



RT180A


ASSEMBLY MANUAL





SYMBOLS USED IN ASSEMBLY MANUAL


In order to simplify descriptions in assembly manuals, the following symbols are used:


 : Coat with lithium soap base grease.

 10 : Tighten to 10 Nm.
(10 Nm = 1.0 m·kg = 7.2 ft·lb)

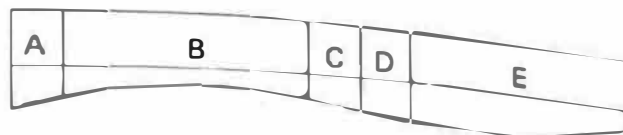
 : Frontward of the machine.

 : Provide a clearance.

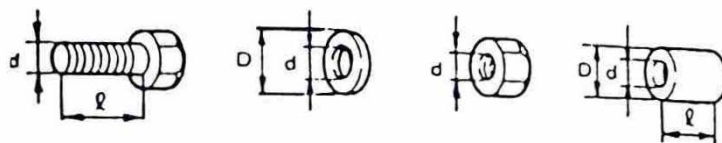
 : Install so that the arrow mark faces upward.

 : Apply a motor oil.

 : Made of rubber or plastics.



- A: Ref No. (indicating the order or operations)
- B: Part name
- C: Quantity of parts per machine.
- D: Place where parts are held.
- V: Stored in vinyl bag.
- C: Stored in carton box.
- S: Fixed inside the crate and/or contained in the styrofoam tray (upper or lower).
- *: Temporarily installed or secured.
- E: Size or material of parts.
- d/D: Diameter of parts.
- ℓ: Length of part.



ex. 5 (0.2) = 5 mm (0.2 in)

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RT180A

ASSEMBLY MANUAL

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1st Edition, December 1989

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Printed in U.S.A.

P/N LIT. 11626-07-30

FOREWORD

This Assembly Manual contains the information required to reassemble the Yamaha machines correctly prior to delivery to the customer. Since some external parts of the machine have been removed at the Yamaha factory for convenience of packing, assembly by the Yamaha dealer is required. It should be noted that the reassembled machine should be thoroughly cleaned, inspected, and adjusted prior to delivery to the purchaser.

NOTICE

The service specifications given in this assembly manual are based on the model as manufactured. Modifications and significant changes in specifications and/or procedures will be forwarded to Authorized Yamaha Dealers. The procedures below are described in the order that the procedures are carried out correctly and completely. Failure to do so can result in poor performance and possible harm to the machine and/or rider.

CONCERNING CRATE DAMAGE: _____

Follow the instructions in the Dealer warranty handbook, Procedure section.

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



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



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 clear.

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SETUP PROCEDURES



⚠ WARNING

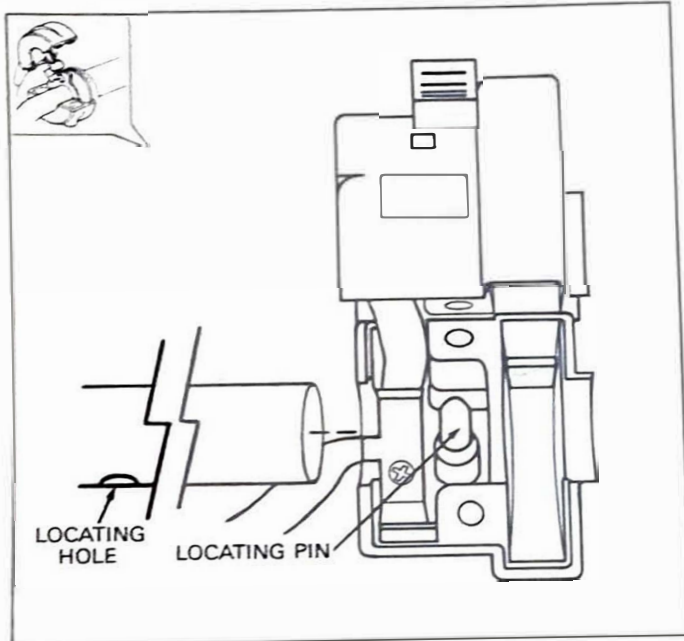
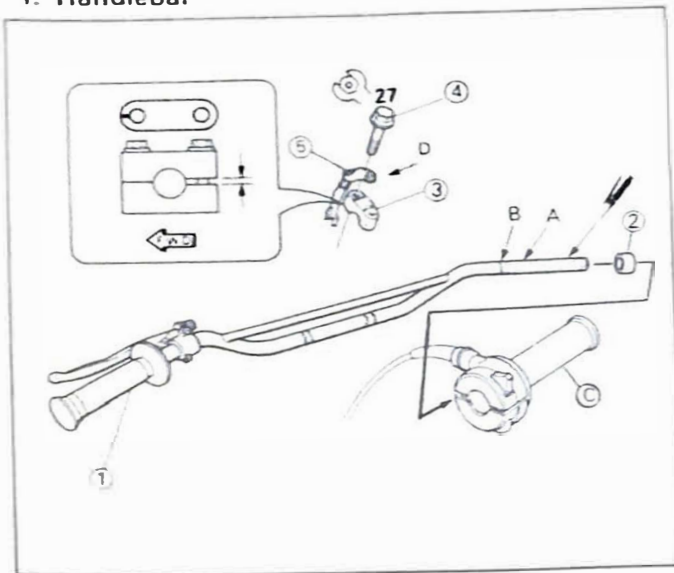
Take care not to put grease on the brake disc or inner surface of the brake pads. If you do so, clean using a rag dampened with a solvent. Foreign material on braking surface can cause impaired braking action.

ADJUSTMENTS AND PREDELIVERY SERVICE



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1. Handlebar



1	Handlebar	1	S	
2	Collar	1	V	
3	Handlebar upper holder	2	V	
4	Flange bolt	4	V	d = 8 (10 32), l = 35 (1 3/8)
5	Oil warning ind. light	1	C	

- A: Clean the right handlebar end. Apply the light coat grease.
- B: Before inserting the handlebar into the throttle grip, make sure the collar is installed.
- C: Loosen the two screws on the handlebar switch and slip the throttle grip and switch over the right handlebar. Carefully align the locating pin into the hole of the handlebar and tighten the two screws.

WARNING

Proper cable and lead routing is essential to assure safe machine operation. REFER TO "CABLE ROUTING".

CAUTION:

Tighten the screws in stages and maintain an equal gap on each side of the handlebar switch.

WARNING

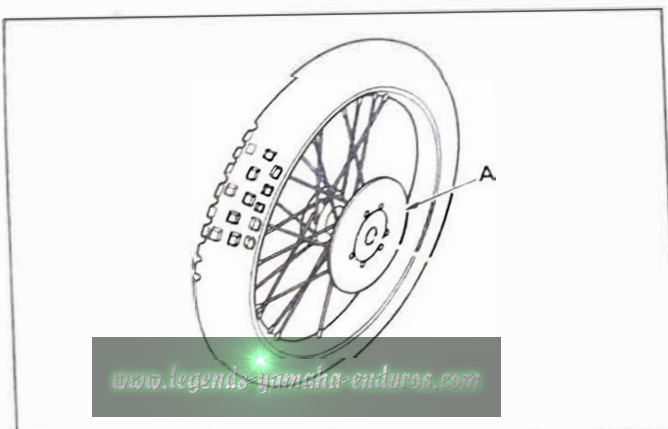
The throttle cables should not be twisted, and make certain the throttle grip rotates on the handlebar freely, without binding.

- D: The handlebar holder should be installed with the punched mark forward. Connect and install the oil warning indicator light together with the right-hand handlebar upper holder.

CAUTION:

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

2. Front wheel

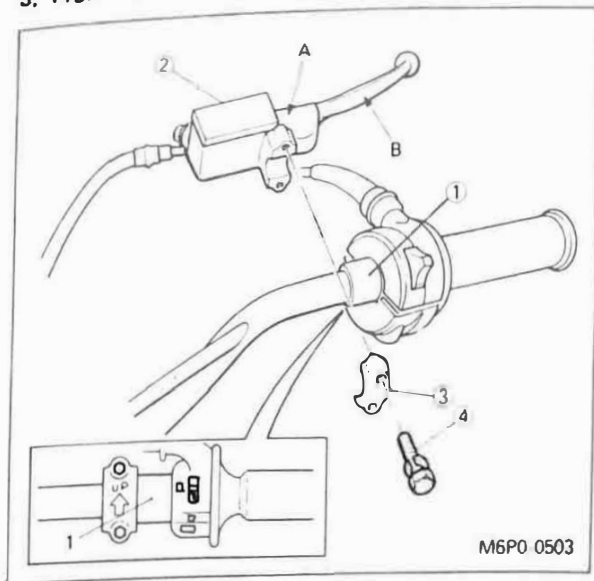


- A: Clean the brake disc.

WARNING

Take care not to put grease on the brake disc or inner surface of the brake pads. If you do so, clean using a rag dampened with a solvent. Foreign material on braking surface can cause impaired braking action.

3. Front brake master cylinder



1	Collar	1		This is installed in "2 Throttle grip" section.
2	Master cylinder	1	*	
3	Master cylinder bracket	1	V	
4	Hexagon bolt with spring washer	2	V	$d = 6 (0.24)$, $\ell = 25 (1.0)$

CAUTION:

First tighten the bolt on the upper side of the bracket, and then tighten the bolt on the lower side.

A: Lubricate the pivoting part of the brake lever.

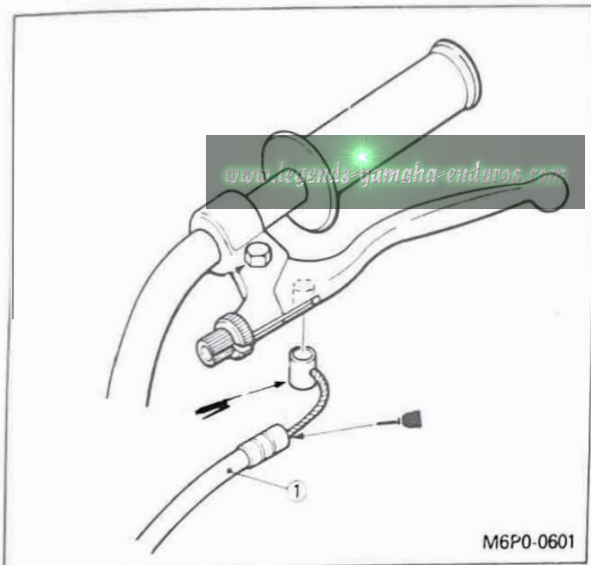
Recommended lubricants:
Yamaha cable lube

B: Check the brake lever for smooth action.

WARNING

Proper hose routing is essential to assure safe machine operation. REFER TO "CABLE ROUTING".

4. Clutch cable



1	Clutch cable	1	*	
---	--------------	---	---	--

A: Lubricate the pivoting part of the clutch lever.

Recommended lubricants:
Yamaha Cable lube or motor oil

B: To install the clutch cable, be sure to proceed as follows:

- Fully loosen the locknut on the lever holder, and screw in the adjuster on the lever holder until tight. Next, align the slit in the adjuster and locknut with the slit in the lever holder.
- Insert the cable end into the lever hole, and hook the outer cable end onto the locknut, then squeeze

the lever. Next, while pulling the outer cable in the direction opposite to the lever, release the lever quickly while releasing it seat the outer cable into the adjuster.

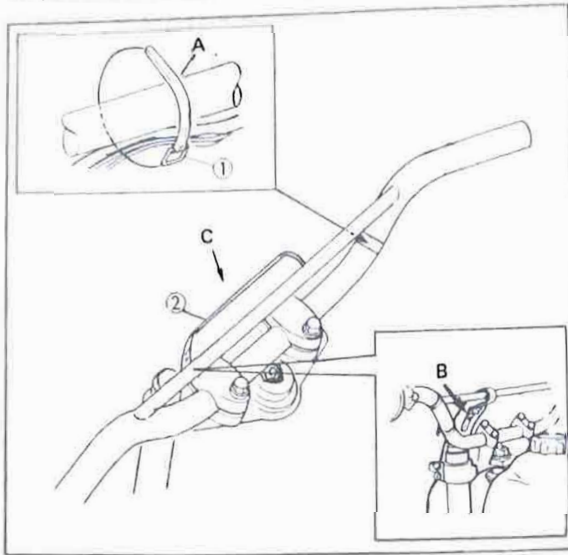
NOTE:

Check the clutch lever for smooth action. REFER TO "ADJUSTMENT AND PRE-DELIVERY SERVICE".

WARNING

Proper cable routing is essential to assure safe machine operation. REFER TO "CABLE ROUTING".

5. Handlebar band/Number plate



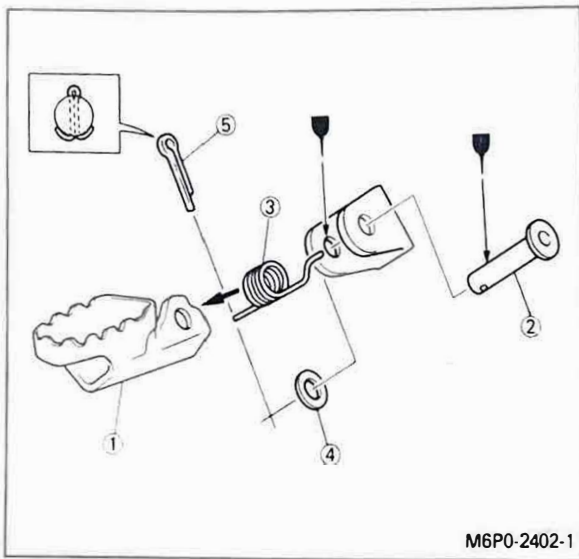
1	Band	1	C	
2	Number plate	1	*	

A: Clamp the engine stop switch lead.

B: Loop the number plate band around the cross bar and secure the back side.

C: Tighten the number plate installation bolt.

6. Footrest

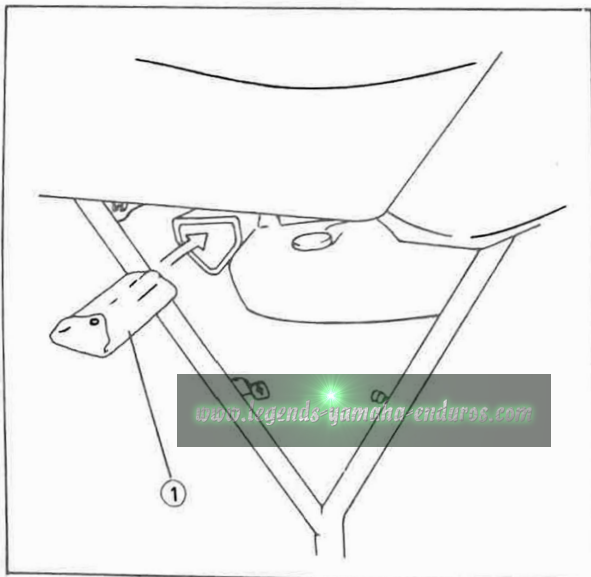


M6P0-2402-1

1	Footrest (left and right)	2	V	
2	Clevis pin	2	V	d = 8(0.31)
3	Return spring	2	V	
4	Plain washer	2	V	d = 8.5(0.33) D = 18(0.71)
5	Cotter pin	2	V	

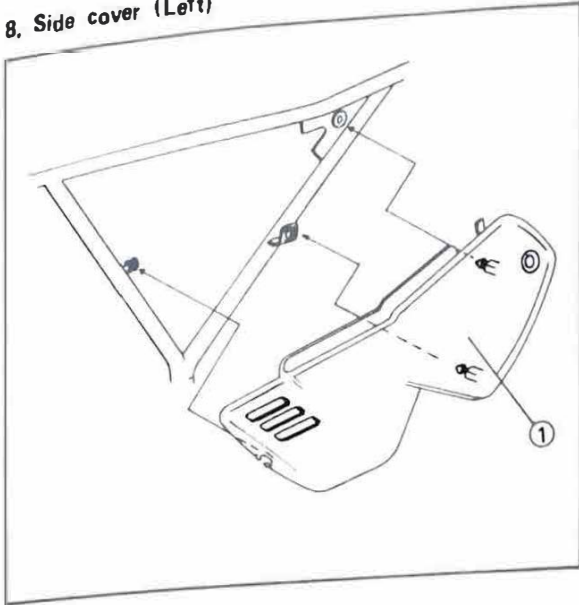
A: Bend the end of cotter pin.

7. Tool kit



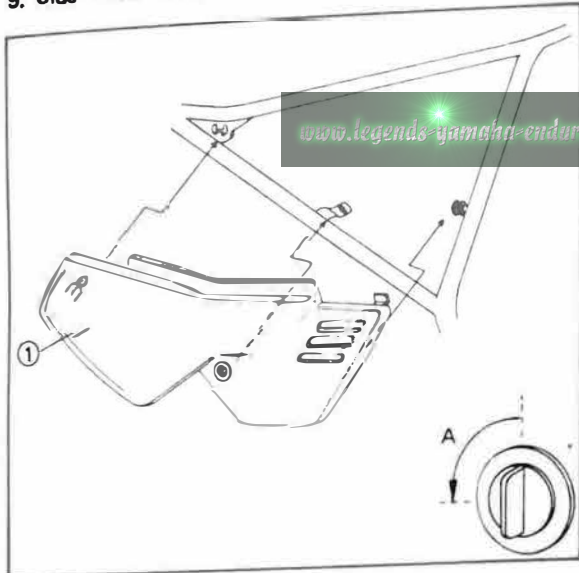
1	Tool kit	1	C	
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8. Side cover (Left)



1	Side cover (Left)	1	C	
---	-------------------	---	---	--

9. Side cover (Right)



1	Side cover (Right)	1	C	
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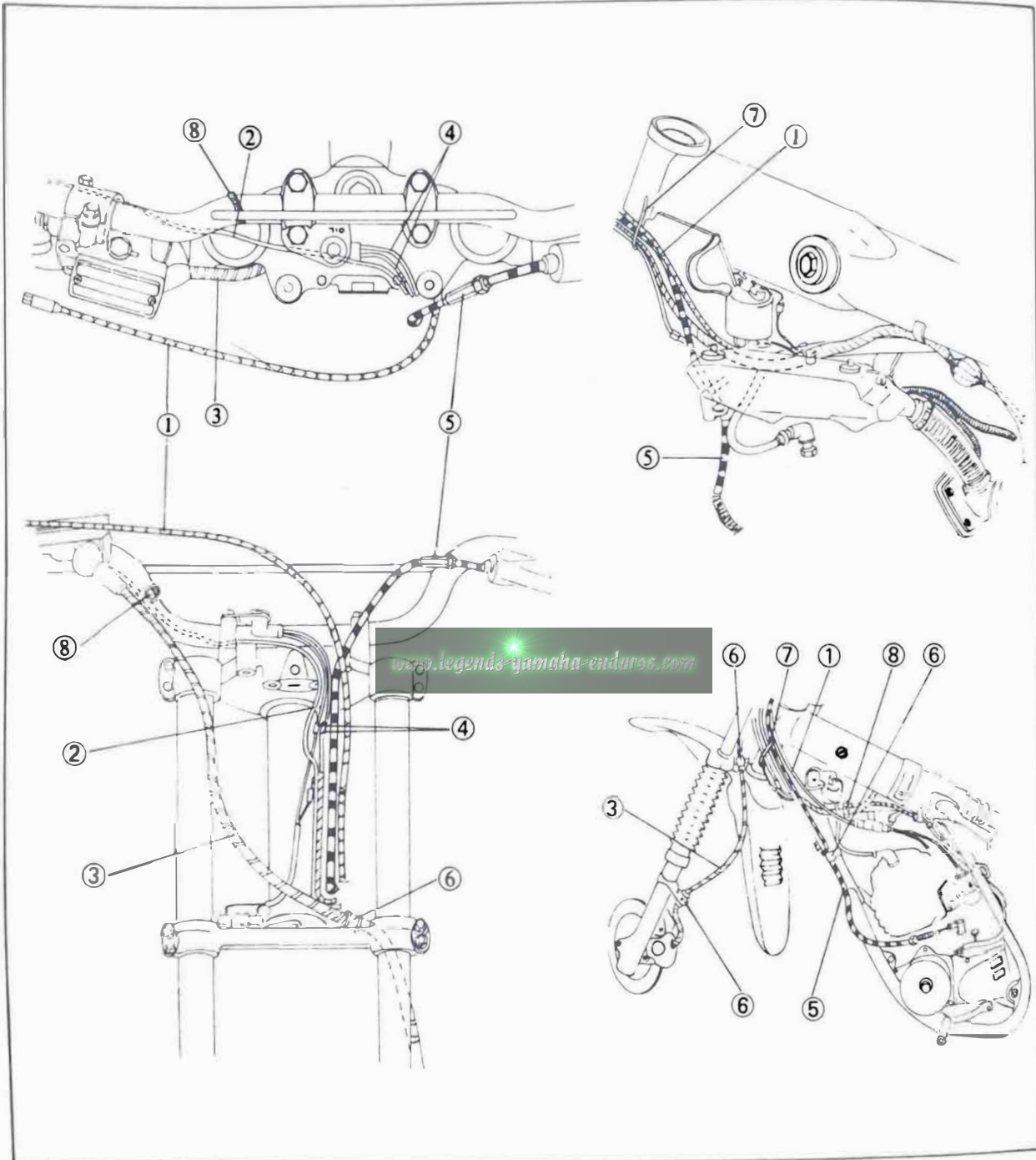
A: To lock, turn the lock knob counterclockwise.

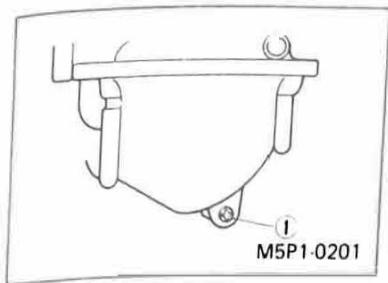
CABLE ROUTING

CAUTION:

Proper cable and lead routing is essential to insure safe machine operation.

- | | |
|--------------------------------------|----------------|
| ① Throttle cable | ⑤ Clutch cable |
| ② Engine stop switch lead | ⑥ Clamp |
| ③ Brake hose | ⑦ Guide |
| ④ "Oil" warning indicator light lead | ⑧ Band |





1, Drain screw

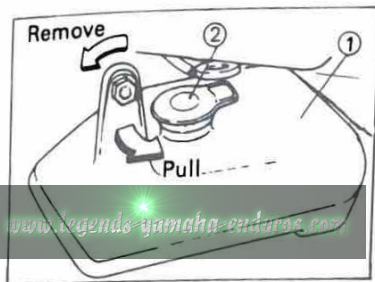
A. Fuel draining

1. Put a rag under the carburetor so fuel does not contact the crankcase.
2. Loosen the drain screw and drain the standing fuel.

⚠ WARNING

FUEL IS HIGHLY FLAMMABLE:

- Always turn off the engine when draining.
- Take care not to spill any fuel on the engine or exhaust pipe(s) / muffler(s) when draining.
- Never drain fuel while smoking or in the vicinity of an open flame.



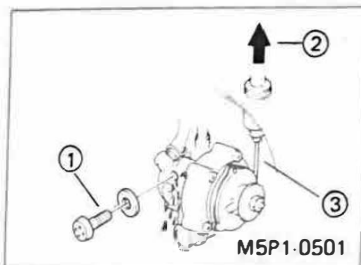
1, Oil tank
2, Oil tank cap

B. Engine oil level check

1. Check Oil level
2. Adjust
Fill the oil tank cap with specific 2-cycle engine oil.

Recommended oil:
Yamalube 2-cycle oil or Air cooled 2-stroke engine oil

Oil capacity:
0.75 L (0.60 Imp qt, 0.80 US qt)



1, Bleed screw
2, Pull
3, Pump cable

C. Bleeding the Autolube pump

The Autolube pump and delivery lines must be bled on the following occasions:

- Setting up a new machine out of the crate.
 - Whenever the Autolube tank has run dry.
 - Whenever any portion of the Autolube system is disconnected.
1. Bleeding the pump case and/or oil pipe:
 - a. Remove the pump cover and remove the bleed screw.
 - b. Keep the oil running out until air bubbles disappear.

NOTE:

Check the bleed screw gasket, and if damaged, replace with a new one.

- c. When air bubbles are expelled completely, tighten the bleed screw.

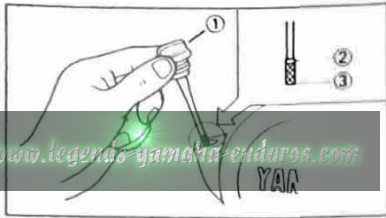
3. Retighten the drain screw securely.

2. Bleeding the pump distributor and/or delivery pipe:
 - a. Start the engine.
 - b. Pull the pump cable all the way out to set the pump stroke to a maximum.

NOTE:

It is difficult to bleed the distributor completely with the pump stroke at a minimum, and therefore the pump stroke should be set to a maximum.

- c. Keep the engine running at about 2,000 r/min for two minutes or so, and both distributor and delivery pipe can be completely bled. Then, install the pump cover.



1. Dipstick
2. Maximum mark
3. Minimum mark

D. Transmission oil level check

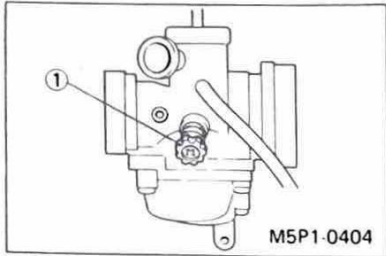
NOTE: To check the oil level, the machine must stand **VERTICALLY** with his both wheels on the ground. A slight tilt toward the side can produce false reading.

1. Place the machine on a level place. Warm up the engine for several minutes.
2. When checking the oil level, stop the engine and remove the dipstick. Rest the dipstick on the threads of the hole.
3. The dipstick has a minimum and maximum mark; the oil level should be between the two. If the level is low add oil to raise it to the proper level.

Recommended oil:
Yamalube 4 (10W30) or SAE 10W30
type SE motor oil

CAUTION:

Do not add any chemical additives to the oil. The transmission oil also lubricates the clutch, and additives could cause the clutch to slip.



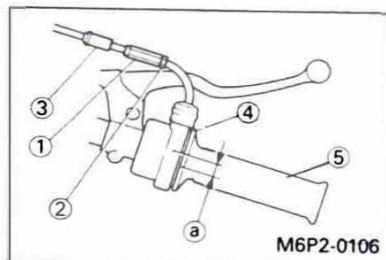
1. Throttle stop screw

E. Engine idle speed

1. Check
 - a. Start the engine and warm it up for a few minutes.
 - b. Check the engine idle speed.

Engine idle: 1,450 ~ 1,550 r/min

2. Adjust
 - Turning the throttle stop screw in (Clockwise) → Engine speed increases.
 - Turning the throttle stop screw out (Counterclockwise) → Engine speed decreases.



- | | |
|-------------------|------------------|
| 1. Adjuster | 4. Grip flange |
| 2. Locknut | 5. Throttle grip |
| 3. Throttle cable | a. Free play |

F. Throttle grip free play

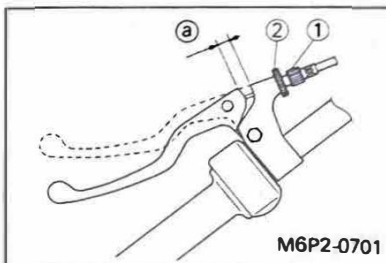
1. Check

Free play: 3 ~ 5 mm (0.12 ~ 0.20 in)

2. Adjust

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

- a. Loosen the locknut
- b. Turn the adjuster in or out until the correct free play is obtained.
- c. Tighten the locknut.



- | | |
|-------------|--------------|
| 1. Adjuster | a. Free play |
| 2. Locknut | |

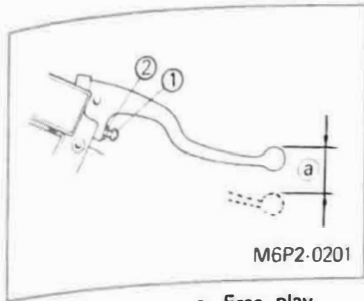
G. Clutch lever free play

The clutch should be adjusted to suit the rider's preference within specified free play at the clutch lever pivot. Adjustment is made at two place, though normally the adjustment is required only at the lever holder.

1. Check

Free play: 2 ~ 3 mm (0.08 ~ 0.12in)

2. Adjust
 - a. Loosen the locknut
 - b. Turn the adjuster in or out until the adjustment is suitable.
 - c. Tighten the locknut.



1. Adjuster
2. Locknut

a. Free play

H. Front brake lever free play

1. Check

Free play: 10 ~ 20 mm (0.40 ~ 0.80 in)

2. Adjust

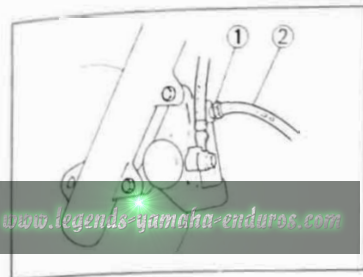
- a. Loosen the locknut
- b. Turn the adjuster in or out until the adjustment is suitable.
- c. Tighten the locknut.

NOTE: _____

Make sure the brake is working properly.

⚠ WARNING

A soft or spongy feeling in the brake lever can indicate the presence of air in the brake system. This air must be removed by bleeding the brake system before the machine is operated. Air in the system will result in greatly diminished braking capability and can result in loss of control and an accident. Inspect and bleed the system if necessary.



1. Bleed screw
2. Transparent hose

I. Bleeding the brake system

⚠ WARNING

Bleed the brake system if:

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

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

Air bleeding steps:

- a. Add proper brake fluid to the reservoir.
- b. Install master cylinder cap.
Be careful not to spill any fluid or allow the reservoir to overflow.
- c. Connect the clear transparent hose (4.5 mm, 0.18 in inside dia.) tightly to the caliper bleed screw ①
- 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 this 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 of the air bubbles have been removed from the systems.

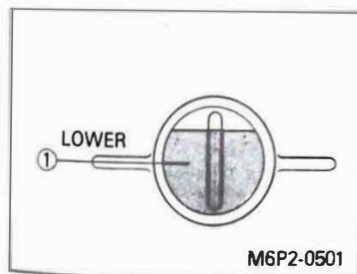
NOTE: _____

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

- j. Add brake fluid (DOT #4) until the reservoir is full.

⚠ WARNING

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



1. "LOWER" level

J. Brake fluid level

1. Check

The brake fluid level is satisfactory if it is over the "LOWER" level.

2. Adjust

To increase brake fluid level, add the brake fluid to proper level.

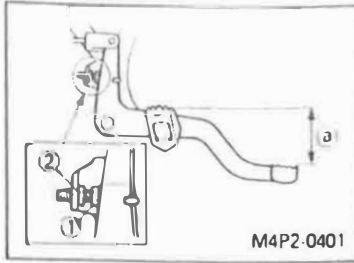
Recommended brake fluid:
DOT # 4

NOTE: _____

Check the operation of the brake after refilling with the brake fluid.

⚠ WARNING

- Use only designated quality brake fluid to avoid poor brake performance.
- Refill with same type and brand of brake fluid; mixing fluids could result in poor brake performance.
- Be sure that water or other contaminants do not enter master cylinder when refilling.
- Clean up spilled fluid immediately to avoid erosion of painted surfaces or plastic parts.



1. Adjuster
2. Locknut
- a. Pedal position

K. Rear brake pedal position adjustment

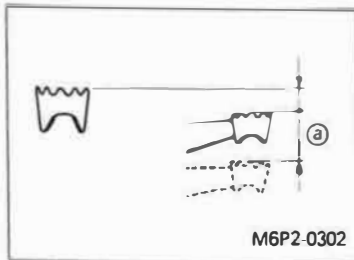
The rear brake pedal position should be adjusted to suit the rider's preference within the specified position at the end of the brake pedal.

Brake pedal position (a) :
20 mm (0.8 in)

⚠ WARNING

After adjusting the pedal position, the brake pedal free play should be adjusted.

1. Loosen the locknut
2. Turn the adjuster in or out until the
3. Tighten the locknut.



- a. Free play

L. Rear brake adjustment

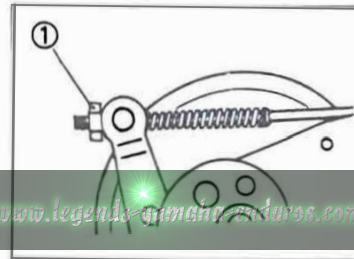
The rear brake should be adjusted to suit the rider's preference within specified free play at the end of the brake pedal. Adjustment is made at the brake shoe plate.

Free play (a) :
20 ~ 30 mm (0.8 ~ 1.2 in)

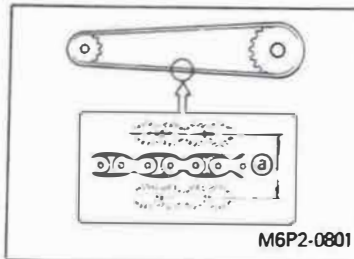
1. Turn the adjuster on the brake rod clockwise to reduce play or counter-clockwise to increase play, until the adjustment is suitable.

⚠ WARNING

The rear brake pedal adjustment must be checked any time the drive chain is adjusted or the rear wheel is removed and then re-installed.



1. Adjuster



- e. Drive chain slack

M. Drive chain slack

1. Check

NOTE:

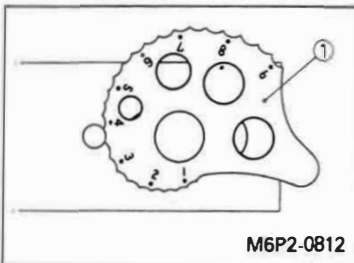
Before checking the drive chain slack, rotate the rear wheel several turns and check slack at several points to find the tightest point. Check the chain slack with the rear wheel in this "tightest" position.

- a. Place the machine on a level place.

Drive chain slack (a) :
40 mm (1.6 in)

NOTE:

Be sure the machine is positioned straight up without an operator on it when checking the chain slack.



1. Chain adjuster

2. Adjust

- a. Loosen the rear brake adjuster.
- b. Remove the cotter pin and loosen the rear wheel axle nut.
- c. Turn the chain puller both left and right, until axle is situated in same puller slot position on each side.
- d. Tighten the rear axle nut.

Axle nut torque:
85 Nm (8.5 m · kg, 61 ft · lb)

- e. Insert the cotter pin, and bend the the ends of the cotter pin.
- f. Adjust the brake pedal free play.

APPENDICES

SERVICE DATA

Model	RT 180A	
Engine idling speed:	1,450 ~ 1,550 r/min	
Spark plug Type Gap	B8ES (N.G.K.) 0.6 ~ 0.7 mm (0.024 ~ 0.028 in)	
Fuel: Recommended fuel Fuel tank capacity: Total	Unleaded regular gasoline 13 L (2.86 Imp gal, 3.43 US gal)	
Tire pressure (Cold tire pressure):	Front	Rear
	100 kPa (1.0 kgf/cm ² , 14 psi)	100 kPa (1.0 kgf/cm ² , 14 psi)

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TIGHTENING TORQUE

Part to be tightened	Bolt/Nut size	Tightening torque		
		Nm	m·kg	ft·lb
Engine:				
Spark plug	M14 X 1.25	20	2.0	14
Transmission oil drain bolt	M12 X 1.25	20	2.0	14
Chassis:				
Engine (front) and frame	M8 X 1.25	25	2.5	17
Engine (rear upper) and frame	M8 X 1.25	25	2.5	17
Engine (rear lower) and frame	M10 X 1.25	39	3.9	28
Pivot shaft	M12 X 1.25	43	4.3	31
Handlebar crown and inner tube	M8 X 1.25	23	2.3	17
Handlebar crown and steering shaft	M14 X 1.25	54	5.4	39
Handlebar holder and handlebar	M8 X 1.25	15	1.5	11
Ring nut (Steering shaft) (See NOTE below)	M25 X 1.0	6	.6	5.1
Rear shock absorber and frame	M10 X 1.25	25	2.5	18
Front wheel axle and nut	M14 X 1.5	85	8.5	61
Rear wheel axle and nut	M14 X 1.5	85	8.5	61

NOTE:

1. First, tighten the ring nut approximately 38 Nm (3.8 m · kg, 27 ft · lb) by using the torque wrench, then loosen the ring nut one turn.
2. Retighten the ring nut to specification.

STANDARD EQUIPMENT

No.	Part name	Q'ty
1	Owner's manual	1
2	Tips and practice guide	1
3	Owner's tool kit *	1

* OWNER'S TOOL KIT

No.	Part name	Q'ty
1	Owner's tool bag	1
2	Spanner (10-12)	1
3	Spanner (14-17)	1
4	Special spanner (19-22)	1
5	Special spanner	1
6	Spark plug box	1
7	Handle box	1
8	Screwdriver grip	1
9	Screwdriver bit (Phillips head – Slotted head)	1
10	Plyer	1

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