



MaxxForce[®] 7 Turbocharger Repair

**Study Guide
TMT-121007**

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Introduction

Welcome to the MaxxForce® 7 turbocharger compressor cleaning program.

The procedures discussed in this program apply to the 2007 through 2009 model-year MaxxForce® 7 diesel engines.

Before demonstrating the procedure, let's identify the components that you'll need to be familiar with. They include the charging circuit bridge, turbo inlet duct, compressor cover, bearing housing, hot side CAC air pipe and hose, and V-band turbocharger compressor clamp.

Objectives

Upon completion of this program you should be able to identify the parts of the turbocharger assembly and perform the compressor cleaning procedure.

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Compressor Cover Removal

Module 1

Refer to the instruction sheet for items that must be disconnected prior to removing the charging circuit bridge. After these parts are disconnected, the bridge can be removed.

Remove the CAC pipe, and the CAC hot side hose.

Remove the turbocharger oil supply tube. Then remove and discard the O-rings. After these parts are disconnected the turbocharger air inlet duct can be removed.

Use a paint marker to make alignment marks on the compressor cover and bearing housing for use during assembly.

Using a rubber mallet, carefully tap on the compressor cover to remove it from the bearing housing.

Finish loosening the clamp, then rotate and remove the compressor housing from the bearing housing.

Remove and discard the O-ring on the bearing housing.



CAUTION

The following procedures will expose the compressor wheel. To prevent engine damage, do not damage the compressor or turbine wheel. If the compressor or turbine wheel is damaged, a new turbocharger must be installed.

NOTE

Loosen, but do not remove the V-band turbocharger compressor clamp from the compressor cover. The loosened clamp must remain in position while unseating the compressor cover to minimize risk of the cover damaging the compressor wheel.

This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings on the page.

Cleaning Procedures

Module 2

There are some components under the compressor cover to be familiar with. These parts are: the bearing housing diffuser face, the compressor vanes, and the compressor wheel.

Clean the compressor cover with solvent only. Do not use a scraper. Rinse the solvent from the parts with water and dry them with compressed air.

A scraper may be used to remove coked oil from the diffuser face prior to cleaning it with solvent. Place shop rags under the bearing housing assembly to absorb solvent and catch debris from the cleaning process.

Clean the diffuser face and the compressor vanes with solvent.

Rinse the solvent from the parts with water and dry them with compressed air. Clean the oil from the diffuser face with a clean rag.

“Rinse the solvent from the parts with water and dry them with compressed air.”

This image shows a full page of blank handwriting practice paper. It features approximately 30 evenly spaced, thin grey horizontal lines extending across the entire width of the page. The background is a solid off-white color, providing a clean surface for writing practice. There are no margins, text, or other markings present.

Assembly

Module 3

Stamp an “X” in the left corner of the turbocharger serial number tag and record the serial number on the repair order. Failure to complete this step will void the warranty.

Assemble the new clamp and place it loosely on the bearing housing.

Lubricate the new compressor cover O-ring with P-80® lubricant and install it on the bearing housing.

Position the compressor cover squarely on the bearing housing and align the paint marks made during removal. It may require a few light taps with a mallet to seat it on the bearing housing.

Tighten the clamp slowly to ensure the components are fully seated.

Add clean engine oil to the oil supply inlet port of the turbocharger, and spin the compressor wheel to lubricate the bearings. Fill the port until the oil is level with the port opening.

Lubricate and install the new O-rings on the oil supply tube and the turbocharger inlet port.

Reinstall the supply tube and torque the bolts.



CAUTION

To prevent engine damage, be sure to torque all clamps and fasteners to the proper values indicated in the instruction sheet provided in the compressor cleaning kit.

Reinstall the new CAC hot side hose, the CAC pipe, and turbocharger air inlet duct.

Set the charging circuit bridge into place. Reinstall all the components that were taken off prior to removing the bridge.

“Torque all clamps and fasteners to the proper values.”

Torque all clamps and fasteners to the proper values indicated on the cleaning kit instruction sheet.

Record the date, vehicle mileage, turbocharger serial number, and reason for the procedure. Include any photos if necessary.

This information must be provided to Borg Warner Turbocharger Systems warranty group. Failure to complete this step will void the warranty.

NOTES

[illegible]

Conclusion

This concludes the MaxxForce® 7 turbocharger compressor cleaning program.

Thank you for your participation.

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