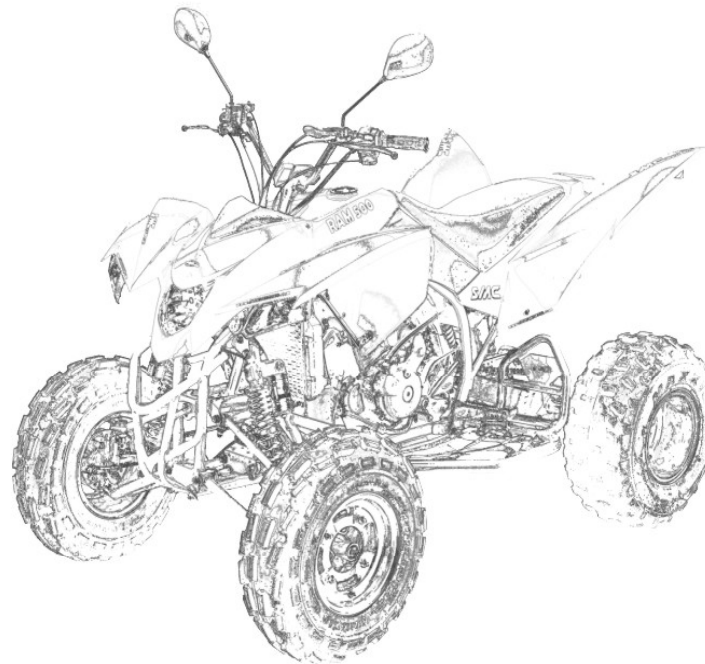
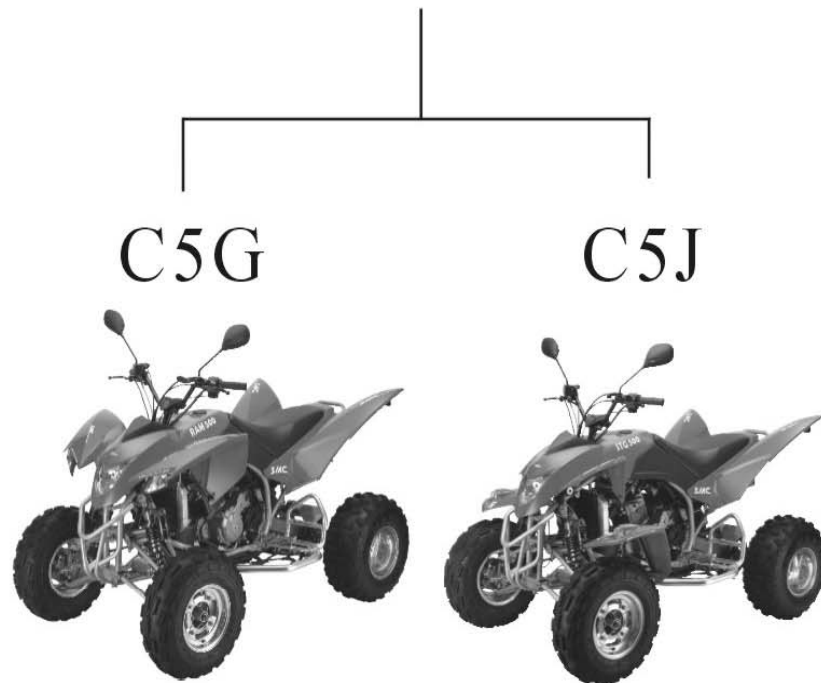


Standard moto
Sports *NEW RAM-500*
NEW STG-500
OWNER'S MANUAL



C50 ATV introduction



INTRODUCTION

We appreciate your selection of the machines, All Terrain Vehicle (hereinafter called as ATV), 500cc series of products in Gear Sports segment. This category "S"(Sport) ATVs is a high-performance ATVs for sport-type recreational and competitive used by operators with advanced skills and substantial experience. This ATV should not be ridden by anyone under 16 years of age.

This manual will provide you with a reliable basic understanding of the features, instructions for operation, maintenance of this ATV. This manual includes important safety information. It provides information about special techniques and skills necessary to ride this ATV. For any questions regarding the operation, maintenance, and service, please contact with the Area Importer, Territorial Distributor, Local Dealers, or Service Station.

1. Due to continuous launch of new models, information in this manual may be subject to change without notice. For any further information regarding this manual or the products, please contact the Area Importer, Territorial Distributor or local dealers.
2. All details of this manual are based on the latest product information available at the time of approval for printing. Maker reserves the right to make changes at any time without notice and without incurring any obligation.
3. This manual is part of the products. Please keep it with the products for ready use, even when the product is resold.
4. This manual covers all series of products that user has to find out what details belong to.

By: Sales and Service Department of Standard Motor Corp.

For Territorial Importer/Distributor: Maker (Standard Motor Corp.) only confirms the products and all necessary usage information on this text. If importer wishes to re-make on their own language manual, Importers should get the written confirmation of authorization from Maker to make the translation on his own owner's manual (the correct area language). The translation text must follows this complete and correct information on his translation manual only, otherwise, Maker will pay no any responsibility on any of claim on incorrect way of usage on this manual.

For end users group: Maker (Standard Motor Corp.) only make the necessary communication with Territorial Importer/Distributor. Any questions you have, please contact with the Area Importer, Territorial Distributor, Local Dealers, or Service Station.

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I-1. IMPORTANT SAFETY MESSAGE

01. READ THIS MANUAL CAREFULLY AND COMPLETELY BEFORE OPERATING THE ATV. MAKE SURE YOU UNDERSTAND ALL INSTRUCTIONS.
02. PAY ATTENTION TO THE WARNING AND CAUTION LABELS ON THE ATV.
03. ANY ATV OVER 90cc SHOULD NOT BE RIDDEN BY ANYONE UNDER 16 YEARS OF AGE.
04. THE ATV IS FOR HIGH PERFORMANCE OFF-ROAD USE ONLY (THE ON ROAD USE HAS TO BE APPROVAL BY LAW). FOR SPORTS TYPE RECREATIONAL AND COMPETITIVE USE BY EXPERIENCED OPERATORS.

I-2. IMPORTANT INFORMATION

FAILURE TO FOLLOW THE WARNINGS CONTAINED IN THIS MANUAL CAN RESULT IN SERIOUS INJURY OR DEATH.

The important information shown in this manual in texts or symbols is described as follows;

Failure to follow " ! WARNING " instructions could result in severe injury or death to the ATV rider, an onlooker, or a worker inspecting or repairing the ATV.

" CAUTION " marks special precautions that must be taken to avoid damage to the ATV.

" NOTE " provides principal information to make procedures easier or clearer.

I-3. IMPORTANT NOTICE

The ATVs is designed and built for OFF-ROAD use and single rider only. It is illegal and risky to maneuver this ATV on any public street, road or highway. Be sure to check your local riding laws and regulations before riding this ATV.

The ATVs for E/e Mark ON-ROAD use has to match the local riding laws and regulation. For any further information regarding on "ON Road" matter, please contact the Area Importer or Territorial Distributor. * it may have lots of different points in ON Road rule i.e. tire pressure, ..., where the Territorial Importer or Distributor will provide all necessary and correct information to match each area regulation.

To operate ATV is different from other vehicles such as motorcycles, scooters, and cars. It can be hazardous to operate. If you do not follow the instructions, a collision or rollover can be occurred that severe injury or death may result. Never use an ATV without exact training or instruction.

The ATVs max. power, max. torque, top speed, are for the professional rider reference. The ATV is designed for recreational use by skilled operators only, which the sports ATV operation differs from other vehicles such as other types of ATV, scooters, or motorcycles. Riding the ATV requires special skills acquired through practice. It is essential to familiarize the operation to achieve the skills necessary to enjoy riding safely. Keep ATV at slow speeds during first operation. Do not attempt to operate at maximum speeds until you are totally familiar with the ATV operation.

Always follow the shift-introduction whenever engage the neutral or reverse gear. During engaging F-R or F-N-R operation, be sure stop vehicle completely and do not make any acceleration. Maker will pay no any responsibility whenever the mistake of user on F-R or F-N-R shifting operation

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PART 1. WARNING AND SPECIFICATION LABELS

Read and understand all labels on the ATV, which contain serious information for safe and correct operation of the ATV.

Do not remove any labels from the ATV. If a label becomes difficult to read or identify, a replacement label is available from local dealer. (refer to *Fig. 1-A1, 1-A2, 1-A3, 1-A4, 1-A5, 1-A6, 1-A7, 1-A8, 1-A9, 1-A10, 1-A11*)

PART 2. SAFETY INFORMATION

To operate ATV is different from other vehicles such as motorcycles, scooters, and cars. It can be hazardous to operate. If you do not follow the instructions, a collision or rollover can be occurred that severe injury or death may result.

01. Study this owner's manual and labels carefully and follow the operating procedures described. The On Road E/e Mark ATVs has to match the local riding laws and regulation. For any further information regarding on "ON Road" matter, please contact the Area Importer or Territorial Distributor.

02. Never use an ATV without exact training or instruction.

03. Be sure to follow the age suggestion: A child under 16 years old should never ride an ATV with engine size greater than 90cc.

04. Never allow a child under age 16 to ride an ATV without adult supervision, and never allow continuous use of an ATV by a child if he or she does not have the abilities to operate it safely.

05. Never carry a passenger on an ATV (E/e Mark ATV might be different)

06. Always avoid riding an ATV on any paved surfaces such as sidewalks, driveways, parking lots and streets (E/e Mark ATV might be different)

07. Never operate an ATV on any public street, road or highway, even a dirt or gravel one. (E/e Mark ATV might be different)

08. Never ride an ATV without wearing an approved helmet that fits properly. ATV rider should wear eye protection (goggles or face shield), gloves, boots, long-sleeved shirt or jacket, and long pants.

09. Never consume alcohol or drugs before or while riding the ATV.

10. Never operate at speeds too fast over your skills or the conditions. Only go at a speed that is correct for the terrain, visibility and operating conditions, and your experience.

11. Never attempt wheelies, jumps, or other stunts.

12. Examine ATV before operation and make sure it is in safe operating condition. Follow the inspection, maintenance procedures and schedules described in this manual. Keep hands on the handlebar and feet on the footrests of the ATV during operation.

13. Go slowly and be careful when operating on unfamiliar terrain.

14. Always check for obstacles before riding in a new area. Never attempt to operate over large obstacles, such as large rocks or fallen trees. Always follow proper procedures when operating over obstacles as described in this manual.

15. Never operate on excessively rough, slippery or loose terrain unless you own good skills to control the ATV on such terrain.

16. Be sure to follow proper procedures for turning, climbing uphill, going downhill, ..., as described in this manual, *part 7*.

17. Never operate an ATV in fast flowing water or in water deeper than that recommended in this manual. The wet brakes may reduce stopping ability. Be sure to test brakes after leaving water.

18. Only use the size and type of tires specified in this manual, and maintain proper tire pressure as described in this manual (E/e Mark ATV might be different)

19. Never modify an ATV through improper installation or use of accessories. Always use the corrected size and type of tires.

20. On loading or distributing ATV, do not exceed the stated load capacity. Be sure to reduce speed and follow instructions in this manual for carrying cargo or pulling a trailer. (refer to *Fig. 2-A*)

21. During the shifting F-R, be sure to pull the "brake"(R hand brake lever or R side foot brake paddle) and then shift the selector on F (Forward) or R (Reverse). Be sure DO NOT make any acceleration during F-R operation. Engage the gear only on 1st. gear only and under the slow speed performance.

22. E/e Mark or other Road Legal ATVs. The ATVs for E/e Mark ON-ROAD use has to match the local riding laws and regulation. For any further information regarding on "On Road" matter, please contact the Area Importer or Territorial Distributor. * it may have lots of different points in On Road rule ie. tire pressure, ..., where the Territorial Importer or Distributor will provide all necessary and correct information to match each area regulation.

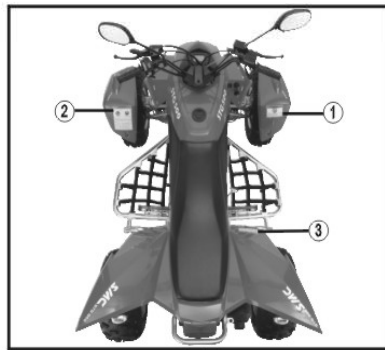
To operate ATV is different from other vehicles such as motorcycles, scooters, and cars. It can be hazardous to operate. If you do not follow the instructions, a collision or rollover can be occurred that severe injury or death may result. Never use an ATV without exact training or instruction.

The ATVs max. power, max. torque, top speed, are for the professional rider reference. The ATV is designed for recreational use by skilled operators only, which the sports ATV operation differs from other vehicles such as other types of ATV, scooters, or motorcycles. Riding the ATV requires special skills acquired through practice. It is essential to familiarize the operation to achieve the skills necessary to enjoy riding safely. Keep ATV at slow speeds during first operation. Do not attempt to operate at maximum speeds until you are totally familiar with the ATV operation.

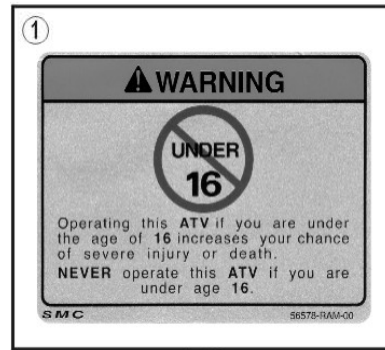
! WARNING for the E/e mark vehicle" instructions could result in severe injury or death to the ATV rider, an onlooker, or a worker inspecting or repairing the ATV.

<WARNING> The ATV is designed for recreational use by skilled operators only. It is essential to familiarize the operation to achieve the skills necessary to enjoy riding safely. Keep ATV at slow speeds for normal operation. Do not attempt to operate at maximum speeds until you are totally familiar with the ATV operation. For the liquid cooled system, be sure to follow all of liquid cooling notice on Appendix 12-3

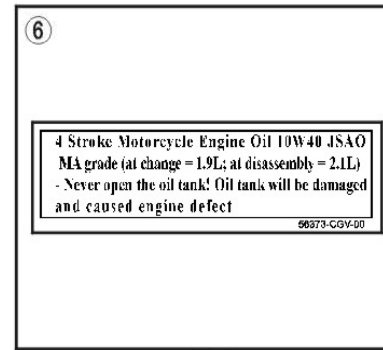
! WARNING must understand the difference on Gear or CVT operation.



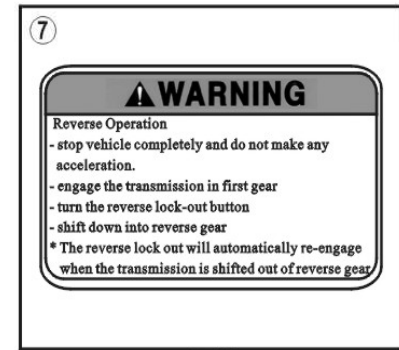
1-A1



1-A2



1-A7



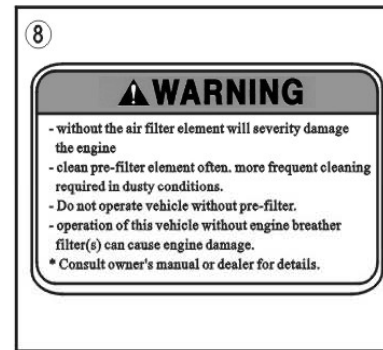
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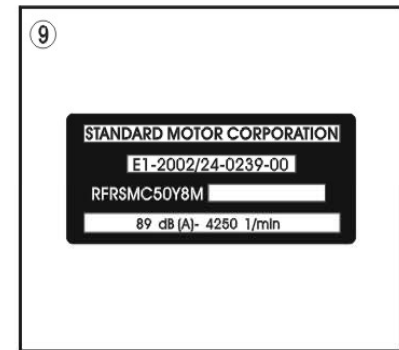
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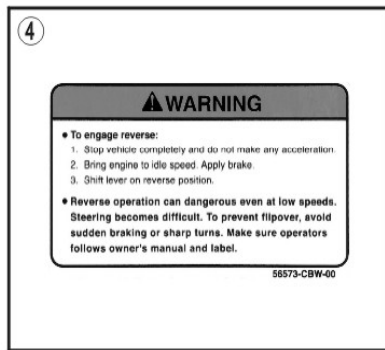
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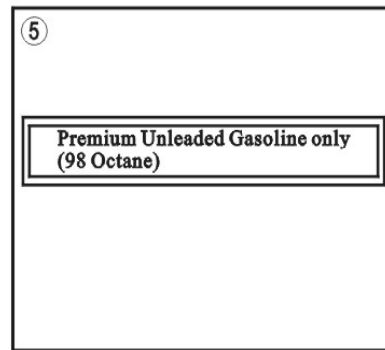
1-A9



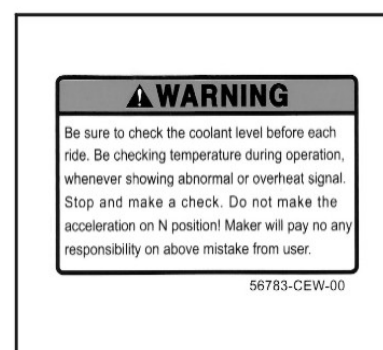
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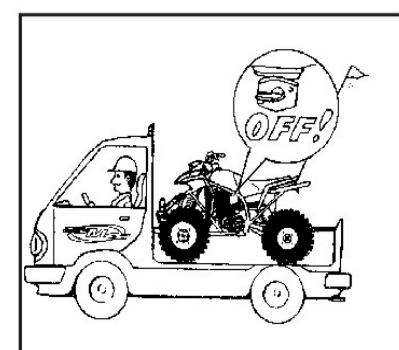
1-A5



1-A6



1-A11



2-A

PART 3. LOCATION AND IDENTIFICATION

3-01. Parts location: (Fig. 3-A, 3-A1, 3-B, 3-B1, 3-C, 3-C1)

- | | |
|------------------------------------|-----------------------------|
| 01. Seat | 02. Fuel tank cap |
| 03. Headlight | 04. Brake pedal |
| 05. Front shock absorber | 06. Front wheel |
| 07. Fuel cock | 08. Chock |
| 09. Master cylinder | 10. Reverse lock out button |
| 11. Radiator | 12. Reserve tank |
| 13. Clutch lever or Recoil starter | 14. Ignition switch |
| 15. Parking brake | 16. Front brake lever |
| 17. Throttle lever | 18. Handlebar switch |
| 19. Speedometer | |

- NOTE:

The ATV you have purchased may differ slightly from those shown in the figures of this manual.

3-02. Identification numbers

The (key, frame, engine) numbers will be needed when ordering spare parts and for reference in case the ATV is stolen.

3-02-01. Key number: (refer to Fig. 3-D)

The key identification number is stamped on the key (under the key cover), which can be used for ordering a new key.

3-02-02. Vehicle identification number (VIN): (refer to Fig. 3-E)

The vehicle identification frame number (VIN) is marked on the frame.

CAUTION: the E/e Mark approval frame number is on R side.

CAUTION: the EPA or CARB approval frame number in on R side.

3-02-03. Engine number: (refer to Fig. 3-F)

The engine number is marked on the engine.

3-02-04. Label: (Refer to Part1 and Part2 details)

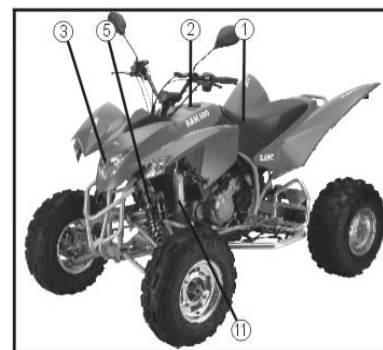
The vehicle may has different ID label that follow the each different approval requirements – all details please contact with each Area Importer.

- NOTE: Type of Approval (Maker apply several approval to match area needs, details please contact with Area Importer)

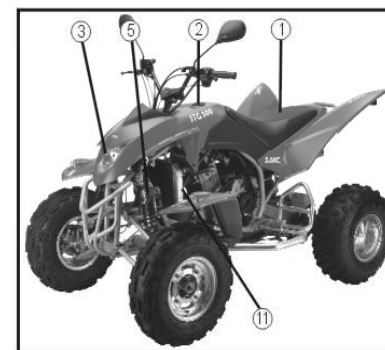
i.e. E/e Mark on WVTA (Whole Vehicle Type Approval) follows EEC Directives and ECE Regulation

i.e. EPA (U.S. Environmental Protection Agency) follows certification and compliance division office of transportation and air quality U.S EPA law

i.e. CARB (California Air Resources Board) follows certification and compliance division office of California



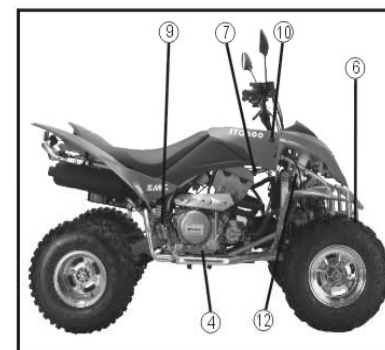
3-A



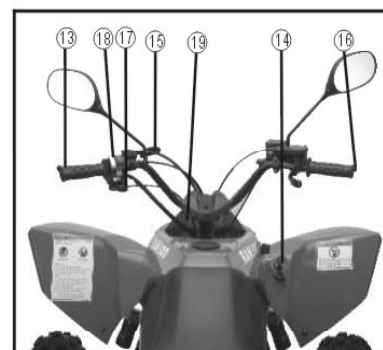
3-A1



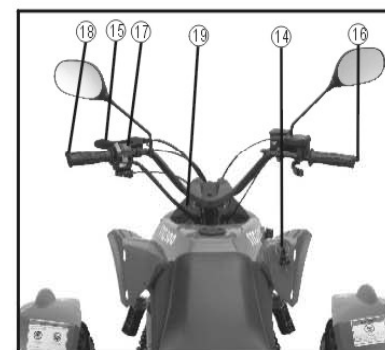
3-B



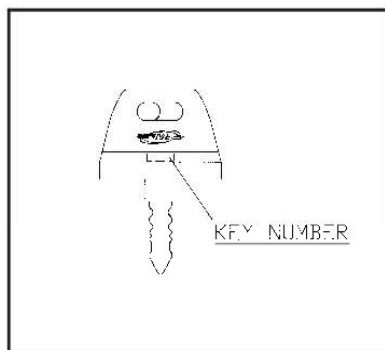
3-B1



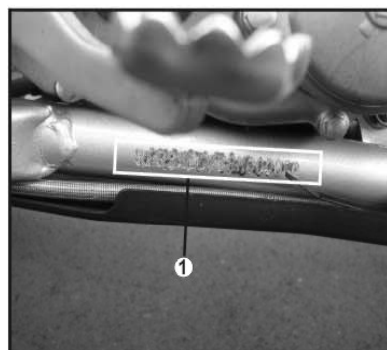
3-C



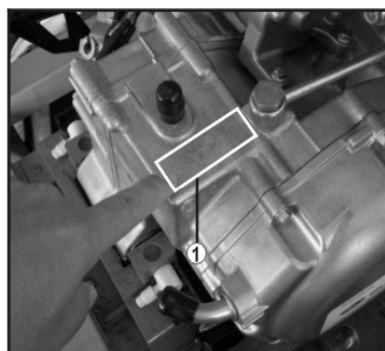
3-C1



3-D



3-Ee



3-Fc

PART 4. CONTROL FUNCTIONS

4-01. Ignition (main) switch (refer to Fig. 4-A)

ON 1: Engine can be started at this position.

ON 2: Engine can be started at this position and the headlight and taillight come on at the same time.

OFF: All electrical circuits are switched off. The key can be removed in this position.

4-02. Neutral and Reverse position lights (refer to Fig. 4-B)

In the neutral position, the green indicator light will go on, and the ignition switch should be at "ON 1" or "ON 2" position.

In the reverse function, the red indicator light will go on – on reverse, only use the low gear (down 1st gear)

4-03. Handlebar switches (refer to Fig. 4-C, Fig 4-C1)

4-03-01. High/Low beam switch

"LO" position is for low beam and taillight. "HI" position is for high beam and taillight.

- NOTE: The headlight and taillight can be turned on only when the ignition switch is at "ON 2" position.

4-03-02. Starter button

Push the starter button to start engine. Release the starter button immediately after engine is started.

- CAUTION:

Do not push starter button more than four seconds each time, which will cause the starter overheat and damage the starter.

During engine running, do not press starter button to avoid starter & engine damage.

4-04. Throttle lever (refer to Fig. 4-D)

During engine running, movement of the throttle lever will increase the engine speed. Regulate the speed of the ATV by varying the throttle position. Before starting the engine, check throttle to be sure it is operating smoothly. Be sure that it returns to the idle condition as soon as the lever is released.

<! WARNING> POTENTIAL HAZARD: Malfunction of throttle.

AWARENESS: The throttle could be hard to operate, making it difficult to speed up or slow down when riding ATV, which could cause an accident.

SOLUTION: Check the operation of the throttle lever before you start the engine. If it does not work smoothly, be sure to check it and correct the problem before riding the ATV. Consult a local dealer or service station if you can't find or solve the problem yourself.

4-05. Speed limiter (refer to Fig. 4-E)

The speed limiter controls the throttle operation, even when the throttle lever is pushed to the maximum. Screwing in the adjuster limits the maximum engine power available and decreases the maximum speed of the ATV.

<! WARNING> POTENTIAL HAZARD: Improper adjustment of the speed limiter and throttle.

AWARENESS: The throttle cable could be damaged and cause improper throttle operation. You could lose control, have an accident or be injured.

SOLUTION: Do not turn the speed adjuster out more than 12 mm (0.47in). Always make sure the throttle lever free play is adjusted to 4-6 mm (0.16-0.24in).

4-06. Clutch lever (refer to Fig. 4-F) – Gear Sports only

The clutch lever is located on the left side of handlebar. Pull the clutch lever to the handlebar to disengage the clutch, and release the lever to engage the clutch.

4-07. Front brake lever (refer to Fig. 4-G)

The front brake lever is located on the right side of handlebar. Pull it toward the handlebar to apply the front brake.

4-08. Rear brake pedal (refer to Fig. 4-H)

The brake pedal is located on the right side of the ATV. Push down on the pedal to apply the rear brake.

Caution: the E/e mark ATVs is integral brake system on rear foot brake system – refer to 5-14

4-09. Parking brake (refer to Fig. 4-I)

Use the parking brake when you have to start the engine or park the ATV, especially on a slope. Be apply the parking brake, move the parking brake lever in direction "ON". To release the parking brake, move the parking brake lever in direction "OFF"

<! WARNING> POTENTIAL HAZARD: Improper use of the parking brake.

AWARENESS: The ATV could start moving unexpectedly if the parking brake is not applied before starting the engine. This could cause loss of control or a collision. The brake shoe could overheat if riding the ATV without releasing the parking brake, which might lose braking function and could cause an accident.

SOLUTION:

- / 1. Always set the parking brake before starting the engine.
- / 2. Be sure to release the parking brake before you begin to ride.

4-10. Gearshift pedal (refer to Fig. 4-J)

The ATV is a national 5-speed transmission. The shift pedal is located on the left side of the engine.

4-11. Reverse lock out switch (refer Fig. 4-P)

The ATV has Reverse lock out switch prevents the operator from shifting into reverse unintentionally.

Operation of Forward/Reverse (to engage reverse from forward; or forward to reverse)

- / 1. Stop vehicle completely and do not make any acceleration.
- / 2. Engage the transmission in first gear
- / 3. Turn the reverse lock-out button forward
- / 4. Shift down into reverse gear

NOTE:

The reverse lock out will automatically re-engage when the transmission is shifted out of reverse gear.

CAUTION: Be sure DO NOT make any acceleration during F-R(Gear) operation!. Maker suggests only follow the correct way of transmission operation. This is not the maker mistake that will not consider as any warranty claim, Maker will be not undertaken any of incorrect operation claim.

CAUTION: for safety purpose, the speed on Reverse had limited on 15km/hr

CAUTION: for safety purpose, the speed on Forward during shift gear should be slow.

4-12. Fuel tank cap (refer to Fig. 4-K)

Take out the fuel tank cap by follow the direction introduction for open or close direction.

4-13. Fuel cock (refer to Fig. 4-L)

The fuel cock supplies fuel from the fuel tank to the carburetor.

The fuel cock has three positions.

/ OFF: Fuel will not flow on this position. Always turn the lever to OFF when the engine is not running.

/ ON : Fuel flows to the carburetor on this position.

/ RES: If you run out of fuel while riding, turn the fuel cock lever to this position. Refuel as soon as possible. After refuelling, return the fuel cock lever to the "ON" position.

4-14. Choke (refer to Fig. 4-M, 4-M1)

For different requirements, the choke position is located on left handle-bar, below the start button (Fig. 4-M1)

Starting a cold engine requires a richer air-fuel mixture.

/ direction (a) to open the choke.

/ direction (b) to close the choke.

- NOTE:

Refer to "6-1 starting a cold engine" for proper operation.

4-15. Seat (refer to Fig. 4-N, 4-N1)

To take out the seat, pull the seat lock lever upward and pull up the seat at the rear. To install the seat, insert the lobe on the seat front into the receptacle on the frame and push down the seat at the rear.

- NOTE: Make sure that the seat is securely fitted.

4-16. Flag pole bracket, License plate, and Rear rack (refer to 4-O)

The flag pole bracket is on the rear carrier. The License plate is only for On Road model use, whenever to operate ATVs on off-road area, be sure to remove the license plate to avoid too much vibration and brake the license plate and loss license. The rear rack is an opinion devices on ATV. Be sure do not overload.

- NOTE:

Flag poles are required in some area. Check your local regulation before riding.

The rear rack max. load is 15kg

4-17. LCD Speedometer (refer to Fig.4-Q)

The "mode" can make the switch on the function of "odometer" to check the accumulation or each riding total.
The "adj (adjust)" can make the adjust on the timing -- whenever remove the battery, the time will be needed to re-adjust

4-18. Front shock absorber adjustment (refer to Fig.4-R, 4-R1, 4-R2, 4-R3)

The spring preload, rebound damping and compression damping force of the front shock absorbers can be adjusted to suit the rider's weight and riding conditions (off road or on road setting).

4-18-1. Adjust the spring preload (refer to Fig.4-R, 4-R1)

- / 1. loosen the locknut
- / 2. turn the adjusting nut in direction for incase or decrease spring preload.
- / 3. the length of spring changed 1.5 mm per turn of the adjusting nuts.
- / 4. the installed length Min(hard) = 289mm out; Standard = 274mm out, Max(soft) = 267mm
- / 5. tighten the locknut to the 30Nm (3.0 m kgf, 22 ft. lbf)

- Caution: always tighten the locknut against the adjusting nut and tighten it to the specified torque.

4-18-2. Adjust the rebound damping force (refer to Fig. 4-R1)

- / 1. turn the rebound damping force adjusting screw in direction for increase or decrease the rebound force.
- / 2. from fully turned in position Min(soft) = 1 click; Standard = 12 click out, Max(hard) = 24 click

4-18-3. Adjust the compression damping force (refer to Fig. 4-R3)

- / 1. turn the compression damping force adjusting screw in direction for increase or decrease the rebound force.
- / 2. from fully turned in position Min(soft) = 1 click out; Standard = 2 click out, Max(hard) = 4 click

4-19. Rear shock absorber adjustment (refer to Fig. 4-S, 4-S1, 4-S2)

The spring preload, rebound damping and compression damping force of the rear shock absorbers can be adjusted to suit the rider's weight and riding conditions (off road or on road setting).

4-19-1. Adjust the spring preload

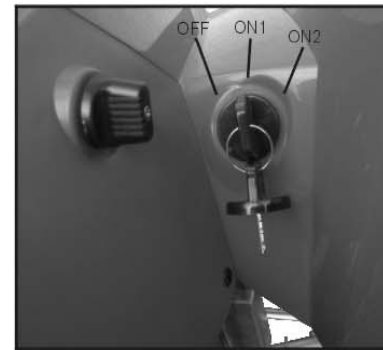
- / 1. loosen the locknut
- / 2. turn the adjusting nut in direction for incase or decrease spring preload.
- / 3. the length of spring changed 1.5 mm per turn of the adjusting nuts.
- / 4. the installed length Min(hard) = 211mm out; Standard = 226mm out, Max(soft) = 241mm
- / 5. tighten the locknut to the 45Nm (4.5 m kgf, 33 ft. lbf)

4-19-2. Adjust the rebound damping force (refer to Fig. 4-S1)

- / 1. turn the rebound damping force adjusting screw in direction for increase or decrease the rebound force.
- / 2. from fully turned in position Min(soft) = 1 click; Standard = 12 click out, Max(hard) = 24 click

4-19-3. Adjust the compression damping force (refer to Fig. 4-S2)

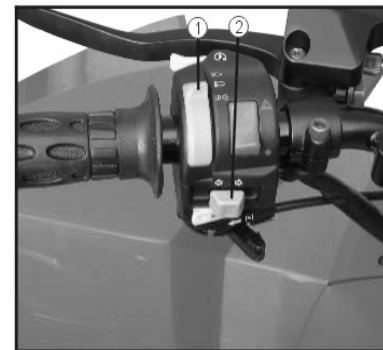
- / 1. turn the compression damping force adjusting screw in direction for increase or decrease the rebound force.
- / 2. from fully turned in position Min(soft) = 1 click out; Standard = 2 click out, Max(hard) = 4 click



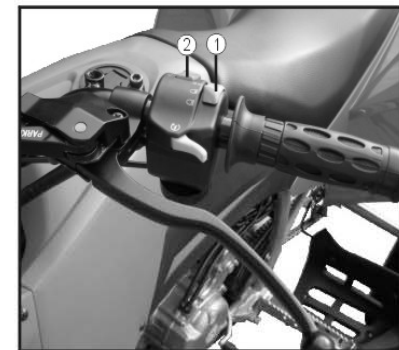
4-A



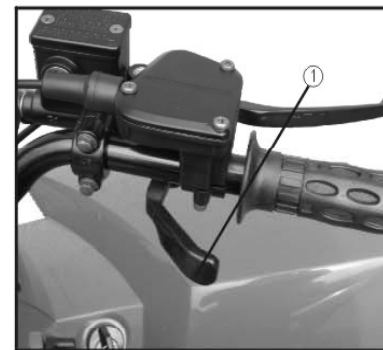
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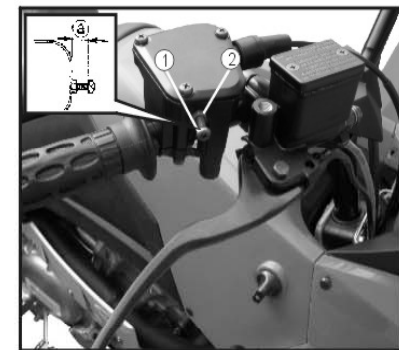
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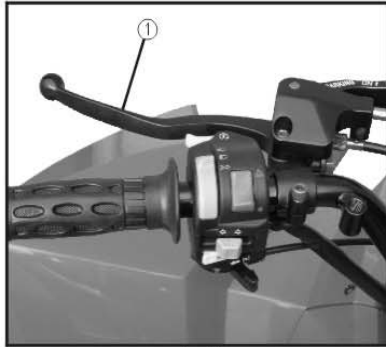
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4-D



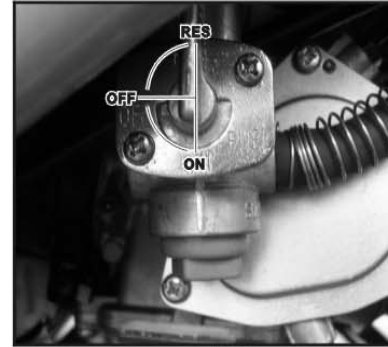
4-E



4-F



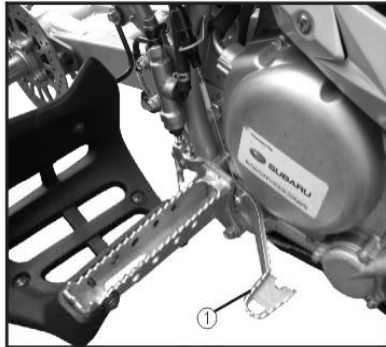
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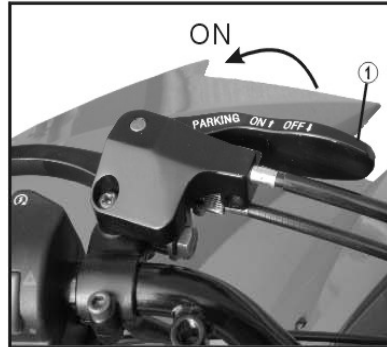
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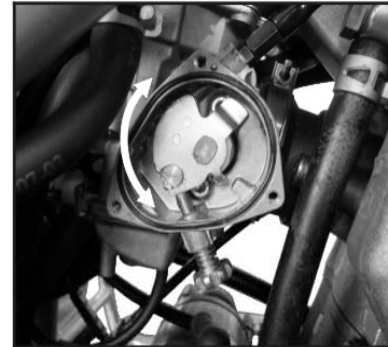
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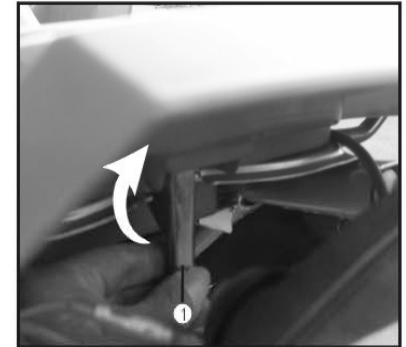
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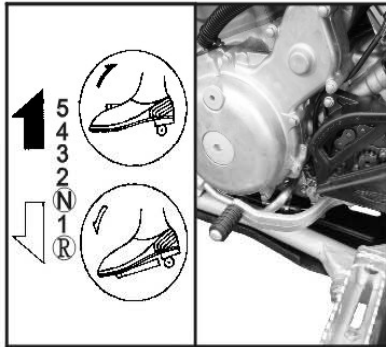
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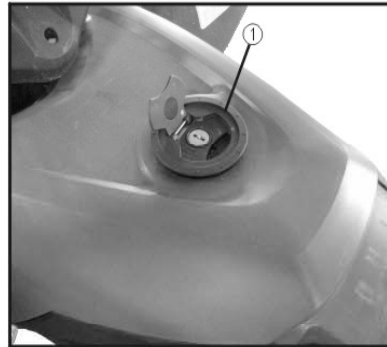
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4-N



4-Je



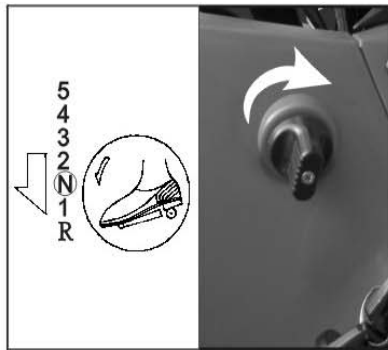
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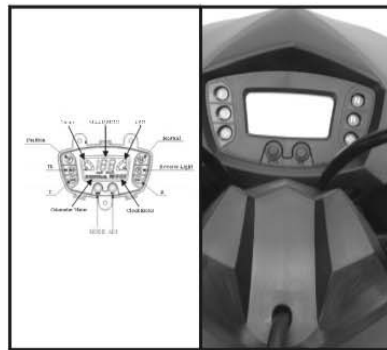
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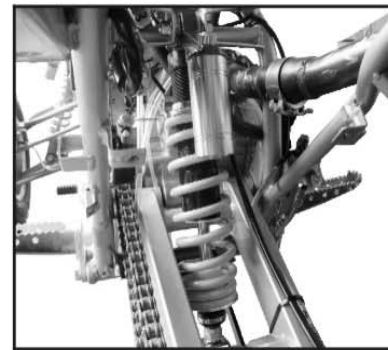
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4-P



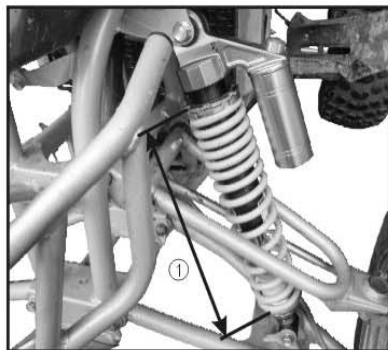
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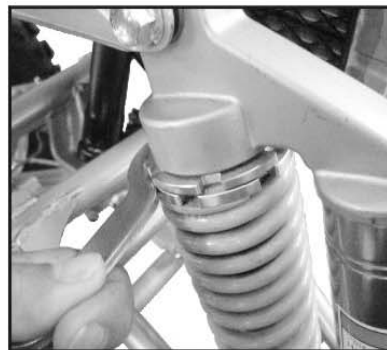
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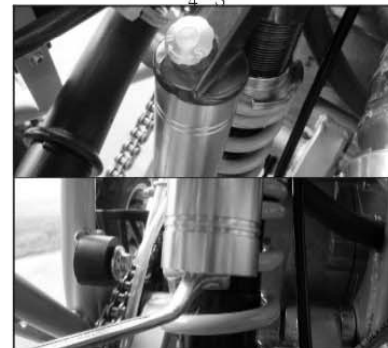
4-S1



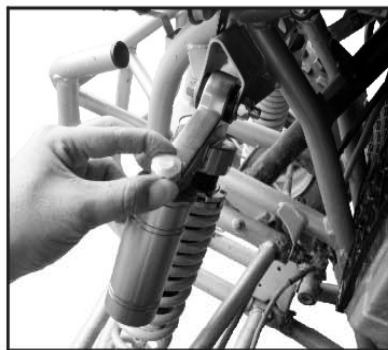
4-R



4-R1



4-S3



4-R2



4-R3

PART 5. PRE-OPERATION CHECKS

5-01. Pre-riding inspection briefing:

Item(s)	Method(s)
Brake(F. & R.)	<ul style="list-style-type: none"> * Check brake lever operation and free play -- adjust if necessary. * Check operation and brake shoe -- adjust or replace new one if necessary * Fill with DOT 4 brake fluid if necessary.
Clutch	* Check operation and lever free play --- adjust if necessary.
Parking brake	* Check operation and cable free play -- adjust if necessary.
Fuel tank	* Check fuel level before each ride -- fill with fuel if necessary.
Engine oil	* Check engine oil level before each ride -- fill with engine oil if necessary.
Coolant level	* Check coolant level before each ride -- fill coolant if necessary.
Drive chain	* Check chain slack and condition before each ride -- adjust if necessary.
Throttle	* Check for proper throttle cable operation -- adjust if necessary.
Speedometer	* Check for proper function -- adjust or replace new one if necessary.
Reverse lock out	* Check operation and cable free play -- adjust if necessary.
Wheels & tires	* Check tire pressure, wear and damage -- adjust or replace new one if necessary.
Fittings/fasteners	* Check all fittings and fasteners -- adjust or fixed if necessary
Lights	* Check for proper function -- adjust or replace new one if necessary. .
Battery	* Check the power and voltage -- recharge or replace new one if necessary.

<! WARNING> POTENTIAL HAZARD:

Failure to inspect the ATV before operating and failure to properly maintain the ATV.

AWARENESS: Increases the possibility of an accident or equipment damage.

SOLUTION:

- / 1. Be sure to inspect ATV each time before operation and make sure the ATV is in safe operating condition.
- / 2. Always follow the inspection and maintenance procedures and schedules described in the Owner's Manual.

5-02. Front and rear brakes

5-02-01. Brake lever and brake pedal

Check for correct free play in the front brake lever. If the free play is incorrect, adjust it -- refer to part 8-11, 8-12.

5-02-02. Brake operation

Check operation of the front brake lever and rear brake pedal. They should move smoothly and should be a firm feeling when the brake is applied. If not, have the ATV inspected by a local dealer or service station.

Test the brakes at slow speed. If the brakes do not provide proper braking, inspect the brakes wear condition -- refer to part 8-11, 8-12, 8-13, 8-141.

<! WARNING> POTENTIAL HAZARD: Riding with improperly operating brakes.

AWARENESS: will lose braking function which may lead to an accident.

SOLUTION:

- / 1. Always check the brakes before riding the ATV.
- / 2. Do not ride the ATV if you find any problem with the brakes.
- / 3. If a problem cannot be corrected by the adjustment procedures provided in this manual, have the ATV inspected by a local dealer or service station.

5-03. Fuel

Always keep enough petrol in the fuel tank. The engine is designed to use premium unleaded gasoline with a pump octane number of 98, or research octane number of 95 or higher.

<! WARNING 1>: POTENTIAL HAZARD --- Improper handling of gasoline.

AWARENESS(1): Gasoline can catch fire. You could be burned.

SOLUTION(1):

- / 1. Be sure to turn off the engine when re-fuelling.
- / 2. Do not refuel after the engine has been running hot.
- / 3. Do not spill gasoline on the engine or muffler when re-fuelling.
- / 4. Never refuel while smoking, or while in the vicinity of sparks, open flames, or other sources of ignition such as the pilot lights of water heaters and clothes dryers.
- / 5. When transporting the ATV in another vehicle, be sure it is kept upright and that the fuel cock is in the "OFF" position.

AWARENESS(2): Gasoline is poisonous. People could be injured.

SOLUTION(2):

- / 1. If you should swamp some gasoline or inhale a lot of gasoline vapor, or get some gasoline in your eyes, see your doctor immediately.
- / 2. If gasoline spills on your skin, wash with soap and water. If gasoline spills on your clothing, change your clothes.

<! WARNING 3> POTENTIAL HAZARD: Improper care when re-fuelling.

AWARENESS(3): Fuel can spill, which can cause a fire and severe injury. Fuel expands when it heats up. If the fuel tank is overfilled, fuel could spill out due to heat from the engine or the sun.

SOLUTION(3):

1. Do not overfill the fuel tank.
2. Do not spill fuel, especially on the engine or exhaust pipe.
3. Wipe up any spilled fuel. Be sure to close fuel tank cap.
4. Do not refuel right after the engine has been running.

5-04. Engine oil 10W40 Motorcycle JSAO MA grade; ie. Shell Advance VSX1 MA Motorcycle grade

Make sure the 4-stroke engine oil is at the specified level. Add oil as necessary -- refer to part 5-02 of this manual.

- CAUTION: the gear clutch engine only allow to use the Motorcycle 10W40 JASO MA grade of 4-stroke engine oil.

5-05. Chain (Clear sports) 520 O-ring chain x 93 for 34/36T chain wheel; x 94 for 38T chain wheel.

Check the operation of the chain and check the slack of chain before every ride. Lubricate and adjust the chain as necessary -- refer to part 5-17 of this manual.

5-06. Throttle lever

Inspect that the throttle lever operates correctly. It must open smoothly and return on idle condition when released. Repair is necessary for proper operation -- refer to part 5-10.

5-07. Fittings and fasteners

Always check the tightness of chassis fittings and fasteners before each riding.

5-08. Lights

Check the headlight and taillight to make sure they are working well.

5-09. Ignition switches

Check the operation of the ignition switches.

5-10. Tire and low-pressure tire gauge

5-10-01. Tire Deals

Be sure to keep the tire pressure as warning label tire introduction on each tire specification.

Caution: E/e Mark vehicle might be have different value than off-road tire requirement.

- WARNING - POTENTIAL HAZARD: Operating this ATV with improper tires, or with improper or uneven tire pressure.
AWARENESS: Use of improper tires on this ATV or operation of this ATV with improper or uneven tire pressure may cause loss of control and increase risk of accident.

SOLUTION:

1. The tires should be approved and suggested by maker for this model. Other tire combinations are not recommended.
2. The tires should be set to the recommended pressure as tire indication or warning label.

- NOTE: Check and adjust tire pressures when the tires are cold. Tire pressures must be equal on both sides. Tire pressure above the minimum specified could cause the tire to dislodge from the rim under severe riding conditions. Higher pressures may cause the tire to burst. Inflate the tires slowly and carefully. Fast inflation could cause burst.

- CAUTION: The E/e Mark ATV on road use may have different tire and tire pressure that users has to follow each area distributor's correct introduction only! All details should refer to area distributor.

/ 3. Be sure no more than the following pressures when seating the tire beads.

Front: 250 kPa (2.5 kgf/cm², 36 psi)

Rear : 250 kPa (2.5 kgf/cm², 36 psi)

5-10-02. The low-pressure tire gauge(refer to Fig. 5-4)

Keep the low-pressure tire gauge with the ATV for ready use all the time.

/ 1. Set pressure with tires cold.

/ 2. Set tire pressures to match the suggested tire pressure for (F)AT21x7-10; (R)AT20x10-9

Suggestion off-road (F) 30 kpa or 0.3 kgf/cm²; (R) 35 Kpa or 0.35kgf/cm²

- NOTE:

Take out dirt or dust in the gauge. Always make two measurements of tire pressure and take the 2nd. reading.

5-11. Tire wear limit (refer to Fig. 5-B)

When the tire groove decreases to 3 mm(0.12 in.) due to wear, be sure to replace the tire.

5-12. Battery (12A-BS for 500cc)

Be sure to keep the battery capacity and measure the voltage before operating ATV. If battery is low, please re-charge or replace a new battery -- refer to part 5-21.

5-13. Speedometer (LCD Electrical) refer to Fig. 5-C, 5-D

Be sure to keep the LCD on clean and dry condition. The "mode" can make the switch on the function of "odometer" to check the accumulation or each riding total. The "adj (adjust)" can make the adjust on the timing -- whenever move the battery, the clock time will be needed to re-adjust.

5-14. E/e Mark vehicle Integral Brake system (one brake for 4 wheeler) refer to Fig.5-E, 5-F

Be sure to adjust the right position and keep the function.

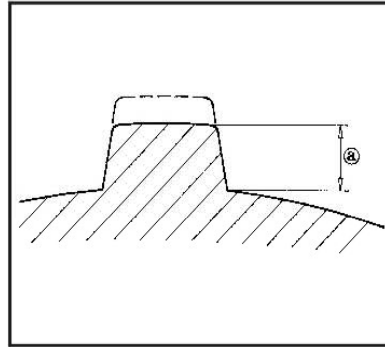
5-15. Coolant level (refer 5-G)

Be sure to check the coolant level on reserve tank (should between maximum and minimum mark). Always keeps the coolant level between Max. and Min. mark (coolant reservoir), replace if it necessary. Replace all new coolant every 16-20 months! Only use the distilled water to mix coolant. (standard concentration 50%)

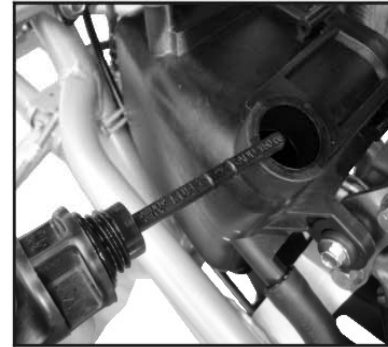
CAUTION: only check coolant level when engine is cold. Never open the radiator cap during the engine is warm or running.



5-A



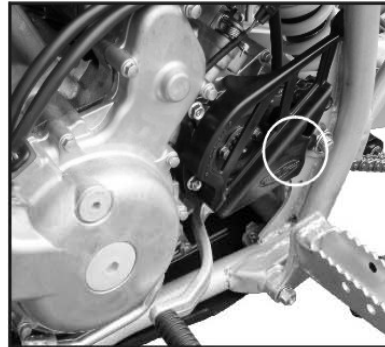
5-B



5-Ge



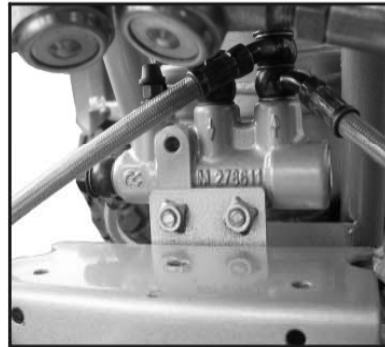
5-C



5-De



5-Ee



5-Fi

PART 6. OPERATION

Be sure to read and study this Owner's Manual carefully. If operating ATV without being familiar with all controls, you may lose control that could cause an accident or injury.

6-01. Starting a cold engine (refer to Fig. 6-A)

6-01-01. Set the parking brake.

6-01-02. Turn the fuel cock to "ON".

6-01-03. Turn on the ignition switch and engine stop switch to "RUN".

6-01-04. Shift the transmission into neutral position.

6-01-05. Press the starter button under choke selections.

Temperature below 5c(40F)	position 1	fully open
Temperature 0-30c(30-90F)	position 2	half open
Temperature above 25c(80F)	position 3	close

6-01-6. Whenever the engine is started at position 1(full open) on low temperature, the choke should be returned to position 2 (half-open) to warm up the engine after starting. If the engine is started at position 2(half open), keep choke at half open for warming up the engine.

6-01-7. Keep warming up the engine until it idles smoothly and return the choke to position 3 (closed) before riding.

- CAUTION:

Check the part 6-05 for the ATV starting forward condition; 6-08for reverse.

<! WARNING> POTENTIAL HAZARD: Freezing control cables in cold climate.

AWARENESS: ATV could be unable to control, which could lead to an accident or collision.

SOLUTION: When riding in cold weather, make sure all control cables work smoothly before operating the ATV.

6-02. Starting a warm engine

When starting a warm engine, the choke should not be used. The throttle should be opened slightly.

6-03. Warming up

To maintain engine life, warming up the engine before starting is strongly recommended. Never accelerate hard with a cold engine.

6-04. Shifting (refer to Fig. 6-B)

The engine has a 5-speed national transmission gear. The transmission allows rider to control the amount of power at various given speeds or for starting, accelerating, climbing hills, ... and so on.

- CAUTION:

1. With engine off, do not slide for long periods, and do not pull the ATV a long distance. Even in the neutral position, the transmission is only properly lubricated when the engine is running.

2. Be sure to use clutch for changing gears. The engine, transmission and drive-chain will be damaged by shifting without the clutch.

6-05. To start out and accelerate: (on Forward condition)

1. Release the throttle lever and then release the parking brake.

- CAUTION: Always close the throttle while shifting gears. Otherwise, the engine and chain will be damaged.

2. Pull the clutch lever to separate the clutch

3. Push down into 1st.(first) gear

4. Open the throttle gradually and release the clutch lever slowly.

5. When the ATV has attained enough speed, release the throttle and pull in the clutch lever promptly

6. Up-shift into 2nd. gear. (Be careful not to shift into neutral).

7. Open the throttle part way and release the clutch lever gradually.

8. Repeat the same procedure to the 3rd., 4th., and 5th. gear.

<! WARNING> POTENTIAL HAZARD: Opening the throttle abruptly or releasing the clutch lever too quickly.

AWARENESS: The machine could wheelie. This would increase the chance of an accident, including overturn.

SOLUTION: Open the throttle and release clutch lever gradually.

6-06. To decelerate:

When slowing down or stopping, release the throttle and apply the brakes smoothly and evenly. As ATV slows down, shift to a lower gear. Be sure that the engine has sufficiently slowed before engaging a lower gear. Improper use of the brakes or shifting can cause the tires to lose traction, which may cause an accident.

<! WARNING> POTENTIAL HAZARD: Engaging a lower gear when the engine speed is too high.

AWARENESS: The wheels could stop rotating. This could cause loss of control, an accident and injury. It could also cause engine or drive chain damage.

SOLUTION: Make sure the engine has sufficiently slowed before shifting to a lower gear.

6-07. Engine break-in

It is significant to keep the life of engine of a new ATV on the period between zero and 30 hours (for the engine is brand new). During the first 30 hours break-in, the various parts in the engine wear and polish themselves to the correct operating clearances. You must not put an excessive load on it for the first several hours of running. Be sure to avoid sudden acceleration and running the engine at a high speed.

If any abnormality is showing during this period, consult a local dealer or service station.

1. 0-15 hours:

Avoid continuous operation above half throttle. Cool down 5-10 minutes after every hour of operation. Change the speed of the ATV frequently. Do not keep it at one set throttle position.

2. 16-30 hours:

Avoid prolonged operation above 3/4 throttle. Shift the gears through the clutch but do not use full throttle at any time.

3. After break-in:

Avoid prolonged full throttle operation. Alter speeds occasionally.

- CAUTION:

Be sure to perform the initial maintenance for changing engine oil, cleaning engine oil filter, ... and other inspections as *part 8* after 1st. 20hrs. (or 100km) operation.

6-08. Reverse shifting (refer to *Fig 6-B, 6-C*)

The ATV has Reverse lock out switch prevents the operator from shifting into reverse unintentionally.

Operation of Forward/Reverse (to engage reverse from forward; or forward to reverse)

- / 1. Stop vehicle completely and do not make any acceleration.
- / 2. Engage the transmission in first gear
- / 3. Turn the reverse lock-out button forward
- / 4. Shift down into reverse gear

NOTE:

The reverse lock out will automatically re-engage when the transmission is shifted out of reverse gear.

CAUTION: Be sure DO NOT make any acceleration during F-R(Gear) operation!. Maker suggests only follow the correct way of transmission operation. This is not the maker mistake that will not consider as any warranty claim, Maker will be not undertaken any of incorrect operation claim.

CAUTION: for safety purpose, the speed on Reverse had limited on 15km/hr

CAUTION: for safety purpose, the speed on Forward during shift gear should be slow.

6-09. Parking (refer to *Fig. 6-D*)

Choose a smooth place to park. When parking, turn ignition (main) switch off and shift into low gear. Turn the fuel cock to "OFF" and apply the parking brake.

6-09-1. Parking on a slope (refer to *Fig. 6-E*)

Avoid parking on hills or other incline places. If you must park on an incline, set the engine in low gear, apply the parking brake, and block the front and rear wheels with rocks or other objects.

6-10. Accessories

Accessories can affect the handling and control of the ATV. Genuine maker's accessories have been specifically designed for and tested on this ATV. It is understood that maker is impossible to test all other accessories. You are personally responsible

for properly selecting, installing, and using non-maker accessories.

1. Choose only proper accessories designed for your ATV. The area importer or a local dealer has a variety of genuine maker's accessories. Choose a genuine maker accessory, or one that is equivalent in design and quality.

2. Accessories should be rigidly and securely mounted. Make sure that the accessory does not block any lights, reduce ground clearance, or limit suspension travel, steering travel, or other controls.

3. Do not install any accessory where it could interfere with your ability on body - seat position or handle-bar and foot control.

4. Do not install any electrical equipment that will over the ATV electric system.

6-11. Loading

The sports ATV is not designed to carry cargo or tow a trailer. If you choose to add accessories for carrying cargo or pulling a trailer, keep the following points in mind:

1. Never exceed the weight limits shown. An overloaded ATV can be unstable.

2. Maximum Loading Limit: (total weight of cargo, rider and accessories): 120 kg (264 lbs)

3. Do not place goods anywhere on ATV other than front and rear rack.

4. Do not carry a passenger. (E/e mark vehicle maybe allow two passenger, but, maker suggest only single rider)

5. Do not tow another vehicle with a rope or cable. Only use the trailer hitch and tie down cargo securely to the rear carriers.

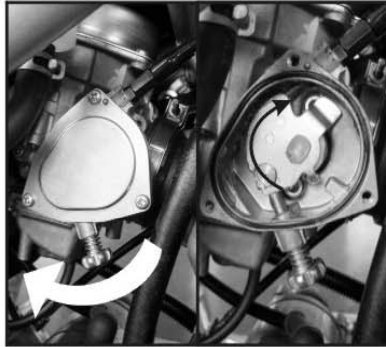
6. Make sure the load does not interfere with controls of front (handling movements) and rear side of your ability to control.

7. Ride more slowly than you would without a load.

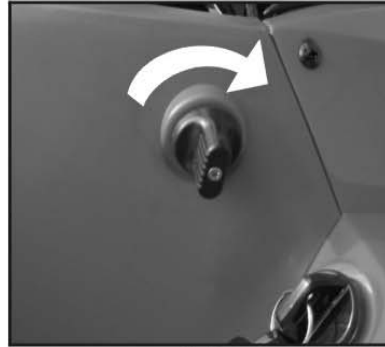
8. Allow more braking distance. A heavier vehicle takes longer to stop.

9. Avoid making sharp turns unless at very slow speeds.

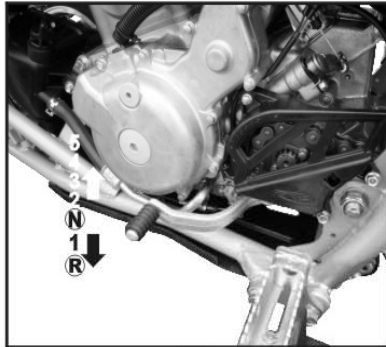
10. Avoid riding on steep slopes or rough terrain when carrying cargo or pulling a trailer.



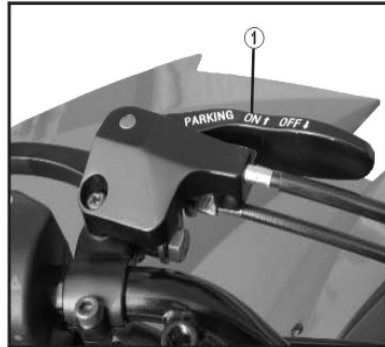
6-A



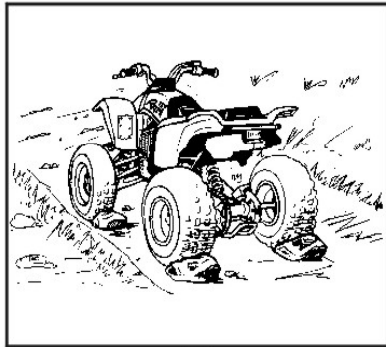
6-B



6-C



6-D



6-E

PART 7. RIDING THE ATV

7-01. ATV briefing

The ATV is designed for recreational use by skilled operators only, which the sports ATV operation differs from other vehicles such as other types of ATV, scooters, or motorcycles. Riding the ATV requires special skills acquired through practice. It is essential to familiarize the operation to achieve the skills necessary to enjoy riding safely. Be sure to understand the Gear and CVT sports main difference! Pay more attention to the warning labels and safety details of *part 1* and *part 2* on this manual. Be sure to read Owner's Manual completely and understand the operation of the controls before riding the ATV.

7-02. Ride with care and good adjustment

7-02-01. Get training if you are inexperienced

Beginners should get training from a certified instructor. Keep ATV at slow speeds during first operation. Do not attempt to operate at maximum speeds until you are totally familiar with the ATV operation.

<! WARNING> POTENTIAL HAZARD: Operating this ATV without proper instruction.

AWARENESS: The risk of an accident is greatly increased if the ATV rider does not know how to operate the ATV properly in different situations and on different types of terrain condition.

SOLUTION: Beginning and inexperienced rider should regularly practice the training program.

7-02-02. A child under 16 should never ride an ATV with engine size greater than 90cc (refer to Fig. 7-A).

7-02-03. Never carry a passenger. The seat is designed to allow the rider to change position as needed during operation. The seat is not for carrying passengers (refer to Fig. 7-B).

7-02-04. Protective Clothing (refer to Fig. 7-C)

<! WARNING> POTENTIAL HAZARD: Riding ATV without wearing an approved motorcycle helmet, eye protection and protective clothing.

AWARENESS: Riding without an approved motorcycle helmet may cause a severe head injury or death in an accident. Be sure to select an approved helmet that meets or exceeds your state/country safety standards (eg. DOT, ANSI, EEC). Riding without eye protection and protective clothing may result a severe injury in an accident.

SOLUTION: Be sure always to have followings during riding ATV.

- 1). an approved motorcycle helmet that fits properly; and
- 2). eye protection (goggles or face shield); and
- 3). gloves and boots; and
- 4). long-sleeved shirt or jacket and long pants.

7-02-05. Do not operate after consuming alcohol or drugs (Fig. 7-D).

7-02-06. Pre-riding inspection

Be sure to perform the pre-riding checks on *part 5*.

<! WARNING> POTENTIAL HAZARD: Failure to inspect the ATV before operating, or failure to properly maintain the ATV.

AWARENESS: May cause the possibility of an accident or ATV damage.

SOLUTION: Be sure to inspect the ATV each time before riding. Always follow the inspection and maintenance procedures and schedules as described in the Owner's Manual.

7-02-07. Do not exceed speed over your capability. Riding the ATV at speeds too fast over your skills may raise chance of losing control of the ATV, which can result in an accident (refer to *Fig. 7-E*). Be sure to keep a proper speed for the terrain, visibility and operating conditions, and your experience.

7-02-08. Loading and accessories

Pay special caution when riding the ATV with additional loads, such as accessories or cargo. The ATV handling may be opposed affected. Reduce speed when adding additional loads.

- CAUTION:

Mix. Loading Limit: Vehicle loading limit (total weight of cargo, rider and accessories): 100 kg or 220 lbs.

<! WARNING> POTENTIAL HAZARD: Overloading this ATV or carrying or towing cargo improperly.

AWARENESS: May change handling condition which could cause an accident.

SOLUTION:

- / 1. Never exceed the stated load capacity for this ATV. Cargo should be properly distributed and securely attached.
- / 2. Reduce speed when carrying cargo or pulling a trailer. Allow greater distance for braking.
- / 3. Always follow the introductions in Owner's Manual.

7-02-09. During operation

Only keep both feet on the footboards during riding ATV and avoid wheelies and jumping (refer to *Fig. 7-F*).

<! WARNING 1> POTENTIAL HAZARD: Removing hands from handlebars or feet from footboards during riding ATV.

AWARENESS (1): Removing hand or foot will decrease ability to control the ATV which may cause rider to lose balance and fall off, and could injure the rider or cause an accident.

SOLUTION (1): Only keep both hands on the handlebar and both feet on the footboards during riding ATV.

<! WARNING 2> POTENTIAL HAZARD: Attempting wheelies, jumps, and other stunts. (refer to *Fig. 7-G*)

AWARENESS (2): May cause an accident, including an overturn.

SOLUTION (2): Never attempt stunts, such as wheelies or jumps.

7-02-10. Modification: Never modify the ATV through unsuitable installation or use of accessories. All parts and accessories added should be genuine maker's or equivalent components designed for use on this ATV and should be installed and used according to the instructions.

7-02-11. Exhaust system: The exhaust system on the ATV is very hot during or after operation. To prevent burns, avoid touching the exhaust system. Park the ATV in a place where pedestrians or children are not probably to touch it (refer to *Fig. 7-H, 7-HI*)

7-03. The surroundings:

Be familiar the terrain where you ride. ATV's are designed for off-road use only. Riding on paved surfaces may seriously affect handling and control of the ATV, and may cause the vehicle to go out of control.

7-03-01. Do not ride on any public roads, streets, or highways. Riding on public roads can result in collisions with other vehicles (refer to *Fig. 7-I, 7-J*).

<! WARNING> POTENTIAL HAZARD: Riding the ATV on public streets, roads or highways.

AWARENESS: You may collide with another vehicle.

SOLUTION: Never ride ATV on any public streets, roads or highways, even a dirt or gravel one. In many states or countries, it is illegal to ride ATVs on public streets, roads, and highways.

7-03-02. Be familiar the terrain where you ride. You may not have enough time to react on the unfamiliar terrain such as hidden rocks, bumps, or holes. Be sure to go slowly and carefully when operating on unfamiliar terrain (refer to *Fig. 7-K, 7-L*).

Stay alert for holes, rocks, or roots in the terrain, and other hidden hazards which may cause the ATV overturn.

<! WARNING> POTENTIAL HAZARD: Failure extra care when riding on extremely rough, slippery or loose terrain.

AWARENESS: Could cause loss of traction or ATV control, which could result in an accident, including an overturn.

SOLUTION:

- / 1. Do not ride ATV on extremely rough, slippery or loose terrain until you have learned and practiced the skills necessary to control the ATV on such terrain.
- / 2. Always be especially cautious on these kinds of terrain.

7-03-03. When riding in an area where you might not easily be seen, such as desert terrain, position a caution flag on the ATV (*Fig. 7-M*).

7-03-04. Do not ride in areas posted "no trespassing". Do not ride on private property without getting permission. Select a large, flat area that is free of obstacles and other riders. Avoid high speeds until you are thoroughly familiar with the operation of the ATV.

<! WARNING> POTENTIAL HAZARD: Opening the throttle abruptly or releasing the clutch lever too quickly.

AWARENESS: The ATV could wheelie. This would increase the chance of an accident, including overturn.

SOLUTION: Open the throttle and release the clutch lever gradually.

- CAUTION:

Do not shift gears without releasing the throttle. When slowing down or stopping, release the throttle and apply brakes smoothly. When speed down, shift to a lower gear. Be sure that the engine has enough slowed before engaging a lower gear. Improper use of the brakes or shifting can cause the tires to lose traction, reducing control and increasing the possibility of an accident.

7-04. Turning ATV

The ATV structure is designed that the rear two wheels are mounted solidly on one rear axle under the same speed. It is essential to know a special turning skill such as turning under different speed on rear wheel, must be learned at low speed only.

<! WARNING> POTENTIAL HAZARD: Turning improperly.

AWARENESS: ATV could go out of control, causing a collision or overturn.

SOLUTION: Follow proper procedures for turning as described in this Owner's Manual. Practice turning at low speeds before attempting to turn at faster speeds. Do not turn at speeds too fast over your skills or the conditions.

7-04-01. Turning curve (refer to Fig. 7-N)

When approaching a curve, slow down and begin to turn the handlebar. Next, put your weight on the footboard to the outside of the turn (opposite the turning direction) and lean your upper body forward into the turn. Use the throttle to maintain an even speed during the turn. If the riding surface is slippery or loose, it may help to position more of your weight over the front wheels by moving forward on seat. Improper riding procedures such as abrupt throttle changes, excessive braking, incorrect body movements, or too much speed will tip the ATV. If the ATV begins to tip while turning, lean your upper body farther into the turn while gradually reducing the throttle and making the turn wider. Be sure to avoid higher speeds.

7-05. On Uphill (refer to Fig. 7-O)

Use proper riding skill to avoid vehicle overturns on hills. Be sure that you can maneuver ATV on flat ground before attempting any incline and practice riding first on gentle slopes. Try more difficult climbs only after you have developed good skills.

<! WARNING> POTENTIAL HAZARD: Riding on excessively steep hills.

AWARENESS: The ATV can overturn more easily on extremely steep hills than on level surfaces or small hills.

SOLUTION:

- / 1. Never operate the ATV on too steep hills.
- / 2. Practice on smaller hills before attempting large hills.

7-05-01. Shift the ATV into a low gear and speed up before ascending the hill. When climbing a hill, be sure that your weight is transferred forward on the ATV and keep both feet firmly on the footboards.

<! WARNING> POTENTIAL HAZARD: Climbing hills improperly.

AWARENESS: Could cause loss of control or cause the ATV to overturn.

SOLUTION:

- / 1. Always follow proper procedures for climbing hills as described in this Owner's Manual.
- / 2. Check the terrain carefully before you start up any hill.
- / 3. Never climb hills with excessively slippery or loose surfaces.
- / 4. Never open the throttle suddenly or make sudden gear changes.
- / 5. Never go over the top of any hill at high speed.
- / 6. Put both feet firmly on the footrests.

7-05-02. If climbing a hill and find out that you can not reach to the top, you should turn the ATV around while you still have forward motion (provided you have the room to do so) and go down the hill.

7-05-03. When crossing the side of a hill: (refer to Fig. 7-P).

Avoid hills with extremely slippery or loose surfaces. Shift your weight to the uphill side of the ATV.

7-05-04. If ATV has stalled or stopped and you believe ATV can reach the hill, restart engine carefully (do not lift the front wheels). If ATV is unable to reach the hill, dismount the ATV on the uphill side, turn the ATV around and then descend the hill.

If you lose forward power, apply the parking brake before ATV roll backwards and dismount that ATV on the uphill side. Slowly turn ATV downhill.

7-05-05. If ATV starts to roll backwards, DO NOT place the rear brake to stop or shift the gear on. The ATV could easily tip over backwards. Instead, turn the handlebar to the left and dismount the ATV right away on the uphill side. Let the ATV roll backwards, which will turn ATV sideways to the hill. Reset the parking brake, turn ATV to the right. Staying on uphill side, release parking brake and let ATV roll until it angled downhill. Finally, slowly turn ATV downhill (refer to Fig. 7-Q).

<! WARNING> POTENTIAL HAZARD: Stalling, rolling backwards or improperly dismounting while climbing a hill.

AWARENESS: Could result in ATV overturning.

SOLUTION: Use proper gear and maintain steady speed when climbing hill.

7-06. On downhill (refer to Fig. 7-R)

When riding ATV downhill, put the low gear on (DO NOT put the gear on neutral position). Try shifting your weight on the rear side of the ATV as possible (on uphill side). Move back on the seat and sit with your arms straight. Whenever possible, ride your ATV straight downhill. Avoid sharp angles which could let the ATV tip or roll over.

<! WARNING> POTENTIAL HAZARD: Going down a hill improperly.

AWARENESS: Could cause loss of control or cause the ATV to overturn.

SOLUTION:

/ 1. Always follow proper procedures for going down hills as described in this Owner's Manual.

/ 2. Always check the terrain carefully before you start down any hill.

Shift your weight backward.

/ 3. Never go down a hill at high speed or shift on neutral gear. Avoid going down a hill at an angle that would cause the ATV to lean sharply to one side. Go straight down the hill where possible.

7-07. Crossing a slope (refer to Fig. 7-S)

Crossing a sloping surface requires a properly position on your weight to maintain proper balance. Be sure that you have learned the basic riding skills on flat ground before crossing a sloping surface. Avoid slopes with slippery surfaces or rough terrain that may upset your balance. When traveling across a slope, lean your body in the uphill direction. It may be necessary to correct the steering when riding on loose surfaces by pointing the front wheels slightly uphill. When riding on slopes, DO NOT make sharp turns.

If ATV does start to tip over, gradually steer in the downhill direction if there are no obstacles. Once recover proper balance, gradually steer again in the direction you wish to go.

<! WARNING> POTENTIAL HAZARD: Improperly crossing hills or turning on hills.

AWARENESS: Could cause loss of control or cause the ATV to overturn.

SOLUTION:

/ 1. Never attempt to turn the ATV around on any hill until you have mastered the turning technique as described in the Owner's Manual.

/ 2. Be very careful when turning on any hill. Avoid crossing the side of a steep hill if possible.

7-08. Crossing through shallow water

The ATV can cross slow moving, shallow water of up to a maximum of 37.5 cm (15 inches) in depth. Before entering the water, choose path carefully. Only enter where is no sharp drop off, and avoid rocks or other obstacles which may be slippery or upset the ATV. Drive slowly and carefully.

<! WARNING> POTENTIAL HAZARD: Operating this ATV through deep or fast flowing water.

AWARENESS: Tires may float, causing loss of traction and loss of control, which could lead to an accident.

SOLUTION:

/ 1. Never operate this ATV in fast flowing water or in water deeper than that specified in this Owner's Manual.

/ 2. Remember that wet brakes may have reduced stopping ability. Test the brakes after leaving water. Apply the brake several times to let friction dry out the linings.

7-08-01. Test the brakes after leaving the water. Do not continue to ride the ATV without verifying that you have regained braking ability (refer to Fig. 7-7)

- CAUTION: (refer to Fig. 7-L)

After riding ATV in water, be sure to drain the trapped water by checking at the bottom of the air filter case. Wash the ATV in fresh water if it has been ridden in salt water or muddy area.

7-09. Go over rough terrain

Going over rough terrain should be operated with caution. Look out for obstacles which could cause ATV damage or could lead to an overturn or accident. Keep both feet firmly mounted on the footboards and avoid jumping the ATV.

<! WARNING> POTENTIAL HAZARD: Improperly operating over obstacles.

AWARENESS: Could cause loss of control, a collision, or overturn.

SOLUTION:

/ 1. Before operating in a new area, check for obstacles.

/ 2. Never attempt to ride over large obstacles, such as large rocks or fallen trees. Whenever going over obstacles, always follow proper procedures as described in the Owner's Manual.

7-10. Sliding and skidding (refer to Fig. 7-V, 7-W)

The ATV may slide during riding on loose or slippery surfaces. To reduce the tendency for the front wheels to slide in loose or slippery conditions, positioning your weight over the front wheels will help. If the rear wheels of ATV start to slide sideways, steer in the direction of the slide carefully. Applying the brakes or accelerating is not recommended until you have corrected the slide. Check the terrain before attempting. Always avoid on extremely slippery surfaces such as ice.

<! WARNING> POTENTIAL HAZARD: Skidding or sliding improperly.

AWARENESS: You may lose control of this ATV or regain traction unexpectedly, which may cause the ATV to overturn.

SOLUTION:

/ 1. Learn to safely control skidding or sliding by practicing at low speeds and on level, smooth terrain.

/ 2. On extremely slippery surfaces, such as ice, go slowly and be very cautious to reduce the chance of skidding or sliding out of control.

7-11. Reverse shifting

Refer to the Part 4-11 or Part 6-08

7-12. E/e Mark ATVs On Road Model Vehicle Notification (Maker Message)

The special model for E/e Mark European On Road Homologation will have many different specification than other areas that all details should be refer to the local riding laws and regulations before riding this ATV.

- CAUTION: The ATV for ON-ROAD use has to match the local riding laws and regulation. All details should be provided by each area importer only (refer to 6-12)

Different Portion: the vehicle may have some difference i.e. (01). Speedometer, (02). E-mark Mirror, (03). Integral Brake system (one brake for 4 wheeler), (04). Tire should have E-mark, (05). Light or blinker should have E-mark, (06). Muffler with E-mark under Emission/Noise or other type of control, (07). E-mark Horn, (08). Others: COC paper, warning label, vehicle ID label, steering lock, air tube, seat, wire system, ...

- CAUTION: The E/e Mark ATVs will have different points (importer has to give the corrected message to users)

(1). tire pressure, specification that should be provided by each area importer only.

(2). identification number, ID plate, or warning label.

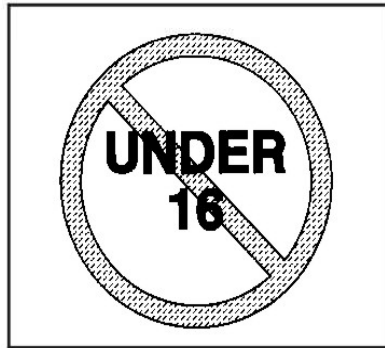
(3). certification or documents with the vehicle that should be provided by each area importer only.

! WARNING for the E/e mark vehicle" instructions could result in severe injury or death to the ATV rider, an onlooker, or a worker inspecting or repairing the ATV. Importer must inform all users to perform the correct period service as "Part 8"

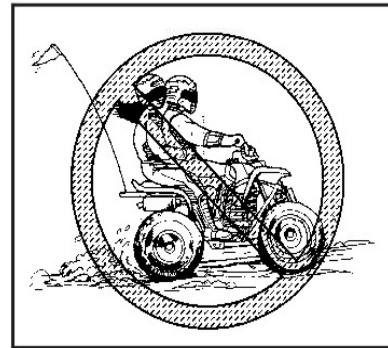
<WARNING> The ATV is designed for recreational use by skilled operators only. It is essential to familiarize the operation to achieve the skills necessary to enjoy riding safely. Keep ATV at slow speeds for normal operation. Do not attempt to operate at maximum speeds until you are totally familiar with the ATV operation.

<WARNIGN> The E/e Mark ATVs may have a high speed riding operation. The user must familiar all area condition, must have a period check service to make sure the ATVs is OK condition and keep the service record all the time as Part 8. The user must have pre-check before each ride as Part 5. If users have not follow the above conditions, Maker (SMC) will pay no responsibility for any further claim or warranty matter in case some case happened.

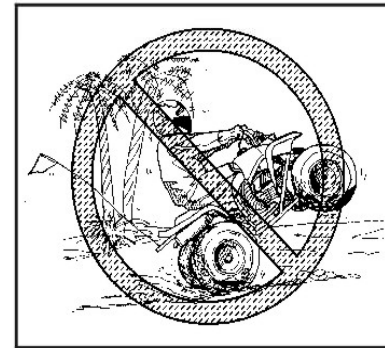
<WARNIGN> Never modify an ATV through improper installation i.e. remove spark arrester or other. Maker will pay no responsibility on this personal modification.



7-A



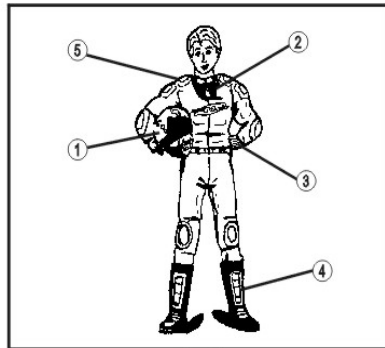
7-B



7-G



7-He



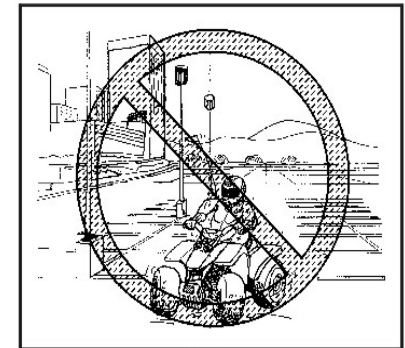
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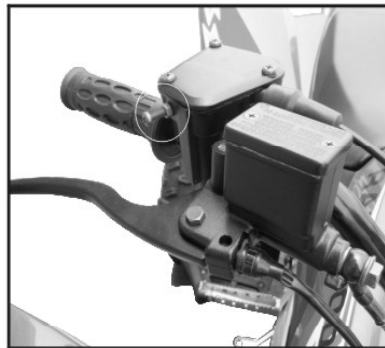
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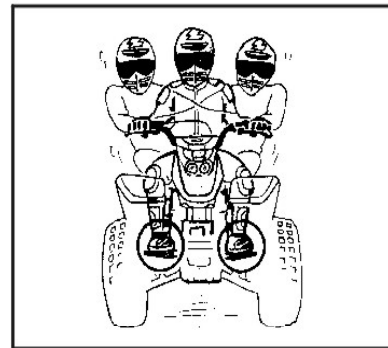
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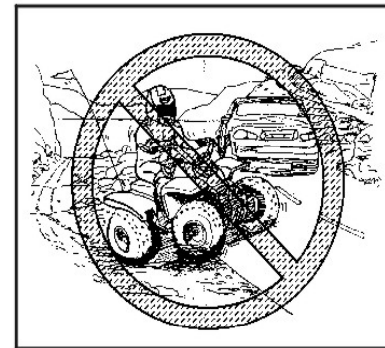
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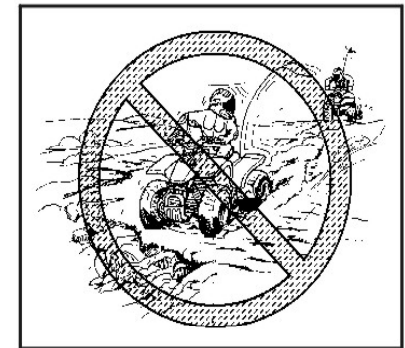
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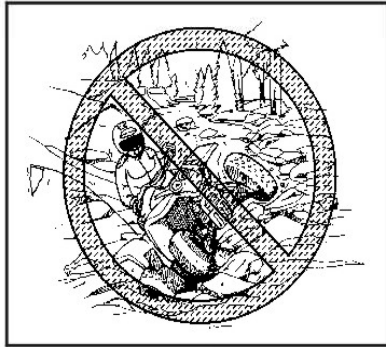
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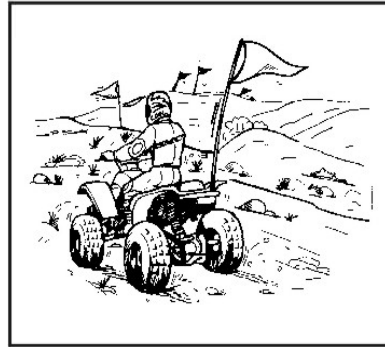
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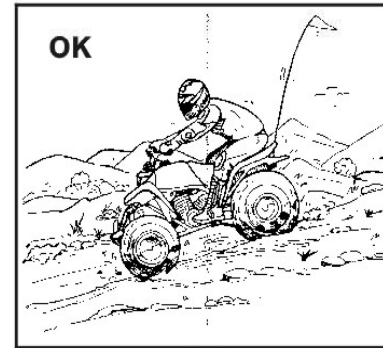
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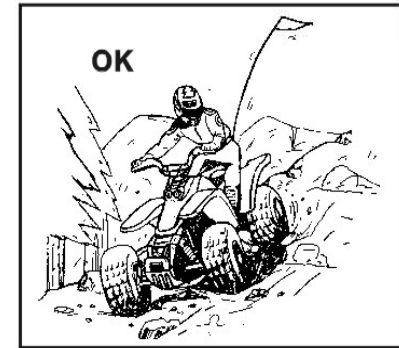
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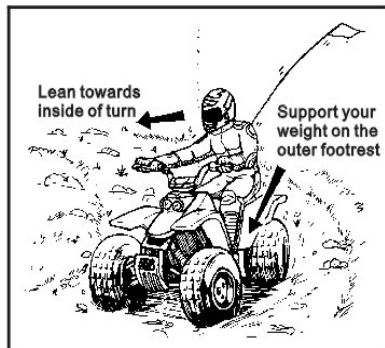
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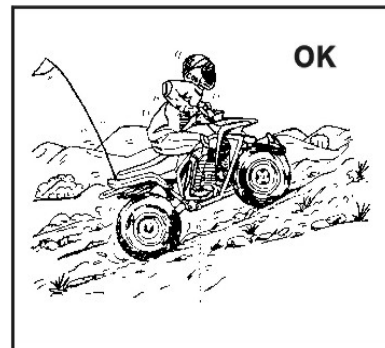
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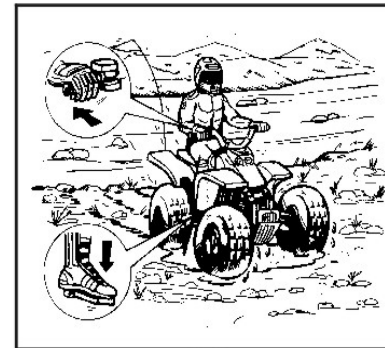
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7-N



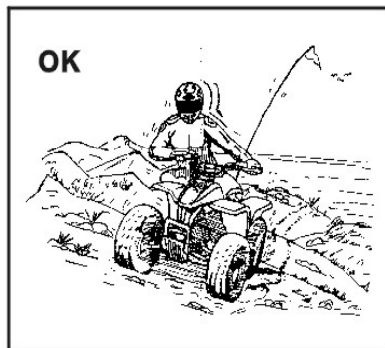
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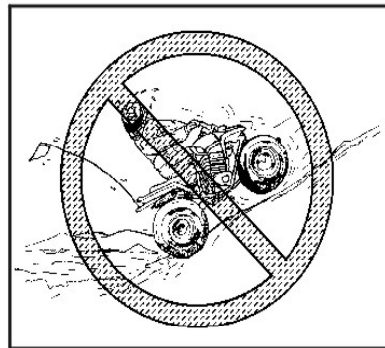
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7-U



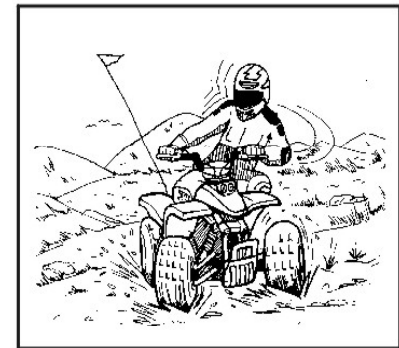
7-P



7-Q



7-V



7-W

PART 8. PERIODIC MAINTENANCE

8-01. Periodic inspection, adjustment, and lubrication will keep ATV in the safest and best operation condition. Be sure to use only genuine maker parts for replacement.

<! WARNING 1>: POTENTIAL HAZARD: Servicing an engine while it is running.

AWARENESS (1): Hot surface or moving parts can harm people. Electrical components can be damaged.

SOLUTION (1): Turn off the engine when performing maintenance unless otherwise specified.

<! WARNING 2>: POTENTIAL HAZARD: Starting or running the engine in a closed area.

AWARENESS (2): Exhaust smoke is poisonous and may cause loss of consciousness and death within a short time.

SOLUTIONS (2): Only run ATV in an area with ample atmosphere.

8-02. Owner's manual and tool kit (Fig. 8-A, A1, A2)

Be sure to keep the owner's manual and tool kit (which include low-pressure tire gauge) all the time with ATV. This manual and tool kits are part of the ATV and please keep it with the ATV for ready use, even when the ATV is resold.

1). Owner's manual and 2). Tool kit

The information in this manual is intended to provide you with the necessary information for completing your own preventive maintenance and minor repairs. The tool kit is sufficient to work for routine maintenance and simple repair purpose. Any extensive work requiring additional tools should be performed by an authorized local dealer or service station for detail examining and repairing.

- NOTE:

If you do not have a torque wrench available during a service operation requiring one, bring ATV to a local dealer or service station to check the torque settings and adjust them as necessary.

<! WARNING> POTENTIAL HAZARD: ATV with improper modifications.

AWARENESS: Improper installation of accessories or modification of this ATV may change ATV handling condition which could lead to an accident.

SOLUTION:

/ 1. Never modify this ATV through improper installation or use of accessories.

/ 2. All parts and accessories added to this ATV should be genuine maker or equivalent components designed for use on this ATV and should be installed and used according to instructions.

/ 3. If you have questions, consult a local dealer or service station.

8-03. Periodic Maintenance

Be sure to perform periodic inspections and maintenances as the manual suggestion.

- 1). "*" should be settled by local dealer or service station
- 2). "T" should be inspect and clean, adjust, replaced or lubricate when it is necessary.
- 3). "C" clean
- 4). "R" replace
- 5). "A" Adjust
- 6). "L" Lubricate

PS1: 4-Stroke engine oil viscosity: SAE 10W-40, a 4 cycle motorcycle qualified synthetic oil is strongly recommended. ie. Shell Advance VSX4. 4 stroke engine oil is a major factor affecting the engine performance and service life.

PS 2: Air cleaner needs to be clean every 20-40 hrs drive and requires more frequently cleaning or replacement after riding on (1) dusty rain days (2) sand area (3) snow days

PS 3: Air cleaner tube requires more frequently checking on (1) very wet (2) muddy conditions

PS 4: When disassembling the master cylinders or caliper, replace the new brake fluid (DOT 4). Brake fluid (DOT 4) replaces every 2 years period. On Inner part of master cylinder and calipers, replace every 2 years.

PS 5: Check battery (12A) before riding ATV. Re-charge battery or replace a new battery, if it necessary.

PS 6: Always keeps the coolant level between Max. and Min. mark (coolant reservoir), replace or add coolant or distilled water, if it necessary. Replace all new coolant every 12-16 months! Only use the distilled water to mix coolant (standard concentration 50%)

PS 7: LCD speedometer: be sure to check and understand all function

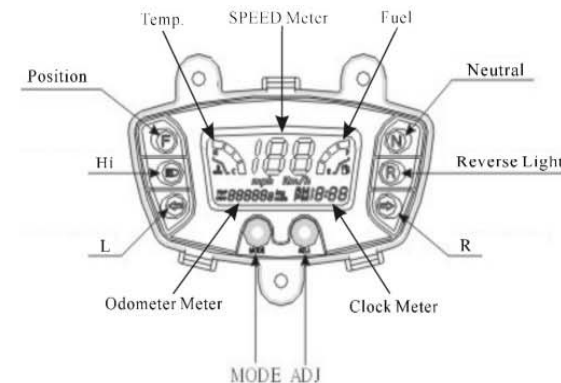


Table of periodical check & service

Item(s)	*	100km 10hr	1000km 60hr	2000km 110hr	(every 1000 km) (every 50 hrs)	Remark
01. Engine oil		R	R	R	R	PS1
02. Engine oil filter		C	C	C	C	
03. Engine idle speed	*	I	I	I	I	
04. Valve clearance	*	I	I	I	I	
05. Spark plug			I	I	I	
06. Air cleaner			C	C	C	PS2
07. Air cleaner tube			I	I	I	PS3
08. Carburetor & choke	*	I	I	I	I	
09. Throttle lever	*	I	I	I	I	
10. Speed limiter	*		I	I	I	
11. Fuel line	*			I	I	
12. Upper A arm	*	L	L	L	L	
13. Lower A arm	*	L	L	L	L	
14. Rear brake fluid	*		I	I	I	PS4
15. Steering	*			I	I	
16. Brake function	*	I	I	I	I	PS2
17. Brake shoe	*	I	I	I	I	
18. Rear fork	*	I	I	I	I	
19. F and R. suspension	*	I	I	I	I	
20. Wheel/tire	*	I	I	I	I	
21. Nuts, bolts, fasteners	*		I	I	I	
22. Drive chain	*	I	I	I	I	
23. Battery		I	I	I	I	PS5
24. Exhaust	*		I	I	I	
25. Control cable	*	I	I	I	I	
26. Gear oil	*	R	I	I	I	
27. Reverse lock out	*	I	I	I	I	
28. Coolant		I	I	I	R	PS6
29. Speedometer	*	I	I	I	I	PS7
30. Clutch	*	I	I	I	I	

- CAUTION: Be sure to perform the initial maintenance for changing engine oil (a qualified synthetic 4-stroke oil is strongly recommended), cleaning engine oil filter, ... after 1st 10hrs (or 100km) operation. Periodic inspection, adjustment, and lubrication will keep ATV in the safest and best operation condition. Be sure to use only genuine maker parts for replacement.

- CAUTION: The user must perform the period check & service and keep the service records all the time, otherwise, the Maker will pay no responsibility on future warranty or claim.

8-04. Engine oil (4-stroke engine oil only) -- Fig. 8-B, 8-B1, 8-B2

Engine oil must be checked before each ride. Maker recommends engine oil viscosity: SAE 10W-40, a qualified synthetic oil for motorcycle use is strongly recommended. Other viscosities shown in (Fig. 8-B2) may be used when the average temperature in your area is within the indicated range. The gear clutch engine only allows to use the Motorcycle 10W40 JASO MA grade oil 4 stroke engine oil

- NOTE: 4 stroke engine oil is a major factor affecting the engine performance and service life. Some detergent vegetable or castor based racing oils are not recommended. A qualified synthetic oil is recommended i.e. Shell Advance VSA4 MV grade.

- CAUTION: Be sure to perform the initial maintenance for changing engine oil, clean engine oil filter, ... after 1st 10hrs (or 100km) operation.

8-04-1. Engine oil measurement

1. Place the ATV on a level place.
2. Warm up the engine for several minutes (oil temperature of 40°C or 104°F), and stop it.
3. Remove the oil cap/dipstick and wipe it off with a clean paper. Insert the dipstick in the filler hole without screwing it in.
4. Take dipstick and check the oil level.
5. The oil level should be between the maximum and minimum marks. If the level is low, add oil to the proper level.
6. Re-start the engine and warm up a few minutes. While warming up, if oil leakage is found, stop the engine immediately and check cause.
7. Check the oil level.

- CAUTION: Be sure no exotic material enters the crankcase.

8-04-2. Engine oil replacement

1. Place the ATV on a level place.
2. Warm up the engine for several minutes, and stop it.
3. Place a container under the engine.
4. Remove the oil cap/dipstick and drain plug off to drain the oil.
5. Reinstall the drain plug and tighten it.
6. Fill 4-stroke engine oil and install the dipstick.
7. Re-start the engine and warm up for a few minutes. While warming up, if oil leakage is found, stop the engine immediately and check cause. Be sure no exotic material enters the crankcase.
8. Check the oil level. The oil level should be between the maximum and minimum marks.

- CAUTION: Engine Oil capacity : at change (1.9L) at disassembly (2.1L)

- CAUTION: When replacing engine oil, it is necessary to check or clean engine oil filter

8-05. Coolant level inspection and refilling (Fig. 8-Q, 8-Q1, 8-Q2)

When engine cold, place the ATVs on the level ground. Check the coolant level in the radiator and reserve tanks that the level should between the maximum and minimum mark. If the level is low, remove the coolant reservoir cap. Fill coolant or distilled water to Max. mark (standard concentration 50%)

NOTE: Total coolant capacity is about 1,900cc (+/- 20cc) (Radiator : 1.5L; Reserve tank : 400cc +/- 20cc)

CAUTION: only check coolant level when engine is cold.

WARNING: Never open the radiator cap during the engine is warm or running.

8-06. Spark plug inspection (Fig. 8-C)

Standard spark plug = NGK DCPR8E x 1

- / 1. Remove the spark plug.
- / 2. Check the spark plug for wear, fouling deposits and cracks.
- / 3. Remove the fouling deposits with a wire brush.
- / 4. Measure the spark plug gap: 0.9mm (0.035 in).

Before installing the spark plug, measure the electrode gap with a feeler gauge and adjust to specification. When installing the spark plug, always clean the gasket surface and use a new gasket. Wipe off any grime from the threads and tighten to the specified torque.

* Spark plug gap: 0.9mm (0.035 in)

* Tightening torque (Spark plug): 19 Nm (1.9 m.kgf, 14ft.lbf)

- NOTE: a plug with very white center electrode porcelain color could indicate an intake air leak or carburetion problem.

8-07. Air cleaner cleaning (Fig. 8-D, 8-D1, 8-D2, 8-D3, 8-D4, 8-D5)

- NOTE: There is a hole at the bottom of the air cleaner case. Any dust or water collects in this hole, be sure to empty the hole and clean the air filter element and air cleaner case.

- / 1. Remove the seat.
- / 2. Remove the air filter cover.
- / 3. Remove the air filter element.
- / 4. Wash the element gently but thoroughly in solvent.

<! WARNING> POTENTIAL HAZARD: Using low flash point solvents or gasoline to clean the air cleaner element.

AWARENESS: Low flash point solvents or gasoline can catch fire or explode.

SOLUTION: Use parts cleaning solvent to clean the air filter element.

- / 5. Squeeze the excess solvent out of the filter and let it dry. Do not twist the filter element when squeezing it.
- / 6. Inspect the element. If damaged, replace it.
- / 7. Apply some motor oil to the element which element should be wet but not dripping.
- / 8. Reinstall the element to the element guide.
- / 9. Reinstall the element assembly and parts removed for access.

- NOTE:

- 1. Clean the air filter element every 20-40 hours riding. It should be cleaned and lubricated more often if the ATV is using in extremely dusty areas.
- 2. When cleaning filter element, check (1) the air inlet to the filter case for any obstacle (2) the air cleaner rubber joint to the carburetor, and (3) all fittings on airtight seal.
- 3. Tighten all fittings securely to avoid the possibility of unfiltered air entering the engine.

- CAUTION: Never start the ATV without the air filter element.

8-08. Carburetor settings

Carburetor adjustments should only be performed by an authorized local dealer or service station. Do not attempt to perform these procedures unless you have mechanical knowledge and the necessary tools.

- CAUTION: Do not perform these procedures while the engine is hot. Put a cloth under the carburetor and dry up any spilled fuel entirely. After servicing the carburetor, check throttle operation before operating the ATV to make sure it is working correctly.

8-09. Idle speed adjustment

Idle speed adjustments may be performed by the owner as parts of the usual maintenance routine. Do not attempt to perform these procedures unless you have mechanical knowledge and the necessary tools.

- / 1. Warm up the engine.
- / 2. Turn the pilot air screw clockwise until it is lightly seated.
- / 3. Loosen the pilot air screw by turning it counterclockwise 1-1/2.
- / 4. Stop the engine and check the inductive tachometer.
- / 5. Start the engine and adjust the throttle stop screw until around 1,600 +/- 50 rpm.
- / 6. Turn the pilot screw in or out (clockwise or counterclockwise) to get the highest engine speed.
- / 7. Re-adjust the idle speed with the throttle stop screw.

8-10. Throttle lever adjustment (Fig. 8-E)

- NOTE: Be sure to adjust the engine idling speed before adjusting the throttle lever free play.

- / 1. Loosen the lockout.
- / 2. Turn the adjusting bolt until the throttle lever free play is 2-4 mm (0.08 - 0.16 in).
- / 3. Tighten the lockout.

8-11. Front disc brake inspection - brake fluid (Fig. 8-F)

A wear indicator is provided on the front brake that shows brake shoe wear without disassembling the brake. Exercise the front brake and check the position of the indicator. If the indicator reaches the wear limit line, ask a local dealer to replace a new set.

8-11-1. Check the brake fluid level: (Fig. 8-F, 8-F1)

Whenever the fluid level nears the lower level mark, brake fluid has to be added to reservoir. Use only DOT # 4 brake fluid.

8-12. Rear disc brake inspection - brake fluid (Fig. 8-G)

The ATV has a single disc brake on rear axle. Check the operation of rear brake pedal and brake function before each riding. Be sure to check periodically the brake shoes. If the brake shoe is worn to the wear limit, have a local dealer replace a new brake shoe.

8-12-1. Check the brake fluid level: (Gear = Fig. 8-G1, 8-G2)

Whenever the fluid level nears the lower level mark, brake fluid has to be added to reservoir. Use only DOT # 4 brake fluid.

- CAUTION:

- 1. Never allow foreign materials (dirt, water, ...) enter the brake fluid reservoir.

2. Brake fluid can damage any painting and plastic.

<! WARNING> POTENTIAL HAZARD: Brake fluid contacting the skin and eyes.

AWARENESS: May cause irritation.

SOLUTION: Avoid contacting brake fluid with the skin or eyes.

8-13. Front brake lever free play adjustment

The front brake lever free play should be adjusted to 3-5 mm (0.12-0.20 in) at the brake lever pivot. If the free play is incorrect, adjust as follows: (Fig. 8-H, 8-H1, 8-H2, 8-I2)

- / 1. Loosen the lockout and fully turn in the adjusting bolt at the front brake lever.
- / 2. Make sure the cable joint in the equalizer is straight. If not, turn the adjusting nuts at the front wheel hubs until the cable joint becomes straight.
- / 3. Turn the adjusting bolt at the brake lever until specified free play is obtained. Specified free play: 3-5 mm(0.12- 0.20 in)
- / 4. Tighten the lockout.

<! WARNING> POTENTIAL HAZARD: Operating with improperly serviced or adjusted brakes.

AWARENESS: You could lose braking ability, which could lead to an accident.

SOLUTION: Be sure that the brakes operate smoothly and the free play is correct after serviced. Make sure the brakes do not restraint.

8-14. Brake pedal height adjustment

The top of brake pedal should be positioned 7 mm below top of the footrest, if not, be sure to have service station to adjust.

8-15. Parking brake adjustment (Fig. 8-I)

8-15-01. Parking brake adjustment may be required if the parking brake does not function properly.

- / 1. Loosen the lockout of the parking brake cable adjuster.
- / 2. Turn the adjuster until there is little or no free play.
- / 3. Tighten the lockout.

8-15-02. Brake lever, pedal, and cable lubrication

Lubricating the pivoting parts of each lever and pedal.

Recommended lubricant: cable lube or SAE 10W30 motor oil

<! WARNING> POTENTIAL HAZARD: Operating with improperly adjusted brakes.

AWARENESS: The brakes could malfunction, causing reduced braking performance. This could increase the chance of a collision or accident.

SOLUTION: After adjusting the parking brake, lift the rear part of ATV off the ground and spin the rear wheels. Check to make sure there is no brake drag. If brake drag is noticed, perform the adjustment again.

8-16. Clutch adjustment and lubrication (Fig. 8-J)

8-16-01. The clutch lever free play should be 8-13 mm (0.31-0.51 in). If the free play is incorrect, adjust as follows.

- / 1. Loosen the lockout.
- / 2. The adjuster for clutch lever free play is 8-13 mm (0.31-0.51 in)
- / 3. Tighten the lockout.

8-16-02. Clutch lever lubrication

Lubrication the pivoting parts of clutch lever.

Recommended lubricant: cable lube or SAE 10W30 motor oil

8-17. Drive-chain slack check and adjustment (Fig. 8-K1, 8-K1, 8-K2)

8-17-01. Inspect the drive chain while all tires are touching the ground. Check the slack at the position shown in the Fig. 8-K1. The normal vertical deflection is approximately 30-40mm (1.2-1.6in). If the deflection exceeds 40 mm (1.6 in), adjust the chain slack.

8-17-02. Drive chain slack adjustment

- / 1. Loosen the rear wheel hub bolts.
- / 2. Loosen the adjuster lockouts on each side. To tighten the chain, turn the chain adjuster clockwise. To loosen the chain, turn the adjuster counterclockwise and push the wheel forward. Turn each adjuster exactly the same amount to maintain correct axle alignment. There are marks on each side of the swing-arm and on each chain adjuster. Use them to check for proper alignment.
- / 3. After adjusting alignment, be sure to tighten the lockouts and the wheel hub bolts.

- NOTE:

Upper wheel hub bolt: 85 Nm (8.5 m.kg, 61 ft.lbf)

Lower wheel hub bolt: 85 Nm (8.5 m.kg, 61 ft.lbf)

8-17-03. Drive chain cleaning and lubrication

Use only Kerosene to clean the drive chain. Wipe it dry, and thoroughly lubricate it with a special O-ring lubricant. Do not use any other lubricants on the drive chain. Do not clean drive chain with steam cleaner or high pressure washer.

8-18. Cable inspection and lubrication

<! WARNING> POTENTIAL HAZARD: Damaged control cables.

AWARENESS: Corrosion can result when the outer covering of control cables becomes damaged. Cables can also become frayed or kinked. Operation of controls could be restricted, which could cause an accident or injury.

SOLUTION: Inspect cables frequently. Replace damaged cables. Lubricate the inner cables and the cable ends. If the cables do not operate smoothly, ask an authorized local dealer to replace them.

Recommended lubricant: chain and cable lube or SAE 10W40 motor oil

8-19. Brake pedal, brake lever, and clutch lever lubrication

Recommended lubricant: Lithium soap base grease

8-20. Upper arm and lower arm pivot lubrication (Fig. 8-L)

Lubricate the upper arm pivot and the lower arm pivot. Recommended lubricant: Lithium soap base grease

8-21. Steering shaft lubrication (Fig. 8-L1)

Use a grease gun to lubricate the pivot points.

Recommended lubricant: Lithium soap base grease

8-22. Wheel removal and re-installation (Fig. 8-M, 8-N)

8-21-01. Removal

- / 1. Elevate the wheel by placing a suitable stand under the frame.
- / 2. Remove the nuts from the wheel.
- / 3. Remove the wheel assembly.

8-21-02. Installation

When installing the wheels, reverse the removal procedure. Tighten the wheel nuts to the specified torque.

Wheel nut torque: Front: 45Nm (4.5mkgf,33ftlbf); Rear: 45 Nm (4.5mkgf,33ftlbf)

8-23. Replacing te headlight bulb (Fig. 8-O, 8-O1, 8-O2, 8-O3, 8-O4, 8-O5, 8-O6, 8-O7)

If the headlight bulb burns out, be sure to replace the new bulb.

- / 1. Remove the front cover.
- / 2. Take out the bulb from bulb holder and remove the defective bulb.
- / 3. Put a new bulb and secure it in place with the bulb holder.
- / 4. Reinstall the front cover.

<! WARNING> POTENTIAL HAZARD: The headlight bulb is hot when it is on and immediately after it is turned off.

AWARENESS: You can be burned, or a fire could start if the bulb touches something flammable.

SOLUTION: Wait for the bulb to cool before touching or removing it.

8-24. Battery - charging system (Fig. 8-P)

Be sure to keep the battery (12A) capacity. If not enough capacity, please re-charge or replace a new battery -- check local dealer or service station for information on recharge or replacement.

- CAUTION: The battery is a MF (maintenance free) BS-12A type which is unnecessary to be refilled distilled water.

- CAUTION: DO NOT quick charge the battery. Only use a MF battery charger and battery temperature should not exceed 45C. Remove the battery from the ATV when re-charging.

8-25. Battery Removal (Fig. 8-P)

When recharging or store, remove battery from ATV. The procedure;

- 1). be sure the ignition (main) switch is "OFF"
- 2). take out the seat
- 3). disconnect the negative (-) terminal lead from battery
- 4). disconnect the positive (+) terminal lead from battery
- 5). take out battery
- 6). store or re-charge battery

- CAUTION:

Only store the battery on cool and dry place. Do not leave or store the battery in hot(more than 30c) or cold(less than 0c) area.

8-26. Fuse (15A) -- Fig. 8-P

To replace a fuse (15A), be sure to follow;

- / 1. be sure the ignition (main) switch is "OFF"
- / 2. open fuse holder and take out old fuse
- / 3. install new fuse and close the fuse holder

- CAUTION:

Be sure to turn the ignition switch off before checking or replacing the fuse to prevent accidental short-circuiting on electrical system.

If a fuse fails frequently, which means a short-circuit or an overload in the electrical system -- be sure to take ATV to local dealer or service station for detail examining and repairing.

<! WARNING> POTENTIAL HAZARD: Improperly replacing a fuse.

AWARENESS: Serious damage to the electrical system, which might cause a fire or loss the lights and engine power. This could cause loss of control and an accident.

SOLUTION: Only use the fuse specified in this Owner's Manual (15A).

8-27. Troubleshooting

Problem in the fuel, compression, ignition, or battery can cause poor starting and loss of power. The troubleshooting provides a quick, easy procedure for making checks. For any serious problem, take ATV to local dealer or service station for detail examining and repairing.

<! WARNING> POTENTIAL HAZARD: Checking the fuel system while smoking or near an open flame.

AWARENESS: Fuel can ignite or explode, causing severe injury or property damage.

SOLUTION: Do not smoke when checking the fuel system. Make sure there are no open flames or sparks in the area, including pilot lights from water heaters or furnaces.

8-27-01. check fuel: check fuel tank

- / if it has enough fuel; turn fuel cock "OFF", remove the fuel pipe
 - 01). check fuel flow -- no fuel -- replace fuel cock
 - 02). dirt or water on fuel -- clean fuel filter and fuel tank

/ No fuel; refill fuel, and restart engine

/ Little fuel; turn fuel cock to "RES", and restart engine

8-27-02. check compression: start engine to check compression

/ if normal compression -- OK

/ if no compression -- ask local dealer or service station to help

8-27-03. check ignition: check plug and electrode

/ Plug is wet -- clean it and keep dry -- restart engine

01). spark is good -- ignition is OK

02). spark is weak -- adjust plug cap or replace plug

03). no spark -- ask local dealer or service station to help

/ Plug is dry -- attach plug cap and ground on frame -- restart engine

01). spark is good -- ignition is OK

02). spark is weak -- adjust plug cap or replace plug

03). no spark -- ask local dealer or service station to help

8-27-04. check battery: start engine by starter

/ Engine start quickly -- OK

/ Engine start slowly or weak -- weak battery or charging device flop

01). loose battery connection and re-charging system failure

02). faulty regulator/rectifier

/ Engine can not start --- battery dead, fuse burned out, disconnected battery cable, or faulty ignition.

01). change battery and check battery cable

02). change fuse

03). check ignition (refer to 8-27-03)



8-A



8-A1



8-A2



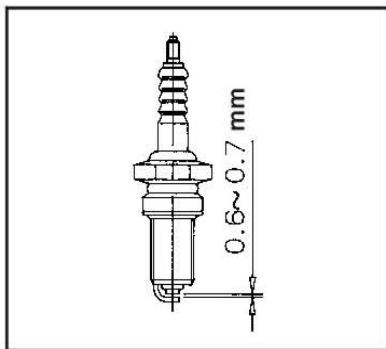
8-B



8-B1



8-B2



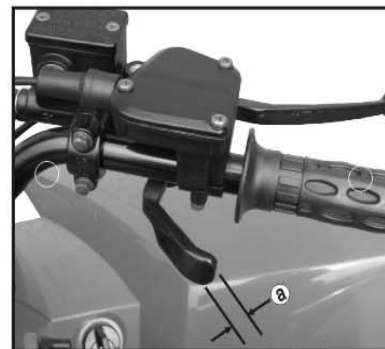
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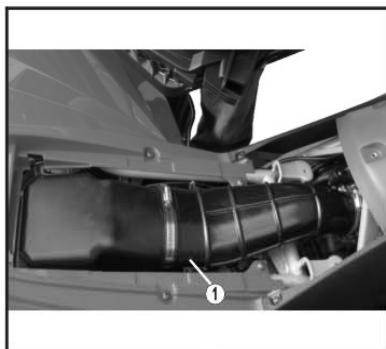
8-D



8-D5



8-E



8-D1



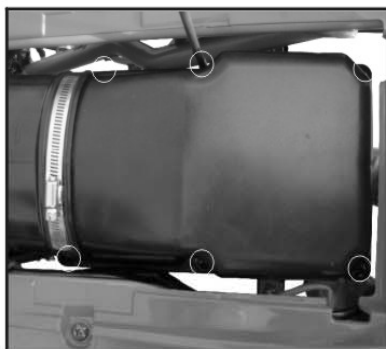
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8-F



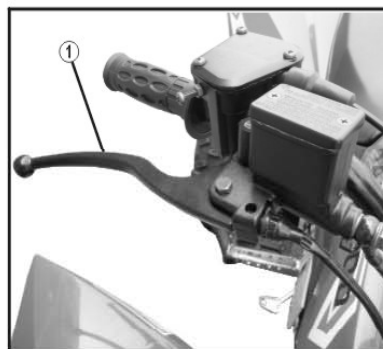
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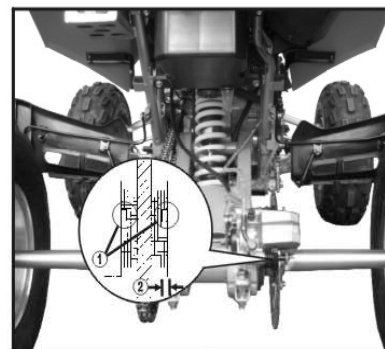
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8-D4



8-G



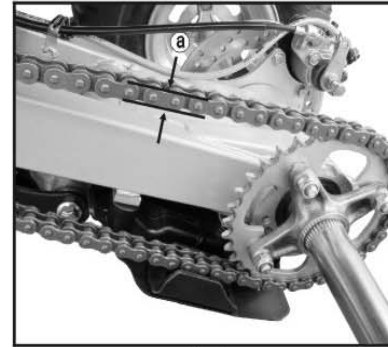
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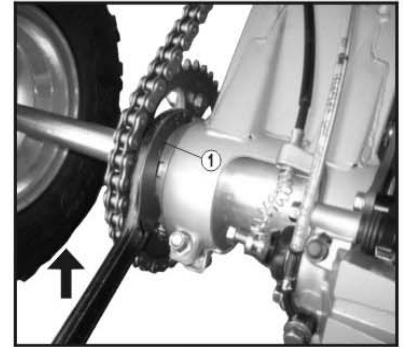
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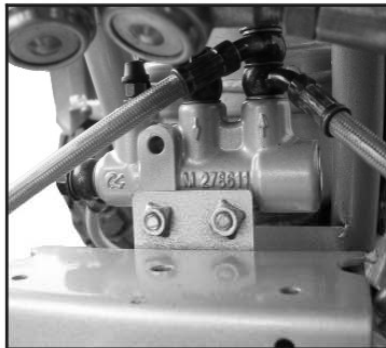
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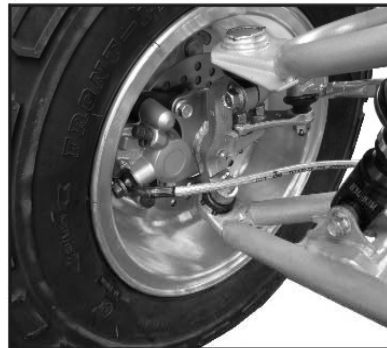
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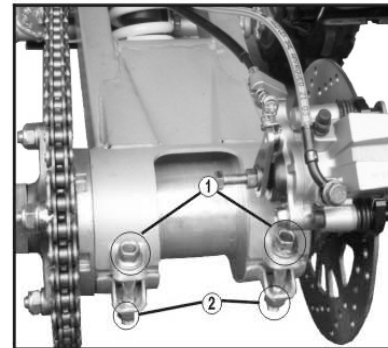
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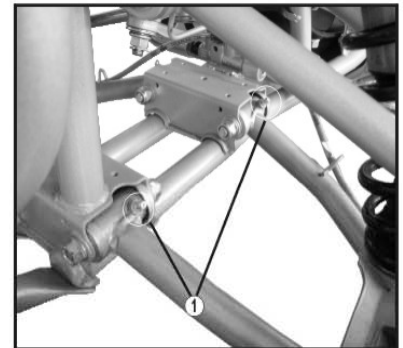
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8-H2



8-K2



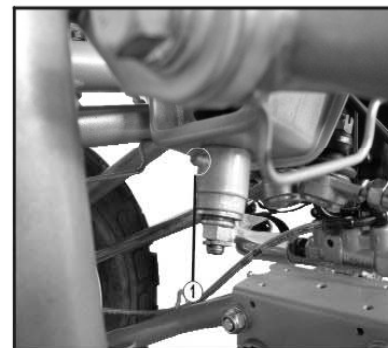
8-L



8-I



8-J



8-L1



8-M



Rear

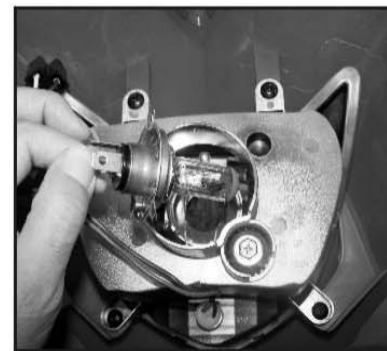
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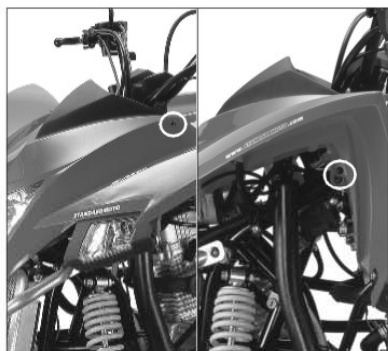
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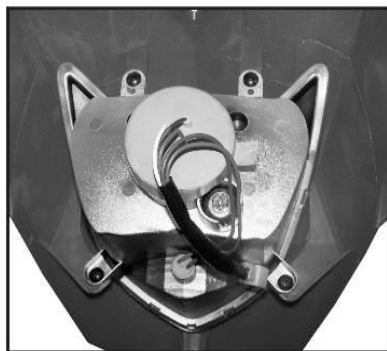
8-05



8-06



8-01



8-02



8-07



8-P



8-03



8-04



8-Q



8-Q1



8-Q2

PART 9. CLEANING and STORAGE

9-01. CLEANING: Clean ATV regularly to protect the surface finishes and check for the damage, wear, and oil or brake fluid leakage will enhance ATV overall appearance and general performance.

1. Block off the end of the exhaust pipe to prevent water entry. Next, make sure the spark plug and fuel caps are fastened.
2. If engine case is greasy, apply de-greaser with a paint brush. Do not apply de-greaser to the chain, sprockets or wheel axles.
3. Use only enough pressure to rinse the dirt.

- CAUTION: High pressure water or air may damage certain parts such as wheel bearings, brakes, transmission seals and electrical devices.

4. Use the cool water to remove dirt. Once the majority of the dirt has been taken off, wash all surfaces with warm water and mild, detergent-type soap.
5. Rinse the ATV off immediately with clean water and dry all surfaces with a chamois, clean towel or soft absorbent cloth.
6. Dry the chain and lubricate it to prevent rust.
7. Clean the seat with a vinyl upholstery cleaner to keep the cover pliable and glossy.
8. Automotive wax can be used on all painted and chrome plated surfaces. Avoid combination cleaner-waxes.
9. When finishing, start the engine and let it run for several minutes. Finally, test the brakes.

<! WARNING> POTENTIAL HAZARD: Operation with wet brakes after washing.

AWARENESS: Wet brakes may have reduced stopping ability, increasing the chance of an accident.

SOLUTION: Test the brakes after washing. Apply the brakes several times at slow speeds to let friction dry out the linings.

9-02. STORAGE: Before long term storage (says 60 days or more), be sure to check the ATV for needed repairs and have it corrected.

1. Change engine oil and oil filter.
2. Drain the fuel from tank and carburetor.
3. Clean the spark plug and put about 20-25cc engine oil(SAE 10W30 or 20W40) into the cylinder. Start engine for a few seconds.
4. Spray anti-rusty (rust-inhibiting) oil into the inside of fuel tank.
5. Clean the drive chain thoroughly and lubricate it.
6. Lubricate all control cables.
7. Remove the battery. Be sure to re-charge battery before storage. Do not put the battery on hot or cold place.
8. Check the tire pressure and block up the frame to raise all wheels off the ground.
9. Wash and dry the ATV and wax all painting surfaces.
10. Cover a plastic bag over the exhaust pipe.
11. Do not apply oil to any rubber parts or the seat cover.

- NOTE:

Make any necessary repairs before storing the ATV.

PART 10. SERVICE INFORMATION

10-01. Training course: The training course, rider education and ATV safety program, is available from each Area/Territorial Distributor.

10-02. Warranty: Details of warranty refer to each Area/Territorial Distributor.

10-03. Owner's manual and tool kit: Be sure to keep the owner's manual and tool kit (includes low-pressure tire gauge) all the time with ATV. This manual and tool kit are part of the ATV and please keep them for ready use, even when the ATV is resold. The replacement owner's manual and tool kit are available from each Area/Territorial Distributor.

10-04. Parts lists: The parts lists are available from each Area/Territorial Distributor. Be sure to use only genuine maker parts for replacement.

10-05. Service manual: The service manuals are available from each Area/Territorial Distributor. Service manual is written for the professional technicians, but most mechanically-capable owners can find them easy to use if they have the proper tools and follow safety standards.

10-06. Special tools: The special tools are available from each Territorial/Area Distributor. The proper special tools are necessary for complete and accurate tune-up and assembly.

10-07. Accessories: There are accessories available from each Area/Territorial Distributor.

10-08. Records: To ensure that the ATV always keeps good performance, it is necessary to make periodical checks and maintenances. Be sure to keep the following record during service maintenance.

Part 1. Vehicle Information			
Name :		Tel :	
		Address :	
Model :		Engine #	
		VTN #	
License :		Purchasing Date :	
Local Dealer Information		Distributor Information	
Part 2. Periodical Check			
	Check Date	Check item	Confirmed by Local Dealer
10hrs.			
100 km			
60hrs.			
1000 km			
110hrs.			
2000 km			
more	< Be sure to keep maintenance every 100hrs/100km >		

- CAUTION: Be sure to perform the initial maintenance for changing gear oil, ... other inspection after 1st. month operation. Periodic inspection, adjustment, and lubrication will keep ATV in the safest and best operation condition. Be sure to use only genuine maker parts for replacement. For avoiding sudden driving please always shift transmission paddle into Neutral(N) and do not make any acceleration on N position. Do not make any acceleration during F-R operation. Maker will pay no any responsibility whenever the mistake of user on F-R operation.

10-09. Pre-Delivery Inspection: The dealer or service station will assemble and inspect the ATV according to the following pre-delivery checklist before delivering to the customer. (Some items may not be applicable to all models.)

Items	Contents
Appearance	* check the overall out-looking and correct any surface damage or missing parts
Battery	* fill with electrolyte, or charge battery properly, check vent hose routing
Valves	* check valve clearances, and check cam chain tension
Spark plug	* check gap
Carburetor	* drain float bowl(s) before starting, check idle speed, synchronization, starter operation
Fuel line	* check fuel hose routing and ensure that clamps are in proper position
Oil Level	* check engine oil (4-stroke) level, transmission, final drive oil
Coolant	* check the coolant level in Reserve tank; check radiator when engine is cold
Cables	* check for proper routing and free play on throttle, brake, clutch
Clutch	* check operation
Reverse lock out	* check F-R operation
Brakes	* check operation, free play, fluid level, and check parking brake operation
Drive chain	* check free play
Wheels	* check tire pressure and wheel run out, and check wheel nut torque
Steering system	* check turning operation, and check the toe-in
Suspension	* check operation and adjustment
Fittings	* check headlight aim
Fasteners	* check all for loose or missing hardware
Electrical	* check all light and switch operations * check speedometer for proper operation
Ignition	* check ignition timing
Final	* check and correct any damage or missing parts * re-check and tighten all screw, nuts, bolts. * test ride and observe any abnormal noise or function * owner's manual, tools pack, low-pressure gauge * record end-user's information and keep the records for service

- Caution the Eic Mark ATVs: The ATV for on-road use has to match the local riding law and regulation
- Caution: The gear clutch engine only allows the Motorcycle 10W40 JASO MA grade of 4 stroke engine oil

PART 11. SPECIFICATION

5 Speeds Gear Sports 500

Dimension : 1795mm²1140mm/1185mm
 Seat height : 880mm
 Wheel base : 1250mm
 Weight : Un-laden Mass - 198kg; with fuel Mass - 207kg

Engine : Fuji D011C 4 Stroke Liquid Cooled
 Cylinder : Single Vertical (Forward Inclined)
 Bore * Stroke : 99.2 x 64.6mm
 Displacement : 499cc
 Carburetor : Mikuni BSR 42mm

Spark : NGK DCP8E x 1
 Starting : Electrical starter
 Ignition : C.D.I.
 Generator : ACG Fly Wheel Magneto 200W @ 3,000 rpm
 Battery : Maintenance-Free YUASA YTX 12A-BS or G1 X12L-BS

Engine Oil : 4 Stroke Motorcycle Engine Oil 10W40 MA grade (e. Shell Advance VSX4 synthetic)
 Engine Oil : at change (1.9L) at disassembly (2.1L)
 Air-Filter : Wet type element

Transmission (T-R) : 5 speeds manual Forward/Reverse shift selector function with Brake
 RPM limit : Forward limited 9,100 +/- 100 and Reverse 5,000 +/- 100

Fuel : Unleaded gasoline (98 Octane)
 Fuel tank : 13L

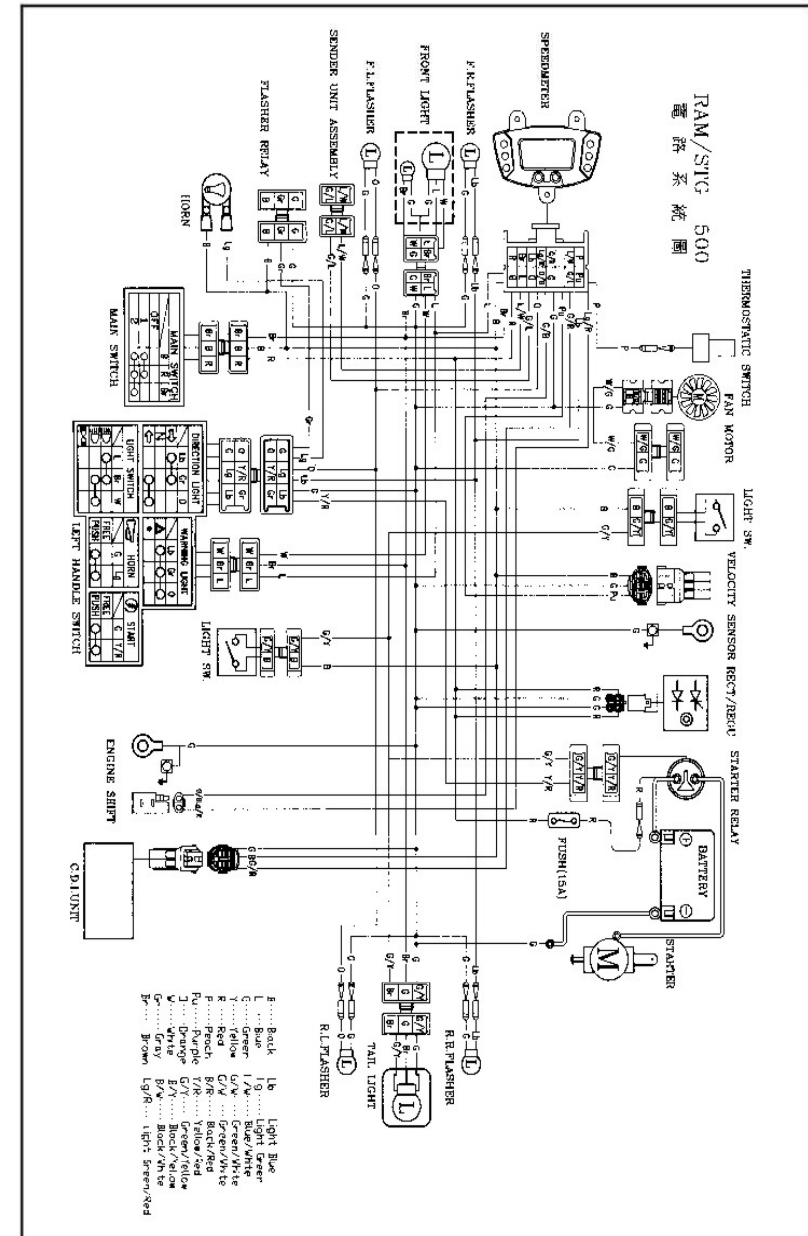
Radiator (water cooler) : 1.5 l. coolant (standard concentration 50%)
 Reserve tank cooler : 400cc +/- 20cc coolant (standard concentration 50%)

Brake (F/R) : Disc/Disc
 F. Brake operation : Front R side hand lever for front wheeler or others
 F/R operation : Foot rest R side foot pedal for 4 wheeler or others

Tire : Tubeless
 Front/Rear : (F) A1 21x7-10, or AT 22x7-10, or 175 70-10
 (R) A1 20x10-9, or AT 22x10-10

Chassis : Steel tube frame
 Rider : Single rider is recommend by maker (F.e Mark is double rider)

Head Light : 12V 35/35W * 1 (Option)
 Rear Light : 12V 21/5W * 1 (Option)
 Flasher Light : 12V 10W * 4 (Option)



PART 12. APPENDIX

Appendix 12-1: Notes of Area Approval"

The ATV is designed for OFF-ROAD of recreation (Maker stronger suggestion, DO NOT OVER-SPEED and DO NOT RIDE ON ANY PUBLIC ROADS, STREETS, or HIGHWAYS.) usage mainly. Riding on public paved surfaces road may seriously affect handling and control of the ATVs, and may cause the vehicle to go out of control.

To match different Area Regulation, ATVs may change or install extra device to match area special requirement such as "E/e Mark EEC On Road approval, USA EPA, CARB approval, or other approval". For any questions regarding the Area regulation, ATVs operation, maintenance, and service, please contact each Area Importer.

UNDERSTAND ALL NECESSARY AREA REGULATION OR SPECIAL REQUIREMENTS OF ANY "OFF ROAD" or "ON ROAD" WHEN YOU PURCHASE THE ATVs. THE EEC, CE, EPA, CARB, UL, or other ON ROAD/ROAD LEGAL LAWS should correspond with the area regulation.

IT IS VERY IMPORTANT FOR BEGINNER WHO RIDES THE ATVs SHOULD HAVE A TRAINING COURSE BEFORE OPERATION. READ THIS MANUAL CAREFULLY AND COMPLETELY BEFORE OPERATING THE ATVs. MAKE SURE YOU or YOUNGSTER UNDERSTAND ALL INSTRUCTIONS.

NOTE of Approval: (Maker apply several approval to match area needs, details please contact with Area Importer)

- E/e Mark on WVTa (Whole Vehicle Type Approval) follows EMC Directives and ECE Regulation
- EPA (U.S. Environmental Protection Agency) follows certification and compliance division office of transportation and air quality U.S EPA law
- CARB (California Air Resources Board) follows certification and compliance division office of California

<WARNIGN> Never modify an ATV through improper installation i.e. remove spark arrester or other. Maker will pay no responsibility on this personal modification.

- CAUTION: Be sure to perform the initial maintenance for changing engine oil (a qualified synthetic 4-stroke oil is strongly recommended), cleaning engine oil filter, ... after 1st 10hrs (or 100km) operation. Periodic inspection, adjustment, and lubrication will keep ATV in the safest and best operation condition. Be sure to use only genuine maker parts for replacement.
- CAUTION: The user must perform the period check & service and keep the service records all the time, otherwise, the Maker will pay no responsibility on future warranty or claim.

<WARNIGN> The E/e Mark ATVs may have a high speed riding operation. The user must familiar all area condition, must have a period check service to make sure the ATVs is OK condition and keep the service record all the time as Part 8. The user must have pre-check before each ride as Part 5. If users have not follow the above conditions, Maker (SMC) will pay no responsibility for any further claim or warranty matter in case some case happened.

Appendix 12-2: Liquid Cooled System Notice

The ATVs has liquid (water) cooled system. Be sure to check the coolant level before each ride. Be sure to replace the new coolant every 24 months. When engine cold, place the ATVs on the level ground. Check the coolant level in reserve tank that the level should between the maximum and minimum mark. If the level is low, remove the coolant reservoir cap. Fill coolant or distilled water to Max. mark (standard concentration 50%). When speedometer temperature meter "flashing" signal, this is warning for overheat. Be sure to stop vehicle and make the details check. If keep operating the vehicle, the engine will be damaged.

NOTE: Total coolant capacity is about 1,900cc +/- 20cc (Radiator ~ 1,500cc; Reserve tank ~ 400cc +/- 20cc). Only check coolant level when engine is cold.

<WARNIGN>: Never open the radiator cap during the engine is warm or running.

NOTE: Be sure to check the speedometer temperature meter during the operation. Whenever the temperature indicator shows too high level, be sure to check the follows

- (1). Coolant level is normal or not
- (2). Radiator and Reserve tank damage or not
- (3). Check the Thermo sensor and Coolant circulation is working or not (check IN/EX water hose and by-pass hose)
- (4). Cooler fan is working or not

<WARNIGN> Be sure to check the coolant level before each ride. Be checking temperature during operation, whenever showing abnormal or overheat signal. Stop and make a check. Only check coolant level when engine is cold. Do not make the acceleration on N position! Maker will pay no any responsibility on above mistake from user.

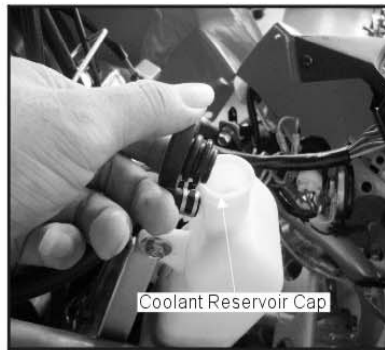
NOTE: Radiator Inspection Step (Only check coolant level when engine is cold)

1. Remove the reserve tank cap and drain the coolant from the reserve tank.(Fig.12-A)
2. Place the vehicle on a flat, level surface. Fill the reserve tank to the upper level line.(fig.12-B)
3. Be checked any of the accumulation of rust or changed in the mixing proportion during usage on the coolant. Be sure to keep the coolant regularly as specified in the maintenance schedule (Fig.12-C). Mix only distilled water with the antifreeze. Recommended mixture: 1:1 (Distilled water and antifreeze)
4. Remove the radiator cap and drain the coolant.(Fig.12-D)
5. Radiator cap inspection: Install the radiator cap onto the radiator tester and apply specified pressure to it. It must hold specified pressure for at least six seconds.(Fig. 12-E)
Radiator cap relief pressure: 0.75-1.05 kgf/cm (75-105 kpa, 10.65-14.91 psi)
6. Blow dirt out from between core fins with compressed air.(fig.12-F)

By: Sales and Service Department of Standard Motor Corp.

Attention to Territorial Importer/Distributor:

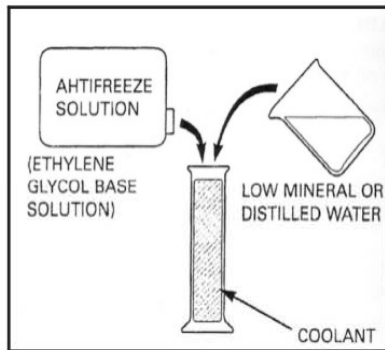
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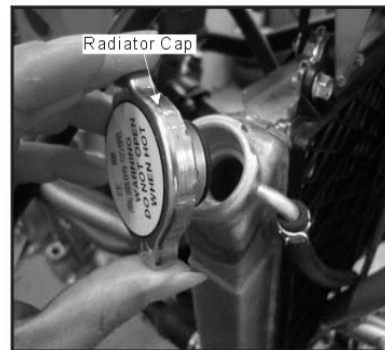
12-A



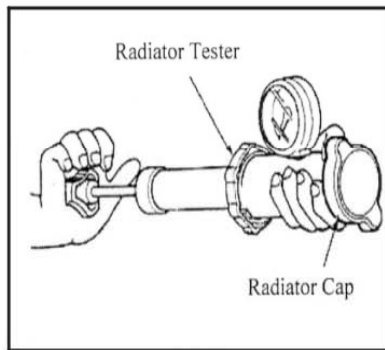
12-B



12-C



12-D



12-E



12-F

SERVICE INFORMATION - 500 PDI (Pre-Delivery Inspection)

Pre-Delivery Inspection (PDI): The dealer or service station will assemble and inspect the ATV according to the following pre-delivery information and checklist before delivering to the customer! Importer must follow all details steps on this process to make sure the vehicle is under corrected condition before sending to end user. If there is any abnormal condition during PDI, be sure to provide the evidence and report to the Area importer. For any mistake for without proper PDI process happen in vehicle, Maker pays no responsible of claim or warranty.

Part 1: Un-loading, Un-package, and Assembly

1. Be sure to take very carefully during the un-loading.

- WARNING: Be sure to use the correct size of fork life or equipment to un-load the package.
- CAUTION: Whenever the damage or unusual condition of package, be sure to take the photo of condition. Be sure report the carton number, engine/frame number.

2. Follow each steps to un-pack the carton – refer to the photo introduction.

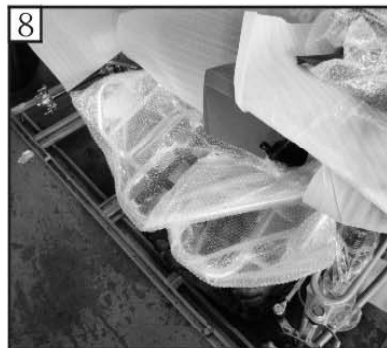
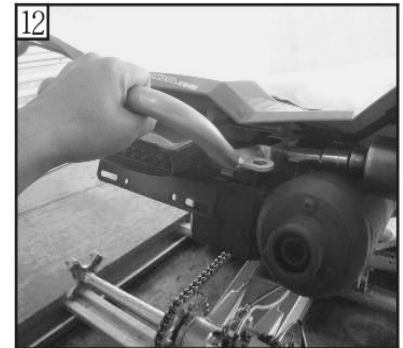
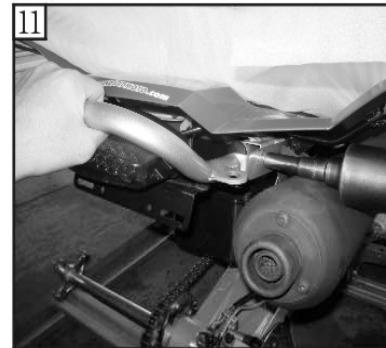
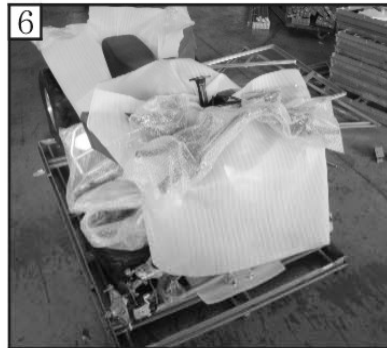
3. Follow each steps to install each devices:

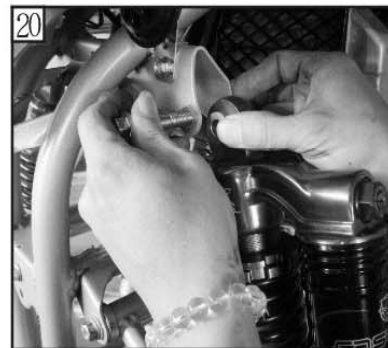
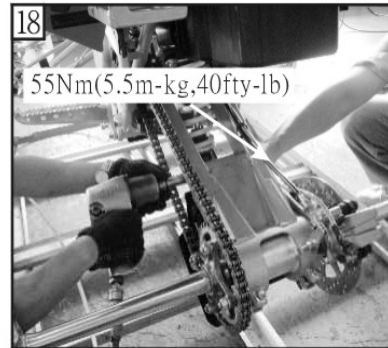
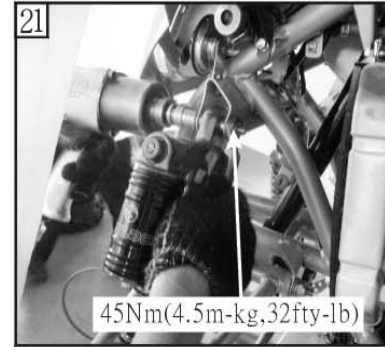
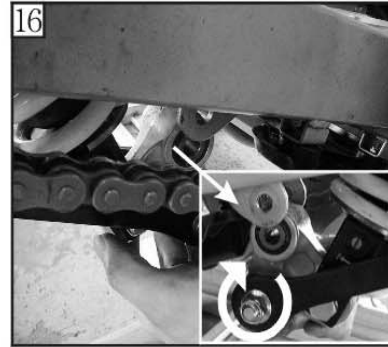
(rear carrier; foot stand; rear shock; front shock; tire pressure and wheel installation; handle bar and cover; front bumper)

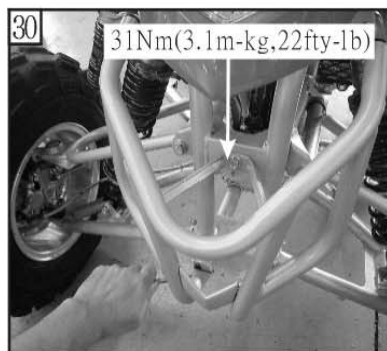
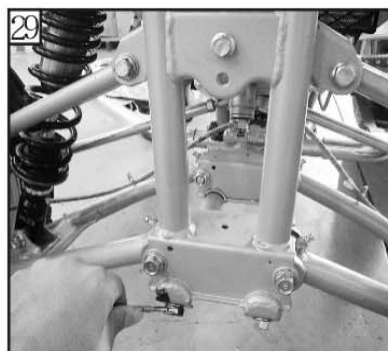
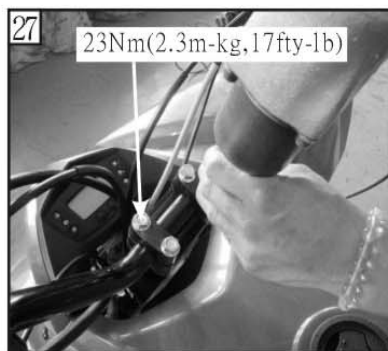
- NOTE: the Rear shock relay arm = 55 Nm(5.5 m.kg); Front shock nut/bolt = 45 Nm(4.5 m.kg)

- CAUTION: Some items may not be applicable to all models. ie. with/without the nerf-bar or rear rack









Part 2: Important Information

1.. Owner's manual and tool kit: Be sure to keep the owner's manual and tool kit (includes low-pressure tire gauge) all the time with ATV. This manual and tool kit are part of the ATV and please keep them for ready use, even when the ATV is resold. The replacement owner's manual and tool kit are available from each Area/Territorial Distributor.

2. Records: To ensure that the ATV always keeps good performance, it is necessary to make periodical checks and maintenances. Be sure to keep the following record during service maintenance.

Part 1. Vehicle Information			
Name :		Address :	
Model :		Engine #	
License :		VIN #	
Purchasing Date :			
Local Dealer Information		Distributor Information	
Part 2. Periodical Check			
	Check Date	Check item	Confirmed by Local Dealer
10hrs. 100 km			
60hrs. 1000 km			
110hrs. 2000 km			
more	< Be sure to keep maintenance every 100hrs/100km >		

- CAUTION: Be sure to perform the initial maintenance for changing gear oil, ... other inspection after 1st. month operation. Periodic inspection, adjustment, and lubrication will keep ATV in the safest and best operation condition. Be sure to use only genuine maker parts for replacement. For avoiding sudden driving please always shift transmission paddle into Neutral (N) and do not make any acceleration on N position. Do not make any acceleration during F-R operation. Maker will pay no any responsibility whenever the mistake of user on F-R operation.

- CAUTION: Be sure to perform periodic inspections and maintenances as the owner manual suggestion in Part 8.

3. Pre-Delivery Inspection: The dealer or service station will assemble and inspect the ATV according to the following pre-delivery checklist before delivering to the customer. (Some items may not be applicable to all models.)

Items	Contents
Appearance	* check the overall out-looking and correct any surface damage or missing parts
Battery	* fill with electrolyte, or charge battery properly, check vent hose routing
Valves	* check valve clearances, and check cam chain tension
Spark plug	* check gap
Carburetor	* drain float bowl(s) before starting, check idle speed, synchronization, starter operation
Fuel line	* check fuel hose routing and ensure that clamps are in proper position
Oil Level	* check engine oil (4-stroke) level, transmission, final drive oil
Coolant	* check the coolant level in Reserve tank; check radiator when engine is cold.
Cables	* check for proper routing and free play on throttle, brake, clutch
Clutch	* check operation
Reverse lock out	* check F-R operation
Brakes	* check operation, free play, fluid level, and check parking brake operation
Drive chain	* check free play
Wheels	* check tire pressure and wheel run out, and check wheel nut torque
Steering system	* check turning operation, and check the toe-in
Suspension	* check operation and adjustment
Fittings/ Fasteners	* check headlight aim * check all for loose or missing hardware
Electrical	* check all light and switch operations * check speedometer for proper operation
Ignition	* check ignition timing
Final	* check and correct any damage or missing parts * re-check and tighten all screw, nuts, bolts. * test ride and observe any abnormal noise or function. * owner's manual, tools pack, low-pressure gauge * record end-user's information and keep the records for service

- Caution the E/e Mark ATVs: The ATV for on-road use has to match the local riding law and regulation.

NOTES

READ Owner's MANUAL CAREFULLY! FOLLOW ALL INTRODUCTION AND WARNINGS