgraded/converted to produce a different type of device, expanded, damaged, and destroyed by attacks on the base/city.

**VTFuse Techlevel** – The air combat tech level needed to have HE flak shells use proximity fuses. These fuses are earliest available as of June 1943 even if the technology rating is above this value sooner than June 1943.

**Ship Damage** – The amount of damage that is applied to ships when hit. Ranges from 0 upward with 0 being no damage, 1000 being default damage and 2000 being 200% default damage.

**AK Tankers** – Off means liquids can only be moved by ship with liquid cargo capacity. On means liquids can be stored in any ships bulk cargo space. This is much slower to load/unload than using a ship that has capacity for liquid cargo. This includes Barge and Submarine transport missions.

**Sight Delta** – Naval combat max crew error percent in determining range to target.

**Speed Delta** – Naval combat max crew error percent in determining speed of target.

**Crew Delta** – For surface ship combat, A zero would make naval gunfire more accurate, and the higher the number, the more inaccurate the fire will be. This is a general thing that will affect all naval gunfire from all ships.

**Note:** *The naval combat model works by actual comparison of shell trajectory versus ship hull size. And the ship firing a salvo needs to fire at the spot where the target will be at time of impact. Thus, the above values have great impact on the number of hits during naval combat.*

**Radar Delta** – Naval combat max crew error percent in interpreting radar data on target. It adds to the base inaccuracy of any data generated by radar devices during combat.

**Max Hdg Delta** – Defines how much the crew can be "off" when guessing a target ships heading.

**Combat Groups** – There are two settings as follows; **Original** is a simple form of the combat groups. **New** has a few more addition to the Original. The default is new for that reason. This Defines what LCU's can form up and work together as one unit. Historical groups only allow Combat Groups to be formed up by units of the respective OOB. For example, a Division with its Brigades and their respective Battalions. It is possible to attach units to a different parent, though. There are rules in place to prevent gamey setups. You cannot attach an armor Battalion to an anti-air unit, for example. Some units may also be fixed to the parent unit for the duration of the game.

**LCU Take Repl.** – Sets LCU's to take replacements automatically.

**Air Group Repl.** – Sets Air Groups to take replacements automatically.

**Logistics Model** – Off will provide you with the Simple model, which is for players who wish to focus on combat. On is for players who want detailed version of logistics and the historical constraints that come with it.

Last is the right-hand part of the Advanced Preferences Screen:

**GC Loss Mod.** – The amount of damage that is applied to LCU's in ground combat. It ranges from "0" upward. With "0" being no damage, 1000 being default damage and 2000 being 200% default damage.

**GC Adj. AV Mod.** – Modifies the chance to take control of a hex in ground combat. Ranges from "0" upwards, with "0" being no chance, 1000 being the default chance and 2000 being 200% the default chance. Note this will not increase losses, but only the chance to dislodge the defender from defensive positions.

**LCU Supply Eat** – The number of days it takes for any kind of LCU to consume the basic number of supplies. The basic amount is 1 supply

per 5 men every "X" number of days. Where "X" is the number that can be set here.

**LCU SP./Dev.** – A factor to determine an LCU's ability to carry supplies, ammo and fuel. 1 is normal amount and 2 is twice the amount, 3 is triple the amount and so on.

**AF Ops PT Cost** – Sets how much supply, ammo and aviation fuel must be present to recover 1 point of airfield operation points. If set to "0" there will not be any restricting effect on airfield readiness.

**AC Capture** – If set to OFF, Ground combat will not capture any air units in the hex. Instead, these aircraft will be destroyed. If set to ON, Ground combat may capture any air units in hex. Such air units and the aircraft within them can then be used normally by the new owner, with the exception of aerial torpedoes that the player, of course, does not have access to.

**CDR Scuttle** – ON, allows the ship captain to scuttle their ship when they wish to abandon ship. OFF means that the ship captain can't make that decision.

**A2A Resilience** – The higher the value, the lower the chance for critical hits. "5" is the default setting. "10" would be half the chance to suffer a critical hit.

**A2A Lethality** – Defines the amount of extra damage an aircraft takes in A2A combat. "0" is the standard amount of damage. "1" will double the amount of damage to an aircraft in A2A combat, 2 will triple it and so on.

**A2A Breakthru** – Modifies the chance for CAP to attack bombers in case CAP breaks through the escorting fighters. "0" is the default chance to break through and attack the bombers. "1" will double the chance to attack the bombers, 2 will triple it and so on. There will be times when the basic chance to get through to the bombers is zero. In this case the modifier has no effect.

**Arty Damage** – Modifies artillery damage. 0 is no damage. 1000 is the default damage. 2000 would be twice to default damage.

**Arty Ammo Sp** – Modifies artillery fire consumption. "60" is half the default, "120" is the default "normal" ammo consumption and "240" would be twice the ammo consumption. Artillery was one of the main consumers for ammo, and thus one of the main factors to put logistics under stress. This allows you to adjust the realism of this aspect.

**Arty Lethality** – Modifies the damage done by indirect fire. "0" is no damage, "1000" is default damage and "2000" is 200% default damage. The value is open ended and can thus be set to almost any desired number.

**TF AAA Display** – There are three display types as follows; **RoF Based:** The ship information window will show a ship's Anti-Air power as firepower that was adjusted by the gun's rate of fire. **Effect:** The ship information window will show a ship's Anti-Air power as the weapons effect of the devices. **Barrels:** The ship information window will show a ship's Anti-Air power as the number of tubes/barrels that may fire.

### 2.2.3 SCENARIO EDITOR

Clicking on the "Scenario Editor" button will take you to the in-Scenario Editor where you can edit scenarios or create your own.

Please see the "Editor Manual" in the Folder "Manuals" in the game directory for a complete explanation on how to use the editor.

### 2.2.4 SCENARIO SELECTION

Clicking on "Start New Game" will take you to the available scenarios that are provided with the game. You will also have access to any user created scenarios you, the player, have downloaded and/or produced.

## 2.2.5 LOADING A SAVE GAME

Clicking on this button will open the saved game screen. Just select your save and click the load button. Loading a PBEM or WEGO save will give the player a few options. See sections 3.2 and 3.3 for details.

The exit game button will, when clicked, exits *War in Spain 1936-39*, and returns you to your desktop.

# 2.3 BEGIN A NEW GAME

To begin a new scenario, click on the Start New Game button on the Main Game Menu screen. The Scenario Menu screen then appears. **Scenario 7 is a tutorial scenario and is described in detail in section 2.3.1 below.**


Two columns appear in the Scenario Menu screen. The left-hand column lists all scenarios in the game's scenario subdirectory, while the right-hand column shows an overview of the currently selected scenario. Clicking on a scenario in the left-hand column brings up the corresponding overview of that scenario in the right-hand column.

To play a scenario from the list presented in the left-hand column, first click on the desired scenario, and then click the Start Game button. The Scenario Details Screen then appears.

### 2.3.1 TUTORIAL SCENARIO

The tutorial scenario will be presented in a series of videos. These videos will use scenario 7, The Balearic Islands Tutorial. The videos will cover the most common features of the game.

# 3. GAME MODES AND THE SEQUENCE OF PLAY

In *War in Spain 1936-39* there are 4 modes of play. They each have a different sequence of play which is followed by each one. The 4 modes of play are:

- **AI Games** – One player, (Nationalist or Republican), vs the computer, (Nationalist or Republican).
- **PBEM Games** – Two players vs each other.
- **Head-to-Head Games** – Two players vs each other using the same computer.
- **WEGO Team Games** – Three to six players (two teams) vs each other.

## 3.1 AI GAMES

For AI games, there is no sequence of play for players. The player will always be in charge. Options are hourly turns or 1 to several day(s) turns. After the "end turn" order is given, that hour/day(s) turn will be processed.

## 3.2 PBEM GAMES

When starting a PBEM game, you will be prompted to input your password as a Nationalist or Republican player. The first password that you enter as a player will be your password. So be sure that the password you set is the password you want when you type it in because you can't change it later on.

### 3.2.1 PBEM SEQUENCE OF PLAY

The following is the sequence of play for a Two Player PBEM Game:

- The Nationalist or Republican player sets up the new game using settings agreed to by both players.
- If the Nationalist player sets up the game, then the Nationalist player gives orders for the Nationalist 1st turn and sends the save to the Republican player. Then go to step 4.
- If the Republican player sets up the game settings, then the Republican player sends the save turn, (with no orders given), to the Nationalist player and the Nationalist player stores this save in the save folder. Then the Nationalist player loads the file and gives orders for the Nationalist 1st turn and sends the save to the Republican player.
- The Republican player places the save file in the Save Folder, then the Republican player gives orders for his or her 1st turn. Then the Republican player sends the save file to the Nationalist player.
- The Nationalist player then places the save file in the PBEM Import Folder. At this point the Nationalist player must pick to "Run this PBEM game turn". After the combat replay is done the Nationalist player gives orders for the next turn and sends the save turn to the Republican player.
- The Republican player then puts the save from the Nationalist player in the PBEM Import Folder and picks "Run this PBEM game turn". After the combat replay is complete the Republican Player gives orders for the next turn and sends the resulting save game back to the Nationalist player.
- The Nationalist and Republican players then repeat steps 5 and 6 until the conclusion of the game.

Each player only has to keep the latest save in the "Save" folder. The number of saves in PBEM Import do not matter. The game can find the correct next turn among a thousand. The only issue is if the other player

sends 2 saves for the next turn ( for example revising orders after sending the turn ). Then the 1st save needs to be deleted to avoid confusion.

**Note 1:** *So, remember the main rule: keep the prior turn save in the save folder and add the new turn save into the PBEM Import folder.*

**Note 2:** *When loading a multiplayer game save, (PBEM or WEGO) the game will search through the import save games and pick the correct one.*

# 3.3 WEGO TEAM GAMES

WEGO Team Games allow for more than one player per side. See section 3.3.1 below for a complete explanation of WEGO Team Play.

**Note:** *When starting a WEGO Team Game, you will be prompted to enter a password. As mentioned above, make sure that the password you choose is the one that you want as once entered you can't change it.*

## 3.3.1 WEGO TEAM GAMES SETUP

WEGO Team Games will be available in a future release.

### 3.3.1.1 MASTER PLAYER

WEGO Team Games require a "Master Player". The Master Player has the job of setting up the scenario options and putting the turns together after the other players have finished their turns. This player can be from either side. For WEGO Team Games, all players must send their game save to the master player and once received by the Master Player it must

be placed into the "PBEM Import" folder. It is of advantage to assign a save game number to each player that he uses for the duration of the game. This does make sure games from different players do not overwrite each other when placed into the PBEM Import folder. The master player can then assemble a new game turn from those saves. The processing of the day(s) turn will then start immediately. WEGO requires 2 game saves to be sent to other players after the turn is reassembled. The orders file and the combat replay.

### 3.3.1.2 WEGO SETUP

- Before starting a WEGO game each player must be assigned a player number starting at 1 and going up to a maximum of 6. The Master player will be player 1. If there are 4 players, they would be assigned numbers 1 through 4. So, you can't select 1,2,3,6. The highest number is the number of players in the game.
- Each player must be assigned to the countries that they will control by placing that player's number in the box next to the assigned country for the selected scenario. This is done on the Preferences screen.
- Each player is also assigned a save game slot that is theirs for the duration of the game.

### 3.3.1.3 WEGO SEQUENCE OF PLAY

- Once the Master Player has set the scenario options and player numbers have been assigned, the Master Player will process his/her orders and then send the game save, which contains the Master Players orders, to the other players.
- After receiving the save from the Master Player, place it in the Save Folder. The other players can then give orders for their first turn after loading this game.
- As soon as the players have completed his/her turn and saved it, it is sent back to the Master Player.

- Once all players have sent their saves to the Master Player, the Master Player will place the saves in the PBEM Import folder. The Master Player then opens his/her last save and chooses to "Run this WEGO game turn". The game will create a save in slot 0 before the turn resolution. The Master player does his/her turn and saves. This game save and the 000 save must be sent to the other players to be able to watch the replay and do their turn. The other players will have the option to play the combat replay or skip it. The Save000.dat file must be placed in the "Save" Folder and the other game save, containing the new orders from the Master Player, is to be placed in the "PBEM Import" folder. The save game in slot 0 is the game to be loaded to continue the WEGO game. Other players then do their turns and send their respective saves to the Master Player. The process in this step is repeated until the game ends.

**Note 1:** *All players have the option to load the turn while skipping the replay. This will load the next turn orders game save, stored in PBEM Import folder, right away. Any checks for synchrony are bypassed this way, as the local replay results cannot be checked versus the master game. Also, reports like the Operations Report will not appear.*

**Note 2:** *The saves do contain most SCN data, but not all. Some data only used during turn resolution are not stored. Changes in SCN data are valid and permitted if all players have the same data during resolution. Deviating data will result in sync error and inform players about one-sided changes.*

**Note 3:** *If a player does change orders AFTER sending his game save to the Master Player, he may not watch a replay. This is to keep a players from "testing" various orders to observe more results during replay. The Master Players orders will be restored from the other players' games, so there is no way for a master player to change orders after sending the game state to the other players.*

# 3.4 KEY CODE

Unlike many other games, *War in Spain 1936-39* permits the player to change game rules and even scenario data in single and multiplayer games. While changes in playing the AI are immediate, a multiplayer game requires the other players to obtain and send parts of the Key Code to the master player. See section 4.0. To do an update in scenario data (or game rules) the procedure is almost like the first turn of a PBEM game. In case of scenario data updates, all players must replace the scenario data with the updated files. In this case the game will show a screen message telling the players of a SCN data checksum mismatch until the game gets adapted to the new data. This is normal and can be ignored.

The procedure is as follows:

- The Nationalist player sends his game to the other players.
- The other players must place this game file in the "Save folder".
- The other players must load this game file, open the preferences screen, and retrieve the keycode (or their part of it) and tell it the Nationalist player.
- The Nationalist player must load his save again and open the preferences screen. There the keycode must be entered and "Update Scenario" is to be clicked. If successful, any warning on SCN data checksum mismatch should no longer appear.
- The Nationalist player can then issue orders just like with the first turn of a session, save the game, and send this game to the other players.
- The other players must place this game in the "Save" folder" as if it was the first game received by the axis for a PBEM session.

**Note:** *The keycode is generated by turn, and game data, and will differ for each turn. Due to this no orders may be given to any unit during the update process, or this might change the keycode value of the respective saves.*

## 3.5 HEAD–TO–HEAD GAMES

Head-to-Head Games are for two players to play a scenario on the same computer.

# 4. THE MAIN MAP DISPLAY

The Main Map Display is composed of:

- **The Menu Bar** – Runs along the top of the screen. See section 4.1.
- **The Tactical Map** – Makes up most of the main screen. See section 4.2.
- **The Hex Command Display** – Runs below the tactical map and to the left of the jump map. See section 4.3.
- **The Jump Map** – Is below the tactical map and to the right of the hex command display. See section 4.4.

From the Main Map Display the player issues orders to his units, undertakes logistical tasks and accesses various information screens.

Pressing the hotkey [0] toggles on the Strategic Map which replaces the Main Map Display screen. The Strategic Map provides a zoomed-out overview of the progress of the war.

See the Main Map Display below:

# 4.1 THE MENU BAR

Many of the commands you issue will be given by clicking on the Menu Bar buttons at the top of the Tactical Map.


From left to right, the function of the buttons on the Menu Bar are explained below:

- **Save game** – Saves the game to a player selected slot from the available slots 00 to 99 inclusive. Hotkey [1]
- **Game Options** – Brings up the Game Options screen. NOTE, not all selections can be changed in an ongoing game. Hotkey [2]
- **Aircraft Database –** Opens the aircraft/weapons database. Hotkey [3]
- **Ship Database** – Opens the ship/weapons database. Hotkey [4]
- **Overview Reports Per Nation** – Opens the intelligence screen for the currently selected nation. Hotkey [5]
- **Global Base list –** Opens the base list to see information for each base. Hotkey [6]
- **Land Based Air Groups Screen –** Opens a list of all land-based air groups. Hotkey [7]
- **Ship Based Air Groups Screen** – Opens a list of all ship-based air groups. Hotkey [8]
- **Global LCU Screen** – Opens a list of all land combat units. Hotkey [9]
- **Global Ship List** – Opens a list of all active ships. Hotkey [F1]
- **Global Task Force List** – Opens a list of all naval task forces. Hotkey [F2]
- **Global Industry Screen** – Opens the global industry screen. Hotkey [F3]
- **Status Report Screens** – Opens the game status screens. Hotkey [F4]
- **Strategic Map** – Opens the strategic map. Hotkey [0]

- **Combat Reports** – Opens the combat reports. Hotkey [F5]
- **Operations Reports** – Opens the operations reports. Hotkey [F6]
- **Signal Intelligence Reports** – Opens the signal intelligence report. Hotkey [F7]
- **Weather Forecast for Selected Hex** – Opens the weather forecast for the selected hex. Hotkey [F8]
- **End Turn** – Ends the current turn. Hotkey [T]
- **Quit Game** – Opens the quit game dialogue. Hotkey [Q]

Also located on the menu bar is the current player (side), the weather in the currently selected hex, current game time and date, moon brightness, selected hex coordinates and the exit button.

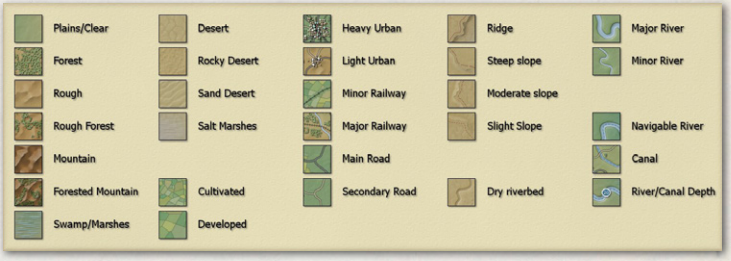
## 4.2 THE TACTICAL MAP

Most of the screen space of the Main Map Display is occupied by the Tactical Map

The Tactical Map is divided into hexes at a scale of 5 nautical miles (equals 5.75 statute miles) per hex. The full Tactical Map used for full length scenarios is 204 hexes wide by 228 hexes high. The outermost part of this area is reserved for the location of "off map" areas which are separate from the main map area. The Nationalist and Republican players can both access the "off map" areas belonging to their side. To scroll around the map, drag the mouse cursor in any direction and the Tactical Map will shift with it. The arrow keys will also move the map in any direction. Alternatively click anywhere on the Jump Map in the lower right corner and the Tactical Map will center on that spot. You can also move the map, in windowed mode by using the hotkeys [I], [J], [K], and [L].

## 4.2.1 TERRAIN

Terrain on the Tactical Map is represented by both hexes and hex sides. Both are used to represent various types of land and ocean terrain. Hotkey [D] toggles on/off a text description for each hex, while hotkey [S] toggles on/off hex side colors which depict different hex side details. See sections 4.2.1.3 and 4.2.1.4. At the bottom of the Tactical Map, the following map art terrain Legend is provided:




### 4.2.1.1 HEX TERRAIN TYPES

Below are all of the Terrain types and their abbreviations for the [D] Hot key. The impact of land terrain on ground movement and combat is detailed in section 8.0. The different types of terrain are:

- **Plains/Clear (P)** – Open terrain, with excellent visibility and few places to hide. These are arable hexes which means that the land is good for pastures and growing crops. Therefore, it can lower the cost to support any animals found in ground units.
- **Rough (Rgh)** – Hilly and/or broken terrain that is difficult for mechanized units to operate in. This terrain is considered arable for support of animals.
- **Forest (F)** – Heavy foliage and nearly impassable terrain for vehicles.

- **Desert (D)** – Arid, hot, and inhospitable terrain. In game terms these hexes are relatively easy to traverse and are therefore the same as Clear hexes for the purposes of combat and movement.
- **Salt Marshes (SM)** – In many ways like a swamp, but much more hostile. Combat and movement are difficult in this terrain.
- **Swamp/Marshes (S)** – thick marshland and wetlands. Combat and movement are difficult in this terrain.
- **Rough Forest (RghF)** – A combination of forest and rough terrain. It is almost as difficult to move through as mountain terrain.
- **Rough Desert (RghD)** – A combination of desert and rough terrain. Functionally the same as rough terrain.
- **Mountain (MT)** – Steep, high terrain that is impassable to mechanized units and nearly impassable to foot units.
- **Sand Desert (SD)** – Desert areas filled with sand dunes. Very difficult for mechanized units to move through.
- **Heavy Urban (HU)** – Large, heavily populated cities. For movement purposes, Heavy Urban hexes are assumed to have Main Roads going out in all directions.
- **Light Urban (LU)** – Small cities and large towns. For movement purposes, Light Urban hexes are assumed to have secondary Roads going out in all directions.
- **Developed (Dv)** – Farms and other rural-type terrain in more modernized areas. Units treat these hexes like Clear terrain for movement purposes. Developed terrain is assumed to have Main Roads going out in all directions. Considered to be arable.
- **Cultivated (Cu)** – Farms and other rural-type terrain in less modernized areas. Units treat these hexes like Clear terrain for movement purposes. Cultivated terrain is assumed to have Secondary Roads going out in all directions. Considered to be arable.

- **Deep Ocean (DO)** – Dark blue water hex. From a depth of 150 feet and deeper provides a benefit to submarines which are harder to detect and attack in these hexes, depending on the sub's maximum depth and the ocean depth. Minefields located in a Deep Ocean hex disperse more rapidly than does a minefield located in a Shallow Ocean hex.
- **Shallow Ocean (SO)** – Light blue water hex. From the ocean surface to 150 feet deep. Submarines located in a Shallow Ocean hex can be more vulnerable to attack and detection, depending on the sub's maximum depth and the ocean depth. Minefields located in a Shallow Ocean hex disperse more slowly than do minefields located in a Deep Ocean hex.

#### 4.2.1.2 HEX SIDE TYPES

There are eleven distinct types of hex sides which affect movement. Players should note that these barriers do not reside within the hex but only on the hex side itself.

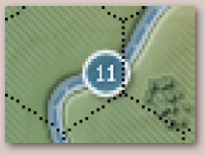
The hex side types are:

- **Reef** – This is a hex side which represents built up coral that hinders naval movement. Coral Reef hex sides are impassable to all naval units. They are easily identified on the Tactical Map by a red hex side when the hotkey [S] is toggled on.
- **Impassable Mountain** – The highest most rugged mountain ranges, such as the Alps, are shown with a red hex side when the hot key [S] is toggled on. No ground units may cross the red hex sides on these mountains.
- **Navigable River** – A Navigable River is a hex side barrier for ground units. The defensive benefits are identical to those of a Major River.
- **Major River** – Major rivers provide a military benefit to defenders. Land units which cross a river hex side into an enemy occupied

hex, will cause a shock attack and suffer increased disruption. The only difference with a Minor River is slightly different map art.

- **Minor River** – Minor rivers provide a military benefit to defenders. Land units which cross a river hex side into an enemy occupied hex, will cause a shock attack and suffer increased disruption. The only difference with a Major River is slightly different map art.
- **Ridge** – A very steep slope that stops anything but foot mobile special forces. Movement is very slow.
- **Steep slope** – Stops vehicle movements, slows foot units considerably.
- **Moderate slope** – Stops all but tracked vehicles. Speed is moderately reduced for tracked and foot mobile units.
- **Slight slope** – Slows movement of units.
- **Wadi, Dry riverbeds** – Slows vehicles considerably and foot units slightly.
- **Impassable river:** A river that is not as easy to cross as normal rivers.

**Note:** *All types of rivers can allow for ship travel. Each river section will have its own depth written on the map art. Only ships with a draft smaller or equal can traverse such a hex. Some rivers cannot support any ships travelling on them. The artwork does show which rivers can and which cannot. Since rivers do belong to hex sides, travel usually has a TF cross a hex side into another hex side. Other exceptions may be given as indicated by the river artwork. A river that allows for ships to move on is indicated by a dashed line in the river artwork. Below is an example of the river depth shown on the map:*



#### 4.2.1.2.1 MOVEMENT THROUGH HEX SIDES

In *War in Spain 1936-39*, movement is across hex sides, not along hex boundaries. The color of a hex side (hotkey [S]) indicates whether land units and/or ships can cross that hex side. The four hex side colors and the units which can cross these hex sides are:

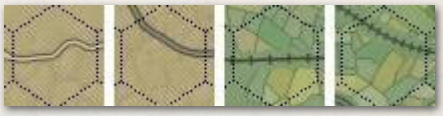
- **Blue** – Ocean/Lake hex side. Naval units only.
- **Green** – Land hex side. Ground units only.
- **Red** – Impassable hex side. No Ground or Naval units.
- **White** – Land and Ocean hex sides. Both Ground and Naval units may pass.

### 4.2.1.3 LAND TRANSPORTATION LINKS

Land Transportation Links are railways and roads that connect locations on the map. For determining movement rates, they replace the movement rate of the underlying hex terrain type with their own movement rate.

Pressing the hotkey [R] brings up a schematic of the Railway and Road Networks on the main map. Both networks are separate from each other so two hexes may be connected by a railway and road, or a railway only, or a road only. For travel between two hexes which are not connected by railways/roads, the movement rate is that of the intervening hex terrain types. For hexes that are not connected by a Road or Railway the travel cost is the average cost of both hexes. So, a road leading out of the hex does speed up movement, even if the road does end in the hex you are about to leave.

The graphical representation of Land Transportation Links is as follows: Secondary Road, main road, minor railway, major railway:



**Secondary Road** – A smaller or less well-built road than a Main Road. Movement is faster than cross country travel but turn to mud during rain making it harder to travel on. Appears as a yellow line when the schematics are toggled on by the hotkey [R].

**Main Road** – All weather, usually asphalt. Appears as a grey line when the schematics are toggled on by the hotkey [R].

**Major Railway** – High speed railway line, usually of standard or broad gauge. Appears as a thick black line when the schematics are toggled on by the hotkey [R].

**Minor Railway** – Slower, narrow gauge railway line. Appears as a thin black line when the schematics are toggled on by the hotkey [R].

#### 4.2.1.4 MARITIME TRANSPORTATION LINKS

There are three different Maritime Transportation Link types; two are found on the Tactical Map and the third is found only in the "off map" areas. The "on map" types derive their special qualities from their hex sides whereas for the third, standard naval movement is changed slightly due to the special features of "off map" areas.

#### 4.2.1.5 THE STRAITS OF GIBRALTAR

The Straits of Gibraltar present a problem for enemy shipping trying to enter or exit the Western Mediterranean sea. Task Force movement through the straits can be affected in several ways:

- Vulnerability to Mines. Task Forces moving through straits are more likely to hit mines that are located in the hexes either side of the strait hex side.
- Vulnerability to attack by Coastal Guns. Task Forces moving through straits are more likely to be attacked by coastal guns that are in the hexes either side of the strait hex.

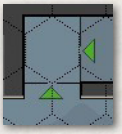
- Naval Reaction. Enemy Task Forces with a "React to Enemy" movement order will not react through the straits towards an enemy Task Force if there are any known enemy minefields and/or CD defenses in the strait. Otherwise an enemy TF will attack.

Players should not order Task Forces to go through the straits unless it is known that enemy minefields and CD defenses are minimal.

#### 4.2.1.6 OFF MAP MARITIME TRANSPORT LINKS

These are discussed in greater detail in section 6.3 but are mentioned here so that their map art can be identified.

**Transit zone** – Sea connection found only in the "off map" area. Connects off map bases to other off map bases. Allows Task Forces to travel directly between two connected off map bases.



**Holding box** – Location of Task Forces travelling "off map". Task Forces moving to or from an "off map" base remain in the Holding box until they complete that part of their travel.

### 4.2.2 TACTICAL MAP ICONS

Multiple different icons may be present in a hex on the Tactical Map. Icons exist for land units, bases, operational airfields, anchored ships, task forces, minefields, and to flag certain events.

#### 4.2.2.1 LAND UNIT ICONS

The major nations in *War in Spain 1936-39* are:

**Nationalist:** Germany, Italy and Nationalist Spain. Their flag has a blue frame around it.

**Republicans:** USSR, Republican Spain and Republic of the North. Their flag has a red frame around it.

### 4.2.2.2 GROUND UNIT OVERLAY


This overlay is designed to help in handling land combat in the game. It is turned on or off by SHIFT + U. See below for the example of an overlay.

The normal overlay for land combat provides a small colored box on the lower part of each hex. The color is green for Nationalist units and red for Republican units. Mixed colors indicate units of both sides in the hex. The number written in the box is the infantry and armor firepower of the units in the hex. The number does intentionally not include artillery, anti-aircraft or CD gun firepower as this would mislead players into thinking that high combat firepower is present when these forms of firepower do not work well in ground combat by themselves but are supportive in nature. The corners of the box may be colored to show various types of information about your units in the hex:

- Upper Left corner in red means at least one unit has attack orders (deliberate, cautious or shock)
- Upper Left corner yellow means all units have "non-combat operations mode" like movement mode.
- Upper right corner being red means at least one unit is "fast" (Armor, Mech Inf, Motorized Infantry, Cavalry)
- Upper right corner is yellow if all units are static.

There is another such overlay which is slightly different. It is turned on or off by SHIFT + W. It uses larger icons to show the type of unit in hex that has the most combat power. It also shows the number of maneuver units in hex at the top of the icon if there is more than one. Additionally, this overlay shows the hexes colored to show the influence of the Nationalist (green) and Republican (red). Hexes with equal influence and no units in them are gray. These are impassable for either side for logistics lanes in the logistics phase. You also cannot have logistics pass through hexes controlled by the enemy side. While technically both these overlays can be active at the same time, the

SHIFT + U overlay is prioritized, and the SHIFT + W overlay not shown while the other overlay is active.

Each major nationality has a standard color which is generally applied to their unit icons and base symbols.

| NATIONALITIES | COLOR |
|---|---|
| Italy | Green |
| Germany | Grey |
| Nationalist Spain | Yellow |
| Republican Spain | Purple |
| Republic of the North | Purple |

**Note:** *While the type of land unit is distinguished with different graphics on the Hex Command Display (see section.4.3), all land units are shown on the Tactical Map with the same graphic.*

### 4.2.2.3 BASE ICONS

The nationality indicates the ownership of the base, not the nationality of the units present, at the base. Depending on preferences, bases with no port or AF built may be shown as dots in the color of that nation. Bases with port or AF level are always shown as the flag of that nation.

New, temporary bases, called "outposts" may be constructed in any hex. The outpost will start with no facilities and no storage capacity for supplies or fuel. An Outpost base can be built up like any other base.

The way to construct an Outpost base is simple. With a friendly LCU in the hex open the Hex info Panel. If an option to create an Outpost is given, just click on the option. Outposts need a garrison to remain on the map. Otherwise, the Outpost will decay and eventually disappear.

### 4.2.2.4 OPERATIONAL AIRFIELD ICON

Airfields can only exist inside a base. Not all bases can develop an airfield and not all bases start a scenario with a developed airfield. Airfields empty of aircraft are not displayed on the Tactical Map. Only operational airfields which have some aircraft operating from that airfield are displayed with this icon:

The operational airfield icon is found in the upper right of the hex. The color of the icon depends on the nationality of the air units based there. Only 1 of the groups present will be used to determine the icon color.

### 4.2.2.5 ANCHORED SHIPS ICON

Ports can exist in a base which has access to lakes, rivers, and the ocean. Ships which are disbanded in a port are anchored. In game terms, ports which have not yet been developed to level 1 capacity are anchorages. Where there are anchored ships, the following icon is displayed on the Tactical Map:

The anchored ship's icon is found in the upper left of the hex. The color of the icon varies depending on the nationality of the ships anchored there.

### 4.2.2.6 TASK FORCE ICONS

Task Force Icons indicate the nationality of the nation following the same color assignments for national Land Unit Icons. If it is the sole Task Force for that side in the hex, the type of mission assigned to that Task Force is also indicated as shown below:

| | |
|---|---|
| Surface Combat, Bombardment |  |
| ASW, Fast Transport, PT Boat |  |
| Transport, Cargo, Air Transport, Support, Amphibious |  |
| Replenishment |  |
| Minelaying, Minesweeping, Local minesweeping |  |
| Tanker |  |
| Sub Patrol, Sub Transport, Sub Minelaying, Midget Sub, Midget Sub Carrier |  |
| Barge |  |
| Landing Craft |  |
| Escort |  |
| Task force of unknow type. Commonly found with enemy task forces |  |

### 4.2.2.7 MINEFIELDS ICON

A maximum of two Minefields Icons in a hex can be displayed on the Tactical Map, one for the Republican player and one for the Nationalist player. This limit is irrespective of the number of separate minefields which either side may have sown at that location.

The color of the minefield indicates who laid the minefield. Friendly minefields are immediately displayed but enemy minefields are only displayed once they have been detected. When displayed, the Minefield Icon is found in the center of the hex above the flag of the nation. Information on the minefields can be accessed by either the base or hex information display.

## 4.2.3 OFF MAP BASES AND OCEAN LINKS

In full map, full length campaign scenarios, the Nationalist and Republican players may make use of special movement to, from and between special map areas that lie on the edge of the Tactical Map. These special areas, or "Off Map Bases", represent areas of the globe that are separate from the Eastern Mediterranean area represented on the Tactical Map itself. See section 4.2.3.1 below. Some are Nationalist and some are Republican. Bases in the off-map areas may be connected to the Tactical Map by sea connections. Direct movement is possible between the Tactical Map and any off-map area base. Or between two off map area bases which are connected to each other via a sea connection.

If a land connection exists between the Tactical Map and an off-map area base, overland movement may be used to move land and air units between the two. This movement works in the same way as normal movement on the Tactical Map. The only difference is in the time required to move to the next hex can be higher than with normal movement on the tactical map.

Where Off Map Maritime Links exist naval movement to and from or between off map areas is handled in a different way from normal Tactical Map naval movement. This movement is called "off map naval movement" and is explained in section 6.2.10.

### 4.2.3.1 OFF MAP BASES AND VIRTUAL HEX COORDINATES

Straight distances between an off-map base and any other hex are determined by using a "virtual" hex coordinate for the off-map base. This "virtual" coordinate is not the actual or physical hex coordinate of the off-map base, but one that is only used for calculating the distance in hexes, between the off-map base and other hexes. These virtual coordinates are often well outside the game map and can even be a negative number. The off-map bases and virtual hex coordinates are as follows:

| OFF-MAP BASE | VIRTUAL HEX COORDINATES |
|---|---|
| Murmansk | 331, – 248 |
| Leningrad | 347, – 140 |
| Kiel | 204, – 64 |
| Villa Bens | 1, 225 |
| Canarias Isla | 4, 227 |
| Spanish Guinea | 253, 539 |
| Mogadishu | 660, 516 |
| Masawa | 573, 373 |
| Napoli | 252, 84 |
| Odesa | 388, 16 |

Transit Zones are located at the map edges and allow Task Forces to enter or exit the tactical map.

| TRANSIT ZONE (AKA ENTRY ZONE) | CENTER COORDINATES |
|---|---|
| Northern Zone | 80, 3 |
| Western Zone | 2, 33 |
| Southwestern Zone | 2, 182 |
| Southern Zone | 3, 217 |
| Eastern Zone | 199, 87 |

### 4.2.3.2 OCEAN LINKS

Sea-lane distances between these off-map bases are hard to tell at a glance. Every off-map base can link to every other off map base (provided both have a port), or any transit zone on the tactical map edges. The resultant combinations are plentiful.

Narrow blue lines drawn on the Main Map Display indicate the existence of sea connections between off-map ocean areas, and the Tactical Map. These lines are drawn for illustrative purposes only and do not serve a physical function in naval movement. The blue lines simply illustrate which off-map ocean areas and bases are connected to the tactical map. Below is the table for Ocean Links:

| OCEAN LINKS FROM | TO BASE | HEXES | NAUTICAL MILES |
|---|---|---|---|
| Murmansk | Leningrad | 465 | 2325 |
| Murmansk | Northern Zone | 458 | 2290 |
| Leningrad | Northern Zone | 361 | 1805 |
| Kiel | Western Zone | 309 | 1545 |
| Canarias Isla | Guinea | 616 | 3080 |
| Canarias Isla | Mogadishu | 1478 | 7390 |
| Canarias Isla | Masawa | 1802 | 9010 |
| Canarias Isla | Napoli | 2340 | 11700 |
| Mogadishu | Eastern Zone | 758 | 3790 |
| Odesa | Eastern Zone | 287 | 1435 |

#### 4.2.3.3 HOLDING BOXES

Each sea connection between on-map and off-map areas has two holding boxes associated with it, one for each direction of movement.

While a Task Force is undergoing off-map movement, it is placed in a Holding Box so that it can still be accessed from the Main Map Display itself rather than only from the Task Force List. A Task Force located in a Holding Box can be directly accessed by clicking on its Task Force icon.

While undergoing off-map movement in the Holding Box, Task Forces cannot interact with other Task Forces in the same Holding Box or other Task Forces, bases and items located anywhere else. This means that while in the Holding Box, a Task Force should not be given any new redirection movement orders, or transfer ships.

## 4.3 HEX INFORMATION DISPLAY

Below the Tactical Map is the Hex Information Display (HID). When a hex is selected, all units, bases, industry, and other items located in that hex are displayed in the HID. The format of each HID is the same but only the items specific to that hex are shown. Below is the HID for Barcelona:


On the left side are seven buttons. Clicking on each button from top to bottom shows all:

- Ships at anchor
- Air units in the hex
- Task Forces in the hex
- LCU's in the hex
- Industry in the hex
- Switches Land overlay
- Hotkeys

The screen, which is displayed after clicking on each of the above buttons, brings up a screen like the type discussed in Section 5.

Unlike the Tactical Map, there are different graphics to distinguish the different types of land units. When there are more than 13 units present, an additional arrow is available to allow for cycling through the unit icons. In the above Barcelona HID, these additional arrows are shown to the left of the first unit in the row.

At the top of the HID is a summary of the current base assets and development level of the facilities. The summary display in Barcelona HID discloses:

- The Barcelona port is currently developed to a level 5 capacity. The number (7) is the Standard Potential Size ("SPS") of the port. Section 10.2.3 explains the SPS concept. The numbers are in white since there is no damage to the port facility. Several signs can be trailing the numbers. "c" indicates a civilian port with low ability to rearm weapons, a "!" indicates the port does lack fuel oil, a "*" indicates the port lacks naval ammo.
- The Barcelona airfield is currently developed to a level 1 capacity. The SPS of the airfield is – 2. Section 10.2.3 explains

the SPS concept. There is no damage to the airfield facility, so the numbers are in white. Several signs can be trailing the numbers. A "!" indicates a lack of aviation gas, a "*" indicates a shortage of air ammo.

- The Barcelona depots currently hold 100675 supply points and 41066 fuel points. If there is a shortage of supply or fuel points at the base to meet the respective demand, the numbers will be in orange or red, depending on how serious the shortage is.
- The 3rd stockpile information display is currently set to show the stockpile of "Coal". Barcelona currently has 31323 coal points.
- Barcelona is currently connected to the pool of the owning nation and thus can draw items from the pool for purposes of replacements. If it is not connected, this position would read a "N".
- Barcelona currently has 243 garrison capable devices present and doesn't need any more to maintain proper control. Some Bases may need a garrison force to prevent sabotage and/or attack by partisan forces.

Take note that all of the Supply, Fuel and Coal points can be clicked to cycle through other items related to them. The type of item to be shown depends on the position. The supply region will show supply, ammo and possibly fuel types for air units. The fuel region will show various items used for fuels. The last region can show all available types of items. Left click will go forward, right click backward in the list of items for the 3rd region.

## 4.4 JUMP MAP

On the right side of the Hex Information Display, and below the Tactical Map, is the Jump Map. The Jump Map is a thumbnail map of the total playing area. A small yellow framed box denotes the play area currently displayed on the Tactical Map. If playing a limited length and limited map scenario, a larger red framed box appears in the Jump Map to denote

the scenario boundaries. Clicking on a spot in the Jump Map quickly centers the Tactical Map on the corresponding spot. Alternatively, the Tactical Map can be moved by using the arrow keys on your keyboard or by dragging the mouse cursor to the edges of the Tactical Map. If you hold the mouse button down while moving around the jump map, the tactical map will move along with your moves.

# 4.5 MOUSE OVER

When the mouse cursor is moved over an icon on the Tactical Map (excluding the Minefields icons mentioned in section 4.2.2.6), a summary of information relating to the icon appears in a pop-up window. Mouse Over displayed information on player owned icons is accurate but the information displayed on enemy icons is both more limited and the accuracy is dependent on the current Maximum Detection Level on that enemy icon. (see Section 10.0)

## 4.5.1 BASE ICON DISPLAY

This is the Mouse Over information provided by pointing the mouse cursor at a player owned Base Icon. In this case we will use Mahon:


From top to bottom, the information displayed is as follows:

- Mahon, name of base, and its distance from the currently selected hex.
- Current weather at the base.
- Value of the base to the Nationalist.
- Value of the base to the Republican.
- Port size and condition.
- Airfield size and condition.

- Effective aviation support present at the base
- A list of industry centers active (damaged)

Also, the stockpile of various fuels and supplies. Take note some figures may be identical dependent on the economic model of the scenario. For example, it can be "Supply" is used for both air ammo and air fuel in a simply economy setup. In this case the amounts shown for these items will be identical to the amount of "Supply". Oil and coal are shown here as well.

## 4.5.2 MOUSE OVER INFORMATION OF LAND COMBAT UNIT ICON

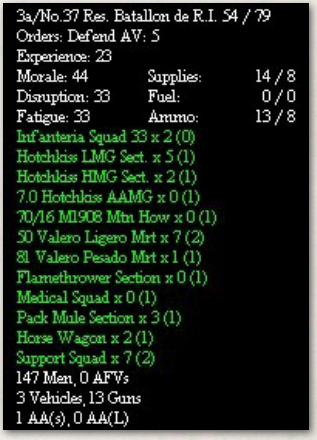

This is the Mouse Over information provided by pointing the mouse cursor at a player owned Land Combat Unit Icon on the tactical map.

From top to bottom, the information displayed is as follows:

- Range to hex from currently selected hex. Unit Fort level is the fortifications currently held by the units in hex. The highest value is listed, even if only 1 unit in the hex has this level of fortification.
- The units in the hex. Total AV is 62. **Note:** There are several different types of Assault Value. As an example, a Squad with an AV of 5 can have a hard time winning against a Tank with an AV of 5. The detailed composition of AV can be seen in the list of units of this hex, which can be accessed by the button on the left side of the bottom panel.

- There are 2255 men, 0 AFV, 111 Vehicles and 65 Guns in the unit(s) of this hex. 12 of the Guns are small AA Guns for low level air defense, there are 3 large AA Guns to defend against high altitude air attacks.

This is the Mouse Over information provided by pointing the mouse cursor at a player owned Land Combat Unit on the hex interface panel. It shows:




- The unit's name along with currently active devices and currently existent devices compared to the TOE.
- Orders and assault value.
- Experience, Morale and supplies current/desired.
- Disruption and Fuel current/desired.
- Fatigue and Ammo current/desired.
- Devices are listed in green color with numbers for active (disabled) devices.
- The unit has a total of 147 men and no AFV's.
- The unit also has 3 vehicles and 13 guns.
- It has 1 small and no large AA guns for air defense.

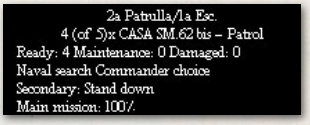
## 4.5.3 AIRFIELD ICON


Below is the Mouse Over information provided by pointing the mouse cursor at a player owned Airfield Icon.

From top to bottom, the information displayed is as follows:

- On the airfield there are a total of 4 CASA SM.62 bis patrol aircraft. The maximum size of this group at this base is 5.

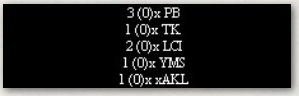
Below is the Mouse Over Information provided by pointing the mouse cursor at a player owned air group on the hex interface panel.




From top to bottom the information given is as follows:

- The unit name.
- The number of aircraft in the group, group size and the airframe type.
- Information on active, grounded and damaged aircraft.
- The current primary mission and target.
- The current secondary mission.
- The mission percentages. In this case, 100% of the active planes will conduct the primary mission.

## 4.5.4 ANCHORED SHIPS ICON




This is the Mouse Over information provided by pointing the mouse cursor at a player owned Anchored Ships Icon.

On the top you will see a list of ship types present at the port. The numbers in parenthesis are the number of ships conducting repairs in modes other than readiness.

Below this you'll find the types and number of any aircraft located on the ships. In this case there are not any aircraft on the ships.

## 4.5.5 TASK FORCE ICON


This is the Mouse Over information provided by pointing the mouse cursor at a player owned Task Force Icon. Please note that the information displayed in a Task Force Icon Mouse Over Display will vary depending on the mission type. The Task force icon on the tactical map and the bottom panel will provide the same information. Note that the information on enemy Task forces may show less information, and maybe even inaccurate information due to Fog of War.

The information for player owned TF's shows the TF number and the range to this hex from the currently selected hex. Below you will find information on the TF destination including whether the TF is followed by another TF.

Next is a listing of ship types in the Task force and a list of aircraft found on ships in the Task force.

On the bottom you will find information on any cargo or troops the Task force contains.

### 4.5.5.1 ENEMY TASK FORCE ICON


For enemy Task forces, the information will look a bit different.

It will tell the detected number of ships and the current DL. DL ranges from 0 to 20, with 20 indicating the information is up to date. Usually because the TF is being shadowed or underwent some combat at the time. The DL will decrease over time which means the current position of a TF is no longer precisely known.

**Note:** *The position of the TF icon on the tactical map may not be true if the DL is below 20. It may very well only be the last known position.*

In parenthesis is the quality of the spotter. This will range from 0 to 100. For pilots the Naval Search skill is used, other forces use some default or even random rating. The higher the quality rating, the more accurate the information will be. Inexperienced spotters may confuse tankers with Troop Transports or miss spotting ships or worse.

Next is the distance from the currently selected hex to the TF.

The second line shows the time of last contact, the TF heading, if known, and its speed. Below that is a listing of general ship types that the spotter identified (correctly or incorrectly).

# 5. OVERVIEW REPORT FOR NATIONS SCREEN

## 5.1 OVERVIEW REPORT FOR NATIONS SCREEN IN DETAIL

The Overview Report for Nations Screen (ORNS) is the single most important war progress status screen in the game. It is shown below:


Clicking on the arrow buttons on the right-hand side of the ORNS opens up second tier information screens that have their own associated hotkeys (see section 2.2). Only “Load First Turn Setup” and “Save As First Turn Setup” don’t have Hotkeys. The center section allows you to delegate various tasks to the AI and it provides options for leader and pilot management automatic settings. On the left side you can choose a different nation among those that are under your control. There also is information on the small landing craft and/or barges that nation has in its pool.

In the far lower right of the screen is the Exit arrow button which when clicked, will close the ORNS screen, and return you to the main map.

### 5.1.1 PICK NATION

This button, on the upper left side of the ORNS, will allow you to change the Nation for the different screens shown on this display. Several of the second-tier screens have a similar button to filter information by nation or side where applicable.

### 5.1.2 LOSS OF LIFE VALUE

The "Loss of Life Value" is a scale at the bottom left of the ORNS screen. "Loss of life value" is the total "Felt" loss affecting both troop and home front morale. There are different levels of severity based on penalties listed below:

- Lives lost on home soil count as 1x.
- Lives lost protecting allied soil count as 2x.
- Lives lost in hostile soil count as 4x.

There are other factors and events to the home front morale to consider. This includes losing your own civilian lives. Even if you attack a city of your own nation that you lost to the enemy.

The "Loss of life value" does recover over time. 1/6 of it is deducted on the 1st day of the month.

#### 5.1.2.1 LOSS TOLERANCE

"Loss tolerance" is the loss of lives that can be taken without any negative effect. Each nation has an additional multiplier that can be seen as the factor that calculates the amount of "Loss of life" that needs to be taken for the various penalties. See section 5.1.2.2.

Example:

"Loss Tolerance" is labeled as "LT"
The nations multiplier is labeled "X"

Then the various penalties start at:

LT x 1
LT x 1 x X
LT x 4 x X
LT x 8 x X

The 1, 4, and 8 are hardcoded multipliers to define when penalties will take effect. The third penalty will always need 4 times the losses than the second. The fourth will always need 2 times the losses than the third, and 8 times the losses than the second.

Every nation has its own additional multiplier, labeled X in the above example.

You will notice the first penalty does not use any multiplier. This allows for nations to be resistant to losses, while quickly becoming defensive due to the first penalty being quickly reached.

#### 5.1.2.2 LOSS TOLERANCE PENALTY LEVELS

There are 4 general levels of penalties that get "unlocked" by surpassing the thresholds as calculated in the examples above in section 5.1.2.1. These are shown as small icons along the bar that indicate the current level of damage taken to home front morale.

The small white icon adjusts when a loss has occurred >= the loss tolerance of that nation. Losses on soil other than home soil count 2x as much. LCU morale goes down to a maximum of 75.

- The factory icon adjusts when a loss has occurred >= 1x loss tolerance times the national multiplier. Industry efficiency goes down to 80%. LCU morale goes down to 50 at best. Losses on soil other than home soil count 2x.
- The peace dove icon adjusts at a loss >= 4x the loss tolerance times the national multiplier. The nation will sue for peace. Any opponent can accept the peace terms and the war between those nations will end. Industry efficiency is down to 80%. LCU morale

drops down to 25 at best. Losses on soil other than home soil count 2x.

- An unconditional surrender occurs at a loss of >= 8x the loss tolerance times the national multiplier. The losing nation will sue for peace. Any opponent can accept the surrender and the war between those two nations will end. This can be helpful to eliminate an enemy that is not the target for subjugating. Industry efficiency is down to 80%. LCU morale goes down to 25 at best. Losses on soil other than home soil count 2x.

**Note:** *Be careful when accepting an offer for peace. You may not attack such a nation after signing a peace, but nations allied to it may continue to use their ports and airfields.*

Special rules for penalty 4 above:

- If the nation loses its capital or >= 50% of the native manpower industry to the enemy, the nation will offer unconditional surrender instead of peace.
- If the closest opponent does accept the nation's surrender, the bases and military equipment can fall into the hands of the enemy who has a LCU closest to the surrendering nation's capital.

## 5.1.3 AIRCRAFT PRODUCTION, INDUSTRY EXPANSION AND ARMAMENTS PRODUCTION ON MANUAL MODE

In the center section you have Aircraft Production, Industry Expansion and Armaments Production on Manual Mode. These three topics will be discussed below. Also in this section are Axis and Allied Base, Ship and Aircraft losses at a glance. Ship and Aircraft losses are discussed in more detail in section 5.1.17.

#### 5.1.3.1 AIRCRAFT PRODUCTION ON MANUAL MODE

The Aircraft Production on Manual Mode button will, when clicked, delegate the handling of all aircraft factories to the AI. It will slowly expand and manage the AC factories as it sees fit to supply aircraft for all air groups, replacements, and upgrade paths. The AI will not necessarily focus on the "best" aircraft however but does try to produce a balanced output for each type of aircraft according to its performance.

#### 5.1.3.2 INDUSTRY EXPANSION ON MANUAL MODE

The Industry Expansion on Manual Mode button will, when clicked, delegate industry expansion to the AI. This will make the AI slowly expand your industrial base according to raw material sources under control. This includes building heavy and light industry, as well as refineries.

#### 5.1.3.3 ARMAMENT PRODUCTION ON MANUAL MODE

The Armament Production on Manual Mode button will, when clicked, delegate Armament expansion to the AI. The AI will expand Armament and AFV production to match the needs of your field units in terms of replacements and upgrades.

**Note:** *All 3 commands are not "exclusive". So, you can issue your own construction orders at any time.*

### 5.1.4 REPLACE ALL SHIP CAPTAINS WITH ADEQUATE CAPTAINS

This is an automation for the normally tedious task of managing ship leaders. Since leaders will be promoted over time (increasing their skills) it is inconvenient to leave high ranking officers to command ships of low military value. This button relieves any ship captain that

has a rank too high or too low for the current ship and assigns a leader with adequate rank to the ship. If there is no such leader, a low-ranking leader will be created. It is of advantage to run this command twice to be able to assign leaders that have been relieved in the 1st run.

### 5.1.5 SWAP SHIPBOARD PILOTS WITH BETTER LBA PILOTS

This is an automation for the normally tedious task of managing pilots on ships. Land based air groups that use aircraft of the same type and are designated as "trainers" by setting a "trainer value" will swap their pilots with ship-based groups if the LBA pilot has a higher XP. This way LBA trainer groups can be used to provide experienced pilots without having to find and assign single pilots by hand.

The air group pilot info panel has a similar function, but exclusively for that air group. So, you can swap LBA pilots of frontline groups with LBA pilots of "trainer" groups.

For more information on "trainer" air groups see section 7.6.1.

### 5.1.6 LOAD FIRST TURN SETUP

This allows you to import orders for your stock units from a special first turn save game. See section 5.1.7 below.

> **Note:** *Certain orders that cause new units or commanders to be created, like splitting groups or loading LCUs on ships cannot be imported.*

### 5.1.7 SAVE AS FIRST TURN SETUP

Allows you to save your current first turn as a "Special First Turn Setup". The file is Scenario specific and can hold data for both sides. So, you can store orders for both sides when giving orders in H2H mode. Certain

commands that would create new units cannot be stored for later import, but all orders you give for existent units can be retrieved later.

### 5.1.8 RECALL DESTROYED LCU'S

Eligible destroyed land combat units may be recalled from this list for the selected nation. They will be under strength and low in experience and will require some time to get up to strength and train up. Some nations will fill out faster than others.

### 5.1.9 COMMERCE ACTION

Some nations have considerable commercial and civilian sea traffic. Those nations can make use of this by creating TFs that perform commercial ventures. The TF's will be auto created and sent to some friendly port. afterwards to a second friendly port. Upon arrival at the second port, various goods and resources will be given to those TFs. These convoy types will need a commitment, as you must protect a lot of small TFs across vast sea lanes from Subs and surface raiders.

> **Note:** *Giving any manual instructions to the Created TF's may cancel the economy mission. In that case there will no longer be any benefit from having this TF reach its destinations.*

### 5.1.10 POLITICS

Here you can see the diplomatic relations between the selected nation and the other nations. It also allows you to accept offers made by other nations. Such as, "Armistice/Peace" and "unconditional surrender".

### 5.1.11 PILOT REPLACEMENTS

This is your Pilot replacement pool for the selected allied nation.

### 5.1.12 SHIPS SUNK

Ships sunk to date in detail. For all nations.

### 5.1.13 SHIP AVAILABILITY

Ship reinforcements and departures available for the selected allied nation.

### 5.1.14 GROUP REINFORCEMENT SCHEDULE

Here you will find the Air Group reinforcement and departures schedule for the selected allied nation.

### 5.1.15 LCU REINFORCEMENT SCHEDULE

This is the LCU reinforcement and departures schedule for the selected allied nation.

### 5.1.16 DEVICE POOL

This screen gives an overview of all your pooled reserve devices, including captured hardware labeled with an (F) for the selected nation. Certain weapons, like mines and torpedoes, may be produced by spending armament points located at your nation's capital in case you play the game without detailed device factories on map. With detailed device factories on map, you will have to expand and/or build those instead.

### 5.1.17 RESEARCH AND DEVELOPMENT

In the case of a game mode that allows custom Research and Development for nations with a full on-map economy, this screen allows you to customize the technologies your nation researches. Every active Heavy Industry location produces research points that can be allocated.

Each discipline has a certain cost per "Project" in research points and every new project, in a given month, costs more than the last. The 1st Project costs 1x research points, the 2nd Project costs 2x the research points, the 3rd project costs 3x the research points, etc. The cost of every type of Project can vary from nation to nation. Also, progress is not certain, being there's roughly a 75% chance per project of completion. Research is done at the end of each month. Until then you have time to adjust research to your needs. Advances can be "1 month" for items with a date of entry of service, or a numerical value for more abstract techs. Aircraft are handled per airframe, so you never know exactly how fast they will be available. They can advance due to a project, or not.

A detailed description of the various tech fields and their effects is provided in section 14.5.

### 5.1.18 AIRCRAFT PRODUCTION POOL

This screen provides detailed information of the available aircraft in the production pool for the selected nation. Some aircraft might be in queue for refurbishing and shown in parenthesis here. This mostly happens to aircraft that are sent back to the pool from field units. Other information is the build rate, and number of aircraft built on the last day and in the current month. The screen also shows the date of availability for all airframes of this nation.

### 5.1.19 AIRCRAFT LOST

Aircraft loses to date. This is the total Aircraft lost to ALL types of actions for all nations. Also shown are losses from the last turn and last month. Note that information on enemy aircraft losses is subject to Fog of War and therefore will not necessarily be accurate.

# 6. NAVAL UNITS

Naval units. They took on a wide array of Missions that were as diverse as the tasks they were built for; from the largest battleship to the smallest PT boat, each served a purpose, and each contributed their part to the war effort.

## 6.1 TASK FORCES AND SHIPS

Though *War in Spain 1936-39* accounts for individual ships, they are not represented on the map unless they are part of a Task Force (hereafter referred to as TF). If they are anchored at a port, you can find them by clicking on an anchor symbol next to a base or by selecting them from the List All Ships Screen in the HCD (Hex Command Display). When a TF is docked in a port, its ships are still listed as part of the TF.

There are four main types of ships:

- **Combat (surface) ships**, such as Battleships, Destroyers, etc. Combat ships can perform a wide variety of missions such as Attacking other ships, and bombarding ground targets.
- **Submarines.** Usually sent out a single ship TF, "subs" can perform several unique missions, such as Midget sub carrier and Sub-minelaying.
- **Transports,** such as troop transports and tankers.
- **Auxiliaries,** such as minesweepers and sub tenders.

**Note:** *A listing of ship types is provided in the Appendix section 21.4.*

Ships begin scenarios either in TF's, or "at anchor" in a port. Ships that are at anchor will not move, and they will not contribute much to the defense of the base. Ships at anchor are considered inactive.

## 6.1.1 TASK FORCE SYMBOLS

In *War in Spain 1936-39*, the TF symbols on the game map vary in appearance, based on the type of Mission it currently has assigned. The symbols below appear in the HCD when the appropriate TF is selected on the Tactical Map. These will vary in appearance depending on the side played (Nationalist or Republicans). The symbols appear as follows:


### 6.1.1.1 TASK FORCE MISSIONS

The maximum number of ships that can be in any TF is 100. But keep in mind that the larger the TF the more problems you may have in regard to coordination, ship collisions, etc. Below is a description of TF types in *War in Spain 1936-39*:

- **Surface Combat** – These TF's use Battleships, cruisers and Destroyers, as well as other specialized ships to seek out and destroy the enemy.
- **Bombardment** – This is a Surface Combat TF whose sole mission is to Shell enemy held bases, facilities and troop concentrations.
- **Fast Transport** – This mission type is meant to move men and material quickly, usually during the night. Ships in this mission

would have to be fast and agile, Such as converted Destroyers (APD). These ships don't carry anywhere near the payload of a regular transport ship.

- **Transport** – These TF's are for moving large amounts of men and material. Troops and supplies are loaded for maximum efficiency and do not arrive battle ready.
- **Replenishment** – These TF's can refuel other TF's at sea. They are primarily made up of Oilers and some escorts for protection.
- **Mine Laying** – These TF's lay anti-ship mines in friendly ports for defensive purposes.
- **Sub Patrol** – These, preferably, unseen, and unheard task forces, usually consisting of a single submarine each, gather vital intelligence and attack enemy targets of opportunity.
- **Sub Minelaying** – Stealthier than their surface-bound cousins, a submarine mine laying TF can lay mines quietly, but in numbers more limited than Mine Warfare surface groups.
- **Sub Transport** – These task force Missions are harder to detect than that of Transport or Fast Transport TF's, but their capacity is limited even when compared to Fast Transports.
- **Cargo** – These TF's are meant to carry supplies and resources.
- **Barge** – These TF's are tasked with moving supplies and LCU's in the front-line areas over limited distances. They are slow and plodding, and carry a minimal quantity of war materiel, but they can be useful in restricted areas.
- **Air Transport** – These TFs are tasked with moving air units and supplies to friendly air bases with a port.
- **Amphibious** – These TF's are used for invasions of enemy held locations.
- **Anti-Submarine Warfare (ASW)** – These TFs are used for hunting enemy submarines exclusively and will not allow large warships in them. (only AM, DMS, SC, PG, PC, APD, DE, DD type ships). The chance of this TF contacting enemy subs in coastal hexes is

higher when compared to open water hexes. ASW TF's will get a better chance of shooting first if a contact is made.

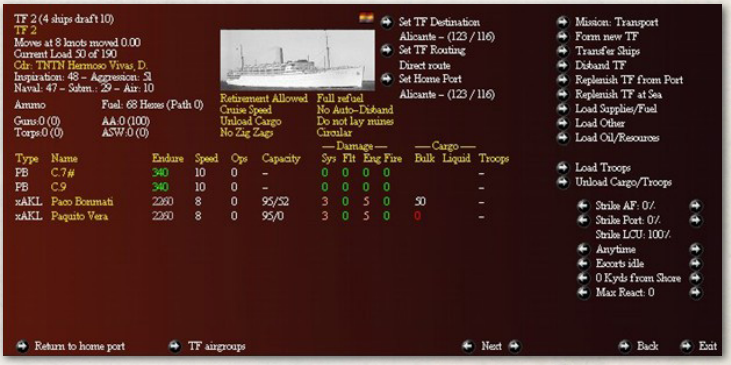
- **PT Boat** – These TF's serve to protect the ports assigned to by patrolling for, and reacting to, enemy surface forces or bombardment TF's.
- **Tanker** – A TF used to carry fuel or oil.
- **Minesweeping** – These task force Missions seek to find and remove anti-ship mines.
- **Landing Craft** – A merger of Barge and Amphibious; a beaching-craft invasion TF primarily used for shorter range and beach-to-beach invasions.
- **Support** – These TF's contain Repair ships, Tenders, Fuel and Ammunition ships and their escort. These TF can move to forward locations and create a temporary Naval base. Also useful for moving support ships between rear area bases.
- **Local Minesweeping** – These task force Missions seek to find and remove anti-ship mines in a localized area. The ships that make up these TF's are generally not deep sea capable.
- **Escort** – These are general purpose "ship movement" TFs. They are used to evacuate damaged ships from the battle area, and to move ships between bases.
- **Midget Submarine** – . A subset of Sub Patrol TF's, these small subs have very limited range, but can be used to protect bases. They can also be used in conjunction with a Midget Sub carrier to attack enemy bases.
- **Midget Sub Carrier** – Certain submarines were configured to carry midget subs into combat. These TF's require both a suitable carrier sub and an available Midget Sub to combine into the TF. Not shown in the above image.

Only operational ships can be assigned to the various Task Forces. Badly damaged ships or ships taken offline for repairs, upgrades, or conversions are not available. In addition, a special evacuation rule

allows offline ships to be added to Escort TFs if they are not too badly damaged (i.e. in danger of sinking) or if the enemy is about to capture the base. The formation of the evacuation TF is automatic at the time of base capture. Offline ships added to escort TFs will also incur additional damage. The assumption being normal repairs are interrupted.

## 6.1.2 TASK FORCE INFORMATION SCREEN

Clicking on a Task Force brings up the Task Force Information Screen. The left side of this screen displays TF data, while the upper center and right side are for giving orders. In the list at center are the ships that make up the Task Force. See below.




Starting with the upper left, the screen shows the task force ID number, the number of ships in the TF and the draft of the largest ship, which can be useful for travels into riverine hexes.

Below that is the name of the TF, its current speed, the amount of NM moved inside the current hex, information on cargo amount loaded and capacity, the Task force commander, and his skills.

TF name and commander are shown in yellow, as this text can be clicked to change the name and choose a different commander. A new commander can only be selected while the TF is in port.

Next is information on TF fuel and ammo levels for various types of weapons.

There is a small mouseover help text that tells the player the TF fuel levels and consumption per hex. If present, it will include fuel on Oilers. Take note that you can have a mix of fuel and coal powered ships in the same TF's. The figures for fuel and endurance will tell you about the data for the fuel type with lowest endurance. Coal powered ships can more easily share their "Fuel" and any Coal in cargo holds can and will be used to refuel ships during travel. Thus, Coal is included in this calculation.

The main part of the screen covers information on the ships in the TF, with the name of the flagship being followed by an #. The figures tell type, name, endurance (fuel left), current speed, operational delays (in hours), capacity for either cargo or aircraft in max/used, any damage a ship may suffer from, and a list of bulk, liquid, and troop cargo. The color of the cargo usually tells the type of item loaded. Supplies are white, and ammo is red.

Take note that the endurance shown in the TF panel is calculated by the TF speed setting. On Mission speed it will be halved and on Full speed it will quarter to tell you the expected range of the ships at the selected speed setting.

On the right side there are several buttons to change the TF mission, create a new TF's from ships in the hex, transfer ships, replenish from port, replenish at sea (usually uses other ships in hex and/or Oilers) and perform various loading operations.

The most common loading operations have their own buttons setting the type of commodities to load. Any of the options allows to change the type of item to load. These can be selected/deselected by clicking the buttons on the item panel that will appear on the right side upon loading. Any given ship can only load 1 bulk and 1 liquid type of cargo at the same time.

**Note:** *Certain game rules allow for liquids to be loaded on cargo ships in a drummed state. This will only be done for cargo ships if no bulk/dry goods are loaded onto such a TF. If a mix of types is to be loaded, then liquids will only be loaded into cargo space that is designed for liquids.*

The unload Cargo/Troops button starts the unloading of the TF at the current position. Clicking again cancels unloading.

Below are commands for behavior in attacking land targets and arrival timing as well as reaction range. Not all types of TF's make use of all the settings. A cargo TF will, for example, never use the reaction range since it is avoiding combat whenever possible.

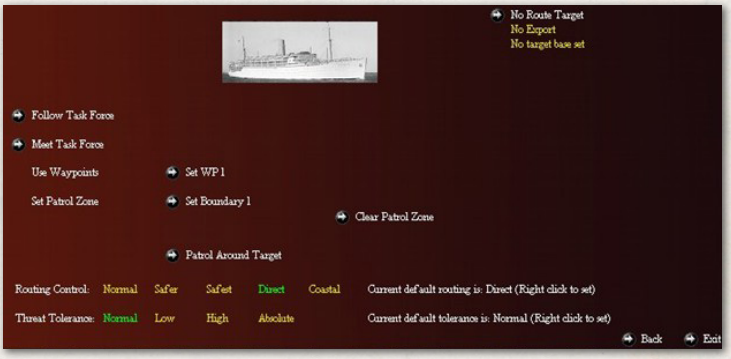
### 6.1.2.1 SET TF DESTINATION

The Set TF Destination option allows the player to determine a destination hex for the current TF. To change the TF's Destination

Hex, click the arrow to the left of this title. In the above example, Task Force 16's current destination hex is 429,151. It is the same hex as the TF's home port, so the TF is not going to move anywhere with these orders. To cancel this action, click the right mouse button before selecting a destination hex.

### 6.1.2.2 SET TF ROUTING

The Set TF Routing option allows the player to determine how the TF will move. To Set TF Routing, click on the arrow to the left of this title. The following screen will come up:




#### 6.1.2.2.1 FOLLOW AND MEET TF

Both order one TF to track the movement of another. There is an important difference in the implementation of the two methods:

- The Follow order is designed for TF's that begin in the same general location and move together to a destination. The following TF can fall behind the followed TF or move ahead. Fall behind is done by a positive distance and move ahead by a negative distance. The followed TF will slow down if necessary to let the following TF keep up.
- The Meet order is designed for TF's that begin at different locations and set paths of intercept at some mid-point. The meeting TF continuously adjusts its path toward the target TF. No TF will slow down for the other. Upon meeting, several actions can be taken. From merging into a larger TF to refueling from it. The latter option is often used with Replenishment TF's.

##### 6.1.2.2.1.1 FOLLOW TF

This option orders one TF to follow another to its destination. The distance by which the following TF will trail the followed TF can be specified (zero is valid) and the following TF can be ordered to stand off from the followed TF at the destination. A negative distance will make the following TF sail ahead of the followed TF.

In the above example, Task Force 16 is currently not following another TF. To set it to Follow another TF, click the arrow to the left of this title. The screen will be replaced by a large display of the tactical map. Scroll around and click on a TF for the current one to follow. To cancel this action, click the right mouse button before selecting a TF to follow. Since it is not following another TF at this time, the TF Followed field displays "None". Otherwise, the TF number and name of the TF being followed would be displayed here.

The Follow command can also be used to intercept an enemy TF. This is done by simply selecting an enemy TF to follow. This action will be broken off once contact is lost and the TF will return to its assigned home port. A TF on patrol may automatically adopt this order when contact is made with a nearby enemy TF.

#### 6.1.2.2.1.2 MEET TF

The Meet TF option allows a TF to meet another selected TF in open water. To set TF 16 to meet another TF, click the arrow to the left of this title. The screen will be replaced by a large display of the tactical map. Scroll around and click on a TF for the current TF to meet. The player may choose subsequent actions from a list of options: Meet then: Refuel the TF, or Merge with the TF. This option is especially useful for replenishment TFs.

### 6.1.2.2.2 USE WAYPOINTS

The Use Waypoints option allows a TF to define its course to a destination, by using waypoints. The Use Waypoints option is only available when a destination is set for the TF. Three waypoints are available, and each may be set by clicking the arrow to the left of this title. The screen will be replaced by a large display of the tactical map; scroll around and click on a hex to set that waypoint. To cancel this action, click the right mouse button before selecting a waypoint hex.

#### 6.1.2.2.3 SET PATROL ZONE

The Set Patrol Zone option allows a player to define the area in which a TF will patrol. Setting a patrol zone will cancel previous move orders. You can either set the patrol points one by one using boundaries or select the "Patrol Around Target" option to automate the process with 3 random patrol boundaries around the selected hex.

##### 6.1.2.2.3.1 SET BOUNDARY

Three Set Boundary options allow the player to patrol within a single hex, Set Boundary 1, only, patrol along a line, Set Boundary 1 and 2, and patrol along the perimeter of an area; Set Boundary 1, 2, and 3. Clicking the arrow to the left of each of these titles causes the screen to be replaced by a large display of the tactical map; scroll around and click on a hex in order to set that boundary.

##### 6.1.2.2.3.2 PATROL AROUND TARGET

Patrol Around Target allows the player to identify a target hex, about which the TF will patrol, until the patrol order is cancelled. The screen will be replaced by the tactical map. Scroll around and click on the hex that you desire for your target hex. To cancel this action, click on the right mouse button.

#### 6.1.2.2.4 ROUTING CONTROL

The Routing Control allows the player to select the safety level of the routing path determined by the AI. The Safety levels are:

- **Normal** – defines a normal routing path.
- **Safer** – defines a routing path that avoids known significant enemy air concentrations and other known threats.
- **Safest** – defines a routing path that completely avoids all known enemy air concentrations and other known threats.
- **Direct** – forces a direct routing path to the destination, regardless of any enemy air concentrations or other known threats.
- **Coastal** – Prefers a coastal routing path to the destination.

The initial default is "Normal" but this default may be changed by the player. The new default can be set on any screen that allows the value for a given TF to be changed. TF's will refresh their path whenever a new threat is detected. This happens most often when submarines are spotted or suspected. Thus, a good airborne warning system can consistently help your TF's avoid known or suspected submarines.

#### 6.1.2.2.5 THREAT TOLERANCE

This function allows the player to specify a TF's Tolerance for encountering an enemy TF. Low tolerance will make the TF passive, and a High tolerance will tell the TF to attack even superior enemy forces. This works in conjunction with the TF leader's aggression and the naval HQ leader's aggression. Tolerance has four levels:

- **Normal** – No offsets to calculation.
- **Low** – Lower threat tolerance. Higher chance of avoiding combat.
- **High** – Higher threat tolerance. Lower chance of avoiding combat.
- **Absolute** – Absolute threat tolerance. Highest chance of engaging an encountered enemy.

#### 6.1.2.2.6 TRADE AND CARGO ROUTES (AUTO–CONVOYS)

The upper right corner of the routing screen contains orders tabs that allow the setup of repetitive transport missions, (Auto- Convoys). The procedure is as follows:

- Setup your TF.
- Click on "Set TF Routing".
- Click on "No Route Target" and select your target base.
- Click on "No Export" and select from the Right-hand column what you want your TF to haul.
- Click on "No Import" If you want the TF to return with a product.

**Note:** *If the political situation, with the owner of the target port is poor, then you wouldn't be able to Import any goods.*

### 6.1.2.3 SET HOME PORT

This setting allows you to set a Home Port other than the port the TF starts at. Click the arrow and select another base for your home port. The port you select must be a friendly port. Please note that if this port should fall into enemy hands, the TF will select another port in its vicinity.

## 6.1.3 SHIP INFORMATION SCREEN

To get information about any of the various ships in a Task Force, or in a Port, click on the name of the ship and the Ship Information Screen will open. Below is the TB T-19:


T-19's weapons are both defensive and offensive in nature. Each weapon device is broken down as follows:

- A number (Num) of devices of that type.
- A facing (Face), indicating the direction that this grouping of devices is facing.
- Mount indicates the maximum number of weapons that comprise the device.
- Armor details how well-protected the mount is from attack and/or damage.

- Range is shown in KYDS for naval fire and for DP guns in both KYDS and Kilo Feet for ceiling. So, for T-19's 7.0mm AAMG is 2000 yards surface range and 2100 feet for ceiling in an AAA role. Weapon ranges for ASW, none here, are in feet of depth.
- Effect is usually the shell weight and thus meaningful for damage. You can switch the headline for "Effect" to display "Penetration" instead.

**Note:** *A "+" symbol after the device name indicates that there might be alternate choices for weapon types. A "*" symbol after the device name indicates that an alternate weapon is already in this slot. Clicking such a device name will bring up a window with alternate options for this slot. This action can only be executed when in port. Upon clicking such a device, a small screen will appear to tell the possible devices and the number of those you have in the pool. A click on one of them changes the device used on the ship. Reloading is not instantly done. So, using the current device allows for selective unloading of a single slot.*

On the right-hand side the Ship Information Screen, we see that T-19's Max Speed is 26 knots equating in game terms to 124 hexes per day. (the number in parenthesis). Her Cruise Speed is 14 knots (equating to 67 hexes per day). The ship's Maneuver rating is rather high at 75. She has a Draft of 6 and can enter hexes that have an average water depth above this. Her Anti-Aircraft value, essentially a measure of her anti-air strength, is 1, and she has no anti-submarine warfare capabilities, so her Anti-Submarine shows 0. Her crew has no fatigue, and the ship is not going to depart from the game. If she had a date for withdrawal, it would be shown at the place where Fatigue is written.

T-19's Endurance is 1160 (232 Hexes) and her coal is 33 (100%). Endurance is shown in green indicating that she is topped off. Numbers that are indicated in a grey color, show that her supply of coal is good. As they dwindle, the color-coding will change from green, to yellow (depleted) to red (almost gone).

**Note:** *The text color for Fuel will always be gray in case the ship is coal fired.*

Tonnage is used by the game to determine a ship's construction costs. If the ship is to be "docked" at ports of various sizes and how much of a port's "repair" capacity will be used to repair damage, upgrade, or convert the ship. In this case the ship's Tonnage is 177, which is her listed "Standard" tonnage. This will not be the case for auxiliary vessels or cargo ships.

Next is her Durability. This is an overall measure of the ship's seaworthiness and is at 2. While tonnage is the primary factor for how much damage a ship can take, Durability indicates how well the ship is constructed. 1 durability per 250 tons is good and applies to most military ships. Cargo type ships will be around 350 tons per durability point. A lower tonnage/ durability ratio indicates a ship will resist damage better.

The ship's Belt Armor, essentially the thickness of her hull at and below the waterline, is 0. Her Deck Armor, measuring the thickness of armor covering her topside deck, is 0. The Tower Armor rating of 0 shows that the aircraft carrier's island structure (or central structure in other vessels) is also lacking any armor.

The System Damage is at 13.9. Flood and Engine Damage plus Fires ratings are, all at 0 right now. Again, these numbers are color coded; the '0' is in green because this is an ideal setting; they can change to yellow (indicating damage) and red (indicating severe damage). Once heavy damage has occurred, a scuttle button may appear. Using the Scuttle button will save some of the crew but the score loss for the ship sinking will be the same. An exclamation mark after System Damage indicates subsystem damage. It is shown when you move the mouse over it. See Section 6.15, Damage to Ships, for more information.

Also, listed are Cargo, Troop, and Liquid cargo capacity. For T-19 these numbers are 15, 5 and 0 respectively. But other ships will have the capacity to load cargo of these types.

Near the bottom of the ship display would be T-19's upgrade date if she had one. This ship does not. See Section 6.1.3.1.

At the bottom of T-19's screen are several options that can be clicked on:

- **Next Ship** – which will change the information on the screen to reflect the next ship (or previous ship, depending on the arrow clicked) in the TF.
- **Back** – which will move the display back one screen.
- **Exit** – which will exit to the Tactical Map.

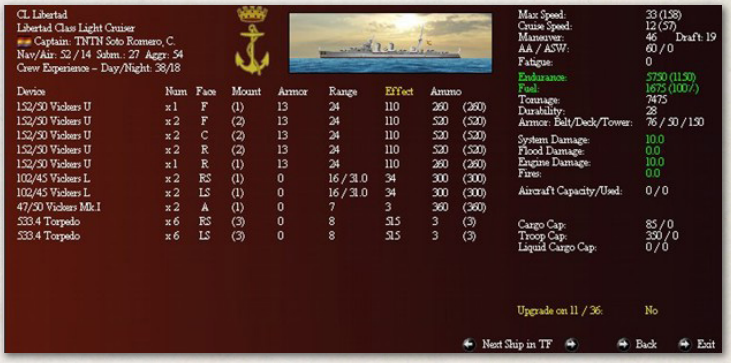
**Note:** *There is an "Emergency Unload Troops" button that can be used to disembark troops from a ship at anchor. It will be shown at the bottom of the window in case a disbanded ship still has troops onboard and is the only means of disembarking troops without adding the ship to a Task Force to unload. This is in place to disembark from ships that got beached or are otherwise unfit to be added to a Task force. Troops will suffer from unloading this way, and hardware may be disabled or even lost when unloading this way.*

### 6.1.3.1 UPGRADES AND CONVERSIONS

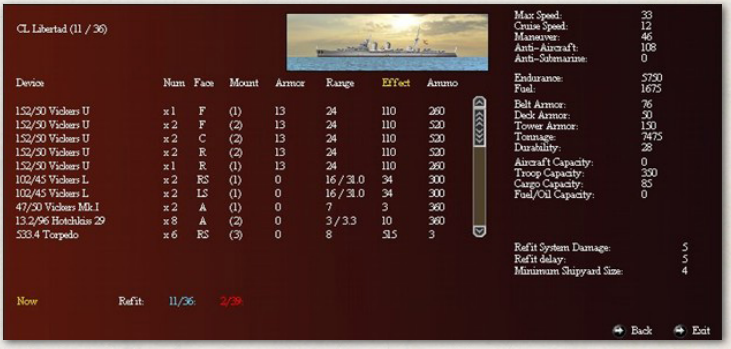
Upgrades and Conversions are similar in many ways but differ in one important respect. A conversion usually changes the nature of the ship. For example, a cargo ship becomes some type of support ship. Ships may Upgrade or Convert by clicking on the highlighted Upgrade or Convert field on the Ship Information Screen. Clicking on either field will bring up a screen that shows the characteristics of the ship being Upgraded or Converted to.

### 6.1.3.1.1 UPGRADES/CONVERSIONS DAMAGE AND REQUIREMENTS

Clicking on the Upgrade or Conversion field brings up a screen that shows the characteristics of the ship type for the next allowable upgrade/conversion. A Unit Information section, at the right of the screen, shows the unit information of the target ship, as well as the Upgrade/conversion timing, damage, and yard requirements. When a ship is being Upgraded or Converted, it is taken off-line and will not appear in the active ship list for the port until the upgrade/conversion is complete. Upgrades sometimes require a repair shipyard, but conversions always require a repair shipyard large enough to accommodate the ship. Any repair shipyard size requirements shown on the screen are meant for upgrades accordingly. Some cargo ships can increase their ability to transport personnel by converting from some form of AK to AK-t (and back) this only requires a port of size 3 or better plus a few days to convert the ship. The cargo capacity will be reduced due to accommodations being installed in the cargo hold. Below is a ship with upgrades available:



If you click on the Yellow Upgrade button you will see the following:




On the bottom right of this screen you will see the following:

- **System Damage** – is the amount of system degradation that will occur during the upgrade/conversion.
- **Delay** – is the minimum time, in days, the ship will be taken offline for in order to affect the upgrade/conversion. The ship will remain offline for this number of days, even if all damage has been repaired.
- **Shipyard Size** – is the minimum Repair Yard size necessary to affect the upgrade. When this value is "0", upgrades can be made at any port. Conversions always need a repair shipyard large enough to accommodate the ship.

At the bottom left of the Upgrade/Conversion screen you will find a few more selections. They are;

- **Now** – Which shows the ship in its current configuration.
- **Refit** – Shows the Refit dates available for the current ship class. Any dates in Red are not available.
- **Options** – Shows possible conversions. Refits will change with the conversion. Any Conversions in Red are not yet available. Not available for this ship.

# 6.2 CREATING A TASK FORCE

To create a Task Force, click on a base either on the Tactical Map or the List All Bases Screen, and then the Form New Task Force option on the lower left of the screen. You will then see the Task Force Creation Screen. There are several Primary Missions as well as a few secondary missions. TFs may contain a maximum of 100 ships (although 15 or less is most efficient for a combat TF or defending against air attack).

The first step is to choose a mission from the list. Missions in Red text indicate that you lack the ships to properly execute this mission. You can still form them, however. Missions in White are possible with ships on hand. The mission in Green is your current selected choice based on ships available. See image below:


The game can auto build the selected TF type for you or proceed to ship selection to manually add the ships for the mission. When manually adding ships, the following screen will appear:


**Note:** *The text for Endurance will be gray for ships that use Coal for fuel. The text will be green for all ships using Fuel Oil. This will be the same on the Task Force window and any lists that show ships.*

The upper screen in the screenshot shows the available ships for the selected TF mission. By clicking on the text at the top, you can filter the list. Right clicking on a ship's name, in the Form/Transfer TF display, will show details of the ship you selected in the upper screen. The lower screen shows the ships that have been selected for the TF as well as some general data about the TF you are creating. "Values" allows you to switch between a display of the ship's combat stats and any Cargo Stats. Every new TF created has:

- Its home base defaulted to the port at which the TF was created.
- Its Patrol/Retreat Status defaulted to Retirement Allowed. For any type of Task Force, except Submarine Patrol, Max

React Range is set to zero (reaction will only be used by TF types that are meant to engage the enemy). Submarine

Patrol uses a default reaction range of 80 NM (16 hexes) because this mission is commonly desired to react to and eliminate enemy shipping found in its patrol zone.

Many of these Missions are self-explanatory; common sense will tell you that a Battleship would not be in a Sub Patrol task force. But others are more complicated; for example, Transport Missions can accommodate most warship types because the freighters need an escort.

The ships that will be in a TF can be automatically selected using Auto Selection, or players can select the ships themselves. If there aren't enough ships present to create a complete Task Force automatically, the new TF won't be created. However, you can still select ships manually. Only ships that could be in a task force will be displayed in the selection menu. Other ships will have their filters turned off, but you can turn them on to display those ships.

The TF size works in conjunction with leaders rank, skills, and nationality. Ship numbers, low leader rank, low skill and/or mixed nationality of ships in a TF can all cause severe coordination issues, especially in the heat of surface combat.

### 6.2.1 TASK FORCE FORMATIONS

There are three different Task Force Formations available in *War in Spain 1936-39*. Each formation has a different function. They are described below:

- **Line Ahead** – Used by Surface Combat TF's primarily. Allows for one TF to cross the "T" in surface warfare. Not very effective in defending against air attack.

- **Circular Formation** – Used for protecting high value ships such as Battleships from air attack.
- **AA with Pickets** – Used for protecting high value ships such as Battleships from air attack. This circular formation uses Destroyers, from the TF, to provide early warning to the TF. The pickets will not provide there AA fire power to the defense of the TF.

Additionally, a TF can be given orders to move in Zig Zags. This makes it harder for enemy subs to set up an ambush. Hexes moved will drop to 70% as the TF is not moving in a straight line. Fuel consumption will also go up per hex moved.

## 6.2.2 DISBANDING TASK FORCES

A TF may disband itself if it is in a coastal hex or a friendly port. There is no limitation on the size of a TF that may disband (this is considered being at anchor). But you may not disband in hexes that contain bases where political relations are below 25. Ships at a friendly port may exist in the port separate from a task force in which case they can attempt to repair certain kinds of damage at the expense of additional vulnerability to enemy air and ship bombardment attacks.

## 6.2.3 TASK FORCE SPEED

There are 4 types of TF speed settings in *War in Spain 1936-39*. They are:

- **Full Stop** – Consumes the least amount of fuel for power generators only.
- **Cruise Speed** – Most fuel efficient.
- **Mission Speed** – This speed setting is exactly between Cruise Speed and Full Speed, consuming 200% fuel.
- **Full Speed** – Maximum speed setting consuming 400% fuel.

Every TF has a calculated Maximum TF Speed and a Cruising TF Speed. The Maximum TF Speed is the maximum number of hexes the TF may move over the course of one hour, if it is attempting to move at maximum speed. There are only a few situations where a ship will move at maximum speed, as ships generally move at their cruising speed to minimize fuel usage and operational damage. These speeds are calculated by taking the appropriate speed of the slowest ship in the TF. The TF speed in knots is equal to the slowest ship's speed in knots. TF's move on a per hour basis and fractions of movement are kept between hours. A TF at 8 knots, at a scale of 5 NM/Hex will move 1 to 2 hexes per hour depending on the remainder of movement from the previous hour.

Take note that movement is done in time slices smaller than 1 hour internally, so a TF's movement can be interrupted by combat (If an enemy TF intercepts the current players TF) even when not having moved the hex distance indicated by its speed.

Mission speed is normally used by warships. They usually reach a speed of 22 to 24 knots which can reduce the threat from submarines trying an end run around the TF.

All ships are given a speed of at least 3 knots, even when out of fuel or badly damaged. This has been done for playability purposes to avoid the need to tow ships to port.

Fuel consumption can depend on the situation. A cargo ship at maximum speed might only reach 10 to 14 knots, which is still below the cruise speed of most warships. Therefore, a ship may use only the fuel for its cruise speed even if the TF is set to travel at maximum speed. Engine damage can also reduce the actual fuel consumption at mission and maximum speed settings.

### 6.2.4 AUTOMATIC SHIP SEPARATION FROM TF DUE TO DAMAGE AND LOSS OF SPEED

A damaged ship may automatically split off from its current TF and form its own "Escort" TF (so it won't slow the main force down). Several escorts may be assigned to the damaged ship(s) to escort the damaged ship(s) to their home port or nearest anchorage.

This will happen if a ship:

- Is badly damaged, with greater than 25% Floatation damage or,
- Has 50% or greater engine damage or,
- Has 50% or greater fires.

Submarines consider System damage greater 25% to be too dangerous to continue operations.

Certain subsystem damage, like loss of a propeller shaft or loss of all electric power may also cause a ship to detach. If too many ships of the TF are damaged, the entire TF may break off mission, with or without detaching any crippled ships.

A ship currently unloading will not split off until it is finished unloading. If a ship separates from its original TF, it will be placed in a new TF, Escort Mission, and set its home base to a suitable friendly base or anchorage nearby. It will also have its Patrol/Retreat status set to Retirement Allowed and auto disband upon arrival. Whenever a ship separates as described above, the ship's original TF checks to see if it will continue its Mission or abort its Mission and return to base. This can happen even when the TF has a

Patrol/Retreat Status of Patrol/Do not retire. The TF makes its decision based on how strongly it's been attacked and how much damage its ships have taken. Task Forces with a Patrol/Do Not Retire status are less likely to abort than Task Forces with a Retirement Allowed status. Threat tolerance and TF leader aggression play into this as well. Also, if a target base does change ownership, some TF types, Cargo, tanker, etc., will abort the mission.

### 6.2.5 PATROL/RETREAT/MAX REACT RANGE/ARRIVAL TIMING/BOMBARDMENT SETTINGS

The Patrol/Retreat Status determines what the Task Force will do when it gets to its Destination Hex (DH) and how likely the TF will abort its Mission in the face of enemy attacks. If it is set to Patrol/Do Not Retire, the TF will try to press on to complete its Mission, regardless of enemy attacks. It will remain at the DH while performing its Mission, then return when it is low on endurance or seriously damaged. Task Forces set to Retirement Allowed will move to their DH, perform their Mission, and immediately return home. If they are forcefully attacked, they will likely abort their Mission and return to their base. TF's may be set to arrive either at night or daybreak. This order can be set to keep the speed setting or go to maximum speed for the final leg of the travel as well as a short time for when heading out of the destination hex again.

There are also settings to define whether escorts will bombard or not, how distant to stay from the shore, what facilities to target and an option to define a "bombardment target hex" in case the destination is different from the hex to bombard.

### 6.2.6 MISSION TYPES AND THEIR IMPACT ON MOVEMENT

Here is a brief description of some of the possible TF Mission types. Each TF will follow certain movement guidelines based on its Mission type and its Retire/Do Not Retire and React/Do Not React to Enemy Status. In general, Retire/Do Not Retire specifies what a Task Force should do when it reaches its destination. If not ordered to Remain on Station (i.e., Retire) it will return to its home base as soon as it has completed its assigned mission (such as loading or unloading). Note that the Retire/Do Not Retire interacts with the use of Patrol Zones, which take precedence.

The defined reaction range controls the actions of the Task Force when the enemy Task Force(s) come within its reaction range. TFs with

zero reaction range are unlikely to react to the enemy. They will also not react if their primary mission is not combat (i.e. transport, etc.).

Task Force missions may be set to arrive at any time. They will stand off at a distance that allows them to arrive at the defined time. Then run in at the desired speed and run out again (if allowed to retire) as soon as their mission is completed.

Note that Bombardment missions at night suffer from reduced targeting effectiveness and decreased spotter plane support. But the same applies to defending shore batteries.

Certain TF types will act/react in special circumstances or have other special functions:

- ASW TFs will react to detected enemy submarines within their reaction range. Other TF types will avoid subs.
- Bombardment TF's that encounter enemy surface forces will engage the enemy. If the TF is still fit to bombard, they will continue their mission after the surface combat is complete.
- Minesweeping TF's will sweep mines at their destination hex. They may also sweep a few mines encountered enroute.
- Unless ordered to Remain on Station (or if at home port) the minesweepers will perform one "sweep" and retire.
- Submarine Minelaying, Submarine Transport, and Midget Submarine Carrier TF's will concentrate on their primary mission and attempt to avoid contact with enemy Task Forces.
- All Task Forces may decide to temporarily or permanently retreat in the face of known strong enemy forces in the immediate vicinity of the Task Force or the destination of the Task Force. This depends on the strength, ammo and fuel status, and mission of the Task Force, and the leader rating of the Task Force Commander.

### 6.2.7 ASSIGNING TF DESTINATIONS

Task Forces are assigned Destination Hexes (DH) in the TF Information Screen. Destinations can be geographical. Or a TF can be told to meet

another TF, or to follow another TF wherever it goes. If patrolling a zone, or simply a Surface Combat TF defending its home base, TF's without a DH set will not be able to carry out their Missions. The DH can be any coastal hex, ocean hex, or a hex or base on a navigable river. There are times when a TF might not move toward its destination. In certain situations, a TF may ignore its DH in an attempt to avoid enemy warships. If the TF is temporarily attempting to avoid the enemy, the TF will head for a presumably safe hex that can be different from the DH, but the DH will not change. If the enemy threat exists, the TF may continue to ignore its DH. If you want the TF to ignore this danger, change the TF's Threat Tolerance higher to improve the odds of the TF leader proceeding with the mission.

#### 6.2.7.1 FOLLOW TASK FORCE

A TF given Follow Task Force orders has no real destination. It will constantly change as required to maintain the defined relative position to the followed TF.

If Follow Task Force is selected, the Tactical Map is brought up. Click on the TF icon that you want the current TF to follow, and it will return to the TF Routing Screen. If there are too many TF's in the hex, or you want to switch to another target TF, there are small arrow buttons below the name of the target TF on the routing screen. These go forward or backwards through all the TFs in hex so you can pick the right one. During movement the TF will always move to maintain the defined distance behind or ahead of the target TF. If the following TF is not fast enough to keep up, the followed Task Force will slow down to allow the following TF to keep up.

#### 6.2.7.2 MEET TASK FORCE

A TF given Meet Task Force orders will have a destination along the path of the targeted TF to meet. The Tactical Map will be brought up. Click on the TF icon that you want the current TF to meet, and the game

will return to the TF Routing Screen. If there is more than one TF in the hex, or you want to switch to another target TF, there are small arrow buttons below the name of the target TF on the routing screen. These go forward or backwards through all the TFs in hex so you can pick the one you want.

### 6.2.8 SET PATROL ZONE

A TF given Set Patrol Zone orders has one, two, or three designated hexes that define a single patrol hex, a patrol line (2 boundary hexes) or zone (3 hexes). Use of a single patrol hex is like Remain on Station except that the TF will return to its home port automatically to replenish when needed.

### 6.2.9 TRANSFERRING SHIPS BETWEEN TASK FORCES

Ships in Task Forces that are in the same port or sea hex may transfer ships between themselves. TF's may also transfer ships to bases and vice versa. New TF's may also be split off. This works just like building a new TF. (See section 6.2)

### 6.2.10 TF RETURNING TO HOME BASE

There are several events that will cause a TF to automatically return to its home base. These events are:

- If a TF on patrol is low on fuel or ammo,
- If a TF on patrol is under severe air threat. Ship types do matter. Small DD types tolerate more air threats than BB or CA types.
- If a TF aborts its mission due to splitting off from the main TF due to damage,
- If a TF is at its DH and none of the following 4 conditions are true:
  - The DH is not its home base.
  - It is not following another TF.

- It is not currently loading or unloading.
- Its Patrol/Retreat status is not "REMAIN ON STATION".

When a TF decides to return to its home base, it will set its DH equal to its home base, and it will also cause the TF's Retreat status to be set to Retirement Allowed. Any Patrol zone orders will be cancelled.

**Note:** *It is important to have a thorough understanding of the above conditions that will send a TF heading home. Also, keep in mind that you can redirect a TF that has aborted its Mission by setting a new DH for the TF in your next orders phase. Be sure to check the orders of TF's that have just been in combat, or you may find them prematurely leaving the scene of action.*

# 6.3 TF OFF-MAP MOVEMENT

## 6.3.1 NAVAL MOVEMENT FROM MAIN MAP TO OFF-MAP AREA

There are two stages of movement for task forces moving from the main map to an off-map area. Firstly, normal on-map movement is used to move the task force to a hex within the appropriate map edge transit zone that connects to the off-map area. Once the task force reaches a hex within the appropriate transit zone, it then uses a special type of movement, called "off-map" naval movement, to move to the off-map area. To move a Task Force from the main map to an off-map area, the following steps are followed:

- Select the task force which is to move from the main map to an off-map area. The task force can start from anywhere on the main map.
- Select a base in the off-map area as the destination for the task force. The move is first checked to make sure that it is a legal move.

- A path will then be plotted from the hex the task force is located into a hex that is part of the map edge transit zone that connects to the destination off-map area. The transit zone hex selected will generally be the one that is closest to the location of the task force. See the Transit Zone table to see where on the main map the appropriate transit zone is located.
- The task force will then use normal, on-map movement to move from its original position to the selected transit zone hex.
- After the task force reaches the transit zone hex, it is removed from the map and starts using "naval off map movement". The task force is placed in the holding box that corresponds to the sea connection it is using. See the Sea Connection table to see where on the map the holding box is located.
- The task force will stay in the holding box for several hours, calculated using the length of the sea connection and the speed of the task force. See the Off Map Area Connection table for a list of sea connection lengths. The task force does not physically move on the map itself but remains in the appropriate holding box until the calculated number of hours has passed. The ETA can be seen in the TF screen in case of off map movement.

**Note:** *It is possible to travel to a base that is not directly linked to a transit zone. In that case distances add up. For example, For example, a TF moves to Spanish Guinea starting from El Ferrol. The TF will first move to Canarias, then continue to Spanish Guinea . You will not notice this in the game since the distances of the transit zone to Canarias and the distances from Canarias to Spanish Guinea simply add up for the travel time. The TF will be placed in the holding box of its destination off map base.*

- Once the calculated number of hours has passed, the task force is removed from the holding box and placed in the destination hex. It may now dock or disband as it can at any other port.

**Note:** *You can reverse course at any time by giving a TF located in a holding box a different off map target. It is not possible to "switch" targets during off-map travel. The only option is to head back where the TF came from.*

### 6.3.2 NAVAL MOVEMENT FROM OFF–MAP AREA TO MAIN MAP

There are two stages of movement for task forces moving from an off-map area to the main map. First, a special type of movement, called "off-map" naval movement, is used to move to the map edge transit zone that connects to the off-map area. Once the task force reaches the transit zone, then normal on-map movement is used to move the task force to its designated destination on the main map. To move a Task Force from an off-map area to the main map, the following steps are followed:

- Select the task force which is to move from an off-map area to the main map.
- Select a destination hex on the main map as a destination for the task force. The move is checked to make sure that it is a legal move.
- The task force is removed from its present location and placed in the holding box that corresponds to the sea connection it is using. See the Sea Connection table to see where on the map the holding box is located.
- The task force will stay in the holding box for a designated number of hours, calculated using the length of the sea connection and the speed of the task force. See the Off Map Area Connection table for a list of sea connection lengths. The task force does not physically move on the map itself but remains in the appropriate holding box until the calculated number of hours has passed. The ETA can be seen in the TF screen in case of off map movement.

- Once the calculated number of hours has passed, the task force is removed from the holding box and placed in a hex that is part of the transit zone corresponding to the sea path connecting the main map to the off-map zone that the task force originated in. The transit zone hex selected will generally be the one that is closest to the chosen destination of the task force. See the Transit Zone table to see where on the main map the appropriate transit zone is located.
- Once on the main map, the task force uses normal on-map movement to move from the transit zone hex to the chosen destination.

**Note:** *You can reverse course at any time by giving a TF, located in a holding box, a different off map target.*

Alternatively, the player may manually perform a two-phase movement by first moving the TF to any hex in the appropriate transit zone (use Do Not Retire). Then, once the TF has arrived in the transit zone, setting its destination to the off map base.

### 6.3.3 NAVAL MOVEMENT BETWEEN CONNECTED OFF-MAP AREAS

Task forces may also move directly between two off-map areas. To move a Task Force from an off-map area to another connected, off-map area, the following steps are followed:

- Select the task force that is to move from an off-map area to a connected off-map area.
- Select a base in the connected off-map area as the destination for the task force. The move is first checked to make sure that it is a legal move.

- During the movement phase, the task force is removed from its present location and placed in the holding box that corresponds to the sea connection it is using. See the Sea Connection table to see where on the map the holding box is located.
- The task force will stay in the holding box for several hours, calculated using the length of the sea connection and the speed of the task force. See the Off Map Area Connection table for a list of sea connection lengths. The task force does not physically move on the map itself but remains in the appropriate holding box until the calculated number of hours has passed. The ETA can be seen in the TF screen in case of off map movement.
- Once the calculated number of hours has passed, the task force is removed from the holding box and placed in the destination hex. It may now dock or disband as it can at any other port.

## 6.4 SUBMARINES

Submarines are sent on patrol as a TF, usually with only one sub in each TF. Missions for submarines are Sub Patrol, Sub Minelaying, Sub Transport and, if midget submarines are available, Midget Submarine and Midget Submarine Carrier. A good strategy for using submarines is to send them to choke points, or patrol near major enemy supply areas.

Submarines suffer worst from ship fatigue and will need to rest for a week or two after extensive patrol. Exchanging a submarine skipper creates a minimum fatigue (around 50). This rule is in place to encourage realistic changes in command. A submarine with high fatigue will be less likely to actually be aggressive in attack. Non-stop patrols will yield next to no results.

See section 6.14.6 for details on submarine warfare.

## 6.5 SHIP ENDURANCE

Ships use fuel whenever they move or are at sea. In *War in Spain 1936-39*, each ship is rated for how much fuel it can hold as well as its maximum endurance, which is the number of miles the ship can travel at cruising speed. The TF display shows the amount of endurance remaining for each ship in the TF. A ship with no endurance left will cause its TF to have a maximum movement speed of 3 knots. Whenever a ship moves in a TF, it draws on its Endurance, which in turn subtracts from the amount of fuel carries. Fuel is expended when a TF does the following:

- When a ship moves to another hex at or below its Cruising Speed, the cruise speed for the ship in hexes as specified on each Ship Information Screen. The ship will use up Endurance equal to the number of Nautical Miles (NM) moved.
- For each NM moved over the ship's Cruising Speed, the ship will expend two times Endurance equal to the number of NM moved. The cruising speed of the TF is figured by the Cruising Speed of the slowest ship in it. Since each ship checks the TF move against its own Cruising Speed, ships in the same TF can use up different amounts of Endurance in the same move.
- For each NM moved over the ship's Mission Speed, the ship will expend four times Endurance equal to the number of NM moved. The Mission speed of the TF is figured by the Mission Speed of the slowest ship in it. Since each ship checks the TF move against its own Cruising Speed, ships in the same TF can use up different amounts of Endurance in the same move.
- Each ship in a TF that is not anchored also expends a small amount of Endurance equal to its cruise speed every hour unless it is at a friendly Port of size 3 or better. In that case the ships are considered to stand down inside the protected zone of the Port. Otherwise, it is assumed they are constantly moving at cruising speed even if they aren't moving to other hexes. This allows a free-floating ship, not yet anchored, to maintain position within the hex.

Take note that the fuel consumption per distance travelled may be higher by around 30% when moving in "Zig Zag". or in other words, the TF will make less headway for the same fuel and time. The TF screen will show endurance and length of current path. TFs that are enroute to a DH (not patrolling) will not abort mission due to low fuel. Players can order missions that exceed the TF range. (Under assumption a fleet oiler or another TF as fuel source is part of a players mission planning) The program will deduct a certain amount of fuel depending on how much Endurance a ship has expended. Calculating fuel usage for your ships is unnecessary. More important is to ensure that you send fuel to your advanced ports so your ships can replenish.

**Note:** *Ships using Sails Have unlimited endurance.*

## 6.5.1 REFUELING IN PORT AND AT SEA

Be sure not to put ships with low fuel capacity into TF's that will need to move at maximum speed, especially when its DH is very far away. Ships moving at mission speed will use up twice, and ships at full speed 4 times the endurance for the same distance.

Ships can refuel in any friendly base that has fuel. The amount of fuel is listed in each Base Information Screen. Refueling in port causes the TF ships to dock for refueling or be serviced by lighters and/or very small coastal tankers. The port fills each ship to its maximum desired Endurance, assuming there is enough fuel at the port to do this, at the Port Fuel Transfer rate.

Ships may also refuel at sea, if there is a friendly ship in the same hex that has sufficient fuel to transfer. When a TF refuels at sea, each ship in the TF attempts to find another ship in the hex to give or take fuel. The TF will try to level the fuel so each ship has around the same percentage of its maximum fuel. This ensures the TF can move at least at cruise speed until all fuel is gone. The refuel options for Ports are:

- **Do Not Refuel** – No refueling will take place.
- **Minimal Refuel** – Each ship refuels until it reaches 25% of the maximum.
- **Tactical Refuel** – Each ship refuels until it has 50% of the maximum.
- **Full Refuel** – All ships are refueled to their maximum endurance.
- Some refueling occurs automatically during the resolution phase but refueling that is ordered during the Orders Phase happens the instant the order is given. Assuming a source of fuel is available for refueling.

**Note:** *In a WEGO game, this order will not be instant, but the orders text will become green to indicate a planned refueling will be executed when the next WEGO turn is processed.*

## 6.6 OPERATION POINTS

Operation Points (or OPs) reflect the time spent on refueling, replenishing ammo, and loading/unloading of cargo. These actions reduce the movement of a TF during a Resolution Phase. During an Orders Phase, if a TF refuels or is ordered to load troops, the TF Information Screen will reflect the amount of time already used in Operation Points. Every TF has 24 Operation Points per day.

Thus, if a TF refuels and the display shows a ship has used 10 Operation Points, 10 of 24 hours of the day have been expended. This means the Task Forces cannot move or act for 10 hours. The port may also receive a number of ops points (counted in minutes) indicating it cannot serve any ships until this time has passed.

## 6.7 DOCKING

Ports have 2 figures dictating ship docking. Size and Capacity. Size indicates the maximum ship size in tonnage that may dock. The capacity shows the total tonnage that may dock at the same time. You do not have to take care of docking. According to the order given, the ships of the TF dock as required for various actions. For example, on loading, only those ships that are to take on cargo are docked at that hour. TF's with no destination will go for anchor in the protected Port zone if the port is size 3 or better. Otherwise, the TF will remain at sea and consume fuel. (Except very small ships like PT boats)

### 6.7.1 TASK FORCE DOCKING RESTRICTIONS

There is a limitation on the size of a Ship that may "Dock" at Ports of various sizes, as well as a capacity of total tonnage that can dock at the same time. There is no limitation on the size of a TF that may "Disband" at any Port. Docking is done automatically for all ships of a TF that need to do so. This, for example, means that escorts do not normally consume docking space unless they are in a TF that has escort type ships to load cargo.

### 6.7.2 CARGO TRANSFER RATE

The total transfer rate of a port per hour depends on the ship size and type. Larger ships tend to take on more cargo at the same time and consume more docking space. Certain ship types may load cargo faster than others. Cargo ships ordered to act as Tankers will load liquids into drums to store them in bulk cargo space. This takes much longer than a true tanker would need. Naval support can speed up the loading of docked ships, but is especially valuable for ships that cannot dock, as they are assumed to use Lighters and other craft to move Cargo to/from a ship at anchor.

There is no limitation on the size of a TF that may "Disband" (anchor) at any Port. Ships can load and unload cargo even when they cannot dock (via lighters) but at a much slower rate. Naval Support does help a lot in that case.

The total tonnage of ships that may "Dock" at a Port is given in the Port Information Screen below. The ship's tonnage is given in the Ship Information Screen. When the Ship is larger than the Port Dock Size, the ship cannot dock for unloading.

### 6.7.3 PORT INFORMATION SCREEN

| PORT SIZE | LARGEST SHIP IN TONS DOCKED IN PORT | TOTAL SHIPS IN TONS DOCKED IN PORT | REARM AT NAVAL BASE | REARM AT CIVILIAN PORT |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 1 | 6,000 | 6,000 | 30 | 15 |
| 2 | 9,000 | 12,000 | 180 | 25 |
| 3 | 12,000 | 24,000 | 1100 | 40 |
| 4 | 24,000 | 48,000 | 4000 | 45 |
| 5 | 36,000 | 60,000 | 4500 | 50 |
| 6 | 48,000 | 84,000 | 5000 | 60 |
| 7 | 60,000 | 104,000 | 5500 | 70 |
| 8 | 72,000 | 128,000 | 6000 | 80 |
| 9 | 78,000 | 172,000 | 6500 | 90 |
| 10 | 84,000 | 196,000 | 7000 | 100 |

For rearming, naval support adds +5 in military, and +1 in civilian Ports per naval support squad.

## 6.8 TASK FORCE LOADING

### 6.8.1 LOADING MEN AND MATERIALS

Ships with a cargo capacity may load air or ground units, supplies, fuel, oil, and resources when in the same hex with the item being loaded. A TF must be instructed to load certain item types on the TF screen.

Several different types can be chosen, and the ships will pick one of them on loading. This depends on the stockpile and how many other ships in the TF will load different selected items. The liquid capacity of any ship may only be used to load fuel, oil, or other liquids.

If a TF is ordered to load troops, a player is shown a list of possible units that can be loaded, along with the carrying cost of each unit and the total cargo capacity of the TF. Troops unable to board the TF will be greyed out. A ground unit will be broken into many sub-units if necessary, in order to be loaded onto a TF. Whenever sub-units of the same ground unit find themselves on land and in the same hex, they will automatically combine together.

**Note:** *Combat Groups, consisting of many component LCU, will expel any loaded LCU from the Combat Group. ( A unit cannot be part of a Combat Group if it is in a different location, which includes ships and aircraft). So, after unloading at the destination, Combat Groups need to be rebuilt manually using the unit window of the component LCU.*

A TF loading troops may also load supplies and/or fuel if there is any available space in the TF after all the selected troops have been loaded. This can be turned on/off on the lower left of the "Load Troops screen". This can be turned on/off on the lower left of the Load Troops screen.

"Execute load" loads troops on ships. Any ship can load as many units as will fit. Left clicking the button will evenly distribute the units to all ships. This speeds up unloading as every ship can unload its share. "Right click" will load the units on the ships until they are full. Some ships may remain empty if the units did fit on the previous ships.

"Pick up Troops" Allows the player to set a DH to pick up selected units. The screen will be similar to the load troop screen but shows the units in the DH to select for pickup.

Troops aboard ships continue to consume supplies. So, make sure the ships load enough supplies for the trip.

The process for loading troops for Amphibious or Transport is as follows:

- Select the unit you wish to load.
- Check troop and cargo capacity of the ships being used.
- Repeat selecting units and checking capacity of ships until they are finished.
- Click load supply.
- Click load fuel.
- Click Combat Load to add extra fuel and ammo to the LCU's that are going to be loaded. This is a convenient way to load ammo and fuel as it is stored in the unit instead of the ship and thus allows the loading ship to load more fuel and supply.
- Click execute load.

**Note:** *The mechanics for loading air units are the same as loading troops.*

### 6.8.1.1 LOAD TYPES

There are 4 basic load types in *War in Spain 1936-39*. Land Combat Units, Air units, PT boats/Mini Subs and industry products. Each of these items has distinct load characteristics:

- **Land Combat Units:** Land Combat Units (or LCUs) contain devices of different types. These devices are sub-divided into three categories.
  - Troops consist of all "squad" devices including Support, Aviation Support, Naval Support and Engineers.
  - Equipment consists of all other devices: Support Weapons, Artillery, Vehicles, Tanks (and Motorized Support). Equipment uses "Cargo Space".
  - Animals that may be part of a device use "Cargo Space".

- **Air Units:** These represent the aircraft themselves and their crews. Each air unit has a load cost based on the type of the aircraft (Fighter, Bomber, etc.) and the number currently in the air unit. Air units are loaded into cargo space for normal transport and arrive at their destination fully disrupted. Air units transported on an AKV will arrive at their destination fully assembled and ready for use.
- **PT Boats/Mini Subs:** These represent small craft that can be transported in a cargo ship.
- **Industry Products:** These are the various products and resource types that may have been defined for the Scenario. Each can have many attributes, may it be a "Liquid" or "Explosive", among several others.

**Note:** *There is a special rule for emergency troop loading. When ships at sea sink, any ship in hex can pick up survivors from the sea. Every ship type can do so, sometimes causing a ship to carry more than its capacity. There is also a special rule for emergency evacuations. Troop pickup missions done by ESCORT TF types are filling that role. This kind of mission profile is usually found with Destroyers or other small craft rescuing isolated troops that are in a desperate situation. The Troops could suffer a loss of all nonorganic devices if emergency evacuated and will also suffer high fatigue and disruption.*

## 6.8.2 SHIP CAPACITY TYPES

Ships have three specific capacities and capabilities that allow them to load the items listed in section 6.8.1.1 above. The capacities are:

- **Troop Capacity:** This is dedicated troop berthing space, along with associated messing and sanitary facilities and some allotment for storage of personal gear.

- **Cargo Capacity:** Ship's holds and other space that can carry heavy items but is not fitted for use by troops. However, It can be used to cross load personnel at 1 point per 3 Bulk Space.
- **Liquid Capacity:** Bulk liquid tanks that can be filled only with fuel, oil or other liquids. Certain cargo ships have a small, inherent liquid capacity, in addition to their cargo capacity.

**Note:** *Game rules* **can** *allow for "AK tankers". So, Cargo Capacity can be used for cross loading liquids in drummed state, though loading and unloading will take a lot more time than Liquid Capacity would be used.*

Items can be loaded onto ships in two basic modes: natural and cross load. Natural indicates that each item is loaded into the appropriate type of space. Troops in troop space, equipment in cargo space, fuel in liquid space, etc. Cross loading can be used to store a limited set of items in other spaces.

| LOAD ITEM | TROOP SPACE | CARGO SPACE | LIQUID SPACE |
|---|---|---|---|
| Troops | Natural Load | Cross Load | Can Not Load |
| Equipment | Can Not Load | Natural Load | Can Not Load |
| Supplies | Can Not Load | Natural Load | Can Not Load |
| Resources | Can Not Load | Natural Load | Can Not Load |
| Fuel | Can Not Load | Cross Load | Natural Load |
| Oil | Can Not Load | Cross Load | Natural Load |

Specific loading rules and load cost penalties are used when cross loading. Certain ship types cannot cross load troops into cargo space and others can only carry items when formed into Fast Transport Task Forces. The cargo space of an Ammo Ship, for instance, is considered to be magazine space and cannot be made to fit human habitation. Cross load of troops into cargo space of other ships includes a reduction in load to represent provision of temporary facilities in the same space.

### 6.8.2.1 CAPACITY USAGE

Different types of devices fit into different types of capacity and have different load penalties. For purposes of troop load, there are only two capacities. Troop and Cargo space. Liquid and aircraft are not considered.

| DEVICE TYPE | TROOP SPACE | CARGO SPACE |
|---|---|---|
| Troops | 1x load cost | 3x load cost |
| Equipment | NO | 1x load cost |

All load calculations are done in accumulated total. The total troop and equipment load cost of a given land unit is accumulated. Then allocated to the troop and cargo capacity of available ships, one by one, depending on the load type.

In addition, there are limits on capacity usage based on ship type. Ships, such as AE, AO, and landing support ships, such as LCI(G), are specifically excluded as their capacity is intended for other purposes such as magazine space. Certain other ships only carry troops/cargo only when placed into Fast Transport TF's.

### 6.8.2.2 SHIP TYPE CARRYING ABILITY

These general ship types will only load troops and Cargo for Fast Transport missions:

Battleships, Cruisers, Escorts, Patrol and Mine Warfare ships. (Except PB type ships. PB will load always)

Submarines will only load cargo and troops on "Sub Transport" missions and never load air units.

These Support ship types cannot use cargo space for troops:
AD, AVD, AVP, AR, ARD, AG, AGP, AO, AE, LCI(G), LCI(M), LCI(R).

## 6.8.3 CROSS-LOAD ADJUSTMENTS AND DAILY FATIGUE

Ships that can have cargo space may also carry Liquid's cross-loaded into the cargo space. This is only possible if the game rule "AK Tankers" is in play.

Except as noted, most ships that have cargo space may also carry troops in that cargo space, at the penalty rate. Some ship types (warships primarily) may only load items when placed into a Fast Transport Task Force. All capabilities assume the class has the proper capacity (troop, cargo, liquid).

### 6.8.3.1 TROOPS IN CARGO SPACE

The Load Cost Penalty to load troops into cargo space is 3x the normal load cost for troop space. Each load point of troops loaded into cargo space expends 3 cargo capacity points. Troops on ships that were cross loaded suffer from fatigue due to the uncomfortable accommodation.

### 6.8.3.2 DAILY FATIGUE

Troops aboard ships suffer from high Fatigue if cross loading troops exceed the natural Troop Space. Furthermore, troops will consume Supplies from the Bulk Cargo stores of the ship. If the ship does run out of Supplies, or has a Bulk Cargo type different from Supplies, Troops will gain High Fatigue and quickly begin to Starve. Troops aboard pure combat ships other than APD will suffer more Fatigue as well. These ships are simply not made for passenger transport.

### 6.8.3.3 UNLOAD DAMAGE

Troops unloading from combat ships have increased danger of Devices being lost to accidents. Some ship types are simply not properly set up for debarkation of troops and equipment. In addition to unload damage, some troops and equipment may be destroyed by accident during the unload process. This is particularly common when performing amphibious operations with ships not specifically configured to

amphibious unload. For example, xAK or xAP type ships when used without amphibious bonus.

## 6.9 TASK FORCE LOADING PROCEDURE

Task Force Loading moves devices from a land unit onto ships, up to the limit of the ship's capacity or size of the land unit. Load rates depend on ship size, ship docking and Port conditions. All TF loading is done on a per hour basis. Ships will dock as required up to the Port Dock Capacity for that hour. The process for loading units is resolved instantly and an appropriate amount of "Ops points" is applied to both the TF and the Port to indicate both cannot perform these actions again in the present time frame.

Loading industrial products is done once per hour.

For example, hypothetical port "A" might be able to fully load a single cargo ship in 4 days, but to load 3 such ships concurrently, it would not load a single ship in less than 4 days, as port facilities are inadequate. If more than 3 such ships are attempting to load, the additional ships must wait until one of the other ships has finished loading, freeing up some Dock Capacity.

A Task force ordered to load a product that is produced at this base will continue to load until it is full. If you wish the TF to set sail with a partial load, you need to stop loading manually.

### 6.9.1 LOAD PROCEDURE

Load execution consists of two steps: Selection of units and executing the load.

#### 6.9.2 LOADING UNITS

Loading initiates the actual load of Land and Air units. Land and Air units are completely loaded during the allocation step. There are 2

possible modes: normal loading (by left click) to distribute units to the ships of the TF or storing units on as few ships as possible (by right click).

An attempt is made to allocate heavy devices to the appropriate ships. Tanks, vehicles, guns, or devices that contain animals are preferably allocated to LST, LSV, LCT, and AKA types so the heavy equipment does not need to be moved to shore by small Barges or Lighters.

**Note:** *In WEGO mode the loading of any unit will work like "Troop pickup" and be executed once the turn is processed. This is due to several players executing the loading of the same units simultaneously.*

### 6.9.2.1 NORMAL LOAD

Normal load (done by left click Execute load) is used when the units should be evenly distributed to all ships so as to make use of the unloading capacity of all ships. A good choice for amphibious or fast transport missions. Ships can carry an unlimited amount of land units, as long as they fit the ships capacity.

Air units may only go into cargo space and may never be fragmented on load. Ships can carry up to 10 total air units, as long as they do fit the ship's capacity. Each aircraft will consume 10 Bulk Cargo space.

### 6.9.2.2 LOAD USING MINIMUM SHIPS

Use minimum ships (done by right click Execute load) is used when you want to fill ships completely. The ships in the TF list will be filled with units until no more space is available. Then the next ship will be filled.

### 6.9.2.3. DEVICE LOAD RATE

The rate of loading for devices does work like Cargo Loading. The load cost of the units and the ship size will determine how long a ship needs to dock for loading troops.

### 6.9.2.4 SHIP LOAD ABILITY

The ability to load each individual ship is based on whether or not it can dock, the ship size, (larger ships can load more than small ships at the same time) and naval support present.

### 6.9.2.5 PORT LOAD RATE ADJUSTMENTS

Naval Support and Damage to the Port both affect a Port's native ability to load a Task Force.

- **Damage** – Damage reduces load ability by reducing the Dock size of the Port. Damage reduces Port Dock Size by 1% for each Damage point. It also reduces Cargo handling by 0.8% transfer rate per 1% damage.
- **Naval Support** – Naval Support may increase any load rates. Naval Support adds 5 tons load ability per hour, for each Naval Support squad present. Up to twice the standard load speed of the ship. Since Naval Support uses their own Lighters and other small craft, they can substitute for docking a ship.
- **Undocked Ships** – Ships that cannot dock can still perform load and unload operations (using lighters from the port and/or landing craft/Barges from ships in the TF and the port). Loading/Unloading rates are significantly reduced. Naval Support is specially equipped to aid in such situations.
- **Submarines** – Submarines (other than SST) tend to transfer cargo very slowly.

The unloading of ships that cannot dock in a port is done by "Stevedores" only. Naval support squads sometimes work as stevedores too. But we also have pure stevedore squads that can unload but not rearm. Every port size has some "lighters" present that work like stevedores. So, unloading can take place even with no support from LCUs in that hex. The larger the port, the more support for unloading. This support is written on the bottom of the base info panel.

Stevedore squads and the support from the port are the only things that help to unload ships in ports where they cannot dock.

Unloading over beach is handled by amphibious unloading. Stevedores do not help here, as only the amphibious unload capacity of the ships is used.

The difference in port unloading does need to store items in warehouses in good order. So, some stevedores are required. Barges in hex, disbanded or not, do not contribute.

Unloading over the beach dumps everything on the beach. Troops in that hex need to pick up these items and any excess is open to spoilage. This might even be faster than unloading in a port for certain ship types, but if troops cannot pick up the items they rot away. You cannot dump Coal, Resources or Oil onto a beach.

#### 6.9.2.6 AMPHIBIOUS LOADING

There is an exception for all TFs that are meant to unload over the beach: Amphibious, Fast Transport, Barge and Landing Craft.

LCU's can be "Combat Loaded" which essentially means they carry 3 times their normal amounts of ammo and fuel with them. Since ships can only load 1 type of item for bulk cargo this is a convenient way to bring enough ammo and fuel for offensive operations. Aviation Support LCU's will try to pack up Aviation Fuel with them. Additional items will be taken out of the stores of the port as available.

### 6.9.3 TASK FORCE UNLOADING

TF Unloading is governed by the TF type and is put into two categories: Normal Unloading and Amphibious Unloading.

#### 6.9.3.1 NORMAL UNLOADING

Normal Unloading of a TF is governed by the same rates as loading a TF. And it is a function of Port Size. A TF will unload using the same

rate calculations used for loading, modified by the presence of Naval Support and Port Damage, as described above in section 6.9.2.5.

### 6.9.3.2 AMPHIBIOUS UNLOADING

Amphibious Unload may be used in three situations:

- An assault unload over the beach. This is a opposed amphibious landing.
- Unopposed unloading over the beach in a hex with no port or opposition present.
- Amphibious unload in a small friendly port. This is very handy if you need to unload in a port that has little to no port facilities. In a larger port, TF unloading is handled like any other unloading operation, with the exception that the LC, of the TF, are assumed to provide some Naval Support to aid in unloading.

There are 2 models of amphibious unloading to choose from. This is set in the Preferences, in the beginning of your game. They are:

- **Standard Mode** – The unload rates of ships will be determined by the ship types and the ship owning nation (If it has an amphibious bonus). Ships that carry Barges, like AK, AP, LSD may improve the unload rates of other ships. Beaching craft, like LST's, may also assist. Ships like xAK, xAP, etc. will only carry Barges if the owning nation has an amphibious bonus.
- **Detailed Mode** – This mode does not assume that barges/landing craft (LC) are on the ships, but they need to be in the pool to be assigned when the TF is formed. The type of barges in the pool determines how much ships can unload. E.G. You can only unload a 20-ton tank if you have an LC in the pool that can carry that amount of bulk cargo. Also, in this mode barges/LC will become lost/destroyed when used in landings. So, the amount of LC available does limit the number and size of operations that can be done. In opposed landings, a high rate of those LC will be

destroyed, and they will be removed from the global pools. You cannot execute amphibious landings (or unloading) when you lack LC in the TF or the pools. Ships may still unload, but at a much slower rate, that even token resistance will foil a landing. Beaching craft like Fährprahms may assist in the landings. Landing of equipment depends on what will fit the ship class of the utilized LC. Amphibious devices may unload faster, as they can go ashore self-propelled. Unload rates for detailed mode depend on LC type present. 4 or more LC can dock a ship per hour, unloading depends on LC capacity and ship size as well as total LC present.

The following are the assault ship types and their unload rates:

- **Beaching Craft** – Beaching craft unload completely in one hour. These are LC and LST type ships.
- **Attack Amphibious Ships** – These are AKA/AP type ships. They unload 10% troop capacity and 1% cargo capacity per hour.
- **Amphibious Assault Ships** – These are APA/LSD/LSI ships. They unload at the rate of 1/6 troop capacity and 1/60 cargo capacity per hour.
- **Regular Transport Ships** – Commissioned Naval AK or AP under amphibious bonus in Amphibious TFs, unload 1/5 Troop capacity and 1/50 Cargo Capacity per hour.
- **Merchant Ships** – These are xAP/xAK ships in Amphibious TFs, unload 1/30 Troop capacity and 1/300 Cargo Capacity per hour. Ships of this type belonging to nations with an amphibious bonus will unload at the same rate as AK/AP ship types.

**Note 1:** *xAKL and xAPc ships will unload at the same rate as AK/AP ships if the owning nation has the amphibious bonus.*

**Note 2:** *Amphibious Unload only applies to Troops and Cargo (equipment, supply, ammo, and fuel). Amphibious Unload does not apply to Oil or other Resources.*

## 6.10 NAVAL AMMUNITION AND RETREAT

If a TF is judged to be "Low on Ammo", it will have its Patrol/Retreat status automatically set to Retirement Allowed and it will return to its home port. A TF is considered to be "Low on Ammo" when the TF is a Surface Combat or Bombardment TF, and the TF has less than 30% of Naval and DP gun ammunition. PT Boat or Sub Patrol consider torpedoes for this check.

## 6.11 TASK FORCE OFFICERS

Every task force has an officer in command. Officers have several characteristics which can and will affect the TF's performance in combat, fuel consumption, morale, and other areas. These characteristics include aggressiveness, inspiration to subordinates, skill in surface actions, skill in carrier actions, skill in invasion, and administrative skills.

Rank is not an in-game factor and can be ignored for the purpose of deciding on who should command your TF. Unlike the real world, none of your virtual officers have an ego to bruise by placing a lower-ranking officer in a position over them. Officers in the list are either red (in command elsewhere), white (Available) or blue (unsuitable or too low ranking).

**Note:** *Every rank has a "value" defined and certain tasks or ship sizes may require a minimum value. Only admirals can be made TF leaders, though the flagship captain will automatically fill this role.*

If you right click a commander in red, you will be taken to the hex he is located in, and a message will tell you where he is in charge. This allows you to quickly find leaders and free them up if you need them in another command.

Creating TFs at sea, by splitting off some ships from another TF, will use the captain from the flagship in the new task force, generally the biggest ship.

There is a chance that a TF commander will be killed when the ship he is on sinks. Ship and TF leaders may be killed when the Bridge or Flag Bridge is hit in combat.

## 6.12 SHAKEDOWN CRUISES

It can be useful to run a shakedown cruise when a ship is first commissioned. Many ships come into the game with the crew having very low experience.

## 6.13 NAVAL COMBAT

Naval Combat in *War in Spain 1936-39* is a game within the game. Executed with precision turns just one second each. Ships will move and torpedoes and shells travel across the map every second. The amount of time passing in one real second can be adjusted by the + and – keys on the numpad or the main keyboard keys for + and – . Naval combat can take place at any time and will last for 1 hour. A combat that is not resolved in 1 hour will be saved in that state and continue the next hour. That way reinforcements can join surface combat, or TF's can flee the combat while others keep fighting. Sub attacks are resolved during this time as well.

Minefield interactions are conducted during Movement each hour. Bombardment attacks are executed after naval combat.

### 6.13.1 SURFACE COMBAT

Ship-to-ship surface combat between TF's occurs after the TF Movement each hour. Surface naval combat occurs when warships are in visual range to the enemy, though the TF's may both choose to avoid combat, or just shadow an enemy TF. A TF may not succeed in attacking a faster TF that seeks to avoid combat in most cases. Task Forces that encounter

the enemy and are involved in naval combat will stop their movement for this hour. Combat lasts for one hour and may continue for the next hour if not resolved. Other forces may join such a combat this way. Also, Float Planes can help in targeting for the friendly side. Task forces that are stopped (loading/unloading, docked, or fueling from a port) when engaged are at a severe disadvantage and their ships are vulnerable for a few minutes until they can get underway.

Whenever 2 or more Task Forces of opposing sides come into range of each other, a naval battle can be the result of the encounter. Naval Combat in SCW is running automatically. You can adjust various things like how fast time passes during the battle or adjust what you see on the tactical map.

Time is adjusted by Numpad + and – to speed up or slow down the pace of the battle. Page up / Page down zooms in or out on the tactical map. Arrow down and arrow up magnify the tactical map, so the UI elements are shown larger or smaller.

SPACE and ESC both skip the combat.

Under multiplayer modes (PBEM and WEGO) the combat will always take place at maximum speed.

Below is an example of a typical naval combat screen:

On center top you will find the current timescale. From 0 to 4 seconds per real second, and setting 5 will go thru the combat at fast forward speed.

The left and right sides show some info on the selected Task Forces and the HQ that is guiding the naval actions in that area.

The outer left and right side of the screen show the ships of the currently selected Task Forces. A right mouse button click on these images will bring up a window giving details about the ship. It is advised to stop time while examining a ship this way.

Below the timescale is the basic naval sight range. Adjusted by weather and lighting effects. Note this is the approximate distance one BB can spot another. Ships smaller than this may only spot each other at shorter distances, while ships larger than an average BB can spot each other at longer distances. Spotting is not guaranteed within the distance, and smaller ships are harder to spot than large ships. A PT can likely close in on the spotted BB without being instantly seen, while the BB is very likely to be seen early by the PT.

In the center is the tactical map. Red and green dots show Republican or Nationalist ships. At high zoom levels, this map will show ship images instead of dots.

Shell impacts are shown as white dots.

Aside from the tactical map are the TF's of either side. Clicking on those changes the ships shown on the very left or right of the screen.

On the bottom you find a message bar and some information on the ships that are currently in focus of the naval combat.

As the battle goes on, the ships under focus may change as they are acting or being subject to events.

Battles end after 1 hour, and the state of the action is stored because the battle might continue in the next hour of the day. Naval Combat can go on for several hours and include several Task Forces around the hex where the action has started.

**Note:** *The wind plays a part in surface combat as well. The Beaufort Scale is used to show how wind can hamper combat operations. See section 12.1.1 for details.*

### 6.13.2 THE FLAG BRIDGE

The Flag Bridge is the Command Center of a Naval Engagement. On the left are the Axis ships of the Selected Axis TF and on the right are the ships of the selected Allied TF. The Center line shows the Various TFs of both sides as Icons. On the bottom is data shown for the selected ships of either side. The Message region between them will show the Messages of the more important events that happen during the battle. As the Battle proceeds both the selected ships as well as selected TFs may change to show the ships that actions are executed upon.

### 6.13.3 TACTICAL COMBAT MAP

The tactical combat map shows Nationalist ships (red) and Republican ships (green) in a top view. You can zoom in and out by page up/down. The left clicking on the map centers on this spot. Right clicking selects the ships closest to the cursor. The low-resolution mode can have the map hidden or put on the left/right side. In resolutions from 1540 width the map is shown in the center screen between the TF icons.

### 6.13.4 NAVAL COMBAT ANIMATIONS

The Naval Combat Animation screen will show surface actions as the ships fight them out. Only detected enemy ships will be shown, some may only be radar contacts with no identification possible. As shots are traded, the display indicates by waterspouts, explosions and text messages detailing what is occurring on the screen. If you do not wish to watch the entire battle and instead skip to the end Combat Summary, hit SPACE or ESC. The combat results report will follow that details all participating combatants in the battle. As well as the results of the combat.

## 6.13.5 SHIP–TO–SHORE BOMBARDMENT

Ship to Shore Bombardment occurs during a special Bombardment Combat phase and as part of an Amphibious Assault. To perform ship-to-shore bombardment, a TF must be operating with a Bombardment Mission. Bombardment combat consists of naval gunfire on land targets and is similar to land bombardment. Naval bombardment gunfire may target ground Units, airfields, ports, anchored ships, and industry. Shore battery devices are the primary target for bombarding ground units. This is part of the naval bombardment orders. If a specified target is not located (ie, no airfield present) the allocation percentage to hit that target will be used on other targets.

**Note:** *Naval bombardment is the only means by which ships may attack enemy ships at anchor.*

Gunfire between ships and Shore Batteries can also occur during an amphibious assault, as warships escorting the invasion Task

Force will soften up the beach defenses and enemy coastal batteries will reply. This shore bombardment will primarily target Coast Defense guns and troops manning the beach defenses. Bombardment TFs following Amphibious TFs will attack before the amphibious TF attacks the location.

## 6.13.6 SUBMARINE WARFARE

Submarines may attack on the surface or while submerged. If the target of the attack does not look threatening to the submarine's skipper, he may attack on the surface. At night, submarines may do a night surface attack. This was common practice in the North Atlantic, with subs closing in during the day, and moving in for the attack at night. Large, well-protected convoys can make your skippers wait for nighttime to attack.

Night surface attacks will not use the deck guns, as the muzzle flash will alert every ship within many miles of the subs position.

Night gun attacks are only done if the sub is unable to dive after detection, or when the target is deemed not to be a surface threat.

Submarines will most likely attack submerged if the TF has surface combat ships, or it is a day attack. The effectiveness of a submarine attack depends on the weapons being used, the submarine captain's ASW/U-Boat skill and the skill level of the crew. Escorts may spot a submarine before it makes an attack or afterwards, or not at all, and will fire at a surfaced submarine, the periscope (seldom works) or may make a depth charge attack. The escort's weapons, captain's ASW/U-Boat skill and escort's crew skill determine the effectiveness of the anti-submarine attack.

A submarine's durability is a function of its maximum diving depth, and this will greatly impact the effectiveness of any anti-sub attack as well. When in coastal waters, submarines may not be able to take full advantage of their maximum depth. Depth charges can be brutal and kill a submarine very quickly. This makes attacking a Surface Combat or Air Combat TF with many escorts far more dangerous than attacking a small, unescorted cargo TF. Ships with anti-submarine weapons, such as destroyers or patrol boats are always searching for submarines, but the submarine's skipper usually determines if an encounter occurs. Please note that submarines may also be used for transporting supplies, fuel, troops or laying mines.

Subs will generally avoid ASW Task Forces (disguising a TF as ASW TF does not work). ASW TF's may intercept or block a submarine's approach if the sub has some DL on it.

Low level CAP, at 100 feet, may prevent a end run around maneuver by a sub on the surface.

TF Zig Zags may prevent an attack even if the TF is slower than the sub. TF's running at higher speed (usually mission speed for warships) may outrun a sub reducing the chances of attack as the sub has to be

in a good position at the moment of approach. Submarines can also initiate combat with enemy submarines, although this will only rarely be successful.

### 6.13.6.1 TORPEDO SUPPLY

In *War in Spain 1936-39*, torpedoes are a pooled device of limited supply and build rate. Whenever a sub or surface ship (or aircraft) loads a torpedo, one is deducted from the pool. Keep an eye on your torpedo pools, so to avoid having none left when you need them the most.

### 6.13.6.2 SUBMARINE VS. SURFACE

Submarines may attack any ships, though generally not PT boats and barges, in the same hex as long as the ships are not docked at anchor, at a port with a current size of at least 3, or if the ships are in a protected anchorage. They may surface and shell barges. Submarine attacks can occur during the movement phase of every hour as submarines encounter enemy ships (including enemy submarines). Or in a special submarine contact check after movement is completed.

The sequence for a submarine attack versus a surface TF is as follows:

- Chance for early detection of the sub by the TF escort.
- Sub attacks the surface TF.
- Sub dives to escape.
- Escort from surface TF attacks.

If the sub is detected early and is under attack itself, there is only one kind of attack by the sub: Daring commanders may fire torpedoes at the approaching escorts. This, though, makes the sub more vulnerable for a short time in the follow up ASW combat. In any case, the Sub dives and then suffers an ASW attack. The chance of a submarine attacking a TF varies depending on the:

- Sub's maximum speed,
- TF's current speed and movement detail (Zig Zags, etc.),
- Sub crew's experience,
- Prior detection of the sub.

Most sub attacks will use torpedoes only, but the sub may conserve torpedoes and use its deck gun against unescorted non-combat ships.

- The effectiveness of a TF's escort is determined by its:
- Maximum speed,
- Crew experience,
- ASW weapons, radar, and sonar devices,
- The total number of escorts in the TF compared to non-escort ships.

At night there is a small chance that the escort may use gunfire to attack a sub which is running on the surface.

### 6.13.6.3 SUB VS SUB COMBAT

Submarines that encounter enemy submarines at sea may engage in sub vs. sub combat. This is highly dependent on the location of the contact and luck. Submarines in friendly waters are more likely to travel on the surface and are therefore more likely to be engaged by enemy submarines. No combat is possible if both submarines remain submerged. The attacking submarine may choose to attack on the surface or submerged.

### 6.13.6.4 TORPEDO DUDS

Below is the torpedo dud rate table:

| NATION | TORPEDO NAME | DUD RATE % | NOTES ON DUDS |
|---|---|---|---|
| Republicans | 533.4 Torpedo | 10 | |
| | 450 W-450 Torpedo | 10 | |
| Nationalist | 45cm Si 200 x5.36 | 10 | |
| | 533.4 Torpedo | 10 | |
| | 450 W-450 Torpedo | 10 | |
| Germany | 50cm G7 | 10 | |
| | 53.3cm G7a T1 | 12 | |
| | 53.3cm G7e T2 | 14 | |
| | 53.3cm G7e T2a | 11 | |
| Italy | W 270/533.4 x7.2 | 12 | |
| | W 270/533.4 x7.2F | 12 | |
| | W 250/533.4 x6.5 | 10 | |
| | W 270/533.4 x7.2T | 11 | |
| | W 250/533.4 x6.72 | 11 | |
| | Si 270/533.4 x7.2M | 10 | |
| | W 200/450 x6.75RC | 10 | |
| | W 200/450 x5.75 | 10 | |
| | Si 200/450 x5.36 | 11 | |
| | W 200/450 x5.25 | 11 | |
| | F 200/450 x5.46 | 12 | |
| | Si 200/450 x5.36 | 11 | |

## 6.14 DAMAGE TO SHIPS

Damage to ships is marked in light orange (less than 15 percent damage), orange (less than 50 percent damage) or red (more than 50 percent). Ships can sustain 4 types of damage: System Damage, Flotation Damage, Engine Damage, and Fire. There is also the possibility of sustaining Major Damage within some of these categories. Major Damage may require the services of a Repair Shipyard to repair damage to this extent. Damage and Repair is explained in Section 15.2. An explanation of the 4 main types of damage is as follows:

- **System Damage (Sys) – Is** a number between 0 and 100. A rating of 0 indicates all systems on the ship are functioning at full effect with no damage, while 100 indicates the ship's systems are 100% damaged (effectively out of action). The greater the system damage, the less effective the ship will be in all aspects of combat and in damage control.
- **Flotation Damage (Flt)** – Is a number between 0 and 100. Flotation damage represents the accumulated damage to the hull of a ship. When Flotation damage reaches 100, the ship will sink.

**Note:** *Ships disbanded in coastal hexes may not be "lost" on sinking. They will remain in hex and can be salvaged by the aid of port or repair and salvage ships. You cannot get rid of those ships, loss of control of the hex to enemy forces will cause the loss of the ship and its cargo to enemy forces. As such, beaching a ship can save it from total loss, but it is also dangerous as you can lose the ship to the enemy. One famous case is the Italian ship "Taranto", which was sunk and salvaged several times by different owners during the war.*

- **Engine Damage (Eng)** – Is a number between 0 and 100. Engine damage represents the amount of damage to a ship's power plant.
- **Fire Level Damage (Fires)** – represent the intensity of any fires currently burning on a ship. A 0 indicates that no fires are burning while a value over 40 represents very large fires burning.

Individual weapon systems may also be destroyed. When a weapon system is destroyed, the ship Information screen will reflect this by reducing the number of the hit weapon system (possibly to zero) and marking that system in red. Some of these systems may be repaired if at anchor in a port, but larger weapons will require a repair shipyard.

The maximum speed of a ship is reduced as a function of engine damage. And it may be reduced further because of both system damage and flotation damage. The maximum speed of the ship is updated every

time engine damage increases or decreases, and the effects of system damage or flotation damage is considered.

Ships may suffer Critical Hits, which cause more damage than normal hits. Such as a direct hit to a magazine. There is also a small chance that every Critical Hit endured by a ship will cause its immediate destruction.

The Cargo of a ship also weighs in. Some cargo may be incendiary or even explosive. An ammunition ship can be expected to turn into a tremendous fireworks display upon the first solid hit.

A ship with any flotation damage or fires on board may suffer additional damage of any kind because of flooding/fire/explosions during each hour. Each hour all ships attempt to repair System damage, Flotation damage and fight Fires. It is, of course, much easier to repair damage in a port. The amount of repairs made as well as the likelihood of additional damage is impacted by the amount of current damage, the experience of the crew, the nation's ability in "Damage Control", and if the ship is in port, the size of that port.

### 6.14.1 SUB-SYSTEM DAMAGE

Ships may also suffer damage to specific sub-systems. Possible Subsystem damage is as follows:

- **Rudder blocked** – The ship may only sail in circles of varying diameter. This damage can be repaired by the crew at sea, given time.
- **Steering gear wrecked** – The ship's ability to turn is almost gone, emergency rudders are normally put in place, mounted on deck to allow minimal turning ability. This can only be fixed in port.
- **Electricals damaged** – Wires are disconnected, fuses blown and power generators offline. Most of the ship's larger weapons will be offline or operate at very slow rates. Small arms fire is not impacted. This damage can be repaired by the crew at sea, given time.

- **Lost all power** – The power generators are destroyed. The ship has no electric power and often no propulsion. This can only be fixed in port.
- **Periscope wrecked** – Subs only. The periscope is bent, obstructed, or the mirrors are broken. The sub may only attack while on surface. This can only be fixed in port.
- **Battery wrecked** – Subs only. The batteries are unusable. The sub cannot operate submerged and is forced to stay on the surface. When they are destroyed while underwater, ocean water can react with the battery chemicals. The result is lethal chlorine gas. The sub must blow all tanks and surface to save the crew from dying from the poison gas. This can only be fixed in port.
- **Shaft wrecked** – A shaft links the propulsion system with the screw. Large military vessels normally have 2 or more shafts and screws, civilian or very small ships may only have one. A wrecked shaft is bent or broken and cannot transmit the motion from the propulsion system to the screw, reducing the ship's speed, or even immobilizing it. This can only be fixed in a repair shipyard.
- **Bridge wrecked** – When bombs or shells directly hit the tower and penetrate the armor, the resultant impact may damage or even completely wreck the main bridge. The ship's captain or TF leader may die, and the ship will suffer from command-and-control delays until the crew establishes control from the auxiliary bridge. Larger military vessels normally have at least one auxiliary bridge. This can only be fixed in port.

## 6.14.2 OPERATIONAL DAMAGE AND REPAIRS AT SEA

Whenever a ship is at sea (not docked), it has a chance of suffering engine damage due to wear and tear on the ship. This damage can occur as the TF enters each new hex or remains on patrol in a hex and will immediately affect the TF's speed for the rest of the turn. Ships moving

at maximum speed will suffer greater Operational Damage than ships moving at Cruise Speed. In addition, ships always attempt to fight fires, repair flood, and engine damage, even when at sea. Engine damage can be fixed at sea to a limited extent to restore a part of the lost propulsion power. The chances of incurring engine Damage during movement (representing normal wear and tear on the ship) is five times higher at Full Speed then at Cruise Speed. There is also a very slight chance of major damage due to accident or marine hazard.

**Note:** *Very small vessels below 200 tons are not high sea capable and can suffer considerably if operating in deep ocean hexes.*

# 6.15 MINE LAYING TASK FORCES AND MINE WARFARE

## 6.15.1 MINE LAYING

Minefields are created by valid mine capable ships in a Mine Laying or Sub Mine Laying TF. Multiple minefields can exist in the same hex, and whenever a TF enters a hex with minefields, each minefield in the hex has a chance of causing damage to the ships in the TF. As minefields are detected, the chance of damage to Task Forces declines. The greater the number of mines in a minefield, the greater the chance a mine will hit an enemy ship. There is a small chance that a friendly ship will hit a friendly minefield. but this is very unlikely if the minefield is in good shape.

### 6.15.1.1 MINEFIELD CREATION

Valid mine capable ships in a Mine Laying or Sub Mine Laying TF create a minefield by having mine laying mission orders, and a stock of mines. The TF is given a DH (destination hex) for the minefield. The Mine Laying TF will proceed to the DH and lay the minefield, then return to base.

## 6.15.2 MINEFIELD MAINTENANCE

Minefields decay over time but can be maintained by the appropriate Minefield Tender ships. Each ACM can maintain 250 mines, each port level 100 Mines. This works in a radius of 20 NM (4 hexes) around the port.

### 6.15.2.1 MINEFIELD DECAY

Minefields consist of 2 basic values. The shape and the number of mines. Shape indicates if the mines are in position. Minefields with low maintenance will disperse and become a threat to all ships sailing in that hex. The shape of a minefield in deep water decays by up to 25%, in shallow water by up to 12%, and in coastal hexes, rivers and canals up to 5% per day. The poorer the shape, the lower the number of mines in the field. That does not necessarily mean that the minefield is no longer around, it just means that you can't find the mines anymore. After a while a minefield will dissipate and no longer pose a threat to either side.

The currently known Minefields in a Hex can be viewed by a button in either the Base information panel or Hex information panel.

### 6.15.2.2 MINEFIELD TENDERS

A special class of ships, Minefield Tenders (ACM) maintain the shape of minefields around bases. Each ACM can maintain (i.e.

service and repair) up to 250 mines. ACM's have a range of 20 NM or 4 Hexes. Multiple ACMs may be stacked in a base to protect more mines. ACMs must be disbanded into a base to maintain mines there – ACMs will not protect mines while in a TF at the base. ACM's will burn fuel while at their base so make sure that you have fuel on hand.

## 6.15.3 MINELAYING SHIPS

Mine ammunition is treated in two different ways, for two kinds of minelaying ships: Regular Minelayers and Special Minelayers.

### 6.15.3.1 MINELAYERS

Minelayers are ship classes "normally configured" to lay mines, such as CM, DM, CMc. Their normal mine ammunition is entered as weapons in the class device list, with a dispensing number, a dispensing mount size, and the number of mines carried as ammunition. Minelayers are listed in the Mine Warfare Task Force by Class Table in Section 6.16.6 below.

### 6.15.3.2. SPECIAL MINELAYERS

Special Minelayers are ship classes "not normally configured" to lay mines but have the capability to do so when called upon. There are two types of Special Minelayers: Sub Minelayers and Auxiliary Minelayers. Special Minelayers may belong to ship classes not listed in the Mine Warfare Task Force by Class Table. But when a ship can carry special mines, described below, it may also be put into Mine Laying TF's. A surface warship with special mines may be assigned to a minelaying TF as if it were a normal minelayer.

#### 6.15.3.2.1 SUB MINELAYERS

'Special' mines are implemented for submarines. Special mines have a specified mine type but no number, mount, or ammo data. Special Mines for submarines are loaded automatically when the submarine is included in a Submarine Minelaying Task Force. The number of mines loaded is based on the number of torpedoes. 2 mines may be loaded in place of each torpedo, but the sub will keep at least 1 torpedo per tube.

#### 6.15.3.2.2 AUXILIARY MINELAYERS

Any ship (including minelayers) that does not otherwise carry mines may be configured to carry mines when assigned to a TF with a minelaying mission. These special mines may be in any weapon slot. They must have a specified mine type and have all the attributes of normal mine slots except for ammo and armor. Ammo is set to zero, to indicate mines are not normally carried, and Armor is set to the ammo value to be used when mines are carried.

## 6.15.4 MINE REARMING

Mines are reloaded from the pool. The pool must have a sufficient number of appropriate mines to reload/rearm any mine capable ship. Mines can be loaded at any port with sufficient rearm capacity for the specific mines. Rearm capacity is based on port size and increased by naval support. Mine load cost is based on the effect rating of the specific mine type. Generally, loading mines functions just like any other ammunition except for "pool" requirements. Below are some additional points about rearming mines:

- When a ship is rearmed, mine slots will draw mines from the pool only if the TF is a minelaying mission type.
- When a ship is rearmed and is not in a minelaying TF, special mine slots will remain empty (zero ammo).
- When a ship is rearmed and is in a minelaying TF, special mine slots for the ship will be rearmed, with the ammo value created from the class's armor value.

**Note:** *Ships are automatically armed when a minelaying TF is created. Ships that get added to an existing TF do not load mines automatically. No adjustment to a ship's cargo capacity will be made based on carrying or not carrying mines. Ships automatically transfer any mines back to pool upon TF disbanding, but not when transferring to port.*

## 6.15.5 MINESWEEPING

Valid ships, in Minesweeping or Local Minesweeping TF, can sweep minefields. See the table in section 6.16.6 below. Some mines have a magnetic detonator and are best swept by ships having the appropriate equipment (and often a hull made of wood). Other minesweepers will be very slow clearing magnetic mines. Certain electronic warfare planes

can also sweep magnetic mines. This is done by doing a recon mission at 100 feet with those aircraft. A minesweeper with a "-i" after its name is capable of sweeping Magnetic Mines.

### 6.15.5.1 MINESWEEPING TF CREATION

Minesweeping capable ships may be placed in Minesweeping or Local Minesweeping TF and can sweep a minefield by having minesweeping orders for a given location for the minefield to be swept. If a Minesweeping TF is clearing mines in a hex that is close to coastal guns, the TF may be fired on.

### 6.15.5.2 MINESWEEPING

Minesweeping TFs may be created both by a player and by the AI. When the AI creates a Minesweeping TF, it may only include ships of a valid Minesweeping class.

### 6.15.5.3 LOCAL MINESWEEPING

Local minesweeping TFs work the same as normal minesweeping. Except when the automatic AI creates a Local Minesweeping TF for the player it may only include smaller ships. Local minesweeping makes use of small, short ranged ships that are usually not high sea capable while normal minesweeping makes use of larger ships.

## 6.15.6 MINE WARFARE SHIP CLASSES TABLE

The Class types that are normally included in Minelaying or Minesweeping Task Forces are given in the following Table:

| CLASS TYPE | MINE LAYING | SUB MINE LAYING | MINE SWEEPING | LOCAL MINE SWEEPING |
|---|---|---|---|---|
| PG | Y | - | - | - |
| PF | Y | - | - | - |
| KV | Y | - | - | - |
| PC | Y | - | - | - |
| PB | Y | - | - | - |
| SS | - | Y | - | - |
| CM | Y | - | - | - |
| CMc | Y | - | - | - |
| DM | Y | - | - | - |
| DMS | Y | - | Y | - |
| AM | Y | - | Y | - |
| YMS | - | - | Y | Y |
| AMc | - | - | - | Y |

**Note:** *A ship belonging to any Class that has Special Mines as part of its weapons complement may also be included in Mine Laying Task Forces.*

## 6.15.7 MINE TYPES

*War in Spain 1936-39* has 2 general types of mines. Contact mines and magnetic influence mines. Mines with a penetration value of 10 are handled as magnetic mines. Some mine clearing ships have special equipment to deal with magnetic mines. Without this special equipment magnetic mines are hard to clear. Ships made of wood are immune to magnetic mines.

## 6.16 CREATING PT BOATS, MOTOR GUNBOATS, MIDGET SUBS AND BARGES

Small combatants such as German PT boats were particularly useful in narrow waters. Both sides made use of PT's and MGB's. As well as various barges and landing craft (LCVPs, LCMs, and LBs) for short beach to beach invasions and supply hops between islands and local bases along the coast. However, all these vessels had to be transported over the ocean to their new base. To move the Midget sub, PT boat or barge, go to the ship information screen and click on "Pack up as cargo". The small craft will be turned into a ground unit containing it. This can be repeated by adding several small craft of the same general type into the ground unit. This ground unit must then be shipped to its destination and unloaded. On the Base information screen (See section 10.2.1) you will find buttons to activate (unpack) the craft. Take note that the crafts are part of the ground units in the form of devices. If one of them is lost by whatever means, the craft that it represents is also lost.

Barges are a special craft. They were built in large numbers and stored in "pools". These Barges can be taken from the pool at any connected base by buttons found on the base information screen (see section 9.1). They may also be put back into the pool at such a base.

PT boats, MGBs, SSX's and barges act in all ways like all other ships with one exception, Rearming. They can rearm in the same way as all other ships, but if the port's Dock Size is equal to or more than 10 times the tonnage of the ship, it can rearm all weapons. So, you do not need a giant size 7 port to re-arm a 30-ton motor torpedo boat. These small craft can arm and operate from small ports.

## 6.17 COASTAL GUNS AND PASSING TASK FORCES

Every time a TF enters a hex (or simply resides in a hex), that has enemy coastal guns present, may be fired on by those guns. The CD guns must have a clear Line Of Sight (LOS) to the ships. There is a 2-way check for this type of combat. LOS is always given both ways for CD guns in solid inland hexes. The hex side from the CD gun towards the TF must allow TF travel, and the TF hex toward the CD gun must allow TF travel. TF's will generally try to avoid enemy CD guns when selecting their movement paths, (unless direct is chosen), to avoid this kind of attack, if possible.

**Note:** *A TF may be subject to coastal gunfire several times during the 1 hour, most likely in a different hex each time as the TF moves right though the sea covered by the coastal defense unit(s).*

## 6.18 WITHDRAWAL AND RETURN OF SHIPS

Both sides will experience ship withdrawal from the game at predefined dates set in the editor. Ships can leave and return several times during the game. There is nothing a player can do to prevent this. Furthermore, when a ship with a withdrawal date sinks, another ship or even several ships may take their place and withdraw in place of the sunken ship. When a ship is withdrawn, it is instantly removed from the game. This reflects the loss of player command over the ship, as he is no longer responsible for it.

Ships that have withdrawn may return as a reinforcement, on the next Return Date set in the Editor. Returning ships will have received any upgrades that are due, as of the Return Date, and will have received any repairs needed.

## 6.19 SPECIAL COAST DEFENSE CONVOY UNITS

A Special CD Convoy Unit represents a special type of CD Unit. These are units that are set to disband, via the editor, 3 days after their arrival. When the unit disbands, any devices, supplies and/or fuel attached to the unit are sent to the device pool and/or that bases supply/fuel stockpiles.

# 7. AIR UNITS


Aircraft are not represented on the map as such but rather are always located on airfields or ships. The type of aircraft in the units are differentiated graphically. During the Air Movement/Combat phases, a line depicting the path of the aircraft may be shown between the base and the target hex. Any actions taken by the air units, as well as losses, will show up on the Combat Events screen. Furthermore, individual pilots are rated for Experience and Fatigue.

Air units (also called air groups) generally depict squadrons or similar formations of the same type of aircraft. Although some formations and especially ship-based floatplane groups can be smaller. Each unit is made up of several planes of one aircraft model.

## 7.1 AIRCRAFT TYPES

Aircraft come in five overall varieties: Fighter, Attack, Level Bomber, Transport and Reconnaissance. These five varieties are broken down into multiple types which are explained below:

**Fighters** – Are employed to gain air superiority over a battle or their home base by shooting down enemy aircraft. They are generally fast and highly maneuverable.

**Fighter-Bombers** – Can fly either fighter or bomber Missions.

**Night fighters** – Are used for intercepting enemy aircraft at night. Some utilize early forms of airborne radar, others are limited to a trained eye and the cycle of the moon to detect, close with, and destroy their targets. Night Fighter Pilots need to have an experience rating of 80 or better to carry out this mission.

**Float Fighters** – are equipped with floats in order to land and take off from water locations. They're not as powerful as regular fighters, but their versatility makes up for this.

**Note:** *All fighters can perform "Interdiction". A special mission to target enemy logistics like trains or trucks. This mission is done by using the "Recon" mission at low altitudes of 1K feet or lower. The mission arcs must cover the hexes that serve as the start/end point of possible logistics links.*

**Dive-Bombers** – Attack ground and naval targets by diving straight in on their targets from high altitude.

**Attack Bombers** – Are special Aircraft that have been modified to attack in an aggressive low-level fashion. Often their weapons of choice differ from the Level Bombers and reflect the nature of their "in the weeds" or "off the waves" attacks. They can conduct normal formation tactics above 5,000', but when set to 5,000 or below they behave like fighter bombers and use para-frag, masthead, and skip-bombing tactics. Their heavy armament and specialized training in AAA suppression make them deadly to their targets. These are the only types of aircraft, apart from fighters, that can do "Interdiction" of enemy logistics.

**Torpedo Bombers** – Attack naval targets by flying in low over the water and dropping their torpedo payload very close to enemy ships.

**Heavy bombers** – Are a subset of Level bombers. They are typically four-engine aircraft. And are most effective against ground targets. Heavy bombers carry a higher payload of bombs than their Medium and Light bomber cousins. Level Bombers fly straight and level which make them less accurate against naval targets.

**Medium bombers** – Are a subset of Level bombers. Typically, two-engine aircraft. They are fast and can be effective at Low, Medium, and High altitudes but are doctrinally limited to formation attacks. They can be asked to perform low altitude masthead or skip-bombing but are not armed as heavily for this mission and thus are subject to heavier losses.

**Light Bombers** – Are a subset of Level Bombers and therefore perform in the same manner. But due to their design they can operate from smaller unimproved fields without suffering the load penalties of heavier aircraft. They are particularly good at low level attacks on ground targets, as they are much more difficult to hit with small AA guns that fire contact ammunition.

**Reconnaissance Aircraft** – Have extraordinarily different ranges and are used exclusively to spot enemies. Though Recon aircraft are your primary assets and are typically unarmed, it is possible some specialized units use reconfigured fighter aircraft to perform "Tac Recon". These Aircraft were armed and regularly fought their way into targets and some pilots even scored as aces. Some other non-recon craft may have a camera device to be used for recon. This applies to certain level bombers that can serve a recon role as well as an attack role. Their missions can add to the Detection level of enemy targets. Detection levels are imperative for ground attack, combat between ground units, artillery barrages and naval bombardments.

**Patrol Aircraft** – Are aircraft used primarily to search for enemy ships. Certain patrol aircraft are amphibious, allowing them to operate on land and water, others are aquatic and as such water bound. And there are some aircraft that are land based only.

**Float planes** – Are ship-based aircraft used for anti-submarine and naval search patrols. Some are good for other missions as well, Such as CAP.

**Transport aircraft** – Ferry troops and supplies. They are normally limited to transporting devices with a small load cost. The aircraft "Ramp size" will tell the size of devices that can be loaded. The Ramp size value expresses the size limit in tons. A value of 0 means anything from 0 to 0.9 tons will fit into the aircraft. AFV's are measured in tons, other vehicles, devices and AA guns in 1/10 tons. Squads do not need a ramp size, and 1 squad can be split into several planes for transport if required.

**Electronic warfare aircraft** – These aircraft are equipped with special EM generators to detonate magnetic influence mines as they pass over them. Mission must be recon at 100 feet for this to work.

## 7.2 VARIANTS AND REFITS

Some aircraft can have "Variants" and/or "Refits" available. Availability of Variants/Refits can be seen when clicking on the image of the airframe on the Aircraft Information Screen. The resulting popup screen also helps in obtaining aircraft that originate from other nations. If it is a nation under your control, a shortcut command is available to create and hand over a number of these aircraft. Optionally the group will try to relocate to that hex automatically. If you do not control the nation of aircraft origin, you will have to ask the other player to create and hand over a ferry group containing the aircraft.

### 7.2.1 VARIANTS

A "Variant" is a quick change in the airframe. These are mostly weapon configurations.

### 7.2.2 REFITS

A "Refit" is a more time intensive reconfiguration of the airframe. Examples of this are recon versions of fighter aircraft, or the reconstruction of outdated bombers into transport aircraft. This kind of reconfiguration will have the aircraft grounded for some time.

## 7.3 AVIATION SUPPORT

Air units based on land bases rely on the support of Aviation Support Squads, which are found in both Base Forces and Special Aviation Units (like Aviation Regiments). These units contain support troops to service aircraft and sometimes engineers to construct, maintain and repair the base facilities. Without these base force units present, the base can't maintain aircraft and keep the base functioning. Aviation Support squads are not attached to any particular squadron. Their presence at a base is enough to support the air units present.

One Aviation Support point is required for each aircraft engine operating at an airbase for those aircraft to function at maximum efficiency. Less Aviation Support is ok for bases that only do scouting or CAP missions, as Aviation Support is only required for repair and maintenance of aircraft.

The size of the airfield can increase the effectiveness of aviation support squads (AVS) as larger airfields tend to have superior infrastructure and facilities. An increase of 10% per size airfield over 1 is given. Furthermore, the experience level of the ground unit has a high influence, with 50 experience being "standard". Aviation support crews gain experience over time. Experience above or below 50 will modify the effective AVS, with 100 experience be 200% effective AVS and 0 experience be 0% effective AVS. See examples below:

**Example 1** – A ground echelon has 70 Aviation Support Squads in it. If the unit had 25 Experience, it would be 35 effective Aviation support points. If the unit had 100 Experience, it would be 140 Effective Aviation

support points. At 50 Experience, the Effective Aviation support is equal to the number of support squads in the unit, or 70 AVS. There is a 2% change for every Experience point above or below 50 experience.

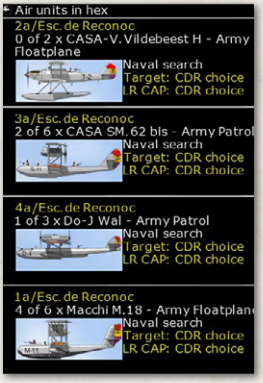
**Example 2** – Airfield Size: Every size above 1 gives 10% on the effective Aviation support. Say a unit has 70 effective aviation support points and is on a size 3 airfield, it would receive a 20% (14 points) bonus to the effective Aviation support. So, you would have 84 effective AVS support.

**Note:** *The above examples can be combined to give you a wide variety of AVS support at any given airfield.*

The number of aircraft any airfield can operate is measured in "engines". As such a single engine aircraft will need 1 AVS, and a 4engine aircraft will need 4 AVS. These AVS's are spent on repairs, maintenance, and arming aircraft on most offensive missions. It is possible to maintain 10 fighters with effective 4 AVS as long as 4 or less aircraft are on repair/maintenance at a time. For offensive missions the AVS is split into AM and PM/Night. You may launch as many offensive "engines" per air phase as you have AVS.

**Note:** *The text on the Base Information Panel (Section 10.2.1) shows if your AVS is sufficient for any planned air operations. If you click this text, more info will appear as a popup to help you in planning air operations.*

# 7.4 AIRCRAFT SIDEBAR




Below is the Aircraft Sidebar. The Sidebar makes it easier to see what is present at the base and to place some orders.

The first line provides you with the name of the air unit. Next is the number and type of aircraft, plus the military branch they are attached to. Below and to the left is a side view of the aircraft. To the right of the picture is shown the aircrafts current assigned mission and two of its mission types.

# 7.5 BASING AIRCRAFT

Air Units are rarely found directly on the map. They are mostly seen on airfields or aircraft carriers and in battle. On occasion air units can be found in ports when they are shipped to some destination out of immediate transfer range. In this case the air units are moved on rail or truck to or from a port in disassembled state.

## 7.5.1 AIRCRAFT STATUS ON AIRFIELDS

Aircraft in an air unit can be in one or more of three conditions:

- Serviceable (Can fly)
- Maintenance/Damaged (Un-serviceable, unable to be flown)
- In Reserve (Available to replace destroyed aircraft)

Serviceable aircraft are those aircraft that can fly during the next day. Aircraft being repaired and in reserve are not available to participate in Missions. Aircraft that are Serviceable may become damaged due to combat or become operational losses from flying, even during Transfer Missions.

During the Air Group Maintenance Phase each day there is a chance that the aircraft will change their state. The chance of an aircraft being repaired is based on the damage to its airfield's service facility, the amount of aviation support available, the amount of damage to the plane and the supplies available at the base. An air unit can never have more than its maximum serviceable aircraft ready at one time. Any remaining aircraft would be placed in reserve. Once the number of ready aircraft falls below the unit's maximum, the unit will attempt to move reserve aircraft to serviceable.

## 7.5.2 PATROL AND FLOAT AIRCRAFT

Float planes can sometimes not return to their ship. This applies mostly to CAM ships and some vessels that were designed to have their aircraft return to shore bases after the mission. An aircraft cannot return to a non-carrier ship if it's runway need is greater than the ship's runway. For launch, the runway size of the ship is compared to the runway need of the airframe. If the runway is smaller than 50% of the runway needed, the aircraft cannot take off. If the runway is between 50% and 100% of the need, the aircraft can only launch with reduced load.

Aircraft that are not fit for operating on a given ship normally can only be loaded on ship in a port. This applies to aircraft being loaded on combat vessels or CAM ships.

### 7.5.2.1 AIRCRAFT STATUS ON SHIPS

Aircraft on ships are assumed to have sufficient aviation support and supplies to fly missions. However:

- Aircraft on a ship may not fly if either the ship's System Damage, Fires or Floatation Damage are greater than 50. They may transfer off the ship if docked or at anchor at a base (they are assumed to have been manually unloaded).

- If the number of aircraft on board exceeds 110% of the ship's capacity, only Transfer Missions can be flown. Aircraft are counted in engines.
- A ship may never have more aircraft on board than twice its capacity.

#### 7.5.2.2 LOADING AIRCRAFT

There are 2 ways to load air units on a ship.

- As cargo (have a TF load the air units) or
- As an active air unit (by moving the group onto a capable ship).

Any Float plane or Float fighter may be based on a Battleship, Heavy Cruiser, CS, or other non-carrier type ship that has the capacity to carry aircraft. Float planes, float fighters, and some patrol planes can be based on friendly airfields, including those that are size 0 if they are on a coastal hex.

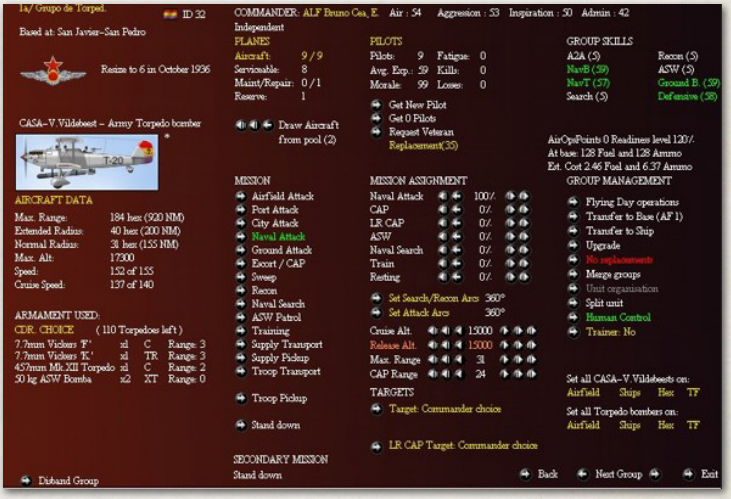
## 7.6 EMERGENCY LANDINGS

(These rule apply if CV's are Modded into a custom Scenario)
Aircraft attempting to return to a Carrier that has been damaged sufficiently to prevent aircraft operations will instead attempt to land on another carrier or friendly airfield that is in range. Aircraft making an emergency landing on another carrier may cause it to exceed 110% of the carrier's aircraft capacity. It is up to you to remove the excess aircraft in case the respective carrier is to continue with combat ops. Aircraft landing on an airfield may be transferred to a carrier in range or simply operate from the airfield until transferred to another carrier or base.

In the case where a CV TF is operating "Blue Water Ops", or out of range from friendly land-based AFs, mass Ditching may occur. But the likelihood of the pilots surviving is higher than normal Ops losses as it is assumed that the Ditching occurs within the CV TF and pilots may be recovered.

# 7.7 AIR UNIT INFORMATION SCREEN

By selecting an air unit, the Air Unit Information Screen will open. See screenshot below:




## 7.7.1 DETAILED INFORMATION FOR THE AIR UNIT INFORMATION SCREEN

The following is a detailed description of the different parts of the Air Unit Information Screen.

On the upper left, there is information regarding the unit's nomenclature and service location. If the group will resize, then the size and date of the resize is shown on the upper left corner. Withdraw and disband dates are also shown here if the group is subject to any.

The next column shows the unit leader on top and the HQ the air unit is currently attached to. Clicking on the leader's name will bring up a panel where you can choose a new leader. See section 12.1. All air groups attach themselves to the best air HQ in range. In the case of Air Combat TF's, the task force leader and his air skill are used for HQ purposes.

Next is the "PLANES" link that will open a panel with detailed information on each aircraft in this group. Followed by the number of present aircraft versus the maximum group size. Clicking this will allow you to resize the group depending on game rules chosen and group attributes.

Next is the number of serviceable aircraft that can carry out missions.

Below is the number of aircraft under repair or maintenance.

Then the number of reserve aircraft is shown. These are aircraft that are held in reserve and only activated to replace losses of the group. The number of aircraft that can be held in reserve is 4 per group.

The upper center column displays pilot information. The text "PILOTS" is a link to a panel showing detailed information of the

group's pilots. You can also sort the pilots by various skills. See section 7.6.3. Take note that normal missions will start picking pilots at random or from the top, but training will start picking from bottom of the list.

Below you see the number of pilots in the selected squadron and their average experience as well as morale, fatigue and the group's kills and combat losses. You may also draw more pilots from the pilot pool, up to 100 per group, or quickly refill the group if it has fewer pilots than its size. Requesting a veteran from the pool is also an option, and you can set the type of pilot in case automatic replacements are allowed for the group. Replacement will take pilots from the general pilot pool. Veteran will take them from the veteran pool. Elite will only take pilots with 80+ skill from the veteran list.

The upper right shows the average skills of the group's pilots, with a particularly good skill highlighted in green.

The lower columns show the name and type of the aircraft and an image of the airframe. This image can be clicked to open a small panel showing potential variants and refits for the aircraft. See section 7.2 for a brief description of both. The text "AIRCRAFT DATA" is a link to a panel showing more detailed information on this airframe's performance and other data.

Below that the various ranges are shown. Transfer range, extended combat range and normal combat range. The maximum altitude is shown and, if available, use of drop tanks can be turned on/off.

The next lines tell you the speed of the aircraft at the currently selected cruise altitude.

On the lower left is a list of weapons and equipment the aircraft will use on its selected primary mission. The devices can be clicked for a small panel showing the device data. Devices in blue text indicate "future" devices. An example would be radar or MAD, which became available at some point for various airframes.

On the lowest right is the disband button. Left clicking it while holding down CTRL will remove the group from the game, while clicking right will move its aircraft to the pool. This is mostly used for disbanding depleted Ferry Groups. Take note that sending aircraft back to the pool may not work if the group cannot reach an appropriate base back home. In case of combat air groups, the AC will be dumped into a ferry group so you can move them back home while keeping the air group in place. This is normally done when upgrading an air group to another airframe type while it is out of range to the pool.

The next column shows the possible main missions. Right clicking them sets them as a secondary mission. This only works for certain missions, as the need for a secondary mission can only be known past the scout and recon phase. Thus, only offensive or training missions can be set for secondary missions.

Primary Missions include:

- **Airfield Attack** – In this Mission the aircraft will be armed with bombs and attempt to bomb an enemy airfield and other targets at the airbase.
- **Port Attack** – In this Mission the aircraft will be armed with bombs or torpedoes and attempt to bomb an enemy port's facilities and other targets at the port including ships at anchor.

Depending on the nation that does perform the mission, a set percentage of bomb equipped aircraft may equip a "special" bomb designed specifically for bombing ships in port.

- **City Attack** – The air group will bomb the city in the target hex. This kind of mission targets industries as well as critical infrastructure like Bridges. Yet Bridges are very hard to destroy by this mission type.
- **Naval Attack** – In this Mission the aircraft will attempt to use bombs and/or torpedoes against an enemy Task Force. If clicked again you can switch between naval attack and air mining.
- **Ground Attack** – In this Mission the aircraft will attempt to bomb an enemy ground unit. Low level attacks will try to target vehicles and guns. Higher level attacks cannot do this. Also, attacks in contested hexes from above 3,000 feet will cause the air unit to try to attack rear units to avoid friendly fire. If no rear units are present, they target frontline units, but with extremely reduced impact.
- **Escort** – In this Mission, the aircraft will attempt to escort bombers flying airstrikes from the same airfield and in some cases from other airfields. Fighters from one base may escort bombers from another base if the fighters are in range to the target. Units given a Mission of Escort will not initiate an airstrike by themselves but will instead join up with an offensive strike being performed. If a target hex is given, only strikes to that hex will be escorted.
- **Sweep** – In this Mission the aircraft attempts to draw enemy CAP over the target hex into an air-to-air engagement. The primary advantage of a sweep is the attacker can set the stage (the altitude) at which the combat must take place. CAP cannot allow enemy fighters to fly around an airfield conducting operations or allow them to foil their own Recon missions into a hex and will climb or descend to attack the intruders.

- **Recon** – The unit will send its aircraft to perform photo reconnaissance of the enemy within the defined radius of
- operations. This can increase the detection level of targets and is especially valuable when DL on enemy LCUs is obtained. Good information will boost LCU performance in ground combat. It is advised to use LRCAP to deny your opponent this luxury. Recon Missions are especially difficult to intercept with CAP or shoot down with Flak. Recon type planes are the best at performing Recon Missions. It is also possible to set a target hex for the entire group to recon. In case a DL on just one specific hex is important. A special sub mission does exist for fighters and attack bombers. Area Recon at 1000 feet or lower will make them attack enemy logistics. All Recon missions will use the Search arcs for area covering missions.
- **Naval Search** – In this mission the aircraft will search for enemy Task Forces (subs or surface) in all permitted directions out to their defined range. They will carry the respective bomb for "naval attack mission" load in case they spot a sub or surface ship, in which case they will attempt to attack unless driven off by CAP or Flak. The search continues until a TF is detected or the plane runs low on fuel. Once a TF is detected, the plane may shadow the TF. This can be severely hindered by the presence of CAP. Setting the max range to a lower range than the normal range will improve the chance of detection, as this can translate to having the aircraft fly a "pattern" inside it's search zone. Search missions can be given an arc to be searched. Aircraft in a group will spread out across the arc. The more planes there are per degree of search arc, the better the chances for detection will be. The benefit of this is that only TF's within this arc are looked at, thus concentrating assets on a particular threat. The chance of sighting the enemy is increased with the number of planes searching. Naval search can also detect anchored ships within their area of operations.

- **ASW Patrol** – An ASW (anti-submarine warfare) Mission is the same as a Naval Search Mission except that the ordnance loaded is for ASW, not "Naval Attack" and the chance of attacking a submarine once sighted is solid. ASW searches have a better chance to detect a Sub TF than Surface TF, whereas Naval searches have a better chance to spot Surface TF rather than Sub TF's. The chance of sighting the enemy is increased with the number of aircraft searching. ASW search will not shadow any TF after spotting it. An attack on a sub can happen at 3 stages:
  - Sub still on the surface all weapons including guns can be used depending on aircraft release altitude*.
  - Sub diving but still shallow – bombs and ASW weapons may be used.
  - Sub already running deep – only ASW weapons may be used.

*This stage is determined by how early the sub spots the aircraft and the aircraft speed.

- **Supply Transport** – The air unit will fly supplies to their DH, which does not necessarily have to have an airfield (thus allowing the ability to airdrop supplies, fuel and ammunition to ground units in the field). Supply Missions may be flown to destinations that are within 2 times extended range for base supply, or within extended range for airdrop supply. The amount of supplies carried is dependent on the capacity of the transport and the range flown.
- **Troop Transport** – Air transport units fly troops to their destination base. The aircraft needs to be able to land in the target hex unless the unit being transported is a parachute unit or the air unit is using Gliders. Gliders may be lost if used in hexes with no friendly airfield. The option Pick Up Troops will prompt you to choose a destination for the air group. The aircraft need the ability to land in the target hex. This will allow you to order the air group to fly to a base, pick up a ground unit at that base, and return it to

the air unit's current location. For either a transport or a pickup of troops to occur, a ground unit to be transported must be selected or no Mission will take place. Transport Missions may be flown to destinations that are within extended range of transporting paratroops or 2 times the extended range if moving between friendly bases. The number of troops carried is dependent on the capacity of the transport. See section 7.29 for details. Units that cannot be transported in a single sortie will be split into two units, with one remaining behind while the other appears at its destination.

- **Training** – Aircraft from the unit will fly training Missions in order to improve pilot experience. Units given a Primary Training Mission will train all skills, units with another primary mission, but the percentage of aircraft assigned to training will train the skill that would be used in the primary mission. Aircraft flying training Missions take Operational Losses and may stumble into combat with enemy planes flying over their hex. However, Combat Missions are the best way to gain experience, while Supply, Transport, and Training Missions yield less experience.

The next column shows mission assignments and consumption. The expected consumption for the groups settings is viewable on top of the column. Note that this is a guess and can vary with distance to target and actual aircraft taking off.

**Note:** *The Economy setup of War in Spain 1936-39 allows for the player to create and use various industrial products for each Supply, aircraft ammunition and aircraft fuel. By that it depends on how complex the Scenario is and how complex the Economy is setup to be. You can have industry and factories for each of them or have all 3 just consume "Supplies".*

Below are controls to assign the percentage of aircraft for the selected primary mission as well as several other missions that the group may perform at the same time. There are 4 buttons next to each. The left and rightmost buttons set the percentage to 0% or 100%, the inner buttons adjust by 10% up or down (30% when right clicked). Missions that may be performed aside from the primary mission are called "Side Missions".

Side Missions include:

- **CAP** – Fighters fly Combat Air Patrol to protect all friendly units in the fighter unit's vicinity from enemy air attack. A special purpose is given to very low CAP at 100 feet. These will count as ASW air cover. They can foil submarines getting into an attack position, end around maneuvers are prevented, or simply detect them.

**Note:** *Any unassigned aircraft are kept in readiness to scramble if the group uses fighter type aircraft or is set to perform the "escort" mission. The set percentage will be kept in the air as long as possible. The actual percentage in air depends on aircraft endurance, cruise altitude, HQ and leader skills and many other factors. Maintaining a high active CAP level is exhausting for pilots, aircraft and supplies/fuel and only advised in very short combats like carrier battles. Prolonged campaigns are best done with low active CAP and good early warning.*

- **Long Range CAP** – The air unit's aircraft will fly combat air patrol over all friendly units in a hex other than the one containing the air unit's base. Long Range CAP, (LRCAP), will attempt to intercept any enemy aircraft flying close to the hex containing the LRCAP. LRCAP can also detect incoming raids. The number of fighters protecting the friendly units at the moment of an enemy airstrike is based on the range to the hex being protected and the extended radius of the aircraft flying LRCAP.

- **ASW** – Same as the primary mission for ASW. These are cumulative. If you set ASW for primary mission with 50% and set the ASW side mission to 50%, then all aircraft will fly ASW patrol.
- **Naval search** – Same as the primary mission for Naval Search. These are cumulative. If you set Naval Search for primary mission with 50% and set the Naval Search side mission to 50%, then all aircraft will fly Naval Search patrol.
- **Training** – Same as the primary mission for Training. These are cumulative. If you set Train for primary mission with 50% and set the Train side mission to 50%, then all aircraft will fly Training missions. The main difference is that the primary mission trains all skills across the board, while the side mission will focus on training in the skill that would be used in the current primary mission.
- **Resting** – Aircraft with rest set as a Mission will not fly. This can make sure a set number of pilots can rest and reduce fatigue.
- **Patrol levels** – While Patrol levels can be set independently for the various missions, the total assigned cannot exceed 100%. Within the patrol level screen, ASW and Search sectors can be set up where searches can be concentrated. Concentrated searches have a higher chance of detection than a general 360-degree search.

Next is the search and attack arcs. These define the operational area where the group may operate and pick targets.

Following is the cruise altitude. This is the altitude at which the aircraft will fly towards its target or on patrol. This has an influence on the actual speed of the aircraft.

Next is the release altitude. This is the altitude at which any ordnance is released. A dive bomber with release being 5000 or more below cruise altitude is doing a dive-bombing attack Otherwise it attacks at various gliding angles. Take note that if the difference in release altitude is too much, it can bring severe penalties. Only fighter and dive bomber aircraft can descend at an unlimited altitude. For all other aircraft the

following rules apply. Ascending is possible up to 2 times the climb rate. Descending is possible up to 5 times the climb rate. Use of torpedoes dictates a low release altitude for these aircraft regardless of the release altitude setting. Thus, torpedo aircraft normally have to move in lower than level or dive bombers.

Following that is the range settings. Max range tells how far a group may fly for targets picked automatically. Max CAP range does tell how far CAP and LRCAP will fly from their hexes in intercepting raids.

On the bottom of the column targets can be set for the primary mission and LRCAP.

**Note:** *A stand down mission with a mission target hex being set will produce a note in the status report once all aircraft are fully operational.*

The rightmost column permits you to set various group specific commands and settings.

The topmost button reads "Flying day operations". Here you can set the group to perform missions in the AM, PM, or night. Right clicking allows you to set a pause after the group sorties. The unit can be set to fly every day, every 2nd, or every 3rd day. For a pilot to fly night operations his experience must be 80+.

The next button is for transferring to another base. Depending on the status of the group, it may fly or be moved via land transport to that base. Right clicking it will force a move over land for the entire group.

The next button will open a panel which will allow you to choose from the possible ships the group may be transferred to. This will keep the unit operational. For loading groups as cargo use the "load troops" option with a "Air Transport" Task force.

From here, all available ships that are within range and can take on the squadron will be listed. The ship type is shown, it's Name, its Ops point value and the number of aircraft currently on board. You will also

see the sum of the size of air groups on the ship, the ship's maximum aircraft Capacity and the numbers of aircraft, after the transfer. The location (a base or TF name) is also listed. If the aircraft number on the ship is shown in RED, the transfer will cause the ship to cease air operations. Take note that the figures are counted in aircraft engines to determine the size occupied aboard the ship.

It may also be possible for a transfer not to work. For example, normal floatplanes cannot transfer to a CV type vessel. It is, however, possible to transfer normal LBA to catapult equipped ships. These will then be "one shot" aircraft that can take off but not land on the ship it is using. You should make sure a nearby base can be reached, or the launched aircraft will ditch and be lost.

"Upgrade" will open a panel with options available to change the groups airframe. Depending on game rules the group may upgrade to any, or only the airframes in its upgrade path. The only restriction with PDU being allowed is Navy and Army type aircraft are not interchangeable.

Upgrades can happen in 2 ways. If the new airframe can reach there, you can upgrade instantly along with sending the current airframes back to pool. If the new airframe cannot reach there, you can request it as a ferry group on this screen. Depending on circumstances, the ferry group may reach there or end up on some base between the source base and your air group. Alternately you can, of course, manually build a ferry group and move it close to the destination. Upgrading airframes out of range of the pool can only be done when there are zero airframes in that group. This is being done to prevent a non-executable upgrade to remove the airframes accidentally. The ability to send all AC back to the pool is helpful in clearing such an air group once the replacements have arrived via ferry group.

The next button is used to control the group's ability to take automatic pilot and airframe replacements.

"Merge groups" allows you to transfer aircraft with or without pilots to and from other groups using the same airframe in transfer range.

Unit Organization shows any detachments and fragments the group might have.

Split Unit will create 2 more air groups, for a total of three, as detachments of the parent group. Each one will have 1/3 of the aircraft and pilots. This may fail if the parent group is too small. The parent unit will retain its name, the second will read Det A next to its name, and the third Det B. The option to rebuild will appear in place of the split button after the split is finished. The detachments will have the option to re-attach. This may succeed or not. It is important that the recombining units have the exact same kind of airframe. Otherwise, the recombination will not work. They must also be in transfer range and able to reach the parent unit.

Next is the Autonomy setting, normally reading "Human control". That means the group will not change your orders other than picking a new target if no valid target is set.

CDR Control gives the group some autonomy in picking new targets and adjusting settings like altitudes for weather in the target hex but will keep performing the mission and patrol levels you set.

AI Control will make the group totally autonomous. It will change all orders as it sees fit.

Trainer. When this is set to any value other than 0, it will auto release pilots reaching the set skill level. The type of skill subject to this depends on the primary mission. Naval attack with "USE TORPEDOES" will check the NavT skill, Ground attack, the GrdB skill. Training missions will use the pilot experience. This is a great way to use rear area groups to create a steady flow of veteran pilots for use in frontline groups, or to automatically expel elite pilots for TRACOM. Groups acting as trainers will also act for a source of pilots when the command to swap group pilots with better pilots is used. See section 7.6.4.

Set Unit to be Lend Leased. This is a command only for Ferry Groups. The group will be handed over to the selected nation, possibly even giving it to another friendly player in multiplayer.

The controls on the lower right hand allow you to copy the orders of this group to other aircraft on the airfield, on ships in hex or for all in hex. You can choose to apply the orders to either all groups using the same airframe, or all groups using the same general type of aircraft.

The Set All commands button DOES NOT set the upgrade status or the Accept Replacements item.

Finally, at the lower right-side corner you can go back to the last window, move to the previous or next airframe, or exit and close the panel. The "previous" and "next" air groups depend on where you opened the panel. On an airfield, a ship, or the global list of all air groups.

## 7.7.2 AIRCRAFT POOLS

Drawing Aircraft from the Pool allows the assigning of additional aircraft (up to the maximum allowed) to the squadron. Aircraft may be drawn at the rate of 100, 10 or one aircraft at a time. The (xx) number shows that a maximum of (xx) aircraft are available in the pool. Once a group has its maximum number of aircraft, more aircraft may be pulled directly into the Reserve section of the group. This represents immediate spare aircraft.

> **Note:** *You can use the right click to transfer aircraft back to the pool if the air group has access to the pool.*

Another option for replacing aircraft is the creation of "Ferry groups" that can be moved around like any other air group and manually send its aircraft to other groups in range using that same airframe. Air groups can draw from these Ferry Groups just as if they were a pool (a mobile one) but a small amount of time may pass until the requested aircraft arrive at the unit. The unit will only operate again once all aircraft have arrived. If the source Ferry Group is too far away, the unit may "miss" an air phase. Ferry Groups also used to hand over airframes to other friendly nations and are the only way players can give airframes to other players.

Any Ferry Group in transfer range can act as a source to draw airframes from when out of range of the pool. In this case the information will read the number of airframes in the Ferry Group and the transfer time they will need to fly to this air group. Drawing airframes from Ferry Groups into reserve is only possible when the aircraft in the Ferry Group is in perfect condition.

When out of range of the pool and no Ferry Group is in range, the game prompts you with a set of orders to create a Ferry Group with the option to have the AI move it into position automatically. The Ferry Group will then try to move to the site by "Base hopping" which usually succeeds if it is possible at all. Alternately you can move the Ferry Group to site manually. A similar command is available in cases of upgrades to another airframe under conditions that do not have the pool in range.

**Note:** *Some aircraft may originate in other countries than the air group owner. In this case replacements must be drawn from that nation. See section 7.2 for details.*

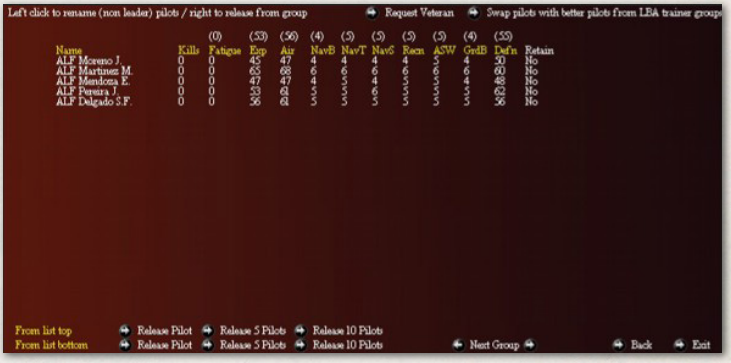
To draw from the pool, the group must be in the transfer range of a connected (home) base or in transfer range of a special LCU holding "Reserve aircraft". These LCU's can be used to move aircraft pool points to remote locations to provide access to the pooled aircraft until depleted. If these devices are lost by whatever means, several aircraft are removed from the pool equal to the number of engines lost.

**Note:** *The ability to create an LCU holding these pool points is only available in the replacement mode that utilizes pool point shipping. In the most detailed replacement mode, you will be required to create Ferry Groups for moving aircraft to the frontline in case the frontline is too far away to reach back home to the pool.*

Under the simplest replacement model, access to the pool is granted by a combination of supplies present and airfield size. An airfield with a score of 90,000 or better must be within transfer range. The score value of an airfield is it's supply stockpile plus 10,000 per airfield size level.

## 7.7.3 PILOT SCREEN

Below is the Pilot screen. And following that is the explanation of the screens parts:




Here you can sort the pilots list, rename certain pilots, and release some of them into the veteran pool. Combat missions will use pilots at random or from the top of the list, while training will use pilots from the bottom of the list. If a pilot is fatigued, that pilot may be skipped over for launch in the 1st pass.

Colors may be used on this screen to denote significant changes in the status of your pilots. A Green skill means this skill value has increased during the last 24 hours, yellow indicates an increase since the start of the month. Skills improve relatively easily at low values, but it is harder to gain a skill level at higher values. If a pilot's EXP is above 80 he is considered elite and eligible to transfer to the Training Command. This is automatically done for all elite pilots in the veteran pool. They can

train up to 1 pilot from the general pool for every 30 days they are not moved out of the veteran pool. The skills of the trainee directly depend on the elite pilots skills.

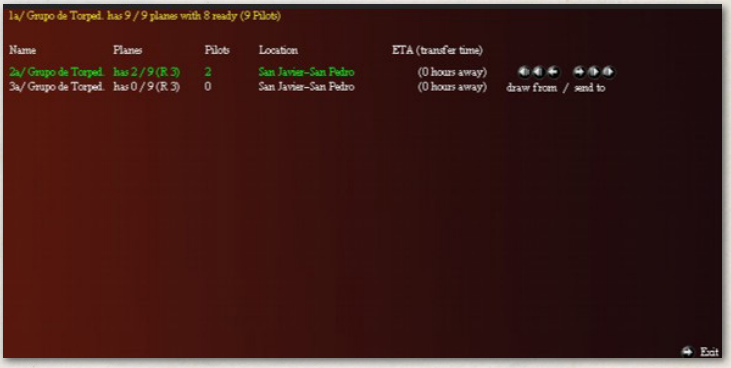
While pilots can be promoted and become leaders, they will require some time as unit leaders until they rise in rank far enough to be HQ leaders.

Pilots gain promotion based on their skills and "kills". This is compared to the data in the Ranks.txt. Rank value, which is found in the Assets folder. If the skills score higher than the next rank, then the pilot gets promoted. A pilot working as unit leader may increase his "leader air skill" ( not the pilot A2A skill ) over time just as any other leader. Leaders gain points over time and if they are an active part of combat. A leader reaching 100 such points receives a promotion to the next rank (if there still is a higher rank) along with a modest increase of his skills across the board.

On the upper right corner, you will find a command to swap pilots with better pilots from your trainer groups. This is a very quick and convenient way to manage the transfer of experienced pilots to frontline groups.

## 7.7.4 MERGE UNIT SCREEN

Below is the merge units screen followed by an explanation:



On top of the screen is the data for the current air group. You will see information on the current and maximum size, the currently active (able to take-off) aircraft and the number of pilots.

Listed below are possible groups for exchanging airframes. You can draw or send airframes to the selected group by the arrows on the right side. Draw 10, 5 or 1 by the arrows pointing to left and send 1, 5 or 10 by use of the arrows pointing to right. Clicking the right mouse button will move the aircraft along with a pilot, if possible.

## 7.7.5 AIRCRAFT INFORMATION SCREEN

Below is the aircraft information screen followed by information about this screen:


Here you can read all relevant data on the group's airframe. This includes the armament layout, ranges, speed, and agility at various altitudes. Among them the most important ones are:

- **Maximum Load:** How much payload or cargo the aircraft can carry. The number in parenthesis is the ramp size used for airlifting LCUs and their devices. See section 7.30.
- **Service rating:** The higher this is, the more difficult it is to maintain and repair the aircraft. A low service rating means the aircraft is easier and faster to repair and maintain.

- **Runway size:** Telling how large an airfield this aircraft needs to operate normally. The number is in runway units and followed by the resulting Airfield size level in parenthesis. Each Airfield level provides 25 runway units when undamaged. For example, an aircraft requires 91 runway units, and thus a level 4 airfield to take off with full load. Since an airfield of level 4 does provide 100 runway units, this aircraft can still operate normally from such an airfield even when the runway takes minor damage.
- **Build Rate:** How many aircraft you can expect to receive each month. It is very useful information to have so that you will know how easy it will be to replace aircraft in case you need a risky mission to be done.

On the center of the screen, you see various weapons used by the aircraft. Guns are on top, followed by mission specific ordnance. The ordinance is not used at the same time (normally) but shows the type of weapon used for specific missions. One or more characters may be shown in front of the device to tell the mission it is used for. These are:

- **A** – used on airfield attacks.
- **C** – used on city attacks.
- **G** – used on ground attacks targeting troops.
- **P** – used on port attacks.
- **N** – used on normal naval attacks ("USING TORPEDOES" setting being selected).
- **n** – used on alternate naval attacks ("USING BOMBS" setting being selected).
- **a** – used in ASW patrol mission.

Weapons with no such indicator are used on all kinds of missions.

Below you will find a chart of speed and agility of the aircraft at various altitudes.

The Stand Down command is the easiest way to tell the squadron to stop flying. Selecting this does not change the mission assignments,

but the group will not launch for any kind of mission. This will help eliminate fatigue and allow the squadron to rebuild its strength, if necessary.

The Target for the air group is initially set to Commander's Discretion, meaning the choice of target is left to the air group to decide what hex it will bomb. If an air group is set to Airfield Attack but has no Target set, the air group will decide for itself which, if any, enemy airfield to attack. Clicking the arrow brings up the Tactical Map where the player can select the hex that the squadron will attack. The player then selects a hex to target, or right clicks to exit without setting a target.

The Cruise Altitude displays the altitude that the aircraft will fly at when flying to and from the target hex. The arrows next to the title allow you to fine-tune this altitude; the arrows closest to the title move the numbers slowly while the arrows farthest from the title will move the numbers to their maximums and minimums. The arrows in between will move the numbers in large increments.

The Release altitude sets the altitude at which the aircraft will drop its ordnance. Note that too high of a difference between cruise and release altitudes can cause severe penalties, indicated by a color change of the text. Normally aircraft can differ by around 2x climb rate for upwards, and 5x climb rate for downwards. Fighters and dive bombers have no penalty on attacking lower. Dive bombing requires a difference of at least 5K feet between cruise and release altitudes.

The Maximum Range sets the maximum range in hexes that the squadron will travel in order to reach the target. The air unit will not exceed this distance when picking a target using Commander's Discretion whether the target is for a strike Mission, escort, or Longrange CAP. However, if the air unit is assigned a specific target, then the air unit will increase this max range setting. Aircraft executing Naval Search or ASW Patrol Mission will only search out to the Maximum Range that has been set for them. The shorter the range set, the greater the chance they will spot a TF within their range setting.

## 7.8 AIRCRAFT RESTRICTIONS

Some air units may be restricted. This means they can only transfer to bases within the same region (country code) and may not be loaded on ships.

## 7.9 AIRCRAFT TRANSFERS BETWEEN BASES

You may transfer air units between two friendly bases during your Orders Phase. This kind of transfer occurs immediately, although only ready aircraft will move. The remaining aircraft will form a new air unit that is a sub-unit of its parent formation. These are considered "Fragments". The time to transfer depends on the distance and airframe cruise speed in case of air transfers. Several consecutive transfers may be made until the ETA is greater than 12 hours. Under certain conditions, or when you right click the transfer button, the transfer is done overland by rail, truck, or cart. This takes longer than flying and means that all aircraft are taken apart for the move. A unit may not sortie until it has "arrived", which is determined by the ETA.

## 7.10 AIR SEQUENCE OF PLAY

Air operations take place during the Air Ops segments of AM, PM, and Night Resolution phases. The game, based on the orders given to the air units by you, determines these operations. Only air units that have been given "Night Operations" status will conduct operations during the night. The launching of Combat Air Patrols (CAP), launching of strikes, resolution of strikes, and return of aircraft occurs in any of the phases.

## 7.10.1 AIR SEQUENCE SUB–PHASES

There are sub-phases executed in preparation for every combat phase. They are:

- CAP / LRCAP sorties at 0500, 1300 and 1900. These can cause repeated small skirmishes over hexes that have CAP of both sides present.
- Scout and recon are calculated at 0600, 1400 and 2100. CAP and LRCAP try to interdict these missions.
- Air Attack Phases are done at 0800, 1600 and 2200. Any airstrikes by attack aircraft are executed at these times.

## 7.10.2 ASSIGNING AIRCRAFT MISSIONS

During your Orders Phase, you may set the six components of an air unit's orders. Those six components are:

- **Primary Missions** – Ranging from Airfield attack to Escort duty (Escorting raids) most missions can be a primary one.
- **Secondary Missions** – Almost the same as primary but will be executed if no Target is specified for the Primary mission. Since the Primary mission will look for a Target if none is set, the secondary missions are usually only executed if no Target for the Primary mission can be found.
- **Mission Targets** – You can set 2 targets for air groups. Target 1 is the target for general missions, primary/secondary, or other missions such as LRCAP, Troop Transport, Recon of a single hex, etc. Target 2 is for LRCAP only. All air groups and all airframes can be assigned to LRCAP. This works by setting a "mission percentage" for LRCAP to something other than zero. If the LRCAP mission percentage is zero, target 2 is ignored.
- **Side Missions** – Such as CAP level, LRCAP level, Naval Search level, ASW Patrol level, Training level and Resting level.

- **Altitudes and Arcs for the Missions**-The altitude is split into cruise altitude, the height at which the aircraft travel to target, and the release altitude, the height at which they are to attack. For most aircraft these should be close together. dive bombers and fighters can descend rapidly and thus attack much lower than they travel, but other aircraft cannot do this very well. Aircraft that have to attack low, like torpedo bombers, need to travel at altitudes that allow them to descend in time. The color of the altitudes will change to indicate the 2 altitudes are too far apart if this is the case. Both attack/escort missions as well as search/recon missions can be restricted to looking for a target only within the defined arc of operation. Players can set a target outside the arc, but if the group needs to select a target itself it will only do so within the defined arcs.
- **Flying Day or Night Operations along with a Schedule** – You can assign a group to ONLY fly morning/afternoon/night missions, or general day or night missions. This is by left click. Right click will adjust a "pause" of 1 or 2 days between missions. A group can thus be set to fly only morning missions every 3rd day.

All air units begin the scenarios with default values set for each of these six components, although air units are not automatically given a Target. Any hex can be set for the mission target within range. You can set naval attack in a hex where you suspect an enemy TF, but this will prevent the air unit from targeting any TFs found during the scouting phase. Any air unit that did not find an enemy TF in its DH may attack an enemy TF it spotted on its approach leg. Under these circumstances if the designated target is not found at the suspected DH, it may very well be that the air unit attacks a TF spotted enroute that turns out to be the intended target after all.

Air units without a specific target determine for themselves which targets they will attack based on the AI's best judgment (called Commander Discretion on the Air Unit Information Screen). It is the interaction of these six components with the air unit's current

knowledge of enemy forces that will determine the air unit's operations during the resolution phase. Air units will continue executing their assigned Mission until they are told otherwise.

## 7.10.3 MISSION TYPES

Each air unit is limited to flying either Day or Night operations on any given day based on the air unit's current orders. There are fifteen different Missions that air units may be assigned. This includes CAP, which is not set as a Primary Mission but is determined by the Side Mission CAP Level. In the table below, the right column shows the mission categories and to the left is the mission types for each category:

| | |
|---|---|
| Offensive Missions | Airfield Attack, Port Attack, Naval Attack, Ground Attack, City Attack, (Fighter) Sweep, Recon |
| Escort Missions | Escort |
| CAP Missions | Long Range CAP, CAP (listed as a Side Mission) |
| Patrol Missions | Naval Search, ASW Patrol |
| Transport Missions | Supply Transport, Troop Transport |
| Training Missions | Training |
| Rest | Rest (Indicates no desired Role) |

## 7.10.4 DAY/NIGHT AIR OPERATIONS SEQUENCE OF PLAY

Following is the Day/Night Air Operations Sequence of play. The sequence of play is identical for all three air phases.

Air Phase Sequence of Play:

- Launch Cap and Search/Recon Missions
- Conduct Air Search/Recon Missions
- Launch Air Strike Missions, including Transport Missions
- Resolve Air Strike Missions
- Land Aircraft

It is much harder for CAP to intercept enemy airstrikes at Night. Night fighters are better than other aircraft types at intercepting enemy airstrikes at Night. Though ambient light levels also play a major role, especially for aircraft that have no radar. Also, Recon will fly at night If you set it up.

## 7.11 MISSION TYPES BY AIRCRAFT TYPE

All types of aircraft can perform most missions. It is up to your diligence not to use them for roles they do not fit, but you can do so if you feel the need arises. Some bomber aircraft, like the UK Skua were designed to fill bombing roles as well as CAP. The AI will seldom depart from the recommended roles shown below. Recommended use for aircraft types are as follows:

| | |
|---|---|
| Float Fighters | Sweep; Escort; Long Range CAP, CAP; Training |
| Fighters and Fighter Bombers | Sweep, Airfield Attack, Port Attack, Naval Attack, Ground Attack; Escort; Long Range CAP, CAP; Training; Rest |
| Night Fighters | Sweep, Long Range CAP, CAP, Training |
| Dive Bombers, Torpedo Bombers, and Float Planes | Airfield Attack, Port Attack, Naval Attack, Ground Attack, City Attack, Recon; Naval Search, ASW Patrol; Training; Rest |
| Level Bombers (Heavy, Medium, Light, and Attack) | Airfield Attack, Port Attack, Naval Attack, Ground Attack, City Attack, Recon; Naval Search, ASW Patrol; Supply Transport; Training; Rest |
| Patrol | Recon; Naval Search, ASW Patrol; Supply Transport, Troop Transport; Training |
| Transport | Supply Transport, Troop Transport; Training |
| Recon | Recon; Naval Search; Training |

**Note:** *To fly a Nighttime CAP mission, the pilots have to have an experience rating of 80 or better.*

## 7.12 MORALE, READINESS AND AIR MISSIONS

Air groups will obey orders and fly regardless of Morale. However, pilot performance can be significantly impacted as Morale decreases. Before aircraft fly an offensive Mission, they must pass 3 tests to fly their ready aircraft:

- **Aviation Support Test** – Aviation support must be ready in numbers equal to the engine count of the group.
- **Airfield Readiness Test** – Continual air ops can exhaust an airfield and reduce the chance for a given aircraft to launch. See the Airfield Readiness calculation example below.
- **Aircraft Fatigue Test** – Checks the fatigue of the aircraft readying for the mission. The higher the fatigue and the service rating the less likely an aircraft will fly.

Airfield readiness is calculated in the following way:

For each aircraft going on the mission, 1 airfield ops point is spent. This is multiplied by the extended range of the aircraft and divided by 100 times the number of engines on the aircraft which equals the number of airfield readiness points for each aircraft flying that mission. Furthermore, A size 1 AF has 500 Airfield Ops Capacity. 20% of that is the tolerance before any effect is applied. That means 100 Ops points are "free" of negative impact during the Airfield Readiness Test.

For example:

An aircraft with 700 NM range and 2 engines will be calculated as 700 divided by 100, times 2 equals 14. So, 10 aircraft would use 140 airfield readiness points. So that is 140 – 100 = 40. So, 40 is the Airfield Ops points effect number after the 10 planes are calculated for their mission.

Airfield Ops Capacity per size of airfield is as follows:

| BASE SIZE | OPS CAPACITY |
|---|---|
| 1 | 500 |
| 2 | 1200 |
| 3 | 2100 |
| 4 | 3200 |
| 5 | 4500 |
| 6 | 6000 |
| 7 | 7700 |
| 8 | 9600 |
| 9 | 11700 |
| 10 | 14000 |

Airfield ops points are recovered at a rate of 1 per day for each 10 supplies, aircraft ammo and aircraft fuel present at the base. These are not consumed for recovering ops capacity but represent the ability to maintain longer air operations. This rule causes over stacking to be much less a benefit than one would think, as prolonged ops cannot be maintained without an immense stockpile of supplies, ammo, and fuels.

## 7.13 OVER STACKING AT AIRFIELDS

The space occupied by aircraft at an airfield is counted by the number of engines mounted on each airframe at the base. An airfield provides space according to the following formula:

20 + (5 times the airfield size level) times the airfield size level. See example below.

Example: A level 1 airfield can support 25 engines. And a level 2 airfield can support 60 engines and so on.

If the number of aircraft exceeds the base engine capacity, the effective aviation support for the base will go down accordingly. It is a simple reduction of the aviation support that can get used on the airfield. Here are some examples with a size 1 AF that can hold 25 single engine aircraft:

With 25 aircraft present, AVs is 25/25 = 1.0 = 100%
With 50 aircraft present, AVs is 25/50 = 0.5 = 50%
With 75 aircraft present, AVs is 25/75 = 0.33 = 33%
With 250 aircraft present, AVs is 25/250 = 0.1 = 10%

You can still launch entire groups, but the total number of aircraft to be launched per phase will be limited. Also repair and maintenance will have less effective AV support available.

For air ops, over stacking will only work for a short time, as the airfields readiness level will dwindle, resulting in an ever-increasing chance of a failed launch attempt for every aircraft that tries to sortie.

Increasing over stacking will make available aviation support approach zero, but never reaching it completely, though it may drop below 1 aviation support point. But the penalty is per AF. If you have 10 AVs available, you can launch 10 single engine aircraft for offensive missions per phase (AM and PM+night), no matter the group size or group number at the AF.

## 7.14 AIR HQS AND AIR MISSIONS

Air HQ's will help air operations within their Operational Radius. The air skill of the HQ leader will give certain combat benefits to attached groups. Skill levels above 70 are especially valuable. The same kind of bonus is given to group leaders, but only for their group. The Command Radius of an HQ is displayed on its Ground Unit Information screen in the top left corner.

## 7.15 AIRCRAFT RANGE AND AIR MISSIONS

WWII is abounded with instances of extreme operations such as the Doolittle raid and the Battles in the skies of Guadalcanal. These operations were possible and had an effect of one kind or another but could not be considered normal or sustainable. As such, combat

effectiveness will suffer at these ranges. The smallest scratch could mean the difference between a warm meal and a rack, and a survival situation. If you value your Air Forces, you will use discretion when planning operations that require such high risk.

## 7.15.1 EXTENDED RANGE

Each distinct naval and ground-based aircraft is rated for its Maximum Range. This is the maximum number of hexes that the aircraft may move when transferring between bases. Extended range is the utmost range a combat mission may be conducted at, yet at a reduced payload. Aircraft operating at extended range can be forced to withdraw due to fuel constraints resulting in fewer rounds of Air-to-Air Combat. Aircraft can also drop out of Air-to-Air Combat for other reasons: Heavy Damage, Low Morale, or Low Ammo. Normal range is the range the aircraft can operate at with normal payload.

## 7.15.2 DROP TANK RANGES

*War in Spain 1936-39* also makes use of drop tanks. One of the keys to Air Warfare is the ability to project Air Power. An aircraft's range was as important as any other if not more so. The ever-increasing range of WWII Combat aircraft provided a means to put aircraft where they previously had never been expected. Any Aircraft that was not historically configured with drop tanks operates within the limits of its set ranges. Normal and extended range are affected by the use of drop tanks. You can gain range at the expense of more fuel and sometimes reduced ordinance (Drop tanks in place of a bomb).

### 7.15.2.1 DROP TANK SELECTION

Aircraft that are capable of extending their range by the use of Drop Tanks, may do so from the Air Unit screen. By selecting the "Use Drop Tanks" option a player may toggle these devices and trigger Normal

Drop Tank Range or Extended Drop Tank Range. Take note that certain weapons may conflict with Drop Tank positions and thus are mutually exclusive. In short, using a drop tank may occupy a position that would otherwise be used for a bomb or other weapon. Deselecting Drop Tanks can be done in the same manner from the Air Unit Screen, by toggling the Use drop tanks button. Drop Tanks may be fitted for normal ranges to extend loiter time, but the cost of doing so remains. Some Aircraft entered the game before they were ever modified to accept a drop tank. In these cases, a Drop Tank date is available in the editor. The Drop Tank option will be grayed out until the date has passed and Drop Tanks become available.

#### 7.15.2.2 COSTS OF LONGER-RANGE MISSIONS

As is often the case, logistics are critical. Any Aircraft operating with Drop tanks is assumed to be expending more fuel. It also drains the airfield's readiness quicker. Additionally Drop Tanks are a perishable item that frequently did not come back with the A/C after a successful sortie. Airfields that are to sustain air ops at such high attrition need to store vast amounts of supply to recover the readiness levels.

There were a variety of ways to extend the range. Drop Tanks, Slipper Tanks, Internal Bomb Bay tanks, triple mounts, single centerlines, Asymmetrical mounts. As such, researching the exact ranges that could be considered most correct was often difficult and no shortage of conflicting source data was found. What has been entered into the database is as good as we can get. There will always be a case where one aircraft may have been able to go that extra Hex or is already going that extra hex. But in these cases, gameplay decisions and typical capability were prioritized over what may have been possible under strange or isolated circumstances. An extra effort was made to ensure key aircraft could in fact reach key places on the map to reflect the most accurate experience.

In *War in Spain 1936-39* an attempt has been made to represent the most typical ranges that aircraft flew, both with and without Drop

Tanks. Internal Bomb Bay tanks are not modelled as specifically as Drop Tanks. It is assumed that the Level Bombers that made use of these are flying at Extended Clean Range.

## 7.16 AIR UNIT TARGETS AND DESTINATIONS

Targets and Destinations are Mission objectives. Targets are used in Offensive Missions and Destinations in Transport Missions. If a Destination has been set for a unit with a Transport Mission, then that Destination will become the Destination for the Transport

Mission. Without a Destination, transports will not fly a mission. Targets have no impact on aircraft flying Patrol, ASW or Training Missions.

### 7.16.1 SETTING TARGETS

The setting of a Target is a critical factor in determining where Offensive Missions are flown, and which Offensive Missions escorting fighters choose to accompany. Air units without a target will determine their own target for these missions (the computer chooses for you). Although air units on the same base may have a mixture of missions and targets, this may lead to an unwanted dissipation of effort. If you wish to concentrate your air power on a given target you are advised to select this critical target as the target for each air unit you want involved.

Bombers attacking ports will attack any ships at anchor based on the size and value of ships present. Aircraft that bomb a port can also hit the port facilities, supplies, ammunition, and fuels at the base. (Since seaplanes do not use runways, they do not take op losses due to damaged runways,) These attacks may use bombs and torpedoes, with the torpedo option only having around 50% of the aircraft equipped by them. This is due to torpedoes not being very effective in shallow waters and the existence of torpedo nets. TF's in the hex will not be attacked during a port attack.

When aircraft bomb an airfield they can hit the runway, aircraft on the ground, supplies, ammunition and/or fuels at the base. The bombing of an airfield can also reduce the Morale of air units stationed at the base. When flying Missions at extended range, that is further than the normal combat radius but less than the extended combat radius, may have the following effects applied:

- An increased chance of not finding the target,
- An increased chance of withdrawal due to fuel limits,
- Aircraft will carry fewer and/or smaller bombs.

To avoid these penalties, the size of the airfield's (effective) runway must at least match the runway size needed for the airframe. The effective runway is reduced by runway damage in a direct linear way.

## 7.16.2 AUTOMATIC TARGET SELECTION FOR AIR UNITS LACKING A SET TARGET

When determining whether to initiate an airstrike, a unit with an offensive Mission but no Target set must decide for itself which if any Target it wishes to strike. The target selection is based on the mission or secondary mission. Air units will not always initiate a strike against a base or ground unit if the AI deems the target to be unworthy or too dangerous to attack. For air units looking for an appropriate base or ground unit to attack, the following factors are considered:

- The greater the size of the Port or Airfield, the more likely it is that the base will be picked as a target.
- The greater the number of enemy aircraft or ships at the base, the more likely it is that the base will be picked as a target. This will depend on the mission type.
- If a target is targeted by other airstrikes from another base, the AI is more likely to pick the same target to concentrate efforts.

- If the target is at extended range, it is less likely the AI will pick that target.
- If the number of potential escorts is not sufficient to defend the strike against the expected CAP at the target, the target is less likely to be targeted.
- For Naval strikes, the target picked, if there are more than one TF's in the target hex, is determined by the air units, based on the importance of the ships in the TF that is spotted. By far the most important targets are Battleships, Cruisers, Transports, and other ships.

### 7.16.3 FAILURE TO FIND THE TARGET

Aircraft can fail to find their targets due to bad weather enroute to or over their target, or due to the inability of the aircraft to locate their Target, before they are forced to return to base due to fuel constraints.

## 7.17 CAP, NAV SEARCH, ASW PATROL AND TRAINING LEVELS

Typically, all "ready" aircraft in a unit will fly together when a unit is performing a Mission. However, you may use the CAP, Nav

Search, ASW Patrol, and Training Levels to split off a percentage of the unit's aircraft to perform CAP, LRCAP, Naval Search, ASW Patrol, or Training Missions. These levels can be set between 0 and 100 percent in increments of 10 or 30 when right clicked. CAP and Nav Search Levels dictate the percentage of the aircraft that will either fly CAP or Naval Search while the rest of the unit attempts to carry out its selected Mission(s).

Long Range CAP is less effective than normal CAP due to the time required to travel to/from the target hex. When Naval Search, ASW Patrol or Training is selected as the Mission, the Nav Search, ASW Patrol or Training Level will just act as an additional percentage to that

mission. Take note that "Training", as a mission, trains across the board, while the train percentage trains in the main mission that is selected.

There is a special rule for the scouting side mission in combination with a naval attack mission for main mission. In such a case, the scouting will only be done if no TF is available as a target for an attack. If an enemy TF is known to be in range at the time of the scout phase, the percentage of aircraft assigned to scouting will mostly not sortie but join the naval attack mission that is done later. This way carrier-based aircraft can be used for naval search without placing them on a search mission when the enemy forces are already known. A few aircraft may still search in case the DL on target is not good enough or too old.

For all scout and recon mission's units already known have a higher chance to be found again. LCUs that have some DL left, TF with some DL, etc. will be more likely found again than completely unknown units.

## 7.18 IMPACT OF ALTITUDE SELECTION

You can set the altitude at which Missions will be flown. Higher altitudes soften the effects of flak but reduce bombing accuracy for level bombers. Altitude selection will further affect any escorts or defending CAP as Fighter MVR ratings are dependent on their historical performance throughout the Altitude spectrum. There are 5 "altitude bands" that represent a significant place in an aircraft's performance envelope. They are:

- Low Altitude – 0 to 10k
- Medium Altitude – 10 to 15k
- Medium High Altitude – 16 to 20k
- High Altitude – 21 to 30k
- Very High Altitude – 31k and up

Each Fighter will have its usual "Base" MVR value and will remain constant from Sea level to the band where its "Critical" altitude is

reached. "Critical" Altitude is that altitude at which the Engine or the Aircraft's performance is degraded. The same applies to the airframes speed at altitude. It varies with the altitude the aircraft flies at.

CAP and LRCAP flown at 100 feet are considered to be ASW aircover, though they will react and climb to intercept enemy aircraft.

Recon performed at 1000 feet or lower can count as an "interdiction" mission targeting enemy logistics. Only fighter types and attack bombers will trigger this behavior. The effect depends on the area covered, aircraft numbers and enemy aircraft numbers. Good air superiority is advised before diverting fighter aircraft to this kind of mission.

Electronic warfare aircraft flying recon at 100 feet are on mission to blow up any magnetic influence mines they encounter.

## 7.19 IMPACT OF ALTITUDE ON AA FIRE

*War in Spain 1936-39* divides AA guns into 2 general classes; Large AA guns that fire shells designed to detonate near enemy aircraft for an area effect and small AA guns firing projectiles that need to contact the enemy aircraft to do damage.

Large AA guns, when on land, increasingly suffer from firing at low altitudes from below 3K feet downwards with zero firepower at 100 feet.

Small AA guns defend from low level attacks. Furthermore, the small AA guns highly depend on aircraft size to achieve a hit. Large 2 or even 4 engine bombers will not do well if used at altitudes that are covered by small AA. Only fighter aircraft and 1 engine bombers can operate at that altitude with no additional penalty versus small AA.

## 7.20 IMPACT OF ORDNANCE ON AIR MISSIONS

LBA ordnance is provided from the stockpiles at the base and is produced at factories on and off map, depending on the scenario.

Torpedo-carrying aircraft are required to use torpedo ordnance.

But a group can be set to "Use bombs" instead. "Using bombs" is a way to conserve the supply of torpedoes. "CDR Choice" is a third option. The value of the known target ships as well as the supply of torpedoes determine the chance for the group to use torpedoes on naval attack.

Torpedoes are supplied from your national pool. They are built by either a fixed rate or on-map factories. When a group is ordered to attack ships, the group checks the pool numbers. If the pool for the given torpedo is drained, bombs will be used. The numbers can be seen in the national information panel, sub section "Device Pool". The air unit panel also tells you what torpedoes are in pool at the place where the aircraft ordnance is shown.

## 7.21 COORDINATING STRIKES

Each air unit is considered a unique entity for the purpose of determining offensive Missions and Escorts. Under certain circumstances aircraft flying different Missions and aircraft flying from different starting points will coordinate their attacks. Coordination of attack is determined by several factors. Those factors are:

- Air units have the same target within the target hex.
- Air units flying from the same base have a better chance of coordination.
- Air unit experience and leader air skills increase the chance of coordination.
- Air units cruise speed should be similar.

Escorts targeted to the same hex as the bombers have a better chance to participate.

Air strikes from different bases/ships flying to the same target hex will approach the Target together if the time to the target hex is the same. However, before the attacks are made, there is a chance that some of the air units will become separated from each other, and this may

result in piecemeal attacks on the target. In addition, an air unit may escort attacks originating at another base/ship if the escorting unit has a Target that matches the target being attacked.

## 7.22 THE APPROACH LEG

*War in Spain 1936-39* also tracks flights along the approach leg for early detection. LCU's, TFs and CAP in hexes near the flight path of an air strike have a chance to detect the air strike and be detected. This can result in AA guns along the flight path to fire at enemy flights passing by. Also, CAP/LRCAP close to the flight path may attack. Fighters, if available, may scramble and climb to intercept. Climb rate and speed as well as enemy speed and other factors like the point of detection determine interception success.

Furthermore, flights that are some distance away from their target are forced to fly at cruise speed during A2A combat. This gives even slower, older fighters a chance to attack normally faster bombers. The lower speed of the bombers will also increase the attackers ability to dodge defensive fire while closing in.

## 7.23 SHIELDING BOMBERS

The number of escorts equal to twice as many enemy attackers is required to shield bombers during A2A intercepts. Exceptions are made for attacking fighters that can outrun escorts. It is impossible to shield bombers effectively when the attacking fighters are faster than the escorts.

## 7.24 WEATHER AND ABORTED MISSIONS

Missions can be aborted after all preparations have been made, due to bad weather over the air unit's base or over the intended target. Hexes affected by bad weather, winds of Beaufort 6 and higher, block any air units from launching an airstrike from the hex, and it blocks any target

in the hex from being attacked if winds are Beaufort 9 and higher. For details on the Beaufort Scale see section 12.1.1.

Very low temperatures (below – 20 °C) can also prevent the launching of any aircraft on strike missions, although a very low temperature will not prevent a strike from hitting a hex. A line of bad weather will not stop an airstrike flying through the hex from a good weather hex to a good weather hex. A no-fly symbol (a cloud) will appear on the tactical map if the Show Weather Effect option is selected.

## 7.25 MISSION LIMITATIONS AND RUNWAY SIZE

In *War in Spain 1936-39* runway size and damage can impact air operations in a big way.

### 7.25.1 SIZE OF AIRFIELD RUNWAYS

The runway of the airfield should be compared to the aircraft runway needs. See aircraft unit display. Each airfield size level will provide 25 units of runway length. So, a size 3 airfield has 75 units of runway length.

### 7.25.2 DAMAGE EFFECTS ON RUNWAY SIZE

Runway damage is deducted from an airfield in the following way. If a runway has 20% damage it will provide 80% of its runway length for air operations. An aircraft cannot take off to conduct air missions if the runway is below 50% of the required size. An aircraft can take off with reduced load if the runway is between 50% and 100% of the required size.

Achieving runway damage in flat, hard terrain like desert or plains is difficult since a new runway can be easily set up. Airfields in rough, forest, jungle and other terrains that are less than flat/clear are easier to damage. For most airfield attacks the primary damage will be to the aircraft on the ground. “Shutting down” an airfield was rarely achieved IRL.

The same rules apply to ship-based missions where the ship runway size is used for airfield size.

**Note:** *This rule is optional for ships and only applied if a runway size is given for the ship class.*

## 7.26 POLITICAL SITUATION AND AIRFIELDS

If a political relationship of 90 or better exists between you and another ally, then you can use that nation's airfields to conduct air missions.

## 7.27 OPERATIONAL LOSSES OF AIRCRAFT

Operational Losses (or Op Losses) occur due to accidents or other events that are not necessarily a direct result of being shot at by the enemy. These losses occur to squadrons based on several factors, including the range of the Mission, the experience of the pilot, and if the aircraft is flying from a ship. The result of ops losses ranges from damage during landing to complete loss of a aircraft and it's pilot. Op losses include planes lost returning to base and planes crashing, planes destroyed or damaged on take-off and/or landing, and pilots as a result getting killed, wounded, or captured.

As with all other losses, replacements for an air group can be accomplished either automatically or manually. See section 16.4 for details.

## 7.28 WITHDRAWING AND DISBANDING AIR UNITS

### 7.28.1 WITHDRAWING AIR UNITS

Air units subject to forced withdrawal are doing so as a whole unit and do not return aircraft to the pool. Also, air units that are under strength will draw from the pool and even other air units to be able to withdraw

at full strength. If a Ship withdraws from the game, all it's indigenous air groups will withdraw as well. Any aircraft missing in air groups that are withdrawn will be taken from the reserves and, if the reserve is depleted, from active groups. Pilots will be released into the veteran pilot pool. It is not possible to keep the aircraft of the air unit by sending them back to the pool before withdrawal. This is not the case for air units subject to forced disbandment. See section 7.27.2.1 below.

## 7.28.2 DISBANDING AIR UNITS

You may order air units at a base to be disbanded during the Orders Phase. The aircraft and pilots left behind by a disbanded air unit are sent back to the replacement pools.

Disbanding means that a group is taken out of the game. Due to the severity of this action "ctrl" must be pressed while left clicking the Disband button. You may also right click on the Disband button to only send the aircraft back to the pool and keep the air unit with its pilots. This can be useful since air units without aircraft can be upgraded to another airframe even when there is no access to the pool. Other air units in the area, such as Ferry units, can then be used to provide aircraft of the new type to the air unit. Under the more realistic replacement models it is required to have aircraft be in range of a native base to get back to pool. If the group is out of range, then the aircraft will be dumped into a Ferry Group for you to be able to upgrade the combat air group too. The Ferry Group can then be moved back home or used as pool for other air groups around.

### 7.28.2.1 FORCED DISBANDMENT OF AIR UNITS

An air unit subject to forced disbandment can be identified by a line of text in the air unit panel telling the date of disbandment. Thus, forced disbandment primarily affects the size of the air force the player can field rather than the raw number of pilots and aircraft.

# 7.29 TRANSFERS AND FERRY UNITS

Transfers and Ferry groups are how you move aircraft and/or pilots from base to base.

## 7.29.1 AIR TRANSFERS

An air unit may transfer several times per turn if its estimated time of arrival (ETA) is below 12 hours. Air units arriving at a new air base during a Transfer phase will not be active during that phase. An air unit can fly regular air Missions for air phases after this amount of time has passed. Damaged aircraft or aircraft under maintenance will always create a new subgroup, called a fragment but will be in a disassembled state. Transfers by rail or truck/cart will move all aircraft. aviation support units must be moved like other ground units. An air unit will move around 18 hours per day. 6 hours are reserved for rest/sleep of the unit. So, if a unit has an ETA of 24 hours, it will take more than 1 day for the group to arrive.

## 7.29.2 TRANSFERS FROM CAPTURED AIRFIELDS

When an airfield is captured, aircraft located at the captured base may attempt to fly to a base within their normal range. Otherwise, aircraft at that base may be subject to destruction or capture by the enemy.

## 7.29.3 FERRY GROUPS

*War in Spain 1936-39* allows the creation of new air units depending on the rules that you have chosen. These air units may have pilots and can work as combat groups or remain pilotless "Ferry groups". These air units can be upgraded to any aircraft type and resized freely from 1 to 100 aircraft.

Ferry groups serve a special role in 2 ways: They can be handed over to other nations (possibly a nation being led by another player in

multiplayer games) and are the way to conduct lend-lease actions in game. The second role for Ferry Groups is that it can be used as a mobile, local pool that allows other groups, in range, to draw replacements from them. There will be cases where shipping a Ferry Group to the frontline is the only way to bring replacement to sites far away from home. The AKV ship type is very useful here as it can load AC in ready state. Ferry groups are also useful for dumping aircraft from an air unit that you wish to upgrade to another airframe. This way you retain the old aircraft on site as opposed to having them sent back to the pool upon upgrade.

One of the unique roles for ferry groups though is to conduct lend-lease actions in the game. *War in Spain 1936-39* is an unusual conflict to many gamers as it portrays a conflict consisting not only the 2 primary belligerents, but importantly, a large number of 3rd parties who were supplying both sides a great deal of material and in some cases manpower. For example, you can find air units that are Italian flying Italian aircraft, but also Nationalist Spain units flying Italian aircraft. Ferry units allow the player to supply replacement aircraft from the national pool to the respective units. See section 16.4 for more details.

## 7.30 AIR TRANSPORT OF TROOPS AND SUPPLY

Troops and Supply can be transported to friendly bases or air dropped into enemy hexes to support an attack. See the following subsections for further explanation.

### 7.30.1 TROOP AIR TRANSPORT

LCU's can be moved by air to a friendly base or dropped into an enemy location. Ground units belonging to a Restricted HQ cannot be moved by air. The LCU may be moved completely or in part. This depends on the aircraft used and whether it can accommodate the respective devices and if the device is parachute capable in case of airdrops.

For accommodation the aircraft ramp size is compared to the device load cost:

- Army devices, normal Vehicles and AA guns require at least a ramp size of 10% of their load cost.
- AFV, Naval and DP guns require a ramp size at least equal to their load cost.
- Devices that contain Animals require at least a ramp size of 1.

Setting up a complex airlift of several LCU moved by several air groups can be a complicated matter. For this purpose, there is automation in place. This is a fast way to set up airlift of several units without the need to assign the correct number of transport aircraft to each unit. When a transport group is ordered to move a unit that is at its destination or has no more devices that can be moved by this air group, then another ground unit to move is chosen by the following rules:

- Must have same objective (planning target) as the original ground unit.
- Must not be airlifted by another air group with DIFFERENT target hex.
- Must not be a static unit.
- Restrictions apply to restricted LCU. Units cannot be airlifted out of their restriction area.

So, you can assign the same planning target to 4 ground units and then assign all transport air groups to move the 1st of these units. After the 1st one has completely moved, all subsequent air groups will switch to airlift the other ground units that are valid to be moved by the rules.

To turn the automation on/off, either repeat the troop move order or hit the space bar. The text for the mission will switch from green to blue to indicate it is an airlift with automation to be used.

Supplies and other items like fuels and ammunition may be airdropped into any hex containing a friendly LCU. Air moving industrial products

is also possible, but only supplies, fuel and ammunition will be recovered in non-base hexes.

## 7.30.2 AIR DROPPING OF TROOPS

Parachute units normally consist of parachutable devices, though there may be exceptions as well as the aircraft ramp size preventing the air dropping of certain devices. Devices other than parachutable's can only be deployed into a hex with a friendly airfield. Exceptions are given for the use of Glider aircraft that can airdrop any kind of device. See section 7.29.1 above.

Also, an exception is troop movement by amphibious aircraft into a hex with water that allows them to land. In this case it is assumed the aircraft can unload the troops over the beach.

## 7.30.3 AIR TRANSPORT OF TROOPS BETWEEN BASES

Ground units can be moved between friendly air bases up to 2 times the Extended range of the transporting aircraft.

## 7.30.4 AIR DROPPING SUPPLY

Supply, fuels, and ammunition can be dropped to a friendly unit not in a base up to the Extended range of the transporting aircraft.

## 7.30.5 AIR TRANSPORTING SUPPLY AND INDUSTRIAL PRODUCTS BETWEEN BASES

Supply and certain industrial products may be moved between friendly bases up to 2 times the Extended range of the carrying aircraft.

## 7.31 AIR UNIT RESIZING

Some air units can be resized during the game. The size and date that the resize will occur is shown on the air unit screen. A message is recorded in the Operations Report when a resize takes effect. Under game rules that permit creation of combat air units, a resize can be manually done by clicking the size figures on the air unit panel. Ship groups can be resized up to the capacity of the ship.

## 7.32 AIR UNIT CREATION

*War in Spain 1936-39* allows you to create air groups that can be used for combat or ferry groups, depending on the rules chosen in the Preferences Screen. The option to create air units is accessed via the base hexes air unit list.

### 7.32.1 AIR UNIT CREATION PROCEDURE

The list of air units at a base has a button to create a new air group.

The air unit will start with size 1 and a random airframe.

Once you open the air unit panel you can set a new unit size and upgrade the air unit to any other airframe you have available.

The procedure is exactly the same as with all other air units. Click the size info text to resize and the upgrade button on the right side to switch airframes.

**Note:** *Air units with no pilots are considered "Ferry groups", and other air groups can draw AC from them. As soon as such a unit receives pilots, it is considered a combat air group.*

## 7.33 AIR UNIT DETACHMENTS

Some air units start the game as detachments to a parent air unit. These detachments count against the total aircraft of the parent air unit, as do the pilots. On the parent air unit screen, you will be shown the maximum aircraft size of the air unit less the number of detachments. There is a "Unit OOB" button which will show the air units connected to the parent air unit.

## 7.34 AIR COMBAT

Air combat in *War in Spain 1936-39* occurs when opposing aircraft meet. This may happen in the target hex of an air strike or along the approach leg of the inbound air strike. When an air strike has been launched, the Tactical Map will center on the hex being attacked. As they engage in combat, the results will be displayed.

### 7.34.1 AIR STRIKES

Air strikes are processed as Raids. A raid consists of one or more air units flying together to a target hex. The basis of the raid was the initial formation of strike and escort aircraft based on the target, altitude, speed and type of aircraft. As the raid approaches the target, it is affected by coordination issues, which can result in the raid breaking up into smaller raids, or some of the aircraft in the raid aborting or getting lost. Once coordination is completed, the raids are resolved one by one. This will result in a single target being attacked multiple times by different aircraft depending on coordination. The effect of each raid is accumulative. So, the CAP can slowly decrease and increase as planes drop out and rejoin the combat over multiple raids.

A successful raid would try to have a Sweep mission go in before the main raid to engage and decrease the CAP, while successive bomber raids, with or without escorts, follow on. CAP will always try to meet the

raid at its altitude or slightly above. A sweep thus has the advantage of being able to dictate the altitude the air combat takes place at.

### 7.34.2 COMBAT AIR PATROL (CAP)

When inbound enemy aircraft are spotted by aircraft that are over the target, by radar or ground forces assigned to watch for enemy aircraft, all planes available for CAP are scrambled. CAP Aircraft are assigned, but they do not all fly at the same time. They are divided into varying levels of readiness in order to maintain a standing CAP over an assigned target hex. There are several levels of CAP:

- **Airborne CAP** is the most prepared and can be considered that portion of an air unit that is currently flying at their assigned altitude. There is little delay for this part of the air unit in intercepting an incoming raid. This percentage is the one that you can set on the air unit screen.
- **Ground CAP** or in Ready Status is the next level of readiness in the CAP hierarchy. This portion of the air unit is on the deck and ready to launch and is fueled and armed. There can be a severe delay for this portion of the CAP fighters getting airborne and in a position to intercept an incoming raid. This depends on the time and distance to intercept, and the enemies altitude. Plus, the speed and climb rate of the launching aircraft. The advantage is that these aircraft are ready to go and do not accrue fatigue unless an actual raid triggers their launch. This level of CAP works best if it comes with good early warning in the form of LCU's along the path and in the perimeter of the base, and radar if available. See section 7.33.2.1 for info on CAP and Radar Early Warning.
- **Refueling Cap** represents aircraft that are landing or have landed for refueling and won't be ready for immediate use. These aircraft are usually the last to join in the battle.

Only fighters and air units set for the "Escort" mission will scramble. CAP may react to defending a target as far away as you define.

This also applies to the distance to an enemy's inbound flight path. In short, CAP will react to any enemy that moves into its radius. Early detection of a raid is imperative for interceptions.

### 7.34.2.1 CAP AND RADAR EARLY WARNING

Radar plays a significant role in the way CAP behaves. Historically, it allowed for more warning time to scramble fighters to an optimum altitude for an interception of an incoming raid. And it provided descriptive updates as to the position of a targeted raid. Any ground unit, TF or CAP/LRCAP can spot a raid and provide data for interception. Though Radar is usually superior in performance over human spotting and guessing of the raids speed and altitude.

Radar as well as visual sighting cannot detect raids below the horizon or without Line-of-Sight. This means altitude settings are important for detection of a raid.

Without early warning, first Detection is usually when Ground units, Observer Corps, or the Airborne CAP first sights a raid approaching the target hex. Fighters in a ready status will be lucky to get airborne in time to hit the raid as they egress the target area but follow on or subsequent raids will be more likely to face larger CAPs once the base is alerted.

The altitude at which CAP is assigned is important in the game. As CAP and escorts engage, the individual aircraft may scatter over several altitudes. A disadvantage for higher altitude CAP is the time required to get on station. Also fuel consumption is higher, making the aircraft return to base sooner. Also flying at a less than optimum altitude band takes a high toll on endurance due to inefficient engine performance. This can result in fewer CAP aircraft being actually available.

Aircraft flying CAP from bases with radar will perform better at intercepting enemy air strikes.

### 7.34.3 NAVAL SEARCH AND RADAR

Patrol aircraft may be detected by radar, causing CAP to intercept way out of visual range. Since patrols are required to move into visual range of any target at sea, to get a DL on it, radar can be a serious obstacle in acquiring a target. Especially a naval task force. So, unless the scout aircraft can outrun or outgun the CAP, you will be provided with a minimum DL on any TF that may be present in the target hex.

## 7.35 AIR–TO–AIR COMBAT

Air-to-Air Combat results are based on aircraft type and performance, pilot skill level, number of aircraft, and other factors. Aircraft can be damaged or destroyed. There also is a factor from the technology level of a nation, also known as the Technology Bonus. ( See section 7.34.1). Initially, agility will be the dominant factor for dog fights. As air tactics improved this shifted to flight performance, where superior speed and climb became the dominant factors. Once aircraft have closed for combat, the most important factors include leader/pilot Air and Defensive skills. Also, aircraft maneuverability, speed, and altitude. If an aircraft has significantly higher maneuverability, the pilot will try to dogfight. If the aircraft has a significantly higher speed, the pilot will try to make slashing attacks. Whether the pilot succeeds or not is primarily dependent on his air skill, the aircraft capabilities and the effective A2A tactics level. A pilot may "chase" another aircraft and fire at it until it is destroyed. The defending aircraft may outmaneuver or outrun the opponent or receive aid from his wingman that forces the chase to be interrupted. High agility aircraft are very good at maintaining a chase, especially when the defending aircraft cannot outrun its attacker.

## 7.35.1 TECHNOLOGY BONUS

The Technology Bonus is how good a leader or pilot is in advanced A2A tactics, such as vertical warfare. It ranges from 0 to 100% and generally improves pilot performance. Certain leaders and pilots may be granted a technology bonus at a rate of 3% for every point over 70 air experience. Even if no technology bonus is available for that nation. It generally is an ability on the national level, but leaders and pilots can also provide it based on their skill.

## 7.35.2 AIR ATTACK ANIMATIONS

Air attack animations are designed to provide the player with on-the-spot information as to what is happening during a raid. This information is usually pretty accurate. The animations can be skipped by pressing either space or escape. In naval attacks the first keystroke will advance to the attack on the ships.

### 7.35.2.1 AIR TO AIR COMBAT GRAPHIC

During Air Combat a graphic of the air battle will be displayed. Nationalist aircraft are shown above the central dividing line, and Republican aircraft are shown at the bottom. Fighters will always be displayed closest to the line, while bombers follow behind them. The number and type of aircraft is displayed underneath each aircraft icon and may go down as the battle rages. A time to target may also be shown for bomber air units. The total time of the combat since the raid was detected is shown in the upper right-hand corner of the panel. Flak bursts and damage to aircraft will indicate misses and hits.

The central dividing line details the current situation and gives a text reference to what is occurring in the battle. The amount of delay between messages is around 1 second. The detail level of these messages can be set in the game preferences. When a bomber air unit reaches its target, the display will indicate which bombers of this air unit are

approaching their target. During attacks on ships the display will briefly switch to show the naval attack and its results.

### 7.35.2.2 NAVAL AIR ATTACK ANIMATIONS

This display is like the Air Combat graphic, except individual ships that are defending themselves from attack are displayed at the bottom. Flak bursts and waterspouts will indicate misses while hits are detailed by damage to aircraft and/or ships.

## 7.36 AFTER ACTION REPORTS (AAR)

When the battle is over, a summary of the combat will be displayed. This summary is called an After-Action Report or AAR. This will detail the location attacked, the Nationalist and Republican aircraft involved in the attack (and defense, if any), the aircraft losses suffered by both sides, and the resulting damage caused by the raid (if any). Click Exit or press escape to exit the display and continue the game.

## 7.37 BOMBERS IN COMBAT

Endurance, speed, and bomb load are very important to the bomber. Aircraft such as the B-17 Flying Fortress have almost no maneuverability and will usually become damaged on the Mission if opposed by fighters or anti-aircraft artillery. However, damaged big bombers are lost more often on landing than in air-to-air combat. Smaller, faster aircraft, such as the A-20 Havoc might be fast enough to avoid the better part of Flak and can maneuver against fighters. The speed difference is an important part in the effectiveness of defensive fire. The faster the bomber, the more the offending CAP will have to fly straight to keep in range. This allows faster bombers, like the B-25 Mitchell, to fly unescorted Missions against the Axis with an acceptable loss rate. Bombers without self-sealing fuel tanks, low durability, low speed, and only moderate

firepower will suffer much higher losses, if unescorted and opposed. Bomb load is important, because it means more bomb damage and fewer Missions needing to be flown over the same target. A bomb load can reduce the agility of an aircraft a lot. The exact amount of loss of agility due to bomb loads does differ from aircraft to aircraft.

## 7.38 ALTITUDES

Whether opposing bombers while on CAP or flying escort, fighter altitude is determined by bomber altitude. Some aircraft lack superchargers and therefore don't perform well at higher altitudes. To take advantage of this, the player might make a high-altitude fighter sweep at the same time he launches a bomber attack (from the same base). This simulates a high cover. Otherwise, the escorts will fly close cover. The higher the bomber, the less chance it will take damage from anti-aircraft artillery. However, with higher altitude, their chance of hitting anything is reduced. However, the bomber may fly slower at higher altitudes, negating the reduced to-hit ability of ground AA, as well as making the bomber more susceptible to CAP attacks.

## 7.39 RANGE OF MISSIONS

Long range Missions will take a tremendous operational toll on pilots and aircraft. Pilots and crew become fatigued as they fly. A long Mission will cause them to end up with a high Fatigue and Disruption rate upon arriving at the target. Also, damaged aircraft will be less likely to return successfully to their base if they must fly a long return trip. Aircraft that are damaged in combat will show up as operational losses if they don't get home safely. Though this information will not always be immediately visible to the other player. Aircraft that are not damaged, but do not return safely are counted as operational losses.

## 7.40 INCIDENTAL AIR COMBAT

Aircraft flying into a hex that contains enemy aircraft may, at any point of combat resolution, be caught up in an air battle in that hex. Thus, while witnessing one set of aircraft fighting each other, other aircraft, not with that set, may end up participating and becoming casualties in the air-to-air combat.

## 7.41 AIRCRAFT DAMAGE

Damage is cumulative during combat and may increase when the aircraft lands. An aircraft may crash even when damage is below its durability rating and an aircraft may suffer a landing accident with its damage level exceeding durability. A damaged aircraft will be put into a "repair state". When this happens, the pilot will be free to use another aircraft if one is available.

## 7.42 AIRCRAFT MAINTENANCE

In addition to the repair state, there is also a 'maintenance' state. This is usually representative of non-combat causes such as an overhaul or an accident, etc. As well as combat damage, aircraft gain fatigue from use, strain on the airframe, etc. When enough fatigue points have been gained, the aircraft will be automatically stand down for maintenance. An aircraft can be manually grounded for maintenance on the "Aircraft Information Panel". This is especially handy when done before larger air ops are planned to ensure the aircraft will not suffer breakdowns during the operation. Aircraft must be grounded to reduce fatigue. Restoring an aircraft into good shape requires it to be taken apart, fixed/repaired, and checked out, then reassembled. It is not possible to do this while keeping the aircraft ready to fly.

## 7.43 SETTING SEARCH AND ATTACK ARCS

Search arcs are set on the air unit screen. Search arcs are always defined as clockwise from the Start degree to the End degree. Or from 0 to 359 degrees. Attack arcs work the same way but apply to the automatic picking of targets and escorting fighters within the defined arc. It is possible to manually set a target out of this arc. Arcs are always set with 0 degrees being straight up and moving clockwise with 180 degrees straight down, regardless of the location on the map. Upon left clicking the Search or Attack Arcs, you are presented with the map screen to select a start and end hex for the Arc. The Arcs will be calculated from the relative position of these hexes versus the air unit's location. Right clicking the Arcs resets them to full circle.

# 8. GROUND UNITS

Ground units may move overland, be transported by sea or by air. Parachute units can be airdropped onto enemy bases. Ground units can entrench in place and build forts to increase their defensive abilities. Combat units may assault enemy ground units and, in this way, capture enemy bases or positions.

Ground units represent battalion and larger-sized maneuver formations. These are made up of individual squads, guns, and vehicles, which are called devices. A typical infantry brigade has support troops, numerous guns, and infantry squads. However, the orders you give will be to the maneuver units, (Battalions and larger formations) rather than the individual squads and support troops. Maneuver units are represented on the map as ground unit icons. The support troops associated with the maneuver units will move with them. The various maneuver and HQ units you control are listed below.

## 8.1 UNIT NATIONS AND TYPES

Maneuver units were filled out from volunteers from different nations from around the world and of course from the two opposing sides in Spain.

There are Ten basic ground unit types:

- Headquarters (HQ)
- Infantry (Including Cavalry and Parachute units)
- Armor
- Engineers (Including Base Forces and Aviation Support Troops)
- Air Defense (AAA)
- Artillery, Infantry Guns, and Anti-Tank Guns
- Coastal Defense Units

- Logistics Units
- Reserve Units (RSV)
- Special Forces

### 8.1.1 HEADQUARTERS

These are all support troops (the much-maligned "brass" sitting in the rear). However, these rear-area troops earn their keep in *War in Spain 1936-39* by providing large numbers of support, communication personnel and medical personnel to support other units in combat and for logistics tasks. They give combat benefits to combat units who are within a certain range. The command ability of a HQ depends on its size, and any current damage it may have which will reduce its ability to control units in the field. The size of the units under its command is compared to the HQ's command ability. Medical devices in a HQ unit help with recovery of disrupted devices. There are four different HQ types. They are:

- **Land HQ's** – Helps in several ways. They provide a bonus to ground combat for attack, defense, and resilience to damage. The land skill of its leader directly affects how well units under his command perform. They also have a number of logistics devices and can supply other units in the hex with ammunition and supplies during combat.
- **Naval HQ's (n)** – Helps to improve the performance of ships in combat. The base the HQ is planned for is the center of its influence. Though distance to this hex also has an effect. The Naval skill of the leader in command of the Naval HQ is used to determine the potential maximum of any bonus given to ships attached to this HQ.
- **Air HQ's (a)** – Helps by giving several benefits to pilots under their command. The leader's air skill is used to determine these benefits. See section 7.13. They will also help in providing a

good active CAP ratio. Air units will auto attach to the best air HQ in range.

- **Amphibious HQ's (m)** – Helps amphibious invasions suffer fewer losses and less disruption.

There are also three special HQ types. These work only for ground units attached to their command structure. These special HQs provide additional logistical and combat support. Brigade and Regiment HQs perform about the same, but historically a Brigade may contain attached Artillery, Engineers and possible even Tank units and were somewhat self-sufficient, and a Regiment was usually just composed of Infantry Battalions. These HQ's are:

- **Division HQ's.**
- **Brigade HQ's.**
- **Regimental HQ's.**

HQ's can be categorized as Static Restricted, Restricted or Unrestricted. The effects of each category are as follows:

- **Static Restricted [S]** – HQs, and some Land Units, are permanently restricted. They will not be able to change their HQ type.
- **Restricted [R]** – Units may not move by air or sea unless the HQ is changed to an unrestricted HQ. Even when an HQ is changed to an unrestricted HQ, subordinate units may still be restricted.
- **Unrestricted –** None of the above restrictions apply. Units attached to an unrestricted HQ are free to move by land, sea, or air.

HQ Units also contain Signal Squads. Signal Squads help provide command and control to the troops in the field. So, the more signal squads an HQ unit contains the more control the HQ unit has over its troops in the field. Thus, the loss of signal squads in a HQ unit reduces command and control of the troops in the field.

## 8.1.2 INFANTRY, CAVALRY AND PARACHUTE INFANTRY

These units generally represent non-motorized combat formations. They consist of multiple types of combat elements. These elements can contain infantry squads, engineer squads, artillery, armored fighting vehicles and other support type troops. Don't be surprised that there can be twice as much support as combat troops. The grunts may complain about the lazy "support troops" in the rear, but without them the infantry would have no food in their bellies or ammo in their guns. These logistics and support crews manage the fetching of supplies, fuel, and ammo from any source close by, and they have the cargo and transportation space required to store all the items needed by the troops. These formations can also have special recon devices attached which will provide special benefits. See the note at the end of section 8.1.10.

## 8.1.3 ARMOR

These types of units excel in open terrain. They can "Blitz" an enemy and by that can take control of hex sides during combat. An enemy unable or not set to counter this may end up encircled after the combat. In support of infantry, Armored units are deadly against an enemy lacking matching anti-tank weapons. However, when used in unsuitable terrain, their combat power is weaker, and they are more vulnerable to attacks. Unopposed armor can give an enormous boost to the infantry they are supporting. These formations can also have special recon devices attached which will provide special benefits. See the note at the end of section 8.1.10.

## 8.1.4 ENGINEERS

These units include Combat Engineers, Construction units, and Base Force units. All engineer squads and engineering vehicles can construct and repair base facilities. Combat Engineers and assault tanks can also destroy enemy fortifications during combat.

Construction Engineers have only the word "Engineer" in the device name. Combat Engineer units have additional nationality and function designations (e.g. German Pioneer Sqd, Aus Cmbt Eng).

Base Force and other Aviation ground units contain Aviation Support troops to service aircraft, Naval Support Troops to service ships and engineers to construct and maintain the base facilities. Without them, aircraft won't fly often, and ships will not unload as quickly. Note that Aviation Support troops are not attached to any squadron, their presence at a base is enough to support the air units that are present.

Vehicles aiding engineering tasks will consume fuel. If a unit runs out of fuel the vehicles no longer contribute to the maneuver units engineer power.

### 8.1.5 ANTI–AIRCRAFT ARTILLERY (AAA)

Air Defense Units, also known as AAA, help to protect your bases and ground units from air attack. Without anti-aircraft guns, your bases and troops are vulnerable to air attack. However, AAA won't survive long in a ground assault when directly engaged. They can, however, be very helpful in an AT role, as most AA guns fire projectiles at high velocities, such as the German 88's.

### 8.1.6 ARTILLERY, INFANTRY GUNS, AND ANTI–TANK GUNS

These units consist entirely of guns and their direct support troops. These are the big guns backing up your infantry.

Artillery may fire in attack or defense and are the only devices to attack under a barrage attack option. You may notice most of the artillery units have a higher maximum ammo consumption than they can carry. To make full use of them you will need other units in the hex that can provide "excess" ammo to supply them. Logistics and support units are meant for this. Overall, artillery can be a great asset when it comes to doing some serious damage with low risk, but you will find them to also be great at draining your ammunition stockpiles.

Infantry guns are short guns of low range, they fire low-velocity shells of high destructive power.

Anti-Tank (AT) guns are great at stopping armored vehicles. Also, all anti-tank values count only for 10% of possible damage if the opposing device has armor with a higher rating than your "Penetration" value.

The size of these guns (load cost) can hinder their use in difficult terrain. The following is a list of the maximum load cost for the heavier terrain types in *War in Spain 1936-39*:

- Mountain 25
- Tropical Mountain 6
- Rough Jungle 8
- Jungle 10

When planning combat in such terrain, make sure you deploy devices that can operate there. Heavy artillery won't do much when used in Jungle hexes. All other terrain types have no limit for gun sizes.

### 8.1.7 COASTAL DEFENSE UNITS (CD)

These are units consisting of various guns that can fire against ships and invasion troops attacking their hex. Coastal Defense units that have the word "Fort" or "HarDef" in their name or certain large guns are static and cannot move. Fire results will be summarized in the Combat Summary screen. Fortification units, due to their fixed nature, can rarely completely retreat and will split off any mobile devices, leaving behind any fixed guns, when routed.

### 8.1.8 LOGISTIC UNITS

These mostly consist of non-combat and transport devices and are usually kept at bases to augment transport capacity. They can also be set behind a frontline to provide transport between frontline units and rear bases.

If a LCU has logistics devices it can perform logistics duties. If the unit is in a base, then it will use its devices to supply LCU's around that base in the order it sees fit. If the unit is outside of a base, it will use its devices to draw supply from a nearby base for units in its hex.

Dedicated logistics units have an additional function: They can be placed between a base and the front line and provide supply just as if it was a base. The dedicated logistics units can in turn draw from a nearby base or transport supply to other LCU's around its position.

It can also act as a link between the frontline and the owners base in case the frontline is moving too far from its own bases. The "Administrative" skill of the unit leader influences how efficiently the logistics devices in any LCU will work.

## 8.1.9 RESERVE UNITS (RSV)

Most replacement models offered by *War in Spain 1936-39* will require you to create and ship replacements to the frontline. The RSV unit is the container for all of these. An RSV unit will never use their devices for combat, no matter what the device type. Units lacking devices can draw from these RSV units to recover losses if within 200 NM of the RSV unit and reachable over land.

RSV units are also useful in moving otherwise static devices. By that they are the only means to move certain CD guns or fortifications into position. RSV units are also used in handing over devices to other nations by using the lend lease button on the Ground Unit Window.

## 8.1.10 SPECIAL FORCES

The following Icons denote special forces:

Special Forces such as the 164a Brigada Guerrillero, are subject to special rules regarding combat. They will attack as normal, but on defense they will switch to delay orders automatically. Additionally, they do only 10% damage and

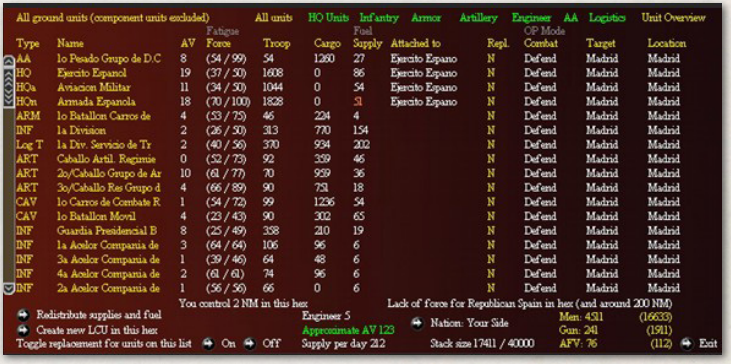
take only 10% losses on defense. That makes them the perfect troops for actions in hostile territory, as they are hard to combat. At the same time, they are unsuitable for defending hexes. Depending on game rules, you may switch existing units to these types or form new units of this type. A 75% loss of experience is applied then. This reflects that special forces need special training to carry out their special missions. Special forces need at least 26 points of experience to grant them all special abilities. These include the ability to traverse otherwise impassable Ridge type hex sides (provided the unit does not include vehicles) and retreat through enemy controlled hex sides.

**Note:** *Recon devices are special squads or vehicles designed to scout and recon the area in the current hex and the six surrounding hexes to provide information and DL on enemy units in those hexes. The number of recon devices, terrain and enemy units in these hexes will determine the chance and quality of any detection level provided. During combat recon units tend to stay out of immediate action. Recon units can be present in both Infantry and armored formations.*

# 8.2 GROUND UNIT INFORMATION SCREENS

## 8.2.1 LCU LIST

If you hover the cursor over the rectangle icon with a AV number in it, at any base, we see a floating box with a list of the LCU's present in the hex. In this case, there are a lot of ground units present in the hex. Clicking the rectangle will display a list of all units in our sidebar. The list below is what you will see if you click the "Full List" button on the sidebar. See section 8.2.7.




Across the top of this screen are the tabs to filter ground units by type. Just click on the tab to see just those types of units.

The next row down displays the LCU's type, the Name of the LCU, the AV value, Force (the percentage of active troops / total troops left in the unit), Troop and Cargo Load Cost, Supply, the command the unit is Attached to, Replacements On/Off, Combat Mode, Assigned Target, and Location.

On the left bottom of the screen, you have the option to redistribute items among the force. This can be useful if you wish all units to have the same percentage of items. Otherwise, units may or may not share items during the logistics phase. The next button down is used to create

new LCU's. Depending on game rules these may be used for device depots or can be turned into full grown combat or support units. The last item is used to turn on and off replacements for all units in the list.

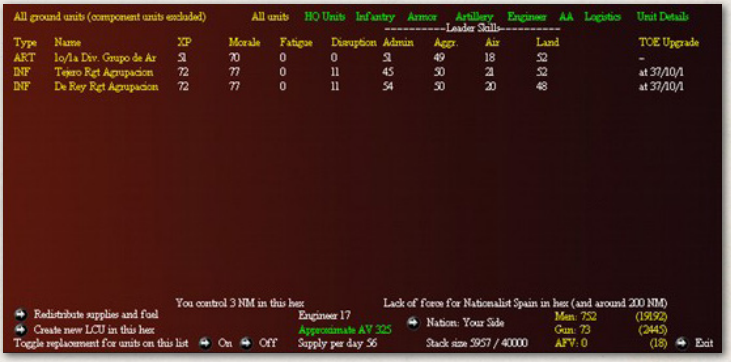
In the center, bottom of this screen is a summary of the total force information. If there are engineers in hex, the total construction power will be shown here. The total approximate assault value is also shown. The amount of supplies the units will consume per day is shown at the bottom.

There is also information shown on the control you have in hex. When enemy units make a successful attack, you may lose ground. A victory by your ground troops can increase the amount controlled. When you control all the ground after a victory in ground attack the enemy will be pushed out of the hex, and you gain total control over all facilities in the hex. Progress depends on how good the combat result was as well as the terrain type. Progress is more easily done in plains and not so easy to achieve in urban terrain.

On the right bottom of the screen, you see the "lack of force" for the nation of the last LCU you selected in this hex (or the 1st in the list if none is selected). This is the number of replacements the units of this nation will need to be at full strength again. Clicking the yellow text brings you to the "Reinforcement Panel" that allows for quickly setting up various levels of reinforcements at a base of your choice. These will then eventually fill up and be ready for shipment into proximity of the LCUs that need replacements. Clicking the left side will open the window with data for this hex, and the right side will open the window with data for all units on that land mass and within 200 NM radius. See section 8.2.4 below for details.

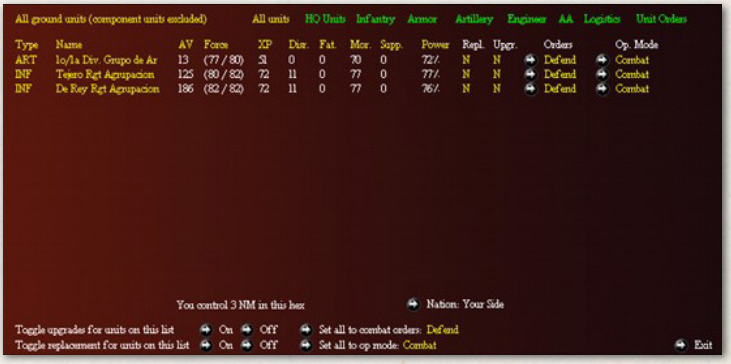
## 8.2.2 UNIT DETAILS SCREEN

This screen shows detailed data on each unit, including the skills of their leaders. This screen can also be accessed through the sidebar.




## 8.2.3 COMBAT ORDERS SCREEN

The commands on this screen work as follows:



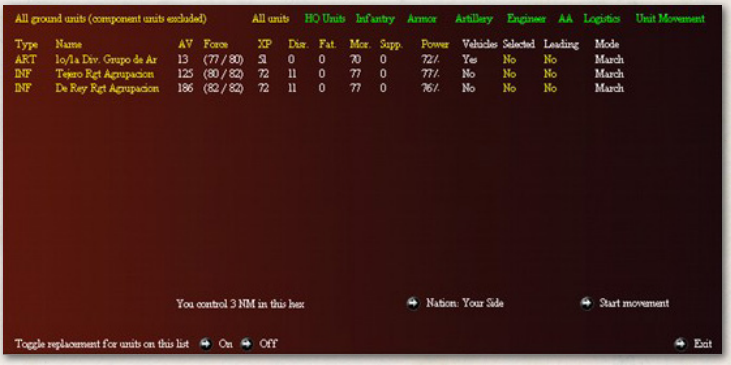

At the bottom you can select the default command and mode of operations. There also is an option to set all units shown above to use the selected orders.

On the list itself each unit has command UI in its line of text. The arrow buttons set the respective unit to use the default command as set on the bottom of the page. The text behind the arrow button allows you to change command for each unit. This will go through the available orders with each click on the text.


You can also set the unit to take replacements and automatic device upgrades.

## 8.2.4 GROUP MOVEMENT ORDERS SCREEN

In the image below you have the unit movement screen:



The column “Vehicles” has no function but tells the player if the unit is fit to move off road.

The column “selected” allows players to select units to be part of the group to move. None of the units are selected.

The column “Leading” allows the player to set the lead unit for the other units to follow. If no leader is selected the units will move at their own speed.

The column “mode” tells you what move mode the unit is in.

The button “Start movement” on the bottom right is clicked to confirm the move orders.

## 8.2.5 REPLACEMENT SCREEN


This screen provides the type and number of devices of the selected nation to be set as replacements in the current hex or in a radius of 200 NM around the hex. You can choose a base where the reserves shall be built for shipment or choose the recommended base via the buttons on the bottom. The lower left buttons allow you to create a reserve unit “overstrength” by 10 to 30% for either the available locations or a radius of up to 200 NM around the current hex. The “required” devices in the list do include any upgrades that your ground units can currently receive.

Usually, the replacements must be sent by a player creating an RSV unit at home and manually set the type and number of devices or pool points the RSV shall load. This panel allows us to automate the process and will result in a ready-to-go RSV unit containing the TOE for devices desired. The panel includes any devices required for upgrades. Overall, it is a quick way to create the replacements required in a hex or around a given hex. All a player then must do is to wait for the new RSV unit to fill up and then move it near the hex in question by whatever transportation is available.

## 8.2.6 UNIT DEVICES

There are numerous ground elements that are used to make up the LCU's within the game. They include, but are not limited to:

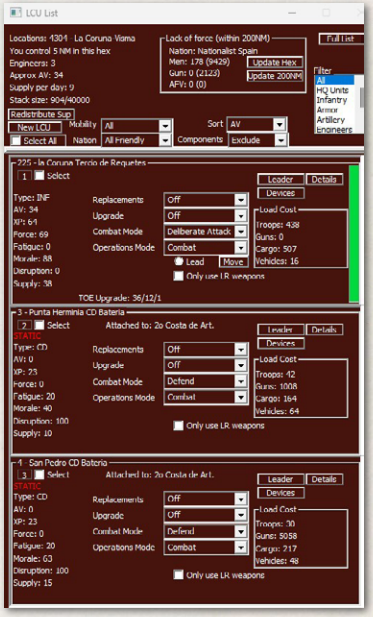
- **Infantry Squads**
- **Engineer Squads**
- **Individual Artillery Pieces** – Including Mortars.
- **Vehicles** – Includes Trucks, Horse drawn wagons, etc.
- **Tanks**
- **Tank Destroyers**
- **Gun Motor Carriages (GMC)** – Such as Half-tracks with 75mm guns, etc.
- **Support Squads** – Including motorized support.

- **Aviation Support Squads**
- **Naval Support Squads**
- Etc...

The ground elements are displayed as a list of devices on the Unit Information Screen. See section 8.2.8 below. A number in parenthesis is the number of disabled units of that type that will not fight until repaired/healed and brought back to operational status.

## 8.2.7 GROUND UNIT SIDEBAR

Below is the Ground Unit Sidebar. This sidebar provides you with hex and LCU information in one place and the ability to give orders to your troops. See below for more information:




The top section of the Ground Unit sidebar provides information about the hex that the LCU('s) occupy. That Information is described below:

Starting from the left side you have the locations number, (For the editor) and name. Below that is the amount of the hex you control. In this case you control all of the hex. Next is

the Engineering strength. Which is 3. Approx AV is the approximate AV in the hex. Which is 41. Supply per day is the amount of supply that is delivered to this hex daily. Stack Size is the current stack and the stacking limit for this hex.

To the right is the Lack of Force box. This box shows the shortage of Men and Material within the hex and up to 200NM away. The number outside the parentheses is for the units in the hex. The number within the parentheses is for the area up to 200NM. Within this box are two buttons. One to update the hex and one to update within 200NM. Also shown are the shortages for Men, Guns, and AFV's.

On the far-right side is the Full List box and a Filter. The Full List Box, when clicked gives you a list of the LCU's in the hex. The Filter Box is used to "Filter" the types of units that you have in the hex.

And finally, the boxes on the bottom of the display. The Redistribute Sup Box is for redistributing supply among the LCU's in the hex. The New LCU box will show you the new units in the hex when clicked. The Select All box is just that. When you click on it, it will select ALL units in the hex for orders. The Mobility drop down menu will show you choices of All, Mobile and Static types of units to populate the LCU list. The Nation drop down menu will show a list of nations that are friendly to you and also sort the list of units to that nation. The next item is Sort. When you click on the drop-down menu arrow, it will give you multiple unit sort types such as the name of the unit or the orders the unit has been given, etc.

Next we have the LCU boxes. There can be as many as 20+ LCU boxes or as few as one LCU box in the sidebar. The above example has three LCU boxes. Below we will describe the different parts of the LCU box.

First, in the upper left-hand side we have the number of the LCU from the editor and the name of the unit. Following the name is the number the unit is in the list and the select box. The select box is used to have multiple units selected for the same orders. In the open space below would appear the word "Static" if the unit was static and could

not move. In our picture above you can see that the two CD LCU's are static. Next is the LCU type which is INF or Infantry. Then we have AV (Assault Value) and XP (experience). Following that is Force. Force is the percentage of the current devices, which are in the LCU, that are functional. Next is Fatigue, Morale and Disruption. These are important numbers when it comes to combat and recovery. Finally in this column is Supply. This is the amount of supply that the LCU has on hand.

The middle section has Replacements, On or Off. Upgrade, On or Off. Combat Mode, and Operations Mode. Combat Mode has options for combat such as Deliberate Attack or Cautious Attack. Operations Mode has options such as Combat or Strategic. Below those options is the Lead button and the Move button. The lead button is used for selecting the LCU that will lead a selection of LCU's. The move button, when clicked, will show the movement arrows for the selected LCU.

The right side has 3 buttons and a box. The 3 boxes are Leader, Devices and Details. Leader shows the leader details. Devices shows the LCU's device details and Details opens the LCU detail card. Last, the Load Cost box just shows the load costs for the different parts of the LCU.

The Green Bar to the right of the LCU's indicates which LCU was selected last.

Last, we have a check box for artillery in the selected unit. If you check the box, only the Long-Range guns will fire. These weapons can reach the next hex if they are present.

## 8.2.8 UNIT INFORMATION SCREEN

Clicking on a LCU's Detail button in the Sidebar will bring up the Unit Information screen for that unit. See image below:


In this case, we have selected the 4a Asturias Centuria de Falange.

At the top of the left-hand column of the Unit Information Screen you have the Unit ID Number and Unit Name. Next is the TO&E percentage of the unit. 25/29 indicates the total number of non-disabled (ready) and total elements as a percentage of the units TO&E. The DL 5 number is the detection level that the enemy has for that unit. This can range from 1 to 200 with 1 being the lowest detection level. The number of battles fought on this day. Below is the current hex (85,61), the location name, if any, and the fort level for the hex occupied by the unit.

Next is the commanding officer of the unit followed by his skill numbers for Inspiration (48), Air (17), Naval (12), Administration (51), Aggression (48) and Land (52). The higher these numbers are, the more effective the leader will be in that area.

Next, we have the units Experience (58), Morale (73), Suppression (0), Disruption (0) and Fatigue (0).

Further down are the supplies the unit currently has on hand (20/2), which means that the unit has 20 tons on hand and the maximum that the unit can carry is 2 tons. And the Supplies consumed is 1 ton per day

to keep it in combat shape. If there are not enough supplies, the latter number will be orange or red depending on the severity of the shortage.

The Ammunition level for the unit is 2/1, which is 2 ton on hand and 1 ton maximum that the unit could carry. The (1) is the maximum consumption expected during a Shock Attack or full Barrage if an artillery unit. Note that certain units, like artillery, may carry much less than this maximum and rely on other units in hex to provide an additional amount of Ammunition.

The fuel the unit has with it is (0/0) which is tons on hand and maximum tons it can handle. Next is the consumption of fuel (0) per 1 day's movement. This unit may consume more fuel in combat than it can carry and rely on other units to provide additional fuel during combat.

The following line shows the total logistics capacity (2) of the unit and its move mode. Clicking on the green text will open a small panel showing the expected logistics capacity of the unit. See Section 9.1. The logistics system is used to draw Supply, fuel and ammo from bases and other logistics units that may serve as a source for these items.

Next are the Assault, Recon and Gsn (Garrison) values. For this unit those numbers are 3,0 and 3 respectively. The Assault Value is known within *War in Spain 1936-39* as AV.

Recon means the number of devices that serve the purpose of scouting the surrounding hexes and provide DL on any enemy units found. Gsn is the Garrison value of the unit. Most combat devices like squad, AFV and vehicle can provide a garrison. Garrison devices are used to fulfill the garrison requirements of bases. A shortage of garrison can lead to damage to the base by partisans or other unfriendly locals. The AV can bet comprised of several types of firepower that will be told when hovering the cursor over the text.

Finally on the left is the load cost for the selected unit. These numbers are used when calculating the load costs for Naval or Air Transport. The unit's Load Cost is a measure of the amount of a transport unit's capacity

that is needed when the unit is loaded onto a ship, or aircraft. If the unit contains any static devices, the unit cannot be loaded.

The Dump button is for disposing of vehicles when a unit enters harsh terrain and needs to move by foot. To use the button, Right click to discard and left click to dump. The difference between discard and dump is discard destroys the devices and dump puts the devices into an RSV unit for use later. If an LCU moves into a harsh terrain hex and they are being pursued, you may want to get rid of your vehicles, so they don't fall into enemy hands. So, you discard them.

At the top center of the screen is an image of the type of unit. In this case an Infantry unit. Also, the national flag, the army the unit belongs to and the unit type.

Below the picture is a list of the devices that make up the unit. And to the right of this area is the quantity of each device in the unit. The number in parentheses is the number of disabled devices of that type. Devices with a ** attached indicate that it is a static device and that makes it immobilized. A (u) indicates an upgrade is available for the device, a (L) indicates the device originates in another nation of your side and is "Lend Leased" to the current unit and a (F) indicates a foreign (probably hostile) origin. This is commonly the case for devices acquired during combat from less than friendly nations. These 2 differ a bit in handling since captured hardware can be used on top of the unit's own TOE, while Lend Leased hardware cannot. You can click any device in the list to open a small window giving more info on this device type and its abilities. Aside of giving detail info on a device, the screen can also be used to upgrade a slot (replace the current device with some other device type) and perform other actions like replacing horse-based support and logistics with motorized counterparts or vice versa. Another click anywhere will close the window.

**Note**: *Right clicking the upgrade button will modify the TOE so only "missing" devices will be replaced by the up/downgrades. This is called progressive upgrade. It is a great way to "use up" older devices while replacing the losses with the newer device. Though normally it is a good idea not to continue using older devices when your units can use newer, more powerful devices. This type of command may not be executed when a unit does not have any spare slots to "split" a slot in new and old.*

The top right-hand side of the Unit Screen shows any Combat Group that the unit is attached to if any. For units that can move, the Set Destination Hex arrow button may be clicked to order the current unit to move to another location. Note that if this other location is across ocean hex sides, the order will not be carried out. In this case, the player must set up naval transport. Plus, movement information for the selected unit is shown here. Units that are part of a larger formation may not move on their own. The lead unit must be used to give any move commands.

**Note:** *When units follow the same lead unit, then all these units will share motorization. This can be a great way for a unit with Trucks to "move around" another unit that would move on foot. For this purpose, there will be information on the group of units moving when the region showing the movement details is clicked on. Additionally, when on this panel and the unit is moving you may hover the cursor over any LCU icon on the bottom panel and press the "F" key to have the unit follow the unit shown in the panel. A good way to quickly set up a small group of units to follow your desired lead unit. When a follow command is given by either the "set all to follow" button or the use of the "F" key then all units doing a follow order will assume the operations mode of the lead unit. So, you do not have to set all the units on "move mode" manually.*

There is a special button in the upper right corner for units with engineers. "Scorched Earth" will give you the ability to have the selected unit blow up bridges, sabotage airfields and railroad tracks as well as base industry. Damage to base assets is only possible if your side owns the base. This order will only be executed once and be reset after doing so. Success depends on the number of engineers and the unit ammo levels.

Some units may not be independent but are part of a higher formation. For example, a Battalion may be part of a division. In this case, when clicking on the bottom control panel Icon, you will be shown the Combat Group Screen instead. This is a summary of the higher Formation. A Formation of units moving and working as a group. See 8.2.11 Combat Group Screen.

There is also a small area for targeting orders of a units attached artillery. The way the targeting works is you can adjust by increments of 10% whether your unit's artillery fires a percentage at an airfield and/or a port. Any percent not used attacks the ground units in the hex. For example, if a ground unit has 20% of its artillery assigned to a port and 10% to an airfield, then 70% would attack the enemy troops in the same hex.

Finally, across the bottom of the Ground Unit Screen are the following buttons with explanations:

- **Merge** – Opens a panel that allows you to move devices from the current unit to other units in the same hex. Depending on game rules this can also be used to set TOE for units in other hexes so they can draw these devices. Usually used to distribute captured devices.
- **Unit Organization** – Used to divide a unit or change the higher HQ's it is attached to. For example, moving a unit to another division.
- **Rebuild Unit** – This option is used to rebuild fragments and detachments back into their larger parent unit. If a unit is a fragment or detachment, and other fragments/detachments

are present in the hex, a button will appear below the "Unit Organization button" if rebuilding the parent unit is possible. This only works if the parent unit is present and can accommodate this unit's devices. Fragments will always try to re-attach to the parent if in the same hex during the replacements phase.

- **Replacements On/Off** – If on, the selected unit will fill up losses from the device pool or RSV units in range.
- **Detach Disablements** – Used to move damaged devices to a new depot or adding to an existing depot unit. Left click creates a new depot. Right click adds to existing depot. Depots can also be a source of replacements as the disabled devices recover.
- **Show Unit TOE** – Shows the number and type of devices contained in the selected unit. Depending on game rules the device type and number as well as the unit type and icon can be changed. You can also enter the TOE mode for the selected unit. You may view, upgrade, downgrade or even change and customize the unit as much or as little as you wish. Units can also be disbanded from this screen.
- **Attached To** – Shows the HQ that the selected unit is attached to. You can also change the HQ assignment unless the HQ is static restricted.
- **Lend lease.** Attempts to give the unit to another Nation. Only RSV units made up of hardware can be given away. Execution of the order is instant except for WEGO mode.
- **Next** – Go to the next or previous unit in the hex or global list of LCU's depending on where you open the Ground Unit Screen.
- **Back** – Go back one screen.
- **Exit** – Return to strategic map view.

Below are three sections that show the different Modes, Orders and Commands that the selected ground unit can be assigned to. These three areas are:

- Operation Modes. See section 8.2.8.1.
- Combat Orders. See section 8.2.8.2.
- Group Commands. See section 8.2.8.3.

### 8.2.8.1 OPERATION MODES

The Operation Modes available to LCU's are described as follows:

- **Combat** – This mode is used for any of the combat orders found in section 8.2.6.2. LCU movement is reduced for this mode due to LCU's being prepared for combat. LCU's in move mode will switch to combat mode/defend if they encounter enemy units. Reserve units, (RSV), do not have a combat mode but do have a "Distribute Mode" to permit them to send out their devices to replace losses in units around them.
- **Move** – A LCU in this mode is in the best formation for cross country movement. There is some reduction in combat values except that AAA vehicles retain their full AAA power and towed guns lose most of theirs.
- **Reserve** – LCU's in this mode and on the offensive, are available to exploit breaches in the enemy lines. On the defensive these units may be released to plug a potential gap in the lines and thus alter the outcome of a battle. For offensive or defensive operations, the LCU must pass a leadership check to be committed to battle. Reserve units will not suffer casualties unless committed to battle. If a Reserve LCU is in a hex by itself, it will resort back to combat mode. LCU's in reserve can have offensive combat orders that are executed when activated during their side's offensive combat in their hex.
- **Strategic Movement** – This is the optimal mode for quick movement via rail or sea. Units travelling in this mode have their combat values significantly reduced and thus are very vulnerable to damage from all types of attacks. A LCU changing to or from Strategic Movement has a packing or unpacking delay and will

not move until fully packed or unpacked. Units on land can only move in this mode via railroad.

- **Rest/Training** – Movement speed and combat strength are reduced compared to other Operational Modes. The speed of recovery of Fatigue, Disruption and Morale is increased with this Operational Mode. To simplify player control units not seeing any action or combat will automatically use this mode no matter what the actual mode chosen.
- **Intercept/Ambush** – This is an attack operational mode. The LCU will attempt to intercept enemy units moving close by, by attempting to reach a hex in the path of the enemy unit. If the LCU succeeds, it will be in the hex just before the enemy arrives and thus do an ambush. The result is the enemy unit may only control the hex side it entered the hex from.

### 8.2.8.2 COMBAT ORDERS

Combat Orders remain in effect for at least one day or as long as a unit is in movement and can be given in any hex. It is possible to set Combat Orders before moving into a hex. This allows for surprise attacks when previously unspotted units enter a hex with attack type combat orders. Below are the Combat Orders that LCU's can be assigned to and a description of each one:

- **Delay** – This is a defensive combat order. The unit is more likely to execute a previously prepared retreat upon a strong attack. Units following this order will take significantly lower losses and can counter enemy attempts at encircling much better. The disadvantage is the unit may retreat quicker as with a defend command. In general, a good order when you expect a strong attack and do not wish for a decisive battle but also do not wish to simply move out of and give up the hex. This order can be done while moving.
- **Defend** – Units following this order will stay in position to hold ground. This will help in maintaining control over a hex but

makes units vulnerable to potential encircling tactics that will aim to take control of hex sides and encircling the defending unit(s). None of the attack options will be available.

- **Artillery Barrage** – An Artillery Barrage is carried out by artillery units and other LCU's with artillery devices as part of their TOE. These attacks can attract counter-battery fire. The effectiveness of an Artillery Barrage depends on enemy fortification levels in the defender's hex and the power of the artillery. High power artillery may penetrate the fortifications and cause damage. This kind of attack consumes large amounts of ammunition. If at least one unit carries out an attack other than Barrage, units doing a Barrage are only giving fire support. In this mode artillery fires to cover and support advancing friendly forces or to support the defense of friendly units. This is a more efficient use of artillery and does in general only consume around 25% of the ammunition a full Barrage would consume. Artillery in direct fire mode will not use indirect fire or counter-battery fire.

**Note 1:** *Upon clicking the order twice, the command will only have the longest-range devices of any maneuver unit used. The command text will turn blue to indicate this.*

**Note 2:** *Artillery units or devices set to defend will fire in support of their hex if they are attacked.*

- **LR Artillery Barrage** – A LR Artillery Barrage is the same as a regular Artillery Barrage but can be ordered onto hexes nearby, provided at least 1 device in the unit can fire long distance.
- **Deliberate Attack** – This is a standard attack order.
- **Shock Attack** – This is an all-out attack, risking higher casualties to increase the chance to overwhelm an enemy position.
- **Cautious Attack** – A slow and careful attack type involving low risk tactics. This attack has a very low chance of taking control

over the hex, but the losses will be a lot lower than in any other kind of attack. This order is basically intended to have the enemy defeated by attrition rather than taking his positions by force. A useful order when being faced with very high fortification levels.

**Note:** *All attack and defend commands can be ordered to exclude any artillery from being used. To do this, simply click the same command twice. The text will turn blue to indicate the special mode. It is convenient combat mode when facing a very small enemy force and the use of artillery would consume an amount of ammo not justified to be spent in that battle. A secondary use is that artillery not used in barrages can be used for direct fire during the ground combat phase. Some artillery pieces make decent AT guns when used in a direct fire role.*

### 8.2.8.3 GROUP COMMANDS

These are the Group Commands that can be used as shortcuts to assign groups of units to a particular order or mode. They are described below:

- **Set all to Follow** – Orders all ground units in the hex to follow the current unit. No following unit will enter a new hex until the unit they were ordered to follow enters first. Slower units will slow down the entire group. Right clicking will issue the command to units of the same HQ as the selected unit only.

**Note:** *Units set to follow will adopt the operations mode of the lead unit by the time the order is clicked. So, if the lead unit is in move mode, then upon clicking all units that are doing a follow command will also switch to move mode.*

- **Set all to March** – Orders all ground units in the hex to march to the same destination hex that is set for the current unit. Each

unit will move on its own. Some units may arrive earlier in the destination hex than other units if using this command. Right clicking will issue the command to units of the same HQ as the selected unit only.

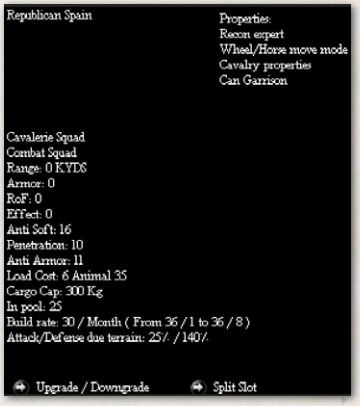
- **Cancel Movement for all** – Orders all units in the hex to halt movement.
- **Set all to this OpMode** – Orders all ground units in the hex to adopt the same operational mode as the current unit.
- **Set all to this Combat Order** – Orders all ground units in the hex to attack in the same manner as the current unit (or barrage in case of artillery units ordered to attack).
- **Set Combat Orders for all of this type** – Orders all ground units of the same type as the selected unit to attack in the same manner as the current unit.
- **Planning for Location/All Planning for Location** – The "Planning for" Group Commands are used to plan an action at a particular objective. Planning for an objective builds "Planning Points". Right clicking the button changes the objective for all LCU's in the hex. When the Planning Points reach 100, then the unit('s) are considered fully prepped for the objective. To set an objective, press the Future Objective button and the map will appear. Click on a base/beach hex to select the objective. This will set the unit('s) future objective. The number in parenthesis next to the objective is modified depending on distance to the old objective. It is possible to follow several bases and change planning to the next base each time you capture the objective. Thus, changing a unit to another theater can bring a long delay in planning for the new situation. This number will increase by 1 point per day, with a maximum value of 100. A skilled leader can speed up the planning progress of his unit. The higher the value, the greater the benefit the unit will receive when the unit participates in combat near the objective hex. There is also value

obtained if a nearby HQ, providing the attacking LCU's are attached to this HQ, has Planning points accumulated towards the objective being attacked. Having a high planning value is critical in reducing losses during an amphibious assault of an enemy base or non-base hex.

**Note 1:** *Units automatically change their planning objective to the nearest Base when caught in combat. This means you usually do not take a great hit on efficiency when just moving from base to base for combat without bothering to adjust the units manually. But it also means units that come under attack while planning for some distant target may be thrown in disarray regarding the planning.*

**Note 2:** *There is a selective follow command that can be issued by keyboard when the ground unit information screen is open. Pressing the [F] key while hovering over a ground unit icon on the bottom panel makes this unit follow the unit currently shown in the information panel. This is a quick way to set up follow orders for only a few ground units when there are many ground units in the hex.*

## 8.2.9 THE GROUND UNIT DEVICE INFORMATION SCREEN




Left clicking any device on the ground unit information screen will bring up its information display. See below:

This screen will give you useful information on the device, it's attributes, capabilities, and its combat power in the current terrain. At the bottom of this small window, you will find several buttons, depending on the device. These buttons include the conversion of devices to another type, upgrade of the ground unit by replacing the device with some other device and the exchange of logistics devices with other logistics devices. The options largely depend on the device in question.

The following is a list of Properties and their descriptions shown in the upper right-hand side of the above image. These will vary depending on the device shown:

**Air search:** Radar device designed to detect flying objects.

**Logistics:** Can and will move items and units between Bases.

**Slugthrower:** For AA guns. fires contact projectiles. Needs to hit an airframe to cause damage.

**Recon expert:** Device can look for enemy units in nearby hexes. Much better results than recon done by other devices in the unit.

**Wheel/Horse move mode:** Moves units, supplies and other materials by wheeled, horse or horse drawn vehicles.

**Cavalry properties:** Cannot be loaded onto vehicles for motorization.

**Bound to RR tracks:** Cannot leave the railroad.

**Engineering:** Can build facilities and destroy enemy fortifications in combat.

**Can be airdropped:** Can be dropped in non-airfield hexes by aircraft.

**Amphibious:** Can quickly disembark from ships during combat landings. Does not need barges or landing craft.

**Assault Tank:** AFV with engineer ability. Can build facilities and destroy enemy fortifications in combat.

**Can Garrison:** Able to fulfill garrison requirements of Bases.

**Non-Combat:** Rear device. Will rarely attack but will defend when attacked.

**Can target ships:** Is able to fire at ship in coastal defense.

**Signal squad:** If in HQ units, increases the number of troops that can be guided in combat.

**Medical unit:** Accelerates recovery rate of disabled squads.

**Aviation support:** Can repair and arm aircraft.

Conversions usually disable the devices in a unit. They will then become active again just as any other disabled device. Some vehicles were rebuilt to serve other purposes, like the SP artillery tank "Priest" that was converted to an APC. This option allows for such actions if the device can be converted.

Upgrades usually allow you to exchange the device for a newer, more powerful one. But the upgrade option also allows for downgrades and sometimes switching to devices of similar type is also possible. This can, for example, allow you to exchange your light tanks with other light tanks even when those are originating in some other nation and are not part of the upgrade path of the current light tank.

Exchanging a logistics device is usually done when you intend to change the area of operations for a unit. A unit equipped with trucks will not do well if transferred to forest or mountain terrain. Replacing the devices with pack animals or porters is a good idea then. Or replacing those with trucks when a unit is to be transferred into arid, desert type terrain.

## 8.2.10 UNIT TOE SCREEN

Below is the Unit TOE Screen for the lo Batallon Carros de C. The center and right side of this screen is where most of your work will be if you want to change anything about your selected unit.


TOE stands for Table of Organization and Equipment, which is a standard way of describing a unit's inventory. Depending on whether your game rules allow for creation of new combat units, this screen can yield a lot of functionality to create, modify and adapt your armed forces for the various environments you seek to send them to. It is, for example, a good idea to replace organic logistics with motorized devices when moving the unit into hot and arid climates.

The TOE screen is very important to master and understand. Here you will set up and create the units that carry replacements to the frontline. A special unit type, reserve (RSV), is used to ship devices to front line LCU's. RSV units cannot carry out combat, but they are able to move even immobile devices, like CD guns, into their final position. There is also automation for creating RSV units, but manual handling is required if you want to make precision moves of certain devices.

A (u) symbol next to a device indicates that the device can upgrade to another device. If there is an (F) next to the device, it indicates that the device is of foreign origin and either has no possible replacements or very limited replacements. An (L) indicates a lend leased device.

These usually originate from some other nation on your side. Any replacements for the device can thus not come from this nation, but the original nation manufacturing this device. An ** indicates a static device that immobilizes the LCU.

From the Preferences Screen, If the player selects replacement model 0, then "pool points" would be used for armament, AFV and manpower, (Reservists), to simplify the replacement process. Using replacement model 1, local supply will be used to replace devices to your LCU's from the pool. Replacement model 2 is the most realistic. The players would have to build replacement (RSV) units and move them to the front-line units.

**Note:** *To access the device pool to fill up units and replace missing devices, you need to be at a "connected" base of the nation owning the device. (See section 10.1). Or in a certain region on map in case it is a device that is only locally available.*

The right side of the Unit TOE Screen will show various kinds of devices depending on the filter option that is chosen on the top right. The device list shows the name of devices to choose from. Several indicators give additional information. (F) means it is a foreign nations device. These normally have a limited supply or have been captured on the battlefield. (n) means it is a device of your nation but manufactured in other countries. This mostly applies to Commonwealth devices or devices produced under license. (c) indicates the device is only available in certain regions on the map. This is usually found in local forces like Libyan squads, for example, that can only be drawn from the pool while in Libyan hexes. (L) means you have some of the devices in pool, but they belong to some other nation. You will have to rely on that nation for any replacements to be given your units. Selecting a device from the list will bring up information about that device on the right side of the screen. To assign a device, left click on the arrow next to its name. After you select the device, it will be placed in the first unit slot that has

no devices and no TOE (An empty slot). Right clicking assigns a new device to replace the currently selected device slot. (This only works for combat units if the game rules are set to allow unit creation)

After assigning a device, you need to click its TOE figure. For newly assigned devices this figure usually reads 0. This brings up a small pocket calculator that allows you to type in the desired TOE number. This interface accepts keyboard and mouse input. A double click on a device in the current TOE adjusts the right-hand selector to this device type, if applicable.

The TOE screen is also the only screen where you can disband ground units. This is done by right clicking the "Disband" button on the lower right-hand side. One exception to disbanding is depleted RSV units with "do not take replacements" set. Those are considered "used up" and dissolve on their own eventually.

**Note:** *The maximum number of TOE slots for ground units is 20. You will not be able to assign new devices or do the progressive device upgrade if all 20 slots are occupied.*

By selecting the "Change type" filter on the upper right side of the screen, you can change the general type of the unit. Here you can select

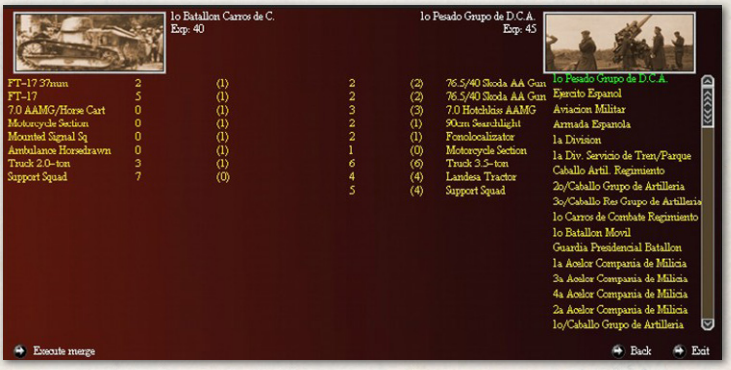
a general type for the unit and select a set of icons to represent the unit. If the game rules are set to not allow creation of combat units, then you can only assign RSV and logistics units.

Certain icons denote special forces that have special abilities. (See section 8.1.10). Changing a unit to one of these types by assigning such an icon will lower the unit experience to 25% of the previous value. This represents the amount of special training required for those types.

Some ground units have "alternate" configurations set. Like a motorized TOE for desert action or a TOE with light artillery for Forest and Jungle use. The filter "Change TOE" will bring up a window where these configurations can be viewed and selected. Clicking anything but one of the "Select" buttons will close the panel.

## 8.2.11 UNIT MERGE SCREEN

The Unit Merge screen, (Shown Below) allows you to move devices between units. You may move active or disabled devices. In most cases the target unit is required to have the same device in its TOE to permit a transfer. And a transfer is only possible up to the maximum TOE.




To the left is a list of the selected unit's devices. To the right is a list of possible recipients. Unit names in red indicate the unit is in another hex

and the transfer cannot be executed right now. But it is still possible to do several helpful tasks with those units. Setting the TOE is possible for units outside of the target hex.

There is an exception for logistic devices that have been captured from the enemy. When trying to move those devices, TOE is ignored, and it is also possible to set a TOE number by clicking the text next to the unit images. The device type will be added to the TOE list of the other unit in that case, even without executing a transfer. You can use a unit with captured equipment to define who will receive the captured devices during the current day's replacement phase. This makes it somewhat easier to handle the distribution of captured devices.

At the bottom left is the Execute Merge button. This button is only visible if a merge is possible. Upon execution, the experience levels and other data of the units will be updated.

## 8.2.12 UNIT ORGANIZATION SCREEN

The Unit Organization Screen, for the Astur.de Choque Division Shown Below, shows the current unit organization, any higher units as well as detachments and fragments belonging to the unit tree. It can be split either into several detachments serving a common purpose (Infantry, Artillery, Engineers) or into the child units as predefined in the editor.

The use of detachments is rarely meaningful in stock scenarios. *War in Spain 1936-39* handles even large maneuver units as "groups" of Battalions that form Regiments, Brigades, and ultimately Divisions. Though user-created scenarios may define Divisions as one large unit, or it may be possible to split Battalions further down into predefined Company units.


Under the Second Ground Combat Model, (In game preferences) units may be attached to a higher Formation. Divisions are made up of Brigades, which are made up of Battalions. The smaller units will continue to exist when rebuilt into Divisions or Brigades and form a Combat Group in order to share support and other items.

"Change unit OOB" allows the player to assign the selected unit to another Division or Brigade. Switching is as simple as clicking on one of the other possible Divisions or Brigades.

> **Note:** *Certain Command structures may only accept a certain types of units. For example, you may find yourself unable to attach an infantry Battalion to an Armored Division.*

## 8.2.13 COMBAT GROUP SCREEN

By using the default game preferences, most larger units like Brigades or Divisions will start the game as ready to use units which are made up of several smaller units that act as a single entity for command and movement. By selecting a unit from the Hex Command Display, you will be shown the Combat Group Screen more often than the Ground Unit Screen, since few units operate as stand-alone ground units. The screen works almost like the ground unit screen but has a few distinctive differences. Below is a typical Combat Group Unit Screen:


The values for experience, morale, etc. are averages of the ground units in the Combat Group. This screen works much like the ground unit panel, except movement, op mode and combat orders set here affect the entire Combat Group.

The most important difference is that commands given on this screen apply to all units that are part of the Combat Group. The second difference is that the bottom center region does not allow you to see the TOE of individual units, but the summarized TOE of all units in the combat group. Aside from the current status and TOE, the list in the center can also show the units and the command tree of the Combat Group. The lead unit is always on top, followed by direct subordinate units. Other components, Combat Groups may follow as blocks. The lead unit will be the first unit in each block.

**Note:** *When combining units into Combat Groups using the Rebuild button, sub-units won't necessarily take on the Operations Mode/ Combat order or other settings (such as replacements on/off) from the parent unit.*

The member list is organized into sections depending on complexity. Below is the 1a Asturiano Division. As you can see, the first section contains attached support units such as artillery and other support units. These are units that are directly subordinate to the divisional HQ unit. Next is the 1a Astur Brigada Mista and 2a Astur Brigada Mista and their attached Battalions.

Access to member units of the Combat Group can be done by clicking the individual units below the Combat Group image. Left clicking will go to the ground unit information panel of a given member unit. Right clicking will remove a unit and any attached subunits, in case of a Brigade for example, from the Combat Group. These units will retain the Command Structure but cease to operate with the combat Group and can move and act independently. Below this list is the button for the Combat Groups TOE. Clicking it once will bring up the Combat Group's current devices. The next click will show the accumulated TOE of the combat Group. And the last click will bring you back to the list of Combat Group members.

## 8.3 LCU TRAINING

LCU's may conduct training to increase their experience rating. Each nationality has a basic experience value that their devices start with when coming from the pool. This can depend on the device type. Aviation support and Engineers may require some more time to train up since they employ very special skills.

The highest experience rating a ground unit can gain from training depends on the leader's land skill. An experience rating of 50 can always be achieved through training, but if the leaders land skill is higher, say 67, then a 67 experience rating can be reached by training. The potential maximum experience rating also has influence on how fast experience is gained from training. A higher maximum also creates a faster increase in experience.

## 8.4 GROUND UNIT MOVEMENT

Ground unit movement in *War in Spain 1936-39* varies greatly depending on where you are on the map. Some areas have rough mountains and others flat clear terrain. And of course, the same infantry unit moves differently in both areas. The following sections will help clarify the rules for Ground Unit Movement.

## 8.4.1 OVERLAND MOVEMENT (NOT STRATEGIC MOVEMENT)

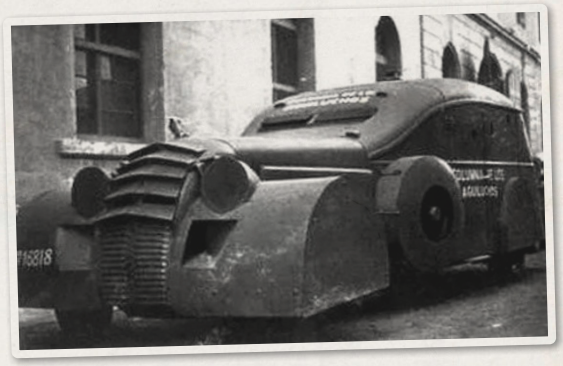
The Speed of movement overland by LCU's is dependent on the terrain being traversed. The consumption of movement points per hex moved is very diverse and depends on movement types of devices in the unit (Tracked, Wheeled, Foot, or Horse/Animal) and terrain, roads, escarpments, and weather. For example, a frozen swamp is better for Tracked devices than a swamp in a warm climate. The numbers shown below are the number of movement points required per hex. Most scenarios grant 60 movement points per day. The basic cost of movement per hex is as follows:

| UNIT TYPE / TERRAIN TYPE | TRACKED | WHEELED | FOOT | ANIMAL |
|---|---|---|---|---|
| Plains/Clear* | 31 | 46 | 46 | 19 |
| Rough | 45 | 85 | 75 | 40 |
| Forest | 120 | 160 | 50 | 20 |
| Desert | 10 | 7 | 35 | 15 |
| Salt Marshes | 42 | 370 | 95 | 40 |
| Swamp/Marshes | 270 | 1100 | 225 | 170 |
| Rough Forest | 134 | 199 | 69 | 41 |
| Rough Desert | 40 | 75 | 75 | 35 |
| Mountain | 5000 | 5000 | 200 | 400 |
| Sand Desert | 16 | 18 | 93 | 45 |
| Heavy Urban | 10 | 7 | 39 | 19 |
| Light Urban* | 10 | 7 | 39 | 19 |
| Developed | 12 | 9 | 46 | 22 |
| Cultivated* | 12 | 9 | 46 | 22 |

**Note*:** Some terrain types turn to mud when it rains, making it difficult to travel on.

LCU's can be ordered to move by giving them a Destination Hex (DH). The actual move cost is the average of the 2 hexes involved.

From the center of the current hex to the center of the future hex. For roads the values for heavy urban (main roads) and light urban



(secondary roads) apply in many cases. These speeds are standard speeds, and actual speeds may differ based on the fatigue and mode of operations of the LCU moving. The LCU will stay in its current hex until it has accrued enough movement points to cover the cost of leaving the hex. At which point, it will move to the next hex along its path of movement until the LCU reaches its destination.

There are several ways to start LCU movement. They are:

- On the unit screen, by use of the movement controls in the upper right corner.
- On the bottom panel, by clicking on the middle mouse button (Mouse wheel) on the LCU icon.
- On the list of LCU's in hex, look at the page for group movement. Here you can select LCU('s) for the desired movement. Then click on "Start Movement" at the bottom of the window to get the selected units to move to the selected hex.

**Note:** *If you select a lead unit, then all selected units will follow this unit, moving at the speed of the slowest LCU in that group. If no lead unit is selected all LCU of this group will move to the destination on their own.*

- On the side bar list of LCU's in hex, here you can select LCU's for the movement. If you select a lead unit, then all selected units fill follow this unit, moving at the speed of the slowest LCU in that group. If no lead unit is selected all LCU of this group will move to the destination on their own. The text at the end of that line will show either "Follow" or "March" depending on whether or not a lead unit was selected. Click on the "Follow" or "March" text to set a destination for the selected units.

When setting a path for any LCU note the following:

- A click on a destination with the middle mouse button sets a direct path and exits "set destination" mode. Holding down the shift key also takes the direct path. Useful for systems without the middle mouse button.
- A click with the left side mouse button sets the fastest path to the destination and exits "set destination" mode.
- Holding CTRL while doing left click adds this hex to the path. Does only work for hexes adjacent to the current end of the path. Useful to set exact paths for units.
- A click with the right-side mouse button exits the "set destination" mode. This is required if you set a path manually while holding CTRL upon clicking the hexes for the path.

Wide Rivers can slow down travel speed and give the opponent time to set up a defense. Capturing bridges intact is important when trying to cross certain rivers. Moving across the River hex side will cause the crossing unit to initiate a shock attack unless the hex side being crossed is already under your control. Failure to establish a bridgehead will result in the attackers being pushed back to their original hex.

## 8.4.2 MOVEMENT ALONG RAILWAY LINES

LCU's in Strategic Mode may only be given a Destination Hex that is connected to the unit's current location by a rail line under your control. When both a railway and a road connect two adjacent hexes, LCU's moving between the two hexes, in Strategic mode, will use the movement rate of the railroad.

## 8.4.3 ZONES OF CONTROL (ZOC) AND THE EFFECTS ON MOVEMENT

Hexes are comprised of seven components. The six hex sides and the hex itself. A hex side is not shared with an adjacent hex; the adjacent hex has its own six hex sides. One side or the other or neither can control each of these components.

The last side to have solely occupied the hex establishes control of a hex. The last side to have a LCU cross a hex side to enter a hex establishes control of that hex side. A side loses control of a hex and its hex sides when that side has neither a LCU and/or a friendly controlled base in the hex. A side will maintain control of the hex so long as the side has a LCU and/or a friendly base in the hex. A side will maintain control of the hex side until a LCU of the opposing side crosses that hex side to enter a new hex. Control of that hex side will then revert to the opposing side.

**Example:** Hex A and Hex B are adjacent hexes. There is a Republican Force in Hex A and a Nationalist Force in Hex B. Each side controls the hex their units are in, as well as all six hex sides that are a part of the hex. The Republican player orders his force in Hex A to move to the Nationalist players hex, Hex B. The Republican player can make this move because he controls the hex side in Hex A that is adjacent to Hex B. The Republican player's force completes the move, and his force enters Hex B and vacates Hex A. The Republican player now controls the hex side in Hex B that is adjacent to Hex A, because the Republican

player crossed this hex side when entering Hex B. The Nationalist player continues to control the other five hex sides of Hex B. However, the Nationalist player no longer controls the hex side in Hex B, that is adjacent to Hex A. The Nationalist is now prevented from exiting Hex B across the hex side that is adjacent to Hex A because they no longer control the hex side. In addition, neither side no longer controls Hex A and its component hex sides because neither side has a LCU in the hex to maintain control.

A few notes on hexside control:

- The special attack, "Blitzkrieg", may cause AFV and motorized units to take control of the hex side during combat.
- Paradropping into an enemy controlled hex can also seize control of a random hex side.
- Units may only leave a hex across hex sides that their side controls.
- During ground combat both the attacker and the defender can execute a "breakout". This usually happens when the encircling force is spread too thin to maintain a solid blockade on all traversable hex sides. Completely encircling, an enemy force, maintaining that blockade, can require a massive superiority in that hex.

LCU's can reach outside of their current hex through hex sides they control with their ZoC. This situation can create adjacent hexes to be under the influence of 1 or both sides. Logistics can only pass through hexes with no influence of the enemy. Good placement of units can thus cut supply lines even when not entering a hostile hex.

ZoC also affects the path a unit will choose when forced to retreat. This aspect is discussed in section 8.6.7 Retreats.

### 8.4.4 LAND MOVEMENT BETWEEN THE MAP AND OFF MAP AREAS

Some off-map areas have a land connection to the main map. Travel along these connections can take longer than the visible distance would suggest. Land and air units may use normal land movement to move between the map and off-map areas. There is no special type of movement used. Only the distances per hex are different to make up for the abstracted way of showing the bases on map.

### 8.4.5 TRANSPORTING GROUND UNITS

Any ship with a bulk cargo capacity may transport ground units. Ships with an "emergency transport capacity" may also carry troops in Fast Transport Missions. Transported ground units may be unloaded on any hex that contains a base. Port size determines the speed of unloading. Troops in an amphibious TF can unload in any land hex. The process can be very slow if coming ashore "over the beach" without the proper ships and support. Certain large devices may only be unloaded with the aid of port facilities. This depends on game rules chosen and the size of landing craft that are available.

Certain cargo carrying aircraft can also carry ground units. Parachute battalions may be dropped by transport aircraft on any base or open terrain hex.

Units unloading in a hex, where the base is not owned, can be shot at by dual purpose, artillery, and other eligible weapon systems, if present. These units have a chance to hit the transport as well as a chance to hit the ground unit element unloading.

## 8.5 COUNTER INVASION FORCES

*War in Spain 1936-39* doesn't contain any Counter Invasion Forces per se. But there are Militia forces and Training units in countries such as Italy.

These units become activated by emergency mobilization when a Base with low defense and access to the national pool is attacked by ground forces. Size and composition are somewhat random and depend on the devices in the pool of that nation.

## 8.6 GROUND COMBAT

The battles of the Spanish Civil War were often chaotic and confusing, with close-quarters combat. The battles were transitional between the first world war (long trench fronts and movement on foot) and the second (air support, fast armored attacks). Other battles included the massive bombing of civilian populations, such as that of Guernica, and battles of attrition, such as the Battle of the Ebro, which was particularly bloody and protracted.

The effectiveness of combat is determined by:

- Weapon values.
- LCU leader values
- Unit disruption
- Unit suppression
- Unit fatigue
- Unit Morale
- Unit experience
- Unit supply, ammo, and fuel levels
- Unit Op mode
- Terrain
- Weather

### 8.6.1 TERRAIN MODIFIERS

Terrain types affect combat. Whether it's clear, forest, mountain, desert, or swamp, the thicker and more impassable the terrain, the more

it favors the defense. The combat modifiers for each terrain type are described in the table below.

Fortifications increase the defensive value of units owning them. Forts in good defensive terrain further improve the defensive value of the owning side.

Terrain modifiers are divided into 2 general groups, Infantry, and vehicles. These are furthermore split into offensive and Defensive strength. The Offensive modifier is the damage a device may do in the given terrain. The defensive modifier is how much damage a device can take in that terrain.

Guns of any kind are at either 100% or 10% firepower, depending on if the device load cost exceeds the terrain limit. See section 8.1.6.

In the following table all numbers are in percentages. infantry devices are on the left and vehicle devices are on the right for offensive/defensive modifiers:

**Note:** *These values are valid for both sides. Attacker as well as defender. An AFV defending in Swamp terrain will suffer the same reduction in firepower as an attacking AFV. Likewise, both attacking and defending AFV will suffer a reduction in defensive ability. The difference is made by using devices that can handle the terrain better than the target devices. For example, having infantry combat some AFV in dense jungle or forest where the AFV cannot maneuver well for offensive/defense is preferable to engaging the AFV in clear, open terrain.*

| | INFANTRY DEVICES | | VEHICLE DEVICES | |
|---|---|---|---|---|
| Terrain Types | Offensive % | Defensive % | Offensive % | Defensive % |
| Clear | 100 | 100 | 100 | 100 |
| Rough | 60 | 120 | 50 | 100 |
| Forest | 40 | 130 | 25 | 40 |
| Jungle | 30 | 140 | 15 | 40 |
| Desert | 100 | 100 | 100 | 100 |
| Rough Forest | 30 | 150 | 20 | 40 |
| Rough Jungle | 20 | 160 | 10 | 40 |
| Rough Desert | 45 | 120 | 50 | 100 |
| Mountain | 15 | 150 | 5 | 80 |
| Tropical Mountain | 10 | 190 | 5 | 80 |
| Sand Desert | 50 | 100 | 100 | 100 |
| Tundra | 50 | 100 | 100 | 200 |
| Heavy Urban | 25 | 140 | 40 | 40 |
| Light Urban | 33 | 120 | 40 | 40 |
| Developed | 100 | 120 | 100 | 100 |
| Cultivated | 100 | 110 | 100 | 100 |
| Salt Marsh | 40 | 130 | 5 | 80 |
| Ice / Glacier | 25 | 100 | 100 | 100 |
| Swamp | 30 | 150 | 5 | 80 |

## 8.6.2 GROUND COMBAT RESOLUTION

Ground combat occurs whenever at least one LCU is ordered to attack an enemy LCU in the same hex. When combat takes place, all LCU's ordered to attack, depending on the units OpMode, and all defending LCU's, depending on their OpMode, will participate at once. Maneuver units can attack individually, or if the "Set All to Attack" order is given, all units that can execute the current LCU's attack order will attack. If the order is to execute a Deliberate or Shock Attack and the selected unit is an artillery type it will be given barrage orders instead. If the order is given to units of the same type only, then the order will be precisely executed. This means artillery units can be ordered to make a deliberate

attack. This is especially useful in combination with the order not to use artillery for barrages (see section 8.2.3.2) as the artillery pieces can then be used in direct AT support or other direct firing action.

Ground combat is resolved once a day during the Ground Combat Phase. If both sides have been given attack orders, the first side to attack will be determined at random for each attack.

Support squads (Devices labeled as non-combat) will commonly only fire if they are attacked in close combat by enemy troops.

Weapons (Devices) may only fire if they have successfully acquired a Target. The Target's detection level, the firing unit's experience, and the maximum range of the firing unit affect target acquisition. Success in firing at soft targets is determined by the weapon's anti-soft target rating. Success against armored targets is determined by comparing the weapon's penetration value to the Target's armor value. The ability to damage armored vehicles is expressed by the anti-armor rating. Some weapons may have a high ability to pierce armor, yet low damage potential. This is commonly found with HEAT rounds. Low penetration and high antiarmor are commonly found with high explosives. Successful fire will result in the target unit gaining disruption and the target weapon being disabled or destroyed.

### 8.6.2.1 COUNTER BATTERY FIRE

Counter Battery Fire takes place when the attackers are set to Barrage only. Defending artillery units will then fire at the attacking artillery units. With such an artillery duel the attacking units will commonly only take damage to the artillery devices, while the defender will take damage more distributed among the devices in the target hex.

### 8.6.2.2 GROUND COMBAT SEQUENCE

For Deliberate and Shock attacks, devices will fire at each other in random succession. Fortification enhances the defensive ability of defending ground units and makes defenders harder to hit. Therefore,

defenders are given some advantages in combat if they are in a hex with fortifications. Attacking combat engineer units (those with infantry type squads in the unit) and assault tanks will attempt to reduce fortifications.

Once all unit-on-unit fire is resolved, the applied firepower for both sides is adjusted by forts, terrain and other factors and this comparison is expressed as the Attack Odds. The Attack Odds are used to determine if a base/location changes hands, and if a retreat or destruction of the defenders occurs during a successful assault. If the assault fails (attacker fails to get odds of 1:1 or better), the attacker will suffer effects to their morale, fatigue, and disruption. These effects will be worse for shock attacks. The Ground Combat Sequence proceeds as follows:

- The attacker fires an artillery barrage.
- Defender fires counter battery fire at attackers' artillery that is in range.
- If the attacker is set to bombard only, the combat ends. Otherwise, this sequence continues.
- Attacker and defender devices fire at each other in random succession.
- Assault resolution phase.
- All applied Assault values are compared, as well as the minimum odds for a successful assault.
- Combat engineers reduce the value of the defender's fortifications.
- Depending on the severity of a victory, the defender may lose a certain amount of control over a hex. This is measured in NM (Nautical Miles). If the defender loses all 5 NM in a given hex his units will be forced to leave the hex and control over all facilities is given to the victor. Note that certain terrain causes slower progress at the same combat odds. For example, making progress in heavy urban hexes takes longer than in open plains.
- If the assault odds are high enough, the defenders are checked for retreat. They may retreat in good order and leave the hex, or rout leaving some equipment behind. If there isn't a valid hex to retreat to then they surrender.

**Note:** *Any unit can be set for an artillery attack even if there are no artillery pieces in the unit. The reason being is that the support squads in those units can provide support, bringing up shells, etc., to the artillery pieces in other units.*

### 8.6.2.3 GROUND COMBAT RESULTS

Based upon the final Attack Odds, some fortifications may be destroyed, a base may be captured, and/or the defending side may be forced to retreat or surrender. Unit Fatigue, Terrain, Disruption, Experience, Morale, and Leadership directly impact combat firepower, losses, and the odds of attack. Losses taken in combat include the destruction or disabling of squads, guns, and vehicles. Disabled elements are not allowed to fire during combat and may be destroyed. However disabled elements may be healed/repaired and made combat worthy. But if all the ground units, on one side, in a contested hex are disabled and cannot retreat, do to being surrounded, will be destroyed.

**Note:** *Some terrain does allow units to fortify themselves independent of any Base in hex or it's constructed fortifications. These unit-based fort levels are much easier lost in combat and even if the attack was unsuccessful some defending units may lose these fort levels.*

Bases/Locations may be captured due to ground combat based on the calculated odds at the end of the combat. The higher the fortification level, the harder it is to capture a base/location. The adjusted combat odds must exceed 1:1 to make progress in capturing a hex. There is no guarantee of success. The more superior the attacker is, the better the odds.

**Note:** *When an attacker first enters a defended hex, his units will not control any ground in that hex. This means a successful counterattack can quickly push an attacking force out of a hex.*

Fortifications can be reduced in level by enemy ground attacks. Again, the better the attackers combat odds are, the better the chance of reducing fortifications. Combat engineers and assault tanks participating in your attacks can reduce fortifications, making it easier to take the base.

### 8.6.3 CAPTURED DEVICES

If a LCU surrenders, then its devices are subject to capture. Salvage of any devices left by fleeing or captured units, (guns, vehicles, and other non-organic devices), may be used by the capturing side. These captured devices will be placed in a new unit of the victorious nation and can be given to other units by use of the "merge" command. This new unit can be used for combat (though it will start with no XP) or turned into a RSV unit to automatically distribute the captured devices to units already using such devices and being in need of replacements. The standard use, though, is to merge the captured devices with existent combat units and disband the empty unit. This way it is possible to make use of enemy artillery, tanks, AA guns and other items. Take note that these are difficult to maintain, and when disabled some of them will "disappear" (scrapped) while others are repaired.

### 8.6.4 SUPPRESSION FIRE

Only weapon types that have indirect fire capability may do a Barrage Attack or support fire. This type of fire is also special in that it creates "Suppression". Suppression lowers the number of devices that can be used for attacks. Thus, it is an excellent means of keeping the enemy in defensive stance when attacking. Suppression will only last for 1 day at most, and is caused by Barrage, air, and naval bombardments. Air superiority and low-level strafing attacks are a good way to cripple an enemy's ability to attack. Defending units will never suffer from suppression. This is a good reason to "Prep" the target before you attack.

## 8.6.5 BRIDGE AND BEACH HEADS

Certain attacks like amphibious landings and river crossings will require you to secure a beach or bridgehead. These two kinds of attacks will always trigger a shock attack.

For river crossings, the assault strength determines success or failure. If the attacker fails, his units will be pushed back across the river into the original hex. In the case of amphibious landings, ground combat takes place on an hourly basis. The assault values of the attacker are kept between combat cycles, and each cycle has a comparison of assault odds to determine the securing of a beach head.

A beachhead means the securing of an area for landing and unloading of troops and supplies. Also, enemy CD guns will no longer be able to interfere with the landing of troops in that hex. Though they may still fire at ships near the beach. Unload speed and good preparation plus low disruption is the key to secure a beachhead. Slow unloading or bad preparation will permit the defender to concentrate fire on small numbers of ill-prepared units in each combat cycle.

## 8.6.6 BREAKTHROUGHS

There are two general kinds of breakthroughs:

- The first is achieved by mounting a superior amount of firepower to eventually punch through enemy defenses. This mainly happens late in combat.
- The second type is achieved, by some luck, early in combat. This happens when a device of the attacker is attacking a group of defending devices unfit to counter the attack. (Close support Tanks versus rifle squads is one example) While both attacker and defender always have a chance to have some suitable devices (Like AT guns in this example) “intercept” the attack, a failure for the defender can result in a breach in the defensive lines.

Units that achieved a breakthrough can fire "in enfilade" at the enemy, which boosts their performance and lethality. Plus, they will be able to target rear devices like logistics, artillery guns and HQs.

Attacking units with attack type combat orders and "Reserve" op mode may attempt to take advantage of a breach. Defending units in "Reserve" op mode can attempt to seal such a breach. Units in reserve will only react and join combat in the event of a breakthrough.

It is the ability of AFV's to outflank and encircle a stationary enemy within a hex during offensive ground combat. It's easier for AFV's to encircle and bypass infantry units with no mobile support, especially if they are ordered to "defend". Defending AFV's and/or units on "Delay" command are much harder to outflank and encircle during ground combat. In effect, the attacker has a chance to gain control of hex sides even when not driving the defender out of hex, allowing attackers to cut stationary defenders off from supply lanes as well as the option to "pass through" such hexes in the next turn by use of the conquered hex sides. This only works in terrain that allows optimal use of vehicles. Jungle/Forest/Urban and other difficult terrain types do not allow for this.

## 8.6.7 RETREATS

If during the Assault Phase, a defending unit which is subject to high odds or very low morale, will attempt to retreat. To retreat, there must be a valid hex to retreat into. This means the unit may only retreat out of a hex across a friendly controlled hex side. If there is no valid hex to retreat to or the unit fails a morale, fatigue, experience, and leadership check, the unit may surrender. If the unit surrenders, soldiers will become prisoners of war, and any non-organic devices will be handed over to the attacker.

There are two types of retreat:

- **Good Order** – The unit will retreat to a destination out of the hex. It will keep any disabled devices. Static units will split off their immobile devices, and these devices are left behind if their unit is forced to retreat.
- **Routed** – The units flee from the hex (are pushed out instantly) leaving behind most of the disabled devices. Static units will split off their immobile devices, and these devices are left behind if their unit is forced to retreat.

**Note 1**: *Special Forces have the ability to retreat right through enemy controlled hex sides. Due to that it is nearly impossible to pin them down even though they are usually small and easy to encircle. Partisan forces usually also have this ability. That makes these hardy troops perfect for operations in otherwise enemy controlled zones.*

**Note 2**: *Units with devices that are bound to railroad tracks may only retreat along these tracks.*

Units will generally try to retreat to a hex with lower enemy influence (ZoC), but the circumstances may have the units take a different path. For example, following a road leading to a friendly base rather than going into wilderness terrain.

## 8.6.8 GROUND COMBAT AFTERMATH

When ground combat is finished, a Combat Summary screen will be displayed. This details the location, type of attack made, composition of the attacking and defending forces, the assault odds for the attacker, whether the attacker captures the base, and any casualties that were suffered by both sides. Fog of War (FOW) can affect what is shown.

# 8.7 GROUND UNITS AND FORTIFICATIONS

LCU's that are in a base hex assume the fortification level of the base. Unless the LCU's in the hex have a higher fortification level than the base hex they are in. LCU's that are not in a base and are not moving will automatically attempt to build fortifications to protect themselves from attacking enemy LCU's. These fortifications can be built up to a maximum of level 3 and cannot be built in any terrain, nor will they be built at the same speed in every terrain hex that is allowed. LCU's can only fortify themselves, in the following terrain types, to the indicated maximum level:

| TERRIAN TYPE | MAXIMUM FORT LEVEL |
|---|---|
| Plains/Clear | 3 |
| Rough | 3 |
| Forest | 1 |
| Rough Forest | 1 |
| Jungle | 1 |
| Rough Jungle | 1 |
| Desert | 3 |
| Rough Desert | 3 |
| Sand Desert | 3 |
| Mountain | 1 |
| Tropical Mountain | 1 |
| Developed | 3 |
| Cultivated | 3 |
| Salt Marsh | 3 |
| Swamp | 1 |

## 8.7.1 STATIC FORTIFICATIONS

Some bases, like the perimeter of Tobruk have fortifications made too strong to permanently destroy. While they can be weakened by combat temporarily (by means of taking that position away from the enemy), they recover to the defined minimum level once only one side is present in the hex.

# 8.8 DISRUPTION, MORALE, FATIGUE AND SUPPRESSION

## 8.8.1 DISRUPTION

Disruption represents degradation of a LCU's combat capabilities caused by combat and/or poor command control. Also, dispersion of LCU's components can cause disruption. Disruption may occur every turn depending on the state of the LCU. Any kind of attack against a ground unit will inflict disruption. Moving across a river hex side into a hex containing an enemy LCU's will inflict disruption. Attack at odds less than 1:1, will cause a large amount of disruption to the attacking units. Disruption reduces firepower while increasing the damage taken during ground combat.

LCU's remove Disruption every turn and will generally remove even high levels of Disruption within a few days. The recovery rate for disruption depends on whether or not the unit was involved in combat or moved during the current days turn. Best case it gets halved and then reduced by 1 to 10 points on average. This also depends on the leader admin skill.

## 8.8.2 MORALE

Morale has a high effect on the number of devices that engage the enemy during an attack, and to a lower extent on defense. Performing attacks with low Morale will not do much damage. The effects are almost linear. A unit at 50% Morale will thus have its combat power reduced to just a bit above 50% when it attacks. Low morale reduces the damage given in combat. Simply due to the fact the soldiers are running away when fired at rather than staying and returning fire. The effects on defense are considerably lower. Soldiers may stay in relative safety of their fortifications (or simply cover) and tend to do better defending even with low Morale.

The recovery rate for morale depends on the unit's leader inspiration value. It will usually be between 1 and 3 points per day.

Complete loss of friendly ground units in the vicinity will reduce the morale of other friendly ground units and boost the Morale of enemy units. Annihilation of enemy ground units gives a boost to morale of units on the side of the victor. The size of the unit does not matter much for this. It is advised not to expose any unit, no matter how small, to threats that can eliminate it completely.

### 8.8.3 FATIGUE

Fatigue represents wear and tear on troops and equipment, such as vehicles. as well as exhaustion and lack of sleep. Fatigued units will have reduced firepower.

Recovering Fatigue, however, takes far longer. The recovery rate for fatigue is around 20% per day. Or a reduction of 1 to 10 points on average. This also depends on the leader admin skill and the unit activity level. In other words, if the LCU is moving or in combat it makes it harder to reduce fatigue.

### 8.8.4 SUPPRESSION

Suppression represents the troops keeping their heads down by naval bombardment, air attacks or artillery fire. Under these conditions troops will try to remain in cover and the offensive power of a unit is reduced according to its suppression level. Suppression is a short-term condition and will not be carried over to the next day.

## 8.9 ISLAND STACKING

Islands fall into several categories. Each has a maximum limit of men and equipment that can be stationed on the island. This number may be seen in the hex information panel, accessed by clicking "Hex data" on

the left side of the bottom left control panel. Or on the list of all ground units for that hex. Having more total load cost located in such a hex may cause penalties such as vulnerability to attack.

Over stacking an island with a 6,000-man limit with 9,000 men will hurt the defender badly. Attacking such a position may also cause the same penalties to any attacker exceeding the stacking limit.

Typically, the defender will have a mix of combat and service units. Assaulting forces should have pure assault units. Unloading 5 engineering Bns and an Aviation Regt at the same time as the assault and having the airfield 100% operational the day after the island or atoll is secured will be extremely difficult.

## 8.10 FORTS

Fortification construction costs are based on the terrain in the base hex. Level 7 through Level 9 Forts represent extreme fortification levels (typically constructed prewar e.g., Vladivostok). These levels are difficult to build and require special materials. Construction will use several times the supply of smaller fort construction, which reflects the specialized construction required. Construction costs also increase as the current Fortification Level increases. The different fort levels are as follows:

- Fort Level 1 to 3 – Foxholes to trenches.
- Fort Level 4 to 6 – Trenches with covers to include pillboxes.
- Fort Level 7 to 9 – Light concrete forts to heavy concrete forts.

Fortifications increase the firepower of units and reduce damage done to these units at the same time. However, heavy artillery shells or large bombs may overcome the protective value of fortifications. The higher the effect rating of a weapon, the larger the fortification level that can be overcome. Additionally, to being more lethal than smaller weapons, this reduces the effective fort level to 50% of the level 1 Fortification

for the specific device that it may of hit. Thus, heavy guns of Cruisers and Battleships are effective at striking units with light to medium fortifications. Being in a pillbox won't increase the survival chance much if a Battleship scores a direct hit with a 15-inch gun.

> **Note:** *The "effect rating" of a weapon, can be found in the games editor.*

This is the table for device effect to negate fort levels:

| WEAPON EFFECT | FORT LEVEL |
|---|---|
| 5 | 1 |
| 25 | 2 |
| 50 | 3 |
| 100 | 4 |
| 500 | 5 |
| 1000 | 6 |
| 1500 | 7 |
| 2000 | 8 |
| 3240 | 9 |
| 4000 | 10 |

## 8.11 UPGRADES

Upgrading is done by opening the device information window. See section 8.2.3 Unit Information Screen. Depending on whether it is a logistic device or not there will be different options for upgrade. Or even no options at all. Logistics devices can normally be exchanged freely with other logistics devices. For example, to exchange horse carts with trucks or vice versa. Upgrading other devices will depend on the devices upgrade path and any special upgrade data for the device. It is possible to design the devices in a fashion to allow exchange with other devices (device swap class data) of the same type regardless of the device

upgrade path. For example, light tank devices may be used to replace other light tanks. This can be different from scenario to scenario.

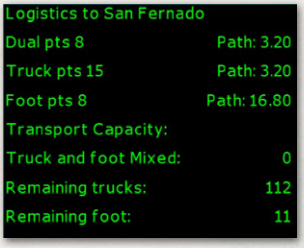
When Type 23 and 24 devices (infantry squads and engineer squads) are upgraded, the soldiers are considered to receive new equipment. In case the squad size changes, the resultant device number may be lower or higher than the original device number. If the new number exceeds the TOE, the excess is stored in a local depot unit to be used for replacements.

Upgrades of non-organic devices will always put the old devices in a depot unit, clearing the slot to receive replacements of the new device type. There is a special kind of replacement for non-organic devices by right clicking upgrade, so only the "missing" devices will be replaced. In short, the TOE of the old device is reduced to current device numbers, and another slot receives the TOE for the upgrade device.

# 9. LOGISTICS AND SUPPLY

Logistics and Supply transfer in *War in Spain 1936-39* is crucial and is the means to provide Beans, Bullets, and Bandages to your troops. Failure to have a good Logistics and Supply Train could spell the end of a good offence or defense.

## 9.1 UNIT LOGISTICS SCREEN




If you click on the "Logistics Cap" line, which is shown in green, located in the lower left-hand side of the unit screen, you will bring up the Logistics Capacity Screen. See the image on the left.

On top is the name of the base linked to draw supplies from. In this case supplies are drawn from San Fernado. Below are the six actual expected logistics, as modified by the unit's leader Administration skill:

- **Dual Points and Path Time Cost** – Dual Points means both Truck and Foot would be used in calculating Path Time Cost. So, if there were a mixture of roads and natural swamp terrain it would be best if trucks used roads and squads in the swamp.
- **Truck Points and Path Time Cost** – This would be just for Truck Points along roads. If Trucks are available.
- **Foot Points and Path Time Cost** – This would be for foot soldiers, moving supply by foot or animal.

This is followed by the resulting amounts that can be expected to be moved.

- **Truck and Foot Mixed** – This is Tons moved per day using Dual Points. Provided a mixture of Truck and Foot is used for better efficiency.
- **Remaining Trucks** – Tons moved by remaining Trucks.
- **Remaining Foot** – Tons moved by remaining Foot.

For example, when the path is 3 road hexes and 3 swamp hexes. Both foot and truck devices would excel in just 3 of 6 hexes. For that teams would form up to use trucks on the road, and foot on the swamp hexes to generate the best capacity.

**Note:** *Bases with logistics devices in them can use those devices to supply LCU's around that hex, while LCU's can only draw from the base into their own hex.*

## 9.2 LOGISTICS MODELS

Logistics are the main factor for victory or defeat in *War in Spain 1936-39*. Whoever advances toward the enemy increases the length of his supply paths, thinning out the logistical power.

Since not all players want to dive into counting beans and bullets, *War in Spain 1936-39* does offer two logistics models with varying realism. These are selected in the game rules, located in the Preferences, and described below:

- **Simple** – Train Depots at Bases will take care of Railroad Based Logistics. There is no need to take care of coupling them with rolling stock found in ground units. There is no cost in running railroad logistics. Truck and foot travel paths will be simplified. No fuel is spent to run trucks for logistics between bases. Overall movement of goods will be faster than in the detailed model. This is the setting for players who wish to focus on combat and less on logistics.

- **Detailed** – Train depots need to have rolling stock devices (as part of ground units) present at the base. Path calculations are more precise for both foot and truck paths. Trucks will consume fuel when moving material from base to base. This is the setting for players that wish to have a more accurate depiction of the logistics bottlenecks that restricted both sides in the historical conflict.

## 9.3 SUPPLY TYPES

In the game, supply comes in 8 primary categories. They are:

- **Basic supplies –** Which are used to feed, clothe, repair, and build land, sea, and air units and bases.
- **Fuel** – Used for ground units as well as some industry.
- **Aviation Fuel** – Used only for air units.
- **Coal** – Which is used mostly for industry but also serves as fuel for some coal fired ships and most railroad engines.
- **Air ammo** – Ammo to arm air units for missions.
- **Ship ammo** – Ammo to arm ship weapons.
- **LCU ammo** – Ammo for LCU's.
- **Naval fuel** – Fuel Oil types used by all naval vessels that do not use Coal.

## 9.4 SUPPLY DRAW

Each unit (Air, LCU, and Naval) has a minimum requirement for supplies and fuel, which is constantly calculated and updated by the computer. Supply needs are an estimate of future needs based on the unit size and composition. A ground unit with lots of horses will consume vast amounts of supply, especially if in hot, arid desert hexes. Vehicles and Tanks will consume less since they need less manpower. While supplies are consumed, depending on what the units are doing at the moment, without adequate supplies on hand to meet the expected needs, units instinctively begin to curtail operations to stretch out the available supplies. If supplies run low, units will gain fatigue and ultimately begin to starve.

**Note 1:** *Units may starve from lack of supply while still having excellent amounts of ammo and/or fuel.*

**Note 2:** *Units on ships continue to consume Supplies from the ship's cargo holds. So, make sure you load enough Supplies when shipping troops.*

Supplies are stockpiled at bases. Supplies are created via the production system and can also come into the game at bases that are assigned daily allotments. From there they can be distributed to bases in a variety of ways, via air transport, by ships in TFs, submarines with transport Missions, and overland. A base may transfer supplies, oil, and resources to an adjacent base, but this depends on the travel time and the logistics assets available. Lots of trucks won't be of much help if the path leads through forest or swamp hexes with no road. Squad-based logistics are better for those difficult terrain types. Organic transport does consume lots of supplies, regardless of activity status. Trucks only consume fuel if used.

LCU's outside bases use their own logistics devices to draw required items from the nearest base, and bases will use their logistics to supply

units in the field around them. The leftover logistics of any Base can be used to move items between bases.

Certain industry types create capacity for moving their products to other bases and base facilities. Local manpower, including captured manpower, create logistics capacity on top of the remaining device-based capacity.

## 9.5 SUPPLY OPERATIONS

Each day at midnight, ground units and bases move items for the next day. LCU's receive from bases supply, ammo, and fuel. Ground units can also draw from logistics ground units. The special LCU's may be placed between bases and the frontline to improve supply. LCU's that do not need their full logistics capacity can share them with other units in hex.

Task Forces will stop loading an item if the item in question has less than 50% of the desired amount left in a base.

*Note: It is possible to order a base to be drained of all stockpiles when it is set to "repel" the given commodity. Such a repel order is given on the Base Information panel by using the right-side mouse button on the "stockpile" command. In that case the ships will load all the base stockpile as fast as they can.*

### 9.5.1 SUPPLY OPERATIONS SEQUENCE OF PLAY

The Supply Operations Sequence of Play is broken down as follows:

- Expend required supply points to maintain ground units and aircraft formations, ground units draw supplies and replacements.
- Aircraft repair and the effect of available Aviation Support on the readiness of aircraft formations is determined.
- Adjust Pilot Morale.

- Adjust fatigue of ground units.
- Units not at bases construct fortifications and other infrastructure.
- Add replacement aircraft and pilots to air formations.
- Industrial production and Base to Base logistics are carried out.

## 9.5.2 NAVAL REARMING

Ships fire one round per barrel when shooting. Once ammunition is expended, ships can replenish their ammunition at ports. The game has many ports, but only a few of them are naval bases with the infrastructure to rearm military vessels.

### 9.5.2.1 PORT REARMING

Ports can rearm naval vessels depending on their Port size level, and the availability of sufficient ship ammo at the port. Ports have a rearm capacity that is limited to rearm devices of a certain level of "Effect rating". Exceptions are granted for small naval craft like PT-boats or HDML's. Small naval craft can rearm at very small ports. Since naval and DP gun Effect is rated in pounds, and ammo is rated in metric tons, 1 ton of ammo can rearm 2205 total "Effect" for naval and DP guns. Carrier sorties and carrier air torpedoes cost 1 ton of ammo each. Civilian ports show a (c) after the figures of the port size on the bottom panel. Civilian ports can only rearm very small weapons or ASW weapons. Naval support only accounts for 20% of what it would be worth in military ports. Ports can be militarized, but the cost of supply is high. Furthermore, the port will be closed (100% damage) during the reconstruction and thus also requires many engineers to be present.

**Note:** *Rearming ASW type ammo is independent of port size. It is possible to run Convoys with escorts between 2 civilian ports without having to manually move the escorts to a military port to re-arm after every engagement with a submarine.*

## 9.5.3 GROUND UNIT SUPPLY

When tracing a supply path for movement of ground units or overland movement of supplies, travel time is calculated for both foot and truck movement types. This is determined by tracing a path from the base transferring supplies or the ground unit moving to the destination. Both types of logistics will be used separately, but in special conditions they team up. See section 9.1. The exact data for path and capacity can be seen from the ground unit screen when clicking on the logistics Cap text line in the lower left of the Unit Logistics Screen.

### 9.5.3.1 SUPPLY AND FATIGUE EFFECTS ON LCU'S

Having enough supply for your LCU's is very important. Without proper supply LCU's will suffer increasing fatigue. And at some point, squads will start to starve and become disabled. LCU's will gain fatigue every turn if they remain low on supply. More fatigue will be added to LCU's that are marching or in combat. Each turn, units will attempt to reduce their accumulated fatigue. The following items impact the amount of fatigue reduction:

- Whether the LCU is in a temperate weather zone. LCU's in these hexes will reduce the most fatigue.
- Whether the LCU is occupying a base, and the size of the base. LCU's occupying a base will reduce more fatigue. The larger the base (airfield size plus port size) the greater the fatigue reduction.
- The supply level of the LCU. A LCU that has supplies equal to or greater than its supply need will reduce fatigue. The less supplies the LCU has below its supply needs, the less the fatigue reduction.
- The disruption level of the LCU. An LCU that has high disruption will reduce less fatigue.
- The LCU leader's admin skill. The higher the admin skill the more fatigue and disruption will be reduced.

When a unit's fatigue level gets high and it has no supply, elements of the unit will slowly become disabled. When a unit has more disabled elements than non-disabled, it will begin to have elements destroyed instead of just disabled due to high fatigue.

Ground units at sea on a transport will gain fatigue if cross loading did occur on that ship. Units on ships will continue to consume supplies from the stores of the ship. If supplies run out, the unit will suffer from starvation.

## 9.5.4 AIR UNIT SUPPLY

Aircraft will take off for missions as long as there is enough fuel, ammo and unspent Aviation Support. There are other restrictions for individual aircraft sorties. Among them is airfield readiness and aircraft fatigue levels. See section 7.11.

Serviceable aircraft are those aircraft that can fly during the next day. Aircraft being repaired and in reserve are not available to participate in Missions. Aircraft that are Serviceable may become damaged due to combat or become operational losses from flying, even during Transfer Missions.

Aviation fuel and air ammo expenditure can be seen on the air group unit screen above the mission assignments. These figures are estimates for when everything works as planned. For example, a group on CAP will show the fuel consumption for the aircraft assigned to fly, but in case any remaining aircraft scramble for interception, the fuel consumption will be more. Same applies when a different target than specified is attacked. Or when the group is set to pick a target on its own. The amount of fuel consumed depends on distance/flight time and weight of the aircraft. Ammo consumption is for offensive missions only. It is based on the effect rating of the weapons that are loaded for the mission. A 2205 Effect rating equals the consumption of 1 metric ton of air ammo.

## 9.6 AUTOMATIC CONVOYS

Automatic Convoy TF's can be built to send supplies and other materials to ports around the map. These types of TF's are discussed in section 6.1.2.2.6 Trade and cargo routes.

## 9.7 CAPTURING BASE RESOURCES

A base that generates a daily allotment of supplies, fuel, oil and/or resources will, most of the time, not generate these items if the base is captured. An exception would be an Oasis that "produces" a daily allotment of Supplies regardless of owner. The Base must be in the hands of its original side to generate its daily allotment of supplies, fuel, oil, and/or resources. It does not matter what nation controls a base as long as it is on the same side as the original owner. For determining the original owner, the nation of the hex is used. Even if a base may start out under control of an occupier, the occupier is not considered the "original" nation.

Example: Kiel's hex nationality is German, and Kiel has a daily allotment of supplies. If Kiel is controlled by the Republican player, no daily supplies will be generated. If the Nationalist control Kiel, daily supplies will be generated. Players using the editor should be aware that if a scenario is created with a base having a nationality that does not belong to the side of the hex, the daily allotments will not arrive unless the base is captured by the other side.

**Note 1:** *A special attribute can be given to a base to enforce daily allotments no matter who the owner is. This can apply to some special bases including sources of fresh water in the desert.*

**Note 2:** *Bases under control by nations with no on map economy may cease to produce civilian resources when their stockpile is considered sufficient. This means, if playing a nation that has an on-map economy, you profit from capturing resource centers immediately. Most resource centers will not keep piling up their production limitless.*

## 9.8 SPOILAGE

Spoilage (or waste) of fuel and supplies at a base may occur depending on the size of the base. The Spoilage Rate is 2% per day. To determine if spoilage is possible, first add the port and airfield sizes together. Any base with combined port and airfield size of 10 or more will not suffer from spoilage. Otherwise for base combinations of 9 or lower use the following equations:

- To figure out fuel spoilage, use the following equation: Fuel over 1000+((port+arifield size) x (port+airfield size) x 2000) will suffer spoilage.
- To figure out supply spoilage, use the following equation: Supply over 5000+((port+airfield size) x (port+airfield size) x 3000) will suffer spoilage.

**Note 1:** *In the equations above the 1000 and 5000 numbers represent the base tonnages for smaller bases.*

**Note 2:** *All supply types and fuel types count towards the bases capacity when figuring out spoilage.*

**Note 3:** *2000 Supply capacity and 2000 Fuel capacity is added on top of the above for each Supply or Fuel Depot respectively that is constructed in that Base.*

Outposts, see section 10.8, unlike real bases, don't have any basic capacity that can be used to figure out spoilage. Use the following equations to figure out spoilage for outposts:

- To figure out fuel spoilage for an outpost, use the following equation: Fuel over ((port+arifield size) x (port+airfield size) x 2000) will suffer spoilage.
- To figure out supply spoilage for an outpost, use the following equation: Supply over ((port+airfield size) x (port+airfield size) x 3000) will suffer spoilage.

**Note:** *Outposts have a Garrison "force requirement" of 10, + 25 for each airfield or port level. If these are not met, the outpost will start to take damage until it disappears and is finally erased from the list of bases. For example: An outpost with a level 2 airfield would have a "force requirement" of 60. This would be made up of combat devices. (Infantry, tanks or other combat devices)*

# 9.9 SUPPLY LOGISTICS OPERATIONS

## 9.9.1 RAILROAD OPERATIONS

Railroad operations can cost an amount of Coal, Fuel, or Oil for each unit that is utilized in moving items between bases. Though some bases can run their trains on electric power, which is essentially free. Fuel types are shown on the Train Depot icon on the bottom interface. C for coal, F for fuel and F/O for fuel or oil.

Turning the train depot OFF will stop consumption and use of Railroad Assets located there. Railroad rolling stock can be used to move items between other bases in a certain area of around 60 hexes. That means a Base requesting stuff from some other bases can ask a Railroad Station in that radius to perform the transportation.

The actual Rolling Stock (Engines, Boxcars, etc.) are in ground units. Like other devices, these may be disabled, destroyed, or even captured.

Rolling Stock units work together with the industrial bases located on rail lines that have a train depot present. A base with a size 4

Train Depot can keep a maximum of 4 Rolling Stock units operational for use around that base up to 60 hexes away. Each Rolling Stock unit can move 50 metric tons. The actual amount moved also depends on distances travelled and will often be lower than those 50 tons per unit. This is due to abstraction of the average daily amounts moved by a given number of Rolling Stock in a given travel time. Longer travel means less time to load/unload the Rolling Stock in a given day, and thus also means more Rolling Stock must be used to make full use of the load/unload capacity of a Base.

The size of the Train Depot industry defines how much can be loaded/unloaded per day in that Base. The total amount is 50 tons plus 50 more tons per undamaged Train Depot. Turning the Train Depot OFF will still retain the load/unload capacity of a Base but will not run any Rolling Stock themselves from that Base.

### 9.9.2 FOOT TRANSPORTATION

There is no extra cost in using Foot Transportation for the movement of supplies other than the high cost in supplies for upkeep of the LCU's doing the supply transport.

### 9.9.3 TRUCK TRANSPORTATION

Trucks will only consume fuel when used. They consume 50 Kilograms of Fuel for each Metric ton moved over a defined distance measured in movement points.

### 9.9.4 RIVER TRANSPORTATION

Bases connected by rivers and having a Port may exchange items using abstracted river shipping. The amount depends on the river (depth) and the distance as well as the Port sizes involved. The smaller Port of the two ports will determine the number of items moved. Damage to the ports will affect the amount of items moved.

### 9.9.5 INDIGENOUS CAPACITY

Indigenous capacity is provided for base facilities and Manpower industry. Other industry may also provide transportation capacity for the primary output of this bases industry type. For example, a Coal Mine will generate indigenous ability to move Coal to other bases. All those extra logistics use foot type movement and do not create a cost in upkeep or use.

**Note: Internal mechanics**. *Rather than adjusting the game mechanics to different game scales, ground unit movement and Logistics movement speeds are adjusted by giving both "movement points". These 2 factors are part of the Scenario data and may be modified.*

# 10. BASES

Bases, in *War in Spain 1936-39*, are what the entire game revolves around. Capturing or defending them is a big part of determining who will be the victor. Suppressing their Function is also a big part of the game. This would include airfield, port, industrial, logistics and resource targets. Defending these bases from Bombing is very important for less obvious reasons. Also, casualties of the Civilian population, at these bases, can negatively impact your ability to wage war.

## 10.1 THE BENEFITS OF A BASE

In *War in Spain 1936-39* only certain specified hexes may contain a base. Though an outpost may be established in non-base hexes. (See section 10.7). A base can contain either a Port or an Airfield or both. Bases provide five primary functions:

- They can include Port facilities such as shipyards for repairs.
- They can include an Airfield and airfield facilities.
- They can serve as a Supply Depot with stockpiled supplies and/or naval fuel.
- They can minimize the impact of sustained combat and disease on ground troops.
- They can contain numerous production facilities (factories, manpower centers, resource, oil centers, etc.)

Bases that are in the same logistics network as the capital of the nation are "connected". This means that bases can access the nation's pool via roads and/or rail connections. This is an important attribute of a base as it can bring replacements for both ground and air units onto the map.

Bases need support and logistics troops to move items between the base and other locations or to move war materials to units in the field around the base. The Base Information Screen, (See section 10.2.1

below) will display how much support and logistics capacity is present at the base. If the base contains an airfield, the Aviation Support personnel, both on hand and required, will be listed as well. Also listed will be the number of items the Base needs to stockpile to operate the base and its industry for a few days. There are many different types of items. From supplies required in maintaining your troops and construction, to ammunitions for air, sea, and land as well as various fuels and resources. The names of items and their purpose can be defined in the Scenario data. See section 14.0 Research, Development and Production

## 10.2 BASE INFORMATION

When the cursor is placed over a Base, a small window will display that shows an overview of the contents of the Base. The mouse overview may or may not contain the following pieces of information:

- The name of the Base and in parentheses the range. The range will change if you move to a different base several hexes away.
- The weather in the hex.
- The victory point value for the Axis and Allies. The basic value is in parentheses.
- Port capacity.
- Airfield capacity.
- AV support.
- Manpower.
- Heavy Industry.
- Light Industry.
- Repair shipyard size.
- Train Depot Capacity.
- Agriculture Level.
- Fuel and Supply level.
- Oil and Coal level.
- Ship Ammo.

- Naval Fuel.
- AV Gas.
- Aircraft Ammo.
- LCU Ammo.

**Note:** *The above information will vary depending on the base.*

## 10.2.1 BASE INFORMATION SCREEN

The Base Information Screen for the base will show details depending upon which side owns the base. If the base is in enemy hands, you won't see much information other than damage, mines, and any forts in the hex. But Fog of War (FoW) may not provide you with very accurate information. You can click on the base flag or click on the base name in the Hex Information Panel on the lower left. Then the Base Information Screen will come up. See image below:


Starting at the top left of the Base Information Screen is shown the name of the Base and Nation attached too. In this case the base name is Cadiz and is attached to Nationalist Spain. Below the base name going from left to right are the following pieces of information, with descriptions, for this base:

- **Fuel Cap** – The maximum fuel capacity of the base before spoilage occurs. If unlimited, no spoilage will occur.
- **Supply Cap** – The maximum supply capacity of the base before spoilage occurs. If unlimited, no spoilage will occur.
- **Dock Cap** – This is the total tonnage of ships the port can manage without additional help from Naval Support, etc.
- **Dock Size** – This is the size of the largest ship the dock can manage without additional help from Naval Support, etc.

**Note:** *A Port with cap of 9K and dock size of 6K can handle ships up to 6K tonnage, but only 1 of them fits the port. Or one 6K ship + one 3K ship. Or one 6K ship + three 1K ships. Or nine 1K ships.*

- **Port Damage** – Current amount of damage to the port in percentage. The higher the percentage the slower port operations will be.
- **Airfield Damage** – Current amount of damage to the airfield in percentage. The higher the percentage the harder it will be for air operations to occur from this base.
- **Port Capacity** – The bases current and potential size of the port.
- **Airfield Capacity** – The bases current and potential size of the airfield.
- **Fortifications** – Current fortification level at the base.
- **Minefields** – Clicking this button will show the number and type of defensive or known enemy mines located at the base.
- **Repairs Allowed** – Can be on or off for Airfield and/or Port repairs. If turned off, engineers will be free for fort construction. What this is for is to allow fort construction even though the airfield and/or the port are damaged.
- **Unpack Barges** – Click to unpack barges at this base. Barges can only be unpacked if they are "present". This is done by
- "packing" them into an LCU and then shipping the LCU to the

destination. Unpacking dissolves, the LCU holding the Barges.

- **Unpack Midget Subs** – Click to unpack midget subs at this base. Midget Subs can only be unpacked if they are "present". This is done by "packing" them into an LCU and then shipping the LCU to the destination. Unpacking dissolves, the LCU holding the Midget Subs.
- **Unpack PT Boats** – Click to unpack PT boats at this base. PT boats can only be unpacked if they are "present". This is done by "packing" them into an LCU and then shipping the LCU to the destination. Unpacking dissolves, the LCU holding the PT Boats.
- **Create Landing Craft from Pool** – Every nation can have up to 4 types of Landing Craft (LC), commonly these are Barges. These LC can be ordered from the pool by left click or transferred back/cancel the request by right click. The creation order will be executed partially or fully during the resolution phase. Normally these LC remain in the pools and are thus "available" for any amphibious landing TF that gets created. The assignment of the LC to such a TF works by internal mechanics and does not require player attention. Just eyeball the number of Barges so you do not move to attack when there is a shortage of LC. Nations allied enough to share ports and airfields may also share their LC pools.
- **Expand Port** – Clicking here will start expansion of the bases port. If the bases port is already at its maximum size, it will not expand any further.
- **Expand Airfield** – Clicking here will start expansion of the base's airfield. If the bases airfield is already at its maximum size, it will not expand any further. The option will be greyed out.
- **Expand Forts** – Clicking here will expand the bases fortifications. If the base is at its maximum fort level, it will not expand any further. The option will be greyed out.
- **Road Building** – Engineers in hex can be used to build/upgrade roads and RR going from the center of their hex to the selected

hex side. The player sets the hex-side on the base/hex info panel. Left click to go through road building hex sides and right click to go through RR building hex sides. The construction is then done by engineers in hex just as AF or Port construction. There is a special rule for bridge building. When trying to cross a river by building a road, then the road of the hex on the other side can and will be built too. The first construction will build the road in the current hex. The second time you build the road it will be built in the adjacent hex. This way it is possible to "bridge" canals and rivers that would not allow you to cross them normally.

The next section down is the Logistics Network. Clicking on the yellowed words will open a list of bases that show how logistics will work out for the coming day. Listed under Logistics Network is everything from supplies to ammo. The Logistics Network has four columns. They are:

- The first column is the list of products such as Supplies and Food.
- The second column is stockpiling. Here you can turn on and off the stockpiling of a particular product, such as supply or fuel. When stockpiling, no other base can draw the stockpiled item. If stockpiling is off, right clicking will change stockpiling to REPEL, and the base will not draw this item from other bases. REPEL allows a TF to load any item up until the Base has no more, where normally loading would stop at some point if the Base requires an amount of the item to operate normally.
- The third column is the required amount. This is what the base needs to function.

The last column is for requesting increases or decreases of a particular product. The arrow buttons below the "+ Requested" text allow you to change the basic amounts to be drawn and stored. The buttons modify by 1,000 or 10,000 when left clicked, and 5,000 or 50,000 when right clicked. Once requested, you can reduce the amounts again by using new buttons that appear to the left of the requested amount. Just click

the arrows to increase or decrease the requested product. Bases will try to request enough material for a few days of operation, and for around 30 days of industrial consumption.

If the currently stockpiled amounts are below 50% of the total requested amount, then the numbers will be orange. If the stockpiled amounts fall below 25%, then the color will be red. Bases do not automatically need or use fuel, but the requirements and usage do depend strictly on the fuel-guzzling units located at the base.

### 10.2.2 ADDITIONAL BASE INFORMATION

Along the bottom of the Base Information Screen is additional information about the selected base. This information is explained below:

- **Naval Support** – the amount of naval support currently available at this base including rearming capacity of the Port and Lighters available for loading/unloading.
- **Engineers** – The amount of Engineering construction and repair power.
- **Aviation Support** – The amount of aviation support present at the base. Plus, any aviation support from ships. This is the number of aircraft at the base, counted in engines that can be armed and launched in the AM and PM/Night air phases. You may only launch as many offensive aircraft, counted in engines, as you have aviation support for at the base.

**Note:** *The text is shown green when you have enough AV support for all bomber type aircraft at the base. Clicking the text brings up a small panel informing you of the requirements for currently active bombers, at the airfield, the required AV support for current attack orders, which can include aircraft types other than bombers (E.g. Fighters used for ground attack) and the amount of AV support*

*in excess. This allows you to quickly see if it makes sense to place another bomber group here or if you can afford to set just one more air group to attack orders.*

- **Airfield space now** – The current free space, counted in engines, on the airfield if all air units are at full strength. This can be negative when over stacked. The actual free space, counted in engines, if all air units were at 100%. This allows you to see if space is available temporarily due to losses, or if you really can place other air groups there for the long term.
- **Air Ops points** – The number of Airfield Ops points spent and the resulting readiness level.
- **Logistics Cap** – Provides information about the base's logistics capacity for foot, truck, and railroad. Foot and truck may be used to move war materials to LCU's around the base.
- **Extra Storage Built** – While Ports and Airfields provide storage capacity, it may be desired to build more capacity or create protected/underground storage at that Base. Protected storage is much more resistant to damage but requires a comparably long time to build. This area gives you the options to build additional storage.

#### 10.2.2.1 NATURAL ANCHORAGES

Natural Anchorages are indicated by the base name being Green. Names in Yellow indicate an unprotected anchorage. Bases in Yellow need to be built up to level 3+ to become protected from sub attack.

### 10.2.3 STANDARD POTENTIAL SIZE (SPS)

A number from – 3 to 10 represents the current size of each port and/or airfield at a base. So, a size of 0 represents no port or airfield, while a size of 10 represents the largest port or airfield possible on the map. The

current size can be increased during a game (but not beyond size 10) through the construction work of engineers at the base.

Each base on the map is rated for the Standard Potential Size (SPS) an airfield and/or port that can be built at the base. The SPS is a number from – 3 to 10. The larger numbers represent better terrain for the existence of extensive port and/or airfield facilities. These SPS ratings are fixed for all bases. When viewing the Base Information Screen, you will see 5 key factors that relate to that base as follows:

- Current size of the Port
- SPS of the Port (Shown in parenthesis)
- Current size of the Airfield
- SPS of the Airfield (Shown in parenthesis)
- Fortifications at the base (See section 8.12)

Airfields and Ports can be built up to a current value equal to the SPS using normal construction costs. Airfields and Ports can be built up to a current value equal to 3 levels greater than their SPS (up to a maximum of 10), but at a much higher cost. There will be a progress amount in percentage next to the Port or airfield SPS number.

**Note:** *You will notice some bases have SPS below zero. This can limit the maximum size to be built or even make it impossible to build a certain type of facility in a hex.*

## 10.3 BASE SYMBOLS

Each base is flagged to show which nationality currently controls it. Below are examples of the bases with different symbols indicating what is at the base. Whether there are LCU's, Naval and/or Air Units present.

### 10.3.1 BEACH HEX

Below is a Beach hex. Note that a base, Outpost, can be built here even though no base exists. See section 10.9 for details.

### 10.3.2 BASE WITHOUT LCU'S, AIR, OR NAVAL UNITS PRESENT

This is an operational base that doesn't contain a Port but does contain an empty Airfield. The airfield symbol will only display if an air unit and/or ship is located at the Base.

**Note**: *Depending on game settings, it is possible that Bases without Port or Airfield are shown as "dots" instead of using the nation flag.*

### 10.3.3 BASE WITH AIR UNIT PRESENT


This represents an operational base that contains an airfield with an air unit designated by the crossed airfield symbol. Note that there are also LCU's present.

### 10.3.4 BASE WITH NAVAL UNIT PRESENT


This represents an operational base that contains a port with ships at anchor designated by the anchor symbol. Note that there are also LCU's present.

### 10.3.5 BASE WITH LCU PRESENT


This represents a LCU, or more than one LCU, as indicated by the bar with the number in the same hex as the base.

## 10.4 BASE DETAILS

All bases can have a Fortification Level that gives protection for any friendly LCU's that are in the hex and defending against an enemy attack. All friendly LCU's assume the Fortification Level of the base whenever in the same hex with a base. Unless the LCU has a higher fortification level itself. This may be the case with various Fortress and CD units. If LCU's have a fort level of 3 and the base has a fort level of 2 or less, the troops will use their own fort level until it drops below the base fort level. Also, the higher the Fortification Level, the harder it is to capture a base. This level is a number from 0 to 10. See section 8.12.

The Port and/or Airfield will be shown in Light Orange if total damage is greater than 0 but less the 15%. Orange if total damage is 15 to 49% and Red if total damage exceeds 50%.

If the Airfield is over stacked, then the Airfield space will show a negative number.

Bases may also contain stockpiles of supplies, fuel, oil, and various resources. Fuel stockpiles are used to refuel (most) ships, while supply stockpiles are used to maintain aircraft, resupply ground units, and build or repair base facilities and infrastructure like roads, railroad tracks and bridges. Each day supplies from a base's stockpile are distributed to ground units in the same hex as needed. Supply, fuel, resources, and oil stockpiles will also be moved automatically from bases overland to restock other bases or LCU's that are running low on these items if the two bases, or LCU, are linked by a valid supply path. When these items are automatically moved to another base, some fuel may be expended when trucks are used. The amount moved per day depends on the support and logistics capacity present, as well as the base facilities and any Industry or population. Moving supplies and other items to LCU's in the field relies on local logistics capacity and may also use some fuel if trucks are used. Movement of items between bases by use of railroad logistics may also consume coal, oil or fuel depending on what the train

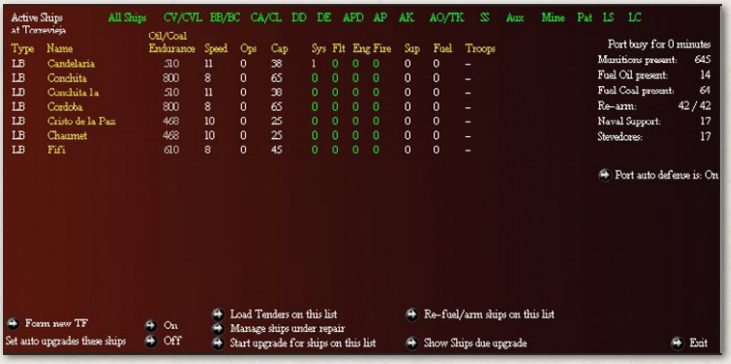
consumes for fuel at the base that provides the trains for the movement of these items.

### 10.4.1 BASE OWNERSHIP

The flag displayed on the map shows the ownership of the base. Refer to section 4.2.2.1, Land Unit Icons, for a complete list.

## 10.5 PORTS

Ports with ships present are represented on the game map with an anchor symbol. Moving your mouse cursor over the anchor symbol will provide information on ships in that port. Ports allow your ships to repair, resupply, load, and unload. Their size (level) affects the speed at which these operations are performed. Below is a port status screen:




Repair times required for ships in port are directly related to the size of the port. However, even a size 10 port will not repair ships as quickly as a port with repair shipyards, so heavily damaged ships should be sent to ports with a shipyard of the right size for extensive repairs. Specific weapons systems that have been destroyed on a ship can only be repaired at larger ports or ports with repair shipyards. If repair ships and tenders are present, they will also help with repairs. Ships can avoid

operational system damage and improve their repair capability if they are anchored at a friendly base.

Ships that are anchored expend no Endurance unless they are attacked. Ships at anchor at a port with a current size of at least 3 are immune to enemy submarine attacks due to anti-submarine nets. (Except for midget sub attacks or other sabotage actions that may penetrate the harbor)

Ports can be militarized or civilian. The main difference is that civilian Ports lack the infrastructure to handle rearming of large warships. The rearming capacity of civilian ports is by far lower, and any present naval support only adds 20% of what they would add in military ports. Ports can be "militarized". but this will set the port to 100% damage to reflect the reconstruction of the port for its new main purpose. If you choose to "militarize" a port, you may want to make that decision early in the war.

The Port Status Screen has an option to turn off automatic port defense TF's. See image above.

## 10.5.1 PORT DAMAGE

Larger ports are harder to damage, but once damaged, take longer to repair. Port damage slows the repair and refueling of ships, as well as the loading and unloading of ships at the port. Engineer units in the hex will automatically attempt to repair any damage. The number and experience of the engineers present at the base will affect how quickly these repairs can be completed. See section 10.7 for more details.

## 10.5.2 SHIPS CAUGHT IN CAPTURED PORTS

When a base is captured some ships at anchor at that base are automatically scuttled (sunk), while some may escape to the nearest friendly port. Ships Scuttled in port may not be removed from the ship list because it is possible to salvage and refloat these ships. In this way, captured ships that were sunk while in port can be put back into service

again. The process is the same as repairing any other ship except they, of course, cannot move to some shipyard. Move in an AR and/or salvage ships, if necessary, to repair those ships.

### 10.5.3 PORT SIZE AND REARMING

Ports vary in size from 0 to 10. 0 is the smallest size and 10 is a maximum sized port. Size 0 ports are essentially non-existent ports and as such have little benefit until they are built up. Also, there are two types of ports. Military and Civilian ports. The biggest difference between the two port types is in the rearming level for warships. See below for details on the difference between Military and civilian ports regarding rearming.

| MILITARY PORT LEVEL | REARM LEVEL | CIVILIAN PORT LEVEL | REARM LEVEL |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
| 1 | 30 | 1 | 15 |
| 2 | 180 | 2 | 25 |
| 3 | 1100 | 3 | 40 |
| 4 | 4000 | 4 | 45 |
| 5 | 4500 | 5 | 50 |
| 6 | 5000 | 6 | 60 |
| 7 | 5500 | 7 | 70 |
| 8 | 6000 | 8 | 80 |
| 9 | 6500 | 9 | 90 |
| 10 | 7000 | 10 | 100 |

- **Rearm Level** – uses a rearm cost for each device aboard a ship. For all devices the effect value is used for rearming cost. Aircraft Sorties have a flat cost of 300. The Rearm ability must be greater than the cost. If there are tenders or other support ships, these can re-arm any weapon for the ship types they support. AE and AKE can rearm any weapon. Naval support, per squad, adds +5 in military and +1 in civilian Ports for rearm levels. Note the large jump at a level 3 military port, which basically ensures

that torpedoes, most mines, and Battleship size guns cannot be rearmed at smaller military ports.

**Note:** *ASW weapons can be rearmed at any existing port. This ensures escorts for economic operations do not have to move to a military port for rearming. Most ASW weapons are easy to move, and handle compared to their effect rating.*

- **Rearm Limit** – is applied to each device on a ship being rearmed. Depending on rearming cost of each weapon and the adjusted capability of the port, some or all the weapons may not be rearmed. A medium sized port might be able to rearm cruiser guns and smaller ships, but not BB guns, torpedoes, or mines.

Basic values are adjusted by port damage. So, a port with a damage level of 10 would lose 10% of its capacity in all functions.

### 10.5.4 SHIPS DOCKED

There is no limit to the number of ships that can disband in a port. The limits below apply to ships in Task Forces that attempt to dock at the port (i.e., use pier facilities). The limit is expressed in ship tonnage, rather than number of ships. Ports may never exceed their docking limits during each hour. However, undocked ships of TFs at the port can conduct most operations at a reduced rate. Naval support can help with ships unable to dock.

**Note:** *Every size level of port is assumed to have a small number of attached lighters that aid in loading/ unloading. So even ports with no naval support present will be able to eventually conduct loading operations on ships that cannot dock. But the amounts that can be handled are rather small.*

| PORT SIZE | LARGEST SHIP THAT CAN DOCK IN TONS | TOTAL TONNAGE THAT CAN DOCK AT A TIME |
|---|---|---|
| 0 | 0 | 0 |
| 1 | 1000 | 1000 |
| 2 | 3000 | 3000 |
| 3 | 6000 | 9000 |
| 4 | 12000 | 24000 |
| 5 | 24000 | 48000 |
| 6 | 36000 | 60000 |
| 7 | 48000 | 84000 |
| 8 | 60000 | 104000 |
| 9 | 72000 | 128000 |
| 10 | 78000 | 172000 |

## 10.5.5 PORT CARGO AND FUEL HANDLING

The amount of Cargo transferred to a ship per hour depends on the ship size, and the general type of item. Liquids transfer fast, Bulk Cargo a bit slower, and filling Liquids in drums for loading in Bulk Cargo space is the slowest.

## 10.5.6 NAVAL SUPPORT ADJUSTMENTS

Naval Support Adjustments for:

- **Cargo Handling** – Plus 5 for each undamaged naval support device present.
- **Rearm Level** – Plus 5 (Plus 1 in civilian ports) for each undamaged naval support device present.
- **Repairs** – 100 undamaged naval support devices approximately equals a small AR repair ship, and 50 undamaged naval support devices approximately equals small tender.

## 10.6 AIRFIELDS

Airfields accommodate, repair and resupply air units, and serve as a point from which to launch air strikes and other missions.

Airfield size has many effects. It is easier to damage and destroy aircraft on the ground at smaller airfields (less dispersion). It is also more likely that aircraft will suffer more operational losses when landing at smaller airfields. Every aircraft has its own requirement for runway size (runway need). This is expressed in "units" of 1/25 airfield. A "runway need" of 25 is equal to 1 airfield size level. An airfield has 25 units per size, and only the undamaged runway parts count for effective runway size. An aircraft can take off normally if the effective runway size is equal to or greater than the aircraft runway needed. Starting with reduced load requires at least 50% of the runway needed. CAP uses the reduced load.

**Note:** *Ships that carry aircraft also have a runway size. Aircraft launched from these ships may not return to them if the runway is shorter than the full airframe runway needed. They may not launch an attack or can only fly with a reduced load.*

If a base has less Aviation Support than is required, offensive missions may not launch, because you have run out of available aviation support for that phase.

If an Airfield has too many aircraft (physical space) or groups (administrative) present, then the airfield is deemed over stacked. Over stacking reduces the amount of aviation support you can utilize. See section 7.12 Over stacking. An over stacked airfield affects how many aircraft can be launched, casualties from attacks and aircraft repairs. The space occupied by aircraft is counted by its engine number. An airfield provides space according to the following formula: (20 + (5 x Airfield size level)) x airfield size level.

The amount of aviation support you need at the base depends on your activity and the airframe. All actions are counted in the number of airframe engines. You need 4 aviation support to arm, repair or maintain a 4-engine aircraft. Only action consumes aviation support. If you have a total of 10 engines under repair and 10 aviation support, all aircraft will be worked on, even if you have 100 more undamaged aircraft on the airbase. Offensive missions consume aviation support. CAP and recon or various patrol and search missions do not.

### 10.6.1 AIRFIELD DAMAGE

Airfields can suffer runway damage: (ranging from 0 to 100 percent). It is easier to damage smaller airfields than larger airfields, but once damaged larger airfields take longer to repair. Damage to the runway directly reduces the airfields runway size for launch checks.

Runway damage can thus limit the air operations at a base. With heavy damage, you may only be able to operate small aircraft with low runway needs that were built for harsh conditions or even lose the ability to conduct any kind of air operations.

**Note:** *Terrain is an important factor for doing damage to an airfield. You will find it next to impossible to cripple airfields in Clear or Desert terrain. This is due to the hard, flat surface making it easy to set out new runways. Airfields in Urban areas or less than flat terrain can be easier to disrupt air operations for a longer time. But in general airfields are repaired quite quickly. The primary target of airfield attacks is any parked enemy aircraft themselves.*

## 10.7 BASE CONSTRUCTION AND REPAIR

Engineers can be used to increase the size of airfields, ports, depots, roads, railroad tracks, build outposts and fortifications at bases.

They can also be used to repair damage to airfields and ports. Each engineering capable vehicle is the equivalent of its weight in tons for these purposes. Each turn, engineers at a base automatically attempt to repair any damage existing to their bases unless repairs have been stopped. Stopping repair can be of use when you want to build forts, and the enemy tries to limit your construction by damaging facilities.

**Note:** *Doing construction with the aid of vehicles does consume fuel. And the Vehicles will cease to contribute if they run out of fuel.*

The remaining engineers at a base that have not conducted repairs will, if the base has been given the appropriate order, attempt to increase the size of the airfield and/or port and increase the level of fortifications protecting the base. This work often takes many days before a level increase is accomplished. Engineering efforts will be split between these three items unless you intentionally instruct the base to discontinue the construction efforts of a particular item. At the beginning of every scenario, construction is Off for all bases.

At the instant a base is captured from the enemy, all construction is immediately turned off.

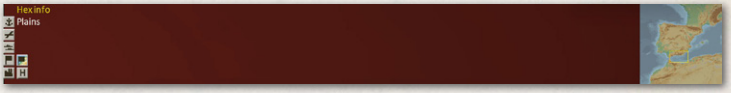
Construction work consumes supplies, and if a base is low on supplies, construction efforts will slow accordingly. One supply point is consumed for every engineering point that is spent in construction or repair operations. It is very important that you realize that construction consumes supplies, as it is often best to discontinue construction (especially expensive construction over the SPS) rather than use up precious supplies.

Construction costs to increase an airfield or port by one level increase as the current size of the airfield or port increases (i.e. it takes longer to go from a size 6 to size 7 than from a size 5 to a size 6). Terrain also has considerable influence.

Once a port or airfield reaches its SPS, the cost of additional construction increases significantly, you should consider halting

construction or else risk consuming large quantities of supplies for possibly little benefit. In addition to the normal costs, it takes 2, 4,or 8 times longer than normal to increase the current size above the SPS for each size above SPS. Some locations may even have a SPS of – 3, indicating the construction of the particular facility type is impossible.

## 10.8 THE HEX INFORMATION DISPLAY

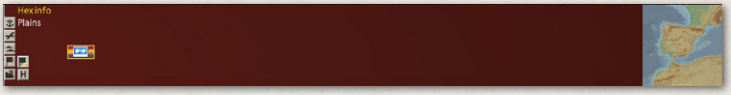



The Hex information display can be opened by a click on the "Hex Info" button on the bottom panel. See above. You will see various bits of data. The terrain type, if it is a Malaria zone, if amphibious landings are impossible here, the stacking limit, if any, in units of 1,000 load cost, any coast watchers for both sides, the country code (important for certain devices that can only be drawn from the pool in a fixed country code) and the Nation the hex belongs to. See below:

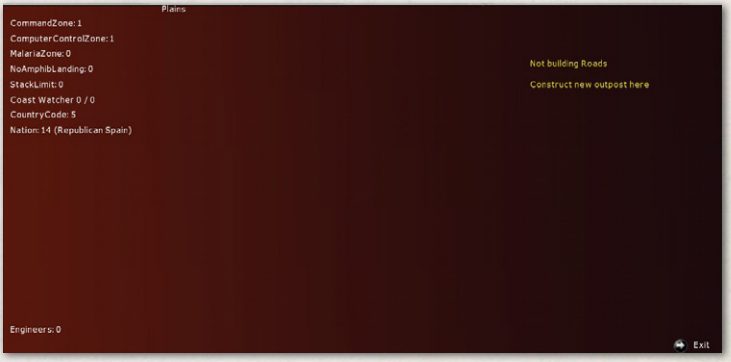

The hexes nation never changes, it indicates the native owner, not the present owner. Stacking limits are usually 62,500 for most hexes. Islands may differ to any degree by providing room for less troops. If a Minefield is present, there will also be a button to show all known information on that minefield. In the above image there are no known minefields.

# 10.9 OUTPOSTS

It is possible to create new Bases in any hex without a Base. This is done by having LCU's in the hex. The Hex Information Display with a LCU is shown below:




When you click on the words "Hex Info", you will see, on the right side, controls to build roads, railroads and outposts in that hex. See below:




Building roads and railroads requires Engineers to be present. The function is like the controls found on the Base Information Panel. The button below allows you to establish an outpost in the hex. The outpost can be created for all nations that have units in the hex. Engineers are not required to build a outpost.

These new Bases are called "Outposts" and follow special rules. Unlike Bases, outposts have no basic capacity for stockpiling items like supply or fuel. You will need to build storage facilities to create capacity.

Furthermore, outposts need a Garrison to be always present. The amount of force required does increase as facilities are built. Not

fulfilling the requirement does cause decay in the outpost's airfield and port condition and ultimately the outpost will disappear as it is considered abandoned. The SPS of airfields and Ports for outposts is somewhat random and depends on terrain.

The total number of outposts in game is limited by the free slots in the list of Bases. Due to that it is not always possible to create a new outpost.

# 11. DETECTION AND SPOTTING OF UNITS

Detecting the enemy is imperative in *War in Spain 1936-39*. But even more important is the accuracy of the information that you receive. The Detection Level (DL) is a measure of telling how accurate the information is. It ranges from 0 to 20 normally and is commonly hidden, except for TFs and Bases. For TFs, the DL is telling how precise the position of the TF can be guessed. TF spotting has a second value equal to the quality of the spotter, normally the naval search skill of a pilot or lookout on a ship. This second value ranges from 0 to 100 and indicates how accurate the information on the contents of the TF will be. What can't be seen can't be destroyed, and reconnaissance is the eyes and ears of the wise commander.

## 11.1 SPOTTING ENEMY UNITS

Spotting enemy units is an important aspect of the game. If you have the "Fog of War" setting on, only enemy units that have been spotted will be visible on the map. For example, messages about enemy ships being sunk may not appear, depending on the Detection Level (see 11.2 Detection Levels). In addition, the Intel screen will not list sunk enemy ships, or points for damaged enemy ships until the enemy side confirms the loss. Flying any recon, search or ASW mission improves with flying a radius below maximum range of the airframe. In general, the greater the distance flown, the less likely a hex will be "covered". Thus, hexes near the air unit have the best chance for detecting something, while distant hexes have ever decreased chances. Spotting is performed in several ways:

- Aerial reconnaissance Missions take photos of bases and ground troops, giving you intelligence on what is present in the target hex. Setting up patrol arc's inland on commanders discretion will spot enemy units in random hexes.

- Bombing Missions may also take photos of their combat Missions for bomb damage assessment, though the results aren't as good.
- Naval spotter planes performing Naval Searches that can spot enemy ships. Note that TF's are less likely to be spotted with increasing distance.
- Coast Watchers are civilians or soldiers that report on enemy naval movements. When a Coast Watcher spots an enemy TF, the TF receives an instant DL.
- Ground units spot enemy ground units in their hex and can try to recon all adjacent hexes.

## 11.2 DETECTION LEVELS (DL'S)

When the Fog of War option is on, every LCU, TF, and minefield on the map must be spotted before it is visible for you to see. If Fog of War is off, then all enemy units and minefields are always visible on the map for you to see. But the units in the game will not act as if they have total knowledge of the enemy. In *War in Spain 1936-39* each of these units has a DL between 0 and 100%. The DL indicates very recent intelligence about the enemy and the hex they are located in. The DL that has a big impact on combat results. The greater the DL the easier it is to inflict damage on the enemy in combat. Some DL's, especially those on LCU, are unknown to you. There is no way to tell the quality of the information. Especially if the DL comes from a single report, or the terrain is helpful in hiding ground units, the information should be considered unreliable.

### 11.2.1 DETECTION LEVEL PARTICULARS

The following three DL types involve the DL of a particular unit or minefield:

- **DL of Naval TF's –** When detecting TFs there are 2 DL types: The primary DL is the quality of the spotter. For pilots this is the naval

search skill. For aircraft, ships, and land-based units (Coast Watchers, CD Units, etc.,) the number will vary from 0 to 100%. The closer to 100% you are the better the spotting information is going to be. The secondary DL, ranging from 0 to 20, tells you the precision of the position information which will quickly decline with the passing of time. 20 would be the spotter aircraft being right on top of the target TF. The closer you get to 0 the older the information is. The quality of the DL will be shown in the TF mouseover. This will give you an idea of the skill of the pilot or other personnel who gave the report. The chance of spotting individual ships, and the report on the ship type depends entirely on the quality of the spotter. Naval Search planes tend to shadow the enemy, while ASW and other patrols give a report and continue their mission. TFs may also be "detected" by signal intelligence. This method will give some DL on the TF composition and a location.

**Note:** *it is almost impossible to shadow TFs with CAP cover unless you have a speedy scout plane capable of outrunning the CAP aircraft. Also, radar and other early detection systems may cause the patrol craft to be intercepted long before it reaches visual contact distance. Often the only DL a patrol plane can report on a suspected TF is the position where it came under attack.*

- **DL of LCU's –** For ground units, the DL will determine whether you see their device types and number/types of units in the hex. The revealed units will be very different from reality and vary from day to day. Accuracy of recon data is imperative for bombardments and ground assaults. Air recon is very valuable, as is the need to deny your enemy his air recon over your units. Contested hexes are often protected by LRCAP from both sides. Trying to gain air superiority for your side is very important to gain valuable air recon on enemy ground units. LCU DL's ranges

from 0% to 100% but is hidden in game. You will never know how accurate the shown force numbers really are. DLs are reset to a minimum every day and lost if already at a minimum from the day before. DLs are also reset when a unit is loaded onto a ship or is airlifted. A unit marching into an enemy occupied hex will have its Detection Level raised to a point where the enemy can automatically spot it.

- **DL of a Minefield** – A Minefield only has 2 Detection Levels, known and unknown. Minefields are detected if a ship rams a mine, (the hard way) or when minesweepers within a TF detect them, (more likely in hostile waters). Minefields can also be detected by abstract "Harbor Patrols" if they are close to a Port. The larger the port, the better the patrols.

## 11.3 RECON FLIGHTS

Whenever an aircraft flying a recon Mission reaches its target hex or an air unit bombs a target, every enemy LCU, TF, or Base (not minefield) in the hex has a possibility of having its DL compared to a "random amount" of information. The "random amount" is the amount of information collected by new Recon, Bombardment, etc. It can be from Recon, an aircraft mounted camera, etc. If the random amount is higher, the DL is increased to this new level. That way the chance for improvement of DL is lower the better the DL already is. Each enemy unit is checked separately to see if the pilot has successfully spotted the unit. The chance as well as the quality of the resulting DL depends on plane type (Recon with a camera is better), the cruise altitude, the pilot recon skill, the terrain type, and the weather in hex. An example would be, if a recon aircraft gets a 15 DL and a bomb group gets a 7 DL after a bomb run, the DL will not go up because the bomb group had a lower DL on the target. If the bomb group had cameras and scored a DL of 16 then the DL would go up to 16 for the target hex.

## 11.4 RADAR, DETECTION LEVELS AND SURFACE COMBAT

When a TF enters Surface Combat, the DL does have an influence on combat readiness. TFs may be surprised and take several minutes to effectively organize and return fire. Surprised TFs get their "T" crossed more often. During surface combat, visual or radar contact may be achieved, maintained, or lost. The size of the ships is imperative, but also the direction they are facing at the time of detection. If you have a smaller ship facing your TF and a large BB showing its broadside, chances of spotting the BB are much larger than vice versa.

At night, ships may be illuminated by muzzle flashes, star shells or just being on fire. (The most dangerous place to be is on a burning ship during a nighttime surface engagement.) Ships can only fire at targets they have at least visual or radar contact with.

## 11.5 INFORMATION GIVEN REGARDING ENEMY LCU'S, BASES, AND MINEFIELDS

During the Orders Phase, you can view information about enemy ground units, Bases, TF's, and minefields that have a DL greater than zero. The amount of information will increase as the DL increases. Both over and underestimates are possible.

Bases and their industry are always shown. This is due to information that is acquired by means other than recon, including espionage and gossip. It is simply not possible to hide a major industrial complex from enemy knowledge. Too many people know about it. Precise information for targeting, however, is not given without a DL. DL for Bases is reduced very slowly, by 1% a day. Bases and their installations simply do not move or change very quickly.

Several minefields can exist within the same hex, but minefields are represented on the map by only one minefield symbol per hex.

# 12.COMMAND, POLITICAL SYSTEMS AND DIPLOMACY

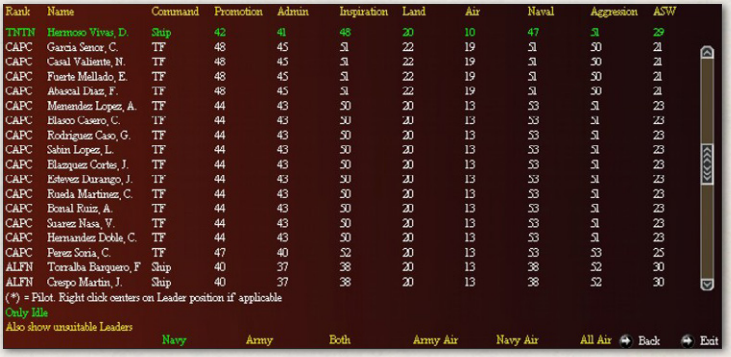
## 12.1 CHANGING LEADERS

All units (ground units, squadrons, bases, ships, etc.) are assigned a leader. Clicking the name of a leader will open the panel to select some other leader for the unit. Some leaders may be shown in red (they are in use elsewhere). In case you wish to use this leader, you can perform a right click on his name. The game will relocate to the hex of the leader and a message will tell you the unit he commands there. Some names will be shown in blue. This indicates the leader is unfit to command the current unit. Most likely reason is his rank is too low. This is commonly found with commanding HQ units.

When the leader is to be used for a ship, then some leaders may show their text in orange. This tells the player that the leader is either too high or too low in rank to be a good choice. Leaders with high rank are better used for more powerful ships, leaders with a rank too low can throw the operations on a larger ship into quite a mess. Some leaders may have an * along with their name. These are pilots that hold a rank high enough to command an air unit or even an HQ. Assigning those leaders to an air unit will add the respective pilot to the unit.

Below is an image of the leader assignment window for ships.

This screen is similar regardless of whether a leader is for a ship, Task Force, squadron, or ground unit. On the bottom of the window are several filters that allow you to list leaders of a specific branch of the military. The filter option “Only Idle” will hide all leaders that are currently assigned to command some other unit. See section 21.3 for rank translations.




The center section of the window shows information on each leader. The type of unit he is best used for and his skills. The filter options on the top of the window allow leaders to be sorted by their skills.

The player can make the decision to replace any leader with a more capable one. Each rank has a certain "Value" to reflect its command authority. This value is found in "Ranks.TXT" and not listed in the game for each rank. The values for ranks are often similar and Admiral, Captain, Commander, etc. usually have the same command authority no matter what the nation. For certain ship types, ground units and HQ's a certain value is required to be eligible for command of a given leader. Furthermore, leaders may be promoted, and pilots reaching a rank high (value 20) enough may become leaders fit for commanding their own group.

The following values are required for:

- Command Small LCU 20 ( Usually LT or LT JG )
- Command large LCU 40 ( Usually LT or MAJ )
- Command any HQ 80 ( Usually LGEN or GEN )

Even though any naval leader can command any ship, the following minimum rank value is required for commanding a ship without a penalty from inexperience.

BB: 70, Captain
CA / CL 60 , Commander
DD / DE / SS: 40 LT
Patrol / Auxiliaries: 30 LT JG.

**Note 1:** *While the values of each rank can be found in the "Ranks. txt" file players do not need to really deal with this information. The color of the text will tell if a leader can be used without question, cannot be used, or can be used but is not advised to do so.*

**Note 2:** *Assigning a new leader to a submarine sets the sub's Fatigue to a minimum of 50. This rule is in place to encourage the exchange of a sub skipper only after a patrol, as was done commonly.*

### 12.1.1 TASK FORCE LEADERS

The initial TF commander of any new TF is the ship captain of the flagship. A new leader may be assigned to take command of the TF. The TF leader will always reside on the bridge of the flagship.

### 12.1.2 SHIP WITHDRAWALS

The computer will periodically check for ships being recalled (for other Theater Operations). The game rules can be set to have unit withdrawals or not. If withdrawals are active, then the ship withdrawals cannot be prevented, and other ships may take over the schedules in case the ship due to withdrawal is sunk.

## 12.2 POLITICAL SYSTEM

*War in Spain 1936-39* defines the relationships between nations by a "Diplomatic Relations Value" (DRV). The DRV determines how closely the nations work together. Nations can be on either side, but not

necessarily at war with all nations of the other side. Much like the axis nation of Japan was allied with Germany, but not at war with the Soviets. The most important DRV thresholds are:

- Sharing HQs: 95 and above
- Sharing Ports and Airfields for military sorties: 90 and above
- Sharing supply and other items: 75 and above
- Permission to enter hexes of that nation when neutral or allied: 80 and above
- Being at war: 9 and below.

Current relations can be seen on the "Politics" sub-information screen in the nations information window. Due to the confined scope, diplomatic relations are fixed and can only be changed by certain game events.

### 12.2.2 ARMISTICE AND SURRENDER

The Overview Report for Nations Screen shows the current morale of the populace. This is handled by a "Loss of Life" value that is composed of military losses, civilian losses, and certain events, like losing a large, populated area to the enemy. The value is not "strictly" dead people, but more like how many dead people the damage to national morale is worth. Losses or other bad events will make this raise. Every month this value is lowered by 1/6. Which means the national morale does recover over time. It is important to know this value and how vulnerable nations are to losses. Some nations may not survive critical blows to national morale in a political sense. Nations that are unwilling to fight can be brought to seek peace or even offer unconditional surrender. Dictatorships are usually very resilient. The general populace has little to say in such government forms and the leaders usually do not care how many people will die for their goals. Nations ruled by democracies or nations that are "members" of the commonwealth are usually more likely to turn against their governments if things go bad. The situation in Egypt was volatile to

an extent the British took de facto control over Egypt by force. Iraq even experienced an uprising. There can be events like those triggered by a certain loss of national morale. There are 2 basic events that are always on the table and can force a nation out of the war in case it took enough punishment. Armistice/peace and unconditional surrender.

The "Loss of Life Value" scale is located at the bottom of the ORNS screen. "Loss of life value" is the total "Felt" loss affecting both troop and home front morale. There are different levels of severity based on penalties listed below:

- Lives lost on home soil count 1x.
- Lives lost protecting allied soil count 2x.
- Lives lost in hostile soil count 4x.

**Note:** *If a number of losses are taken, future losses will count twice. This can make it difficult to maintain an offense or even defense. The "Loss of life value" does recover over time. 1/6 of it is deducted on the 1st day of the month.*

"Loss tolerance" is the loss of life that can be taken without any negative effect. Each nation has an additional multiplier that can be seen as the factor that calculates the amount of "Loss of life" that needs to be taken for the various penalties.

Example:

- "Loss Tolerance" is labeled "LT".
- The nations multiplier is labeled "X".

Then the various penalties start at:

LT x 1
LT x 1 x X
LT x 4 x X
LT x 8 x X

The 1, 4, and 8 in the formulas above are hardcoded multipliers to define when penalties will take effect. The third penalty will always need 4 times the losses than the second. The fourth will always need 2 times the losses than the third, and 8 times the losses than the second.

Every nation has its own additional multiplier, labeled X in the above example.

You will notice the first penalty does not use any multiplier. This allows for nations being resistant to losses, while quickly becoming defensive due to the first penalty being quickly reached.

**Note:** *Dictatorships normally have a high tolerance due to the low amount of personal freedom and general oppression. One of the few advantages of the axis nations.*

This is how to read the thresholds on the indicator bar from the bottom of the ORNS screen:

- Small white indicator. Happens at loss >= Loss Tolerance. Effects:
  - Losses on soil other than home count 2x as much. LCU morale is down to a maximum of 75. Units with higher morale will begin to lose morale slowly until they are at 75.
- Factory icon. Happens at >= 1 x Loss tolerance x National multiplier. Effects:
  - Industry efficiency is down to 80% for some of the factories on map. Mostly Heavy and Light Industry.
  - LCU morale is down to 50 at best. Units with higher morale will begin to lose morale slowly until they are at 50. Losses on soil other than home count 2x as much.
- Peace dove. Happens at Loss >= 4 x Loss tolerance x National multiplier. Effects:
  - The nation will sue for peace. Any opponent can accept and the war between those two nations will end.

- The two nations will become neutral to each other. Additionally, the subjugated nation will cease to support all enemies of the prevailing nation. This can cut the support this nation can provide to other nations that are still at war with the prevailing nation.
- For example, having UK dictating a peace to Romania will prevent the Germans from receiving any further support (including the ability to use Romanian airfields and ports) from the Romanians. Because UK and Germany are at war.
- This can be helpful to eliminate an enemy that is not the target for complete conquest.
- Industry efficiency is down to 80% for some of the factories on map. Mostly Heavy and Light Industry.
- LCU morale is down to 25 at best. Units with higher morale will begin to lose morale slowly until they are at 25. Losses on soil other than home count 2x as much.

- Unconditional surrender. Happens at Loss >= 8 x Loss tolerance x National multiplier. Effects:
  - The nation will offer peace or even unconditional surrender. If an unconditional surrender is accepted, then the nation will become occupied by the hostile who has his LCU closest to the capital of that nation. The nation will disband all LCU in the mainland and the devices go into the pool of the victor. Soldiers will be sent home. Air groups and ships may be handed over to the victor. Some units and ships, especially in areas far away from the capital, may remain "free" and will continue to fight.

- Industry efficiency is down to 80% for some of the factories on the map. Mostly Heavy and Light Industry.
- LCU morale is down to 25 at best. Units with higher morale will begin to lose morale slowly until they are at 25. Losses on soil other than home count 2x as much. Special rules for unconditional surrender to be offered:
  - If the nation loses its capital or >= 50% of the native manpower and/or industry to the enemy, the nation will offer unconditional surrender instead of peace. If the Loss value is twice as high as required for this penalty level, then the nation will offer to surrender unconditionally while still owning it's capital and manpower.

# 13. WEATHER

*War in Spain 1936-39* has a meteorologic weather system. The equatorial and north pole positions are defined in the scenario, and the temperature and light conditions are calculated from the position on map and the time of the year.

Low pressure zones (LPZ) of varying radius, speed, movement direction and power (Wind speeds) may appear, grow, age, and finally dissolve again. These zones can bring prolonged bad weather and even violent storms with them.

## 13.1 WEATHER DETAILS

Offensive Air Missions can be aborted after all preparations have been made, but prior to take-off, due to bad weather over the air unit's base or over the intended target. The aircraft will not fly another Mission during that Air Strike phase. The weather at each base or target is determined by each air phase and is not linked to prior weather at that location. Each Base and Target hex is checked each air phase for its weather, independent of all other hexes.

The Weather levels from best to worst are clear, light cloud, Light Rain, overcast, Heavy Rain, thunderstorms and severe storms. Each weather level will come with wind speeds defined in the Beaufort Scale.

### 13.1.1 THE BEAUFORT SCALE

The Beaufort Scale is used for wind speed and effect for air missions, naval combat and land-based artillery combat in *War in Spain 1936-39*. Wind speeds at sea are assumed to be accompanied by associated wave heights.

Weather penalties are:

- Beaufort 1-3: No significant penalties.
- Beaufort 4: Small craft gunnery penalty.

- Beaufort 5: DD gunnery penalty. CA secondary gun penalty. SS gunnery penalties.
- Beaufort 6: BB secondary gun penalty. No air ops possible.
- Beaufort 7: CA gun penalty. No Small craft gunfire, no CA secondary gun fire.
- Beaufort 8: BB gun penalty. No torpedoes can be used. No DD gunfire, no BB secondary gunfire. No SS weapons can be fired.
- Beaufort 9; No additional penalties at this level.
- Beaufort 10: No CA gunfire.
- Beaufort 11+: No BB gunfire.

### 13.1.2 WEATHER TYPES

The weather forecast for the selected hex will be forecast for 8 hours and up to 11 days. The weather forecast for any hex considers existing LPZ, but since LPZ moves into a given direction with some randomness, this forecast becomes more inaccurate as it projects into the future. It may also not account for the new LPZ that may appear during these 11 days.

**Rain:** Mostly affects units and spotting below 8,000 feet. Air combat in rain suffers more than air combat above rain. Also spotting from above to below rain has lower penalties than spotting while flying in rain.

**Clouds;** Are considered to reside starting at 8,000 feet upwards. Air operations affecting the ground and sea level, like recon, naval search, or bombing, are greatly affected by clouds over target hex if the aircraft fly above 8000 feet. On the other hand, ground to air spotting is also penalized by clouds if aircraft fly above 8,000 feet. Cloud and rain penalties are cumulative, light clouds with rain are worse than just light clouds.

**Temperature:** The unit for temperature is °Celsius. Average temperatures for each hex are given. Very hot or cold climates can cause high supply consumption by ground units (additionally terrain, like

arid desert regions). Air ops cannot take place in Average temperatures of – 20°C and below. However, Air ops from a warm base can Attack a base at – 20°C and below.

**Special conditions:** Weather can interact with terrain to create special conditions. Strong winds in desert hexes can count as a "Sandstorm" imposing severe penalties on top of the normal weather effects. Also, a swamp in low temperatures may become more passable (frozen ground is better than mud) and Tundra may become less passable when temperatures go up.

**Lighting conditions:** Due to Earth's axial tilt, certain regions far up north or south may experience ambient light conditions different from normal "day and night". Arctic winter and summer will create dark days and/or bright nights, depending on region and time of the year. These conditions will not apply to this game.

# 14. PRODUCTION

(This section is optional and only provided for modders)

*War in Spain 1936-39* uses a fairly simple production system in the stock scenarios. By use of the editor, it is possible to create more complex production and economy models. The stock production model uses the following industries from left to right:

- **Manpower** – These produce the workers and soldiers that are required to expand factories.
- **Light Industry** – These commonly produce "Supplies" that are used as consumables in upkeep of troops, construction cost and other situations. Supplies are used for all kinds of ammo and land unit fuel. Beans and bullets.
- **Refinery** – Turning crude oil into various usable types of fuel. These are used for to fuel ships mainly.
- **Coal Mine** – Coal is used to run many production industry types and is also on occasion used to fuel coal fired ships.
- **Oil well** – Produces crude oil.
- **Repair shipyard** – These are dedicated to the repair of ships. Each size unit provides room for 1,000 tons of ships. While accelerating repairs of a ship does not consume more space for the given ship, it does limit the repairs of other ships as if the accelerated ship's repairs are using more shipyard space.
- **Train Depot** – General railroad infrastructure. The backbone of overland logistics, these serve the railroad engines and handle the loading and unloading of all kinds of items. Depending on logistics model chosen, they require a ground unit counterpart that does contain rolling stock. The numbers are to be 1:1. Each

rolling stock does require a Train Depot to operate. Depending on the base, these may run on electric power (free), coal, fuel or oil, or only fuel. Trains that are based in a base can move around goods in a radius of around 60 hexes. The source and destination base can be different than the base holding the trains that will be used, but the local Train Depot of each base is determining the load/unload speed of the cargo operation.

- **Resource Center** – These produce resources that are consumed by light industry to produce supply.

There also is an option to delegate the expansion of economy and aircraft factories to the computer on the ORNS. You can still issue your own construction orders on top of the stuff the computer builds.

## 14.1 PRODUCTION BUTTONS

When a location is selected, any Production ability it has will be reflected in the bottom row of buttons on the display. For example:


Madrid has several buttons along the bottom of the screen representing the production facilities it has. The Production Buttons in the above example are from left to right:

- Manpower,
- Light Industry,
- Railroad Depot,
- Resources

Clicking on one of the buttons will bring up the Location Industry screen. See section 14.1.1 below.

## 14.1.1 LOCATION INDUSTRY SCREEN


The above example is what appears when any industry button is clicked. On the left you see a list of all industry, and the number of active and disabled (under repair) industry centers. Some types of industry may be turned OFF and ON at will, others will always be active. Industry that did not produce because of some shortage of input will read FAIL in red. Some industry may consume items when repaired. For these types, the repair can be turned on or off in order to control where your supplies go.

Below that you can expand industry in the location. For some industry, it is only possible if the nation is set to have its economy on map and controllable by the player. Train depots or Repair shipyards can always be expanded, as they are not part of the economic industry, but the logistic industry. The cost of doing so is also indicated. Figures in red indicate you cannot execute the order because of some shortage. Some industry may never be built (or totally destroyed). This mostly applies to natural mineral resources and oil wells.

It is possible to build industry in locations that do not yet have any of the type but be aware that the speed at which the centers become active

depends on other industry types present. Building a shipyard in a blank hex may take many months for the first center to become usable.

Manpower is not a factory per se, but the value is quantified representing the population in that area. Manpower centers cannot be destroyed or disabled but will result in many civilian casualties when bombed. Especially at night when everybody is home.

On the right side you see a summary for the selected slot. This can be information on input/output or, in case of airframes and device factories, a list of items that are under production.

## 14.2 ADVANCED ECONOMY MODEL AND PRODUCTION SYSTEM

*War in Spain 1936-39* offers the option for a very complex and detailed economy and supply system that can be modified in the scenario data. While the 1st 14 industry types should be modified with care, all industry above the "Train Depot" industry are free to modify. The first 14 have several hardcoded attributes and should only be modified for input amounts/types or construction cost. For example, a Shipyard will not consume its input per se, but the ships under construction will. A Train Depot will consume not all, but only 1 of the input types of fuel the trains stationed there require. And it will only consume if trains get used.

There are up to 30 different kinds of industry possible. Air, land and sea can use different industrial products for ammo, and air can have a dedicated aviation fuel.

This section will handle a hypothetical industry model to show how it works in general, but almost any configuration can be done. Each industrial product can have a large number of properties, from color when it is loaded on ships to whether it is a liquid or will explode when fired at. There are some "basic" industries that serve hardcoded purposes, like the "Train Depot" serving Railroad handling, certain items for Coal and fuels used for ships and shipyards, etc. Anything

above the "Train Depot" industry is fair game for modding, industry below it should be modded with care and diligence.

Whether or not a nation can use the economic system for production depends on the scenario data. Any nation can be set up to permit production and construction of factories at various levels of permission. When the Production System is on, a player can control all elements of their industry (aircraft, armaments, shipbuilding, fuel refining, supplies, etc.). Any off map build rate defined in the scenario will add on top of this production, with one exception. In case a game does use "Device factories", torpedoes and mines will no longer be built from device build rate but are built by factories on map.

The following part of section 14 explains the rules and relationships for a more complex economy and production model. While the items of the production model can be defined rather freely, some general rules apply for certain items:

- Heavy Industry must be defined in slot 1.
- Naval Shipyard must be defined in slot 6.
- Merchant Shipyard must be defined in slot 7.
- Arms Factory must be defined in slot 9.
- AFV Factory must be defined in slot 10.
- Aircraft Factory must be defined in slot 11.
- Train Depot must be defined in slot 13.

### 14.2.1 HEAVY INDUSTRY

One of the most important types of industry. These produce a commodity called "Heavy Industry points". These reflect the general production capacity of a nation. Most industry that produce finished goods will consume them, whether it be aircraft factories, shipyards or vehicle factories. Heavy industry also produces valuable "Research points" that can be spent on improving various technologies, provided the game rules chosen do allow for this.

These Heavy Industry centers represent the large-scale industrial production facilities that are usually found in large cities. Usually these are sprawling complexes that employ thousands of workers. While they produce a lot of lifeblood to any war effort, they are prime targets for the enemy.

Heavy Industry Centers convert inputs of Coal, resources (commonly Iron Ore and other minerals) and fuel points into heavy industry points.

Heavy Industry points are required by the various factories – Aircraft, Vehicle, Engine and Armaments – as well as the various Shipyards.

### 14.2.2 LIGHT INDUSTRY

These commonly produce "Supplies" that are used as consumables in upkeep of troops, construction cost and other situations.

### 14.2.3 NAVAL SHIPYARD

Produces larger military ships.

Each one will provide 400 tons of space for building sophisticated military vessels.

The consumption per day under construction depends on the ship and the speed of construction.

### 14.2.4 MERCHANT SHIPYARD

Produces civilian ships and some smaller military ships like sub chasers, patrol boats, minesweepers and other auxiliary military vessels that are not as complex as larger, armored combat ships.

Each one will provide 400 tons of space for producing civilian or very small military patrol craft.

The consumption per day under construction depends on the ship and the speed of construction.

*Note: Naval and merchant shipyards are interchangeable. You can turn free capacity of one type into the other type. The difference is in the kind of ships they can build as well as the cost per ton of ship that is constructed.*

For a shipyard it does not matter if it builds a 6,000-ton cruiser or Cargo Ship. Just the type of material input is different for naval or civilian type constructions.

## 14.2.5 ARMAMENT FACTORY

These build all kinds of guns, mines, torpedoes and light vehicles.

Depending on game rules, these produce either pool points to create devices from, or reflect detailed factories, just like aircraft factories.

When the game rules are set to have device factories, these are housing these factories. They can be individually expanded, upgraded and production speed can be altered.

When the game rules do not permit device factories, these will produce "pool points" that are expended to create various devices for ground units located in that hex.

## 14.2.6 AFV FACTORY

Building heavy, armored combat vehicles.

Depending on game rules, these produce either pool points to create devices from, or reflect detailed factories, just like aircraft factories.

When the game rules are set to have device factories, these are housing these factories.

They can be individually expanded, upgraded and production speed can be altered.

When the game rules do not permit device factories, these will produce "AFV pool points" that are expended to create various AFV's and tanks for ground units located in that hex.

## 14.2.7 AIRCRAFT FACTORY

These are the factories that mass produce the fighters, bombers, and other specialty aircraft used in the war effort. Each day, aircraft factories that are producing aircraft that are available for production (the date is equal to or later than their availability date) will attempt to produce aircraft. The number of factories in a location represents a monthly production rate. All aircraft produced are added to their country's replacement pool.

For aircraft to be built, there must be Heavy Industry points at the location equal to the HI cost of the airframe to build each plane; when a plane is built, the appropriate number of Heavy Industry is consumed. Planes can also require an additional input, commonly aluminum, depending on the complexity of the economy model of the scenario.

The output rate of any aircraft factory can be set lower than the factory size. These are considered to be active factories. Since it is only possible to spend a percentage of the total HI points produced that day, it can be required to slow production of one aircraft in favor of another one.

Each day, each location will build a number of aircraft equal to Active Factories / 30.

Any fractions turn into a chance to build 1 aircraft. The production is also a bit random and the actual production per day can vary even with exactly 30 active factories.

### 14.2.7.1 AIRCRAFT FACTORY LIST

In the picture below, the aircraft factory is highlighted.

The Aircraft Factories (Assembly Facilities) are showing various levels each for up to 20 different aircraft types. Active factories are written in yellow, factories for future airframes are blue and factories that can upgrade to the next airframe in that upgrade path are written in purple. The blue are inactive factories (busy with prototyping and development) that will start to produce as soon as the airframe becomes available.

To modify a factory, select it by clicking on it. Doing so grants you the options to expand the factory (on the lower left), modify the production


rate from 0 to the factory maximum and change the airframe to be built. The bottom of the panel shows an important number. Any nation with full on map economy can only spend a certain percentage of the total daily Heavy Industry output on aircraft. These numbers show the current usage. That is the usage if all factories would be active (including those under repair) and the maximum that can be spent right now. If you exceed this number, by either overbuilding or a reduction in Heavy Industry output, the aircraft factories will switch to a disabled state until below the permitted maximum again. If you elect to change the factory to produce another airframe, another panel will open:

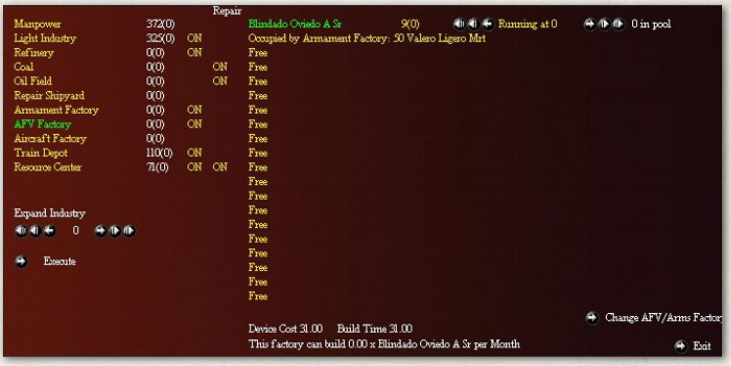
The general type can be set on the right side. The list of aircraft of this type is shown on the left. Red airframes are not yet buildable, white are available, and green is the currently selected airframe type to upgrade to. Names preceded by an * are valid upgrades of the currently selected airframe upgrade path. Switching to a valid upgrade does not reduce production speed of the factory, while any other airframe will cause some reduction of capacity and will put the factory in a disabled state until the retooling is eventually complete.

The center screen shows various data and attributes of the selected craft.

The button on the lower left allows you to execute the change of the factory.

## 14.3 FACTORY DEVICE LIST

For armament and AFV Industries a set of screens similar to the aircraft factory list is shown in case the game rules are set to use on-map device factories. In that case you will be able to build factories for tanks, trucks, various guns, torpedoes and mines.




There is a total of 20 slots for both armament and AFV factories. The display is a combined view. Factories not belonging to the selected

industry type will be listed as occupied by the other industry type. The screen allows you to expand the factories just like any other kind of industry, and you can modify the output rate from 0 active factories to maximum factory size.

**Note:** *Devices have 2 kinds of production costs: Material (HI points) and "time". Complex devices like Torpedoes may cost a lot of time, but little actual Material. This also means the actual build rate depends on the "Time" cost, not just the number of factories that are active.*

The information on material and time cost, as well as the expected output rate per month can be seen at the bottom of the panel.

The button on the right side allows you to change the device type that a factory may build. Just as with airframes, switching to the upgrade of a device does not reduce the factory output. Switching to some other device will cause retooling and thus disable all the factories and reduce the number of factories.

If the game rules do not make use of on map device factories the armament and AFV industries will work like any other industry. The produced output will be accumulated as "pool points" in the stockpiles of the Base that allow us to create the devices required to fill up a ground unit in hex. Production of torpedoes and mines will work by device build rate in this case.

**Note:** *In the game mode without on map device factories, it is possible to "buy" mines and torpedoes from the armament pool points that are located in the Capital Base. This is because this game mode would otherwise not allow you to expand the production of these devices. Mines will cost 20 and torpedoes 100 armament points per piece.*

There will be a refund of 90% in the form of HIP. This is to reflect these small devices costing a lot more time to build, but little actual material. The "refund" makes sure you need a lot of time to convert HIP into enough Armament points to produce torpedoes.

The "issue" with production cost in Heavy Industry Points is that they consume masses of resources to be produced. But for small yet complex products the material input is fairly low, but the production time is high. The goal of the "refund" is to slow down production of mines and torpedoes while not making them cost several thousand tons of resources each.

**Example:** you have 2000 heavy industry points (HIP). You spend 10 days to produce 2000 Armament points from those HIP.

Then you "purchase" 20 torpedoes from those 2000 armament points. You receive 20 torpedoes and 1800 HIP.

Now you spend 9 days producing 1800 Armament points from your 1800 HIP. Rinse and repeat to build more torpedoes.

As you can see, the production of torpedoes takes quite some time to turn HIP into armament points. But your supply of HIP will decrease slowly due to the 90% refund. This makes sure you do not need massive resources to produce tiny yet complex weapons. You mainly need "time" to convert HIP into armament points and then torpedoes and mines.

## 14.4 SHIPYARD INDUSTRY SCREEN

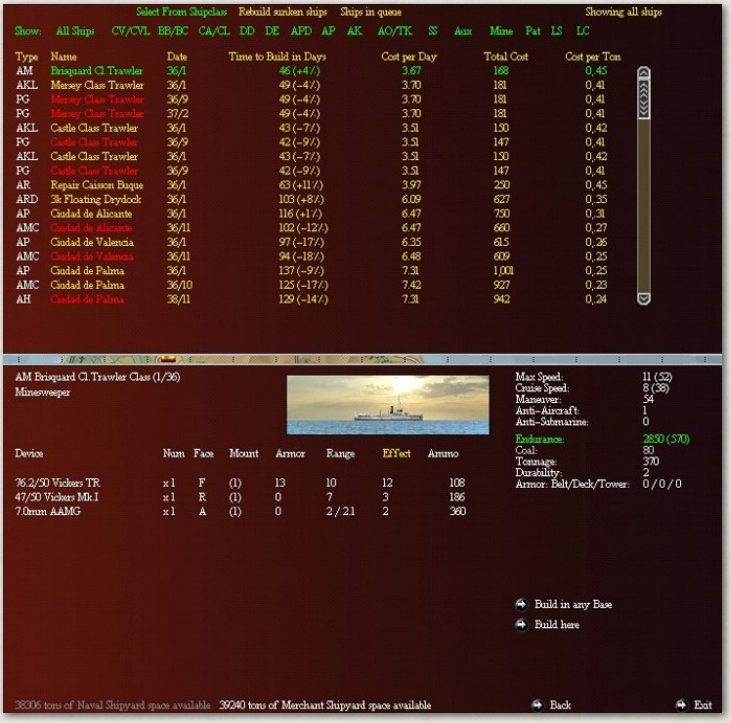
When a naval or merchant shipyard industry is selected, the following screen will be shown:


On the right-hand side, you will see a list of ships under construction at this base. Ships in yellow are either arriving from off map, or this nation does not have on-map economy permitted. Selecting a "white" ship by mouse click will show some arrow buttons that allow you to adjust build speed. The speedup will cause an exponentially higher cost in heavy industry points but allows you to have certain ships available sooner.

## 14.4.1 LAYDOWN NEW SHIP SCREEN

The "Laydown new ship" button opens the shipyard screen (see below).

The upper screen contains several ship lists: Ship classes, a list of sunken ships that may be rebuilt and a list of queued stock ships that have not yet been laid down. Ship classes shown in red are not yet buildable. Ships can be built once the expected date of completion is equal to or later than the ship class availability date. Take note that, under certain research game rules, your naval technology "date" does not necessarily match the game date and time. It may very well be your naval tech level is 36/12 when the current game date is 37/05.



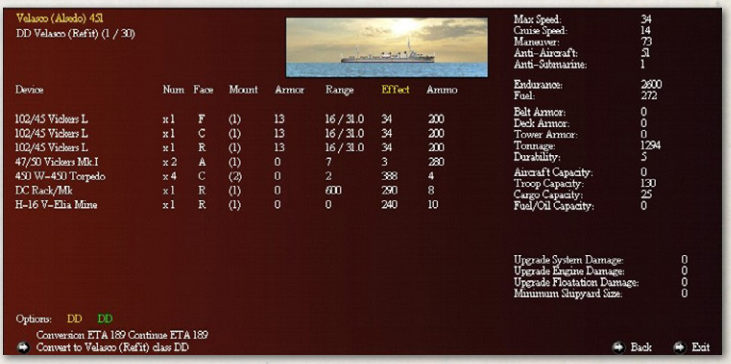

**Note:** *The "Time to build in Days" can vary for each ship class. Some ships may be "cheaper" than normal or more expensive. This data can change over time. In order to build efficiently, you will often need to build a ship class that is not your favorite. You cannot always build "the best" ship of each type. The reality was that a large number of different ships, for each type, emerged due to the circumstances of items and materials available. Only highly industrialized nations built large numbers of similar craft. The normal case was to build a handful of a class of ships and then build something else of a similar design when circumstances changed.*

The lower screen provides data on the selected ship class. On the bottom you see the available space of the respective shipyard in white, and the other one in gray. Large military ships will use the naval shipyards, while civilian or small patrol craft will use the merchant shipyards.

If the game rules do permit ship construction, ships from all 3 lists are available. If ship building is not allowed, you will notice the text in the lower right corner only tells you that you must select a ship from Queue. If the construction is OK, the button “Build here” and “Build in any Base” will be found in that corner instead. Building in any base will try to find the smallest shipyard the ship fits into, so larger yards remain available for large ships to construct.

## 14.4.2 CONVERT SHIP DURING CONSTRUCTION

The “Convert Ship” button opens this screen:




On the top and left you see data on the selected ship type. On the bottom you can select one of the valid conversions for this ship class (depending on game date and naval technology level) You can also see the time to finish the ship. If you convert early in construction, there will be no delay. Converting a ship close to completion can cause an additional delay in the construction of that ship.

# 14.5 GENERAL RESEARCH POINTS (GRP)

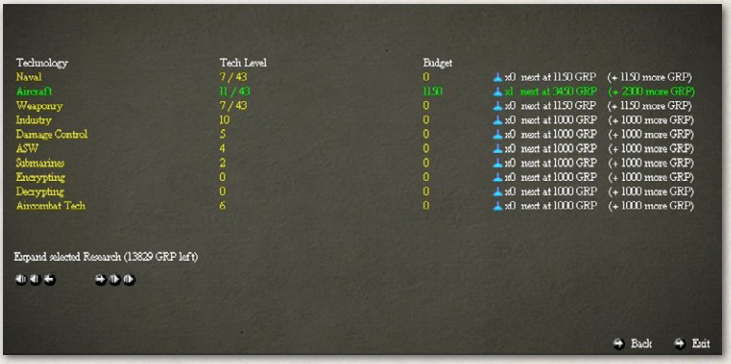
If Research and Development are allowed, Heavy Industry will produce the points used for that research. General Research Points (GRP) are a byproduct of all industries that produce Heavy Industry Points (HIP). Production of GRP is equal to 10% of this output.

## 14.5.1 RESEARCH PROJECTS

Research is done by purchasing "Projects" of a given type of technology. Projects that can advance the technology of units, (Nation specific technologies for Naval / Air / Weaponry) have a cost that can be different for each nation. The remaining types of technologies do cost the same for all nations.

Each Project has a 75% chance to improve its tech level on the 1st day of every month. You can run more than 1 project per technology per month, but the cost for the 2nd project is twice the basic cost. The cost for the 3rd project is three times the basic cost and so on.

The image below shows that 1 project has been bought for "aircraft technology", and the text behind it states 2,300 GRP are required to pass the threshold for a 2nd project in the same month.



The player can assign or withdraw GRP by using the 6 arrow buttons below "Expand selected research". It also shows the number of unallocated GRP. The 6 buttons will move the cost for 1, 5 or 10 basic projects out of or into a technology. These GRP can be freely moved in or out of any technology, the allocation takes effect on the 1st of every month. Until then all desired changes can be made with no penalty.

## 14.5.2 TECHNOLOGY TYPES

Technologies are divided into 2 general groups. See sections 14.5.2.1 and 14.5.2.2 below.

## 14.5.2.1 NATION SPECIFIC TECHNOLOGIES

There are 3 technologies under this group, and they do reflect the actual research effort done during the war, and thus the cost for these can be different for every nation. For example, The German airframe list reflects a high level of research investment, and that means progress is more costly for the Germans. The Italian aircraft list, on the other side, does not reflect such a high level of investment (and improvement in performance) and thus the Italians can research nation specific technologies for less spending. All 3 nation specific technologies do progress in full "months". The 3 nation specific technologies are as follows:

- **Naval** – The current technology level for ships. The date shown is the "state" of your technology. You can be ahead or behind the current game date. This affects at what time your ships can receive upgrades. While the ship class data may tell you that a ship can upgrade in May 1942, it is possible that you can do the upgrade sooner or later depending on the "date" of your technological progress.
- **Weaponry** – Same mechanics as for naval, but this one is for devices like guns, tanks, squads, etc. It will dictate when certain types of Tanks and other devices go into production.

- **Aircraft** – A special tech field. Unlike others, it is not a general level. Each airframe will be researched independently, and without player control. Every month, the availability of aircraft shifts 1 month into the future. That means without research they will never become available. Each research project has a 75% chance to move an airframes date of availability backwards by 1 month. By that the player, much like real life commanders, will never exactly know when new airframes will become available. Players will have to adapt their style of play to what is available. Every game will be different.

#### 14.5.2.2 OTHER TECHNOLOGIES

The other Techs are not nation specific and will cost the same for all nations. The difference between the nations being how many GRP's they can spend. The other techs are:

- **Industry** – The ability to produce more output from same input. It is measured by percentage and ranges from – 100 (no production whatsoever) to over 0 (plain 100%) upwards with an open end. It also improves the speed to build ships (total cost remains approximately the same) for each 10 points above 0.

**Note:** *This increase in output also increases the GRP that are produced by industries.*

- **Damage Control** – The ability to fix items. Improves ship repairs, has Vehicles be disabled more often than destroyed in combat and speeds up repair of non-organic disabled ground unit devices. Damaged aircraft are less often written off.
- **ASW** – Percent bonus that modifies the escort's ability to track and hit submarines during ASW combat.
- **Submarines** – Percent bonus that modifies the submarine's chance to escape detection and damage during ASW combat.

- **Encrypting** – The ability to encode messages and transmissions or otherwise deny the opponent to benefit from signals intelligence.
- **Decrypting** – The ability to gain intel information and Detection Level on enemy units.
- **Aircombat Tech** – Also known as A2A tactics. These will modify how pilots behave in A2A combat. Initially the aircraft agility will have more impact than speed differences. The more this tech advances, the more benefit pilots will receive. This benefit is boosted when the aircraft in question is faster than the opponent aircraft in dogfights. It is the only technology that can take effect on behalf of 3 more sources: Pilot and leader skills. For each air skill point above 70, a HQ or group leader will grant 3 points of this tech for all pilots under his command. Pilots themselves gain 3 points for every A2A skill point above 70. The highest of those 4 sources takes effect for a pilot.

# 14.6 PLAYER ALTERATION TO PRODUCTION CAPABILITIES

## 14.6.1 FACTORY ALTERATIONS

Players may convert factories in various ways as detailed below.

### 14.6.1.1 AIRCRAFT FACTORY ALTERATIONS

Players may convert an aircraft factory to create a different kind of aircraft. This change can cause a reduction in the number of aircraft factories, and damage to the remaining aircraft factories. The only exception is an upgrade to the defined upgrade of the current aircraft.

The reduction in output capacity depends on the differences in cost of the 2 aircraft types involved.

### 14.6.1.2 FACTORY EXPANSIONS

Expanding a Factory – Any aircraft, vehicle, armament, or heavy industry factory and any naval, merchant, or repair shipyard may be expanded in size by expending heavy industry, manpower, and other materials to do so. The number of new factories (which will start damaged) can be selected, and the cost is shown.

Certain types of Industry, mostly sources of raw materials, cannot be expanded.

All factory expansion depends on the number of industries that are present. A lot of active aircraft factories make it easier to expand aircraft production.

Building an entirely new aircraft factory in a Base that has none at all, may have each point of production ability take a long time to become "repaired". Other industry like Manpower do help, but expanding industry is always easier if industry of that type is already active in that Base.

Resource centers and mines do benefit from engineers being present when being under repair.

## 14.7 INDUSTRY MANAGEMENT SCREEN

To open the Industry Management Screen, press the F3 hot key, or click on the button on the top bar. This screen is similar to the one for a

location's industry, but this screen has all the industry of a nation in its list. It can show industry data on specific nations or a summary of industry on your side (Nationalist or Republican).

The first button on the left is to pick a new nation on your side.

Then on the left side is a list of all industry types, along with the number of total, disabled, and intentionally shut down industry centers.

The headlines will sort the list by this topic when clicked.

On the right side the industry of the selected type is listed. in case of aircraft factories (or arms and AFV factories) a list of the individual factories producing them is listed. You can select an entry on the right-side list to expand or otherwise modify it.

Below the list of industries are controls for expanding industry and information on the consumption of this industry as well as the stockpile of the base. The input/output data for the entire slot includes GNP and national morale. This only shows data for industry centers, not independent factories like airframe or device factories where the consumption depends on the item built by the factory slot. Aircraft and device factories also show controls to adjust the actual output rate.

This is the way that you can expand industry. The number between the buttons indicate the size of the planned expansion. By default, Expand is set to 0. The six buttons on either side of the number set the Expand level:

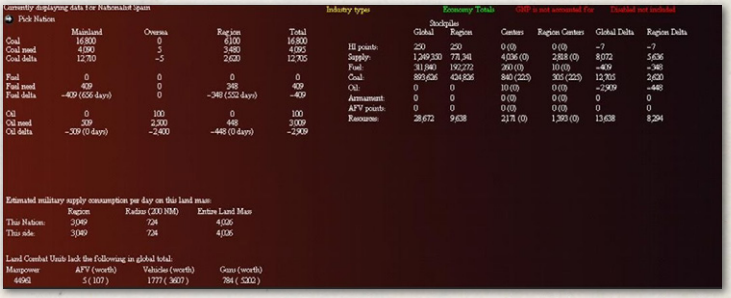
- The furthest left button lowers expansion by 100.
- The second button from the left decreases the number by 10.
- The third button from the left decreases the number by 1.
- The first button to the right increases the number by 1.
- The second button to the right increases the number by 10.
- The furthest right button increases the number by 100.

Changing Aircraft and Device factories is possible from the global industry screen, but creating new factories in unused slots only works from the location industry screen. To go there, just right click the device factory in question, on the global industry screen and proceed.

The center bottom button allows you to see the global lists, or only the region. A Region is an area of the same country code and on the same land mass. Usually, this is the only way to see the data for confined areas like Libya, Sicily or Sardinia in case of Italy. The region in question is defined by the currently selected hex. Selecting any hex on Sicily will show regional data of this island.

On the lower left you find the option to either draft men from the civilian sector (the workers in the industry) or release them back to their civilian jobs.

The gross national product (GNP) tells you the productivity of your factories. Drafting men will reduce it, and with it the input and output amounts of the industry centers. If you squander the lives of your troops, you will require to draft more men to fill up your units. Since this does reduce your nations industrial output, it is normally a downward spiral. Germany and Japan did suffer from this a lot in the last years of the war. The top right text "Economy totals" brings up another screen when clicked:




This screen shows the production amounts for both the total and regional industry. On the left side is a brief summary of the most important items, like Coal and fuel and how long the industry can produce with the local stockpiles and sources.

On the right side there is a total number of industry projects as well as stockpiles. It also shows the "Deltas", which means whether you

consume more than you produce (negative Delta) or generate a surplus. Regions with a negative Delta will need to import this amount per day to break even with consumption. If your global Deltas show a negative, you should seek to acquire (to put it in gentle words) industry that produces this item. The data can be adjusted to include the GNP and/or any disabled industry. This can be helpful if you want to know what you are going to produce and consume once these centers start to work.

The bottom information handles the supply consumption that you can expect your armed forces to consume per day. It is also very useful to plan the distribution and shipment of supplies.

The second piece of information shown is how many replacements your forces currently need. For hardware the number in parenthesis tells what's in production.

Execute – The Execute button will execute the expansion. The industry will have the new points added to the industry as disabled points. Below the Execute button are several lines that will show how much the expansion will cost. The cost as well as the items used will vary between industry types.

## 14.8 INDUSTRIAL CENTERS/FACTORIES/SHIPYARDS

There are many different resource types to keep in mind when the production system is turned on. The Nationalist players will be concerned with resource and oil production, transport of these products to industry, and industrial production of the weapons of war. The player may turn most industry types OFF or ON. This option is next to the industry size numbers in global industry overview. If OFF, this industry will not function during the turn (it will not use anything and will not make anything). Once halted, you will have the option to Restart (this will turn production back ON). This helps to save resources if there is a need. Note that certain industries are always online. For example, you

cannot stop manpower centers from consuming foodstuff. With other Industry that contain individual factories and projects, like aircraft factories and shipyards, you need to shut down the individual factory or stop the construction of ships individually.

### 14.8.1 COAL, OIL, FUEL, SUPPLIES AND MANPOWER

There are 3 types of raw materials that the system uses to fuel construction:

- Coal
- Oil
- Manpower

#### 14.8.1.1 COAL AND COAL MINES

Coal is one of the primary energy sources that keeps industry running. You will find many industries require Coal to run. Some ships may also be coal fired and consume it for fuel.

Coal is produced by Coal Mines. These are located in base hexes, and each day produce 1 ton of Coal per industry center and that Coal goes into storage at that location.

#### 14.8.1.2 OIL AND OIL FIELDS

Oil represents the raw material that is refined into many different types of fuel – gasoline for cars, aviation gas for airplanes, and the like.

Oil is produced at Oil Fields. Each day one Oil Field point produces 1 ton of Oil that goes into storage at that location. Oil Fields do not generate fuel.

Oil is a required input for refineries.

Take note that it is possible to build a special kind of refinery, the Synthetic Oil Refinery, which can produce Oil from Coal. High amounts of energy are required to merge the carbon with hydrogen to produce crude oil of low quality. It is a very inefficient way to provide Oil, but the knowledge was available to almost any nation.

#### 14.8.1.3 MANPOWER AND MANPOWER CENTERS

Manpower it the raw material that represents a portion of your nationality's population that can be drafted into their armed forces.

Manpower points are generated by manpower centers. Manpower points are required for expanding industry as well as your armed forces.

Manpower Centers consume large amounts of Agricultural points, and failure to "run" this industry creates a score loss as well as a loss of national morale. It is possible to literally starve a nation into surrender if it's sources for Food are cut. One Manpower Center generates 0.1 manpower points per day.

## 14.9 FUEL AND REFINERIES

Fuel represents the types of refined fuel oils used for fueling ships. As well as those products refined from oil that are required to operate industrial centers.

Fuel points are generated by refinery centers. Fuel Points are required inputs for heavy industry centers. They are also required to fuel most ships, ground units and aircraft. Aircraft and ships and LCU use different kinds of fuel each.

## 14.10 SUPPLY PRODUCTION

Supplies represent all of the different materials required to maintain fighting units in the field including food and various construction materials.

Supply points are generated by light industry and are required to supply ground units.

## 14.11 INDUSTRY

Once raw materials are gathered, they must be processed into useful items. Resources, Fuel, and Manpower are combined to build the weapons and supplies of war within each country's industrial centers. These centers are divided into many different categories, as follows:

- **Light Industry** – These represent smaller facilities that create military supplies to keep the war machine in operation. Light Industry factories are found in both large and small cities and towns. Light industry centers convert input of Coal and resource points into supply points.
- **Refinery Centers** – Refinery centers convert (crude) oil points produced by oil centers into refined products. There are 3 types of fuel. Normal Fuel that is used by industry and vehicles, high grade fuels for aviation ( aircraft fuels) and heavy Oil used by ships for fuel. One refinery center requires ten oil points and generates 10 fuel points. Refineries can come in various types that produce one or several types of fuel each.
- **Repair Shipyards** – Each day, repair points are calculated for each of the shipyards at each location. These repair points are not accumulated but are available for each day only. These repair points are used to speed up the repair of ships assigned to the repair shipyard. Certain upgrades or refits including the conversion of ships that can occur during the game (improvements in AA weapons, etc.) can require the aid of a shipyard. The Repair Shipyard Size, for each location, must be equal to, or greater than, the minimum Shipyard Size required for the particular upgrade or conversion desired. In order to put ships into a shipyard for repair the ship must fit into the yard. 1 point of Repair Shipyard does equal 1000 tons of space.

**Note:** *Ships can be assigned a higher priority for repair. This makes them consume more "space" than they have tonnage. Additional*

*workers will be assigned to the ship draining the available workers for other ships under repair in that shipyard. This is inefficient but, if no other ships are worked on, it can accelerate the repair with no negative side effects.*

## 14.12 CAPTURING INDUSTRY

When combat occurs in a base hex, the firepower spent on both sides does determine any possible damage to the Industry in that hex. Civilians will also die as collateral damage. Special factories like airframe or device factories will be annihilated, as will be ships under construction.

**Note:** *Civilian casualties go to the damage of the nation that owns the hex. Liberating cities where the populace is taken "hostage" can be difficult. Sometimes it is even wise to abandon a large city rather than seeing extensive combat in that hex with potentially thousands of civilian losses doing damage to your own side.*

Some Bases are set in the editor to produce less under capture. This is because resources of all types are being moved to the victors home bases.

## 14.13 GROUND UNITS

When production is turned on and the owning nation is defined to have on-map economy, all ground units arriving as reinforcements must be flushed out with new elements from the production system. If the production system cannot produce enough weapons to fill out the entire TOE of a new ground unit, then the unit will be placed on the map at what is available of its TOE. If there is not enough manpower in the pool, then the GNP is automatically lowered by drafting men into the armed forces.

# 15. SHIP UPGRADES, CONVERSIONS AND REPAIRS

## 15.1 SHIP UPGRADES AND CONVERSIONS

Upgrades and Conversions are similar in many ways but differ in one important respect. Conversion changes the type of a ship, for example a cargo ship into an auxiliary ship of some kind. Conversions also always need to be done at a Base with a Repair Shipyard large enough to accommodate the ship. Ships may Upgrade or Convert by clicking on the highlight Upgrade or Convert field on the Ship Information Screen. Clicking on either field will bring up a screen that shows the characteristics of the ship being Upgraded or Converted to. There is an additional conversion option available, an "AK Carry Troops (AK-t)" option. This converts some of a ships bulk cargo space to be more habitable for troops.

### 15.1.1 UPGRADES

Upgrades or refits generally improve the equipment on a ship but retain its purpose. Examples for refit are installation of more/better AA guns or the installation of radar devices. Some of these refits require a Repair Shipyard for the ship and will be forced to refit under "Repair Shipyard Mode" for the duration of the refit. Some minor damage may also be caused to the ship as the systems are modified.

### 15.1.2 CONVERSIONS

Conversions usually change the purpose of a ship. For example, converting a standard xAK into an AKE or AE munitions ship. Conversions always need to be done at a Base with a Repair Shipyard

large enough to accommodate the ship and the ship will be forced to convert under "Repair Shipyard Mode" for the duration of the work.

## 15.2 DAMAGE AND REPAIRS

Once a ship is in a suitable port, a player has several options available as to how the repairs are conducted. Repairs can be done at anchor, by the ship crew; at anchor, by the ship crew assisted by Repair Tenders; at dockside, by the crew, assisted by port facilities, and any available Tenders or perhaps at a Repair Shipyard.

Port assistance is flat 100 Repair points per port size. This is doubled for pierside and repair ship modes. Ports also assist in that they can repair major damage if it is not higher than port size.

**Note:** *The AI uses the same rules as any human player. That means you will often find the AI transfer heavily damaged ships to better repair sites.*

### 15.2.1 DAMAGE

Ships can receive damage to systems and topside structure (System Damage), the hull (Floatation Damage), propulsion/power plants (Engine Damage) and various subsystems. There are two degrees of damage, Normal Damage and Major Damage. Normal Damage may be repaired almost anywhere (with large differences in repair time, of course), but Major Damage can only be repaired at a suitably sized Port or Repair Shipyard, or for small craft or low levels of major damage, at a port or alongside a repair ship or tender. Major Floatation Damage can be repaired by an ARD if the ship has a lower tonnage than the ARD, but an ARD cannot repair any other type of damage. Repair ships (AR) can repair major damage up to a certain point. See section 15.2.1.3.

### 15.2.1.1 DAMAGE REPAIR SELECTION

The damage type with the highest urgency will usually be repaired first. The ship will be patched up and/or hull breaches isolated. Minor engine damage will be fixed up. Then systems will be repaired to provide enough working equipment to be able to safely (more or less) move the ship elsewhere.

Weapons and subsystem damage count toward system damage and urgency depends on system importance.

**Note:** *When at sea uncontained hull breaches (Floatation damage higher than major floatation damage) pose serious threat to have flooding increase. Crew experience and system damage are major factors in preventing this kind of deterioration. Both also determine the chance to contain a hull breach and pump out some of the flooding.*

### 15.2.1.2. WEAPONS DAMAGE

Notwithstanding the amount of System Damage, repairs to guns (or anything else specifically listed on the Ship's Information screen) are also limited. A Gun Repair value is calculated for each Repair Type and only guns (or other weapon systems) 'costing' up to this value can be repaired. It is possible for a ship to have its hull, engines and systems substantially repaired without having its weapon systems repaired. A DD, for example, might get hull, engine, and electronics repairs at a moderate sized port, but must go to a better repair facility for repairs to torpedo tubes or its primary gun batteries.

Smaller guns may be fixed in pierside or readiness mode, but most larger devices will require a repair shipyard, or a tender made specifically for this ship type.

### 15.2.1.3 REPAIR OF MAJOR DAMAGE.

For most ships, large amounts of major damage can only be repaired in a shipyard or by a repair ship or an ARD (in certain circumstances). For small craft, major damage can also be repaired at a port or alongside a tender. For Barges, PT Boats, Motor Gun Boats, Motor Launches, and Harbor Defense Motor Launches, major damage can be repaired by a port size 1 (or larger) or by a tender made for supporting the ship type in question.

Repair ships (AR) contribute based on their size. 10% of their tonnage counts for repair points. They also increase the threshold of major damage that can be fixed. 1% for every 1,000 tons of repair ship size. E.g. A port size 5 can fix major damage of 5% or lower. If an idle repair ship with 6,000 tons is present, this port will fix major damage of 11% and lower.

*Note: The amount of support that can be provided by port, naval support and repair ships is limited. It is not possible to use 10 AR type ships to make overly quick repairs. The maximum repair points that can be applied max out at some point based on ship size, ship type and repair mode.*

## 15.2.2. GAMEPLAY

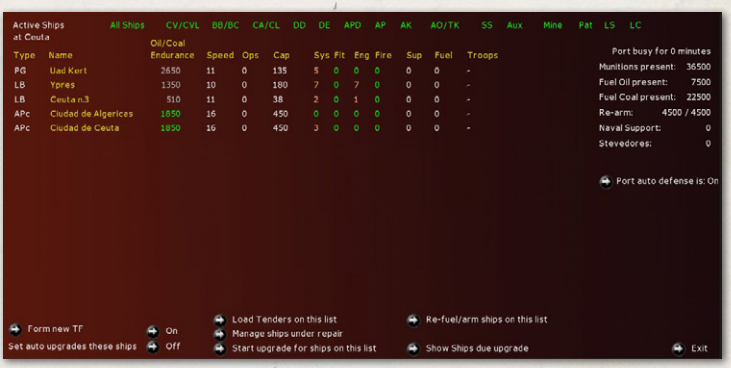
When a ship is in port, the lower right-hand corner of the ship display screen shows the current state of repair for that ship. If the ship is in readiness mode, this area will not show any text on repairs.

Once a ship is damaged and directed to an appropriate Repair Facility, the player has several options as to how to schedule repairs.

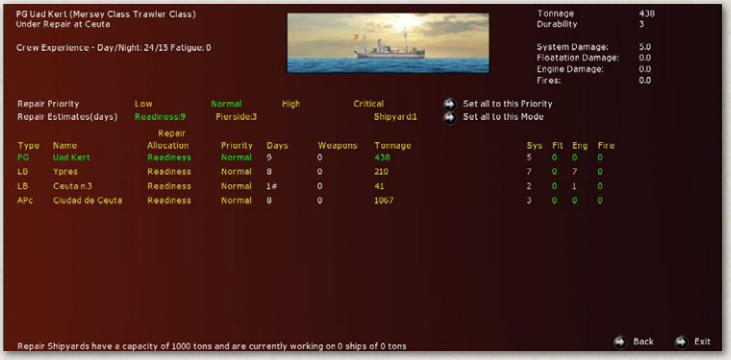
Assignment to repair facilities is done from the Ship Information Display screen (doing a right mouse button click on the region showing the ship damage) or from the “Manage ships under repair” button on the List of Ships in Port screen.

## 15.2.2.1 MODIFY REPAIR FOR DAMAGED SHIPS IN PORT

Clicking on the "Manage ships under repair" button at the bottom of the Ships in Port screen will bring up the Repair screen, which shows all ships in port with damage. See below:




This screen shows all damaged ships in the hex and the estimate (in days) for the repairs to be done and the Repair Type, which is either Readiness, Pierside, repair ship or Shipyard. See below:




The default mode of repair will be Readiness Repair, which is the ship's own crew trying to fix all the damage. If port facilities or idle repair ships are available, they will supply some assistance. In this mode,

the ship is constantly ready for sea, so repair is less efficient. Pierside and Repair ship modes allocate more of the port aid to those ships, at the expense of neglecting other ships. Pierside and Repair Ship modes also come with a small delay in re-activating a ship when going back to readiness mode before all damage is fixed.

For Repair Yard mode, the ship must be Stood Down and taken out of service for repair. Restoring a ship from Stood Down state before repairs are complete incurs a delay of 1-3 days for the ship systems to all come back online and the ship being brought back into the water.

The top of the screen shows the ship with its current focus. By default, it's a ship chosen at random. To change the ship in focus, click on the name of the ship from the list, change the priority, and/or change the repair mode. At the middle of the screen, you will be given choices about what to do with that ship and estimated repair times for the different modes of repair. These are only estimates and the real repair times will vary based on random factors as well as the workload in the port repairing other ships. The player can select a priority for each ship. Higher priority will speed up repairs, but slow work on other ships under repair in port. High and Critical priorities also increase the amount of Repair shipyard capacity occupied by 2x and 4x respectively.

"Repair Estimates" highlight the currently selected mode in green text, and show the time required to fix the damage under each mode.

The left mouse button click changes the mode for the selected ship. A right mouse button click changes the mode for all ships sharing the same current mode as the selected ship.

**Example:** You disband a large TF of ships that have minor wear and tear damage. You select one of the ships currently in "Readiness" mode. A right mouse click on "Pierside" will now set all ships currently using "Readiness" mode to be set on "Pierside" mode. This is much faster than setting each ship to "Pierside" mode one by one.

Pierside mode will distribute the Port aid among all ships using Pierside or Repair Ship mode, so setting a few to readiness can speed up repairs to other ships. Same for repair ship mode.

**Note:** *Assigning ships to Repair Ship mode takes away the assistance to ships fixing damage under readiness and pierside modes. If no ships are using Repair ship mode, then all Repair ships provide their assistance across the board for all ships under repair.*

If a Repair Ship is not available to assist, the option will work like Pierside mode. It is possible to assign more ships to a Repair shipyard than it has capacity. The ships will be queued for repair, but it is not possible to add a ship that is larger than the repair shipyard.

On the bottom of the screen, the total and currently used Repair Shipyard capacity is shown. It is possible to over assign ships to any of the port's facilities. If the shipyard is overloaded, a message in red will appear below the list of ships indicating the current tonnage assignments. If any port facility is overloaded, the repair facilities will try to get to ships as best they can. As ships are repaired, the ones that have been delayed will move up in the repair queue. This enables a player to assign a large number of ships to repair in a port and leave it up to the port to fix them as soon as they can get to them. Shipyards and Repair Ship repair will only be available if the port has those repair abilities in port. Repair ships cannot repair if they are in a task force.

The repair selections picked are set instantly. During the same turn, a player can go back and change their choices for repair for that ship. However, if a ship is repairing for at least 1 day by one of the modes that require stand down, the ship will have a delay until it becomes ready again if set to readiness repair mode.

## 15.2.3 REPAIR MODES

Ships can be repaired using one of four different repair modes. Of the 4 types of repairs, 3 require that the ship be "stood down" for repairs. When a ship is stood down, it is unavailable for service and if it is put back into service before it is repaired, it will usually incur a delay. Readiness Repair is the only type of repair that allows a ship to be included in a task force at any time without delay.

The repair modes are:

- Readiness
- Pierside
- Repair Ship
- Shipyard

Ships under repair will consume repair capacity. If several ships are on the same mode, the Port aid and Repair Ship aid will be split among them. Repairs are calculated in repair points. The cost it takes to repair 1 damage point depends on the size and type of ship.

**Note:** *Due to the details of the game the damage points include fractions. Most listings of ships show damage as a simplified full number. A damage value of 5.3 % will appear as a damage of 6 points in the Task Force ship list and any other listings of ships.*

### 15.2.3.1 SHIPYARD REPAIR

Damaged ships are evaluated for repair, based on their "tonnage", as well as the extent and "type" of damage. Repair Yards are able to repair all types of damage: System, Floatation, and Engineering damage, as well as Major damage. Major Damage requires special treatment for repair modes other than Repair Yard repairs. Ships being repaired in a Repair Yard get no other benefit; the yard does it all, and neither Repair Ships nor Naval Support has any effect.

- **Yard Capacity** – The Repair Yard must have an available capacity equal to, or greater than, the "tonnage" of the damaged vessel. Repair Yard capacity is the Shipyard size, times 1000. A size 50 Repair Yard has the capacity to accommodate a vessel of 50,000 tons. A repair yard can have more tonnage assigned to it than its rating (but cannot have a single ship larger than its tonnage limit). The ships that exceed the capacity of the yard will be put in a queue and repaired as soon as the yard can manage to get them in. This allows players to "load up" a yard and leave it to sort out the repairs.
- **Repair Capacity** – The size of the Port the Repair Yard is located at influences the speed of repair. Otherwise, all Repair Yards work the same.
- **Priority** – Ships may be set to "High Priority" or "Critical" for repairs. This will decrease the time to perform the repairs, but with a capacity utilization cost to the Repair Yard. This simulates maximum utilization of available "yard workers" to repair the High-Priority vessel.

#### 15.2.3.2. REPAIR SHIP REPAIR

Several different types of Repair Ships are available to assist in repair of different types of vessels. The extent of damage that can be repaired by Repair Ships depends on the "kind" of Repair Ship; for example, an ARD may only repair floatation damage but may repair Major floatation damage. ARs and other types may NOT repair severe Major damage for larger ships. Small amounts of major damage, up to 5 points, may be fixed, depending on the ability (size) of the AR / ARD. They can repair major damage to small craft, like PTs and barges. Ships may use the assistance of Repair Ships in two ways: at anchor, or at dockside. In either mode, the Repair Ships available to repair different warship types are as follows:

| | |
|---|---|
| AR | May assist repair of any ship type. Can repair Major damage up to 5 points. |
| ARD | May assist repair of any ship type, but only floatation damage; may repair Major floatation damage. |
| AS | May assist repair of submarines only. Cannot repair Major damage |
| AD | May assist repair of DDs or any Small Escort types only. Can repair Major damage only for small craft. |
| AGP | May assist repair of PT and other Small Craft only. Can repair Major damage for small craft |
| AG | May assist repair of Small Escort and Small Craft only. Can repair Major damage only for small craft. |
| Small Escort: | DE, APD, DMS, DM, AVD, E, TB, KV, PF, PB, PC, SC, AM, ML |
| Small Craft: | PB, PC, SC, AM, ML, HDML, MGB, YP, YMS, AMc |

#### 15.2.3.2.1 REPAIR SHIP CAPACITY

Repair Ships make repairs based on their capability (shown above). An undamaged Repair Ship that does not perform any repairs on this day will generate 10% of its tonnage in repair points in that turn. The size of the Repair ship also helps in repairing major damage if it is low enough. 1% per 1000 tons of size can be repaired on top of the 1% per Port size level ability to fix damage.

##### 15.2.3.2.1.1 ARD REPAIR POINTS

ARDs are very efficient at floatation repair. They eliminate the limit of major floatation damage that can be repaired outside of a Repair Shipyard. Provided the ship fits in the ARD. Only ships smaller than the ARD's capacity can be fixed by it.

##### 15.2.3.2.1.2 PRIORITY REPAIR

Repair Ships may also repair on a High-Priority basis. In this case, a Repair Ship spends a higher proportion of its repair points on one or more ships, at the expense of other ships repair point proportion.

### 15.2.3.3 PIERSIDE REPAIR

Pierside Repair uses the general facilities of a Port to repair ships. If this option is chosen, there will be no assistance from a Shipyard, even if one is available. The ship's own crew and any available Naval Support will assist in the repairs. Pierside Repair has two names: Readiness and Pierside. Readiness Repair is a type of Pierside Repair in which the ship is trying to remain ready for sea and therefore incurs a consequent time penalty. A Pierside Repair implies the ship is powered down and is not available for operations in the immediate future. Ships in pierside mode will be better targets and react slower and weaker to enemy attacks, like air raids. In addition, any available Repair Ships or Tenders can contribute to repairs, so long as they are available after any other ships assigned to Repair Ship repair mode have been handled.

Readiness and Pierside repairs are calculated substantially the same way, except for certain factors in the calculations. A ship that is being repaired stood down will get better calculation results and repair damage more quickly because it does not have to be kept constantly ready-for-action.

Also, major damage cannot be fixed in readiness mode, even if the amount of damage would permit fixing it at the port.

### 15.2.3.4 PORT REPAIR ASSIST

Ports assist in repairs by generating repair points based on their size, adjusted for Port damage. 100 points are granted per port size. For example, an undamaged level 6 port generates (contributes) 600 Repair Points.

### 15.2.3.5 NAVAL SUPPORT ASSIST

Naval Support squads can assist in repairing damage to ships at pierside, either in the stood down Pierside mode, or normal Readiness pierside mode, and for ships assigned to AR Repair. Naval Support generates 1 Repair Point each. The amount that can and will be allocated to each ship depends on the size of the ship (it is not possible to have 1000 men

contribute to fixing a Barge) and the number of ships under repair as well as the individual priority mode.

### 15.2.3.6 CREW ASSIST

A vessel's own crew contributes Repair Points to the calculation. Crew Assist Repair Points depend on Crew Experience and ship size and type. Military ships tend to have a large crew and good damage control, while civilian ships lack both and contribute lower amounts of repair points.

### 15.2.3.7. TENDER ASSIST

If any Tenders capable of providing repair services are present in port, the Tenders can contribute 500 repair points. Tenders are also allowed to repair devices and weapons on the ships they can support but may be very slow at this in case of more potent weapons. They can utilize the other repair point sources on top of their own for this. The actual points that can be spent on any ship again depends on ship size and number of ships under repair.

### 15.2.3.8 PORT ASSIST OPS

Port Assist Ops distributes to all ships under repair at the Port. Port Assist Ops calculations only apply to ships being repaired at pierside, Readiness or Repair ship modes. The "share" each ship receives depends on repair mode and priority.

### 15.2.3.9 READINESS VS. PIERSIDE (STOOD DOWN) REPAIR

Readiness and Pierside (stood down) repairs are calculated substantially the same way, except for certain factors in the calculations. A ship that is being repaired while standing down will get better calculation results and repair damage more quickly because it does not have to be kept constantly ready-for-action. In general, for Readiness repairs, Port Assist and Naval Support are approximately 50% as effective. Major damage, even small amounts of it, can only be fixed in Pierside Repair.

## 15.2.4 WEAPON REPAIR COSTS AND REQUIREMENTS

Weapon repair costs are figured by the size of the "mount in barrels x (Device Armor + Device Penetration)" Weapons can be repaired if the Device Penetration is "lower or equal to Port size x 100". Alternately a Tender can permit repairs to weapons for ship types it can support. Repair Yard mode can also repair weapons.

## 15.2.5 SUBSYSTEM DAMAGE AND REPAIR

Possible Subsystem damages are as follows:

- **Rudder blocked**: The ship may only sail in circles of varying diameter. This damage can be repaired by the crew at sea, given time.
- **Steering gear wrecked**: The ships ability to turn is almost gone, emergency rudders are normally put in place, mounted on deck to allow minimal turning ability. This can only be fixed in port.
- **Electricals damaged**. Wires are disconnected, fuses molten and power generators offline. Most of the ships larger weapons will be offline or operate at very slow rates. Small arms fire is not impacted. This damage can be repaired by the crew at sea, given time.
- **Lost all power**: The power generators are destroyed. The ship has no electric power and often no propulsion. This can only be fixed in port.
- **Periscope wrecked**: Subs only. The periscope is bent or obstructed; the mirrors are broken. The sub may only attack while on surface. This can only be fixed in port.
- **Battery wrecked**: Subs only. The batteries are unusable; the sub cannot operate submerged and is forced to stay on the surface. When they are destroyed while underwater, oceanwater reacts with the battery chemicals and the result is lethal chlorine gas.

The sub must blow all tanks and surface to save the crew from dying from the poison gas. This can only be fixed in port.

- **Shaft wrecked**: A shaft links the propulsion system with the screw. Large military vessels normally have 2 or more shafts and screws, civilian or very small ships may only have one. A wrecked shaft is bent or broken and cannot transmit the motion from the propulsion system to the screw, reducing the ships speed, or even immobilizing it. This can only be fixed in a repair shipyard.
- **Bridge wrecked**: When bombs or shells directly hit the tower and penetrate the armor, the resultant impact may damage or even completely wreck the main bridge. The ship's captain or TF leader may die, and the ship will suffer from command-and-control delays until the crew establishes control from the auxiliary bridge. Larger military vessels normally have at least one. This can only be fixed in port.

# 16. REINFORCEMENTS AND REPLACEMENTS

Reinforcements are ships, air units and ground units that enter the game after a scenario has begun. These units appear in locations displayed on the various reinforcement screens found from the Intelligence Screen. Refer to section 16.7 "Arrivals" for what happens if the arrival location is enemy controlled. Ground and air units that have taken losses may also receive replacements. Reinforcements and replacements are noted in the appropriate menu from the Intelligence Screens. Some ground units, air units and ships may upgrade their equipment during a game.

Disbanding/withdrawing units may come back as if they were a normal reinforcement as do certain destroyed air and ground units as detailed in this section. When a Nation has full economy mode being set, all units coming into the game use aircraft from the Production Pool or devices from device pool in case of ground units. This will only apply to Italy in the stock Scenarios.

## 16.1 REPLACEMENTS MODELS

*War in Spain 1936-39* offers 3 different models for replacement mechanics. They range from very simple to very detailed in handling. They are:

- **Supply based** – Local Supply will be used to supply devices and aircraft into units. The number of devices created per base and day depends on the supply present and whether the base is connected. Connected Bases can draw 1 device per day for each 25-supply present, while other Bases can draw 1 device per 250 supply present. The actual cost in supply for drawing replacements depends on the size and quality of the device.

Additionally, if devices must be created an appropriate amount of armament and AFV pool points is deducted from the Bases of the unit's nation. For air groups there must be a friendly airfield with a "value" of 9 and at least 20,000 tons of supply within transfer range. This "value" is 1 point per airfield size plus 1 point per 10,000 tons of supply each. An airfield of size 2 and 35,000 supply being present would have a "value" of 5 no matter what access to the pool is possible from this airfield. This access to the pool determines whether airframes move to or from the pool of the air unit's nation.

- **Pool Point Shipping** – In this mode, you need to create reserve ground units, or RSVs, and edit the TOE of the unit to take reservists as well as armament or AFV pool points. Those are the 3 "pool point classes" used to build various devices for ground units. These are normally only available at a "connected" Base (that is linked overland to the Nation Capital Base). These RSV units must then be shipped to the frontline, where units in range of 200 NM can draw replacements by expending those "pool points" contained within the RSV unit, provided they can reach the RSV over land. You do not have to care for specific devices, as they will be "built" on the spot upon expending pool points. This also means there is no hard limit for any kind of device if you have the pool points to build them. Though you also have the option to create an RSV containing the final devices you want to ship.

**Note:** *Certain devices, those with a "build rate", are limited and cannot be created by pool points. This applies to rare devices such as radars that were not found in abundance.*

In this mode you also have to manually move aircraft or aircraft pool points (Reserve Aircraft) into range of the units that need them. The shipment of aircraft pool points works just like the RSV for LCU, with

the only difference being the item to be added to such a RSV is to be "Reserve Aircraft".

> **Note:** *Any of these reserve aircraft points being destroyed within the LCU holding them will cause random aircraft to be removed from the pool.*

This mode is not available when the option "Device Production" is chosen, since there will be no pool points produced, only final devices like guns or tanks.

- **Detailed/Device shipping** – All RSV units must be made of the final devices you need to move around. Air replacements must move the replacements into range via use of a "Ferry Group" in all cases where the aircraft cannot reach back home to the pool.

For all the above models there is an exception in building devices from pool points. Devices with a build rate will only be available in that number, i.e. they cannot be created by spending pool points. This is in place to limit numbers of historically rare devices, such as radars. Devices with build rate will come at no cost for the owner, at the specified rate per month.

Torpedoes and mines fall under yet another special rule. They will be provided by device build rate OR the on-map device factories, if the device production rule is chosen.

The AI will always use model 1 or 3 and never ship pool points. The AI will play by the rules.

## 16.2 CONNECTED BASES

To access the pool, a unit must be in range of a connected Base. The chosen Supply Base (commonly a Base close by and with Supply) will be used for ground units, air units can use any connected Base with

an airfield within transfer range. The Capital of a Nation is always connected and is the center of all pool-related actions. Bases that are within the Logistics Network of the Capital will eventually become connected. This mostly applies to conquered Bases, as the starting bases will be preset to be connected if applicable.

Any RSV ground units that are to take replacements (for shipping to the frontline) should be built at a connected Base.

The status of being "connected" only applies for the owning Nation of a Base. You cannot use connected Bases of other nations to access your pool.

## 16.3 NAVAL UNITS REINFORCEMENTS

At the beginning of each scenario, ships are given a "standard availability date" which is the date on which the ship will enter the game. Ships that have been sent off map (or are being converted) will also be given an availability date at the time they are sent home (these ships not only repair damage but may upgrade their ship class and be given new weapons systems, AA guns, radar, etc.). Once ships have reached their availability date, they become available and enter the map at their entry location. Nations that have a full economy will have to construct most of their ships, though off map arrivals are also possible.

## 16.4 AIR UNIT REPLACEMENTS AND UPGRADES

The following rules apply in the simplest supply-based replacement and upgrade model. Air units will automatically gain replacements under certain circumstances if aircraft are available in the replacement pool and the air unit has been set to Accept Replacements. To get replacement aircraft to flow automatically into an air unit, there must be aircraft in the pool and one of the following cases must be true (the first point will take effect):

- The air unit is in the transfer range of a base with 20,000 Supplies and an airfield score of 9. The score is Airfield size level + local Supply stockpile / 10,000. Supply equal to aircraft durability is expended from that Base to draw new aircraft from pool.

The following cases apply to the 2 more complex replacement models:

- Any air unit can draw replacements from an RSV unit if it contains the special device "Reserve Aircraft". A number of devices equal to the engine count of the aircraft is deducted from the RSV upon replacements.
- Ferry groups. A new air group can be formed on the screen for listing the hex air groups. This air group can then be resized and filled with aircraft. Usually, Ferry Groups are created at home bases and then moved by transfer or shipping to get into transfer range of the destination unit. Air groups can draw replacements from Ferry Groups just as if they had access to the pool. Alternately the command "Merge" from the air unit screen can then be used to manually transfer aircraft from and to groups needing replacements. After a Ferry group has been depleted, it is usually disbanded.

If the air unit is in transfer range to a "connected" base, it can draw from the pool.

For Nations with full economy, all new air units (including reinforcements and withdrawn air groups that are returning) must take planes from the replacement pool to fill out the air unit when it arrives. Note that reinforcement units for other nations will arrive with the number of planes specified in the editor. These planes are not drawn from the pool as they are deemed to have been supplied elsewhere.

Aircraft units may receive replacements during the Supply Operations Phase. Air units check for replacements every day. Any unit, excluding fragments, with less aircraft (Total Ready, Repairing, and Reserve) than its maximum aircraft level is eligible for replacements.

Replacements are taken from the replacement pool if the appropriate aircraft are available (Those of the same airframe). To view the number

of aircraft currently in the replacement pool, access the Aircraft Replacement Screen from the Intel Screen. Also, the expected average rate of monthly replacements (and/or production) by aircraft model will give you an idea of how quickly losses can be made up.

The *War in Spain 1936-39* is unique in that many air units were under control of foreign nations but received their replacements solely from the Spanish faction they supported. For example, a German air unit with German pilots was still drawing replacement aircraft from the Nationalist stockpiles. Normal drawing of replacements from the pool of Germany does not work due to this. In game these air units are marked with an (L) aside of the air unit image. Clicking on that image provides several quick commands to create a Ferry group to move in the replacements from the nation that provides the airframe. As seen here:


"Create a Ferry group" will create the unit but will not move it. The new Ferry unit will become the selected air unit for you to move it. Other commands will create the Ferry unit and move it to the hex of the unit you wish to create it for. Depending on location and AC transfer

range, the unit might end up in another location if the automatic fails to reach the desired hex. This is rare to happen as Spain is small and most air unit transfers should work out OK with the automatic. After the Ferry has been created and is in range your air unit will be able to draw replacements from it.

Destroyed air units will reform in an empty state at the nation's Capital hex. There is no delay.

### 16.4.1 AVERAGE PILOT EXPERIENCE BY NATIONALITY

When new units arrive as reinforcements, they will generally arrive with pilots that have experience levels based on their nationality and the year of arrival. This is not always true as some air groups have been given unusual experience ratings or contain a high proportion of "historical" pilots that were of extraordinary skill.

### 16.4.2 AIRCRAFT UPGRADES

Many of the aircraft models in the game were improved as the war went on. The engineers at home toiled to perfect their designs, creating a constant flow of newer, more powerful models. In *War in Spain 1936-39*, as these models become available their numbers will steadily grow in the player's Replacement Pool. During the orders phase, an air group that meets the needed requirements will be able to use the Upgrade command to accomplish an immediate upgrade to any airframe within its upgrade path. This includes going back to an older airframe.

The air group needs access to the pool or an RSV containing "Reserve aircraft". There is one exception. If the air group has zero planes, it can upgrade even without access to pool. The way to do this normally is to create a Ferry Group in hex and transfer aircraft into it. Then the air group can upgrade and "merge" with other groups around to fill up with the new aircraft. This proceeding is common in case upgrade aircraft arrive at site in form of Ferry Groups.

At times you will not be able to upgrade an air unit from the pool of its nation because the airframe originates from a nation other than the air unit nation. In that case you can do an upgrade of the air unit from a nearby Ferry unit holding the aircraft you wish to use. When this is the case the execution command on the bottom panel will tell you. Also, the selected airframe to upgrade to will tell you if this airframe is of foreign origin to the air unit.

The first step is to click on the execution command to create a ferry unit and move it as far as possible to the hex of the air unit.

The second step is to remove all airframes from the air unit, so it can upgrade to the desired airframe. This is done by a right mouse click on "Disband" on the air unit card. Depending on access to the pool, the aircraft either are pooled or dumped into a Ferry unit in that hex. If you wish to keep the airframes in hex it is also possible to create a new Ferry unit manually on the air unit list, change its airframe and group size and then manually transfer the airframes out of the air unit into the Ferry unit. Air units without airframes can upgrade regardless of distance to pool, which is what we need to do here as we do not use the national pool for this air unit upgrade.

After you upgraded the air unit to the desired airframe, you can now refill it from the Ferry unit we created in the first step.

# 16.5 PILOT REPLACEMENTS

Air units may receive pilot replacements during the Supply Operations phase. Units that have less pilots than the air group size will have new pilots assigned to the unit from one of the 3 pilot pools. Players can choose from which of the four Pools new Pilots shall be drawn.

- **Replacement** – These Pilots are new FULLY trained replacements that have not been detailed to an operational unit. They only exist as pool numbers and are created when drawn from the pool.
- **Veteran** – These pilots have been assigned to operational units for at least one day. They are "existent" pilots of the Veteran Pilot list.
- **Elite** – The Pilots are trained, have been assigned to operational units for at least one day and have a skill of 80+ in the branch where the air group works. (I.E. A2A skill for fighters, Naval search skill for Patrol craft, etc.)
- **Trainee Pilot pool** – These Pilots are in training and automatically assigned once the pool of trained pilots is drained. They are subject to a training program of 12 months but can be drawn on PRIOR to their completing training and thus entering an operational unit at some less than nominal EXP level. This depends on what "class" or month they are in when requested. This option cannot be set for air groups but is used on an emergency basis when no trained pilots are in the pool of graduates.

In addition, the color of the control will indicate if there are enough pilots to fill out the group. For replacements from the pool of trained pilots, the number in parenthesis tells the experience of the new Pilot. If this is lower than 30, you can assume there are only pilots still in training available.

- **Yellow** – At least 1 pilot of the required experience available
- **Red** – No pilots of the required experience.

If there are no pilots available of the required level, then no pilots can be added to the group. Furthermore, the automatic assignment will assign pilots by skill check only. This means a pilot who has mainly A2A skill will not be used for bombers. A patrol plane group will only draw pilots with naval search as primary skill, float planes will use ASW and naval search, etc.

The number of trained pilots and the base experience levels of these replacement pilots are listed on the Pilot Replacement screen. However, if replacement pilots are needed and none are available from the pool of fully trained graduates, inadequately trained replacement pilots will be provided to the air groups from the Trainee Pilot pool. These inadequately trained replacement pilots will enter the game with whatever experience they have gained up to but not exceeding the last month of their nationality's trained replacement pilots.

The monthly replacement rate represents the number of pilots entering the training roster. The training roster is 12 months in duration. As each day passes, some pilots are moved up one class and the pilots in the final class are added to the Trained Pilot pool. Although Pilots will advance the Classes each day, the entire process for 1 Pilot to go through all Classes takes 12 Month statistically. But Pilots learn at different speeds and have different Talents. Your instructors are aware enough to provide you with the trainees that are most promising, so the information on the training Classes is more like they tell you how many Pilots of each skill level are in training.

All groups can be defined as "Trainer Groups". Not to be confused with groups on a mission of Training. These Trainer Groups can be set to release Pilots once they reach a defined skill level. This is a great way to reduce micromanagement on Pilots, as rear area groups can be set to release Pilots at the skill level you wish to have on the Veteran Pilot list.

Also, any air group can be ordered to replace its pilots with better pilots from these trainer groups. See Section 7.6.4 "Pilots". Getting the best pilots of these trainer groups into your current air unit only takes 1 click.

## 16.5.1 PILOT MANAGEMENT

On the air unit screen, you can select from which pool the new pilots will be drawn. Replacement, Veteran or Elite. You can also choose to draw 1 Pilot or fill up the group with as many Pilots as it can have active aircraft. It is also possible to draw more Pilots than this, up to 100 per group. Though this is rarely useful. A button to request a Veteran from the Veteran reserves is also located there. This will bring up the list of Veteran pilots.

By clicking on PILOTS the pilots of the air unit will be shown. This list of pilots allows you to rename or release pilots from the group. There also is a button to go straight to the list of veteran pilots that may be assigned to this air unit.

One of the more useful options on the air unit pilot screen is the "retain" command. It allows you to set a pilot to not be included in actions that release pilots. A right click can set the retain status to 2, which means the pilot will be grounded and not fly. This is useful to have leader type pilots do a desk job only.

On the upper right side is a button that allows the pilots of this air unit to replace better pilots from "Trainer" air units mentioned above. It is a very quick way to draw the best pilots of these trainer air units into the current air unit.

### 16.5.1.1 REQUEST INDIVIDUAL PILOTS (VETERAN)

This control allows a named pilot to be directly assigned to a group. It will be filtered for the nationality of the group and the type of Pilot. (You cannot assign Navy pilots to Army groups or vice versa, unsuitable pilots will not be shown)

You can sort the list and take groups of pilots from the top or bottom of the list or click on pilot names to assign them one by one to the group.

One of the more useful options on this screen is the "retain" command. It says a pilot shall not be included in actions that request pilots. Very useful to keep elite pilots in TRACOM. TRACOM will have each veteran

train up to 1 pilot from the general pool in his skills. This will take 30 days and create a new veteran pilot in the pool. The new pilot will have skills slightly below the skills of his trainer. TRACOM is done by all veteran pilots in the pool who are skilled enough to train someone.

The kills, experience and skill levels of the pilots are shown. Clicking on the pilot name will transfer the pilot to be to the currently selected group.

### 16.5.1.2 TRAINING

Points are accumulated for each skill/experience and once a certain level is reached, a point is added to the actual skill/experience level. The cutover level is based on the current skill/experience level with some randomness thrown in. So as the skill/experience level increases, it takes more accumulated points to reach the next level.

Combat gains points faster than straight training, and combat is generally required to reach 70+ skill/experience levels.

Experience levels behave like skill levels with the one exception: Experience improves other skills. A pilot with an experience of 50 and 25 skill will do much worse than a pilot with experience 80 and 25 skill. Experience is less likely to improve by training alone. Training missions profit from experienced pilots. Pilots of higher skill speed up the training of pilots with lower skill.

Skill changes are shown as Green for a change within the last day and Orange for changes within the current month.

Groups can fly normal Training missions (with a training percentage) which occur in the AM and PM air phases. These gain both skill and experience points across the board. The "side mission" of training trains the pilots in the skills required to conduct the main mission. In short: The side mission does train a specific set of skills while the main training mission does not.

**TRACOM** – Any elite pilot with experience of 80 or more in the list of reserves will train pilots from the pools. For each 30 days being in the

veteran list, an elite pilot will turn 1 pilot from the pool into a veteran having skills a fair bit lower than the elite pilot who trained him. If there are no trained pilots, the TRACOM will advance 1 pilot faster through the classes. There is no player work needed. This is fully automated for all elite pilots in the veteran list.

#### 16.5.1.3 DESTRUCTION OF AIR UNITS

Destroyed air units are re-created at the nation capital hex. And it can be used normally once new aircraft and pilots get assigned.

## 16.6 GROUND UNITS

Bases that are "connected" may always serve to access the pool of devices for their nation only. The chosen Supply Base the unit can reach over land counts for a given unit. Depending on the replacement model, you may have to move either supply, pool points or devices themselves into range of the units asking for replacements.

Destroyed units can be recalled into existence from the destroyed ground units screen in the Intelligence window. If a parent is destroyed, one of the fragments (if there are any) will become the new parent. Destroyed fragments will have their TOE added back to their parent unit.

Units can be recalled at the capital or a navy HQ. These bases do not need to be connected for this. If a nation no longer haves one of these bases under control, recalling is not possible.

### 16.6.1 GROUND RESERVE UNITS (RSV)

A special type of unit is used to move replacements around the map. This is obligatory in most replacement models, and optional in the simplest model. An RSV unit may be created by using the button "create new LCU" found on the screen with the list of all ground units in hex. After that, you need to go to the TOE screen of the new RSV unit and set devices and TOE numbers for it to fill up.

There also is an option to automate much of the process by using the re-inforcement panel. See section 8.2.1 Re-inforcement panel.

**Note:** *RSV units as well as player created logistics units will never take part in combat, no matter what devices the unit may have.*

## 16.6.2 GROUND UNIT WEAPON UPGRADES

Ground units may have their individual weapons elements (i.e. infantry squads, artillery, etc.) upgraded to newer elements as they become available if they are available in the replacement pool or can be produced. An example of this is an Allied unit with a 37mm AT gun that can upgrade to a 57mm AT gun.

Upgrades should be done manually, since it can have a unit lose some firepower until the new devices can be added to the unit. Any LCU can be set to upgrade automatically, but this can be bad timing or have rear units drain the pool of newer devices just because they do have access to the pool while the units in combat do not.

There are several types of upgrades as well as 2 modes. All are accessed from the "Device Information" sub-panel of the ground unit screen. See section 8.2.3.4.

- **Squad upgrades** – This can be done when the closest base has 5000 supplies, plus enough to pay for the cost difference of the 2 devices. Squad upgrades are instant and may change in device number if the respective new/old devices differ in size.
- **Hardware device upgrades** – The devices that currently occupy the slot will be put in a RSV unit in hex to free up the slot for upgrade. The new device type will be set, and the devices need to find their way into the unit to fill it up.
- **The progressive upgrade for hardware devices** – Since it can be a burden to upgrade to better devices in zones that can expect

combat, there is an option to only replace missing devices by the upgrade device. This will reduce the TOE of the slot to the current number of devices and assign a new slot to hold the difference in TOE for the new device. Example: You have 15 of 20 Panzer III in a slot and wish to upgrade progressively to Panzer IV, this will reduce the TOE of the slot to 15 and create a new slot with 5 TOE for the Panzer IV. Upon repeated use over time, the Panzer IV slot will slowly grow as the old slot of Panzer III is reduced in number by losses. (or transfer to other units)

**Note 1:** *This may not be executed if all 20 slots in the ground unit are occupied, and a free slot would have to be set.*

**Note 2:** *it is possible to downgrade a device to an earlier model if you run out of the currently deployed device type.*

## 16.7 ARRIVALS AT ENEMY OCCUPIED BASES

The rules for ships, air groups and land-based units (collectively known as items) coming onto the map, when the assigned base is controlled by the enemy, are as follows:

- Ground units will arrive at the national capital hex, ships will arrive at the national Navy HQ hex. If these locations are not under control of their side, the arrival will not happen at all.
- Some ground units may be set to only appear when the target location is under control. This applies to various local militia mostly. These units can only be formed when the location is controlled. If the location is not controlled at time of arrival, those units will not be created at all.

# 17. VICTORY CONDITIONS

Throughout the game, both sides are scoring victory points (VP's). VP's are gained and lost as units are destroyed. At the end of the game, these points are totaled along with the points for bases controlled by either side, and these points are then compared to determine which side has won. Points are awarded in the following ways:

Aircraft Destroyed (Nationalist or Republicans):

- 10 VP's per engine for planes destroyed.

Ground Units Destroyed:

- VP's equal to load cost for Squads, engineers, AFV and vehicles. VP's equal to 1/10th load cost for all other devices like guns, radars, etc. VP's equal to load cost for AFV.

Ships Sunk. The VP's for sinking a ship depends on the tonnage of the ship:

- For military ships (From CV to TB) 10% of the tonnage.
- For civilian or small craft and auxiliary ships 1% of the tonnage. Barges are worth zero VP's.

**Note:** *Damage to ships causes "Loss of Life". If you scuttle a damaged ship, you will lose the VP but save the lives of the crew.*

A couple more points:

- **Damaged ships** – Ship that take damage also instantly generate VP from casualties among the crew. These are normally 50% of the VP for sinking a ship, scaled to system damage taken. Damage worth 50% system damage would thus create VP worth 5% of the ship tonnage for military ships. Since ships can be repaired, it is

possible to generate a lot of VP's by repeatedly damaging ships over the course of the game.

- **Control of Base** – Each base has a basic VP percentage for Republican ownership and one for Nationalist ownership. The value of any base depends on the existent facilities and industry. The value of a Base can go up or down when facilities and industry are built or destroyed. This value is taken as the basis on which the VP percentage is applied to. A base may be worth different percentages of the value for either side. Palma would not be valuable to the Nationalists, but very valuable to the Republicans.

The basic VP percentage and final VP value for each side are displayed for each base when the mouse cursor is placed over a base (the basic VP percentage value is in parenthesis).

**The true score is hidden from all players until the end of the game.**

## 17.1 VICTORY LEVELS

*War in Spain 1936-39* can end in a Decisive, Major, Minor or Tactical Victory for one side, or in a draw. Victory Levels are displayed at the end of the game and determined as follows:

- **Decisive Victory** – VP Score is 6 times (or greater) higher than the enemy's VP Score.
- **Major Victory** – VP Score is at least 4 times higher than the enemy's VP Score.
- **Minor Victory** – VP Score is at least 2 times higher than the enemy's VP Score.
- **Tactical Victory** – VP Score is at least a bit higher than the enemy's VP Score.
- **Draw** – The Republican VP Score and Nationalist VP Score are equal.

## 17.2 AUTOMATIC VICTORY

If the Nationalist player manages to force the Republican out of the War, it will be a decisive Nationalist victory. If the Nationalist are forced out of the War, it will be a decisive Republican Victory.

## 17.3 DEFEAT, SURRENDER AND HOMEFRONT MORALE

Every nation has a tolerance level against loss of lives of their population, soldiers, pilots, and ship crews. When soldiers die, Cities and Bases get bombed or even fall to the enemy, this will cause loss of life to the native owner. You can lose morale by bombing a native City that you lost to the enemy. The current state of the nation's morale can be seen on a bar on the bottom of the nation information screen. See section 5.1. The indicator bar will show various icons for you to see how close you are to the various penalties.

### 17.3.1 LOSS OF LIFE VALUE

The "Loss of Life Value" is a measurement of the overall performance of a nation, or better said the perception of the population towards the nations performance in the war. "Loss of life value" is the total "Felt" loss affecting both troop and home front morale. There are different levels of severity based on penalties listed below:

- Lives lost on home soil count 1x.
- Lives lost protecting allied soil count 2x.
- Lives lost in hostile soil count 4x.
- Native Bases in the same region as the capital count 1000 per manpower industry.

- Native Bases in other regions as the capital count 100 per manpower industry.
- Any native manpower killed by combat in Bases/Cities count. Combat in one of your Bases can come with high cost.

The "Loss of life value" does recover over time. 1/6 of it is deducted on the 1st day of the month.

## 17.4 LOSS TOLERANCE

The mechanics and effects of losses sustained are part of the political system. For a detailed description see Section 12.2 "Armistice and Surrender"

# 18. UNIT WITHDRAWALS/DISBAND

## 18.1 AIR UNIT WITHDRAWAL/DISBAND

If an air unit is disbanding, all its aircraft and pilots go to the pool. If an air unit is withdrawing, only the pilots go to the pool. Air units withdrawing with less than full strength will draw planes from pool and on map air units in case the pool is empty. Ships that are withdrawing will take all their associated air groups with them into withdrawal. The rules for air unit withdrawing apply.

## 18.2 GROUND UNIT WITHDRAWAL/DISBAND

Ground units may withdraw or disband (giving devices back to pool).

## 18.3 SHIP WITHDRAWAL

Ship may arrive and withdraw several times during the game. Each time the ships will take their associated air units with them and bring them back on map in case of returning.

### 18.3.1 SUBSTITUTION

If a ship due to withdrawal is sunk, another ship of the type, or even several smaller ships will adopt the withdrawal and return schedules of the sunken ship.

## 18.4 GENERAL RULES ON WITHDRAWING AND DISBANDING

There is no way to prevent unit withdrawal. Upon withdrawing, a unit will immediately be removed from game since the player is no longer in command of or responsible for this unit. Air and ground units due to withdraw cannot be disbanded manually.

# 19. SPECIAL RULES

## 19.1 FLIPPING PLAYER SIDE IN AI GAMES

While it is possible to define the human side upon loading a game, flipping player sides in AI games is only advised for examination and giving orders to AI units on occasion. It is not recommended to continue playing a side that was formerly AI, since all the AI actions on units will be executed regardless of how many units you controlled. The AI scripts are written by the AI and commonly timed and thus it is not possible to "pause" them when the game is continued with the human in control of this side. In effect you will see your units do things on their own when trying to play as a side that has been AI formerly.

## 19.2 GROUND UNIT PLANNING

When the objective of any ground unit is changed, the loss in planning depends on distance between new and old target. It is possible to proceed with ground combat from base to base while maintaining a good planning level for the units. If, however, they are transferred to a distant new frontier, they will lose a lot in planning readiness. In ground combat, planning is applied when the Objective Base is close to the combat hex.

**Note:** *Ground units will automatically change their objective if combat takes place near a base that is not the current objective.*

## 19.3 MINING

It is not allowed to lay minefields in neutral hexes (Coastlines of neutral nations)

## 19.4 AIR MINESWEEPING

This is only possible for planes of type "El. Warfare". The mission to be used is recon at cruise alt of 100. This mission can only target magnetic mines and will kill your mines and enemy mines alike. The clearing is comparably random and has a lower chance of finding unknown minefields than ship-based missions. Finding new minefields also depends on the hex scale of the scenario and whether the location is a river, canal or open sea, etc.

## 19.5 BEACHING SHIPS

Ships that are "sunk" while disbanded are not removed from game. Ships preforming actions in port (loading/ unloading) may also be considered sunk in the harbor bay and thus not removed from the game. They can be refloated by the Port or repair ships even out of port. Beaching a ship can save it for the moment but be aware that beached ships will fall into enemy hands if hostile land forces take control of that hex. Italian CM Taranto was sunk in port and refloated several times during the war in the mediterranean.

## 19.6 EMERGENCY EVACUATION OF TROOPS

It is possible to pick up troops with any type of ship. The troop and cargo space are derived from the ship size in that case, much like it is with rescue of troops from sinking ships by other ships nearby. The TF type to be used is "ESCORT". This type of mission is an emergency evacuation, and the troops will suffer massive disruption and other side effects. This only works with the "Pickup Troops" command. Normal loading of troops will not use this regardless of TF type.

## 19.7 GROUND COMBAT

During ground combat, there is a chance to break through the enemy lines. This may happen due to superior firepower, normally later in combat, or earlier by a lucky engagement. This means attacking a group of devices that cannot counter the attackers. An example of this is an attack by tanks versus devices that failed in a check for AT support nearby. Whatever the cause, a breakthrough increases firepower for the unit that has broken through. Further, attacking units held in reserve may become active to exploit a breach. Defending units in reserve may react to seal a breach. Reserve units will only activate into combat upon these events.

## 19.8 TANK SUPPORT

If either side has tank support, and the opponent AT devices (including tanks) cannot effectively engage all of them, there is a bonus to infantry of the attacking side. Thus, having tank support can increase firepower above what the tanks contribute by themselves, also meaning that even weak tanks can give this bonus as long as the opponent AT power cannot harm them. Both superior numbers as well as sufficient Penetration of the opposing devices is considered. Outnumbering AT guns is as good as having few, but invulnerable tanks.

## 19.9 COMMANDOS

These troops act normally during an attack, with the exception that even their recon devices engage in combat. On defense, they will go to the Delay command, and they take on 10% the losses a normal unit would and have 10% the firepower of a normal unit. These units are thus perfect for attacks in enemy rear areas. They pack a punch but can elude most attacks. At the same time, they are unsuitable for garrison

purposes since they tend to retreat from engagement unless they attack. Commandos can also damage or destroy aircraft on airfields during an attack on a base hex.

## 19.10 EMERGENCY MOBILIZATION

When a connected base is under ground attack and has no units present, a Militia unit is formed from the reserves. This represents emergency mobilization of training units. This is Intended to prevent gamey exploits like using tiny airdrops into the opponents rear bases.

## 19.11 REBUILDING RESTRICTED UNITS

Restricted ground units always reform at the position of the HQ they are attached to. This is to prevent them from being "stranded" at the nation capital hex when they belong to restricted oversea forces. If the HQ is unavailable, some base inside the restricted country code is chosen.

## 19.12 TERRAIN AND ARTILLERY

Larger artillery and other guns can have severe penalties in difficult terrain. This applies to an attacker always, and the defender if the unit has fort levels smaller than 3. Defenders with fort level of 3 or better are considered to have prepared for defensive use of the artillery.

## 19.13 SUB PORT ATTACK

The mission "Submarine Port Attack" unleashes those midget subs or "Majale" nuisance craft for port attack. Any submarine can attack anchored ships if the target hex has a port smaller than size 3 and the port is not a natural protected anchorage. But this kind of direct attack will reveal the subs position and have port ASW assets try to retaliate. A

"Submarine Port Attack" TF with lowest threat tolerance is meant to only do periscope photo reconnaissance of the Port and it's anchored ships.

## 19.14 SMALL CRAFT AND MIDGET SUBMARINES

Upon detecting an enemy Task Force, a Base nearby may automatically launch small craft like PT-Boats, HDML or motor torpedo boats and midget submarines for self-defense.

## 19.15 ACR AND BM SHIP TYPES

These are ships, like Faa Di Bruno, were designed for port defense and shore bombardment. These ships are designed to fire back in case of naval port bombardments. Other ship types will return fire at a greatly reduced rate.

## 19.16 TORPEDO NETS

Ports of size 3+ may cover ships in ports with torpedo nets. The number of ships in port is a major factor. The more there are, the lower the chance for a ship to be protected. This rule is meant to allow for singular ships, like the Italian ACR San Giorgio in Tobruk, to stand a chance of survival in their historical locations.

## 19.17 AIR COMBAT AND AIR TACTICS TECHNOLOGY

Initially the main emphasis of air combat is put in agility. As the war progressed, some nations realized vertical warfare was much more effective in most cases. Group tactics and different views on air combat

mechanics shifted the balance of power away from agility. Aircraft that were previously considered to be very dangerous became prey more often than predators. The game will reflect this with the A2A Tactics technology. Depending on the research model, it may increase at a fixed rate or can be researched by the players. The effects are complex, and any pilot under good A2A Tactics will perform better, but superior speed of the pilot's aircraft has great influence under good A2A Tactics. A tech level of 100 would roughly equal the US air combat tactics near the end of the war.

There are 4 general sources for this effect:

- National technology level. Applied to all Pilots.
- Air HQ leader air skill. 3 points of A2A Tactics per "Air" skill point above 70. Applied to all Pilots under this HQ.
- Air unit leader air skill. 3 points of A2A Tactics per "Air" skill point above 70. Applied to all Pilots in this unit.
- Pilot A2A skill. 3 points of A2A Tactics per "A2A" skill point above 70. Applied to this Pilot only.

The best of these 4 sources will apply.

## 19.18 NAVAL AIR ATTACK AND SCOUTING

Air groups that are set for naval attack will revert from their scouting assignment towards the main mission if a target is found.

For example, a USN Dive Bomber group set to 50% attack and 50% scout, which is normal for the USN, will change to 100% attack in case a target is known at the time of the scout phase, these aircraft will perform a naval attack with the main mission instead. It is possible to detect an enemy with the morning scouting sorties and have all aircraft go in for attack in the afternoon sorties.

## 19.19 EMERGENCY RESCUE OF SURVIVORS

Whenever a ship sinks, other ships in the same hex will automatically attempt to rescue personnel (squads and support troops) that are loaded on the sinking ship. Every ship is rated for its emergency rescue capacity. Pilots from air units onboard sinking ships will also be rescued and added back into the pilot pool.

## 19.20 SPECIAL FORCES AIRFIELD ATTACKS

When special forces (Like the LRDG) attack hexes with aircraft, there is a good chance they will damage or destroy a good number of aircraft. This can be achieved by using any offensive device in the ground unit. Hit and run attacks by those ground units can do considerable damage to the aircraft of the enemy.

## 19.21 SPECIAL FORCES TRAINING

In games that allow you to create and change ground units, there is a 75% loss of experience whenever a non-special forces unit is turned into a special forces unit. This represents the extensive training required for those troops and prevents switching troops into/out of special forces mode all too often.

## 19.22 AIRBORNE ASSAULTS

Normal combat troops can be used with transport aircraft to take over undefended airfields. Also, amphibious aircraft can be used to transport any combat unit to any undefended coastal hex. Defended hexes require an actual airdrop, or a landing using glider aircraft.

## 19.23 LIMITED DEVICES

Devices with a build rate cannot be created from industry points. This is to allow for certain devices like local militia or rare radar types to be available only in limited supply. Does not apply to Torpedoes and Mines.

## 19.24 V1, V2 AND OTHER LONG-RANGE ROCKETS

**Note:** *This section is included for modding purposes only as these weapons were not available historically.*

Some ground units may contain Long-Range Rockets. They are used with a "Barrage" order on the target base the unit is planning for. The quality of planning determines the accuracy of these rockets. The devices are being "spent" upon the attack and need to be replaced by the pool in order to have another attack. These devices are usually only useful as terror weapons to devastate cities and industry, as they are too inaccurate to be of much use in targeting troops.

## 19.25 MODDING AIRCRAFT CARRIERS

**Note:** *This section is included for modding purposes only as these ships were not available historically. The info for some CV's is in the Editor. So below are a few rules for CV's.*

Air Combat TF's, which have not aborted their Mission, may move toward enemy TF's in order to attack. The range of the shortest legged aircraft is used to determine the standoff distance. Thus, TF's with longer range aircraft may have the advantage of being able to strike

outside the range of enemy air combat TF's. Aggressive TF leaders may go in closer to increase the chance of the raids finding their target, and TF's may close in while the other TF's fail to maintain desired distance.

air operations by aircraft carriers are only possible if the carrier is at sea. Anchored carriers cannot launch aircraft.

Carrier-based aircraft require ordinance to complete missions. The ordinance carried is reflected in the Max Sorties value shown on the ship display. Each strike mission executed by the Air Groups on the ship will use up some sorties. The exact amount consumed depends on the airframe and how much ordnance it will load. Once the sortie value is zero, the air groups cannot execute offensive missions.

Torpedo Bombers will expend torpedo ordnance in the same manner as Max Sorties are expended. TBs will either expend torpedoes or Max Sorties, not both. A group can be set to "Use torpedoes" if available or set to "Use bombs" instead. "Using bombs" is a way to conserve the supply of torpedoes. "CDR Choice" is a third option. The value of the known target ships as well as the supply of torpedoes determine the chance for the group to use torpedoes on naval attack. Once all torpedoes have been expended, then bombs will be used.

The Max Sorties and Torpedoes can be replenished at an appropriately sized port.

# 20. NOTES ON COMBAT

## 20.1 LAND COMBAT

While every ground unit has an assault value, this is only a superficial estimate. Assault values fall into several categories, which can be seen on the unit screen when moving the cursor over the assault value number.

For example, a unit may have a good Anti-Tank or Anti-Soft assault value. The type of assault value and the type of target are imperative to compare. A high Anti-Soft rating will not work against armored targets.

The Assault Value listed during the Orders phase is the unit's potential value, and will fluctuate with fatigue, disruption and other influences.

The figures shown in the after-action report (AAR) only include the opposition you encountered. When attacking a giant army with a few specialists, only a small part of the enemy will be involved in the action. It is only this part that you see in the AAR.

You will also need to pay attention to terrain. Difficult terrain penalizes vehicles and large cannons. Fights in forest or urban hexes is mostly a job for infantry and light mortars. The heavy stuff won't help you there. Air superiority is also important to consider. Units under fire (suppression) will have their offensive values reduced, and the attacker side has no protection from any fort levels. Low level aircraft like fighters or fighter bombers can be effective in creating suppression by strafing.

## 20.2 NAVAL COMBAT

Naval combat in *War in Spain 1936-39* is a bit like a game of its own. Ships will move individually in time frames of 1 second each. Shots fired will be traced for their vector and compared to the shape and size of the target. It is possible to hit your own ships with gunfire. With Fog of War not all enemy ships will be visible, and some may only be radar contacts. Non-combat task forces will try to disperse and flee, while escorts

run interference and engage the enemy task force. Fog, darkness, sea conditions and the lack of knowledge of minefields or other forces in the area can sometimes make an engagement difficult for the combat task force trying to attack a non-combat force. Combat task forces will try to engage each other in the most favorable fashion. If possible, they will try to cross the T, that is turn and fire broadsides at the front of the enemy column. If they cannot, they will try to assume the best position. The player should note that non-penetrating hit locations are displayed, and penetrating hits display a variety of messages, concerning the nature of the damage.

The damage model also takes into account the ships armor concept. Not all ships followed the full belt armor idea, and even those often had a small part on the bow or stern without any armor. This means that hit location is important. Even the most heavily armored battleship can be hit in unarmored locations, causing flooding from small caliber hits, but only cause minor system or engine damage. Unarmored compartments rarely contained anything of value. Flooding damage to unarmored compartments is also limited. It is usually impossible to sink a ship by only hitting unarmored compartments. Ships were designed to remain afloat with the buoyancy of the armored compartments alone.

## 20.3 AIR–TO–AIR COMBAT

The cloud cover over the general target area is displayed. This affects the bombing accuracy and the ability of CAP to find the attacking aircraft. The message that the group is climbing to intercept means it is too low to engage any enemy aircraft. Interception can be made by airborne or scrambling aircraft. The game allows for early detection of raids by units in hexes along the approach leg. Fighters close to the raid's path may intercept. Air combat can thus happen in several waves along hexes with opposition. Flak fire from hexes in the path may also happen but is not very likely due to the low effective radius of AA guns.

Also, when attacking bombers far from their target, they will have to fly cruise speed during combat. Giving CAP a good advantage in speed difference. The higher the speed difference, the less effective defensive fire will be.

There is no gain in setting CAP to a very high altitude. In fact, operating in less than optimum MVR bands will reduce the percentage of aircraft airborne. Upon combat, all CAP aircraft will automatically try to gain favorable positions to attack intruders. Generally, the attackers altitude will be used for combat.

LRCAP works the same but suffers from travel time to/from the covered hex. Thus, the numbers active are normally much lower than those of local CAP. Drop tanks can help both CAP and LRCAP to have a better active aircraft percentage, as they need to refuel less frequently.

Each flight is broken into individual aircraft, and these are handled separately. Cloud cover, the range the attacking group has had to fly, the group leader's characteristics, the relative altitude, and the aircraft characteristics, mainly speed and maneuverability help to determine the relative position and conditions under which the individual pilots operate.

When aircraft attack each other, the messages will identify the attacker and direction of attack. Aircraft with high effective MVR may "chase" an opponent and can fire on him until he escapes or out-turns the attacker. Even relatively weak armed aircraft can be a serious threat in the hands of an expert pilot. Faster aircraft will attempt to head away, often in a dive. Slower aircraft will have to out-turn the attacker. Outnumbering the enemy can also help a lot in escaping, as a chase is not possible if the attacker gets under attack himself.

Below the bomber formations is an arrival time, to be compared with the combat time displayed on top. Bombing runs can be made right under A2A combat.

# 21. APPENDICES

## 21.1 GLOSSARY OF GAME ABBREVIATIONS AND DEFINITIONS

| | |
|---|---|
| **ASW** | Anti-Submarine Warfare |
| **CAP** | Combat Air Patrol |
| **LRCAP** | Long Range Combat Air Patrol |
| **DH** | Destination Hex |
| **DL** | Detection Level |
| **LCU** | Land Combat Unit('s) |
| **TF**Task Force('s) | |
| **LC** | Landing craft |
| **KDYS** | One KDYS (KiloYards) equals One Thousand Yards |
| **AVS** | Aviation Support Squads |
| **MVR** | Maneuver |
| **LBA** | Land Based Air |
| **Stevedore Squads** | These squads help in loading operations in ports. Civilian version of "Naval Support". No re-arm bonus from these squads. |
| **CAM Ships** | these are Cargo ships with a catapult for aircraft. Normally you cannot land back on the ship again. The aircraft either lands on a shore AF or is lost upon use. |
| **Lighters** | Lighters are small craft (abstracted) that help to load/unload ships in port. Especially ships that cannot dock pierside and have to be loaded/unloaded while being at anchor. Lighters are provided by Stevedores, sometimes by Naval support and depends on port size. |

# 21.2 UNIT NAME TRANSLATIONS

## ARMY

| | |
|---|---|
| Teatro de Operaciones | Theater of Operations |
| Reg. Administrativas | Administrative Regions (military areas) |
| Cuerpo de Ejercito | Army Corps |
| Division de Infantería | Infantry division |
| Division Asturiano | Asturian Division |
| Division Vasca | Basque Division |
| Division Montanesa | Mountain Division |
| Brigada | Brigade |
| Brig.de Infantería | Infantry Brigade |
| Brigada Mixta | Mixed Brigade |
| Brigada Guerrillera | Guerrilla Brigade |
| Brigada Móvil | Mobile Brigade |
| Brig. Internacional | International Brigade |
| Brigada Blindada | Armored Brigade |
| Brig.de Caballeria | Calvary Brigade |
| Columna de Milicia | Militia Column |
| Agrupación | Group |
| Agrupacion Carros de C. | MBT Group |
| Agrupacion de Mil. | Militia Group |
| Grupo de Artilleria | Artillery Group |
| Grupo Antitanque | ATG group |
| Grupo de D.C.A. | AA Group |
| Grupo Mixto de ART | Mixed Artillery Group |
| Grupo de Asalto | Assault Group |
| Gr.de Intendencia/Aut. | Quartermaster Group |
| Grupo Mixto de Zapadores | Mixed Engineers Group |
| Grupo de Morteros | Mortar Group |
| Regimiento | Regiment |
| Regimiento de Infant. | Infantry Regiment |

| | |
|---|---|
| Regimiento de Milicia | Militia Regiment |
| Reg.de Caballeria | Cavalry Regiment |
| Reg.de Ferrocarriles | Railways Service Regiment |
| Sector de Milicia | Militia Sector |
| Batallon | Battalion |
| Batallon de Guarnicion | Garrison Battalion |
| Batallon de Infantería | Infantry Battalion |
| Batallon de R.I. | Battalion of the Infantry Regiment... |
| Batallon de Milicia | Militia Battalion |
| Batallon de Ferrocarriles | Railways Service Battalion |
| Batallon de Montana | Mountain Battalion |
| Batallon Carros de C. | MBT Battalion |
| Batallon de Blindados | Armored Cars Battalion |
| Bandera de Falange | Falange Battalion |
| Tercio de Requetes | Requetes Battalion |
| Bandera de Legion | Legion Battalion (elite troops) |
| Tabor de Regulares | Regulars Battalion (elite troops) |
| Batallon de Ametralladoras | Machine Gun Battalion |
| Batallon Móvil | Mobile Battalion |
| Batallon de Voluntarios | Volunteer battalion |
| Batallon de Carabineros | Border Police Battalion |
| Batallon de Trabajadores | Workers Battalion |
| Batallon de Zapadores | Sappers Battalion |
| Bat.Internacional de Inf. | International Infantry Battalion |
| Tabor de Tiradores | "Shooters" Battalion (Morocco elite troops) |
| Tabor de Mehal-la | Mehal-la Battalion (Morocco infantry battalion) |
| Batallon de Cazadores | Light Infantry Battalion |
| Batallon de ingenieros | Engineer Battalion |
| Batería | Battery |
| Bateria Antiaérea | AAA battery |
| Bateria Antitanque | Anti-Tank Gun battery |

| | |
|---|---|
| Compania | Company |
| Comp.de Intendancia | Quartermaster company |
| Compania de Blindados | Armored company |
| Comp. de Zapadores | Sappers/Engineers company |
| Compania de Asalto | Assault Company |
| Comp.de Tren/Servicios | Transport Company |
| Compania de Milicia | Militia Company |
| Bateria de Campana | Field Battery |
| Comp.Zap.de Puentes | Bridge engineer company |
| Compania de Requetes | Requetes company |
| Centuria de Falange | Company of the fascist party |
| Centuria | Company (in anarchist or fascist militia) |
| Escuadron de Caballeria | Cavalry Squadron |
| Requete Esc.de Caballeria | Requete Cavalry Squadron |
| Tabor de Caballeria | Cavalry Battalion (Morocco troops) |
| Seccion de Caballeria | Cavalry section |
| Seccion Carros de C. | MBT Section |
| Guarnicion | Garrison |
| Hospital Militar | Military Hospital |
| Servicio de Tren/Parque | Transport Service |

### NAVY

| | |
|---|---|
| Comandancia Naval | Naval Command |
| Administ.de Puertos | Port Administration |
| Servicios de Base Navales | Naval Base Services |
| Brig.Inf.de Marina | Marine Brigade |
| Batallon de Inf. Marina | Marine Battalion |
| Compania de Inf. Marina | Marine Company |

### AIR FORCE

| | |
|---|---|
| Grupo Aereo | Air group |
| Escuadrilla | Air squadron |
| Base de Aviación | Air Base |

| | |
|---|---|
| Aviacion Rgt | Air Force Regiment |
| Batallon de Aviacion | Air Force Battalion |
| Comp.Aviacion Base | Air Force company Base |

## 21.3 RANK TRANSLATIONS

### ARMY

| | |
|---|---|
| ALF alférez | Ensign |
| TNT Teniente | Lieutenant |
| CAP Capitan | Captain |
| COM/MAY Comandante (nats) or Mayor (repubs) | Major |
| TCOR Teniente Coronel | Lieutenant Colonel |
| COR Coronel | Colonel |
| GENB General de brigada | Brigadier General |
| GEND General de división | Major General |
| TGEN Teniente General | Lieutenant General |
| GENAR Generalisimo | Generalissimo |

### NAVY

| | |
|---|---|
| ALFN Alferez de Navío | Ensign |
| TNTN Teniente de navío | Lieutenant |
| CAPC Capitan de Corbeta | Lieutenant commander |
| CAPF Capitan de Fragata | Commander |
| CAPN Capitan de Navío | Captain |
| CONT Contralmirante | Rear Admiral |
| VICE Vicealmirante | Vice Admiral |
| ALM Almirante | Admiral |

### AIR FORCE

| | |
|---|---|
| ALF alférez | Ensign |
| TNT Teniente | Lieutenant |

| | |
|---|---|
| CAP Capitan | Captain |
| COM/MAY Comandante (nats) or Mayor (repubs) | Major |
| TCOR Teniente Coronel | Lieutenant Colonel |
| COR Coronel | Colonel |
| GENBA General Brigada aerea | Brigadier General |
| GENDA General división aérea | Major General |
| TGEN Teniente General | Lieutenant General |
| GENAR Generalisimo | Generalissimo |

## 21.4 SHIP TYPES TABLE

| CODE | SHIP TYPE | NOTES |
|---|---|---|
| CVB | Aircraft Carrier (Battle) | Variation of a CV. Primarily for the USN Midway Class. These CV's will not be present in War in Spain 1936-39 and are shown for historical reasons. |
| CV | Aircraft Carrier | Originally the designation for all aircraft carriers, But by the start of WWII this had evolved to indicate large, fast, fleet aircraft carriers. These CV's will not be present in War in Spain 1936-39 and are shown for historical reasons. |
| CVL | Light Aircraft Carrier | Smaller carriers capable of operating with the larger fleet carriers. These CVL's will not be present in War in Spain 1936-39 and are shown for historical reasons. |
| CVE | Escort Carrier | A small, slow Carrier for support use. These CVE's will not be present in War in Spain 1936-39 and are shown for historical reasons. |
| BB | Battleship | Large surface capital warships. |
| BC | Battlecruiser | A variation of Battleships that trade protection for speed. |
| CB | Large Cruiser | Large fast cruisers. |
| CA | Heavy Cruiser | Large cruisers. "Heavy" designation indicates guns larger than 6.1". |

| | | |
|---|---|---|
| CL | Light Cruiser | Cruisers equipped with smaller guns. Generally, 5" to 6" guns for it main battery |
| CLAA | Anti-Aircraft Cruiser | Cruisers specially adapted for anti-aircraft roles with AA guns as their primary weapons. |
| CS | Floatplane Cruiser | A large, faster ship specifically adapted to carry and operate float type aircraft. |
| DD | Destroyer | General purpose fleet escort, varying in size, speed and weapons. |
| DE | Destroyer Escort | A variation of a destroyer with reduced speed. Used to escort slower combat TF's and transports. |
| TB | Torpedo Boat | Smaller version of destroyers that resulted from a clause in the Naval Limitation Treaty. Not as capable as destroyers but sometimes assigned the same roles. |
| E | Escort | A foreign naval designation for warships that fall somewhere between Patrol craft and destroyer escort. |
| PG | Patrol Gunboat | Smaller warships of several types. Varying from small coastal vessels to large ocean going warships. |
| PF | Patrol Frigate | A fast escort and patrol vessel. |
| KV | Corvette | Slower ocean going ASW escorts. |
| PC | Patrol Craft | A general purpose patrol ship of varying types. Mostly for ASW patrols. |
| PB | Patrol Boat | Historically covering a wide range of ships from converted destroyers to modified fishing trawlers. |
| SC | Sub Chaser | Small, short ranged ASW ships. |
| PT | Patrol Torpedo Boat | Small fast craft armed with torpedoes and a few small guns. |
| MTB | Motor Torpedo Boat | Identical in usage to the PT Boats above. |
| MGB | Motor Gun Boat | Small boats, similar in size to PT Boats, but only armed with guns. |
| ML | Motor Launch | A British designation used similar to SC's. |
| SS | Submarine | Submersible warships generally armed with torpedoes and a few deck guns. |

| | | |
|---|---|---|
| SST | Transport Submarine | A submarine primarily used for supply transport or small infantry raids. Note that these submarines can only carry specialized troops such as commandos. |
| SSX | Midget Submarine | Very small submersible submarine used to gather intel and attack warships in enemy ports. |
| SSM | AI Minelaying Submarine | Used for the AI to lay mines. |
| SSO | Oiler Replenishment Sub | These are submarine oiler replenishment subs, (Cow) used to refuel submarines at sea. |
| AMC | Armed Merchant Cruiser | An Auxiliary Escort Cruiser converted from a fast merchant ship (usually an ocean liner). Capable of performing escort roles and transporting troops and supplies. |
| CM | Minelaying Cruiser | Larger and faster ships primarily used for offensive mine laying or operations in dangerous waters. |
| CMc | Coastal Minelayer | Smaller and slower ships primarily used for defensive minelaying. |
| DM | Destroyer Minelayer | A destroyer modified to lay mines. |
| DMS | Destroyer Minesweeper | A destroyer modified to sweep mines. |
| AM | Minesweeper | A small, usually purpose built, minesweeper |
| AS | Submarine Tender | An auxiliary used to tend submarines. Will rearm and assist in repairs. |
| AD | Destroyer Tender | An auxiliary used to tend destroyers. Will rearm and assist in repairs. |
| AV | Floatplane Tender | An auxiliary used to tend float planes and flying boats. Differs significantly from a CS in that it doesn't operate |
| AVD | Floatplane Tender Destroyer | A Destroyer modified to tend floatplanes. Retains Destroyer ASW capabilities. |
| AVP | Floatplane Tender, Patrol | Smaller converted and purpose-built floatplane tenders. |
| AR | Auxiliary Repair Ship | An auxiliary used to repair other ships. |
| ARD | Auxiliary Repair Dock | A floating dry-dock used to repair damage below the waterline. |

| | | |
|---|---|---|
| AGP | Torpedo Boat Tender | A tender for PT type craft that is capable of repairs and rearming. Including torpedoes. |
| AG | Miscellaneous Auxiliary | A general-purpose auxiliary with several uses. As a base ship can tend small craft preforming repair and rearming, not including torpedoes. Can also carry cargo in a cargo TF. |
| AO | Oiler | A ship specially equipped to carry fuel and to refuel other ships while underway or in port. |
| AE | Ammunition Ship | A ship specially equipped to carry ammunition and to rearm other ships while underway. |
| AGC | Command Ship | An auxiliary specially modified to carry Amphibious Headquarters units and to provide command and control during amphibious landings. |
| APA | Attack Transport | A transport ship specially modified to land troops and equipment during amphibious landings. Carries a large number of landing craft and can unload at an accelerated rate during amphibious operations. |
| LSI(L) | Landing Ship Infantry, Large | A British designation included for historical accuracy. Operates the same as an APA. See above. |
| LSI(M) | Landing Ship Infantry, Medium | A British designation included for historical accuracy. Operates the same as an APA. See above. |
| LSI(S) | Landing Ship Infantry, Small | A British designation included for historical accuracy. Operates the same as an APA. See above. |
| APD | Destroyer Transport | A destroyer specially modified to carry troops and light equipment. |
| AKA | Attack Cargo Ship | A cargo ship specially modified to land equipment and supplies during amphibious operations. Carries a large number of landing craft and can unload at an accelerated rate during amphibious operations. |

| | | |
|---|---|---|
| LSD | Landing Ship Dock | A special purpose landing ship with a floodable dock. This ship can load troops directly into landing craft prior to flooding. Also, it carries a large number of landing craft and can unload at an accelerated rate during amphibious operations. |
| LSV | Landing Ship Vehicle | A specially adapted cargo ship designed to unload larger vehicles during an amphibious landing. Carries a large number of landing craft and can unload at an accelerated rate during amphibious operations. |
| AP | Military Troop Transport | A ship specifically designed to transport troops. May also carry equipment and cargo. |
| AK | Military Cargo Ship | A ship specifically designed to carry cargo, including military equipment, supplies and resources. |
| AKV | Aircraft Transport | A ship specifically designed to carry aircraft as cargo. Aircraft carried on an AKV are not crated and therefore are not disabled when unloaded. |
| AKE | Ammunition Transport | A ship specifically adapted to carry ammunition but cannot preform underway replenishment. Can rearm other ships when they are anchored at the same location. Can also transfer cargo to AE ships when docked in port. |
| AKL | Light Cargo Ship | Other than size and range, similar to AK type ships. |
| TK | Tanker | A ship specifically adapted to carry fuel or oil as cargo. Cannot perform underway replenishment but can refuel other ships when anchored in the same port. |
| LST | Landing Ship, Tank | A large slow ship designed to beach and land tanks and other military equipment directly onto shore. |
| LCI | Landing Craft, Infantry | A beaching craft specifically designed to land infantry directly onto shore. |
| LCI(G) | Landing Craft, Infantry (Gun) | An LCI modified to provide gunfire support during landings. |
| LCI(M) | Landing Craft, Infantry (Mortar) | An LCI modified to provide mortar support during landings. |

| | | |
|---|---|---|
| LCI(R) | Landing Craft, Infantry (Rocket) | An LCI modified to provide rocket support during landings. |
| LSM | Landing Ship, Medium | A general-purpose beaching craft for landing troops and miliary equipment. |
| LCT | Landing Craft, Tank | A beaching craft capable of landing one or two tanks directly onto shore. |
| LB | Landing Barge | General purpose landing barges of various types. |
| LCVP | Landing Craft, Vehicle and Personnel | A small beaching craft capable of landing a single vehicle or a small troop formation directly onto the shore. |
| LCS(L) | Landing Craft, Support (Large) | A craft modified to provide close inshore support of amphibious landings. |
| YO | District Oiler | Identical function to a Tanker but has shorter range and capacity. |
| SA | Sailing Ship | Represents sailing ships of all types which can move men and material. |
| ACM | Minefield Tender | Small minefield servicing craft designed to repair and update defensive minefields. The presence of these craft will prevent the decay of a portion of the minefield. |
| YMS | District Minesweeper | A small general-purpose minesweeper. |
| YP | District Patrol Craft | A small general purpose patrol craft. |
| HDML | Harbor Defense Motor Launch | A variation of the YP. |
| AMc | Coastal Minesweeper | A small local general-purpose minesweeper. |
| APc | Coastal Transport | A small local service troop transport used for movement between islands and coastal areas. |
| xAP | Transport | Civilian passenger ships used to move troops from base to base. |
| xAPc | Coastal Transport | Small civilian ship used for movement between islands and coastal areas. |
| xAK | Cargo Ship | Civilian cargo ships used for moving military equipment, supplies and resources from port to port. |
| xAKL | Cargo Ship, Light | A smaller, shorter ranged, civilian cargo ship, used in the same fashion as a xAK. |

| | | |
|---|---|---|
| AH | Hospital Ship | Works by having medical squads in the ship TOE at slot 19. When disbanded in a port, these medical squads are added to those that work in the base. This means that LCU's in that hex will heal disabled squads faster. |
| BM | Coastal BB/Monitor | A class of a relatively small warship that is lightly armored and often equipped with disproportionately large guns. Used for coastal warfare. |
| ACR | Armored Cruiser | This ship has the capability of defeating most ships but is fast enough to get away from more powerful ships like battleships. |
| AC | Coal Collier Support Ship | A bulk cargo ship used for underway replenishment of coal to coal fired ships. |
| PR | River Gunboat | A small river craft designed to operate in rivers. Equipped with small caliber cannons or a mix of cannons and machine guns. |
| CP | Protected Cruiser | Cruisers that are typically lighter in displacement and mount fewer, lighter guns than larger armored cruisers. |
| C | Cruiser | Post WW1 cruisers which are typically smaller than battleships but larger than a destroyer. |
| BBc | Coastal Defense Battleship | Warships built for the purpose of coastal defense. They were small, often cruiser sized warships that sacrificed speed and range for armor and armaments. |

## 21.5 UPDATING AN ON-GOING PBEM GAME WITH A NEW EXE.

Upgrading the exe version in a running PBEM game will happen on occasion. Going to a new exe is done by having the Nationalist side run the PBEM turn with the new exe. Then giving orders and sending the turn to Republican side and have them execute the PBEM turn using the new exe. Basically, both are going to the new exe version after the Republican side issues orders for the turn and sends the save to the Nationalist player.

For WEGO mode the new exe is to be used by the Nationalist player before running the current WEGO turn.

This is the same for Master and slave players. The master runs the turn with the new exe. Then the player sends out his 2 saves (replay + new orders) and the slave players are to use the new exe to run the replay save.

## 21.6 HOTKEYS

The most used Menu Bar buttons have associated hotkeys which can be pressed instead of clicking on the button. Some game actions and visual display selections also have an associated hotkey. Most of these hotkeys are used on the Main Map Display during the Orders Phase to access first tier information screens.

When the Overview Report for Nations Screen (ORNS) is opened, the following Hotkeys will toggle many sub screens, second tier information:

[1] Recall Destroyed LCU's
[2] Commerce Actions
[3] Politics
[4] Pilot Replacement
[5] Sunk Ships
[6] Ship Availability
[7] Group Reinforcement Schedule
[8] LCU Reinforcement Schedule
[9] Device Pool
[0] Research and Development
[F1] Aircraft Production Pool
[F2] Aircraft Lost
[F3] Turn Summary

The following hotkeys will open many screens from the main map display:

| | |
|---|---|
| [1] | Save/Load Screen |
| [2] | Preferences Screen |
| [3] | Aircraft/Weapon Database |
| [4] | Ship/Weapon Database |
| [5] | Intelligence Screen per Nation |
| [6] | Global Base List |
| [7] | Land Based Air Groups Screen |
| [8] | Ship Based Air Groups Screen |
| [9] | Global LCU Screen |
| [0] | Toggle Strategic Map On/Off |
| [F1] | Global Ship List |
| [F2] | Global TF List |
| [F3] | Global Industry Screen |
| [F4] | Status Reports |
| [F5] | Combat Reports |
| [F6] | Operations Reports |
| [F7] | Signal Intelligence Reports |
| [F8] | Weather Forecast for Selected Hex |
| [A] | Shows Airfield Data on Map |
| [B] | Base Name Visibility (No Name/Big Bases/All Bases) |
| [D] | Terrain Description for Selected Hex |
| [E] | Shows Patrol Zones of all Task Forces on Map |
| [G] | Hex Grid Display On/Off |
| [H] | Shows Detailed Air Group Information on Map |
| [M] | Magnify Area under Cursor |
| [N] | Shows Hex Grid Coordinates in Various Colors |
| [O] | Shows TF's as Large Icons on Map |
| [P] | Shows AAR Icons on Map. Mouseover Will Show Combat Reports. The mouse wheel and left/right arrows will show the next page of AAR reports. Also, Scrolling the text for longer reports works by up/down arrows and page up/down while in the AAR report. |

| | |
|---|---|
| [Q] | Opens the Quit Game Dialog |
| [R] | Road/Railroad Display On/Off |
| [S] | Hex side Data Display |
| [T] | Next Game Turn |
| [U] | Shows Detailed LCU Information on Main Map |
| [V] | Shows the Distance from Currently Selected Hex to Cursor Position |
| [W] | Hex Border Ownership Display On/Off |
| [X] | Shows Detailed Information for Anchored Ships on Map |
| [Y] | Shows Detailed Industry Information on Map |
| [Z] | Shows Graphical Information Options |
| [SHIFT] + [U] | Shows a low detail Land Combat Information Overlay. |
| [SHIFT] + [W] | Shows the Land Combat Information Overlay. |
| [I], [J], [K], [L] | Moves the Game Map in Windowed Mode |
| [Esc} | Skip Combat/Exit Game Windows and Screens |
| [Space Bar] | Toggles between Sidebar and Windowed List Mode |
| [PgUp/PgDn] | Zoom In/Out of Game Map (And Tactical Map in Naval Combat) |
| [Num Pad +/-] | Start/Stop Time During Combat (For Systems Without a Number Pad, The Corresponding Normal Keys for + and – will work. |

In Single Player Mode (vs the AI) during naval combat the following Hotkey(s) are available:

| | |
|---|---|
| [F1] | Takes you to the Save/Load Screen |
| Special Hotkeys: | Use Num Pad 0 to 9 to jump to a preset location on the game map. Use CTRL + 0 to 9 to save a location into those presets. For systems without a Num Pad, use LEFT ALT + 0 to 9 to jump to a location on the game map and CTRL + LEFT ALT + 0 to 9 to save a location into the presets. |

**Note:** *If set, location 0 will be used for the default starting location when loading a game.*

# 22. DESIGNERS NOTES

**Project Lead – Joe Wilkerson**

A little about me. I was the project lead on the War in the Pacific – Admiral's Edition project as well and since that project completed, I wanted to do more games with a new engine. We started on that 3 times but never had enough momentum to push it through to completion. People were getting married, having kids, doing all sorts of distracting things :)

But then in 2018, Alessandro appeared and started asking me questions – and I answered. After a few months we were talking about working together. He had an "almost finished" clone of AE and while it didn't include key design elements I wanted for "new game" – it was flexible enough to be way better than twiddling my thumbs!

So, we agreed to work together, build a team and make some games.

We started on a different game besides WIS. And the first thing I did was bring in two experienced testers Brady and Brian to shake out Alessandro's "new engine" so we had a real solid idea of where we stood. Brian also became our manual guy and started working on the manual immediately. We didn't want to wait until the end of the project and go "Oh yeah, somebody needs to write the manual" :D

Gradually in 2019 we built up the team ... all living members of the AE team were invited ... a few joined ... a few more visited ... and a few others said they'd be coming when they could.

We have 5 AE team members now, which is about half the "core" team for WIS.

We continued to work on a game that wasn't WIS, until about 2022, when one team member got a wild idea and asked if he could work on a Spanish Civil War game – thinking we could "knock that one out quickly. Doing a game on that war happened to be on my "bucket list".

It starts like a "mess" without front lines – and that makes it "different" and I figured it would be a good challenge for the AI !

So, we did ... and we brought in some new subject matter experts to help, including a Spanish historian/librarian who we couldn't have done it without. By about mid-2024 I was playing the game and thinking – this finally feels like a game – this is working – I think we're ready to get on track to push this one out. So, I talked with Matrix, and they took a look and agreed. And we started down the path of getting the game finished.

The biggest area I was directly involved in was the AI. And I'm specifically referring to the "Tactical Land AI". It was good at attacking, but not so good at defending, especially against enemy breakthroughs. So, I had Alessandro read General Raus' book "German Defense Against Soviet Breakthroughs" to get his head into the mode of thinking like I do about AI ... and that is "attack enemy logistics – and defend friendly logistics". After three major efforts (with many subcycles of "test and correct – test and correct – test and correct". We got there. I was actually surprised it was so "easy" ... it only took a few thousand hours of effort on the part of the test team and Alessandro to get it to work. We drew diagrams and wrote pages of ideas about how to solve the various subproblems and each major effort cycle brought a major improvement. We'll never get done with improving the AI, but at this point I can honestly say, this is the best computer wargame AI I've ever played against ... and that's most of them!

Of course, the data team was researching the data and building the devices and units for air, land and sea ... and the functional leads came in and reviewed everything to make sure it would be consistent across all games of the series. And the internal test team, tested and tested and tested and many bugs were fixed and probably too many enhancements were added ... but people like to see their ideas get into the game. One of my biggest chores is to say "No No No" because in truth, good ideas never end – and a key role of project management is to manage scope,

stop scope creep and even chop scope to ensure we hit our date goals. If we don't have data goals, the enhancements will never end, and the game will never be released. I'm a project manager in my day job and learned all that stuff over the eons and put it into practice with this game too.

There have been a number of games on the Spanish Civil War over the years – but I think ours takes the cake in terms of detail. Hex size 5 (nautical) miles, land units at division, brigade, battalion level with lots of companies running around as well. Individual planes and ships. Much more detailed logistics than AE.

And perhaps the most important measure is "it's fun to play" ... and for me that's important since unlike WITP/AE where I've been studying that war since I knew I existed (my father served in it and my mother lived through it) ... I'm not steeped in the history of the Spanish Civil War ... but the game is fun to play so keeps my interest!

And last but not least, keep in mind, we designed this engine to support a series of games .. We have 50ish titles on our wish list. Not sure how many we'll be able to do, but now that the engine is "mostly done" (it will never be totally done) we hope to be able to make new titles faster.

So, enjoy *War in Spain 1936-39* and stay tuned for more – thanks for reading!!!

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# 24. PITEAS'S HISTORICAL STORIES AND INFORMATION

**Memories of a republican T-26 tank crewman in the Battle of the Ebro:**

We noticed the black pennant of our infantry's extreme advance flying near a rock where a nationalist truck was smoking, surrounded by corpses; the wounded enemies had been finished off.

With great determination, Lieutenant Abaunza shouted a vibrant "Let's go after them!" We hadn't gone more than 400 meters when we spotted, in front of us, four moors trying to position a german 45mm "Pack" anti-tank gun, pulled by two mules. Each vehicle fired twice, and in a brief burst of fire, everything was pulverized. For a moment, we wondered... Where were all their comrades? They had climbed a slope to our left and were now coming back down in a pack, armed with machine guns and canisters of flammable liquid. Our turrets turned a quarter turn, and we opened fire on the mass. Two or three shots each to make them hesitate, followed by bursts of 7.62mm rounds to chip them away on the slope. About twenty of them fell, but the rest weren't discouraged and plunged into the ravine, where they were out of range. It's a shame a third tank didn't arrive at the precise moment behind us. The angle of the left turn would have given it the chance to annihilate all the occupants of the ravine.

We fired relentlessly with the 7.62 mm machine gun towards the left edge, but we soon smelled the smoke from the burning engine and we were immobilized. There was no other option but to wait for the BA 6 autocannons, which couldn't be long in coming, given the inferno we had unleashed.

Shouting wildly with joy, the moors pounded on the armor with the barrels of their rifles while we pretended to be dead. The same tactic was

used on the second tank, which was immobilized like us. Fortunately for us, they had no mines. Then their shouts ceased, and they tried to break the 30-centimeter-thick, unbreakable glass used by the tank commander and the driver. We just had to wait, but in the afternoon, the heat had become unbearable, and our water supply was down to one liter each. At three o´clock, the moors started shouting again, but this time they were screaming with terror. A mechanized column was arriving and opened fire with all its guns. It was the signal to flee. We were able to fire again as they retreated. Two BA 6 self-propelled guns extended their 45mm howitzer fire and their 7.62mm machine gun burst to drive them off. In a flash, the moors had all disappeared. We abandoned our immobilized tanks and moved forward, riding in a BA6, until we reached the vicinity of Gandesa... That's where hell began.

* * *

The best Spanish pilot in the *War in Spain 1936-39*, with 511 war services and 40 downed planes is **Joaquín García-Morato Castaños.**

Born in Melilla in 1904, Joaquín García-Morato Castaños, or simply Morato, entered the Toledo Infantry Academy when he was sixteen years old and with the rank of second lieutenant was assigned to Morocco, the country where his father died in war action in 1924.

He soon became passionate about airplanes, and he requested to take a pilot course, after which he joined the Melilla Group, thus taking part in numerous actions in the war against Morocco. In 1931 he became a teacher at the Alcalá de Henares Pilot School.

In 1935 he was promoted to captain and assigned to teach at the Flight and Combat School, publishing 2 books: "Flight without external visibility" and "Aerial Acrobatics".

As an expert aerobatic pilot, he was frequently invited to participate in aeronautical competitions and festivals. While visiting England in a competition, on July 18, 1936, he was surprised by the Coup d'état. So he returning to Spain and joining the rebel army, at the beginning of August. He went on to carry out hunting missions on the Andalusian Front.

In September he began flying the Fiat CR.32, the plane with which he would fly during the rest of the war, achieving his 5th victory on September 11, being the first Spanish pilot to achieve 5 kills. He continued to shoot down enemy aircraft over the following months.

In December 1936, he created the Blue Patrol, having exclusive access to 3 Fiat CR.32, being able to operate autonomously together with the pilots Narciso Bermúdez de Castro and Julio Salvador Díaz-Benjumea. They settled in Córdoba. His plane, the "351" would become famous in the Andalusian skies.

On January 3, 1937, Morato carried out the greatest aerial feat to date, the downing in a single battle of two fast twin-engine Tupolev SB-2, nicknamed Katiuskas in Spain. They had been bombing Córdoba again and again, and its inhabitants spent a lot of time in shelters and basements; Morato studied the time, altitude and direction at which they were operating, and placed himself on guard at 5,000 meters of altitude, higher than the one they used. As soon as he saw the two twin-engine planes approaching Córdoba, he began shooting at them and set one of them on fire, which he followed until near the Andújar airfield, where it crashed. At this moment the other twin engine aircraft appeared on his tail and fired at him with its bow machine guns, without knowing the ability of its enemy; Morato veered quickly underneath and was lucky enough to hit the Katiuska in a vital spot, which fell in an open spiral and crashed to the ground two kilometers from the previous one.

In February 1937, in the middle of the Battle of Jarama, the Italian fighters refused to escort the rebel bombing groups, (equipped with Ju-52), behind the republican lines, due to the many casualties they were suffering at the hands of the soviet pilots and their modern "Mosca" fighter planes.

Morato was called to Salamanca by the head of the nationalist air force, General Alfredo Kindelan, who ordered him to join an Italian fighter squadron with his patrol to protect the Nationalist bombers.

On February 18, 1937, escorting 21 Ju-52 bombers, the Italian fighters, upon reaching the front line, refused to protect the bombers over territory outside nationalist control.

Despite not being escorted, the bombers continued the flight and after passing the front line they were attacked by more than 30 fighters of the republican air force.

Morato launched himself with his Blue Patrol (he and his two friends) to protect their bombers, getting between the enemy fighters. According to his testimony, he saw nothing, above and below, to the right and left, but enemy aircraft and he was then convinced that this was the last battle in which he would take part. But after a few minutes of uncertainty combat and seeing the predicament that the national fighters were in, the Italian pilot, Captain Nobile, disobeyed the order not to cross the front line and went to their aid, being followed by the rest of the Italian squadron. For this action, Morato would be rewarded by the nationalists with the highest military decoration: the Laureate Cross of San Fernando.

He returned to the south on March 24 and at the beginning of April received more Fiat aircraft, which allowed him to elevate his patrol, on the 4th, to squadron status.

Thanks to a new shipment from Fiat, the 2nd He-51 squadron (captain Salas) was able to be equipped with these fighters, which had a memorable performance on the Teruel front. So, this squadron was accepted by Morato as the 2nd Fiat squadron (2E3). Together, both units gave rise to the "Morato Group" (2G3) on May 4.

During the following months, the Morato group or 2G3 would fight on different fronts and Morato would score more kills.

On September 9, 1937, he handed over command of 2G3 to Captain Salas and went on to carry out a two-month commission in Italy (September 14 to November 21). Upon his return to Spain, he became chief of Operations of the Hispanic Air Brigade; Despite this, he did not stop flying and from December to June he did an average of eleven

monthly war services, most of them in his "3-51" (Fiat C.32), but also in all types of aircraft.

At the end of the battle of Teruel, on February 21, 1938, his friend Carlos de Haya lost his life in combat, leaving his body in enemy territory. Haya was an officer of the Quartermaster Corps, to which two of the main heads of the Republican Air Force, Ignacio Hidalgo de Cisneros and Antonio Camacho, also belonged to.

Morato addressed his men in the following letter: "On the Teruel front, in the vicinity of the port of Escandón, Captain Haya has fallen in combat. I am not addressing yesterday's friends or today's enemies; I do it to you, precisely, because you are companions in arms of the deceased. His wife requests his body. I make your request my own, and if one day we meet in the air, before starting the fight I will greet you in recognition. The commander of the National Air Force, Joaquín García Morato." Morato himself took this letter to the Almuriente airfield, over which he drove his "3-51" almost at ground level, on the center of which he dropped it. Sadly, he received no response.

A few days later, on March 12, 1938, when Morato was flying alone over the front, he encountered a formation of 2G3, which automatically handed over command to him. Near Híjar, a town that the national vanguards were approaching, he fought against twenty I-15s, two of which were shot down by him (victories 29 and 30).

On June 25, flying only from the front, on a recon mission, he surprised a large air formation of up to 50 aircraft, including

"Natachas" and fighters; he attacked the bombers, without the fighters noticing, when the anti-aircraft artillery began to fire as well.

Two of the Natachas were shot down.

On December 22, the offensive in Catalonia began and on the 24th, going to the front of 3G3, he surprised and destroyed a squadron of Natachas, of which he himself shot down three (victories 37, 38 and 39).

At the end of 1938 he was appointed head of the Fighter Squadron, which included the Fiat 2G3 and 3G3 groups and a new one in formation,

the mixed group 5G5. In this new position he obtained his 40th aerial victory, over an I-15, on January 19, 1939.

On February 21 and 22 he led the air parades over Barcelona and Tarragona, on February 23 he was awarded the collective Military Medals of groups 2G3 and 3G3, and on the 28th of that month he moved the squadron HQ to Salamanca.

Here he tested the new Messerschmitt Me 109 fighters assigned to 5G5 and on March 10, 11 and 12 he carried out his first war services with this type of aircraft. He ended his war action on March 28, 1939, with air protection over the Ocaña-Aranjuez front, at the head of group 3G3.

Three days after the end of the Spanish Civil War, on April 4, 1939, Joaquín García-Morato died as a result of an accident while giving an exhibition for the making of a war film in Toledo with his famous plane "3-51". A sad end for the great Spanish ace who dominated the skies during the Civil War. He was 35 years old.

After he died, Franco granted him the title of "Count of Jarama." Now he is a soul with a noble title.

* * *

**Frank G. Tinker, the American ace in *War in Spain 1936-39***

Little known are the exploits of the american pilots who fought in the Air Force of Republican Spain against the best that Franco, Mussolini and Hitler sent into combat. One of them was Frank Glasgow Tinker. He was the first american to shoot down a Messerschmitt Bf 109 and most likely the

only american pilot who was commanded, in combat, by a Russian and commanded Russians as a lieutenant of the Republic of Spain.

He was born in the southern United States, precisely in the state of Louisiana on July 14, 1909. He joined the navy as a reconnaissance pilot, but his commission ended due to insubordination. When the Civil War began he secretly requested to be transferred to Spain via the Mexican embassy and arrived in Valencia via France. He joined the Spanish Air Force under the alias Francisco Gomes Trejo (note that the initials correspond to the F.G.T.'s real name).

In his contract, $1,500 per month of combat and a bonus of another $1,000 per plane shot down. From January 7 to July 29, 1937, Frank Tinker flew a total of 191.20 hours and shot down a total of 8 enemy aircraft.

On January 23, he was assigned to a fighter unit, the 1st "Chatos Squadron led by Andrés García La Calle and which used the Soviet Polikarpov I-15 "Chato" biplanes. Captain LaCalle's Chatos squadron consisted of 25 aircraft, divided into 6 groups of 4 members each (theoretically). One of these groups was called the 'Patrulla Americana' (American Patrol). It was made up of three north american pilots: Harold Evans Dahl, Jim Allison and Frank Tinker.

Franks first kill was an Italian Fiat CR 32. During a second mission six days later, he flew as an escort for bombers and shot down another one. On April 17, while patrolling the Teruel front, he shot down a Heinkel 51 of the Condor Legion.

As soon as he finished the flights, he didn't waste a minute. Whenever he could, he went to the Florida Hotel, where the entire colony of american reporters was staying in. There he drank and talked, listened to music and enjoyed his Spanish admirers, some of whom were jealously concerned that he did not send his entire mercenary salary to his mother in the United States.

Tinker was later assigned to the Soviet Fly Squadron (I-16s) commanded by Captain Ivan A. Lakeev. On June 2, Tinker shot down

another Italian Fiat CR 32. On June 16 he again destroyed another CR 32 and on July 12 Tinker became the first american to shoot down a Messerschmitt BF 109. This BF-109B-2 ('Bertha') WNR 6-4 was of the Condor Legion, and it was piloted by Uffz Guido Honess of 2./J88 squadron, who until that day had recorded 3 victories against Russian bombers. Honess fell to the ground from 2500 meters and died. Some of the pieces of his plane are in the Condor Legion Museum in Leon, Spain.

Tinker recorded his seventh victory five days later when he shot down another Messerschmitt BF 109 during an escort mission. Tinker's last shootdown was on July 18 and consisted of an Italian Fiat CR 32 during an escort mission.

The American "ace" was exhausted. The alarms, the very tough combats, the dead companions and the almost two hundred hours of flight that he had accumulated in less than six months weighed heavily on him. On July 29, after completing five hours of fighting over Madrid, he asked to terminate his contract with the Republic to return to the United States.

Upon his arrival in New York City, Tinker's passport was confiscated by the State Department. A virtual prisoner in his own country, Tinker moved to Arkansas and wrote a wartime memoir entitled "Some Still Live", which was subsequently published in the U.S., England, and Sweden. Selections of his book were serialized in The Saturday Evening Post. With this testament behind him, Frank grew bored and wanted to return to Spain. His way was blocked, however, because of his earlier violation of America's neutrality laws. He briefly considered a stint with the Flying Tigers in China but instead succumbed to depression and alcoholism.

When Franco announced his victory in April 1939, Tinker decided to end his life a few weeks later, unable to accept the fact.

His close friend E. Hemingway mourned his death: "Was sorry I did not see Frank Tinker before he took such a drastic step. I have argued

with myself so often that I think I could have kicked the idea out of his head. He was a good fellow; very brave and a truly fine flyer."

20 years later, Tinker was recognized in the United States as a gentleman freedom fighter.

* * *

**A short and exemplary story of the Spanish Civil War, For your eyes only:**

The Nabarra

Pressed by the needs of the war, the Basque government organized a flotilla with the resources at its disposal. It transformed four codfish boats into "bous" (armed vessels). One of them was launched in 1928 as the 'Vendaval' and later became the 'Nabarra'.

On March 5, 1937, the Nabarra was part of a convoy of four boats that was to head out to sea to accompany the merchant ship 'Galdames', which had left the French port of Bayonne with various supplies.

The flotilla faced two dangers: heavy seas, which dispersed it, and the heavy cruiser "Canarias," sent to reinforce the maritime siege of the northern front and conceived to be the pride of the republican Navy. but in rebel hands it became a formidable weapon against them.

The other "bous" shied away from the battle and, although battered, managed to escape. The "Galdames", one of the codfish boats, raised the white flag and surrendered. But the "Nabarra," under the command of captain Enrique Moreno (30 old), overcame the difference in strength and fought in the middle of a strong swell, a grey sky, wind and showers.

It was one of the most unequal naval battles in history. A codfisher with a 47 mm cannon on the bow and a 52 mm cannon on the stern against a heavy cruiser with eight 203 mm cannons, eight 120 mm cannons, and twelve torpedo tubes.

Pulling in as close as possible, taking advantage of the strong waves, the humble codfisher managed to land a few cannon shots on the cruiser's port bow and others that hit its masts and antennas.

For an hour, maneuvering through the waves, the Nabarra sustained fire in a manner that the enemy themselves, the Canarias's commander and firing director, would later describe in their reports as "effective and admirable". Finally, a direct hit landed on the Nabarra's bridge, killing the helmsman and second officer. Another 203-millimeter shell struck the engine room and killed everyone there. Now without control, although firing incessantly, the codfisher took further enemy cannon fire.

Finally, seeing the impossibility of continuing the battle, its commander Moreno ordered the survivors to try to save themselves, remaining on board with the first officer until the ship exploded and sank. Only 20 of the 49 crew members managed to reach the lifeboats. The rest, including the captain, disappeared at sea. The cook, Pedro Elguezábal, also died with them. As they were sinking, encouraged by a bottle of cognac, he showed the Canarias a knife from the side, shouting: "Come if you have balls, bastards."

The 20 survivors of the Nabarra were sentenced to death after landing and imprisonment. However, the sentence was not carried out thanks to the efforts of the Canarias' commander and especially the tenacity of his second in command, lieutenant commander Manuel Calderón, who went so far as to request an interview with general Franco, in which he argued: "Those men are heroes and heroes deserve to live." He so repeatedly praised the courage of those 20 sailors that, to get rid of him, Franco finally granted them pardon and their immediate release. "Get them out of jail," were his exact words. "And then invite them to eat squid. But pay out of your own pocket."

Manuel Calderón continued to care for the survivors of the Nabarra for the rest of his life. He found work for some, and protected everyone from reprisals.

Proof that the men of the Nabarra professed loyalty and appreciation for him is that when Calderón, single and childless, died in 1979 in a nursing home, his former enemies made him godfather to thirty-two children and grandchildren.

**Ten famous weapons that debuted in the Spanish Civil War**

- **Polikarpov I-15:** Nicknamed El Chato (The Flat) because of its flat nose. This soviet aircraft arrived in Spain as a prodigy of speed and height (it could fly between 300 and 450 meters above Italian and Spanish aircraft). It has been on the republican side since the first moments of the conflict and is used as a fighter, to strafe ground positions and to protect convoys.
- **Polikarpov I-16:** Nicknamed La Mosca (the Fly) because of its motor noise. Capable of reaching great speed and height, it is one of the first monoplane aircraft, a novelty in the aeronautical field. It also arrived at the beginning of the war and was used as a fighter throughout the war, where it participated in battles such as Brunete or the Ebro. From the tests in Spain with the I-16, the Soviet Union created a combat aircraft that it will use during World War II.
- **Messerschmitt BF-109:** Nicknamed El Meser. It arrives with the Germans of the Condor Legion, who jealously guarded their most sophisticated aircraft for their pilots. It is one of the first modern fighters and arrives to combat the I-15 and I-16 of the republican side. At the beginning of 1937 it managed to match these planes in speed, although not in height. It was used to attack ground positions and protect bombers. During the Spanish conflict it was greatly improved, and its subsequent versions would be the core of the German fighter force in World War II.
- **Heinkel He 111:** Nicknamed Pedro (its code name). The He 111 is already a modern bomber. It has a capacity to carry bombs in much higher numbers than bombers of the time and has two engines and has sophisticated engineering for aircraft of the time. It has optical sights that improve aiming and is the first German aircraft to have a radio to communicate with the ground. It was perfected in the *War in Spain 1936-39* and would later carry out some of the most destructive bombings of the Second World War,

such as those bombings of Coventry and London. In Spain it was used to bomb cities and industrial complexes. In the bombing of Guernica, a raid was carried out only with this type of aircraft to better study the effects they caused.

- **Tupolev ANT-40:** The Soviet Aircraft always had nicknames. This one was Katiuska. It is the first soviet high-speed bomber with high bomb-carrying capacity. It was used in bombings against the civilian population, such as that of Cabra (Córdoba), frequently described as the equivalent of Guernica on the opposing side. It would evolve and the Soviet Union would use it in World War II, being decisive in important battles, such as Stalingrad.
- **Stuka (Junker Ju 87):** Curiously... Not nicknamed. One of its kind with such precision and speed had never been seen before. This type of aircraft was launched towards the target and dropped the bomb with greater aim and closer to the ground than traditional bombers. It premiered in Spain, although very few arrived: these would participate in the Battle of Teruel or the advance towards Bilbao. With some modifications, it will be the most representative aircraft of the Germans in World War II.
- **T-26:** Nicknamed Ruso (Russian) It is the first modern tank. There are two aspects that stand out above other tanks of the time. It has a 37mm cannon, while the rest of these machines only had machine guns. The second aspect is a medium wave radio that every fourth T-26 carried, to transmit and receive orders from the command post. They were so sophisticated that, according to some sources, the nationalists offered a reward of 3,000 pesetas to anyone who captured one of these tanks. The T-26 stood out in the Battle of Brunete and then in the Ebro. With the experience they obtained, the Soviets designed the T-34 tank, which would be their main weapon in World War II.
- **Panzer I:** Nicknamed Negrillo (the little black). The Germans realize that their tank needs a cannon and modify the design of

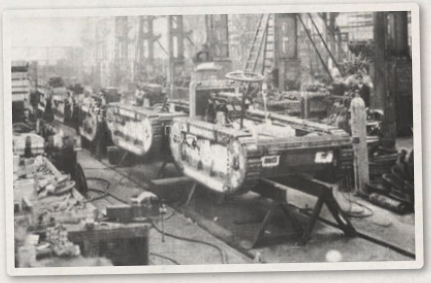
the Panzer I to include it. This tank participated in the Battle of Jarama, Brunete and also in the Ebro.

- **88 Flak:** Nicknamed Flaco (skinny). It is a German made anti-aircraft cannon, the first rapid-fire gun that has an electromechanical direction of fire to more reliably predict the trajectory of the projectile. In Spain it was used in the air bases of the Condor Legion and, based on these tests, it was modified to improve the cannon and the direction of fire. In World War II it will be the German antiaircraft weapon par excellence.
- **Do 17:** nicknamed Bacalao (cod). They were sent in the spring of 1937 to the Condor Legion and replaced the Heinkel He 70F-2, which passed into the hands of the Spanish. The new planes demonstrate their ability to evade the republican fighters in terms of speed and the Do 17E-1 bombers begin to arrive, 20 in number, according to some authors, are integrated into the bombing squadrons of the Condor Legion.
- **Trubia Tanks (Made in Spain):** Why didn't Spain build tanks? It was a country that built cars, trucks, cannons, and even submarines. Of course, most were foreign models modified with permission, but they were built in Spanish factories and shipyards. Why not a tank? Well... Spain wanted to build a tank since the 1920s. There were several projects, but it wasn't until the 1930s that the republican government decided on a light tank, appropriate for the Spanish terrain... and they created this monster, the Trubia:

But when the war began, in the metal factories of Bilbao, they decided to improve it. They created this little monster...


Below is the "Trubia Naval" model which has 2 guns.

The production was higher, as you can see….



Here's a Trubia Naval being tested. In the background, the Bilbao factories.

In August 1936, Captain Ignacio Cuartero arrived in Bilbao from the Trubia factory. After being impressed by the incredible production facilities in the area, Cuartero suggested producing a tank to reinforce the ranks of the Northern Army. The project was approved, and Cuartero traveled to Trubia to learn about previous designs and build a tank based on them. The choice was the Trubia Model 1936, or Trubia Naval (named after the factory where it was built).

The design of the new tank was based on the Trubia plans but was adapted to the material limitations of the war; for example, the engine installed depended on what was available at the time of production. The cannon was replaced with 7.62 mm machine guns on the first tanks. Other minor changes were made, such as modifications to the exit hatch and modifications to the radiator grille.

Serial production began at the Naval Factory (Bilbao). The total number of units built is unknown, as the relevant official documents have been lost, but it is estimated to have been between 30 and 45 tanks. Not all tanks were the same, as they were modified depending

on availability. A few units were equipped with 7.7 mm Lewis machine guns. The final Trubia-Naval units were fitted with 45 mm cannons to augment their poor firepower against armored vehicles.

Armor also varied over time. Early units used 10 to 20 mm steel plates. In final production, the plate thickness ranged from 15 mm to a maximum of 57 mm. This thickness gave the tank good protection against anti-tank shells.

Its crew consisted of three men, and its weight ranged from 8 to 10 tons. Its dimensions were 3.5 meters long, 1.70 meters wide, and 1.85 meters high.

* * *

The Spanish Battleship Jaime I. She was the third and final ship of the España-class battleships, built for the Spanish Navy in the early 20th century. Jaime I saw action during the Rif War, where she supported government forces by bombarding rebel positions along the Moroccan coast. At the outbreak of the Spanish Civil War, she remained loyal to the Republican Government. Tragically, in June 1937, she was destroyed by a catastrophic internal explosion while anchored at Cartagena, ending her service in dramatic fashion.

# 25. CREDITS

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