

XV250V(C)

ASSEMBLY MANUAL

LIT-11666-19-23

2UJ-28107-11

FOREWORD

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

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NOTICE

The service specifications given in this assembly manual are based on the model as manufactured. Yamaha Motor Company, Ltd. is continually striving to improve all of its models. Modifications and significant changes in specifications or procedures will be forwarded to all authorized Yamaha dealers and will appear in future editions of this manual where applicable.

The procedures below are described in the order that the procedures are carried out correctly and completely. Failure to do so can result in poor performance and possible harm to the vehicle and/or rider.

CONCERNING CRATE DAMAGE: _

Follow the instructions in the Dealer Warranty Handbook, Procedure Section.

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

- The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!
- WARNING Failure to follow WARNING instructions <u>could result in severe injury or death</u> to the vehicle operator, a bystander, or a person checking or repairing the vehicle.
- **CAUTION:** A CAUTION indicates special precautions that must be taken to avoid damage to the vehicle.
- **NOTE:** A NOTE provides key information to make procedures easier or clearer.

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SYMBOLS USED IN THE ASSEMBLY MANUAL

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

- (1): Coat with lithium-soap-based grease.
- (2): Tighten to 10 Nm.
 - $(10 \text{ Nm} = 1.0 \text{ m} \cdot \text{kg}, 7.2 \text{ ft} \cdot \text{lb})$
- (3): Towards the front of the vehicle
- (4): Clearance required
- (5): Install so that the arrow mark faces upward.
- (6): Apply motor oil.
- (7): Made of rubber or plastics
- (8):
 - A: Ref. No. (indicating the order of operations.)
 - B: Part name
 - C: Quantity of parts per vehicle
 - D: Place where parts are held
 - V: Stored in plastic bag
 - C: Stored in carton box
 - S: Fixed inside the steel frame and/or contained in the Styrofoam tray (upper or lower)
 - ★: Temporarily installed or secured
 - E: Size or material of parts d/D: Diameter of part
 - ℓ: Length of part
 - e.g., 5 (0.20) = 5 mm (0.20 in)

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PREPARATION

To assemble the vehicle correctly, supplies (e.g. oils, greases, and shop rags) and sufficient working space are required. **Workshop**

The workshop where the vehicle is assembled should be clean, spacious, and have a level floor.

Self-protection

Protect your eyes with suitable safety glasses or goggles when using compressed air, when grinding or when doing any operation which may cause particles to fly off.

Protect hands and feet by wearing safety gloves or shoes.

SETUP PROCEDURES

Perform the setup procedures in the order indicated by the numbers. Always follow the order as shown.





1	Front fender	1	С	
2	Front reflector bracket	1	V	
3	Speedometer cable guide	1	V	
4	Front brake hose holder	1	V	
5	Flange bolt	4	V	d = 8 (0.31), ℓ = 12 (0.47)
6	Front reflector	2	V	
7	Flange nut	2	V	d = 5 (0.20)



1	Front wheel	1	S	
2	Collar	1	V	
3	Speedometer gear unit	1	V	
4	Front wheel axle	1	*	
5	Axle pinch bolt	1	*	d = 8 (0.31), ℓ = 35 (1.38)
6	Speedometer cable	1	*	

1. FRONT FENDER

- A: Fasten the brake hose with the speedometer cable guide.
- B: Pass the speedometer cable through the speedometer cable guide.

A WARNING

Proper cable routing is essential to assure safe vehicle operation.

Refer to "CABLE ROUTING".

C: Tighten the bolts to specification.

Bolt

16 Nm (1.6 m \cdot kg, 11 ft \cdot lb)

CAUTION:

Be careful not to scratch the front fender with the front fork outer tube.

D: Align the projections on the front reflectors with the slots in the front reflector bracket and speedometer cable guide.

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- 2. FRONT WHEEL
- A: Clean the brake disc.
- B: Clean the front wheel axle.
- C: Clean the collar. D:

A WARNING

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

- E: Make sure the projections in the wheel hub are meshed with the slots in the speedometer gear unit.
- F: Lift the front wheel and install the front wheel axle.

NOTE:

Do not depress the brake lever when the caliper is off the brake disc.

- G: Make sure the projection (torque stopper) on the front fork is placed in the slot in the speedometer gear unit as shown.
- H: Tighten the front wheel axle to specification.

Front wheel axle 59 Nm (5.9 m · kg, 43 ft · lb) I: Tighten the axle pinch bolt to specification.

Axle pinch bolt 20 Nm (2.0 m \cdot kg, 14 ft \cdot lb)

J: Connect the speedometer cable to the speedometer gear unit.



3. LEAD HOLDER

A: Pass the wire harness through the lead holder.

NOTE: ____

Refer to "CABLE ROUTING".



1	Indicator light assembly	1	*	
2	Screw	2	V	d = 4 (0.16), ℓ = 35 (1.38)
3	Handlebar	1	S	
4	Upper handlebar holder	2	V	
5	Hexagon socket bolt	4	V	d = 8 (0.32), ℓ = 25 (0.98)
6	Plug	4	V	

EAA00014 **4. HANDLEBAR**

Before 2012 models

- A: Clean the right handlebar end. Apply light coat grease.
- B: Install the handlebar holders with the arrow mark facing forward.

CAUTION:

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

C: Align the punch mark on the handlebar with the top of the lower handlebar holders.

D: Tighten the bolts to specification.

23 Nm (2.3 m · kg, 17 ft · lb)

A WARNING

Bolt

Proper cable routing is essential to assure safe vehicle operation.

Refer to "CABLE ROUTING".



1	Handlebar	1	S	
2	Upper handlebar holder	2	V	
3	Hexagon socket bolt	4	V	
4	Plug	4	٧	

EAA00014 **4. HANDLEBAR**

For 2012 models

- A: Clean the right handlebar end. Apply light coat grease.B: Install the handlebar holders
- with the arrow mark facing forward.

CAUTION:

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

C: Align the punch mark on the handlebar with the top of the lower handlebar holders.

D: Tighten the bolts to specification.

Bolt 23 Nm (2.3 r

23 Nm (2.3 m \cdot kg, 17 ft \cdot lb)

A WARNING

Proper cable routing is essential to assure safe vehicle operation.

Refer to "CABLE ROUTING".





1	Throttle grip assembly	1	*	
2	Screw	2	*	d = 5 (0.20), ℓ = 40 (1.57) d = 5 (0.20), ℓ = 45 (1.77)
3	Grip end	1	V	
4	Hexagon socket bolt	1	V	d = 6 (0.24), ℓ = 75 (2.95)
5	Damper	1	V	
6	Flange nut	1	V	d = 6 (0.24)



1	Throttle grip assembly	1	*	
2	Screw	2	*	d = 5 (0.20), ℓ = 40 (1.57) d = 5 (0.20), ℓ = 45 (1.77)
3	Grip end	1	V	

5. THROTTLE GRIP ASSEMBLY

Before 2012 models

- A: The stopper (a) should be touching the inner surface of the right handlebar switch.
- B: Slip the throttle grip over the right handlebar completely and then slide it back about 1 mm (0.04 in).
- C: Check the throttle grip for smooth action.

A WARNING

Proper cable routing is essential to assure safe vehicle operation.

Refer to "CABLE ROUTING".

5. THROTTLE GRIP ASSEMBLY

For 2012 models

- A: The stopper (a) should be touching the inner surface of the right handlebar switch.
- B: Slip the throttle grip over the right handlebar completely and then slide it back about 1.5 mm (0.06 in).
- C: Check the throttle grip for smooth action.

A WARNING

Proper cable routing is essential to assure safe vehicle operation.

Refer to "CABLE ROUTING".



2 Front brake master cylinder holder 1 V 3 Bolt with washer 2 V d = 6 (0.24), ℓ = 25 (0.98)	1	Front brake master cylinder assembly	1	*	
3 Bolt with washer 2 V d = 6 (0.24), $\ell = 25 (0.98)$	2	Front brake master cylinder holder	1	v	
	3	Bolt with washer	2	٧	d = 6 (0.24), ℓ = 25 (0.98)

EAA00032 6. FRONT BRAKE

MASTER CYLINDER

A: Lubricate the pivoting parts of the brake lever.

Recommended lubricants Yamaha cable lube or motor oil

- B: Make sure that the "UP" mark on the holder is pointed upward.
- C: Tighten the bolts to specification.

Bolt 7 Nm (0.7 m · kg, 5.1 ft · lb) D: Check the brake lever for smooth action.

A WARNING

Proper cable and hose routing is essential to assure safe vehicle operation. Refer to "CABLE ROUTING".



1	Left handlebar switch	1	*	
2	Screw	2	V	d = 5 (0.20), ℓ = 35 (1.38)
3	Starter lever	1	*	
4	Starter cable	1	*	
5	Special washer	1	*	
6	Washer	1	*	d = 6 (0.24)
7	Screw	1	*	d = 6 (0.24), ℓ = 10 (0.39)
8	Grip end	1	V	
9	Hexagon socket bolt	1	V	d = 6 (0.24), ℓ = 75 (2.95)
10	Damper	1	V	
11	Flange nut	1	V	d = 6 (0.24)



1	Loft handlahar awitah	1	al.	
	Len nanulebai switch	1	×	
2	Screw	2	V	d = 5 (0.20), ℓ = 35 (1.38)
3	Starter lever	1	*	
4	Starter cable	1	*	
5	Special washer	1	*	
6	Washer	1	*	d = 6 (0.24)
7	Screw	1	*	d = 6 (0.24), ℓ = 10 (0.39)
8	Grip end	1	V	

7. LEFT HANDLEBAR SWITCH

Before 2012 models

- A: Align the slot on the left handlebar switch with the projection on the clutch lever holder.
- B: Pass the starter cable through the cable guide.

A WARNING

Proper cable routing is essential to assure safe vehicle operation.

Refer to "CABLE ROUTING".

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7. LEFT HANDLEBAR SWITCH

For 2012 models

- A: Align the slot on the left handlebar switch with the projection on the clutch lever holder.B: Pass the starter cable through
- the cable guide.

A WARNING

Proper cable routing is essential to assure safe vehicle operation.

Refer to "CABLE ROUTING".



EAA00049 8. CLUTCH CABLE

A: Lubricate the pivoting part of the clutch lever.

Recommended lubricants Yamaha cable lube or motor oil

- B: To install the clutch cable, be sure to proceed as follows:
- a. Turn in the adjuster on the lever holder until tight. Next, align the slit in the adjuster and cable socket with the slit in the lever holder.
- b. Insert the cable end into the lever hole. Next, while pulling the outer cable in the direction opposite to the lever, seat the outer cable into the cable socket.

NOTE: .

Check the clutch lever for smooth action.

Refer to "ADJUSTMENTS AND PREDELIVERY SERVICE".

A WARNING

Proper cable routing is essential to assure safe vehicle operation.

Refer to "CABLE ROUTING".

- C: Install the rubber cover onto the end of the clutch lever.
- D: Make sure that the clutch cable end (engine side) is positioned correctly.



EAA00039 9. CABLE TIES

Before 2012 models

- A: Fasten the left handlebar switch lead and clutch switch lead with two plastic bands.
- B: Fasten the right handlebar switch lead and front brake light switch lead with two plastic bands.

Refer to "CABLE ROUTING".



Plastic band 1

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EAA00039

9. CABLE TIES

For 2012 models

- A: Fasten the left handlebar switch lead and clutch switch lead with two plastic bands.
- B: Fasten the right handlebar switch lead and front brake light switch lead with two plastic bands.

NOTE:

Refer to "CABLE ROUTING".





1	Front turn signal light	2	С	
2	Front turn signal light bracket	2	*	
3	Bolt	2	V	d = 6 (0.24), ℓ = 30 (1.18)
4	Flange nut	2	V	d = 6 (0.24)
5	Cable guide	1	V	
6	Nut	2	V	d = 12 (0.47)

10. FRONT TURN SIGNAL LIGHTS

- A: Install the turn signal light with a chocolate color lead on the left side. Next, install the turn signal light with a dark green color lead on the right side.
- B: Pass the clutch cable, starter cable, front brake hose, and throttle cables through the cable guide.

Refer to "CABLE ROUTING".

C: Connect the front turn signal light leads to the wire harness. The leads of identical colors should be connected.

NOTE: _____

Refer to "CABLE ROUTING".

D: Tighten the nuts to specification.

Nut

23 Nm (2.3 m \cdot kg, 17 ft \cdot lb)



1	Headlight lens unit	1	*	
2	Sorow	1	*	d = 5 (0.20) = 0 = 14 (0.55)
2	Sciew	1	v	u = 5 (0.20), g = 14 (0.55)
3	Left side cover	1	С	
4	Screw	1	V	d = 4 (0.16), ℓ = 12 (0.47)
5	Hexagon socket bolt	1	V	d = 4 (0.16), ℓ = 20 (0.79)

EAA00213 11. HEADLIGHT LENS UNIT AND LEFT SIDE COVER

A: Connect the headlight coupler to the headlight.

NOTE: _____

Refer to "CABLE ROUTING".



12. REARVIEW MIRRORS



13. SHIFT PEDAL

- A: Align the punch mark with the slot.
- B: Tighten the bolt to specification.

Bolt
Don
10 Nm (1.0 m · kg, 7.2 ft · lb)



1	Left footrest	1	S	
2	Washer	1	V	d = 10 (0.39), D = 27 (1.06)
3	Washer	1	V	d = 10 (0.39), D = 30 (1.18)
4	Cap nut	2	V	d = 10 (0.39)

EAA00069 14. LEFT FOOTREST

NOTE:

A:

After installing a footrest, check that it moves smoothly.



1	Rear turn signal light	2	С	
2	Rear turn signal light bracket	2	V	
3	Bolt	2	V	d = 6 (0.24), ℓ = 30 (1.18)
4	Flange nut	2	V	d = 6 (0.24)
5	Nut	2	V	d = 12 (0.47)
6	Сар	2	V	

EAA00054 15. REAR TURN SIGNAL LIGHTS

- A: Install the turn signal light with a chocolate color lead on the left side. Next, install the turn signal light with a dark green color lead on the right side.
- B: Connect the rear turn signal light leads to the wire harness. The leads of identical colors should be connected.

NOTE: _____

Refer to "CABLE ROUTING".

C: Tighten the nuts to specification.

Nut 8 Nm (0.8 m · kg, 5.8 ft · lb) D: Tighten the nuts to specification.

Nut 10 Nm (1.0 m · kg, 7.2 ft · lb)



1	License plate bracket	1	С	
2	Flange bolt	2	V	d = 6 (0.24), ℓ = 10 (0.39)
3	Rear reflector	1	V	
4	Nut	1	V	d = 5 (0.20)



1	Battery	1	*	
2	Battery breather hose	1	*	
3	Battery band	1	*	
4	Rider seat	1	*	
5	Flange bolt	2	*	d = 6 (0.24), ℓ = 16 (0.63)

16. LICENSE PLATE BRACKET

AA00189 **17. BATTERY**

A: Installing the battery.

NOTE: _______ Refer to "ADJUSTMENTS AND PREDELIVERY SERVICE".

- B: First, connect the positive lead (red lead) to the positive terminal.
- C: Second, connect the negative lead (black lead) to the negative terminal.

NOTE:

Refer to "CABLE ROUTING".

D: Tighten the bolts to specification.

Bolt

7 Nm (0.7 m \cdot kg, 5.1 ft \cdot lb)

CABLE ROUTING

A WARNING

Proper cable and lead routing are essential to insure safe vehicle operation.

- (1) Throttle cables
- (2) Front brake hose
- (3) Right handlebar switch lead
- (4) Front brake light switch lead
- (5) Left handlebar switch lead
- (6) Clutch switch lead
- (7) Starter cable
- (8) Clutch cable
- (9) Speedometer cable
- (10)Wire harness
- (11)Indicator light lead (Before 2012 models)
- (12)Speedometer lead
- (13)Left front turn signal light leads
- (14)Right front turn signal light leads
- (15)Headlight unit
- (i) Before 2012 models
- (ii) For 2012 models



- (A) Pass the throttle cables through and to the front of the cable guide.
- (B) Fasten the right handlebar switch lead and front brake light switch lead with two plastic bands.
- (C) Fasten the left handlebar switch lead and clutch switch lead with two plastic bands.
- (D) Pass the clutch cable through the small guide that is attached to the cable guide.
- (E) Pass the speedometer cable in front of the lower bracket.
- (F) Fasten the front brake hose behind the lower bracket.
- (G) Pass the wire harness through the lead holder.
- (H) To handlebar
- (I) To headlight



- (1) Negative battery lead
- (2) Main switch lead
- (3) Fuse holder
- (4) Right rear turn signal light connectors
- (5) Tail/brake light connectors
- (6) Left rear turn signal light connectors
- (7) Rectifier/regulator lead
- (8) Wire harness
- (9) Positive battery lead
- (10)Battery
- (11)Frame
- (12)Battery breather hose
- (13)Front brake hose
- (14)Speedometer cable
- (A) Fasten the main switch lead and neutral switch lead with a plastic locking tie.
- (B) 50 mm (1.97 in)
- (C) Fasten the wire harness and positive battery lead with the clamp.
- (D) Fasten the positive battery leads with a plastic locking tie, making sure that the leads do not protrude past the line shown on top of the frame in the illustration. Face the end of the plastic tie downward.
- (E) Pass the speedometer cable through the speedometer cable guide.
- (F) Fasten the front brake hose with the speedometer cable guide.



ADJUSTMENTS AND PREDELIVERY SERVICE

Perform the predelivery service in the order indicated by the letters. Always follow the order as shown.







A. CHECKING AND CHARGING THE BATTERY

- 1. Charge:
 - The battery must be charged properly before using for the first time. This initial charge will prolong the life of the battery.
- (a) Upper level line
- (b) Lower level line

CAUTION:

Never try to add battery electrolyte to a battery that is installed on a vehicle. Even a skilled mechanic will spill enough acid to damage metal parts. Always remove the battery before filling with electrolyte and during charging. Always completely clean the exterior of the battery before installing.

a. Remove all filler caps from the battery and remove the breather hose cap (1).

NOTE:

Place the battery on a level place.

- b. Cool the electrolyte to below 30 °C (86 °F).
- c. Pour electrolyte into each cell little by little up to the upper level line, and leave it for a while. When the battery fluid permeates the plates and separators, the fluid level begins to lower. Add electrolyte and bring back to upper level line.

NOTE:

Fill the battery with electrolyte (diluted sulfuric acid).

A WARNING

Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic. Always follow these preventive measures:

- Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.
- Wear protective eye gear when handling or working near batteries.

Antidote (EXTERNAL):

- SKIN-Flush with water.
- EYES-Flush with water for 15 minutes and get immediate medical attention.

Antidote (INTERNAL):

 Drink large quantities of water or milk follow with milk of magnesia, beaten egg, or vegetable oil. Get immediate medical attention. Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:

- Charge batteries in a well-ventilated area.
- Keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.).
- DO NOT SMOKE when charging or handling batteries.

KEEP BATTERIES AND ELECTROLYTE OUT OF THE REACH OF CHILDREN.

- d. Connect the battery to a battery charger.
- e. Set the battery charger rate at 1/10 of the battery capacity and charge the battery for 10 hours.

Charging rate	
1.0 A \times 10 hours	
Battery capacity	
12 V, 10 Ah	

- f. Turn the battery charger off, then disconnect it from the battery.
- g. Check the specific gravity of each cell with a hydrometer. If the hydrometer readings are below the specification, charging is necessary.

Specific gravity 1.280 at 20 °C (68 °F)

- Install the filler caps, and thoroughly wipe off the fluid around the filler caps.
 Wipe off the battery completely before installation.
- 2. Install:
- a. The breather hose should be connected and routed properly.

A WARNING

When inspecting the battery, be sure the breather hose is routed correctly. If the battery breather hose touches the frame in such a way as to cause battery electrolyte or gas to exit onto the frame, structural and cosmetic damage to the vehicle can occur.

- b. Make sure that the main switch is turned off, and install the battery in the battery box.
- c. Connect the positive lead first, and then connect the negative lead.

CAUTION:

Make sure that the battery leads are connected correctly. Reversing leads can seriously damage the electrical system.



B. DRAINING THE FUEL

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

A WARNING

- FUEL IS HIGHLY FLAMMABLE:
- Always turn off the engine when draining fuel.
- Take care not to spill any fuel on the engine or exhaust pipe(s)/muffler(s) when draining fuel.
- Never drain fuel while smoking or in the vicinity of an open flame.
- 3. Tighten the drain screw securely.

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- C. MEASURING THE TIRE PRESSURE
- 1. Measure:
- tire pressure
 Out of specification → Adjust.

A WARNING

- The tire pressure should only be checked and regulated when the tire temperature equals the ambient air temperature.
- The tire pressure and the suspension must be adjusted according to the total weight (including cargo, rider, passenger, and accessories) and the anticipated riding speed.
- Operation of an overloaded vehicle could cause tire damage, an accident, or an injury.

NEVER OVERLOAD THE VEHICLE.

Basic weight: With oil and full fuel tank	147.0 kg (324 lb) (U49) 148.0 kg (326 lb) (CAL)		
Maximum load*	196 kg (432 lb 195 kg (430 lb) (U49)) (CAL)	
Cold tire pressure	Front	Rear	
Up to 90 kg load*	175 kPa (1.75 kgf/cm ² , 25 psi)	200 kPa (2.00 kgf/cm ² , 29 psi)	
90 ~ 196 kg (U49) 90 ~ 195 kg (CAL)	200 kPa (2.00 kgf/cm ² , 29 psi)	225 kPa (2.25 kgf/cm ² , 33 psi)	

^{*}Load is the total weight of cargo, rider, passenger, and accessories.





D. CHECKING THE ENGINE OIL LEVEL

- 1. Stand the vehicle on a level surface.
- Place the vehicle on a suitable stand.
- Make sure that the vehicle is upright.
- 2. Check:engine oil level
- The engine oil level should be between the minimum level mark (a) and maximum level mark (b).

Below the minimum level mark \rightarrow Add the recommended engine oil to the proper level.

Recommended engine oil

- At -10 °C (10 °F) or higher Yamalube 4 (10W30) or SAE 10W30 engine oil
- At 5 °C (40 °F) or lower
- Yamalube 4 (20W40) or SAE 20W40 engine oil

Quantity

Without oil filter element replacement 1.40 L (1.23 Imp qt, 1.48 US qt)

CAUTION:

- Engine oil also lubricates the clutch and the wrong oil types or additives could cause clutch slippage. Therefore, do not add any chemical additives.
- Do not allow foreign materials to enter the crankcase.

NOTE:

API Service "SE", "SF" and "SG" type or equivalent (e.g., "SF-SE", "SF-SE-CC", "SF-SE-SD")

- 3. Start the engine, warm it up for several minutes, and then turn it off.
- 4. Check the engine oil level again.

NOTE: _

Before checking the engine oil level, wait a few minutes until the oil has settled.



E. ADJUSTING THE THROTTLE CABLE FREE PLAY

NOTE:

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Prior to adjusting throttle cable free play, the engine idling speed should be adjusted.

- 1. Measure:
- throttle cable free play (a) Out of specification → Adjust.

Throttle cable free play (at the flange of the throttle grip) $3.0 \sim 5.0$ mm (0.12 ~ 0.20 in)

- 2. Adjust:
- a. Loosen the locknut (1).
- b. Turn the adjusting nut (2) in direction(b) or (c) until the specified throttle cable free play is obtained.

Direction (b)	Throttle cable free play is increased.
Direction (c)	Throttle cable free play is decreased.

c. Tighten the locknut.

A WARNING

After adjusting the throttle cable free play, turn the handlebar to the right and to the left to ensure that this does not cause the engine idling speed to change.



F. ADJUSTING THE ENGINE IDLING SPEED

NOTE:

Prior to adjusting the engine idling speed, the air filter should be clean, and the engine should have adequate compression.

- 1. Start the engine and let it warm up for several minutes.
- 2. Attach:
- engine tachometer (to the spark plug lead of cylinder #1)

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G. ADJUSTING THE FRONT BRAKE

- 1. Measure:
- brake lever free play (a)
 Out of specification → Adjust.

Brake lever free play (at the end of the brake lever) $2.0 \sim 5.0 \text{ mm} (0.08 \sim 0.20 \text{ in})$

- 2. Adjust:
- brake lever free play
- a. Loosen the locknut (1).
- b. Turn the adjusting screw (2) in direction(b) or (c) until the specified brake lever free play is obtained.

Direction (b)	Brake lever free play is increased.
Direction (c)	Brake lever free play is decreased.

c. Tighten the locknut.

A WARNING

A soft or spongy feeling in the brake lever can indicate the presence of air in the brake system. Before the vehicle is operated, the air must be removed by bleeding the brake system. Air in the brake system will considerably reduce braking performance and could result in loss of control and possibly an accident. Therefore, check the brake system and bleed if necessary.

CAUTION:

After adjusting the brake lever free play, make sure that there is no brake drag.

3. Measure:

engine idling speed Out of specification \rightarrow Adjust.

Engine idling speed 1,350 ~ 1,450 r/min

- 4. Adjust:
- engine idling speed
- a. Turn the throttle stop screw (1) in direction (a) or (b) until the specified engine idling speed is obtained.

	Direction (a)	Engine idling speed is increased.
ſ	Direction (b)	Engine idling speed is decreased.







H. ADJUSTING THE REAR BRAKE Brake pedal position

- 1. Measure:
- brake pedal position (a) (distance from the top of the rider footrest to the top of the brake pedal) Out of specification → Adjust.

Brake pedal position (above the top of the rider footrest) 60.0 mm (2.36 in)

- 2. Adjust:
- brake pedal position
- a. Loosen the locknut (1).
- b. Turn the adjusting bolt (2) in direction(b) or (c) until the specified brake pedal position is obtained.

Direction (b)	Brake pedal is raised.
Direction (c)	Brake pedal is lowered.

c. Tighten the locknut.

CAUTION:

After adjusting the brake pedal position, make sure that there is no brake drag.

Brake pedal free play

- 1. Measure:
- brake pedal free play (d)
 Out of specification → Adjust.

Brake pedal free play (at the end of the brake pedal) $20.0 \sim 30.0 \text{ mm} (0.79 \sim 1.18 \text{ in})$

2. Adjust:

- brake pedal free play
- a. Turn the adjusting nut (3) in direction
 (e) or (f) until the specified brake pedal free play is obtained.

Direction (e)	Brake pedal free play is increased.
Direction (f)	Brake pedal free play is decreased.

CAUTION:

After adjusting the brake pedal free play, make sure that there is no brake drag.



I. ADJUSTING THE REAR BRAKE LIGHT SWITCH

NOTE:

EAA01062

- The rear brake light switch is operated by the movement of the brake pedal.
- The rear brake light switch is properly adjusted when the brake light comes on just before the braking effect starts.
- 1. Check:
- rear brake light operation timing
- Incorrect \rightarrow Adjust.
- 2. Adjust:
- rear brake light operation timing
- a. Hold the main body (1) of the rear brake light switch so that it does not rotate and turn the adjusting nut (2) in direction (a) or (b) until the rear brake light comes on at the proper time.

Direction (a)	Brake light comes on sooner.
Direction (b)	Brake light comes on later.



J. CHECKING THE BRAKE FLUID LEVEL

1. Stand the vehicle on a level surface. **NOTE:**

- Place the vehicle on a suitable stand.Make sure that the vehicle is upright.
- Make sure that the vehicle is upright
- 2. Check:
- brake fluid level Below the minimum level mark (a) → Add the recommended brake fluid to the proper level.

Recommended brake fluid DOT 4

A WARNING

 Use only designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.

- Refill with the same type of brake fluid that is already in the system.
 Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.
- When refilling, be careful that water does not enter the reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.

CAUTION:

Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any split brake fluid immediately.

NOTE: _

In order to ensure a correct reading of the brake fluid level, make sure that the top of the reservoir is level.



K. BLEEDING THE HYDRAULIC BRAKE SYSTEM

A WARNING

Bleed the hydraulic brake system whenever:

- the system was disassembled,
- a brake hose was loosened or removed,
- the brake fluid level is very low,
- brake operation is faulty.

NOTE:

- Be careful not to spill any brake fluid or allow the brake master cylinder reservoir to overflow.
- When bleeding the hydraulic brake system, make sure that there is always enough brake fluid before applying the brake. Ignoring this precaution could allow air to enter the hydraulic brake system, considerably lengthening the bleeding procedure.
- If bleeding is difficult, it may be necessary to let the brake fluid settle for a few hours. Repeat the bleeding procedure when the tiny bubbles in the hose have disappeared.

- 1. Bleed:
- hydraulic brake system
- a. Add the recommended brake fluid to the proper level.
- b. Install the brake master cylinder reservoir diaphragm.
- c. Connect a clear plastic hose (1) tightly to the bleed screw (2).
- d. Place the other end of the hose into a container.
- e. Slowly squeeze the brake lever several times and release it.
- f. Fully squeeze the brake lever and do not release it.
- g. Loosen the bleed screw. This will release the tension and cause the brake lever to contact the throttle grip.
- h. Tighten the bleed screw and then release the brake lever.
- i. Repeat steps (e) to (h) until all of the air bubbles have disappeared from the brake fluid in the plastic hose.
- j. Tighten the bleed screw to specification.

Bleed screw

6 Nm (0.6 m · kg, 4.3 ft · lb)

k. Fill the reservoir to the proper level. Refer to "CHECKING THE BRAKE FLUID LEVEL".

A WARNING

After bleeding the hydraulic brake system, check the brake operation.



L. ADJUSTING THE CLUTCH CABLE FREE PLAY

- 1. Measure:
- clutch cable free play (a)
 Out of specification → Adjust.

Clutch cable free play (at the end of the
clutch lever)
10.0 ~ 15.0 mm (0.39 ~ 0.59 in)

- 2. Adjust:
- clutch cable free play
- a. Loosen the locknut (1).
- b. Turn the adjusting bolt (2) in direction(b) or (c) until the specified clutch cable free play is obtained.

Direction (b)	Clutch cable free play is increased.
Direction (c)	Clutch cable free play is decreased.

c. Tighten the locknut.



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M. ADJUSTING THE REAR SHOCK ABSORBER ASSEMBLIES

The following procedure applies to both of the rear shock absorber assemblies.

A WARNING

- Securely support the vehicle so that there is no danger of it falling over.
- Always adjust both rear shock absorber assemblies evenly. Uneven adjustment can result in poor handling and loss of stability.

Spring preload

CAUTION:

Never go beyond the maximum or minimum adjustment positions.

- 1. Adjust:
- spring preload
- a. Turn the adjusting ring (1) in direction (a) or (b).
- b. Align the desired position on the adjusting ring with the position indicator (2).

Direction (a)	Spring preload is increased (suspension is harder).
Direction (b)	Spring preload is decreased (suspension is softer).
Adjusting po Standard: 2 Minimum: 1 Maximum:	sitions 2 1 5









N. ADJUSTING THE DRIVE CHAIN SLACK

NOTE:

Measure the drive chain slack halfway between the drive axle and the rear axle.

CAUTION:

A drive chain that is too tight will overload the engine and other vital parts, and one that is too loose can skip and damage the swingarm or cause an accident. Therefore, keep the drive chain slack within the specified limits.

1. Stand the vehicle on a level surface.

A WARNING

Securely support the vehicle so that there is no danger of it falling over.

- 2. Measure:
- drive chain slack (a)
 Out of specification → Adjust.

Drive chain slack

30.0 ~ 40.0 mm (1.18 ~ 1.57 in)

- 3. Adjust:
- drive chain slack
- a. Loosen the brake pedal free play adjusting nut (1).
- b. Remove the cotter pin (2).
- c. Loosen the wheel axle nut (3).
- d. Loosen both locknuts (4).

e. Turn both adjusting nuts (5) in direction
(b) or (c) until the specified drive chain slack is obtained.

Direction (b)	Drive chain is tightened.
Direction (c)	Drive chain is loosened.

NOTE: _

- To maintain the proper wheel alignment (d), adjust both sides evenly.
- Push the rear wheel forward to make sure that there is no clearance between the swingarm end plates and the ends of the swingarm.

f. Tighten the locknuts to specification.

Locknut 16 Nm (1.6 m · kg, 11 ft · lb)

g. Tighten the wheel axle nut to specification.

Wheel axle nut 105 Nm (10.5 m · kg, 75 ft · lb)

h. Insert a new cotter pin (6) into the axle nut, and then bend its ends as shown.

NOTE:

Make sure that two notches in the axle nut are aligned with the hole through the wheel axle, otherwise further tighten the axle nut until they are.

A WARNING

Always use a new cotter pin.



O. ADJUSTING THE HEADLIGHT BEAM

- 1. Adjust:
- headlight beam (vertically)
- a. Turn the adjusting screw (1) in direction(a) or (b).

Direction (a)	Headlight beam is raised.
Direction	Headlight beam is low-
(b)	ered.

- 2. Adjust:
- headlight beam (horizontally)
- a. Turn the adjusting screw (2) in direction(c) or (d).

Direction (c)	Headlight beam moves to the right.
Direction (d)	Headlight beam moves to the left.

APPENDICES

SERVICE DATA

Engine idling speed: Spark plug:	1,350 ~ 1,450 r/min
Type (manufacturer)	C6HSA (NGK) or U20FS-U (DENSO)
Gap	0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
Fuel:	
Recommended fuel	Unleaded gasoline only
Fuel tank capacity	
Total	9.5 L (2.09 Imp gal, 2.51 US gal) (U49)
	9.2 L (2.02 Imp gal, 2.43 US gal) (CAL)
Valve clearance (cold):	
IN	0.08 ~ 0.12 mm (0.003 ~ 0.005 in)
EX	0.10 ~ 0.14 mm (0.004 ~ 0.006 in)
Maximum load*:	196 kg (432 lb) (U49)
	195 kg (430 lb) (CAL)
Tire pressure:	
Up to 90 kg load*	
Front	175 kPa (1.75 kgf/cm², 25 psi)
Rear	200 kPa (2.00 kgf/cm², 29 psi)
90 ~ 196 kg (U49)	
90 ~ 195 kg (CAL)	
Front	200 kPa (2.00 kgf/cm², 29 psi)
Rear	225 kPa (2.25 kgf/cm², 33 psi)
*Load is the total weight of cargo,	
rider, passenger, and accessories.	

EAA10100

STANDARD EQUIPMENT

1. Owner's manual	1 pc.
2. Owner's tool kit	1 pc.
3. Safety handbook	1 pc.

EAA10200 OWNER'S TOOL KIT

1.	Owner's tool bag	1 pc.
2.	Pliers	1 pc.
3.	Wrench (8-10)	1 pc.
4.	Wrench (10-12)	1 pc.
5.	Wrench (14-17)	1 pc.
6.	Wrench handle	1 pc.
7.	Special wrench	1 pc.
8.	Spark plug wrench (16-19)	1 pc.
9.	Screwdriver grip	1 pc.
10	Screwdriver bit (Phillips-slotted)	1 pc.
11	.Screwdriver bit (Phillips)	1 pc.
12	.Hexagon wrench (6)	1 pc.
13	.Hexagon wrench (8)	1 pc.

EAA10300 TIGHTENING TORQUES

Itom	Thread size	Tigl	ntening tor	que
liem	Thread size	Nm	m∙kg	ft ⋅ lb
Engine:				
Spark plug	M10	13	1.3	9.4
Engine oil drain bolt	M35	32	3.2	23
Chassis:				
Upper bracket and steering stem	M14	54	5.4	39
Steering stem and nut	M25	S	ee "NOTE	"
Inner tube and lower bracket	M12	38	3.8	27
Front fork pinch bolt	M8	20	20	14
Front brake master cylinder and bracket	M6	7	0.7	51
Lipper handlebar holder and lower handlebar holder	M8	23	2.3	17
Front turn signal light cable guide and headlight	MO	20	2.0	.,
hracket	M12	23	2.3	17
Front brake base bolder, speedemeter cable quide				
front fender and front fork	M8	16	1.6	11
Front brake base bolder, stopper and lower bracket	Me	7	07	51
Headlight breaket and lower breaket	IVIO	7	0.7	5.1
	IVIO	7	0.7	5.1 5.1
Headiight bracket and headiight assembly (lower side)	IVIO	7	0.7	5.1
Upper bracket and headlight bracket	M6	/	0.7	5.1
Front engine bracket, footrest bracket and frame	M10	40	4.0	29
Rear upper engine bracket and frame	M8	35	3.5	25
Rear lower engine bracket and frame	M8	35	3.5	25
Engine and rear upper engine bracket	M8	35	3.5	25
Engine and rear lower engine bracket	M8	35	3.5	25
Engine and frame	M8	35	3.5	25
Brake pedal	M6	10	1.0	7.2
Main switch and frame	M6	16	1.6	11
Helmet holder and frame	M6	7	0.7	5.1
Clutch cable locknut (engine side)	M8	7	0.7	5.1
Rear fender (front side), reinforcement and frame	M10	59	5.9	43
Rear fender (rear side), reinforcement, bracket and	MIO	50	5.0	10
frame	MITU	59	5.9	43
Rear fender and rear turn signal light bracket	M8	10	1.0	7.2
Rear turn signal light	M12	8	0.8	5.8
Rider seat bracket and reinforcement	M6	7	0.7	5.1
Swingarm pivot shaft and nut	M12	46	4.6	33
Rear shock absorber assembly and swingarm	M8	23	2.3	17
Rear shock absorber assembly and frame	M8	23	2.3	17
Tension bar and swingarm	M8	23	23	17
Tension bar and brake shoe plate	M8	23	23	17
Fuel pump bracket and fuel tank	M6	7	0.7	5 1
Fuel cock and fuel cock bracket	M6	7	0.7	5.1
Fuel tank and fuel cock bracket	Me	7	0.7	5.1
Fuel tank and rule cock blacket	MQ	11	11	9.1 8 0
Decongor cost and reinforcement		20	1.1	1.0
Pallover volve along and frame (California anti-)	IVIO N <i>AE</i>	20	2.0	14 E 1
Front wheel evice		/	0.7	0.1 40
Front wheel axe	IVI I 4	59	5.9	43

Item	Thread size	Tightening torque			
		Nm	m ⋅ kg	ft ⋅ lb	
Rear wheel axle and nut	M14	105	10.5	75	
Front brake caliper and front fork	M10	40	4.0	29	
Front brake pad pin	M10	27	2.7	19	
Front brake disc and wheel hub	M8	23	2.3	17	
Rear wheel sprocket and clutch hub	M10	40	4.0	29	
Rear brake camshaft and camshaft lever	M6	9	0.9	6.5	
Bleed screw	M7	6	0.6	4.3	
Front brake hose union bolt	M10	30	3.0	22	
Drive chain puller locknut	M8	16	1.6	11	
Sidestand bolt and nut	M10	23	2.3	17	
Passenger footrest bracket and frame	M8	30	3.0	22	
Sidestand switch panel and frame	M6	13	1.3	9.4	

NOTE: _____

1. First, tighten the nut to approximately 38 Nm (3.8 m \cdot kg, 27 ft \cdot lb), then loosen the nut completely.

2. Retighten the nut to 20 Nm (2.0 m \cdot kg, 14 ft \cdot lb).

