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YAMAHA

VX750/800, MM800

Service Manual

LIT-12618-MM-00

YAMAHA

SUPPLEMENTARY SERVICE MANUAL



**VX800V
VX800STV**

LIT-12618-01-60

**VX800V/VX800STV
SUPPLEMENTARY SERVICE MANUAL
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1st Edition, June 1994
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Printed in U.S.A.
P/N LIT-12618-01-60**

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the VX800V/VX800STV. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

VX750U/VX750STU/SERVICE MANUAL: 8AX-28197-10

HOW TO USE THIS MANUAL

Particularly important information is distinguished in this manual by the following notations:



The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

WARNING

Failure to follow WARNING instructions could result in severe injury or death to the machine operator, a bystander, or a person inspecting or repairing the machine.

CAUTION:

A CAUTION indicates special precautions that must be taken to avoid damage to the machine.

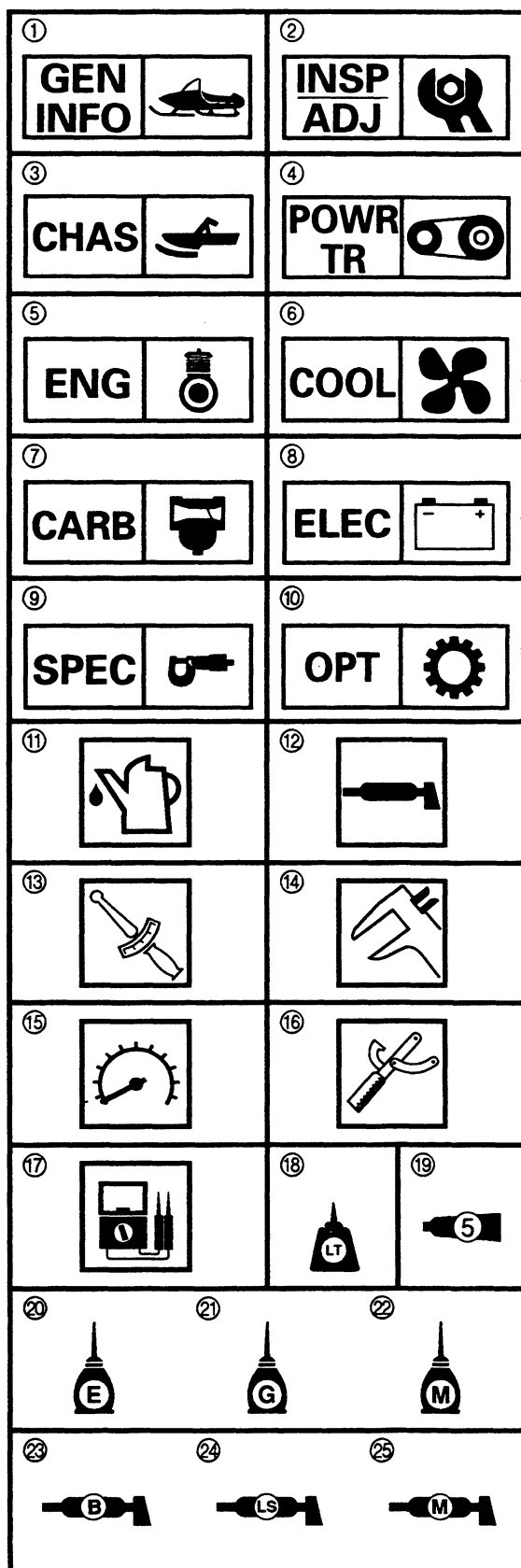
NOTE:

A NOTE provides key information to make procedures easier or clearer.

ILLUSTRATED SYMBOLS**(Refer to the illustration)**

Illustrated symbols ① to ⑩ are designed as thumb tabs to indicate the chapter's number and content.

- ① General information
- ② Periodic inspection and adjustment
- ③ Chassis
- ④ Power train
- ⑤ Engine overhaul
- ⑥ Cooling system
- ⑦ Carburetion
- ⑧ Electrical
- ⑨ Specifications
- ⑩ Optional kit



Illustrated symbols ⑪ to ⑰ are used to identify the specifications which appear.

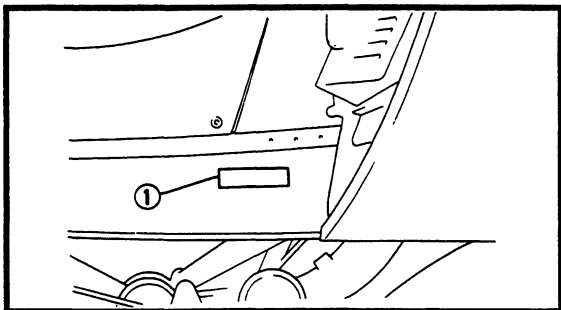
- ⑪ Filling fluid
- ⑫ Lubricant
- ⑬ Tightening
- ⑭ Wear limit, clearance
- ⑮ Engine speed
- ⑯ Special tool
- ⑰ Ω , V, A

Illustrated symbols ⑱ to ㉕ in the exploded diagram indicate grade of lubricant and location of lubrication point.

- ⑱ Apply locking agent (LOCTITE[®])
- ⑲ Apply Yamabond No.5[®]
- ㉑ Apply engine oil
- ㉒ Apply gear oil
- ㉓ Apply molybdenum disulfide oil
- ㉔ Apply wheel bearing grease
- ㉕ Apply low-temperature lithium-soap base grease
- ㉖ Apply molybdenum disulfide grease

CONTENTS

GENERAL INFORMATION	1
MACHINE IDENTIFICATION	1
FRAME SERIAL NUMBER	1
ENGINE SERIAL NUMBER	1
 PERIODIC INSPECTIONS AND ADJUSTMENTS	 2
INTRODUCTION	2
PERIODIC MAINTENANCE TABLE	2
POWER TRAIN	4
DRIVE V-BELT	4
CLUTCH TUNING	6
GEARING SELECTION	8
 POWER TRAIN	 10
SECONDARY SHEAVE	10
JOB INSTRUCTION CHART	11
DISASSEMBLY	12
INSPECTION	12
ASSEMBLY	13
INSTALLATION	14
JACKSHAFT	16
JOB INSTRUCTION CHART	17
 ENGINE OVERHAUL	 18
CRANKCASE AND CRANKSHAFT	18
JOB INSTRUCTION CHART	19
 SPECIFICATIONS	 21
GENERAL SPECIFICATIONS	21
MAINTENANCE SPECIFICATIONS	23
ENGINE	23
POWER TRAIN	26
CHASSIS	29
ELECTRICAL	30

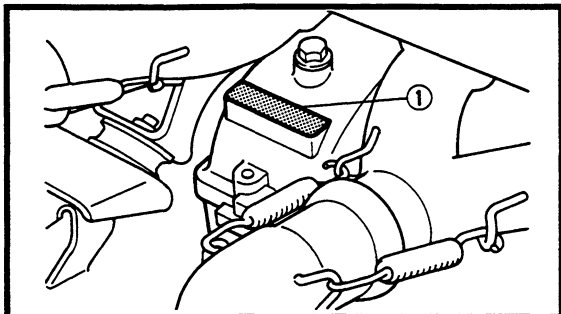


GENERAL INFORMATION

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 front 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:
VX800U: 8BU-000101~
VX800STU: 8BT-000101~

NOTE: _____

Designs and specifications are subject to change without notice.



PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all of the information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable machine operation and a longer service life. In addition, the need for costly overhaul work will be greatly reduced. This information applies to machines already in service as well as new machines that are being prepared for sale. All service technicians should be familiar with this entire chapter.

PERIODIC MAINTENANCE TABLE

No.	Item	Remarks	Pre-operation check (daily)	First Month or first 800 km (500 Mi) (40 hr)	Every
					Season or 3,200 km (2,000 Mi) (160 hr)
1	Spark plug	Check condition, adjust the gap and clean. Replace if necessary.			●
2	Engine oil	Check oil level.	●		
		* Air bleed the oil pump if necessary.			●
3	Fuel	Check fuel level.	●		
4	*Fuel filter	Check condition. Replace if necessary.			●
5	*Fuel line	Check fuel hose for cracks or damage. Replace if necessary.			●
6	*Oil line	Check oil hose for cracks or damage. Replace if necessary.			●
7	Carburetor	Check throttle lever operation.	●		
		* Adjust the jets.	Whenever operating conditions (elevation/temperature) are changed.		
8	* Fan belt	Check wear and damage. Replace if necessary.			●
		Adjust fan belt if necessary.			●
9	Manual starter	Check operation and rope damage. * Replace if necessary.	●		
10	Engine stop switch	Check operation * Repair if necessary.	●		
11	Throttle override system	Check operation. * Repair if necessary.	●		
12	Throttle lever	Check operation. * Repair if necessary.	●		
13	*Exhaust system	Check for leakage. Retighten or replace gasket if necessary.		●	
14	*Decarbonization	More frequently if necessary.		●	
15	Drive V-belt guard	Check for cracks, bending or damage. * Replace if necessary.	●		
16	Drive V-belt	Check wear and damage. Replace if necessary.	●		

*: It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

** : Perform after 1 Month or 50 Km (31 Mi) (2 hr) and every 1 Month or 400 Km (250 Mi).

PERIODIC MAINTENANCE TABLE



No.	Item	Remarks	Pre-operation check (Daily)	First Month or first 800 km (500 Mi) (40 hr)	Every
					Season or 3,200 km (2,000 Mi) (160 hr)
17	Drive track/ Idler wheels	Check for deflection, wear and damage. * Adjust/Replace if necessary.		** ●	●
18	Slide runner	Check for wear and damage.	●		
		* Replace if necessary.			●
19	Brake/ Parking brake	Check operation.	●		
		* Adjust free play and/or replace pads if necessary.			●
20	* Drive chain oil	Check oil level.		●	
		Replace.			●
21	* Drive chain	Check for deflection. Adjust if necessary.		Initial 50 km (30 Mi) and every 400 km (250 Mi) there after.	
22	Ski/Ski runner	Check for wear and damage.	●		
		* Replace if necessary.			●
23	Steering system	Check operation.	●		
		* Adjust toe-out if necessary.			●
24	Lights	Check operation. Replace bulbs if necessary.	●		
25	Battery	Check fluid level.	●		
		* Check specific gravity and breather pipe operation. Charge/Correct if necessary.			●
26	* Primary sheave	Check engagement and shift speed.			●
		Adjust if necessary.	Whenever operating elevation is changed.		
		Check for wear and damage. Replace if necessary.			●
		Lubricate with specified grease.			●
27	* Secondary sheave	Lubricate with specified grease.			●
		Adjust if necessary.	Whenever operating elevation is changed.		
28	* Steering column bearing	Lubricate with specified grease.			●
29	* Ski and front suspension	Lubricate with specified grease.			●
30	* Suspension component	Lubricate with specified grease.			●
31	* Brake cable end and lever end/ Throttle cable end	Lubricate with specified grease.			●
		Check for cable damage. Replace if necessary.			●
32	Shroud latches	Make sure the shroud latches are hooked.	●		
33	Fittings/Fasteners	Check tightness. * Repair if necessary.	●		
34	Service tools/ Spare parts	Check proper placement.	●		

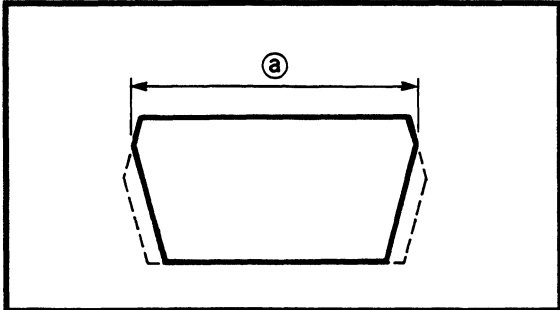
*: It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

** : Perform after 1 Month or 50 Km (31 Mi) and every month or 400 Km (250 Mi).

POWER TRAIN
DRIVE V-BELT

⚠ WARNING


V-belt position should be 5.0 ~ 7.0 mm (0.2 ~ 0.3 in) above the secondary sheave edge.
If not, the clutch engagement speed will be changed. The machine may move unexpectedly when the engine is started.



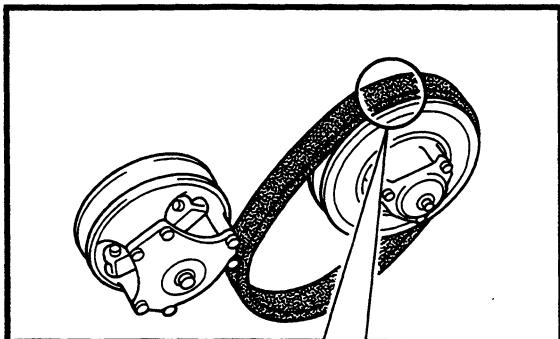
1. Measure:

- V-belt width (a)

Out of specification → Replace.



V-belt wear limit:
33 mm (1.30 in)




2. Measure:

- V-belt position (a)

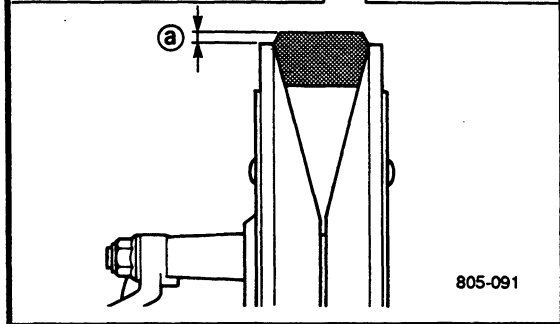
Out of specification → Adjust.

NOTE:

Put the V-belt back on the secondary sheave only.
Do not force the V-belt between the sheaves; the sliding and fixed sheave must touch each other.



Standard V-belt position:
5.0 ~ 7.0 mm (0.2 ~ 0.3 in)
Above the sheave edge

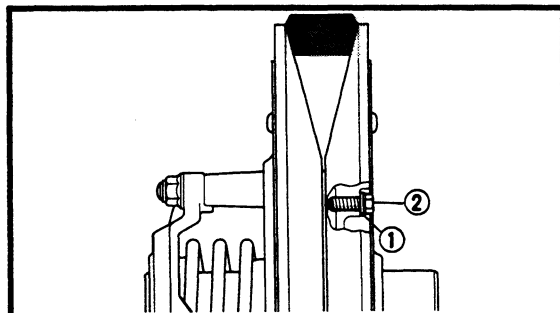


3. Adjust:

- V-belt position


Removing or adding the spacer (1) on each adjusting bolt (2).

V-belt position	Adjustment
(a) = 7.0 mm (0.3 in) or more	Remove spacer
Above the edge 5.0 ~ 7.0 mm (0.2 ~ 0.3 in)	Not necessary (it is correct)
(a) = 5.0 mm (0.2 in) or less	Add spacer

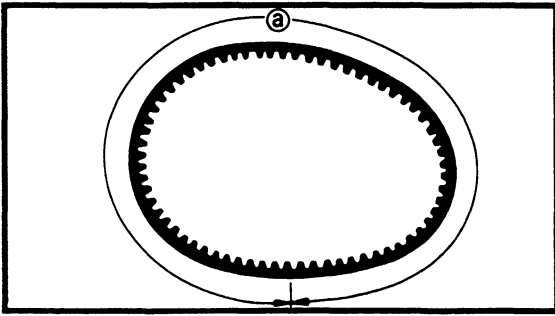


4. Tighten:

- Adjusting bolt



Adjusting bolt:
10 Nm (1.0 m · kg, 7.2 ft · lb)



5. Measure:

- Drive V-belt length ③
Out of specification → Replace.



Drive V-belt length:
1,336 ~ 1,344 mm (52.6 ~ 52.9 in)

CLUTCH TUNING**High Altitude Tuning****COLOR CODE**

G	Green	R	Red	W	White
P	Pink	S	Silver	Y	Yellow

Clutch Setting Data (VX800)

A Item	0 ~ 900 m 3,000 ft/900 m (STD)	750 ~ 1,700 m 2,500 ft ~ 5,500 ft (MA)	1,500 ~ 2,500 m 5,000 ft ~ 8,000 ft (MA)	2,100 m ~ 7,000 ft ~ (HA)
B Idle speed:	1,500 ± 100 rpm	←	←	←
C Clutch engagement:	3,400 ± 300 rpm	←	←	←
D Shift speed:	8,350 ± 300 rpm	←	←	←
E Gearing:	24/37	←	22/37	22/39
F Primary spring:				
G Color	Y - P - Y	←	←	Y - S - Y
H Length	77.4mm	←	←	79.4mm
I Pre-load rate	30.0 kg-2.5 kg/mm	←	←	35.0 kg-2.5 kg/mm
J Wire dia.	ø5.8mm	←	←	←
K Outside dia.	ø60mm	←	←	←
L Weight:	8BU-00	←	←	←
M Weight rivet:(OUT) (IN)	Steel 13.9mm Steel 17.2mm	Steel 10.3mm Steel 13.9mm	None ←	Aluminum 10.3mm None
N Weight bush:	Duralon	←	←	←
O Roller outer dia.:	ø15.0mm	←	←	ø14.5mm
P Roller bush:	Duralon	←	←	←
Q Pri. clutch shim:	None	←	←	←
R Secondary spring:				
G Color	S	←	←	←
H Length	75mm	←	←	←
I Pre-load rate	50° (2-3) 965 kgmm/rad	60° (3-3) ←	50° (2-3) ←	70° (1-6) 729 kgmm/rad
J Wire dia.	ø5.5mm	←	←	ø5.3mm
K Outer dia.	ø69.5mm	←	←	←
S Sec. torque cam:	41°	←	39°	←
T Sec. clutch shim:	None	←	←	←



Clutch Setting Data (VX800ST)

Item	0 ~ 900 m 3,000 ft/900 m (STD)	750 ~ 1,700 m 2,500 ft ~ 5,500 ft (MA)	1,500 ~ 2,500 m 5,000 ft ~ 8,000 ft (MA)	2,100 m ~ 7,000 ft ~ (HA)
Idle speed:	1,500 ± 100 rpm	←	←	←
Clutch engagement:	3,300 ± 300 rpm	←	←	←
Shift speed:	8,250 ± 300 rpm	←	←	←
Gearing:	23/37	←	21/37	21/39
Primary spring:				
Color	W - P - W	←	←	G - P - G
Length	78.7mm	←	←	76.3mm
Pre-load rate	30.0 kg-2.25 kg/mm	←	←	30.0 kg-2.75 kg/mm
Wire dia.	ø5.5mm	←	←	ø5.8mm
Outside dia.	ø60mm	←	←	←
Weight:	8BU-00	←	←	←
Weight rivet:(OUT)	Steel 13.9mm	Steel 13.3mm	None	Steel 10.3mm
(IN)	Steel 17.2mm	←	←	None
Weight bush:	Duralon	←	←	←
Roller outer dia.:	ø15.6mm	←	←	ø15.0mm
Roller bush:	Duralon	←	←	←
Pri. clutch shim:	None	←	←	←
Secondary spring:				
Color	S	←	←	←
Length	75mm	←	←	←
Pre-load rate	50° (2-3)	60° (3-3)	50° (2-3)	70° (1-6)
	965 kgmm/rad	←	←	←
Wire dia.	ø5.5mm	←	←	←
Outer dia.	ø69.5mm	←	←	←
Sec. torque cam:	41°	←	39°	←
Sec. clutch shim:	None	←	←	←

GEARING SELECTION

COLOR CODE

G	Green	R	Red	Y	Yellow
L	Blue	S	Silver	Go	Gold
P	Pink	W	White		

① Sprocket and chain parts number

A Parts name	B Teeth&Links	C Parts No.
D Drive sprocket	20T	8BU-17682-00
	21T	8BU-17682-10
	22T	8BU-17682-20
	23T*2	8BU-17682-30
	24T*1	8BU-17682-40
E Driven sprocket	33T	8BU-47587-30
	35T	8BU-47587-50
	37T(STD)	8BU-47587-70
	39T	8BU-47587-90
F Chain (links)	66	94890-07066
	68	94890-07068
	70(STD)	94890-07070

② Gear ratio

G Drive gear \ H Driven gear	G Drive gear				
	20T	21T	22T	23T	24T
33T	1.650 66L	X	X	1.435 68L	1.375 68L
35T	1.750 68L	1.667 68L	1.591 68L	X	1.458 70L
37T	1.850 68L	X	1.682 70L	1.609 70L*2	1.542 70L*1
39T	1.950 70L	1.857 70L	1.773 70L	X	X

③ Secondary spring

I Parts No.	J Spring rate (kgmm/rad)	K No. of coils	L Color	M Wire gauge (mm)	N Free length (mm)
90508-556 A 7 (STD)	965	4.86	S	5.5	75
90508-536 A 9	729	5.53	R	5.3	75

*1: VX800(STD)

*2: VX800ST(STD)

A Torque cam (secondary spring seat)

B Parts No.	C Cam angle
8BV-17684-10 (STD)	41°
8BV-17684-90	39°

D Secondary spring twist angle

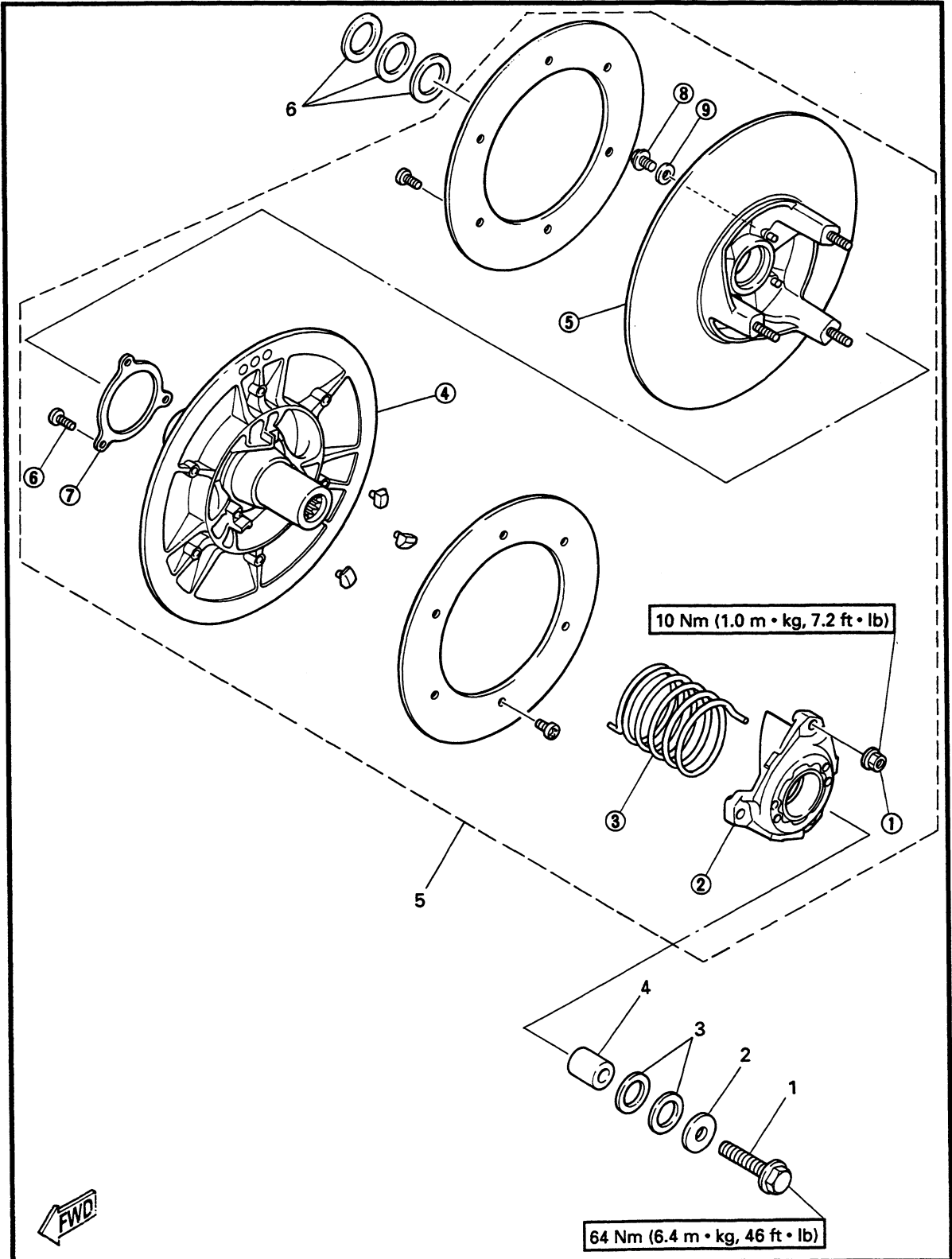
F Sheave	E Seat	0	3	6	9
1		10°	40°	70°	100°
2		20°	50°(STD)	80°	110°
3		30°	60°	90°	120°

G Primary spring

H Parts No.	I Spring rate (kg/mm)	J Preload (kg)	K Color	L Wire gauge (mm)	M Outside diameter (mm)	N No. of coils	O Free length (mm)
90501-481 J 1	1.0	20.0	S-L-S	4.8	60.0	5.16	85.4
90501-487 G 8	1.5	15.0	Go	4.8	60.0	4.19	75.4
90501-507 G 2	1.5	20.0	Go-L-Go	5.0	60.0	4.61	78.7
90501-524 G 5	1.5	25.0	Go-Y-Go	5.2	60.0	5.08	82.1
90501-501 G 7	1.5	25.0	Go-Y-Go	5.0	59.0	4.65	81.7
90501-521 J 6	1.5	30.0	Go-P-Go	5.2	60.0	5.09	85.4
90501-507 G 7	1.75	15.0	R-Go-R	5.0	60.0	4.24	74.0
90501-527 G 1	1.75	20.0	R-L-R	5.2	60.0	4.65	76.8
90501-524 G 4	1.75	25.0	R-Y-R	5.2	60.0	4.64	79.7
90501-526 G 4	2.0	15.0	L-Go-L	5.2	60.0	4.32	72.9
90501-556 G 6	2.0	20.0	L	5.5	60.0	4.95	75.4
90501-553 G 0	2.0	25.0	L-Y-L	5.5	60.0	5.10	78.0
90501-557 G 6	2.25	15.0	W-Go-W	5.5	60.0	4.62	72.1
90501-556 G 5	2.25	20.0	W-L-W	5.5	60.0	4.62	74.3
90501-553 G 6	2.25	25.0	W-Y-W	5.5	60.0	4.61	76.5
90501-550 J 8	2.25	30.0	W-P-W	5.5	60.0	4.62	78.7
90501-557 G 5	2.5	15.0	Y-Go-Y	5.5	60.0	4.36	71.4
90501-556 G 7	2.5	20.0	Y-L-Y	5.5	60.0	4.36	73.4
90501-584 G 2	2.5	24.0	Y	5.8	60.0	4.95	75.0
90501-555 G 8	2.46	24.0	Y	5.5	60.0	4.43	75.2
90501-581 J 7	2.5	25.0	Y	5.8	60.0	4.96	75.4
90501-582 J 1	2.5	30.0	Y-P-Y	5.8	60.0	4.96	77.4
90501-586 J 0	2.5	35.0	Y-S-Y	5.8	60.0	4.91	79.4
90501-607 G 4	2.75	15.0	G-Go-G	6.0	60.0	5.12	70.9
90501-607 G 0	2.75	20.0	G-L-G	6.0	60.0	5.12	72.7
90501-584 G 1	2.75	24.0	G-Y-G	5.8	60.0	4.70	74.1
90501-605 G 7	2.75	25.0	G-Y-G	6.0	60.0	5.00	74.1
90501-585 J 3	2.75	30.0	G-P-G	5.8	60.0	4.64	76.3
90501-607 G 3	3.0	15.0	P-Go-P	6.0	60.0	4.86	70.4
90501-606 G 9	3.0	20.0	P-L-P	6.0	60.0	4.86	72.1
90501-604 G 0	3.0	24.0	P-Y-P	6.0	60.0	4.80	73.3
90501-602 J 0	3.0	30.0	P	6.0	60.0	4.74	75.4

POWER TRAIN

SECONDARY SHEAVE



SECONDARY SHEAVE



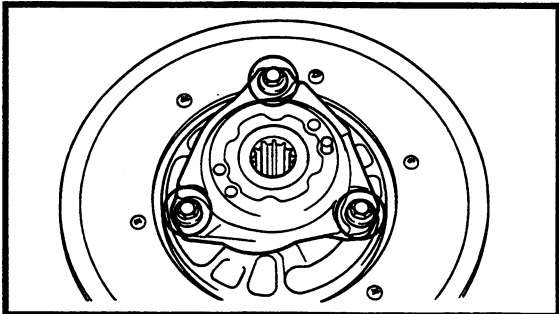
JOB INSTRUCTION CHART

Order	Job name/Part name	Q'ty	Remarks
	Remove of secondary sheave		Remove the parts in the order.
1	Bolt	1	NOTE: _____
2	Washer	1	Apply the brake to lock the secondary sheave.
3	Shim		NOTE: _____ Adjust the secondary sheave free play by shim(s).
4	Collar	1	
5	Secondary sheave	1	
6	Shim		NOTE: _____ Adjust the sheave offset by shim(s).
			Reverse the removal procedure for installation.
①	Disassembly of secondary sheave Nut	3	NOTE: _____ Use the following special tool to disassemble or assemble. Sheave compressor (90890-01712, YS-28891)
②	Spring seat	1	
③	Secondary sheave spring	1	NOTE: _____ Hook the end of the secondary sheave spring onto the spring hole in the fixed sheave and spring seat.
④	Fixed sheave	1	
⑤	Sliding sheave	1	
⑥	Screw	3	
⑦	Stopper	1	
⑧	Bolt	3	
⑨	Shim	3	NOTE: _____ Adjust the V-belt position by shim(s).
			Reverse the disassembly procedure for assembly.

DISASSEMBLY

⚠ WARNING

- Use extreme **CAUTION** when disassembling the secondary sheave as serious injury can occur from the sudden release of spring tension. Use the Sheave Compressor (90890-01712, YS-28891) to contain the spring tension before removing the nut (spring seat).
- Do not attempt the procedure unless you have the proper tools and understand the instructions thoroughly.



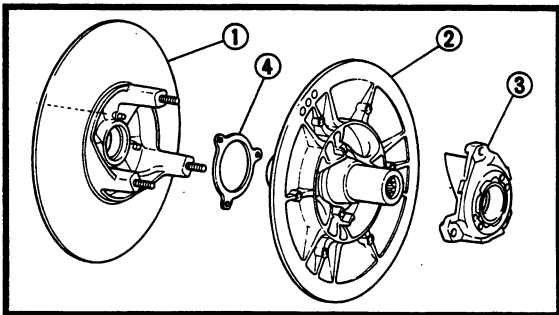
1. Remove:

- Nuts (spring seat)

INSPECTION

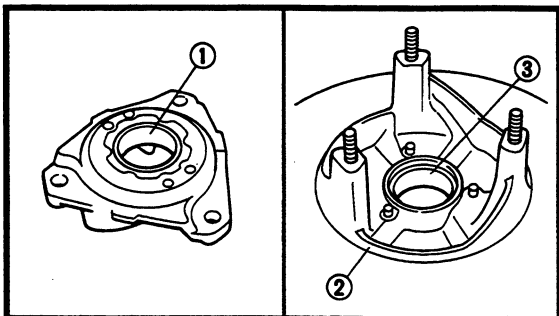
1. Inspect:

- Sliding sheave ①
- Fixed sheave ②
- Spring seat ③
Cracks/Damage → Replace.
- Stopper ④
Wear/Damage → Replace.



2. Inspect:

- Bushing (spring seat) ①
- Sliding sheave (V-belt contact surface) ②
Scratches/Wear/Damage → Replace.
- Sliding bushing ③
Unsymmetrical wear/Damage → Replace.

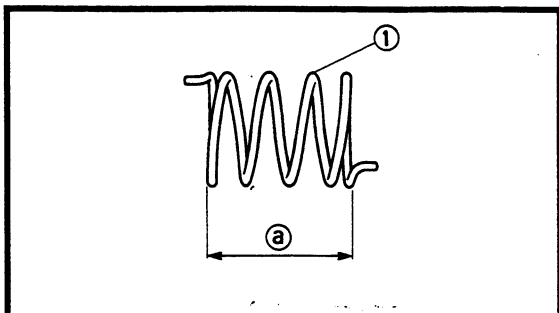



3. Inspect:

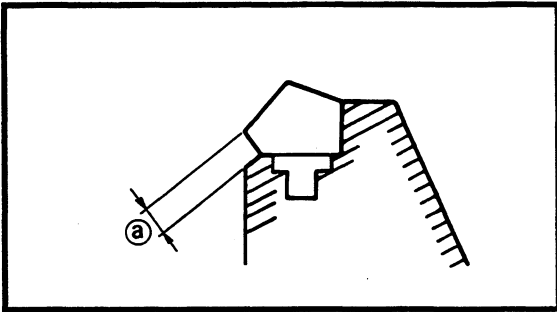
- Secondary sheave spring ①
Cracks/Damage → Replace.

4. Measure:

- Torsion spring free length ②
Less than specification → Replace.




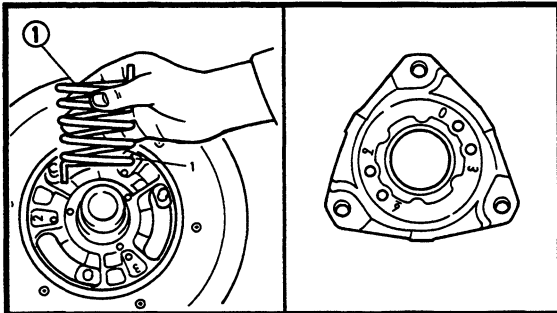
 **Free length limit :**
75 mm (2.95 in)



5. Measure:

- Ramp shoe thickness **a**
Out of specification → Replace.

	Wear limit:
	1.0 mm (0.04 in)



ASSEMBLY

Reverse the "DISASSEMBLY" procedure.
Note the following points.

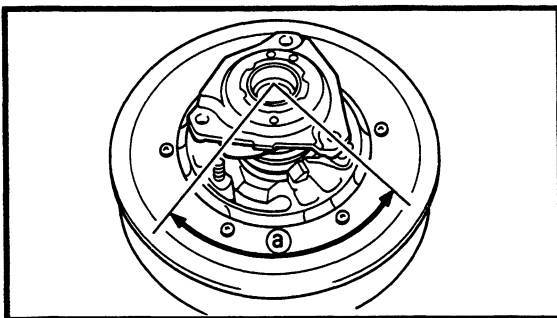
1. Install:

- Secondary sheave spring **1**

NOTE:

Hook the end of the secondary sheave spring onto the spring hole in the fixed sheave and spring seat.

Standard spring position: 2-3 (VX800/ST)



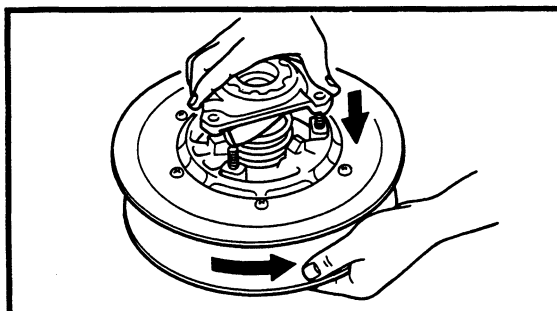
Installation steps:


- Attach the sheave compressor.
- Turn the sliding sheave the specified degrees **a**, in the counterclockwise direction.
- Holding the sliding sheave and fixed sheave in this position.

Standard twist angle a: 50° (VX800/ST)
--

a = (Sheave side hole number + Spring seat side hole number) × 10

- Turn in the screw for the sheave compressor so that the spring seat engages with the fixed sheave.
- Install the nut (spring seat).



	Nut (spring seat):
	23 Nm (2.3 m • kg, 17 ft • lb)

SECONDARY SHEAVE



INSTALLATION

Reverse the "REMOVAL" procedure.

Note the following points.

1. Lubricate:

- Splines (fixed sheave)

	Recommended grease: ESSO beacon 325 grease or Aero shell grease #7A
---	--

2. Tighten:

	Secondary sheave bolt: 60 Nm (6.0 m · kg, 43 ft · lb)
---	---

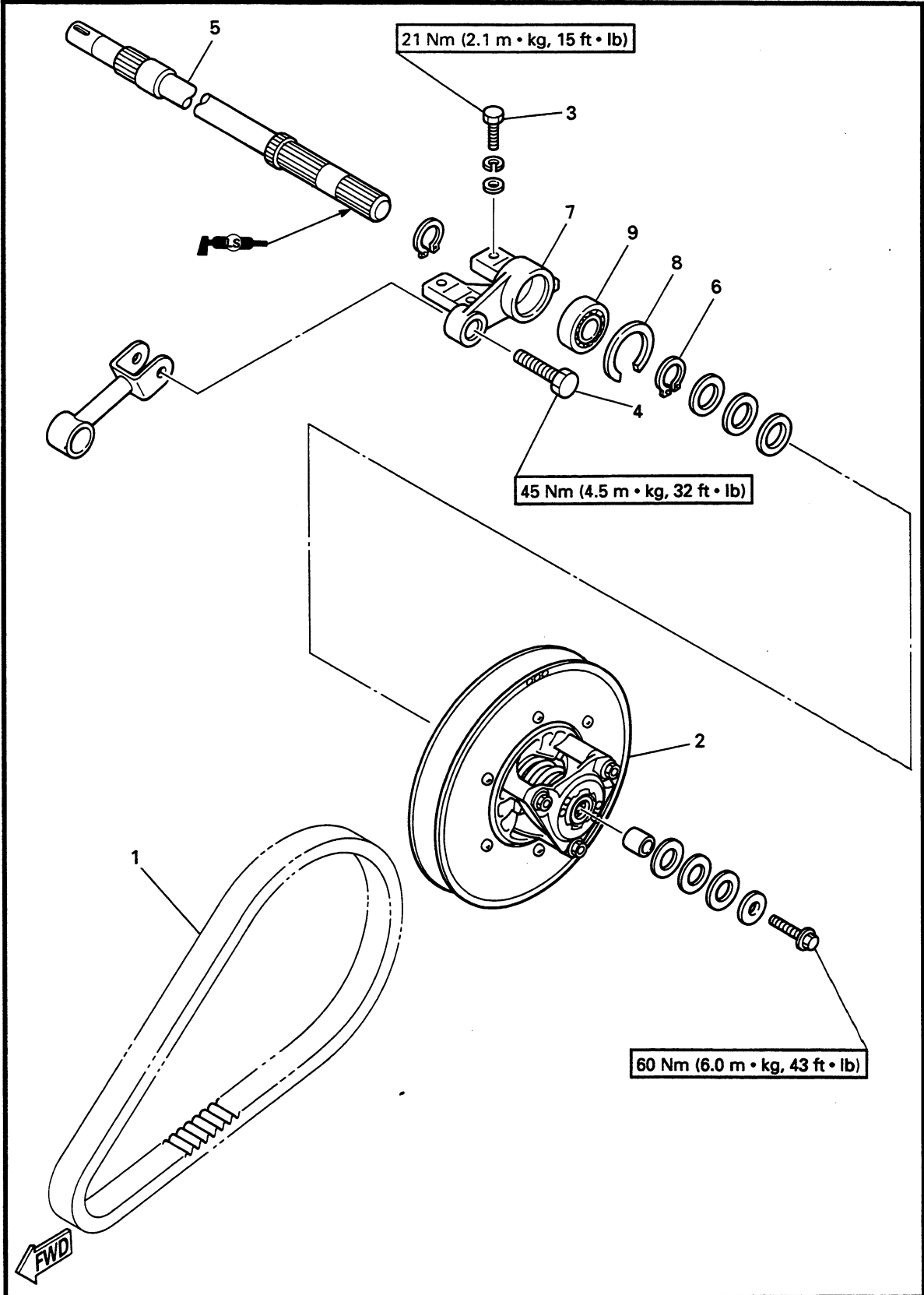
3. Adjust:

- V-belt position
- Sheave distance
- Sheave offset
- Free play (clearance)

SECONDARY SHEAVE



JACKSHAFT





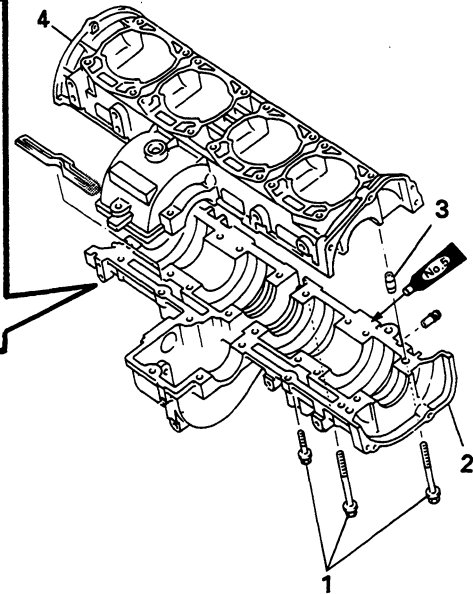
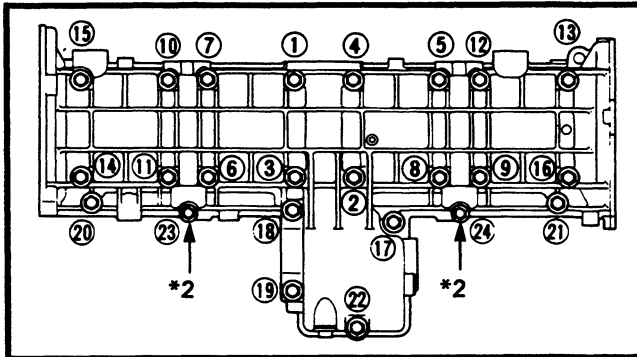
JOB INSTRUCTION CHART

Order	Job name/Part name	Q'ty	Remarks
	Removal of jackshaft		Remove the parts in the order.
	Side cowling (left)	1	
1	V-belt	1	Refer to the "SECONDARY SHEAVE" section.
2	Secondary sheave	1	
3	Bolt (bearing holder)	4	
4	Bolt (compression rod)	1	
5	Jackshaft	1	
6	Circlip	2	
7	Bearing holder	1	
8	Circlip	1	
9	Bearing	1	
			Reverse the removal procedure for installation.



ENGINE OVERHAUL

CRANKCASE AND CRANKSHAFT

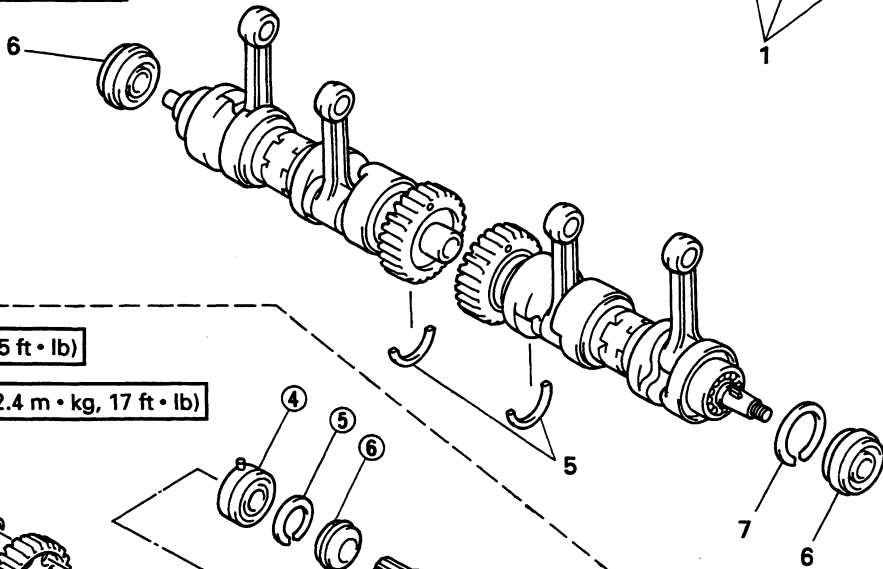


*1

1st step 13 Nm (1.3 m · kg, 9.4 ft · lb)
2nd step 26 Nm (2.6 m · kg, 19 ft · lb)

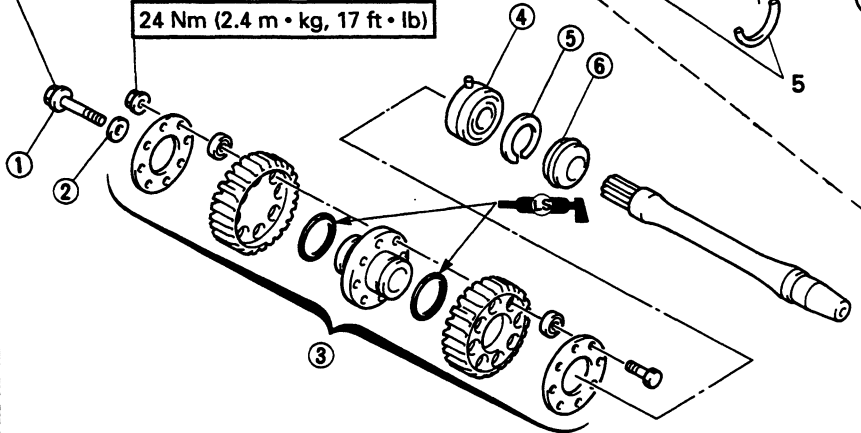
*2

13 Nm (1.3 m · kg, 9.4 ft · lb)



48 Nm (4.8 m · kg, 35 ft · lb)

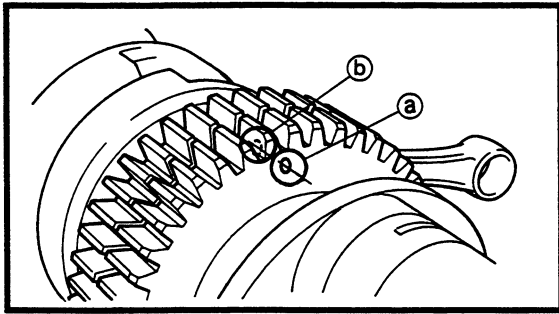
24 Nm (2.4 m · kg, 17 ft · lb)





JOB INSTRUCTION CHART

Order	Job name/Part name	Q'ty	Remarks
1	Removal of crankcase and crankshaft Bolt	5 13 4 2	<p>M8 × 1.25, ℓ = 50 mm (1.97 in)*1 M8 × 1.25, ℓ = 85 mm (3.35 in)*1 M8 × 1.25, ℓ = 95 mm (3.74 in)*1 M6 × 1.0, ℓ = 35 mm (1.38 in)*2</p> <p>NOTE: _____ Tighten all the bolts in order to numerical sequence (in two steps*).</p> <p>*: [*1 : should be two steps. *2 : to the final tightening torque]</p>
2	Crankcase (lower)	1	<p>Reverse the removal procedure for installation.</p>
3	Dowel pin	8	
4	Crankcase (upper)	1	
5	Stopper ring	2	
6	Oil seal	2	
7	Circlip	1	
①	Disassembly of drive shaft Bolt	1		Reverse the disassembly procedure for assembly.
②	Washer	1	
③	Driven gear assembly	1	
④	Bearing	1	
⑤	Circlip	1	
⑥	Oil seal	1	

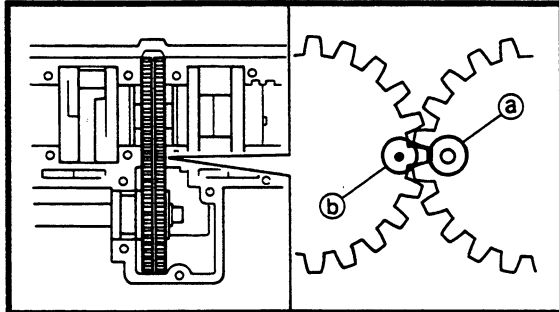


1. Install:

- Crankshaft (left and right)

CAUTION:

Align the hole ① on the drive gear (left) with the hole ② on the drive gear (right).



2. Install:

- Drive shaft

CAUTION:

Align the hole ① on the drive gear and punch mark ② on the driven gear.



SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	VX800	VX800ST
Model code number:	8BU1	8BT1
Frame starting number:	8BU-000101~	8BT-000101~
Engine starting number:	8BU-000101~	8BT-000101~
Dimensions:		
Overall length	2,815 mm (110.8 in)	3,020 mm (118.9 in)
Overall width	1,155 mm (45.5 in)	1,125 mm (44.3 in)
Overall height	1,050 mm (41.3 in)	1,070 mm (42.1 in)
Weight:		
Dry weight (without fuel and oil)	254 kg (560 lb)	262 kg (578 lb)
Engine:	Liquid cooled 2-stroke, 7-port	
Engine type	Piston reed valve	
Induction system	Parallel 4-cylinder	
Cylinder arrangement	791 cm ³ (48.3 cu. in)	
Displacement	65.0 × 59.6 mm (2.56 × 2.35 in)	
Bore × Stroke	6.5:1	
Compression ratio	Recoil starter	
Starting system		
Lubrication system:	Separate lubrication (YAMAHA AUTOLUBE)	
Engine oil:	YAMALUBE 2	
Recommended oil	2.7 L (2.4 Imp qt, 2.9 US qt)	
Tank capacity		
Drive chain housing oil:	Gear oil API "GL-3" SAE #75 or #80	
Recommended oil	350 cm ³ (12.3 Imp oz, 11.8 US oz)	
Capacity		
Fuel:	Unleaded regular gasoline	
Recommended fuel	Minimum. 88	
Rating P.O.N. *1	38.0 L (8.4 Imp gal, 10 US gal)	
Tank capacity		
Carburetor:	TM/33 × 4	
Type/Quantity	MIKUNI	
Manufacturer		
Spark plug:	BR9ES	
Type	NGK	
Manufacturer	0.7 ~ 0.8 mm (0.028 ~ 0.031 in)	
Gap		
Transmission:		
Primary reduction system	V-Belt	←
Primary reduction ratio	3.9:1 ~ 0.95:1	←
Clutch type	Automatic centrifugal engagement	←
Secondary reduction system	Chain	←
Secondary reduction ratio	1.54 (37/24)	1.61 (37/23)
Chassis:		
Frame type	Monocock	←
Caster	22.5°	←
Ski stance	1,007 mm (39.6 in)	977 mm (38.5 in)

*1: Pump Octane Number; (research octane + motor octane)/2

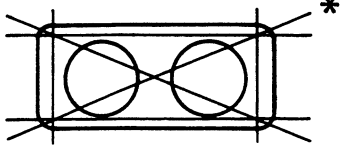
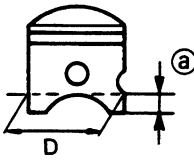
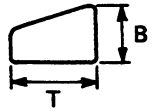
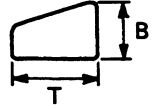
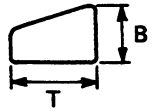
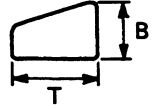
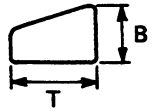
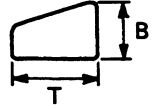
GENERAL SPECIFICATIONS

SPEC

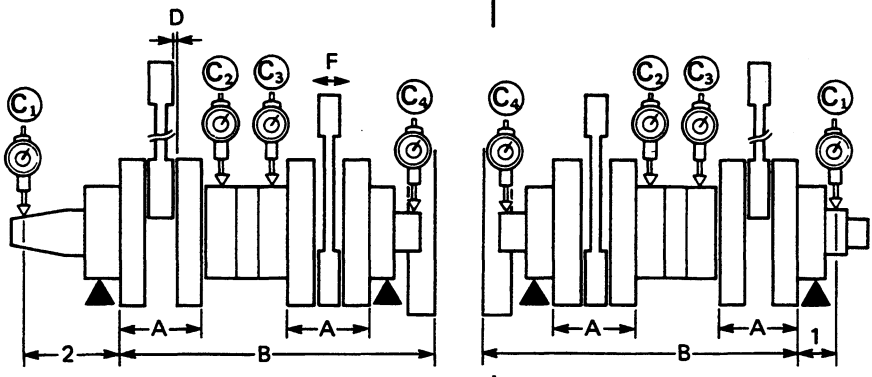


Model	VX800	VX800ST
Suspension: Front suspension type Rear suspension type	Telescopic strut suspension Slide rail suspension	
Track: Track type Track width Length on ground Track deflection	Internal drive type 381 mm (15.0 in) 765 mm (30.1 in) 20 ~ 25 mm (0.79 ~ 0.98 in) /10 kg (22 lb)	← ← 961 mm (37.8 in) 25 ~ 30 mm (0.98 ~ 1.18 in) /10 kg (22 lb)
Brake: Brake type Operation method	Caliper type disc brake Handle lever, left hand operated	
Electrical: Ignition system/Manufacturer Generator system	C.D.I./MITSUBISHI Flywheel magneto	
Bulb wattage × Quantity: Headlight Tail/Brake light Tachometer light Speedometer light	60W/55W × 1 23W/8W × 1 3.4W × 1 3.4W × 2	

**MAINTENANCE SPECIFICATIONS
ENGINE**

Model	VX800/ST								
<p>Cylinder head: Volume (with spark plug) <Warp limit></p> 	<p>20 cm³ (0.70 Imp oz, 0.67 US gt) <0.03mm (0.0012 in)> * Lines indicate straight edge measurement.</p>								
<p>Cylinder: Material Bore size <Taper limit> <Out-of-round limit></p>	<p>Aluminum alloy with dispersion coating 65.00 ~ 65.02 mm (2.5590 ~ 2.5598 in) <0.05 mm (0.0019 in)> <0.01 mm (0.0004 in)></p>								
<p>Piston: Piston size (D) Measuring point (a)</p> 	<p>64.935 ~ 64.940 mm (2.5565 ~ 2.5567 in) 20 mm (0.79 in)</p>								
<p>Piston to-Cylinder clearance <Limit></p>	<p>0.065 ~ 0.070 mm (0.0026 ~ 0.0028 in) <0.1mm (0.004 in)></p>								
<p>Piston ring: Sectional sketch</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;">Top ring</td> <td style="width: 15%; text-align: center;"></td> <td style="width: 55%;"></td> </tr> <tr> <td></td> <td>2nd ring</td> <td style="text-align: center;"></td> <td></td> </tr> </table>		Top ring				2nd ring			<p>Keystone B=1.2 mm (0.047 in) T=2.55 mm (0.1 in)</p> <p>Keystone B=1.2 mm (0.047 in) T= 2.55 mm (0.1 in)</p>
	Top ring								
	2nd ring								
<p>End gap (installed) :</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;">Top ring</td> <td style="width: 70%;">0.35 ~ 0.55 mm (0.014 ~ 0.022 in)</td> </tr> <tr> <td></td> <td>2nd ring</td> <td>0.35 ~ 0.55 mm (0.014 ~ 0.022 in)</td> </tr> </table>		Top ring	0.35 ~ 0.55 mm (0.014 ~ 0.022 in)		2nd ring	0.35 ~ 0.55 mm (0.014 ~ 0.022 in)			
	Top ring	0.35 ~ 0.55 mm (0.014 ~ 0.022 in)							
	2nd ring	0.35 ~ 0.55 mm (0.014 ~ 0.022 in)							
<p>Side clearance</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;">Top ring</td> <td style="width: 70%;">0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)</td> </tr> <tr> <td></td> <td>2nd ring</td> <td>0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)</td> </tr> </table>		Top ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)		2nd ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)			
	Top ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)							
	2nd ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)							
<p>Coating</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;">Top ring</td> <td style="width: 70%;">Chromium plating</td> </tr> <tr> <td></td> <td>2nd ring</td> <td>Chromium plating</td> </tr> </table>		Top ring	Chromium plating		2nd ring	Chromium plating			
	Top ring	Chromium plating							
	2nd ring	Chromium plating							



Model	VX800/ST
<p>Crankshaft: Crank width "A" Connecting rod small end free play "F" Connecting rod big end side clearance "D" Crankshaft deflection "C": C₁, C₄ C₂, C₃</p> <p>Measuring points: 1 2</p> <p>Crank width "B"</p> 	<p>55.95 ~ 56.00 mm (2.203 ~ 2.205 in) 0.8 ~ 1.0 mm (0.031 ~ 0.039 in) 0.25 ~ 0.75 mm (0.010 ~ 0.030 in) Below 0.03 mm (0.0012 in) Below 0.04 mm (0.0016 in) 25 mm (0.98 in) 65 mm (3.27 in) 168 mm (6.614 in)</p>
<p>Big end bearing: Type</p>	<p>Needle bearing</p>
<p>Small end bearing: Type</p>	<p>Needle bearing</p>
<p>Carburetor: Type/Quantity Manufacturer I.D. mark Main jet (M.J.) Pilot jet (P.J.) Pilot air jet (P.A.J.) Pilot outlet (P.O.) Pilot screw (P.S.) Throttle valve (TH. V.) Valve seat size (V.S.) Starter jet (G.S.) Float height (F.H.) Engine idle speed</p>	<p>TM33/4pcs. MIKUNI 8BU-00 #143.8 #47.5 ø1.0 ø1.0 1-1/2 turns out #1.0 ø1.3 ø1.1 13.3 mm (0.524 in) 1,400 ~ 1,600 r/min</p>
<p>Reed valve: Valve stopper height</p>	<p>8.1 ~ 8.5 mm (0.32 ~ 0.33 in)</p>
<p>Fuel pump: Type Manufacturer</p>	<p>DIAPHRAGM TAIYOU GIKEN</p>
<p>Oil pump: Pump cable adjustment</p>	<p>28 ~ 30 mm (1.10 ~ 1.18 in)</p>

MAINTENANCE SPECIFICATIONS

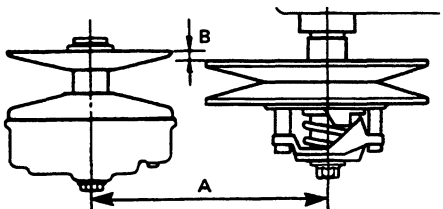
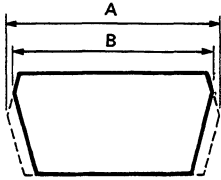
SPEC



Model	VX800	VX800ST				
Cooling system:						
Filler cap opening pressure	80 ~ 100 kPa (0.8 ~ 1.0 kg/cm ² , 11 ~ 14 psi)	←				
Thermostat opening temperature	50 ~ 55°C (122 ~ 131°F)	←				
Thermostat valve lift	8 mm (0.3 in) at 70°C (158.5F)	←				
Water pump type	Impeller type	←				
Coolant type	Long life coolant	←				
Coolant mixing ratio (coolant : water)	6 : 4	←				
Coolant capacity	4.20 L (3.70 Imp qt, 4.44 US qt)	4.5 L (3.96 Imp qt, 4.76 US qt)				
Reservoir tank capacity	0.20 L (0.18 Imp qt, 0.21 US qt)	←				
High altitude settings						
TEMPERATURE	-30°C (-22°F)	-20°C (-4°F)	-10°C (14°F)	0°C (32°F)	10°C (50°F)	20°C (68°F)
ALTITUDE						
0 ~ 200 m (600 ft)	← #146.3 (STD) →					← #143.8 →
200 ~ 600 m (2,000 ft)	← #143.8 →					← #141.3 →
600 ~ 1,200 m (4,000 ft)	← #141.3 →					← #138.8 →
1,200 ~ 1,800 m (6,000 ft)	← #138.8 →					← #136.3 JN:2 PJ#55 PS2-1/4 →
1,800 ~ 2,400 m (8,000 ft)	← #136.3 JN:2 PJ#55 PS2-1/4 →					← #133.8 JN:2 PJ#55 PS2-1/4 →
2,400 m ~ (8,000 ft ~)	← #133.8 JN:2 PJ#55 PS2-1/4 →					← #131.3 JN:2 PJ#55 PS2-1/4 →



POWER TRAIN

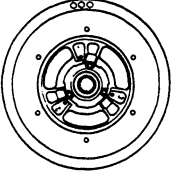
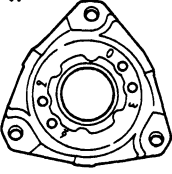
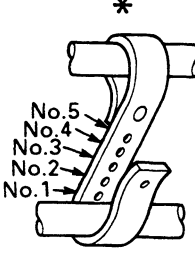
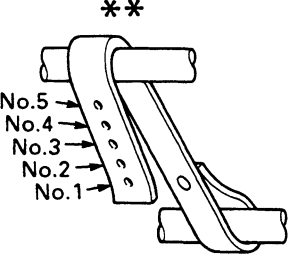
Model	VX800	VX800ST
<p>Transmission:</p> <p>Type Range of ratio Engagement RPM Shift RPM Sheave center distance "A" Sheave offset "B"</p> 	<p>V-belt Automatic 3.9:1 ~ 0.95:1 3,400 ± 300 r/min 8,350 ± 300 r/min 363.5 ~ 366.5 mm (14.3 ~ 14.4 in) 14.5 ~ 17.5 mm (0.57 ~ 0.69 in)</p>	
<p>V-Belt:</p> <p>Outside circumference Width "A" (new belt) Wear limit "B"</p> 	<p>1,340 ± 4 mm (52.8 ± 0.16 in) 34.5 mm (1.36 in) 33 mm (1.30 in)</p>	
<p>Primary sheave spring:</p> <p>Color Outside diameter Wire diameter Pre-load/Set length Spring rate Free length</p>	<p>Yellow-Pink-Yellow 60 mm (2.36 in) 5.8 mm (0.23 in) 30.0 kg (66.2 lb) 25.0 N/mm (2.5 kg/mm) 77.4 mm (3.05 in)</p>	<p>White-Pink-White ← 5.5 mm (0.22 in) ← 22.5 N/mm (2.25 kg/mm) 78.7 mm (3.10 in)</p>
<p>Primary sheave weight:</p> <p>Part number Quantity</p>	<p>8BU-17605-00 3 pcs.</p>	
<p>Secondary sheave spring:</p> <p>Color code Outside diameter Wire diameter Twist angle *1 Free length</p>	<p>Silver 69.5 mm (2.74 in) 5.5 mm (0.22 in) 50° 75 mm (2.95 in)</p>	

*1: Twist angle; (sheave hole + spring seat hole) × 10

MAINTENANCE SPECIFICATIONS

SPEC

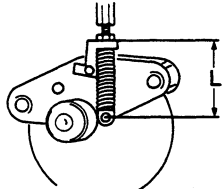


Model	VX800	VX800ST
<p>Hole position Sheave side* Spring seat side**</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>*</p>  </div> <div style="text-align: center;"> <p>**</p>  </div> </div> <p>Spring rate Torque cam angle</p>	<p>2 3</p>	<p>9,650 N/mm (965 kg/mm, 5,376 lb/in) 41°</p>
<p>Drive chain: Type Number of links</p>	<p>Silent (chain) 2.3 RH 304 (BWA) 70</p>	
<p>Track: Width Length Pitch Number of links Deflection at 10 kg (22 lb)</p>	<p>381 mm (15.0 in) 3,072 mm (121 in) 64 mm (2.52 in) 48 20 ~ 25 mm (0.79 ~ 0.98 in)</p>	<p>← 3,456 mm (136.1 in) ← 54 25 ~ 30 mm (0.98 ~ 1.18 in)</p>
<p>Suspension setting position: Stopper band hole position Front* Rear**</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>*</p>  </div> <div style="text-align: center;"> <p>**</p>  </div> </div>	<p>No.2 No.1</p>	

MAINTENANCE SPECIFICATIONS

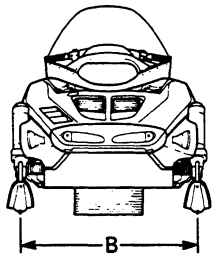
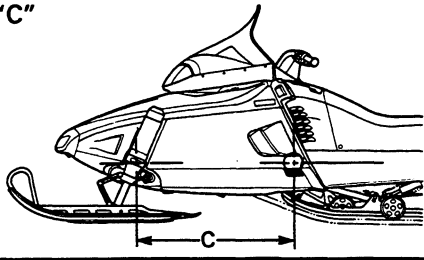
SPEC



Model	VX800	VX800ST
Shock absorber: Damping force (extension) Front Rear Damping force (compression) Front Rear	126 kg/0.3 m/s 208 kg/0.3 m/s 37 kg/0.3 m/s 61 kg/0.3 m/s	114 kg/0.3 m/s 195 kg/0.3 m/s 53 kg/0.3 m/s 65 kg/0.3 m/s
Slide runner: Thickness Wear limit	15 mm (0.6 in) 10 mm (0.4 in)	
Track sprocket wheel: Material Number of teeth	Polyethylene 9T	
Rear guide wheel: Material Outside diameter	Aluminum with rubber 178 mm (7 in)	
Brake: Pad thickness Pad wear limit Pad to disc clearance Disc outside diameter Disc thickness Distance "L"	 <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <div style="width: 45%;"> 8.2 mm (0.32 in) 4.7 mm (0.19 in) 0.15 ~ 0.30 mm (0.006 ~ 0.012 in) 220 mm (8.66 in) 6.0 mm (0.24 in) 67.5 ~ 71.5 mm (2.66 ~ 2.81 in) </div> <div style="width: 50%;"></div> </div>	



CHASSIS

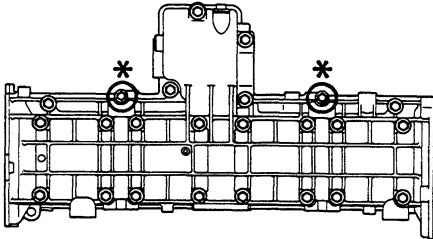
Model	VX800	VX800ST
Frame: Frame material Seat height Luggage box location	Aluminum and steel 560 mm (22.0 in) Rear side of seat	
Steering: Steering angle (left) (right) Ski alignment Toe-out size Distance "A"	48° 48° Toe-out 0 ~ 15 mm (0 ~ 0.6 in) 2,007 mm (79.0 in)	← ↑ ↑ ↑ 2,196 mm (86.6 in)
Distance "B"	 1,007 mm (39.6 in)	997 mm (38.5 in)
Distance "C"	 660 mm (26.0 in)	←
Ski: Ski material Runner material Runner 1 Runner 2 Length Width Ski ground length	Aluminum Carbide Polyethylene 1,021 mm (40.2 in) 146 mm (5.75 in) 375.6 mm (14.8 in)	
Ski suspension: Type Travel Spring type Spring rate Wire diameter	T.S.S. 170 mm (6.69 in) Coil spring 16 N/mm (1.6 kg/mm, 89.7 lb/in) 8.2 mm (0.32 in)	← ← ← 18 N/mm (1.8 kg/mm, 100.8 lb/in) 8.5 mm (0.33 in)
Shock absorber: Damping force (extension) (compression) Damping force adjuster	69 kg, 0.3 m/s 41 kg, 0.3 m/s 5 clicks out	61 kg, 0.3 m/s 24 kg, 0.3 m/s ←



ELECTRICAL

Model	VX800	VX800ST
Voltage:	12V	
Ignition system: Ignition timing (B.T.D.C.)	16°/1,500 r/min	
C.D.I.: Magneto model/Manufacturer Pulser coil resistance (color code) Change coil resistance (for ignition) (color code) C.D.I. unit manufacturer	F4T308/MITSUBISHI 505 ±10% at 20° C (68°F) (White/Green – White/Red) (White/Blue – White/Red) 2.55Ω ±10% at 20°C (68°F) (Brown – Black/Red) MITSUBISHI	
Ignition coil: Model/Manufacturer Minimum spark gap Primary coil resistance Secondary coil resistance	89A-00/YAMAHA, 88R-00/YAMAHA 3 mm (0.12 in) at 3,000 r/min 0.2 Ω ± 20% at 20°C (68°F) 4.9 kΩ ± 20% at 20°C (68°F)	
Spark plug cap: Type Model/Manufacturer Resistance	Rubber type BR9ES/NGK 5.0 kΩ ± 25% at 20°C (68°F)	
Charging system: Type	Flywheel magneto	
Flywheel magneto: Lighting voltage (minimum) (maximum) Lighting coil resistance (color code) Coil resistance for grip warmer (driver) (color code)	11.0 V at 3,000 r/min 15.5 V at 8,000 r/min 0.32 Ω ± 10% at 20°C (68°F) (Yellow – Black) 1.7 Ω ± 20% at 20°C (68°F) (Yellow/Brack – Black)	
Grip warmer: Grip warmer resistance Thumb warmer resistance	3 Ω ± 20% at 20°C (68°F) 8 ~ 40 Ω at 20°C (68°F)	
Voltage regulator: Type Mode/Manufacturer	Rectifier regulator 82M-A0/SHINDENGEN	
Fuel gauge unite: Resistance (full) (empty)	4 ~ 10 Ω 90 ~ 100 Ω	

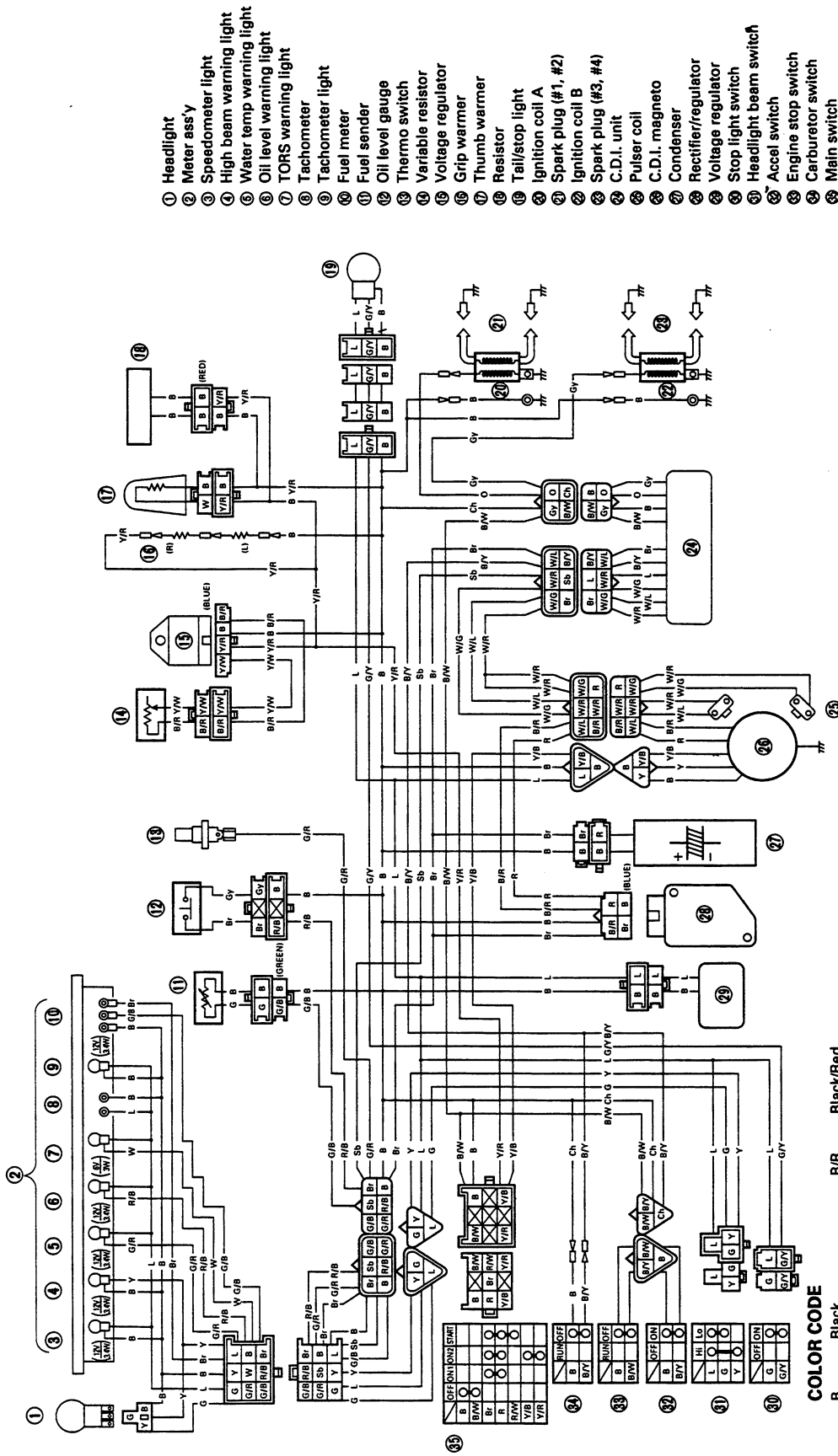


Tightening torque:				
Parts to be tightened	Tightening torque			Remarks
	Nm	m • kg	ft • lb	
ENGINE				
Crankcase (M8 × 1.25)	26	2.6	19	Tighten the bolts in two steps.
(M6 × 1.0) *	13	1.3	9.4	
				
Engine bracket nut	40	4.0	29	
Engine bracket bolt	30	3.0	22	
Engine stay bolt (rod)	45	4.5	32	
Cylinder body nut	28	2.8	20	
Crankcase stud bolt	13	1.3	9.4	
Cylinder head nut	22	2.2	16	
Cylinder stud bolt	13	1.3	9.4	
Spark plug	20	2.0	14	
PTO shaft holder bolt	28	2.8	20	
PTO shaft driven gear assembly	48	4.8	35	
Water pump impeller	14	1.4	10	
Water pump ass'y	10	1.0	7.2	
Oil pump ass'y	4	0.4	2.9	
Intake manifold	10	1.0	7.2	
Exhaust manifold	25	2.5	18	
Starter pulley	45	4.5	32	
Recoil starter	7	0.7	5.1	
Thermostatic cover	7	0.7	5.1	
Thermo switch	28	2.8	20	
Magnet rotor	85	8.5	61	
Starter ass'y	7	0.7	5.1	
Water jacket joint	10	1.0	7.2	
CARBURETOR				
Head cover screw	2	0.2	1.4	
Rever shaft screw	4	0.4	2.9	
Main jet	0.8	0.08	0.58	
Pilot jet	0.7	0.07	0.51	
Cynchronization nut	4	0.4	2.9	
Planjer	3	0.3	2.2	
Float chamber plug	9	0.9	6.5	



Tightening torque:				
Parts to be tightened	Tightening torque			Remarks
	Nm	m • kg	ft • lb	
Primary sheave (first)	120	12.0	85	Tighten the bolts in two steps.
(final)	60	6.0	43	
Spider and sliding sheave	200	20.0	145	Left-hand thread. Apply LOCTITE®
Primary sheave cap and sliding sheave	14	1.4	10	
Roller and weight (primary sheave)				
Bolt	6	0.6	4.3	
Screw	3	0.3	2.2	
Secondary sheave	60	6.0	43	
Compression rod bracket bolt	40	4.0	29	
Engine stay bolt	45	4.5	33	
Driven sprocket	48	4.8	35	
Chain housing and frame	24	2.4	17	Apply LOCTITE®
Chain housing cover	10	1.0	7.2	
Chain housing and brake caliper	48	4.8	35	
Bearing holder (jackshaft)	43	4.3	31	
Suspension wheel	75	7.5	54	Apply LOCTITE®
Guide wheel	74	7.4	54	
Sliding frame and slide runner	3	0.3	2.2	
Slide rail suspension mounting bolt	68	6.8	49	
Rear pivot arm and bracket	68	6.8	49	
Shock absorber and rear pivot arm	42	4.2	30	Apply LOCTITE®
Rear suspension bracket and rod	42	4.2	30	
Front pivot arm and sliding frame	56	5.6	41	
Shock absorber and front pivot arm	23	2.3	17	
Shock absorber and relay arm	28	2.8	20	
Bracket shaft and sliding frame	20	2.0	14	
Coller (guide wheel)	6	0.6	4.3	
Front axle nut	90	9.0	65	
Speedometer gear	23	2.3	17	

VX800V/800STV WIRING DIAGRAM



- ① Headlight
- ② Meter ass'y
- ③ Speedometer light
- ④ High beam warning light
- ⑤ Water temp warning light
- ⑥ Oil level warning light
- ⑦ TORS warning light
- ⑧ Tachometer
- ⑨ Tachometer light
- ⑩ Fuel meter
- ⑪ Fuel sender
- ⑫ Oil level gauge
- ⑬ Thermo switch
- ⑭ Variable resistor
- ⑮ Voltage regulator
- ⑯ Grip warmer
- ⑰ Thumb warmer
- ⑱ Resistor
- ⑲ Tail/stop light
- ⑳ Ignition coil A
- ㉑ Spark plug (#1, #2)
- ㉒ Ignition coil B
- ㉓ Spark plug (#3, #4)
- ㉔ C.D.I. unit
- ㉕ Pulsar coil
- ㉖ C.D.I. magneto
- ㉗ Condenser
- ㉘ Rectifier/regulator
- ㉙ Voltage regulator
- ㉚ Stop light switch
- ㉛ Headlight beam switch
- ㉜ Accel switch
- ㉝ Engine stop switch
- ㉞ Carburetor switch
- ㉟ Main switch

COLOR CODE

B	.....	Black
B/R	.....	Black/Red
B/W	.....	Black/White
L	.....	Blue
G	.....	Green
G/B	.....	Green/Black
Y	.....	Yellow
G/Y	.....	Green/Yellow
R	.....	Red
G/R	.....	Green/Red
O	.....	Orange
Y/B	.....	Yellow/Black
P	.....	Pink
Y/W	.....	Yellow/White
Ch	.....	Chocolate
Gy	.....	Gray
Br	.....	Brown
R/W	.....	Red/White
Sb	.....	Sky blue
W/G	.....	White/Green
W	.....	White
W/R	.....	White/Red
B/Y	.....	Black/Yellow

YAMAHA

SUPPLEMENTARY SERVICE MANUAL













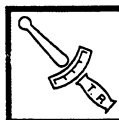



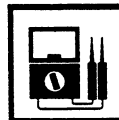










VX800A MM800A

**VX800A/MM800A
SUPPLEMENTARY SERVICE MANUAL
©1996 by Yamaha Motor Corporation, U.S.A.
1st Edition, August 1996**

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**Printed in U.S.A.
P/N LIT-12628-01-80**

① GEN INFO 	② INSP ADJ 	
③ CHAS 	④ POWR TR 	
⑤ ENG 	⑥ COOL 	
⑦ CARB 	⑧ ELEC 	
⑨ SPEC 	⑩ OPT 	
⑪ 	⑫ 	
⑬ 	⑭ 	
⑮ 	⑯ 	
⑰ 	⑱ 	⑲ 
⑳ 	㉑ 	㉒ 
㉓ 	㉔ 	㉕ 

0E031

ILLUSTRATED SYMBOLS

(Refer to the illustration)

Illustrated symbols ① to ⑩ are designed as thumb tabs to indicate the chapter's number and content.

- ① General information
- ② Periodic inspection and adjustment
- ③ Chassis
- ④ Power train
- ⑤ Engine overhaul
- ⑥ Cooling system
- ⑦ Carburetion
- ⑧ Electrical
- ⑨ Specifications
- ⑩ Optional kit

Illustrated symbols ⑪ to ⑰ are used to identify the specifications which appear.

- ⑪ Filling fluid
- ⑫ Lubricant
- ⑬ Tightening
- ⑭ Wear limit, clearance
- ⑮ Engine speed
- ⑯ Special tool
- ⑰ Ω, V, A

Illustrated symbols ⑱ to ㉕ in the exploded diagram indicate grade of lubricant and location of lubrication point.

- ⑱ Apply locking agent (LOCTITE®)
- ⑲ Apply Yamabond No.5®
- ㉑ Apply engine oil
- ㉑ Apply gear oil
- ㉒ Apply molybdenum disulfide oil
- ㉓ Apply wheel bearing grease
- ㉔ Apply low-temperature lithium-soap base grease
- ㉕ Apply molybdenum disulfide grease

CONTENTS

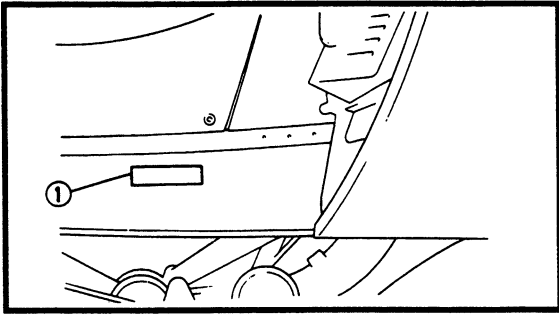
GENERAL INFORMATION	1
MACHINE IDENTIFICATION	1
FRAME SERIAL NUMBER	1
ENGINE SERIAL NUMBER	1
PERIODIC INSPECTION AND ADJUSTMENT	2
POWER TRAIN	2
PARKING BRAKE PAD INSPECTION	2
PARKING BRAKE ADJUSTMENT	2
BRAKE FLUID LEVEL INSPECTION	3
BRAKE PAD INSPECTION	4
BRAKE HOSE INSPECTION	4
AIR BLEEDING (HYDRAULIC BRAKE SYSTEM)	5
TUNING	6
SUSPENSION	6
POWER TRAIN	9
BRAKE	9
BRAKE PAD	9
BRAKE PAD REPLACEMENT	10
BRAKE CALIPER ASSEMBLY, PARKING BRAKE ASSEMBLY AND BRAKE DISC	12
PARKING BRAKE	13
BRAKE CALIPER	14
CALIPER DISASSEMBLY	15
BRAKE DISC INSPECTION	15
CALIPER INSPECTION AND REPAIR	16
CALIPER ASSEMBLY	16
BRAKE MASTER CYLINDER	17
MASTER CYLINDER INSPECTION	18
MASTER CYLINDER ASSEMBLY	18
SLIDE RAIL SUSPENSION (VX800)	19
SLIDE RAIL SUSPENSION (MM800)	20
INSPECTION	25
ASSEMBLY	26
SPECIFICATIONS	28
GENERAL SPECIFICATIONS	28
MAINTENANCE SPECIFICATIONS	30
ENGINE	30
POWER TRAIN	33
CHASSIS	35
ELECTRICAL	36
TIGHTENING TORQUE	37
CABLE ROUTING	40

GENERAL INFORMATION

MACHINE IDENTIFICATION

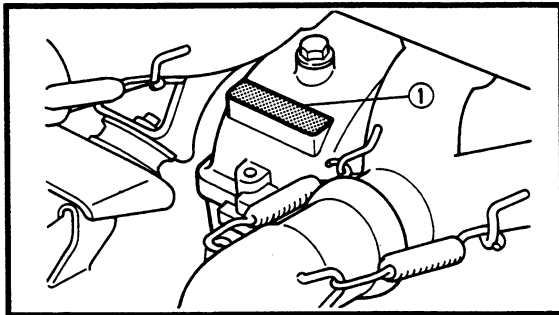
FRAME SERIAL NUMBER

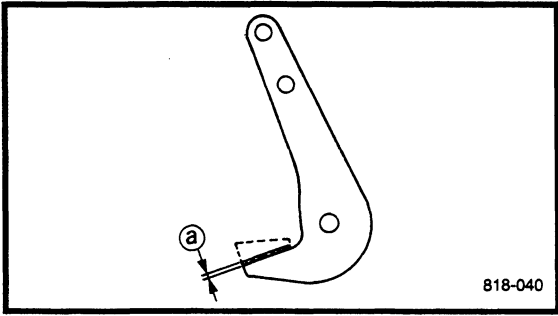
The frame serial number ① is located on the right-hand side of the frame (just below the front of the seat).



ENGINE SERIAL NUMBER

The engine serial number ① is located on the front side of the crankcase.






**PERIODIC INSPECTION AND
ADJUSTMENT**

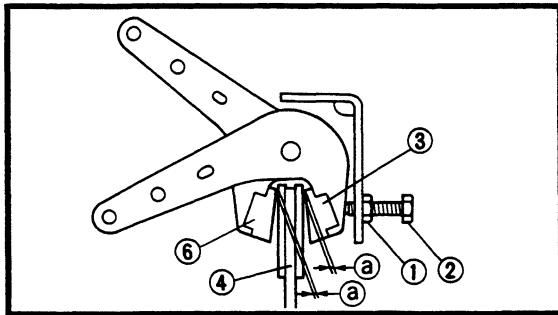
POWER TRAIN

PARKING BRAKE PAD INSPECTION

1. Measure:

- Parking brake pad thickness (a)
- Out of specification → Replace as a set.


	Wear limit:
	1.0 mm (0.04 in)



PARKING BRAKE ADJUSTMENT

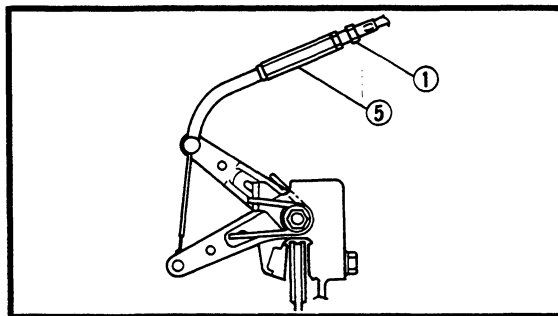
1. Measure:

- Clearance (a)
- Out of specification → Adjust.

	Clearance:
	1.1 ~ 1.25 mm (0.043 ~ 0.049 in)

2. Adjust:

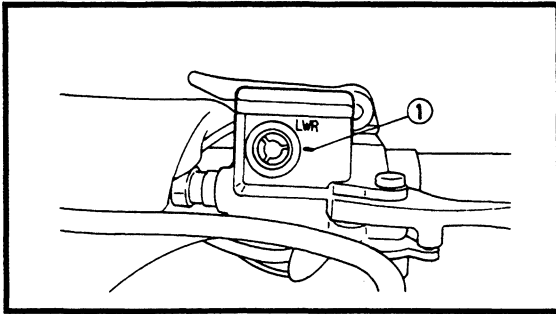
- Clearance (a)



Adjustment steps:

- Loosen the locknut (1).
- Turn the pad adjuster (2) in or out to adjust the clearance between the pad (3) and disc (4).
- Turn the cable adjuster (5) in or out to adjust the clearance between the pad (6) and disc (4).
- Tighten the locknut.

BRAKE FLUID LEVEL INSPECTION



BRAKE FLUID LEVEL INSPECTION

1. Place the machine on a level surface.
2. Inspect:
 - Fluid level
Fluid level is under "LOWER" level line ①
→ Fill to proper level.



Recommended fluid:
DOT 4

NOTE:

When inspecting the fluid level in the reservoir on the handlebar, make sure the master cylinder top is horizontal.

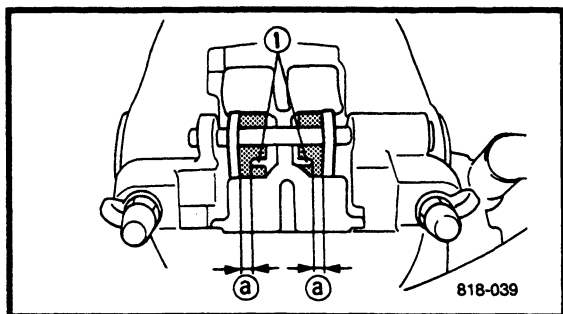
CAUTION:

Brake fluid may corrode painted surfaces or plastic parts. Always clean up spilled fluid immediately.

⚠ WARNING

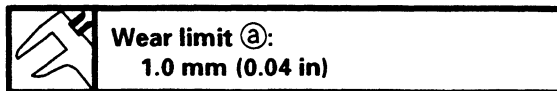
- Use only the designated quality fluid. Otherwise, the rubber seals may deteriorate causing leakage and poor brake performance.
- Refill with the same type of fluid. Mixing fluids may result in a harmful chemical reaction leading to poor brake performance.
- Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point of the fluid and could cause vapor lock.

BRAKE PAD INSPECTION/BRAKE HOSE INSPECTION



BRAKE PAD INSPECTION

1. Apply the brake lever.
2. Inspect:
 - Brake pads
Wear indicator ① nearly contacts the brake disc → Replace brake pads as a set.



BRAKE HOSE INSPECTION

1. Inspect:
 - Brake hose
Cracks/wear/damage → Replace.
2. Check:
 - Fluid leakage
Apply the brake lever several times.
Fluid leakage → Replace.

AIR BLEEDING (HYDRAULIC BRAKE SYSTEM)

⚠ WARNING

Bleed the brake system if:

- The system has been disassembled.
- A brake hose has been loosened or removed.
- The brake fluid has been very low.
- The brake operation has been faulty.

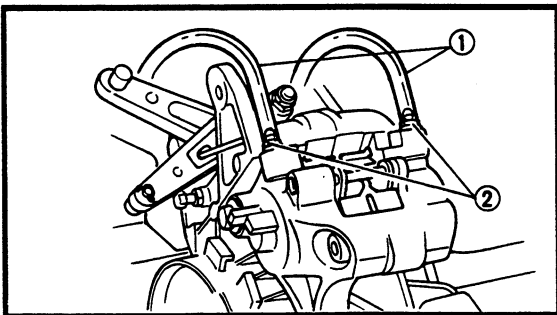
A loss of braking performance may occur if the brake system is not properly bled.

1. Bleed:

- Brake system

Air bleeding steps:

- a. Add proper brake fluid to the reservoir.
- b. Install the diaphragm. Be careful not to spill any fluid or allow the reservoir to overflow.
- c. Connect a clear plastic hose ① tightly to the caliper bleed screw ②.
- d. Place the other end of the hose into a container.
- e. Slowly apply the brake lever several times.
- f. Pull the lever in. Hold the lever in position.
- g. Loosen the bleed screw and allow the lever to travel towards its limit.
- h. Tighten the bleed screw when the lever limit has been reached, then release the lever.
- i. Repeat steps (e) to (h) until all air bubbles have disappeared from the fluid.
- j. Tighten the bleed screw.



Bleed screw:
6 Nm (0.6 m · kg, 4.3 ft · lb)

NOTE:

If bleeding is difficult, it may be necessary to let the brake fluid settle for a few hours. Repeat the bleeding procedure when the tiny bubbles in the system have disappeared.

- k. Add brake fluid to proper level.
Refer to the "BRAKE FLUID LEVEL INSPEC-
TION" section.

⚠ WARNING

Check the operation of the brake after bleeding the brake system.

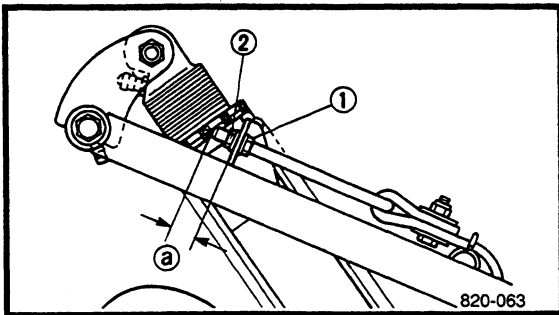
**TUNING
SUSPENSION**

Rear suspension stopper band

1. Adjust:
- Stopper band tension

NOTE:

This adjustment will affect the stability and maneuverability of the machine.

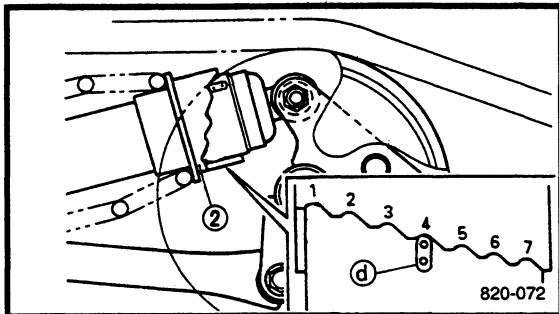
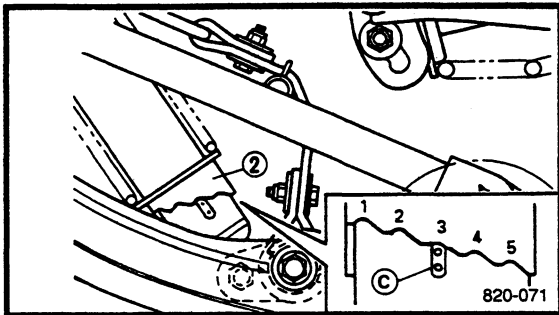
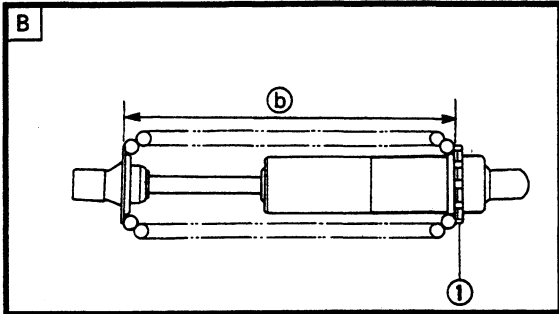
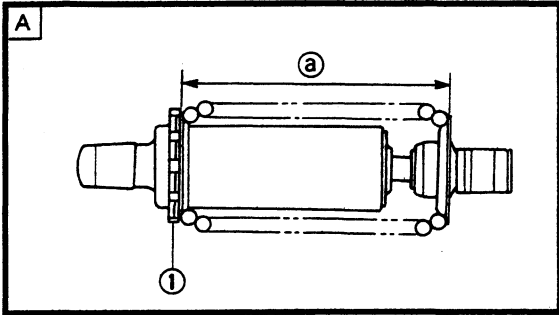


Adjustment steps:

- Loosen the locknut ①.
- Turn the adjuster ② in or out to adjust the stopper band tension.

Adjuster Thread Length ②	Longer ←	→ Shorter
	Maximum	Minimum 10 mm 0.39 in (STD)
Effects	More weight on skis. Less weight transfer	Less weight on skis. More weight transfer

- Tighten the locknut.



Rear suspension spring preload

1. Adjust:

- Spring preload (VX800)

Adjustment steps:

- Turn the spring seat ① in or out.

Spring set length	Longer ←	→ Shorter
Preload	Softer ←	→ Harder
A Length ① (front)	Max 221 mm (8.70 in)	Min 201 mm (7.91 in)
	Standard 211 mm (8.31 in)	
B Length ② (rear)	Max. 381.5 mm (15.02 in)	Min. 361.5 mm (14.23 in)
	Standard 371.5 mm (14.63 in)	

- Spring preload (MM800)

Adjustment steps:

- Turn the adjuster ② in or out.

Spring Adjuster Position	1	2	3	4	5
Preload	Softer ←			→ Harder	
Standard (front) ③	3				

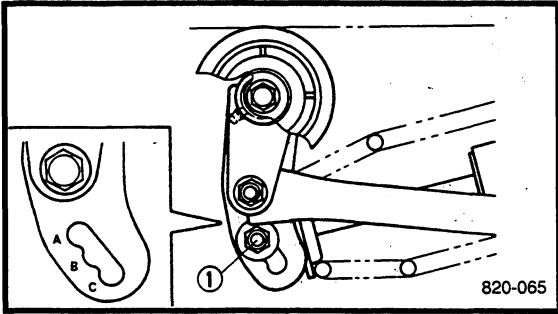
Spring Adjuster Position	1	2	3	4	5	6	7
Preload	Softer ←			→ Harder			
Standard (rear) ④	4						

⚠ WARNING

This shock absorber contains highly pressurized nitrogen gas.

Do not tamper with or attempt to open the shock absorber assembly.

Do not subject the shock absorber assembly to open flame or high heat, which could cause it to explode.



Rear suspension full rate

1. Adjust:
- Full rate adjuster

Adjustment steps:

- Loosen the nut ①.
- Move the end of the shock-absorber assembly to the desired position.

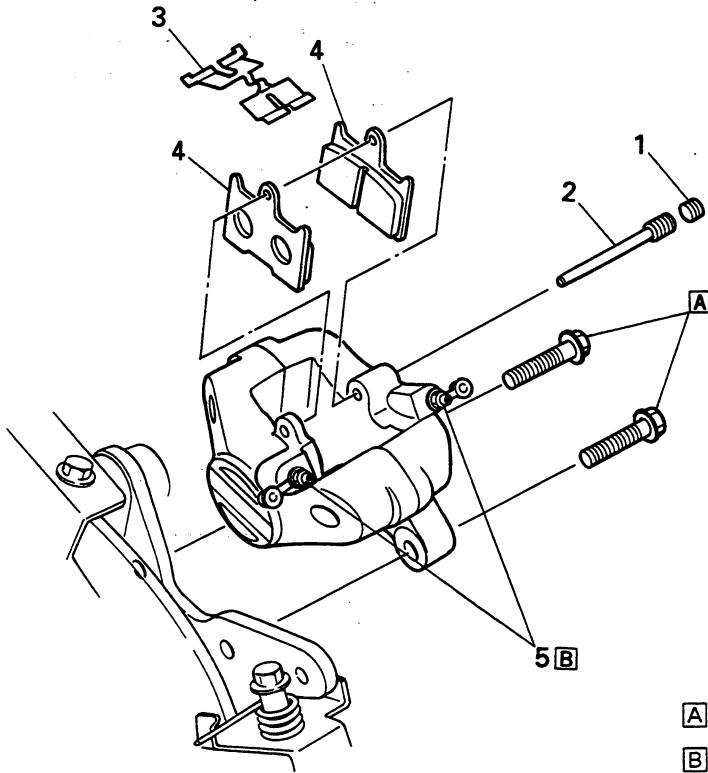
Installation Position	C	B	A
Spring rate and Damping	Hard	Medium	Soft
Standard	B		

NOTE:

Rotating the track will help to move the shock-absorber assembly.

- Tighten the nut.

POWER TRAIN

BRAKE
BRAKE PAD

A	: 48 Nm (4.8 m • kg, 35 ft • lb)
---	----------------------------------

B	: 6 Nm (0.6 m • kg, 4.3 ft • lb)
---	----------------------------------

Order	Job name/Part name	Q'ty	Remarks
	Brake pad removal		
1	Retaining pin plug	1	Remove the parts in the given order.
2	Retaining pin	1	
3	Pad spring	1	
4	Brake pad	2	
5	Bleed screw	2	
			For installation, reverse the removal procedure.

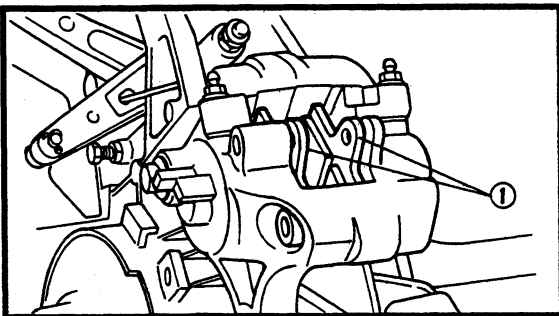
CAUTION:

Disc brake components rarely require disassembly. **DO NOT:**

- Disassemble components unless absolutely necessary.
- Use solvents on internal brake components.
- Use contaminated brake fluid for cleaning. Use only clean brake fluid.
- Allow brake fluid to come in contact with the eyes, otherwise eye injury may occur.
- Allow brake fluid to contact painted surfaces or plastic parts otherwise damage may occur.
- Disconnect any hydraulic connection otherwise the entire system must be disassembled, drained, cleaned, and then properly filled and bled after reassembly.

BRAKE PAD REPLACEMENT**NOTE:**

It is not necessary to disassemble the brake caliper and brake hose to replace the brake pads.

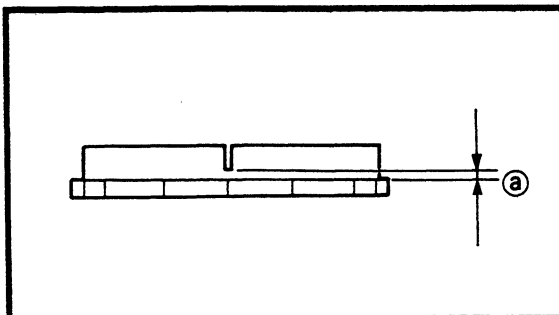


1. Remove:

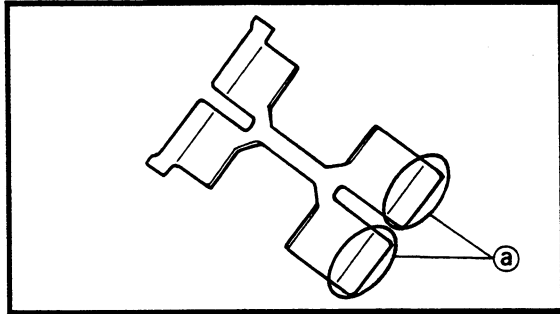
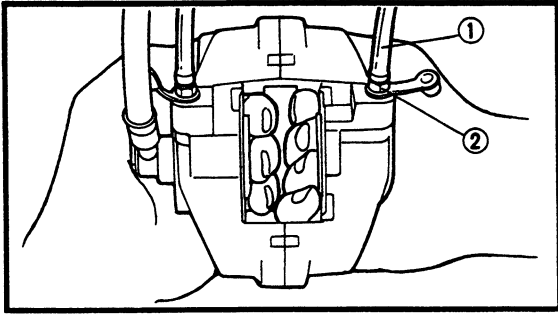
- Brake pads ①

NOTE:

- Do not depress the brake lever when the caliper or disc is off the machine otherwise the brake pads will be forced shut.
- Install new brake pad spring when the brake pads have to be replaced.
- Replace the pads as a set if either is found to be worn to the wear limit ②.



Wear limit ②:
1.0 mm (0.04 in)



2. Install:

- Brake pads **New**
- Pad spring

Installation steps:

- Connect a suitable hose ① tightly to the caliper bleed screw ②. Put the other end of this hose into an open container.
- Loosen the caliper bleed screw and push the pistons into the caliper with the finger.
- Tighten the caliper bleed screw ②.

	<p>Bleed screw: 6 Nm (0.6 m · Kg, 4.3 ft · lb)</p>
---	---

- Install the brake pads and pad spring.

NOTE: _____

The tangs ③ of the pad spring must point in the direction of the disc rotation.

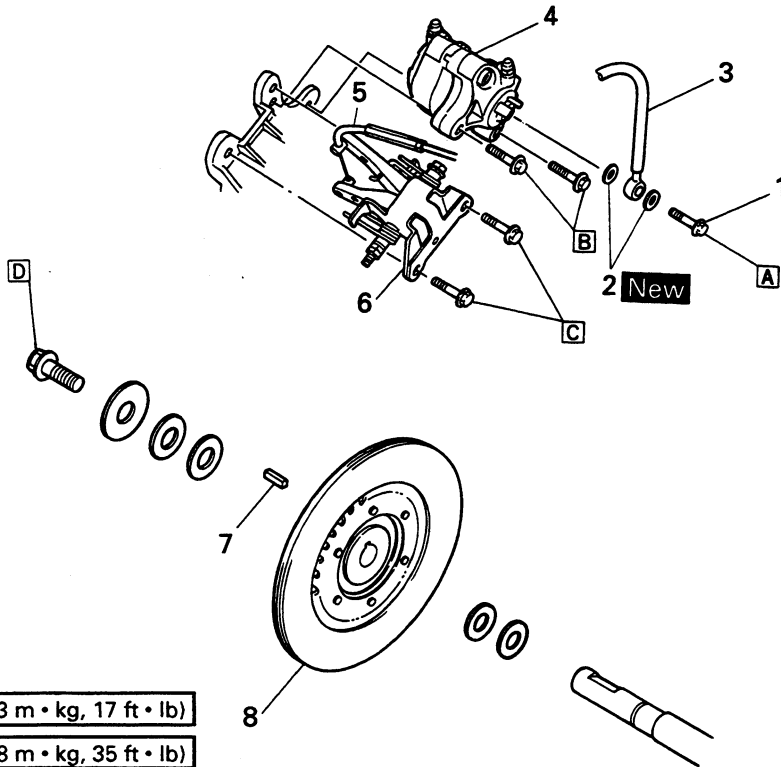
3. Inspect:

- Brake fluid level
Refer to "BRAKE FLUID LEVEL INSPECTION".

4. Check:

- Brake lever operation
A soft or spongy feeling → Bleed brake system.
Refer to "AIR BLEEDING (HYDRAULIC BRAKE SYSTEM)".

BRAKE CALIPER ASSEMBLY, PARKING BRAKE ASSEMBLY AND BRAKE DISC



A : 23 Nm (2.3 m • kg, 17 ft • lb)

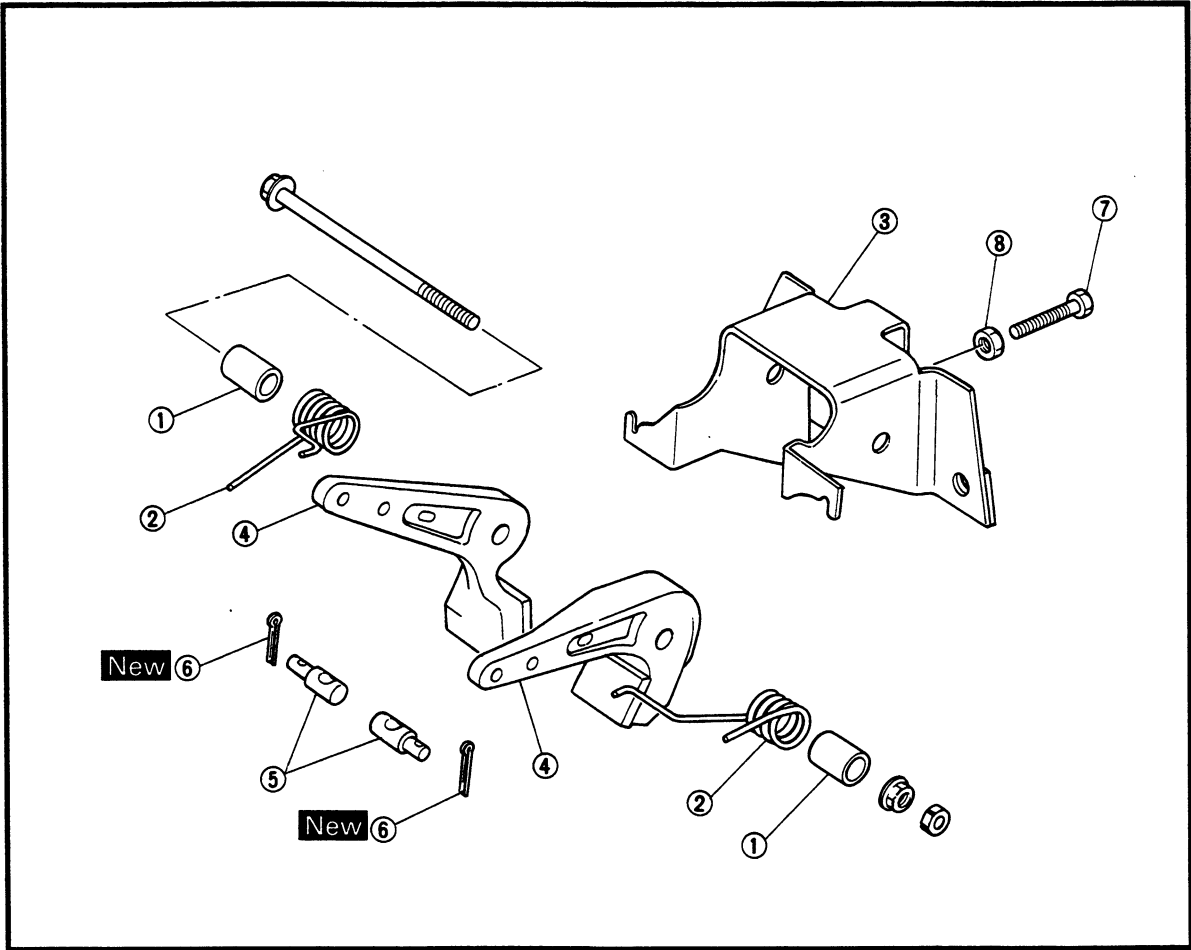
B : 48 Nm (4.8 m • kg, 35 ft • lb)

C : 48 Nm (4.8 m • kg, 35 ft • lb)

D : 48 Nm (4.8 m • kg, 35 ft • lb)

Order	Job name/Part name	Q'ty	Remarks
	Brake disc removal		Remove the parts in the given order.
	Brake fluid		Drain
1	Union bolt	1	
2	Copper washer	2	
3	Brake hose	1	Disconnect
4	Brake caliper assembly	1	
5	Parking brake cable	1	Disconnect
6	Parking brake assembly	1	
7	Straight key	1	
8	Brake disc	1	
			For installation, reverse the removal procedure.

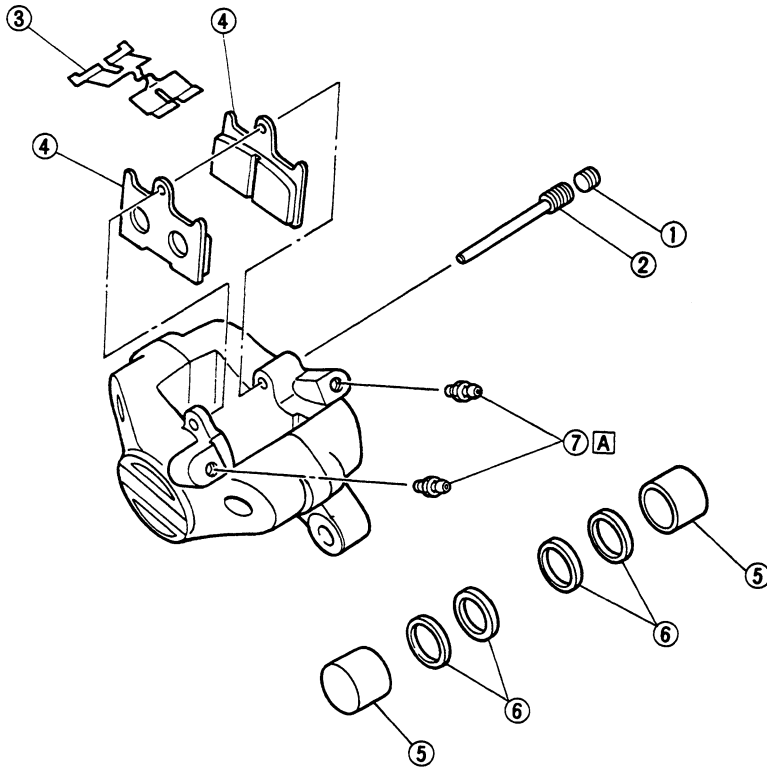
PARKING BRAKE



Order	Job name/Part name	Q'ty	Remarks
	Parking brake disassembly		Disassembly the parts in the given order.
①	Collar	2	
②	Spring	2	
③	Brake shoe bracket	1	
④	Brake shoe	2	Refer to "PARKING BRAKE PAD INSPECTION" and "PARKING BRAKE ADJUSTMENT".
⑤	Pin	2	
⑥	Cotter pin	2	
⑦	Brake clearance adjuster	1	
⑧	Locknut	1	
			For assembly, reverse the disassembly procedure.

BRAKE CALIPER

A : 6 Nm (0.6 m • kg, 4.3 ft • lb)

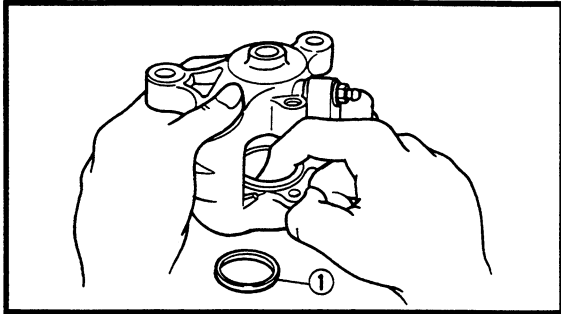


Order	Job name/Part name	Q'ty	Remarks
	Brake caliper disassembly		Disassembly the parts in the given order.
①	Retaining pin plug	1	
②	Retaining pin	1	
③	Pad spring	1	
④	Brake pad	2	
⑤	Caliper piston	2	
⑥	Piston seal	4	
⑦	Bleed screw	2	
			For assembly, reverse the disassembly procedure.

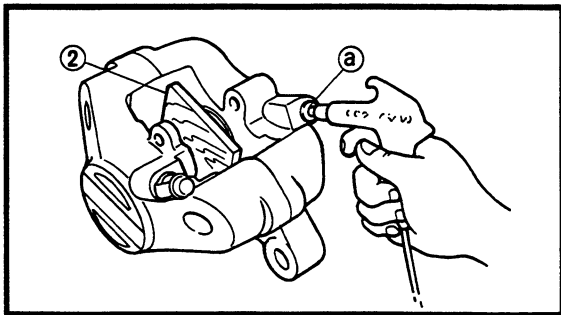
CALIPER DISASSEMBLY

NOTE: _____

Before disassembling the caliper, drain the brake hose, master cylinder, brake caliper and brake reservoir of their brake fluid.

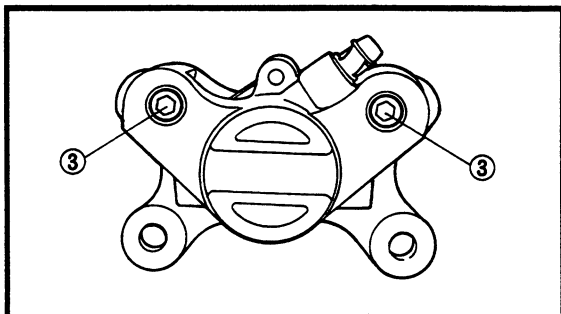


1. Remove:
- Pistons
 - Piston seals ①



Removal steps:

- Using a wood piece ②, lock the right side piston.
- Blow compressed air into the hose joint opening @ to force out the left side piston from the caliper body.
- Remove the piston seals and reinstall the piston.
- Repeat previous step to force out the right side piston from the caliper body.

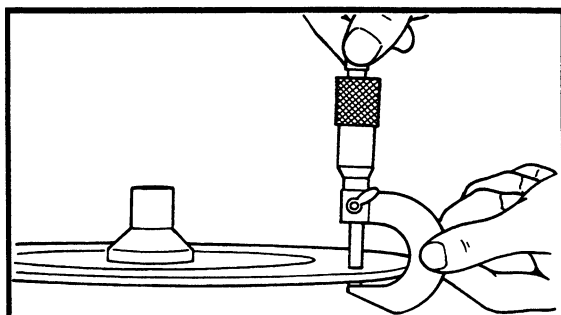


⚠ WARNING _____

- Never try to pry out a piston.
 - Do not loosen the bolts ③.
-

BRAKE DISC INSPECTION

1. Measure:
- Brake disc thickness
- Out of specification → Replace.



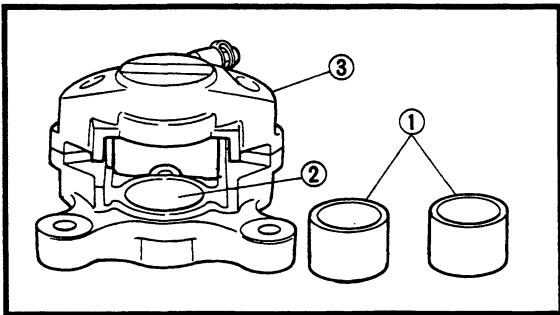
	<p>Minimum thickness: 10 mm (0.39 in)</p>
---	--

CALIPER INSPECTION AND REPAIR

Recommended brake component replacement schedule:	
Brake pads	As required
Piston seals, dust seals	Every two years
Brake hoses	Every two years
Brake fluid	Replace only when brakes are disassembled.

⚠ WARNING

All internal brake components should be cleaned in new brake fluid only. Do not use solvents as they will cause seals to swell and distort.



1. Inspect:

- Caliper pistons ①
Scratches/rust/wear → Replace caliper assembly.
- Caliper cylinder ②
Wear/scratches → Replace caliper assembly.
- Caliper body ③
Cracks/damage → Replace.
- Oil delivery passage (caliper body)
Blow out with compressed air.

⚠ WARNING

Replace the piston seals and dust seals whenever the caliper is disassembled.

CALIPER ASSEMBLY

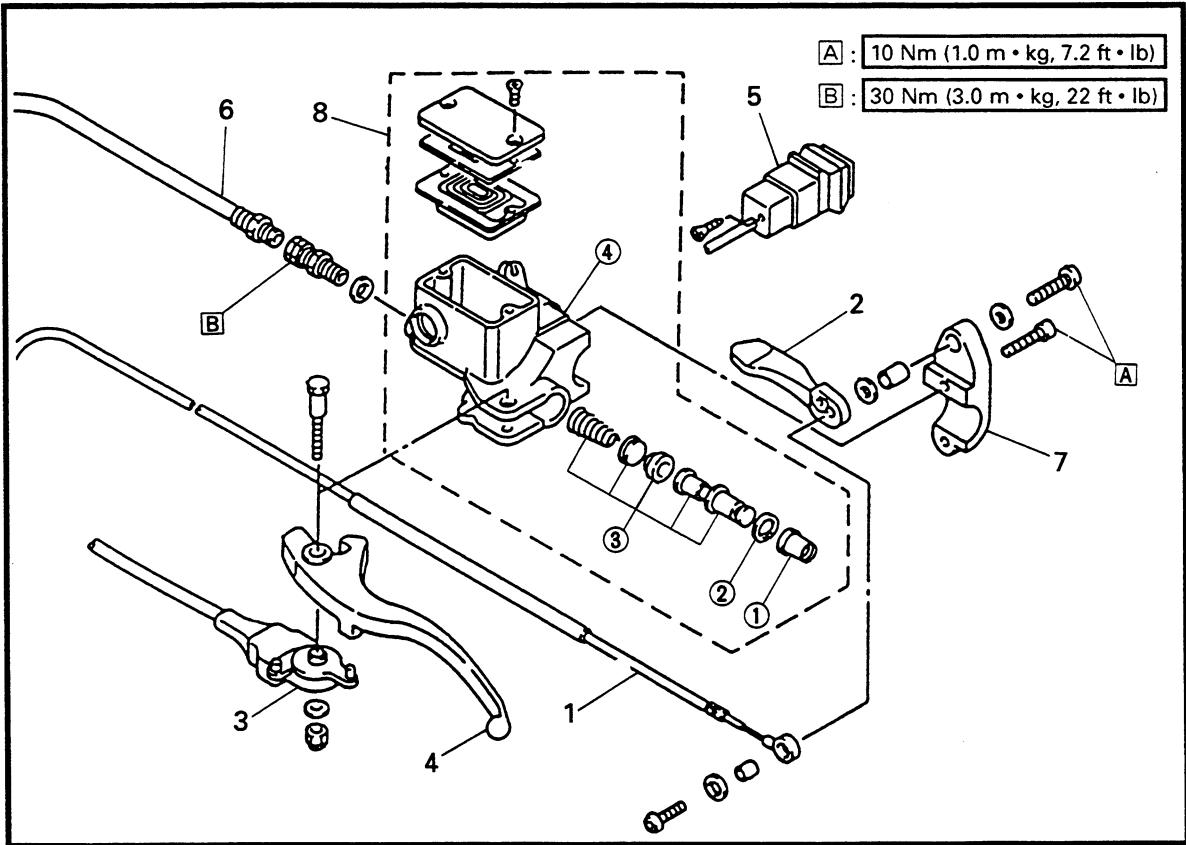
⚠ WARNING

- All internal parts should be cleaned in new brake fluid only.
- Internal parts should be lubricated with brake fluid when installed.

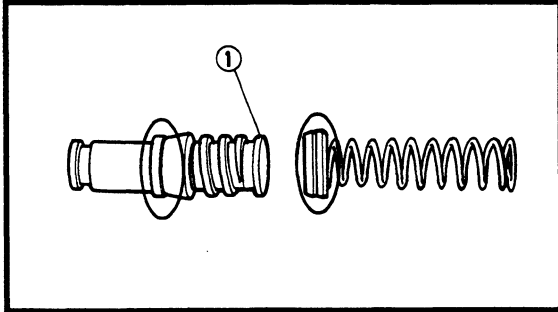
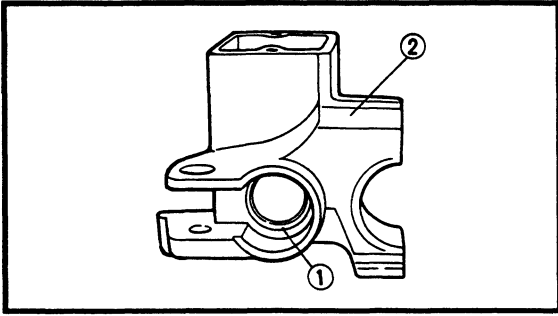
	Recommended brake fluid: DOT 4
---	-----------------------------------

- Replace the piston seals and dust seals whenever a caliper is disassembled.

BRAKE MASTER CYLINDER



Order	Job name/Part name	Q'ty	Remarks
	Master cylinder removal		Remove the parts in the given order.
	Brake fluid		Drain
1	Parking brake cable	1	Disconnect
2	Parking brake lever	1	
3	Brake switch	1	
4	Brake lever	1	
5	Dimmer switch	1	
6	Brake hose	1	Disconnect
7	Brake lever holder	1	
8	Master cylinder	1	
			For installation, reverse the removal procedure.
	Brake master cylinder disassembly		Disassembly the parts in the given order.
①	Boot	1	
②	Circlip	1	
③	Master cylinder kit	1	
④	Master cylinder body	1	
			For assembly, reverse the disassembly procedure.



MASTER CYLINDER INSPECTION

1. Inspect:

- Master cylinder ①
Wear/scratches → Replace the master cylinder assembly.
- Master cylinder body ②
Cracks/damage → Replace.
- Oil delivery passage (master cylinder body)
Blow out with compressed air.

2. Inspect:

- Master cylinder kit ①
Scratches/wear/damage → Replace as a set.

MASTER CYLINDER ASSEMBLY

⚠ WARNING

- All internal parts should be cleaned in new brake fluid only.
- Internal parts should be lubricated with brake fluid when installed.



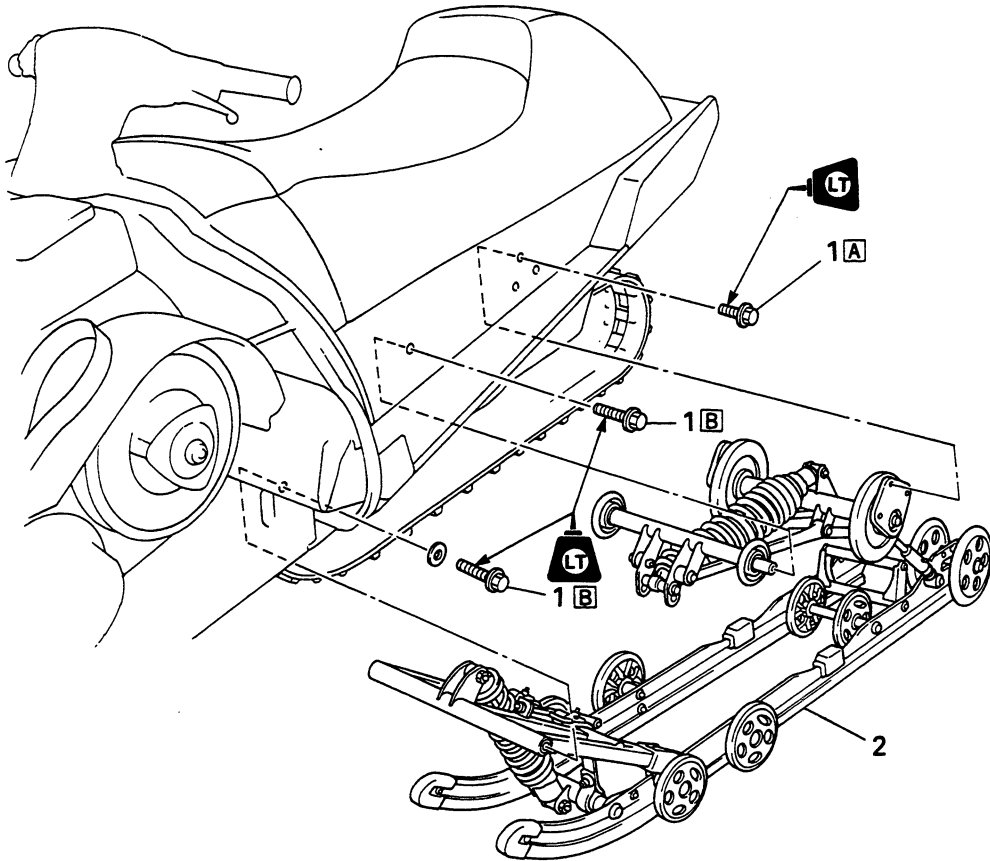
Recommended brake fluid:
DOT 4

- Replace the piston seals and dust seals whenever a caliper is disassembled.

SLIDE RAIL SUSPENSION (VX800)

A : 24 Nm (2.4 m • kg, 17 ft • lb)

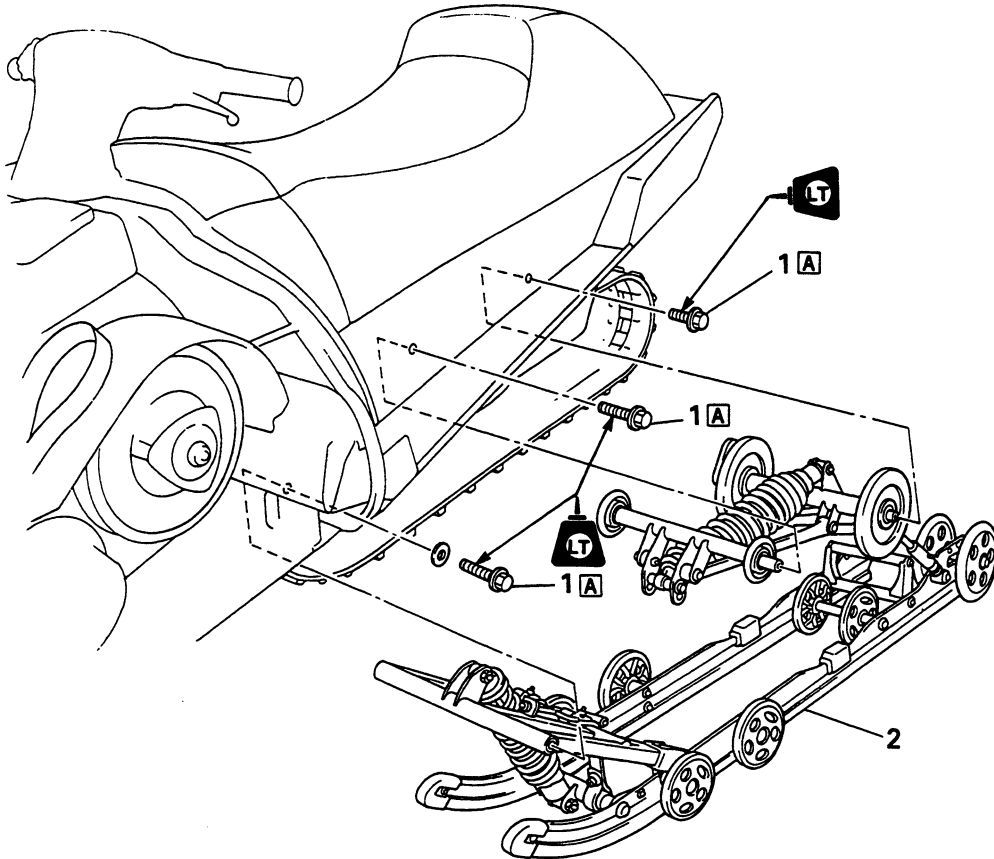
B : 71 Nm (7.1 m • kg, 51 ft • lb)



Order	Job name/Part name	Q'ty	Remarks
	Removal of slide rail suspension		
	Track tension		Remove the parts in the given order.
	Side cowling (left and right)	2	Loosen.
1	Bolt	10	
2	Slide rail suspension	1	
			Reverse the removal procedure for installation.

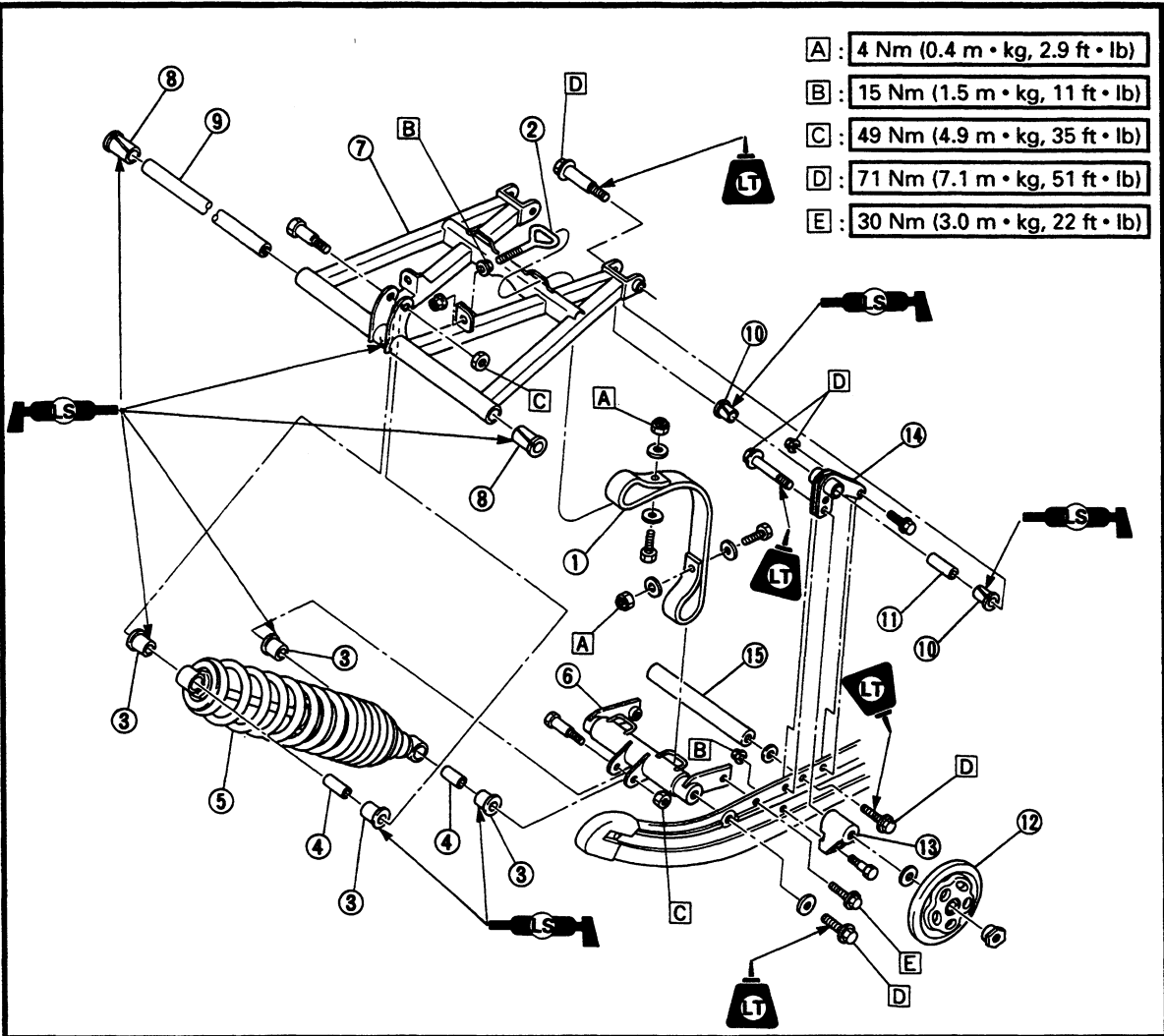
SLIDE RAIL SUSPENSION (MM800)

A : 71 Nm (7.1 m • kg, 51 ft • lb)



Order	Job name/Part name	Q'ty	Remarks
	Removal of slide rail suspension		Remove the parts in the given order. Loosen.
	Track tension		
	Side cowling (left and right)	2	
1	Bolt	6	
2	Slide rail suspension	1	
			Reverse the removal procedure for installation.

SLIDE RAIL SUSPENSION



- A : 4 Nm (0.4 m • kg, 2.9 ft • lb)
- B : 15 Nm (1.5 m • kg, 11 ft • lb)
- C : 49 Nm (4.9 m • kg, 35 ft • lb)
- D : 71 Nm (7.1 m • kg, 51 ft • lb)
- E : 30 Nm (3.0 m • kg, 22 ft • lb)

Order	Job name/Part name	Q'ty	Remarks
	Disassembly of slide rail suspension		Disassemble the parts in the given order.
①	Stopper band	2	
②	Hook	2	
③	Bush	4	
④	Collar	2	
⑤	Front shock absorber	1	
⑥	Front suspension bracket	1	
⑦	Front pivot arm	1	
⑧	Bush	2	
⑨	Collar	1	
⑩	Bush	4	
⑪	Collar	2	
⑫	Suspension wheel	2	
⑬	Wheel bracket	2	
⑭	Front pivot arm bracket	2	
⑮	Shaft (MM800)	1	

SLIDE RAIL SUSPENSION

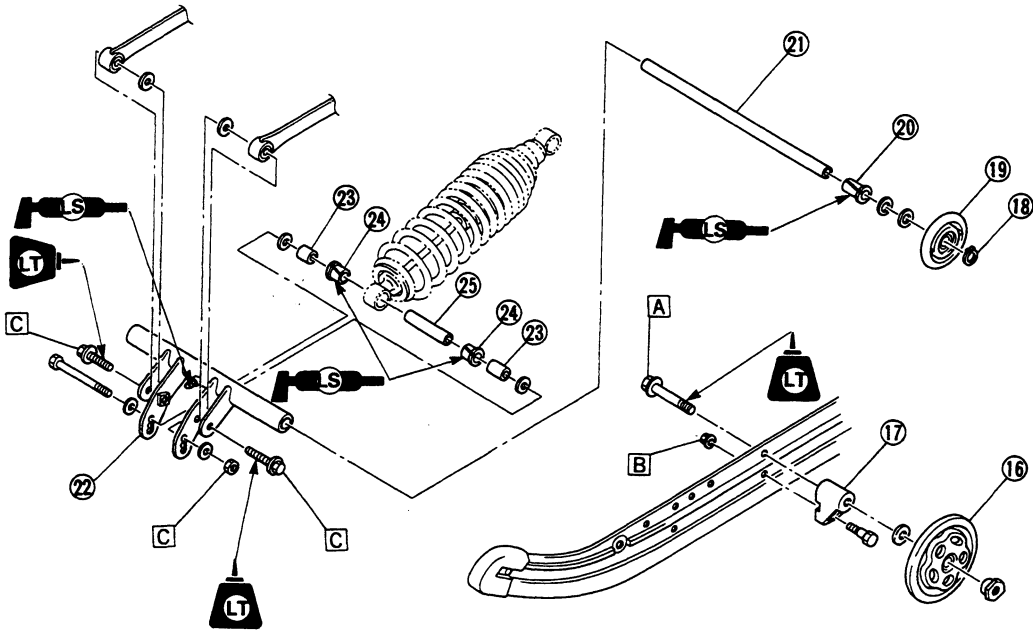
**POWER
TR**



A : 71 Nm (7.1 m • kg, 51 ft • lb)

B : 24 Nm (2.4 m • kg, 17 ft • lb)

C : 49 Nm (4.9 m • kg, 35 ft • lb)



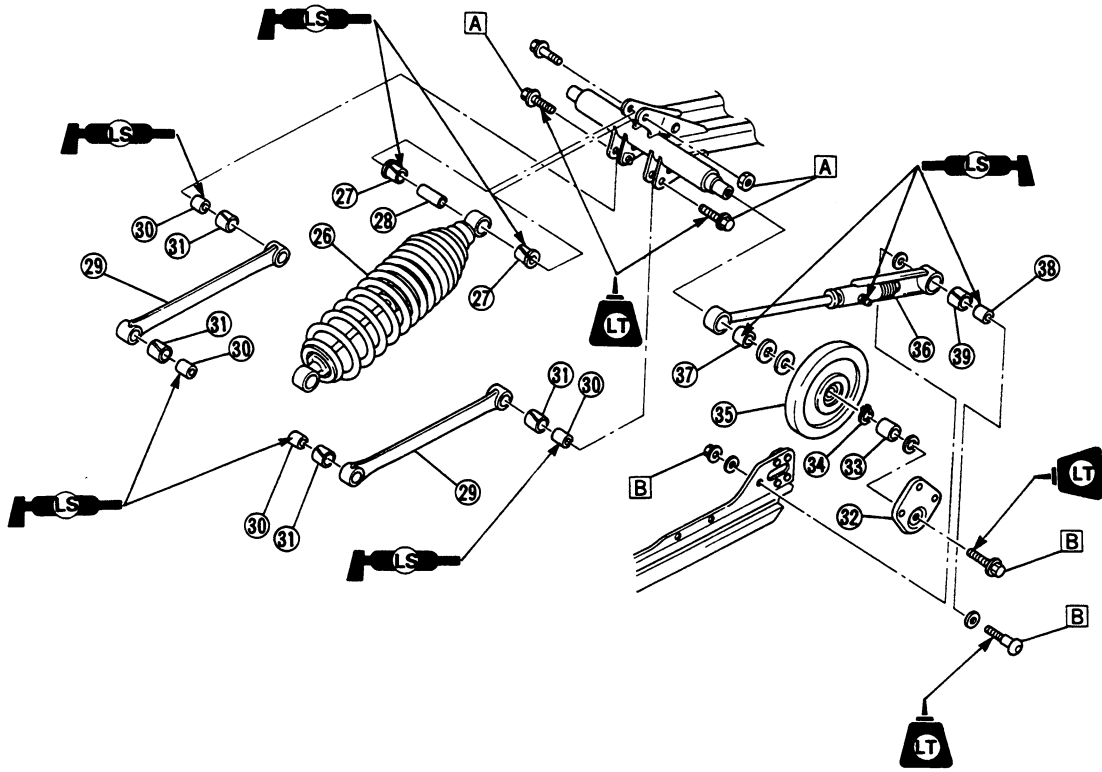
Order	Job name/Part name	Q'ty	Remarks
①⑥	Suspension wheel	2	
①⑦	Wheel bracket	2	
①⑧	Circlip	2	
①⑨	Suspension wheel	2	
②①	Bush	2	
②②	Collar	1	
②③	Rear suspension bracket	1	
②④	Spacer	2	
②⑤	Bush	2	
②⑥	Collar	1	

SLIDE RAIL SUSPENSION



A : 48 Nm (4.8 m • kg, 35 ft • lb)

B : 69 Nm (6.9 m • kg, 50 ft • lb)

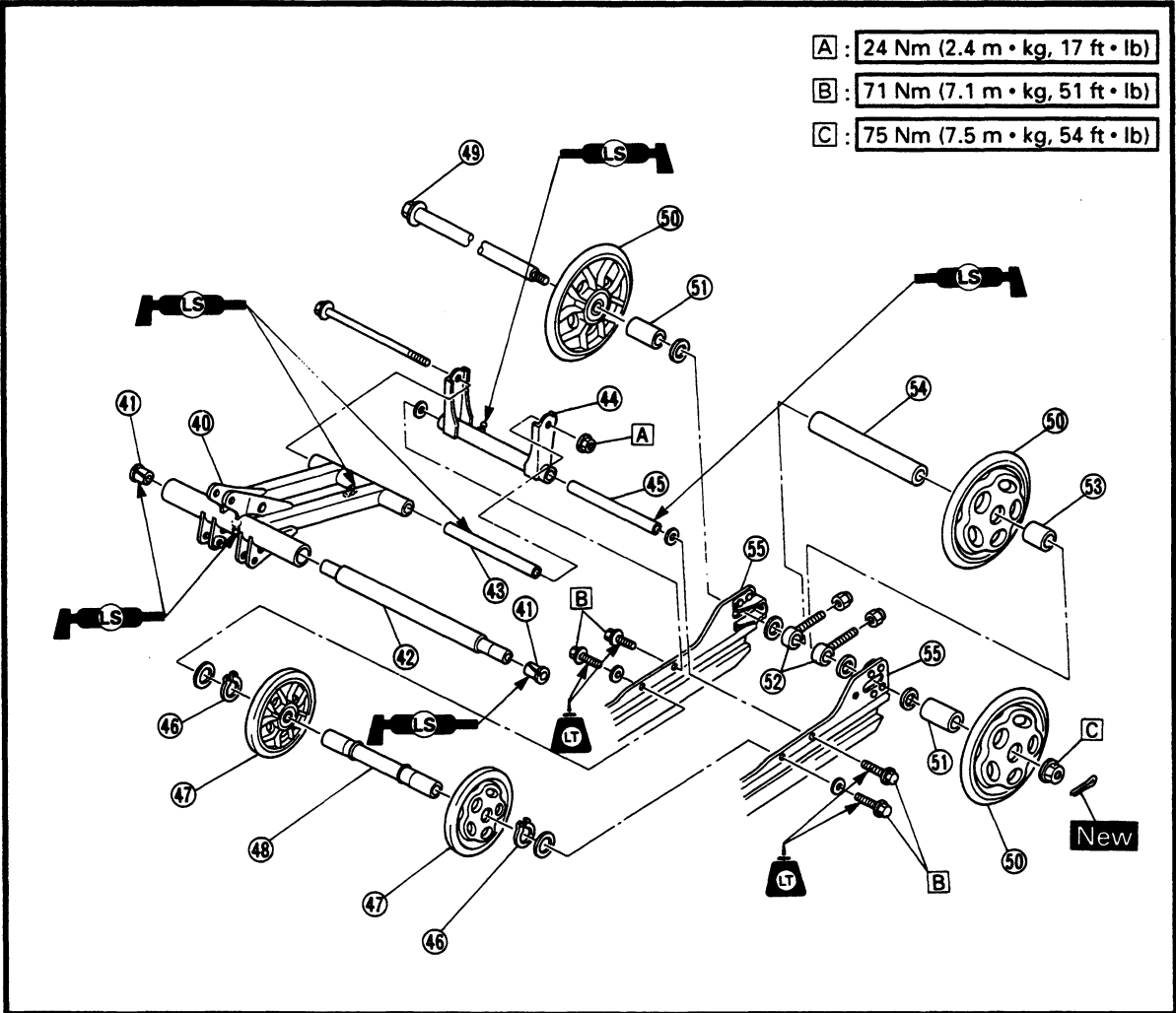


Order	Job name/Part name	Q'ty	Remarks
26	Rear shock absorber	1	
27	Bush	2	
28	Collar	1	
29	Pull rod	2	
30	Collar	4	
31	Bush	4	
32	Rear bracket (VX800)	2	
33	Collar (VX800)	2	
34	Circlip (MM800)	2	
35	Suspension wheel	2	
36	Control rod	2	
37	Bush	2	
38	Collar	2	
39	Bush	2	

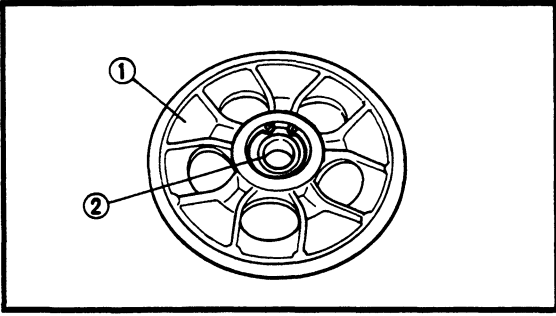
SLIDE RAIL SUSPENSION



- A : 24 Nm (2.4 m • kg, 17 ft • lb)
- B : 71 Nm (7.1 m • kg, 51 ft • lb)
- C : 75 Nm (7.5 m • kg, 54 ft • lb)



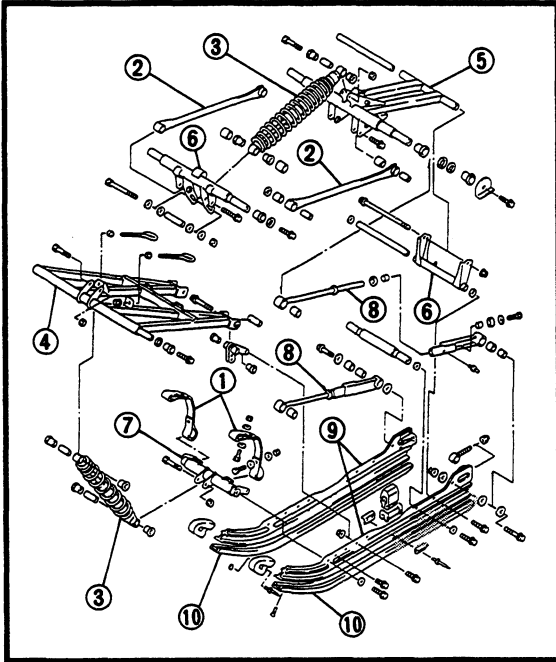
Order	Job name/Part name	Q'ty	Remarks
40	Rear pivot arm	1	
41	Bush	2	
42	Collar	1	
43	Collar	1	
44	Rear pivot arm bracket	1	
45	Collar	1	
46	Circlip	2	
47	Suspension wheel	2	
48	Wheel bracket	1	
49	Rear axle	1	
50	Guide wheel	3	
51	Collar	2	
52	Tension adjuster	2	
53	Collar	1	
54	Collar	1	
55	Sliding frame	2	
			Reverse the disassembly procedure for assembly.



INSPECTION

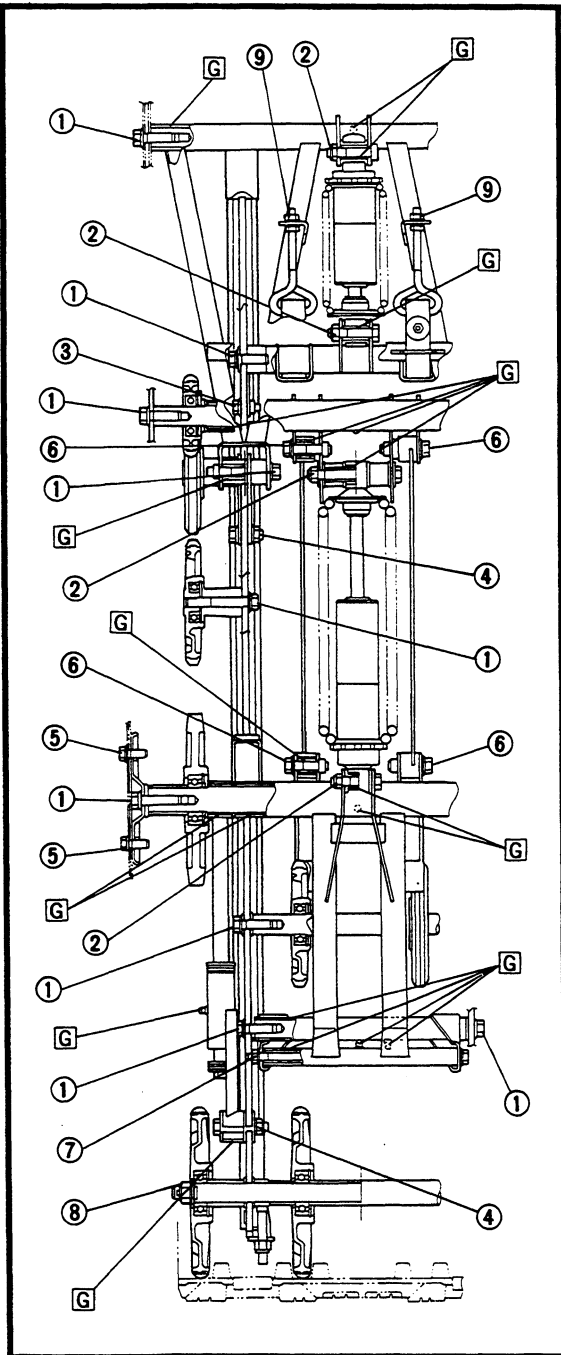
1. Inspect:

- Suspension and guide wheels ①
Cracks/damage → Replace.
- Wheel bearing ②
Wheel turns roughly → Replace.



2. Inspect:


- Stopper band ①
Frayed/damage → Replace.
- Pull rod ②
Bends/damage → Replace.
- Shock absorber ③
Oil leaks/damage → Replace.
- Bush
Wear/cracks/damage → Replace.
- Front pivot arm ④
- Rear pivot arm ⑤
- Pivot arm bracket ⑥
- Suspension bracket ⑦
- Control rod ⑧
- Sliding frame ⑨
Cracks/damage → Replace.
- Slide runner ⑩
Wear/damage → Replace



ASSEMBLY

Reverse the "DISASSEMBLY" procedure.
Note the following points.

1. Apply:
 - Low temperature lithium soap base grease (to "G" mark points in the illustration)
2. Tighten: (VX800)



Nut (stopper band):
4 Nm (0.4 m · kg, 2.9 ft · lb)

Bolt ①:
71 Nm (7.1 m · kg, 51 ft · lb)

Nut ②:
49 Nm (4.9 m · kg, 35 ft · lb)

Bolt ③:
30 Nm (3.0 m · kg, 22 ft · lb)

Nut ④:
71 Nm (7.1 m · kg, 51 ft · lb)

Bolt ⑤:
24 Nm (2.4 m · kg, 17 ft · lb)

Bolt ⑥:
49 Nm (4.9 m · kg, 35 ft · lb)

Nut ⑦:
24 Nm (2.4 m · kg, 17 ft · lb)

Nut ⑧:
75 Nm (7.5 m · kg, 54 ft · lb)

Nut ⑨:
15 Nm (1.5 m · kg, 11 ft · lb)

CAUTION: _____
Always use a new cotter pin.

2. Tighten: (MM800)



Nut (stopper band):
4 Nm (0.4 m · kg, 2.9 ft · lb)

Bolt ①:
71 Nm (7.1 m · kg, 51 ft · lb)

Nut ②:
49 Nm (4.9 m · kg, 35 ft · lb)

Bolt ③:
30 Nm (3.0 m · kg, 22 ft · lb)

Nut ④:
71 Nm (7.1 m · kg, 51 ft · lb)

Bolt ⑤:
49 Nm (4.9 m · kg, 35 ft · lb)

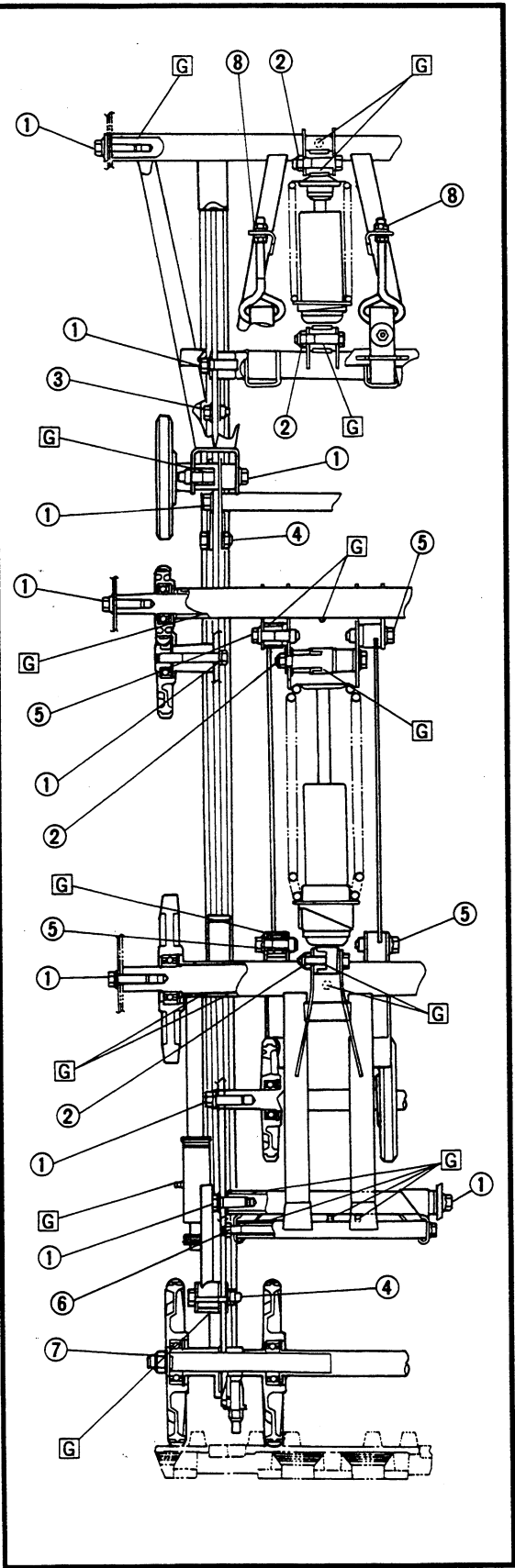
Nut ⑥:
24 Nm (2.4 m · kg, 17 ft · lb)

Nut ⑦:
75 Nm (7.5 m · kg, 54 ft · lb)

Nut ⑧:
15 Nm (1.5 m · kg, 11 ft · lb)

CAUTION:

Always use a new cotter pin.





SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	VX800	MM800
Model code number:	8BU3	8BT3
Dimensions:		
Overall length	2,815 mm (110.8 in)	3,020 mm (118.9 in)
Overall width	1,155 mm (45.5 in)	1,125 mm (44.3 in)
Overall height	1,080 mm (42.5 in)	1,165 mm (45.9 in)
Weight:		
Dry weight (without fuel and oil)	259 kg (571 lb)	269 kg (593 lb)
Engine:		
Engine type	Liquid cooled 2-stroke, 7-port	
Induction system	Piston reed valve	
Cylinder arrangement	Parallel 4-cylinder	
Displacement	791 cm ³ (48.3 cu. in)	
Bore × Stroke	65.0 × 59.6 mm (2.56 × 2.35 in)	
Compression ratio	6.5:1	
Starting system	Recoil starter	
Lubrication system:	Separate lubrication (YAMAHA AUTOLUBE)	
Engine oil:		
Recommended oil	YAMALUBE 2-cycle oil	
Tank capacity	2.8 L (2.5 Imp qt, 3.0 US qt)	
Drive chain housing oil:		
Recommended oil	Gear oil API "GL-3" SAE #75 or #80	
Capacity	0.35 L (0.31 Imp qt, 0.37 US qt)	
Fuel:		
Recommended fuel	Unleaded fuel (for USA) Regular unleaded gasoline (for CDN)	
Rating P.O.N. *1	Minimum. 88	
Tank capacity	38.0 L (8.4 Imp gal, 10 US gal)	
Carburetor:		
Type/quantity	TM/33 × 4	
Manufacturer	MIKUNI	
Spark plug:		
Type	BR9ES	
Manufacturer	NGK	
Gap	0.7 ~ 0.8 mm (0.028 ~ 0.031 in)	
Transmission:		
Primary reduction system	V-Belt	←
Primary reduction ratio	3.9:1 ~ 0.95:1	←
Clutch type	Automatic centrifugal engagement	←
Secondary reduction system	Chain	←
Secondary reduction ratio	1.54 (37/24)	1.61 (37/23)
Chassis:		
Frame type	Monocock	←
Caster	22.5°	←
Ski stance	1,007 mm (39.6 in)	977 mm (38.5 in)

*1: Pump Octane Number; (research octane + motor octane)/2

GENERAL SPECIFICATIONS

SPEC

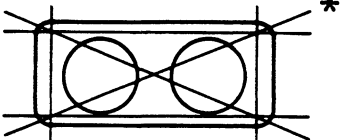
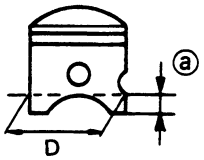
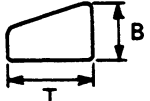
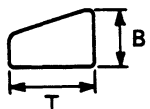
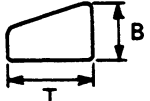
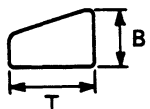
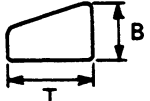
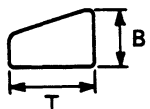


Model	VX800	MM800
Suspension: Front suspension type Rear suspension type	Telescopic strut suspension Slide rail suspension	
Track: Track type Track width Length on ground Track deflection	Internal drive type 381 mm (15.0 in) 754 mm (29.7 in) 20 ~ 25 mm (0.79 ~ 0.98 in) /10 kg (22 lb)	← ← 950 mm (37.4 in) 25 ~ 30 mm (0.98 ~ 1.18 in) /10 kg (22 lb)
Brake: Brake type Operation method	Caliper type disc brake Handle lever, left hand operated	
Electrical: Ignition system/manufacturer Generator system	C.D.I./MITSUBISHI Flywheel magneto	
Bulb wattage × quantity: Headlight Tail/brake light Tachometer light Speedometer light Indicator light T.O.R.S. light	60W/55W × 1 23W/8W × 1 1.7W × 1 1.7W × 1 3.4W × 3 3W × 1	



MAINTENANCE SPECIFICATIONS

ENGINE

Model	VX800/MM800																	
<p>Cylinder head: Volume (with spark plug) <Warp limit></p> 	<p>20.2 ~ 20.8 cm³ (0.71 ~ 0.73 Imp oz, 0.68 ~ 0.70 US oz) <0.03 mm (0.0012 in)> * Lines indicate straight edge measurement.</p>																	
<p>Cylinder: Material Bore size <Taper limit> <Out-of-round limit></p>	<p>Aluminum alloy with dispersion coating 65.00 ~ 65.02 mm (2.5590 ~ 2.5598 in) <0.05 mm (0.0019 in)> <0.01 mm (0.0004 in)></p>																	
<p>Piston: Piston size (D) Measuring point ①</p>  <p>Piston to-cylinder clearance <Limit></p>	<p>64.935 ~ 64.940 mm (2.5565 ~ 2.5567 in) 20 mm (0.79 in)</p> <p>0.065 ~ 0.070 mm (0.0026 ~ 0.0028 in) <0.1 mm (0.004 in)></p>																	
<p>Piston ring: Sectional sketch</p> <table border="0" data-bbox="75 1033 610 1242"> <tr> <td>Top ring</td> <td></td> </tr> <tr> <td>2nd ring</td> <td></td> </tr> </table> <p>End gap (installed) :</p> <table border="0" data-bbox="75 1212 610 1282"> <tr> <td>Top ring</td> <td>0.35 ~ 0.55 mm (0.014 ~ 0.022 in)</td> </tr> <tr> <td>2nd ring</td> <td>0.35 ~ 0.55 mm (0.014 ~ 0.022 in)</td> </tr> </table> <p>Side clearance</p> <table border="0" data-bbox="75 1272 610 1341"> <tr> <td>Top ring</td> <td>0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)</td> </tr> <tr> <td>2nd ring</td> <td>0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)</td> </tr> </table> <p>Plating/coating</p> <table border="0" data-bbox="75 1331 610 1391"> <tr> <td>Top ring</td> <td>Chrome plated/parkerizing</td> </tr> <tr> <td>2nd ring</td> <td>Chrome plated/parkerizing</td> </tr> </table>	Top ring		2nd ring		Top ring	0.35 ~ 0.55 mm (0.014 ~ 0.022 in)	2nd ring	0.35 ~ 0.55 mm (0.014 ~ 0.022 in)	Top ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)	2nd ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)	Top ring	Chrome plated/parkerizing	2nd ring	Chrome plated/parkerizing	<p>Keystone B=1.2 mm (0.047 in) T=2.55 mm (0.1 in)</p> <p>Keystone B=1.2 mm (0.047 in) T= 2.55 mm (0.1 in)</p>	
Top ring																		
2nd ring																		
Top ring	0.35 ~ 0.55 mm (0.014 ~ 0.022 in)																	
2nd ring	0.35 ~ 0.55 mm (0.014 ~ 0.022 in)																	
Top ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)																	
2nd ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)																	
Top ring	Chrome plated/parkerizing																	
2nd ring	Chrome plated/parkerizing																	



Model	VX800/MM800
<p>Crankshaft: Crank width "A" Connecting rod small end free play "F" Connecting rod big end side clearance "D" Crankshaft deflection "C": C₁, C₄ C₂, C₃</p> <p>Measuring points: 1 2</p> <p>Crank width "B"</p>	<p>55.95 ~ 56.00 mm (2.203 ~ 2.205 in) 0.8 ~ 1.0 mm (0.031 ~ 0.039 in) 0.25 ~ 0.75 mm (0.010 ~ 0.030 in) Below 0.03 mm (0.0012 in) Below 0.04 mm (0.0016 in) 25 mm (0.98 in) 65 mm (3.27 in) 168 mm (6.614 in)</p>
<p>Big end bearing: Type</p>	<p>Needle bearing</p>
<p>Small end bearing: Type</p>	<p>Needle bearing</p>
<p>Carburetor: Type/quantity Manufacturer I.D. mark Main jet (M.J.) Pilot jet (P.J.) Pilot air jet (P.A.J.) Pilot outlet (P.O.) Pilot screw (P.S.) Throttle valve (TH. V.) Valve seat size (V.S.) Starter jet (G.S.) Float height (F.H.) Engine idle speed</p>	<p>TM33/4pcs. MIKUNI 8BU-00 #143.8 #47.5 ø1.0 ø1.0 1-1/2 turns out #1.0 ø1.3 ø1.1 13.3 mm (0.524 in) 1,400 ~ 1,600 r/min (1,500 ± 100 r/min)</p>
<p>Reed valve: Valve stopper height</p>	<p>8.1 ~ 8.5 mm (0.32 ~ 0.33 in)</p>
<p>Fuel pump: Type Manufacturer</p>	<p>DIAPHRAGM TAIYOU GIKEN</p>
<p>Oil pump: Pump cable adjustment</p>	<p>28 ~ 30 mm (1.10 ~ 1.18 in)</p>

MAINTENANCE SPECIFICATIONS

SPEC



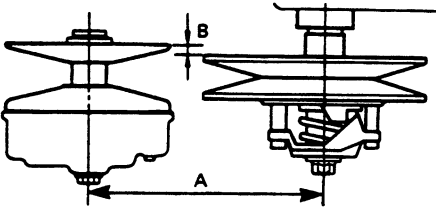
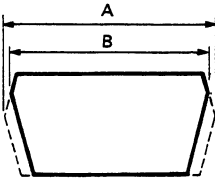
Model	VX800	MM800
Cooling system:		
Filler cap opening pressure	80 ~ 100 kPa (0.8 ~ 1.0 kg/cm ² , 11 ~ 14 psi)	←
Thermostat opening temperature	50 ~ 55°C (122 ~ 131°F)	←
Thermostat valve lift	8 mm (0.3 in) at 70°C (158.5°F)	←
Water pump type	Impeller type	←
Coolant type	Long life coolant	←
Coolant mixing ratio (coolant : water)	6 : 4	←
Coolant capacity	4.7 L (4.1 Imp qt, 5.0 US qt)	5.1 L (4.5 Imp qt, 5.4 US qt)
Reservoir tank capacity	0.20 L (0.18 Imp qt, 0.21 US qt)	←

High altitude settings

TEMPERATURE ALTITUDE	-30°C (-22°F)	-20°C (-4°F)	-10°C (14°F)	0°C (32°F)	10°C (50°F)	20°C (68°F)
	0 ~ 200 m (600 ft)	← #146.3 →				
200 ~ 600 m (2,000 ft)	← #143.8 (STD) →					
600 ~ 1,200 m (4,000 ft)	← #141.3 →					
1,200 ~ 1,800 m (6,000 ft)	← #138.8 →					
1,800 ~ 2,400 m (8,000 ft)	← #136.3 JN:2 PJ#55 PS2-1/4 →					
2,400 m ~ (8,000 ft ~)	← #133.8 JN:2 PJ#55 PS2-1/4 →					



POWER TRAIN

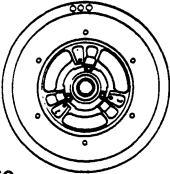
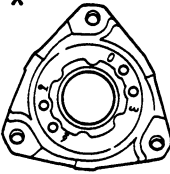
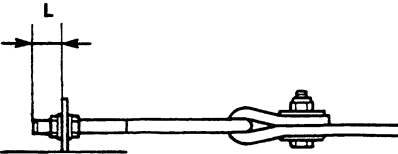
Model	VX800	MM800
Transmission: Type Range of ratio Engagement RPM Shift RPM Sheave center distance "A" Sheave offset "B" 	V-belt Automatic 3.9:1 ~ 0.95:1 3,200 ~ 3,600 r/min 8,100 ~ 8,500 r/min 363.5 ~ 366.5 mm (14.3 ~ 14.4 in) 14.5 ~ 17.5 mm (0.57 ~ 0.69 in)	
V-Belt: Part number Outside circumference Width "A" (new belt) Wear limit "B" 	8BU-17641-00 1,340 mm (52.8 in) 33.8 mm (1.33 in) 32 mm (1.26 in)	
Primary sheave spring: Part number Color Outside diameter Wire diameter Pre-load/set length Spring rate Free length	90501-582J1 Yellow-Pink-Yellow 60 mm (2.36 in) 5.8 mm (0.23 in) 30.0 kg (66.2 lb) 25.0 N/mm (2.5 kg/mm) 77.4 mm (3.05 in)	← ← ← ← ← ←
Primary sheave weight arm: Part number	8BU-17605-10	
Rivet: Part number Material Size Quantity	90261-06033 Steel 17.2 mm (0.68 in) 3 pcs.	
Secondary sheave spring: Part number Color code Outside diameter Wire diameter Twist angle *1 Free length	90508-556A2 Green 69.5 mm (2.74 in) 5.5 mm (0.22 in) 50° 75 mm (2.95 in)	90508-500B1 Red ← 5.3 mm (0.21 in) 60° ←

*1: Twist angle; (sheave hole + spring seat hole) × 10

MAINTENANCE SPECIFICATIONS

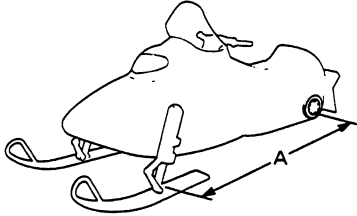
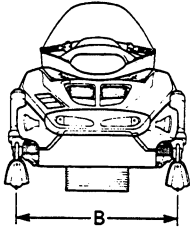
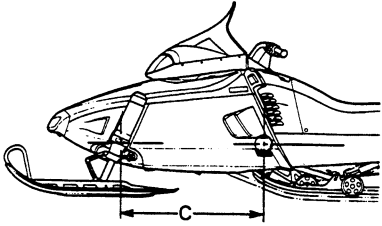
SPEC



Model	VX800	MM800
<p>Hole position Sheave side* Spring seat side**</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>*</p>  </div> <div style="text-align: center;"> <p>**</p>  </div> </div> <p>Spring rate Torque cam angle</p>	<p>2 3</p> <p>9,650 N/mm (965 kg/mm, 5,376 lb/in) 41°</p>	
<p>Drive chain: Type Number of links</p>	<p>Silent (chain) 23RH304 (BWA) 70</p>	
<p>Track: Width Length Pitch Number of links Deflection at 10 kg (22 lb)</p>	<p>381 mm (15.0 in) 3,072 mm (121 in) 64 mm (2.52 in) 48 20 ~ 25 mm (0.79 ~ 0.98 in)</p>	<p style="text-align: center;">← ← ←</p> <p>54 25 ~ 30 mm (0.98 ~ 1.18 in)</p>
<p>Suspension setting position: Stopper band hole position "L"</p> <div style="text-align: center;">  </div>	<p>10 mm (0.39 in)</p>	
<p>Shock absorber: Damping force (extension) Front Rear Damping force (compression) Front Rear</p>	<p>52 kg/0.3 m/s 182 kg/0.3 m/s 163 kg/0.3 m/s 77 kg/0.3 m/s</p>	<p>54 kg/0.3 m/s 225 kg/0.3 m/s ← 74 kg/0.3 m/s</p>
<p>Slide runner: Thickness Wear limit</p>	<p>17.8 mm (0.70 in) 10 mm (0.4 in)</p>	
<p>Track sprocket wheel: Material Number of teeth</p>	<p>Polyethylene 9T</p>	
<p>Rear guide wheel: Material Outside diameter</p>	<p>Aluminum with rubber 178 mm (7 in)</p>	
<p>Brake: Pad thickness Pad wear limit Pad to disc clearance Disc outside diameter Disc thickness</p>	<p>10.2 mm (0.40 in) 1.0 mm (0.04 in) 1.1 ~ 1.25 mm (0.043 ~ 0.049 in) 220 mm (8.66 in) 9.0 mm (0.35 in)</p>	



CHASSIS

Model	VX800	MM800
Frame: Frame material Seat height Luggage box location	Aluminum 600 mm (23.6 in) Rear side of seat	
Steering: Steering angle (right) R ski L ski Steering angle (left) R ski L ski Ski alignment Toe-out size Distance "A" 	35.1° 29.7° 30.3° 36° Toe-out 0 ~ 15 mm (0 ~ 0.6 in) 2,007 mm (79.0 in)	← ← ← ← ← ← 2,196 mm (86.6 in)
Distance "B" 	1,007 mm (39.6 in)	977 mm (38.5 in)
Distance "C" 	660 mm (26.0 in)	←
Ski: Ski material Runner material Runner 1 Runner 2 Length Width Ski ground length	Aluminum Carbide Polyethylene 1,021 mm (40.2 in) 146 mm (5.75 in) 375.6 mm (14.8 in)	
Ski suspension: Type Travel Spring type Spring rate Wire diameter	T.S.S. 170 mm (6.69 in) Coil spring 16 N/mm (1.6 kg/mm, 89.7 lb/in) 8.2 mm (0.32 in)	← ← ← ← ←
Shock absorber: Damping force (extension) (compression) Damping force adjuster	69 kg, 0.3 m/s 41 kg, 0.3 m/s 5 clicks out	← ← ←

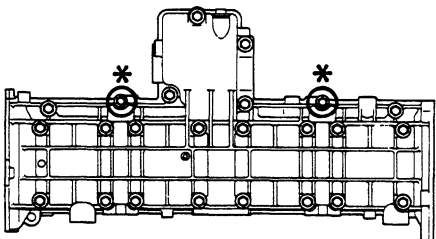


ELECTRICAL

Model	VX800	MM800
Voltage:	12V	
Ignition system: Ignition timing (B.T.D.C.)	16°/1,500 r/min	
C.D.I.: Magneto model/manufacturer Pulser coil resistance (color code) Change coil resistance (for ignition) (color code) C.D.I. unit manufacturer	F4T308/MITSUBISHI 505 ±10 % at 20° C (68°F) (White/Green – White/Red) (White/Blue – White/Red) 2.55 Ω ±10 % at 20°C (68°F) (Brown – Black/Red) MITSUBISHI	
Ignition coil: Model/manufacturer Minimum spark gap Primary coil resistance Secondary coil resistance	89A/YAMAHA, 88R/YAMAHA 3 mm (0.12 in) at 3,000 r/min 0.2 Ω ± 20 % at 20°C (68°F) 4.9 kΩ ± 20 % at 20°C (68°F)	
Spark plug cap: Type Model/manufacturer Resistance	Rubber type BR9ES/NGK 5.0 kΩ at 20°C (68°F)	
Charging system: Type	Flywheel magneto	
Flywheel magneto: Lighting voltage (minimum) (maximum) Lighting coil resistance (color code) Coil resistance for grip warmer (driver) (color code)	11.0 V at 3,000 r/min 15.5 V at 8,000 r/min 0.32 Ω ± 10 % at 20°C (68°F) (Yellow – Black) 1.7 Ω ± 20 % at 20°C (68°F) (Yellow/Brack – Black)	
Grip warmer: Grip warmer resistance Thumb warmer resistance	3 Ω ± 20 % at 20°C (68°F) 8 ~ 40 Ω at 20°C (68°F)	
Voltage regulator: Type Mode/manufacturer	Short circuit type 82M-A0/SHINDENGEN	
Fuel gauge unite: Resistance (full) (empty)	4 ~ 10 Ω 90 ~ 100 Ω	



TIGHTENING TORQUE

Tightening torque:				Remarks
Parts to be tightened	Tightening torque			
	Nm	m · kg	ft · lb	
ENGINE				Tighten the bolts in two steps.
Crankcase (M8 × 1.25)	27	2.7	20	
(M8 × 1.25)	13	1.3	9.4	
(M6 × 1.0) *	13	1.3	9.4	
				
Engine bracket nut	40	4.0	29	
Engine bracket bolt	27	2.7	20	
Engine stay bolt (rod)	45	4.5	32	
Cylinder body nut	28	2.8	20	
Crankcase stud bolt	13	1.3	9.4	
Cylinder head nut	22	2.2	16	
Cylinder stud bolt	13	1.3	9.4	
Spark plug	20	2.0	14	
PTO shaft holder bolt	28	2.8	20	
PTO shaft driven gear assembly	48	4.8	35	
Water pump impeller	14	1.4	10	
Water pump ass'y	10	1.0	7.2	
Oil pump ass'y	4	0.4	2.9	
Intake manifold	7	0.7	5.1	
Exhaust manifold	25	2.5	18	
Starter pulley	45	4.5	32	
Recoil starter	7	0.7	5.1	
Thermostatic cover	7	0.7	5.1	
Thermo switch	28	2.8	20	
Magnet rotor	85	8.5	61	
Starter ass'y	10	1.0	7.2	
Water jacket joint	10	1.0	7.2	
CARBURETOR				
Head cover screw	2	0.2	1.4	
Starter lever shaft screw	4	0.4	2.9	
Main jet	0.8	0.08	0.58	
Pilot jet	0.7	0.07	0.51	
Synchronization nut	4	0.4	2.9	
Plunger	3	0.3	2.2	
Float chamber plug	9	0.9	6.5	

TIGHTENING TORQUE

SPEC



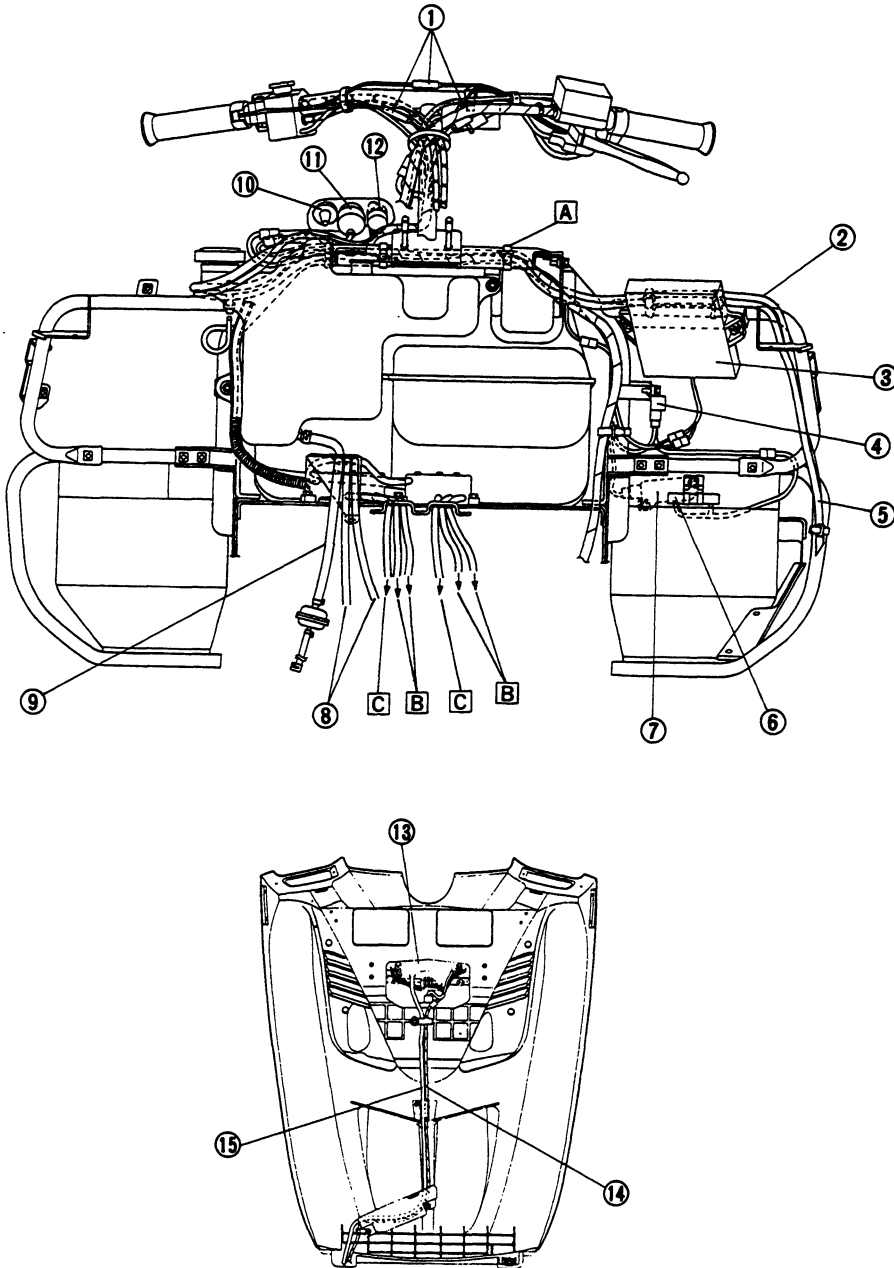
Tightening torque:				
Parts to be tightened	Tightening torque			Remarks
	Nm	m • kg	ft • lb	
Primary sheave (first)	120	12.0	85	Tighten the bolts in two steps.
(final)	60	6.0	43	
Spider and sliding sheave	200	20.0	145	Left-hand thread. Apply LOCTITE®
Primary sheave cap and sliding sheave	14	1.4	10	
Roller and weight (primary sheave)				
Bolt	6	0.6	4.3	
Screw	3	0.3	2.2	
Secondary sheave	64	6.4	46	
Compression rod bracket bolt	40	4.0	29	
Engine stay bolt	45	4.5	33	
Driven sprocket	48	4.8	35	
Chain housing and frame	24	2.4	17	Apply LOCTITE®
Chain housing cover	10	1.0	7.2	
Chain housing and brake caliper	48	4.8	35	
Brake hose and brake caliper	23	2.3	17	
Bearing holder (jackshaft)	43	4.3	31	
Suspension wheel	69	6.9	50	Apply LOCTITE®
Rear axle nut	75	7.5	54	
Sliding frame and slide runner	3	0.3	2.2	
Slide rail suspension mounting bolt	71	7.1	51	
Front pivot arm bracket	71	7.1	51	
Rear pivot arm and bracket	24	2.4	17	
Rear pivot arm and pull rod	49	4.9	35	
Rear pivot arm bracket and sliding frame	71	7.1	51	
Control rod and sliding frame	71	7.1	51	
Shock absorber and rear pivot arm	49	4.9	35	Apply LOCTITE®
Rear suspension bracket and shock absorber	49	4.9	35	
Rear suspension bracket and pull rod	49	4.9	35	
Front pivot arm and bracket	71	7.1	51	
Shock absorber and front pirot arm	49	4.9	35	
Front suspension bracket and sliding frame	71	7.1	51	
	30	3.0	22	
Front pivot arm bracket and sliding frame	71	7.1	51	
Stopper band hook	15	1.5	11	
Front axle nut	90	9.0	65	
Speedometer gear	20	2.0	14	



CABLE ROUTING

- ① Grip warmer lead
- ② Oil breather hose
- ③ CDI unit
- ④ Voltage regulator
- ⑤ Fuel breather hose
- ⑥ Register assembly
- ⑦ Rectifier/regulator
- ⑧ Oil delivery hose
- ⑨ Oil hose
- ⑩ Starter lever
- ⑪ Main switch
- ⑫ Grip warmer switch
- ⑬ Speedometer assembly
- ⑭ Headlight lead
- ⑮ Speedometer cable

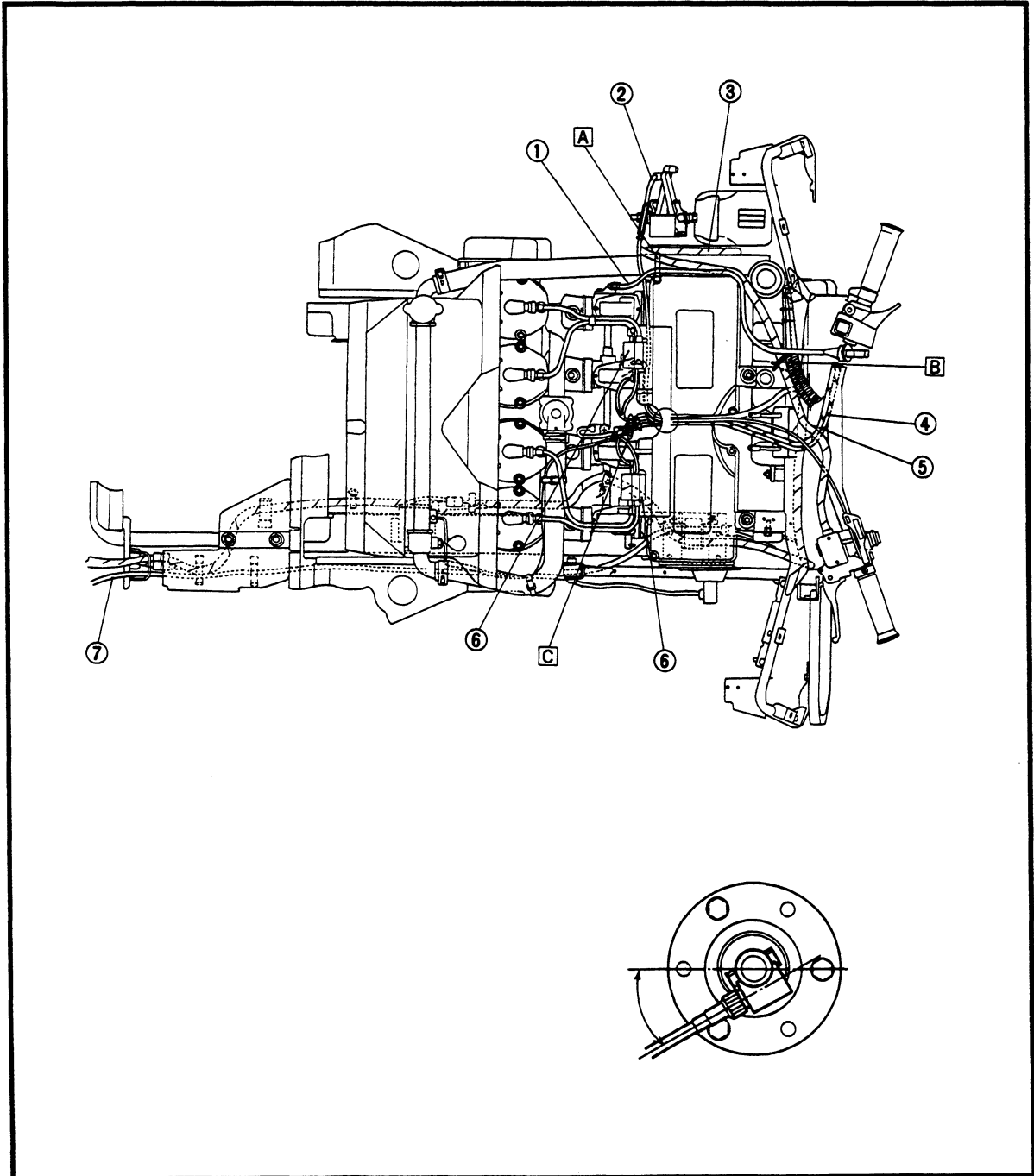
- A** Clamp the fuel breather hose, oil breather hose and wire harness.
- B** to carburetor
- C** to crankcase





- ① Starter cable
- ② Parking brake cable
- ③ Brake hose
- ④ Throttle cable
- ⑤ Oil pump cable
- ⑥ Ignition coil
- ⑦ Speedometer cable

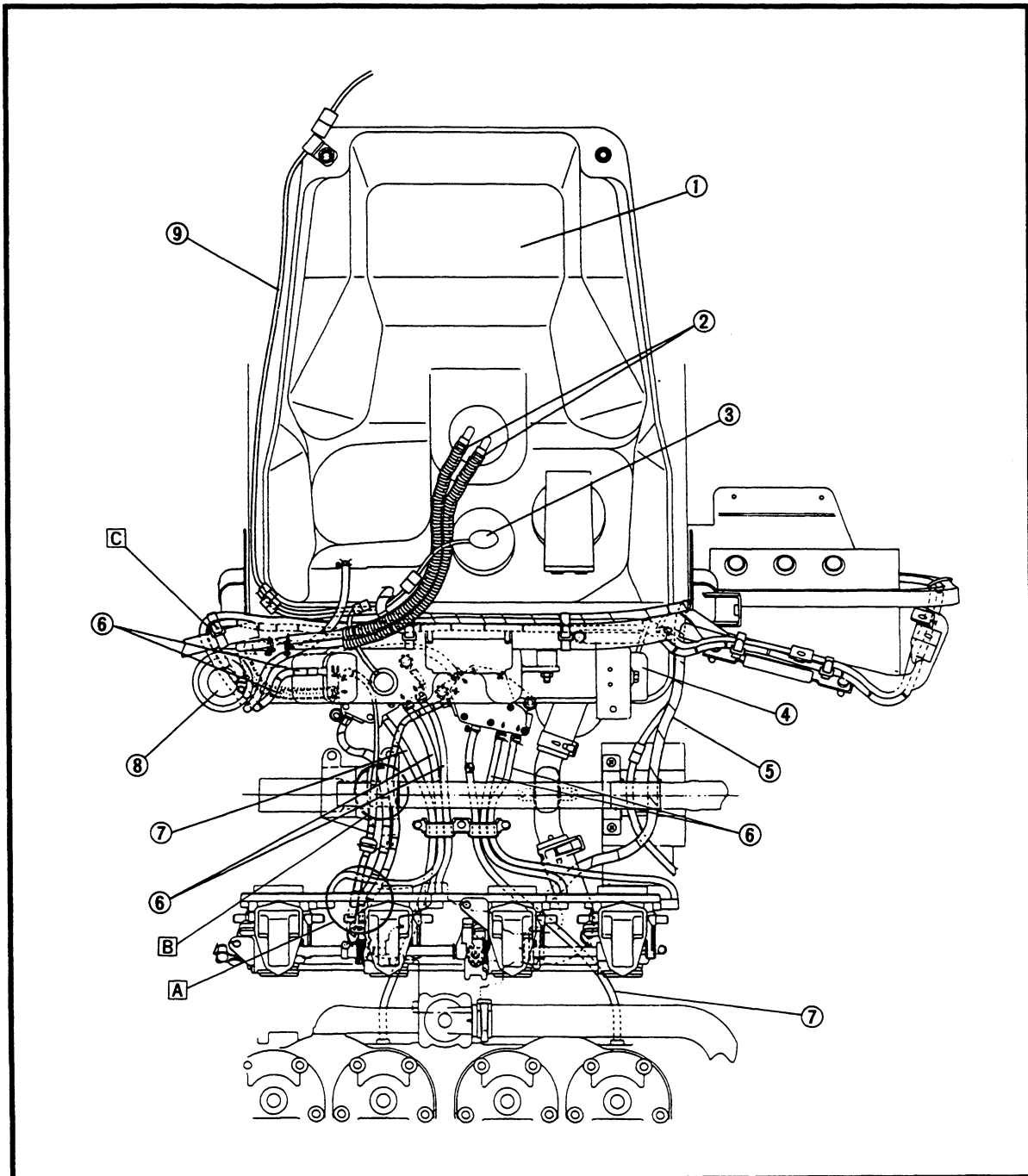
- A** Fasten the brake hose with the clamp.
- B** Fasten the brake hose and right fuel hose with the clamp.
- C** Fasten the ignition coil lead, thermo switch lead and carburetor switch lead with the clamp.





- ① Fuel tank
- ② Clip
- ③ Fuel sender
- ④ Voltage regulator
- ⑤ Wire harness
- ⑥ Fuel hose
- ⑦ Pulse hose
- ⑧ Oil tank
- ⑨ Tail light lead

- A** Arrange hoses so that they will not come into contact with the oil pump bracket.
- B** Pass the delivery hose and oil hoses above the bracket.
- C** Tie the band buckle above the frame pipe so that they will not interfere with the starter rope.



YAMAHA
YAMAHA MOTOR CO., LTD.

NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha snowmobiles have a basic understanding of the mechanical concepts and procedures inherent in snowmobile repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

**SERVICE DEPT
LEISURE VEHICLES & POWER
PRODUCTS OPERATIONS
YAMAHA MOTOR CO., LTD.**

HOW TO USE THIS MANUAL PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notations.



The Safety Alert Symbol means **ATTENTION!
BE ALERT!
YOUR SAFETY IS INVOLVED!**

WARNING

Failure to follow **WARNING** instructions could result in severe injury or death to the snowmobile operator, a bystander, or a person inspecting or repairing the snowmobile.

CAUTION:

A **CAUTION** indicates special precautions that must be taken to avoid damage to the snowmobile.

NOTE:

A **NOTE** provides key information that can make procedures easier or clearer.

MANUAL FORMAT

All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all inspection, repair, assembly, and disassembly operations,











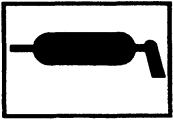













In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required to correct the problem will follow the symbol, e.g.,

- Bearings
Pitting/Damage → Replace.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.

**VX750U/VX750STU
SERVICE MANUAL**
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Printed in U.S.A.
P/N LIT-12628-01-56

① GEN INFO 	② INSP ADJ 	
③ CHAS 	④ POWR TR 	
⑤ COOL 	⑥ ENG 	
⑦ CARB 	⑧ ELEC 	
⑨ SPEC 	⑩ 	
⑪ 	⑫ 	
⑬ 	⑭ 	
⑮ 	⑯ 	
⑰ 	⑱ 	
⑲ 	⑳ 	㉑ 
㉒ 	㉓ 	㉔ 

ILLUSTRATED SYMBOLS

(Refer to the illustration)

Illustrated symbols ① to ⑨ are designed as thumb tabs to indicate the chapter's number and content.

- ① General information
- ② Periodic inspection and adjustment
- ③ Chassis
- ④ Power train
- ⑤ Cooling system
- ⑥ Engine
- ⑦ Carburetion
- ⑧ Electrical
- ⑨ Specifications










Illustrated symbols ⑩ to ⑯ are used to identify the specifications which appear.

- ⑩ Filling fluid
- ⑪ Lubricant
- ⑫ Tightening
- ⑬ Wear limit, clearance
- ⑭ Engine speed
- ⑮ Special tool
- ⑯ Ω, V, A

Illustrated symbols ⑰ to ㉔ in the exploded diagram indicate grade of lubricant and location of lubrication point.

- ⑰ Apply locking agent (LOCTITE®)
- ⑱ Apply engine oil
- ⑲ Apply gear oil
- ⑳ Apply molybdenum disulfide oil
- ㉑ Apply wheel bearing grease
- ㉒ Apply low-temperature lithium-soap base grease
- ㉓ Apply molybdenum disulfide grease
- ㉔ Apply YAMAHA bond No.5

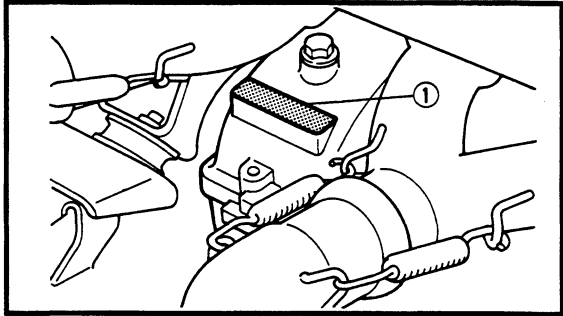
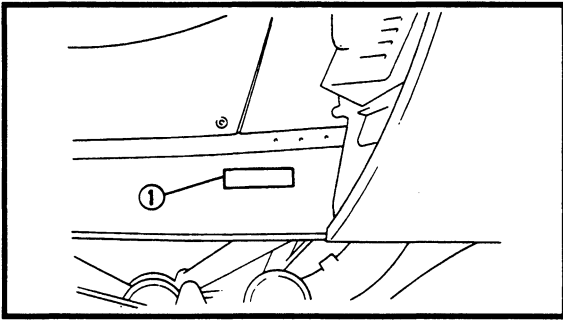
INDEX

GENERAL INFORMATION	 GEN INFO
PERIODIC INSPECTION AND ADJUSTMENT	 INSP ADJ
CHASSIS	 CHAS
POWER TRAIN	 POWR TR
ENGINE OVERHAUL	 ENG
COOLING SYSTEM	 COOL
CARBURETION	 CARB
ELECTRICAL	 ELEC
SPECIFICATIONS	 SPEC

CONTENTS

CHAPTER 1. GENERAL INFORMATION

MACHINE IDENTIFICATION	1-1
FRAME SERIAL NUMBER	1-1
ENGINE SERIAL NUMBER	1-1
IMPORTANT INFORMATION	1-2
PREPARATION FOR REMOVAL AND DISASSEMBLY	1-2
ALL REPLACEMENT PARTS	1-3
GASKETS, OIL SEALS, AND O-RINGS	1-3
LOCK WASHERS/PLATES AND COTTER PINS	1-3
BEARINGS AND OIL SEALS	1-3
CIRCLIPS	1-4
SPECIAL TOOLS	1-4
FOR TUNE UP	1-4
FOR ENGINE SERVICE	1-5
FOR POWER TRAIN SERVICE	1-5
FOR ELECTRICAL SERVICE	1-6



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 front side of the crankcase.

NOTE:

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

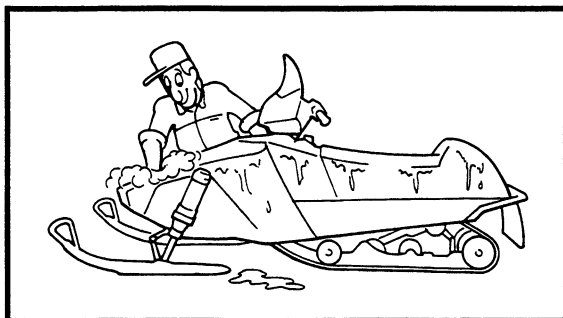
Starting Serial Number:

VX750U: 8BW-000101~

VX750STU: 8BX-000101~

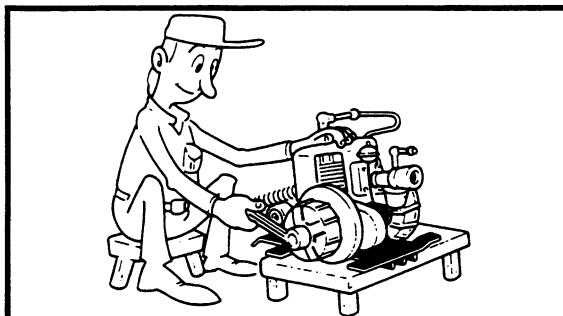
NOTE:

Designs and specifications are subject to change without notice.



**IMPORTANT INFORMATION
PREPARATION FOR REMOVAL AND DIS-
ASSEMBLY**

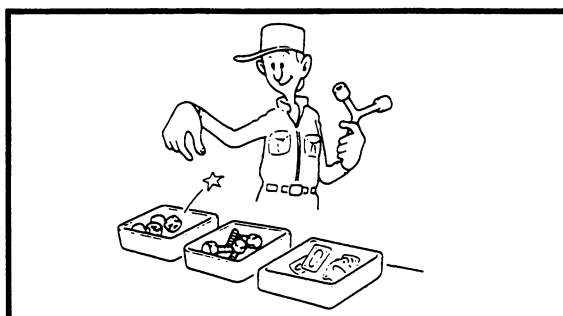
1. Remove all dirt, mud, dust, and foreign material before removal and disassembly. While cleaning, take care to protect the electrical parts, such as relays, switches, motor, resistors, controllers, etc., from high pressure water splashes.



2. Use proper tools and cleaning equipment. Refer to "SPECIAL TOOLS" .

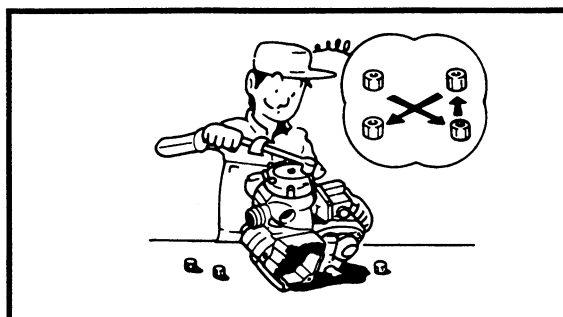


3. When disassembling the machine, keep mated parts together. This includes gears, cylinders, pistons, and other parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.

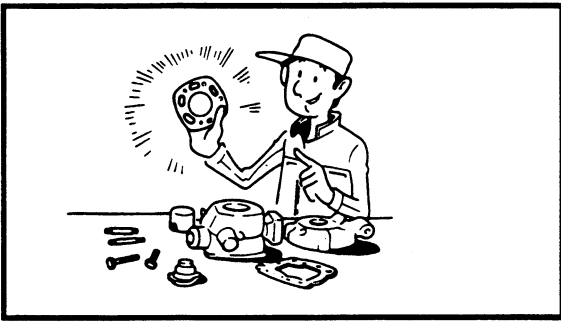


4. During disassembly of the machine , clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help assure that all parts are reinstalled correctly.

5. Keep away from fire.



6. Be sure to keep to tightening torque specifications. When tightening bolts, nuts, and screws, start with larger-diameter pieces, and proceed from an inner-positioned one to an outer-positioned one in a criss-cross pattern.

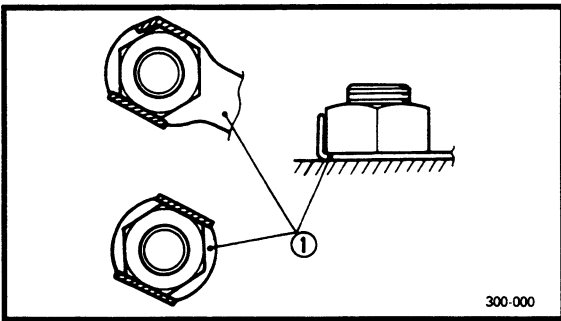


ALL REPLACEMENT PARTS

1. We recommend to use Yamaha genuine parts for all replacements. Use oil and/or grease recommended by Yamaha for assembly and adjustment.

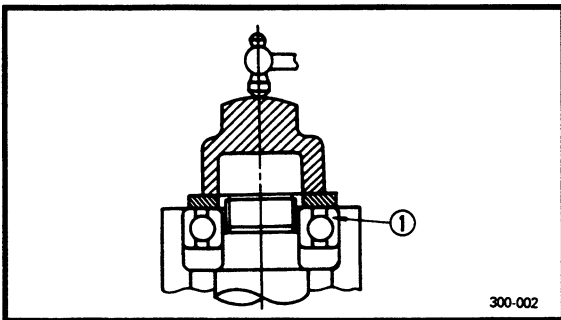
GASKETS, OIL SEALS, AND O-RINGS

1. All gaskets, seals, and O-rings should be replaced when an engine is overhauled. All gasket surfaces, oil seal lips, and O-rings must be cleaned.
2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.



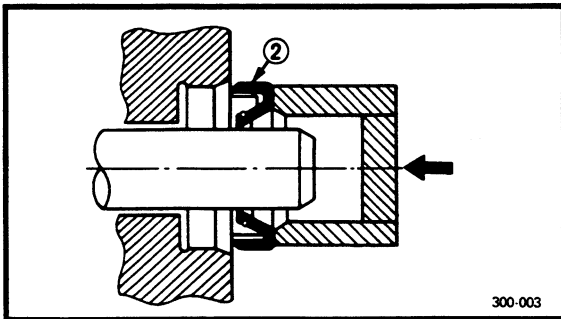
LOCK WASHERS/PLATES AND COTTER PINS

1. All lock washers/plates ① and cotter pins must be replaced when they are removed. Lock tab(s) should be bent along the bolt or nut flat(s) after the bolt or nut has been properly tightened.

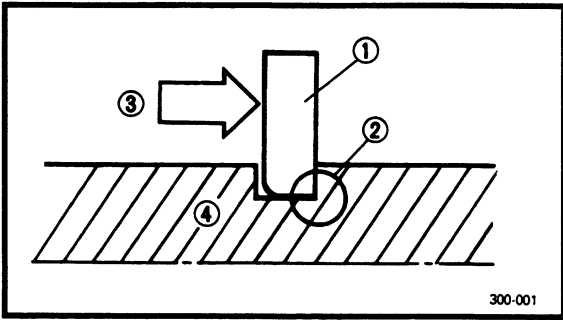


BEARINGS AND OIL SEALS

1. Install the bearing(s) ① and oil seal(s) ② with their manufacturer's marks or numbers facing outward. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of light-weight lithium base grease to the seal lip(s). Oil the bearings liberally when installing.



CAUTION: _____
Do not use compressed air to spin the bearings dry. This causes damage to the surface of the bearings.



CIRCLIPS

1. All circlips should be inspected carefully before reassembly. Always replace piston pin clips after one use. Replace misshapen circlips. When installing a circlip ①, make sure that the sharp edged corner ② is positioned opposite to the thrust ③ it receives. See the sectional view.

④ Shaft

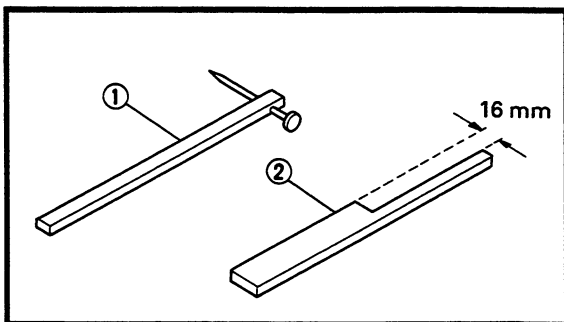
SPECIAL TOOLS

The some special tools are necessary for complete accurate tune-up and assembly. Using the correct special tool will help prevent damage that can be caused by the use of improper tools or improvised techniques.

NOTE:

Be sure to use the correct part number when ordering the tool, since the part number differs according to the area as shown below. The first part number is for Europe, and the last part is for the U.S.A. and Canada.

e.g. 90890 - *****, YU- *****

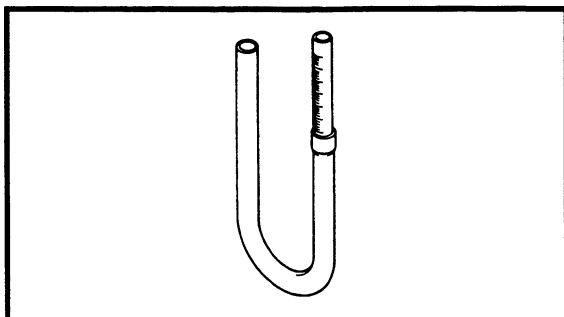


FOR TUNE UP

1. Sheave Gauge

P/N YS-39506-2 ①, YS-39506-5 ②

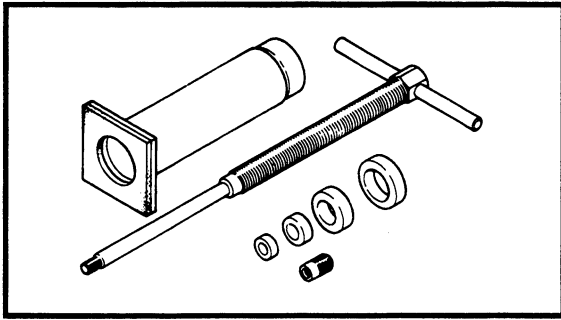
This gauge is used to measure sheave distance and for offset adjustment.



2. Fuel Level Gauge

P/N 90890-01312, YM-01312-A

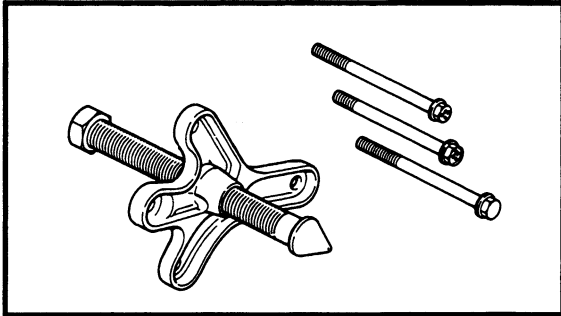
This gauge is used to measure the fuel level in the float chamber.



FOR ENGINE SERVICE

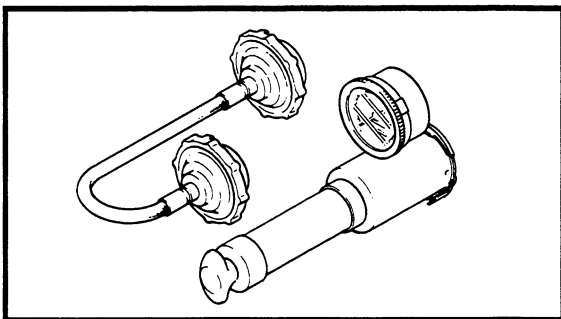
- 1. Piston Pin Puller
P/N 90890-01304, YU-01304

This tool is used to remove the piston pin.



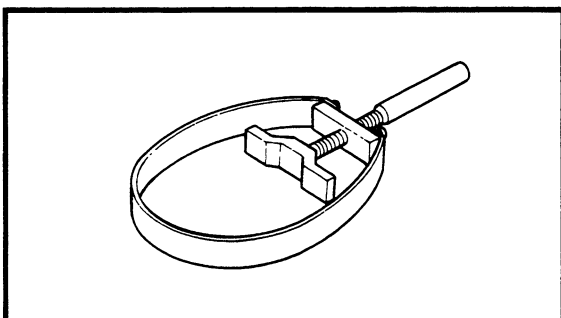
- 2. Rotor Puller
P/N 90890-01362, YU-33270

This tool is used to remove the magneto rotor.



- 3. Cooling System Tester
P/N 90890-01325, YU-22460-01

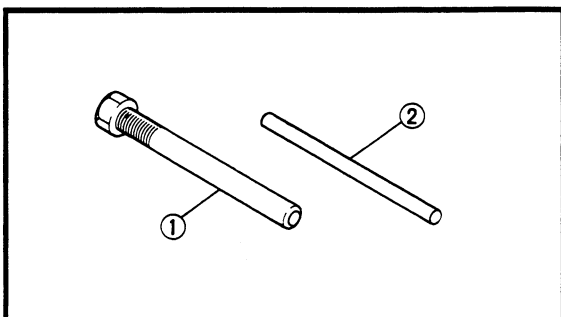
This tester is used for checking cooling system.



FOR POWER TRAIN SERVICE

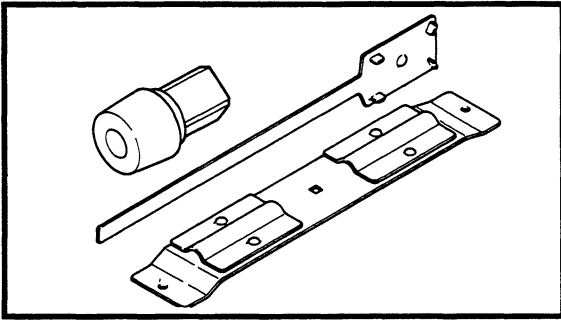
- 1. Primary Sheave Holder
P/N 90890-01701, YS-01880

This tool is used to hold the primary sheave.



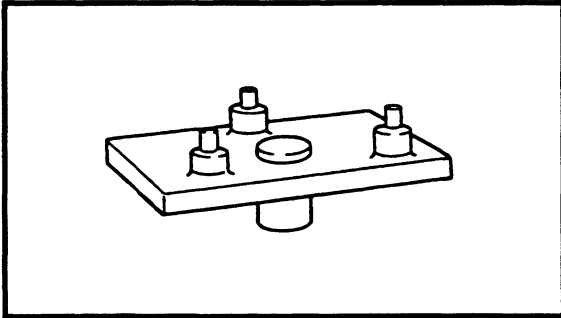
- 2. Primary Sheave Puller (18 mm)
P/N YS-01881-1 ① , YS-38517 ②

This tool is used for removing the primary sheave.



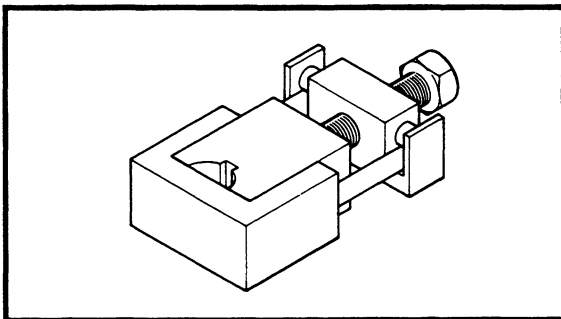
3. Clutch Spider Separator
P/N 90890-01711, YS-28890-B

This tools are used when disassembling and assembling the primary sheave.



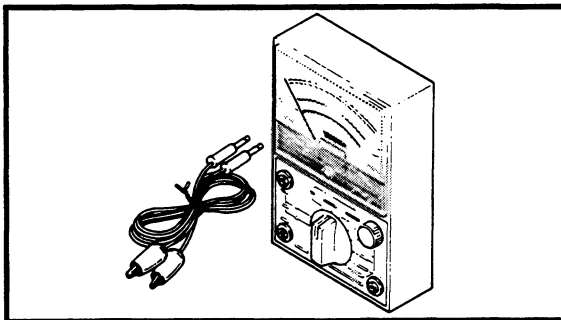
4. Clutch Separator Adapter
P/N 90890-01740, YS-34480

This tool is used when disassembling and assembling the primary sheave.



5. Track Clip Installer
P/N 90890-01721, YS-91045-A

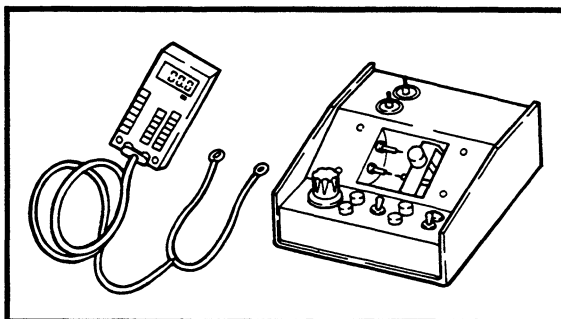
This tool is used for installing the track clip.



FOR ELECTRICAL SERVICE

1. Pocket Tester
P/N 90890-03112, YU-03112

This instrument is necessary for checking the electrical components.



2. Electro Tester
P/N 90890-03021, YU-33260-A

This instrument is invaluable for checking the electrical system.

CHAPTER 2. PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION	2-1
PERIODIC MAINTENANCE TABLE	2-1
SIDE COWLING	2-3
ENGINE	2-3
SPARK PLUG	2-3
OIL PUMP	2-4
ENGINE OIL LINE INSPECTION	2-6
OIL FILTER INSPECTION	2-6
FUEL LINE INSPECTION	2-6
FUEL FILTER INSPECTION	2-7
COOLING SYSTEM	2-7
ENGINE GEAR OIL	2-11
CARBURETOR SYNCHRONIZATION	2-13
ENGINE IDLE SPEED ADJUSTMENT	2-13
THROTTLE CABLE ADJUSTMENT	2-14
THROTTLE OVERRIDE SYSTEM (T.O.R.S.) CHECK	2-14
STARTER (CHOCK) CABLE ADJUSTMENT	2-15
EXHAUST SYSTEM	2-15
POWER TRAIN	2-16
DRIVE V-BELT	2-16
ENGAGEMENT SPEED CHECK	2-18
BRAKE PAD INSPECTION	2-18
BRAKE ADJUSTMENT	2-18
DRIVE CHAIN	2-19
TRACK TENSION ADJUSTMENT	2-21
SLIDE RUNNER INSPECTION	2-22
CHASSIS	2-23
SKI/SKI RUNNER	2-23
STEERING SYSTEM	2-23
LUBRICATION	2-24
ELECTRICAL	2-25
HEADLIGHT AND METER LIGHT BULB REPLACEMENT	2-25
HEADLIGHT BEAM ADJUSTMENT	2-27

TUNING 2-28

CARBURETOR TUNING 2-28

CLUTCH TUNING 2-37

GEARING SELECTION 2-39

SUSPENSION 2-41

ENGINE ROOM PLATES 2-43

HIGH ALTITUDE TUNING 2-44

INTRODUCTION/ PERIODIC MAINTENANCE TABLE



PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable machine operation and a longer service life. In addition, the need for costly overhaul work will be greatly reduced. This information applies to machines already in service as well as new machines that are being prepared for sale. All service technicians should be familiar with this entire chapter.

PERIODIC MAINTENANCE TABLE

Item	Remarks	Pre-operation check (Daily)	Initial 1 Month or 800 km (500 Mi) (40 hr)	Every
				Seasonally or 3,200 km (2,000 Mi) (160 hr)
Spark Plug:	Check condition adjust the gap and clean. Replace if necessary.			●
Engine Oil:	Check oil level.	●		
	* Air bleed the oil pump if necessary.			●
*Oil Filter:	Check condition. Replace if necessary.			●
Fuel:	Check fuel level.	●		
*Fuel Filter:	Check condition. Replace if necessary.			●
*Fuel Line:	Check fuel hose for cracks or damage. Replace if necessary.			●
*Oil Line:	Check oil hose for cracks or damage. Replace if necessary.			●
Engine Coolant	Check coolant level.	●		
	* Air bleed the cooling system if necessary.			●
Carburetor	Check throttle lever operation.	●		
	* Adjust the jets.	Whenever operating condition (elevation/temperature) is changed.		
Manual Starter:	Check operation and rope damage. * Replace if necessary.	●		
Engine Stop Switch:	Check operation * Repair if necessary.	●		
Throttle Override System:	Check operation. * Repair if necessary.	●		
Throttle Lever:	Check operation. * Repair if necessary.	●		
*Exhaust System:	Check for leakage. Retighten or replace gasket if necessary.			●
*Decarbonization:	More frequently if necessary.			●
Drive V-belt Guard:	Check cracks, bends or damage. * Replace if necessary.	●		
Drive V-belt:	Check wear and damage. Replace if necessary.	●		
Drive Track/Idler Wheels:	Check deflection, wear and damage. * Adjust/replace if necessary.		●	●
Slide Runner	Check wear and damage.	●		
	* Replace if necessary.			●

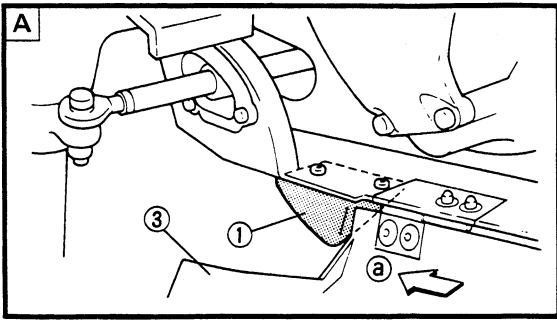
*: It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

PERIODIC MAINTENANCE TABLE



Item	Remarks	Pre-operation check (Daily)	Initial 1 Month or 800 km (500 Mi) (40 hr)	Every
				Seasonally or 3,200 km (2,000 Mi) (160 hr)
Brake/ Parking Brake	Check operation.	●		
	* Adjust free play and/or replace pads if necessary.			●
Drive Chain Oil	Check oil level.		●	
	Replace.			●
Engine Gear Oil	Check oil level.		●	
	* Replace.		●	●
*Drive Chain:	Check deflection. Adjust if necessary.	Apply initial 1 (one) Month or 50 km (31 Mi) and every 1 (one) Month or 400 km (250 Mi).		
Ski/Ski cover/ Ski Runner	Check wear and damage.	●		
	* Replace if necessary.			●
Steering System	Check operation.	●		
	* Adjust toe-out if necessary.			●
Lights:	Check operation. Replace bulbs if necessary.	●		
*Primary Sheave	Check engagement and shift speed.			●
	Adjust if necessary.	Whenever operating elevation is changed.		
	Check wear and damage. Replace if necessary.			●
	Lubricate with specified grease.			●
*Secondary Sheave	Lubricate with specified grease.			●
	Adjust if necessary.	Whenever operating elevation is changed.		
*Steering Column Bearing:	Lubricate with specified grease.			●
*Ski and Front Suspension:	Lubricate with specified grease.			●
*Suspension Component:	Lubricate with specified grease.			●
* Brake Cable End and Lever End/ Throttle Cable End	Lubricate with specified grease.			●
	Check cable damage. Replace if necessary.			●
Shroud Latches:	Make sure the shroud latches are hooked.	●		
Fittings/Fasteners:	Check tightness. * Repair if necessary.	●		
Service Tools/Spare Parts:	Check proper placement.	●		

*: It is recommended that these items be serviced by a Yamaha dealer or other qualified mechanic.

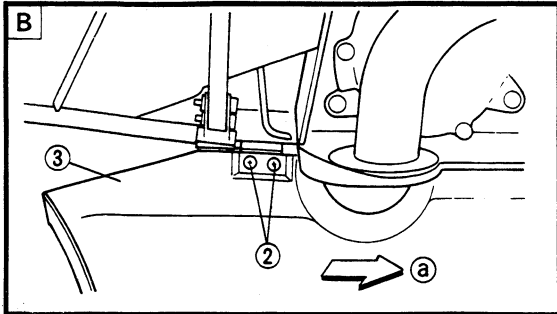


SIDE COWLING

Removal

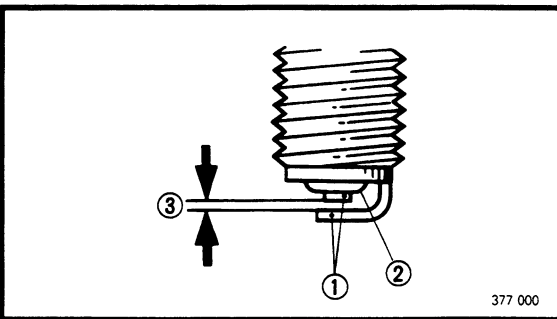
1. Remove:
 - Protector rubber ① (left and right)
 - Screws ② (right)
 - Side cowlings ③ (left and right)
- Pull it forward ④ .

- Ⓐ Left
- Ⓑ Right



Installation

Reverse the "Removal" steps.



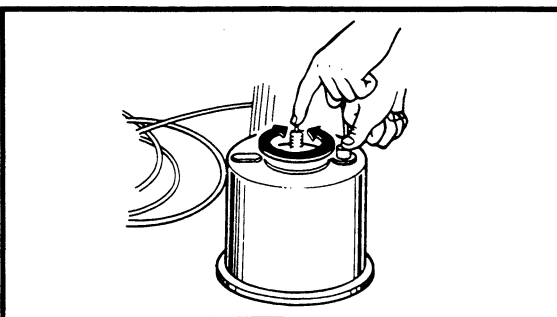
ENGINE

SPARK PLUG

1. Remove:
 - Spark plug
2. Inspect:
 - Electrode ①
 - Wear/Damage → Replace.
 - Insulator color ②
3. Measure:
 - Plug gap ③
 - Out of specification → Regap.
 - Use wire thickness gauge.



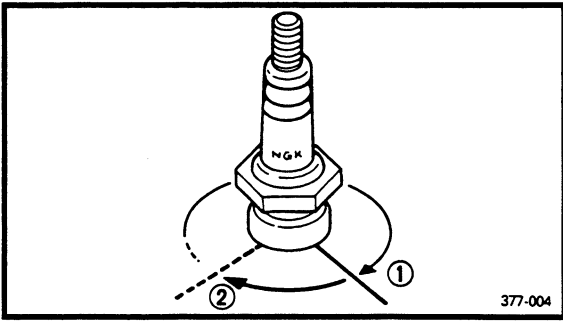
Spark plug gap:
0.7 ~ 0.8 mm (0.028 ~ 0.031 in)



Clean the plug with a spark plug cleaner if necessary.

Standard spark plug: .
BR9ES (NGK)

Before installing a spark plug, clean the gasket surface and plug surface.



4. Tighten:
- Spark plug



Spark plug:
28 Nm (2.8 m • kg, 20 ft • lb)

NOTE:

Finger-tighten ① the spark plug before torquing ② to specification.

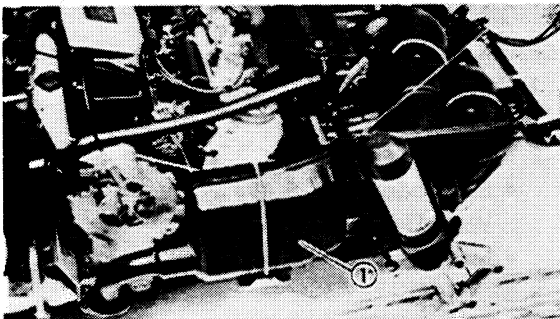
OIL PUMP

Air Bleeding

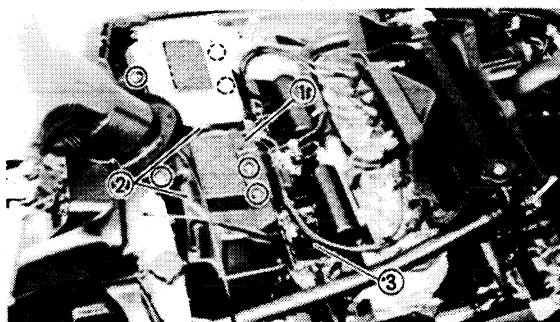
CAUTION:

The oil pump and delivery line must be bled on the following occasions:

- When any portion of the oil system has been disconnected.
- When the machine has been turned on its side.
- Whenever the oil tank has been run empty.
- During predelivery.

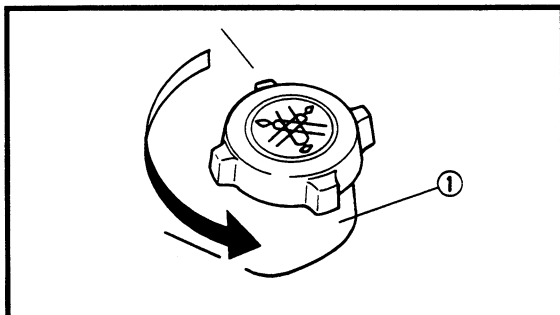


1. Remove:
- Side cowling (right) (See page 2-3)
 - Spring
 - Muffler ①

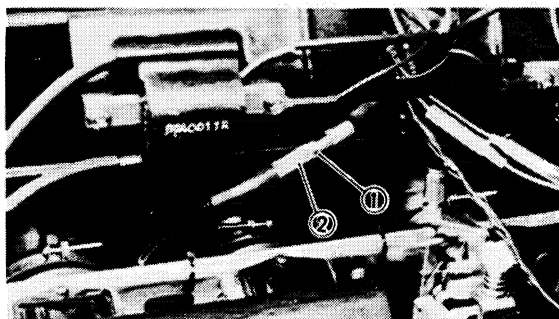
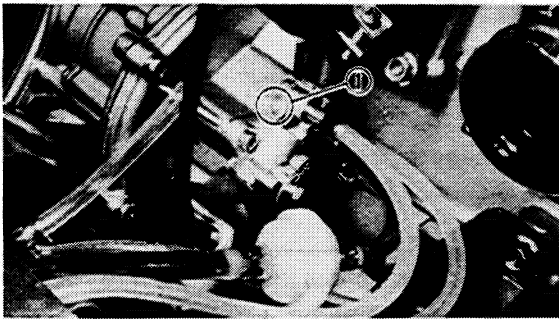
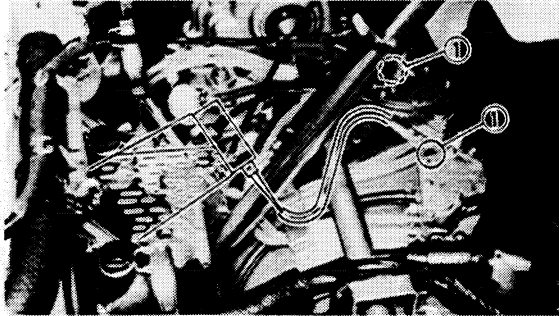
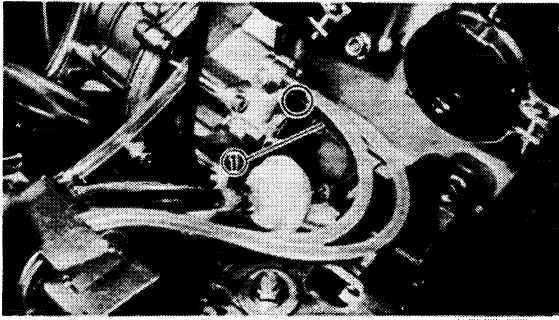


2. Loosen:
- Clamp screws (carburetor)
3. Remove:
- Bracket ① (ignition coil)
 - Intake silencers ②
 - Carburetor assembly ③

4. Fill:
- Oil tank ①



Oil tank capacity:
2.7 L (2.4 Imp qt, 2.9 US qt)
Recommended oil:
Yamalube 2-cycle oil



5. Disconnect:
 - Oil hose ①
6. Keep the oil running out until air bubbles disappear from the oil hoses ①
7. Connect:
 - Oil hose ①
8. Disconnect:
 - Oil delivery hoses ①
(from fuel pump side)
9. Feed the "Yamalube 2-cycle oil" into the oil delivery hoses using a oil can for complete air bleeding.
10. Connect:
 - Oil delivery hoses ①
11. Remove:
 - Bleed screw ①
 - Gasket (bleed screw)
12. Keep the oil running out until air bubbles disappear from bleed hole.
13. Inspect:
 - Gasket (bleed screw)
Wear/Damage → Replace.
14. Install:
 - Gasket (bleed screw)
 - Bleed screw

Cable Adjustment

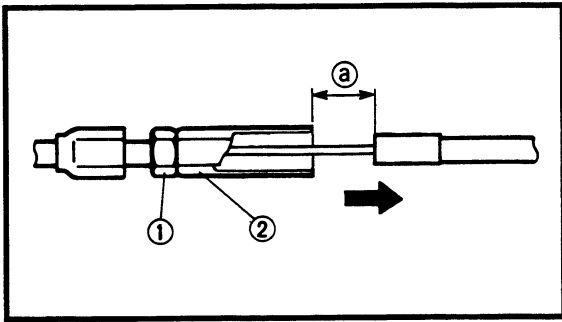
NOTE: _____
 Before adjusting the oil pump cable, the throttle cable free play should be adjusted.

1. Adjust:
 - Oil pump cable

Adjustment steps:

- Loosen the locknut ①.

ENGINE OIL LINE INSPECTION/ OIL FILTER INSPECTION/FUEL LINE INSPECTION



- Turn the adjuster ② in or out until the specified distance length is obtained.



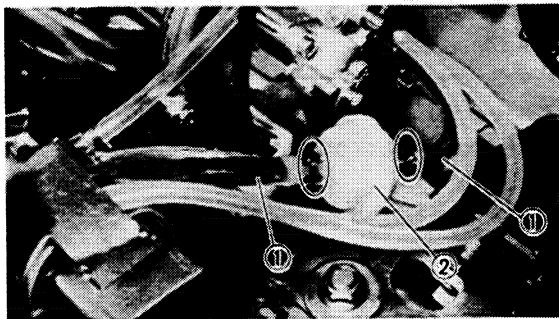
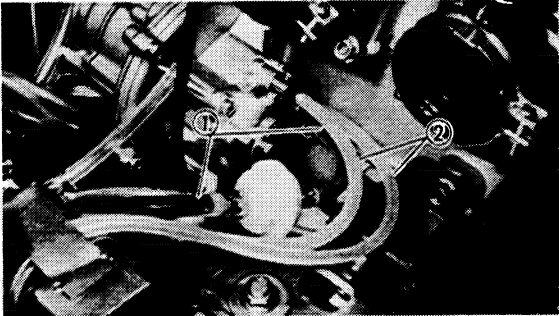
Oil pump cable distance length ①:
28 ~ 30 mm (1.10 ~ 1.18 in)

Turning in	Free play is increased.
Turning out	Free play is decreased.

- Tighten the locknut and push in the adjuster cover.

ENGINE OIL LINE INSPECTION

1. Remove:
 - Intake silencers (See page 2-4)
2. Inspect:
 - Oil hose ①
 - Oil delivery hoses ②
 Crack/Damage → Replace.



OIL FILTER INSPECTION

1. Remove:
 - Intake silencer (right)
(See page 2-4)
2. Disconnect:
 - Oil hose ①

NOTE:

Plug the oil hose so that the oil will not run out of the oil tank and oil pump.

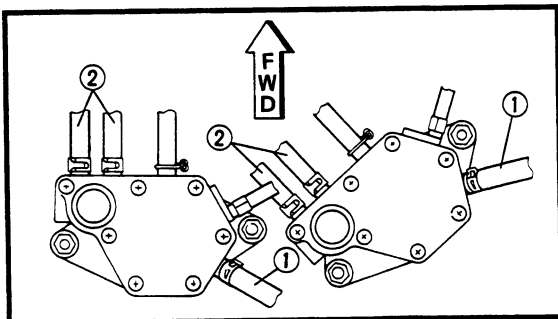
3. Inspect:
 - Oil filter ②
 Contamination → Replace.

**Recommended replacement interval:
Every season**

4. Reverse the removal procedure.

FUEL LINE INSPECTION

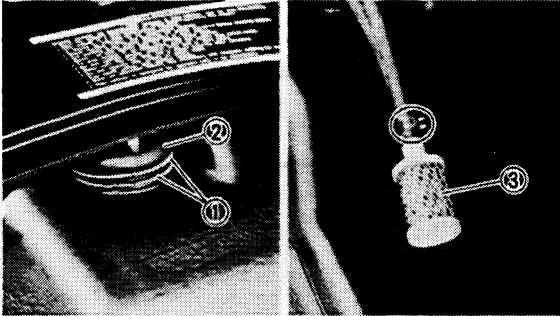
1. Remove:
 - Intake silencers (See page 2-4)
2. Inspect:
 - Fuel hoses ①
 - Fuel delivery hoses ②
 Crack/Damage → Replace.





FUEL FILTER INSPECTION

1. Remove:
 - Seat
2. Disconnect:
 - Tail/brake light coupler
3. Remove:
 - Screws (center cover)



4. Remove:
 - Spring bands ①
 - Cap ②
 - Fuel filter ③
5. Inspect:
 - Fuel filterContamination → Replace.

**Recommended replacement interval:
Every season**

6. Reverse the removal procedure.

COOLING SYSTEM

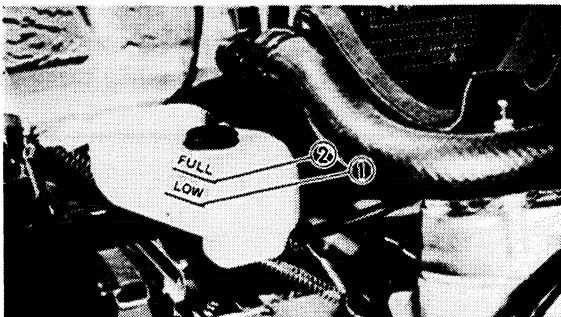
Coolant level inspection

⚠ WARNING

Do not remove the radiator cap when the engine is hot.

CAUTION:

Hard water or salt water is harmful to the engine parts; use boiled or distilled water if you can't get soft water.



1. Place the machine on a level surface.
2. Inspect:
 - Coolant levelCoolant level is below "LOW" level line ① → Add soft water, until "FULL" level line ②.

3. Add:

- Soft water
Until the coolant level reaches "FULL" level line.



Reservoir tank capacity:

Total:

0.20 L (0.18 Imp qt, 0.21 US qt)

From "LOW" to "FULL" level:

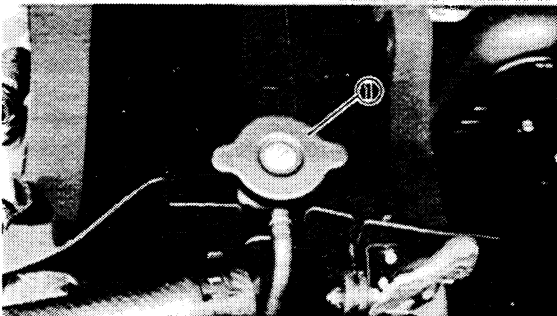
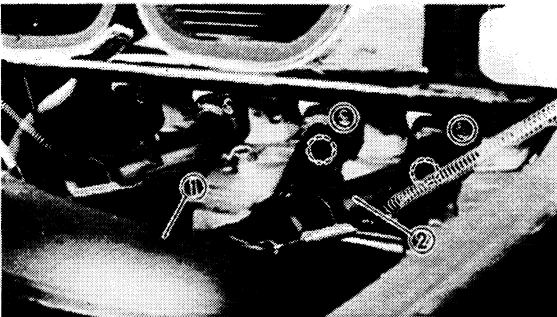
0.1 L (0.09 Imp qt, 0.11 US qt)

Coolant replacement

NOTE:

The coolant should be changed at least seasonally.

1. Place the machine on a level surface.
2. Remove:
 - Seat
3. Remove:
 - Exhaust pipe ① (left)
 - Exhaust manifold ② (left)

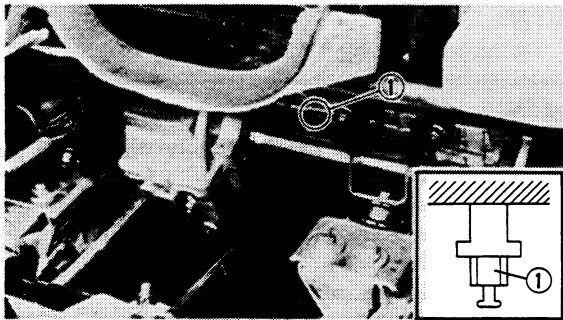


4. Remove:

- Radiator cap ①

⚠ WARNING

Do not remove the radiator cap ① especially when the engine is hot. Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. When the engine has cooled, place thick rag like a towel over the radiator cap, slowly rotate the cap counterclockwise to the detent. This procedure allows any residual pressure to escape. When the hissing sound has stopped, press down on the cap while turning counterclockwise and remove it.

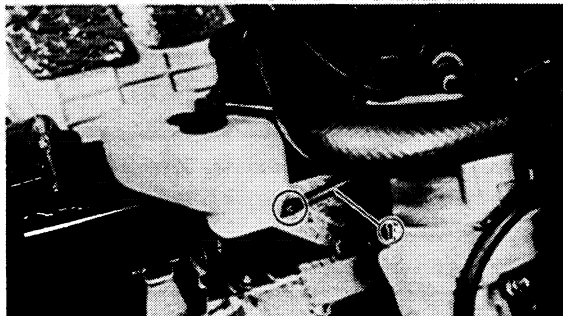


6. Place an open container under the drain bolt ①.

7. Remove:

- Drain bolt ①
Drain the coolant.

NOTE: _____
Lift up the tail of the machine to drain the coolant.



8. Disconnect:

- Reservoir tank hose ①
Drain the coolant.

NOTE: _____
Place a container under the reservoir tank to catch the draining coolant.

⚠ WARNING _____

Coolant is poisonous. It is harmful or fatal if swallowed.


- If coolant is swallowed, induce vomiting immediately. Get immediate medical attention.
- If coolant splashes in eyes, flush with water. Call a physician.
- If coolant splashes on skin or clothes, wash immediately with soap and water.

9. Inspect:

- Gaskets (drain bolt)
Damage → Replace.

10. Install:

- Drain bolt (gaskets)
- Exhaust manifolds (gaskets)

	Drain bolt:
	25 Nm (2.5 m · kg, 18 ft · lb)
	Bolts (exhaust pipe):
	9.5 Nm (0.95 m · kg, 6.9 ft · lb)



11. Fill:

- Cooling system



Recommended Coolant:
 High quality ethylene glycol
 anti-freeze containing
 corrosion inhibitor
Coolant and water mixed ratio:
 60% : 40%
Total amount:
 4.2 L (3.7 Imp qt, 4.4 US qt)
Reservoir tank capacity:
 0.20 L (0.18 Imp qt, 0.21 US qt)

CAUTION:

- Hard water or salt water is harmful to the engine parts; use boiled or distilled water if you can't get soft water.
- Do not use water containing impurities or oil.

12. Bleed air from the cooling system.

Air bleeding

1. Bleed air from the cooling system.

Air bleeding steps:

- Lift up the tail of the machine.
- Connect plastic tubes ① tightly to the bleed screws ② on the heat exchanger.
- Loosen the bleed screws ② of Heat exchanger.
- Keep the coolant running out until air bubbles disappear, while adding coolant slowly to the radiator.
- Tighten the bleed screws.

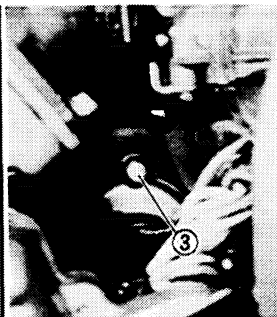
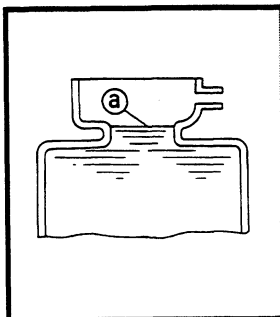
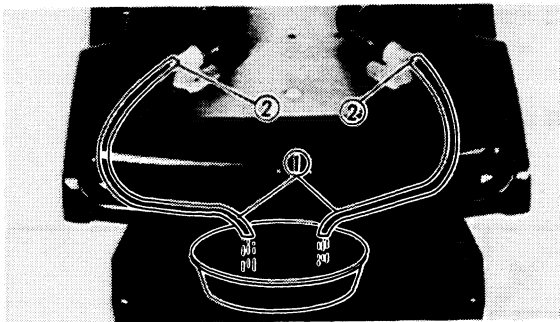


Bleed screw:
 6 Nm (0.6 m • kg, 4.3 ft • lb)

- Add coolant to fill the specified level ③.
- Loosen the bleed bolt ③ on the water pump housing.
- Keep the coolant running out until air bubbles disappear.
- Tighten the bleed bolt.

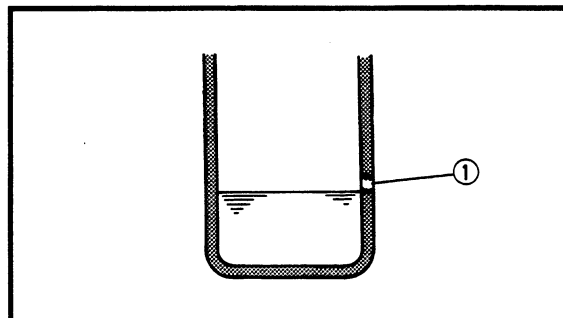
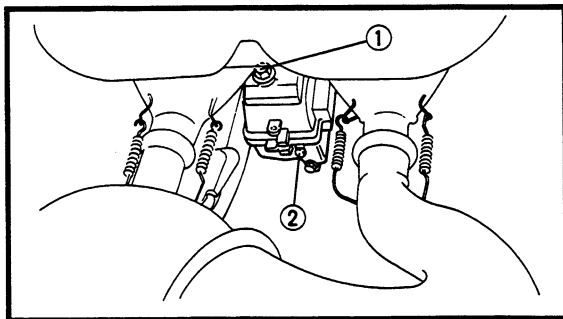
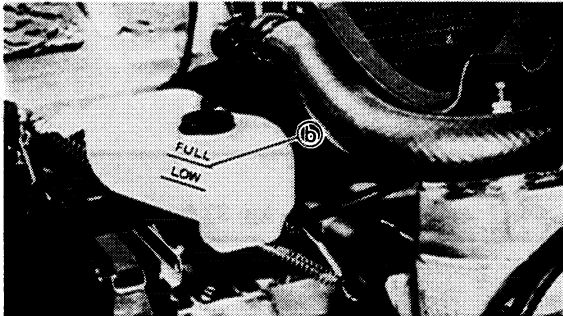


Bleed bolt:
 6 Nm (0.6 m • kg, 4.3 ft • lb)





- Install the radiator cap.
- Start the engine and keep the engine speed 3,000 rpm for one minute, then stop the engine.
- Remove the radiator cap and bleed air on the cooling system again, as shown in the steps above .
- No air bubbles → OK.
- Add coolant up to the specified level.
- Pour coolant into the reservoir tank until the coolant level reaches "FULL" level mark ⑥ .



ENGINE GEAR OIL

Oil level Inspection

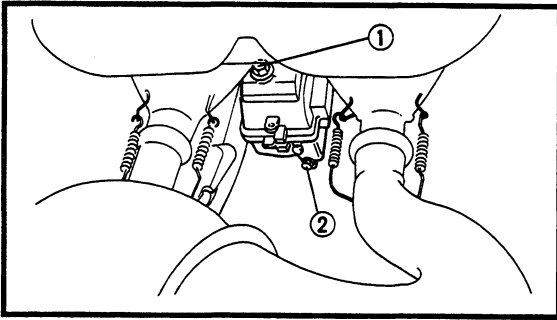
1. Place the machine on a level surface.
2. Place a rag under the checking hole (oil level).
3. Remove:
 - Oil filler cap ①
 - O-ring (oil filler cap)
 - Checking bolt ②
 - Gasket (checking bolt)
4. Inspect:
 - Oil level (drive gear housing)
 - Oil flows out → Oil level is correct.
 - Oil does not flow out → Oil level is low.
 - Add oil until oil flows out.

① Checking bolt hole

	<p>Recommended oil: Gear oil API GL-3 SAE #75 or #80 or SAE #10W-30</p>
--	--

5. Inspect:
 - O-ring (oil filler cap)
 - Gasket (checking colt)
 - Damage → Replace.
6. Tighten:

	<p>Checking bolt: 10 Nm (1.0 m • kg, 7.2 ft • lb)</p>
--	---



Oil replacement

1. Place a drain pan under the drain hole.
2. Remove:
 - Oil filler cap ①
 - O-ring (oil filler cap)
 - Drain bolt ②
 - Gasket (drain bolt)
 Drain the oil.
3. Inspect:
 - O-ring (oil filler cap)
 - Gasket (drain bolt)
 Damage → Replace.
4. Install:
 - Drain bolt ② (with gasket)



Drain bolt:
45 Nm (4.5 m · kg, 33 ft · lb)

5. Fill:
 - Drive gear housing

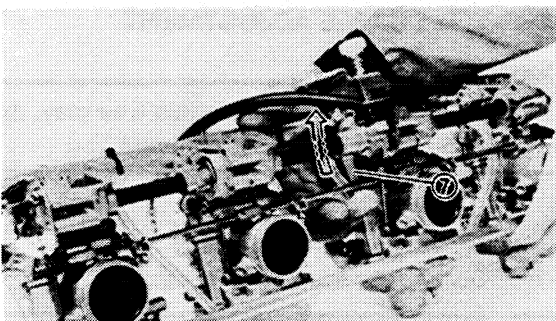
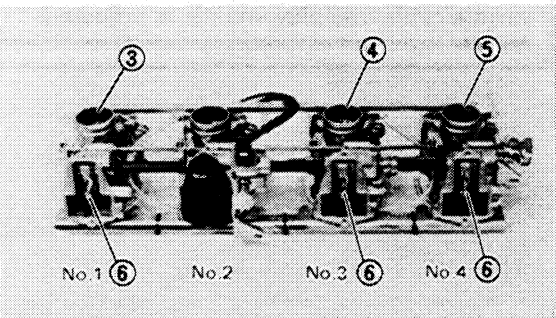
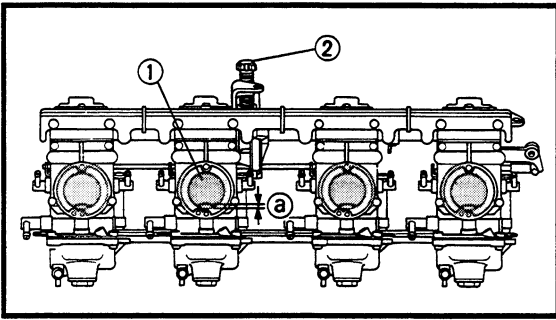
CAUTION:

Be sure no foreign material enters the chain housing case.



Recommended oil:
Gear oil API GL-3 SAE #75
or #80 or SAE #10W-30
Oil capacity:
250 cm³ (8.8 Imp oz, 8.5 US oz)

6. Install:
 - Oil filler cap (with O-ring)



CARBURETOR SYNCHRONIZATION

1. Remove:
 - Carburetor assembly
(see page 7-2)
2. Adjust:
 - Carburetor synchronization

Adjustment steps:

- First, adjust the throttle valve height (a) at the No. 2 carburetor (1) by turning the throttle stop screw (2) until the specified height is obtained.



Throttle valve height:

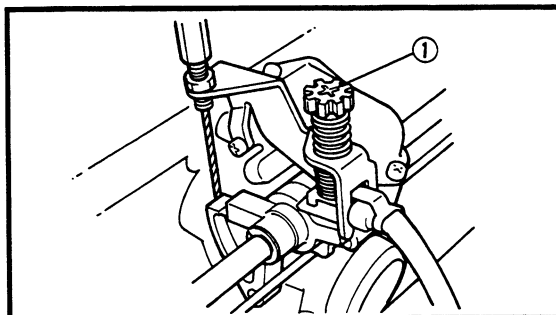
1.0 ~ 1.2 mm (0.04 ~ 0.047 in)

- Second, adjust the throttle valve height (a) on the No. 1 (3), No. 3 (4) and No. 4 (5) carburetors with each adjusting screw (6).
- Move the throttle lever (7) 2 ~ 3 times.
- Make sure all the carburetor throttle valves are on the same height.
If not, repeat above steps until they all match.

ENGINE IDLE SPEED ADJUSTMENT

NOTE:

Be sure the carburetor synchronization (see page 2-13) has been set before making the idle speed adjustment.



1. Adjust:
 - Engine idle speed



Adjustment steps:

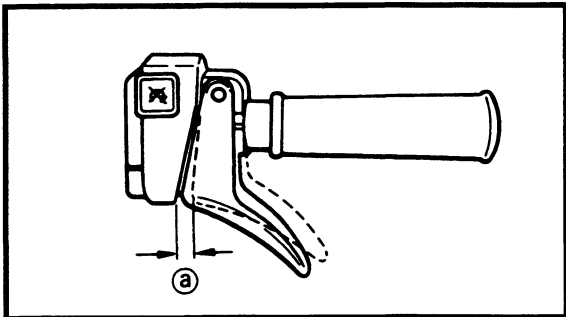
- Start the engine and let it warm up.
- Turn the throttle stop screw (1) until the idle speed is in the specified range. Use the inductive tachometer.

**ENGINE IDLE SPEED ADJUSTMENT/
THROTTLE CABLE ADJUSTMENT/
THROTTLE OVERRIDE SYSTEM (T.O.R.S.) CHECK**

**INSP
ADJ**




Turning in	Idle speed becomes higher.
Turning out	Idle speed becomes lower.
	Inductive tachometer: 90890-08036, YU-08036
	Engine idle speed: 1,400 ~ 1,600 r/min
NOTE: _____ After adjusting the engine idle speed, the throttle cable free play should be adjusted.	

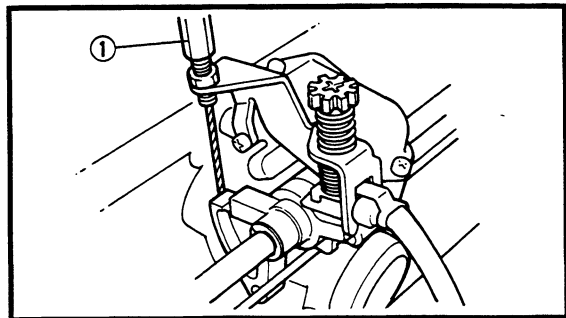


THROTTLE CABLE ADJUSTMENT

NOTE: _____
Before adjusting the throttle cable free play, the engine idle speed should be adjusted.

1. Measure:
- Throttle cable free play **a**
Out of specification → Adjust.

 **Throttle cable free play:**
1.0 ~ 2.0 mm (0.04 ~ 0.08 in)



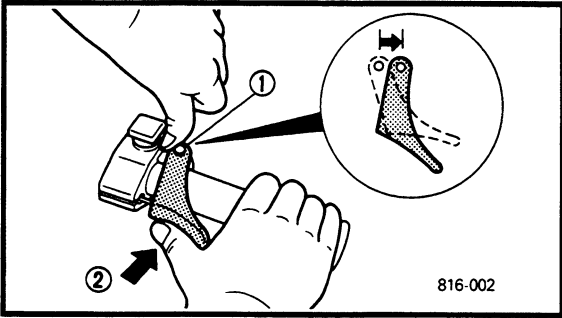
2. Adjust:
- Throttle cable adjuster **①**

THROTTLE OVERRIDE SYSTEM (T.O.R.S.) CHECK

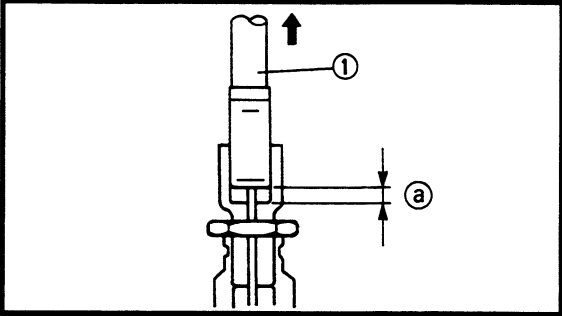
⚠ WARNING _____

- When checking T.O.R.S.:
- Be sure the parking brake is applied.
 - Be sure the throttle lever moves smoothly.
 - Do not run the engine up to clutch engagement rpm. Otherwise, the machine could start moving forward unexpectedly, which could cause an accident.

THROTTLE OVERRIDE SYSTEM (T.O.R.S.) CHECK/ STARTER (CHOKE) CABLE ADJUSTMENT/EXHAUST SYSTEM



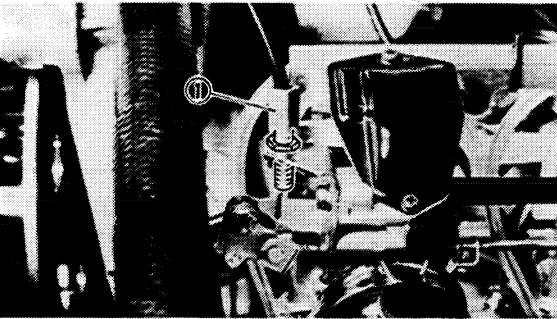
1. Start the engine.
2. Hold the pivot point of the throttle lever away from the throttle switch ① .
3. Press ② the throttle lever gradually. The T.O.R.S. warning light should flash and the engine should not exceed 2,800 to 3,000 r.p.m. If the engine exceeds 2,800 to 3,000 r.p.m. → Repair the T.O.R.S. (See page 8-9)



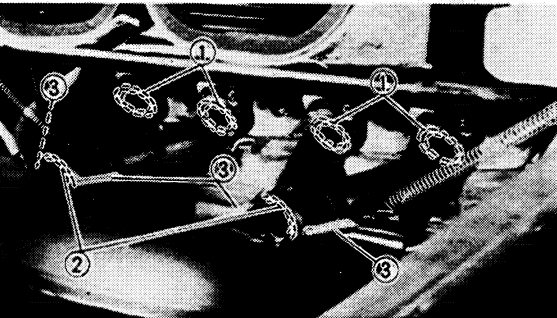
STARTER (CHOKE) CABLE ADJUSTMENT

1. Pull the outer tube of the starter cable ① upward at the carburetor.
2. Measure:
 - Starter cable free play ②
 Out of specification → Adjust.

	Free play ② : 0.5 ~ 1.5 mm (0.02 ~ 0.06 in)
--	---



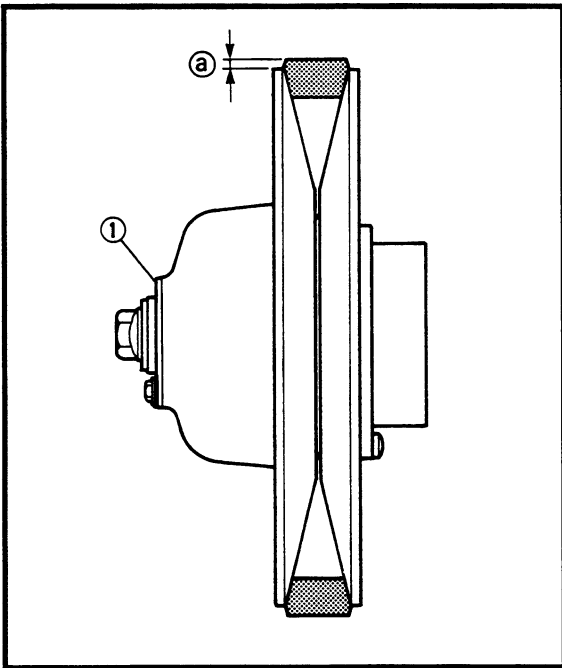
3. Adjust:
 - Starter cable adjuster ①



EXHAUST SYSTEM

1. Inspect:
 - Exhaust pipe gasket (s) ①
Damage → Replace.
Exhaust gas leakage → Repair.
Tighten the bolts.
 - Joint pipe exhaust gas leakage ②
 - Tension spring ③ → Replace.

	Bolt (exhaust pipe): 25 Nm (2.5 m·kg, 18 ft·lb)
--	---



POWER TRAIN

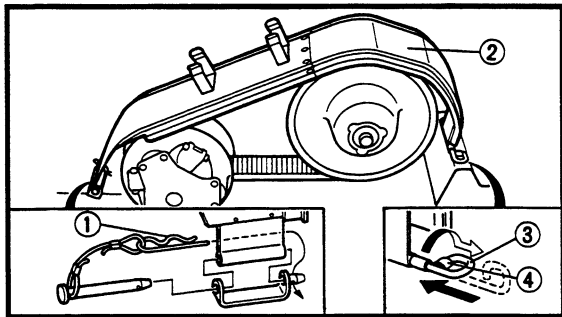
DRIVE V-BELT

⚠ WARNING

Be sure the V-Belt height **a** adjusted to the standard height with a spacer **1** when installing a NEW belt.

If the height is incorrect, the clutch engagement speed will be reduced.

The machine may move unexpectedly when the engine is started.

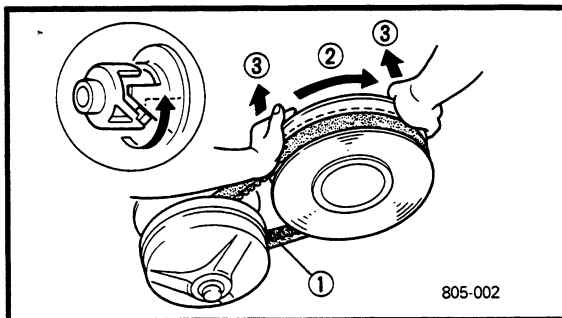


1. Remove:

- Side cowling (left) (See page 2-3)
- Lock pin **1** (drive V-belt guard)
- Drive V-belt guard **2**

NOTE:

Press the holding pin **3** all the way in until it releases from the hook **4**, then rotate it 90° and pull it out.

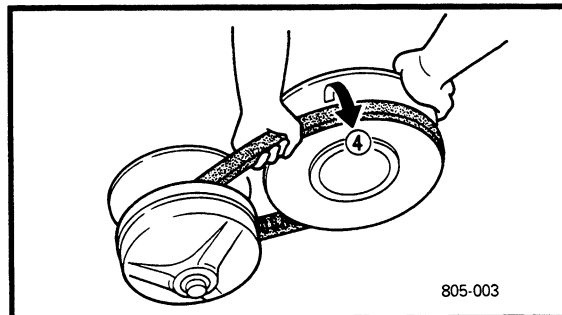


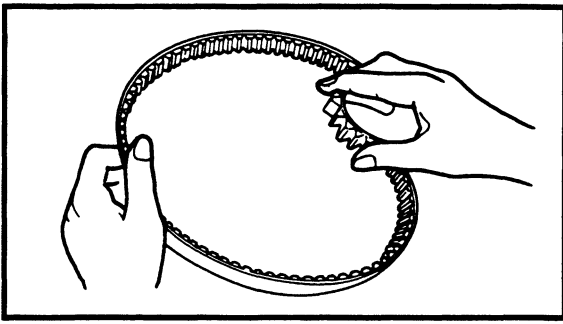
2. Remove:

- Drive V-belt **1**

Removal steps:

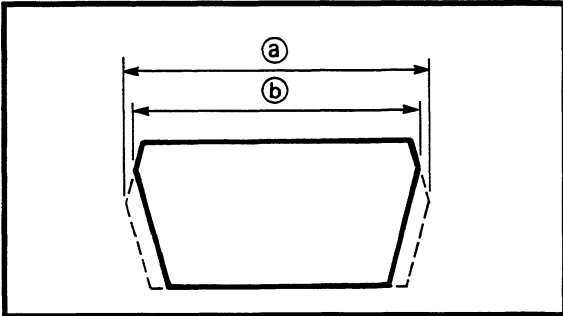
- Rotate the secondary sliding sheave clockwise **2** and push **3** it so that it separates from the fixed sheave.
- Pull **4** the belt up over the secondary fixed sheave.
- Remove the belt from the secondary sheave and primary sheave.





3. Inspect:

- Drive V-belt
Crack/Wear/Damage → Replace.
Oil or grease adhered to the V-belt → Check the primary and secondary sheaves.



4. Measure:

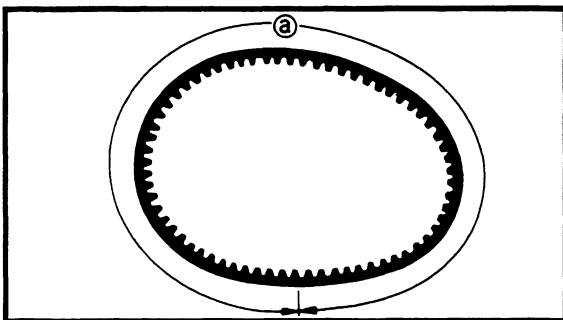
- Drive V-belt width
Out of specification → Replace.

NOTE:

Be sure to measure the sheave offset, when adjusted the V-belt.



New belt width (a) :
34.5 mm (1.36 in)
Belt wear limit width (b) :
33 mm (1.30 in)

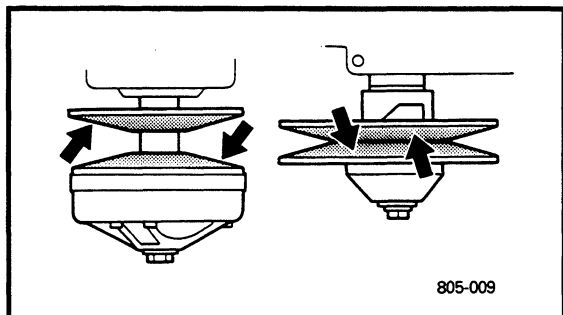


5. Measure:

- Drive V-belt length (a)
Out of specification → Replace.



Drive V-belt length:
1,336 ~ 1,344 mm (52.6 ~ 52.9 in)



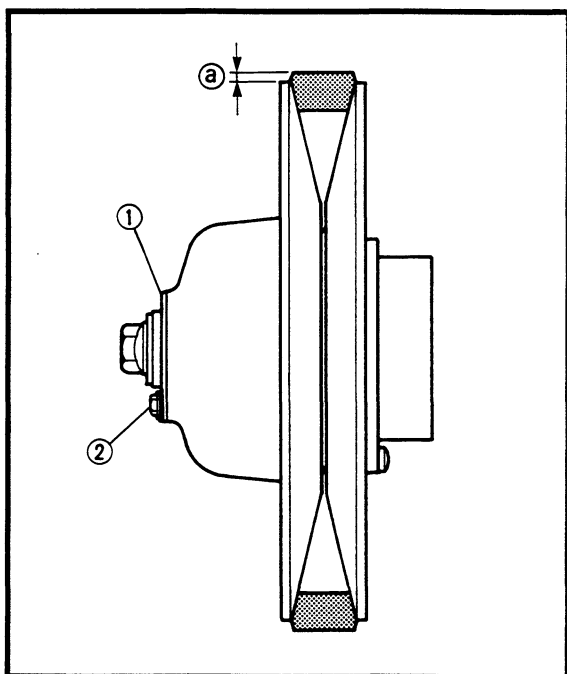
6. Inspect:

- Primary sheave
- Secondary sheave
Oil or grease adhered to the primary and secondary sheaves → Remove the oil or grease using a rag soaked in lacquer thinner or solvent. Check the primary and secondary sheaves.

7. Install:

- Drive V-belt

805-009





8. Adjust:

- V-belt height (a)

Adjustment steps:

- Measure from edge of secondary sheave to V-belt (a).
- If out of specification, adjust the sheave gap by adding or removing a spacer (1).


Adding spacer	gap is increased
Removing spacer	gap is decreased
	V-belt height (a): 2 ~ 3 mm (0.08 ~ 0.12 in)
Spacer size	
1pc	0.5 mm (0.02 in)
	Bolt (2): 10 Nm (1.0 m · kg, 0.4 ft · lb)

ENGAGEMENT SPEED CHECK

1. Place the machine on a level area of hard packed snow.
2. Check:
 - Clutch engagement speed

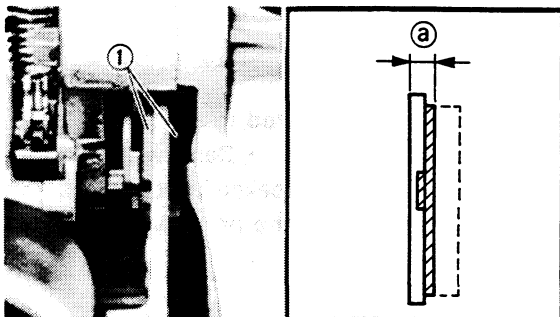
Checking steps:


- Start the engine, and open the throttle lever gradually.
- Check the engine speed when the machine starts moving forward.
Out of specification → Adjust the primary sheave. (See page 2-37)

	Engagement speed: Approx 3,600 r/min
---	--

BRAKE PAD INSPECTION

1. Apply the brake lever.
2. Measure
 - Brake pad thickness (a)
Out of specification → Replace brake pad as a set. (See page 4-23)



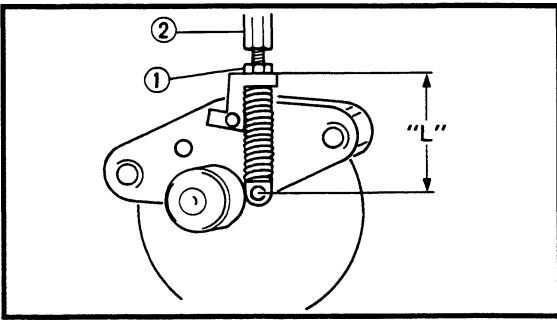
	Wear limit: 5.2 mm (0.20 in)
---	--

- (1) Brake pad

BRAKE ADJUSTMENT

NOTE:

Adjust brake every 40 hours of operation, or whenever the brake lever becomes loose during operation.



1. Measure:

- Distance "L"
- Out of specification → Adjust.



Distance "L"
69.0 ~ 73.0 mm (2.72 ~ 2.87 in)

2. Adjust:

- Distance "L"

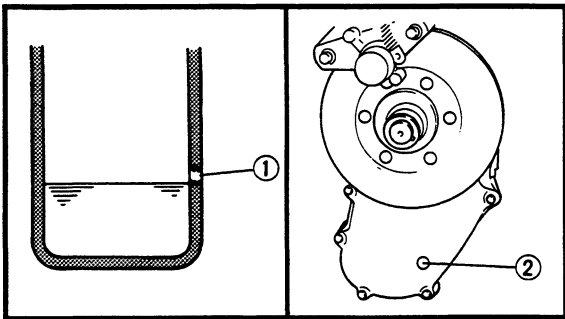
Adjustment steps:

- Loosen the locknut ①.
- Turn the adjuster ② in or out until the specified distance is obtained.

Turning out	Distance "L" is increased.
-------------	----------------------------

Turning in	Distance "L" is decreased.
------------	----------------------------

- Tighten the locknut ①.



DRIVE CHAIN

Oil Level Inspection

- Place the machine on a level surface.
- Remove:
 - Side cowling (right) (See page 2-3)
- Place a rag under the checking hole ① (oil level).
- Remove:
 - Checking bolt ②
 - Gasket (checking bolt)
- Inspect:
 - Oil level (drive chain housing)
Oil flows out → Oil level is correct.
Oil does not flow out → Oil level is low.
Add oil until oil flows out.



Recommended oil:
Gear oil API GL-3 SAE #75
or #80 or SAE #10W-30

6. Inspect:

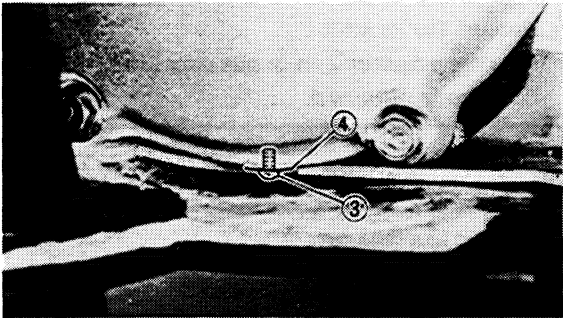
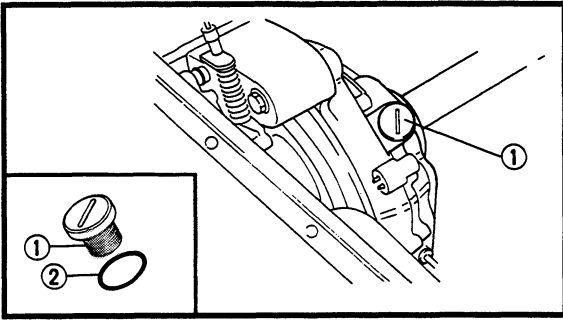
- Gasket (checking bolt)
Damage → Replace.

7. Install:

- Gasket (checking bolt)
- Checking bolt ②



Checking bolt:
6 Nm (0.6 m · kg, 4.3 ft · lb)



Oil Replacement

1. Place a drain pan under the drain hole:
2. Remove:
 - Oil filler cap ①
 - O-ring ② (oil filler cap)
 - Drain screw ③
 - Gasket ④ (drain screw)
 Drain the oil.
3. Inspect:
 - O-ring ② (oil filler cap)
 - Gasket ④ (drain screw)
 Damage → Replace.
4. Install:
 - Gasket (drain screw)
 - Drain screw



Drain screw:
6 Nm (0.6 m • kg, 4.3 ft • lb)

5. Fill:
 - Drive chain housing

CAUTION:

Be sure no foreign material enters the chain housing case.



Recommended oil:
Gear oil API GL-3 SAE #75
or #80 or SAE #10W-30
Oil capacity:
3.5L (3.1 Imp qt, 3.6 US qt)

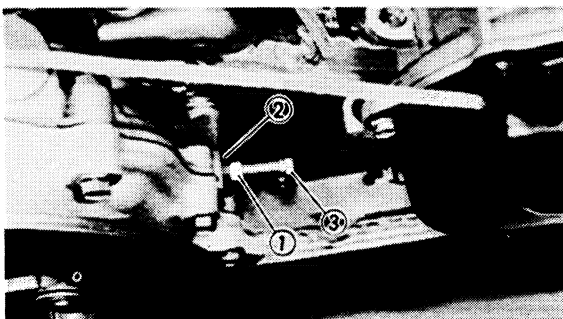
6. Install:
 - O-ring (oil filler cap)
 - Oil filler cap

Chain Slack Adjustment

1. Adjust:
 - Drive chain slack

Adjustment steps:

- Loosen the locknut ① and unthread sealing washer ② slightly.
- Turn the adjuster ③ in finger tight.
- Tighten the locknut.

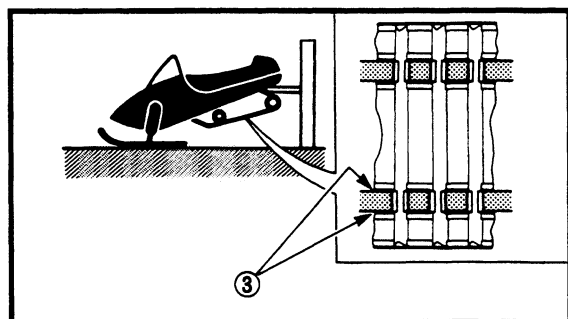
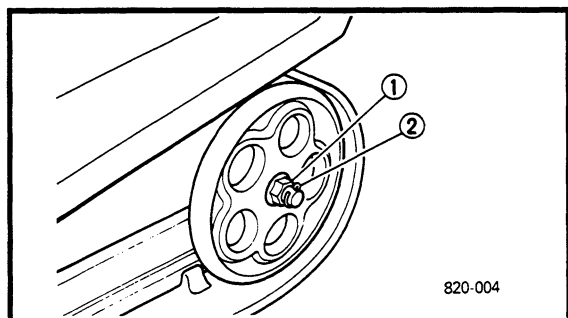
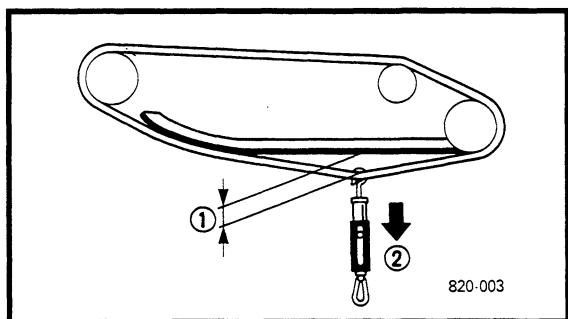


TRACK TENSION ADJUSTMENT

⚠ WARNING

A broken track, track fittings, or debris thrown by the track could be dangerous to an operator or bystanders. Observe the following precautions.

- Do not allow anyone to stand behind the machine when the engine is running.
- When the rear of the machine is raised to allow the track to spin, a suitable stand must be used to support the rear of the machine. Never allow anyone to hold the rear of the machine off the ground to allow the track to spin. Never allow anyone near a rotating track.
- Inspect track condition frequently. Replace the track if it is damaged to the depth where fabric reinforcement material is visible.
- Never install studs (cleats) closer than three inches from the edge of the track.



1. Place the machine with the right side facing down.

2. Measure:

- Track deflection ①

Pull at the track center window by a force of 10 kg (22 lb) using a spring scale ②.

Out of specification → Adjust.



Track deflection:

20 ~ 25 mm/10 kg

(0.79 ~ 0.98 in/22 lb)

3. Adjust:

- Track deflection

Adjustment steps:

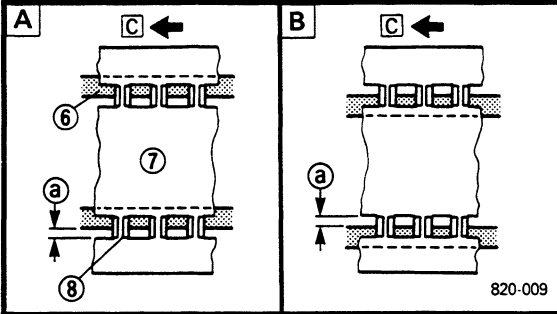
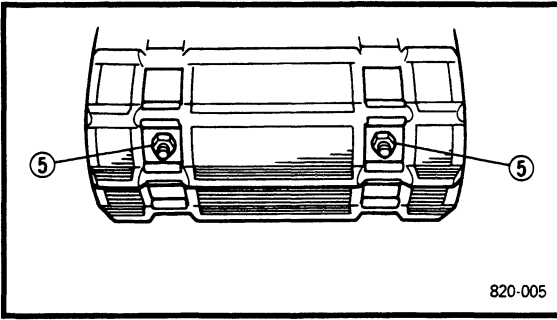
- Lift the rear of the machine onto a suitable stand to raise the track off the ground.
- Loosen the rear axle nut ①.

NOTE:

It is not necessary to remove the cotter pin ②.

- Start the engine and rotate the track one or two turns. Stop the engine.
- Check the track alignment with the slide runner ③.
If the alignment is incorrect, turn the left and right adjusters to adjust.

TRACK TENSION ADJUSTMENT



Track alignment	A Shifted to right	B Shifted to left
④ Left adjuster nut	Turn out	Turn in
⑤ Right adjuster nut	Turn in	Turn out

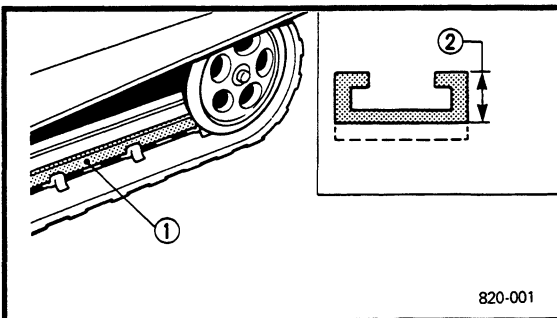
⑥ Slide runner ⑦ Track
 ⑧ Track metal ⑨ Gap C Forward
 c. Adjust track deflection to the specified amount.

Track deflection	More than Specified	Less than Specified
④ Left adjuster nut	Turn in	Turn out
⑤ Right adjuster nut	Turn in	Turn out

CAUTION:
 The adjusters should be turned an equal amount.

- Recheck alignment and deflection. If necessary, repeat steps "a" to "c" until proper adjustment is achieved.
- Tighten the rear axle nut.

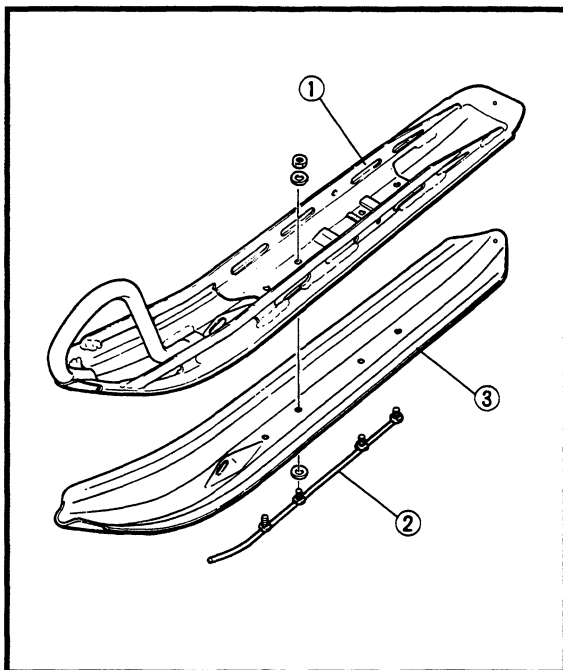
Rear axle nut:
 75 Nm (7.5 m·kg, 54 ft·lb)



SLIDE RUNNER INSPECTION

1. Inspect:
 - Slide runner ①
 Cracks/Damage/Wear → Replace.
2. Measure:
 - Slide runner thickness ②
 Out of specification → Replace.
 (See page 4-30)

Wear limit:
 10 mm (0.39 in)




CHASSIS

SKI/SKI RUNNER

1. Check:

- Ski ①
- Ski runner ②
- Ski cover ③

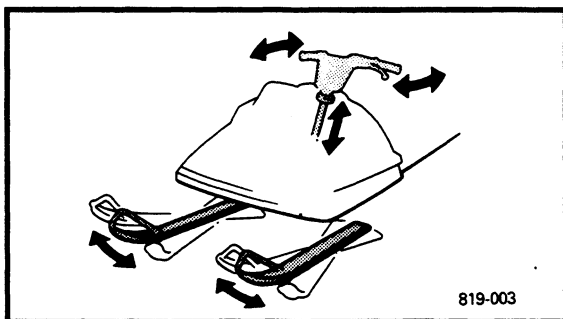
Wear/Damage → Replace.



Ski runner wear limit ①:
8 mm (0.31 in)

CAUTION: _____

Do not operate the machine without the ski cover ③ to prevent the ski wear and damage.



STEERING SYSTEM

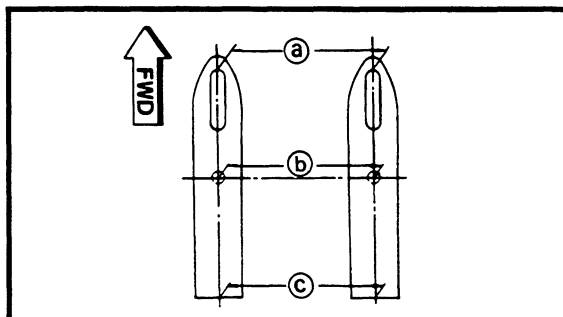
Free Play check

1. Check:

- Steering system free play
Push the handlebar up and down and back and forth.
Turn the handlebar slightly to the right and left.

Excessive free play → check to be sure the handlebar, tie rod ends and relay rod ends are installed securely in position. If free play still exists, check the steering bearing front suspension links and ski mounting area for wear, and replace if necessary.

(See page 3-7)




Toe-Out Adjustment

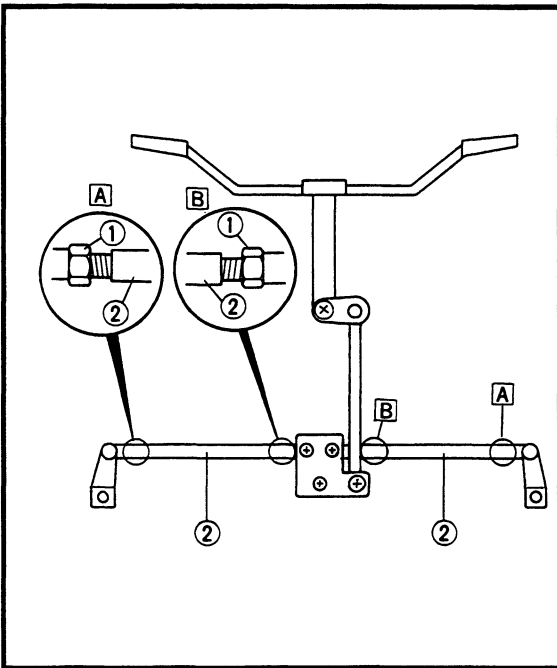
1. Place the machine on a level surface.

2. Check:

- Ski toe-out
Direct the skis straight forward.
Out of specification → Adjust.



Ski toe - out (a - c):
0.0 ~ 15.0 mm (0.0 ~ 0.6 in)
Ski stance (center to center) (b):
977 mm (38.5 in)



3. Adjust:
- Ski toe-out

Adjustment steps:

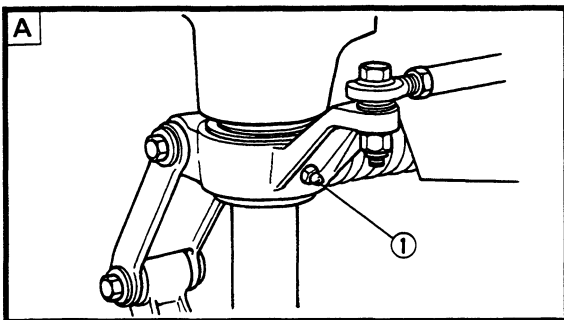
- Mark both tie-rod ends.
This reference point will be needed during adjustment.
- Loosen the locknuts ① (tie-rod end) of both tie-rods.
- The same number of turns should be given to both tie-rods ② right and left until the specified toe out is obtained, so that the lengths of the rods will be kept the same.
- Tighten the rod end locknuts of both tie-rods.



Locknut (rod end):
25 Nm (2.5 m · kg, 18 ft · lb)

⚠ WARNING

Be sure that both tie-rods are turned the same amount. If not, the machine will drift right or left even though the handlebar is positioned straight. This could lead to mishandling or an accident.



LUBRICATION

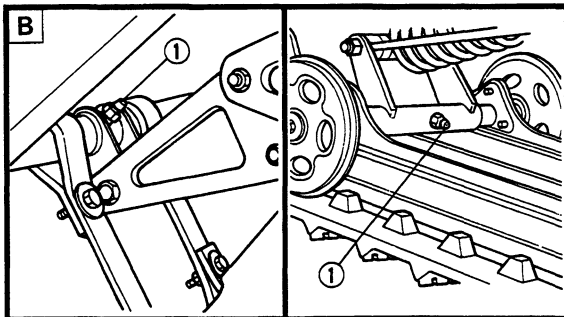
Front and Rear Suspension

1. Inject grease through nipples ① using a grease gun.

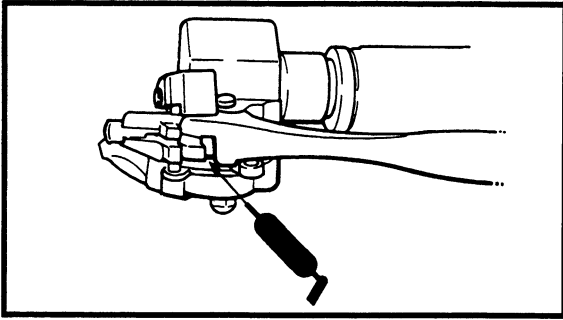


**Esso Beacon 325 Grease or
Aeroshell Grease #7A.**

- A** Front
- B** Rear



LUBRICATION/ HEADLIGHT AND METER LIGHT BULB REPLACEMENT



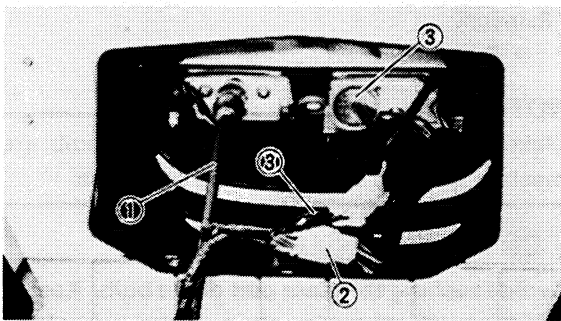
Brake Lever, Brake Cable End and Throttle Lever

1. Lubricate the brake lever pivot, brake cable end and throttle lever.



⚠ WARNING

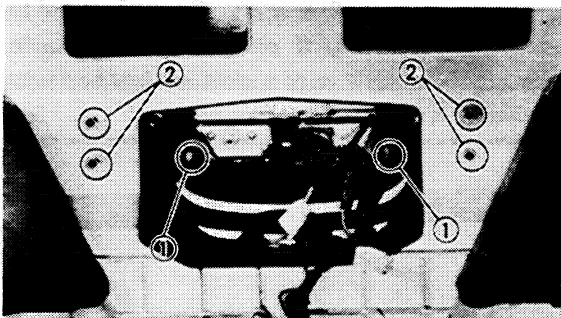
Apply a dab of grease to the cable end only. Do not grease the brake/throttle cables themselves because they could become frozen, which could cause loss of control.



ELECTRICAL HEADLIGHT AND METER LIGHT BULB REPLACEMENT

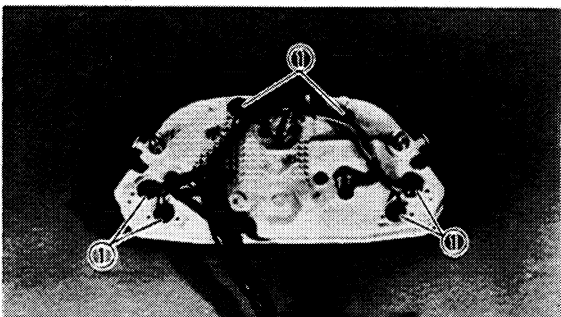
1. Disconnect:

- Speedometer cable ①
- Meter coupler ②
- Condenser ③ (for fuel meter system)
- Headlight coupler ④



2. Remove:

- Nuts ① (meter assembly)
- Nuts ② (meter stay)
Separate the meter and meter stay.
- Meter assembly
- Meter stay



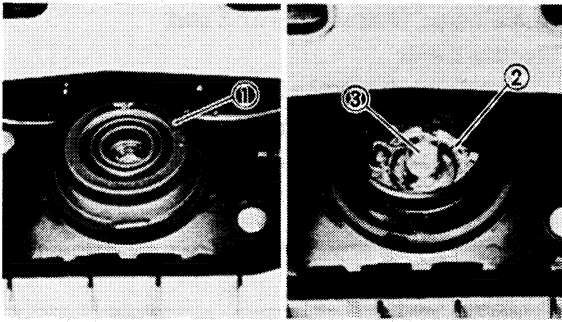
3. Remove:

- Bulb (defective)
Pull out the bulb holder ① from the meter case and pull out the bulb from bulb holder.

4. Install:

- Bulb (new)

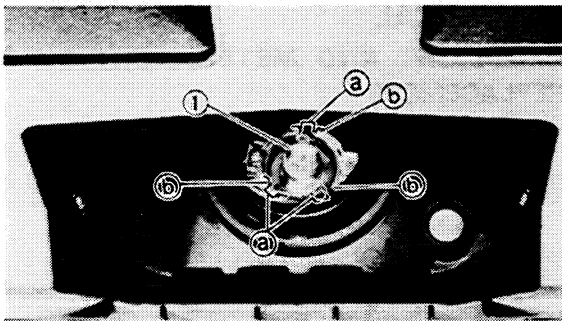
HEADLIGHT AND METER LIGHT BULB REPLACEMENT



5. Remove:
 - Bulb cover ①
6. Unhook:
 - Bulb holder ②
7. Remove:
 - Bulb (defective) ③

⚠ WARNING

Keep flammable products (and your hands) away from the bulb while it is on; it will be hot. Do not touch the bulb until it cools down.



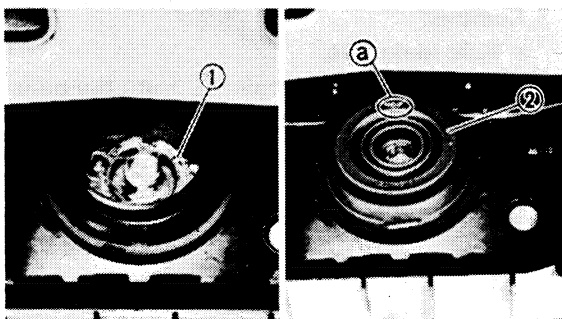
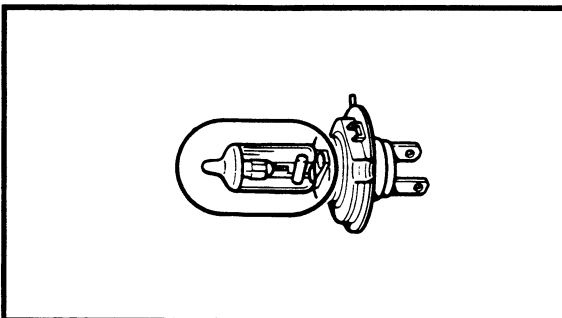
8. Install:
 - Bulb (new) ①

NOTE:

Make sure the projections (a) on the bulb are meshed with the slots (b) on the light case.

CAUTION:

Avoid touching the glass part of the bulb. Keep it free from oil; otherwise, the transparency of the glass, life of the bulb and illuminous flux will be adversely affected. If oil gets on the bulb, thoroughly clean it with a cloth moistened with alcohol or lacquer thinner.



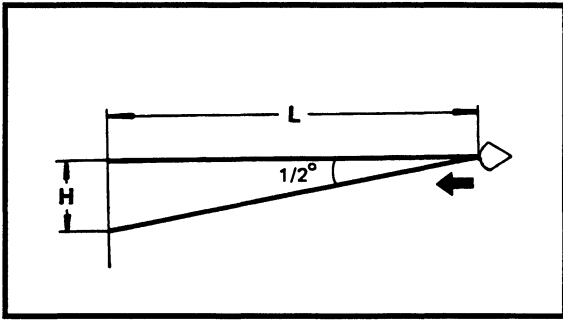
9. Hook:
 - Bulb holder ①
10. Install:
 - Cover (bulb holder) ②

NOTE:

Install the bulb holder cover so that the "TOP" mark (a) faces upward.

HEADLIGHT BEAM ADJUSTMENT/ TAIL/BRAKE LIGHT BULB REPLACEMENT

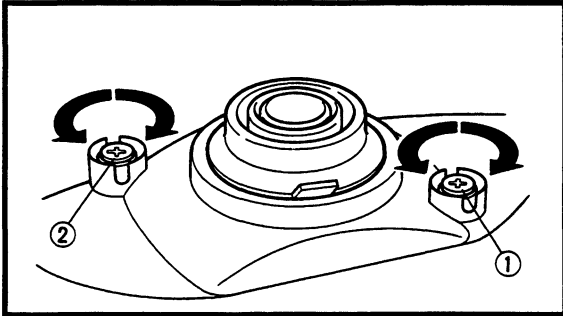
INSP
ADJ



HEADLIGHT BEAM ADJUSTMENT

1. Place the machine on a level place.
2. Inspect:
 - Headlight beam direction (vertically)
The high beam should be directed downward at an angle of $1/2^\circ$ to the horizontal line. If not, adjust the direction (vertically).

L	3.0 m (10 ft)	7.6 m (25 ft)
H	26 mm (1.0 in)	66 mm (2.6 in)



3. Adjust:

- Headlight beam (vertically)

Vertical adjustment	
Higher	Turn the adjusting screw ① counter clockwise.
Lower	Turn the adjusting screw ① clockwise.

4. Adjust:

- Headlight beam (horizontally)

Horizontal adjustment	
Right	Turn adjusting screw ② counter clockwise.
Left	Turn adjusting screw ② clockwise.



TUNING

CARBURETOR TUNING

The carburetor is set at the factory to run at temperatures of 0°C ~ -20°C (32°F ~ -4°F) at sea level. If the machine has to be operated under conditions other than specified above, the carburetor must be reset as required. Special care should be taken in carburetor setting so that the piston will not be damaged or seized.

CAUTION:

In this model, the engine oil is mixed with the fuel just before the fuel enters the carburetors. During initial fuel flow to the carburetor it is not always possible to supply the optimum fuel/oil mixture depending on the throttle opening. Therefore, after the carburetors have been tuned or maintained, or after the float chamber is removed for cleaning or jet replacement, be sure to idle the engine for about three minutes in order to avoid engine trouble.

CAUTION:

Before performing the carburetor tuning, make sure that the following items are set to specification.

- Engine Idle speed adjustment
- Throttle cable free play adjustment
- Carburetor synchronization
- Starter cable adjustment
- Oil pump cable free play adjustment

Carburetor Tuning Data

1. Standard specifications

Model	TM33 x 4
Manufacturer	MIKUNI
I.D. Mark	8AX-00
Main jet (M.J.)	#135
Pilot jet (P.J.)	#47.5
Jet needle (J.N.)	6GN14-3
Float height	11.3 ~ 15.3 mm (0.44 ~ 0.60 in)
Idle speed	1,400 ~ 1,600 r/min

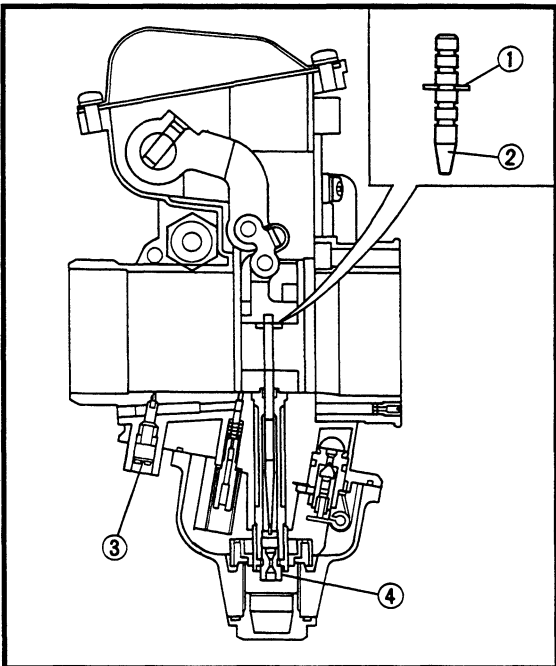
2. High altitude tuning

Use the following guide to select main jets according to variations in elevation and temperature.

A Temperature B Altitude	-30°C (-22°F)	-20°C (-4°F)	-10°C (14°F)	0°C (32°F)	10°C (50°F)	20°C (68°F)
	0 ~ 100 m (300 ft)	← #140 →		← #137.5 →		← #135 →
100 ~ 600 m (2,000 ft)	← #137.5 →		← #135 →		← #132.5 →	
600 ~ 1,200 m (4,000 ft)	← #135 →		← #132.5 →		← #131.3 →	
1,200 ~ 1,800 m (6,000 ft)	← #132.5 →		← #131.3 →		← #130, PJ:50 →	
1,800 ~ 2,400 m (8,000 ft)	← #131.3 →		← #130, PJ:50 →		← #128.8, PJ:50 →	
2,400 mm ~ (8,000 ft ~)	← #130, PJ:50 →		← #128.8, PJ:50 →		← #127.5, PJ:50 →	

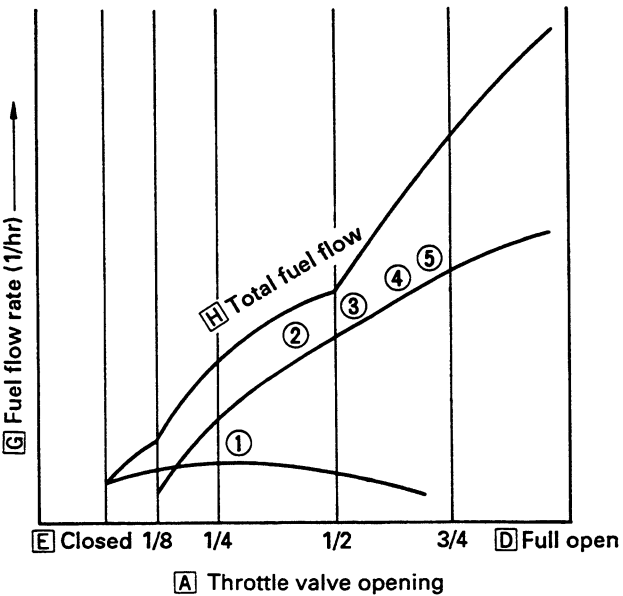
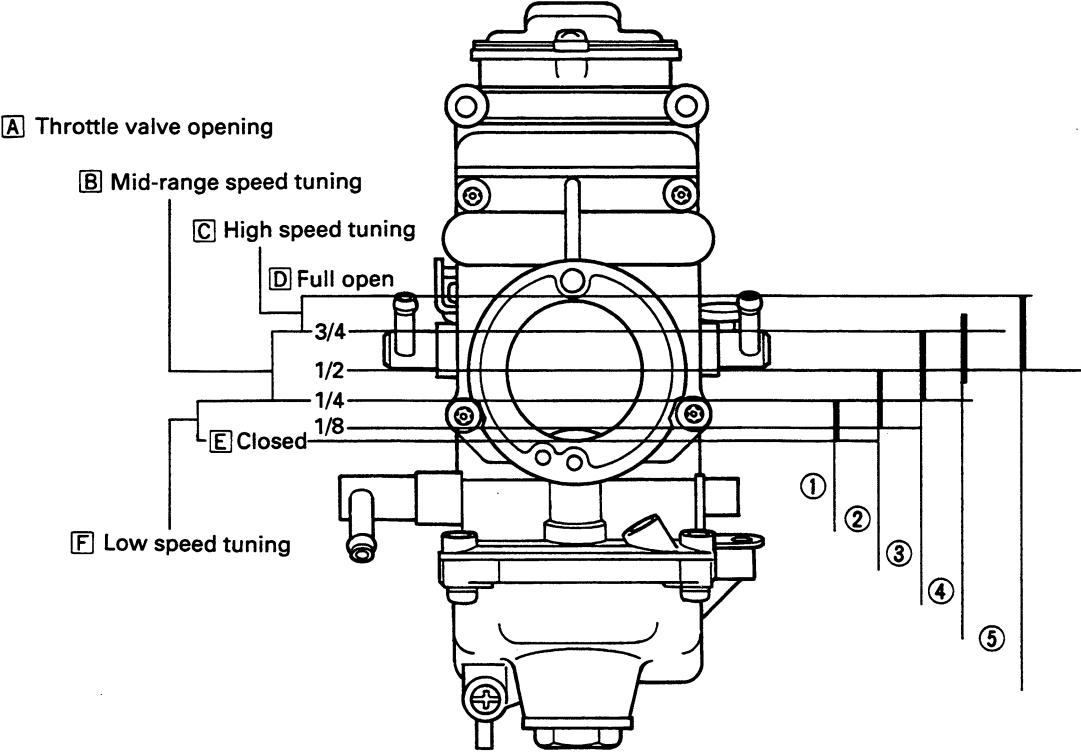
NOTE:

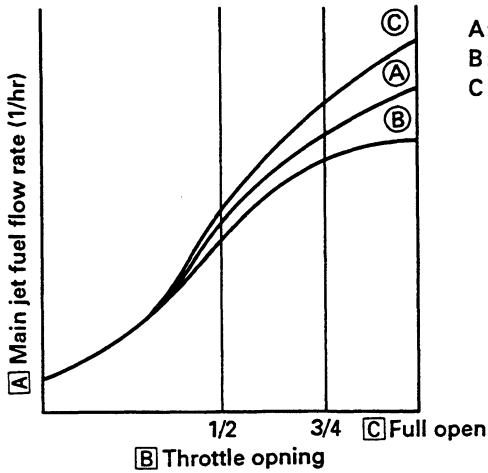
These jetting specifications are subject to change. Consult the latest technical information from Yamaha to be sure you have the most up-to-date jetting specifications.



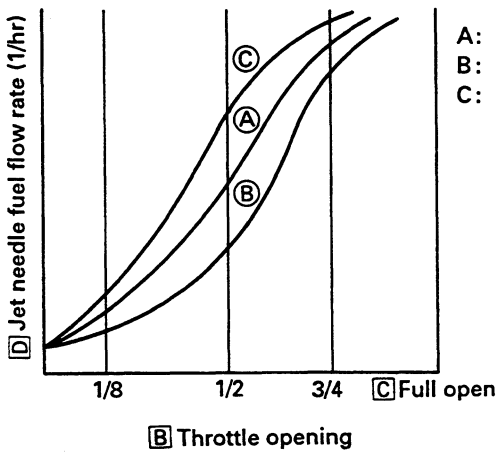
- ① Clip
- ② Jet needle
- ③ Pilot screw
- ④ Main jet

Guide for carburetion

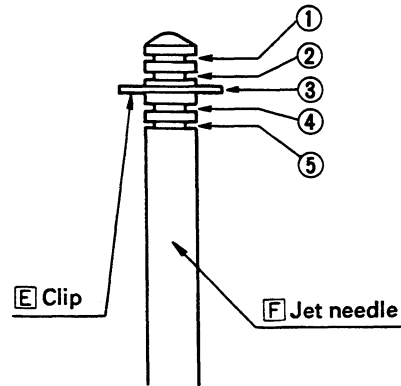




- A: Standard main jet
- B: Main jet whose diameter is 10% smaller than standard
- C: Main jet whose diameter is 10% larger than standard

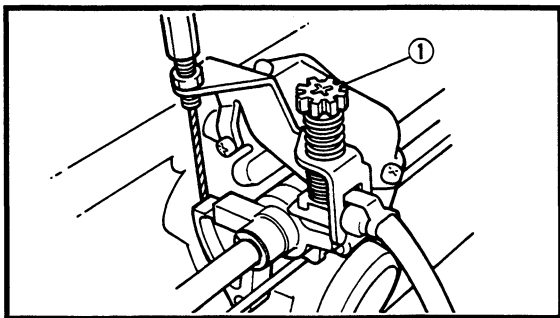


- A: No. 3 position
- B: No. 2 position
- C: No. 4 position



CAUTION: _____

If the air intake silencer is removed from the carburetors, the change in pressure in the intake will create a **LEAN MIXTURE** that could likely result in severe engine damage. The air intake air silencer has no effect on performance characteristics and it must be secured to the carburetor during carb tuning and adjustment and it must always be in place when the engine is operated. Examine the air intake silencer regularly for cleanliness and freedom from obstruction.



Low Speed Tuning

The carburetor is built so that low speed tuning can be done by adjusting the throttle stop screw ①.

CAUTION: _____

The engine should never be run without the air intake silencer and air chamber installed; severe engine damage may result.


1. Start the engine, and allow it to warm up for a few minutes. The warm-up is complete when the engine responds normally to the throttle opening.

WARNING _____

Do not move the throttle enough to reach the following engine speed. The snowmobile could accidentally start to move forward.

Engine revolutions: 3,300 r/min

2. Set the engine idle speed by tuning the throttle stop screws in (to increase engine speed) or out (to decrease engine speed).

 **Standard idle speed:**
1,400 ~ 1,600 r/min

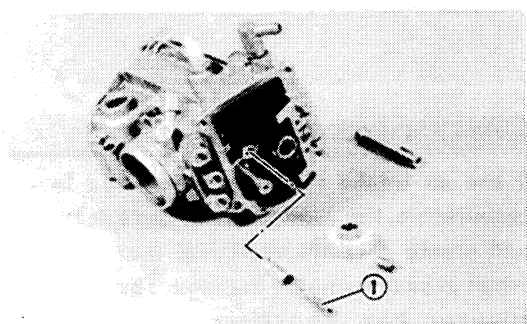
3. If the engine low speed performance is still poor in high elevation under extreme conditions, the standard pilot jets may need to be replaced to obtain proper pilot air/fuel mixture.

NOTE: _____

In this case, set the carburetor on the richer side; use a larger number pilot jet ①.

Standard pilot jet: #47.5

4. By repeating steps 1 to 2 above, adjust the idle speed.



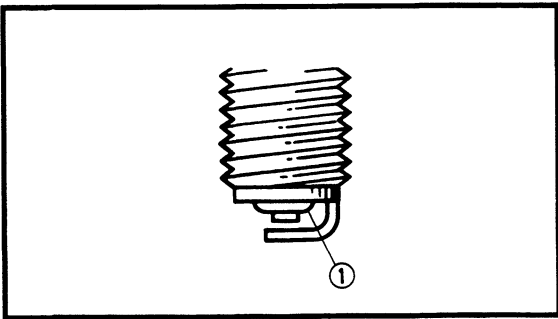
Middle-Range and High Speed Tuning

No adjustment is normally required, but adjustment is sometimes necessary depending on temperatures and/or altitude.

Middle-range speed and high speed tuning (from 1/4 to full-throttle) can be done by adjusting the main jet.

CAUTION:

The engine should never be run without the air intake silencer and air chamber installed; severe engine damage may result.



1. Start the engine and run it at high speed to make sure the engine operates smoothly.
2. Stop the engine, and remove the spark plug. Then, check the spark plug insulator ① color.
3. The main jet should be adjusted on the basis of the following chart.

Standard main jet: #135

⚠ WARNING

Never remove the main jet cover while the engine is hot. Fuel will flow out of the float chamber which could ignite and cause damage to the snowmobile and possible injury to the mechanic. Place a rag under the carburetor so fuel does not spread. Place the main jet cover in a clean place. Keep it away from fire. After assembling the carburetor, firmly tighten the intake silencer joint clamps and intake manifold clamps. Make sure the throttle cable is in place, and the throttle operates smoothly.



Main jet selection chart

Spark plug color	Check up	Remedy
Light tan or gray.	Carburetor is tuned properly.	
Dry black or fluffy deposits.	Mixture is too rich.	Replace main jet with a one-step smaller one.
White or light gray.	Mixture is too lean.	Replace main jet with a one-step larger one.
White or gray insulator with small black or gray brown spots and with a bluish-burnt appearance of electrodes.	Due to too lean a mixture, piston is damaged or seized.	Replace the piston and spark plug. Tune the carburetor again, starting with low-speed tuning.
Melted electrodes and possibly blistered insulator. Metallic deposits on insulator.	Due to too lean a mixture, the spark plug melts.	Check the piston for holes or seizure. Check the cooling system, gasoline octane rating and ignition timing. After replacing the spark plug with colder type, tune the carburetor again starting with low-speed tuning.



Troubleshooting

Trouble	Check point	Remedy	Adjustment
Hard starting	Insufficient fuel	Add gasoline	
	Excessive use of starter (Excessively opened choke)	Clean spark plug	Return starter level to its seated position.
	Fuel passage is clogged or frozen	Clean	Parts other than carburetor. <ul style="list-style-type: none"> • Clogged fuel tank air vent, clogged fuel filter, or clogged fuel passage Carburetor <ul style="list-style-type: none"> • Clogged or frozen air vent clogged valve. • If water collects in float chamber, clean. (Also check for ice)
	Overflow	Correct	
Poor idling (Related symptoms) <ul style="list-style-type: none"> • Poor performance at low speeds • Poor acceleration • Slow response to throttle • Engine tends to stall 	Improper idling speed adjustment <ul style="list-style-type: none"> • Throttle stop screw 	Adjust idling speed	Adjust throttle stop screw so the engine idles at specified speed. Tightened too much – Engine speed is higher. Backed out too much – Engine does not idle.
	Clogged bypass hole	Clean	
	Clogged or loose pilot jet	Clean and retighten	Remove pilot jet, and blow it out with compressed air.
	Air leaking into carburetor joint	Retighten clamp screws	
	Defective starter valve seat	Clean or replace	
	Overflow	Correct	
Poor performance at mid-range speeds (Related symptoms) <ul style="list-style-type: none"> • Momentary slow response to throttle • Poor acceleration 	Clogged or loose pilot jet	Clean and retighten	Remove pilot jet, and blow it out with compressed air.
	Lean mixtures	Overhaul carburetor	
Poor performance at normal speeds (Related symptoms) <ul style="list-style-type: none"> • Excess fuel consumption • Poor acceleration 	Clogged air vent	Clean	Remove the air vent pipe, and clean.
	Clogged or loose main jet	Clean and retighten	Remove main jet, and blow it out with compressed air.
	Overflow	Check float and float valve and clean	

CARBURETOR TUNING



Trouble	Check point	Remedy	Adjustment
Poor performance at high speeds (Related symptoms) • Power loss • Poor acceleration	Starter valve is left open	Fully close valve	Return starter lever to its home position.
	Clogged air vent	Remove and clean	
	Clogged or loose main jet	Clean and retighten	Remove main jet, and clean with compressed air, then install.
	Clogged fuel pipe	Clean or replace	
	Dirty fuel tank	Clean fuel tank	
	Air leaking into fuel line	Check joint and retighten	
	Low fuel pump performance	Repair pump or replace	
	Clogged fuel filter	Replace	
Abnormal combustion (Mainly backfire)	Clogged intake	Check for ice, and remove	
	Lean mixtures	Clean carburetor and adjust	
	Dirty carburetor	Clean carburetor	
Overflow (Related symptoms) • Poor idling • Poor performance at low, mid-range, and high speeds • Excessive fuel consumption • Hard starting • Power loss • Poor acceleration	Dirty or clogged fuel pipe	Clean or replace fuel pipe	
	Clogged air vent	Clean	
	Clogged float valve	Disassemble and clean	Clean while taking care not to scratch valve seat.
	Scratched or unevenly worn float valve or valve seat	Clean or replace float valve and valve seat	Replace if seat is damaged.
	Broken float	Replace float	
	Incorrect float level • Worn float tang • Worn pin • Deformed float arm	If not within the specified range, check the following parts and replace any defective part. • Replace float • Replace arm pin • Replace float	Replace float assembly.

CLUTCH TUNING
High Altitude Tuning

Clutch Setting Data (VX750)

[A] Item	0 ~ 900 m 3,000 ft/900 m (STD)	750 ~ 1,700 m 2,500 ft ~ 5,500 ft (MA)	1,500 ~ 2,500 m 5,000 ft ~ 8,000 ft (MA)	2,100 m ~ 7,000 ft ~ (HA)
[B] Idle speed:	Approx. 1,500rpm	←	←	←
[C] Clutch engagement:	Approx. 3,300rpm	←	←	←
[D] Shift speed:	Approx. 8,250rpm	←	←	←
[E] Gearing:	22/35	←	20/35	20/37
[F] Primary spring:				
[G] Color	Y - P - Y	←	Y	P - Y - P
[H] Length	77.4mm	←	75.4mm	73.3mm
[I] Pre-load rate	30.0 kg-2.5 kg/mm	←	25.0-2.5	25.0-3.0
[J] Wire dia.	ø5.8mm	←	ø5.8mm	ø6.0mm
[K] Outside dia.	ø60mm	←	←	←
[L] Weight:	89A-10	←	←	←
[M] Weight rivet:(OUT) (IN)	Lead 14.0mm Steel 13.3mm	Steel 10.3mm Steel 10.3mm	Steel 10.3mm None	← ←
[N] Weight bush:	Duralon	←	←	←
[O] Roller outer dia.:	ø16.5mm	←	←	←
[P] Roller bush:	Duralon	←	←	←
[Q] Pri. clutch shim:	None	←	←	←
[R] Secondary spring:				
[G] Color	P-W	←	←	←
[H] Length	100mm	←	←	←
[I] Pre-load rate	33° (A-3) 782 kgmm/rad	53° (C-3) ←	← ←	← ←
[J] Wire dia.	ø5.5mm	←	←	←
[K] Outer dia.	ø69.5mm	←	←	←
[S] Sec. torque cam:	39°	←	←	36°
[T] Sec. clutch shim:	1.0mm x 1 pc	←	←	←

Y Yellow
W White
G Green
P Pink

CLUTCH TUNING



CLUTCH TUNING High Altitude Tuning

Clutch Setting Data (VX750ST)

[A] Item	0 ~ 900 m 3,000 ft/900 m (STD)	750 ~ 1,700 m 2,500 ft ~ 5,500 ft (MA)	1,500 ~ 2,500 m 5,000 ft ~ 8,000 ft (MA)	2,100 m ~ 7,000 ft ~ (HA)
[B] Idle speed:	Approx. 1,500rpm	←	←	←
[C] Clutch engagement:	Approx. 3,300rpm	←	←	←
[D] Shift speed:	Approx. 8,250rpm	←	←	←
[E] Gearing:	22/37 (70L)	←	21/39 (70L)	20/39 (70L)
[F] Primary spring:				
[G] Color	W - P - W	←	W - Y - W	G - Y - G
[H] Length	78.7mm	←	76.5mm	74.1mm
[I] Pre-load rate	30.0 kg-2.25 kg/mm	←	25.0-2.25	25.0-2.75
[J] Wire dia.	ø5.5mm	←	←	ø5.8mm
[K] Outside dia.	ø60mm	←	←	←
[L] Weight:	89A-10	←	←	←
[M] Weight rivet:(OUT) (IN)	Lead 14.0mm Steel 13.3mm	Steel 10.3mm Steel 10.3mm	Steel 10.3mm None	← ←
[N] Weight bush:	Duralon	←	←	←
[O] Roller outer dia.:	ø16.5mm	←	←	←
[P] Roller bush:	Duralon	←	←	←
[Q] Pri. clutch shim:	None	←	←	←
[R] Secondary spring:				
[G] Color	P-W	←	←	←
[H] Length	100mm	←	←	←
[I] Pre-load rate	33° (A-3) 782 kgmm/rad	53° (C-3) ←	← ←	← ←
[J] Wire dia.	ø5.5mm	←	←	←
[K] Outer dia.	ø69.5mm	←	←	←
[S] Sec. torque cam:	39°	←	←	36°
[T] Sec. clutch shim:	1.0mm x 1 pc	←	←	←

YYellow
WWhite
GGreen
PPink

GEARING SELECTION

① Secondary reduction

A Parts name	B Teeth&Links	C Parts No.
D Drive sprocket	20T	8AX-17682-00
	21T	8AX-17682-10
	22T(STD)	8AX-17682-20
	23T	8AX-17682-30
	24T	8AX-17682-40
E Driven sprocket	33T	8AX-47587-30
	35T(STD)	8AX-47587-50
	37T*	8AX-47587-70
	39T	8AX-47587-90
F Chain (links)	66	94880-08066
	68(STD)	94880-08068
	70*	94880-08070

G Drive gear \ H Driven gear	20T	21T	22T	23T	24T
33T	1.650 66L	X	X	1.435 68L	1.375 68L
35T	1.750 68L	1.667 68L	1.591 68L (STD)	X	1.458 70L
37T	1.850 68L	X	1.682 70L*	1.609 70L	1.542 70L
39T	1.950 70L	1.857 70L	1.773 70L	X	X

* For VX750ST (STD)

② Secondary spring

I Parts No.	J Spring rate (kgmm/rad)	K No. of coils	L Color	M Wire gauge (mm)	N Free length (mm)
90508-533 A 1	938	5.0	R	5.5	90.0
90508-551 A 3 (STD)	782	6.0	P—W	5.5	100.0
90508-553 A 0	670	7.0	Y	5.5	110.0

RRed
 PPink
 WWhite
 YYellow

GEARING SELECTION



A Torque cam (Secondary spring seat)

B Parts No.	C Cam angle
8AX-17684-90 (STD)	39°
8AX-17684-00	38°
8AX-17684-60	36°
8AX-17684-30	33°
8AX-17684-R 0	42~37°

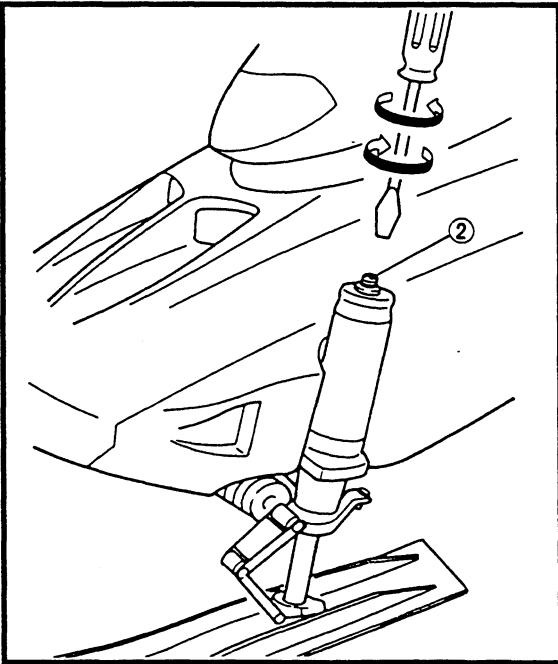
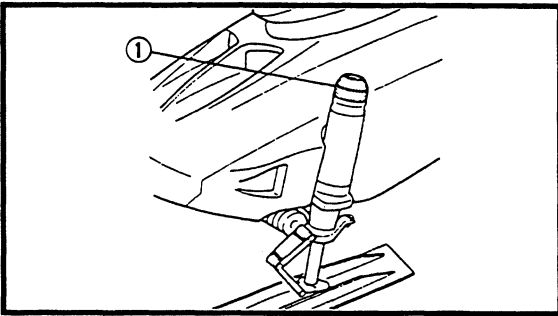
S Silver
 L Blue
 Go Gold
 Y Yellow
 P Pink
 R Red
 W White
 G Green

D Secondary spring twist angle

F Sheave \ E Seat	1	2	3	4
A	93°	3°	33°(STD)	63°
B	103°	13°	43°	73°
C	113°	23°	53°	83°

G Primary spring

H Parts No.	I Spring rate (kg/mm)	J Preload (kg)	K Color	L Wire gauge (mm)	M Outside diameter (mm)	N No. of coils	O Free length (mm)
90501-481 J 1	1.0	20.0	S-L-S	4.8	60.0	5.16	85.4
90501-487 G 8	1.5	15.0	Go	4.8	60.0	4.19	75.4
90501-507 G 2	1.5	20.0	Go-L-Go	5.0	60.0	4.61	78.7
90501-524 G 5	1.5	25.0	Go-Y-Go	5.2	60.0	5.08	82.1
90501-501 G 7	1.5	25.0	Go-Y-Go	5.0	59.0	4.65	81.7
90501-521 J 6	1.5	30.0	Go-P-Go	5.2	60.0	5.09	85.4
90501-507 G 7	1.75	15.0	R-Go-R	5.0	60.0	4.24	74.0
90501-527 G 1	1.75	20.0	R-L-R	5.2	60.0	4.65	76.8
90501-524 G 4	1.75	25.0	R-Y-R	5.2	60.0	4.64	79.7
90501-526 G 4	2.0	15.0	L-Go-L	5.2	60.0	4.32	72.9
90501-556 G 6	2.0	20.0	L	5.5	60.0	4.95	75.4
90501-553 G 0	2.0	25.0	L-Y-L	5.5	60.0	5.10	78.0
90501-557 G 6	2.25	15.0	W-Go-W	5.5	60.0	4.62	72.1
90501-556 G 5	2.25	20.0	W-L-W	5.5	60.0	4.62	74.3
90501-553 G 6	2.25	25.0	W-Y-W	5.5	60.0	4.61	76.5
90501-550 J 8	2.25	30.0	W-P-W	5.5	60.0	4.62	78.7
90501-557 G 5	2.5	15.0	Y-Go-Y	5.5	60.0	4.36	71.4
90501-556 G 7	2.5	20.0	Y-L-Y	5.5	60.0	4.36	73.4
90501-584 G 2	2.5	24.0	Y	5.8	60.0	4.95	75.0
90501-555 G 8	2.46	24.0	Y	5.5	60.0	4.43	75.2
90501-581 J 7	2.5	25.0	Y	5.8	60.0	4.96	75.4
90501-582 J 1	2.5	30.0	Y-P-Y	5.8	60.0	4.96	77.4
90501-607 G 4	2.75	15.0	G-Go-G	6.0	60.0	5.12	70.9
90501-607 G 0	2.75	20.0	G-L-G	6.0	60.0	5.12	72.7
90501-584 G 1	2.75	24.0	G-Y-G	5.8	60.0	4.70	74.1
90501-605 G 7	2.75	25.0	G-Y-G	6.0	60.0	5.00	74.1
90501-607 G 3	3.0	15.0	P-Go-P	6.0	60.0	4.86	70.4
90501-606 G 9	3.0	20.0	P-L-P	6.0	60.0	4.86	72.1
90501-604 G 0	3.0	24.0	P-Y-P	6.0	60.0	4.80	73.3
90501-602 J 0	3.0	30.0	P	6.0	60.0	4.74	75.4



SUSPENSION

Front suspension

- Adjust:
 - Damping force

Adjustment steps:

- Remove the cover ①.
- Turn the adjuster ② in or out to adjust the damping force.

Adjuster Position	19 clicks out	10 clicks out	5 clicks out	0
	Turns out ←		→ Turns in	

Damping force	Almost same as 10 clicks out	← Softer	→ Stiffer
---------------	------------------------------	----------	-----------

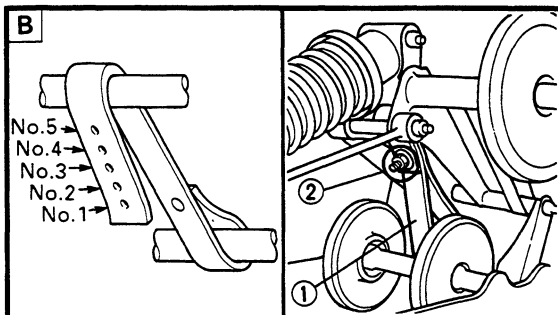
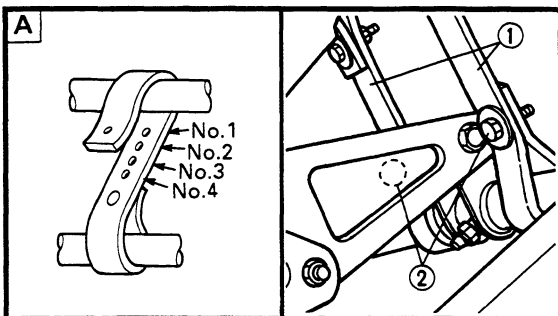
CAUTION:

Be sure the left and right damper adjuster is same position.

- Reinstall the cover.



Nut (ski):
45 Nm (4.5 m · kg , 32.5 ft · lb)



Rear Suspension

Stopper band setting

- Adjust:
 - Stopper band length

NOTE:

This adjustment will affect the stability and maneuverability of the machine.

Adjustment steps.

- Remove the stopper band ① securing bolt ② and washers.
- Adjust the length of stopper band.

Standard Setting:

Front **A** : No. 3 hole
Rear **B** : No. 1 hole


Front [A] ;

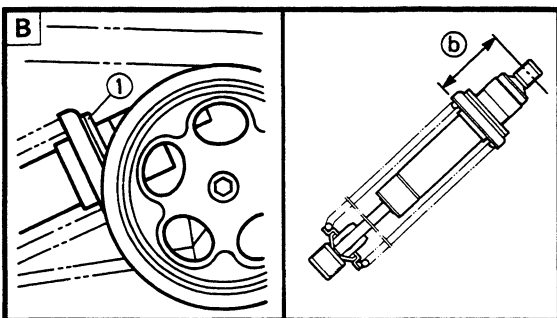
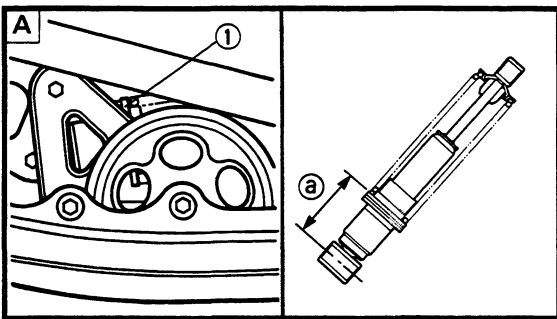
Hole No.	Maneuverability	Performance of straight running	Performance of starting acceleration
No. 1 ↑ ↓ No. 4	Less ↑ ↓ Better	Less ↑ ↓ Better	Less ↑ ↓ Better

Rear [B] ;

Hole No.	Riding comfort	Stability
No. 1 ↑ ↓ No. 5	Better ↑ ↓ Less	Less ↑ ↓ Better

- Tighten the bolt (stopper band).

 **Nut (stopper band):**
4 Nm (0.4 m · kg, 2.9 ft · lb)



Spring Preload

- Adjust:
 - Spring preload

Adjustment steps:

- Turn the spring seat ① in or out.

Spring Seat Distance	Standard	
	Longer ↔	Shorter
Preload	Harder ↔	Softer
	(a) Distance (Front) Max. 85.5 mm (3.37 in) 77.5 mm (3.05 in) Min. 70.5 mm (2.78 in)	Min. 69 mm (2.72 in) 77 mm (3.03 in) Max. 85 mm (3.35 in)
(b) Distance (Rear)	Max. 85 mm (3.35 in) 77 mm (3.03 in) Min. 69 mm (2.72 in)	Min. 70.5 mm (2.78 in) 77.5 mm (3.05 in) Max. 85.5 mm (3.37 in)

[A] Front

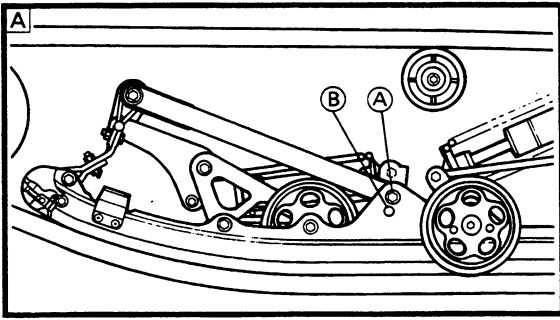
[B] Rear

WARNING

This shock absorber contains highly pressurized nitrogen gas.

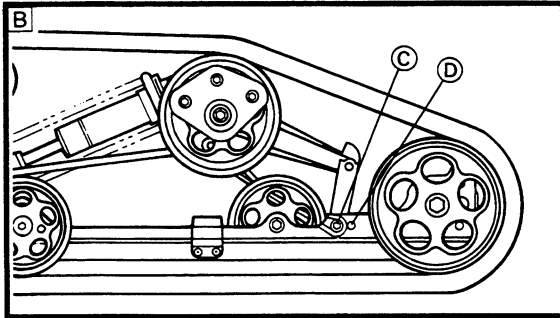
Do not tamper with or attempt to open the shock absorber assembly.

Do not subject the shock absorber assembly to open flame or high heat, which could cause it to explode.



2. Adjust:
- Pivot arm setting

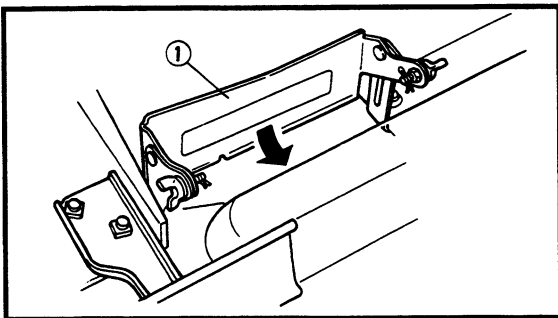
A Position	Performance of starting acceleration*1	Maneuverability
Ⓐ (STD)	Fair	Better
Ⓑ	Better	Less



B Position	Riding comfort
Ⓒ (STD)	Soft
Ⓓ *2	Hard

- *1: This is due to change of weight transfer on the track.
- *2: When the Ⓓ position is selected, the stopper bands should be at No. 1 position in order to maintain R/R suspension at standard height.

- Ⓐ Front
Ⓑ Rear

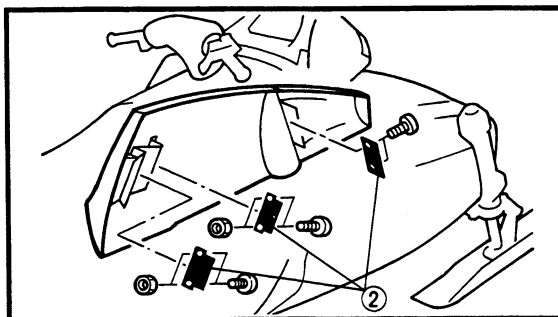


ENGINE ROOM PLATES

Open the plates to cool down the engine room.

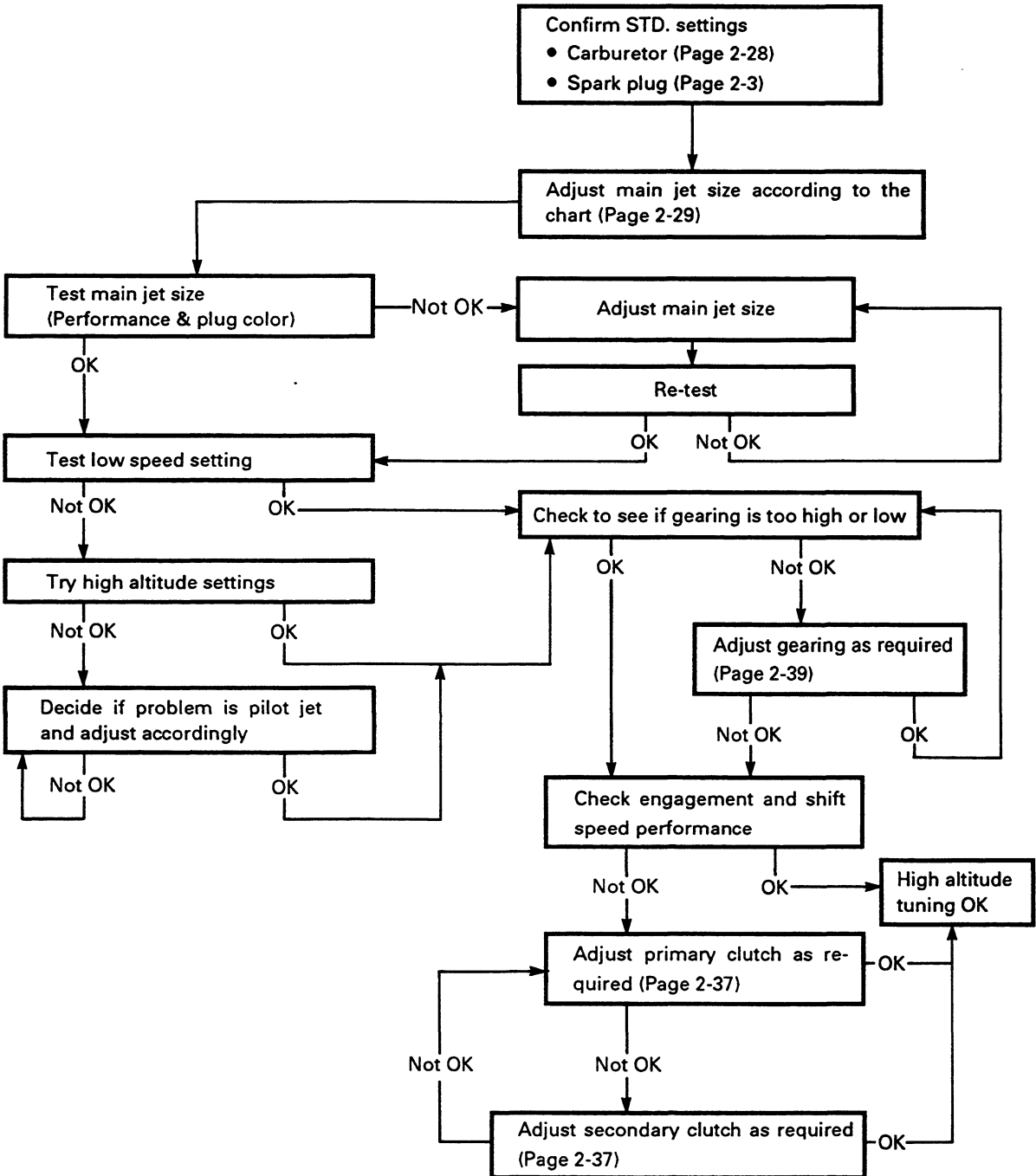
CAUTION: _____

- Close the plates ① and attach the lower plates ② when the machine is operated in deep powder snow.
- Remove the lower plates ② when the atmospheric temperature is 5°C (41.5°F) or higher.



HIGH ALTITUDE TUNING

To attain the best performance in high altitude conditions, carefully tune the snowmobile as outlined below.



**CHAPTER 3.
CHASSIS**

STEERING 3-1
 REMOVAL 3-2
 INSPECTION 3-4
 INSTALLATION 3-5

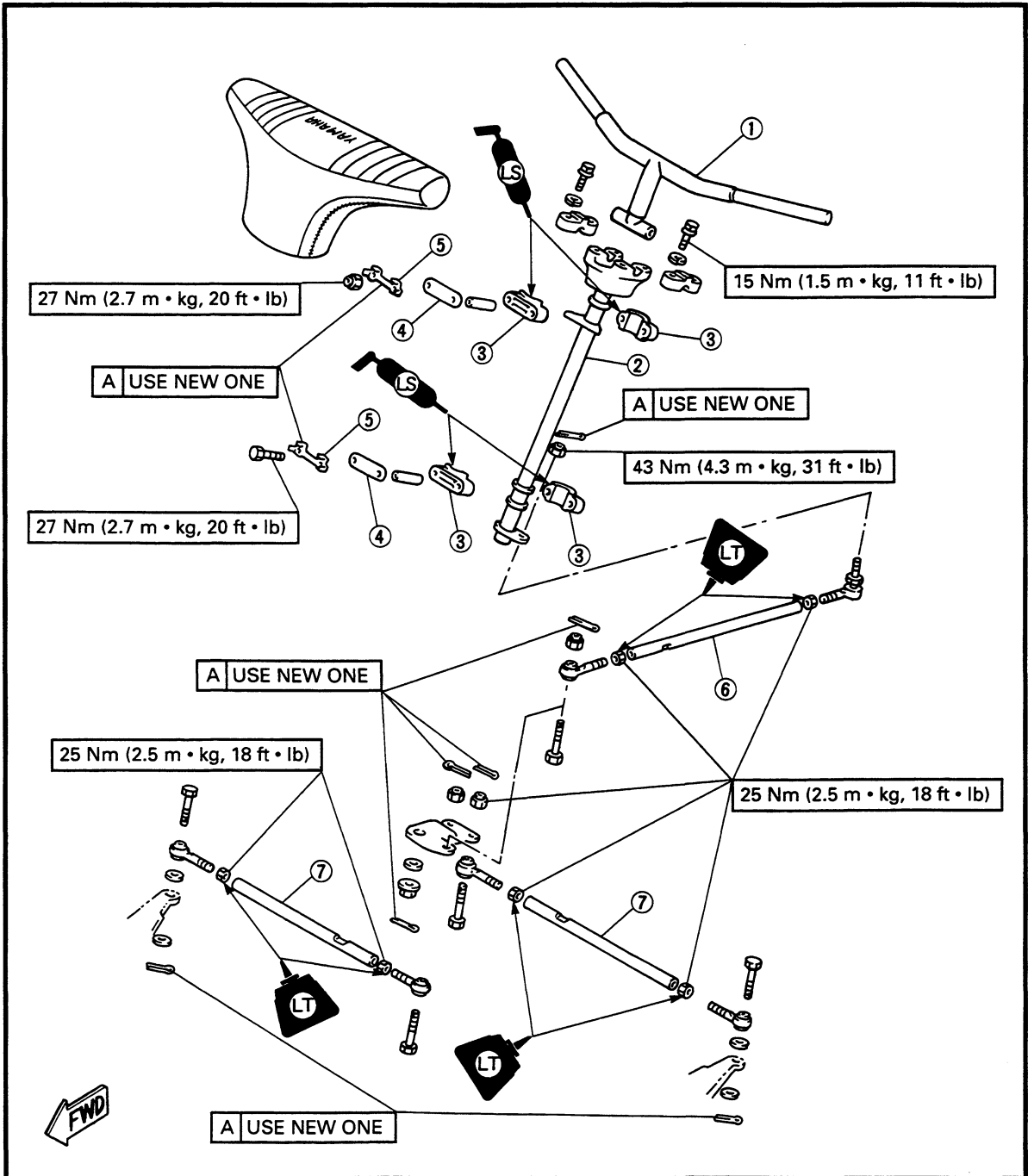
SKI 3-8
 REMOVAL 3-9
 INSPECTION 3-9
 INSTALLATION 3-9

FRONT SUSPENSION 3-11
 REMOVAL 3-12
 INSPECTION 3-14
 INSTALLATION 3-15

CHASSIS

STEERING

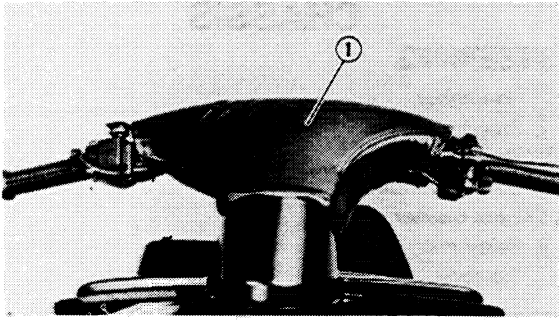
- ① Handlebar
- ② Steering column
- ③ Bearing
- ④ Bearing holder
- ⑤ Lock washer
- ⑥ Relay rod
- ⑦ Tie-rod



REMOVAL

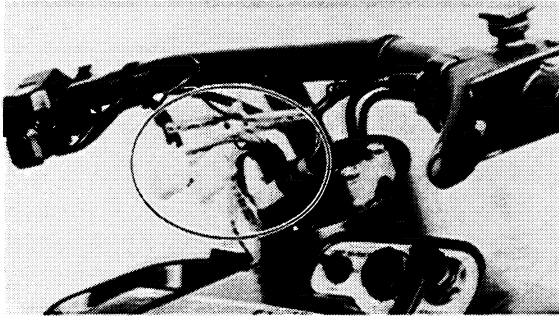
1. Remove:

- Handlebar cover ①



2. Disconnect:

- Handlebar switch coupler (right)
- Brake light switch coupler
- Headlight beam switch coupler
- Grip warmer leads

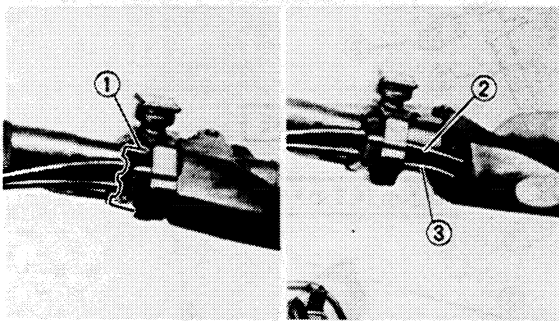


3. Remove:

- Holder ① (throttle cable)

4. Disconnect:

- Throttle cable ②
- Oil pump cable ③ (from throttle lever)

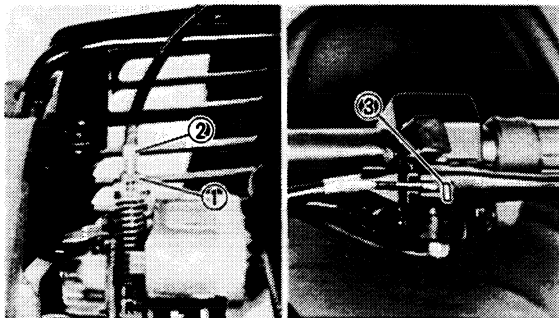


5. Remove:

- Brake cable

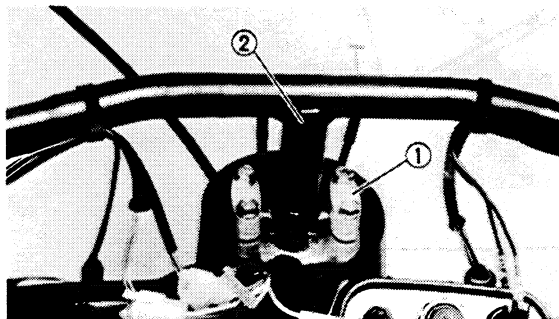
Removal steps:

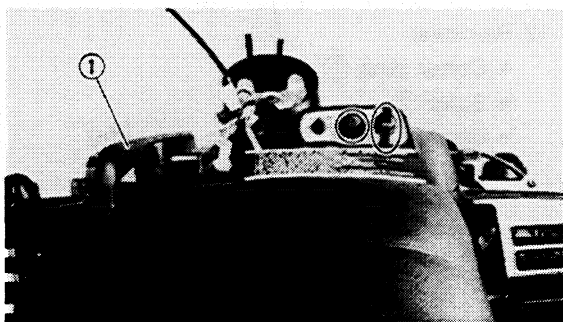
- Loosen the locknut ① .
- Turn in the adjuster fully ② .
- Disconnect the brake cable end ③ from the brake lever.



6. Remove:

- Band
- Handlebar holders ① (upper)
- Handlebar ②





7. Remove:

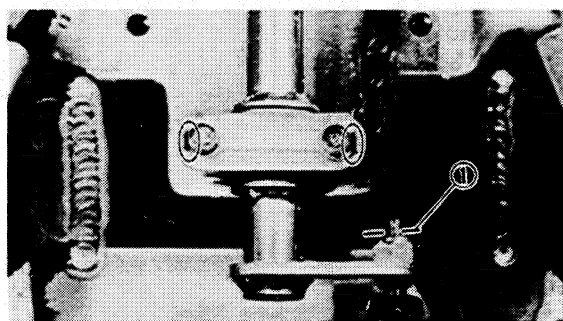
- Seat
- Center cover ①

NOTE:

Remove the holding nuts (main switch, "STARTER" lever, and disconnect the grip warmer switch coupler when removing the center cover.

8. Remove:

- Intake silencer (See page 2-11)
- Carburetors (See page 7-3)
- Engine assembly (See page 5-1)

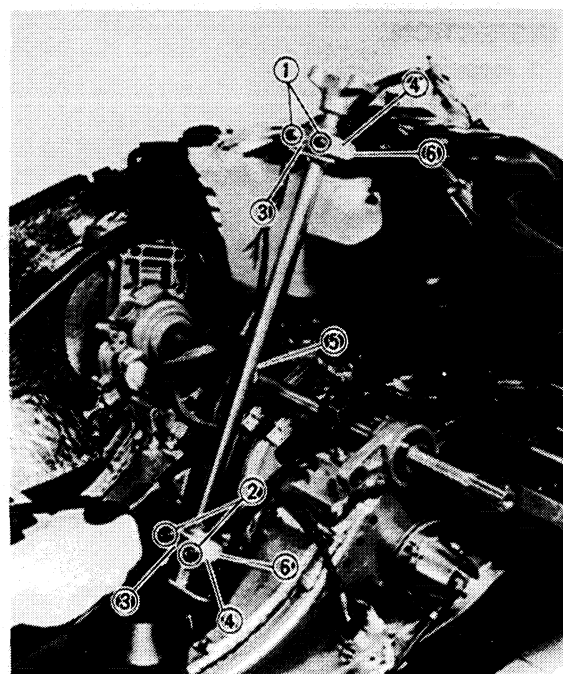


9. Remove:

- Cotter pin ①
- Nut (relay rod)

NOTE:

When removing the relay rod from the steering column, the relay rod end needs to be held fixed in order to facilitate the lock nut removal.

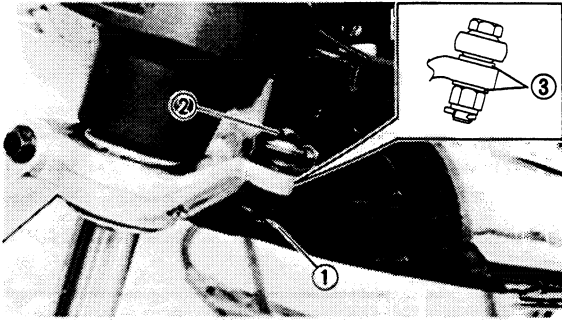


10. Straighten:

- Lock washer tabs (upper and lower)

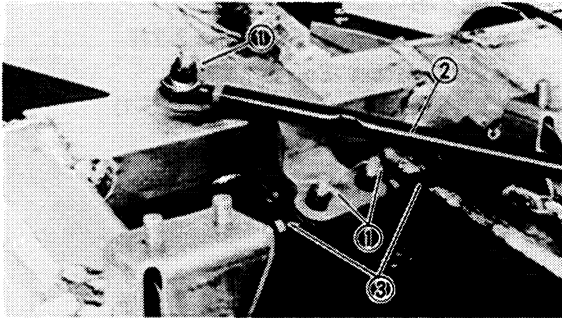
11. Remove:

- Nuts ①
- Bolts ②
- Lock washers
- Bearing holders ③
- Bearings ④ (upper)
- Collars
- Steering column ⑤
- Bearings ⑥ (lower)



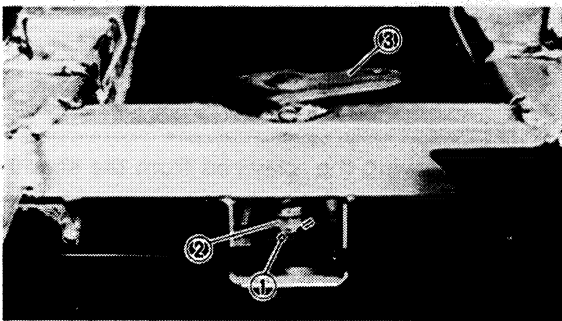
12. Remove:

- Cotter pins ①
- Bolts ②
- Washers ③ (suspension arm side)



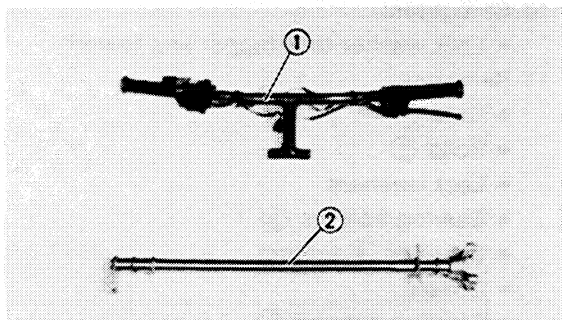
13. Remove:

- Cotter pin ①
- Bolt
- Relay rod ②
- Tie rods ③



14. Remove:

- Cotter pin ①
- Nut ②
- Washer
- Relay arm ③



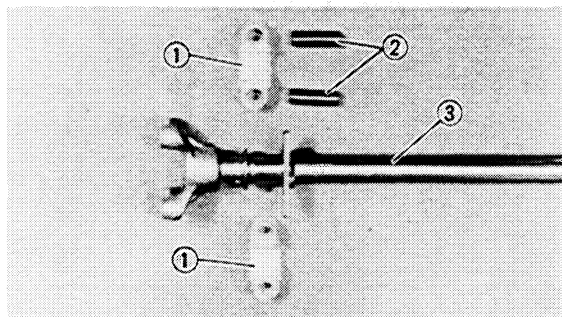
INSPECTION

1. Inspect:

- Handlebar ①
 - Steering column ②
- Bends/Cracks/Damage → Replace.

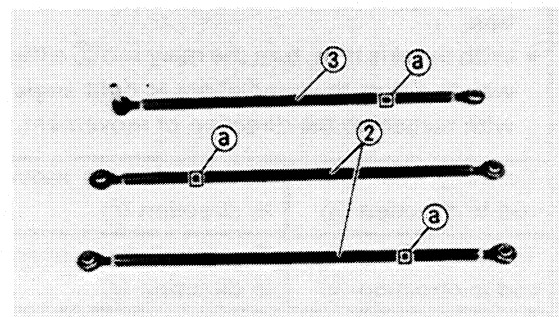
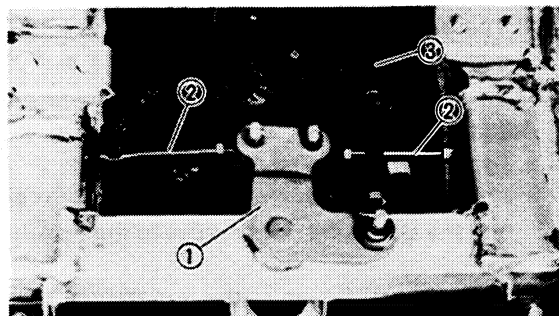
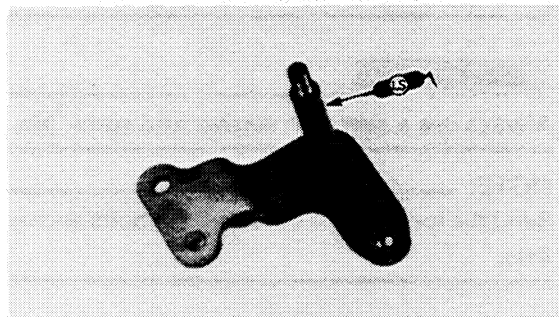
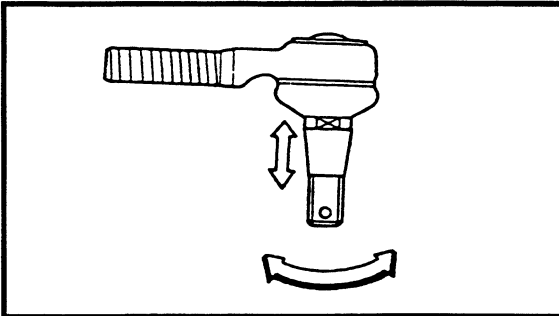
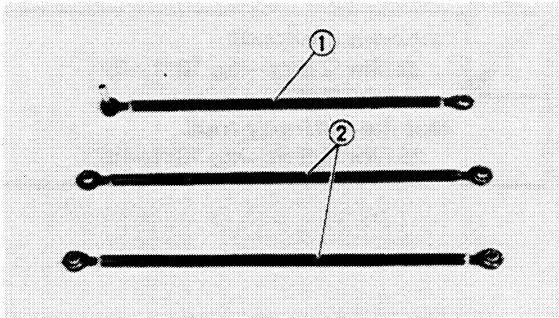
⚠ WARNING

**Do not attempt to straighten a bent column.
This may dangerously weaken the column.**



2. Inspect:

- Bearings ① (steering column)
 - Collars ②
- Wear/Damage → Replace.
- Steering column ③ (bearing contact surfaces)
- Scratches/Wear/Damage → Replace.



3. Inspect:

- Relay rod ①
 - Tie-rods ②
- Bends/Cracks/Damage → Replace.

⚠ WARNING

Do not attempt to straighten a bent rod. This may dangerously weaken the rod.

4. Check:

- Rod end movement
- Rod end free play exists → Replace.
 Rod end turns roughly → Replace.

5. Inspect:

- Relay arm
- Cracks/Damage → Replace.

INSTALLATION

Reverse the "REMOVAL" procedure.
 Note the following points.

1. Install:

- Relay arm ①
- Tie rod ②
- Relay rod ③

NOTE:

- Be sure that the rod-end of the tie rod and relay rod on the indentation@side is connected to the relay arm.
- The threads on both rod-ends must be the same length.

CAUTION:

Always use a new cotter pin.



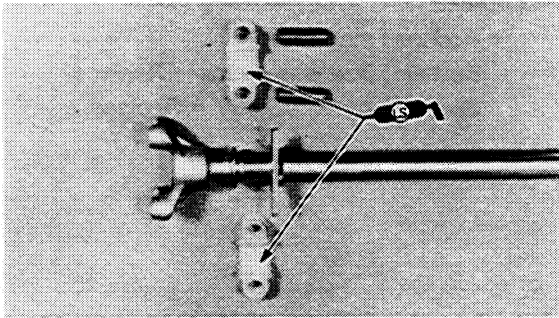
Lock nut (rod-end):

25 Nm (2.5 m • kg, 18 ft • lb)

LOCTITE®

Nut (tie rod/relay rod):

25 Nm (2.5 m • kg, 18 ft • lb)



2. Apply

- Low temperature lithium soap base grease (to bearing inner surface)

3. Tighten:



Nut (bearing holder):

27 Nm (2.7 m • kg, 20 ft • lb)

Bolt (bearing holder):

27 Nm (2.7 m • kg, 20 ft • lb)

Nut (relay rod):

43 Nm (4.3 m • kg, 31 ft • lb)

CAUTION:

Always use a new lock washer and cotter pin.

NOTE:

Bend the lock washer tab along the bolts and nuts flats.

4. Adjust:

- skis

Adjustment steps:

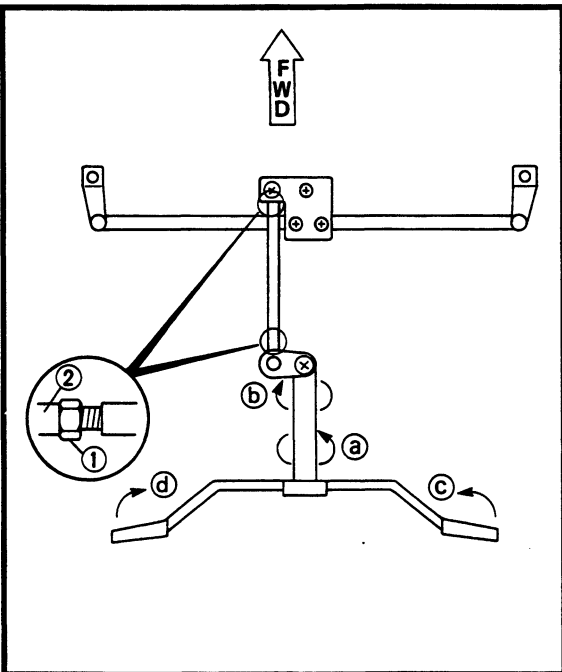
- Temporarily install the handlebar.
- Hold the handlebar straight, and check to see that the skis are at right angles to the handlebar.
- Loosen the locknuts (relay rod) ①.
- Direct the skis in parallel to the moving direction.
- With the skis thus, turn the relay rod ② either way to adjust the handlebars at right angles with respect to the direction of movement.

Turning the relay rod in direction ①

The handlebars move in direction ③

Turning the relay rod in direction ②

The handlebars move in direction ④

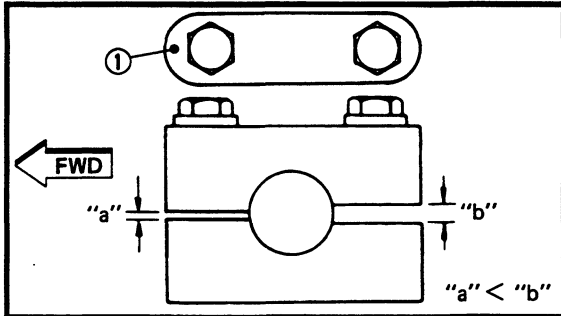




- Tighten the locknuts (relay rod) ① .



Locknut (relay rod):
 25 Nm (2.5 m · kg, 18 ft · lb)
 LOCTITE®



5. Tighten:



Handlebar holder bolt:
 15 Nm (1.5 m · kg, 11 ft · lb)

NOTE:

- The upper handlebar holder should be installed with the punch mark ① forward.
- Tighten the bolts to specification so that the front clearance "a" is smaller than rear clearance "b".

CAUTION:


First tighten the bolts on the front side of the handlebar holder, and then tighten the bolts on the rear side.

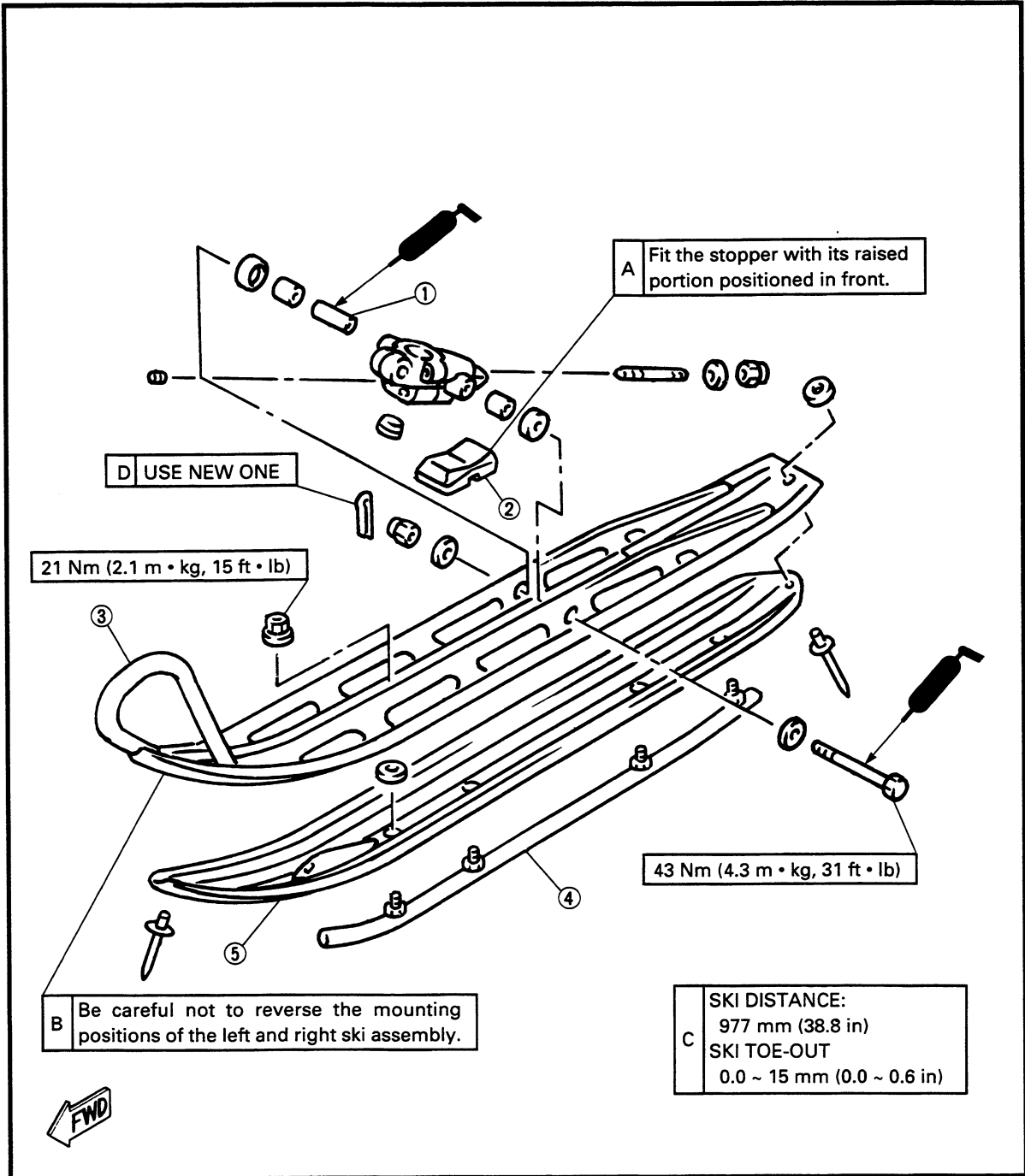
6. Adjust:

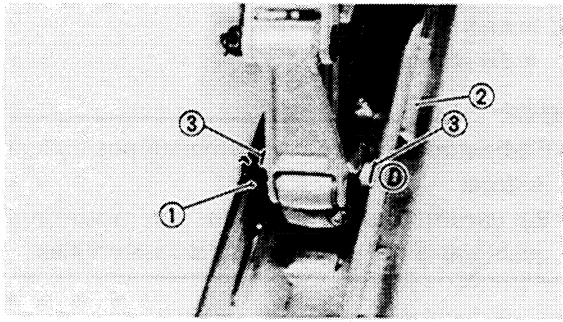
- Brake lever free play (See page 2-9)

SKI

- ① Collar
- ② Ski stopper
- ③ Ski
- ④ Ski runner
- ⑤ Ski cover

 **Recommended grease:**
ESSO Beacon 325 grease or
Aeroshell grease #7A



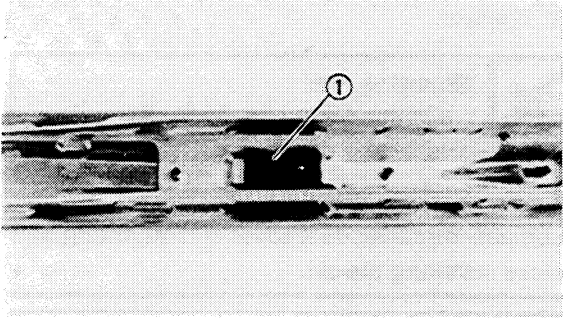


REMOVAL

1. Elevate the ski by placing a suitable stand under the chassis.

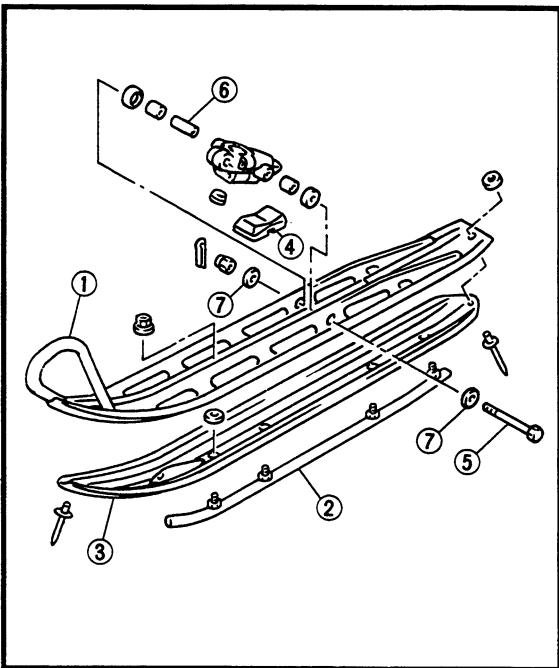
2. Remove:

- Cotter pin ①
- Ski ②
- Dust covers ③
- Collar



3. Remove:

- Ski stopper ①
- Ski runner



INSPECTION

1. Inspect:


- Ski ①
- Ski runner ②
- Ski cover ③ (See page 2-23)
- Ski stopper ④
Wear/Cracks/Damage → Replace.
- Mounting bolt ⑤
- Collar ⑥
- Spacer ⑦
Wear/Damage → Replace.

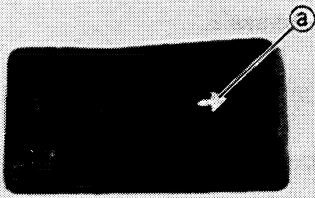
INSTALLATION

Reverse the "REMOVAL" procedure.

Note the following points.

1. Tighten:

	<p>Ski runner nut: 21 Nm (2.1 m • kg, 15 ft • lb)</p>
---	--



2. Install:
- Ski stopper

NOTE: _____


- Fit the stopper with its arrow markⒶ positioned in front.
- Be careful not to reverse the mounting positions of the left and right ski assemblies.

3. Tighten:

	<p>Mounting nut: 43 Nm (4.3 m • kg, 31 ft • lb)</p>
---	--

NOTE: _____

Lubricate the collar, dust cover and mounting bolt before installing the ski.


	<p>Recommended grease: ESSO Beacon 325 grease or Aeroshell grease #7A</p>
---	--

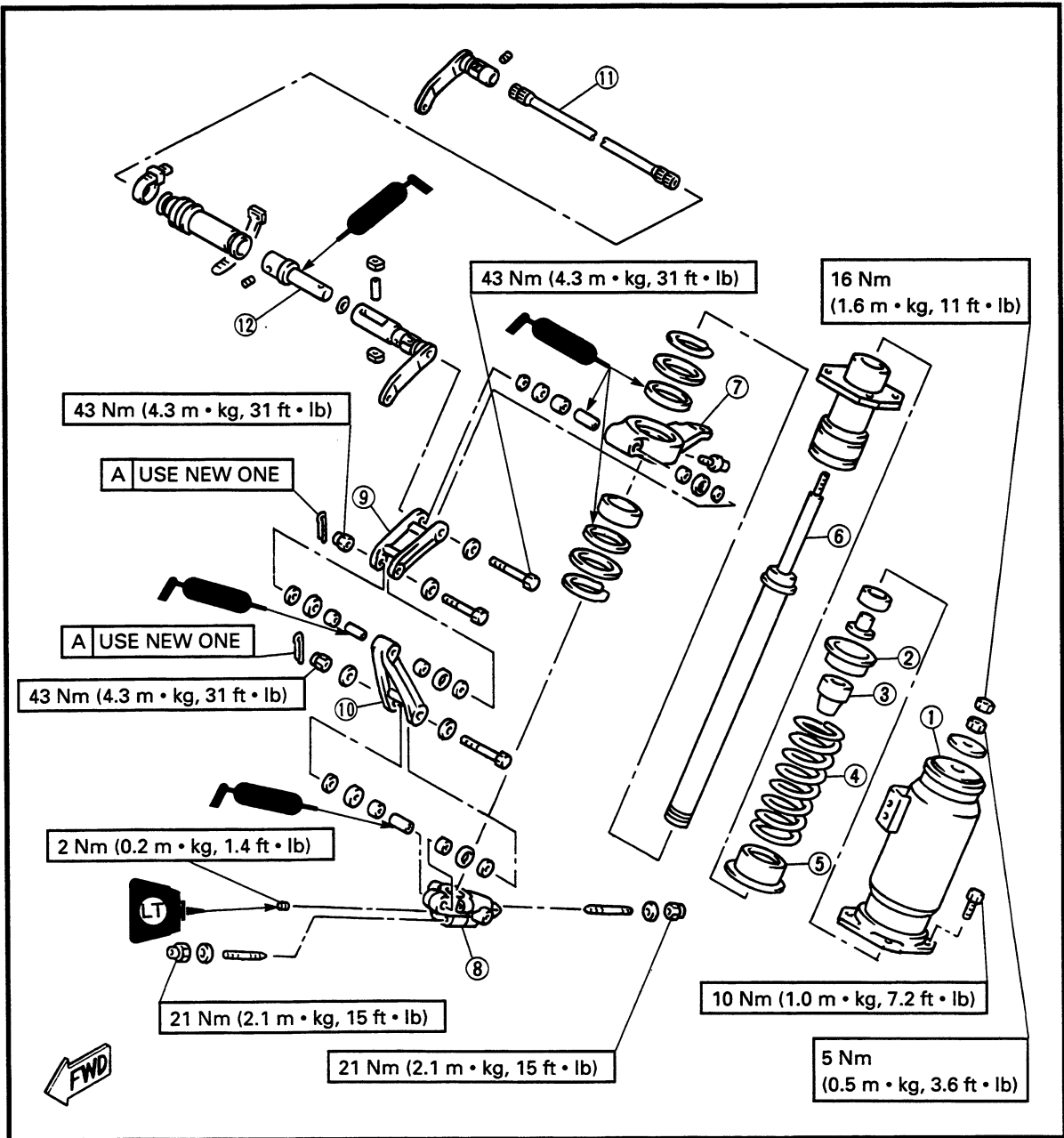
CAUTION: _____

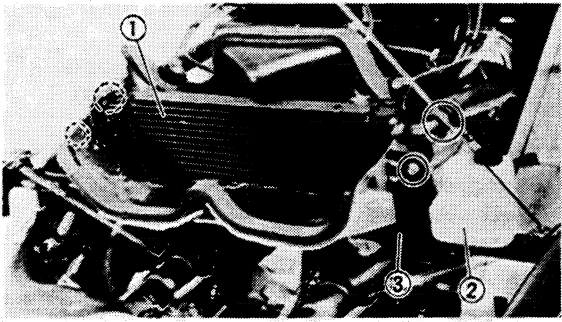
Always use a new cotter pin.

FRONT SUSPENSION

- ① Absorber holder
- ② Spring seat (upper)
- ③ Dumper
- ④ Spring
- ⑤ Spring seat (lower)
- ⑥ Shock absorber
- ⑦ Suspension arm
- ⑧ Suspension bracket
- ⑨ Front arm (upper)
- ⑩ Front arm (lower)
- ⑪ Stabilizer rod
- ⑫ Stabilizer slider

 **Recommended grease:**
ESSO Beacon 325 grease or
Aeroshell grease #7A





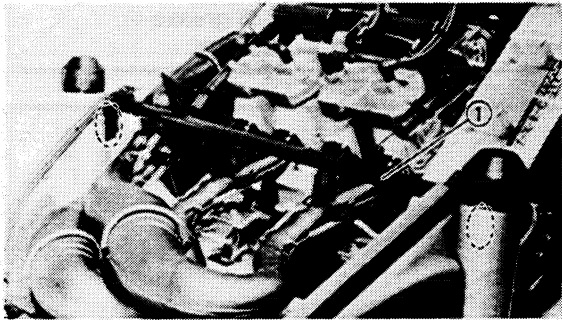
REMOVAL

1. Remove:

- Side cowlings (left and right) (See page 2-1)
- Radiator assembly ① (See page 6-3)
- Reservoir tank ② (from tie bar ③)

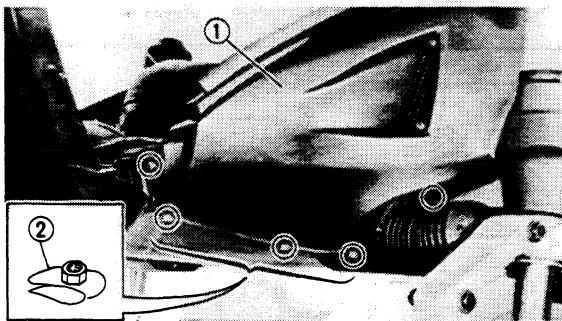
NOTE:

Do not disconnect the hoses.



2. Remove:

- Tie bar ①

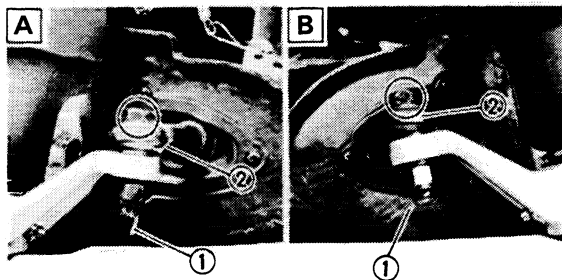


3. Remove:

- Hoods ①

NOTE:

When removing the hood, the nuts ② may fall off. Be careful not to lose these parts.



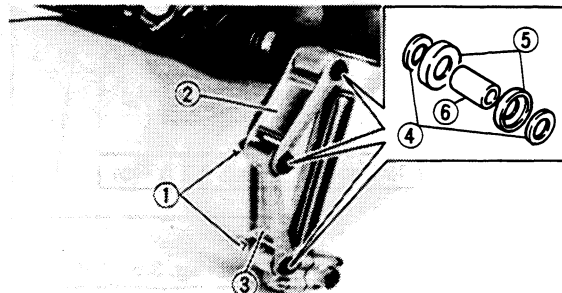
4. Remove:

- Ski (See page 3-9)

5. Remove:

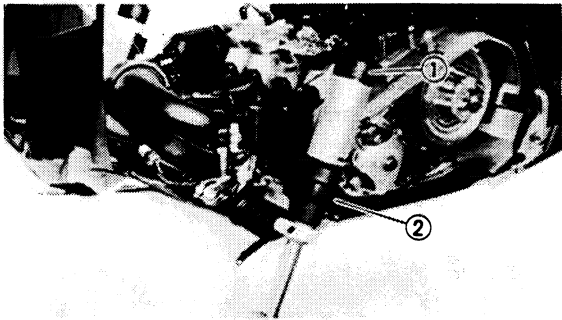
- Cotter pin ①
- Tie-rod ②

- A** Left
- B** Right

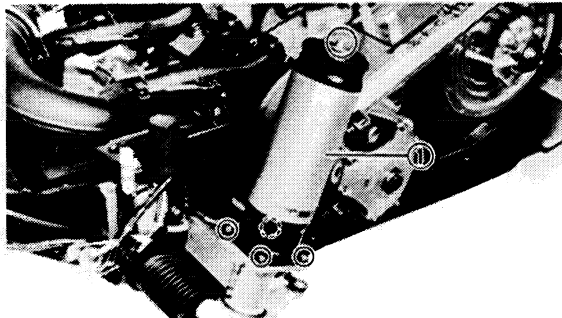


6. Remove:

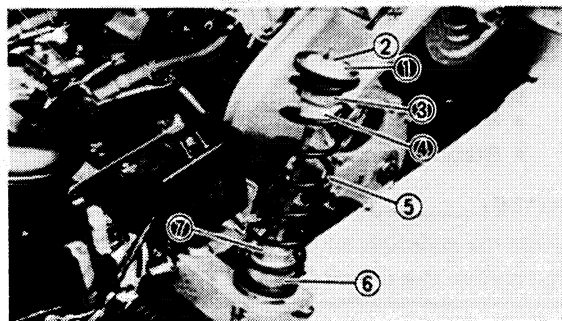
- Cotter pins ①
- Front arm ② (upper)
- Front arm ③ (lower)
- Washers ④
- Thrust washers ⑤
- Collars ⑥



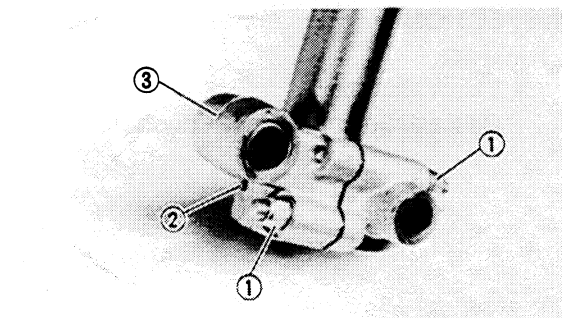
7. Remove:
- Cap ① (suspension)
 - Protector ②



8. Remove:
- Absorber holder ①

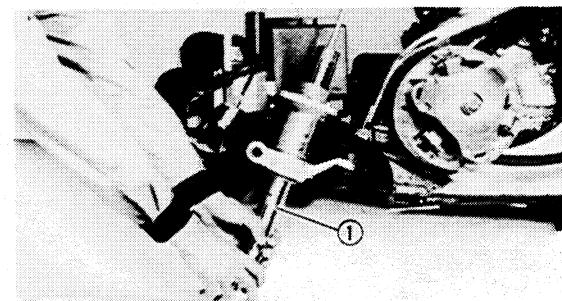


9. Remove:
- Spacer collar ①
 - Flange plate ②
 - Spring seat ③ (upper)
 - Bump rubber ④
 - Spring ⑤
 - Spring seat ⑥ (lower)
 - Absorber cover ⑦

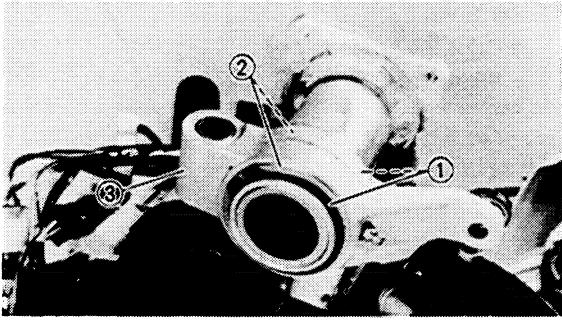


10. Loosen:
- Nuts ①
 - Set screw ②

11. Remove:
- Suspension bracket ③

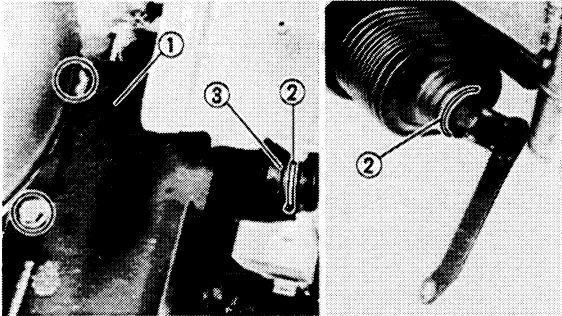


12. Remove:
- Shock absorber ①



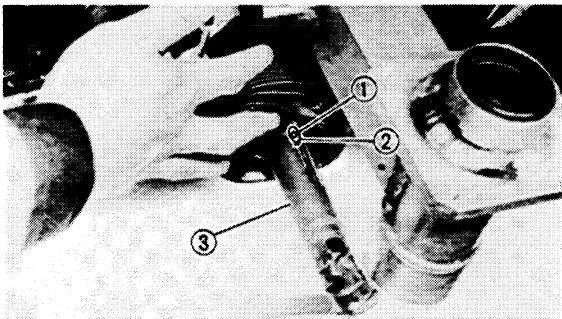
13. Remove:

- Circlips ①
- Washers ②
- Suspension arm ③



14. Remove:

- Exhaust pipe (left)
- Protector ① (exhaust pipe)
- Tie laps ②
- Circlip ③

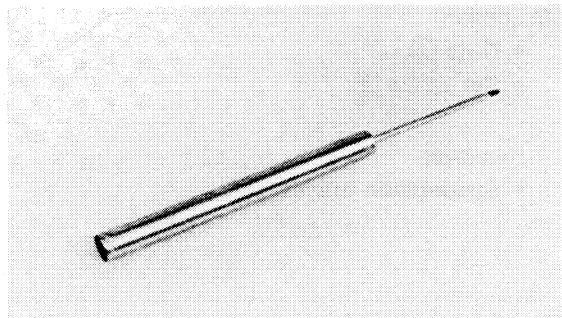


15. Remove:

- Dowel pin ①
- Pin holders ②
- Stabilizer joint ③
- Stabilizer assembly

NOTE:

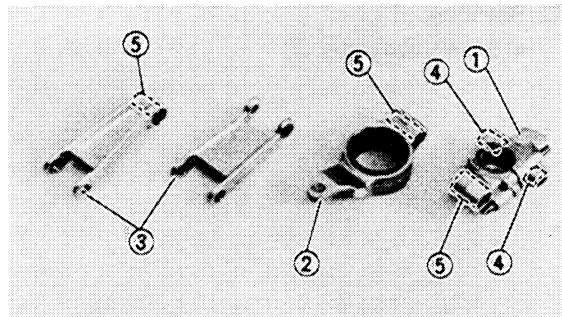
Slide the stabilizer slider toward the machine side to remove the dowel pin.



INSPECTION

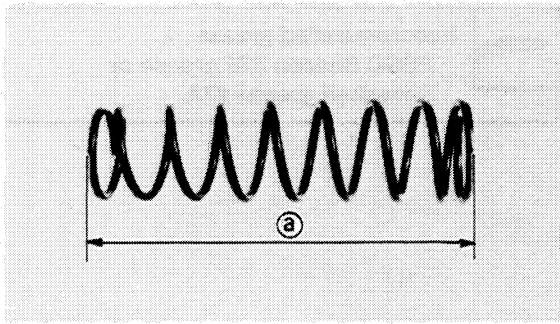
1. Inspect:

- Shock absorber
- Oil leaks/Bend/Damage → Replace.



2. Inspect:

- Suspension bracket ①
- Suspension arm ②
- Front arms ③
- Bushings ④
- Bearings ⑤
- Cracks/Wear/Damage → Replace.



3. Inspect:

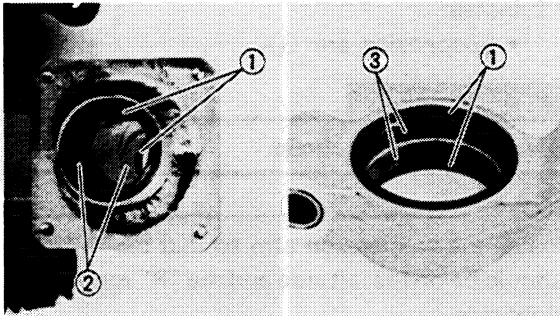
- Spring
Wear/Cracks/Damage → Replace.

4. Measure:

- Spring free length (a)
Out of specification → Replace.

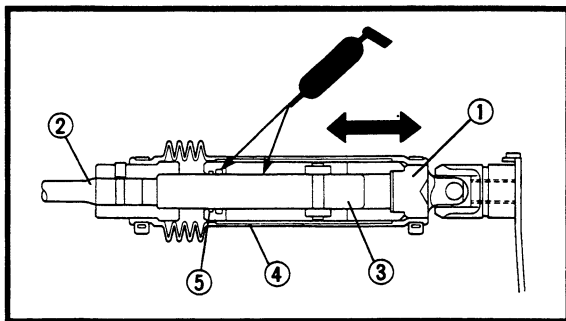


Spring free length limit:
235.0 mm (9.25 in)



5. Inspect:

- Oil seals (1)
- Bushings (2)
Damage → Replace.



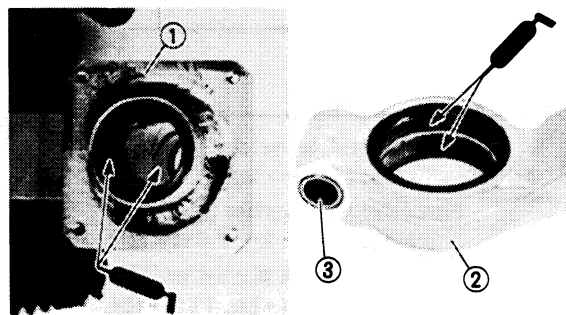
6. Inspect:

- Stabilizer joint (1)
- Stabilizer (2)
- Stabilizer link (3)
Cracks/Damage → Replace.
- Stabilizer slider (4)
- O-ring (5)
Wear/Cracks/Damage → Replace.

Unsmooth movement → Apply a low temperature grease into the stabilizer slider.



Recommended grease:
ESSO Beacon 325 grease or
Aeroshell grease #7A

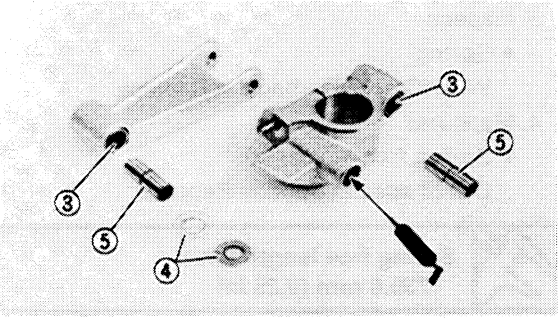



INSTALLATION

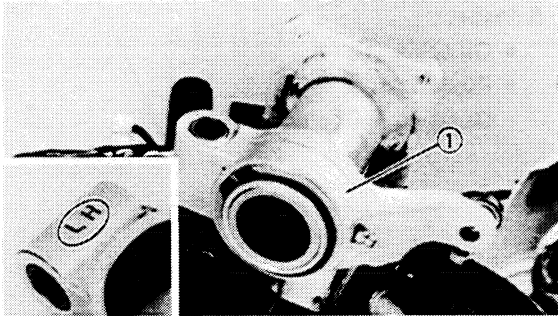
Reverse the "REMOVAL" procedure.
Note the following points.

1. Lubricate:

- Bushing (suspension support (1))
- Bushing (suspension arm (2))
- Oil seal lips
- Bearings (3)
- Thrust washers (4)
- Collars (5)



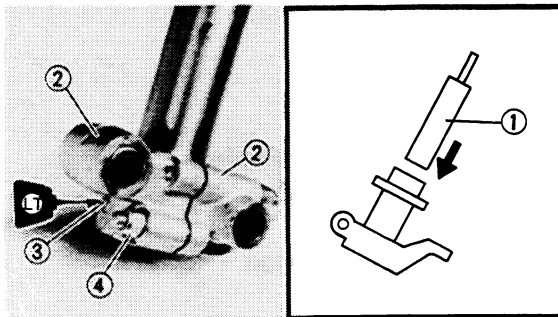
 **Recommended grease:**
ESSO Beacon 325 grease or
Aeroshell grease #7A



2. Install:
- Suspension arm ①

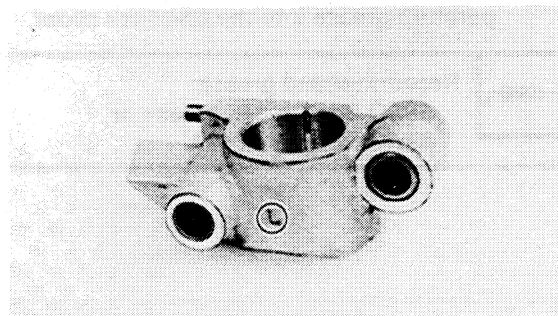
⚠ WARNING _____
Always use a new circlip.

NOTE: _____
 Install the suspension arm so that the "L" mark should be on the left side and the "R" mark on the right side.




3. Install
- Shock absorber ①

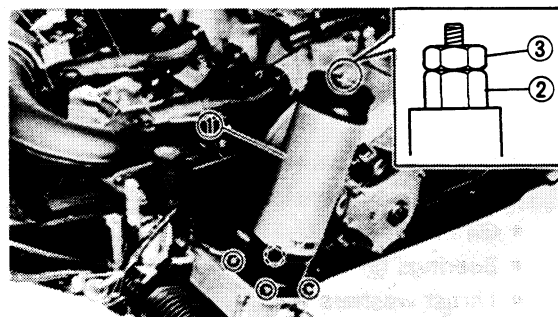
NOTE: _____
 When attaching the shock absorber, insert it very carefully from above the bracket, to avoid damaging the oil seal.




4. Install:
- Suspension bracket ②

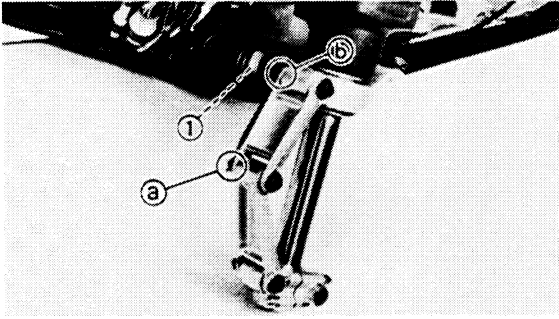
 **Set screw ③ :**
2 Nm (0.2 m • kg, 1.4 ft • lb)
LOCTITE®
Nut ④ :
21 Nm (2.1 m • kg, 15 ft • lb)

NOTE: _____
 Install the suspension bracket so that the "L" mark should be on the left side and the "R" mark on the right side.



5. Tighten:

 **Bolt (absorber holder ①):**
10 Nm (1.0 m • kg, 7.2 ft • lb)
Nut (shock absorber ②):
5 Nm (0.5 m • kg, 3.6 ft • lb)
Lock nut (shock absorber ③):
16 Nm (1.6 m • kg, 11 ft • lb)



6. Tighten:



Nut/Bolt (front arm):
43 Nm (4.3 m • kg, 31 ft • lb)

NOTE: _____

- Be sure to install the front arms so that the "UPPER-L" mark is positioned to the upper-left and the "LOWER-L" mark is positioned to the lower-left.
- When installing the stabilizer joint ① to the front arm, connect ②.
- Lift up the front of the machine first and then tighten the lock nuts ③. (Left and right)

CAUTION: _____

Always use a new cotter pin.

**CHAPTER 4.
POWER TRAIN**

PRIMARY SHEAVE AND DRIVE V-BELT 4-1

 REMOVAL 4-2

 DISASSEMBLY 4-2

 INSPECTION 4-4

 ASSEMBLY 4-6

 INSTALLATION 4-7

SECONDARY SHEAVE 4-9

 REMOVAL 4-10

 DISASSEMBLY 4-10

 INSPECTION 4-11

 ASSEMBLY 4-12

 INSTALLATION 4-14

 SHEAVE DISTANCE AND OFFSET
 ADJUSTMENT 4-14

**DRIVE CHAIN HOUSING AND
JACKSHAFT** 4-17

 REMOVAL 4-18

 INSPECTION 4-19

 INSTALLATION 4-20

BRAKE 4-22

 REMOVAL 4-23

 DISASSEMBLY 4-23

 INSPECTION 4-24

 ASSEMBLY AND INSTALLATION 4-25

SLIDE RAIL SUSPENSION 4-28

 REMOVAL 4-30

 DISASSEMBLY 4-30

 INSPECTION 4-32

 ASSEMBLY 4-34

 INSTALLATION 4-35

FRONT AXLE AND TRACK 4-36

 REMOVAL 4-37

 INSPECTION 4-37

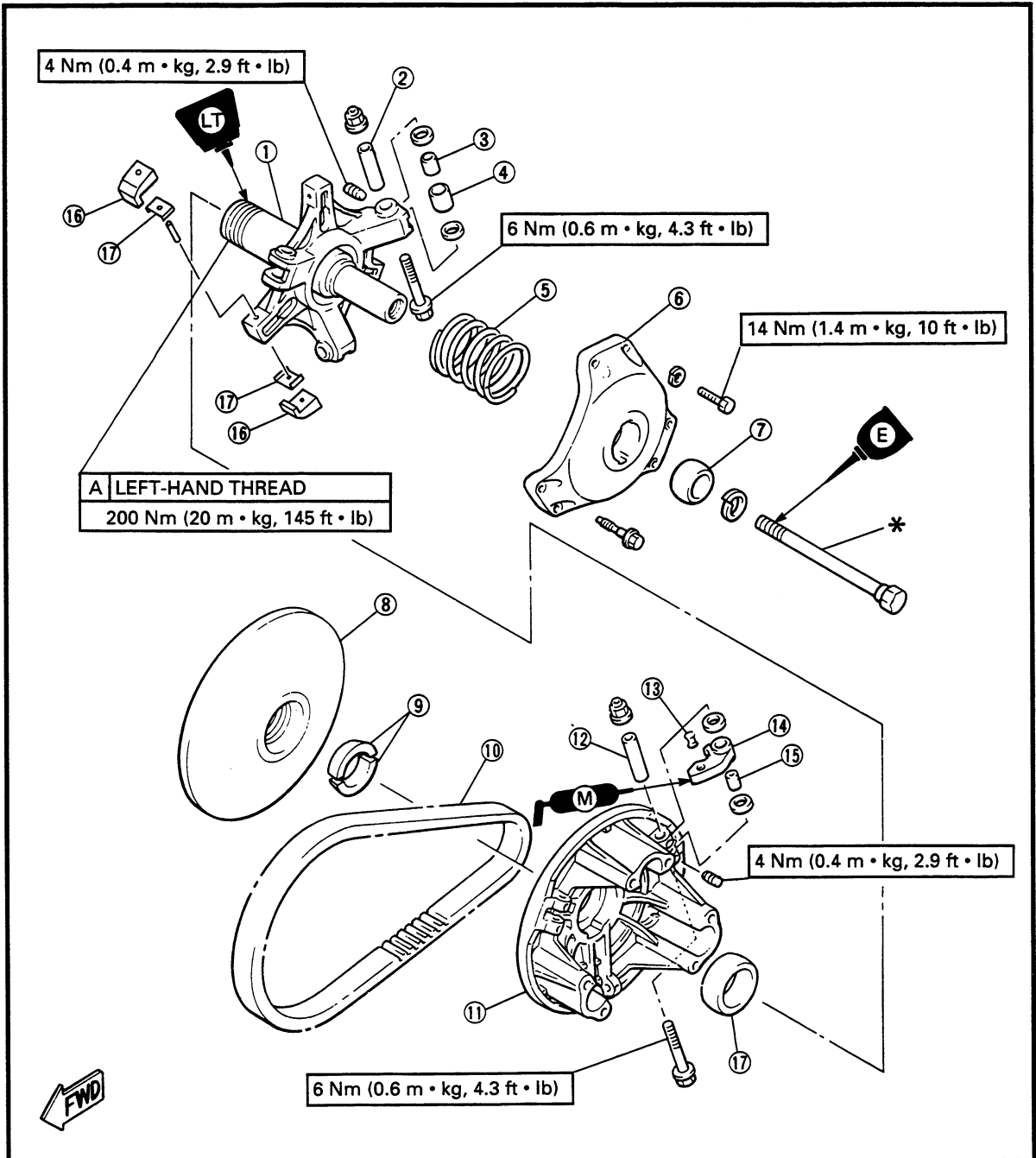
 INSTALLATION 4-38

POWER TRAIN

PRIMARY SHEAVE AND DRIVE V-BELT

- ① Spider
- ② Collar
- ③ Bushing
- ④ Roller
- ⑤ Primary sheave spring
- ⑥ Primary sheave cap
- ⑦ Bushing
- ⑧ Fixed sheave
- ⑨ Stopper
- ⑩ V-belt
- ⑪ Sliding sheave
- ⑫ Collar
- ⑬ Rivet
- ⑭ Weight
- ⑮ Bushing
- ⑯ Bushing
- ⑰ Shim

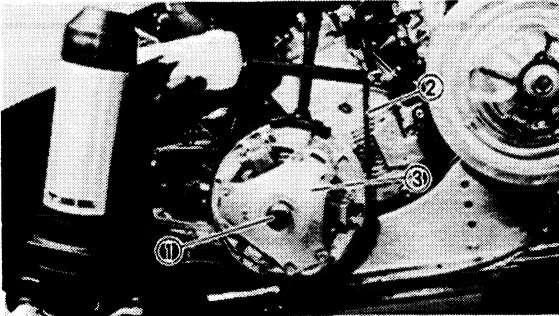
- ***
1. Tighten the bolt.
120 Nm (12 m • kg, 87 ft • lb)
 2. Loosen the bolt completely.
 3. Retighten the bolt.
60 Nm (6.0 m • kg, 43 ft • lb)



REMOVAL

1. Remove:

- Side cowling (left) (See page 2-3)
- Drive V-belt guard (See page 2-16)
- Drive V-belt (See page 2-16)



2. Remove:

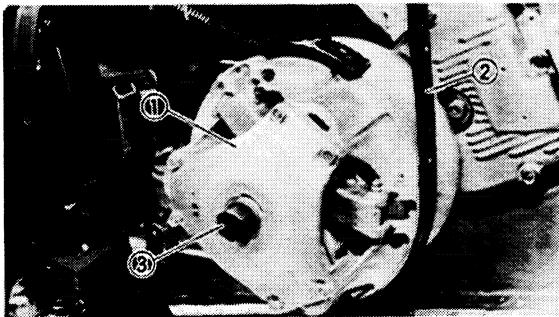
- Bolt ① (primary sheave)

NOTE: _____

Use the primary sheave holder ② to hold the primary sheave ③ .



Primary sheave holder:
90890-01701, YS-01880



3. Remove:

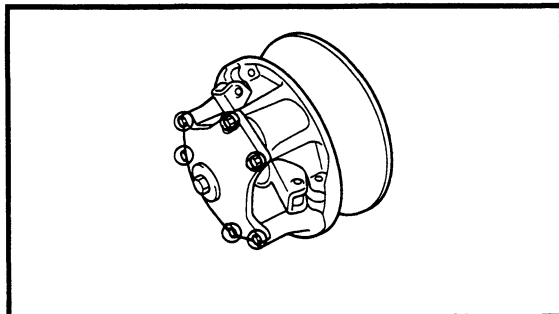
- Primary sheave assembly ①

NOTE: _____

Use the primary sheave holder ② and primary sheave puller ③ .



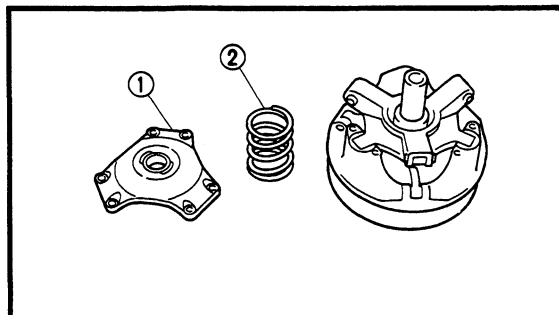
Primary sheave holder:
90890-01701, YS-01880
Primary sheave puller:
90890-01898, YS-01881-1 & YS38517



DISASSEMBLY

1. Remove:

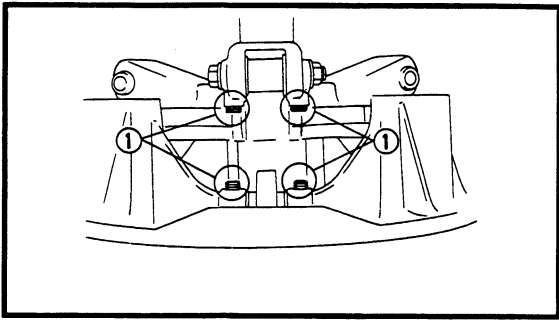
- Bolts (primary sheave cap)



2. Remove:

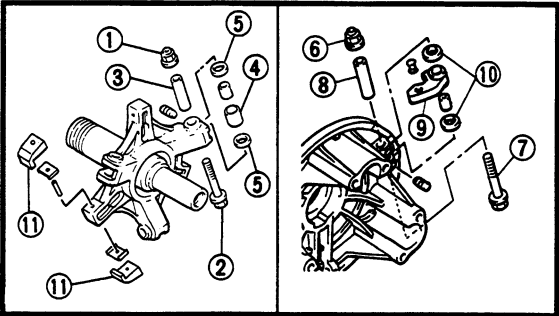
- Primary sheave cap ①
- Primary sheave spring ②

PRIMARY SHEAVE AND DRIVE V-BELT



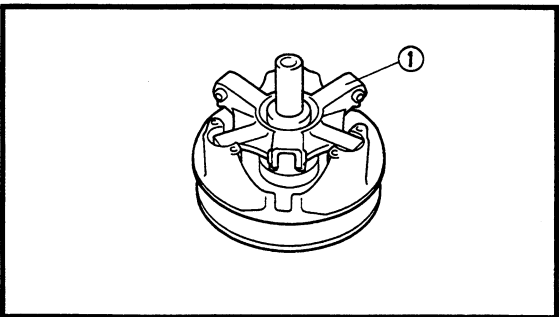
3. Loosen:

- Set screws ①



4. Remove:

- Nut ①
- Bolt ②
- Collar ③
- Roller ④
- Washers ⑤
- Nut ⑥
- Bolt ⑦
- Collar ⑧
- Weight ⑨
- Washers ⑩
- Bushing ⑪

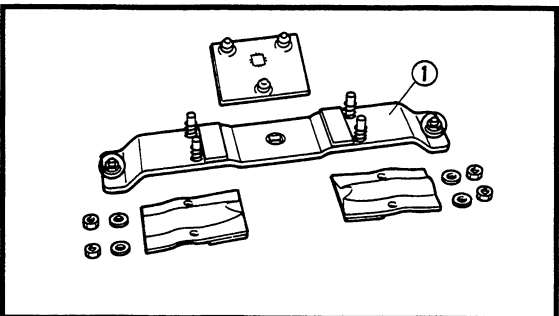


5. Remove:

- Spider ①

NOTE:

Special tools and LOCTITE® are necessary for assembling the spider and fixed sheave. If these are unavailable, avoid disassembling.

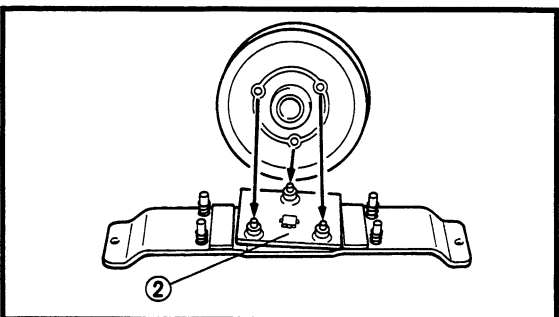


Removal steps:

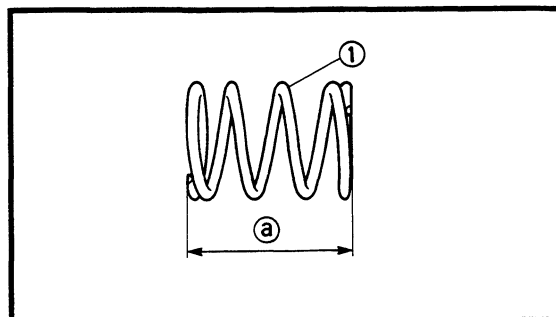
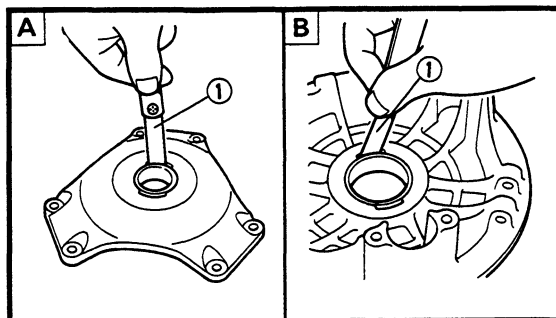
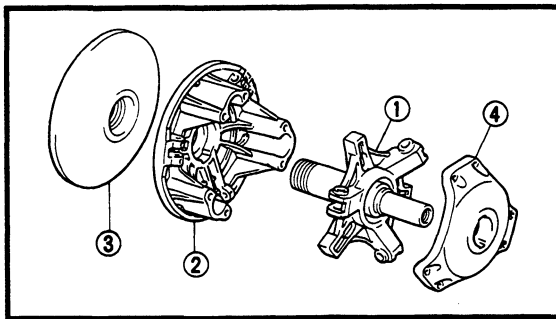
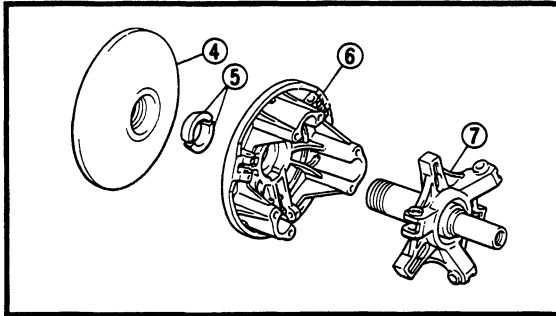
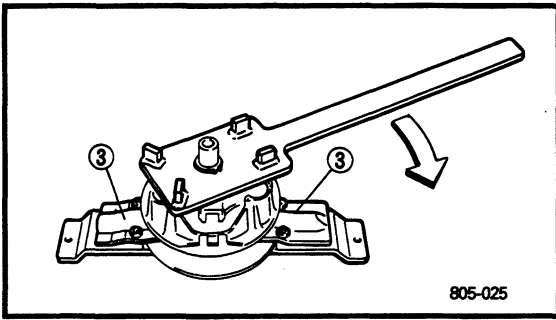
- Immerse the primary sheave assembly in approximately 80° ~ 100° C (176° ~ 212° F) water for several minutes.
- Hold the lower piece of the Clutch Spider Separator (90890-01711, YS-28890-B) ① on a rigid table using a suitable mounting bolts. Then, install the Clutch Separator Adapter (90890-01740, YS-34480) ② onto the separator.
- Fit the primary sheave assembly onto the adapter, and secure the supporting plates ③.

NOTE:

Securely fit the projections of the adapter into the fixed sheave holes.



- Set the bar wrench onto the spider and turn the special tool clockwise to loosen the spider.



CAUTION:

- Spider has a left-hand thread.
- To loosen the spider, high torque is required so be sure that the spider, fixed sheave and special tool are placed securely. Loosen the spider carefully to prevent cracks and/or damage to the sheaves and spider.
- Remove the fixed sheave ④, fixed sheave stopper ⑤, and sliding sheave ⑥ from the spider ⑦.



INSPECTION

1. Inspect:

- Spider ① (tapered portion)
 - Sliding sheave ②
 - Fixed sheave ③
 - Primary sheave cap ④
- Cracks/Damage → Replace.

2. Measure:

- Bushing-to-sheave clearance
- Out of specification → Replace bushing.
Use a feeler gauge ①


	Bush clearance (primary sheave cap) A :
	0.25 mm (0.01 in)
	Bush clearance (sliding sheave) B :
	0.25 mm (0.01 in)

3. Inspect:

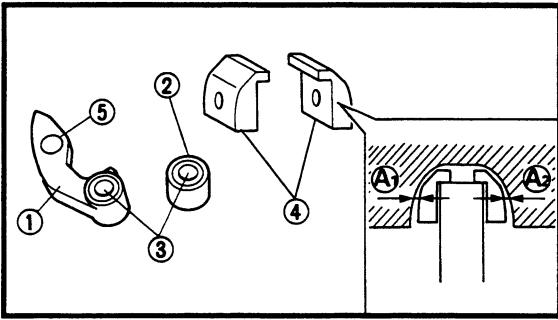
- Primary sheave spring ①
- Cracks/Damage → Replace.

4. Measure:

- Primary sheave spring free length a
- Out of specification → Replace.

	Primary sheave spring free length:
	77.4 mm (3.05 in) (VX750)
	78.7 mm (3.10 in) (VX750ST)

PRIMARY SHEAVE AND DRIVE V-BELT



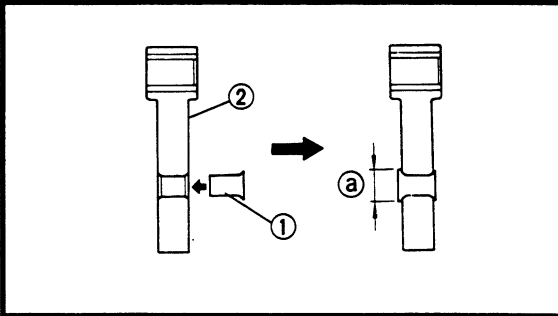
5. Inspect:

- Weight ①
- Roller ②
- Bushing ③
- Slider ④
- Rivet ⑤
- Collar

Wear/Scratches/Damage → Replace.

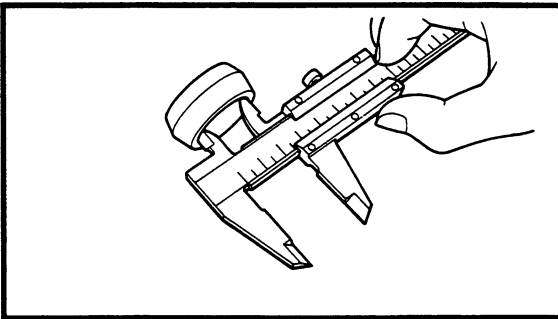


Slider inside clearance $A_1 + A_2$
 Min. 0.1 mm (0.0039 in)
 Max. 0.45 mm (0.0177 in)



Rivet replacement steps:

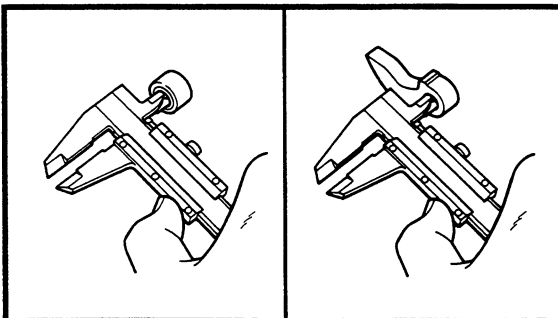
- Remove old rivet with the appropriate drill.
- Insert the rivet ① from the ID mark ② side.
- Press or peen the rivet head so that the diameter of rivet head measures to 8.2 mm (0.32 in) or larger ③ .



6. Measure:

- Bushing inside diameter
 Out of specification → Replace.

	Bushing inside diameter	
	Primary sheave cap	Sliding sheave
New	28.0 mm (1.10 in)	41.0 mm (1.61 in)
Wear limit	28.2 mm (1.11 in)	41.2 mm (1.62 in)



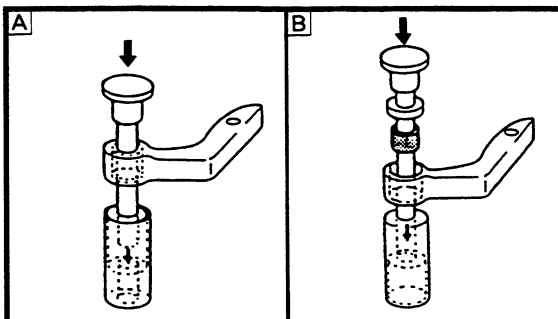
7. Measure:

- Bushing inside diameter
 Out of specification → Replace as a set.

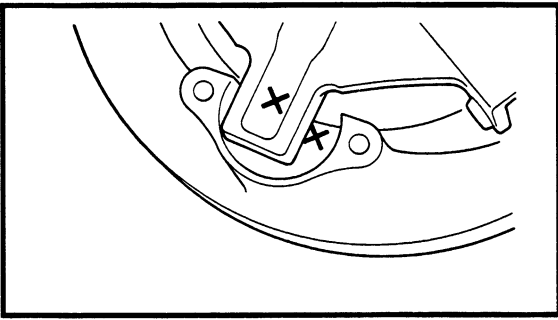
	Bushing inside diameter	
	Roller	Weight
New	8.0 mm (0.31 in)	←
Wear limit	8.2 mm (0.32 in)	←

NOTE:

When replace the weight and roller bushings, use the YXR clutch bushing jigkit (YS-59752).



- Ⓐ Removing
- Ⓑ Installing



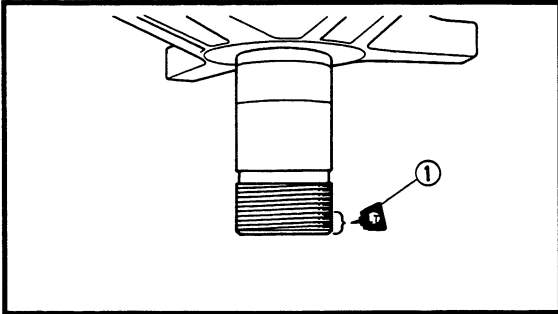
ASSEMBLY

Reverse the "DISASSEMBLY" procedure.
Note the following points.

1. Install:
 - Sliding sheave
(onto spider)

NOTE: _____

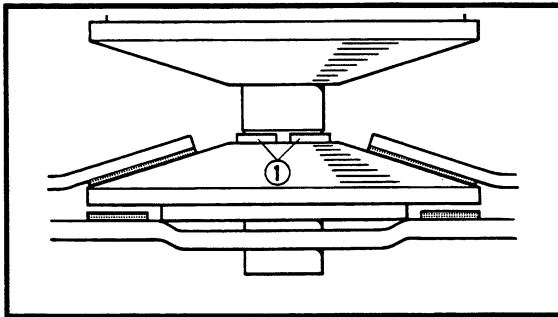
Be sure the sliding sheave match mark (x) is aligned with the spider match mark (x).



2. Install:
 - Fixed sheave
(onto spider)

NOTE: _____

Apply LOCTITE® ① to the first 4 threads of the spider.



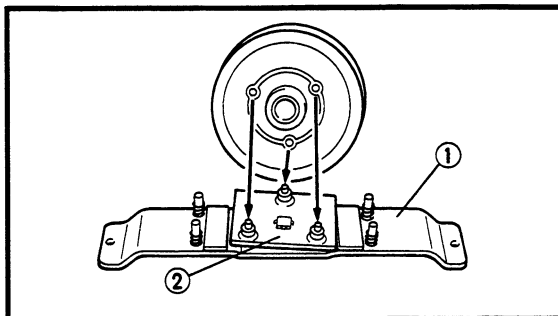
CAUTION: _____

LOCTITE® should be applied only to the area specified. Never apply to the bushings and other areas.

3. Install:
 - Fixed sheave stoppers ①

NOTE: _____

Stopper tapered portion should face fixed sheave.



4. Tighten:
 - Spider

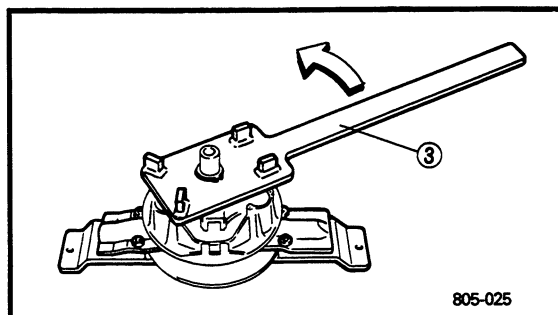
Tightening steps:

- Finger-tighten the spider until it stopped by fixed sheave stopper.
- Hold the fixed sheave with the Clutch Spider Separator (—, YS-28890-B) ①.

NOTE: _____

Securely fit the projections of the Clutch Separator Adapter ② into the fixed sheave holes.

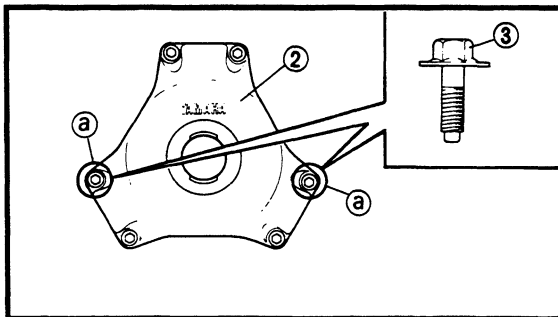
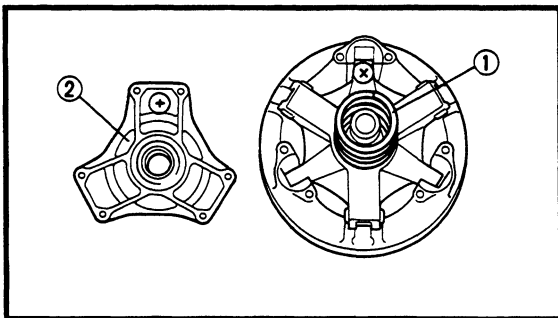
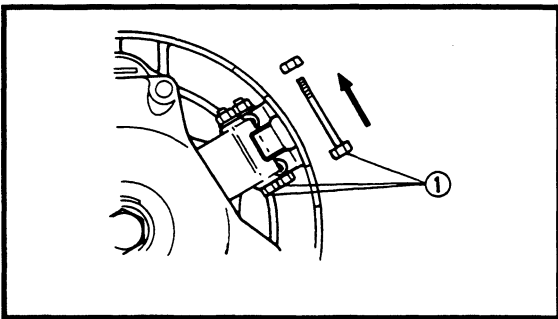
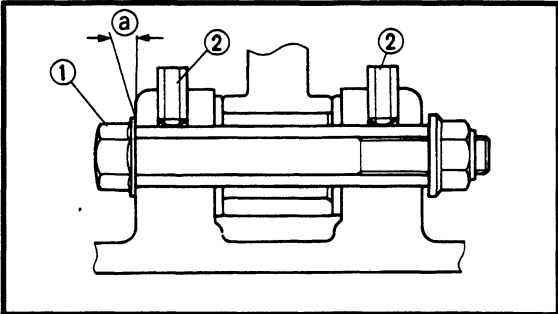
- Tighten the spider to specification using the bar wrench ③.



805-025



Spider:
200 Nm (20 m • kg, 145 ft • lb)



CAUTION:

Spider has a left-hand thread.

WARNING

- Do not operate the primary sheave until the LOCTITE® has dried completely. Wait 24 hours before operating primary sheave.
- Since the tightening torque is high, make sure the spider, fixed sheave, and special tool are placed securely. Tighten the spider carefully to prevent cracks and/or damage to the sheaves and spider.

5. Install:

- Weight and roller

Installing steps:

- Tighten the bolt (1).



Bolt:
6 Nm (0.6 m · kg, 4.3 ft · lb)

- Tighten the set screw (2) so that clearance (a) between bolt and sheave surface is 0 mm (0 in).

NOTE:

To maintain the balance of primary sheave, the bolt (1) must be installed with their threaded portions pointing in a counterclockwise direction, as illustration.

6. Lubricate:

- Primary sheave spring (1)
- Primary sheave cap (2)

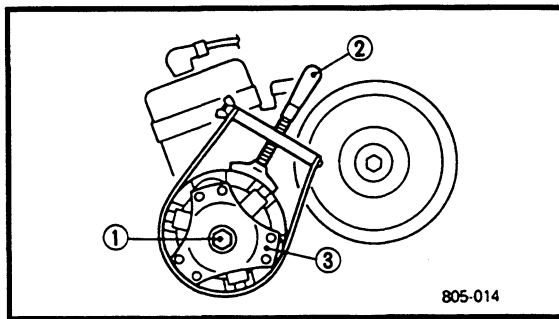
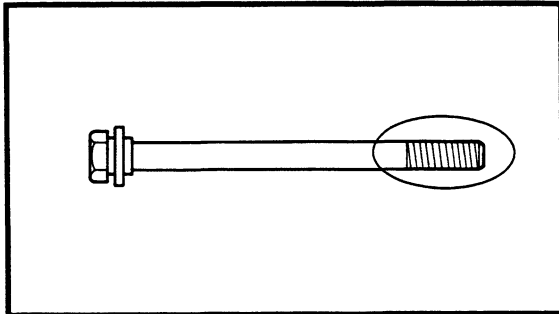
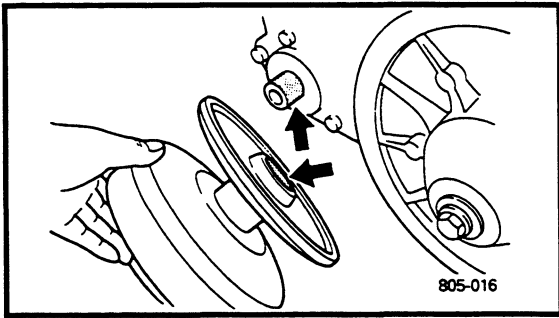
NOTE:

- Be sure the sheave cap match mark "X" is aligned with the spider match mark "X".
- Be sure to use the flange bolts (3) to position (a) to maintain the balance of primary sheave.

7. Tighten:



Primary sheave cap bolt:
14 Nm (1.4 m · kg, 10 ft · lb)



INSTALLATION

Reverse the "REMOVAL" procedure.
Note the following points.

1. Install:
 - Primary sheave assembly

CAUTION:

Be sure to remove any oil and/or grease from the tapered portion of the crankshaft and spider using a cloth dampened with thinner.

2. Apply:
 - YAMALUBE 2-cycle oil/equivalent grease (to threads of primary sheave bolt)
3. Tighten:
 - Bolt ① (primary sheave)

Tightening steps:

- Hold the primary sheave ③ using the Primary Sheave Holder (90890-01701, YS-01880) ② and tighten the bolt (primary sheave) to specification.



Bolt (primary sheave):
(initial tightening)
120 Nm (12 m · kg, 87 ft · lb)

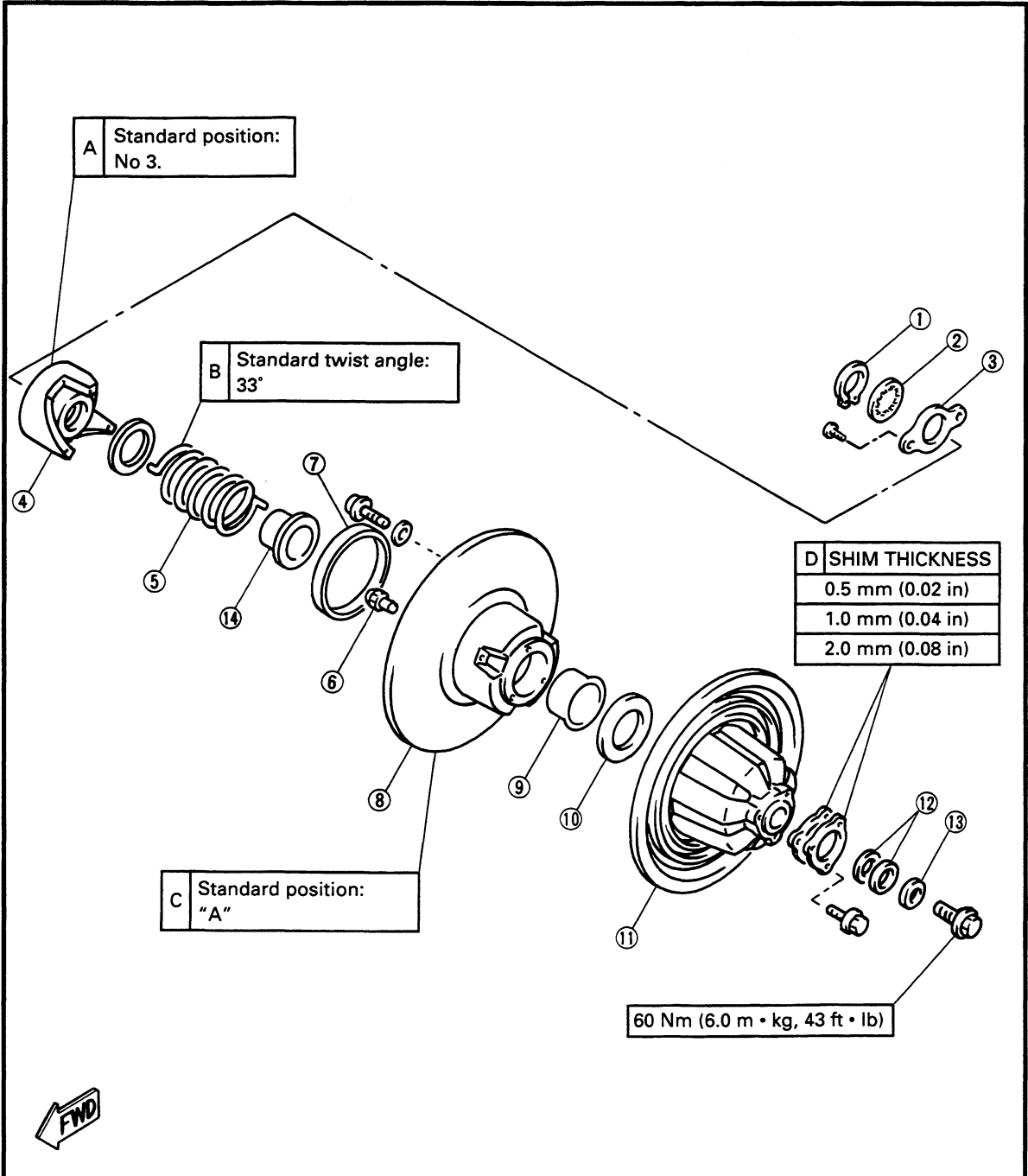
- Loosen the bolt (primary sheave) completely.
- Retighten the bolt (primary sheave) to specification.

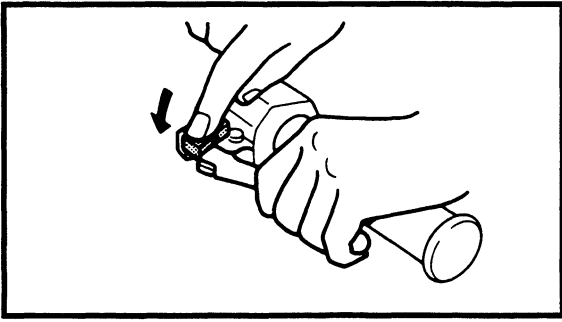


Bolt (primary sheave):
60 Nm (6.0 m · kg, 43 ft · lb)

SECONDARY SHEAVE

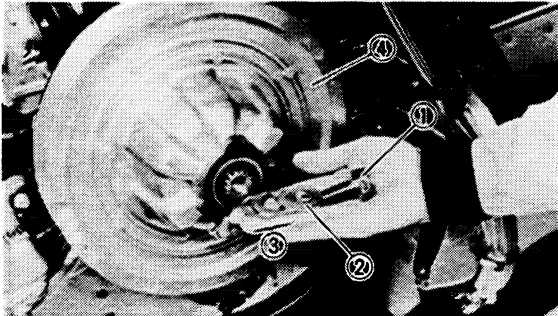
- ① Circlip
- ② Washer
- ③ Plate
- ④ Spring seat
- ⑤ Secondary spring
- ⑥ Ramp shoe
- ⑦ Sliding bushing
- ⑧ Sliding sheave
- ⑨ Bushing
- ⑩ Base plate
- ⑪ Fixed sheave
- ⑫ Shim
- ⑬ Washer
- ⑭ Collar guide





REMOVAL

1. Remove:
 - Side cowling (left) (see page 2-3)
 - Drive V-belt guard (see page 2-16)
 - Drive V-belt (see page 2-16)
2. Apply the brake to lock the secondary sheave.



3. Remove:
 - Bolt ① (secondary sheave)
 - Washer ②
 - Shim (s) ③
 - Secondary sheave ④

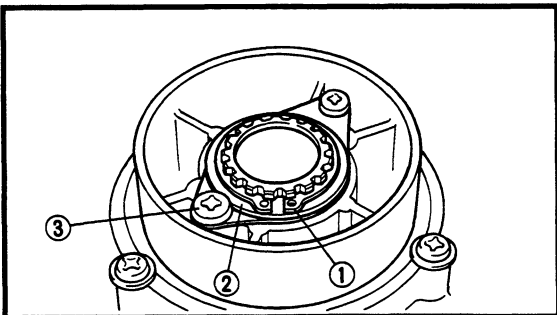
DISASSEMBLY

⚠ WARNING

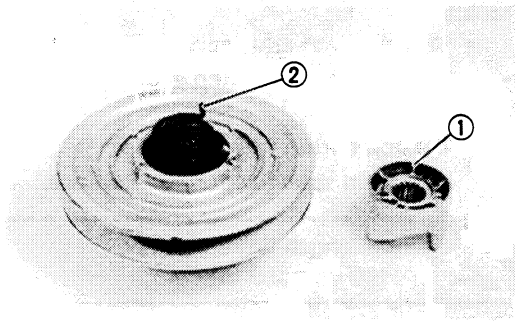
- Use extreme **CAUTION** when disassembling the secondary sheave as serious injury can occur from the sudden release of spring tension. Use the sheave compressor to contain the spring tension before removing the retaining clip.
- Do not attempt the procedure unless you have the proper tools and understand the instructions thoroughly.



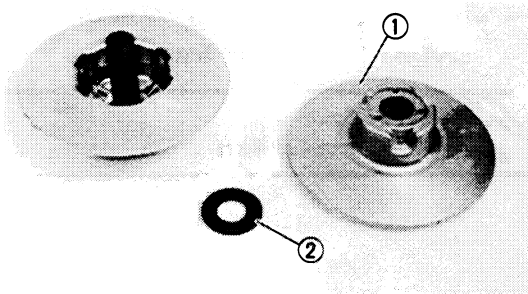
Sheave compressor:
90890-01712, YS-28891



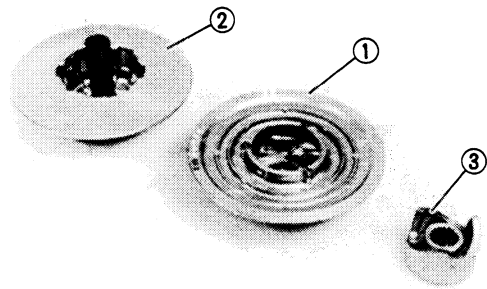
1. Remove:
 - Circlip ①
 - Washer ②
 - Plate ③



2. Remove:
- Spring seat ①
 - Secondary sheave spring ②

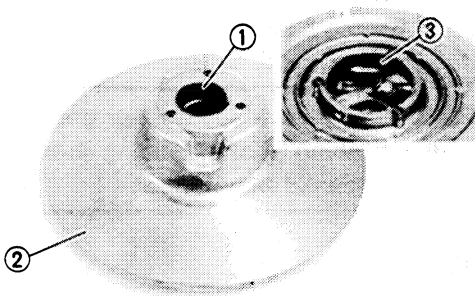


3. Remove:
- Sliding sheave ①
 - Base plate ②
(from fixed sheave)



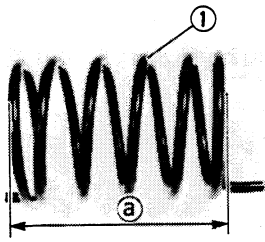
INSPECTION

1. Inspect:
- Sliding sheave ①
 - Fixed sheave ②
 - Spring seat ③
Cracks/Damage → Replace.



2. Inspect:
- Bushing ① (sliding sheave)
 - Sliding sheave ② (V-belt contact surface)
Scratches/Wear/Damage → Replace.
 - Sliding bushing ③
Unsymmetrical wear/Damage → Replace.

SECONDARY SHEAVE



3. Inspect:

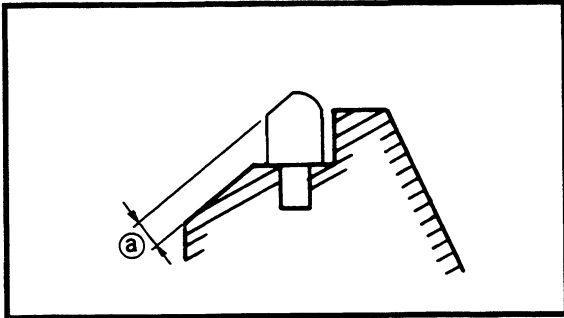
- Secondary sheave spring ①
Cracks/Damage → Replace.

4. Measure:

- Torsion spring free length ②
Less than specification → Replace.



Free length limit :
100 mm (3.9 in)

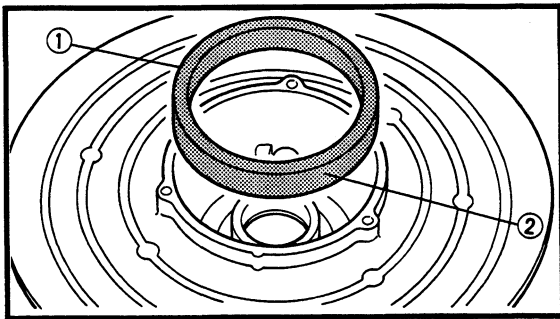


5. Measure:

- Ramp shoe thickness ③
Out of specification → Replace.



Wear limit:
1.0 mm (0.04 in)



ASSEMBLY

Reverse the "DISASSEMBLY" procedure.

Note the following points.

1. Install:

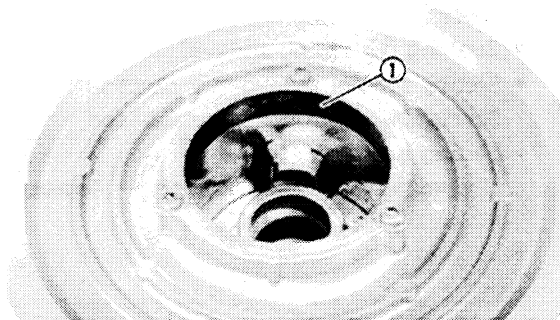
- Sliding bushing ①

2. Clean:

- Sliding bushing ① (sliding sheave)

NOTE:

Be sure to remove any dust or grease from the sliding bushing ① of the sliding sheave, using a cloth dampened with thinner.



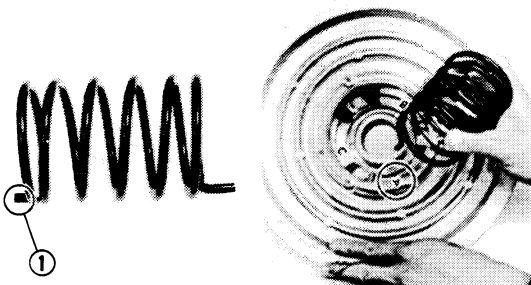
3. Install:

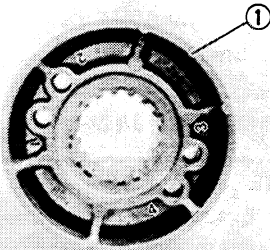
- Secondary sheave spring

NOTE:

- Hook the end of the secondary sheave spring onto the spring hole ④ in the sliding seat.
- Be sure to install on the short side ① end of spring to the secondary sheave.

Standard spring position:
Position " A "



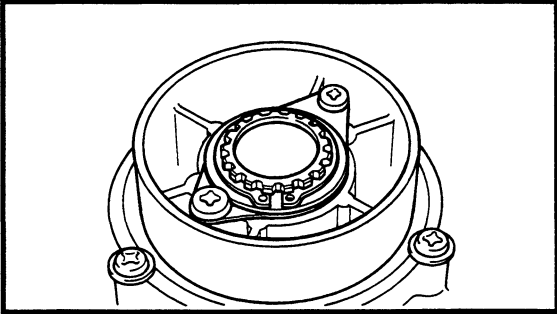


4. Install:
- Spring seat ①

NOTE: _____

Hook the end of the secondary sheave spring onto the spring hole in the spring seat.

**Standard spring position:
Position "3"**



Installation steps:

- Slide the washer and circlip onto the bolt of the sheave compressor, and then attach the compressor to the secondary sheave.

CAUTION: _____

- Always use a new circlip.
- Turn in the screw for the sheave compressor so that the spring seat splines engage with the fixed sheave splines.

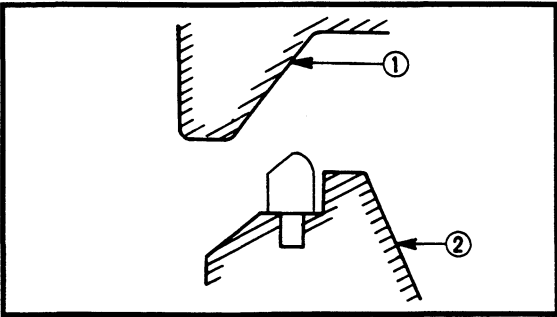
NOTE: _____

Turn in this screw to a position where the spring seat cam ① does not come in contact with the sliding sheave cam ②.

- Turn the sliding sheave the specified degrees, in the counterclockwise direction.
- Holding the sliding sheave and fixed sheave in this position.

**Standard twist angle:
33°**


- Turn in the screw for the sheave compressor so that the spring seat engages with the sliding sheave.
- Install the washer and circlip in proper position.




INSTALLATION

Reverse the "REMOVAL" procedure.
Note the following points.

1. Lubricate:
 - Splines (fixed sheave)

	Recommended grease: Esso beacon 325 grease or Aero shell grease #7A
---	--

2. Tighten:

	Secondary sheave bolt: 60 Nm (6.0 m · kg, 43 ft · lb)
---	---

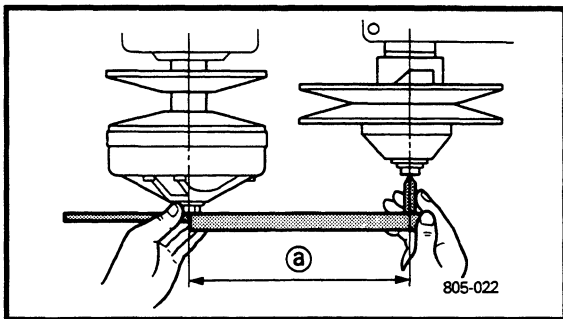
3. Adjust:


- Sheave distance
- Sheave offset
- Free play (clearance)

SHEAVE DISTANCE AND OFFSET ADJUSTMENT

1. Measure:

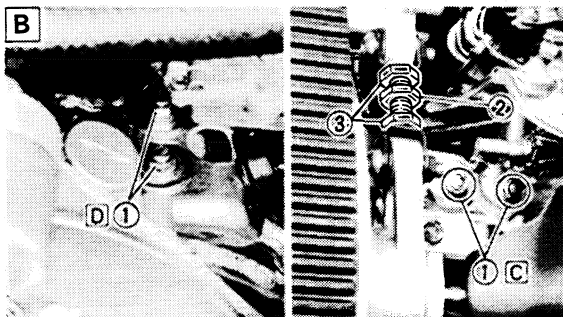
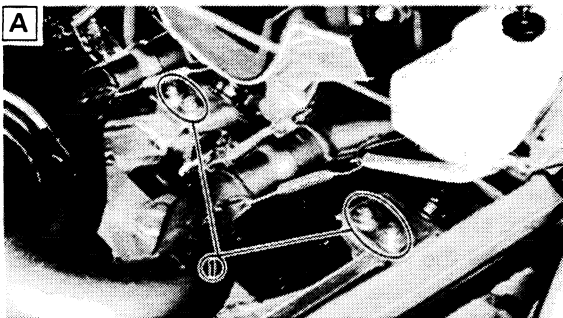
- Sheave distance \textcircled{a}
Use the sheave gauge. (YU-39506-2)
Out of specification → Adjust.



	Sheave distance \textcircled{a} : 363.5 ~ 366.5mm (14.3 ~ 14.4 in)
---	---


2. Adjust:

- Sheave distance

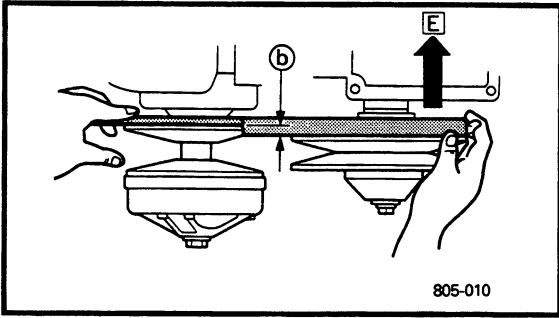


Adjustment steps:

- Check the engine mounting bracket, dampers and frame for bends, cracks and corrosion. Repair or replace as required.
 - Loosen the engine mounting nuts $\textcircled{1}$.
 - Adjust the position of the engine with the adjuster $\textcircled{2}$.
Loosen the locknuts $\textcircled{3}$ and turn the adjuster in or out until the specified distance is obtained, the crankshaft and jackshaft being parallel to each other.
 - Tighten the locknuts $\textcircled{3}$.
 - Tighten the engine mounting nuts $\textcircled{1}$.
- A** Front **B** Rear **C** Left **D** Right

	Mounting nut: 40 Nm (4.0 m · kg, 29 ft · lb)
	Locknut (adjuster): 36 Nm (3.6 m · kg, 26 ft · lb)

SECONDARY SHEAVE



3. Measure:

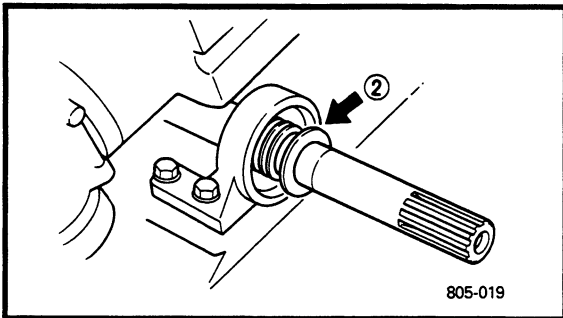
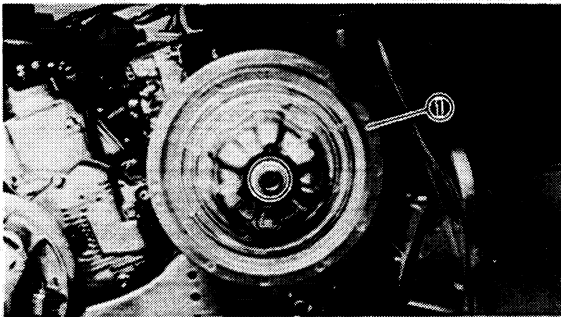
- Sheave offset ②
Use the Sheave Gauge. (YU-39506-3)
Out of specification → Adjust.



Sheave offset ② :
14.5 ~ 17.5 mm (0.57 ~ 0.69 in)

NOTE:

Be sure to push the secondary sheave to the arrow **E** and then measure.



4. Adjust:

- Sheave offset

Adjustment steps:

- Apply the brake to lock the secondary sheave.
- Remove the bolt (secondary sheave) and secondary sheave ①.
- Adjust the sheave offset by adding or removing shim (s) ②.

Adding shim	Offset is increased.
-------------	----------------------

Removing shim	Offset is decreased.
---------------	----------------------

Shim size

Part Number	Thickness
90201-284P9	0.5 mm (0.02 in)
90201-284P8	1.0 mm (0.04 in)
90201-284P7	2.0 mm (0.08 in)

- Install the secondary sheave and bolt (secondary sheave).



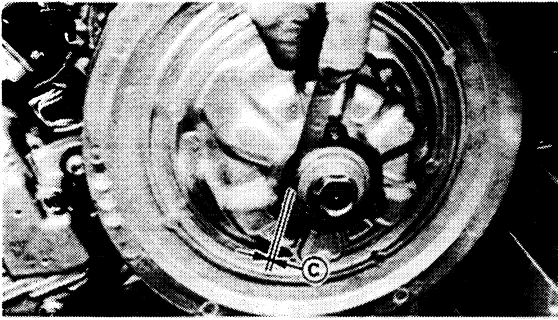
Bolt (secondary sheave):
60 Nm (6.0 m · kg, 43 ft · lb)

- Recheck the sheave offset. If out of specification, repeat the above steps.

NOTE:

When adjusting the sheave offset, the secondary sheave free play (clearance) should be adjusted.

SECONDARY SHEAVE

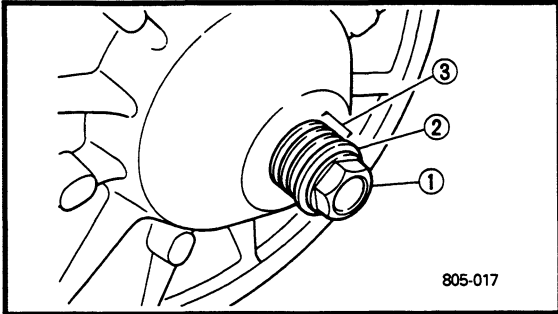


5. Measure:

- Secondary sheave free play (clearance) **C**
Use a feeler gauge.
Out of specification → Adjust.



Secondary sheave free play (clearance):
1.5 mm (0.06 in)



6. Adjust:

- Secondary sheave free play (clearance)

Adjustment steps:

- Apply the brake to lock the secondary sheave.
- Remove the bolt (secondary sheave) **1** and washer **2**.
- Adjust the secondary sheave free play (clearance) by adding or removing a shim(s) **3**.

Adding shim	Free play is decreased.
--------------------	--------------------------------

Removing shim	Free play is increased.
----------------------	--------------------------------

Shim size

Part Number	Thickness
90201-284P9	0.5 mm (0.02 in)
90201-284P8	1.0 mm (0.04 in)
90201-284P7	2.0 mm (0.08 in)

- Install the washer and bolt (secondary sheave), and tighten the bolt.

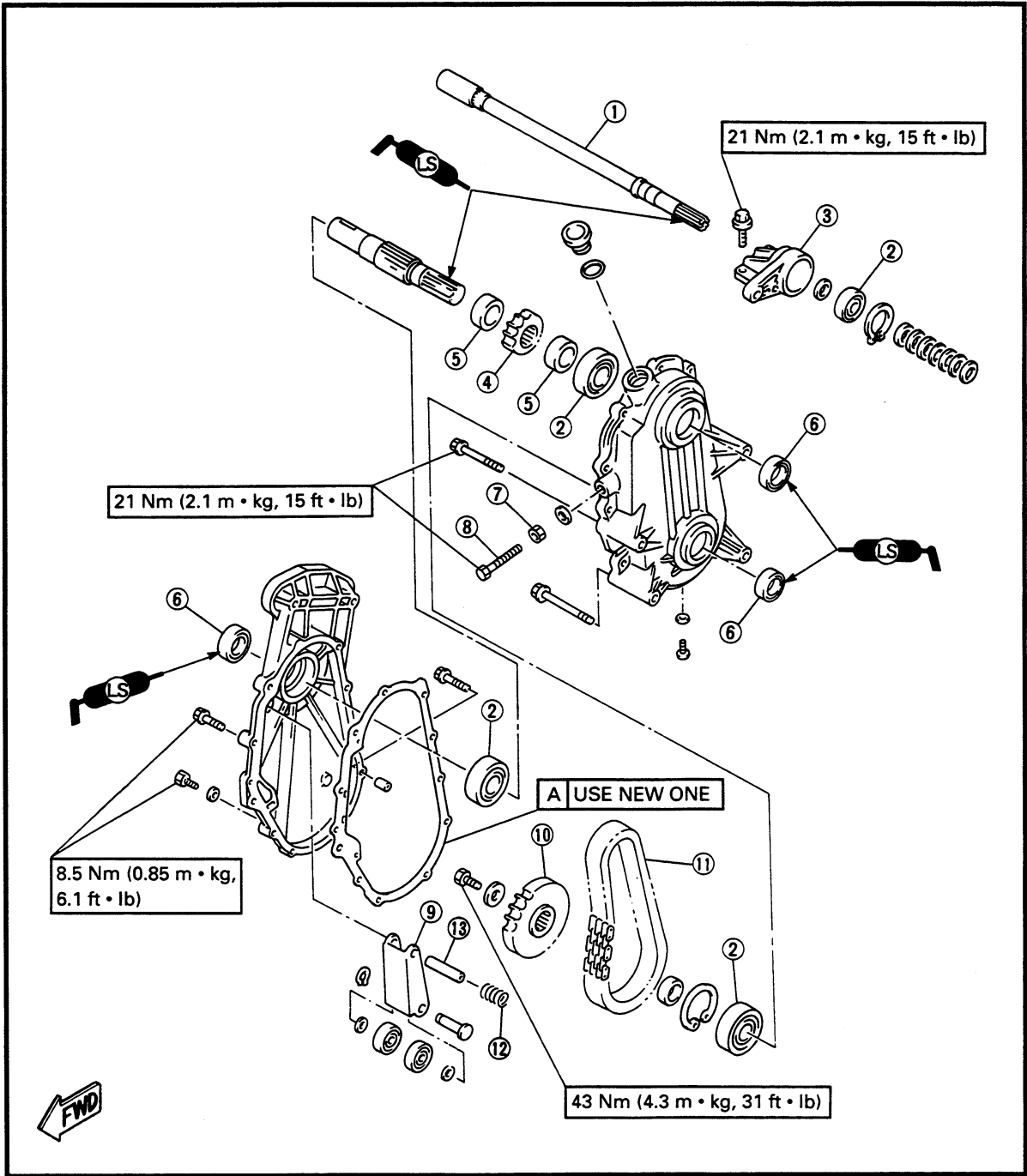


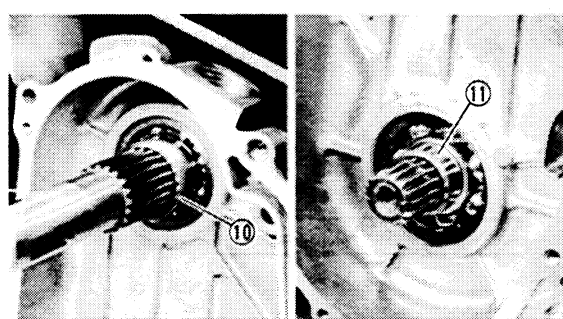
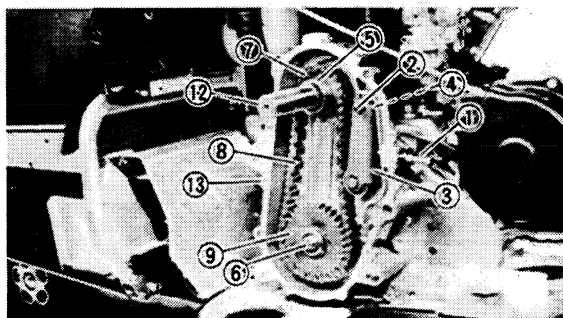
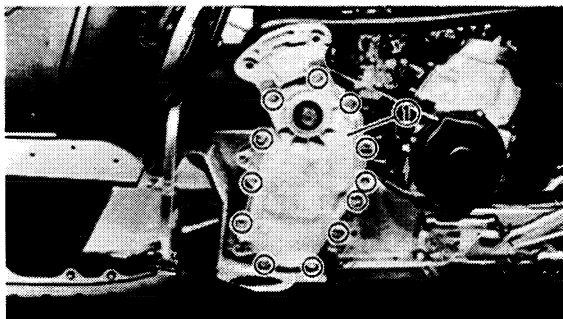
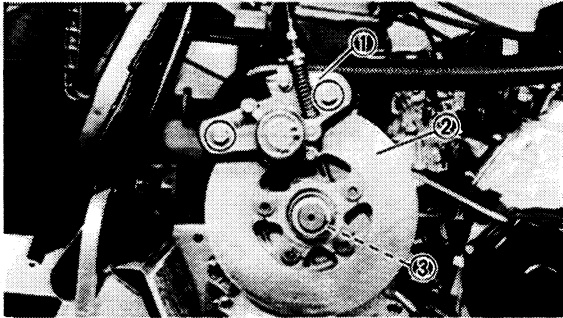
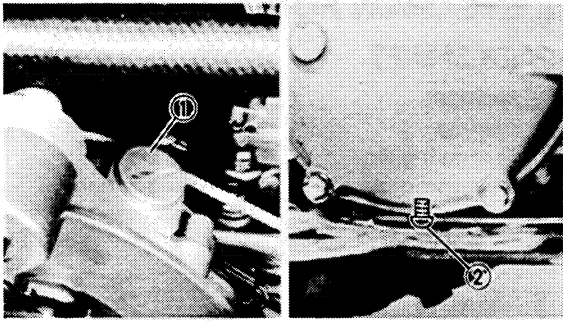
Bolt (secondary sheave):
60 Nm (6.0 m·kg, 43 ft·lb)

- Recheck the secondary sheave free play (clearance). If out of specification, repeat the above steps.

DRIVE CHAIN HOUSING AND JACKSHAFT

- ① Jackshaft
- ② Bearing
- ③ Bearing holder
- ④ Drive sprocket
- ⑤ Collar
- ⑥ Oil seal
- ⑦ Locknut
- ⑧ Adjuster
- ⑨ Drive chain tensioner
- ⑩ Driven sprocket
- ⑪ Drive chain
- ⑫ Torsion spring
- ⑬ Pin





REMOVAL

1. Remove
 - Side cowlings (See page 2-3)
 - Muffler
 - Secondary sheave (See page 4-10)
2. Loosen:
 - Track tension (See page 4-30)
3. Remove:
 - Oil filter cap ① (with O-ring)
 - Drain screw ② (with gasket)

Drain the oil

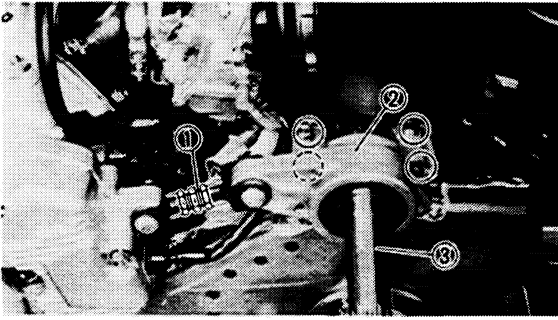
NOTE:

Place a container under the drain hole.

4. Remove:
 - Brake caliper assembly ①
 - Brake disk ②
 - Woodruff key ③
 - Brake pad (inner)
5. Remove:
 - Drive chain housing cover ①
 - Dowel pins
 - Gasket
6. Remove:
 - Adjuster ① (chain tensioner)
 - Shaft ② (chain tensioner)
 - Chain tensioner ③
 - Torsion spring ④
 - Spacer collar ⑤
 - Bolt ⑥ (driven sprocket)
 - Drive sprocket ⑦
 - Drive chain ⑧
 - Driven sprocket ⑨
 - Spacer collar ⑩ (drive sprocket)
 - Spacer collar ⑪ (driven sprocket)
 - Drive shaft ⑫
 - Drive chain housing ⑬

NOTE:

Remove the drive sprocket, driven sprocket and drive chain at same time.

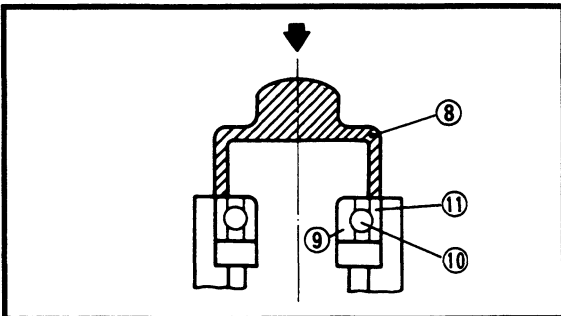
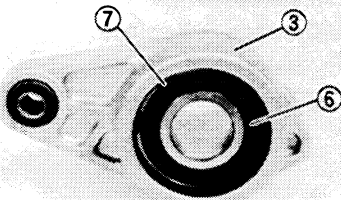
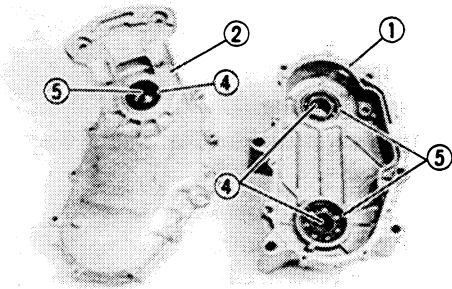


7. Remove:
- Compression rod ①
 - Bolts (bearing holder ②)
 - Jackshaft assembly ③
 - Bearing holder/washer (from jack shaft)
 - Bolt

INSPECTION

1. Inspect:

- Drive chain housing ①
- Cover ② (drive chain housing)
- Bearing housing ③
Cracks/Damage → Replace.
- Oil seals ④ (drive chain housing)
Wear/Damage → Replace.
- Bearings ⑤ (drive chain housing)
Pitting/Damage → Replace.
- Bearing ⑥ (bearing housing)
Pitting/Damage → Replace bearing and inner race holder as a set.



Replacement steps:

- Remove the circlip ⑦ (bearing housing).
- Remove the bearing(s) ⑤ ⑥ using a general bearing puller.
- Install the new bearing(s).

NOTE:

Use a socket ⑧ that matches the outside diameter of the race of the bearing.

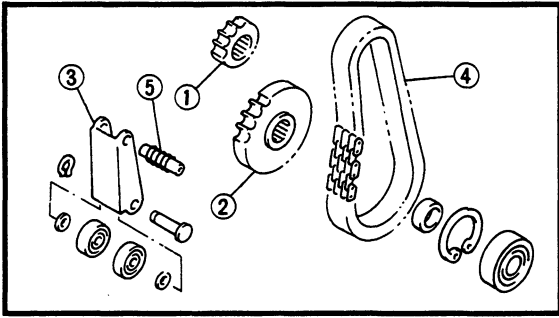
CAUTION:

Do not strike the inner race ⑨ or balls ⑩ of the bearing. Contact should be made only with the outer race ⑪ .

- Install the new circlip (bearing housing).

CAUTION:

Always use a new circlip.

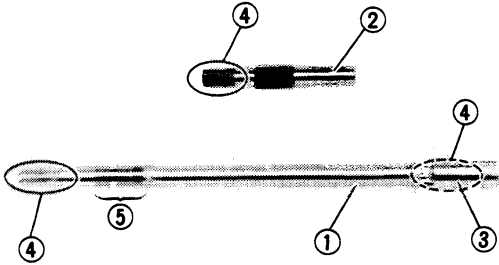


2. Inspect

- Drive gear teeth ①
- Driven gear teeth ②
- Chain tensioner ③
Pitting/Wear/Damage → Replace.
- Drive chain ④
- Torsion spring ⑤
Wear/Damage → Replace.
Stiff → Clean or replace.

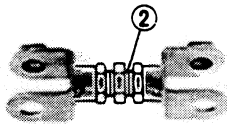
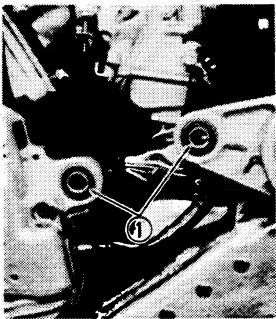
3. Inspect:

- Jackshaft ①
- Drive shaft ②
- Jackshaft coupler ③
Scratches (excessive)/Damage → Replace.
- Splines ④
Wear/Damage → Replace.
- Bearing contact surface ⑤
Scratches/Wear/Damage → Replace.



4. Inspect:

- Rubber dampers ①
Wear/Damage → Replace.
- Compression rod ②
Cracks/Damage → Replace.



INSTALLATION


Reverse the "REMOVAL" procedure.

Note the following points.

1. Apply:

- Low temperature lithium soap base grease
(to oil seal lips and splines)

2. Tighten:

	Bolt (bearing housing): 21 Nm (2.1 m • kg, 15 ft • lb)
	Bolt (drive chain housing): 21 Nm (2.1 m • kg, 15 ft • lb)
	Bolt (drive sprocket): 43 Nm (4.3 m • kg, 31 ft • lb)
	Bolt (drive chain housing cover): 8.5 Nm (0.85 m • kg, 6.1 ft • lb)
	Bolt (brake caliper body): 65 Nm (6.5 m • kg, 47 ft • lb)
	Bolt (compression rod): 40 Nm (4.0 m • kg, 29 ft • lb)
	Lock nut (compression rod): 36 Nm (3.6 m • kg, 26 ft • lb)



3. Adjust:

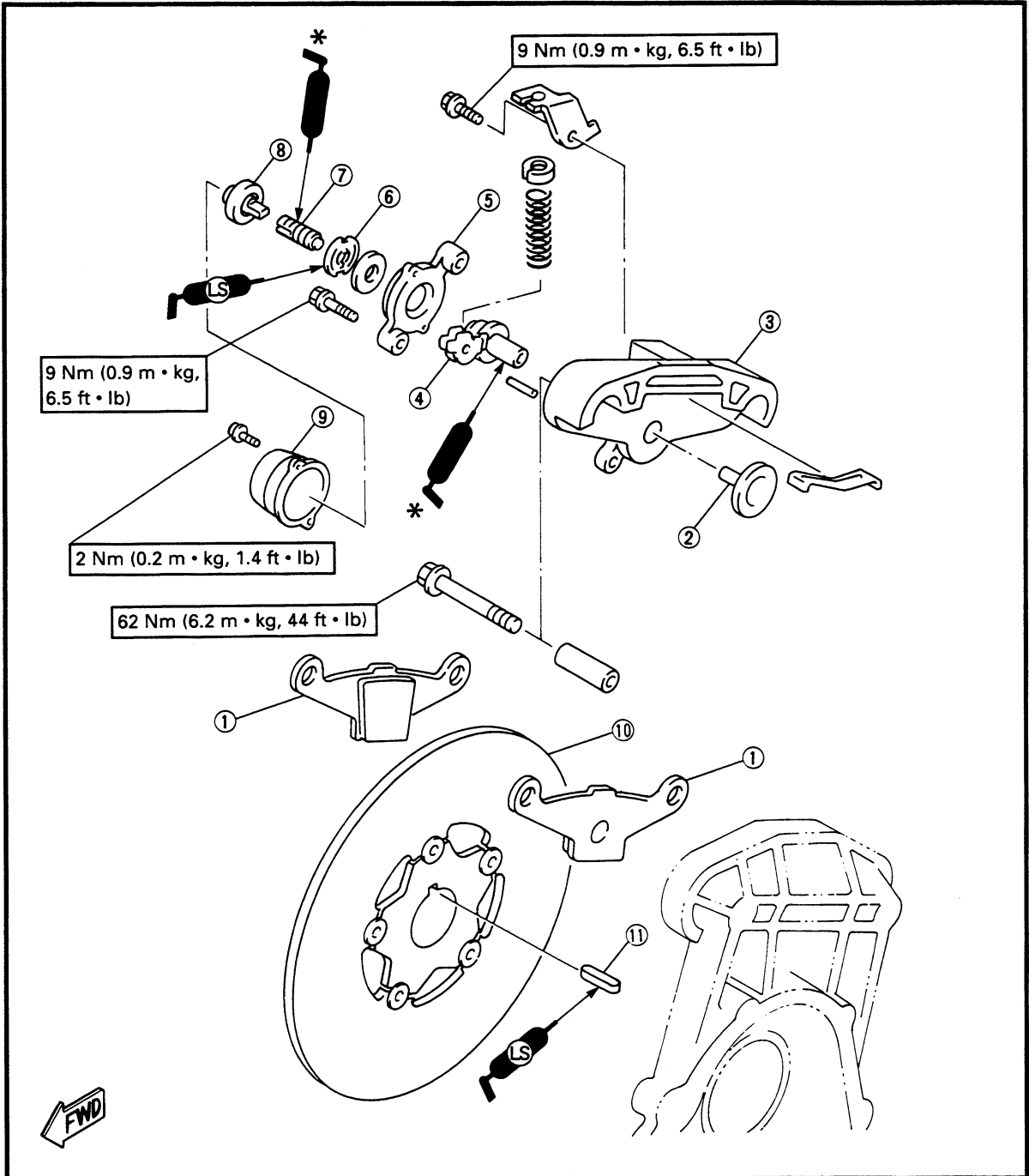
- Drive chain slack (See page 2-20)
- Sheave distance (See page 4-14)
- Sheave offset (See page 4-15)
- Track tension (See page 2-21)

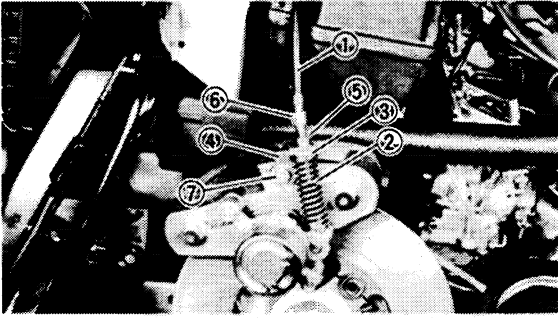
4. Fill:

- Drive chain housing (See page 2-20)

BRAKE

- ① Pad
 - ② Back up plate
 - ③ Caliper body
 - ④ Lever
 - ⑤ Stationary cover
 - ⑥ One way lock 2
 - ⑦ Adjusting screw
 - ⑧ Adjusting ratchet
 - ⑨ End cover
 - ⑩ Brake disc
 - ⑪ Woodruff key
- * With silicone grease



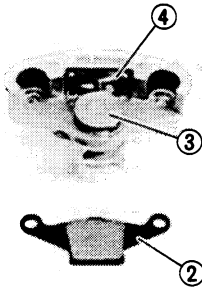
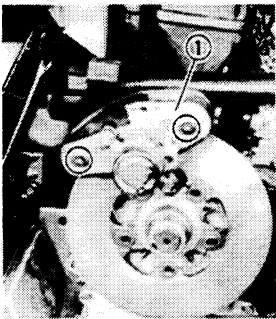


REMOVAL

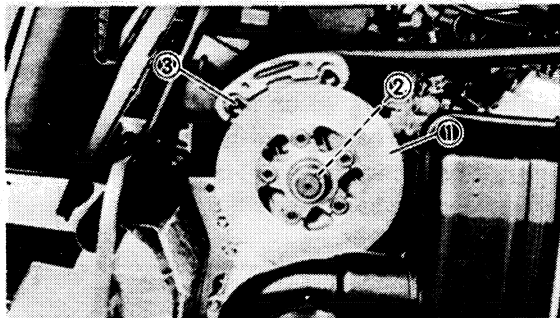
1. Disconnect:
 - Brake cable ①
2. Remove:
 - Spring ②
 - Spring holder ③
 - Cable holder ④

NOTE:

Loosen the locknut ⑤ and turn in the adjuster ⑥ fully to release the tension in the brake cable, then remove the bolt ⑦ (cable holder).



3. Remove:
 - Caliper body ① (outer)
 - Brake pad ② (outer)
 - Brake up plate ③
 - Brake pad spring ④



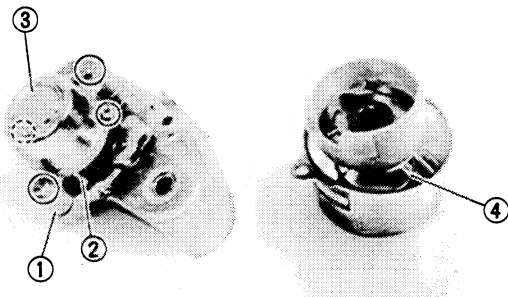
4. Remove:
 - Brake disk ①
 - Woodruff key ②
 - Brake pad ③ (inner)

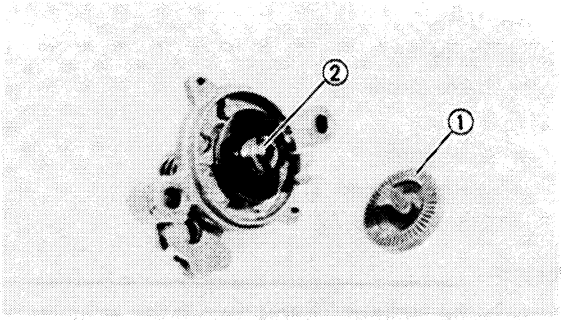
DISASSEMBLY

1. Remove:
 - Stationary cover ①
 - Stopper pin ②
 - End cover ③

CAUTION:

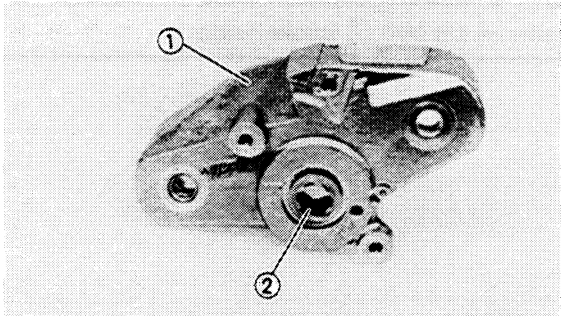
Do not disassemble the torsion spring ④ from the end cover and the guide.





2. Remove:

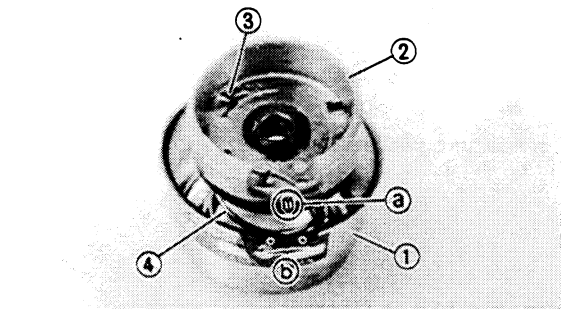
- Adjusting ratchet ①
- Adjusting screw ②



INSPECTION

1. Inspect:

- Caliper body ①
Cracks/Damage → Replace.
- Spiral gear ② (caliper body)
Wear/Damage → Replace.

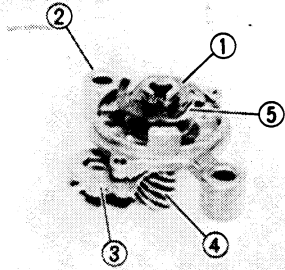


2. Inspect:

- End cover ①
- Guide ②
- One way lock 1 ③
- Torsion spring ④
Cracks/Wear/Damage → Replace the end cover unit.

Inspection steps:

- Check the wear of the torsion spring by the projection mark ① on the guide ② located between the base marks ③ on the end cover ④. If projection mark ① is not in the range between the base marks ③, replace the end cover unit.



3. Inspect:

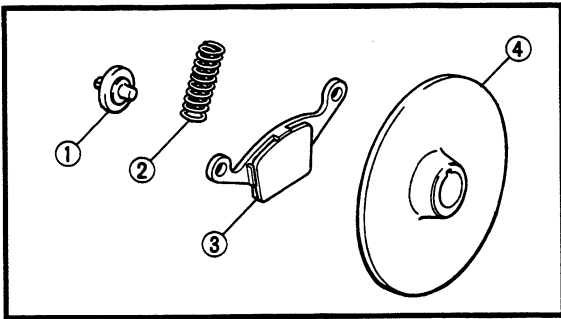
- One way lock 2 ①
- Stationary cover ②
- Lever ③
- Spiral gear ④ (lever)
Cracks/Wear/Damage → Replace.

Replacement steps:

- Remove the one way lock 2 ① using a thin flat-head screw driver.
- Remove the washer ⑤ and stationary cover ②
- Replace a damaged part(s) use a new one.
- Reassemble the removed part(s) and reverse the above steps.

CAUTION:

Always use a new one way lock 2.



4. Inspect:

- Adjusting ratchet ①
Cracks/Wear/Damage → Replace.
- Spring ② (brake cable)
Wear/Damage → Replace.
- Brake pad ③ thickness
- Brake disk ④
Bend/Cracks/Damage → Replace.

ASSEMBLY AND INSTALLATION

Reverse the "REMOVAL" and "DISASSEMBLY" procedures.

Note the following points.

1. Assemble:

- Caliper body

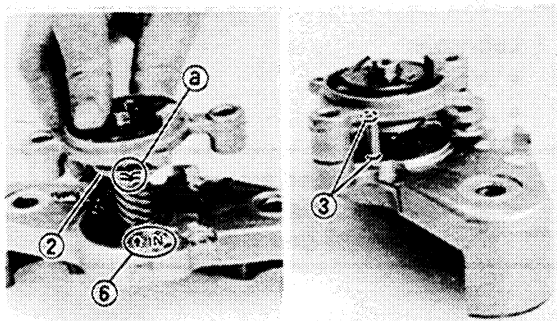
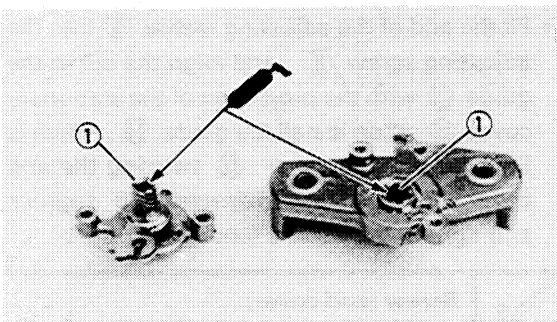
Assembly steps:

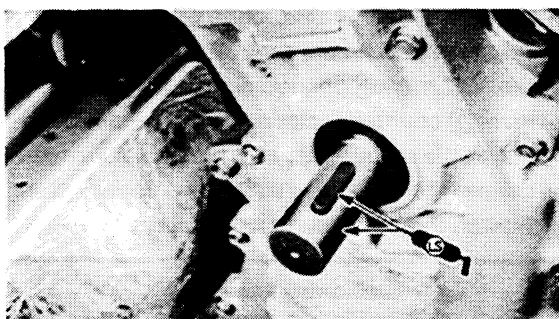
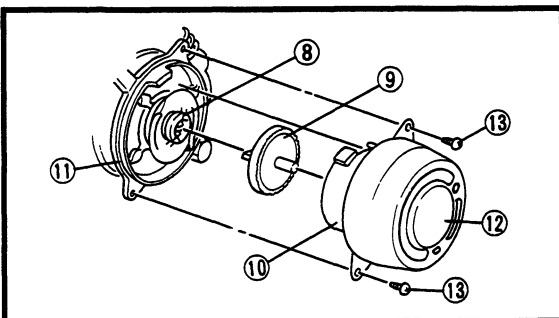
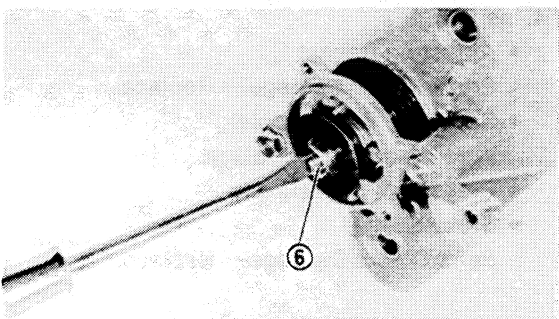
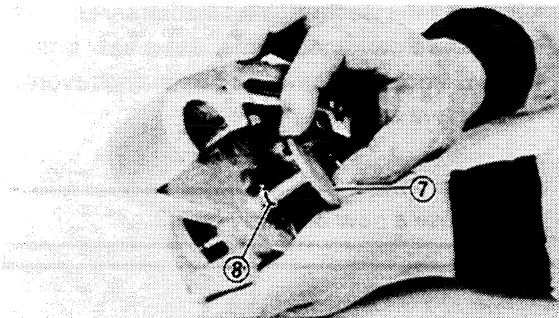
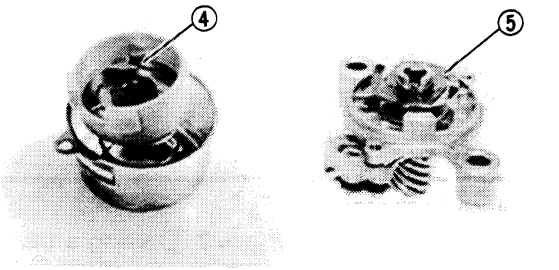
- Lubricate the spiral gears ① on the caliper body and lever with silicone grease.
- Align the projection mark ③ on the lever with the "IN" mark ⑤ on the caliper body, screw the lever ② counterclockwise to the caliper body.
- Install the stopper pin into the holes ③ on the caliper body and stationary cover, then tighten the bolts (stationary cover).



Bolt (stationary cover):

9 Nm (0.9 m • kg, 6.5 ft • lb)





- Lubricate the one way locks 1 (4) and 2 (5) with a lithium grease.

- Lubricate the adjusting screw (6) and back up plate (7) with a silicone grease.
- Insert the back up plate (7) into the lever shaft hole (8) .

- Screw in the adjusting screw (6) , and when it contacts lightly with the end of the back up plate, then back out the adjusting screw (6) 1/2 to 1 turn.

- Fit the end of the adjusting ratchet (9) into the adjusting screw (8) , and align the cut in the guide (10) with the projection of the stationary cover (11) , then install the guide (10) , which is fitted to the end cover (12) twisting the end cover clockwise approximately 30 degrees and tighten the screws (end cover) (13) .



Screw (end cover):
2 Nm (0.2 m • kg, 1.4 ft • lb)


2. Lubricate:

- Woodruff key
- Jackshaft



Recommended grease:
ESSO Beacon 325 grease or
Aeroshell grease #7A

3. Tighten:

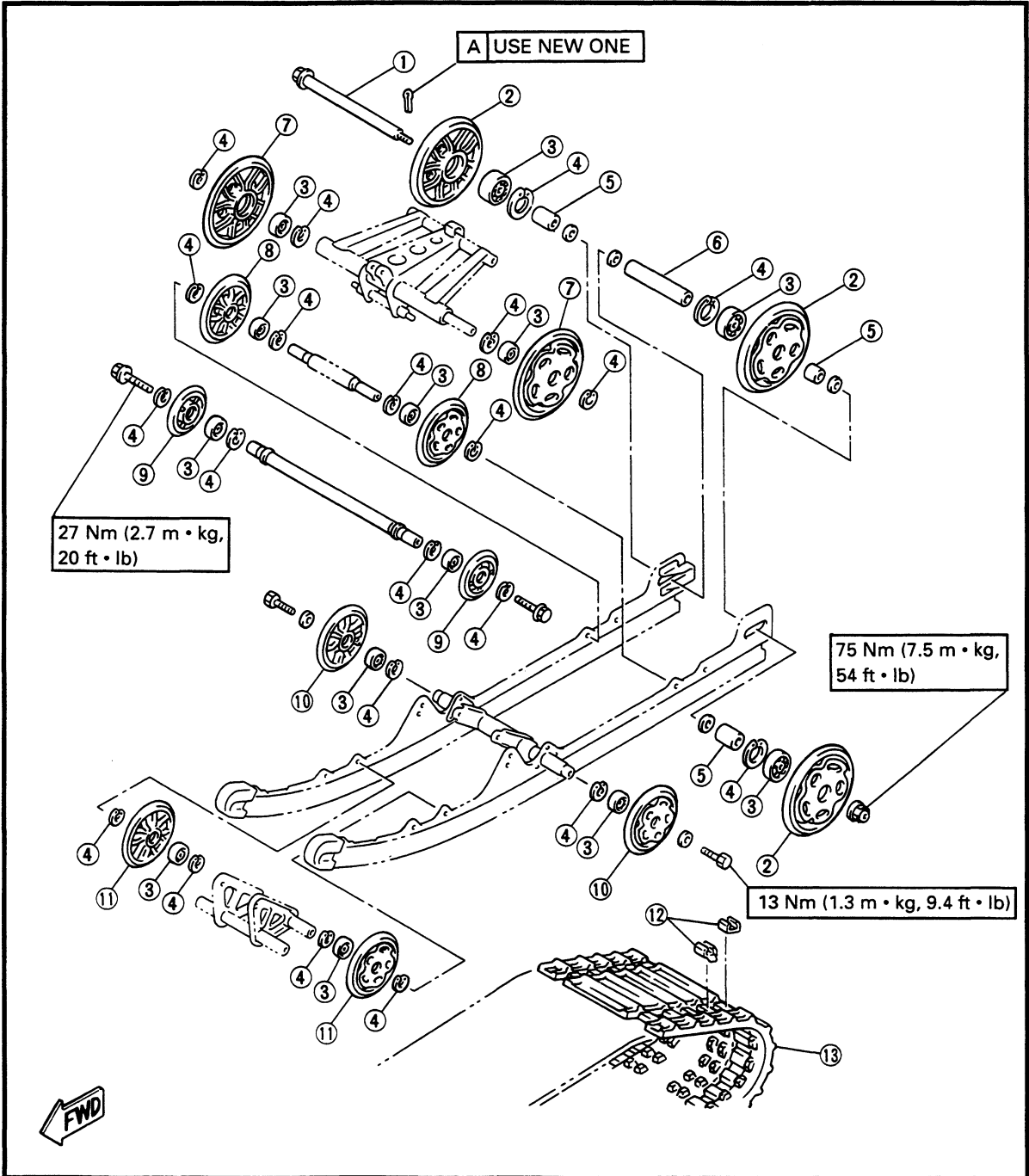
	Bolt (caliper body): 62 Nm (6.2 m • kg, 44 ft • lb)
	Bolt (cable holder): 9 Nm (0.9 m • kg, 6.5 ft • lb)

4. Adjust:

- Brake lever distance "L" (See page 2-18)

SLIDE RAIL SUSPENSION

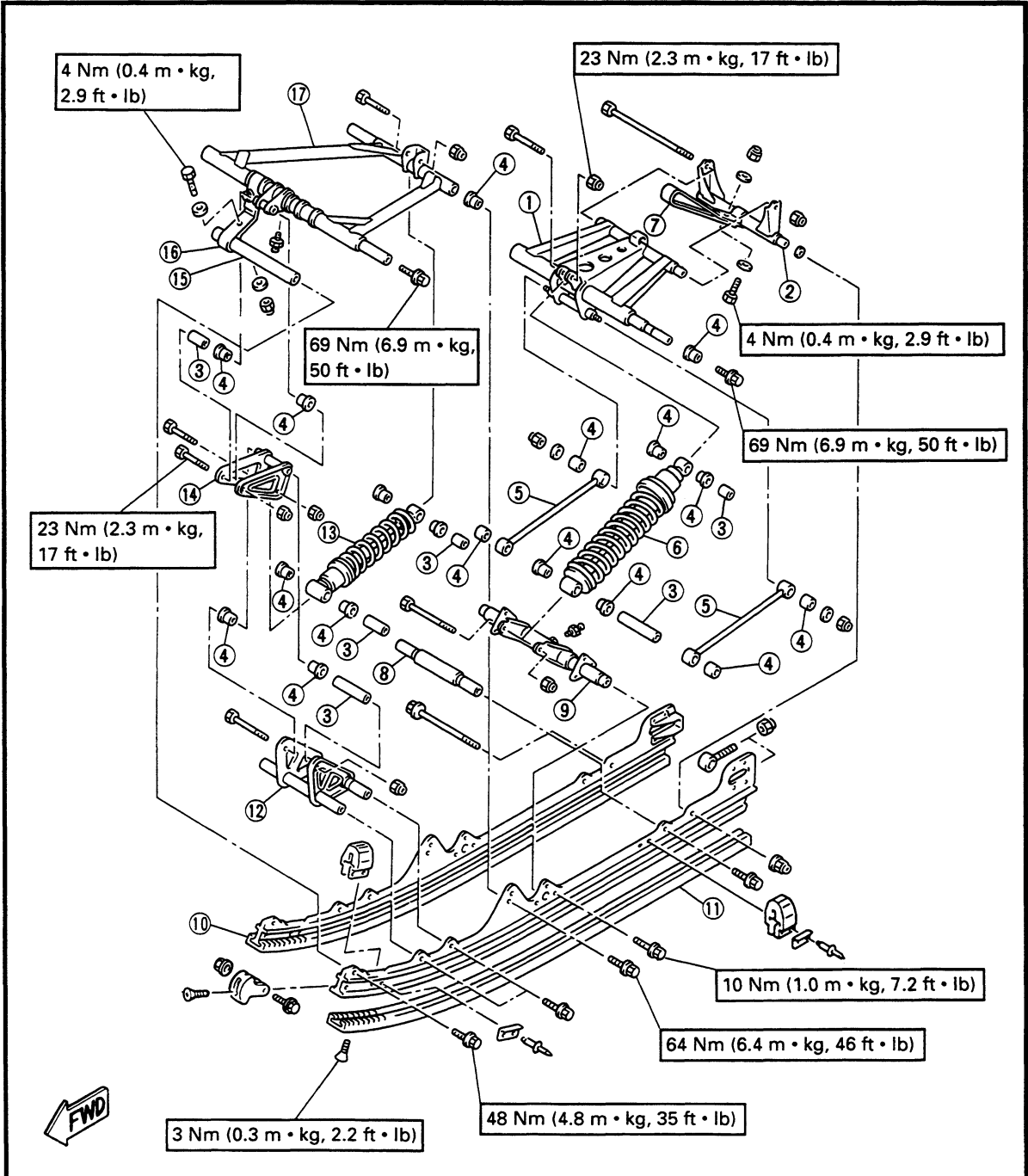
- | | |
|---------------------------|-----------------------------|
| ① Rear axle | ⑨ Guide wheel (center) |
| ② Guide wheel (rear) | ⑩ Suspension wheel (center) |
| ③ Bearing | ⑪ Suspension wheel (front) |
| ④ Circlip | ⑫ Slide metal |
| ⑤ Collar | ⑬ Track assembly |
| ⑥ Collar (center) | |
| ⑦ Suspension wheel (rear) | |
| ⑧ Suspension wheel (rear) | |

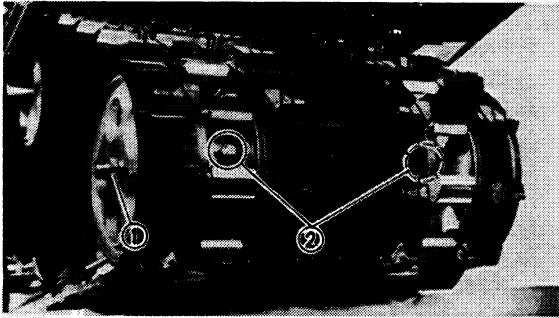


SLIDE RAIL SUSPENSION



- ① Rear pivot arm
- ② Pivot arm bracket
- ③ Collar
- ④ Bushing
- ⑤ Pull rod
- ⑥ Rear suspension
- ⑦ Rear stopper band
- ⑧ Bracket
- ⑨ Rear suspension bracket
- ⑩ Sliding frame
- ⑪ Slide runner
- ⑫ Suspension wheel bracket
- ⑬ Front suspension
- ⑭ Relay arm
- ⑮ Bracket
- ⑯ Front stopper band
- ⑰ Front pivot arm



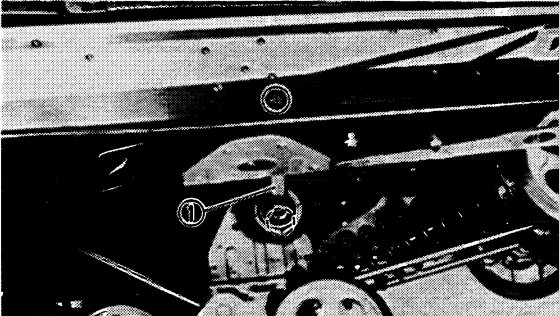


REMOVAL

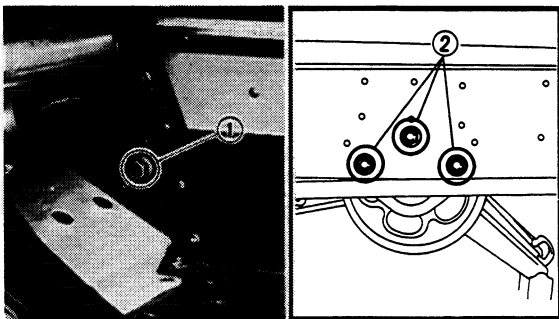
1. Remove:
 - Cotter pin (rear axle)
2. Loosen:
 - Track tension

NOTE:

Loosen the axle nut ① and adjuster nuts (track tension) ②.



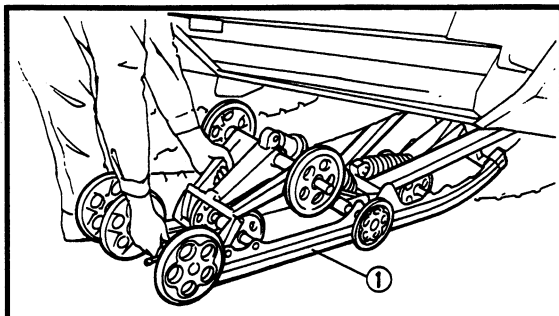
3. Remove:
 - Guide wheel (center) ①



4. Remove:
 - Suspension mounting bolts (front ① and rear ②)

NOTE:

Loosen both right and left bolts (front) ① at the same time.

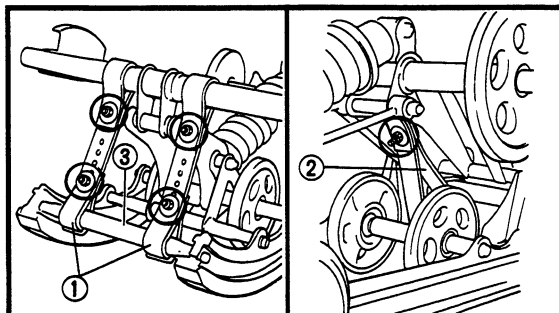


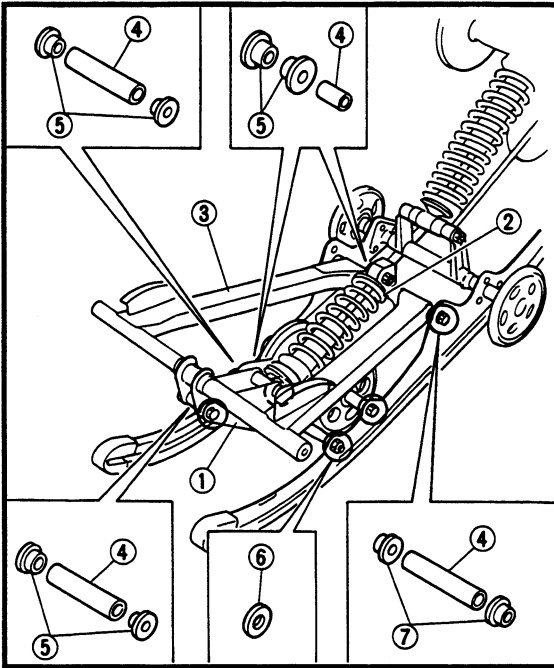
5. Lift the rear of the machine with a suitable stand.

6. Remove:
 - Slide rail suspension ①

DISASSEMBLY

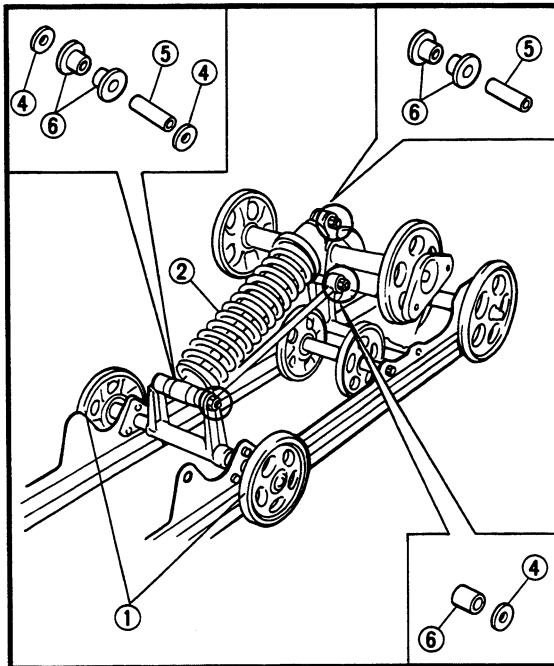
1. Remove:
 - Stopper bands (front ① and rear ②)
 - Bracket shaft ③





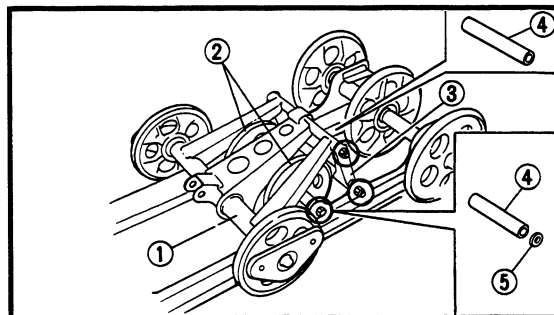
2. Remove:
- Suspension wheel bracket ①
 - Shock absorber ② (front)
 - Front pivot arm ③

- ④ Collar
- ⑤ Bushing
- ⑥ Washer
- ⑦ Flange washer



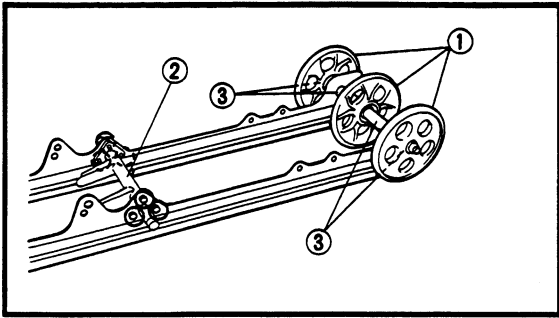
3. Remove:
- Suspension wheels ① (center)
 - Shock absorber ② (rear)
 - Pull rods ③

- ④ Washer
- ⑤ Collar
- ⑥ Bushing



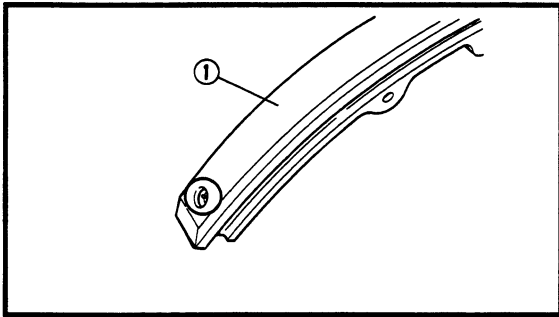
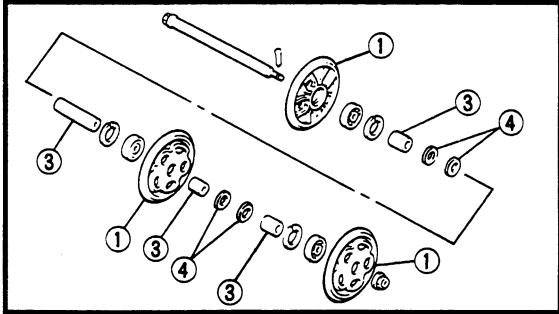
4. Remove:
- Rear pivot arm ①
 - Suspension wheels ②
 - Pivot arm bracket ③

- ④ Collar
- ⑤ Washer



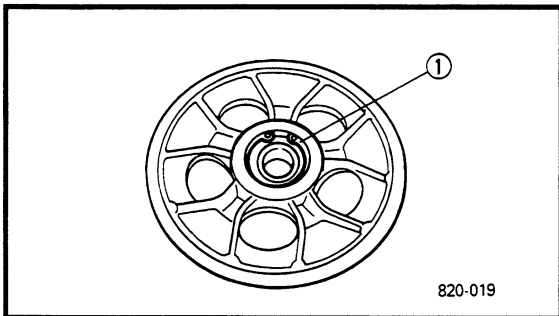
5. Remove:

- Guide wheels ① (rear)
- Rear suspension bracket ②
- Collars ③
- Washers ④



6. Remove:

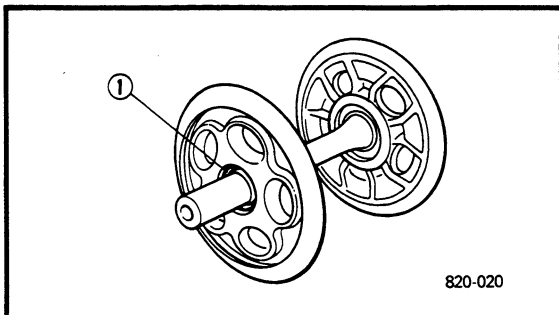
- Slide runner ①



INSPECTION

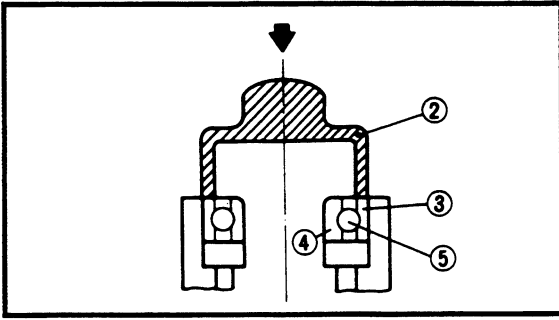
1. Inspect:

- Suspension wheel
- Guide wheel
- Cracks/Damage → Replace.
- Wheel bearing
- Wheel turns roughly → Replace.



Replacement steps:

- Remove the circlip ①.
- Remove the wheel bearing using a general bearing puller.
- Install the wheel bearing (new) into the wheel.

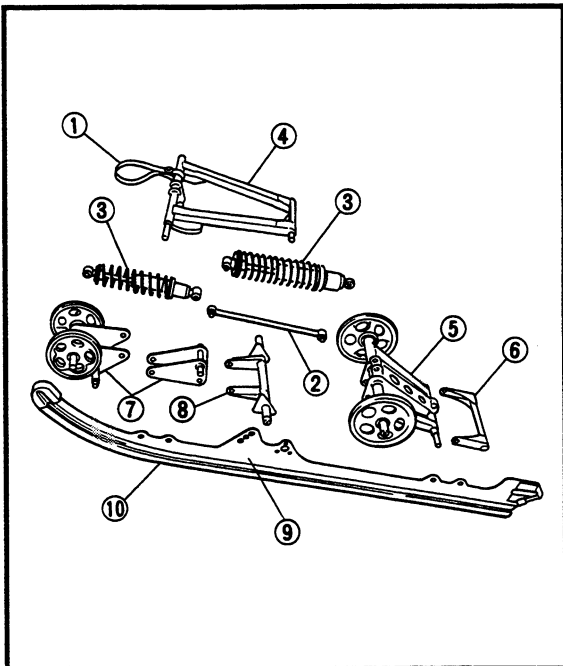


NOTE: _____
Use a socket ② that matches the outside diameter ③ of the race of the bearing.

CAUTION: _____
Do not strike the inner race ④ or balls of the bearing ⑤. Contact should be made only with the outer race.

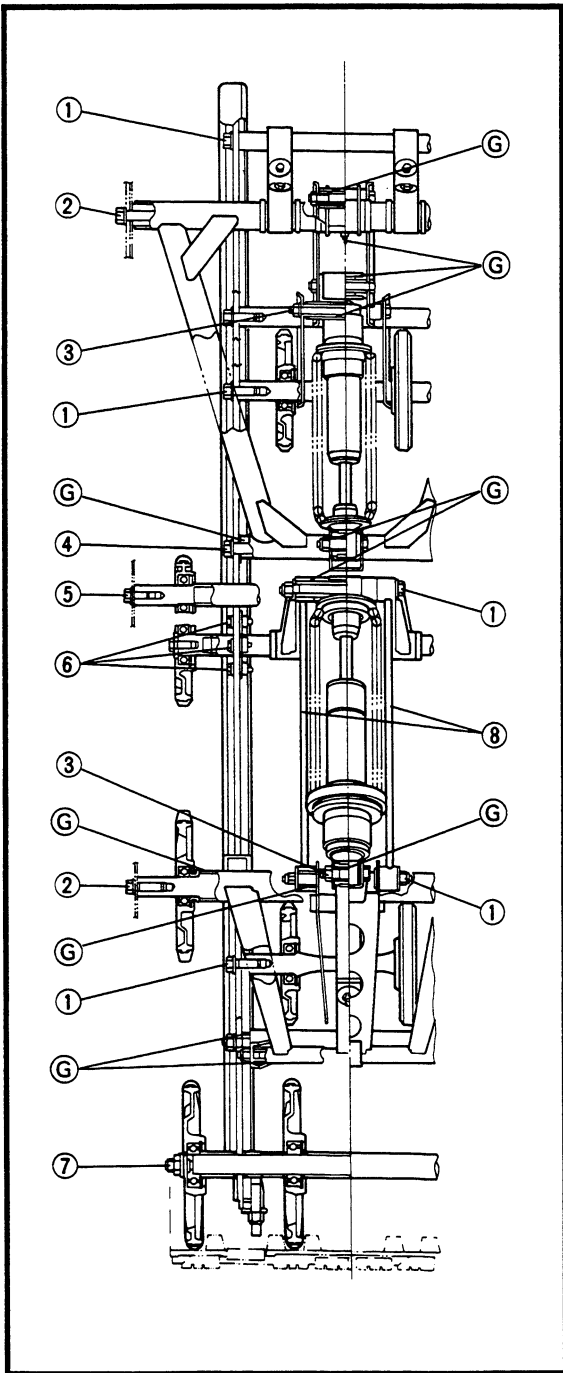
- Install the circlip.
- Install the wheel to the shaft.

CAUTION: _____
Always use a new circlip.



2. Inspect:

- Stopper band ①
Frayed/Damage → Replace.
- Pull rod ②
Bends/Damage → Replace.
- Shock absorber ③
Oil leaks/Damage → Replace.
- Bushings
Wear/Cracks/Damage → Replace.
- Front pivot arm ④
- Rear pivot arms ⑤
- Pivot arm bracket ⑥
- Suspension wheel bracket ⑦
- Front pivot arm ⑧
- Sliding frame ⑨
Cracks/Damage → Replace.
- Slide runner ⑩
Wear/Damage → Replace
(See page 2-22)




ASSEMBLY

Reverse the "DISASSEMBLY" procedure.
Note the following points.

1. Apply:

- Low temperature lithium soap base grease (to "G" mark points in the illustration).

2. Tighten:

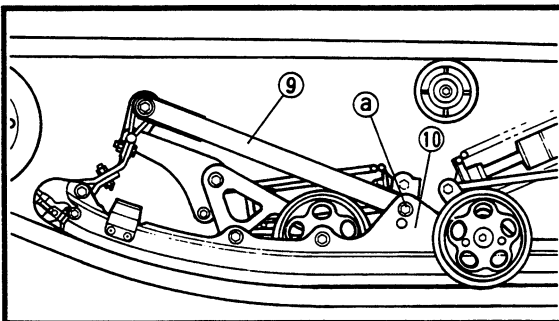
	Screw (slide runner): 3 Nm (0.3 m • kg, 2.2 ft • lb)
	Bolt ①: 48 Nm (4.8 m • kg, 35 ft • lb)
	Bolt ②: 69 Nm (6.9 m • kg, 50 ft • lb)
	Nut ③: 23 Nm (2.3 m • kg, 17 ft • lb)
	Bolt ④: 64 Nm (6.4 m • kg, 46 ft • lb)
	Bolt ⑤: 16 Nm (1.6 m • kg, 11 ft • lb)
	Bolt ⑥: 10 Nm (1.0 m • kg, 7.2 ft • lb)
	Nut ⑦: 75 Nm (7.5 m • kg, 54 ft • lb)
	Nut (stopper band): 4 Nm (0.4 m • kg, 2.9 ft • lb)

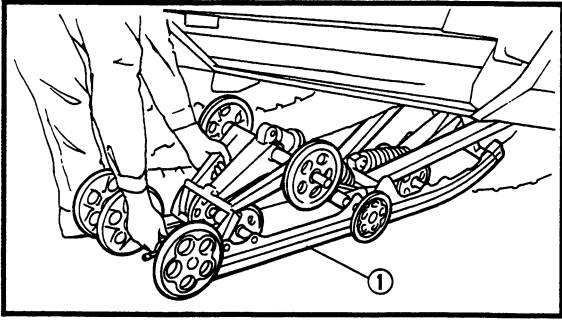
NOTE:

- Install the pull rod ⑧ so that the rod is offset slightly toward the outside.
- When attaching the front pivot arm ⑨ to the sliding frame ⑩, attach it to the hole ⓐ on the upper side. (for standard setting)

CAUTION:

Always use a new cotter pin.





INSTALLATION

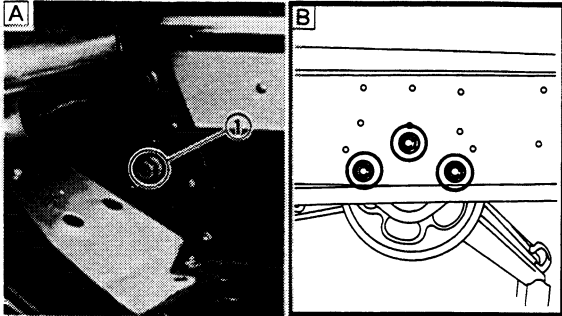
Reverse the "REMOVAL" procedure.

Note the following points.

1. Place the slide rail suspension ① into the track, and fit the front pivot arm holding bolts. Then fit the rear pivot arm bracket mounting bolts.

NOTE: _____

Do not tighten the bolts at this point. Finger – tighten the bolts.



2. Tighten:



Suspension mounting bolts:

Front **A**:

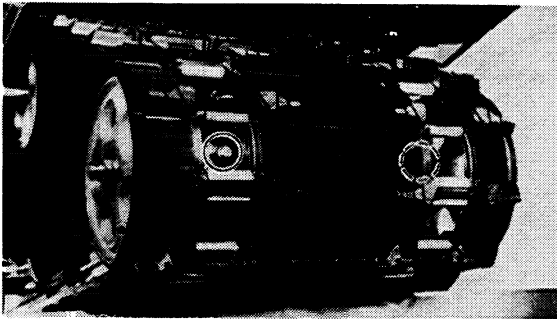
68 Nm (6.8 m · kg, 49 ft · lb)

Rear **B**:

68 Nm (6.8 m · kg, 49 ft · lb)

Guide wheel bolt (center):

27 Nm (2.7 m · kg, 20 ft · lb)

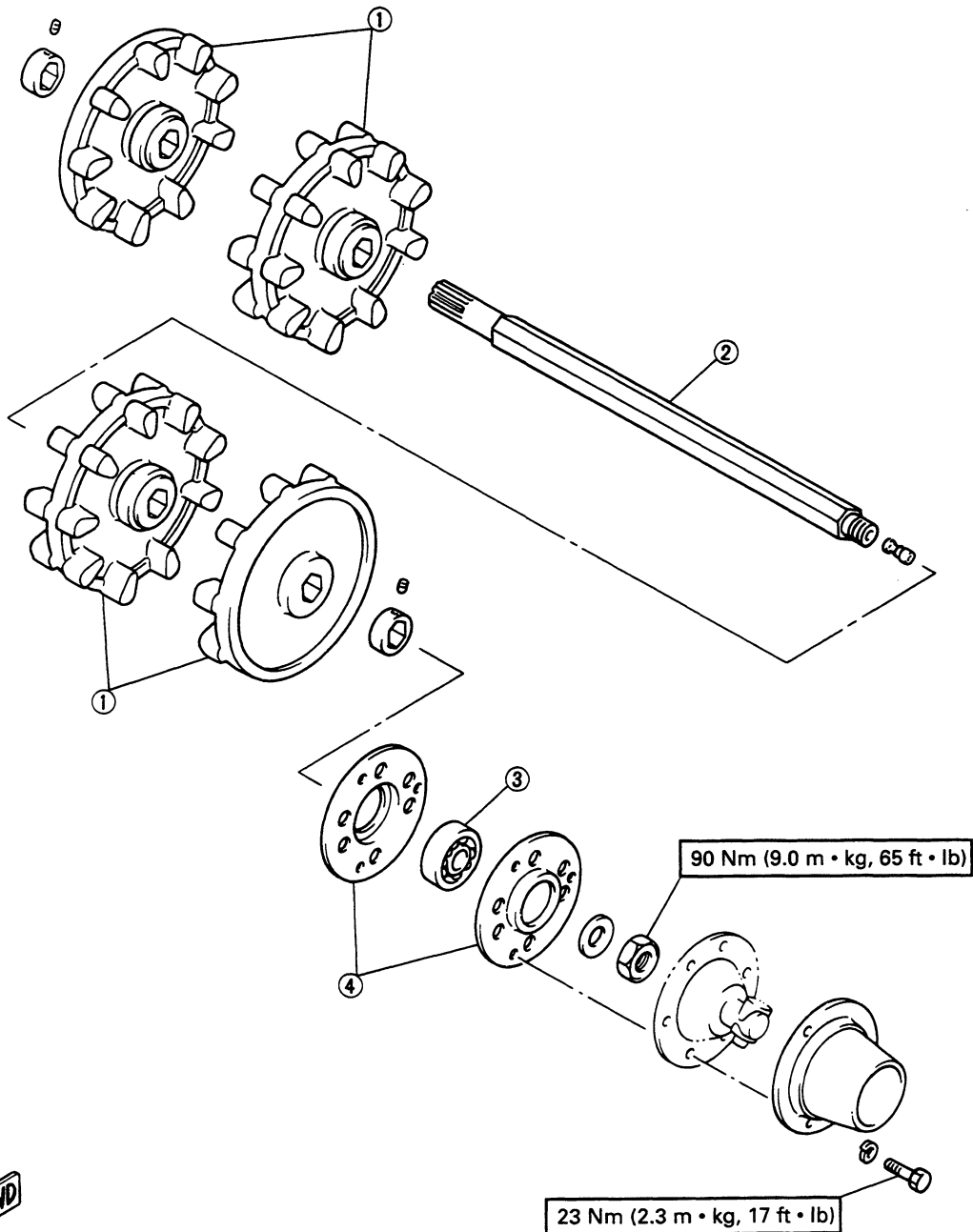


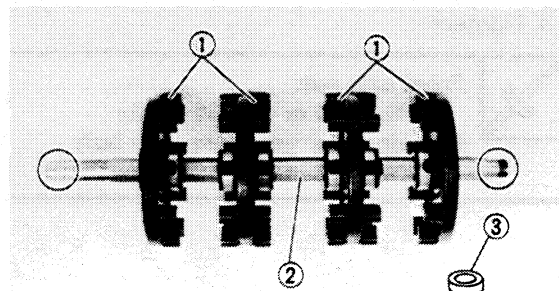
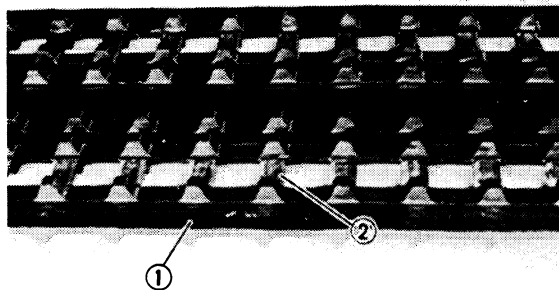
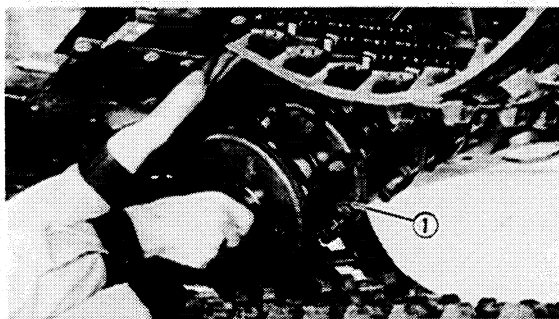
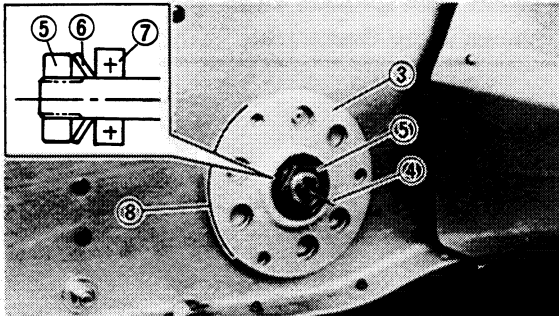
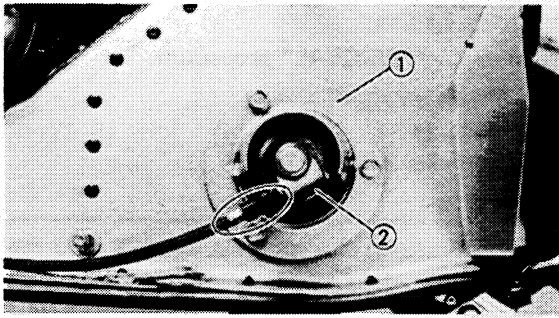
3. Adjust:

- Track tension (See page 2-21)
- Spring preload (See page 2-41)

FRONT AXLE AND TRACK

- ① Sprocket wheel
- ② Front axle
- ③ Bearing
- ④ Bearing holder





REMOVAL

1. Remove:

- Side cowlings (See page 2-3)
- Secondary sheave
- Speedometer cable
- Speedometer gear cover ①
- Speedometer gear assembly ②
- Bearing holder ③ (outer)
- Cable joint ④ (speedometer cable)
- Nut ⑤ (front axle)
- Plain washer ⑥
- Bearing ⑦
- Bearing holder ⑧ (inner)

NOTE:

Apply the parking brake when removing the nut (front axle).

2. Remove:

- Muffler
- Driven sprocket (See page 4-18)
- Slide rail suspension (See page 4-30)

3. Remove:

- Front axle assembly ①
- Track assembly

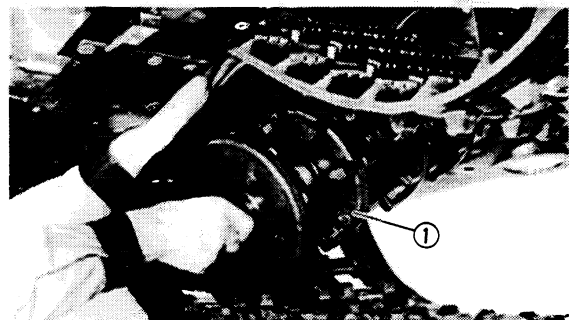
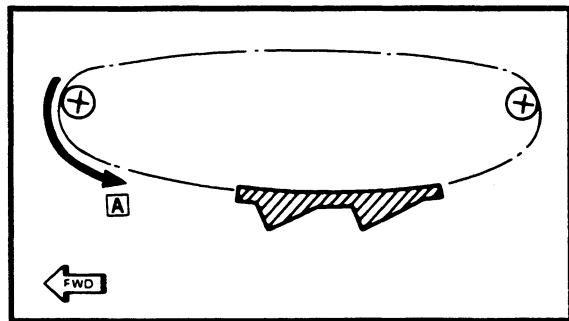
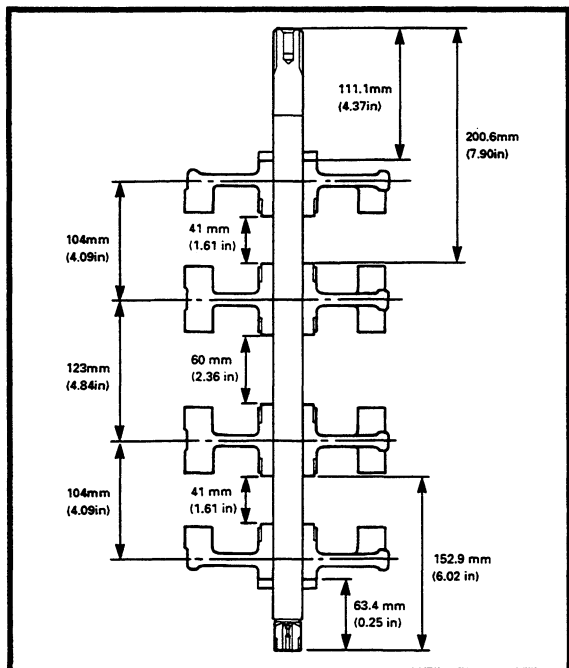
INSPECTION

1. Inspect:

- Track ①
 - Slide metal ②
- Wear/Cracks/Damage → Replace.

2. Inspect:

- Sprocket wheels ①
- Wear/Break/Damage → Replace.
- Front axle ②
- Bent/Scratched (excessively)/Damage → Replace.
- Splines/Threads (front axle)
- Wear/Damage → Replace.
- Front axle bearing ③
- Pitting/Damage → Replace.



INSTALLATION

Reverse the "REMOVAL" procedure.
Note the following points.

1. Install:

- Sprocket wheels ①

NOTE:

- When pressing the sprocket wheels onto the front axle, align the lugs on each sprocket wheel.
- Locate each sprocket wheel on the axle where shown in the illustration.

2. Place the track in the chassis.

NOTE:

Be sure it is positioned as shown in the illustration.

A TURNING DIRECTION


3. Install:

- Front axle ①

NOTE:

- Install the front axle, push in the splined end toward the chain housing, and install the threaded end into the speedometer gear housing side.
- Be sure the lugs correctly engage the track.

4. Tighten:

	Front axle nut:
	90 Nm (9.0 m • kg, 65 ft • lb)
	Speedometer gear assembly bolt:
	23 Nm (2.3 m • kg, 17 ft • lb)

CHAPTER 5. ENGINE OVERHAUL

ENGINE REMOVAL	5-1
EXHAUST SYSTEM	5-1
CARBURETOR AND RADIATOR	5-1
OIL HOSE	5-1
CABLE AND LEADS	5-2
RECOIL STARTER HANDLE	5-2
ENGINE REMOVAL	5-2
 DISASSEMBLY	 5-2
EXHAUST MANIFOLD	5-2
INTAKE MANIFOLDS AND	
REED VALVES	5-2
ENGINE BRACKETS	5-3
RECOIL STARTER	5-3
OIL PUMP	5-3
WATER JACKET JOINT	5-3
WATER PUMP	5-4
MAGNETO ROTOR	5-4
CYLINDER HEAD AND CYLINDER	5-5
PISTON	5-5
CRANKCASE AND CRANKSHAFT	5-6
 INSPECTION AND REPAIR	 5-6
CYLINDER HEAD	5-6
CYLINDER AND PISTON	5-7
PISTON RINGS	5-9
PISTON PIN AND BEARING	5-10
CRANKSHAFT	5-11
DRIVE SHAFT	5-12
REED VALVE AND INTAKE MANIFOLD ..	5-13
CRANKCASE	5-14
 ENGINE ASSEMBLY AND ADJUSTMENT ...	 5-15
CRANKCASE AND CRANKSHAFT	5-15
PISTON	5-19
CYLINDER AND CYLINDER HEAD	5-19
MAGNETO ROTOR	5-20
WATER PUMP	5-21
WATER JACKET JOINT	5-21
OIL PUMP	5-22
RECOIL STARTER	5-22
ENGINE BRACKETS	5-22
INTAKE MANIFOLDS AND	
REED VALVES	5-23
EXHAUST MANIFOLD	5-23
REMOUNTING ENGINE	5-23

RECOIL STARTER	5-24
REMOVAL	5-25
ASSEMBLY AND INSTALLATION	5-25



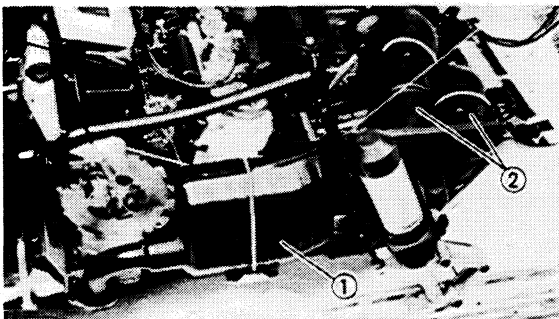
ENGINE OVERHAUL

ENGINE REMOVAL

NOTE:

It is not necessary to remove the engine in order to remove the following components:

- Cylinder head
- Cylinder
- Piston and piston ring
- Water pump
- Recoil starter
- Oil pump
- Primary sheave



EXHAUST SYSTEM

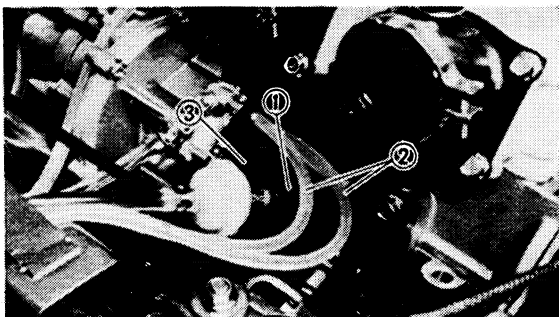
1. Remove:

- Side cowling (right) (See page 2-3)
- Muffler ①
- Exhaust pipes ②

CARBURETOR AND RADIATOR

1. Remove:

- Carburetor assembly (See page 7-3)
- Primary sheave (See page 4-2)
- Secondary sheave (See page 4-10)
- Radiator (See page 6-3)



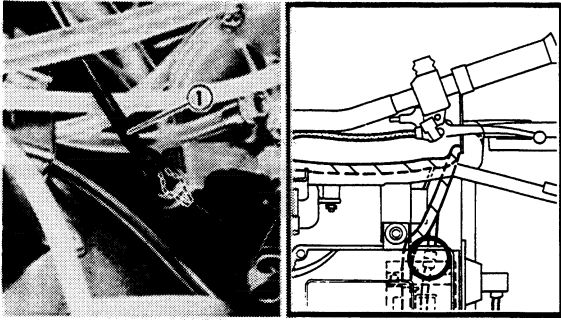
OIL HOSE

1. Disconnect:

- Oil hose ①
- Oil delivery hoses ②
- Pulser hoses ③

NOTE:

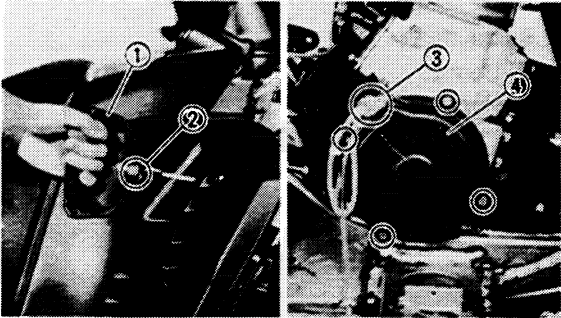
Plug the oil hoses and oil delivery hoses so that oil does not run out.



CABLE AND LEADS

1. Disconnect:

- Oil pump cable ①
- CDI magneto coupler
- Pickup coil coupler



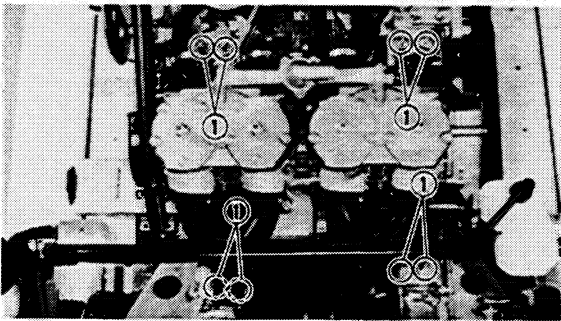
RECOIL STARTER HANDLE

1. Remove:

- Starter handle ①

NOTE:

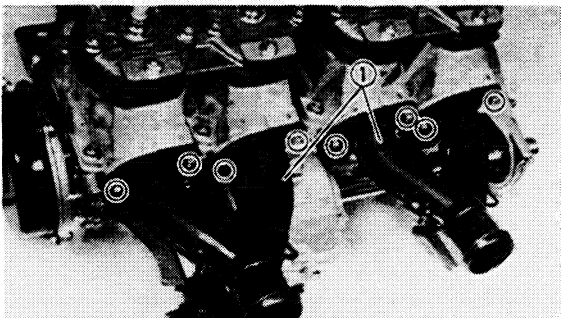
To remove the starter handle, loosen the knot ② of the starter rope and then knot ③ the rope end so it will not be pulled into the recoil starter case ④.



ENGINE REMOVAL

1. Remove:

- Nuts ① (engine bracket)
- Engine assembly

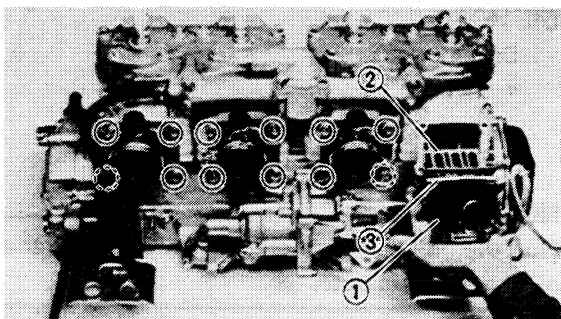


DISASSEMBLY

EXHAUST MANIFOLD

1. Remove:

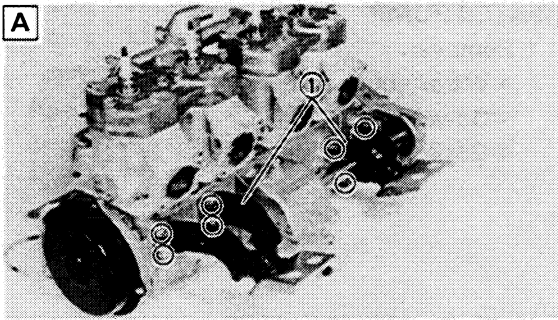
- Exhaust manifolds ①
- Gaskets



INTAKE MANIFOLDS AND REED VALVES

1. Remove:

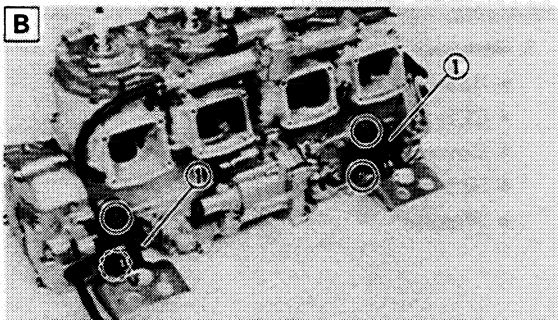
- Intake manifolds ①
- Reed valves ②
- Gaskets ③

**ENGINE BRACKETS**

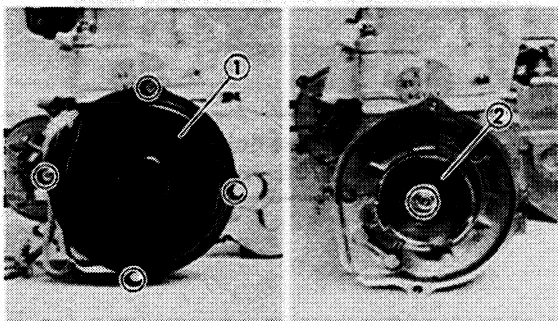
1. Remove:

- Engine brackets ①

A Front

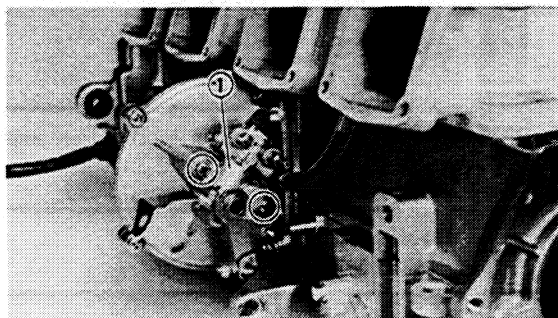


B Rear

**RECOIL STARTER**

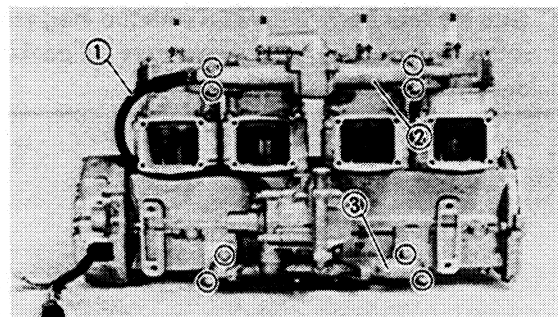
1. Remove:

- Recoil starter assembly ①
- Recoil starter pulley ②
- Woodruff key

**OIL PUMP**

1. Remove:

- Oil pump assembly ①
- O-ring

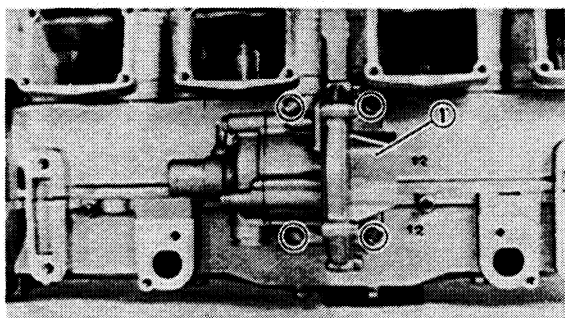
**WATER JACKET JOINT**

1. Disconnect:

- Breather hose ①

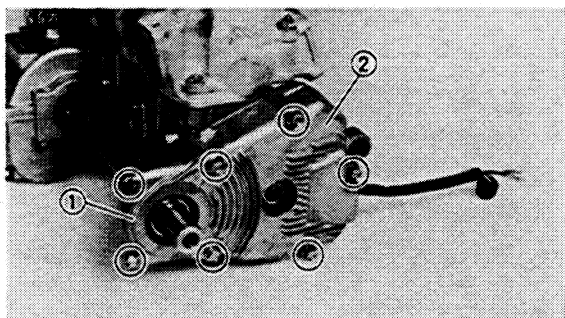
2. Remove:

- Water jacket joint ② (upper)
- Gaskets
- Water jacket joint ③ (lower)
- O-rings

**WATER PUMP**

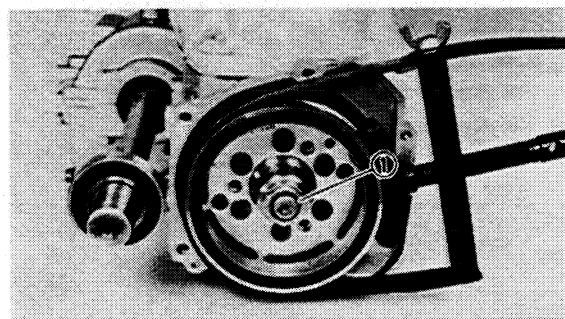
1. Remove:

- Water pump assembly ①
- Dowel pins
- Gasket

**MAGNETO ROTOR**

1. Remove:

- Bearing holder ①
- CDI magneto cover ②
- Dowel pin
- Nut (magneto rotor)
- Washer

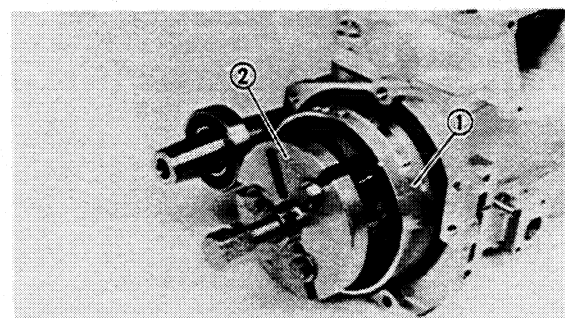


2. Remove:

- Nut ① (magneto rotor)
- Washer



Primary sheave holder:
90890-01701, YS-01880



3. Remove:

- Magneto rotor ①

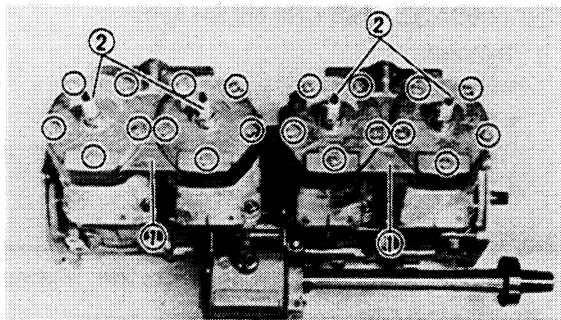
NOTE:

- Remove the magneto rotor using the rotor puller ②.



Rotor puller ②:
90890-01362, YU-33270

- Fully tighten the tool holding bolts, but make sure the tool body is parallel with the magneto rotor. If necessary, one screw may be backed out slightly to level tool body.



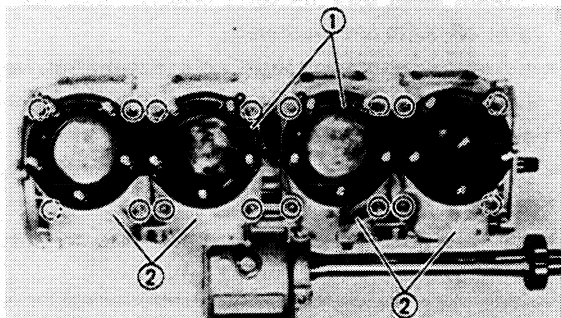
CYLINDER HEAD AND CYLINDER

1. Remove:

- Cylinder head ①

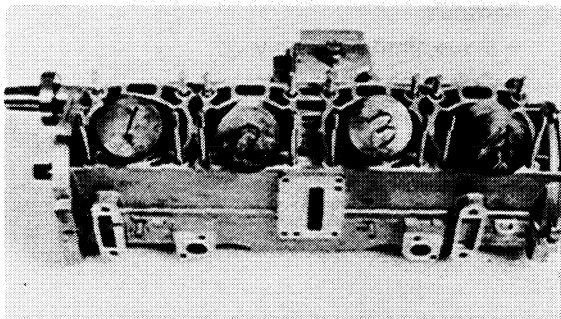
NOTE:

- Before removing the cylinder head, loosen the spark plug ② .
- The cylinder head holding nuts and bolts should be loosened 1/2 turn at a time, and then removed when all are loose.



2. Remove:

- Gaskets ① (cylinder head)
- Cylinders ②
Dowel pins
- Gasket (cylinder)



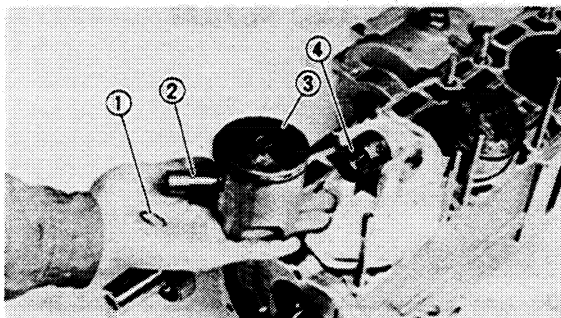
PISTON

1. Remove:

- Piston pin clip ①
- Piston pin ②
- Piston ③
- Small end bearing ④

NOTE:

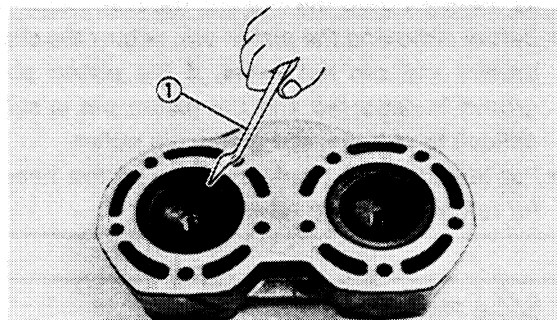
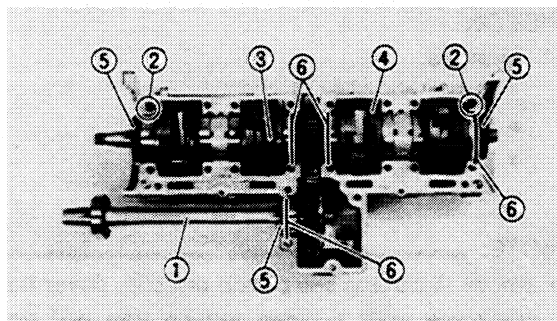
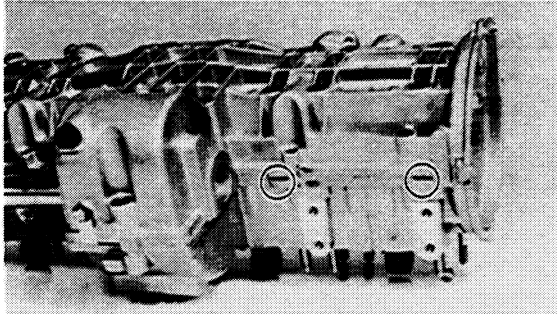
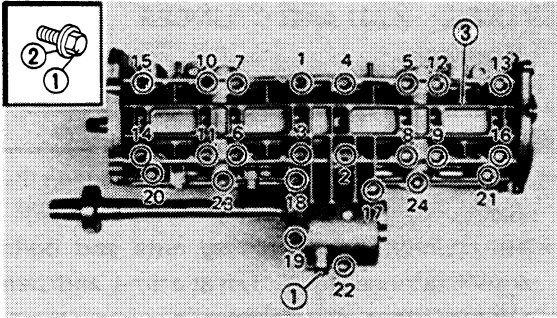
- Before removing the piston pin clip, cover the crankcase with a clean rag so you will not accidentally drop the clip into the crankcase.
- Before removing the piston pin, deburr the clip groove and pin hole area. If the piston pin groove is deburred and the piston pin is still difficult to remove, use piston pin puller.
- Put identification marks on each piston head for reference during reinstallation.



Piston pin puller:
90890-01304, YU-01304

CAUTION:

Do not use a hammer to drive the piston pin out.



CRANKCASE AND CRANKSHAFT

1. Remove:

- Drain bolt ①
 - Gasket ②
- Drain the oil.
- Crankcase ③ (lower)

NOTE:

- Remove the bolts starting with the highest numbered one.
- Loosen each bolt 1/4 turn, and remove them after all bolts are loosened.
- If the case halves are tightly stuck together, tap lightly on the tabs indicated on the crankcase with a soft-head hammer.
- The slits shown in the crankcase can be used to remove it.
- Be sure not to give damages the mating surface.

2. Remove:

- Drive shaft assembly ①
- Dowel pin ②
- Crankshaft (left ③ and right ④)
- Oil seals ⑤
- Stopper rings ⑥

INSPECTION AND REPAIR

CYLINDER HEAD

1. Eliminate:

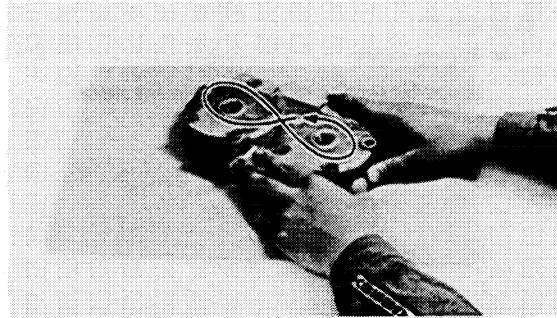
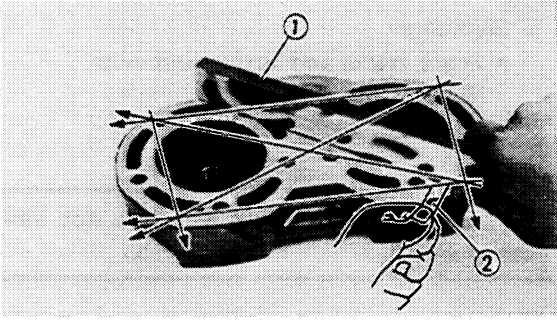
- Carbon deposit
(from combustion chamber)
- Use rounded scraper ①.

CAUTION:

Do not use a sharp instrument and avoid damaging or scratching.

2. Inspect:

- Cylinder head water jacket
Crust of minerals/Rust → Remove.



3. Measure:

- Cylinder head warpage
Out of specification → Resurface.



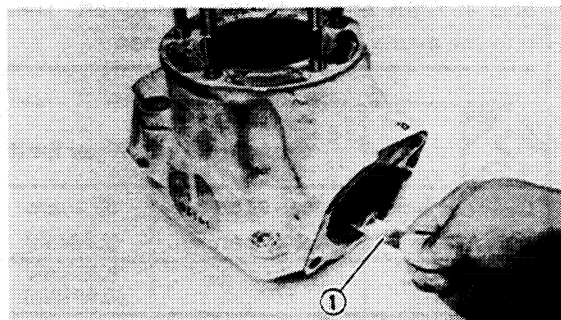
Warpage limit:
0.03 mm (0.0012 in)

Measurement and resurfacing steps:

- Attach a straight edge ① on the cylinder head and measure the warpage using a thickness gauge ②.
- If the warpage is out of specification, resurface the cylinder head.
- Place a 400 ~ 600 grit wet sandpaper on the surface plate, and resurface the head using a figure-eight sanding pattern.

NOTE:

Rotate the head several times to avoid removing too much material from one side.



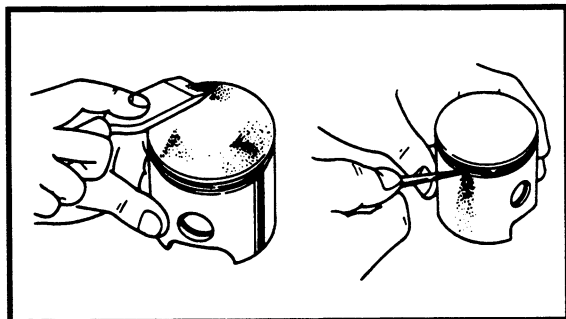
CYLINDER AND PISTON

1. Eliminate:

- Carbon deposits
Use a rounded scraper ①.

NOTE:

Do not use a sharp instrument and avoid damaging or scratching.



2. Inspect:

- Cylinder wall
Wear/Scratches → Hone or replace.
- Cylinder water jacket
Crust of minerals/Rust → Remove.

3. Eliminate:

- Carbon deposits
(from piston crown and ring grooves)

4. Inspect:

- Piston crown
Burrs/Nicks/Damage → Replace.



5. Eliminate:

- Score marks and lacquer deposits (from piston wall)
Use 600 ~ 800 grit wet sandpaper.

NOTE: _____

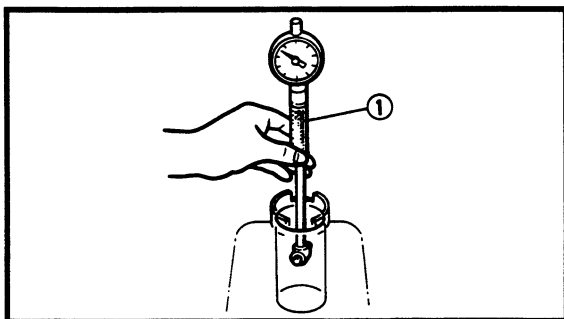
Sand in a crisscross pattern. Do not sand excessively.



307-002

6. Inspect:

- Piston wall
Wear/Scratches/Damage → Replace.



7. Measure:

- Piston-to-cylinder clearance

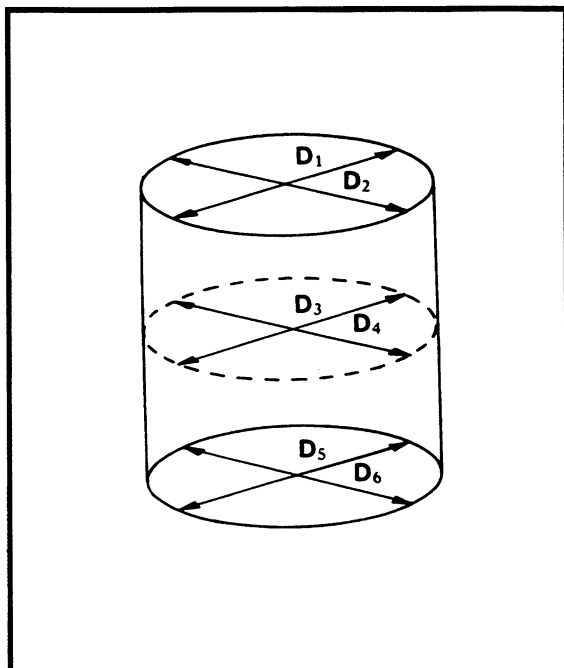
Measurement steps:


First step:

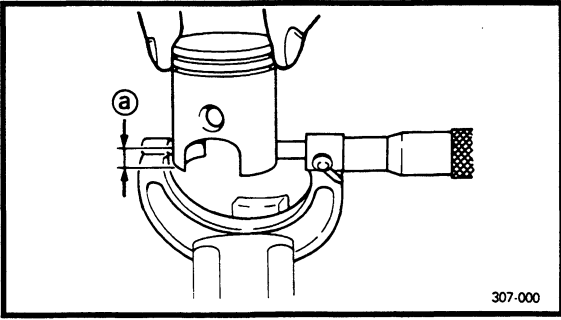
- Measure the cylinder bore "C" with a cylinder bore gauge ①.

NOTE: _____

Measure the cylinder bore "C" in parallel and at right angles to the crankshaft. Then find the average of the measurements.



	Standard	Wear limit
Cylinder bore "C"	63.000 ~ 63.020 mm (2.480 ~ 2.481 in)	63.1 mm (2.484 in)
Taper "T"	—	0.05 mm (0.0019in)
Out of round "R"	—	0.01 mm (0.0004 in)
<p>C = Maximum D T = (Maximum D¹ or D²) – (Maximum D⁵ or D⁶) R = (Maximum D¹, D³ or D⁵) – (Minimum D², D⁴ or D⁶)</p>		
<ul style="list-style-type: none"> • If out of specification, replace cylinder, and replace piston and piston rings as a set. 		



307-000

2nd step:

- Measure the piston skirt diameter "P" with a micrometer.
- ② 20 mm (0.8 in) from the piston bottom edge.

	Piston size P
Standard	63 mm (2.480 in)

- If out of specification, replace piston and piston rings as a set.

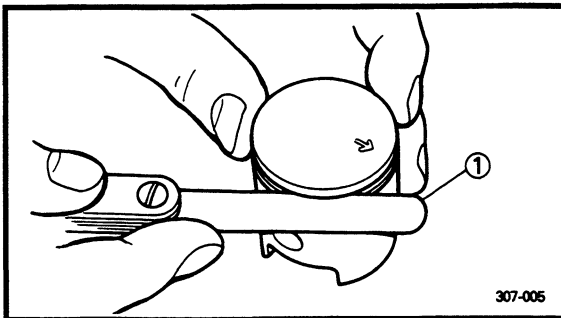
3rd step:

- Calculate the piston-to-cylinder clearance with the following formula:

$$\text{Piston-to-cylinder clearance} = \text{Cylinder bore "C"} - \text{Piston skirt diameter "P"}$$

- If out of specification, rebore or replace cylinder, and replace piston and piston rings as a set.

	Piston-to-cylinder clearance: 0.065 ~ 0.070 mm (0.0026 ~ 0.0028 in) Limit: 0.1 mm (0.004 in)
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307-005

PISTON RINGS

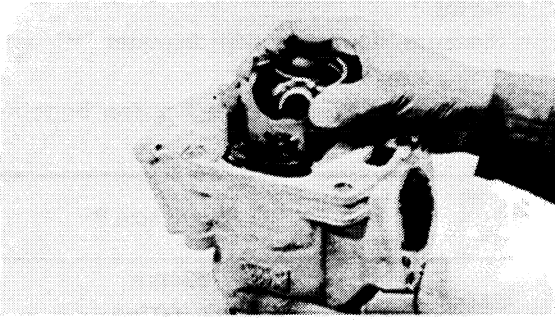
1. Measure:

- Side clearance
Out of specification → Replace piston and/or rings.
Use a feeler gauge ①.

NOTE:

Eliminate the carbon deposits from the piston ring grooves and rings before measuring the side clearance.

	Side clearance	Top	0.03 ~ 0.05 mm (0.001 ~ 0.002 in)
		2nd	0.03 ~ 0.05 mm (0.001 ~ 0.002 in)

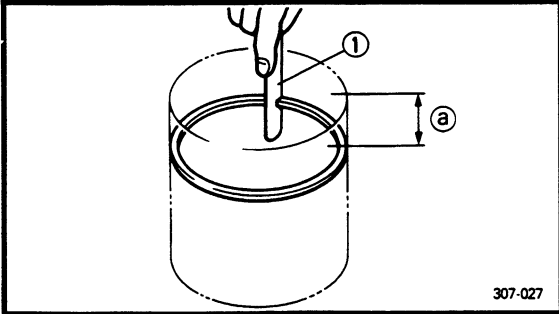


2. Install:

- Piston ring
(into the cylinder)
Push the ring with piston crown.


NOTE:

Insert the ring into the cylinder, and push it approximately 20 mm (0.8 in) into the cylinder. Push the ring with the piston crown so that the ring will be at a right angle to the cylinder bore.



3. Measure:

- End gap
Out of specification → Replace rings as a set.
Use a feeler gauge ①.

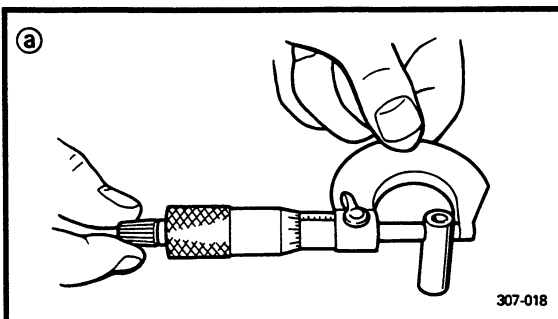
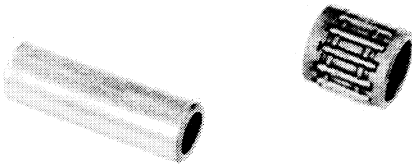
	End gap	Top	0.35 ~ 0.55 mm (0.014 ~ 0.020 in)
		2nd	0.35 ~ 0.55 mm (0.014 ~ 0.020 in)

② 20 mm (0.8 in)

PISTON PIN AND BEARING


1. Inspect:

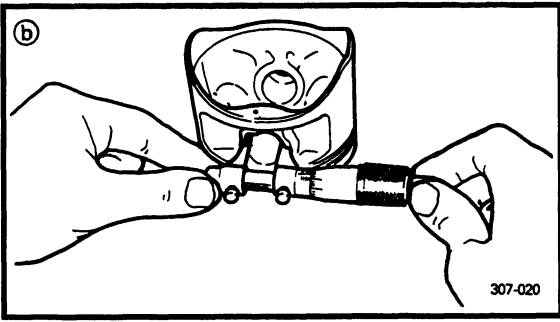
- Piston Pin
Blue discoloration/Grooves → Replace piston pin and inspect lubrication system.
- Small end bearing
Blue discoloration/Bearing turns roughly
→ Replace bearing and inspect lubrication system.



2. Measure:

- Outside diameter ③ (piston pin)
Out of specification → Replace.


	Outside diameter (piston pin): 16.000 ~ 16.005 mm (0.6300 ~ 0.6301 in)
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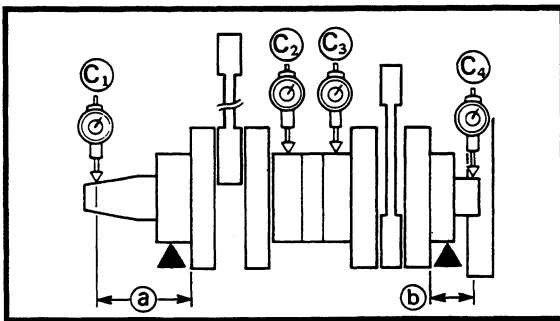
3. Measure:

- Piston pin-to-piston clearance
Out of specification → Replace piston.

Piston pin-to-piston clearance =
Bore size (piston pin) (b) -
Outside diameter (piston pin) (a)




Piston pin-to piston clearance =
0.065 ~ 0.070 mm
(0.0026 ~ 0.0028 in)




CRANKSHAFT

1. Measure:

- Runout
Use V-blocks and a dial gauge
Out of specification → Replace or repair.



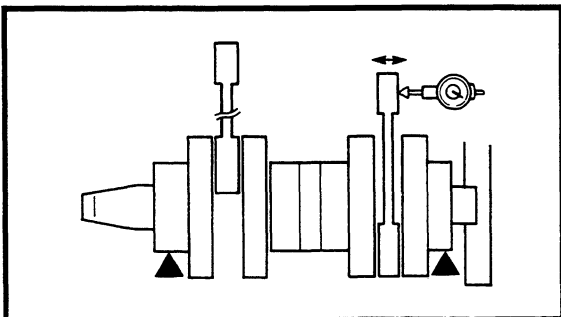
Dial gauge:
90890-03097, YU-03097



Runout limit:
C¹, C⁴ : 0.03 mm (0.0012 in)
C², C³ : 0.04 mm (0.0016 in)


(a) 65 mm (2.6 in)

(b) 32.5 mm (1.3 in)

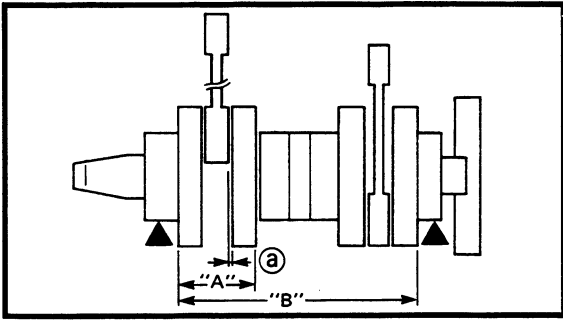


2. Measure:

- Small end free play
Use a dial gauge.
Out of specification → Replace the defective parts.



Small end free play:
0.8 ~ 1.0 mm (0.031 ~ 0.039 in)



3. Measure:

- Big end side clearance (a)
Use a feeler gauge.
Out of specification → Replace the defective parts.

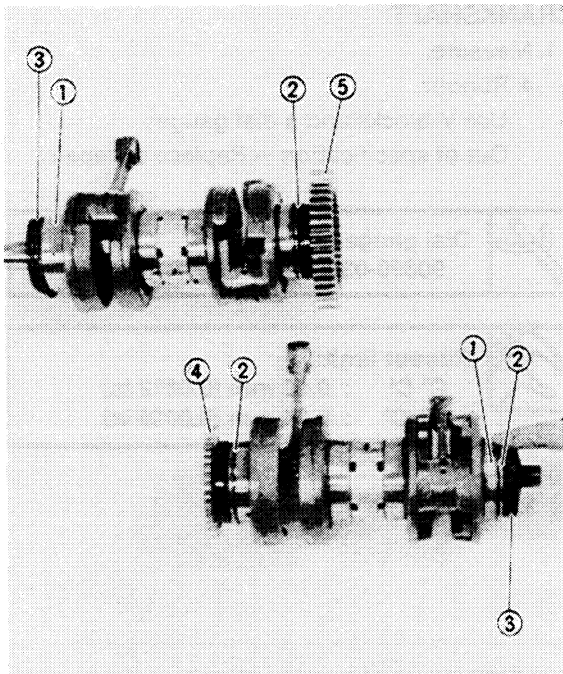


Big end side clearance (a) :
0.5 mm (0.02 in)

- Crank wide "A", "B"
Out of specification → Replace or repair.



Crank wide:
"A": 55.95 ~ 56.00 mm
(2.202 ~ 2.204 in)
"B": 167.85 ~ 168.15 mm
(6.608 ~ 6.620 in)

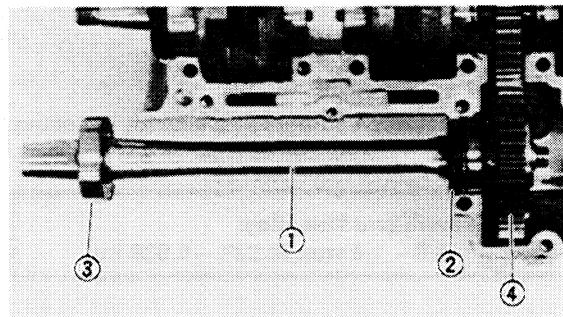


4. Inspect:

- Crankshaft bearing (1)
Pitting/Damage → Replace.
- Stopper ring (2)
Bend/Damage → Replace.
- Oil seals (3)
Wear/Damage → Replace.
- Drive gear (inner (4) and outer (5))
Wear/Damage → Replace.

CAUTION:

Lubricate the bearing immediately after examining them to prevent rust.

**DRIVE SHAFT**

1. Inspect:

- Drive shaft (1)
Bend/Damage → Replace.
- Oil seal (2)
Wear/Damage → Replace.
- Bearings (3)
Pitting/Damage → Replace.



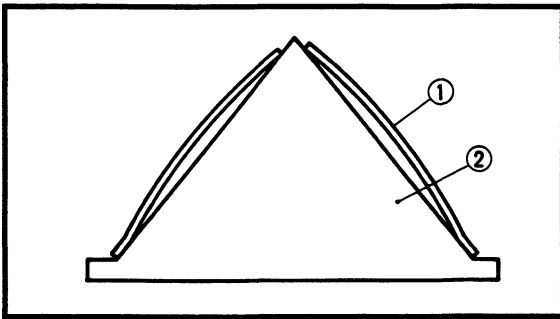
- Driven gear ④
Cracks/Damage → Replace.



Bolt (driven gear):
48 Nm (4.8 m · kg, 35 ft · lb)

REED VALVE AND INTAKE MANIFOLD

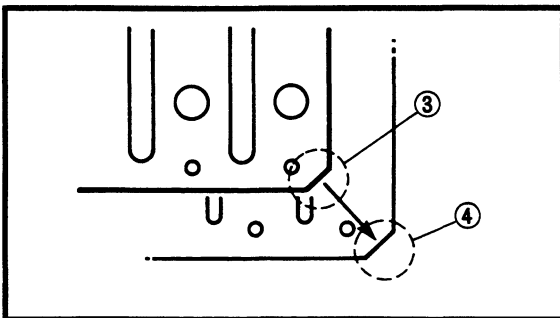
1. Disassemble:
 - Reed valves
2. Inspect:
 - Reed valves
Bent/Cracks/Damage → Replace.



3. Install:
 - Reed valves
 - Reed valve stoppers

NOTE:

- Place the reed valve ① with its concave surface facing the reed valve seat ② .
- Fit the reed valve stopper cut ③ with the corresponding cut ④ on the reed valve.



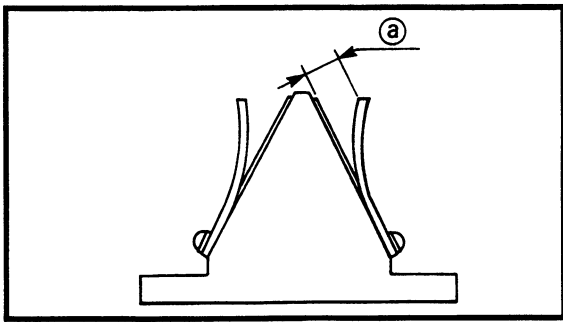
4. Tighten:
 - Screws ① (reed valve)



Screws (reed valve):
1 Nm (0.1 m · kg, 0.7 ft · lb)
LOCTITE®

NOTE:

Tighten each screw gradually to avoid warping.

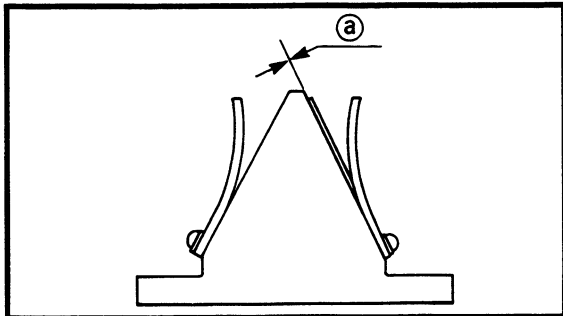


5. Measure:

- Valve stopper height (a)
Out of specification → Replace.



Valve stopper height:
8.8 ~ 9.2 mm (0.35 ~ 0.36 in)

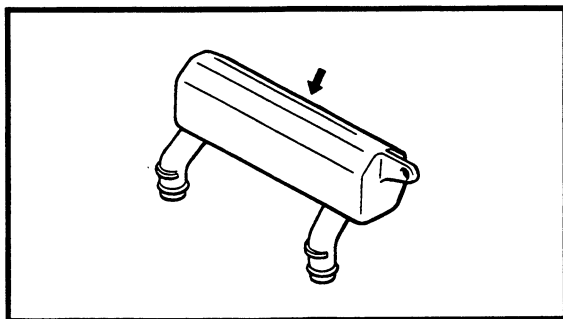


6. Measure:

- Reed valve bending limit (a)
Out of specification → Replace.



Reed valve bending limit:
0.6 mm (0.024 in)



7. Inspect:

- Air chamber
Cracks/Damage → Replace.

CRANKCASE

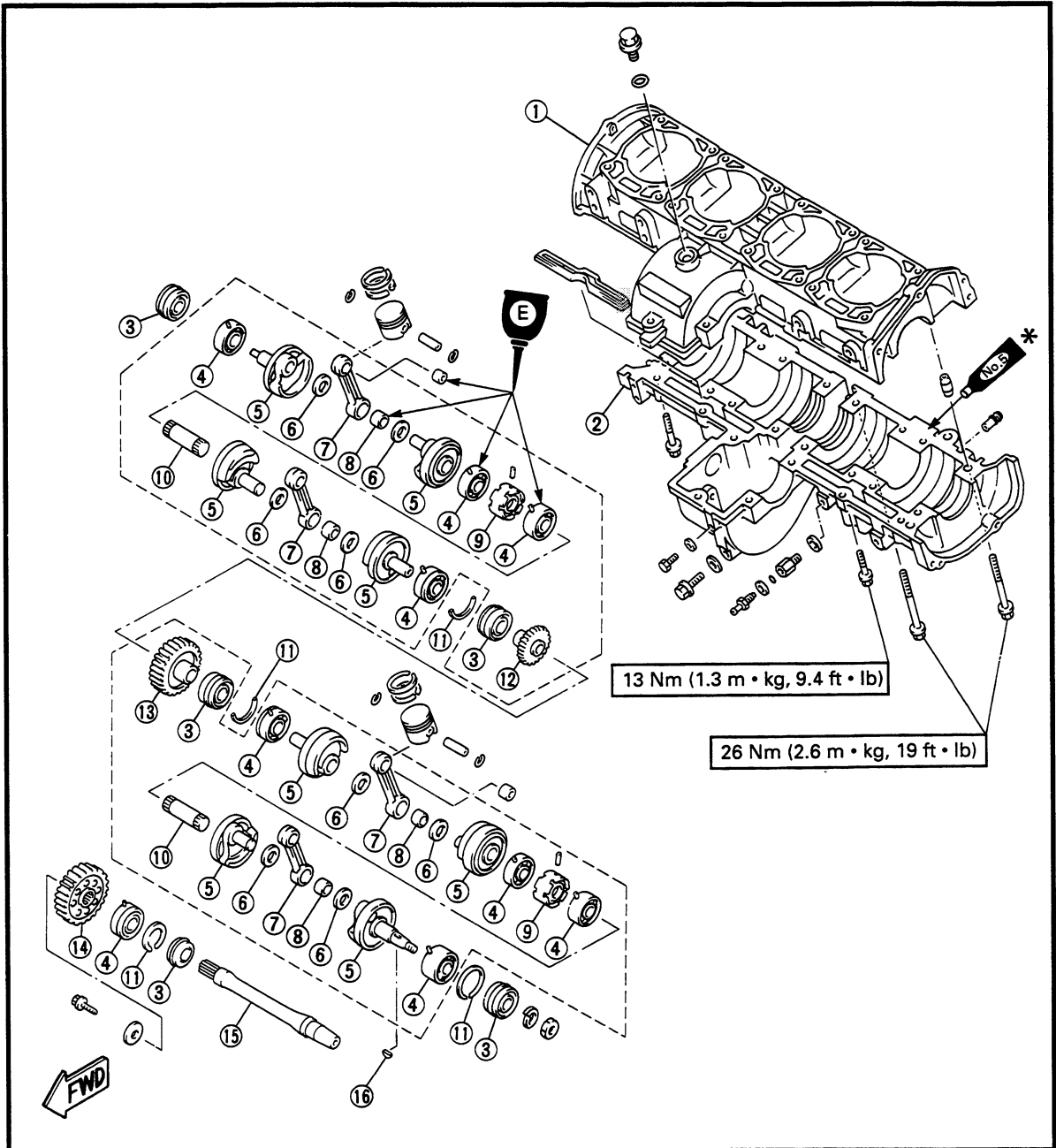
1. Thoroughly wash the case halves in mild solvent.
2. Clean all the gasket mating surfaces and case mating surfaces thoroughly.
3. Inspect:
 - Crankcase
Cracks/Damage → Replace.

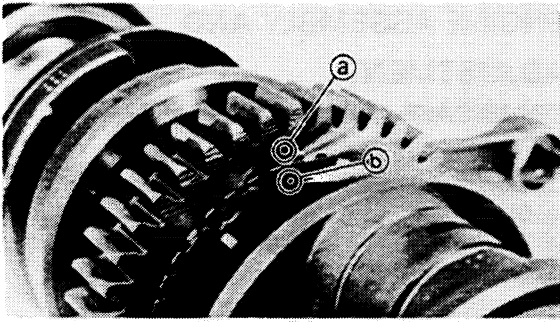


**ENGINE ASSEMBLY AND
ADJUSTMENT**

CRANKCASE AND CRANKSHAFT

- | | |
|-------------------|----------------------|
| ① Upper crankcase | ⑨ Labyrinth seal |
| ② Lower crankcase | ⑩ Crank pin |
| ③ Oil seal | ⑪ Stopper ring |
| ④ Bearing | ⑫ Drive gear (inner) |
| ⑤ Crank | ⑬ Drive gear (outer) |
| ⑥ Washer | ⑭ Driven gear |
| ⑦ Connecting rod | ⑮ Drive shaft |
| ⑧ Big end bearing | ⑯ Woodruff key |
- * Yamaha bond No.5



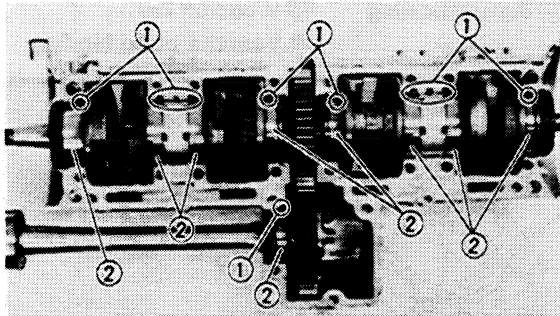


1. Assembly:

- Crankshaft assembly (left and right)

NOTE:

Align the punch mark **a** on the drive gear (outer) with the punch mark **b** on the drive gear (inner).

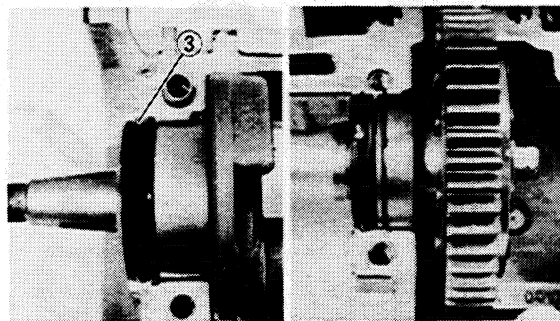


2. Install:

- Crankshaft assembly
- Drive shaft (to upper crankcase)

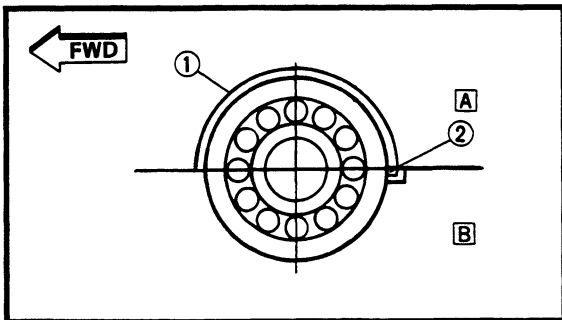
NOTE:

Set the knock pins **1** on the bearing **2** and labyrinth seal into the pin holes on the upper crankcase by turning the bearings and labyrinth seal.



CAUTION:

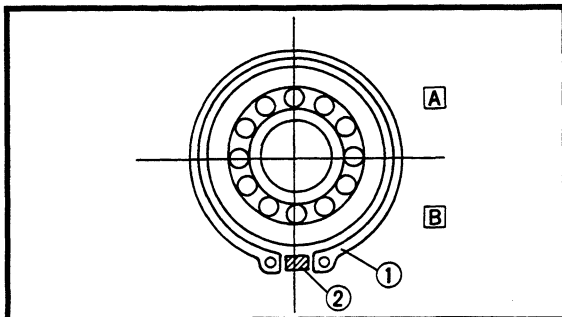
- The oil seal lip **3** must fit into the crankcase groove.
- The circlip must fit into the crankcase and bearing grooves.



3. Install:

- Stopper rings **1** (onto center bearing)

- 2** Knock pin
- A** Lower case
- B** Upper case



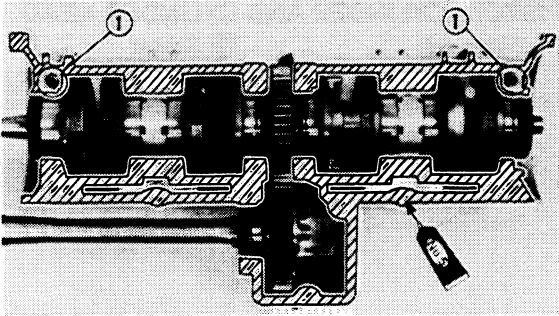
4. Install:

- Circlips **1** (onto both side bearing)

NOTE:

The circlip must fit into the crankcase and oil seal projection **2**.

- A** Lower case
- B** Upper case

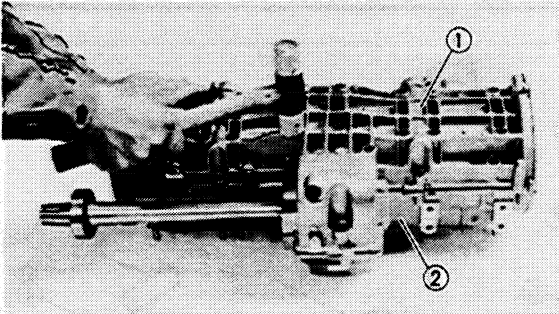


5. Apply:

- Yamabond No. 5®
(to mating surfaces of both case halves)

6. Install:

- Dowel pins ①

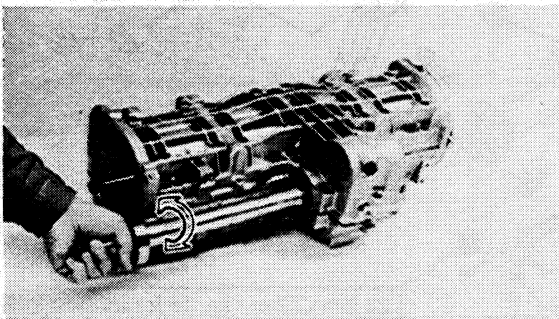


7. Install:

- Lower crankcase ①
(onto upper crankcase ②)

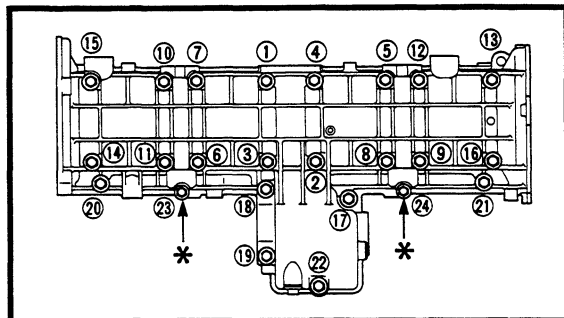
NOTE: _____

Tap lightly on the case with a soft-head hammer.



CAUTION: _____

Before installing and torquing the crankcase bolts, be sure to check whether the crankshaft and drive shaft are turning smoothly.

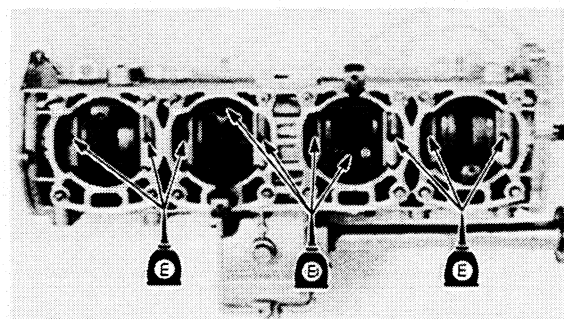


8. Tighten:

- Bolts (crankcase)

NOTE: _____

Tighten the bolts in order starting with the smallest number and torque the bolts in two stages.



Bolt (crankcase):

26 Nm (2.6 m • kg, 19 ft • lb)

* marked:

13 Nm (1.3 m • kg, 9.4 ft • lb)

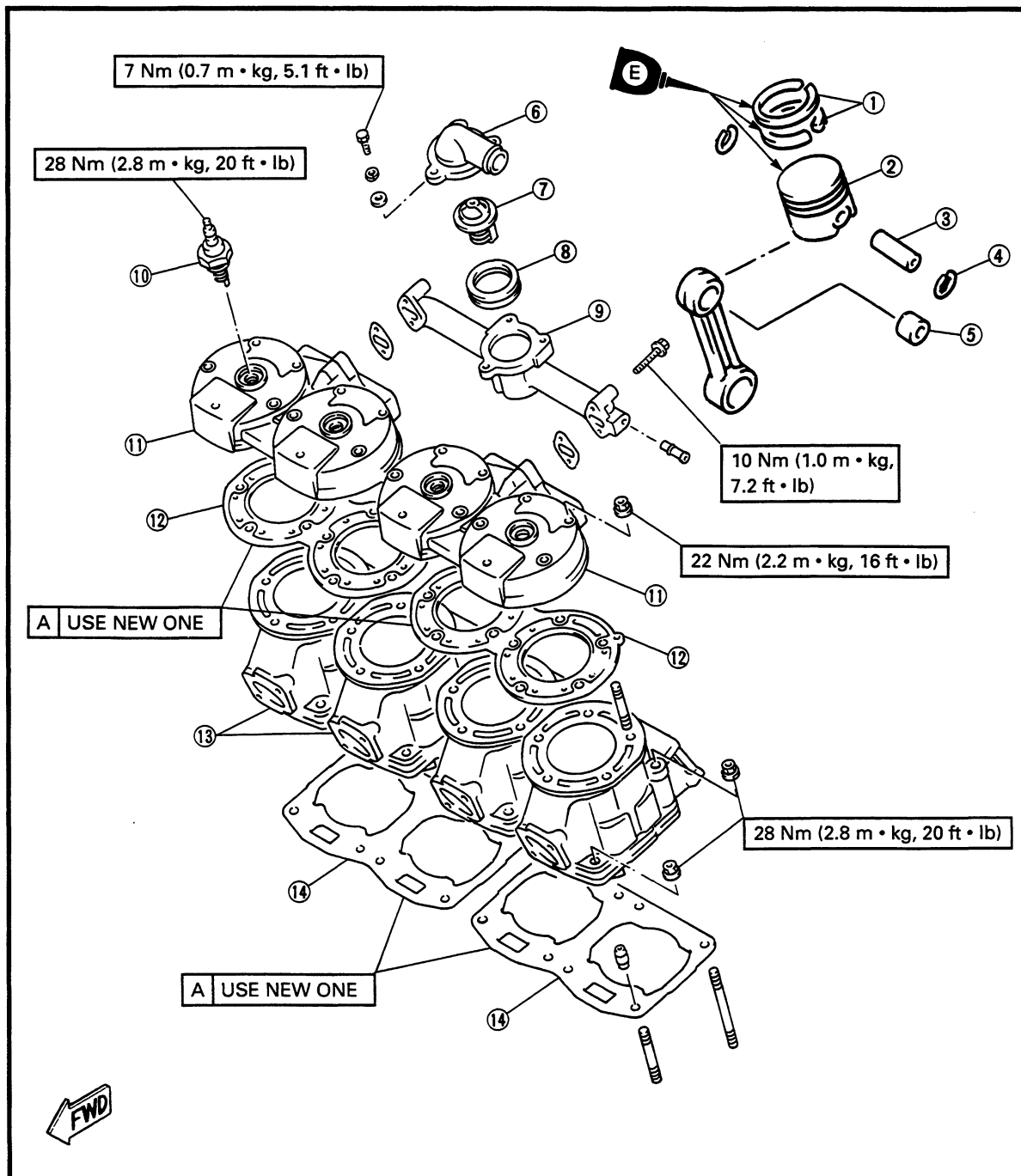
9. Apply:

- 2-stroke engine oil
(to crankpin, bearing and oil delivery hole)



PISTON, CYLINDER AND CYLINDER HEAD

- | | |
|----------------------------|----------------------|
| ① Piston ring | ⑧ Gasket |
| ② Piston | ⑨ Water jacket joint |
| ③ Piston pin | ⑩ Spark plug |
| ④ Piston pin clip | ⑪ Cylinder head |
| ⑤ Small end bearing | ⑫ Head gasket |
| ⑥ Thermostatic valve cover | ⑬ Cylinder |
| ⑦ Thermostatic valve | ⑭ Cylinder gasket |





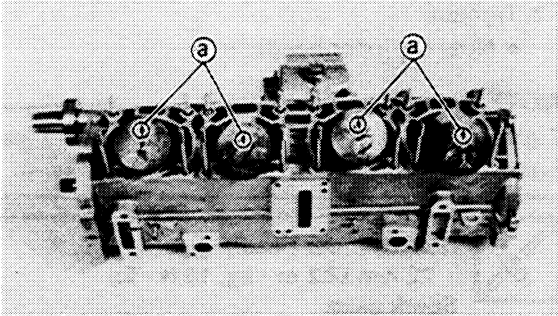
PISTON

1. Apply:

- 2-stroke engine oil (liberal coating)
(to piston pin, bearing, piston ring grooves and piston skirt areas)

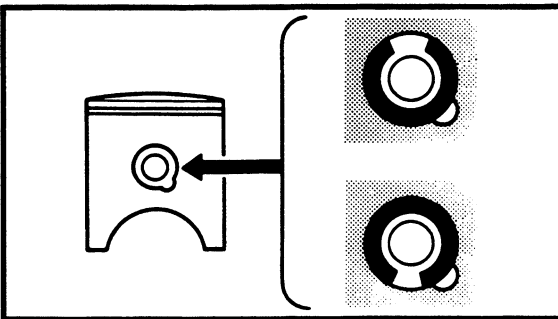
2. Install:

- Small end bearing
- Piston
- Piston pin
- Piston pin clip
- Piston rings



NOTE:

- The arrow (a) on the piston must point to the front of the engine.
- Before installing the piston pin clip, cover the crankcase with a clean rag so you will not accidentally drop the pin clip and material into the crankcase.
- Position each piston very carefully in its original place.



CAUTION:

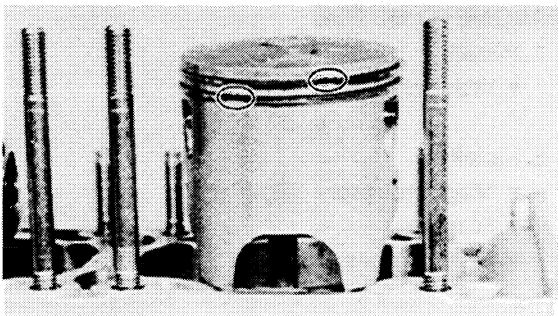
- Always use a new piston pin clip.
- Do not allow the clip open ends to meet the piston pin slot.

2. Check:

- Piston ring position

CAUTION:

- Make sure ring ends are properly fitted around ring locating pins in piston grooves.
- Be sure to check the manufacturer's marks or numbers stamped on the rings are on the top side of the rings.



CYLINDER AND CYLINDER HEAD

1. Install:

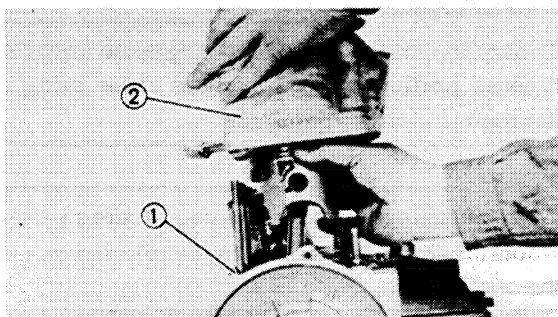
- Gasket (1) (cylinder)
- Cylinder (2)

CAUTION:

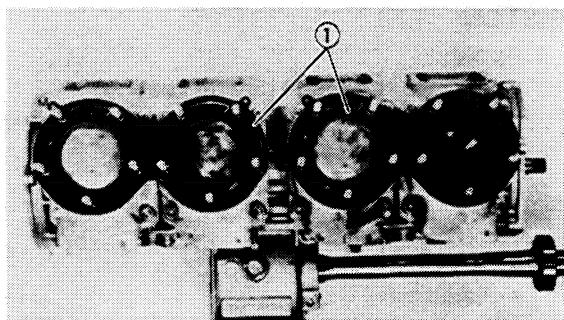
Always use a new gasket.

NOTE:

Install the cylinder with one hand while compressing the piston rings with the other hand.



Nut (cylinder):
28 Nm (2.8 m • kg, 20 ft • lb)

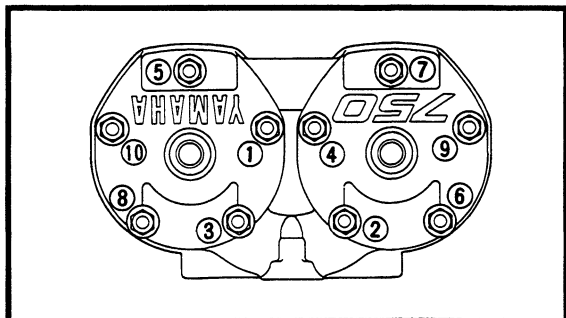


2. Install:

- Gaskets ① (cylinder head)
- Cylinder head

CAUTION:

Always use a new gasket.



3. Tighten:

- Nuts (cylinder head)

NOTE:

Tighten the nuts in order starting with the smallest number and torque the bolts in two stages.



Nut (cylinder head):

22 Nm (2.2 m • kg, 16 ft • lb)

Spark plug:

28 Nm (2.8 m • kg, 20 ft • lb)

MAGNETO ROTOR

1. Install:

- Woodruff key

2. Install:

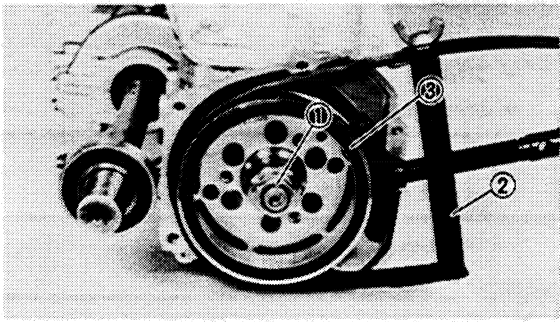
- Magneto rotor
- Washer
- Nut (magneto rotor)

CAUTION:

Be sure to remove any oil and/or grease from the tapered portion of the magneto rotor using a dampened cloth with thinner.

NOTE:

When installing the magneto rotor, make sure the woodruff key is properly seated in the keyway of the crankshaft.



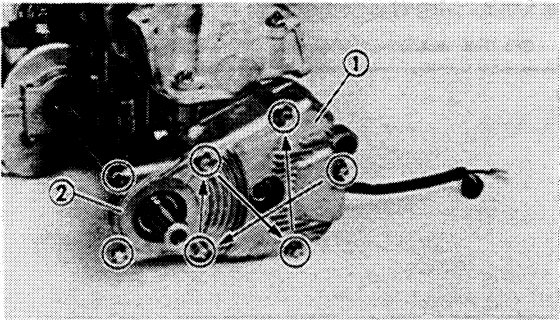
3. Tighten:

	Nut ① (magneto rotor): 85 Nm (8.5 m • kg, 61 ft • lb)
--	---

NOTE:

Use the primary sheave holder ② to hold the magneto rotor ③.

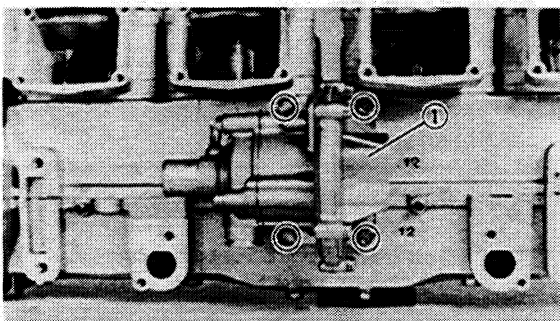
	Primary sheave holder: 90890-01701, YS-01880
--	--



4. Install:

- Dowel pin
- CDI magneto cover ①
- Bearing holder ②

	Bolt (CDI magneto cover): 23 Nm (2.3 m • kg, 17 ft • lb)
	Bolt (bearing holder): 26 Nm (2.6 m • kg, 19 ft • lb)



WATER PUMP

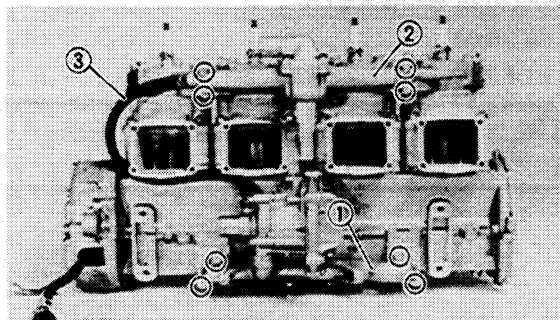
1. Install:

- Gasket
- Dowel pins
- Water pump assembly ①

	Bolt (water pump housing assembly): 10 Nm (1.0 m • kg, 7.2 ft • lb)
--	---

NOTE:

Mesh the water pump gear with the drive gear on the crankshaft.



WATER JACKET JOINT

1. Install:

- O-rings
- Water jacket joint ① (lower)
- Gaskets
- Water jacket joint ② (upper)

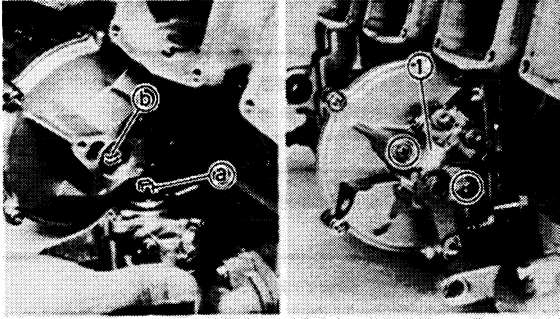
2. Connect:

- Breather hose ③

	Bolt (water jacket joint): 10 Nm (1.0 m • kg, 7.2ft • lb)
--	---

NOTE:

Apply the coolant to the O-ring, when installing the water jacket joint (lower).



OIL PUMP

1. Install:

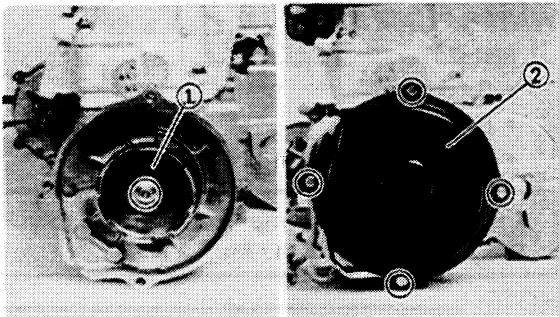
- O-ring
- Oil pump assembly ①



Screw (oil pump assembly):
4 Nm (0.4 m · kg, 2.9 ft · lb)

NOTE: _____

- Apply an engine oil to the O-ring.
- Make sure the projection (a) fits into the slot (b) on the water pump housing correctly.



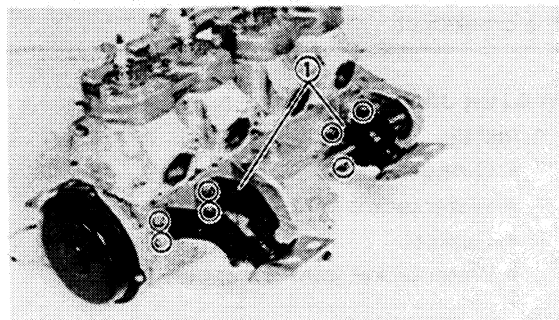
RECOIL STARTER

1. Install:

- Woodruff key ①
- Recoil starter pulley ①
- Recoil starter assembly ②



Bolt (starter pulley):
45 Nm (4.5 m · kg, 32 ft · lb)
Bolt (recoil starter assembly):
7 Nm (0.7 m · kg, 5.1 ft · lb)



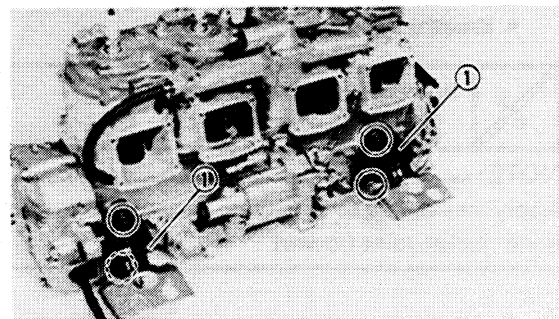
ENGINE BRACKETS

1. Install:

- Engine brackets ① (front)



Bolts (engine brackets):
30 Nm (3.0 m · kg, 22 ft · lb)

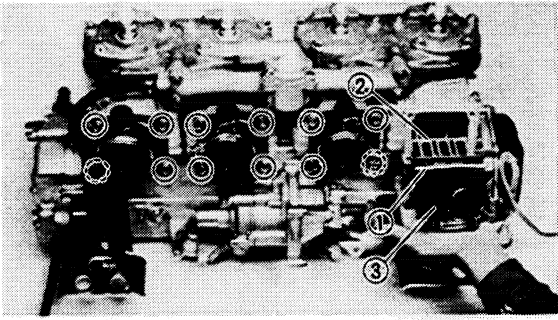


2. Install:

- Engine brackets ① (rear)



Bolts (engine brackets):
30 Nm (3.0 m · kg, 22 ft · lb)



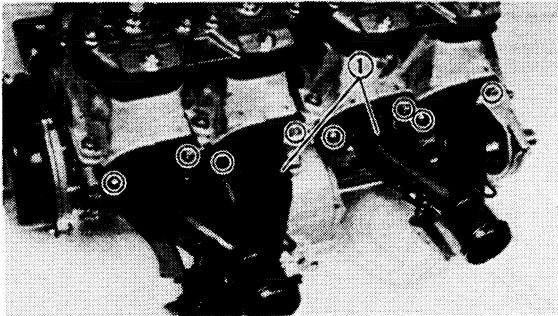
INTAKE MANIFOLDS AND REED VALVES

1. Install:

- Gaskets ①
- Reed valves ②
- Intake manifolds ③



Bolts (intake manifolds):
10 Nm (1.0 m · kg, 7.2 ft · lb)



EXHAUST MANIFOLD

1. Install:

- Gaskets
- Exhaust manifolds ①



Bolts (exhaust manifolds):
25 Nm (2.5 m · kg, 18 ft · lb)

REMounting ENGINE

Reverse the "ENGINE REMOVAL" procedure.
Note the following points.

1. Install:

- Engine assembly
- Nuts ① (engine bracket)

NOTE:

Before tightening the nuts (engine bracket) the sheave distance should be adjusted.



Nuts (engine brackets):
40 Nm (4.0 m · kg, 29 ft · lb)

2. Fill:

- Cooling system (See page 2-12)
- Drive gear housing (See page 2-11)

3. Air bleed:

- Oil pump (See page 2-4)
- Cooling system (See page 2-7)

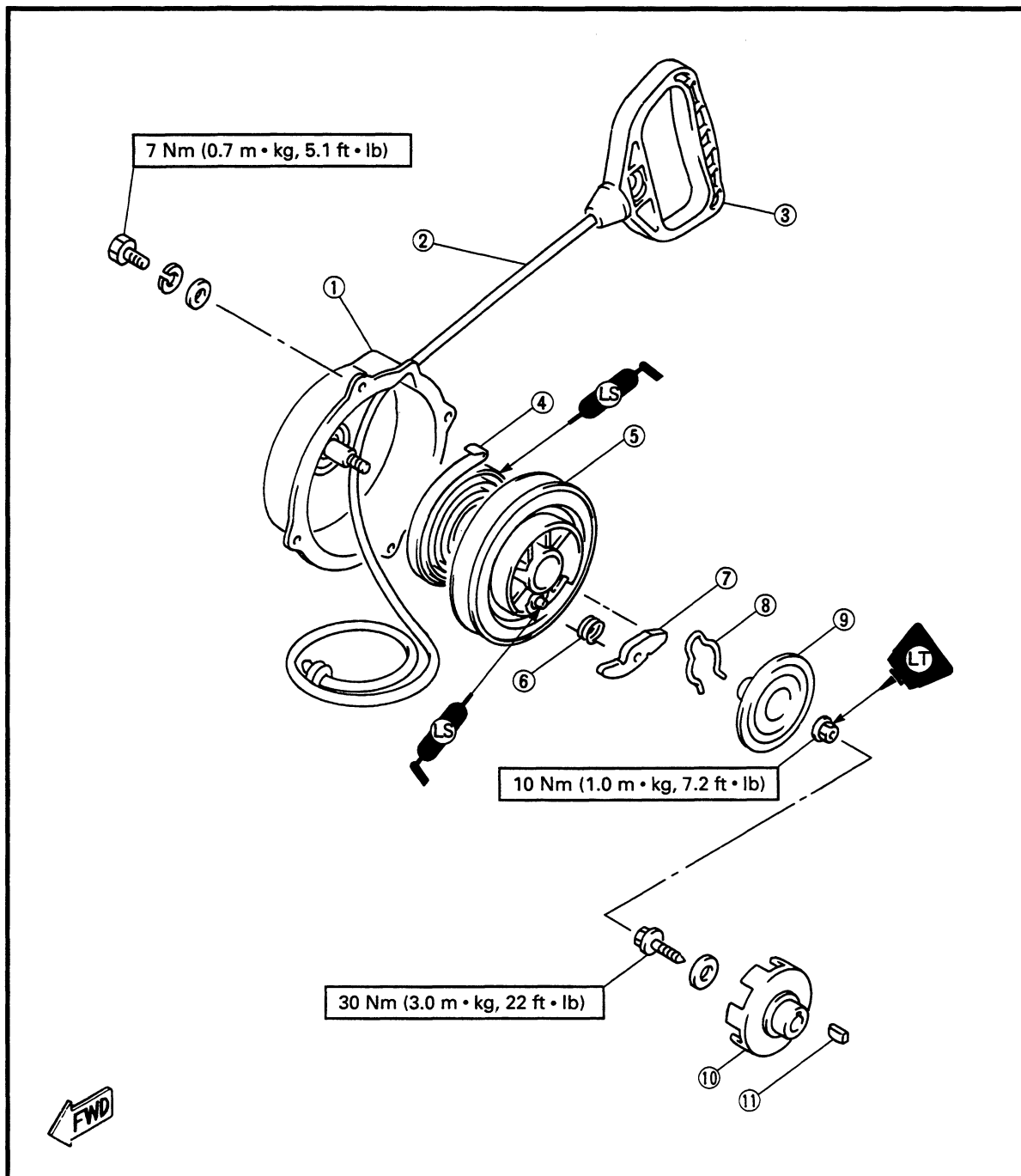
4. Adjust:

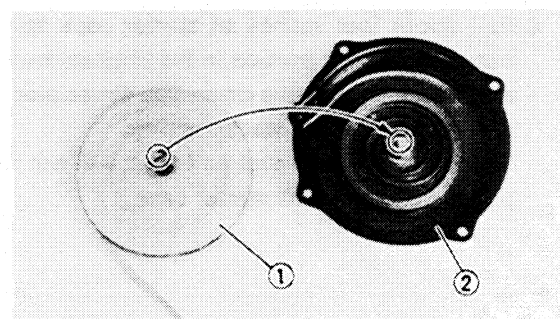
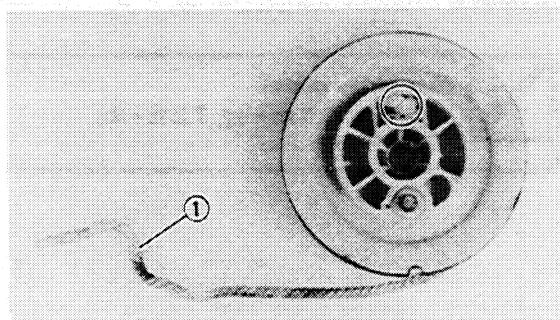
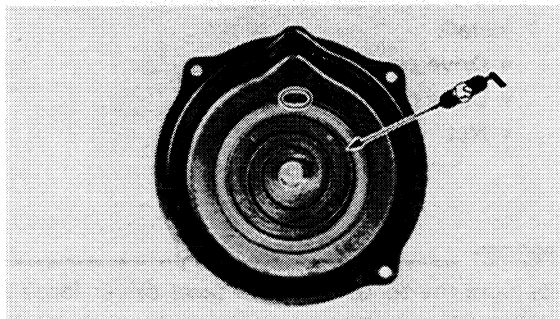
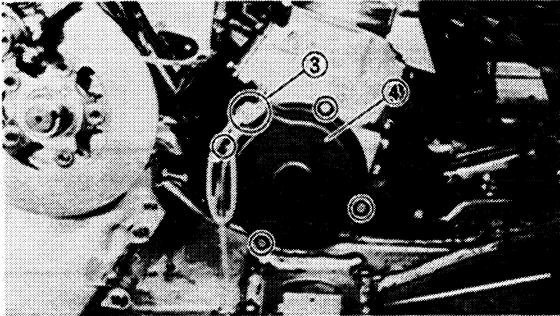
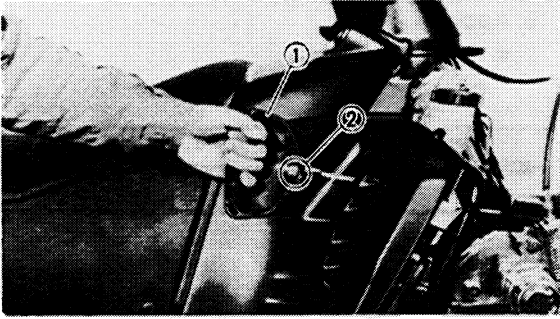
- Sheave distance (See page 4-14)
- Sheave offset (See page 4-15)
- Throttle cable (See page 2-14)
- Oil pump cable (See page 2-5)
- Starter cable (See page 2-15)



RECOIL STARTER

- ① Recoil starter case
- ② Starter rope
- ③ Starter handle
- ④ Starter spring
- ⑤ Sheave drum
- ⑥ Return spring
- ⑦ Drive pawl
- ⑧ Drive pawl driver
- ⑨ Drive plate
- ⑩ Recoil starter pulley
- ⑪ Woodruff key





REMOVAL

1. Remove:

- Muffler
- Starter handle ①
- Recoil starter

NOTE:

To remove the starter handle, loosen the knot ② in the starter rope and then re-tie a knot ③ in the rope end so that it will not be pulled into the recoil starter case ④.

ASSEMBLY AND INSTALLATION

1. Hook the starter spring around the post in the starter case. Carefully wind the spring counterclockwise, and fit the spring into the case.

NOTE:

After installing the spring thoroughly apply the low-temperature grease.

2. Pass the starter rope end into the sheave drum, and knot the rope end. Then fit the knot into the cutout in the sheave drum.

3. Wind:

- Starter rope (2 turns clockwise)
(to sheave drum)

NOTE:

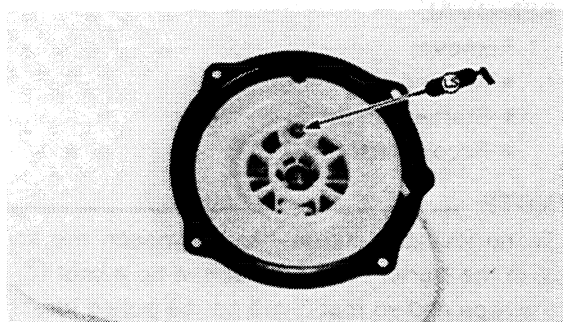
Make sure the rope ① is more than 400m (15.7 in) long.

4. Install:

- Sheave drum ①
(into starter case ②)

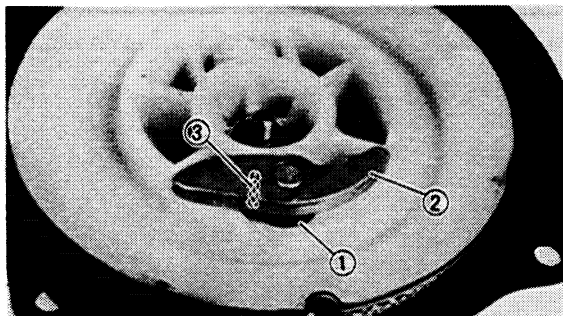
NOTE:

Be sure the inner hook on the starter spring hooks around the post on the sheave drum.



5. Apply:

- Grease (lightly)
(to pivot point of the drive pawl)



6. Install:

- Return spring ①
- Drive pawl ②

NOTE:

Hook the return spring end to the drive pawl ② . Then, hook other end of the return spring to the hole ③ on the sheave drum.

7. Install:

- Drive plate
- Drive pawl driver
- Nut

NOTE:

Be sure the tip of the drive pawl driver faces to sheave drum side.



8. Pull about four inches of starter rope from out of the cutout portion in the sheave drum, and rotate the sheave drum five times clockwise to preload the starter spring. Then knot the rope end so that it will not be pulled into the recoil starter case.

**9. Install:**

- Recoil starter
- Starter handle

**Bolt (recoil starter):****7 Nm (0.7 m • kg, 5.1 ft • lb)**

10. Check the starter for smooth operation. If it does not operate smoothly, repair it.



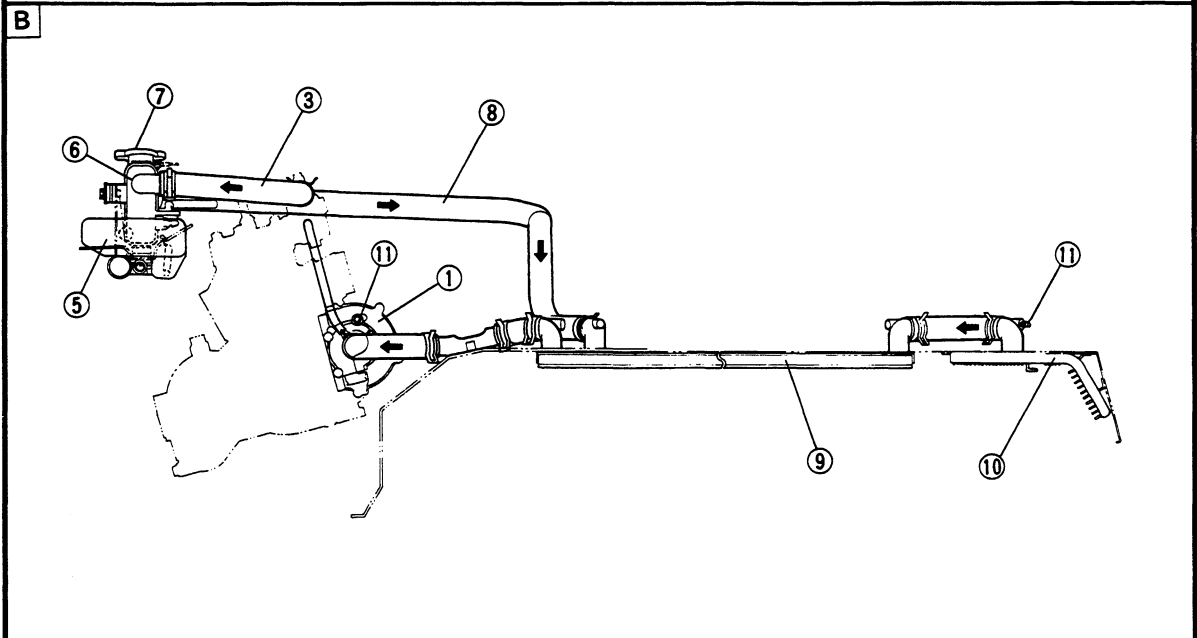
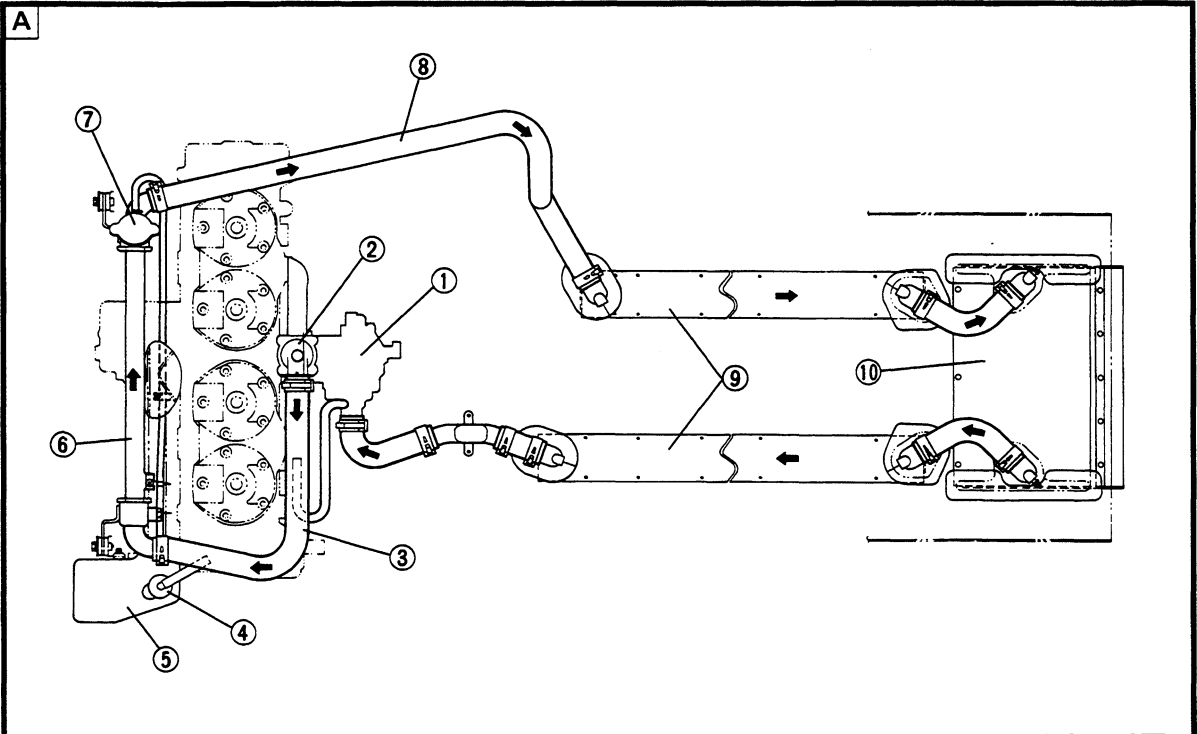
CHAPTER 6. COOLING SYSTEM

COOLANT FLOW	6-1
COOLING LINE	6-2
COOLING SYSTEM	6-3
REMOVAL	6-3
INSPECTION	6-6
INSTALLATION	6-9

COOLING SYSTEM

COOLANT FLOW

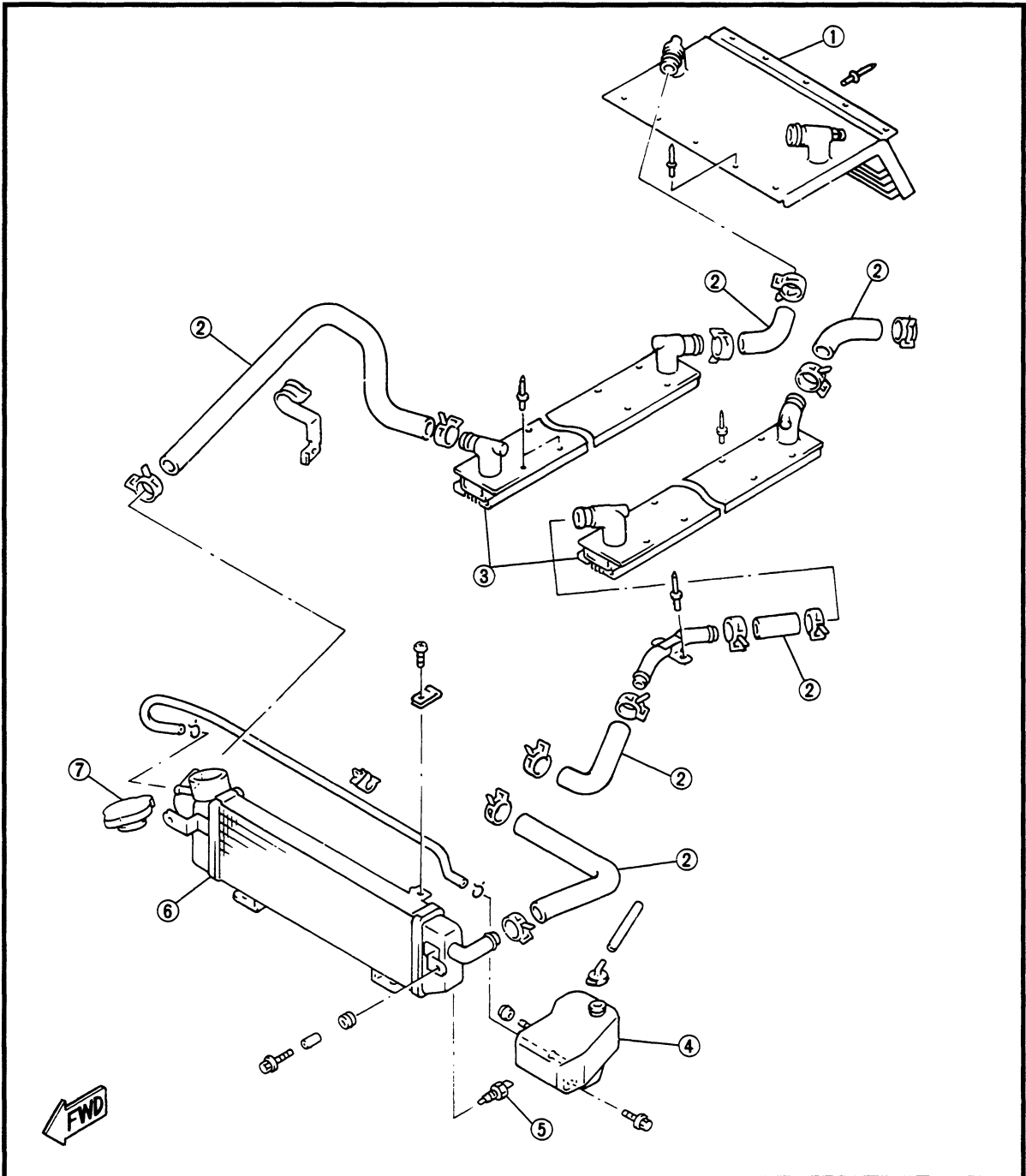
- ① Water pump housing
 - ② Thermostatic valve housing
 - ③ Hose (inlet)
 - ④ Coolant filler cap
 - ⑤ Reservoir tank
 - ⑥ Radiator
 - ⑦ Radiator cap
 - ⑧ Hose (outlet)
 - ⑨ Heat exchanger (center)
 - ⑩ Heat exchanger (rear)
 - ⑪ Bleeding bolt
- A** Top view
B Side view





COOLING LINE

- ① Heat exchanger (rear)
- ② Hose
- ③ Heat exchanger (center)
- ④ Reservoir tank
- ⑤ Thermo switch
- ⑥ Radiator
- ⑦ Radiator cap

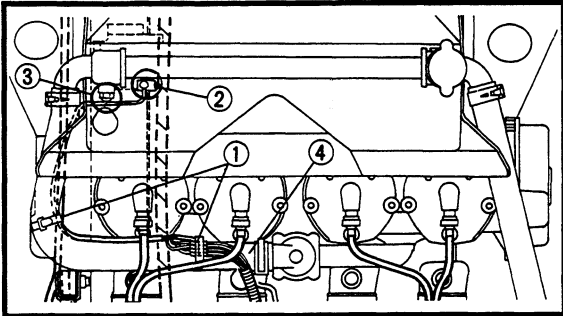


COOLING SYSTEM

REMOVAL

1. Remove:

- Carburetor assembly
(See page 7-3)
- Secondary sheave
(See page 4-10)



2. Drain the coolant. (See page 2-8)

3. Remove:

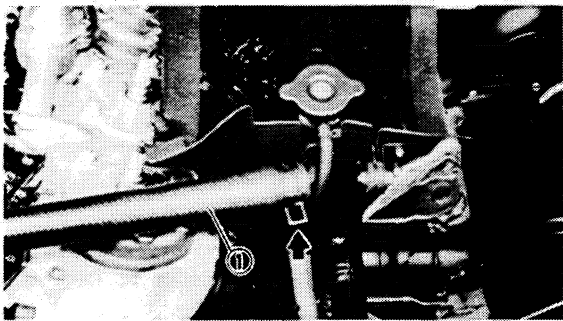
- Bands ①

4. Disconnect:

- Ground lead ②
- Thermo switch lead ③

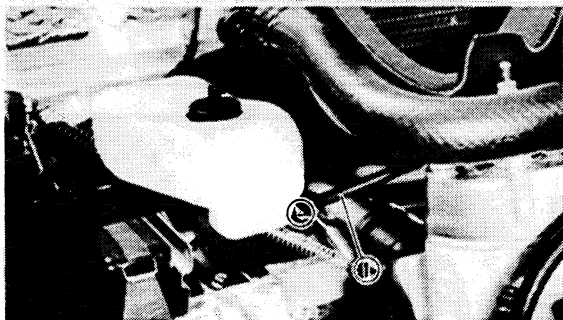
5. Remove:

- Hose ④ (inlet)



6. Remove:

- Hose ① (outlet)



7. Disconnect:

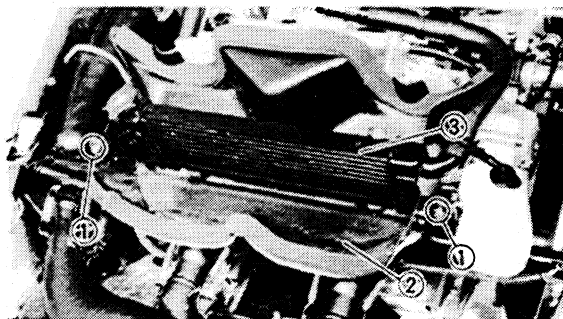
- Reservoir tank hose ①
- Drain the coolant.

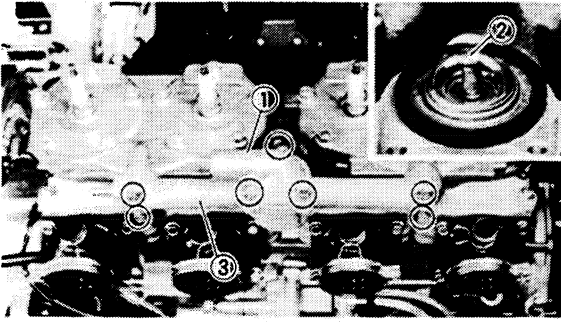
NOTE: _____

Place a container under the reservoir tank to catch the draining coolant.

8. Remove:

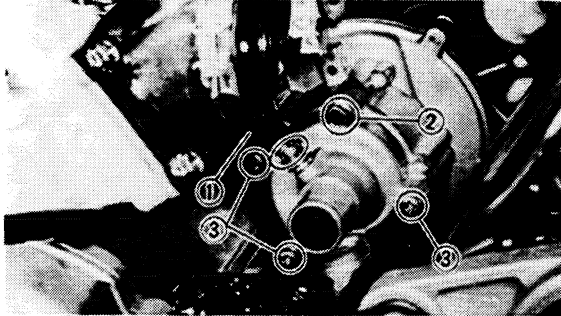
- Bolts ① (radiator)
- Radiator duct ② /radiator ③
- Radiator ③
(From radiator duct)





9. Remove:

- Thermostatic valve cover ①
- Thermostatic valve ②
- Water jacket joint ③ (outlet)
- O-rings



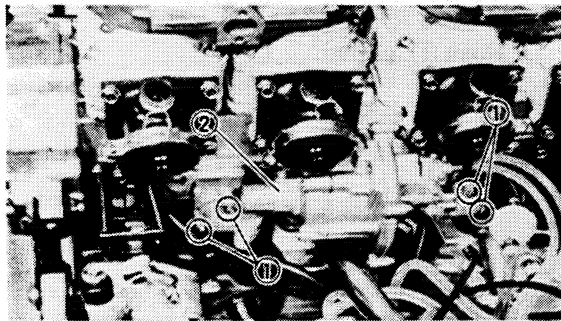
10. Remove:

- Coolant hose ①

NOTE: _____

Place a rag under the coolant hose to catch the draining coolant.

- Bolt ② (water pump cover)
- Screws ③ (water pump cover)

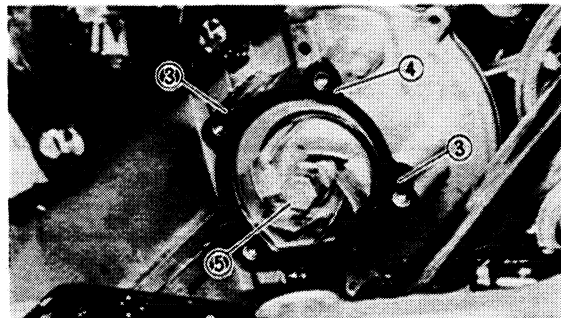


11. Remove:

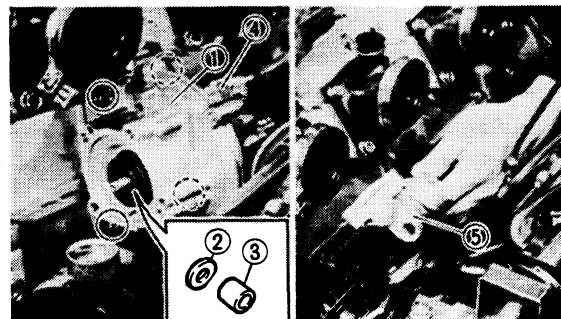
- Bolts ① (Water jacket joint-inlet)
- Water pump cover ②
- Dowel pins ③
- Gasket ④ (water pump cover)
- Impeller ⑤

NOTE: _____

Attach the primary sheave holder to hold the primary sheave.

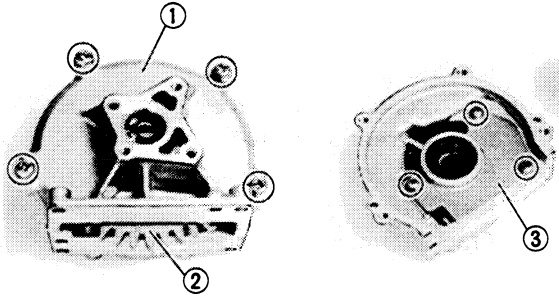


Primary sheave holder:
90890-01701, YS-01880



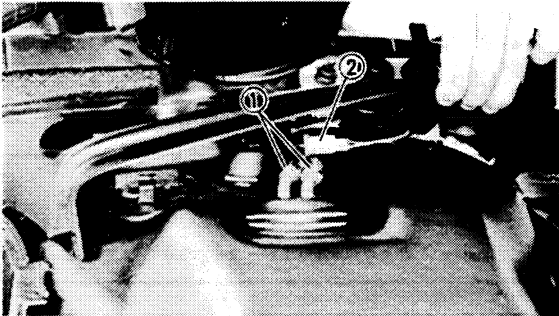
12. Remove:

- Water pump assembly ①
- Dowel pins
- Washer ②
- Collar ③
- Gasket
- Oil pump assembly ④
- Water jacket joint ⑤ (inlet)
- O-rings



13. Remove:

- Water pump housing cap ①
- Dowel pins
- Driven gear ② (water pump)
- Baffle plate ③



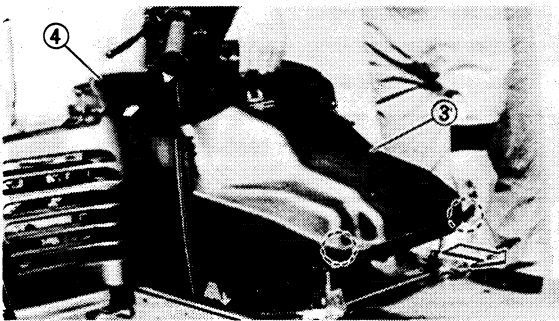
14. Disconnect:

- Fuel hoses ①

⚠ WARNING

Plug the fuel hoses so fuel dose not run out. Spilled fuel can be a fire hazard.

- Fuel sender coupler ②

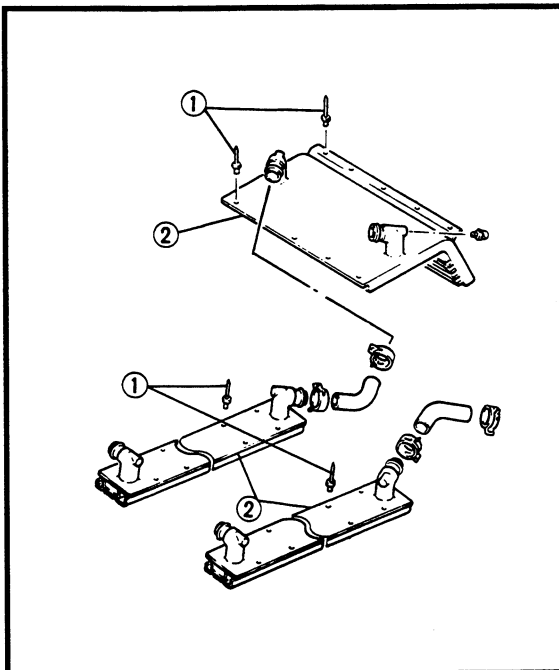


15. Remove:

- Nuts (fuel tank)
- Fuel tank ③

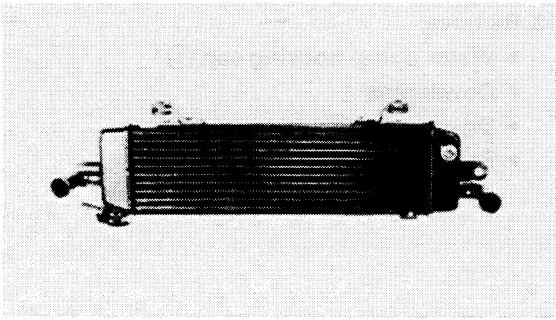
NOTE:

Pull back the fuel tank while lifting up the center cover ④ .



16. Remove:

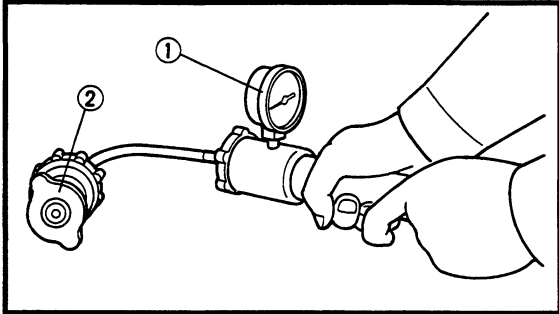
- Slide rail suspension (See page 4-30)
- Track (See page 4-37)
- Rivets ①
- Heat exchangers ②



INSPECTION

1. Inspect:

- Radiator core
Obstruction → Blow out with compressed air through rear of the radiator.
Flattened fin → Repair/replace.
- Hose
Cracks/Damage → Replace.




2. Measure:

- Radiator cap opening pressure
Cap opens at pressure below the specified pressure → Replace.

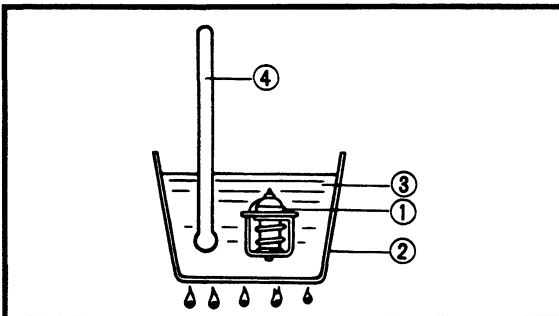
Cap opening pressure:
80 ~ 100 kPa
(0.8 ~ 1.0 kg/cm², 11 ~ 14 psi)

Measurement steps:

- Attach the cooling system tester ① to the radiator filler cap ② .

 **Cooling system tester:**
90890-01325, YU-22460-01

- Apply the specified pressure for 10 seconds, and make sure there is no pressure drop.



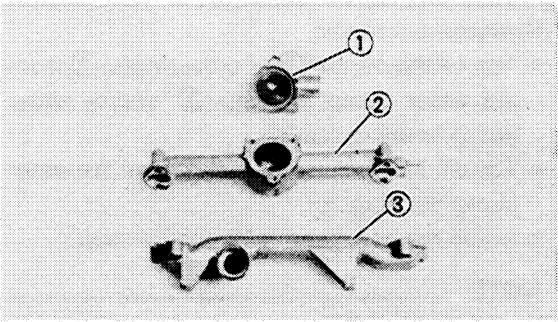
3. Inspect:

- Thermostatic valve ①
Valve does not open at 50.0 ~ 55.0°C
(122 ~ 131°F) → Replace.

Inspection steps:

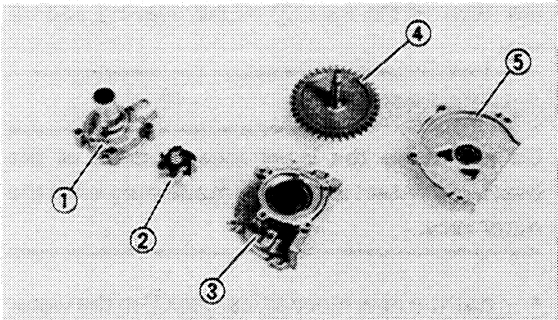
- Suspend thermostatic valve ① in a vessel ②.
- Place reliable thermometer in a water ③ .
- Heat water slowly.
- Observe thermometer ④, while stirring water continually.

NOTE: _____
Thermostatic valve is sealed and its setting is preset. If its accuracy is in doubt, always replace it. A faulty unit could cause serious overheating or overcooling.



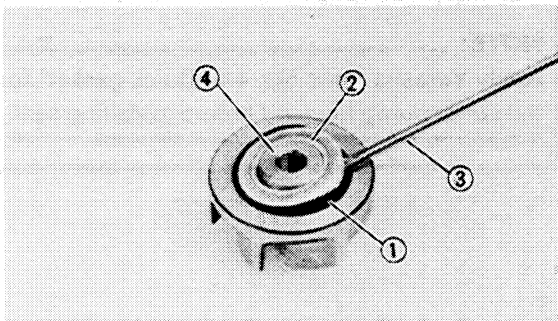
4. Inspect:

- Thermostatic valve cover ①
 - Water jacket joint ② (inlet)
 - Water jacket joint ③ (outlet)
- Cracks/Damage → Replace.



5. Inspect:

- Water pump housing cover ①
 - Impeller ②
 - Water pump housing ③
 - Driven gear ④ (water pump)
 - Water pump housing cap ⑤
- Cracks/Damage → Replace.



6. Inspect:

- Damper rubber ①
 - Thrust collar ②
- Wear/Damage → Replace.

Replacement steps:

- Pry out the thrust collar ② with a thin screwdriver ③ and remove the damper rubber ①.

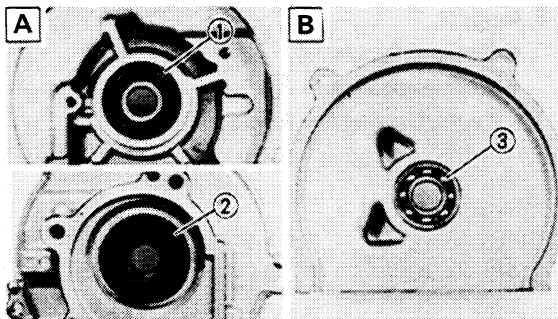
CAUTION:

Be careful not to scratch the impeller ④.

- Apply tap water or coolant to the damper rubber and install the damper rubber and thrust collar securely to the impeller.

NOTE:

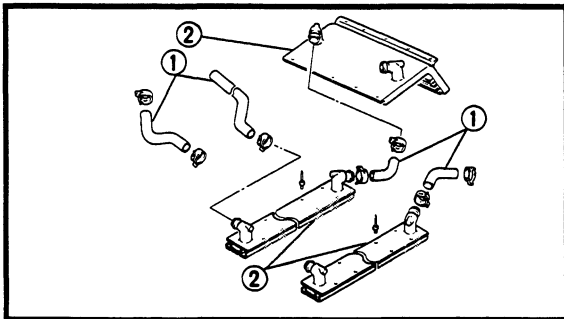
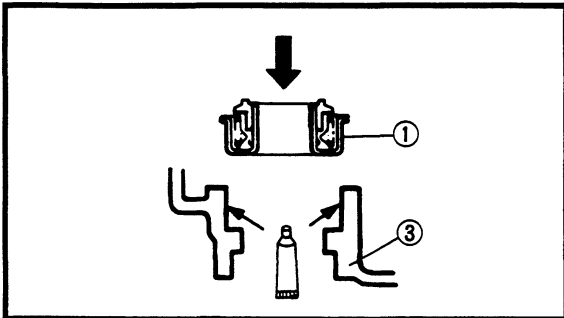
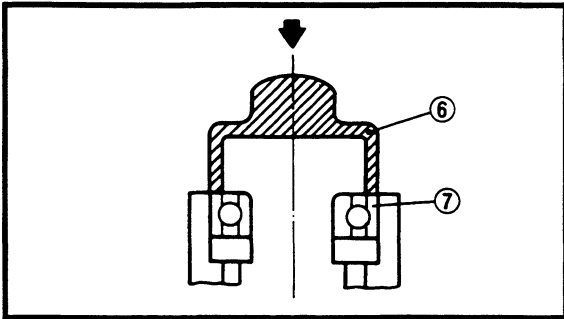
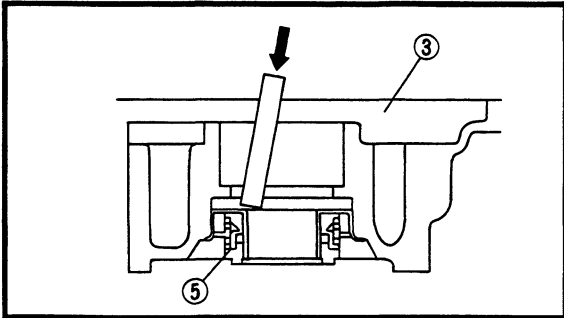
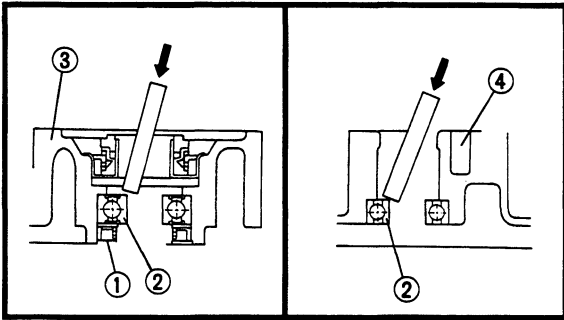
- Be sure the thrust collar ② fits squarely.
- The rubber damper and thrust collar should be replaced as a set.



7. Inspect:

- Oil seal ①
 - Mechanical seal ②
- Wear/Damage → Replace.
- Bearings ③
- Roughness → Replace.

- Ⓐ Water pump housing cover
- Ⓑ Water pump housing cap



Replacement steps:

- Tap off the oil seal ① and bearing(s) ② from the water pump housing ③ and/or water pump housing cap ④ .
- Tap off the mechanical seal ⑤ from the water pump housing ③ .
- Install the new bearing(s) and oil seal.

NOTE:

Use a socket ⑥ that matches the outside diameter of the race ⑦ of the bearing and oil seal.

CAUTION:

Do not strike the inner race or balls of the bearing. Contact should be made only with the outer race.

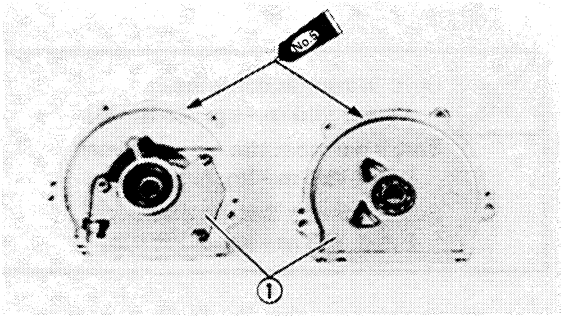
- Install the new mechanical seal ① to the water pump housing ③

NOTE:

Apply Yamaha bond No. 4 or Quick gasket® to the water pump housing before installing seal.

8. Inspect:

- Coolant hoses ①
- Heat exchangers ②
Crack/Damage → Replace.



INSTALLATION

Reverse the "REMOVAL" procedure.

Note the following points.

1. Apply a sealant onto matching surfaces of the pump housing ① and housing cap.



**Yamaha bond No. 4:
Quick gasket®:
ACC-11001-03-00**

2. Install:

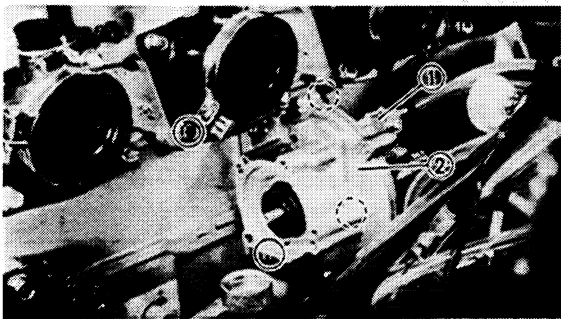
- Baffle plate
- Driven gear (water pump)
- Dowel pins
- Water pump housing cap



**Screw (water pump housing cap)
7 Nm (0.7 m · kg, 5.1 ft · lb)**

NOTE:

Before installing the driven gear, grease the oil seal lips.



3. Install:

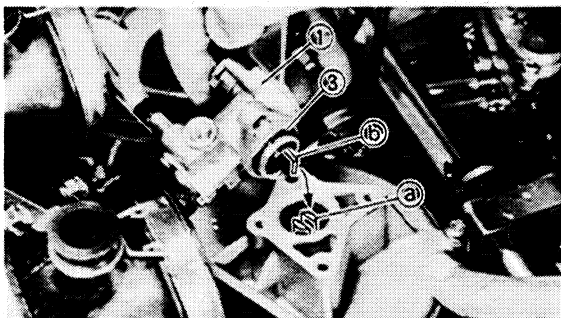
- Oil pump assembly ①
(to water pump housing)
- Water pump assembly ②



**Screw (Oil pump assembly):
4 Nm (0.4 m · kg, 2.9 ft · lb)
Bolt Screw (water pump housing
assembly):
10 Nm (1.0 m · kg, 7.2 ft · lb)**

NOTE:

- Before installing the oil pump assembly, grease the o-ring ③.
- Align the slot ② on the driven gear shaft with the projection ④ on the oil pump shaft.



4. Tighten:

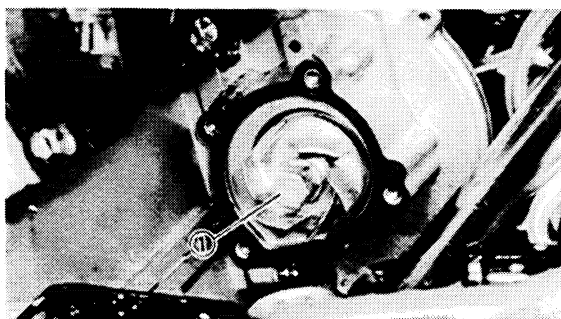
- Impeller ①




**Impeller
14 Nm (1.4 m · kg, 10 ft · lb)**

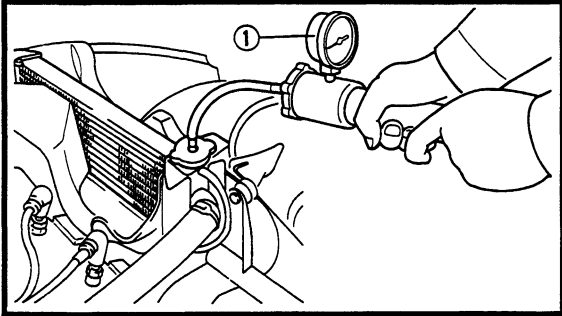
NOTE:

Apply LOCTITE® to the first 4 threads of the driven gear shaft.



5. Tighten:

	Bolt (water jacket joints): 10 Nm (1.0 m · kg, 7.2 ft · lb)
	Bolt (thermostatic valve cover): 7 Nm (0.7 m · kg, 5.1 ft · lb)
	Bolt (radiator duct/radiator): 7 Nm (0.7 m · kg, 5.1 ft · lb)




6. Fill:

- Cooling system (See page 2-7)

7. Inspect:

- Cooling system

Inspection steps:	
• Attach the radiator cap tester ① to the radiator.	

	Radiator cap tester: 90890-01325, YU-24460-01
---	---

- Apply 90 kPa (0.9 kg/cm², 13 psi) pressure.
- Measure pressure with the gauge.
Decrease of pressure (leaks) → Repair as required.

**CHAPTER 7.
CARBURETION**

CARBURETOR 7-1
 REMOVAL 7-3
 DISASSEMBLY 7-4
 INSPECTION 7-7
 ASSEMBLY 7-8
 INSTALLATION 7-11
 FUEL LEVEL ADJUSTMENT 7-11

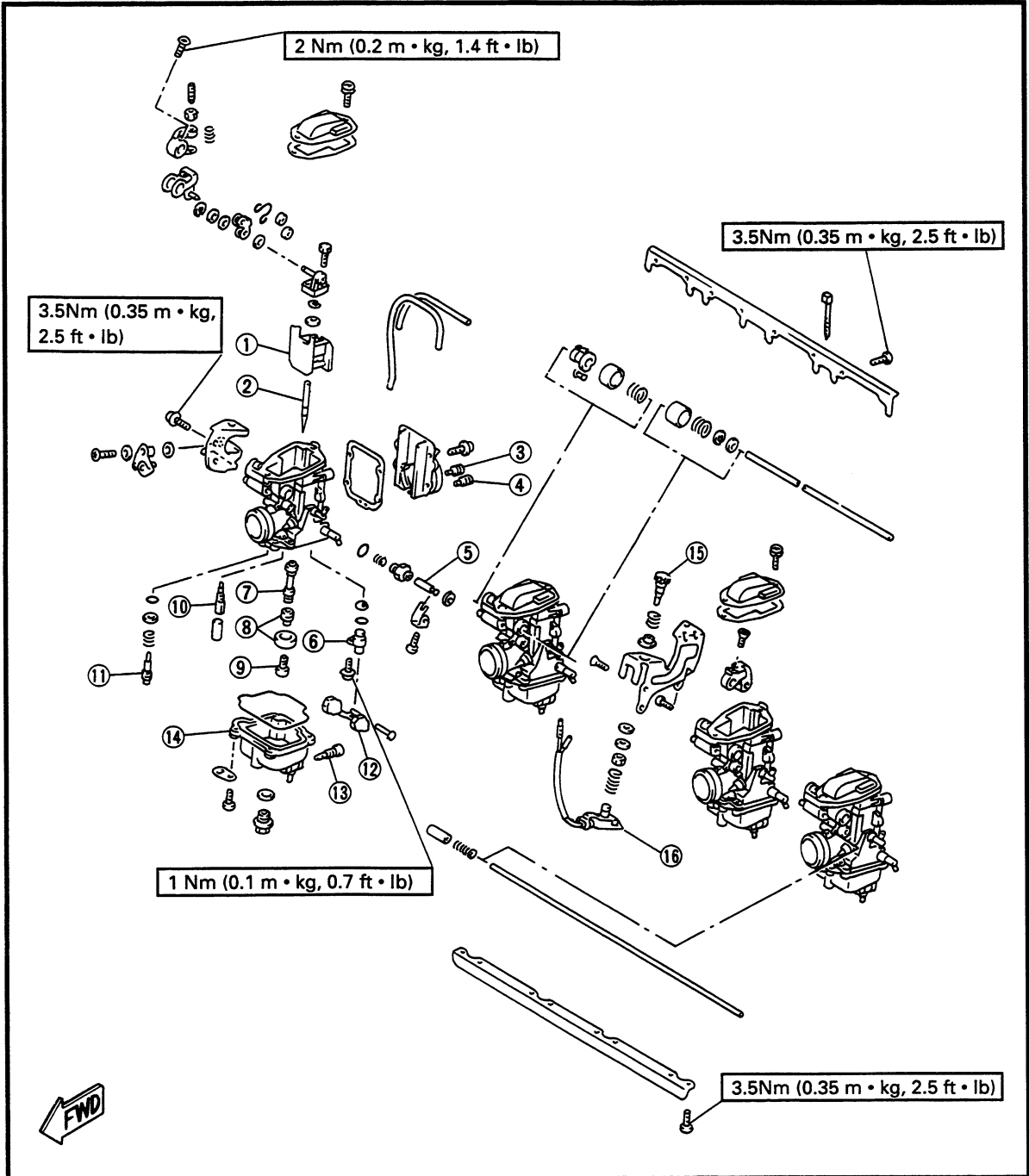
FUEL PUMP 7-12
 OPERATION CHECK..... 7-12



CARBURETION

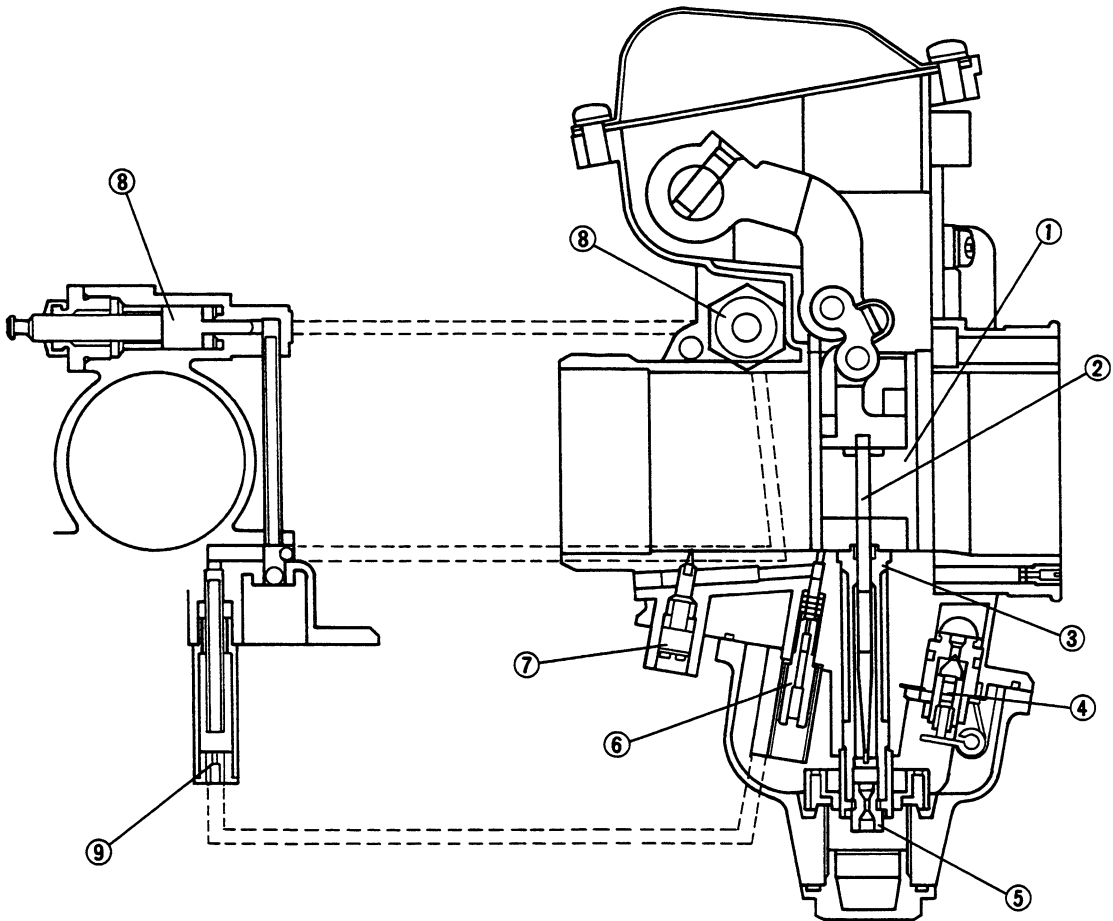
CARBURETOR

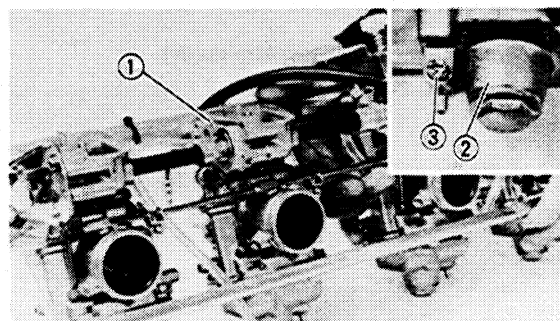
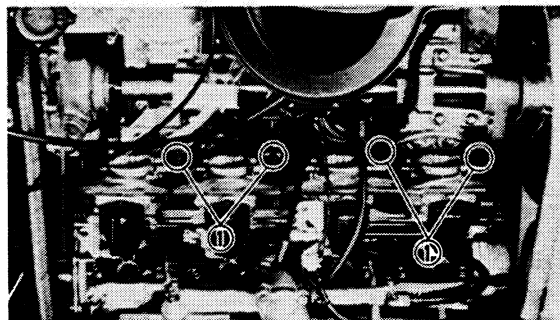
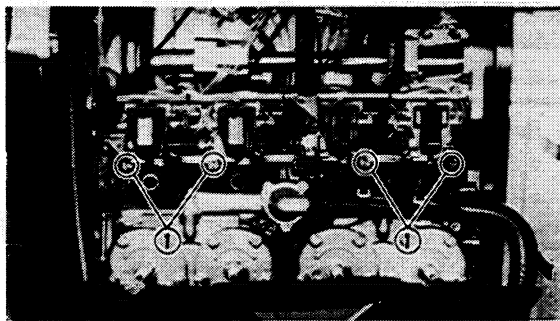
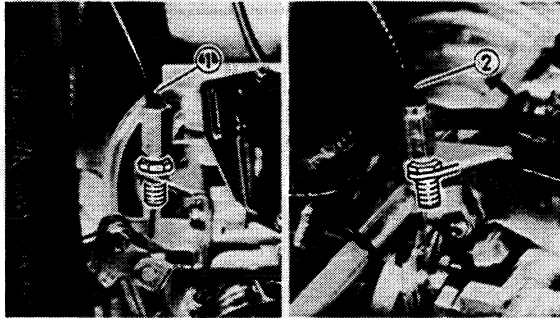
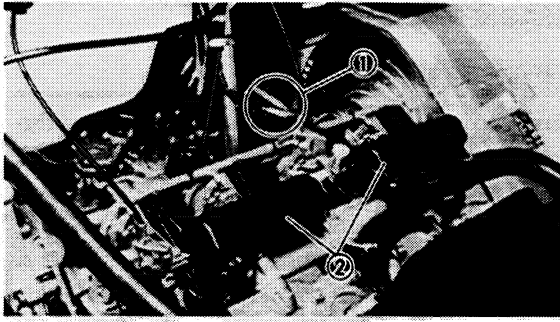
- | | |
|-----------------------|-----------------------|
| ① Throttle valve | ⑨ Main jet |
| ② Jet needle | ⑩ Pilot jet |
| ③ Pilot air jet | ⑪ Pilot screw |
| ④ Main air jet | ⑫ Float |
| ⑤ Starter plunger | ⑬ Drain screw |
| ⑥ Valve seat assembly | ⑭ Float chamber |
| ⑦ Main nozzle | ⑮ Throttle stop screw |
| ⑧ Main jet ring | ⑯ Carburetor switch |





- ① Throttle valve
- ② Jet needle
- ③ Main nozzle
- ④ Needle valve
- ⑤ Main jet
- ⑥ Pilot jet
- ⑦ Pilot screw
- ⑧ Starter plunger
- ⑨ Starter jet





REMOVAL:

1. Remove:

- Intake silencers (left and right)
(see page 2-4)

2. Disconnect:

- Carburetor switch (T.O.R.S.) leads ①

3. Remove:

- Air chambers ② (left and right)

4. Disconnect:

- Starter cable ①
- Throttle cable ②

5. Loosen:

- Clamp screws ① (carburetor joint)

6. Disconnect:

- Fuel delivery hoses ①

⚠ WARNING

Plug the fuel delivery hoses so that fuel does not run out. Spilled fuel can be a fire hazard.

7. Remove:

- Carburetor assembly ①

8. Drain:

- Fuel
(from float chambers ②)

③ Drain screw



DISASSEMBLY

CAUTION:

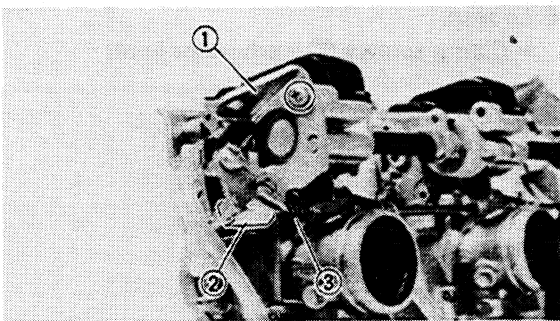
Because the pilot screw is adjusted and set at the factory before being shipped, it should not be disassembled unless strictly necessary. If the unit must be disassembled, make a note of the position in which it is placed, and make sure it is returned to the same position when assembled.

NOTE:

The following parts can be cleaned and inspected without carburetor separation.

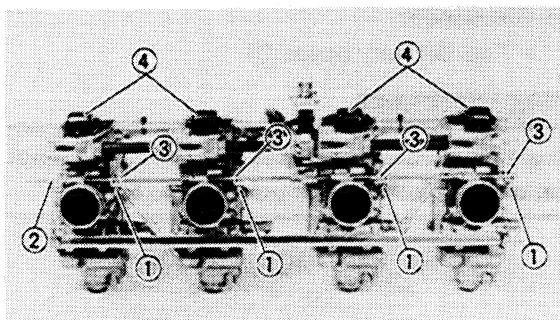
(All inner parts except throttle valve can be cleaned and inspected without carburetor separation.)

- Starter plunger
- All jets
- Float
- Needle valve
- Valve seat
- Main nozzle
- Jet needle



1. Remove:

- Starter cable holder ①
- Cap ② (starter shaft)
- Spring ③ (starter shaft)



2. Loosen:

- Screws ① (starter shaft connector)

3. Remove:

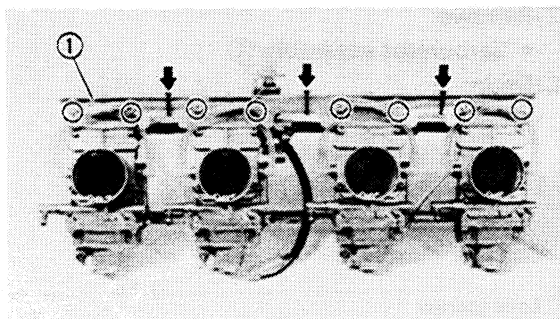
- Starter shaft ②
- Starter shaft connectors ③

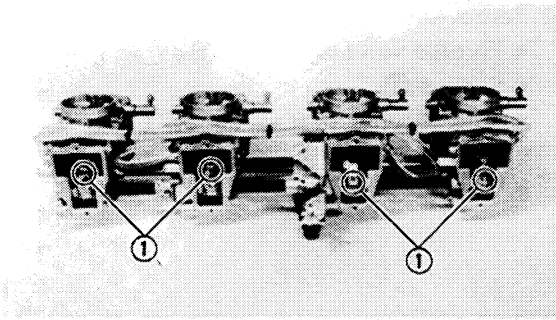
4. Remove:

- Top covers ④

5. Remove:

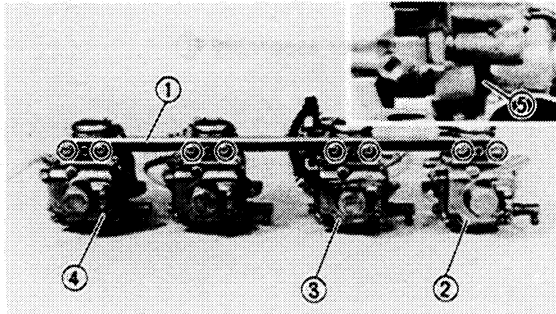
- Screws ① (inner throttle lever)





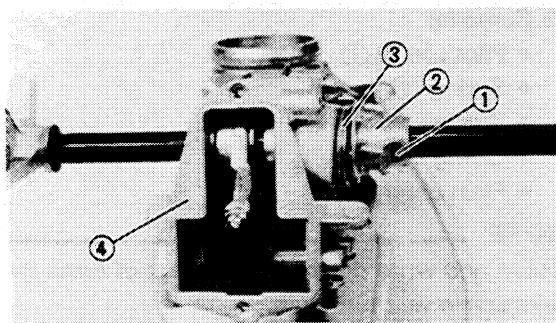
6. Remove:

- Bands
- Connecting plate ① (upper)



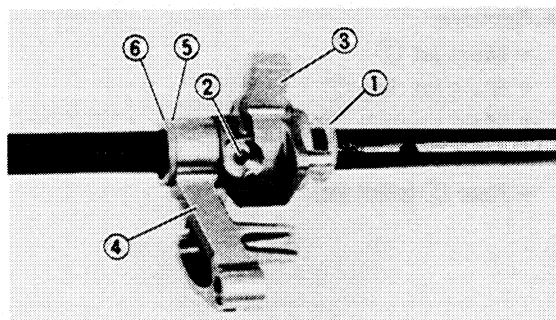
7. Remove:

- Connecting plate ① (lower)
- Carburetors (No. 1 ② , No. 2 ③ , No. 4 ④)
- Return spring ⑤



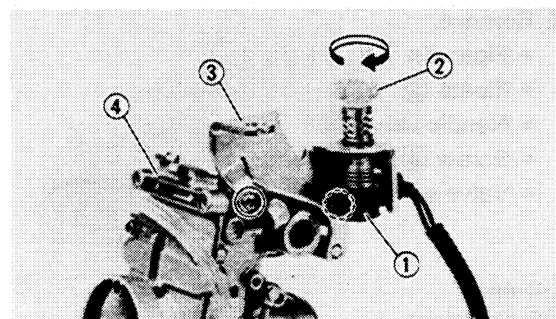
8. Remove:

- Spring pin ①
- Connecting lever ②
- Return spring ③
- Carburetor ④ (No. 3)



9. Remove:

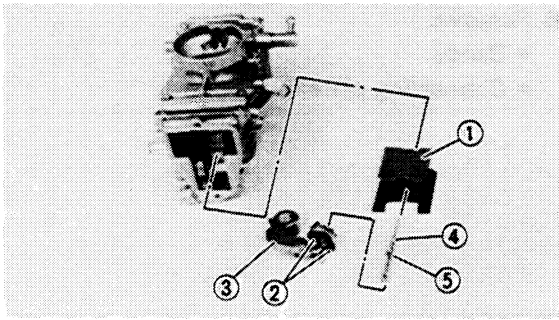
- Washer ①
- Spring pin ②
- Connecting lever ③
- Throttle lever ④
- Washer ⑤
- Circlip ⑥



10. Remove:

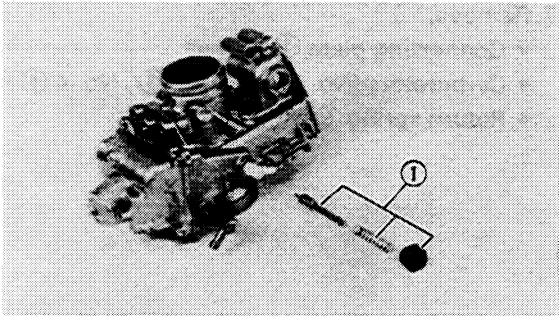
- Carburetor switch ① (T.O.R.S.)
Turn throttle stop screw ② clockwise.
- Throttle cable holder ③

④ No. 3 carburetor



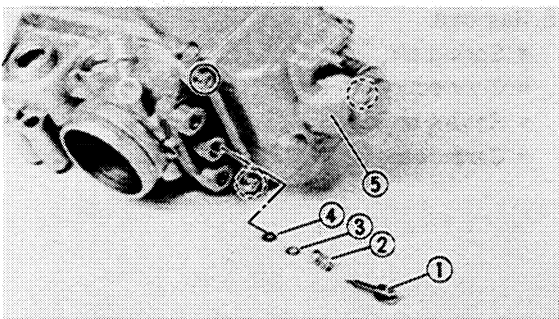
11. Remove:

- Throttle valve assembly ①
- Screws ②
- Inner throttle lever assembly ③
- Jet needle ④
- Washer ⑤



12. Remove:

- Starter plunger assembly ①

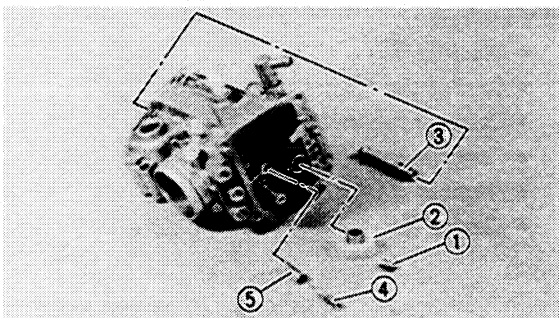


13. Remove:

- Pilot screw ①
- Spring ②
- Washer ③
- O-ring ④
- Float chamber ⑤

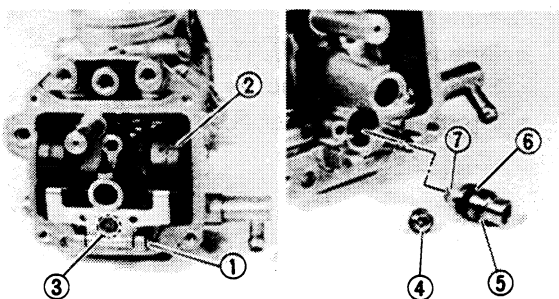
NOTE:

Count and write down the numbers of turns the pilot screw was turned in.



14. Remove:

- Main jet ①
- Main jet ring ②
- Main nozzle ③
- Pilot jet ④
- Pipe ⑤ (pilot jet)

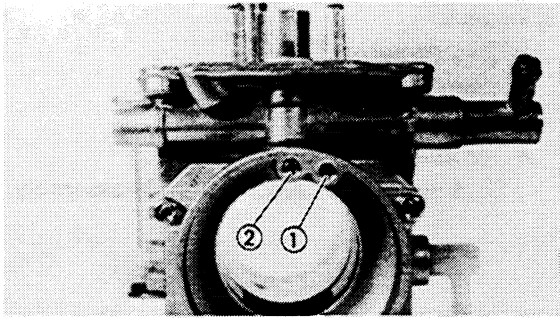


15. Remove:

- Float pin ①
- Floats ②
- Needle valve ③
- Screw ④ (valve seat)
- Valve seat assembly ⑤

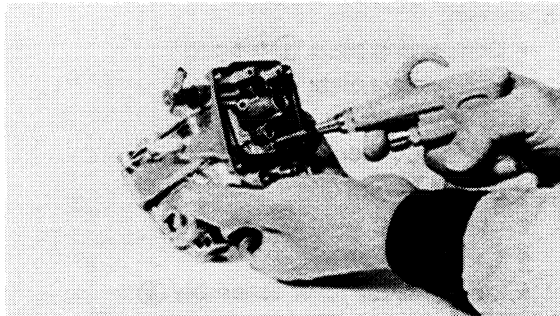
⑥ O-rings

⑦ Fuel strainer



16. Remove:

- Pilot air jet ①
- Main air jet ②



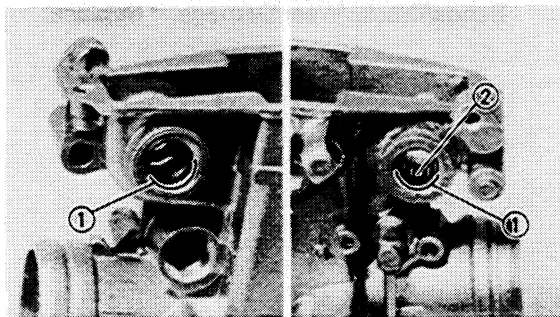
INSPECTION

1. Inspect:

- Carburetor body
- Fuel passage
Contamination → Clean.

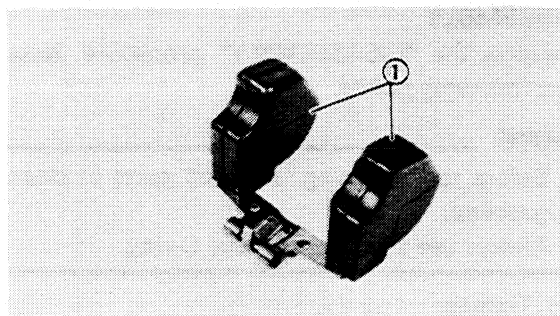
NOTE: _____

- Use a petroleum based solvent for cleaning.
- Blow out all passages and jets with compressed air.



2. Inspect:

- Rubber seals ①
- Bearing ②

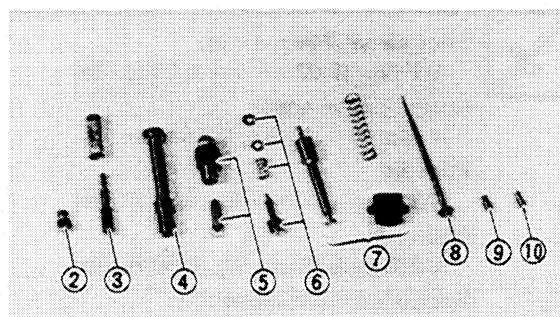


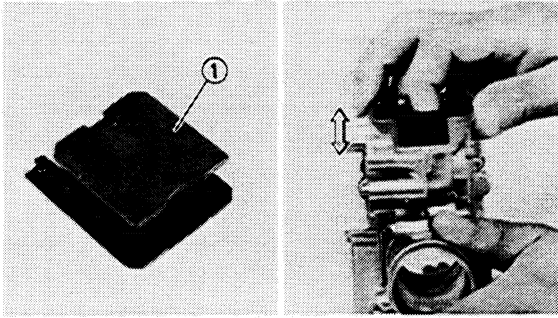
3. Inspect:

- Floats ①
- Main jet ②
- Pilot jet ③
- Main nozzle ④
- Valve seat assembly ⑤
- Pilot screw assembly ⑥
- Startor plunger assembly ⑦
- Jet needle ⑧
- Pilot air jet ⑨
- Main air jet ⑩
Bends/Wear/Damage → Replace.
Contamination → Clean.

NOTE: _____

- Use a petroleum based solvent for cleaning.
- Blow out all passages and jets with compressed air.



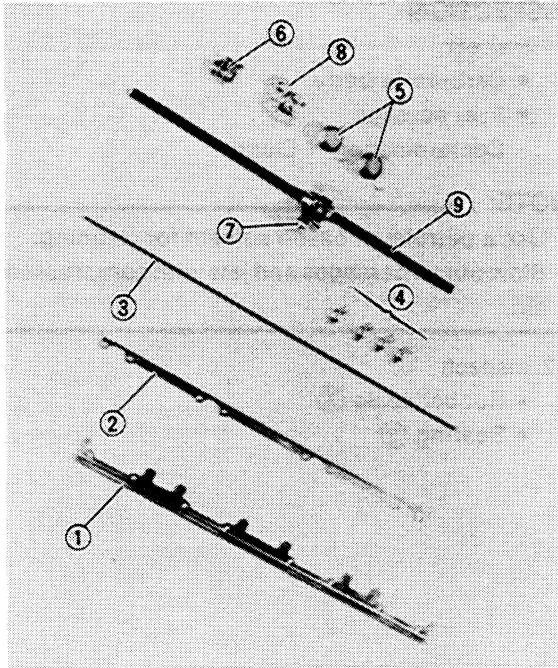


3. Inspect:

- Throttle valve ①
Wear/Damage → Replace.

4. Check:

- Throttle valve movement
Stick → Replace carburetor body assembly.



5. Inspect:

- Connecting plate ① (upper)
- Connecting plate ② (lower)
- Starter shaft ③
- Starter connector ④
- Return spring ⑤
- Connecting lever ⑥
- Throttle lever ⑦
- Inner throttle lever assembly ⑧
- Throttle shaft ⑨
Bends/Cracks/Wear/Damage → Replace.

ASSEMBLY


Reverse the "DISASSEMBLY" procedure. Note the following points.

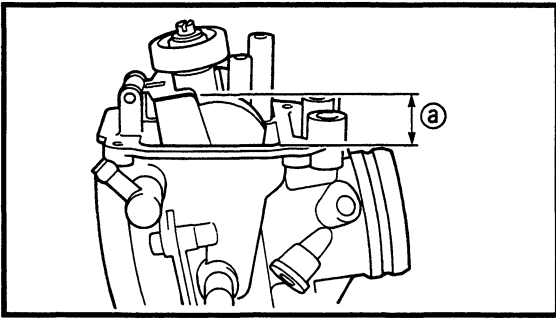
NOTE:

- Before reassembling, wash all parts in clean gasoline.
- Always use a new gasket and O-ring.

1. Tighten:

- Inner parts

	Pilot air jet/Main air jet:
	0.7 Nm (0.07 m • kg, 0.51 ft • lb)
	Screw (valve seat):
	1 Nm (0.1 m • kg, 0.7 ft • lb)
	Pilot jet:
	0.7 Nm (0.07 m • kg, 0.51 ft • lb)
Main jet:	
0.8 Nm (0.08 m • kg, 0.58 ft • lb)	
Startor plunger assembly:	
2.5 Nm (0.25 m • kg, 1.8 ft • lb)	



2. Measure:

- Float height ①
- Out of specification → Adjust.



Float height:

11.3 ~ 15.3 mm (0.44 ~ 0.60 in)

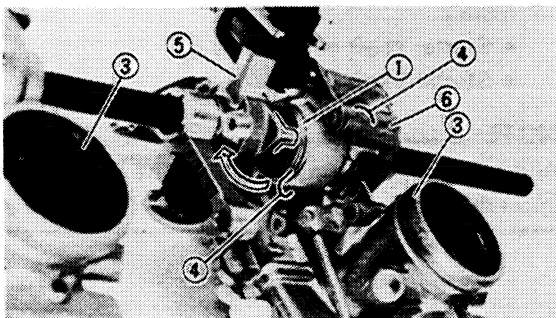
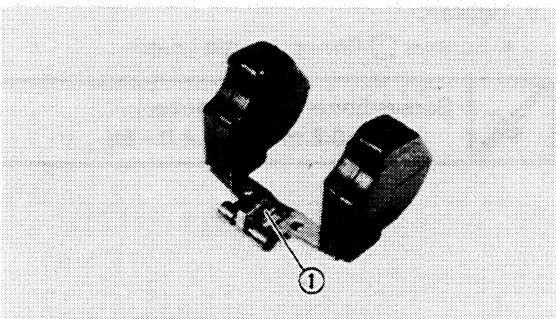
Measurement and adjustment steps:

- Hold the carburetor in an upside down position.
- Measure the distance between the carburetor body and top of the floats.

NOTE:

The float arm should be resting on the valve, but not compressing the needle valve.

- If the float height is not within specification, inspect the valve seat and needle valve.
- If either is worn, replace them both.
- If both are fine, adjust the float height by bending the float arm tang ① on the float.
- Recheck the float height.

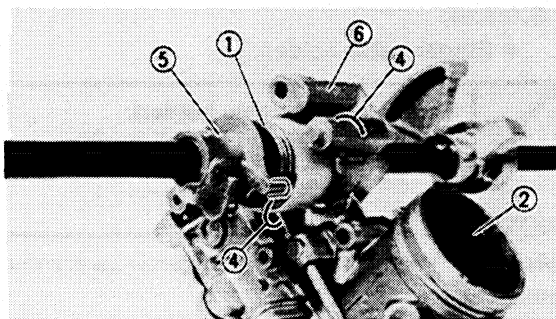


3. Lubricate:

- Rubber seals
- Bearings
- Washer
- Return spring



Low-temperature lithium soap base grease

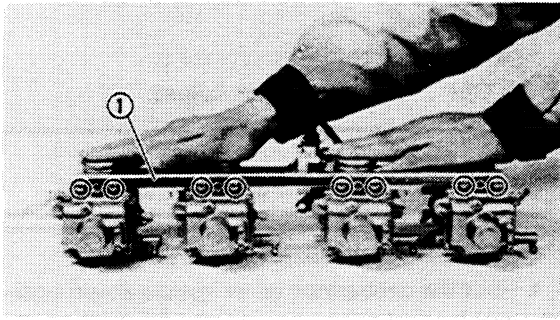


4. Install:

- Return springs ①
- Carburetors (No. 3 ②, No. 2 ③)

NOTE:

Hook the spring hooks ④ to the projections on the connecting lever ⑤ and carburetor body ⑥, while twisting the spring clockwise approximately 315 degrees.



5. Install:

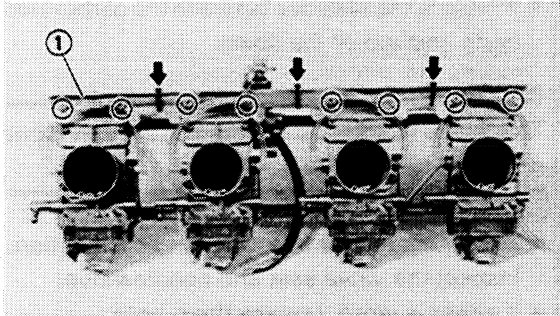
- Connecting plate ① (lower)
- Connecting plate ② (upper)



Screw (connecting plates):
3.5 Nm (0.35 m · kg, 2.5 ft · lb)

NOTE:

Plate the carburetors on a surface plate with the intake manifold side down, Install the connecting plates while pushing the respective carburetors down with an even force.

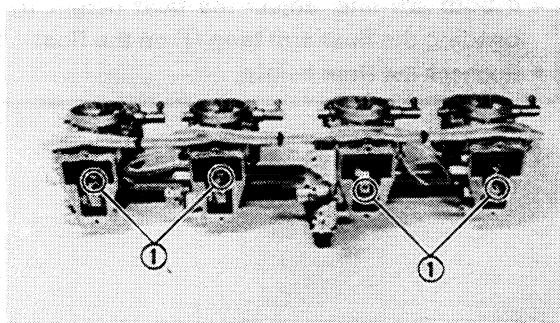


6. Tighten:

- Screws ① (inner throttle lever)



Screw (inner throttle lever):
2 Nm (0.2 m · kg, 1.4 ft · lb)

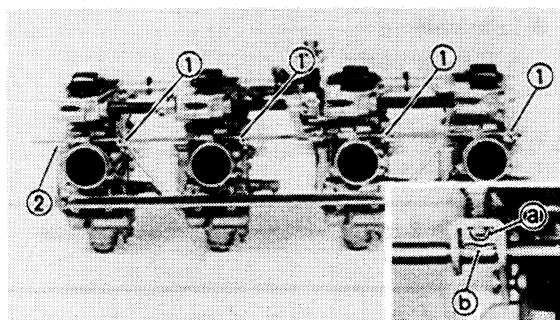


7. Install:

- Starter shaft connectors ①
- Starter shaft ②

NOTE:

Align the tip ① of the screw with the indentation ② on the starter shaft.



8. Install:

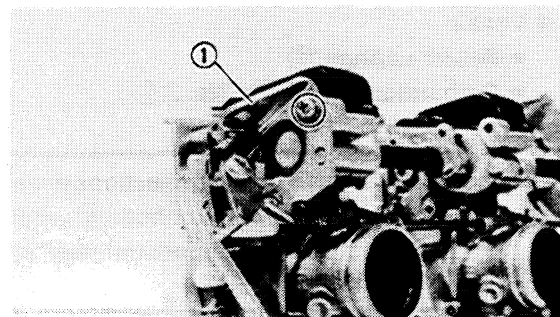
- Starter cable holder ①



Screw (starter cable holder):
3.5 Nm (0.35 m · kg, 2.5 ft · lb)

NOTE:

Make sure the throttle lever and starter lever move smoothly.





INSTALLATION

Reverse the "REMOVAL" procedure.

Note the following points.

1. Adjust:

- Carburetor synchronization (See Page 2-13)
- Engine idle speed (See page 2-13)
- Throttle cable free play (See page 2-14)
- Starter cable free play (See page 2-15)

FUEL LEVEL ADJUSTMENT

1. Measure:

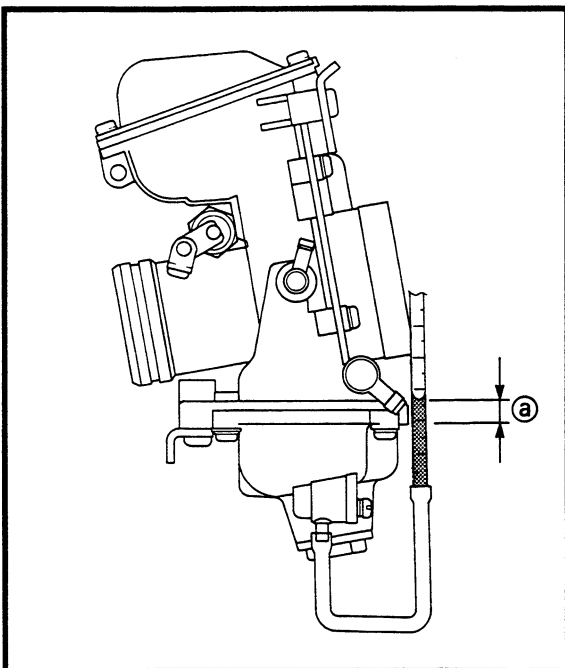
- Fuel level

Out of specification → Adjust.



Fuel level: ①

5 ~ 7 mm (0.20 ~ 0.28 in)



Measurement and adjustment steps:

- Place the machine on a level place.
- Attach the fuel level gauge ① to the float chamber nozzle.



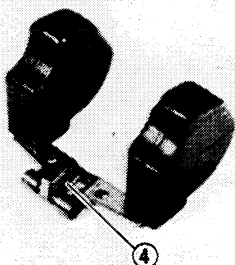
Fuel level gauge:

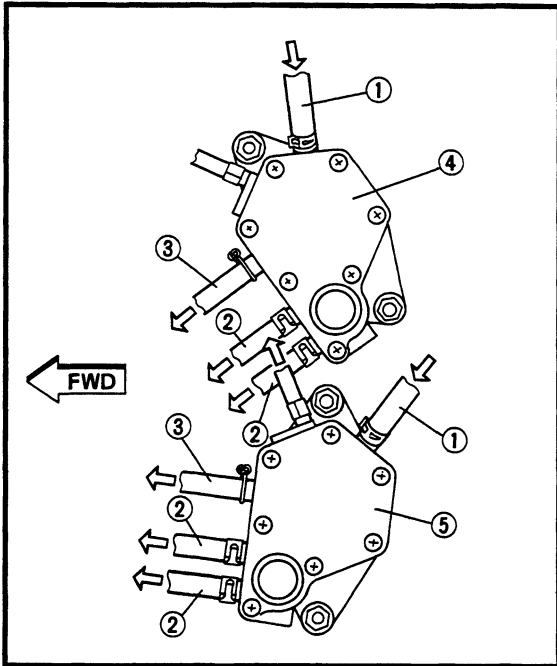
90890-01312, YM-01312-A

NOTE:

Use the adapter (outside diameter $\phi 6$ hose) ② when attaching the fuel level gauge.

- Loosen the drain screw ③ and start the engine.
- Measure the fuel level a with gauge.
- If the fuel level is incorrect, adjust the fuel level.
- Remove the carburetor.
- Inspect the valve seat and needle valve.
- If either is worn, replace them both.
- If both are fine, adjust the float height by bending the float tang ④ on the floats.
- Recheck the fuel level.





FUEL PUMP

OPERATION CHECK

1. Remove:

- Intake silencers (left and right)
(See page 2-4)
- Carburetor assembly (See page 7-3)

2. Inspect:

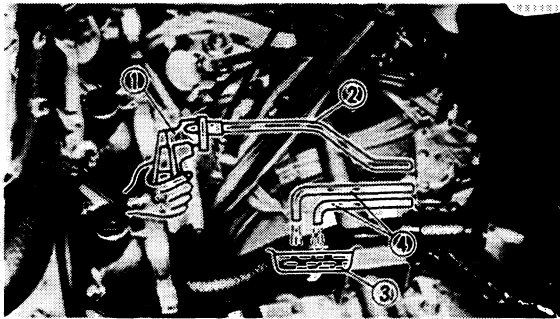
- Fuel hose ①
- Fuel delivery hoses ②
- Pulser hose ③
Clog/Damage → Replace.

④ Fuel pump (right)

⑤ Fuel pump (left)

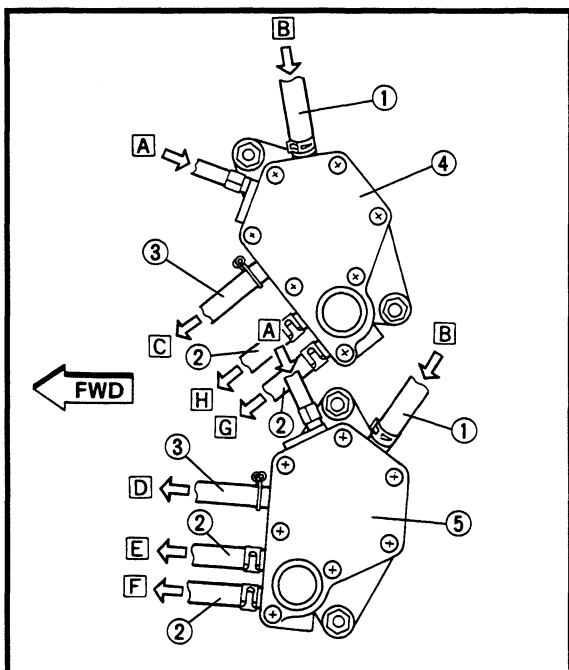
3. Check:

- Fuel pump operation



Checking steps:

- Connect a hand-operated vacuum pump ① (Such as Mighty-Vac®) to the pulser hose ②.
- Place a receptacle ③ under the fuel delivery hoses end ④.
- Operate the hand-operated vacuum pump ① (Such as Mighty-Vac®), when checking the fuel flow from the fuel delivery hoses ④.
- If fuel does not flow out, replace the fuel pump assembly.
- To replace the fuel pump assembly, perform the following steps from 4 to 6.



4. Replace:

- Fuel pump assembly



Nut (fuel pump assembly):
10 Nm (1.0 m · kg, 7.2 ft · lb)

5. Connect:

- Pulser hose ①
- Fuel hose ②
- Fuel delivery hose ③
 (to fuel pump)

- ④ Fuel pump (right)
- ⑤ Fuel pump (left)
- A From oil pump
- B From fuel tank
- C To right side crankcase
- D To left side crankcase
- E To No. 1 carburetor
- F To No. 2 carburetor
- G To No. 3 carburetor
- H To No. 4 carburetor



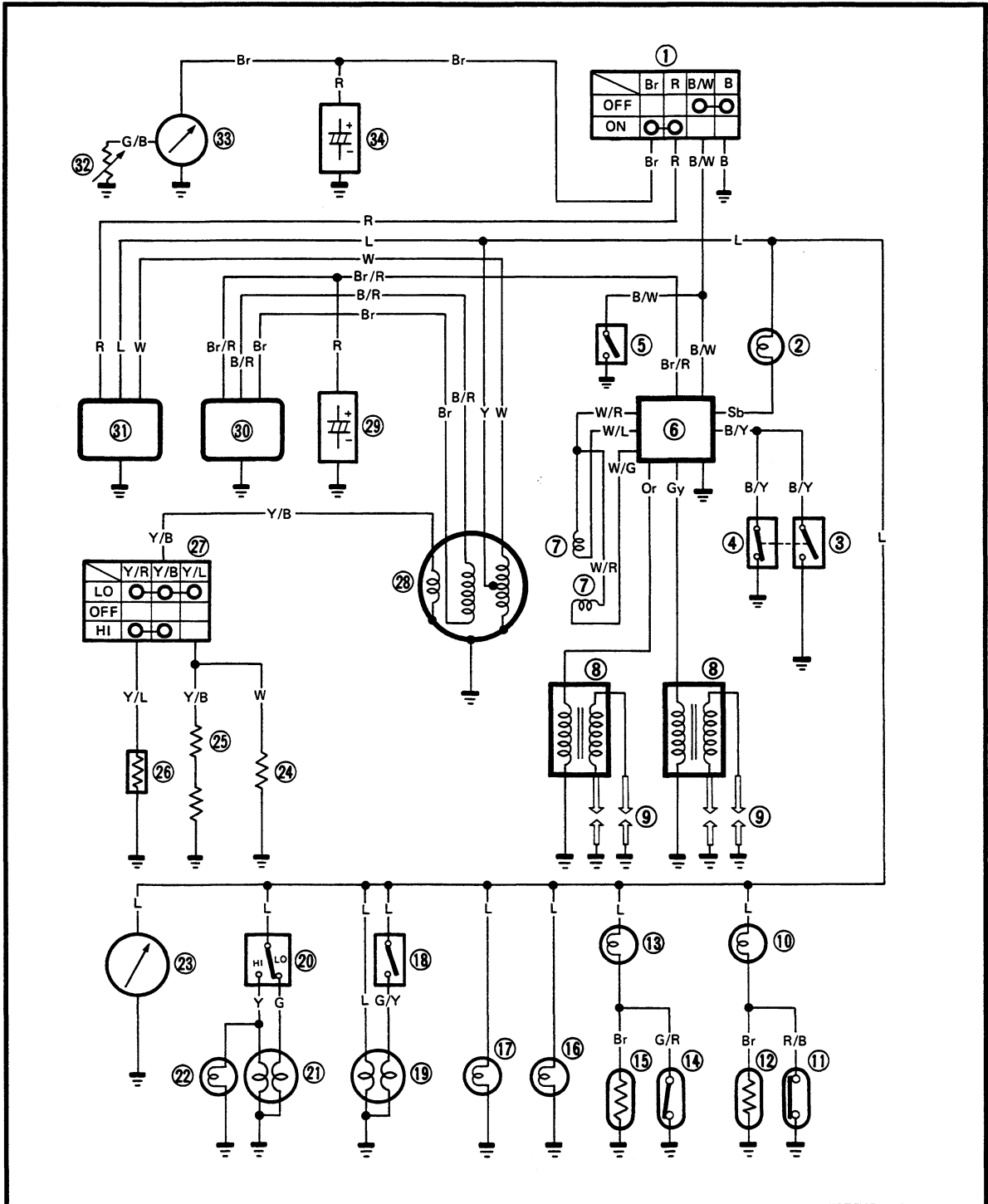
CHAPTER 8. ELECTRICAL

CIRCUIT DIAGRAM	8-1
ELECTRICAL COMPONENT	8-3
IGNITION SYSTEM	8-5
CIRCUIT DIAGRAM	8-5
TROUBLESHOOTING	8-7
SPARK PLUG	8-7
SPARK PLUG CAP	8-7
IGNITION COIL	8-7
CHARGE COIL AND PULSER COIL	8-7
HANDLEBAR SWITCH (RIGHT)	8-10
CARBURETOR SWITCH	8-11
THROTTLE OVERRIDE SYSTEM (T.O.R.S.)	8-11
MAIN SWITCH	8-12
VOLTAGE TEST	8-12
CONDENSER	8-13
BULB	8-13
LIGHTING COIL (I)	8-13
VOLTAGE TEST	8-14
LIGHTING SYSTEM	8-15
CIRCUIT DIAGRAM	8-15
TROUBLESHOOTING	8-17
BULB (S)	8-18
HEADLIGHT BEAM SWITCH	8-18
SIGNAL SYSTEM	8-19
CIRCUIT DIAGRAM	8-19
TROUBLESHOOTING	8-21
BRAKE LIGHT SWITCH	8-24
THERMO SWITCH	8-24
OIL LEVEL SWITCH	8-25
LIGHTING COIL	8-25
FUEL SENDER	8-26
FUEL METER	8-26
GRIP WARMER SYSTEM	8-27
CIRCUIT DIAGRAM	8-27
TROUBLESHOOTING	8-29
RESISTOR	8-30
GRIP AND THUMB WARMER COIL	8-30
GRIP WARMER SWITCH	8-30
GRIP WARMER COIL	8-31



ELECTRICAL

CIRCUIT DIAGRAM

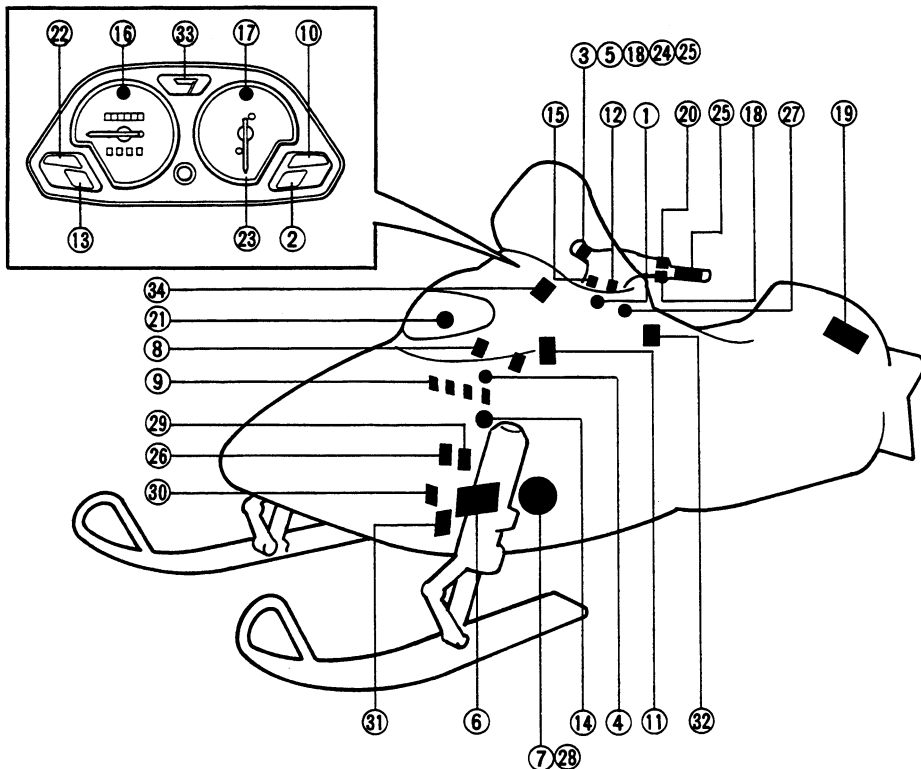




- ① Main switch
- ② "T.O.R.S." indicator light
- ③ Throttle switch
- ④ Carburetor switch
- ⑤ "ENGINE STOP" switch
- ⑥ CDI unit
- ⑦ Pulser coil
- ⑧ Ignition coil
- ⑨ Spark plug
- ⑩ "OIL LEVEL" warning light
- ⑪ Oil level gauge
- ⑫ "OIL LEVEL" warning light checker
- ⑬ "WATER TEMP" warning light
- ⑭ Thermo switch
- ⑮ "WATER TEMP" warning light checker
- ⑯ Speedometer light
- ⑰ Tachometer light
- ⑱ Brake light switch
- ⑲ Tail/brake light
- ⑳ Headlight beam switch
- ㉑ Headlight
- ㉒ "HIGH BEAM" indicator light
- ㉓ Tachometer
- ㉔ Thumb warmer
- ㉕ Grip warmer
- ㉖ Resistor
- ㉗ Grip warmer switch
- ㉘ CDI magneto
- ㉙ Condenser (I)
- ㉚ Rectifier/regulator (I)
- ㉛ Rectifier/regulator (II)
- ㉜ Fuel sender
- ㉝ Fuel meter
- ㉞ Condenser (III)

COLOR CODE

B	Black	Gy	Grey	Y/B	Yellow/Black
L	Blue	W	White	Y/L	Yellow/Blue
G	Green	B/Y	Black/Yellow	R/B	Red/Black
Y	Yellow	B/R	Black/Red	W/G	White/Green
R	Red	B/W	Black/White	W/R	White/Red
O	Orange	G/Y	Green/Yellow	W/L	White/Blue
Br	Brown	G/B	Green/Black	Br/R	Brown/Red
Sb	Sky blue	G/R	Green/Red		

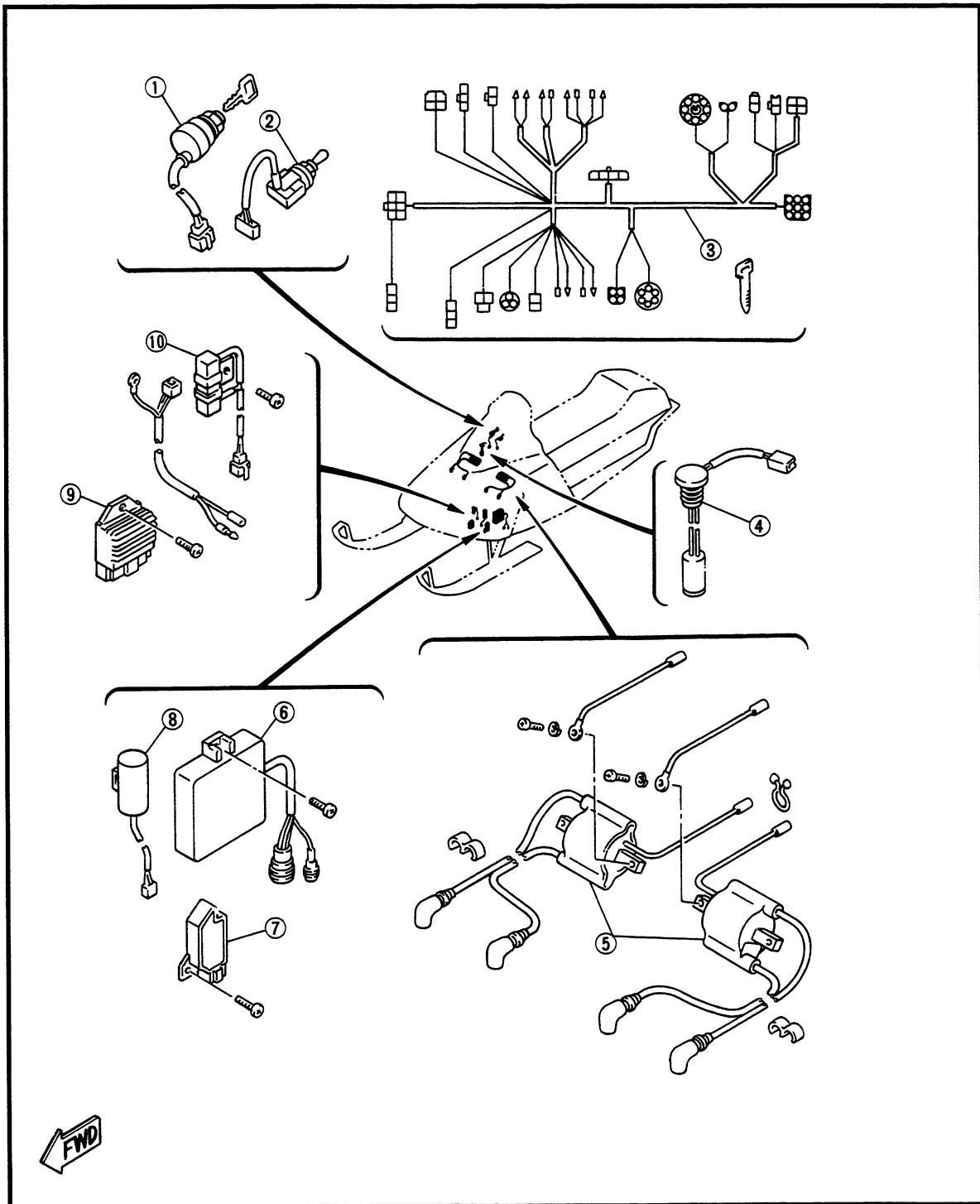




ELECTRICAL COMPONENT

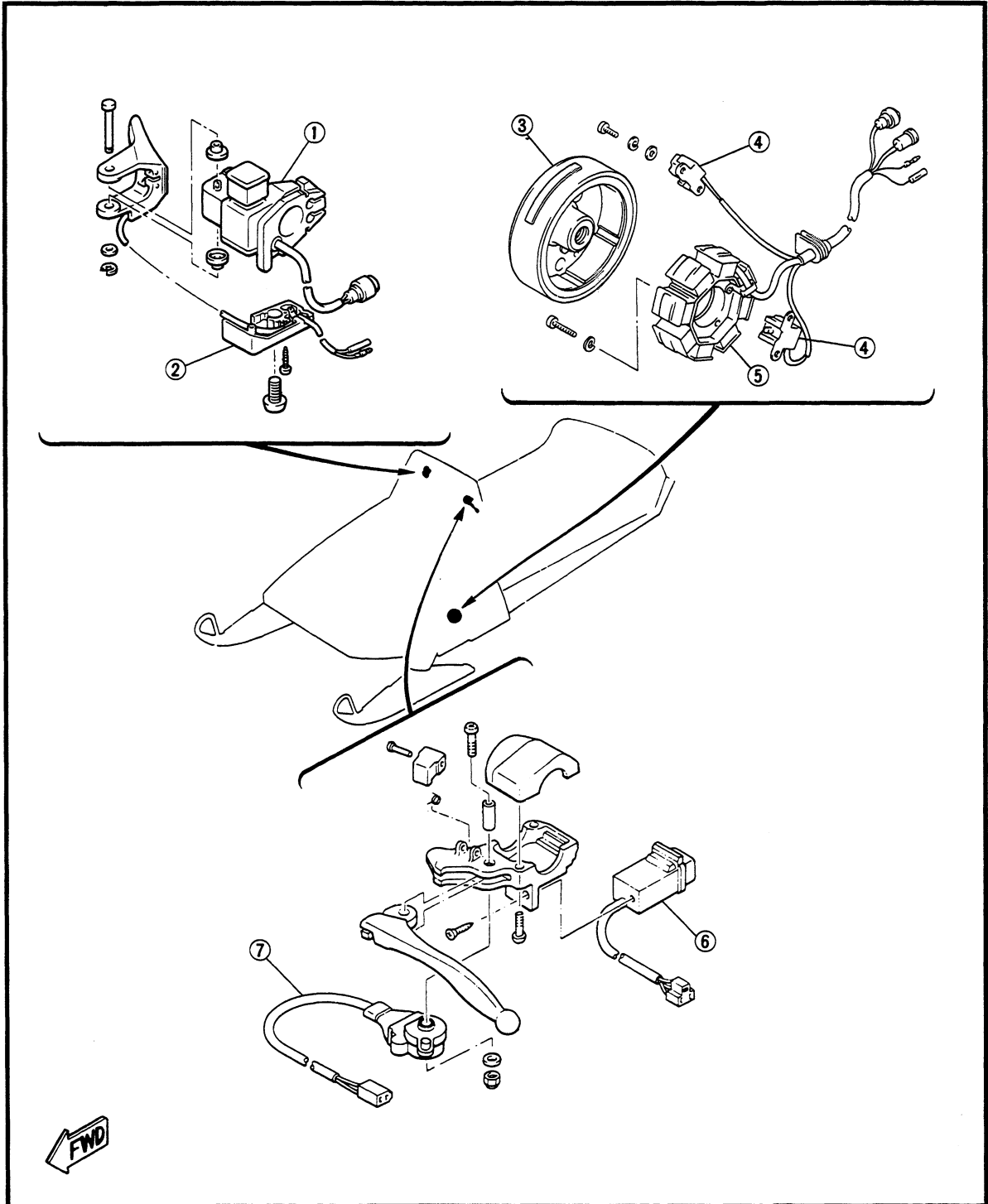
- ① Main switch
- ② Grip warmer switch
- ③ Wireharness
- ④ Oil level gauge
- ⑤ Ignition coil

- ⑥ CDI unit
- ⑦ Rectifier/regulator (II)
- ⑧ Condenser
- ⑨ Rectifier/regulator (I)
- ⑩ Resister





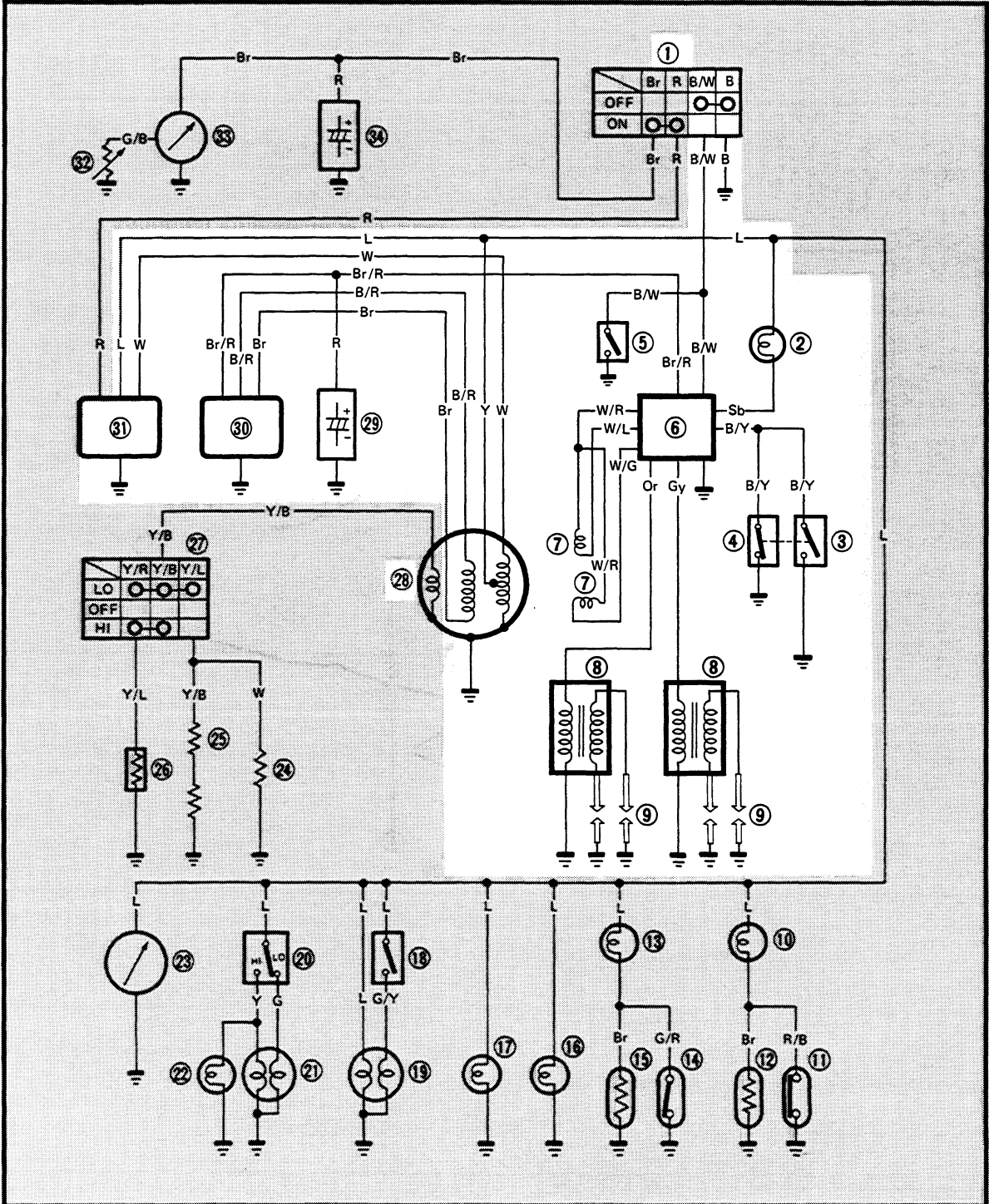
- ① Handlebar switch assembly (right)
- ② Throttle switch
- ③ CDI magneto
- ④ Pick-up coil
- ⑤ Stator coil
- ⑥ High beam switch
- ⑦ Brake switch

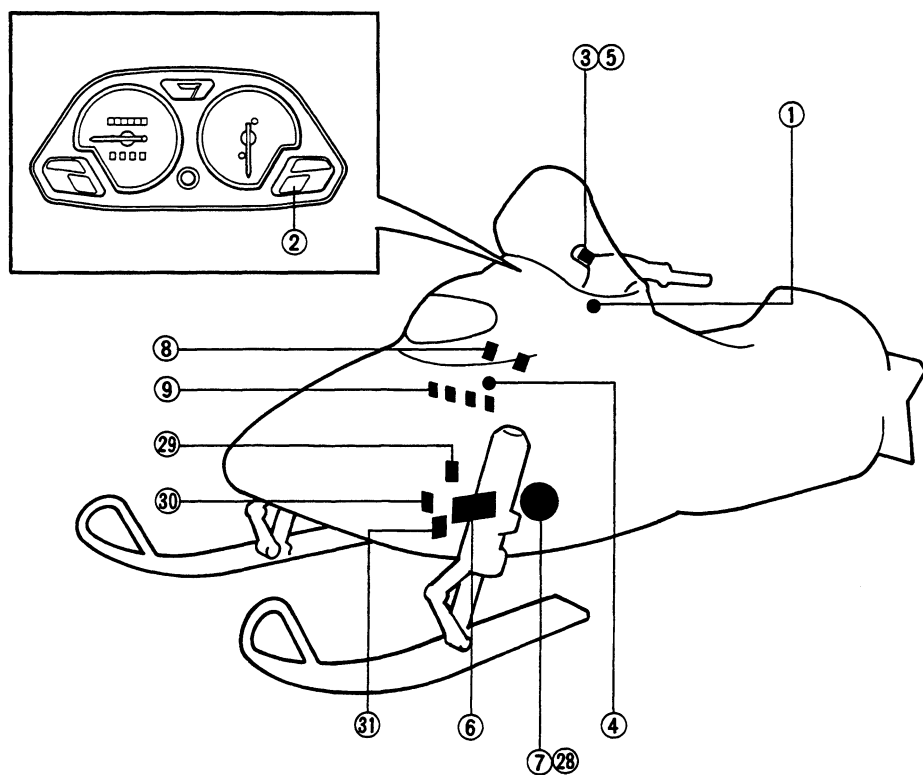




**IGNITION SYSTEM
CIRCUIT DIAGRAM**

- | | | |
|--------------------------|-----------------|----------------------------|
| ① Main switch | ⑥ CDI unit | ⑳ Condenser (I) |
| ② "TORS" indicator light | ⑦ Pulser coil | ㉑ Rectifier/regulator (I) |
| ③ Throttle switch | ⑧ Ignition coil | ㉒ Rectifier/regulator (II) |
| ④ Carburetor switch | ⑨ Spark plug | |
| ⑤ "ENGINE STOP" switch | ㉓ CDI magneto | |

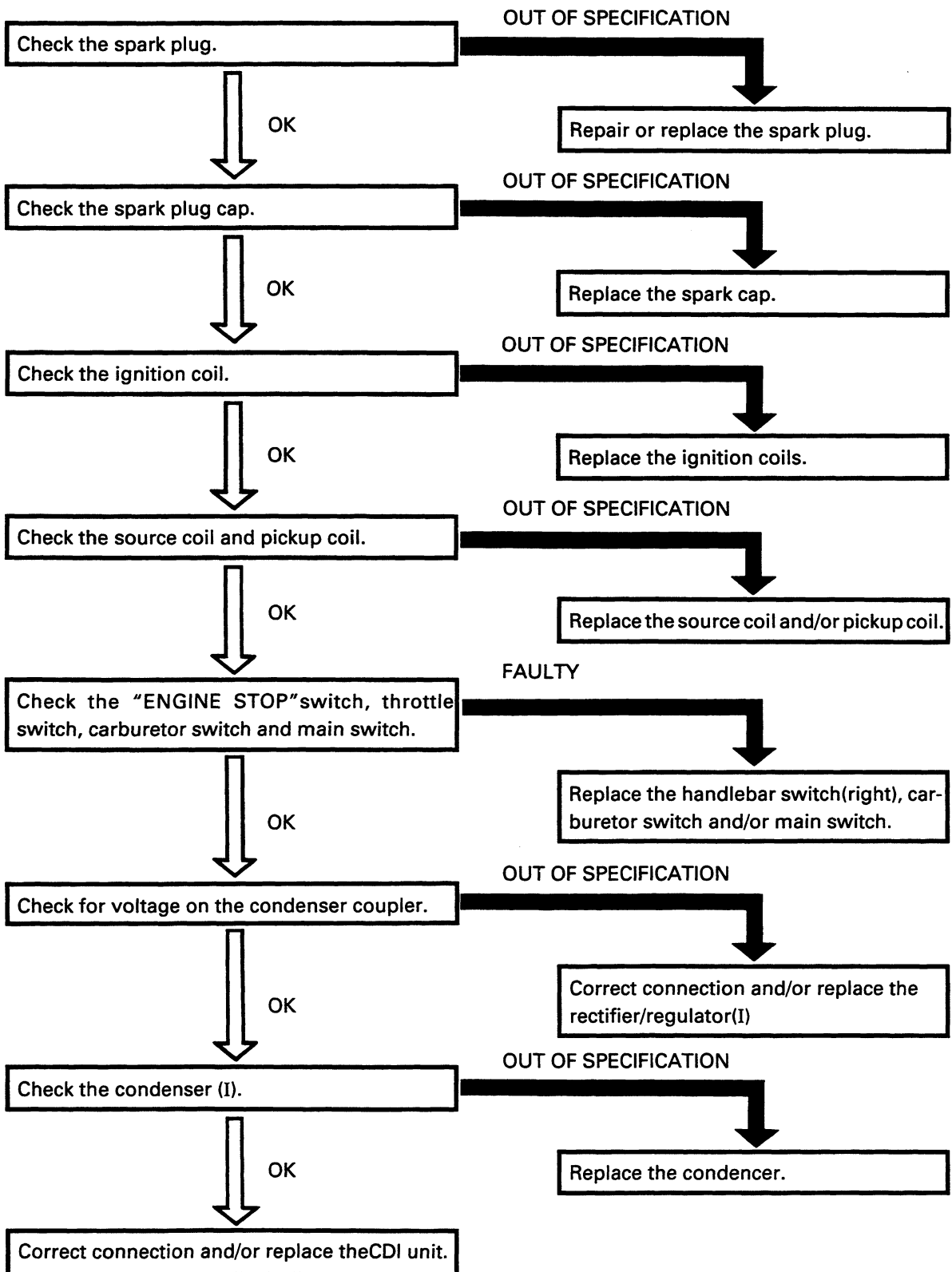






TROUBLESHOOTING

NO SPARK OR WEAK SPARK.

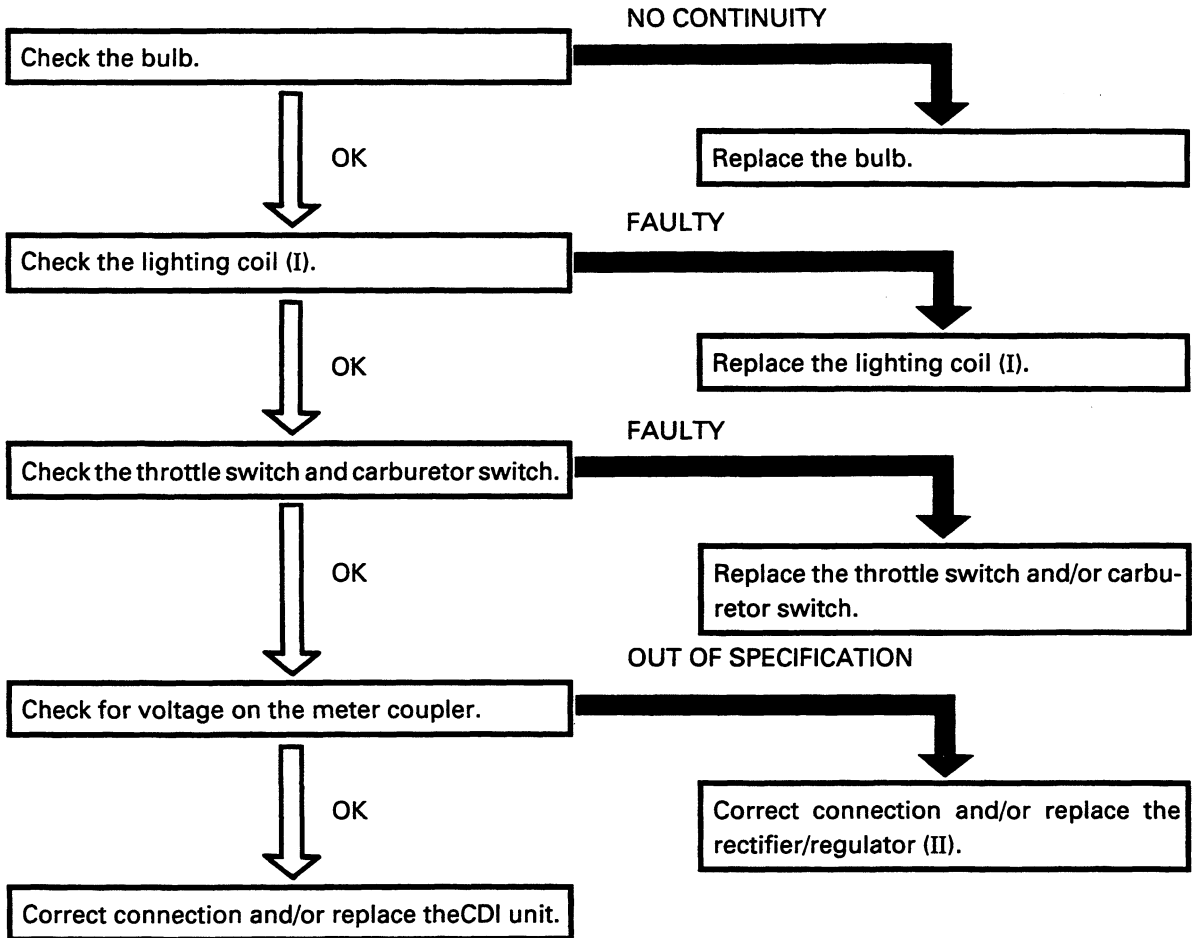


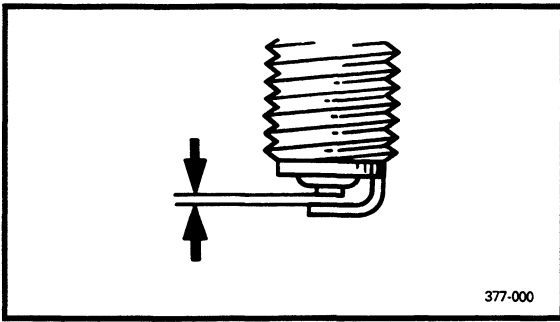
IGNITION SYSTEM

ELEC



"T.O.R.S." INDICATOR LIGHT DOES NOT COME ON.





377-000

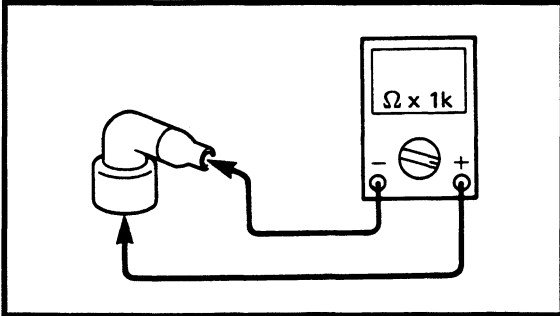
SPARK PLUG

1. Remove:
 - Spark plugs
2. Check:
 - Spark plug

**Standard spark plug:
BR9ES (NGK)**



**Spark plug gap:
0.7 ~ 0.8 mm (0.028 ~ 0.031 in)**

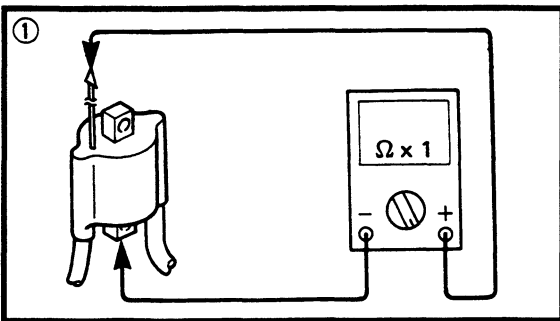


SPARK PLUG CAP

1. Remove:
 - Spark plug cap
2. Connect:
 - Pocket tester
(to spark plug cap)
3. Measure:
 - Spark plug cap resistance

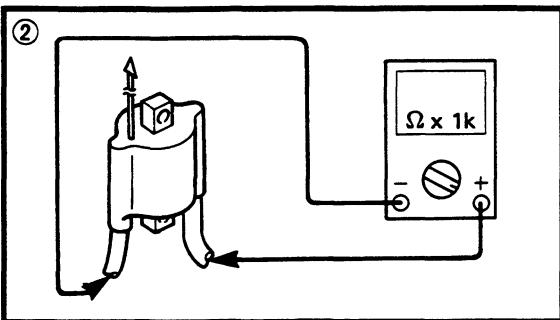


**Spark plug cap resistance:
4.5 ~ 5.5 kΩ at 20°C (68°F)**



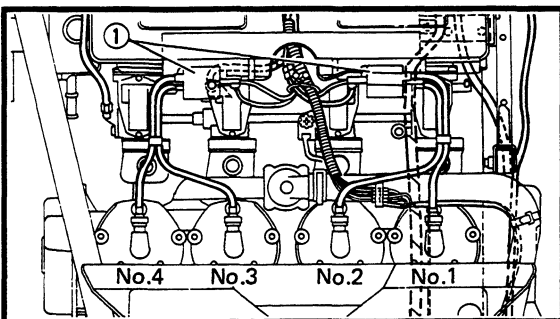
IGNITION COIL

1. Disconnect:
 - Ignition coil lead (Orange)
 - Spark plug lead
2. Connect:
 - Pocket tester
(to ignition coil and spark plug lead)
3. Measure:
 - Primary coil resistance ①
 - Secondary coil resistance ②



**Primary coil resistance:
0.16 ~ 0.24 Ω at 20°C (68°F)**

**Secondary coil resistance:
3.92 ~ 5.88 kΩ at 20°C (68°F)**

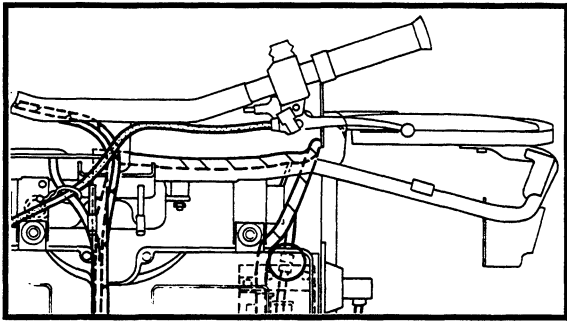


CAUTION:

When the ignition coil ① has been removed, always check the stamped printing on the top of the coil before re-installing it, and make sure it is installed in the correct position.

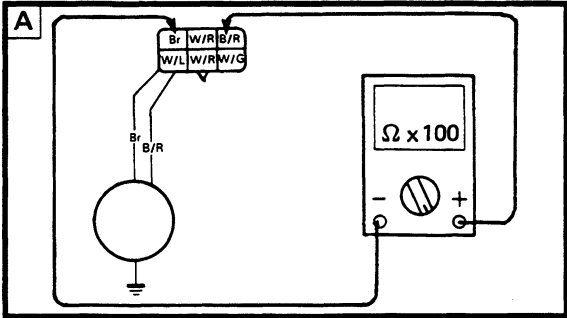
88R For No. 1 and No. 2 cylinders

88A For No. 3 and No. 4 cylinders



CHARGE COIL AND PULSER COIL

1. Disconnect:
 - CDI magneto coupler
 - Pulser coil coupler
2. Connect:
 - Pocket tester
 (to charge coil leads and pulser coil leads)

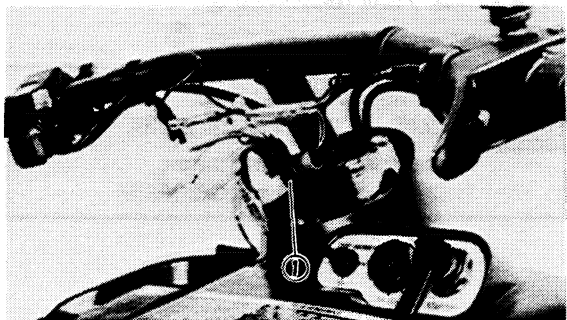
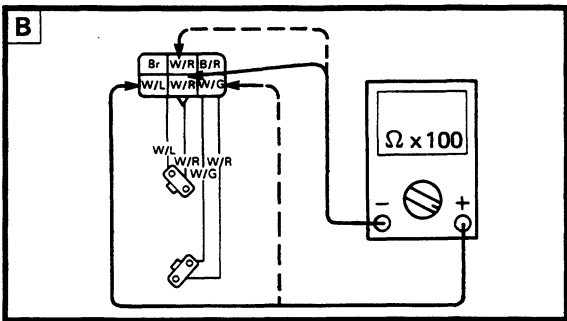


3. Measure:
 - Charge coil resistance **A**
 - Pulser coil resistance **B**
 Out of specification → Replace.



Charge coil resistance:
 (Brown, Black/Red)
 2.295 ~ 2.805 Ω at 20°C (68°F)

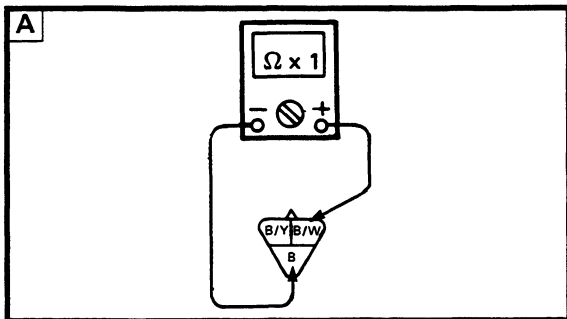
Pulser coil resistance:
 (White/Red, White/Blue and
 White/Red, White/Green)
 454.5 ~ 555.5 Ω at 20°C (68°F)



HANDLEBAR SWITCH (RIGHT)

"ENGINE STOP" switch and Throttle Switch

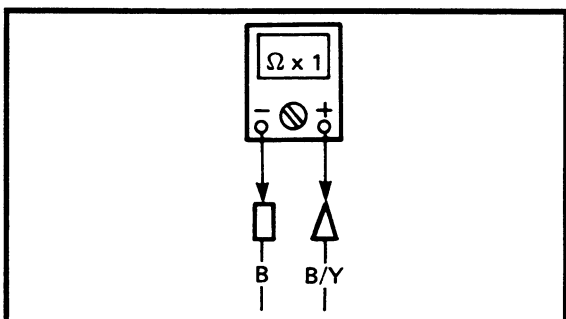
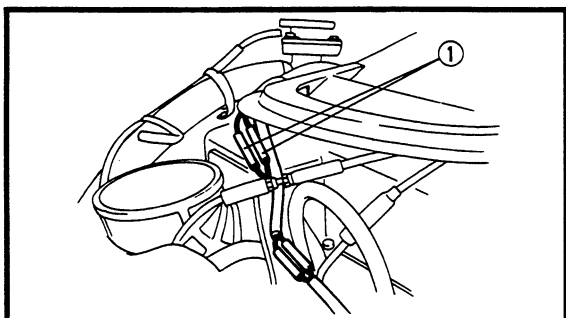
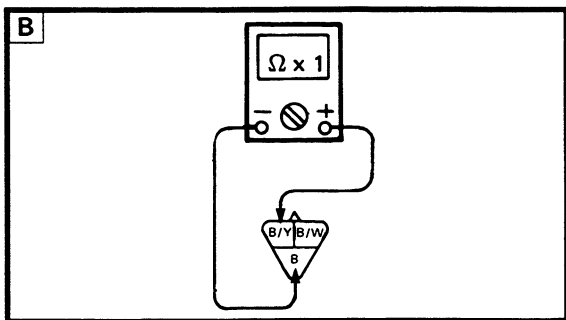
1. Disconnect:
 - Handlebar switch (right) coupler ①
2. Connect:
 - Pocket tester



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

Switch position	Good condition
RUN (Pull)	x
OFF (Push)	○

○ : Continuity x : No continuity



4. Check:

- Throttle switch continuity **B**
Faulty → Replace.

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

○ : Continuity x : No continuity

CARBURETOR SWITCH

1. Disconnect:

- Carburetor switch lead ①

2. Connect:

- Pocket tester

3. Check:

- Carburetor switch continuity
Faulty → Replace.

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

○ : Continuity x : No continuity

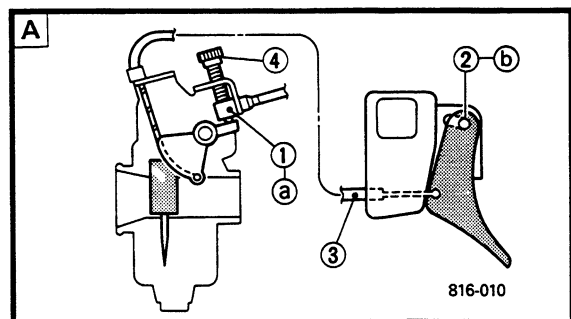
THROTTLE OVERRIDE SYSTEM (T.O.R.S.)

If the carburetor or throttle cable should malfunction during operation, the T.O.R.S. warning light flashes when the throttle lever is released.

The T.O.R.S. is designed to interrupt the ignition and prevent the engine from exceeding 2,800 to 3,000 rpm. if the carburetor fails to return to idle when the lever is released.

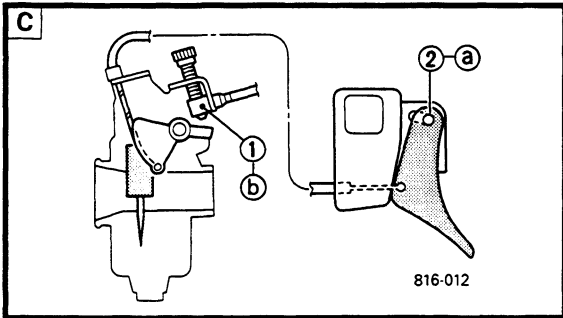
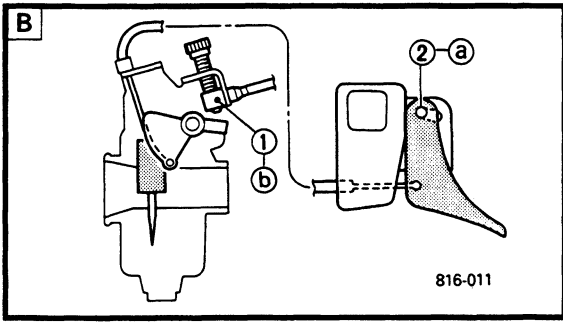
⚠ WARNING

- If T.O.R.S. warning light flashes, make sure that the cause of the malfunction has been corrected and that the engine can be operated without a problem before restarting the engine.
- Be sure to use the standard spark plug and spark plug cap which have resistance. Otherwise T.O.R.S. does not work properly.



IGNITION SYSTEM

ELEC

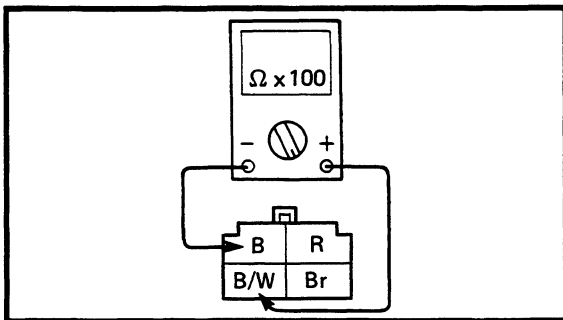
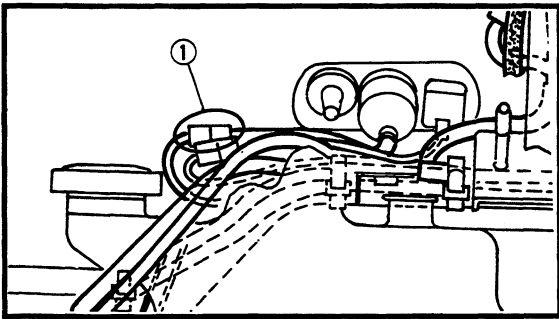


MODE \ SWITCH	A Idle or Starting	B Run	C Trouble
Throttle switch	OFF	ON	OFF
Carburetor switch	ON	OFF	OFF
Engine	RUN	RUN	T.O.R.S Warning light turns on and off

- ① Carburetor switch
- ② Throttle switch
- ③ Throttle cable
- ④ Throttle stop screw
- Ⓐ "ON"
- Ⓑ "OFF"

MAIN SWITCH

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

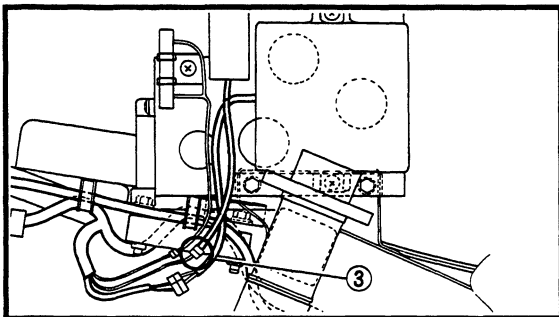


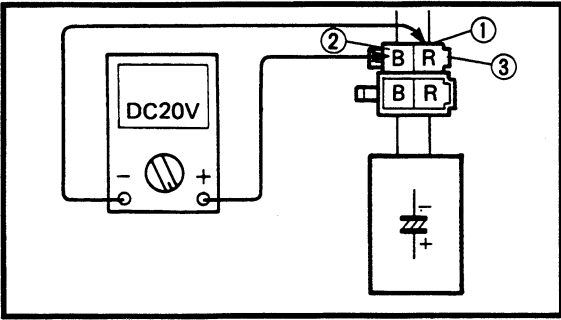
Switch position	Color code			
	B	B/W	Br	R
OFF	○	○		
ON/LIGHT			○	○

○—○ Continuity

VOLTAGE TEST

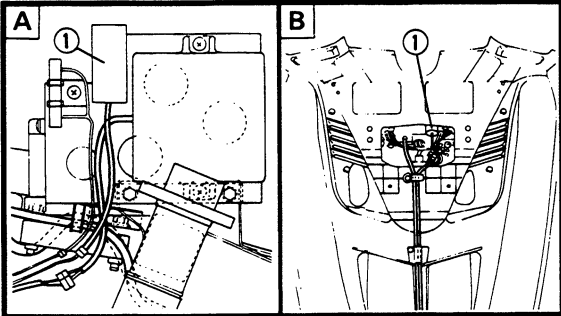
1. Connect:
 - Pocket tester
 - (to Red ① and Black ② leads on the condenser (I) coupler ③)
2. Start the engine and run the engine at 3,000 r.p.m.





3. Measure:
- Output voltage

Output voltage:
(Red/Black)
14 ~ 15 V at 20°C (68°F)



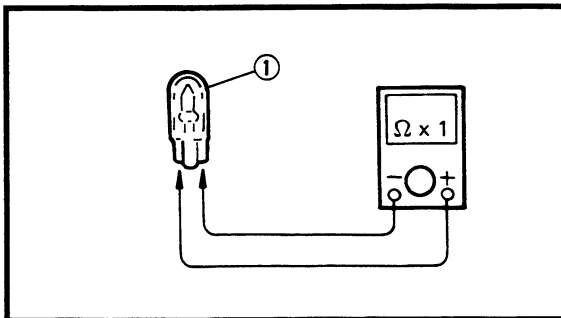
CONDENSER

1. Disconnect:
- Condenser ①
2. Connect:
- Condenser (to LCR meter as shown)

A For ignition **B** For fuel

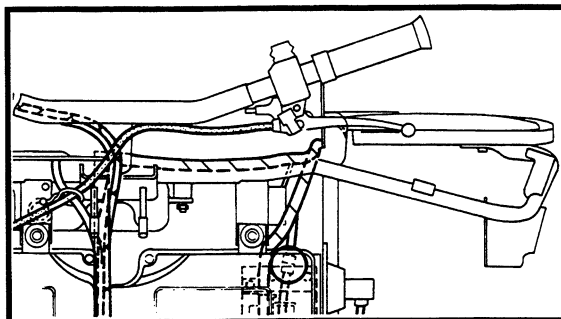
3. Measure:
- Condenser capacity
- Out of specification → Replace.

Condenser capacity:
3.760 ~ 5.640 μ F at 20°C (68°F)



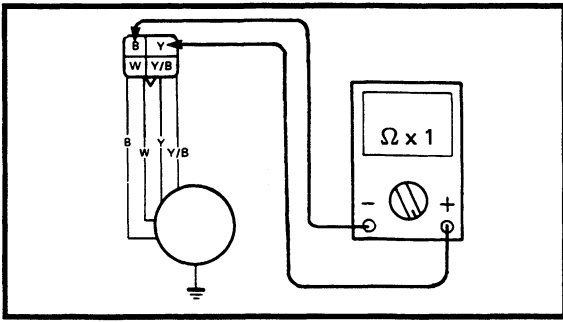
BULB

1. Remove:
- T.O.R.S. indicator light bulb ① (See page 2-25)
2. Connect:
- Pocket tester ② (to bulb terminals)
3. Check:
- Bulb continuity
- No continuity → Replace.



LIGHTING COIL (I)

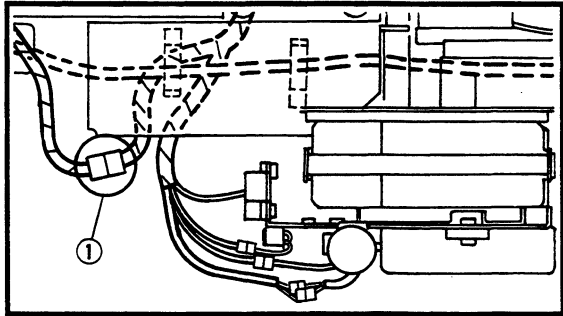
1. Disconnect:
- CDI magneto coupler ①
2. Connect:
- Pocket tester (to lighting coil (I) leads)



3. Measure:

- Lighting coil resistance
- Out of specification → Replace.

Lighting coil resistance:
(Yellow, Black)
0.288 ~ 0.352 Ω at 20°C (68°F)



VOLTAGE TEST

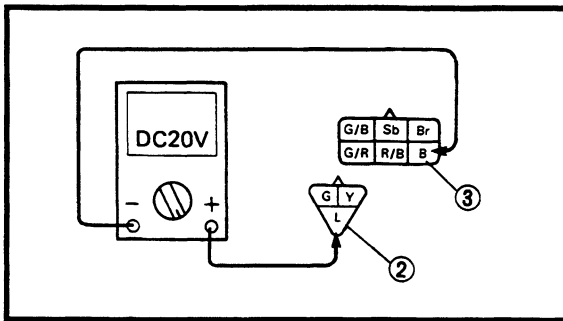
1. Disconnect:

- Wire harness coupler ①

2. Connect:

- Pocket tester
 (to Blue ② and Black ③ leads on the coupler)

3. Start the engine and run the engine at 3,000 r.p.m.



4. Measure:

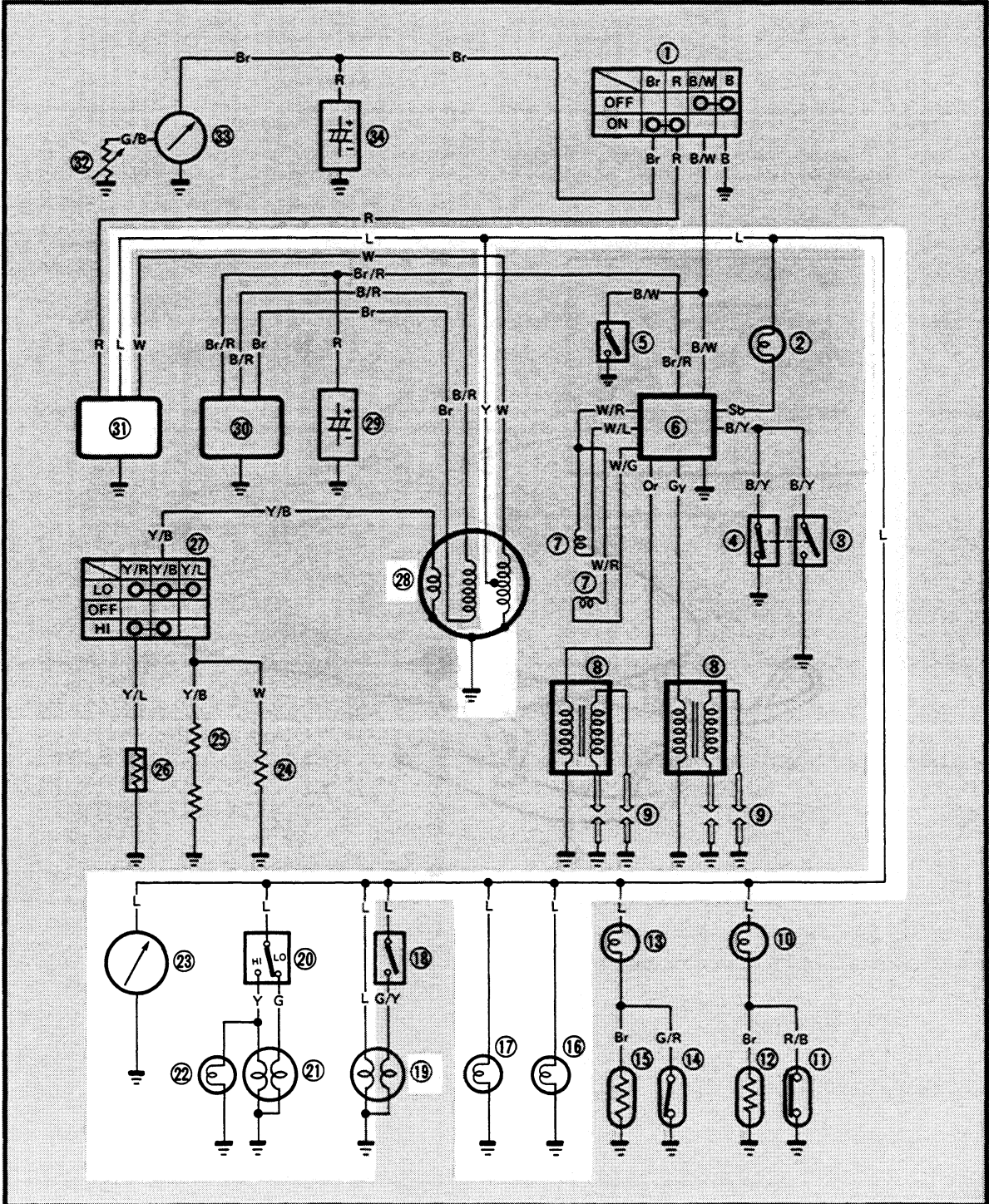
- Out put voltage

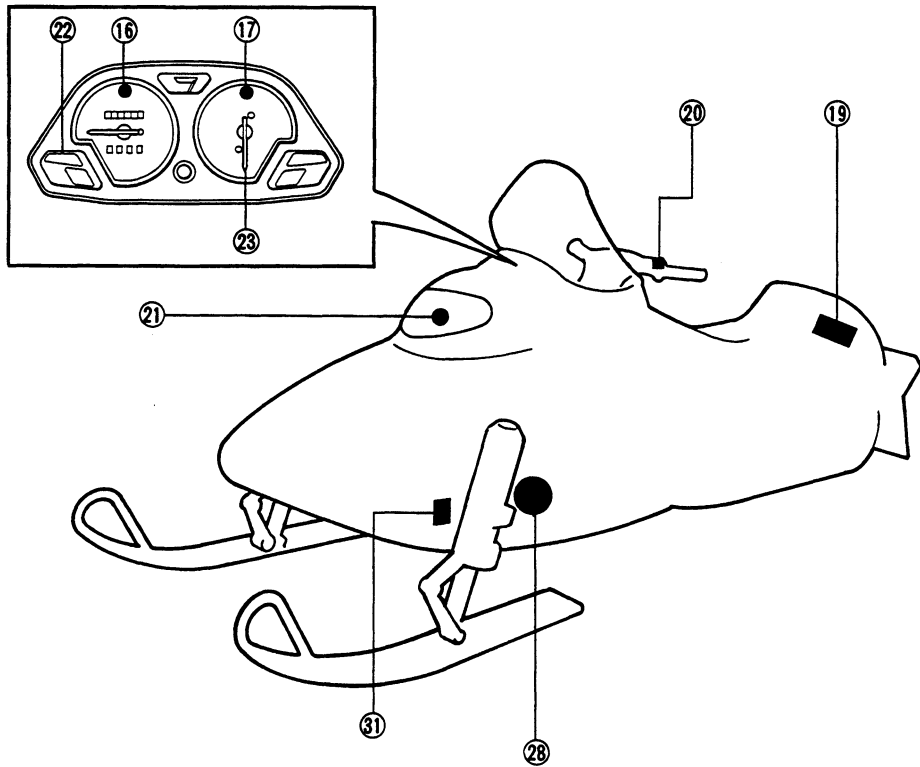
Out put voltage:
(Blue, Black)
12 V or more at 20°C (68°F)



LIGHTING SYSTEM
CIRCUIT DIAGRAM

- 16 Speedometer light
- 17 Tachometer light
- 19 Tail/brake light
- 20 Headlight beam switch
- 21 Headlight
- 22 "HIGH BEAM" indicator light
- 23 Tachometer
- 28 CDI magneto
- 31 Rectifier/regulator

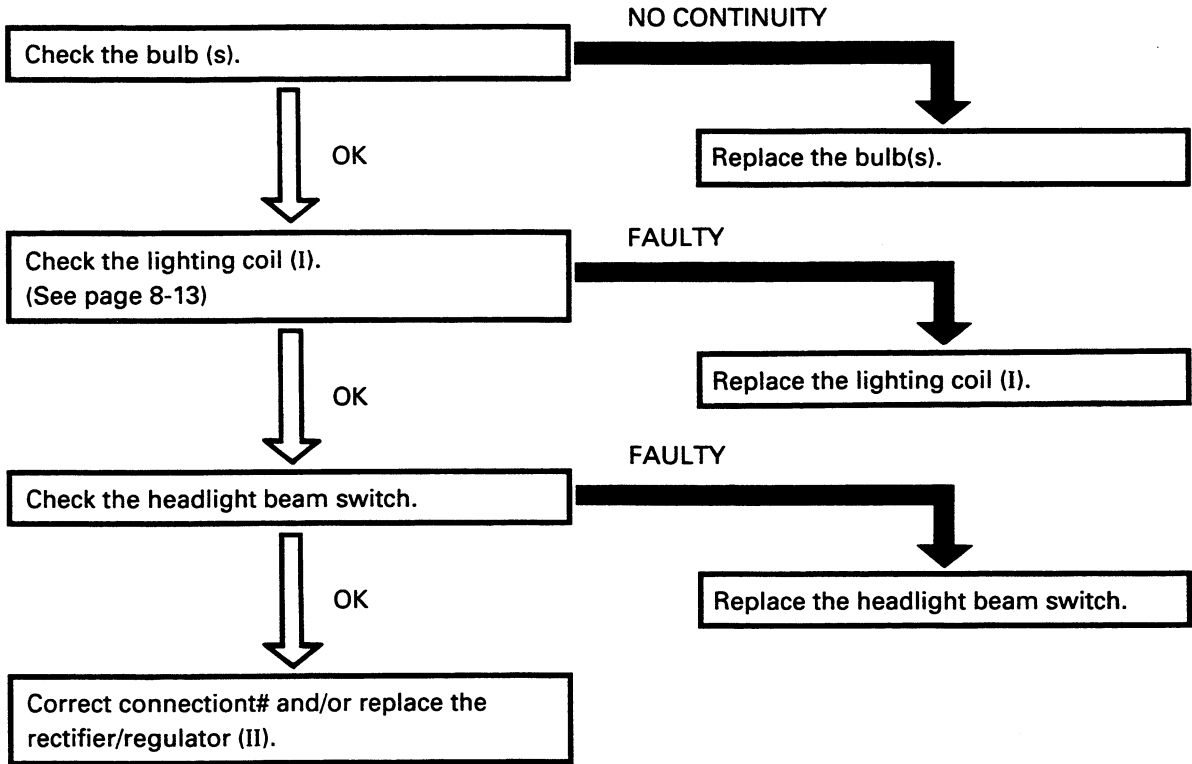






TROUBLESHOOTING

HEADLIGHT, "HIGH BEAM " INDICATOR LIGHT, TAIL LIGHT, SPEEDOMETER LIGHT AND/OR TACHOMETER LIGHT DO NOT COME ON.





BULB(S)

1. Remove:
 - Headlight bulb (See page 2-25)
 - Tail/brake light bulb
 - Speedometer light bulb (See page 2-25)
 - Tachometer light bulb (See page 2-25)
 - "HIGH BEAM" indicator light bulb (See page 2-25)
2. Check:
 - Bulb(s)

No continuity → Replace.

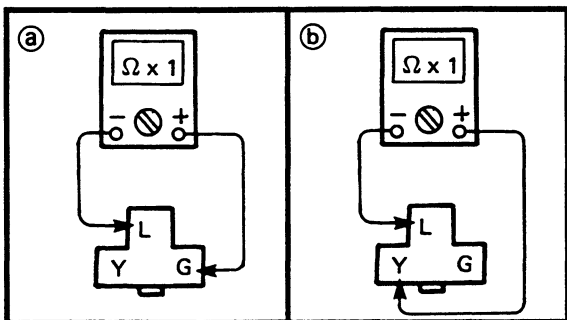
⚠ WARNING

Keep flammable products or your hands away from bulb while it is on; it will be hot. Do not touch bulb until it cools down.

HEADLIGHT BEAM SWITCH

1. Disconnect:
 - Headlight beam switch coupler
2. Connect:
 - Pocket tester

(to headlight beam switch coupler)



3. Check:
 - Headlight beam switch continuity

Faulty → Replace.

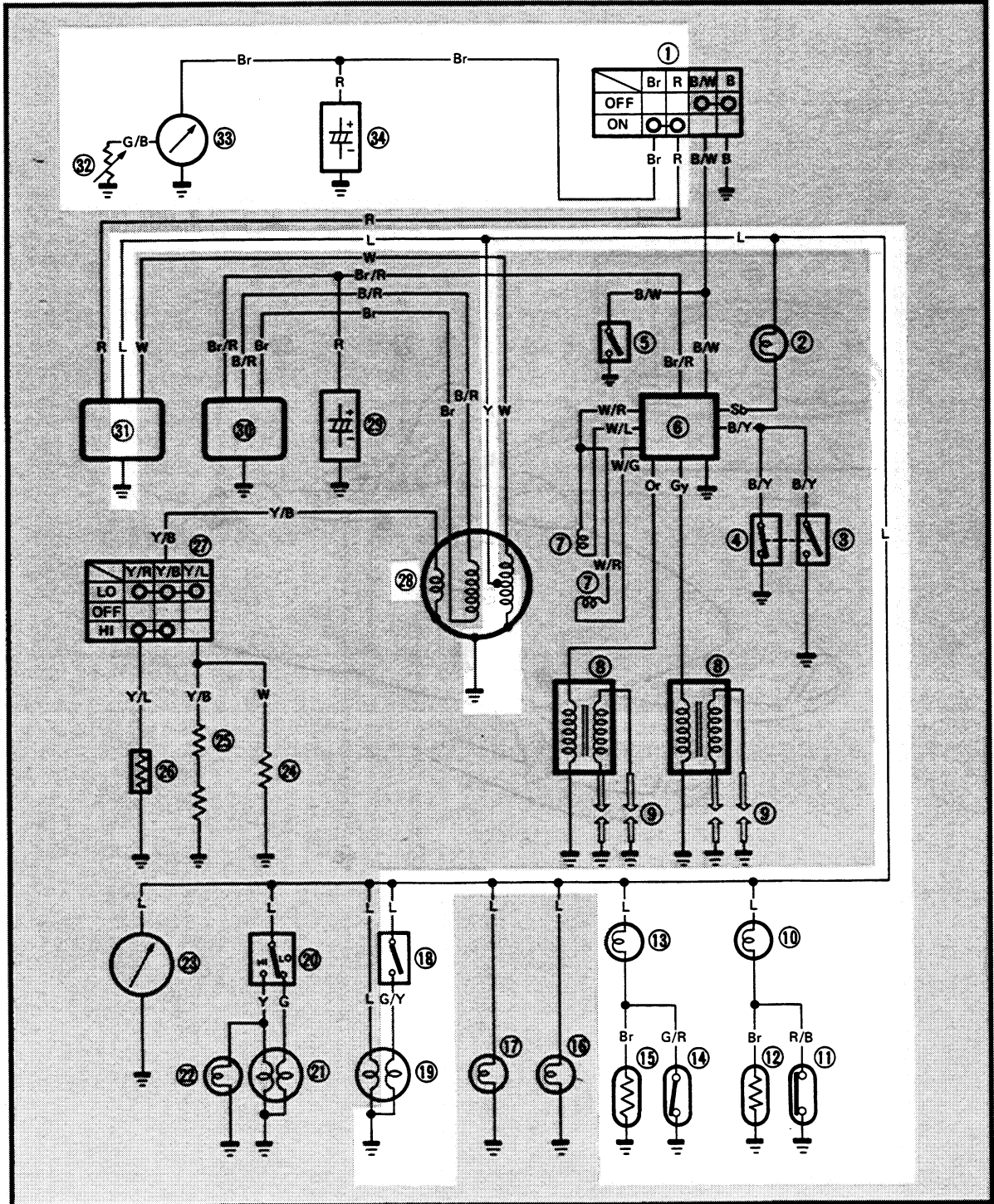
Switch position	Ⓐ Good condition	Ⓑ Good condition
HI	x	○
LO	○	x

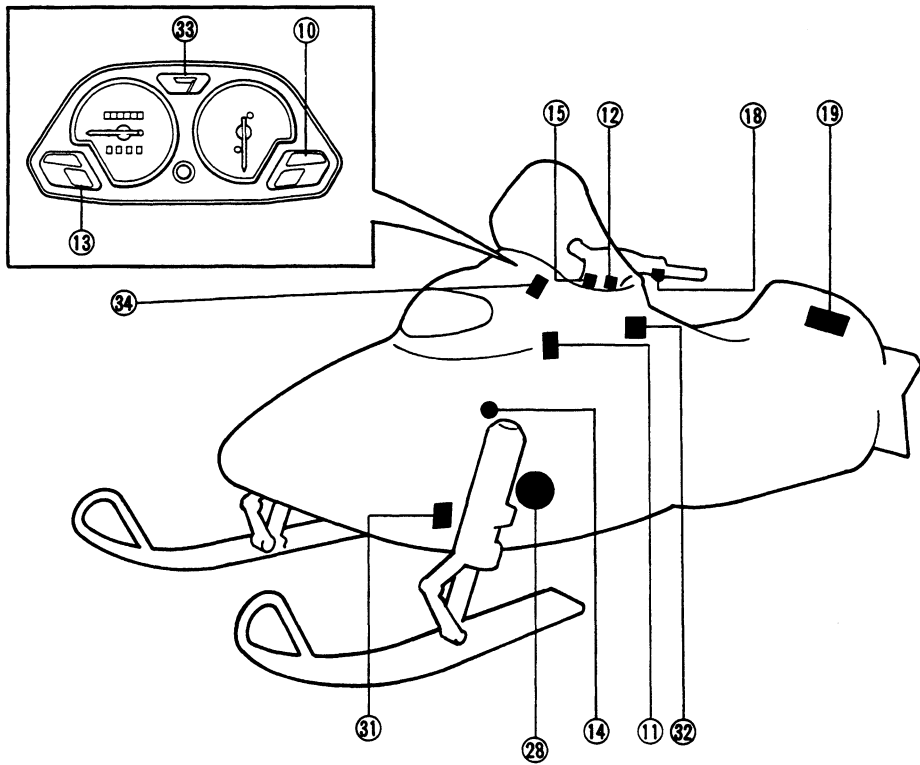
○ : Continuity x : No continuity



SIGNAL SYSTEM
CIRCUIT DIAGRAM

- ⑩ "OIL LEVEL" warning light
- ⑪ Oil level gauge
- ⑫ "OIL LEVEL" warning light checker
- ⑬ "WATER TEMP" warning light
- ⑭ Thermo switch
- ⑮ "WATER TEMP" warning light checker
- ⑯ Brake light switch
- ⑰ Tail/brake light
- ⑱ CDI magneto
- ⑳ Rectifier/Regulator (II)
- ㉑ Fuel sender
- ㉒ Fuel meter
- ㉓ Condenser

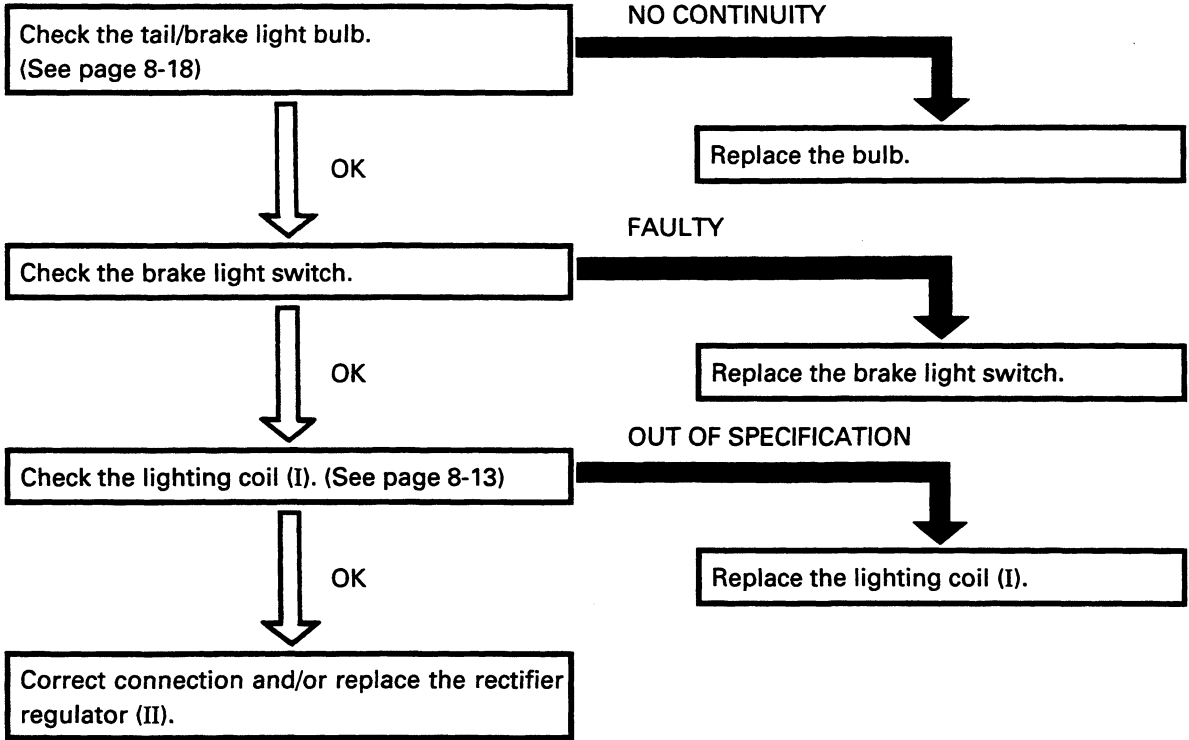






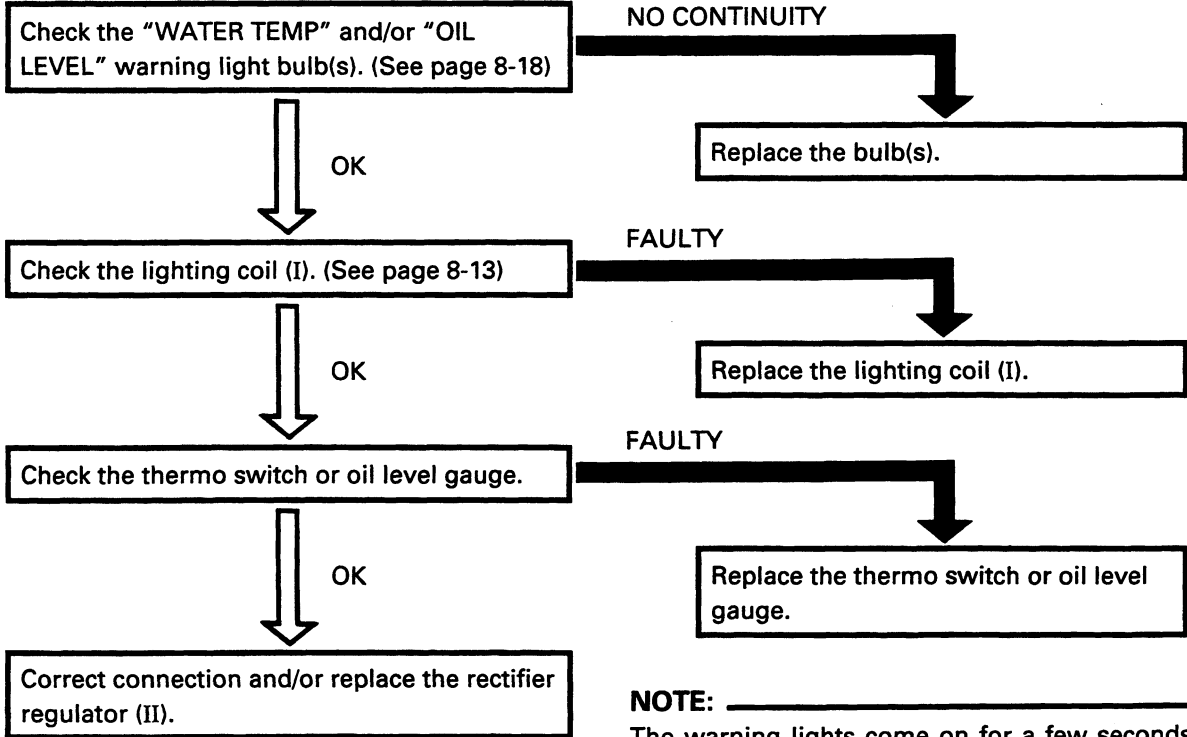
TROUBLESHOOTING

BRAKE LIGHT DOES NOT COME ON.





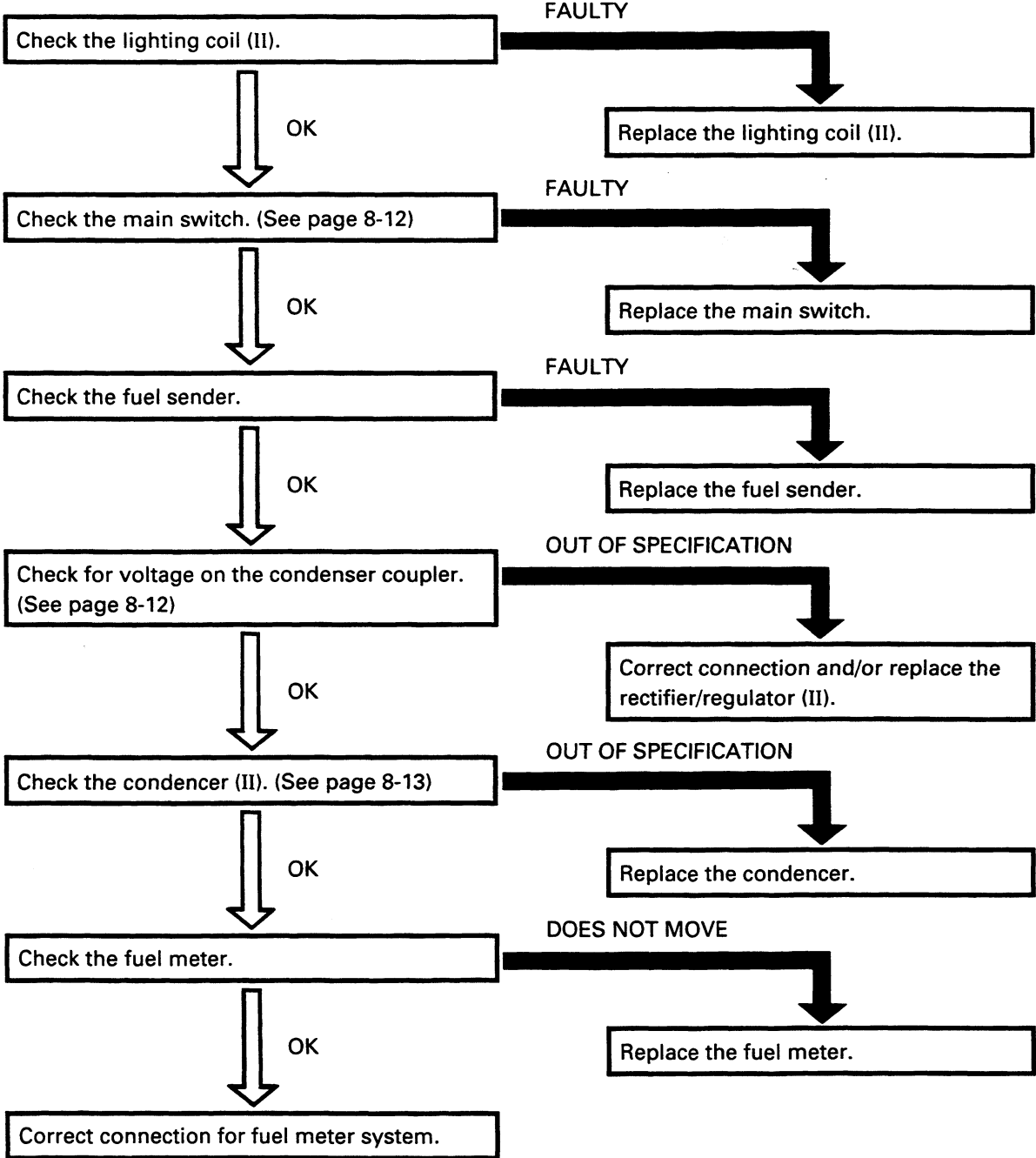
"WATER TEMP" AND/OR "OIL LEVEL" WARNING LIGHTS DO NOT COME ON.

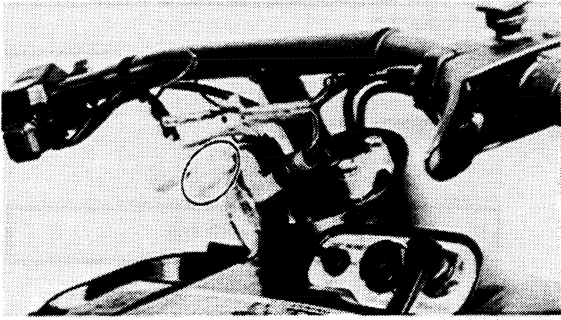


NOTE: _____
 The warning lights come on for a few seconds after the engine starts. If the lights do not come on, check the warning light circuit and bulb(s). If the lights still do not come on, replace the warning light checker(s). Recheck to be sure the warning lights light.



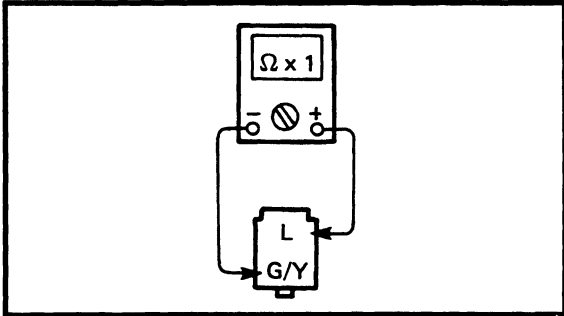
FUEL METER DOES NOT OPERATE





BRAKE LIGHT SWITCH

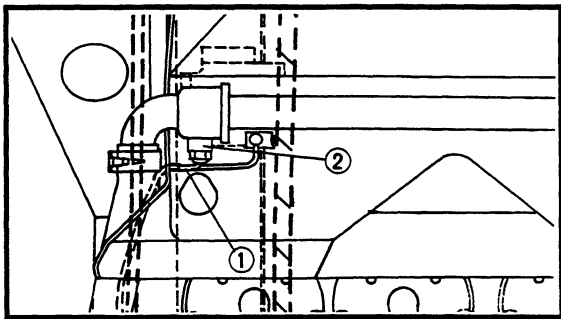
1. Disconnect:
 - Brake light switch coupler
2. Connect:
 - Pocket tester (to brake light switch coupler)



3. Check:
 - Brake light switch continuity
Faulty → Replace.

Switch position	Good condition
Brake lever is operate	○
Brake lever is not operate	x

○ : Continuity x : No continuity

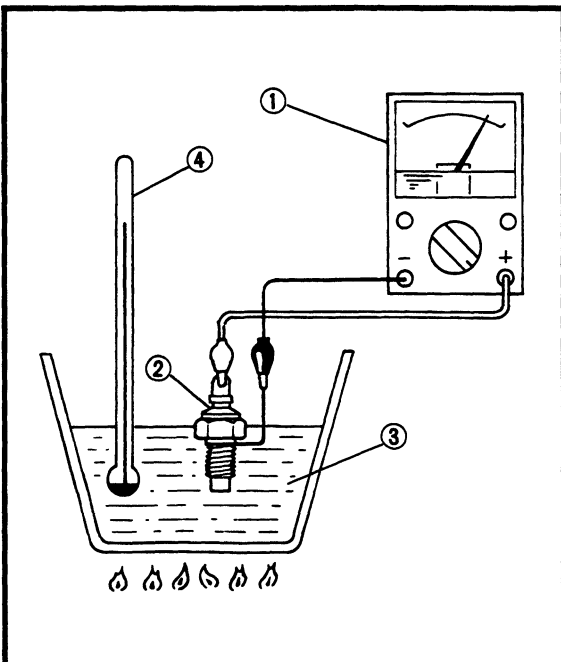


THERMO SWITCH

1. Disconnect
 - Thermo switch lead ① (Green/Red)
2. Remove:
 - Thermo switch ②

CAUTION:

Handle the thermo switch with special care. Never subject it to strong or allow it to be dropped. Should it be dropped, it must be replaced.



3. Connect:
 - Pocket tester (to thermo switch as shown)
4. Immerse the thermo switch in coolant ③ and check the thermo switch for operation.

Coolant temperature	Operation
Less than 98°C (209°F)	The switch is open. ($\infty\Omega$)
102°C (216°F) or more	The switch is closed. (0Ω)

④ Temperature gauge



CAUTION:

Never heat the coolant to a temperature of 120° C (248.5°F) or more.

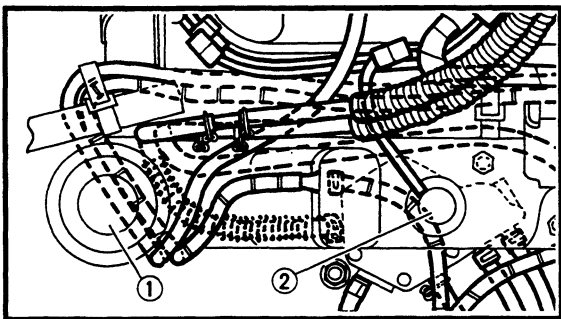
5. If the thermo switch operation is incorrect, replace it.
6. Install the thermo switch, and connect thermo switch lead.



Thermo switch:
7.5 Nm (0.75 m · kg, 5.4 ft · lb)

CAUTION:

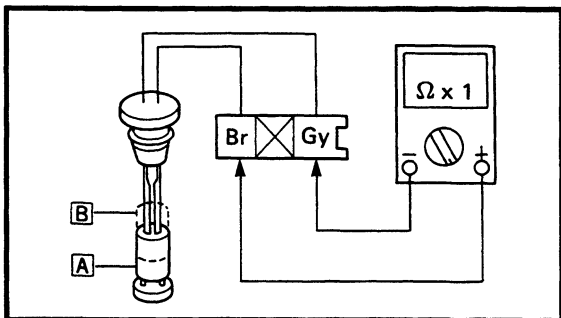
Avoid overtightening.



OIL LEVEL SWITCH

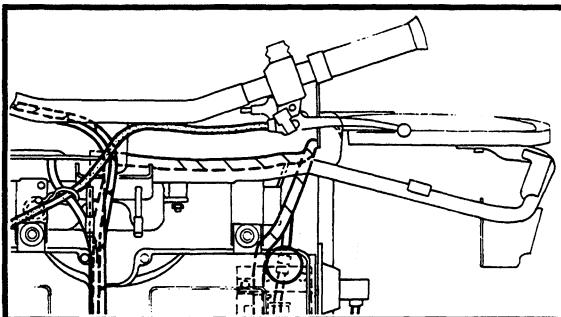
1. Remove:
 - Oil tank ①
 - Oil level gauge ②
2. Connect:
 - Pocket tester (to oil level switch coupler)
3. Check:
 - Oil level switch continuity

Fauty → Replace.



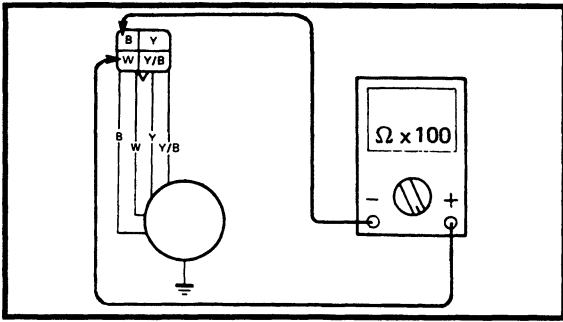
Switch position	Good condition	Bad condition		
A Upright position	x	○	x	○
B Upside down position	○	x	x	○

○ : Continuity x : No continuity



LIGHTING COIL

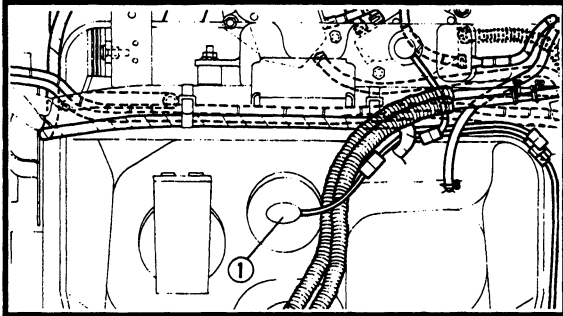
1. Disconnect:
 - CDI magneto coupler
2. Connect:
 - Pocket tester (to lighting coil II leads)



3. Measure:

- Lighting coil resistance
- Out of specification → Replace.

Lighting coil resistance:
 (White, Black)
 0.297 ~ 3.63 Ω at 20°C (68°F)



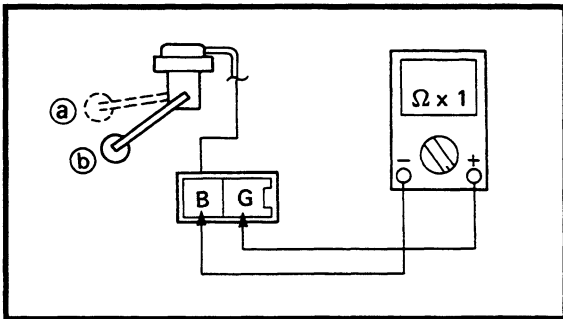
FUEL SENDER

1. Remove:

- Fuel sender ①
(from fuel tank)

2. Connect:

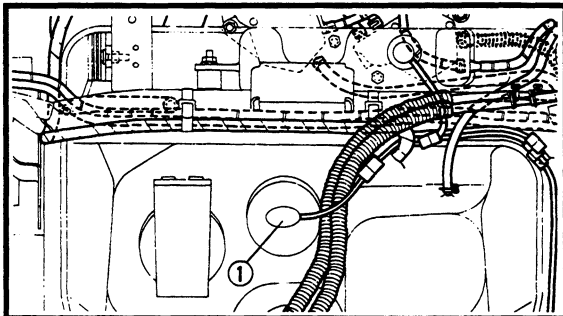
- Pocket tester
(to fuel sender coupler)



3. Check:

- Fuel sender resistance
- Out of specification → Replace.

Fuel Sender Resistance (Up ①):
 4 ~ 10 Ω at 20°C (68°F)
Fuel Sender Resistance (Down ②):
 90 ~ 100 Ω at 20°C (68°F)



FUEL METER

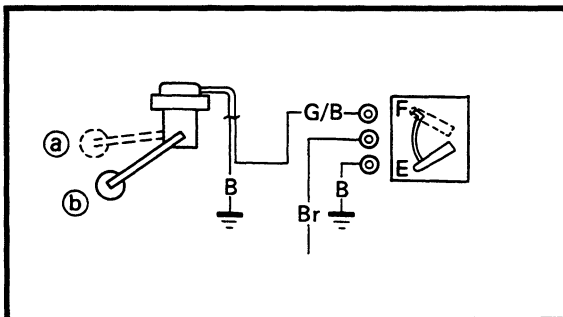
1. Remove:

- Fuel sender
(from fuel tank)

2. Start the engine at idling speed.

3. Check if the fuel meter needle moves towards "F" ① or "E" ②, when moving the float "up" ① or "down" ②.

Faulty → Replace.



Float position	Up ①	Down ②
"F" ①	○	x
"E" ②	x	○

○ : Good x : Faulty

NOTE:

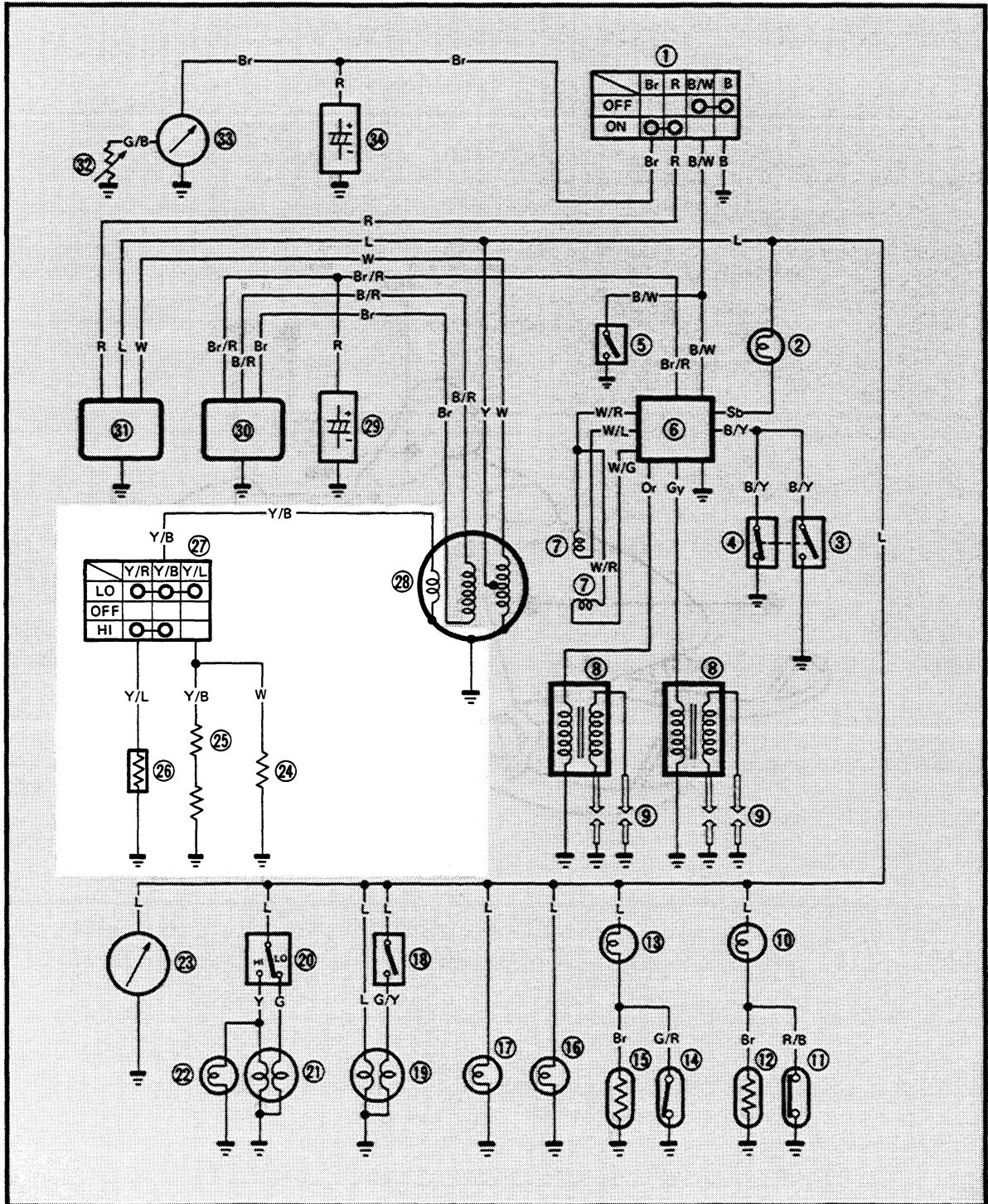
Before reading the meter, stay put the float for more than three minutes respectively at "Up" or "Down".

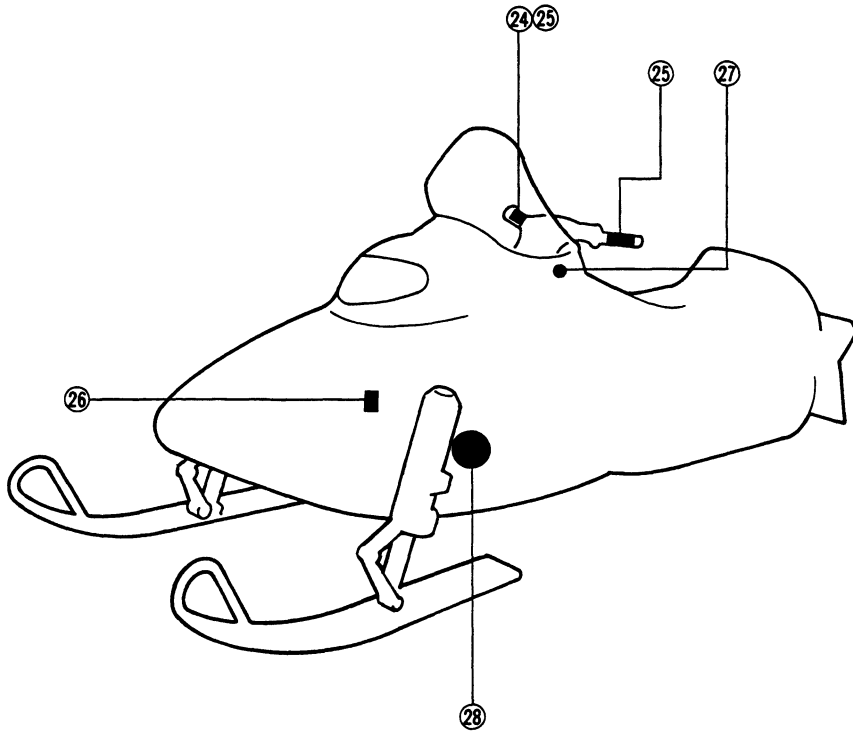


GRIP WARMER SYSTEM

CIRCUIT DIAGRAM

- ②④ Thumb warmer
- ②⑤ Grip warmer
- ②⑥ Resistor
- ②⑦ Grip warmer switch
- ②⑧ CDI magneto

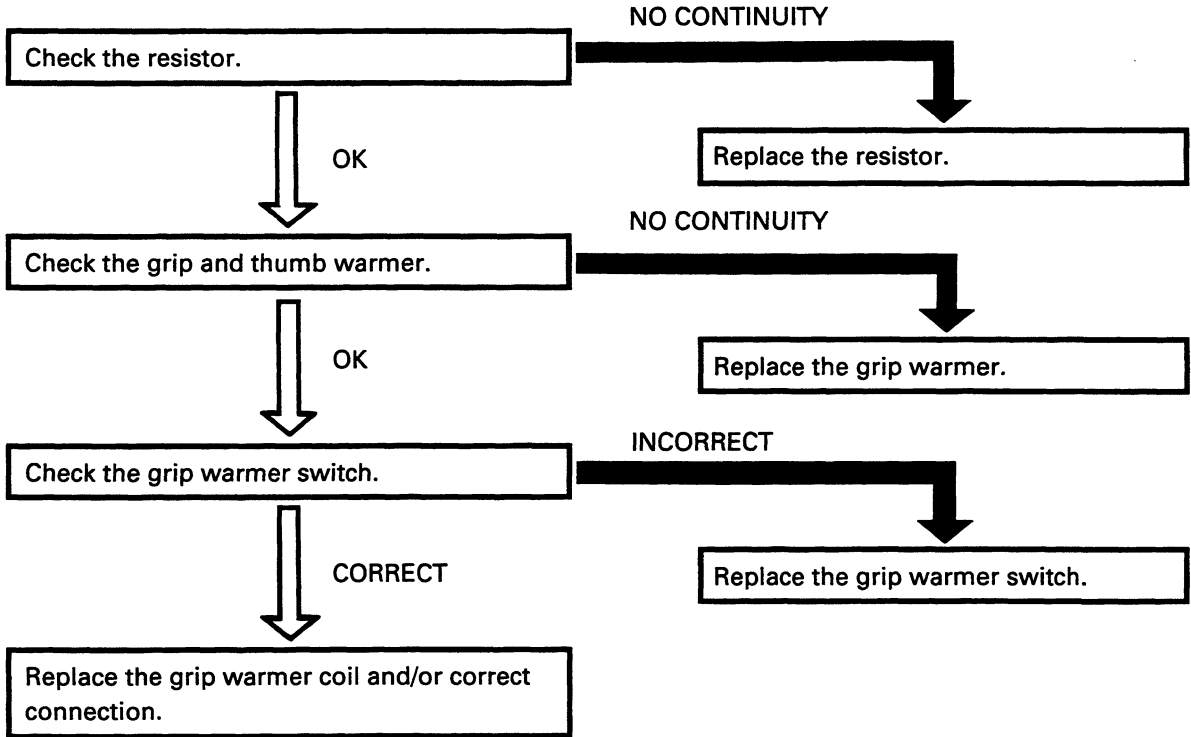


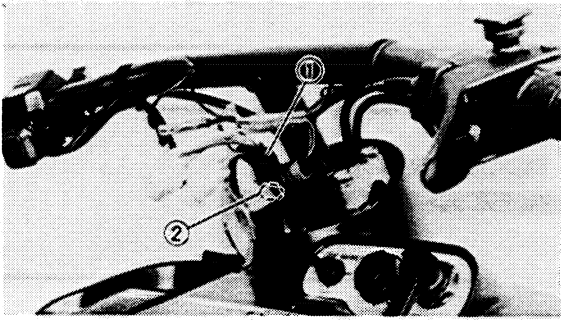




TROUBLESHOOTING

GRIP WARMER DOES NOT OPERATE



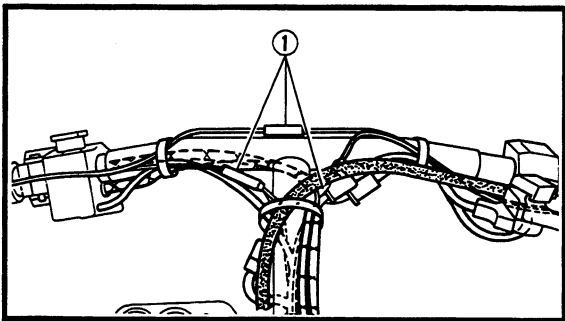
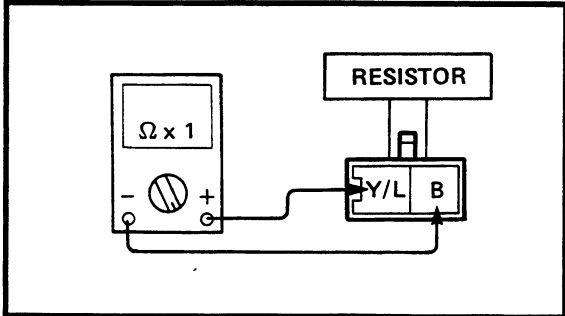


RESISTOR

1. Remove:
 - Resistor ①
 - Resistor coupler ②

2. Connect:
 - Pocket tester (to resistor leads)

3. Check:
 - Resistor continuity
 - No continuity → Replace.

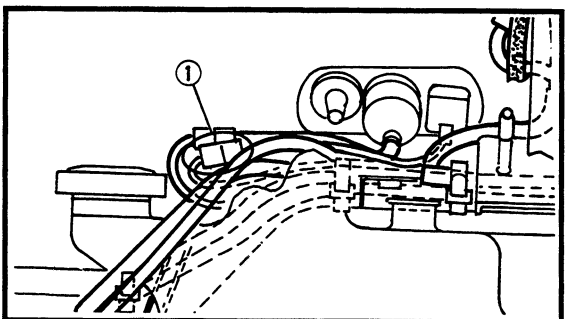
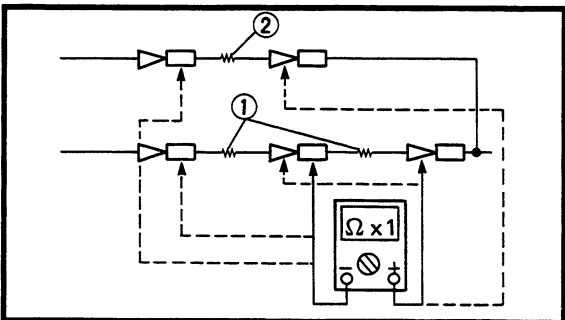


GRIP AND THUMB WARMER COIL

1. Disconnect:
 - Grip warmer leads ①
 - Thumb warmer leads

2. Connect:
 - Pocket tester (to grip warmer coil leads and/or thumb warmer coil leads)

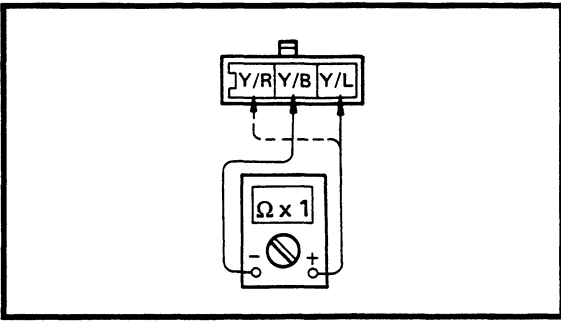
3. Check:
 - Grip warmer ① continuity
 - Thumb warmer ② continuity
 - No continuity → Replace.



GRIP WARMER SWITCH

1. Disconnect:
 - Grip warmer switch connectors ①

2. Connect:
 - Pocket tester (to grip warmer switch leads)



3. Check:

- Grip warmer switch continuity
- Faulty → Replace.

Switch position	Color code		
	Y/R	Y/B	Y/L
LO	○—○	○—○	○—○
OFF			
HI	○—○	○—○	

○—○ Continuity

GRIP WARMER COIL

1. Disconnect:

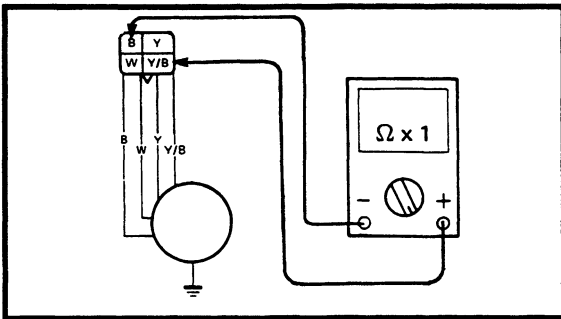
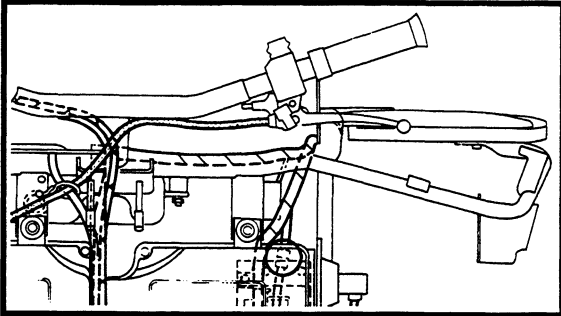
- CDI magneto coupler

2. Connect:

- Pocket tester
(to grip warmer coil leads)

3. Measure:

- Grip warmer coil resistance
- Out of specification → Replace.



Grip warmer coil resistance:
 (Yellow/Black – Black)
 0.92 ~ 1.12 Ω at 20°C (68°F)

**CHAPTER 9.
SPECIFICATIONS**

GENERAL SPECIFICATIONS9-1

MAINTENANCE SPECIFICATIONS9-3

ENGINE9-3

POWER TRAIN9-6

CHASSIS9-9

ELECTRICAL9-10

CABLE ROUTING9-14

VX750/VX750ST WIRING DIAGRAM



SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	VX750	VX750ST
Model Code Number:	8BW	8BX
Frame Starting Number:	8BW-000101	8BX-000101~
Engine Starting Number:	8BW-000101	8BX-000101~
Dimensions:		
Overall Length	2,815 mm (110.8 in)	3,020 mm (118.9 in)
Overall Width	1,125 mm (44.3 in)	←
Overall Height	1,070 mm (42.1 in)	←
Weight:		
Dry Weight (Without fuel and oil)	256 kg (564 lb)	262 kg (578 lb)
Engine:		
Engine Type	Liquid cooled 2-stroke, 7-port	
Induction System	Piston reed valve	
Cylinder Arrangement	Parallel 2-cylinder	
Displacement	743 cm ³ (45.3 cu. in)	
Bore x Stroke	63 x 59.6 mm (2.56 x 2.35 in)	
Compression Ratio	6.5:1	
Starting System	Recoil Hand Starter	
Lubrication System:	Separate Lubrication (YAMAHA AUTOLUBE)	
Engine Oil:		
Type	YAMALUBE 2	
Tank Capacity	2.7 L (2.4 Imp qt, 2.9 US qt)	
Drive Chain Housing Oil:		
Type	Gear oil API "GL-3" SAE #75 or #85	
Capacity	350 cm ³ (12.3 Imp oz, 11.8 US oz)	
Fuel:		
Type	Unleaded gasoline R+M/2	
Tank Capacity	38.0 L (8.4 Imp gal, 10 US gal)	
Carburetor:		
Type/Quantity	TM/33x4	
Manufacturer	MIKUNI	
Spark Plug:		
Type	BR9ES	
Manufacturer	NGK	
Gap	0.7 ~ 0.8 mm (0.028 ~ 0.031 in)	
Transmission:		
Primary Reduction System	V-Belt	
Primary Reduction Ratio	3.9:1 ~ 0.9:1	
Clutch Type	Automatic centrifugal engagement	
Secondary Reduction System	Chain	
Secondary Reduction Ratio	1.591 (35/22)	
Chassis:		
Frame Type	Monocock	
Caster	22.5°	
Ski Stance	977 mm (38.5 in)	

GENERAL SPECIFICATIONS

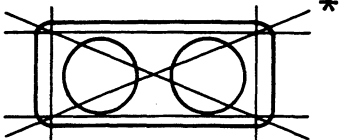
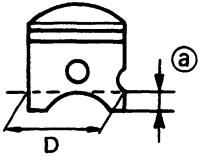
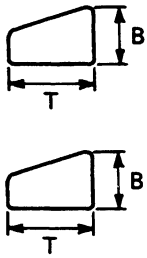
SPEC



Model	VX750	VX750ST
Suspension: Front Suspension Type Rear Suspension Type	Telescopic strut suspension Slide rail suspension	
Track: Track Type Track Width Length on Ground Track Deflection	Internal drive type 381 mm (15.0 in) 710 mm (28.0 in) 20 ~ 25 mm (0.79 ~ 0.98 in)/10 kg (22 lb)	← ← 961 mm (37.8 in) ←
Brake: Brake Type Operation Method	Caliper type disc brake Handle lever, left hand operated	
Electrical: Ignition System/Manufacturer Generator System	CDI/MITSUBISHI Flywheel magneto	
Bulb Wattage x Quantity: Headlight Tail/Brake Light Tachometer Light Speedometer Light	60W/55W x 1 23W/8W x 1 3.4W x 1 3.4W x 2	



MAINTENANCE SPECIFICATIONS
ENGINE

Model		VX750	VX750ST
Cylinder Head: Volume (with spark plug) <Warp Limit>		18.3 cm ³ <0.03mm (0.0012 in)> *Lines indicate straight edge measurement.	
			
Cylinder: Material Bore Size <Taper Limit> <Out-of-Round Limit>		Aluminum alloy with dispersion coating 63.00 ~ 63.02 mm (2.48 ~ 2.481 in) <0.01 mm (0.0004 in)> <0.05 mm (0.0019 in)>	
Piston: Piston Size (D) Measuring Point (a)			
Piston to-Cylinder Clearance <Limit>		0.065 ~ 0.070 mm (0.0026 ~ 0.0028 in) <0.1mm (0.004in)>	
Oversize	1st 2nd	63.0 mm (2.48 in) 18 mm (0.71 in) 63.25 mm (2.490 in) 63.50 mm (2.501 in)	
Piston Ring:			
Sectional Sketch	Top Ring 2nd Ring		Keystone B=1.2 mm (0.047 in) T=2.55 mm (0.1 in) Keystone B=1.2 mm (0.047 in) T= 2.55 mm (0.1 in)
End Gap (Installed):	Top Ring 2nd Ring		0.35 ~ 0.55 mm (0.014 ~ 0.022 in) 0.35 ~ 0.55 mm (0.014 ~ 0.022 in)
Side Clearance	Top Ring 2nd Ring		0.03 ~ 0.05 mm (0.001 ~ 0.002 in) 0.03 ~ 0.05 mm (0.001 ~ 0.002 in)
Coating	Top Ring 2nd Ring		Chrome Plated/Ferox Coating Chrome Plated/Ferox Coating

MAINTENANCE SPECIFICATIONS

SPEC



Model	VX750	VX750ST
<p>Crankshaft: Crank Width "A" Connecting Rod Small End Free Play "F" Connecting Rod Big End Side Clearance "D" Crankshaft Deflection "C": C₁, C₄ C₂, C₃</p> <p>Measuring Points: 1 2</p> <p>Crank Width "B"</p>	<p>55.95 ~ 56.00 mm (2.203 ~ 2.205 in) 0.8 ~ 1.0 mm (0.031 ~ 0.039 in) 0.25 ~ 0.75 mm (0.010 ~ 0.030 in) Below 0.03 mm (0.0012 in) Below 0.04 mm (0.0016 in) 25 mm (0.98 in) 65 mm (3.27 in) 168 mm (6.614 in)</p>	
<p>Big End Bearing: Type</p>	<p>Needle bearing</p>	
<p>Small End Bearing: Type</p>	<p>Needle bearing</p>	
<p>Carburetor: Type/Quantity Manufacturer I.D. Mark Main Jet (M.J.) Pilot Jet (P.J.) Pilot Air Jet (P.A.J.) Pilot Outlet (P.O.) Pilot Screw (P.S.) Throttle Valve (TH. V.) Valve Seat Size (V.S.) Starter Jet (G.S.) Float Height (F.H.) Engine Idle Speed</p>	<p>TM33/4pcs. MIKUNI 8AX-00 #135 #47.5 ø1.2 ø1.0 2 turns out #1.0 ø1.5 ø1.2 13.3 mm (0.524 in) 1,400 ~ 1,600 r/min</p>	
<p>Fuel Pump: Type Manufacturer</p>	<p>DIAPHRAGM TAIYOU GIKEN</p>	
<p>Oil Pump: Pump Cable Adjustment</p>	<p>28 ~ 30 mm (1.10 ~ 1.18 in)</p>	

MAINTENANCE SPECIFICATIONS

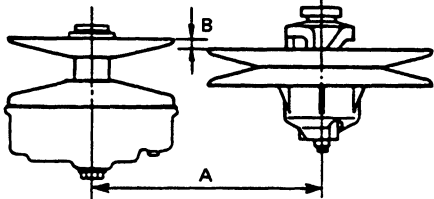
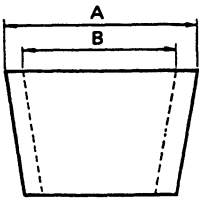
SPEC



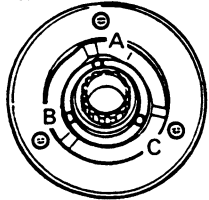
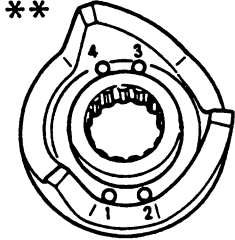
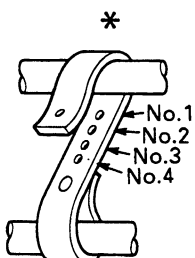
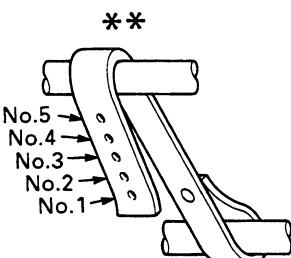
Model	VX750	VX750ST				
Cooling System: Filler Cap Opening Pressure Thermostat Opening Temperature Thermostat Valve Lift Water Pump Type Coolant Type Coolant Mixing Ratio (Coolant : Water) Coolant Capacity Reservoir Tank Capacity	80 ~ 100 kPa (0.8 ~ 1.0 kg/cm ² , 11 ~ 14 psi) 50 ~ 55°C (122 ~ 131°F) 8 mm (0.3 in) at 70°C (158.5F) Impeller Type Long Life Coolant 6 : 4 4.20 L (3.70 Imp qt, 4.44 US qt) 0.20 L (0.18 Imp qt, 0.21 US qt)					
High Altitude Settings						
TEMPERATURE	-30°C (-22°F)	-20°C (-4°F)	-10°C (14°F)	0°C (32°F)	10°C (50°F)	20°C (68°F)
ALTITUDE						
0 ~ 100 m (300 ft)	#140	#137.5				#135
100 ~ 600 m (2,000 ft)	#137.5	#135				#132.5
600 ~ 1,200 m (4,000 ft)	#135	#132.5				#131.3
1,200 ~ 1,800 m (6,000 ft)	#132.5	#131.3				#130, PJ:50
1,800 ~ 2,400 m (8,000 ft)	#131.3	#130, PJ:50				#128.8, PJ:50
2,400 m ~ (8,000 ft ~)	#130, PJ:50	#128.8, PJ:50				#127.5, PJ:50



POWER TRAIN

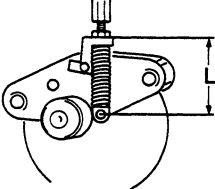
Model	VX750	VX750ST
<p>Transmission: Type Range of Ratio Engagement RPM Shift RPM Sheave Center Distance "A" Sheave Offset "B"</p> 	<p>V-belt Automatic 3.9:1 ~ 0.9:1 Approx 3,300 r/min Approx 8,256 r/min 363.5 ~ 366.5 mm (14.3 ~ 14.4 in) 14.5 ~ 17.5 mm (0.57 ~ 0.69 in)</p>	
<p>V-Belt: Outside Circumference Width "A" Wear Limit "B"</p> 	<p>1,340 mm (52.8 in) 34.5 mm (1.36 in) 33 mm (1.30 in)</p>	
<p>Primary Sheave Spring: Color Code Outside Diameter Wire Diameter Pre-load/Set Length Spring Rate Free Length</p>	<p>Yellow-Pink-Yellow 60 mm (2.36 in) 5.8 mm (0.23 in) 30.0 kg (66.2 lb) 24.5 N/mm (2.5 kg/mm) 77.4 mm (3.05 in)</p>	<p>White-Pink-White ← 5.5 mm (0.22 in) ← 22.5 N/mm (2.25 kg/mm) 78.7 mm (3.10 in)</p>
<p>Primary Sheave Weight: Weight Quantity</p>	<p>8BW-17605-00 3 pcs.</p>	
<p>Secondary Sheave Spring: Color Code Outside Diameter Wire Diameter Twist Angle Free Length</p>	<p>Pink-White 60 mm (2.36 in) 5.5 mm (0.22 in) 33° 100 mm (3.94 in)</p>	



Model	VX750	VX750ST
<p>Hole Position Sheave Side* Spring Seat Side**</p> <p>*  ** </p> <p>Spring Rate Torque Cam Angle</p>	<p>A 3</p> <p>7,669 N/mm (782 kg/mm, 43,792 lb/in) 39°</p>	
<p>Drive Chain: Type Number of Links</p>			DID SC-0624 (SILENT CHAIN) 68
<p>Track: Width Length Pitch Number of Links Deflection at 10 kg (22 lb)</p>	<p>381 mm (15.0 in) 3,072 mm (121 in) 64 mm (2.52 in) 48 20 ~ 25 mm (0.79 ~ 0.98 in)</p>		← 3,456 mm (136.1 in) ← 54 ←
<p>Slide Rail Suspension: Suspension Spring Rate Front Rear</p>			6.75 kg • mm/deg (0.58 in • lb/deg) 2.75 kg • mm/deg (0.23 in • lb/deg)
<p>Suspension Setting Position: Stopper Band Hole Position Front* Rear**</p> <p>*  ** </p>	<p>No.3 No.1</p>	

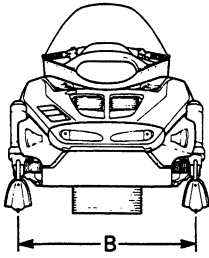
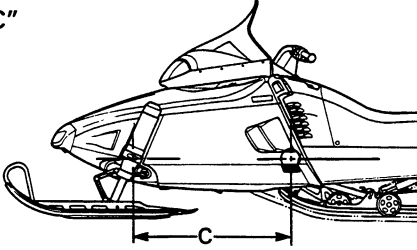
MAINTENANCE SPECIFICATIONS



Model	VX750	VX750ST
Shock Absorber: Damping Force (Extension) Front Rear Damping Force (Compression) Front Rear	126 kg/0.3 m/s 191 kg/0.3 m/s 37 kg/0.3 m/s 44 kg/0.3 m/s	114 kg/0.3 m/s 159 kg/0.3 m/s 53 kg/0.3 m/s 49 kg/0.3 m/s
Slide Runner: Thickness Wear Limit	15 mm (0.6 in) 10 mm (0.4 in)	
Track Sprocket Wheel: Material Number of Teeth	Polyethylene 9T	
Rear Guide Wheel: Material Outside Diameter	Aluminum with rubber 178 mm (7 in)	
Brake: Pad Thickness Pad Wear Limit Pad to Disc Clearance Disc Outside Diameter Disc Thickness Distance "L"		8.2 mm (0.32 in) 4.2 mm (0.17 in) 0.15 ~ 0.30 mm (0.006 ~ 0.012 in) 220 mm (8.66 in) 60 mm (0.24 in) 67.5 ~ 71.5 mm (2.66 ~ 2.81 in)



CHASSIS

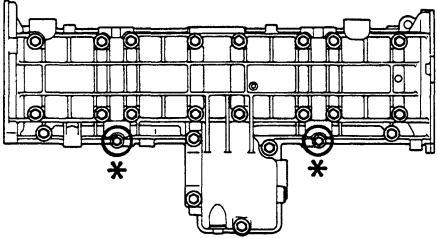
Model	VX750	VX750ST
Frame: Frame Material Seat Height Luggage Box Location	Aluminum and steel 560 mm (22.0 in) Rear Side of Seat	
Steering: Steering Angle (Left) (Right) Ski Alignment Toe-out Size Distance "A"	48° 48° Toe-out 0 ~ 15 mm (0 ~ 0.6 in) 2,007 mm (79.0 in)	← ← ← ← 2,196 mm (86.6 in)
Distance "B"	 977 mm (38.5 in)	←
Distance "C"	 660 mm (26.0 in)	←
Ski: Ski Material Runner Material Length Width Ski Ground Length	Aluminum High Polymer Polyethylene 1,021 mm (40.2 in) 146 mm (5.75 in) 375.6 mm (14.8 in)	
Ski Suspension: Type Travel Spring Type Spring Rate Wire Diameter	T.S.S. 170 mm (6.69 in) Coil Spring 18 N/mm (1.8 kg/mm, 100.8 lb/in) 8.5 mm (0.33 in)	
Shock Absorber: Damping Force (Extension) (Compression) Damping Force adjuster	61 kg, 0.3 m/s 24 kg, 0.3 m/s 5 turns out	



ELECTRICAL

Model	VX750	VX750ST
Voltage:	12V	
Ignition System: Ignition Timing (B.T.D.C.)	10°/8,000 r/min	
CDI: Magneto Model/Manufacturer Pulser Coil Resistance (Color Code) Change Coil Resistance (For Ignition) (Color Code) CDI Unit Manufacturer	MITSUBISHI 50.5 ±10% at 20° C (68°F) (White/Green – White/Red) (White/Blue – White/Red) 2.55Ω ±10% at 20°C (68°F) (Brown – Black/Red) 89A-MITSUBISHI	
Ignition Coil: Model/Manufacturer Minimum Spark Gap Primary Coil Resistance Secondary Coil Resistance	89A –00/YAMAHA 0.7 mm (0.028 in) at 3,000 r/min 0.2Ω ± 20% at 20°C (68°F) 4.9kΩ ± 20% at 20°C (68°F)	
Spark Plug Cap: Type Model/Manufacturer Resistance	Rubber Type BR9ES/NGK 5.0 kΩ ± 25% at 20°C (68°F)	
Charging System: Type	Flywheel Magneto	
Flywheel Magneto: Model/Manufacturer Charging Coil Resistance (Color Code) Lighting Voltage (Minimum) (Maximum) Lighting Coil Resistance (Color Code) Coil Resistance for Grip Warmer (Driver) (Color Code) Heater Coil	MITSUBISHI 0.33 Ω ± 10 % at 20°C (68°F) (White – Black) 11.0 V at 3,000 r/min 15.5 V at 8,000 r/min 0.33 Ω ± 10% at 20°C (68°F) (Yellow – Black) 1.02 Ω ± 10% at 20°C (68°F) (Yellow/Brack – Black) 1.02 Ω ± 10% at 20°C (68°F)	
Grip warmer: Grip warmer resistance Thumb warmer resistance	3 Ω ± 20% at 20°C (68°F) 8 ~ 40 Ω at 20°C (68°F)	
Voltage Regulator: Type Mode/Manufacturer	Rectifier regulator 89A-00/MATSUSHITA	
Fuel Gauge unite: Resistance (Full) (Empty)	4 ~ 10 Ω 90 ~ 100 Ω	

Tightening Torque:

Parts to be tightened	Tightening torque			Remarks
	Nm	m • kg	ft • lb	
ENGINE Crankcase (Front) (Rear) *	26 13	2.6 1.3	19 9.4	Tighten the bolts in two stages.
				
Engine Bracket nut	40	4.0	29	
Engine Bracket bolt	30	3.0	22	
Engine stay bolt (Rod)	45	4.5	32	
Cylinder body nut	28	2.8	20	
Cylinder stud bolt (Crankcase)	12.5	1.25	9.0	
Cylinder head nut	22.0	2.20	16	
Cylinder stud bolt	12.5	1.25	9.0	
Spark plug	28	2.8	20	
PTO shaft holder bolt	26.5	2.65	19.2	
Driven gear Ass'y bolt	45	4.5	32	
Water pump impeller	14	1.4	10	
Water pump Ass'y	10	1.0	7.2	
Oil pump Ass'y	4	0.4	2.9	
Intake manifold	10	1.0	7.2	
Exhaust manifold	25	2.5	7.2	
Starter pulley	30	3.0	22	
Recoil starter	7	0.7	5.1	
Thermostatic cover	7	0.7	5.1	
Thermo switch	28	2.8	20	
Magnet rotor	85	8.5	6.1	
Starter Ass'y	7	0.7	5.1	
Water jacket joint	10	1.0	7.2	
CARBURETOR				
Head cover screw	2	0.2	1.4	
Rever shaft screw	4	0.4	2.9	
Main Jet	0.8	0.08	0.58	
Pilot Jet	0.7	0.07	0.51	
Cynchronization nut	4	0.4	2.9	
Planjer	3	0.3	2.2	
Float chamber plug	9	0.9	6.5	

Tightening Torque:				
Parts to be tightened	Tightening torque			Remarks
	Nm	m • kg	ft • lb	
Primary Sheave (first)	120	12.0	85	Tighten the bolts in two stages. See NOTE.
(final)	60	6.0	43	
Spider and Sliding Sheave	200	20.0	145	Left-hand thread. Apply LOCTITE®
Primary Sheave Cap and Sliding Sheave Roller and Weight (Primary Sheave)	14	1.4	10	
Bolt	6	0.6	4.3	
Screw	3	0.3	2.2	
Secondary Sheave	60	6.0	43	
Compression rod bracket bolt	40	4.0	29	
Engine stay bolt	45	4.5	33	
Driven Sprocket	48	4.8	35	
Chain Housing and Frame	24	2.4	17	Apply LOCTITE®
Chain Housing Cover	10	1.0	7.2	
Chain Housing and Brake Caliper	48	4.8	35	
Bearing Holder (Jackshaft)	43	4.3	31	
Suspension Wheel	75	7.5	54	
Guide Wheel	74	7.4	54	Apply LOCTITE®
Sliding Frame and Slide Runner	3	0.3	2.2	
Slide Rail Suspension Mounting Bolt	68	6.8	49	
Rear Pivot Arm and Bracket	68	6.8	49	
Shock Absorber and Rear Pivot Arm	42	4.2	30	
Rear Suspension Bracket and Rod	42	4.2	30	Apply LOCTITE®
Front Pivot Arm and Sliding Frame	56	5.6	41	
Shock Absorber and Front Pivot Arm	23	2.3	17	
Shock Absorber and Relay Arm	28	2.8	20	
Bracket Shaft and Sliding Frame	20	2.0	14	
Coller (Guide wheel)	6	0.6	4.3	
Front Axle nut	90	9.0	65	
Speedometer Gear	23	2.3	17	

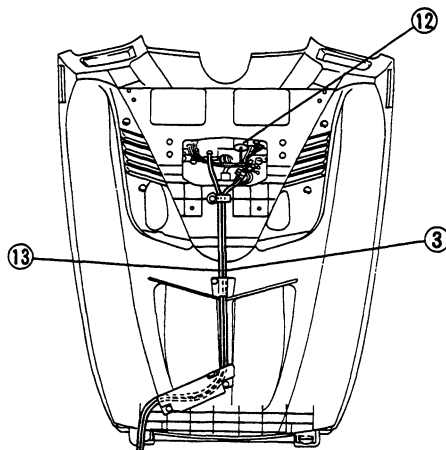
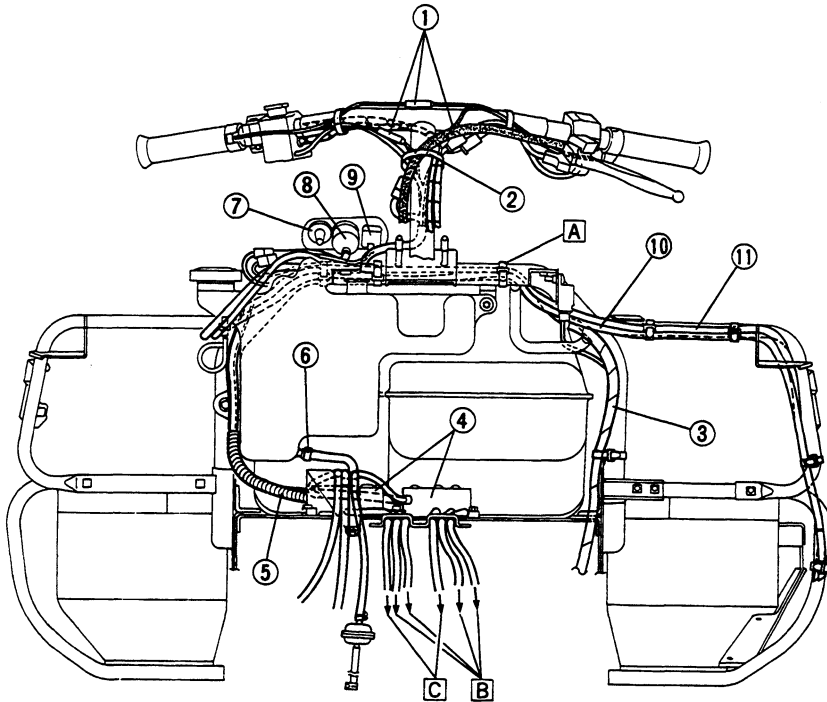


CABLE ROUTING

- ① Grip warmer leads
- ② Band
- ③ Wire harness
- ④ Fuel pump
- ⑤ Fuel hose
- ⑥ Clip
- ⑦ Starter (chock) lever

- ⑧ Main switch
- ⑨ Grip warmer switch
- ⑩ Fuel breather hose
- ⑪ Oil breather hose
- ⑫ Condenser (for fuel)
- ⑬ Speedometer cable

- A Clamp the fuel breather hose, oil breather hose and wire harness.
- B to carburetor
- C to crankcase

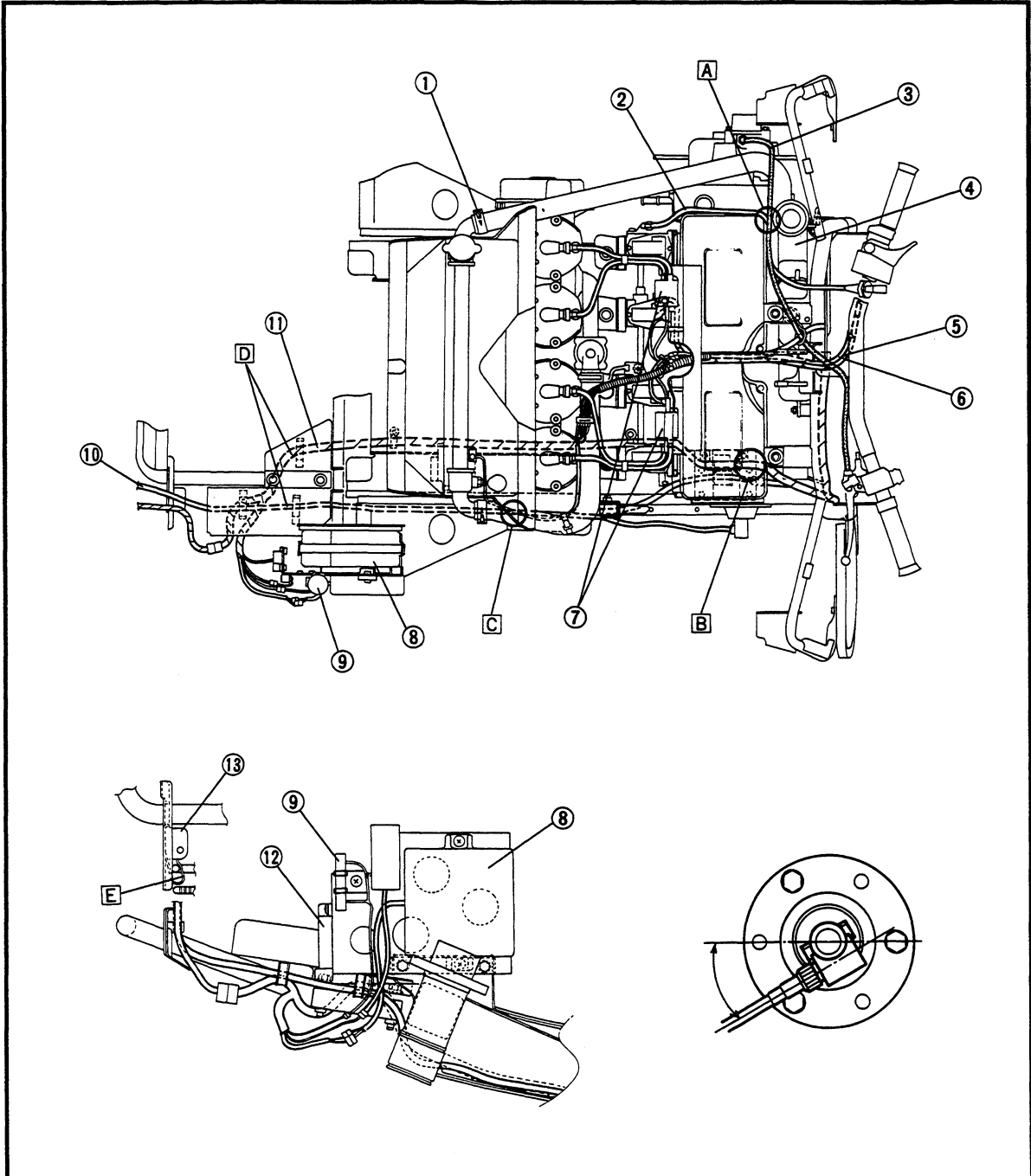




- ① Clip
- ② Starter cable
- ③ Brake cable
- ④ Oil tank
- ⑤ Throttle cable
- ⑥ Oil pump cable
- ⑦ Ignition coil
- ⑧ CDI unit
- ⑨ Condenser
- ⑩ Speedometer cable

- ⑪ Wire harness
- ⑫ Rectifier/regulator
- ⑬ Clamp

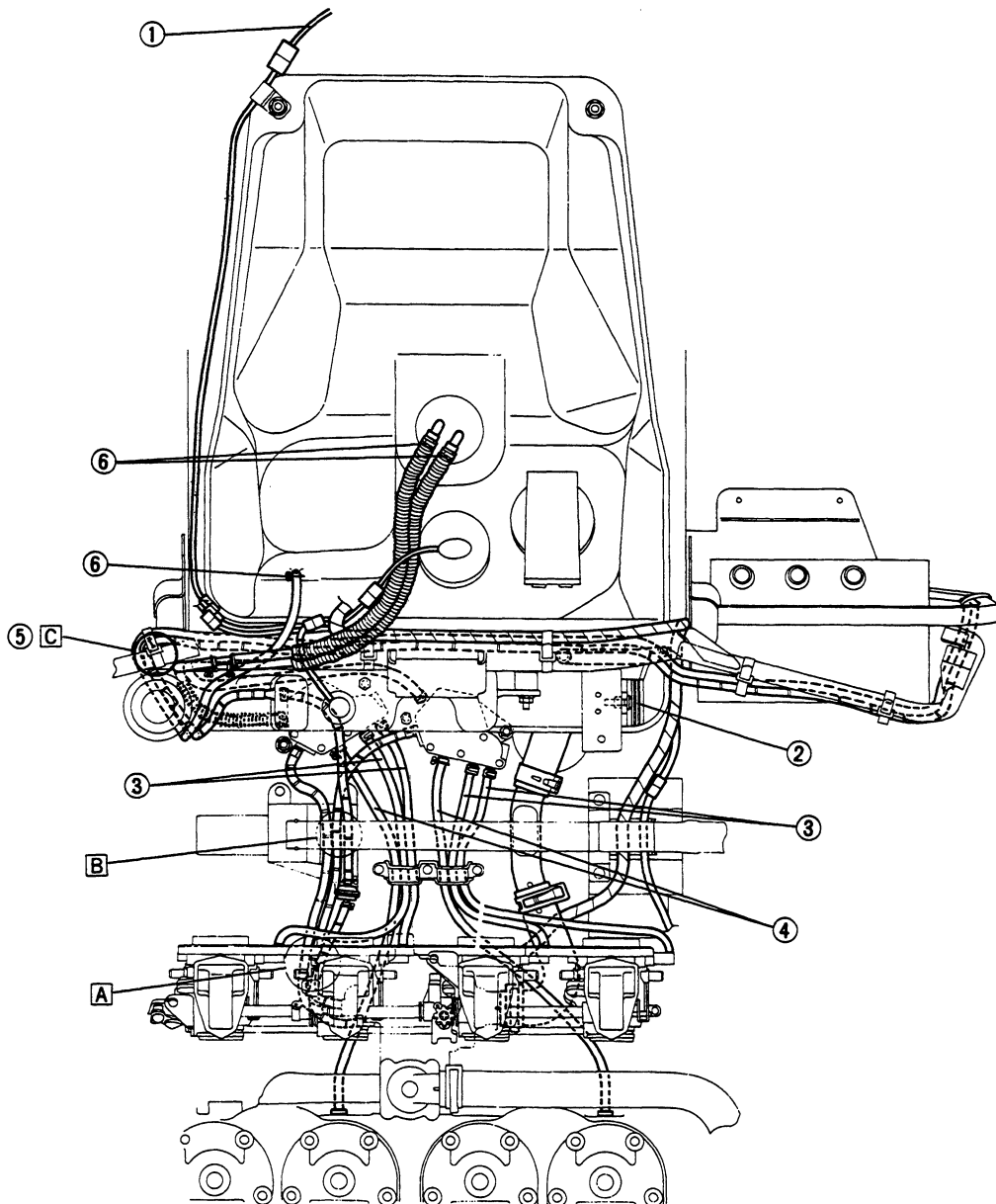
- A Pass the starter cable under the brake cable.
- B Pass the wire harness through the groove of the bracket.
- C Pass the speedometer cable through the hole of the frame.
- D Pass the speedometer and wire harness above the stabilizer.
- E Clamp the speedometer cable only.



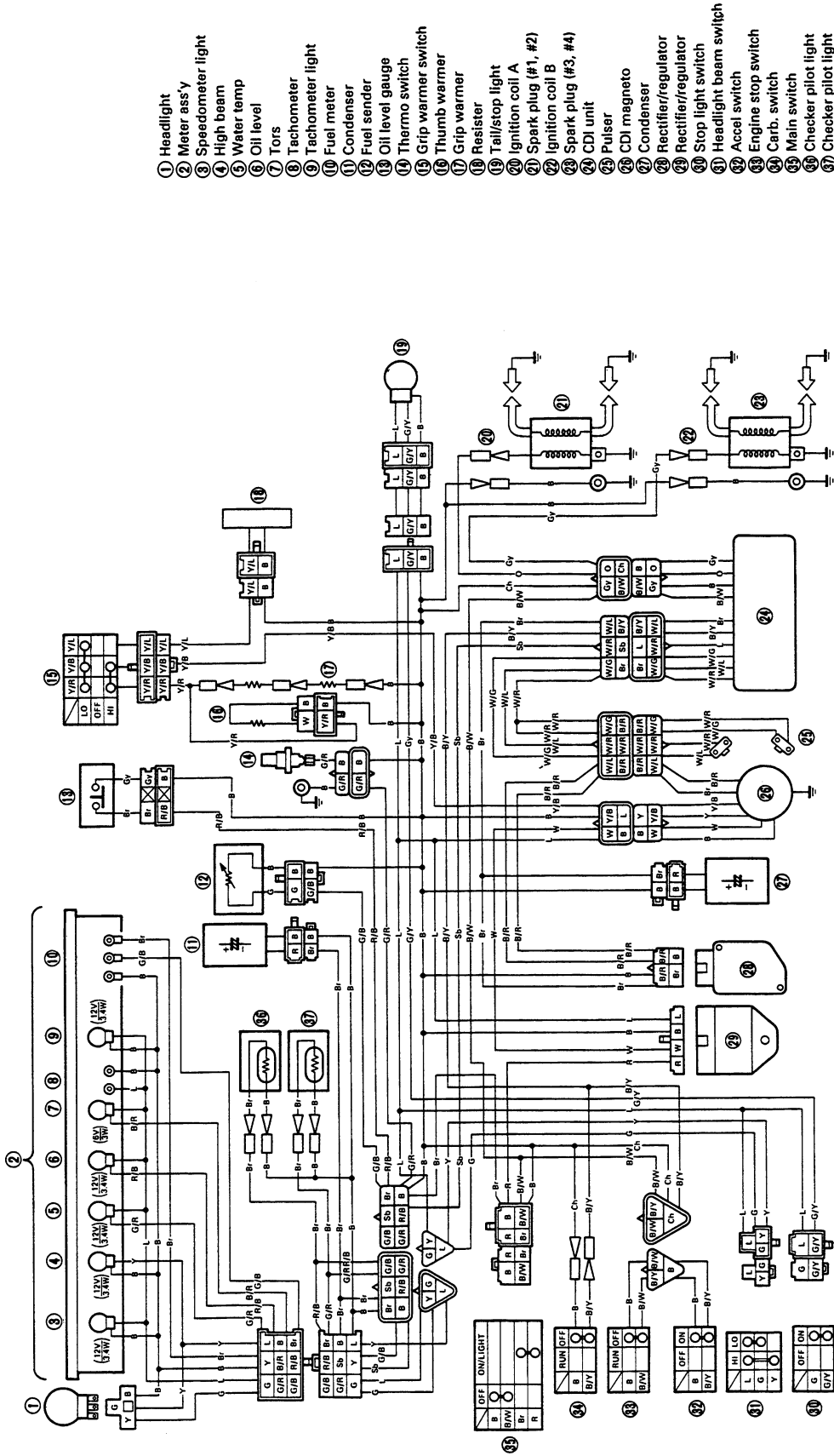


- ① Tail light lead
- ② Rectifier/regulator
- ③ Fuel hose
- ④ Pulser hose
- ⑤ Band
- ⑥ Clip

- A Arrange the hoses so that they will not come into contact with the oil pump bracket.
- B Pass the delivery hose and oil hoses above the bracket.
- C Tie the band and buckle above the frame pipe so that they will not interfere with the starter rope.



VX750/VX750ST WIRING DIAGRAM



- ① Headlight
- ② Meter ass'y
- ③ Speedometer light
- ④ High beam
- ⑤ Water temp
- ⑥ Oil level
- ⑦ Tors
- ⑧ Tachometer
- ⑨ Fuel meter
- ⑩ Fuel sender
- ⑪ Oil level gauge
- ⑫ Thermo switch
- ⑬ Grip warmer switch
- ⑭ Thumb warmer
- ⑮ Resistor
- ⑯ Tail/stop light
- ⑰ Ignition coil A
- ⑱ Spark plug (#1, #2)
- ⑲ Ignition coil B
- ⑳ Spark plug (#3, #4)
- ㉑ CDI unit
- ㉒ Pulsar
- ㉓ CDI magneto
- ㉔ Condenser
- ㉕ Rectifier/regulator
- ㉖ Rectifier/regulator
- ㉗ Stop light switch
- ㉘ Headlight beam switch
- ㉙ Accel switch
- ㉚ Engine stop switch
- ㉛ Carb. switch
- ㉜ Main switch
- ㉝ Checker pilot light
- ㉞ Checker pilot light

COLOR CODE

- B Black
- L Blue
- G Green
- Y Yellow
- R Red
- O Orange

- Ch Chocolate
- Br Brown
- Sb Sky blue
- Gy Gray
- W White
- B/Y Black/Yellow

- B/R Black/Red
- B/W Black/White
- G/Y Green/Yellow
- G/B Green/Black
- G/R Green/Red
- Y/B Yellow/Black

- Y/L Yellow/Blue
- Y/R Yellow/Red
- R/B Red/Black
- W/G White/Green
- W/R White/Red
- W/L White/Blue