

INSTRUCTION SHEET NO. 368

P/N 29565638

March 10, 2021

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SUBJECT: Service Kit - Remote Floating Bundle Oil Coolers (Non-retarder)

Introduction:

Allison Transmission, Inc. has released a seal and ring service kit (P/N 29565640) and new special tools (P/N J-53006-1 and J-53006-2) to service non-retarder, remote floating bundle oil coolers P/Ns 29558111 and 29559232. This instruction sheet outlines the service procedures for replacing the seals and rings along with the necessary service tools to carry out the procedures.

Kit Content (29565640):

- Retaining Rings (2) P/N 29560993
- End Cap Lip Seals (2) P/N 29560994
- Viton O-rings (2) P/N 29560992
- Instruction Sheet (1) P/N 29565638

Special Tools Needed:

- End Cap Lip Seal Installer (J-53006-1)
- 3-Jaw Remover/Puller (J-53006-2)
- Slide Hammer (J-23907-1)

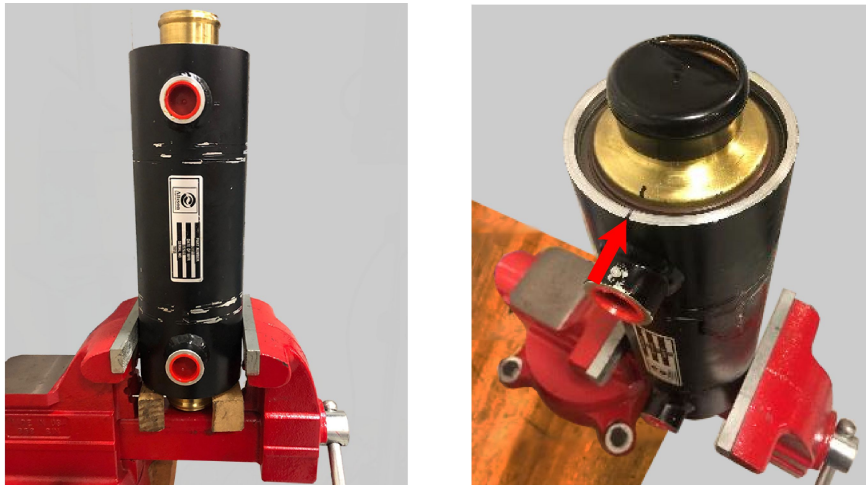
Service Procedure:

Use the following procedures to replace seals of non-retarder, remote floating bundle oil coolers (P/N 29558111 and 29559232). Cleaning of the cooler exterior can facilitate an easier removal of the seals.



CAUTION: Be careful not to dent, scratch or damage the inner core, outer cooler shell, end caps, O-ring and snap ring grooves during the removal and installation of kit components as this may alter the performance of the cooler.

1. Secure the cooler vertically on a bench vise. Mark the tube orientation on the outer cooler shell and inner tube. Refer to [Figure 1](#).



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Figure 1.



NOTE: When placing the cooler into the bench vise, use blocks of wood or similar soft material to support the bottom of the cooler on the cooler shell as seen in [Figure 1](#). This is done so that the cooler is not supported by the brass end cap.

2. Install the 3-Jaw Remover/Puller (J-53006-2) into the end cap lip seal on the top side of the cooler. Seat the outer hooks of the special tool inside the inner lip of the end cap seal. Tighten the seal puller to provide firm engagement of the seal puller jaws against the seal. Refer to [Figure 2](#).



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Figure 2.

3. Thread the Slide Hammer (J-23907-1) into the top of the seal puller. Refer to [Figure 3](#).



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Figure 3.

4. Quickly pull the weighted handle up. Do this several times until the end cap lip seal is removed. Discard the end cap lip seal.
5. Remove the retaining ring from the cooler. Discard the retaining ring. Refer to [Figure 4](#).



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Figure 4.

6. Using caution to prevent the bundle from coming out of the shell, remove the cooler from the bench vise. Rotate the cooler over 180 degrees and secure the cooler into the bench vise with the other end pointing up. Repeat steps 2-5.
7. Using caution to prevent the bundle from coming out of the shell, remove the cooler from the bench vise. Secure the cooler in the bench vise horizontally. Refer to [Figure 5](#).



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Figure 5.

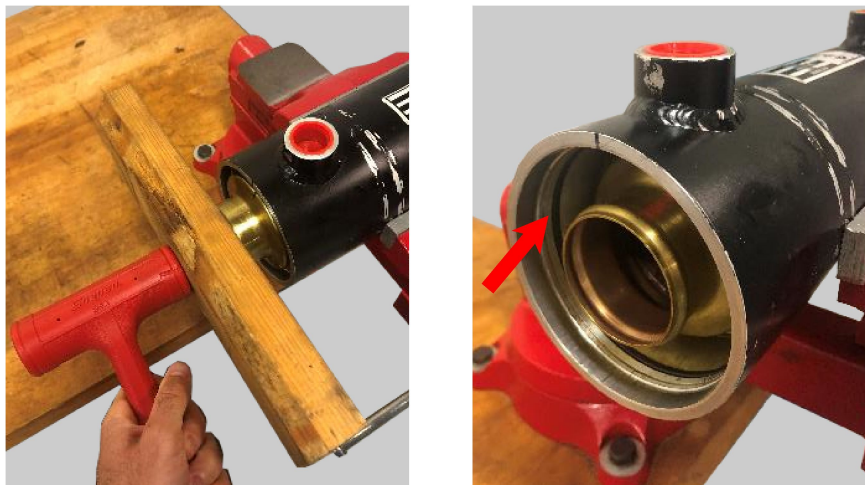
8. Remove the rubber end caps by hand if they are temporarily installed for transporting. Refer to [Figure 6](#).



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Figure 6.

9. Using a press/mallet and a block of wood or soft material to distribute the force on the water inlet/outlet, press/tap the cooler bundle inward until the O-ring is visible. Refer to [Figure 7](#).



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Figure 7.



NOTE: In all steps involving inserting/removing the tube, a press with a block of wood or soft material is the preferred method. If a press is unavailable, using a mallet with a block of wood or soft material will yield the same results.

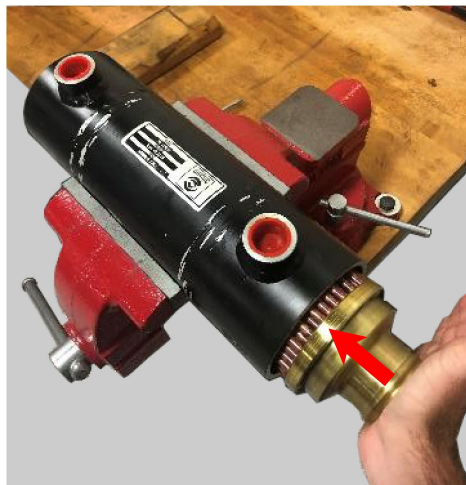
10. Remove and discard the O-ring. Refer to [Figure 8](#).



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Figure 8.

11. Push the cooler bundle through the shell in the direction shown in [Figure 9](#). The tube should exit the shell on the side of the removed O-ring. Remove the cooler bundle.



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Figure 9.

12. Remove and discard the remaining O-ring. Refer to [Figure 10](#).



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Figure 10.

13. Inspect the cooler bundle for any damage. Use further caution to carefully inspect the tubes in the location of baffles to ensure the baffles have not worn or cut in to the tubes. Refer to [Figure 11](#).



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Figure 11.

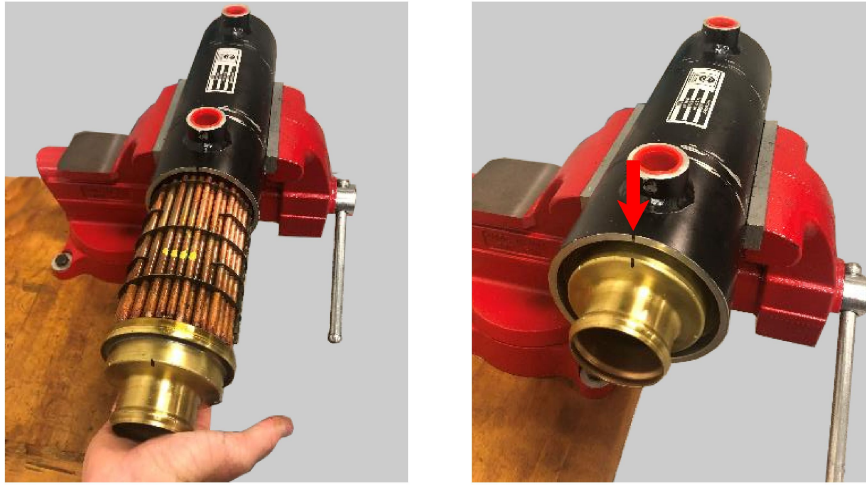
14. After coating an O-ring in TES-295 or TES-668 fluids, insert O-ring into the larger (inner) groove of the shell. Refer to [Figure 12](#).



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Figure 12.

15. Install the cooler into the shell through the side without an O-ring ensuring that the marks made in step 1 line up. Refer to [Figure 13](#).



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Figure 13.



NOTE: If an orientation mark was not made in step 1, insert the bundle into the shell with the first baffle cut (next to header) rotated 180-degrees away from the oil ports in the shell. The image on the left correctly displays orientation of the baffles relative to the oil ports.

16. Push/lightly tap the cooler with a wooden block or soft material until the O-ring groove is accessible. Refer to [Figure 14](#).



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Figure 14.

17. After coating an O-ring in TES-295 or TES-668 fluids, insert O-ring into the larger (inner) groove of the shell. Refer to [Figure 15](#).



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Figure 15.

18. Install new retaining ring into the smaller (outer) shell groove. Ensure retaining ring is completely seated. Refer to [Figure 16](#).



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Figure 16.

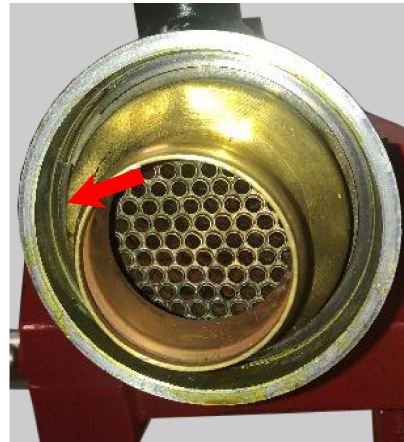
19. Using the wood block or soft material, press/lightly tap the cooler from the opposite side until the cooler is seated on the retaining ring. Refer to [Figure 17](#)



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Figure 17.

20. Install new retaining ring into the smaller (outer) shell groove. Ensure retaining ring is completely seated. Refer to [Figure 18](#)



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Figure 18.

21. Remove the cooler from the bench vise and install the cooler in the bench vise in the vertical position. Refer to [Figure 19](#)



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Figure 19.

NOTE: When placing the cooler into the bench vise, use blocks of wood or similar soft material to support the bottom of the cooler on the cooler shell as seen in [Figure 19](#). This is done so that the cooler is not supported by the brass end cap.

22. Place the new, endcap lip seal in position on the cooler. Note orientation of the seal in [Figure 20](#). The lip of the seal faces outward. Use the End Cap Lip Seal Installer (J-53006-1) to drive the end cap lip seal into place. The end cap lip seal is fully seated when the special tool contacts the cooler shell.



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Figure 20.

23. Remove the cooler from the bench vise and rotate the cooler 180 degrees in the bench vise. Similar to Step [21](#), use blocks of wood or a soft material to support the bottom of the cooler on the cooler shell rather than the brass end cap. Repeat step [22](#).
24. Refer to SIL 28-TR-14 for instructions to perform a pressure test on the floating bundle cooler.



NOTE: Procedures in SIL 28-TR-14 must be done to insure no internal or external leaks of the floating bundle cooler. If inspection of tube bundle did not find any potential leak paths in step 13 above, the pressure test will help identify internal bundles that were not within specification and should not be reused.
