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MAINTENANCE BULLETIN

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TO: FLEET

SUBJECT: DUPLEX FILTER CLEANING PROCEDURE

Duplex Filters are fitted with an integral changeover valve / cock and designed for use where the flow cannot be stopped for manual cleaning. By diverting the flow through second Filter chamber (widely known as Stby or Back-up Filter), the element can be cleaned without interruption of the flow.

(Refer Illustrations, Duplex Filter - 01 to Duplex Filter - 03, attached with this Bulletin).

1. Place “Change over cock” in position with one Filter as active and the other as inactive.
In this illustration “Blue Mark” on cock indicates Filter in use.
2. For cold starts or viscous fluids, the valve may be placed in mid-position to divert flow through both Filter vessels. Once proper operating temperature has been reached the “Change over cock” may be switched to allow flow through desired Filter only.

Transfer Flow (Change-over of Filter), from Active to Inactive.

1. Flow transfer from active Filter to clean or inactive Filter is accomplished by first ensuring clean filter is filled with fluid and pressure is equalized between the two filter vessels.
FOR THIS PURPOSE, THE PRESSURE EQUALIZATION LINE MUST BE OPEN.
Also open Vent valve on clean filter to release any entrapped air. Close Vent valve once liquid starts flowing from Vent valve.
2. Switch “Change over cock” position to divert flow to clean Filter.
3. Close pressure equalization line valve.

Filter Cleaning Procedure

1. Filter should be cleaned (or changed) when the differential pressure Indicator on window shows RED or as per interval mentioned in PMS, Planned Maintenance Schedule.
2. Transfer flow from active filter to clean filter per procedure mentioned in “Transfer Flow”.
3. **RELEASE PRESSURE IN THE FILTER VESSEL, TO BE CLEANED, OR TO BE INACTIVE BY OPENING THE COVER VENT VALVE. THE PRESSURE MUST BE AT ZERO BEFORE OPENING THE COVER ASSEMBLY (Flow of liquid to cease).**

4. Open filter drain valve and drain fluid to prevent dirty fluid from passing into clean fluid side of housing.
5. Loosen cover bolts and remove the cover. If cover lifter is installed, refer to operating instructions for cover lifter assembly.
6. Allow Filter OR Filter element to drain in vessel (Filter housing).
7. Remove Filter compression cap/hold down assembly, if any provided.
8. Make sure Filter housing is drained completely. Clean housing thoroughly and CLOSE DRAIN VALVE.
9. Clean (or replace) Filter element as per Maker's instructions.
10. Replace element compression cap/hold down assembly, if any provided. Be sure cap sealing surface is clean and free of nicks and scratches.
11. Examine cover seal gasket / "O" ring and replace if damaged. Clean cover sealing surfaces as required.
12. Replace cover and carefully tighten cover bolts.
13. After the Filter replacement (or renewal) is completed open pressure equalization line to fill inactive Filter (Filter just cleaned) and balance pressure. Vent valve on Filter cover must open to bleed off entrapped air. Close vent when fluid appears.
14. Close pressure equalization line valve.
15. This inactive Filter will remain in Stby mode till need arises to put it in use.

Additional Notes

Above instructions are for SHIP SPECIFIC type Duplex Filter but instructions will change as per type / model on your vessel.

Here are instructions for different type of Duplex Filter (Refer illustrations Duplex Filter - 04 to Duplex Filter – 06).

One has to remember :

1. This arrangement has TWO sets of Duplex Filters, each set having TWO Filter elements.
2. Ideal arrangement would be to use ONE Filter element, each from both Duplex Filters. This way TWO Filter elements will be in USE all the time. And TWO Filter elements will remain STBY.
3. If need arises to clean in-use Filter Elements then STBY Filter elements to be put in USE first by use of change-over cocks.
4. As mentioned above, Filter housing to be drained of dirty oil and same to be cleaned thoroughly. Drain valve to be closed without fail. Same way Filter elements to be shifted in bucket or small drum to avoid oil spillage on Engine room floor plates.
5. Clean (or replace) Filter element as per Maker's instructions.
6. Check condition of "O" rings / Gaskets and renew if required. Special attention to be given to "Gasket" located at the ends of Filter elements (see illustration 6). FYI "Gasket" provided on both ends of Filter is not removable! And if it is damaged, chances of dirty oil going to cleaned oil are higher!!
7. Replace cover and carefully tighten all securing bolts.
8. Oil Filling and Air bleeding procedure for cleaned Filter elements :
 - a. Please attend ONE Duplex Filter housing at a time.
 - b. Open the oil inlet to BOTH Filter elements, by using Change over cock. And then vent valve on Filter element (recently cleaned) cover must open to bleed off entrapped air. Close vent valve when fluid appears.
 - c. Change over cock to be shifted back to the Filter element in USE before.
 - d. Repeat above procedure (A, B & C) for Filter element from other Duplex Filter set.
9. This inactive Filter elements will remain in Stby mode till need arises to put it in use.

10. Ideal procedure (sequence of actions) of cleaning Filter elements is as under :
- a. Change over from ACTIVE Filter element to INACTIVE (Previously cleaned Filter element) from any Duplex Filter housing.
 - b. Clean Filter element as mentioned above.
 - c. Follow Oil Filling and Air bleeding as mentioned in step 8.
 - d. Go to next Duplex Filter housing.
 - e. Repeat steps A to C.

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