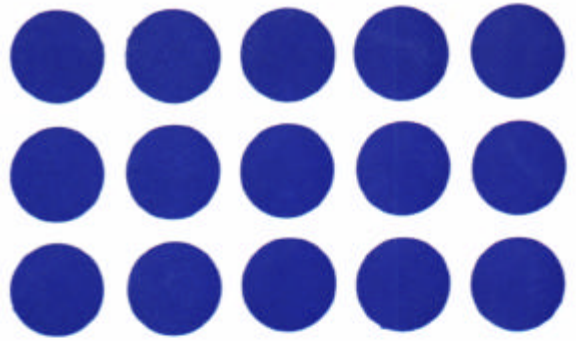


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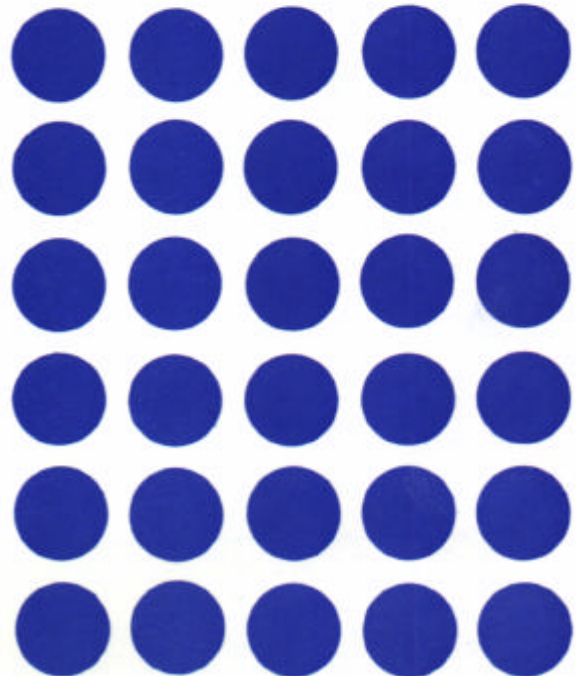


# SHOP MANUAL

## 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]**

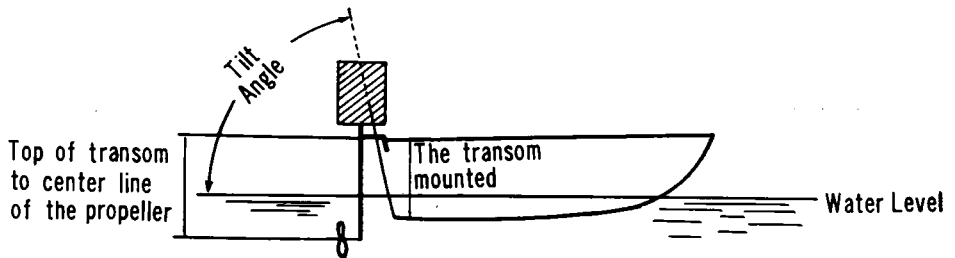
Item	Specification		
	Type S	Type M	Remarks
Overall length	664 mm (26.1")	664 mm (26.1")	without engine
Overall width	470 mm (18.5")	470 mm (18.5")	without engine
Overall height	1190 mm (46.9")	1333 mm (52.5")	without engine
Drive unit weight	12.0 kg (26.5 lbs)	12.5 kg (27.6 lbs)	without engine
Completely 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 in turn connected to a propeller. Dimensions are provided: the belt clutch has a diameter of 90φ (3.5 in), and the sprockets have a diameter of 120φ (4.7 in).</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]**

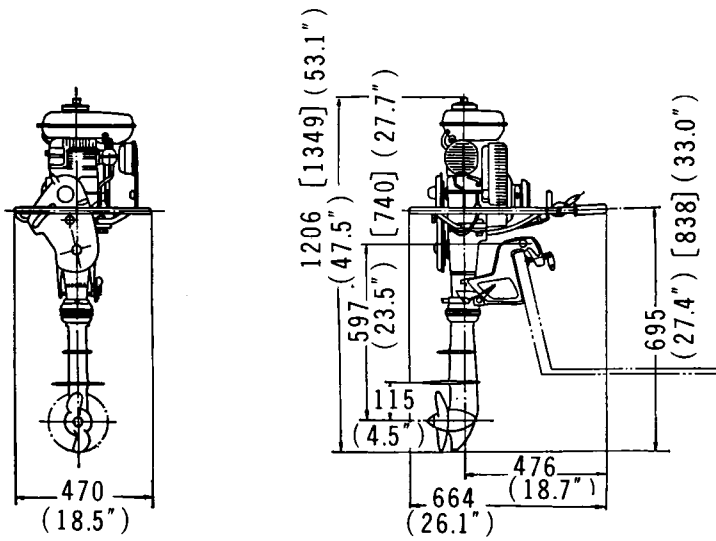
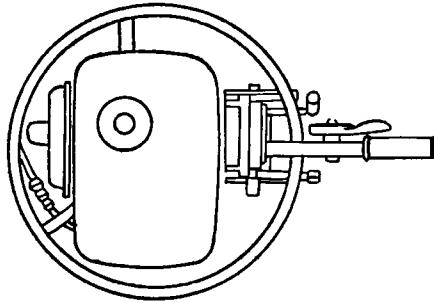
Item	Specification
Type	Loop handle
Steering angle	360°
Tilt angle, maximum : minimum : Adjusting increment	90° 72° 6°
Transom height  thickness	S type : 410 mm (16 in) M type : 560 mm (22 in) 60 mm (2.4 in)
Forward and reverse	Turn handle 180°
Distance between top of transom and propeller centerline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



**[PROPELLER]**


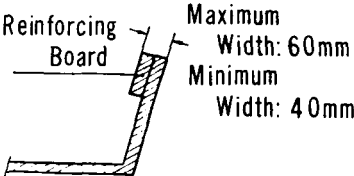

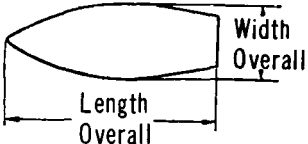
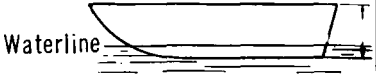
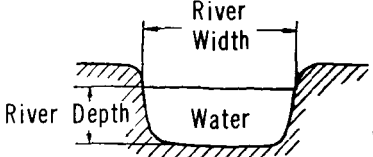
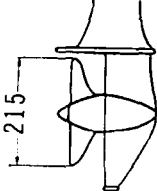
Item	Specification
No. of blades × diameter × pitch	Light duty : 2 × 200 mm × 140 mm (2 × 7.9" × 5.5") Heavy duty : 3 × 200 mm × 100 mm (3 × 7.9" × 3.9")

### 3. DIMENSIONAL DIAGRAM

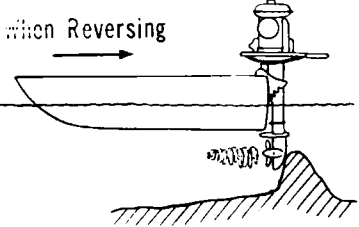
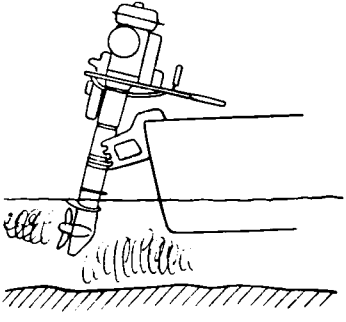


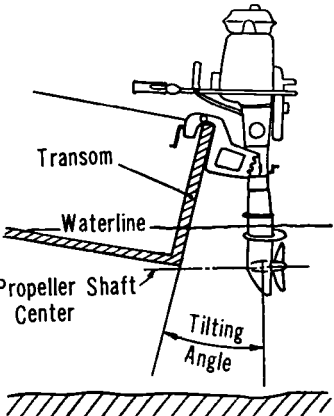
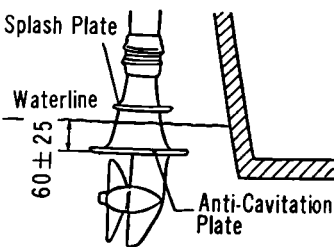
Figures in parentheses are for Type M

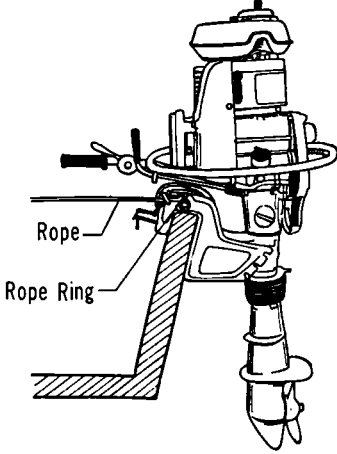
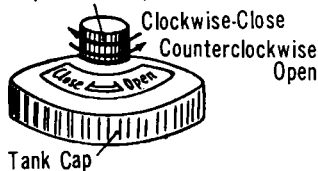
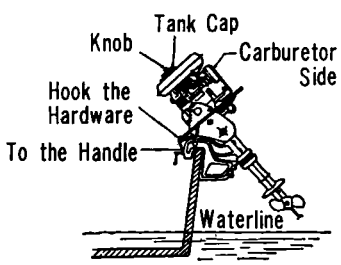
## 4. OPERATIONAL LIMITATION

Item	Description	Remarks
Minimum limitation on hull	Flat bottom rowboat	
	Transom reinforcement for engine mounting	
	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)	
	Height of transom S type: 35 cm (14 in) M type: 50 cm (20 in)	
River condition	Width: 2.5 meters (8 ft) minimum Depth: 0.6 meters (2 ft) minimum	
Propeller diameter	215 mm (8.46 in) maximum	



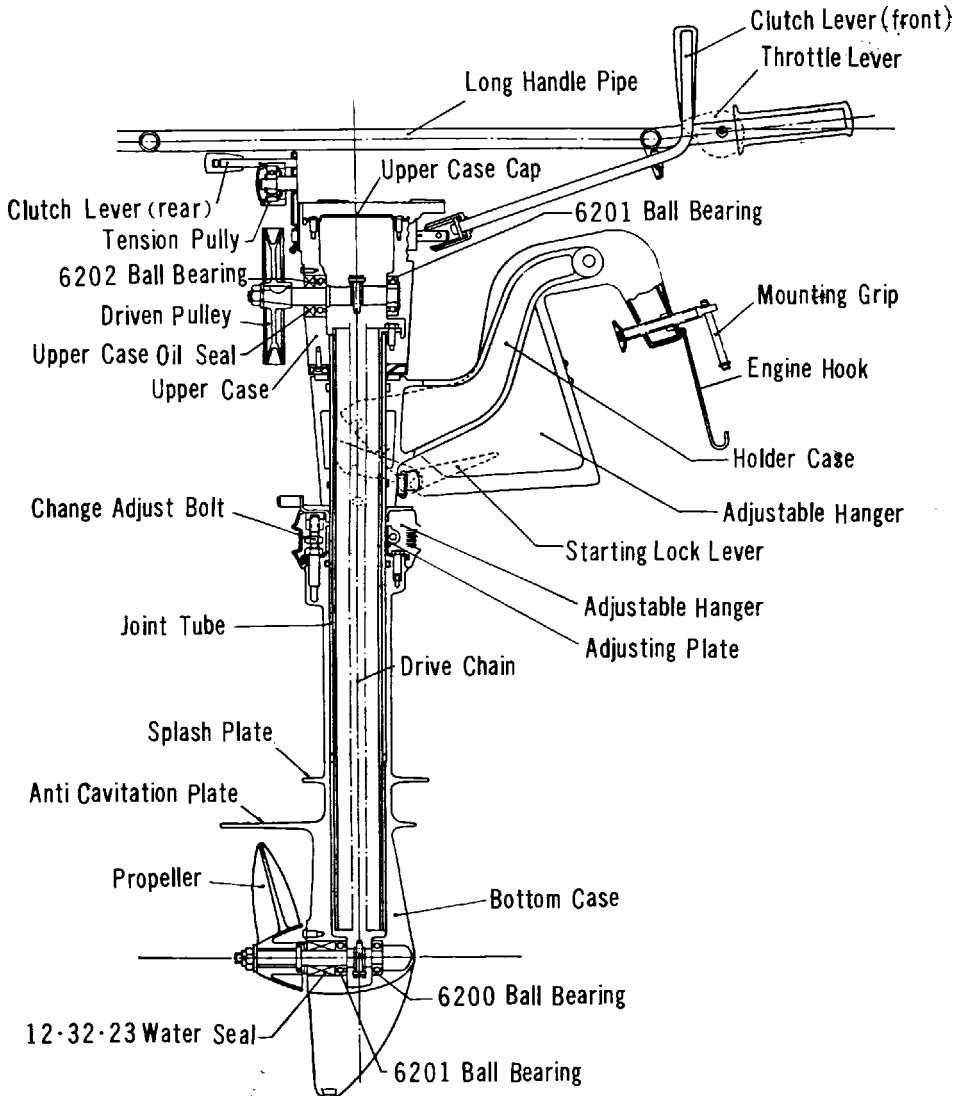
Item	Description	Remarks
Forward movement	Avoid abrupt and sharp turn at high speed. Such maneuvers may cause the boat to capsize or become flooded.	
Reverse movement	Move in reverse at slow speed. High speed will back up water and result in flooding. Exercise caution in shallow or obstructed water since 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>The diagram shows an outboard motor mounted on a hanger. A rope is attached to the hanger and passes through a rope ring on the boat's hull. Labels include 'Rope' and 'Rope Ring'.</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>The diagram shows a cylindrical fuel tank cap with a vent seal on top. Arrows indicate 'Clockwise-Close' and 'Counterclockwise Open'. Labels include 'Vent Seal', 'Clockwise-Close', 'Counterclockwise Open', and '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>The diagram shows an outboard motor tilted upwards. Labels include 'Knob', 'Tank Cap', 'Hook the Hardware To the Handle', 'Waterline', and 'Carburetor Side'.</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.

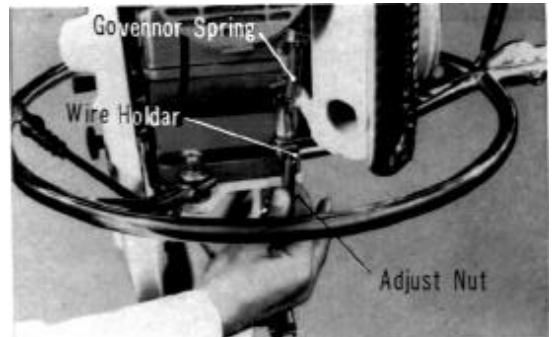


## 6. SERVICING

### 1. DISASSEMBLY AND RE-ASSEMBLY

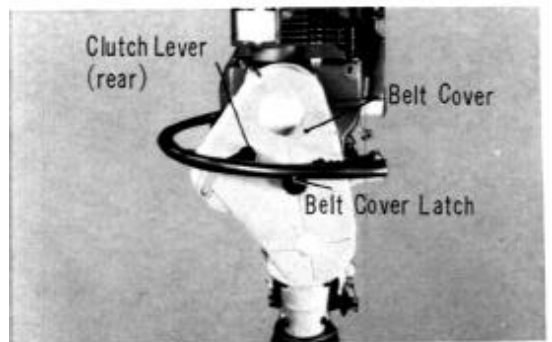
#### A. Disassembly

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



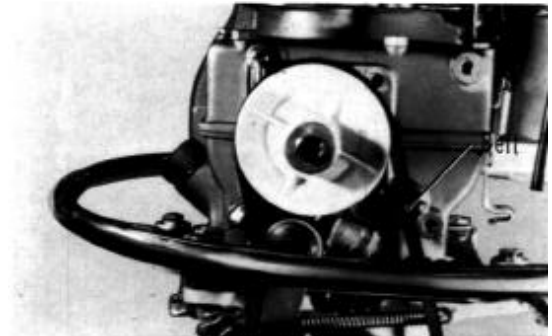
(Fig. 1)

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



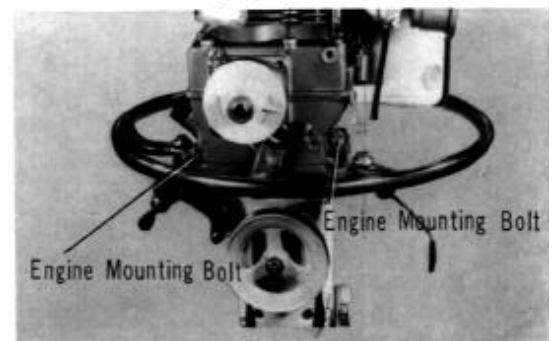
(Fig. 2)

3. Remove the belt. (Fig. 3)

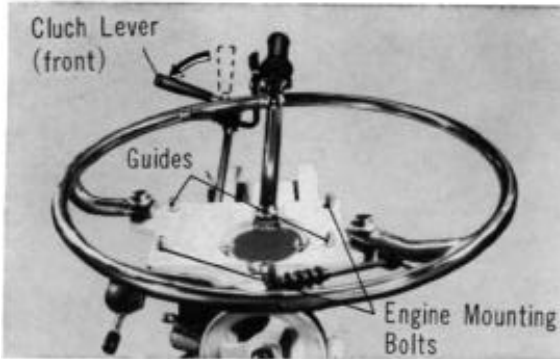


(Fig. 3)

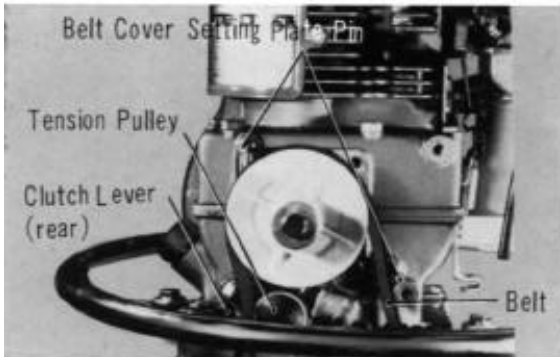
4. Loosen the two engine mounting bolts and lift off the engine. (Fig. 4)



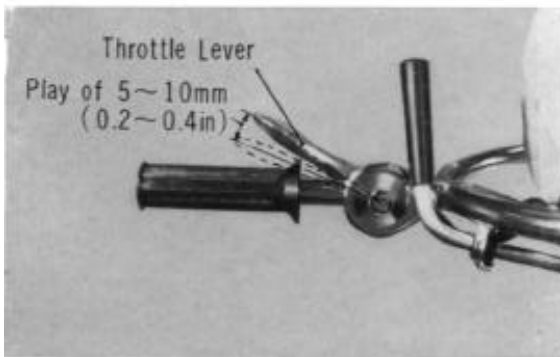
(Fig. 4)



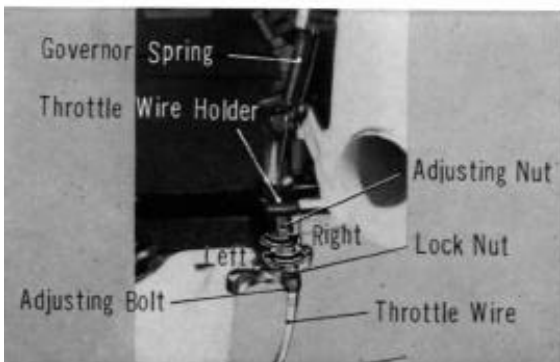
(Fig. 5)



(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)



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