



# ***OWNER'S MANUAL***

NOT LIABLE FOR ACCURACY  
AND EFFECTIVENESS  
ORIGINAL TEXT.

SERVICE DEPARTMENT  
REPUBLIC AVIATION CORPORATION  
FARMINGDALE, NEW YORK

COPYRIGHT 1946  
PRINTED IN U.S.A



"NOT LIABLE FOR ACCURACY  
AND EFFECTIVENESS OF  
ORIGINAL TEXT."

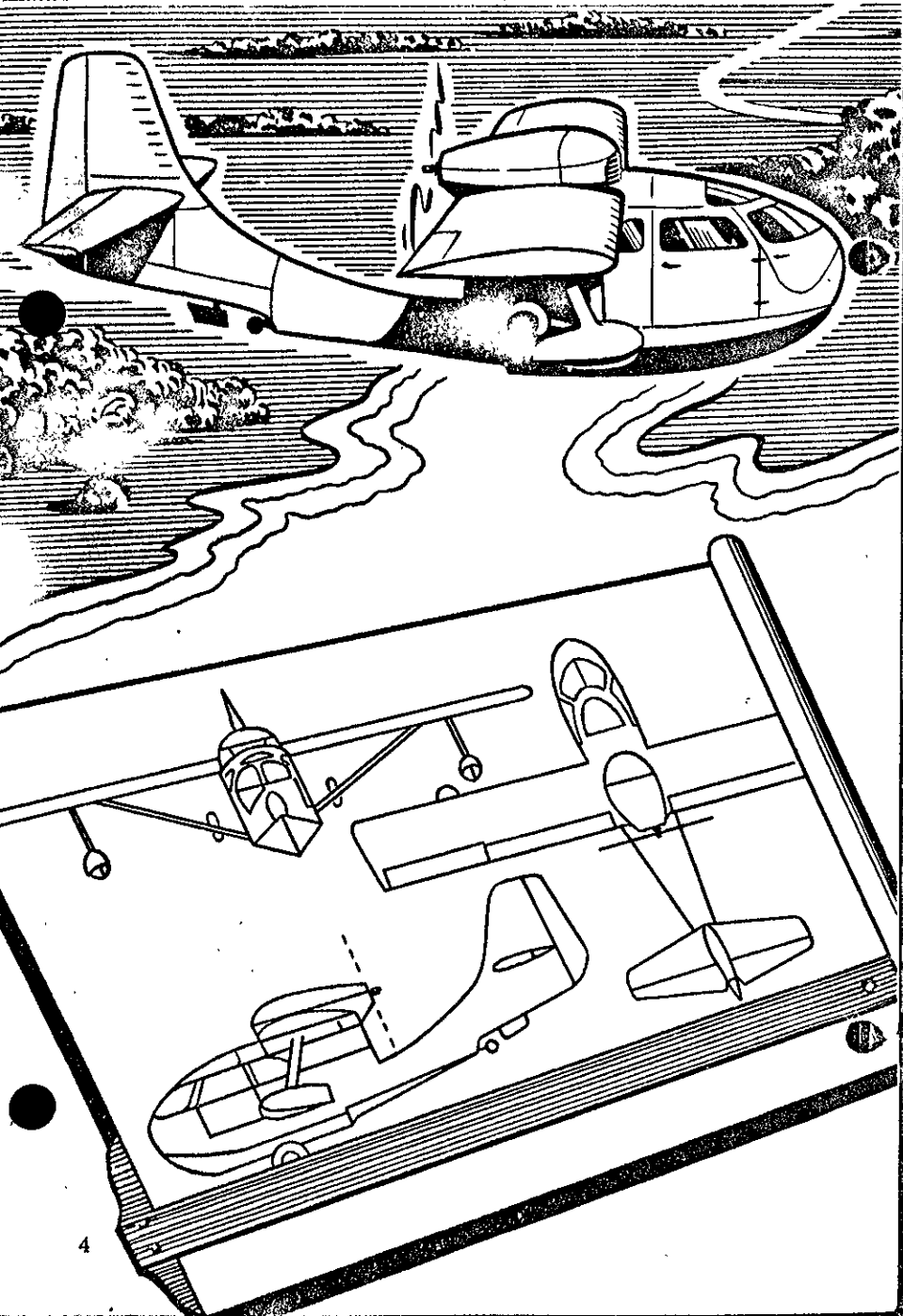
45500

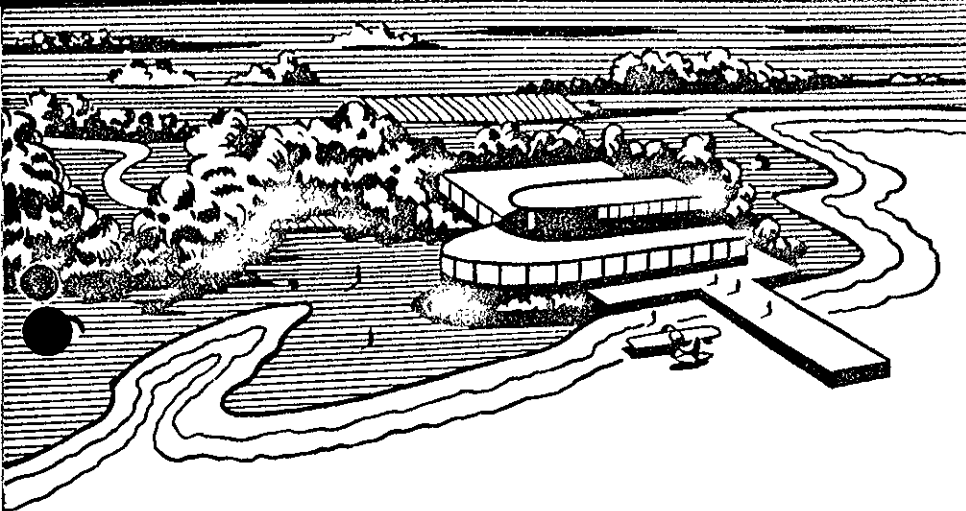
# Table of.

PERFORMANCE & SPECIFICATIONS . . . . .	6
GENERAL . . . . .	8
OPERATING YOUR SEABEE . . . . .	10
EXTERIOR CHECK (PREFLIGHT) . . . . .	11
INTERIOR CHECK (PREFLIGHT) . . . . .	12
STARTING ENGINE . . . . .	12
WARM UP . . . . .	13
FINAL CHECK . . . . .	13
LAND TAKE-OFF . . . . .	14
WATER TAKE-OFF . . . . .	14
CRUISE CONTROL . . . . .	15
CLIMBING . . . . .	15
STALLING . . . . .	15
DIVING . . . . .	16
APPROACH . . . . .	16
LANDINGS . . . . .	16
STOPPING ENGINE . . . . .	17
EMERGENCY OPERATION . . . . .	18
SYSTEMS . . . . .	21
ENGINE . . . . .	21
FUEL SYSTEM . . . . .	22
ENGINE CONTROLS . . . . .	24
SURFACE CONTROLS . . . . .	26
LANDING GEAR . . . . .	28
HYDRAULIC SYSTEM . . . . .	30
BRAKES AND WHEELS . . . . .	32

# Contents

CARE AND MAINTENANCE . . . . .	34
ACCESS . . . . .	34
HANDLING, JACKING, ANCHORING. . . . .	35
LUBRICATION DIAGRAM . . . . .	36
SERVICING DIAGRAM . . . . .	38
SERVICING THE SHOCK STRUT . . . . .	40
REMOVAL OF WHEEL AXLE . . . . .	41
TIE-DOWN AND MOORING . . . . .	42
CONTROL SETTINGS . . . . .	43
UPHOLSTERY . . . . .	44
EXTERIOR SURFACES . . . . .	44
PLEXIGLASS . . . . .	44
WHEELS . . . . .	46
BRAKES . . . . .	46
BRAKE ADJUSTMENT . . . . .	47
TAIL WHEEL UPSTOP . . . . .	47
LANDING GEAR SIGNAL SWITCHES . . . . .	48
CYLINDER ADJUSTMENT . . . . .	48
FUEL FLOW SHUT OFF . . . . .	49
VALVE ADJUSTMENTS . . . . .	49
CARBURETOR . . . . .	50
ENGINE . . . . .	51
INSPECTION . . . . .	52
10-HOUR INSPECTION . . . . .	52
25-HOUR INSPECTION . . . . .	53
50-HOUR INSPECTION . . . . .	56
100-HOUR INSPECTION . . . . .	56





To you, a new owner of the Seabee, Republic Aviation Corporation, is proud to present the product of years of research in amphibian design.

Cruising over aerial highways in luxurious comfort, and relaxation, setting down on land or water, the Seabee is the realization of the ideal in personal planes. This sturdy, all metal, amphibious monoplane accommodates a pilot, three passengers, and provides ample space for baggage.

The beautifully appointed cabin features sound proofing, draftless ventilation, and a superior lighting system. The cushioned seats are smartly upholstered with a plastic coated fabric which renders them water and stain proof. The front seats are adjustable for leg room and may be reclined to form a double bed.

Large panels of clear plexiglass afford wide visibility. Generously proportioned doors at each side of the cabin provide easy entry; in addition the Seabee has a wide bow door for fishing and for use at docks and floats.

The engine, which is an integral part of the aircraft design, permitting increased efficiency and economy, the practical two way radio, and the wide selection of instruments, coupled with the other outstanding features equip the Seabee for all flights, whether for business or pleasure, at anytime or place.

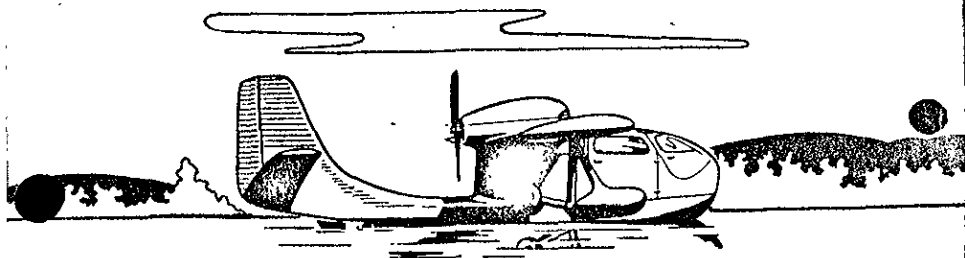
The following pages of this manual contain complete operating instructions, flight checks and service information for keeping the Seabee in perfect condition, and are dedicated to the countless carefree flying hours that are to be the pleasure of the Seabee owner.

## PERFORMANCE (SEA LEVEL)

High Speed . . . . .	120 mph
Cruise at 75 % power . . . . .	103 mph
Landing speed . . . . .	58 mph
Climb first minute . . . . .	700 fpm
Range at cruising (75 gals) . . . . .	560 mi
Take-off (land) . . . . .	800 ft
Take-off (water) . . . . .	1000 ft
Take-off time (water) . . . . .	25 sec
Landing run (land) . . . . .	400 ft
Landing run (water) . . . . .	700 ft

## SURFACE MOVEMENTS

Rudder right . . . . .	30°
Rudder left . . . . .	30°
Ailerons up . . . . .	20°
Ailerons down . . . . .	20°
Elevators up . . . . .	28°
Elevators down . . . . .	28°
Water rudder right . . . . .	30°
Water rudder left . . . . .	30°
Elevator trim tab up,down . . . . .	22°



## DIMENSIONS

Span (max)	37' 8"
Length (max)	28' 0"
Height (max)	10' 1"
Wheel span (main gear)	7' 6"
Cabin width (interior)	3' 10"
Cabin height (interior)	4' 2"
Cabin length (interior)	9' 2"
Baggage compartment (volume)	20 cuft
Draft loaded	1' 6"
Wing area	196 sqft
Ailerons	13.7 sqft
Flaps	25.3 sqft
Fin	22.8 sqft
Rudder	10.5 sqft

## WEIGHT

Gross weight	3150 lbs
Empty weight	2190 lbs
Useful load	960 lbs

## POWER PLANT

Model	Franklin "500"
Rated horsepower	215



# General

## ENGINE CONTROLS.

The engine controls, which consist of throttle, mixture and carburetor heat are push-pull type, designed so that all knobs are forward against the panel for take-off. When the knobs are pulled out, the selections are: closed throttle, mixture in idle cut-off and carburetor heat "Hot". When pushed in, selections are: open throttle, carburetor heat "Cold" and mixture auto-rich. The intermediate positions of the mixture control select lean mixtures.

## PROPELLER CONTROL.

The standard propeller installation is ground adjustable and non-controllable. The optional installation is controllable by a push-pull control on the instrument panel. To select high rpm, push the control against the panel; to select low rpm, pull the control aft. The controllable propeller is also reversible. To reverse propeller: idle the engine, place normal pitch control in high rpm, and slide the reversing lever control, which is located overhead, to the full aft position.

*Do not exceed 1750 rpm in reverse.*

When returning propeller to normal thrust, be certain that the propeller reversing lever is locked in the forward position so that accidental propeller reversal is impossible.

## SURFACE CONTROLS.

Control of surfaces is by conventional wheel-and-post and rudder pedals. To remove the dual control wheel release the locking clip and pull the pin between the wheels. Remove the dual column from its socket and stow in the bracket provided under the right front seat. Replace the pin and secure it with the locking clip. A conventional trim tab lever and indicator is located overhead.

## LANDING GEAR.

To lower or retract the landing gear, lift the gear selector handle and slide it to the desired position; move the pump handle fore and aft with full strokes until the gear reaches the locked position at which time the signal lights will indicate lock. As an added precaution, pump several extra strokes.

## LANDING FLAPS.

To lower or raise the flaps, lift the flap selector handle and place it in the forward or aft position and pump. Partial flap deflection may be had by returning the selector to neutral after pumping flaps to desired position.

## PARKING.

To set the parking brake, push the brake pedals and pull the control knob marked "Park". To release the parking brake, return the parking control and depress pedals.

## SIGNALS.

When the gear signal light is green, the landing gear is locked down; if the signal light is red, the landing gear is up. These signals are automatic.

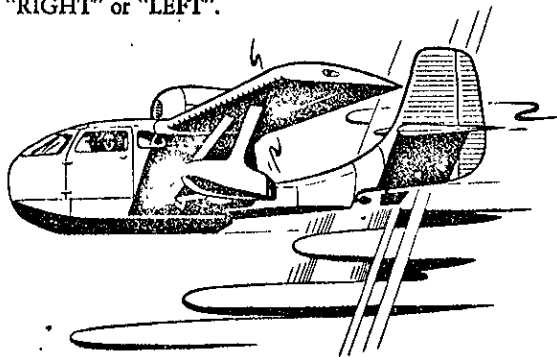
## MISCELLANEOUS.

To adjust the front seats for leg-room, release the lock at the base of the seat and slide the seat to the desired position. The back rests of the front seats may be reclined to form a double bed.

All lights are controlled from switches on the instrument panel.

The anchor is stowed under the floor in the forward section of the cabin. The baggage compartment access door is above the rear seat.

A single fuel pressure gage provides readings for both fuel pumps. To select the desired reading, switch pump selector on the instrument panel to "RIGHT" or "LEFT".



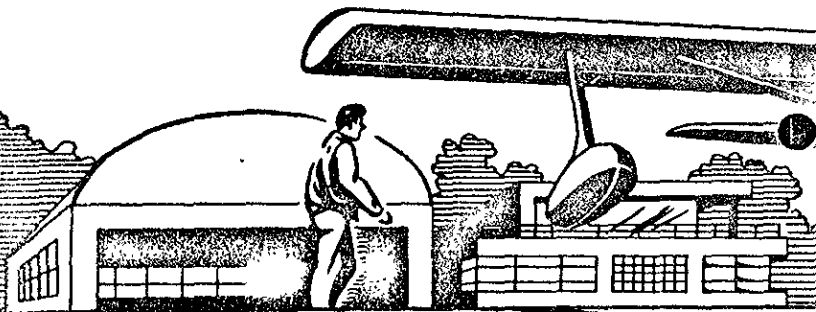
*Operating  
your*



# *Seabee*

As safety precautions for you as pilot and for your passengers a complete inspection of your Seabee should be made before each flight. Don't neglect the weather forecasts. Weather conditions play one of the most important parts in successful flights. Check all instructional material for procedures and follow them.

*Don't start inspection until ignition  
switch is checked for off position.*



## EXTERIOR CHECK (PREFLIGHT)

Look your airplane over carefully; walk around it and observe the landing gear, floats, water rudder and attachments for looseness or wear.

Examine the structure for cracks and for corrosion particularly if you are operating on salt water.

Check oil level and view lines and connections for leaks.

Be on the look-out for proper safetying of bolts, nuts and turn-buckles.

Move control surfaces and note their alignment and soundness.

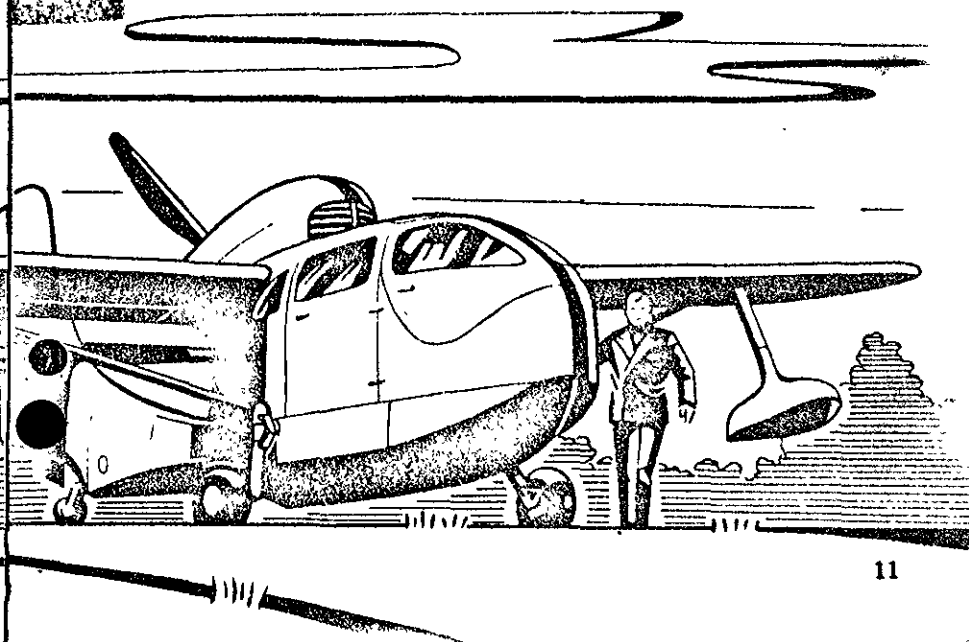
Make certain the doors, access openings, inspection plates and cowlings are properly fastened.

Inspect your tires and struts for inflation.

Check your fueling. Make absolutely certain that the gas cap is properly replaced and firmly secured on the filler neck.

Survey the propeller for nicks, cuts and cracks.

Drain water at strainer and tank sump drains and check that drain cocks are closed.



## INTERIOR CHECK (PREFLIGHT)

As soon as you enter the cabin require your passengers to fasten their safety belts; then fasten yours. Cultivate this habit.

Carefully view the cabin and note that all doors are securely closed and that your fire extinguisher and first aid kit are at hand.

Check your surface controls again from the inside—raise and lower the elevators . . . work the ailerons and rudder . . . move the engine controls.

Check propeller reversing lever for normal thrust setting and insure that the lock is engaged so that the propeller may not be reversed accidentally.

With your ignition switch still in the "OFF"-position, turn on the battery switch. Observe your lights and instruments.

Consult the weight book for permissible loading and check that you are within the load limits; then set trim in proper relation.

## STARTING ENGINE

As a precautionary measure before starting engine always make certain that no one is near the propeller. If the engine has not been operated for some time and is cold, it is a good policy to pull the propeller through by hand for about two revolutions before starting.

To start the engine, open throttle slightly beyond the idle position. Push mixture control in to the full rich position and carburetor heat control to the cold position. Close battery switch and place ignition switch to "START" position. When engine fires return ignition switch to "B" (both) position.

Do not operate starter for more than 30 seconds at any one time; allow one minute rest before engaging the starter again.

If the engine appears to be loaded, place mixture in the idle-cut-off position (full out), open throttle wide and crank the engine over with the starter to clean out the mixture before attempting to start in the regular manner.

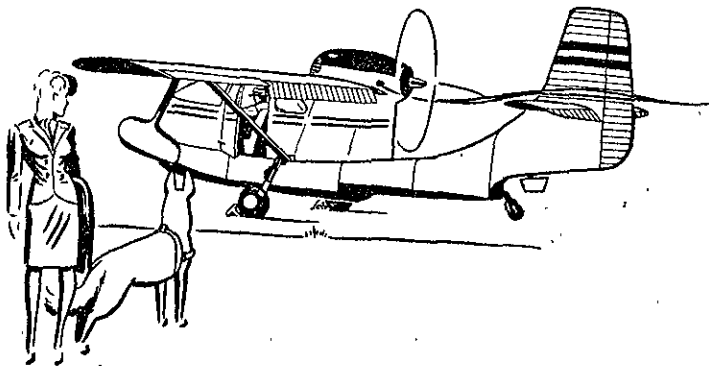
## WARM UP

As soon as the engine fires, check the oil pressure gage; if oil pressure is not indicated within a few seconds after starting, shut off engine at once and investigate the cause. Operation with lack of lubricant can result in severe engine damage.

After starting engine set throttle for a speed of about 900 rpm and permit the engine to warm up at this speed for several minutes. Then increase speed to 1200 rpm. After further warm up check engine operation on single magnetos at full throttle. Maximum permissible drop from double to single ignition is 150 rpm.

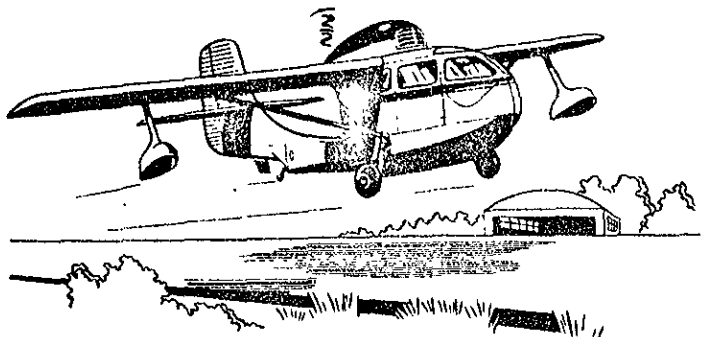
Do not operate on the single magneto for any period of time other than that required to note the rpm drop.

If the controllable propeller is installed, check for pitch change and reverse action. First make sure that your doors are securely closed.



## FINAL CHECK

As a last minute check, prior to take-off, see that safety belts are fastened securely. Examine the control panel again and verify that mixture control is in the full rich position. Check for oil pressure and temperature, fuel pressure and generator charge. Check that lock of propeller reversing lever is in the forward position.



## LAND TAKE-OFF

After the ground test has been completed the Seabee is ready for take-off:

Taxi airplane forward in order to lock and center tailwheel.

Open throttle to full rpm.

The airplane will take off in about 800 feet with a normal load; when airborne, retract the landing gear.

Adjust throttle to power desired.

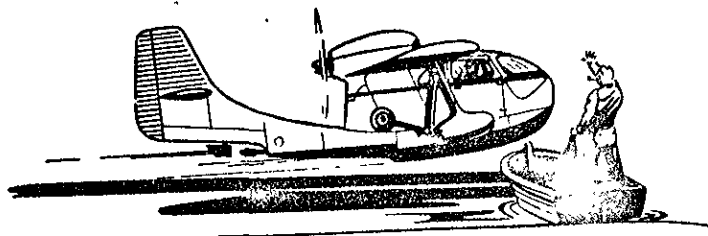
## WATER TAKE-OFF

Take-off from water presents little difference from normal land take-off except that on water the Seabee requires about 1000 feet of run at sea level, with full gross load and no wind. Extreme care should be exercised on glassy water take-offs. Be sure to continue the climb after leaving the water to prevent the possibility of letting the nose drop and flying back onto the water.

Use fully-extended flaps for water take-offs. When airborne, retract the flaps at a slow, steady rate.

### CAUTION

*Do not retract flaps at less than 250 feet altitude for air speeds below 80 mph.*



## CRUISE CONTROL

For increased economy in level flight the mixture may be leaned provided that allowable cylinder head temperatures are not exceeded. To lean, maintain constant throttle position in level flight and observe rpm indicator while adjusting mixture control; mixture setting is at best power when rpm is maximum. A change in altitude or throttle setting will necessitate readjustment of the mixture control. Maintain correlated rpm-manifold pressure settings for controllable propeller installations.

## CLIMBING

At sea level the Seabee climbs at a rate of 650 feet per minute. The best climb occurs at 75 IAS and at 2500 rpm with flaps and gear up.

## STALLING

Stalling speed at sea level is 58 IAS with flaps and wheels down and 66 IAS when landing gear and flaps are up. Ample warning of approach to the stall is evidenced by a noticeable buffeting of the control column. When the stall occurs, the Seabee pitches moderately with little tendency to roll, then regains flying speed. A spin will not occur unless assisted by uncoordinated control movements. Should the airplane go into a spin, recovery is accomplished by neutralizing the controls. Recovery may be hastened by using normal recovery technique; namely, rudder against the spin followed by a slight forward movement of the control column. A burst of power greatly accelerates recovery.



## DIVING

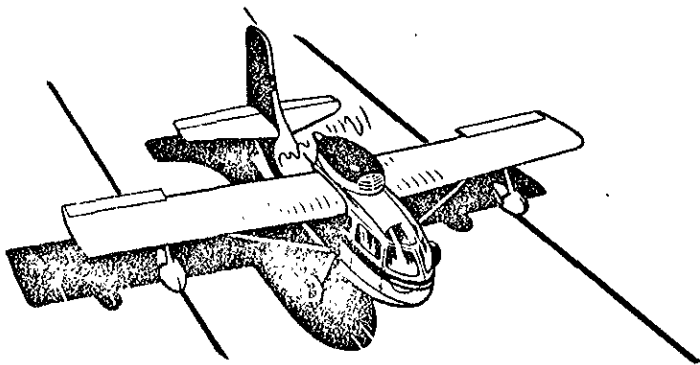
### CAUTION

*Do not exceed 159 mph in dives.*

## APPROACH

Before approaches for landings, place mixture in the "full-in" position (rich) and propeller control to high rpm position. See that all safety belts are fastened and check the fuel quantity. If necessary, set the carburetor to "HOT."

With the throttle set at 1000 rpm, maintain an approach speed of 80 IAS. This speed is best for either wheels and flaps up or wheels and flaps down and is also best for dead stick landings.



## LANDINGS

### CAUTION

*Before landing check that the mixture selection is full-rich and that propeller control is in high-rpm.*

For a land plane landing set the selector valves for flaps and gear

## EMERGENCY OPERATION

Too dark to make a safe wheel landing? Forced landing in a short field? It may never be necessary, but should you be in a tight spot, leave your wheels up or retract them if already down and come in for a keel landing. Flight testing proves that an emergency keel landing in the Seabee is apparently a safe landing. The Seabee has been keel-landed on hard surface runways, on sand beaches, and on turf.

If, on an approach, you find it necessary to undershoot a field due to running out of gas or engine failure or for other reasons, and have not time to fully retract the landing gear, move the landing gear selector handle back to "landing gear up" position and start pumping. The first couple of strokes will unlock the gear and move it sufficiently aft to permit it to swing on landing. The extent of damage in this event will be slight and most important of all there is negligible danger of personal injury. Remember, in any emergency, a keel landing is the best way out.

The Seabee has been demonstrated to be fully maneuverable under all flight conditions with one flap down and the other up. Test stalls and recoveries in this condition experienced no change from normal characteristics. Therefore in the event that one flap only should deflect or if one flap fails to retract, excess aileron is available for use against the extended flap and the Seabee can be flown with relative ease.

Negligence in failing to check doors closed before flight, can be the only reason for a bow door swinging open during a negative-airload-creating maneuver; in this condition the Seabee is easily maneuverable and controllable for a perfectly safe landing. Some buffeting will occur due to the interrupted air flow, but it is best to avoid any possibility of this experience by checking your doors closed before take-off.

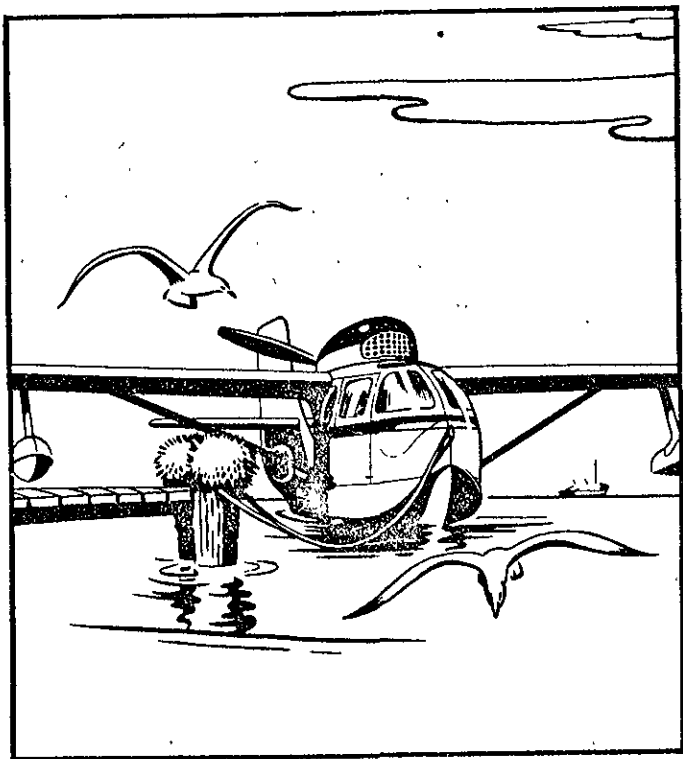
During water operation with one float only, hold that float on the water keeping the other wing out of the water. Effective aileron control can easily be maintained at 40 mph or over. If speed is less, the airplane may be held in its normal attitude by keeping the wing with the missing float headed into the wind so that the airplane will lean over onto the other wing. If the wing without the float has dropped into the

water, it may be lifted out of the water by stepping out and throwing your weight on the wing lift strut of the opposite wing. You can then taxi to shore. Any water in the wet wing will drain off in a few moments.

Don't forget that Seabee seat backs and cushions are designed to support a person afloat and may be used as life preservers in an emergency.

Fuel-flow may be completely cut-off, if necessary, by pulling forward on the fuel flow shut-off control which is located under the pilot's seat.

Your best assurance against emergencies, is faithful inspection, care and proper maintenance.



## ENGINE

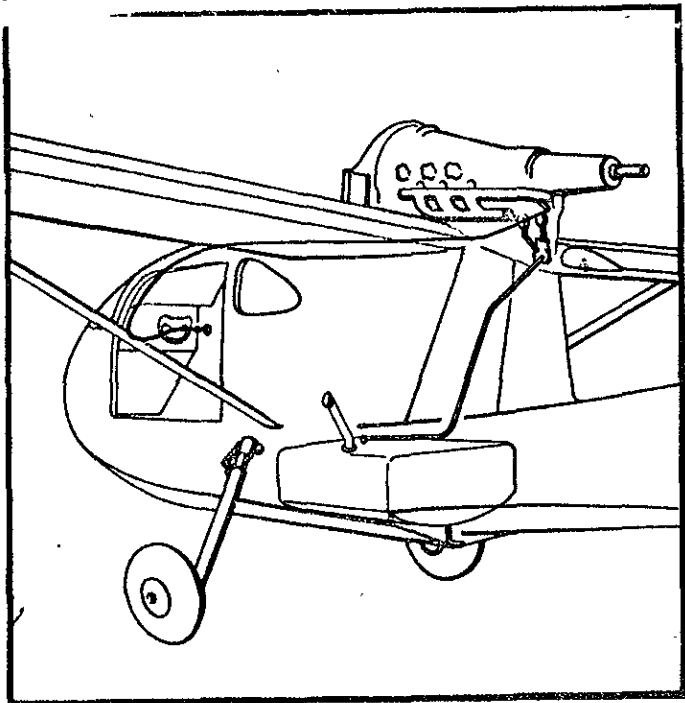
The Seabee is equipped with a Franklin "500" engine which is a six cylinder, 500 cu. in. displacement, direct drive, horizontally opposed engine.

The engine is mounted to rigid structure by three shock mounts, two at the front and one at the rear.

Detailed specifications are:

Rated H P	215
Rated Speed	2500 rpm
Idle Speed	500 to 600 rpm
Fuel-Min Octane	80 Nonleaded Aviation
Compression Ratio	7.0:1
Displacement	500 cu. in.
Bore	5 cu. in.
Stroke	4.25 cu. in.
Fuel Pump	Dual AC Diaphragm Type
Carburetor	Marvel MA4-5
Ignition	Dual Eisemann Magneto Model LA-6
Magneto Point Clearance	.019" to .021"
Ignition Timing	32° Adv. Left and Right
Firing Order	1-4-5-2-3-6
Oil Capacity	13 qts.
Oil Temp (Max)	230° F
Oil Press (Max)	50 psi
Spark Plugs	Auto Lite AH4 A
Spark Plug Gap	.014" to .018"
Valve Clearance (with lifters bled down)	.040"
Starter	12 Volt
Generator	12 Volt, 35 Amps

# Fuel System

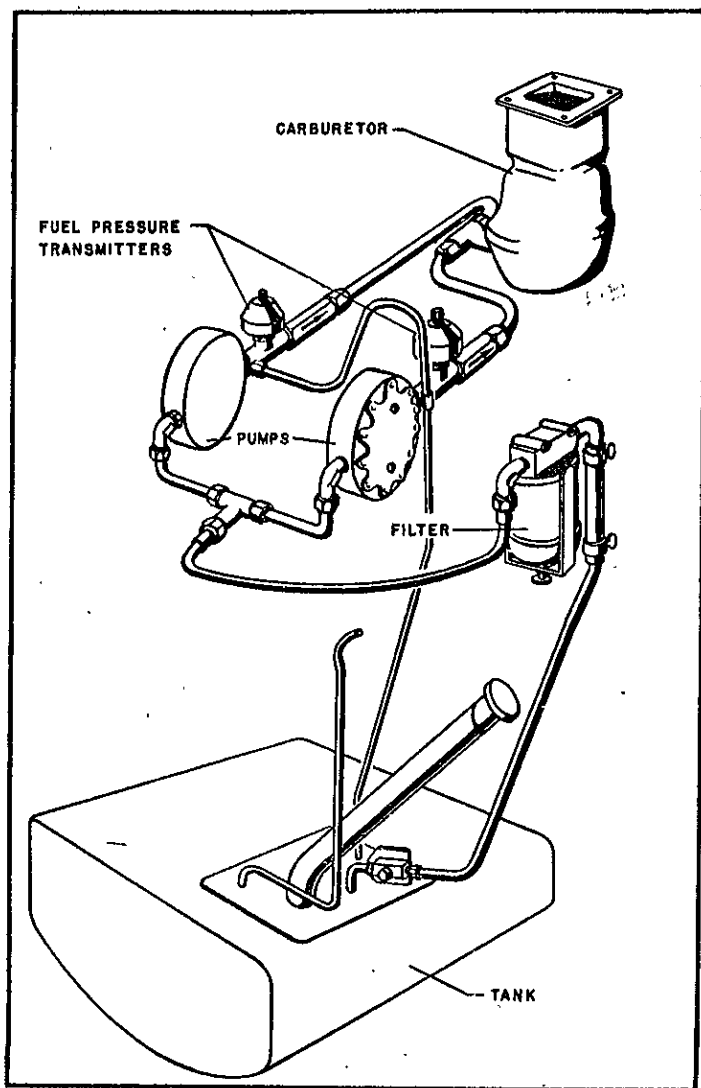


## FUEL SYSTEM

Fuel for the Seabee is contained in a plio-cell bag of 75 U. S. gallons capacity located in the hull under the baggage compartment. The fuel is piped to the carburetor through a strainer and pumped by two AC diaphragm type engine driven pumps. Either pump can supply sufficient fuel to the engine.

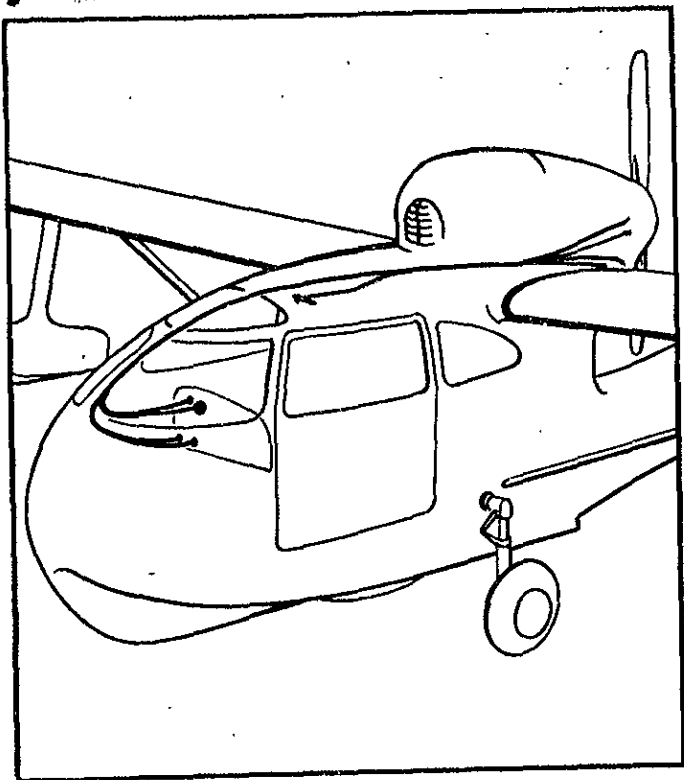
The fuel level quantity gage is electrically operated from a float in the fuel tank. A fuel pressure gage indicates pressure for either the left or right fuel pump as selected by a fuel pump switch on the instrument panel.

Normally the fuel is shut off by pulling the mixture control to the idle cut-off position; in emergencies fuel may be stopped by pulling on the fuel-flow shut-off control located under the pilot's seat.



FUEL SYSTEM DIAGRAM

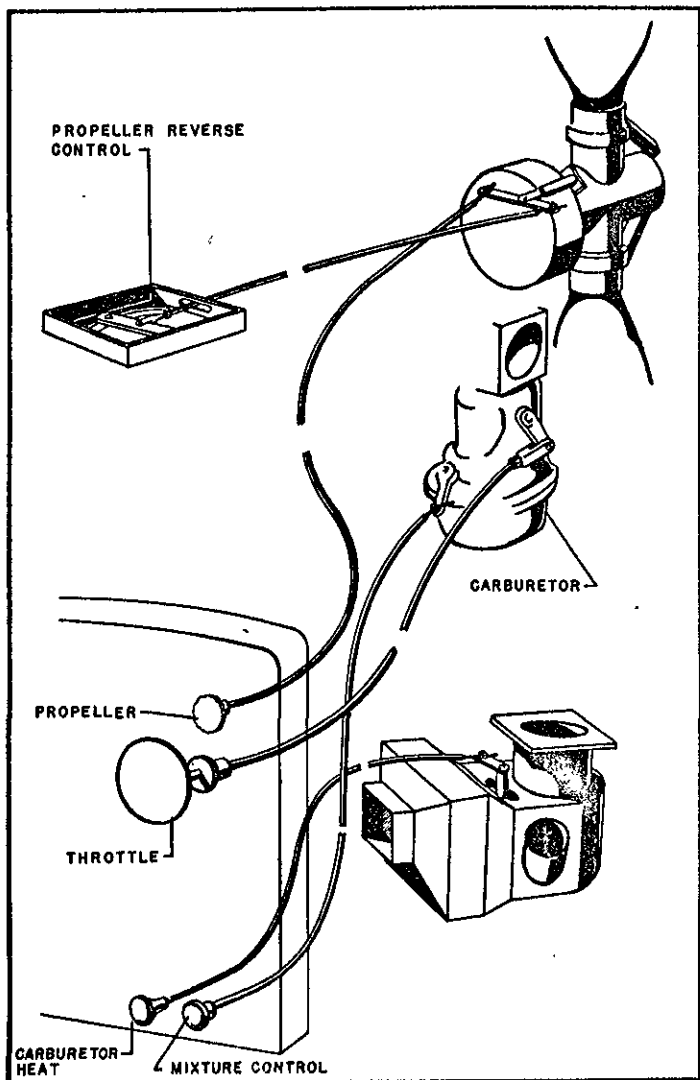
# Engine Controls



## ENGINE CONTROLS.

The Seabee engine controls are flexible shafts of the push-pull type. Controls are provided for the throttle, mixture, carburetor heat and propeller and are designed so that they are pushed forward against the instrument panel for the take-off condition. The propeller reverse control is directly overhead and is designed so that a positive lock must be disengaged before reversing the propeller.

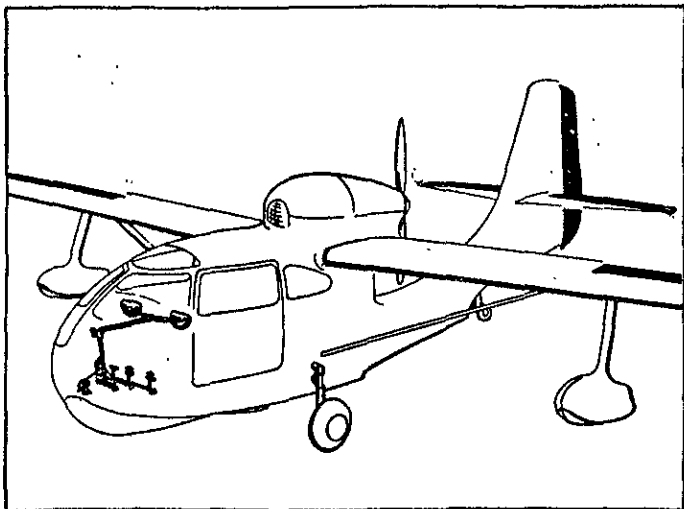
Before reversing propeller make certain that engine is idling and that doors are closed. Maximum rpm in reverse is 1750.



ENGINE CONTROLS DIAGRAM



# Surface Controls

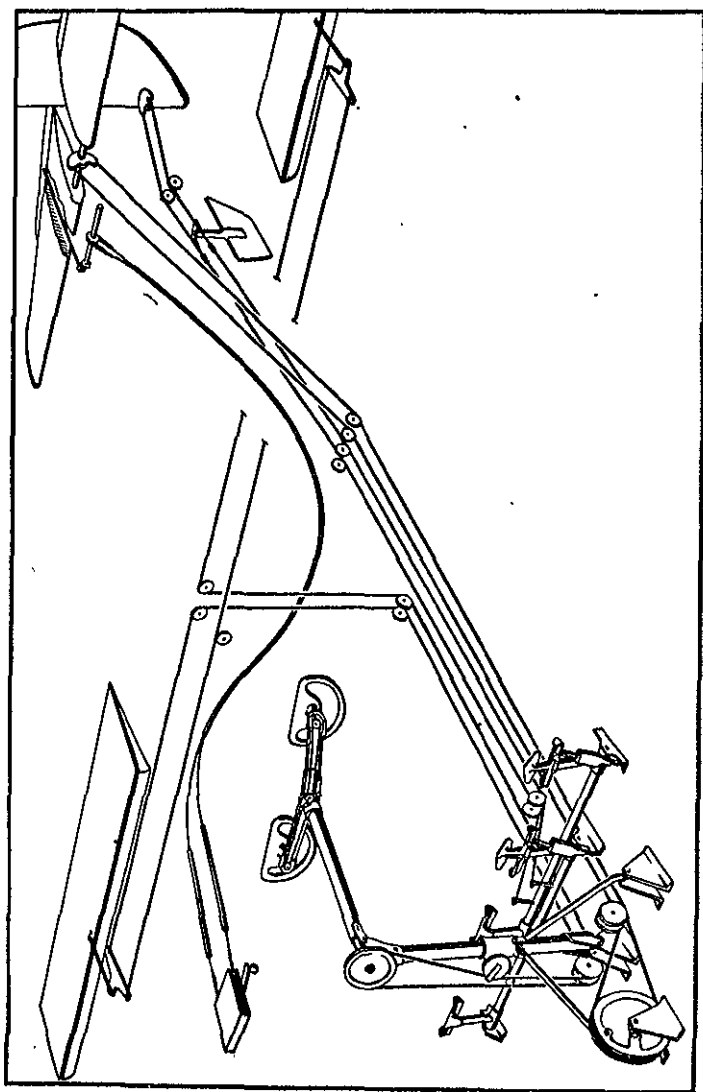


## **SURFACE CONTROLS**

The control surfaces of the Seabee are actuated by the rudder pedals and the control wheel through a series of flexible cables housed under the cabin floor and lead through a series of pulleys to the control surfaces. The dual rudder pedals are synchronized with the pilot's pedals by mating gears on the connecting torque tubes between the two sets of pedals and the dual control wheel is synchronized with the pilot's wheel by engaging a split sprocket in the dual control column to a mating sprocket in the pilot's control wheel column. The dual column is removable and may be stowed under the front seat in the bracket provided.

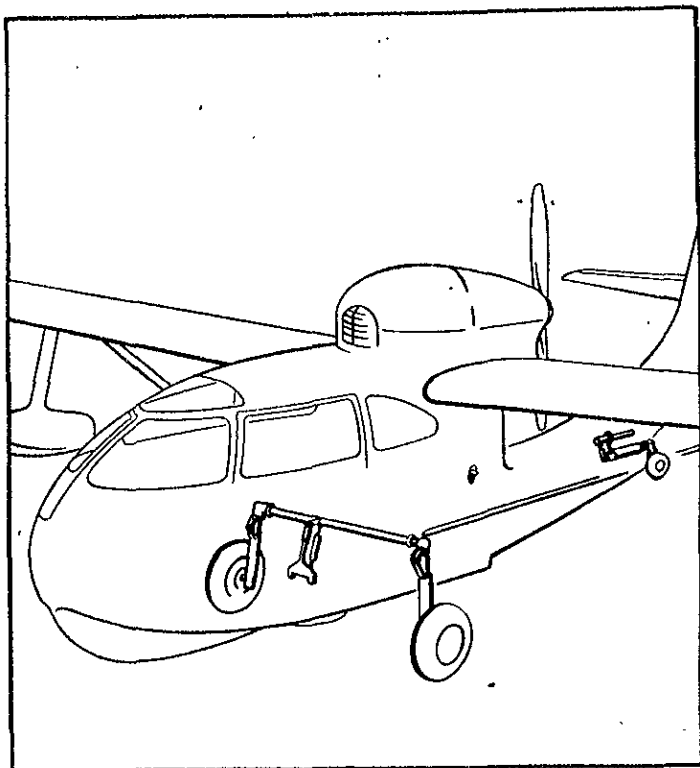
The water rudder cables are spliced to the air rudder cables so that operation of both surfaces is synchronized and made by the same pedals.

The elevator trim tabs are controlled through sprockets and chains at the control and the surfaces. The control is by crank located overhead of the pilot. Fixed tabs are provided on the aileron and rudder.



SURFACE CONTROL DIAGRAM

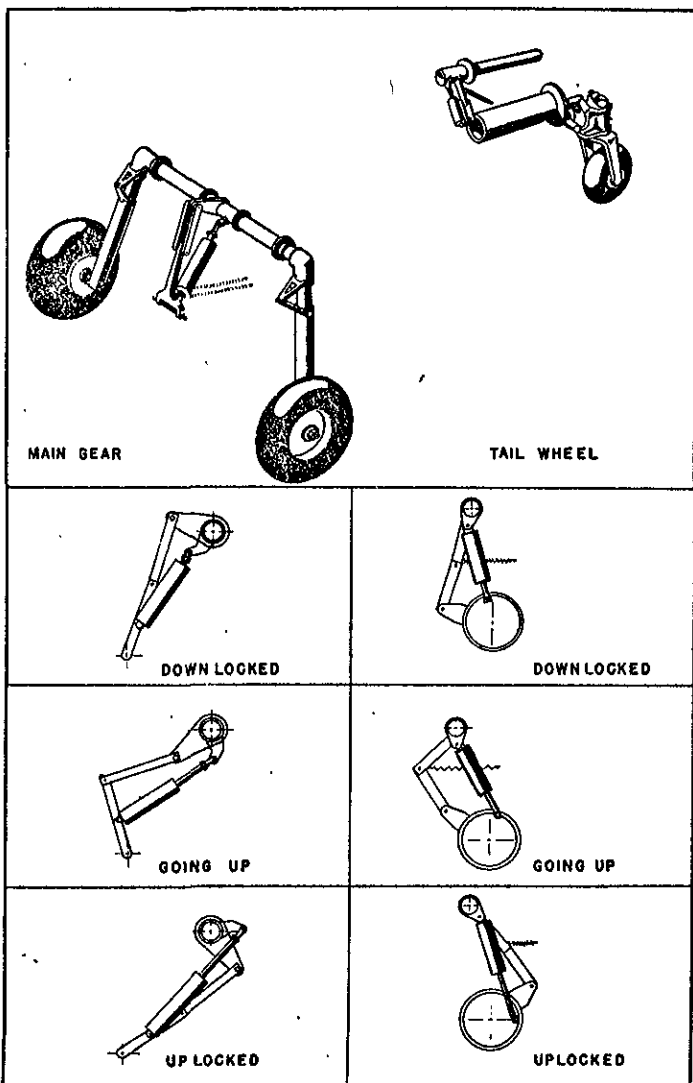
## Landing Gear



### LANDING GEAR.

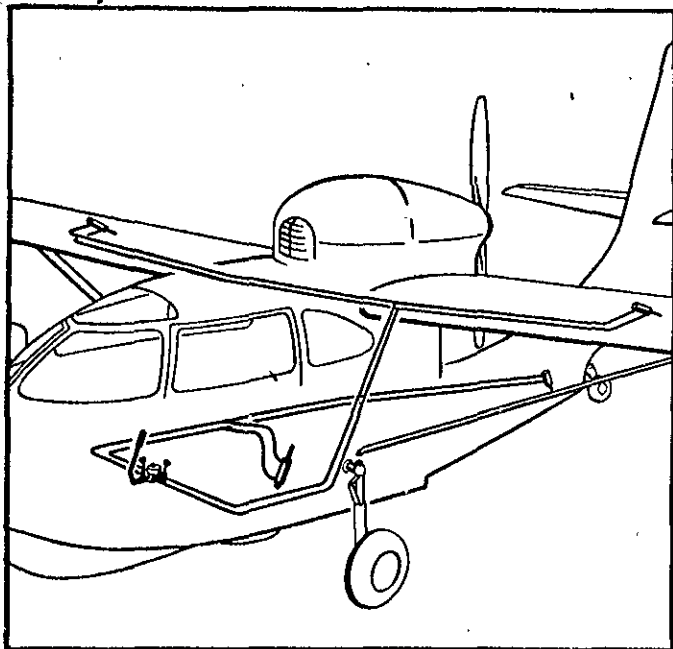
The hydraulically controlled landing gear is maintained in the up or down lock position by the geometry of the linkage. As noted on the landing gear diagram on the facing page, the linkage is designed so as to "break" during the transition phase of the gear operation and to "remake" at the up or down position, so that the center pivots of the linkage are past dead center travel. In this manner, positive lock is maintained until hydraulic pressure is applied to the cylinder permitting a "break" in the linkage.

Note that the tail wheel is rotated to the up and down position and that the main gear is retracted and extended.



LANDING GEAR DIAGRAM

# Hydraulic System

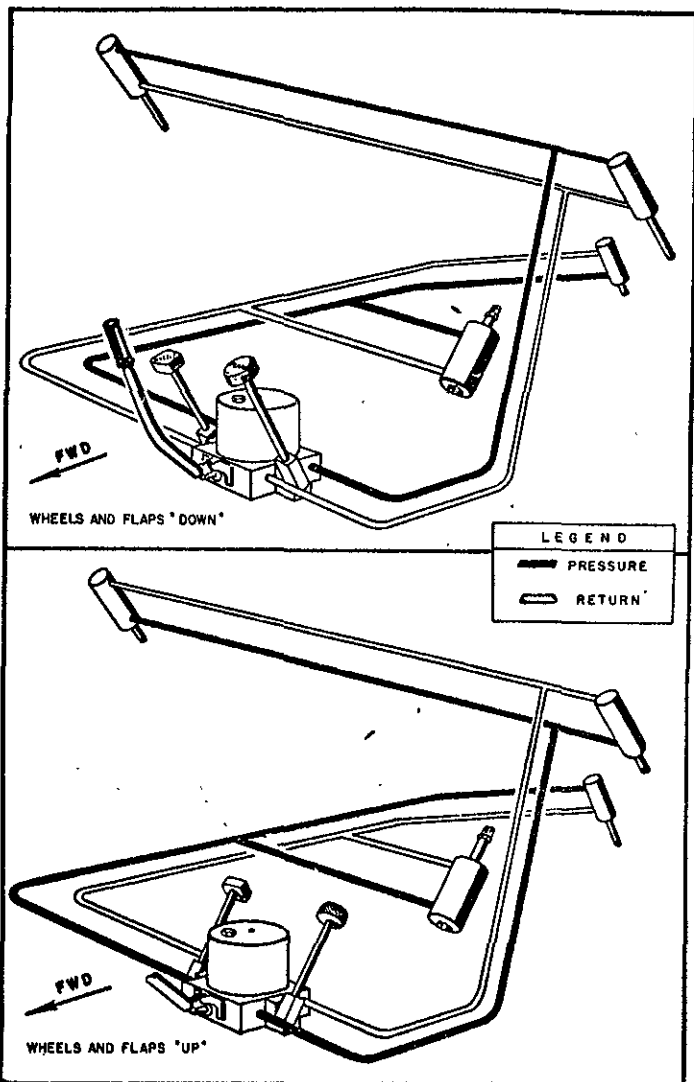


## HYDRAULIC SYSTEM

The flaps, main landing gear and the tail wheel are extended and retracted hydraulically. A single, manually-operated hydraulic pressure system activates both the landing gear and the flaps.

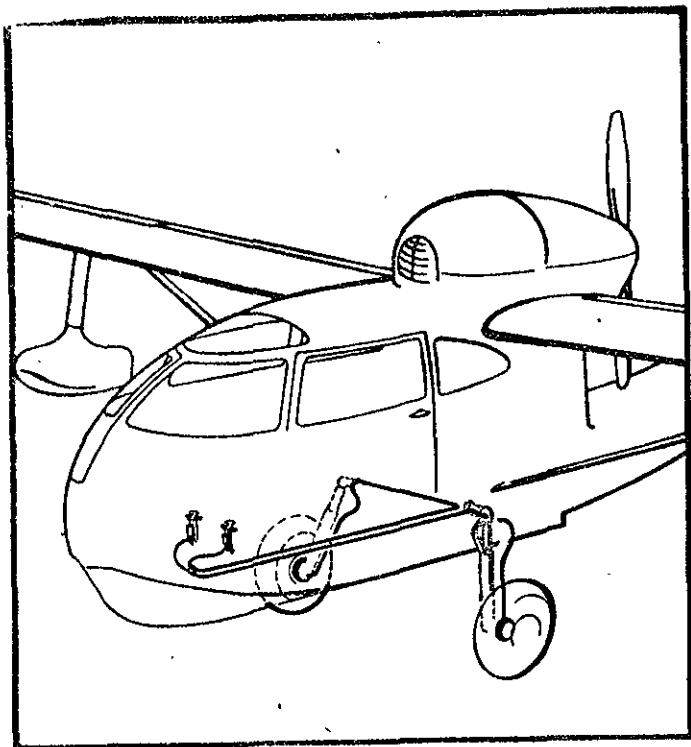
A lever, extending upward from beneath the floor between the two front seats activates the pump with which hydraulic pressure is built up. Two other arms extending from this unit control the action of the fluid. The right lever directs the section of the landing gear while the one located on the left side determines the position of the flaps. The hydraulic power pack incorporates a series of check valves which prevent the temporary dropping off of pressure when transferring the hydraulic action from wheels to flaps or reverse.

The system has a three and one-half pint capacity and uses a petroleum oil base hydraulic fluid, Specification 3580D or equivalent.



HYDRAULIC DIAGRAM

# Brakes and Wheels

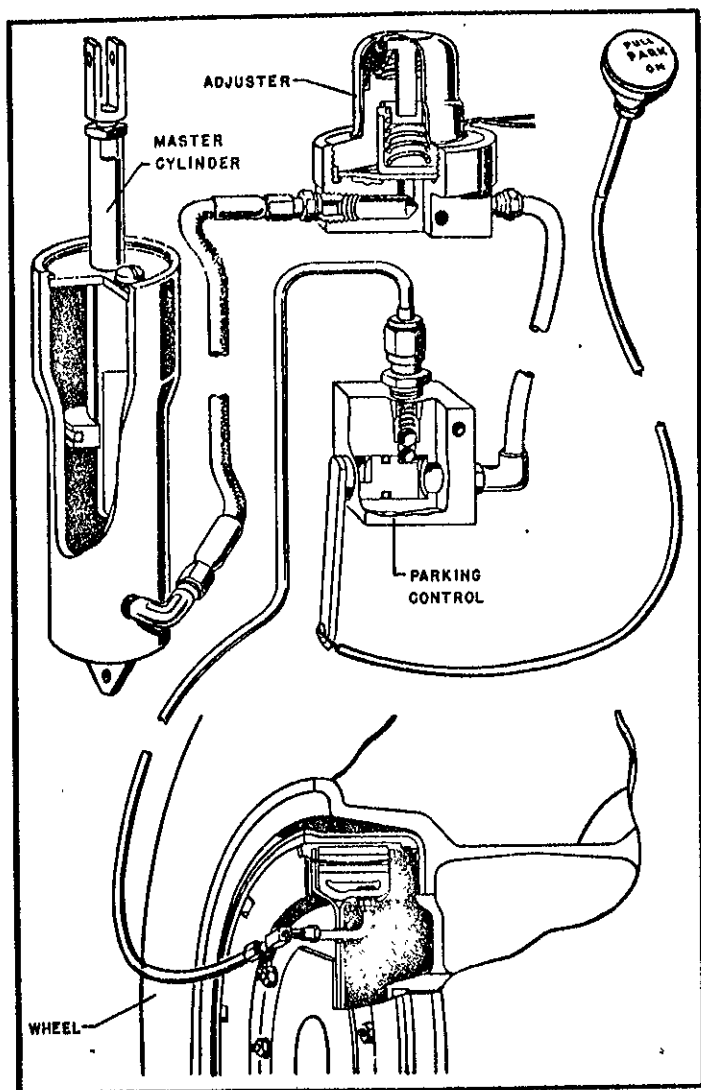


## BRAKE AND WHEELS

The main wheels of the Seabee are 7:00 x 8 and the tail wheel is a 10" smooth contour type.

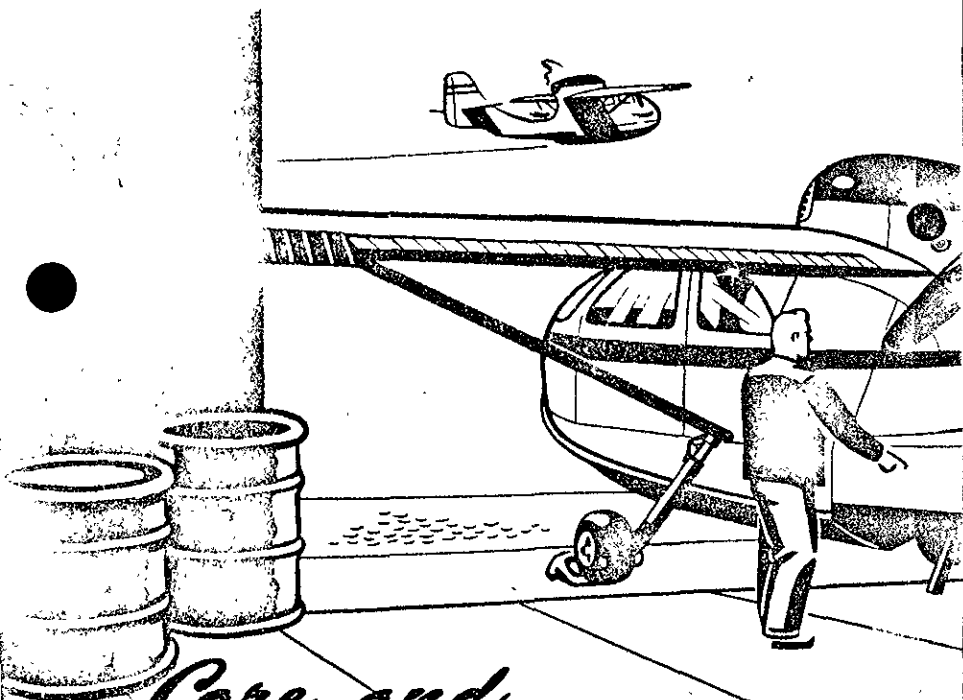
Each main wheel is equipped with bladder-type brake which is fed from its own master brake cylinder at each of the rudder pedals. A brake adjuster and a parking valve are installed in each of the lines between the master brake cylinder and the wheel. The positions of these parking valves are controlled at the instrument panel by a single parking control lever.

A control is provided in the cockpit to engage or disengage a tail wheel lock thus permitting the tail wheel to be locked in the centered position or to be unlocked in order to swivel.



BRAKE DIAGRAM

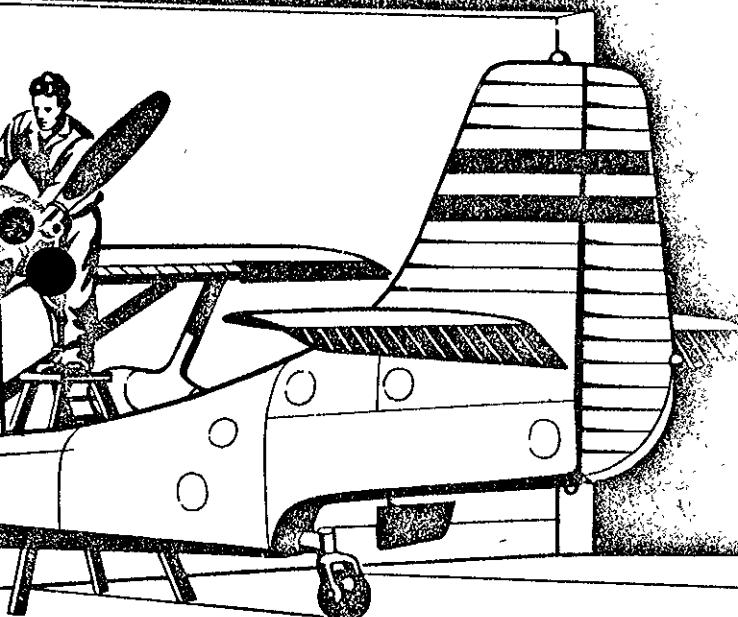




# *Care and* **MAINTENANCE**

## **ACCESS, INSPECTION AND DRAIN PROVISIONS**

Access and inspection holes are provided in the cabin floor for servicing cables, hydraulic lines, landing gear and the gasoline tank. Additional access holes are provided on the exterior at the boom for servicing the tail wheel shaft and surface control cables. The engine cowling is hood type and opens from the aft end for ready access to the power plant. Drain plugs are provided in the keel and at the aft ends of the floats.



## **GROUND HANDLING**

The best push points for ground handling are the wing struts.

*Do not use floats, float struts or empennage for push points.*

## **JACKING**

The base of the oleo and the cross tube will accommodate jacks. To jack the tail wheel, place jack under aft end of keel.

## **HOISTING AND LIFTING**

Hoisting lugs are available for both the engine and the airplane.

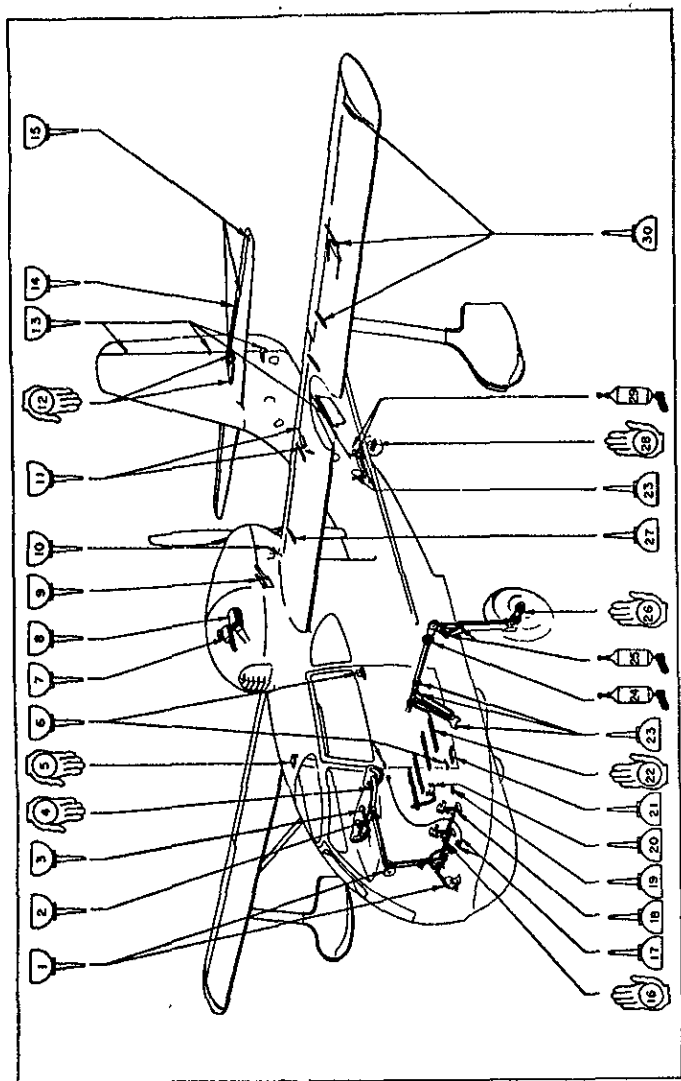
*Do not lift Seabee by the stabilizer.*






























## **LEVELING**

Leveling lugs are provided on the door posts for reference in leveling the Seabee.

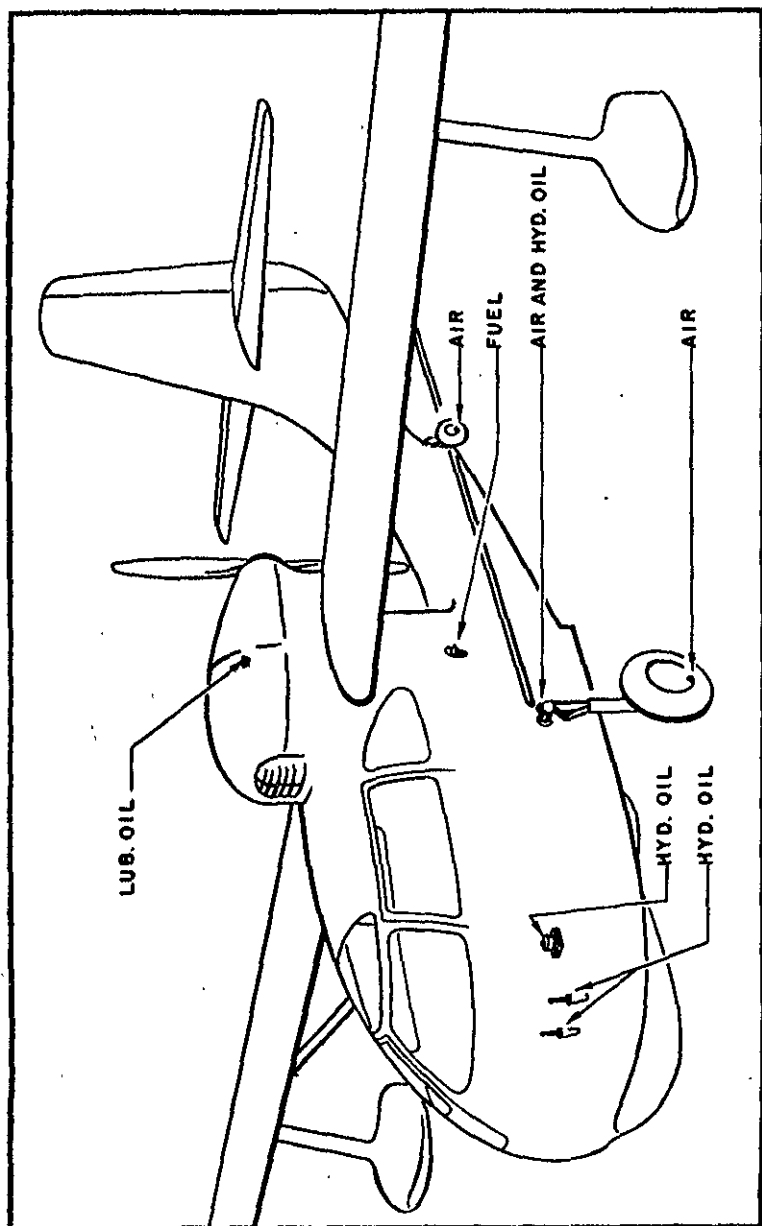
## **ANCHORING AND TOWING**

An anchor cleat is provided at the bow of the airplane. Tow by attaching suitable harness or tow bars at the landing gear.



Parts to be Lubricated	Lubricate Every 25 Hours	Parts to be Lubricated	Lubricate Every 25 Hours
Control Column Pulleys		Gear Segments at Rudder Pedal Rods	
Control Column Bearings		Parking Brake	
Engine Control Shafts		Rudder and Brake Pedal Pivots	
Aileron Control Chain		Fuel Shut-off Valve	
Trim Tab Control		Flap and Gear Selectors	
Door Hinges and Locks		Door Stop	
Generator		Seat Tracks	
Starter		L.G. Pivots	
Cowl Hinges		L.G. Bearings	
Throttle and Mixture Controls		L.G. Wheel Bearings	
Flap Cylinder Pivots		Flap Hinges	
Tab Mechanism		Tail Wheel Shaft	
Tail Surfaces' Hinges, Water Rudder		Aileron Hinges and Bracket	
Symbol	Lubricant	• Engine Oil	
	General purpose, aircraft lubricating oil	SAE 40—Above 40°F (Free Air Temp.)	
	General purpose, aircraft lubricating grease	SAE 30—Between 40°F and 10°F	
	General purpose, aircraft lubricating grease	SAE 20—Below 10°F	
		• Use Aircraft Engine Lubricating Oil (AN-VV-0-446a or equivalent)	

Note: Grease propeller with AN-G-15 every 25 hours or more frequently to assure free blade action.



# GENERAL SERVICING

UNIT OR SYSTEM	CAPACITY	FLUID SPECIFICATION	INSTRUCTIONS AND NOTES
Engine Oil	12 Quarts See Note (1)	Aircraft engine lubricating oil. AN-VV-O-446 or equivalent.	SAE40—Above 40° F. SAE30—From 40° F. to 10° F. SAE20—Below 10° F.
Brake Fluid	¼ Pint, each	See Note (2) Petroleum oil base hydraulic fluid. Specification 3580D or equivalent.	Fill to high level screw at each master cylinder.
Fuel	75 Gallons (maximum)	80 octane non-leaded aviation gasoline.	For limited duration only and in emergencies leaded aviation gasoline of 80 octane or higher is permitted.
Hydraulic System	3½ Pints	See Note (2) Petroleum oil base hydraulic fluid. Specification 3580D or equivalent.	With flaps full up and wheels down, fill reservoir to within 1 ½" of the top.
Shock Strut Fluid	1½ Quarts, each	See Note (2) Petroleum oil base hydraulic fluid. Specification 3580D or equivalent.	With strut bottomed, fill to top of filler.
Main Tires T.W. Tire			Inflate to 30 psi. Inflate to 45 psi.
Shock Strut Inflation			See Note (3) With no load on struts inflate to 53 psi. With full gross load inflate to 225 psi.

Note (1): With Seabee in three-point position read side of oil stick inscribed "LAND OIL LEVEL"; with Seabee resting on water read side of oil stick inscribed "WATER OIL LEVEL".

Note (2): No castor oil or alcohol-base fluid permissible on Seabee.

Note (3): See page 40 for more complete instructions.

## SERVICING THE SHOCK ABSORBER STRUT

The following service instructions when followed will result in a rapid and proper servicing of your shock absorber. All references used in this outline pertain to the illustration shown.

Instructions are given for both pressure readings and measurements. Before attempting to take an extension measurement the airplane must be vigorously rocked. This is necessary since the gear is equipped with packing and is subject to the usual binding loads. It is also recommended that the gear be inflated to a higher pressure and the air bled to achieve proper extension, rather than try to build up the proper pressure by lifting the entire airplane with air pressure.

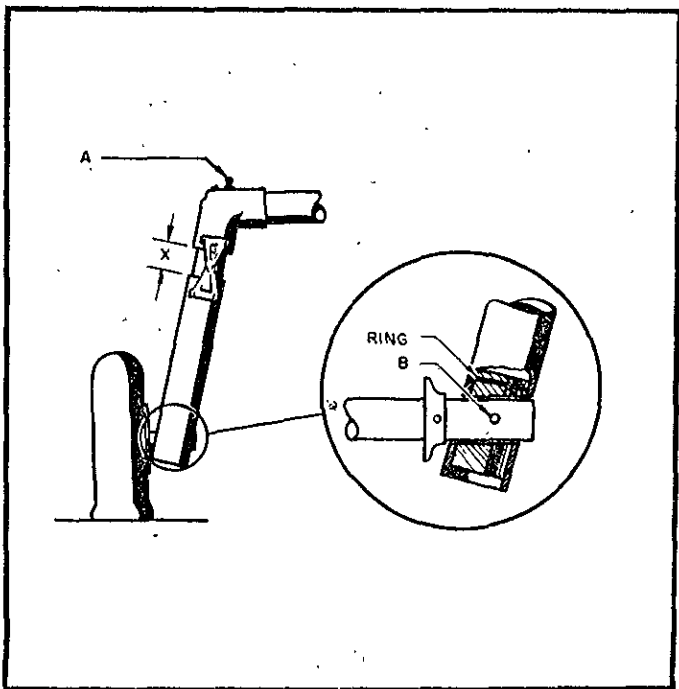
The fluid level should be checked with the gear in the fully compressed condition before inflation. Before attempting to add to or check the fluid it is absolutely necessary to first bleed off any air that might be present by depressing the air valve. When all air has escaped the valve housing may be removed so that fluid can be added.

1. Depress air valve (A). Allow all air to escape.
2. Rock airplane vigorously. Check dimension (X) for full compression. This should be  $2\text{--}7/16$  inches.
3. Remove air valve body (A) and fill to overflowing with petroleum oil base hydraulic fluid. Specification AAF-3580D or equivalent. DO NOT USE ALCOHOL OR CASTOR OIL BASE FLUIDS IN SEABEE STRUTS.
4. Replace and tighten air valve body and with the airplane in the empty weight condition, inflate to approximately 140-150 psi. Rock the airplane vigorously to get a true extension reading at "X". This should be  $6\frac{1}{2}" \pm \frac{1}{4}$ .
5. If necessary to obtain this reading, slowly bleed the air valve, rocking the Seabee at intervals until the desired dimension has been reached.
6. Should the gas tanks be full but the airplane otherwise empty inflate to approximately 190-200 psi. Bleed air pressure, rocking aircraft at intervals until the "X" dimension is  $5" \pm \frac{1}{4}$ .
7. To service the gear on a jacked-up plane, the strut should be inflated to 53 psi  $\pm 5$ . This should indicate full extension of  $10\text{--}7/16"$   $\pm \frac{1}{4}$ .

## REMOVAL OF WHEEL AXLE

In removing the axle from the strut, *the air must be completely removed from the strut before the axle itself is touched.* The air valve body must not only be loosened, but must be removed when sufficient air has escaped to safely permit this. This is necessary because even with the air valve in the open position there still remains enough trapped air to push down on the lower sealing ring as the axle is removed. This force although slight could injure the mechanic performing this operation.

When the air pressure has been removed from the strut, loosen and remove the bolt (B) in the lower portion of the strut and extract the axle. As an added safety precaution, a soft metal mandrel should be used to tap the axle out of the strut.





## TIE-DOWN AND MOORING.

Tie-down rings for tie-down and mooring are provided at the outboard side of each float strut and at the aft end of the boom. The aft end should be tied to two points as noted in the illustration below.

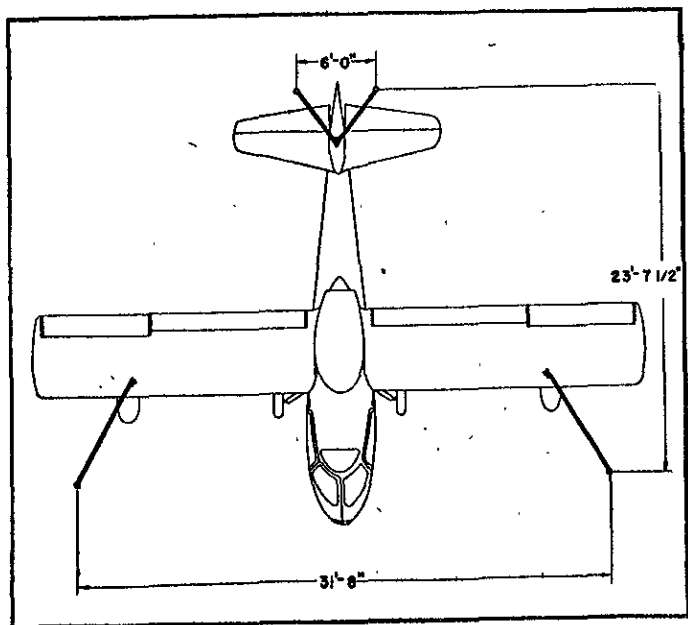
When tying-down, leave tail wheel in fore and aft direction.

Use manilla rope of at least  $\frac{3}{8}$  inch diameter for tie-down.

When facing into the wind, use spoilers.

If the area is dusty or heavy snow is falling, use covers over plexiglass areas.

If locking boards or control locks of any kind are used, place a conspicuous warning in the cockpit.



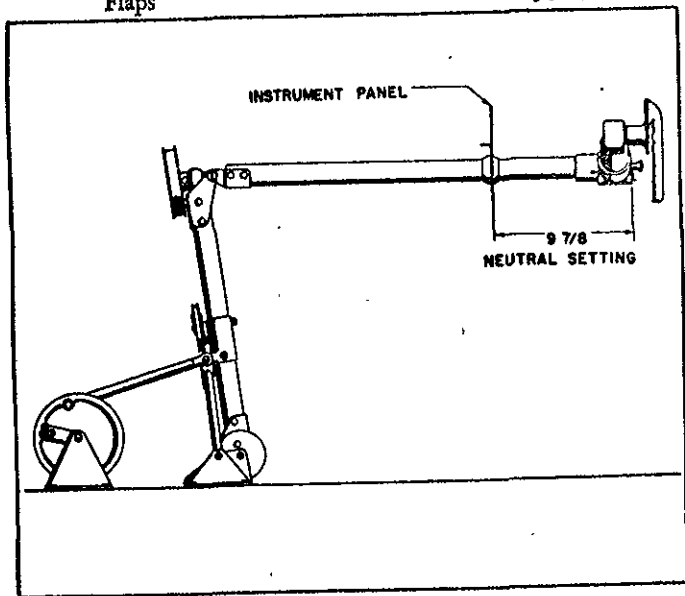
## CONTROL SETTINGS

Neutral setting of the controls is accomplished as indicated in the diagram shown below.

With the exception of the trim tab and water rudder cables which are adjusted to hand-tight tension, cables for all control surfaces are adjusted to  $20 \pm 5$  pounds.

Adjustments for surface travel are made at the adjustable rod ends which actuate the surfaces; angular travel of all surfaces is:

Elevators	28° up	28° down
Elevator trim tabs	22° up	22° down
Aileron	20° up	20° down
Rudder	30° left	30° right
Water rudder	30° left	30° right
Flaps	—	30° down



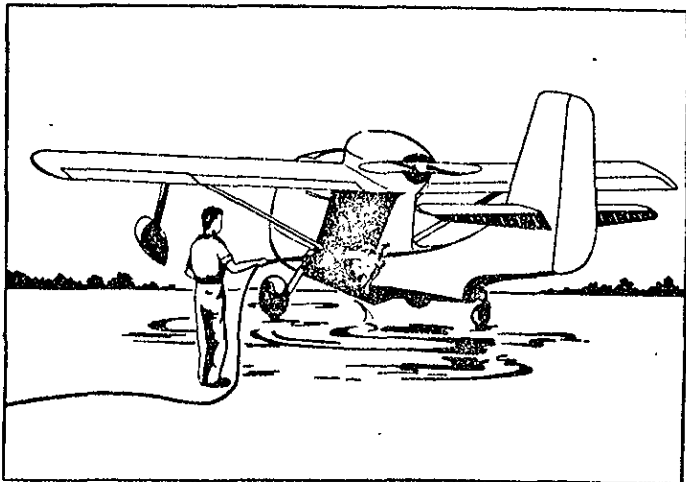
## UPHOLSTERY

The upholstery is a plastic coated fabric which may be cleaned with soap and water and further protected by waxing.

## EXTERIOR SURFACES

The exterior surfaces of the Seabee can best be protected with a coating of high-grade wax.

Salt water spray should not be allowed to remain on the surfaces for extended periods; washing with clear water is recommended.



## PLEXIGLASS

The plexiglass areas of the Seabee must be cleaned with grit free agents; such as, soap and water, or a dilute water solution of a synthetic wetting agent. Kerosene or white gasoline may be used to remove grease or oil.

*Do not use plexiglass solvents or abrasives; such as, benzine, carbon tetrachloride, lacquer thinner, kitchen scouring powders, etc.*

To clean, a soft sponge or rag may be used, but it is preferable to use the bare hand thus insuring grit free cleaning.

Scratches may be reduced by using Franklin Plexiglass Cleaner, Simoniz Liquid Cleaner or Noxon Cleaner-Polish on a grit-free cloth.

*Do not rub scratch-reducer too long or too hard at one spot.*

The glass areas should be waxed for added protection; recommended waxes are—Franklin's Plexiglass Wax, Johnson's Industrial Wax No. 102-C, 3M Auto or Simoniz Wax or Duco No. 7.

To avoid undue abrasion fol'ow these practices:

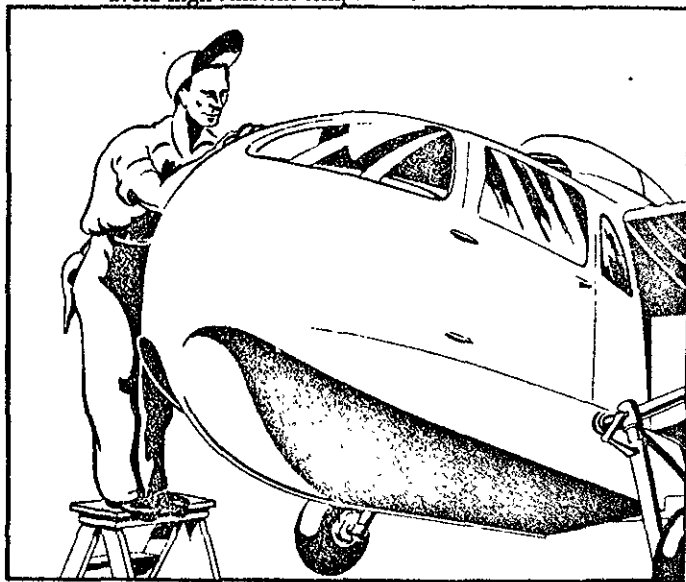
Park Seabee so that it avoids propeller blasts from other airplanes.

If dirt and sand is blowing, tie down Seabee with tail into wind.

Do not dust plexiglass with a dry cloth. Always use water as a vehicle.

Keep plexiglass well waxed.

During hot weather allow cabin ventilation and thereby avoid high ambient temperature.

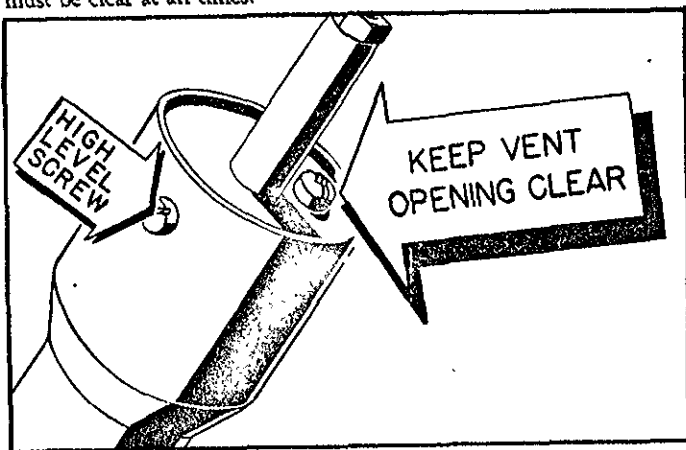


## WHEELS.

To remove wheels it is necessary to release the parking brake and brake adjusters so that pressure is relieved on the wheel brakes.

## BRAKES.

The master cylinders are equipped with O-ring type synthetic rubber packing. Fluid is admitted into the master cylinder by removing the screw at the top of the cylinder. The vent hole in the filler screw must be clear at all times.



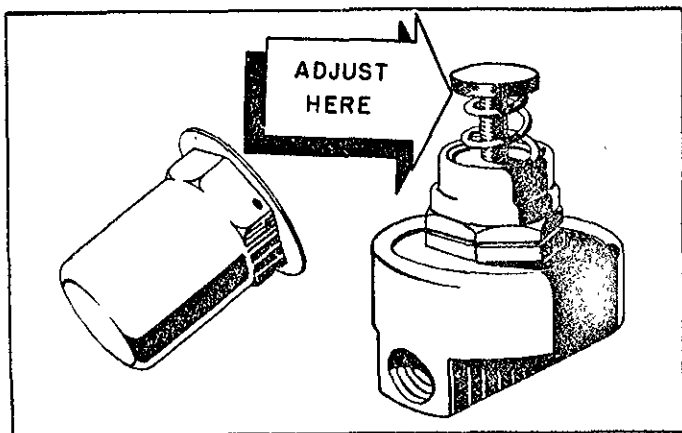
Brake pedals should respond with firmness when depressed. Sponginess or softness of brake pedal denotes presence of air in the system. If brake pedal is firm but slowly and steadily requires further pedal depression, leakage past rings is indicated. Worn rings may be replaced by disassembly of the defective unit.

Gravity bleeding is inefficient on the Seabee brake installation. In order to bleed system properly, pressure type bleeding is necessary. This may be done by attaching hoses at the wheel and master brake cylinders and pumping fluid up from the wheel cylinder until escaping fluid at the master cylinder is clear of air bubbles.

The wheel brake is an expander type brake.

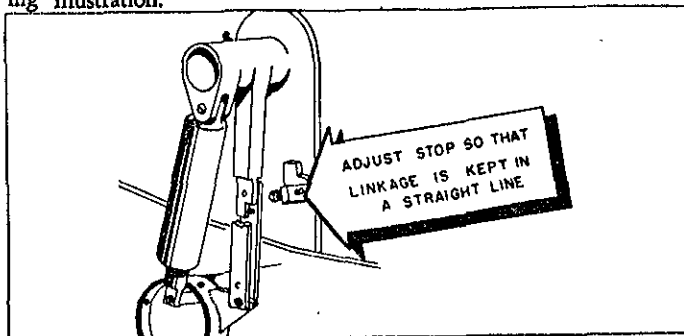
## BRAKE ADJUSTMENT

To readjust the brake linings for wear, turn the brake adjusters clockwise as far as possible and push the brake pedals hard. This action will lock the wheels; then back off on the adjusters until the wheels may be turned by hand against a slight drag. Before bleeding, loosen adjusters; after bleeding, readjust brakes as above.



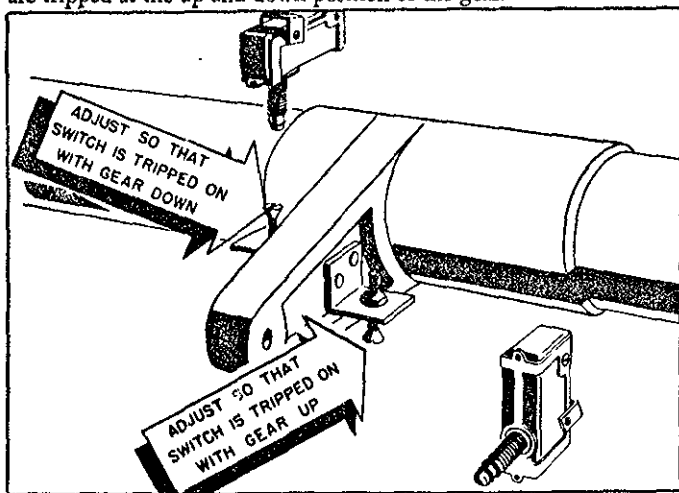
## TAIL WHEEL UPSTOP

Tail wheel upstop adjustment is made as shown in the following illustration.



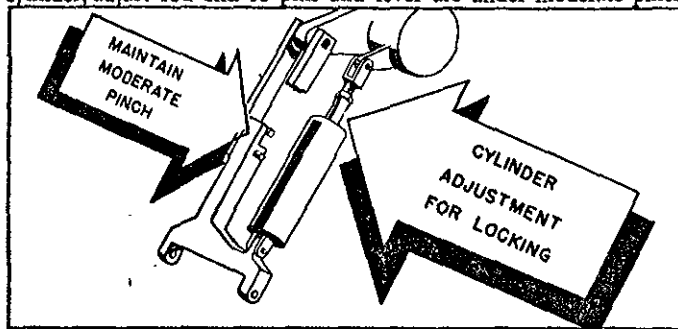
## LANDING GEAR SIGNAL SWITCHES

Landing gear signal switches are located in the hull and are actuated by a lever on a shaft. Adjustment screws which depress the switches are installed on the lever; these screws are adjusted so that the switches are tripped at the up and down position of the gear.



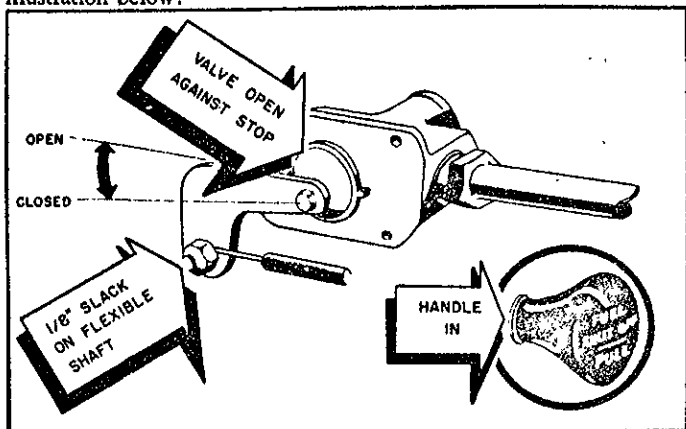
## CYLINDER ADJUSTMENT

Adjustment for the main gear lock is made at rod end of retracting cylinder; adjust rod end so pins and lever are under moderate pinch.



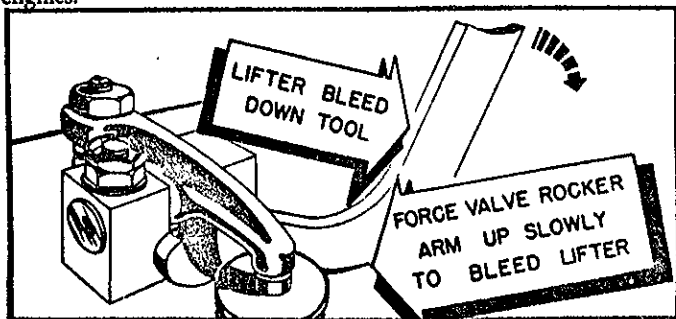
## FUEL-FLOW SHUT-OFF

Adjustment of the fuel-flow shut-off control is indicated in the illustration below:



## VALVE ADJUSTMENTS

Since the Franklin "500" is equipped with hydraulic valve lifters which automatically compensate for variations in engine clearances, rocker adjustment is seldom necessary. Before adjustments are made, oil must be bled out of the lifter bodies; adjustments are then made in the same general sequence of operations as is applied on most other aircraft engines.

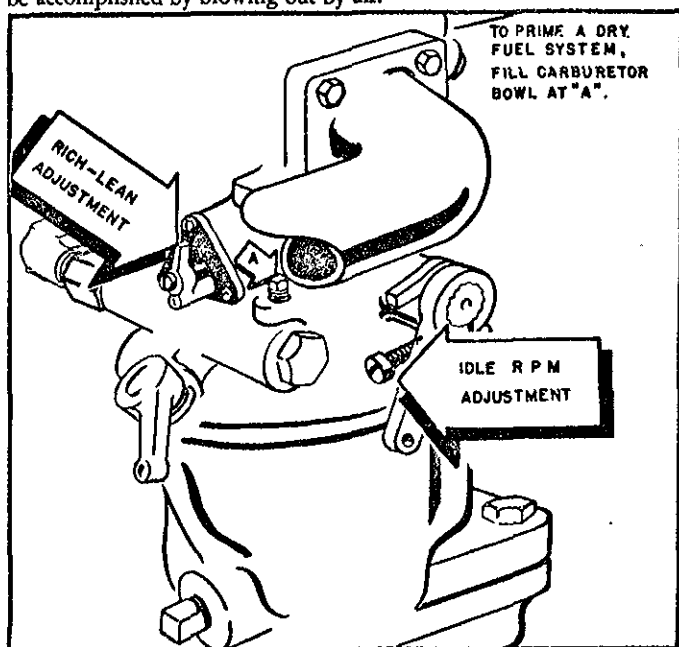




## CARBURETOR

The carburetor is a fixed jet type and requires only an idle adjustment. The idle setting is 500 to 600 rpm. To adjust, warm up the engine and turn the throttle arm adjusting screw until an idle speed of 600 rpm is reached. *Slowly* adjust the idle metering adjustment until the engine runs smoothly at the maximum rpm which it is possible to obtain. Speed the engine up slightly and then permit it to settle back to idle position and readjust to 500 to 600 rpm. Permit the engine to run a little while at idle and then accelerate and return to idle again. If necessary, readjust to get a smooth idle with maximum rpm.

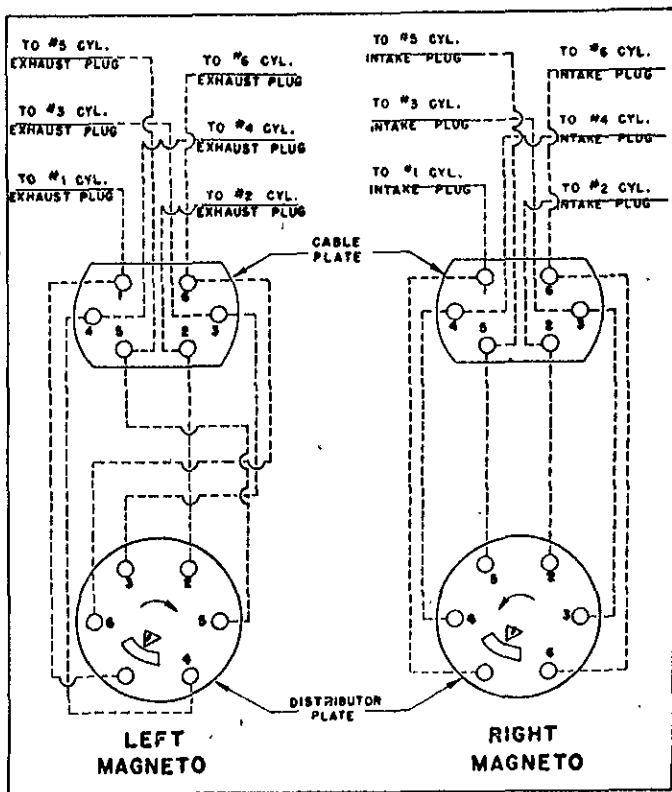
Dismantling of the carburetor is restricted to competent mechanics only. No metallic instrument of any sort; such as, drills, wires, etc shall be used for cleaning out passages or jets. All cleaning operations are to be accomplished by blowing out by air.



## ENGINE

Detailed specifications for the engine and various adjustments are included on page 21.

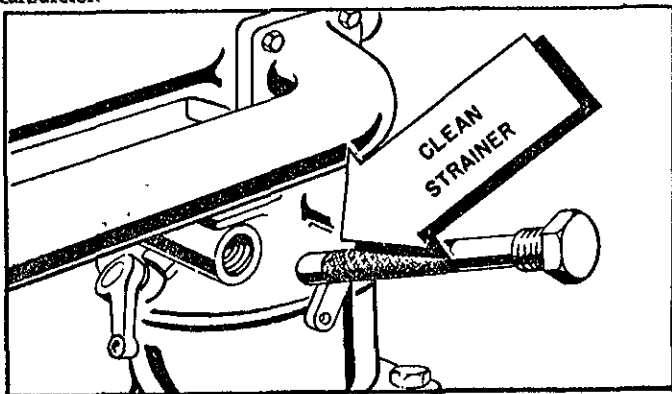
Magneto distributor rotation is counterclockwise on the right magneto which is on the odd numbered cylinder side of the engine and clockwise on the left magneto which is on the even numbered cylinder side of the engine. The diagram of the high tension ignition wires shown below is for left and right as referred to the airplane.



# Inspection

## 10-HOUR INSPECTION (For preflight inspection, see page 11)

Clean out gasoline strainer to insure a flow of clean gasoline to the carburetor.

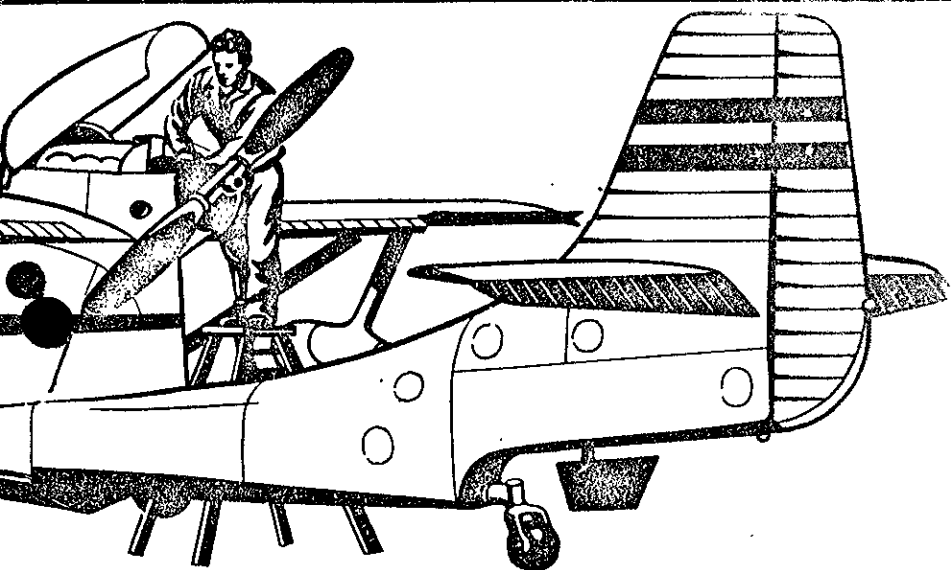


Check for water accumulation in the hull and floats.

See that cylinder cooling fins are clean.

Make a thorough check of the engine compartment for cleanliness and loose parts.

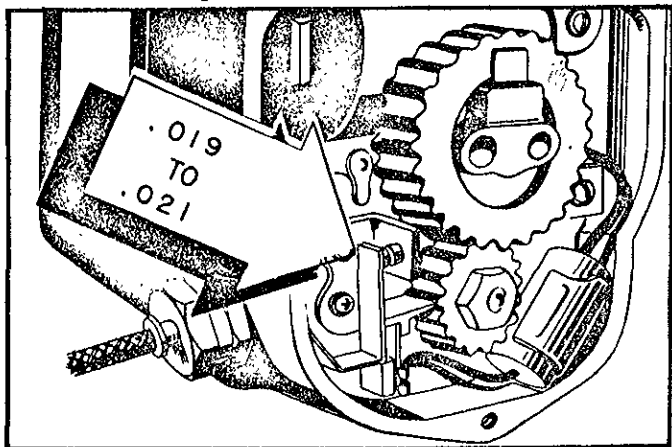
Check for any oil or gasoline leaks.



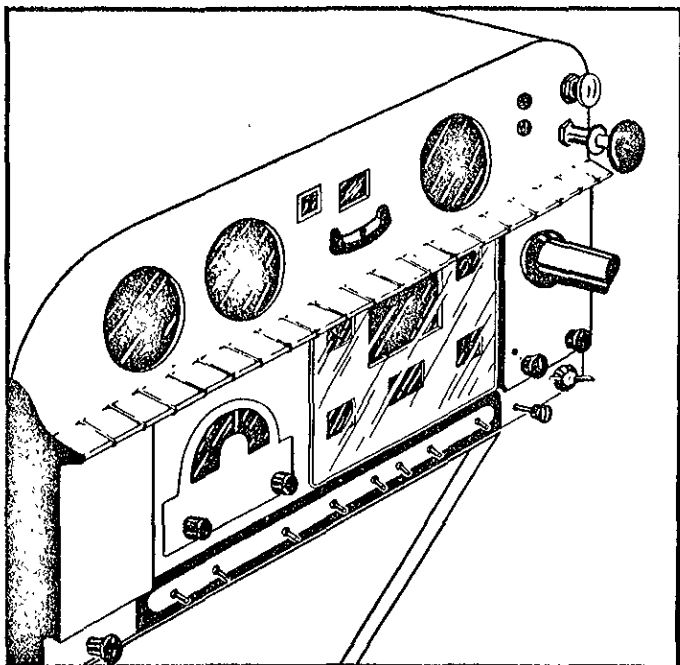
## 25-HOUR INSPECTION

Drain engine oil while hot and replace with new engine oil. When operating under dusty or similar conditions, change oil more often than every 25 hours of operation.

Check breaker point clearances.



Check instruments for correct operation.



Check all high tension wires and connections at the plugs and magnetos for tight connections and proper insulation.

Inspect exhaust manifold as to general condition, fastening, gaskets, etc.

Check cowling.

Check engine mount for tightness of connecting bolts, for cracks, dents and other defects. Check for evidence of misalignment and wear of shock mounts.

Check that all vents are clear.

Very carefully inspect all seams of the hull and structure both interior and exterior for any evidence of corrosion. Remove fairings in order to make a complete inspection.

Check all fairings for cracks.

Check cables for tensions and for fraying. Replace frayed cables.

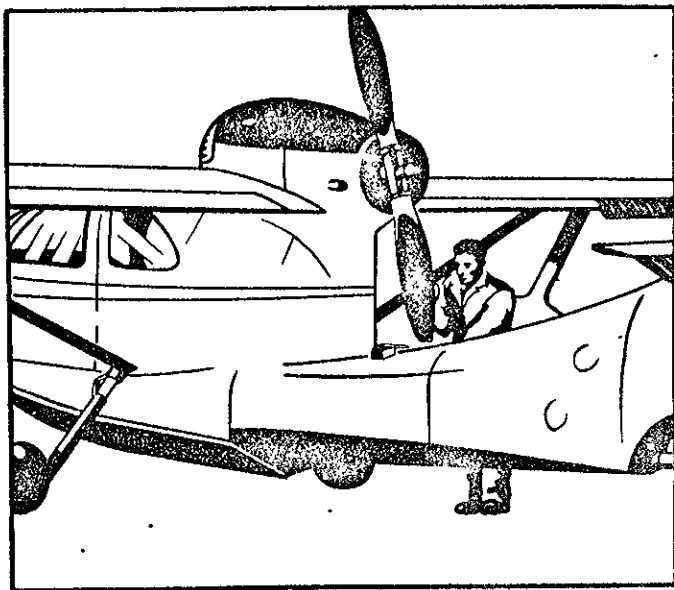
Lubricate all components as indicated on the lubrication diagram.

Check flaps through full operation.

Check oleos and tires for proper inflation.

Check first aid kit and fire extinguisher.

Check propeller for track, general condition and tightness of hub.



Check the fluid level in the brakes, oleos and hydraulic systems and replenish where necessary.

Inspect all hydraulic cylinders for leakage past packings.

Check battery for charge and replenish cells to proper level with distilled water.

Examine safety belt and catches for security of attachment and wear.

Remove wheels and check brake linings for wear.

## 50-HOUR INSPECTION

Repeat 10 and 25 hour inspections.

Check throttle, mixture and carburetor heat controls.

Check all rubber and flexible hose connections.

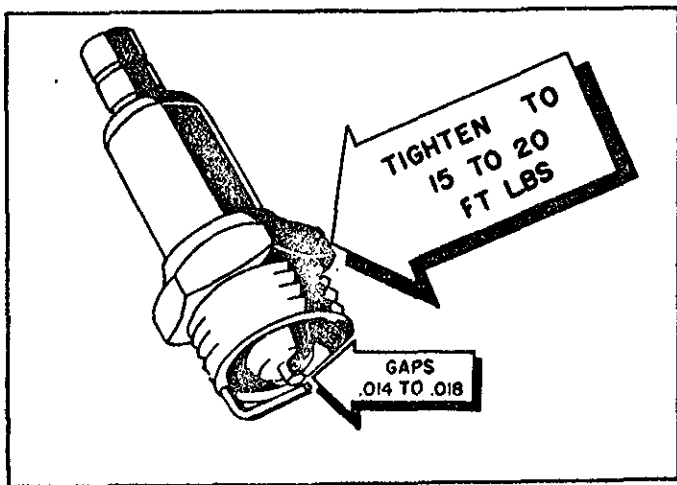
Check for oil, dirt, water or other accumulations in the hull.

Check all engine controls for free operation.

## 100-HOUR INSPECTION

Repeat 10, 25 and 50 hour inspections.

Remove and check all spark plugs; set gaps for .014 to .018 inch. Check plugs for proper operation after gapping and before installation. To install plugs, turn by hand until plugs are seated on gaskets and then tighten to 15 to 20 ft lbs torque.



Drain pitot lines.

Check seat cushions for rips and tears.

Check plexiglass for scratches and bruises which may affect visibility.

With engine warm and all switches off pull propeller through and check compression of all cylinders. The pull should be even with no flat cylinders; if any cylinders are flat, valve clearances should be checked before cylinders are removed.

#### NOTE

Cylinder removal should be handled by competent mechanics and in accordance with general procedures.

Check and clean gasoline lines and strainer from tank to carburetor.

If foreign matter is found in the system, the carburetor should be removed and thoroughly cleaned. Drain gasoline tank to remove sediment.

Place airplane on jacks and test landing gear for operation and wear of all parts. Test for proper adjustments of up and down-locking linkage.

Service generator.

