RESTRICTED

TECHNICAL ORDER
No. 01-35EA-1

HANDBOOK

OF

OPERATION AND FLIGHT INSTRUCTIONS

FOR THE

MODELS B-26, B-26A, and B-26B BOMBARDMENT AIRPLANES

MANUFACTURED BY

THE GLENN L. MARTIN COMPANY

BALTIMORE, MARYLAND

Contract W535 AC-13243
W535 AC-16137

(B-26) Specification Type C-213, Model C-213-2B
(B-26A) Specification Type C-213, Model C-213-3

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HANDBOOK OF OPERATION AND FLIGHT INSTRUCTIONS FOR THE MARTIN B-26 BOMBARDMENT AIRPLANE

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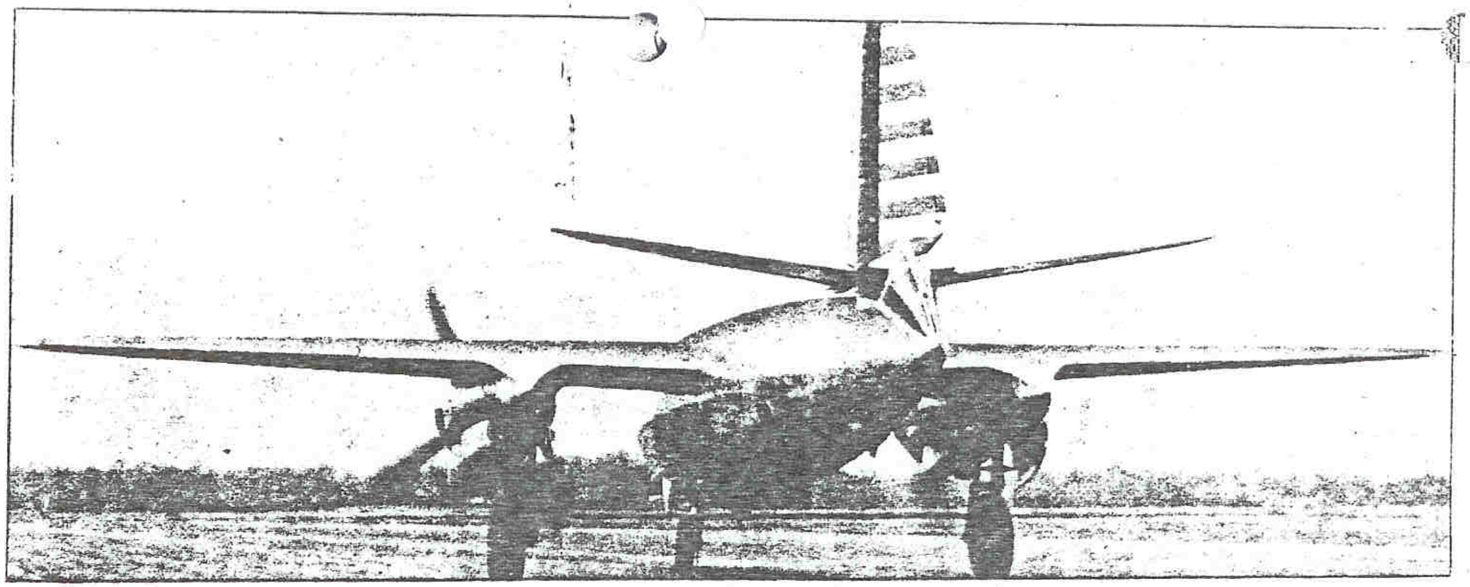
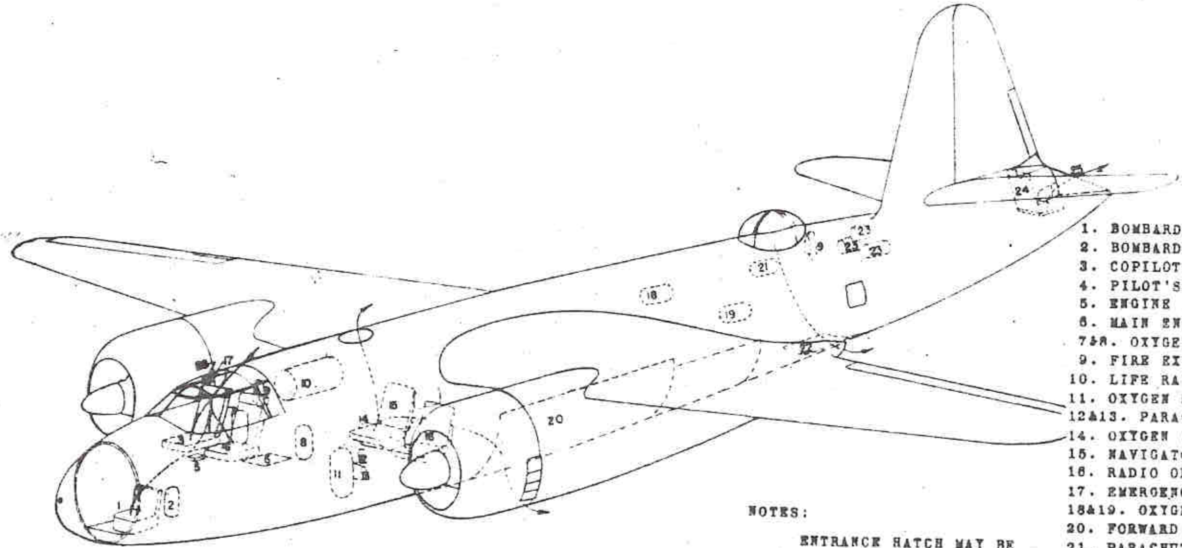


FIG. 1 - THREE QUARTER REAR VIEW



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2. BOMBARDIER'S PARACHUTE STOWAGE
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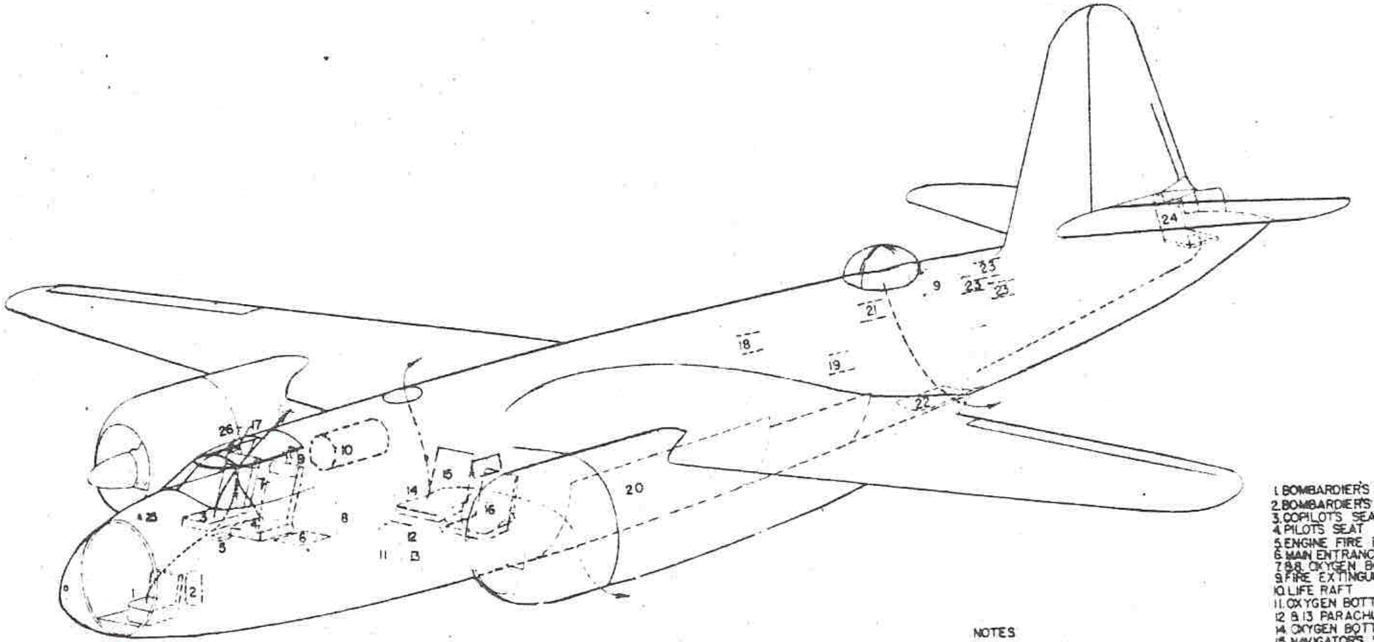
NOTES:

ENTRANCE HATCH MAY BE USED AS AN ESCAPE IF NOSE WHEEL IS EXTENDED.

BOMB BAY MUST BE EMPTY BEFORE IT MAY BE USED AS AN EMERGENCY EXIT.

FIG. 2 - EMERGENCY EQUIPMENT AND EXITS



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26. EMERGENCY BRAKE CONTROL

FIG. 2A - EMERGENCY EQUIPMENT & EXITS - (MODEL B-26B)

SECTION I

INTRODUCTION & REFERENCES

1. This Technical Order is the Operation and Flight Instructions for the Models B-26 and B-26A Bombardment Airplanes. Pilots and other personnel who are required to understand the operation of this airplane will read and be familiar with the information contained herein.

2. Reference has been made in this Handbook to the following Technical Orders which contain applicable data and instructions:

T. O. No.	
00-25-5	Procedure to be Followed in Case of Fires During Flight
01-1-17	Flying Multi-Engined Airplanes with One or More Engines Useless
01-1-60	Use of Flaps
02-10GA-1	Operation and Flight Instructions - R-2800-5 Engine
03-20B-1	Operation & Flight Instructions - Curtiss Controllable Propellers

SECTION II

DESCRIPTION

1. Airplane

a. General. - The Models B-26 and B-26A Airplanes are high-wing monoplanes of all metal construction incorporating a retractable main and nose landing gear. They are powered with two R-2800-5 or -39 engines. The approximate overall dimensions of the airplanes are: Span 65 ft., Length 58 ft. 3 in., and Height 19 ft. 11 in.

b. Wing. - The wing is of box type, riveted aluminum alloy construction. It consists of a center section integral with the fuselage, two detachable outer panels and attachable wing tips. The engines are carried on the outer wing panels. Hydraulically operated, slotted flaps extend from the fuselage to the inboard side of the nacelle, and from the outboard side of the nacelle to the aileron. Ailerons of torsion box construction extend from the end of the flaps to the wing tips. The ailerons are equipped with trim tabs adjustable in flight.

c. Empennage. - The empennage assembly consists of fixed horizontal and vertical stabilizers, elevator and rudder. The elevators and rudder are of metal fabric covered construction. They are statically and aerodynamically balanced and are fitted with combination balance and trim tabs. The trim tabs are adjustable in flight.

d. Fuselage. - (1) General: The fuselage is of aluminum alloy semi-monocoque construction, built in three sections. The Forward Section accommodates the Bomber, Forward Gunner, Pilot, Co-pilot, Navigator, and Radio Operator. The Center Section encloses the Forward and aft Bomb Bays. The Tail Section accommodates the Rear Gunner, Turret Gunner, Floor Gunner, and Tail Gunner. The Tail Section is proveded with a tail cone fairing. The Forward Section is provided with a removable transparent nose section of moulded one piece construction.

(2) Entrance Doors: Entrance to the forward section is through the main hatch door in the nose wheel well. It cannot be used when the nose wheel is retracted. Entrance to the aft section is through the camera door. Emergency exits are provided through the top of the pilot's enclosure, the navigator's observation hatch, the bomb bay doors, and the tail cone. Refer to Figure 2 Emergency Equipment and Exits. All doors and exits, except the bomb bay doors and tail cone, may be opened from either inside or outside. One key operates the locks of both main entrance doors.

e. Landing Gear. - The main landing gear consists of two independent units, one mounted under each nacelle so that they may be retracted into the nacelle. The nose gear consists of a single unit mounted so that it may be retracted into the bottom of the fuselage. Both main and nose gear are hydraulically operated, and are equipped with hydraulic shock absorber struts. The main gear is equipped with hydraulic brakes. Hydraulically operated doors enclose all wheels in the retracted position. The main gear and nose gear are equipped with locks. The uplocks are unlocked by hydraulic pressure and locked by spring loading. The downlocks are unlocked by hydraulic pressure and locked by spring loading.

2. Power Plant

a. Engine. - The airplane is powered with two R-2800-5 or -39 engines having a propeller gear reduction of two to one. For further description refer to T. O. No. 02-10GA-1.

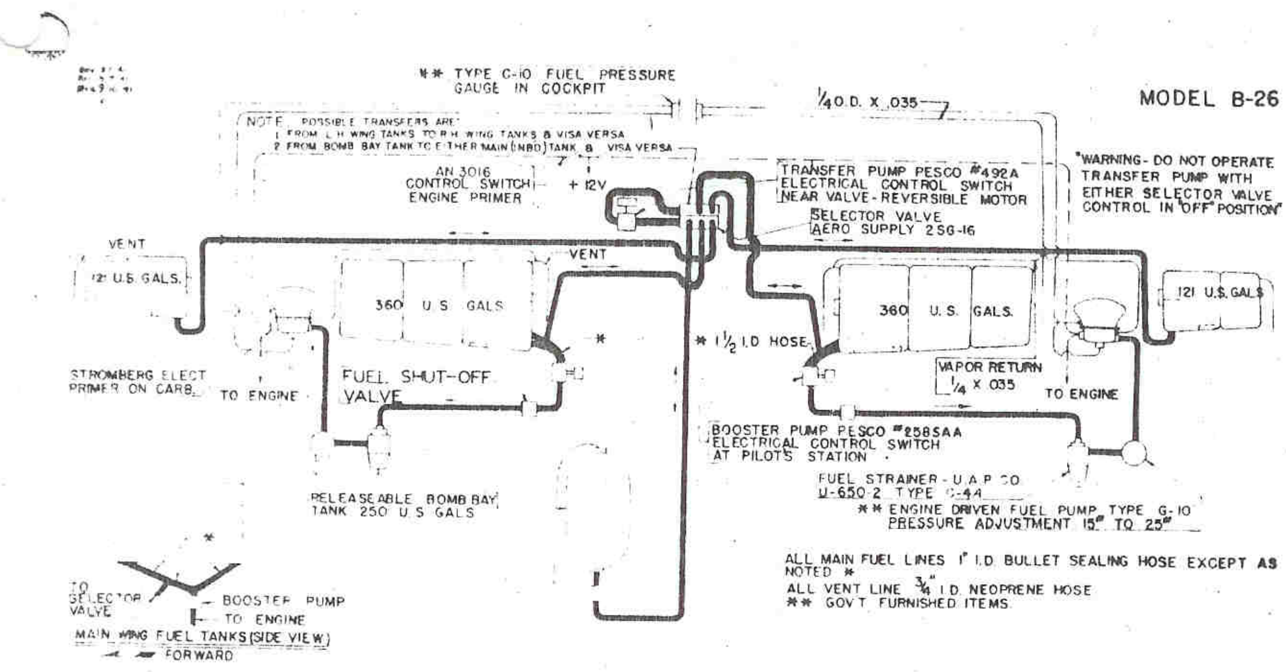


FIG. 3-FUEL SYSTEM DIAGRAM (MODEL B-26)

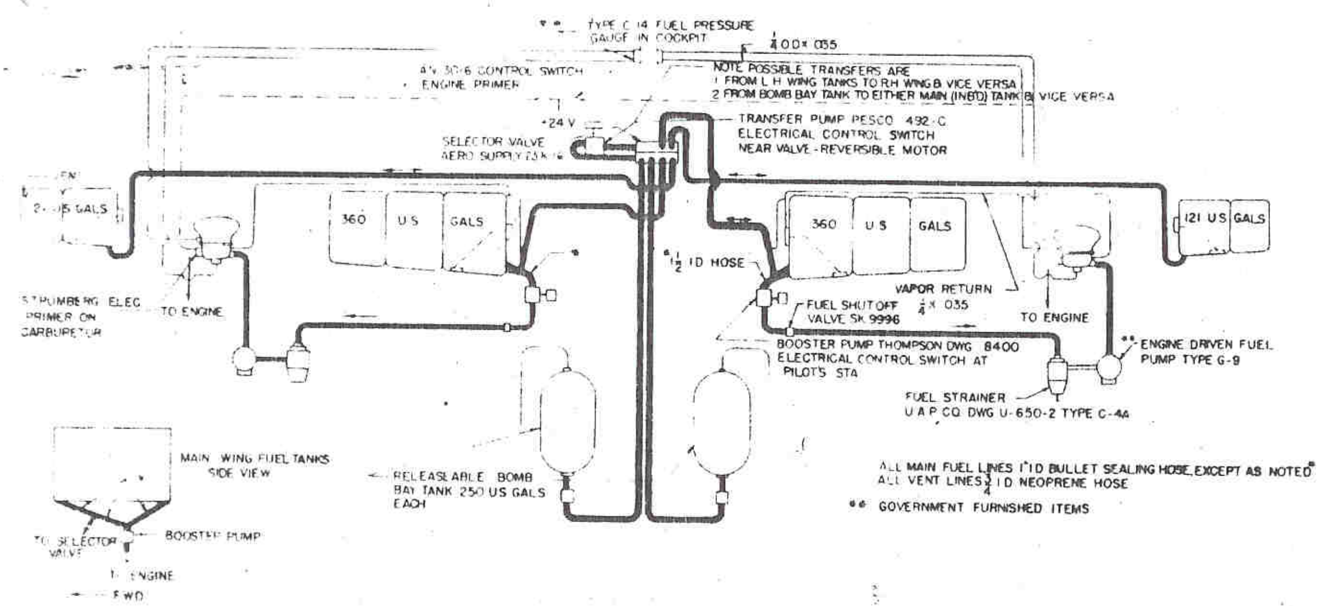


FIG. 4-FUEL SYSTEM DIAGRAM (MODEL B-26A)

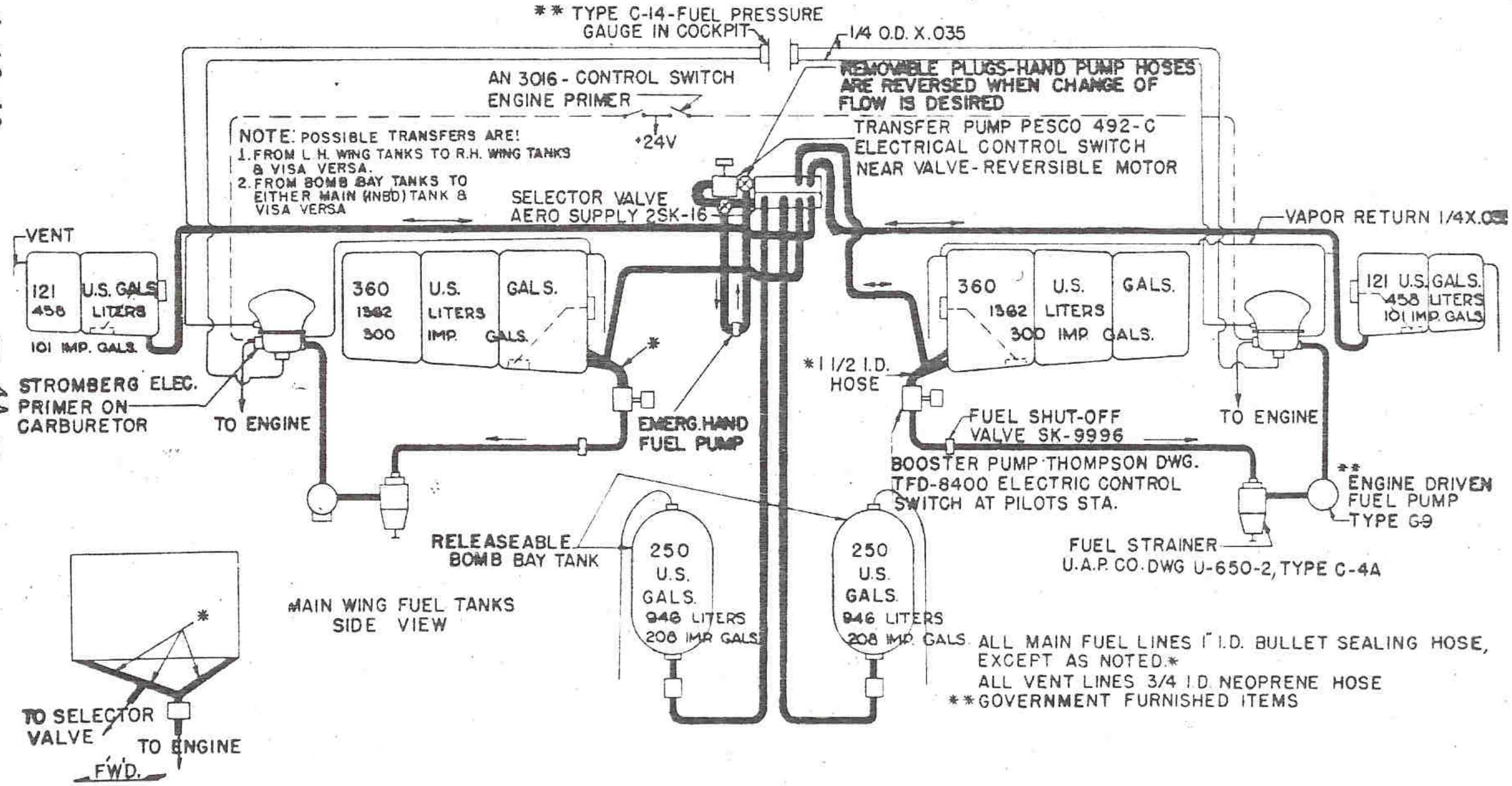


FIG. 4A - FUEL SYSTEM DIAGRAM - (MODEL B-26B)

b. Propellers. - The propellers are the Curtiss electrically controlled full feathering type. See T. O. No. 03-20B-1 for further description.

c. Oil System. - The engine oil system is of the conventional type with a tank for each engine mounted at the rear of each engine mount. Each tank has a capacity of 41.25 gallons. The oil radiator outlet ducts are fitted with exit flaps hydraulically controlled by a valve conveniently located for the pilot. This exit flap supplements oil temperature control of the Type AR-161-A rotary control valve built into the oil radiators.

d. Fuel System. - Fuel system is of the simplified transfer type, incorporating self sealing Mareng cells, electrically driven booster pumps and transfer pump. Priming is accomplished by means of a solenoid operated priming valve for each engine. Booster pumps replace the conventional hand operated pump. They draw fuel from main (inboard) wing tanks only and deliver it to the engine driven fuel pumps on each engine. They are to be used for building up initial fuel pressure when starting engines, and for rapid climbs during warm weather, and for altitude operation with warm gasoline. (Refer to the Fuel System diagrams). The Model B-26 is equipped with one bomb bay tank in the left side of the forward bomb bay. The Models B-26A and B-26B are equipped with two bomb bay tanks in the forward bomb bay. The bomb bay tanks are droppable in flight by means of the normal and emergency bombing controls. The transfer pump is used to draw fuel from the auxiliary (outboard) wing tanks and bomb bay tanks and deliver it to the main (inboard) wing tanks.

WARNING: Do not continue transfer of fuel after tank is full as this may burst tank. Fuel transfer valves located on the rear face of the forward bomb bay bulkhead show clearly the flow of fuel between tanks. The four Mareng cell fuel tanks in the wing are constructed of synthetic material designed to prevent loss of fuel in the event of damage due to gun fire.

3. Equipment.

a. Flight Controls. - Dual side by side wheel-column-rudder pedal flight controls are provided. Only the pilot's station is equipped with brake pedals. The treads of the co-pilot's pedals can be stowed by pressing a small lever on the tread and rotating the tread rearward about 90° until the engaging pin snaps into place. Adjustment for leg length is accomplished by moving the seats to fit. Control surface locks are provided.

b. Hydraulic and Pneumatic System. - (1) Hydraulic Systems: The Hydraulic System operates the oil cooler shutter, cowl flap, landing gear, landing gear locks, brakes, wing flaps, and bomb door.

(2) Pneumatic System: The pneumatic system operates the emergency bomb and bomb door release and the emergency air brake.

c. Fuselage Equipment. - (1) Seats and Cushions: Seats and cushions are provided as listed below. Of the pairs of cushions provided at the pilot, co-pilot, radio operator, and navigator seats, one of each pair may be removed to suit the type of parachute used.

Seat	No. Seats	No. Cushions
(a) Pilot	1	2 (Life Preserver Type)
(b) Co-Pilot	1	2 (Life Preserver Type)
(c) Bombardier	1	2 (Non-life Preserver Type)
(d) Navigator	1	2 (Life Preserver Type)
(e) Radio Operator	1	2 (Life Preserver Type)
(f) Camera Operator	1	1 (Non-life Preserver Type)
(g) Fatigue Position	3	2 (Life Preserver Seat Only)
(h) Tail Gunner	1	2 (Non-Life Preserver Type)
		1 (Life Preserver Type Mattress)

(2) Safety Belts: Pilot's safety belts are provided for the pilot, co-pilot, navigator (a non-magnetic type), radio man, tail gunner, and at each of the three fatigue seats. Gunner's type safety belts are provided for the bombardier where there are two support shackles, one for the bombardier and one for student bombardier, one at the tail gunner's station and one at the floor gunner's station. There is also a special type safety belt provided in the turret.

(3) Relief Stations: There are three relief stations, one at the forward end of the forward bomb bay on the left side, one on the left side of the rear bomb bay, and one in the tail compartment accessible to the tail gunner. A toilet with removable can is located under the deck turret structure on the right side of the aft compartment. The toilet paper container is on the bulkhead wall to the right of the toilet.

(4) Flight Report Holder: The airplane flight report holder and airplane data case containers are mounted on the left side of the ship near the pilot's shoulder.

(5) Life Rafts: The life raft is stowed in the navigator's compartment in the crown to the left of the centerline of the ship. After leaving the compartment the operator should reach in through hatch door and pull the knob located on the forward edge of the door and container will fall to line with the hatch opening. The life raft can then be pulled out.

(6) Thermos Bottles: One two-quart thermos bottle and cup container is located on the left side behind the pilot and one two-quart thermos bottle and cup container is located on the aft side of the Bulkhead #434 in the aft compartment.

(7) Ladders: A short ladder hinged to the bulkhead provides access to the cockpit through the nose wheel well. For use, this ladder swings down to a position approximately 25 inches above the ground. A long detachable ladder for access through the camera door to the aft compartment is stowed in the aft compartment on the right side above and in back of door. For use, this ladder is hooked into holes provided at the door. The engine working platform is a ladder so arranged that the outer legs can be spread for support and the center portion extended to any desired height. The small platform on the center ladder is provided for tools. One of these engine ladders is furnished for every ten airplanes. For transportation from point to point this ladder may be stowed in the bomb bay lashed to the bomb racks.

(8) Blind Flying Hood: The blind flying hood, consisting of several pieces of fabric, stowed on the right side of the pilot's compartment, is provided with glove snaps to fasten the hood to the enclosure.

(9) Sun Visors: Adjustable sun visors, mounted on the windshield frame, are provided for the pilot and co-pilot.

(10) Bomb Sight Box: A removable bomb sight stowage box, fitted with lock and key, is provided in the Bombardier's Compartment.

(11) Floor Gun Grate: An easily removable bar, stowed in the gunner's step locker, is provided to place across aft bottom door opening to prevent accidental falling.

(12) Cotton Container: A cotton container is provided at each crew position.

(13) Parachute Stowage: Provision for stowage of quick attachable type parachutes is at each of the following stations: Bombardier, Navigator, Radio Operator, plus four in the aft compartment. Seat or back parachutes may be used by the pilot, co-pilot, navigator, or radio operator by removing one of the seat cushions.

(14) Curtains: A curtain is provided between the pilot's and navigator's compartments. This is a split sliding curtain, and may be parted to either side for easy access. In the aft compartment, ward of the tail gunner's entrance, a zipper operated curtain is provided to maintain better heating ventilation.

d. De-Icing and Anti-Icing Equipment. - (1) Wing De-icer provisions consist of tubing, fittings, distributing valve, selector valve and de-icer shoes and fittings.

(2) Propeller anti-icer provisions consist of standard slinger rings for the propellers, a five gallon fluid tank mounting for an electric driven pump, and suitable tubing. The rheostat for the pump is located on the lower right hand side of the pilot's control pedestal on the B-26 and B-26A; and on the instrument panel for the B-26B.

e. Heating and Ventilating Equipment. - (1) The Model B-26 supplies heat to all crew stations by means of exhaust manifold heaters. On airplanes numbered AC 40-1361 to AC 40-1460 inclusive, the hot air is brought from the heaters through leading edge ducts and cold air is brought through another leading edge duct from an inlet to a mixing chamber. Dampers in both hot and cold air ducts are operated independently by controls in the navigator's compartment, for proper mixture in the mixing chamber. On airplanes numbered AC 40-1461 to AC 40-1561 inclusive, the hot air is brought from the left hand engine through a leading edge duct direct to the aft section. No cold air is provided. Hot air is brought from the right hand engine and cold air from an air intake in the right wing through leading edge ducts to the navigator's compartment, where they are mixed by controls and supply heat for the forward section. All airplanes are equipped with spill valves in the nacelles where all heat may be spilled over-board by controls in the navigator's compartment. Heating or defrosting at any station may be improved by turning off other outlets. Heat is supplied as follows:

Crew Station or Compartment	Type of Outlet and Control
(a) Navigator Compartment AC 40-1361 to AC 40-1460 incl.	Anemostat diffuser and screw damper
(b) Navigator Compartment AC 40-1461 to AC 40-1561 incl.	Radiation from heating duct
(c) Aft Turret and Camera Station	Damper box Aerofuse outlet and screw damper.
(d) Tail Gunner	Duct Outlet and sliding damper.
(e) Pilot and Co-Pilot	Duct Outlet and sliding damper.

Crew Station or Compartment	Type of Outlet and Control
(f) Bombardier	Duct Outlet with sliding damper.
(g) Pilot Windshield Defrosting	Duct Outlet with butterfly damper.
(h) Bombsight Defrosting	Flexible tube with thumb operated damper at nozzle.

(2) The Model B-26A and B-26B supply heat to all crew stations by means of exhaust manifold heaters. The hot air is brought from the left hand engine through a leading edge duct direct to the aft section. No cold air is provided. The forward section is supplied with heat from the navigator's compartment where the hot air brought from the right hand engine and cold air from an air intake in the right wing through leading edge ducts, are mixed and distributed forward. Spill valves are provided in the nacelles where all heat may be spilled over-board by controls in the navigator's compartment. Heating or defrosting at any station may be improved by turning off other outlets. Heat is supplied as follows:

Crew Station or Compartment	Type of Outlet and Control
(a) Navigator Compartment	Radiation from heating duct.
(b) Aft Turret and Camera Station	Damper box Aerofuse outlet and screw damper.
(c) Tail Gunner	Duct Outlet and sliding damper.
(d) Pilot and Co-pilot	Duct Outlet and sliding damper.
(e) Bombardier	Duct Outlet with sliding damper.
(f) Pilot Windshield Defrosting	Duct Outlet with butterfly damper.
(g) Bombsight Defrosting	Flexible tube with thumb operated damper at nozzle.

f. Fire Extinguishers. - Two CO_2 fire extinguishers are installed, one in the pilot's compartment at the rear of the co-pilot and the other in the waist gun compartment, aft side of the upper rear turret coaming. The Lux fire extinguisher system for the engines has its control in the floor between pilot and co-pilot. To operate, lift up the trap floor to the selector valves and operating handle. Refer to T. O. No. 00-25-5 for procedure to be followed in case of fire during flight.

g. Oxygen Equipment. - Oxygen equipment consists of one low pressure Model B-26, 350#; Model B-26A, 400# system. This system is filled from a central point located in Aft Bomb Bay. There are two small bottles located in the pilot's compartment, one back of the pilot and one back of the co-pilot. One large bottle is located under the navigator's table and one behind the navigator's seat. There are two large bottles in the rear bomb bay, one on the left side and one on the right side. All of these are interconnected and fitted with check valves so that if one bottle is damaged it will not dump the entire system. The outlets, each provided with individual pressure regulators A.C. type A-9, are located as follows: Two in the bombardier's compartment - one right and one left, one for the pilot and one for the co-pilot, mounted on their respective sides of the instrument panel, one for the navigator mounted alongside the navigator's instrument panel; one for the radio man mounted on the radio panel with the radio compass; one for the floor gunner or camera man; one for the tail gunner on the right side in the stub of the elevator and one for the turret gunner. To permit the turret gunner to breathe oxygen while in the firing position, a swivel fitting is provided in the floor directly below the turret.

h. Photographic Equipment. - Provisions are made for the vertical installation of the multiple lens tactical mapping camera Type T-3A and for the K-7C and K-3B cameras in a combination retractable mount. The retractable mount is located in the rear compartment over the rear entrance door. In the stowed position the mount is located just aft of the door area. The mount is held in place in the stowed position by a latch on the rear center leg. To release - pull the lock handle on the left side of the ship at the edge of the camera door. The mount is spring loaded so that upon release the mount will slide down over the door opening. To bring the mount down to the horizontal position squeeze the latches on each of the forward legs. For moving the camera aft, raise the camera mount and pull the cable at the left side until the mount locks in the aft position. The view finder plate located on the forward side of the camera mount may be folded up for stowage. This must be folded out of the way when the mount is retracted, in order to close the camera doors. On the right is located the electrical junction box for plugging in the camera and induction coil when needed. On the aft side of this box is a bracket affording stowage for the intervalometer. Separate camera magazines may be stowed on the left side aft of the camera. In order to use the oblique cameras, the windows in the aft section should first be removed and the camera may then be aimed through them on either side of the plane.

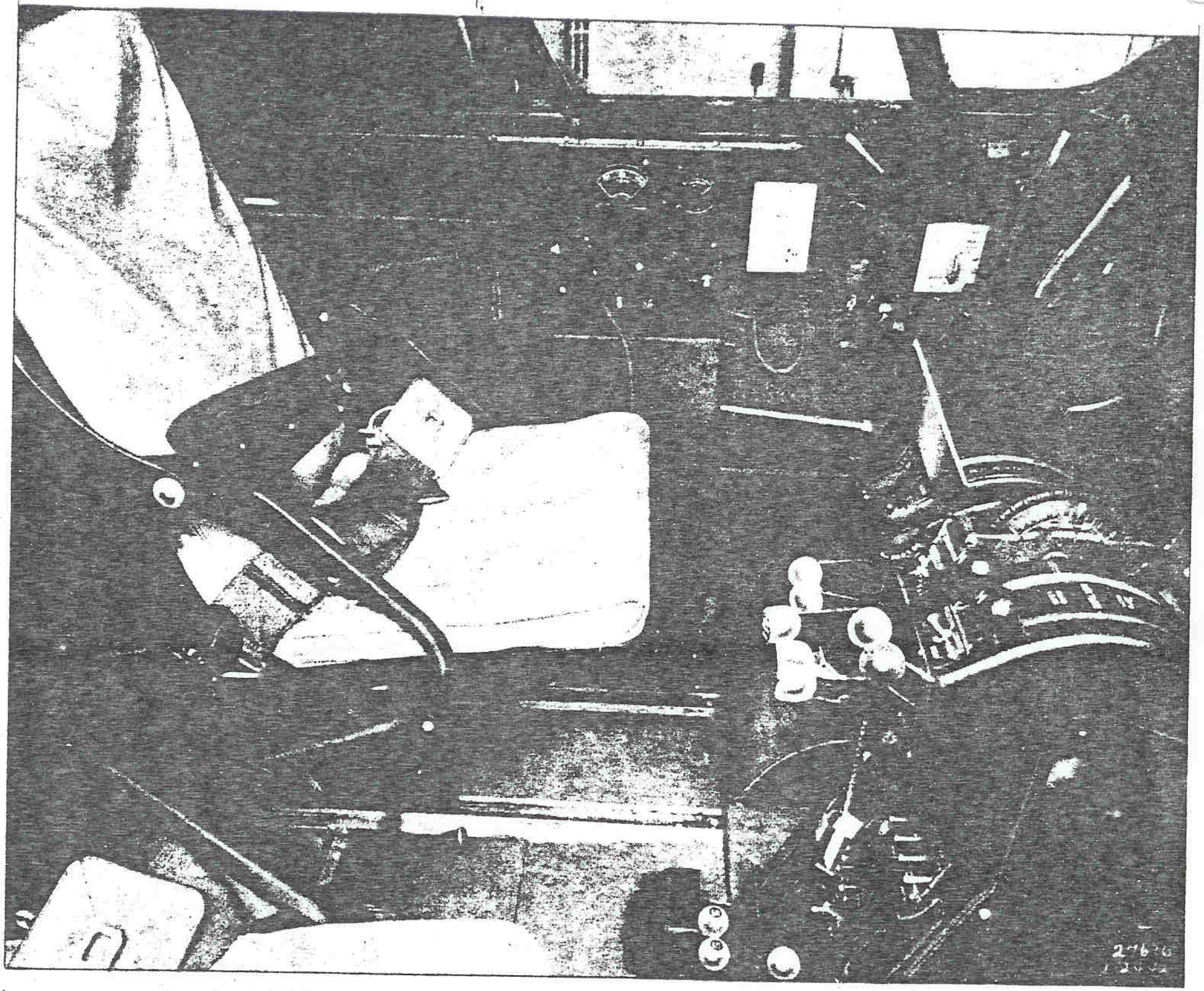


FIG. 5 - PILOT'S COCKPIT ARRANGEMENT AND CONTROLS - LEFT SIDE (B-26A)

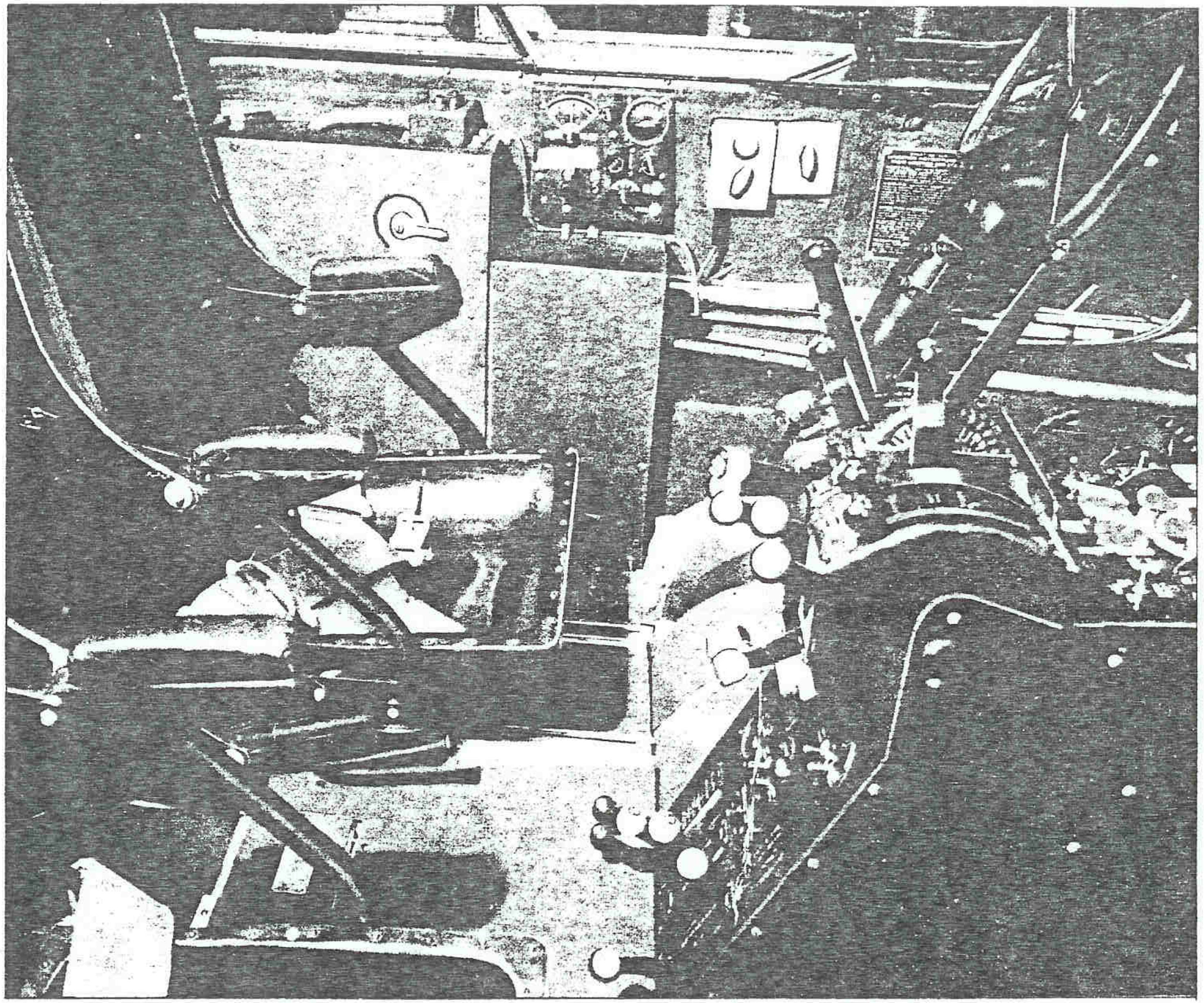


FIG. 6 - PILOT'S COCKPIT ARRANGEMENT & CONTROLS-LEFT SIDE(MODEL B-26)

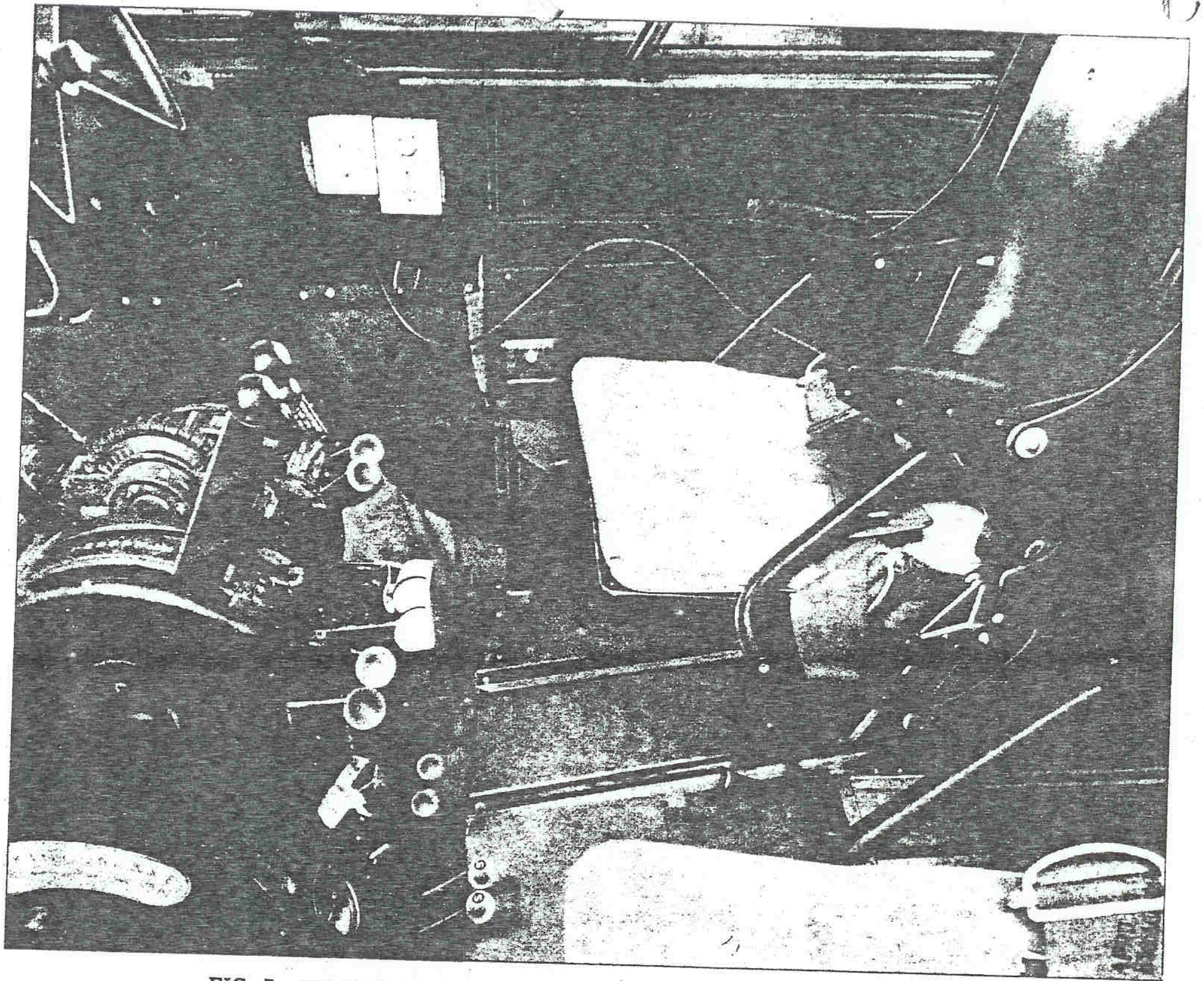


FIG. 7 - PILOT'S COCKPIT ARRANGEMENT AND CONTROLS - RT. SIDE MODEL B-26A

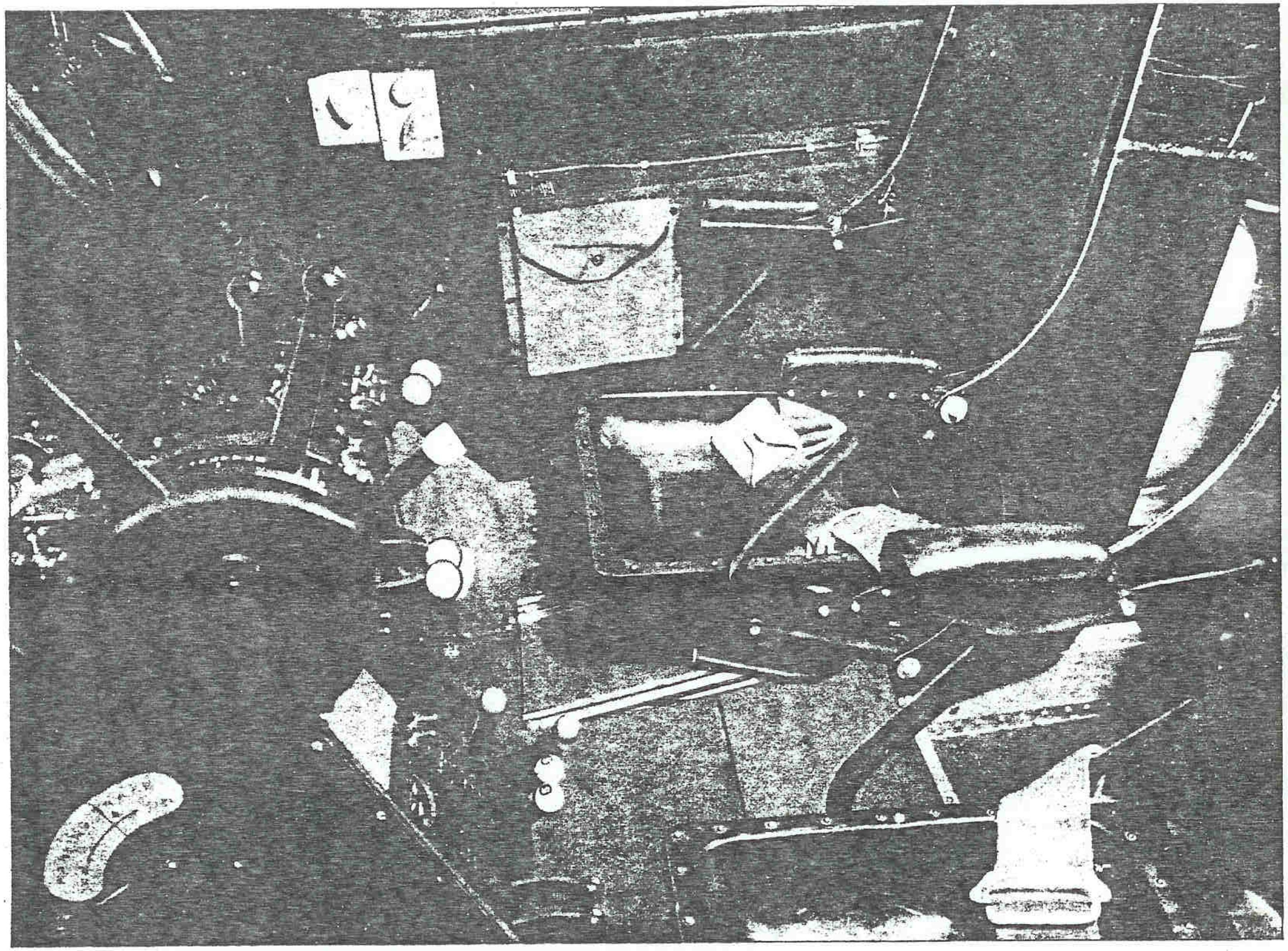


FIG. 8 - PILOT'S COCKPIT ARRANGEMENT & CONTROLS-RIGHT SIDE MODEL B-26

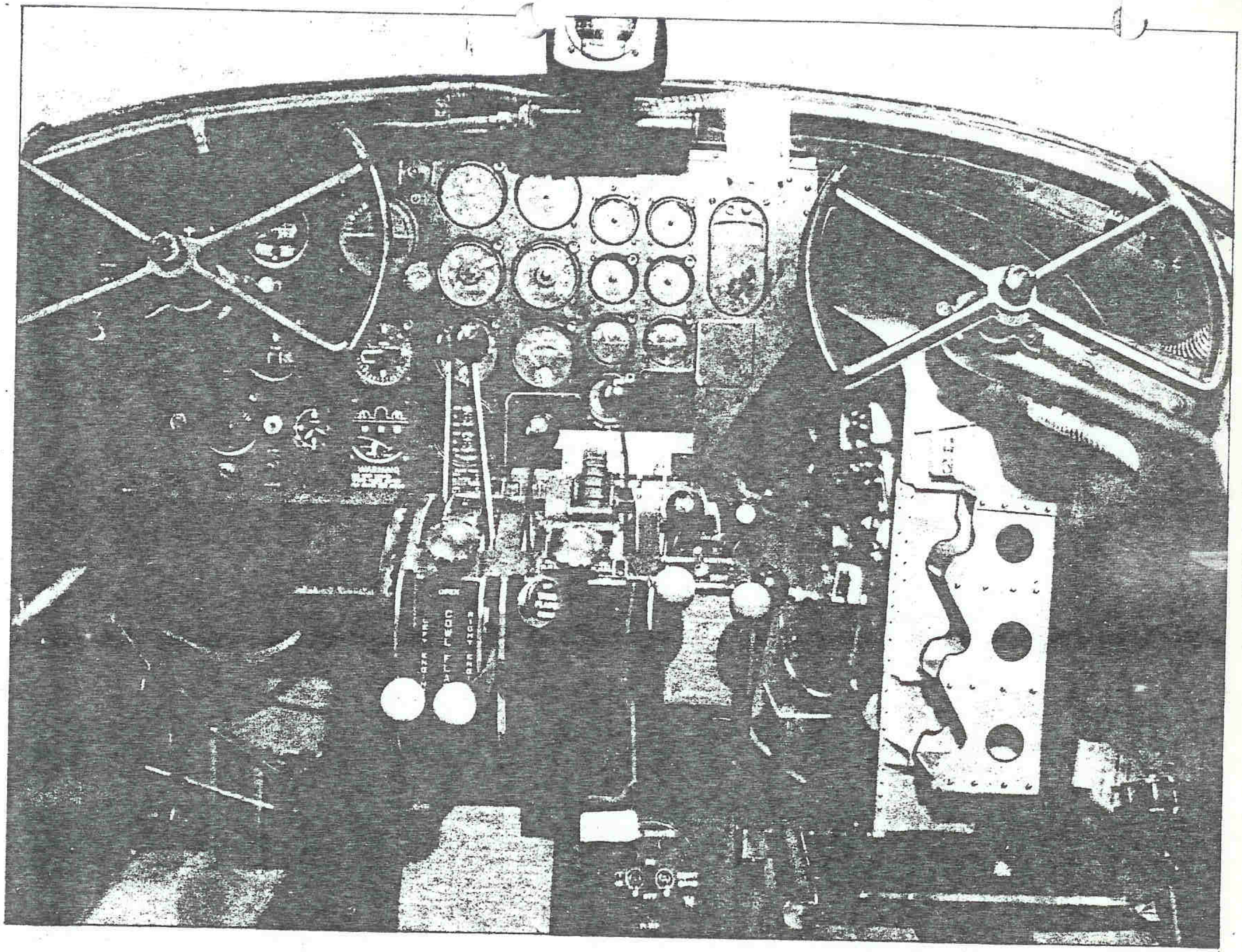


FIG. 9 - PILOT'S COCKPIT INSTRUMENT PANEL MODEL B-26

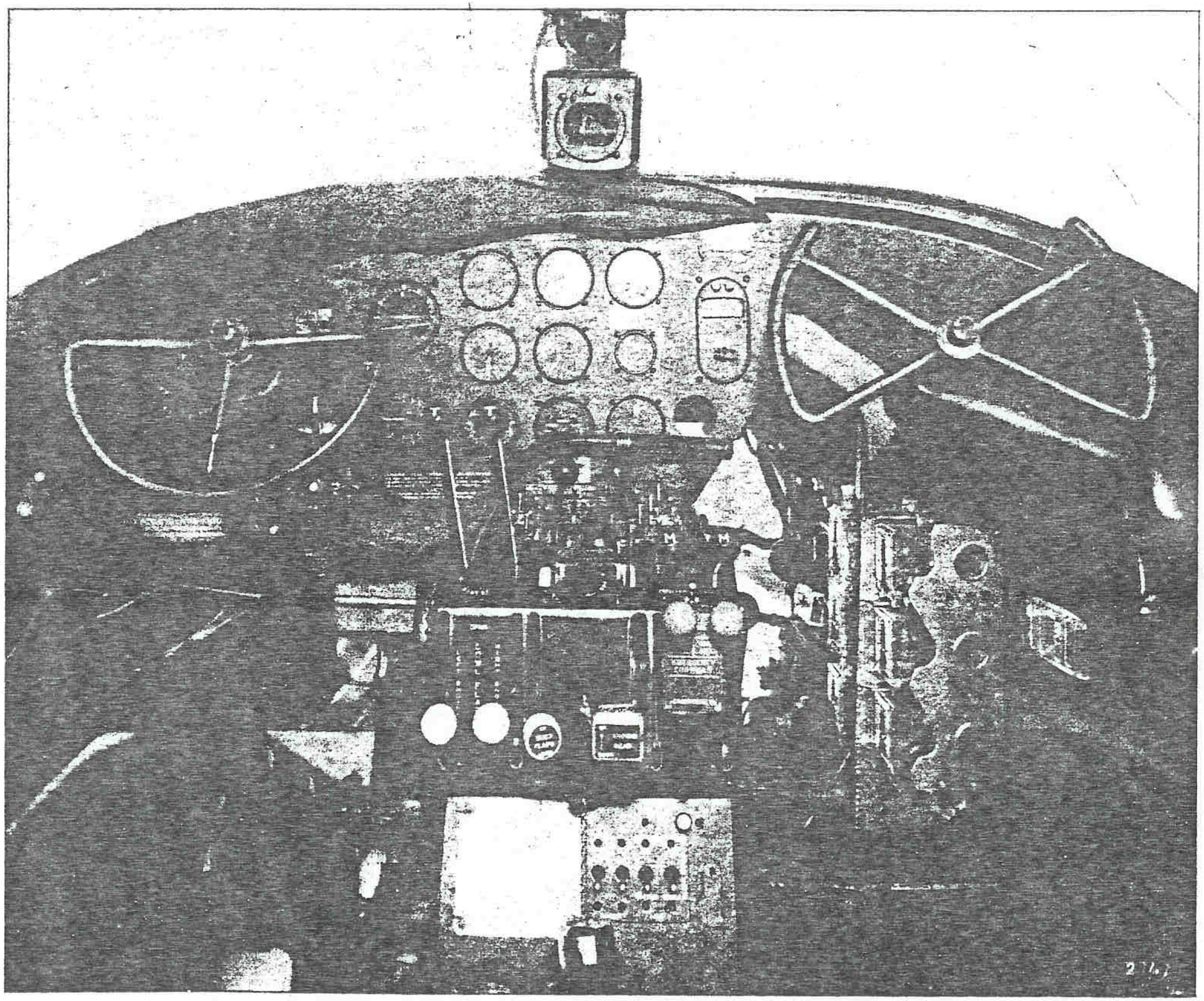


FIG. 10 - PILOT'S COCKPIT AND CONTROLS - LOOKING FWD. MODEL B-26A

FIG. 11. Control Pedestal Pilot's Cockpit (Model B-26)
(to be issued when available)

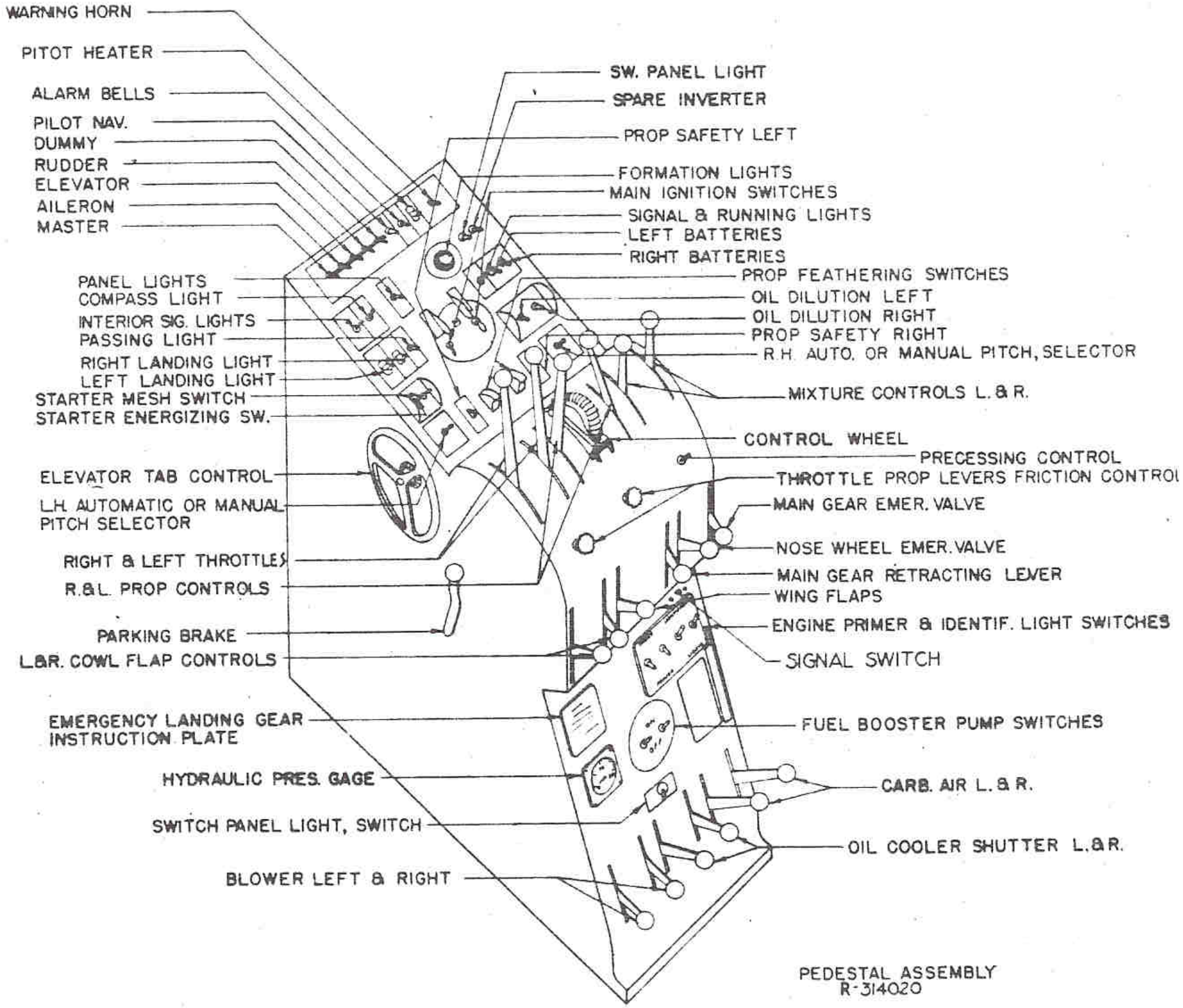


FIG. 12 - CONTROL PEDESTAL PILOT'S COCKPIT

(MODEL B-26B)

SECTION III

GENERAL INSTRUCTIONS

1. Location of Controls

a. Flight Controls: (Refer to Figures 5 to 12 Inclusive.)

Control		Type	Location
(1)	Elevators	Dual Control Column	Pilot Cockpit
(2)	Aileron		
(3)	Rudder	Dual Pedals	Pilot Cockpit
(4)	Tab-Elevator	Wheel	Left Side of Pedestal
(5)	Tab-Aileron	Knob	Cockpit Ceiling-Center
(6)	Tab-Rudder	Crank	Cockpit Ceiling-Center
(7)	Wing Flaps	Lever (Hydraulic Valve)	Pedestal Head-Rear Face, Left Center
(8)	Control	Wheel	Pedestal Head-Upper Center

b. Landing Gear Controls:

Control		Type	Location
(1)	Normal-Nose & Main	Lever	Pedestal Head-Rear Face - Right Center
(2)	Emergency-Nose Gear	Lever	Pedestal Head-Rear Face Right Center
(3)	Emergency-Main Gear	Lever	Pedestal Head-Rear Face Extreme Right

c. Power Plant Controls:

Control		Type	Location
(1)	Starter-Energize	Switch	Pedestal-Forward Extreme Left Center
(2)	Starter-Mesh	Switch	Pedestal-Forward Left Center
(3)	Ignition-Left & Right	Switches	Pedestal-Forward Center
(4)	Throttles-Left & Right	Levers	Pedestal Head-Extreme Left
(5)	Mixture-Left & Right	Levers	Pedestal Head-Extreme Right
(6)	Propeller-Left and Right	Levers	Pedestal Head-Left and Right Center
(7)	Friction-Throttle Levers	Knob	Pedestal Head-Rear Left
(8)	Friction-Propeller Levers	Knob	Pedestal Head-Rear Center
(9)	Precessing (Pilot)	Switch	Pedestal Head-Rear Right
(10)	Precessing (Navigator)	Switch	Navigator Compartment-R.H. - Above Driftmeter
(11)	Primer-Left & Right	Switches	Pedestal-Upper Rear Right
(12)	Pump-Fuel Booster Left & Right	Switches	Pedestal-Rear Center
(12a)	Emergency Fuel Pump (B-26B)	Valve-Selector	Left Aft Side Bulkhead Sta. 230 3/4
(13)	Blower Ratio - Left Right	Levers	Pedestal-Lower Rear Left
(14)	Oil Cooler Left and Right	Levers	Pedestal-Lower Rear Center
(15)	Carburetor-Aux. Air	Levers	Pedestal-Lower Rear Right
(16)	Cowl Flap-Left and Right	Levers	Pedestal Head-Lower Rear Left
(17)	Pump-Fuel Transfer	Switch	Rear Face of Bulkhead Between Navigator and Forward Bomb Bay-Left Side
(18)	Fuel Selector	Valve	Rear Face of Bulkhead Between Navigator and Forward Bomb Bay-Left Side
(19)	Propeller-Safety, Left	Switch	Pedestal-Forward Lower Left Center
(20)	Propeller-Safety, Right	Switch	Pedestal-Forward Lower Right Center
(21)	Propeller-Auto. Man. Left	Switch	Pedestal-Forward Lower Extreme Left
(22)	Propeller-Auto. Man. Right	Switch	Pedestal-Forward Lower Extreme Left (at Right on B-26B)

Control		Type	Location
(23)	Propeller-Feather, Left	Switch	Pedestal-Forward Lower Center
(24)	Propeller-Feather, Right		Pedestal-Forward Lower Center
(25)	Oil Dilution - Left and Right	Switch	Pedestal-Forward Middle Right
(26)	Fuel Level	Gage	Pilot Instrument Panel
(27)	Fuel Flow (On AC40-1361, Model B-26 only)	Meter	Right Handside of Co-Pilot (Not to be used for take-off or climb)

d. Other Controls:

Control		Type	Location
(1)	Bomb and Torpedo Emergency	T-Handle	Crown of fuselage between and forward of pilot and co-pilot
(2)	Bomb-Normal	Lever	Bombardier's Compartment Left hand side
(3)	Brakes-Service	Pedals	Pilot rudder pedals
(4)	Brake-Emergency	T-Handle	Forward center above instrument panel and in front of emergency bomb and torpedo release.
(5)	Brake-Parking	Lever	Pedestal Head-Left Hand Face
(6)	Horn-Landing Gear Warning	Switch	Pedestal-Extreme Upper Forward Right
(7)	Battery-Master, Left and Right	Switches	Pedestal-Extreme Middle Right
(7a)	Hydraulic Fluid Tank-Emergency (B-26B)	Valve	Pedestal-Lower Right Side
(7b)	Propeller Anti-icer (B26B)	Rheostat	Instrument Panel-Center-Lower Left
(8)	Lights-Signal and Running	Switch	Pedestal-Forward Middle Right Center
(9)	Lights - Formation	Knob	Pedestal-Forward Middle Center
(10)	Light-Landing Left	Switch	Pedestal-Forward Extreme Middle Left
(10a)	Light - Signal (B-26B)	Micro-Switch	Pedestal-Upper Right Extreme Right
(11)	Light-Landing Right	Switch	Pedestal-Forward Extreme Middle Left
(12)	Light-Passing	Switch	Pedestal-Forward Middle Left Center
(13)	Lights - Panel	Switch	Pedestal-Forward Upper Middle Right, Model B-26A; Left, Model B-26
(14)	Lights - Interior	Switch	Pedestal-Forward Upper Middle Left
(15)	Inverter - Spare (Model B-26A & B-26B only)	Switch	Pedestal-Forward Middle Extreme Right
(16)	Light - Compass	Switch	Pedestal-Forward Upper Middle Left Center
(17)	Light-Pedestal (Model B-26)	Switch	Pedestal-Forward Upper Middle Left Center
(18)	Light (Fluorescent) (Model B-26A & B-26B only)	Switch	Pedestal-Forward Upper Middle Left Center
(19)	Lights - Identification (Model B-26A & B-26B only)	Switches	Pedestal-Upper Right Extreme Right
(20)	Bells - Alarm	Switch	Pedestal-Forward Extreme Upper Right Center
(21)	Heater-Pitot	Switch	Pedestal-Forward Extreme Upper Right Center
(22)	Control	Switches	Pedestal-Forward Extreme Upper Left and Left Center
(23)	Oxygen Supply	Regulator	At each Crew Station
(24)	Heating and Ventilating	Controls	See detailed description under Section II
(25)	Seats-Pilot & Co-Pilot (Model B-26A & B-26B only)	Levers Fore & Aft Inboard Height Adj. Outboard Reclining Outboard	
(26)	Seats-Pilot and Co-Pilot (Model B-26 only)	Levers Fore & Aft Outboard Height Adj. Inboard Reclining Inboard	

Control		Type		Location
(27)	Seats-Navig. Radio Operator (Model B-26 only)	Levers Fore & Aft Swivel	 Inboard Inboard	
(28)	Seat - Navigator (Model B-26A & B-26B only)	Levers Fore & Aft Swivel	 Inboard Outboard	
(29)	Seat-Radio Operator (Model B-26A only)	Levers Fore & Aft Swivel	 Inboard Inboard	
(30)	De-Icer Valve	Provision		R.H. of Co-Pilot
(30a)	De-Icer (B-26B)	Lever		Left Hand of Pilot
(30b)	De-Icer Pressure (B-26B)	Gage		Pilot Instrument Panel
(30c)	De-Icer (B-26B)	Valve-Selector		Left Hand of Pilot
(31)	Drift Sight Door	Lever		R.H. and below Nav. Seat

2. Operation of Controls.

a. Flight Controls. - Operation of the wheel-column-pedal flight controls is conventional.

(1) Surface Control Locks: To lock aileron, elevator and rudder control surfaces obtain lock yoke from its stowage bag on the left forward side of Bulkhead 156 1/2 just above the pilot's floor. Facing forward, rotate the pilot's control wheel counter-clockwise about 20° (left wing down) and place the yoke over the control wheel spoke. Secure yoke to pilot's control column by pressing it firmly to its seat in the base plate attached to the control column, turn key marked "Elevator" 90° clockwise and remove key. Take the "Elevator" and "Rudder" keys, which are connected together by a chain, to the tail of the ship. Open the inspection panel for the elevator quadrant on the left side of the ship. Neutralize the elevator quadrant with the 2 side fittings and insert the "Elevator" key all the way until the snap spring engages. Open the inspection panel for the rudder quadrant on the ceiling. Centralize the hole in the rudder quadrant with the hole in a lug on the stabilizer rear spar and insert the "Rudder" key all the way until the snap spring engages. The control surfaces and cockpit controls are now locked. Revise above procedure to disengage locks.

CAUTION: DO NOT ATTEMPT TO REVERSE "ELEVATOR KEY FROM LOCK YOKE WITHOUT FIRST SECURING YOKE TO CONTROL WHEEL AND COLUMN. ALSO, LOCK YOKE CANNOT BE REMOVED FROM CONTROL WHEEL AND COLUMN WITHOUT FIRST OBTAINING KEYS FROM ELEVATOR AND RUDDER TAIL QUADRANTS. DO NOT PRY LOCK YOKE FREE FROM CONTROL WHEEL AND COLUMN BY FORCE.

(2) Elevator Tab Wheel - Rotate forward for nose down and aft for nose up.

(3) Rudder Tab Crank - Crank clockwise for nose right and counter-clockwise for nose left. During approach for landing trim airplane directionally after change from landing gear and flaps "up" to landing gear and flaps "down" condition.

(4) Aileron Tab Knob - Turn clockwise for right wing down and counter-clockwise for left wing down.

(5) Tab Position Indicator - Indicators graduated in degrees are incorporated in the tab control units.

(6) Flaps - Move flap levers up for flaps up and down for flaps down. Flaps may be stopped at any degree of setting by returning control lever to neutral. A catch holds the lever in neutral. Refer to T. O. No. 01-1-60.

b. Landing Gear Controls. - (1) Normal Operation: Normal operation is achieved by the retraction or extension of the hydraulic operating cylinders. Pressure is obtained in the hydraulic system by two engine driven pumps. In the event of failure of the engine driven pumps, pressure may be obtained by a hand pump. A lock is provided on the main control handle to prevent inadvertent retraction. The handle should remain down between landings and take-offs. Move handle down to extend gear and leave full down. Move handle up to retract gear and return to neutral. Replace cap after use.

(2) Emergency Operation: Emergency operation is achieved through shuttle valves and the emergency control valves, which allow the hand pump pressure to operate the doors and locks of the nose wheel, and the main gear through a separate isolated system. Using the nose wheel lever first, the hand pump pressure must be utilized to pump the nose wheel to "down" and locked position. Then using the main gear lever the hand pump pressure need only open the doors and release the "up" lock, whereupon the gravity and air forces will then extend the gear to "down" and locked position. In the event that the main gear cannot be released, landing with nose wheel extended will minimize the damage to the fuselage. Never put main gear down first as the nose wheel may be out of commission, and result in loss of ship and serious injury to personnel. If nose gear is tried first, and nose gear fails to operated, no attempt should be made to extend the main gear, thus requiring landing on bottom of fuselage. See option given under Section IV, paragraph 9. b. Use emergency only after gage pressure drops below 130 pounds. The sequence of emergency operation is as follows:

(a) Landing Gear Lever - down.

(b) Emergency Nose Gear lever - emergency down.

(c) Supply Pressure with emergency pump.

(d) Nose gear doors open.

(e) Nose gear uplocks released.

(f) Nose gear moves to down-locked position.

(g) Return nose gear emergency lever to neutral.

(h) Emergency main gear lever - emergency down.

(i) Supply pressure with emergency pump.

(j) Main gear doors open.

(k) Main gear uplocks released.

(l) Main gear falls into place.

(m) Put both emergency levers to normal.

(n) Return landing gear lever to normal.

(o) Emergency mechanical flap lowering. Place pilot's hydraulic control in "down" position. Jack flaps down in bomb bay.

(p) Hand pump for emergency hydraulic control of flaps and brakes. Pull handle for actuating brake emergency pneumatic system after landing if necessary.

(3) Position Indicator and Warning Horn: A position indicator in the pilot's compartment indicates when the main and nose gears are in the extended position and the downlocks in place. A signal horn in the pilot's compartment warns when either gear is not in the extended and locked position.

(4) Brakes. - (a) Service Brakes: The service brakes are operated by toe pressure applied to the rudder brake pedals. Hydraulic pressure is transmitted to the brakes through the power brake control valve, each wheel operating independently of the other.

(b) Parking Brakes: To set brakes for parking, depress both brake pedals equally, pull back parking lever, remove pressure from pedals and release lever. To release brakes depress gage, located on the control pedestal must show at least 850 pounds per square inch pressure when the airplane is parked. This pressure can be obtained by running engines, prior to parking, which will allow the accumulator to charge to its full capacity and insure maximum fluid capacity for parking periods. Slight internal leaks may otherwise deplete a small supply and defeat the purpose of the parking brake.

(c) Emergency Handle: An intermittent pull on the emergency handle, located on the crown center between pilot and co-pilot, releases air pressure, through separate lines and shuttle valves, directly to the brake cylinders on each wheel, and applies the brake shoes. Brakes are released after emergency use by relieving air pressure in the lines through Emergency Brake Bleed valve in the pilot compartment above the door to the radio compartment. Emergency brake air bleed valve should not be opened until airplane is in charge of ground crew as sufficient pressure may not remain for taxiing control.

c. Power Plant Controls. - (1) General: Refer to Section IV and to T. O. No. 02-10GA-1 for further instructions in the operation of the engine and power plant controls.

(2) Starting: (a) Turn the engine over four or six revolutions by pulling the propeller through by hand 2 or 3 revolutions to be sure the lower cylinders have not filled with oil or gasoline, while standing idle. It is advisable to remove the lower spark plugs before turning the engine over if there is any reason to suspect oil or gasoline in the cylinders.

(b) Open cowl flaps.

(c) Place blower ratio selector valve in the low blower position.

(d) Propeller control in "Take-Off", ("Low Pitch" or "High R.P.M.").

(e) Booster Pumps "On".

(f) Place the mixture control in the "Idle Cut-Off" position.

(g) For the first time after installation, filling of the carburetor is facilitated by temporary removal of 1/8" pipe plug just over and several inches in from the mixture control lever. With the mixture control lever in "Automatic Rich" (or Rich), pump fuel with a pressure not over 2 to 3 lbs. per sq. in. until gasoline appears at this hole. Replace and rewire the pipe plug. This portion of the carburetor has a small internal passage connecting with the permanent vent line that takes care of any small quantity of air that might collect during normal operation or periods that the engine does not run for several days. Large quantities of air in this portion of the carburetor interfere with the control of the mixture and usually result in hard starting, back firing, and ragged running for a short time after starting until the air can escape through the small vent passage.

(h) Bring fuel pressure up with booster pump. This will supply fuel to the primer.

(i) Open the solenoid switch to prime sufficiently. The longer the switch is held open, the greater the amount of fuel that will be furnished to the priming system. Care should be taken to see that the carburetor and fuel system are filled with gasoline, but that the induction system is not flooded. Prime sufficiently, but not excessively, having due regard to engine temperature. This will vary from no prime with a hot engine to approximately one minute with a very cold engine. Excessive priming will load the cylinders with raw gasoline, making it difficult to start the engine. Priming during cranking is good practice as tendencies toward overpriming are reduced and air turbulence facilitates the mixing of an explosive charge.

(j) Warm Engines: 1. When engines are warm from previous running or when outside air temperatures are at 60° F (15° C.) or above, priming may not be necessary.

2. Throttle approximately 1/8 open (after the spring of the control system has been taken up).

3. Mixture control in the "Idle Cut-Off" position.

4. Maintain fuel pressure with the booster pump.

5. Engage starter while maintaining fuel pressure and after a revolution or two turn ignition to both on.

6. Mixture control should be left in "Idle Cut-Off" until engine fires. The reason for this precaution is that if the mixture control is placed prematurely out of "Idle Cut-Off" and the engine fails to start for one reason or another considerable quantities of fuel are discharged into the engine and drained from the blower sections creating a fire hazard.

7. If a start is not affected in a reasonable length of time, ascertain the cause. Overloading will be indicated by a discharge of fuel from the drain in the lower part of the engine blower. In this case, keep the mixture control in "Idle Cut-Off", and with no fuel pressure, open the throttle and turn the engine over with starter in order to clear it out. If the engine has been loaded and the ignition is left on, it is frequently possible to effect a start while clearing the engine out with the starter. In this case, it is necessary to be ready to immediately retard the throttle to prevent overspeeding. If the ignition switch is not left on during the clearing out procedure, a reasonable number of turns, such as 6 or 8 revolutions of the propeller, should be sufficient to clear, then repeat the starting procedure outlined above, starting with the mixture control in "Idle Cut-Off" and being careful about moving the mixture control out of "Idle Cut-Off".

8. If no drainage of fuel from the engine blower is evident, the difficulty is probably not from overloading. In this case it is possible that the engine has not yet obtained sufficient prime. Repeat the starting procedure, increasing the prime.

9. If it is still not possible to start the engine, in all probability some part of the ignition system is not functioning. Protracted operation of the booster can sometimes overheat the coils so as to render the booster inoperative.

10. As soon as the engine starts, move the mixture control to "Automatic Rich", booster pump on, until the engine runs smoothly and automatically builds the fuel pressure to the desired 15 lb. per sq. in. Booster pump may then be turned off, unless take-off is to be made with hot gasoline. Pilots should retain booster pump operation during take-off and landing as a safety measure.

11. Adjust throttle control to hold the engine to as low a speed as possible for the first thirty seconds after starting and watch for an indication of oil pressure on the gage.

CAUTION: IF OIL PRESSURE DOES NOT REGISTER ON THE GAGE ALMOST IMMEDIATELY OR AT LEAST IN 15 SECONDS STOP AND INVESTIGATE.

12. After the first half-minute, adjust the throttle to about 1000 R.P.M.

(k) Cold Engines: 1. When the engines are cold and have been exposed to outside air temperatures below 60° F. (15° C.), priming is necessary. The lower the temperature, the greater the amount of priming which will be required. Under the various temperature conditions which may be encountered, experience will dictate how much priming is necessary to obtain good starting.

2. After the initial priming, the solenoid primer valve should be kept on as the engine is turned over with the starter in order to supply fuel directly to the cylinders since fuel from the primer system is vaporized by means of the primer nozzles. On cold engines, overloading is not necessarily indicated by a discharge of fuel from the engine blower but rather by the presence of raw gasoline in the exhaust collector, particularly in the stacks leading from the primed cylinders. In this case follow the procedure outlined for clearing out a warm engine when loaded.

3. If there is no evidence of raw gasoline in the exhaust collector, in all probability the engine has not been given sufficient prime, even though fuel may be draining from the blower. In cold weather considerable quantities of fuel may be discharged into the blower and pass out through the drain and still leave the engine under-primed. The reason for this is that fuel at low temperatures discharged into the blower is not sufficiently vaporized to be carried into the cylinders in mixture strengths necessary for combustion when the engine is turned over. For this reason, direct priming is required in cold weather to insure a satisfactory mixture at the intake ports of the cylinder. Care should be taken, however, not to flood the blower and cause a fire hazard from the drainage. On the other hand, in warm weather, both the fuel and the engine are at higher temperatures so that fuel discharged into the blower is vaporized sufficiently to be carried into the cylinders in mixture strengths necessary for combustion when the engine is turned over. When underpriming is suspected, additional priming should be made cautiously and the starting procedure repeated as outlined for warm engines.

(3) Warm-Up: (a) After the first half-minute, the warm-up should be made with the propeller, in the "Low Pitch" or "High R.P.M." position and at an engine speed of about 1000 R.P.M.

(b) Be sure the cowl flaps are open. Do not attempt to warm the engine up more quickly by closing the cowl flaps in extremely cold weather. This may cause overheating and damaging of the ignition system at the spark plug elbows.

(c) The oil pressure relief valve has been fitted with a temperature control that forces the oil when cold through the engine under high pressure, as much as 300 lbs. per sq. in. when very cold. This extra high pressure is reduced when an oil-in temperature of about 40° C. (104°F.) is obtained.

(d) Always make certain that the solenoid primer switch is off after the engine is started.

(e) Long continued idling below 800 R.P.M. may result in fouled spark plugs.

(4) Ground Test: (a) When the oil-in temperature has risen above 40° C., the throttle may be opened to approximately 30 in. Hg manifold pressure with the propeller in "Low Pitch" or "High R.P.M." Do not attempt to operate above 1000 R.P.M. until the oil-in temperature has exceeded 40° C. Put propellers in "Manual" and note the loss of revolutions when switching to one magneto at a time. In switching from both magnetos to one, the normal drop-off is 50 to 75 R.P.M. and does not usually exceed 100 R.P.M. When switching from one magneto to the other, the change in R.P.M. should not be more than 30 or 40. It should be noted that the loss in R.P.M. when operating with one or two magnetos varies with different engine speeds. This check should be made in as short a time as practicable. Continued running on one magneto with manifold pressure as high as 25" to 30" Hg absolute may cause serious detonation.

(b) In rare circumstances, even after the engine has been run a sufficient length of time to give reasonable assurance that the spark plugs are cleared out, excessive R.P.M. drop or uneven engine operation may be experienced during the regular magneto check. In this case it is permissible to make a quick check of magnetos at 33 in. Hg in low pitch in order to determine if the trouble lies in the magnetos themselves.

CAUTION: OPERATION OF ONE MAGNETO AT THIS POWER OUTPUT MUST BE HELD TO THE SHORTEST POSSIBLE LENGTH OF TIME BECAUSE OF THE POSSIBILITY OF SERIOUS DAMAGE FROM DETONATION.

(c) Check oil pressure, oil temperature, fuel pressure and other items at 2000 R.P.M.

(d) Oil pressure measure at the pressure gage take-off in the upper left side of the engine rear cover case should be 75, ± 10 lbs. per sq. in. at 2000 R.P.M. 60° C. (140° F.) oil inlet temperature. If the low pressure oil system is checked it should show 30, ± 10 lbs. per sq. in. Fuel pressure should be 16, ± 1 lb. per sq. in.

(e) Oil pressures will vary with R.P.M. and temperature and need cause no alarm by falling to as low as 25 lb. per sq. in. with the engine idling, or if the pressure rises somewhat over 100 lb. per sq. in. with cool oil at take-off R.P.M. The pressures should not be set higher than 90 lb. per sq. in. when the engine is operating under normal conditions with oil temperature 60 to 70° C. (140° F. to 158° F.). The fuel pressure at low idling speed may be as low as 8 or 10 lbs. per sq. in. and still be satisfactory if the pressure comes up to the desired amount with 800 or 1000 R.P.M.

(f) On initial running after installation, if the oil pressure is not within the specified range, the oil pressure relief valve in the rear section should be adjusted to give the desired pressure and the low pressure system of the rear section should be checked and adjusted if necessary. The suctions and back pressures of the oil system in the airplane often are different from those of the test stand upon which the engine was run and have an effect upon the engine oil pressure. On subsequent running of the engine, any appreciable change in oil pressure under the same condition of R.P.M. and oil temperature may indicate trouble within the engine or oil system which should be investigated.

(g) Checking the blower ratio selector operations:

1. Run the engine at 1400 to 1500 R.P.M. (60% normal speed) with the oil-in temperature about 60°C. (140°F.)

2. Shift to "High" by moving the selector valve control without hesitation to the "High" position. The shift in the blower ratio should be accompanied by a slight rise of the manifold pressure when the high clutch is engaged. Prolonged fluctuation or loss in manifold pressure indicates improper high clutch engagement. In this event the selector control should be returned to the "Low" position and the operation repeated to assist in circulating warm oil through the mechanism.

3. When shifting from one speed to another, be sure to make the shift smoothly and positively without hesitation and without pausing between the two positions. Do not shift from one ratio to another in rapid succession. This is to avoid dragging and slipping of clutches with consequent abnormal heat generation.

4. Be sure that the selector valve is in "Low" position and that the carburetor is in automatic rich position and then proceed with take-off in the same manner as with a single speed engine.

(h) Cooling of the cylinder heads and barrels, and ignition harness is usually insufficient while on the ground for continued running above 1500 R.P.M. to 1600 R.P.M. Avoid prolonged running at power above this. It is recommended not to exceed 232°C. (449.6°F.) head temperature during ground operations if only one or two thermocouples are installed. For ground cooling test with all heads and bases equipped with thermocouples, it is permissible to approach the maximum temperature of 260° C. (500° F.) on the hottest head.

(5) Cowl Flaps: The adjustable cowl flaps should be fully opened during all ground operations, and at least partially opened for take-off and climb.

(6) Flight: (a) General smoothness, engine speed, manifold pressure, carburetor air temperature, cylinder temperatures, oil temperatures, and the oil pressure give the most satisfactory indication of the performance of the power plant. If any of these appears irregular, the engine should be throttled and, if the cause is not apparent, a landing should be made to investigate and correct the trouble.

(b) Two Speed Blowers: 1. The manifold pressures below the critical altitudes are regulated by manually operating the engine throttle. Maximum engine performance will be obtained by remaining in low blower ratio until the critical altitude has been exceeded and the manifold pressure has dropped about 3 or 4 Hg. Then shift to high blower ratio by moving the control lever without hesitation to "High" position. Immediately before the selector valve control is shifted, the throttle should be partially closed in order to reduce the manifold pressure another 3 or 4" Hg before the high speed ratio has engaged. Two or three trials will acquaint the pilot with the necessary throttle movement to prevent excessive manifold pressure after the high speed blower ratio engagement has been accomplished.

2. With the blower in high ratio the engine may be operated essentially as any single speed engine. It is recommended that unduly high rates of change in engine speed be avoided if possible when in high blower ratio on account of the extra load on the clutch and supercharger drive. Idling of the engine may not be entirely satisfactory because the idle adjustment of the carburetor has been made for the low blower ratio.

(c) Power Control: With controllable pitch propellers there is an infinite number of combinations of engine R.P.M. and manifold pressures obtainable for any desired value of engine power or airplane speed. However, there are also relations of engine R.P.M. and manifold pressure to desired engine power which will give maximum fuel economy, best overall efficiency and will be conducive to most reliable engine operation and maximum engine life. The best possible operation will depend somewhat upon the desired conditions of flight such as climb and level flight and upon the airplane and propeller characteristics. The "Engine Characteristics" engine check chart and engine operating instructions are referred to in Section IV and also the cruising control curves are referred to in Section VII.

(7) Take-Off: (a) See Pilot's Check List in Section IV.

(b) Cylinder head temperatures before the start of take-off must be low enough to ensure that the maximum limits are not exceeded during the use of take-off or emergency power. It is recommended that 205°C. (401°F.) not be exceeded prior to take-off.

(c) Throttle friction must be sufficient to prevent throttle creeping if hand is removed.

(d) Open throttle gradually, being careful not to exceed limiting manifold pressure. Airplane is sensitive to power application on take-off.

(e) As soon as clear of ground and obstructions, adjust the power to the normal climb conditions.

(8) Climb: (a) The military services with their particular requirements often need the maximum allowable power, having less regard for long life of the engine than for the immediate needs under conditions of emergency. For these purposes, military ratings comparable to take-off power may be usable in climb or level flight for five minutes.

(b) Adjust the cowl flaps to maintain cylinder temperatures somewhat less than the maximum permissible, preferably about the maximum permissible for cruising, i.e., 232°C. (449.6°F.)

(c) A material reduction in cylinder and/or oil temperatures can be obtained by climbing at an indicated air speed ten or twenty miles per hour higher than the speed for best climb without much loss in rate of climb. This will materially increase engine life by reducing ring sticking tendencies attendent with high head temperatures.

(d) A tendency for the oil to overheat can be checked the quickest by reducing the engine speed rather than by throttling alone.

(9) Normal Maximum Rating - Climb and High Speed.

(a) The normal maximum rating is the maximum power at which the engine may be operated continuously.

(b) The mixture given by the carburetor in "Automatic Rich" is expected to be rich enough to care for climbing operation. For maximum speed in level flight, even though the engine can be cooled, the mixture should not be set leaner than "Automatic Rich."

(10) 75% Power: This is a power intermediate between the 100% Normal rated power and the maximum recommended cruising power. This again is primarily a military requirement.

(11) Cruising Maximum: (a) This is the maximum power recommended for continuous cruising operation. The engine will deliver dependable power for long periods between overhauls if the major portion of its operation is at or less than the cruising rating.

(b) After the airplane has leveled off and while attaining its approximate cruising speed, the engine should be given an opportunity to cool down after the climb, preferably even below the final cruising temperature, before auto lean is used. This permits the blower and rear sections, as well as the cylinders, to cool down. A well cooled engine will have little tendency to start detonation and overheating when the mixture is leaned.

(c) To aid in the cooling of the engine as outlined above, the cowl flaps should not be closed to the minimum position immediately after completion of the climb, but progressively as the airplane gathers speed.

(12) Low Cruising Power: Refer to Range Chart, Cruising Control Curves and Cruising Engine Operating Instructions in Section VII.

(13) Two Speed Blower: Better engine efficiency is obtained when operating in low blower than in high blower ratio if the low blower ratio is able to supply the necessary power. If it is desired to increase the power slightly at the full throttle altitude of a low R.P.M. in low blower ratio it is preferrable to increase the engine speed up to 100 to 200 R.P.M. and remain in low blower rather then shift to high blower ratio and remain at the low R.P.M.

(14) Cruising Descent: Under normal conditions of cross country flight it is general practice to start a descent at a distance from the destination of as much as 100 miles or more. This distance is determined as a function of the altitude of the airplane above the destination, the rate of descent desired and the time necessary for the descent, the wind velocity and direction and its effect upon the airplane speed, and the resulting speed of the airplane during the descent. Such a descent should be regarded as a cruising operation. Cruising R.P.M., power, and mixture should be maintained throughout the descent until the point is reached where the final glide or approach for landing is to be made.

(15) Dive: (a) The centrifugal or inertia loads on the master rod bearings increase as the square of the R.P.M. These loads, however, are in the opposite direction from the power impulse loads from the pistons. Therefore, high engine speeds with low manifold pressures impose the severest loads on the master rod bearings and should be avoided if possible. Where over-speeding of the engine is unavoidable in dives, it is recommended that the throttle be partially opened to give 12" to 15" Hg

if practicable. However, this may increase the speed of the engine somewhat; the maximum safe over-speed R.P.M. has been defined at 2880 R.P.M. for the R-2800-5.

(b) Since dives are usually accompanied by other maneuvers that may require full power of the engine, the mixture control must be in the "Automatic Rich" position.

(c) During dive the supercharger should be shifted into low blower ratio before any dives are made which might cause the engine to over-speed. This will prevent excessive wear of impeller shaft bearings and driving gears caused by unnecessarily high impeller speed during dives.

(16) Glide: (a) The paragraph on Dive has bearing upon the transition from high speed flight or cruising to the throttled condition of a glide or approach for landing. If the throttle is closed while the airplane has comparatively high speed the constant speed propeller will change pitch and maintain the R.P.M. for which the governor is set. When the governor is set for take-off R.P.M. and the throttle is closed while the airplane speed is high, the engine will "wind-mill" at high speed with manifold pressures of only one or two inches of mercury. Therefore, the propeller should be set to maximum cruising R.P.M. during a glide and approach for landing.

(b) The mixture control should be checked at this time to see that it is in the "Automatic Rich" position; also check to see that the blower ratio selector control is in the position for take-off.

(17) Approach for Landing: (a) Set at Maximum Cruise. See T. O. No. 02-10GA-1.

(b) It is advisable to partially open the cowl flaps. If emergency power is needed, further adjustment of the partially opened flaps can be made after having cared for more urgent duties.

(c) Before taxiing, have the cowl flaps fully open.

(18) Stopping: (a) Leave the propeller control in take-off position.

(b) If the Cylinders are hot due to hard taxiing, permit the engine to idle a short time to allow the cylinder temperatures to cool below 205° C. (401.0° F.).

(c) To stop the engine move the mixture control to the "Idle Cut-Off" position. This may be done with the engine turning at about 1000 R.P.M. When the engine has stopped, turn all ignition switches to "Off".

(d) Leave the cowl flaps open after the engine stops to aid in circulation of air over the engine. This is to guard against residual heat of the power section and exhaust collector ising the temperatures of the spark plug elbows and other portions of the ignition system to values are above the permissible limits (120° C.(248° F.)for the elbows) and cause damage.

(e) If "Idle Cut-Off" should not stop the engine, close the throttle, cut the ignition switch and slowly open the throttle wide as the engine stops. Have the "Idle Cut-Off" adjusted properly as soon as possible.

(f) Leave the mixture control in "Idle Cut-Off" position at all times when the engine is not running.

(g) In cold weather hold the oil dilution valve open for about 3 or 4 minutes at 1000 R.P.M. as the engine is stopped. It is not necessary to use the oil dilution in warm weather.

(19) Engine Starters: The engine starters are controlled by two three-position electric switches, both having an "OFF" position in the center of their travel. Either starter may be energized separately by holding the energizing switch in one or the other extreme position until the inertia mechanism reaches adequate speed, after which the meshing switch is moved in the same direction to engage the starter dogs. It is permissible to allow the energizing switch to remain closed after the meshing switch has been operated, in which case the starter will perform the function of a combined inertia and direct-cranking unit. The opposite starter is similarly controlled by moving both switches to the other extreme positions.

(20) Magneto Switches: The magneto switches are combined in the conventional Type B-5 Unit, having provision for operation of either or both engines on either one or both magnetos, and in addition, incorporates the master off-on magneto and battery switch. All switch positions are clearly marked on the unit.

(21) Throttle: Throttle operation is conventional, with open position farthest from pilot. An adjustable friction device is controlled by rotating a knob clockwise to increase friction, counter-clockwise to relieve friction.

(22) Mixture Control: The carburetor mixture control is operated by fore and aft movements of the lever. The lever is normally in one of four positions located by the carburetor mechanism and selected by the pilot, namely: Idle Cut-Off (extreme aft position), Automatic Lean, Automatic Rich, and Emergency Rich (extreme forward position). Operation of the carburetor mechanism is sufficiently positive that the control lever will remain in the desired position, and yet may be readily moved when it is desired to select another position.

(23) Propeller Governor: The propeller governor control is operated by fore and aft movement of the lever. Take-off or maximum R.P.M. position is farthest from pilot. Friction adjustment is analogous to that provided on throttle control.

(24) Primer: Engine priming is accomplished by holding the primer switches in the "On" (up) position for the desired period of time, after which the switch is released and will automatically return to the "Off" (down) position. Note that the fuel booster pumps must be in operation during the priming period to provide the necessary pressure to force fuel into the cylinders. This operation should be done with care as it will take some experience to establish the proper length of time for the right amount of prime. Priming during cranking is good practice as tendencies toward overpriming are reduced and air turbulance facilities starting. Fuel pressure must be available for all priming operation.

(25) Fuel Booster Pumps: The fuel booster pumps are controlled by operation of conventional toggle switches, having their "ON" positions upward and their "OFF" positions downward. Booster pumps may be left on as a safeguard during take-off and landing, at other times they should be in operation.

(26) Blower Gear Ratio: The blower gear ratio is selected by vertical movement of the levers provided. The levers should at all times, except during the shifting operation, remain at one or the other end of their travel, the lowest of which selects the low blower ratio and the higher, the high blower ratio. See engine operating instructions, Section VII for explanation of the operation of these control levers.

(27) Oil Cooler Shutters: The oil cooler shutters are controlled by vertical movement of the levers provided, identical in operation to those controlling the cowl flaps. Keep in open (up) position for take-off and climb to prevent possible closure due to air loads, otherwise returning to neutral after use.

(28) Emergency Carburetor Air Intake Control: The emergency carburetor air intake control operates in a vertical plane, and normally remains in the "Cold" or locked position (higher end of lever travel). When the lever is moved to the "Hot", or alternate air intake (lower end of lever travel) position, the emergency air intake shutter is unlocked and will open automatically if the normal air duct or screens should become clogged by ice formation.

(29) Cowl Flaps: The cowl flaps are controlled by vertical movement of levers operating hydraulic valves. The neutral position of the lever is in the center of its travel. Opening the flaps is accomplished by moving the lever upward from neutral and holding in the displaced position until the desired flap opening is obtained, after which the lever is returned to neutral. Closing the flaps is similarly accomplished by a downward movement of the lever. Keep in open (up) position for take-off and climb to prevent possible closure due to air loads. Otherwise return to neutral after use.

(30) Fuel Transfer Pump: The fuel transfer pump is controlled by a three-position electric switch having its "OFF" position in center. Direction of flow is controlled by moving the switch lever either up or down, as required by the marking of the dial of the Fuel Transfer Selector Valve. See paragraph (31) below.

<u>WARNING:</u> DO NOT EXCEED "FULL" GAGE READING ON ANY TANK WHEN OPERATING FUEL TRANSFER PUMP.

(31) Fuel Transfer Selector Valve: The fuel transfer selector valve controls only the transfer of fuel from one tank to another and in no way affects the flow from the main tanks to the engines, as indicated on the fuel system diagrams, Figures 3 and 4. All fuel must pass through the main tanks, since they alone are connected through the booster pumps to the engines. The selector valve incorporates two separate controls with pointer handles and dial plates marked as follows, in clockwise rotation:

(<u>a</u>) Model B-26A and B-26B: <u>1</u>. Aft dial - "Off", "L.H. Bomb Bay", "L.H. Main", "L.H. Aux." and "R.H. Bomb Bay"

<u>2</u>. Fwd. dial - "Off", "L.H. Bomb Bay", "R.H. Main", "R.H. Aux." and "R.H. Bomb Bay"

(<u>b</u>) Model B-26: <u>1</u>. Aft dial - "Off", "Bomb Bay", "L.H. Main", "L.H. Aux."

<u>2</u>. Fwd. dial - "Off", "Bomb Bay", "R.H. Main", "R.H. Aux."

(<u>c</u>) The dial plates also bear the notation that with the Transfer Pump Switch in the "Up" position, the flow is <u>from</u> the tank selected on the aft dial <u>to</u> the tank selected on the forward dial and that with the switch <u>in</u> the "Down" position the direction of flow is reversed. See paragraph (31) above. It is thus possible to transfer fuel from any tank marked on the aft dial to any tank marked on the forward dial and vica versa, and to transfer fuel between two tanks indicated on the same dial by first pumping into an intermediate tank. Note fuel quantity gages before attempting to transfer any fuel.

WARNING: DO NOT OPERATE FUEL TRANSFER PUMP WITH EITHER SELECTOR VALVE IN "OFF" POSITION.

(32) Emergency Fuel System: The emergency fuel hand pump is provided to take the place of the booster pumps or the transfer pump in the event of failure of either or all pumps. The instructions for operation of emergency hand pump are located on the aft side of the armor plate over the selector valve.

(33) Propeller Switches: (a) The propellers are controlled by the following standard Curtis switches, furnished in duplicate:

1. Safety Switch - Curtiss 100602-2
2. Automatic - Manual Switch - Curtiss 102911
3. Feathering Switch - Curtiss 104029

(b) The propeller circuits are energized by moving the safety switch levers forward to the "On" position. The propellers may then be made automatic governing by moving the selector switch forward to the position marked "Automatic" or may be manually adjusted by moving the selector toggle either to the right to the position marked "Increase R.P.M." or the left to "Decrease R.P.M." When the switch is centered to which position it will return automatically when released, the propeller will remain in fixed pitch. Feathering is accomplished by moving the feathering switch lever forward. This latter switch is protected from accidental operation by a hinged metal cover. Refer to Section IV and to T. O. No. 03-20BA-1.

(34) Oil Dilution: Oil dilution is controlled by individual electric switches for each engine. The switches may be operated separately or simultaneously by holding the levers forward in the "On" position the required time for dilution. Switches will return to the "Off" position when released.

(35) Emergency hydraulic fluid for operation by hand pump only may be obtained by turning selector valve counter-clockwise 90° to emergency attitude. Partial replenishment may be made to main tank from one gallon reserve can provided in ship.

(36) De-icer Operation and Selector Valve: Main engine compressors operate the de-icer system when lever control is placed into "On" position. The selector valve is used to determine which motor will furnish compression for de-icer and which for camera and instruments. If selector is placed at "De-icer", or upper position, the right engine operates de-icer and the left engine operates camera and instruments; inversely, if selector is placed in lower position, the left engine operates de-icer, and the right engine operates the camera and instrument vacuum lines.

d. Other Controls. - (1) Bomb Controls: Normal Salvo Bomb Release requires a pull of about 50 [illegible]. Emergency Bomb Release is effected by one vigorous pull straight forward on the emergency T-handle. [illegible] dog retains the control cable in the forward position, keeping the bomb bay doors open until tripped, when the doors will be closed by the hydraulic system.

(2) Landing Gear Warning Horn Silencing Switch: The landing gear warning horn is silenced by pushing toggle switch aft. The circuit is replaced in operation when the throttles are advanced.

(3) Battery Master Switches: The battery master switches close the circuits when moved forward.

(4) Lights: (a) Signal and running lights are operated as follows:

1. As running Light: "On", in forward position - "Off", in middle position.
2. As Signal Light: Momentary, if aft position.

(b) Formation Lights are "On" when knob is turned clockwise.

(c) Landing Lights are "On" when toggle switches are in forward position.

(d) Passing Light is "On" when toggle switch is in forward position.

(e) Instrument panel and pedestal lights are "On" when respective toggle switches are in forward position.

(f) Interior lights are "On" when the toggle switch is in the forward position. They may be used for night signals.

(g) The compass light is "Bright" with toggle switch in forward position, "Dim" in aft position.

(5) Alarm Bells and Pitot Static Heater: The alarm bells and pitot static heater are "On" when respective toggle switches are in forward positions.

SECTION IV

SPECIAL INSTRUCTIONS

1. Flight Instructions

   a. Maneuvers Prohibited.

      (1) Side Slips
      (2) Vertical Banks
      (3) All Acrobatic Maneuvers

   b. Flight Restrictions.

      (1) Do not exceed an indicated airspeed of 345 M.P.H.
      (2) Do not exceed an indicated airspeed of 185 M.P.H. with landing gear or flaps extended.
      (3) Do not exceed an indicated airspeed of 317.5 with bomb doors open.
      (4) Do not exceed an indicated airspeed of 325 M.P.H. at 31800 lbs. or max. gross weight.

2. Warnings

a. Do not lower main gear before nose gear. If nose gear will not extend, do not attempt to extend main gear; refer to Sec. III, paragraph 2. b.

b. If ship is attacked hot-air should be by-passed overboard as bullet holes in the manifold way cause the crew to be asphyxiated.

c. Bomb bay doors may be walked on as the operating mechanism has a dead center which locks the doors. Be sure bomb bays are clear of personnel before operating controls.

d. The high pressure brakes on this airplane generate heat rapidly at present and frequent brake landings in rapid succession will cause abnormal heat generation in the service brakes which is apt to cause leakage of hydraulic fluid after cooling. A period of not less than 15 minutes must elapse between brake landings except in emergency.

e. Pilots of short stature are cautioned to adjust seat in the foremost position and check for full brake pedal travel and full application of brakes, before taking off.

f. Always return hydraulic controls to neutral in normal flight to isolate circuits from one another and to minimize loss of operation due to a failure of one circuit. This does not apply to Bomb Door Valve Levers which must remain in "Door Closed" position in Normal Flight. Operate hydraulic units frequently to prevent drying or permanent set of seals.

g. The fuel system of this airplane has no provision of Side Slip conditions. Therefore, such a maneuver is Extremely Dangerous at low altitudes or landing approach, as the engine on the low wing is liable to cut out.

h. Landings are not to be made with a center of gravity forward of the position shown in the table below for the corresponding gross weights: See Figure 17.

Gross Weight	Max. forward C. G. Position, % M.A.C.
21000	4.5
22000	6
23000	7.5
24000	8.8
25000	10
26000	11.3
27000	12.5
28000	13.5
28800	14.3

i. For transition flying maintain C.G. position aft of 12% M.A.C. (Airplane is stable to 24% M.A.C.).

3. Taxiing

The desirable characteristics of the tricycle type landing gear become increasingly apparent with increased familiarity with proper ground handling technique. Certain differences will be noticed immediately in the taxiing technique required for a tricycle gear as compared to the conventional gear having a tail wheel. These differences arise because to the swiveling of the nose wheel is limited to

45° each way, and the use of brakes or increased engine power tends to increase the load on the nose wheel. If the directions given below are observed until the pilot is familiar with the tricycle landing gear, no difficulty will be encountered. To start the airplane rolling from a standstill, both THROTTLES should be OPENED slightly and evenly with the brakes off. As soon as the airplane moves, the direction in which the nose wheel is pointing becomes apparent. Permit the airplane to move or roll slowly when making turns or whenever a change in the angle of the nose wheel is desired. The airplane can be readily turned or controlled directionally by gentle use of the THROTTLES and brakes. Over use of the brakes should be avoided in order to prevent excessive heating.

As noted above, the nose wheel swivels through 45° each way, and this maximum angle of the nose wheel permits the airplane to turn while the inside main wheel is turning at a radius of about 8 1/2 feet. It is important therefore, that the inside main wheel should not be locked by the brake when making a sharp turn.

IMPORTANT: DO NOT ATTEMPT TO CHANGE THE ANGLE OF THE NOSE WHEEL UNLESS IT IS ROLLING. DO NOT MAKE A SHARP TURN BY LOCKING ONE MAIN WHEEL WITH THE BRAKE.

4. Take-Off

The flap position for take-off will be determined by size and surface condition of the field, gross weight of the airplane, wind, obstacles to be cleared, and other governing local conditions. The 1/2 down position is the optimum for clearing obstacles, and the 3/4 down position is the optimum for short ground run. Elevator tabs should be approximately 5 degrees tail heavy. The rudder tab should be approximately 2 degrees to 3 degrees right. Aileron tabs should be approximately neutral. Cowl flaps and oil cooler shutters should be full open. At the beginning of the take-off run while the airplane is rolling along slowly, it will be necessary to hold a straight course by normal use of the THROTTLES and rudder. If brakes are used to maintain a straight run, they should be applied as gently as possible, thereby allowing the airplane to gain speed rapidly. The brakes are power-operated and are very positive. As soon as the airplane has rolled far enough to insure that the nose wheel is trailing directly to the rear, the pilot should open the throttle smoothly to 49" of MANIFOLD PRESSURE, holding 2600 R.P.M. As soon as 49" of MANIFOLD PRESSURE is reached, the wheel should be held all the way back, and as the nose wheel lifts off the ground (around 60 M.P.H.) the control wheel should be eased forward to neutral. The airplane will then practically fly off by itself, at about 105 M.P.H. at normal gross weight, in a very comfortable manner. With higher gross weights, the pilot should not attempt to take off until a higher speed is attained. As soon as the airplane leaves the ground, the pilot should hold the nose down to gain speed as rapidly as possible, and move the LANDING GEAR retracting lever to the UP position. If the size of the field and obstacles surrounding it provide sufficient room, the climb out of the field should be started not below a speed of 150 M.P.H. If the field is small with obstacles near it, the airplane will clear an obstruction in the shortest distance by climbing at the take-off speed of 105 to 110 M.P.H. The nose should not be pulled up enough to drop the speed below the take-off speed because this will increase the distance required to clear the obstacle. After take-off and within proper time limitations the engine power should be reduced from take-off power to rated power, or less, as desired. Rated power is 2400 R.P.M., and 38" of MANIFOLD PRESSURE. The COWL FLAPS can be CLOSED as long as engine CYLINDER TEMPERATURES do not exceed desired values. The oil temperatures are regulated at the oil cooler and opening the OIL COOLER SHUTTER may not reduce the temperatures. The OIL COOLER SHUTTERS should be opened in flight only to keep the oil temperatures at desired values.

CAUTION: TO REDUCE ENGINE POWER, REDUCE MANIFOLD PRESSURE FIRST AND THEN REDUCE R.P.M. TO INCREASE ENGINE POWER, INCREASE R.P.M. FIRST AND THEN INCREASE MANIFOLD PRESSURE.

5. Engine Failure at Take-Off

a. Probably the most serious emergency which can arise during take-off is failure of one or both engines. Action possible by the pilot in event of failure of both engines is very limited, therefore, this discussion will be restricted to recommended procedure in event of failure of one engine.

(1) If one engine should fail during the ground run of a take-off, the immediate result would be that the airplane would swerve. The pilot should immediately cut the other engine and use the brakes as much as possible. It will be impossible, even with a light load, to continue the take-off with one engine.

(2) Sudden failure of one engine during the short interval immediately after leaving the ground and before reaching the minimum speed for flying on single engine will cause the airplane to become uncontrollable, and if this takes place, the pilot should cut the other engine and land straight ahead. It is not practical to state definitely the minimum speed for single engine flying as this is determined to a large extent by the pilot's capabilities, the gross weight of the airplane, the power available from the remaining engine and the position of the landing gear. The average pilot on the alert and reacting quickly will be able to continue take-off with a normal gross weight, the landing gear in the process of retracting, if the air speed at the time of engine failure is not less than approximately 135 M.P.H. The airplane speed should not be allowed to drop below the minimum of approximately 135 M.P.H. at any time during flight on one engine.

(3) The following actions on the part of the pilot, arranged in proper sequence, should enable him to accomplish the most possible in event of one engine failure.

(a) Immediately apply all the rudder possible into the running engine and at the same time bank the airplane with the running engine down until a reasonable straight course can be maintained.

(b) Retract the landing gear if it is not already retracted.

(c) Feather the propeller on the failing engine. This action should be diliberate as it would naturally be disastrous to make a mistake and feather the running engine. Also, there is always a bare possibility that the failing engine may pick up and start running again.

(d) Increase the power of the running engine to the fullest extent possible but do not greatly exceed rated take-off manifold pressure as this will lead to detonation with a consequent loss of power. Do not exceed rated manifold pressure at all if it is not necessary.

(e) Reduce rudder forces, which will be heavy, by use of the rudder trim tab, therethereby enabling the flight to continue on a straight course with the wings nearly horizontal. Do not under any circumstances permit the running engine to get above the failing engine while flying at a slow speed. It is suggested that 200 M.P.H. be the minimum speed at which a turn is made into the failing engine while at low altitude.

(f) If the pilot is using 30° wing flap for take-off, it will be necessary to raise the flaps as soon as possible in order to decrease drag. This will be a difficult operation at low altitude and at slow speeds. In order to prevent loss of altitude when the flaps are raised, it will be necessary to counteract the loss of lift by immediately pulling the nose up. If conditions are critical, i.e., low altitude and slow speed, the flaps should be raised in several steps or increments in order to avoid large changes in either speed or altitude.

(g) The drag of the airplane may be further reduced, therefore increasing single engine performance, by closing the cowl flap and oil cooler shutter on the engine with the feathered propeller.

(4) When making a single engine landing it should be remembered that the airplane cannot maintain altitude on one engine with the landing gear extended. The rudder trim tab used for single engine flight should be at least partially reduced before landing to prevent high rudder forces when the one engine is throttled. It should also be pointed out that the pilot is in serious difficulty again if he completely overshoots the landing field while on one engine with the landing gear down. On such a landing, the pilot should under no circumstances permit the speed to fall below 135 M.P.H. until he is definitely sure of making the landing.

6. Single-Engine Flight

a. There is ample rudder balance tab to trim out for operation on one engine at rated power at a climb speed of 140 M.P.H. In event of failure of one engine, the propeller can be feathered and the engine stopped in approximately eight seconds merely by moving the feathering switch from NORMAL to FEATHER. Refer to T. O. No. 01-1-17.

b. If single engine operation practice is desired, the engine should be stopped in the following manner:

(1) Close THROTTLE to idle position.
(2) Move feathering switch from NORMAL to FEATHER.
(3) Move MIXTURE control to IDLE CUT-OFF position.
(4) If practice is done during cold weather, the oil should be diluted in the same manner as followed when stopping the engine on the ground in cold weather. The COWL FLAPS and OIL COOLER SHUTTERS should be CLOSED during the period of inoperation.

c. To start an engine in flight, the following sequence should be followed:

(1) See that ignition switch is on.
(2) Move feathering switch to NORMAL position.
(3) Hold MANUAL operating switch in INCREASE R.P.M. position until propeller windmills.
(4) Move MIXTURE control to AUTO. RICH position.
(5) Hold MANUAL operating switch in INCREASE R.P.M. position until engine is turning fast enough to build up oil pressure and then move to AUTOMATIC position.
(6) Care should be used in increasing power output of the engine until it is warmed up.

7. Stalls

Stalls from normal flight under all clean and dirty conditions, power on and power off, will be found to be preceded by ample warning. In the landing condition, LANDING GEAR DOWN, WING FLAPS FULL DOWN, COWL FLAPS AND OIL COOLER SHUTTERS CLOSED, the stall speed is 98 M.P.H. power off and 88 M.P.H.

power on (at a gross weight of 26,700#).

8. Landings.

A speed of 135 M.P.H. is a comfortable and safe speed for the approach to a landing. At this speed with the FLAPS FULL DOWN, LANDING GEAR DOWN and with power off, the airplane has a rapid rate of descent but may be easily leveled off for the landing close to the ground where the speed will decrease rapidly due to the drag of the flaps and landing gear. If it is desired to decrease the rate of descent, 3/4 WING FLAP and power may be used during the approach. The use of 3/4 WING FLAP will increase the landing speed only an insignificant amount. If engine power is used all the way into the field, it should be remembered that airplane speed will fall rapidly, immediately after the power is cut. It is recommended that pilots not familiar with the airplane try 3/4 WING FLAP and some engine power for the approach on their first few landings. The sensation of a power-off approach is one of diving at the edge of the field. However, at 135 M.P.H., there is no difficulty in leveling off close to the ground. If it is necessary to shorten the approach distance, in order to prevent over shooting the landing, it is recommended that this be done by putting the nose down and increasing speed rather than holding the nose up to decrease speed in an effort to cause the airplane to settle. If the landing is passed up, no difficulty will be experienced in circling the field again for another try at landing provided that full take-off power is used, the LANDING GEAR raised and caution used in raising the WING FLAPS. The actual touching down for landing, at approximately 105 M.P.H. is conventional. The nose wheel may be held up to a stall landing or may be left low for what would be a wheel landing for an airplane equipped with a tail wheel type landing gear. The nose wheel should not be permitted to strike the ground first. The nose wheel should not be slammed down hard after a normal landing by use of the elevators or brakes. As soon as the landing is completed, the WING FLAPS should be raised and the COWL FLAPS and OIL COOLER SHUTTERS opened.

9. Forced Landing - Inoperative Nose Gear.

a. Refer to Section IV, paragraph 2. a.

b. An optional type of forced landing is described here for the purpose of familiarizing the pilot with experience gained in service. A comparatively safe forced landing may be made with the nose gear retracted and the main gear extended under certain circumstances. The following conditions existed during a forced landing of this type in which the damage to the airplane was small as compared to the damage to the bottom of the fuselage which may have occurred had the landing been made otherwise.

(1) Hard surface runway.

(2) Airplane was flying with C.G. position of 20% which is aft of normal.

(3) The pilot moved members of the crew aft in order to get the most rearward C.G. position possible.

(4) The pilot held the nose up as long as possible.

(5) If the wing flaps are left up there will be less tendency for the airplane to go over on the nose. However, landing with the flaps up will increase the length of the run after the airplane has landed.

(6) Such a landing on a soft muddy field would probably not be so successful due to the increased drag on the main gear tending to nose the airplane over hard.

c. In the event that nose gear becomes jammed in nose gear doors during retraction proceed as follows:

(1) Place main landing gear control handle in full up position.

(2) Reach under pilot's floor, left side, forward end, above tire and locate load and fire check valve. Depress plunger.

(3) With plunger in depressed position, move control valve handle to down position. This will permit normal extension of the nose gear.

IMPORTANT: Even if the nose gear is down and not locked, a safe landing may be made as the operating cylinder will take 85% of the load under the worst landing condition, that is, 3-point inclined reaction.

10. Engine Ratings and Characteristics.

a. Refer to T. O. No. 02-10GA-1.

PILOT'S CHECK LIST

Model B-26 Bombardment Airplane - R-2800-5 (S1A4-G) Engines

TAKE-OFF CHECK

Check Flight Controls for free movement
Fuel Quantity Check
Fuel Pressure - 15-17 lbs. per sq. in. 2
Oil Temperature - Min. 40°C
Oil Pressure - 65-85 lbs. per sq. in. 2
Hydraulic Pressure - 750 lbs. per sq. in. 2 Min. - 950 lbs. per sq. in. 2 Max.
Carburetor Heat Control - Cold
Mixture Control - Automatic Rich
Propeller Control - Low Pitch (High R.P.M.)
    Propeller switches (2) on Automatic (2) safety switches (2) ON
Blower Ratio - Low
Cowl Flaps - Full Open
Oil Cooler Shutter - Full open except during extreme cold weather.
Wing Flaps - Down 30°
Tab Controls - As required
Main Generator Switches - "ON"
Co-pilot will safety pilot on props, throttles and propeller safety switches during take off.
Engine Operating Limits

	HP	R.P.M.	IN.HG.
Military Power (Max. for 5 Min.)	1850	2600	49.0

Cylinder Head Temperature
    Maximum (5 Min.) 260°C. (500° F.)
    Normal Cruising 100° - 200°C. (392°F.)
Co-Pilot will not raise landing gear until definite signal is given by pilot.

LANDING CHECK

Hydraulic Pressure - 750 lbs. per sq. in. 2 Min.
Landing Gear - Extended
Mixture Control - Automatic Rich
Propeller Control - Automatic (High R.P.M.)
    Propeller Safety Switch - ON
Blower Ratio - Low
Cowl Flaps - As Required
Wing Flaps - Full Down
Tab Controls - As Required
Hydraulic Pressure - 750 lbs. per sq. in. 2 Min.

WARNINGS

1. Cowl Flaps must be open for all ground operation except for warm-up during extremely cold weather.
2. Propeller blades must be in "Low Pitch" (High R.P.M.) for Starting, Warm-up and Take-off.
3. Wing Flaps must not be lowered at speeds above 185 M.P.H.
4. Landing Gear must not be extended at speeds above 185 M.P.H.
5. Lock Pins of landing gear are indicated in place by indicators on Instrument Panel.
6. Warning Horn sounds when gear is extended but not locked.
7. Maneuvers prohibited: All aerobatics including vertical banks, SIDE SLIPS, and dives above placarded maximum I.A.S.
8. Return landing gear, flap, oil cooler and cowl flap controls to neutral when not in use, except leave oil cooler and cowl flaps in OPEN position for take-off and climb.
9. DO NOT OPERATE IN HIGH BLOWER IN FLIGHT.

SECTION V

FLYING CHARACTERISTICS

B-26, B-26A & B-26B

1. Level Flight Speeds at Design Altitude of 14,250 ft. with Design Gross Weight of 26,734 lb.

	m. p. h.	at r. p. m.	with b. hp.	% rated
Maximum Speed	326	2400	1480	102
High Speed	323	2400	1440	99.4
Operating Speed	266*	1890	860	57.6
Cruising Speed	210	1600	615	

* Guaranteed at 15,000'

2. Optimum Range and Endurance with 934 gal fuel and 5,800 lb. bombs.

	miles	mi./gal.	hrs.	gal./hr.	s. f. c.
At High Speed	953	1.02	2.95	317	.660
At Operating Speed	1910	2.04	7.18	130	.453
At Cruising Speed	2194	2.36	10.51	88.9	.433

3. Practical Range and Endurance with .... gal. fuel and .... lb. bombs.

	miles	mi./gal.	hrs.	gal./hr.	s. f. c.
At Operating Speed					
At Cruising Speed					

4. Climb Data with Gross Weight of 26,734 lb.

Standard Altitude ft.	0	5000	10,000	15,000	20,000	25,000	26,200
Climbing Speed m. p. h.	152	164	176	188	198	207	209
Engine Speed r. p. m.	2400	2400	2,400	2,400	2,400	2,400	2,400
Total Power b. hp.	2800	2830	2,680	2,530	2,160	---	---
Maximum Rate f. p. m.	1700	1720	1,450	1,175	575	100	0
Minimum Time min.	0	2.9	5.9	9.5	16.4	36.0	---

5. Ceiling: Normal Engine Operation: Service Ceiling 25,000 ft. Absolute Ceiling 26,200 ft.

6. Take-off and Landing Distances—To Clear 50 ft. Obstacle at Sea Level (no wind).

	ft.	at m. p. h.	deg. flap	Gr. Wt. lb.	Ground run ft.
Take-off	2500		25	26,734	
Land	1820			24,712	

7. References and Remarks: This airplane may be expected to give approximately the above performance with given load under standard atmospheric conditions. Figures given may vary slightly from figures listed elsewhere in this Technical Order and other technical publications for this model of airplane.

SECTION VI

WEIGHT DATA

1. Weight in Pounds. (B-26 and B-26A only)

a. Weight Empty. 21,959

b. Basic Useful Load.

(1) Crew including parachutes. 950

Pilot	200
Co-pilot	200
Radio Operator	200
Navigator	180
Gunner	170

(2) Oxygen (included in weight empty).

(3) Flexible Guns & Installation. 596.5

Bow; 1-.30 cal. incl. 600 rds. amm.	72.9
Turret; 2-.50 cal. incl. 400 rds. amm.	285.6
Tunnel; 1-.30 cal. incl. 600 rds. amm.	76.6
Tail; 1-.50 cal. incl. 200 rds. amm.	161.3

(4) Photographic. Special overload.

Total Basic Useful Load. 1547

c. Variable Load.

(1) Fuel (Normal 465 gals. total, inboard tanks). 2,790

L.H. Inboard Tank	360 gal. = 2,160
R.H. Inboard Tank	360 gal. = 2,160
L.H. Outboard Tank	121 gal. = 726
R.H. Outboard Tank	121 gal. = 726
Bomb Bay Tank	500 gal. = 3,000
Bomb Bay Tank & inst.	0 gal. = 356
	1,462 gals. = 9,128

(2) Oil (Normal 42.3 gals. total). 317

L.H. Tank	41.25 gal. = 309.5
R.H. Tank	41.25 gal. = 309.5
	82.5 gals. = 619.0

(3) Bombs, including shackles (Normal 4-500#) 2,086.

30 - 100# = 3,662
16 - 300# = 4,727
8 - 600# = 4,172
4 - 500# = 4,022
2 - 1000# = 4,234

(3A) Torpedo Director and Wrench. 7

* (4) Photographic Equipment. 146
Mount. 13

* (5) Overload Ammunition.

Turret gun - 400 rds. 120

Total Variable Load (Normal Gross Weight) (Less *4 and *5). 5,200

d. Normal Gross Load Condition. 28,706

e. Maximum alternate Load Condition. 33,326

(Same as Normal Loading - except 1,462 gal. fuel and 91 gal. oil)

2. Bomb Load Tables.

	Weight Lbs.	Arm Inches	Moment Inch-Lbs/1000
a. Forward Bay (See figure 8)			
2 2000# bombs & shackles	4234	261.2	1105.7
4 1000# bombs & shackles	4022	263.2	1058.5
6 500# bombs & shackles	3129	264.1	826.4
10 300# bombs & shackles	2955	262.7	775.8
20 100# bombs & shackles	2441	263	642.1
b. Aft Bay. (See figure 9)			
2 500# bombs & shackles	1043	367.5	383.3
6 300# bombs & shackles	1773	367.2	651.0
10 100# bombs & shackles	1221	366.1	447.

3. Center of Gravity and Cargo Loading Data.

The Model B-26 and B-26A airplane is stable when the center of gravity lies between 10% and 24% of the Mean Aerodynamic Chord. Aft of 24% MAC the airplane is controllable but not positively stable. All normal and overload combinations of bombs and fuel are within the desired limits of center of gravity location, with the crew at flight stations or at battle stations.

a. Light Landing Condition.

When all bombs, ammunition and fuel have been expended and the landing gear has been extended the center of gravity will be too far forward for ease of control in landing. Two members of the crew should be moved from their stations in the Pilot's or Navigator's compartment to the seats in the deck turret compartment. This will provide a landing center of gravity within the desired range. If 250 gallons or more fuel remain in the tanks it is unnecessary to move the crew.

b. Cargo Loading Data.

When using the airplane as a cargo or troop carrier or with a military load differing from one of the typical conditions shown on the leading data tables in this section, it will be necessary to prepare a Loading Schedule. This schedule will list the weight and location of the items carried. The Loading Data Tables include the weight and moment of the main items of removable weight empty and useful load. The location of any items not listed may be obtained approximately by scaling the Loading Diagram, Figure 10. The moment for any amount of fuel in the wing tanks may be obtained from the Fuel Capacity and Moment Graph, figure 11. After summing up the weight and moment of all items carried on the flight the approximate center of gravity, in % MAC, may be determined by using the C. G. Grid, Figure 12. Refer also to the sample loading schedules.

CARGO LOADING DATA

Sample Loading Schedule #1

	Weight	Arm	Moment
Weight Empty L. G. Retracted	21959	235.28	5166.4
Basic Useful Load (Ref. Section VI, par. 1. b)	1547	295.7	457.5
Bombs & Shackles			
Fwd. Bay 20 - 100#	2441	263	642.1
Aft. Bay 10 - 100#	1221	366.1	447.0
Fuel 465 gal.	2790	275.4	768.4
Oil 42 gal.	317	224.3	71.1
	30275	249.46	7552.5
Gross Weight L.G. Retracted	30275	249.46	7552.5

Center of Gravity = 249.46 - 225.86/121.6 = 19.4% MAC

Center of Gravity by intersection of weight and moment on C.G. Grid = 19% MAC.

CARGO LOADING DATA

Sample Loading Schedule #2	Weight	Arm	Moment In.Lbs./1000
Weight Empty, L.G. Retracted (Ref. Balance Table)	21959	235.28	5166.4
Corrections to Weight Empty Less:			
Armor Plate	-553.2	239.8	-132.7
Deck Turret	-336.2	441.5	-148.4
Oxygen	- 84.5	247.	- 20.9
Weight Empty, corrected for Cargo Flight	20985	231.8	4864.4
Variable Load			
Crew			
Pilot & Co-pilot	400	97	38.8
Radio-Navigator	200	184.5	36.9
Cargo			
Fwd. Bomb Bay	1500	264	396
Aft Bomb Bay	1500	367	550.5
Navigator's Compartment	800	175	140
Total Weight, Less Fuel & Oil	25835		6026.6
Moment for L.G. Extended			- 22.3
Total Weight, Less Fuel & Oil	25385	236.53	6004.3

Center of Gravity = (236.53 - 225.86 / 121.60 = 8.8% MAC

NOTE: This is too far forward, so it will be necessary to shift some of the cargo from Navigator's compartment to the turret compartment.

Cargo: 400# moved from 175" to 450" (400)			+110
Total Weight Less Fuel & Oil L.G. Extended	25385	241.78	6137.6
Center of Gravity = 12.4% MAC			
Moment for Landing Gear Retracted			+22.3
Total Weight Less Fuel & Oil L.G. Retracted	25385	241.78	6137.6
Fuel			
Inboard 2 at 347 gal. ea.	4320	273.4	1181.1
Outboard 2 at 120 gal. ea.	1452	274.4	398.9
Oil 58 gal.	436	224.3	100.9
Gross Weight L.G. Retracted	31607	247.35	7818.0

Center of Gravity
247.35 - 225.86/121.60 = 17.7%

Center of Gravity by intersection of weight and moment on C.G. Grid = 18.0% MAC.

LOADING DATA TABLE

VARIABLE LOAD	NORMAL Weight Lbs.	NORMAL Arm	NORMAL Moment Lbs/1000	MAX RANGE Weight Lbs.	MAX RANGE Arm	MAX RANGE Moment Lbs/1000	MAX BOMB LOAD Weight Lbs.	MAX BOMB LOAD Arm	MAX BOMB LOAD Moment Lbs/1000
Bombs & Shackles									
4 - 500# Fwd. Bay	2517	264.1	664.7						
10 - 300# Fwd. Bay									
6 - 300# Aft. Bay						2955	2955	267.7	775.8
Fuel at 6#/gal.	(465 gals. fuel)			(1462 gals. total fuel)			1773	367.2	651.0
Inboard Tanks	2790	275.4	768.4	4320	273.4	1181.1	(465 gals. fuel) 2790	275.4	768.4
Outboard Tanks				1452	274.4	398.4			
Bomb Bay Tank				3000	270.0	810.0			
Bomb Bay Tank Installation				356	270.0	96.1			
				178	270	48.1			
Oil at 7.5#/gal.	317 (42.3 gals. oil)	224.3	71.1	686 (91.4 gals. oil)	224.3	154.2	219 (29.2 gals. oil)	224.3	49.1
Torpedo Director and Wrench	7.	65.2		7.		.5			
Total Variable Load	5200	267.5	1504.2	9802	65.2	2160.2	8044	283.1	2277.0
Weight Empty & Basic Useful Load L. G. Retracted	23506		5623.9	23506		5623.9	23506		5623.9
Gross Weight, L. G. Retracted Crew at Flight Sta.	28706	244.36 15.2% MAC	7014.7	33327	247.97 18.2% MAC	8264.2	31250	251.80 21.3% MAC	7868.7
Moment for Crew at Battle Sta.			+60.7			+60.7			+60.7
Gross Weight, L. G. Retracted Crew at Battle Sta.	28706	244.48 17.0% MAC	7075.4	33327	249.79 19.7% MAC	8324.9	31250	253.74 22.9% MAC	7929.4

	Weight Lbs.	Arm	Moment Lbs/1000
Overload Fuel	(930 gal. total fuel)		
Inboard Tanks	1374	273.6	375.9
Outboard Tanks	1416	274.6	388.8
Overload Oil	119	224.3	26.7
Overload Gross Weight	31615	246.91	7806.1
L. G. Retracted, Crew at Flight Sta.		17.3% MAC	

Special Variable Load (Not included above)	Weight Lbs.	Arm	Moment Lbs/1000
Photographic Installation	159	548.4	87.1
Extra Turret Ammunition (400 rds.)	120	456.5	55.9

Basic Useful Load	Weight Lbs.	Arm	Moment Lbs/1000
Crew at Flight Stas.	(950)	198	(188.2)
Pilot	200	97	19.4
Co-pilot	200	97	19.4
Radio Operator	200	184.5	36.9
Navigator	180	191	34.4
Turret Gunner	150	461	69.2
Gunners Chute	20	449	9.0
Moment for Crew at Battle Station			+60.7
Flexible Guns & Installation	(596.5)	(451.5)	(269.3)
Bow; 1-.30 cal., 600 rds.	72.9	29.1	2.1
			129.0
Turret; 2-.50 cal., 400 rds.	285.6	451.8	128.2
Tunnel; 1-.30 cal., 600 rds.	76.7	484.7	37.2
Tail; 1-.50 cal., 200 rds.	161.3	626.	101.0

VARIABLE LOAD

	NORMAL		
	Weight Lbs.	Arm	Moment Lbs/1000
Total Basic Useful Load	1546.5	295.7	457.5
Weight Empty L.G. Retr.	21959	235.28	5166.4
Moment for L.G. Extended			(-22.3)
Weight Empty & Basic Useful Load			
L.G. Retracted	23506	239.25	5625.9

Removable Equipment Included in Weight Empty			
Armor Plate	553.2	239.8	132.7
Oxygen Cylinders & Regulators	84.5	247.6	20.9
Upper Turret	336.2	441.5	148.4
Life Raft & Installation	60.5	168	10.1
Communication Equipment			
Command Set	52.4	153.4	8.0
Liaison Set	225.5	194.1	43.8
Radio Compass	76.2	150.7	11.5

Center of Gravity Data:

L.E. MAC From Bal. Datum = 225.86"
Length of MAC = 121.6"

Balance in % MAC may be calculated or obtained graphically on the Center of Gravity Grid.

4. Weight in Pounds (B-26B only).

a. Weight Empty 22,165

b. Basic Useful Load

(1) Crew including parachutes 950

Pilot	200
Co-pilot	200
Radio Operator	200
Navigator	180
Gunner	170

(2) Oxygen (included in weight empty)

(3) Flexible Guns and Installation 1571

Bow; 1-.30 cal. incl. 600 rds. amm.	72.9
Turret; 2-.50 cal. incl. 400 rds. amm.	285.7
Tunnel; 1-.30 cal. incl. 600 rds. amm.	76.7
Tail; 2-.50 cal. incl. 3000 rds. amm.	1135.7

(4) Photographic | Special Overload.

Total Basic Useful Load 2521

c. Variable Load.

(1) Fuel (Normal 465 gals. total, inboard tanks) 2,790.

L.H. Inboard Tank	360 gal.	= 2160
R.H. Inboard Tank	360 gal.	= 2160
L.H. Outboard Tank	121 gal.	= 726
R.H. Outboard Tank	121 gal.	= 726
Bomb Bay Tank (2)	500 gal.	= 3000
Bomb Bay Tank and Installation	gal.	= 356
	1462 gals.	= 9128

(2) Oil (Normal 42.3 gals. total)

L.H. Tank	41.25 gal.	= 309.5
R.H. Tank	41.25 gal.	= 309.5
	82.5 gals.	= 619.0

(3) Bombs including shackles (Normal 4-500#) 2,086

30 - 100# = 3,662
16 - 300# = 4,727
8 - 500# = 4,172
4 - 1000# = 4,022
2 - 2000# = 4,234

(4) Photographic Equipment 146
Mount 13

(5) Overload Ammunition

Turret Gun - 400 rds. 120

(6) Torpedo Director and Wrench 7

Total Variable Load (Normal Gross Weight) 5,200

d. Normal Gross Load Condition. 29,886

e. Maximum Alternate Load Condition. 34,507

(Same as Normal Loading - except 1462 gal. fuel, 91.4 gal. oil and no bombs)

5. Bomb Load Tables (Alternate Load)

	Weight Lbs.	Arm Inches	Moment Inch-Lbs/1000
a. Forward Bay (See Figure 8)			
2-2000# bombs & shackles	4234	261.2	1105.7
4-1000# bombs & shackles	4022	263.2	1058.5
6- 500# bombs & shackles	3129	264.1	826.4
10- 300# bombs & shackles	2955	262.7	775.8
20- 100# bombs & shackles	2441	263.0	642.1
b. Aft Bay (See Figure 9).			
2- 500# bombs & shackles	1043	367.5	383.3
6- 300# bombs & shackles	1773	367.2	651.0
10- 100# bombs & shackles	1221	366.1	447.0

6. Center of Gravity and Cargo Loading Data.

The Model B-26B airplane is stable when the center of gravity lies between 10% and 24% of the Mean Aerodynamic Chord. Aft of 24% MAC the airplane is controllable but not positively stable. All normal and overload combinations of bombs and fuel are within the desired limits of center of gravity location, with the crew at flight stations or at battle stations.

a. Light Landing Condition.

When all bombs, ammunition and fuel have been expended and the landing gear has been extended, the center of gravity will be too far forward for ease of control in landing. Two members of the crew should be moved from their stations in the Pilot's or Navigator's compartment to the seats in the deck turret compartment. This will provide a landing center of gravity within the desired range. If 250 gallons or more fuel remain in the tanks, it is unnecessary to move the crew.

b. Cargo Loading Data.

When using the airplane as a cargo or troop carrier or with a military load differing from one of the typical conditions shown on the leading data tables in this section, it will be necessary to prepare a Loading Schedule. This schedule will list the weight and location of the items carried. The Loading Data Tables include the weight and moment of the main items of removable weight empty and useful load. The location of any items not listed may be obtained approximately by scaling the Loading Diagram, figure 10. The moment for any amount of fuel in the wing tanks may be obtained from the Fuel Capacity and Moment Graph, figure 11. After summing up the weight and moment of all items carried on the flight, the approximate center of gravity, in per cent MAC, may be determined by using the C. G. Grid, figure 12. Refer also to the sample Loading Schedules.

CARGO LOADING DATA

Sample Loading Schedule #1

	Weight	Arm	Moment
Weight Empty L. G. Retracted	22165	236.13	5233.8
Basic Useful Load (Ref. section VI, para. 1 b.)	2521	334.4	843.1
Bombs & Shackles			
Fwd. Bay 20 - 100#	2441	263.0	642.1
Aft. Bay 10 - 100#	1221	366.1	447.0
Fuel 465 gal.	2790	275.4	768.4
Oil 42 gal.	317	224.3	71.1
Gross Weight L. G. Retracted	31455	254.51	8005.5

Center of Gravity = 254.51 - 225.86/121.60 = 23.6% MAC

Center of Gravity by intersection of weight and moment on C. G. Grid = 23.5% MAC

CARGO LOADING DATA

Sample Loading Schedule #2

	Weight	Arm	Moment in. lbs./1000
Weight Empty, L. G. Retracted (Ref. Balance Table	22165	236.13	5233.8
Corrections to Weight Empty			
Less:			
Armor Plate	-588.3	260.9	-153.5
Deck Turret	-349.1	441.4	-154.1
Oxygen	- 84.5	247.6	- 20.9
Weight Empty, corrected for Cargo Flight	21143.1		4905.3
Variable Load			
Crew			
Pilot and Co-pilot	400	97	38.8
Radio-Navigator	200	184.5	36.9

Sample Loading Schedule #2 (cont'd)

	Weight	Arm	Moment in. lbs./1000
Cargo			
Fwd. Bomb Bay	1500	264	396
Aft. Bomb Bay	1500	367	550.5
Navigator's Compartment	800	175	140
Total Weight, Less Fuel & Oil	25543	237.54	6067.5
Moment for L. G. Extended			-22.1
Total Weight, Less Fuel & Oil	25543	236.67	6045.4
Center of Gravity = (236.67 - 225.86/121.60 = 8.9% MAC.			

NOTE: This is too far forward, so it will be necessary to shift some of the cargo from Navigator's compartment to the turret compartment.

	Weight	Arm	Moment in. lbs./1000
Cargo: 400# moved from 175" to 450" (400#) (275")			+110
Total Weight Less Fuel & Oil L. G. Extended Center of Gravity = 12.4% MAC	25543	241.0	6155.4
Moment for Landing Gear Retracted			+22.1
Total Weight Less Fuel & Oil L. G. Retracted	25543		6177.5
Fuel			
Inboard 2 at 360 gal. ea.	4320	273.4	1181.1
Outboard 2 at 121 gal. ea.	1452	274.4	398.4
Oil 60 gal.	450	224.3	100.9
Gross Weight L. G. Retracted	31765	247.4	7857.9

Center of Gravity 247.4 - 225.86/121.60 = 17.7% MAC

Center of Gravity by intersection of weight and moment on C. G. Grid = 18% MAC

LOADING DATA TABLE

VARIABLE LOAD	NORMAL			MAX RANGE			MAX BOMB LOAD		
	Weight	Arm	Moment	Weight	Arm	Moment	Weight	Arm	Moment
Bombs & Shackles									
4-500# Fwd. Bay	2086	264.1	550.8						
10-300# Fwd. Bay							2955	262.7	775.8
6-300# Aft. Bay							1773	367.2	651.0
Fuel at 6# /gal.	(465 Gals. Fuel)			(1462 Gals. Fuel)			(465 Gals. Fuel)		
Inboard Tanks	2790	275.4	768.4	4320	273.4	1181.1	2790	275.4	768.4
Outboard Tanks				1452	274.4	3984			
Bomb Bay Tank				3000	270.0	810.0			
Bomb Bay Tank Installation				356	270.0	96.1			
Oil at 7.5#/gal.	317	224.3	71.1	686	224.3	154.2	219	224.3	49.1
	(42.3 Gals. Oil)			(91.4 Gals. Oil)			(29.2 Gals. Oil)		
Torpedo Director & Wrench	7	65.2	.5	7	65.2	.5	7	65.2	.5

LOADING DATA TABLE (cont'd)

VARIABLE LOAD	NORMAL Weight	NORMAL Arm	NORMAL Moment	MAX RANGE Weight	MAX RANGE Arm	MAX RANGE Moment	MAX BOMB LOAD Weight	MAX BOMB LOAD Arm	MAX BOMB LOAD Moment
Total Variable Load	5200		1390.8	9821		2640.3	7744		2244.8
Weight Empty & Basic Useful Load L. G. Retracted	24686		6076.9	24686		6076.9	24686		6076.9
Gross Weight, L.G. Retr.	29886	249.88	7467.7	34507	252.62	8717.2	32430	256.61	8321.7
Crew at Flight Sta.		19.8% MAC			22.0% MAC			25.3% MAC	
Moment for Crew at Battle Sta.			+61.1			+61.1			+61.1
Gross Weight, L. G. Retr.	29886	251.92	7528.8	34507	254.39	8778.3	32430	258.49	8382.8
Crew at Battle Sta.		21.4% MAC			23.5% MAC			26.8% MAC	

Overload Fuel (930 Gal. Total Fuel)	Weight	Arm	Moment
Inboard Tanks	1374	273.6	375.9
Outboard Tanks	1416	274.6	388.8
Overload Oil	119	224.3	26.7
Overload Gross Weight	32795	253.70	8320.2
L. G. Retr., Crew at Flight Sta.		22.9% MAC	

Special Variable Load (Not included above)	Weight	Arm	Moment
Photographic Installation	159	548.4	87.2
Extra Turret Ammunition (400 rds.)	120	456.5	55.9

	Weight	Arm	Moment
Crew at Flight Stas.	(950)	198	(188.2)
Pilot	200	97	19.4
Co-pilot	200	97	19.4
Radio Operator	200	184.5	36.9
Navigator	180	191	34.4
Turret Gunner	150	461	69.2
Gunner's Chute	20	449	9.0
Moment for Crew at Battle Station			(+61.1)
Flexible Guns & Installation	(1571)	416.9	(654.9)
Bow; 1-.30 cal., 600 rds.	72.9	29.1	2.1
Turret; 2-.50 cal., 400 rds.	285.7	451.8	129.0
Tunnel; 1-.30 cal., 600 rds.	76.7	484.7	37.2
Tail; 2-.50 cal., 3000 rds.	1135.7	428.4	486.6
Total Basic Useful Load	2521	334.4	843.1
Weight Empty L. G. Retr.	22165	236.13	5233.8
Moment for L. G. Extended			(-22.1)
Weight Empty & Basic Useful Load L. G. Retracted	24686	246.17	6076.9

	Weight Lbs.	Arm	Moment in. lbs./1000
Armor Plate	588.3	260.9	153.5
Oxygen Cylinders & Regulators	84.5	247.6	20.9
Upper Rear Turret	349.1	441.4	154.1
Life Raft & Installation	60.5	167.9	10.2
Communication Equipment			
Command Set	80.3	152.9	12.3
Liaison Set	276.2	189.7	52.4
Radio Compass	82.0	150.3	12.3

Center of Gravity Data:

L.E. MAC From Bal. Datum = 225.86"
Length of MAC = 121.60"

Balance in % MAC may be calculated or obtained graphically on the Center of Gravity Grid.

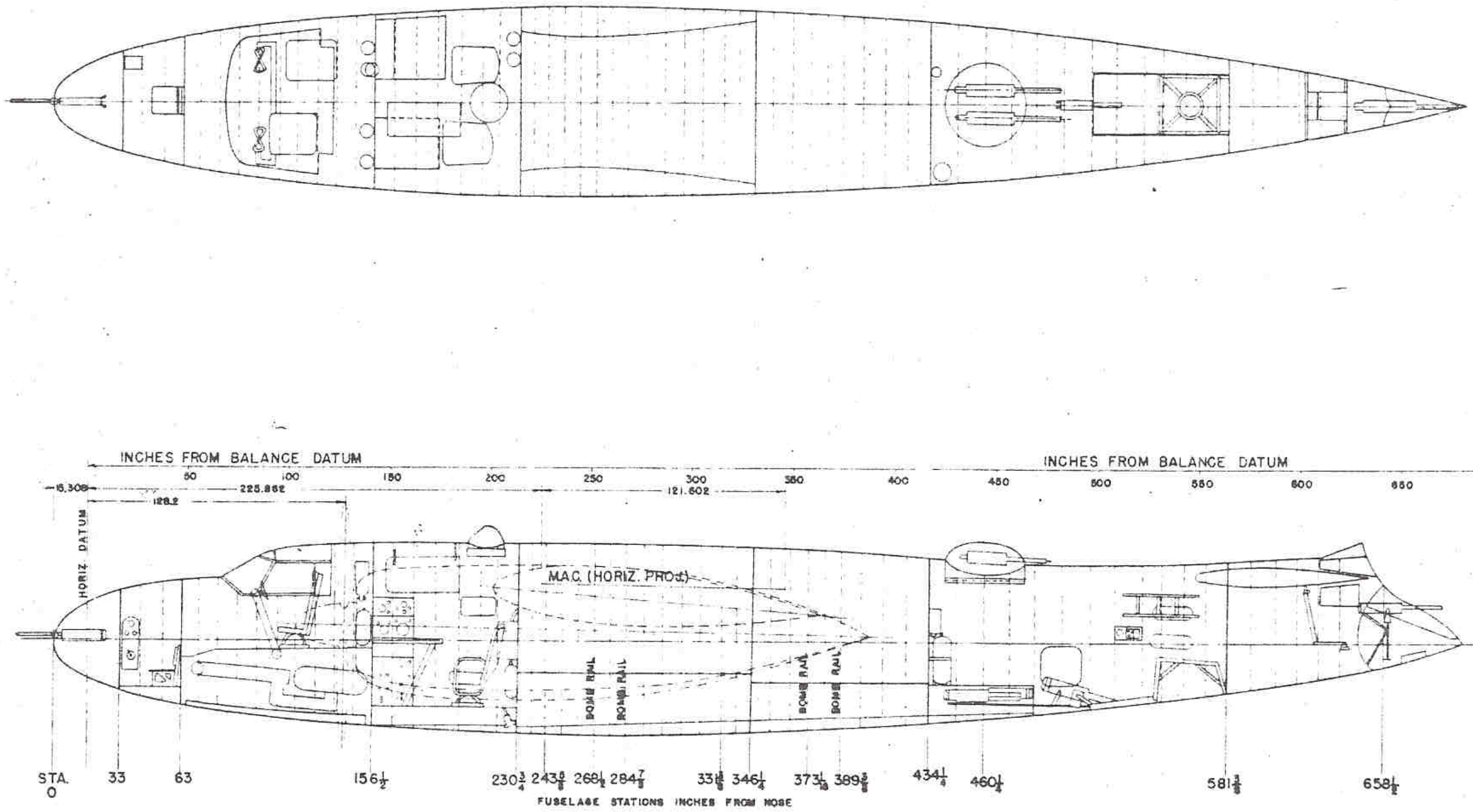


FIG. 15 - LOADING DIAGRAM

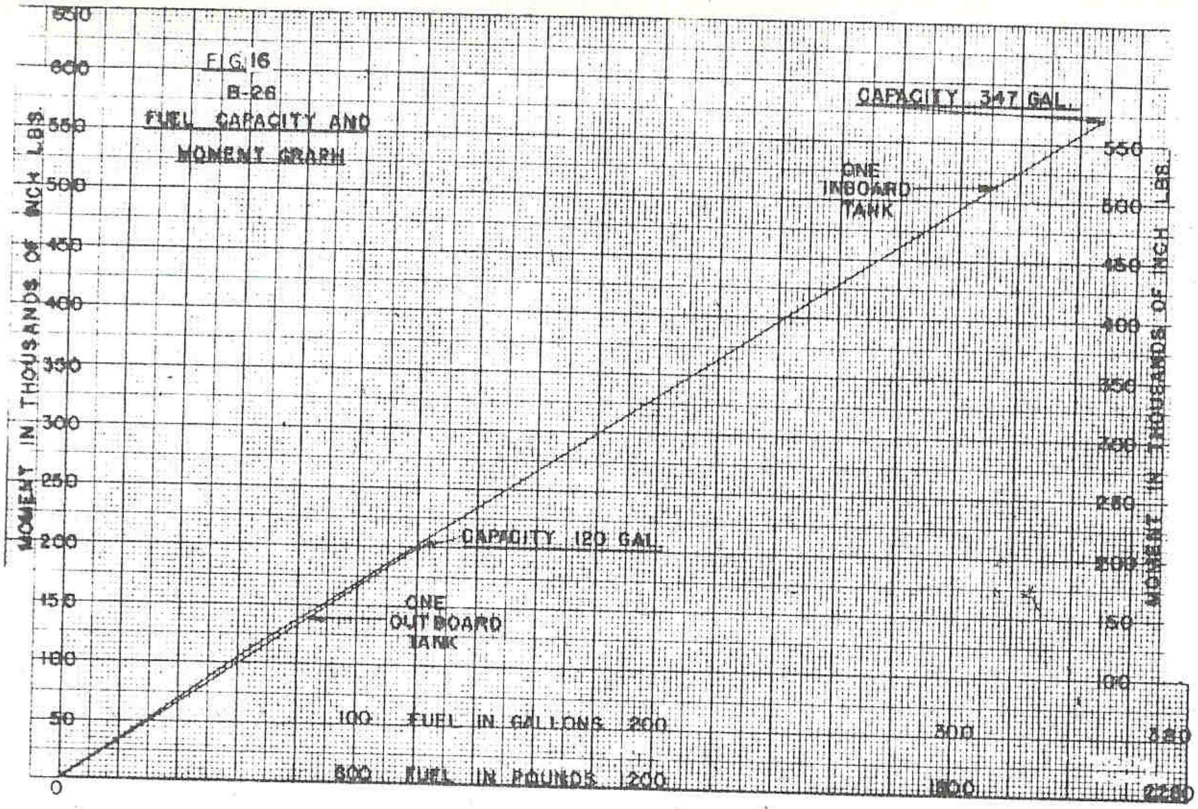
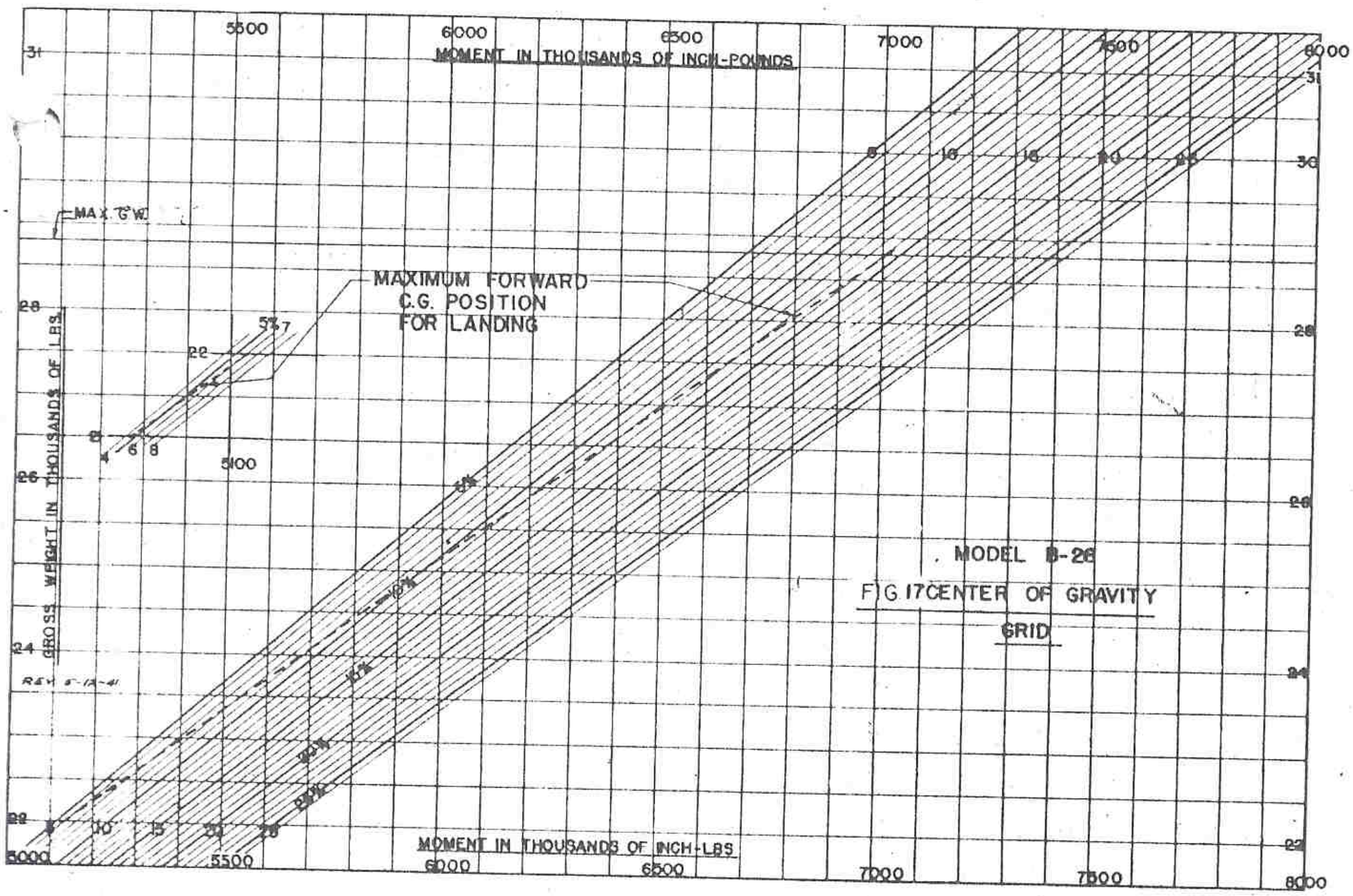
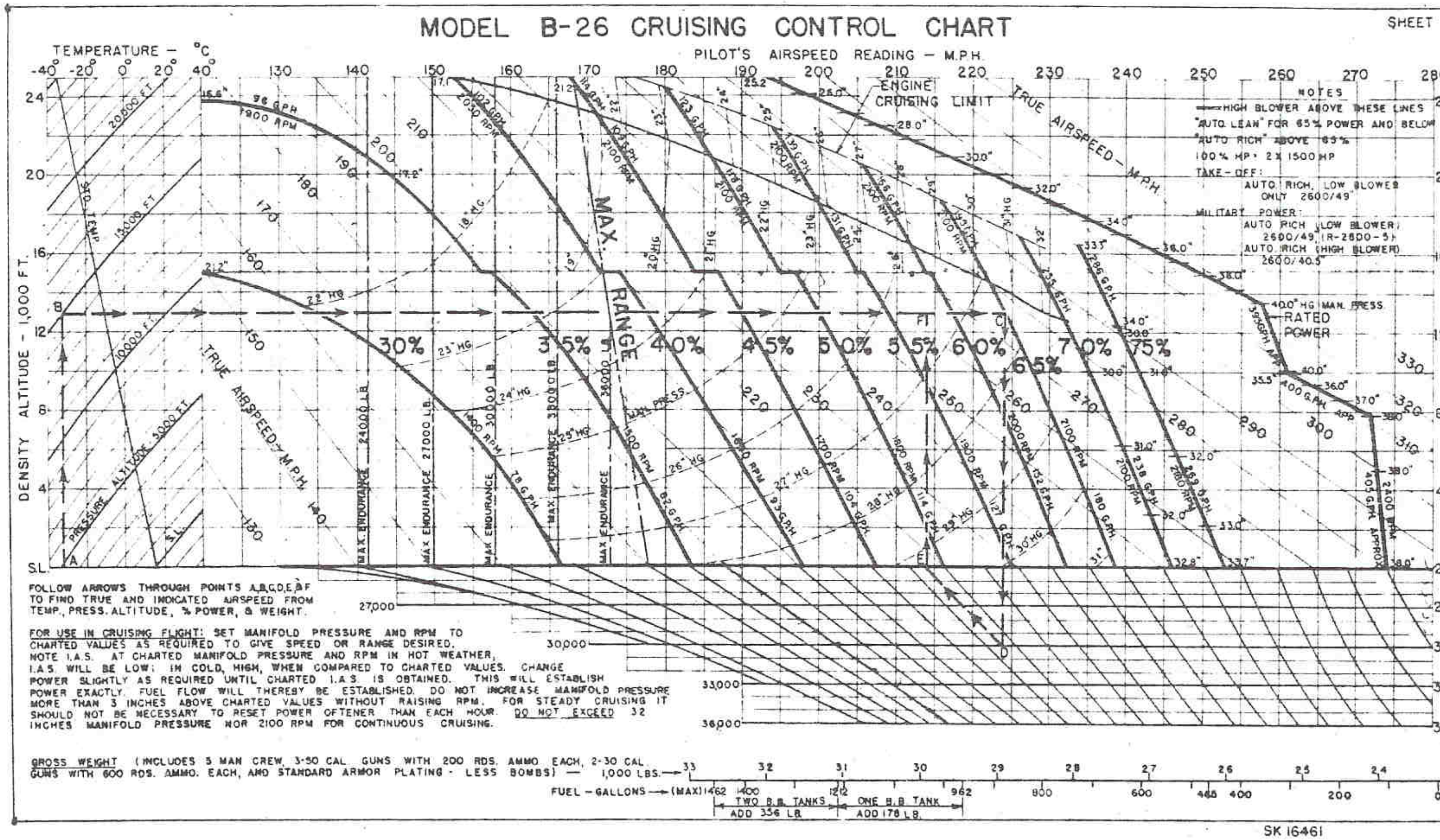


FIG.16
B-26
FUEL CAPACITY AND
MOMENT GRAPH
CAPACITY 347 GAL.
ONE
INBOARD
TANK
CAPACITY 120 GAL.
ONE
OUTBOARD
TANK
MOMENT IN THOUSANDS OF INCH LBS.
FUEL IN GALLONS
FUEL IN POUNDS


MOMENT IN THOUSANDS OF INCH-POUNDS
MAX. G.W.
MAXIMUM FORWARD
C.G. POSITION
FOR LANDING
GROSS WEIGHT IN THOUSANDS OF LBS.
MODEL B-26
FIG.17 CENTER OF GRAVITY
GRID
MOMENT IN THOUSANDS OF INCH-LBS


MODEL B-26 CRUISING CONTROL CHART
SHEET 1 OF 3
TEMPERATURE - °C
-40° -20° 0° 20° 40°
PILOT'S AIRSPEED READING - M.P.H.
130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280
ENGINE CRUISING LIMIT
TRUE AIRSPEED - M.P.H.
DENSITY ALTITUDE - 1,000 FT.
DENSITY ALTITUDE - FEET
24,000
20,000
16,000
12,000
8,000
4,000
GROSS WEIGHT - LBS.
24,000
27,000
30,000
33,000
36,000
STD. TEMP.
PRESSURE ALTITUDE
MAX. RANGE
MAX. ENDURANCE
30%
35%
40%
45%
50%
55%
60%
65%
70%
75%
RATED POWER
400" HG MAN. PRESS.
NOTES
HIGH BLOWER ABOVE THESE LINES
"AUTO LEAN" FOR 65% POWER AND BELOW
"AUTO RICH" ABOVE 65%
100% HP = 2 X 1500 HP
TAKE-OFF:
AUTO RICH, LOW BLOWER ONLY 2600/49"
MILITARY POWER:
AUTO RICH (LOW BLOWER) 2600/49" (R-2800-5)
AUTO RICH (HIGH BLOWER) 2600/40.5"
FOLLOW ARROWS THROUGH POINTS A,B,C,D,E,F TO FIND TRUE AND INDICATED AIRSPEED FROM TEMP., PRESS. ALTITUDE, % POWER, & WEIGHT.
FOR USE IN CRUISING FLIGHT: SET MANIFOLD PRESSURE AND RPM TO CHARTED VALUES AS REQUIRED TO GIVE SPEED OR RANGE DESIRED. NOTE I.A.S. AT CHARTED MANIFOLD PRESSURE AND RPM IN HOT WEATHER, I.A.S. WILL BE LOW; IN COLD, HIGH, WHEN COMPARED TO CHARTED VALUES. CHANGE POWER SLIGHTLY AS REQUIRED UNTIL CHARTED I.A.S. IS OBTAINED. THIS WILL ESTABLISH POWER EXACTLY. FUEL FLOW WILL THEREBY BE ESTABLISHED. DO NOT INCREASE MANIFOLD PRESSURE MORE THAN 3 INCHES ABOVE CHARTED VALUES WITHOUT RAISING RPM. FOR STEADY CRUISING IT SHOULD NOT BE NECESSARY TO RESET POWER OFTENER THAN EACH HOUR. DO NOT EXCEED 32 INCHES MANIFOLD PRESSURE NOR 2100 RPM FOR CONTINUOUS CRUISING.
GROSS WEIGHT (INCLUDES 5 MAN CREW, 3-50 CAL. GUNS WITH 200 RDS. AMMO EACH, 2-30 CAL. GUNS WITH 600 RDS. AMMO. EACH, AND STANDARD ARMOR PLATING - LESS BOMBS) — 1,000 LBS.→
33 32 31 30 29 28 27 26 25 24 23
FUEL - GALLONS → (MAX) 1462 1400 1212 962 800 600 465 400 200 0
TWO B.B. TANKS ADD 356 LB.
ONE B.B. TANK ADD 178 LB.

SK 16461

MODEL B-26 CRUISING CONTROL CHART
(Sheet 2 of 3 sheets)

Powers given on chart are percentages of 2 x 1500 BHP, which is the normal rated power (low blower) at airplane critical altitude.

Indicated airspeeds charted are for the pilot's instrument and include the calibration for pitot ...m position error, but not the instrument mechanical error (which vaires for different ships). Therefore, in using the chart this instrument correction, as evaluated by laboratory calibration, must be applied to the values for indicated airspeed shown before the actual pilot's airspeed instrument reading can be determined.

TO DETERMINE BHP REQUIRED FOR ANY DESIRED TRUE AIRSPEED AT ANY GROSS WEIGHT:

Enter chart with density altitude, determined from pressure altitude and temperature, and true airspeed for which flight is charted. Project point vertically downward to the 27,000 lb. gross weight line (base line). Follow line parallel to gross weight calibration lines to intersection with line of airplane gross weight. Project intersection point vertically to charted altitude and read BHP, R.P.M., manifold pressure, and fuel flow by interpolation.

EXAMPLE: (Not illustrated on chart)

Find BHP corresponding to 250 MPH true airspeed, 16,000 ft. pressure altitude at -25° C. free air temperature, and 33,000 lb. gross weight.

Entering chart at -25° C. and 16,000 ft. pressure altitude, a density altitude of 15,000 ft. is determined. Follow 15,000 ft. line to intersection with line of 250 MPH true airspeed. This intersection occurs at 196 MPH pilot's uncorrected indicated airspeed (To obtain actual pilot's indicated airspeed, apply instrument correction. If, for example, instrument reads 2 MPH high in this range, the actual instrument reading would be 198 MPH.) Project this point vertically along 196 MPH indicated airspeed line to base line of 27,000 lbs. gross weight. Follow line parallel to weight calibration lines and locate intersection point with 33,000 lbs. line. Project this point vertically to 15,000 ft. and read 63.5% BHP, 2125 RPM, 26.0 in. Hg. manifold pressure, and a fuel flow of 178 gallons per hour.

TO DETERMINE AIRSPEED FOR ANY DESIRED POWER AT ANY GROSS WEIGHT:

Enter chart with density altitude, determined from pressure altitude and temperature, and BHP of flight. Project this point vertically to airplane gross weight line. Follow line parallel to gross weight calibration lines to intersection with base line of 27,000 lbs. gross weight. Project intersection point vertically to charted altitude and read airspeed.

EXAMPLE: (Illustrated on chart)

Find airspeed corresponding to 60% BHP, 15,000 ft. pressure altitude at -27° C. free air ...perature, and 33,000 lbs. gross weight.

Entering chart at -27° C. and 15,000 ft. pressure altitude, a density altitude of 13,500 ft. is determined. Follow 13,500 ft. line to intersection with 60% BHP and project this point vertically to line of 33,000 lbs. gross weight. Follow line parallel to weight calibration lines to intersection with base line of 27,000 lbs. gross weight. Project intersection to 13,500 ft. and read 238 MPH true airspeed and 192 MPH pilot's uncorrected indicated airspeed. If, for example, pilot's instrument reads 2 MPH high in this range, the actual instrument reading would be 194 MPH.

MODEL B-26 CRUISING CONTROL CHART
(Sheet 3 of 3 sheets)

TO DETERMINE AIRSPEED, BHP, ETC., FOR MAXIMUM RANGE AT ANY WEIGHT

Enter chart with density altitude determined from pressure altitude and temperature. At intersection of density altitude with Maximum Range line read true and indicated airspeeds. (Note that the airspeed for maximum range at a given altitude is the same for all gross weights). Project this intersection point vertically to the 27,000 lb. gross weight line (base line). Follow line parallel to gross weight calibration lines to intersection with line of airplane gross weight. Project this point vertically to charted altitude and read BHP., R. P. M., manifold pressure, and fuel flow by interpolation.

EXAMPLE: (Not illustrated on chart)

Find airspeed and BHP, etc., for maximum range at a pressure altitude of 8,000 ft., free air temperature of 17 degrees C, and an airplane gross weight of 30,000 lbs.

Entering chart at 17 degrees C and 8,000 feet pressure altitude, a density altitude of 10,000 feet is determined. Follow 10,000 feet line to intersection with Maximum Range line and read 196 MPH true airspeed and 168 MPH pilot's uncorrected indicated airspeed (if, for example, pilot's instrument reads 3 MPH high in this range, the actual instrument reading would be 171 MPH). Project this point vertically to base line of 27,000 lbs. gross weight. Follow line parallel to weight calibration lines and locate intersection point with 30,000 lbs. line. Project this point vertically to 10,000 feet and read 45% BHP, 1700 RPM, 24.6 in. Hg. manifold pressure, and a fuel flow of 110 gallons per hour.

CAUTION:

Both BHP and airspeed cannot be read from the same point on the chart except for the case of 27,000 lbs. gross weight.

FOR USE IN FLIGHT:

Set manifold pressure and RPM to charted values as required to give speed or range desired. Jockey power slightly as required (increase manifold pressure to increase speed, decrease RPM to decrease RPM to decrease speed) until necessary indicated airspeed is obtained. This establishes power and fuel flow for non-standard atmospheric conditions. Do not increase manifold pressure more than 3 in. above charted values without raising RPM.

Fuel flows shown in gallons per hour are total for 2 engines.

A gross weight approximation scale is shown at the bottom of the chart for determining gross weight changes during flight due to fuel consumption so that revisions can be made to operating conditions.

For use in cruising flight: Set manifold pressure and R.P.M. to charted values as required to give speed or range desired. Determine density altitude, obtain true airspeed in normal manner using free air temperature, pressure altitude and airspeed indicator calibration corrected. At charted M.P. and R.P.M. in hot weather T.A.S. will be low; in cold, high, when compared to charted values. Jockey power slightly as required (increase M.P. to increase speed, decrease R.P.M. to decrease speed) until charted T.A.S. is obtained. This will establish power exactly - DO NOT EXCEED OPERATING LIMITS FOR CONTINUOUS CRUISING.

For maximum range operation, determine the percent power and altitude which gives the maximum miles per gallon (M.P.H. divided by gallons per hour) for the existing gross weight of the airplane. Consider each hour the effect at weight decrease due to the consumption of fuel and on this basis revise speed and altitude; revise conditions when bombs are dropped; also consider the effect of winds.

The fuel flows given below are optimum; therefore, in planning allowances must be made for warm-up, take-off, climb, reserve, etc.

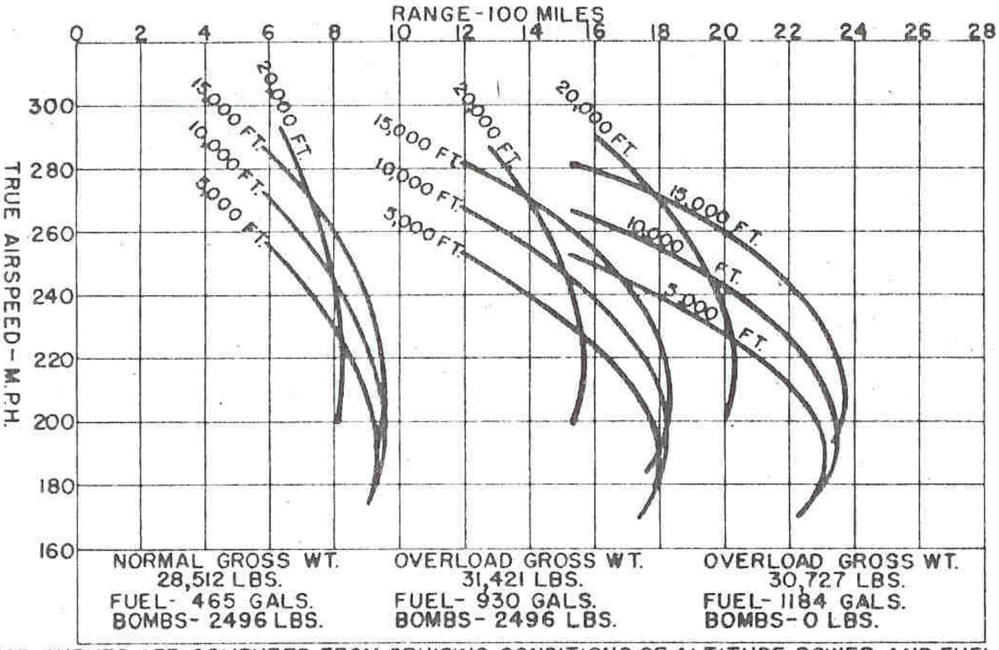
FUEL CONSUMPTION

% Power (% 0 + 2 x 1500)	R.P.M.	Gals./hr. (Low Blower)
35	1480	77
40	1590	88
45	1690	100
50	1810	111
55	1910	123
60	2125	137
65	2125	159
75	2200	216

ENGINE LIMITATIONS:

Take-off - Auto-Rich, Low Blower only, 2600 R.P.M., 49 in. M.P. Military Power - Auto Rich - Low Blower: - 2600 R.P.M., 49 in. M.P.
High Blower: - 2600 R.P.M., 40.5 in. M.P.
Do not exceed 32 in. M.P. or 2125 R.P.M. for continuous cruising.

MODEL B-26 RANGE CHART
(STANDARD ATMOSPHERE)



THESE CURVES ARE COMPUTED FROM CRUISING CONDITIONS OF ALTITUDE, POWER, AND FUEL FLOW SPECIFIED ON "MODEL B-26 CRUISING CONTROL CHART" FOR ENGINE CRUISING LIMITATIONS DURING FLIGHT, SEE ENGINE OPERATING INSTRUCTIONS. NO ALLOWANCES ARE MADE FOR WARM-UP, TAKE-OFF, CLIMB, HEAD WINDS, OR DESCENT. BOMB LOAD IS CONSIDERED TO BE CARRIED HALF THE DISTANCE OF THE FLIGHT.

USE OF MODEL B-26 RANGE CHART

Ranges shown on chart are for flight at constant true airspeed and varying power.

TO ESTIMATE APPROXIMATE RANGE WITH BOMB LOADS SPECIFIED ON CHART, BUT WITH WITH DIFFERENT FUEL LOAD AND INITIAL GROSS WEIGHT -

Using curves for an initial gross weight equal to or greater than that for the modified fuel load, multiply the chart range at a given airspeed and altitude by the ratio of the fuel carried to the fuel specified by the chart. This method will give conservative results.

EXAMPLE:

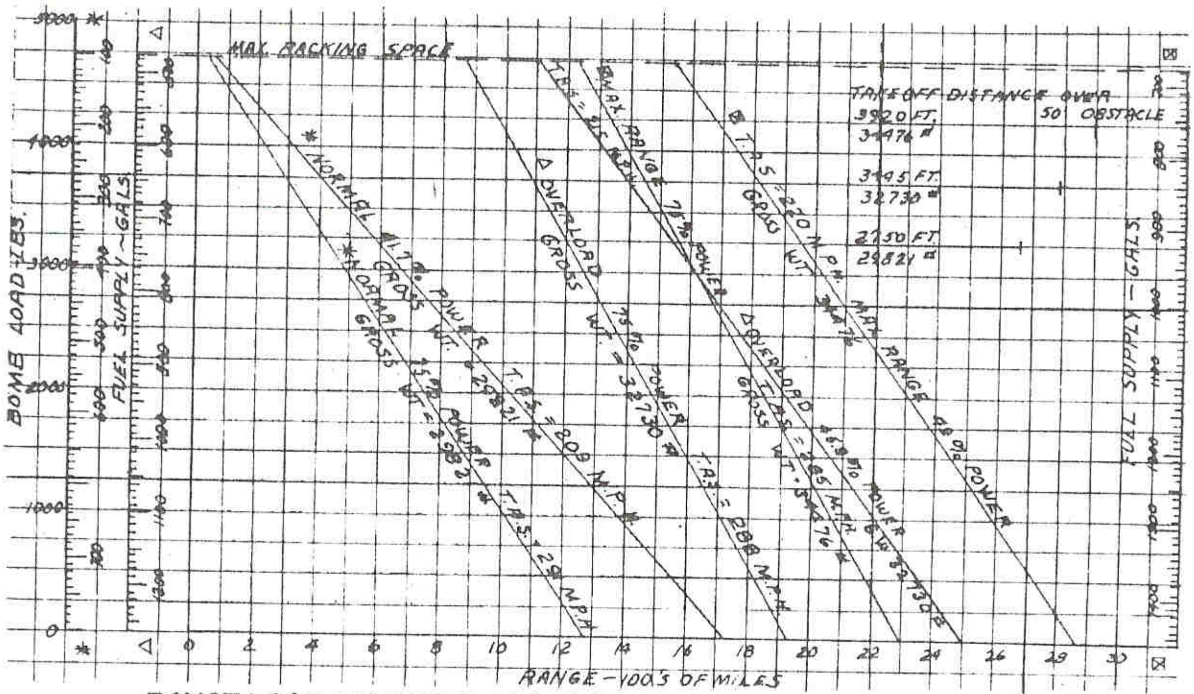
Estimate range for flight at true airspeed of 240 MPH and 15,000 feet altitude with a bomb load of 2496 Lbs. and 600 gallons of fuel.

Using curves for an initial gross weight of 31,421 Lbs., which is greater than that of the example since it includes 930 gallons of fuel with a bomb load of 2496 Lbs., read a range of 1720 miles at the intersection of 240 MPH and 15,000 feet. Then the approximate range with 600 gallons will be -

$$R_{600\text{ gal.}} = 1720 \times \frac{600}{930} = 1110 \text{ miles}$$

FOR USE IN FLIGHT -

Set R.P.M. and manifold pressure as specified on "Model B-26 Cruising Control Chart" at the chosen altitude and initial gross weight to give the indicated airspeed equivalent to the true airspeed selected from the Range Chart. As the flight progresses and the gross weight decreases due to fuel consumption, determine new manifold pressures and R.P.M. from the Cruising Control Chart so that the constant charted airspeed will be maintained.

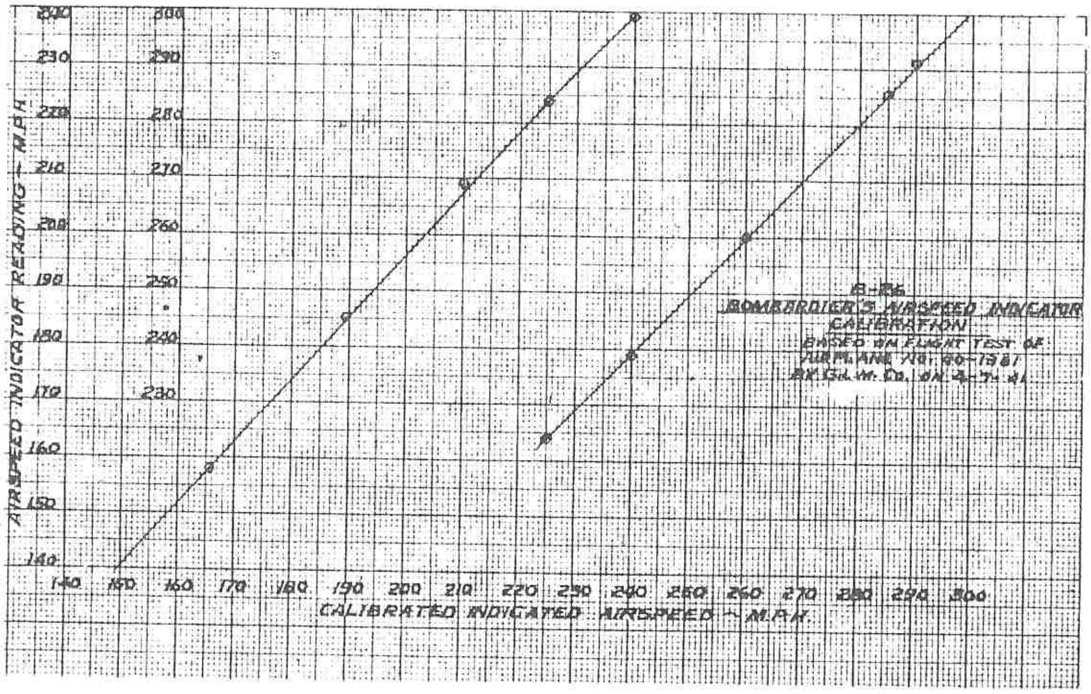


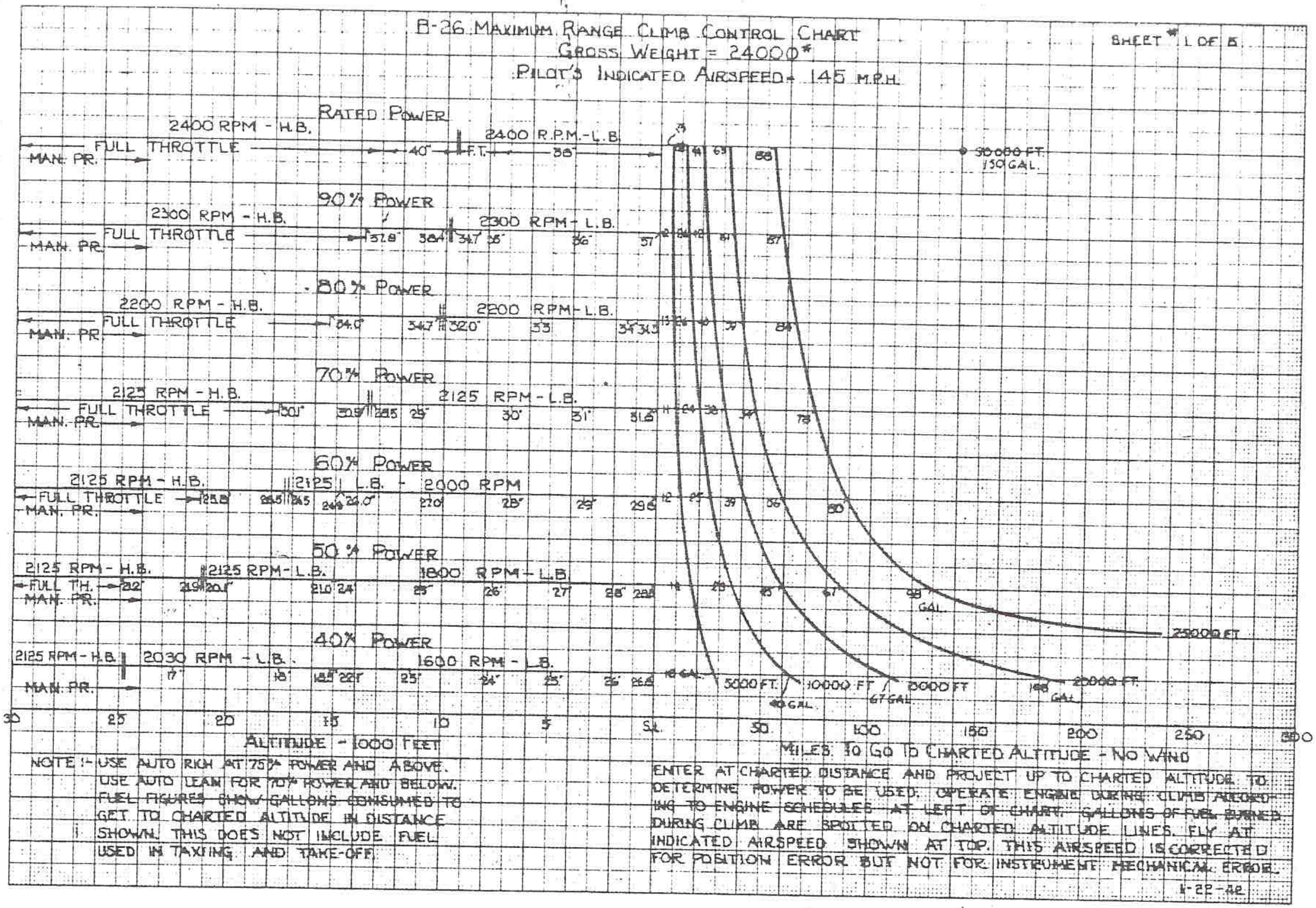
RANGE LOAD CURVES B-26A AND B-26B-15,000 FT. ALT.-% POWER BASED ON 1500 B.H.P. PER ENG.

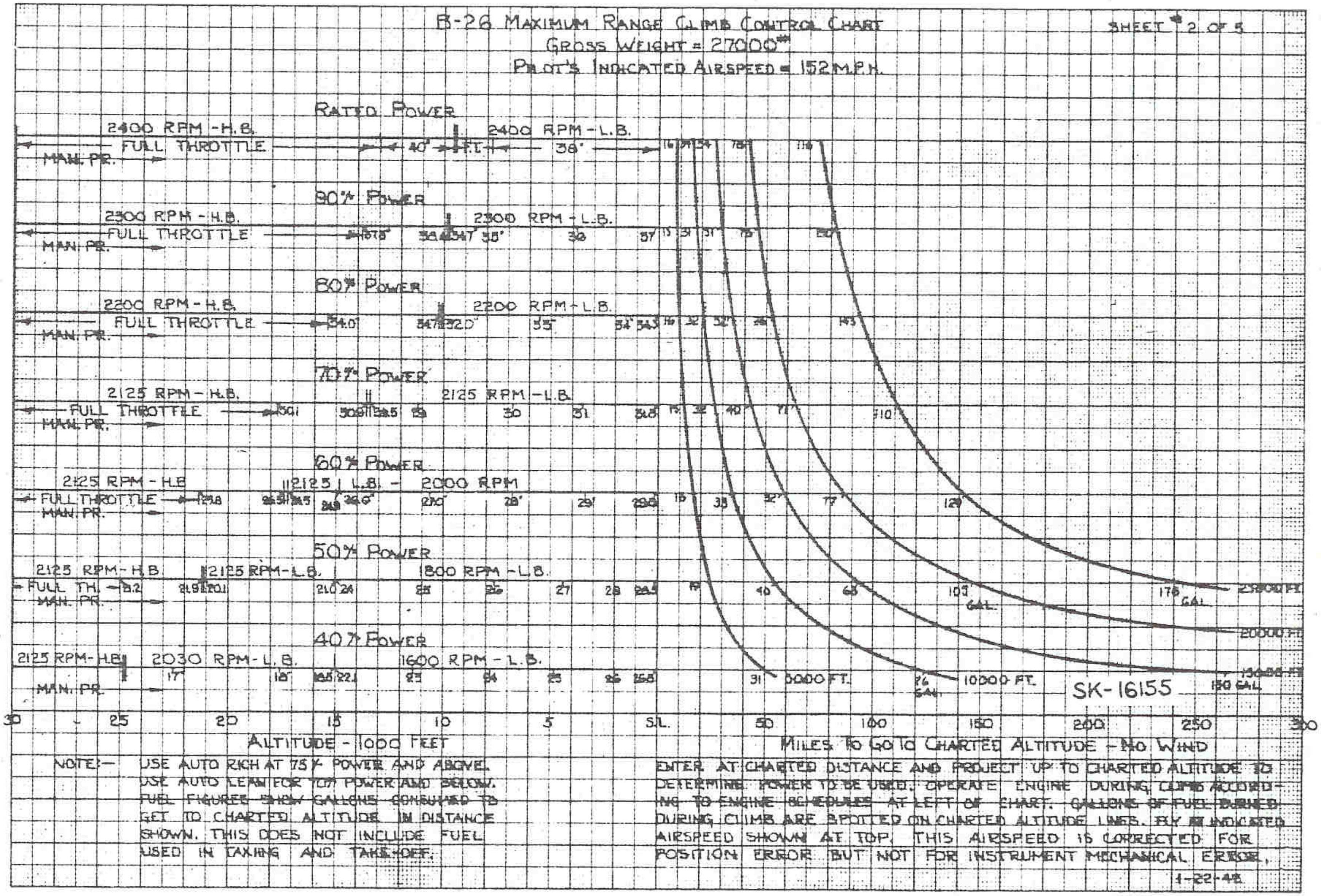
1. Use of B-26A and B-26B Range Load Curves

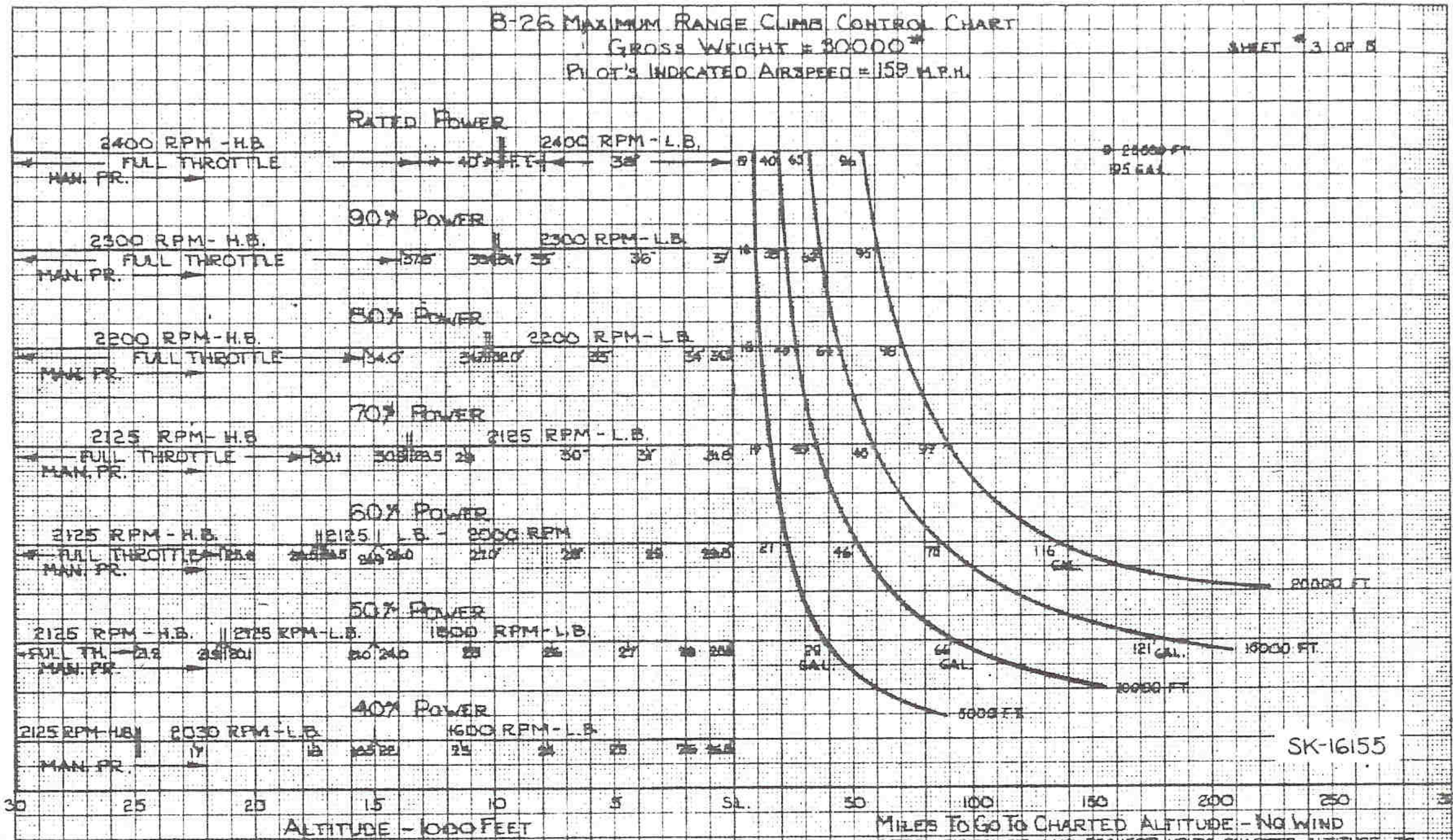
a. With a given amount of fuel and bombs and % power cruising condition: Locate fuel supply on proper scale at end, run horizontally to curve nearest estimated gross weight and % power, drop vertically to approximate range. Judgment should be based on bomb load, and range and correlated with factors in connection with the nature of the target, enemy defense and expendibility of the airplane.

b. The chart indicated directly how much bomb load can be carried, and how far at the load condition to be considered.




B-26 MAXIMUM RANGE CLIMB CONTROL CHART
GROSS WEIGHT = 24000*
PILOT'S INDICATED AIRSPEED - 145 M.P.H.
SHEET # 1 OF 5
RATED POWER
2400 RPM - H.B.
2400 R.P.M. - L.B.
FULL THROTTLE
MAN. PR.
30000 FT.
150 GAL.
90% POWER
2300 RPM - H.B.
2300 RPM - L.B.
80% POWER
2200 RPM - H.B.
2200 RPM - L.B.
70% POWER
2125 RPM - H.B.
2125 RPM - L.B.
60% POWER
2125 RPM - H.B.
2125 L.B. - 2000 RPM
50% POWER
2125 RPM - H.B.
2125 RPM - L.B.
1800 RPM - L.B.
FULL TH.
98 GAL.
25000 FT
40% POWER
2125 RPM - H.B.
2030 RPM - L.B.
1600 RPM - L.B.
18 GAL.
5000 FT.
40 GAL.
10000 FT
67 GAL.
15000 FT
148 GAL.
20000 FT.
30 25 20 15 10 5 S.L.
50 100 150 200 250 300
ALTITUDE - 1000 FEET
MILES TO GO TO CHARTED ALTITUDE - NO WIND
NOTE:- USE AUTO RICH AT 75% POWER AND ABOVE.
USE AUTO LEAN FOR 70% POWER AND BELOW.
FUEL FIGURES SHOW GALLONS CONSUMED TO GET TO CHARTED ALTITUDE IN DISTANCE SHOWN. THIS DOES NOT INCLUDE FUEL USED IN TAXIING AND TAKE-OFF.
ENTER AT CHARTED DISTANCE AND PROJECT UP TO CHARTED ALTITUDE TO DETERMINE POWER TO BE USED. OPERATE ENGINE DURING CLIMB ACCORDING TO ENGINE SCHEDULES AT LEFT OF CHART. GALLONS OF FUEL BURNED DURING CLIMB ARE SPOTTED ON CHARTED ALTITUDE LINES. FLY AT INDICATED AIRSPEED SHOWN AT TOP. THIS AIRSPEED IS CORRECTED FOR POSITION ERROR BUT NOT FOR INSTRUMENT MECHANICAL ERROR.
1-22-42

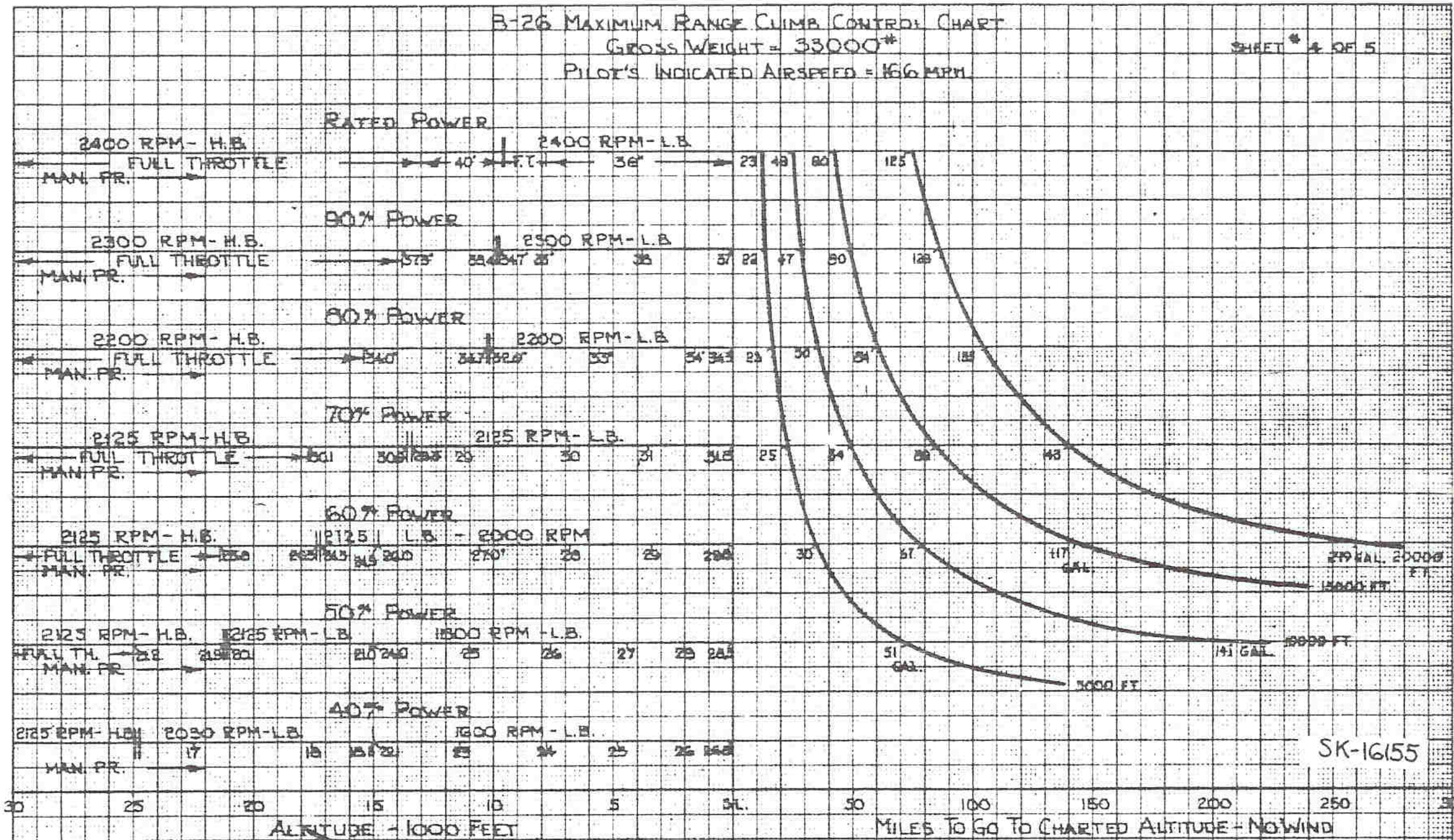

B-26 MAXIMUM RANGE CLIMB CONTROL CHART
GROSS WEIGHT = 27000#
PILOT'S INDICATED AIRSPEED = 152 M.P.H.
SHEET # 2 OF 5
RATED POWER
2400 RPM - H.B.
2400 RPM - L.B.
FULL THROTTLE
MAN. PR.
80% POWER
2300 RPM - H.B.
2300 RPM - L.B.
80% POWER
2200 RPM - H.B.
2200 RPM - L.B.
70% POWER
2125 RPM - H.B.
2125 RPM - L.B.
60% POWER
2125 RPM - H.B
2125 L.B. - 2000 RPM
50% POWER
2125 RPM - H.B.
2125 RPM - L.B.
1800 RPM - L.B.
40% POWER
2125 RPM - H.B.
2030 RPM - L.B.
1600 RPM - L.B.
25000 FT.
20000 FT.
15000 FT.
10000 FT.
5000 FT.
SK-16155
ALTITUDE - 1000 FEET
MILES TO GO TO CHARTED ALTITUDE - NO WIND
NOTE:- USE AUTO RICH AT 75% POWER AND ABOVE.
USE AUTO LEAN FOR 70% POWER AND BELOW.
FUEL FIGURES SHOW GALLONS CONSUMED TO GET TO CHARTED ALTITUDE IN DISTANCE SHOWN. THIS DOES NOT INCLUDE FUEL USED IN TAXIING AND TAKE-OFF.
ENTER AT CHARTED DISTANCE AND PROJECT UP TO CHARTED ALTITUDE TO DETERMINE POWER TO BE USED. OPERATE ENGINE DURING CLIMB ACCORDING TO ENGINE SCHEDULES AT LEFT OF CHART. GALLONS OF FUEL BURNED DURING CLIMB ARE SPOTTED ON CHARTED ALTITUDE LINES. FLY AT INDICATED AIRSPEED SHOWN AT TOP. THIS AIRSPEED IS CORRECTED FOR POSITION ERROR BUT NOT FOR INSTRUMENT MECHANICAL ERROR.
1-22-42



NOTE: 1 - USE AUTO RICH AT 75% POWER AND ABOVE.
USE AUTO LEAN FOR 70% POWER AND BELOW.
FUEL FIGURES SHOW GALLONS CONSUMED TO GET TO CHARTED ALTITUDE IN DISTANCE SHOWN. THIS DOES NOT INCLUDE FUEL USED IN TAXIING AND TAKEOFF.

ENTER AT CHARTED DISTANCE AND PROJECT UP TO CHARTED ALTITUDE TO DETERMINE POWER TO BE USED. OPERATE ENGINE DURING CLIMB ACCORDING TO ENGINE SCHEDULES AT LEFT OF CHART. GALLONS OF FUEL BURNED DURING CLIMB ARE SPOTTED ON CHART ALTITUDE LINES. FLY AT INDICATED AIRSPEED SHOWN AT TOP. THIS AIRSPEED IS CORRECTED FOR POSITION ERROR BUT NOT FOR INSTRUMENT MECHANICAL ERROR.

1-22-42



NOTE: - USE AUTO RICH AT 75% POWER AND ABOVE.
USE AUTO LEAN FOR 75% POWER AND BELOW.
FUEL FIGURES SHOW GALLONS CONSUMED TO GET TO CHARTED ALTITUDE IN DISTANCE SHOWN. THIS DOES NOT INCLUDE FUEL USED IN TAXIING AND TAKE-OFF.

ENTER AT CHARTED DISTANCE AND PROJECT UP TO CHARTED ALTITUDE TO DETERMINE POWER TO BE USED. OPERATE ENGINE DURING CLIMB ACCORDING TO ENGINE SCHEDULES AT LEFT OF CHART. GALLONS OF FUEL BURNED DURING CLIMB ARE SPOTTED ON CHARTED ALTITUDE LINES. FLY AT INDICATED AIRSPEED SHOWN AT TOP. THIS AIRSPEED IS CORRECTED FOR POSITION ERROR BUT NOT FOR INSTRUMENT MECHANICAL ERROR.

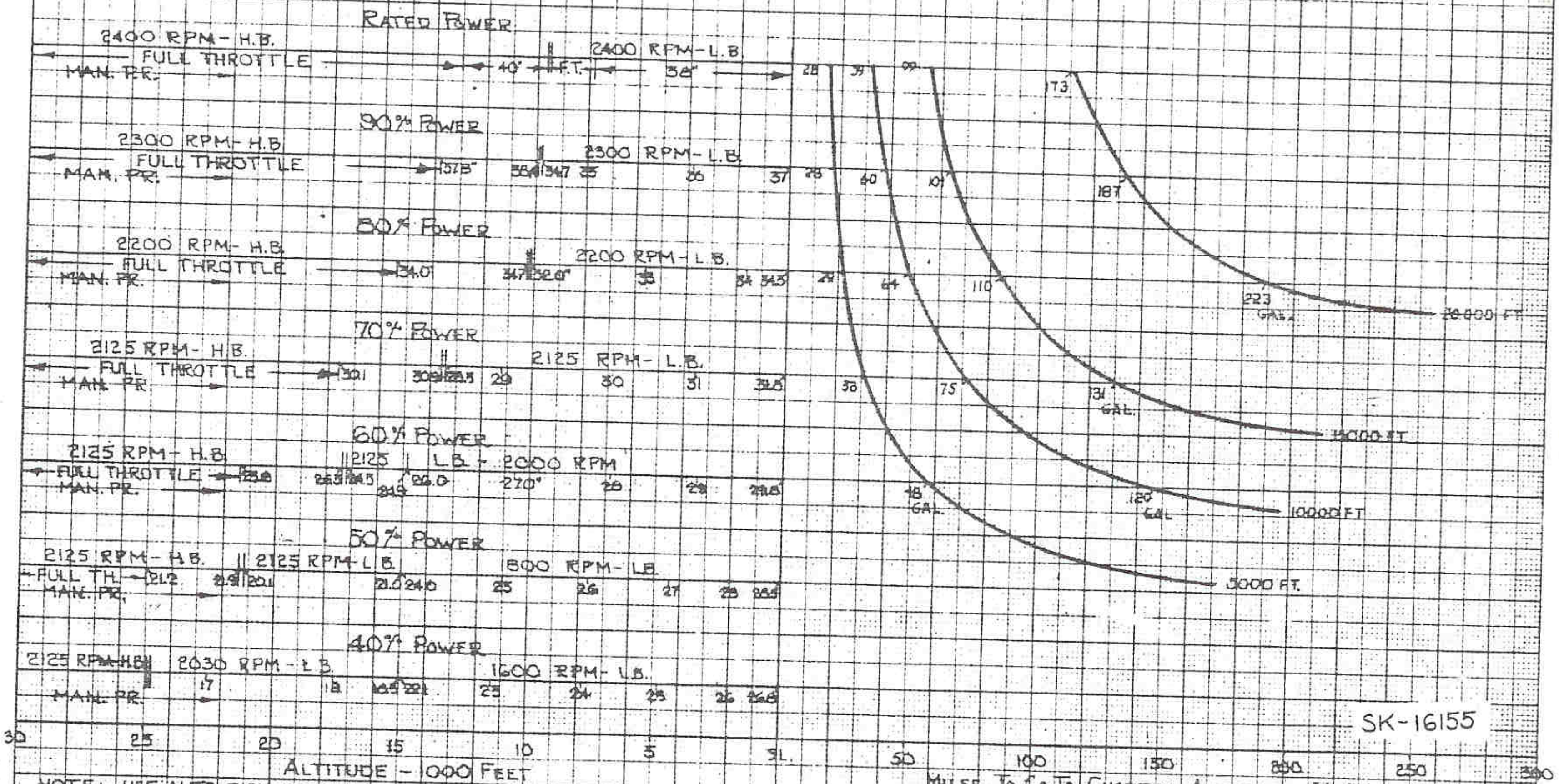
1-22-42

B-26 MAXIMUM RANGE CLIMB CONTROL CHART

GROSS WEIGHT = 36000#

PILOT'S INDICATED AIRSPEED = 173 M.P.H.

SHEET #5 OF 5



NOTE:- USE AUTO RICH AT 75% POWER AND ABOVE.
USE AUTO LEAN FOR % POWER AND BELOW.
FUEL FIGURES SHOW GALLONS CONSUMED TO GET TO CHARTED ALTITUDE IN DISTANCE SHOWN. THIS DOES NOT INCLUDE FUEL USED IN TAXIING AND TAKE-OFF.

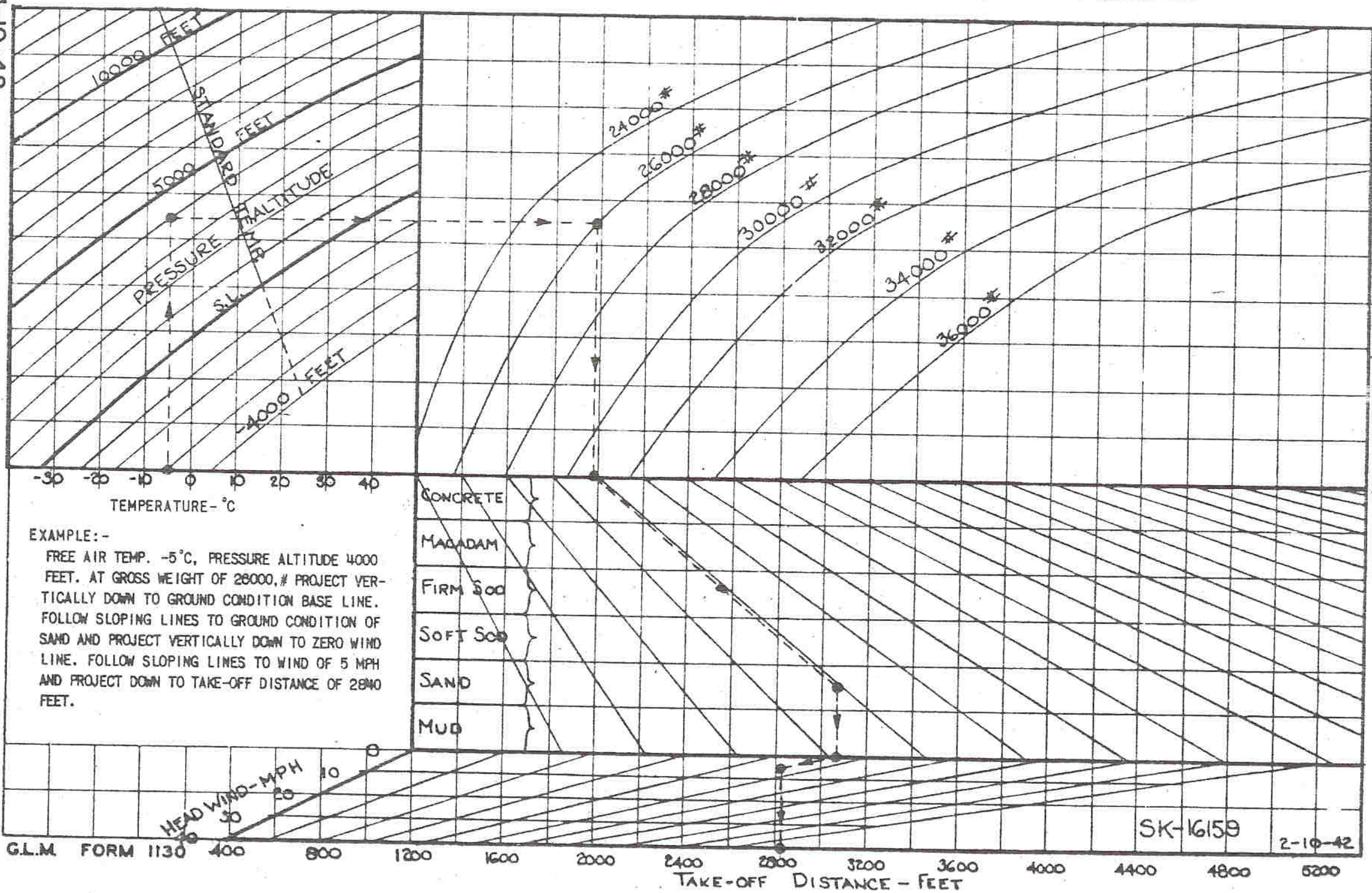
ENTER AT CHARTED DISTANCE AND PROJECT UP TO CHARTED ALTITUDE TO DETERMINE POWER TO BE USED. OPERATE ENGINE DURING CLIMB ACCORDING TO ENGINE SCHEDULES AT LEFT OF CHART. GALLONS OF FUEL BURNED DURING CLIMB ARE SPOTTED ON CHARTED ALTITUDE LINES. FLY AT INDICATED AIRSPEED SHOWN AT TOP. THIS AIRSPEED IS CORRECTED FOR POSITION ERROR BUT NOT FOR INSTRUMENT MECHANICAL ERROR.

1-22-42

CHART OF B-26, B-26A, B-26B TAKE-OFF DISTANCE TO CLEAR 50 FOOT OBSTACLE—FLAPS—30°

TAKE-OFF DISTANCE TO LEAVE GROUND IS APPROXIMATELY 75% OF TAKE-OFF DISTANCE TO CLEAR 50 FOOT OBSTACLE

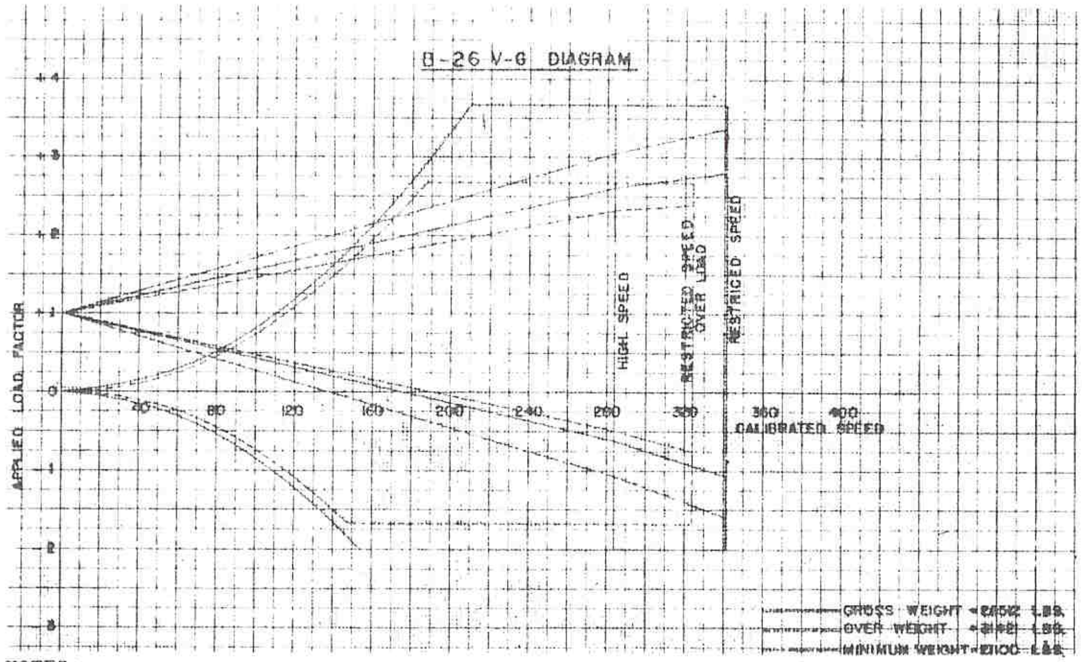
NOTE - THESE CHARTS ARE BASED ON OPTIMUM VALUES AND DO NOT TAKE INTO ACCOUNT DIFFERENCES BETWEEN PILOTS, CONDITION OF ENGINES, ETC.



EXAMPLE:-

FREE AIR TEMP. -5°C, PRESSURE ALTITUDE 4000 FEET. AT GROSS WEIGHT OF 26000,# PROJECT VERTICALLY DOWN TO GROUND CONDITION BASE LINE. FOLLOW SLOPING LINES TO GROUND CONDITION OF SAND AND PROJECT VERTICALLY DOWN TO ZERO WIND LINE. FOLLOW SLOPING LINES TO WIND OF 5 MPH AND PROJECT DOWN TO TAKE-OFF DISTANCE OF 2840 FEET.

G.L.M. FORM 1130



NOTES:

The V-G diagram is an envelope curve showing the limit load factors and maximum permissible indicated airspeed for a given type of airplane.

Disregarding the lines radiating from the 1G and the zero miles per hour point on the diagram, the solid lines represent the velocity and acceleration limits when the airplane is loaded to a design gross weight of 28,512 pounds. Under this loading condition the airplane should not exceed an indicated airspeed of 345 M.P.H. under any conditions. The maximum applied load factors that should not be exceeded are represented by the two horizontal lines at +3.67 and -2.0 load factors. The curved lines represent the maximum load factors attainable at the respective indicated airspeeds. It is not possible to exceed the acceleration values shown on the curved lines.

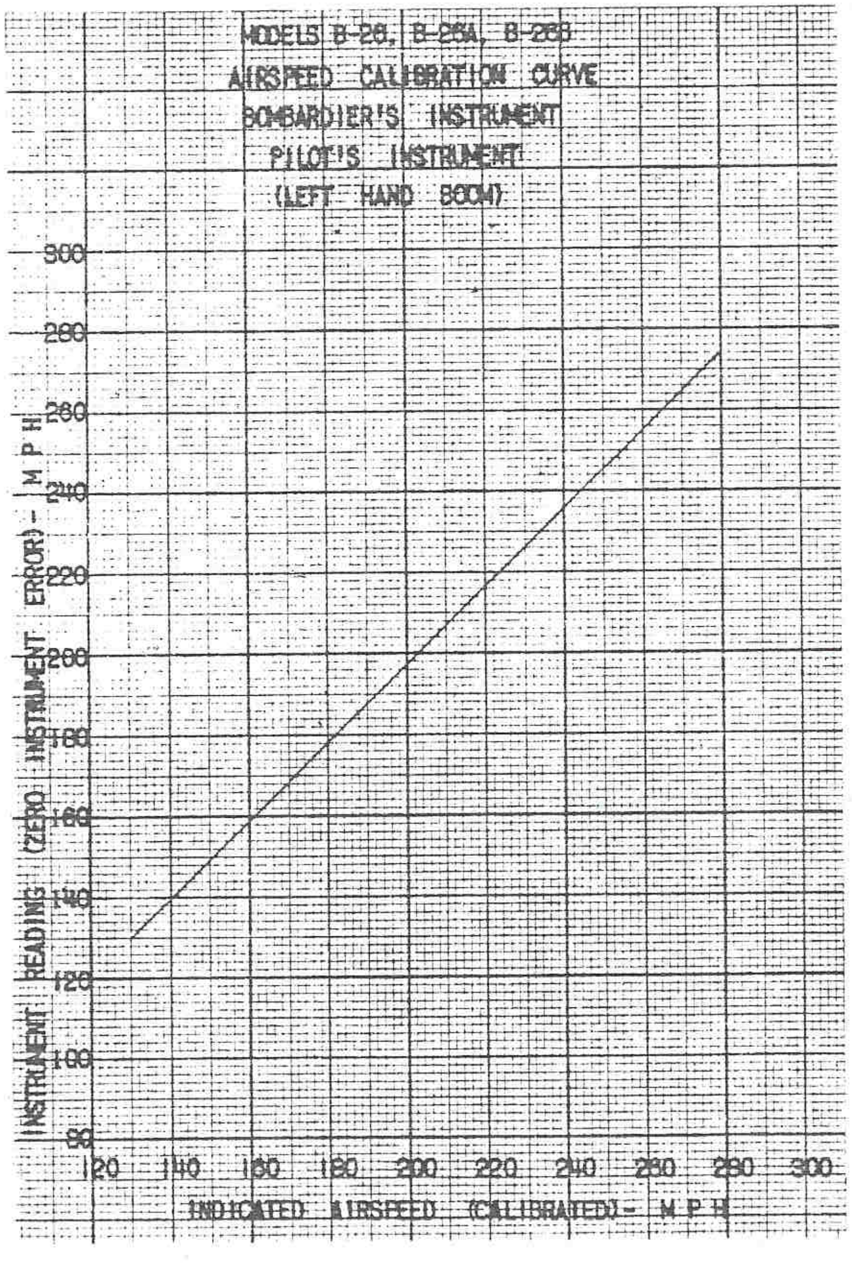
The dotted lines represent the same flight restrictions for the maximum alternate gross weight of 31,421 pounds. Due to the increase in load the limit applied load factors have been reduced to +2.67 and -1.67, and the restricted airspeed is reduced to 324 M.P.H. indicated.

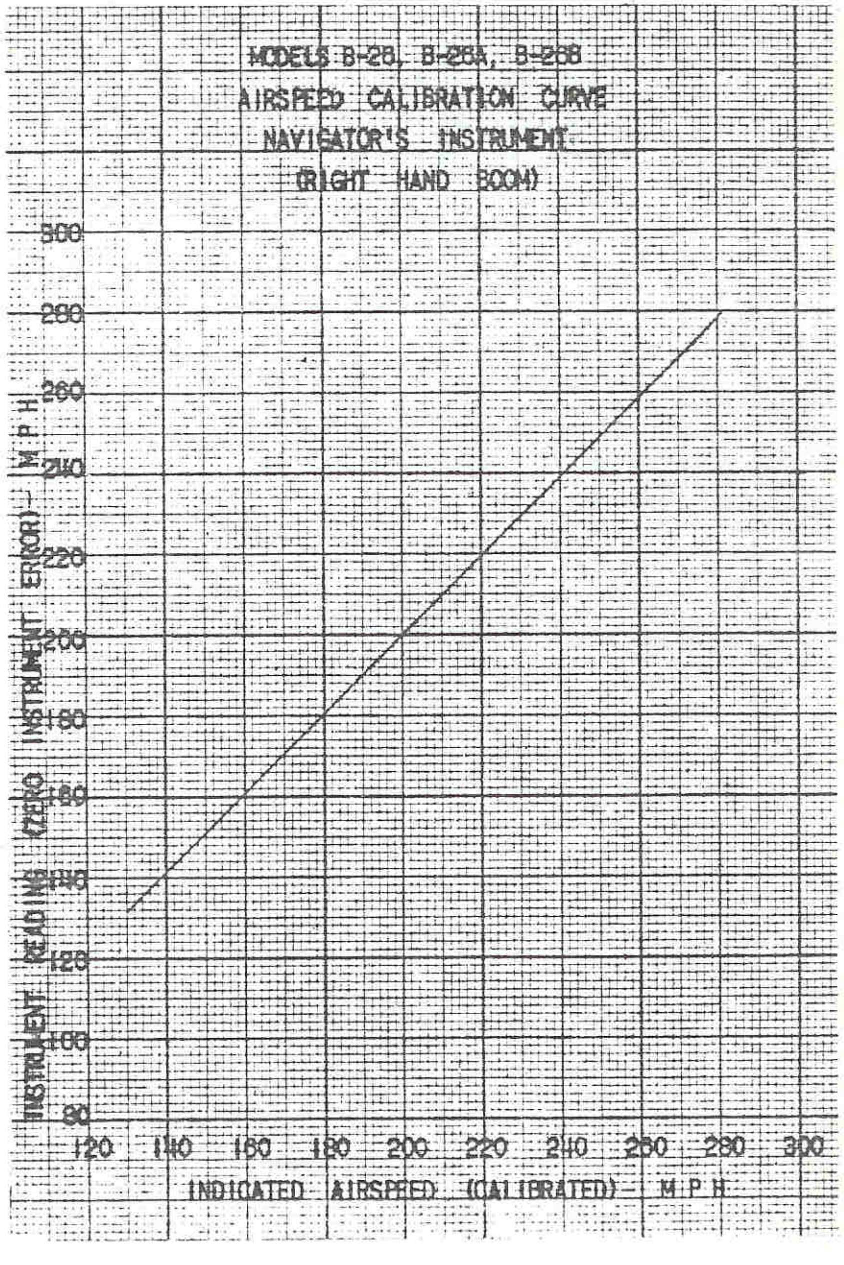
The airplane is designed to withstand the loads imposed upon it by any combination of airspeed and acceleration that falls within the limits of these diagrams.

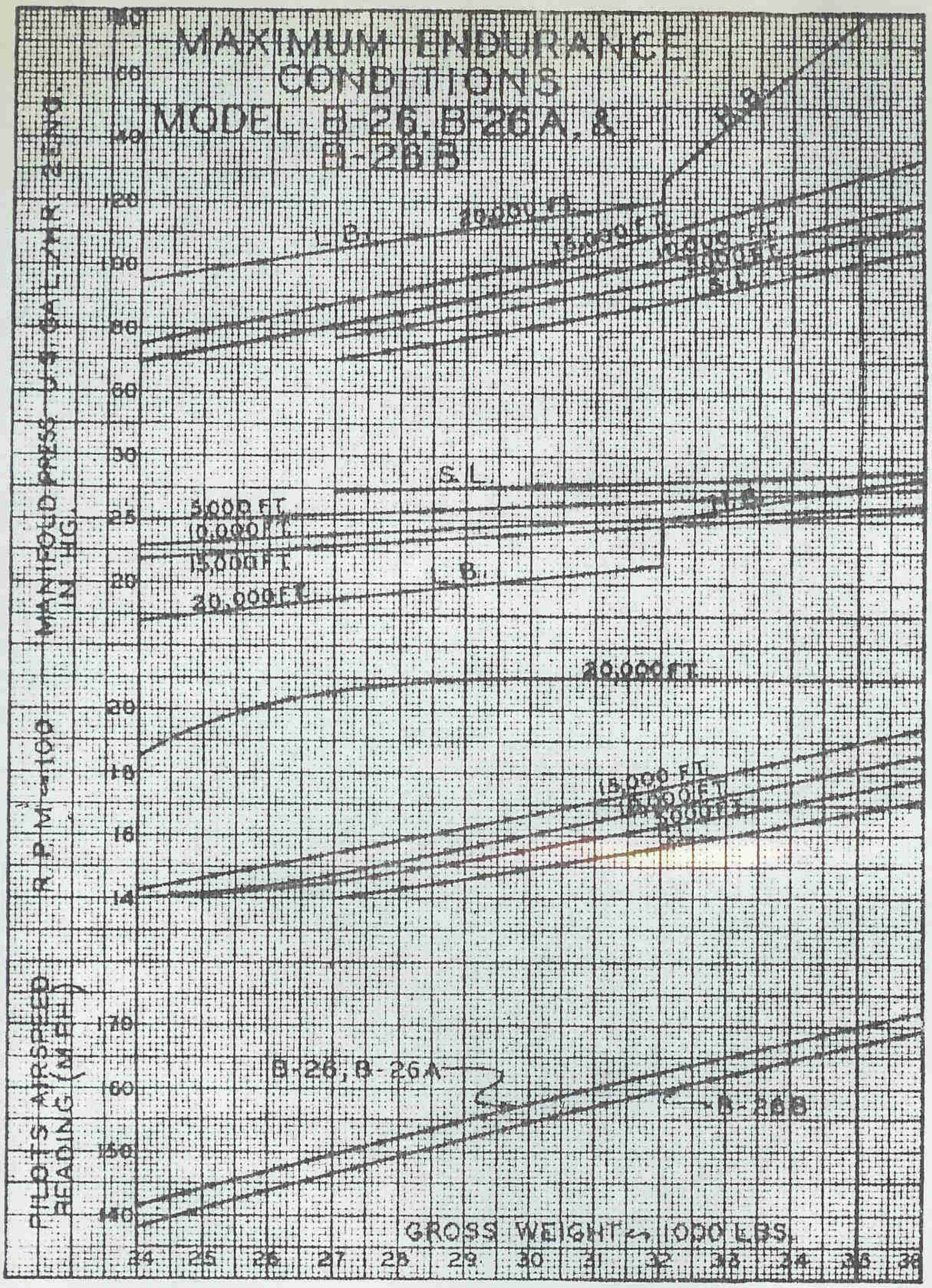
It should be remembered that at high speeds and heavy loads it is especially easy to exceed the overload acceleration of 2.67G.

The lines radiating from the 1G and the zero miles per hour point on the diagram indicate the vertical accelerations which will be imposed on the airplanes, at various airplane speeds, should it encounter a sharp edged gust of 30 ft. per. sec. vertical velocity. The solid lines show, for upward and for downward gusts, the accelerations imposed on the airplane when it is loaded to normal gross weight (28,512 pounds); the outer dashed lines indicate these accelerations for a light gross weight of 21,100 pounds; the inner dashed lines show accelerations for an overload gross weight of 31,421 pounds. It may be pointed out that the effect of a given gust, as regards the accelerations imposed on the airplane, reduces with an increase in airplane gross weight. However, the actual stresses imposed on the wings during all accelerations vary with load distribution; a fuel load in the wing tending toward reduced stresses; a fuel or bomb load in the bomb bay tending toward increased stresses.

Maneuver and gust accelerations are additive. A gust acceleration encountered during a maneuver will cause stresses in the airplane structure proportionate to the sum of the maneuver and gust acceleration.


MODELS B-26, B-26A, B-26B
AIRSPEED CALIBRATION CURVE
BOMBARDIER'S INSTRUMENT
PILOT'S INSTRUMENT
(LEFT HAND BOOM)
INSTRUMENT READING (ZERO INSTRUMENT ERROR) - M P H
300
280
260
240
220
200
180
160
140
120
100
80
120
140
160
180
200
220
240
260
280
300
INDICATED AIRSPEED (CALIBRATED) - M P H


MODELS B-26, B-26A, B-26B
AIRSPEED CALIBRATION CURVE
NAVIGATOR'S INSTRUMENT
(RIGHT HAND BOOM)
INSTRUMENT READING (ZERO INSTRUMENT ERROR) - M P H
300
280
260
240
220
200
180
160
140
120
100
80
120
140
160
180
200
220
240
260
280
300
INDICATED AIRSPEED (CALIBRATED) - M P H


MAXIMUM ENDURANCE CONDITIONS
MODEL B-26, B-26A, & B-26B
R.P.M.÷100 MANIFOLD PRESS. U.S. GAL/HR. ZERO IN. HG.
PILOTS AIRSPEED READING (M.P.H.)
L.B.
20,000 FT.
15,000 FT.
10,000 FT.
5,000 FT.
S.L.
H.B.
B-26, B-26A
B-26B
GROSS WEIGHT÷1000 LBS.
24
25
26
27
28
29
30
31
32
33
34
35
36