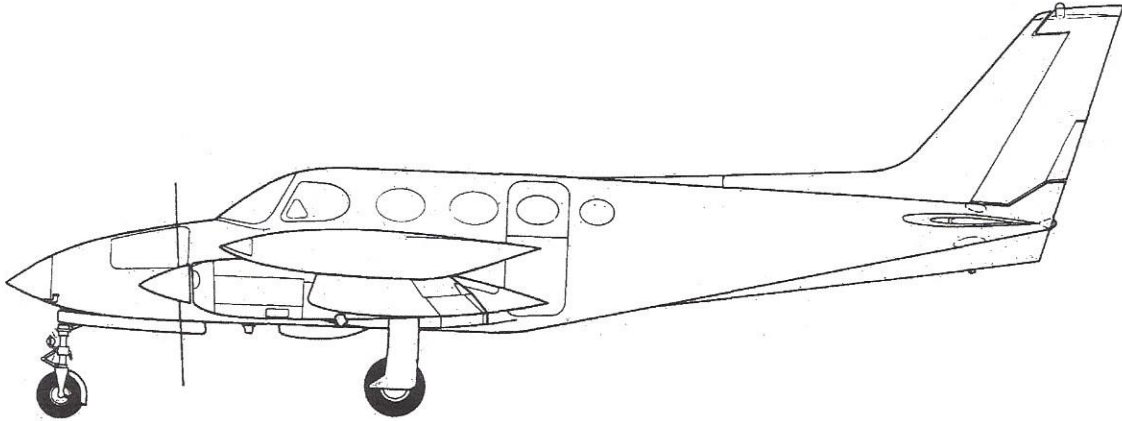


PILOT'S OPERATING HANDBOOK and FAA APPROVED AIRPLANE FLIGHT MANUAL



CESSNA AIRCRAFT COMPANY

1981 MODEL 340A

FAA APPROVED IN NORMAL
CATEGORY BASED ON CAR
PART 3 THIS DOCUMENT MUST
BE CARRIED IN THE AIRPLANE
AT ALL TIMES

Serial Number _____

Registration Number _____

THIS HANDBOOK INCLUDES THE MATERIAL REQUIRED
TO BE FURNISHED TO THE PILOT BY CAR PART 3 AND
CONSTITUTES THE FAA APPROVED AIRPLANE FLIGHT MANUAL.

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Wallace Division
Wichita, Kansas

 Member of GAMA

3 NOVEMBER 1980

AIRSPEED LIMITATIONS (See Figure 2-1)

AIRSPEED LIMITATIONS TABLE

SPEED	KIAS	KCAS	REMARKS
Maneuvering Speed V _A (Knots)	155	155	Do not make abrupt control movements above this speed.
Maximum Flap Extended Speed V _{FE} (Knots) 150 450	160 142	160 140	Do not exceed this speed with the given flap setting.
Maximum Gear Operating Speed V _{LO} (Knots)	140	140	Do not extend or retract landing gear above this speed.
Maximum Gear Extended Speed V _{LE} (Knots)	140	140	Do not exceed this speed with landing gear extended.
Air Minimum Control Speed - V _{MCA} (Knots)	82	84	This is the minimum flight speed at which the airplane is controllable with one engine inoperative and a 50° bank towards the operative engine.
One Engine Inoperative Best Rate-Of-Climb Speed V _Y (Knots)	100	100	This speed delivers the greatest gain in altitude in the shortest possible time with one engine inoperative at sea level, standard day conditions and 5990 pounds weight.
Never Exceed Speed V _{NE} (Knots)	234	234	Do not exceed this speed in any operation.
Maximum Structural Cruising Speed V _{NO} (Knots)	200	200	Do not exceed this speed except in smooth air and then only with caution.

Figure 2-1

Airspeed Indicator Markings: See Figure 2-2

AIRSPEED INDICATOR TABLE

MARKING	KIAS VALUE OR RANGE	SIGNIFICANCE
Red Radial	82	Air minimum control speed.
White Arc	71 to 142	Operating speed range with 45° wing flaps. Lower limit is maximum weight stalling speed in landing configuration. Upper limit is maximum speed permissible with wing flaps extended 45°.
Green Arc	83 to 200	Normal operating range. Lower limit is maximum weight stalling speed with flaps and landing gear retracted. Upper limit is maximum structural cruising speed.
Blue Radial	100	One engine inoperative best rate-of-climb speed at sea level standard day conditions and 5990 pounds weight.
Yellow Arc	200 to 234	Caution range. Operations must be conducted with caution and only in smooth air.
Red Radial	234	Maximum speed for all operations.

Figure 2-2

ENGINE LIMITATIONS

Number of Engines: 2

Engine Manufacturer: Teledyne Continental Motors

Engine Model Number: TS10-520-NB

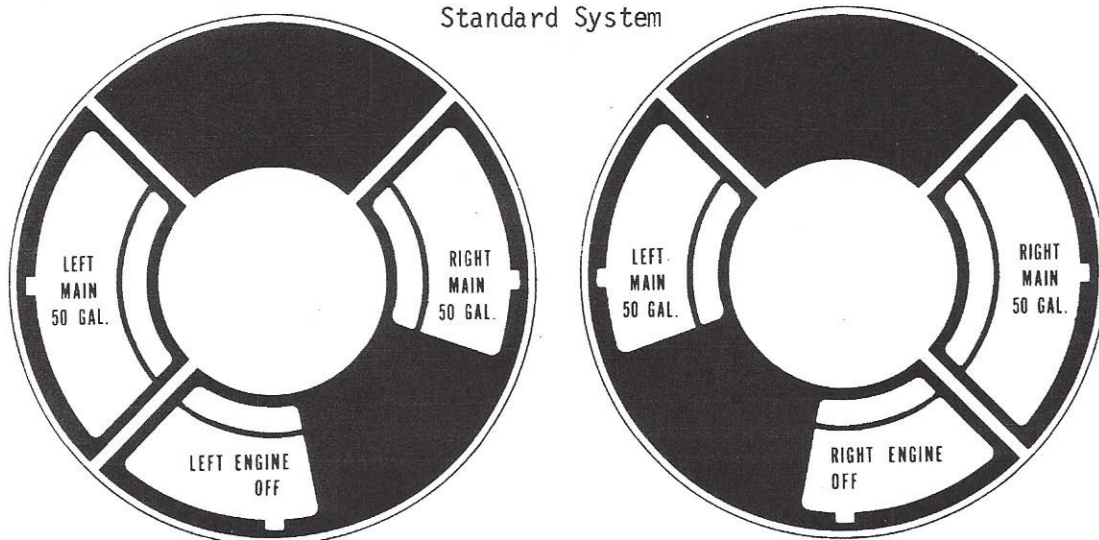
Engine Operating Limits for Takeoff and Continuous Operation

a. Maximum power for all operations

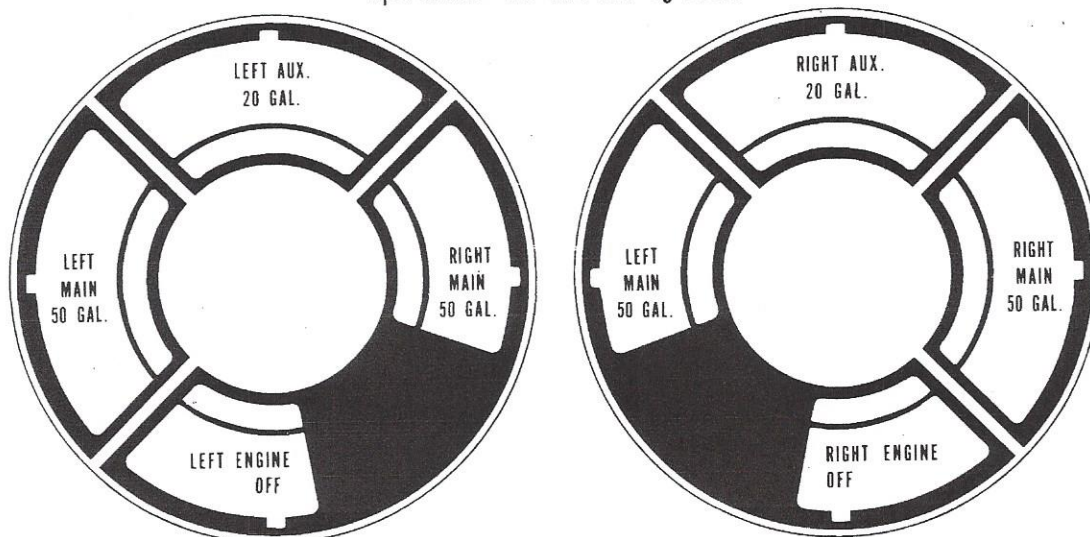
Altitude - Feet	Allowable Manifold Pressure - Inches Hg.	Propeller RPM	Rated Horse power	Time	Max. Head Temp. °F	Max. Oil Temp. °F
S.L. to 20,000	38.0	2700	310	Continuous	460	240
22,000	35.2	2700	285	Continuous	460	240
24,000	32.3	2700	264	Continuous	460	240
26,000	29.8	2700	242	Continuous	460	240
28,000	27.4	2700	219	Continuous	460	240
30,000	25.0	2700	197	Continuous	460	240

Around Engine Fuel Selector Handles:

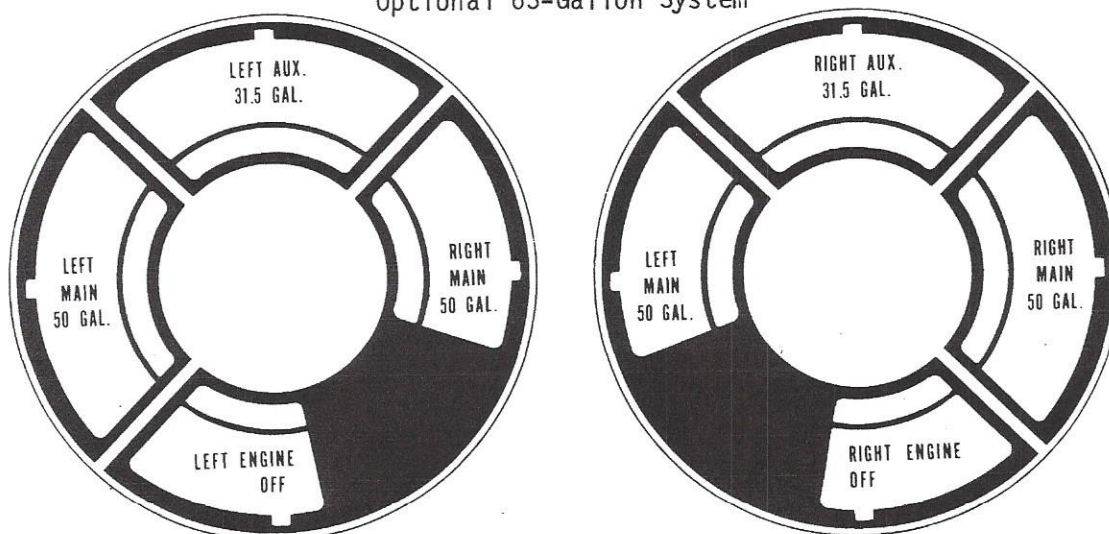
Standard System



Optional 40-Gallon System



Optional 63-Gallon System



SECTION 2 LIMITATIONS
LIMITATIONS

Cessna 340A

On Floor Between Fuel Selectors:

Standard Fuel
System

SET FUEL SELECTOR VALVES TO LEFT MAIN TANK FOR LEFT ENGINE AND RIGHT MAIN TANK FOR RIGHT ENGINE IN TAKEOFF, DESCENT, LANDING, AND EMERGENCY.

TAKEOFF AND LAND WITH AUXILIARY FUEL PUMPS ON.

USE FULL RICH MIXTURE AND AUXILIARY FUEL PUMPS ON "LOW" WHEN SWITCHING TANKS.

100 GRADE AVIATION FUEL MINIMUM.

TO EXTEND LANDING GEAR MANUALLY:

1. PLACE GEAR SWITCH IN NEUTRAL
2. PULL GEAR MOTOR CIRCUIT BREAKER
3. PULL OUT CRANK TO ENGAGE
4. TURN CLOCKWISE TO EXTEND
5. PUSH BUTTON AND STOW CRANK.

Optional 40-Gallon
Fuel System

SET FUEL SELECTOR VALVES TO LEFT MAIN TANK FOR LEFT ENGINE AND RIGHT MAIN TANK FOR RIGHT ENGINE IN TAKEOFF, DESCENT, LANDING, EMERGENCY, AND FIRST 60 MIN. OF FLIGHT.

TAKEOFF AND LAND WITH AUXILIARY FUEL PUMPS ON.

USE FULL RICH MIXTURE AND AUXILIARY FUEL PUMPS ON "LOW" WHEN SWITCHING TANKS.

100 GRADE AVIATION FUEL MINIMUM.

TO EXTEND LANDING GEAR MANUALLY:

1. PLACE GEAR SWITCH IN NEUTRAL
2. PULL GEAR MOTOR CIRCUIT BREAKER
3. PULL OUT CRANK TO ENGAGE
4. TURN CLOCKWISE TO EXTEND
5. PUSH BUTTON AND STOW CRANK.

Optional 63-Gallon
Fuel System

SET FUEL SELECTOR VALVES TO LEFT MAIN TANK FOR LEFT ENGINE AND RIGHT MAIN TANK FOR RIGHT ENGINE IN TAKEOFF, DESCENT, LANDING, EMERGENCY, AND FIRST 90 MIN. OF FLIGHT.

TAKEOFF AND LAND WITH AUXILIARY FUEL PUMPS ON.

USE FULL RICH MIXTURE AND AUXILIARY FUEL PUMPS ON "LOW" WHEN SWITCHING TANKS.

100 GRADE AVIATION FUEL MINIMUM.

TO EXTEND LANDING GEAR MANUALLY:

1. PLACE GEAR SWITCH IN NEUTRAL
2. PULL GEAR MOTOR CIRCUIT BREAKER
3. PULL OUT CRANK TO ENGAGE
4. TURN CLOCKWISE TO EXTEND
5. PUSH BUTTON AND STOW CRANK.

Optional Wing
Locker Fuel
System

SET FUEL SELECTOR VALVES TO LEFT MAIN TANK FOR LEFT ENGINE AND RIGHT MAIN TANK FOR RIGHT ENGINE IN TAKEOFF, DESCENT, LANDING, AND EMERGENCY.

TAKEOFF AND LAND WITH AUXILIARY FUEL PUMPS ON.

USE FULL RICH MIXTURE AND AUXILIARY FUEL PUMPS ON "LOW" WHEN SWITCHING TANKS.

100 GRADE AVIATION FUEL MINIMUM.

1. OPERATE ON MAIN TANKS UNTIL FUEL QUANTITY IS LESS THAN 180 POUNDS PER TANK.
2. TRANSFER WING LOCKER FUEL WHILE OPERATING ON MAIN TANKS IN STRAIGHT AND LEVEL FLIGHT.
3. TURN TRANSFER PUMPS OFF WHEN LIGHTS ILLUMINATE.
4. USE FUEL CROSSFEED SYSTEM TO BALANCE MAIN FUEL QUANTITIES IF ONE WING LOCKER TANK DOES NOT TRANSFER OR IF A SINGLE WING LOCKER TANK IS INSTALLED.

TO EXTEND LANDING GEAR MANUALLY:
1. PLACE GEAR SWITCH IN NEUTRAL
2. PULL GEAR MOTOR CIRCUIT BREAKER
3. PULL OUT CRANK TO ENGAGE
4. TURN CLOCKWISE TO EXTEND
5. PUSH BUTTON AND STOW CRANK.

Optional Wing
Locker Fuel and
40-Gallon System

SET FUEL SELECTOR VALVES TO LEFT MAIN TANK FOR LEFT ENGINE AND RIGHT MAIN TANK FOR RIGHT ENGINE IN TAKEOFF, DESCENT, LANDING, EMERGENCY, AND FIRST 60 MIN. OF FLIGHT.

TAKEOFF AND LAND WITH AUXILIARY FUEL PUMPS ON.

USE FULL RICH MIXTURE AND AUXILIARY FUEL PUMPS ON "LOW" WHEN SWITCHING TANKS.

100 GRADE AVIATION FUEL MINIMUM.

1. OPERATE ON MAIN TANKS UNTIL FUEL QUANTITY IS LESS THAN 180 POUNDS PER TANK.
2. TRANSFER WING LOCKER FUEL WHILE OPERATING ON MAIN TANKS IN STRAIGHT AND LEVEL FLIGHT.
3. TURN TRANSFER PUMPS OFF WHEN LIGHTS ILLUMINATE.
4. USE FUEL CROSSFEED SYSTEM TO BALANCE MAIN FUEL QUANTITIES IF ONE WING LOCKER TANK DOES NOT TRANSFER OR IF A SINGLE WING LOCKER TANK IS INSTALLED.
5. SWITCH TO AUXILIARY TANKS WHEN MAIN FUEL IS AGAIN LESS THAN 180 POUNDS PER TANK.

TO EXTEND LANDING GEAR MANUALLY:
1. PLACE GEAR SWITCH IN NEUTRAL
2. PULL GEAR MOTOR CIRCUIT BREAKER
3. PULL OUT CRANK TO ENGAGE
4. TURN CLOCKWISE TO EXTEND
5. PUSH BUTTON AND STOW CRANK.

Optional Wing
Locker Fuel and
63-Gallon System

SET FUEL SELECTOR VALVES TO LEFT MAIN TANK FOR LEFT ENGINE AND RIGHT MAIN TANK FOR RIGHT ENGINE IN TAKEOFF, DESCENT, LANDING, EMERGENCY, AND FIRST 90 MIN. OF FLIGHT.

TAKEOFF AND LAND WITH AUXILIARY FUEL PUMPS ON.

USE FULL RICH MIXTURE AND AUXILIARY FUEL PUMPS ON "LOW" WHEN SWITCHING TANKS.

100 GRADE AVIATION FUEL MINIMUM.

1. OPERATE ON MAIN TANKS UNTIL FUEL QUANTITY IS LESS THAN 180 POUNDS PER TANK.
2. TRANSFER WING LOCKER FUEL WHILE OPERATING ON MAIN TANKS IN STRAIGHT AND LEVEL FLIGHT.
3. TURN TRANSFER PUMPS OFF WHEN LIGHTS ILLUMINATE.
4. USE FUEL CROSSFEED SYSTEM TO BALANCE MAIN FUEL QUANTITIES IF ONE WING LOCKER TANK DOES NOT TRANSFER OR IF A SINGLE WING LOCKER TANK IS INSTALLED.
5. SWITCH TO AUXILIARY TANKS WHEN MAIN FUEL IS AGAIN LESS THAN 180 POUNDS PER TANK.

TO EXTEND LANDING GEAR MANUALLY:
1. PLACE GEAR SWITCH IN NEUTRAL
2. PULL GEAR MOTOR CIRCUIT BREAKER
3. PULL OUT CRANK TO ENGAGE
4. TURN CLOCKWISE TO EXTEND
5. PUSH BUTTON AND STOW CRANK.

EMERGENCY PROCEDURES ABBREVIATED CHECKLIST

NOTE

This Abbreviated Emergency Procedures Checklist is included as a supplement to the Amplified Emergency Procedures Checklist. The Abbreviated Emergency Procedures Checklist should not be used until the flight crew has become familiar with the airplane and systems. All Amplified emergency procedure items must be accomplished regardless of which checklist is used.

Procedures in the Abbreviated Checklist portion of this section outlined in black ☐ are immediate-action items and should be committed to memory.

AIRSPEEDS FOR SAFE OPERATION

Conditions:

1. Takeoff Weight 5990 Pounds
2. Landing Weight 5990 Pounds
3. Standard Day, Sea Level

(1) Air Minimum Control Speed	82 KIAS
(2) Intentional One Engine Inoperative Speed	91 KIAS
(3) One Engine Inoperative Best Angle-of-Climb Speed (Wing Flaps UP)	95 KIAS
(4) One Engine Inoperative Best Rate-of-Climb Speed (Wing Flaps UP)	100 KIAS

Figure 3-1

ENGINE INOPERATIVE PROCEDURES

ENGINE SECURING PROCEDURE

1. Throttle - CLOSE.
2. Mixture - IDLE CUT-OFF.
3. Propeller - FEATHER.
4. Fuel Selector - OFF (Feel For Detent).
5. Auxiliary Fuel Pump - OFF.
6. Magneto Switches - OFF.
7. Propeller Synchrophaser - OFF.
8. Alternator - OFF.
9. Cowl Flap - CLOSE.

ENGINE FAILURE DURING TAKEOFF (Speed Below 91 KIAS or Gear Down)

1. Throttles - CLOSE IMMEDIATELY.
2. Brake or Land and Brake - AS REQUIRED.

ENGINE FAILURE AFTER TAKEOFF (Speed Above 91 KIAS with Gear Up or in Transit)

1. Mixtures - FULL RICH.
2. Propellers - FULL FORWARD.
3. Throttles - FULL FORWARD (38.0 Inches Hg.).
4. Landing Gear - CHECK UP.
5. Inoperative Engine:
 - a. Throttle - CLOSE.
 - b. Mixture - IDLE CUT-OFF.
 - c. Propeller - FEATHER.
6. Establish Bank - 5° toward operative engine.
7. Climb To Clear 50-Foot Obstacle - 91 KIAS.
8. Climb At One Engine Inoperative Best Rate-of-Climb Speed - 100 KIAS.
9. Trim Tabs - ADJUST 5° bank toward operative engine with approximately 1/2 ball slip indicated on the turn and bank indicator.
10. Cowl Flap - CLOSE (Inoperative Engine).
11. Inoperative Engine - SECURE as follows:
 - a. Fuel Selector - OFF (Feel For Detent).
 - b. Auxiliary Fuel Pump - OFF.
 - c. Magneto Switches - OFF.
 - d. Alternator - OFF.
12. As Soon As Practical - LAND.

ENGINE FAILURE DURING FLIGHT (Speed Above V_{MCA})

1. Inoperative Engine - DETERMINE.
 2. Operative Engine - ADJUST as required.
- Before Securing Inoperative Engine:
3. Fuel Flow - CHECK. If deficient, position auxiliary fuel pump to ON.
 4. Fuel Selectors - MAIN TANKS (Feel For Detent).
 5. Fuel Quantity - CHECK.
 6. Oil Pressure and Oil Temperature - CHECK.
 7. Magneto Switches - CHECK ON.
 8. Mixture - ADJUST. Lean until manifold pressure begins to increase, then enrichen as power increases.

If Engine Does Not Start, Secure As Follows:

9. Inoperative Engine - SECURE.
 - a. Throttle - CLOSE.
 - b. Mixture - IDLE CUT-OFF.
 - c. Propeller - FEATHER.
 - d. Fuel Selector - OFF (Feel For Detent).
 - e. Auxiliary Fuel Pump - OFF.
 - f. Magneto Switches - OFF.
 - g. Propeller Synchrophaser - OFF.
 - h. Alternator - OFF.
 - i. Cowl Flap - CLOSE.
10. Operative Engine - ADJUST.
 - a. Power - AS REQUIRED.
 - b. Mixture - ADJUST for power.
 - c. Fuel Selector - AS REQUIRED (Feel For Detent).
 - d. Auxiliary Fuel Pump - ON.
 - e. Cowl Flap - AS REQUIRED.

(ABBREVIATED PROCEDURES)

11. Trim Tabs - ADJUST 5° bank toward operative engine with approximately 1/2 ball slip indicated on the turn and bank indicator.
12. Electrical Load - DECREASE to minimum required.
13. As Soon As Practical - LAND.

ENGINE FAILURE DURING FLIGHT (Speed Below V_{MCA})

- | |
|---|
| <ol style="list-style-type: none">1. Rudder - APPLY towards operative engine.2. Power - REDUCE to stop turn.3. Pitch Attitude - LOWER NOSE to accelerate above V_{MCA}4. Inoperative Engine Propeller - FEATHER.5. Operative Engine - INCREASE POWER as airspeed increases above V_{MCA}. |
|---|
6. Inoperative Engine - SECURE.
 7. Trim Tabs - ADJUST 5° bank toward operative engine with approximately 1/2 ball slip indicated on the turn and bank indicator.
 8. Operative Engine Cowl Flap - AS REQUIRED.

ENGINE INOPERATIVE LANDING

1. Fuel Selector - MAIN TANK (Feel For Detent).
2. Auxiliary Fuel Pump - ON (Operative Engine).
3. Alternate Air Control - IN.
4. Mixture - FULL RICH or lean as required for smooth operation.
5. Propeller Synchrophaser - OFF (Optional System).
6. Propeller - FULL FORWARD.
7. Approach - 104 KIAS with excessive altitude.
8. Landing Gear - DOWN within gliding distance of field.
9. Wing Flaps - DOWN when landing is assured.
10. Speed - DECREASE below 94 KIAS only if landing is assured.
11. Air Minimum Control Speed - 82 KIAS.

ENGINE INOPERATIVE GO-AROUND (Speed Above 91 KIAS)

- | |
|---|
| <ol style="list-style-type: none">1. Throttle - FULL FORWARD (38.0 Inches Hg.).2. Positive Rate-of-Climb - ESTABLISH.3. Landing Gear - UP.4. Wing Flaps - UP, if extended. |
|---|
5. Cowl Flap - OPEN.
 6. Climb at One Engine Inoperative Best Rate-of-Climb Speed - 100 KIAS.
 7. Trim Tabs - ADJUST 5° bank toward operative engine with approximately 1/2 ball slip indicated on the turn and bank indicator.

AIRSTART

Airplane Without Optional Propeller Unfeathering System:

1. Auxiliary Fuel Pump - CHECK OFF. If ON or LOW, purge engine by turning OFF auxiliary fuel pump, mixture to IDLE CUT-OFF, throttle full open, magneto switches OFF, and rotating engine 15 revolutions with starter.
2. Magneto Switches - ON.
3. Fuel Selector - MAIN TANK (Feel For Detent).
4. Throttle - FORWARD approximately one and one-half inches.
5. Mixture - FULL RICH then retard approximately two inches.
6. Propeller - FORWARD of detent.
7. Starter Button - PRESS.
8. Primer Switch - ACTIVATE.
9. Starter and Primer Switch - RELEASE when engine fires.
10. Auxiliary Fuel Pump - ON.
11. Mixture - ADJUST for smooth engine operation.
12. Power - INCREASE after cylinder head temperature reaches 200°F with gradual mixture enrichment as power increases.
13. Cowl Flap - AS REQUIRED.
14. Alternator - ON.

Airplane With Optional Propeller Unfeathering System:

1. Auxiliary Fuel Pump - CHECK OFF. If ON or LOW, purge engine by turning OFF auxiliary fuel pump, mixture to IDLE CUT-OFF, throttle full open, magneto switches OFF, and rotating engine 15 revolutions with starter.
2. Magneto Switches - ON.
3. Fuel Selector - MAIN TANK (Feel For Detent).
4. Throttle - FORWARD approximately one and one-half inches.
5. Mixture - FULL RICH then retard approximately two inches.
6. Propeller - FULL FORWARD.
7. Propeller - RETARD to detent when propeller reaches 1000 RPM.
8. Auxiliary Fuel Pump - ON.
9. Mixture - ADJUST for smooth engine operation.
10. Power - INCREASE after cylinder head temperature reaches 200°F with gradual mixture enrichment as power increases.
11. Cowl Flap - AS REQUIRED.
12. Alternator - ON.

BOTH ENGINES FAILURE DURING CRUISE FLIGHT

- | |
|--|
| <ol style="list-style-type: none">1. Wing Flaps - UP.2. Landing Gear - UP.3. Propellers - FEATHER. |
|--|
4. Cowl Flaps - CLOSE.
 5. Airspeed - 105 KIAS (See Figure 3-3).
 6. Landing - Refer to FORCED LANDING (Complete Power Loss) in this section.

AFTER TAKEOFF

1. Landing Gear - RETRACT.
2. Best Angle-of-Climb Speed - 86 KIAS at sea level to 88 KIAS at 20,000 feet with obstacle.
3. Best Rate-of-Climb Speed - 108 KIAS at sea level and 5990 pounds. Refer to Section 5 for speed at reduced weight.

CLIMB

1. Power - SET.
2. Mixtures - ADJUST.
3. Cowl Flap - AS REQUIRED.
4. Pressurization - CHECK.

CRUISE

1. Cruise Power - SET.
2. Mixtures - LEAN.
3. Cowl Flaps - AS REQUIRED.
4. Propellers - SYNCHRONIZE manually.
5. Propeller Synchrophaser - ON.
6. Auxiliary Fuel Pumps - OFF or LOW if required.
7. Fuel Selectors - MAIN TANKS.
8. Cabin Altitude and Differential Pressure - CHECK.

DESCENT

1. Fuel Selectors - MAIN TANKS.
2. Auxiliary Fuel Pumps - ON.
3. Pressurization - SET.
4. Power - AS REQUIRED.
5. Mixtures - ADJUST.
6. Cowl Flaps - CLOSED.
7. Altimeter - SET.

BEFORE LANDING

1. Seat Belts and Shoulder Harness - SECURE.
2. Propeller Synchrophaser - OFF.
3. Cabin Differential Pressure - CHECK ZERO.
4. Wing Flaps - AS REQUIRED.
5. Landing Gear - DOWN.
6. Mixtures - ADJUST.
7. Propellers - FULL FORWARD.
8. Approach Speed - 94 KIAS at 5990 pounds. Refer to Section 5 for speeds at reduced weights.

AFTER LANDING

1. Auxiliary Fuel Pumps - LOW.
2. Cowl Flaps - OPEN.
3. Wing Flaps - UP.

the vibration level of the cabin and instrument panel will increase and decrease at a rate of approximately once each 20 seconds. Optimum operation will be obtained by manually synchronizing the propellers and positioning the synchrophaser to PHASE. Best propeller synchronizing is obtained by making the final adjustment of the propeller controls in a DECREASE RPM direction. For best operation, securely tighten the quadrant friction lock to prevent the slaved propeller control from creeping.

CRUISE

1. Cruise Power - 2100 to 2450 RPM and 17.0 to 31.5 inches Hg. or 2200 to 2300 RPM and 17.0 to 34.0 inches Hg.

NOTE

Maintain sufficient power for pressurization requirements.

2. Mixtures - LEAN for desired cruise fuel flow as determined from your power computer. Recheck mixtures if power, altitude or OAT changes.
3. Cowl Flaps - AS REQUIRED.
4. Propellers - SYNCHRONIZE manually.
5. Quadrant Friction Lock - TIGHTEN securely.
6. Propeller Synchrophaser - PHASE. Light should illuminate continuously.
 - a. Phasing Knob - ADJUST for desired phasing position.
7. Auxiliary Fuel Pumps:
 - a. Main Tanks - OFF or LOW, if required.
 - b. Switching Tanks - LOW.
 - c. Auxiliary Tanks - LOW.
 - d. Crossfeeding - LOW.
8. Fuel Selectors - Left Engine - LEFT MAIN (Feel For Detent). Right Engine - RIGHT MAIN (Feel For Detent).
 - a. If optional 63-gallon auxiliary tanks are installed, fuel selectors - MAIN TANKS for 90 minutes.
 - b. Usable auxiliary fuel quantity is based on level flight.
 - c. If wing locker tanks are installed, fuel selectors - MAIN TANKS or, after wing locker tanks are transferred and main tank quantity is less than 180 pounds each - AUXILIARY TANKS.

NOTE

- Turn auxiliary fuel pumps to LOW and mixtures to FULL RICH when switching tanks.
- The auxiliary fuel tanks are to be used in cruise flight only.

- d. If wing locker tanks are installed, crossfeed - SELECT as required to maintain fuel balance after wing locker tank fuel transfer.

9. Cabin Altitude Control - SET SLOWLY if cruising altitude changes. Reset cabin altitude control to destination field pressure altitude plus 500 feet (outer scale), or cruise altitude plus 500 feet (inner scale) whichever gives the highest cabin altitude (Optional System).
10. Cabin Rate Control - ARROW UP.
11. If Cabin Altitude Light Illuminates (cabin altitude above 10,000 feet) - DESCEND or use supplementary oxygen as follows:
 - a. Mask - Connect mask and hose assembly and put mask on.
 - b. Hose Coupling - Plug into oxygen outlet above switch and circuit breaker panel.
 - c. Oxygen Flow Indicator - Check Flow. (Indicator Toward Mask Indicates Proper Flow.)
 - d. Disconnect hose coupling when not in use.
12. Trim Tabs - ADJUST.

Normal cruising requires between 50% and 70% power. The manifold pressure and RPM settings required to obtain these powers at various altitudes and outside air temperatures can be determined with your power computer. A maximum cruising power of approximately 77.5% (31.5 inches Hg. manifold pressure and 2450 RPM or 34.0 inches Hg. manifold pressure and 2300 RPM) may be used if desired. Various percent powers can be obtained with a number of combinations of manifold pressure, engine speed, altitude and outside air temperature. For a given throttle setting, select the lowest engine speed in the green arc range that will give smooth engine operation without evidence of laboring.

CAUTION

The use of 34.0 inches Hg. manifold pressure (narrow green arc on manifold pressure gage) is restricted to the 2200 to 2300 RPM range only.

The use of lower power settings and the selection of cruise altitude on the basis of the most favorable wind conditions are significant factors that should be considered on every trip to reduce fuel consumption. Additional range can be achieved when operating at select power combinations, see Figure 5-21, by leaning to peak exhaust gas temperature (EGT) for Best Economy mixture. This setting results in an airspeed loss of 4 KTAS and range increase of 8% compared to the Recommended Lean mixture. Do not lean to the extent that engine roughness or excessive speed loss occurs.

CAUTION

Operation at Best Economy mixture is not recommended until oil consumption stabilizes or during the first 50 hours of operation. The purpose of this interval of operation at higher power levels (65% to 77.5% power) is to insure proper seating of the rings and is applicable to new engines, and engines in service following cylinder replacement or top overhaul of one or more cylinders.

When leaning, accomplish the procedure as precisely as possible. A little extra effort in setting the mixtures will yield significant dividends.

For normal cruise conditions, your power computer should be utilized to set the fuel flows. The power computer is based on indicated OAT; therefore, the ram rise does not have to be subtracted. The power computer is marked with two fuel flow scales. These scales are provided to insure that you can obtain the maximum performance and utilization from your airplane. The inner fuel flow scale (marked Recommended Lean) should be utilized for all normal cruise performance. Data shown in Section 5 are based on Recommended Lean mixture. The outer fuel flow scale (marked Best Power) will provide maximum speed for a given power setting. The speed will be approximately two knots greater than the speed with Recommended Lean mixture.

The cowl flaps should be adjusted to maintain the cylinder head temperature within the normal operating range (green arc).

Best propeller synchrophasing is obtained by making the final adjustment of the propeller controls in a DECREASE RPM direction. Manually synchronize the propellers as closely as possible and tighten the quadrant friction lock securely. Position the synchrophaser switch to PHASE. The phasing knob should then be adjusted until the desired sound and vibration characteristics are obtained. This setting will vary from flight to flight. If non-synchronized operation occurs during long cruise flights, manually re-synchronize the propeller controls as closely as possible and synchronized operation should reoccur. Securely tighten the quadrant friction lock, then adjust the phasing knob as desired.

On long cruise flights, where the slaved governor can eventually operate near either end of its operating range, it may be necessary to periodically select the OFF position, reset the propeller controls and reengage the synchrophaser.

If auxiliary fuel tanks are to be used, select main fuel for 60 minutes of flight (with 40-gallon auxiliary tanks) or 90 minutes of flight (with 63-gallon auxiliary tanks). This is necessary to provide space in the main tanks for vapor and fuel returned from the engine-driven fuel pumps when operating on auxiliary fuel. If sufficient space is not available in the main tanks for this diverted fuel, the tanks can overflow through the overboard fuel vents. After this period of time (60 or 90 minutes), set mixtures to FULL RICH, auxiliary fuel pumps to LOW, select the auxiliary fuel tank position on the fuel selectors and feel for detent. The engines will now operate on the auxiliary tank fuel; the fuel quantity indicator will automatically reference the auxiliary fuel tanks. Lean the mixtures as required.

Since part of the fuel from the auxiliary tanks is diverted back to the main tanks instead of being consumed by the engines, the auxiliary tanks will run dry sooner than may be anticipated; however, the main tank endurance will be increased by the returned fuel. The total usable fuel supply is available during cruising flight only. An engine failure or engine-driven pump failure results in the auxiliary fuel on the side of the failure being unusable. Operation on the auxiliary fuel tanks near the ground (below 1000 feet AGL) is not recommended.

CAUTION

Insure checklist procedures are followed for fuel system management.

After consuming the auxiliary tank fuel, set mixtures to FULL RICH, auxiliary fuel boost pumps to LOW, select the main tank position on the fuel selectors and feel for detent. After transitioning back to the main tanks, lean the mixtures as required and position auxiliary fuel pump switches to OFF or LOW. If there is an indication of fluctuating fuel flow the switches should be positioned to LOW until fuel flow stabilizes.

If wing locker fuel is to be used, use the main tank fuel until 180 pounds or less remains in the main tank(s) which will receive the wing locker fuel; this will prevent overflowing of the main tank(s) when transferring the wing locker fuel.

There are no separate fuel selector controls for the wing locker fuel tanks. The wing locker fuel is pumped directly into the main tanks with a fuel transfer pump. Indicator lights mounted on the annunciator panel are illuminated by pressure switches to indicate fuel has been transferred. Wing locker fuel transfer time is approximately 1 hour. Fuel should be cross-fed as required to maintain fuel balance after wing locker fuel has been transferred.

NOTE

Wing locker transfer pump switches provided on the instrument panel, energize the wing locker fuel transfer pumps for transferring fuel. These switches should be turned ON only to transfer fuel and turned OFF when the indicator lights come on indicating fuel has been transferred.

If the optional pressurization system is installed, the cabin rate-of-climb control should be positioned with the arrow straight up to provide the proper cabin rate-of-climb as small altitude changes occur.

Normal operations may be conducted without supplemental oxygen for extended periods up to a cabin altitude of approximately 10,000 feet. An altitude warning light will illuminate when the cabin altitude is approximately 10,000 feet, at which time oxygen should be used by all occupants.

WARNING

Permit no smoking when using oxygen. Oil, grease, soap, lipstick, lip balm, and other fatty materials constitute a serious fire hazard when in contact with oxygen. Be sure hands and clothing are oil-free before handling oxygen equipment.

For flight in an icing environment, refer to the Alternate Induction Air paragraphs in this section and other sections dealing with flight in an icing environment.

FUEL SYSTEM

The fuel system, see Figure 7-15, consists of two main tanks, two optional auxiliary tanks, two optional wing locker tanks, fuel selectors for selection of main, auxiliary or crossfeed fuel and other necessary components to complete the system.

MAIN TANKS

The main tanks are integrally sealed (wet) aluminum tanks mounted on each wing tip. Each tank contains an auxiliary fuel pump and transfer pump. The auxiliary fuel pump, mounted in the bottom of the tank, provides fuel pressure for priming during engine starting and supplies fuel to the engine in an emergency. The auxiliary pump operation is controlled by an auxiliary fuel pump switch on the instrument panel. The transfer pump, mounted on the aft side of the main tank rear bulkhead, transfers fuel from the nose section of the main tank to the center sump area, where it is picked up and routed to the engine by the engine-driven or auxiliary fuel pump. The transfer pump permits steep descents with low main tank fuel quantity. The transfer pump operates continuously whenever the battery switch is positioned to ON. The main tank is vented to atmospheric pressure by a flush vent located on the lower aft portion of the main tank. These tanks are serviced through a flush filler located on the top forward portion of each tank.

AUXILIARY TANKS

The optional auxiliary tanks are available in two sizes. These tanks are bladder-type cells located between the spars in the outboard wing. These tanks provide an engine fuel supply during cruise operations. An in-line pump is provided in the auxiliary tank outlet line for each auxiliary tank to provide improved vapor clearing. These in-line pumps require fuel for lubrication; as a result, the pump service life will be reduced when operated with the auxiliary tanks empty. On airplanes 340A0401 thru 340A0469 not modified by SK340-18, the in-line pumps are energized whenever the auxiliary fuel pump switches are positioned to LOW. On airplanes 340A0470 and on and 340A0401 thru 340A0469 modified by SK340-18, the in-line pumps are energized only when the auxiliary fuel pump switches are positioned to LOW and the fuel selectors are positioned to the auxiliary tanks. The auxiliary tanks are vented to the main tanks. The auxiliary tanks are serviced through a flush filler located on the upper wing surface outboard of the nacelles.

WING LOCKER TANKS

An optional wing locker fuel tank is available for installation in the forward portion of each wing locker baggage area. These tanks are bladder-type cells which supplement the main tank fuel quantity. This fuel cannot be fed directly to the engines; instead it is transferred to the main tanks by wing locker fuel transfer pumps. The transfer pumps are manually controlled and should not be energized until adequate volume is available in the main tanks to hold the wing locker fuel. After the fuel is transferred, a pressure switch in each transfer line will sense a drop in pressure and illuminate the annunciator light, indicating fuel transfer is complete and the applicable wing locker transfer pump should be turned off. These pumps use fuel for lubrication; therefore, operation after fuel transfer will shorten the pump life. The wing locker fuel tanks are individually vented through the lower surface of each wing. The fuel vent lines are deiced by heaters which are controlled by the stall and vent heat switch. These tanks are serviced through a flush filler located on the top of the engine nacelle.

FUEL SYSTEM SCHEMATIC

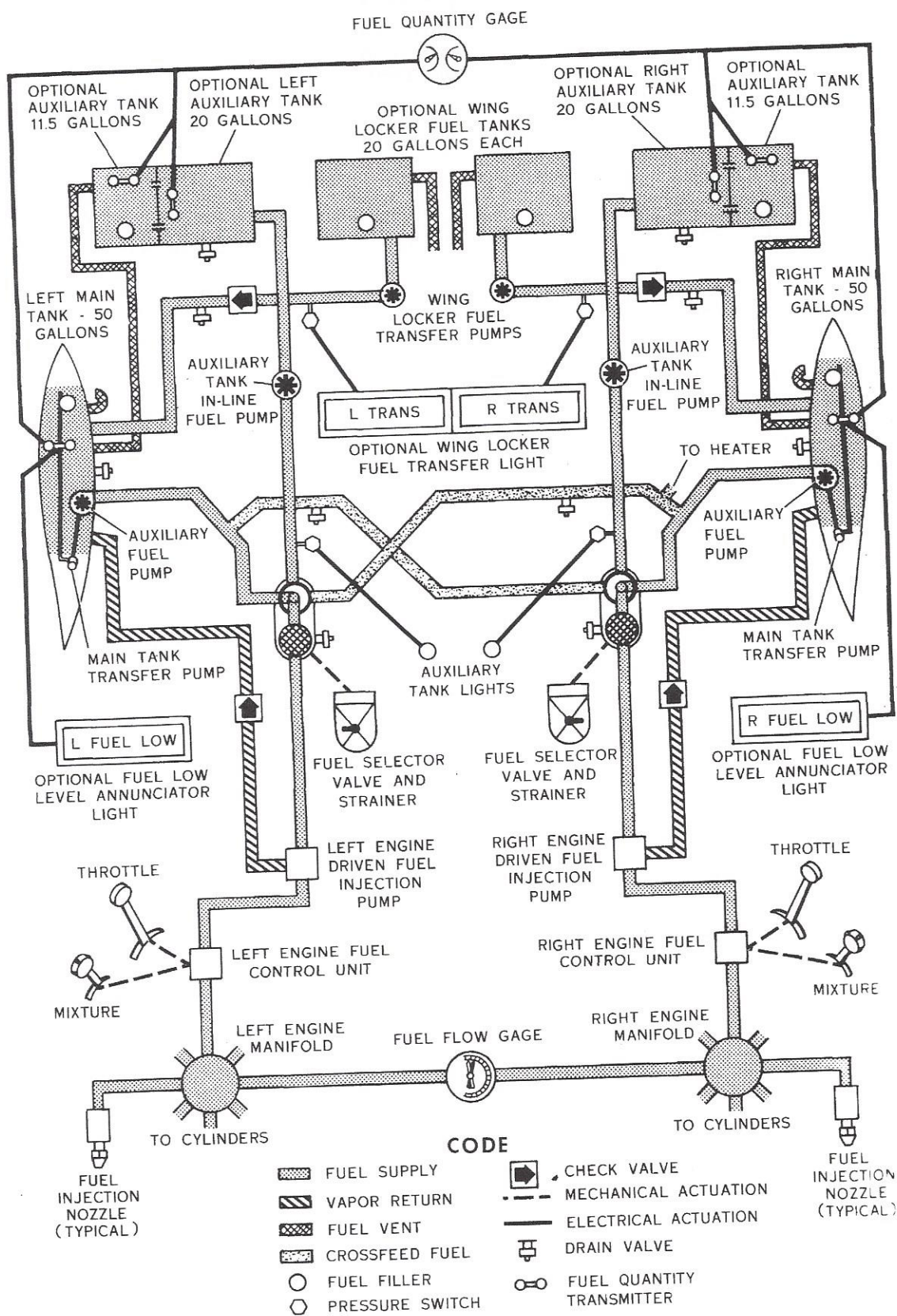


Figure 7-15

FUEL SELECTORS

Two fuel selectors mechanically connected to fuel valves located in the wings are provided for each engine. The selectors, located on the floor between the pilot and copilot seats, allow selection of main fuel, auxiliary fuel, crossfeed and no fuel.

The MAIN position of each selector allows fuel to flow from the main tank through the fuel selector to the engine-driven fuel pump. The AUXILIARY position allows fuel to flow from the auxiliary tank through the fuel selector to the engine-driven pump. The crossfeed position allows fuel to flow from the opposite engine main tank to the engine-driven fuel pump. The crossfeed position is used for balancing asymmetric fuel loads and supplying the engine-driven fuel pump from the opposite main tank. When the OFF position is selected, no fuel is allowed to flow to the engine-driven fuel pump.

The fuel selector handles form the pointers for the selectors. The ends of the handles are arrow-shaped and point to the position on the selector placard which corresponds to the valve position.

AUXILIARY FUEL PUMP SWITCHES

A 3-position auxiliary fuel pump switch, see Figure 7-1, is provided for each main fuel tank pump. In the LOW position, the auxiliary fuel pumps operate at low speed. The auxiliary tank in-line fuel pumps, if installed, are also energized when auxiliary fuel pump switch is positioned to LOW and the fuel selector is positioned to the appropriate auxiliary tank. The in-line pumps provide 5.5 PSI pressure for vapor clearing and purging. The ON position runs the auxiliary fuel pumps at low speed, as long as the engine-driven pumps are functioning. With an engine-driven pump failure and the switch in the ON position, the auxiliary pump on that side will switch to high speed automatically, providing sufficient fuel for all partial-power engine operations.

FUEL DRAIN VALVES

Fuel quick-drain valves are provided for each fuel tank, fuel selector and crossfeed line. In addition, a quick-drain is provided in each wing locker fuel transfer line. The drains provide a location for removing moisture and sediment from the fuel system. The drains are located on the lower surface of the fuselage, wing and main tanks and are actuated by depressing the lower portion of the valve. A special screwdriver is provided with the airplane which allows a 2-ounce sample to be drained and inspected without fuel spillage.

FUEL FLOW GAGE

The fuel flow gage, see Figure 7-1, is a dual instrument which indicates the fuel consumption of each engine in pounds per hour. The fuel flow gage used with the injection system senses the pressure at which fuel is delivered to the engine spray nozzles. Since fuel pressure at this point is proportional to the fuel consumption of the engine, the gage is marked as a flowmeter.

The gage dial is marked with arc segments corresponding to proper fuel flow for various power settings and is used as a guide to quickly set the mixtures.

The gage has takeoff, climb and cruise markings for various percentages of power. The takeoff range (white arc) presents the desired fuel flow (full rich schedule for proper engine cooling) for full power (2700 RPM and

38.0 inches Hg. manifold pressure) operation under all conditions up to 20,000 feet altitude. The climb range (blue arc) presents the desired fuel flow for maximum power above 20,000 feet, which corresponds to the manifold pressure schedule, with an enriched mixture for higher power settings to allow proper engine cooling during climb conditions. The cruise range presents the desired fuel flow for recommended lean mixture at the specified percent power.

FUEL QUANTITY GAGE

The dual indicating fuel quantity gage, see Figure 7-1, is calibrated in pounds and will accurately indicate the weight of fuel contained in the tanks; however, fuel density varies with temperature, therefore a full tank will weigh more on a cold day than on a warm day. This will be reflected by the weight shown on the gage. A gallons scale is provided in blue on the indicator for convenience in allowing the pilot to determine the approximate volume of fuel on board.

The dual indicating fuel quantity gage continuously indicates fuel remaining in the tanks selected. When the fuel selectors are in the AUX position, AUX TANK indicator lights, see Figure 7-1, will illuminate and the fuel quantity gage will indicate the fuel in the auxiliary tanks (pounds in white and gallons in blue). When the fuel selectors are in the MAIN position, the fuel quantity gage will indicate the fuel in the main tanks. A 3-position switch, spring-loaded to center, allows checking fuel quantity in the tanks not selected. The switch, adjacent to the auxiliary tank indicator lights, is labeled MAIN and AUX. By positioning the switch to the appropriate tank position, the fuel quantity in that tank will be indicated on the fuel quantity gage.

FUEL LOW LEVEL WARNING LIGHTS

The optional fuel low level warning lights, see Figure 7-3, provide a warning when the left and/or right main tanks contain approximately 60 pounds of fuel. The warning is provided by the L FUEL LOW and R FUEL LOW lights located on the annunciator panel. These lights are actuated by a float switch located in each main fuel tank. Each light operates independently from the fuel quantity indicating system.

ENGINE-DRIVEN FUEL PUMPS

Each engine is equipped with a mechanically driven fuel pump which provides fuel to the metering unit. Each pump also contains a bypass which returns excess fuel and vapor to the main tanks at all times. Should these pumps fail, the main tank auxiliary pumps can provide sufficient fuel flow for all partial-power engine operations. These auxiliary pumps, however, operate at a fixed pressure, consequently the mixture must be leaned when operating at a low power setting to prevent flooding of the engines. Conversely, if an engine-driven pump failure should occur during high power operation, adequate fuel flow may not be available to ensure rated power and adequate engine cooling.

BRAKE SYSTEM

The airplane is provided with an independent hydraulically actuated brake system for each main wheel. A hydraulic master cylinder is attached to each pilot's rudder pedal. Hydraulic lines and hoses are routed from each master cylinder to the wheel cylinder on each brake assembly. No manual adjustment is necessary on these brakes. The brakes can be operated from either pilot's or copilot's pedals. The parking brake system consists