Owner's Manual

3-Phase Charging System for "EVO"
P/N ASM2005

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MANUAL P/N EI2005
Revision 2/4/05

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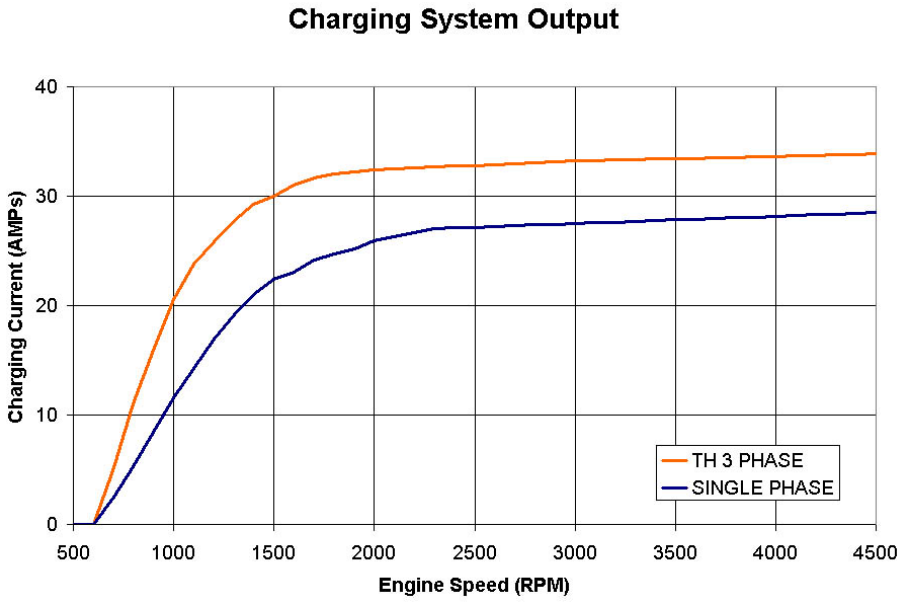
CHAPTER 1 INTRODUCTION

1.1 General Information

38 AMP 3-phase charging offers more current delivery over traditional 2-phase systems to feed power-hungry accessories like today's sophisticated EFI systems and other electrical accessories. Using a highly-efficient "series" regulator, the ASM2005 fits all EVO-style motors.



1.2 Special Tools Required

Most of the installation of the 3-Phase Charging System can be completed with basic hand tools. However, a few special tools make the job much easier:

- in-lb torque wrench
- 5/32" Allen driver
- Contact cleaner, alcohol, or glass cleaner
- General-purpose wire stripper and terminal crimper
- Heat gun
- Multi-meter or Test Light

CHAPTER 2 SYSTEM INSTALLATION

2.1 Factory Stator and Rotor Removal

1. Disconnect the negative battery cable

2. Using your motorcycle's specific repair manual instructions, remove the primary cover, primary drive, and clutch.

3. Using your motorcycle's specific repair manual instructions, remove the rotor and stator.

2.2 3-Phase Stator and Rotor Installation

1. Insert the wires and grommet through the hole in the case. Support the stator during this step.

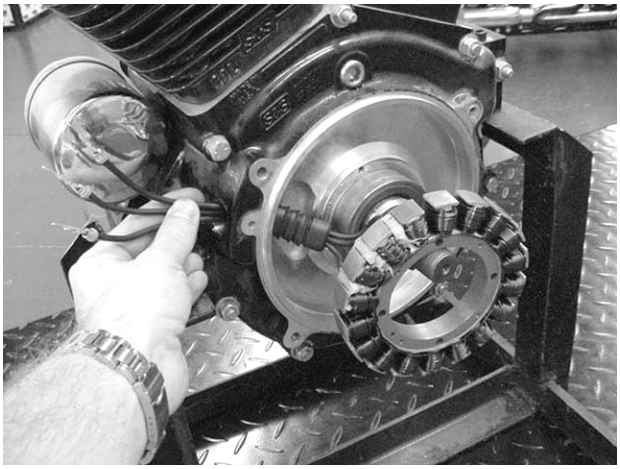


Figure 1—Routing wires through grommet hole

Tip: You may find it convenient to rest the stator on the sprocket shaft while you route the wires and install the grommet through the case hole.

WARNING! DO NOT ALLOW THE STATOR TO HANG FROM THE OUTPUT WIRES. DOING SO MAY RESULT IN DAMAGE TO THE WIRES AND/OR STATOR.

Tip: Use castor oil applied to the rubber grommet to provide lubrication when installing the grommet in the case. Castor oil is available from any pharmacy, and works the best of any lubricant we have tried.

WARNING! DO NOT USE THE WIRES TO PULL THE GROMMET THROUGH THE CASE HOLE. DOING SO MAY RESULT IN DAMAGE TO THE WIRES, OR THE WIRES SLIDING THROUGH THE GROMMET.

2. PUSH the grommet through the hole until the first barb is exposed on the outside of the case.

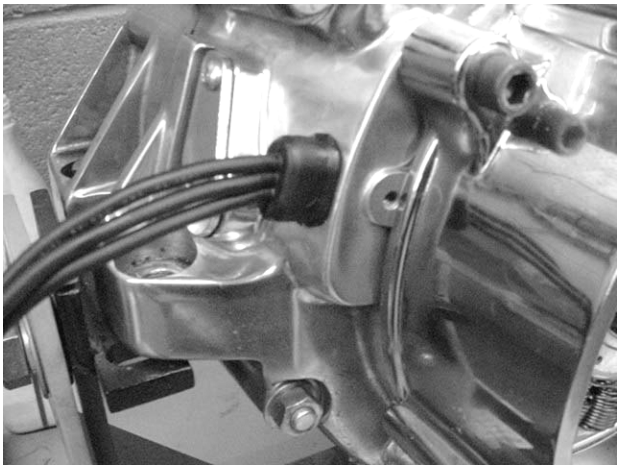


Figure 2—Grommet installed in case; first barb exposed on outside

3. Insert the terminals into the connector housing (supplied) until you hear a "click." The specific location of the wires in the connector housing does not matter.

Figure 3—Install stator terminals into connector housing

4. Locate the stator on the case and align the bolt holes. Fasten in place with the (supplied) 10-24 X 1.00" socket head cap screws. Tighten to 55-75 in-lbs (6.2-8.5 Nm).

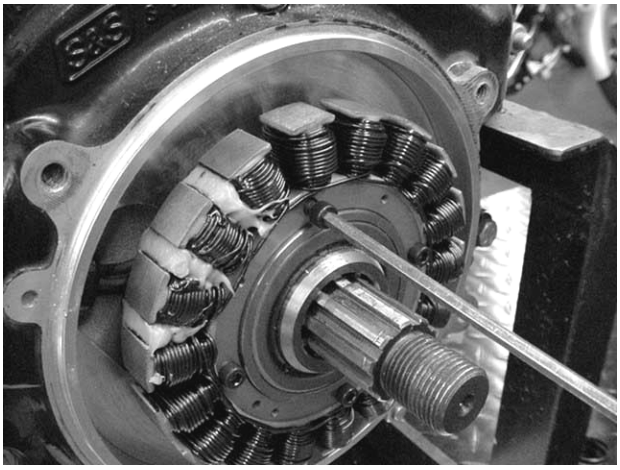


Figure 3—Install stator bolts and tighten to 55-75 in-lbs (6.2-8.5 Nm).

5. If equipped, install the grommet retaining set screw. **Do not over-tighten!**

WARNING **A GROMMET SET SCREW THAT IS TOO LONG OR OVER-TIGHTENED MAY PIERCE THROUGH THE GROMMET AND WIRES, SHORTING THE STATOR TO GROUND.**

6. Test the stator leads for shorts to ground. **See "Troubleshooting, Stator Failure Test: Shorted to Ground."**

7. Install the rotor spacer on the sprocket shaft (supplied).

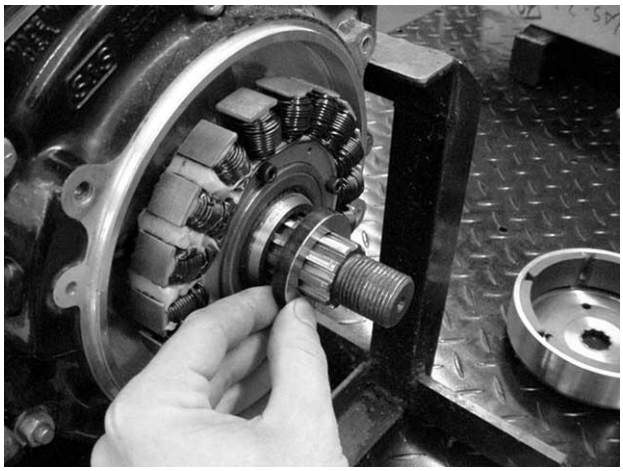


Figure 4—Install rotor spacer over sprocket shaft

8. Install the rotor on the sprocket shaft. Make sure the rotor is fully seated against the rotor spacer on the sprocket shaft.

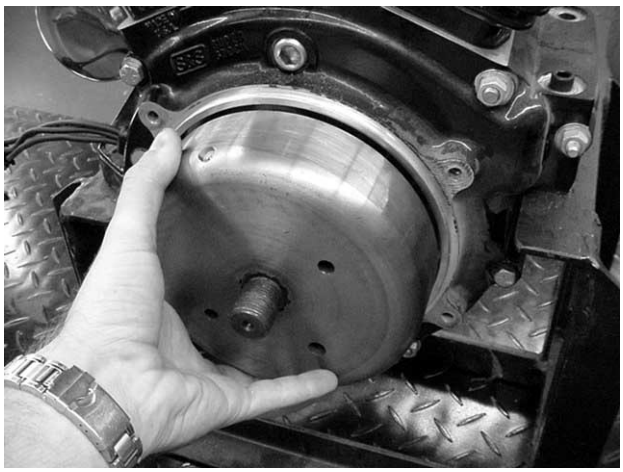


Figure 5—Install rotor onto sprocket shaft and seat against rotor spacer

9. Install the compensator extension shaft on the sprocket shaft

10. Using your motorcycle's specific repair manual instructions, check for proper chain alignment. Use OEM-specified shims to bring chain alignment into specification if required.

11. Using your motorcycle's specific repair manual instructions, install the primary drive and clutch. Assure that all driveline components line up correctly.

12. Apply Loctite Threadlocker #262 ("red") to the threads of the sprocket nut (also supplied with compensator shaft extension kit). Tighten sprocket nut to 150-165 ft-lbs (203.4-223.7 Nm).

13. Using your motorcycle's specific repair manual instructions, install the primary cover.

14. Connect the negative battery cable.

2.3 Factory Regulator Removal

1. Disconnect the negative battery cable.

2. Using your motorcycle's specific repair manual instructions, remove the regulator. Save the factory-supplied hardware.

2.4 3-Phase Regulator Installation

1. Connect the 3-pin stator connector to the regulator.

2. Using the factory-supplied hardware, locate the 3-phase regulator on the mounting bracket and install using the factory-supplied hardware. Tighten to 50-80 in-lbs.

3. Attach the ground wire between the bracket mounting bolt and the bracket. Tighten to 70-100 in-lbs.

4. Trial-fit the long power wire to the motorcycle, and route to the original location of the factory regulator wire on the circuit breaker.

5. Trim any excess wire, and strip 5/16” of insulation from the end of the wire using a wire stripper.

6. Slip the 1” length of heat shrink (supplied) onto the wire.

7. Crimp on the (supplied) ring lug to the end of the wire, taking care that a good crimp connection is made.

Note: A poor crimp connection may not allow your 3-phase charging system to function properly.

Figure 6—Suitable crimp connection

8. Slide the heat shrink tubing over the crimp to insulate the connection. Use a heat gun to shrink the heat shrink tubing.

9. Attach the regulator power wire to the circuit breaker.

10. Use nylon cable ties or other appropriate means of securing all wires to prevent damage from vibration.

11. Enjoy your newfound charging power!

APPENDIX A TROUBLESHOOTING

A.1 Testing Overall Charging System Performance

1. With the engine running, use a multi-meter to measure the voltage across the battery terminals. **Under maximum load (fully drained battery, lights on, etc.), voltage should be between 14.3 to 14.7 volts DC.**

A.2 Testing Stator Output

1. Disconnect the stator from the regulator

2. Bring engine speed up to 1,000 RPM.

3. Use a multi-meter to measure the *AC voltage* between *any and all combinations* of the stator output terminals. **Output should be around 16v AC at 1,000 RPM, and increase with engine speed (Figures 2 and 3).**

Figure 7—Measure the AC voltage between each stator output terminal.

Figure 8—Voltage between any terminal combination should be around 16v AC at 1,000 RPM.

A.3 Stator Failure Test: Shorted to Ground

1. Disconnect the stator from the regulator.

2. Use a multi-meter to test for continuity between *any* of the stator outputs to ground. **There should *NOT* be continuity between any of the stator outputs to ground (Figures 10-12).**

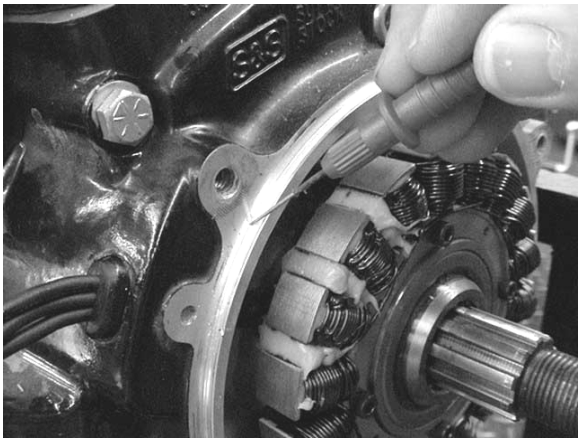


Figure 9—Connect one test lead to ground (if accessible, touch the lead to the stator directly)

Figure 10—Connect the other lead to each of the stator terminals

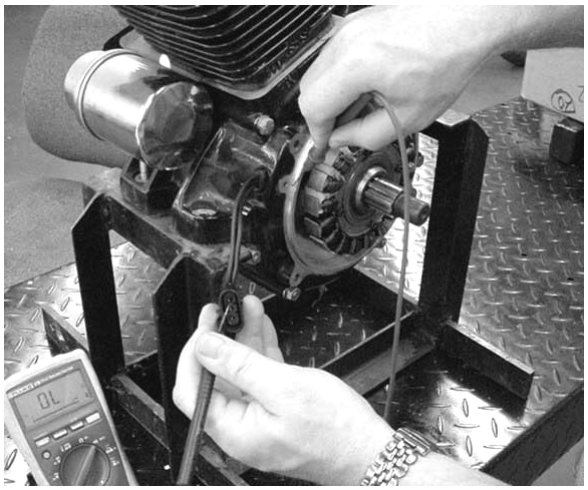


Figure 11—Check for a short to ground on each stator terminal