

December 15, 2014

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**Oil leakage experienced with Evo X stock location “bolt-on” turbo upgrade kit GT/GTX30R series and GT/GTX35R series.**

**Applicable Vehicles:** 2008 and newer Mitsubishi Lancer Evolution X

**Introduction:** A small number of customers have experienced signs of oil leakage into the end housings (either at the compressor housing and/or turbine housing) after installing a GT/GTX30R series or GT/GTX35R series “bolt-on” on stock location turbo on their Lancer Evolution X.

In most (approximately 99%) of these cases, the turbo unit was sent back to ATP for functional testing, and then found to be in 100% working order and is leak free. In the majority of those cases (nearly 100%), the customer and the installer subsequently performed the proper troubleshooting and found the real cause of the leakage and the problem was resolved and no changes were made to the turbo and the unit was not replaced.

The Evo X “turbo system”, (not necessarily the turbo itself), as designed from the factory, in the vehicle as delivered, suffers from some deficiencies in the oiling system. These inherent deficiencies can cause the Evo X engine to be prone to oil drain issues which can lead to oil leakage into the housings. Some of these engine design deficiencies include:

- A less than optimal oil drain line with smaller than preferred inner hose diameter.
- A less than optimal oil drain line shape with many sharp bends and very little decline for proper gravity drain.
- A breather system that can easily “malfunction” causing excessive crankcase pressure to build which negatively affects the function of the oil drain components.
- A breather system that is inadequate for the volume of the engine, therefore changes in the engine output will quickly challenge the breather system and put it over capacity. The result is also excessive crankcase pressure which negatively affects the function of the oil drain components.

Due to the way the “seals” are designed on these turbos, oil that is “pooled” up within the turbo bearing system is designed to leak into the end housings. Oil will leak into the end housings if it’s not allowed to “drain” out of the turbo. This is a condition called a “forced leak”. And because oil is being fed into the turbo at a constant rate, any condition that results in a flow impediment at the oil drain, will contribute to oil “pooling up” inside the bearing housing which then increases the chance of a leak into the housings.

**What’s the proper fix?:** If you are one of the few that encounters a “forced leak”, you should first perform the proper troubleshooting and make sure that there is nothing out of place and that everything in your turbo system is functioning properly. Some of the known obvious causes of a forced leak are:

- A kinked breather hose at the intake. Check to make sure the integrity of the breather hose between valve cover and intake pipe is not compromised. A choked hose will mean a choked breather. A choked breather will cause a malfunctioning oil drain.

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- Make sure the breather hose is NOT smaller than stock. Make sure your “upgraded” intake pipe does not come with a smaller than stock breather hose and that the inner diameter of the fitting is NOT smaller than stock. This will also choke the breather.
- A “catch can” has the best of intentions! But, results can be anything but good! Implement the catch can properly! Many catch cans are set up to recover oil and residue from the breather system. A LOT of people end up inadvertently disabling or choking the breather system while in the process of plumbing in that catch can. Any catch can that still uses stock fittings at the engine/valve cover is NOT increasing the breather capacity. If any of the hoses and fittings are SMALLER than stock, you are contributing to the DISABLING of your breather system.
- That “built motor”. There is usually nothing “wrong” with the motor itself. However, freshly built engines typically exhibit more piston ring “blow-by”. The added blow-by is manifested within the crankcase in the form of more pressure. Since it’s established that the stock breathers’ capacity is already challenged, taking on the duties of venting additional crankcase pressure from the freshly built motor will typically cause the system to go into overload. An overloaded breather will negatively affect the oil drain.
- A kinked or blocked oil drain line. Make sure the hose wasn’t crushed or smashed during the installation of the turbo. Also make sure that the gasket itself isn’t improperly placed. The use of silicone or RTV “gasket maker” can sometimes create an “oil drain plug” due to excessive silicone protruding into the oil drain port. Don’t use this stuff!

Between the list of engine oil system design deficiencies and the possible causes listed above, ANY single one of these issues can cause the “forced leak” due to the system being at near capacity already in stock form. This is the reason why it’s not so easy to point to any one single “cause of the problem”.

**I’m leaking. Is my turbo “blown”?:** No. If you encountered oil leakage into the housings and have confirmed that it’s a “forced leak” condition, your turbo will be fine. There has been no evidence that this type of a leak causes any damage or any kind of premature wear or affects the integrity of the turbo unit in any way. While the oil leak can make a mess with oil collected in the charge pipes and intercooler system, the turbo itself can resume normal operation once the cause of the leak has been addressed and eliminated. Although no repair to the turbocharger itself is necessary, you do need to clean all the oil out of your charge pipe and intercooler system to prevent it from continuing to circulate during engine operation.

**I’ve got a forced leak and I can’t figure out the cause. What else can I do?:** We have a “fix”. It is a compromise, but it works, and it has been thoroughly tested. We have sold several thousands of these bolt-on turbos since 2009. Since that time, there has been a handful (less than 10) of cases where customers experienced these mystery leaks. We developed a potential fix back early 2013 and for the past 2 years have tested this on 5 known cases where the customer either did not have the tools, knowledge, or resources to properly troubleshoot to the point where root cause was determined. In 100% of the cases, the fix worked with no reported issues and the forced leak issue contained or resolved.

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**What does this fix involve?:** A replacement banjo bolt at the engine block side of the oil feed assembly. The part can be purchased here:

[http://www.atpturbo.com/mm5/merchant.mvc?Screen=PROD&Store\\_Code=TP&Product\\_Code=TSB-EVOX-001-A&Category\\_Code=](http://www.atpturbo.com/mm5/merchant.mvc?Screen=PROD&Store_Code=TP&Product_Code=TSB-EVOX-001-A&Category_Code=)

The part functions by better controlling the volume of oil being fed to the turbo and limits the negative effects of the known deficiencies in system. By sending less volume of oil into the turbo, it reduces the demands on the oil drain and if there are other issues with breather system, the strain on the overall system becomes less prevalent. Essentially those “problems” become partially masked because there would be less oil for the system to worry about. This “fix” is a good potential solution for those that do not have the time, expertise, or resources to pursue the follow through with the troubleshooting. This fix is acceptable for those with light to moderate cases of a forced leak where there is only light puffing of oil smoke out of the tailpipe and a manageable amount of oil is seen collected in the charge pipe and intercooler system. In these cases, a “slight” reduction in oil volume can take enough load of the oil drain system that is already running above capacity to get it to an acceptable range and the leak can be eliminated. Additionally, this fix can be done without having the need to remove the turbo from the vehicle.

**Installation Instructions:**

- Establish the location of the factory oil feed bolt at the engine block side of the line. Do not touch the banjo bolt that is already installed at the turbo end of the oil feed line.
- Unbolt the banjo bolt and remove it from the engine, but leave the oil feed banjo as is.
- Install the new special banjo bolt on the old banjo and torque down in place (use the 2 new crush washers provided)
- Continue to operate the vehicle as you normally do.
- At some point after that, you should take the time to clean out all of the oil residue previously collected within your charge pipes, intercooler, and hoses.
- You should see a drastic reduction or completely eliminated leak into your housings.

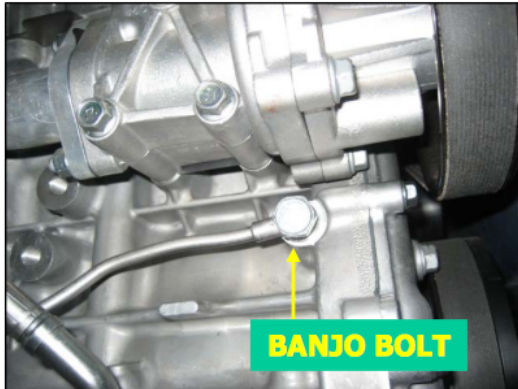
**\*\* Note: Supplemental Installation instructions on the following page \*\***

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**Supplementary Pictures for oil feed fix installation:**

- From under the car, locate the stock oil feed bolt at the ENGINE SIDE of the oil feed line.



Note: Absent from the above picture is the turbo. This is the banjo bolt at the oil feed port on the engine.

- Remove the stock banjo bolt using a 17mm socket and driver.
- Shown below is the replacement banjo bolt next to the factory banjo bolt.



- Install the replacement banjo bolt and crush washers using a 14mm socket and driver. Torque to 15 ft/lb.