Yamaha Service Manual

Arranged by CycleHippie

The best Service Manuals have been CycleHippied!
Over 30 Years of Powersports Industy Experience goes into the arrangement of the official Yamaha Factory Service Data.

If you obtained this manual from a source other than CycleHippie, It may not have been properly CycleHippied!

Go to
CycleHippie eBay Store

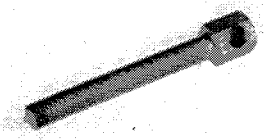
www,CycleHippie.com

1-8. SPECIAL TOOLS

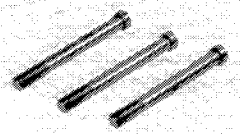
1.


2.

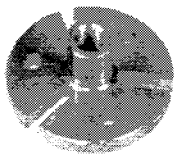

3.

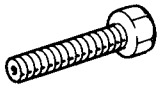

4-a.


4-b.

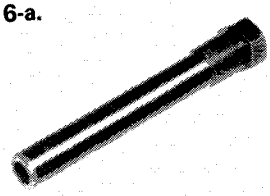

4-c.


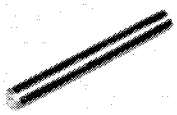
4-d.

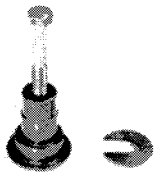

4-e.


4-f.


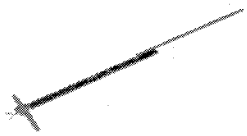
5

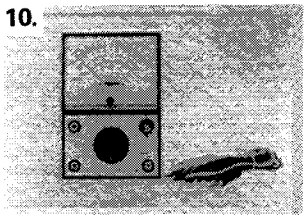

6-a.


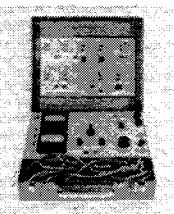
6-b.


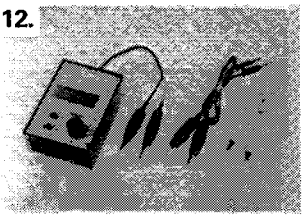
7.


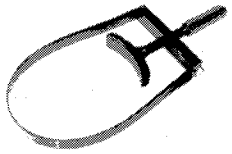
8.

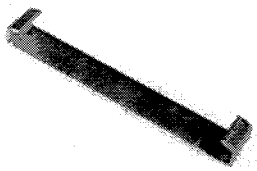

9.


10.


11.


12.


13.


14.


No.	Description	Tool No.
1	Dial Gauge	90890-03097-00
2	Dial Gauge Stand	90890-01195-00
3	Dial Gauge Needle (56 mm)	90890-03098-00
4	3-Way Puller A'ssy	TLU-90901-05-20 (U.S.A.)
4-a	3-Way Puller Attachment	90890-01803-00
4-b	3-Way Puller Attachment	90890-01804-00
4-c	3-Way Puller Screw	90890-01906-00
4-d	Drive Handle	90890--1906-00
4-e	3-Way Puller Body	90890-01848-00
4-f	3-Way Puller Attachment	90890-01873-00
5	Rotor Holding Tool	90890-01235-00
6-a	Primary Sheave Puller (M18)	TLS-90018-59-02 (U.S.A.) 90890-01898-00
6-b	Primary Sheave Puller Attachment	90890-01899-00
7	Primary Sheave Subassembly Tool	TLS-90910-60-00 90890-01858-00
8	Bushing Tool	90890-01883-00
9	Sheave Gauge	TLS-90910-47-02 (U.S.A.) 90890-01702-00
10	Pocket Tester	90890-03112-00
11	Electro Tester	90890-03021-00
12	AC Regulator Checker	90890-03090-00
13	Primary Sheave Holder	TLS-90018-80-00 (U.S.A.) 90890-01701-00
14	Secondary Sheave Holder	90890-01872-00

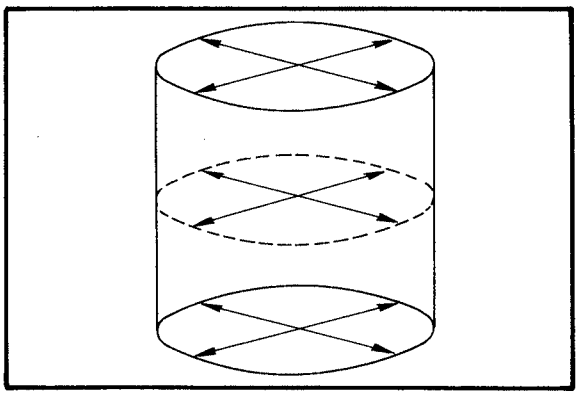
4. Cylinder

a. Remove all carbon deposits from the cylinder and from the ports. Carburetor cleaner will help lift carbon from the cylinder head. Thoroughly wash the cylinder in solvent, and blow it dry with compressed air.

b. Inspect the cylinder walls for scratches. If vertical scratches are evident, the cylinder should be rebored or replaced.

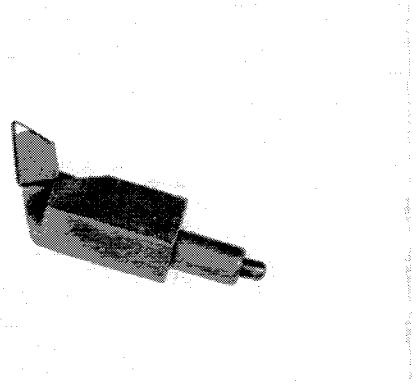
c. Measure the cylinder wall wear at the places shown in the illustration; use a cylinder bore gauge. If wear is excessive, compression pressure will decrease; rebore or replace the cylinder.

	Standard	Wear limit
Cylinder bore	70.00 ~ 70.02 mm (2.756 ~ 2.757 in)	70.05 mm (2.776 in)
Cylinder taper	–	0.05 mm (0.002 in)
Cylinder out-of-round	–	0.01 mm (0.004 in)



Boring

If the cylinder requires boring, follow the standard boring procedures but use an offset bit as shown below. This bit is standard equipment with some boring bars. Be sure that the depth adjustment is precisely set so the combustion chamber is not damaged.



Honing

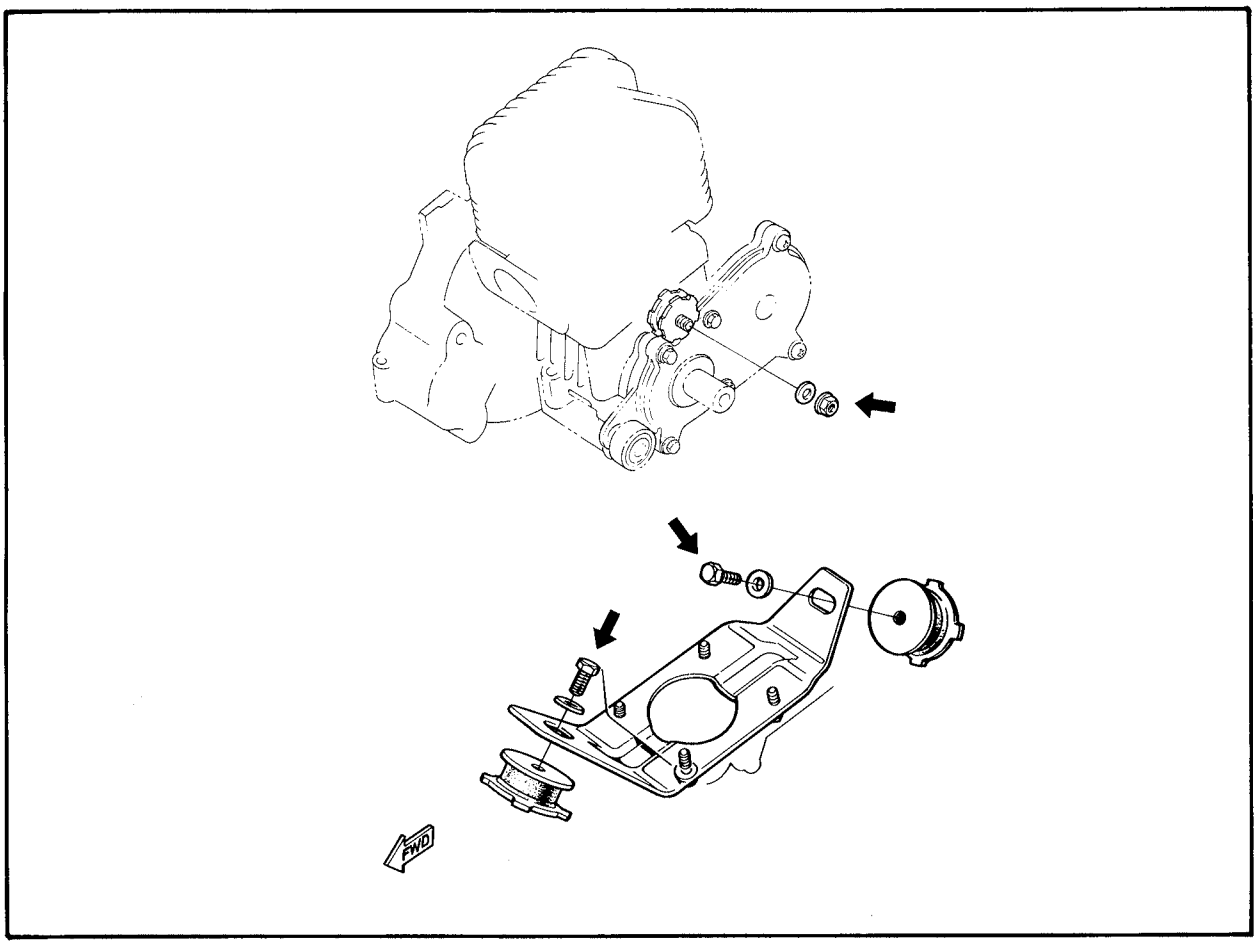
Whenever honing the cylinder on the BR250, use a hone with a bumper device so the combustion chamber will not be carelessly damaged. Otherwise follow standard honing procedures. Yamaha recommends the use of an Ammco Hone. This kit includes all the necessary pieces to properly hone the cylinder on the BR250.

Ammco Hone Kit: TLU-03950-00-00

2-4. ENGINE INSTALLATION

1. Place the engine in the chassis. Torque the three engine mounts to specification.

Tightening torque:	
Bolt:	3.0 m-kg (22 ft-lb)
Nut:	1.4 m-kg (10 ft-lb)

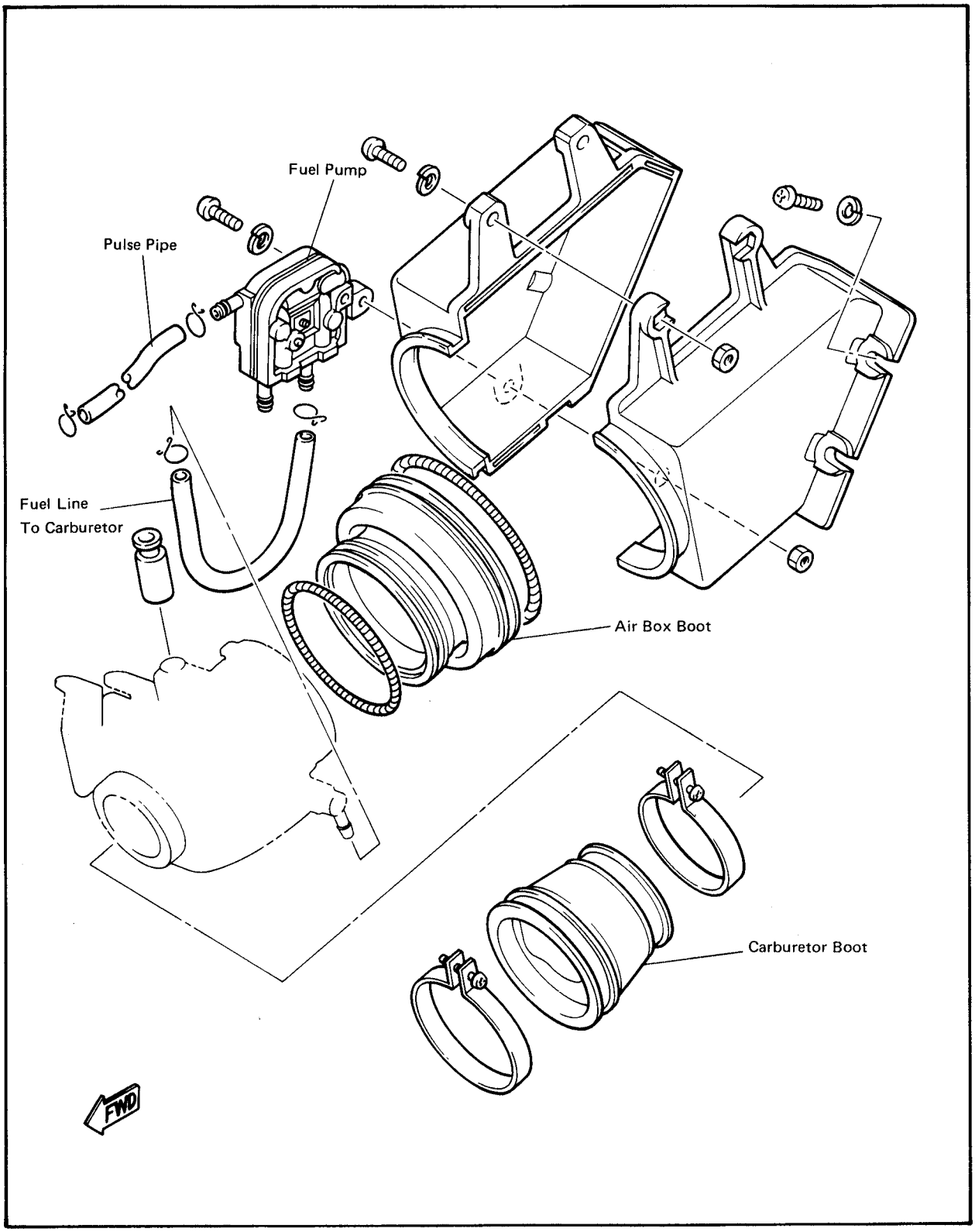


2. Install or connect the following components in the order given below.
   - Primary Sheave, V-belt, and drive guard (Refer to 4-4, D "Assembly")
   - Carburetor (Refer to 3-1, A "Installation")
   - Pulse Pipe
     Oil line that feeds the oil pump
   - Four magneto leads
   - D-handle to the starter rope
   - Spark plug and spark plug wire

Spark Plug Tightening Torque:
2.5 ~ 3.0 m-kg (18 ~ 22 ft-lb)

   - Muffler and hood limiter bracket.

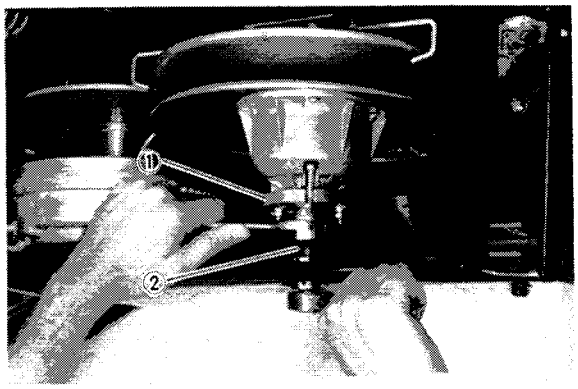
3-3. INTAKE



1. Check to see that fuel moves from the fuel tank, to the fuel pump, then to the carburetor. If fuel leaks, replace the components as required.
2. Inspect the air box boot and the carburetor boot. Replace as necessary. Replace the air box boot springs if either is fatigued.

2. Using the 3-way puller, remove the fixed sheave.

3-Way Puller Ass'y: TLU-90901-05-20 (U.S.A.)	
1. 3-Way Puller Body:	90890-01848
2. 3-Way Puller Attachment:	90890-01873



3. Remove the key from the jackshaft.
4. Very carefully remove the secondary sheave holder. The spring will force the sheave out.
5. Remove the sliding sheave, the spring, and the spring seat. The spring seat has a left-hand thread. If it is difficult to remove the spring seat, rap it with a plastic mallet.
6. Remove the collar and the circlip from the jackshaft bearing cage.

B. Inspection

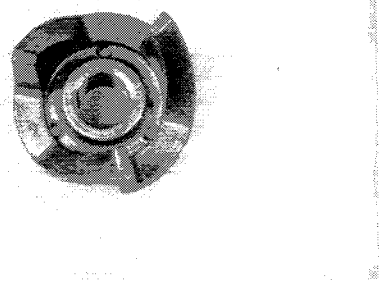
1. Inspect both sheaves. If either is warped, replace it.
2. Inspect the ramp shoes on the sliding sheave; replace as necessary.
3. Check the sheave bushings for wear; replace the sheave as required.
4. Check the spring. If it is fatigued or damaged, replace it.

C. Assembly

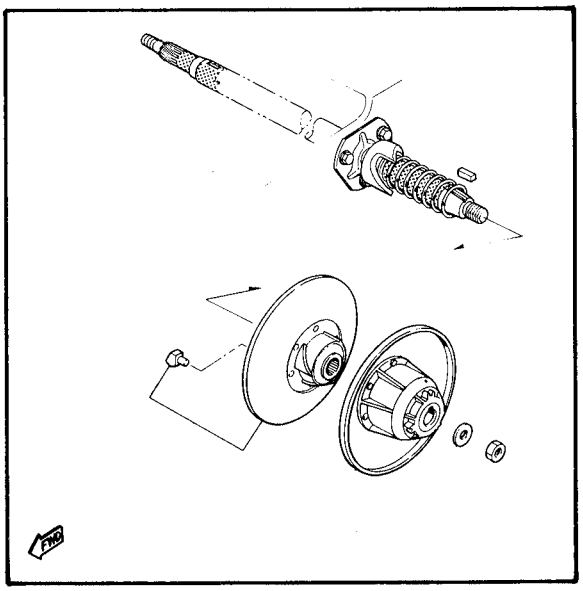
1. Install the circlip and collar into the jackshaft bearing cage.
2. Thread the spring seat onto the jackshaft; it has a left-hand thread. The spring seat **must** be tight or it will come loose when you preload the secondary sheave spring.
3. Install the spring into the spring seat. Be sure the spring is in one of the holes.

NOTE:

The three holes in the spring seat are for convenience only. Seating the spring in a different hole will not change the spring preload.



4. Install the sliding sheave onto the jackshaft. Be sure the spring engages the hole in the sheave.



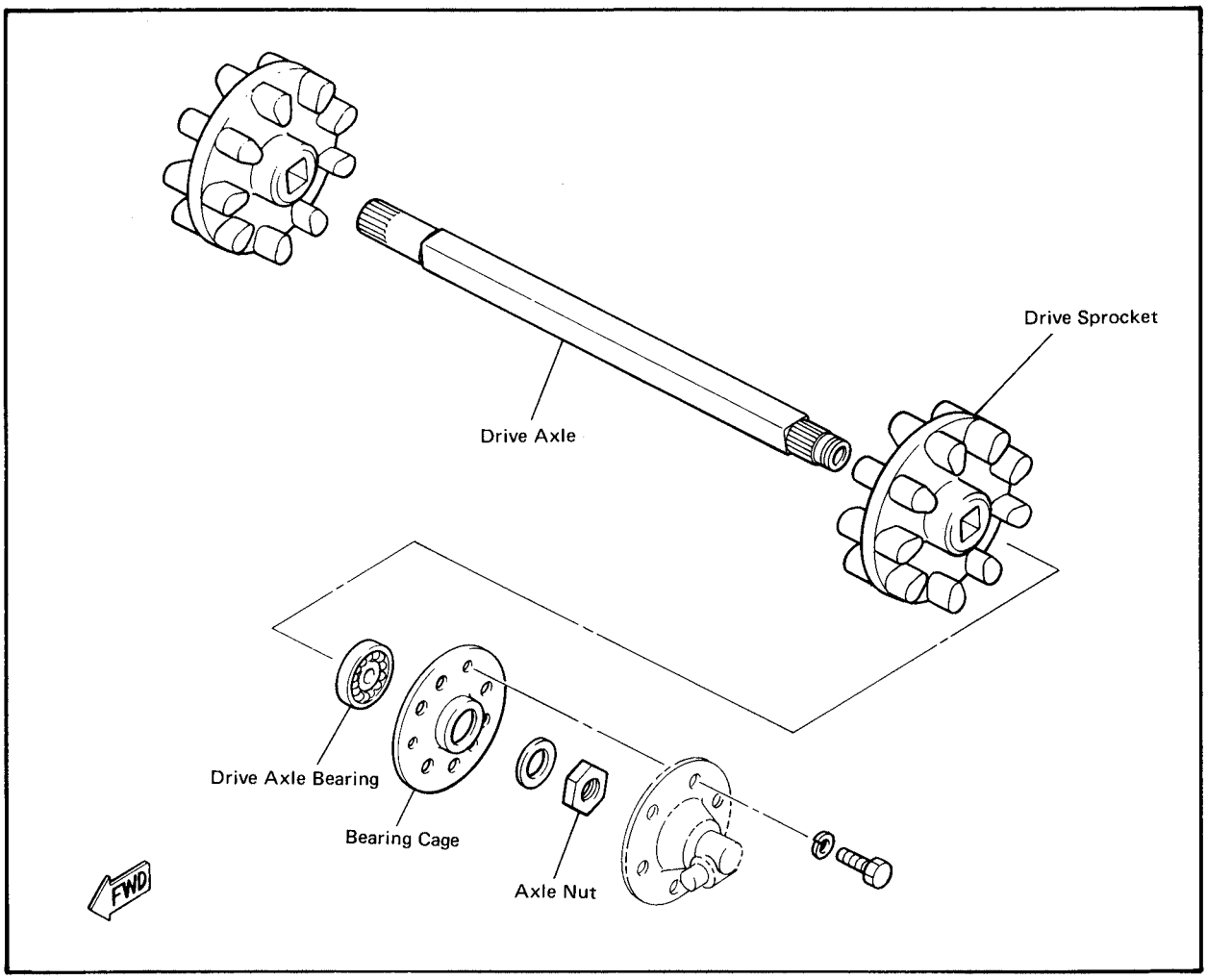
5. Starting from the free position, rotate the sliding sheave clockwise to preload the spring, and push the sheave towards the chain case. Lock the sliding sheave in place with the secondary sheave holder.

Secondary sheave holder:
90890-01872

Preload:

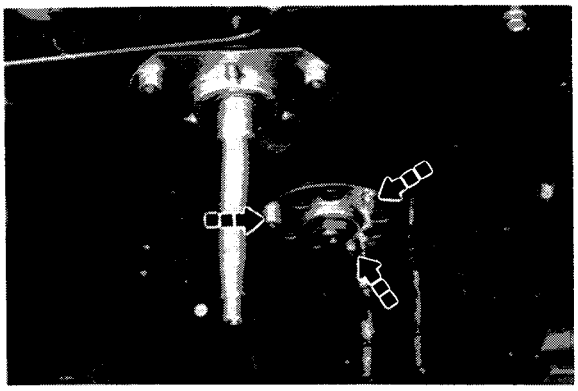
Turning the sliding sheave 1/3 of a turn from the free position (past one ramp shoe) sets the spring at 160°.

Turning the sliding sheave 2/3 of a turn from the free position (past two ramp shoes) sets the spring at 280°.

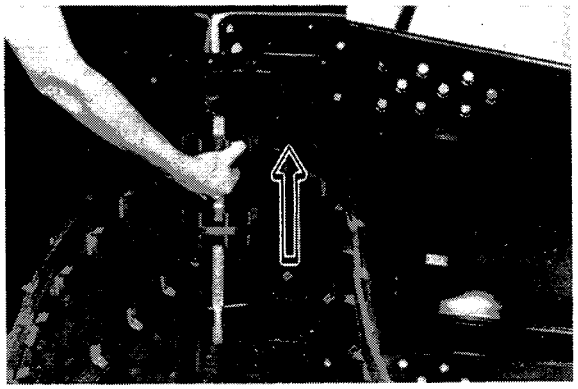


A. Removal

1. Place an oil pan beneath the chain case, and remove the chain case cover. Let the oil drain into the oil pan.
2. Remove the driven sprocket.
3. Remove the secondary sheave. (Refer to 4-5, A "Removal.")
4. Remove the axle nut and washer; remove the bearing cage.



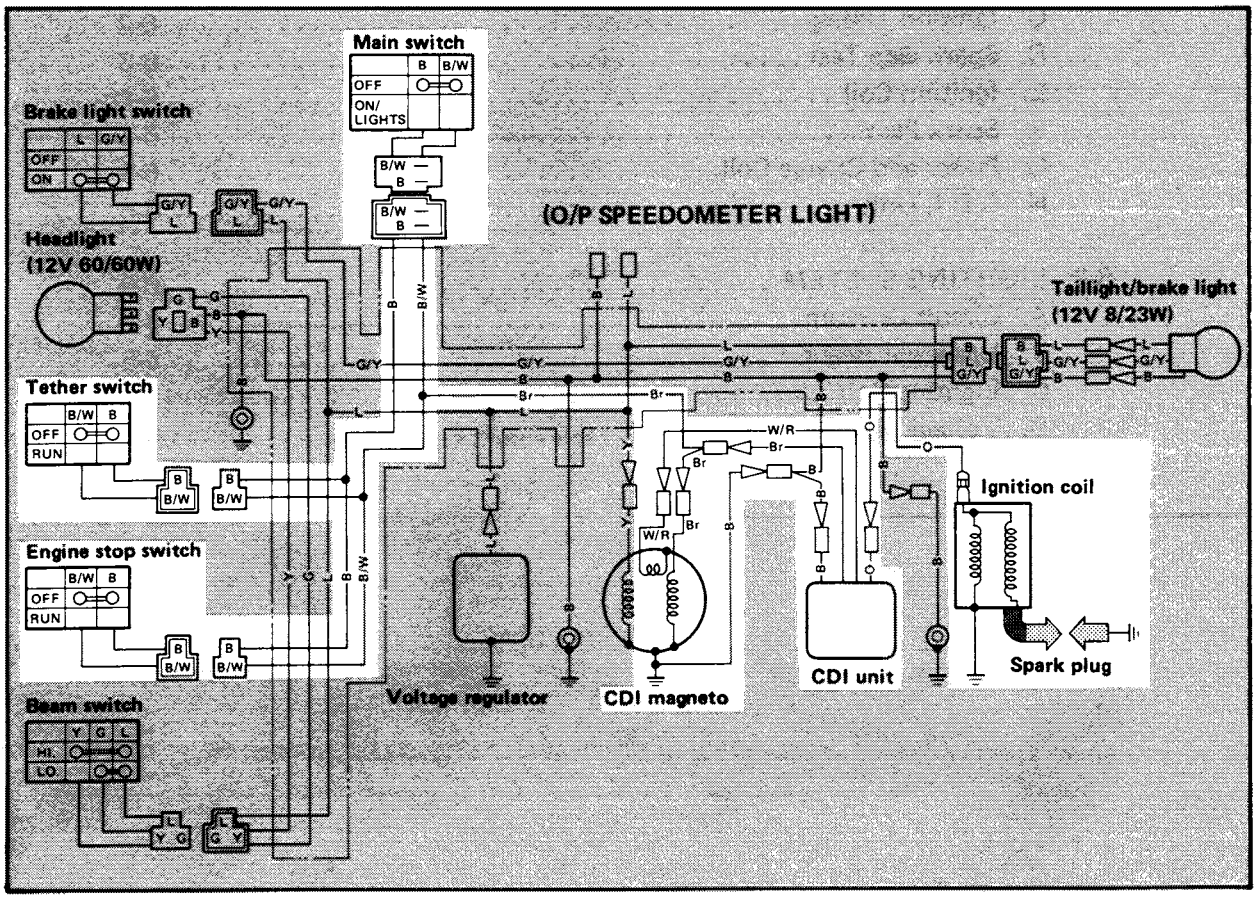
5. Remove the suspension. (Refer to 4-8, A "Removal.")
6. Place the machine on its right side. Remove the axle by lifting it up and out of the chain case, then out of the track.



7. Remove the track.

6-1. IGNITION SYSTEM

A. Circuit Diagram



B. Troubleshooting

No spark is produced or weak.

Check of connections ..... Check lead wire connections for short circuits.

OK → Faulty ——→ Correct.

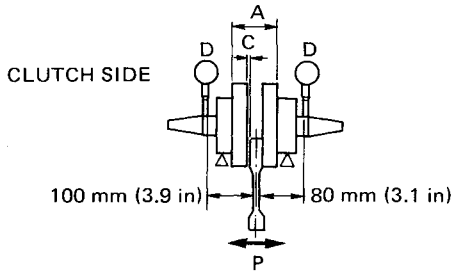
Spark test ..... See 6-1, D "Spark Gap Test."

No spark → Spark ——→ Plug is faulty.

Charge coil test ..... Measure coil resistance. (See 6-1, G "Pulser and Charge Coil.")

OK → Faulty ——→ Replace.

Crankshaft:	
Crankshaft assembly width (A)	$56^{+0}_{-0.05}$ mm ($2.20^{+0.039}_{-0.00197}$ in)
Crankshaft deflection (D)	0.02 mm (0.0008 in)
Connecting rod big end side clearance (C)	0.25 ~ 0.75 mm (0.010 ~ 0.030 in)
Connecting rod small end deflection (P)	2.0 mm (0.079 in)

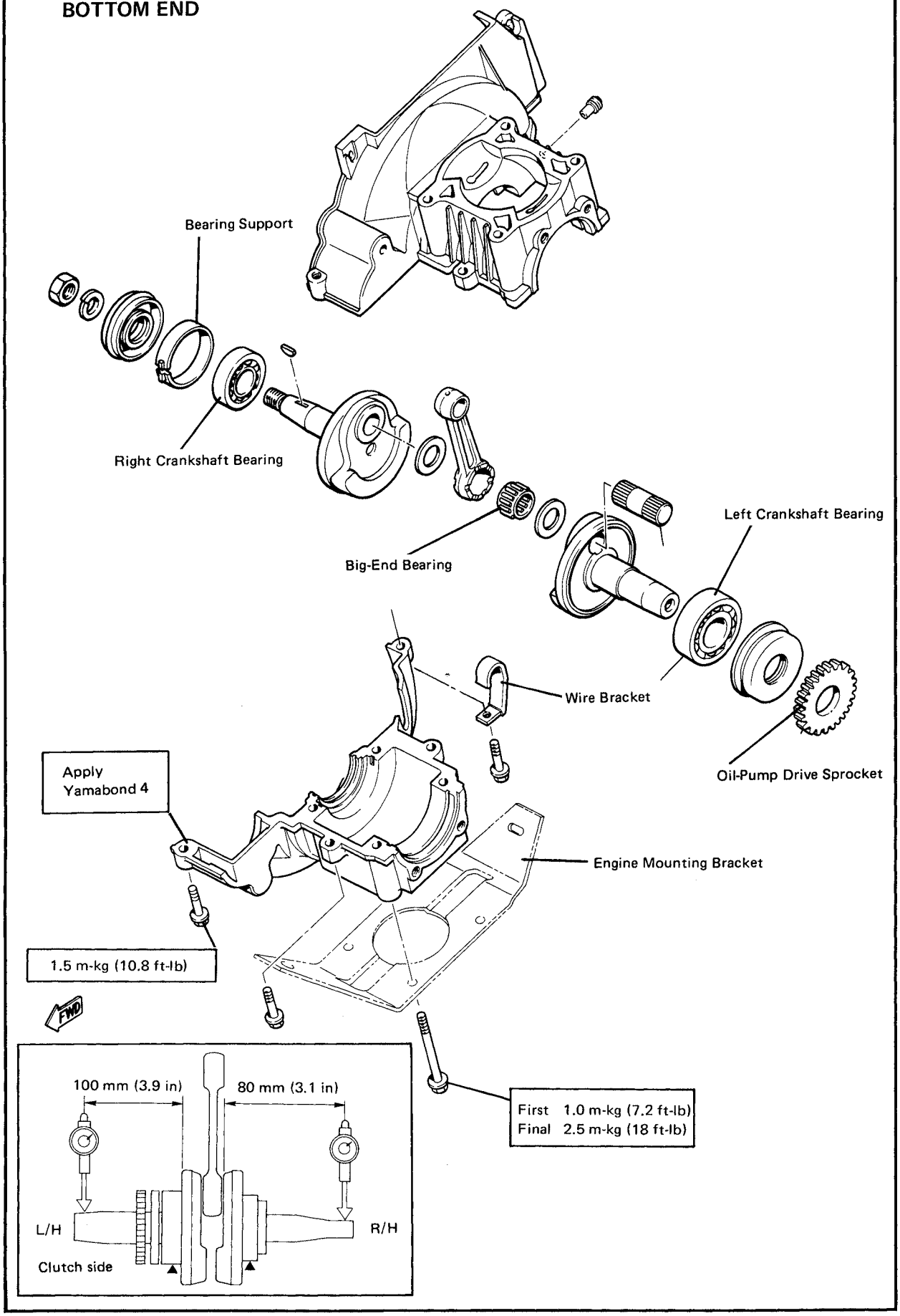


Crank pin outside diameter x length	ϕ24 x 55 mm (ϕ0.945 x 2.165 in)
Crank pin type	Solid shaft
Crank bearing type (Left) x q'ty	#6306 special x 1 pc.
Crank bearing type (Right) x q'ty	#6305 special x 1 pc.
Crank oil seal type (Left) x q'ty	SD3-30 x 1 pc.
Crank oil seal type (Right) x q'ty	SD5-25 x 1 pc.
Carburetor:	
Type & manufacturer/quantity	BD32-28 KEIHIN x 1 pc.
I.D. Mark	8R401
Main jet (M.J.)	#108
Pilot screw (P.S.)	1-1/4 turns out
Throttle valve (Th.V.)	t = 1.0
Valve seat (V.S.)	ϕ1.4 mm (ϕ0.055 in)
Float height	15 ± 2 mm (0.59 ± 0.08 in)
Idling engine speed	1100 ± 100 r/min
Lubrication:	
Autolube pump – Color code	Pink
Autolube pump – Minimum stroke	0.20 ~ 0.25 mm (0.0079 ~ 0.0098 in)
Autolube pump – Maximum stroke	1.65 ~ 1.87 mm (0.0650 ~ 0.0736 in)
Autolube pump – Reduction ratio	1/40
Autolube pump – Output Min./200 strokes	0.95 ~ 1.19 cm^3 (0.0321 ~ 0.0402 oz)
Autolube pump – Output Max./200 strokes	7.84 ~ 8.89 cm^3 (0.2508 ~ 0.3006 oz)
Autolube pump wire free play	25 ± 1 mm (0.98 ± 0.04 in) at idle
Oil tank capacity	1.75
Oil grade	YAMALUBE 2-cycle

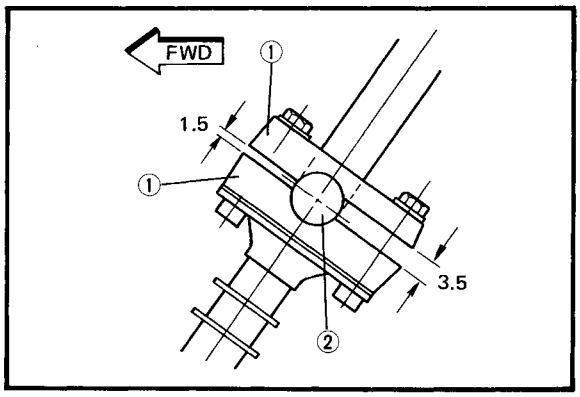
C. Drive and track suspencion

Transmission:	
Type	V-belt automatic centrifugal engagement
Drive ratio	3.5 : 1 ~ 1 : 1
Engagement rpm	3100 ± 200 r/min
Shift rpm	5,700 ~ 5,800 r/min
Primary spring:	
Part No.	90501-50654
Color code	No painted

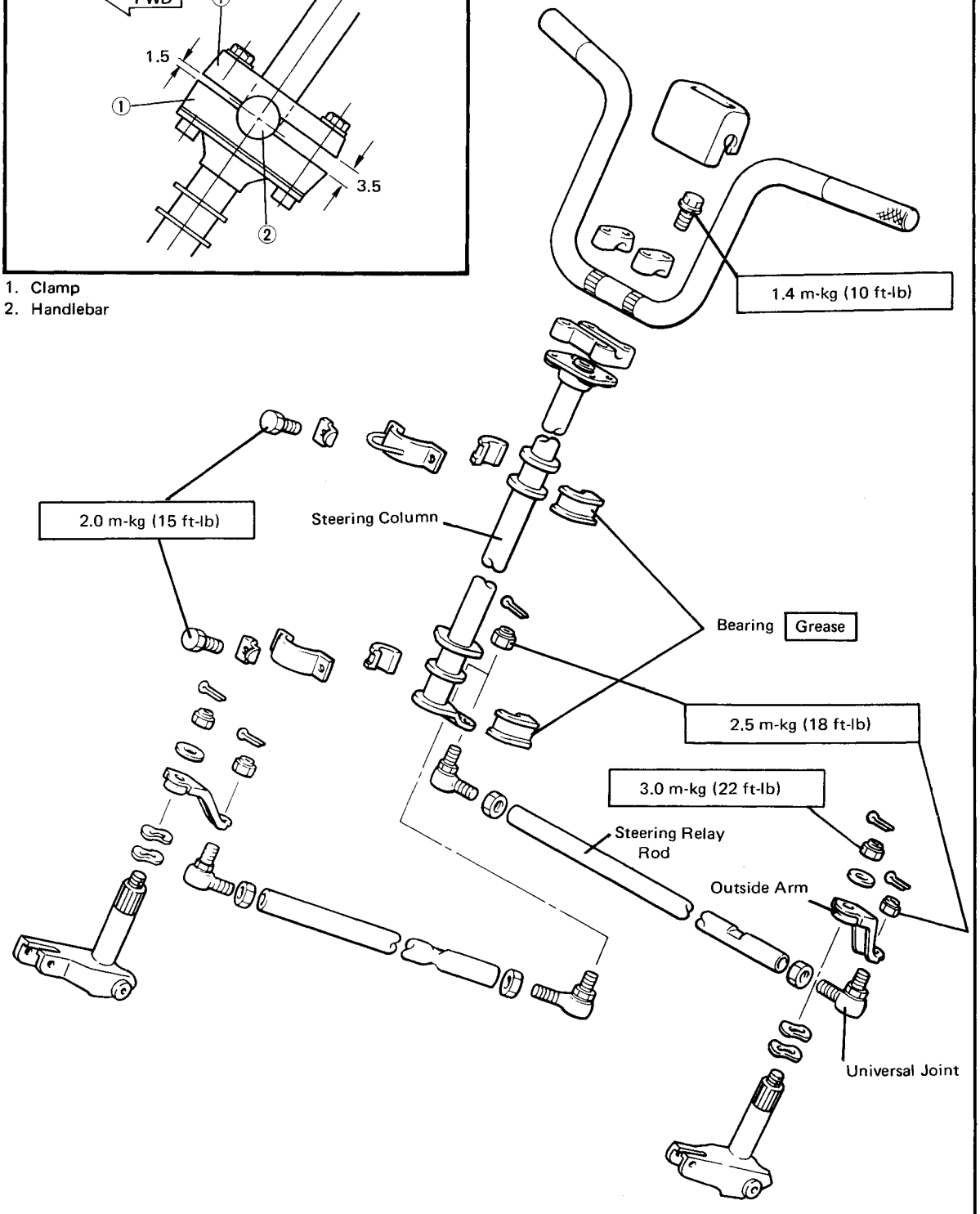
BOTTOM END


Bearing Support
Right Crankshaft Bearing
Big-End Bearing
Left Crankshaft Bearing
Wire Bracket
Oil-Pump Drive Sprocket
Apply Yamabond 4
Engine Mounting Bracket
1.5 m-kg (10.8 ft-lb)
FWD
100 mm (3.9 in)
80 mm (3.1 in)
L/H
R/H
Clutch side
First 1.0 m-kg (7.2 ft-lb)
Final 2.5 m-kg (18 ft-lb)

STEERING



1. Clamp
2. Handlebar

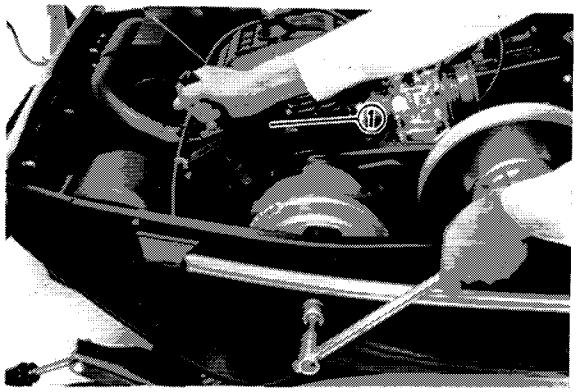


YAMAHA MOTOR CO.,LTD.
IWATA, JAPAN

PRINTED IN U.S.A.

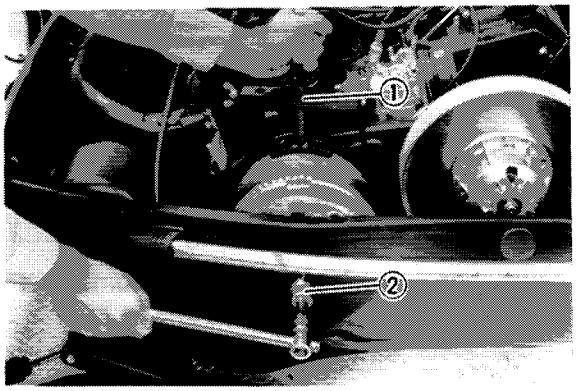
Removal

1. Remove the drive guard, and remove the V-belt.
2. Remove the blind cap, and remove the primary sheave mounting bolt with the Sheave Holder (special tool) as shown.



1. Sheave Holder (P/NO. YS-01880)

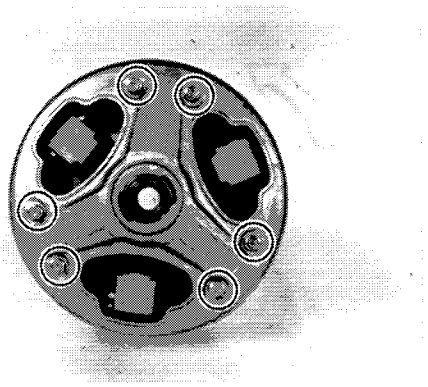
3. Remove the primary sheave assembly with the Sheave Holder (special tool) and Sheave Puller (special tool) as shown.



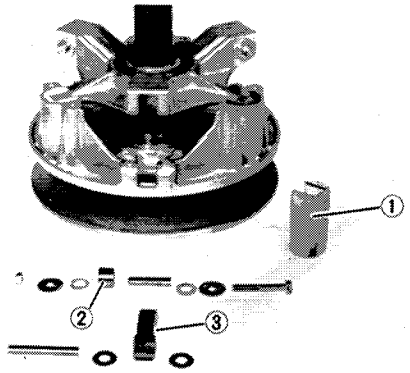
1. Sheave Holder (P/NO. YS-01880)
2. Sheave Puller (P/NO. YS-01882)

Disassembly

1. Loosen the six sheave cap securing bolts, and remove the sheave cap and spring.



2. Remove the sliders, rollers and weights.



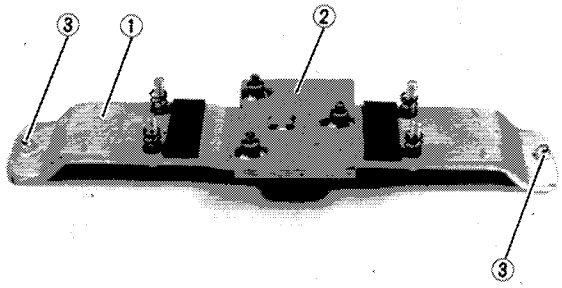
1. Slider 2. Roller 3. Weight

3. Remove the sliding sheave bush as follows.

NOTE:

For this operation, the special tools and LOCTITE #640 with PRIMER "T" (required for fixed sheave) are necessary. If these are unavailable, avoid disassembling.

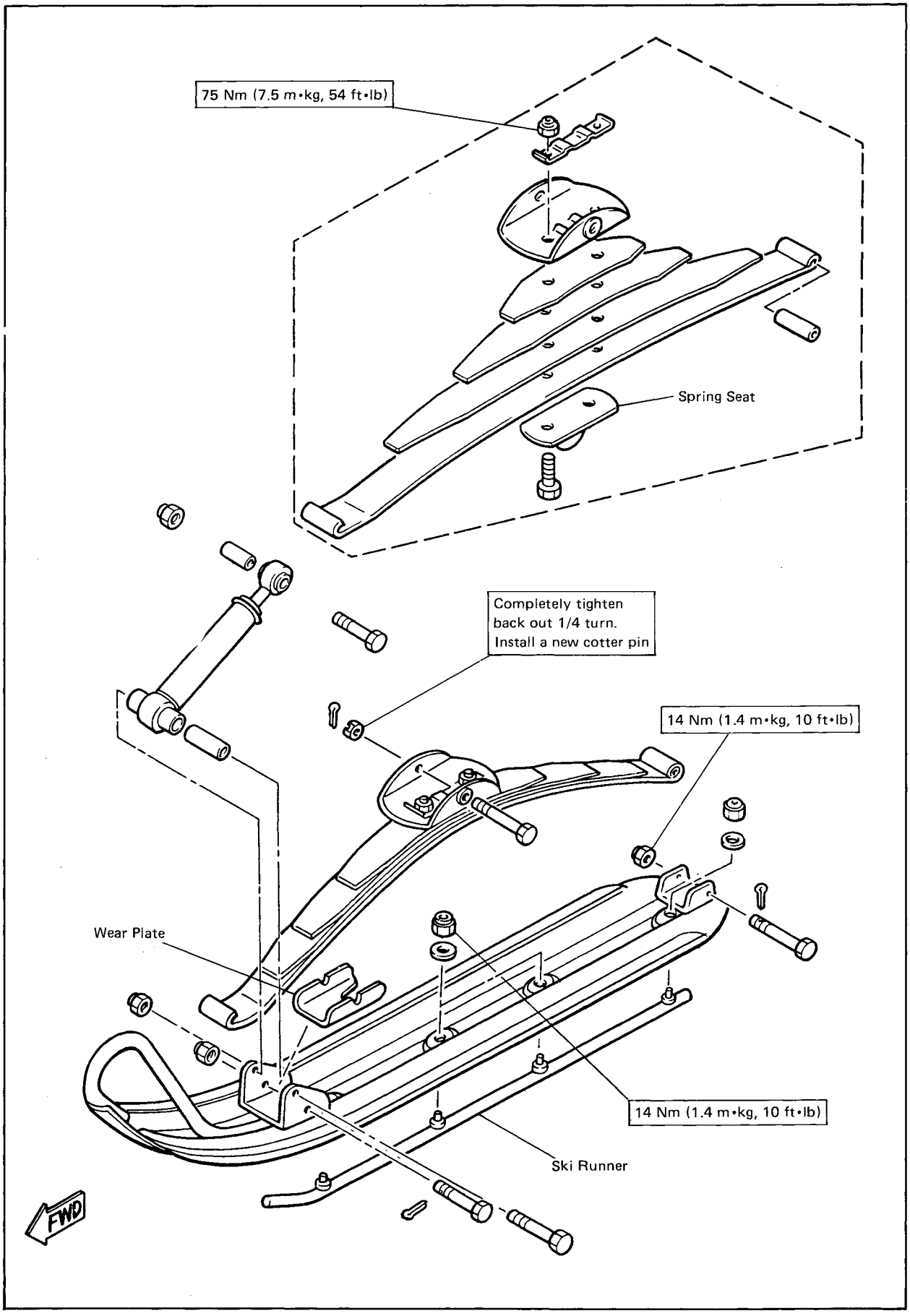
a. Immerse the primary sheave assembly in appoximately 80°C (176°F) water for several minutes.
b. Hold the lower piece of the Clutch Spider Separator (special tool) on a rigid table using a suitable mounting bolts. Then, install the Clutch Separator Adapter onto the Separator.

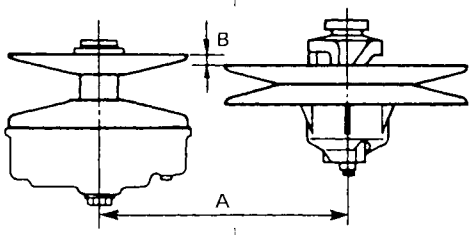
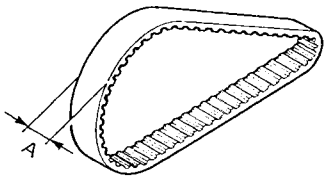
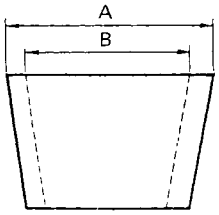
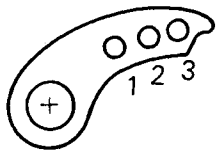


1. Lower piece of the Clutch Spider Separator (P/NO. YS-28890-A)
2. Clutch Separator Adapter (P/NO. YS-34480)
3. Mounting bolt

c. Fit the primary sheave assembly onto the Adapter, and secure the supporting plates.

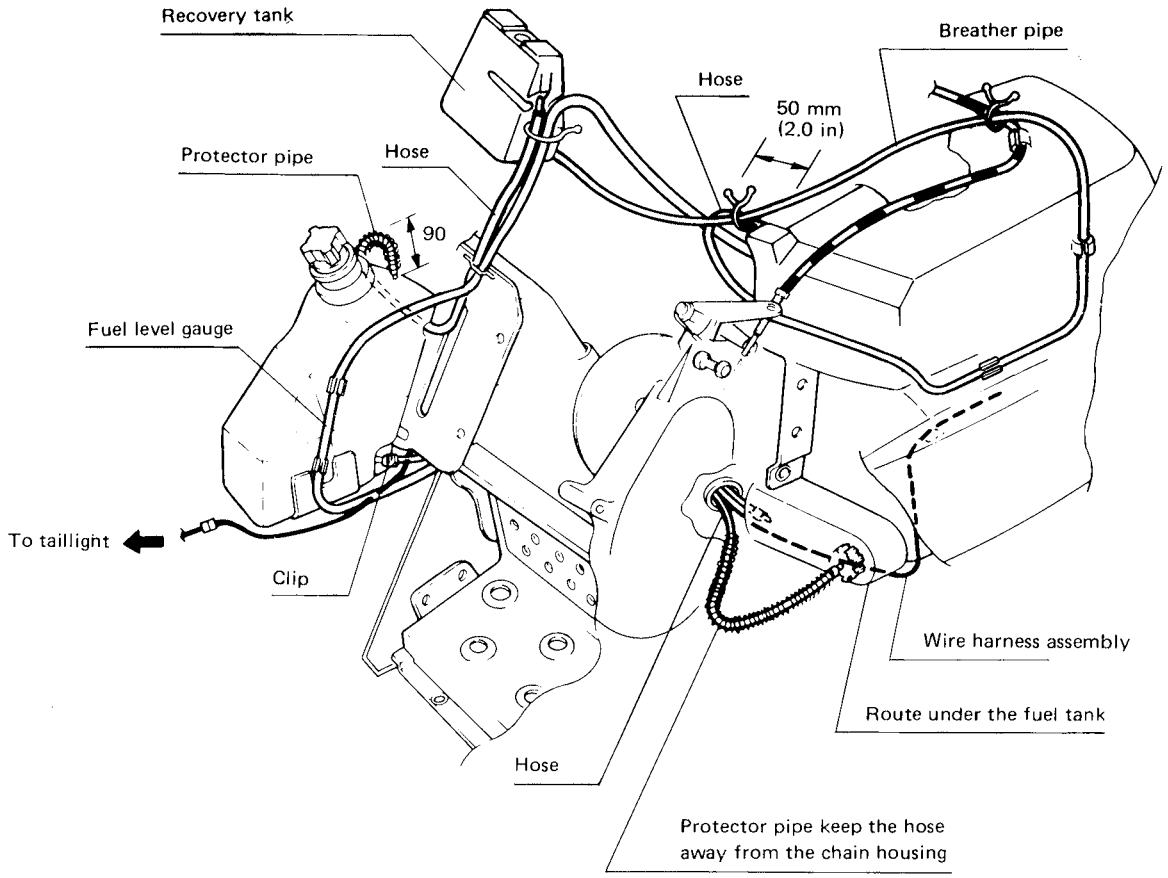
SKI


75 Nm (7.5 m•kg, 54 ft•lb)
Spring Seat
Completely tighten
back out 1/4 turn.
Install a new cotter pin
14 Nm (1.4 m•kg, 10 ft•lb)
Wear Plate
14 Nm (1.4 m•kg, 10 ft•lb)
Ski Runner
FWD

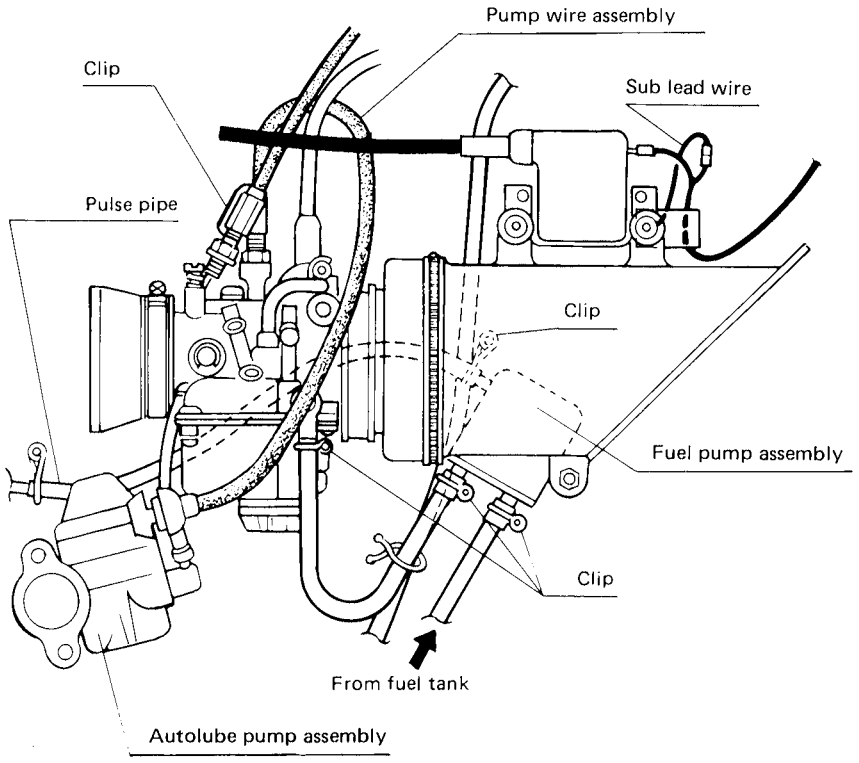
Model	BR250TJ
Transmission:	
Type	V-belt Automatic
Range of Ratio	3.5 : 1 ~ 1 : 1
Engagement RPM	Approx. 2,800 r/min
Shift RPM	Approx. 5,700 r/min
Sheave Center Distance "A"	266 mm (10.47 in)
Sheave Offset "B"	11 mm (0.433 in)
	
V-belt:	
Part No.	8F2-17641-00
Outside Circumference	1,099 mm (43.26 in)
Width "A"	31.6 mm (1.24 in)
Wear Limit "B"	28.0 mm (1.10 in)
	
Primary Sheave Spring:	
Part No.	90501-553A5
Color Code	Gold-Red
Outside Dia. x Wire Dia.	55.0 x 5.5 mm (2.165 x 0.217 in)
Pre-load/Set Length	14 kg/61.5 mm (2.42 in)
Spring Rate	2.64 kg/mm
No. of Coils	4.9
Free Length	66.8 mm (2.63 in)
Primary Sheave Weight Arm:	
Part No.	8V0-17632-00
Weight x Quantity	46.1 g x 3 pcs
Additional Weight type	None
Hole Position	None
	

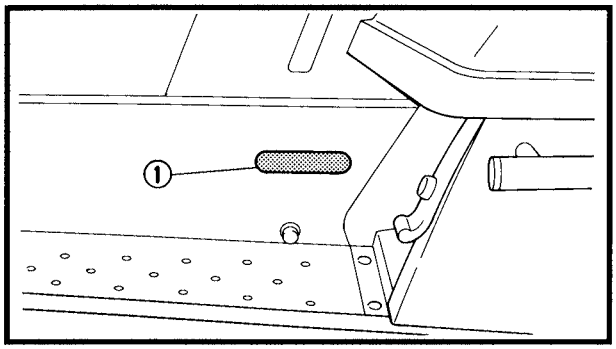
CABLE ROUTING (3)

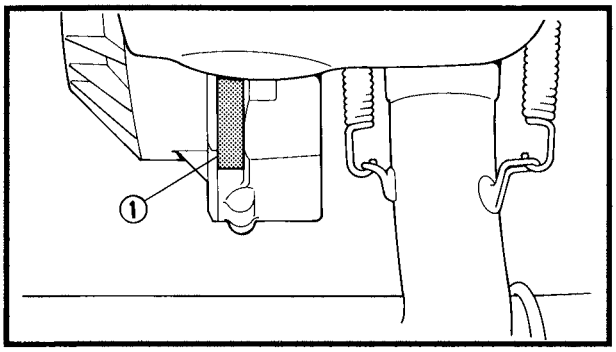
B-View



C-View







1E001

GENERAL INFORMATION

MACHINE IDENTIFICATION

FRAME SERIAL NUMBER

The frame serial number ① is located on the right-hand side of the frame (just below the front of the seat).

ENGINE SERIAL NUMBER

The engine serial number ① is located on the right-hand side of the crankcase.

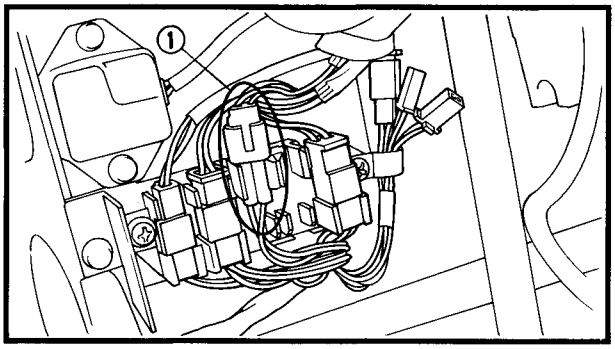
NOTE:

The first three digits of these numbers are for model identification; the remaining digits are the unit production number.

Starting Serial Number:
BR250TV 8BD-008101

NOTE:

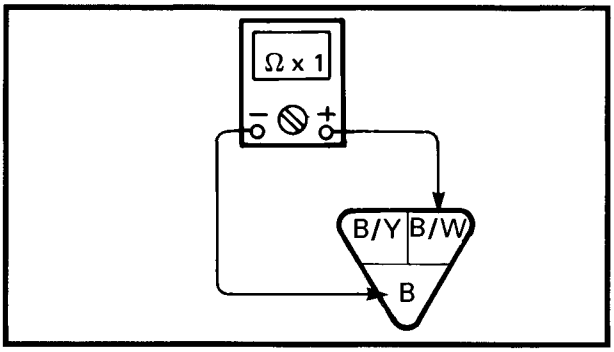
Designs and specifications are subject to change without notice.



8E071
HANDLEBAR SWITCH (RIGHT)

"ENGINE STOP" switch and throttle switch

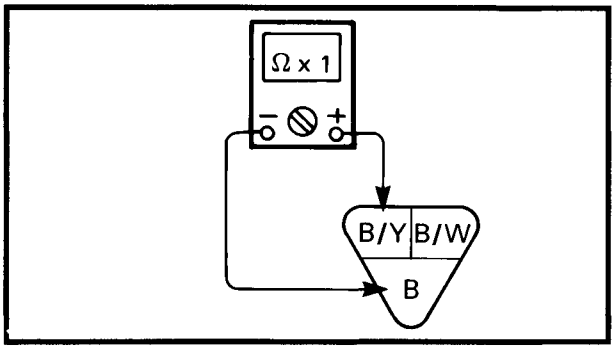
1. Disconnect:
   - Handlebar switch (right) coupler ①
2. Connect:
   - Pocket tester (90890-03112, YU-03112)



3. Check:
   - "ENGINE STOP" switch continuity
     Faulty→Replace.

Switch position	Good condition
RUN (pull)	×
OFF (push)	○

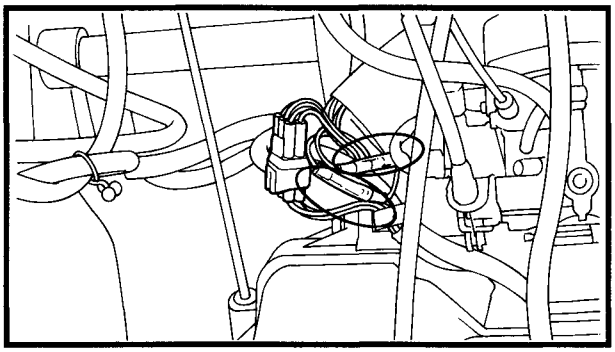
○ : Continuity × : No continuity



4. Check:
   - Throttle switch continuity
     Faulty→Replace.

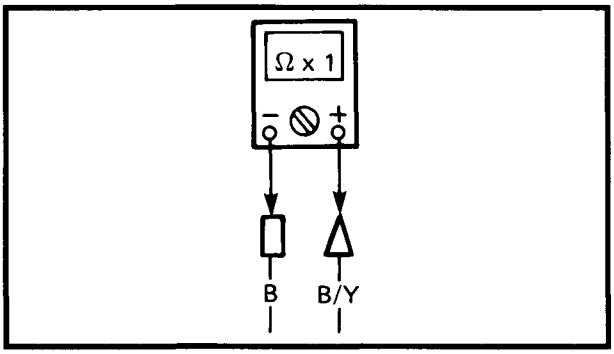
Throttle switch position	Good condition
Throttle lever is operated.	○
Throttle lever is not operated.	×

○ : Continuity × : No continuity



8E081
CARBURETOR SWITCH

1. Disconnect:
   - Carburetor switch lead
2. Connect:
   - Pocket tester
3. Check:
   - Carburetor switch continuity
     Faulty→ Replace.



Carburetor switch position	Good condition
Throttle lever is operated.	×
Throttle lever is not operated.	○

○ : Continuity × : No continuity

Tightening torque:

Part to be tightened	Tightening torque			Remarks
	Nm	m·kg	ft·lb	
Spark plug	28	2.8	20	
Cylinder head (bolt)	20	2.0	14	
Cylinder head (nut)	25	2.5	18	
Flywheel magneto	85	8.5	61	
Crankcase upper and lower				
First:	20	2.0	14	Tighten the bolts in
Final:	25	2.5	18	two stages.
Tightening sequence				
Crankcase and gear unit	25	2.5	18	
Oil pump and gear unit	8	0.8	5.8	With screw lock
Starter pulley	15	1.5	11	
Crankcase and engine bracket	25	2.5	18