

## FUEL PRESSURE

Operation of either engine with its corresponding fuel pressure light (L FUEL PRESS or R FUEL PRESS annunciator) illuminated is limited to 10 hours before overhaul or replacement of the engine-driven fuel pump.

### NOTE

Windmilling time need not be charged against this time limit.

## GENERATOR LIMITS

| GENERATOR LOAD | GROUND        | FLIGHT  |           |           |
|----------------|---------------|---------|-----------|-----------|
|                | ALL ALTITUDES | 5000 FT | 25,000 FT | 30,000 FT |
| 0 to .25       | 51%           | 51%     | 58%       | 60%       |
| .25 to .5      | 51%           | 60%     | 67%       | 70%       |
| .5 to .75      | 57%           | 65%     | 74%       | 78%       |
| .75 to .9      | 60%           | 68%     | 78%       | 82%       |
| .9 to 1.0      | 63%           | 69%     | 80%       | 85%       |

## STARTERS OPERATING TIME LIMIT

Use is limited to 40 seconds on, 60 seconds off, 40 seconds on, 60 seconds off, 40 seconds on, then 30 minutes off.

## APPROVED FUEL GRADES AND ADDITIVE

### RECOMMENDED ENGINE FUELS

#### *Commercial Grades*

Jet A  
Jet A-1  
Jet B

#### *Military Grades*

JP-4  
JP-5  
JP-8

### EMERGENCY ENGINE FUELS

#### *Commercial Aviation Gasoline Grades*

80 Red (Formerly 80/87)  
100LL Blue\*  
100 Green (Formerly 100/130)

*\*In some countries, this fuel is colored Green and designated "100L."*

#### *Military Aviation Gasoline Grades*

80/87 Red  
100/130 Green  
115/145 Purple

## Section II - Limitations

### FUEL QUANTITY

Total Capacity .....387 U.S. gallons  
Total Usable Fuel .....384 U.S. gallons

### MAXIMUM OPERATING PRESSURE ALTITUDE LIMIT

30,000 feet

### OUTSIDE AIR TEMPERATURE LIMIT

Operation:

Maximum .....ISA plus 37°C

### CABIN PRESSURIZATION AND STRUCTURAL LIMITATIONS

Maximum Cabin Differential Pressure.....4.7 psi  
Fuselage Pressure Vessel Structure..... Inspection in Chapter 5 and 53-10-00  
of the *Beech King Air 90 Series Maintenance*  
*Manual* are required for continuous airworthiness.

### APPROVED AIRPLANE DEICING/ANTI-ICING FLUIDS

SAE AMS 1424 Type I

ISO 11075 Type I

SAE AMS 1428 Type II

ISO 11078 Type II

SAE AMS 1428 Type IV. Only the following type IV fluids are approved:

Clariant Safewing MP IV 1957

Clariant Safewing MP IV 2001

UCAR ULTRA+ (Approved for use down to -15°C)

Octagon Max Flight Type IV

### CABIN SEATS

Only aft-facing seats (placarded as such on the leg crossmember) are authorized in the aft-facing position.

*Prior to LJ-693:*

During takeoff and landing, occupied seats must be in the outboard position with seat backs upright. Aft facing seats must have the headrests properly positioned.

*LJ-963 and after:*

During takeoff and landing, shoulder harness must be worn, and occupied seats must be in outboard position with backs upright and headrests properly positioned.

### OXYGEN REQUIREMENTS

One mask coupled to the outlet and immediately available with a 10-minute supply of oxygen for each occupant when operating above 25,000 feet.

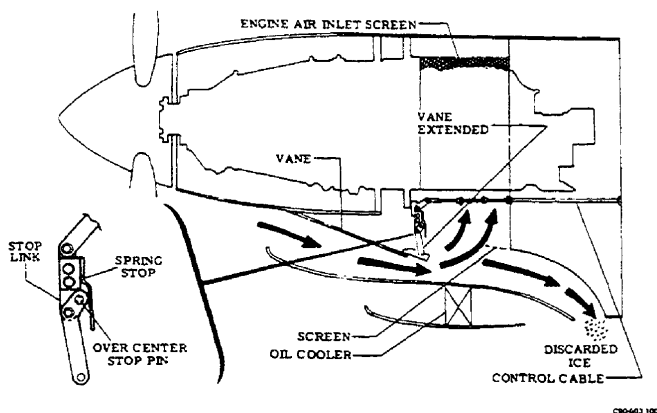
## ICE PROTECTION

### Engine Air Inlet

The engine air inlet lip boots are electrically heated to prevent the formation of ice and consequent distortion of the airflow. The boots are operated by the two switches on the pilot's subpanel, identified as HEAT - ENG LIP BOOT - LEFT - RIGHT.

### Ice Vanes (Inertial Separator System)

An inertial separation system is built into each engine air inlet to prevent moisture particles from entering the engine inlet plenum during icing condition. This is done by introducing a turn in the airstream to the engine, causing the moisture particles to continue on undeflected, because of their greater momentum, and to be discharged overboard.



## ENGINE ICE VANE INSTALLATION

During normal operation, a moveable vane is raised out of the direct ram airstream. For cold weather ( $+5^{\circ}\text{C}$  or below) operation in visible moisture, it should be lowered into the airstream. The anti-ice vanes are operated by individual T-handle push-pull controls, located below the left subpanel. The controls are placarded PULL FOR ENGINE ICE PROTECTION - LEFT ENG - RIGHT ENG. Vane position during operation is indicated by the position of the T-handles, and by a slight decrease in torque with the engine ice protection controls extended. The vanes are either fully retracted or fully extended; there are no intermediate positions.

### Oil-To-Fuel Heat Exchanger

An oil-to-fuel heat exchanger, located on the engine accessory case, operates continuously and automatically to heat the fuel to prevent freezing of any water in the fuel. Under extreme conditions additional protection may be required as given in the LIMITATIONS Section.

### Fuel Control Heat

Each fuel control's compressor discharge air line is protected against ice by electrically heated jackets. Power is supplied to each fuel control airline heater by two switches, identified as HEAT - FUEL CONTROL - LEFT - RIGHT, on the pilot's subpanel.

## FUEL CONTROL

The engine fuel system consists of an engine-driven fuel pump, a fuel control unit, a flow divider, two fuel manifolds, fourteen fuel nozzles and two fuel drain valves. The fuel pump/fuel control unit assembly is mounted on the engine accessory case and is shaft-driven at a speed proportional to that of the compressor turbine.

System function depends upon the interaction of the fuel control unit governor and the propeller governor. The position of the fuel control unit metering valve is determined by differential pressures that vary proportionately with power required (as sensed by the fuel control unit) and propeller RPM.

The flow divider directs fuel from the metering valve to the primary and secondary fuel manifolds (or primary manifold only, depending on engine power requirements) and thence to the fuel nozzles. The flow divider also incorporates a dump valve that automatically drains residual fuel from both manifolds at engine shutdown. The fuel drain valves, drains fuel from the combustion chamber at engine shutdown and at engine false starts. Constant fuel pressure is maintained by a fuel filter bypass valve and a pressure relief valve.

## FIRE DETECTION SYSTEM

The optional fire detection system is installed to provide warning in the event of fire in either engine nacelle. The system consists of the following: three photoconductive cells for each engine; a control amplifier for each engine; two red warning lights on the warning annunciator panel, one reading L ENG FIRE, the other R ENG FIRE; a test switch on the upper pedestal; and a circuit breaker placarded FIRE DET on the right subpanel. The six photoconductive-cell flame detectors are sensitive to infrared radiation. They are positioned in each engine compartment so as to receive both direct and reflected rays, thus monitoring the entire compartment with three photocells. Temperature level and rate of temperature rise are not factors in the sensing method.

Conductivity through the photocell varies in direct proportion to the intensity of the infrared radiation striking the cell. As conductivity increases, the amount of current from the electrical system flowing through the flame detector increases proportionally. To prevent stray light rays from signaling a false alarm, a relay in the control amplifier closes only when the signal strength reaches a preset alarm level.