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1970

WORLD'S LARGEST PRO-
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AVIATION AIRCRAFT
SINCE 1956

SKYWAGON
180

OWNER'S
MANUAL

1969



SKYWAGON
180

FLOATPLANE
AMPHIBIAN
AND
SKIPLANE

OWNER'S MANUAL SUPPLEMENT

D710-13-RPC-150-10/84

PERFORMANCE - SPECIFICATIONS

Skywagon 180 *

GROSS WEIGHT	2800 lbs
SPEED:	
Top Speed at Sea Level	170 mph
Cruise, 75% Power at 6500 ft	162 mph
RANGE:	
Cruise, 75% Power at 6500 ft	695 mi
60 Gallons, No Reserve	4.3 hrs
	162 mph
Cruise, 75% Power at 6500 ft	925 mi
79 Gallons, No Reserve	5.7 hrs
	162 mph
Optimum Range at 10,000 ft	925 mi
60 Gallons, No Reserve	7.6 hrs
	121 mph
Optimum Range at 10,000 ft	1215 mi
79 Gallons, No Reserve	10.0 hrs
	121 mph
RATE OF CLIMB AT SEA LEVEL	1090 fpm
SERVICE CEILING	19,600 ft
TAKE-OFF:	
Ground Run	625 ft
Total Distance Over 50-Foot Obstacle	1205 ft
LANDING:	
Ground Roll	480 ft
Total Distance Over 50-Foot Obstacle	1365 ft
STALL SPEEDS:	
Flaps Up, Power Off	65 mph
Flaps Down, Power Off	58 mph
EMPTY WEIGHT (Approximate)	1545 lbs
USEFUL LOAD (Approximate)	1255 lbs
BAGGAGE (Total Capacity)	400 lbs
WING LOADING: Pounds/Sq Foot	16.1
POWER LOADING: Pounds/HP	12.2
FUEL CAPACITY: Total	
Standard Tanks	65 gal.
Optional Long Range Tanks	84 gal.
OIL CAPACITY: Total	12 qts
PROPELLER: Constant Speed (Diameter)	82 inches
ENGINE:	
Continental Engine	O-470-R
230 rated HP at 2600 RPM	

PERFORMANCE - SPECIFICATIONS



FLOATPLANE (Edo Model 249A - 2870 Floats)	FLOATPLANE (Edo Model 628 - 2960 Floats)	AMPHIBIAN (Edo Model 597 - 2790 Floats)	SKIPLANE (FluiDyne Model C-3200 and CT-3600 Skis)
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GROSS WEIGHT	2820 lbs	2950 lbs	2950 lbs	2800 lbs
SPEED:				
Top Speed at Sea Level	149 mph	149 mph	149 mph	149 mph
Cruise, 75% Power at 6500 ft	147 mph	147 mph	147 mph	144 mph
RANGE:				
Cruise, 75% Power at 6500 ft	630 mi	630 mi	630 mi	620 mi
60 Gallons, No Reserve	4.3 hrs	4.3 hrs	4.3 hrs	4.3 hrs
	147 mph	147 mph	147 mph	144 mph
Cruise, 75% Power at 6500 ft	835 mi	835 mi	835 mi	820 mi
79 Gallons, No Reserve	5.7 hrs	5.7 hrs	5.7 hrs	5.7 hrs
	147 mph	147 mph	147 mph	144 mph
Optimum Range at 10,000 ft	895 mi	830 mi	830 mi	725 mi
60 Gallons, No Reserve	8.1 hrs	7.2 hrs	7.2 hrs	7.2 hrs
	110 mph	114 mph	114 mph	101 mph
Optimum Range at 10,000 ft	1175 mi	1090 mi	1090 mi	955 mi
79 Gallons, No Reserve	10.7 hrs	9.5 hrs	9.5 hrs	9.5 hrs
	110 mph	114 mph	114 mph	101 mph
RATE OF CLIMB AT SEA LEVEL	1075 fpm	990 fpm	990 fpm	990 fpm
SERVICE CEILING	17,000 ft	16,000 ft	16,000 ft	16,000 ft
TAKE-OFF:				
Water Run or Ground Run	1145 ft	1280 ft	On Land 1360 ft	On Water 1280 ft
Total Distance Over 50-Foot Obstacle	1860 ft	2070 ft	2185 ft	2070 ft
LANDING:				
Water Run or Ground Run	700 ft	735 ft	1025 ft	735 ft
Total Distance Over 50-Foot Obstacle	1670 ft	1720 ft	1490 ft	1720 ft
EMPTY WEIGHT (Approximate)	1840 lbs	1855 lbs	2100 lbs	1690 lbs
BAGGAGE (Cabin Area)	350 lbs	350 lbs	350 lbs	350 lbs
AFT BAGGAGE	50 lbs	50 lbs	50 lbs	50 lbs
WING LOADING: Pounds/Sq Foot	16.2	17.0	17.0	16.1
POWER LOADING: Pounds/HP	12.3	12.8	12.8	12.2
FUEL CAPACITY: Total				
Standard Tanks	65 gal.	65 gal.	65 gal.	65 gal.
Optional Long Range Tanks	84 gal.	84 gal.	84 gal.	84 gal.
OIL CAPACITY: Total	12 qts	12 qts	12 qts	12 qts
PROPELLER: Constant Speed (Diameter)	88 in.	88 in.	88 in.	82 in.
ENGINE:				
Continental Engine	O-470-R	O-470-R	O-470-R	O-470-R
230 rated HP at 2600 RPM				
WING SPAN	36 ft, 2 in.	36 ft, 2 in.	36 ft, 2 in.	36 ft, 2 in.
LENGTH	27 ft	27 ft	27 ft, 6 in.	25 ft, 6 in.
HEIGHT	12 ft	12 ft	12 ft, 6 in.	7 ft, 9 in.

* This manual covers operation of the Skywagon 180 which is certificated as Model 180H under FAA Type Certificate No. 5A6.

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OPERATING CHECK LIST

One of the first steps in obtaining the utmost performance, service, and flying enjoyment from your Cessna is to familiarize yourself with your airplane's equipment, systems, and controls. This can best be done by reviewing this equipment while sitting in the airplane. Those items whose function and operation are not obvious are covered in Section II.

Section I lists, in Pilot's Check List form, the steps necessary to operate your airplane efficiently and safely. It is not a check list in its true form as it is considerably longer, but it does cover briefly all of the points that you should know for a typical flight.

The flight and operational characteristics of your airplane are normal in all respects. There are no "unconventional" characteristics or operations that need to be mastered. All controls respond in the normal way within the entire range of operation. All airspeeds mentioned in Sections I, II and III are indicated airspeeds. Corresponding calibrated airspeeds may be obtained from the Airspeed Correction Table in Section VI.

BEFORE ENTERING THE AIRPLANE.

- (1) Make an exterior inspection in accordance with figure 1-1.

BEFORE STARTING THE ENGINE.

- (1) Seats and Seat Belts -- Adjust and lock.
- (2) Brakes -- Test and set.
- (3) Radios and Electrical Equipment -- "OFF."
- (4) Fuel Selector Valve -- "BOTH ON."
- (5) Wing Flaps -- Check all positions.
- (6) Cowl Flaps -- "OPEN." (Move lever out of locking detent to reposition.)

FLOATPLANE

OPERATING CHECK LIST

BEFORE ENTERING THE FLOATPLANE.

- (1) Inspect the floats and fairings for dents, cracks, scratches, etc.
- (2) Remove rubber balls (which serve as a stopper on the standpipe in each float compartment) and pump out any accumulation of water. Reinstall rubber balls with enough pressure for a snug fit.

BEFORE STARTING ENGINE.

- (1) Operate and visually check the water rudders for proper retraction and rudder action.
- (2) Water Rudders -- Down for taxiing.

TAKE-OFF.

- (1) Water Rudders -- Up.
- (2) Set wing flaps 20° (second notch).
- (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 bow wave moves aft of the wing strut position.
- (5) As the airplane accelerates, apply light control wheel back pressure and allow the airplane to fly off smoothly.

NOTE

To reduce take-off water run, the technique of raising one float out of the water may be used. This procedure is described on page 1-5 under paragraph "Normal Take-Off."

- (6) Climb out at 75-85 MPH. With obstacles ahead, climb at 65 MPH.

STARTING ENGINE.

- (1) Master Switch -- "ON."
- (2) Carburetor Heat -- Cold.
- (3) Mixture -- Rich.
- (4) Primer -- As required.
- (5) Propeller -- High RPM.
- (6) Throttle -- Cracked (one-half inch).
- (7) Propeller Area -- Clear.
- (8) Ignition Switch -- "START" (hold until engine fires, but not longer than 30 seconds).
- (9) Ignition Switch -- Release to "BOTH" (immediately after engine fires).

NOTE

If engine has been overprimed, start with throttle open 1/4 to 1/2 full open. Reduce throttle to idle when engine fires.

NOTE

After starting, check for oil pressure indication within 30 seconds in normal temperatures and 60 seconds in cold temperatures. If no indication appears, shut off engine and investigate.

BEFORE TAKE-OFF.

- (1) Parking Brake -- Set.
- (2) Fuel Selector Valve -- "BOTH ON."
- (3) Flight Controls -- Check for free and correct movement.
- (4) Stabilizer and Optional Rudder Trim Control Wheels -- Take-off settings.
- (5) Cowl Flaps -- Check full "OPEN."
- (6) Throttle Setting -- 1700 RPM.
- (7) Magnetos -- Check (50 RPM maximum differential between magnetos).
- (8) Propeller -- Cycle from high to low RPM; return to high RPM (full in).
- (9) Carburetor Heat -- Check operation.

CLIMB.

The maximum rate of climb is obtained with flaps retracted at full throttle, 2600 RPM and 83 MPH (see Maximum Rate-Of-Climb Data chart, figure 1-7).

BEFORE LANDING.

- (1) Water Rudders -- Up.
- (2) Maintain 75-85 MPH with wing flaps extended.

LANDING.

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

AFTER LANDING.

- (1) Water Rudders -- Down.

- (10) Engine Instruments -- Check.
- (11) Suction Gage -- Check (4.6 to 5.4 inches of mercury).
- (12) Ammeter -- Check.
- (13) Throttle -- Closed (check idle).
- (14) Flight Instruments and Radios -- Set.
- (15) Optional Autopilot or Wing Leveler -- "OFF."
- (16) Cabin Doors and Windows -- Closed and locked.
- (17) Parking Brake -- Release.

TAKE-OFF.

NORMAL TAKE-OFF.

- (1) Wing Flaps -- Up.
- (2) Carburetor Heat -- Cold.
- (3) Power -- Full throttle and 2600 RPM.
- (4) Elevator Control -- Maintain moderately tail-low attitude.
- (5) Climb Speed -- 95 MPH.

MAXIMUM PERFORMANCE TAKE-OFF.

- (1) Wing Flaps -- 20°.
- (2) Carburetor Heat -- Cold.
- (3) Brakes -- Apply.
- (4) Power -- Full throttle and 2600 RPM.
- (5) Brakes -- Release.
- (6) Elevator Control - Maintain slightly tail-low attitude.
- (7) Climb Speed -- 61 MPH until all obstacles are cleared, then set up climb speed as shown in "MAXIMUM PERFORMANCE CLIMB."
- (8) Wing Flaps -- Up after obstacles are cleared.

CLIMB.

NORMAL CLIMB.

- (1) Airspeed -- 100 to 120 MPH.
- (2) Power -- 23 inches and 2450 RPM.
- (3) Fuel Selector Valve -- "BOTH ON."

DESCRIPTION AND OPERATING DETAILS

THE FLOATPLANE.

The 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 rudders by cables and springs, is located on the cabin floor tunnel.
- (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) The airplane has additional corrosion-proofing and stainless steel cables.
- (5) On aircraft with Edo Model 628-2960 floats, the standard air-speed indicator is replaced with an indicator having a recalibrated airspeed indicator dial. (The standard landplane airspeed indicator dial is utilized on aircraft with Edo Model 249A-2870 floats.)
- (6) The standard propeller is replaced with a propeller of larger diameter (88 inches).
- (7) A reinforced engine mount replaces the standard engine mount.
- (8) Cowl flap stops are installed to maintain a slight opening of the cowl flaps for increased engine cooling.
- (9) Hoisting provisions are added to the top of the fuselage.
- (10) Floatplane placards are added.
- (11) Fueling steps and assist handles are mounted on the forward fuselage, and steps are mounted on the wing struts to aid in refueling the airplane. Inboard fuel fillers are added when long range fuel tanks are installed.

NOTE

A reduction of approximately five gallons of usable fuel in each tank will result when inboard fillers are used to fill the long range fuel tanks.

WATER RUDDER STEERING SYSTEM.

Retractable water rudders, mounted at the aft end of each float, are

- (4) Mixture -- Full rich (unless engine is rough).
- (5) Cowl Flaps -- Open as required.

MAXIMUM PERFORMANCE CLIMB.

- (1) Airspeed -- 95 MPH (sea level) to 87 MPH (10,000 feet).
- (2) Power -- Full throttle and 2600 RPM.
- (3) Fuel Selector Valve -- "BOTH ON."
- (4) Mixture -- Full rich (unless engine is rough).
- (5) Cowl Flaps -- Full "OPEN."

CRUISING.

- (1) Engine Power -- 15 - 23 inches of manifold pressure and 2200-2450 RPM.
- (2) Cowl Flaps -- Adjust to maintain normal cylinder head temperature.
- (3) Stabilizer and Optional Rudder Trim Control Wheels -- Adjust.
- (4) Mixture -- Lean.

LET-DOWN.

- (1) Mixture -- Rich.
- (2) Power -- As desired.
- (3) Carburetor Heat -- Apply (if icing conditions exist).

BEFORE LANDING.

- (1) Mixture -- Rich.
- (2) Fuel Selector Valve -- "BOTH ON."
- (3) Cowl Flaps -- "CLOSED."
- (4) Carburetor Heat -- Apply before closing throttle.
- (5) Propeller -- High RPM.
- (6) Airspeed -- 80 to 90 MPH (flaps retracted).
- (7) Wing Flaps -- 0° to 40° (below 110 MPH).
- (8) Airspeed -- 70 to 80 MPH (flaps extended).
- (9) Stabilizer and Optional Rudder Trim Control Wheels -- Adjust for landing.

connected by a system of cables and springs to the airplane rudder pedals. When the water rudders are extended, normal pedal operation moves the water rudders to provide steering control for taxiing.

A water rudder retraction handle, located on the cabin floor tunnel, is used to manually raise and lower the water rudders. During take-off, landing, and in flight, the retraction handle is normally full aft in the "RETRACT" position. With the handle in this position, the water rudders are up. When the handle is moved full forward to the "EXTEND" position, the water rudders are down.

The retraction handle incorporates a spring-loaded catch device located near the cross-bar at the end of the handle. The catch is designed to latch over a locking pin when the retraction handle is pulled aft to "RETRACT," thereby securing the handle in the retracted position.

Pulling the exposed end of the retraction handle catch aft, while pushing downward slightly on the retraction handle with the right hand, will release the handle from the retraction locking pin. The handle then can be rotated full forward to extend the water rudders for taxiing.

TAXIING.

Taxi with water rudders 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 rudders, 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 rudders will aid in "sailing."

To taxi great distances, it may be advisable to taxi on the step with the water rudders 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.

NOTE

The ability of the airplane to land three-point is dependent upon the stabilizer being adjusted for hands-off trim in the glide.

BALKED LANDING (GO-AROUND).

- (1) Throttle -- Full "OPEN."
- (2) Carburetor Heat -- Cold.
- (3) Wing Flaps -- Retract to 20°.
- (4) Upon reaching an airspeed of approximately 65 MPH, retract flaps slowly.

NORMAL LANDING.

- (1) Landing Technique -- Conventional for all flap settings.

AFTER LANDING.

- (1) Wing Flaps -- Retract.
- (2) Carburetor Heat -- Cold.
- (3) Cowl Flaps -- "OPEN."

SECURING AIRCRAFT.

- (1) Parking Brake -- Set.
- (2) Radios and Electrical Equipment -- "OFF."
- (3) Mixture -- Idle cut-off (pulled full out.)

NOTE

Do not open throttle as engine stops since this actuates the accelerator pump.

- (4) Ignition and Master Switch -- "OFF."
- (5) Control Lock -- Installed.

TAKE-OFF.

NORMAL TAKE-OFF.

The use of 20° wing flaps (second notch) throughout the take-off run is recommended. Take-off distances are given on figure 1-6.

Apply full throttle smoothly and hold the control wheel full back. Watch the point where the bow wave leaves the float and move the control wheel forward slowly as this point moves aft of the wing strut. 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 (50 to 60 MPH) at which time the airplane will fly off smoothly.

If lift off is difficult due to high lake elevation or glassy water, the following procedure is recommended: With the airplane in the planing position, 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.

If porpoising is encountered while on the step, apply additional control wheel back pressure to correct the excessively nose-low attitude.

CROSSWIND TAKE-OFF.

Start the take-off run with flaps up and water rudders extended for better directional control. Flaps are extended to 20° and the water rudders are retracted when the airplane is on the step; the remainder of the take-off is normal. If the floats are lifted from the water one at a time, the down-wind float should be lifted first.

CLIMB.

Normal climbs are conducted at 90-110 MPH with wing flaps up and cowl flaps opened as required for engine cooling. If optimum flaps-up climb performance is desired, climb at 83 MPH at sea level with full throttle and 2600 RPM. Reduce this climb speed about 1/2 MPH for each 1000 feet above sea level.

To climb steeply over an obstacle with wing flaps retracted, use an obstacle clearance speed of 70 MPH.

NOTE

Steep climbs at these low speeds should be of short duration to improve engine cooling.

To clear an obstacle after take-off with 20° wing flaps, use an obstacle clearance speed of 65 MPH. Upon reaching a safe altitude and airspeed, retract the wing flaps slowly, especially when flying over glassy water, because a loss of altitude is not very apparent over such a surface.

CRUISE.

Observe the same engine speed limits as for the landplane. Speed, range and endurance are shown on the Cruise Performance charts, figure 1-8.

NOTE

Range and endurance figures must be reduced to allow for a reduction of approximately five gallons of usable fuel in each tank when inboard fillers are used to fill the long range fuel tanks.

LANDING.

Power-off landings may be made with any wing flap setting. However, with glassy water it is recommended that a power approach and landing be made with 0° - 20° wing flaps to maintain a low rate of descent.

OPERATING LIMITATIONS

MAXIMUM GROSS WEIGHT.

Floatplane with Edo Model 249A-2870 Floats	2820 lbs
Floatplane with Edo Model 628-2960 Floats	2950 lbs

AIRSPED INDICATOR MARKINGS.

The following is a list of the certificated calibrated airspeed markings (CAS) for the floatplane with Edo Model 628-2960 floats. Indicator markings for the floatplane with Edo Model 249A-2870 floats are found in the landplane Owner's Manual.

Never Exceed (glide or dive, smooth air)	164 MPH (red line)
Caution Range	130-164 MPH (yellow arc)
Normal Operating Range	64-130 MPH (green arc)
Flap Operating Range	55-100 MPH (white arc)

WEIGHT AND BALANCE.

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

In figuring your loading problems, be certain that you use the Licensed Empty Weight of your particular floatplane as shown on its Weight and Balance Data sheet. This sheet, plus an Equipment List, is included with each floatplane as it leaves the factory. When the floats have been installed by anyone other than the factory, the Repair and Alteration Form FAA-337 must be consulted for proper weight and balance information.

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 Seating-Cargo Arrangements Diagram and Cabin Stations Diagram in the Owner's Manual and the Sample Problem, Loading Graph and Center of Gravity Moment Envelope in this supplement.

SAMPLE LOADING PROBLEM

FLOATPLANE

1. Licensed Empty Weight (Sample Airplane)
2. Oil (12 qts. - Full oil may be assumed for all flights.)
3. Fuel (60 gal. @ 6 lbs./gallon)
- Fuel (Long Range - 79 gal. @ 6 lbs./gallon)
4. Pilot and Copilot
5. Center Passengers (6-place version)
- Aft Passengers IV (6-place version)
- Rear Passengers V (4-place version)
6. Baggage V *
- Cargo "A" *
- Cargo "B" *
- Cargo "C" *
- Cargo "D" *
- Aft Baggage *

7. TOTAL WEIGHT AND MOMENT

8. Locate this point (2950 at 126.6) on the center of gravity moment envelope, and since this point falls within the envelope, the loading is acceptable.

* Refer to the seating and cargo arrangements diagram in the Owner's Manual for maximum allowable weights in these areas.

SAMPLE AIRPLANE		YOUR AIRPLANE	
Weight (lbs.)	Moment (lb. - ins. /1000)	Weight (lbs.)	Moment (lb. - ins. /1000)
1975	77.7		
22	-0.3	22	-0.3
360	17.3		
340	12.2		
170	11.9		
83	7.8		
2950	126.6		

Figure 1-1.

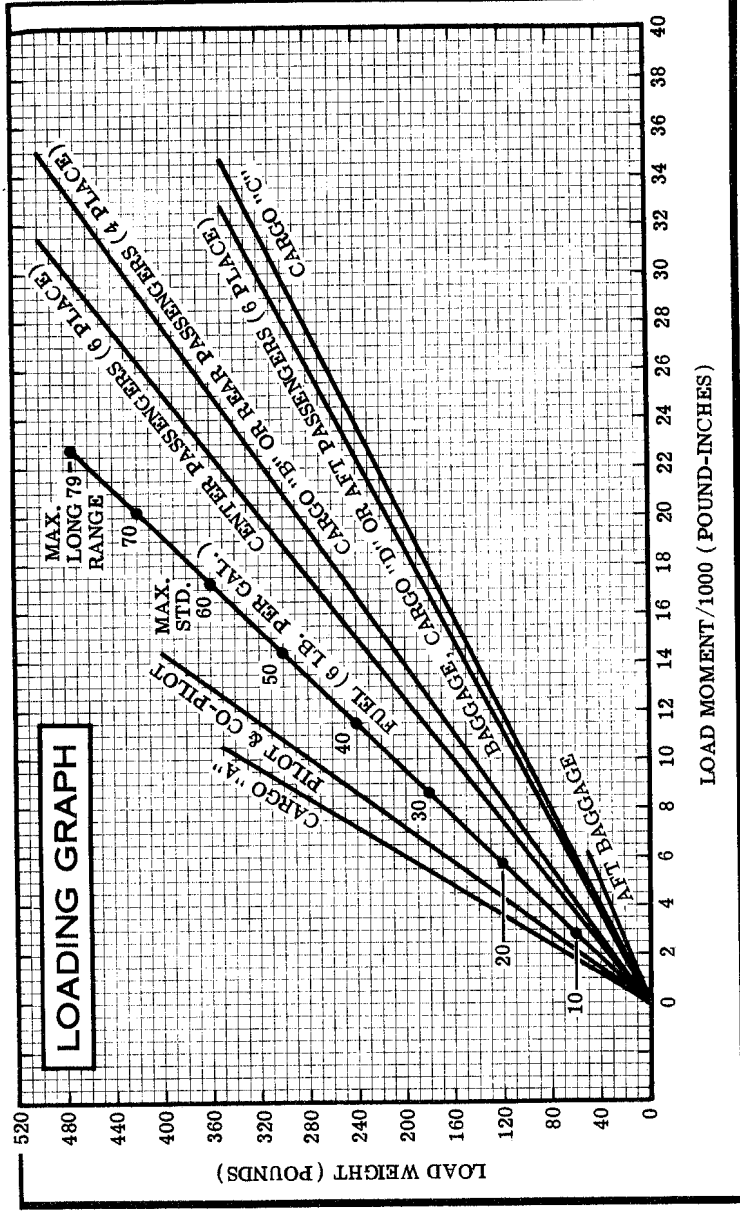


Figure 1-2.

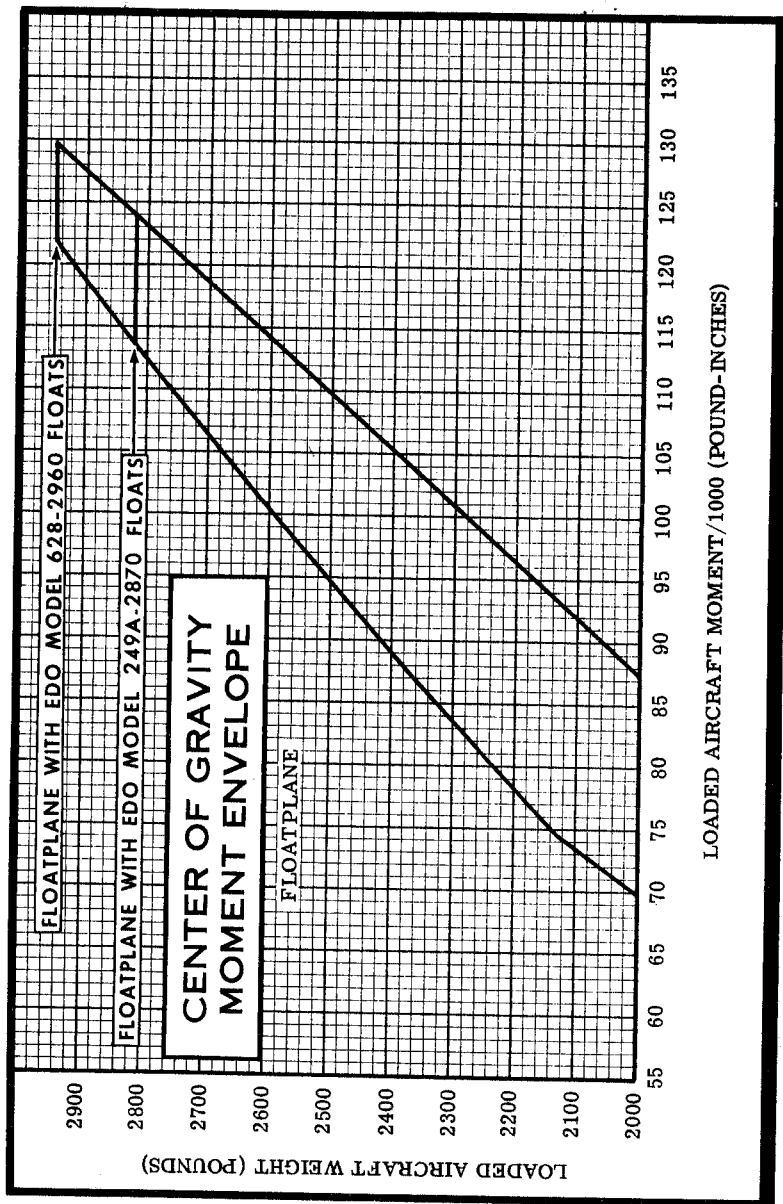
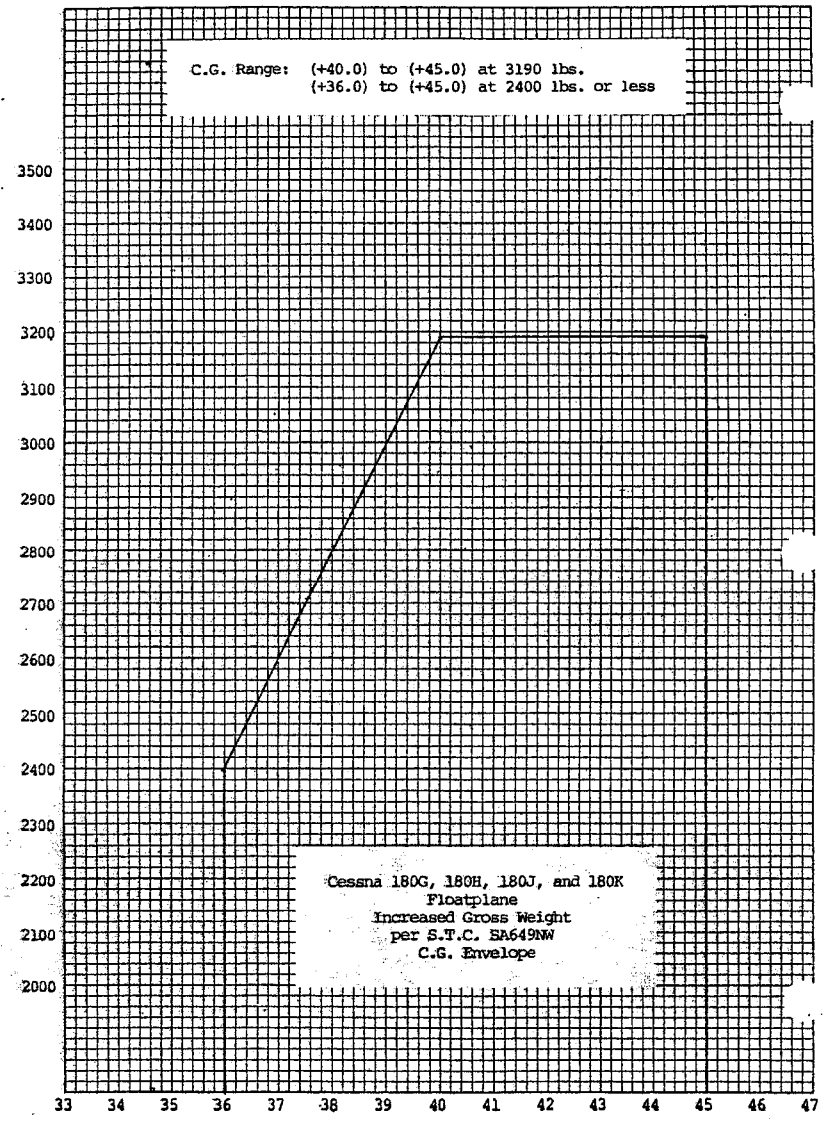


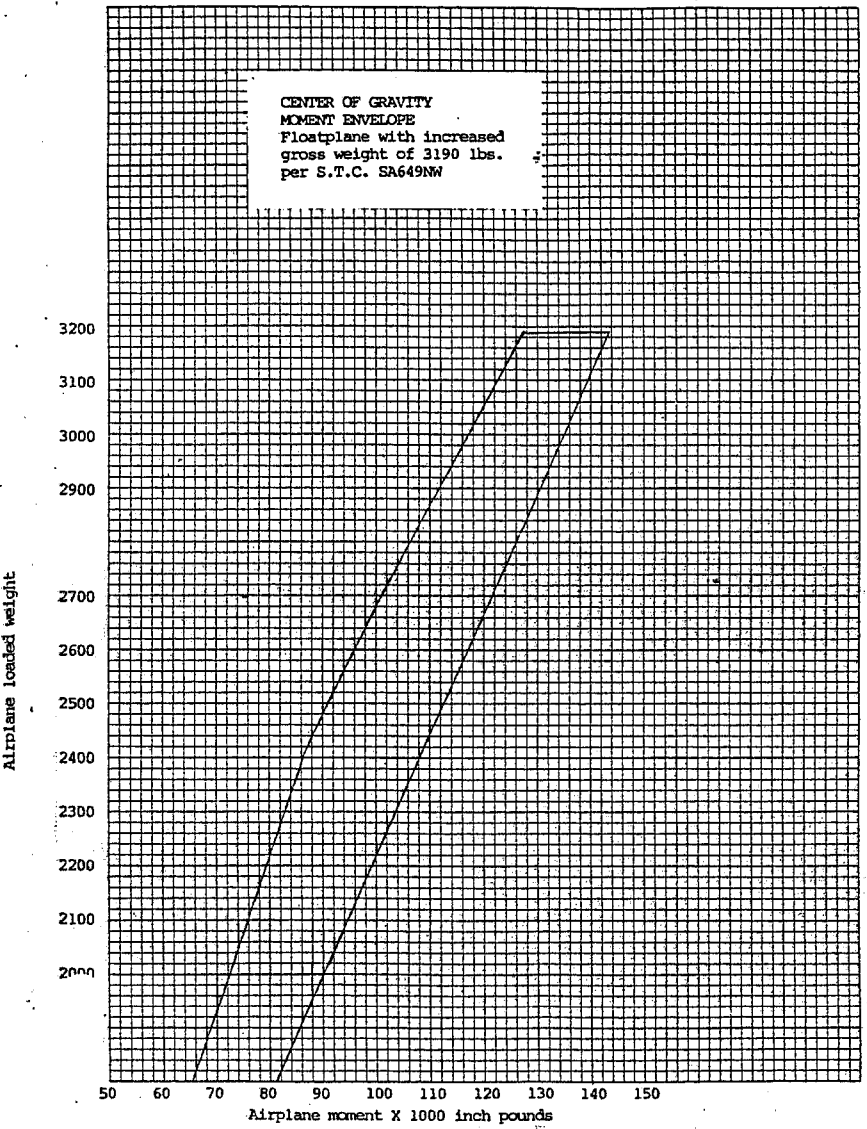
Figure 1-3.



OPERATIONAL DATA

In the Cruise Performance charts, figure 1-8, range and endurance are given for lean mixture, and are based on an aircraft equipped with Edo Model 628-2960 Floats at zero wind, 60 and 79 gallons of fuel for cruise, 2950 pounds gross weight and standard atmospheric conditions. (There are no significant differences in performance for aircraft equipped with Edo Model 249A-2870 Floats at 2820 pounds gross weight).

Allowances for fuel reserve, headwinds, take-off and climb, and variations in mixture leaning technique should be made and are in addition to those 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.



AIRSPED CORRECTION TABLE								
FLOATPLANE								
FLAPS UP								
IAS-MPH	60	80	100	120	140	160		
CAS-MPH	68	84	101	120	138	158		
*FLAPS DOWN								
IAS-MPH	40	50	60	70	80	90	100	110
CAS-MPH	55	60	67	75	84	93	102	111
*MAXIMUM FLAP SPEED 110 MPH, CAS								

Figure 1-4.

STALLING SPEEDS

POWER OFF MPH-CAS
FLOATPLANE WITH EDO MODEL 628-2960 FLOATS

Gross Weight
2950 LBS.

ANGLE OF BANK



0°



30°



60°

CONFIGURATION

FLAPS UP

65

70

92

FLAPS 20°

61

66

86

FLAPS 40°

58

62

82

NOTE: WHEN THE AIRCRAFT IS EQUIPPED WITH EDO MODEL 249A-2870 FLOATS, STALL SPEEDS ARE APPROXIMATELY 1 MPH LESS THAN THE FIGURES SHOWN ABOVE BECAUSE OF REDUCED GROSS WEIGHT.

Figure 1-5.

FLOATPLANE TAKE-OFF DATA

TAKE-OFF DISTANCE WITH 20° FLAPS FROM SHELTERED WATER

GROSS WEIGHT LBS.	IAS @ 50 FT.	HEAD WIND MPH	AT SEA LEVEL & 59°F.		AT 2500 FT. & 50°F.		AT 5000 FT. & 41°F.		AT 7500 FT. & 32°F.	
			WATER RUN	TOTAL TO CLEAR 50° OBSTACLE	WATER RUN	TOTAL TO CLEAR 50° OBSTACLE	WATER RUN	TOTAL TO CLEAR 50° OBSTACLE	WATER RUN	TOTAL TO CLEAR 50° OBSTACLE
2950	65	0	1280	2070	1610	2575	2035	3240	2630	4320
		15	850	1450	1045	1820	1345	2325	1770	3145
		30	460	925	600	1190	790	1550	1070	2145
2820 (SEE NOTE 1 BELOW)	64	0	1145	1860	1430	2290	1790	2855	2300	3740
		15	725	1285	915	1605	1170	2030	1530	2700
		30	380	810	515	1030	680	1335	915	1815
2600	61	0	925	1530	1140	1850	1415	2275	1795	2880
		15	570	1045	720	1280	910	1595	1175	2050
		30	295	640	390	800	510	1025	680	1340
2300	58	0	675	1170	825	1390	1015	1670	1270	2015
		15	400	785	500	940	630	1145	805	1400
		30	195	465	255	570	335	710	440	880

NOTES: 1. THE MAXIMUM ALLOWABLE GROSS WEIGHT FOR AIRCRAFT EQUIPPED WITH EDO MODEL 249A-2870 FLOATS IS 2820 LBS.
2. INCREASE DISTANCES 10% FOR EACH 25°F. ABOVE STANDARD TEMPERATURE FOR PARTICULAR ALTITUDE.

Figure 1-6.

FLOATPLANE MAXIMUM RATE-OF-CLIMB DATA

GROSS WEIGHT LBS.	AT SEA LEVEL & 59°F.			AT 5000 FT. & 41°F.			AT 10,000 FT. & 23°F.			AT 15,000 FT. & 5°F.			AT 20,000 FT. & -12°F.		
	IAS MPH	RATE OF CLIMB FT/MIN	GAL. OF FUEL USED	IAS MPH	RATE OF CLIMB FT/MIN	FROM S.L. FUEL USED	IAS MPH	RATE OF CLIMB FT/MIN	FROM S.L. FUEL USED	IAS MPH	RATE OF CLIMB FT/MIN	FROM S.L. FUEL USED	IAS MPH	RATE OF CLIMB FT/MIN	FROM S.L. FUEL USED
2950	83	990	1.5	81	715	3.6	78	430	6.5	75	155	12.1	---	---	---
2820 (SEE NOTE 1 BELOW)	82	1075	1.5	80	790	3.5	77	500	6.0	73	215	10.4	---	---	---
2600	80	1230	1.5	78	925	3.2	75	625	5.3	71	325	8.5	20	19.1	
2300	78	1480	1.5	76	1150	2.9	73	820	4.8	68	490	7.1	65	160	12.0

- NOTES: 1. THE MAXIMUM ALLOWABLE GROSS WEIGHT FOR AIRCRAFT EQUIPPED WITH EDO MODEL 249A-2870 FLOATS IS 2820 LBS.
 2. FLAPS UP, FULL THROTTLE, 2600 RPM, AND MIXTURE LEANED FOR SMOOTH OPERATION ABOVE 5000 FT.
 3. FUEL USED INCLUDES WARM-UP AND TAKE-OFF ALLOWANCES.
 4. FOR HOT WEATHER, DECREASE RATE OF CLIMB 30 FT./MIN. FOR EACH 10°F ABOVE STANDARD DAY TEMPERATURE FOR PARTICULAR ALTITUDE.

Figure 1-7.

CRUISE PERFORMANCE

FLOATPLANE

LEAN MIXTURE

Standard Conditions \ Zero Wind \ Gross Weight- 2950 Pounds

RPM	MP	% BHP	TAS MPH	GAL/HOUR	60 GAL (NO RESERVE)		79 GAL (NO RESERVE)	
					ENDR. HOURS	RANGE MILES	ENDR. HOURS	RANGE MILES
2500 FEET								
2450	23	76	142	14.1	4.3	605	5.6	795
	22	72	139	13.3	4.5	625	5.9	825
	21	68	137	12.6	4.8	650	6.3	855
	20	64	133	11.9	5.0	670	6.6	885
2300	23	70	138	12.9	4.6	640	6.1	845
	22	67	136	12.3	4.9	665	6.4	875
	21	63	132	11.6	5.2	685	6.8	900
	20	59	129	11.0	5.5	705	7.2	925
2200	23	66	135	11.9	5.0	680	6.6	890
	22	62	132	11.3	5.3	700	7.0	920
	21	58	128	10.7	5.6	720	7.4	945
	20	54	124	10.1	5.9	735	7.8	970
2000 MAXIMUM RANGE SETTINGS	19	42	108	8.1	7.4	800	9.7	1055
	18	39	102	7.6	7.9	810	10.4	1065
	17	36	95	7.0	8.5	805	11.2	1060
	16	32	87	6.5	9.3	800	12.2	1055
5000 FEET								
2450	23	77	146	14.3	4.2	615	5.5	810
	22	73	143	13.5	4.4	635	5.8	840
	21	69	141	12.8	4.7	660	6.2	870
	20	65	137	12.1	5.0	680	6.5	895
2300	23	71	142	13.1	4.6	650	6.0	855
	22	68	140	12.5	4.8	670	6.3	885
	21	64	136	11.8	5.1	695	6.7	910
	20	60	133	11.2	5.4	710	7.1	935
2200	23	67	139	12.2	4.9	685	6.5	900
	22	63	136	11.6	5.2	705	6.8	930
	21	60	132	10.9	5.5	725	7.2	955
	20	56	129	10.4	5.8	745	7.6	980
2000 MAXIMUM RANGE SETTINGS	19	44	112	8.3	7.2	805	9.5	1060
	18	41	106	7.8	7.7	815	10.1	1075
	17	37	98	7.3	8.2	810	10.8	1070
	16	34	91	6.7	8.9	805	11.7	1065

NOTE: Range and endurance figures must be reduced to allow for a reduction of approximately five gallons of usable fuel in each tank when inboard fillers are used to fill long range fuel tanks.

Figure 1-8 (Sheet 1 of 2).

CRUISE PERFORMANCE

FLOATPLANE

LEAN MIXTURE

Standard Conditions \ Zero Wind \ Gross Weight- 2950 Pounds

RPM	MP	% BHP	TAS MPH	GAL/HOUR	60 GAL (NO RESERVE)		79 GAL (NO RESERVE)	
					ENDR. HOURS	RANGE MILES	ENDR. HOURS	RANGE MILES
7500 FEET								
2450	21	70	145	13.0	4.6	670	6.1	880
	20	66	141	12.3	4.9	690	6.4	910
	19	62	137	11.6	5.2	710	6.8	935
	18	58	133	11.0	5.5	725	7.2	955
2300	21	65	141	12.0	5.0	700	6.6	925
	20	62	137	11.4	5.3	720	6.9	950
	19	58	133	10.8	5.5	740	7.3	970
	18	54	128	10.2	5.9	755	7.7	995
2200	21	61	137	11.2	5.4	735	7.1	965
	20	58	133	10.6	5.7	750	7.5	990
	19	54	128	10.0	6.0	770	7.9	1010
	18	50	123	9.5	6.3	780	8.3	1025
2000 MAXIMUM RANGE SETTINGS	18	42	110	8.1	7.4	820	9.8	1080
	17	39	102	7.5	8.0	815	10.5	1075
	16	35	95	7.0	8.6	815	11.3	1070
	15	32	87	6.4	9.4	810	12.3	1065
10,000 FEET								
2450	19	63	142	11.8	5.1	720	6.7	945
	18	59	137	11.2	5.4	735	7.1	970
	17	55	132	10.6	5.7	750	7.5	990
	16	51	126	9.9	6.1	765	8.0	1005
2300	19	59	137	11.0	5.4	745	7.2	985
	18	55	133	10.4	5.7	760	7.6	1005
	17	51	127	9.8	6.1	775	8.0	1020
	16	47	120	9.2	6.5	785	8.6	1035
2200	19	55	133	10.3	5.8	775	7.7	1020
	18	51	127	9.7	6.2	790	8.1	1040
	17	48	121	9.1	6.6	800	8.7	1050
	16	44	115	8.5	7.0	805	9.3	1060
2000 MAXIMUM RANGE SETTINGS	18	44	114	8.3	7.2	830	9.5	1090
	17	40	106	7.8	7.7	825	10.2	1085
	16	37	98	7.2	8.3	820	10.9	1080
	15	33	91	6.7	9.0	815	11.9	1075

NOTE: Range and endurance figures must be reduced to allow for a reduction of approximately five gallons of usable fuel in each tank when inboard fillers are used to fill long range fuel tanks.

Figure 1-8 (Sheet 2 of 2).

FLOATPLANE LANDING DISTANCE

LANDING DISTANCE WITH 40° FLAPS ON SHELTERED WATER

GROSS WEIGHT POUNDS	APPROACH IAS MPH	AT SEA LEVEL & 59°F.		AT 2500 FT. & 50°F		AT 5000 FT. & 41°F		AT 7500 FT. & 32°F	
		WATER RUN	TOTAL TO CLEAR 50' OBS	WATER RUN	TOTAL TO CLEAR 50' OBS	WATER RUN	TOTAL TO CLEAR 50' OBS	WATER RUN	TOTAL TO CLEAR 50' OBS
2950	76	735	1720	860	1915	995	2125	1155	2380

NOTE: DISTANCES SHOWN ARE BASED ON ZERO WIND AND POWER OFF. REDUCE LANDING DISTANCES 10% FOR EACH 6 MPH HEADWIND.

Figure 1-9.