



SNOWMOBILE

RX10RTW

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

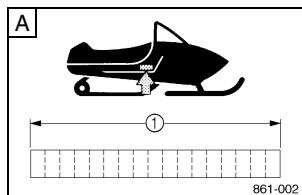
YAMAHA

LIT-CALIF-65-01

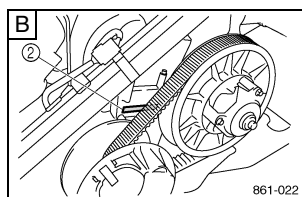
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MACHINE IDENTIFICATION

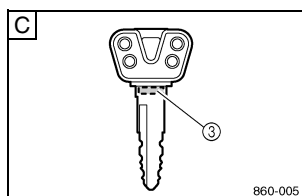
Identification number records



A. FRAME NUMBER:



B. ENGINE NUMBER (PRIMARY ID):



C. KEY NUMBER:

Record the frame number, engine number (Primary ID), and key number in the spaces provided for assistance when ordering spare parts from a Yamaha dealer.

- ① The **frame number** is the seventeen-digit number stamped on the frame of the snowmobile. (See fig. [A].)
- ② The **engine number** is stamped in the location as shown. (See fig. [B].)
- ③ **Key number** (See fig. [C].)

Also, record and keep the ID numbers in a separate place in case the snowmobile is stolen.

ESU00011

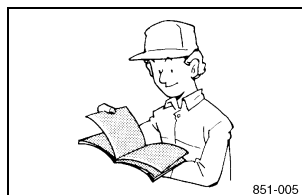
INTRODUCTION

Congratulations on your purchase of a Yamaha snowmobile. This model is the result of Yamaha's vast experience in the production of fine sporting and touring snowmobiles. It represents the high degree of craftsmanship and reliability that have made Yamaha a leader in these fields.

This manual will give you an understanding of the operation, inspection, and basic maintenance of this snowmobile. If you have any questions concerning the operation or maintenance of your snowmobile, please consult a Yamaha dealer.

To maintain the high quality and performance of this snowmobile, it is important that you and your Yamaha dealer pay close attention to the recommended maintenance schedules and operating instructions contained within this manual.

RX10RTW
OWNER'S MANUAL
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1st Edition, April 2006
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Printed in Japan
P/N LIT-12628-02-61



⚠ WARNING

PLEASE READ AND UNDERSTAND THIS MANUAL COMPLETELY BEFORE OPERATING THE SNOWMOBILE.

NOTE:

- Yamaha continually seeks advancements in product design and quality. Therefore, while this manual contains the most current product information available at the time of printing, there may be minor discrepancies between your snowmobile and this manual. If there is any question concerning this manual, please consult a Yamaha dealer.
- This manual should be considered a permanent part of this snowmobile and should remain with the snowmobile when resold.

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 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 to make procedures easier or clearer.

ESU00003

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YAMAHA MOTOR CORPORATION, U.S.A. SNOWMOBILE LIMITED WARRANTY

Yamaha Motor Corporation, U.S.A. hereby warrants that new Yamaha snowmobiles purchased from an authorized Yamaha snowmobile dealer in the continental United States will be free from defects in material and workmanship for the period of time stated herein, subject to certain stated limitations.

WARRANTY PERIOD:

1. All Yamaha snowmobiles shall be warranted for a term of one (1) year from the date of purchase, plus a special early-season extension (if applicable).
2. All Yamaha snowmobile clutch components are warranted against abnormal wear for one (1) year from the date of purchase, plus a special early-season extension (if applicable).

DURING THE PERIOD OF WARRANTY any authorized Yamaha snowmobile dealer will, free of charge, repair or replace, at Yamaha's option, any part adjudged defective by Yamaha due to faulty workmanship or material from the factory. Parts used in warranty repairs will be warranted for the balance of the snowmobile's warranty period. All parts replaced under warranty become the property of Yamaha Motor Corporation, U.S.A.

GENERAL EXCLUSIONS from this warranty shall include any failures to the machine caused by:

1. Competition, racing, or non-Yamaha authorized rental use.
2. Operation on surfaces other than snow or ice.
3. Installation of parts or accessories that are not qualitatively equivalent to genuine Yamaha parts.
4. Abnormal strain, neglect, or abuse.
5. Lack of proper maintenance.
6. Accident or collision damage.
7. Modification to original parts.

SPECIFIC EXCLUSIONS from this warranty shall include parts replaced due to normal wear or routine maintenance including oil, spark plugs, clutch drive belts, slide runners, and track.

THE CUSTOMER'S RESPONSIBILITY under this warranty shall be to:

1. Operate and maintain the snowmobile as specified in the appropriate Owner's Manual.

2. Give notice to an authorized Yamaha snowmobile dealer of any and all apparent defects within ten (10) days after discovery, and make the machine available at that time for inspection and repairs at such dealer's place of business. You may locate your nearest authorized Yamaha dealer through your local telephone directory.

WARRANTY TRANSFER: To transfer any remaining warranty from the original purchaser to any subsequent purchaser, it is imperative that the machine be inspected and registered for warranty by an authorized Yamaha snowmobile dealer. In order for this warranty to remain in effect, this inspection and registration must take place within ten (10) days after ownership transfer. An inspection and registration fee will be charged for this service.

EMISSION CONTROL SYSTEM WARRANTY

Yamaha Motor Corporation, USA also warrants to the ultimate purchaser and each subsequent purchaser of each 2006 and later model Yamaha snowmobile covered by this warranty that the vehicle is designed, built, and equipped so as to conform at the time of sale with all U.S. emissions standards applicable at the time of manufacture and that it is free from defects in materials and workmanship which would cause it not to meet these standards within the period listed immediately below. Failures other than those resulting from defects in material or workmanship which arise solely as a result of owner abuse and/or lack of proper maintenance are not covered by this warranty.

All Models

Thirty (30) months from the original purchase date

YAMAHA MOTOR CORPORATION, U.S.A. MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE OBLIGATIONS AND TIME LIMITS STATED IN THIS WARRANTY ARE HEREBY DISCLAIMED BY YAMAHA MOTOR CORPORATION, U.S.A. AND EXCLUDED FROM THIS WARRANTY.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. ALSO EXCLUDED FROM THIS WARRANTY ARE ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING LOSS OF USE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

SPECIAL EARLY-SEASON WARRANTY EXTENSION

A special warranty extension is available for all new Yamaha snowmobiles purchased between June 1 and December 1.

All new Yamaha snowmobiles purchased between June 1 and December 1 will have the warranty extended to November 30 of the following year.

**YAMAHA MOTOR CORPORATION, U.S.A.
Post Office Box 6555
Cypress, California 90630**

WARRANTY QUESTIONS AND ANSWERS

- Q. What costs are my responsibility during the warranty period?
- A. The customer's responsibility includes all costs of normal maintenance services, non-warranty repairs, accident and collision damages, as well as oil, spark plugs, clutch drive belts, and slide runners.
- Q. What are some examples of "abnormal" strain, neglect, or abuse?
- A. These terms are general and overlap each other in areas. Specific examples include: Running the machine out of oil, hitting an object submerged under snow, operation on surfaces other than snow or ice, operating the machine with a broken or damaged part which causes another part to fail, and so on. If you have any specific questions on operation or maintenance, please contact your dealer for advice.
- Q. May I perform any or all of the recommended maintenance shown in the Owner's Manual instead of having the dealer do them?
- A. Yes, if you are a qualified snowmobile mechanic and follow the procedures specified in the Owner's and Service Manual. We do recommend, however, that items requiring special tools or equipment be done by a Yamaha snowmobile dealer.
- Q. Under what conditions is the clutch not covered by warranty?
- A. Clutches as well as clutch components wear with use. Normal wear is not covered under warranty such service is the customer's responsibility. Abnormal wear is, however, covered for one (1) year from the date of purchase. Your Yamaha snowmobile dealer possesses criteria as to what constitutes abnormal wear.
- Q. Will the warranty be void or canceled if I do not operate or maintain my new Yamaha exactly as specified in the Owner's Manual?
- A. No. The warranty on a new Yamaha cannot be "voided" or "canceled." However, if a particular failure is caused by operation or maintenance other than as shown in the Owner's Manual, that failure may not be covered under warranty.

- Q. What responsibility does my dealer have under this warranty?
- A. Each Yamaha snowmobile dealer is expected to:
1. Completely set up every new machine before sale.
 2. Explain the operation, maintenance, and warranty requirements to your satisfaction at the time of sale, and upon your request at any later date.
 3. In addition, each Yamaha snowmobile dealer is held responsible for his setup, service and warranty repair work.
- Q. Whom should I contact if I have further questions about this warranty?
- A. Your Yamaha snowmobile dealer has the information and experience necessary to answer almost any questions about this warranty. If the dealer is not able to do so, he is expected to contact Yamaha Motor Corporation, U.S.A., for clarification or assistance.

CUSTOMER SERVICE

If your machine requires warranty service, you must take it to any authorized Yamaha snowmobile dealer within the continental United States. Be sure to bring your warranty identification card or other valid proof of the original date of purchase. If a question or problem arises regarding warranty, first contact the owner of the dealership. Since all warranty matters are handled at the dealer level, this person is in the best position to help you. If you are still not satisfied and require additional assistance, please write:

**YAMAHA MOTOR CORPORATION, U.S.A.
CUSTOMER RELATIONS
DEPARTMENT
P.O. Box 6555
Cypress, California 90630**

When contacting Yamaha Motor Corporation, U.S.A. be sure to include the model, serial number, names, dates, and receipts.

CHANGE OF ADDRESS

The federal government requires each manufacturer of a motor vehicle to maintain a complete, up-to-date list of all first purchasers against the possibility of a safety-related defect and recall. This list is compiled from the purchase registrations sent to Yamaha Motor Corporation, U.S.A. by the selling dealer at the time of your purchase.

If you should move after you have purchased your new snowmobile, please advise us of your new address by sending a postcard listing your snowmobile model name, engine serial number, dealer number (or dealer's name) as it is shown on your warranty registration identification, your name and new mailing address. Mail to:

**YAMAHA MOTOR CORPORATION, U.S.A.
WARRANTY DEPARTMENT
P.O. Box 6555
Cypress, California 90630**

This will ensure that Yamaha Motor Corporation, U.S.A. has an up-to-date registration record in accordance with federal law.

ESU04280

YAMAHA EXTENDED SERVICE (Y.E.S.)

Keep your Yamaha protected even after your warranty expires with genuine Yamaha Extended Service (Y.E.S.).

- Y.E.S. is designed and administered by Yamaha Motor Corporation to provide maximum owner satisfaction. You get uninterrupted factory-backed coverage for extra peace of mind.
- Y.E.S. is flexible. You choose the plan that's right for you: 12 months, 24 months, 36 months, or every 48 months (on selected models) beyond your warranty period.
- Y.E.S. is designed and administered by the same Yamaha people who handle your warranty—and it shows in the comprehensive coverage benefits. There are no mileage limitations, and Y.E.S. covers manufacturing defects just like the warranty. See the sample contract at your Yamaha dealer to see how comforting uninterrupted factory-backed protection can be.
- You don't have to pay anything for covered repairs. There's no deductible to pay, and repairs aren't "pro-rated." You don't have any "out-of-pocket" expenses for covered repairs.
- In addition, Travel and Recreation Interruption Protection (TRIP) is included at no extra cost. TRIP gives you up to \$150 reimbursement per occurrence for any reasonable expenses you incur because your Yamaha needs covered service: replacement vehicle rental, emergency towing, phone calls, even food and lodging when you are away from home. This superb coverage goes into effect when you purchase Y.E.S., so it applies to any warranty repairs as well as covered repairs during your entire Y.E.S. plan period.
- Y.E.S. coverage is honored at any authorized Yamaha dealer nationwide.
- Y.E.S. coverage is transferable to a new owner if you sell or trade-in. That can make your Yamaha much more valuable!

This excellent Y.E.S. plan coverage is only available to Yamaha owners like you, and only while your Yamaha is still within the Yamaha Limited Warranty period. So visit your authorized Yamaha dealer to get all the facts. He can show you how easy it is to protect your investment with Yamaha Extended Service.

We urge you to act now. You'll get the excellent benefits of TRIP coverage right away, and you'll rest easy knowing you'll have strong factory-backed protection even after your Yamaha Limited Warranty expires. See your dealer today!

A special note:

If visiting your dealer isn't convenient, contact Yamaha toll free at 1-866-937-3983 (866 YES-EXTD) or visit our web site. All you need to do is provide your vehicle's Primary ID number (your Tunnel number). We'll be happy to help you get the Y.E.S. coverage you need.

Yamaha Service Marketing
P.O. Box 6555
Cypress, CA 90630
1-866-937-3983
www.yamaha-motor.com

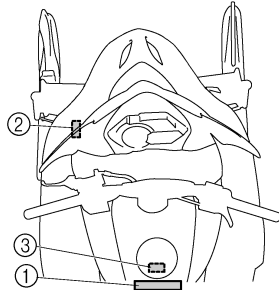


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LOCATION OF THE IMPORTANT LABELS

Please read the following labels carefully before operating this snowmobile.

NOTE: _____
 Maintain or replace safety and instruction labels, as necessary.



①

⚠ WARNING	⚠ AVERTISSEMENT
SEVERE INJURY OR DEATH MAY RESULT IF YOU IGNORE ANY OF THE FOLLOWING: • Read the Owner's Manual and all labels before operating this vehicle. • This vehicle is a high performance machine. • It should be operated by an experienced operator. • Check throttle, brake, and steering for proper operation before starting engine. • Set parking brake before attempting to start engine. • Never run this vehicle with the parking brake applied. • To stop engine in an emergency, push the engine stop switch down. • Do not operate engine without drive belt or drive guard. • Make sure the fuel tank cap is closed securely after refueling. • Do not operate this vehicle on public roads. • You could collide with another vehicle. • This vehicle is designed for operator only - no passengers. • Wear an approved helmet, eye protection, and adequate clothing for snowmobiling.	AFIN D'ÉVITER TOUT RISQUE DE BLESSURE SÉRIEUSE OU MÊME MORTELLE, VEUILLEZ SUIVRE LES RECOMMANDATIONS SUIVANTES: • Avant d'utiliser ce véhicule, lire le manuel du propriétaire et toutes les étiquettes. • Ce véhicule est une machine à haute performance. Elle doit être conduite par un conducteur expérimenté. • Avant de démarrer le moteur, vérifier l'opération du frein, de l'accélérateur et de la direction. • Le frein de sécurité doit être appliqué lors du démarrage. • Ne pas rouler avec le frein de sécurité actionné. • En cas d'urgence, utiliser l'interrupteur d'arrêt du moteur. • Ne pas laisser tourner le moteur sans la courroie ou sans son garde. • S'assurer que le bouchon du réservoir soit bien refermé après le remplissage. • Afin d'éviter tout risque de collision, ne pas rouler sur un chemin public. • Ce véhicule est conçu pour un conducteur seul - aucun passager. • Toujours porter un casque approuvé et un habillement de motoneigiste. Prévoir une protection pour les yeux.

8EK-77761-E0

②

⚠ WARNING
DO NOT OPERATE ENGINE WITHOUT V-BELT OR DRIVE GUARD.
⚠ AVERTISSEMENT
NE PAS FAIRE FONCTIONNER LE MOTEUR SANS COURROIE EN V OU PROTECTEUR D'EMBRAYAGE.
YAMAHA

8BD-77762-00

③

⚠ WARNING
This unit contains high pressure nitrogen gas. Mishandling can cause explosion. • Read owner's manual for instructions. • Do not incinerate, puncture or open.
⚠ AVERTISSEMENT
Cette unité contient de l'azote à haute pression. Une mauvaise manipulation peut entraîner d'explosion. • Voir le manuel d'utilisateur pour les instructions. • Ne pas brûler ni perforez ni ouvrir.

4AA-22259-60

NOTE:

The following suspension adjustment charts are included with the Owner's Manual.

SUSPENSION ADJUSTMENT CHART
TABLEAU DES RÉGLAGES DE LA SUSPENSION

Be sure to have a Yamaha dealer make these adjustments.
Ces réglages doivent être effectués par un concessionnaire Yamaha.

Ski spring preload adjustment
Réglage de la précontrainte de ressort des skis

	Spring (coil) length (1)	Increased Decreased		Spring preload adjuster position	1 2 3 4 5
	Précontrainte	Augmenter Diminuer		Précontrainte	1 2 3 4 5
	Longueur de ressort (1)	Accroître Réduire		Position du déposit de réglage	1 2 3 4 5
	Précontrainte	Plus dure Plus souple		Précontrainte	1 2 3 4 5

Rear suspension spring preload adjustment
Réglage de la précontrainte de ressort de suspension arrière

	Spring (coil) length (1)	Increased Decreased		Spring preload adjuster position	1 2 3 4 5
	Précontrainte	Augmenter Diminuer		Précontrainte	1 2 3 4 5
	Longueur de ressort (1)	Accroître Réduire		Position du déposit de réglage	1 2 3 4 5
	Précontrainte	Plus dure Plus souple		Précontrainte	1 2 3 4 5

Rear suspension torsion spring preload adjustment
Réglage de la précontrainte de ressort de torsion de suspension arrière

	Spring preload adjuster position	S M H		Spring preload adjuster position	S M H
	Précontrainte	Soft Medium Hard		Précontrainte	S M H
	Position du déposit de réglage	S M H		Position du déposit de réglage	S M H
	Précontrainte	Simple Moyenne Dure		Précontrainte	Simple Moyenne Dure

8ES-2818B-00

Control rod adjustment
Réglage des tiges de réglage

	Adjusting nut (1) turning direction	①	②	
	Height transfer	Decreased → Increased	①	
	Screw as a stopper (2) turning direction	③	④	
	Transfer in push	Reduced → Increased	③	

Anti-bottoming stopper adjustment
Réglage des butées anti-talonnement

	Installation location	S M H
	Spring force	Soft Medium Hard
	Position	S M H
	Tension of ressort	Simple Moyenne Dure

For RST90 Only :
2-up adjusting block positions (with/without passenger)

Pour la RST90 uniquement :
Position des blocs de réglage (avec/sans passager)

	Single rider position Position conducteur en solo	2-up position (rider and passenger) Position conducteur et passager
--	--	--

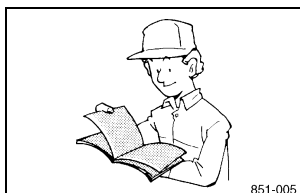
1. Install the special tools (1) and (2) to the 2-up adjusting block (3).
2. Put the lock lever (4) and turn the special tool (2) to change the block position.
3. Release the lock lever.
4. Insert the rubber stopper (5) and (6) to the block of regulation (3).
5. Turn the lever of the stopper (5) and (6) to the position of the block of regulation.
6. Release the lever of the stopper (5) and (6) to the position of the block of regulation.

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SAFETY INFORMATION

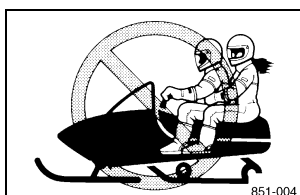
When you ride your snowmobile, you must know and use the following for your safety. Severe injury or death may result if you ignore any of the following.



Before operating

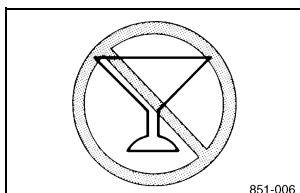
1. Read the Owner's Manual and all labels before operating this snowmobile. Become familiar with all of the operating controls and their function. Consult a Yamaha dealer about any control or function you do not understand.

2. This snowmobile was not manufactured for use on public streets, roads, or highways. Such use is prohibited by law, and you could collide with another vehicle.



3. This snowmobile is designed to carry the OPERATOR ONLY.

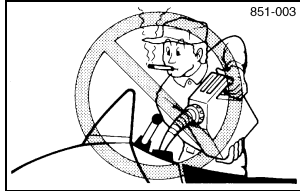
Passengers are prohibited. Carrying a passenger can cause loss of control.



4. Do not operate the snowmobile after drinking alcohol or taking drugs. Your ability to operate the snowmobile is reduced by the influence of alcohol or drugs.

5. For safety and proper care of the snowmobile, always perform the pre-operation checks on pages 6-1-6-11 before starting the engine. Check the throttle, brake, and steering for proper operation every time before starting the engine. Make sure that the throttle lever moves freely and it returns to the home position when it is released.

6. Apply the parking brake before starting the engine. Never drive the snowmobile with the parking brake applied. This may overheat the brake disc and reduce braking ability.

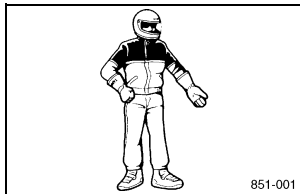


7. Do not allow anyone to stand behind the snowmobile when starting, inspecting, or adjusting the snowmobile. A broken track, track fittings, or debris thrown by the track could be dangerous to the operator or bystanders.

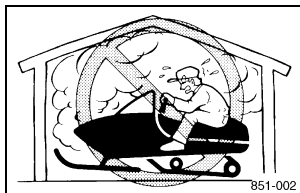
8. Handle fuel with care; it is **HIGHLY FLAMMABLE**.

- Never add fuel when the engine is running or hot. Allow the engine to cool for several minutes after running.
- Use an approved fuel container.
- Fill the fuel tank outdoors with extreme care. Never remove the fuel cap indoors. Never fill the fuel tank indoors.
- Never refuel while smoking or in the vicinity of an open flame.
- Make sure that the fuel tank cap is closed securely after refueling. Wipe up any spilled fuel immediately.

9. If you swallow some gasoline, inhale a lot of gasoline vapor, or get some gasoline into your eyes, see your doctor immediately. If any gasoline spills on your skin or clothing, immediately wash your skin with soap and water, and change your clothes.



10. Wear protective clothing. Wear an approved helmet, and a face shield or goggles. Also, wear a good quality snowmobile suit, boots, and a pair of gloves or mittens that will permit use of your thumbs and fingers for operation of the controls.



Operation

1. Do not run the engine indoors, except when starting the engine to transport the snowmobile in or out of the building. Open the outside doors; exhaust fumes are dangerous.
2. Be careful where you ride. There may be obstacles hidden beneath the snow. Stay on established trails to minimize your exposure to hazards. Ride slowly and cautiously when you ride off of established trails. Hitting a rock or stump, or running into wires could cause an accident and injury.

3. This snowmobile is not designed for use on surfaces other than snow or ice. Use on dirt, sand, grass, rocks, or bare pavement may cause loss of control and may damage the snowmobile.
4. Avoid operating on glare ice, or on snow which has a lot of dirt or sand mixed in. Operation under such conditions will damage or result in rapid wear of ski runners, drive track, slide runners, and drive sprockets.
5. Always ride with other snowmobilers when going on a ride. You may need help if you run out of fuel, have an accident, or damage your snowmobile.
6. Many surfaces such as ice and hard-packed snow require much longer stopping distances. Be alert, plan ahead and begin decelerating early. The best braking method on most surfaces is to release the throttle and apply the brake gently—not suddenly.

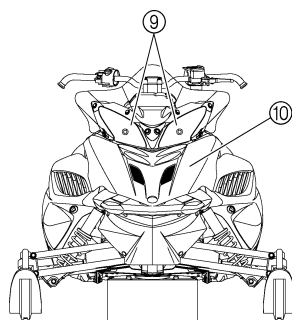
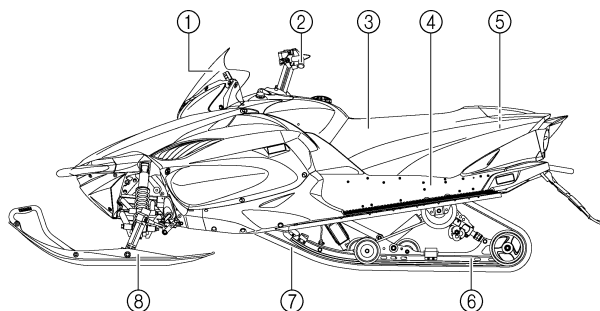
Maintenance and storage

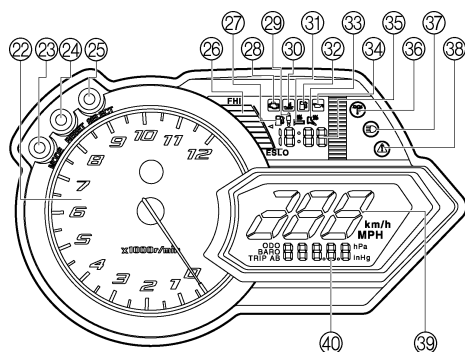
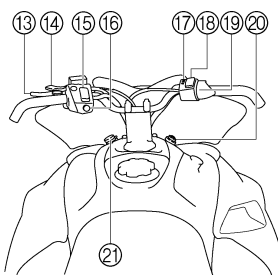
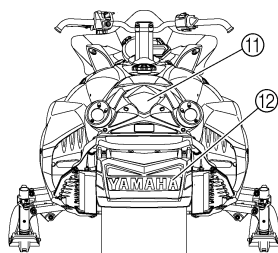
1. Do not leave the snowmobile on its left side for an extended period of time. Fuel may leak out from the fuel breather hose.
2. Modifications made to the snowmobile not approved by Yamaha, or the removal of original equipment may render your snowmobile unsafe for use that may cause severe personal injury. Modifications may also make the snowmobile illegal to use.
3. Never store the snowmobile with fuel in the fuel tank inside a building where ignition sources are present such as hot water and space heaters, an open flame, sparks, clothes dryers, and the like. Allow the engine to cool off before storing the snowmobile in an enclosed space.
4. Always refer to the “STORAGE” section if the snowmobile is to be stored for an extended period.
5. Maintain or replace safety and instruction labels, as necessary.

ESU00012

DESCRIPTION

- ① Windshield
- ② Steering handlebar
- ③ Seat
- ④ Frame
- ⑤ Storage compartment
- ⑥ Slide rail suspension
- ⑦ Drive track
- ⑧ Skis
- ⑨ Headlights
- ⑩ Shroud





- 11 Tail/brake lights
- 12 Snow flap
- 13 Brake lever
- 14 Parking brake lever
- 15 Grip warmer adjustment switch
- 16 Headlight beam switch
- 17 Engine stop switch
- 18 Thumb warmer adjustment switch
- 19 Throttle lever
- 20 Main switch
- 21 Auxiliary DC jack
- 22 Tachometer
- 23 Mode button (not applicable)
- 24 Reset button
- 25 Select button
- 26 Fuel meter and grip/thumb warmer level indicator
- 27 Fuel meter indicator
- 28 Self-diagnosis warning indicator
- 29 Rear suspension indicator (not applicable)
- 30 Coolant temperature warning indicator
- 31 Grip warmer indicator
- 32 Fuel level warning indicator
- 33 Thumb warmer indicator
- 34 Oil level warning indicator
- 35 Clock
- 36 Low coolant temperature indicator light
- 37 High beam indicator light
- 38 Warning light
- 39 Speedometer
- 40 Odometer/tripmeter/barometer

ESU00013

CONTROL FUNCTIONS

ESU00362

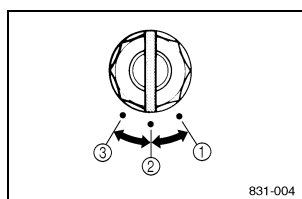
Main switch

The main switch controls the following items.

① "OFF"

The ignition circuit is switched off.

The key can be removed only in this position.



② "ON"

The ignition circuit is switched on.

③ "START"

The starting circuit is switched on.

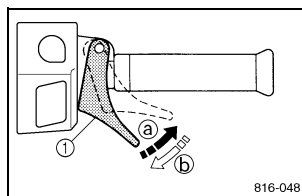
The starter motor starts.

CAUTION:

Release the switch immediately after the engine starts.

NOTE:

The headlights, meter lights, and taillights come on after the engine starts.



ESU00022

Throttle lever

Once the engine is running cleanly, squeezing ③ the throttle lever ① will increase the engine speed and cause engagement of the drive system. Regulate the speed of the snowmobile by varying the throttle position. Because the throttle is spring-loaded, the snowmobile will decelerate, and the engine will return to idle when it is released ②.

⚠ WARNING

Check the throttle, brake, and steering for proper operation before starting the engine.

ESU00361

Engine overheating prevention system

This model is equipped with an engine overheating prevention system to prevent overheating when the engine is idling.

When the engine has been idling for at least 3 minutes and the coolant temperature has risen above 100 °C (212 °F), the engine automatically shuts off to prevent overheating.

NOTE:

The engine can be started after it shuts off.

ESU04701

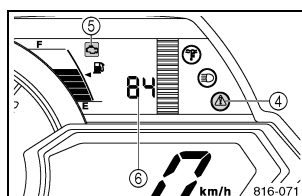
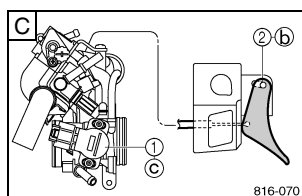
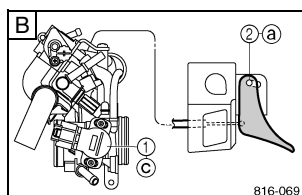
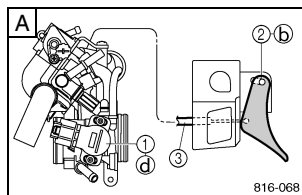
Throttle override system (T.O.R.S.)

If the throttle bodies or throttle cable malfunctions during operation, the T.O.R.S. will operate when the throttle lever is released.

The T.O.R.S. is designed to interrupt the fuel injection and keep the engine speed between 2,800 and 3,000 r/min if the throttle valves fail to return to the idle position when the throttle lever is released.

⚠ WARNING

- If the T.O.R.S. is activated, 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 specified spark plug and spark plug cap. Otherwise, the T.O.R.S. will not work properly.



Mode \ Item	A Idling/ starting	B Running	C Trouble
Throttle switch	Off	On	Off
Throttle position sensor	Closed	Open	Open
Engine	Run	Run	T.O.R.S. will operate

A Idling/starting

B Running

C Trouble

1 Throttle position sensor (throttle valve position)

2 Throttle switch

3 Throttle cable

a On

b Off

c Open

d Closed

NOTE:

- When the T.O.R.S. is activated, the warning light ④ and self-diagnosis warning indicator ⑤ will flash and the two-digit code "84" ⑥ will flash in the clock display.
- The T.O.R.S. monitors the condition of the throttle position sensor, speedometer assembly, and speed sensor, and will operate if any of the monitored items is disconnected or malfunctioning.

ESU04711

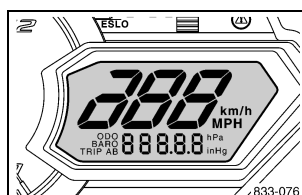
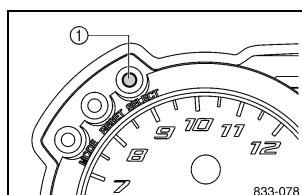
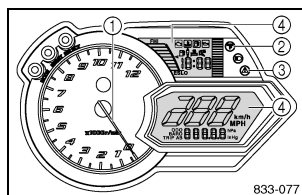
Speedometer unit

The speedometer unit is equipped with the following:

- a digital speedometer (which shows the riding speed)
- an odometer (which shows the total distance traveled)
- two tripmeters (which show the distance traveled since they were last set to zero)
- a barometer (which shows the ambient barometric pressure)
- a clock
- warning indicators (which show self-diagnosis, coolant temperature, fuel level, and oil level warnings)
- a fuel meter (which shows the fuel remaining in the fuel tank)
- a grip/thumb warmer level indicator (which shows the grip warmer level or the thumb warmer level)
- a display brightness control function

After the engine is started, the tachometer ① makes one sweep, and the low coolant temperature indicator light ②, the warning light ③, and all segments of the meter display ④ turn on and off once.

The grip warmer level is initially displayed for 5 seconds, then the display switches to the fuel meter.



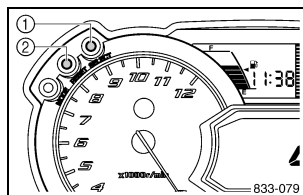
Odometer, tripmeter, and barometer modes

Pushing the "SELECT" button ① switches the display between the odometer mode "ODO", tripmeter modes "TRIP A" and "TRIP B", and barometer mode "BARO".

To reset a tripmeter, push the "RESET" button for at least 1 second while the tripmeter is displayed.

NOTE:

- To switch the speedometer, odometer, and tripmeter displays between kilometers and miles, select the odometer mode "ODO", and then push the "SELECT" button for at least 10 seconds while the snowmobile is stopped.
- To switch the barometer display between hectopascal "hPa" and inches of mercury "inHg", select the barometer mode "BARO", and then push the "SELECT" button for at least 3 seconds while the snowmobile is stopped.



Clock

To set the clock

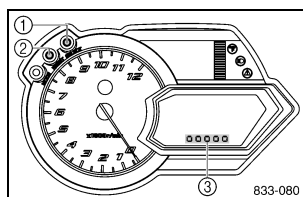
1. Push the "SELECT" button ① and "RESET" button ② simultaneously until the hour digits start flashing.
2. Push the "RESET" button to change the hour setting, and then push the "SELECT" button. The minute digits will start flashing.
3. Push the "RESET" button to change the minute setting, and then push the "SELECT" button. The clock starts when the "SELECT" button is released.

NOTE:

The clock must be set again when the battery is disconnected.

Display brightness control

This function allows you to adjust the brightness of the meter display to suit the outdoor lighting conditions.

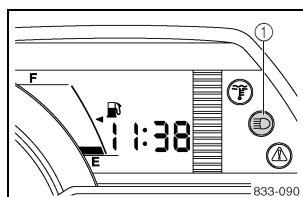


To adjust the display brightness

1. Turn the main switch to "OFF".
2. Push and hold down the "SELECT" button ①.
3. Turn the main switch to "ON", and then, after 5 seconds, release the "SELECT" button.
4. Push the "RESET" button ② to select the desired display brightness level ③, and then push the "SELECT" button. The normal display returns when the "SELECT" button is released.

NOTE:

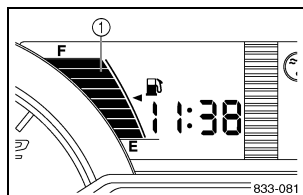
If the main switch is turned to "OFF" or the engine is started before completing the procedure, the setting is not applied.



ESU00363

High beam indicator light

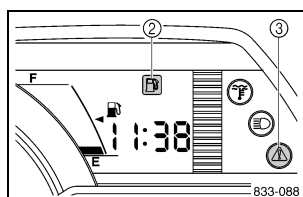
The high beam indicator light ① comes on when the high beams of the headlights are switched on. (See page 5-10 for headlight beam switch operation.)



ESU03824

Fuel meter and grip/thumb warmer level indicator

The fuel meter and grip/thumb warmer level indicator have eight segments ① which show the amount of fuel remaining in the fuel tank, the grip warmer level, or the thumb warmer level.



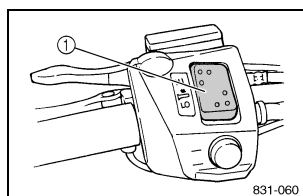
Fuel meter

As the fuel level decreases in the fuel tank, the segments disappear until the level goes down to the last segment "E" (Empty). When this occurs, the fuel level warning indicator ② and the warning light ③ come on.

If the fuel level warning indicator and the warning light come on, fill the fuel tank at the first opportunity.

NOTE:

The snowmobile must be stopped on a level surface to obtain an accurate fuel meter reading, since the reading changes according to the movement and inclination of the snowmobile.



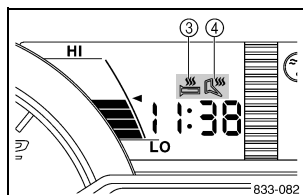
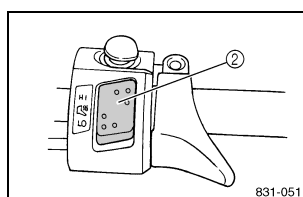
Grip/thumb warmer level indicator

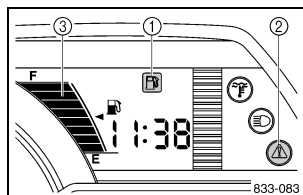
The grip warmer adjustment switch ① and the thumb warmer adjustment switch ② control the electrically heated handlebar grips and throttle lever respectively.

To raise the temperature, press the respective switch to "HI". To lower the temperature, press the switch to "LO".

NOTE:

- The grip warmer indicator ③ comes on and the display switches to the grip warmer level when the grip warmer adjustment switch is pressed.
- The thumb warmer indicator ④ comes on and the display switches to the thumb warmer level when the thumb warmer adjustment switch is pressed.
- The grip/thumb warmer level is displayed for 5 seconds after releasing the grip/thumb warmer adjustment switch, then the display switches to the fuel meter.
- The top segment of the grip/thumb warmer level indicator flashes once when the grip/thumb warmer adjustment reaches the maximum level. The bottom segment of the grip/thumb warmer level indicator flashes once when the grip/thumb warmer adjustment reaches the minimum level.
- When the engine is started, the grip/thumb warmer levels are set to the levels saved when the engine was stopped.





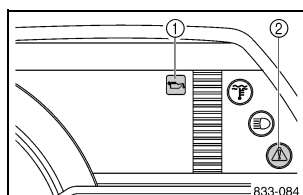
ESU04260

Fuel level warning indicator

The fuel level warning indicator indicates a malfunctioning sensor, disconnected coupler, broken lead, or short circuit when detected by the self-diagnosis device of the snowmobile.

The fuel level warning indicator ①, warning light ②, and all segments of the fuel meter ③ warn the rider of the above problems by flashing continuously.

When this occurs, have a Yamaha dealer inspect the snowmobile as soon as possible.



ESU03770

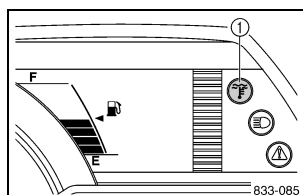
Oil level warning indicator

The oil level warning indicator ① and the warning light ② come on when the engine oil level is low.

If the oil level warning indicator and the warning light come on, place the snowmobile on a level surface and allow it to idle for one minute.

If the oil level warning indicator and the warning light go off, the engine oil level is sufficient, however it is getting low. Add engine oil as soon as possible.

If the oil level warning indicator and the warning light do not go off, check the engine oil level in the oil tank (see page 6-3), and add engine oil if necessary.



ESU04840

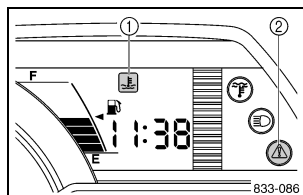
Low coolant temperature indicator light

The low coolant temperature indicator light ① comes on when the coolant temperature is low and informs the rider that the snowmobile must be warmed up. After the engine is started, warm it up until the indicator light goes off.

The snowmobile can be operated normally after the indicator light goes off.

NOTE:

While the low coolant temperature indicator light is on, the engine control system prevents the engine speed from rising even if the throttle lever is pressed.



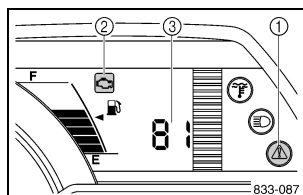
ESU04180

Coolant temperature warning indicator

If the engine overheats, the coolant temperature warning indicator ① and the warning light ② come on. When this occurs, stop the engine immediately and allow the engine to cool down, and then check the coolant level in the coolant reservoir. (See page 6-4.)

CAUTION:

Do not operate the engine if it overheats.



ESU04254

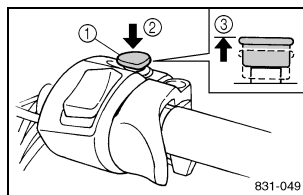
Self-diagnostic system

This model is equipped with a self-diagnostic system for various electrical circuits.

If any of those circuits are defective, the warning light ① and the self-diagnosis warning indicator ② will flash, and then an error code (e.g., 16 and 81) ③ will flash slowly in the tripmeter/odometer display.

⚠ WARNING

- If the self-diagnosis warning indicator and warning light flash continuously, and an error code is displayed during operation, there may be some problem with the electrical circuit, lead couplers, etc.
- Stop the engine and allow it to cool off. Then, check that the wire harness couplers in the engine compartment are connected properly.
- If the self-diagnosis warning indicator, warning light, and an error code flash after the engine has been restarted, note the error code, and then have a Yamaha dealer inspect the snowmobile as soon as possible.

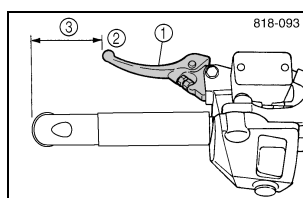


ESU00031

Engine stop switch

The engine stop switch ① is used to stop the engine in an emergency. Simply push ② the stop switch to stop the engine. To start the engine, pull ③ the stop switch and proceed with starting the engine. (See page 7-1 for more details.)

During the first few rides, practice using the stop switch so that you can react quickly in an emergency.



ESU00033

Brake lever

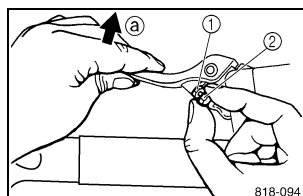
The snowmobile is stopped by braking the entire drive system.

Squeeze the brake lever towards the handlebar grip to stop the snowmobile.

- ① Brake lever
- ② Brake lever end
- ③ Handlebar end

NOTE: _____
When the brake lever is operated, the brake light will illuminate.

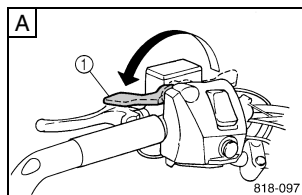
CAUTION: _____
Make sure that the brake lever end does not project out over the handlebar end. This will help prevent brake lever damage when the snowmobile is placed on its side for service.



The brake lever is equipped with a position adjuster.

To adjust the brake lever position:

1. Loosen the locknut ①.
2. While lightly pushing the brake lever in direction ③, finger tighten the adjusting bolt ② to set the brake lever to the desired position.
3. Tighten the locknut securely after adjusting the brake lever.

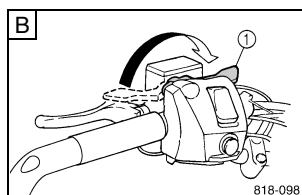


ESU00035

Parking brake lever

When parking the snowmobile or starting the engine, apply the parking brake by moving the brake lever ① to the left.

To release the parking brake, move the parking brake lever ① to the right.

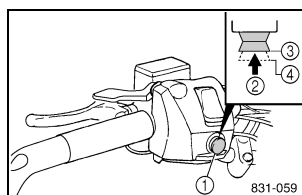


A To apply the parking brake

B To release the parking brake

⚠ WARNING

- Always set the parking brake before attempting to start the engine.
- Never run the snowmobile with the parking brake applied. This may overheat the brake disc and reduce braking ability.

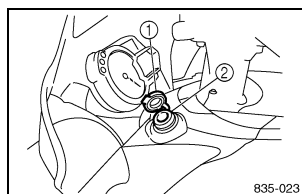


ESU00039

Headlight beam switch

Push the headlight beam switch to change the headlight beam to high or low.

- ① Headlight beam switch
- ② Push
- ③ High beam
- ④ Low beam



ESU04301

Auxiliary DC jack

The auxiliary DC jack is located in the front panel and can be used for accessories.

NOTE:

The auxiliary DC jack cannot be used if the engine is not running.

1. Start the engine.
2. Open the auxiliary DC jack cap ①, and then insert the accessory power plug into the jack ②.

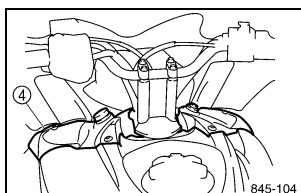
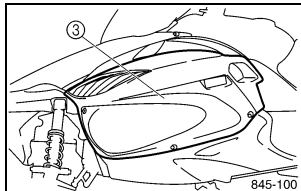
NOTE:

After using the auxiliary DC jack, be sure to remove the accessory power plug from the jack and close the auxiliary DC jack cap.

CAUTION:

- Do not use accessories requiring more than the maximum rated capacity for the auxiliary DC jack. This may overload the circuit and cause the fuse to blow. (See pages 8-34–8-35 for the specified amperage.)
- Do not use an automotive cigarette lighter or other accessory with a plug that gets hot because the jack can be damaged.

Maximum rated capacity:
DC 12 V, 2.5 A (30 W)



ESU04730

Shroud and covers

Securely fasten the shroud and covers before operating the snowmobile. (See pages 8-5–8-7 for removal and installation procedures.)

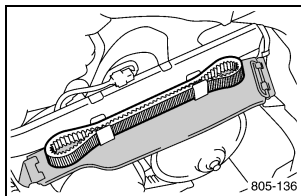
- ① Shroud
- ② Right side cover
- ③ Left side cover
- ④ Top cover

⚠ WARNING

- Do not drive the snowmobile with the shroud or covers unfastened or removed.
- Keep your body and clothing away from rotating parts when servicing the snowmobile with the shroud or covers removed.
- Do not touch the hot muffler and engine during or immediately after operation.

CAUTION:

Make sure that all cables, leads, etc., are in place when installing the shroud and covers.



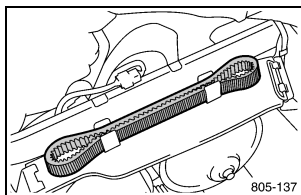
ESU00521

Drive guard

The drive guard is designed to cover the V-belt clutch and V-belt in case parts break or come loose.

⚠ WARNING

- Make sure that the drive guard is tightened securely before operating the snowmobile.
- Never run the engine with the V-belt or drive guard removed.



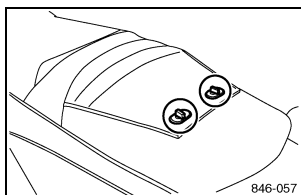
ESU00053

V-belt holders

Keep a spare V-belt for emergency use by placing it into the V-belt holders provided.

CAUTION:

Make sure that the V-belt is installed securely in the holders.



ESU00680

Storage compartment

Open the storage compartment to store the service tools, spare parts, or other small items.

ESU00072

PRE-OPERATION CHECKS

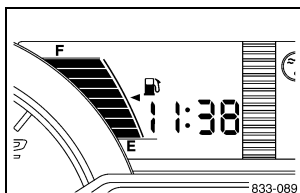
NOTE:

Pre-operation checks should be made each time the snowmobile is used.

⚠ 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.



ESU00751

Fuel

Make sure that there is sufficient fuel in the fuel tank.

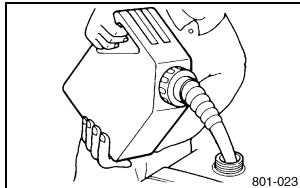
Recommended fuel:

Unleaded gasoline

Pump octane (R+M)/2; 86 or higher

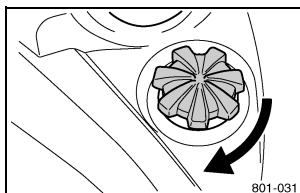
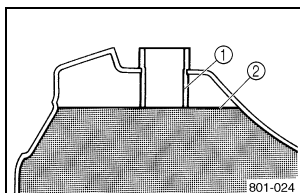
Fuel tank capacity:

38.3 L (8.4 Imp gal, 10.1 US gal)



⚠ WARNING

- Fuel is **HIGHLY FLAMMABLE** and poisonous. Check the "SAFETY INFORMATION" section carefully before refueling. (See page 3-2.)
- Do not fill the fuel tank above the bottom of the filler tube ①. Fuel could overflow if the snowmobile is tilted or if the ambient temperature rises, causing the fuel to warm up and expand.
- Make sure that the fuel tank cap is closed securely after refueling. Leaking fuel can catch fire.



② Fuel level

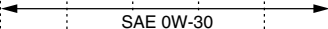
CAUTION:

- Oxygenated fuels (gasohol) containing a maximum 5% of ethanol can be used, although richer jetting may be required to prevent engine damage. Consult a Yamaha dealer. Gasohol containing methanol is not recommended.
- Make sure that snow or ice does not enter the fuel tank when refueling.
- Do not use alcohol deicers or water absorbing additives with oxygenated fuel.
- The fuel tank should be filled with straight gasoline as specified.

ESU04031

Engine oil

Use a combination of the recommended SAE and API oil classifications shown in the chart below.

SAE						API SE, SF, SG or higher
-40°	-20°	0°	20°	40°	60° F	
						
-40°	-29°	-18°	-7°	4°	16° C	

CAUTION:

Use only 4-stroke engine oil.

ESU04581

Engine oil level

The engine oil level should be checked before each use.

CAUTION:

Do not run the engine with too much or not enough oil in the oil tank. Oil could flow into the air filter case and the engine could be damaged.

Checking the engine oil level

1. Place the snowmobile on a level surface and apply the parking brake.
2. Start the engine, warm it up for 10–15 minutes, and then turn it off.

NOTE:

- The engine can also be warmed up by operating the snowmobile for 10–15 minutes.
- After operating the snowmobile, allow the engine to idle for at least 10 seconds before turning it off.

3. Remove the shroud and the right side cover. (See pages 8-5–8-7 for removal procedures.)
4. Disconnect the oil level gauge coupler ①.

CAUTION:

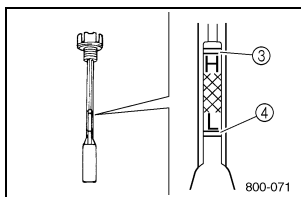
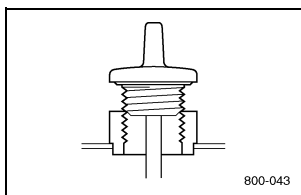
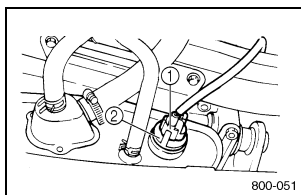
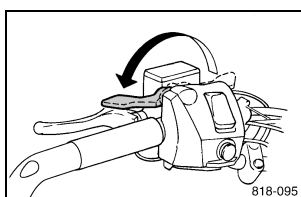
Disconnect the oil level gauge coupler before removing the oil level gauge/dipstick. Otherwise, the cable can twist and break.

5. Remove the oil level gauge/dipstick ②, wipe it clean, insert it back into the oil filler hole (without screwing it in), and then remove it again to check the oil level.

NOTE:

The engine oil should be between the “H” ③ and “L” ④ level marks on the oil level gauge/dipstick.

6. If the engine oil is below the “L” level mark, add sufficient oil of the recommended type to raise it to the “H” level mark. (See page 6-2 for the recommended oil.)



CAUTION:

- When adding the engine oil, be careful not to fill above the “H” level mark on the oil level gauge/dipstick.
- Make sure that no foreign material enters the engine oil tank.

7. Insert the oil level gauge/dipstick into the oil filler hole, and then tighten it securely.
8. Connect the oil level gauge coupler.
9. Install the right side cover and the shroud.

ESU04511

Coolant

Checking the coolant level

1. Remove the top cover. (See pages 8-5–8-7 for removal procedures.)
2. Check the coolant level in the coolant recovery tank when the engine is cold. If the coolant level is below the “COLD LEVEL” mark, add soft water until it reaches the “COLD LEVEL” mark. (See pages 8-14–8-16 for more details.)

- ① “COLD LEVEL” mark

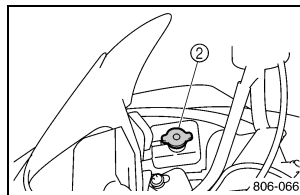
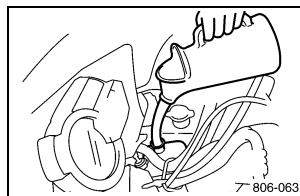
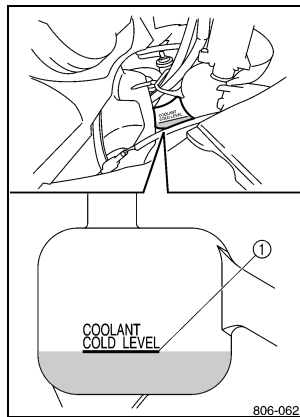
WARNING

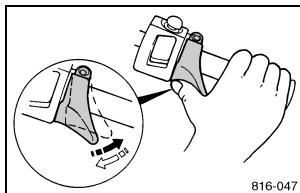
Do not remove the coolant reservoir cap when the engine is hot.

- ② Coolant reservoir cap

CAUTION:

- Hard water or salt water is harmful to the engine parts. You may use boiled or distilled water, if soft water is not available.
- Tap water can be used temporarily in an emergency.





ESU00087

Throttle lever

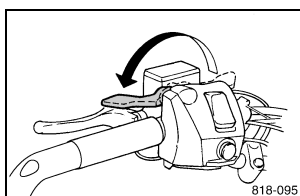
Check the throttle lever operation before starting the engine.

The throttle lever must open smoothly and spring back to its home position when released.

ESU00090

Throttle override system (T.O.R.S.)

Check the T.O.R.S. for proper operation.



⚠ WARNING

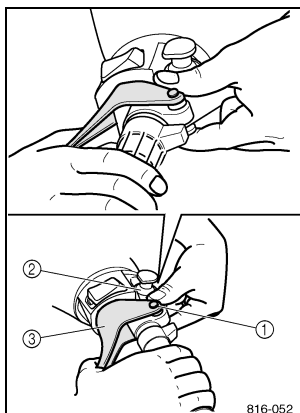
When checking T.O.R.S.:

- Make sure that the parking brake is applied.
- Make sure that the throttle lever moves smoothly.
- Do not run the engine up to clutch engagement r/min. Otherwise, the snowmobile could start moving forward unexpectedly, which could cause an accident.

1. Start the engine.

NOTE:

Refer to the "Starting the engine" section.



2. Hold the pivot point of the throttle lever away from the throttle switch by putting your thumb (above) and forefinger (below) between the throttle lever pivot ① and the engine stop switch housing ②.

While holding the pivot point as described above, press the throttle lever ③ gradually.

The T.O.R.S. will operate 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 consult a Yamaha dealer.

ESU00091

Brake**1. Brake lever**

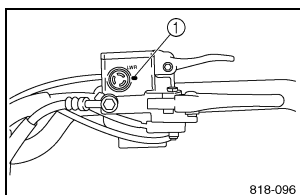
Test the brake at a low speed when starting out to make sure that it is working properly. If the brake does not provide proper braking performance, inspect the brake for wear or brake fluid leakage. (See pages 8-20–8-22 for more details.)

⚠ WARNING

- A soft, spongy feeling in the brake lever indicates a failure in the brake system.
- Do not operate the snowmobile if you find any problems in the brake system. You could lose braking ability, which could lead to an accident. Ask a Yamaha dealer to inspect and repair the brake system.

CAUTION:

Make sure that the brake lever end does not project out over the handlebar end. This is to prevent brake lever damage when the snowmobile is placed on its side.

**2. Brake fluid**

Check the brake fluid level. (See page 8-21.)
Add fluid if necessary.

① Lower level

Specified brake fluid: DOT 4

ESU00093

Brake fluid leakage

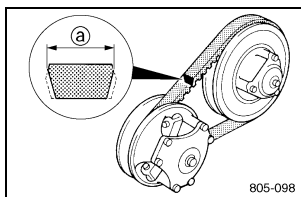
Apply the brake for a few minutes. Check to see if any brake fluid leaks out from the brake hose joints or the master cylinder.

WARNING

If brake fluid leakage is found, ask a Yamaha dealer for immediate repairs.

CAUTION:

Brake fluid may deteriorate painted surfaces or plastic parts. Never spill any brake fluid. If any is spilled, clean it up immediately.



ESU04520

V-belt

Check the V-belt.

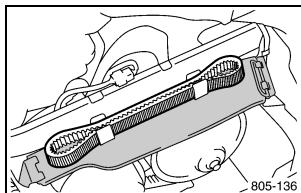
1. Remove the shroud and the left side cover, and then remove the drive guard. (See pages 8-5-8-7 for removal procedures.)
2. Check the V-belt for wear and damage. Replace if necessary.

Wear limit @: 32.5 mm (1.28 in)

3. Install the left side cover and the shroud.

WARNING

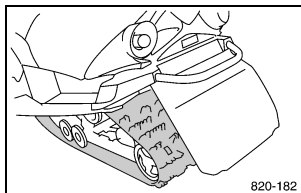
- Make sure that the drive guard is installed securely before operating the snowmobile.
- Never run the engine with the V-belt or drive guard removed.



ESU00096

Drive guard

Check the drive guard mounts for damage. Make sure that the drive guard is firmly in place.



820-182

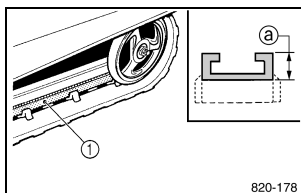
ESU00097

Drive track

Check the drive track for deflection, wear, or damage. Adjust or replace if necessary. (See pages 8-28–8-30 for more details.)

⚠ WARNING

Do not operate the snowmobile if you find damage to the drive track, or if it has been maladjusted. Drive track damage or failure could result in loss of braking ability and snowmobile control, which could cause an accident.



820-178

ESU00982

Slide runners

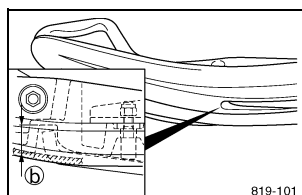
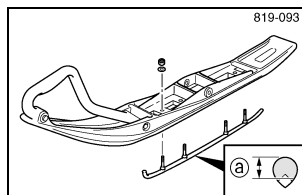
Check the slide runners for wear and damage. If the slide runners reach the wear limit, they should be replaced.

- ① Slide runners
- Ⓐ Wear limit

Wear limit height:
10.5 mm (0.41 in)

CAUTION:

Ride on fresh snow frequently. Operating on ice or hard packed snow will rapidly wear the slide runners.



ESU01020

Skis and ski runners

Check the skis and ski runners for wear and damage. Replace if necessary.

Ski runner wear limit (a):

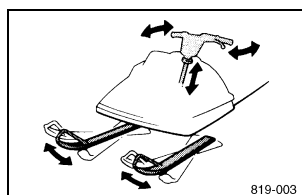
8 mm (0.31 in)

Ski wear limit (b):

12 mm (0.47 in)

CAUTION:

Avoid scratching the skis when loading and unloading the snowmobile, when riding in areas with little or no snow, or on sharp edges such as concrete, curbs, etc. This will wear or damage the skis.



ESU00103

Steering system

Check the handlebar for excessive free play:

1. Push the handlebar up and down and back and forth.
2. Turn the handlebar slightly to the right and left.

If excessive free play is noticed, consult a Yamaha dealer.



ESU00378

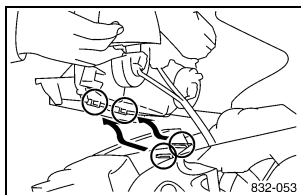
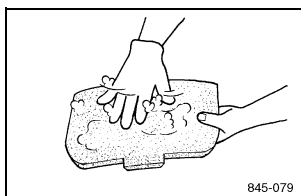
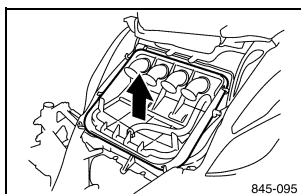
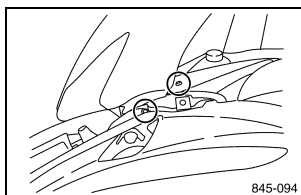
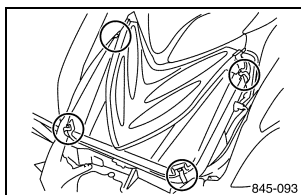
Lights

Check the lights.

Replace any burned out bulbs.

CAUTION:

Avoid using a scraper or hot water for cleaning the plastic lenses (1).



ESU04601

Air filter

Always check that there is no snow under the air filter element frame.

1. Remove the shroud. (See pages 8-5–8-7 for removal procedures.)
2. Unhook the air filter case cover fasteners.
3. Remove the headlight unit bolts and the two top cover bolts near the headlight unit.
4. Slightly lift up the headlight unit, and then remove the air filter case cover.
5. Lift up the air filter element frame and check the air filter element. If there is any snow on the air filter element, remove the element and brush off the snow, and then install the air filter element.
6. Place the air filter element frame in its original position, and then install the air filter case cover. Hook the fasteners onto the air filter case cover.
7. Install the headlight unit, making sure to insert the tabs on the headlight unit stay into the slots on the bottom of the headlight unit.
8. Install the headlight unit bolts, and then tighten them to the specified torque.

Headlight unit bolt tightening torque:
3 Nm (0.3 m·kgf, 2.2 ft·lb)

9. Install the top cover bolts.
10. Install the shroud.

NOTE:

After riding the snowmobile, make sure that there is no snow under the air filter element frame.

ESU00110

Fittings and fasteners

Check the tightness of the fittings and fasteners.
Tighten in proper sequence and torque if necessary.

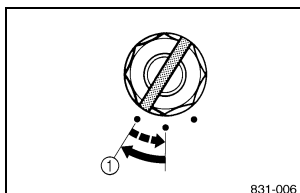
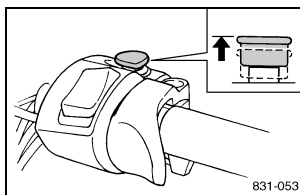
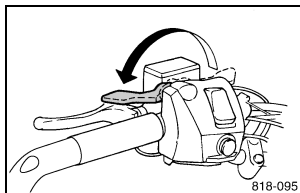
ESU00345

Tool kit and recommended equipment

It is good practice to carry the tool kit, spare parts, and other necessary equipment with you while riding the snowmobile so that minor repairs can be done if necessary. The following should be carried at all times:

- Tool kit
- Flashlight
- Roll of plastic tape
- Steel wire
- Towrope
- Jumper cables
- V-belt
- Light bulbs
- Spark plugs

When you start out for a long distance trip, extra fuel and oil should be carried as well.



ESU00112

OPERATION

ESU04640

Starting the engine

⚠ WARNING

- Be sure to check the “SAFETY INFORMATION” section carefully before starting the engine.
- Make sure that the parking brake is applied.

NOTE:

Make sure that the engine stop switch is in the on position. The starter motor cannot be operated when the engine stop switch is in the off position.

1. Turn the main switch to the “START” position. Warm up the engine until it does not run roughly.

① “START”

CAUTION:

- Release the switch immediately after the engine starts.
- If the engine fails to start, release the switch, wait a few seconds, then try again. Each attempt should be as short as possible to preserve the battery. Do not crank the engine more than 10 seconds on any one attempt.

ESU00380

Break-in

There is never a more important period in the life of your engine than the period between 0 and 500 km (300 mi). For this reason, you should read the following material carefully.

Since the engine is brand new, do not put an excessive load on it for the first 500 km (300 mi). The various parts in the engine wear and polish themselves to the correct operating clearances. During this period, prolonged full-throttle operation or any condition that might result in engine overheating must be avoided.

Operating your snowmobile for the first time

Start the engine and let it idle for 15 minutes.

0–160 km (0–100 mi)

Avoid prolonged operation above 6,000 r/min.

160–500 km (100–300 mi)

Avoid prolonged operation above 8,000 r/min.

500 km (300 mi) and beyond

The snowmobile can now be operated normally.

CAUTION:

- After 800 km (500 mi) of operation, the engine oil must be changed and the oil filter cartridge replaced.
- If any engine trouble should occur during the engine break-in period, immediately have a Yamaha dealer check the snowmobile.

ESU01272

Riding your snowmobile

Getting to know your snowmobile

A snowmobile is a rider active vehicle, and your riding position and your balance are the two basic factors of maneuvering your snowmobile.

Riding your snowmobile requires skills acquired through practice over a period of time. Take the time to learn the basic techniques well before attempting more difficult maneuvers.

Riding your new snowmobile can be a very enjoyable activity, providing you with hours of pleasure. However, it is essential to familiarize yourself with the operation of the snowmobile to achieve the skill necessary to enjoy riding safely. Before operating the snowmobile, read this Owner's Manual completely and understand the operation of the controls.

Pay particular attention to the safety information on pages 3-1–3-3. Please read all warning and caution labels on your snowmobile. Also, read the Snowmobiler's Safety Handbook that is supplied with your snowmobile.

Learning to ride your snowmobile

Before you ride, always perform the pre-operation checks listed on pages 8-1–8-4. The short time spent checking the condition of the snowmobile will be rewarded with added safety and a more reliable snowmobile. Always wear the proper clothing for both warmth and to help protect you from injury if an accident occurs.

Become familiar with operating your snowmobile at low speeds, even if you are an experienced rider. Do not attempt to operate at maximum performance until you are

totally familiar with the snowmobile's handling and performance characteristics.

Set the parking brake and follow the instructions on pages 7-1–7-2 to start the engine. Once the engine has warmed up, you are ready to begin riding your snowmobile.

To start out and accelerate

1. With the engine idling, release the parking brake.
2. Apply the throttle slowly and smoothly. The V-belt clutch will engage and you will start to accelerate.

WARNING

The operator should always keep both hands on the handlebar. Never put your feet outside the running boards. Avoid high speeds until you have become thoroughly familiar with your snowmobile and all of its controls.

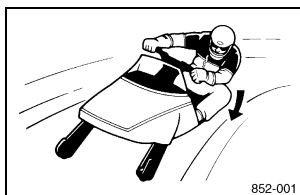
Braking

When slowing down or stopping, release the throttle and apply the brake gently—not suddenly.

WARNING

- **Many surfaces such as ice and hard-packed snow require much longer stopping distances. Be alert, plan ahead, and begin decelerating early.**
- **Improper use of the brake can cause the drive track to lose traction, reduce control, and increase the possibility of an accident.**

Turning



For most snow surfaces, “body English” is the key to turning.

As you approach a curve, slow down and begin to turn the handlebar in the desired direction. As you do so, put your weight on the running board to the inside of the turn and lean your upper body into the turn.

This procedure should be practiced at low speeds many times, in a large flat area with no obstacles. Once you have learned this technique, you should be able to perform it at higher speeds or in tighter curves. Lean more as the turn gets sharper or is made at higher speeds.

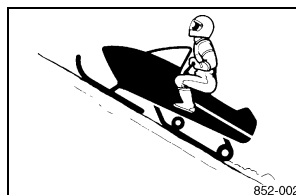
Improper riding techniques such as abrupt throttle changes, excessive braking, incorrect body movements, or too much speed for the sharpness of the turn may cause the snowmobile to tip.

If your snowmobile begins to tip while turning, lean more into the turn to regain balance. If necessary, gradually let off on the throttle or steer to the outside of the turn.

Remember:

Avoid higher speeds until you are thoroughly familiar with the operation of your snowmobile.

Riding uphill



You should practice first on gentle slopes. Try more difficult climbs only after you have developed your skill. As you approach a hill, accelerate before you start the climb, and then reduce the throttle to prevent track slippage. It is also important to keep your weight on the uphill side at all times.

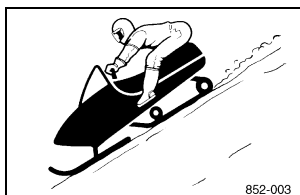
On climbs straight up the hill, this can be accomplished by leaning forward and, on steeper inclines, standing on the running boards and leaning forward over the handlebar. (Also see “Traversing a slope.”)

Slow down as you reach the crest of the hill, and be prepared to react to obstacles, sharp drops, or other vehicles or people which may be on the other side. If you are unable to continue up a hill, do not spin the track. Stop the engine and set the parking brake. Then pull the rear of the snowmobile around to point the snowmobile back down the hill. When the snowmobile is pointed downhill, mount your snowmobile from the uphill side. Restart the engine, release the parking brake, and descend the hill.

⚠ WARNING

Side hills and steep slopes are not recommended for a novice snowmobiler.

Riding downhill

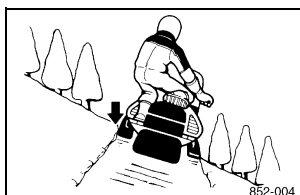


When riding downhill, keep speed to a minimum. It is important to apply just enough throttle to keep the clutch engaged while descending the hill. This will allow you to use engine compression to help slow the snowmobile, and to keep the snowmobile from rolling freely down the hill. Also apply the brake frequently, with light pressure.

⚠ WARNING

Use extra caution when applying the brake during a descent. Excessive braking will cause the drive track to lock, causing a loss of control.

Traversing a slope



⚠ WARNING

Traversing slopes is not recommended for a novice snowmobiler.

Traversing a slope requires you to properly position your weight to maintain proper balance. As you travel across the slope, lean your body to position your weight towards the uphill side. A recommended riding position is to kneel with the knee of your

downhill leg on the seat and the foot of your uphill leg on the running board. This position will make it easier for you to shift your body weight as needed.

Snow and ice are slippery, so be prepared for the possibility that your snowmobile could begin to slip sideways on the slope. If this happens, steer in the direction of the slide if there are no obstacles in your path. As you regain proper balance, gradually steer again in the direction you wish to travel.

If your snowmobile starts to tip, steer down the hill to regain balance.

⚠ WARNING

If you are unable to maintain correct balance, and your snowmobile is going to tip over, dismount your snowmobile immediately on the uphill side.

Ice or icy surface

Operating on ice or icy surfaces can be very dangerous. Traction for turning, stopping, and starting is much less than that on snow.

⚠ WARNING

When you have to operate on ice or icy surfaces, drive slowly and cautiously. Avoid accelerating, turning, and braking rapidly. Steering is minimal and uncontrolled spins are an ever-present danger.

Hard-packed snow

It can be more difficult to negotiate on hard-packed snow as both the skis and drive track do not have as much traction as when the snowmobile is operated on fresh snow. Avoid rapid acceleration, turning, and braking.

Operation on surfaces other than snow or ice

Operation of your snowmobile on surfaces other than snow or ice should be avoided. Operation under such conditions will damage or result in rapid wear of the ski runners, drive track, slide runners, and drive sprockets. Operation of the snowmobile on the following surfaces should be avoided at all times:

1. Dirt
2. Sand
3. Rocks
4. Grass
5. Bare pavement

Other surfaces that should be avoided for the sake of drive track and slide runner life are:

1. Glare ice surfaces
2. Snow mixed with a lot of dirt and sand

All of the above surfaces have one thing in common in regard to drive track and slide runners; little or no lubricating ability. Drive track and all slide rail systems require lubrication (snow or water) between the slide runners and the slide metal. In the absence of lubrication, the slide runners will rapidly wear and in severe cases, literally melt away, and the drive track will be subject to damage or failure.

Also traction aids such as studs, cleats, etc., may cause further track damage or failure.

WARNING

Drive track damage or failure could result in loss of braking ability and snowmobile control, which could cause an accident.

- Always check the drive track for damage or maladjustment before operating the snowmobile.
- Do not operate the snowmobile if you find damage to the drive track.

CAUTION:

Ride on fresh snow frequently. Operating on ice or hard-packed snow will rapidly wear the slide runners.

ESU00251

Maximizing drive track life Recommendations

Track tension

During initial break-in, the new drive track will tend to stretch quickly as the track settles. Be sure to correct the track tension and alignment frequently. (See pages 8-28–8-30 for adjustment procedures.) A loose track can slip (ratchet), derail or catch on suspension parts causing severe damage. Do not overtighten the drive track, otherwise it may increase the friction between the track and the slide runners, resulting in the rapid wear of both components. Also, this may put an excessive load on the suspension components, resulting in component failure.

Marginal snow

The drive track and the slide runners are lubricated and cooled by snow and water. To prevent the drive track and slide runners from overheating, avoid sustained high-speed usage in areas such as icy trails, frozen lakes and rivers that have minimal snow coverage. An overheated track will be weakened internally, which may cause failure or damage.

Off-trail riding

Avoid off-trail riding until there is sufficient snow coverage. It generally takes several feet of snow to provide a good overall base to properly cover debris, such as rocks, logs, etc. If snow coverage is not sufficient, stay on trails to avoid impact damage to the drive track.

Studded track

In general, track life will be shortened when studs are installed. Drilling stud holes into the drive track will cut the internal fibers, which weakens the track. Avoid spinning the drive track. Studs may catch on an object and pull out of the track, leaving tears and damage around the already weakened area. To minimize possible damage, consult your stud manufacturer for installation and stud pattern recommendations.

Yamaha does not recommend track studding.

ESU01300

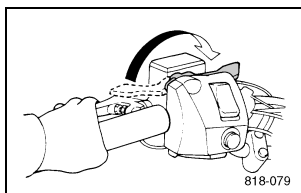
Driving

WARNING

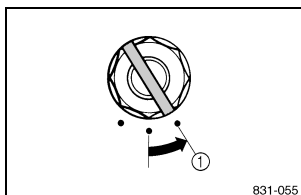
Be sure to read the “SAFETY INFORMATION” and “Riding your snowmobile” sections carefully before operating the snowmobile.

NOTE:

Make sure that the engine is warmed up enough before riding.



1. Release the parking brake by moving the parking brake lever to the right.
2. Press the throttle lever slowly to move the snowmobile.
3. Turn the handlebar in the desired direction.
4. Squeeze the brake lever to stop the snowmobile.
5. Apply the parking brake by moving the parking brake lever to the left.

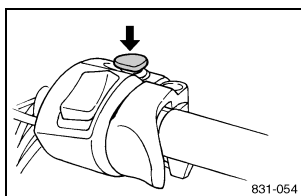


ESU00136

Stopping the engine

Turn the main switch to the “OFF” position to stop the engine.

- ① “OFF”



WARNING

- Push down the engine stop switch to stop the engine in an emergency.
- Make sure that the key is removed from the main switch whenever the operator leaves the snowmobile, to prevent accidental starting.

ESU04650

Transporting

When transporting your snowmobile on a trailer or in a truck, observe the following recommendations to help protect it from damage:

- If transporting the snowmobile in an open trailer or truck, put a tight fitting cover on the snowmobile. A cover specifically designed for your snowmobile is best. This will help keep foreign objects out of the cooling vents in the shroud, and also help protect the snowmobile against damage from debris on the road.
- If transporting the snowmobile in an open trailer or truck in areas where road salt is used, coat metal suspension surfaces lightly with oil or another protectant. This will help protect against corrosion. Be sure to clean the snowmobile when you get to your destination to remove any corrosive salts.

ESU04960

PERIODIC MAINTENANCE

Safety is an obligation of the owner. Periodic inspection, adjustment, and lubrication will keep your snowmobile in the safest and most efficient condition possible. The most important points of snowmobile inspection, adjustment, and lubrication are explained on the following pages.

Maintenance, replacement, or repair of devices and systems related to emissions control may be performed by any repair establishment or individual that is certified (if applicable).

WARNING

If you are not familiar with maintenance work, have a Yamaha dealer do it for you.

PROPER PERIODIC MAINTENANCE OF YOUR SNOWMOBILE IS IMPORTANT IN ORDER TO ENJOY LONG, PLEASURABLE SERVICE. ESPECIALLY IMPORTANT ARE THE MAINTENANCE SERVICES RELATED TO EMISSIONS CONTROL. THESE SERVICES NOT ONLY ENSURE CLEANER AIR, BUT ARE ALSO VITAL TO PROPER ENGINE OPERATION AND MAXIMUM PERFORMANCE. IN THE FOLLOWING PERIODIC MAINTENANCE CHARTS, THE SERVICES RELATED TO EMISSIONS CONTROL ARE GROUPED SEPARATELY. THESE SERVICES REQUIRE SPECIALIZED DATA, KNOWLEDGE, AND EQUIPMENT. YAMAHA DEALERS ARE TRAINED AND EQUIPPED TO PERFORM THESE PARTICULAR SERVICES.

ESU04970

Periodic maintenance chart for the emission control system

Item	Remarks	Pre-operation check (Daily)	Initial 1 month or 800 km (500 mi) (40 hr)	Every	Page
				Seasonally or 4,000 km (2,500 mi) (200 hr)	
Spark plugs	Check condition. Adjust gap and clean. Replace if necessary.			●	8-7-8-8
* Valve clearance	Check clearance. Adjust clearance when engine is cold.	Every 40,000 km (25,000 mi)			8-11
* Crankcase breather system	Check breather hose for cracks or damage. Replace if necessary.			●	
* Fuel filter	Check condition. Replace if necessary.			●	

* It is recommended that these items be serviced by a Yamaha dealer.

Item	Remarks	Pre-operation check (Daily)	Initial 1 month or 800 km (500 mi) (40 hr)	Every	Page
				Seasonally or 4,000 km (2,500 mi) (200 hr)	
* Fuel line	Check fuel hose for cracks or damage. Replace if necessary.			●	
* Idle speed	Check and adjust engine idle speed.		●	●	8-9
* Fuel injection	Adjust synchronization.		●	●	
* Exhaust system	Check for leakage. Tighten or replace gasket if necessary.			●	

* It is recommended that these items be serviced by a Yamaha dealer.

ESU04980

General maintenance and lubrication chart

Item	Remarks	Pre-operation check (Daily)	Initial 1 month or 800 km (500 mi) (40 hr)	Every	Page
				Seasonally or 4,000 km (2,500 mi) (200 hr)	
Engine oil	Check oil level.	●			6-3-6-4
	* Replace.		●	●	8-12-8-14
* Engine oil filter cartridge	Replace.		●	Every 20,000 km (12,000 mi)	
Fuel	Check fuel level.	●			6-1-6-2
Engine coolant	Check coolant level. (recovery tank)	●			6-4
	Check coolant level. (reservoir tank)			●	8-15-8-16
	* Air bleed the cooling system if necessary.			●	8-14
Throttle lever (handlebar side)	Check operation. * Repair if necessary.	●			5-1, 6-5
Throttle override system (T.O.R.S.)	Check operation. * Repair if necessary.	●			5-2, 6-5
Engine stop switch	Check operation. * Repair if necessary.	●			5-9
Drive guard	Check for cracks, bends or damage. * Replace if necessary.	●			5-12, 6-7

* It is recommended that these items be serviced by a Yamaha dealer.

Item	Remarks	Pre-operation check (Daily)	Initial 1 month or 800 km (500 mi) (40 hr)	Every	Page
				Seasonally or 4,000 km (2,500 mi) (200 hr)	
V-belt	Check for wear and damage. Replace if necessary.	●			6-7, 8-16-8-18
Drive track and idler wheels	Check deflection, and for wear and damage. * Adjust/replace if necessary.	●			6-8, 8-28-8-30
Slide runners	Check for wear and damage. * Replace if necessary.	●		●	6-8
Brake and parking brake	Check operation and fluid leakage.	●			5-9-5-10, 6-6-6-7, 8-20-8-22
	* Adjust free play and/or replace pads if necessary.			●	8-20-8-22
	* Replace brake fluid.	See NOTE on page 8-4.			8-22
* Disc 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. * Replace.		●	●	8-19-8-20
Drive chain	Check deflection. * Adjust if necessary.	Initial at 500 km (300 mi) and every 800 km (500 mi) thereafter.			8-20
Skis and ski runners	Check for wear and damage.	●			6-9
	* Replace if necessary.			●	
Steering system	Check operation.	●			6-9
	* Adjust toe-out if necessary.			●	
Lights	Check operation. Replace bulbs if necessary.	●			6-9, 8-32-8-33
* Battery	Check condition. Charge if necessary.			●	8-33
* Primary and secondary clutches	Check engagement and shift speed. Adjust if necessary.	Whenever operating elevation is changed.			
	Inspect sheaves for wear/damage.				
	Inspect weights/rollers and bushings for wear-for primary. Inspect ramp shoes/bushings for wear-for secondary. Replace if necessary.			●	
	Lubricate with specified grease.			●	

* It is recommended that these items be serviced by a Yamaha dealer.

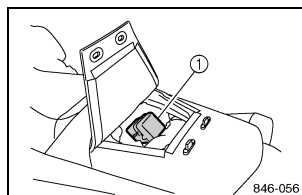
Item	Remarks	Pre-operation check (Daily)	Initial 1 month or 800 km (500 mi) (40 hr)	Every	Page
				Seasonally or 4,000 km (2,500 mi) (200 hr)	
* Steering column bearing	Lubricate with specified grease.			●	
* Ski and front suspension	Lubricate with specified grease.			●	8-31
* Suspension component	Lubricate with specified grease.			●	8-31
* Parking brake cable end and lever end/throttle cable end	Lubricate with specified grease.			●	8-31
	Check cable damage. Replace if necessary.			●	
Shroud and covers	Make sure that the shroud and covers are securely fastened.	●			5-11, 8-5-8-7
Fittings and fasteners	Check tightness.	●			6-11
	* Repair if necessary.				
Tool kit and recommended equipment	Check for proper placement.	●			6-11

* It is recommended that these items be serviced by a Yamaha dealer.

NOTE:

Brake system:

- After disassembling the master cylinder or caliper cylinder, always change the brake fluid. Regularly check the brake fluid level and add fluid if necessary.
- Replace the oil seals of the master cylinder and caliper cylinder every two years.
- Replace the brake hose every four years, or if cracked or damaged.



ESU03761

Tool kit

The owner's tool kit has the tools which are sufficient for most periodic maintenance and minor repairs. A torque wrench is also necessary to properly tighten nuts and bolts.

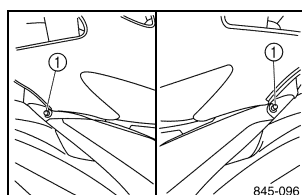
- ① Tool kit

CAUTION:

Before starting the engine, make sure that the tool kit is properly seated in its holder and is securely fastened.

NOTE:

If you do not have a torque wrench available during a service operation requiring one, take your snowmobile to a Yamaha dealer to check the torque settings and adjust them if necessary.



ESU04502

Removing and installing the shroud and covers

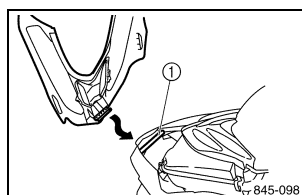
Shroud

To remove the shroud

Turn the fasteners counterclockwise, slowly raise the shroud, and then unhook the shroud from the shroud stay.



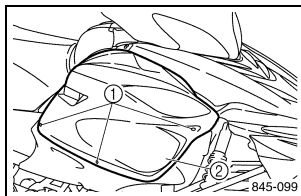
- ① Fastener
- ② Shroud



To install the shroud

Hook the end of the shroud onto the shroud stay, slowly lower it to its original position, and then turn the fasteners clockwise.

- ① Shroud stay

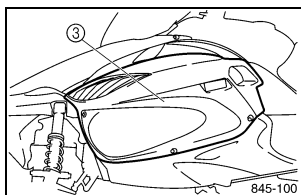


Left and right side covers

To remove a side cover

Turn the fasteners counterclockwise, and then remove the side cover.

- ① Fastener
- ② Right side cover
- ③ Left side cover

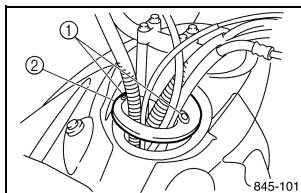


To install a side cover

Place the side cover in its original position, and then turn the fasteners clockwise.

NOTE:

Be sure to fit the projection on the rear of the side cover into the hole in the lower side cover.

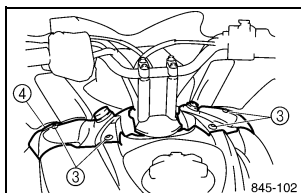


Top cover

To remove the top cover

1. Remove the screws, and then remove the cable guide.
2. Remove the bolts, disconnect the main switch coupler and auxiliary DC jack coupler, and then remove the top cover.

- ① Screws
- ② Cable guide
- ③ Bolts
- ④ Top cover



To install the top cover

1. Connect the main switch coupler and auxiliary DC jack coupler, place the top cover in its original position, and then install the bolts.
2. Pass all of the cables, etc., through the cable guide, place the cable guide in its original position, and then install the screws.

WARNING

- Do not drive the snowmobile with the shroud or covers unfastened or removed.
- Keep your body and clothing away from rotating parts when servicing the snowmobile with the shroud or covers removed.
- Do not touch the hot muffler and engine during or immediately after operation.

CAUTION:

Make sure that all cables, leads, etc., are in place when installing the shroud and covers.

NOTE:

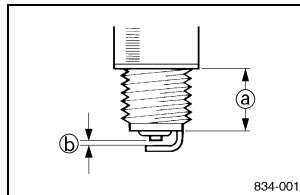
When installing the shroud and covers, be sure to turn the fasteners and top cover bolts completely until they stop; about 1/4 turn after they are seated.

ESU03681

Checking the spark plugs

The spark plug is an important engine component and is easy to inspect. The condition of the spark plug can indicate the condition of the engine. Check the coloration on the white porcelain insulator around the center electrode. The ideal coloration at this point is a medium to a light tan color for a snowmobile that is being ridden normally. If a spark plug shows a distinctly different color, there could be something wrong with the engine. For example, a very white center electrode porcelain color could indicate an intake track air leak or carburetion problem for that cylinder. Do not attempt to diagnose such problems yourself. Instead, take the snowmobile to a Yamaha dealer for inspection and possible repairs. You should periodically remove and inspect the spark plug because heat and deposits will cause a spark plug to slowly break down and erode. Consult a Yamaha dealer before changing to a different type of spark plug.

Specified spark plug:
R CR9EB (NGK)



Spark plugs are produced in several different thread lengths. The thread length or reach is the distance from the spark plug gasket seat to the end of the threaded portion. If the reach is too long, overheating and engine damage may result. If the reach is too short, spark plug fouling and poor performance may result. Also, if the reach is too short, carbon will form on the exposed threads resulting in combustion chamber hot spots and thread damage. Always use a spark plug with the specified reach.

Spark plug reach (a): 19.0 mm (0.75 in)

Before installing any spark plug, measure the electrode gap with a wire thickness gauge and adjust to specification.

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

When installing the spark plug, always clean the gasket surface. Wipe off any grime from the threads and tighten the spark plug to the specified torque.

Spark plug tightening torque:
12.5 Nm (1.25 m·kgf, 9 ft·lb)

CAUTION:

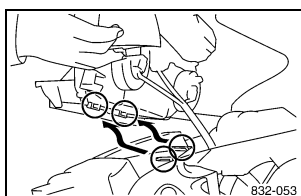
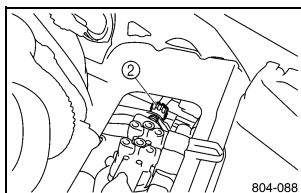
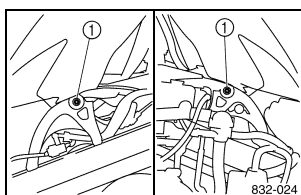
Make sure that the spark plug caps are securely installed. Otherwise the spark plug caps could be damaged due to engine vibration.

ESU04830

Adjusting the engine idling speed

CAUTION:

- Be sure to have a Yamaha dealer make this adjustment.
- Make sure that the throttle lever moves smoothly.



1. Remove the shroud, the left and right side covers, and the top cover. (See pages 8-5–8-7 for removal procedures.)
2. Start the engine and warm it up.
3. Remove the headlight unit bolts ①, and then lift up the headlight unit.
4. Turn the idle adjusting screw ② in or out to adjust the engine idling speed.

Standard engine idling speed: $1,500 \pm 100$ r/min

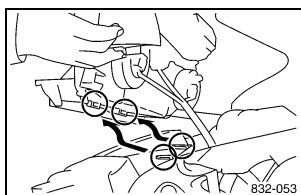
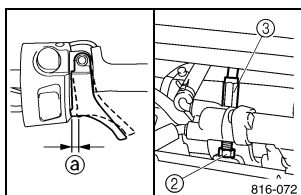
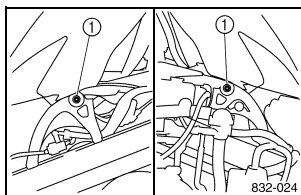
5. Install the headlight unit, making sure to insert the tabs on the headlight unit stay into the slots on the bottom of the headlight unit.
6. Install the headlight unit bolts, and then tighten them to the specified torque.

Headlight unit bolt tightening torque:
3 Nm (0.3 m·kgf, 2.2 ft·lb)

7. Install the top cover, the left and right side covers, and the shroud.

ESU04530

Adjusting the throttle cable



1. Remove the shroud. (See pages 8-5–8-7 for removal procedures.)
2. Remove the headlight unit bolts and the two top cover bolts near the headlight unit.
3. Disconnect the speedometer coupler and headlight couplers, and then remove the headlight unit.
4. Loosen the locknut.
5. Turn the adjuster in or out until the proper throttle lever free play is achieved.

Throttle lever free play [Ⓐ]:
2.0–3.0 mm (0.08–0.12 in)

- ① Headlight unit bolt
- ② Locknut
- ③ Adjuster

6. Tighten the locknut.
7. Connect the speedometer coupler and headlight couplers, and then install the headlight unit, making sure to insert the tabs on the headlight unit stay into the slots on the bottom of the headlight unit.
8. Install the headlight unit bolts, and then tighten them to the specified torque.

Headlight unit bolt tightening torque:
3 Nm (0.3 m·kgf, 2.2 ft·lb)

9. Install the top cover bolts.
10. Install the shroud.

ESU04540

Adjusting the high-altitude settings

Operating at high altitude reduces the performance of a gasoline engine about 3% for every 305 m (1,000 ft) of elevation. This is because there is less air as altitude increases. Less air means less oxygen available for combustion.

Your snowmobile utilizes an electronic fuel injection system that delivers the optimal air/fuel ratio required by the engine. Therefore, the fuel injection system does not need to be adjusted, even for operation at high altitude.

Remember:

Less air at higher altitude means there is less horsepower available, even with the optimal air/fuel ratio. Expect acceleration and top speed to be reduced at higher altitudes.

To overcome operating with less power at high altitudes, your snowmobile may also require different settings for the drive chain gears and V-belt clutch to avoid poor performance and rapid wear. If you plan to operate your snowmobile at an altitude different from the area where you bought it, be sure to consult a Yamaha dealer. The dealer can tell you if there are any changes necessary for the altitude where you plan to ride.

CAUTION:

The drive chain gears and V-belt clutch should be adjusted when operating above a high altitude of 900 m (3,000 ft). Consult a Yamaha dealer.

ESU00348

Adjusting the valve clearance

The valve clearance changes with use, resulting in improper air-fuel mixture and/or engine noise. To prevent this from occurring, the valve clearance must be adjusted by a Yamaha dealer at the intervals specified in the periodic maintenance chart.

ESU04593

Changing the engine oil

It is recommended to have a Yamaha dealer change the engine oil.

⚠ WARNING

Engine oil is extremely hot immediately after the engine is turned off. Coming into contact with or getting any engine oil on your clothes could result in burns.

CAUTION:

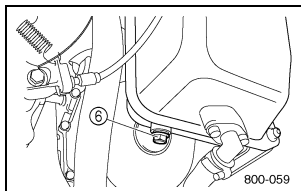
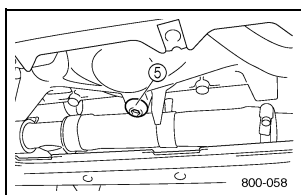
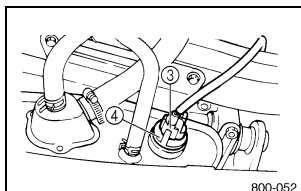
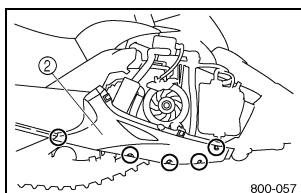
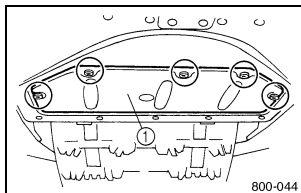
- Do not run the engine with too much or not enough oil in the oil tank. Oil could spray out or the engine could be damaged.
- Be sure to change the engine oil after the first 800 km (500 mi) of operation, and every 4,000 km (2,500 mi) thereafter or at the start of a new season, otherwise the engine will wear quickly.
- The oil filter cartridge should be replaced every 20,000 km (12,000 mi) of operation. Have a Yamaha dealer replace the oil filter cartridge.

To change the engine oil (without oil filter cartridge replacement)

1. Place the snowmobile on a level surface and apply the parking brake.
2. Start the engine, warm it up for several minutes, and then turn it off.
3. Remove the shroud and the right side cover. (See pages 8-5–8-7 for removal procedures.)
4. Remove the bottom panel ① and the lower right side cover ②.
5. Place oil pans under both the engine and the oil tank to collect the used oil.
6. Disconnect the oil level gauge coupler ③.
7. Remove the oil level gauge/dipstick ④, and then remove the crankcase engine oil drain bolt ⑤ and the oil tank engine oil drain bolt ⑥ to drain the oil from the crankcase and the oil tank.

NOTE:

Dispose of used oil according to local regulations.



8. Install the engine oil drain bolts, and then tighten them to the specified torques.

Tightening torques:

Crankcase engine oil drain bolt:

30 Nm (2.6 m-kgf, 3.2 ft-lb)

Oil tank engine oil drain bolt:

16 Nm (1.6 m-kgf, 11 ft-lb)

9. Add 2.0 L (1.8 Imp qt, 2.1 US qt) of the recommended engine oil to the oil tank, and then install and tighten the oil level gauge/dipstick.

Recommended engine oil:

See page 6-2.

Oil quantity:

With oil filter cartridge replacement:

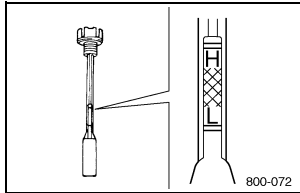
3.0 L (2.6 Imp qt, 3.2 US qt)

Without oil filter cartridge replacement:

2.8 L (2.5 Imp qt, 3.0 US qt)

Total amount:

3.8 L (3.3 Imp qt, 4.0 US qt)



10. Start the engine, warm it up for several minutes, and then turn it off.
11. Add sufficient oil of the recommended type to raise it to the "H" level mark on the oil level gauge/dipstick. (See pages 6-3–6-4 for the checking procedures.)

CAUTION:

- When adding the engine oil, be careful not to fill above the "H" level mark on the oil level gauge/dipstick.
- Make sure that no foreign material enters the engine oil tank.

12. Start the engine, and then let it idle for several minutes while checking it for oil leakage. If oil is leaking, immediately turn the engine off and make sure that the engine oil drain bolts and oil level gauge/dipstick are installed correctly.
13. Turn the engine off, and then connect the oil level gauge coupler.

14. Install the bottom panel and the lower right side cover, and then install the right side cover and the shroud.

CAUTION:

If oil is leaking or the oil level warning indicator comes on when the engine is running, immediately turn the engine off and have a Yamaha dealer check the snowmobile. Continuing to operate the engine under such conditions could cause severe engine damage.

ESU04571

Cooling system

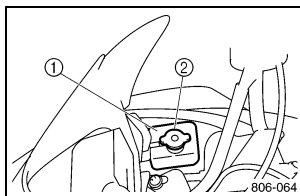
Bleeding the cooling system

⚠ WARNING

- Do not remove the coolant reservoir cap 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 towel over the coolant reservoir cap, and 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.

- The cooling system must be bled of air if the coolant reservoir becomes empty, if air can be seen in the cooling system, or if there is a cooling system leak. Consult a Yamaha dealer.



- ① Coolant reservoir
- ② Coolant reservoir cap

CAUTION:

Operating the engine with an improperly bled cooling system can cause overheating and severe engine damage.

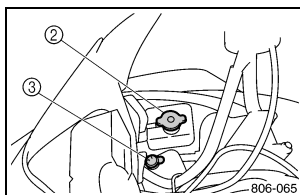
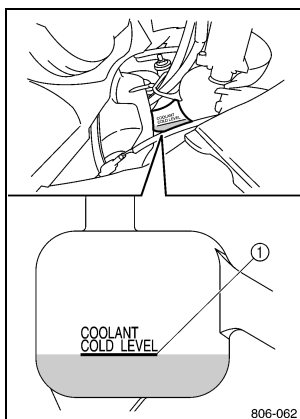
Replenishing the coolant

⚠ WARNING

- Do not remove the coolant reservoir cap 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 towel over the coolant reservoir cap, and 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.

- The cooling system must be bled of air if the coolant reservoir becomes empty, if air can be seen in the cooling system, or if there is a cooling system leak. Consult a Yamaha dealer.



1. Remove the top cover. (See pages 8-5–8-7 for removal procedures.)
2. Remove the coolant reservoir cap, fill the reservoir with the recommended coolant, and then install the cap.
3. Remove the coolant recovery tank cap, add the recommended coolant until it reaches the “COLD LEVEL” mark, and then install the cap.

Recommended coolant:

High quality ethylene glycol antifreeze containing corrosion inhibitors.

Antifreeze and water mixing ratio:

60:40

Total amount:

6.0 L (5.28 Imp qt, 6.34 US qt)

- ① “COLD LEVEL” mark
- ② Coolant reservoir cap
- ③ Coolant recovery tank cap



4. Start the engine, allow it to idle for several minutes, and then turn it off.
5. Check the coolant reservoir. If it is not full, remove the coolant reservoir cap, fill the reservoir with the recommended coolant, and then install the cap.
6. Check for any coolant leakage.

NOTE:

If you find any leaks, consult a Yamaha dealer.

7. Install the top cover.

ESU04550

Replacing the V-belt**⚠ WARNING**

When installing the new V-belt, make sure it is positioned from 1.5 mm (0.06 in) above the edge of the secondary sheave assembly to 0.5 mm (0.02 in) below the edge ②.

If not, the V-belt clutch engagement speed will be changed. The snowmobile may move unexpectedly when the engine is started.

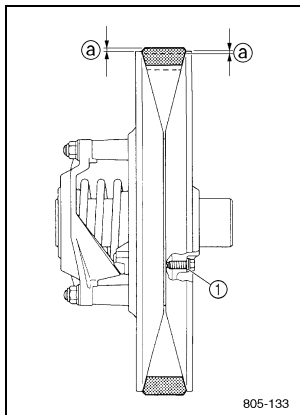
Adjust the V-belt position by removing or adding a spacer ① on each adjusting bolt.

Have a Yamaha dealer make this adjustment.

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 (0.06 in) below the edge.

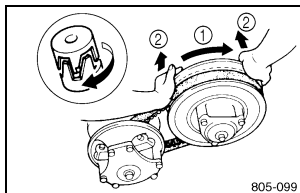
Have a Yamaha dealer make this adjustment.



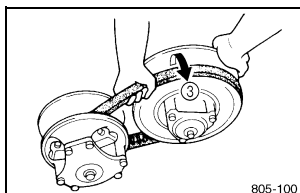
New belt width	34.5 mm (1.36 in)
Belt wear limit width	32.5 mm (1.28 in)

NOTE:

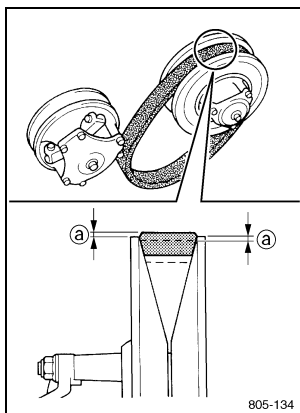
Apply the parking brake before replacing the V-belt.



1. Remove the shroud and the left side cover. (See pages 8-5–8-7 for removal procedures.)
2. Remove the drive guard.
3. Rotate the secondary sliding sheave clockwise ① and push ② it so that it separates from the secondary fixed sheave.



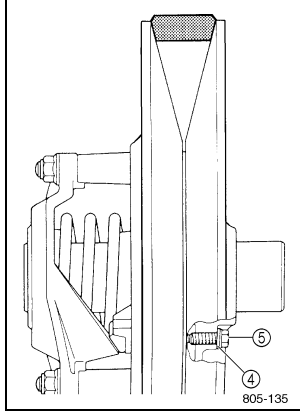
4. Pull ③ the V-belt up over the secondary fixed sheave.
5. Remove the V-belt from the secondary sheave assembly and primary sheave assembly.



6. Temporarily install the new V-belt on the secondary sheave assembly only, and then measure the V-belt position. Do not force the V-belt between the sheaves; the secondary sliding and fixed sheaves must touch each other.

Standard V-belt position ②:

From 1.5 mm (0.06 in) above the edge of the secondary sheave assembly to 0.5 mm (0.02 in) below the edge.

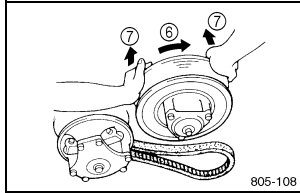


7. If the position is incorrect, adjust the V-belt position by removing or adding a spacer (4) on each adjusting bolt (5).

V-belt position	Adjustment
More than 1.5 mm (0.06 in) above the edge	Remove spacer
From 1.5 mm (0.06 in) above the edge to 0.5 mm (0.02 in) below the edge	Not necessary (It is correct.)
More than 0.5 mm (0.02 in) below the edge	Add spacer

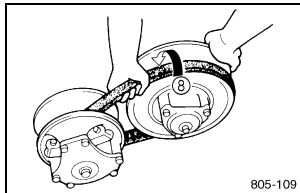
8. Tighten the adjusting bolts.

Adjusting bolt tightening torque:
10 Nm (1.0 m·kgf, 7.2 ft·lb)



9. Install the V-belt over the primary sheave assembly.

10. Rotate the secondary sliding sheave clockwise (6) and push (7) it so that it separates from the secondary fixed sheave.



11. Install the V-belt (8) between the secondary sliding and fixed sheaves.

12. Install the drive guard.

13. Install the left side cover and the shroud.

⚠ WARNING

Never run the engine with the V-belt or drive guard removed.

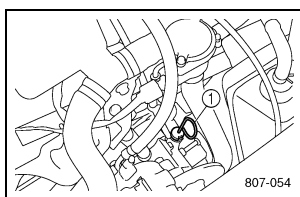
ESU04611

Checking the drive chain housing oil level and the drive chain tension

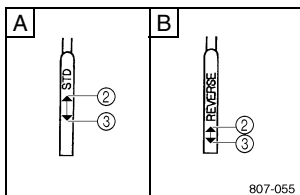
Checking the oil level

⚠ WARNING

The engine, oil tank, brake disc, and coolant hoses will be very hot after the engine has been run. Avoid contact while they are still hot with any part of your body or clothing during inspection or repair.



1. Place the snowmobile on a level surface.
2. Remove the shroud and the right side cover. (See pages 8-5–8-7 for removal procedures.)
3. Remove the dipstick ①, wipe it off with a clean rag, and then insert it back into the filler hole.

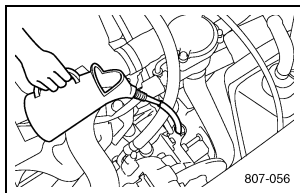


4. Remove the dipstick and check that the oil is between the maximum and minimum level marks. If the oil is below the minimum level mark, add sufficient oil to raise it to the maximum level mark.

② Maximum level mark

③ Minimum level mark

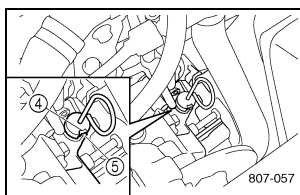
Drive chain oil: GL-3
75 W or 80 W



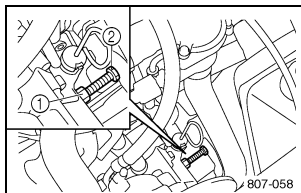
- A For models without reverse transmissions (RX10RT)
- B For models with reverse transmissions (not applicable)

CAUTION:

Make sure that no foreign material enters the drive chain housing.



5. Install the dipstick, making sure to align the notch ④ in the dipstick handle with the projection ⑤ on the drive chain housing.
6. Install the right side cover and the shroud.

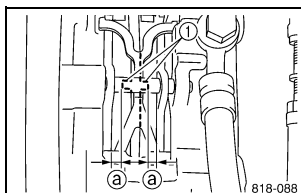


Adjusting the chain tension

1. Remove the shroud and the right side cover. (See pages 8-5–8-7 for removal procedures.)
2. Loosen the locknut.
3. Turn the adjusting bolt clockwise until it is finger tight, and then loosen it 1/4 turn.
4. Hold the adjusting bolt in place while tightening the locknut.

- ① Locknut
- ② Adjusting bolt

5. Install the right side cover and the shroud.



ESU01741

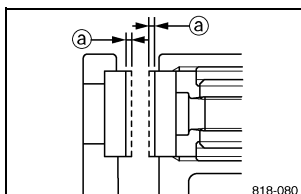
Checking the brake pads

Check the brake pads for wear.

If the brake pads reach the wear limit, ask a Yamaha dealer to replace them.

- ① Brake pad wear indicator

Wear limit ①: 1.5 mm (0.06 in)



ESU00352

Checking the parking brake pads

Check the parking brake pads for wear by measuring the thickness of the pads. If the parking brake pads reach the wear limit, ask a Yamaha dealer to replace them.

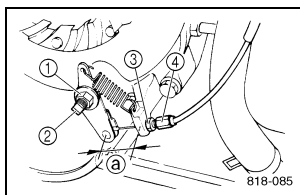
Wear limit ①: 1.2 mm (0.05 in)

Adjustment

As the parking brake pads wear, adjustment may be necessary to ensure proper brake performance.

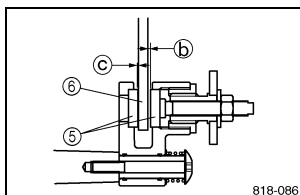
⚠ WARNING

Be sure to have a Yamaha dealer make this adjustment.



1. Loosen the locknut ① and the adjusting bolt ②.
2. Loosen the cable locknut ③.
3. Turn the cable adjuster ④ in or out to adjust the cable length.

Cable length ④: 43.5–46.5 mm (1.713–1.831 in)

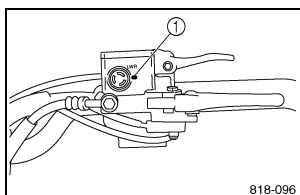


4. Tighten the cable locknut.
5. Turn the adjusting bolt in or out to adjust the clearance between the parking brake pads ⑤ and the brake disc ⑥.

Clearance ⑤ + ⑥: 1.5–2.0 mm (0.059–0.079 in)

6. Tighten the locknut.

ESU00180



Checking the brake fluid level

Place the snowmobile on a level surface. Check that the brake fluid is above the lower level and replenish when necessary.

- ① Lower level

Specified brake fluid: DOT 4

⚠ WARNING

Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point of the fluid and may result in vapor lock.

If the brake fluid level goes down, consult a Yamaha dealer.

CAUTION:

Brake fluid may deteriorate painted surfaces or plastic parts. Never spill any fluid. If any is spilled, clean it up immediately.

ESU01811

Changing the brake fluid

Brake fluid replacement is necessary when the following components are replaced during the periodic maintenance or if they are damaged or leaking.

- a. All oil seals of the master cylinder and caliper cylinder
- b. The brake hose

⚠ WARNING

Make sure that the brake fluid and the above parts are replaced by a Yamaha dealer.

ESU00183

Suspension

The suspension can be adjusted to suit rider preference. A softer setting, for example, may provide greater rider comfort, while a harder setting may allow more precise handling and control over certain types of terrain or riding conditions.

⚠ WARNING

Be sure to have a Yamaha dealer make this adjustment.

ESU05100

Adjusting the front shock absorber air pressure

This snowmobile is equipped with FOX shock absorbers as standard equipment.

The air pressure of the shock absorbers can be adjusted using the special pump ① included with your snowmobile.

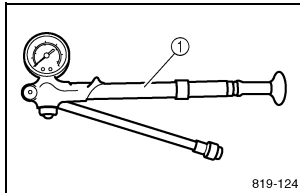
NOTE:

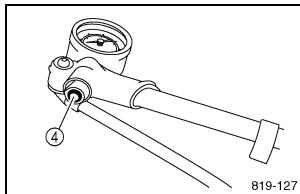
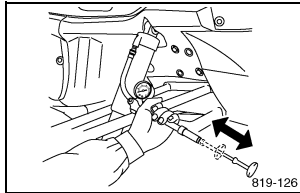
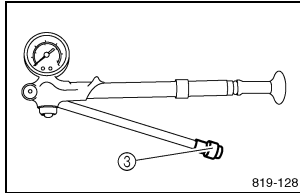
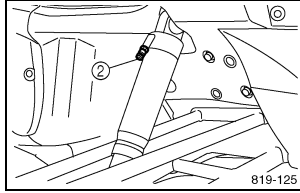
The following procedure applies to both shock absorbers.

1. Place the snowmobile on a level surface and apply the parking brake.
2. Lift the front of the snowmobile onto a suitable stand to raise the skis off the ground.

⚠ WARNING

Support the snowmobile securely on a suitable stand before adjusting the shock absorbers.





CAUTION:

Make sure that there is no load on the shock absorbers and that they are fully extended before making any air pressure adjustments.

3. Remove the air valve cap ② from the shock absorber.
4. Install the hose connector ③ of the special pump onto the air valve of the shock absorber and tighten it approximately six turns until the pressure registers on the pump gauge.

CAUTION:

Do not overtighten the connector onto the air valve as this will damage the connector seal.

NOTE:

If the shock absorber has no air pressure, the gauge reading will be zero.

5. To increase the air pressure, operate the pump a few times. The pressure should increase slowly. If the pressure increases rapidly, check to make sure that the pump is properly connected and tightened onto the air valve.

To decrease the air pressure, push the black bleed valve button ④.

NOTE:

To allow pressure to escape from the pump and the shock absorber, push the button halfway down and hold it. To allow only a small amount of pressure to escape, push the button all the way down and quickly release it.

6. Remove the hose connector from the air valve.

NOTE:

When removing the connector, the sound of air escaping may be heard, but this is from the pump hose, not the shock absorber.

Air pressure range:

345 kPa (3.4 kgf/cm², 50 psi) to
1,034 kPa (10.3 kgf/cm², 150 psi)

Recommended air pressure:

483 kPa (4.8 kgf/cm², 70 psi)

CAUTION:

Do not exceed 1,034 kPa (10.3 kgf/cm², 150 psi).

7. Install the air valve cap.

NOTE:

If the front suspension bottoms too easily or rolls too much during cornering, increase the air pressure by 34 kPa (0.3 kgf/cm², 5 psi). If the suspension is too firm and you want a more compliant ride, decrease the air pressure by 34 kPa (0.3 kgf/cm², 5 psi).

CAUTION:

The air pressure of the left and right shock absorbers must be set to the same setting. Uneven settings can cause poor handling and loss of stability.

⚠ WARNING

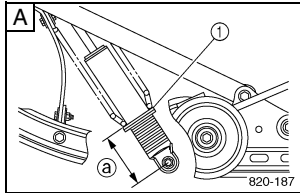
This shock absorber contains highly pressurized nitrogen gas. It could explode by improper handling, causing injury or property damage.

- Do not tamper with or attempt to open the shock absorber.
- Do not subject the shock absorber to an open flame or other high heat source, which could cause it to explode.
- Do not deform or damage the shock absorber in any way.
- Do not dispose of a worn or damaged shock absorber by yourself. Take the unit to a Yamaha dealer.

ESU04213

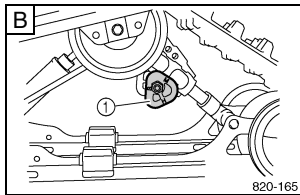
Adjusting the rear suspension spring preload

The spring preload can be adjusted by turning the spring preload adjuster ① on each shock absorbers.



Spring seat length*	Standard		
	Increased ←		→ Decreased
Preload	Harder ←		→ Softer
A ② Length (front)	Maximum	Minimum	
	127.5 mm (5.02 in)	113.5 mm (4.47 in)	112.5 mm (4.43 in)

* The spring seat length changes approximately 1.5 mm (0.06 in) with each full turn of the adjuster.



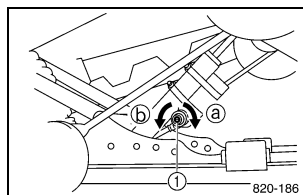
Spring adjuster position	S	M	H
Preload	Soft	Medium	Hard
B Standard (rear)	M		

⚠ WARNING

Be sure to have a Yamaha dealer make this adjustment.

This shock absorber contains highly pressurized nitrogen gas. It could explode by improper handling, causing injury, or property damage.

- Do not tamper with or attempt to open the shock absorber.
- Do not subject the shock absorber to an open flame or other high heat sources, which could cause it to explode.
- Do not deform or damage the shock absorber in any way.
- Do not dispose of a worn or damaged shock absorber by yourself. Take the unit to a Yamaha dealer.



ESU05080

Adjusting the rear suspension damping forces

The compression damping force can be adjusted by turning the adjuster ①.

Adjuster position	20 clicks out	11 clicks out	1 click out
	Minimum	Standard	Maximum
	Turns out (b)*	← →	Turns in (a)
Damping force	← Soft		→ Hard

* With the adjuster fully turned lightly in direction (a)

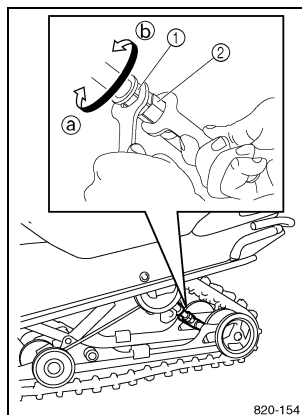
CAUTION:

- Do not continue to turn the adjuster in direction (a) after it stops. The shock absorber can be damaged and damping force adjustments cannot be made.
- Do not turn the adjuster in direction (b) more than 20 clicks. Even if the adjuster is continually turned after 20 clicks, there will be no change in the damping force.
- Be sure to stop the adjuster at a position where there is a click.

⚠ WARNING

This shock absorber contains highly pressurized nitrogen gas. It could explode by improper handling, causing injury, or property damage.

- Do not tamper with or attempt to open the shock absorber.
- Do not subject the shock absorber to an open flame or other high heat source, which could cause it to explode.
- Do not deform or damage the shock absorber in any way.
- Do not dispose of a worn or damaged shock absorber by yourself. Take the unit to a Yamaha dealer.



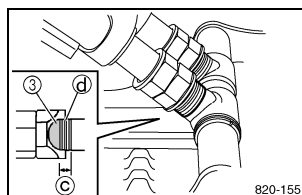
ESU05090

Adjusting the control rods

The weight transfer can be adjusted by turning the control rod adjuster or adjusting nut.

1. Loosen the locknut ①.
2. Turn the control rod adjusting nut ② in direction ③ to increase weight transfer or direction ④ to decrease weight transfer.
3. Tighten the locknut while holding the adjusting nut in place.

Locknut tightening torque:
25 Nm (2.5 m·kgf, 18 ft·lb)



CAUTION:

- When using the two wrenches included in the owner's tool kit, make sure that they are situated at a right angle to the control rod as shown, and that they are tightly fitted to the locknut and the control rod adjusting nut.
- The left and right adjusting nuts must be set to the same position. Uneven settings can cause poor handling and loss of stability.

⚠ WARNING

Never adjust the control rods beyond the maximum range indicated on the rods with red paint ③.

- ③ Adjustable range
④ Standard position

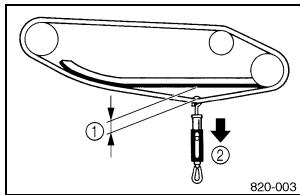
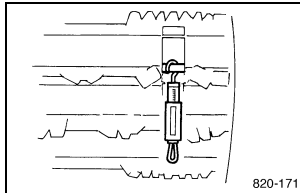
ESU03532

Adjusting the drive track

⚠ WARNING

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

- Do not allow anyone to stand behind the snowmobile when the engine is running.
- When the rear of the snowmobile is raised to allow the drive track to spin, a suitable stand must be used to support the rear of the snowmobile. Never allow anyone to hold the rear of the snowmobile off the ground to allow the drive track to spin. Never allow anyone near a rotating drive track.
- Inspect the drive track condition frequently. Replace damaged slide metal. Replace the drive track if it is damaged to the depth where fabric reinforcement material is visible or support rods are broken. Otherwise, track damage or failure could result in loss of braking ability and snowmobile control, which could cause an accident.



Measuring the drive track deflection

1. Lay the snowmobile on its side.
2. Measure the drive track deflection with a spring scale. Pull at the center of the drive track with a force of 100 N (10 kg, 22 lb).

NOTE:

Measure the gap between the slide runner and the edge of the track window. Measure both sides.

- ① Deflection
- ② 100 N (10 kg, 22 lb)

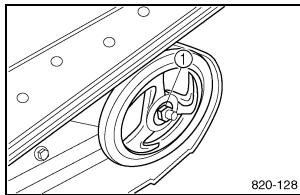
Standard drive track deflection:
30–35 mm (1.18–1.38 in) / 100 N (10 kg, 22 lb)

3. If the deflection is incorrect, adjust the drive track.

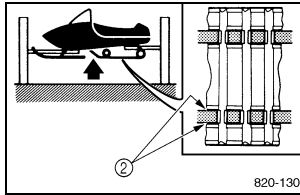
Adjusting the drive track

⚠ WARNING

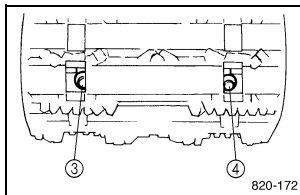
- Be sure to have a Yamaha dealer make this adjustment.
- Support the snowmobile securely on a suitable stand before working underneath the snowmobile.
- Operate the engine in a well-ventilated area.



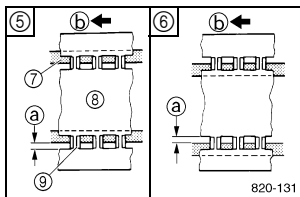
1. Lift the rear of the snowmobile onto a suitable stand to raise the drive track off the ground.
2. Loosen the rear axle nut (1).



3. Start the engine and rotate the drive track one or two turns. Stop the engine.
4. Check the drive track alignment with the slide runners (2). If the alignment is incorrect, align the drive track by turning the left and right adjusters.



Drive track alignment	⑤ Shifted to right	⑥ Shifted to left
③ Left adjuster	Turn out	Turn in
④ Right adjuster	Turn in	Turn out



- ⑦ Slide runners
- ⑧ Drive track
- ⑨ Slide metal
- a Gap
- b Forward

5. Adjust the drive track deflection to specification.

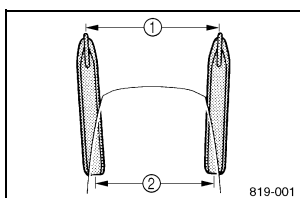
Drive track deflection	More than specified	Less than specified
③ Left adjuster	Turn in	Turn out
④ Right adjuster	Turn in	Turn out

CAUTION:

The right and left adjusters should be turned to an equal amount.

6. Recheck alignment and deflection. If necessary, repeat steps 3 to 5 until the proper adjustment is achieved.
7. Tighten the rear axle nut.

Rear axle tightening torque:
75 Nm (7.5 m·kgf, 54.2 ft·lb)



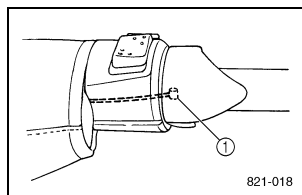
ESU02001

Aligning the skis

1. Turn the handlebar so the skis face straight ahead.
2. Check the following for ski alignment:
 - a. Skis are facing forward.
 - b. Ski toe-out (① – ②) is within specification.

Ski toe-out (① – ②): 0–15 mm (0–0.59 in)

3. If the alignment is not correct, consult a Yamaha dealer.



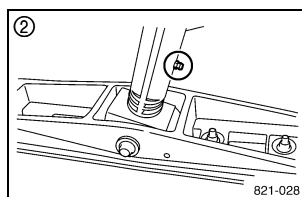
ESU00371

Lubrication

Lubricate the following points.

Lubricant: Low-temperature grease

- ① Throttle cable end



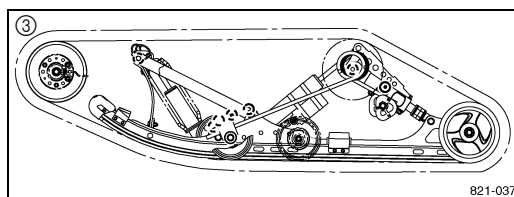
⚠ WARNING

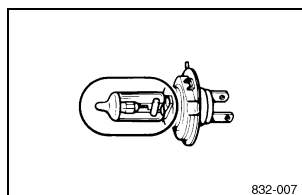
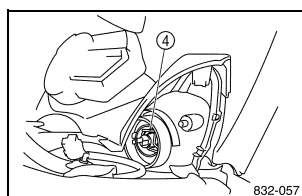
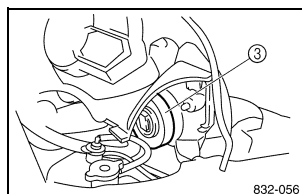
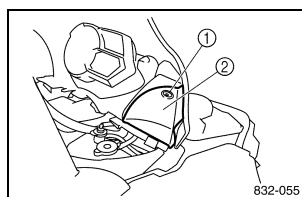
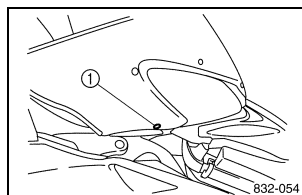
Apply a dab of grease onto the cable end only. Do not grease the throttle cable because it could become frozen, which could cause loss of control.

- ② Front suspension
③ Rear suspension

⚠ WARNING

Be sure to have a Yamaha dealer lubricate the front and rear suspensions.





ESU04560

Replacing a headlight bulb

1. Remove the top cover. (See pages 8-5–8-7 for removal procedures.)
2. Remove the screws, and then remove the headlight access panel.
3. Disconnect the headlight coupler.
4. Remove the bulb holder cover.
5. Unhook the bulb holder by pushing it in, then clockwise.

- ① Screw
- ② Headlight access panel
- ③ Bulb holder cover
- ④ Bulb holder

6. Remove the bulb.

⚠ WARNING

Keep flammable products and your hands away from the hot bulb until it has cooled down.

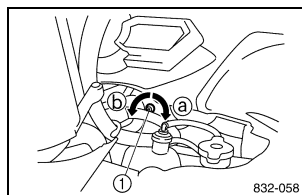
7. Install the new bulb, and then hook the bulb holder onto the headlight unit.

Bulb type: 12 V, 60/55 W

8. Install the bulb holder cover, and then connect the headlight coupler.
9. Install the headlight access panel and the top cover.

CAUTION:

Keep oil and your hands away from the glass part of the bulb or its life and illumination will be affected. If the glass is oil stained, thoroughly clean it with a cloth moistened with alcohol or lacquer thinner.



ESU04661

Adjusting the headlight beams

1. Remove the top cover. (See pages 8-5–8-7 for removal procedures.)
2. Use a Phillips screwdriver to turn the headlight beam adjuster ① and adjust the headlight beams.

Headlight beam movement:

- Ⓐ Down
- Ⓑ Up

3. Install the top cover.

ESU00355

Battery

This snowmobile is equipped with a sealed-type (MF) battery, which does not require any maintenance. There is no need to check the electrolyte or to add distilled water.

To charge the battery

Have a Yamaha dealer charge the battery as soon as possible if it seems to have discharged. Keep in mind that the battery tends to discharge more quickly if the snowmobile is equipped with electrical accessories.

⚠ WARNING

Battery electrolyte is poisonous and dangerous. It contains sulfuric acid and can cause severe burns. Avoid contact with skin, eyes, or clothing.

ANTIDOTE:

- **EXTERNAL:** Flush with water.
- **INTERNAL:** Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call physician immediately.
- **EYES:** Flush with water for 15 minutes and get prompt medical attention.

Batteries produce explosive gases. Keep sparks, flame, cigarettes, etc. away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.

KEEP OUT OF THE REACH OF CHILDREN.

ESU04632

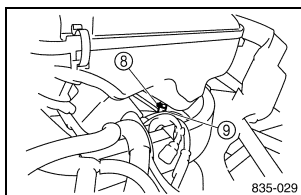
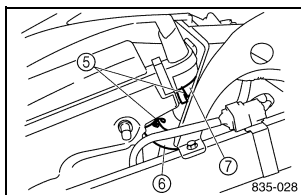
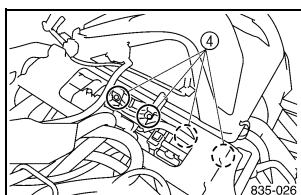
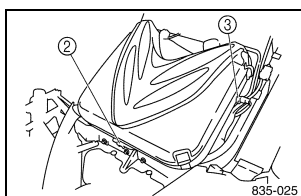
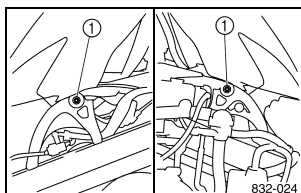
Replacing a fuse

⚠ WARNING

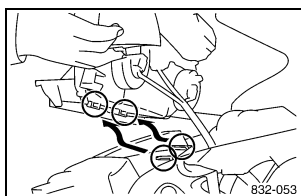
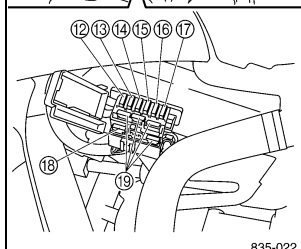
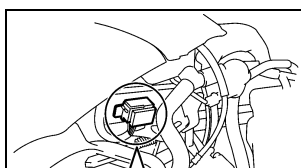
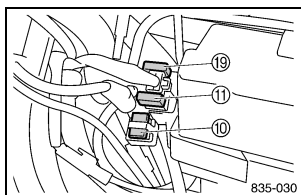
Be sure to use the specified fuse. A wrong fuse could cause electrical system damage or A FIRE HAZARD.

CAUTION:

Be sure to turn the main switch to "OFF" and disconnect the negative battery lead to prevent accidental short-circuiting.



1. Remove the shroud, the left and right side covers, and the top cover. (See pages 8-5–8-7 for removal procedures.)
2. Remove the headlight unit bolts ①, disconnect the headlight couplers and speedometer coupler, and then remove the headlight unit.
3. Unhook the latch ② and disconnect the air temperature sensor coupler ③.
4. Loosen the joint clamp screws ④.
5. Slide the clamps ⑤ away from the air filter case, and then disconnect the crankcase breather hose ⑥ and the bypass air hose ⑦.
6. Slide the clamp ⑧ down, and then disconnect the air filter case drain hose ⑨.
7. Remove the air filter case.
8. Disconnect the negative battery lead.



9. Replace the blown fuse with one of the proper amperage.

Specified fuses:

⑩ Main fuse:	40 A
⑪ Fuel injection system fuse:	10 A
⑫ "HEAD" (Headlight) fuse:	20 A
⑬ "SIG" (Signal) fuse:	10 A
⑭ "DC TERM" (Auxiliary DC jack) fuse:	3 A
⑮ "IGN" (Ignition) fuse:	20 A
⑯ "BACK UP" (Backup) fuse:	3 A
⑰ "FAN" (Radiator fan) fuse:	4 A
⑱ "ECS" (Electronically controlled rear shock absorber) fuse:	10 A (not applicable)

⑱ Spare fuses (20 A, 10 A, 4 A, 3 A)

10. Connect the negative battery lead.

11. Install the air filter case by reversing the removal steps.

12. Install the headlight unit, making sure to insert the tabs on the headlight unit stay into the slots on the bottom of the headlight unit.

13. Install the headlight unit bolts, and then tighten them to the specified torque.

Headlight unit bolt tightening torque:
3 Nm (0.3 m·kgf, 2.2 ft·lb)

14. Install the top cover, the left and right side covers, and the shroud.

NOTE:

If the fuse immediately blows again, ask a Yamaha dealer to inspect the snowmobile.

ESU04720

TROUBLESHOOTING

A. Engine turns over but does not start

1. Fuel system

No fuel supplied to combustion chamber

- No fuel in tank ... Supply fuel.
- Clogged fuel line ... Clean fuel line.
- Clogged injector ... Ask a Yamaha dealer to inspect.

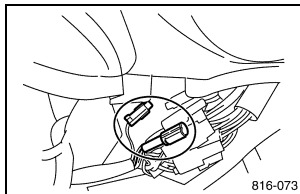
Fuel supplied to combustion chamber

- Flooded engine (too much choke) ... Crank engine with throttle open or wipe the spark plugs dry.

2. Electrical system

Poor or no spark

- Spark plugs are dirty with carbon or are wet ... Remove carbon or wipe the spark plugs dry; replace if necessary.
- Faulty ignition system ... Ask a Yamaha dealer to inspect.
- T.O.R.S. malfunction ... Disconnect the throttle switch connectors and connect the wire harness connectors together to bypass the T.O.R.S.



⚠ WARNING

- Before bypassing the T.O.R.S., make sure that the throttle returns properly to the fully closed position.
- The T.O.R.S. is an important safety device; in the case of a malfunction, take the snowmobile to a Yamaha dealer immediately for repair.

3. Compression

Insufficient

- Loose cylinder head nuts ... Tighten nuts properly.
- Worn or damaged gasket ... Replace gasket.
- Worn or damaged piston and cylinder ... Ask a Yamaha dealer to inspect.

B. Starting the engine with a discharged battery

If the snowmobile battery is discharged, the engine can be started using a 12-volt battery and jumper cables. Two connecting leads have been provided for jump-starting the snowmobile. Due to the rubber engine mounting, the snowmobile frame is not a suitable grounding point for jump-starting the engine.

⚠ WARNING

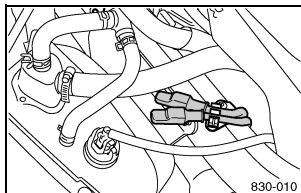
- Connect the jumper cables only to the connecting lead terminals. Do not connect them to the frame or any wire or other lead.
- When connecting the jumper cables, do not contact the jumper cables or connecting lead terminals to each other or to the frame or any metal part of the snowmobile. This can cause electrical system damage or A FIRE HAZARD.

CAUTION:

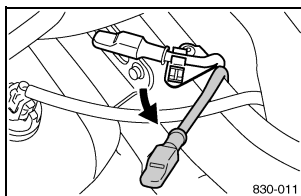
Use the connecting leads to jump-start the snowmobile only. Do not use the connecting leads for any other purpose.

1. Apply the parking brake and turn the main switch to "OFF".

2. Remove the shroud and the right side cover. (See pages 8-5–8-7 for removal procedures.)



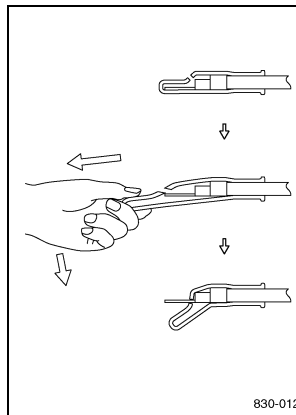
3. Remove the red (+) connecting lead from the lead holder and move it away from the black (-) connecting lead.



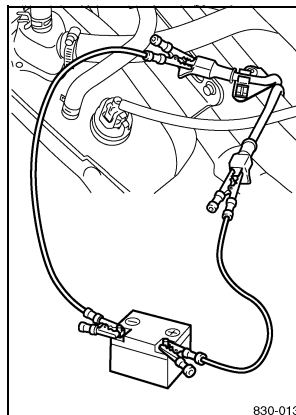
CAUTION:

Be sure to connect the red (+) jumper cable to the red (+) connecting lead and the black (-) jumper cable to the black (-) connecting lead. Do not reverse the connections.

4. Pull the red (+) connecting lead cover to expose the terminal through the slit in the cover, and then connect the red (+) jumper cable to the red (+) connecting lead.



5. Connect the other end of the red (+) jumper cable to the positive (+) terminal of the booster battery.
6. Connect the black (-) jumper cable to the negative (-) terminal of the booster battery.
7. Pull the black (-) connecting lead cover to expose the terminal through the slit in the cover, and then connect the black (-) jumper cable to the black (-) connecting lead.



8. Start the engine.
9. Disconnect the black (-) jumper cable from the black (-) connecting lead, and then pull the cover completely over the lead terminal.
10. Disconnect the black (-) jumper cable from the negative (-) terminal of the booster battery.
11. Disconnect the red (+) jumper cable from the positive (+) terminal of the booster battery.
12. Disconnect the red (+) jumper cable from the red (+) connecting lead, and then pull the cover completely over the lead terminal.
13. Install the red (+) connecting lead into the lead holder.
14. Install the right side cover and the shroud.

WARNING

Be sure to pull the lead covers back over the terminals completely. If the terminals are exposed, they could come into contact with the frame or a metal part of the snowmobile and this can cause electrical system damage or A FIRE HAZARD.

NOTE:

Make sure that both the red (+) connecting lead and the black (-) connecting lead are seated securely in the lead holders.

C. Electric starter does not operate or operates slowly

1. Engine stop switch is pushed in ... Pull it out.
2. Faulty wire connections ... Check connections or ask a Yamaha dealer to inspect.
3. Discharged battery... Charge battery or see B above.

4. Seized engine ... Seizure is caused by poor lubrication, inadequate fuel, or an air leak—Ask a Yamaha dealer to inspect.

D. Engine power is low

1. Low coolant temperature indicator light is flashing ... Warm the engine up.
2. Faulty spark plugs ... Clean or replace the spark plugs.
3. Improper fuel flow ... See A.1. above.
4. Incorrect V-belt clutch settings for altitude or conditions ... Ask a Yamaha dealer to inspect.

E. Engine constantly backfires or misfires

1. Faulty spark plugs ... Replace the spark plugs.
2. Clogged fuel system ... See A.1. above.
3. Malfunctioning T.O.R.S. ... See A.2. above.

F. Engine overheats

1. Insufficient coolant ... Add coolant.
2. Air in cooling system ... Bleed the cooling system or ask a Yamaha dealer to inspect.
3. Leaking coolant ... Ask a Yamaha dealer to inspect.

G. Snowmobile does not move

1. Malfunctioning V-belt clutch ... Ask a Yamaha dealer to inspect.
2. Drive track does not move ... Foreign object is caught in the drive track, or slide runners have melted to the slide metal due to lack of lubrication.
3. Tight, loose, or broken drive chain ... Ask a Yamaha dealer to inspect.

H. V-belt twists

1. Improper V-belt ... Replace with the correct V-belt.
2. Incorrect V-belt clutch offset ... Ask a Yamaha dealer to inspect.
3. Loose or broken engine mount ... Ask a Yamaha dealer to inspect.

I. V-belt slips or burns

1. Oily or dirty V-belt or primary and secondary sheave assembly surfaces ... Clean.
2. Problem with the driveline ... See H above.

J. Engine does not upshift or downshift properly or engages harshly

1. Worn or damaged V-belt ... Replace the V-belt or ask a Yamaha dealer to inspect.
2. Incorrect V-belt clutch settings for altitude or conditions ... Ask a Yamaha dealer to inspect.
3. Worn or sticking primary sheave assembly ... Ask a Yamaha dealer to inspect.
4. Worn or sticking secondary sheave assembly ... Ask a Yamaha dealer to inspect.

K. Noise or excessive vibration in drive chain and sprockets

1. Broken V-belt clutch components ... Ask a Yamaha dealer to inspect.
2. Worn or damaged bearings ... Ask a Yamaha dealer to inspect.
3. Worn or damaged V-belt with flat spots ... Replace.
4. Worn or damaged idler wheels or shafts ... Ask a Yamaha dealer to inspect.
5. Worn or damaged drive track ... Ask a Yamaha dealer to inspect.

ESU04742

STORAGE

Long-term storage requires some preventive procedures to guard against deterioration.

1. Cleaning

Thoroughly clean the snowmobile, inside and out, to remove the corrosive salts and acids that can accumulate. Use Yamaha Mud, Grease, and Engine Cleaner, or an equivalent product, to loosen mud, grease, and grime. Wash with mild soap, then rinse and dry completely.

2. Lubrication

Lubricate moving parts, suspension linkage, and pivot points. Use the grease or lubricant specified in the MAINTENANCE section, or Yamaha Lube-Zall general-purpose lubricant. Proper lubrication fights corrosion while it reduces friction.

3. Fuel system

Add Yamaha Fuel Stabilizer and Conditioner, or an equivalent stabilizer, to the fuel tank to help prevent fuel oxidation and gum and varnish deposits, and to inhibit corrosion in the fuel system and injectors. In areas where oxygenated fuel (gasohol) is used, consult a Yamaha dealer.

4. Engine

Proper storage of the engine is essential to prevent costly rust and corrosion damage to internal engine components. This is more important in areas where oxygenated fuel (gasohol) is used, because the alcohol content in the fuel increases the chance for water to enter the engine. Use Yamaha Stor-Rite Engine Fogging Oil, or an equivalent fogging oil, to protect both the combustion chamber and crankshaft from corrosion. An alternate method is to

remove the intake silencer and squirt oil into the throttle bodies while the engine is running.

CAUTION:

Do not attempt to store the snowmobile by simply starting the engine occasionally during the storage period. This can cause more harm than good! Moisture and acids form during combustion which can actually increase the chance for corrosion damage during the storage period.

5. Surface protection

Apply a coat of wax to painted surfaces. Apply suitable protectants to the exterior of the engine, drive track, and to other metal, plastic, and rubber parts.

6. Battery

Remove the battery from the snowmobile. Store it in a cool, dry place that is above 0 °C (32 °F), but less than 30 °C (90 °F). Check the condition of the battery once a month, and charge it as necessary.

! WARNING

- **Never smoke around the battery while it is being charged. Sparks may ignite the hydrogen gas created by the battery.**
- **Never connect the battery to or disconnect it from the snowmobile while it is being charged. Sparks may ignite the hydrogen gas created by the battery.**
- **Make sure that the battery terminals are tight.**

CAUTION:

- **Always keep the battery charged. Storing a discharged battery can cause permanent battery damage.**
- **To charge a sealed-type (MF) battery, a special (constant-voltage) battery charger is required. Using a conventional battery charger will damage the battery. If you do not have access to a sealed-type (MF) battery charger, have a Yamaha dealer charge your battery.**
- **Do not charge the battery quickly. Charge the battery for 10 hours at 1.2 amperes.**

NOTE:

Before installing the battery, have a Yamaha dealer inspect and fully charge it.

For peak performance, it is recommended that you have your snowmobile checked and tuned by a Yamaha dealer. The dealer has the experience and training to help you get the maximum performance and use out of your Yamaha snowmobile.

7. Drive track

Loosen the drive track and block up the chassis so that the track is suspended above the ground.

8. V-belt

Remove the V-belt and store separately.

9. Storage

Store the snowmobile in a dry, well-ventilated place out of direct sunlight. Put a fabric cover over the snowmobile, preferably one that is designed for it. Do not use a plastic or vinyl cover—condensation could be trapped underneath which could increase the chances of rusting.

Returning to service after storage

When returning your snowmobile to service, install the V-belt and battery and adjust the drive track.

Remove the spark plugs and clean or replace them if necessary. Perform all other pre-operation and seasonal maintenance checks listed in the periodic maintenance chart.

ESU00228

ESU00229

SPECIFICATIONS

Dimensions

	RX10RT
Overall length	2,805 mm (110.4 in)
Overall width	1,225 mm (48.2 in)
Overall height	1,075 mm (42.3 in)
Dry weight	257 kg (567 lb)
Ski stance	1,086 mm (42.7 in)

ESU00230

Engine

	RX10RT
Type	Liquid cooled 4-stroke, 20 valves
Cylinder arrangement	Parallel 4-cylinder
Displacement	998 cm ³
Bore × Stroke	74.0 × 58.0 mm (2.91 × 2.28 in)
Idle speed	1,500 ± 100 r/min
Engine oil type	API SE, SF, SG or higher SAE 0W-30
Throttle body type	MIKUNI, 39EIDW × 2
Fuel	Unleaded gasoline Pump octane (R+M)/2; 86 or higher
Starting system	Electric starter

ESU00231

Chassis

	RX10RT
Drive track and suspension:	
Track	Molded rubber, fiber glass rod reinforced
Width	381 mm (15.0 in)
Track deflection	30–35 mm (1.18–1.38 in)/ 100 N (10 kg, 22 lb)
Length on ground	723 mm (28.4 in)
Suspension type	Slide Rail Suspension
Drive sprocket	Quadruple polyethylene, 9 teeth
Transmission:	
Type	Automatic centrifugal engagement, infinitely variable 3.8:1–1:1
Sheave distance	Approx. 268.5 mm (10.57 in)
Sheave offset	Approx. 15 mm (0.59 in)
Engagement speed*1	Approx. 3,500 r/min
Shift speed*1	Approx. 10,500 r/min*2
Drive chain	Silent chain enclosed in oil bath
Reduction ratio	38/24 (1.58)
Fuel tank:	
Tank capacity	38.3 L (8.4 Imp gal, 10.1 US gal)
Oil quantity:	
With oil filter cartridge replacement	3.0 L (2.6 Imp qt, 3.2 US qt)
Without oil filter cartridge replacement	2.8 L (2.5 Imp qt, 3.0 US qt)
Total amount	3.8 L (3.3 Imp qt, 4.0 US qt)
Brake:	
Type	Hydraulic disc type (ventilated disc)
Operation	Handle lever, left hand operated
Throttle:	
Operation	Handle lever, right hand operated

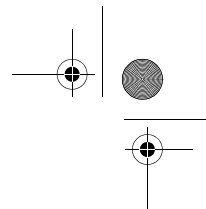
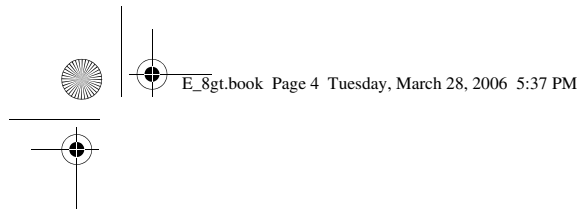
*1 Subject to change according to elevation settings.

*2 Usually achieved after approximately 800 m (0.5 mi) traveled.

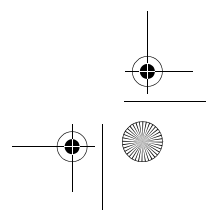
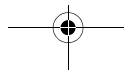
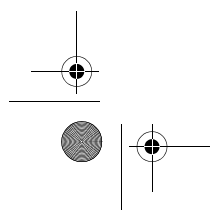
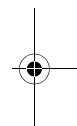
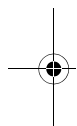
ESU00232

Electric

		RX10RT
Ignition system		TCI
Spark plug	Type	R CR9EB (NGK)
	Gap	0.7–0.8 mm (0.028–0.031 in)
Battery	Capacity	YTX14-BS 12 V 12 A·h
	Maximum charge rate	1.2 Amperes/hr for 10 hrs
Headlight	Bulb × Quantity	12 V, 60/55 W × 2
Tail/brake light	Bulb × Quantity	LED
Meter light	Bulb × Quantity	LED
Indicator light	Bulb × Quantity	LED



—MEMO—

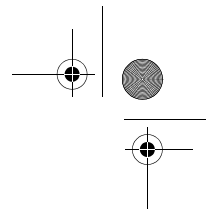
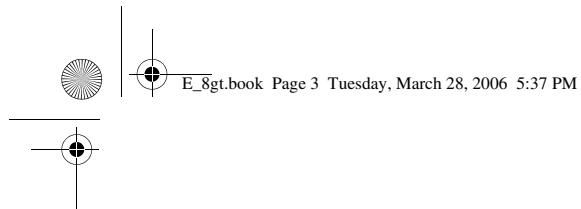




① AC magneto	③⑥ Gear position switch (option)	W.....White
② Rectifier/regulator	③⑦ Brake light switch	Y.....Yellow
③ Main switch	③⑧ Tail/brake light	B/L.....Black/Blue
④ Main fuse	③⑨ Fuel sender	B/R.....Black/Red
⑤ Fuel injection system fuse	④① Oil level switch	B/Y.....Black/Yellow
⑥ Starter relay	④② Meter assembly	Br/G.....Brown/Green
⑦ Starter motor	④③ Meter light	Br/L.....Brown/Blue
⑧ Red (+) jumper lead	④④ High beam indicator light	Br/W.....Brown/White
⑨ Battery	④⑤ Low coolant temperature indicator light	Br/Y.....Brown/Yellow
⑩ Black (-) jumper lead	④⑥ Warning light	G/B.....Green/Black
⑪ Diode	④⑦ Headlight relay	G/R.....Green/Red
⑫ Engine stop switch	④⑧ Headlight	G/W.....Green/White
⑬ Throttle switch	④⑨ Headlight beam switch	G/Y.....Green/Yellow
⑭ Engine control unit	④⑩ Radiator fan relay	Gy/B.....Gray/Blue
⑮ Oil pressure switch	④⑪ Radiator fan motor	Gy/G.....Gray/Green
⑯ Thumb warmer	④⑫ Auxiliary DC jack	Gy/R.....Gray/Red
⑰ Grip warmer	④⑬ "DC TERM" (Auxiliary DC jack) fuse	L/B.....Blue/Black
⑱ "ECS" (Electronically controlled rear shock absorber) fuse	④⑭ "HEAD" (Headlight) fuse	L/R.....Blue/Red
⑲ Sub-wire harness	④⑮ "SIG" (Signal) fuse	LW.....Blue/White
⑳ Ignition coil	④⑯ "FAN" (Radiator fan) fuse	L/Y.....Blue/Yellow
㉑ Spark plug	④⑰ "BACK UP" (Backup) fuse	Lg/B.....Light green/Black
㉒ Fuel injection relay	④⑱ "IGN" (Ignition) fuse	Lg/W.....Light green/White
㉓ Injector	④⑲ Load control relay	P/W.....Pink/White
㉔ Fuel pump		O/B.....Orange/Black
㉕ Throttle position sensor		O/G.....Orange/Green
㉖ Intake air pressure sensor		O/L.....Orange/Blue
㉗ Speed sensor		O/R.....Orange/Red
㉘ Camshaft sensor		O/W.....Orange/White
㉙ Barometric pressure sensor		R/B.....Red/Black
㉚ Thermo unit		R/G.....Red/Green
㉛ Air temperature sensor		R/L.....Red/Blue
㉜ Grip warmer adjustment switch		R/W.....Red/White
㉝ Thumb warmer adjustment switch		R/Y.....Red/Yellow
㉞ Frame ground		W/B.....White/Black
㉟ DC back buzzer (option)		Y/G.....Yellow/Green
		Y/L.....Yellow/Blue
		Y/R.....Yellow/Red

COLOR CODE

B.....	Black
Br.....	Brown
Ch.....	Chocolate
G.....	Green
Gy.....	Gray
L.....	Blue
Lg.....	Light green
O.....	Orange
P.....	Pink
R.....	Red



—MEMO—

