MILVIZ

TACPACK POWERED

SKYRAIDER

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.

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Any inquiries regarding use of this product in a commercial or training capacity should be directed via e-mail to info@milviz.com.

DISCLAIMER:
Milviz and all associates shall NOT be held responsible for any damages arising from the use of the A-1H product.

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INTRODUCTION

Thank you for purchasing and installing the Milviz A-1H Skyraider! The Skyraider, or occasionally referred to as the Spad, is the latest addition to our warbird line of aircraft and represents our latest-and-greatest endeavor into the world of Korea and Vietnam-era aircraft.

The Skyraider saw service from the late 1940s through the early 1980s. It was operated by the entire trio of United States fixed-wing aircraft services (USAF, USN, and USMC), along with other operators such as the British Royal Navy, the Republic of Vietnam Air Force, as well as the French Air Force.

It was nicknamed the 'Spad' after the WW1-era French biplane, and saw extensive combat in the theaters of the time, including both the Korean War and Vietnam War, with the Skyraider scoring the first air-to-air gun kill of the Vietnam War against a VPAF MiG-17.

The aircraft hit its stride over Korea and Vietnam, acting in the close air support role supporting and defending the troops on the ground. The A-1H became famous for its ability to take hit after hit and remain flying thanks to its armor plating around the cockpit, much like its venerable replacement, the A-10.

In total, 3,180 examples of the aircraft were built, with production ceasing in 1957. 7 versions were iterated upon over the course of its production run, ranging from the AD-1 through the AD-7.

Our simulation models the A-1H variant, also known as the AD-6, which was a single-seat attack aircraft fitted with three dive brakes, a centerline payload station, along with a bomb ejector and low/high altitude bomb director. 713 examples of the H variant were built, making it one of the most plentiful Skyraiders in existence at the time.

PRODUCT FEATURES & HIGHLIGHTS

Featuring TacPack integration for weapons delivery and simulation, along with accurate flight dynamics and thorough systems simulation, our much-anticipated Skyraider is a faithful representation of the real airplane.

With only 4 surviving examples of the type that saw combat, this is as close as many of us will ever get to seeing the aircraft up close, let alone flying and fighting in one.

Product Features:

- Realistic flight dynamics
- Realistic startup and shutdowns
- Realistic systems and avionics
- Realistic weapons operation using TacPack
- Realistic engine modeling with water injection and supercharger functionality
- High quality external model using PBR materials
- High quality internal model complete with custom 3D gauges and PBR materials
- Accurately modeled electrical system and cockpit lighting
- Authentically animated high air-load flap blowing and dive brakes
- Ready for carrier operations, including working arrester hook and folding wings
- High-resolution layer based paint kit available for download
- 9 HD liveries included

SYSTEM REQUIREMENTS

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

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

SUPPORTED PLATFORMS

- Lockheed Martin Prepar3D v4.5 (HF3 or greater)
- Lockheed Martin Prepar3D v5 (HF2 or greater)

Note: This product is intended to be operated with a fully up-to-date installation of Prepar3D. This includes any released updates, patches, hotfixes, or point releases.

Do keep in mind that Prepar3D v5 will have significantly higher system requirements to run smoothly than Prepar3D v4, notably in the amount of VRAM required.

SUPPORTED OPERATING SYSTEMS

- Windows 10

PROCESSOR (CPU)

- 3.0 GHz quad core processor required (3.5 GHz or better recommended)

VIDEO CARD (GPU)

- DirectX 11 compliant video card with 6 GB VRAM (8 GB or greater *strongly* recommended)

SYSTEM MEMORY (RAM)

- 16 GB RAM (32 GB recommended)

DISK SPACE

- 2.5 GB or greater

GAMING CONTROLLER

- Joystick, yoke, or other gaming controller

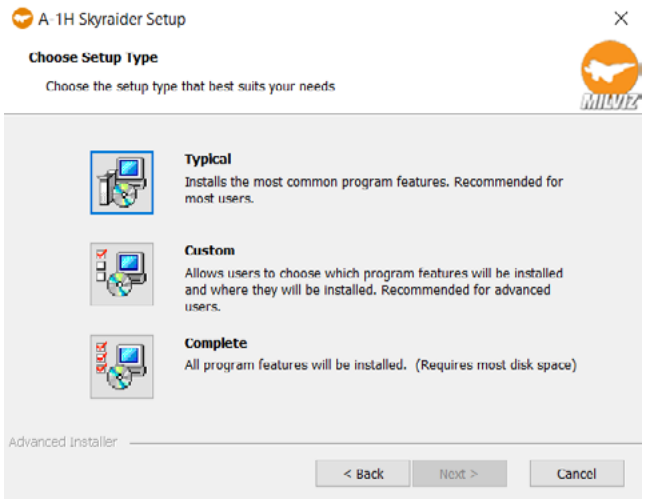
Note: All Milviz products require a functioning gaming device such as a joystick for proper operation.

INSTALLATION INSTRUCTIONS

Important: As with other flight simulator addons, pre-installation precautions should involve closing other open applications, as well as temporarily disabling any active antivirus software. Please be sure to remember to re-enable your antivirus software after installation!

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 Skyraider.

To begin installation, please right-click on the executable file and select “Run as Administrator”. After clicking past the initial page, the installer will present 3 options: Typical, Custom, and Complete.



Typical and Complete install essentially the same features, and the installer is smart enough to detect what simulators are installed. Choosing either of these options is sufficient for full installation of the Skyraider, so feel free to choose whichever you feel like.

Custom allows for the inhibition of each item queued for installation For example, if only the v4 version of the product is desired but v5 is installed on the system, the v5 version can be removed from installation, and vice versa. Generally, we recommend letting the installer run its course, especially when it comes to the Microsoft redistributables.

Click on the “Next” button to continue with the installation process.

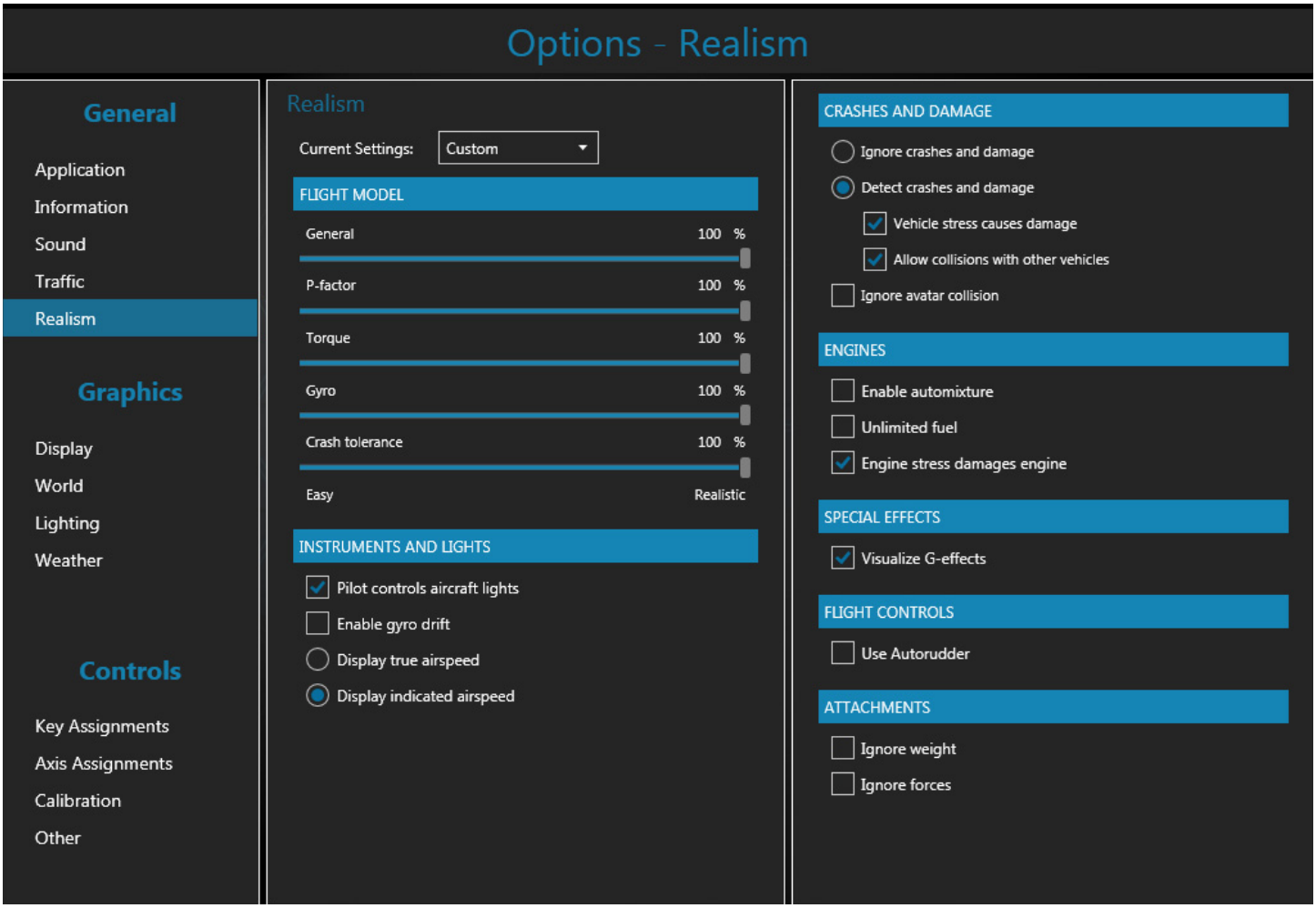
To uninstall the A-1H, please use the Windows uninstaller. This can be accessed by going to the Add or Remove Programs Windows settings page, searching for ‘A-1H Skyraider’ from the list, then clicking ‘Uninstall’.

REALISM SETTINGS

The Milviz A-1H Skyraider has been carefully built with a very high level of accuracy in mind. Both development and testing have been carried out using the highest realism settings available within the simulator.

The settings available within the Realism panel consist of changes designed to not only make the aircraft easier to fly, but to also lessen the workload of the pilot. The goal in this section is to ensure that any settings that might impact your full enjoyment of the Milviz A-1H Skyraider are correctly set.

The following images of the settings for are meant to offer the most realistic depiction of the both the flight model as well as the general operation of the aircraft. Without these settings in place, particularly in regards to the flight model section, the aircraft may not perform as intended.



REALISM SETTINGS

FLIGHT MODEL

For the highest degree of realism, all sliders in the flight model section should be set fully to the right.

INSTRUMENTS AND LIGHTS

The Milviz A-1H has a sophisticated lighting system in place, so the “Pilot controls aircraft lights” should be checked.
“Enable gyro drift” and “Display indicated airspeed” are not essential, but they will add to the realistic operation of any aircraft.

CRASHES AND DAMAGE

These settings are not essential, but do instill in one a sense of safe operation of the simulation.

ENGINES

The automixture can be disabled in the realism settings.
“Unlimited fuel” is non-essential, but disabling does allow for correct fuel management simulation.

SPECIAL EFFECTS

“G-effects” can be enabled to allow for screen effects to occur in excessive high or low-G situations.

FLIGHT CONTROLS

“Autorudder” should be off so long as you have means to operate the aircraft rudder via rudder pedals or a twist axis on your joystick.

For HOTAS, FSUIPC and other assignments, please navigate to Controls -> Other in the P3D menu and verify P3D is configured to use Direct Input and not Raw Input. This will allow the MVAMS control assignments to take effect.

MVAMS

MVAMS stands for Milviz Addon Management System. It represents our easy-to-use solution to the growing complexity of configurable options and choices available in our aircraft.

MVAMS is a standalone application which is installed and utilized by our releases. It was our aim to create a user-friendly environment in which our aircraft could be easily and quickly configured in terms of visual options, avionics, loadout, etc.

The Milviz A-1H Skyraider installs (if not already present) and fully integrates with the MVAMS application, allowing the user to choose between, and set/assign, various items pertaining to the operation of the aircraft in-sim.

STARTING MVAMS

If this is your first Milviz product that includes the MVAMS application, running the installer will place a shortcut icon on your desktop. If this is not your first MVAMS equipped Milviz aircraft, the desktop shortcut icon may already exist.

You may use this icon to open the MVAMS application at any time while the simulator is not running to configure the A-1H to your preferences. Do ensure MVAMS is being run as administrator for the configurations to take effect properly.

After your installation is complete, the MVAMS application will open automatically. You are not required to configure your aircraft at this time; you may choose to close it if you wish.

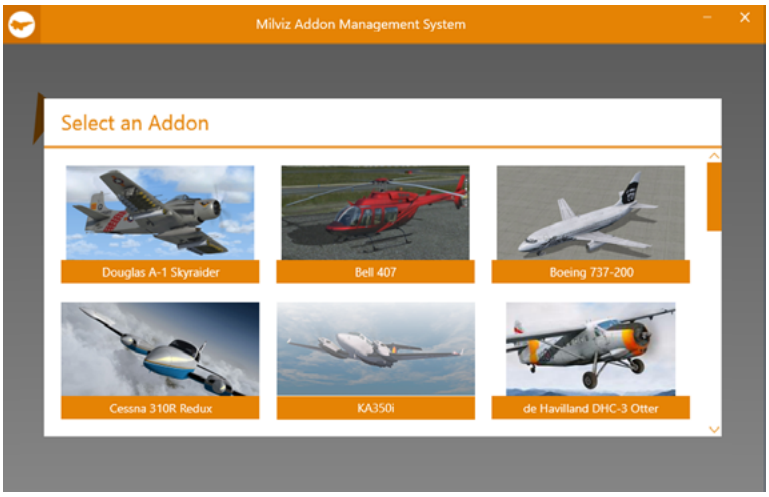
At this point, if there are any updates available for your addons, a notification will be displayed. MVAMS can only display one update at a time. Once an incremental update has been installed, please run MVAMS once again to check if other updates are available.

SELECTING YOUR AIRCRAFT

When you open the MVAMS, you are presented with the instruction to select an addon from the Quick Access menu.

Clicking on the top-left icon will bring up visual icons of any installed Milviz addons which are integrated with the MVAMS application.

Your newly-installed A-1H Skyraider will now be available to select from this menu.



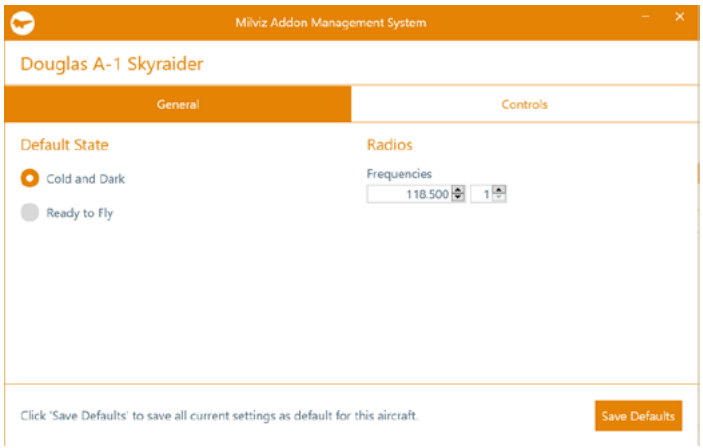
CONFIGURING THE AIRCRAFT

One feature that we've designed into our MVAMS application is that only options that are particular to the aircraft in question are available to browse and select, meaning that you won't see military specific loadout options in your general aviation aircraft, nor will you see GPS options in your Century Series fighter jet.

For the A-1H, two configuration pages are available: the first pertaining to the flying state and radios, and the second covering control axis assignment. The selection of weapons and fuel quantity is controlled by the in-sim loadout manager (accessible in-sim via SHIFT+1).

GENERAL

The General tab allows you to specify the start-up state of the Skyraider upon loading the aircraft in the simulator.



DEFAULT STATE

Cold and Dark allows for a completely cold and powered down aircraft, where you will have to run through a proper start-up routine to begin your flight.

Ready to Fly loads the aircraft with preexisting aircraft state when starting from Free Flight or a previous saved flight. It is recommended to use the option if starting from a saved flight, particular if the saved flight was in progress.

RADIOS

9 presets are available: VHF COMM frequencies from 118.000 to 136.975 are accepted.

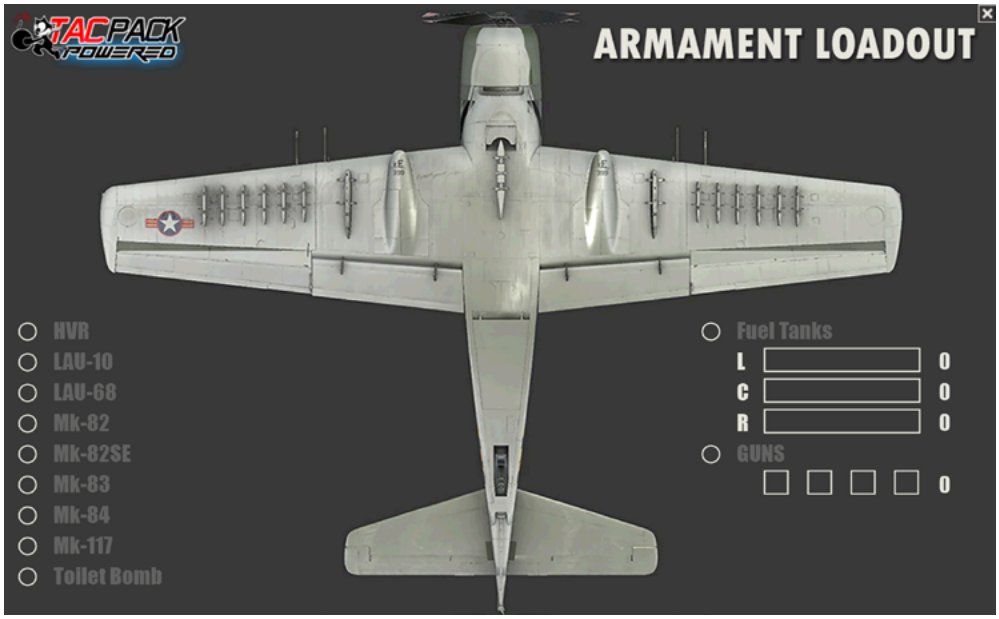
LOADOUT

The loadout configurator of the Skyraider can be accessed in-sim via SHIFT-1. Various combinations of drop tanks, bombs and rockets can be chosen, along with guns and the famous Toilet Bomb. The fuel in each drop tank, like the fuel in the main fuselage tank, can be set through the P3D Payload menu.

To load a weapon onto the aircraft, select the weapon you wish to load from the list, then click on a pylon to place it there; click on the pylon again to remove the weapon. Do note that not every weapon can fit on every station due to the size and weight of some of them. Setting an imbalanced loadout will affect the aircraft's performance and flight characteristics in the air, so be mindful about the configurations you create.

There are a few things to note about the armament system. 1. When adding or subtracting weapons from the aircraft, be sure that the MASTER ARM switch is in the OFF position, otherwise all stations and loads will disappear. 2. If the Toilet Bomb is going to be loaded, it must be loaded after all of the other ordnance; if this does not happen, the weapon system will be behave inaccurately.

An easy way to tell if the weapons will function is if the TacPack logo is showed in the top left of this screen. If it shows, that means TacPack is installed and the weapons will function properly. If the logo is not there, TacPack has not been detected and the weapons will not function properly.



EVENT MAPPING

The A-1H Skyraider includes provisions for assignment of various controls to physical hardware. If you have additional hardware panels, or a HOTAS joystick, you may use FSUIPC to assign the switches using these event map tables.

Control	Lvar, Event Type
Channel Radio Nav	mv_spad161, enum
Ignition Switch	mv_spad065, enum
Master Armament Switch	mv_spad071, enum
Engine Starter Switch	mv_spad124, enum
Fuselage Light	mv_spad136, enum
Wing Light	mv_spad137, enum
Tail Light	mv_spad138, enum
Formation Light	mv_spad139, enum
Knob Light Code	mv_spad142, enum
Knob Light Code Mode	mv_spad144, enum

TROUBLESHOOTING

Most issues are caused by:

1. Interference with either anti-virus software or other sim software.
2. Version incompatibility.
3. Insufficient permissions.
4. An overlooked item in the manual.

The following are essential:

1. Disable your anti-virus before downloading and installing.
2. Make sure that the P3D directory is off limits to any AV scanning (exclusions are set).
3. Disable UAC via Control Panel -> User Accounts -> Change User Account Control Settings and move the bar all the way to the bottom.
4. Install and run sim as an admin (right-click on the sim desktop icon and select Properties -> Compatibility -> Run This Program as Administrator).
5. Your video card needs to be DirectX 11 compatible with access to the correct DirectX libraries.
6. Do not use any Milviz (or any other addon) aircraft as the default aircraft.
7. Ensure that you have the appropriate simconnect libraries installed by running the simconnect.msi found in your P3D\redist\Interface\FSX-SP2-XPACK\retail\lib.

PRODUCT SUPPORT

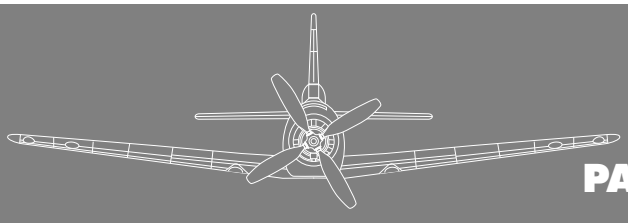
The product support forums are staffed by the systems programmers who created this simulation, along with members of our support team.

For access, please send your proof of purchase and preferred display name to **oisin@milviz.com.**

If you need product support please have a look in the forums for an existing solution. If you cannot find one, please start one new topic in the product's support forum only including details of:

1. Your system OS.
2. Your sim platform and product version number.
3. Any 3rd-party hardware or software in use.
4. Any error reports (Control Panel -> Administrative Tools -> Event Viewer -> Windows Logs -> Application).

The Milviz A-1H requires the Microsoft Visual C++ redistributable package, which is included in the installer.



DESCRIPTION

The A-1H Skyraider is a single-engine, single-seat, folding wing, monoplane attack aircraft designed for both carrier and land-based operations.

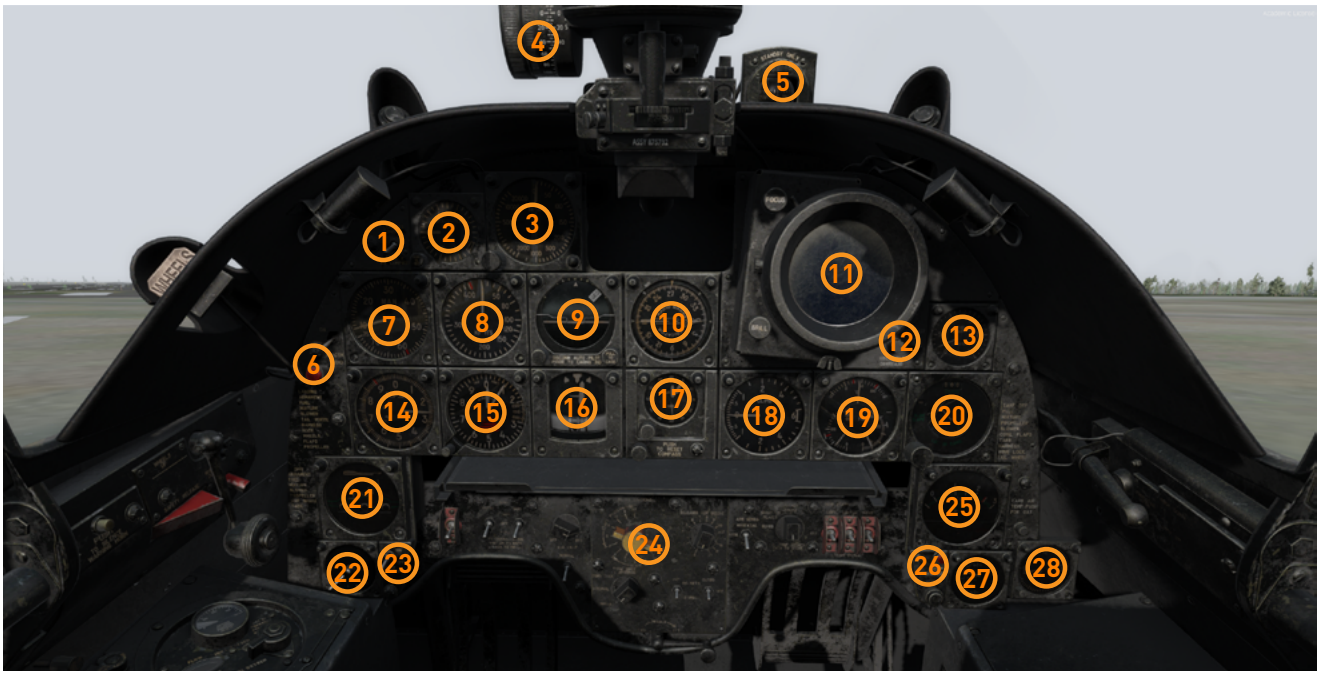
Characteristics

- Crew: 1
- Length: 38 ft 10 in (11.84 m)
- Wingspan: 50 ft (15.24 m)
- Height: 15 ft 8 in (5.715 m)
- Empty weight: 11,968 lb (5,429 kg)
- Power plant: 1× Wright R-3350-26WD Duplex-Cyclone 18-cylinder air-cooled radial piston engine producing 2,700 hp
- Propeller: 4-bladed Aeroproducts constant-speed propeller
- Propeller diameter: 13 ft 6 in (4.118 m)
- Fuel capacity: 380 U.S. gal (1,400 L) internal; up to 3x 300 U.S. gal (1136 L) external drop tanks

Performance

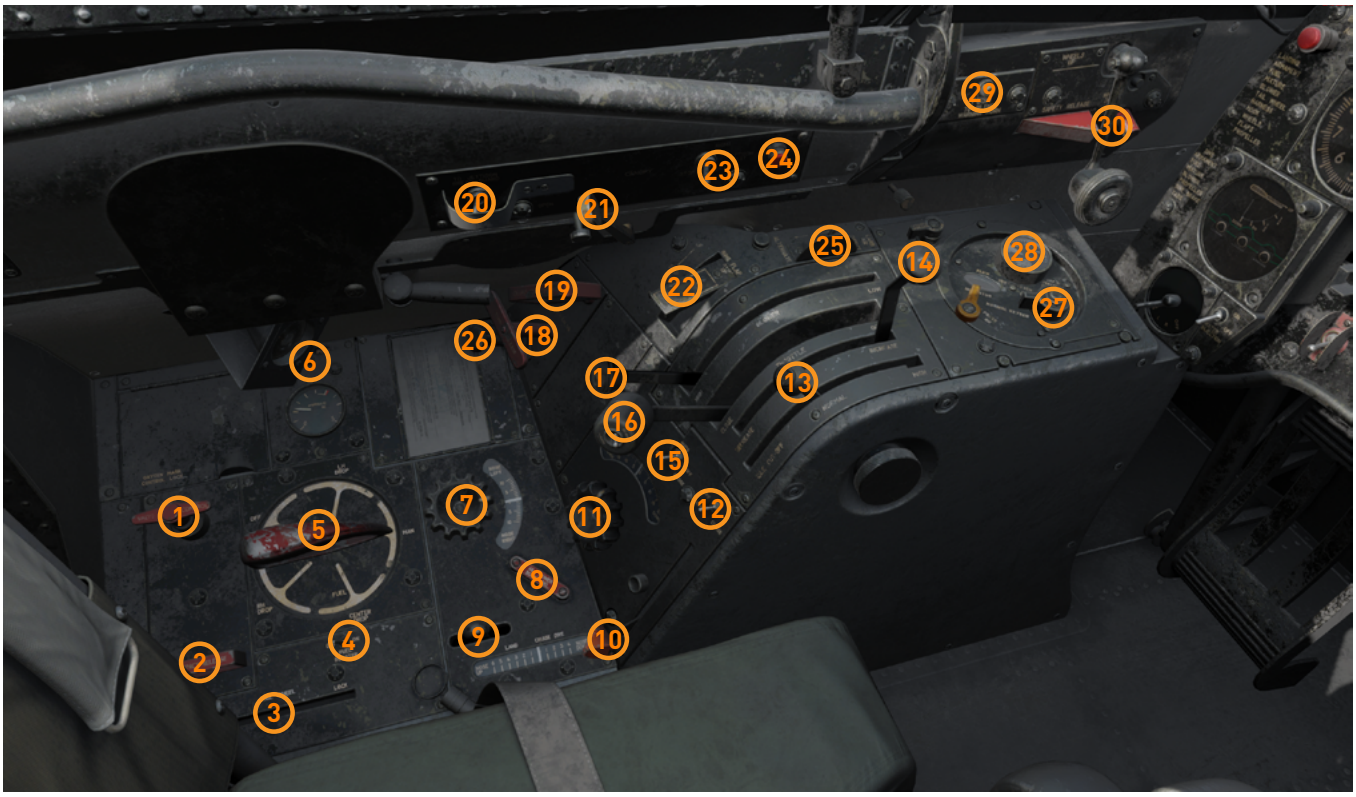
- Cruise speed: 172 knots (198 mph, 319 km/h)
- Maximum speed: 280 knots (322 mph, 518 km/h) at 18,000 ft (5,500 m)
- Range: 1,144nm (1,316 mi, 2118 km)
- Service ceiling: 28,500 ft (8,700 m)
- Rate of climb: 2,850 ft/min (14.5 m/s)

MAIN PANEL



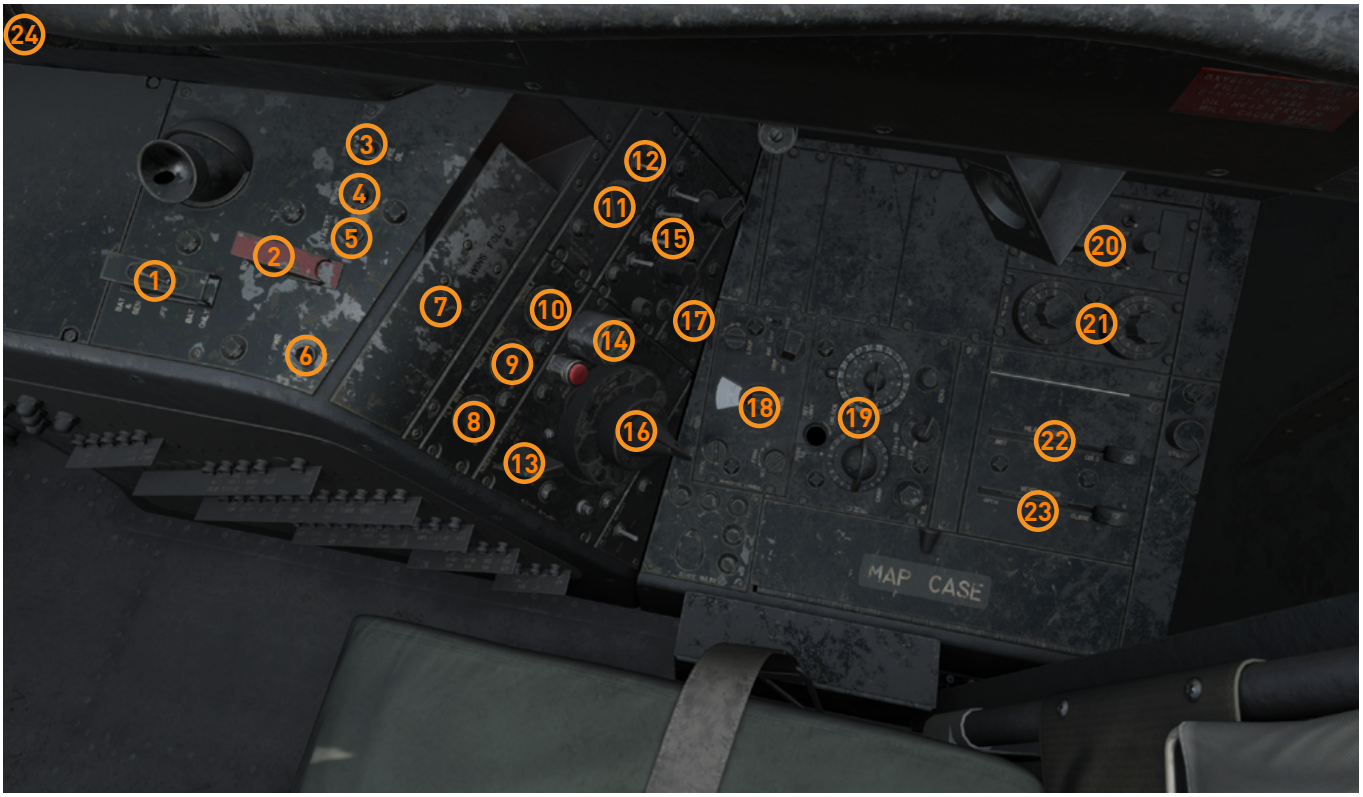
1. Compass Control Switch
2. Accelerometer
3. Radar Altimeter
4. Gun Sight Elevation Control
5. Magnetic Compass
6. Marker Beacon Switch & Light
7. Manifold Pressure Indicator
8. Airspeed Indicator
9. Attitude Indicator
10. Radio Magnetic Indicator
11. Search Radar (inop)
12. Fuel Quantity Test Button
13. Fuel Quantity Indicator
14. Engine RPM Indicator
15. Altimeter
16. Turn Coordinator
17. Engine Elapsed Time Indicator
18. Vertical Speed Indicator
19. Engine Gauge Unit
20. Range/Course Indicator
21. Wheels and Flaps Position
22. Ignition Switch
23. Water Injection Switch
24. Armament Panel
25. CHT Indicator
26. Generator Warning Light
27. OAT/Carb Air Temperature
28. Clock

LEFT CONSOLE



1. Hydraulic Emergency Bypass
2. Autopilot Emergency Release
3. Tailwheel Lock Control
4. Fuel Boost Switch
5. Fuel Tank Selector
6. Emergency Hydraulic Pump
7. Rudder Trim Control
8. Aileron Boost Release
9. Elevator Trim Control
10. Dive Brake Control
11. Trim Tab Controls
12. Cowl Flap Switch
13. Mixture Control
14. Propeller Control
15. Oil Cooler Control
16. Throttle Control
17. Supercharger Control
18. Center Bomb Release
19. Outboard Bomb Release
20. Canopy Jettison Switch
21. Canopy Control Lever
22. Wing Flap Control
23. Canopy Jettison Test Switch
24. Canopy Jettison Test Light
25. Carburetor Air Switch
26. Center Bomb Lock
27. Oxygen Control
28. Oxygen Pressure
29. Gear Horn Silence
30. Landing Gear Lever

RIGHT CONSOLE



1. Battery/Gen Switch
2. AC Generator Switch
3. Pitot Heat Switch
4. Engine Primer Switch
5. Engine Starter Switch
6. AC Power Selector Switch
7. Wing Fold Control
8. Flight Instrument Lighting
9. Non-Flt Instrument Lighting
10. Console Lighting
11. Flood Light Brightness
12. Compass Light Switch
13. Autopilot Inverter Switch
14. Autopilot Clutch
15. Exterior Light Control
16. Autopilot Controller
17. Master Radio Switch
18. Radio Compass Panel
19. UHF Radio Control Panel
20. IFF Panel
21. C-1272/APA-89 Control
22. Heat Control Lever
23. Ventilator Control Lever
24. Far Left: Arresting Hook Control

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 below.

POWER PLANT CONTROLS

The throttle, mixture, propeller, and super-charger controls are mounted in a control unit installed on the left side of the cockpit. Each control moves through a quadrant in operation.

For ease of handling, the engine control unit is plainly marked with the name and position of each control.

THROTTLE CONTROL

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

WATER INJECTION MASTER SWITCH

The water injection switch is used to harness the additional power gained from a reduced mixture temperature during high power operations. A mixture of water and methyl-alcholol is introduced into the induction system when this switch is on.

Advance beyond 50 MAP to place the system into operation.

MIXTURE CONTROL

Standard mixture controls are implemented. The Increment and Decrement commands will move through the entire range of operation, from IDLE CUTOFF all the way up to HIGH.

Generally speaking, it is best to place the mixture in the NORMAL range for normal flight operations, with HIGH being used for takeoffs and landings only.

The mixture control is also used to help regulate CHT, with a leaner mixture running the cylinders hotter (and thus, more efficient and at a lower fuel burn), so care should be taken to ensure CHTs don't exceed limitations. If CHT temperature is too high, try opening the cowl flaps or reducing throttle before changing mixture settings.

PROPELLER CONTROL

The constant-speed propeller control is located directly to the left of the mixture control. Move the control up to increase RPM; move the control down to decrease RPM.

Note: use max RPM use for takeoff only.

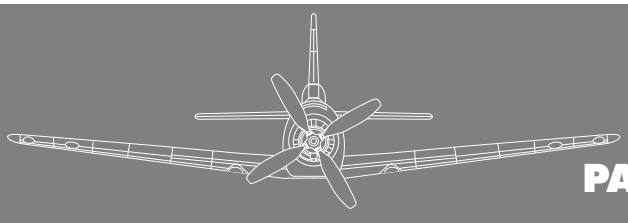
The control sets the constant speed unit and has no direct control over propeller blade angle. Rapid changes in throttle or propeller control setting will tend to cause the RPM to overshoot the mark momentarily before settling down.

SUPERCHARGER (BLOWER) 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".

High blower should be used only at altitudes in which the desired power is not available in low blower. Likewise, do not shift to high blower until it is impossible to obtain 50 inHG of manifold pressure at full throttle in low blower in order to get the most power possible out of the engine.

Avoid shifting from LOW to HIGH blower at intervals more frequently than 5 minutes.



COWL FLAP CONTROL

The cowl flap control switch is located directly below the mixture control. The cowl flaps are fully opened automatically whenever compression of the landing gear struts is detected, so manipulation of the control on the ground should be unnecessary.

The flaps should not be closed while on the ground, but can be adjusted to the pilots preference in order to maintain and regulate CHT.

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

CARB AIR SWITCH

The carb air switch is located directly above the flap control switch.

This control has 2 positions: DIRECT and ALT. When in ALT, warm air from the engine accessory section is directed into the carburettor.

OIL COOLER DOOR CONTROL

The control for the oil cooler door is located to the left of the cowl flap control switch.

The quantity of cooling air to be admitted to the oil coolers is regulated by the oil cooler door. The door is thermostatically operated in the AUTO mode, but can also be manually positioned at the discretion of the pilot by moving the switch to either OPEN or CLOSE.

FUEL SYSTEM CONTROLS

FUEL TANKS

The self-sealing main tank located in the fuselage aft of the cockpit has a total capacity of 380 gallons, which equates to 2280 pounds.

External tanks can be carried on the center pylon and left/right-hand inboard pylons, and can be attached via the Payload Configurator in-sim.

Each external tank has a capacity of 300 gallons (1800 pounds) which allows for a total of 7,680 pounds of fuel able to be carried.

For starting, warm-up, takeoff, climb, and landing, as well as during combat, the main tank should be used. Fuel from the external tanks should be used in level flight only.

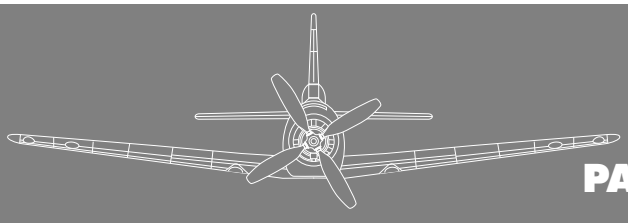
FUEL SELECTOR

Switching between tanks can be done via the fuel selector located on the left console. Each drop tank, along with the main tank, has a selectable position. OFF is used to cutoff all fuel going into the system.

FUEL QUANTITY GAUGE

An electrical fuel quantity gauge is located on the left side of the main instrument panel.

The indicator shows the total quantity of fuel in main tank: provision for checking the levels of the external drop tanks is not included, so care should be taken to not run them dry and kill the engine when on extended flights at high power settings.



ELECTRICAL FUEL BOOST PUMP

The fuel boost pump is located on the left console, and is used to aid the engine-driven pump when it alone may not be sufficient.

The electrical auxiliary fuel pump is used for :

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

The shift to drop tanks should be made below 19,000 feet, since it may be impossible to start fuel flow from the drop tank above this altitude.

FUEL SYSTEM MANAGEMENT

The fuel system is managed with two controls, the fuel selector and the electric fuel boost pump switch.

Careful management of the system is necessary, as only one tank is drawn from at a time, and fuel starvation is likely if tank management is forgotten about.

FUEL TANK SELECTION

As a general rule-of-thumb, try to use fuel from the external fuel before using the main tank fuel when at all possible.

Ensure timely switching between tanks when burning off the external wing tanks to ensure an imbalance does not occur.

EXTERNAL FUEL TANKS

With the Skyraider, we have included 3 external drop tanks that are able to be attached to the center station and the 2 inner bomb stations. Each tank has a capacity of 300 gallons, giving a total external fuel capacity of 900 gallons.

External fuel should only be used in straight and level, unaccelerated flight, with the main tank being used for takeoff, climb, any combat, and landing.

EXTERNAL TANK RELEASE

The process to release a drop tank is akin to that of any other store, including weapons. For tanks on the inboard stations, pull the CENTER BOMB RELEASE handle located on the left console; for outboard stations, pull the OUTBOARD BOMB RELEASE handle.

This is functionality is only operational with TacPack installed.

MISCELLANEOUS CONTROLS

LANDING GEAR CONTROL

The landing gear control lever is located on the left sidewall of the cockpit: moving the handle aft and up raises the gear, while moving it forward and down lowers it.

There is a safety interlock preventing the gear from being raised while on the ground.

DIVE BRAKE CONTROL

The shift-type dive brake control is located on the left side of the cockpit Moving the control up extends the 3 tail-mounted dive brakes, and moving it down retracts them.

ARRESTER HOOK CONTROL

The arresting hook control is located on the right-forward sidewall of the cockpit, and has two positions: HOOK DOWN and HOOK UP.

Move the control up to lower the hook, and down to raise it. Note that the tail hook will not extend unless the tail wheel has been lowered first.

TAIL WHEEL LOCK CONTROL

This control is located on the left console. To unlock the tail wheel, slide the control aft; to lock it, slide the lever forward.

WING FLAP CONTROL

The flap control mechanism is located to the left of the throttle quadrant.

The control has 3 positions: UP, DOWN, and STOP. The control is held in the STOP position by default, but can be moved momentarily either up to raise the flaps, or down to lower them. The switch will spring back to the STOP position after an input has been made.

ELECTRIC FUEL BOOST PUMP SWITCH

The fuel boost pump switch is located on the left console.

WING FOLDING AND LOCKING CONTROLS

The wing folding control is located on the right console. To fold the wings, click the WING FOLD control in the cockpit.

To spread the wings, reverse the process used to fold them. This operation spreads the wings and inserts the hinge pins in proper sequence. After the wings are fully spread, check that the two warning flags are retracted into the leading edge of the wing.

ROLL TRIM CONTROL

To the left of the dive brake control is a knob for trimming the ailerons. Spin this knob left to trim the left wing down, and right to trim the right wing down.

PITCH TRIM CONTROL

Elevator trim control is done through a lever on the left console, directly below the AILERON POWER BOOST RELEASE handle. Move it back to trim nose up, and forward to trim nose down.

RUDDER TRIM CONTROL

On the left console is a rudder trim knob, along with an associated indication window. Roll this knob to left trim the rudder towards the left, and right to trim the rudder towards the right.

UHF RADIO CONTROLS

OVERVIEW

The Skyraider includes an AN/ARC-27A receiver-transmitter to handle UHF radio controls. The unit incorporates two transmitting and two receiving circuits. The receiving circuits are referred to as MAIN and GUARD, respectively. The main receiver is used when the equipment is receiving on any channel except guard, while the GUARD receiver is fixed-tune to constantly monitor the guard frequency.

MODE SELECTOR SWITCH

The operation mode switch has four distinct positions:

- OFF sets the unit to be inoperative.
- T/R enables both the transmitter and main receiver, with both the Guard and ADF receivers set to standby.
- T/R+G enables both the transmitter and main receiver, along with the guard receiver. The ADF receiver remains in standby.
- ADF sets the transmitter to standby, the guard receiver to standby, and enables the ADF to be in operation through the main receiver.

CHANNEL SELECTOR DIAL

The Channel (CHAN) selector dial allows the pilot to select 1 of 20 preset channels (which can be set through the MVAMS module). Two additional selections are available, M and G, which are the Manual and Guard positions, respectively. When in the M position, the three concentric dials on the right side of the panel directly control the frequency.

When in the G position, the Guard frequency is tuned.

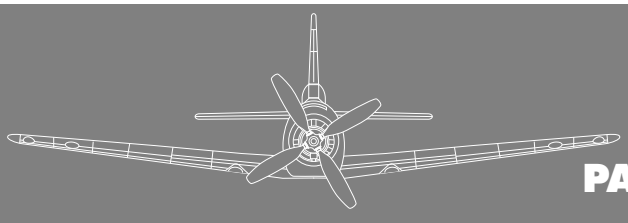
MANUAL FREQUENCY SELECTION

As noted before, when the Channel Selector Dial is in the M position, a frequency outside of the presets can be manually selected by the pilot. To do this, the three concentric rings on the right side of the panel are used.

Operation of these rings are as follows:

- The outer dial sets the first two digits of the frequency.
- The center dial sets the third digit of the frequency.
- The inner dial sets the digit to the right of the decimal point.

As an example, if the outer dial is set to 35, the middle to 8, and the inner to .2, the frequency tuned would be 358.2.



RADIO COMPASS OPERATION

OVERVIEW

The Radio Compass Control Unit provides means for the tuning of the radio compass. The radio compass is designed to guide the aircraft to a transmitting station or to take bearings on transmitting stations as an aid to navigation.

VOL CONTROL KNOB

The Volume (VOL) control knob is used to adjust the audio signal strength. Moving this knob to the right increases the volume, and to the left decreases it.

FREQ TUNING KNOB

The Frequency (FREQ) tuning knob has two indicated positions: DEC and INC. Like the volume control, moving this knob to the right will increase the frequency within the selected band, and moving it to the left will decrease it.

BAND SELECTOR KNOB

The Band selector knob is used to select the desired frequency band of operation. Like the rest of the controls on this panel, right turns will increase the band selection and left turns will decrease.

MODE SELECTOR SWITCH

The Mode Selector switch has four positions:

- When in the COMP (ADF) position, the set receives through both a loop and a long wire antenna. The loop antenna will automatically align itself with the direction of travel of the signal.
- In the ANT position, the loop antenna is switched out of the circuit and the set acts as a low frequency receiver only.
- In the LOOP position, the loop antenna may either be set on a fixed position or rotated in either direction using the LOOP L-R switch.

CW-VOICE SWITCH

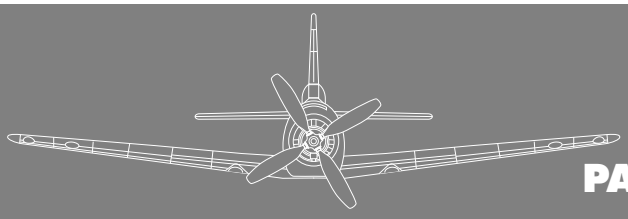
The CW-VOICE switch has two positions, CW and VOICE. In the CW position, greater accuracy is attained when tuning in a station, while VOICE is the normal mode of operation.

NOTE THE FOLLOWING SPEED LIMITATIONS:

ITEM	OPERATION	RESTRICTION
Airplane	Max. Diving Speed	Dependent on Altitude
Landing Gear	Lowering	200 knots
Dive Brakes	Extending or Retracting	350 knots at 10,000 ft
Wing Flaps	Max. Speed	130 knots
Rudder	Full Deflection	260 knots at 10,000 ft
Ailerons	Full Throw	300 knots at 10,000 ft
Cowl Flaps	Open	No Restriction

PRESTART CHECKLIST

1. Hydraulic bypass.....IN
2. Fuel selector.....MAIN
3. Fuel boost.....ON
4. Tailwheel.....LOCKED
5. Autopilot release handle.....IN
6. Aileron boost release.....IN
7. External stores release handle.....IN
8. Dive brakes.....RETRACT
9. Oil-cooler.....AUTO
10. Cowl flaps.....OPEN
11. FLAPS.....UP
12. LABS gyro.....CAGED
13. Carb air.....DIRECT
14. Blower.....LOW
15. Throttle.....CRACKED 3/4 INCH (900-1100 RPM)
16. Prop.....FULL INCREASE
17. Mixture.....IDLE CUTOFF
18. Friction knob.....ADJUST
19. Master exterior light switch...OFF (day) ON (night)
20. Canopy.....OPEN
21. Oxygen 100 percent.....1100 LBS MINIMUM
22. Gear handle.....DOWN
23. Magneto switch.....OFF
24. Water injection switch.....OFF
25. Armament panel.....ALL SWITCHES OFF
26. Altimeter.....SET
27. Radio altimeter.....OFF
28. Sump warning light.....PRESS TO TEST
29. Circuit breakers.....IN
30. Battery switch.....OFF
31. Pitot heat.....OFF
32. AC generator.....ON
33. AC power switch.....OFF
34. Wing fold.....MATCHING WINGS
35. Lights.....OFF (day) ON (night)
36. Inverter switch..... No. 1
37. Autopilot.....OUT
38. Master radio switch.....OFF
39. Radio and Nav aids.....OFF
40. IFF.....OFF



ENGINE START

When starting, do not allow the engine speed to exceed 1400 RPM. Likewise, if the oil pressure does not register within 10 seconds, or does not rise to 40 PSI within 20 seconds, abort the start.

1. Throttle.....CHECK, DESIRED POSITION
2. External power.....CONNECTED
3. Emergency hydraulic pump.....CHECK
4. Fuel boost.....ON (16 psi minimum)
5. Starter.....ENGAGE AND CRANK
6. Magneto switch.....ON
7. Primer.....AS REQUIRED

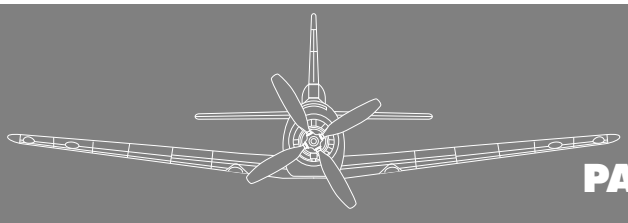
POST START CHECKLIST

1. Battery.....BATT/GEN
2. Fuel boost pump.....OFF, to CHECK, THEN ON

For operations on the ground, set the propeller to FULL INCREASE RPM, the mixture control to RICH, and the supercharger control to LOW BLOWER.

PRE-TAXI CHECKLIST

1. Warmup engine at approximately 1000-1400 RPM.
2. Press to test all warning lights.
3. Inverters.....CHECKED
4. **Check the following switches:**
   A. Master radio switch.....ON
   B. ARC-27.....T/R+G
   C. TACAN.....REC
   D. IFF.....STBY
   E. ARN-6.....ANT
   F. APN-22.....ON
   G. Middleman.....AS DESIRED
5. Oil cooler door.....CHECKED
6. Flaps.....CHECKED
7. Continue warmup until oil temp has risen to 40°C.
8. **Check operation of inverter and battery as follows:**
   A. Switch to Inverter No. 1.....DC Gen and FLT INST warning lights OFF.
   B. Switch to Inverter No. 2.....DC Gen and FLT INST warning lights OFF.
   C. Reduce throttle.....DC Gen and FLT INST warning lights ON.
   D. Switch to Inverter No. 1.....DC Gen light ON, FLT INST warning light OFF
   E. Increase throttle.....DC Gen light OFF
9. Brakes.....CHECKED
10. Flight controls.....WASHOUT



TAXI INSTRUCTIONS

Visibility from the cockpit while on the ground is good, which negates the need for an S-turn taxi style. Let the airplane roll as freely by possible, using the brakes as an aid in steering, stopping and holding only. The aircraft should be taxied at a moderate speed so as to reduce the risk of nose overs if an abrupt stop is required. 800 to 1000 RPM should be sufficient power for taxiing, and excessive power should not be carried while taxiing, except to preserve momentum while in a turn.

Use the tail wheel lock in extended crosswind taxiing to relieve excessive braking action. 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.

When using the brakes, be cautious to use only one brake at a time except in cases of an emergency stop, due to the stopping power of the brakes.

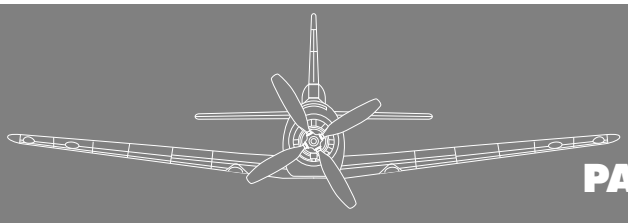
GROUND RUNUP

The runup process in the Skyraider is akin to that of any other propeller-driven aircraft. Runups should always be made into the wind if possible in order to help keep the engine cool during the process, and great care should be taken to ensure that the brakes are firmly held before the application of power is made.

Failure to hold the brakes while at, or close to, full power will result in the aircraft rapidly picking up speed, and a panicked full application of the brakes can and will lead to a nose over scenario.

GROUND RUNUP CHECKLIST

1. **Magneto Switch Check**
   - A. Throttle.....IDLE STOP
   - B. Magneto switch.....OFF MOMENTARILY
   - C. Magneto switch.....BOTH
2. **Propeller Check**
   - A. Throttle.....1600 RPM
   - B. Propeller.....FULL DECREASE RPM (check for RPM decrease)
   - C. Propeller.....FULL INCREASE RPM (check for RPM recovery to 1600)
3. **Supercharger Check**
   - A. Throttle.....1600 RPM
   - B. Blower.....HIGH
   - C. Throttle.....FIELD BAROMETRIC PRESSURE
   - D. Blower.....LOW (check for loss of MAP and rise in RPM)
4. **Suction Checks**
   - A. Boost pump.....ON
   - B. Throttle.....1600 to 1800 RPM
   - C. Fuel selector.....Switch to external tanks
   - D. Boost pump.....OFF
   - E. Fuel selector.....MAIN
5. **Magneto and Power Check**
   - A. Throttle.....STATIC MAP
   - B. Magneto switch.....RIGHT (check that drop does not exceed 75 RPM)
   - C. Magneto switch.....BOTH (allow RPM to recover)
   - D. Magneto switch.....LEFT (check that drop does not exceed 75 RPM)
   - E. Magneto switch.....BOTH
6. **Idle Mixture Check**
   - A. Throttle.....1000 RPM
   - B. Prime.....MOMENTARY (check for 0-50 RPM increase)
   - C. Mixture.....Move slowly towards idle cutoff. (ensure no rise in RPM)
7. **Idle RPM Check**
   - A. Throttle.....IDLE STOP (ensure RPM is between 600 and 700)



NORMAL TAKEOFF

For a normal take off, the flap position can be configured as the pilot desires.

As the aircraft accelerates down the runway, the main focus of the pilot should be heading control. Between 15 and 20 knots, the rudder becomes effective, which might necessitate the use of light braking action of a single wheel until the rudder is useful.

The tailwheel should be held on the runway for the first part of the takeoff roll to aid in directional control, and only raised when the rudder has become effective. When this occurs, back pressure should be released and the tailwheel raised to 1 foot off the runway to achieve the a flatter than takeoff attitude. This should be held until an airspeed of 90 to 95 knots is obtained, at which time the aircraft can be slightly rotated to takeoff attitude to lift off the runway.

Raise the landing gear when it is apparent a safe, wheels-down landing can no longer be accomplished, and reduce power once the gear is up and a sufficient airspeed and altitude is obtained to permit the safe return in event of an engine outage.

CROSSWIND TAKEOFF

The technique for a crosswind takeoff is the same as for a normal takeoff, with a few exceptions.

The aircraft has a tendency to point into the wind, which will require more rudder to keep the aircraft straight down the runway. Into-the-wind aileron must also be used to eliminate the possibility of the upwind wing rising up, and slightly forward stick should also be used to place more weight on the main wheels prior to becoming airborne.

Once airborne, maintain necessary aileron input to track a straight path down the runway until a proper crab is established.

MINIMUM RUN TAKEOFF

For a minimum run takeoff, the controls should be set in the same position as for a normal takeoff, with the exception of the flaps.

To clear a 50-foot obstacle, use half flaps; for a absolute minimum run, use full down flaps. The flaps will blow back at around 100 to 110 knots, however the flap control lever should be placed in the UP position prior to 130 knots.

For takeoff, hold the brakes and advance the throttle to field barometric pressure. Release the brakes while adding full takeoff power, and raise the tail quickly to reduce drag.

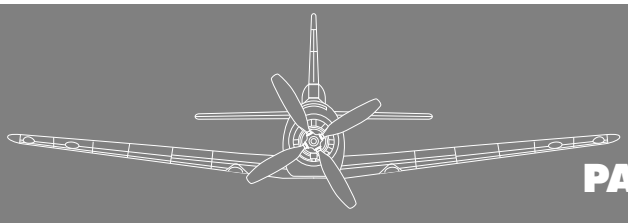
The exact takeoff speed will vary based on weight and drag, but pull the aircraft off when it feels ready to fly.

TAKEOFF CHECKLIST

1. Inverter.....No. 1
2. Fuel.....MAIN TANK
   (check quantity and fuel pressure)
3. Fuel boost.....ON
4. Mixture.....RICH
5. Propeller.....INCREASE
6. Blower.....LOW
7. Carb air.....DIRECT
8. Cowl flaps.....OPEN
9. Wing lock.....LOCKED
10. Flaps.....AS DESIRED
11. Tabs.....SET
12. Tail wheel.....LOCKED

IN TAKEOFF POSITION

1. Tailwheel.....LOCKED
2. Power to field barometric pressure for 15 seconds.
3. Check all instruments and indications.
4. Brakes.....RELEASE
5. Throttle.....SMOOTHLY TO FULL POWER



AFTER TAKEOFF CHECKLIST

1. Cockpit sweep.....LEFT to RIGHT
2. Cowl flaps.....CHT 160 to 200
3. Inverter.....No. 2
4. Boost pump.....OFF

CLIMB

Climb with the cowl flaps positioned so as not to exceed engine operating limitations. If over-temperature is encountered, a reduction in CHT can be obtained by climbing at around 15-20 knots faster than the best climbing speed. Oil temperature can be reduced by reducing engine RPM.

After the climb has been established, the use of the fuel boost pump may be required at high altitudes if the engine-driven pump is unable to maintain sufficient power.

A climb at a power setting of 2600 RPM and 45.5 inches of manifold pressure will permit the climb to be maintained to the full throttle altitude without reducing power or exceeding the torque pressure limit.

CRUISE

Cruise in the Skyraider is as straightforward as it gets. Once at the desired cruise altitude, lean the mixture to the point of RPM decrease, then enrich it to the desired CHT.

Propeller RPM is at the discretion of the pilot.

APPROACH

An approach speed of at least 10-15 percent above the power off stall speed should be maintained throughout the approach phase; control at this speed is excellent.

Prior to reaching the abeam position, the landing checklist should be performed. The desired abeam position can be identified from the air by aligning the wing tip on the farthest edge of the runway for a 1000 foot pattern.

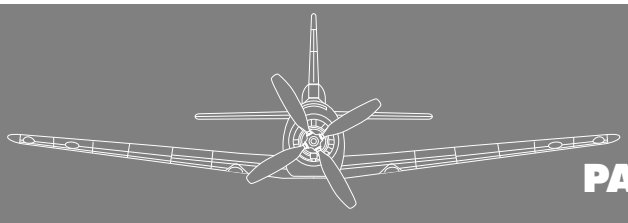
The approach is commenced by simultaneously rolling into a 25-degree bank and reducing power. Airspeed and altitude are flown off together so as to arrive over the end of the runway at an altitude of 50 feet and an airspeed of 90-95 knots.

The max permissible bank angle in the landing approach is 30 degrees, and it is mandatory that a wave-off be executed if the angle of bank exceeds 30 degrees at any time in the approach phase.

For turbulent conditions or a no-flap approach and landing, increase the approach speed by 10-15 knots.

LANDING CHECKLIST

1. Armament.....SAFE
2. Inverter.....No. 1
3. Fuel.....MAIN TANK
4. Fuel boost.....ON
5. Mixture.....RICH
6. Blower.....LOW
7. Carb air.....DIRECT
8. Tailwheel.....LOCKED
9. Hook.....UP
10. Dive brake.....CLOSED
11. Wheels.....DOWN
12. Flaps.....AS REQUIRED
13. Propeller.....INCREASE



NORMAL LANDING

In a properly executed approach, the aircraft arrives over the end of the runway at an altitude of 50 feet and an airspeed of 90-95 knots. At this position, the power is gradually decreased, and the transition to a 3-point attitude is commenced. If this is done correctly, the aircraft will arrive in the 3-point attitude just prior to touchdown with a low sink-rate.

After touch down, the throttle is reduced to idle and back stick is applied smoothly and gradually as the aircraft slows, until full back stick has been applied. If the throttle is not reduced, the aircraft may skip back into the air.

If a bounce occurs, neutralize the stick and allow the aircraft to settle back onto the runway; add power to cushion the landing if necessary.

CROSSWIND LANDING

During a crosswind landing, it is necessary to place a wing into the wind to stop the aircraft from drifting, then apply rudder to keep the aircraft pointed down the runway. This correction is maintained throughout touchdown and rollout and in the case of strong crosswinds, a partial or no-flap landing should be made.

WAVEOFF

A waveoff can be used to salvage a poor landing approach. The waveoff should be initiated if at anytime the pilot feels uncomfortable or unsatisfied with the approach.

To execute a waveoff, level the wings while applying power as necessary. If departing the pattern, the gear is raised and the flaps are gradually raised upon reaching 300 feet and 110 knots.

CLEAR OF RUNWAY CHECKLIST

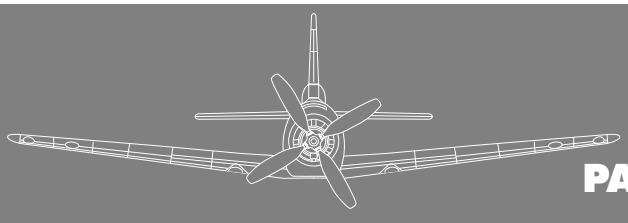
1. Flaps.....UP
2. A/C power switch.....OFF
3. Fuel boost pump.....OFF

SHUTDOWN CHECKLIST

1. RPM.....800 to 1000
2. Mixture.....Lean to decrease of 25-50 RPM and run for 3 minutes. Allow engine to idle until CHT drops below 150C.
3. Radio and NAV gear.....SECURED
4. Mixture.....IDLE CUTOFF

When the prop stops:

5. Fuel selector.....OFF
6. Mags.....OFF
7. Battery.....OFF
8. Lights.....OFF (night)



STALLS

Stalls in the Skyraider are a relatively docile maneuver, with the aircraft exhibiting positive stability characteristics throughout the flight envelope. The exact speed at which the aircraft will stall varies on weight and bank angle, but can be determined from the charts included at the end of this manual.

POWER-OFF STALLS

The warning of a power-off stall is characterized by a slight buffeting of the ailerons, followed by a nose-down pitch and a mild roll to the left. A normal recovery can be accomplished by pushing the stick forward, and a recovery can be completed with 400-500 feet of altitude loss.

POWER-ON STALLS

Leading up to a power-on stall, the warning is slight. In the stall, a somewhat more pronounced roll to the left can be expected when compared to a power-off stall. Stalls when in a turn to the left can be expected to be more severe, however. A recovery can be completed with approximately 300 feet of altitude loss.

ACCELERATED STALLS

Stalls experienced during accelerated turns to the left or right are characterized by a roll to the left accompanied by a nose-down pitch. The aircraft exhibits a tendency to spin to the left when stalled from a left turn, but the aircraft can also be forced to spin to the right during a right turn, though there is no tendency for this. To recover, reduce the G forces.

SPIN RECOVERY

Spins can develop from accelerated stalls, or by intentional entry, and are a non-issue in the Skyraider. Spin characteristics are satisfactory with no vicious tendencies, and are accompanied by a nose-down pitch, followed by a nose-up pitch during each turn.

Recovery can be readily accomplished, though more difficulty may be experienced with external stores attached. Intentional spins with external stores should be avoided.

SPIN RECOVERY PROCEDURE

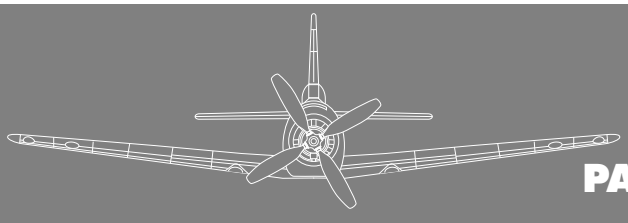
Recovery from a spin should be swift and commanding to prevent excessive altitude loss. After breaking the spin, use caution when exiting the dive to ensure load factor limits are not exceeded, or that a secondary stall does not occur. A two-turn spin, along with recovery, will result in an altitude loss of approximately 5,000 feet.

To recover from a spin, follow the below procedure:

1. Throttle.....IDLE
2. Ailerons.....NEUTRAL
3. Rudder....FULL OPPOSITE TO DIRECTION OF SPIN
4. Elevator.....FORWARD TO BREAK STALL
5. Landing gear.....UP
6. Flaps.....UP

If spin persists after two turns:

7. External stores.....JETTISON
8. Recovery procedure.....REPEAT



DIVING

The diving characteristics of the Skyraider are normal, except in the case of steep, clean dives from high-altitudes at speeds approaching the limitations of the aircraft. As maximum design speed is approached, control force required to pull out of the dive increases appreciably.

Prior to the dive, preset the trim to 1 to 2 degrees nose-down; do not enter the dive with any nose-up trim.

DIVE BRAKE CONTROL

Diving with the dive brakes open is not required, but helps to regulate speed. When dives with the brakes open, the brakes should not be retracted until the pull-up is well underway due to the high rate of acceleration when they are retracted.

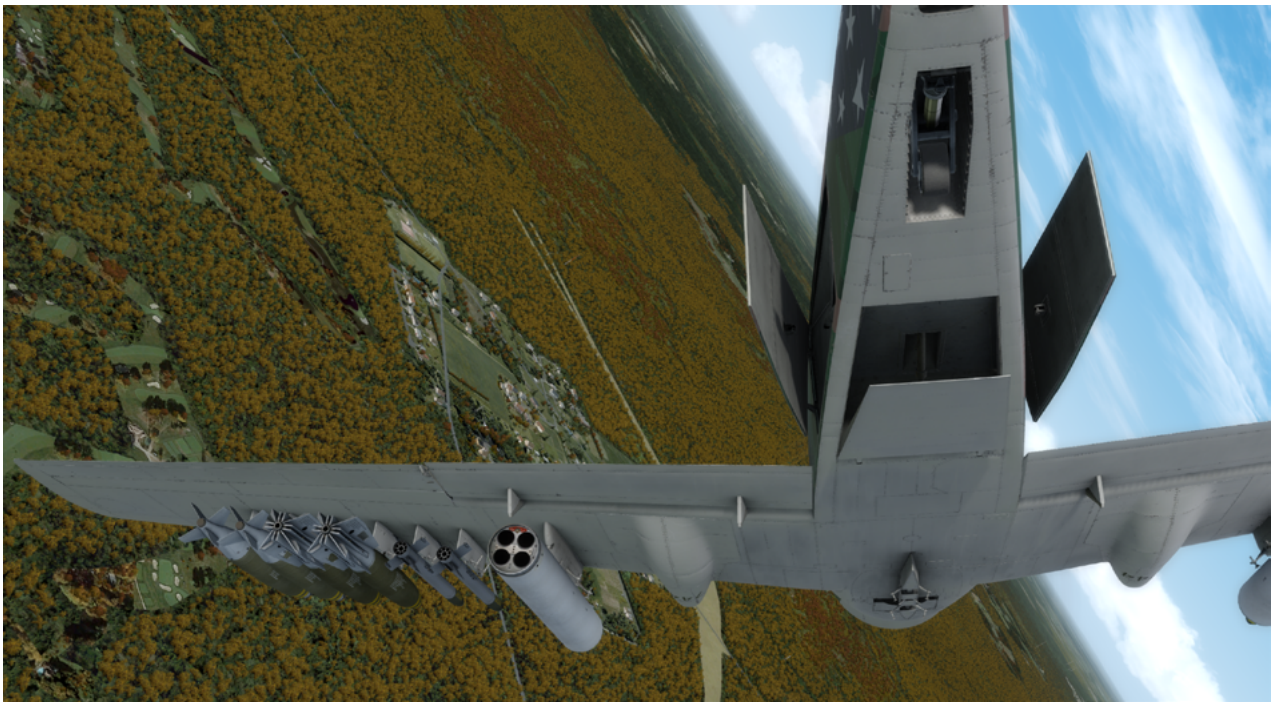
Maintain the brakes in the full OPEN position when desired, and full CLOSED when not; do not use any intermediate position.

DIVE ENGINE CONTROL CHECKLIST

1. Mixture.....RICH
2. Blower.....LOW
3. Prop.....2150 RPM

DIVING CHECKLIST

1. Armament.....AS REQUIRED
2. Fuel.....MAIN TANK (Boost on)
3. Mixture.....RICH
4. Blower.....LOW
5. Tabs.....SET
6. Carb Air.....DIRECT
7. Propeller.....AS REQUIRED
8. Dive brakes.....AS REQUIRED



ELECTRICAL EQUIPMENT

As far as aircraft electrical systems go, the system in the Skyraider is quite simple. The system is supplied DC power by a 24-volt, 34 amp-hour battery, along with a DC generator that delivers a full load of 400 amps at 30 volts. An external AC and DC power receptacle is also provided for use during engine starting.

BATTERY-GENERATOR SWITCH

On the right console of the cockpit, the BATTERY-GENERATOR switch is provided. This controls the battery power to the primary bus and has 3 positions: BAT & GEN, BAT ONLY, and OFF. The switch is held in the BAT & GEN position by a switch guard, with the BAT ONLY position being for emergency use only.

GENERATOR WARNING LIGHT

The generator warning light located on lower right side of the instrument panel illuminates in the event of a generator failure.

INVERTERS

The 2 inverters receive power from the DC generator, and convert that into AC power for the AC power system. Failure of either of the inverters will illuminate the FLT INSTR PWR FAILURE light located on the right console.

INSTRUMENT POWER SWITCH

The instrument power switch located on the right console allows switching between the 2 inverters when it should become necessary due to either a checklist requirement or equipment failure, as well as for energizing the autopilot.

LIGHTING SYSTEM

The lighting control panels are located on the right side console of the cockpit. The topmost row of the panel contains controls for the internal instruments, panel, and flood lighting. The panel directly below and to the right controls the external lighting.

AUTOPILOT

What might come as a surprise to those not familiar with the aircraft, the Skyraider comes fitted with an autopilot, albeit a very primitive (not to mention convoluted) one. The autopilot control panel is located on the right console, next to the light control panel.

Turning the INSTRUMENT POWER switch to INVERTER 2 & AUTO PILOT energizes various components of the autopilot system and prepares it for use.

AUTOPILOT CLUTCH SWITCH

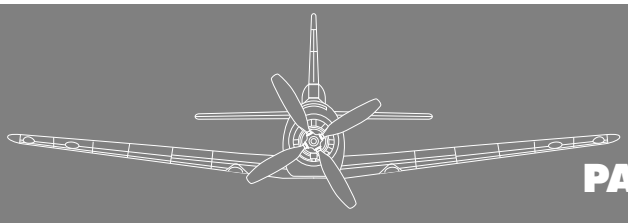
The autopilot clutch switch, placarded PUSH AUTO-PILOT ON, is used to engage the autopilot after it has been warmed up. Pulling this out disengages the system as well.

AUTOPILOT CONTROLLER KNOB

The autopilot controller knob provides controls for both pitch and bank for maneuvering the aircraft when the autopilot is engaged.

EMERGENCY RELEASE

In the event there is a malfunction to the point of jamming the controls, the autopilot can be mechanically disconnected by pulling the AUTO PILOT RELEASE handle on the left console.

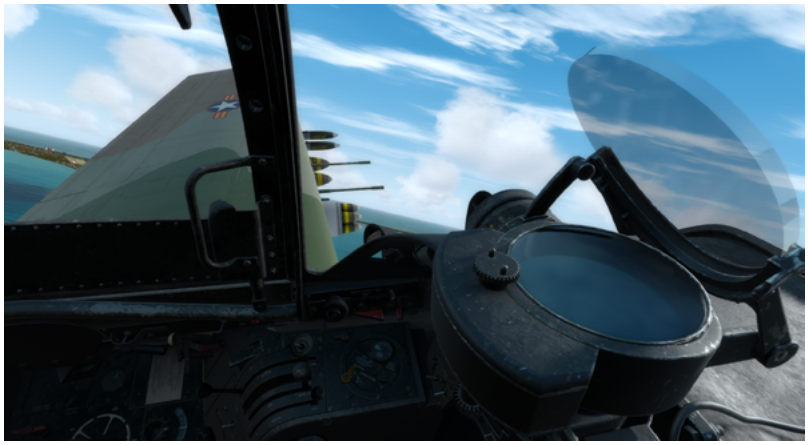


AUTOPILOT PREFLIGHT CHECK

Before the autopilot is first used in flight, checking the system while on the ground will prevent taking a non-functional (or malfunctioning) system into the air and finding out the hard way why preflight checks exist in the first place.

To run this check, follow the procedure below.

1. With the battery-generator switch in BAT & GEN, the generators charging, and the INST PWR switch on INVERTER 2 & AUTO PILOT, allow at least two minutes for the gyros to come up to speed and for other components to warm up. Erect the gyro -horizon by caging then uncaging the instrument.
2. Center the surface controls and engage the autopilot by pushing the clutch switch in.
3. Operate the surface controls manually. Any resistance to movement will indicate an inoperative autopilot.
4. Move the turn, pitch and bank trim control and observe the corresponding surface controls to see that their movement is correct in proportion to the selections made via the controller.



IN-FLIGHT ENGAGEMENT

1. Erect the gryo-horizon as needed.
2. With the compass switch in the COMPASS CONTROL position, cage the directional gyro and set the indicator (outer dial) to agree with the magnetic indicator reading (inner dial). Hold the indicator in this position for at least two seconds, then release.
3. Turn the INST PWR switch to INVERTER 2 & AUTOPILOT.
4. Allow two minutes for the amplifier to warm up.
5. Center the turn-control pitch-trim control, and bank-trim adjustments on the autopilot controller.
6. Trim the aircraft in the desired attitude of flight.
7. Press the clutch switch in to engage the autopilot.

IN-FLIGHT OPERATION

1. To climb, turn the pitch-trim control counterclockwise UP.
2. To dive, turn the pitch-trim control clockwise DOWN.
3. To trim bank, turn the bank-trim adjustment clockwise to raise the left wing and counterclockwise to raise the right wing.
4. To turn or trim course, displace the turn-control knob out of its central detent until the desired heading is obtained. Recenter this knob to return to straight flight.

ARMAMENT

OVERVIEW

Note that in order for the armament system to work properly, VRS TacPack must be installed and functioning. If TacPack is not installed, the weapons on the wings will be static only - that is to say, they will be for show only: no functionality.

All of the weapons controls are located on the armament panel, which will be covered fully in the following pages.

The armament selections we have included with the Skyraider are plentiful, and include rockets such as the LAU-68 and LAU-10, dumb bombs like the Mk-82, Mk-83 and Mk-84, the Mk-117 demolition bomb, and even the famous Toilet Bomb (yes, this was actually loaded onto an aircraft and dropped).

Accompanying the bombs, rockets and...sanitation unit are 4, forward-firing 20mm guns mounted in the wing panels with 2 guns per side. Each gun is capable of carrying 200 rounds of ammunition, which equates to a cool 800 20mm rounds to fire into the opposition.

Along with the gun is an illuminated gun sight, though this could be mistaken for a HUD at first glance. A gun sight elevation control knob is provided directly adjacent to the display, and allows for aircraft pitch to be corrected for in getting the gun sight to line up where it should be for accurate delivery. More on the sight and its reticle options in a bit.

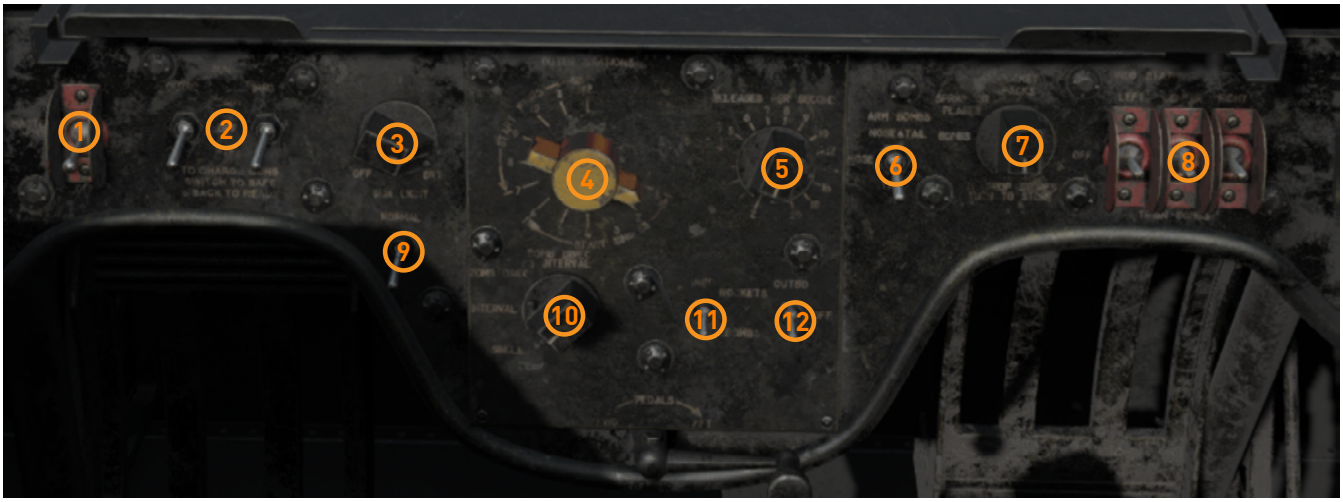
EMERGENCY JETTISON

In cases where it is necessary, provisions are provided for jettisoning any loaded external stores, whether they be rockets, bombs, or fuel tanks.

On the left-hand console, two handles placarded CTR WING BOMB RELEASE and OUTBD WING BOMB RELEASE are present. The CTR WING BOMB RELEASE handle jettisons stores on the 3 inner payload stations, and the OUTBD WING BOMB RELEASE handle jettisons all stores hung on the outer wing stations.

In the scenario when it is desired to jettison the stores on the two inner wing stations but retain the centerline store, the PULL TO LOCK CENTER STATION knob is provided to prevent the jettisoning of the store.

ARMAMENT PANEL



1. Master Armament Switch
2. Gun Control Switches
3. Gun Light Brightness Knob
4. Outer Station Selector
5. Interval Selector
6. Arm Bombs Switch
7. Inner Station Selector
8. Inboard Station Selector
9. Gun Sight Light Switch
10. Method Selector
11. Inboard Station Switch
12. Outboard Station Switch

OUTBOARD STATION SELECTOR

The outboard stations selector is used to select the station in which the pickled weapon will be released from when in the single mode of weapons delivery. This selector is non-applicable when in the interval method of delivery.

When the interval method is selected, the station release order is predetermined, with outer stations releasing first, then followed by inner stations. The general release order is stations 1 and 12, 2 and 11, 3 and 10, and so on, until all outboard stores are expended.

INTERVAL SELECTOR

The interval selector is only used in the interval method of delivery. As you might have already guessed based on the placard, this switch controls the releases per second of both bombs and rockets, though it should be mentioned that bombs and rockets cannot be employed at the same time in interval mode.

A setting of 20 will release approximately 20 rockets (or bombs) per second, though the exact timing of delivery may vary due to limitations within TacPack itself.

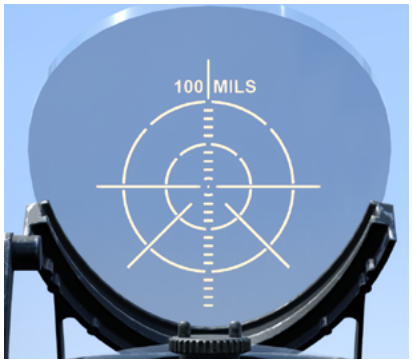
GUN CONTROL SWITCHES

The two gun control switches located on the left side of the armament panel are used to charge the guns. Use the left-hand switch to control the two outboard (OUTBD) guns, and the right-hand switch to control the two inboard (INBD) guns. The guns are charged in pairs, and can either be fired simultaneously or in pairs as desired by the pilot.

GUN SIGHT RETICLE OPTIONS

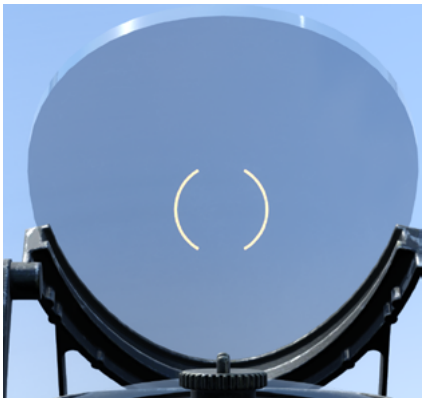
There are 3 different gun sight reticles available to the pilot: Day, Combination, and Night. Switching between these is done via a control knob just in front of the gun sight itself.

DAY RETICLE



COMBINATION RETICLE

NIGHT RETICLE



OPERATING THE GUN SIGHT

1. Battery-generator switch.....BATT-GEN
2. Master armament switch.....ON
3. Gun sight light switch.....NORMAL
4. Adjust gun sight elevation as desired.
5. Center ball in gun sight level.

FIRING THE GUNS

Firing of the guns is done via the TacPack-assigned trigger switch. To get the guns ready to fire, follow the below procedure:

1. Select the desired gun via the gun control switches.
2. Charge the guns by moving the gun control switch from OFF to SAFE to READY.
3. Squeeze the trigger switch.

ROCKETS OVERVIEW

With the Skyraider, we have given you the option of 2 different rocket launchers: the LAU-10 and LAU-68. Without delving to far into the intricacies of each, the LAU-10 fires the Zuni unguided rocket, while the LAU-68 fires the Hydra-70 unguided rocket.

FIRING ROCKETS

Firing the rockets can be a bit of a confusing experience the first time you do it. With this said, it is a very straightforward system once you are used to it.

The main controls you will be using for the launching of rockets are the inner stations selector switch, the inboard station switches, the inboard station selector switches, as well as the method selector switch.

The firing order of the rockets is independent from the outboard station selector setting, and as a general rule of thumb, the left rack on the left wing goes first, followed by the right rack on the right wing. The station sequence for firing is 1 and 12 (outboard), followed by 2 and 11, 3 and 10, 4 and 9, 5 and 8, then 6 and 7.

If firing rockets in pairs is desired, place the outer station selector switch on 7. Rockets can be fired individually or in salvos, and the procedures to do so are noted below.

SINGLE FIRE (INNER STATIONS)

1. Inner station selector.....ROCKET PACK
2. Inboard station switch.....ROCKETS
3. Inboard station selector.....LEFT AND/OR RIGHT
4. Method selector switch.....SINGLE
5. Master armament switch.....ON
6. Pickle.....DEPRESS

SINGLE FIRE (OUTER STATIONS)

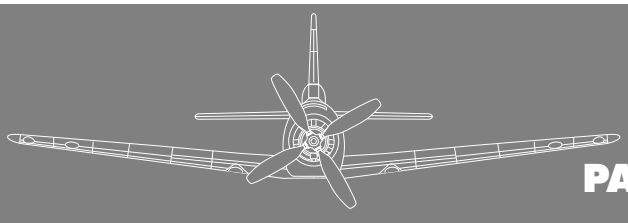
1. Outer station selector.....AS DESIRED
2. Outboard station switch.....ROCKETS
3. Method selector switch.....LEFT AND/OR RIGHT
4. Master armament switch.....ON
5. Pickle.....DEPRESS

SALVO (INNER STATIONS)

1. Interval selector.....AS REQUIRED
2. Inboard station switch.....ROCKETS
3. Inner station selector.....ROCKET PACK
4. Inboard station selector.....LEFT AND/OR RIGHT
5. Method selector switch.....INTERVAL
6. Master armament switch.....ON
7. Pickle.....DEPRESS

SALVO (OUTER STATIONS)

1. Outer station selector.....AS REQUIRED
2. Interval selector.....AS REQUIRED
3. Outboard station switch.....ROCKETS
4. Method selector switch.....INTERVAL
5. Master armament switch.....ON
6. Pickle.....DEPRESS



BOMBS OVERVIEW

For your destructive pleasure, and as touched on before, we have included a variety of dumb bombs to choose from, including the Mk-82, Mk-82SE, Mk-83, Mk-84, Mk-117, and the Toilet Bomb.

The decision of where to load the various bombs comes down to size and weight. The largest bombs in the Skyraider's arsenal (the Mk-83 and Mk-84) can only be loaded on the inner stations (left, right, and center), whereas the smaller ordnance can be loaded anywhere.

DROPPING BOMBS

In the Skyraider, dropping bombs is a straightforward (and fun!) affair. Bombs can be released individually or as a salvo, depending on the preferred method of delivery. The procedures for both methods can be found on this page.

The main controls to be aware of for bomb delivery are the inboard station selector switches, the inner stations selector switch, the arm bomb switch, as well as the outer station selector switch.

The inboard station selector switches control which bombs on the inboard (left, right, and center) stations will be released. A station is selected by moving the switch to its UP position. This is the main difference between the bomb and rocket delivery methods.

Like the rockets, when the interval method is in use, the outer stations selector switch will become redundant, and the previously discussed release order of stations 1 and 12, 2 and 11, etc will be in effect.

SINGLE RELEASE (INNER STATIONS)

1. Inboard station switch.....BOMBS
2. Arm bombs switch.....AS REQUIRED
3. Inner stations selector.....BOMBS
4. Inboard station selector switch.....AS DESIRED
5. Method selector switch.....SINGLE
6. Master armament switch.....ON
7. Pickle.....DEPRESS

SINGLE RELEASE (OUTER STATIONS)

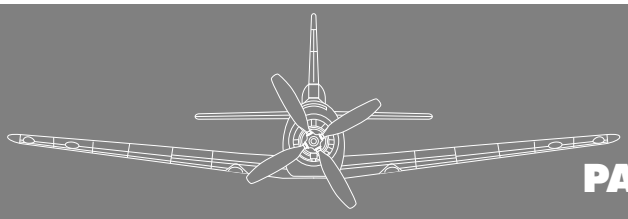
1. Outer station selector.....AS DESIRED
2. Outboard station switch.....BOMBS
3. Arm bombs switch.....AS REQUIRED
4. Method selector switch.....SINGLE
5. Master armament switch.....ON
6. Pickle.....DEPRESS

SALVO RELEASE (INNER STATIONS)

1. Arm bombs switch.....AS REQUIRED
2. Inner stations selector.....BOMBS
3. Inboard station selector.....ALL
4. Inner stations selector.....BOMBS
5. Method selector switch.....SINGLE
6. Master armament switch.....ON
7. Pickle.....DEPRESS

SALVO RELEASE (OUTER STATIONS)

1. Outer station selector.....7
2. Interval selector.....20
3. Arm bombs switch.....AS REQUIRED
4. Outboard station switch.....BOMBS
5. Method selector switch.....INTERVAL
6. Master armament switch.....ON
7. Pickle.....DEPRESS



EMERGENCY LANDING GEAR OPERATION

The landing gear can be extended if there is complete failure of the hydraulic system by moving the emergency hydraulic pump switch on the left console to the right to switch the system on.

Emergency gear extension is recommended to be carried out at 110 knots. If the engine driven hydraulic pump has failed (the most likely scenario), following the below procedure will lower the gear:

1. Landing gear lever.....DOWN
2. Emergency hydraulic pump switch.....DEPRESS

Note that the above procedure will lower the main landing gear only, and the tailwheel may remain retracted. The tailwheel might be lowered by applying a minimum load factor of greater than 4 g's, though this is not guaranteed.

LOSS OF FUEL PRESSURE

A loss of fuel pressure can be attributed to either a failure of the engine-driven fuel pump or fuel exhaustion of the currently-selected fuel tank. Follow the below procedure if this situation occurs:

1. Fuel selector.....SET TO TANK CONTAINING FUEL
2. Fuel boost pump switch.....ON
3. Mixture.....RICH

HYDRAULIC SYSTEM FAILURE

Failure of the engine-driven hydraulic pump will result in the loss of system pressure. To regain system pressure, follow the below procedure:

1. Desired equipment.....ACTUATE
2. EMER HYD pump switch.....ON

ENGINE FAILURE DURING TAKEOFF (AIRBORNE)

Engine failure during, or directly after, the takeoff run is a critical event, and must be handled with swiftness and quick decision making. The checklists for a ground abort are redundant in the simulator, so only the airborne procedures will be outlined below.

SUFFICIENT RUNWAY REMAINING CHECKLIST

1. Landing gear.....DOWN
2. Flaps.....FULL DOWN
3. Throttle.....CLOSED
4. Mixture.....IDLE CUTOFF
5. Tailhook.....DOWN

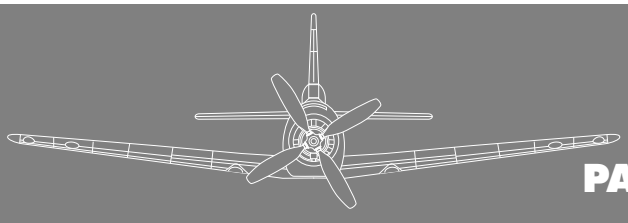
INSUFFICIENT RUNWAY REMAINING CHECKLIST

1. Flying speed.....MAINTAIN
2. Landing gear.....UP
3. Flaps.....DOWN
4. External stores.....JETTISON
5. Canopy.....EMERGENCY OPEN
6. Throttle.....CLOSED
7. Mixture.....IDLE CUTOFF
8. Fuel selector.....OFF
9. Ignition switch.....OFF
10. Battery-generator switch.....OFF
11. Land.....STRAIGHT AHEAD

ENGINE ROUGHNESS

If the engine is popping and/or losing power, the problem may lie in fouled spark plugs. Follow the below procedure if either of these occur:

1. Manifold pressure.....REDUCE
2. Fuel selector.....MAIN
3. Mixture.....RICH
4. Fuel boost pump switch.....ON
5. Land.....AS SOON AS PRACTICAL



ENGINE FAILURE DURING FLIGHT

Engine failure during flight affords more time to troubleshoot the cause (and it's usually down to fuel system mismanagement), but is still considered critical if the engine cannot be restarted.

Engine failure is most common when a fuel tank is run dry, but a lack of fuel pressure can, and will, kill the engine as well. As basic troubleshooting steps, ensure the mixture is rich, the selected tank has fuel, and the fuel boost pump switch is on.

ENGINE RESTART CHECKLIST

1. Glide.....120 KIAS
2. Fuel selector.....MAIN (or fullest tank)
3. Mixture.....RICH
4. Fuel boost pump switch.....ON
5. Throttle.....1/4OPEN
6. Propeller control.....FULL DECREASE
7. Mixture.....IDLE CUTOFF
8. Mixture.....RICH
9. If unable to restart, obtain position to land ASAP.

ENGINE FAILURE IN THE LANDING PATTERN

Much like an engine failure directly after takeoff, a failure in the pattern can spell trouble if the runway cannot be made. If the runway can be made, proceed and land normally.

If the runway cannot be made, follow the below procedure:

1. External stores.....JETTISON
2. Canopy.....OPEN
3. Fuel selector.....OFF
4. Battery switch.....OFF
5. Generator switch.....OFF
6. Ignition switch.....OFF

FORCED LANDINGS

Landings in soft or uneven terrain such as golf courses or plowed fields and in rough, rocky, or tree stump terrain should be made with the 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 result from nosing over.

The 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.

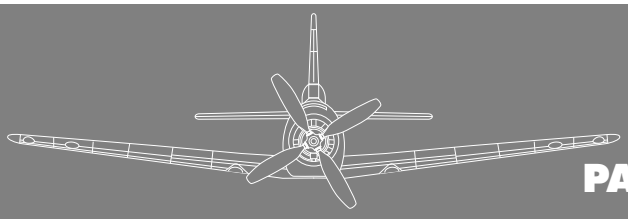
Fly the approach to the landing with the propeller in full decrease and the gear/flaps up to maximize gliding distance.

FORCED LANDINGS CHECKLIST

1. External stores.....JETTISON
2. Canopy.....EMERGENCY OPEN
3. Fuel tank selector.....OFF
4. Battery and ignition switches.....OFF
5. Mixture control.....IDLE CUTOFF
6. Landing gear.....AS DESIRED
7. Flaps.....FULL DOWN

WATER LANDINGS (DITCHING)

The same procedure as has been outlined for forced landings is applicable to ditching, just make sure to keep the landing gear retracted.



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With thanks to our crack-team of beta testers and avgeeks who helped us get this bird just right:

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Rafal “YoYo” Stankiewicz
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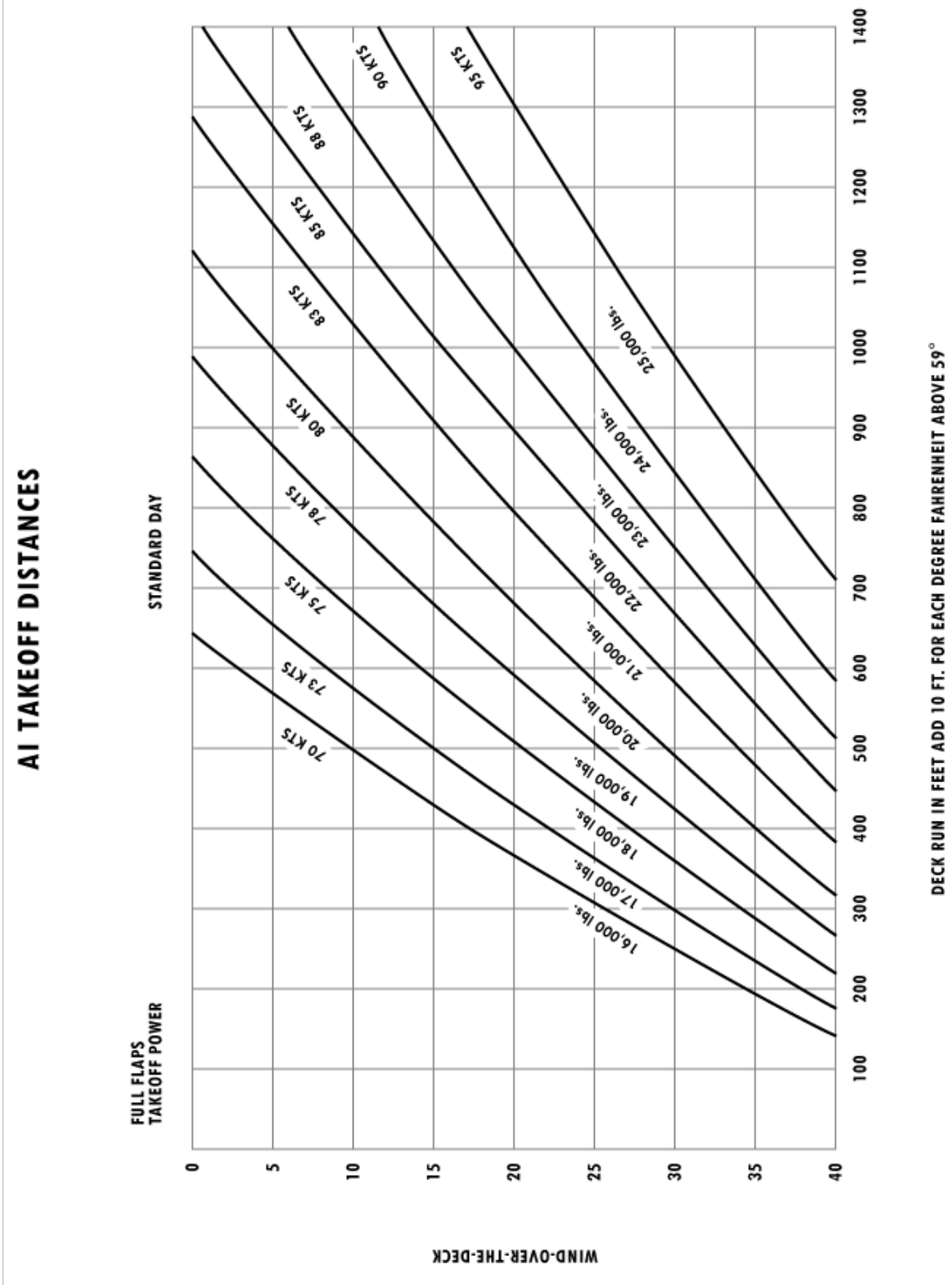
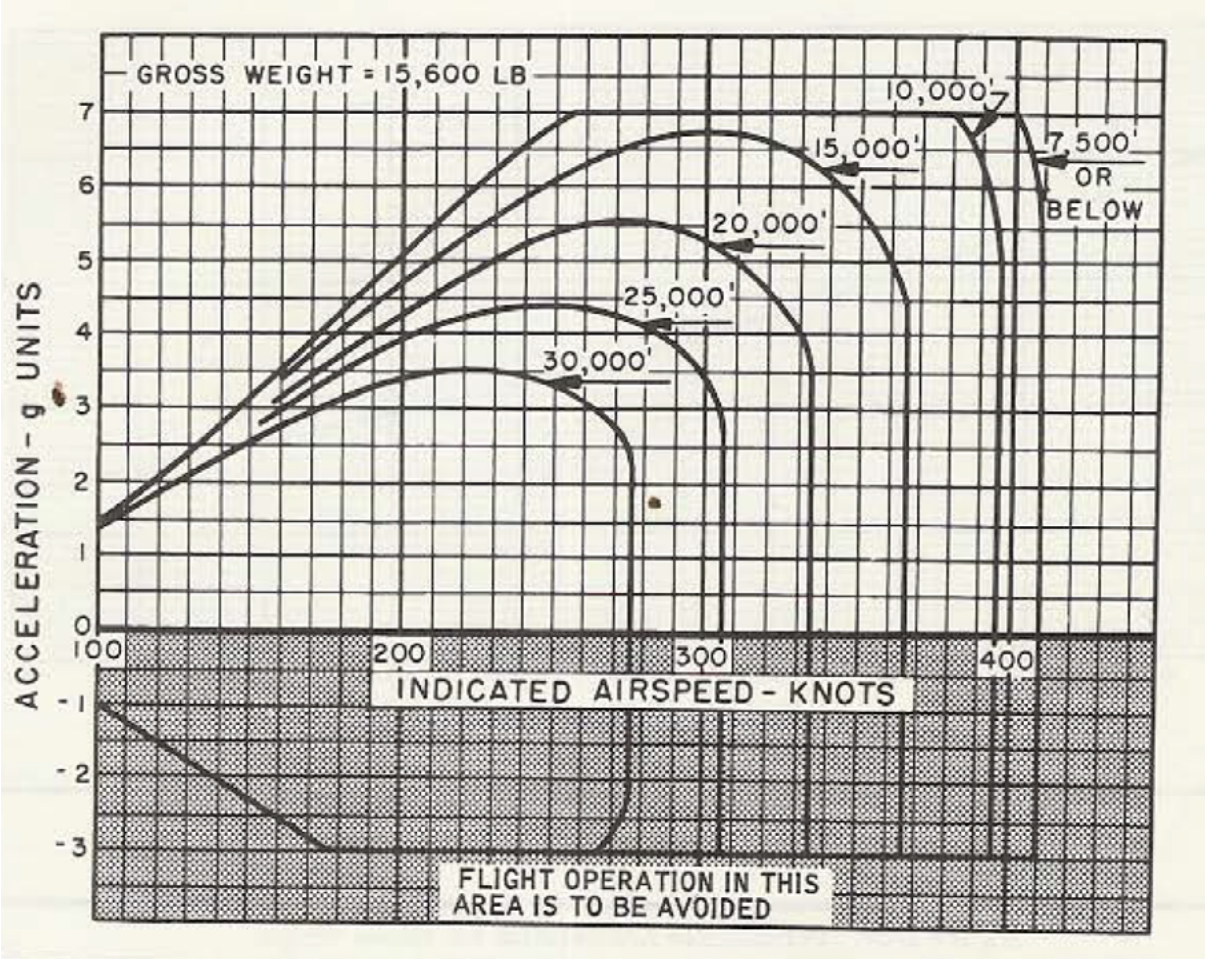
ILLUSTRATION & CHART INDEX



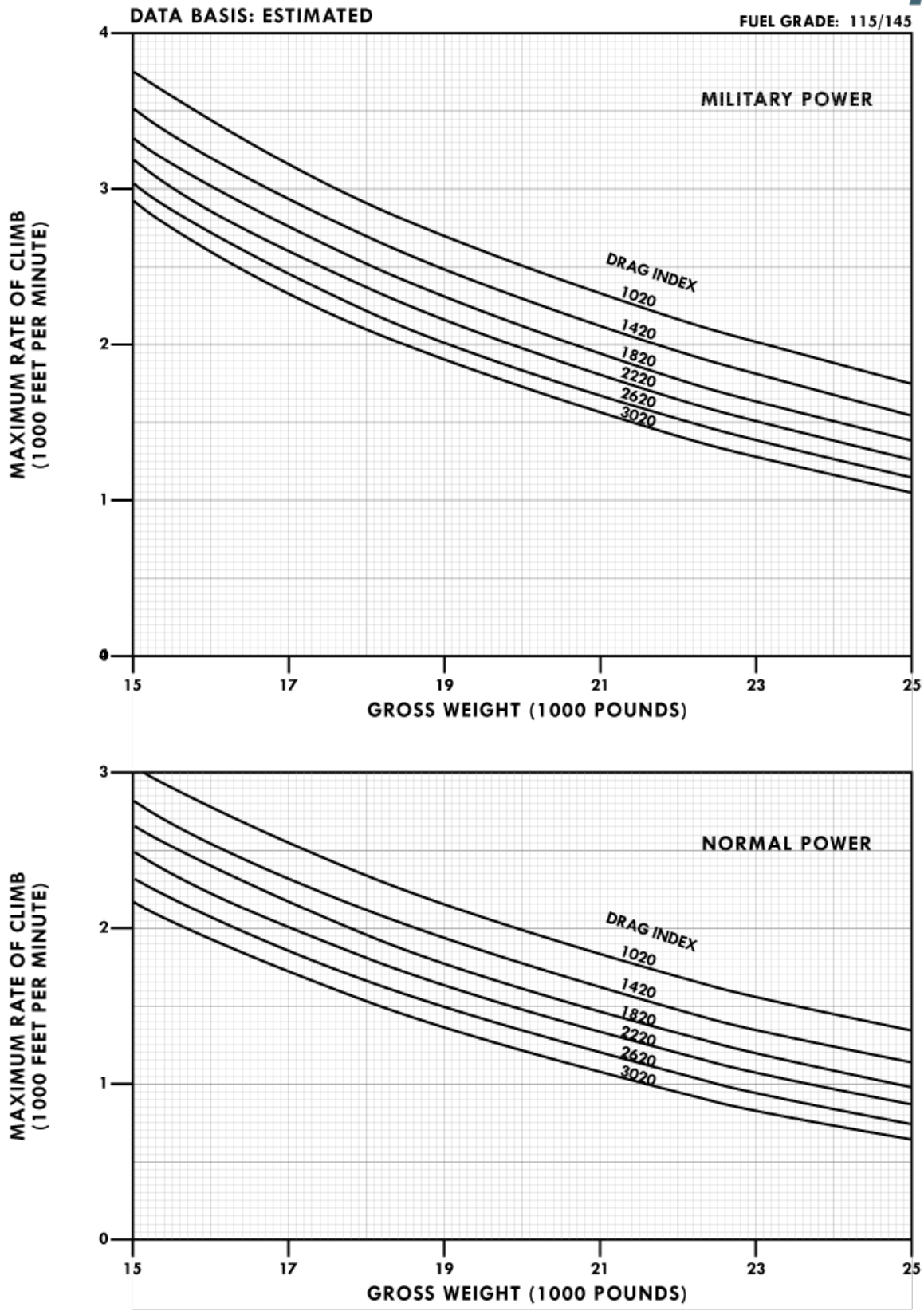
Full-Flap Carrier Takeoff Distance

PRESSURE ALTITUDE (FEET)	RPM	MANIFOLD PRESSURE (IN. HG)	TORQUE PRESSURE (PSI)	BLOWER POSITION	MIXTURE POSITION	LIMIT CYLINDER TEMP. (°C)
SEA LEVEL	2800	63.5	160	LOW	NORMAL	260
2000		62.8				
4000		60.0(F.T.)	160			
6000		56.9(F.T.)	155			
8000		54.0(F.T.)	146			
10,000	2800	51.0(F.T.)	137	LOW		
12,000	2600	54.4(F.T.)	141	HIGH		
14,000	2600	52.4(F.T.)	135	HIGH	NORMAL	260

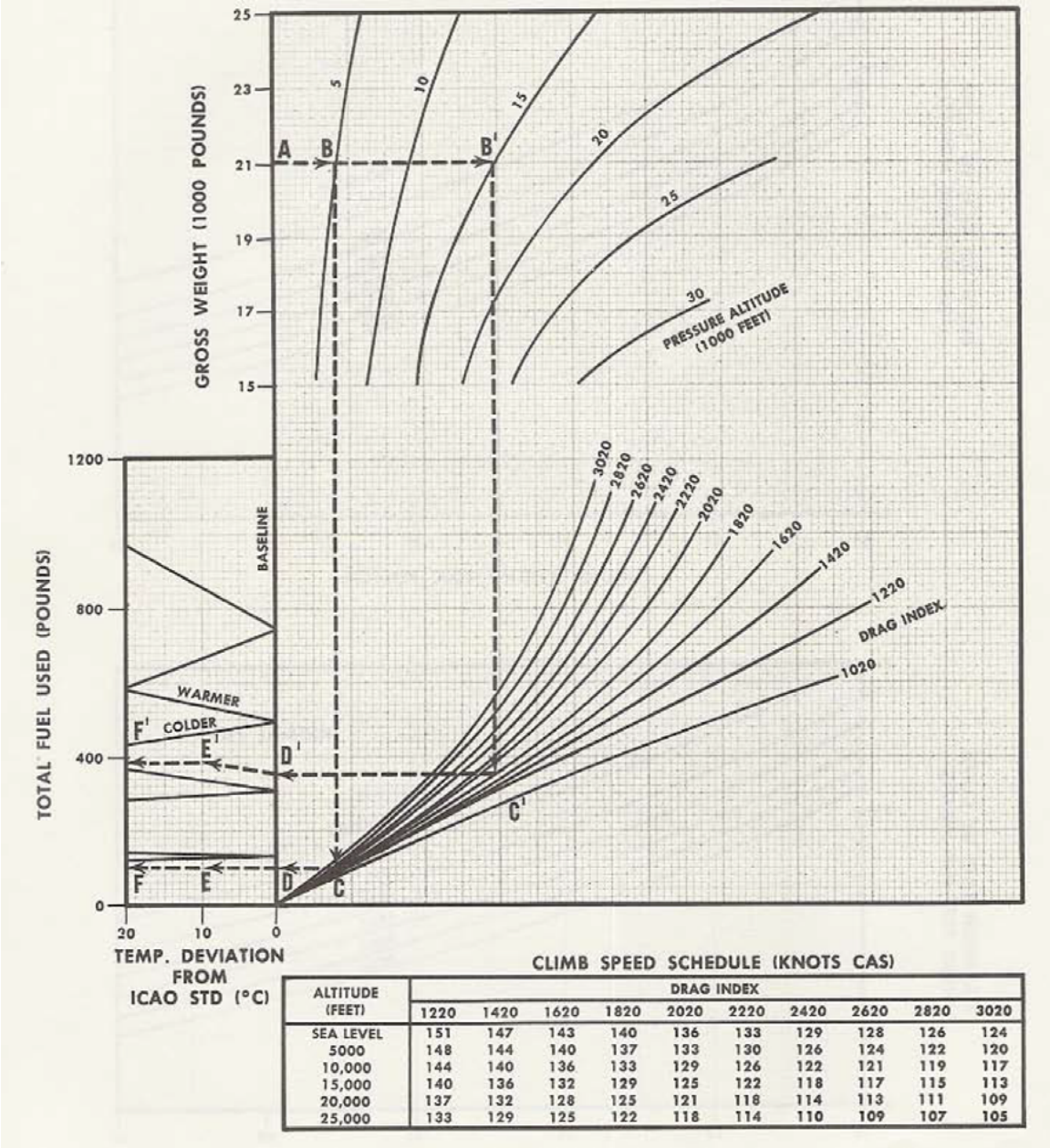
Combat Power Allowance Chart



Operating Flight Strength Chart



Sea Level Maximum Rate of Climb Chart



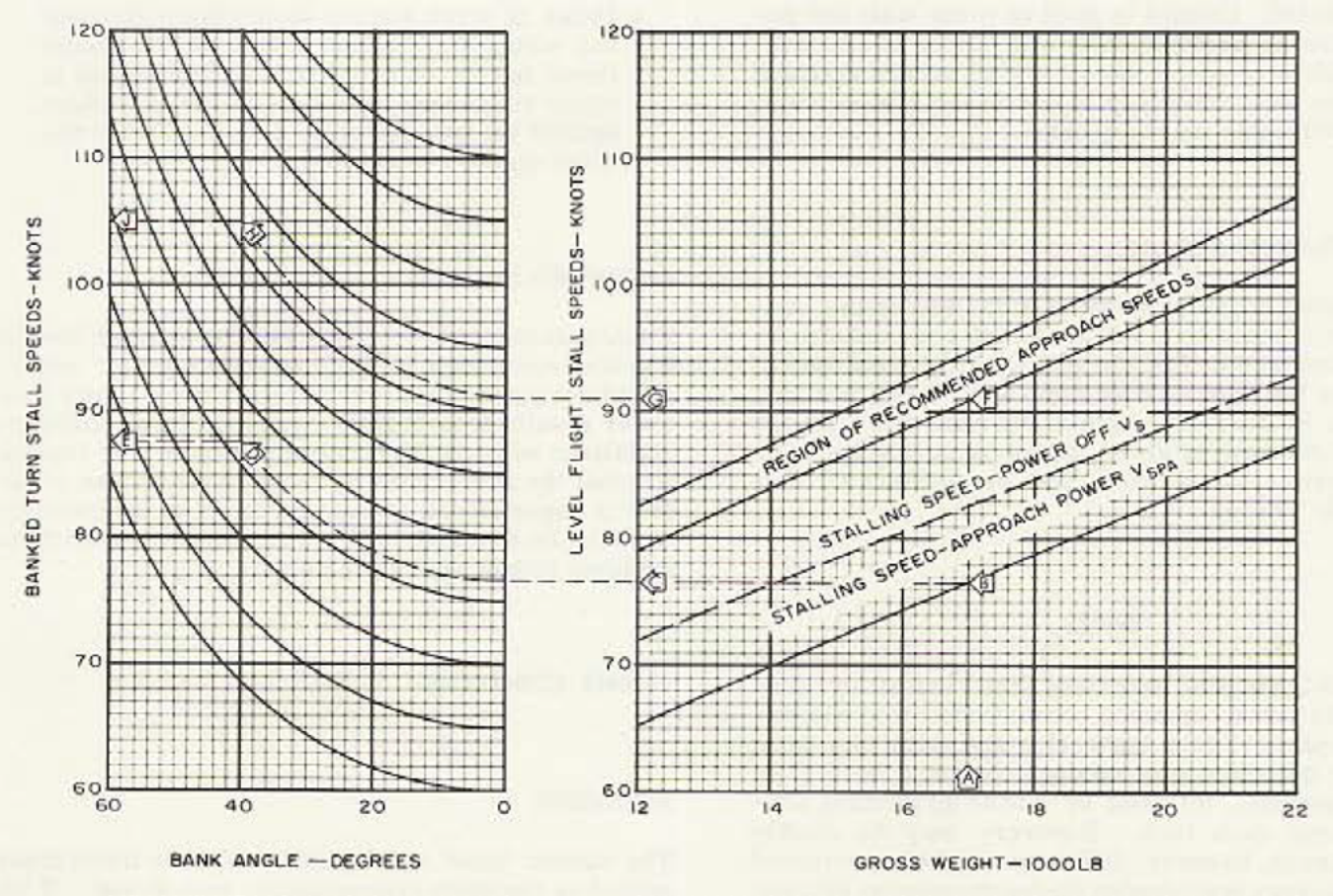
CLIMB SPEED SCHEDULE (KNOTS CAS)

ALTITUDE (FEET)	DRAG INDEX									
	1220	1420	1620	1820	2020	2220	2420	2620	2820	3020
SEA LEVEL	151	147	143	140	136	133	129	128	126	124
5000	148	144	140	137	133	130	126	124	122	120
10,000	144	140	136	133	129	126	122	121	119	117
15,000	140	136	132	129	125	122	118	117	115	113
20,000	137	132	128	125	121	118	114	113	111	109
25,000	133	129	125	122	118	114	110	109	107	105

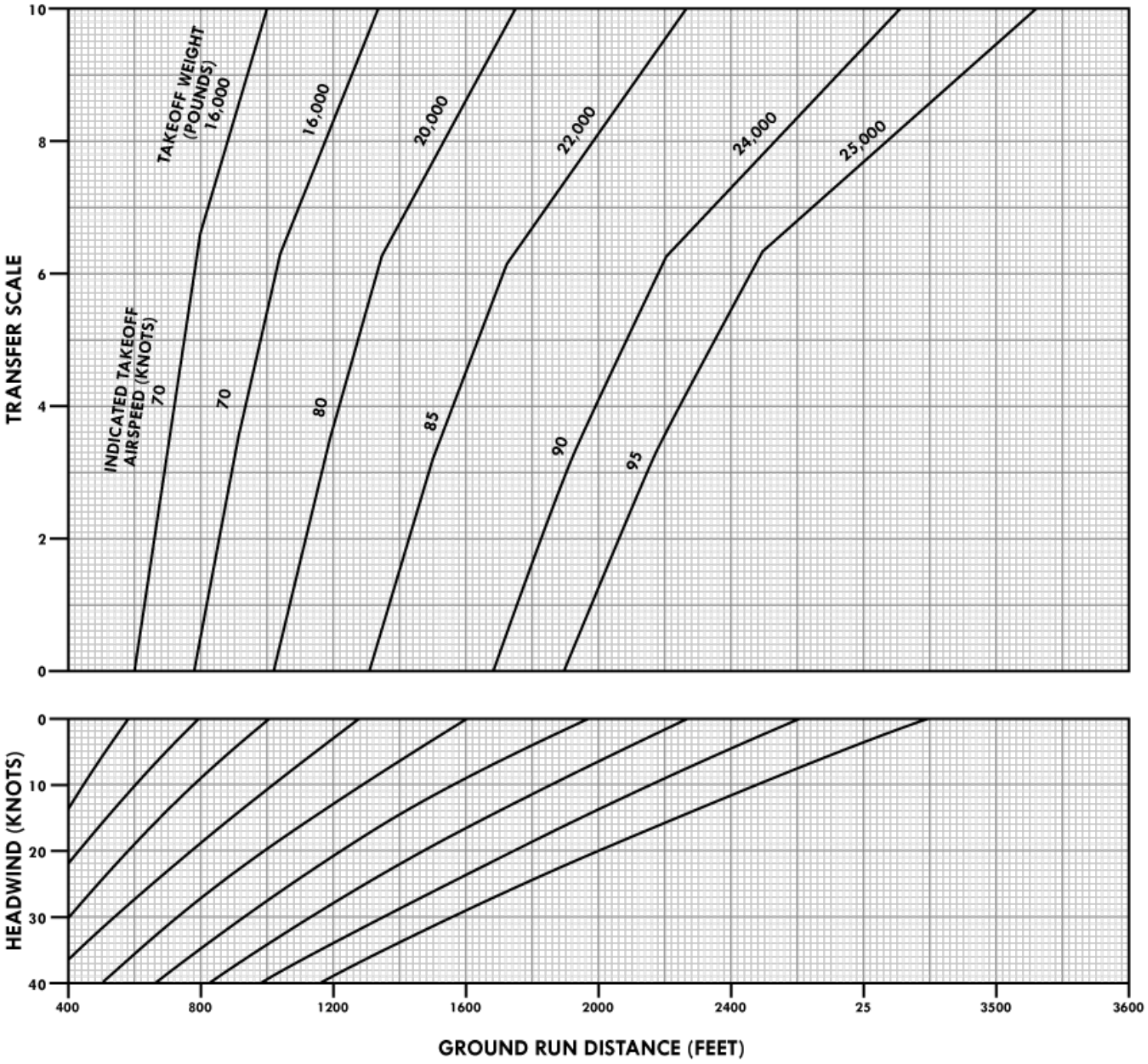
Military Power Climb Chart

CONFIGURATION (GEAR UP OR DOWN)	ANGLE OF BANK (DEG)	KNOTS — IAS					
		POWER ON			POWER OFF		
		GROSS WEIGHT — POUNDS					
		15,000	20,000	25,000	15,000	20,000	25,000
FLAPS UP	0	85	98	110	92	104	115
	30	92	106	118	97	110	122
	45	101	117	131	106	121	135
PARTIAL FLAPS 2 ½ UNITS DOWN (25°)	0	76	88	98	83	94	104
	30	81	94	105	88	101	111
	45	90	104	117	97	110	123
FLAPS FULL DOWN (40°)	0	71	82	91	78	88	99
	30	76	88	99	83	95	106
	45	84	98	110	91	105	117

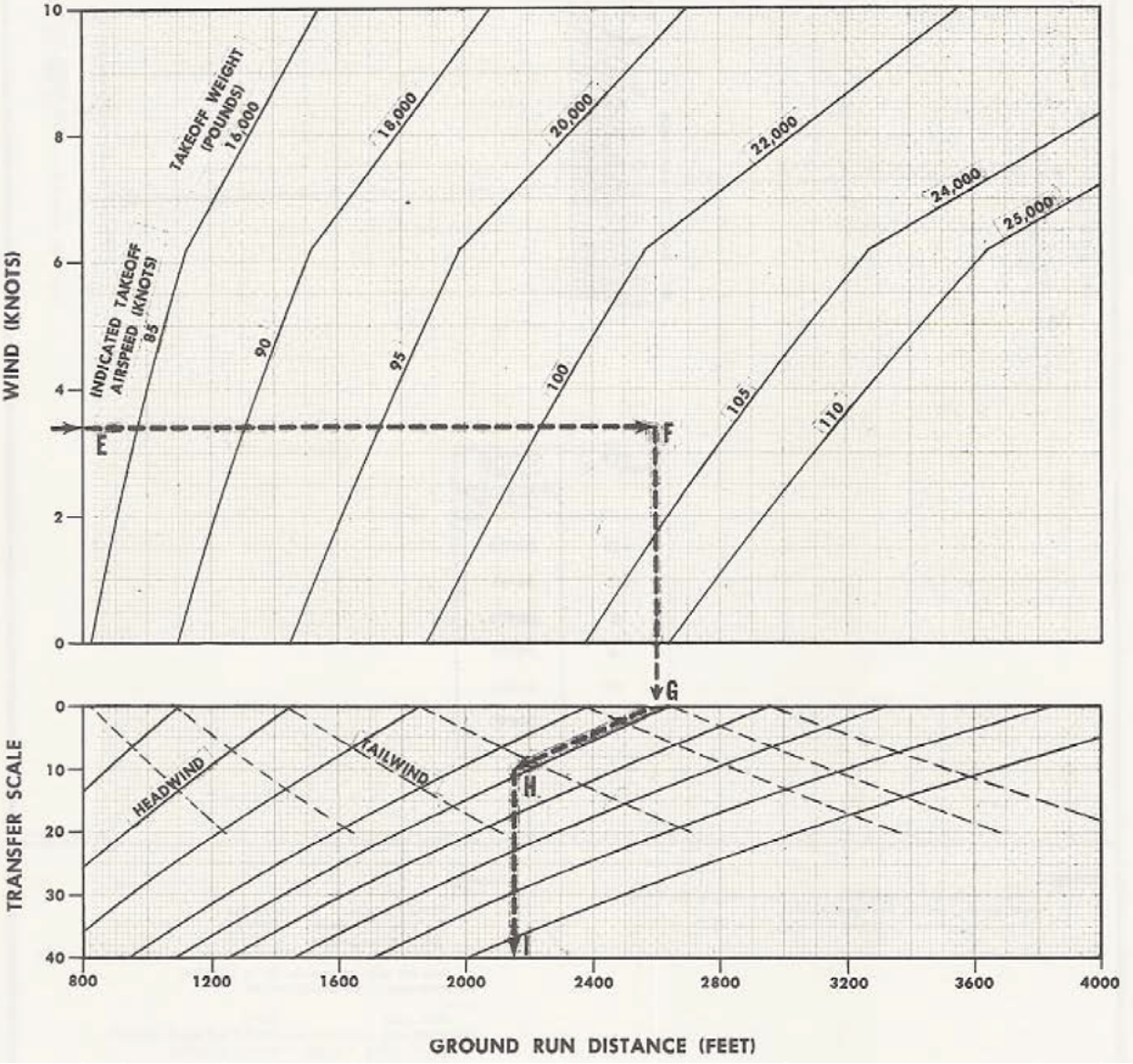
Stalling Speeds Table



Recommended Approach Speeds vs Stalling Speed Chart



Full Flap Takeoff Distance



Recommended Approach Speeds vs Stalling Speed Chart

Looking for scenery for our AH-1H? Check out **Yoyo's Vietnam War Project 2021**.

Yoyo, our friend and beta tester, has created this free addon for P3Dv5 which covers the whole of Vietnam and gives you hundreds of flight hours with over 100+ airfields and many missions. http://yoyosims.pl/vietnam-war-project-2021.