

INSTRUCTION SHEET

Gear Reduction Performance Starters UltraDuty 9050, 9051, 9052, 9053

We want to help! If you have any comments or difficulty with this product, please contact technical support at



7501 Strawberry Plains Pike

Knoxville, TN 37924

(800) 862-7223 option 7

FAX: (865) 281-9844

e-mail: tech@powermastermotorsports.com



The box contains: (1) starter. 9051 also includes (2) mounting bolts, (1) adaptor plate. 9052 also includes (2) mounting bolts and (2) shims.

INSTALLATION

These instructions are provided as supplementary information to the factory service manual instructions for starter replacement.

DISCONNECT THE BATTERY.

MOUNT STARTER. Make sure the mounting surface of the engine block is smooth, flat and free of paint buildup. Torque starter mounting bolts to engine manufacturer's specifications, typically 32 ft. lbs.



9051

Note on 9051 for Ford Powerstroke Diesel

Install the included adaptor plate and then using the supplied bolts, mount the starter. See picture to the left.

Note on 9052 for GM 6.2L, 6.5L Diesel

Install the starter using the supplied bolts. Be sure to attach the rear support bracket to the stud on the rear of the starter. Please note that the Powermaster starter has an 11T pinion vs. the 10T pinion on the OE starter. See picture below.



9052

ATTACH BATTERY CABLE AND SWITCH WIRE. The switch wire should be capable of handling 75A intermittent and 15A continuous, typically a 10AWG wire. The battery cable must be the proper size for the length of the cable (see chart). All connections should be clean and tight and terminals should be soldered if possible. The ground cable is important and the best ground path is direct to the engine block. With steel frame vehicles the ground path can be to the frame. This ground cable should be the

same size as the starter positive cable. Also, a ground strap should be installed from the frame to the engine.

DISTANCE 3' 5' 7' 10' +10'

AWG

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voltmeter to one end of the cable and the other side of the voltmeter to the other end. OPERATE THE CIRCUIT and simultaneously

OPERATE THE STARTER. It should operate quietly. The cables and connectors themselves should be checked for voltage drop with a voltmeter.

To check any wire or cable for voltage drop, connect one side of the

measure the volt drop. It should be 0.5VDC or less. A high voltage drop indicates a bad connector or an undersized cable. The ground circuit can be checked in the same manner.

Measure input voltage by connecting the positive probe of a voltmeter to the “MOTOR” terminal of the solenoid and connecting the negative to the starter housing. This should be 9.6V minimum while cranking.

COMMON QUESTIONS AND NOTES

WHY DOES THE ENGINE SEEM TO CRANK SLOWLY? Although this condition can be caused by several things, the most common cause is excessively low input voltage. The input voltage to the starter must be 9.6V volts or higher. Low voltage during cranking can be caused by undersized starter cables, high resistance or defective batteries, high resistance battery disconnect switches, or poor connectors.

A NOTE ABOUT RING GEARS. It is important for long starter life that the ring gear be round and true. Check the ring gear in at least six places verifying that the clearance for the starter is the same in all locations. If not remove the ring gear and make sure the mounting surface of the crankshaft is clean and free of paint buildup or rust. Reinstall the ring gear and properly torque the mounting bolts. If this does not correct the problem, replace the ring gear.

CAUTION: NEVER OPERATE A STARTER MORE THAN 30 SECONDS AT A TIME WITHOUT ALLOWING TIME TO COOL AT LEAST TWO MINUTES. OVERCRANKING WILL DAMAGE THE STARTER.