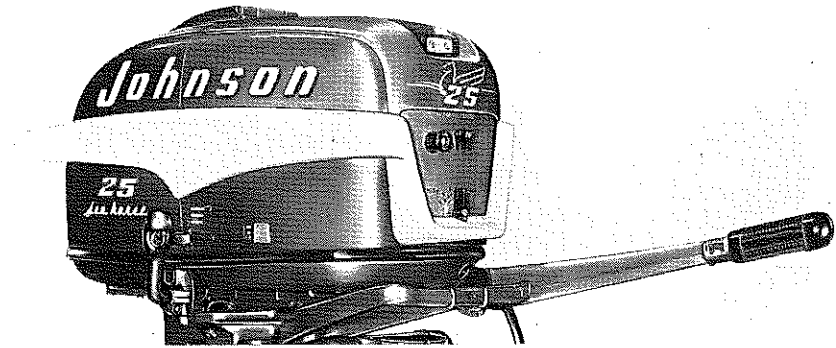


# Operating Instructions



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

JOHNSON MOTORS • WAUKEGAN, ILLINOIS • U.S.A.



## introduction

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.

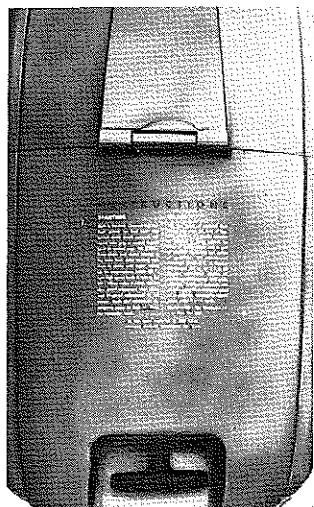
The Johnson Sea Horse 25 (Model RD) motor is powerful and fast, yet power and speed have not been stressed at the sacrifice of other necessary characteristics such as “hats-off” acceleration and consistently slow speed.

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

JOHNSON MOTORS



## fuel mixture



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### 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 large portion of the oil in the fuel 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.

*Oil:* We recommend Mobil Oil Outboard or another outboard oil, or a regular SAE 30 grade automotive engine oil.

Avoid use of low price third grade (ML) oils.

**NOTE:** Many first quality automotive engine oils are of the heavy-duty type, indicating that they contain additives which are beneficial in minimizing ring-sticking and the formation of varnish and sludge deposits on pistons and engine interiors. Under certain conditions in two-cycle (outboard) engines, some additives may deposit excessive ash on the spark plugs, thus causing missing or failure to fire the charge. Such deposits are not otherwise harmful to outboard engines, and proper amounts of suitable refinery-blended additives are beneficial because of their ability to maintain clean engine interiors; Mobil Oil Outboard contains special, yet very effective, additives.

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

*Gasoline:* Select a good quality of regular grade gasoline—where possible, premium grades, such as “ETHYL” gasoline should be avoided. “ETHYL” gasoline may shorten the life of the spark plugs.

Due to atmospheric conditions and temperature changes, mois-

ture condensation is more or less continually taking place within the gas tank. This results in water droplets accumulating in the tank, gas line and carburetor which, if excessive, is sufficient to interfere with performance of the motor, causing it to act, in many instances, as though it were starving for gasoline. (Water will not pass through the fine screens and small carburetor jets.) Be sure fuel system is free of moisture—likewise, all fuel should be run through a fine screen before pouring into gas tank. A funnel with screen installed serves this purpose nicely.

**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 one quart of Mobil Oil Outboard to each full tank of regular gasoline. If smaller quantity of gasoline is being added, for ease of measurement mix one-half pint of Mobil Oil Outboard per gallon of gasoline.

*Procedure* • Pour into the fuel tank approximately one-half the amount of gasoline required. Add all the oil required. Shake the two together until they are thoroughly mixed. Add the balance of gasoline. Shake tank briskly to insure mixing.

Always use fresh gasoline and oil mixture.

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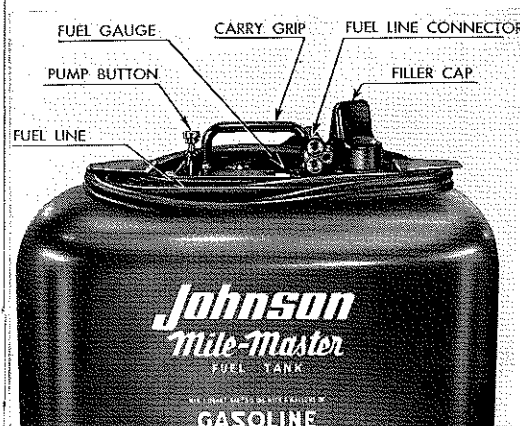


Figure 1

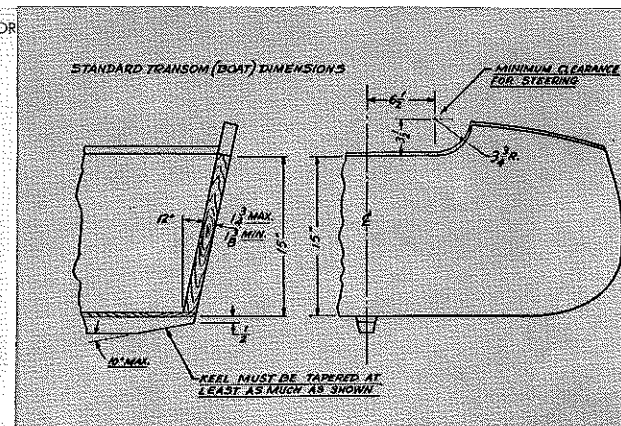
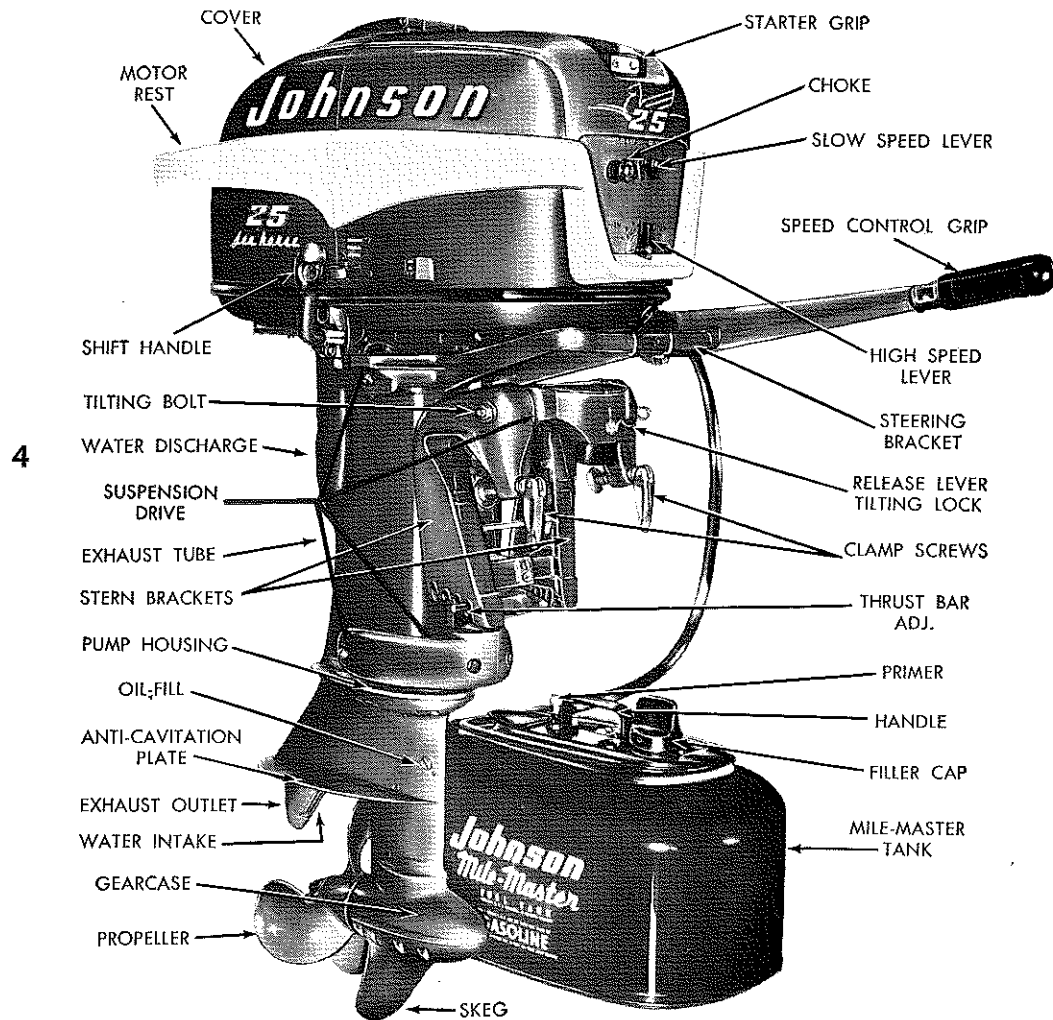


Figure 2





(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—114 lbs.* (App.) RDL—116 lbs.* (App.)
<b>Length</b>	RD—47 15/32" RDL—52 15/32"
<b>Width</b>	13 3/32"
<b>Propeller Dia. Pitch</b>	10 3/8" x 12 1/2" 3 Blade
<b>Fuel Tank Capacity</b>	6 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"

JOHNSON MOTORS reserves the right to change weight, construction, materials or specifications without notice and without obligation.

\* Basic weight without Mile-Master Fuel Tank which weighs 13 pounds.



## installation on boat

### boat dimensions

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.

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

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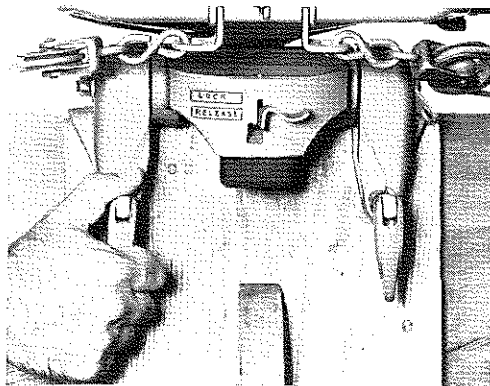


Figure 3

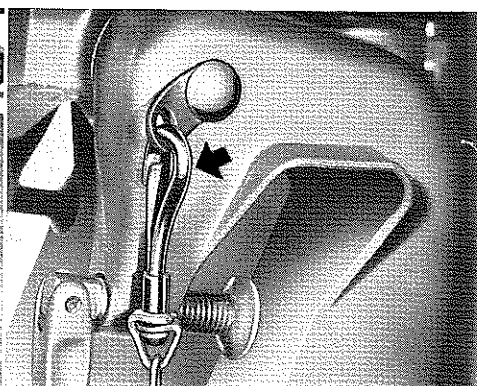


Figure 4

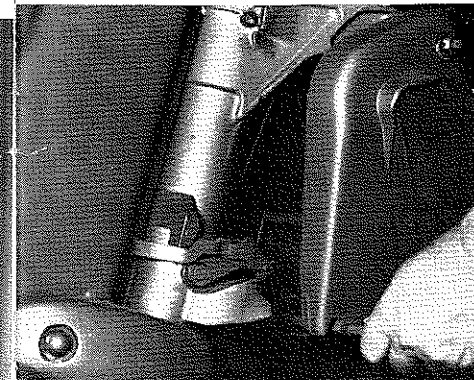


Figure 5

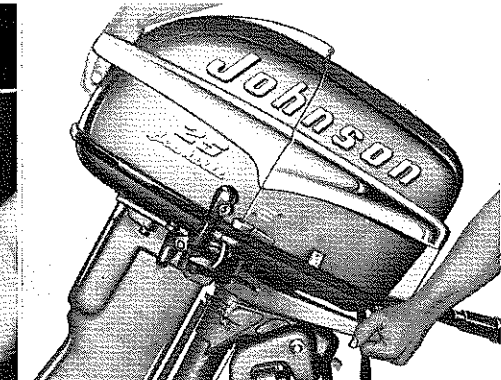


Figure 6

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 1/4" to 1/2". The resulting built up section is rarely of sufficient strength to carry the motor load.

## securing motor to the boat

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.

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### precaution

Note that a link has been provided for attaching a short length



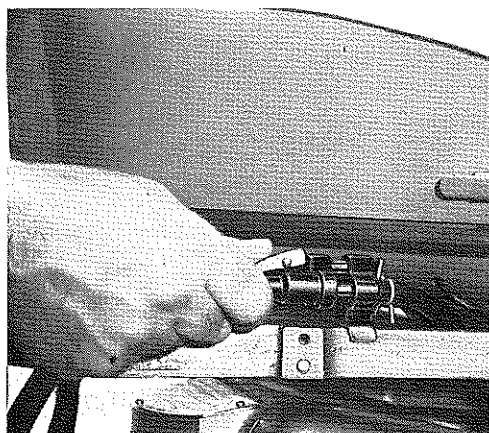


Figure 7

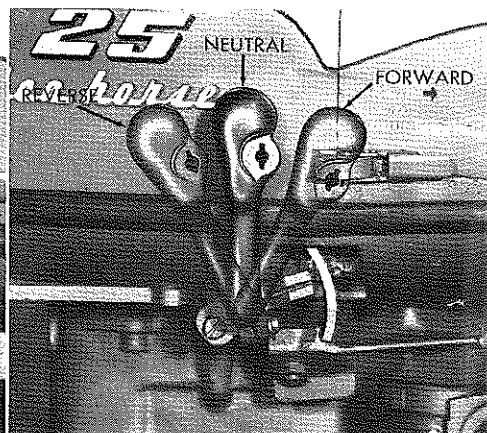


Figure 8

8

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 the boat, (2) release tilting lock (see tilting lock, page 18) 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.

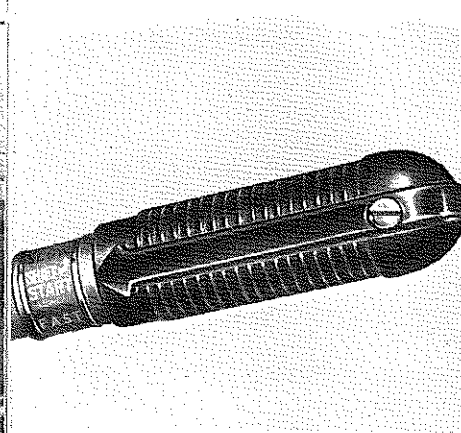


Figure 9



Figure 10

9

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.

**tilting of motor**

All Johnson motors are designed to tilt (while boat is in forward motion) when lower unit strikes an underwater object. Motor should be operated at slow speed in shallow waters. **DO NOT ATTEMPT TO TILT MOTOR BY BEARING DOWN ON STEERING HANDLE!**

If desired to tilt motor when beaching, rowing in shallow water, etc., release tilting lock (Figure 17) and grasp rear of shroud (Figure 6) pull motor toward you.

**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. 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).

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 of “shifting” and to guard against “racing” when shifted to neutral. Caution nevertheless should be exercised when operating in reverse. Do not speed up excessively—not more than required for maneuverability of the boat when in reverse gear.

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 note of this fact. Do not attempt “forcing” shift.

If desiring to shift with the motor not running, it may be found

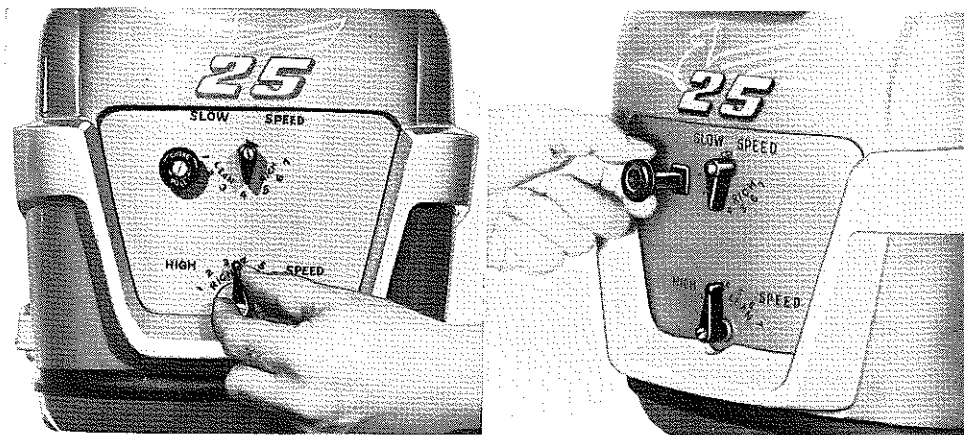


Figure 11

Figure 12

impossible to do so regardless of having previously set the speed control grip, since the shifting member and gear (in the gear case) may at the moment “butt” to prevent engaging. To accomplish shifting in this event, simply pull on the starter cord slightly to turn the assembly over a bit, thus permitting the gear and shifting member to fully engage.

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.

Care should be exercised when accelerating motor speed. Do not accelerate rapidly with the motor partly tilted out of the water—it is to your advantage not to do so to avoid damage to boat and motor.



## starting instructions

### 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—priming is required 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.

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2. Move gear shift lever to center or "neutral" position (Fig. 8).

NOTE—An arrangement is provided to automatically lock the starter mechanism when speed control grip is set to positions beyond safe speed for starting—this to avoid starting at high speed.

*Shift to neutral when starting—do not start in gear.*

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—pull choke "out" to extreme limit—to end of travel, (Fig. 12). (In temperature below 40° F, turn high speed dial approximately ¼ turn to left). Crank to start (Fig. 13)—allow to run until motor warms up, then push choke "in."
5. WARM MOTOR—(immediately after previous running). Choke not ordinarily required.



In event motor fails to start on third attempt, pull choke to extreme limit. After starting, return choke to normal running position (choke in).

6. Throttle motor down after starting and *snap* the shift lever with *quick action* into forward or reverse position 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.

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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 carburetion 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:





The slow and high speed levers 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.

Remove the screws from the center of the slow and high speed levers (Fig. 14). The levers are now free to be removed from respective shafts.

Carefully insert small screw driver in slot of slow speed needle and turn (clockwise) to the right until needle comes to rest *gently* on its seat. Be careful not to injure the seat by turning down too tightly. Then back off (turn left) about  $1\frac{1}{4}$  turns.

Adjust high speed needle in like manner, turning needle until it rests *gently* on its seat, then back off (turn left) about  $\frac{1}{3}$  turn.

Replace levers and center screws. Before securing the center screws, arrange both levers to position No. 4 on the panel.

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**slow speed adjustment**

Start motor as instructed—run at “fast” speed until normal operating temperature has been reached. It may be necessary to temporarily adjust high speed lever (turn lever right or left) so that motor will run at high speed. Throttle down to “slow speed

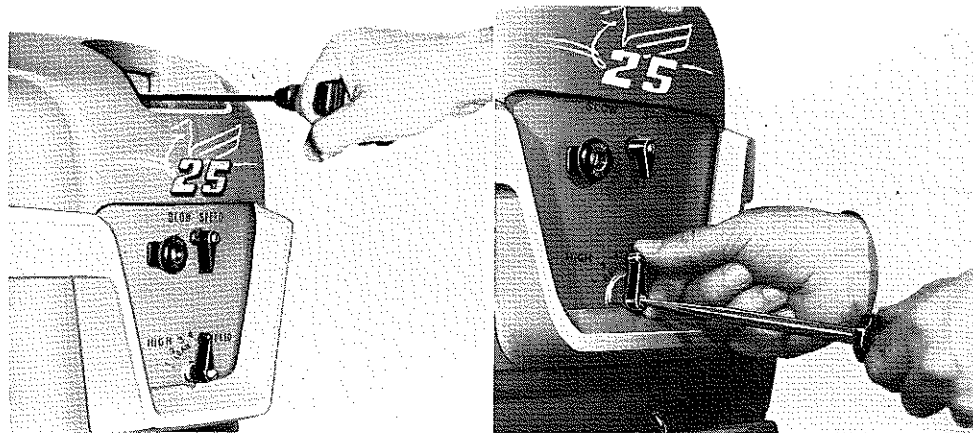


Figure 13

Figure 14



range.” Turn lever 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 lever, without disturbing position of the slow speed needle (this is IMPORTANT). Should lever 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 lever to position Number 4 on panel—push lever back onto the shaft so that the face of the lever is flush with the end of the needle shaft. This will permit lever to engage limitation stop on the panel. Tighten center screw to firmly secure lever. 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). Start motor as instructed—run at “fast” speed until normal operating temperature has been reached. Hold throttle at fast speed and turn lever to left or right as required to obtain best setting for top speed performance. Rearrange lever as described above to position Number 4 on panel—see Fig. 14.

**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 (Fig. 16). 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 cover plate holes above the anti-cavitation plate (port side), when operating in REVERSE.

Ordinarily the cooling system requires little or no attention 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.

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### 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

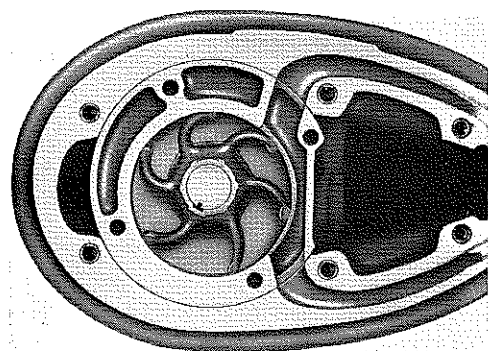


Figure 15

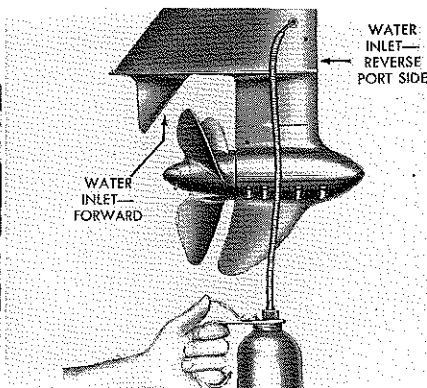


Figure 16

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

#### type of gear lubricant

Gear Housing Lubricant: We recommend Mobilube GX90 or any other good grade of SAE 90 automotive (hypoid) gear lubricant. If hypoid lubricant is not available, in emergency use Mobiloil Outboard or other SAE 30 engine oil until recommended 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. 16). 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 fill 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 fill screw level and the fill 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.

Check gear case for oil after first five hours of operation to be sure it is filled. Then check periodically at least every 50 hours. Drain and refill at the end of the season.

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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.

### tilting lock

A trip release (spring loaded) arrangement of sufficient tension is made part of the tilting lock. The tilting lock prevents tilting when suddenly decelerating, yet permits tilt of the motor on shock of impact when striking underwater obstruction.

Normally operated by means of lever and linkage, the tilting lock may be released when desired by depressing lever and shifting slightly to left as in (Figure 17) and restored by returning to normal running position as shown in (Figure 18).

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It is advisable to tilt the gearcase out of the water when not in use—set lever to release position (Figure 17) then tilt; set at running position (Figure 18) when submerging the gearcase for operation.

CAUTION—The motor does not tilt when operating in reverse.

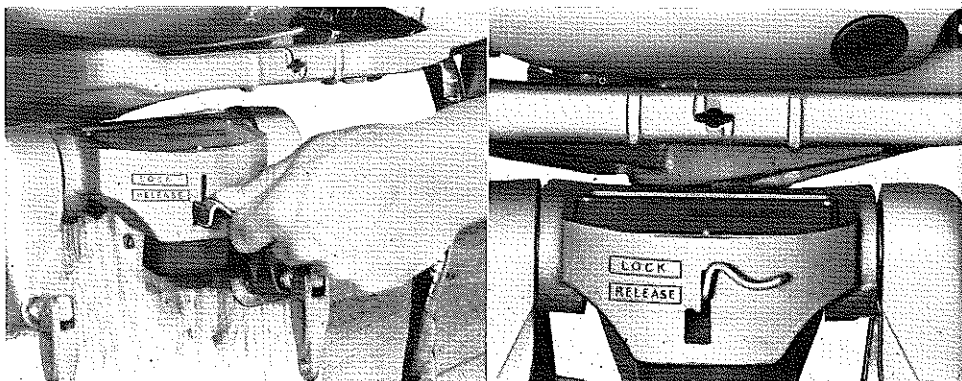


Figure 17

Figure 18



### spark plugs

*Recommended Spark Plug*—Champion J6-J (formerly known as Champion J-10 Commercial) or Auto-Lite A3X. Adjust spark plug gap—.030.

### 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.

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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.

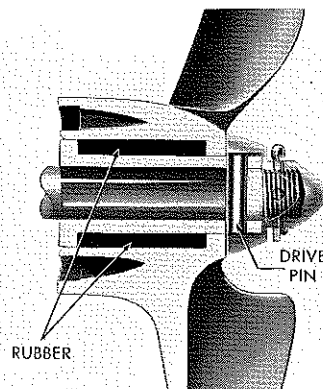


Figure 19

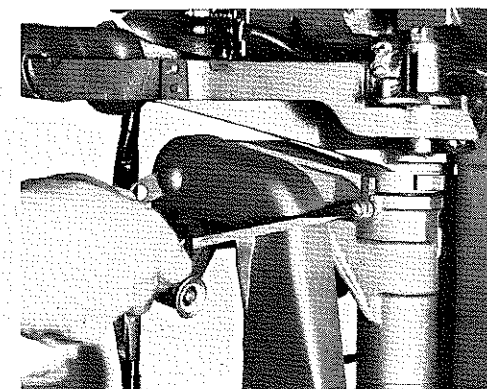


Figure 20



## spark plug replacement procedure

To gain access to the spark plugs for inspection and/or replacement, simply release latches on both sides of the motor cover (Fig. 23) to permit rear half being lifted upward (Fig. 24).

Detach rubber covered spark plug terminal, then remove spark plugs for inspection or replacement as required. Attach spark plug terminals and return cover to original position—make certain latches are properly seated and corresponding levers drawn into position to secure.

## rubber floated propeller

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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

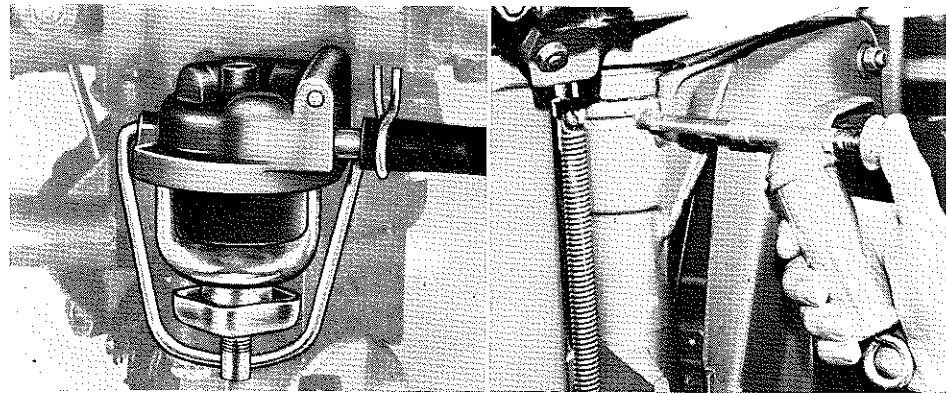


Figure 21



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.

## to remove motor cover

To remove the motor cover assembly, place shift lever in reverse position (out of the way) and release latches on both sides of the rear half as shown (Figure 23). Lift rear half (Figure 24) and move entire motor cover assembly slightly forward to clear the lugs that hold front half of motor cover in position, then lift off. Assemble in reverse order.

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## cleaning of gasoline filter

A gasoline filter is located on the port (right facing the motor) side

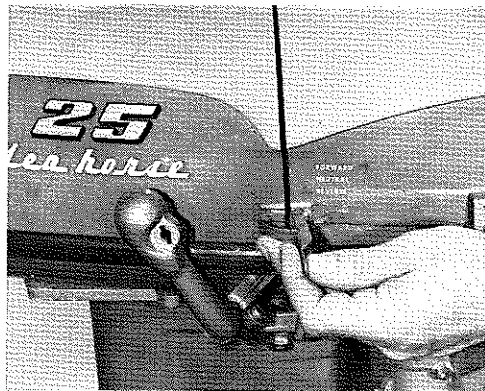


Figure 23



Figure 24



of the power head, under the motor cover. The filter is made accessible for inspection and cleaning by removal of the motor cover.

## 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 below the bowl to free the assembly (Fig. 21). 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

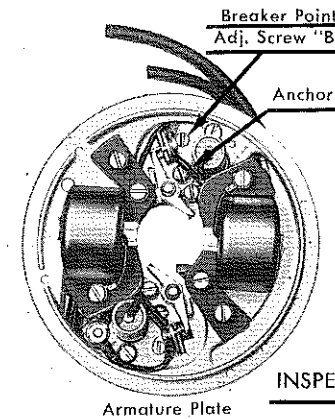


Figure 25

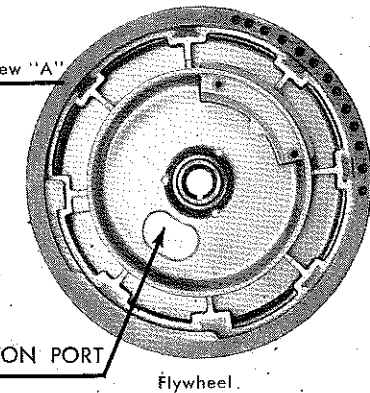


Figure 26



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.

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### disassembly and preparation for access to breaker points

Remove cover and starter housing. Turn flywheel (Fig. 26) 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. 25). 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.

### adjusting operation

As a temporary measure, correct breaker point gap setting is .020" full open. To adjust, loosen breaker point assembly anchor screw



“A” slightly (Fig. 25)—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. See your Johnson Service Station for further corrective measures.

### assembling

Reassemble in reverse order of that described above.

## care of the motor

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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.

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

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

Note grease fittings on swivel bracket and shift lever assemblies—grease periodically with automotive type of pressure gun (Figure 22). 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.

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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

Rinse exposed parts off with fresh water and wipe with oily cloth.

Remove motor cover 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 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.

When overboard in salt water, rinse armature with fresh water to avoid corrosive effects which may lead to difficulty later on. Blow off with air stream and allow to dry.

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

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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

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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. 27). Serial number is also stamped on the plug located on the cylinder assembly (Fig. 28).

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.

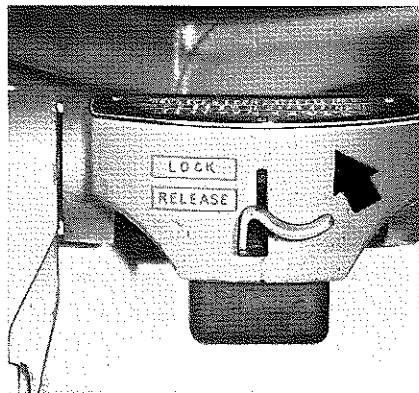


Figure 27

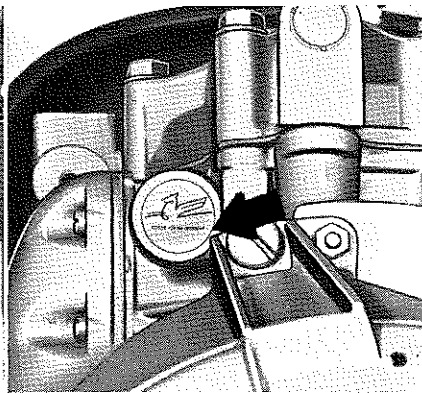


Figure 28



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

### 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 months after initial use, or within one year from date of original purchase, whichever first occurs, 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.

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. Fire extinguishers are not required on outboard motor boats less than 26 feet in length of open construction not carrying passengers for hire (effective Dec. 18, 1953). All outboard cruisers and runabouts which are decked or partially decked over should carry fire extinguishers of approved type and capacity. Contact your local U. S. Coast Guard Office regarding current regulations.
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.

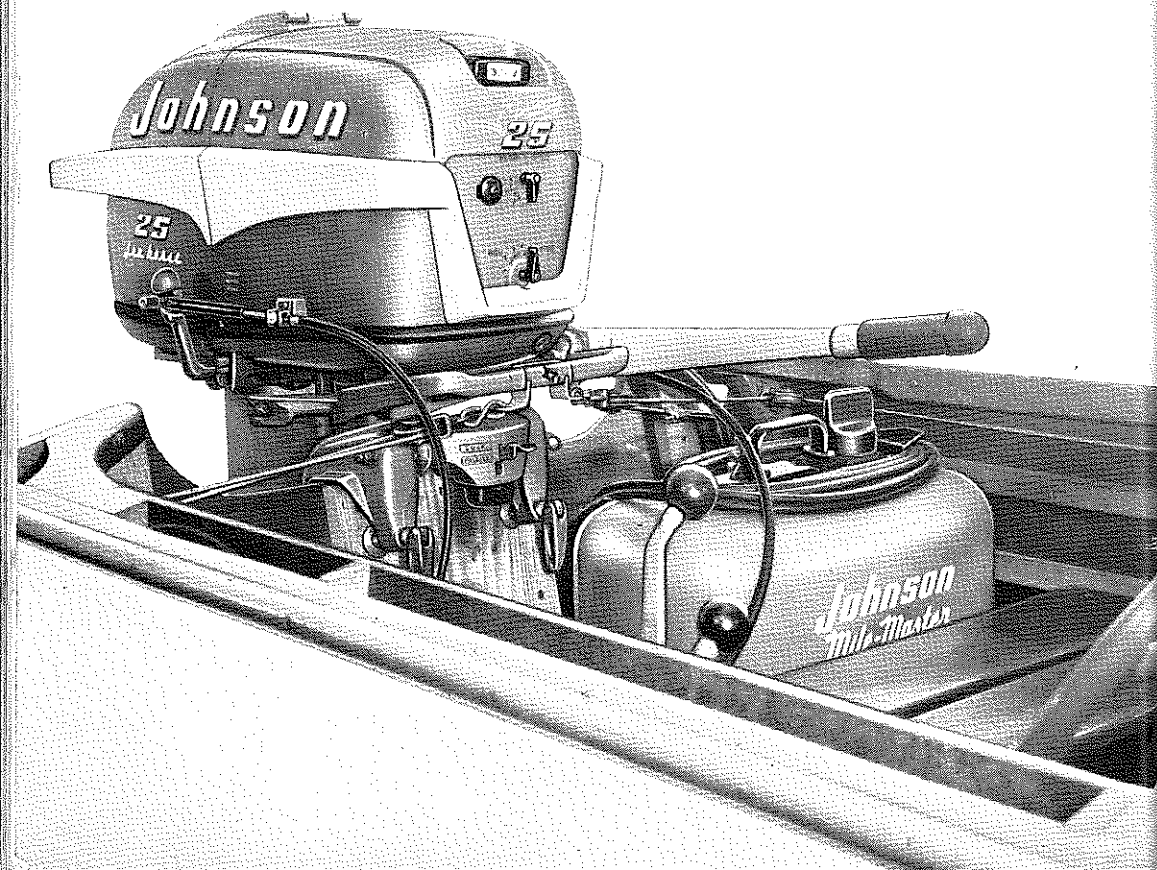
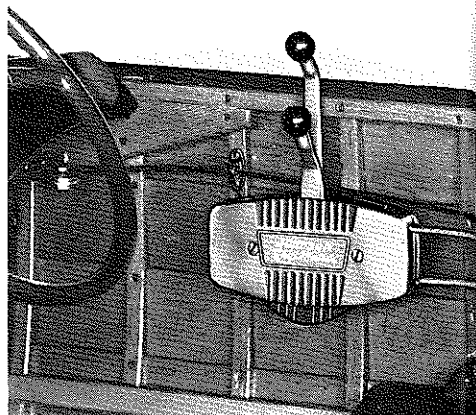
Numbers are assigned upon application to the Officer in Charge, Marine Inspector, U. S. Coast Guard, having jurisdiction over the area in which the vessel is owned.



## REMOTE-STEERING, SPEED & SHIFT CONTROL

A very satisfactory Johnson designed, Johnson built Shipmaster Remote control arrangement may be purchased from the local Johnson dealer. The motor comes equipped and ready for the remote installation—No drilling or special operations required except for installing the tiller cable, necessary pulleys, and of course, the steering wheel and remote control box which can be easily mounted for either right or left steering.

*Complete instructions are provided with each Shipmaster Remote Control Kit—Consult the Johnson dealer.*



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