

North American P-51 Mustang

Before Start

Ignition switch OFF.

Set parking brake.

Adjust seat and rudders for height and length.

Bomb and gun safety switches OFF.

Ensure that landing gear handle is in the DOWN position. On P-51D, there is NO ARENS control to prevent accidental raising of gear on the ground.

Unlock controls and check for freedom of movement. Control lock is located at the base and just forward of the stick. Pull plunger on left side of the lock to unlock controls.

Fasten safety belt and shoulder straps.

Set altimeter to correct barometric pressure.

Oil and coolant shutters to full OPEN as soon as battery cart is plugged in.

Set trim tabs: rudder 5° RIGHT, elevator 2° to 3° nose UP (with 25 gallons or less in fuselage tank); elevator 1° to 3° nose DOWN (fuselage tank full); aileron 0° for takeoff.

Release hydraulic pressure with wing flaps and flap handle to UP position.

To close bubble canopy:

Push in on axle of crank on right side of cockpit to engage clutch.

Disengage pin on crank handle from the holes on the face of the clutch housing by pulling crank knob inboard gently.

Turn crank counterclockwise, holding knob inboard to close canopy.

WARNING: If red indicators show through openings on each side of the forward end of the enclosure, the emergency release is unlocked and unsafe for flight.

Starting Procedure

Have prop pulled through, with ignition switch OFF, if plane has been idle more than 2 hours.

Generator and battery switch ON, unless battery cart is being used, then battery switch OFF.

Open throttle 1 inch.

Mixture control in IDLE CUT-OFF.

Propeller control in INCREASED RPM.

Supercharger switch in AUTOMATIC.

Carburetor air control in RAM AIR.

Turn ignition switch to BOTH.

Fuel shut-off valve ON and fuel selector valve to fuselage tank (if full), or Left Main tank if fuselage tank not used.

Fuel booster pump on NORMAL, check for 8-12 pounds of fuel pressure.

Prime engine 3 to 4 shots if cold, 1 to 2 if warm.

Clear the prop.

Lift guard on starter switch and press switch to START. Caution in use of starter not to overheat.

As engine starts, move mixture control to AUTO RICH. If engine does not fire after several turns, continue priming. WARNING: When engine is not firing, mixture control should be in IDLE CUT-OFF.

Warm engine at approximately 1300 RPM.

Check for constant oil pressure. If no oil pressure or low pressure after 30 seconds, SHUT DOWN engine.

Check all instruments for proper readings.

Check hydraulic system by lowering and raising flaps; loading 800-850 pounds and unloading at 1050-1100 pounds.

Check communication equipment for operation.

Uncage all gyro instruments.

Check both LEFT and RIGHT MAIN and FUSELAGE fuel systems by rotating fuel selector valve with booster pump switch in EMERGENCY. Check for 14-19 psi. If drop tanks are installed, check fuel flow by rotating fuel selector control.

Taxiing

Ensure wing flaps UP.

Steer a zig-zag course.

Taxi with stick slightly back of neutral to lock the tail wheel -- in locked position the tail wheel can be turned 6° right or left with the rudder pedals. For

sharp turns, push stick forward of neutral to allow tail wheel full swiveling action. Use brakes as little as possible.

Always taxi with wing flaps UP and the oil and coolant shutters OPEN.

Engine Warm-up

At 2000 RPM, check the following:

Suction: 3.75" to 4.25" Hg.

Hydraulic pressure: 800-1100 psi.

Ammeter: not exceeding 50 amps.

Check instruments for limitations:

Oil Pressure: 70-80 psi desired, 90 psi max.

Oil Temperature: 70°C-80°C desired, 90°C max.

Coolant Temperature: 100°C-110°C desired, 121°C max.

Fuel Pressure: 12-16 psi desired, 19 psi max.<

Check mags at 2300 RPM. Maximum drop 100 RPM.

At 2300 RPM check propeller for 300 RPM maximum drop and return to full INCREASE RPM.

Oil and coolant shutters AUTOMATIC.

Wing flaps 20°, if desired.

Mixture AUTO RICH.

Propeller in full INCREASE RPM.

Fuel booster pump on EMERGENCY, check for 14-19 psi.

Generator switch ON.

Power Settings

Take-off MP: 40" RPM: 3000 MIX: Auto Rich

Climb MP: 35" RPM: 2600 MIX: Auto Rich

Cruise MP: 26"-28" RPM: 2300-2400 MIX:
Auto Rich

Before Landing

Mixture AUTO RICH.

Oil and coolant shutters AUTOMATIC.

Fuel selector to fullest tank. NOTE:
Never land with wing drop tanks. Booster
pump switch to NORMAL.

RPM increased to 2600.

Normal gear procedure:

Retard throttle to check landing gear
warning light (MP: 17" to 22").

At 170 IAS or below, put landing gear
handle in DOWN position.

Allow time for gear to extend.

Retard throttle and check warning lights.

If light does not come ON at previously
noted position of throttle, gear is down
and locked.

Lower flaps as desired. Maximum full-flap
speed: 165.

After Landing

Raise flaps.

Booster pump OFF.

Oil and coolant shutters OPEN.

Run engine to 1500 RPM, set mixture con-
trol to IDLE CUT-OFF and move throttle
fully open.

Turn ignition switch OFF after propeller
stops turning.

Fuel shut-off valve OFF.

Turn all switches OFF.

Lock controls.

Emergency Wing Flaps Procedure

There is NO emergency wing flap operation provided on the P-51D, as the hand pump has been eliminated. On all earlier models of the P-51, put flap selector to desired position and operate the hand pump until it siezes. Flaps will be in desired position and will stay there until another selection is made.

Emergency Gear Procedure

If normal extension fails, re-check gear warning light by retarding throttle until light comes on.

At an IAS of 170, put gear handle in down position and yaw plane. Recheck landing gear warning light by retarding throttle below 20".

If the landing gear warning light is still ON, indicating gear not down and locked, pull fairing door emergency release knob and yaw the plane again to lock gear. The ONLY check available for the main gear is the WARNING LIGHT.

Again retard throttle to check warning light. NOTE: The warning light does NOT indicate the position of the tail wheel. If there is any doubt about the tail wheel being down, dive the plane a short distance and pull out with enough acceleration to down the tail wheel.

When drop tanks are installed, the gear may not operate properly when aerodynamic forces cause a suction between the tanks and the landing gear fairings. To break this suction, yaw the airplane from side-to-side.

Emergency Exit

The cockpit enclosure can be released as a unit in an emergency. The emergency release handle is on the right forward side of the cockpit. To release the canopy, pull the handle all the way back.

WARNING: Duck head as you pull the handle to avoid injury.

To bail out, either of two procedures may be followed. Release canopy, roll airplane over on its back and drop out, OR climb out of cockpit, lower yourself onto the wing and roll off.

Alternate Operation of P-51D Oil and Coolant Shutters

If AUTOMATIC operation of oil and coolant shutters fails from a thermostat or AUTOMATIC circuit failure, check circuit breaker. If it has popped out, push it back in. If it won't stay in, hold it in manual OPEN (or CLOSED) long enough to open (or close) shutters, approximately 15-20 seconds. WARNING: Do NOT hold circuit breaker in too long as it might

start an electrical fire.

The foregoing is an ALTERNATE procedure ONLY. If the electric motors are burned out, there is NO emergency procedure.