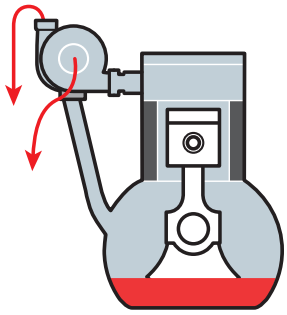
OIL LEAKS

What are oil leaks?

Oil leaks can be caused by a variety of factors, the main factor being incorrect pressure within the compressor and turbine housings. Oil leaks can cause catastrophic damage to the bearing systems and occur within seconds of the turbocharger commencing operation.

When a turbocharger is installed correctly, it should NOT leak oil. However, there can be cases where oil leaks can occur. The following highlights some of the main causes and the signs of oil leaks:

Example of correct pressures:



The above diagram shows correct pressure in both housings resulting in no leaks from the turbo.

PLEASE NOTE - An oil leak can also occur when engines are running on idle. The pressure within the housings is lower, which in turn can lead to a vacuum being created, causing the oil to leak into the turbine housing.

Once the engine starts to run at normal speeds the pressures will be restored and the leaks will stop.

Causes of oil leaks

Compressor End	Both Ends	Turbine End
Poor quality old core	Poor quality old core	Cracks in turbine housing only visible when hot
Splits in intake hose	Reused oil feed pipes	Poor quality old core
Incorrect fitting of the intake hose	Excessive crank case pressure (blow-by from worn piston rings/bores)	Warped exhaust flange
Blockages to the air intake pipe/hoses	Fitting the incorrect turbocharger	Incorrect gaskets
Blockages to the air intake filter	Physical damage to the turbo's rotating parts and excessive bearing clearance (possibly caused by other failure modes)	Poor quality gasket
Fitting the incorrect turbocharger	Repeated hot engine shutdowns leading to carbon deposits (coke) in the centre housing	Blockages in the exhaust system
Incorrect pressure in the compressor end	Increased crank case pressure	Leaks with in the exhaust system
Dirty air filter, over time naturally build up	Over filling of the oil	Fitting the incorrect turbocharger
Damaged or cracked compressor housing	Excessively high oil pressure	Incorrect pressure in the turbine end
	If the oil return pipe is twisted bend or trapped	Collapsed turbine piston ring from excessive EGT's

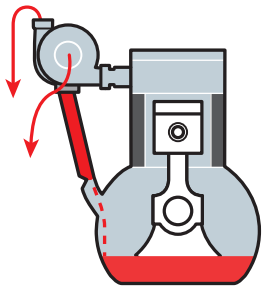
bsi ISO 9001 Quality Management Systems CERTIFIED FS 535592

Copyright © 2027 Melett. All rights reserved. The Melett Logo and Melett® are registered trademarks or trademarks of Melett Limited.

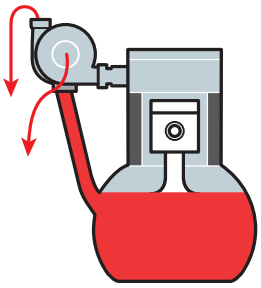
A BMTS Technology company BMTS TECHNOLOGY

OIL LEAKS

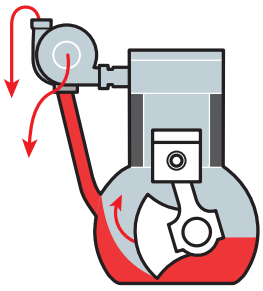
Examples of how oil leaks can occur:



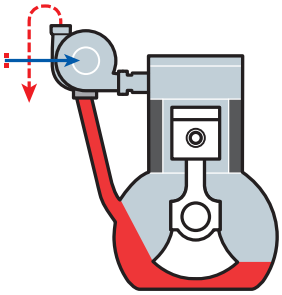
If there is a kink, bend, twist or partial blockage in the oil return pipe, this will cause the oil pressure to build up in the bearing housing. This will cause leaks from both turbine and compressor ends.



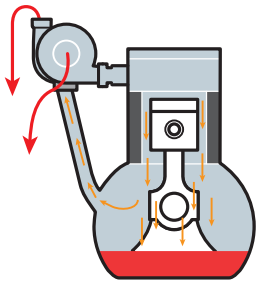
If the oil level is too full there will be nowhere for the oil to flow, causing a build-up of oil pressure in the bearing housing. This will cause oil to leak from both turbine and compressor ends.



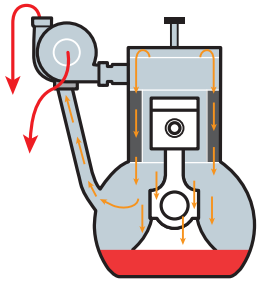
If the oil level is higher than specified by the engine manufacturer, this can cause oil to be forced back up to the oil return pipe with the motion of the crank, restricting the flow. This will cause leaks from both turbine and compressor ends.



If there is loss or increase of pressure in either the compressor end or turbine end. This will cause oil leaks in either of the turbine end or compressor end.



Piston ring blow by



Crank case blow by

'Piston ring blow by' and 'crank case blow by' cause the same effect, they increase the pressure in the crank case. This effects the oil flow to the turbo at the correct rate needed and acts as a restriction to the oil feed pipe, causing the turbo to leak oil.

Preventing future oil leaks:

- Ensure air and oil drain systems are clear from blockages or restrictions
- Check the exhaust system to make sure there are no leaks present
- Do not use silicone on oil gaskets as it can easily become detached and block oil passages
- Ensure DPF (diesel particulate filter) and Catalytic converter is free of blockages
- Use the correct gaskets and O-rings
- Ensure the quality of the turbine housings and compressor housings are satisfactory

PLEASE NOTE - Oil leaks can occur on VSR (high speed) balancing machines as the ambient pressures required to create the seal are not present as no housings are used. This can then force out oil from both the compressor end and turbine end giving the impression of a leak. This is unlikely to occur when the replacement turbo is fitted to the engine.

For further information on this or other topics, visit www.melett.com/technical / technicalsupport@melett.com

bsi ISO 9001 Quality Management Systems CERTIFIED FS 535592

Copyright © 2027 elett. All rights reserved. The Melett Logo and Melett® are registered trademarks or trademarks of Melett Limited.

A BMTS Technology company BMTS TECHNOLOGY