L-2 Pilots Manual

F-454-033

RESTRICTED

FOR OFFICIAL USE ONLY

AN 01-135DA-1

PILOT'S FLIGHT OPERATING INSTRUCTIONS

FOR

ARMY MODELS

L-2, L-2A, L-2B and L-2M AIRPLANES

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A. F. CINCINNATI

20 JANUARY 1944
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LIST OF REVISED PAGES ISSUED

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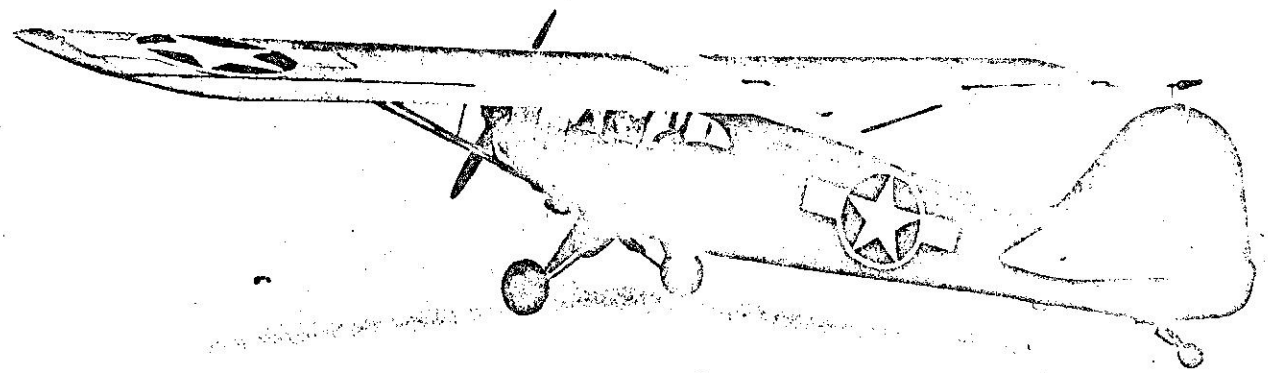


Figure 1—Three-quarter Rear View of L-2 Airplane

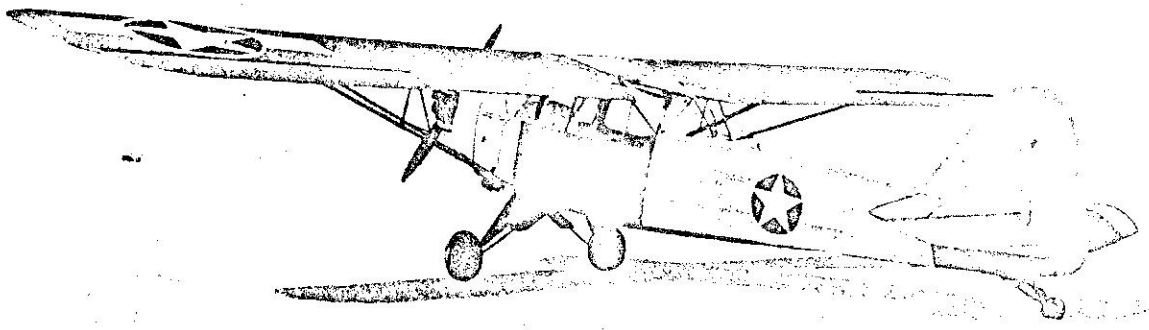


Figure 2—Three-quarter Rear View of L-2A and L-2B Airplanes

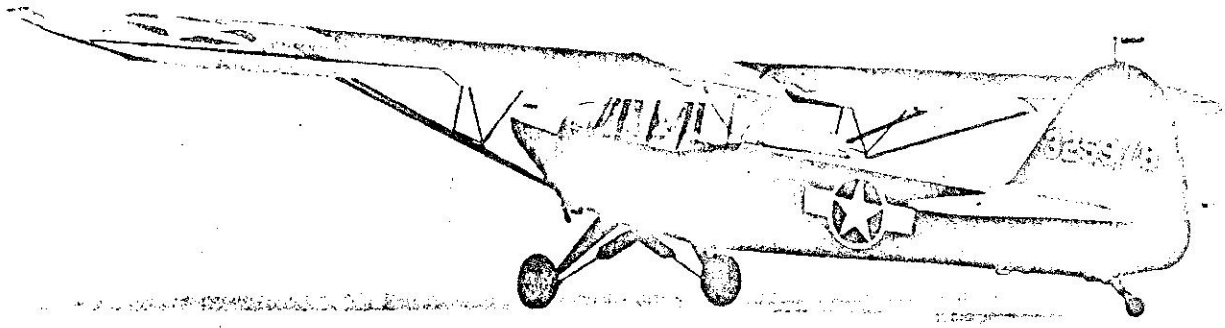


Figure 3—Three-quarter Rear View of L-2M Airplane

SECTION I
DESCRIPTION

1. AIRPLANE.

a. The L-2 Series Liaison Airplanes—L-2, L-2A, L-2B, and L-2M—manufactured by the Taylorcraft Aviation Corporation, Alliance, Ohio, are two-place tandem, closed cabin, high-wing monoplanes all basically similar in design and construction, and each powered by a 65-horsepower Continental 0-170-3 air-cooled engine utilizing a two-bladed, fixed pitch wooden propeller (Sensenich 72-C-42).

b. The L-2A differs from the L-2 primarily in the radio equipment, rear (observer's) seat and in the improved vision afforded in the L-2A by the removal of the faired after-turtle deck and the addition of an overhead and rear streamlined transparent enclosure. The L-2B follows the general design and interior arrangement of the L-2A and differs mainly in its omission of radio equipment. The L-2M is radio equipped and incorporates wing spoilers and a closed engine cowl.

c. All models are dual (stick) controlled, with externally braced wings and split-vee type landing gear employing elastic cord shock absorbers. Each has dual controlled mechanical wheel brakes operating individually on left and right wheels, a parking brake and a steerable tail wheel. Standard flying instruments include air-speed indicator, altimeter, and compass, (figures 4 and 5). Engine instruments consist of oil temperature and oil pressure gages and engine tachometer (figures 4 and 5). The L-2M is equipped with standard AAF type instruments. (See figure 6.)

NOTE

All text and illustrations in this Handbook are applicable (unless otherwise noted) to this entire series of airplanes, serial numbers of which are as follows:

L-2 —AF 42-452 to AF 42-455 inclusive.
L-2A —AF 42-15073 to AF 42-15158 inclusive;
AF 42-35825 to AF 42-36074 inclusive;
AF 42-38498 to AF 42-38537 inclusive; and
AF 43-2575 to AF 43-25853 inclusive.
L-2B —AF 43-1 to AF 43-490 inclusive.
L-2M—AF 43-25854 to AF 43-26753 inclusive.

2. POWER PLANT.

a. GENERAL.—The power plant (Continental 0-170-3) is a direct drive, four-cylinder, horizontally opposed, air-cooled, wet sump aircraft engine. It develops 65 horsepower at 2300 revolutions per minute at sea level.

b. FUEL AND OIL.

(1) FUEL.—The engine is designed for the use of grade 73 octane fuel (Specification No. AN-F-23) or 80 octane (U. S. A. Specification 2-103). In emergency, the next higher octane rating available may be used.

CAUTION

After using 93- or 100-octane gasoline, be sure to flush the fuel system, by running the engine on the ground for a few minutes with 73 or 80 octane. This will assure smoother firing of the lower octane fuel.

The fuel system consists of two 6 U. S. (5 Imperial) gallon tanks, one in each wing panel, feeding by gravity into a 2 U. S. (1.6 Imperial) gallon collector tank located inside the fuselage just aft of the fire wall. Total fuel capacity is 14 U. S. (11.6 Imperial) gallons. The flow of fuel to the carburetor can be shut off by closing a valve provided for this purpose. The control handle for this valve is located in the recessed control panel at the pilot's left, inside the cabin (figures 14, 15, and 19).

CAUTION

Be sure the gasoline cap vents in the wing tanks point forward when installed. Unless this precaution is taken, gasoline will be lost during flight.

(2) OIL.—Specification No. AN-VV-O-446, grade 1080 or equivalent, for oil operating temperatures above 120°F (49°C), and grade 1065 or equivalent below these temperatures. The oil system, 1 U. S. (0.833 Imperial) gallon capacity is an integral part of the engine and functions automatically with no further care than an occasional check for satisfactory oil level.

c. ENGINE CONTROLS.

(1) THROTTLE CONTROLS.—A conventionally operated throttle is provided on the left-hand side of each cockpit. A friction knob, located at the front fulcrum, may be adjusted by turning clockwise to prevent both throttles from creeping. (See figures 14, 15, and 19.)

CAUTION

Do not manipulate the throttle abruptly as this may weaken or break the cable connections. Used smoothly and deliberately, it should give satisfactory service indefinitely.

The engine controls are appropriately placarded and located in the recessed control panel on the left-hand side of the cabin at the front cockpit. (See figures 14, 15, and 19.)

(2) MIXTURE CONTROL.—The mixture control is adjustable to provide for full rich or lean fuel mixture. For full rich, push control knob down. For lean mixture, pull knob up.

(3) CARBURETOR HEAT CONTROL.—To apply full heat to carburetor, pull control up all the way. This control shall be used in full "OFF" or full "ON" position only.

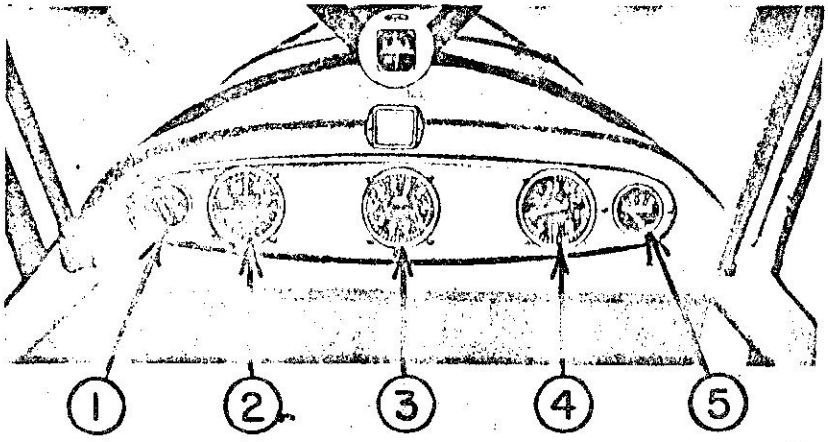


Figure 4—Instrument Panel L-2

KEY

1. Oil Temperature Gage
2. Air-Speed Indicator
3. Altimeter
4. Engine Tachometer
5. Oil Pressure Gage

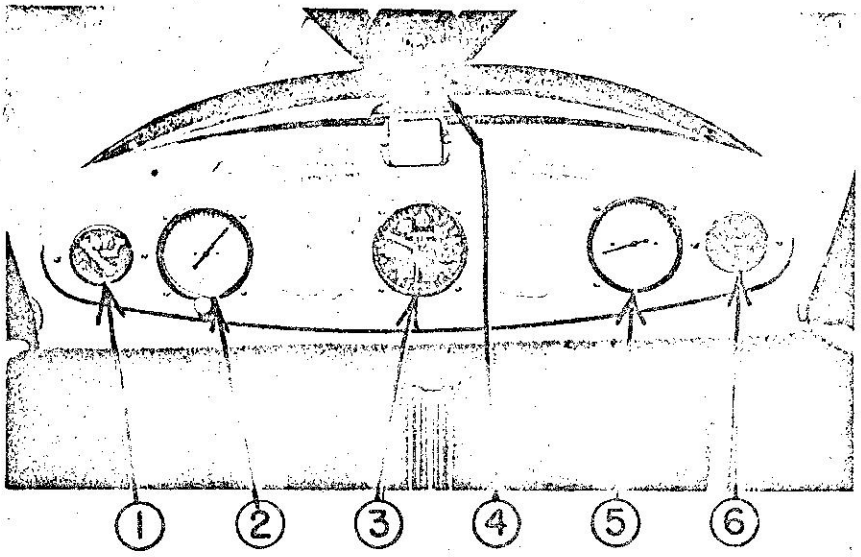


Figure 5—Instrument Panel L-2A and L-2B

KEY

1. Oil Temperature Gage
2. Altimeter
3. Air-Speed Indicator
4. Compass
5. Engine Tachometer
6. Oil Pressure Gage

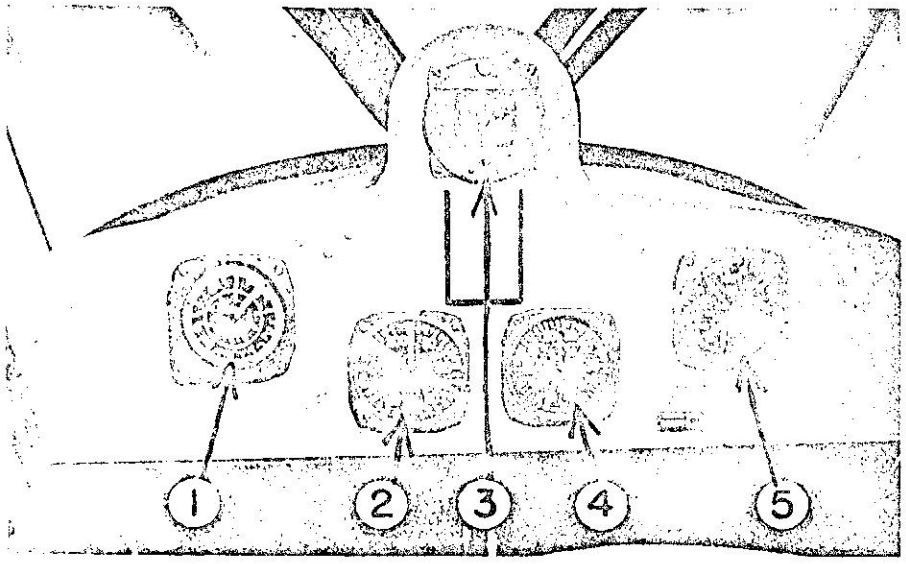


Figure 6—Instrument Panel L-2M

KEY

1. C-14 Altimeter
2. B-8 Air-Speed Indicator
3. B-16 Pilot's Compass
4. C-11 Tachometer
5. B-7 Engine Gage Unit

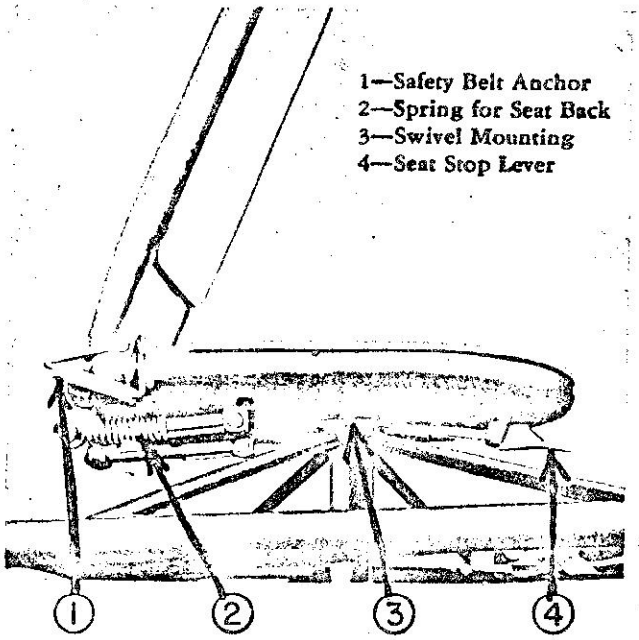


Figure 7—Observers' Seat—Rear Cockpit, L-2A, L-2B and L-2M

(4) PRIMER.—The primer is used to deliver additional fuel into the induction system. It is operated by a pumping motion, and locks and unlocks by slightly depressing the plunger and then turning the knob in either direction.

(5) IGNITION SWITCH.—The ignition switch governs individual or simultaneous operation of the two magnetos.

3. AIRPLANE CONTROLS.

a. COCKPIT SEATS.—Both front and rear seats on all L-2 models are adjustable by rotating a crank at the left of the front side of either seat. (See figure 20.) On all L-2A, L-2B, and L-2M models the front seat is the same as in the L-2, but the rear seat has been especially designed to enable the observer to face forward or backward at will. It can be rotated to the right 180 degrees, by releasing a spring catch underneath the front of the seat. The seat locks automatically in either position, requiring the occupant to release the catch whenever additional turning is desired. (See figure 7.)

b. RUDDER CONTROL.—The airplane (all models) is equipped with dual rudder pedals. Guard tubes, located under the front seat and extending to both sides of the cabin, are provided to prevent undesired operation of the rear rudder pedals. To use, pull out separately the tube on either side and lock by turning in a socket in the cabin wall near the floor. (See figure 1[illegible])

c. RUDDER TRIM TAB CONTROL.—A small fixed metal tab is installed on the trailing edge of the rudder. It is deflected so as to cause the airplane to fly straight ahead at cruising speed, and requires little or no deviation from the adjustment made at the factory. However, if it has been accidentally distorted, it can be readily adjusted on the ground by hand.

d. AILERON AND ELEVATOR.—Modified Frise type ailerons are used on all models. On later L-2B models beginning with airplane serial No. AF 43-148, a fixed metal tab is installed on each aileron, bent at such an angle as to cause the aileron to ride unguided in neutral position while flying at cruising speed. This eliminates any side pressure of the control stick. Operation of the control sticks is conventional. The rear stick may be removed from its socket by releasing an automatically locking spring catch and stowed in the clamps provided for the purpose, in the left center of the rear cockpit floor board.

e. ELEVATOR TRIM TAB CONTROL.

(1) The elevator trim tab on all L-2, L-2A (except those beginning with serial No. AF 43-25754), and L-2B (except those beginning with serial No. AF 43-76) airplanes is actuated by a crank located on the left side of the cabin. (See figures 14 and 19.) By turning the crank in a clockwise direction, the airplane is made nose-heavy. When the crank is turned counterclockwise a tail-heavy condition is attained. Both positions are shown by an indicator operating in conjunction with the crank. When flying solo (front seat) adjust the trim tab to neutral position for the take-off, thus trimming the airplane for a 60-mph climb. Adjust for 60 mph when gliding and for normal landings. If the take-off is made with both crew members or rear loading, adjust the trim tab to a slightly nose-heavy position.

(2) On L-2A airplanes beginning with serial No. AF 43-25754, and on L-2B airplanes beginning with serial No. AF 43-76, and all L-2M airplanes, the trim tab is actuated by a sliding arm in place of the crank, in both cockpits. (See figure 15.)

(3) In addition, a friction device is provided, between the left window sill and the recessed control panel, to hold the trim tab firm in any desired position. The friction knob is turned in a clockwise direction to tighten and in a counterclockwise direction to loosen.

WARNING

This knob, if adjusted too tightly, will lock the trimming device. NEVER TIGHTEN THE KNOB SO THAT IT IS IMPOSSIBLE TO MOVE THE CONTROL.

NOTE

When spinning, set the trim tab in such a position as to trim the airplane for level flight at cruising speed. Thus, when spinning has begun, the airplane will be found to be somewhat nose-heavy, a desirable condition for such maneuver. However, safe spins can be executed with any trim tab setting.

f. SPOILER CONTROL.—On all L-2M airplanes, the wing panels incorporate spoilers to increase the rate of sink of the aircraft and to steepen the glide path. The spoiler control handle is located under the left portion of the instrument panel forward of the throttle. (See figure 13.) Pull to open spoilers. A return spring in the

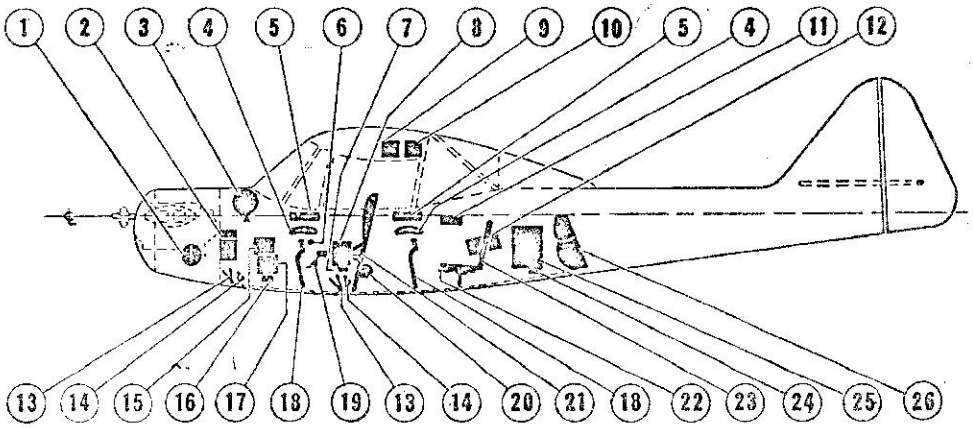
spoiler control system returns the spoilers to the closed or normal position.

g. FUEL TANK GAGES.—Direct visual reading of the fuel supply is obtained from two gages, one for each wing tank, located at the top of each side of the cabin wall. (See figure 15.) Heavy black lines in back of the gages appear diagonal when the tanks are empty; when fuel is present, these lines take on a horizontal appearance in proportion to the fuel level in the tanks. Both wing tanks empty simultaneously. There are 2 U. S. (1.6 Imperial) gallons remaining available in the collector tank when the fuel gages have just indicated empty wing tanks.

h. PARKING BRAKE.—The parking brake is located on the right side of the cabin just under the instrument panel. (See figure 11.) It is engaged by applying both foot brakes and then pulling the brake handle toward the rear of the airplane. To disengage the brake, depress the foot pedals and then release the hand brake by squeezing the trigger on handle, and release to full forward position.

i. CABIN HEATER.—Each L-2B airplane beginning with serial No. AF 43-76 and each L-2A airplane beginning with serial No. AF 43-25875 is provided with a hot-air exhaust heater for the cabin. The control is installed on the recessed control panel on the left-hand side of the front cockpit, and is also accessible from the rear cockpit. (See figures 15 and 19.) Pull control up for heat; push down to shut off.

j. VENTILATION.—Two "snap-on" ventilators, one on each side of the windshield, and sliding cabin windows provide ample ventilation in the cabin.



1 OIL SUMP
2 BATTERY
3 COLLECTOR TANK
4 THROTTLE
5 TRIM TAB CONTROLS (SEE NOTE)
6 THROTTLE FRICTION CONTROL
7 RADIO CONTROL BOX (SEE NOTE)
8 ENGINE CONTROL PANEL
9 RADIO RECEIVER (SEE NOTE)
10 RADIO TRANSMITTER (SEE NOTE)
11 FIRST AID KIT
12 MAP CASE
13 RUDDER PEDALS
14 BRAKE PEDALS
15 RADIO RECEIVER (SEE NOTE)
16 JUNCTION BOX (SEE NOTE)
17 RADIO TRANSMITTER (SEE NOTE)
18 CONTROL STICKS
19 FRONT SEAT ADJUSTMENT HANDLE
20 FIRE EXTINGUISHER
21 FRONT SEAT
22 REAR SEAT ADJUSTMENT HANDLE
23 REAR SEAT
24 DYNOMOTOR AMG-12 (SEE NOTE)
25 LUGGAGE
26 STOW CANOPY

NOTE:
5 -- USED ON AF43-76 TO AF43-490 INCL., AND ON AF43-25754 TO AF43-25853 INCL.
7, 9 AND 10 -- USED ON AF42-15073 TO AF42-15158 INCL., AND ON AF42-35825 TO AF42-36074 INCL., AND ON AF42-38498 TO AF42-38537 INCL.
9 AND 10 -- USED ALSO ON AF43-25754 TO AF43-25853 INCL.
15, 16, 17 AND 24 -- USED ON AF42-7773 TO AF42-7792 INCL.
15 -- IS RADIO CONTROL BOX ON AF43-25754 TO AF43-25853 INCL.
17 -- IS RADIO POWER PACK ON AF43-25754 TO 25853 INCL.

Figure 8—Fuselage Contents Arrangement

SECTION II

PILOT'S OPERATING INSTRUCTIONS

1. FLIGHT RESTRICTIONS.

Maneuvers prohibited are outside loops, inverted spins, and tail slides.

2. BEFORE ENTERING PILOT'S COMPARTMENT.

a. WEIGHT.—Gross weight of the airplane is 1300 pounds, including the crew of two (170 pounds per crew member) and each equipped with a 20-pound parachute. Gross weight of the L-2M is 1325 pounds.

b. ACCESS TO AIRPLANE.—Access to the airplane cockpits is gained through the door on the right side of the fuselage. Approach to the door shall be made from the rear of the lift struts. At the rear of the right landing gear is a step to use for convenience in entering the airplane. The front seat shall be used for all solo flying. The door on the L-2M is provided with a quick release for emergency exit.

c. FLYING STATUS OF AIRPLANE. — Consult Form 1.

NOTE

If no mechanic is available, pilot should not neglect daily draining of sufficient fuel from sediment bowl and sump valve to insure against presence of water due to condensation in fuel system. After draining be sure to safety both bowl and valve.

d. EXTERNAL CONTROL LOCKS.—See that all external control locks on the control surfaces have been removed.

3. ON ENTERING THE PILOT'S COMPARTMENT.

(Check as follows for all flights):

a. Check quantity of fuel and oil tanks.
b. Ignition switch "OFF."
c. Fuel shut-off valve "ON."
d. Parking brake "ON."
e. Controls FREE. (Check spoiler operation on L-2M.)
f. For the L-2A and L-2M only:
(1) Generator control switch "OFF."
(2) Generator brake "ON."
(3) Antenna reel "IN."

4. STARTING ENGINE.

a. COLD ENGINE.
(1) Ignition switch "OFF."
(2) Fuel shut-off valve "ON."
(3) Carburetor heat control full "COLD."
(4) Mixture control full "RICH."
(5) Throttle "CLOSED."
(6) Prime engine two to three strokes with the primer.

WARNING

Care shall be taken to prevent overpriming. This dilutes and washes away lubricating oils from the cylinder walls.

(7) Turn engine over one or two revolutions with propeller.

(8) Turn ignition switch to "BOTH," turning on both No. 1 and No. 2 magnetos.

(9) Pull propeller through with a snap.

(10) If the engine fails to start, turn off ignition switch and repeat the above procedure.

NOTE

If the engine loads up, turn the ignition switch "OFF," open the throttle fully, turn engine backwards with propeller several revolutions; then try starting again without priming and with the throttle closed.

b. WARM ENGINE.—Follow the same procedure as for a cold engine but do not prime. Try "contact" first without previous turning over of the engine. If it will not start, turn it over two or three times with ignition switch off and then try again. Use the primer only when necessary.

c. FIRE WHILE STARTING ENGINE.—If the carburetor is flooded by overpriming or a leaking float needle valve, an excessive amount of gasoline may collect in the carburetor air scoop. In addition, a certain amount of gasoline may drop on the ground. Under such circumstances, if the engine backfires there is the possibility of igniting the gasoline in the scoop and sometimes that on the ground also. If the fire occurs in the carburetor after the engine has started, OPEN THE THROTTLE IMMEDIATELY. This causes the fire to be sucked into the engine where it can do no harm. Never cut the switch. If the gasoline on the ground is ignited, move back the airplane. If the engine is not running when the fire occurs, use the hand extinguisher as quickly as possible. The fire extinguisher is located at the bottom of the front seat support in a quick release bracket. (See figure 12.)

5. ENGINE WARM-UP.

When the engine has been started, adjust the throttle to operate between 700 and 900 rpm for approximately 3 minutes after starting. If the oil pressure gage fails to show a minimum of at least 25 pounds oil pressure within 30 seconds after the engine has begun firing, immediately turn off the ignition switch, locate, and remedy the trouble. The throttle shall not be opened wide until the engine has warmed up to minimum of 98°F (37°C). Oil pressure should be carefully watched at all times. Minimum for idling is 10 pounds, for cruising 25 pounds, and the maximum is 40 pounds.

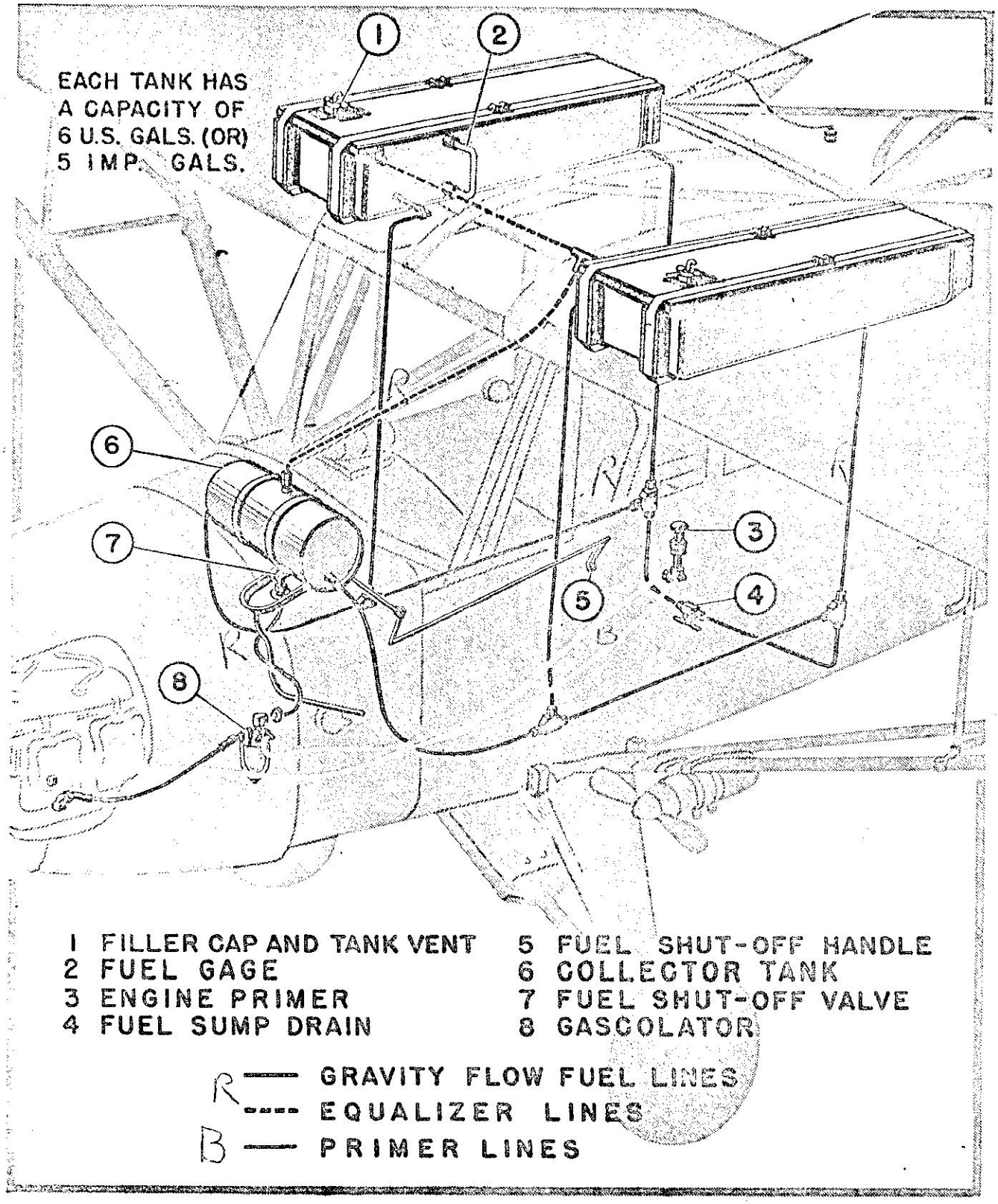


Figure 9—Fuel System Diagram

6. ENGINE AND ACCESSORIES OPERATION GROUND TESTS.

a. Test each magneto individually; a drop of 75 rpm from dual magneto operation is allowable on each magneto.

WARNING

Do not operate on either single magneto for more than 30 seconds at a time. Prolonged periods of operation at idling or full throttle while on the ground, should be prohibited. Minimum static rpm is 2050. (Carburetor heat control in COLD position.)

b. To test radio equipment refer to section V for the applicable model.

7. EMERGENCY TAKE-OFF.

An emergency take-off may be made as soon as the engine will take full throttle without missing.

8. TAXYING.

Taxying of these airplanes is made easy with the aid of the wheel brakes and a steerable tail wheel. When taxying down-wind make sure elevators are depressed in order to keep the tail down.

WARNING

Avoid taxying through mud holes and tall grass. Damage to the propeller can easily be done by small stones, mud, clots, etc. Fast taxying is not recommended, but may be accomplished safely by a pilot experienced in this type of airplane. Good judgment must be exercised by the pilot at all times. Use full carburetor heat when taxying.

9. TAKE-OFF.

(Preflight Check.)

a. Elevator trim tab at take-off position.

b. Mixture control full "RICH."

c. Carburetor heater control full "COLD."

d. Fuel shut-off valve "ON."

e. See appendix II for Flight Operating Data.

f. Parking brake "OFF."

WARNING

Do not exceed the gross weight of the airplane.

10. ENGINE FAILURE DURING TAKE-OFF.

a. Ignition switch "OFF."

b. Fuel shut-off valve "OFF."

c. Put the nose of the airplane well down and maintain a gliding speed of approximately 60 mph STRAIGHT AHEAD.

11. CLIMB.

a. For the L-2A and L-2M only:

(1) Generator brake "OFF."

(2) Generator control switch "ON" as soon as practicable after take-off.

b. See Take-Off, Climb, and Landing Chart, appendix II and Specific Engine Flight Chart, section III.

NOTE

Do not use carburetor heat unless it is absolutely necessary.

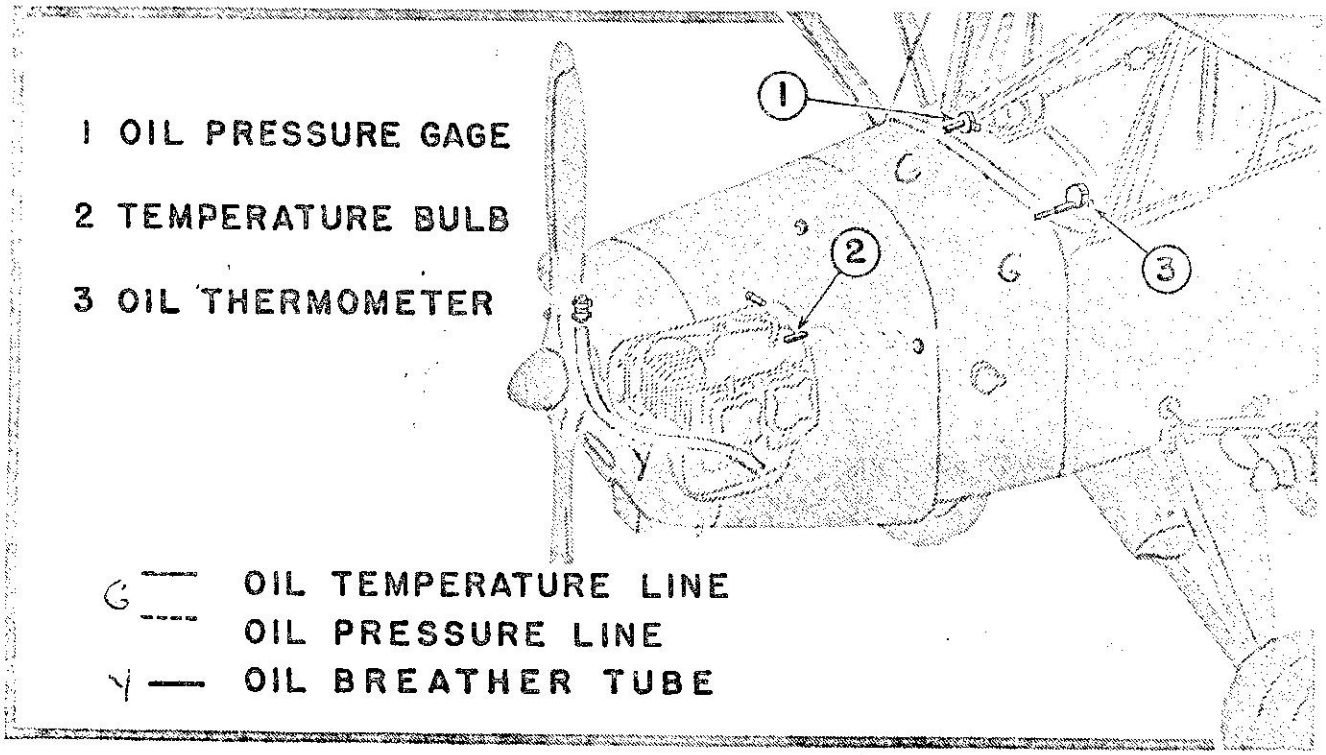


Figure 10—Oil System

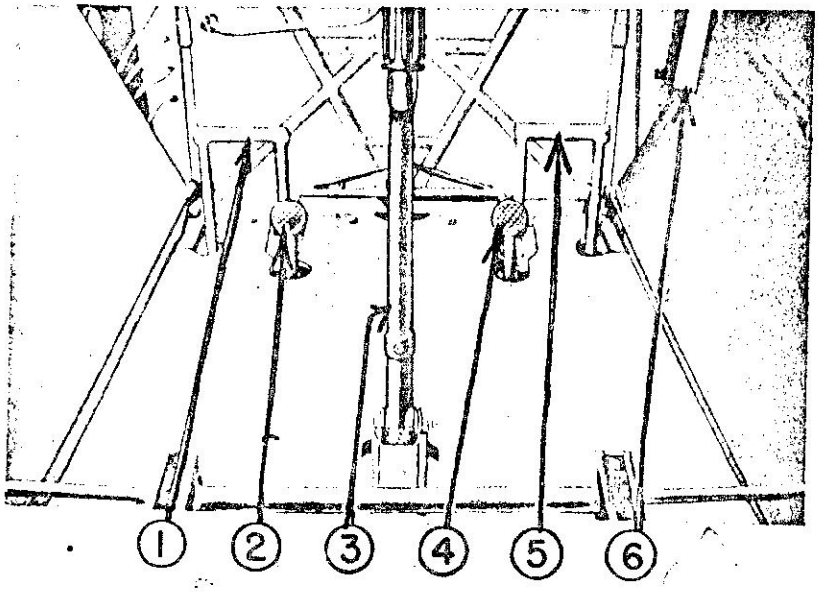


Figure 11—Flight Controls—Front Cockpit

KEY

1. Left-Hand Rudder Pedal
2. Left-Hand Brake Pedal
3. Control Stick
4. Right-Hand Brake Pedal
5. Right-Hand Rudder Pedal
6. Parking Brake

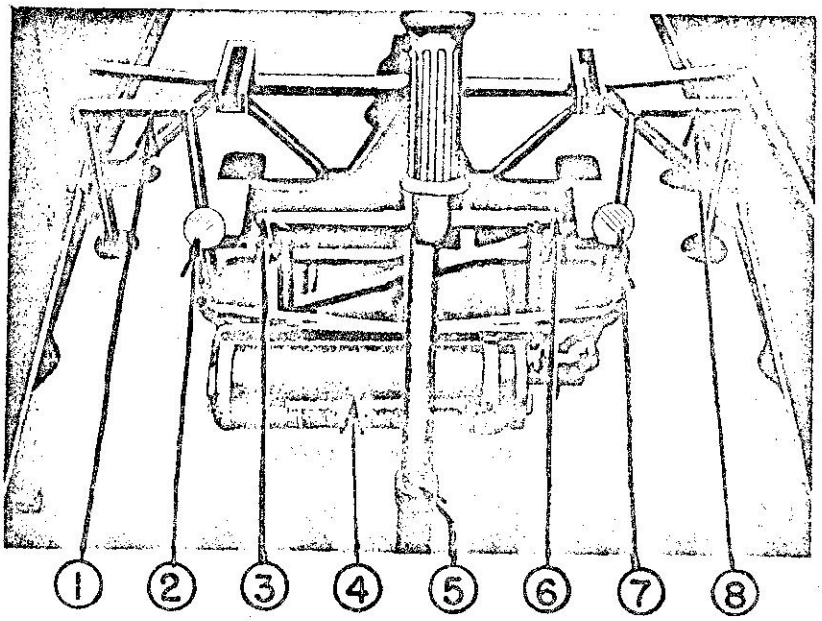


Figure 12—Flight Controls—Rear Cockpit

KEY

1. Left-Hand Rudder Pedal
2. Left-Hand Brake Pedal
3. Left-Hand Pedal Guard
4. Fire Extinguisher
5. Control Stick
6. Right-Hand Pedal Guard
7. Right-Hand Brake Pedal
8. Right-Hand Rudder Pedal

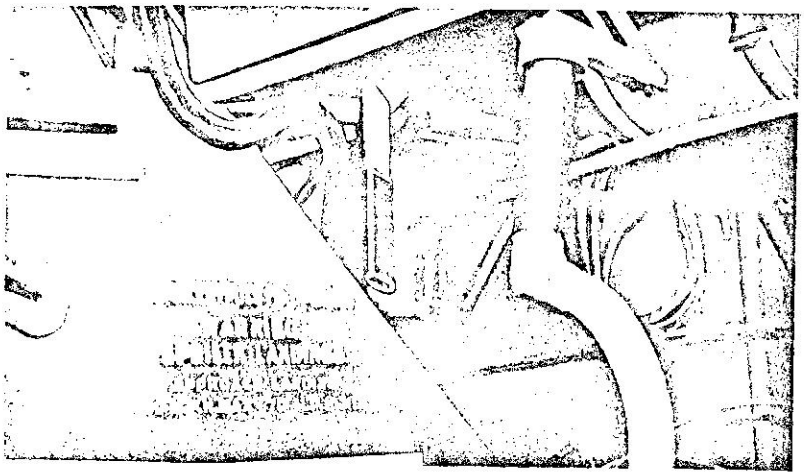


Figure 13—Front Cockpit (L-2M) Showing Spoiler Control

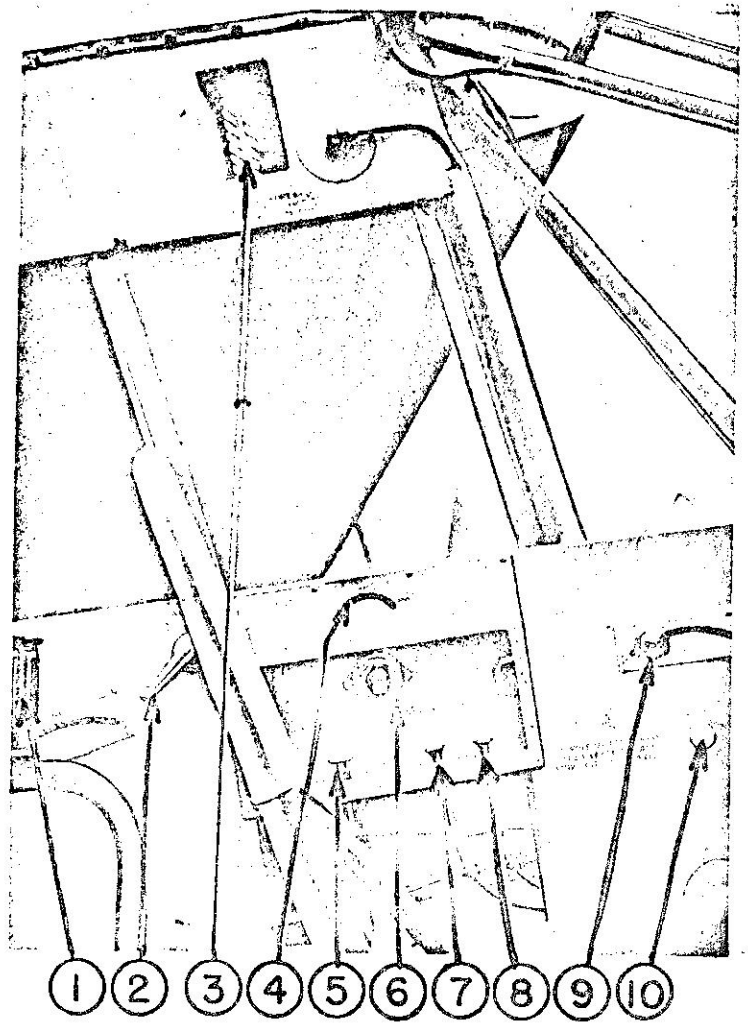


Figure 14—Cockpit Arrangement and Controls, Left Side (L-2A and L-2B)

KEY

L-2A serial Nos. AF 42-15073 to AF 42-15158 inclusive
L-2A serial Nos. AF 42-35825 to AF 42-36074 inclusive
L-2A serial Nos. AF 42-38498 to AF 42-38537 inclusive
L-2B serial Nos. AF 43-1 to AF 43-75 inclusive

1. Control Stick (Rear Cockpit)
2. Trim Tab Control
3. Fuel Gage (Left Wing Tank)
4. Trim Tab Indicator
5. Primer
6. Ignition Switch
7. Carburetor Heat Control
8. Fuel Mixture Control
9. Throttle (Front Cockpit)
10. Throttle Friction Knob

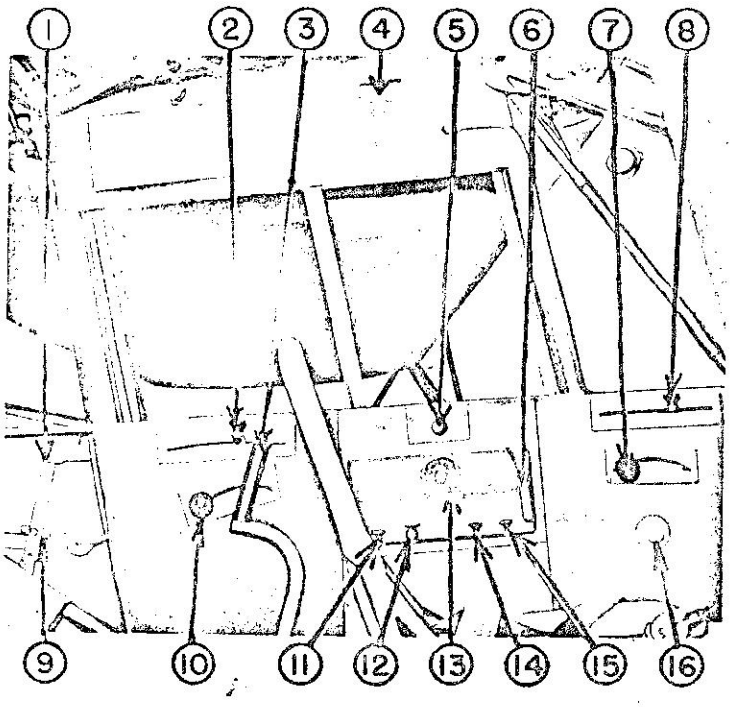


Figure 15—Cockpit Arrangement and Controls, Left Side (L-2A, L-2B and L-2M)

KEY

L-2A serial Nos. AF 43-25754 to AF 43-25853 inclusive*
L-2B serial Nos. AF 43-76 to AF 43-490 inclusive

1. Trim Tab Control Arm
2. Trim Tab Control (Rear Cockpit)
3. Control Stick (Rear Cockpit)
4. Fuel Gage (Left Wing Tank)
5. Trim Tab Control Friction Knob
6. Carburetor Heat Control
7. Throttle (Front Cockpit)
8. Trim Tab Control (Front Cockpit)
9. Trim Tab Control Cable Connection
10. Throttle (Rear Cockpit)
11. Cabin Heater Control
12. Primer
13. Ignition Switch
14. Carburetor Heat Control
15. Fuel Mixture Control
16. Throttle Friction Knob.

*Note: Cockpit arrangement and controls on L-2M aircraft are similar except that inner fabric wall in cockpit has been removed to simplify airplane.

12. GENERAL FLYING CHARACTERISTICS.

a. FLIGHT OPERATING OF ENGINE.

(1) GENERAL.—Refer to Specific Engine Flight Chart, section III, for engine operating data. The engine should not be run for any great length of time at full throttle. The most satisfactory service may be obtained if the engine is cruised at a speed of 200 to 350 rpm below its full throttle level flight rpm. However, should it be desired to cruise the engine at 100 rpm below its full throttle level flight rpm, it may be safely done with certain penalties attached. The life of the valves will be shortened, as well as that of piston rings and bearings. Also, there will be considerable sacrifice in economy regarding gasoline and oil consumption. At the same time, it is not likely that any mechanical difficulties or engine failure will result due to any cruising rpm up to the full throttle rated rpm (2300).

NOTE

During flight, the oil temperature and oil pressure gages should be closely observed. If the temperature rises above 220°F (105°C), or if the oil pressure falls below 25 pounds, a landing should be made immediately, and the trouble ascertained, and corrected.

(2) USE OF THE MIXTURE CONTROL.—The carburetor has an altitude mixture control adjustment, supplied as standard equipment. EXTREME CARE MUST BE OBSERVED IN ITS USE. An engine being operated cross-country may be leaned out by moving the mixture control to the "LEAN" position very slowly and at the same time watching the tachometer carefully. When the mixture is leaned sufficiently to produce a small drop in rpm and a slight scattered missing of the engine, move the control toward the "RICH" position sufficiently to bring back power and steady operation. It should be remembered that leaning of the mixture will cause an engine to run hotter, and it should be attempted only when load and conditions appear to warrant it. The control must always be returned to the "FULL RICH" position before returning to full throttle operation or before a landing is attempted.

NOTE

It is recommended not to use the mixture control below 5000 feet above sea level, and only when it will improve engine performance.

(3) USE OF THE CARBURETOR HEAT.—Under certain temperature and moisture conditions, ice may form in the carburetor venturi and choke the engine. Loss in rpm and a rough engine operation are usually the first indications of icing. Do not continually advance throttle to maintain rpm as additional ice will accumulate and finally stop the engine. As soon as ice is suspected, move the carburetor heat control to full "ON"; and it should remain in that position, until another stratum of air of higher temperature and less moisture content is present.

WARNING

Always move control slowly. Use carburetor heat for warming up, taxying, and gliding. Do not attempt take-off with carburetor heat "ON." Do not use carburetor heat unless it is necessary.

b. FLIGHT CHARACTERISTICS OF AIRPLANE.

(1) STABILITY.—With normal center of gravity loadings, the airplane is stable about all axes.

(2) TRIM.—The trim tab on the elevator may be adjusted for load changes and for speed variations. Flying at low speeds will cause the airplane to be nose-heavy.

(3) AIR-SPEED LIMITATION.—Do not exceed 140 mph in a dive.

(4) PERFORMANCE.—See Flight Operating Data, appendix II.

13. MANEUVERS PROHIBITED.

a. Outside loops.

b. Inverted spins.

c. Tail slides.

d. Avoid excessive high speeds. Maximum air speed for snap rolls is 70 mph. Do not make banks over 70 degrees. "Tail-slides," which result from violent whip-stalling and incompleted loops, are prohibited. Do not execute inverted, or "outside" loops.

e. The "load factor" is the ratio between the total air load on the wing and the weight of the airplane. The load factors required to hold a given angle of bank without slipping or "squashing" are given in table I, this section.

(1) In reference to table I, an angle of bank of approximately 70 degrees produces a safe load factor of three. This degree of bank is usually considered a "vertical" bank. Note that the load factor increases very rapidly as an angle of 70 degrees is exceeded. The values given in table I are based on the assumption that all the lift is derived from the wings.

(2) The limiting speed for abrupt maneuvers might, for convenience, be called the MANEUVERING speed. The reason for such a speed is that the wing will stall if the pilot tries to produce a high load factor at a relatively low speed. The "stalling" speed usually referred to is based on a load factor of 1, that is level flight. However, the stalling speed increases proportionately to the square root of the increased load factor. Thus, by raising the load factor from 1 to 4, the stalling speed is increased by the square root of 4, which means that the normal stalling speed is doubled.

(3) Thus, by flying at twice the normal stalling speed, the airplane can be pulled up to a load factor of 4 but no higher. Do not exceed 4, or the wing will stall. If the pilot tries to make a steep turn with insufficient speed, the wing will stall before the necessary load factor can be developed. In fact, it is possible to use table I to determine the minimum speed required for a given angle of bank by taking the square root of the load factors given in that table.

(4) In table II, a column has been added to indicate how the actual stalling speed will vary for an airplane

having a normal stalling speed of 50 mph. Note that a 70 degree bank cannot be properly made at a speed below 85 mph.

(5) These examples are given to show how the load factor is directly connected with flight maneuvers of various kinds. Practically all cases of structural failures in flight are caused by too abrupt pull-ups at high speeds. It is important to know at what speed abrupt pull-ups become dangerous, and how hard a pull-up can be made with safety at speeds above this value. As a rough approximation, the maximum safe speed for an abrupt pull-up is about twice the normal stalling speed ("normal" meaning at design gross weight). To be perfectly safe, it is advisable to confine violent maneuvers to speeds even lower than this.

(6) There is no danger in pull-ups as long as the speed is held below the so-called MANEUVERING speed. Since this speed is actually the stalling speed corresponding to the maximum safe load factor, it is calculated by taking the square root of that load factor. Thus, for a load factor of 3, the MANEUVERING speed is the square root of 3 or 1.73 times the normal stalling speed. If the latter were 40 mph, the MANEUVERING speed would be 40 x 1.73 or approximately 60 mph. Roughly, maneuvers involving sharp pull-ups should be performed at speeds below 70 mph. At higher speeds the pilot must depend on his physical sensations to tell him what load factor he is getting.

Angle of Wings to Horizontal	Example	Load Factor Required
0 Degrees		1
10 "		1.01
20 "		1.06
30 "		1.15
40 "		1.31
50 "		1.56
60 "		2.0
70 "		2.92
80 "		5.75
90 "		Infinity

(7) This airplane is designed to take loads imposed by gusts of considerable intensity. Gust load factors increase with increasing air speed and the value used in design corresponds to the high speed in level flight. In extremely rough air, the safest procedure is to reduce the speed to the MANEUVERING speed, as it is then impossible for gusts to produce dangerous load factors. As a general rule, the rougher the weather, the slower the airplane should be flown.

Angle of Wings to Horizontal	Percent Increase in Normal Stalling Speed	Actual Stalling Speed Based on 50 Miles Per Hour Normal Stalling Speed
Degrees		Miles Per Hour
0	.0	50
10	.5	51
20	3.0	52
30	7.0	54
40	14.4	57
50	25.0	62
60	41.4	71
70	71.0	85
80	240.0	120
90	Infinity	Infinity

(8) To summarize, the pilot should:

(a) Become familiar with load factors.

(b) Avoid abrupt pull-ups at high speeds.

(c) Keep the speed below 70 mph for snap-rolls and abrupt pull-ups.

(d) Avoid "tail-slides."

(e) Slow down in rough air.

(f) Fly light when doing acrobatics.

(g) Avoid making banks over 70 degrees.

(h) Never attempt inverted ("outside") loops, or inverted spins.

14. STALLS.

a. Stalling speed is 45 mph indicated air speed at gross weight, power off. Stalling speed is 43 mph indicated air speed, power on.

b. Stalls develop quite slowly. This airplane has a distinctive "mushing" characteristic before the complete stall is encountered. The stall itself is not violent and may be controlled quite easily with the rudder and elevators. In

stalling there is a noticeable softening of the aileron control. The use of ailerons should be avoided when making a recovery from a normal stall.

15. SPINS.

Rapid recovery from either involuntary or intentional spins may be made by proceeding as follows:

a. Close the throttle, apply full opposite rudder to stop the spin and move the stick straight forward. This action will place the airplane in a steep dive. At this point neutralize the rudder and immediately ease the stick back, returning the airplane to level flight. As soon as level flight position is reached, ease the throttle open to cruising rpm and cruising air speed.

NOTE

With normal center of gravity loading limits the spin will be stopped within three-fourths of a turn. The spin itself is not violent. There are no restrictions on these airplanes regarding normal spins.

CAUTION

Do not allow the airplane to gain excessive speed after the spin has been stopped, and do not make abrupt pull-ups. Do not exceed 140 mph.

16. ACROBATICS.

The following maneuvers may be satisfactorily performed by a pilot experienced with this airplane.

a. Aileron or slow roll.
b. Chandelle.
c. Half roll or split "S."
d. Immelmann turn.
e. Loop.
f. Normal spin.
g. Normal stall.
h. Snap roll or horizontal spin (not to exceed 70 mph).
i. Vertical bank (not to exceed 70 degrees).

CAUTION

Always fly as light as possible when doing acrobatics.

17. DIVING.

a. SPEED LIMITATION.—Do not exceed a diving speed of 140 mph true air speed. Maximum permissible engine overspeed is 2530 rpm.

WARNING

Do not dive in gusty air, or make abrupt pull-outs.

b. STABILITY.—Elevator and rudder loads are moderately heavy. The yawing tendency is to the right in power-off glides.

18. NIGHT-FLYING.

No special equipment is provided in these airplanes for night-flying.

19. APPROACH, LANDING, AND CROSS-WIND LANDING.

a. APPROACH FOR LANDING.

(1) The carburetor heat control should be moved to the full "ON" position 30 seconds prior to closing the throttle for a landing.

(2) See that the mixture control is in full "RICH" position before closing the throttle.

(3) When approaching the landing field from any altitude, the engine rpm should not be reduced to less than 800 to 1000 rpm. The throttle should be left slightly open, and the engine should be cleared at frequent intervals. This will prevent the engine from cooling too rapidly and will also keep it "clear" and ready for instant use, should full throttle be needed. Just before landing, the engine should be reduced to idling speed.

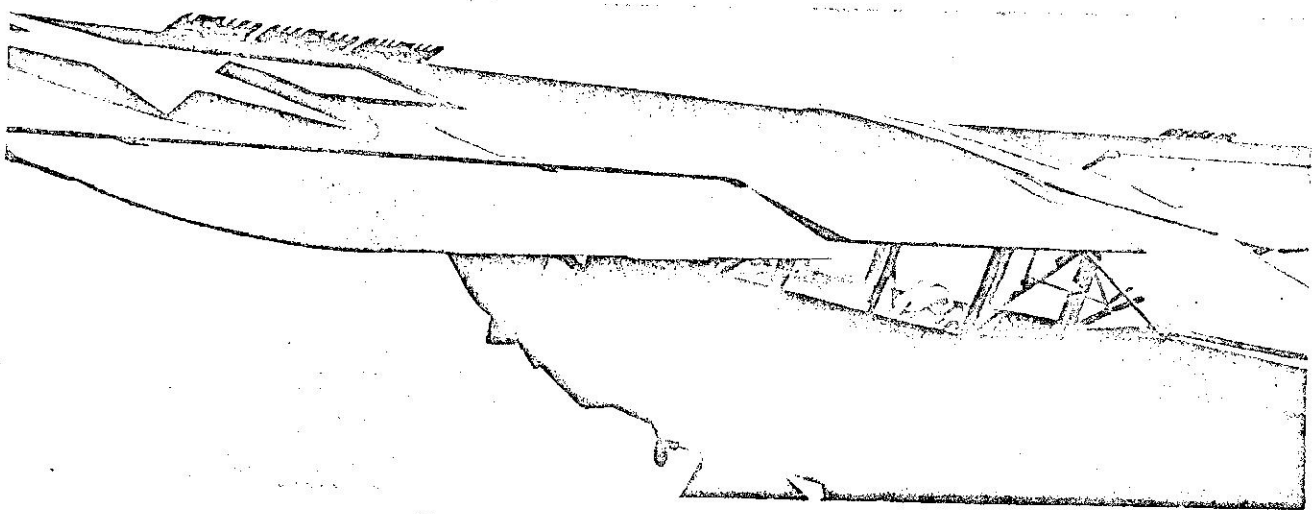


Figure 16—Spoilers (L-2M) in Operation

(4) Trim the airplane and glide at 60 mph true air speed.

(5) The generator control switch should be turned "OFF" as soon as practical in gliding or landing. This applies to LA, L-2A, and L-2M models equipped with the General Armature Model AG-40E generator; or airplanes beginning with serial No. AF 43-199 use the Champion Model W612-6V generator, which has a propeller brake. No special attention is required in approach or landing.

b. LANDING.

(1) Landing is accomplished in the same manner as in any conventional aircraft.

(2) Braking for a short run after landing may be accomplished with safety, if it is within reason and deemed necessary, as these airplanes have very little tendency to nose over on the ground. In making normal "into-the-wind" landings there is little possibility of ground looping if ordinary precautions are taken.

(3) L-2M aircraft are equipped with spoilers on the top surface of both wing panels which are controlled by a lever under the left side of the instrument panel and accessible to the pilot. Opening the spoilers serves to spoil the lift on that portion of the wing, thus steepening the glide path and increasing the rate of sink. Trim the airplane for a normal glide (60 mph) and then apply spoilers as necessary to land the airplane on the preselected "spot." Release or "close" spoilers and break glide in normal manner immediately before touching ground.

WARNING

Spoilers must not be open all the way to the ground as the excessive rate of descent may overstress the airplane upon hard contact with the ground. Experience and the proper manipulation of the spoilers in conjunction with the elevators and throttle will enable the pilot to land the airplane on a much shorter space than would normally be required.

WARNING

During cold weather operations make sure that spoilers and spoiler recesses are free from ice before take-off.

c. CROSS-WIND LANDING.

(1) Since these airplanes are comparatively light in weight and have a low loading, it is well to exercise some extra care in cross-wind landing. Drop the upwind wing sufficiently to overcome the drift effect, stopping the turning tendencies by the use of opposite rudder. This produces the effect of a mild slip.

(2) Straighten out the airplane with the rudder and ailerons just before making contact with the ground. Ground looping is checked by conventional use of the rudder and wheel brakes.

d. TAKE-OFF ON INCOMPLETE LANDINGS.

(1) Since the throttle has been left slightly opened and heat to the carburetor has been applied, the engine will be kept "clear" and ready for instant use should full throttle be needed because of "overshooting" or "undershooting" the field.

(2) Place trim tab in neutral position.

CAUTION

Never open the throttle abruptly. The engine will respond much sooner and more positively if the throttle is moved in a smooth manner.

20. STOPPING OF ENGINE.

The engine shall be stopped as soon as possible after reaching the line or parking area. Allow the engine to idle for a very brief period, turn the ignition switch off, and open the throttle. When stopping the engine in this manner, the danger of after firing on automatic ignition is eliminated. The reason for this method is to cool the spark plugs, valves, and particles of carbon below the point of incandescence. The fuel shut-off valve should be left "ON," unless airplane is to be put in long-term storage.

NOTE

The stopping of the engine is equally as important as the warm-up procedure in starting a cold engine.

21. BEFORE LEAVING THE PILOT'S COMPARTMENT.

a. Ignition switch "OFF."

b. Fuel shut-off valve "ON."

c. Master battery switch "OFF" and set generator brake "ON" (only on airplanes after serial No. AF 43-199).

d. Parking brake "ON."

e. Check Form 1.

f. If windy, secure ailerons to prevent whipping in the wind.

22. TYING DOWN.

(See figure 17.)

a. Use Mooring Kit D-1 as furnished with each airplane. If mooring kit is not available, the airplane may be tied down with manila rope (3/8 inch in diameter, or heavier) anchored in the ground. In emergency, select and notch stakes, and drive into the ground, or tie ropes around large rocks. Trees also may be used to tie to, if available.

b. Place airplane with tail into the wind and elevators depressed.

c. Tie ropes around upper ends of front left and right lift struts and anchor to stakes driven into ground slightly forward of struts and outward from sides of airplane.

d. Pull airplane backward until ropes are taut.

e. Tie rope around lift handle (located on lower longeron near tail) and secure to stake driven into ground directly below lift handle.

CAUTION

Do not moor at wing tips. Handholes at wing tips are for convenience in handling airplanes on ground and are not intended for attachment of tie-down ropes.

f. Set parking brake (chock wheels, if necessary, with any suitable blocks available).

g. Secure ailerons. In emergency fasten the rear control stick in a forward position with the front seat belt.

h. Ignition "OFF."

i. Fuel shut-off valve "ON."

j. Install enclosure cover.

k. Close windows and door.

l. Install engine cover.

m. Install propeller cover.

n. Leave propeller in horizontal position.

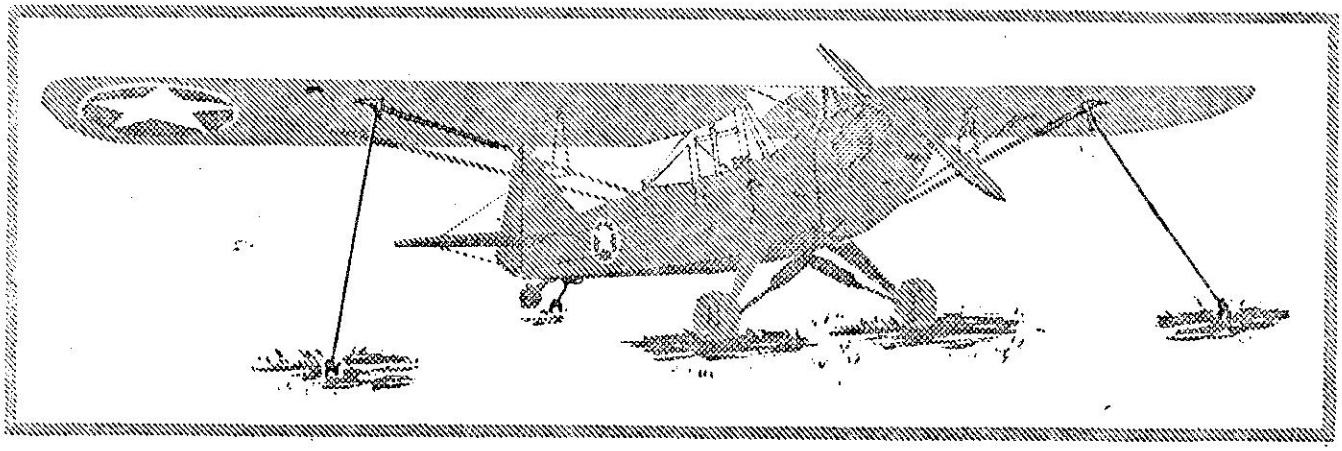


Figure 17—Tie Down Diagram

SECTION III
FLIGHT OPERATING DATA

1. AIR-SPEED LIMITATION.

(Do not exceed 140 mph in a dive.)

2. SPECIFIC ENGINE FLIGHT CHART.

FORM ASC-512A

AIRPLANE MODELS

L-2,L-2A,L-2B,L-2M

TAYLORCRAFT

SPECIFIC ENGINE FLIGHT CHART

ENGINE MODELS

O-170-3

CONTINENTAL

CONDITION	FUEL PRESSURE (LB/SQ. IN.)	OIL PRESSURE (LB. SQ. IN.)	OIL TEMP. °C	OIL TEMP. °F	COOLANT TEMP. °C	COOLANT TEMP. °F		
DESIRED	-	35	35	160	-	-		
MAXIMUM	Gravity	40	104	220	-	-		
MINIMUM	System	25	32	90	-	-		
IDLING	-	10	-	-	-	-		

MAX. PERMISSIBLE DIVING RPM: 2530

CONDITION	ALLOWABLE OIL CONSUMPTION
NORMAL RATED (MAX. CONT.)	.37 U.S.QT/HR .61 IMP.PT/HR
MAX. CRUISE	.25 U.S.QT/HR .41 IMP.PT/HR
MIN. SPECIFIC	.28 U.S.QT/HR .46 IMP.PT/HR

OIL GRADE: (S) 1080 A (AN-O-446) (W) 1065 A

SUPERCHARGER TYPE:

FUEL GRADE: 73 Octane (Spec AN-F-23) or 80 Octane (U.S.A. Spec 2-103).

OPERATING CONDITION	RPM	MANIFOLD PRESSURE (BOOST)	HORSE-POWER	CRITICAL ALTITUDE WITH RAM	CRITICAL ALTITUDE NO RAM	BLOWER	USE LOW BLOWER BELOW:	MIXTURE CONTROL POSITION	FUEL FLOW (GAL/HR/ENG.) U.S.	FUEL FLOW (GAL/HR/ENG.) IMP.	MAXIMUM CYL. TEMP. °C	MAXIMUM CYL. TEMP. °F	MAXIMUM DURATION (MINUTES)
TAKE-OFF	2300	-	65	-	-	None	None	Full Rich	-	-	288	550	Above 5000 ft. adjust mixture for best power operation.
WAR EMERGENCY	None	-	-	-	-	-	-	-	-	-	-	-	
MILITARY	None	-	-	-	-	-	-	-	-	-	-	-	
NORMAL RATED (MAX. CONT.)	2300	-	66	-	-	-	-	Best Power	5.45	4.54	288	550	Desired cruise is maximum cruise for a fixed pitch propeller.
MAXIMUM CRUISE	2200 2100	- -	57.5 50	-	-	-	-	Best Power	3.6	2.99	288	550	
MINIMUM SPECIFIC CONSUMPTION	2150	-	54	-	-	-	-	Best Power	4.05	3.37	288	550	

REMARKS: Because these airplanes are equipped with a fixed pitch propeller, 2300 rpm will not actually be developed on take-off. Full throttle at take-off will generally develop 2150 to 2250 rpm.

SECTION IV
EMERGENCY OPERATING INSTRUCTIONS

1. ENGINE FAILURE DURING FLIGHT.

a. Drop nose of airplane sufficiently to maintain a glide of 60 mph.

b. Choose desired landing spot, and don't change objective.

c. Ignition switch "OFF."

d. Fuel shut-off valve "OFF."

e. Master battery switch "OFF." (If airplane is so equipped.)

f. If forced landing is made over rugged terrain, at night, or over water, make the landing into the wind and straight ahead and, making the last of the approach as slow as possible, stall in, tail down. If landing is made in a wooded area, try to fly low between two trees allowing the wings to hit them and the fuselage to go between. If the landing is over water, stall the airplane in, as mentioned above, and get out as soon as possible.

2. FIRE IN THE AIR.

a. There are three sources of fire while the airplane is in flight: Trouble of some sort in the engine compartment, a short in the electrical system, and careless smoking. Smoking should NEVER be done in the airplane.

b. If the fire occurs in the engine compartment, first shut off the gasoline, but leave the ignition switch on in order to use up the fuel which remains in the carburetor. No fire extinguishing equipment is provided for the engine compartment. The only thing to do, is put the airplane in a nose-high slip to the side to keep the flames away from the gas tanks. If it is immediately found that such maneuvers do not help, abandon the airplane. However, fires of this nature are extremely rare.

c. If the fire occurs in the battery compartment, turn off the master switch and use fire extinguisher. (See figure 12.) If this does not work, the procedure as mentioned in the preceding paragraph will have to be used. If the airplane is properly maintained, there will be no cause for fires. In regard to smoking, DON'T DO IT. A first-aid kit is provided in each airplane.

3. ABANDONING AIRPLANE IN FLIGHT.

a. Ignition switch "OFF."

b. Fuel shut-off valve "OFF."

c. Master battery switch "OFF."

4. EMERGENCY CREW EXIT.

Both crew members shall make their exit through the door—the rear occupant leaving first. The door shall be kicked or torn from its hinges in order to clear the exit passage. L-2M airplanes are equipped with an emergency door release. Pull the red handle at the right side of the cockpit near the pilot's head. This action will free the door from its hinges after which it may be pushed out of the airplane. The airplane, if controllable, should be trimmed NOSE-HEAVY and slowed down to a complete stall. Occupants should jump before the airplane makes its dive which follows the stall. Dive headlong past the rear of the lift struts and as far away from the airplane as possible, and use parachute in conventional manner.

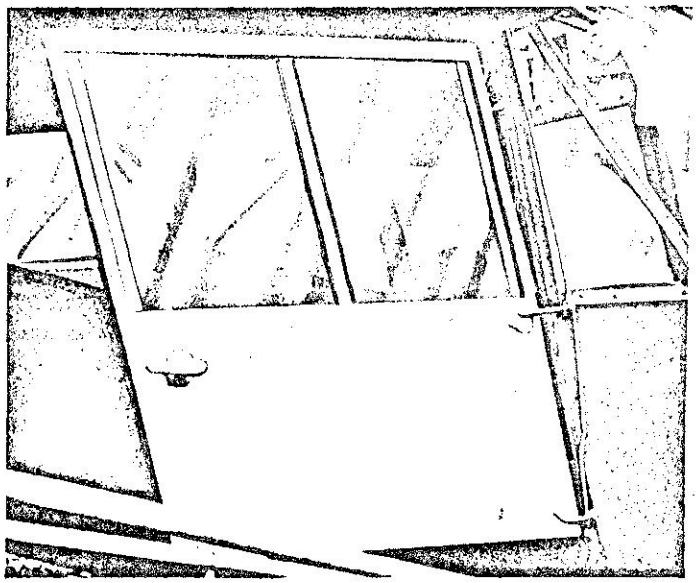


Figure 18—Door (L-2M) Showing Emergency Handle

SECTION V
OPERATIONAL EQUIPMENT

1. OPERATION OF COMMUNICATIONS EQUIPMENT.

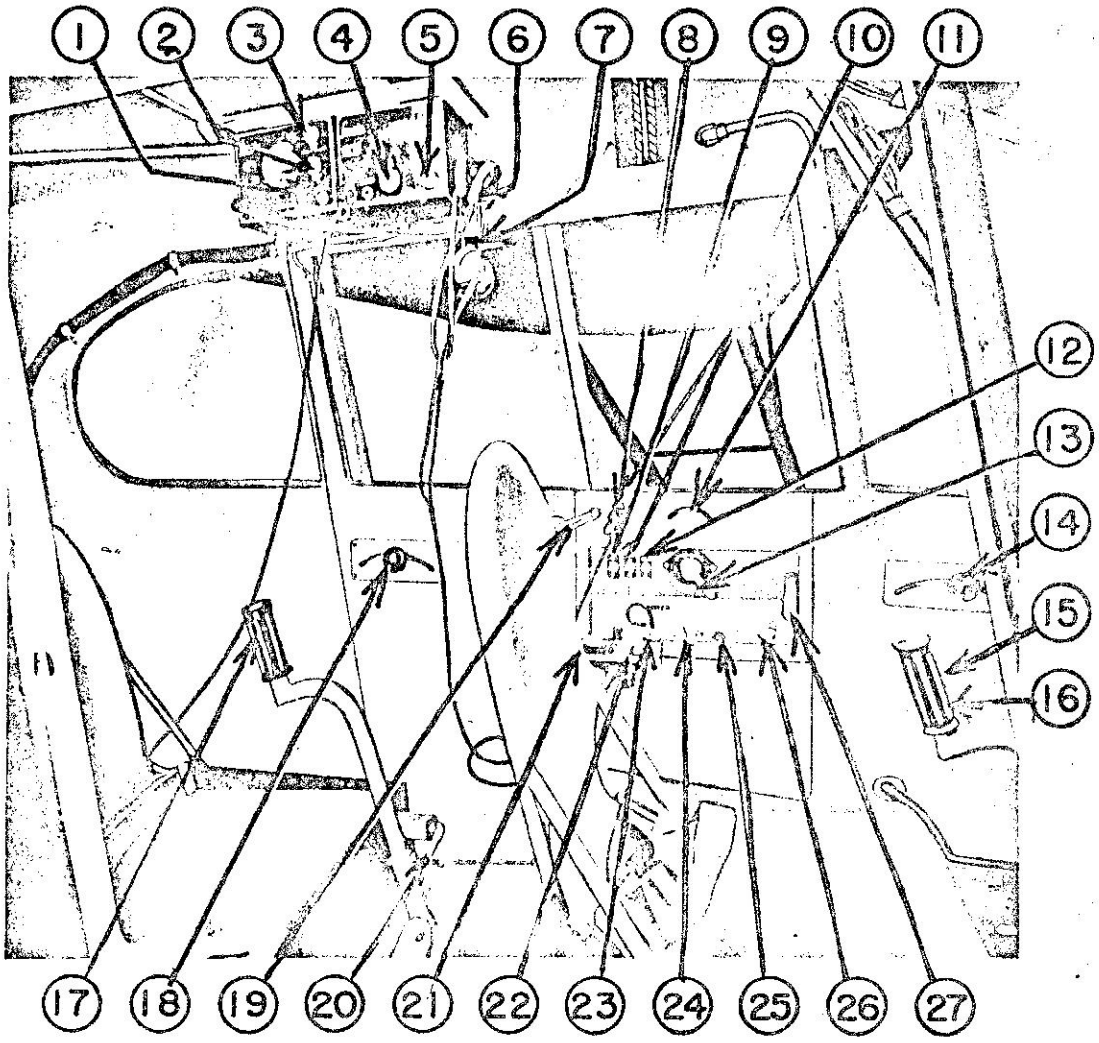
a. RECEIVER: LEARADIO AMR-12 (L-2 AIRPLANES). *(See figure 19.)*

(1) Plug headphones and microphone in respective jacks. (See figure 19-6-7.)

(2) Throw master battery switch and radio switch to "ON" position. (See figure 19-9-12.)

(3) Turn receiver on by rotating volume control clockwise. (See figure 19-5.)

(4) Tune receiver carefully to desired frequency. (See figure 19-4.)



KEY

L-2 serial Nos. AF 42-7773 to AF 42-7792 inclusive

1. Transmitter Switch
2. Antenna Loading Control
3. Tuning Control (Transmitter)
4. Tuning Control (Receiver)
5. Receiver Volume Control and Switch
6. Microphone
7. Headphones
8. Phone Jack
9. Master Switch
10. Generator Switch
11. Trim Tab Indicator
12. Radio Switch
13. Ignition Switch
14. Throttle (Front Cockpit)
15. Throttle Friction Knob
16. Control Stick (Front Cockpit)
17. Control Stick (Rear Cockpit)
18. Throttle (Rear Cockpit)
19. Trim Tab Control
20. Seat Adjustment Control
21. Ammeter
22. Voltage Regulator Switch
23. Primer
24. Navigation Light Switch (not used)
25. Carburetor Heat Control
26. Fuel Mixture Control
27. Fuel Shut-off Control

Figure 19—Cockpit Arrangement and Controls, Left Side (L-2)

b. TRANSMITTER: LEARADIO AMT-12 (L-2 AIRPLANES). *(See figure 19.)*

(1) Plug in crystal for proper operating frequency.

(2) Turn switch on front of transmitter panel to "ON" position and allow 30 seconds for filaments to warm up. (See figure 19-1.)

(3) Set the ANTENNA LOAD switch on tap 1, and press microphone button. (See figure 19-2.)

(4) Adjust tuning condenser (knob in upper right corner of transmitter panel) for minimum reading of the panel meter. The "HIGH" and "LOW" on the front panel escutcheon correspond with the tuning frequency range. After this adjustment is made, the tuning adjustment should be locked, taking care that the condenser does not shift its position.

(5) For fixed antenna operation, make adjustments, as described in the preceding paragraph. Leave the ANTENNA LOAD switch on position "1." Flip switch on antenna loading coil until the meter on the transmitter reads maximum. If the meter is below the 50 to 90 range (in red portion of scale) increase the ANTENNA LOAD switch setting until meter reads within the indicated range. Lock the ANTENNA LOAD control in place after adjustment has been made. The transmitter is now ready for operation on the fixed antenna.

(6) In order to tune the transmitter to a retractable trailing antenna; first, proceed as indicated in paragraph 1.*b.*(4), preceding. Take the airplane into the air and with the ANTENNA LOAD switch on position "3," reel out the antenna wire until the meter reaches its maximum reading and starts dropping. Then reel in until the maximum is again reached and then lock the reel in place. If the meter reads below the operating range, increase the setting of the ANTENNA LOAD switch until this reading is obtained. Lock the controls, and the transmitter is ready for operation.

(7) Whenever the airplane is in the air, the generator switch should be in the "ON" position. (See figure 19-10.)

(8) The generator charge switch should be in the "ON" position when the airplane is flying if the battery needs charging. These two generator switches are used to give control of the generator in the event the voltage regulator should be out of order. (See figure 19-22.)

(9) To turn off both receiver and transmitter, flip radio switch to "OFF" position. (See figure 19-12.)

(10) To turn off receiver, turn VOLUME CONTROL in counterclockwise direction until switch attached to control clicks. (See figure 19-5.)

(11) To turn off dynamotor, flip RADIO SWITCH to "OFF" position. (See figure 19-12.)

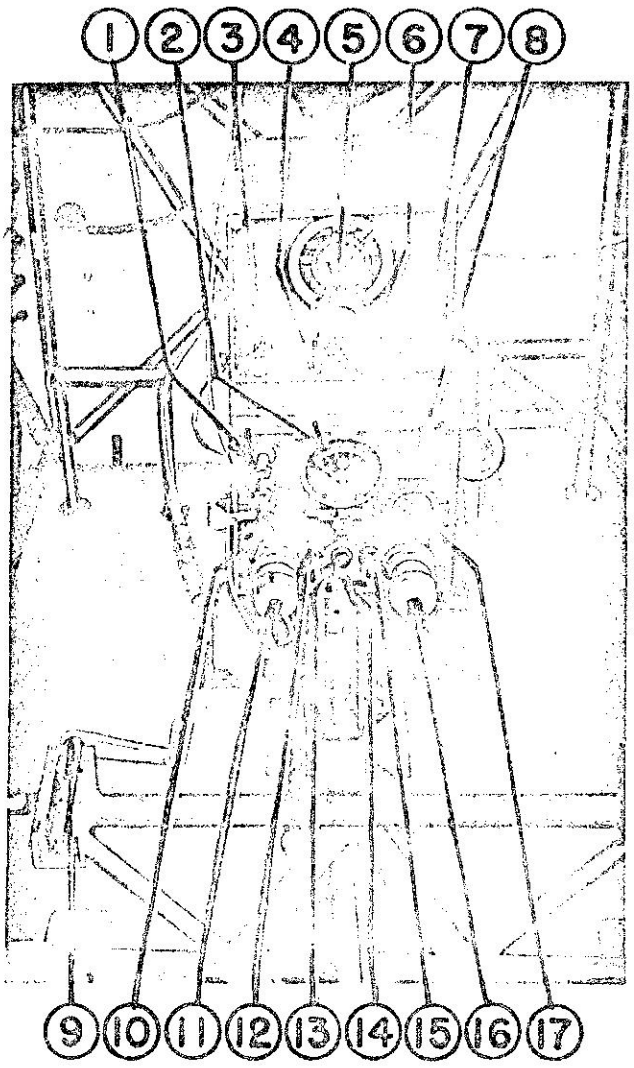
(12) Whenever a frequency change of more than 10 kilocycles is made with the transmitter, it will usually be necessary to retune as described in the preceding paragraphs, depending on type of operation desired.

c. RECEIVER: RCA AVR-20A (L-2A AIRPLANES). *(See figures 20, 21, 22, and 23.)*

(1) Plug headphones and microphone in respective jacks. (See figure 20-4-12; also figure 22-6-10-13.)

(2) Throw master battery switch to "ON" position. (See figure 21-7; also figure 22-2.)

(3) Turn receiver on by rotating volume control clockwise. This turns on vibrator power supply in trans-



L-2A serial Nos. AF 42-15073 to AF 42-15158 inclusive
L-2A serial Nos. AF 42-35825 to AF 42-36074 inclusive
L-2A serial Nos. AF 42-38498 to AF 42-38537 inclusive

1. Antenna Connections
2. Ammeter
3. Volume Control and Switch
4. Phone Jack
5. Tuning Knob and Dial
6. Phone—CW Switch
7. Variable Tuning Control
8. Antenna Loading Control
9. Front Seat Adjustment Handle
10. Crystal Selector Switch
11. Remote Control Cable
12. Microphone Jack
13. Pilot Light
14. Transmitter Switch
15. Fuse Extractor Post
16. Power Control
17. Plate Tuning Control

Figure 20—Radio Installation, Front Cockpit

mitter and is indicated by the pilot light on the remote control panel located on the left side of the cockpit. (See figure 20-3; volume control; 13, pilot light; also figure 22-12.)

(4) Set VAR-CRYSTAL switch tuning to variable tuning. Crystal tuning is available only when crystals are used in receiver. (See figure 20-7; also figure 22-15.)

(5) Tune receiver carefully to desired signal. The use of "CW" (telegraph) position is very helpful in spotting a weak signal. This switch, in "CW" position turns on a beat oscillator producing a high-pitched whistle whenever a carrier is crossed in tuning over the dial. Tune the receiver for maximum volume with "CW" switch on, then flip it to "OFF" position and the voice, without the whistle, will be heard. Of course, for "CW" telegraph reception, the switch must be "ON" to make an audible beat with the incoming signal. (See figure 20-6; also figure 22-14.)

(6) For CW reception throw CW-PHONE switch to "CW"; for PHONE reception throw CW-PHONE switch to "PHONE."

d. TRANSMITTER: RCA AVT-15A or AVT-112 (L-2A AND L-2M AIRPLANES).

(See figures 20, 21, 22, and 23.)

(1) To operate transmitter throw "ON-OFF" switch, on either remote control panel or on transmitter, to "ON" position. Jewel light on transmitter panel should glow indicating that transmitter is on. Receiver must be on before transmitter can be turned on. (See figure 20-14; also figure 22-9.)

(2) Allow 30 seconds for filaments to warm up.

(3) Set controls on transmitter and antenna length for desired frequency and selected operation as indicated on TUNING CHART. Latter is located on left side of cabin wall.

(4) Press microphone button and talk directly into front of microphone with lips just touching mouthpiece.

(5) To turn transmitter off, reverse above procedure. Receiver and transmitter can both be turned off by means of receiver volume control. (See figure 20-3; also figure 22-12.)

(6) Master battery switch must always be turned off before leaving airplane. (See figure 21-7; also figure 22-2.)

NOTE

Antenna current must always register on meter when transmitting. Failure to do so may be caused by improper adjustments, especially with transmitter TUNING control being set too sharp (by favoring too much toward the low number side). Always use antenna length which gives highest reading on meter after other controls are set according to tuning chart.

(a) DO NOT OPERATE TRANSMITTER in a hangar or while refueling or near fuel supplies.

(b) BE SURE to reel in antenna wire before landing.

(c) When microphone is not in use, hang it on the hook provided.

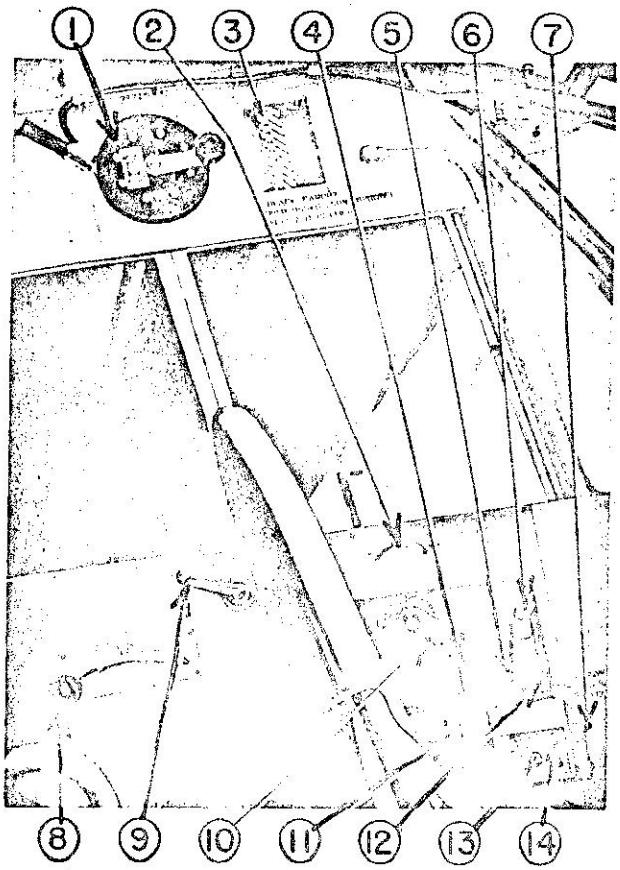
e. GENERATOR: CHAMPION MODEL W 612-6V.

(1) When relays, in the cone of the generator, are properly adjusted, generator will not "motor" on the ground.

(2) The relays built into the generator and propeller pitch determine the charging rate. Do not allow the charging rate to be higher than 12 amperes at 140 mph indicated air speed.

(3) Always have propeller brake "FULL ON" or "FULL OFF." Otherwise brake will drag, decreasing output and wearing propeller hub seriously.

(4) Airplanes from serial No. AF 43-199 up have this type of generator installed, although there is pro-



L-2A serial Nos. AF 42-15073 to AF 42-15158 inclusive
L-2A serial Nos. AF 42-35825 to AF 42-36074 inclusive
L-2A serial Nos. AF 42-38498 to AF 42-38537 inclusive

1. Antenna Reel
2. Trim Tab Indicator
3. Fuel Gage (Left Wing Tank
4. Carburetor Heat Control
5. Fuel Mixture Control
6. Fuel Shut-off Control
7. Radio Master Switch
8. Throttle (Rear Cockpit)
9. Trim Tab Control
10. Ignition Switch
11. Spare Fuses
12. Generator Switch
13. Radio Pilot Light
14. Transmitter Switch

Figure 21—Cockpit Arrangement and Controls, Left Side (L-2A)

vision for using the General Armature Generator without altering the installation. No generator control switch is necessary with the Champion Generator. When using the radio in flight, or when the battery has been in service for ground operation of the radio, the brake should be released, allowing the generator to charge. No damage will result to the battery by the operation of the generator. The brake is supplied in order to: First: Prevent the generator from "windmilling" when not in use. Second: In event blades are damaged, the propeller can be stopped from cockpit before dangerous vibration develops. Third: In event the generator relays stick, it prevents generator from MOTORING. When radio is not in use, propeller brake should be applied.

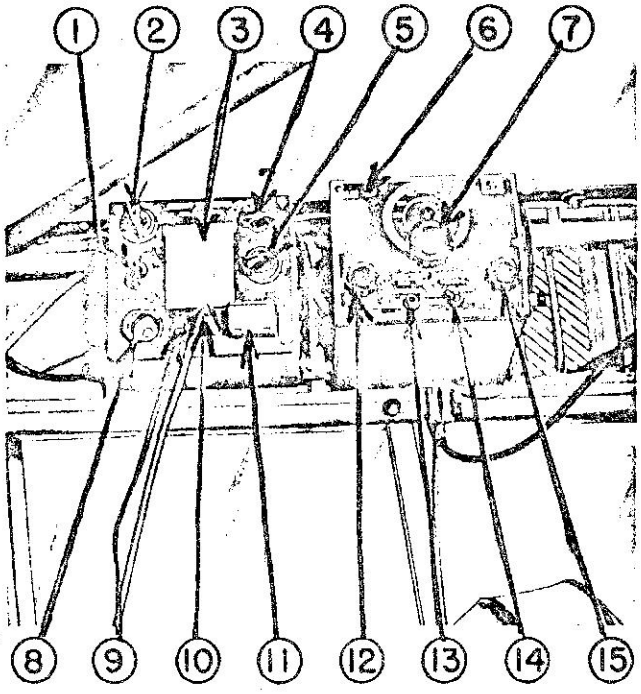


Figure 22—Radio Installation, Rear Cockpit (L-2A and L-2M)

KEY

L-2A and L-2M, serial Nos. AF 43-25754 to AF 43-26753 inclusive

1. Selector Switch
2. Antenna Loading Control
3. Tuning Chart
4. Antenna Coupling Control
5. P. A. Tuning Control
6. Phone Jack (Low Impulse)
7. Tuning Knob and Dial
8. Antenna Current Indicator
9. Transmitter Filament Switch
10. Microphone Wire and Jack
11. Crystal
12. Volume Control and Switch
13. Phone Jack (High Impulse)
14. Phone—CW Switch
15. Variable Tuning Control

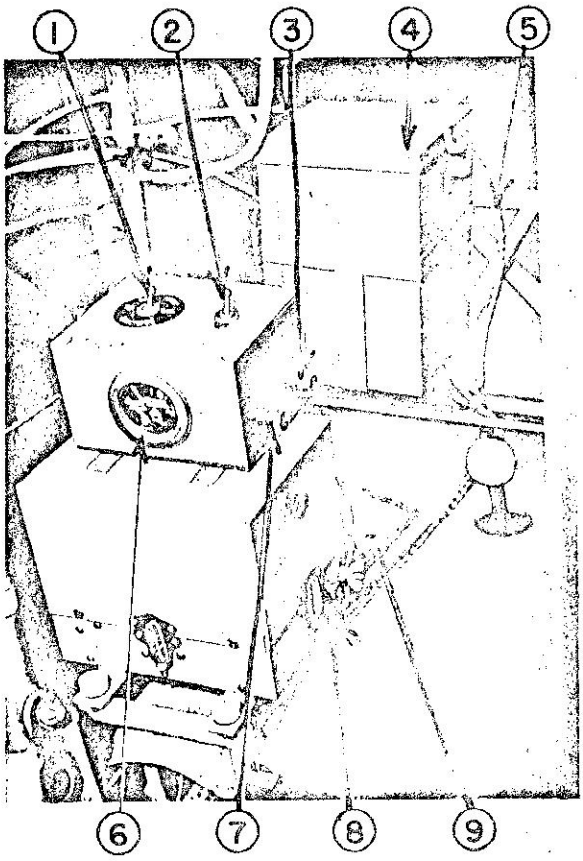


Figure 23—Radio Power Supply Installation, Front Cockpit (L-2A and L-2M)

KEY

L-2A and L-2M serial Nos. AF 43-25754 to AF 43-26753 inclusive

1. Generator Switch
2. Master Switch
3. Fuse Extractor Post
4. Battery
5. Battery-Power Supply Connection
6. Battery Genometer
7. Fuse Extractor Post
8. Fuse Extractor Post
9. Ground Wire

APPENDIX I

U. S. A. - BRITISH GLOSSARY OF NOMENCLATURE

U. S. A.	*British Equivalent*
Aircraft	Aircraft
Airplane	Aeroplane
Antenna	Aerial
Battery, storage	Accumulator or storage
Carburetor	Carburettor or carburetter
Chord	Chord line
Controls, air or cable controls	Flying controls
Distance, take-off	Take-off run
Engine or Power Plant	Aero-engine
Exit	Egress or exit
Filter, screen, or strainer (oil)	Filter
Filter, air	Air cleaner
Gage, fuel, or fuel gage	Fuel-contents gage or fuel level indicator
Gasoline, or fuel	Petrol or fuel (preferable)
Gear landing, or undercarriage	Alighting gear, undercarriage, or chassis
Generator	Dynamo
Ground	Earth or ground
Land, (to)	Alight, (to)
Lean	Weak
Left	Port
Level off, (to)	Flatten out, (to)
Loop, normal	Loop
Loop, outside	Inverted loop or outside loop
Overload	Non-standard load or overload
Plug, spark	Sparking plug
Prime, (to)	Prime or dope, (to)
Propeller	Airscrew (obsolete), propeller
Reel	Winch, or reel
Right	Starboard
Roll, snap	Flick roll
Socket, plughole, or jack	Socket
Speed, calibrated air (T.A.S.)	Indicated air speed (A.S.I.)
Speed, critical, or stalling speed	Stalling speed
Speed, indicated air (I.A.S.)	Air-speed indicator reading
Speed, minimum	Minimum Flying Speed
Speed, rated engine	Maximum RPM for continuous Cruising
Tab, trim	Trimming tab
Tachometer	Engine speed indicator (E.S.I.), tachometer revolution indicator or revolution counter
Valve	Cock or valve
Vent	Vent-pipe
Weight, empty, or dead load	Tare weight, or tare gross weight, or all-up weight
Weight, gross, or full load	Gross weight, or all-up weight
Windshield	Windscreen

APPENDIX II
FLIGHT OPERATING CHARTS

SPEC. AN-1-8 Dec. 18, 1942 FORM ASC-350

AIRPLANE MODELS
L-2
TAYLORCRAFT

TAKE-OFF, CLIMB & LANDING CHART

ENGINE MODELS
O-170-3

TAKE-OFF DISTANCE (IN FEET)

GROSS WEIGHT (IN LBS.)	HEAD WIND MPH	HEAD WIND KNOTS	HARD SURFACE RUNWAY AT SEA LEVEL GROUND RUN	AT SEA LEVEL TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND RUN	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND RUN	AT 6,000 FT. TO CLEAR 50' OBJ.	SOD-TURF RUNWAY AT SEA LEVEL GROUND RUN	AT SEA LEVEL TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND RUN	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND RUN	AT 6,000 FT. TO CLEAR 50' OBJ.	SOFT SURFACE RUNWAY AT SEA LEVEL GROUND RUN	AT SEA LEVEL TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND RUN	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND RUN	AT 6,000 FT. TO CLEAR 50' OBJ.
1250	0	0	460	1000	581	1263														
	17	15																		
	34	30	245	532	309	672														
	51	45																		
	0	0																		
	17	15																		
	34	30																		
	51	45																		
	0	0																		
	17	15																		
	34	30																		
	51	45																		

NOTE: INCREASE DISTANCE % FOR EACH 10°C ABOVE 0°C (% FOR EACH 20°F ABOVE 32°F)

ENGINE LIMITS FOR TAKE-OFF RPM & IN. HG

CLIMB DATA

COMBAT MISSIONS USE 2300 RPM & IN. HG

FERRY MISSIONS USE 2300 RPM & IN. HG

GROSS WEIGHT IN LBS.	TYPE OF CLIMB	S. L. TO 1000 FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S. L.	1000 FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S. L.	FUEL FROM S.L. U.S.	FUEL FROM S.L. IMP.	2000 FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S. L.	FUEL FROM S.L. U.S.	FUEL FROM S.L. IMP.	3000 FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S. L.	FUEL FROM S.L. U.S.	FUEL FROM S.L. IMP.	4000 FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S. L.	FUEL FROM S.L. U.S.	FUEL FROM S.L. IMP.	BLOWER CHANGE
1250	COMBAT																													
	FERRY	60	53	400	2.5																									
	COMBAT																													
	FERRY																													
	COMBAT																													
	FERRY																													

NOTE: INCREASED ELAPSED CLIMBING TIME % FOR EACH 10°C ABOVE 0°C FREE AIR TEMPERATURE (% FOR EACH 20°F ABOVE 32°F) FUEL INCLUDES WARM-UP AND TAKE-OFF ALLOWANCE

LANDING DISTANCE (IN FEET)

GROSS WEIGHT IN LBS.	BEST I. A. S. APPROACH MPH	BEST I. A. S. APPROACH KNOTS	HARD DRY SURFACE AT SEA LEVEL TO CLEAR 50' OBJ.	AT SEA LEVEL GROUND ROLL	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND ROLL	AT 6,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND ROLL	FIRM DRY SOD AT SEA LEVEL TO CLEAR 50' OBJ.	AT SEA LEVEL GROUND ROLL	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND ROLL	AT 6,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND ROLL	WET OR SLIPPERY AT SEA LEVEL TO CLEAR 50' OBJ.	AT SEA LEVEL GROUND ROLL	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND ROLL	AT 6,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND ROLL
1250	60	53	1000	400																

NOTE: FOR GROUND TEMPERATURES ABOVE 35°C (95°F) INCREASE APPROACH I.A.S. 10% AND ALLOW 20% INCREASE IN GROUND ROLL.

REMARKS

LEGEND
I.A.S.: Indicated Air Speed
M.P.H.: Miles Per Hour
S.L.: Sea Level
U.S.: U. S. Gallons
IMP.: Imperial Gallons
NOTE: All Distances are Average
RED FIGURES HAVE NOT BEEN FLIGHT CHECKED

RESTRICTED

SPEC. AN-1-6 Dec. 30, 1943 FORM ASC-510

AIRPLANE MODELS
L-2A (SERIALS AF-42-15074 TO AF-42-15148 INCLUSIVE)

TAKE-OFF, CLIMB & LANDING CHART

ENGINE MODELS
O-170-3

TAKE-OFF DISTANCE (IN FEET)

GROSS WEIGHT (IN LBS.)	HEAD WIND MPH	HEAD WIND KNOTS	HARD SURFACE RUNWAY AT SEA LEVEL GROUND RUN	AT SEA LEVEL TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND RUN	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND RUN	AT 6,000 FT. TO CLEAR 50' OBJ.	SOD-TURF RUNWAY AT SEA LEVEL GROUND RUN	AT SEA LEVEL TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND RUN	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND RUN	AT 6,000 FT. TO CLEAR 50' OBJ.	SOFT SURFACE RUNWAY AT SEA LEVEL GROUND RUN	AT SEA LEVEL TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND RUN	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND RUN	AT 6,000 FT. TO CLEAR 50' OBJ.
1300	0	0	527	1250	666	1580										9				
	17	15																		
	34	30	281	665	355	840														
	51	45																		
	0	0																		
	17	15																		
	34	30																		
	51	45																		
	0	0																		
	17	15																		
	34	30																		
	51	45																		

NOTE: INCREASE DISTANCE % FOR EACH 10°C ABOVE 0°C (% FOR EACH 20°F ABOVE 32°F) ENGINE LIMITS FOR TAKE-OFF RPM & IN. HG

CLIMB DATA

COMBAT MISSIONS USE 2300 RPM & IN. HG

FERRY MISSIONS USE 2300 RPM & IN. HG

GROSS WEIGHT IN LBS.	TYPE OF CLIMB	S. L. TO 1000 FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S. L.	FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S. L.	FUEL FROM S.L. U. S.	FUEL FROM S.L. IMP.	FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S. L.	FUEL FROM S.L. U. S.	FUEL FROM S.L. IMP.	FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S. L.	FUEL FROM S.L. U.S.	FUEL FROM S.L. IMP.	FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S. L.	FUEL FROM S.L. U.S.	FUEL FROM S.L. IMP.	BLOWER CHANGE
1300	COMBAT																													
	FERRY	60	53	395	2.53																									
	COMBAT																													
	FERRY																													
	COMBAT																													
	FERRY																													

NOTE: INCREASED ELAPSED CLIMBING TIME % FOR EACH 10°C ABOVE 0°C FREE AIR TEMPERATURE (% FOR EACH 20°F ABOVE 32°F) FUEL INCLUDES WARM-UP AND TAKE-OFF ALLOWANCE

LANDING DISTANCE (IN FEET)

GROSS WEIGHT IN LBS.	BEST I. A. S. APPROACH MPH	BEST I. A. S. APPROACH KNOTS	HARD DRY SURFACE AT SEA LEVEL TO CLEAR 50' OBJ.	AT SEA LEVEL GROUND ROLL	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND ROLL	AT 6,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND ROLL	FIRM DRY SOD AT SEA LEVEL TO CLEAR 50' OBJ.	AT SEA LEVEL GROUND ROLL	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND ROLL	AT 6,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND ROLL	WET OR SLIPPERY AT SEA LEVEL TO CLEAR 50' OBJ.	AT SEA LEVEL GROUND ROLL	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND ROLL	AT 6,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND ROLL
1300	60	53	750	440																

NOTE: FOR GROUND TEMPERATURES ABOVE 35°C (95°F) INCREASE APPROACH I.A.S. 10% AND ALLOW 20% INCREASE IN GROUND ROLL.

REMARKS

LEGEND
I.A.S.: Indicated Air Speed
M.P.H.: Miles Per Hour
S.L.: Sea Level
U.S.: U. S. Gallons
IMP.: Imperial Gallons
NOTE: All Distances are Average
RED FIGURES HAVE NOT BEEN FLIGHT CHECKED

RESTRICTED

RESTRICTED
AN 01-135DA-1

Appendix II
Flight Operating Charts

F-454-033 page 27

SPEC. AN-A-O
Dec. 18, 1942
FORM ASC-310

AIRPLANE MODELS
L-2A(SERIALS AF-43-25754
TO AF-43-25853 INCLUSIVE)

TAKE-OFF, CLIMB & LANDING CHART

ENGINE MODELS
0-170-3

TAKE-OFF DISTANCE (IN FEET)

GROSS WEIGHT (IN LBS.)	HEAD WIND		HARD SURFACE RUNWAY						SOD-TURF RUNWAY						SOFT SURFACE RUNWAY					
			AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.	
	MPH	KNOTS	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.
1300	0	0	527	1250	666	1580														
	17	15																		
	34	30	281	665	355	840														
	51	45																		
	0	0																		
	17	15																		
	34	30																		
	51	45																		
	0	0																		
	17	15																		
	34	30																		
	51	45																		

NOTE: INCREASE DISTANCE % FOR EACH 10°C ABOVE 0°C (% FOR EACH 20°F ABOVE 32°F) ENGINE LIMITS FOR TAKE-OFF RPM & IN. HG

CLIMB DATA

COMBAT MISSIONS USE 2300 RPM & IN. HG

FERRY MISSIONS USE 2300 RPM & IN. HG

GROSS WEIGHT IN LBS.	TYPE OF CLIMB	S.L. TO 1000 FT. ALT.				FT. ALT.						FT. ALT.						FT. ALT.						FT. ALT.						BLOWER CHANGE
		BEST I.A.S.		FT/MIN	TIME FROM S.L.	BEST I.A.S.		FT/MIN	TIME FROM S.L.	FUEL FROM S.L.		BEST I.A.S.		FT/MIN	TIME FROM S.L.	FUEL FROM S.L.		BEST I.A.S.		FT/MIN	TIME FROM S.L.	FUEL FROM S.L.		BEST I.A.S.		FT/MIN	TIME FROM S.L.	FUEL FROM S.L.		
		MPH	KNOTS			MPH	KNOTS			U.S.	IMP.	MPH	KNOTS			U.S.	IMP.	MPH	KNOTS			U.S.	IMP.	MPH	KNOTS			U.S.	IMP.	
1300	COMBAT																													
	FERRY	60	53	395	2.53																									
	COMBAT																													
	FERRY																													
	COMBAT																													
	FERRY																													

NOTE: INCREASED ELAPSED CLIMBING TIME % FOR EACH 10°C ABOVE 0°C FREE AIR TEMPERATURE (% FOR EACH 20°F ABOVE 32°F) FUEL INCLUDES WARM-UP AND TAKE-OFF ALLOWANCE

LANDING DISTANCE (IN FEET)

GROSS WEIGHT IN LBS.	BEST I.A.S. APPROACH		HARD DRY SURFACE						FIRM DRY SOD						WET OR SLIPPERY					
			AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.	
	MPH	KNOTS	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL
1300	60	53	860	445																

NOTE: FOR GROUND TEMPERATURES ABOVE 35°C (95°F) INCREASE APPROACH I.A.S. 10% AND ALLOW 20% INCREASE IN GROUND ROLL.

REMARKS

LEGEND
I.A.S.: Indicated Air Speed
M.P.H.: Miles Per Hour
S.L.: Sea Level
U.S.: U. S. Gallons
IMP.: Imperial Gallons
NOTE: All Distances are Average
RED FIGURES HAVE NOT BEEN FLIGHT CHECKED

SPEC. AN-A-8 Dec. 10, 1942 FORM ASC-510

AIRPLANE MODELS
L-2B
TAYLORCRAFT

TAKE-OFF, CLIMB & LANDING CHART

ENGINE MODELS
O-170-3

TAKE-OFF DISTANCE (IN FEET)

GROSS WEIGHT (IN LBS.)	HEAD WIND		HARD SURFACE RUNWAY						SOD-TURF RUNWAY						SOFT SURFACE RUNWAY					
			AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.	
	MPH	KNOTS	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.	GROUND RUN	TO CLEAR 50' OBJ.
1300	0	0	587	950	666	1280														
	17	15																		
	34	30	281	665	355	840														
	51	45																		
	0	0																		
	17	15																		
	34	30																		
	51	45																		
	0	0																		
	17	15																		
	34	30																		
	51	45																		

NOTE: INCREASE DISTANCE % FOR EACH 10°C ABOVE 0°C (% FOR EACH 20°F ABOVE 32°F) ENGINE LIMITS FOR TAKE-OFF RPM & IN. HG

COMBAT MISSIONS USE 2300 RPM & IN. HG

CLIMB DATA (Service Ceiling)

FERRY MISSIONS USE 2300 RPM & IN. HG

GROSS WEIGHT IN LBS.	TYPE OF CLIMB	S. L. TO 1000 FT. ALT.				S.L. to 5000 FT. ALT.						S.L. to 10000 FT. ALT.						FT. ALT.						FT. ALT.						BLOWER CHANGE
		BEST I.A.S.		FT/MIN	TIME FROM S. L.	BEST I.A.S.		FT/MIN	TIME FROM S. L.	FUEL FROM S.L.		BEST I.A.S.		FT/MIN	TIME FROM S. L.	FUEL FROM S.L.		BEST I.A.S.		FT/MIN	TIME FROM S. L.	FUEL FROM S.L.		BEST I.A.S.		FT/MIN	TIME FROM S. L.	FUEL FROM S.L.		
		MPH	KNOTS			MPH	KNOTS			U. S.	IMP.	MPH	KNOTS			U. S.	IMP.	MPH	KNOTS			U.S.	IMP.	MPH	KNOTS			U.S.	IMP.	
1300	COMBAT	58	52	475	2.50	59	53	290	13.3			60	53	100	41.6															
	FERRY																													
	COMBAT																													
	FERRY																													
	COMBAT																													
	FERRY																													

NOTE: INCREASED ELAPSED CLIMBING TIME % FOR EACH 10°C ABOVE 0°C FREE AIR TEMPERATURE (% FOR EACH 20°F ABOVE 32°F) FUEL INCLUDES WARM-UP AND TAKE-OFF ALLOWANCE

LANDING DISTANCE (IN FEET)

GROSS WEIGHT IN LBS.	BEST I. A. S. APPROACH		HARD DRY SURFACE						FIRM DRY SOD						WET OR SLIPPERY					
			AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.		AT SEA LEVEL		AT 3,000 FT.		AT 6,000 FT.	
	MPH	KNOTS	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL	TO CLEAR 50' OBJ.	GROUND ROLL
1300	55		1246	925																

NOTE: FOR GROUND TEMPERATURES ABOVE 35°C (95°F) INCREASE APPROACH I.A.S. 10% AND ALLOW 20% INCREASE IN GROUND ROLL.

REMARKS

LEGEND
I.A.S.: Indicated Air Speed
M.P.H.: Miles Per Hour
S.L.: Sea Level
U.S.: U. S. Gallons
IMP.: Imperial Gallons
NOTE: All Distances are Average
RED FIGURES HAVE NOT BEEN FLIGHT CHECKED

SPEC AN-56-B Dec. 15, 1942 FORM ASC-510

AIRPLANE MODELS
L-2M (SERIALS AF-43-25854 TO AF-43-26753 INCLUSIVE)

TAKE-OFF, CLIMB & LANDING CHART

ENGINE MODELS
O-170-3

TAKE-OFF DISTANCE (IN FEET)

GROSS WEIGHT (IN LBS.)	HEAD WIND MPH	HEAD WIND KNOTS	HARD SURFACE RUNWAY: AT SEA LEVEL GROUND RUN	AT SEA LEVEL TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND RUN	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND RUN	AT 6,000 FT. TO CLEAR 50' OBJ.	SOD-TURF RUNWAY: AT SEA LEVEL GROUND RUN	AT SEA LEVEL TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND RUN	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND RUN	AT 6,000 FT. TO CLEAR 50' OBJ.	SOFT SURFACE RUNWAY: AT SEA LEVEL GROUND RUN	AT SEA LEVEL TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND RUN	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND RUN	AT 6,000 FT. TO CLEAR 50' OBJ.
1325	0	0		1050																
	17	15																		
	34	30																		
	51	45																		
	0	0																		
	17	15																		
	34	30																		
	51	45																		
	0	0																		
	17	15																		
	34	30																		
	51	45																		

NOTE: INCREASE DISTANCE % FOR EACH 10°C ABOVE 0°C (% FOR EACH 20°F ABOVE 32°F)

ENGINE LIMITS FOR TAKE-OFF RPM & IN. HG

CLIMB DATA (Service ceiling)

COMBAT MISSIONS USE RPM & IN. HG

GROSS WEIGHT IN LBS.	TYPE OF CLIMB	S. L. to 1000 FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S.L.	S.L. to 5000 FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S.L.	FUEL FROM S.L. U.S.	FUEL FROM S.L. IMP.	S.L. to 9500 FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S.L.	FUEL FROM S.L. U.S.	FUEL FROM S.L. IMP.
1325	COMBAT																
	FERRY	56		455	2.5	56		270	14.2			57		100	40.6		
	COMBAT																
	FERRY																
	COMBAT																
	FERRY																

FERRY MISSIONS USE RPM & IN. HG

FT. ALT. BEST I.A.S. MPH	BEST I.A.S. KNOTS	FT/MIN	TIME FROM S.L.	FUEL FROM S.L. U.S.	FUEL FROM S.L. IMP.	BLOWER CHANGE

NOTE: INCREASED ELAPSED CLIMBING TIME % FOR EACH 10°C ABOVE 0°C FREE AIR TEMPERATURE (% FOR EACH 20°F ABOVE 32°F) FUEL INCLUDES WARM-UP AND TAKE-OFF ALLOWANCE

LANDING DISTANCE (IN FEET)

GROSS WEIGHT IN LBS.	BEST I. A. S. APPROACH MPH	BEST I. A. S. APPROACH KNOTS	HARD DRY SURFACE: AT SEA LEVEL TO CLEAR 50' OBJ.	AT SEA LEVEL GROUND ROLL	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND ROLL	AT 6,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND ROLL	FIRM DRY SOD: AT SEA LEVEL TO CLEAR 50' OBJ.	AT SEA LEVEL GROUND ROLL	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND ROLL	AT 6,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND ROLL	WET OR SLIPPERY: AT SEA LEVEL TO CLEAR 50' OBJ.	AT SEA LEVEL GROUND ROLL	AT 3,000 FT. TO CLEAR 50' OBJ.	AT 3,000 FT. GROUND ROLL	AT 6,000 FT. TO CLEAR 50' OBJ.	AT 6,000 FT. GROUND ROLL
1325	60	53	750	440																

NOTE: FOR GROUND TEMPERATURES ABOVE 35°C (95°F) INCREASE APPROACH I.A.S. 10% AND ALLOW 20% INCREASE IN GROUND ROLL.

REMARKS

LEGEND
I.A.S.: Indicated Air Speed
M.P.H.: Miles Per Hour
S.L.: Sea Level
U.S.: U. S. Gallons
IMP.: Imperial Gallons
NOTE: All Distances are Average

RED FIGURES HAVE NOT BEEN FLIGHT CHECKED

FORM ASC-511A

MODEL (S)
L-2,L-2A,L-2B &L-2M

FLIGHT OPERATION INSTRUCTION CHART

SHEET 1 OF 1 SHEETS

GR. WT. ..... TO ..... POUNDS

EXTERNAL LOAD ITEMS
NONE

CONDITION	R.P.M.	M.P. (IN. HG.)	BLOWER POSITION	MIXTURE POSITION	DURATION IN MIN.	U.S. G.P.H.	IMP. G.P.H.
TAKE-OFF	2300	F.T.	--	F.R.	--	545	454
MILITARY POWER							

ENGINE (S): Continental A-65-8

INSTRUCTIONS FOR USING CHART: Select figure in fuel column equal to or less than total amount of fuel in airplane. Move horizontally to the right or left and select a figure equal to or greater than the air miles to be flown. Vertically below and opposite desired cruising altitude read optimum cruising conditions. NOTES: (A) Avoid continuous cruising in Column I except in emergency. (B) Columns (II, III, IV & V) toward the right progressively give increase in range at sacrifice in speed. (C) Manifold Pressure (M.P.), Gallons Per Hour (G.P.H.), are approximate maximum values for reference. (D) For quick reference, take-off and military power data are listed in the upper left corner of chart.

ALTERNATE CRUISING CONDITIONS

(NO WIND) (NO RESERVE FUEL ALLOWANCE)

I NORMAL RATED (MAX. CONT.) RANGE IN AIR MILES				FUEL U.S. GALS. (3)	II RANGE IN AIR MILES		III RANGE IN AIR MILES		IV RANGE IN AIR MILES		FUEL IMP. GALS. (2)	V (MAX. RANGE) RANGE IN AIR MILES	
STATUTE		NAUTICAL			STATUTE	NAUTICAL	STATUTE	NAUTICAL	STATUTE	NAUTICAL		STATUTE	NAUTICAL
AT S.L.	AT 12,000	AT S.L.	AT 12,000										
				14	1/2 U.S. Gals. used for Warm-up and Climb to 1000 ft.								
228		198		13.5					227	240		303	263
169		147		10					205	178		224	194
135		118		8					164	143		180	156
101		88		6					123	107		135	117
68		59		4					82	71		90	78
34		30		2					41	36		45	39
	(at 2300 RPM)								(at 2150 RPM)			(at 2000 RPM)	

OPERATING DATA						(1) DENSITY ALT. IN FEET	OPERATING DATA						OPERATING DATA						OPERATING DATA						(1) DENSITY ALT. IN FEET	OPERATING DATA					
R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.		R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.	R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.		R.P.M.	I.A.S. M.P.H.	I.A.S. KNOTS	M.P. IN. Hg	U.S. G.P.H.	IMP. G.P.H.
						30000																			30000					
						25000																			25000					
						20000																			20000					
						15000																			15000					
						12000	Service Ceiling																		12000	Service Ceiling				
						9000																			9000					
2300	76	66	F.T.	4.45	3.71	6000													2150	68	59		3.24	2.7	6000	2000	59	51		2.7	2.25
2300	84	73	F.T.	4.87	4.06	3000													2150	76	66		3.65	3.04	3000	2000	67	58		3.0	2.5
2300	92	80	F.T.	5.45	4.54	S.L.													2150	83	72		405	338	S.L.	2000	74	64		3.3	2.75

LEGEND

(1) INDICATED ALTITUDE CORRECTED FOR FREE AIR TEMPERATURE.
(2) ALLOW 1/2 U. S. GALS. .41 IMP. GALS. FOR WARM UP, TAKE-OFF AND CLIMB TO 1000 FEET ALTITUDE
RETURN FUEL FLOWS TO TANK
USE FUEL FROM TANKS IN THE FOLLOWING ORDER

BOLD NUMBERS: Use Auto-Rich
LIGHT NUMBERS: Use Auto-Lean
WITH TWO SPEED BLOWER: Use high blower above heavy line only

I.A.S.: Indicated Air Speed
M.P.: Manifold Pressure (In. Hg)
U.S.G.P.H.: U. S. Gallons Per Hour
IMP.G.P.H.: Imperial Gallons Per Hour
F.T.: Full Throttle
S.L.: Sea Level

REFER TO "SPECIFIC ENGINE FLIGHT CHART" FOR ADDITIONAL ENGINE OPERATION DATA.

RED FIGURES ARE PRELIMINARY: SUBJECT TO REVISION AFTER FLIGHT CHECK