CHARGING SYSTEM

GENERAL

Magneto

The purpose of the charging system is to keep the battery at a full state of charge.

The magneto is the primary source of electrical energy. It transforms magnetic field into electric current.

717 Engines

The magneto has a three-pole coil. Capacity is 160 watts.

787 RFI and 947 DI Engines

The magneto has a 3 phase, delta wound stator on 18 poles. Capacity is 270 watts.

4-TEC Engines

The magneto has a 3 phase, delta wound stator on 18 poles. Capacity is 380 watts.

Rectifier/Regulator

All Models

The rectifier receives AC current from the magneto and transforms it into direct current (DC).

The regulator, included in the same unit, limits voltage at a maximum level (14.5 to 14.8 volts) to prevent any damage to components.

717 Engines

A half-wave rectifier receives magneto current and transforms it into regulated current to allow battery charging.

787 RFI and 947 DI and 4-TEC Engines

The unit is using a 3 phase in series rectifier/regulator which transforms (AC) from the magneto into (DC) to allow battery charging.

Battery

The battery is the DC source for the electric starter, the Multi-Purpose Electronic Module and all accessories.

Fuse

If the battery is regularly discharged, check fuse condition.

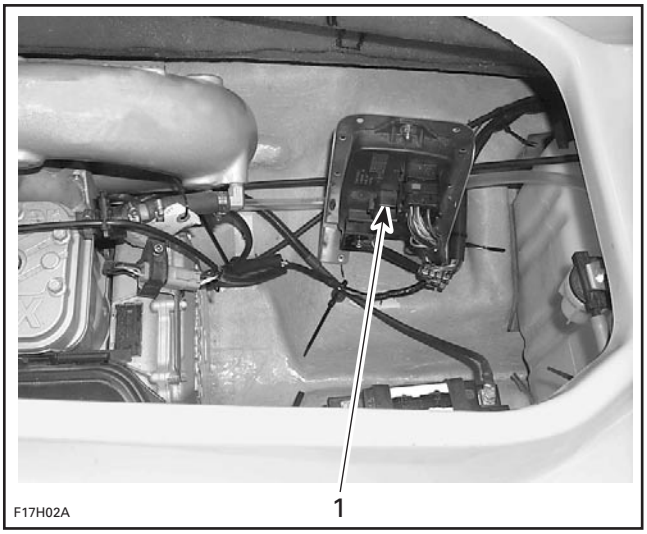
The rectifier/regulator could be the culprit of a blown fuse. To check, simply disconnect the rectifier/regulator from the circuit.

If the fuse still burns, check for a defective wire.

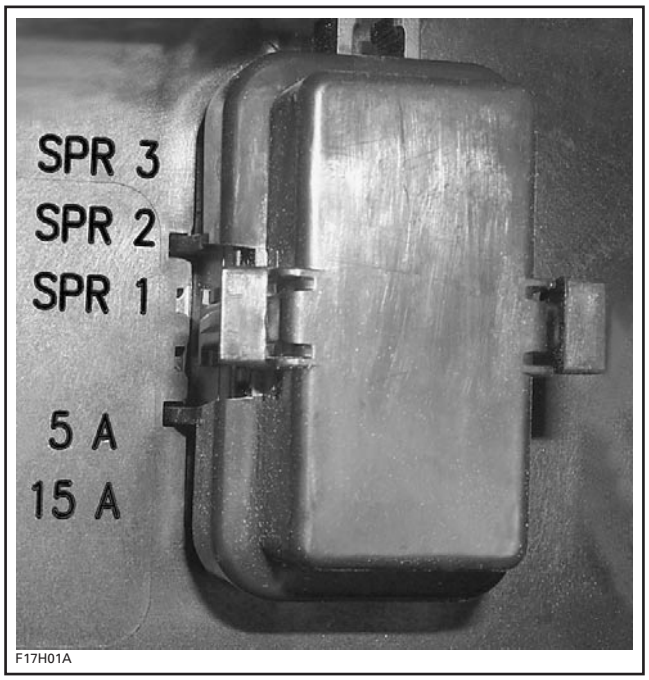
CAUTION: Do not use a higher rated fuse as this cause severe damage.

717 Engines

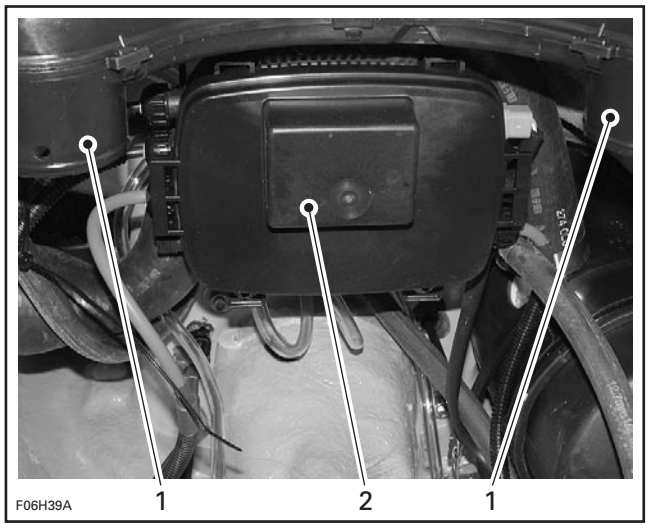
Two 15 A fuses protect the charging system. The first one is mounted on the MPEM and the other one is located in the rear electrical box on the cut-off relay.



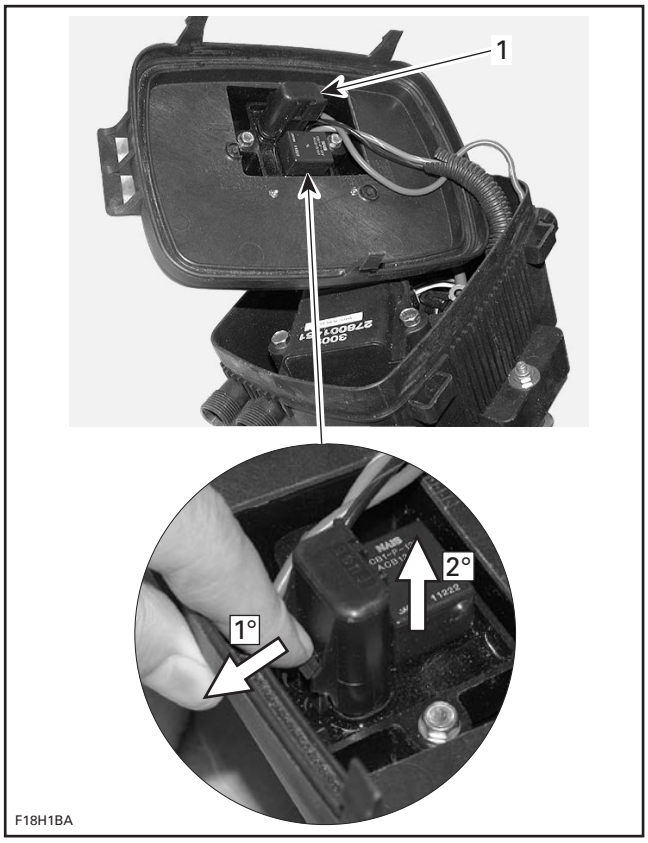
TYPICAL
1. MPEM



FUSE IDENTIFICATION
15 A: Battery



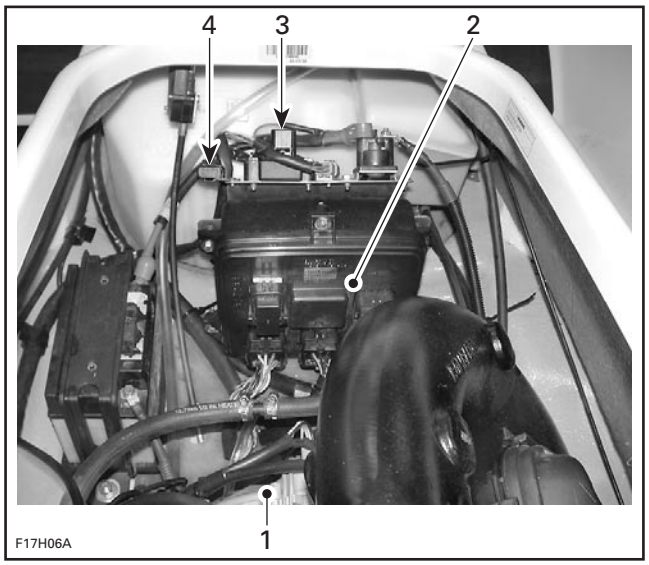
TYPICAL
1. Vent tubes removed
2. Electrical box



TYPICAL
1. Fuse

787 RFI Engines

The main electric system fuse is 20 A and located on the cut off relay. Also another 20 A fuse is mounted on the MPEM bracket to protect the rectifier/regulator.

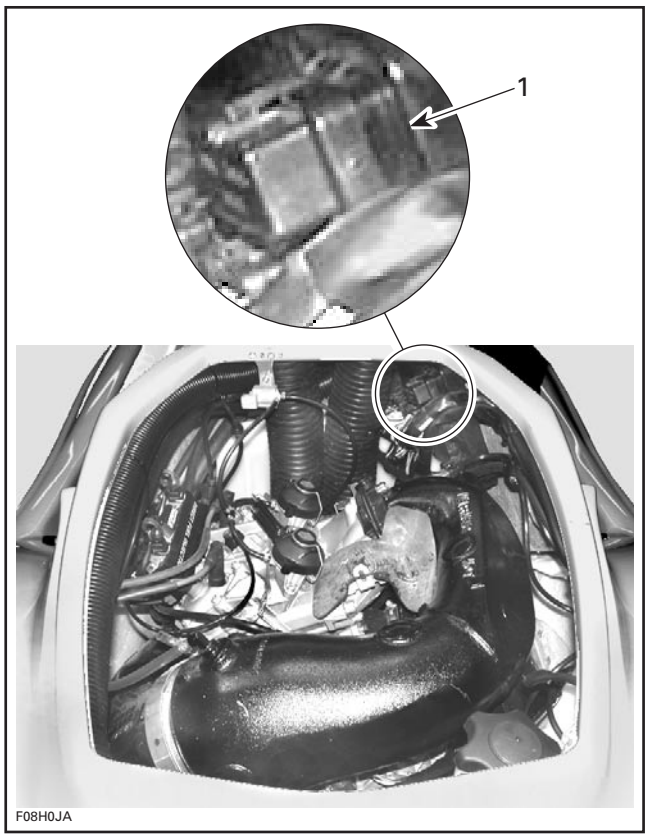


1. *Engine*
2. *MPEM*
3. *Main fuse*
4. *Charging system fuse*

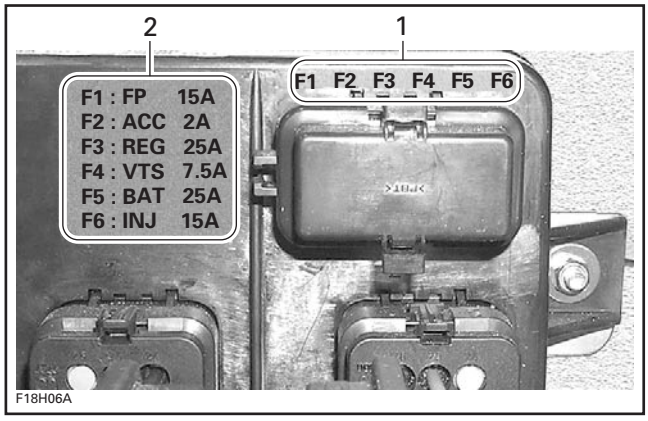
DI Engines

The charging system is protected by 2 fuses.

A 25 A fuse is mounted on the MPEM and a 25 A fuse is located in the rear electrical box on the cut-off relay.

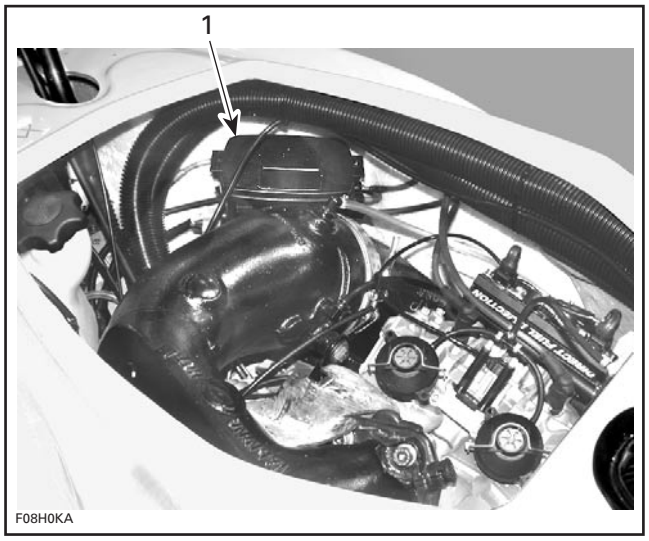


1. *MPEM*

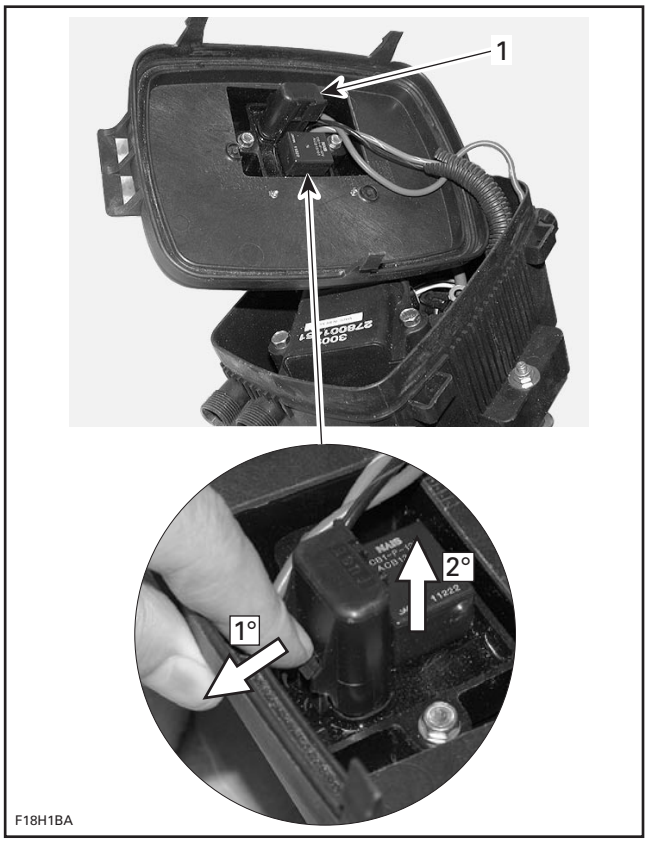


1. *Fuse identification*
2. *Fuse description*

REG: Regulator (charging system)



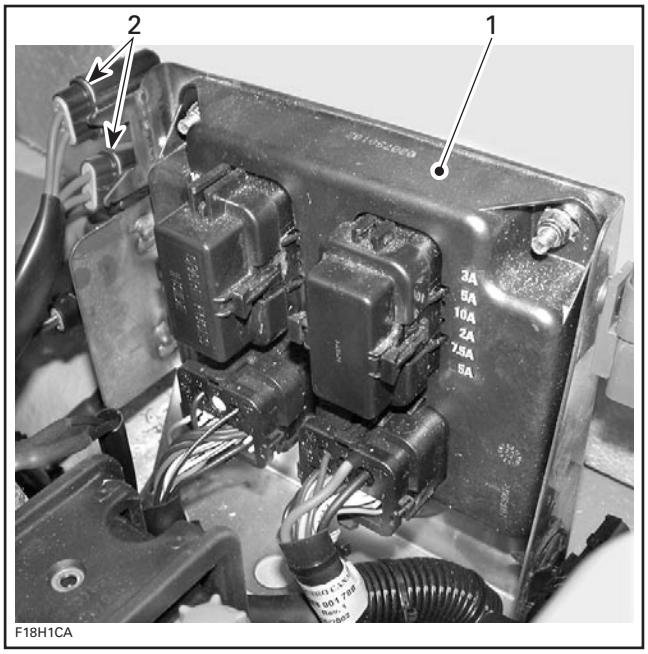
1. Electrical box



TYPICAL
1. Fuse

4-TEC Engines

The charging system is protected by a 30 A fuse.



TYPICAL
1. MPEM
2. Charging system: Fuse connected to the RED/PURPLE wire

TESTING PROCEDURE

NOTE: First, ensure that battery is in good condition prior to performing the following tests.

Rectifier/Regulator

STATIC TEST: CONTINUITY

Due to internal circuitry, there is no static test available.

DYNAMIC TEST

Current Test

717, 947 DI and 4-TEC Engines

Proceed as follows:

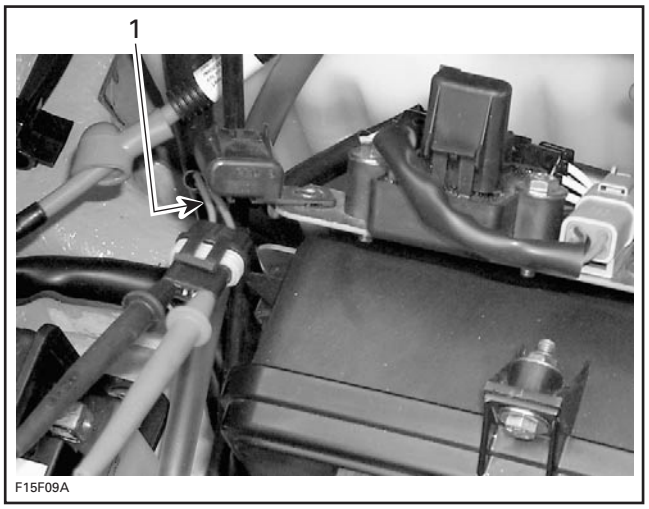
– Start engine.
– Lay an inductive ammeter on positive cable of battery.
– Bring engine to approximately 6000 RPM.

Current reading should be approximately 4 amperes for the 717 engine and 5 amperes for the 947 DI and 4-TEC engines . If not, check magneto output prior to concluding that rectifier is faulty.

787 RFI Engines

Proceed as follows:

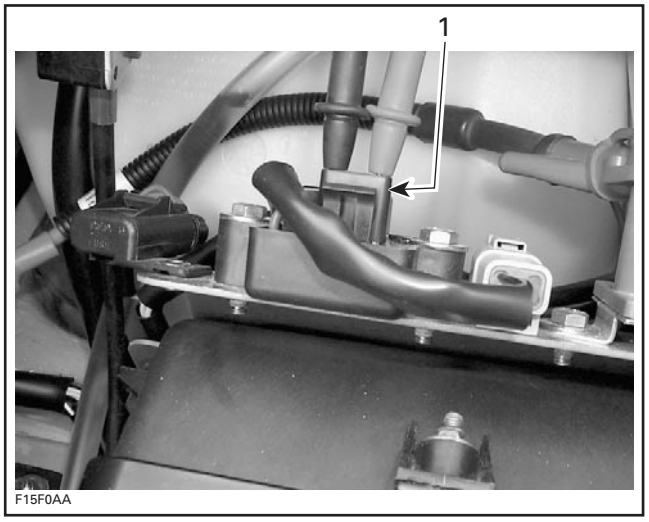
Remove the fuse from the holder with the RED wire coming from the connector:



1. RED wire

– Connect an ammeter across the fuse holder.
– Start engine.
– Bring engine to approximately 6000 RPM.
– Note the reading. This is the current supplied by the regulator.
– Reinstall fuse.

Remove the fuse from the holder with the RED/PURPLE wire coming from the connector:



1. Fuse holder

– Connect an ammeter across the fuse holder.
– Start engine.
– Bring engine to approximately 6000 RPM.
– Note the reading. This is the current actually consumed.
– Reinstall fuse.

Substract the consumed current from the regulator current. This gives the current supplied by the regulator. It should be within 3 - 4 A.

CHARGING CURRENT = CURRENT FROM REGULATOR - CONSUMED CURRENT

If charging current is below specification, check magneto output. If the magneto output is good, try another rectifier/regulator. Recheck charging current. If still out of specification, the fuel pump or the MPEM current draw is too high.

If charging current exceeds specification, replace the rectifier/regulator.

DC Voltage Test

All Models

Proceed as follows:

– Start engine.
– Connect a multimeter to battery posts. Set multimeter to Vdc scale.
– Bring engine to approximately 5500 RPM.

If multimeter reads over 15 volts, regulator is defective. Replace it.

NOTE: If it is continually necessary to add distilled water to the battery, this indicates an over voltage situation, requiring replacement of the rectifier/regulator. If, on the other hand, the battery will not stay charged, the problem can be any of the charging circuit components. If these all check good, you would be accurate in assuming the problem to be in the rectifier/regulator.

717 Engines

If there is no charging at the battery with the preceding voltage test, the following test can also be performed.

Disconnect the connector housing of the rectifier/regulator.

Using an appropriate terminal remover (Snap-on TT600-4), remove the RED and BLACK wires from the tab housing of the rectifier/regulator.

Reconnect the connector housing.

Connect the positive probe of a multimeter to the RED wire and the negative probe to the BLACK wire.

Set multimeter to Vdc scale.

Start and rev engine to 3500 RPM. The obtained value should be between 12 and 25 Vdc.

NOTE: If the rectifier/regulator is within the specification, either the MPEM or wiring harness between the rectifier and battery is defective. If the rectifier/regulator is out of specification and the battery charging coil (or stator) test good, the rectifier/regulator is defective.

Battery Charging Coil

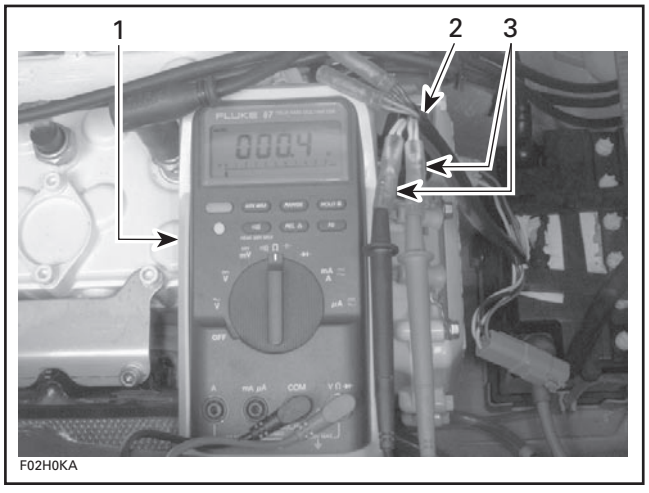
717 Engines

STATIC TEST: CONTINUITY

– Disconnect the magneto wiring harness connector.
– Install the 4-pin magneto harness adapter (P/N 295 000 131) to the magneto wiring harness. Leave wiring harness side disconnected.
– Check resistance between the YELLOW and BLACK/YELLOW wires of the magneto harness adapter. Refer to the following table.

PART NAME	WIRE COLOR	RESISTANCE Ω
Battery charging coil	YELLOW with BLACK/YELLOW	0.05 - 0.6

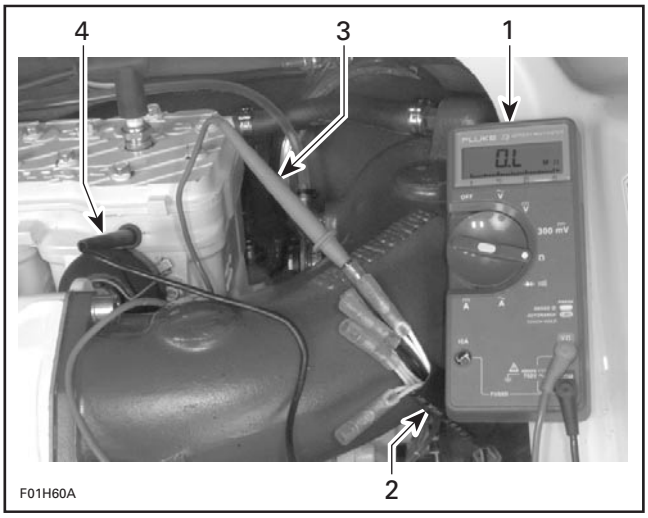
NOTE: A short circuit will read 0 ohm (or close to) on ohmmeter.



1. Multimeter
2. Magneto harness adapter
3. YELLOW and BLACK/YELLOW wires

STATIC TEST: INSULATION

– Disconnect the magneto wiring harness connector.
– Install the 4-pin magneto harness adapter (P/N 295 000 131) to the magneto wiring harness. Leave wiring harness side disconnected.
– Insert multimeter positive (+) probe to the YELLOW wire of the 4-pin magneto harness adapter.
– Ground the multimeter negative (-) probe to the engine or the stator iron core and note the reading.



TYPICAL
1. Multimeter
2. Magneto harness adapter
3. Positive (+) probe to YELLOW wire
4. Negative (-) probe to ground

– Repeat test with the other two YELLOW/BLACK wires of the 4-pin magneto harness adapter.

NOTE: There should be no continuity (infinity) between the stator insulated coils and ground. If there is a reading, the stator coils and/or the wiring from the coils is grounded and needs to be replaced or repaired.

DYNAMIC TEST — AC Voltage

– Disconnect the voltage regulator/rectifier connector.
– Disconnect the magneto wiring harness connector.
– Install the 4-pin magneto harness adapter (P/N 295 000 131) between connectors.

– Connect test probes of the multimeter to the YELLOW and BLACK/YELLOW wires of the 4-pin magneto harness adapter.
– Start and rev engine to 3500 RPM. The obtained value should be between 25 and 40 Vac.
– If the battery charging coil is out of specification, replace it.

Stator

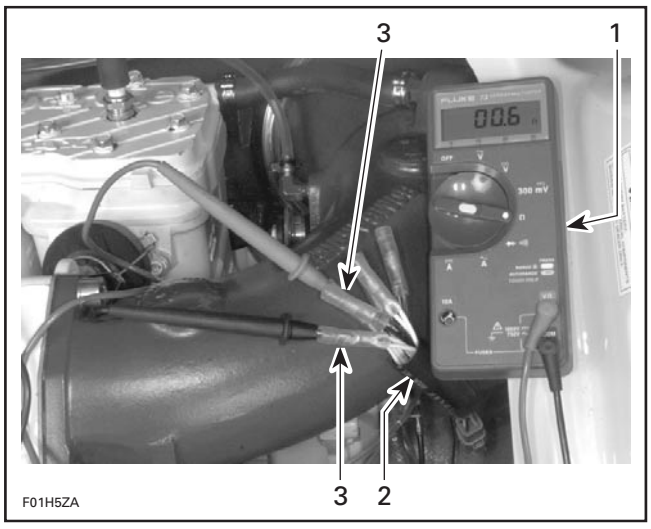
947 DI and 4-TEC Engines

STATIC TEST: CONTINUITY

– Disconnect the magneto wiring harness connector.
– Install the 6-pin magneto harness adapter (P/N 295 000 136).

NOTE: On 4-TEC engines disconnect the stator wiring harness connector and probe the three connectors.

– Check resistance between two of the YELLOW wires. The resistance should be between 0.1 to 1.0 ohm.

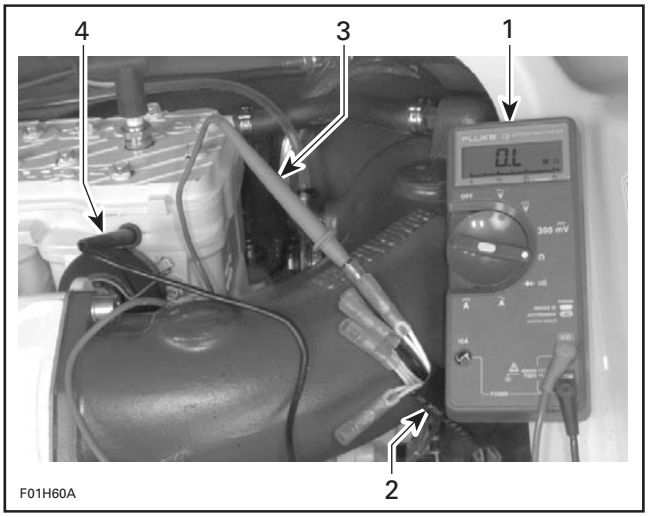


TYPICAL
1. *Multimeter*
2. *Magneto harness adapter*
3. *YELLOW wires*

– Place either meter lead into the remaining YELLOW wire and note the resistance (same as step no. 3). If the readings are out of specification, the stator will need to be replaced.

STATIC TEST: INSULATION

– Disconnect the magneto wiring harness connector.
– Install the 6-pin magneto harness adapter (P/N 295 000 136) to the magneto wiring harness. Leave wiring harness side disconnected.
– Insert multimeter positive (+) probe to one of the YELLOW wire of the 6-pin magneto harness adapter.
– Ground the multimeter negative (-) probe to the engine or the stator iron core and note the reading.



TYPICAL
1. *Multimeter*
2. *Magneto harness adapter*
3. *Positive (+) probe to YELLOW wire*
4. *Negative (-) probe to ground*

– Repeat test with the other two YELLOW wires of the 6-pin magneto harness adapter.

NOTE: There should be no continuity (infinity) between the stator insulated coils and ground. If there is a reading, the stator coils and/or the wiring from the coils is grounded and needs to be replaced or repaired.

DYNAMIC TEST — AC Voltage

– Disconnect the voltage regulator/rectifier connectors.
– Disconnect the magneto wiring harness connector.
– Install the 6-pin magneto harness adapter (P/N 295 000 136) between connectors.

NOTE: On 4-TEC engines disconnect the stator wiring harness connector and probe the three connectors.

– Connect test probes of the multimeter to two of the YELLOW wires of the 6-pin magneto harness adapter.

– Set multimeter to Vac scale.
– Start and rev engine to 3500 RPM. The obtained value should be between 45 and 70 Vac, and 25 Vac on 4-TEC engines.
– If the stator is out of specification, replace it.

Stator

787 RFI Engines

STATIC TEST: CONTINUITY

– Disconnect the magneto wiring harness connector.
– Install the 4-pin magneto harness adapter (P/N 295 000 131).
– Check resistance between the BLACK/YELLOW and the BLACK wires of the 4-pin magneto harness adapter. The resistance should be between 0.1 to 1.0 ohm.
– Place either meter lead into the RED/BLACK wire and note the resistance (same as step no. 3). If the readings are out of specification, the stator will need to be replaced.

STATIC TEST: INSULATION

– Disconnect the magneto wiring harness connector.
– Install the 4-pin magneto harness adapter (P/N 295 000 131) to the magneto wiring harness. Leave wiring harness side disconnected.
– Insert multimeter positive (+) probe to the BLACK/YELLOW wire of the 4-pin magneto harness adapter.
– Ground the multimeter negative (-) probe to the engine or the stator iron core and note the reading.
– Repeat test with the other BLACK and RED/BLACK wires of the 4-pin magneto harness adapter.

NOTE: There should be no continuity (infinity) between the stator insulated coils and ground. If there is a reading, the stator coils and/or the wiring from the coils is grounded and needs to be replaced or repaired.

DYNAMIC TEST — AC Voltage

– Disconnect the voltage regulator/rectifier connectors.
– Disconnect the magneto wiring harness connector.
– Install the 4-pin magneto harness adapter (P/N 295 000 131) between connectors.
– Connect test probes of the multimeter to the BLACK/YELLOW and RED/BLACK wires of the 4-pin magneto harness adapter.
– Set multimeter to Vac scale.
– Start and rev engine to 3500 RPM. The obtained value should be between 45 and 70 Vac.
– Repeat test with the BLACK wire and either the RED/BLACK or BLACK/YELLOW wires of the 4-pin magneto harness adapter.
– If the stator is out of specification, replace it.

BATTERY

Troubleshooting

SYMPTOM: DISCHARGED OR WEAK BATTERY	
CAUSE	REMEDY
Battery posts and/or cable terminal oxidized.	Clean and coat with dielectric grease.
Loose or bad connections.	Check wiring and connector cleanliness, damaged or short circuit.
Faulty battery (sulfated, doesn't keep a full charge, damaged casing, loose post).	Replace.
Burnt fuse(s) or faulty rectifier.	First check fuse(s). If it is in good condition, check rectifier/regulator.
Faulty battery charging coil (or stator).	Replace.

Removal

⚠ WARNING

Battery BLACK negative cable must always be disconnected first and connected last. Never charge or boost battery while installed in watercraft.

All Models except GTI Series

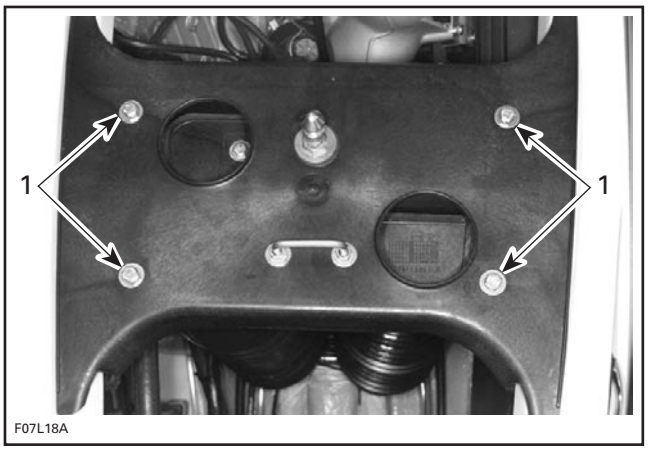
Proceed as follows:

– Disconnect the BLACK negative cable first.
– Disconnect the RED positive cable last.
– Remove the vent line from the battery.
– Remove the holding strap(s).

– Withdraw battery from watercraft being careful not lean it so that electrolyte flows out of vent elbow.

GTI Series

Remove M6 bolts retaining seat support and remove upper section from watercraft.



1. Remove bolts

Pull lower section with vent tubes toward the front of the watercraft.

Disconnect battery cables and vent tube from battery.

Remove battery straps.

Release battery from support and move it toward the front of the watercraft.

Pull battery from under resonator and remove battery from watercraft.

All Models

⚠ WARNING

Electrolyte is poisonous and dangerous. Avoid contact with eyes, skin and clothing. Wear a suitable pair of non-absorbent gloves when removing the battery by hand.

CAUTION: Should any electrolyte spillage occur, immediately wash off with a solution of baking soda and water.

Cleaning

Clean the battery casing, caps, cables and battery posts using a solution of baking soda and water.

CAUTION: Do not allow cleaning solution to enter battery.

Remove corrosion from battery cable terminals and battery posts using a firm wire brush. Rinse with clear water and dry well.

Inspection

Visually inspect battery casing for cracks or other possible damage. If casing is damaged, replace battery and thoroughly clean battery tray and close area with water and baking soda.

Inspect battery posts for security of mounting.

Inspect for cracked or damaged battery caps, replace defective caps.

4-TEC Models

NOTE: Hand tighten caps then tighten an additional 1/4 turn using a 20 mm (3/4 in) socket. Using other tool could damage the plastic battery caps.

⚠ WARNING

Battery electrolyte is caustic. To prevent spillage, battery cell cap should be sufficiently tight to properly seal.

All Models

⚠ WARNING

Battery caps do not have vent holes. Make sure that vent line is not obstructed.

Electrolyte Level

Check electrolyte level in each cell, add distilled water up to upper level line.

CAUTION: Add only distilled water in an activated battery.

Battery Testing

There are 2 types of battery tests: electrolyte reading and load test. An electrolyte reading is made on a battery without discharging current. It is the simplest and commonly used. A load test gives more accuracy of the battery condition.

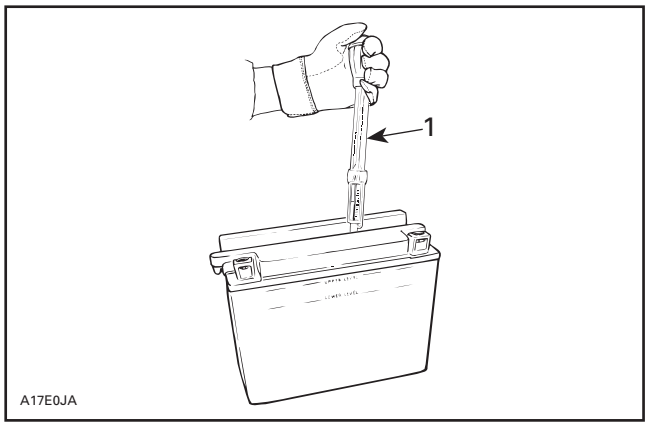
Electrolyte Reading

Check charge condition using either a hydrometer or multimeter.

With a multimeter, voltage readings appear instantly to show the state of charge. Always respect polarity. A fully charge battery will have a reading of 12.6 Vdc.

A hydrometer measures the charge of a battery in terms of specific gravity of the electrolyte. A fully charge battery will have a specific gravity between 1.265 to 1.280.

Most hydrometers give a true reading at 21°C (70°F).



1. Specific gravity 1.265

In order to obtain correct readings, adjust the initial reading by adding .004 points to the hydrometer readings for each 5.5°C (10°F) above 21°C (70°F) and by subtracting .004 point for every 5.5°C (10°F) below 21°C (70°F).

This chart will be useful to find the correct reading.

ELECTROLYTE TEMPERATURE		OPERATION TO PERFORM	
°C	°F		
38	100	.012	Add to the reading
32	90	.008	
27	80	.004	
21	**70**	CORRECT READING	
16	60	.004	Subtract from the reading
10	50	.008	
4	40	.012	
- 1	30	.016	

EXAMPLE NO. 1

TEMPERATURE ABOVE 21°C (70°F):
Hydrometer reading: 1.250
Electrolyte temperature: - 1°C (30°F)
Subtract .016 Sp. Gr.
Corrected Sp. Gr. is 1.234

EXAMPLE NO. 2

TEMPERATURE ABOVE 21°C (70°F):
Hydrometer reading: 1.235
Electrolyte temperature: 38°C (100°F)
Add .012 Sp. Gr.
Corrected Sp. Gr. is 1.247

SPECIFIC GRAVITY READING USING A HYDROMETER		
STATE OF CHARGE	ELECTROLYTE TEMPERATURE	
	27°C (80°F)	4°C (40°F)
100%	1.26/1.27	1.27/1.28
75%	1.21/1.22	1.22/1.23
50%	1.16/1.17	1.17/1.18
25%	1.12/1.13	1.13/1.14
0%	1.10 or less	1.11 or less

Load Test

This is the best test of battery condition under a starting load. Use a load testing device that has an adjustable load.

Apply a load of 3 times the ampere-hour rating of the battery. At 14 seconds into the test, check battery voltage; if battery is in good condition, it will have at least 10.5 Vdc.

Battery Storage

CAUTION: Battery storage is critical for battery life. Regularly charging the battery during storage will prevent cell sulfation. Keeping the battery in vehicle for storage may lead to contacts degradation/corrosion and case damage if freezing occurs. A discharged battery will freeze and break in area where freezing point is experienced. Electrolyte leakage will damage surrounding parts. Always remove battery from vehicle for storage and regularly charge to keep an optimal condition.

Disconnect and remove battery from watercraft as explained in REMOVAL.

Check electrolyte level in each cell, add distilled water up to upper level line.

CAUTION: Do not overfill.

The battery must always be stored in fully charged condition. If required, charge until specific gravity of 1.265 is obtained.

CAUTION: Battery electrolyte temperature must not exceed 50°C (122°F). The casing should not feel hot.

Clean battery terminals and cable connections using a wire brush. Apply a light coat of dielectric grease on terminals.

Clean battery casing and caps using a solution of baking soda and water.

CAUTION: Do not allow cleaning solution to enter battery.

Rinse battery with clear water and dry well using a clean cloth.

Store battery in a cool dry place. Such conditions reduce self-discharging and keep fluid evaporation to a minimum. Keep battery away from dew, high moisture and direct sunlight.

During the storage period, recheck electrolyte level and specific gravity readings at least every month. If necessary, keep the battery at its upper level line and near full charge as possible (trickle charge).

Activation of a New Battery

⚠ WARNING

Never charge or boost battery while installed in watercraft.

A new battery is factory fresh dry charged. For storage purposes, it is fitted with a temporary sealing tube.

CAUTION: Do not remove the sealing tube or loosen battery caps unless activation is desired.

NOTE: In case of accidental premature removal of caps or sealing tube, battery should be given a full charge.

Perform the following operations anytime a new battery is to be installed.

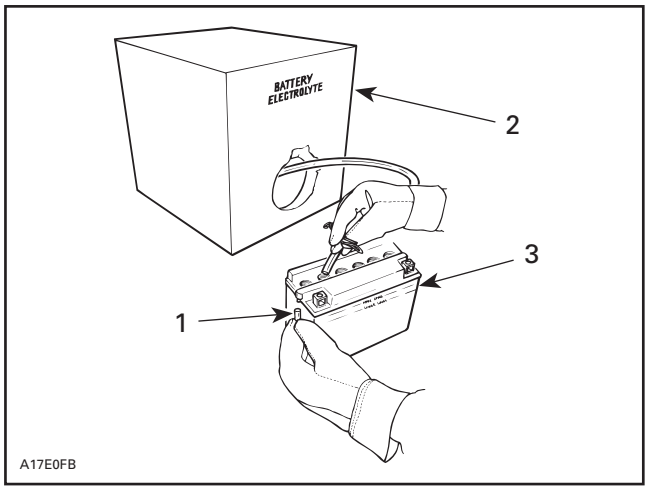
– Remove the sealing tube from the vent elbow.

⚠ WARNING

Failure to remove the sealing tube could result in an explosion.

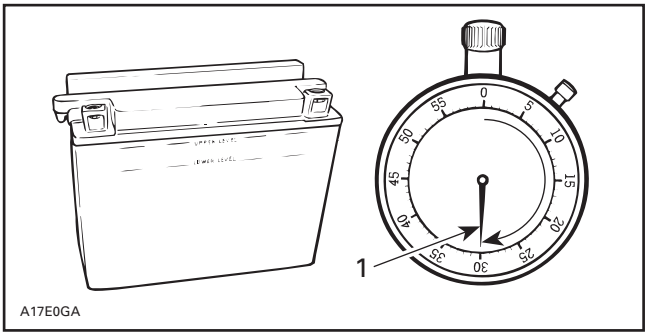
– Remove caps and fill battery to UPPER LEVEL line with electrolyte (specific gravity: 1.265 at 21°C (70°F)).

NOTE: This battery may fill slower than others due to the anti-spill check ball design.



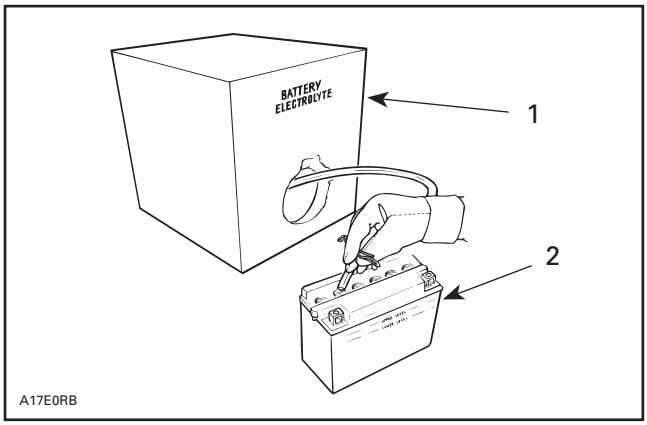
1. Sealing tube removed
2. Battery electrolyte
3. Upper level line

– Allow the battery to stand for 30 minutes MINIMUM so that electrolyte soak through battery cells.



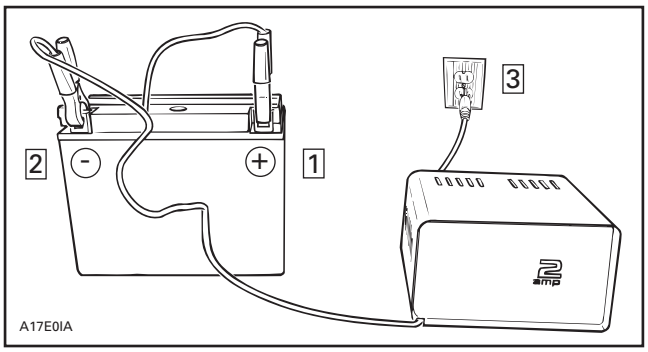
1. 30 minutes

– Readjust the electrolyte level to the UPPER LEVEL line.



1. Battery electrolyte
2. Upper level line

– Connect a 2 A battery charger for 3 to 5 hours.



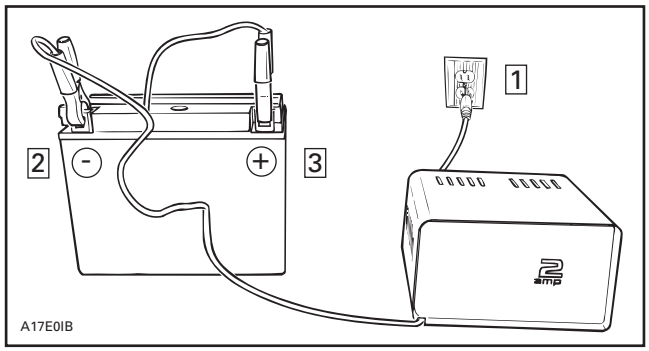
Step 1: Connect + lead to battery + post
Step 2: Connect - lead to battery - post
Step 3: Plug battery charger

⚠ WARNING

Gases given off by a battery being charged are highly explosive. Always charge in a well ventilated area. Keep battery away from cigarettes or open flames. Always turn battery charger off prior to disconnecting cables. Otherwise a spark will occur and battery might explode.

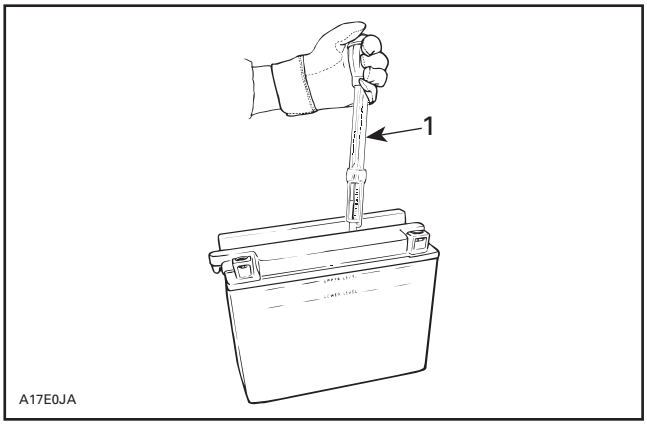
CAUTION: If charging rate raises higher than 2.4 A reduce it immediately. If cell temperature rises higher than 50°C (122°F) or if the casing feels hot, discontinue charging temporarily or reduce the charging rate.

– Disconnect battery charger.



Step 1: Unplug battery charger
Step 2: Disconnect - lead
Step 3: Disconnect + lead

– Test battery state of charge. Use a hydrometer.



1. Specific gravity 1.265

– If electrolyte level has dropped after charging, fill with distilled water to UPPER LEVEL line. After water is added, continue charging for 1 to 2 hours to mix water with electrolyte.
– Reinstall caps and clean any electrolyte spillage using a solution of baking soda and water.

4-TEC Models

NOTE: Hand tighten caps then tighten an additional 1/4 turn using a 20 mm (3/4 in) socket. Using other tool could damage the plastic battery caps.

⚠ WARNING

Battery electrolyte is caustic. To prevent spillage, battery cell cap should be sufficiently tight to properly seal.

All Models

Charging a Used Battery

⚠ WARNING

Never charge battery while installed in watercraft.

For best results, battery should be charged when the electrolyte and the plates are at room temperature. A battery that is cold may not accept current for several hours after charging begun.

Do not charge a frozen battery. If the battery charge is very low, the battery may freeze. If it is suspected to be frozen, keep it in a heated area for about 2 hours before charging.

⚠ WARNING

Always charge battery in a well ventilated area.

The time required to charge a battery will vary depending on some factors such as:

– Battery temperature: The charging time is increased as the temperature goes down. The current accepted by a cold battery will remain low. As the battery warms up, it will accept a higher rate of charge.
– State of charge: Because the electrolyte is nearly pure water in a completely discharged battery, it cannot accept current as well as electrolyte. This is the reason the battery will not accept current when the charging cycle first begins. As the battery remains on the charger, the current from the charger causes the electrolytic acid content to rise which makes the electrolyte a better conductor and then, the battery will accept a higher charging rate.
– Type of charger: Battery chargers vary in the amount of voltage and current that they can supply. Therefore, the time required for the battery to begin accepting measurable current will also vary.

Charging a Very Flat or Completely Discharged Battery

The battery charger should have an adjustable charging rate. Variable adjustment is preferred, but a unit which can be adjusted in small increments is acceptable.

The battery charger must be equipped with an ammeter capable of accurately measuring current of less than 1 ampere.

Unless this procedure is properly followed, a good battery may be needlessly replaced.

– Measure the voltage at the battery posts with an accurate voltmeter. If it is below 10 volts, the battery will accept current at very low rate, in term of milliamperes, because electrolyte is nearly pure water as explained above. It could be some time before the charging rate increases. Such low current flow may not be detectable on some charger ammeters and the battery will seem not to accept any charge.
– Exceptionally for this particular case, set the charger to a high rate.

NOTE: Some chargers have a polarity protection feature which prevents charging unless the charger leads are connected to the correct battery terminals. A completely discharged battery may not have enough voltage to activate this circuitry, even though the leads are connected properly. This will make it appear that the battery will not accept a charge. Follow the charger manufacturer's instruction on how to bypass or override this circuitry so that the charger will turn on and charge a low-voltage battery.

– Since the battery chargers vary in the amount of voltage and current they provide, the time required for the battery to accept measurable charger current might be up to approximately 10 hours or more.
– If the charging current is not up to a measurable amount at the end of about 10 hours, the battery should be replaced.
– If the charging current is measurable before the end or at the end of about 10 hours, the battery is good and charging should be completed in the normal manner as specified in ACTIVATION OF A NEW BATTERY.
– It is recommended that any battery recharged by this procedure be load tested prior to returning it to service.

Battery Installation

⚠ WARNING

Always connect battery cables exactly in the specified order, RED positive cable first BLACK negative cable last.

Proceed as follows:

– Install battery in its emplacement.
– Secure vent line to the battery and support. Ensure vent line is not kinked or obstructed.

⚠ WARNING

Vent line must be free and open. Avoid skin contact with electrolyte.

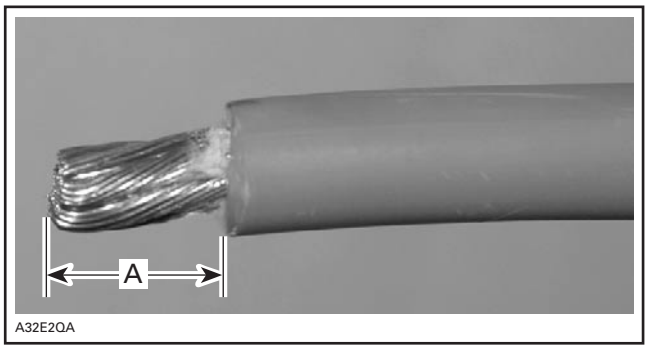
– First connect RED positive cable.
– Connect BLACK negative cable last.
– Apply dielectric grease on battery posts.
– Verify cable routing and attachment.

GTI Series

Reinstall seat support.

CABLE TERMINAL INSTALLATION

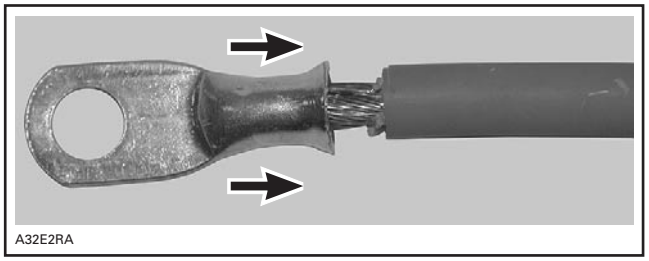
Carefully strip the wire approximately to 10 mm (3/8 in) in length, using a wire stripping tool or sharp blade/knife.



A. 10 mm (3/8 in)

NOTE: Make sure not to cut wire strands while stripping the wire.

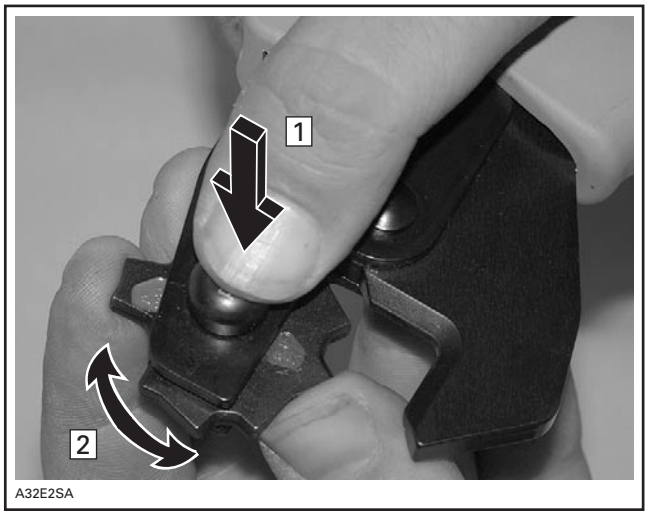
Install the appropriate terminal on the wire according to the requirement. Refer to appropriate parts catalog.



INSTALLATION OF TERMINAL

Follow the instructions provided with the crimp plier (P/N 529 035 730) to select the proper position of the tool.

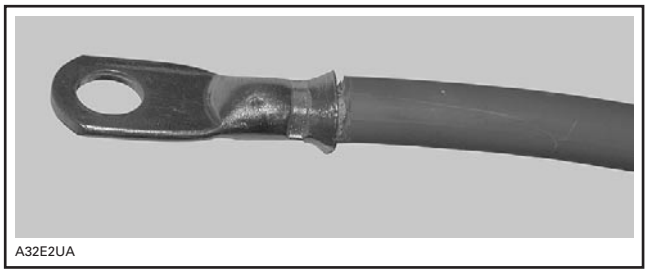
NOTE: Different wires require different crimp plier settings, so make sure to follow the instruction supplied with the tool.



POSITIONING THE CRIMP PLIER
Step 1: Press
Step 2: Rotate

After positioning the crimp plier, crimp the terminal already installed on wire.

CRIMPING OF WIRE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PROPERLY CRIMPED WIRE

To verify, if the wire is properly crimped, apply some pulling force on wire and the terminal at the same time from both directions.

CAUTION: Never weld the wire to the terminal. Welding can change the property of the wire and it can become brittle and break.

Install the protective heat shrink rubber tube (P/N 278 001 692) on the terminal. Heat the heat shrink rubber tube using the heat gun so that it grasps the wire and the terminal.

CAUTION: Make sure that the protective heat shrink rubber tube has been properly installed and no part of wire is exposed.