0E001

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. 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.

0E022

SRX600/SRX600S
SRX700/SRX700S
MSRX700P
SERVICE MANUAL

0E011

HOW TO USE THIS MANUAL

Particularly important information is distinguished in this manual 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.

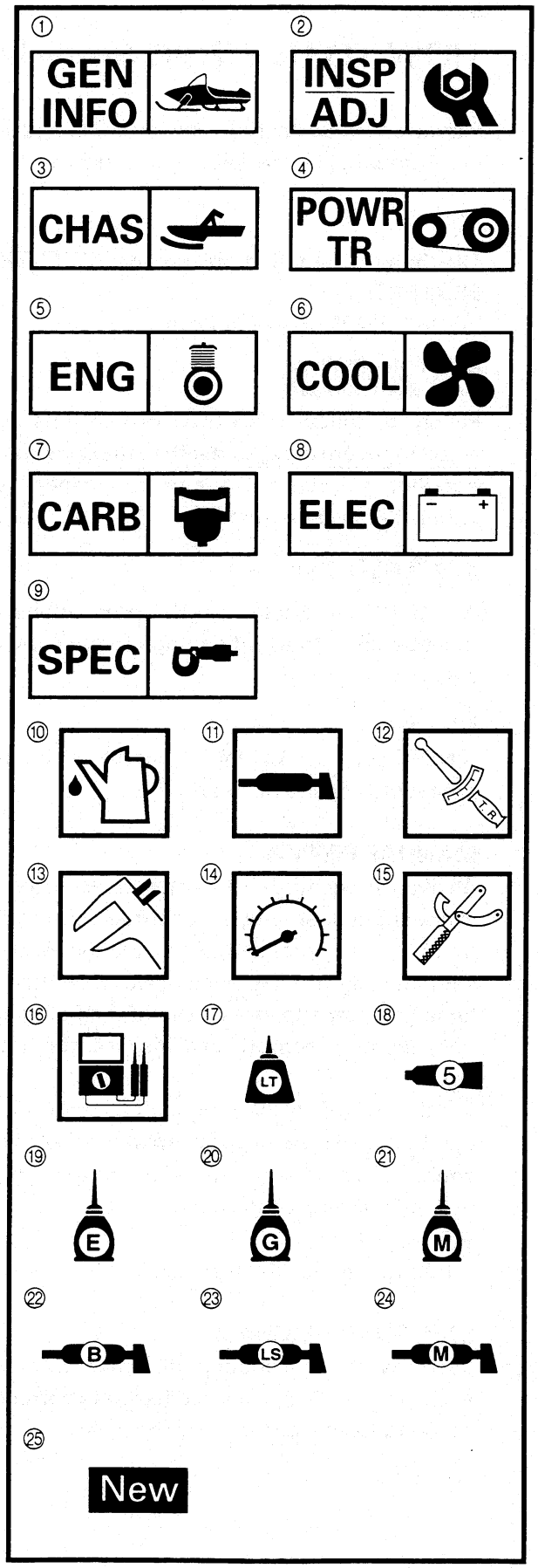
MANUAL FORMAT

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 to facilitate correct disassembly and assembly procedures.



0E031

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 Engine overhaul
⑥ Cooling system
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 ㉕ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑰ Apply locking agent (LOCTITE®)
⑱ Apply Yamabond No.5®
⑲ Apply engine oil
⑳ Apply gear oil
㉑ Apply molybdenum disulfide oil
㉒ Apply wheel bearing grease
㉓ Apply low-temperature lithium-soap base grease
㉔ Apply molybdenum disulfide grease
㉕ Use new one

0S042

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CHAPTER 1. GENERAL INFORMATION

CHAPTER 2. PERIODIC INSPECTIONS AND ADJUSTMENTS

CHAPTER 3. CHASSIS

CHAPTER 4.
POWER TRAIN

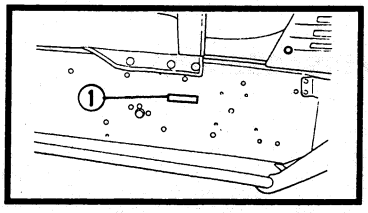
CHAPTER 5.
ENGINE

CHAPTER 6.
COOLING SYSTEM

CHAPTER 7. CARBURETION

CHAPTER 8. ELECTRICAL

CHAPTER 9. SPECIFICATIONS



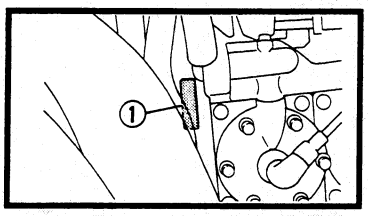
1E001

GENERAL INFORMATION

MACHINE IDENTIFICATION

FRAME SERIAL NUMBER

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



ENGINE SERIAL NUMBER

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

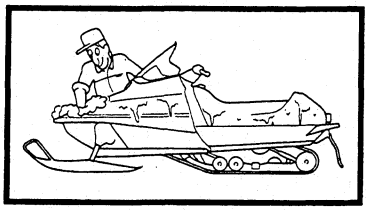
NOTE:

Designs and specifications are subject to change without notice.

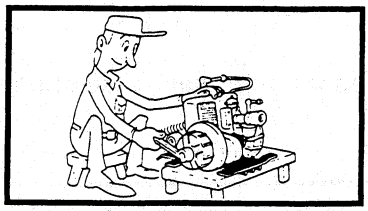
1E011

IMPORTANT INFORMATION

PREPARATION FOR REMOVAL AND DISASSEMBLY

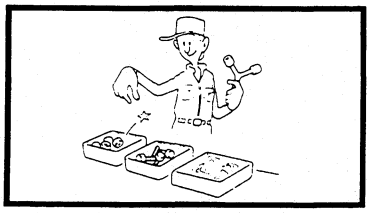


1. Remove all dirt, mud, dust, and foreign material before removal and disassembly.
   While cleaning, take care to protect the electrical parts, such as relays, switches, motor, resistors, controllers, etc., from high pressure water splashes.



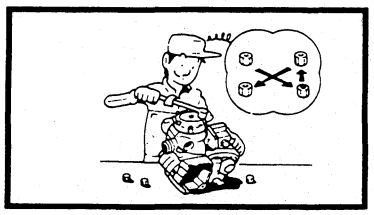
2. Use proper tools and cleaning equipment.
   Refer to "SPECIAL TOOLS" .

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.

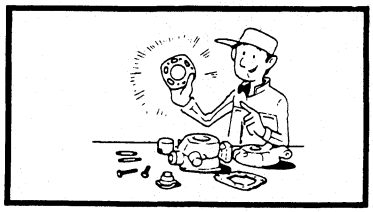


4. During disassembly of the machine, clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help ensure that all parts are reinstalled correctly.

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 crisscross pattern.

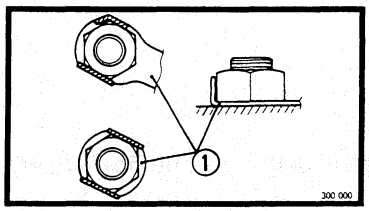


ALL REPLACEMENT PARTS

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

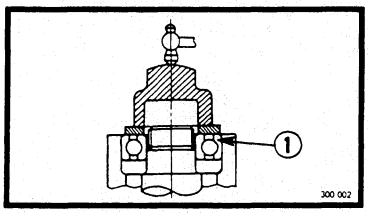
GASKETS, OIL SEALS, AND O-RINGS

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.



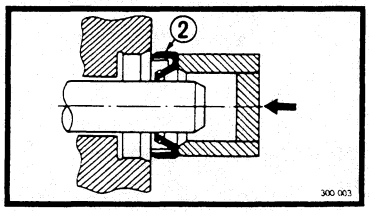
LOCK WASHERS/PLATES AND COTTER PINS

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.



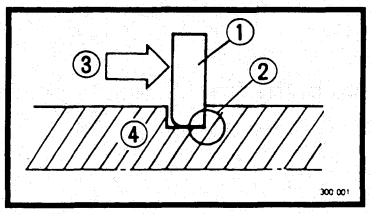
BEARINGS AND OIL SEALS

Install the bearing(s) ① and oil seal(s) ② with their manufacturer's marks or numbers facing outwards. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of lightweight 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

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

LOCTITE®

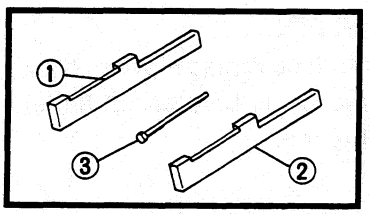
After installing fasteners that have LOCTITE® applied, wait 24 hours before using the machine. This will give the LOCTITE® time to properly dry.

1E021
SPECIAL TOOLS

Some special tools are necessary for a completely 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:

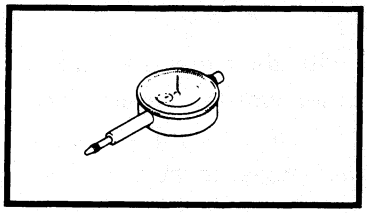
Be sure to use the correct part number when ordering the tool, since the part number may differ according to country.



FOR TUNE UP

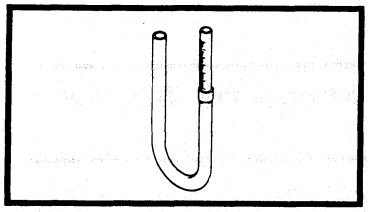
- Sheave gauge
  P/N: YS-42421-1 ①, YS-42421-2 ②
  YS-91047-6 ③

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



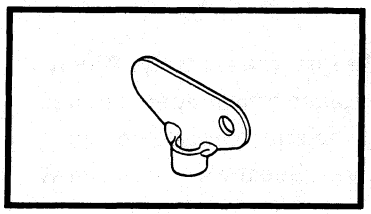
1E041
- Dial gauge
  P/N: 90890-03097 (for Europe)
  YU-03097 (for U.S.A./Canada)

This gauge is used for run out measurement.



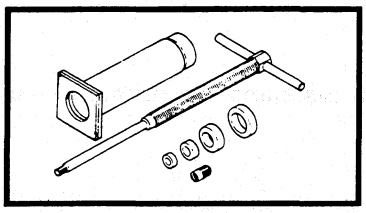
1E051
- Fuel level gauge
  P/N: 90890-01312 (for Europe)
  YM-01312-A (for U.S.A./Canada)

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



- Adjusting screwdriver
  P/N: 8DE-23703-00

This tool is used to adjust the damping force in the front suspension.

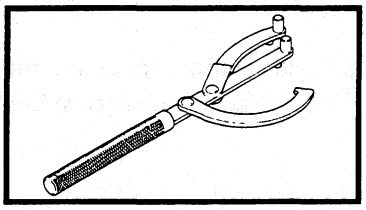


1E071

FOR ENGINE SERVICE

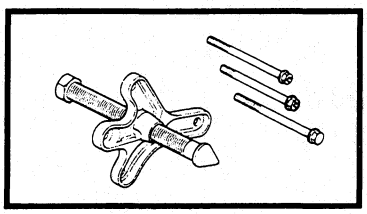
- Piston pin puller
  P/N: 90890-01304 (for Europe)
  YU-01304 (for U.S.A./Canada)

This tool is used to remove the piston pin.



- Rotor holding tool
  P/N: 90890-01235 (for Europe)
  YU-01235 (for U.S.A./Canada)

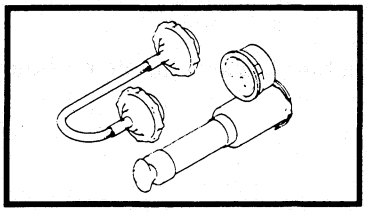
This tool is used to remove the starter pulley.



1E081

- Rotor holding puller
  P/N: 90890-01362 (for Europe)
  YU-33270 (for U.S.A./Canada)

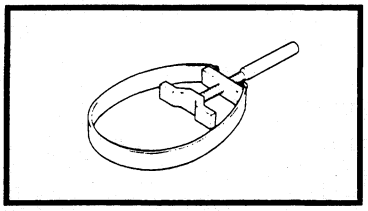
This tool is used to remove the magneto rotor.



1E091

- Cooling system tester
  P/N: 90890-01325 (for Europe)
  YU-24460-01 (for U.S.A./Canada)

This tester is used for checking the cooling system.

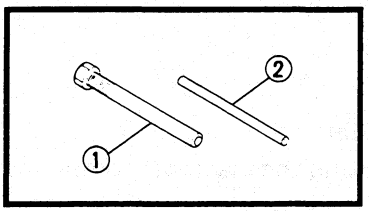


1E101

FOR POWER TRAIN SERVICE

- Primary sheave holder
  P/N: 90890-01701 (for Europe)
  YS-01880 (for U.S.A./Canada)

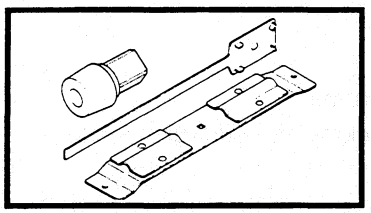
This tool is used to hold the primary sheave.



1E111

- Primary sheave puller (18 mm)
  P/N: YS-01881-1①, YS-01882-1②

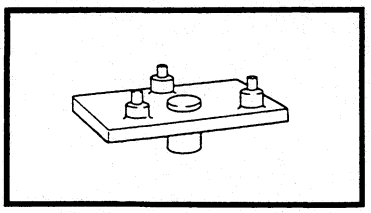
This tool is used for removing the primary sheave.



1E121

- Clutch spider separator
  P/N: 90890-01711 (for Europe)
  YS-28890-B (for U.S.A./Canada)

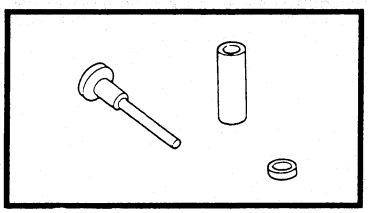
This tool is used when disassembling and assembling the primary sheave.



1E131

- Clutch separator adapter
  P/N: 90890-01740 (for Europe)
  YS-34480 (for U.S.A./Canada)

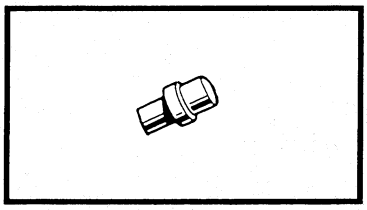
This tool is used when disassembling and assembling the primary sheave.



1E171

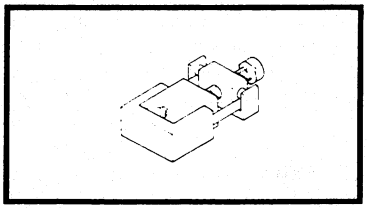
- Clutch bushing jig kit
  P/N: YS-39752

This tool is used when removing and installing the primary sheave bushing.



- Clutch bushing press
  P/N: YS-42424

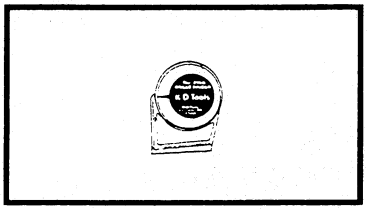
This tool is used for removing and installing the post bushings (primary sheave cap bush, sliding sheave bush and torque cam bush).



1E141

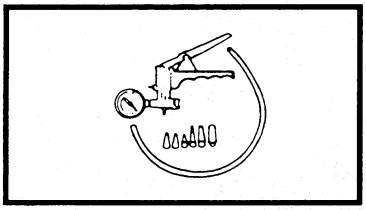
- Track clip installer
  P/N: 90890-01721 (for Europe)
  YS-91045-A (for U.S.A./Canada)

This tool is used for installing the track clip.



- Angle finder
  P/N: YS-42422

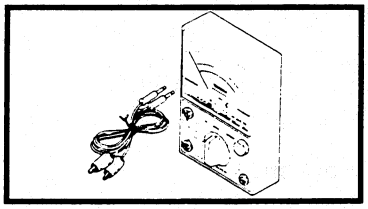
This tool is used for checking and adjusting the ski spindle camber.



FOR CARBURETION SERVICE

- Mity vac
  P/N: 90890-06756 (for Europe)
  YB-35956 (for U.S.A./Canada)

This tool is used to check the fuel pump.

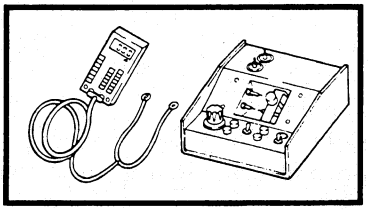


1E151

FOR ELECTRICAL SERVICE

- Pocket tester
  P/N: 90890-03112 (for Europe)
  YU-03112 (for U.S.A./Canada)

This instrument is necessary for checking the electrical components.



1E161

- Electro tester
  P/N: 90890-03021 (for Europe)
  YU-33260-A (for U.S.A./Canada)

This instrument is invaluable for checking the electrical system.

2E007

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)	First month or first 800 km (500 mi) (40 hr)	Every season or every 3,200 km (2,000 mi) (160 hr)
Spark Plug	Check condition. Adjust gap and clean. Replace if necessary.			Every 1,600 km (1,000 mi)
Engine Oil	Check oil level.	●		
	Air bleed the oil pump 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.			●
Louvers	Check condition. Remove snow if necessary.	●		
Carburetors	Check throttle lever operation.	●		
	Adjust the jets.	Whenever operating condition (elevation/temperature) is changed		
Y.P.V.S.	Check operation. Adjust if necessary.			●
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 for cracks, bends or damage. Replace if necessary.	●		
Drive V-belt	Check for wear and damage. Replace if necessary.	●		
Drive Track/Idler Wheels	Check deflection and for wear and damage. Adjust/replace if necessary.	●		

PERIODIC MAINTENANCE TABLE

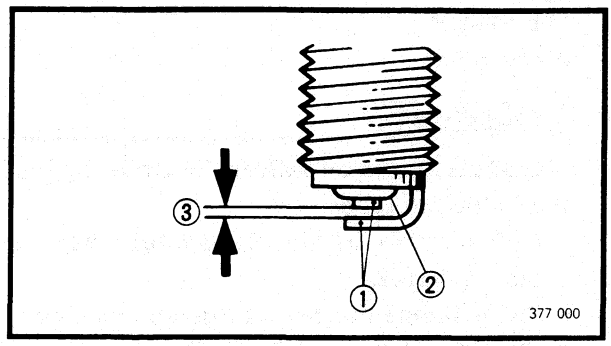
INSP ADJ

Item	Remarks	Pre-operation check (daily)	First month or first 800 km (500 mi) (40 hr)	Every season or every 3,200 km (2,000 mi) (160 hr)
Slide Runner	Check for wear and damage.	●		
	Replace if necessary.			●
Brake/Parking Brake	Check operation and fluid leakage.	●		
	Adjust free play and/or replace pads if necessary.			●
	Change brake fluid.	See NOTE.		
Disk Brake Installation	Check for slight free play. Lubricate shaft with specified grease as required.			Every 1,600 km (1,000 mi)
Drive Chain Oil	Check oil level.		●	
	Change.			●
Drive Chain	Check deflection. Adjust if necessary.	After the first 80 km (50 mi) and every 800 km (500 mi) thereafter		
Ski/Ski Runner	Check for 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 for 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.			●
Parking 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 for proper placement.	●		

NOTE:

Brake fluid replacement:

1. When disassembling the master cylinder or caliper, replace the brake fluid. Regularly check the brake fluid level and add fluid as required.
2. On the inner parts of the master cylinder and caliper, replace the oil seals every two years.
3. Replace the brake hoses every four years, or if cracked or damaged.



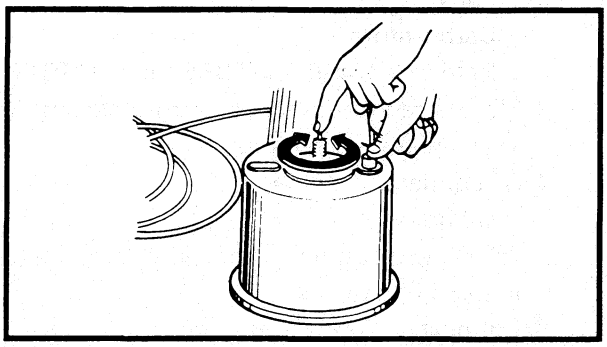
2E011

ENGINE

SPARK PLUGS

1. Remove:
   - Spark plug caps
   - Spark plugs
2. Inspect:
   - Electrodes ①
     Damage/wear → Replace the spark plug.
   - Insulator color ②
3. Measure:
   - Spark plug gap ③
     Out of specification → Regap.
     Use a wire thickness gauge.

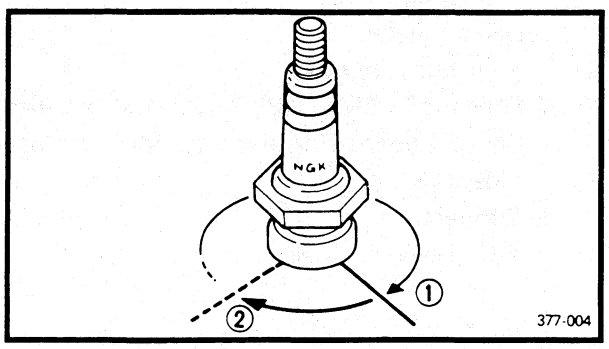
Spark plug gap:
0.7 ~ 0.8 mm (0.028 ~ 0.031 in)



If necessary, clean the spark plugs with a spark plug cleaner.

Standard spark plug:
BR10ECS (NGK)

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



4. Install:
   - Spark plugs

Spark plug:
20 Nm (2.0 m • kg, 14 ft • lb)

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

2E021

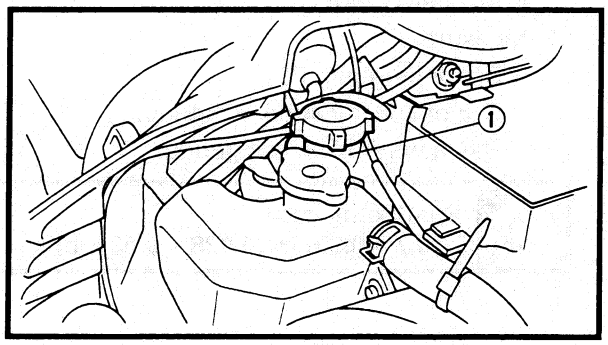
OIL PUMP

Air bleeding

CAUTION:

The oil pump and oil delivery line must be bled in the following cases:

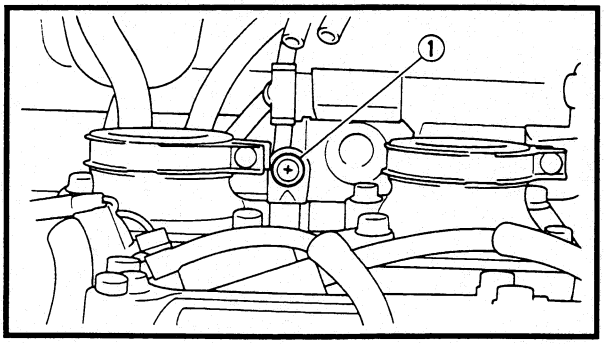
- **Any portion of the oil system has been disconnected.**
- **The machine has been turned on its side.**
- **The oil tank has been run empty.**
- **As part of the pre-delivery service**



1. Fill:
   - Oil tank ①

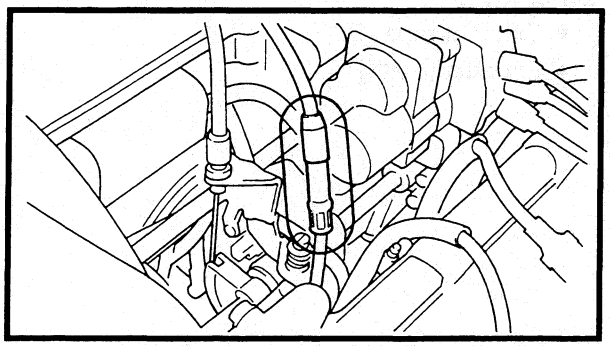
Recommended oil:
YAMALUBE 2-cycle oil
Oil tank capacity:
2.4 L (2.1 Imp qt, 2.5 US qt)

2. Remove:
   - Carburetors
     Refer to "CARBURETORS" in CHAPTER 7.
3. Place a rag under the oil pump assembly to soak up any spilled oil.
4. Disconnect:
   - Oil hose
5. Drain the oil until no more air bubbles appear in the oil hose.
6. Connect:
   - Oil hose
7. Disconnect:
   - Oil delivery hose
8. Feed the "YAMALUBE 2-cycle oil" into the oil delivery hose using an oil can for complete air bleeding.
9. Connect:
   - Oil delivery hose



10. Remove:
    - Bleed screw ①
    - Gasket (bleed screw)
11. Drain the oil until no more air bubbles appear from the bleed hole.
12. Inspect:
    - Gasket (bleed screw)
      Damage/wear → Replace.

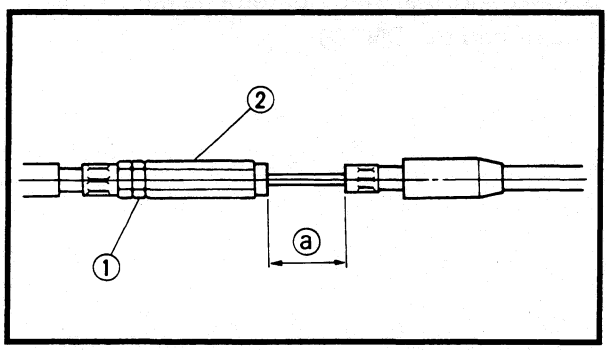
13. Install:
    - Gasket (bleed screw)
    - Bleed screw
14. Install:
    - Carburetors



Cable adjustment

NOTE:

Before adjusting the oil pump cable, the throttle cable distance should be adjusted.



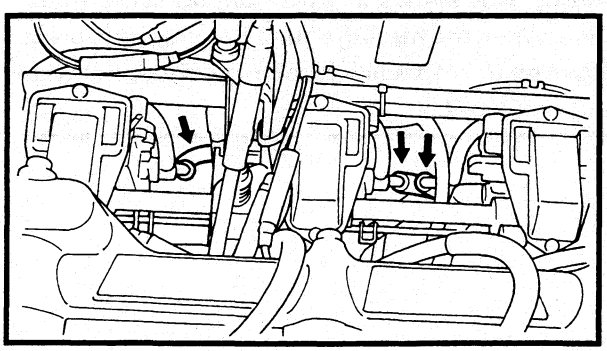
Adjustment steps:

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

Distance ⓐ:
20 ~ 22 mm (0.79 ~ 0.86 in)

Turning in → Distance ⓐ is increased.
Turning out → Distance ⓐ is decreased.

- Tighten the locknut and push in the adjuster cover.



FUEL LINE INSPECTION

1. Inspect:
    - Fuel hoses
    - Fuel delivery hoses
      Cracks/damage → Replace.

2E061

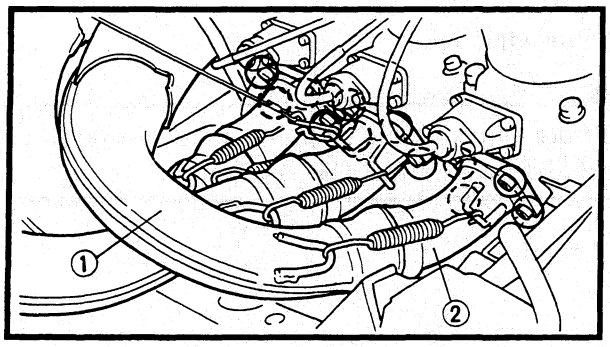
COOLING SYSTEM

Coolant replacement

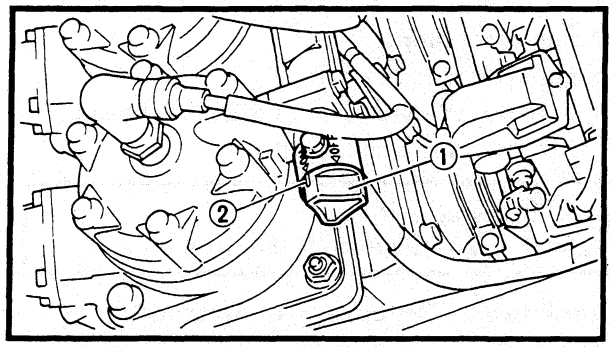
NOTE:

The coolant should be changed at least every season.

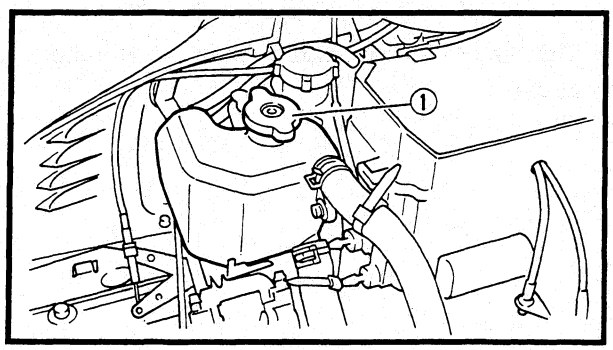
1. Place the machine on a level surface.



2. Remove:
   - Exhaust pipe ①
   - Exhaust joint ②



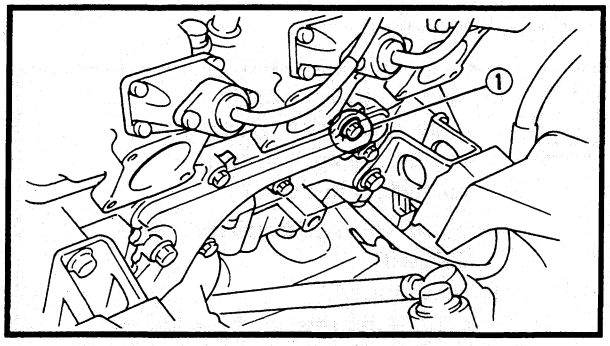
3. Make sure that the carburetor heater's knob ① is turned to "ON" ②.



4. Remove:
   - Coolant filler cap ①

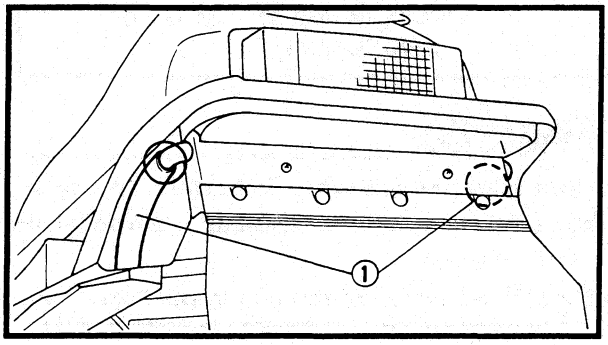
⚠ WARNING

Do not remove the coolant filler cap ① 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 a thick rag or a towel over the coolant filler cap. Slowly rotate the cap counterclockwise to the detent. This allows any residual pressure to escape. When the hissing sound has stopped, press down on the cap while turning counterclockwise and remove it.



5. Place an open container under the coolant drain bolts ①.
6. Remove:
   - Coolant drain bolts
7. Drain the coolant.

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

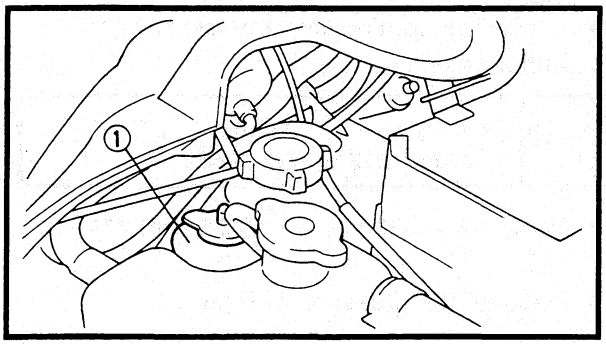


8. Disconnect:
   - Coolant hoses (rear) ①
9. Drain the coolant.

NOTE:
Lift up the front of the machine to drain the coolant completely.

⚠ WARNING

Coolant is poisonous. It is harmful or fatal if swallowed.
- **If coolant is swallowed, induce vomiting immediately and get immediate medical attention.**
- **If coolant splashes in your eyes, thoroughly wash them with water and consult a doctor.**
- **If coolant splashes on your skin or clothes, quickly wash it away with soap and water.**



10. Remove the reservoir tank ① and drain the coolant.
11. Install:
    - Reservoir tank

12. Inspect:
    - Gaskets (coolant drain bolts)
      Damage → Replace.
13. Install:
    - Gaskets
    - Coolant drain bolt
    - Exhaust pipe/gaskets
    - Muffler

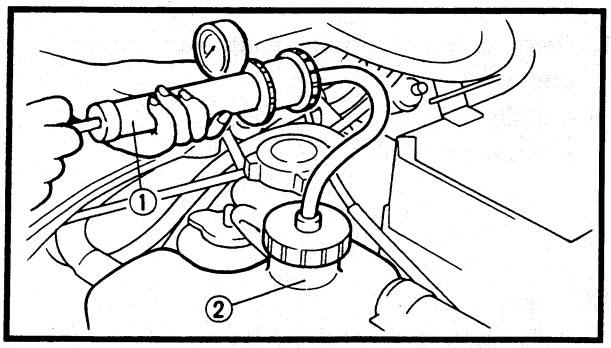
Coolant drain bolt:
13 Nm (1.3 m • kg, 9.4 ft • lb)
Bolt (exhaust pipe):
13 Nm (1.3 m • kg, 9.4 ft • lb)

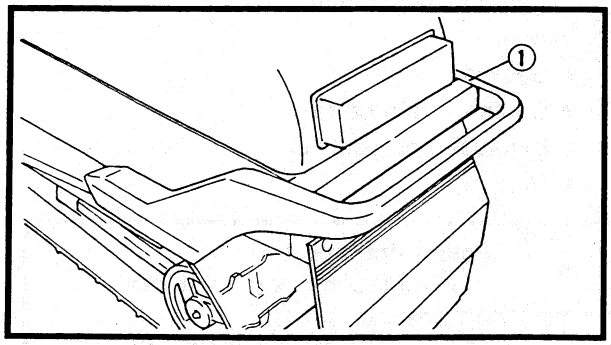
14. Fill:
    - Cooling system

Recommended coolant:
High quality ethylene glycol antifreeze containing corrosion inhibitor
Coolant and water mixed ratio:
60%:40%
Total amount:
5.6 L (4.94 Imp qt, 5.92 US qt) (SRX600/600S, SRX700/700S)
5.9 L (5.19 Imp qt, 6.24 US qt) (MSRX700P)

CAUTION:
- **Hard water or salt water is harmful to engine parts. If soft water is not available, use boiled or distilled water.**
- **Do not use water containing impurities or oil.**

15. Bleed the air from the cooling system.
16. Inspect:
    - Cooling system
      Decrease of pressure (leaks) → Repair as required.



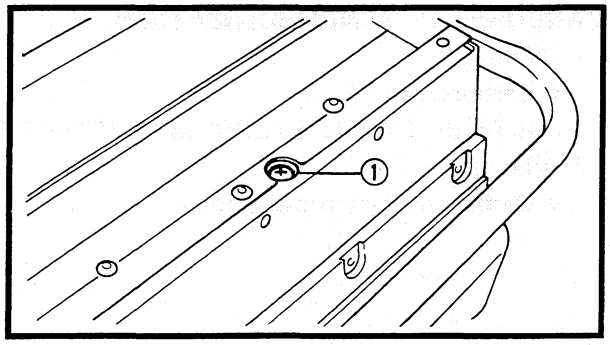


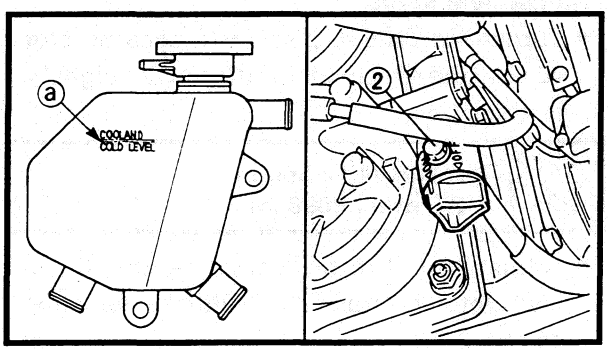
Inspection steps:
- Attach the cooling system tester ① to the coolant filler ②.

Cooling system tester:
90890-01325, YU-24460-01

- Apply 100 ~ 120 kPa (1.0 ~ 1.2 kg/cm², 14 ~ 17 psi).
- Measure the pressure with gauge.

2E071
Air bleeding
1. Remove:
    - Seat (except for MSRX700P)
    - Rear bumper cover ① (except for MSRX700P)
2. Bleed air from the cooling system.





Air bleeding steps:

- Lift up the tail of the machine.
- Remove the bleed screw ① on the heat exchanger.
- While slowly adding coolant to the reservoir tank, allow the coolant to drain until all of the air bubbles disappear.
- Tighten the bleed screw.

Bleed screw:
4 Nm (0.4 m • kg, 2.9 ft • lb)

- Add coolant to the coolant cold level ⓐ.
- Loosen the bleed bolt ② on the water pump housing.
- Keep the coolant running out until all of the air bubbles disappear.
- Tighten the bleed bolt.

Bleed bolt:
4 Nm (0.4 m • kg, 2.9 ft • lb)

- Install the coolant filler cap.
  Apply and lock the parking brake. Start the engine and run it at approximately 2500 ~ 3000 r/min until the thermostat opens and the coolant circulates (approximately 3 ~ 5 minutes). The rear heat exchanger will be warm to the touch.

⚠ WARNING

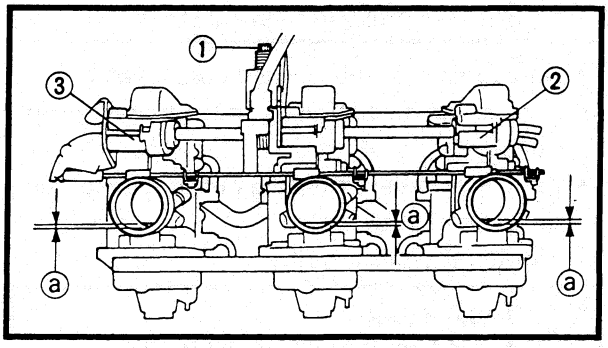
To avoid severe injury or death:

- **Make sure the machine is securely supported with a suitable stand.**
- **Do not exceed 3000 r/min. The machine could unexpectedly move forward if the clutch engages, or drive line damage and excessive V-belt wear could occur.**
- **Operate the engine only in a well-ventilated area.**

- Remove the coolant filler cap and bleed air from the cooling system again, as shown in the steps above .
  No air bubbles → OK.
- Add coolant to the specified level.

2E094
CARBURETOR SYNCHRONIZATION

1. Remove:
   - Carburetors
     Refer to "CARBURETORS" in CHAPTER 7.
2. Adjust:
   - Carburetor synchronization

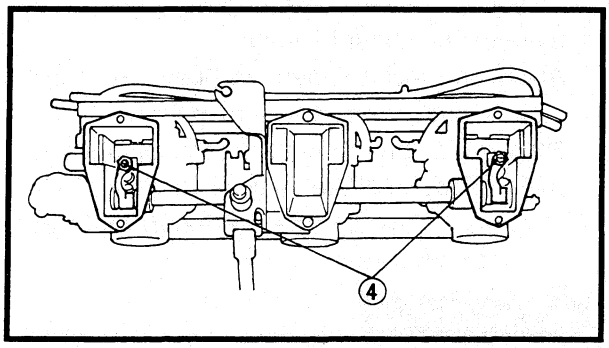


Adjustment steps:

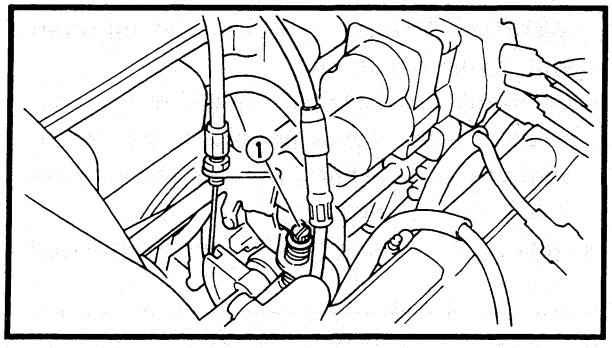
- Turn the throttle stop screw ① of carburetor #2 until the specified throttle valve height ⓐ is obtained.

Throttle valve height:
2.5 mm (0.098 in)

- Adjust the throttle valve height ⓐ on carburetor #1 ② and #3 ③ with the adjusting screw ④.
- Move the throttle lever 2 ~ 3 times.
- Make sure that all of the carburetor throttle valves are at the same height.



3. Install:
   - Carburetors



2E101
ENGINE IDLE SPEED ADJUSTMENT

1. Adjust:
   - Engine idle speed

Adjustment steps:

- Start the engine and let it warm up.
- Turn the throttle stop screw ① in or out until the specified engine idle speed is obtained.

Turning in → Idle speed is increased.

Turning out → Idle speed is decreased.

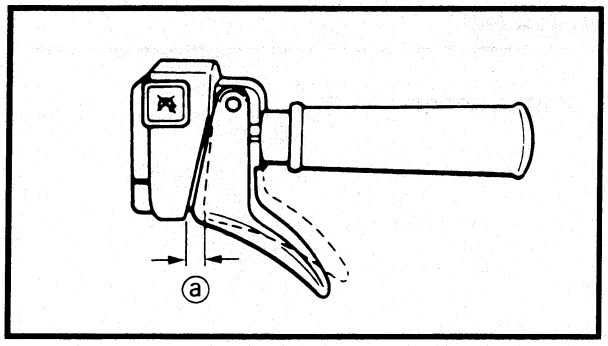
Engine idle speed:
1,800 ± 100 r/min

NOTE:

After adjusting the engine idle speed, the throttle cable free play should be adjusted.

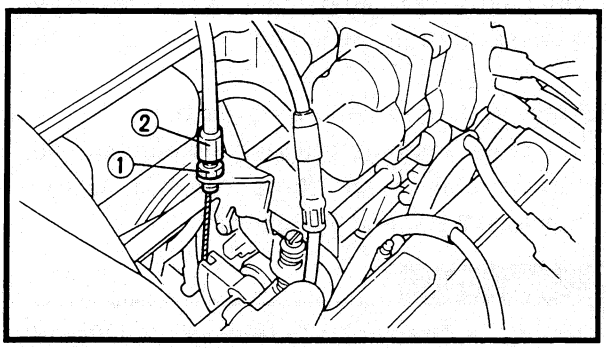
2E131
THROTTLE CABLE ADJUSTMENT

NOTE:
- Before adjusting the throttle cable free play, the engine idle speed should be adjusted.
- Adjust the throttle cable free play while the cable is in the cable guide.



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

Throttle cable free play:
1.0 ~ 2.0 mm (0.040 ~ 0.078 in)



2. Adjust:
   - Throttle cable free play

Adjustment steps:
- Loosen the locknut ①.
- Turn the adjusting nut ② in or out until the specified free play is obtained.

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

- Tighten the locknut.

NOTE:
- After adjusting the free play, turn the handlebar to right and left, and make sure that the engine idling dose not run faster.
- After adjusting the throttle cable free play, properly install the air filter element.

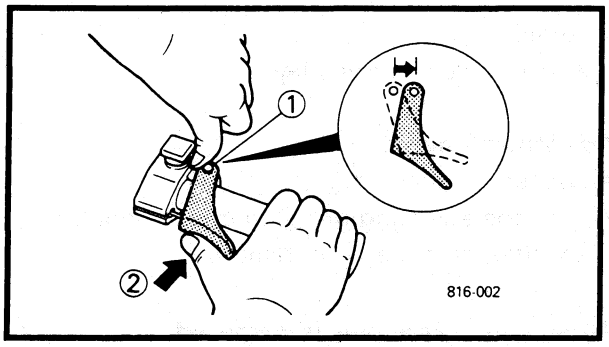
2E122

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 r/min. Otherwise, the machine could start moving forward unexpectedly, which could cause an accident.**

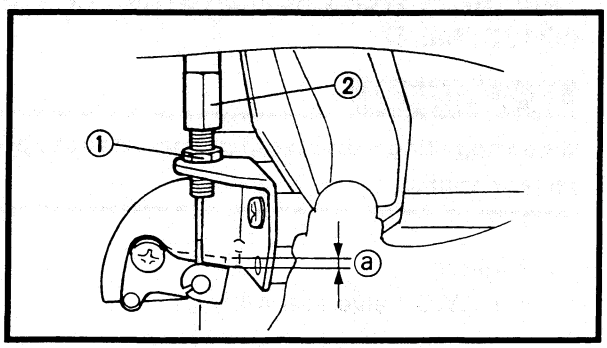
1. Start the engine.



2. Hold the pivot point of the throttle lever away from the throttle switch ①.
3. Press ② the throttle lever gradually.
   The water temperature warning light should turn on and off and the engine should run between 2,800 and 3,000 r/min.

⚠ WARNING

If the engine does not run between 2,800 and 3,000 r/min, stop the engine by turning the main switch to the "OFF" position and check the electrical system.



2E131

STARTER (CHOKE) CABLE ADJUSTMENT

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

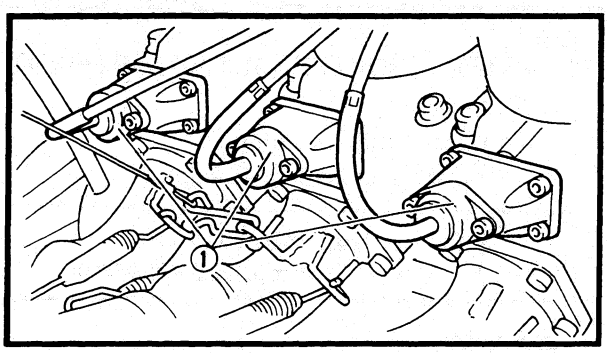
Starter cable free play ⓐ:
0.5 ~ 1.5 mm (0.020 ~ 0.059 in)

2. Adjust:
   - Starter cable free play

Adjustment steps:
- Loosen the locknut ①.
- Turn the adjusting nut ② in or out until the specified free play is obtained.

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

- Tighten the locknut.

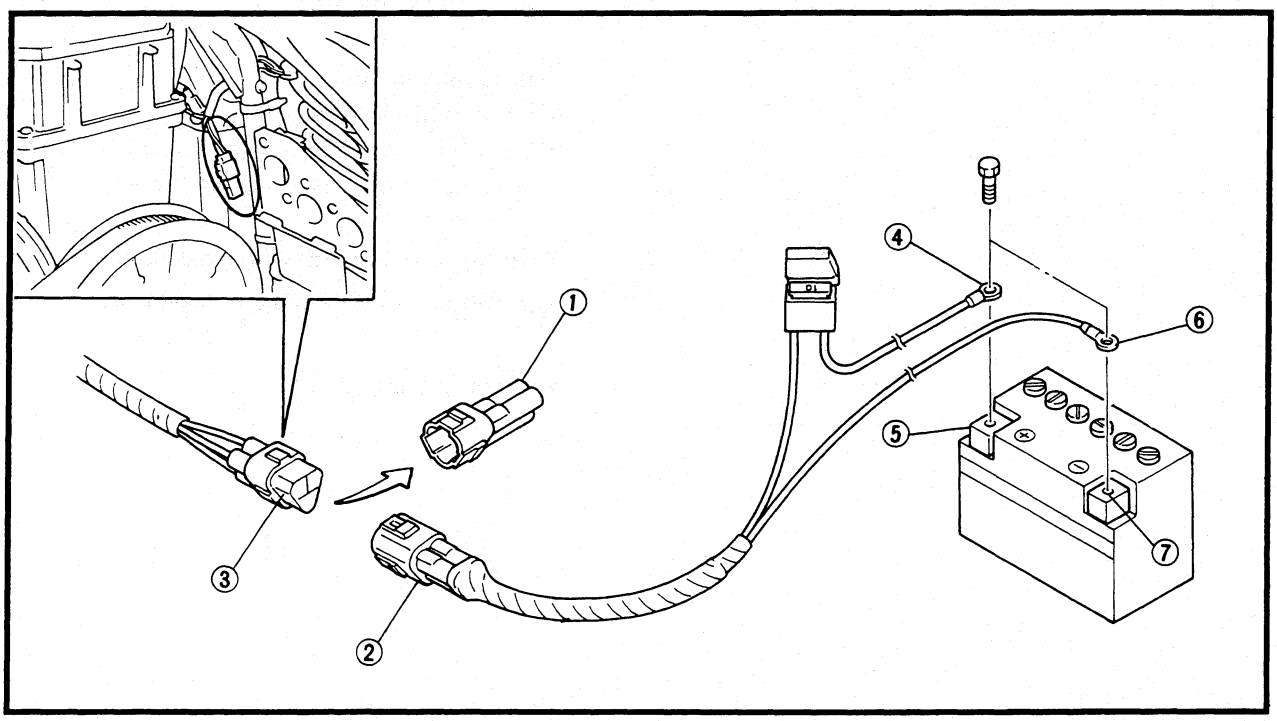


YAMAHA POWER VALVE SYSTEM (Y.P.V.S.) ADJUSTMENT

⚠ WARNING

When adjusting the valve clearance, do not operate the engine.

1. Remove:
   - Y.P.V.S. valve assembly ①

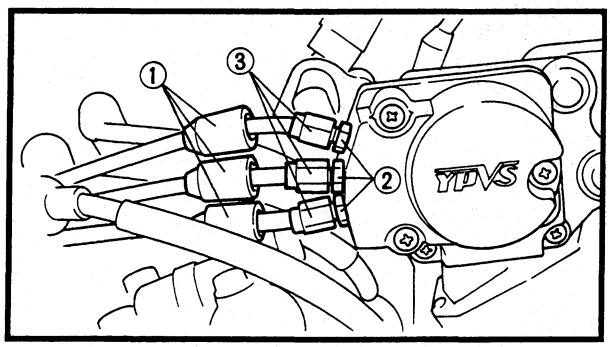


2. Adjust:
   - Y.P.V.S.

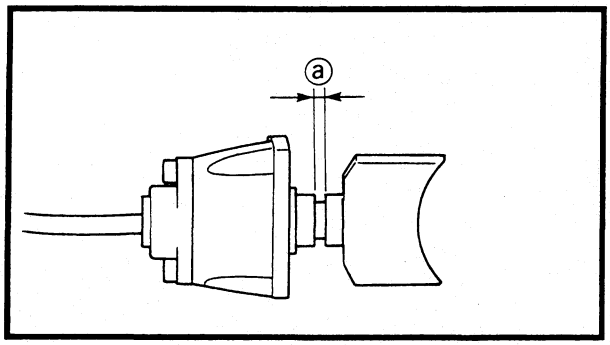
Adjustment steps:
- Remove the Y.P.V.S. check coupler cap ①.
- Connect the Y.P.V.S. test lead coupler ② to the Y.P.V.S. check coupler ③.
- Connect the Y.P.V.S. test leads as follows.

Y.P.V.S. (+) test lead ④ → Battery (+) terminal ⑤
Y.P.V.S. (-) test lead ⑥ → Battery (-) terminal ⑦

NOTE:
- When battery power is applied, the Y.P.V.S. valve should fully open.
- If the valve does not fully open, check the Servo motor. Refer to "YAMAHA POWER VALVE SYSTEM (Y.P.V.S.)" in CHAPTER 8.



- Remove the adjuster cover ①.
- Loosen the locknut ②.
- Turn the adjusting nut ③ in or out until the specified clearance is obtained.



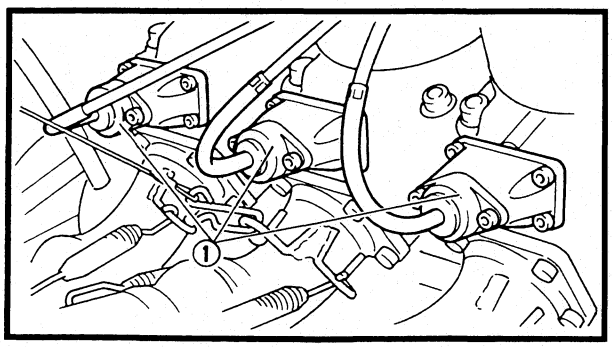
Y.P.V.S. valve clearance ⓐ:
2.0 ~ 3.5 mm (0.08 ~ 0.14 in)

Turning in → Clearance ⓐ is increased.
Turning out → Clearance ⓐ is decreased.

- Tighten the locknut and install the adjuster cover.

Locknut:
7 Nm (0.7 m • kg, 5.1 ft • lb)

- Disconnect the Y.P.V.S. test lead coupler from the Y.P.V.S. check coupler.
- Install the Y.P.V.S. check coupler cap.

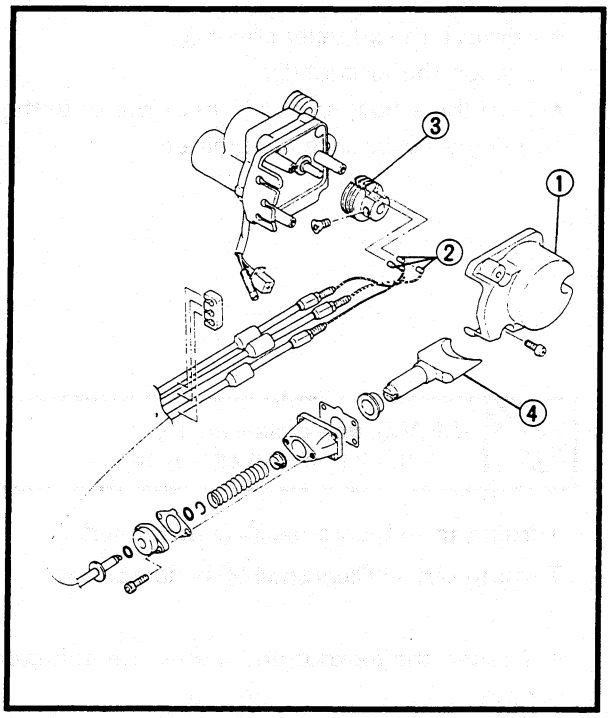


3. Install:
   - Y.P.V.S. valve assembly ①

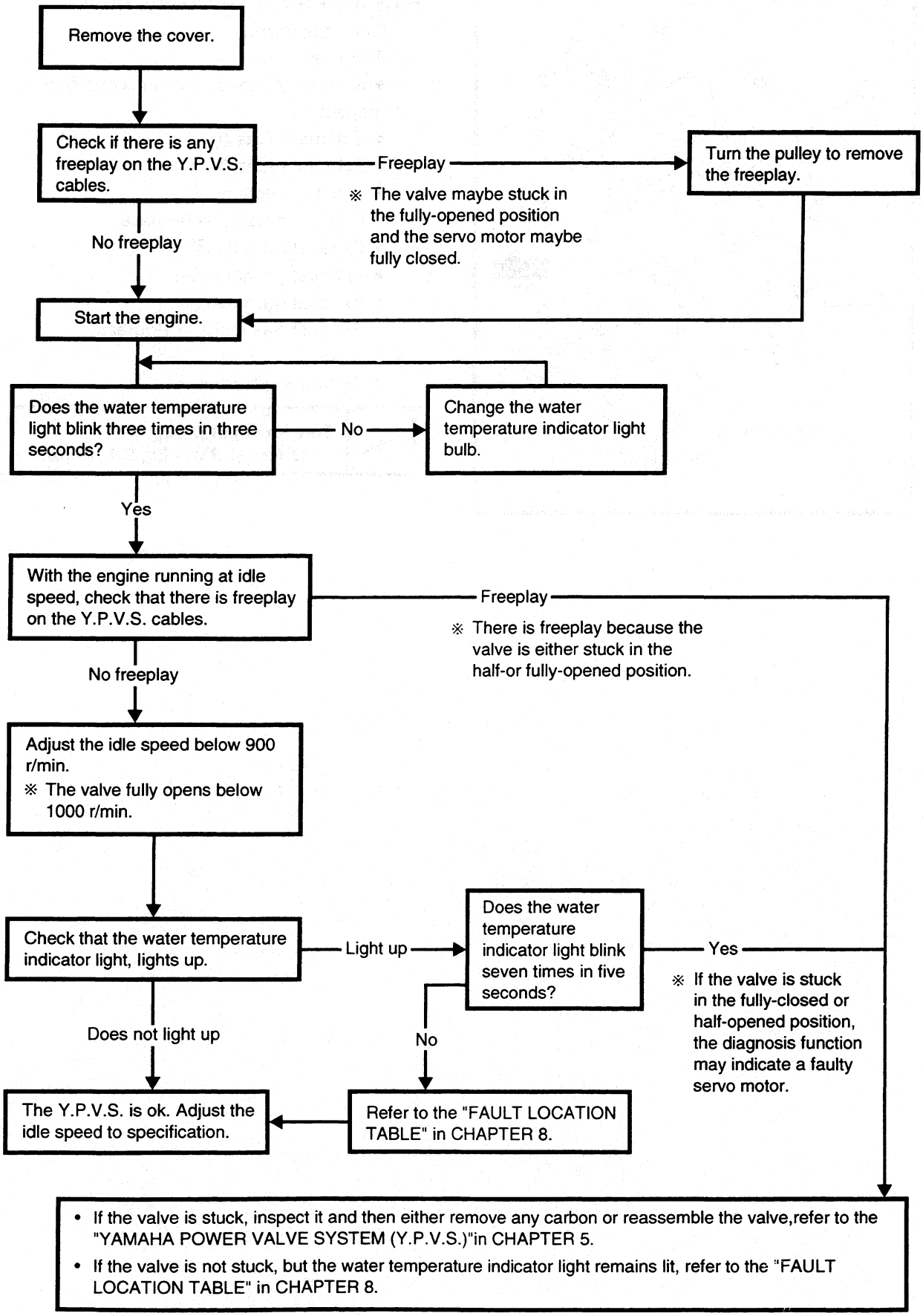
Y.P.V.S. valve assembly bolt:
8 Nm (0.8 m • kg, 5.8 ft • lb)

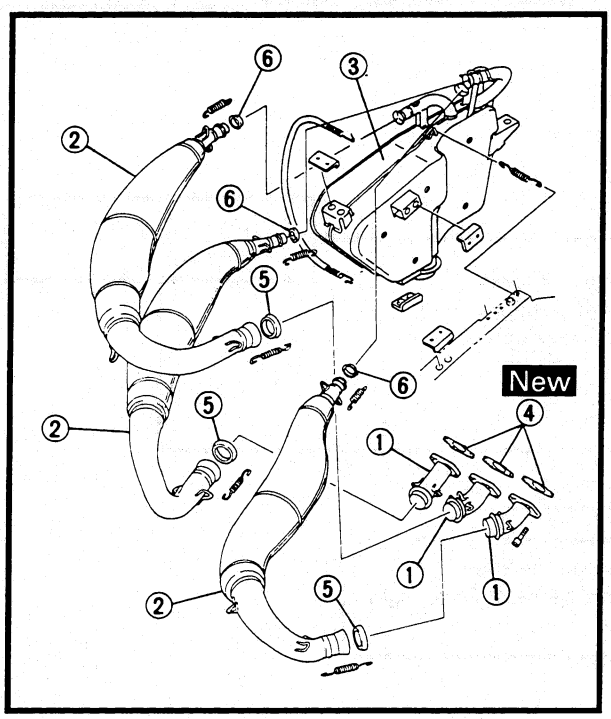
YAMAHA POWER VALVE SYSTEM (Y.P.V.S.) PRE-SEASON CHECKS

There may be excessive amounts of carbon on the Y.P.V.S. valve which will cause the valve to stick to the cylinder. In this case, the valve will not operate. Therefore, be sure to check the Y.P.V.S. as follows.



① Cover
② Cables
③ Puller
④ Valve

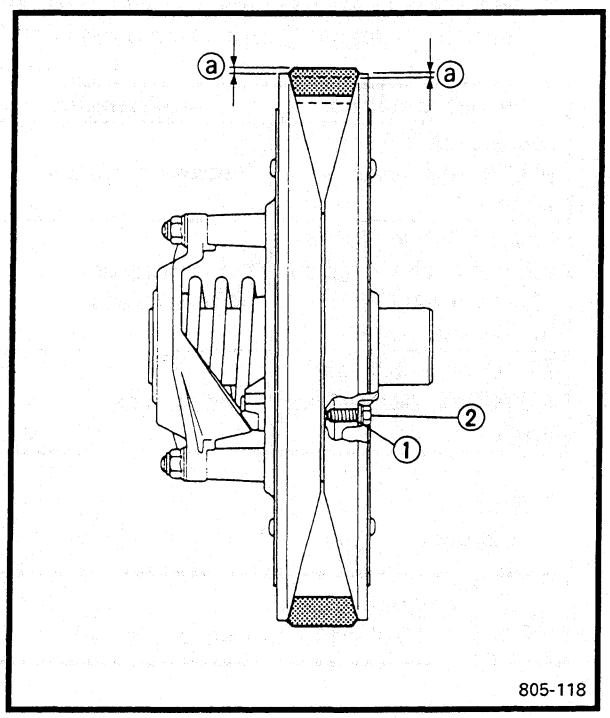

Remove the cover.
Check if there is any freeplay on the Y.P.V.S. cables.
Freeplay
※ The valve maybe stuck in the fully-opened position and the servo motor maybe fully closed.
Turn the pulley to remove the freeplay.
No freeplay
Start the engine.
Does the water temperature light blink three times in three seconds?
No
Change the water temperature indicator light bulb.
Yes
With the engine running at idle speed, check that there is freeplay on the Y.P.V.S. cables.
Freeplay
※ There is freeplay because the valve is either stuck in the half-or fully-opened position.
No freeplay
Adjust the idle speed below 900 r/min.
※ The valve fully opens below 1000 r/min.
Check that the water temperature indicator light, lights up.
Light up
Does the water temperature indicator light blink seven times in five seconds?
Yes
※ If the valve is stuck in the fully-closed or half-opened position, the diagnosis function may indicate a faulty servo motor.
Does not light up
No
The Y.P.V.S. is ok. Adjust the idle speed to specification.
Refer to the "FAULT LOCATION TABLE" in CHAPTER 8.
• If the valve is stuck, inspect it and then either remove any carbon or reassemble the valve,refer to the "YAMAHA POWER VALVE SYSTEM (Y.P.V.S.)"in CHAPTER 5.
• If the valve is not stuck, but the water temperature indicator light remains lit, refer to the "FAULT LOCATION TABLE" in CHAPTER 8.



EXHAUST SYSTEM INSPECTION

1. Open the shroud.
2. Remove:
   - Springs (exhaust pipe and muffler)
3. Inspect:
   - Exhaust joints ①
   - Exhaust pipes ②
   - Exhaust silencer ③
     Cracks/damage → Replace.
   - Exhaust gaskets ④
   - Exhaust gaskets ⑤
   - Exhaust gaskets ⑥
     Exhaust gas leaks → Replace.
4. Check:
   - Tightening torque

	Bolt (exhaust pipe): **13 Nm (1.3 m • kg, 9.4 ft • lb)**



POWER TRAIN

DRIVE V-BELT

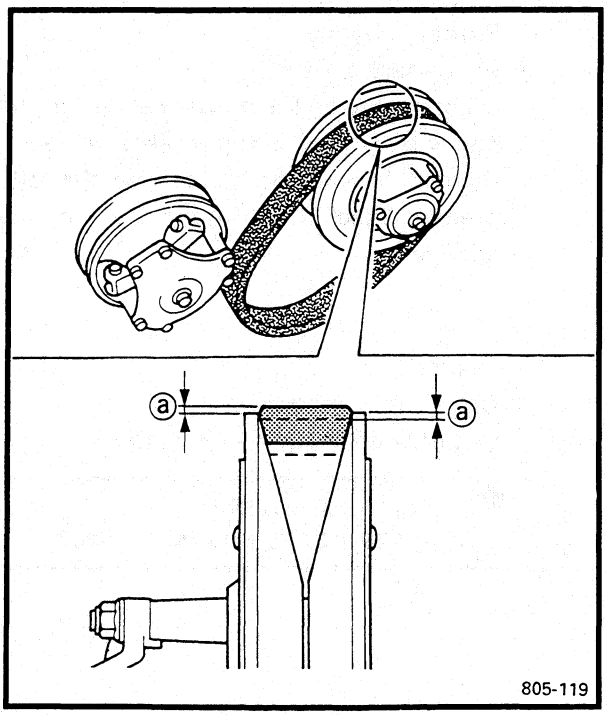
⚠ WARNING

When installing the new V-belt, make sure that it is positioned from 1.5 mm (0.059 in) above the edge of the secondary sheave to –0.5 mm (–0.020 in) below the edge ⓐ.
If not, the clutch engagement speed will be changed. The machine may move unexpectedly when the engine is started.
Adjust the V-belt position by removing or adding a spacer ① on each adjusting bolt ②.
For this adjustment, consult a Yamaha dealer or another qualified mechanic.

CAUTION:

As the V-belt wears, adjustment may be necessary. To ensure proper clutch performance, the V-belt position should be adjusted by adding a spacer on each adjusting bolt when the V-belt position reaches 1.5 mm (0.059 in) below the edge.
For this adjustment, consult a Yamaha dealer or another qualified mechanic.

New belt width:
34.5 mm (1.36 in)
Belt wear limit width:
32.5 mm (1.28 in)

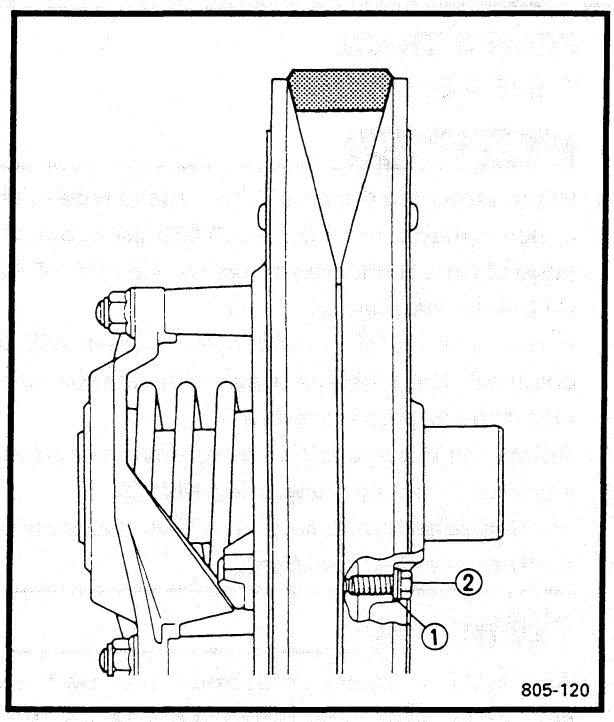


1. Measure:
   - V-belt position ⓐ

NOTE:

Install the new V-belt onto 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 height ⓐ:
–0.5 ~ 1.5 mm (–0.020 ~ 0.059 in)

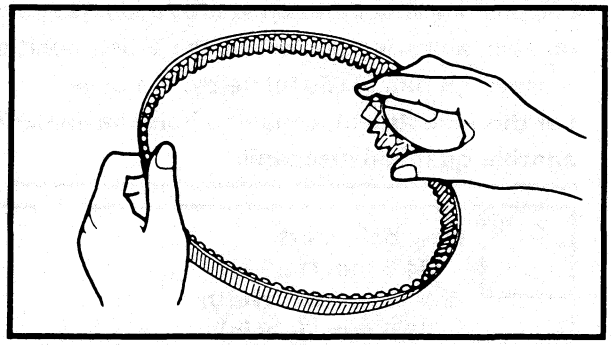


2. Adjust the position of the V-belt by removing or adding a spacer ① on each adjusting bolt ②.

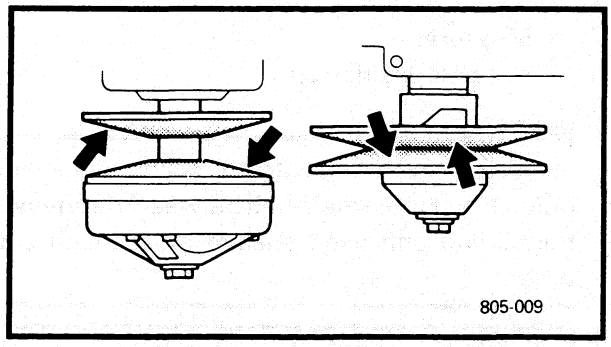
V-belt position	Adjustment
More than 1.5 mm (0.059 in) above the edge	Remove a spacer
From 1.5 mm (0.059 in) above the edge to –0.5 mm (–0.020 in) below the edge	Not necessary (It is correct.)
More than –0.5 mm (–0.020 in) below the edge	Add spacer

3. Tighten:
- Adjusting bolt

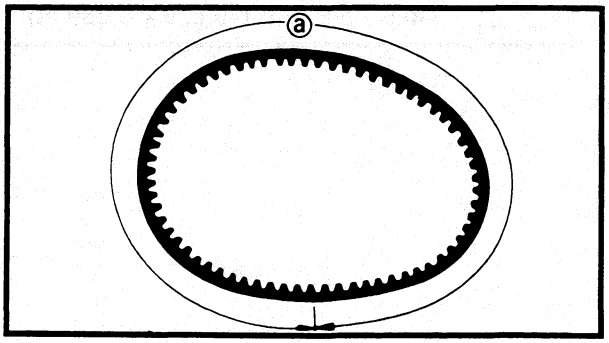
Adjusting bolt:
10 Nm (1.0 m • kg, 7.2 ft • lb)



4. Inspect:
- Drive V-belt
  Cracks/damage/wear → Replace.
  Oil or grease on the V-belt → Check the primary and secondary sheaves.



5. Inspect:
- Primary sheave
- Secondary sheave
  Oil or grease on the primary and secondary sheaves → Use a rag soaked in lacquer thinner or solvent to remove the oil or grease. Check the primary and secondary sheaves.



6. Measure:
- Drive V-belt length ⓐ
  Out of specification → Replace.

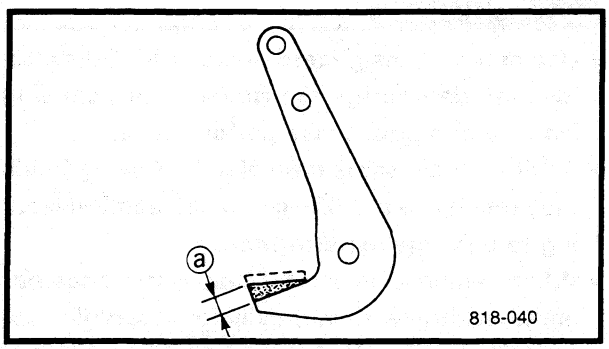
Drive V-belt length:
1,129 ~ 1,137 mm (44.4 ~ 44.7 in)

2E201
ENGAGEMENT SPEED CHECK

1. Place the machine on a level surface 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.

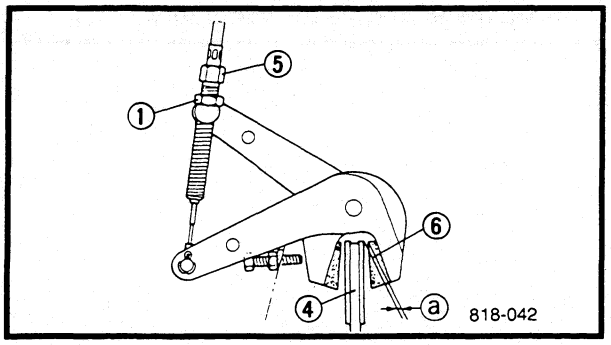
Engagement speed:
4,000 ± 200 r/min (600)
3,800 ± 200 r/min (700)



PARKING BRAKE PAD INSPECTION

1. Measure:
   - Parking brake pad thickness ⓐ
     Out of specification → Replace as a set.

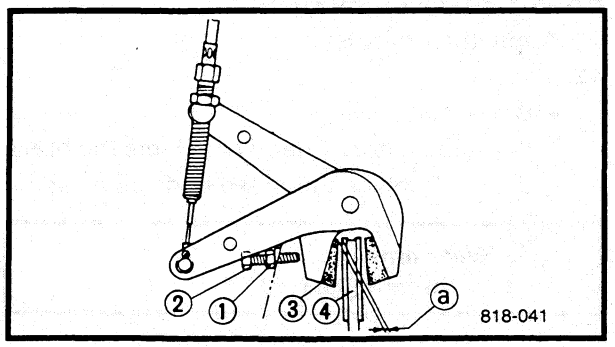
Wear limit:
1.0 mm (0.04 in)



PARKING BRAKE ADJUSTMENT

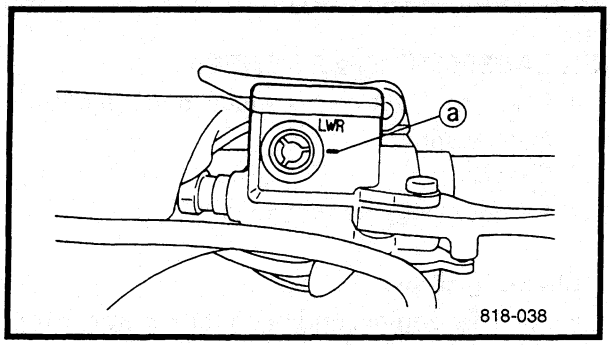
1. Measure:
   - Clearance ⓐ
     Out of specification → Adjust.

Clearance ⓐ:
1.2 ~ 1.3 mm (0.047 ~ 0.051 in)



2. Adjust:
   - Clearance ⓐ

Adjustment steps:
- Loosen the locknut ①.
- Turn the cable adjusting nut ⑤ in or out to adjust the clearance between the brake pad ⑥ and disc ④.
- Turn the brake pad adjusting bolt ② in or out to adjust the clearance between the brake pad ③ and disc ④.
- Tighten the locknut.



BRAKE FLUID LEVEL INSPECTION

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

Recommended brake fluid:
DOT 4

NOTE:

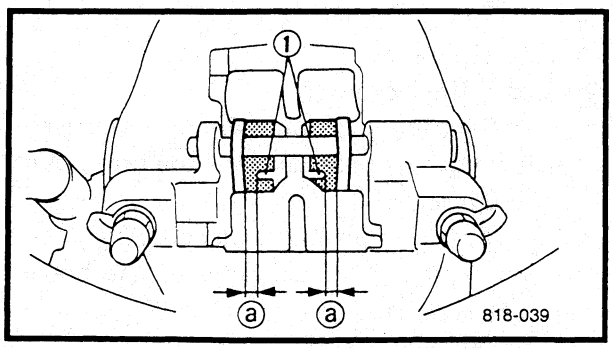
For a correct reading of the brake fluid level, make sure that the top of the handlebar brake master cylinder reservoir is horizontal.

CAUTION:

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

⚠ WARNING

- **Use only the designated brake fluid. Other fluids may deteriorate the rubber seals, 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.**
- **When refilling, be careful that water does not enter the brake master cylinder reservoir. Water will significantly lower the boiling point of the fluid and may cause vapor lock.**



BRAKE PAD INSPECTION

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

Wear limit ⓐ:
1.0 mm (0.04 in)

BRAKE HOSE INSPECTION

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

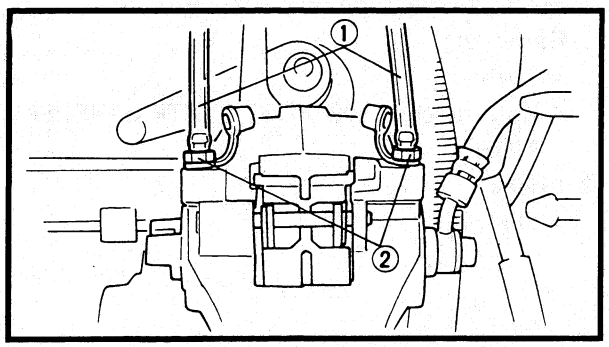
AIR BLEEDING (HYDRAULIC BRAKE SYSTEM)

⚠ WARNING

Bleed the brake system whenever:
- **The system has been disassembled.**
- **A brake hose is loosened or removed.**
- **The brake fluid has been very low.**
- **Brake operation is faulty.**

If the brake system is not properly bled a loss of braking performance may occur.

1. Bleed:
   - Brake system



Air bleeding steps:
- Fill the brake master cylinder reservoir with the proper brake fluid.
- Install the diaphragm. Be careful not to spill any fluid or allow the brake master cylinder reservoir to overflow.
- Connect a clear plastic hose ① tightly to the brake caliper bleed screw ②.
- Place the other end of the hose into a container.

a. Slowly apply the brake lever several times.
b. Pull the lever in. Hold the lever in position.
c. Loosen the bleed screw and allow the brake lever to travel towards its limit.
d. Tighten the bleed screw when the brake lever limit has been reached, then release the lever.

- Repeat steps (a) to (d) until all of the air bubbles have disappeared from the fluid.
- 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.

- Add brake fluid to the proper level.
  Refer to the "BRAKE FLUID LEVEL INSPECTION".

⚠ WARNING

After bleeding the brake system check the brake operation.

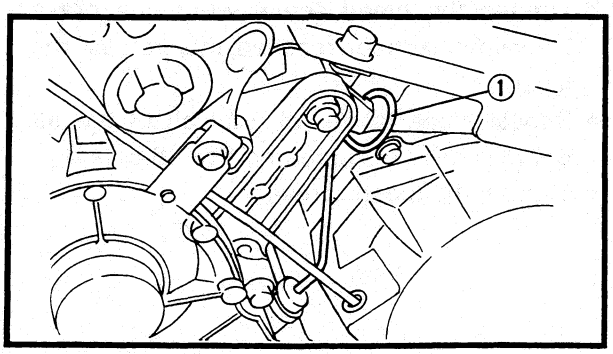
DRIVE CHAIN

Oil level inspection

⚠ WARNING

The engine and muffler will be very hot after the engine has been run. Avoid touching the engine and muffler while they are still hot with any part of your body or clothing during inspection or repair.

1. Place the machine on a level surface.
2. Remove:
   - Muffler
     Refer to the "EXHAUST SYSTEM INSPECTION".
3. Check:
   - Oil level

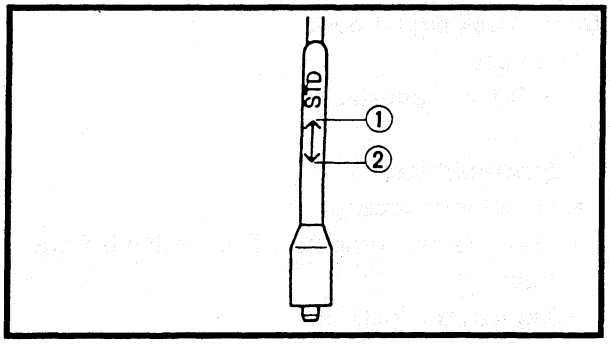


Checking steps:
- Remove the dipstick ① and wipe it off with a clean rag.
  Reinstall the dipstick.

CAUTION:

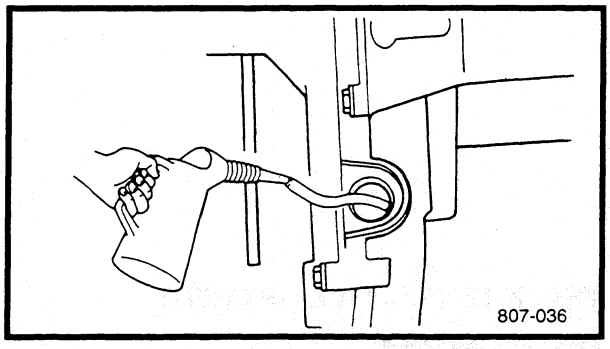
There is a magnet attached to the end of the dipstick. It is used to remove any metal particles that may accumulate in the drive chain housing. When removing the dipstick be sure to:

- **Pull it out slowly and gently so the metal particles do not fall off the magnet back into the drive chain housing.**
- **Wipe off the magnet before reinserting the dipstick into the drive chain housing.**



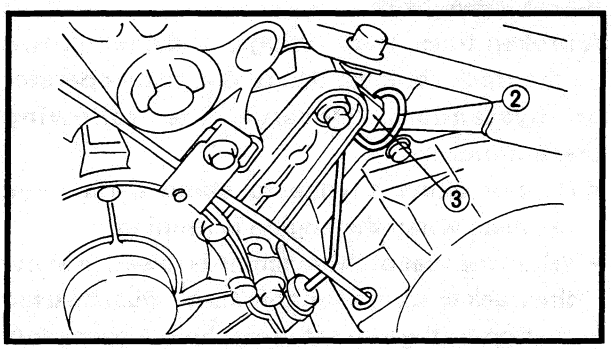
- Remove the dipstick and check that the oil is between the upper ① and lower ② levels. If not, add oil to the upper level.

Recommended oil:
Gear oil API "GL-3"
SAE #75 or #80

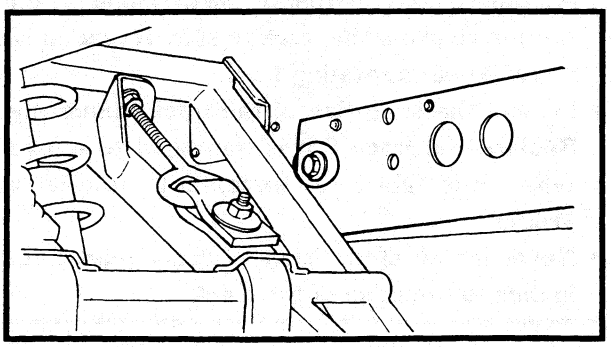


CAUTION:

Make sure that no foreign material enters the gear case.



- Reinstall the dipstick and fit the loop ② of the dipstick handle onto the projection ③ of the gear case.



Oil replacement

Oil replacement steps:

- Place the oil pan under the drain hole.
- Remove the oil drain bolt and drain the oil.

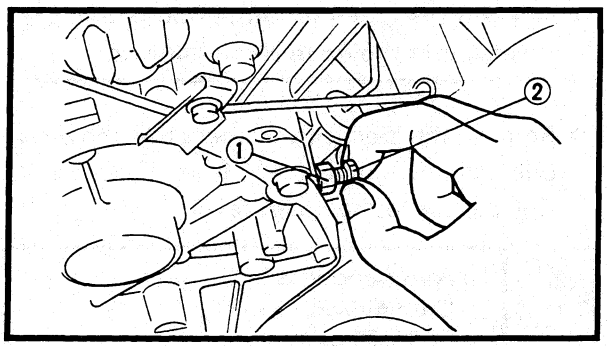
CAUTION:

Be sure to remove any oil from the heat protector.

- Install the oil drain bolt.

Oil drain bolt:
16 Nm (1.6 m • kg, 1.1 ft • lb)

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



2E182
Chain slack adjustment

1. Adjust:
   - Drive chain slack

Adjustment steps:
- Loosen the locknut ①.
- Turn the adjusting bolt ② in until it is finger tight.
- Tighten the locknut.

2E151
TRACK TENSION ADJUSTMENT

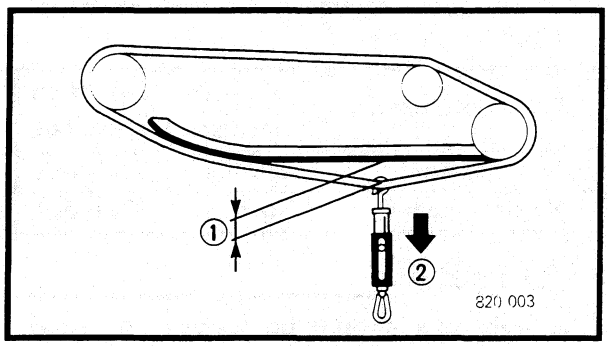
⚠ WARNING

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 the condition of the track frequently. Replace the track if it is damaged to a level where the fabric reinforcement material is visible.**
- **Never install studs (cleats) closer than three inches to the edge of the track.**

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

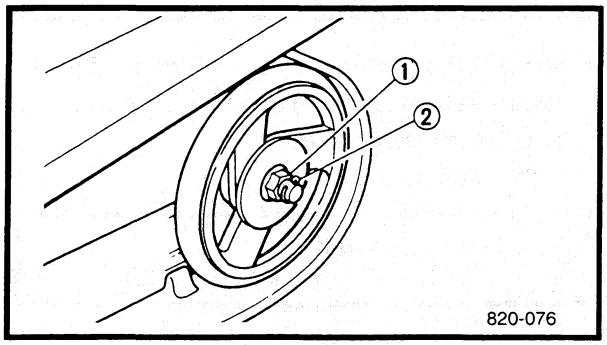
CAUTION:

If the machine is left on its left side for more than 80 minutes, the fuel may leak out from the fuel breather hose.



2. Measure:
   - Track deflection ①
     Using a spring scale ② pull down on the center of the track. Use 10 kg (22 lb) of force.
     Out of specification → Adjust.

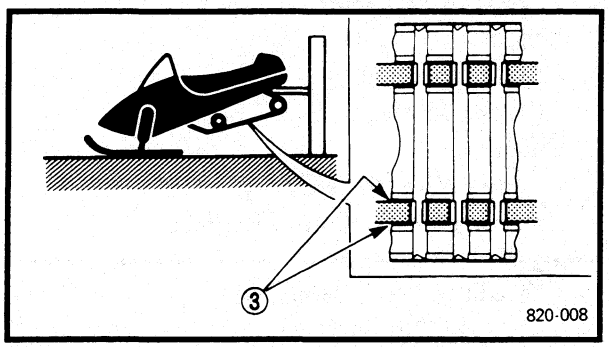
Track deflection:
25 ~ 30 mm (0.98 ~ 1.18 in)
20 ~ 25 mm (0.787 ~ 0.984 in)
(MSRX700P)



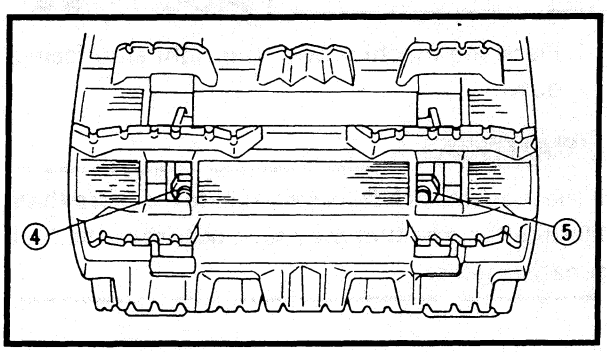
3. Adjust:
   - Track deflection

Adjustment steps:
- Place the machine onto a suitable stand to raise the track off of the ground.
- Loosen the rear axle nut ①.

NOTE:
It is not necessary to remove the cotter pin ②.

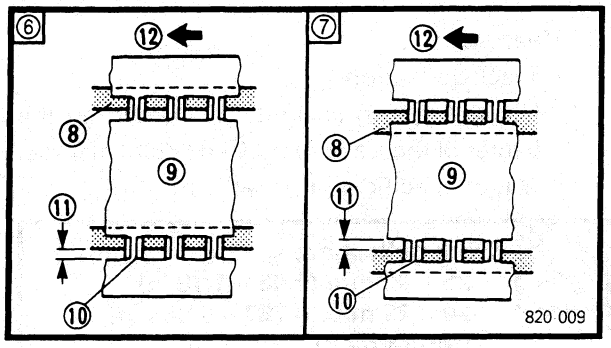


a. Start the engine and rotate the track one or two turns. Stop the engine.
b. Check the track alignment with the slide runner ③.
   If the alignment is incorrect, turn the left and right adjusters to adjust.



Track alignment	⑥ Shifted to right	⑦ Shifted to left
④ Left adjuster	Turn out	Turn in
⑤ Right adjuster	Turn in	Turn out

⑧ Slide runner ⑨ Track
⑩ Track metal ⑪ Gap ⑫ Forward



c. Adjust the track deflection to the specified amount.

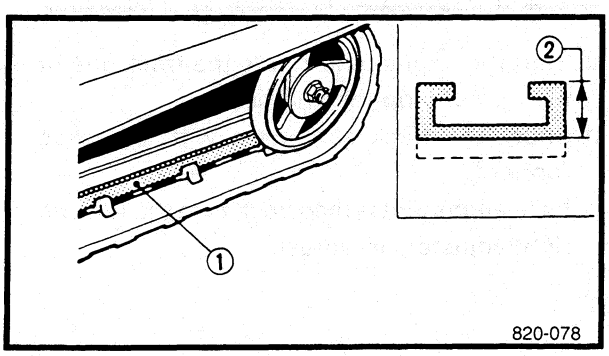
Track deflection	More than specified	Less than specified
④ Left adjuster	Turn in	Turn out
⑤ Right adjuster	Turn in	Turn out

CAUTION:

The adjusters should be turned an equal amount.

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

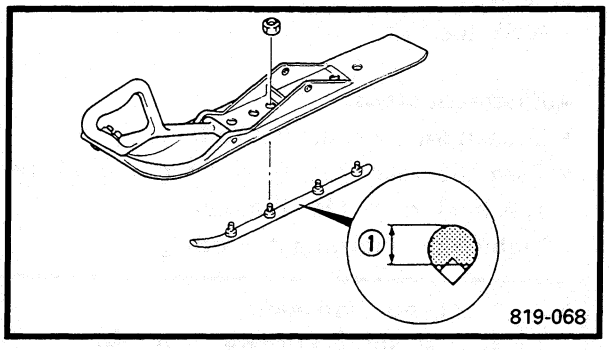
Nut (rear axle):
75 Nm (7.5 m • kg, 54 ft • lb)

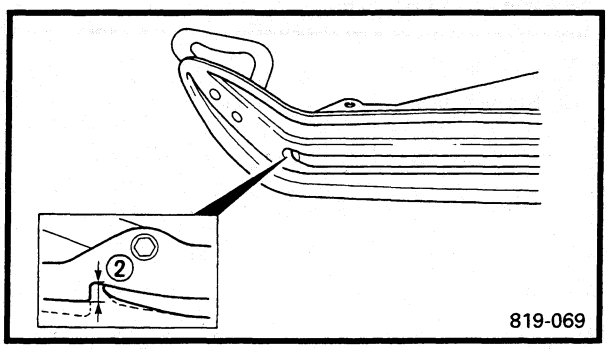


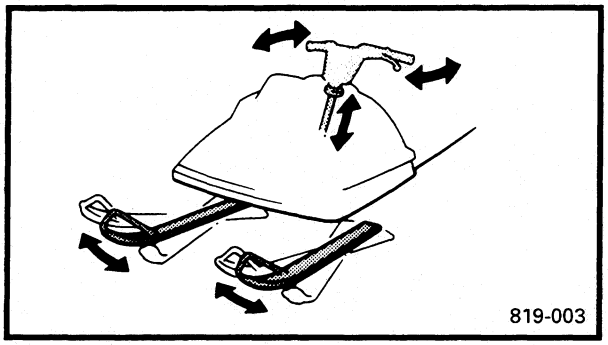
SLIDE RUNNER INSPECTION

1. Inspect:
   - Slide runner ①
     Cracks/damage/wear → Replace.
2. Measure:
   - Slide runner thickness ②
     Out of specification → Replace.

Slide runner wear limit:
10 mm (0.39 in)







2E212

CHASSIS

SKI/SKI RUNNER

1. Inspect:
   - Ski
   - Ski runner

   Damage/wear → Replace.

Ski runner wear limit ①:
8 mm (0.31 in)
Plastic ski wear limit ②:
8 mm (0.31 in)

CAUTION:

To avoid scratching, wearing and damaging the plastic skis, be careful when loading and unloading the snowmobile and avoid riding in areas with little or no snow and on surfaces with sharp edges such as concrete, curbs, etc.

2E221

STEERING SYSTEM

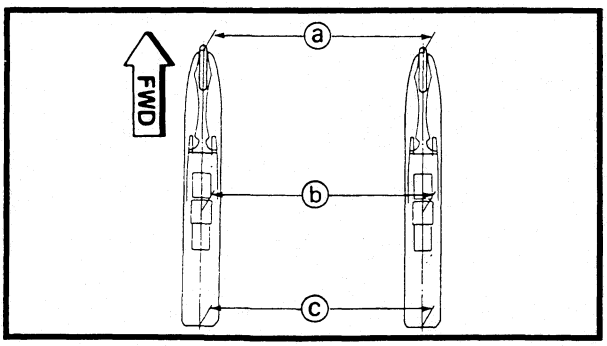
Free play check

1. Check:
   - Steering system free play

   Move the handlebar up and down and back and forth.

   Turn the handlebar slightly to the right and left.

   Excessive free play → Check that 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. Replace if necessary.



2E232

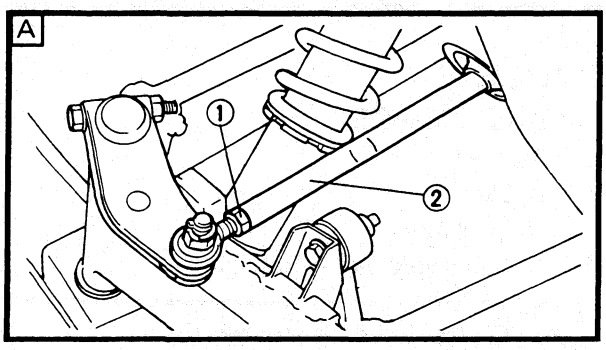
Toe-out adjustment

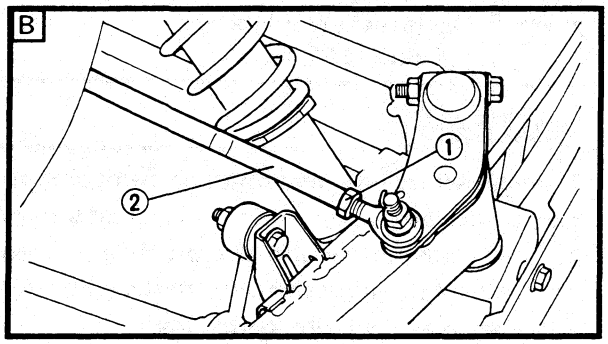
1. Place the machine on a level surface.
2. Check:
   - Ski toe-out

   Point the skis forward.

   Out of specification → Adjust.

Ski toe-out (ⓐ – ⓒ):
0 ~ 15 mm (0 ~ 0.59 in)
Ski stance ⓑ (center to center):
1,040 mm (40.9 in)



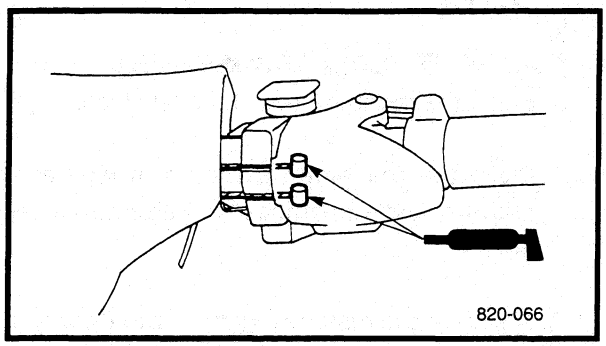


3. Adjust:
   - Ski toe-out

Adjustment steps:
- Loosen the locknuts (tie-rod) ①.
- Turn the relay rod ② in or out until the specified toe-out is obtained.
- Tighten the locknuts (tie-rod) ①.

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

A Left side
B Right side



2E251

LUBRICATION

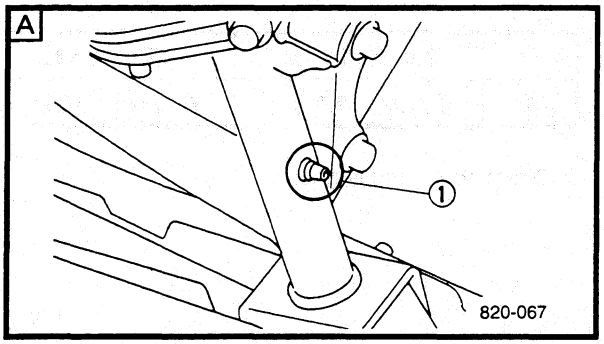
Brake lever, throttle lever and throttle cable end

1. Lubricate the brake lever pivot, throttle lever and the ends of the throttle cable.

Recommended lubricant:
ESSO Beacon 325 Grease

⚠ WARNING

Apply a dab of grease onto only the end of the cable.
Do not grease the throttle cables.
They could freeze and cause a loss of control.



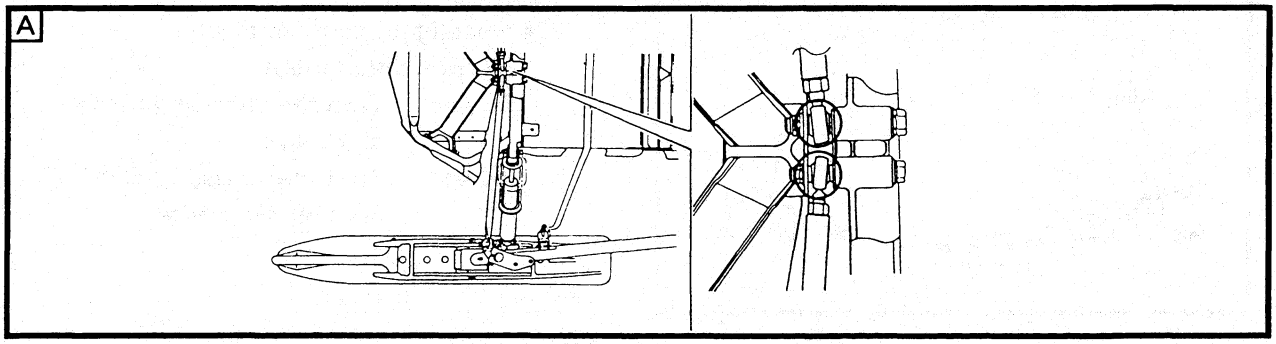
2E261

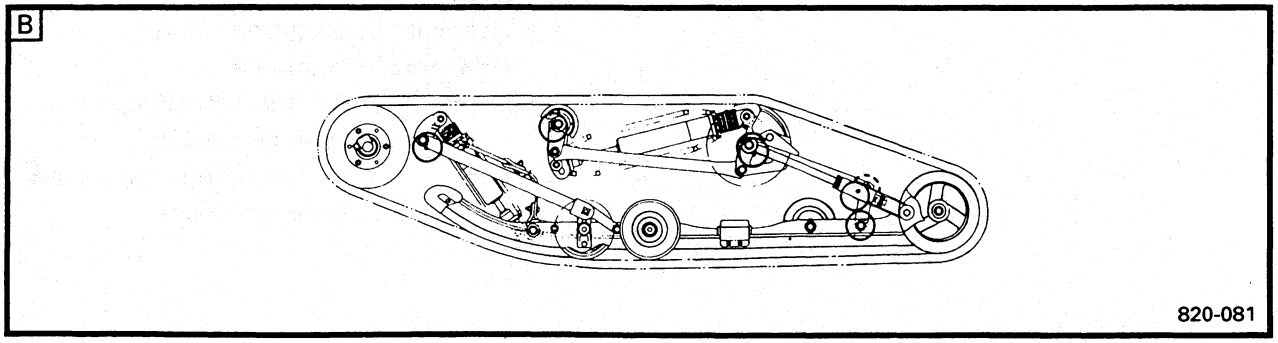
Front and rear suspension

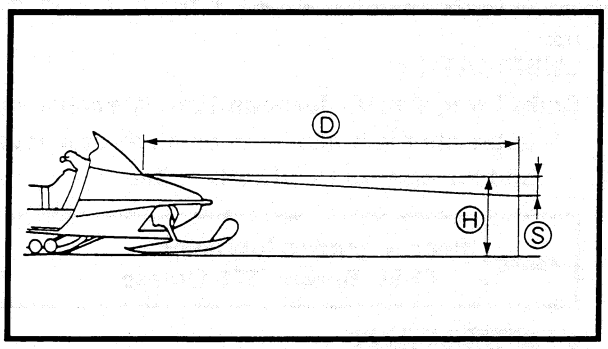
1. Use a grease gun to inject grease into the nipples ①.

Recommended lubricant:
Esso Beacon 325 Grease or
Aeroshell Grease #7A

A Front
B Rear







ELECTRICAL

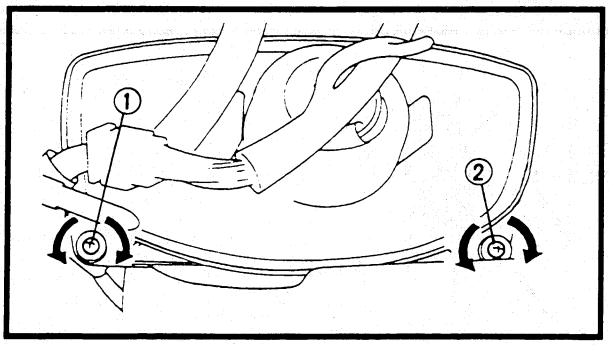
2E241

HEADLIGHT BEAM ADJUSTMENT

1. Place the machine on a level surface.
2. Place the machine in front of a wall at the recommended distance Ⓓ. Refer to the table below.
3. Measure the distance Ⓗ from the floor to the center of the headlight and place a mark on the wall at that height.
4. With a person sitting on the machine, apply the parking brake, start the engine and let it idle.
5. Switch on the headlight's high beam and check the height of the projected beam on the wall. The projection should be at the position marked in step 3 or 1/2° lower (distance Ⓢ).

Ⓓ	**3.0 m (10 ft.)**	**7.6 m (25 ft.)**
Ⓢ	**26 mm (1.0 in.)**	**66 mm (2.6 in.)**

D: Distance H: Height



6. Adjust:
   - Headlight beam (vertically)

   Vertical adjustment

   Higher **Turn the adjusting screw ① + ② clockwise.**

   Lower **Turn the adjusting screw ① + ② counter clockwise.**

7. Adjust:
   - Headlight beam (horizontally)

   Horizontal adjustment

   Right **Turn the adjusting screw ① counter clockwise.**

   Left **Turn the adjusting screw ② counter clockwise.**

2E271

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 those specified above, the carburetor must be properly adjusted. Special care should be taken in carburetor setting so that the piston will not be damaged or will not seize.

CAUTION:

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 chambers are 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	600	700
Ⓑ Type	TM33	←
Ⓒ Manufacturer	MIKUNI	←
Ⓓ I.D. Mark	8DF00	8DN00
Ⓔ Main jet (M.J.)	#1, #2: #146.3, #3: #150	#1,#2:#146.3,#3:#148.8
Ⓕ Pilot jet (P.J.)	#47.5	#42.5
Ⓖ Pilot screw (P.S.)	1-1/2 turns out	1-1/8 turns out
Ⓗ Float height	11.3 ~ 15.3 mm (0.44 ~ 0.6 in)	←
Ⓘ Idle speed	1,800±100r/min	←

2E281

Mid-range and high speed tuning

No adjustment is normaliy required, but adjustments may sometimes be necessary, depending on temperatures, altitude or both.

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

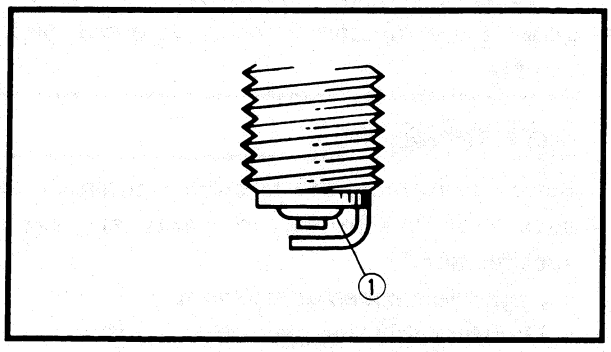
CAUTION:

The engine should never be run without the air intake silencer installed. Severe engine damage may result.

1. Start the engine and operate the machine under normal conditions to make sure that the engine operates smoothly. Stop the engine.
2. Remove:
   - Spark plugs
3. Check:
   - Spark plug insulator ① color

   A medium to light tan color indicates normal conditions.

   Distinctly different color → Replace the main jet.
4. The main jet should be adjusted on the basis of the "Main jet selection chart".



NOTE:

By checking the condition of the spark plugs, it is easy to get some idea of the condition of the engine. This may diagnose potential problems before engine damage occurs.

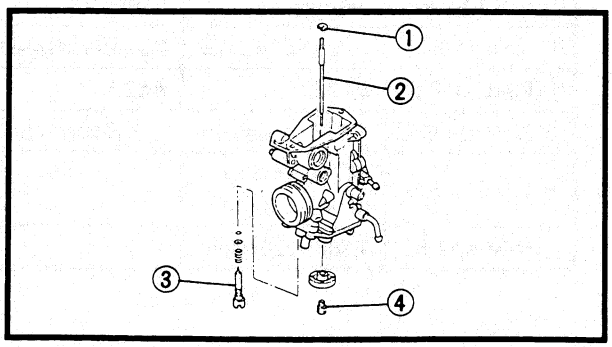
2E291

High altitude tuning

Use the chart in CHAPTER 9 to select main jets according to variations in elevation and temperature.

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 mixture screw
④ Main jet