

*File 1*

# Operating Instructions



**JOHNSON**  
*Sea-Horse "25"*  
**(MODEL RD)**



## introduction

1

Your new Johnson Sea Horse 25 is designed and constructed to give you the maximum in service and performance for a motor of its size—take full advantage of the qualities built into it by understanding the details of its operation.

You should *study* this Instruction Book—not just read it or glance through it. When you have done so, then take a little extra time to gradually become familiar with the controls. Practice until their operation becomes an instinctive habit. Then you won't find yourself sometime “doing the wrong thing at the right time” and vice versa.

The Johnson Sea Horse 25 (Model RD) motor is powerful and fast, yet power and speed have not been stressed at the sacrifice of other necessary characteristics such as “hats-off” acceleration and consistently slow speed.

If you will take good care of your Johnson motor, rest assured it will take good care of you.

JOHNSON MOTORS





## fuel mixture

### **lubrication**

Since fuel vapors are first compressed in the crankcase of the engine, the most practical method of lubrication is by mixing the lubricating oil with the gasoline. Lubrication is obtained as the mixture of oil and gasoline enters the crankcase and is later transferred to the cylinders. Oil being less volatile than gasoline, a larger portion of the fuel-oil mixture remains in the crankcase to lubricate the bearings and other moving parts. The remainder enters the cylinder with the pre-compressed charge to aid in the lubrication of piston and piston rings.

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*Oil* • JOHNSON recommends the use of MOBIL OIL outboard or other outboard oil, or a regular (not premium) type of SAE No. 30 engine oil.

**NOTE:** Many first quality automotive engine oils contain detergent additives which are beneficial in minimizing ring-sticking and the formation of varnish deposits on pistons. These detergents may, under some conditions, when used in two-cycle (outboard) engines, deposit excessive ash on the spark plugs to cause missing or failure to fire the charge. **These deposits are not otherwise harmful to outboard engines;** and the detergent additives are beneficial in proper amounts and of suitable character. Where the recommended Mobil Oil Outboard is not readily available, other oils may be used, in which case use non-detergent SAE No. 30 oils of the API "Regular Type."

When changing from one oil to another because of spark plug trouble caused by deposits, it is necessary to thoroughly clean the combustion chambers, ports, pistons and rings, as otherwise the existing deposits may continue to cause spark plug trouble.

*Gasoline* • Select a gasoline with minimum lead content. If lead content is in excess of 1 cc per gallon, spark plug difficulty may be expected. It is hardly possible for the motor owner to know the lead content of gasoline but premium grades, such as "Ethyl" gasoline, should be avoided. In the event of excessive spark plug difficulty, try changing to another brand of gasoline. Use "white" or



“marine” gasoline if it is available. Since octane rating of the gasoline is not important, low octane gasolines are satisfactory. No generally distributed type of gasoline or oil will cause permanent damage to your motor.

**CAUTION:** Benzol, which is sometimes used to blend with gasoline, is harmful to the motor —avoid use of such fuel.

## mixing of oil and gasoline

*Amount* • Mix  $\frac{1}{2}$  pint of oil (as specified above) to each gallon of gasoline, or 1 quart of oil to 5 gallons of gasoline.

*Procedure* • Pour into the fuel tank approximately one-half the amount of gasoline required. Add all the oil required (at the ratio of  $\frac{1}{2}$  pint of oil to each gallon of gasoline). Shake the two together until they are thoroughly mixed. Add the balance of gasoline. Shake tank briskly to insure mixing.

**NOTE:** Tank capacity is approximately 6 gallons, sufficient to readily accommodate 5 gallons of gasoline plus the necessary oil. Always use fresh gasoline and oil mixture.

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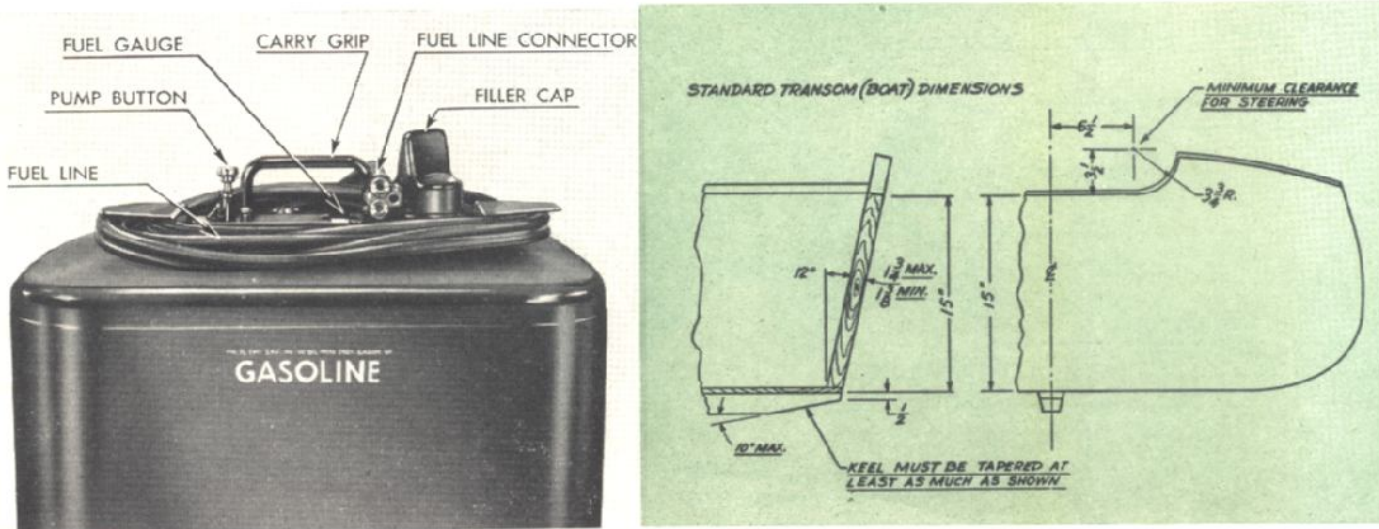
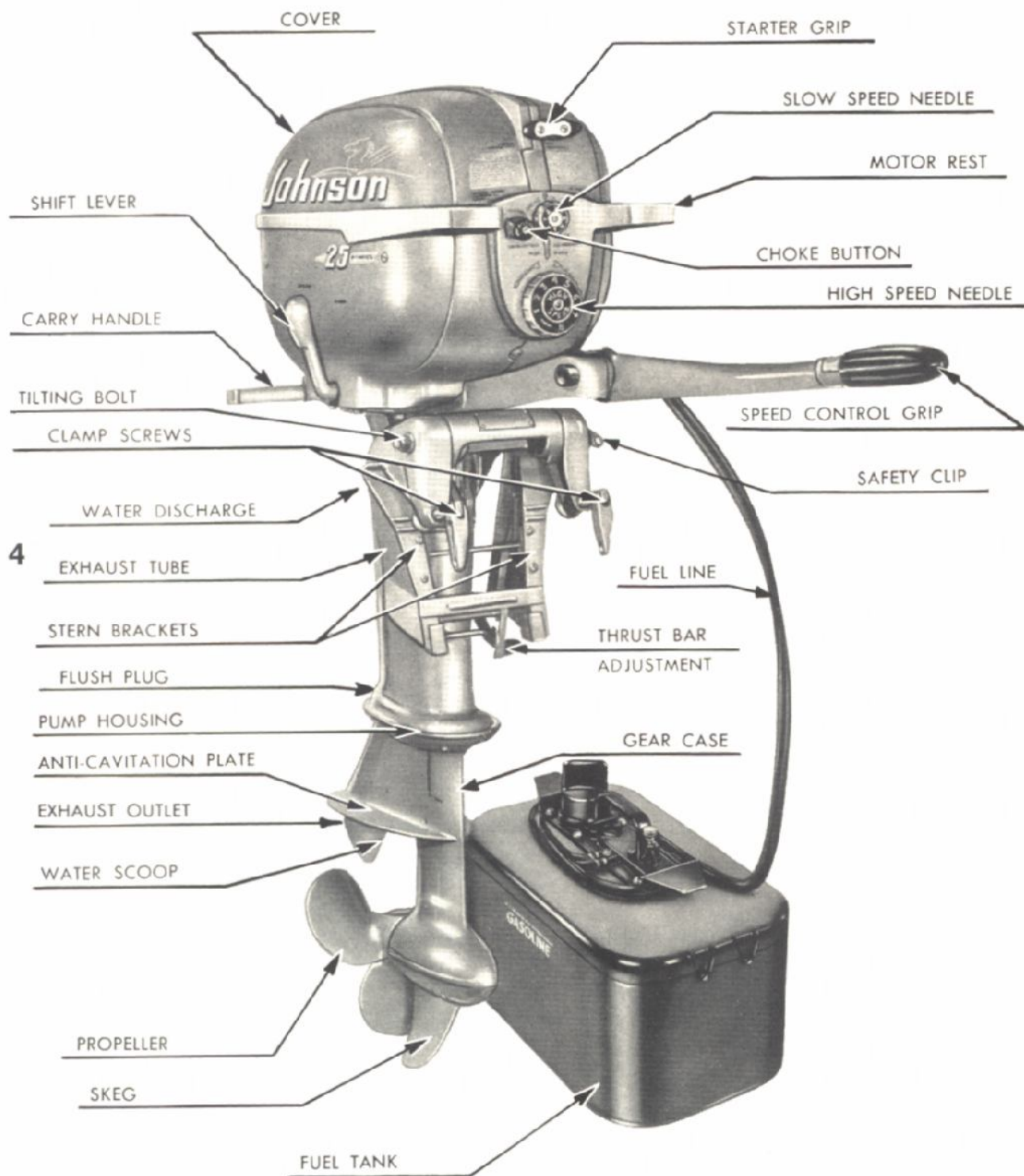


Figure 1





J O H N S O N M O D E L R D



(MODEL RD)



## specification chart

<b>POWER HEAD</b>	Two cycle—Alternate Firing 2 Port—Automatic Intake
<b>Bore and Stroke</b>	2 7/8 " x 2 3/4 "
<b>No. of Cylinders</b>	2
<b>O.B.C. Certified Brake H.P. at 4000 R.P.M.</b>	25.0
<b>Piston Displacement</b>	35.7 Cu. In.
<b>Weight</b>	RD—95 lbs.* (App.) RDL—97 lbs.* (App.)
<b>Propeller Dia. Pitch</b>	10 3/8 " x 12 1/2 " 3 Blade
<b>Fuel Tank Capacity</b>	5 Gals.
<b>Starting</b>	Ready Pull
<b>Ignition</b>	Magneto—Johnson
<b>Make Carburetor</b>	Johnson
<b>Gear Ratio</b>	12-21
<b>Type of Exhaust</b>	Underwater
<b>Cooling System</b>	Vari-Volume Water Pump
<b>Steering</b>	Pivot
<b>Gear Shift Control</b>	Neutral, Forward, Reverse
<b>Stern Height (Max.)</b>	RD—15" RDL—20"

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\* Basic weight without Mile-Master Fuel Tank which weighs 16 pounds.



until they are thoroughly mixed. Add the balance of gasoline. Shake tank briskly to insure mixing.

NOTE: Tank capacity is approximately 6 gallons, sufficient to readily accommodate 5 gallons of gasoline plus the necessary oil. Always use fresh gasoline and oil mixture.

## installation on boat

### boat dimensions

6

Transom standards adopted by the boat building industry (through the OBC) are shown in Fig. 2. To insure maximum performance, transom should be of correct height. Recommended transom (stern) vertical height for Model RD is 15 inches.

If the transom is too high, "cavitation" will result to interfere with ultimate performance of the motor. This condition can be corrected by cutting the transom (stern) down to the proper height.

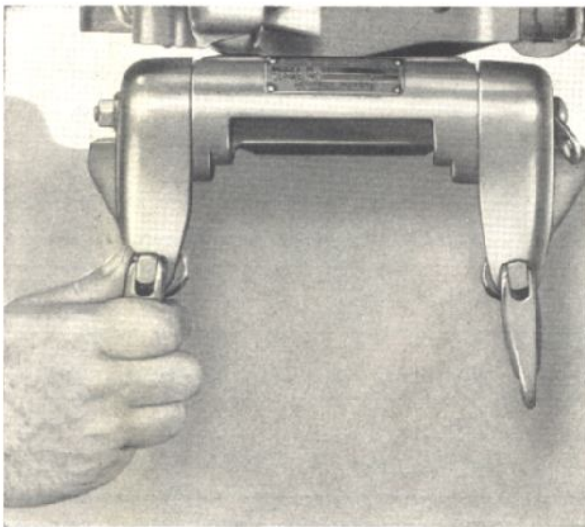


Figure 3

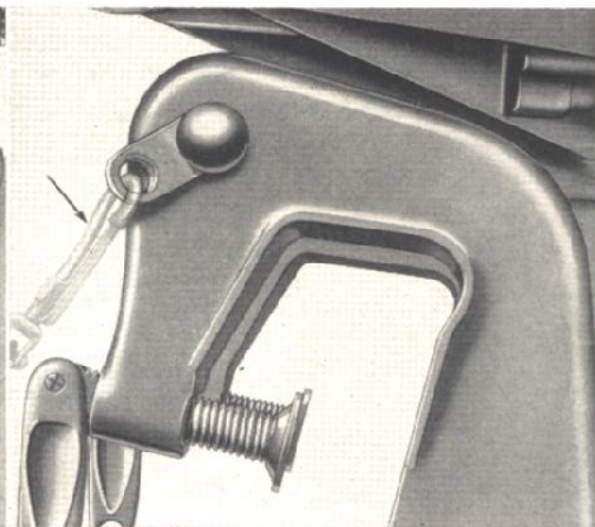


Figure 4





Interference from the keel is frequently the cause of propeller cavitation. It is advisable to taper the keel at the transom (stern) as illustrated (Fig. 2).

In event the transom is too low, parts of the motor lower unit may drag in the water, causing a "rooster tail" to form behind the boat to affect overall performance. This will result in some loss of speed and under extreme conditions, water may be caused to spray up against the bottom side of the motor. A condition of this nature is difficult to correct, as it is not practical to build the transom up in excess of  $\frac{1}{4}$ " to  $\frac{1}{2}$ ". The resulting built up section is rarely of sufficient strength to carry the motor load.

## securing motor to the boat

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Tighten clamp screws *immediately* on placing the motor in position on transom of the boat to avoid possibility of loss overboard when starting and operating. Check periodically during operation of the motor to make certain the screws have not worked loose (Fig. 3). Pay heed to this simple precaution.

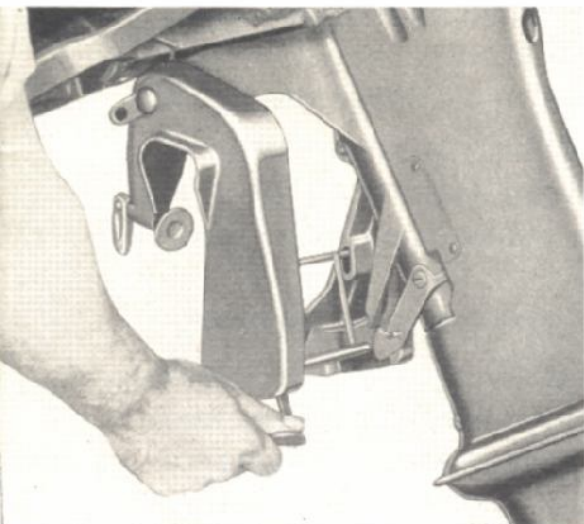


Figure 5

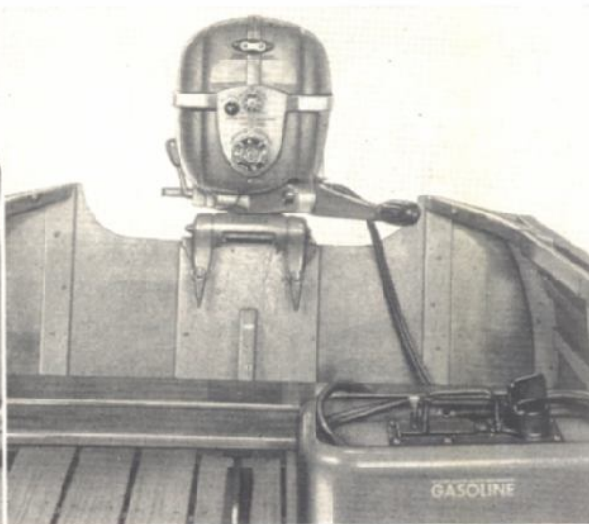


Figure 6





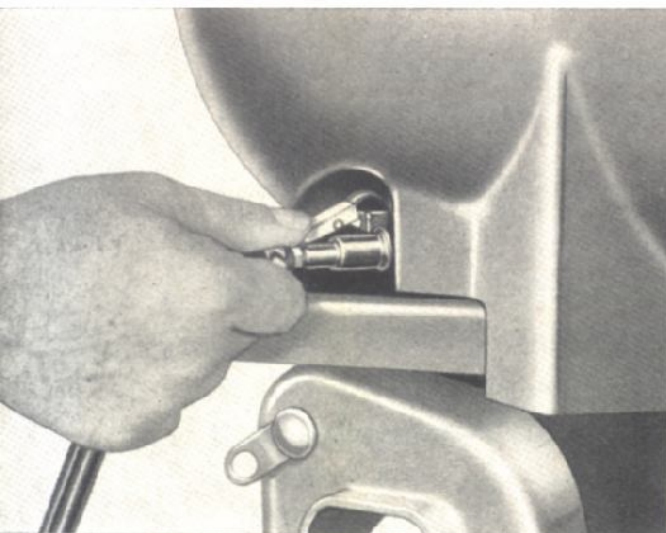


Figure 7

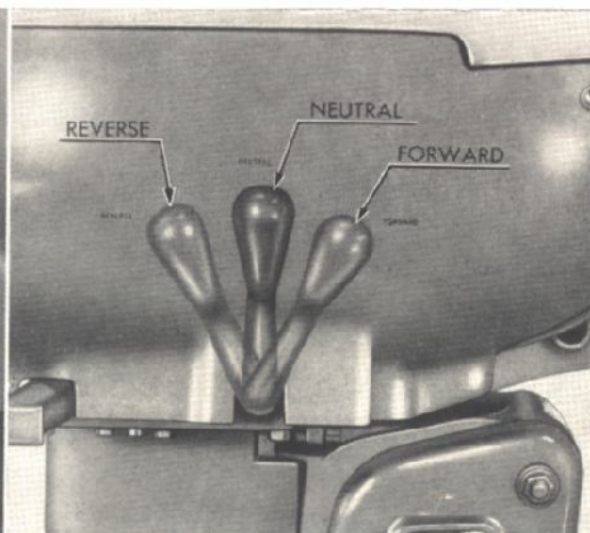


Figure 8

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### precaution

Note that a link has been provided for attaching a short length of rope, cable or chain to the motor for the purpose of anchoring to the boat, thus guarding against loss overboard in event the stern bracket clamp screws work loose (Fig. 4). See your Johnson dealer for precautionary devices of this sort.

### angle adjustment

A simple means for adjusting the motor in a vertical position to make allowance for angle of the transom on the boat is provided, as shown (Fig. 5). Transom (stern) angles vary somewhat; however, range of thrust bar adjustment is sufficient to accommodate angles usually encountered in most boats.

Note that four notches are cast into the quadrant of each stern bracket to permit proper thrust bar adjustment by simply bearing down on small lever against spring tension with thumb and forefinger, then moving assembly (thrust bar) in or out as desired.

To accomplish this adjustment, (1) hang motor on transom of



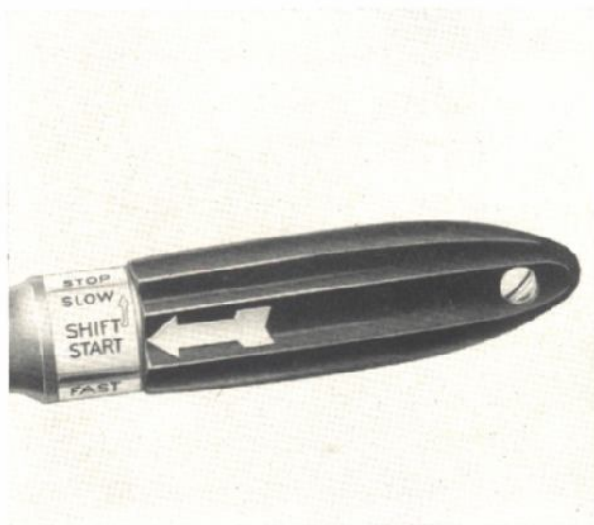


Figure 9



Figure 10

9

the boat, (2) tilt motor out far enough to set thrust bar in second notch (from transom), (3) tilt motor back against thrust bar—correct position for the motor is vertical to line of boat travel (boat lying level on water under normal loaded condition), (4) in event motor does not come to rest in a vertical position, move thrust bar to next notch as required.

The motor may have a tendency to pull or steer to one side if tilted too far in or out with respect to boat transom. Steering tension will balance and co-pilot only when the driveshaft casing is adjusted perpendicular to line of boat travel.

When beaching the boat, move shift lever to neutral or forward, then tilt motor out of water.

### connecting fuel supply

The fuel container (Mile-Master Tank) should be placed in the boat at a convenient position near the operator. The fuel line may be strung out along inside wall of the boat, allowing ample loop for steering as the motor is pivoted from side to side (Fig. 6). The





fuel line connector can then readily be attached to the coupling on the motor provided for this purpose—simply compress small lever on the fitting and slide into position as shown (Fig. 7).

## operating instructions

“Spark” and “throttle” are synchronized by a system of linkage to correctly proportion degree of spark advance with respect to volume of fuel charge admitted throughout entire speed range of the motor. Desired motor speeds (within capacity of the motor) are thus obtained by manipulation of the control grip (Fig. 9).

10 To further facilitate operation of the motor, “neutral,” “reverse” and “forward” are provided, which permits starting in neutral—“out of gear.” The motor may be started at the dock and run at idle speeds for warming up purposes or until ready for power application. It may then be “shifted” into reverse or forward as required to suit the particular occasion—of extreme importance when docking or operating out of congested areas.

Shifting is accomplished by an arrangement of gears in the gearcase through linkage with the shifting lever conveniently located for ease of operation (Fig. 8).

Provisions of necessity are made to automatically restrict motor speeds at the time “shifting” takes place and to guard against “racing” when shifted to neutral. Motor power and speed are likewise limited when operating in reverse as a precaution against damage to the boat. The reversing feature has been installed primarily for maneuvering of the boat, though not efficient for the pulling of heavy loads.

It is possible to shift ONLY when the arrow on the speed control grip is set within the “shifting” range as indicated by position marked SHIFT and arrow on the steering arm (Fig. 9). Take







Figure 11

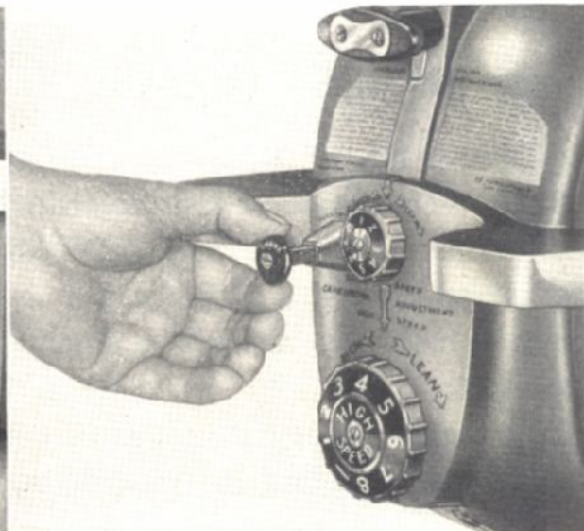


Figure 12

note of this fact.

Note raised rib on which the arrow is embossed, running full length of the speed control grip—this provides ready reference to actual position of the control grip at all times, thus eliminating necessity of constantly referring to printed instructions on the steering arm. When on top, position indicates *Mid-Throttle*, which falls at *Starting* and at maximum end of the shifting range.

A convenient "Fast Idle Stop" (connected to control linkage) is provided to permit rapid deceleration without accidentally stopping the motor as result of having moved the control grip too far toward stop position—that is, out of the running range. When decelerating, move the control grip towards slow position until resistance is felt—indicating fast idle position. If slower idle speed is desired, force control grip against tension—beyond point of "fast idle."



## starting instructions

Since fuel is fed to the carburetor by means of pressure created within the crankcase of the motor and built up in the fuel tank, some arrangement is necessary to fill the carburetor on having attached the fuel line to the motor and prior to starting. This is accomplished by operation of a simple pump built into mechanism of the tank.

Two stages of carburetor choke are provided—first stage or partial choke for warming up—second stage or full choke for starting, (Fig. 12).

The fuel line connector is constructed to automatically close off fuel supply when disconnected from the motor.

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### to start:

1. Depress pump button on the tank several times as shown, (Fig. 10). Note that pressure required to operate the pump increases as the fuel line and carburetor fill up—this is your signal to stop pumping. It is not necessary to pump beyond this point—further pumping is superfluous with excess fuel merely returning to the tank after having filled the carburetor—it is used only after having attached the fuel line. Fuel level is automatically maintained in the carburetor by pressure built up in the tank during operation of the motor.
2. *Move gear shift lever to center or "neutral" position (Fig. 8).*
3. Turn speed control grip to position marked "Start" as indicated on the steering arm (Fig. 9)—then advance control grip towards position FAST until it "butts" against speed limit control for neutral operation.



4. COLD MOTOR—turn high speed dial slightly to left (possibly required only in cold weather) to obtain slightly richer mixture for starting.

Pull choke "out" to extreme limit (beyond notch, to end of travel—full choke) Fig. 12. Crank to start. Upon having started the motor, push choke button to first stage (partial choke) during warm-up period—then "in" to running position when normal operating temperature has been reached.

5. WARM MOTOR — (immediately after previous running). Choke ordinarily not required.

If motor fails to start on third attempt, pull choke to mid position (notch). Pull on starter cord grip to start. After starting, return choke to normal running position (choke in).

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6. Shift to forward or reverse as desired.
7. When in "forward" turn speed control grip towards FAST to gain speed.
8. Adjust high speed dial to best running position—at full open speed (Fig. 11).
9. To stop motor, turn speed control grip to limit of its travel towards position marked STOP.

The above starting instructions are given in step by step form—it is advisable to become familiar with each detail prior to actually operating the motor. A few moments spent in practice are well worth while.





## carburetor adjustment

The carburetor being of the two jet (float feed) type, is designed for maximum, efficient carburation at all speeds, two adjustments are thus required, namely; high and slow speed. Both high and slow speed needles are adjusted at the factory with provisions for limited variations to compensate for atmospheric conditions. However, if ultimate adjustment does not fall within the limited range or in case of repairs, proceed as follows:

Loosen, but do not remove screws in center of slow and high speed dials. (Dials are held firmly in position on their respective adjusting needle shaft by expansion of slotted serrated ends as a result of drawing up on the counter-sunk head screws.) Pull dials out until limiting stops on dial (back side) clear like stop cast onto the motor cover. Dial is now free to be turned beyond normal limited range: tighten center screws to secure to needle shafts.

Carefully turn both dials to right, to position where adjusting needles come to rest gently on their seats. Be careful not to injure

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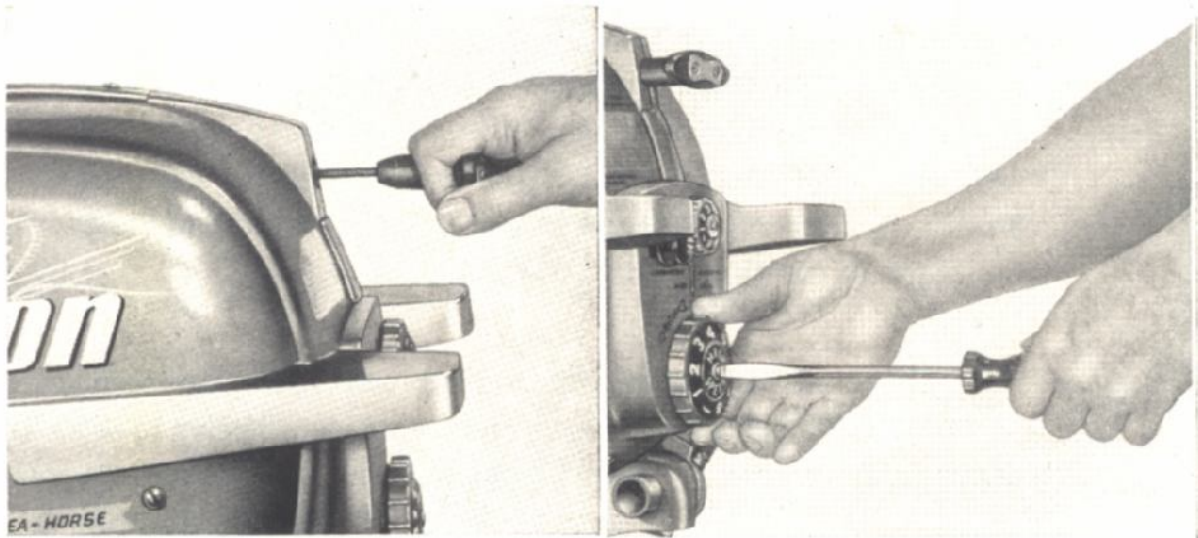


Figure 13

Figure 14



seats by turning down too tightly. Then back off (turn left) slow speed dial approximately one full turn—high speed dial about  $\frac{3}{4}$  turn (Fig. 11).

### slow speed adjustment

Start motor as instructed—run at “Fast” speed until normal operating temperature has been reached. Throttle down to “slow speed range,” (Fig. 9). Turn dial to right or left as required to obtain best setting for slow speed.

(Note: Turning needles to left enriches the fuel mixture—that is, increases proportion of fuel to air to result in rich mixture. An excessively rich mixture is indicated by “rough” running of the motor. “Spitting or coughing” in the carburetor is indicative of a lean mixture, caused by turning needle too far to right.)

Loosen center screw to properly arrange dial numbers, without disturbing position of the slow speed needle (this is IMPORTANT). Should dial tend towards binding on the needle shaft, it may become necessary to pull it free entirely to permit rearranging its position without affecting adjustment of the needle at this time. Arrange dial to position where Number 4 is directed upward as on page 1. Push dial back onto the shaft to distance clearing the motor cover by approximately  $\frac{1}{8}$ ”, which should be sufficient to engage limitation stop on the cover. Tighten center screw to firmly secure dial. Atmospheric conditions may necessitate slight variation from time to time—limited range provided in this respect should be sufficient, nevertheless.

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### high speed adjustment

(Must be performed only after final slow speed adjustment has been made.) Turn dial to left or right as required to obtain best setting for top speed performance. Rearrange dial numbers as described above—Number 4 should be directed up as on page 1.





## cooling

Water for cooling purposes is provided by action of the Vari-Volume pump, which functions as a displacement pump at slow motor speeds and as a centrifugal pump during operation in the higher speed ranges (Fig. 15).

Note twin water inlets in the gearcase. During FORWARD operation of the motor, water is picked up by the cavity in the gearcase immediately back of the propeller and forced through the cooling system, later to be discharged at the outlet in the exhaust tube provided for this purpose. Water enters the cooling system through the small hole above the anti-cavitation plate when operating in REVERSE.

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Ordinarily the cooling system requires little or no attention (except as instructed on page 26) and continues to function during operation of the motor provided the water inlets are submerged, open and free of obstruction. Take care when maneuvering in shallow, muddy water.

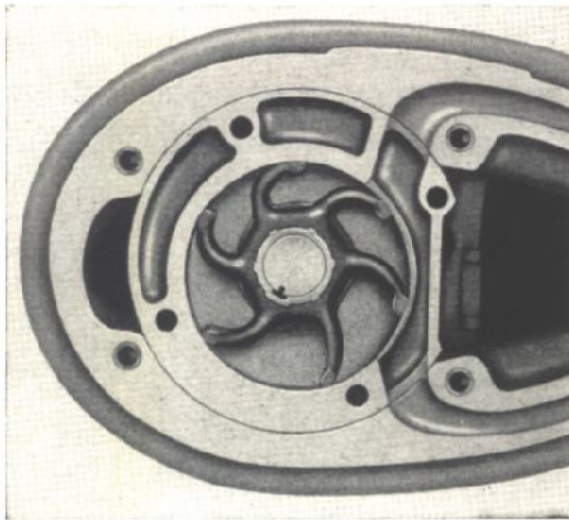


Figure 15

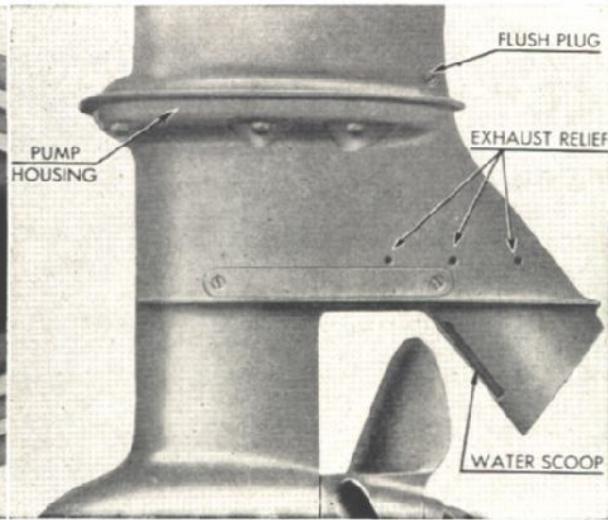


Figure 16





## break-in of new motor

Do not operate this motor at continuous full power for the first hour of operation. After approximately 15 minutes of part throttle operation, it is permissible to run at full power for a few seconds followed by a minute or two of part throttle operation. This may be repeated frequently and the period of full power gradually increased until a total of one hour operation has elapsed. After one hour, the motor may be run at full power.

## lubrication of gearcase

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### type of gear lubricant

The gearcase employs the use of hypoid gear lubricant. Mobilube GX 90 is recommended for best operation. In the event this is not obtainable, use any good grade of S.A.E. 90 gear oil *suitable for automotive hypoid gears* meeting U. S. Army Spec. No. 2-105-B Grade 90. In case of an emergency where neither is available, it is permissible to use an S.A.E. 40 oil, but only until such time as the proper lubricant can be obtained.

### filling of gearcase

Where a complete change of lubricant is required, the fill and drain plugs should both be removed. Drain out all of the oil, water or residue; replace the drain plug, then fill the gearcase through the vent plug with a pump type oil-can as shown (Fig. 17). Fill to level of the vent and replace screw. Capacity 11 fluid ounces.

When checking for water in the gearcase, it is necessary to, first; remove the vent screw, second; loosen the drain screw partly to



allow enough of the lubricant to run out to determine whether or not water is present. If there is no water, the drain screw may be retightened without an excessive loss of lubricant. The gearcase should then be filled to the vent screw level and the vent screw replaced. When refilling with pressure gun, fill from bottom—oil drain hole. Check condition of gasket on both screws to avoid possibility of leaks. Replace, if necessary.

See your Johnson dealer or gasoline service station with regard to obtaining a small quantity of hypoid oil in event it becomes necessary to occasionally add to the gearcase. Small pressure type oil cans suitable for this purpose are readily available through local automotive supply houses, hardware dealers, or your Johnson dealer.

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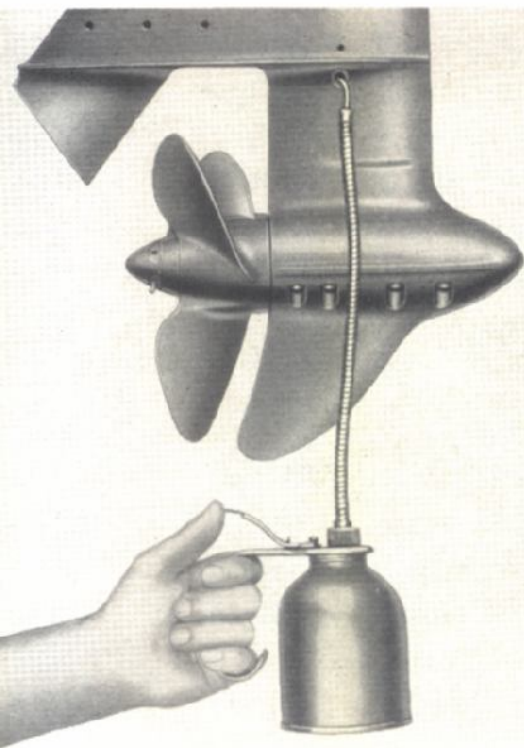


Figure 17

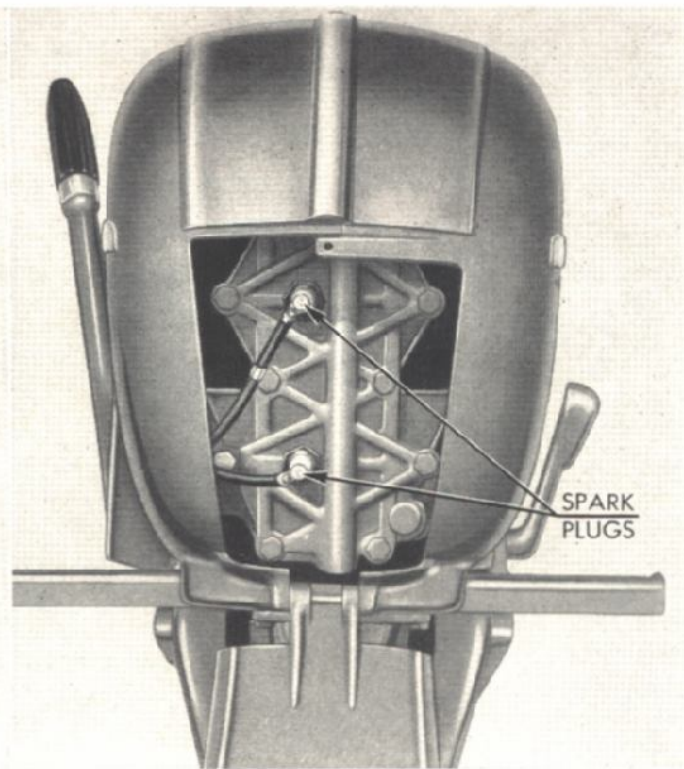


Figure 18



## spark plugs

*Recommended Spark Plugs*—Champion J6-J (formerly known as Champion J-10 Commercial).

### causes of plug failure

A certain amount of spark plug replacement may be necessary, depending upon the quality of fuel and oil used in fuel mixture, and the amount of carbon deposit in the combustion chamber. If spark plug replacements become excessive, consult Johnson Service Station with respect to removing carbon from the pistons and the cylinder head. Seek his advice—based on experience, as to the best grade of oil and gasoline available in the locality.

Bits of carbon often break loose from the head of the piston and are apt to lodge between the points of the spark plug to short it out—result is misfiring. Firing usually can be restored by removal of the “bridging” carbon.

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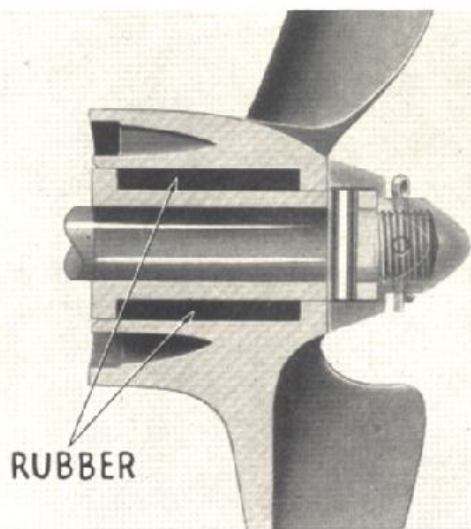


Figure 19

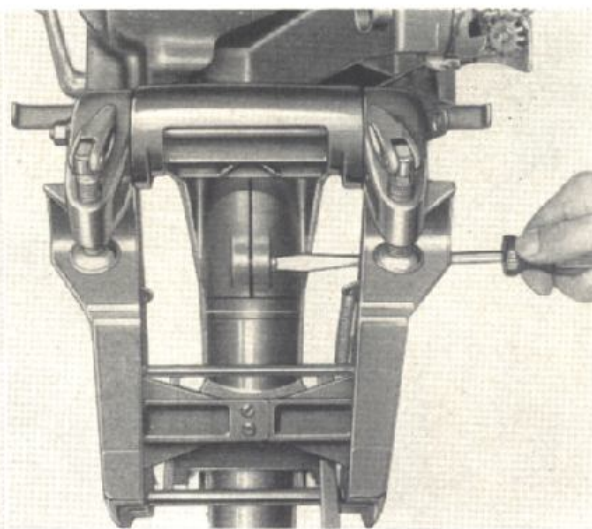


Figure 20





## spark plug replacement procedure

Loosen screw holding top end of spark plug cover fast. The cover "swings" down to make spark plugs accessible for inspection or replacement (Fig. 18).

Remove the spark plug terminal nuts. (It may be necessary to use pliers.)

Remove the spark plug by using the socket wrench provided in the tool kit.

Replace with a new spark plug, following same procedure outlined above in reverse.

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## rubber floated propeller

A rubber cushion has been installed between the propeller hub and propeller for purpose of absorbing "shock" in event the propeller blades strike an underwater obstruction during operation of the boat (Fig. 19). Shearing of propeller drive pins and possibility of

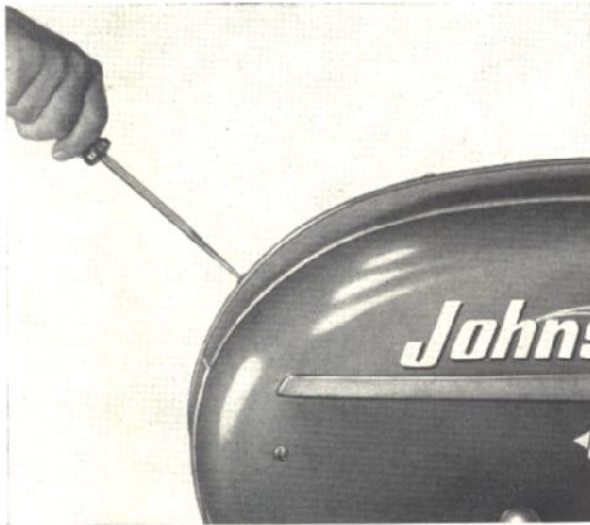


Figure 21

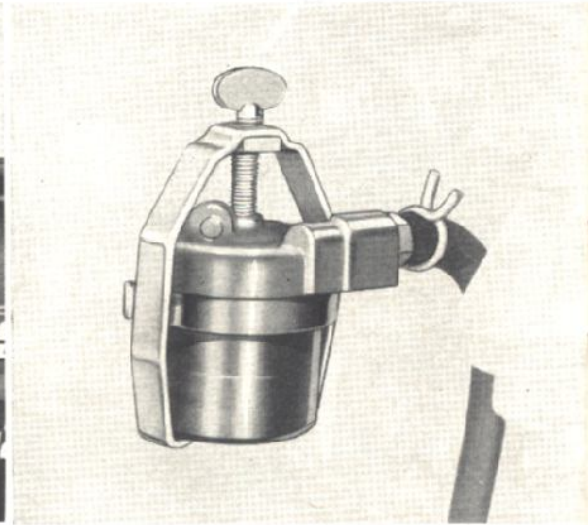


Figure 22



otherwise damaging the motor are thus considerably minimized.

The rubber cushion performs an additional function in case of the Model RD in that it acts to reduce impact load on the reversing mechanism.

Under no consideration substitute propellers not provided with the rubber shock absorber, to avoid causing rapid wear of reverse mechanism.

## **propeller drive pin replacement**

In event the propeller strikes an underwater obstacle while in operation, the drive pin in the hub of the propeller may shear, allowing the motor to run free (Fig. 19).

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### **removal of broken drive pin**

Note that location of the propeller drive pin in this case is immediately back of the propeller nut which usually does not require removal of the propeller to install a new pin. To remove a sheared pin, remove the cotter pin followed by removal of the propeller nut—fragments of the sheared pin can then be driven out with the new pin after aligning propeller pin holes (propeller and shaft).

### **replacement with new drive pin**

It is a simple matter to install a new pin (be sure it is a genuine Johnson pin—engineered and constructed for the purpose). Insert pin through hole in the propeller shaft—replace and tighten the propeller nut. Nut is “capped” to fit over ends of the pin.

### **tightening of the propeller nut**

Draw up just enough to secure position of the propeller pin and to align cotter pin holes. Install cotter pin (preferably a new one) and secure.



## steering friction adjustment

Steering friction may be adjusted to individual requirements by simply loosening or tightening the screw in the swivel bracket provided for this purpose (Fig. 20). Tilt motor from the thrust bar to gain accessibility to the screw.

## cleaning of gasoline filter

A gasoline filter is located on the port (right facing the motor) side of the power head, under the side cover. The filter is made accessible for inspection and cleaning by removal of the port side cover.

### removal of side cover

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To remove the side cover, disconnect the fuel line connector, (detach the choke button if both covers are to be removed). Remove spark plug cover and screws holding the two side covers together (Fig. 21). Remove the two screws below the polished strip which hold the side cover to the rubber mountings. The side cover may then be easily lifted from position.

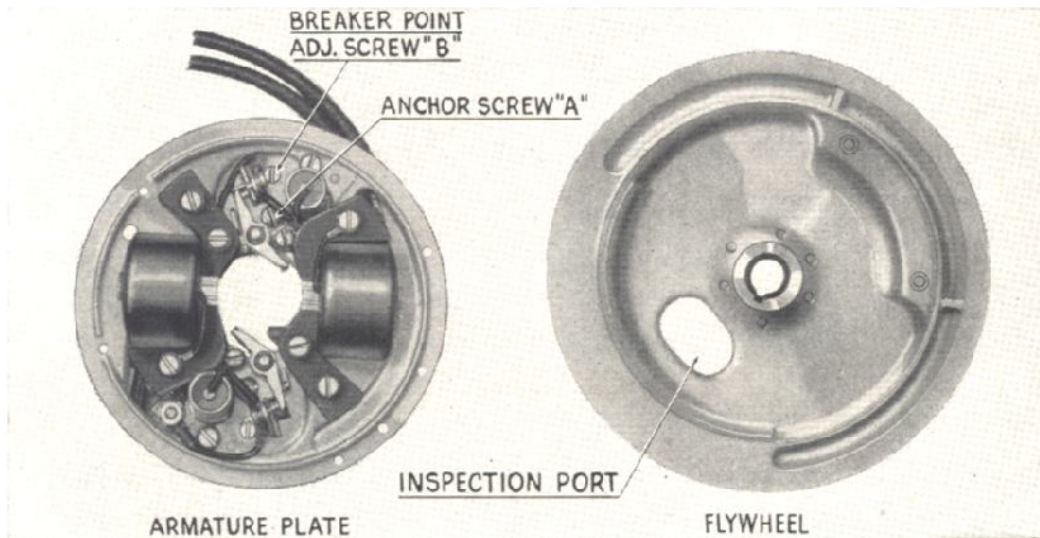


Figure 23

Figure 24





### **cleaning of filter**

First inspect the filter to determine necessity of cleaning by observing amount of foreign matter accumulated in the glass bowl. To remove the glass bowl and filter element for cleaning purposes, loosen the small wing screw above the bowl to free the assembly (Fig. 22). Care should be taken to avoid losing the gasket. The filter element may then be removed by loosening the screw on the bottom end. Wash filter element in container of clean gasoline.

### **assembling of filter**

The filter should be assembled in reverse order of that described above. Care should be taken that the gasket is replaced in the same relative position it had prior to disassembly.

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## **lubrication of magneto oiler felt**

The magneto is provided with a lubricating felt riding against the breaker cam to minimize wear on the breaker point arms. To function properly, the felt requires an application of light machine oil at least once a year—five to six drops will do. See your Johnson Service Station.

## **breaker point cleaning and adjustment**

From time to time it may be necessary to clean and adjust the breaker points. Storing the motor in a damp place, or in a closed space where the humidity is relatively high, may create a condition affecting performance of the breaker points to cause faulty ignition.



### **disassembly and preparation for access to breaker points**

Remove side covers and starter housing. Turn flywheel to position where port comes to rest above the points, (two sets of breaker points are employed).

### **cleaning operation**

Carefully spread points with blunt instrument (small screw driver), insert point dresser. Release points, work point dresser gently up and down to clean point surfaces (Fig. 23). On completion of cleaning operation, insert strip of paper and in like manner work up and down to remove possible traces of dressing material left on point surfaces.

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### **adjusting operation**

Correct breaker point gap setting is .020" full open. To adjust, loosen breaker point assembly anchor screw "A" slightly (Fig. 23)—just enough to permit shifting of the assembly. Ultimate adjustment is accomplished by turning adjusting screw "B" (eccentric) right or left as required to obtain recommended gap setting—turn left to increase gap—right to reduce. Check with .020" feeler strip. Tighten screw "A" to secure position of the assembly. Recheck with feeler strip. Repeat procedure for adjusting other point assembly.

### **assembling**

Reassemble in reverse order of that described above.

## **care of the motor**

The service obtained from this motor is dependent largely upon



the care it is given. The following suggestions will assist in its proper maintenance.

Remove sediment bowl from filter periodically to free element and bowl of foreign substance which might have accumulated.

Inspect spark plugs occasionally. Clean and, if necessary, adjust gap. (Correct setting of gap, .030".) Wipe off insulator or porcelain of plug and ignition leads with a dry cloth to remove residue.

Check breaker points as instructed.

Be sure flywheel nut is secure.

Draw up on all nuts and screws at least once each season.

Remove drain and vent plugs from gearcase at frequent intervals to drain off water. Refill with Mobilube GX (90) as previously instructed.

Note grease plugs on swivel bracket and shift lever assemblies—grease periodically with automotive type of pressure gun. Grease frequently when operating in salt water areas.

Wipe off motor regularly with a damp cloth. A clean motor is readily accessible for inspection and less apt to foul.

Remove propeller nut periodically to inspect drive pin. Observe condition of propeller blades.

**IMPORTANT:** Prior to storing this motor over the winter months, run it for several minutes on an excessively rich fuel mixture (choke pulled out) to permit coating of cylinder walls and bearing surfaces with oil, thus guarding against effects of condensation (rusting) during extended period of idleness. See your Johnson Dealer who may provide storage facilities.

Do not cover the motor with a canvas hood or other device unless proper arrangements have been made for ample ventilation. The motor is well protected against weather under normal circumstances.

Always store motor in an upright position and in dry atmosphere—avoid dampness. It is to your advantage to do so.





## care of the motor when operated in salt water

Certain conditions, not ordinarily encountered in fresh water, appear during operation in salt water as result of corrosion—applying particularly to the exposed motor parts. Following suggestions will assist in reducing corrosive effects to a minimum.

Remove the motor from the boat after salt water operation. Flush cooling system by operating several minutes in a tank or barrel of fresh water, or by use of flushing arrangement (available through your Johnson dealer) attached to garden hose. Note that provisions have been made for flushing in this manner. Simply remove flush plug from the gearcase housing, flush with fresh water. A minute or two of flushing will suffice—guard against applying excessive water pressure.

If the motor cannot be conveniently removed from the boat, tilt the gearcase out of the water. Rinse exposed parts off with fresh water and wipe with oily cloth.

Under no circumstances permit the gearcase to remain submerged when the motor is not in use.

Remove motor side covers at regular intervals for inspection of under cover parts. In event corrosion has taken place, carefully remove from affected parts. Spread thin film of oil over the area to guard against similar recurrence. Wipe exposed parts with oily cloth, including inside surfaces of side cover.

The spark plug porcelains should be wiped with an oily cloth (castor oil, if available) at the time of their installation and periodically thereafter. Purpose of this function is to reduce to a minimum formation of salt water residue on the porcelains, thus avoiding possibility of short circuiting to interfere with performance of the motor.



## if the motor is dropped overboard

Possibility of this occurrence can be eliminated entirely by exercising a few simple precautions. Make certain the stern bracket clamp screws have been properly tightened to secure position of the motor on the boat. Check screws periodically during operation of the motor to guard against their having worked loose. Attach safety chain or rope to eyelet installed on the swivel bracket bolt for this purpose, anchoring opposite end at some convenient position on the stern of the boat.

However, if the motor unfortunately goes overboard, recover it immediately, if possible.

Remove carburetor and filter bowl, magneto and spark plugs. Remove traces of remaining water.

Work as much water as possible out of the cylinders and crankcase by turning the motor over slowly in upright and inverted positions.

Pour small amount of oil into each cylinder.

Blow off armature plate with air pressure, if available; wipe dry with cloth. Set in warm, dry place. Allow ample time for thorough drying—make certain no water remains about the coil.

Install armature plate and flywheel. Ground spark plug leads to motor—this is important. Crank motor rapidly with starter cord to blow water out of cylinders and crankcase.

Replace all parts previously removed.

Start motor as instructed and allow to run until reasonably sure no water remains.

**CAUTION:** Do not, under any circumstances, attempt to start the motor until the armature plate has been thoroughly dried. Remaining drops of water are apt to set up a short circuit which may result in extensive repairs.



If the motor cannot be started, it should be disassembled at once to remove all traces of water clinging to the inside walls and motor parts. Each part should be dried and coated liberally with oil to prevent rusting. This is **IMPORTANT**—the motor should be attended to immediately. Consult your local Johnson Dealer or Service Station.

## register your motor

Your motor is known to the factory only by its Model and Serial Number, both of which are stamped on the name plate attached to the swivel bracket as shown here (Fig. 25).

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For assistance in case of theft, register the model and serial number of your motor with the factory—accomplished by filling in and returning the registration card (enclosed in the tool kit) to the factory.

Always provide model and serial number of the motor when ordering parts or otherwise seeking information regarding it.

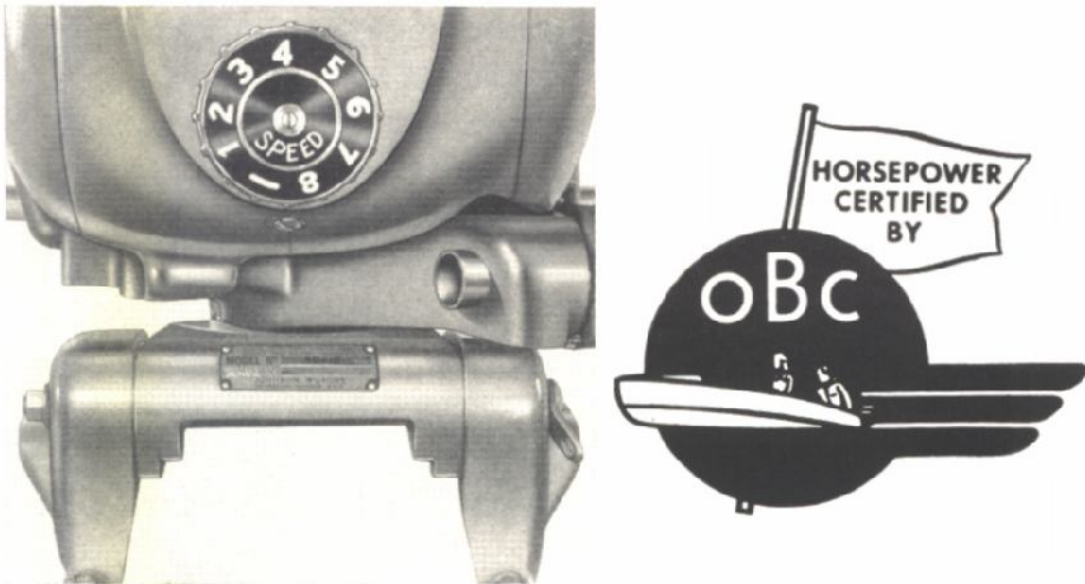


Figure 25





## insurance

Insurance on your outboard motor and/or boat is available at nominal cost through the Outboard Boating Club of America. This insurance includes protection against loss by fire, theft, etc. Write direct to Outboard Boating Club of America, 309 North Michigan Avenue, Chicago 1, Illinois, for further details.

## johnson service

It has always been the belief of Johnson Motors that a sale does not complete the transaction between the manufacturer and the buyer. It establishes, rather, a new obligation—an obligation whereby Johnson Motors agrees to assist the buyer in obtaining utmost service from a Johnson Outboard Motor.

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With this policy ever uppermost in our minds, we have built up an organization that consists of a nation-wide network of Johnson Service Stations to give prompt and efficient service to owners of Johnson Outboard Motors.

The first step in this structure is the local Johnson Dealer, who is supplied with first-aid parts, enabling him to make emergency and minor repairs. Second, the Authorized Service Station, which carries a stock of parts and equipment necessary to properly service Johnson Outboard Motors. Third is the District Service Station, with a complete stock of parts for all models, tool equipment and factory trained mechanics capable of making extensive repairs.

It has, therefore, been our endeavor to place a Service Station within easy reach of every Johnson Outboard Motor owner. See Dealer Service Station list.

*Always consider the Mile-Master tank as part of the motor assembly—include it with the motor whenever requiring service.*



## warranty

We warrant each new outboard motor of our manufacture to be free from defects in material and workmanship under normal use and service, our obligation under this warranty being limited to making good at the factory any part or parts thereof which shall, within three (3) months after delivery of such motor to original purchaser, be returned to us with transportation charges prepaid, and which our examination shall disclose to our satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties and representations expressed or implied and of all other liabilities in connection with the sale or use of any motors.

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This warranty shall not apply to any motor which shall have been repaired or altered outside the factory in any way so as to affect its stability, nor which has been subject to misuse, negligence or accident, or operated for racing purposes.

We make no warranty in respect to trade accessories not of our manufacture, inasmuch as they are usually warranted separately by their respective manufacturers.

Because of the unusual strains and accidents to which such products may be subjected, we make no warranty of either material or workmanship in any of our products when used for racing.

Claims must be entered on motors or motor parts returned to the factory for inspection, repair or replacement. Request form No. SE-16 from local Johnson Dealer or Service Station. **This form should be filled in, signed by the motor owner and dealer or service station representatives and mailed to the factory with returned material, TRANSPORTATION CHARGES PREPAID.**



## your boat equipment

If you use your outboard motor on navigable waterways of the United States you are subject to the Federal Motor Boat Law which became effective April 25th, 1940.

NOTE: Navigable waters under Federal jurisdiction include the ocean and Gulf coasts, bays and rivers tributary to them, the Great Lakes and connecting waterways, any body of water which is customarily used for interstate navigation, or other specifically designated locations. If there is any doubt concerning the status of your locality, you can get a ruling from the Bureau of Marine Inspection and Navigation, Department of Commerce, Washington, D. C.

Under the law you are required to carry the following equipment on board your boat at all times ;

1. Life preservers sufficient to sustain afloat every person on board. These may be either life vests or approved floating cushions.
2. An efficient whistle or horn. (Only if over 16 ft. long.)
3. A fire extinguisher of at least one pint capacity capable of putting out gasoline fires. (Only if used for "hire" only.)
4. To be exhibited from sunset to sunrise—
  - (a) A bright white light aft to show all around the horizon.
  - (b) A combined lantern to show green to starboard (right) and red to port (left) carried in the fore part of the boat.Federal law also requires the numbering of all motor driven boats operated on navigable waters under Federal jurisdiction. However, numbering is not required on rowboats, canoes, or sailboats not exceeding sixteen feet in length which are equipped with outboard motors, but which are designed for and used primarily with other means of propulsion.

Numbers are assigned upon application to the Collector of Customs for your Customs District.





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