Cessna
SALES AND SERVICE

"TAKE YOUR CESSNA HOME
FOR SERVICE AT THE SIGN
OF THE CESSNA SHIELD".

CESSNA AIRCRAFT COMPANY
WICHITA, KANSAS

Cessna
SALES AND SERVICE

MODEL 150

FLOATPLANE

OWNER'S MANUAL SUPPLEMENT

PERFORMANCE SPECIFICATIONS

	FLOATPLANE
GROSS WEIGHT	1650 lbs
SPEED:	
Top Speed at Sea Level	103 mph
Cruise, 75% Power at 7000 ft	98 mph
RANGE:	
Cruise, 75% Power at 7000 ft	380 mi
21.5 Gallons, No Reserve	3.9 hrs
	98 mph
Cruise, 75% Power at 7000 ft	590 mi
33.5 Gallons, No Reserve	6.0 hrs
	98 mph
Optimum Range at 10,000 ft	425 mi
21.5 Gallons, No Reserve	5.5 hrs
	78 mph
Optimum Range at 10,000 ft	670 mi
33.5 Gallons, No Reserve	8.6 hrs
	78 mph
RATE OF CLIMB AT SEA LEVEL	560 fpm
SERVICE CEILING	10,700 ft
TAKE-OFF:	
Water Run	1310 ft
Total Distance Over 50-ft Obstacle	2075 ft
LANDING:	
Water Run	415 ft
Total Distance Over 50-ft Obstacle	850 ft
EMPTY WEIGHT: (Approximate)	
With Standard Fuel Tanks	1120 lbs
With Long Range Fuel Tanks	1125 lbs
WING LOADING: Pounds/Sq Foot	10.5
POWER LOADING: Pounds/HP	16.5
FUEL CAPACITY: Total	
Standard Tanks	26 gal.
Long Range Tanks	38 gal.
OIL CAPACITY: Total	6 qts
PROPELLER: Fixed Pitch (Diameter)	75 in.
ENGINE: Continental Engine	O-200-A
100 rated HP at 2750 RPM	
WING SPAN	32 ft, 8.5 in.
LENGTH	24 ft, 1 in.
HEIGHT	9 ft, 1 in.

TABLE OF CONTENTS

NOTE

ALL INFORMATION IN THIS SUPPLEMENT IS APPLICABLE TO BOTH 1967 AND 1968 MODEL 150 FLOATPLANES.

INTRODUCTION

This supplement, written especially for operators of the Cessna Model 150 floatplane, provides information not found in the 150 Owner's Manual. It contains procedures and data required for safe and efficient operation of the floatplane.

Information contained in the Owner's Manual for the 150 landplane, which is the same as that for the floatplane, is not repeated in this supplement.

The information provided here was compiled from tests with an airplane equipped with Edo Model 88A-1650 floats.

Section I

OPERATING CHECK LIST

BEFORE ENTERING THE FLOATPLANE.

(1) Inspect the floats for dents, cracks, scratches, etc.
(2) Remove the cover plates and inspect the floats for water, removing accumulation with a sponge or pump. Reinstall cover plates, tightening only enough for a snug fit.

BEFORE STARTING ENGINE.

(1) Operate and visually check water rudder for proper retraction and rudder action.
(2) Water Rudder -- Down for taxiing (retraction handle removed from stowage hook).

TAKE-OFF.

(1) Water Rudder -- Up (retraction handle secured on stowage hook).
(2) Set wing flaps 10°.
(3) Hold the control wheel full back and advance the throttle slowly.
(4) Place the airplane in a planing attitude (on the step) by slowly moving the control wheel forward when the nose has risen as high as it will go.
(5) As the airplane accelerates, apply light control wheel back pressure and allow the airplane to fly off smoothly.

NOTE

The recommended procedure for reducing the take-off water run is described in Section II under "Minimum Run Take-Off."

(6) Climb at 65-70 MPH IAS.

CLIMB.

The maximum rate of climb is obtained at full throttle and 69 MPH IAS (see the Take-Off and Maximum Rate-Of-Climb Data chart in Section IV) with wing flaps retracted. The best angle of climb is 60 MPH. With flaps 10°, these speeds are 67 MPH and 60 MPH, respectively.

BEFORE LANDING.

(1) Water Rudder -- Up.
(2) Maintain 60-65 MPH with wing flaps extended.

LANDING.

(1) Landing technique is conventional for all wing flap settings.

AFTER LANDING

(1) Water Rudder -- Down.

Section II

DESCRIPTION AND OPERATING DETAILS

THE FLOATPLANE.

The Cessna Model 150 floatplane is identical to the landplane with the following exceptions:

(1) Floats, incorporating a water rudder steering system, replace the landing gear. A water rudder retraction handle, connected to the water rudder by cables and springs, is located on the cabin floor.
(2) Additional fuselage structure is added to support the float installation.
(3) An additional structural "V" brace is installed between the top of the front door posts and the cowl deck.
(4) A ventral fin is installed on the bottom of the tailcone for additional directional stability.
(5) A rudder centering mechanism, which operates directly on the rudder, is installed.
(6) The airplane has additional corrosion-proofing and stainless steel control cables.
(7) The standard engine mount is replaced by a specially designed engine mount.
(8) The standard propeller is replaced with a propeller of larger diameter (75 inches) and flatter pitch (38 inches).
(9) An oil cooler is installed behind the left vertical cooling baffle.
(10) Hoisting provisions are added to the top of the fuselage.
(11) Floatplane placards are added.

WATER RUDDER STEERING SYSTEM.

The retractable water rudder is mounted at the aft end of the left float (dual water rudders are available as optional equipment) and is connected by a system of cables and springs to the airplane rudder control system. When the water rudder is extended, normal operation of the rudder pedals moves the water rudder to provide steering control for taxiing.

moves the water rudder to le ering contro or taxiing.

A water rudder retraction handle, located on the cabin floor between the front seats, is used to manually raise and lower the water rudder. During take-off, in flight, and landing, the retraction handle is normally secured on the stowage hook located on the cabin floor just aft of the control pedestal. With the handle in this position, the water rudder is up. When the handle is removed from the stowage hook and allowed to retract full aft, the water rudder extends to the full down position for taxiing.

TAXIING.

Taxi with water rudder down. It is best to limit the engine speed to 1000 RPM for normal taxi because water piles up in front of the float bow at higher engine speeds. Taxiing with higher engine RPM may result in engine overheating and will not appreciably increase the taxi speed.

For minimum taxi speed in close quarters, use idle RPM with full carburetor heat and a single magneto. This procedure is recommended for short periods of time only.

Although taxiing is very simple with the water rudder, it is sometimes necessary to "sail" the floatplane in close quarters. In addition to the normal flight controls, the wing flaps, cabin doors, and water rudder will aid in "sailing".

To taxi great distances, it may be advisable to taxi on the step with the water rudder retracted. Turns on the step may be made with safety providing they are not too sharp and if ailerons are used to counteract the overturning tendency.

TAKE-OFF.

NORMAL TAKE-OFF.

The use of 10° flaps throughout the take-off run is recommended. Take-off distances are given in Section IV.

Apply full throttle smoothly and hold the control wheel full back. After the nose has risen as high as it will go, lower it gradually by moving the control wheel forward. Slow control movement and light control pressures produce the best results. Attempts to force the airplane into the planing attitude will generally result in loss of speed and delay in getting on the step. The airplane will assume a planing attitude which permits acceleration to take-off speed (40 to 45 MPH IAS) at which time the airplane will fly off smoothly.

MINIMUM RUN TAKE-OFF.

To shorten the take-off water run, the following procedure is recommended: Start the take-off with the wing flaps in the up position. When the airplane has attained a planing attitude, lower the wing flaps to approximately 20°. Care should be taken to maintain the proper nose attitude, rather than concentrate on exact positioning of the wing flaps. When the airplane has accelerated to take-off speed (40-45 MPH IAS), it will fly off smoothly. The wing flaps should be retracted slowly to 10° or less while accelerating to a 60 MPH climb speed. With glassy water conditions, extreme caution should be observed to avoid a loss of altitude during flap retraction.

An alternate technique of raising one float out of the water may also be used. With the airplane in the planing attitude, apply full aileron to raise one float out of the water. When one float leaves the water, apply slight elevator back pressure to complete the take-off. Care must be taken to stop the rising wing as soon as the float is clear of the water, and in crosswinds, raise only the downwind wing. With one float out of the water, the airplane accelerates to take-off speed almost instantly.

Regardless of the take-off procedure used, optimum take-off performance is obtained by using smooth control movements and light control pressures. Pulling off abruptly for take-off will usually drag the heel of the floats, resulting in an unsuccessful lift-off.

CROSSWIND TAKE-OFF.

Start the take-off run with wing flaps up and the water rudder extended (for better directional control). After the airplane is on the step, raise the water rudder, extend flaps 10°, and execute a normal take-off.

ROUGH WATER TAKE-OFF.

The use of 20° wing flaps throughout the take-off run is recommended. While on the step, maintain a nose attitude slightly higher than that used

in a normal take-off so that the bow will be well up out of the water. When the airplane reaches take-off speed, it will fly off smoothly. The wing flaps should be retracted slowly to 10° (or less) while accelerating to a normal climb speed.

CLIMB.

The best rate of climb is obtained at 69 MPH IAS (refer to Maximum Rate-Of-Climb Data in Section IV) with the wing flaps up and full throttle. Full rich mixture is used below 5000 feet for better engine cooling. For obstruction clearance with 10° flaps, climb at 60 MPH IAS. Such climbs should be of short duration due to reduced cooling at less than best rate-of-climb speeds.

In a balked landing (go-around) climb, retract wing flaps immediately to 20°; then retract flaps slowly while accelerating to a safe climb speed.

CRUISE.

Normal cruising is done between 65% and 75% power. The engine speeds required to obtain these powers at various altitudes can be determined from the cruise performance charts in Section IV.

Operating the engine at the engine speeds defined by the individual "stepped" green arcs on the tachometer is also helpful in setting up a cruise power. The cruise powers developed (with the seaplane propeller) at the top of the individual green arcs are 73%, 71%, and 68%, respectively, for the inner, middle, and outer arcs.

Section III

OPERATING LIMITATIONS

OPERATIONS AUTHORIZED.

Your Cessna exceeds the requirements for airworthiness as set forth by the United States Government, and is certificated under FAA Type Certificate No. 3A19.

With standard equipment, the floatplane is approved for day and night operation under VFR. Additional optional equipment is available to increase its utility and to make it authorized for use under IFR day and night.

Your floatplane must be operated in accordance with all FAA-approved markings, placards and check lists in the floatplane. If there is any information in this section which contradicts the FAA-approved markings, placards and check lists, it is to be disregarded.

MANEUVERS - UTILITY CATEGORY.

This floatplane is not designed for purely aerobatic flight. However, in the acquisition of various certificates such as commercial pilot, instrument pilot and flight instructor, certain maneuvers are required by the FAA. All of these maneuvers are permitted in the utility category. In connection with the foregoing, the following gross weight and flight load factors apply, with maximum entry speeds for maneuvers as shown:

Gross Weight	1650 lbs	
Flight Maneuvering Load Factor, *Flaps Up . . .	+4.4	-1.76
Flight Maneuvering Load Factor, *Flaps Down .	+3.5	

*The design load factors are 150% of the above, and in all cases, the structure meets or exceeds design loads.

No aerobatic maneuvers are approved except those listed below:

MANEUVER	MAXIMUM ENTRY SPEED
Chandelles	109 MPH (95 knots)
Lazy Eights	109 MPH (95 knots)
Steep Turns	109 MPH (95 knots)
Spins . . .	Use Slow Deceleration
Stalls . . .	Use Slow Deceleration

During prolonged spins, the engine may stop; however, spin recovery is not adversely affected by engine stoppage. Intentional spins with wing flaps extended are prohibited.

Aerobatics that may impose high inverted loads should not be attempted. Proper speed control is an essential requirement for execution of any maneuver, and care should always be exercised to avoid excessive speed which in turn can impose excessive loads. In the execution of all maneuvers, avoid abrupt use of controls.

AIRSPEED LIMITATIONS.

The following are the certificated calibrated airspeed limits for your Cessna:

Maximum (Glide or dive, smooth air)	. . . 162 MPH (red line)
Caution Range	120-162 MPH (yellow arc)
Normal Range	56-120 MPH (green arc)
Flap Operating Range	49-100 MPH (white arc)
Maneuvering Speed*	. . . . . 109 MPH

*The maximum speed at which you can use abrupt control travel without exceeding the design load factor.

WEIGHT AND BALANCE.

The following information will enable you to operate your floatplane within the prescribed weight and center of gravity limitations.

The loading instructions given in the Owner's Manual for the landplane should be used as a guide when figuring floatplane weight and balance problems. In conjunction with these instructions, use the Sample Problem, Loading Graph and Center of Gravity Moment Envelope in this supplement.

When floats have been installed by anyone other than the factory, the Repair and Alteration Form FAA-337 must be consulted for the proper weight and balance information.

SAMPLE LOADING PROBLEM

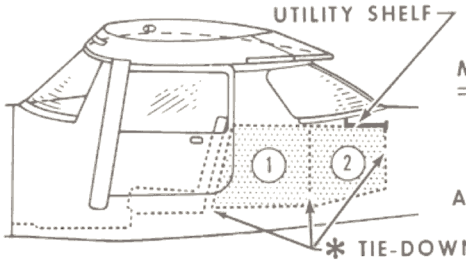
FLOATPLANE

	Sample Airplane		Your Airplane	
	Weight (lbs)	Moment (lb-ins. /1000)	Weight	Moment
1. Licensed Empty Weight (Sample Airplane)	1170	39.3		
2. Oil - 6 Qts.*	11	-0.1	11	-0.1
3. Pilot & Passenger	340	13.3		
4. Fuel - Std. Tanks (21.5 Gal at 6#/Gal)	129	5.4		
5. Baggage-Area 1 (or children on child's seat)	0	0.0		
6. Baggage-Area 2	0	0.0		
7. Total Aircraft Weight (Loaded)	1650	57.9		

8. Locate this point (1650 at 57.9) on the center of gravity envelope and since this point falls within envelope the loading is acceptable.

*Note; Normally full oil may be assumed for all flights.

BAGGAGE LOADING AND TIE-DOWN

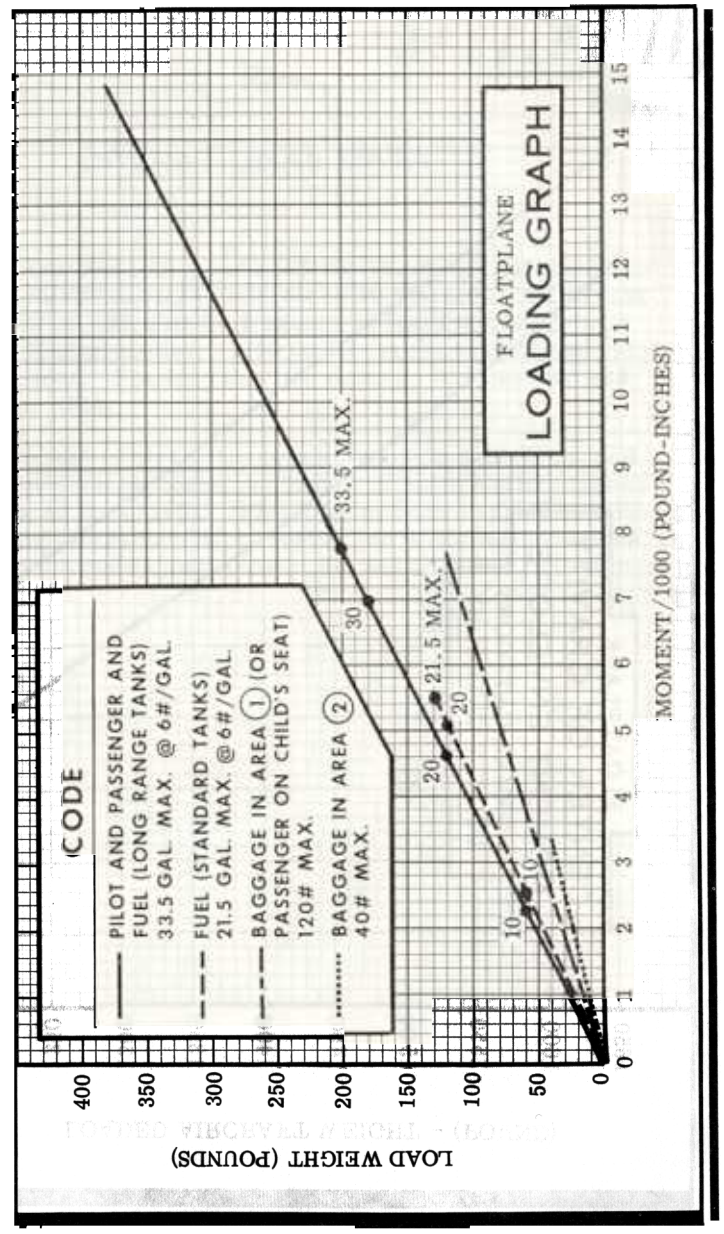


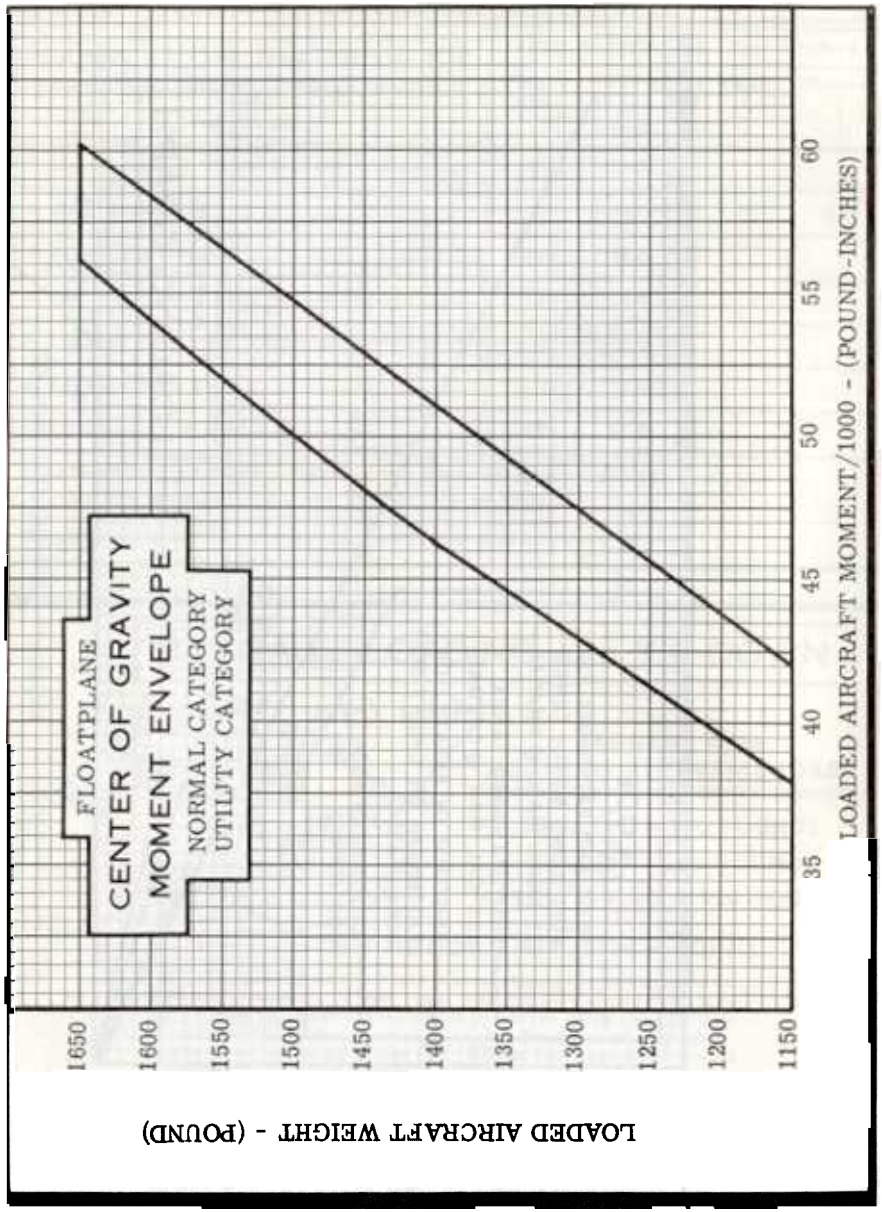
BAGGAGE AREA
MAXIMUM ALLOWABLE LOADS

AREA (1) = 120 POUNDS
AREA (2) = 40 POUNDS
AREAS (1) + (2) = 120 POUNDS

* A cargo tie-down net is provided to secure baggage in the baggage area. The net attaches to six tie-down rings. Two rings are located on the floor just aft of the seat backs and one ring is located two inches above the floor on each cabin wall at the aft end of area (1). Two additional rings are located at the top, aft end of area (2). At least four rings should be used to restrain the maximum baggage load of 120#.

If the airplane is equipped with an optional utility shelf, it should be removed prior to loading and tying down large baggage items. (Slide the tab of the locking clips on each end of the shelf inboard to disengage the shelf from the aircraft structure.) After baggage is loaded and secured, either stow the shelf or, if space permits, install it for storing small articles.





Section IV

OPERATIONAL DATA

In the Cruise Performance Chart, figure 4-4, range and endurance are given for lean mixture, from 2500 feet to 10, 000 feet. All figures are based on zero wind, 21. 5 or 33. 5 gallons of fuel for cruise, a McCauley 1A90CF7538 propeller, 1650 pounds gross weight, and standard atmospheric conditions. For lean mixture figures, the mixture was leaned to maximum RPM.

Allowances for fuel reserve, headwinds, take-off and climb, and variations in mixture leaning technique should be made and are in addition to those shown on the charts. Other indeterminate variables such as carburetor metering-characteristics, engine and propeller conditions, and turbulence of the atmosphere may account for variations of 10% or more in maximum range.

AIRSPEED CORRECTION TABLE

FLOATPLANE

	IAS	40	50	60	70	80	90	100	110	120	130
FLAPS UP	CAS	50	57	64	72	80	89	98	107	116	126
FLAPS DOWN	CAS	48	56	64	72	80	89	98	•	•	•

Figure 4-1

FLOATPLANE

STALLING SPEEDS

POWER OFF — AFT CENTER OF GRAVITY

GROSS WEIGHT 1650 LBS. CONFIGURATION	ANGLE OF BANK 0°	20°	40°	60°
FLAPS UP	54	56	62	77
FLAPS 20°	50	52	57	71
FLAPS 40°	48	50	55	68

SPEEDS ARE MPH, CAS

Figure 4-2.

FLOATPLANE

TAKE-OFF DISTANCE — TAKE-OFF DISTANCE WITH 10° FLAPS FROM SHELTERED WATER

GROSS WT. LBS.	IAS 50 FT. MPH	HEAD WIND KNOTS	AT SEA LEVEL & 59°F. WATER RUN	AT SEA LEVEL & 59°F. TOTAL TO CLEAR 50 FT. OBS	AT 2500 FT. & 50°F. WATER RUN	AT 2500 FT. & 50°F. TOTAL TO CLEAR 50 FT. OBS	AT 5000 FT. & 41°F. WATER RUN	AT 5000 FT. & 41°F. TOTAL TO CLEAR 50 FT. OBS	AT 7500 FT. & 32°F. WATER RUN	AT 7500 FT. & 32°F. TOTAL TO CLEAR 50 FT. OBS
1650	60	0	1310	2075	1830	2750	2585	3730	4300	5955
		5	1050	1735	1480	2310	2105	3140	3535	5035
		10	815	1420	1165	1900	1675	2600	2840	4185

NOTE: Increase distance 10% for each 25°F increase in temperature above standard.

FLOATPLANE

MAXIMUM RATE-OF-CLIMB DATA — FLAPS UP

GROSS WT. LBS.	AT SEA LEVEL & 59° F. IAS, MPH	AT SEA LEVEL & 59° F. RATE OF CLIMB FT./MIN.	AT SEA LEVEL & 59° F. FUEL USED GAL.	AT 5000 FT. & 41° F. IAS, MPH	AT 5000 FT. & 41° F. RATE OF CLIMB FT./MIN.	AT 5000 FT. & 41° F. FUEL USED FROM S.L.,GAL.	AT 10,000 FT. & 23° F. IAS, MPH	AT 10,000 FT. & 23° F. RATE OF CLIMB FT./MIN.	AT 10,000 FT. & 23° F. FUEL USED FROM S.L.,GAL.
1650	69	560	0.8	63	345	2.1	56	130	4.3

NOTES: 1. Full throttle, mixture leaned to smooth operation above 5000 ft.
2. Fuel used includes warm-up and take-off allowances.

FLOATPLANE

LANDING DISTANCE — 40° FLAPS • POWER OFF • SHELTERED WATER • ZERO WIND

GROSS WT. LBS.	APPROACH SPEED, IAS, MPH	AT SEA LEVEL & 59°F. WATER RUN	AT SEA LEVEL & 59°F. TOTAL TO CLEAR 50 FT. OBS	AT 2500 FT. & 50° F. WATER RUN	AT 2500 FT. & 50° F. TOTAL TO CLEAR 50 FT. OBS	AT 5000 FT. & 41°F. WATER RUN	AT 5000 FT. & 41°F. TOTAL TO CLEAR 50 FT. OBS	AT 7500 FT. & 32°F. WATER RUN	AT 7500 FT. & 32°F. TOTAL TO CLEAR 50 FT. OBS
1650	60	415	850	435	895	460	945	485	995

NOTES: 1. Decrease distance shown 10% for each 4 knots of headwind.
2. Increase distance shown 10% for each 60°F temperature increase above standard.

Figure 4-3.

CRUISE PERFORMANCE
FLOATPLANE

LEAN MIXTURE

Standard Conditions ↘ Zero Wind ↘ Gross Weight - 1650 Pounds

ALTITUDE	RPM	% BHP	TAS MPH	GAL/ HOUR	21.5 GAL (NO RESERVE) ENDR. HOURS	21.5 GAL (NO RESERVE) RANGE MILES	33.5 GAL (NO RESERVE) ENDR. HOURS	33.5 GAL (NO RESERVE) RANGE MILES
2500	2750	85	102	6.4	3.4	345	5.3	540
	2700	80	99	6.0	3.6	355	5.6	555
	2600	72	93	5.4	4.0	370	6.2	580
	2500	64	86	4.8	4.5	385	6.9	600
	2400	57	80	4.3	5.0	395	7.7	620
	2300	50	74	3.9	5.6	410	8.7	640
	2200	44	68	3.4	6.3	425	9.8	660
5000	2750	79	100	5.9	3.7	365	5.7	565
	2700	75	96	5.6	3.9	370	6.0	580
	2600	67	90	5.0	4.3	385	6.7	600
	2500	60	84	4.5	4.8	400	7.4	620
	2400	53	77	4.1	5.3	410	8.3	640
	2300	46	71	3.6	6.0	425	9.3	660
7500	2750	73	97	5.5	3.9	380	6.1	590
	2700	69	93	5.2	4.1	385	6.4	600
	2600	62	87	4.7	4.6	400	7.1	620
	2500	55	81	4.2	5.1	410	7.9	640
	2400	49	75	3.8	5.7	425	8.9	660
10,000	2750	68	93	5.1	4.2	395	6.6	615
	2700	64	90	4.8	4.4	400	6.9	625
	2600	58	84	4.4	4.9	415	7.7	645
	2500	51	78	3.9	5.5	425	8.6	670

NOTES:
1. Maximum cruise is normally limited to 75% power.
2. In the above calculations of endurance in hours and range in miles, no allowances were made for take-off or reserve.

Figure 4-4.