

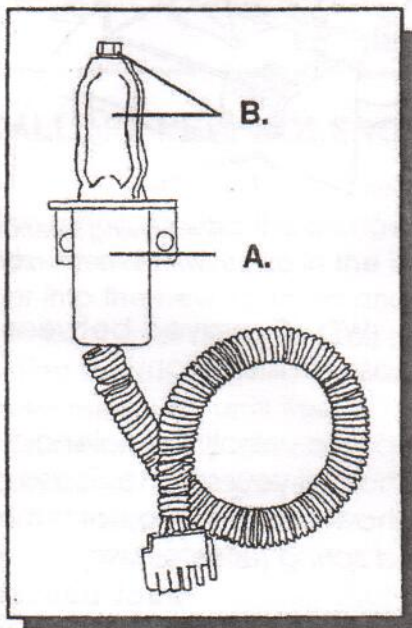
SOLENOID REPLACEMENT



Installation Instructions

At CORSA Performance we are committed to maintaining customer satisfaction long after the purchase of our product. For that reason, we have prepared this instruction manual to help you with your solenoid replacement. Carefully read through the following instructions and if at any point you have a problem or need clarification, please call; 1-800-486-0999, Monday - Friday 8 A.M. to 5 P.M. EST.

Please inspect the parts you have received with those listed below. Report any damaged or missing parts immediately.



- A. Solenoid
- B. Plunger with Boot and Spring
(Needed only if replacing solenoid and plunger)
- C. Plastic Template (Not shown)

NECESSARY TOOLS

- 3/16" allen wrench
- 7/16" wrench
- Template - provided by CORSA
(only if replacing solenoid and plunger)
- 3/8" wrench
- standard screwdriver
- Thread Lock

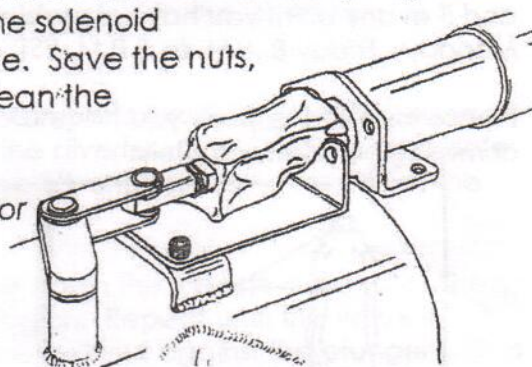
REMOVING OLD SOLENOID

- If your solenoid and plunger are bound together, go onto section for Removing Old Solenoid **and** Plunger.
- If your plunger moves freely, continue below. (You will need to replace the solenoid itself. The plunger, boot and spring you received on the new solenoid should be removed; it will not be needed for the replacement.)

Unclip the solenoid from the wiring harness. Then, use a 7/16" wrench and a 3/16" allen wrench to remove the solenoid from the diverter. If the solenoids have extension brackets, remove the solenoid from the bracket as shown. **Do not** remove the bracket from the diverter.

As you loosen the allen bolts, the solenoid will try to move because of the spring inside the plunger boot. Let the plunger boot come off the solenoid (or pull it), but be careful not to lose the spring inside. Save the nuts, bolts and spring for use on the new solenoid and clean the plunger shaft of any built up residue.

Now go to the section for Installing New Solenoid or Installing New Solenoid with Extension Bracket.

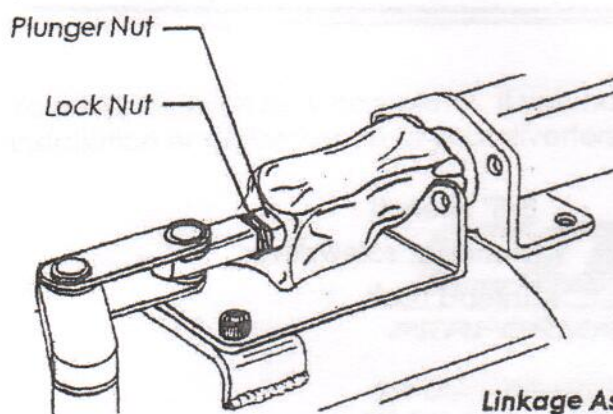


Removing solenoid from cutout with extension bracket.

REMOVING OLD SOLENOID AND PLUNGER

The first step is to remove the diverter from the engine. (WD-40 sprayed between the hoses and tubing will help break the seal and will also ease reinstallation.)

After removing the diverter from the boat, the next step is to unbolt the solenoid from the diverter using a 7/16" wrench and a 3/16" allen wrench. If your solenoids use extension brackets, unbolt the solenoid from the bracket as shown above. **Do not** remove the bracket from the diverter. (Save the nuts bolts and spring for later use)



The plunger will also have to be unscrewed from the linkage assembly on the diverter. To do this, use a 3/8" wrench on the plunger nut and a 7/16" wrench on the lock nut to loosen and remove the plunger and solenoid from the linkage.

INSTALLING NEW PLUNGER

Pull the new plunger off of the new solenoid, being careful not to lose the spring inside the boot. Put a few drops of thread lock inside the threaded end of the plunger and screw it onto the linkage assembly up to the lock nut.

INSTALLING NEW SOLENOID

Note: If your solenoids use extension brackets, skip to next section.

Place a drop of thread lock on the end of an allen bolt and position the new solenoid onto the diverter. Put the lower nut and bolt on first, but do not tighten completely. Then, with the spring around the plunger, move the solenoid until the plunger can slide into the hole on the solenoid. Carefully push the plunger into the solenoid compressing the spring until the top bolt can be inserted and then tightened lightly.

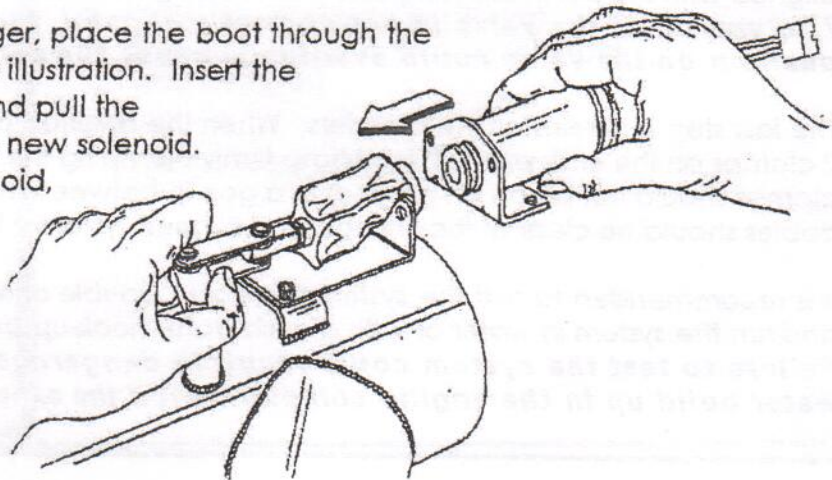
Next, pull the plunger boot over the lip on the solenoid to keep out any debris and then proceed to the section for Aligning the Solenoid.

INSTALLING NEW SOLENOID WITH EXTENSION BRACKET

With the spring around the plunger, place the boot through the extension bracket as seen in the illustration. Insert the plunger into the new solenoid and pull the plunger boot over the lip on the new solenoid.

By holding the linkage and solenoid, compress the spring until the solenoid reaches the bracket and can be bolted together lightly. (This may be easier with two people.)

Use thread lock on all bolts.



ALIGNING SOLENOID

Before the solenoid is completely tightened, it must first be aligned. To do this, slide the plunger in and out of the solenoid to feel for any binding. If it does not move freely, try to twist the solenoid or you may even have to slightly bend the bracket up or down until you reach the smoothest position. **If the solenoid is not correctly aligned, it may eventually fail.** After aligning the solenoid, completely tighten each allen bolt and test for binding again.

At this point, if you received a new wiring harness, turn off or disconnect the batteries and remove the old wiring. Refer to the enclosed wiring diagram for the new installation. After replacing the wiring, test the system and the new solenoid.

If you only had to replace the solenoid, connect the solenoid to the wiring harness and test the system for proper function.

If you had to replace the solenoid **and** the plunger, go onto next section.

VALVE ADJUSTMENT

NOTE: If only replacing solenoid, disregard this section.

To complete this step, the wiring harness needs to be connected to the diverters and batteries connected.

Turn on the diverters so the valves are open. Using the template provided and following the directions on it, slide the template into the inlet of the diverter. The slot in the template should slip over the valve for correct alignment. If it doesn't, unplug the harness from the solenoid so it can be adjusted as follows:

Using a 3/8" wrench, thread the plunger nut further up or down the linkage assembly. Then, plug the solenoid back in and use the template to test again. Repeat until the valve is aligned with the slot in the template and then tighten the lock nut against the plunger with a 7/16" wrench. ***If the valve is not correctly aligned, the force of the exhaust gases pushing on the valve could eventually cause the solenoid to fail.***

The last step is to reinstall the diverters. When the diverters are installed, make sure there are 2 clamps on the ends of each joint hose firmly clamping the hose around the tubing. The clamps should not be on an edge or in a gap in between the tubing. Also, all wires and cables should be clear of the linkage and exhaust system with no sharp bends in them.

*It is recommended to test the system for leaks. Double check all connections and clamps and run the system in water or with a fresh water hook-up **before** taking the boat out. **Failure to test the system could result in dangerous carbon monoxide and/or water build up in the engine compartment if the exhaust system leaks.***

Your installation is now complete. If you have any questions or comments regarding the installation or performance of your diverters, please call! **1-800-486-0999**

CORSA[™]
PERFORMANCE EXHAUSTS

140 Blaze Industrial Parkway, Berea, OH 44017
440-891-0999 - 1-800-486-0999 - Fax 440-891-1868

Corsa Performance Marine Solenoid & Harness Testing Procedures



Solenoids/Actuators

Four-Wire Solenoid Testing Procedures (White Connector)

1. Disconnect solenoid from harness at quick disconnect and check terminals for corrosion. Terminal plugs should be locked in place to the connector and should not come out. If terminals come out of the connector easily, it may not be making good contact with its mating terminal.
2. If terminals are free of corrosion and are firmly held in place in connector, jumper wires directly to the battery, as indicated in the diagram and following test procedures, to determine if the solenoid is functioning properly.

(see diagram A and B)

Test pull coil circuit first then proceed to the hold coil circuit.

When test the pull coil, only make contact briefly (less than two seconds) as the pull coil draws up to 35 amps. The solenoid plunger should retract into the solenoid body. The plunger should return to its previous position when power is disconnected.

When testing the hold coil, contact can be made for a longer duration. Jumper the wires to the hold circuit as described in the diagram and manually move the plunger into the solenoid body. The hold coil only draws 0.7 amps and does not have the power to pull the plunger in. Plunger should stay in the solenoid until power is disconnected.

3. If the solenoid fails any of the above procedures or contacts are highly corroded; contact Corsa Performance for a replacement solenoid.

Three-Wire Solenoid Testing Procedure (Black Connector)

1. Disconnect solenoid from harness at quick disconnect and check terminals for corrosion. Terminal plugs should be locked in place to the connector and should not come out. If terminals come out to the connector easily, it may not be making good contact with the mating terminal.
2. If terminals are free of corrosion and are firmly held in place in connector, jumper wires directly to the battery, as indicated in the diagram and following test procedure, to determine if the solenoid is functioning properly.

(see diagram C)

Connect the black wire first, followed by the white wire. When the red wire is connected the solenoid, plunger should pull in and stay in until either the red or black wire is disconnected. The white and black wires should stay cool even after a few seconds have passed. When disconnected the solenoid should return to its previous position.

3. If the solenoid fails the above procedure, the white or black wires get hot, or the contacts are highly corroded; contact Corsa Performance for a replacement solenoid.

Corsa Performance Marine Solenoid & Harness Testing Procedures

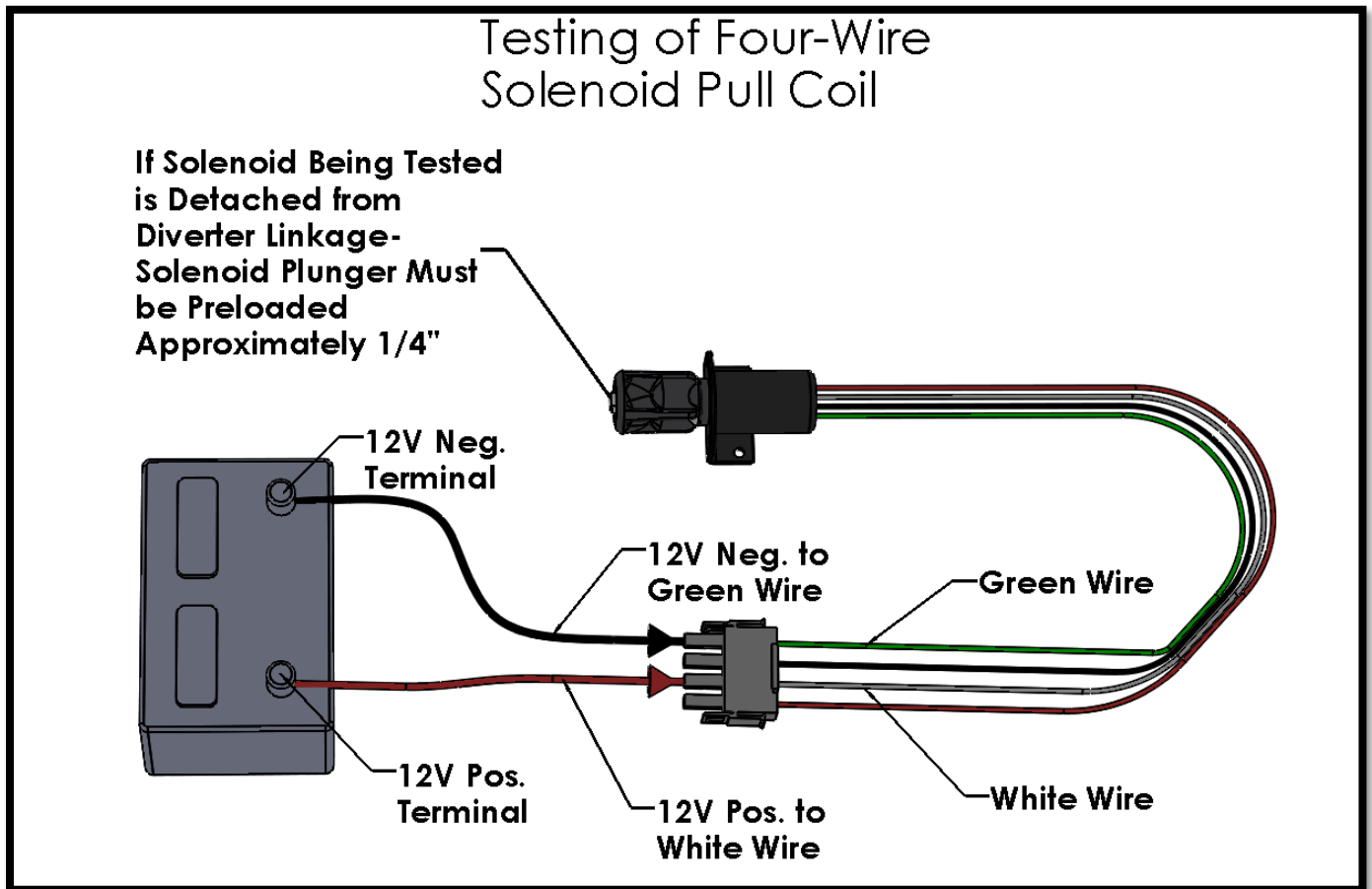


Diagram "A" Four-Wire Solenoid Pull Coil Test

Corsa Performance Marine Solenoid & Harness Testing Procedures

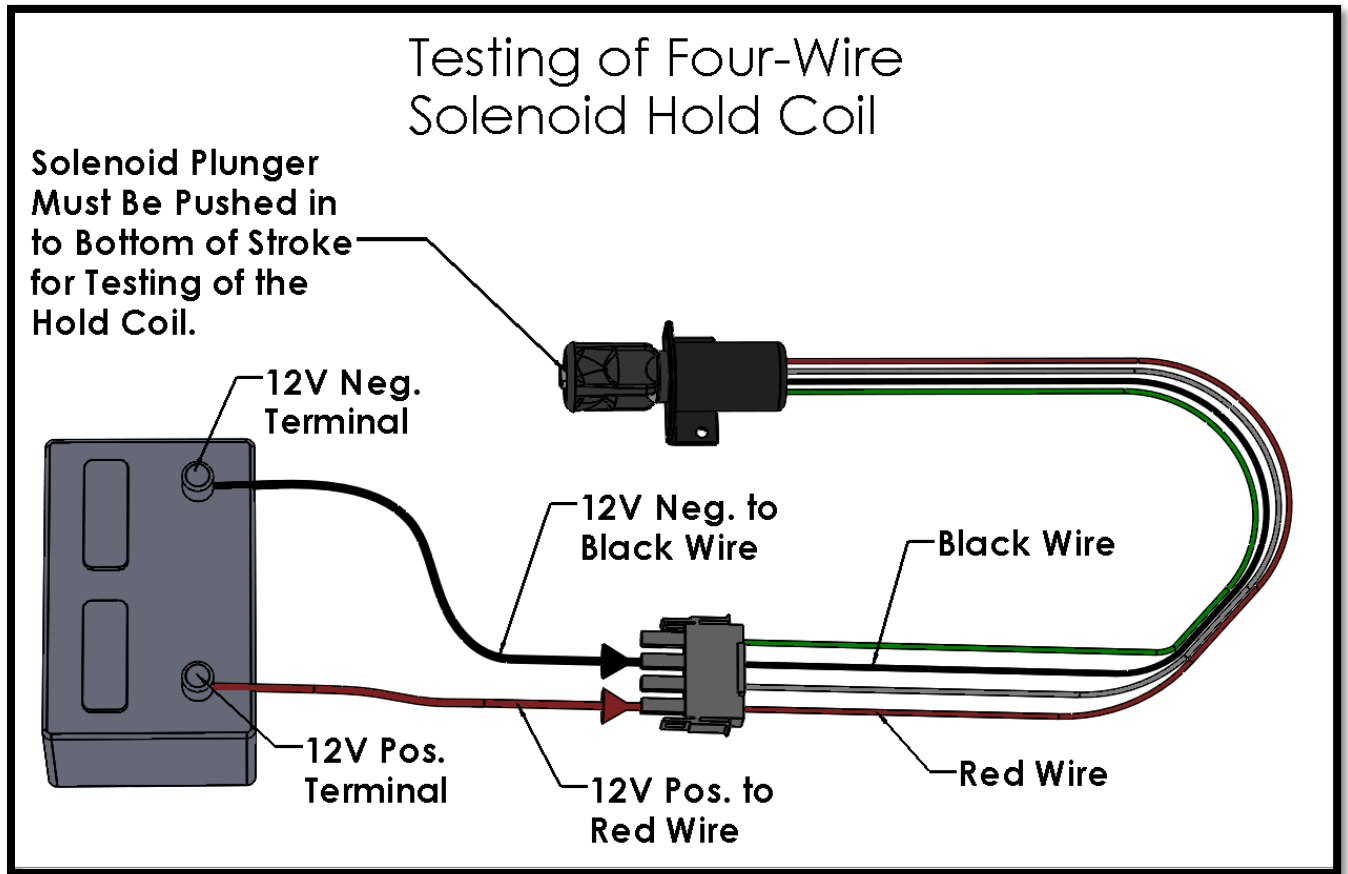


Diagram "B" Four-Wire Solenoid Hold Coil Test

Corsa Performance Marine Solenoid & Harness Testing Procedures

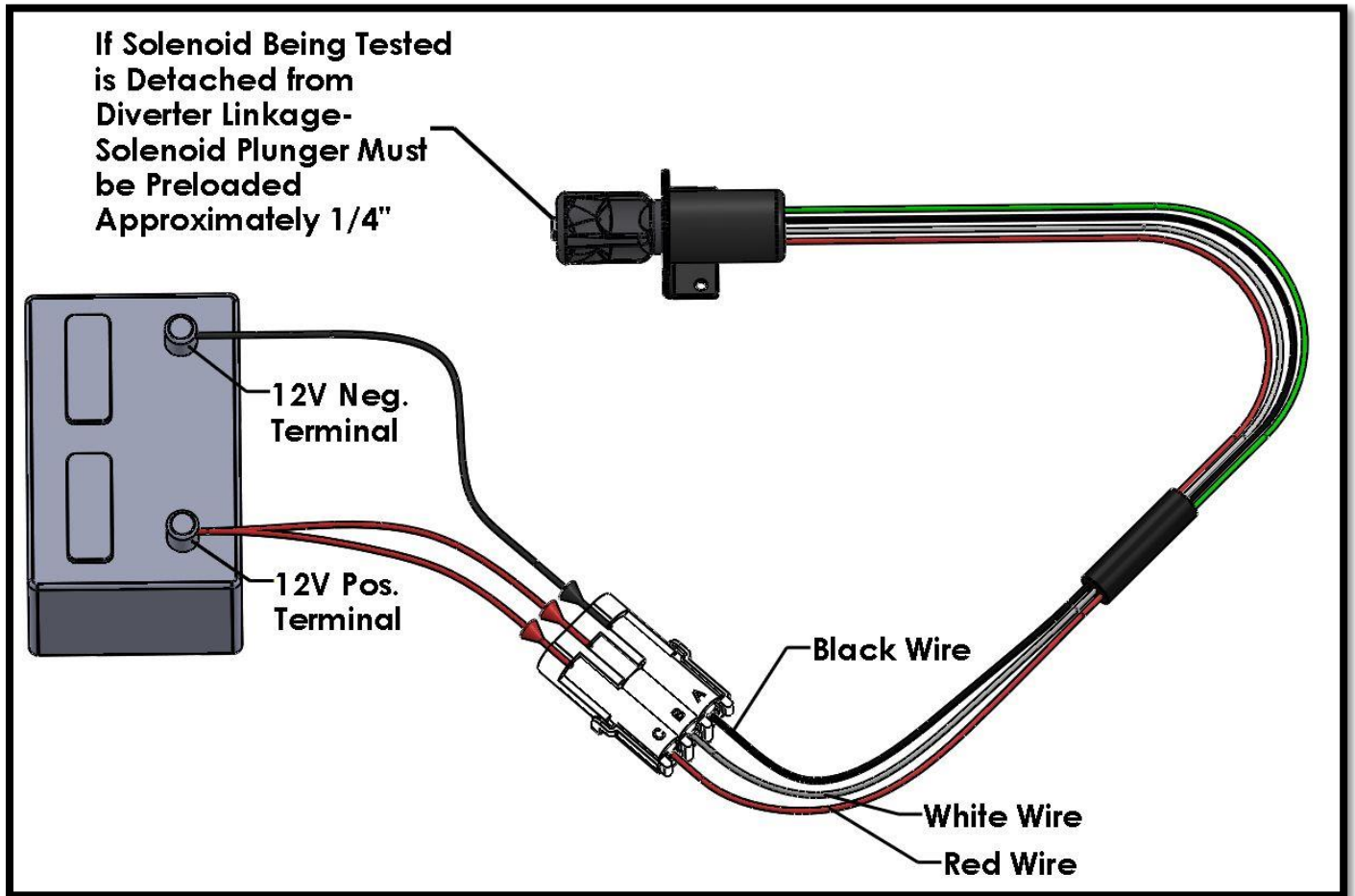


Diagram "C" Three-Wire Solenoid Test

Corsa Performance Marine Solenoid & Harness Testing Procedures



Harness Assemblies

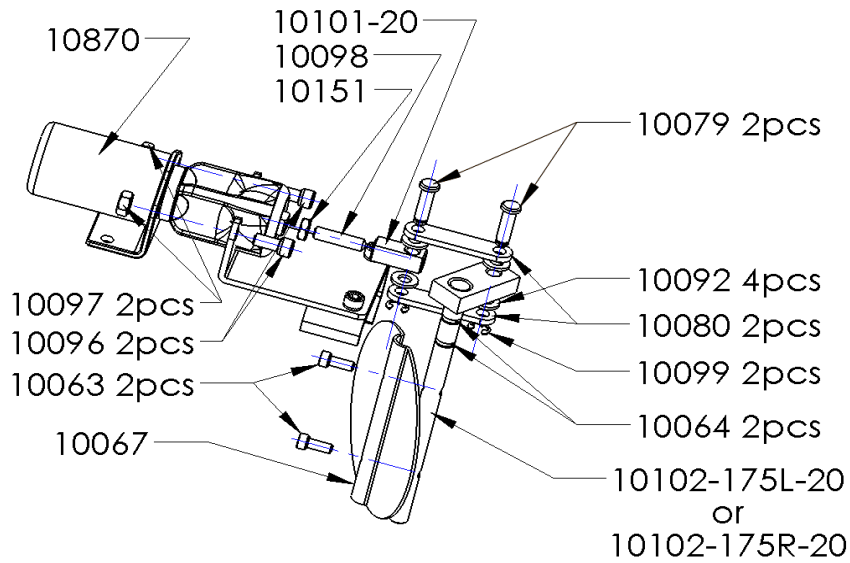
Testing Procedure for Four-Wire Solenoid Wiring Harness (White Connector)

1. Make sure that the ground connection and 12-volt positive connections are clean and free of corrosion. Due to the high current draw of the system, any terminal that does not make a complete contact may cause a failure condition.
2. Disconnect the solenoids from the harness at their respective quick disconnects. Check for any corrosion at these terminals, clean and retry harness operation if corrosion is found. Terminal plugs should be locked in place to the connector and should not come out. If terminals come out of the connector easily, it may not be making good contact with its mating terminal.
3. Place a test light or volt meter probe into the red and black wire terminals in the quick disconnect connector. With power supplied to the harness and the helm switch in the on position, current will flow between the red and black wires at 12V minimum.
4. Place the test light or volt meter probes into the green and white wire terminals. Have an assistant turn the switch to the "on" position. For a brief period, current will flow between the green and the white wires. After that time the current will be opened by a timer in the harness.
5. If harness fails to operate properly in any of the test procedures; contact Corsa Performance for possible replacement.

Testing Procedure for Three-Wire Solenoid Wiring Harness (Black Connector)

1. Make sure the ground connection and the 12-volt positive connections are clean and free of corrosion. Due to the high current draw of the system, any terminal that does not make a complete contact may cause a failure condition.
2. Disconnect the solenoids from the harness at their respective quick disconnects. Check for any corrosion at these terminals, clean and retry harness operation if corrosion is found. Terminal plugs should be locked in place to the connector and should not come out. If terminals come out of the connector easily, it may not be making good contact with its mating terminal.
3. Place a test light or volt meter probe into the white and black wire in the quick disconnect connector. With power supplied to the harness, current will flow between the white and black wires continuously at 12V minimum.
4. Place the test light or volt meter probe into the red and black wire terminals in the quick disconnect connector. With power supplied to the harness, current will flow between the white and black wires continuously at 12V minimum.
5. If harness fails to operate properly in any of the test procedures; contact Corsa Performance for possible replacement.

Corsa Performance Marine Solenoid & Harness Testing Procedures



- | | | | |
|-----|---------------|------------------------------------------|-----|
| 1. | 10067 | Valve Disc * | (2) |
| 2. | 10102-175L-20 | Left Facing Shaft** | (1) |
| 3. | 10102-175R-20 | Right Facing Shaft** | (1) |
| 4. | 10101-230 | 3/8 Square assembly with nut and screw * | (2) |
| 5. | 10099 | 7/32 E-Clip * | (4) |
| 6. | 10097 | ¼-20 Solenoid nuts * | (4) |
| 7. | 10096 | ¼-20 Solenoid screws * | (4) |
| 8. | 10092 | ¼ flat washer * | (8) |
| 9. | 10080 | Transfer link * | (4) |
| 10. | 10079 | Grooved pin * | (4) |
| 11. | 10064 | Viton O-Rings ** | (4) |
| 12. | 10063 | 10-24 Valve disc screws ** | (4) |
| 13. | 10114 | Alignment tool (not pictured) | (1) |
| 14. | 10870 | Solenoid (sold separately) | |
| 15. | 10826 | Repair kit contents * | |
| 16. | 10102-REPL | Shaft kit replacement kit ** | |