

STARTING THE ENGINE.

- (1) Carburetor Heat -- Cold.
- (2) Mixture -- Rich.
- (3) Primer -- As required.
- (4) Ignition Switch -- "BOTH."
- (5) Throttle -- Open 1/8".
- (6) Propeller Area -- Clear.
- (7) Starter -- Engage.

BEFORE TAKE-OFF.

- (1) Throttle Setting -- 1600 RPM.
- (2) Engine Instruments -- Within green arc and generator light out.
- (3) Magnetos -- Check (75 RPM maximum differential between magnetos).
- (4) Carburetor Heat -- Check.
- (5) Flight Controls -- Check.
- (6) Trim Tab -- "TAKE-OFF" setting.
- (7) Cabin Doors -- Closed and locked.
- (8) Flight Instruments and Radios -- Set.

TAKE-OFF.

NORMAL TAKE-OFF.

- (1) Wing Flaps -- 0°
- (2) Carburetor Heat -- Cold.
- (3) Power -- Full throttle (applied smoothly).
- (4) Elevator Control -- Lift nosewheel at 60 MPH.
- (5) Climb Speed -- 85 MPH.

MAXIMUM PERFORMANCE TAKE-OFF.

- (1) Wing Flaps -- 0°
- (2) Carburetor Heat -- Cold.

SHORT FIELD LANDINGS.

For a short field landing, make a power-off approach at approximately 67 MPH with flaps 40°, and land on the main wheels first. Immediately after touchdown, lower the nose gear to the ground and apply heavy braking as required. Raising the flaps after landing will provide more efficient braking.

CROSSWIND LANDINGS.

When landing in a strong crosswind, use the minimum flap setting required for the field length. Use a wing-low, crab, or a combination method of drift correction and land in a nearly level attitude. Hold a straight course with the steerable nosewheel and occasional braking if necessary.

COLD WEATHER OPERATION.

Prior to starting on cold morning, it is advisable to pull the propeller through several times by hand to "break loose" or "limber" the oil, thus conserving battery energy. In extremely cold (0°F and lower) weather, the use of an external preheater for both the engine and battery is recommended whenever possible to reduce wear and abuse to the engine and the electrical system. When using an external power source, the position of the master switch is important. Refer to Section VI, **GROUND SERVICE PLUG RECEPTACLE**, for operating details. Cold weather starting procedures are as follows:

With Preheat:

- (1) Clear propeller.
- (2) Pull master switch "ON."
- (3) With magneto switch "OFF" and throttle closed, prime the engine four to ten strokes as the engine is being turned over.

NOTE

Use heavy strokes of primer for best atomization of fuel. After priming, push primer all the way in and turn to locked position to avoid possibility of engine drawing fuel through the primer.

- (4) Turn magneto switch to "BOTH."
- (5) Open throttle 1/4" and engage starter.

Without Preheat:

- (1) Prime the engine 8 to 10 strokes while the propeller is being turned by hand.
- (2) Clear propeller.
- (3) Pull master switch "ON."
- (4) Turn magneto switch to "BOTH."
- (5) Open throttle 1/4".
- (6) Pull carburetor air heat knob full on.
- (7) Engage starter and continue to prime engine until it is running smoothly.
- (8) Keep carburetor heat on until engine has warmed up.

NOTE

If the engine does not start the first time, it is probable that the spark plugs have been frosted over. Preheat must be used before another start is attempted.

During cold weather operations, no indication will be apparent on the oil temperature gage prior to take-off if outside air temperatures are very cold. After a suitable warm-up period (2 to 5 minutes at 1000 RPM), accelerate the engine several times to higher engine RPM. If the engine accelerates smoothly and the oil pressure remains normal and steady, the airplane is ready for take-off.

When operating in sub-zero temperature, avoid using partial carburetor heat. Partial heat may increase the carburetor air temperature to the 32° to 80°F range, where icing is critical under certain atmospheric conditions.

Refer to Section VI for cold weather equipment.

SERVICING REQUIREMENTS

FUEL:

AVIATION GRADE -- 80/87 MINIMUM GRADE
CAPACITY EACH TANK -- 19.5 GALLONS

ENGINE OIL:

AVIATION GRADE -- SAE 40 ABOVE 40°F.
SAE 20 BELOW 40°F.

(AIRCRAFT DELIVERED WITH STRAIGHT MINERAL OIL. EITHER MINERAL OIL OR DETERGENT OIL MAY BE USED. IF DETERGENT OIL IS USED, IT MUST CONFORM TO CONTINENTAL MOTORS SPECIFICATION MHS-24.)

CAPACITY OF ENGINE SUMP -- 8 QUARTS

(DO NOT OPERATE ON LESS THAN 6 QUARTS. TO MINIMIZE LOSS OF OIL THROUGH BREATHER, FILL TO 7 QUART LEVEL FOR NORMAL FLIGHTS OF LESS THAN 3 HOURS. FOR EXTENDED FLIGHT, FILL TO 8 QUARTS. IF OPTIONAL OIL FILTER IS INSTALLED, ONE ADDITIONAL QUART IS REQUIRED WHEN THE FILTER ELEMENT IS CHANGED.)

HYDRAULIC FLUID:

MIL-H-5606 HYDRAULIC FLUID

TIRE PRESSURES:

NOSE WHEEL-----26 PSI ON 5.00x5 TIRE

26 PSI ON 6.00x6 TIRE

MAIN WHEELS-----24 PSI ON 6.00x6 TIRES
