MILVIZ

FG-1D CORSAIR

Product Manual

IMPORTANT INFORMATION

This manual is for flight simulation use only.
Do not attempt to use any part for real flight operations.

This software is an artistic representation of the subject matter.

Military Visualizations Inc. does not endorse, nor in turn, is endorsed by the manufacturer(s) of the depicted subject matter.

Using this product in any simulator other than MS FlightSimulator 2020 is strictly forbidden and constitutes a breach of the Eula.

By installing this software, you are hereby agreeing to the above terms and conditions. Any breach of the above EULA will result in litigation, removal of license and/or forfeiture of continued support.

Any inquiries regarding commercial, military or academic use of this program should be directed via e-mail to info@milviz.com.

Product support is provided by Milviz via the product support forums.
For access please email info@milviz.com with your proof of purchase and preferred, or existing, forum user-name.


THAT NEW
"CORSAIR"
THAT'S FOR ME!
GET 'EM UP FOR YOUR NAVY !

TABLE OF CONTENTS

INTRODUCTION

The Corsair is arguably the most visually distinctive fighter airplane of the Second World War. Unmistakable with its rear-set cockpit, massive propeller and cranked “gull wings”, this robust and versatile aircraft was one of the longest-serving fighters of the last century. Entering service in 1942, it was still flying and fighting right into the sixties. The Corsair saw action in the Second World War, the Korean War and various other hostilities right up to its last kill in 1969.

The gull-wing design, implemented to accommodate the mighty Pratt & Whitney R-2800 -8W “Double Wasp” with its huge Hamilton Standard Hydromatic propeller, enabled short and sturdy undercarriage legs, ideal for carrier operations, and the un-faired perpendicular wing-fuselage joints, were aerodynamically efficient and contributed to its high speed.

During the War, demand for these sturdy aircraft increased, outstripping Chance-Vought’s supply capacity. Rival manufacturers Brewster and Goodyear were tasked with meeting the shortfall. The designation FG-1D identifies our Corsair as a Goodyear built aircraft.

The Milviz FG-1D is loosely based on FG-1D Bu No.92132 . Manufactured too late for war service, the aircraft spent its naval career in the Reserves before being retired in 1957. In the 70’s, she was brought up to “good enough” flying condition and used in the TV series “Baa Baa Black Sheep”, but then sat again for decades before being acquired by the Tri-State Warbird Museum (Batavia, Ohio), which is currently in the process of restoring the aircraft. A history of the aircraft can be viewed here:
Link: CORSAIR/Bu. 92132
Link: POOR LITTLE LAMBS – The Corsairs of Baa Baa Blacksheep

To re-live the exploits of ‘Pappy’ Boyington and the VMF-214 Black Sheep squadron, spawn at AGEV, Geva airport, Gizo, Solomon Islands.

PRODUCT FEATURES & HIGHLIGHTS

- Realistic flight dynamics
- Realistic startup and shutdowns
- Realistic systems and avionics
- Realistic engine modeling with water injection and supercharger
- High quality external model using normal, bump and specular maps
- High quality internal model complete with custom 3D gauges
- Accurately modeled electrical system and cockpit lighting
- Authentically animated high air-load flap blowing and undercarriage dive brakes
- High resolution layer based paint kit available for download
- Full weapons loadout including rockets and bombs
- 21 HD liveries included

At the time of release there are features of the real aircraft that are either not permitted, or not possible for us to recreate in Microsoft Flight Simulator 2020 in its present state of development.

Please note due to current limitations of the platform:

- Weapons loadouts can be selected but the weapons themselves are inop.
- Differential braking, although limited in its effectiveness compared to previous simulators, can be used in conjunction with the free castoring tailwheel to achieve a tight turning radius during ground operations. Pilots may find use of the rudder to be of help while attempting to use differential braking.
- Weapons control, together with radio and oxygen systems are animated and clickable, otherwise inop.
- With wings folded, throttle is automatically limited to 25% power to prevent takeoff; (currently MSFS2020 wings have the same flight characteristics whether folded or unfolded).
- At present, the MSFS2020 AI does not respect the tendency of a carefully balanced taildragger to tip forward when braking hard during a fast taxi, and as such, it cannot be trusted to safely taxi the Corsair during the opening cinematic when choosing a runway start, nor can it be used to effect an assisted landing.

SYSTEM REQUIREMENTS

The following requirements apply as a minimum to successfully install and operate the Milviz FG-1D.

Please note that choice of scenery, location, simulator settings and 3rd party utilities may place additional demands on your simulation platform.

SUPPORTED PLATFORMS:

- Microsoft Flight Simulator 2020

Note: This product is intended to be operated with a fully up-to-date installation of MSFS2020. This includes any released updates, patches, hotfixes, or point releases. However, because updates to MSFS2020 can sometimes cause compatibility issues with existing aircraft of a complex nature, please understand that it may take our team some time to prepare the necessary fixes for your product.

SUPPORTED OPERATING SYSTEMS:

- Windows 10

PROCESSOR (CPU)

- Intel i5-4460 / AMD Ryzen 3 (minimum)
- Intel i7-7700 / AMD Ryzen 5 (recommended)

VIDEO CARD (GPU)

- GTX 1060 Ti / Radeon RX 570 (minimum)
- RTX 3060 / AMD Radeon RX 590 (recommended)

VIDEO MEMORY (VRAM):

- 8 GB RAM

SYSTEM MEMORY (RAM):

- 16 GB RAM

DISK SPACE

- 1.2 GB

GAMING CONTROLLER

- Joystick, yoke, or other gaming controller

MULTIPLAYER

Please note that in multiplayer, your aircraft will only appear as our FG-1D Corsair if you and your player-partners all own the product, or you have bought it from the MSFS2020 marketplace.

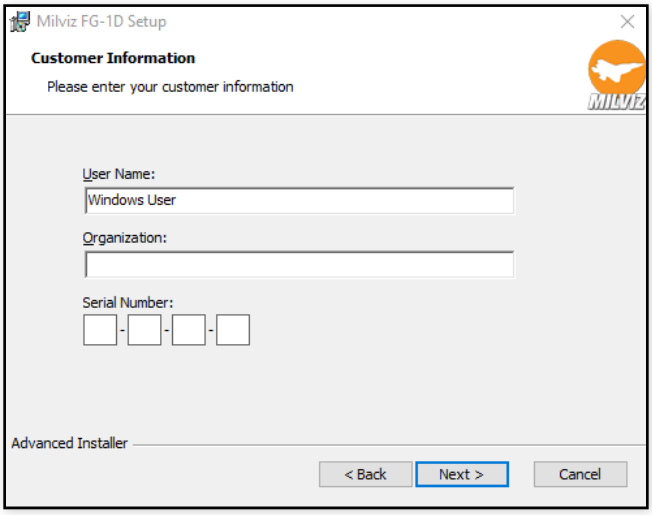
INSTALLATION INSTRUCTIONS

Please note: If you purchase via the MSFS2020 Marketplace, installation will be automatic and the following article does not apply

After purchase, you will have been given a link or an option to download a zipped (.zip) file. This compressed file contains an executable (.exe) file, which is the installer for the MilViz FG-1D.

Extract the compressed file to the temporary folder of your choice using an archive utility (like 7.zip)

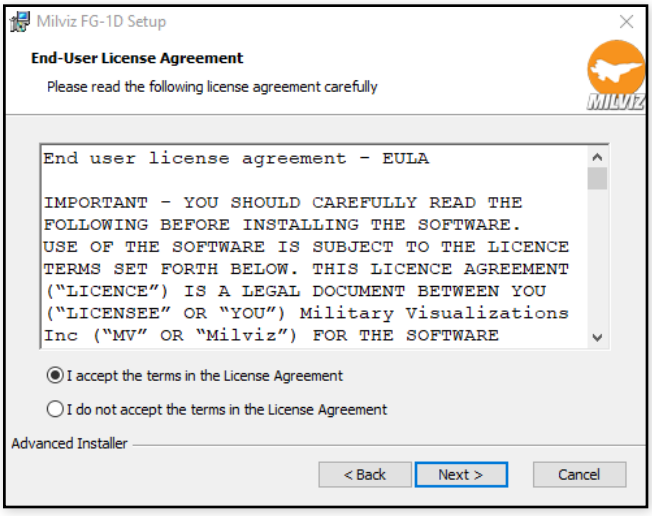
To begin installation, navigate to the extracted .exe and right click, selecting “Run as administrator”.

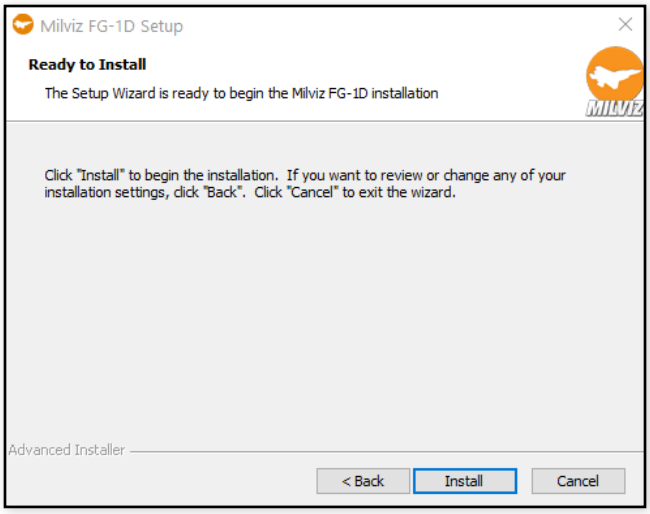


After clicking through on the initial setup screen, you will come to the Customer Information window.

Fill in the fields, and enter the 12 digit activation key that was included in the purchase confirmation documentation

If you agree to the terms of the License agreement, click accept and the installation window will follow.





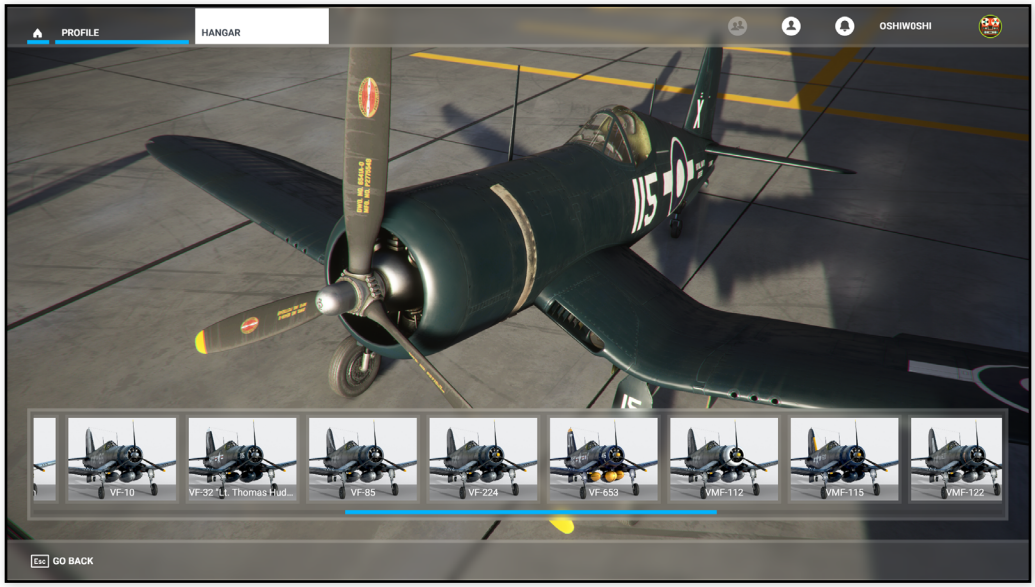
Click 'Install', and everything from here on in will proceed automatically.

Congratulations! The Milviz FG-1D corsair has been successfully installed!

Note: Uninstalling Microsoft Flight Simulator 2020 will erase the community folder and its contents, so please ensure you have made a back-up of your community folder before uninstalling.

CONFIGURATION

Choose out of twenty-one liveries by either navigating to PROFILE > MY HANGAR > LIVERIES or WORLD MAP > AIRCRAFT SELECTION > LIVERIES.



HANDLING

The real-life Corsair was notoriously badly behaved at low speeds. Lack of rudder authority meant that at take-off taming the torque of the massive Double Wasp was a difficult task for even the experienced pilot.

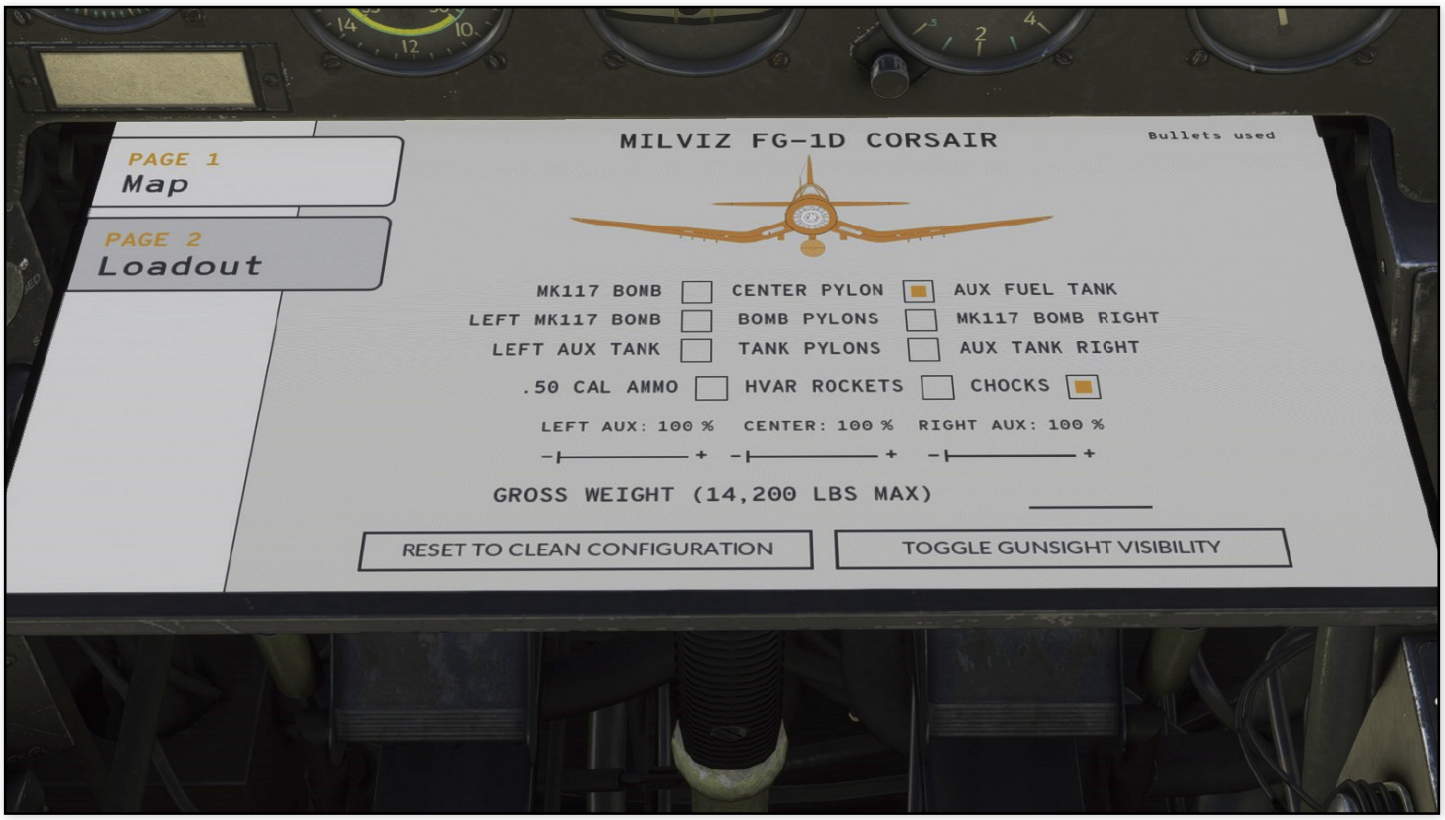
In the Milviz FG-1D Corsair, the flight dynamics have been tempered a little, however, if you prefer more of a challenge, set the Autorudder to 'OFF'. (If using autorudder, no trim is required for takeoff.)

As is typical of nose-heavy tail-draggers, injudicious application of toe-brakes will result in prop-strike face plants; especially on rough airstrips!

Ensure OPTIONS > FLIGHT MODEL is set to 'MODERN'.

INSTALLATION & CONFIGURATION

CHART BOARD LOADOUT UTILITY



The chartboard is located on the front panel in between the lowest gauges and your knees (refer to p.15). Click on the edge of the board to extend it, and then click on the chartboard itself to reveal the load-out utility and the moving map.

Page one shows a moving map, styled to resemble the charts of the day.

Page two allows configuration of the loadout while on the ground. From here it is possible to:

- Select weapons configuration. (See p.33)
- Select drop-tanks.
- Select fuel quantity of external tanks.
- Show or hide the cockpit weapons systems (gunsight, gun switchbox, rocket switchbox)
- Reset to a clean configuration without external pylons.
- Toggle chocks.

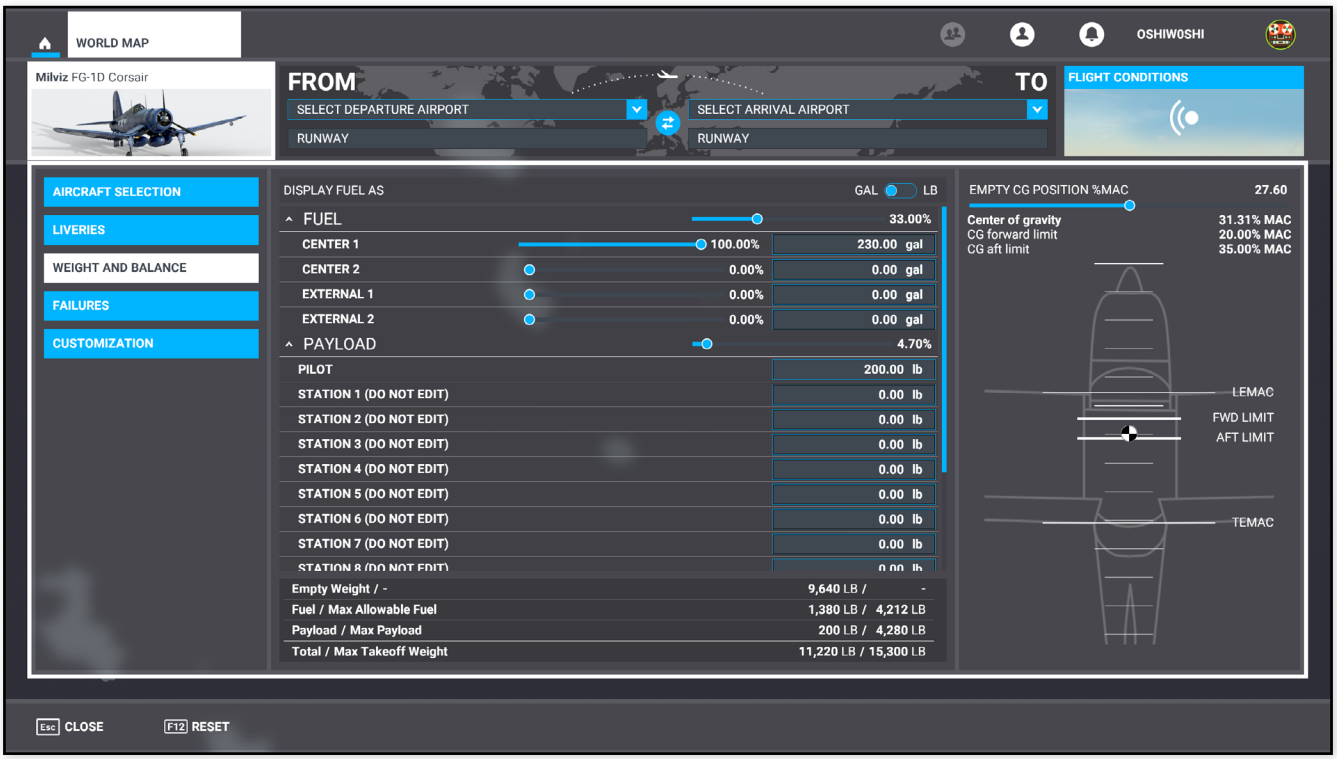
All selections affect the gross weight, which in turn will affect the flight performance.
Please be aware that it is possible to overload the aircraft causing it to become difficult, if not impossible to fly.

To change the quantity of fuel in the main tank, we recommend doing so via the Weight And Balance menu (WORLD MAP > AIRCRAFT SELECTION > WEIGHT & BALANCE) before starting your flight.

The utility is electrically powered requiring the battery to be switched on if the engine has not yet been started.

INSTALLATION & CONFIGURATION

FUEL



In addition to the Chartboard Loadout utility, fuel quantity can be also set using the default MSFS2020 methods found at the WEIGHT AND BALANCE page, or via the in-game FUEL drop down menu.

Presently, due to the MSFS2020 naming rules, it may not be obvious which tanks are which.

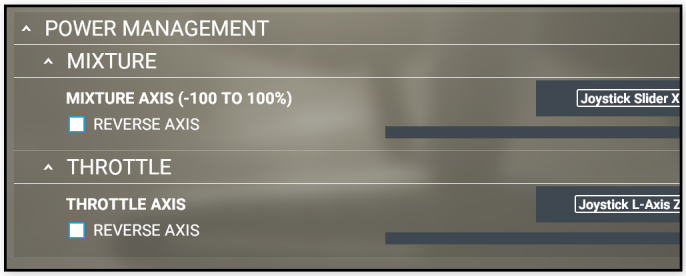
- CENTER 1 is the main internal fuel tank (including reserve standpipe amount)
- CENTER 2 is the ventral drop-tank situated on the aircraft center-line
- EXTERNAL 1 left drop-tank
- EXTERNAL 2 right drop-tank

Set fuel amounts using the MSFS2020 default dialogues before configuring external stores in the chartboard utility. If fuel quantities are adjusted via the default methods, drop-tanks will spawn on the pylons replacing any previously selected bombs.

Main internal fuel tank quantity (CENTER 1) can only be adjusted using the MSFS2020 default dialogues.

MIXTURE

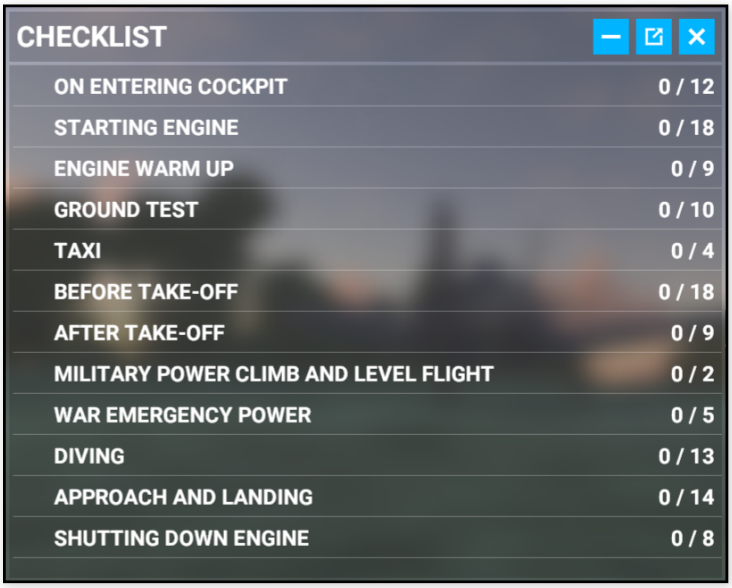
Using the
OPTIONS > CONTROLS > POWER MANAGEMENT
dialogue, ensure mixture axis is set to '-100 - 100%'.



CHECKLISTS

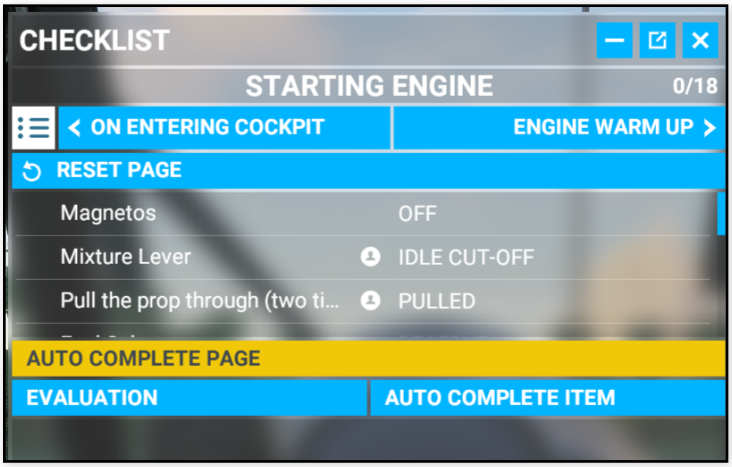
Interactive checklists in MSFS2020 render much of the following manual redundant as they neatly itemise all the steps required for each procedure.

- On Entering Cockpit
- Starting Engine
- Engine Warm-up
- Ground Test
- Taxi
- Before Take-off
- After Take-off
- Climb & Level Flight
- War Emergency Power
- Diving
- Approach & Landing
- Shutting Down Engine



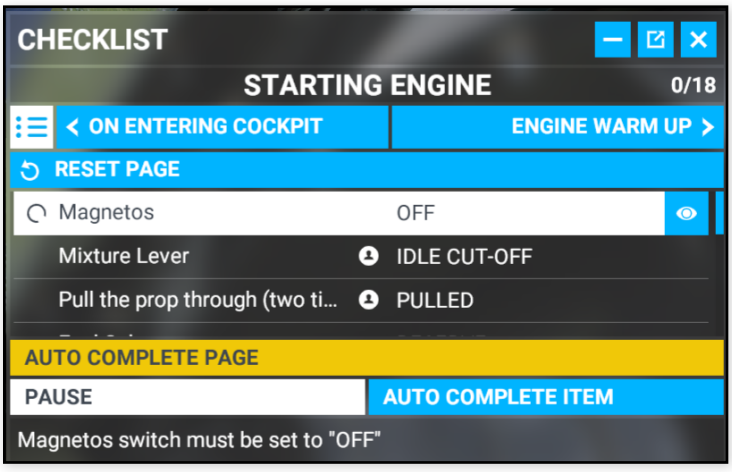
It's your choice whether you read the lists and complete each one manually, or click 'Evaluation' to have the sim focus the view on the next item, with the specific control highlighted.

Note that any item with a pilot icon will require input in order to proceed to the next step.



Pilot Input Icon

Using the 'Auto Complete' option is not recommended due to inconsistencies with our custom code. Items will appear checked when in reality they have not been completed.



For those that prefer to fly 'by-the-book', the rest of the manual is for you...

DESCRIPTION

MILVIZ

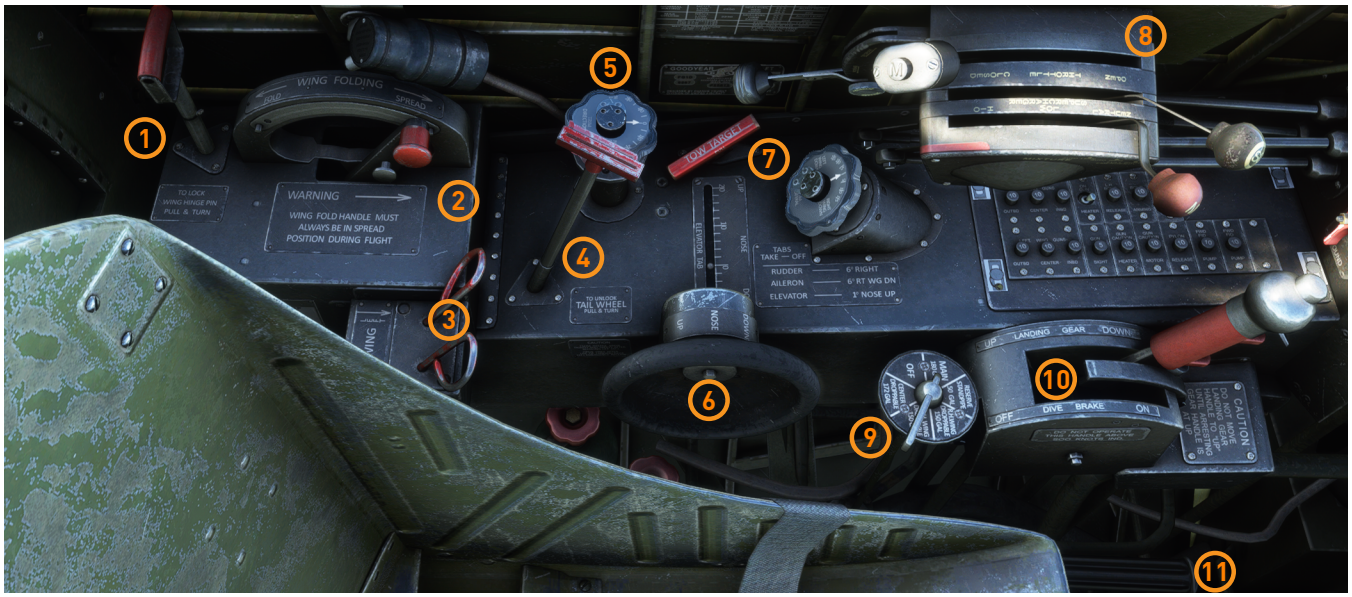
GENERAL

The FG-1D airplane is a single-engine, single-seat, folding low-wing monoplane designed as a long-range fighter-bomber for carrier and land based operations.

- Crew: 1
- Length: 33 ft (10.26 m)
- Wingspan: 41 ft (12.5 m)
- Height: 12 ft (4.5 m)
- Empty weight: 9,205 lb (4,175 kg)
- Loaded weight (no external load): 12,028 lb (5,714 kg)
- MAX takeoff weight: 15,415 lb (6,990 kg)
- Power plant: 1× Pratt & Whitney R-2800 -8W “Double Wasp” two-row radial engine with a two-speed two-stage supercharger, 2,000 hp (1,491 kw)
- Propeller: 3-blade Hamilton Standard Hydromatic 6501-A/6541A-0
- Propeller diameter: 13 ft 1 in (4.0 m)
- Fuel capacity: 250 U.S. gal (946 L) internal; up to 3x 150 U.S. gal (568 L) external drop tanks
- Drag area: 7.05 ft² (0.65 m²)
- Aspect ratio: 5.5
- Maximum speed: 369 knots (425 mph, 787 km/h) at 20,000 ft (6096 m)
- Stall speed: 77 knots (89 mph, 143 km/h)
- Combat range: 285 nm (328 mi, 528 km)
- Ferry range: 873 nm (1005 mi, 1617 km)
- Service ceiling 37,000 ft (12,600 m)
- Rate of climb: 3,120 ft/min (15.9 m/s)
- Take-off roll (no headwind, soft runway): 950 ft (290 m)

Cockpit - Forward

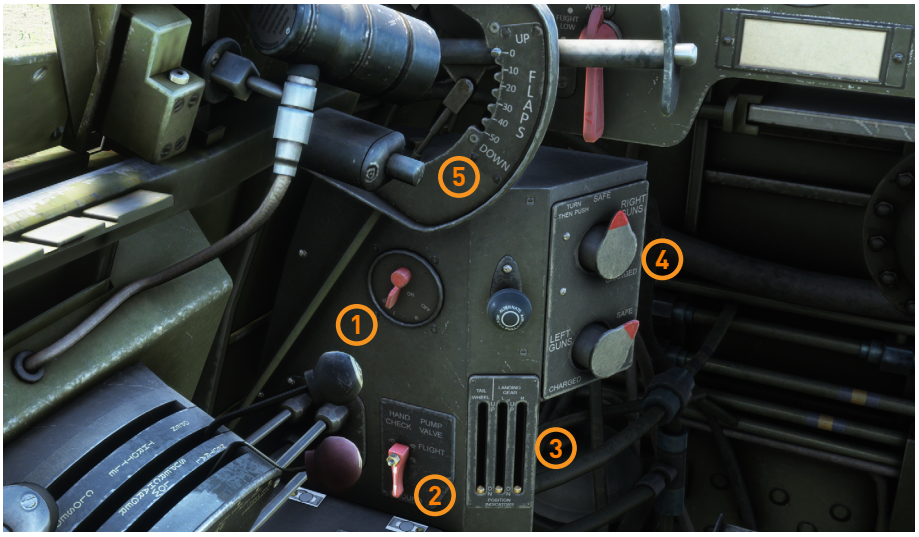
1. Gun switch box
2. Gunsight
3. Bomb switch box*
4. Instrument panel
5. Droptank switch
6. Flaps indicator
7. Chart board
8. Rocket switch box*



Cockpit - Left

1. Hinge-pin lock
2. Wing fold control
3. Manual tank/bomb release
4. Tail wheel lock
5. Rudder tab trim wheel
6. Elevator tab trim wheel
7. Aileron tab trim wheel
8. Engine controls
9. Fuel tank selector
10. Landing gear/dive brake control
11. Hydraulic hand pump

COCKPIT & CONTROLS

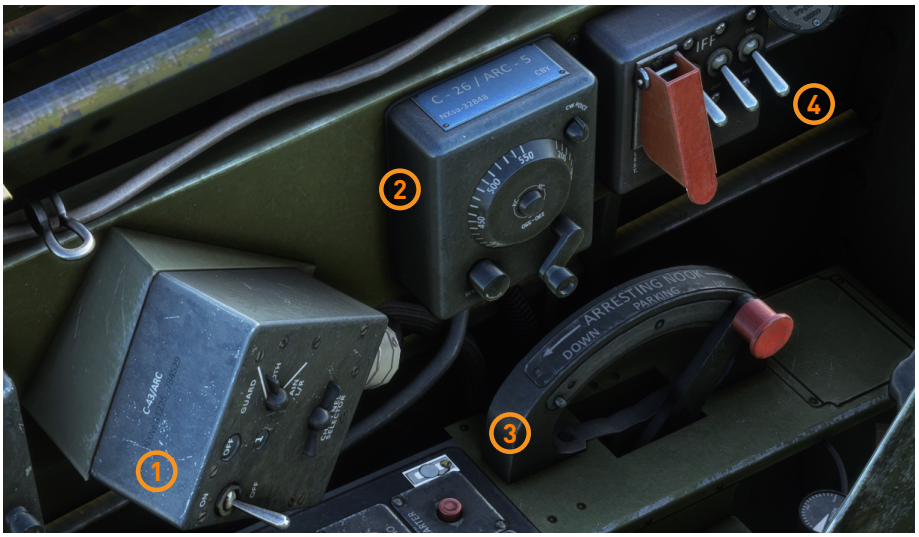


Cockpit - Forward-left

1. Ignition switch
2. Pump check-valve
3. Landing gear indicator
4. Gun charging console
5. Flap lever/indicator

Cockpit - Right

1. Cooling flaps control
2. Radio equipment
3. Pilot's electrical distribution box

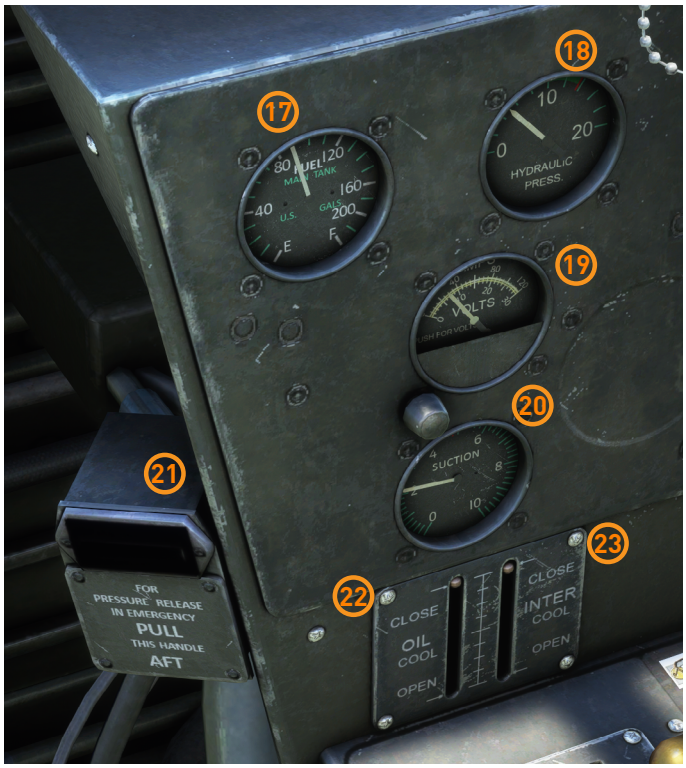


1. C43/ARC control*
2. C26/ARC-5 control*
3. Arrester hook control
4. IFF control*

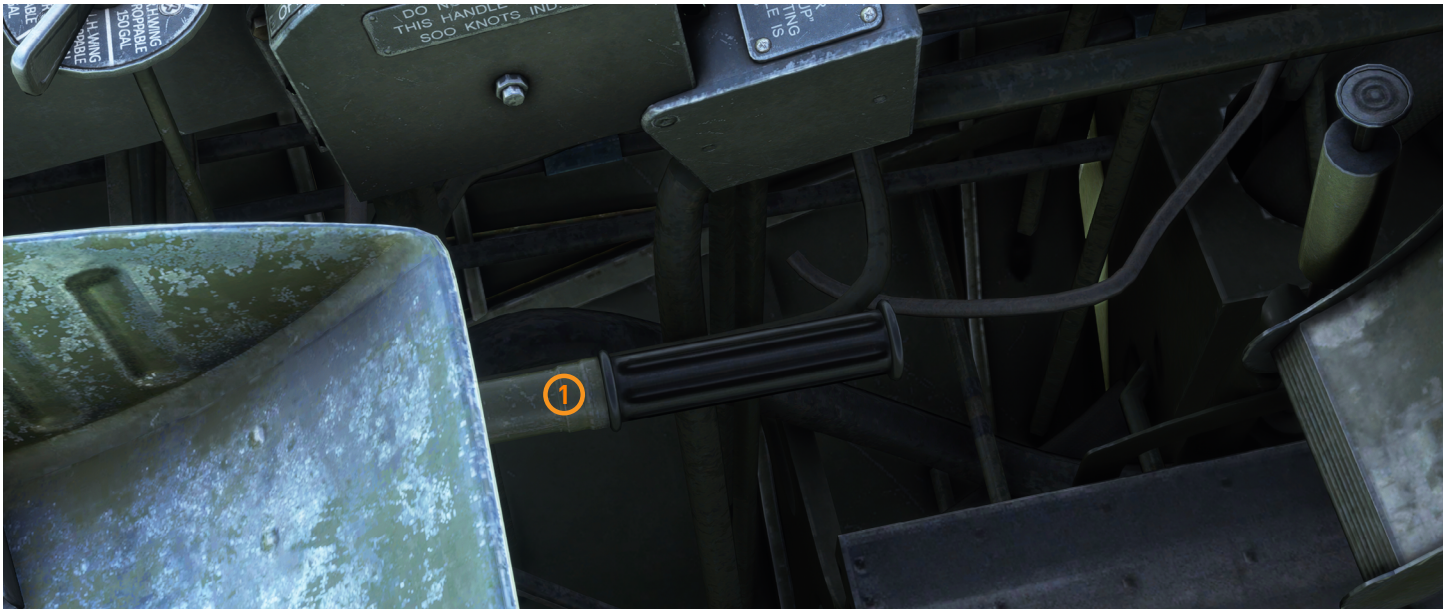
** = non-functioning; for display only.*

Instrument panel

1. Tachometer
2. Altimeter
3. Directional gyro
4. Water injection quantity warning
5. Stall warning indicator
6. Compass
7. Carburetor air temperature warning light
8. Gyro horizon
9. G-force indicator
10. Oil & fuel pressure gauge
11. Cylinder head temperature
12. Climb indicator
13. Turn & bank indicator
14. Airspeed indicator
15. Manifold pressure gauge
16. Droppable fuel tank switch
17. Fuel quantity
18. Hydraulic pressure gauge
19. Volt-ammeter
20. Fuel pressure gauge
21. Emergency hydraulic pressure release
22. Oil cooler flap indicator
23. Intercooler flap indicator



Right-hand sub instrument panel



Hydraulic hand-pump

Cooling Flaps Controls and Indicators

GENERAL

In addition to the conventional surface controls the cockpit contains the power plant, fuel system, oil system and hydraulic system controls and other miscellaneous controls. The location and operation of each control is described as follows

POWER PLANT CONTROLS

The throttle, mixture, propeller governor and supercharger controls are mounted in a control unit installed on the left side of the cockpit as shown on page 16. Each control moves through a quadrant in operation. For ease of handling the engine control unit is plainly marked with the name and correct positioning of the controls mounted thereon.

THROTTLE CONTROL

The throttle control is located on the engine control unit on the left side of the cockpit.

In the real aircraft, throttle opening is limited to 95% by the War Emergency Power safety wire. It is only by pushing against the resistance of the wire and then breaking it, that 100% opening can be achieved. Since the wire is not modeled, please refer to your instruments to ensure the throttle has not been opened further than intended.

MIXTURE CONTROL

The engine is equipped with a Bendix Stromberg injection carburettor with automatic mixture control. The mixture control has three effective positions: “Idle Cut-Off“, “Auto Lean“, “AUTO RICH“.

For flight operations (except takeoff and landing approach) the control shall be set to “Auto Lean“. If it becomes impossible to maintain cylinder head temperatures below 260° C (500° F) for 30 minutes at military power, and 232° (C 450° F) continuous at any lower power without opening the cowl flaps,

PROPELLER GOVERNOR CONTROL

The constant speed propeller control is located on the end of the engine control quadrant. Move the control down to increase RPM; move the control up to decrease RPM. Vernier adjustment is obtained by rotating the knob on the control lever.

Note:
use max RPM use for War Emergency Power only

The control sets the constant speed unit and has no direct control over propeller blade angle. The blade angle is such that 2700 RPM can be obtained at somewhat less than full power and 3060 RPM will not be exceeded in dives up to maximum allowable diving speed. Rapid changes in throttle or propeller control setting will tend to cause the RPM to overshoot the mark momentarily before settling down.

SUPERCHARGER CONTROL

The two-stage supercharger induction system installation comprises the main stage impeller, geared directly to the crankshaft and the auxiliary stage impeller, driven through oil operated clutches by means of which it can be engaged in either of two fixed gear ratios; “Low” or “High”.

CARBURETOR AIR TEMPERATURE

A warning light is provided on the main instrument panel to indicate (red light on) if the carburetor air temperature exceeds the maximum limit of 43 °C. Operating the engine at high power with excessively high carburetor air temperature may cause serious damage to the engine, as well as spewing oil all over the paintwork.

COWL FLAP CONTROL & CYLINDER TEMPS

The cowl flap control is located on the right side of the cockpit forward of the electrical panel
Hold open or closed using mouse click and drag until desired setting is obtained, then release. When released, the spring loaded levers will return to the neutral position. Tooltips will indicate the status.
If a lever is unresponsive it means that the flaps are already at the full extent of their travel.

The cowl flaps should be adjusted so as not to exceed the following cylinder head temperatures

- Take-off Military and War Emergency power High speed and climb at normal rated power - 260° C (500° F)
- Continuous operation at any power at above - 232° C (450° F)

The full-open cowl flaps setting is provided primarily for ground cooling. Open about two-thirds for takeoff and climb and closed or open slightly if required for high speed and cruising level flight. Cylinder head temperatures can be reduced by:

1. Enriching mixture
2. Opening cowl flaps
3. Reducing power
4. Increasing speed

INTERCOOLER FLAP CONTROL

Control of the carburettor air temperature when operating in low or high blower is provided by means of the Intercooler Flap Control located on the right side of the cockpit forward of the electrical panel see p.18.

OIL COOLER FLAP CONTROL

The quantity of cooling air to be admitted to the oil coolers is regulated by two flaps controlled from the right side of the cockpit (see p.18). The two flaps may be placed in any position between “OPEN” and “CLOSED” as required to effect the flow of the necessary quantity of cooling air through the air-duct openings to the coolers.

FUEL SYSTEM CONTROLS

TANKS

The self-sealing main tank located in the fuselage forward of the cockpit has a total capacity of 237 US gallons 197 imperial gallons of fuel including a standpipe reserve of 50 US gallons (42 imp. gallons). Provision is made under the fuselage for the installation of a droppable auxiliary tank having a capacity of 170 US gallons (142 imperial gallons) of fuel.

For this aircraft, provision is made in the fuel system for installing two Navy standard type droppable tanks each with a capacity of 154 US gallons (129 imperial gallons) of fuel on the center section twin pylons.

FUEL SELECTOR

The fuel selector is located on the left hand shelf of the cockpit. For fuel selector positions see p.15.

FUEL QUANTITY GAUGE

An electrical fuel quantity gauge is provided for the main tank only; it shows the total quantity of fuel in the tank including the standpipe reserve. The gauge dial is calibrated to indicate correctly when the airplane is in level flight at approximately 175 knots indicated airspeed (normal fighter load) (201 mph).

LANDING GEAR CONTROL

To operate the landing gear retraction and extension, the control is moved to, and locked in the desired position. The gear and closure doors are automatically operated in proper sequence. The positions of each side of the landing gear and of the tail wheel are shown by the respective indicators.

DIVE BRAKE CONTROL

The shift type dive brake control is located on the left side of the cockpit (see p.15). Moving the control to “ON” extends the main landing gear only, the tail wheel remaining retracted. Moving the dive brake control to “OFF” retracts the main landing gear.
The dive brake function is mapped to ‘Toggle Spoilers’ (numpad divide ‘/’). It cannot be mapped to an axis.

For dive brake flight restrictions see p.30.

ARRESTER HOOK CONTROL.

Three settings for the arresting hook control, located on the right-hand panel, are provided; “UP”, “DOWN”, and “PARKING“. To lower the hook (tail wheel extended) move the handle to “DOWN”, and vice versa. At all times except on arrested landings and when the airplane is on the ground, the hook control should be at “UP”.

The tail hook will not extend unless the tail wheel has been lowered first.

To extend and retract tail hook, the lever must not be in park position.

WING FLAP CONTROL

The flap control mechanism located above the pilots left-hand shelf is designed so that any desired flap angle in 10° steps to “FULL DOWN” (50°) can be obtained by a corresponding setting of the wing flap control.

Note
The wing flap control should not be placed in position for lowering flaps at speeds in excess of 200 knots (230 mph) even though the flaps are protected by an overload relief mechanism. If the flap relief mechanism is not in operation the restricted speed with flaps down varies from 130 knots (150 mph) with flaps deflected 50° to 200 knots (230 mph) with flaps deflected 20°.

The flaps are also designed for use in maneuvering the airplane in combat. With typical maneuvering flap deflections of 20° or less the airplane may be maneuvered up to 200 knots (230 mph) using the “FLAPS UP” acceleration limits.

The wing flap system includes a mechanism which causes the flaps to “blow up” (back off) from the angle set by the control under excessive air loads caused by speeds greater than normal. The flaps will return to the angle corresponding to the control setting when the air speed is reduced.

Flaps at 10° will blow at 180 knots (207 mph)
Flaps at 20° will blow at 160 knots (184 mph)
Flaps at 30° will blow at 140 knots (161 mph)
Flaps at 40° will blow at 120 knots (138 mph)
Flaps at 50° will blow at 100 knots (115 mph)

TAIL WHEEL LOCK CONTROL

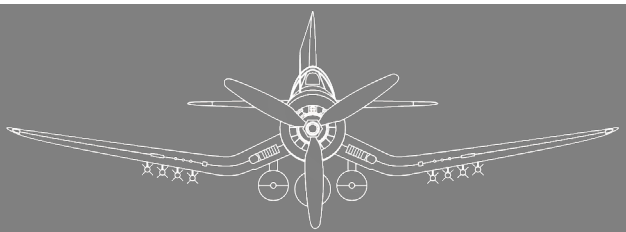
This control is located on the left hand shelf. To unlock the tail wheel, pull upward on the control handle and turn.

ELECTRIC AUXILIARY FUEL PUMP SWITCH

The switch is located on the left-hand shelf of the cockpit

CHART BOARD

Click on the chart board to reveal the moving map and loadout configuration utility.



WING FOLDING AND LOCKING CONTROLS

To fold the wings, release the manual wing hinge pin lock handle adjacent to the wing folding control on the left side of the cockpit. Then move the wing fold control to “FOLD”. This operation extracts the wing hinge pins and folds the wings in the proper sequence. With the engine running, the wings will fold automatically; otherwise, the hand pump must be used.

To spread the wings, set the wing fold control to “SPREAD”. This operation spreads the wings and inserts the hinge pins in proper sequence. When the wings are spread, lock the pins mechanically by pulling and engaging the manual wing hinge pin locking handle in the “LOCK” position.

Warning: Wing fold handle must always be in “SPREAD” position during flight.

Note: Throttle is limited to 25% power while wings are folded.

HYDRAULIC SYSTEM HAND PUMP

The feed for the hand pump is drawn from the bottom of the hydraulic reservoir, while that for the engine-driven pump is drawn from the half-gallon level. In the event the failure of a hydraulic pressure line allows the engine-driven pump to pump overboard all of its available fluid, the half gallon of hydraulic oil remaining in the tank is sufficient for one operation each by use of the hand pump. Of the following: wing flaps, cooling flaps, and gun charging. The arresting hook does not require hydraulic pressure for extension. Emergency landing gear extension is provided for by CO2 extension system.

If the engine is off (or blown), use the hand pump to get hydraulic pressure up to 300 psi (approximately 5 pumps) making sure the Emergency Hydraulic Pressure Release valve has not been opened. Without hydraulic pressure, neither mouse nor key command for wing fold/unfold, cowl flap, oil cooler or intercooler will work.

TRIM TABS

Trim tabs are provided on the left-wing ailerons on the elevators and on the rudder to permit control forces to be trimmed to comfortable values under all normal operating conditions.
(For recommended Take-off tab settings please see Take-off)

AILERON TAB CONTROL

Rotating the aileron tab control (inclined wheel on left hand shelf) to the right results in downward movement of the right-wing in flight. Rotating the hand wheel to the left results in upward movement of the right wing.

ELEVATOR TAB CONTROL

Rotating the elevator trim tab control (large vertical wheel on the side of the left-hand shelf) forward lowers the nose of the airplane in flight. Aft rotation raises the nose.

RUDDER TAB CONTROL

Rotating the rudder tab control (horizontal hand wheel on left hand shelf) to the right moves the nose of the airplane to the right in flight. Rotating the hand wheel to the left moves the nose of the airplane to the left.

BEFORE ENTERING THE COCKPIT

NOTE THE FOLLOWING SPEED LIMITATIONS

ITEM	OPERATION	RESTRICTION
Airplane	Max. Diving Speed	Dependent on altitude
Landing Gear	Lowering	200 Knots (230 mph)
Dive Brake	Extending or Retracting	195 Knots (224 mph)
Wing Flaps		
Blow Up Operating (0° To 50°)	Max. Speed	200 knots (230 mph)
Blow Up Inoperative (0° To 50°)	Max. Speed	200 knots (230 mph)
(20° To 30°)	Max. Speed	170 knots (196 mph)
(30° To 40°)	Max. Speed	145 knots (167 mph)
(40° To 50°)	Max. Speed	130 knots (150 mph)
Cabin	Open	300 knots (345 mph)
Ailerons	Full Throw	300 knots (345 mph)
Cooling Flaps	Open	No restriction
Center Drop Tank	Diving	300 knots (345 mph)
Twin Pylon Drop Tank	Diving	300 knots (345 mph)

BEFORE ALL FLIGHTS

1. Make sure the mixture control is in “Idle Cut Off“ then turn on the battery switch.
2. Check the fuel and oil quantity aboard
3. Make certain that the wings are spread unlocked.
4. Test operate the gun sight illumination.
5. See that the gyro horizon and directional gyro are uncaged.
6. Set the altimeter to the correct barometric pressure.
7. Check to ascertain that the desired armament load is carried.
8. See that all armament switches are in the “OFF” position and that the gun charging valves are in the “safe” position.

BEFORE NIGHT FLIGHTS

In addition to the standard check for flights for night flights, turn on the battery switch and check the following items :

1. Interior lights.
   Instrument board lights. Check the instrument board lights by turning on the rheostat located on the pilot’s distribution box.
2. Exterior lights.
   Check the formation, section, recognition wing and tail lights by turning on the respective switches and the exterior light master switch which can be found on the pilot’s distribution box.

FUEL SYSTEM MANAGEMENT

The fuel system is managed with two controls, the fuel selector and the electric auxiliary fuel pump switch. The normal flow of gasoline in the system is as follows: the fuel flows from the tank outlet for which the fuel selector valve is set, through the valve, the electric auxiliary fuel pump, the strain drain units and the engine-driven fuel pump, to the inlets on the carburettor.

FUEL TANK SELECTION

Use droppable tanks before using the main tank fuel, except as noted immediately below.

Note: Set fuel tank selector on “RESERVE” for takeoff, landing, diving and maneuvers. Do not cruise on “RESERVE”.

ELECTRICAL AUXILIARY FUEL PUMP

The electrical auxiliary fuel pump is used for :

- Starting.
- Takeoff and landing.
- Changing from one tank to another.
- If fuel pressure drops below 16 pounds per square inch.
- After failure of engine-driven fuel pump.
- To maintain fuel pressure during high power, high altitude operation.

STARTING THE ENGINE

PROCEDURE

1. Ignition switch to “OFF”.
2. Mixture control to idle “CUT OFF“.
3. Clean engine fuel by pulling propeller by hand through four or five revolutions in the direction of operation (click on any prop blade) .
   Failure to do so may cause hydraulic lock and break the motor, requiring a reloading of the aircraft.
4. Fuel selector to “RESERVE“.
5. Pump the hydraulic hand pump at least 5 times. Do not exceed 300psi. (p.15) and set engine cowl flaps fully open.
6. Supercharger control to “NEUTRAL“ (full forward).
7. Mixture control to idle “FULL RICH“.
8. Throttle. Set to red quadrant mark (1” open).
9. Battery switch “ON”.
10. Electrical auxiliary pump fuel switch to “ON”.
11. Hold electric primer switch “ON” for 4 to 6 seconds immediately prior to operating the starter.
12. Ignition switch on “both“.
13. Starter switch “ON” until engine runs smoothly.
14. Mixture control move slowly from “Idle Cutoff“ to “AUTO RICH“ as soon as engine fires. If moved too rapidly, engine will die.
15. Electric auxiliary fuel pump to “OFF” when changing mixture control setting.

Note:

- The motor will take longer to fire up if over- or under-primed.
- It should be necessary to operate the starter for no more than 30 seconds in order to start the engine. If the starter switch is held on for 1 minute and the engine does not start, allow the starter to cool before making another attempt.

WARM UP & GROUND TEST

For warm-up and ground testing the following should be observed

1. Apply toe-brakes, or use chocks to prevent the aircraft rolling forward.
2. Propeller control maximum rpm “INCREASE”.
3. Cowl flaps “FULLY OPEN”.
4. Oil cooler flaps “CLOSED”.
5. Intercooler flaps “OPEN”.
6. Mixture control “AUTO RICH”.
7. Cylinder head temperature 232° C (450° F) maximum. If cylinder head temperatures approach 232° C (450° F), the engine should be cooled at 1000 rpm before continuing with the ground test.

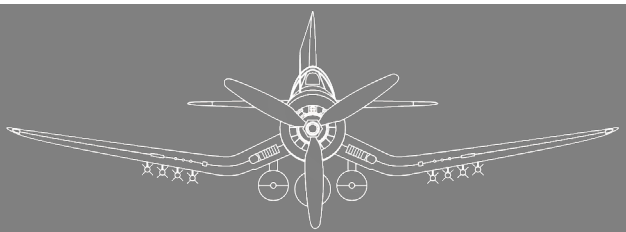
ENGINE WARM UP

1. Check oil pressure. With cold oil, oil pressure may be above 200 pounds per square inch until the oil in temperature is approximately 40° C.

2. Idle at 1,000 rpm until oil temperature is 40° C (104° F) and cylinder head temperature is 120° C (228° F).

GROUND TEST

1. Increase rpm to 2,000.
2. Oil pressure 80-90 psi
3. Fuel Pressure in normal range.
4. Magnetos 150 rpm max decrease.
5. Decrease rpm to 2,000.
6. Check generator output 27.5 - 28.5V.
7. Check Hydraulic pressure 750 - 1150 psi.
8. Decrease engine rpm to 1,000 rpm



SCRAMBLE TAKE-OFF

It is possible to make an emergency take-off providing the oil temperature is above 40° C (104° F.) In cases of extreme emergency, when the temperatures cannot be met, run the engine up; if it does not operate roughly or cut out altogether, take off.

TAXI INSTRUCTIONS

- Use the S-turn procedure for adequate forward visibility on taxi strips. However, let the airplane roll as freely as possible, using the brakes as an aid in steering, stopping and holding only.
- Use the tail wheel lock in extended crosswind taxiing to relieve excessive braking action.
- Use low power when taxiing. Don't rev up the engine and then ride the brakes. Bear in mind the badly overheated brakes are not fully effective and can fuse the disc brakes to the extent of leaving them frozen for landing.

TAKE-OFF CHECKLIST

1. Wings spread and locked.
2. Arresting hook control to "UP".
3. Fuel tank selector to "RESERVE"
4. Mixture to "AUTO RICH".
5. Supercharger control to "NEUTRAL".
6. Propeller control to maximum rpm "INCREASE".
7. Cowl flaps 2/3 open.
8. Intercooler flap "CLOSED".
9. Oil cooler flaps "OPEN" is required.
10. Rudder tab 6° "NOSE RIGHT".
11. Aileron tab 6° "RIGHT-WING DOWN".
12. Elevator tab 1° "NOSE UP".
13. Wing flaps set as required.
14. Tail wheel locked.
15. Manifold pressure limits - 54 inches Hg.
16. Check to see the cylinder head and oil temperatures are above the minimum and not near the limits.

TAKE-OFF

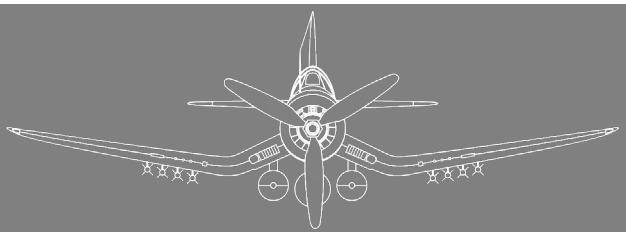
For normal operation it is recommended that the setting of 20° be used for take-off. Actually, any flap setting from 0° to 50° may be used, the highest settings giving shorter ground distance. Take-offs with flaps up are easily accomplished with a small increase in run, dispensing with the inconvenience of retracting the flaps after takeoff. In addition, the rate of climb immediately after takeoff with flaps deflected is inferior to that with flaps up. Take-off at high flap setting and full flap should be made only when it is necessary to obtain the shortest possible ground run, and after more experience with settings increased gradually from the recommended setting of 20°. When a high flap setting is used. The elevator trim should be set slightly more tail heavy about 1°. it has been found with flaps down the tail can't be held on the ground, with a stick full-back, and manifold pressure is greater than 44 inches Hg.

MINIMUM RUN TAKE-OFF

1. Wing flaps full "DOWN" to 50°.
2. Propeller governor maximum rpm "increase"
3. Manifold pressure 54 inches Hg. 60 Inches Hg at war emergency power.
4. Elevator 3 - 4° "nose up."
5. Hold brakes slightly until tail starts to rise.
6. Release brakes and allow tail to rise to near level flight attitude (tail high).
7. Take off when minimum flying speed is attained (approximately 70 knots indicated - 81 mph). The nose will be slightly heavy. If the take-off is made from an unpaved or muddy runway, take off with the tail slightly lower than directed above.

Note: If an obstacle is to be cleared during takeoff, the wing flap setting should be reduced to approximately 30°.

Important: Keep a keen eye on both throttle position and instruments to avoid inadvertantly activating War Emergency Power.



AFTER TAKE OFF

For most efficient operation :

1. Reduce manifold pressure to not more than 44.0 inches Hg.
2. Reduce rpm to not more than 2550.
3. Retract landing gear.
4. Retract wing flaps.
5. Trim airplane for 125 knots indicated airspeed for best climb.
6. Adjust cowl flaps if necessary.
7. Adjust oil cooler flaps if necessary.
8. Set fuel tank selector to desired setting.

WAR EMERGENCY POWER

War emergency power 2700 rpm (5 mins max).

To obtain war emergency power

1. Mixture control “AUTO RICH”.
2. Propeller control maximum rpm “INCREASE”.
3. Throttle “Full Open”.

When activated, the manifold pressure will show a marked rise.
The water quantity warning light will start flashing once the water reservoir is half empty. When the water supply is exhausted the light will remain on until the throttle has been moved out of the WEP range. Failure to do so in a timely manner will result in overheating and subsequent engine failure

CRUISING

The engine should be operated in “Auto Lean” for cruising power operation.

ENGINE OPERATING LIMITS

Ensure that manifold pressure, cylinder head temperature and oil temperatures are maintained within limits. Failure to do so may in result bad things happening with subsequent loss of power and hydraulic pressure.

In the case of engine failure, cockpit visiblilty may be impaired by oil leaking onto the windshield.

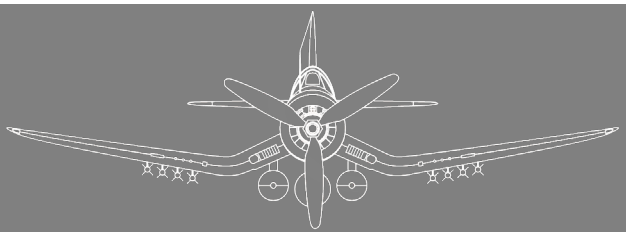
MAXIMUM PERMISSIBLE INDICATED AIRSPEED AND ACCELERATIONS

The maximum permissible speeds and accelerations are shown on graph 1 for gross weight of 12,000 lb. At other weights the permissible accelerations are such as to maintain a constant product of gross weight and acceleration, except that 7.5 G positive and 3.4 G negative should not be exceeded.
Warning: Pilots should avoid steep dive angles because of the difficulty encountered in attempting to reduce speed and acceleration quickly if buffeting should occur.
For convenience, the restrictions given in the graph may be simplified by the following approximations :
For diving or maneuvering at 3.0 G.

Altitude	Speed
10,000 Ft	390 knots (449 mph)
20,000 Ft	335 knots (386 mph)
30,000 Ft	255 knots (293 mph)

STALLS

The stalling characteristics of the airplane are not abnormal and warning of the approach of the stall exists in tail buffeting, the abnormal nose up attitude, and increasing left-wing heaviness with power on. The center of gravity positions enforced by wartime requirements are further to the rear than would normally be desirable. This results in the low degree of longitudinal stability. While the elevator forces are generally normal in direction, they vary only a small amount and approaching the stall with power on, and the control movement is very small. Thus the elevator control force and position do not provide the normal degree of feel warning of change in air speed or angle of attack. Pilots should observe carefully and familiarize themselves with this characteristic in the landing approach condition and in maneuvering turns which approach the stall at higher speeds. They should be done at various flap positions and powers until pilots are thoroughly familiar with the airplane in these conditions.



STALLS (CONTINUED)

The stall with power on is rather pronounced particularly with flaps down but is preceded by some warning in the nature of buffeting. In the carrier approach condition, the approach to the stall is indicated to some extent by increasing left-wing heaviness and increasing amount of right rudder required. The stall in this condition (flaps down power on) is accompanied by a relatively sharp roll to the left

Note: Pilots should familiarize themselves thoroughly with the stall in both straight flight and tight turns.

STALL WARNING LIGHTS

The stall warning light is installed near the top of the main instrument panel (see p.17) and it will come on a few knots before the stall. A test which is provided so that the pilot can check while in flight, to see that the lamp is not burned out. The stall warning should operate from 4 to 8 knots (5-10 mph) above the stall in the landing condition, and 14 to 18 knots (17-21 mph) above the stall in the clean condition.

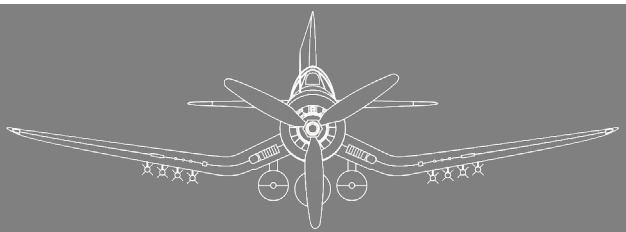
SPIN RECOVERY

1. Apply full opposite control sharply leading with opposite rudder, and follow by applying full-forward stick. Apply ailerons against the spin.
2. Hold full reverse controls until rotation stops and airplane assumes normal diving attitude.
3. Ease the airplane out of the ensuing dive. Do not pull the stick back to rapidly as a high-speed stall may result requiring more altitude for recovery.
4. The rate of rotation will probably increase after full opposite controls are used. Don't be alarmed; this is a good sign and recovery is starting.
5. Use trim tabs if forces are too heavy, especially the elevator trim. The later is effective in reducing push forces during spin recovery.
6. Oscillation is present in left spins. The nose oscillates between a position varying from approximately on the horizon to 40° - 50° below the horizon. This does not mean that's a flat spin is developing. Recovery will be normal. Recovery will be faster if controls are reversed when the nose is at a steep angle in the oscillation.
7. If full opposite controls cannot be held and the stick walks back, return the controls with the spin for a brief interval and repeat full recovery control.

Note
Full forward stick against stop must be applied for spin recovery in this airplane. Make certain that full reverse controls are used promptly and sharply and held until recovery is effected.

The indicated stalling speeds for a 11,300 lb fighter (178 US gallons 148 imperial gallons of fuel; 1200 rounds of ammunition) are given in the table below. For other weights see charts on pages 43 & 44.

CONDITIONS	FLAPS	POWER	INDICATED STALLING SPEED
Landing	50°	closed throttle	75
Landing	30°	closed throttle	77
Landing	20°	closed throttle	79
Landing	50°	power on level flight 23 inches Hg 2400 rpm	66
Cleaning	up	closed throttle	87
Clean	up	power on level flight 18 inches Hg 2400 rpm	84



DIVING

Checklist:

1. Cabin closed
2. Landing gear control “UP”.
3. Drive brake control “OFF” or”ON” as desired.
4. Wing flaps “UP”.
5. Propeller control set at 2050 - 2250 rpm.
6. Mixture “AUTO RICH”.
7. Supercharged control neutral blower shall be used for dives except those incident to military tactics at high altitudes*.
8. Throttle slightly open. Shift to neutral blower before retarding throttle*.
9. Fuel tank selector “RESERVE“.
10. Cowl flaps “closed“.
11. Oil cooler flaps “closed.“
12. Intercooler flaps “closed“.
13. Maximum rpm limit 3060 rpm (not over 30 second duration).

Caution: 15 to 20 inches of manifold pressure is recommended during prolonged dives.

The cockpit cabin sliding section must be closed before entering high-speed dives as it is not designed for such speeds in the open position. In the open position speeds up to 300 knots indicated (345 mph) are allowable.

DIVE BRAKE CONTROL

The type brake control may be operated at any speed within the normal airplane restrictions. When the dive brake control is operated at speeds greater than 260 knots, (299 mph) the wheels will trail instead of extending fully and locking but are nevertheless effective as a dive brake.

Caution: Do not dive the airplane with the tail wheel extended (landing gear control to “DOWN”) as damage to the tail wheel doors due to high air loads may results.

Dive brakes are mapped to the MSFS2020 spoiler control (numpad ‘/’).

APPROACH & LANDING

Checklist:

1. Tail wheel locked for field (Free for carrier).
2. Electric fuel pump “ON”.
3. Fuel tank selector “RESERVE“.
4. Mixture “AUTO RICH“.
5. Supercharger control “NEUTRAL“.*
6. Propeller control 2300 rpm to 2400 rpm.
7. Cowl flaps “closed“.
8. Landing gear “DOWN”.
9. Wing flaps at 50° or as required for field landing. (50° For carrier).
10. Arresting hook “UP” the field. (“DOWN” for carrier).
11. Gun switch “OFF”.
12. Gun charging knobs “SAFE“ (push in).
13. Rockets and pylon switches “off.“
14. Rocket safety plug removed.

LANDING

1. Extend landing gear at a speed less than 200 knots (230 mph).
2. Lower flaps to desired setting.
3. Open cabin.
4. Air speed in approach 90 - 95 knots

Warning: Pilot should avoid flat approaches.

STOPPING THE ENGINE

1. Cowl flaps - full “OPEN”.
2. Intercooler flap - “OPEN”.
3. Oil cooler flap - “OPEN”.
4. Propeller control - “MAXIMUM RPM”
5. Throttle - set for 800 - 900 rpm
6. Electric fuel pump -”OFF.”
7. Mixture control “Idle Cut Off“
8. Ignition switch “OFF”.
9. Battery switch “OFF”.
10. Fuel selector “OFF”.
11. Turn off all switches used for flights (radio lights etc.)

RADIO

The war-era radio set has been modified to maintain its vintage look while allowing modern radio communication.

Using what used to be the receiver control box, adjust the sensitivity knob (1) to increase or decrease COM1 frequency (kHz). A tool tip will display the frequency. Push to swap between active and stand-by frequencies.

Turn the tuning knob (2) to obtain the desired frequency in the mHz range.

Radio

ELECTRICAL EQUIPMENT

1. A volt-ammeter (see p.17) indicates the generator output in amperes. This will vary according to the charge condition of the battery and the amount of electrical equipment being used. A push button is supplied on the volt-ammeter which when pushed, indicates voltage. When the engine is stopped, or when at any time the rpm is less than 1300, push the button in to indicate battery voltage. The generator voltage should read between 27.5 And 25.5 Volts.

2. A battery switch is provided which disconnects the battery from the remainder of electrical system. With this switch in the "OFF" position, the generator cannot deliver current to the battery, nor can the battery deliver current to any external load except the recognition lights and inertia switch. When the airplane is on the ground with engine off, the battery switch, recognition light switches and inertia switch should be "OFF". For starting the engine and for ground running and flight operation, the battery switch should be "ON".

3. The emergency generator switch located on the pilot's distribution box is normally closed. Power for the electrical system is thus obtained from the generator, regulated by the voltage regulator and measured by the volt-ammeter.

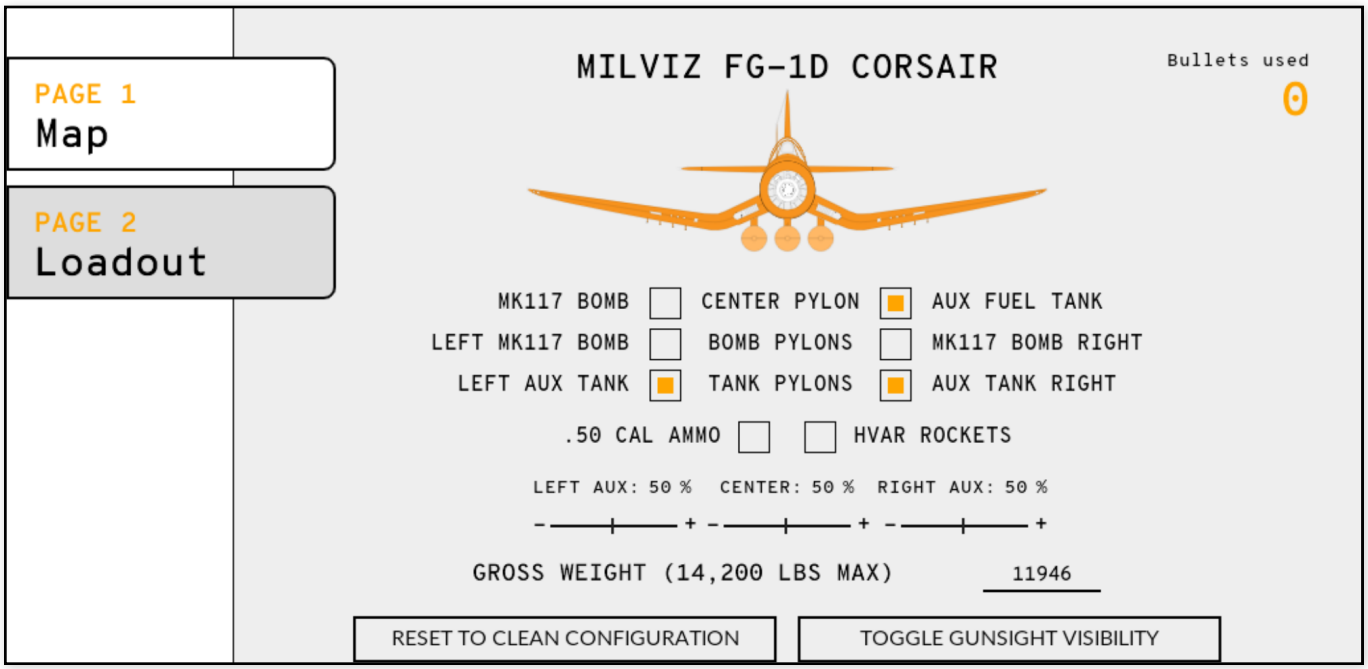
4. An instrument switch is installed on the pilot's distribution box which operates the electric fuel gauge, electric oil temperature gauge, carburettor air temperature warning lights, and remote compass. It is of the switch-breaker type and is used in conjunction with the battery switch; it must be "ON" for airplane and engine operation.

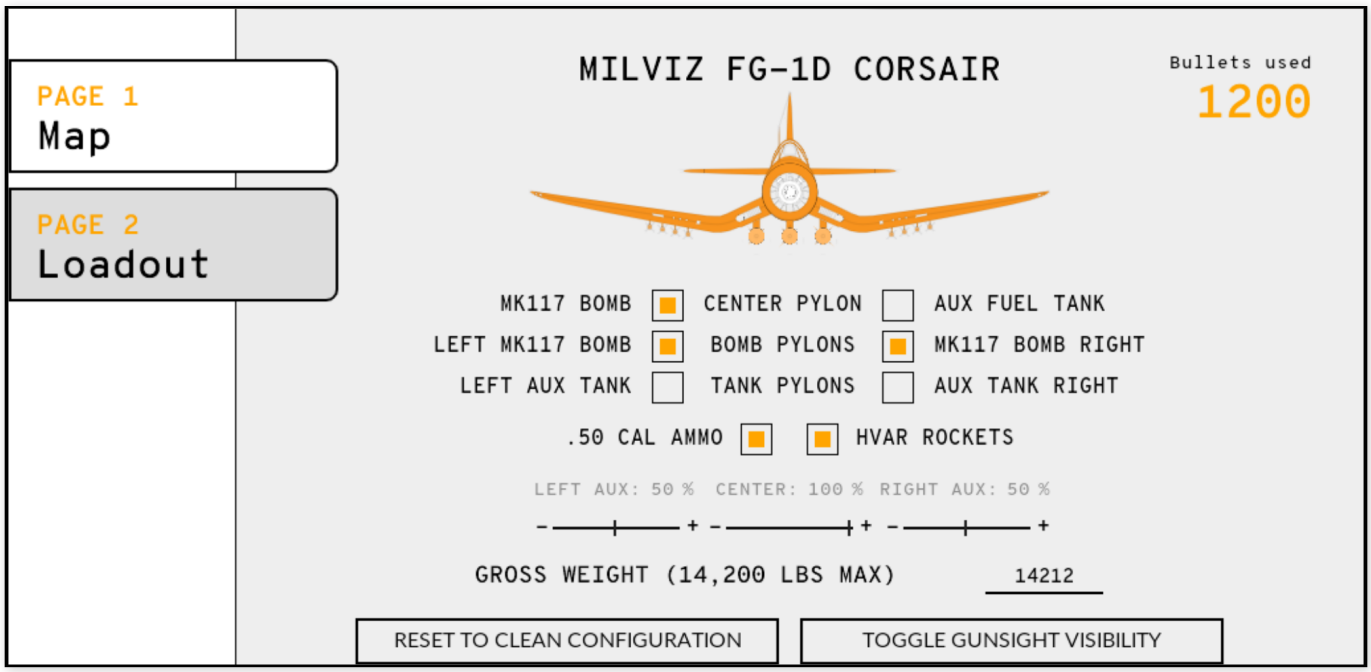
Pilot's Distribution Box

WEAPONS

The Milviz FG-1D Corsair features 6 guns and hardpoints for combinations of bombs and rockets.
Although the mass of the ordnance is faithfully simulated, there is no animation apart from gun flashes.
Dropping, releasing, or firing will subtract weight from the plane and turn off visibility, but you won't actually see the bombs fall, or the rockets streak off towards their target.

Weapons can be configured using the chartboard loadout manager. (p.11)





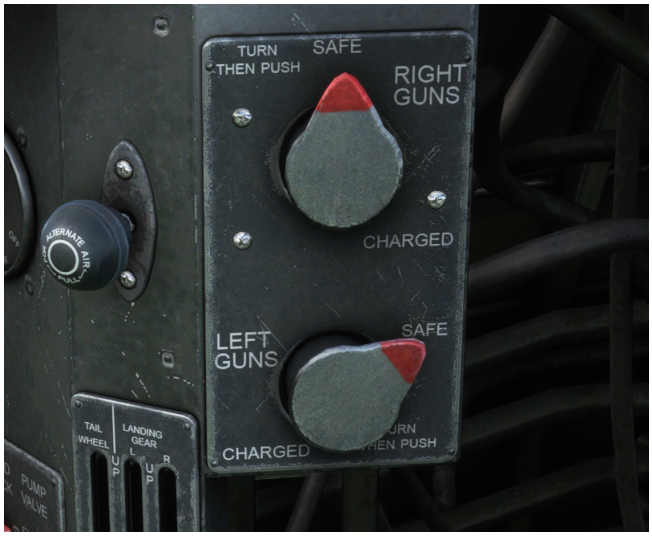
Weapons Load-out

CHARGING THE GUNS

The charging knobs located on the left hand side of the cockpit, just below the main instrument panel, operate the charging and safety guns.

To charge the guns rotate the knob to charge, then push in. The knob will spring back out, indicating completion of the cycle of operation.

To safety the guns, turn the charging knob to “SAFE“ and push in. The knob will spring out when the guns are safe. The gun charges will then hold the bolts back in the safe position. To allow the bolts to go forward from “SAFE” to “CHARGE”, simply turn the knobs to “charge”.



Gun Charging & Safety

FIRING THE GUNS

1. Turn on the master armament switch.
2. Turn on the individual gun switches.
3. Press the trigger switch

The trigger is mapped to ‘Toggle Water Rudder’ (CTRL + W), and can be assigned to the input of your choice.

ROCKETS & BOMBS

Bombs can be ‘released’ using the Manual tank/bomb release controls (Cockpit - Left, p.15).
Rockets are static decoration and cannot be fired.

Gun Charging & Safety

EMERGENCY LANDING GEAR OPERATION

The landing gear can be extended if there is complete failure of the hydraulic system, that is, even if no action can be obtained by operating the hand pump.

The emergency gear extension is actuated by a CO2 system on the main gear and a spring system on the tail wheel. However, before resorting to emergency landing gear extension, attempt to lower the gear with the hand pump, since subsequent retraction may be desired and will be impossible once the CO2 system is operated.

To lower the landing gear with the hand pump:

1. Move the landing gear control to down.
2. Operate the hand pump until the landing gear indicators show that the gear is fully down and locked

The following procedure is used for emergency extension of landing gear in case of actual failure of the hydraulic system:

1. Close throttle and reduce speed to about 110 knots.
2. Open the emergency landing gear release valve. The valve is located to the left of the Pilot's seat.

Note the CO2 system will extend the landing gear regardless of the position of the landing gear control handle, but it is recommended that the control handle be placed in the down position.

Further reduce speed to about 90 knots (keep above the stalling speed) while the landing gear is extending.
Check the indicators that the landing gear and tail wheel are fully locked down.
The emergency extension of the landing gear is started at a comparatively high speed so that the airflow will assist in opening the landing gear doors.

Turning the emergency landing gear release valve admits CO2 to a sequence valve which actuates two unloader valves, the unloader valves bypassing the hydraulic oil at the bottom of the landing gear and tail wheel struts, directly back to the hydraulic reservoir. The sequence valve in turn admits CO2 pressure to the top of the landing gear struts thereby extending the gear. The early models incorporating a pull handle emergency release work on much the same principle.

ENGINE FAILURE DURING FLIGHT

Engine failure is noticeable in either of the following conditions :

1. Freezing of engine.
2. Drop in altitude and loss of speed.

If engine fails but does not freeze, no absence of engine noise is apparent since the wind-milling propeller simulates normal engine operation. Also, in this condition manifold pressure can be increased and decreased normally, and the propeller blade angle can be changed within certain limits. While the propeller is wind-milling, the hydraulic system can be operated normally. However, if the engine should freeze or rough operation should necessitate stopping the engine by placing the propeller governor in high pitch (minimum RPM) position, the hydraulically controlled units must be operated by the hand pump (p.18).

If altitude permits, attempt to find the cause of engine failure by the following procedure:

- The selected tank may be empty. Switch to another tank.
- If it is apparent that the fault does not lie in fuel system operation and altitude still permits, check the following:

1. Move the mixture control to Auto rich
2. Test the Magneto's individually.

If, after completing the above operations, the engine does not start, prepare for an emergency landing.
Note the gliding ratio of this airplane in the clean condition at 140 knots indicated airspeed (best gliding speed) is 13:1.

FORCED LANDINGS

In the event of a forced landing over land the pilot should consider a number of variables in order to determine his best landing attitude. These include altitude, type of terrain and the characteristics of the airplane.

Landings in soft or uneven terrain such as golf courses or plowed fields and in rough, rocky, or tree stump to rain should be made with landing gear up. Most nose-overs occur as a result of landing in such territory with the landing gear down, and nearly all serious injuries and fatalities results from nosing over.

Pilot should remember the ground which appears smooth and level from the air frequently turns out to be rough, crossed with ditches, soft or full of obstructions when the actual landing is made.
All forced landings should be made well above the stalling speed. There will be no control of the airplane if an attempt is made to land at, or slightly above stalling speed. The plane should be on the ground before that stage of deceleration is reached.

BELLY LANDINGS

Preparation for belly landing:

1. Release droppable fuel tanks or bombs.
2. Landing gear "UP".
3. Landing flaps "DOWN".
4. Shoulder harness and safety belts "LOCKED".
5. Jettison the cockpit sliding section.
6. Fuel tank pressure release "AFT".

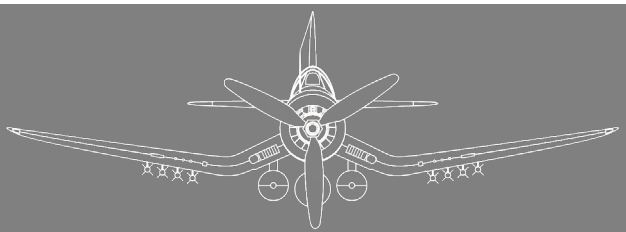
Prior to contact with the ground:

1. Drop pilot seat several inches.
2. Switches (battery, ignition) "OFF".
3. Fuel selector "OFF".
4. Master Armament switch "OFF".

WATER LANDINGS (DITCHING)

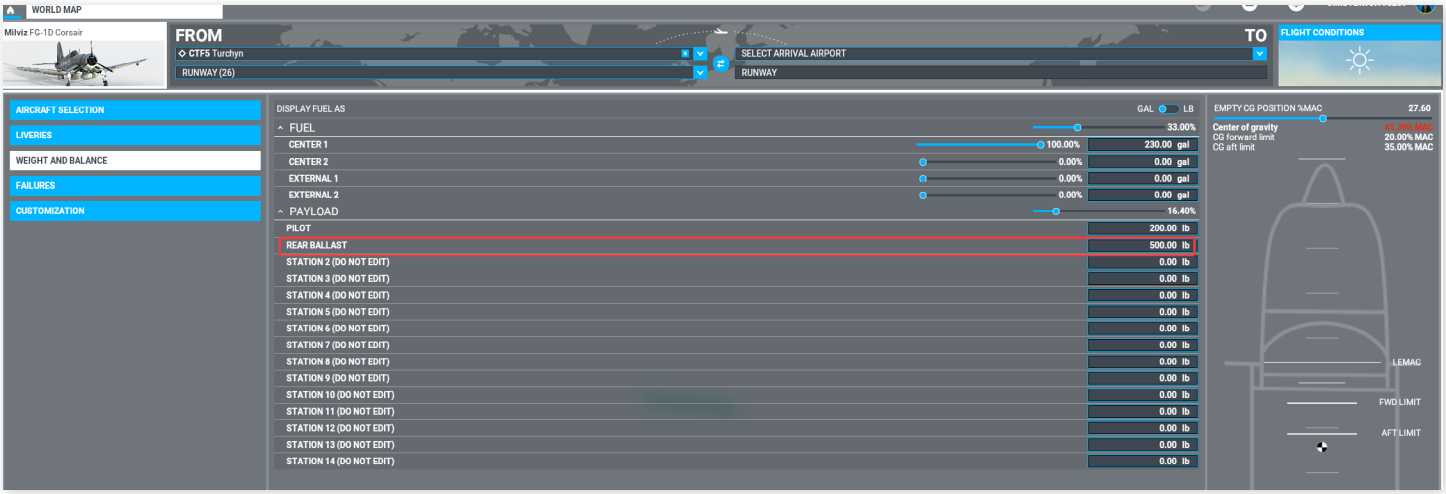
The same procedure as has been outlined for belly Landings is applicable to ditching.

Note this airplane has excellent water characteristics due to the inverted gull-wing which causes it to plane on contact with the water because of the planing feature, a full stall Landing is not necessary



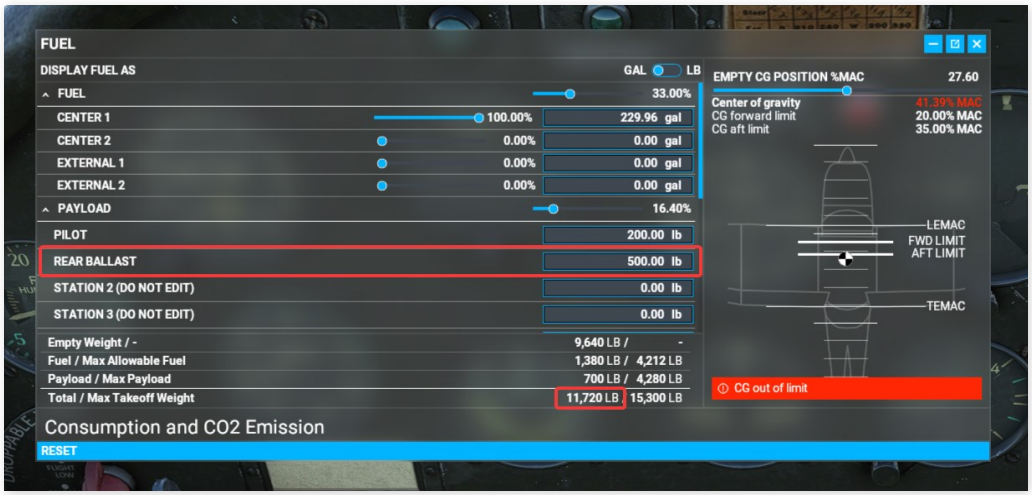
ON LOAD PROP-STRIKE

At some locations with certain 3rd party add-ons, users may be unlucky enough to encounter the dreaded face-plant propstrike. To counter this behaviour, an extra load station has been added over the tailwheel.

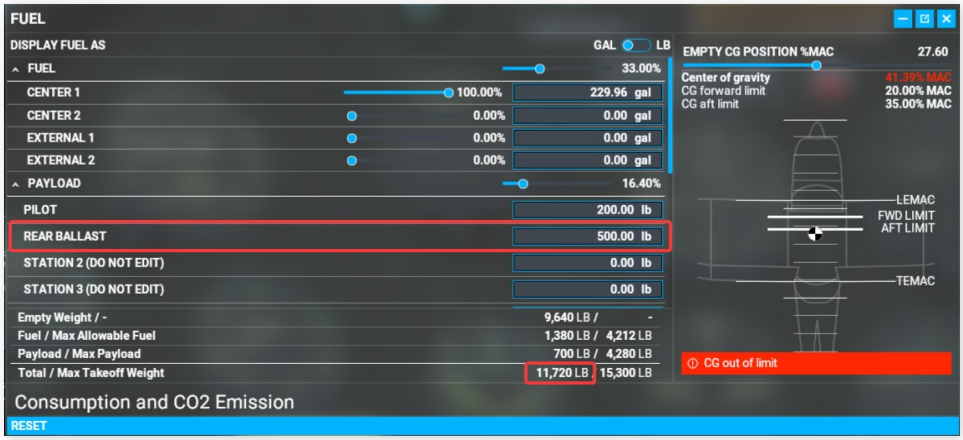


1) The user may, as above, add weight to the new station - ‘Rear Ballast’:
They can add as much as they want; in the image above, I’ve added 500lbs.
In testing, this makes it extremely hard for the Corsair to tip forward onto her nose.

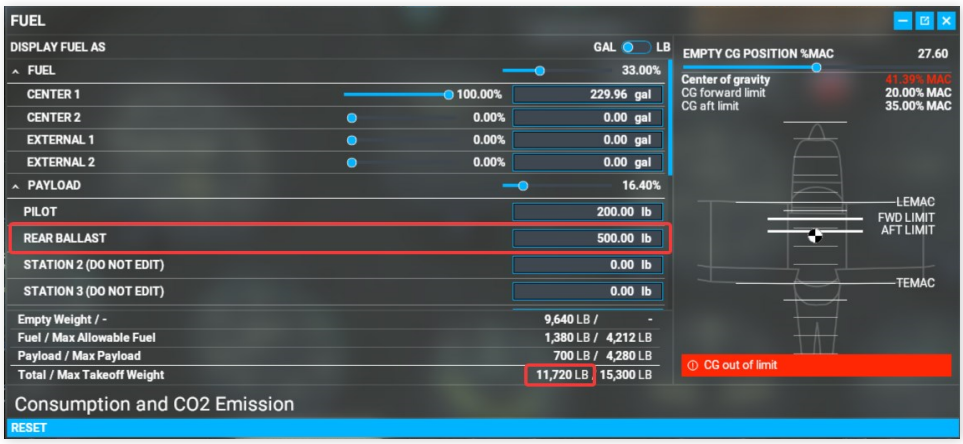
2) When loading the aircraft, this ballast weight is reflected in the UI as well as our loadout manager:



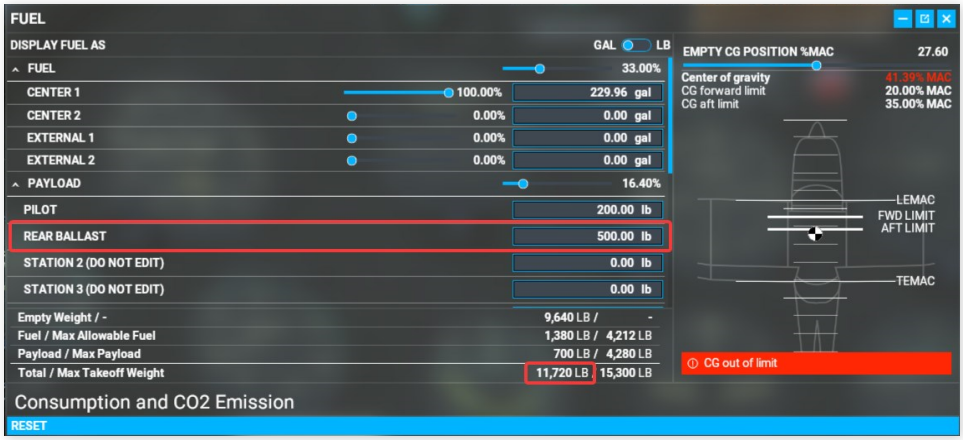
3) Any ballast weight added by the user will be automatically removed once the throttle is advanced. However, it’s important to note that the weight portion of the UI Weight and Balance panel does not update when you manipulate weights through code. The balance portion does. In this image, you can see the weight being updated on our loadout manager, and the balance properly updating, but the displayed weight in the sim UI is incorrect (Asobo has been made aware of this bug):



4) The user, if desired, can re-add weight to the ballast station at any time through the UI panel. (although, since the point of this is to help prevent 'tipping' at various airports on aircraft load, there's little point). I've re-added 1500 lbs this time. Note that the UI, the balance screen, and our loadout manager agree at this point:



5) Once again, advancing the throttle has removed that extra weight; the UI balance screen returns to normal, and our loadout manager is returning the proper weight (and removing 1500 lbs causes a noticeable decompression of the shocks!). The UI weight section doesn't change, however.



6) In addition to the above addition, if someone does advance the throttle (removing the ballast), let the aircraft roll a bit, and then hammer on the brakes... the aircraft will still tip, but if the speed is below 5 knots, the prop damage will no longer occur.

CREDITS

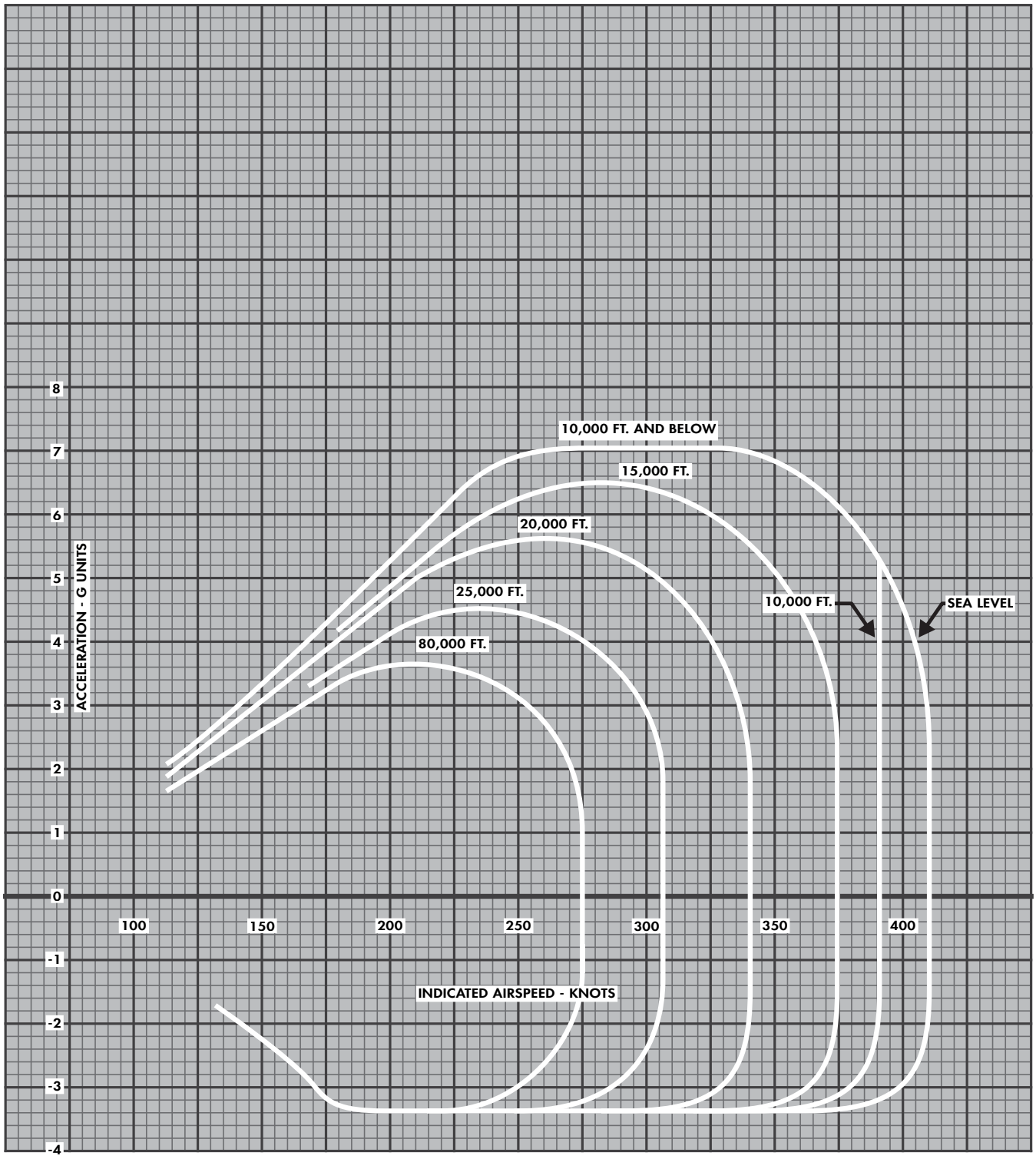
Maryadi - Lead Developer
MacFarland Masterton - Programming
Ricardo Ramos - Programming
Jim Stewart - Additional Programming
Sim Acoustics - Sound Environment
3DReach - Modeling & Paint
Milos Milutinovic- Flight Dynamics
Kevin Miller - Initial Modeling & Paint
Tom Stovall - Paints, Liveries & Imagery
Robbie Nauffts - Additional Liveries & Imagery
Rafal “YoYo” Stankiewicz - Imagery & Paints
Ville Keränen - Videographer
John Terrell - Reference Photographs
Oisín Little - Manual

Beta Testers:

- Chris “Tonkabean” Goodyer
- Don Spence
- Jack Cannon
- Jaroslaw Kowalczyk
- Jesus “Habion” Fernandez
- John “Dihedral” White
- Mike Cameron
- Ryan Butterworth
- Sergio Sanchez
- Timothy Swindle
- Toby Wills
- Tristan Ridge
- Vassilios “Dimus” Dimoulas

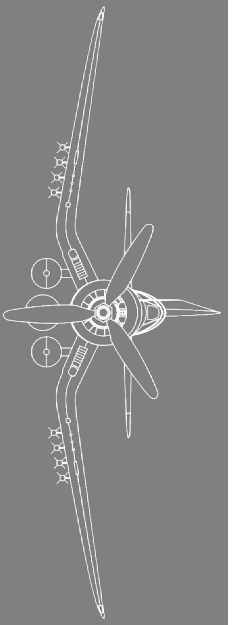
Creative Director - Colin Pearson
Production Manager - Jim Stewart
Customer Service - Oisín Little
Product Support - Steve McNitt

ILLUSTRATION & CHART INDEX



FG-1D OPERATING FLIGHT STRENGTH DIAGRAM
GROSS WEIGHT 12,000 POUNDS

Operating Flight Strength Diagram



SPECIFIC ENGINE FLIGHT CHART

R-2800-8

CONDITION	FUEL PRESSURE (LB. SQ. IN.)	OIL PRESSURE (LB. SQ. IN.)	OIL TEMP. °C	OIL TEMP. °F		
DESIRED	17	60-90	60-80	140-194		
MAXIMUM	18	100	100	212		
MINIMUM	16	50	40	104		
IDLING	7	25				

MAXIMUM PERMISSABLE DIVING RPM: 3060		
CONDITION	ALLOWABLE OIL CONSUMPTION	
NORMAL RATED (MAX. CONT.)	32 U.S. QT/HR	53 IMP. PT/HR
MAX. CRUISE	16 U.S. QT/HR	26 IMP. PT/HR
MIN. SPECIFIC	U.S. QT/HR	IMP. PT/HR
OIL GRADE: (S)1100 (W) 1100		

SUPERCHARGER TYPE: TWO STAGE, TWO SPEED

FUEL GRADE: 100 130 OCTANE — SPEC. AN-F-28.

OPERATING CONDITION	RPM	MANIFOLD PRESSURE (BOOST)	HORSE POWER	CRITICAL ALTITUDE WITH RAM	CRITICAL ALTITUDE NO RAM	BLOWER	USE LOW BLOWER BELOW	USE NEUTRAL BLOWER BELOW	MIXTURE CONTROL POSITION	FUEL FLOW (GAL. HR.) U.S.	FUEL FLOW (GAL. HR.) IMP.	MAXIMUM CYL. TEMP. °C	MAXIMUM CYL. TEMP. °F	MAXIMUM DURATION (MIN.)
TAKE-OFF	2770	54.0	2000	S.L.	S.L.	N	—	—	AUTO RICH	290	240	260	500	5
WAR EMERGENCY	2770 2770 2770	57.5 59.0 59.5	2250 2135 1975	S.L. 15000 20000	S.L. 12500 17000	N L H	17000	8000	AUTO RICH	245 245 245	205 205 205	—	—	5
MILITARY	2770 2770 2770	52.5 53.0 53.0	2000 1800 1650	2500 18500 23000	2000 16000 21000	N L H	20000	6000	AUTO RICH	290 275 280	2000 16000 21000	260	500	5
NORMAL RATED (MAX. CONT.)	2550 2550 2550	44.0 49.5 49.5	1675 1625 1550	7000 19000 24000	5500 16500 22000	N L H	21000	10000	AUTO RICH	220 240 250	5500 16500 22000	260	500	—
MAXIMUM CRUISE	2150 2150 2050	34.0 34.0 34.0	1070 970 950	10000 20500 26000	10000 20500 26000	N L H	22000	13000	AUTO LEAN	83 93 82	10000 20500 26000	232	450	
MINIMUM FUEL CONSUMPTION	1330 920 570	30.0 26.5 23.5	570 570 600	5000 10000 15500	5000 10000 15500	N	22000	15500	AUTO LEAN	42 43 51	35 36 42	232	450	
	1550 1700 1800	28.0 26.0 25.0	600 595 610	15500 20000 22000	15500 20000 22000	L				50 53 56	42 44 47			
	1700 1750 2000	28.0 25.5 25.5	660 600 650	22000 25000 30000	22000 25000 30000	H				57 58 65	48 48 54			

REMARKS:

RED FIGURES HAVE NOT BEEN FLIGHT CHECKED

MILVIZ

TAKE-OFF, CLIMB & LANDING CHART

TAKE-OFF, DISTANCE IN FEET FOR 30° FLAP SETTING

		HARD DRY SURFACE						FIRM DRY SOD						WET OR SLIPPERY					
GROSS WEIGHT	HEAD WIND	AT SEA LEVEL		AT 3000 FT.		AT 6000 FT.		AT SEA LEVEL		AT 3000 FT.		AT 6000 FT.		AT SEA LEVEL		AT 3000 FT.		AT 6000 FT.	
(IN LBS.)	(KNOTS)	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.
11700	0	680	1350	810	1620	1020	2090	710	1380	850	1650	1070	2150	790	1460	960	1770	1250	2330
	15	430	980	550	1190	700	1560	470	1000	580	1210	740	1600	520	1050	650	1290	870	1720
	30	260	650	340	810	440	1070	270	660	350	820	460	1100	310	690	100	870	540	1180
	45	120	360	130	470	230	650	130	370	180	480	250	670	140	380	200	500	290	710
13100	0	910	1870	1080	2270	1370	3070	950	1910	1140	2330	1460	3160	1090	2050	1330	2520	11740	3440
	15	620	1380	750	1690	980	2340	650	1410	790	1740	1040	2400	750	1510	920	1860	1240	2600
	30	180	830	460	1160	620	1640	400	850	490	1190	660	1680	450	910	570	1270	790	1810
	45	190	550	260	720	360	1030	200	360	280	730	380	1050	230	590	320	780	450	1130
14200	10	1110	2380	1330	2970	1730	4250	1170	2440	1410	3050	1860	4380	1370	2640	11680	3310	2290	4810
	15	370	1780	940	2250	1240	3260	810	1830	1000	2300	1330	3360	950	1960	1180	2490	1640	3660
	30	480	1240	600	1580	810	2330	510	1260	640	1620	870	2400	390	1350	760	1740	1070	2600
	45	260	760	340	990	490	1530	280	780	370	1010	530	1560	320	820	430	1080	650	1680

NOTE: INCREASE DISTANCE 10% FOR EACH 10° (20°F) ABOVE 0°C (32°F)

ENGINE LIMITS FOR TAKE-OFF 2700 RPM AND 54" HG. AT SEA-LEVEL

CLIMB DATA

FOR COMBAT CLIMB USE MILITARY POWER FOR 5 MIN. ONLY — THEN NORMAL POWER

SEE ENGINE FLIGHT CHART FOR OPERATING LIMITS

FOR FERRY CLIMB: USE MAXIMUM CRUISING POWER

		SEA LEVEL TO 5000 FT. ALT.					TO 10000 FT. ALT.					TO 15000 FT. ALT.					TO 20000 FT. ALT.					TO 25000 FT. ALT.					TO 30000 FT. ALT.				
GROSS WEIGHT (LBS.)	TYPE OF CLIMB)	BEST I.A.S. (KNOTS)	FT./MIN. AT ALT.	TIME FROM S.L.	FUEL FROM SEA LEVEL U.S.	FUEL FROM SEA LEVEL IMP.	BEST I.A.S. (KNOTS)	FT./MIN. AT ALT.	TIME FROM S.L.	FUEL FROM SEA LEVEL U.S.	FUEL FROM SEA LEVEL IMP.	BEST I.A.S. (KNOTS)	FT./MIN. AT ALT.	TIME FROM S.L.	FUEL FROM SEA LEVEL U.S.	FUEL FROM SEA LEVEL IMP.	BEST I.A.S. (KNOTS)	FT./MIN. AT ALT.	TIME FROM S.L.	FUEL FROM SEA LEVEL U.S.	FUEL FROM SEA LEVEL IMP.	BEST I.A.S. (KNOTS)	FT./MIN. AT ALT.	TIME FROM S.L.	FUEL FROM SEA LEVEL U.S.	FUEL FROM SEA LEVEL IMP.	BEST I.A.S. (KNOTS)	FT./MIN. AT ALT.	TIME FROM S.L.	FUEL FROM SEA LEVEL U.S.	FUEL FROM SEA LEVEL IMP.
11700	COMBAT	135	2700	2	18	15	135	2700	4	28	23	130	2600	6	36	29	130	1900	8	45	36	125	1500	11	55	44	120	500	19	79	64
	FERRY	130	1500	4	14	11	130	1400	7	19	15	130	1200	11	25	20	130	1000	16	31	25	125	700	22	39	31	—	—	—	—	—
13100	COMBAT	135	2100	2	20	16	135	2100	5	33	27	130	1600	8	45	36	130	1400	11	58	47	125	1000	15	71	57	—	—	—	—	—
	FERRY	130	1100	5	16	13	130	1000	10	23	19	130	800	16	32	26	130	600	23	42	34	125	300	34	56	45	—	—	—	—	—
14200	COMBAT	135	1800	3	22	18	135	1800	5	37	30	130	1300	9	52	42	130	1100	13	66	53	125	700	19	86	69	—	—	—	—	—
	FERRY	125	800	6	18	15	125	700	12	27	22	125	500	21	39	31	125	400	32	54	43	—	—	—	—	—	—	—	—	—	—

NOTE: INCREASE ELAPSED CLIMBING TIME 6% FOR EACH 10°C (20°F) ABOVE 0°C (32°F)

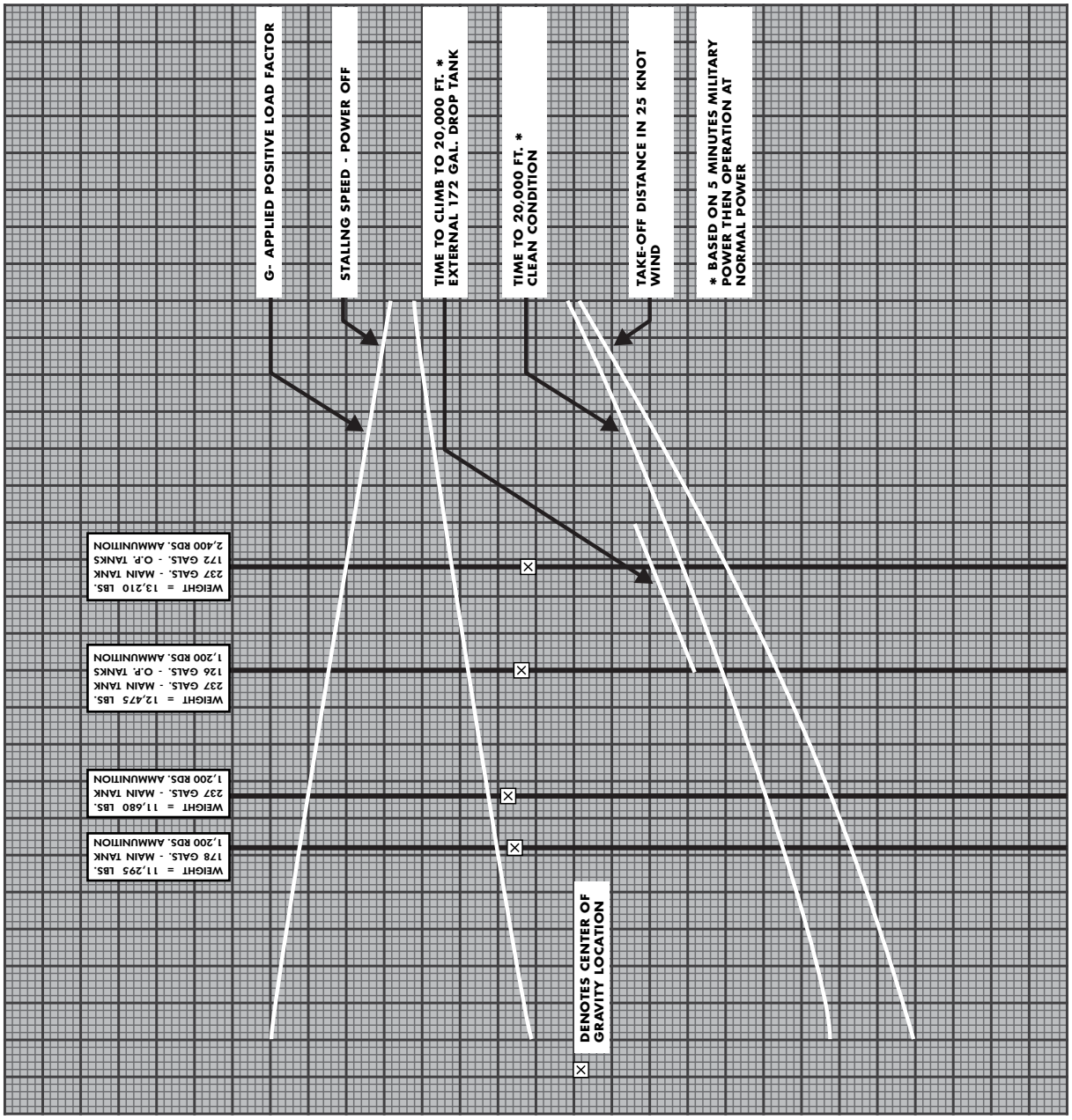
FUEL INCLUDES WARM-UP & TAKE-OFF ALLOWANCE (10 US GALS., 8 IMP. GAL.)

TAKE-OFF, DISTANCE IN FEET FOR 30° FLAP SETTING

		HARD DRY SURFACE						FIRM DRY SOD						WET OR SLIPPERY					
GROSS WEIGHT (LBS.)	BEST I.A.S. (KNOTS)	AT SEA LEVEL		AT 3000 FT.		AT 6000 FT.		AT SEA LEVEL		AT 3000 FT.		AT 6000 FT.		AT SEA LEVEL		AT 3000 FT.		AT 6000 FT.	
		TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL
10000	90	1920	910	2080	990	2250	1090	2000	990	2180	1090	2360	1200	3110	2100	3380	2290	3670	2510
11000	95	2080	910	2280	1090	2480	1210	2140	1030	2390	1200	2610	1330	3520	2410	3710	2530	4030	3760

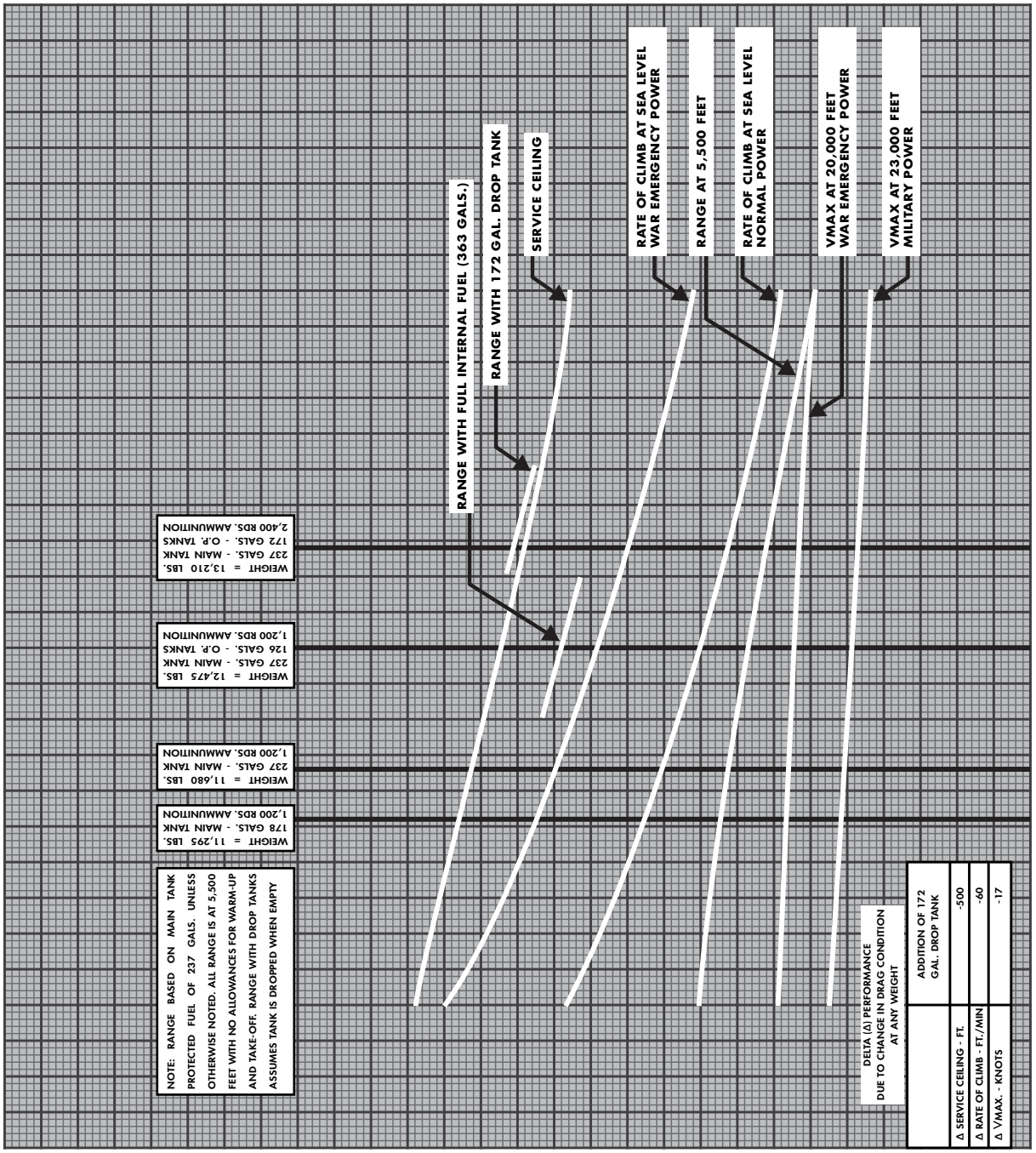
NOTE: FOR GROUND TEMPERATURES ABOVE 35°C INCREASE APPROACH I.A.S. 10% AND ALOW 10% INCREASE IN GROUND ROLL

Take-Off, Climb And Landing Chart



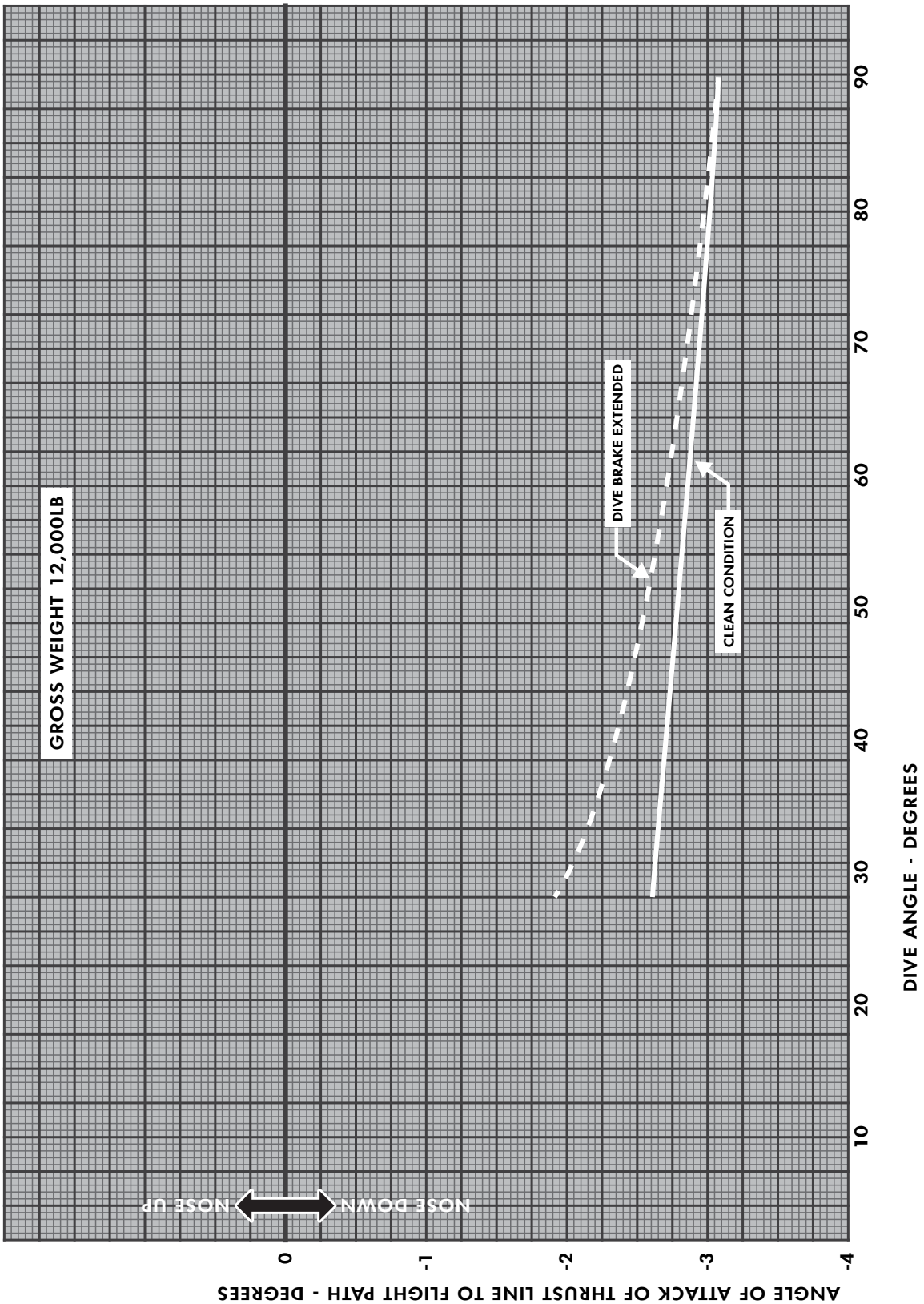
C.G. LOCATION - % M.A.C		40		30		20		10		0	
G-APPLIED POSITIVE LOAD FACTOR	10	8	6	4	2	0					
TIME TO CLIMB TO 20,000 FEET - MINUTES	22	20	18	16	14	12	10	8	6	4	2	0
STALLING SPEED - KNOTS	110	100	90	80	70	60	50	40	30	20	10	0
TAKE-OFF DISTANCE - FEET						600	500	400	300	200	100	0

Variation Of Performance With Weight (1)

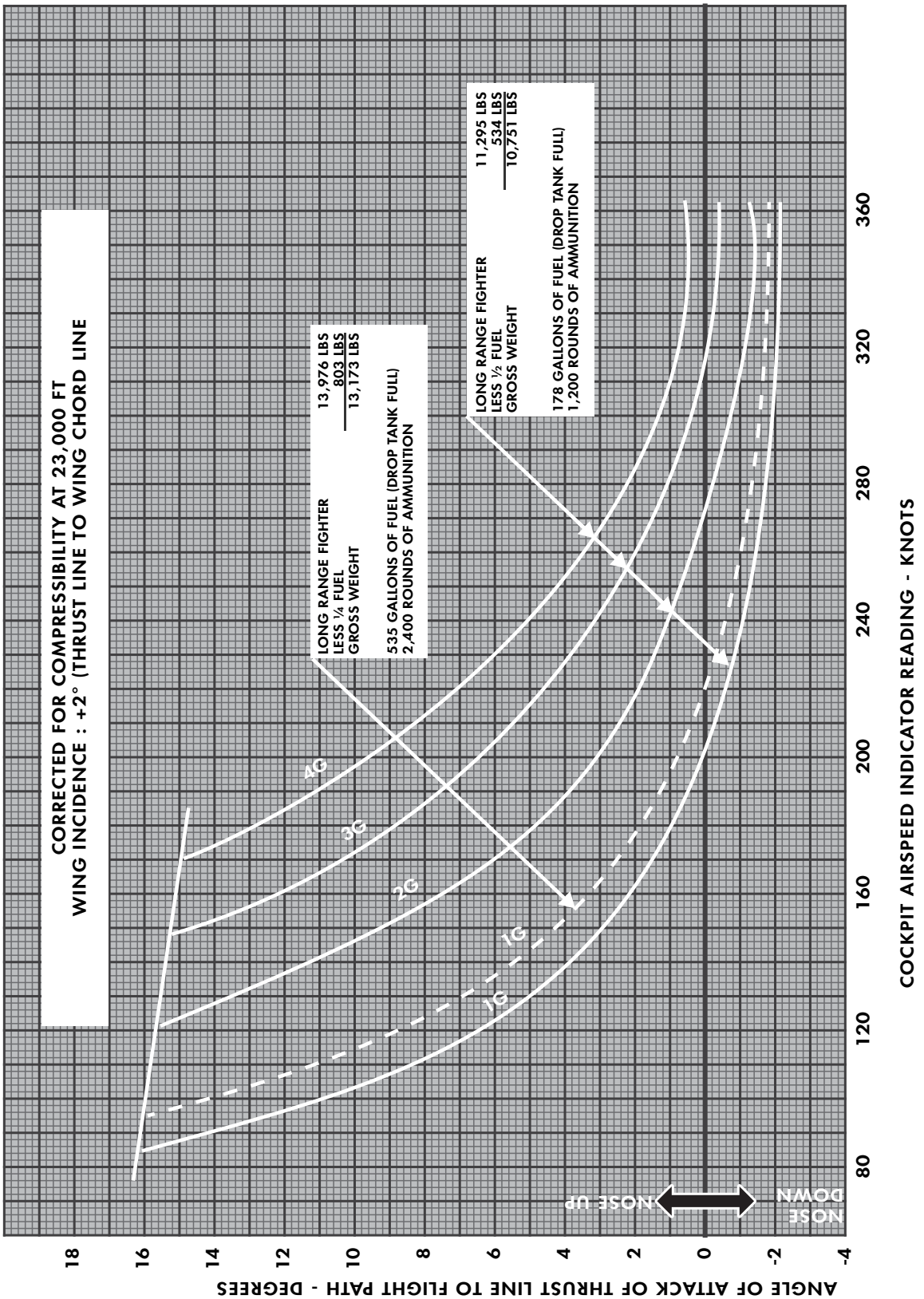


RATE OF CLIMB - FEET PER MINUTE	5,000	4,500	4,000	3,500	3,000	2,500	2,000	1,500	1,000	500	0
RANGE - NAUTICAL MILES	2,200	2,000	1,800	1,600	1,400	1,200	1,000	800	600	400	200
VMAX - KNOTS					400	390	380	370	360	350	340	330	320	310	300	290
SERVICE CEILING - FEET	50,000	45,000	40,000	35,000	30,000	25,000	20,000	15,000	10,000	5,000	S.L.

Variation Of Performance With Weight (2)



Angle Of Attack At Terminal Velocity Vs Dive Angle



Angle Of Attack Vs Cockpit Airspeed Indicator Reading


Here Come
THE CORSAIRS
High-powered Vought Corsairs are rolling off production lines for the United States Navy.
With their 2,000-horsepower air-cooled engines, these mighty ship-board fighters pack the firepower, range, climb and speed at all altitudes to take the measure of the best the enemy can produce.
VOUGHT-SIKORSKY AIRCRAFT
STRATFORD, CONNECTICUT
One of the three divisions of
UNITED AIRCRAFT CORPORATION