Beechcraft®

Baron

MODEL C55

OWNERS MANUAL

Beech Aircraft Corporation Wichita, Kansas

LIST OF EFFECTIVE PAGES

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 116

TABLE OF CONTENTS

GENERAL SPECIFICATIONS

ENGINES - Two Continental, 6-cylinder, IO-520-C fuel injected engines rated at 285 hp @ 2700 rpm

PROPELLERS - Constant speed, full feathering

AIRSPEED

- Maximum (Sea Level) . . . . . . 242 mph/210 kts (TAS)
- Cruise (75% Power @ 7000 Ft.) . . 230 mph/200 kts (TAS)

RATE OF CLIMB AT SEA LEVEL (RATED POWER)

- Twin-engine, 5300 lbs. . . . . . 1670 fpm
- Single-engine, 5300 lbs. . . . . . 335 fpm
- 5000 lbs. . . . . . 435 fpm
- 4500 lbs. . . . . . 618 fpm

SERVICE CEILING (RATED POWER)

- Twin-engine, 5300 lbs. . . . . 20,900 ft.
- Single-engine, 5300 lbs. . . . . 7100 ft.
- 5000 lbs. . . . . 9350 ft.
- 4500 lbs. . . . 13,500 ft.

ABSOLUTE CEILING

- Twin-engine, 5300 lbs. . . . . 22,300 ft.
- Single-engine, 5300 lbs. . . . . 8300 ft.
- 4500 lbs. . . . 14,600 ft.
- 4000 lbs. . . . 18,600 ft.

STALLING SPEED (Zero Thrust, Flaps 28°, Gear Down) . . . . 77 mph/67 kts (CAS)

MAXIMUM RANGE (12,000 Ft., 45% Power, 186 mph/162 kts (TAS) 142 Gals.) 1143 stat. mi./993 naut. mi.

MAXIMUM ENDURANCE . . . . 7.0 hrs.

TAKEOFF DISTANCE (15° Flaps, Sea Level)

- Ground run . . . . 596 ft.
- Total distance over 50-ft. obstacle . 968 ft.

LANDING DISTANCE (28° Flaps, Sea Level)

- Ground run . . . . 868 ft.
- Total distance over 50-ft. obstacle . 1414 ft.

GROSS WEIGHT . . . . 5300 lbs.

STANDARD EMPTY WEIGHT (Approx.) 2985 lbs.

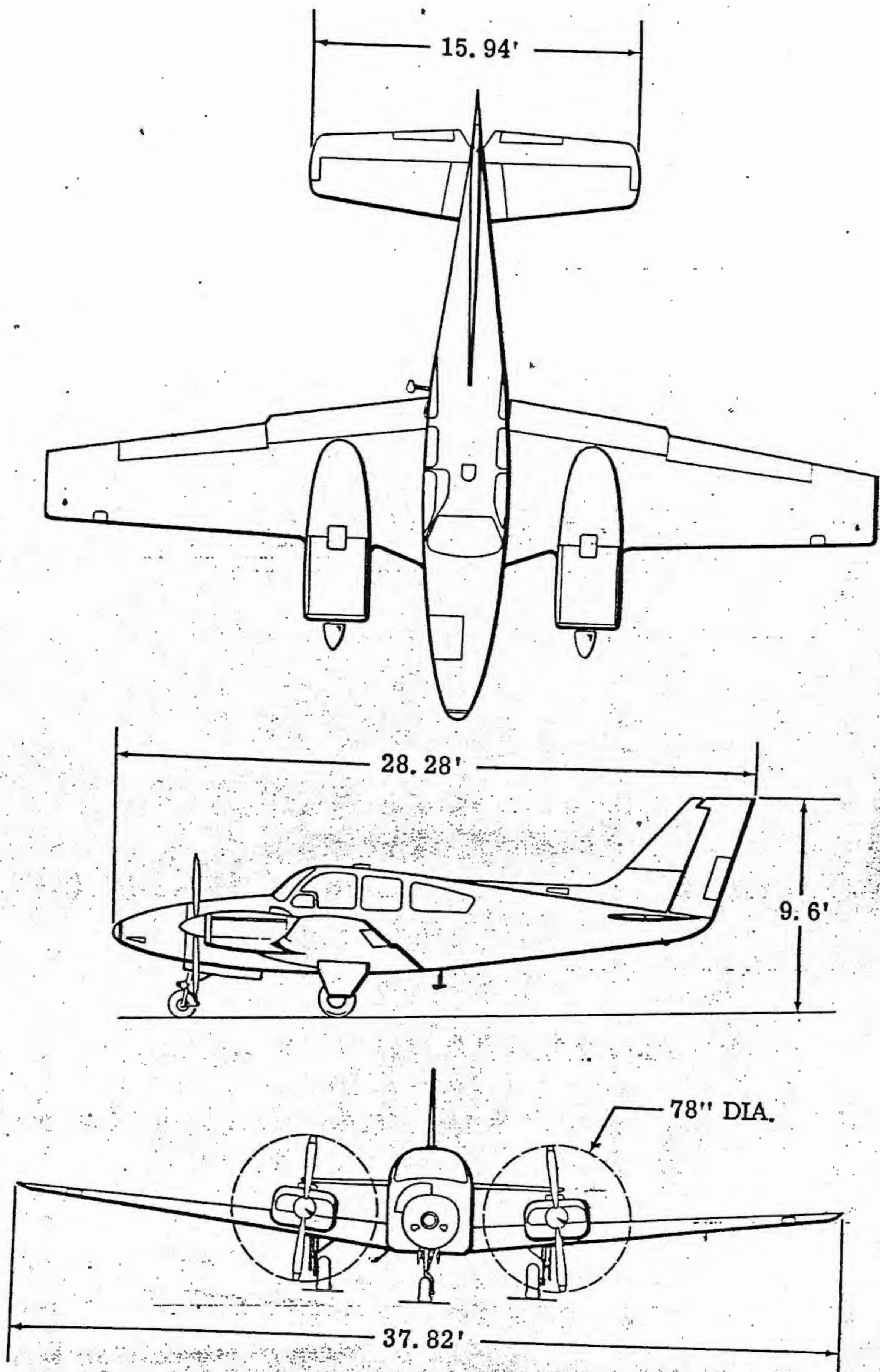
BAGGAGE ALLOWANCE

- Forward compartment . . 300 lbs. baggage, less equipment
- Rear compartment . . . 400 lbs. baggage, less occupants and equipment
- Extended rear compartment 120 lbs. baggage

FUEL CAPACITY (Grade 100/130)

- With standard fuel cells. . . . . 112 gals. (usable)
- With optional fuel cells . . . . 142 gals. (usable)

OIL CAPACITY . . . . 24 qts.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SECTION I
DESCRIPTION AND OPERATION OF SYSTEMS

Your Model C-55 BEECHCRAFT Baron is a four to six-place all-metal, low-wing, twin-engine monoplane with fully retractable tricycle landing gear. It is powered by Continental IO-520-C six-cylinder, horizontally opposed, fuel injection engines rated at 285 horsepower each, at 2700 rpm. Each engine drives a BEECHCRAFT two-bladed, 78-inch diameter, constant speed, full feathering, hydraulically controlled propeller.

FLIGHT CONTROLS

Control surfaces are operated through push-pull rods and conventional closed-circuit cable systems terminating in bell cranks. The preformed steel cables run over phenolic pulleys incorporating sealed ball bearings.

CONTROL COLUMN

The throw-over type control column for elevator and aileron control can be placed in front of either front seat. Pull the T-handle latch at the base of the control arm and position the control column as desired.

RUDDER PEDALS

To adjust the rudder pedals, press the spring-loaded lever on the side of each pedal and move the pedal to its forward or aft position. The adjustment lever can also be used to place the right hand set of rudder pedals against the floor when not in use.

TRIM TABS

All trim tabs are adjustable from the control console. A position indicator is provided for each. The left aileron tab incorporates servo action in addition to its trimming purpose.

WING FLAPS

The wing flaps are controlled by a three-position switch, up, 15 degrees, and down, located on the left side of the control console. The switch must be pulled out of a detent before it can be repositioned. Flap position lights are located adjacent to each switch - - green to indicate full up, amber for 15 degrees, and red for full down (28 degrees). Limit switches automatically stop the flap motor in any of the three positions.

POWER PLANT CONTROLS

PROPELLER, THROTTLE, AND MIXTURE

The control levers are grouped along the upper face of the control console. Their knobs are shaped to government standard configuration so they can be identified by touch. A controllable friction knob below and to the left of the control levers prevents creeping after power settings have been established.

INDUCTION AIR

The induction air controls are located near the bottom of the control console. Individual control levers for each engine provide three sources of induction air: unfiltered ram, alternate, and filtered ram. The UNFILTERED RAM position is at the lower limit of lever travel. Detents placarded ALTERNATE and FILTERED are located above the UNFILTERED RAM position. With the control in either the UNFILTERED RAM or FILTERED position, should the ram air scoop or filter become obstructed, a spring-loaded door on the induction air box will open automatically and the induction system will operate on ALTERNATE.

Unfiltered ram air provides slightly better engine performance. However, where dusty conditions prevail, filtered air should be selected. (See Induction System Icing, Section III.)

COWL FLAP

The cowl flap for each engine is controlled by a separate switch on the electrical panel to the left of the control console. The switch position indicates flap position (switch up, flap closed; switch down, flap open). An amber indicator light adjacent to the cowl flap switches glows when either switch is in the open position.

LANDING GEAR SYSTEM

CONTROL SWITCH

The landing gear is controlled by a two-position switch on the right side of the control console. The switch is operated by first pulling it out of a detent.

POSITION INDICATORS

Landing gear position lights are located just above the control switch. The lights, red for gear up and green for gear down, come on only when the gear is placed in the fully retracted or extended position. In addition, a mechanical pointer at the base of the nose wheel well bulkhead shows the position of the nose gear at all times.

SAFETY SWITCH

To prevent inadvertent retraction of the landing gear on the ground, a safety switch on the left main strut opens the control circuit when the strut is compressed. NEVER RELY ON THE SAFETY SWITCH TO KEEP THE GEAR DOWN DURING TAXI OR ON TAKEOFF OR LANDING ROLL. ALWAYS MAKE CERTAIN THAT THE LANDING GEAR SWITCH IS IN THE DOWN POSITION DURING THESE OPERATIONS.

WARNING HORN

With the landing gear retracted, if either or both throttles are retarded below an engine setting sufficient to sustain flight, a warning horn on the cabin forward bulkhead will sound intermittently. During single-engine operation, the horn can be silenced by advancing the throttle of the inoperative engine until the throttle warning horn switch opens the circuit.

MANUAL EXTENSION

The landing gear can be manually extended by operating a handcrank at the rear of the front seats. This procedure is described in Section IV.

BRAKES

The brakes on the main landing gear wheels are operated by applying toe pressure to the rudder pedals. The parking brake push-pull control is located immediately to the left of the control console. To set the parking brakes, push the center-button lock on the push-pull control, gently pull the control out, and pump each toe pedal until solid resistance is felt. Push the control in to release the brakes.

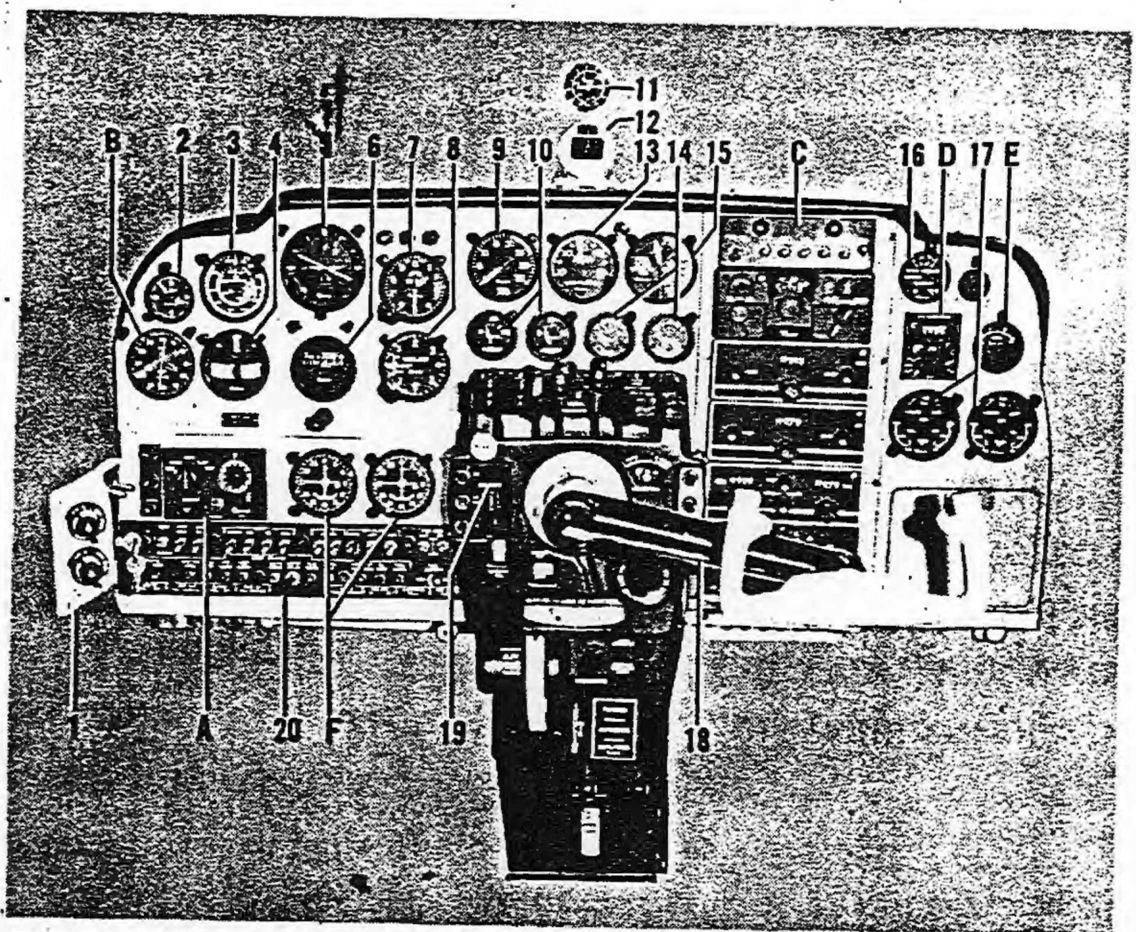
INSTRUMENTS

FLIGHT INSTRUMENTS

The flight instruments are located on a floating panel directly in front of the pilot's seat. Standard flight instrumentation includes attitude and directional gyros, airspeed, altimeter, vertical speed, electric turn-and-bank, and a clock. The airspeed indicator contains a blue radial denoting the best single-engine rate-of-climb speed at sea level. A magnetic compass is mounted above the instrument panel and an outside air temperature gage is installed in the windshield.

ENGINE INSTRUMENTS

The standard engine instruments consist of individual engine gage units, dual tachometer, manifold pressure, and fuel flow gages, two fuel quantity gages, a suction gage, and two ammeters. Each engine gage unit indicates cylinder head temperature, oil pressure, and oil temperature for its respective engine.



STANDARD EQUIPMENT

1. Ignition, Battery, and Alternator Switches
2. Clock
3. Airspeed Indicator
4. Turn-and-Bank Indicator
5. Attitude Gyro
6. Directional Gyro
7. Altimeter
8. Vertical Speed Indicator
9. Dual Tachometer
10. Ammeters
11. Outside Air Temperature Gage
12. Magnetic Compass
13. Dual Manifold Pressure Gage
14. Fuel Quantity Gages
15. Dual Fuel Flow Indicator
16. Suction Gage
17. Engine Gage Units
18. Landing Gear Position Switch (Not shown)
19. Flap Position Switch
20. Electrical Panel

OPTIONAL EQUIPMENT

A. Autopilot Control Head
B. Automatic Direction Finder Indicator
C. Radio Equipment
D. Transponder Control Head
E. Propeller Electric Deicer Ammeter
F. Omni Indicators

FUEL SYSTEM

FUEL CELLS

The standard fuel cell installation consists of a 25-gallon main cell in each wing leading edge and a 31-gallon auxiliary cell in each wing panel outboard of the nacelle. Total capacity is 112 gallons of usable fuel. With the optional 40-gallon main cells, which replace the standard 25-gallon main cells, the total capacity is 142 gallons of usable fuel. Fuel from the auxiliary cells should be used during level flight only. A vapor return line from each injector pump returns excess fuel to the cell from which it is being drawn during either normal or cross-feed operation. Each cell is filled at its own filler neck through an opening in the upper wing surface covered by a flush type filler cap. The fuel system is drained at eight locations, as shown in the accompanying fuel system schematic and the servicing points diagram in Section VI.

FUEL QUANTITY GAGES

Fuel quantity is measured by float type transmitter units which convey signals to two gages on the instrument panel. The gages indicate the amount of fuel in either the main cells or the auxiliary cells for their respective wings. A two-position selector switch on the electrical panel to the left of the control console determines the cells, main or auxiliary, to which the gages are connected.

FUEL FLOW INDICATOR

The dual fuel flow indicator on the instrument panel is calibrated in gallons per hour, the green arc indicating fuel flow for normal operating limits. Red radials are placed at the minimum and maximum allowable fuel pressures, as indicated at the fuel injection manifold valve.

In the cruise power range the green sectors cover the fuel flow required from 45% to 75% power. The lower edge of each sector is the normal-lean setting and the upper edge is the best-power setting for that particular power range.

The takeoff and climb range is covered by green sectors for full power at various altitudes. The full power markings represent the maximum performance mixtures for the altitudes shown, permitting leaning of the mixture for maximum power and performance during high altitude takeoffs and full power climbs.

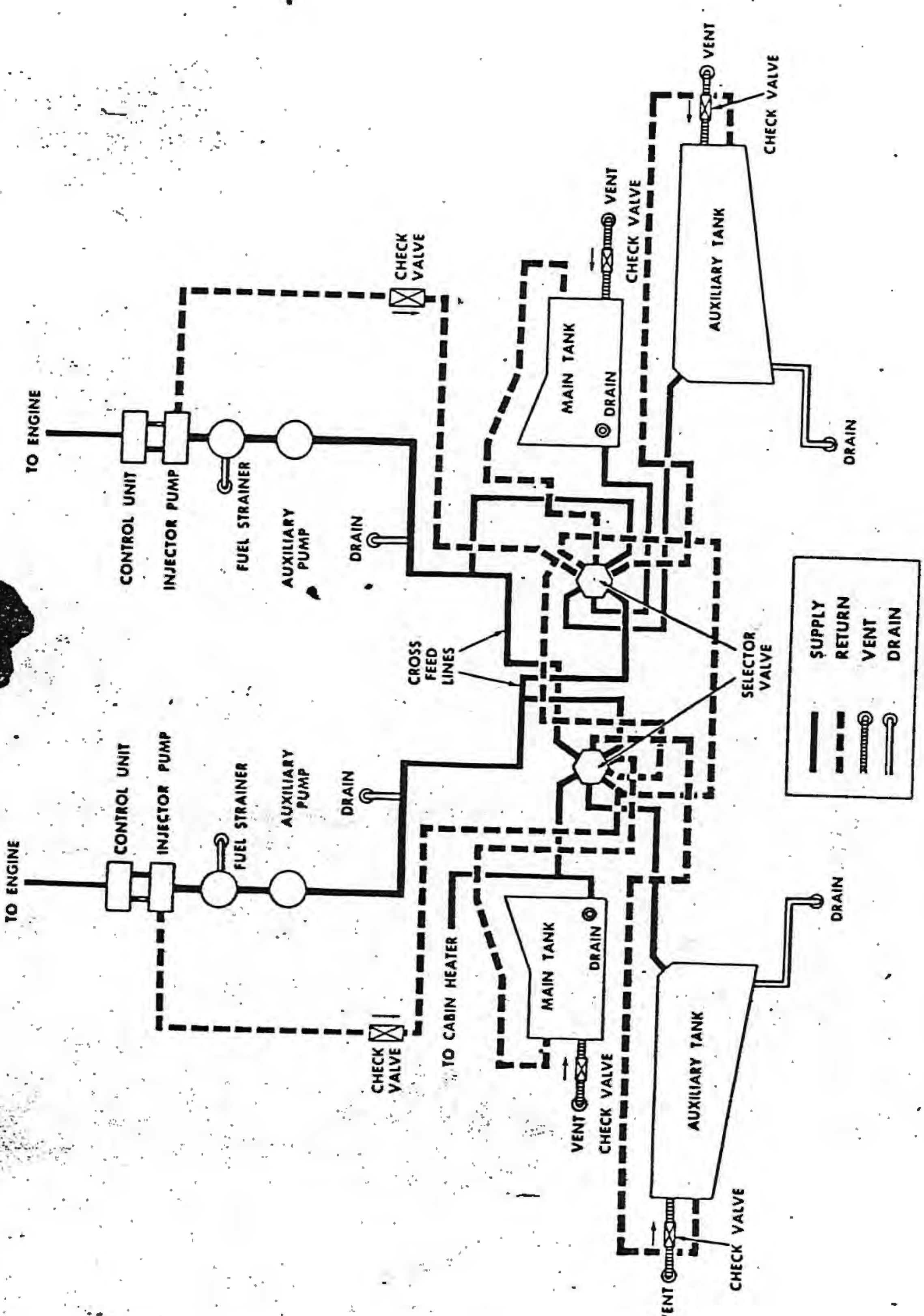
FUEL CROSS-FEED

The separate identical fuel supplies for each engine are interconnected by cross-feed lines for emergency operation. During normal operation each engine uses its own fuel pumps to draw fuel from its respective fuel cell arrangement. However, on cross-feed operations the entire fuel supply of any or all cells can be consumed by either engine. Thus, during single-engine operation, the operative engine can use the entire fuel supply of both wings.

Check valves prevent the operating engine's fuel pump from drawing air into the system through the inoperative engine during single-engine cross-feed operation. A mechanical interlock prevents both fuel selector valves being placed on cross-feed at the same time, as this would cut off the fuel supply for both engines.

The fuel cross-feed system is designed for use in level flight only, and the system cannot be employed to transfer fuel from one cell to another during flight. The procedure for using the cross-feed

FUEL SYSTEM SCHEMATIC



system is described in Section IV.

FUEL BOOST PUMPS

An individual two-speed electric boost pump is provided for each engine. High pressure, off, or low pressure is selected with each boost pump switch on the electrical panel. High pressure is used for starting and provides near maximum engine performance should the engine-driven pump fail. When necessary in high ambient temperatures, low pressure can be used for ground operation, takeoff, climb, and landing. The location of the fuel boost pumps in the system permits fuel to be drawn from any cell within the system by the boost pump for the operating engine.

FUEL MANAGEMENT

The fuel selector panel, located immediately forward of the front seats, contains the fuel selector valve for each engine and a schematic diagram of fuel flow. During normal operation, fuel is consumed from the cells as indicated by the fuel selector valves. However, if one selector valve is positioned on CROSS-FEED, both engines will draw fuel from the cell indicated by the other selector valve.

Fuel can be selected as desired during normal cruising operations, but since takeoffs, climbs, and landings must be made using the main cells only, a sufficient reserve for these operations must be maintained. See 4-8

OIL SYSTEM

The engine oil system is the full-pressure, wet sump type and has a 12-quart capacity. Oil operating temperatures are controlled by an automatic thermostat bypass control. The bypass control will limit oil flow through the oil cooler when operating temperatures are below normal and will permit the oil to bypass the cooler if it should become blocked. A full-flow, integrally mounted oil filter is provided. See Section VI for servicing procedures.

ELECTRICAL SYSTEM

In general, the aircraft's circuitry is the single-wire, ground return type. A panel containing the battery, magneto-starter, and alternator switches is located below the pilot's storm window. The panel to the left of the control console contains most of the electrical system switches and circuit breakers. Each is placarded as to its function.

BATTERY

One 17-ampere-hour, 24-volt battery is standard; two 24-ampere-hour, 12-volt batteries are optional. Either battery installation is located beneath the floor of the forward utility compartment. Battery servicing procedures are described in Section VI.

ALTERNATORS

Two 50-ampere, 24-volt, gear-driven alternators are standard equipment.

The alternators are controlled by two fully transistorized electronic voltage regulators, one regulator servicing as a standby. When switched into the circuit, either regulator will automatically adjust alternator output to the required electrical load, including battery recharging. The voltage regulator selector switch is installed on a panel beneath the electrical panel. A placard at the bottom of the electrical panel indicates selector switch positions 1 and 2.

Individual alternator output is indicated by two direct reading ammeters (as opposed to the charge-discharge type ammeter) on the instrument panel. The ammeters also serve as system loadmeters, since ammeter readings will increase or decrease in direct proportion to the electrical load applied.

A press-to-test overvoltage warning light on the instrument panel comes on whenever the alternators are disconnected from the aircraft bus by an overvoltage relay located forward of the instrument panel. Should an overvoltage condition occur, proceed as follows:

1. Check for a defective alternator.
   a. Turn off both alternators.
   b. Operate each alternator individually.
   c. If the overvoltage light does not illuminate with one alternator operating, shut off the other alternator and correct the discrepancy before the next flight.
2. Check for a defective voltage regulator.
   a. If an overvoltage condition is indicated with each alternator operating individually, switch to the standby regulator, either 1 of 2, as necessary.
   b. Again test each alternator separately, as described in Step 1.
   c. If the overvoltage condition persists, pull the alternator field circuit breaker located adjacent to the voltage regulator selector switch.
   d. Turn off both alternator switches.

e. Minimize electrical current consumption, since only battery power will now be available.

Refer to Section VI for minor maintenance of the alternators.

STARTERS

The starters are relay-controlled to minimize the length of heavy cable required to carry the high amperage of the starter circuit. They are actuated by rotary type, momentary-on switches incorporated in the magneto switches. To energize the starter circuit, rotate the magneto switch past the "BOTH" position.

INTERIOR LIGHTING

The cabin dome light is operated by an ON-OFF switch beside the light. The switches for the individual reading lights above the standard rear seats are located adjacent to the lights. Three rheostat switches are located on the control console. One switch adjusts the intensity of the red overhead lights for all instruments except those directly above the electrical panel. Lighting for these instruments is controlled by the second switch. The third switch regulates the lighting for the electrical panel, radio panel, and fuel selector panel, plus the trim tab and mechanical landing gear position indicators.

EXTERIOR LIGHTING

The switches for the navigation lights and landing lights, which are standard equipment, plus the switches for the optional rotating beacons, nose taxi light, and wing ice lights, are grouped along the top of the electrical panel. The navigation lights on the wing tips and tail cone are operated through a flasher unit designed to give steady lights if a malfunction of the flasher unit occurs. (The flasher unit is omitted on airplanes equipped with either the single or dual optional rotating beacon installation.) The landing lights in the leading edge of each wing tip are operated by separate switches. For longer battery and lamp service life, use the landing lights only when necessary; also avoid prolonged operation during ground maneuvering, which could cause overheating.

VACUUM SYSTEM

Suction for the vacuum-operated gyroscopic flight instruments is supplied by two engine-driven vacuum pumps, interconnected to form a single system. Should one side of the system fail, the check valves automatically close off that portion; either vacuum pump has sufficient capacity to operate all of the gyro instruments. A suction gage on the instrument panel indicates the amount of suction in the vacuum system in inches of mercury. Two red buttons on the gage serve as source failure indicators, each for its respective side of the system.

HEATING AND VENTILATING SYSTEM

CABIN HEATING

A combustion heater in the nose cone supplies heated air to five outlets in the cabin. Outlets are located forward of the pilot and copilot's seats, at the rear of the copilot's seat, and at the rear of the right hand passenger seat. The fifth outlet provides heated air for windshield defrosting.

In flight, ram air enters an intake on each side of the nose cone, passes through the heater, and is distributed to the cabin outlets. For ground operation, a blower maintains airflow through the system.

If a malfunction resulting in dangerously high temperatures should occur, a thermostat will ground a fuse in the heater power circuit. This renders the heater system, except the blower, inoperative. MAKE CERTAIN ANY MALFUNCTION CAUSING THE OVERHEAT FUSE TO BLOW IS CORRECTED BEFORE ATTEMPTING TO OPERATE THE HEATER AGAIN.

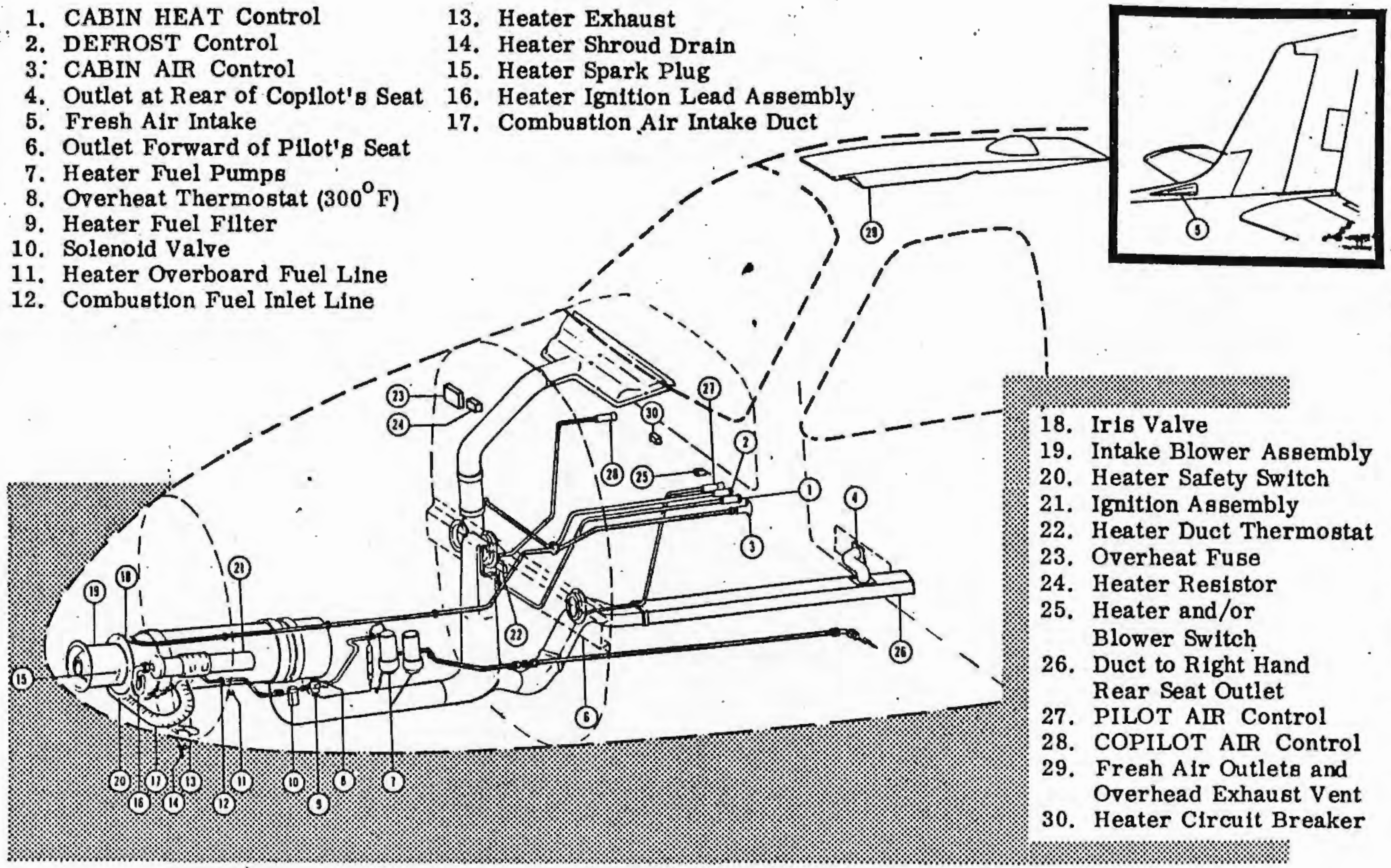
Heater Operation

1. A three-position switch, placarded BLOWER, OFF, and HEAT, is located on the electrical panel. To place the heating system in operation, move the switch to the HEAT position.
2. The CABIN AIR control, which regulates the amount of intake air, is below the left hand side of the electrical panel. Push the CABIN AIR control full forward.
3. Pull out the CABIN HEAT control to the right of the CABIN AIR control to raise the temperature of the heated air. Push the CABIN HEAT control in to decrease temperature.
4. For windshield defrosting, push in the DEFROST control located to the right of the CABIN HEAT control.
5. To direct heated air onto the pilot's feet, pull out the PILOT AIR control to the right of the DEFROST control.
6. The COPILOT AIR control, identical to the PILOT AIR control, is located below the right hand side of the instrument panel.

Heat Regulation

For maximum heat, the CABIN AIR control can be pulled partially out to reduce the volume of incoming cold air and permit the heater to raise the temperature of the admitted air. However, if the CABIN

HEATING AND VENTILATING SYSTEM



1. CABIN HEAT Control
2. DEFROST Control
3. CABIN AIR Control
4. Outlet at Rear of Copilot's Seat
5. Fresh Air Intake
6. Outlet Forward of Pilot's Seat
7. Heater Fuel Pumps
8. Overheat Thermostat (300^{o}F)
9. Heater Fuel Filter
10. Solenoid Valve
11. Heater Overboard Fuel Line
12. Combustion Fuel Inlet Line
13. Heater Exhaust
14. Heater Shroud Drain
15. Heater Spark Plug
16. Heater Ignition Lead Assembly
17. Combustion Air Intake Duct
18. Iris Valve
19. Intake Blower Assembly
20. Heater Safety Switch
21. Ignition Assembly
22. Heater Duct Thermostat
23. Overheat Fuse
24. Heater Resistor
25. Heater and/or Blower Switch
26. Duct to Right Hand Rear Seat Outlet
27. PILOT AIR Control
28. COPILOT AIR Control
29. Fresh Air Outlets and Overhead Exhaust Vent
30. Heater Circuit Breaker

AIR control is pulled out more than halfway, the heater will not operate.

The volume of air available for the pilot outlet and the copilot outlet can be divided between the two outlets as desired by adjusting each control individually.

More heated air will be available for defrosting by reducing the flow of air from the pilot outlet, copilot outlet, or both.

The PILOT AIR and the COPILOT AIR controls can be used to regulate the amount of air distributed to the two rear outlets.

Heater Blower

When the three-position switch on the electrical panel is placed in either the HEAT position or the BLOWER position, the blower will operate if the landing gear is in the extended position and the CABIN AIR control is more than halfway in. The blower will automatically shut off if the landing gear is retracted or the CABIN AIR control pulled out approximately halfway.

CABIN VENTILATION

In flight, to provide unheated air for the same cabin outlets used for heating, push the CABIN AIR control forward.

For ventilation during ground operation, push the CABIN AIR control forward and place the three-position switch on the electrical panel in the BLOWER position.

Individual Fresh Air Outlets

Fresh ram air from an intake on the left side of the dorsal fairing is ducted to individual outlets above each seat, including the optional fifth and sixth seats. Each outlet can be positioned to direct the flow of air as desired. The volume of incoming air can be regulated by rotating the outlet.

Exhaust Vents

Cabin air exhaust vents are located aft of the radio speaker in the overhead panel and below the rear baggage compartment door. The exhaust vents are not adjustable.

STALL WARNING HORN

A stall warning horn on the cabin forward bulkhead sounds a warning signal while there is ample time for the pilot to correct his attitude. The horn is triggered by a sensing vane on the leading edge of the left wing and is equally effective at all flight attitudes, weights, and airspeeds. The signal is irregular and intermittent at first, but will become steady as the airplane approaches a complete stall.

SEATING

To adjust any of the four standard seats forward or aft, pull up on the release bar below the seat outboard corner and slide the seat to the desired position. The seat backs of all standard seats (except the pilot's) can be placed in any position from the vertical to the fully reclined by operating a release lever on the inboard side of the seat. The back of the pilot's seat can be placed in four positions.

Outboard armrests for all standard seats are built into the cabin sidewalls. A large center armrest for the front seats can be elevated or positioned flush with the seat cushions. The inboard armrests for the two standard rear seats can be folded into a stowed position behind the seat backs.

OPTIONAL INSTALLATIONS

PROPELLER ANTI-ICER SYSTEM (FLUID FLOW)

Ice is prevented from forming on the propeller blades by wetting the blade anti-icer boots with anti-icing fluid. The anti-icer pump delivers a constant flow of fluid from the supply tank to the blade boots. The pump is controlled by an ON-OFF switch. A gage indicates the amount of fluid in the supply tanks. System endurance is approximately two hours.

The system is designed to PREVENT the formation of ice. Always place the system in operation BEFORE ENCOUNTERING ICING CONDITIONS.

PROPELLER DEICER SYSTEM (ELECTRIC)

(Refer to the FAA Approved Airplane Flight Manual Supplement.) An electrically heated deicer bonded to each propeller blade utilizes the electrical power system of the airplane. Deicing is accomplished by heating portions of the deicers in a sequence controlled by a timer, which is operated by an ON-OFF switch. An ammeter indicates current drawn by the system.

To place the system in operation, move the propeller deicer switch to the ON position. The system ammeter should register 7 to 11 amperes. A small momentary deflection of the needle may be noticed approximately every 30 seconds; this is due to the switching action of the timer and is an indication of normal operation. The system can be operated continuously in flight; it will function automatically until the switch is turned off. Propeller unbalance can be relieved by varying rpm. Increase rpm briefly, then return to the desired setting. Repeat if necessary.

CAUTION

To minimize slip ring pitting, do not operate the system with the engines inoperative.

SURFACE DEICER SYSTEM

(Refer to the FAA Approved Airplane Flight Manual Supplement.) Deicer boots on the wing and empennage leading edges are inflated from the pressure side of the two engine-driven vacuum pumps. At all times except during inflation, the pumps apply vacuum to the boots. Through an electric timer, solenoid-operated control valves cause all of the boots to be inflated simultaneously. The timer is controlled by a three-position switch -- AUTOMATIC, OFF, and MANUAL -- located on the electrical panel. The AUTOMATIC and MANUAL positions are momentary. A gage is provided to indicate system pressure.

The three-position switch permits the boots to be inflated only partially or to remain fully inflated as long as desired. Momentary engagement of the AUTOMATIC position will cause the boots to inflate for five to eight seconds, then deflate and reach a vacuum hold-down condition. The MANUAL position will inflate the boots only as long as the switch is held in engagement; when the switch is released, the boots deflate. During inflation, the deicer system pressure gage should register approximately 15 to 18 psi. Sufficient pressure for operation of the system is available with one engine inoperative.

BEECHCRAFT OXYGEN SYSTEM

WARNING

Proper safety measures must be employed when using oxygen, or a serious fire hazard will be created. THERE MUST BE NO SMOKING WHILE THE OXYGEN SYSTEM IS IN USE.

1. To place the system in operation, SLOWLY open the shutoff valve on the oxygen console panel. (The shutoff valve on the oxygen cylinder must also be open).

CAUTION

If either shutoff valve is opened too rapidly, the regulator diaphragm may be ruptured, or other damage common to high pressure oxygen systems may occur.

2. Insert an oxygen mask plug-in coupling into an oxygen outlet.
3. Check for a flow of oxygen into the mask by closing off the opening from the breather bag to the mask, noting that the bag expands.
4. Adjust the oxygen mask to the face to prevent the escape of oxygen into the cabin.
5. To discontinue use of the system, close the shutoff valve on the oxygen console panel, and with one or more masks still plugged in, allow the oxygen to drain from that portion of the system, then unplug all masks.

FOLDING FIFTH AND SIXTH SEATS

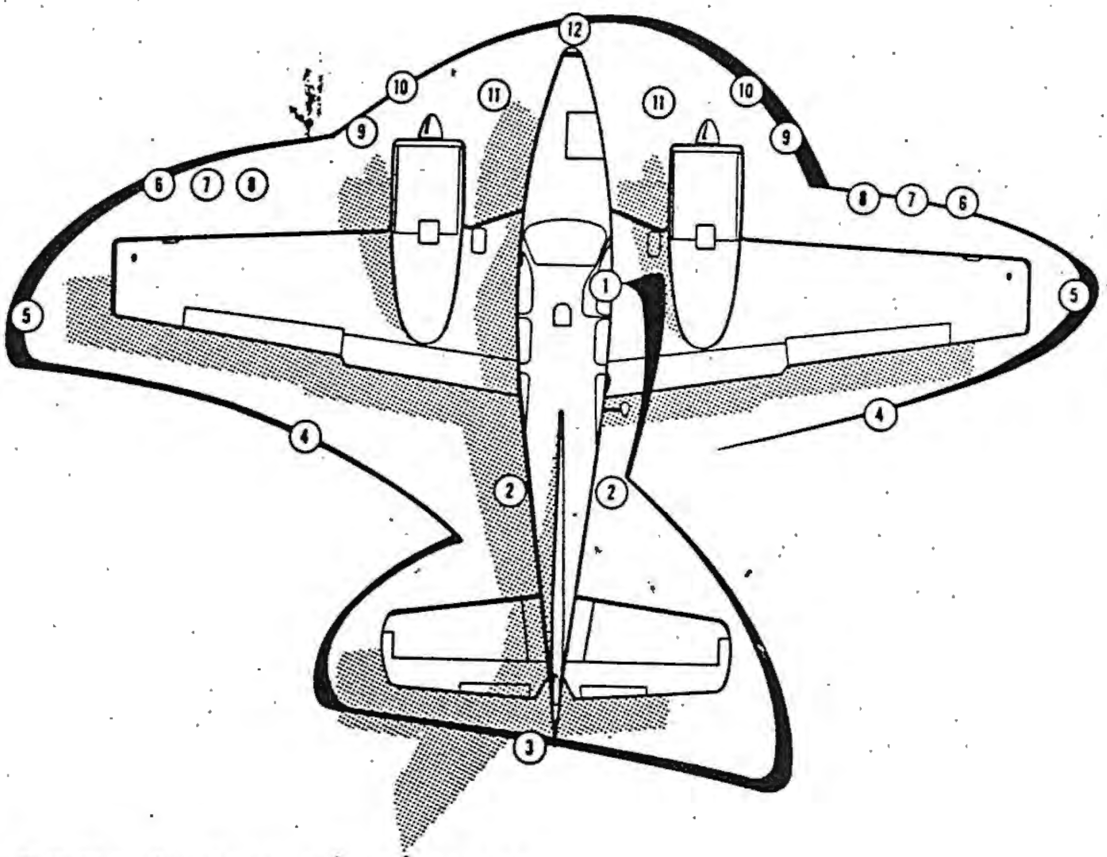
To insure proper loading, consult the Weight and Balance Section of the FAA Approved Airplane Flight Manual.

Seat removal can be accomplished as follows:

1. Remove the bolt and bracket securing each rear leg of the seat to the cabin floor.
2. Lift the seat back support tube from the brackets on each side of the cabin.

SECTION II
OPERATING CHECK LISTS

The following abbreviated check lists contain information essential for normal operation of your BEECHCRAFT Baron. This information is based on the recommendations and data compiled by Beech Aircraft Corporation pilots, and is intended to assist you in developing a systematic and safe flying technique. Made carefully, these checks will not only help prevent a mishap or malfunction, but will also aid in reducing maintenance costs.



PREFLIGHT INSPECTION

1. Magneto, battery, and alternator switches - OFF.
   Control lock - REMOVED.
2. Aft baggage compartment - CARGO SECURED.
   Static pressure buttons - CLEAN.
3. Empennage and control surfaces - CHECKED.
   Tie-down line - REMOVED.
4. Wings, ailerons and flaps - CHECKED.
5. Wing tips - CHECKED.
   Pitot cover(s) - REMOVED.
   Tie-down lines - REMOVED.
6. Fuel tanks FULL.
   Fuel filler caps - SECURE.
7. Fuel sumps, fuel system low spots, fuel strainers - DRAIN.
8. Tires - PROPER INFLATION.
   Shock struts - CLEAN AND PROPER INFLATION.
   Landing gear safety switch - CONDITION CHECKED.

9. No oil, fuel, or exhaust leakage on nacelles - CHECKED.
   Induction air scoop cover - REMOVED.
10. Propeller blades - CHECKED.
11. Engine oil level - CHECKED.
   Oil filler cap - SECURE.
   Cowling - SECURE.
12. Forward baggage compartment - CARGO SECURE.
   All inspection doors - SECURE.
   Heater fuel filter - DRAIN.

BEFORE STARTING CHECK

1. Parking brake - SET.
2. Battery and alternator switches - ON.
   (If external power is used, all switches - OFF).

CAUTION

The alternator control switches must be turned OFF prior to connecting an auxiliary power unit for starting, battery charging, or electrical equipment checkout. This procedure protects the voltage regulators and system electrical equipment from voltage transients (power fluctuations). Also, during cold weather starts, the alternator control switch should be turned OFF to minimize battery power drain.

3. All circuit breakers, switches and controls - CHECK.
4. Landing gear switch - DOWN.
5. Landing gear mechanical indicator - FULL DOWN.
6. Cowl flaps - OPEN.
7. Cowl flap position light - AMBER.
8. Induction air - UNFILTERED RAM or FILTERED, as ap-

plicable.

9. Fuel selector valves - MAIN TANKS.
10. Fuel quantity indicators - FULL.
11. Landing gear position lights - CHECKED.
12. Flap position lights - CHECKED.
13. Load distribution - CHECKED.

STARTING CHECK

1. Throttle position - approximately 1500 rpm.
2. Propeller controls - HIGH RPM.
3. Mixture - FULL RICH.
4. Fuel boost pump - HIGH.

   When fuel pressure stabilizes, fuel boost pump - OFF.
5. Engine starter - ENGAGE.

   In the event of a balked start (or overprime condition) place mixture in idle cut-off and open the throttle; operate the starter to remove excess fuel. As engine starts, reduce the throttle to idle rpm and place the mixture in FULL RICH.
6. Warm-up - 1000 to 1200 rpm.
7. All gage readings - NORMAL.
8. Using same procedure, start and warm up other engine.
9. External power (if used) - DISCONNECT.

   Battery and alternator switches - ON.

BEFORE TAKEOFF CHECK

CIGAR

(C - Controls, I - Instruments, G - Gas, A - Attitude Trim, R - Runup).

1. Fuel boost pumps - OFF.

   If ambient temperature is high - LOW PRESSURE BOOST.

(C) 2. Full travel and freedom of movement of controls - CHECKED.

(I) 3. All instruments - CHECKED.

(G) 4. Fuel gages - FULL.

(A) 5. Trim is set for takeoff - CHECKED.

(R) 6. Propellers - exercise at 2200 rpm.

NOTE

When exercising propellers in their governing range, do not move the control lever aft past the detent. To do so will allow the propeller to change rapidly to the full feathered position, imposing high stresses in the blade shank and engine.

7. Magnetos - With throttle at 1700 rpm on both magnetos, individual magnetos should be within 50 rpm of each other.
8. Propellers - Reduce throttles to 1500 rpm and check feathering action. Do not allow an rpm drop of more than 500.
9. Open throttles individually and set mixture for field elevation takeoff power. Note static rpm.
10. Doors and windows - LOCKED.
11. All seat belts - FASTENED.
12. Parking brake - OFF.

BEFORE LANDING CHECK

GUMPS

(G - Gas, U - Undercarriage down, M - Mixture, P - Propeller, S - Seat Belts secure)

(G) 1. Fuel selector valves - MAIN TANKS.

NOTE

Auxiliary tanks are to be used for level flight only. Main tanks are to be used for takeoff and landing. Fuel boost pumps - OFF or LOW as per ambient temperature.

(U) 2. Landing gear - DOWN.
Landing gear indicators - DOWN.

(M) 3. Mixture - FULL RICH.

(P) 4. Propellers - HIGH RPM.

(S) 5. Seat belts - SECURE.

6. Flaps - AS REQUIRED.

7. Cowl flaps - CLOSED until after landing.

SHUT-DOWN CHECK

1. Parking brake - SET. (Release parking brake and install wheel chocks if airplane is to be parked for more than a few hours.)
2. Electrical and radio equipment - OFF.
3. Propellers - HIGH RPM.
4. Throttles - CLOSED.
5. Fuel boost pumps - OFF.
6. Mixture - IDLE CUT-OFF.
7. Magneto switches - OFF after engines stop.
8. Battery and alternator switches - OFF.
9. All switches - OFF.
10. Controls - LOCKED.

NOTE

Induction air scoop covers are included in the loose tools and accessories to prevent foreign matter from entering the air scoops while the airplane is parked.

SECTION III
NORMAL PROCEDURES

Use your horsepower calculator to arrive at rpm and manifold pressure for cruising flight. Note that the manifold pressure required to obtain a given horsepower will vary with outside air temperature. When increasing power, set rpm first, then manifold pressure. Make power reductions with manifold pressure first, then rpm.

STARTING

Make sure that the area around the propellers is clear and free from loose objects. Avoid operating the engines on loose gravel or sand.

Either engine may be started first. Refer to starting check list in Section II.

Each cranking period should be limited to ten seconds of operation. A five-minute cooling interval between cranking periods will extend starter life.

After the engine is started, check for oil pressure indication. If no pressure is shown in 30 seconds, stop the engine and investigate. After oil pressure reaches normal indication, adjust engine speed to recommended warm-up rpm, then start the remaining engine using the same procedure.

TAXIING

NEVER TAXI WITH A FLAT SHOCK STRUT.

To taxi, release the parking brake control and allow the aircraft to roll forward. Check the brakes by applying them several times lightly. Govern your taxi speed with throttle coordination. Most turns can be made with the steerable nose wheel and the throttles. Tight turns can be accomplished by applying a combination of inside brake and outside power. Hold the control column full back to reduce weight and relieve loads on the nose gear assembly.

ENGINE WARM-UP

(Use Before Takeoff Check List - Section II)

To avoid propeller damage, do not perform engine run-ups on loose gravel.

If there is a difference of more than 50 rpm between the right and left magnetos or the rpm drop is excessive for either magneto, continue to warm up the engines a minute or two longer, then recheck magnetos.

TAKEOFF

For takeoff from fields at higher altitudes, the mixture should be adjusted for field elevation to insure maximum engine power. Full throttle operation is recommended during takeoff to minimize takeoff roll.

OBSTACLE TAKEOFF

Use 15 degrees of wing flap and set the elevator trim between 0 and 3 points NOSE UP, as required. Apply full power and release the brakes. Hold the airplane in a near level flight attitude during the takeoff run until 78 mph (68 kts) IAS is attained, then smoothly and positively apply back pressure to assume a nose-high climb angle. After you have positively cleared the ground, retract the landing gear and climb out. When the obstacle is cleared, level off, retract the wing flaps, and accelerate to normal climb speed.

CLIMB

Refer to the maximum two-engine climb and cruise climb graphs in Section V. For the best rate of climb which will give the greatest gain in altitude per unit of time, maximum continuous power is required. Hold the best rate-of-climb speed for your altitude, as shown on the Maximum Two-Engine Climb Speed Graph. For cruising climb, establish a power configuration of 2500 rpm and 25 inches Hg, full throttle above 5000 feet, with an airspeed of approximately 160 mph (139 kts) IAS.

CRUISE

There is no "best cruise power setting for all flights." Your choice of power settings will depend on load, temperature, altitude and perhaps most important, the purpose of your flight.

Once cruising altitude is reached, compute the desired power with your horsepower calculator. Remember, the horsepower calculator is based on outside air temperature as read from the outside air temperature gage.

Normal cruise control should be used for all flying when weather and distance are well within the normal operating limitations of the aircraft and its pilot. Level flight cruise operations should be at the lowest power that will satisfy the speed requirements. Observing these limits will normally result in the optimum balance between aircraft performance and overall operation economy. The Cruise Operation Graph in Section V will be helpful in obtaining the desired performance.

Synchronize the propellers and make final mixture adjustments by leaning the mixture to the fuel flow (noted on the horsepower calculator) that corresponds with the power setting that is being used.

The fuel selector valves may be positioned to use fuel as desired while normal cruising operations are continued.

STALLS

The stall warning indicator gives aural indication of an impending stall approximately 5 to 10 mph above the stall.

MAXIMUM ENDURANCE

If circumstances demand that you stay aloft as long as possible, you can decrease fuel consumption by leaning the mixture beyond the best power setting. HOWEVER, OPERATING YOUR ENGINES IN THIS MANNER COULD RESULT IN REDUCED ENGINE LIFE OR ENGINE DAMAGE. As you lean past best power, your airspeed will drop and the engines will operate slightly rough. Advance the mixture just enough to stabilize your airspeed.

Obtaining maximum endurance is an efficient operation only in terms of fuel consumption per hour - for example, in a holding pattern. With reduced power the angle of attack of the wing must be increased to maintain lift. This, in turn, produces increased drag and low flight speeds. In terms of miles per gallon of fuel consumed the procedure is inefficient.

OBSTACLE LANDING

A slow power approach with full flaps is desired. A general procedure would be:

1. Plan a longer than normal final.
2. Lower flaps to the FULL position after turning base leg.
3. Set up 89 mph (77 kts) IAS power approach. Trim.
4. Use power to control the rate of sink.
5. Cut power on touchdown.
6. Lower the nose wheel and retract flaps immediately.
7. Apply brakes as required. Remember that excessive braking on unimproved surfaces may place major stress on the nose gear.

COLD WEATHER OPERATION

PREFLIGHT INSPECTION

In addition to the normal preflight exterior inspection, remove ice, snow, and frost from the wings, tail, control surfaces and hinges, propellers, windshield, fuel cell filler caps, fuel vents, and crankcase breathers. If you have no way of removing these formations of ice, snow, and frost, leave the aircraft on the ground, as these deposits will not blow off. The wing contour may be changed by these formations sufficiently that its lift qualities are considerably disturbed and sometimes completely destroyed. Complete your normal preflight procedures, including a check of the flight controls for complete freedom of movement.

Conditions for accumulating moisture, in both the engine oil sumps and the fuel cells are most favorable at low temperatures due to the condensation increase in each and the moisture that enters as the systems are serviced. Therefore, close attention to draining the fuel system and oil sumps will assume particular importance during cold weather.

ENGINES

Use engine oil in accordance with the Consumable Materials Chart in Section VI. If considerable cold weather flying is anticipated, it is recommended that winter front baffles be installed to maintain normal engine operating temperatures. Always pull the propeller through by hand several times to clear the engine and "limber up" the cold, heavy oil before using the starter. This will also lessen the load on the battery if an auxiliary power unit is not used.

Under very cold conditions, it may be necessary to preheat the engines prior to a start. Particular attention should be applied to the oil cooler and engine sump to insure proper preheat. A start with congealed oil in the system may produce an indication of normal pressure immediately after the start, but then the oil pressure may decrease when residual oil in the engine is pumped back with the congealed oil in the sump. If an engine heater capable of heating both the engine sump and cooler is not available, the oil should be drained while the engines are hot and stored in a warm area until the next flight.

If the airplane is equipped with the optional external power receptacle, it is advisable to use external power for starting when available. Refer to Section VI for information concerning use of external power.

Normal engine starting procedures will ordinarily be used except it may be necessary to leave the fuel boost pump on until the engine starts. If there is no oil pressure within the first 30 seconds of running, or if oil pressure drops after a few minutes of ground operation, shut down and check for broken oil lines, oil cooler leaks or the possibility of congealed oil.

During warm-up, watch engine temperatures closely, since it is quite possible to exceed the cylinder head temperature limit in trying to bring up the oil temperature. Exercise the propellers several times to remove cold oil from the pitch change mechanisms. The propellers should also be cycled occasionally in flight.

During letdown and landing, give special attention to engine temperatures, since the engines will have a tendency toward overcooling.

TAXIING

Avoid taxiing through water, slush or muddy surfaces if possible. Water, slush or mud, when splashed on the wings and tail surfaces may freeze, increasing weight and drag and perhaps limiting control surface movement.

INDUCTION SYSTEM ICING

The possibility of induction system icing is reduced by the non-icing characteristics of fuel injection engines and the Baron's automatic alternate air source. The only possible ice accumulation is impact ice at the ram air scoop and filter. While operating on UNFILTERED RAM or FILTERED air, should the ram air scoop or filter become clogged with ice, a spring-loaded door on the induction air box will open automatically and the induction system will operate on ALTERNATE.

ICING CONDITIONS EQUIPMENT

Refer to Section I for a description of the optional anti-icer and deicer systems. The emergency static air source (standard equipment) is discussed in Section IV.

SECTION IV
EMERGENCY PROCEDURES

The following information is presented to enable you to form, in advance, a definite plan of action for coping with the most probable emergency situations which could occur in the operation of your airplane. Where practicable, the emergencies requiring immediate corrective action are treated in check list form for easy reference and familiarization. Other situations, in which more time is usually permitted to decide on and execute a plan of action, are discussed at some length.

SINGLE-ENGINE OPERATION

Two major factors govern single-engine operation; airspeed and directional control. The airplane can be safely maneuvered or trimmed for normal hands-off operation and sustained in this configuration by the operative engine AS LONG AS SUFFICIENT AIRSPEED IS MAINTAINED.

BEST SINGLE-ENGINE RATE-OF-CLIMB SPEED, 116 MPH (101 KTS) IAS

The best single-engine rate-of-climb speed is the airspeed which delivers the greatest gain in altitude in the shortest possible time with gear up, flaps up, and inoperative propeller feathered. The best single-engine rate-of-climb speed at sea level is indicated by the blue line on the airspeed indicator. The variation in best single-engine rate-of-climb speed with altitude is shown on the Single-Engine Climb Speed Graph in Section V.

BEST SINGLE-ENGINE ANGLE-OF-CLIMB SPEED, 103 MPH (90 KTS) IAS

The best single-engine angle-of-climb speed is the airspeed which delivers the greatest gain in altitude in the shortest possible horizontal distance with gear up, flaps up, and inoperative propeller feathered.

MINIMUM SINGLE-ENGINE CONTROL SPEED, 92 MPH (80 KTS) IAS

The minimum single-engine control speed is the airspeed below which the airplane cannot be controlled in flight with one engine operating at takeoff power and the other engine with its propeller windmilling. THIS SPEED IS BELOW THE SPEED AT WHICH THE AIRPLANE WILL CLIMB.

DETERMINING INOPERATIVE ENGINE

When an engine fails, apply all available power immediately: ALL SIX LEVERS FULL FORWARD. The following checks will help determine which engine has failed:

1. DEAD FOOT - DEAD ENGINE. The rudder pressure required to maintain directional control will be on the side of the good engine.
2. CYLINDER HEAD TEMPERATURE GAGE. The gage for the inoperative engine will immediately indicate a below normal reading.
3. THROTTLE. Partially retard the throttle for the engine that is believed to be inoperative; there should be no change in control pressures or in the sound of the engine if the correct throttle has been selected. AT LOW ALTITUDE AND AIR-

SPEED THIS CHECK MUST BE ACCOMPLISHED WITH EXTREME CAUTION.

Do not attempt to determine the inoperative engine by means of the tachometer or the manifold pressure gages. After power has been lost on an engine the tachometer will often indicate the correct rpm and the manifold pressure gage will frequently indicate approximately atmospheric pressure or above.

NORMAL SINGLE-ENGINE PROCEDURE

After determining the inoperative engine, if your airspeed is at or above best single-engine rate-of-climb speed, 116 mph (101 kts) IAS, use the following shut-down procedure. The overall goal of the steps is to reduce unnecessary drag in as short a time as possible.

1. Use takeoff power to obtain or maintain desired altitude and airspeed. Apply rudder to sustain directional control. Bank approximately 5 degrees into the heavy rudder.
2. Retract the landing gear.
3. Pull the INOPERATIVE engine's propeller and mixture controls BACK into the full feathered and idle cut-off positions.
4. Retract wing flaps gradually if in use.
5. Close the cowl flap on the inoperative engine.
6. Select UNFILTERED RAM air for the operating engine.
7. As the propeller feathers and stops rotating, turn off the applicable alternator and magneto switches.
8. Fuel selector valve for inoperative engine - OFF; fuel boost pump - normally OFF.
9. Turn off all unnecessary electrical equipment to prevent battery drain.
10. Maintain takeoff power until a safe altitude is attained and/or single-engine procedures and checks are satisfactorily accom-

plished. Select a cruise power setting for the operative engine to maintain minimum speed for hands-off trim on one engine.

11. Set rudder trim for single-engine flight and hold the wing on the inoperative engine side 3 to 5 degrees high.
12. Land as soon as practicable.

BEFORE SHUT-DOWN CHECK

If you have a safe altitude, and unless the cause of engine failure is apparent and cannot be remedied, the following checks may be accomplished in addition to the preceding normal single-engine procedure. These checks should be made prior to feathering the propeller and turning off the magneto switch for the inoperative engine.

1. Check fuel flow; if deficient, turn fuel boost pump on HIGH.

NOTE

Although near maximum engine performance can be obtained with an inoperative engine-driven fuel pump, operation should be limited to as short a time as possible. Using full throttle and a lower rpm is helpful so long as manifold pressure limits are not exceeded. Refer to the Manifold Pressure Vs. RPM Graph in Section V. Low cruise setting can be used indefinitely, as sufficient fuel flow will be available.

2. Check fuel quantity; switch to another fuel cell if necessary.
3. Check oil pressure and temperature; shut down the engine if oil pressure is low.
4. Check magneto switch.

RESTARTING INOPERATIVE ENGINE IN FLIGHT

Prior to restart of an engine that has failed, the cause of failure should be located and corrected. It may be advisable to continue on one engine rather than to risk ruining an engine that may need only minor repairs. In low outside temperatures, a restart should be completed within a few minutes after shutdown, since cold oil in the governor passages and propeller may impede unfeathering.

For engine to be started:

1. Fuel selector valve - on MAIN or AUXILIARY.
2. Throttle - set for approximately 1500 rpm.
3. Mixture - FULL RICH below 5000 feet; above 5000 feet adjust control in 1/2 to 3/4 of its travel.
4. Propeller control - move well into the governing range.
   a. WITHOUT UNFEATHERING ACCUMULATORS: Turn fuel boost pump on HIGH until fuel pressure stabilizes, then turn pump OFF and engage starter. If engine fails to run and unfeather propeller, place mixture in IDLE CUT-OFF and operate starter to remove excess fuel. When engine fires, advance mixture to FULL RICH.
   b. WITH UNFEATHERING ACCUMULATORS: fuel boost pump will not normally be required. Move the propeller control well forward, and to avoid an overspeed condition, return the control to the HIGH PITCH (low rpm) position as soon as the propeller starts to windmill. Momentary use of the starter to initiate rotation will be necessary only at low airspeeds.
5. As soon as engine starts, adjust throttle and propeller controls to prevent an engine overspeed condition. Turn fuel boost pump OFF (if on). Check fuel and oil pressure; if either deviates from normal, abandon restarting. Refeather and secure engine.
6. Warm up engine at approximately 2000 rpm and 15 inches manifold pressure. Observe oil pressure closely; if not normal in 30 seconds, shut down and refeather.

7. When oil and cylinder head temperatures are normal, apply normal power. Set rpm first, then open throttle. Retrim as necessary.

ENGINE FAILURE DURING TAKEOFF

The most common conditions that might be encountered and the recommended corrective action for each is discussed. The Distance Vs. Decision Speed Graph in Section V gives the decision speed and the accelerate and stop distance for the maximum load condition.

If engine failure occurs during takeoff:

1. If sufficient runway remains for deceleration, CUT POWER IMMEDIATELY AND STOP STRAIGHT AHEAD.
2. If sufficient runway does not remain and you have not gained best single-engine angle-of-climb speed, 103 mph (90 kts) IAS, use the following procedure:
   a. Throttles - CLOSED.
   b. Battery and alternator switches - OFF.
   c. Fuel selector valves - OFF.
   d. Land.
3. If sufficient runway does not remain but you have gained best single-engine angle-of-climb speed, 103 mph (90 kts) IAS, and are airborne, IMMEDIATELY CLEAN UP THE AIRPLANE (RETRACT LANDING GEAR, FEATHER WINDMILLING PROPELLER) AND FOLLOW NORMAL SINGLE-ENGINE PROCEDURE.

NOTE

With the airplane clean you should be able to climb. With gear down, propeller windmilling, and cowl flaps open, you will not be able to maintain altitude.

PORTANT:

1. Apply full power and correct for yaw as the throttle is opened. Maintain best single-engine rate-of-climb speed, 116 mph (101 kts) IAS.
2. Retract the landing gear and close the cowl flap on the inoperative engine.
3. If wing flaps are full down, retract to 15 degrees.
4. Retract the remaining flap as soon as practicable to obtain maximum rate of climb.
5. Trim for single-engine climb.

SINGLE-ENGINE OPERATION ON CROSS-FEED

Use the fuel cross-feed system in level flight only. To use the fuel in the wing cells on the side of the inoperative engine:

1. Turn the fuel selector valve handle for the inoperative engine to the desired fuel cell, either main or auxiliary.
2. Place the fuel selector valve handle for the operating engine on CROSS-FEED.
3. If necessary, the fuel boost pump for the operative engine may be used (high pressure) to supplement the fuel injector pump.

See 1.10

ENGINE FIRE IN FLIGHT

Shut down the affected engine according to the following procedure and land immediately. Follow the applicable single-engine procedures in this section.

1. Fuel selector valve handle - OFF.
2. Mixture control - IDLE CUT-OFF.
3. Propeller control - FULL FEATHERED POSITION.
4. Fuel boost pump - OFF.

5. Magneto switch - OFF.
6. Alternator switch - OFF.

SIMULATED ONE-ENGINE-OUT PROCEDURE

One-engine-out conditions can be simulated with zero thrust power settings instead of complete engine shutdown. The three airspeeds on the accompanying graph are Vmc (minimum single-engine control speed), Vx (best single-engine angle-of-climb speed), and Vy (best single-engine rate-of-climb speed).

To set up a zero thrust condition for single-engine practice:

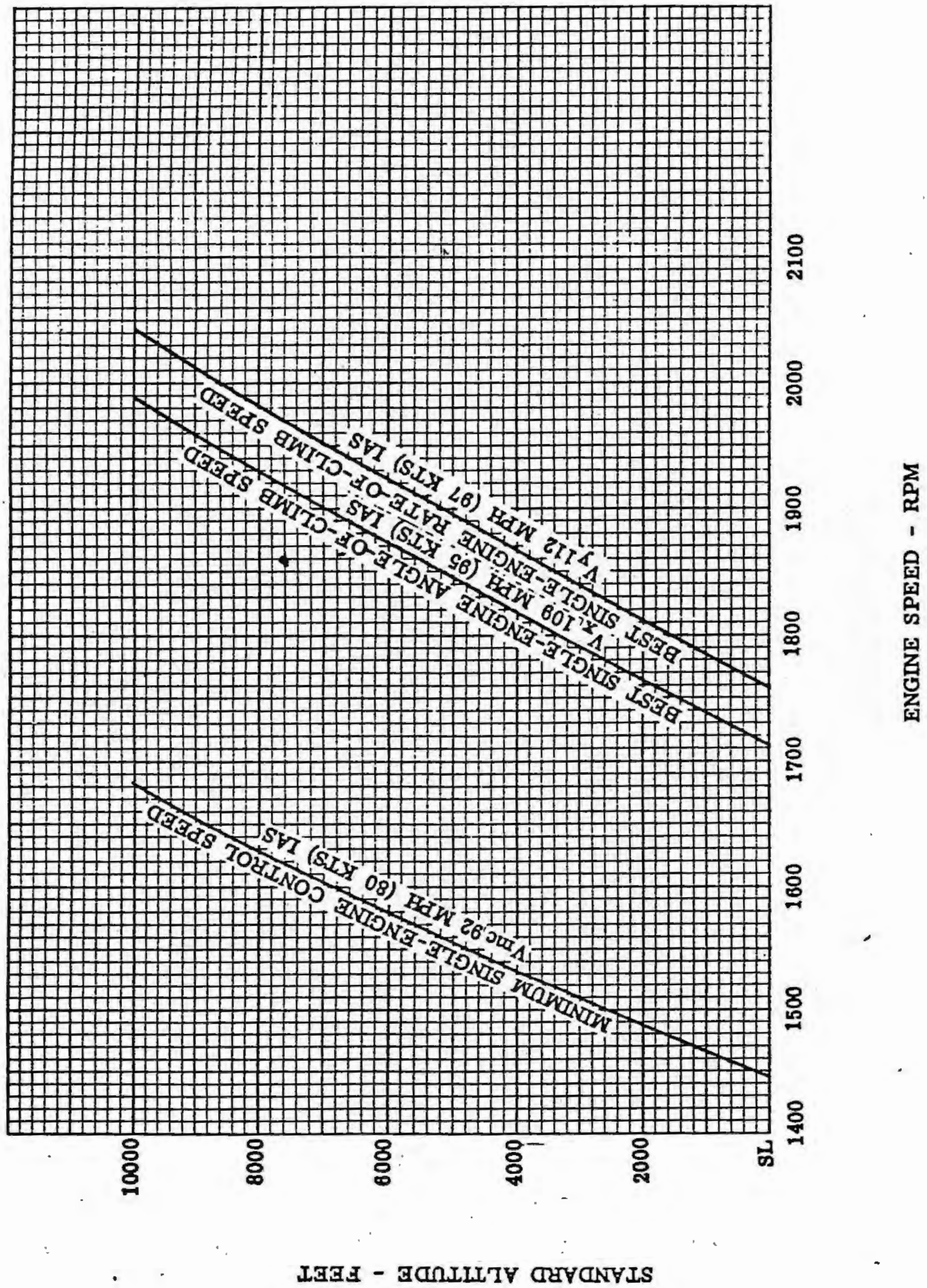
1. Observe your pressure altitude as indicated by the altimeter.
2. Observe the outside air temperature and compute the standard altitude.
3. From the standard altitude on the zero thrust graph read horizontally to the desired airspeed curve, either Vmc, Vx, or Vy, then read vertically to the required engine rpm.
4. Place the propeller control for the simulated inoperative engine in the FULL HIGH RPM position.
5. Retard the throttle for the simulated inoperative engine to the minimum throttle setting which produces the required rpm and airspeed determined in Step 3.
6. For recovery after the practice conditions, advance the throttle and retrim as necessary.

The engine speed for obtaining zero propeller thrust can be affected quite markedly by variations in atmospheric conditions and indicated airspeed. Care should be exercised in determining the standard altitude and setting up the zero thrust power at the proper rpm and minimum manifold pressure at the airspeed for the given condition.

GEAR-UP LANDING

If possible, choose firm sod. Make a normal approach, using flaps

ENGINE SPEED FOR ZERO THRUST



as necessary.

When you are sure of making the runway:

1. Throttles - CLOSED.
2. Mixtures - IDLE CUT-OFF.
3. Battery, alternator, and magneto switches - OFF.
4. Fuel selector valves - OFF.
5. Keep wings level during touchdown.

SPINS

If a spin is entered inadvertently:

1. Cut power on both engines.
2. Apply full rudder opposite the direction of rotation.
3. Ease control wheel forward.
4. When rotation stops and controls are fully effective, bring the nose up smoothly to a level-flight attitude. DO NOT PULL OUT ABRUPTLY.

Speed picks up rapidly in a nose-low attitude. During a pull-out be aware of the amount of control pressure used to complete a safe recovery in the altitude available, and the load you can apply to the structure. Avoid any abrupt maneuvering or sudden application of the controls during a "red line" speed condition.

LANDING GEAR MANUAL EXTENSION

Manual extension of the landing gear can be facilitated by first reducing airspeed.

1. Landing gear circuit breaker - PULLED.
2. Landing gear switch - DOWN position.
3. Remove safety boot from handcrank handle at rear of front seats. Engage handcrank and turn counterclockwise as far as

a. If it is necessary to clear obstacles, clean up airplane and maintain best single-engine angle-of-climb speed, 103 mph (90 kts) IAS.

b. If no obstacles are present, clean up airplane and accelerate to best single-engine rate-of-climb speed, 116 mph (101 kts) IAS.

c. After obtaining best single-engine rate-of-climb speed, return for landing.

The Single-Engine Rate-of-Climb Graph in Section V shows the climb performance for various altitudes, temperatures, and weights at best single-engine rate-of-climb speed. This graph is to be used with the Single-Engine Climb Speed Graph, which shows the variation in best single-engine rate-of-climb speed with altitude.

SINGLE-ENGINE LANDING

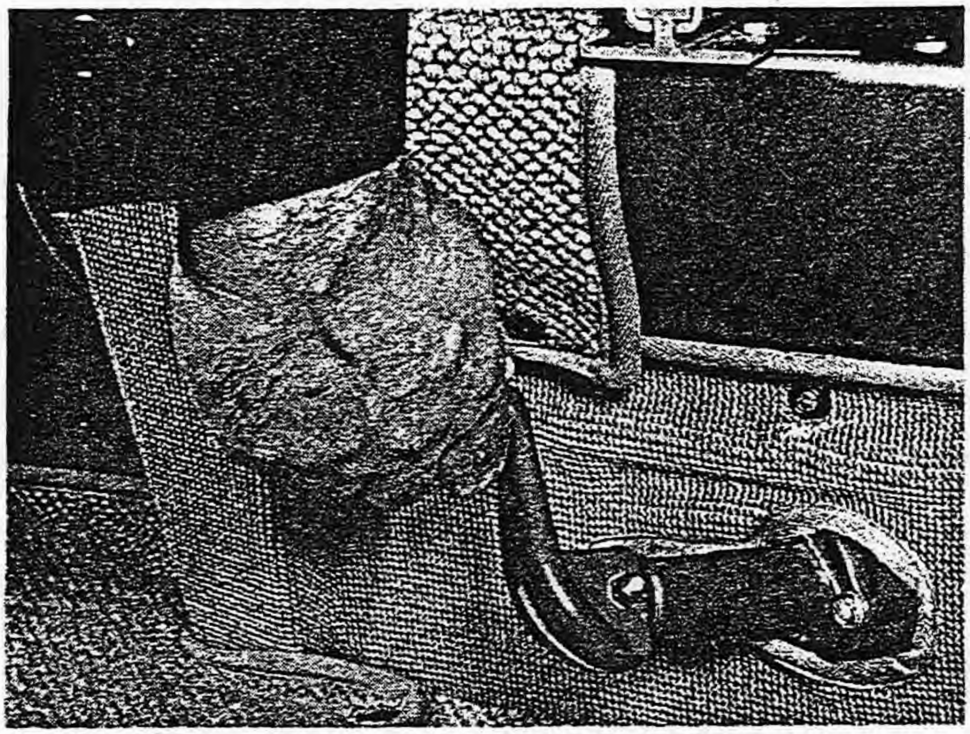
Approach speed should be 10 mph above normal approach speed. Lower the landing gear on final approach only. If a base leg is used, the gear may be lowered as you roll out of the turn on final. Do not lower the flaps until the gear is down and locked and you are sure of making the field. WITH FULL FLAPS AND GEAR DOWN, LEVEL FLIGHT CANNOT BE MAINTAINED AT FULL GROSS WEIGHT ON ONE ENGINE; UNLESS TIME WILL PERMIT YOU TO CLEAN UP THE AIRPLANE, DO NOT ATTEMPT TO GO AROUND.

SINGLE-ENGINE GO-AROUND

A SINGLE-ENGINE GO-AROUND MAY BE EXECUTED WHEN IT APPEARS THAT THIS IS THE ONLY WAY TO AVOID A POSSIBLE ACCIDENT. RAPID EXECUTION OF THE INDIVIDUAL STEPS IN THE FOLLOWING PROCEDURE IS VERY IMpossible (approximately 50 turns).

4. Check mechanical indicator to ascertain that gear is down.
5. If electrical system is operative, check landing gear position light and warning horn.
6. Disengage handcrank.

The manual extension system is designed only to lower the landing gear; do not attempt to retract the gear manually.



EMERGENCY STATIC AIR SOURCE

Should ice or other foreign matter obstruct the static air ports on the fuselage, close the pilot's storm window and place the emergency static air source control valve knob in the ON position. The knob is located on the upholstery panel forward of the pilot's seat. Airspeed and altimeter readings will generally be somewhat higher than normal. These instrument variations are provided in the FAA Approved Airplane Flight Manual. Keep the emergency static air valve fully closed (knob in OFF position) except when the source is required.

MAXIMUM GLIDE (FORCED LANDING)

Feather propellers and retract the wing flaps, landing gear, and cowl flaps. The glide ratio in this configuration is approximately 2 1/2 miles of gliding distance for each 1000 feet of altitude at an airspeed of 123 mph (107 kts) IAS.

UNLATCHED DOOR IN FLIGHT

If the cabin door is not locked it may come unlatched in flight. This usually occurs during or just after takeoff. The door will trail in a position 3 to 4 inches open, but the flight characteristics of the airplane will not be affected. Return to the field in a normal manner.

SECTION V
PERFORMANCE

The limitations and performance data in this section have been established by flight tests and engineering calculations to assist you in operating your airplane. The limitations have been approved by the FAA and are mandatory. Flight tests were conducted under normal operating conditions using average piloting techniques with the airplane and engines in good condition. In using the following data, allowance for actual conditions must be made.

AIRSPEEDS

TAKEOFF SPEEDS (IAS)

Normal Takeoff . . . . ~~102 mph~~/89 kts
Obstacle Takeoff . . . . ~~78 mph~~/68 kts

CLIMB SPEEDS (IAS)

Two-Engine

Cruising Climb Speed
(25 in. Hg at 2500 rpm,
gear and flaps up). . . . . ~~160 mph~~/139 kts

Best Rate-Of-Climb Speed, 5000 Ft.
(Gear and flaps up) . . . . ~~120 mph~~/104 kts
(Gear down). . . . . ~~106 mph~~/ 92 kts
(Gear and flaps down) . . . . ~~92 mph~~/ 80 kts

Best Angle-Of-Climb Speed, 5000 Ft.
(Gear and flaps up) . . . . ~~99 mph~~/ 86 kts
(Gear down). . . . . ~~94 mph~~/ 82 kts
(Gear and flaps down) . . . . ~~85 mph~~/ 74 kts

CLIMB SPEEDS (IAS) Contd.

Single-Engine

Best Rate-Of-Climb Speed, Sea Level (Gear and flaps up) . . . . ~~116 mph~~/101 kts

Best Angle-Of-Climb Speed, Sea Level (Gear and flaps up) . . . . ~~103 mph~~/ 90 kts

Minimum Control Speed . . . . . . ~~92 mph~~/ 80 kts

STALL SPEEDS (IAS)

GROSS WEIGHT 5300 LBS.	 LEVEL	 15°	 30°	 45°
POWER	GEAR AND FLAPS UP			
ON	67 mph (58 kts)	68 mph (59 kts)	72 mph (63 kts)	80 mph (70 kts)
OFF	91 mph (79 kts)	92 mph (80 kts)	98 mph (85 kts)	108 mph (94 kts)
	GEAR AND FLAPS DOWN			
ON	51 mph (44 kts)	52 mph (45 kts)	55 mph (48 kts)	61 mph (53 kts)
OFF	79 mph (69 kts)	80 mph (70 kts)	85 mph (74 kts)	94 mph (82 kts)

LANDING SPEEDS (IAS)

Normal

Approach . . . . ~~100 mph~~/87 kts

Contact . . . . ~~85 mph~~/74 kts

Obstacle

Approach . . . . ~~89 mph~~/77 kts

Contact . . . . ~~81 mph~~/70 kts

AIRSPEED LIMITATIONS (CAS)

Never Exceed (Glide or Dive, Smooth Air) (Red Radial) . . . . ~~257 mph~~/223 kts

Best Single-Engine Rate-Of-Climb Speed (Blue Radial) . . . . ~~114 mph~~/ 99 kts

Caution Range (Yellow Arc) . . ~~225 mph to 257 mph~~/195 kts to 223 kts

Design Cruising Speed (Level Flight or Climb) . . . . ~~225 mph~~/195 kts

Normal Operating Range (Green Arc). . . . ~~88 mph to 225 mph~~/76 kts to 195 kts

Full Flap Operating Range (White Arc) . . . . ~~77 mph to 140 mph~~/67 kts to 122 kts

Maximum Flap Extension Speed, 15°-Position . . . . ~~175 mph~~/152 kts

Maximum Design Maneuvering Speed . . ~~180 mph~~/156 kts

Maximum Gear Extended Speed . . . . ~~165 mph~~/143 kts

ENGINE LIMITATIONS

MAXIMUM POWER

(All Operations) . . . . 285 hp at 2700 rpm

ENGINE INSTRUMENT MARKINGS

Oil Temperature

- Caution (Yellow Radial) . . . . 75°F
- Normal (Green Arc) . . . . 75° to 240°F
- Maximum (Red Radial) . . . . 240°F

Oil Pressure

- Minimum Pressure (Red Radial) . . . . 30 psi
- Normal Operating Range (Green Arc) . . . 30 to 60 psi
- Maximum Pressure (Red Radial) . . . . . . 100 psi

ENGINE INSTRUMENT MARKINGS Contd.

Manifold Pressure

Normal Operating Range (Green Arc) . . 15" to 29.6" Hg

Maximum (Red Radial) . . . . 29.6" Hg

Cylinder Head Temperature

Normal Operation Range (Green Arc) . . 200° to 460°F

Maximum Tenperature (Red Radial) . . . . 460°F

Tachometer

Engine Warm-Up . . . . 1000 to 1200 rpm

Normal Operation (Green Arc) . . . 2000 to 2700 rpm

Maximum (Red Radial) . . . . 2700 rpm

Fuel Flow

Minimum (Red Radial) . . . . 1.5 psi

Cruise Power (Green Arc). . . . . 9.7 gph to 17.0 gph

Takeoff and Climb (Green Arc) . . 17.8 gph to 24.3 gph

Maximum (Red Radial) . . . . 17.5 psi

Suction

Minimum (Red Radial) . . . . 3.75" Hg

Normal (Green Arc) . . . . 3.75" Hg to 5.25" Hg

Maximum (Red Radial) . . . . 5.25" Hg

Red Button source failure indicators

MANEUVERS

Your Baron is licensed under normal category limitations and is intended for only nonaerobatic passenger and cargo operation. Only those maneuvers incidental to NORMAL flying including stalls (except whip stalls) and turns in which the angle of bank does not exceed 60° are permitted.

PERFORMANCE GRAPHS

TABLE OF CONTENTS

NORMAL TAKEOFF

DISTANCE OVER 50-FOOT OBSTACLE

ASSOCIATED CONDITIONS:

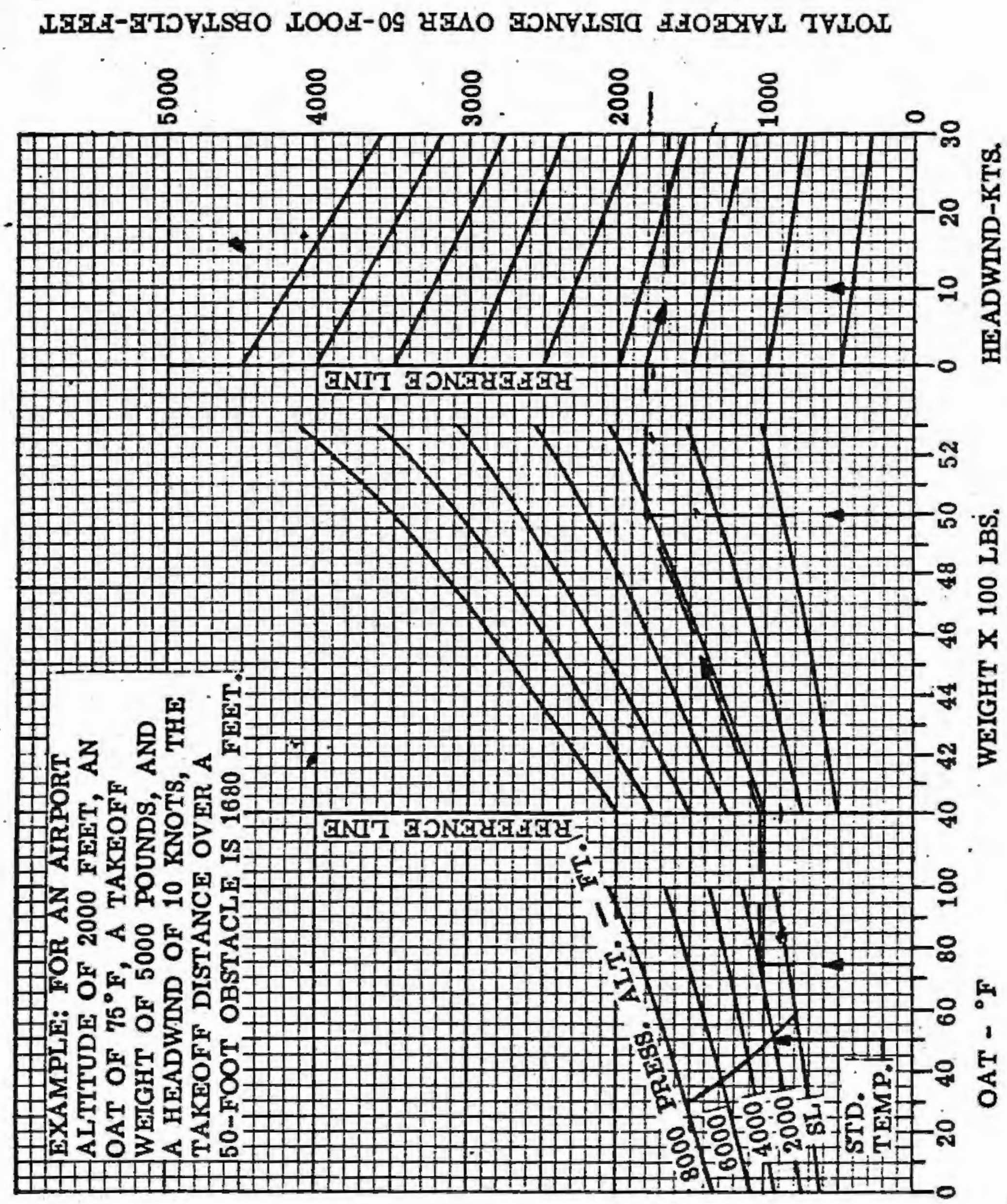
POWER ——— TAKEOFF POWER

FLAPS ——— UP

RUNWAY ——— PAVED, LEVEL, DRY SURFACE

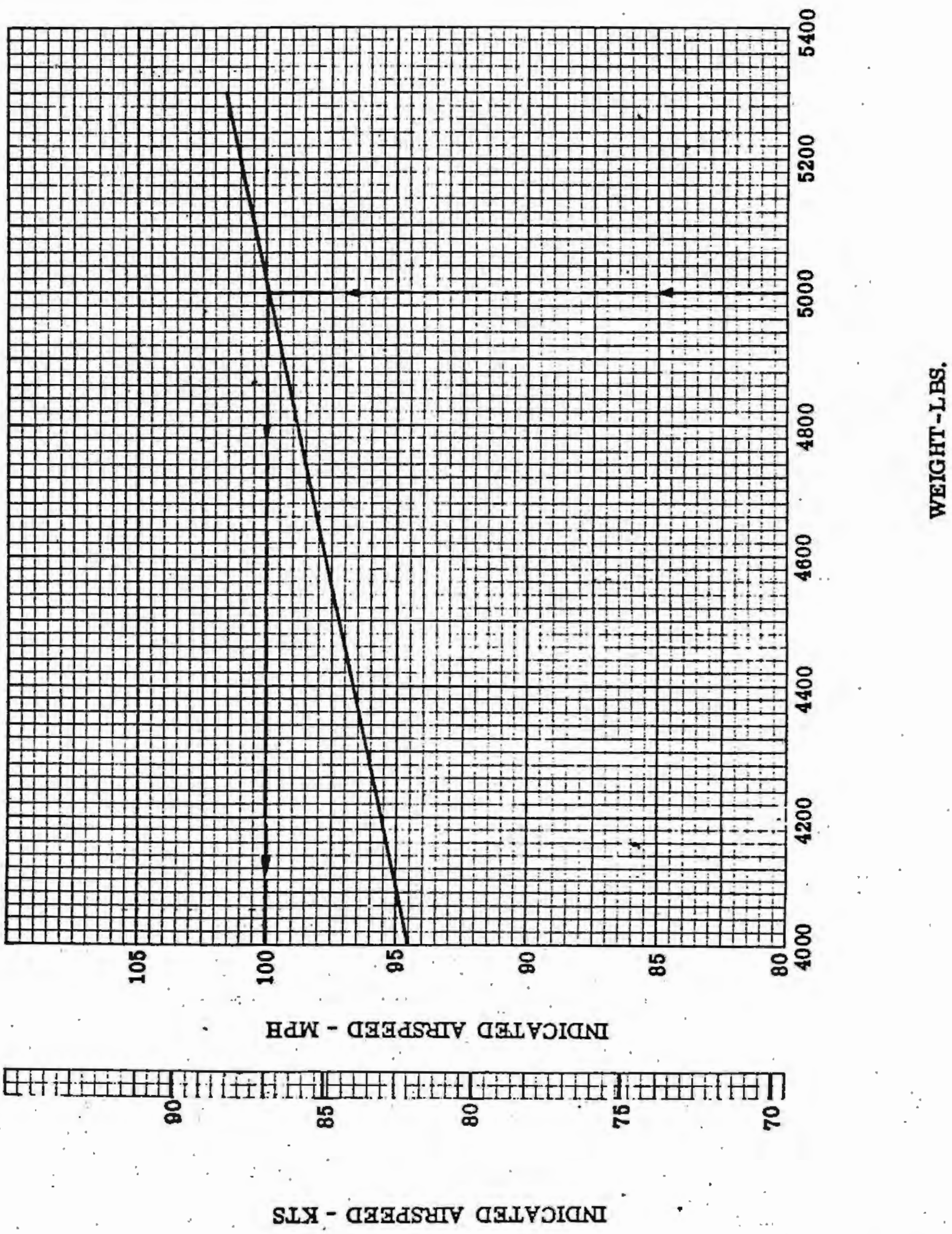
AIRSPEED ——— (SEE TAKEOFF SPEED GRAPH)

GROUND RUN ——— GROUND RUN IS APPROXIMATELY 82% OF DISTANCE OVER 50 FEET.



NORMAL TAKEOFF SPEED

EXAMPLE: FOR A TAKEOFF WEIGHT OF 5000 POUNDS, THE TAKEOFF SPEED IS 99.9 MPH (IAS).
NOTE: THE TAKEOFF SPEED IS MAINTAINED DURING CLIMB-OUT OVER 50 FEET.



OBSTACLE TAKEOFF

DISTANCE OVER 50-FOOT OBSTACLE

ASSOCIATED CONDITIONS:

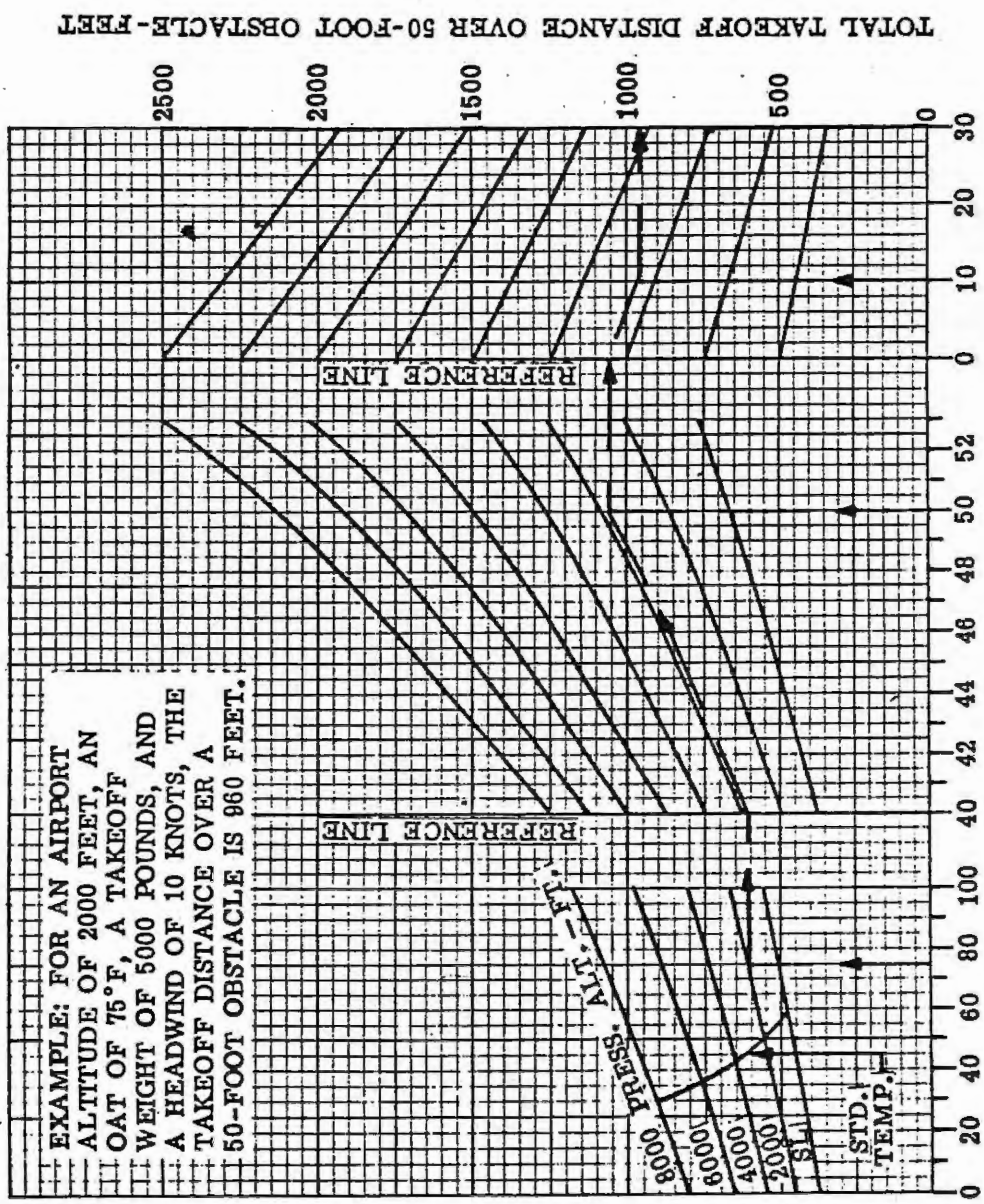
POWER ―――――――― TAKEOFF POWER

FLAPS ―――――――― 15°

RUNWAY ―――――――― PAVED, LEVEL, DRY SURFACE

AIRSPEED ―――――――― (SEE TAKEOFF SPEED GRAPH)

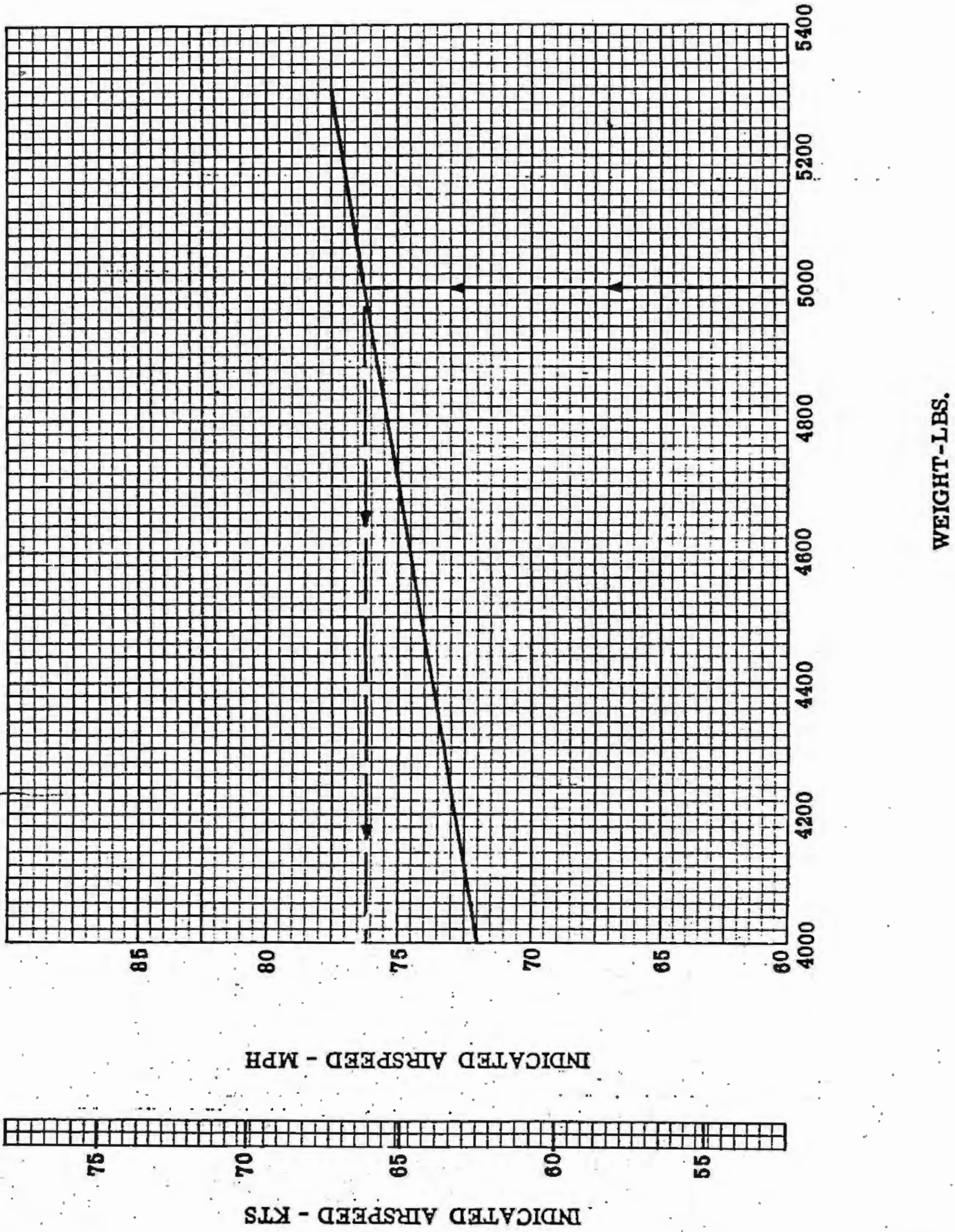
GROUND RUN ―――――――― GROUND RUN IS APPROXIMATELY 61% OF DISTANCE OVER 50 FEET.



OBSTACLE TAKEOFF SPEED

EXAMPLE: FOR A TAKEOFF WEIGHT OF 5000 POUNDS, THE TAKEOFF SPEED IS 76.2 MPH (IAS).

NOTE: THE TAKEOFF SPEED IS MAINTAINED DURING CLIMB-OUT OVER 50 FEET.



ACCELERATE AND STOP DISTANCE

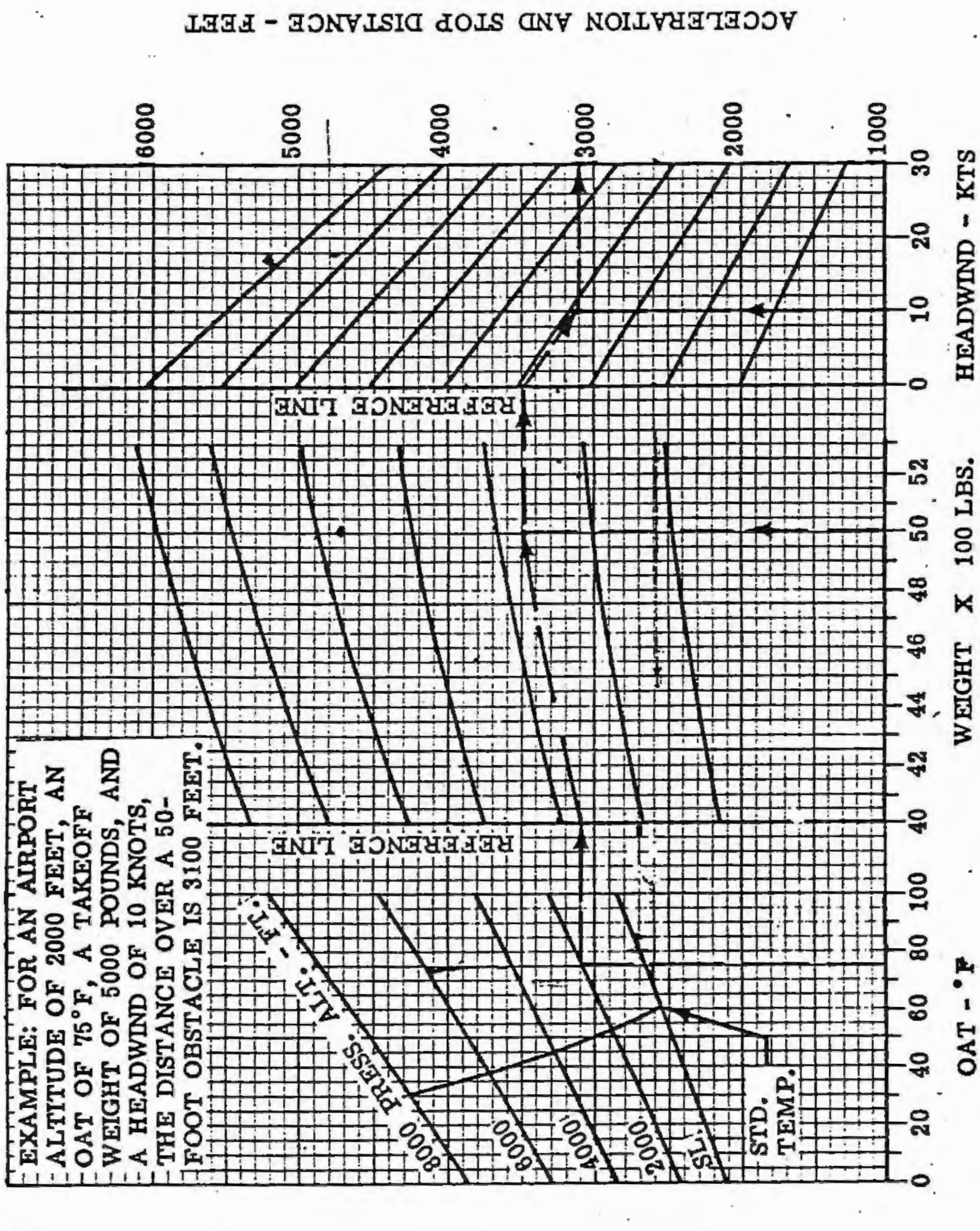
ASSOCIATED CONDITIONS

POWER ________ TAKEOFF POWER

FLAPS ________ UP

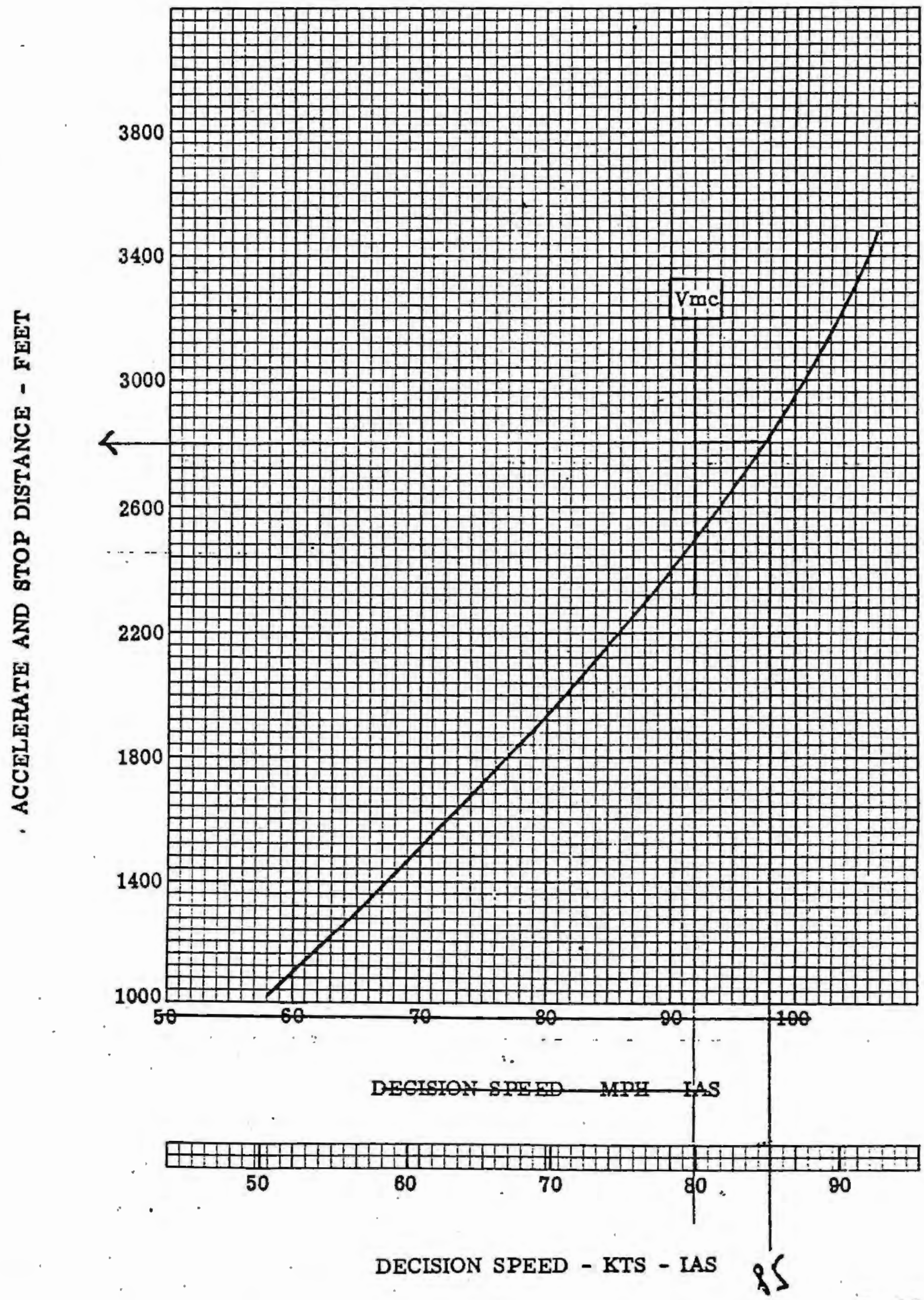
RUNWAY ________ PAVED, LEVEL, DRY SURFACE

AIRSPEED ________ (SEE NORMAL TAKEOFF SPEED GRAPH)



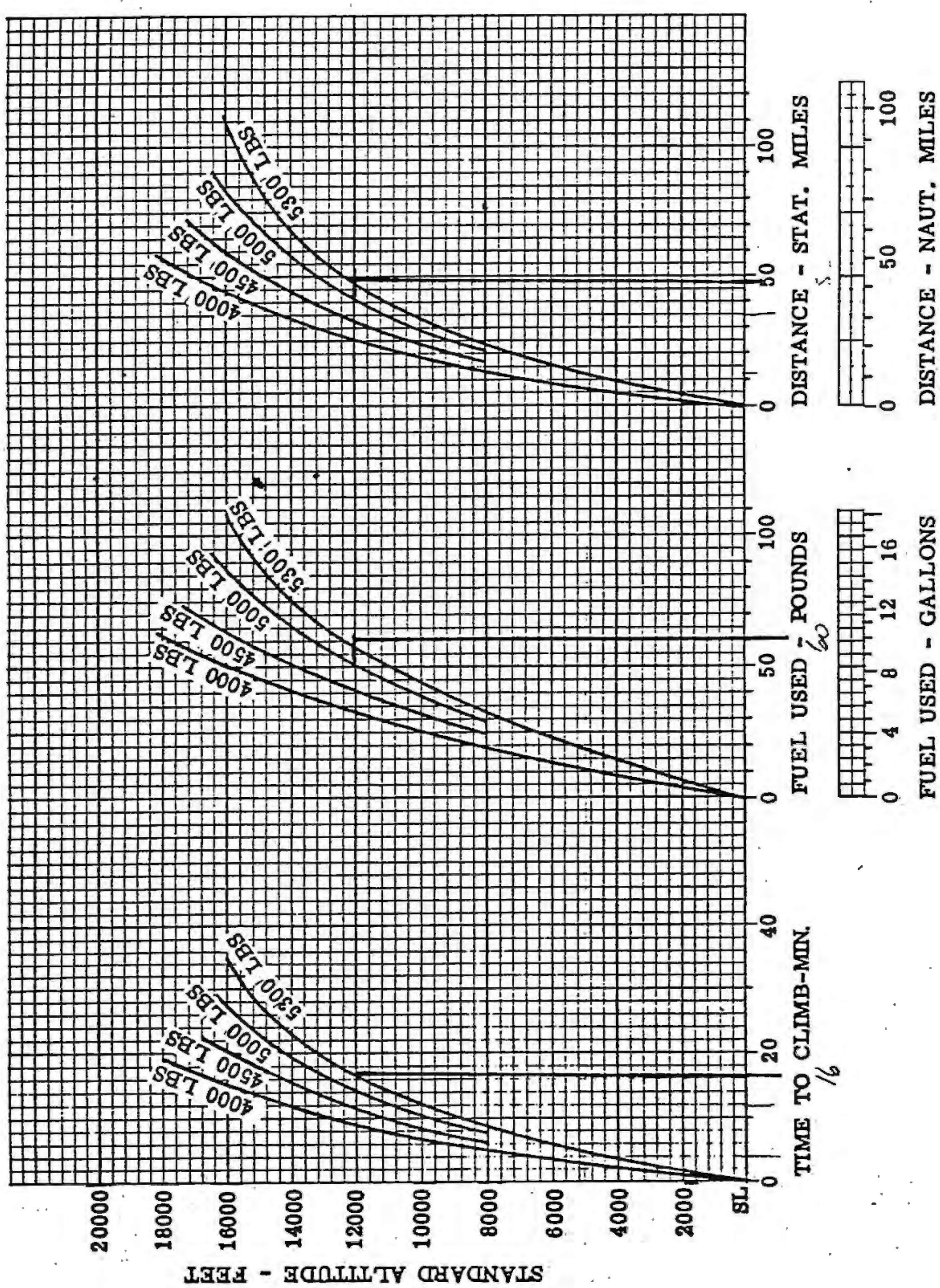
DISTANCE VS DECISION SPEED

GROSS WEIGHT 5300 LBS
FLAPS UP

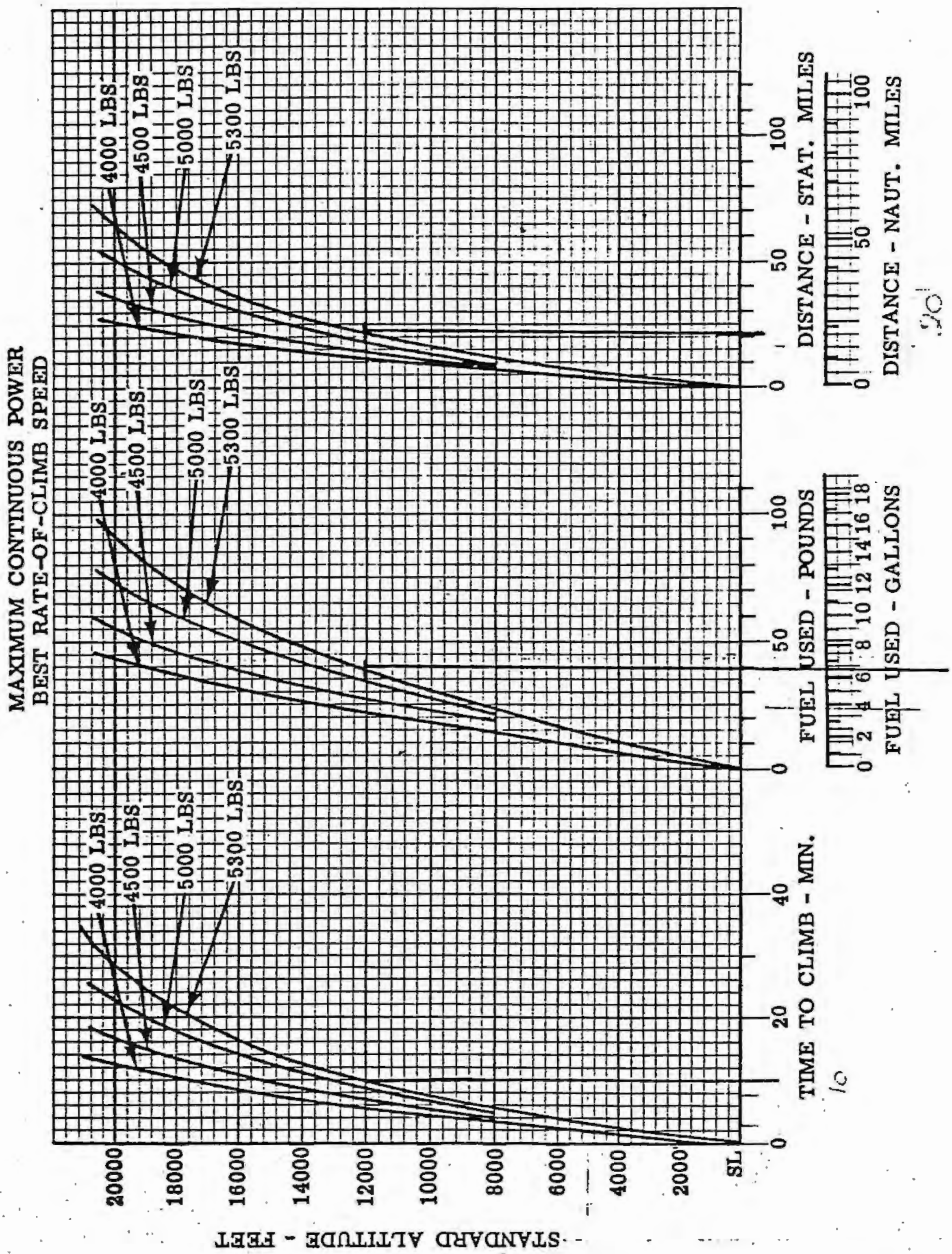


CRUISE CLIMB
TIME, FUEL, AND DISTANCE

CRUISE CLIMB POWER 25/25 RPM
CRUISE CLIMB SPEED

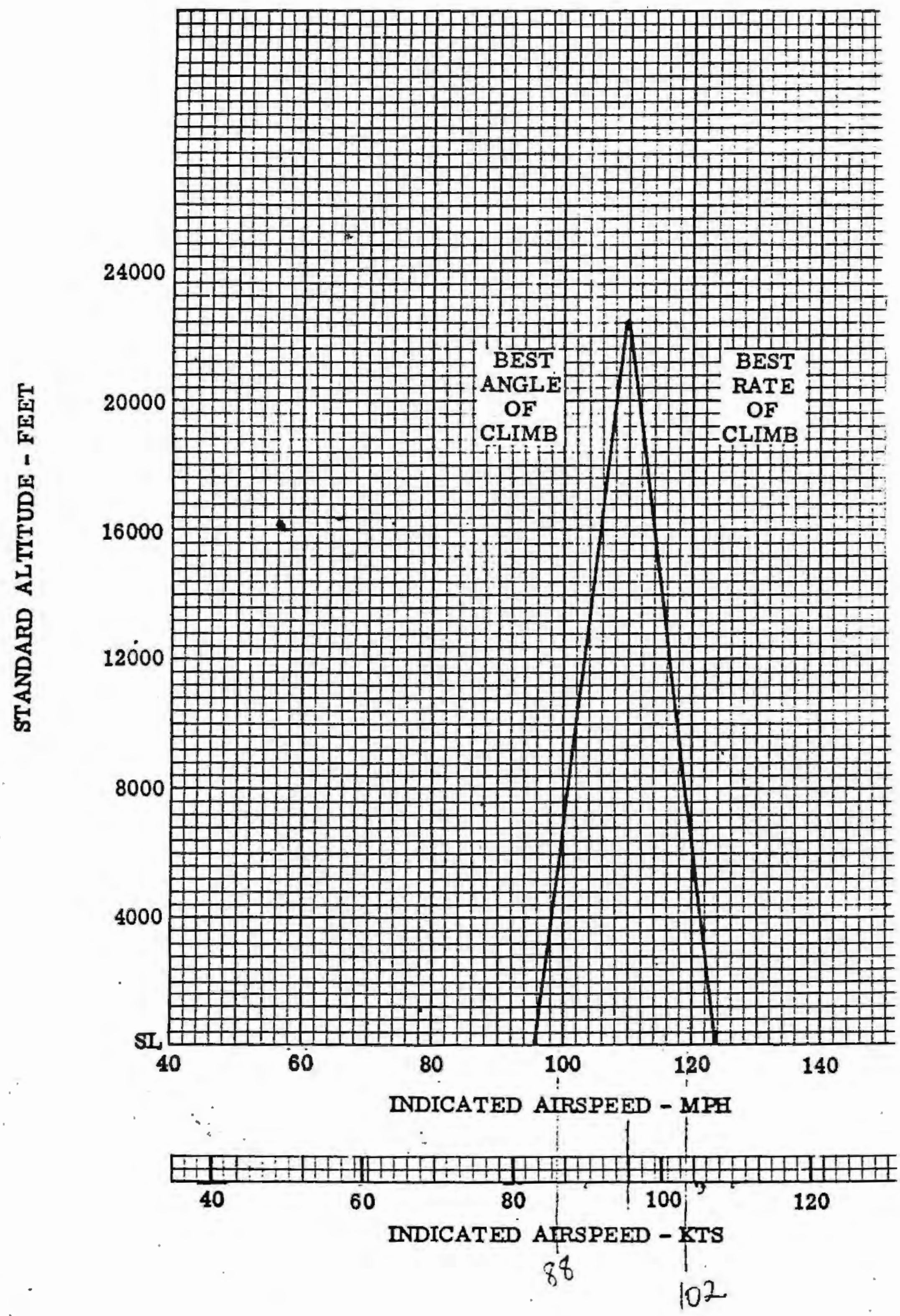


MAXIMUM TWO-ENGINE CLIMB
TIME, FUEL, AND DISTANCE



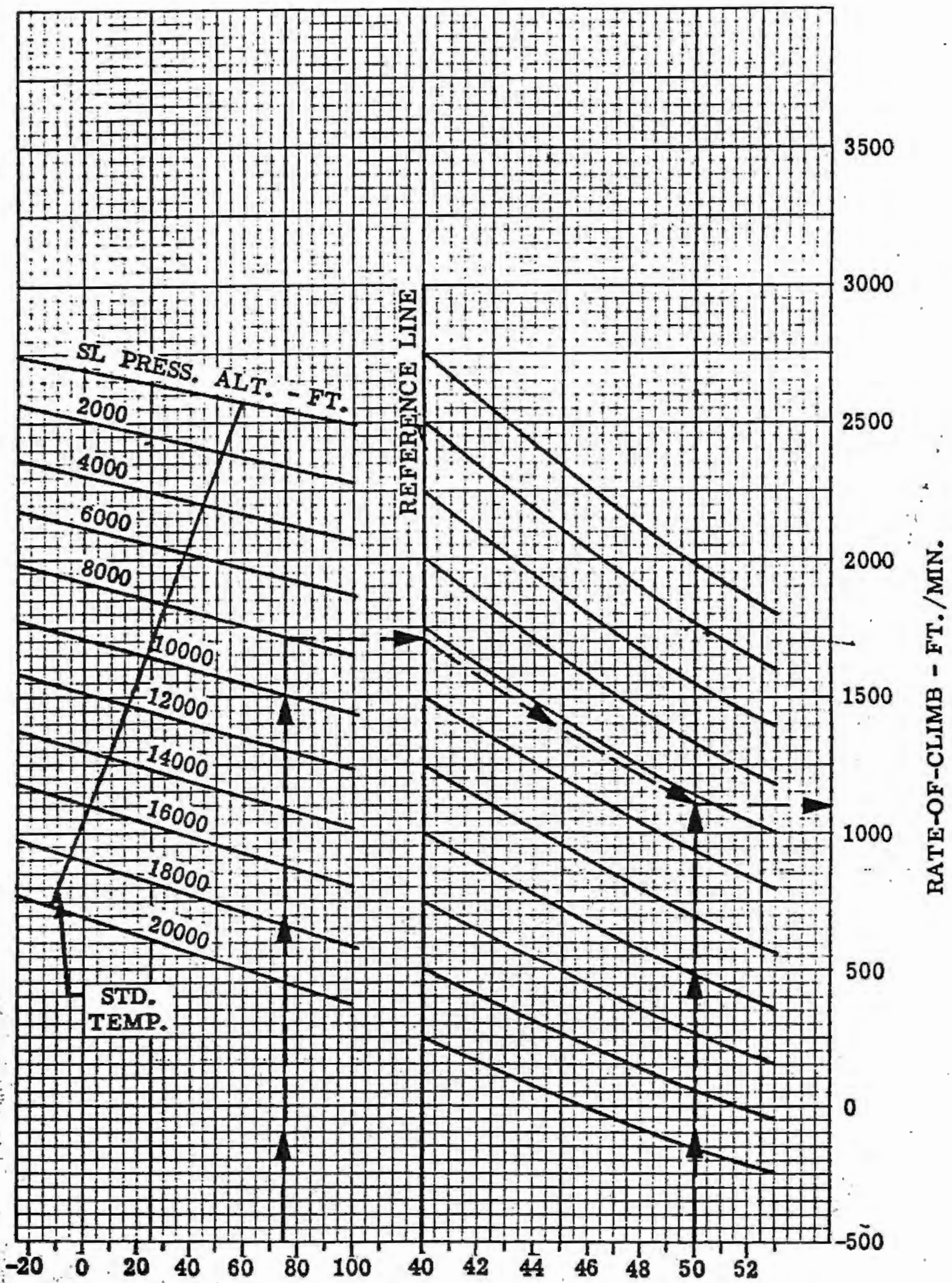
MAXIMUM TWO-ENGINE CLIMB SPEED

GROSS WEIGHT - 5300 LBS.



MAXIMUM TWO-ENGINE RATE-OF-CLIMB

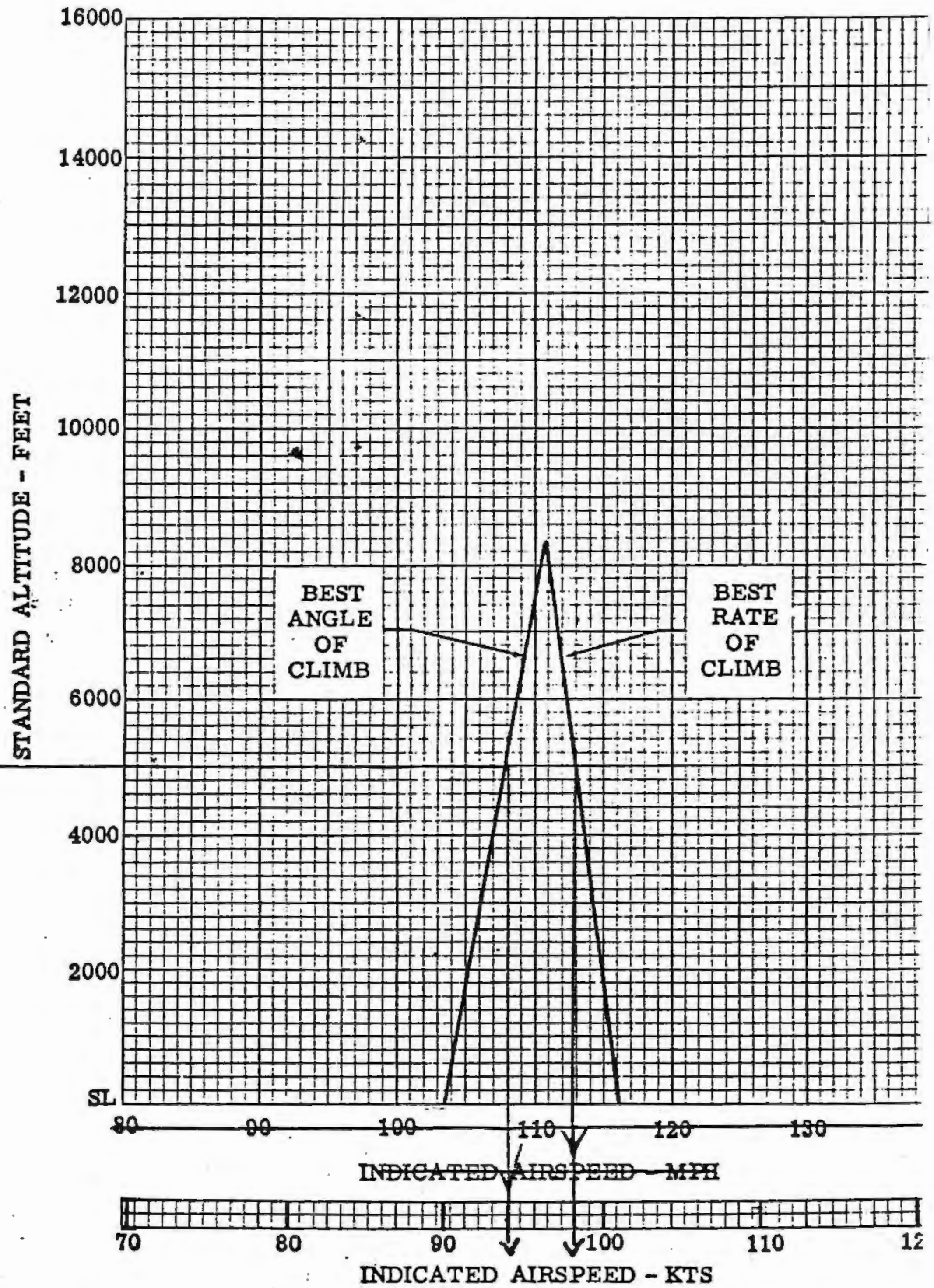
GEAR AND FLAPS UP
MAXIMUM CONTINUOUS POWER
BEST RATE-OF-CLIMB SPEED



SINGLE-ENGINE CLIMB SPEED

GROSS WEIGHT 5300 LBS.

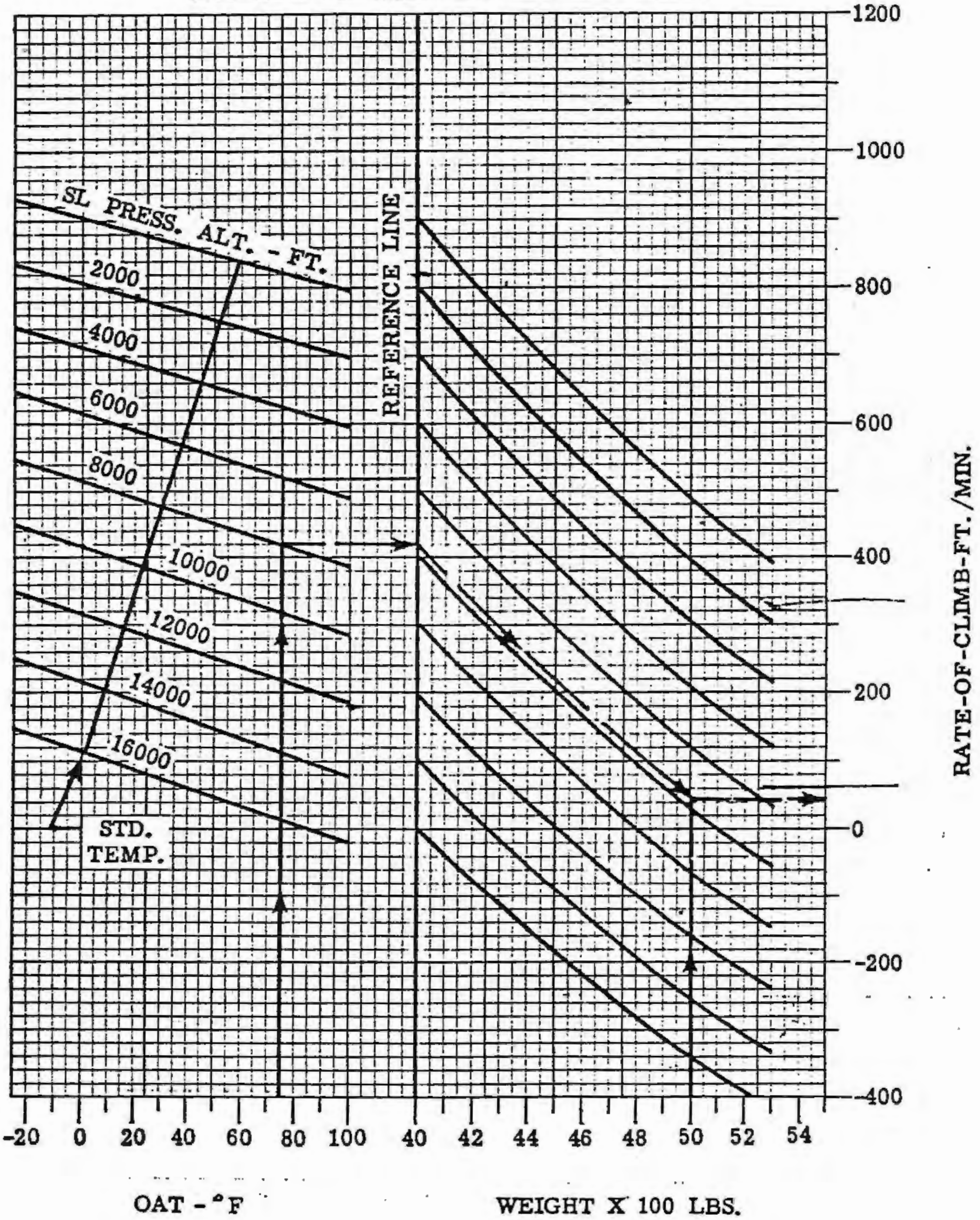
GEAR AND FLAPS UP
MAXIMUM CONTINUOUS POWER
INOPERATIVE PROPELLER FEATHERED



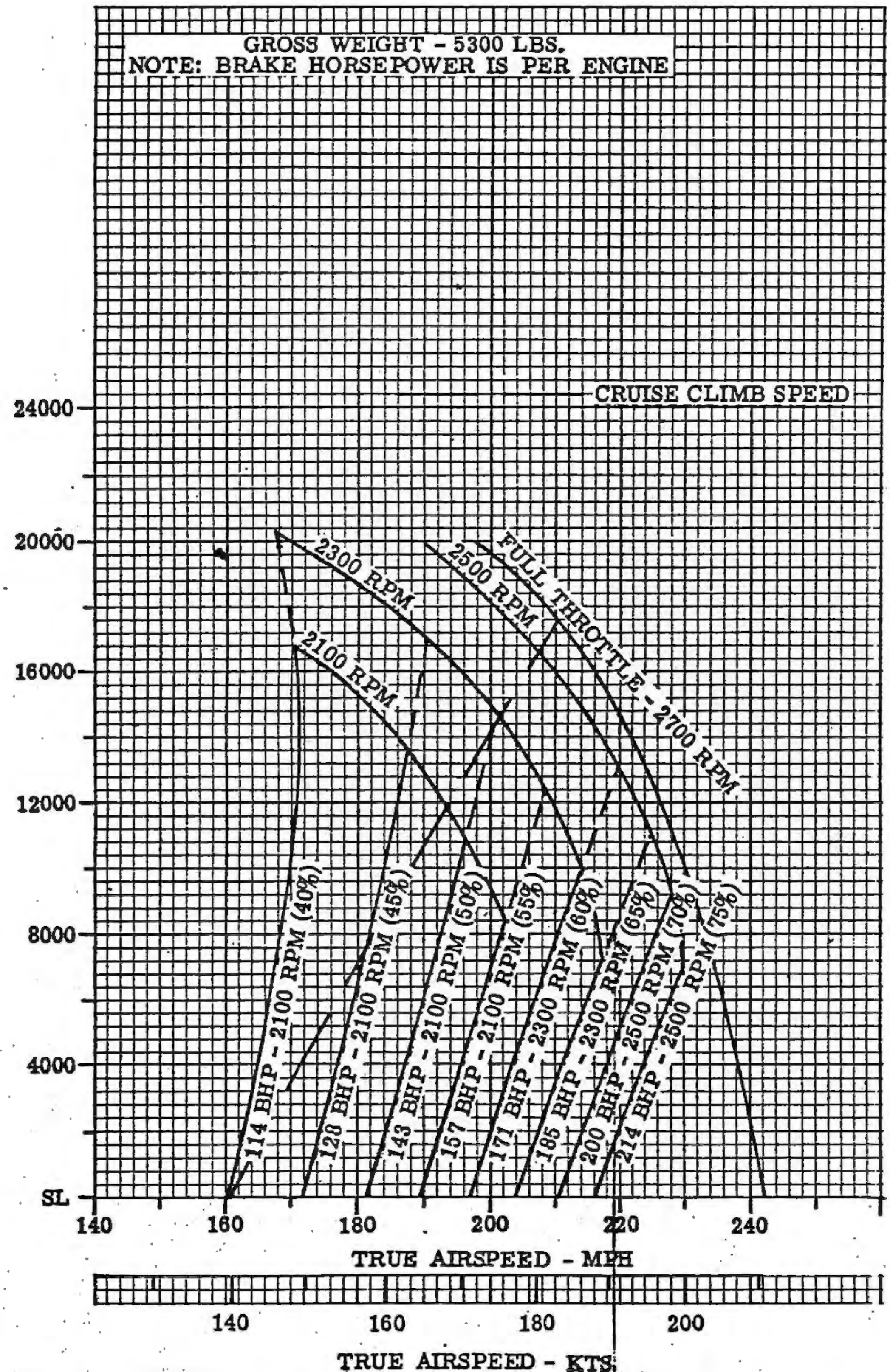
SINGLE-ENGINE RATE-OF-CLIMB

GEAR AND FLAPS UP
MAXIMUM CONTINUOUS POWER
BEST RATE-OF-CLIMB SPEED
PROPELLER FEATHERED

CONFIGURATION	RATE OF CLIMB LOSS
GEAR DOWN	200 FPM
PROP WINDMILLING	200 FPM

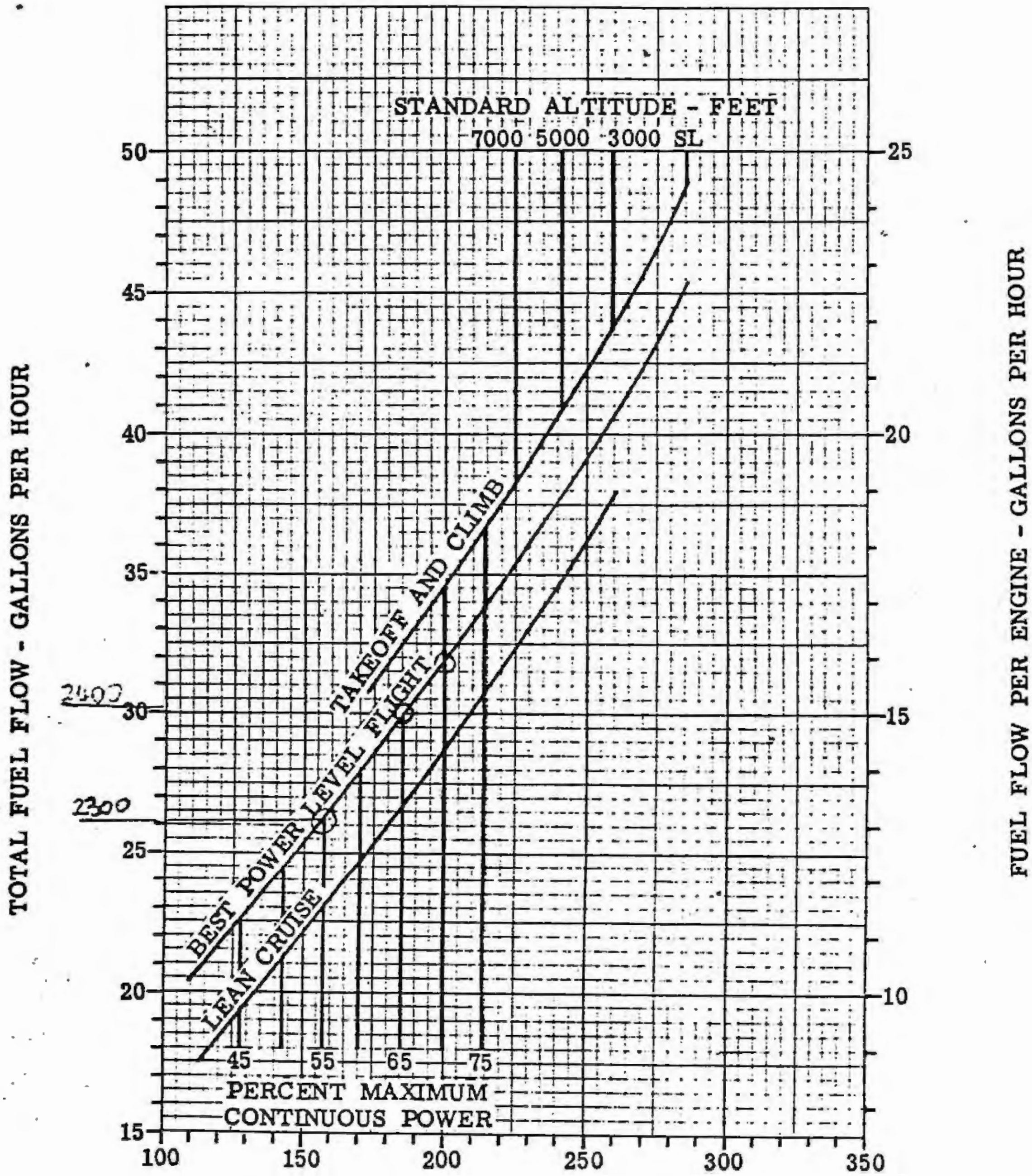


CRUISE OPERATION



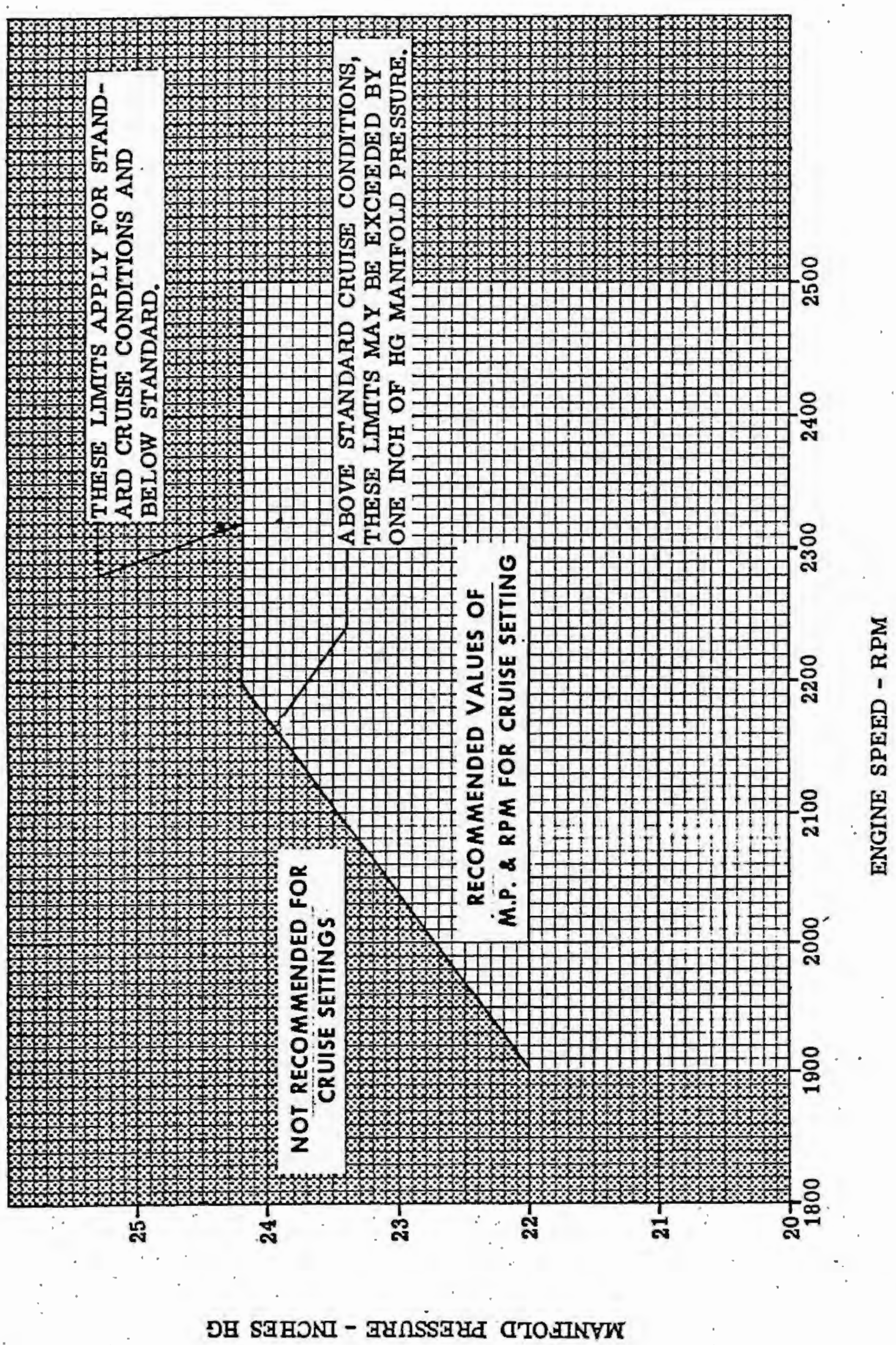
FUEL CONSUMPTION VS HP

30 u.s. gal = 25 imp gal.

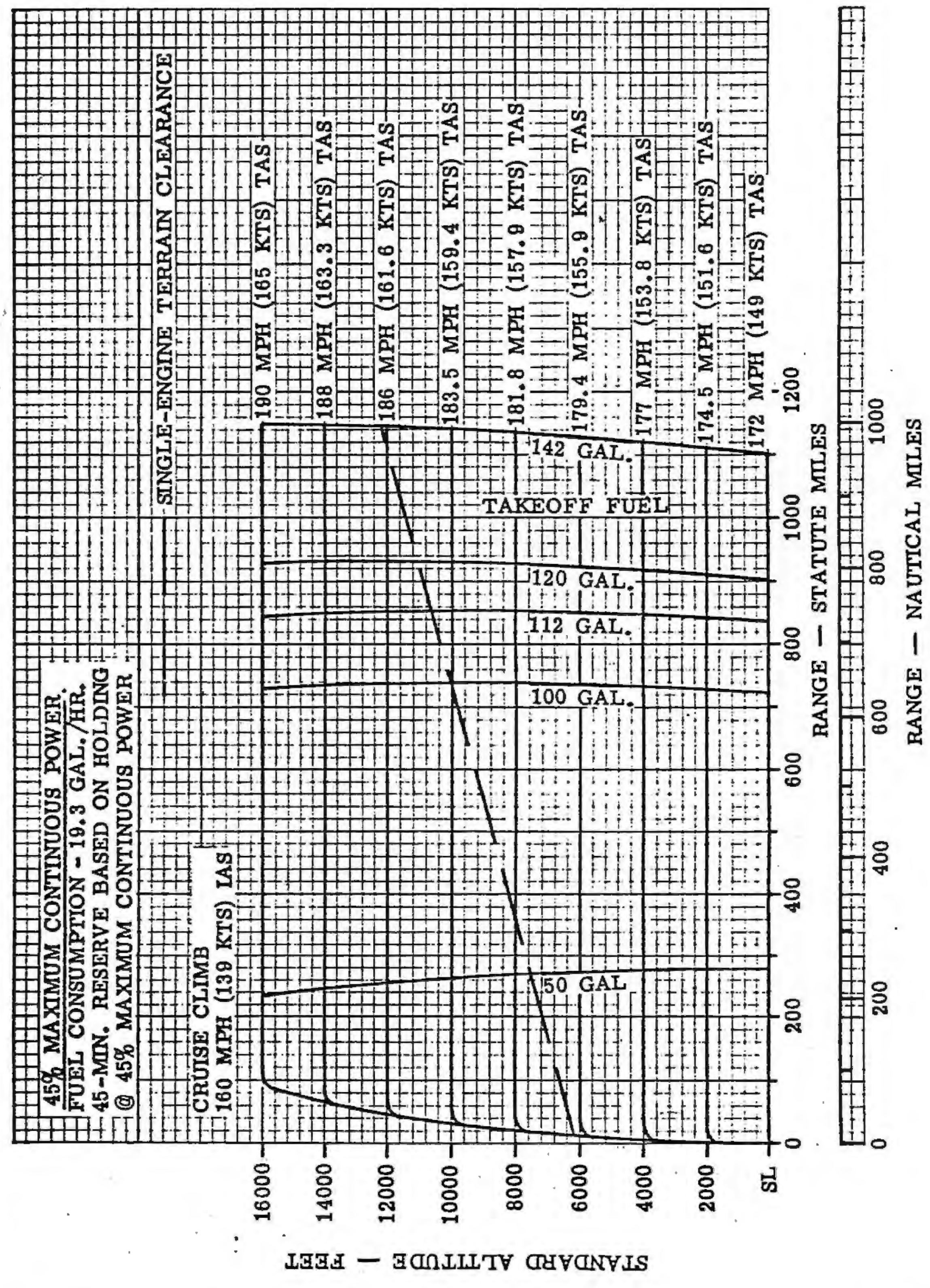


BRAKE HORSEPOWER PER ENGINE

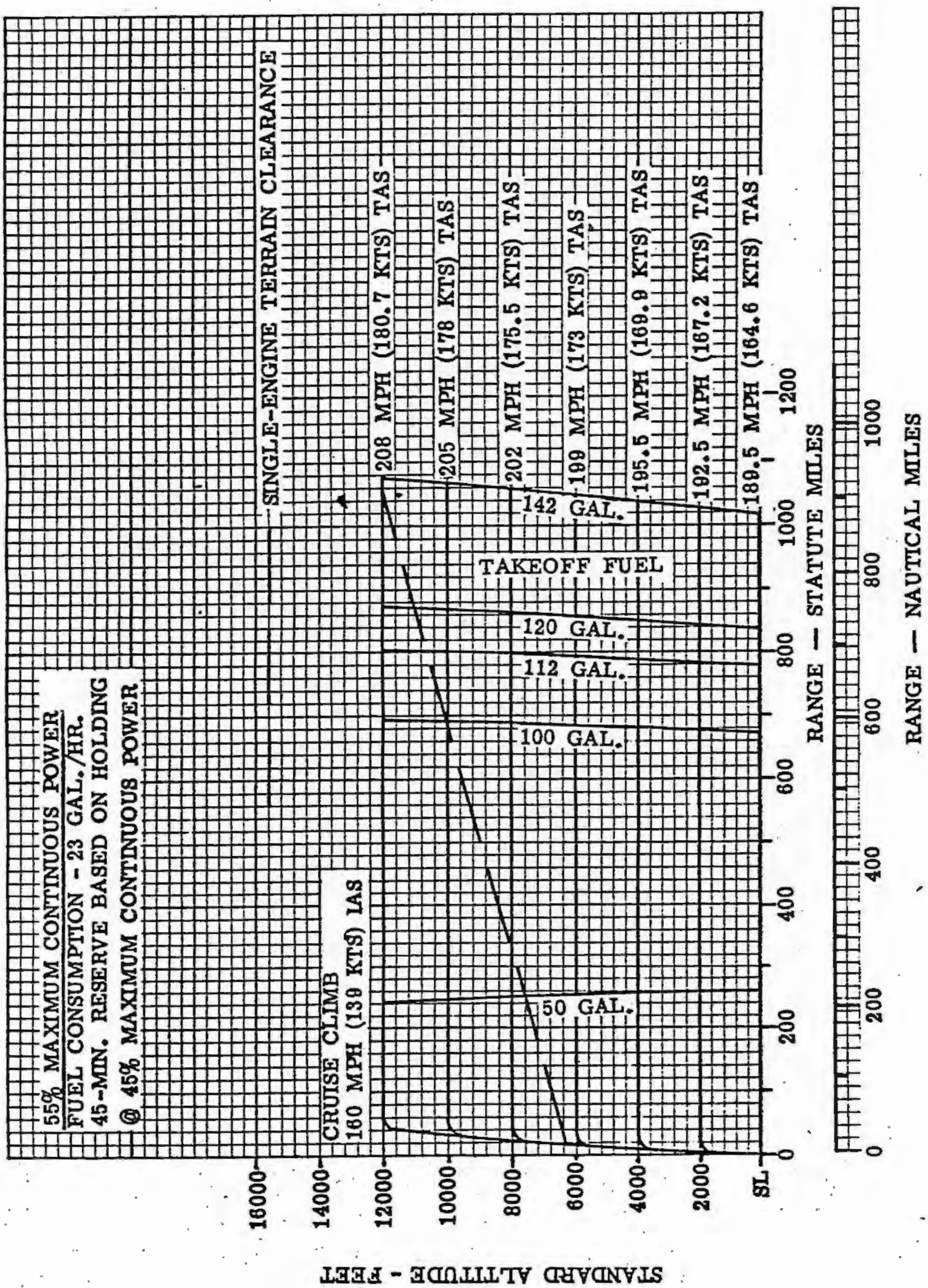
MANIFOLD PRESSURE VS RPM



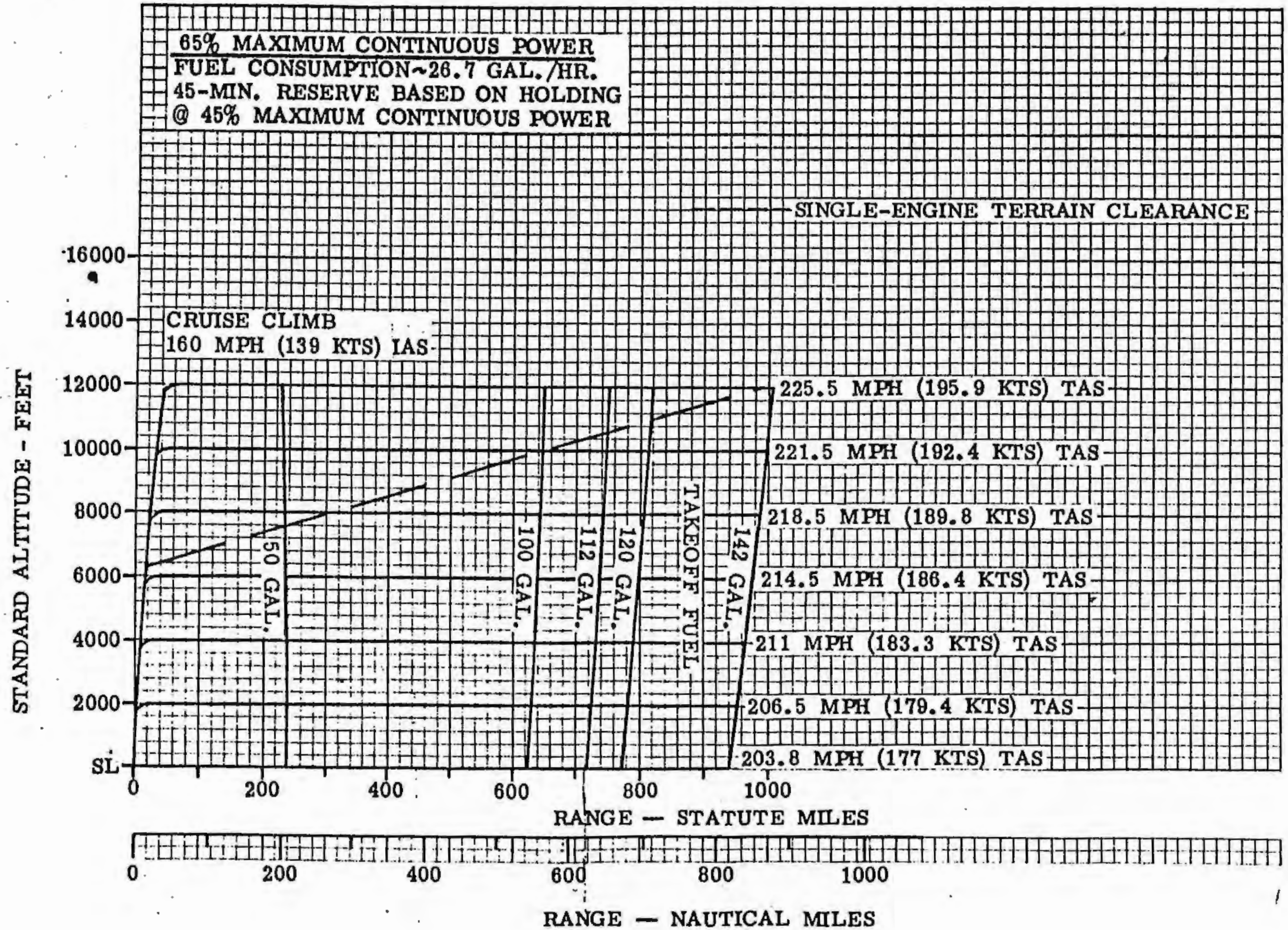
RANGE


45% MAXIMUM CONTINUOUS POWER
FUEL CONSUMPTION - 19.3 GAL./HR.
45-MIN. RESERVE BASED ON HOLDING
@ 45% MAXIMUM CONTINUOUS POWER
CRUISE CLIMB
160 MPH (139 KTS) IAS
SINGLE-ENGINE TERRAIN CLEARANCE
190 MPH (165 KTS) TAS
188 MPH (163.3 KTS) TAS
186 MPH (161.6 KTS) TAS
183.5 MPH (159.4 KTS) TAS
181.8 MPH (157.9 KTS) TAS
179.4 MPH (155.9 KTS) TAS
177 MPH (153.8 KTS) TAS
174.5 MPH (151.6 KTS) TAS
172 MPH (149 KTS) TAS
142 GAL.
TAKEOFF FUEL
120 GAL.
112 GAL.
100 GAL.
50 GAL.
16000
14000
12000
10000
8000
6000
4000
2000
SL
STANDARD ALTITUDE — FEET
0
200
400
600
800
1000
1200
RANGE — STATUTE MILES
0
200
400
600
800
1000
RANGE — NAUTICAL MILES

RANGE


55% MAXIMUM CONTINUOUS POWER
FUEL CONSUMPTION - 23 GAL./HR.
45-MIN. RESERVE BASED ON HOLDING
@ 45% MAXIMUM CONTINUOUS POWER
CRUISE CLIMB
160 MPH (139 KTS) IAS
SINGLE-ENGINE TERRAIN CLEARANCE
208 MPH (180.7 KTS) TAS
205 MPH (178 KTS) TAS
202 MPH (175.5 KTS) TAS
199 MPH (173 KTS) TAS
195.5 MPH (169.9 KTS) TAS
192.5 MPH (167.2 KTS) TAS
189.5 MPH (164.6 KTS) TAS
142 GAL.
TAKEOFF FUEL
120 GAL.
112 GAL.
100 GAL.
50 GAL.
16000
14000
12000
10000
8000
6000
4000
2000
SL
STANDARD ALTITUDE - FEET
0
200
400
600
800
1000
1200
RANGE — STATUTE MILES
0
200
400
600
800
1000
RANGE — NAUTICAL MILES

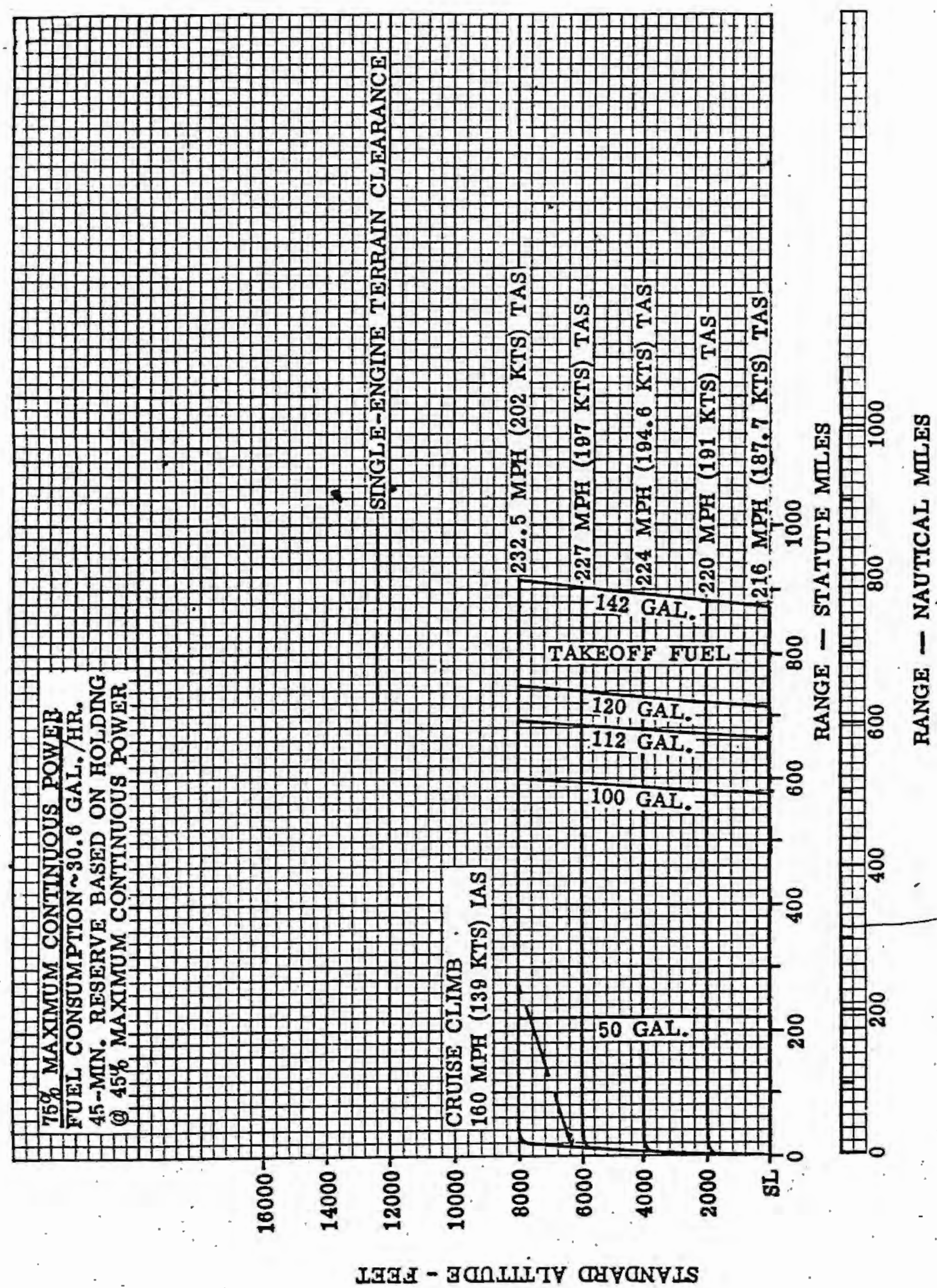
RANGE



120 us gal = 100 imp gal

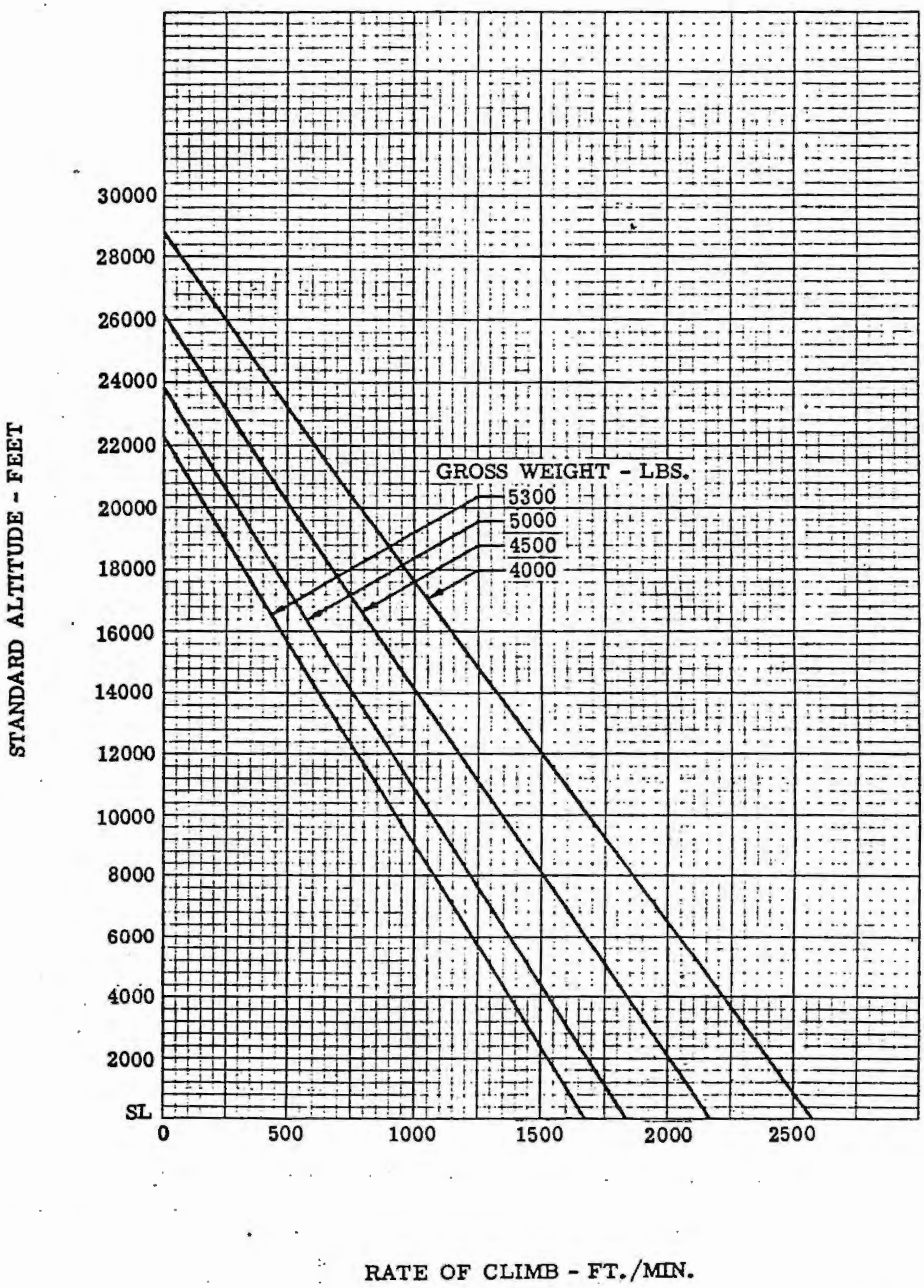
26.7 us gal = 22.2 imp gal

RANGE


75% MAXIMUM CONTINUOUS POWER
FUEL CONSUMPTION~30.6 GAL./HR.
45-MIN. RESERVE BASED ON HOLDING
@ 45% MAXIMUM CONTINUOUS POWER
CRUISE CLIMB
160 MPH (139 KTS) IAS
SINGLE-ENGINE TERRAIN CLEARANCE
232.5 MPH (202 KTS) TAS
227 MPH (197 KTS) TAS
224 MPH (194.6 KTS) TAS
220 MPH (191 KTS) TAS
216 MPH (187.7 KTS) TAS
142 GAL.
TAKEOFF FUEL
120 GAL.
112 GAL.
100 GAL.
50 GAL.
16000
14000
12000
10000
8000
6000
4000
2000
SL
STANDARD ALTITUDE - FEET
0
200
400
600
800
1000
RANGE — STATUTE MILES
0
200
400
600
800
1000
RANGE — NAUTICAL MILES

MAXIMUM TWO-ENGINE CEILING

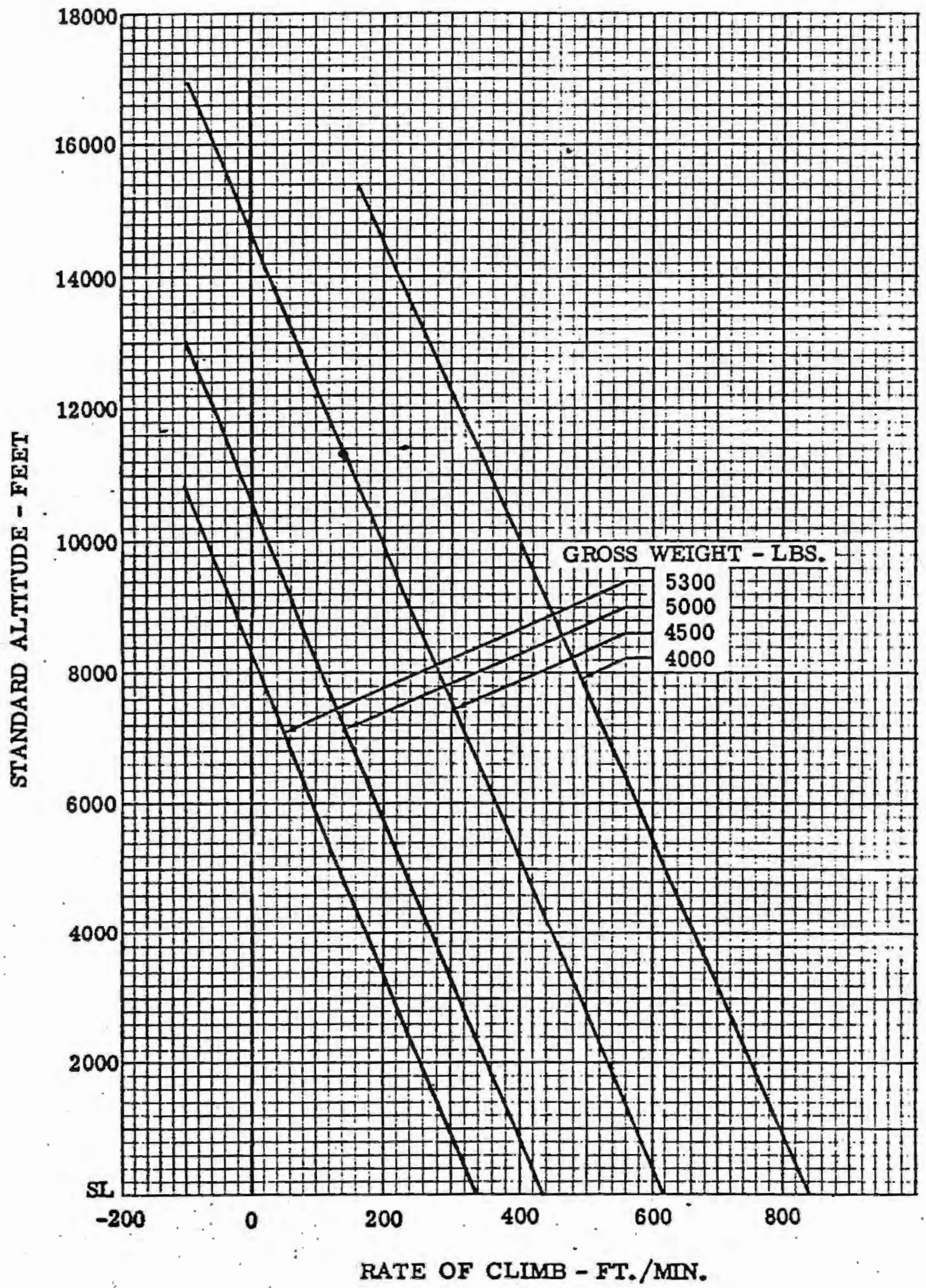
GEAR AND FLAPS UP
MAXIMUM CONTINUOUS POWER
BEST RATE-OF-CLIMB SPEED



MAXIMUM SINGLE-ENGINE CEILING

GEAR AND FLAPS UP

PROPELLER FEATHERED
BEST RATE-OF-CLIMB SPEED



NORMAL LANDING

DISTANCE OVER 50-FOOT OBSTACLE

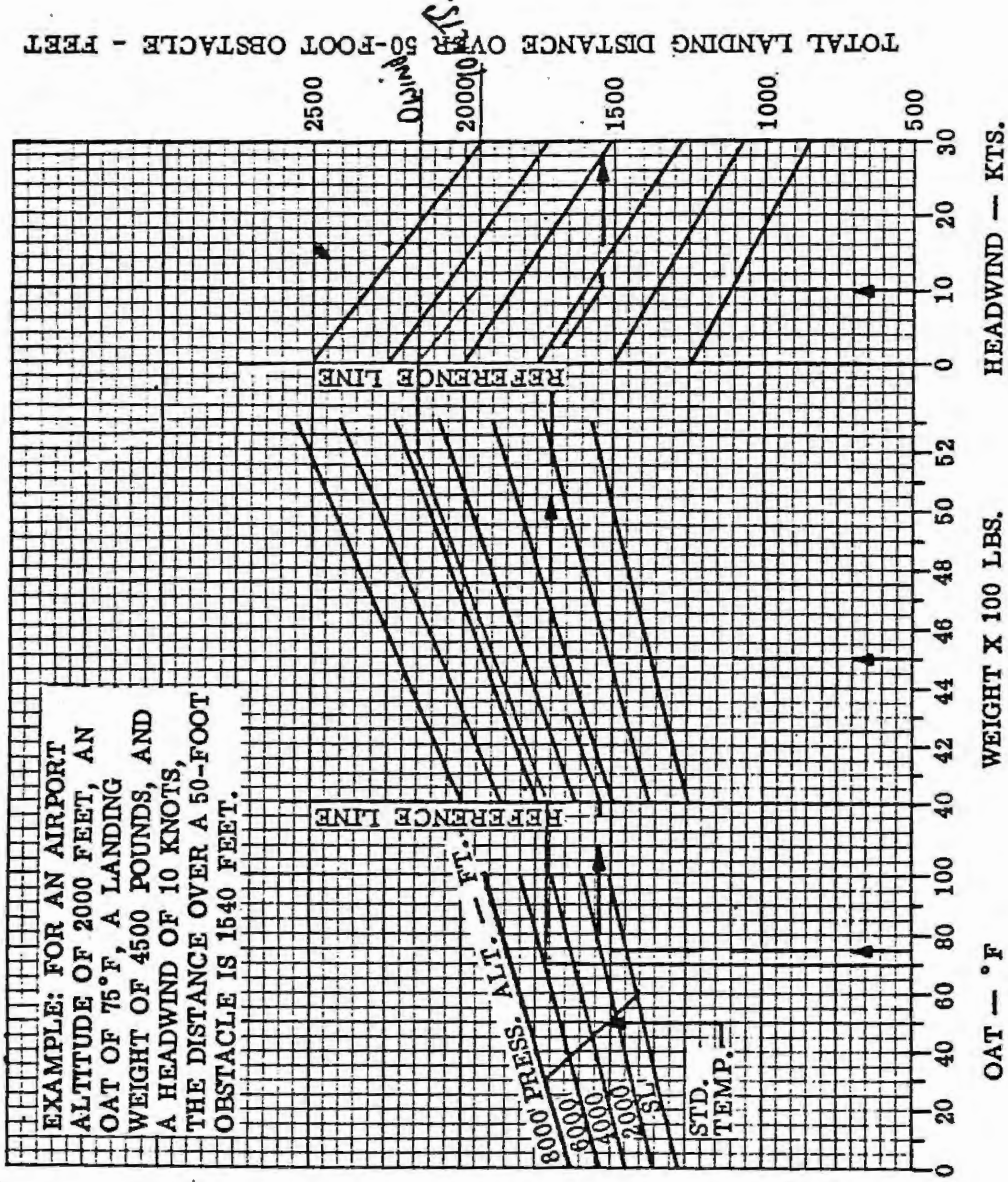
ASSOCIATED CONDITIONS:

FLAPS ———— 28°

RUNWAY———— PAVED, LEVEL, DRY SURFACE

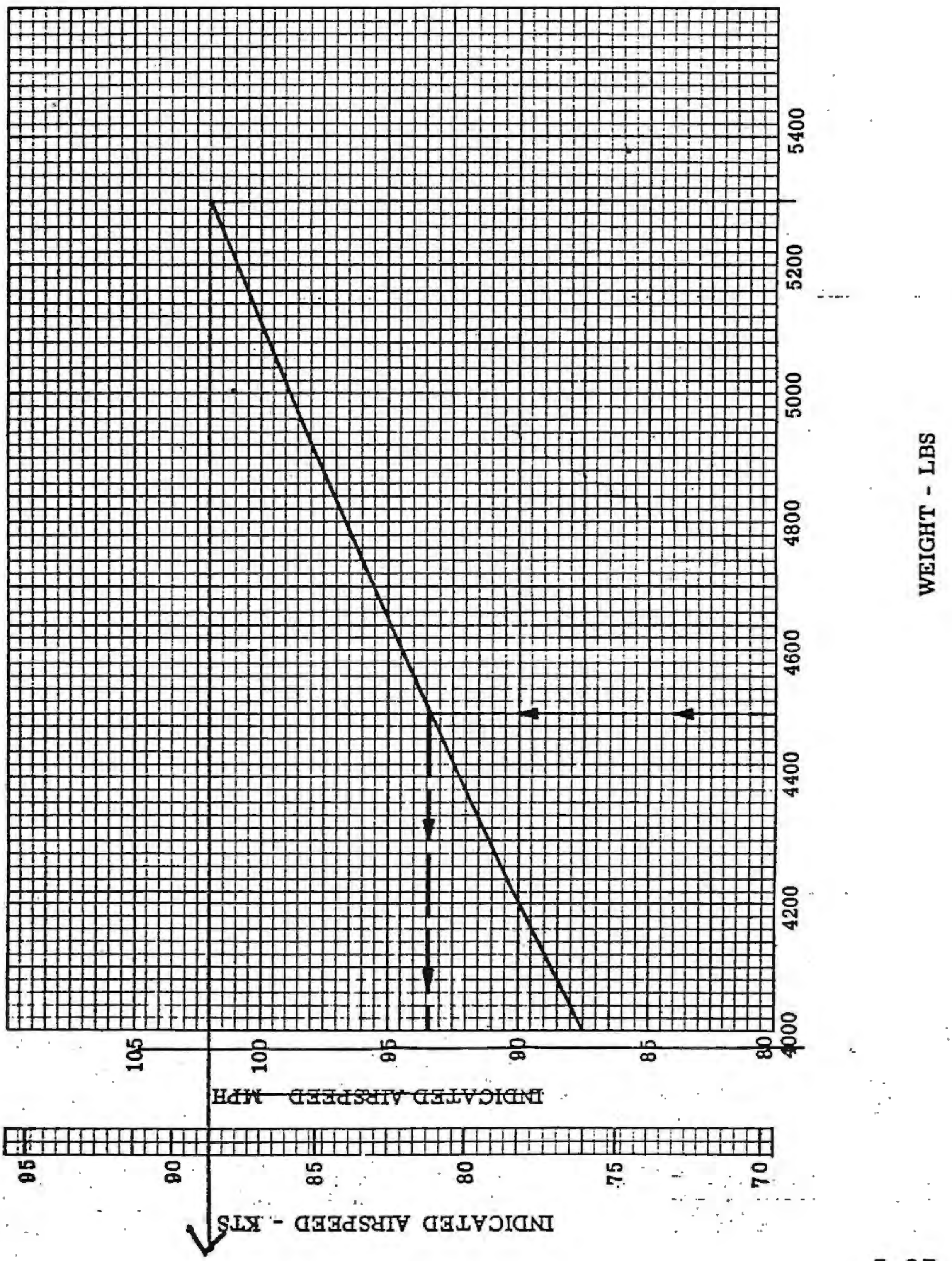
AIRSPEED——— (SEE APPROACH SPEED GRAPH)

GROUND ROLL ——— GROUND ROLL IS APPROXIMATELY 51% OF DISTANCE OVER 50 FEET.



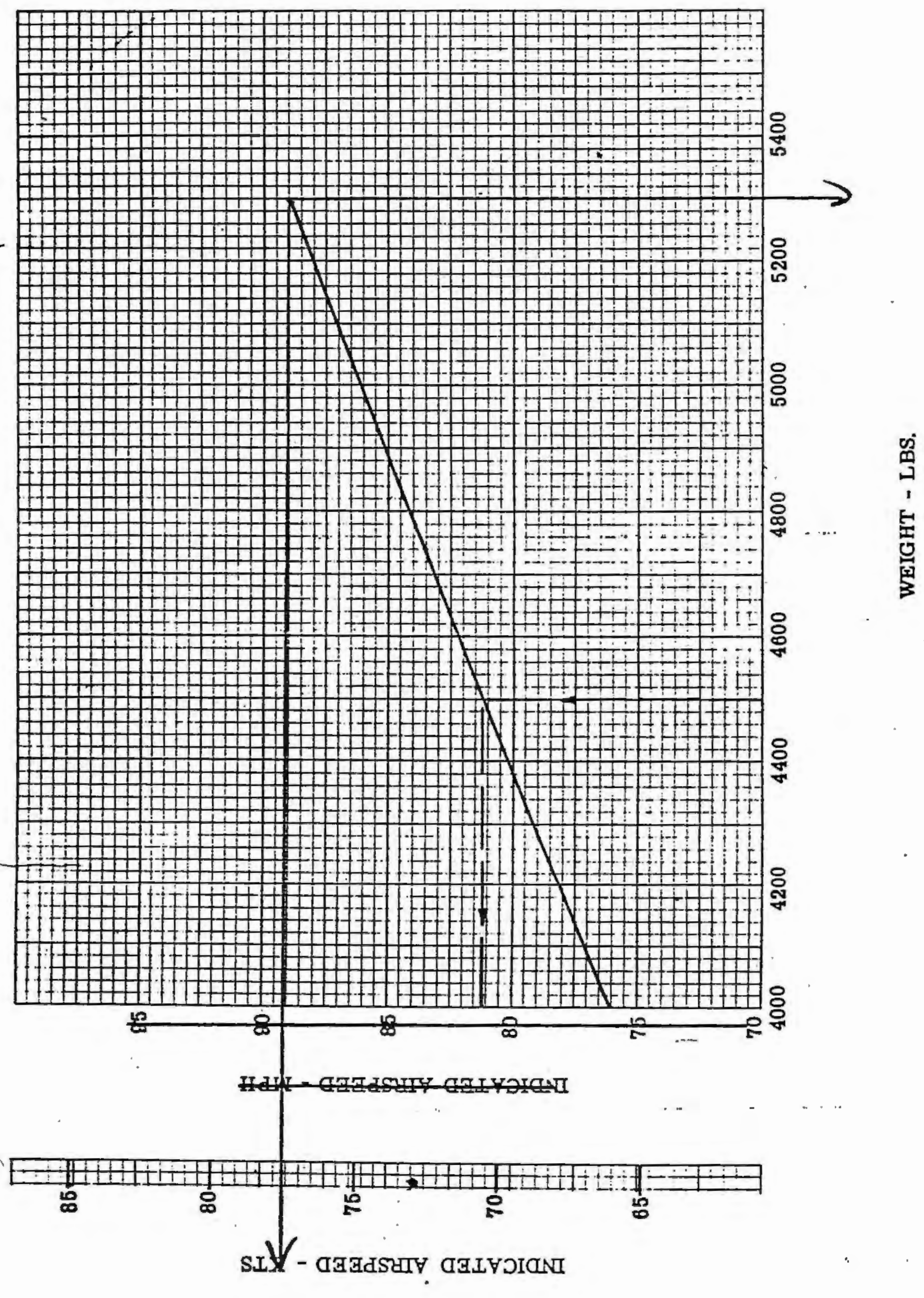
NORMAL APPROACH SPEED

EXAMPLE: FOR A LANDING WEIGHT OF 4500 POUNDS,
THE APPROACH SPEED IS 93.5 MPH (IAS)



OBSTACLE APPROACH SPEED

EXAMPLE: FOR A LANDING WEIGHT OF 4500 POUNDS, THE APPROACH SPEED IS 81.3 MPH (IAS).



OBSTACLE LANDING

DISTANCE OVER 50-FOOT OBSTACLE

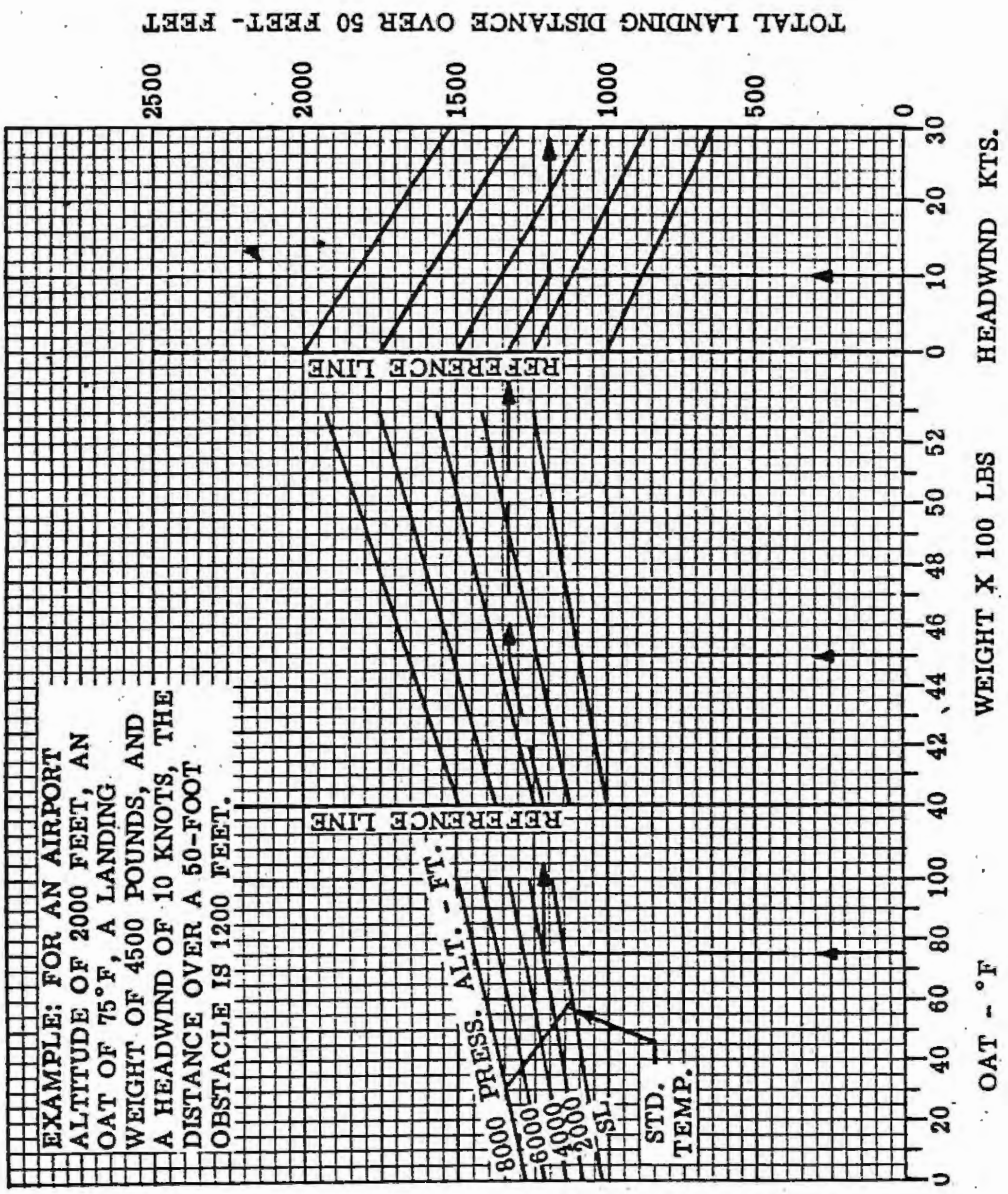
ASSOCIATED CONDITIONS:

FLAPS ________ 28°

RUNWAY ________ PAVED, LEVEL, DRY SURFACE

AIRSPEED ________ (SEE APPROACH SPEED GRAPH)

GROUND ROLL ____ GROUND ROLL IS APPROXIMATELY 61% OF DISTANCE OVER 50 FEET.



SECTION VI
CARE OF THE AIRPLANE

The purpose of this section is to help you keep your Baron in top condition between visits to your BEECHCRAFT Certified Service Station. This information will aid you in determining when the airplane should be taken to a shop for periodic servicing or preventive maintenance and also, will guide you should you choose or be obliged by circumstances to do some minor servicing yourself. The procedures are in no sense a substitute for the services of your BEECHCRAFT Certified Service Station.

CAUTION

> To insure adequate propeller clearance, always observe recommended shock strut servicing procedures and tire inflation pressures.

If you should have a question concerning the care of your Baron, it is important that you include the airplane serial number in any correspondence. The serial number appears on the model designation placard attached to the bottom of the fuselage immediately forward of the tie-down lug.

GROUND HANDLING

The three-view drawing on Page iii shows the minimum hangar clearances for a standard airplane. Allowances must be made for any special radio antennas; their height can be noted on the drawing.

TOWING

One man can move the airplane on a smooth and level surface with the hand tow bar. Attach the tow bar to the tow lug on the nose gear lower torque knee.

CAUTION

Do not exert force on propellers, control surfaces, or horizontal stabilizer. When towing with a tug, observe turn limits to prevent damage to the nose gear.

Care should be used when removing the tow bar to prevent damage to the lubrication fittings on the landing gear.

CONTROL LOCK

1. Insert the spring end of the rudder control locking pin into the hole at the top of the pilot's left hand rudder pedal arm.
2. Neutralize the pedals and insert the opposite end of the locking pin into the right hand pedal arm by compressing the spring.
3. Place the elevator and aileron controls in an approximately neutral position.
4. Insert the elevator-aileron control locking pin into the hole in the control column hanger and the hole in the underside of the control column tube.
5. Close the throttles and place the throttle lock over the throttle control knobs.

To lessen the possibility of taxi or takeoff with the control lock installed, remove the locking components in the following order: rudder, throttle, and elevator-aileron.

TIE-DOWN

In high wind conditions it is advisable to nose the airplane into the wind. Three tie-down lugs are provided: one on the lower side of each wing and a third at the rear of the fuselage.

1. Install the control lock.
2. Chock the main wheels, fore and aft.
3. Using nylon line or chain of sufficient strength, secure the airplane at the three points provided. DO NOT OVER-TIGHTEN; if the line at the rear of the fuselage is excessively tight, the nose may rise and produce lift due to the angle of attack of the wings.

MAIN WHEEL JACKING

1. Insert the main wheel jack adapter, furnished as loose equipment, into the main wheel axle. (If the shock strut is not inflated to the recommended height, it will be impossible to insert the adapter into the axle.)
2. A scissors-type jack is recommended for raising and lowering the wheel.
3. When lowering the wheel, exercise care to prevent compression of the shock strut, which would force the landing gear door against the jack adapter.

EXTERNAL POWER (OPTIONAL)

When using external power, it is very important that the following precautions be observed.

1. The airplane has a negative ground system; exercise extreme care to avoid reversed polarity, or damage to the airplane's

electrical equipment will occur. Be sure to connect the positive lead of the auxiliary power unit to the positive terminal of the airplane's external power receptacle and the negative lead of the auxiliary power unit to the negative terminal of the external power receptacle.

2. To prevent arcing, make certain no power is being supplied when the connection is made.
3. Make certain the alternator switches are OFF before connecting an auxiliary power unit for starting, battery recharging, or electrical equipment check-out. This protects the electronic voltage regulators and associated electrical equipment from voltage transients (power fluctuations).
4. Do not use external power to check avionic equipment. Such equipment may be damaged by voltage transients.

STARTING ENGINES

1. Battery switch, alternator switches, and all electrical and avionic equipment - OFF.
2. Connect an auxiliary power unit to the airplane's external power receptacle on the outboard side of the left nacelle. If the unit does not have a standard AN fitting or an adapter, connect the positive lead of the unit to the center (positive) terminal of the receptacle and the negative lead to the other large (negative) terminal of the receptacle.
3. Set the output of the unit at 27.0 to 28.5 volts.
4. Auxiliary power unit - ON.
5. Follow normal starting procedures.
6. After engines have been started, turn auxiliary power unit OFF.
7. Disconnect external power.
8. Battery and alternator switches - ON.

RECHARGING BATTERY

1. Connect an auxiliary power unit to the airplane's external power receptacle as described in the preceding starting procedure.
2. Battery switch - ON.

NOTE

If the battery is too weak to close the battery solenoid, it will be necessary to remove the battery from the airplane for recharging.

CHECKING ELECTRICAL EQUIPMENT

Connect an auxiliary power unit (see Starting Engines) and turn on the battery switch. Do not check avionic equipment using external power.

SERVICING

FUEL SYSTEM

Fuel Cells

See Consumable Materials Chart for recommended fuel grades. The standard fuel cell installation consists of a 25-gallon main fuel cell in each wing leading edge and a 31-gallon auxiliary fuel cell in each wing panel outboard of the nacelle. In the optional installation a 40-gallon main cell replaces the standard 25-gallon cell. The filler caps for the standard main cells are located in the wing panels inboard of the nacelles. The optional main cells the auxiliary cells are serviced outboard of the nacelles.

CAUTION

Never leave the fuel cells completely empty, as the cell inner liners may dry out and crack, permitting fuel to diffuse through the walls of the cell after refueling. If the cells are to be left empty for a week or more, spray the inner liners with a light coat of engine oil.

Fuel Drains

Open each of the snap-type fuel drains daily to purge any condensed water vapor from the system (see servicing points diagram). Four sump drains extend through the bottom of the wing skins. Two drains protruding through the bottom of the fuselage, one at each system low spot just inboard of the wing root, are provided to drain the interconnecting lines. The fuel strainer in each wheel well is provided with a drain extending through the wheel well skin.

Fuel Strainers

To preclude the possibility of contaminated fuel, always cap any disconnected fuel lines or fittings. The fuel strainer in each wheel well should be inspected and cleaned with solvent at regular intervals. The frequency of inspection and cleaning will depend upon service conditions, fuel handling cleanliness, and local sand and dust conditions. At each 100-hour inspection the strainer plug should be removed from the fuel injection control valve (see servicing points diagram) and the fuel injection control valve screen [illegible] cleaning solvent. After the strainer plug has been reinstalled and safetied, the installation should be checked for leakage.

OIL SYSTEM

Each engine has a sump capacity of 12 quarts. See Consumable Materials Chart for specified oils. The oil system is replenished through an access door in the cowling; a calibrated dipstick attached to the filler cap indicates the oil level.

NOTE

> Due to the canted engine installations, individual dipsticks are required for accurate measurement of the oil level in the left hand and right hand engine sumps. Each dipstick is marked for the proper engine.

The oil should be changed every 75 hours under normal operating conditions. The engines should be at operating temperature to assure complete drainage.

1. Remove the cowling plug button below the aft inboard corner of the oil sump.
2. Reach through the cowl flap aperature and insert the oil sump drain valve flexible tube through the bottom of the cowling.
3. Open the oil drain valve.

The oil filter should be removed and replaced at each periodic oil change.

Moisture that may have condensed and settled in the oil sump should be drained by occasionally opening the drain valve and allowing a small amount of oil to escape; ideally, this draining should be done when the engines have been stopped overnight or approximately 12 hours. This procedure should be followed more closely during cold weather or when a series of short flights of less than 30 minutes have been made and the engines allowed to cool completely between such flights.

The engine manufacturer specifies detergent oils only. However, a straight mineral oil may be used for the first oil change period of 20 to 30 hours in order to promote faster ring seating and oil control. Detergent oils must meet Continental Motors Corporation Specification MHS-24.

BATTERY

Access to the battery is obtained by opening the forward utility compartment door and removing the battery box cover in the floor of the compartment. Check the battery electrolyte level after each 25 hours of operation; maintain the electrolyte level to cover the plates by adding distilled battery water. Avoid filling over the baffles and never fill more than one-quarter inch over the separator tops. Excessive water consumption may be an indication that the voltage regulators require resetting. The specific gravity of the electrolyte should be checked periodically and maintained within the limits placarded on the battery.

The battery box is vented overboard to dispose of electrolyte and hydrogen gas fumes discharged during the normal charging operation. To insure the disposal of these fumes the vent hose connections at the battery box should be checked frequently for obstructions.

TIRES

An inflation pressure of 50 psi should be maintained on the 6.50-

8 main wheel tires and also on the 5.00-5 nose wheel tire. Maintaining proper tire inflation will minimize tread wear and aid in preventing tire rupture caused from running over sharp stones and ruts. When inflating tires, visually inspect them for cracks and breaks.

SHOCK STRUTS

The following procedures may be used for servicing both the main and the nose gear shock struts.

To Inflate Struts:

1. Check to see that the airplane is empty except for full fuel and oil.
2. While rocking the airplane gently to prevent possible binding of the piston in the barrel, inflate the shock strut until the main gear piston is extended 3 inches (4 1/2 inches on the nose gear).

CAUTION

If a compressed air bottle containing air under extremely high pressure is used, exercise care to avoid overinflating the strut.

WARNING

To retain the structural integrity of the aircraft, NEVER FILL SHOCK STRUTS WITH OXYGEN.

3. Remove all foreign material from the exposed piston with a soft cloth moistened with hydraulic fluid.

To Replenish Strut Hydraulic Fluid:

1. Remove the air valve cap, depress the valve core, and allow the strut to fully compress.
2. Raise and block the strut 1/4 inch from the compressed position.

WARNING

Do not remove the valve body assembly until all air pressure has been released or it may blow off, causing injury to personnel or damage to equipment.

3. Carefully remove the valve body assembly.
4. Fill the strut to the level of the valve body assembly with hydraulic fluid (see Consumable Materials Chart).
5. Slowly extend the strut from the blocked position and replace the valve body assembly.
6. Depress the valve core and completely compress the strut to release excess air and oil.
7. Inflate the strut as described in the preceding inflation procedure.

BRAKES

The brake hydraulic fluid reservoir is accessible through the forward utility compartment. A dipstick is attached to the reservoir cap. Refer to the Consumable Materials Chart for hydraulic fluid specification.

The brakes require no adjustments, since the pistons move to compensate for lining wear.

INDUCTION AIR FILTERS

The filters should be inspected for foreign matter at least once during each 50-hour operating period. In adverse climatic conditions or if the airplane is stored, preflight inspection is recommended.

To remove and clean the filters:

1. Locate the induction air filter access plate in the top of the induction air scoop located on top of the engine cowling.
2. Remove the screws in the access plate and remove the plate.
3. Slide out the filter.
4. Clean the filter as noted in the manufacturer's instructions on the filter.

PROPELLER ANTI-ICER TANK (OPTIONAL)

The tank is located beneath the floor on the left side of the forward utility compartment. The filler cap is accessible through an access door in the floor of the compartment. Capacity is 3 U. S. gallons of anti-icer fluid (see Consumable Materials Chart). The tank should be drained and flushed twice a year.

BEECHCRAFT OXYGEN SYSTEM (OPTIONAL)

WARNING

Keep hands, tools, clothing, and oxygen equipment clean and free from grease and oil. KEEP FIRE AWAY FROM OXYGEN.

1. Read the pressure gage on the oxygen console panel. (The shutoff valve on the oxygen cylinder must be open.) If the oxygen cylinder is equipped with a gage, system pressure may be checked at the cylinder.

CAUTION

Always open the cylinder shutoff valve slowly to prevent damage to the system.

2. Make certain that the shutoff valve on the oxygen console panel is closed.
3. Close the cylinder shutoff valve, remove the cap from the filler valve, and attach the recharging outlet.
4. Open the cylinder shutoff valve and fill the cylinder to 1800 ± 50 psi at a temperature of 70°F. This pressure may be increased an additional 3.5 psi for each degree of increase in temperature. Similarly, for each degree of drop in temperature, reduce the pressure from the cylinder by 3.5 psi.
5. Close the cylinder shutoff valve, remove the recharging outlet, and replace the filler valve cap.
6. Reopen the cylinder shutoff valve to prepare system for use.

MINOR MAINTENANCE

RUBBER SEALS

To prevent sticking of the rubber seals around the windows, doors, and engine cowling, the seals should be coated with Oakite 6 compound. The compound is noninjurious to paint and can be removed by employing normal cleaning methods.

HEATING AND VENTILATING SYSTEM

The heater fuel pump strainers and the heater fuel filter in the nose wheel well (see servicing points diagram) should be removed and cleaned each 100 hours of airplane operation. Remove the fuel strainers by turning the base of each pump counterclockwise. Remove the fuel filter by removing the safety wire and unscrewing the filter. Wash the strainers and filter in clean unleaded gasoline and dry with compressed air.

The iris valve at the heater blower inlet should be lubricated occasionally with molybdenum disulfide (see Consumable Materials Chart). The valve should never be lubricated with oil or any liquid lubricant which would collect dust.

Do not replace the overheat fuse until a thorough inspection of the system has determined the cause of its blowing and the malfunction has been corrected.

ALTERNATORS

Since the alternator and electronic voltage regulator are designed for use on only one polarity system, the following precautionary measures must be observed when working on the charging circuit, or serious damage to the electrical equipment will result.

1. When installing a battery, make certain that the ground polarity of the battery and the ground polarity of the alternator are the same.
2. When connecting a booster battery, be sure to connect the neg-

ative battery terminals together and the positive battery terminals together.

3. When using a battery charger, connect the positive lead of the charger to the positive battery terminal and the negative lead of the charger to the negative battery terminal.
4. Do not operate an alternator on open circuit. Be sure all circuit connections are secure.
5. Do not short across or ground any of the terminals on the alternator or electronic voltage regulator.
6. Do not attempt to polarize an alternator.

MAGNETOS

Ordinarily, the magnetos will require only occasional adjustment, lubrication, and breaker point replacement. This work should be done by your BEECHCRAFT Certified Service Station.

WARNING

To be safe, treat the magnetos as hot whenever a switch lead is disconnected at any point; they do not have an internal automatic grounding device. The magnetos can be grounded by replacing the switch lead at the noise filter capacitor with a wire which is grounded to the engine case. Otherwise, all spark plug leads should be disconnected or the cable outlet plate on the rear of the magneto should be removed.

PROPELLERS

Propeller operation, servicing, and maintenance instructions are contained in the propeller owner's manual included in your service information kit.

WARNING

When servicing a propeller, always make certain that the ignition switch is off and that the engine has cooled completely. WHEN MOVING A PROPELLER, STAND IN THE CLEAR: there is always some danger of a cylinder firing when a propeller is moved.

CLEANING

EXTERIOR PAINTED SURFACES

CAUTION

Do not apply wax or polish for a paint cure period of 90 days after delivery. Waxes and polishes seal the paint from the air and prevent curing. Wash uncured painted surfaces with cold or lukewarm (never hot) water and a MILD NON-DETERGENT SOAP. Any rubbing of the surface should be done gently and held to a minimum to avoid cracking the paint film.

Prior to cleaning, cover the wheels, making certain the brake discs are covered. Attach pitot covers securely, and plug or mask off all other openings. Be particularly careful to mask off both static air buttons before washing or waxing.

Flush loose dirt away with clean water, then wash with a mild soap and water. Avoid harsh, abrasive, or alkaline soaps or detergents which could cause corrosion or scratches. To remove stubborn oil and grease, use a cloth dampened with aliphatic naphtha (see

Consumable Materials Chart). After being cleaned with naphtha, the surface should be re-waxed and polished. To prevent scratches, use soft cleaning cloths or a chamois when cleaning and polishing. Any ordinary automotive wax or polish can be used on painted surfaces.

WINDSHIELD AND WINDOWS

Exercise extreme care to prevent scratches when cleaning the Plexiglas windshield and windows. Never wipe them when dry. Flush the surface with clean water or a mild soap solution, then rub lightly with a grit-free soft cloth, sponge, or chamois. Use trisodium phosphate completely dissolved in water to remove oil and grease film. To remove stubborn grease and oil deposits, use hexane, aliphatic naphtha, or methanol. Rinse with clean water; avoid prolonged rubbing.

CAUTION

Do not use gasoline, benzene, acetone, carbon tetrachloride, fire extinguisher fluid, deicing fluid, or lacquer thinners on the windshield or windows, as these substances have a tendency to soften and craze the surface.

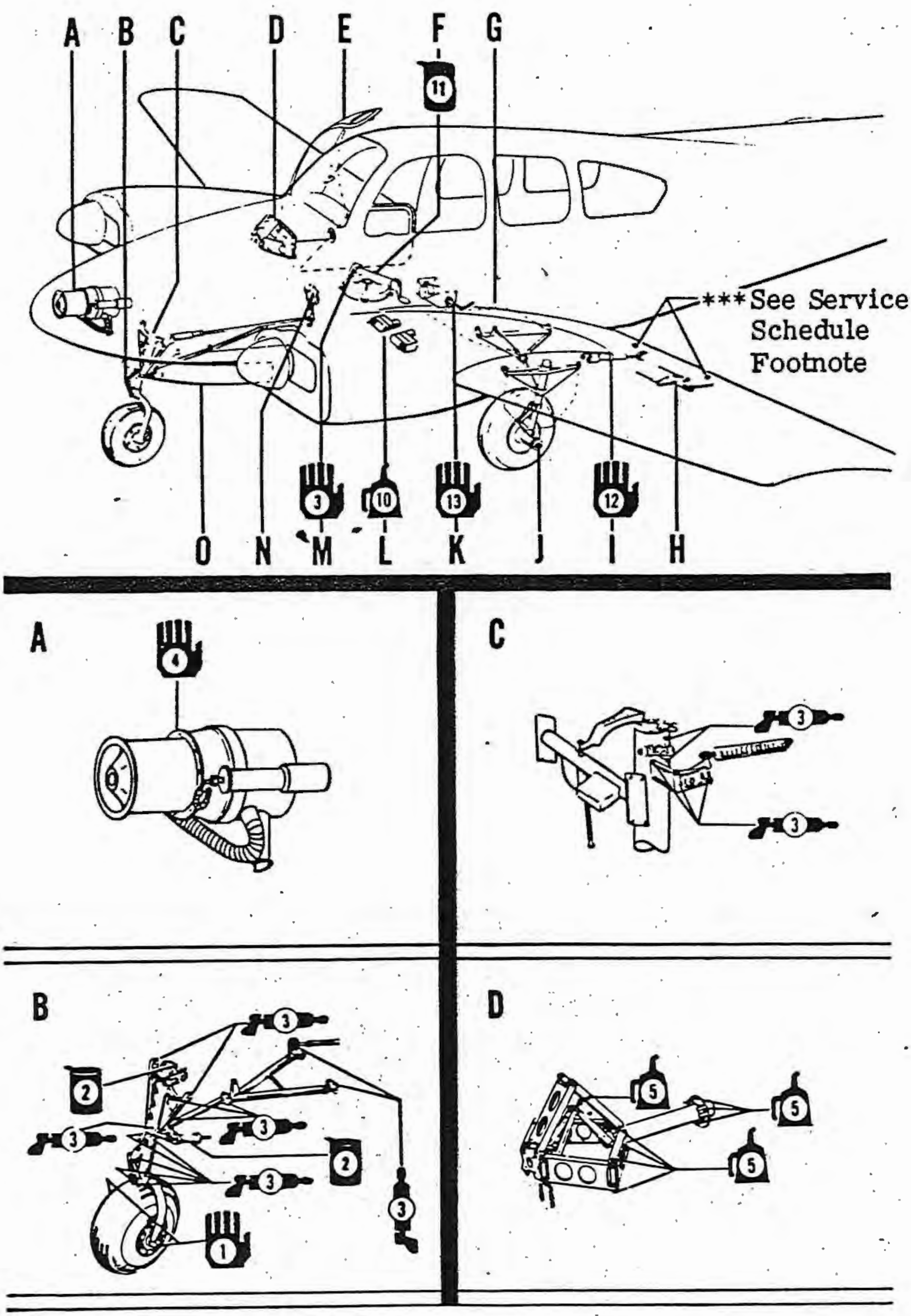
INTERIOR

The seats, rugs, upholstery panels, and headlining should be vacuum-cleaned frequently. Commercial foam-type cleaners or shampoos can be used to clean rugs, fabrics, and upholstery; however, the instructions on the container should be followed carefully.

ENGINES

Blow off excess oil with compressed air. Clean engines with kerosene, solvent (see Consumable Materials Chart), or any standard engine cleaning solvent. Spray or brush the fluid over the engine, then wash off with water and allow to dry.

LUBRICATION POINTS



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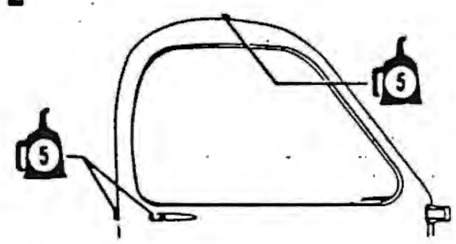

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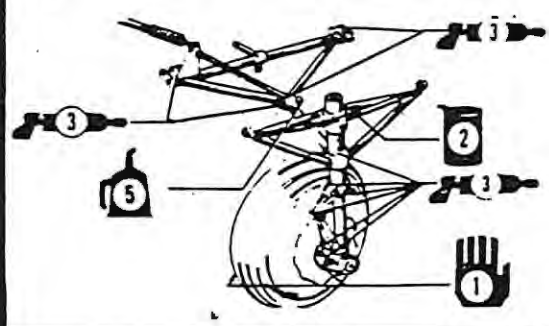

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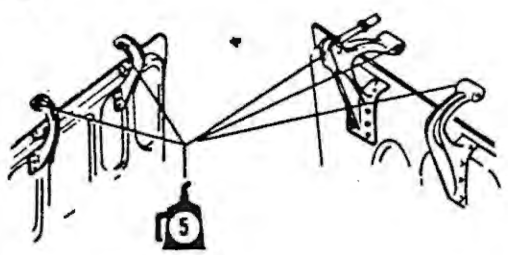

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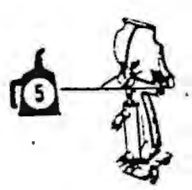

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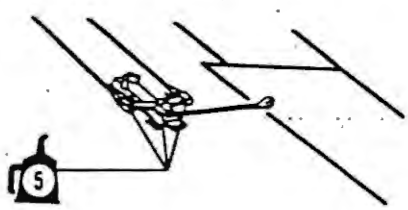

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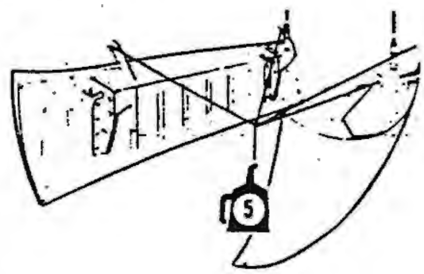

 ZERK FITTING

 FLUID CONTAINER

 HAND OR PACK

 SQUIRT CAN

Note:

Letters are keyed to the Service Schedule; numbers refer to items in the Consumable Materials Chart.

SAFETY MAINTENANCE SCHEDULE Contd.

COMPONENT	OVERHAUL OR REPLACE
UTILITY SYSTEMS Contd.	
Oxygen regulator (BEECHCRAFT)	Every 800 hours or 2 years.
Oxygen cylinder (BEECHCRAFT)	Overhaul and hydrostatically test every 5 years.
All hose	Replace every 1000 hours or 5 years from date of manufacture, whichever occurs first.
INSTRUMENTS	
Manifold pressure gage	Every 1000 hours or 2 years.
Engine gage unit	Every 1000 hours or 2 years.
Fuel flow indicator	Every 1000 hours or 2 years.
Airspeed indicator	Every 1000 hours or 2 years.
Altimeter	Every 1000 hours or 2 years.
Vertical speed indicator	Every 1000 hours or 2 years.
Directional gyro	Every 600 hours or 14 months.
Attitude gyro	Every 600 hours or 14 months.
Tachometer	Every 1500 hours.
Suction gage	Every 1000 hours or 2 years.
Turn-and-bank indicator	Clean and lubricate every 6 months. Overhaul or replace every 600 hours or 14 months.
Deicer pressure gage	Every 1000 hours or 2 years.
All hose	Replace every 1000 hours or 5 years from date of manufacture, whichever occurs first.

TOPICAL INDEX