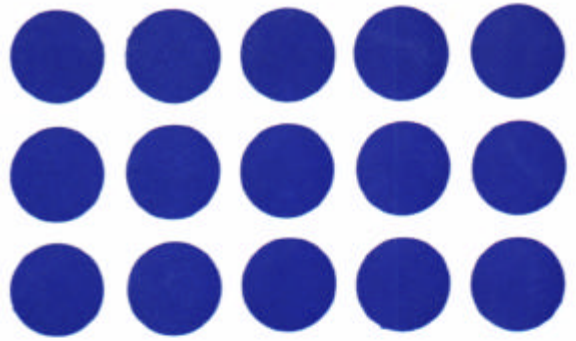


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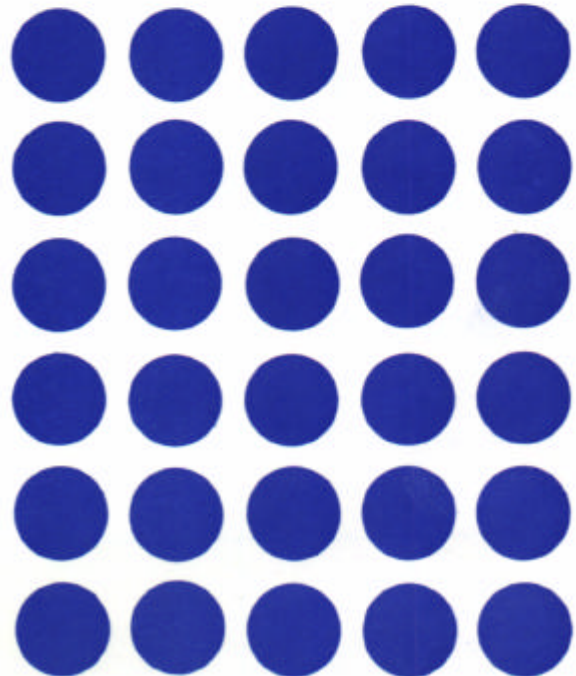


SHOP MANUAL

HONDA OUTBOARD ENGINE MODEL GB40



The maintenance instruction for the outboard drive unit is contained herein, however, please refer to the manual of your basic equipment for the maintenance instruction on the G40 engine. If separate engine maintenance manual is desired, please contact your dealer or write directly to us.



1. FEATURES

The HONDA Outboard Drive Unit GB40

Is an economically priced outboard equipment designed to meet the combined requirements of high performance and rugged service. This unit when coupled to the powerful HONDA Model GB40 engine, can be used for fishing, transportation, lugging, coastal sea food cultivation or just for plain pleasure boating.

1. Few of the outstanding features

The Model GB40 engine is a general purpose utility engine which can be easily dismantled and utilized for a wide range of application such as for the power source for electric generator, water pump, cement mixer and numerous other machineries.

2. Ease of handling

A loop steering handle with a full 360° swivel permits control from forward to reverse and also stopping without requiring gear change or shutting off the engine.

3. Smooth slow speed operation

Unlike a two cycle engine which produces rough operation at slow speed, the GB40 engine gives the same smooth performance at all range of speed, ideally suited for both high speed cruising or for trolling.

4. Low operating cost

The highly efficient 4-cycle GB40 is over 20% lower in fuel consumption than the comparable 2-cycle outboard engine. Further, the engine is always kept clean because it use straight gasoline as compared to the engine using mixed fuel.

5. Minimum vibration

A well balanced design and precisionsly manufactured parts produces minimum of vibration under all operating speed. The shock absorber mounted loop handle further isolates vibration.

6. Easy starting

The engine carburetor is designed to require no adjustment, making it easy to start the engine with the use of engine starter lock device and recoil starter. Engine starter lock device can also be used in securing the engine when powering other machinery.

7. Durability

The use of ball bearings on primary moving parts and high grade materials assure greater engine life. Modern production method with strict quality control will realize trouble free operation.

2. SPECIFICATIONS AND TECHNICAL DATA

[DESIGNATION]

Item	Specification
Name	HONDA outboard motor GB40
Type	Forced air cooled single cylinder
Total displacement	170 CC (10.4 cu. in)

[ENGINE PERFORMANCE]

Item	Specification
Normal output	3.3 P/3,600 rpm
Maximum output	4.5 P/4,000 rpm
Type fuel	Gasoline
Starting system	Normal recoil starter
Ignition system	Flywheel magneto
Fuel tank capacity	4.4 liters (1.16 US. gal., 0.97 Imp. gal.)

[OUTBOARD MOTOR PERFORMANCE]

Item	Specification
Maximum speed	Single passenger boat, 20 km/h (12.5 mph) Two-passenger boat, 15 km/h (9.4 mph)
Fuel consumption	2.3 liters/h (0.6 US. gal./h 0.5 Imp. gal./h)
Maneuverability	
Right turn	360° steering angle
Left turn	360° steering angle
Engine lubricating system	Wet sump
Oil capacities	
Outboard drive unit	0.16 liters (0.35 US. pt., 0.27 Imp. pt.)
Engine	0.57 liters (1.2 US. pt., 10 Imp. pt.)
Propulsion	50 kg (110 lbs)

[DIMENSIONS]

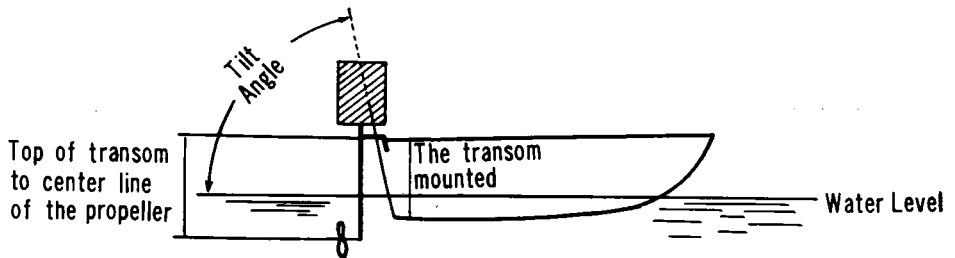
Item	Specification		
	Type S	Type M	Remarks
Overall length	664 mm (26.1")	664 mm (26.1")	without engine
Overall width	470 mm (18.5")	470 mm (18.5")	without engine
Overall height	1190 mm (46.9")	1333 mm (52.5")	without engine
Drive unit weight	12.0 kg (26.5 lbs)	12.5 kg (27.6 lbs)	without engine
Completely equipped weight	37.7 kg (83.1 lbs)	38.2 kg (84.2 lbs)	including engine

[POWER TRANSMISSION SYSTEM]

Item	Specification
Complete system	<p>The diagram illustrates the power transmission system. It shows an engine connected to a drive sprocket via a V-belt. The drive sprocket is mounted on a shaft that passes through a belt clutch. A chain is connected between the drive sprocket and a driven sprocket, which is mounted on a propeller shaft. Dimensions are provided: 90φ (3.5 in) for the belt clutch and 120φ (4.7 in) for the sprockets.</p>
Total reduction ratio	12 : 9
Clutch	Contracting V belt
V belt	
Type	A
No. required	1
Length	686 mm (27 in)
Drive chain	156 links (192 links for M type)
Drive sprocket	11 teeth
Driven sprocket	11 teeth

[STEERING SYSTEM AND TILT ANGLE ADJUSTMENT]

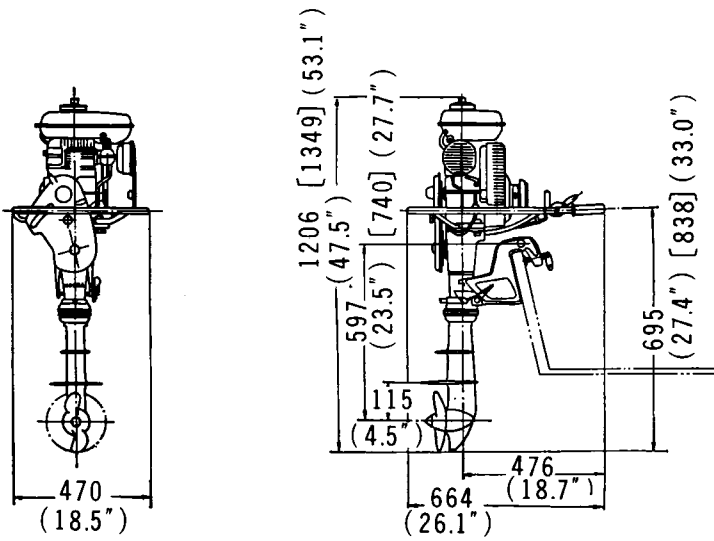
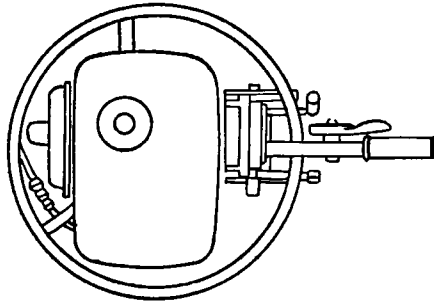
Item	Specification
Type	Loop handle
Steering angle	360°
Tilt angle, maximum : minimum : Adjusting increment	90° 72° 6°
Transom height thickness	S type : 410 mm (16 in) M type : 560 mm (22 in) 60 mm (2.4 in)
Forward and reverse	Turn handle 180°
Distance between top of transom and propeller centerline	S type : 410 mm (16 in) M type : 560 mm (22 in)



[PROPELLER]


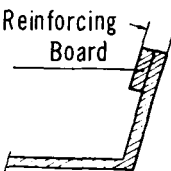

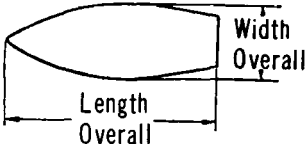
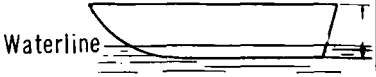
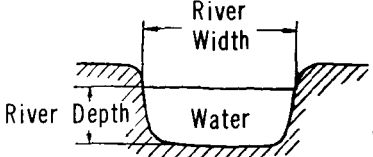
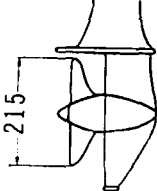
Item	Specification
No. of blades × diameter × pitch	Light duty : 2 × 200 mm × 140 mm (2 × 7.9" × 5.5") Heavy duty : 3 × 200 mm × 100 mm (3 × 7.9" × 3.9")

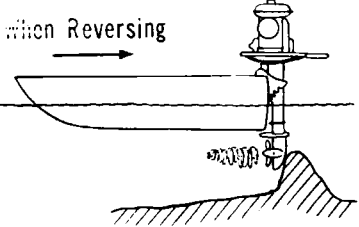
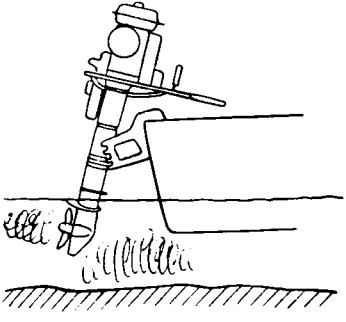
3. DIMENSIONAL DIAGRAM

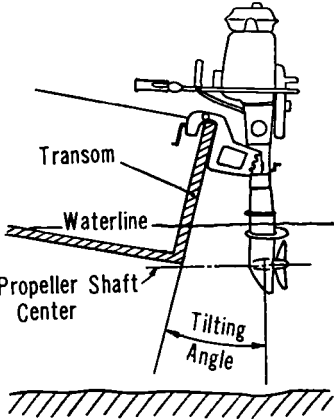
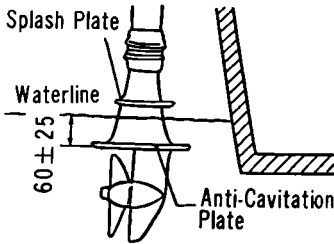


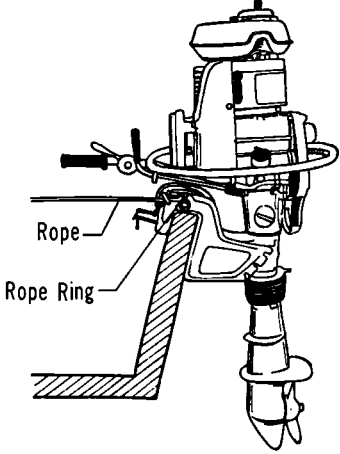
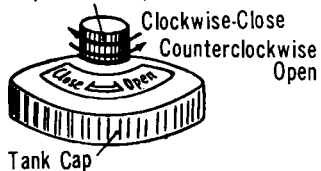
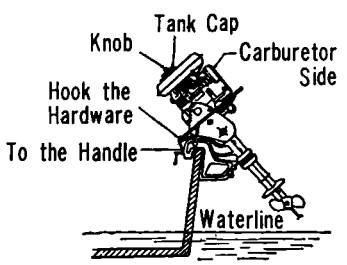
Figures in parentheses are for Type M

4. OPERATIONAL LIMITATION

Item	Description	Remarks
Minimum limitation on hull	Flat bottom rowboat	
	Transom reinforcement for engine mounting	 <p>Reinforcing Board</p> <p>Maximum Width: 60mm Minimum Width: 40mm</p>
	Not recommended for round bottomed boats and canoe due to instability	
Maximum limitation on hull	Overall length 10 meter (33 ft) Overall width 2 meter (6.6 ft)	 <p>Width Overall</p> <p>Length Overall</p>
	Height of transom S type: 35 cm (14 in) M type: 50 cm (20 in)	 <p>Waterline</p>
River condition	Width: 2.5 meters (8 ft) minimum Depth: 0.6 meters (2 ft) minimum	 <p>River Width</p> <p>River Depth</p> <p>Water</p>
Propeller diameter	215 mm (8.46 in) maximum	 <p>215</p>

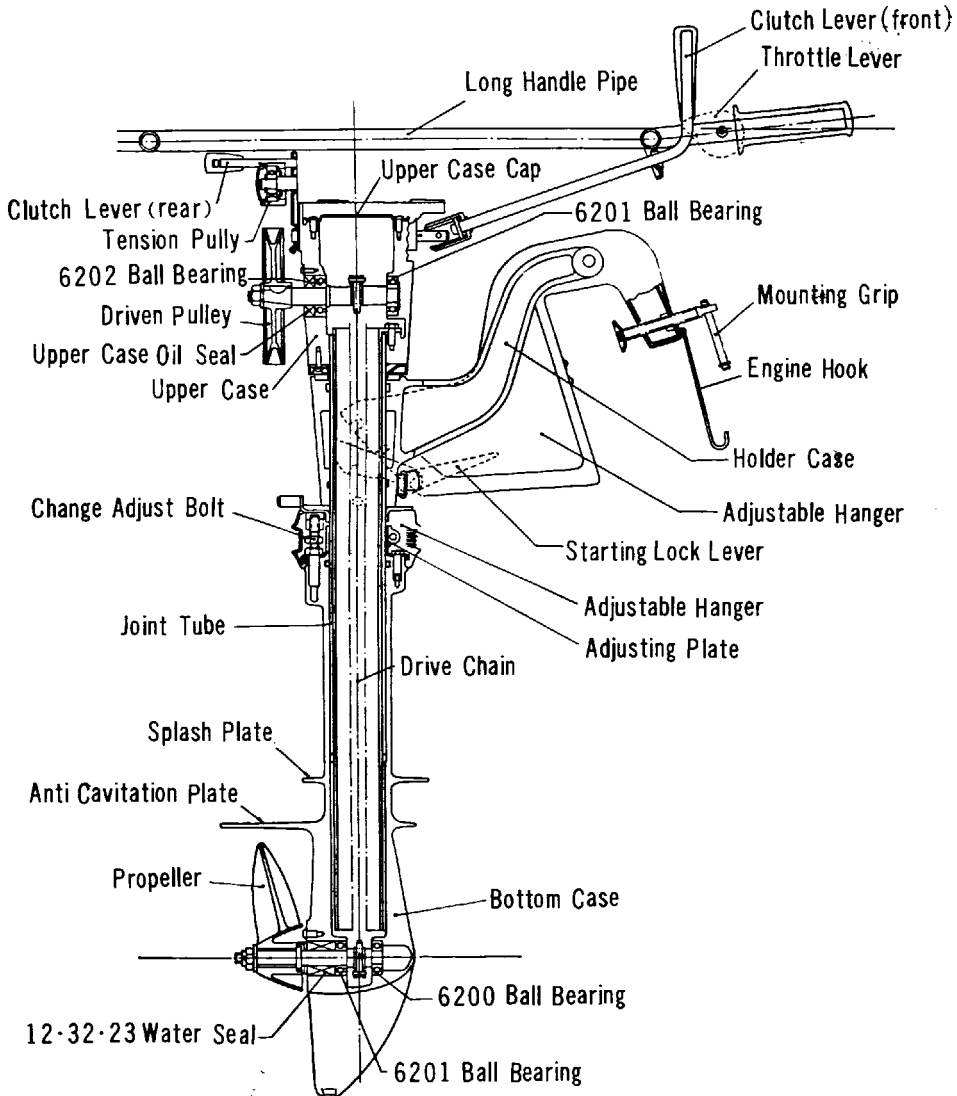
Item	Description	Remarks
Forward movement	Avoid abrupt and sharp turn at high speed. Such maneuvers may cause the boat to capsize or become flooded.	
Reverse movement	Move in reverse at slow speed. High speed will back up water and result in flooding. Exercise caution in shallow or obstructed water since motor is not able to tilt and damage to drive unit or transom may result.	
Operating in shallow area	Tilt the motor to raise the propeller when operating in shallow or heavily weeded area to prevent propeller from dragging or becoming entangled in weeds. Move at reduced speed, increasing engine speed will not increase movement correspondingly.	
Changing from forward to reverse	Reduce the forward movement before attempting to change from forward to reverse.	
Abrupt throttle action	Refrain from closing the throttle suddenly from high speed. This will cause the stern to drop and may result in the water to wash in over the transom.	

Item	Description	Remarks
Operating the clutch	Set the throttle at low speed when engaging the clutch. Engagement of the clutch at high engine speed may cause the boat to go out of control as well as to throw the riders off balance. Further, possible damage to the engine may result.	
Adjustment of tilt angle	For maximum efficiency, the propeller shaft should be parallel to the water line. Depending upon the loading condition of the boat, the cruising attitude will change. A lightly loaded boat or boat with heavier load to the rear will cause the stern to ride high, this will change the transom angle and therefore the tilt angle of the motor should be adjusted accordingly.	
Height adjustment	Outboard motor should be installed on the transom with the anti cavitation plate about 35 to 85 mm ($1\frac{1}{2}$ ~3.5 in) below the waterline or else cavitation will result from drawing in air and adversely affect propeller efficiency with possible damage to the propeller.	

Item	Description	Remarks
Preventing accidental loss of motor	As a precaution to prevent the dropping of the motor in the water, always tie a rope between the boat and the rope ring provided on the hanger.	 <p>A line drawing of an outboard motor mounted on a hanger. A rope is shown tied to a ring on the hanger, which is labeled 'Rope Ring'. The rope extends to the left, representing it being tied to the boat. The motor's propeller and lower unit are visible at the bottom.</p>
Engine	The model GB40 engine for use on the outboard drive unit has been especially treated for corrosion resistance against sea water and therefore, it may be used without fear of corrosion problems.	
Fuel tank cap vent seal	The fuel tank cap is provided with a vent seal to close off the vent and thereby preventing the fuel from leaking when the engine is tilted or layed down. This seal must be opened during operation, otherwise, the fuel will not flow to the carburetor.	<p>Vent seal located at top of the cap.</p>  <p>A top-down view of a cylindrical fuel tank cap. A vent seal is shown at the top edge. Arrows indicate the direction to turn the cap: 'Clockwise-Close' and 'Counterclockwise Open'. The cap is labeled 'Tank Cap'.</p>
Raising outboard motor when not in use	When not to be used for a long period of time, raise the outboard motor by tilting. The carburetor should be positioned so that it is at the top, this is to prevent the oil in the tappet chamber from entering the carburetor.	 <p>A diagram showing the outboard motor tilted upwards. The carburetor is at the top. A 'Knob' is attached to the 'Tank Cap'. 'Hook the Hardware' is shown attached to the 'To the Handle' part of the motor. The 'Waterline' is indicated at the bottom. The 'Carburetor Side' is also labeled.</p>

5. GENERAL DESCRIPTION

The major components of the HONDA Outboard Drive Unit consists of the loop handle, upper case, holder case, bottom case and the joint tube. Each of these is made of special light weight alloys treated for corrosion resistance. The loop handle is mounted to the drive unit with rubber shock mounts to minimize the vibration to the handle. A belt and a chain are used to transmit the driving power from the engine to the propeller and a tension clutch is incorporated on the drive belt to provide smooth power transmission during engaging and disengaging of the power.

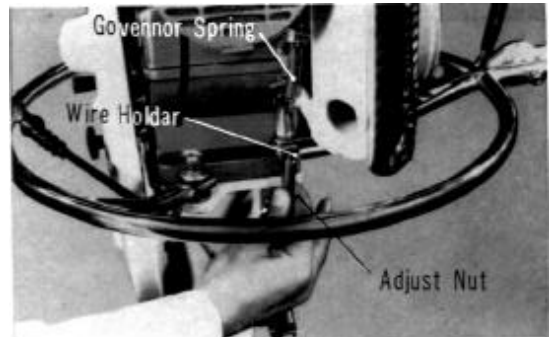


6. SERVICING

1. DISASSEMBLY AND RE-ASSEMBLY

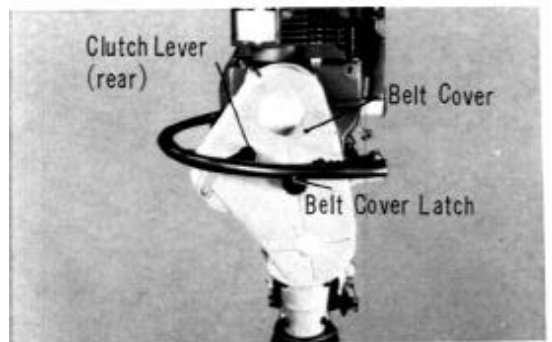
A. Disassembly

1. Unscrew the throttle adjusting nut from the throttle wire holder and disconnect it from the governor spring. (Fig. 1)



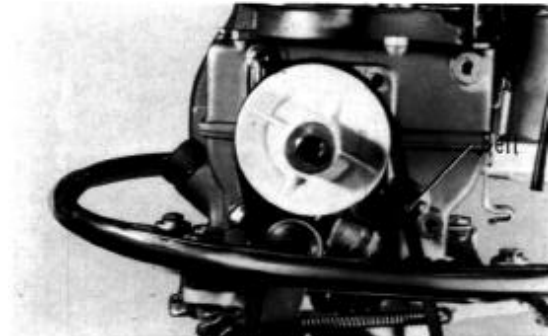
(Fig. 1)

2. Push the clutch lever to the right, loosen the belt cover latch and then remove the belt cover. (Fig. 2)



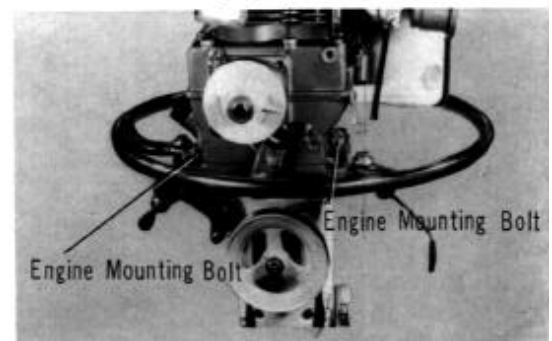
(Fig. 2)

3. Remove the belt. (Fig. 3)

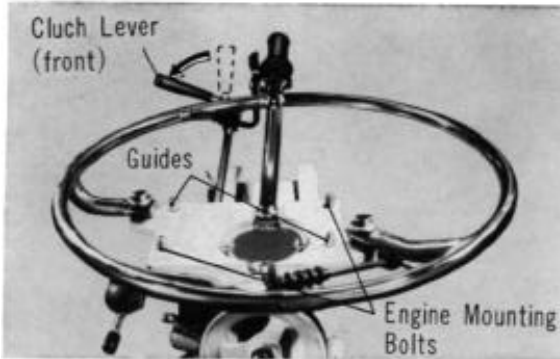


(Fig. 3)

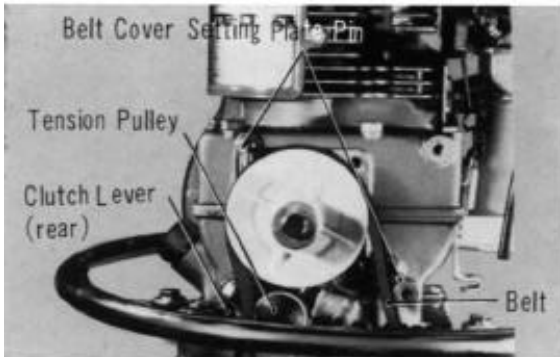
4. Loosen the two engine mounting bolts and lift off the engine. (Fig. 4)



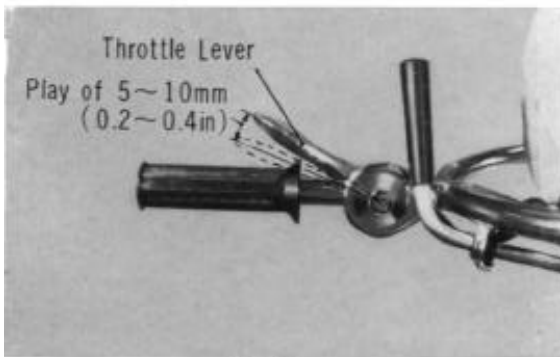
(Fig. 4)



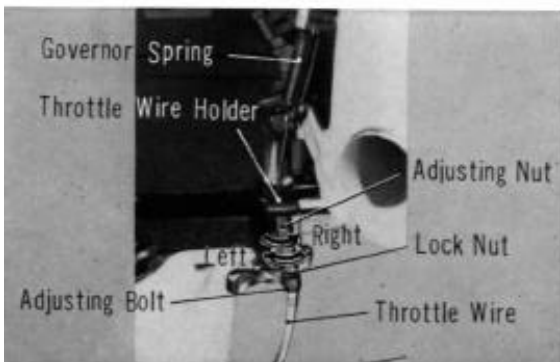
(Fig. 5)



(Fig. 6)



(Fig. 7)



(Fig. 8)

B. Reassembly

1. Mount the engine on the drive unit aligning the holes in the base of the engine to the two guide pins and the two engine mounting bolts holes. (Fig. 5)

Note

At this time, the clutch lever should be pushed forward as shown by the arrow in Fig. 5.

2. The subsequent engine installation is performed in the reverse order of disassembly.

Note

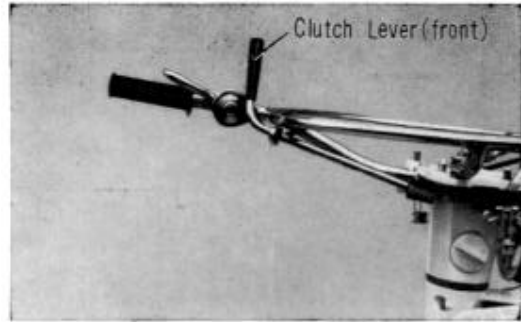
1. The relative location of the belt, tension pulley and the belt cover setting plate are as shown in Fig. 6.
2. Adjust the throttle lever free play after completing the mounting of the engine.
 - a. Loosen the lock nut and set the adjusting nut so that there is 5 to 10 mm (.2 to .4 in) of play at the end of the throttle lever. (Fig. 7)

- b. Turning the adjusting nut clockwise will produce a smaller play. Do not forget to tighten the lock nut securely after completing adjustment. (Fig. 8)

2. CLUTCH AND HANDLE

A. Description

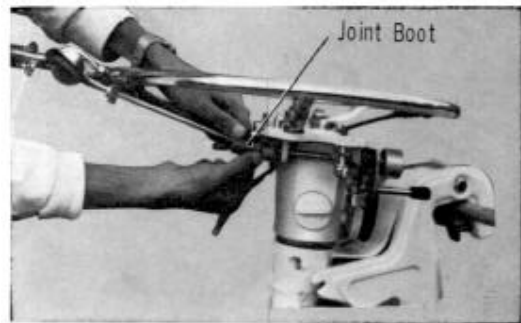
The purpose of the clutch lever (front) is to engage or disengage the power during cruising. Lever is located in front of the handle grip and is operated by moving from side to side. (Fig. 9)



(Fig. 9)

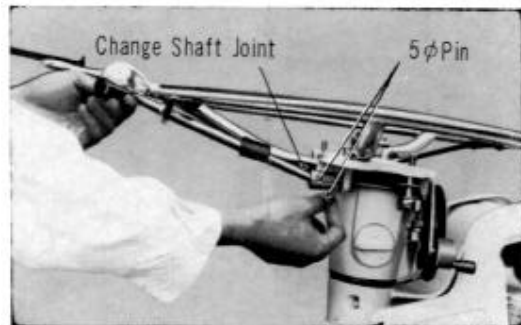
B. Disassembly

1. Remove the change shaft joints boot. (Fig. 10)



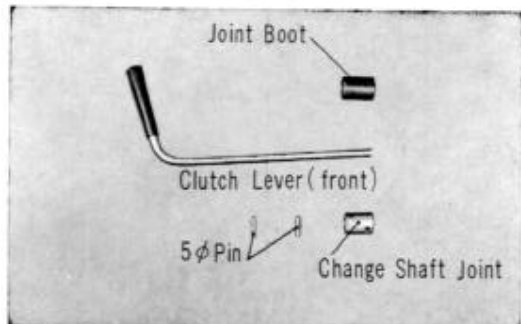
(Fig. 10)

2. Remove the two 5 mm pin from the change shaft joint (Fig. 11)

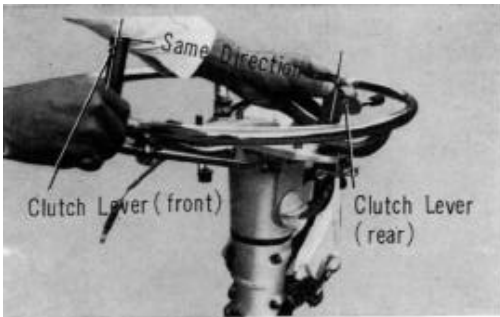


(Fig. 11)

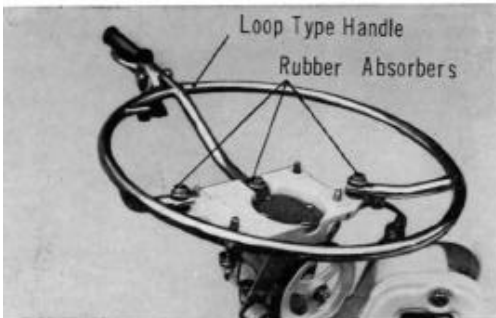
3. Disassemble the clutch lever from the loop handle. (Fig. 12)



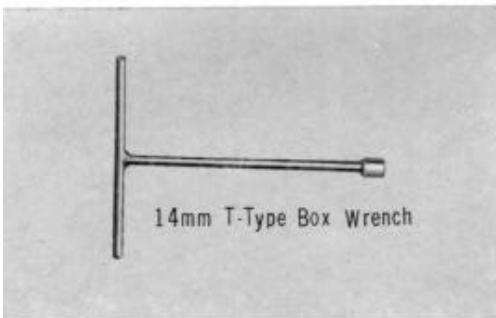
(Fig. 12)



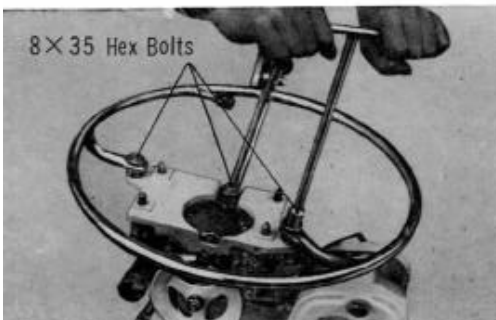
(Fig. 13)



(Fig. 14)



(Fig. 15)



(Fig. 16)

C. Reassembly

1. Assemble the clutch lever in the reverse order of disassembly.

Note

Make the assembly so that grip on the clutch lever (front) is in the same direction as the grip on the clutch lever rear. (Fig. 13)

D. Loop Handle Construction

The steering handle is of a loop type, permitting control from any position. Forward and reverse are easily controlled by moving the handle 180°. Handle is mounted on rubbers to prevent the transmission of vibration to the operator. (Fig. 14)

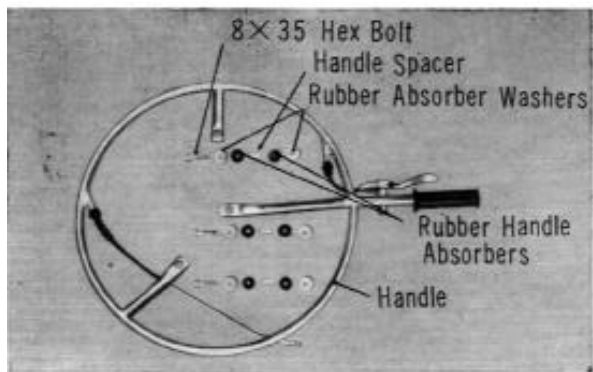
E. Disassembly

1. Only the 14 mm type box wrench is necessary to perform the disassembly work. (Fig. 15)

2. Remove the clutch lever (front as described in section 2 B.).

3. Unscrew the three 8x35 hex. bolts to remove the handle.

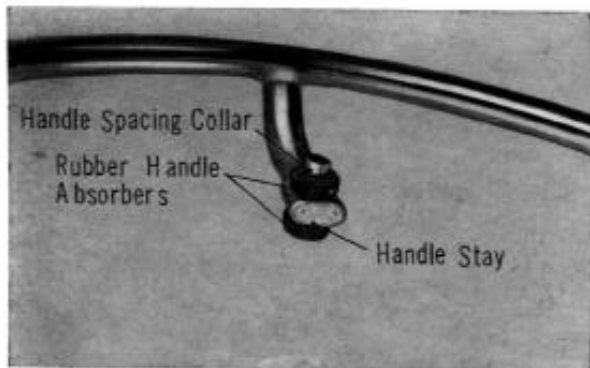
- Disassemble from the handle six rubber mounting washers, handle mounting rubbers and three spacers. (Fig. 17)



(Fig. 17)

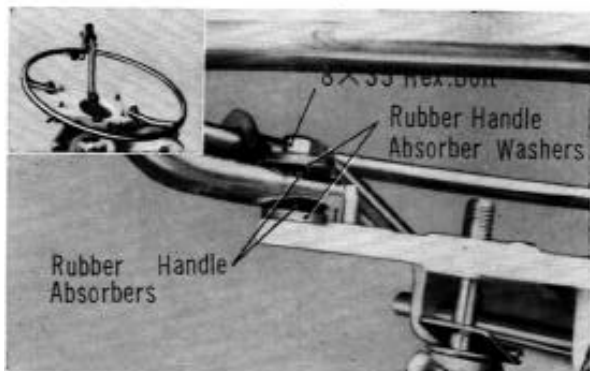
F. Reassembly.

- Insert the handle spacing collar into the loop handle mounting holes and assemble the rubber mount on both sides of the spacing collar. (Fig. 18)



(Fig. 18)

- Install the mount washers on both sides of the rubber mounts, assemble on the drive unit and tighten with three 8x35 bolts. (Fig. 19)

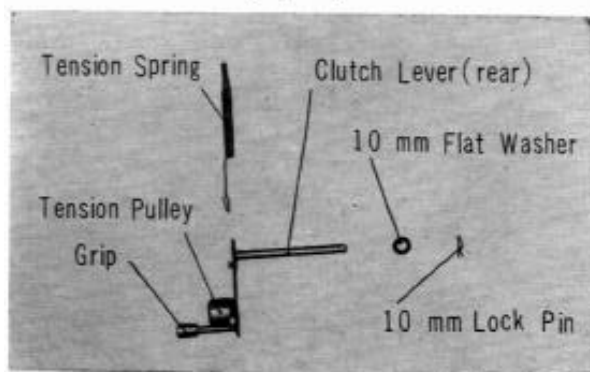


(Fig. 19)

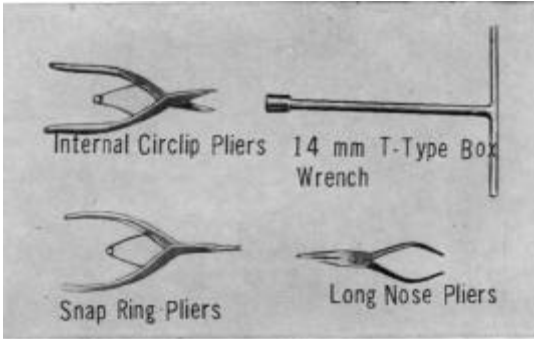
- Install the clutch lever (front) as described in para. 2 C.

G. Description of Clutch Lever (rear) (complete unit clutch arm)

The purpose of the clutch lever (rear) is to engage and disengage the power when reversing. Lever extends out beyond the belt cover. It is operated by moving the grip either to the left or right. It is coupled to the upper cases by a 100 mm flat washer and a 10 mm lock pin with the tension pulley and tension spring assembled. (Fig. 20)



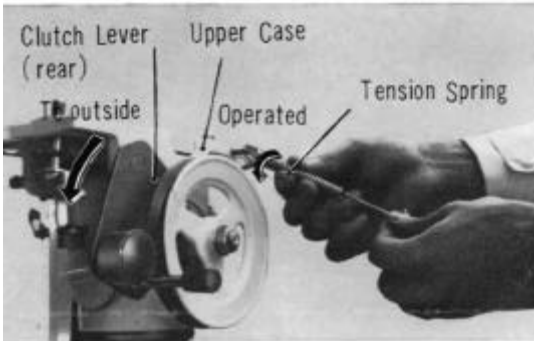
(Fig. 20)



(Fig. 21)

H. Disassembly

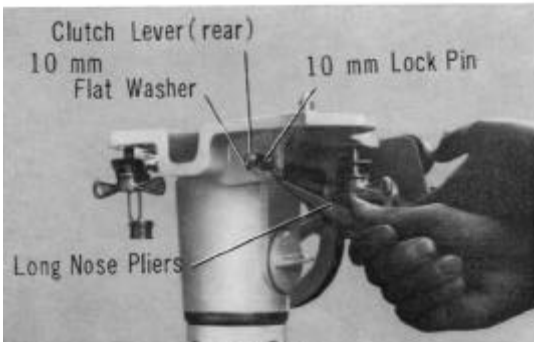
1. Tools necessary for disassembling the clutch lever (rear) is shown in Fig. 21.



(Fig. 22)

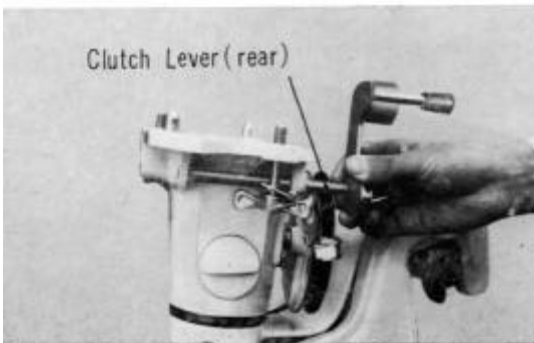
2. Remove the handle as described in para. 2 E.

3. Move the clutch lever (rear) to the outside; remove the tension spring from the hook and the clutch lever (rear) can be removed from the upper case. (Fig. 22)



(Fig. 23)

4. Remove the 10 mm lock pin and the 10 mm flat washer. (Fig. 23)



(Fig. 24)

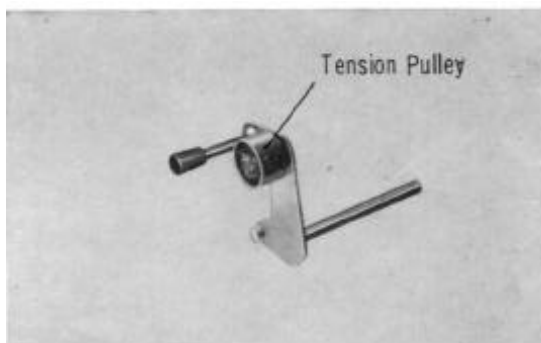
5. Remove the clutch lever (rear). (Fig. 24)

J. Reassembly

Assemble the clutch lever (rear) in the reverse order of disassembly.

J. Description of Tension Pulley

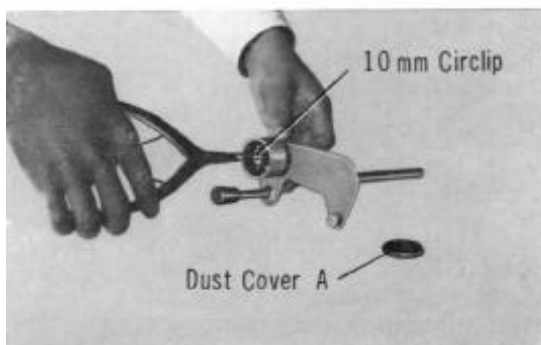
The purpose of the tension pulley is to remove the slack in the belt and to maintain the belt in constant tension when the clutch is engaged. Since the pulley itself rotates, ball bearing is used for minimizing friction. (Fig. 25)



(Fig. 25)

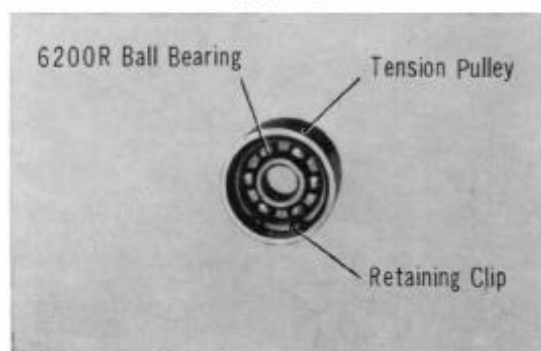
K. Disassembly

1. Remove dust cover A and the 10 mm circlip from the pulley shaft. (Fig. 26)

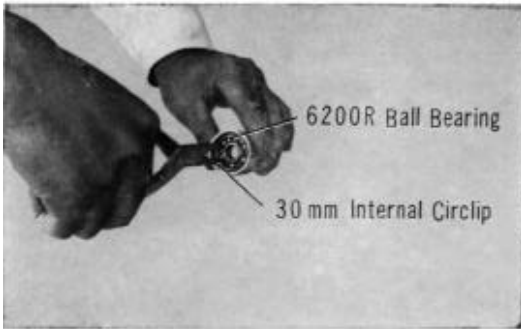


(Fig. 26)

2. Remove the tension pulley, together with the 6200 R ball bearing, from the pulley shaft. (Fig. 27)



(Fig. 27)



(Fig. 28)



(Fig. 29)

3. Remove the 30 mm internal circlip and 6200 R ball bearing. (Fig. 28)

4. Remove dust cover B. (Fig. 29)

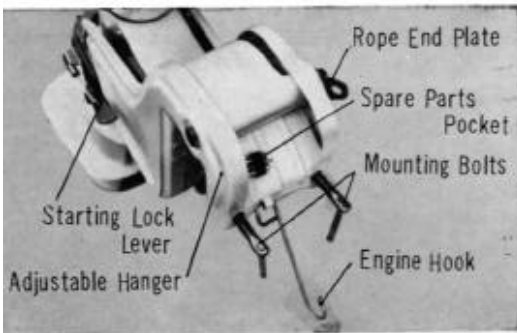
L. Reassembly

Reassemble in the reverse order of disassembly.

3. ADJUSTABLE HANGER, HOLDER CASE

A. Description of adjustable hanger

This is a portion in which the outboard motor is mounted to the hull and is fixed to the hull with two mounting bolts. At the side of the hanger are a groove for angle adjustment of the outboard motor, starting lock lever for facilitating engine start, hook for keeping the outboard motor raised, and a spare parts pocket containing shear pin and split pin. In addition, a rope end plate is provided for hooking the outboard motor to the hull, with a rope to prevent loss of equipment by dropping into the water.

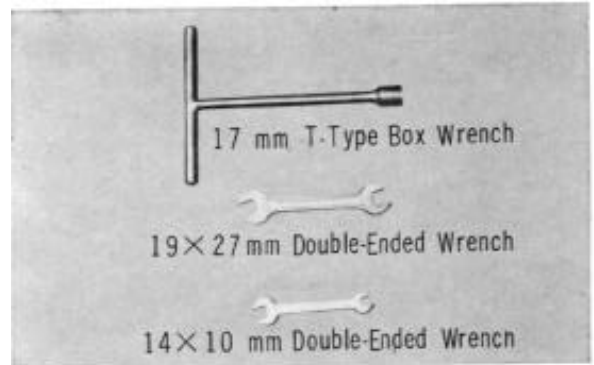


(Fig. 30)

(Fig. 30)

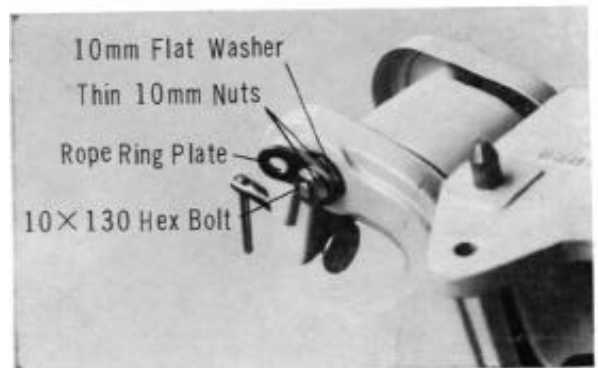
B. Disassembly

1. Necessary tools for disassembling and reassembling the adjustable hanger. (Fig. 31)



(Fig. 31)

2. Remove the two thin 10 mm nuts, one 10 mm flat washer, and one rope ring plate; also remove the 10×130 hex bolts. (Fig. 32)

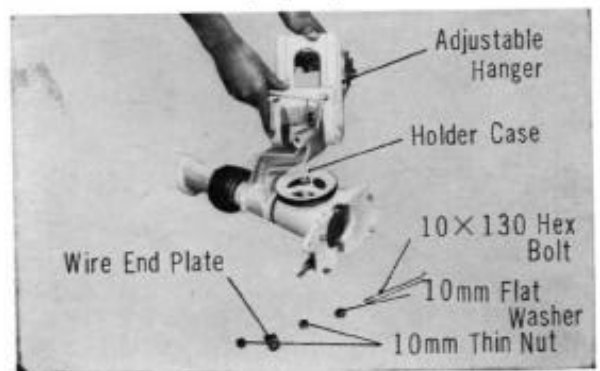


(Fig. 32)

3. Separate the adjustable hanger from the holder case. (Fig. 33)

C. Reassembly

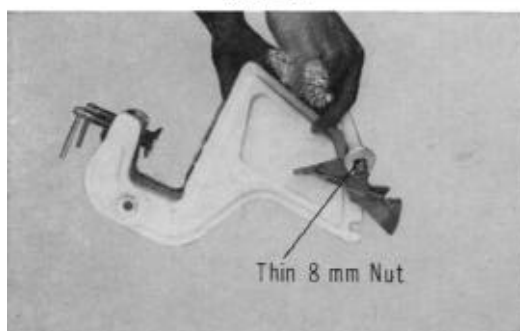
Perform the reassembly in the reverse order of disassembly.



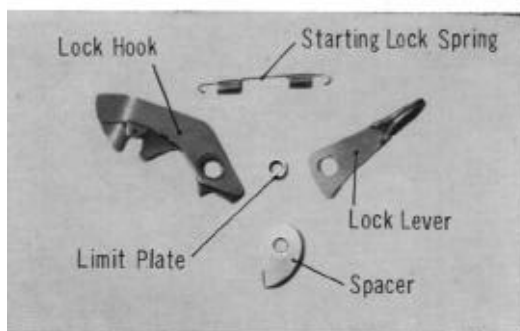
(Fig. 33)



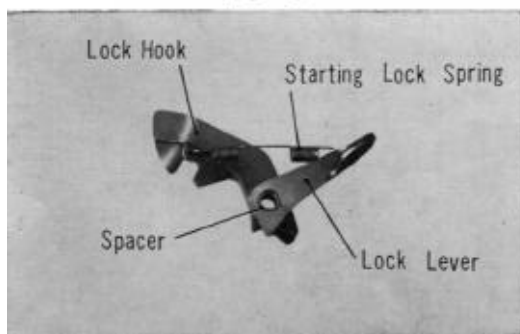
(Fig. 34)



(Fig. 35)



(Fig. 36)



(Fig. 37)

D. Description of starting lock lever

The lock lever is used to secure the engine during starting. It is also used when the engine is a power supply for other machinery (belt removed). (Fig. 34)

E. Disassembly

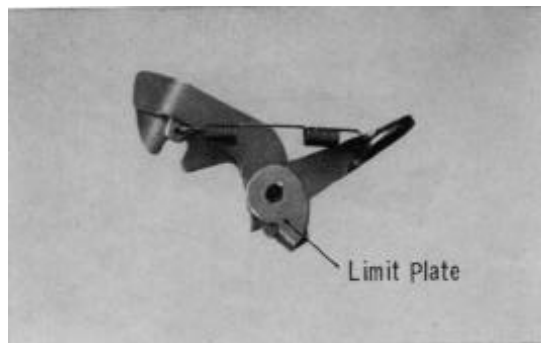
1. Remove the thin 8 mm lock lever nut. (Fig. 35)

2. From the setting shaft, remove the lock lever, lock hook, limit plate, spacer and starting lock spring. (Fig. 36)

F. Reassembly

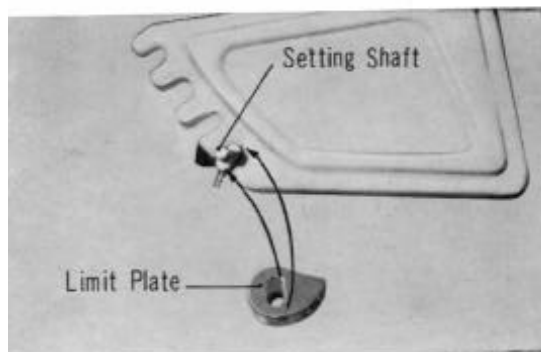
1. Apply the starting lock spring to the lock lever and the lock hook; insert the spacer. (Fig. 37)

2. Fit the limit plate as shown in the figure. (Fig. 38)



(Fig. 38)

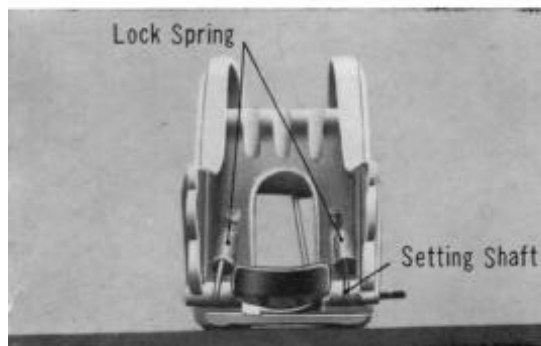
3. When installing on the setting shaft, the long hole of the limit plate versus the setting shaft should be as shown in Fig. 39.



(Fig. 39)

G. Description of setting shaft

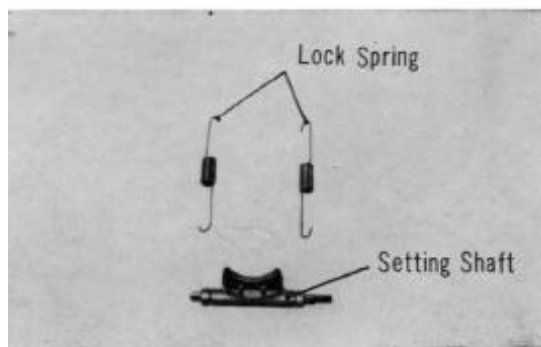
The setting shaft is to be inserted into any desired one of the four grooves of the adjustable hanger for adjustment of the outboard motor tilt angle. The contacting portion of the holder case center is provided with a rubber absorber for minimizing shock. The adjustable hanger is installed with two lock springs. (Fig. 40)



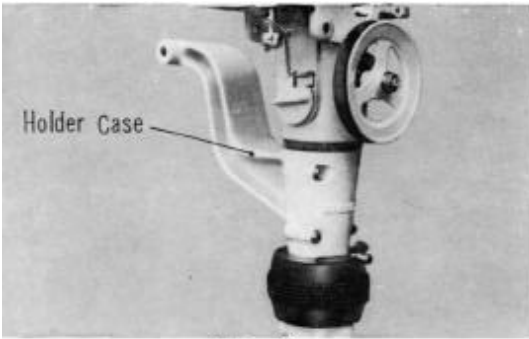
(Fig. 40)

H. Disassembly and reassembly

Remove two lock springs, separating them from the adjustable hanger. (Fig. 41)



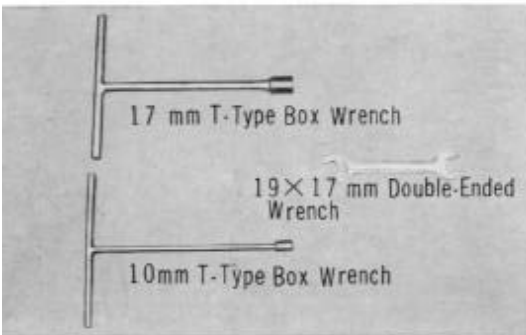
(Fig. 41)



(Fig. 42)

I. Description of holder case

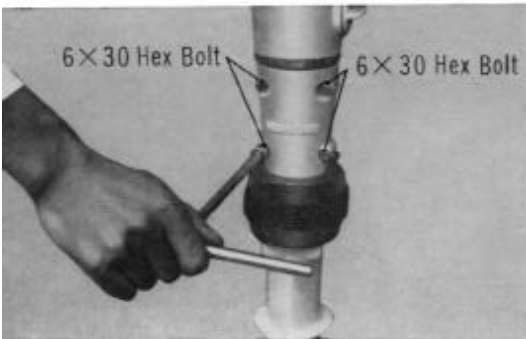
The holder case is the supporting unit of the outboard motor and is installed on the joint tube at its center; the contacting portion is fitted with an oil ring (oiled felt) for smooth operation. (Fig. 42)



(Fig. 43)

J. Disassembly

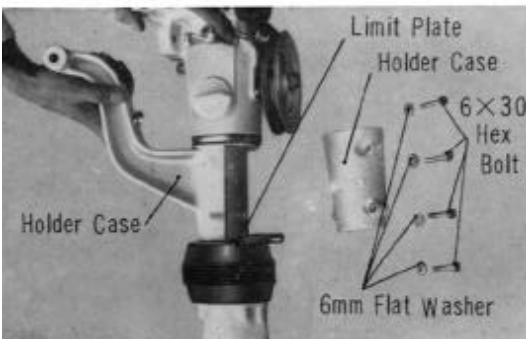
1. Tools necessary for disassembling and reassembling the holders case as shown in Fig. 43



(Fig. 44)

2. Remove the adjustable hanger in the manner described in section 3 B.

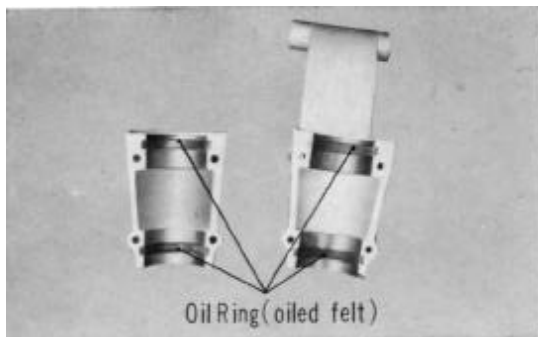
3. Remove six 6 x 30 mm hex bolts used for securing the holder case and also remove four 6 mm flat washers. (Fig. 44)



(Fig. 45)

4. Separate the holder case cover and the holder case from the joint tube, preferably from the position opposite the side of the limit plate. (Fig. 45)

- Remove the holder case cover and the oil ring (oiled felt) from the internal groove of the holder case.



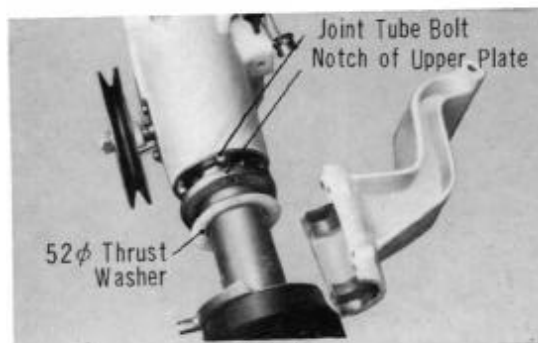
(Fig. 46)

K. Reassembly

Reassembly is the reverse of disassembly.

Note

Set the notch of the upper plate to the head portion of the joint tube bolt and allow the 52 mm thrust washer to come to the upper portion before installing the holder case and the cover. (Fig. 47)



(Fig. 47)

4. UPPER CASE

A. Description of upper case

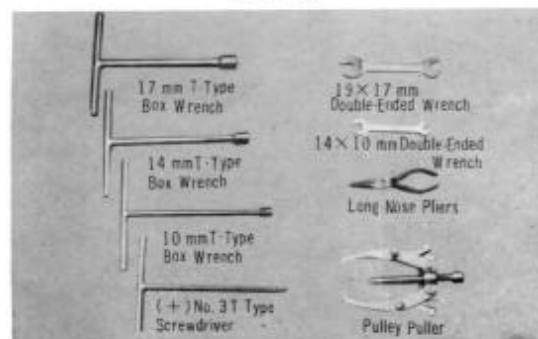
The upper case is located at the upper portion of the outboard equipment and serves as a mounting base for the engine. Also provided with the case are controls such as loop handle, clutch, drive shaft, plus an oil inlet. The case is connected to the joint tube by four bolts. (Fig. 48)



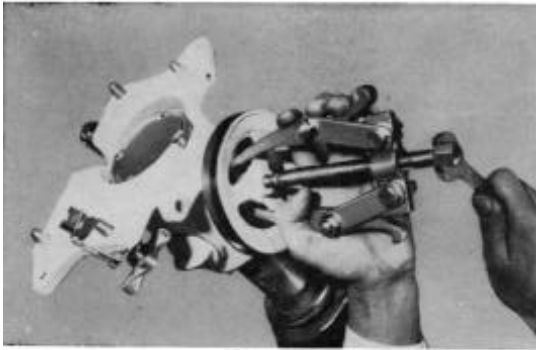
(Fig. 48)

B. Disassembly

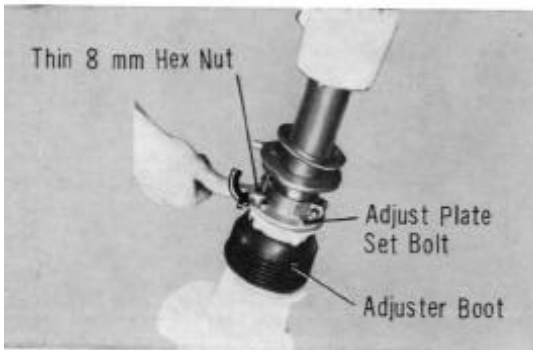
- Tools necessary for disassembly and reassembly upper case are shown in Fig. 49.
- Remove the handle in the manner described in section 2 E.
- Remove the clutch lever (rear) in the manner described in section 2B.



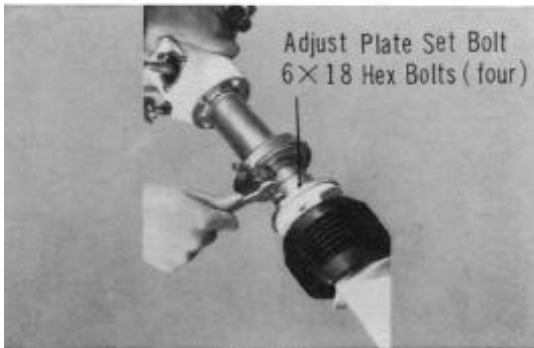
(Fig. 49)



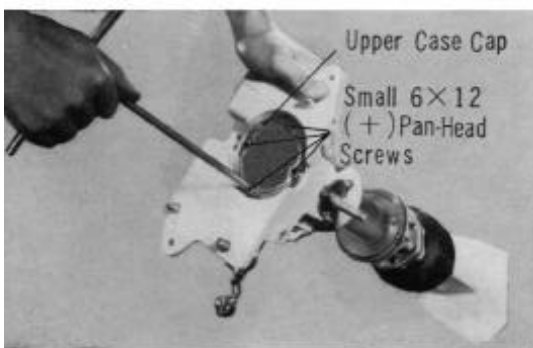
(Fig. 50)



(Fig. 51)



(Fig. 52)



(Fig. 53)

4. Remove the adjustable hanger in the manner described in section 3 B.

5. Remove the holder case in the manner described in section 3.

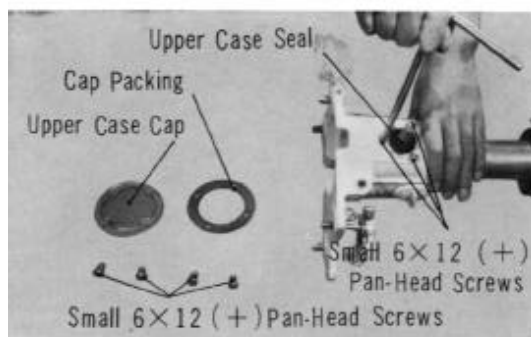
6. Remove 10 mm hex. nut and 10 mm flat washer, pulling out the driven pulley. (Fig. 50)

7. Remove the adjuster boot and loosen the adjust plate set bolt; also turn counter-clockwise the lock of the change adjust bolt for loosening. (Fig. 51)

8. Slightly loosen four adjust plate (6×18) hex bolts and turn the chain adjust bolt clockwise for reducing tension on the chain. (Fig. 52)

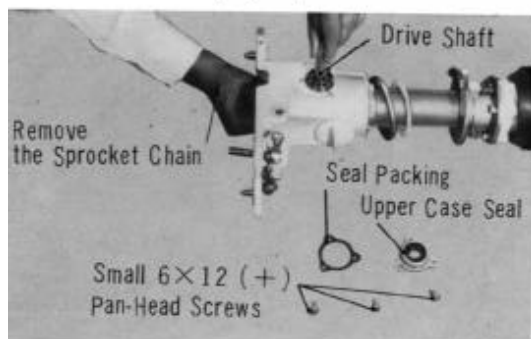
9. Remove four small 6×12 cross panhead screws used for securing the upper case cap and remove the upper case cap and the cap packing. (Fig. 53)

10. Remove three small 6×12 cross panhead screws used for securing the upper case seal and remove the upper case seal and the seal packing. (Fig. 54)



(Fig. 54)

11. Use the right hand to remove the sprocket drive chain through the hole in the upper section of the upper case, removing the drive shaft with the left hand. (Fig. 55)



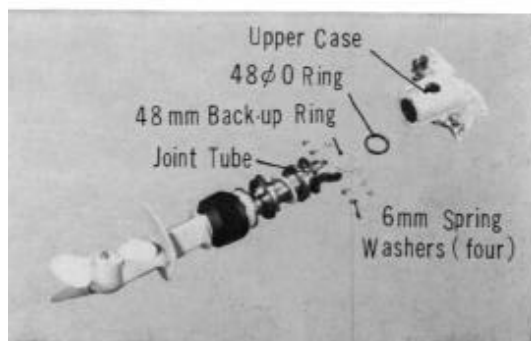
(Fig. 55)

12. Remove four 6×14 hex bolts used for securing the joint tube and also remove four 9 mm washers. (Fig. 56)

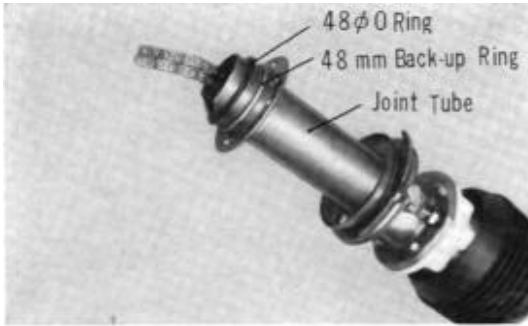


(Fig. 56)

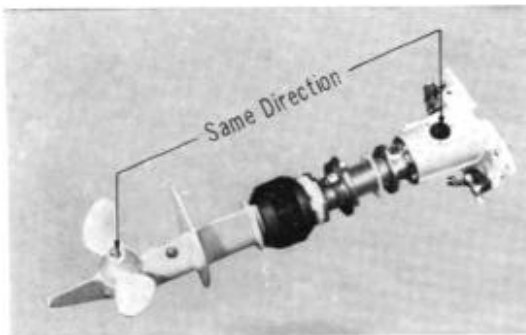
13. From the joint tube remove the upper case, 48 mm "O" ring, and 48 mm back-up ring. (Fig. 57)



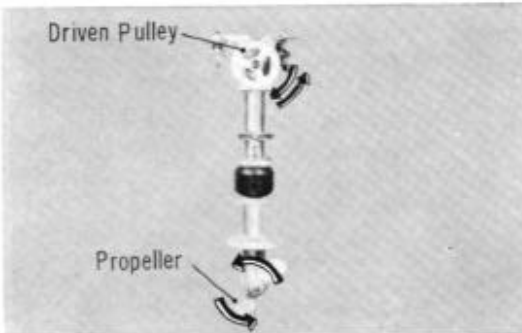
(Fig. 57)



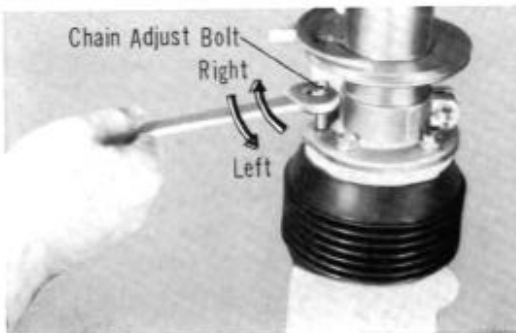
(Fig. 58)



(Fig. 59)



(Fig. 60)



(Fig. 61)

C. Reassembly

1. Insert into the joint tube the 48 mm back-up ring and 48 mm "O" ring in this sequence. (Fig. 58)

2. Position the upper case hole, through which the drive shaft runs, so that it is in the same direction as that of the propeller. Insert the assembly into the joint tube and secure it by four 6×14 hex bolts with 6 mm spring washers. (Fig. 59)

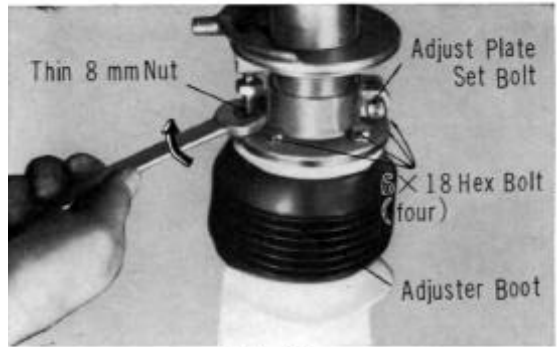
3. Reassembly of the drive shaft is the reverse of the disassembly described in section 4 B 11. (Do not forget the seal packing)

4. Reassemble the driven pulley and the upper case cap in a reverse manner to the disassembly described in section 4.B.6.9.

5. Adjustment of drive chain

a. When turning the chain adjust bolt counterclockwise while rotating the driven pulley or the propeller, the rotation condition somewhat changes; this position is where the most desirable tension is obtained. The best tension permits a sag of 2 to 4 mm when the chain is depressed by finger from the position of the oil inlet. When the chain adjust is turned clockwise, the tension of the chain is reduced. (Fig. 61)

- b. Securely tighten four 6×18 hex bolts to secure the adjust plate.
 - c. Lock the chain adjust bolt by the thin 8 mm nut.
 - d. Tighten the adjust plate set bolt.
 - e. Put the adjustor boot in place. (Fig. 62)
6. The subsequent reassembly is the reverse of disassembly.

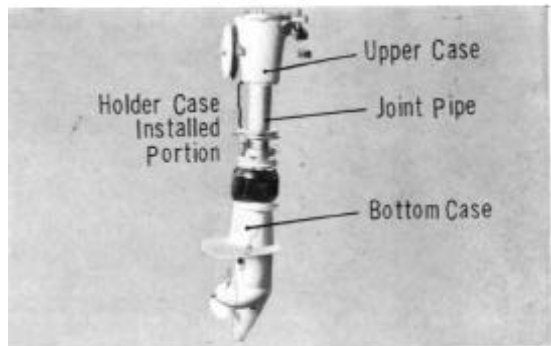


(Fig. 62)

5. JOINT TUBE, PROPELLER, BOTTOM CASE

A. Description of joint tube

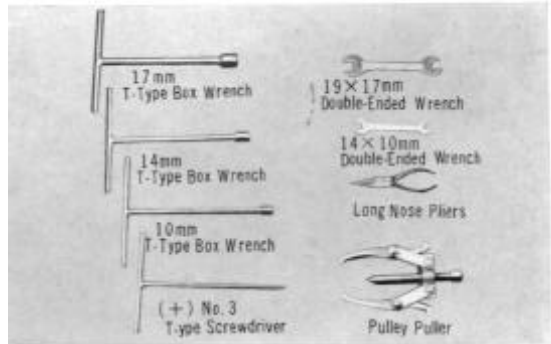
The joint tube is a part on which the upper case and the bottom case are connected; the holder case is installed on the center portion of the tube. (Fig. 63)



(Fig. 63)

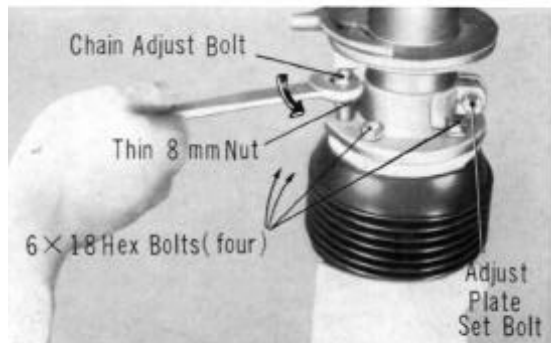
B. Disassembly

1. Tools necessary for disassembling the joint tube are shown in Fig. 64.

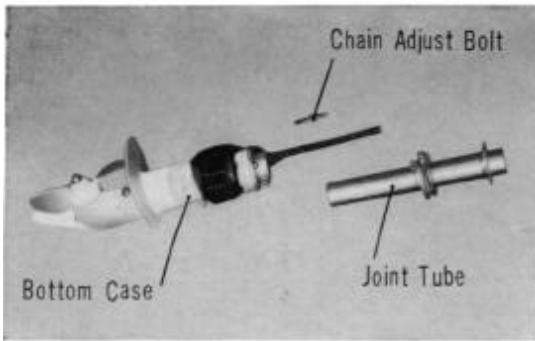


(Fig. 64)

2. Remove the upper case in the manner described in section 4.B.



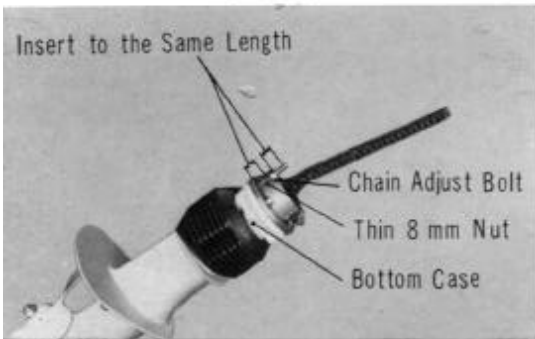
(Fig. 65)



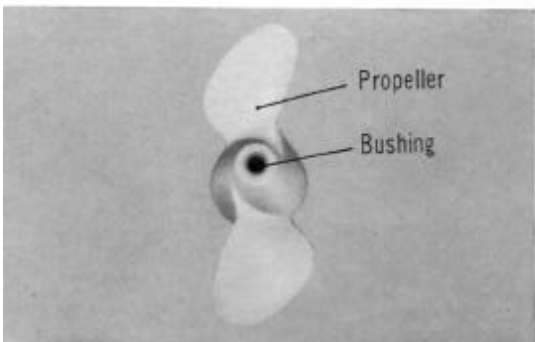
(Fig. 66)



(Fig. 67)



(Fig. 68)



(Fig. 69)

- Loosen the thin 8 mm nut, adjust plate set bolt, and adjust plate 6×18 hex bolts (four); turn the chain adjust bolt counterclockwise for removal of the joint tube. (Fig. 66 and 67)

- Remove the 52 mm thrust washer (nylon) from the joint tube. (Fig. 67)

C. Reassembly

Reassembly is the reverse of disassembly.

Note

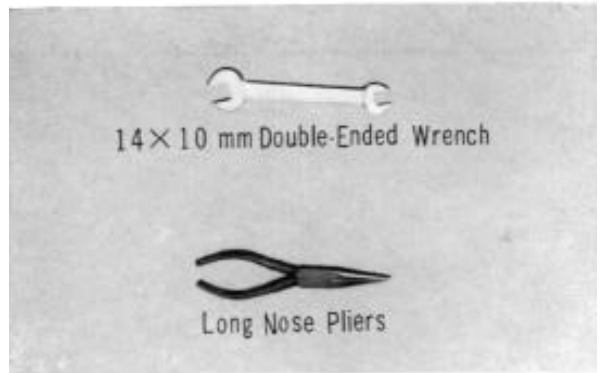
Prior to screw-in of the joint tube into the bottom case, screw in the longer chain adjust bolt into the bottom case to the extent where it becomes the same in length as the shorter one, before inserting into the threaded hole of the joint tube. (Fig. 68)

D. Description of propeller

The propeller has a diameter of 200 mm and the shape is designed with full consideration for propelling efficiency. A shear pin is provided in order to prevent propeller damage when hitting various substances during cruising. A bushing of acetal resin is press fitted into the bearing to provide protection against corrosion by sea water. (Fig. 69)

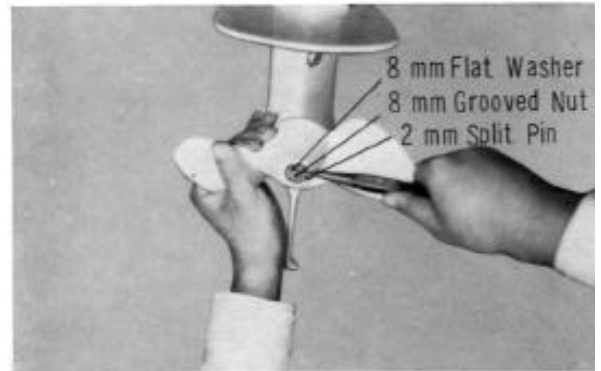
E. Disassembly

1. Tools necessary for disassembling and reassembling the propeller. (Fig. 70)



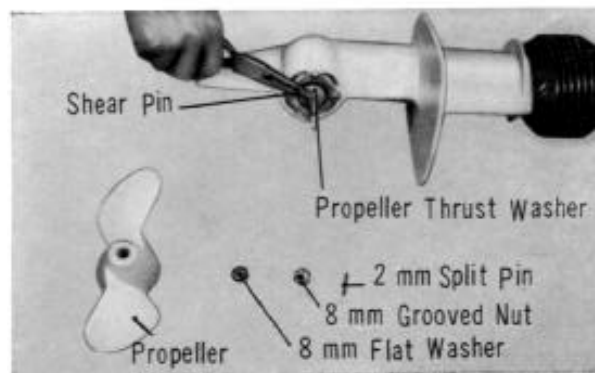
(Fig. 70)

2. Remove the 2 mm split pin and remove the 8 mm grooved nut and 8 mm flat washer. (Fig. 71)



(Fig. 71)

3. Remove the propeller and remove the shear pin and propeller thrust washer. (Fig. 72)



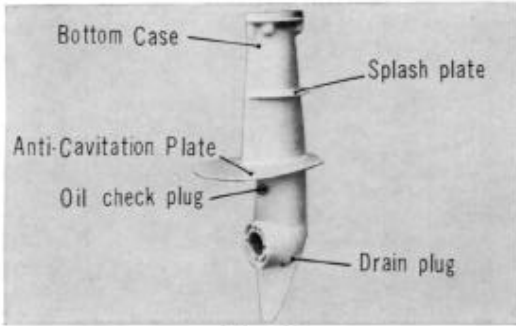
(Fig. 72)

F. Reassembly

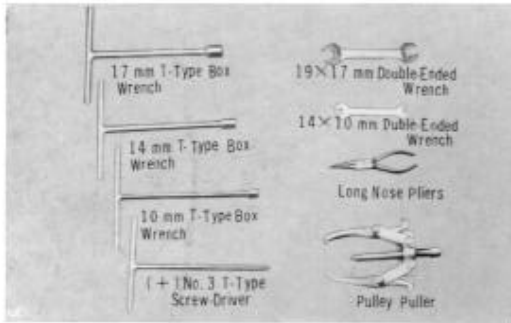
Reassembly is the reverse of the disassembly.

Note

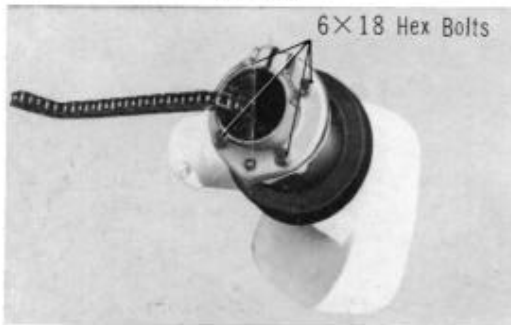
Do not overtighten the 8 mm grooved nut.



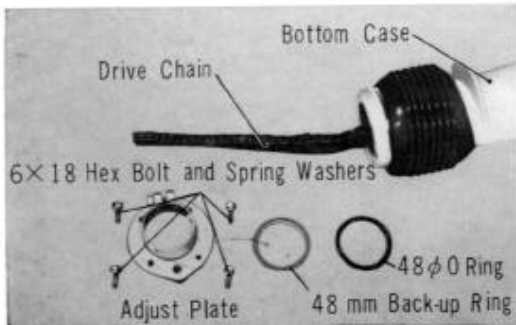
(Fig. 73)



(Fig. 74)



(Fig. 75)



(Fig. 76)

G. Description of bottom case

The bottom case is the lowest portion of the outboard equipment and is streamlined for propelling efficiency. The top section provides the propeller with an anti-cavitation plate for preventing possible cavitation during cruising. The splash plate located on the cavitation plate is for preventing water splash caused during high speed cruising. The interior serves as a lubricant oil pool and is used to lubricate the chain and bearing (etc.). (Fig. 73)

H. Disassembly

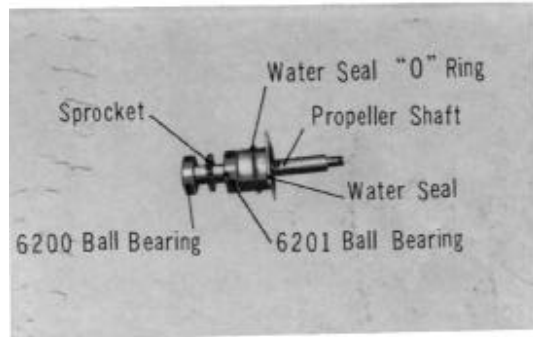
1. Tools necessary for disassembling and reassembling the bottom case are shown in Fig. 74.
2. Remove the joint tube in the manner described in section 5.B.
3. Remove the propeller in the manner described in section 5.E.
4. Remove four 6x18 hex bolts used to secure the adjust plate and remove the 6 mm spring washers. (Fig. 75)
5. Separate from the bottom case the adjust plate, 48 mm back-up ring, and 48 mm "O" ring. (Fig. 76)

6. Remove four small 6×12 cross panhead screws used for securing 12. 32. 23 water seal. (Fig. 77)



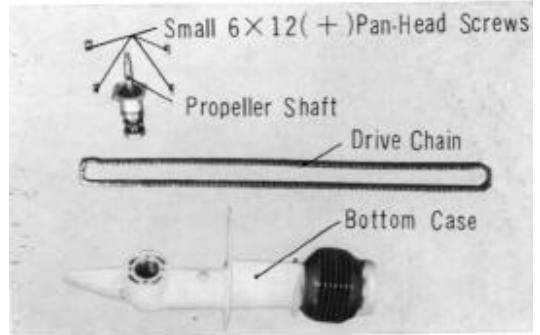
(Fig. 77)

7. While inserting the drive chain into the bottom case (inner), remove the chain from the sprocket and remove the propeller shaft together with the water seal, bearing, and water seal "O" ring. (Fig. 78)



(Fig. 78)

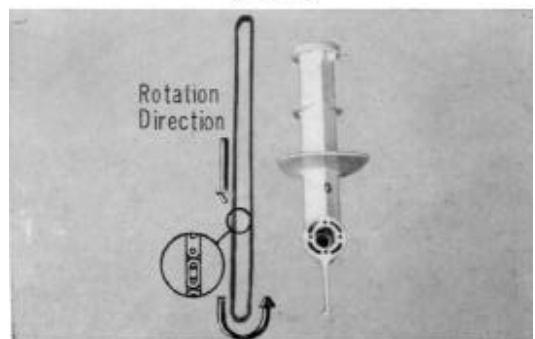
8. Remove the drive chain from the bottom case. (Fig. 79)



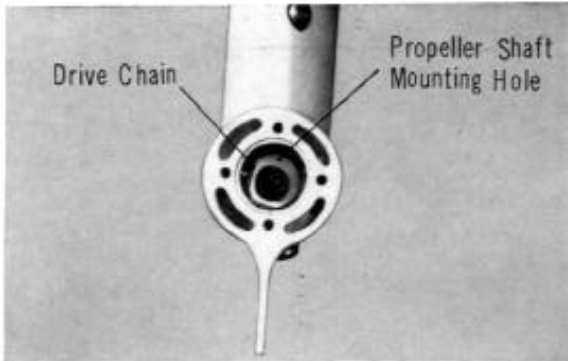
(Fig. 79)

I. Reassembly

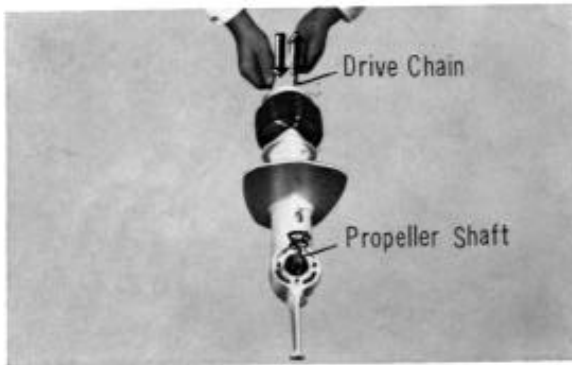
1. Insert the drive chain into the bottom case. In the case of the drive chain equipped with the change joint, insert the chain with the joint placed in the direction as shown in Fig. 80.



(Fig. 80)



(Fig. 81)



(Fig. 82)

2. Fit the bearing water seal and water seal "O" ring to the propeller shaft; depress the drive chain into the lower groove of the bottom case for inserting the propeller shaft. (Fig. 81)
3. After completely inserting the propeller shaft, pull the drive chain for engagement with the sprocket. For insuring that the chain is fully engaged with the sprocket, move the chain up and down to determine if the propeller shaft rotates smoothly. (Fig. 82)
4. The subsequent reassembly is the reverse of disassembly.

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