True Start Performance Starter Installation Instructions

Caution: Starter replacement often requires working under a vehicle handling heavy components. Always be sure to use proper safety precautions and safety jack stands on a level surface to support the vehicle. Failure to follow these precautions could result in serious personal injury!

Recommended Tools To Do the Job:

* Appropriate hand tools to remove and replace fasteners.
* Electrical supplies and terminating tools.
* Voltmeter (if diagnosing the starting system).

Removing Old Starter – Looking for Problems:

If you are replacing an existing starter which has failed, pay careful attention to the mode of failure, and look for any mechanical/ electrical problems somewhere else in your assembly which could be corrected to avoid the problem happening again. Common problems are mechanical misalignments, starter system problems, engine tune-up problems, fastener problems, and problems with interferences.

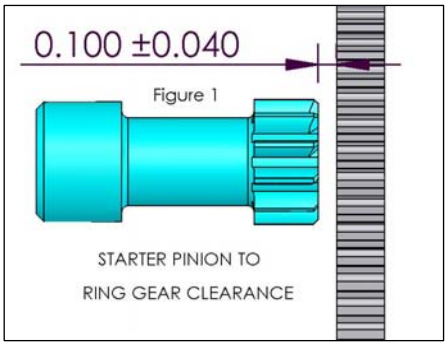
While removing your old starter, pay attention for fasteners which may have been damaged or loose. Also look for any cracks, metal transfer, or abnormal ring gear wear which may suggest other problems. Special care to remedy problems at this point can avoid repeat failures. When you install the new True Start Starter, be sure to use the high quality ARP fasteners provided with your unit.

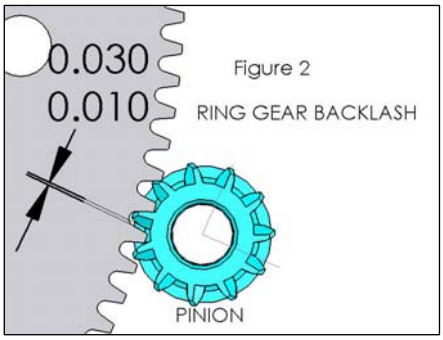
Installing the True Start Starter/ Checking for Fit:

Thoroughly clean the engine starter mounting surface of any rust, dirt or paint. This is important. The Meziere True Start nose block has special features to provide additional starter rigidity, but mating surface cleanliness is important. Make a test fit with the True Start Starter. There must be some clearance to the engine oil pan, chassis, exhaust, etc. The starter assembly itself may be rotated in relation to the starter nose in very fine increments to achieve clearance. For special clearance problems, contact the Meziere technical department for assistance.

Checking Ring Gear to Pinion Clearance/Fit:

This is vital to starter operation and starter/ ring gear life. Once the starter is mounted in position, check to make sure that the starter pinion has adequate clearance from the ring gear. Our recommended distance is .100 +/-.04 (see Figure 1). A shim (supplied) may be placed between the starter nose and the main housing if necessary. Next, engage the starter pinion by jogging the starter or manually pulling the pinion gear out. Check to make sure there is some backlash clearance (.010”-.030” recommended, see Figure 2) between the gears when engaged. Double check that the drive gear is not bottomed out into flexplate ring gear, Also that there is not excessive clearance. A tight condition can be adjusted by adding shims. Use only the supplied Meziere shims as they are specially shaped for maximum nose support. One shim will add about .007 to gear backlash. If the lash is too loose already, it may be necessary to machine material off of the mounting surface of the starter nose block. **In all cases, make sure all vehicle electrical power is disconnected whenever your body parts are in and around the pinion/ring gear area!**





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True Start Starter Installation Instructions (cont.)

At this time it is necessary to make sure that the starter mechanical/ electrical systems are in order. Refer to the section of this instruction pertaining to engine/starter issues.

Starter/ Engine/ Electrical Issues:

Proper performance of your new starter will be enhanced if you take the time to inspect some of the systems around the starter. The following is a good list of things to check:

Starter Electrical Circuit:

The main battery cable for the starter power needs to be attached to the largest solenoid terminal (10MM Dia.). This terminal is larger than most performance starters for better cable anchoring and current switching capability. The starter switch hot wire attaches to the spade terminal on the solenoid. These are the only two connections necessary. Note: Your starter switch should be capable of switching 30A of 12VDC power. The solenoid wire should be at least 14AWG. The solenoid requires 15A of current to function properly during an average starting cycle. Sizing your switch/ solenoid wire properly at this time can avoid a hot starting problem!

Battery Power

Your starter cannot perform to its potential if it does not get proper voltage and current. A quick check can make sure your starter wiring is correct. For this test disable the engine from possibility to start.

Measure voltage at the vehicle battery while cranking. Next measure voltage at the starter terminal while cranking. The voltage at the starter should be within ½ volt of the reading at the battery. At any time the voltage at the starter should not be less than 10.0VDC. If an excessive voltage drop exists, measure voltages at each connection in the system and repair the system as necessary. An under-voltage starter can cause excessive load on the starter as well as overload to the starter gear and ring gear.

Fuel System/ Engine Tune Up:

An improperly functioning fuel or ignition system, and/or a bad starting sequence by the driver can cause extreme overloads to the starter gear and ring gear. This problem is amplified as displacement and compression ratios are increased. Here are a few simple things to look for and think about:

Make sure your fuel system is not leaking raw fuel down into cylinders prior to starting. Always allow the engine to complete a few rotations **without** ignition prior to starting. A cylinder loaded with fuel is almost sure to kick back and severely overload your starting system components if ignition is applied. Make sure also that your ignition system has a start retard function to back timing down as far as possible for starting. This will great decrease the starter gear/ ring gear load.

Maintenance: Periodically check electrical connection for loosening or corrosion. Avoid getting the starter wet as with any electrical component! Long periods of cranking will damage the starter. Increased voltages will also increase starter wear.

No Warranty: No warranty is expressed or implied. Because of the nature of this application Meziere limits responsibility to quality and workmanship **before** installation. We are not liable for any consequential damage during use or installation.

Congratulations on choosing the Meziere EnterprisesTS-400 True Start Starter. Meziere has again raised the bar in high performance starters. Here are some of the features about this product you should know:

- Maximum off set design provides 3 HP with a killer 3.1 to 1 gear reduction
- A Clean Sheet – Every component constructed with performance in mind.
- High strength alloys incorporated throughout for uncompromised strength.
- Ball and needle bearings used throughout for long-lasting, reduced friction and precision operation.
- Oversized solenoid for powerful bendix engagement and incomparable electrical operation.
- Specially modified, balanced, and potted armature for dependable smooth operation, even at increased voltages.
- Precision – CNC machining incorporated throughout for product exactness and repeatability.
- Quality – Each unit tested to guarantee the highest performance standards before our name goes on it.
- Meziere tech support – Competent sales/product support to answer your questions and make our product a success for you!

Thank you for purchasing our product. Feel free to contact us if we can be of further assistance or for special applications.

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