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Subject: Leaks Around the IVT Oil Mist Header Switching Valve

This TECH-Bulletin is provided to address reported oil leaks experienced in the field on Model IVT Oil Mist Generators that originate around the outlet switching valve. Leaks are reported from several points around the valve. The identified locations are;

1. Around the gaskets between the reservoir / valve seat and sub-plate
2. Around the o-ring seal between the valve seat ring and the switching valve body
3. Around the bulls eye sight glass

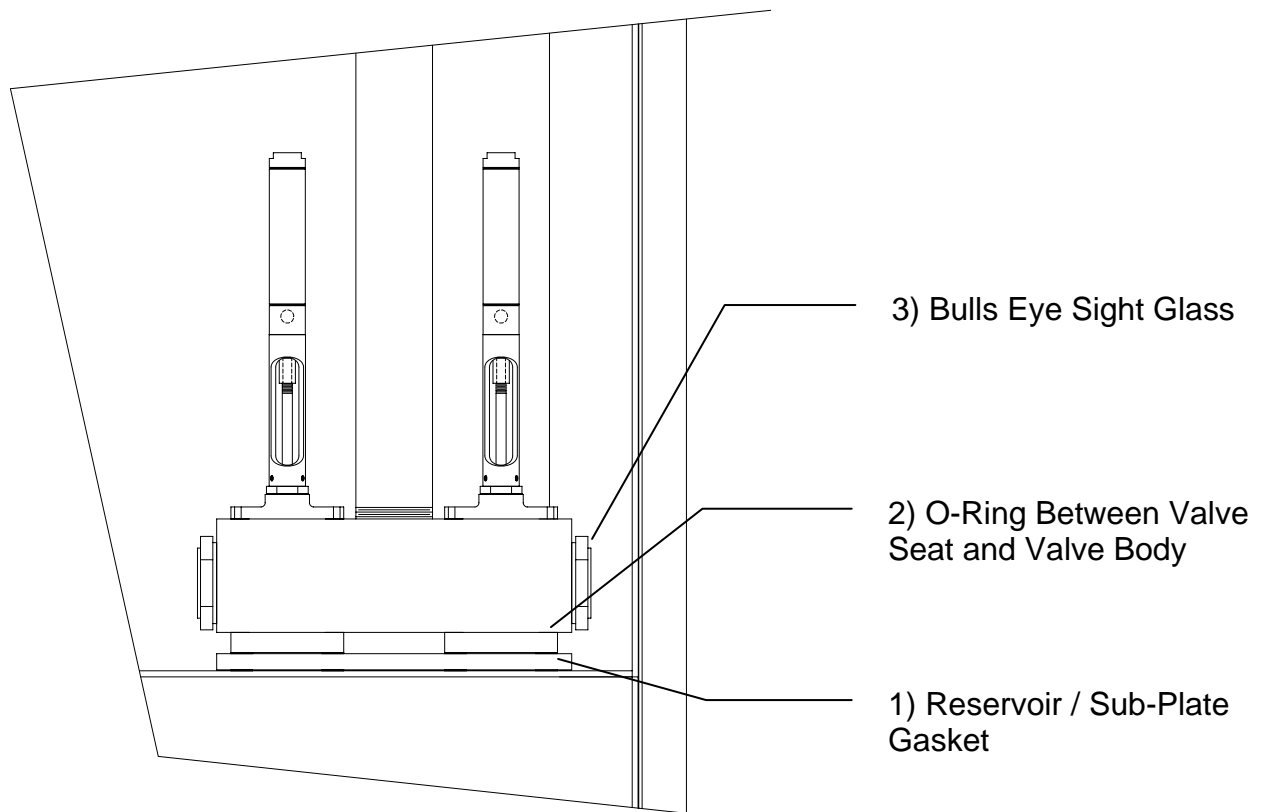


Fig 1



IMPORTANT NOTE: Improper mist header installation and is a possible cause for oil leaks at this location. Proper oil mist header alignment and connection to the 2" mist outlet connection flange is necessary. Using force (pushing the piping) to correct misalignment between the mist outlet flange on the IVT Oil Mist Generator and the matching flange at the oil mist header may result in a leaking gasket surface. Pulling the IVT mist outlet connection pipe to compensate for misalignment may create leak at the gaskets between the switching valve and the reservoir. Before undertaking any repair and replacement of gaskets under the switching valve ensure that the mist outlet connection flange and the matching flange at the oil mist header properly align and make up without using force. Failure to do so may result in an ineffective repair.

1) Gaskets between the reservoir / valve seat and sub-plate

One leak is identified at the gasket between the reservoir and base plate or the valve seat plate and the mist out valve body. These seals are made using gaskets. The valve body and the base plate are machined components and have flat gasket surfaces. However the mating gasket surface on the reservoir is not a machined surface. The possibility of having a leak at this location is created if the surfaces between the base plate and the reservoir are not parallel when assembled.

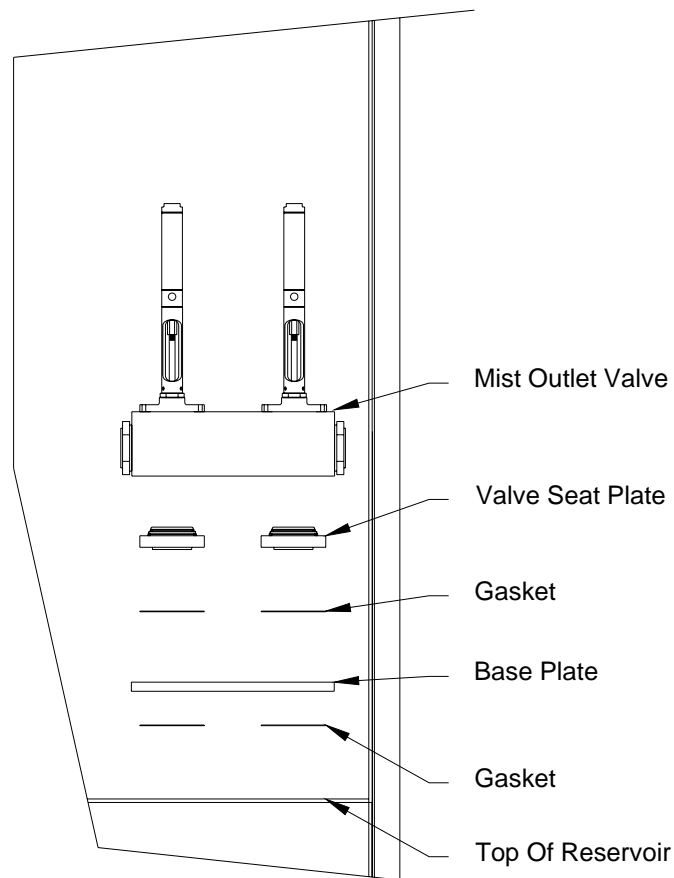


Fig 2

To ensure that a leak free seal is made, during assembly we are now applying a RTV gasket sealant to the gaskets between the valve seat plate and the base plate and the gaskets between the base plate and the top of the IVT reservoir. A prescribed sequence has also been implemented for tightening the bolts.

Apply a thin coat of RTV gasket sealant to both gaskets just prior to assembly. Enough RTV should be applied to ensure that the gasket is tacky to touch. Do not make a thick film of RTV. Aligning the bolt holes center the gaskets on the two mist outlet holes on top of the reservoir. The gasket should stay in place. Set the base plate on the reservoir and install the twelve (12) #10-32 socket head screws and lock washers. Initially the screws should be installed only finger tight. Following the sequence diagram below, tighten each screw in ¼ turn increments until all screws are tight. Allow the gasket to set for 2- 3 minutes and then check. Retighten if necessary.

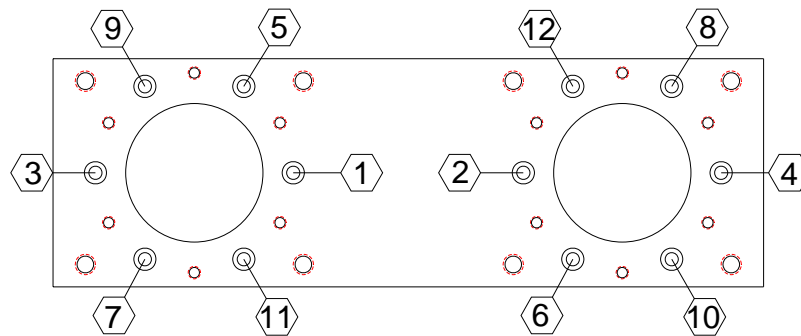


Fig 3

Apply a thin coat of RTV gasket sealant to the gasket just prior to assembly. Enough RTV should be applied to ensure that the gasket is tacky to touch. Do not make a thick film of RTV. Aligning the bolt holes, center the gasket on the bottom of the valve seat plate. The gasket should stay in place. Set the valve seat plate with gasket on the base plate and install the six (6) #10-32 socket head screws and lock washers. Initially the screws should be installed only finger tight. Following the sequence diagram below, tighten each screw in ¼ turn increments until all screws are tight. Allow the gasket to set for 2- 3 minutes and then check. Retighten if necessary.

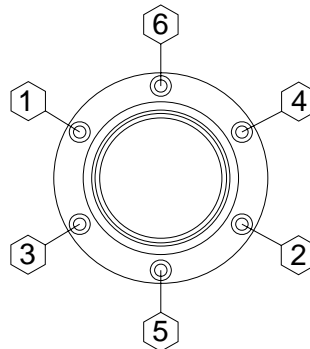


Fig 4

2) O-Ring Between Valve Seat and Valve Body

The interface between the valve seat and the valve body is made using a static o-ring seal. This seal detail is identical to the o-ring seal on top of the valve body between it and the valve stem seal cap. An un-effective seal results if the valve body is not properly assembled to the valve seat. Proper assembly is essential.

The correct valve body and valve seat assembly requires proper alignment and even tightening of the eight mounting bolts. If the valve body is not evenly tightened to the valve seats, the o-ring and o-ring seat can be misaligned and a leak results. See the diagram below.

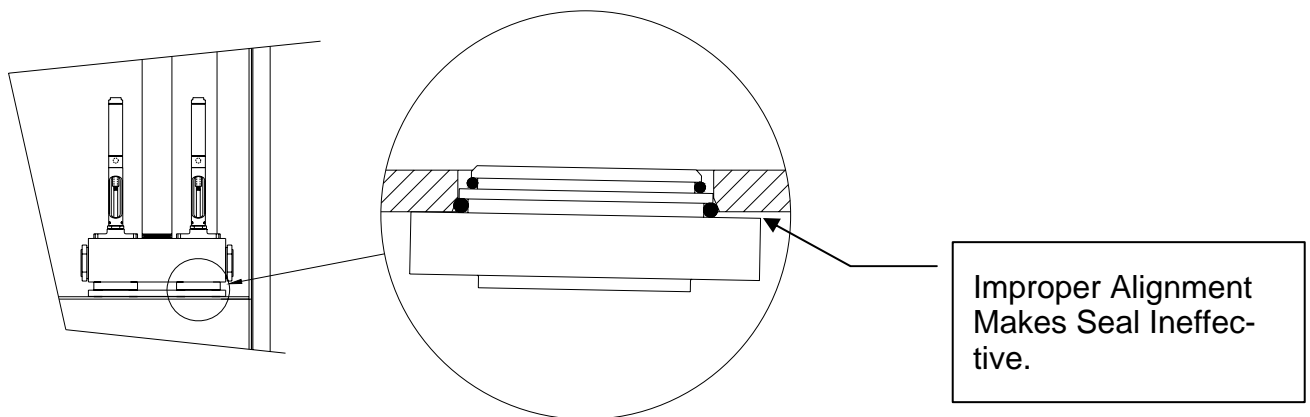


Fig 5

When installing the valve body to the valve seats, check the o-rings for nicks or cuts. Replace if necessary. The o-rings should be lubricated with light oil at assembly. Set the valve assembly on the valve seats and install the eight (8) 5/16-18 socket head screws and lock washers. Initially the screws should be installed only finger tight. Following the sequence diagram below, tighten each screw in 1/4 turn increments until all screws are tight.

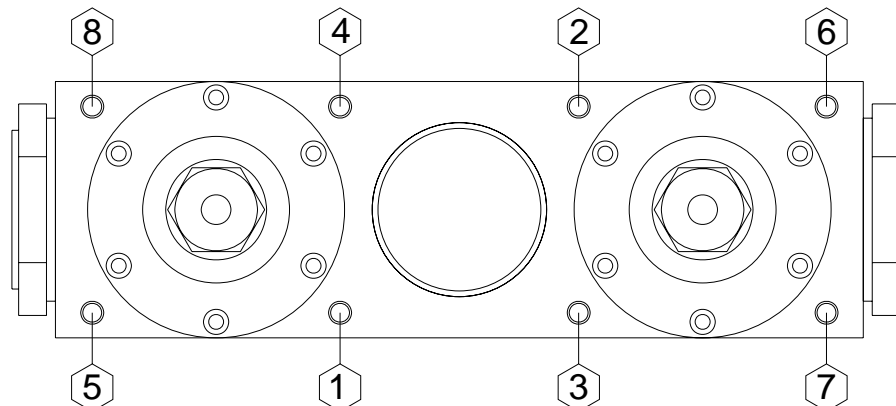


Fig 6

3) Bulls Eye Sight Glass

The gasket provided by the OEM supplier of the bulls eye sight glass is very narrow. Additionally there is a thread relief machined under the hex of the sight glass that has a smaller diameter than the ID of the gasket. This configuration allows the gasket to orbit around the center line of the sight glass when it is assembled. When the OEM was contacted, they offered no resolution, but responded that if the unit is properly installed it should not leak. Their response is not considered a complete solution to the problem. We are recommending that where leaking sight glasses are found, the original gaskets be removed and replaced with P/N 77780995 Gasket. The new gaskets are Buna-N impregnated cloth.

To install the new gaskets, unthread and remove the sight glass. Remove and discard the old paper gasket. Install the new gasket in the thread relief at the base of the sight glass' thread. Note that the gasket ID is smaller than the sight glass' major thread diameter. As the gasket is installed, it has to be stretched as it is pulled over the thread. Re-install and tighten the bulls eye sight glass.

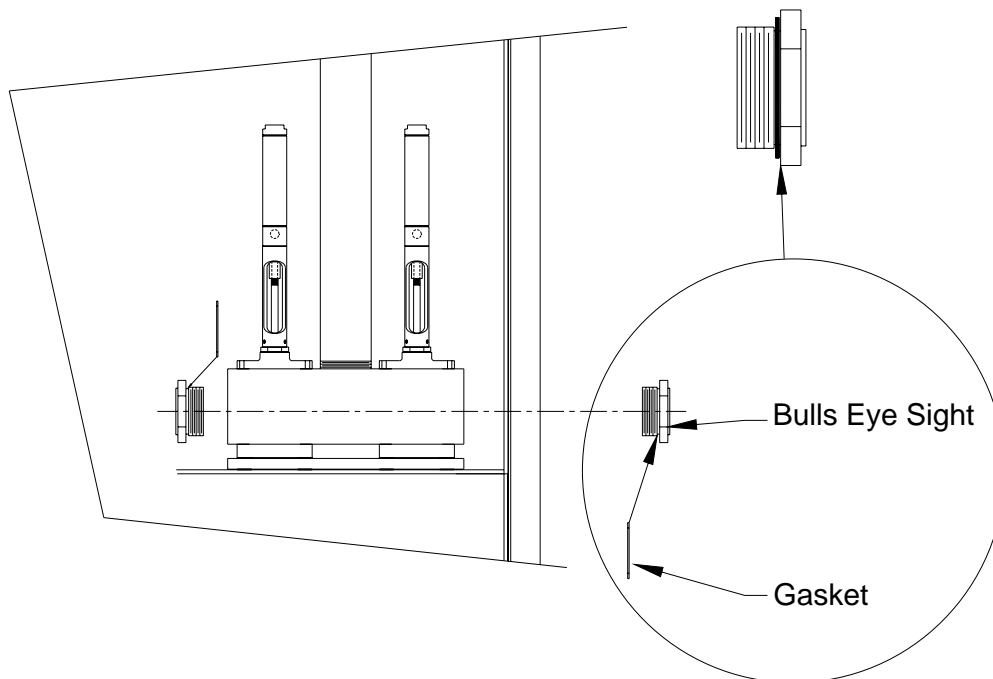


Fig 7

FIELD NOTE:

When leaks described in this TECH Bulletin are being addressed as a field service repair, the mist outlet pipe must be loosened from the oil mist header. The pipe seal flange and cabinet flange must be unbolted so that the mist outlet pipe can move freely as the assembly is realigned and tightened. A repair made without allowing the mist outlet pipe to have free movement may not be effective (reference Fig 5 above).

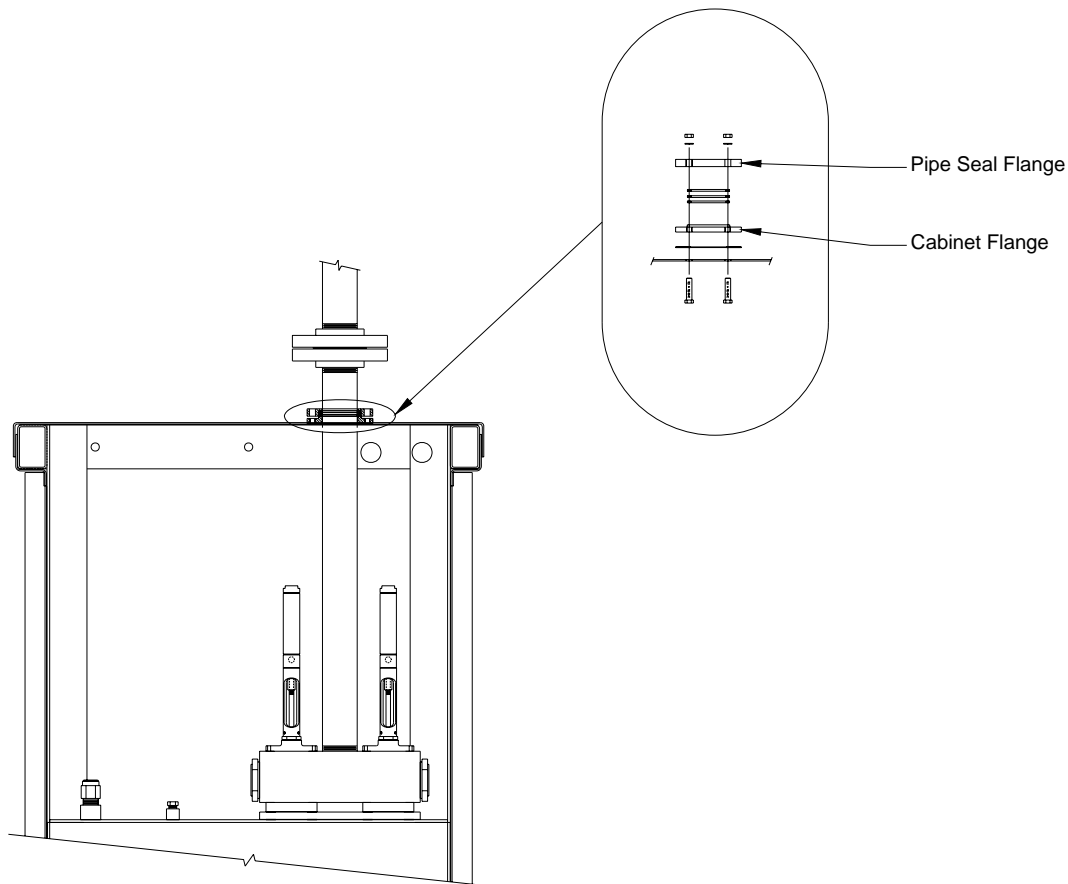


Fig 8

Please address any questions or comments to Charlie Ehlert.

Charlie Ehlert

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