Service Bulletin

Bulletin No. 2009–72R1
CMD 2009-12R1

Circulate to: ☐ Sales Manager ☐ Accounting ☑ Service Manager ☑ Technician ☑ Parts Manager

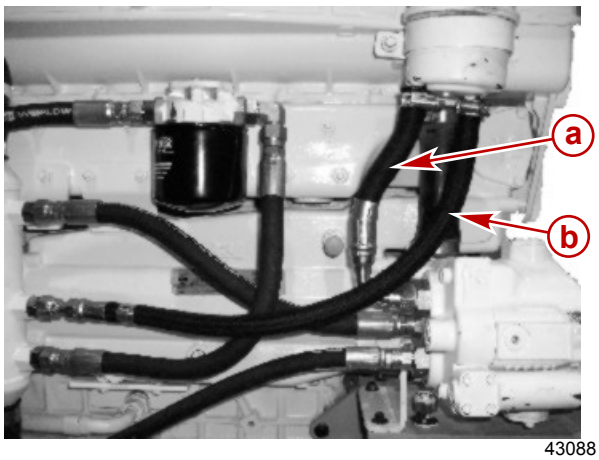
Leaks from Low-Pressure Steering Hoses on Diesel Axius Models

Models Affected

All Cummins MerCruiser Diesel QSD 2.8L and QSD 4.2L engines equipped with the Axius steering system built before October 15, 2009.

Situation

Cummins MerCruiser Diesel (CMD) has received reports of Axius-equipped QSD 2.8L and QSD 4.2L engines with hydraulic fluid leaks from the engine-mounted low-pressure hydraulic hoses. These leaks involve the hose connecting the hydraulic fluid reservoir to the hydraulic pump, and the hose between the hydraulic fluid cooler outlet and the reservoir.



43088

a - Reservoir-to–hydraulic pump hose and fittings
b - Hydraulic fluid cooler outlet–to-reservoir hose and fittings

New production CMD engines equipped with the Axius system include revised hoses, clamps, and fittings that eliminate the leak issues of the old design.

Perform the procedures described in the following QSD Axius service bulletins during the same service visit if they have not already been completed:

Service Bulletin Description	Service Bulletin Number
VesselView Restarts During Normal Operation of Diesel Axius Models	CMD 2009-07
Installation of the High-Pressure Filter Kit on Diesel Axius Models	CMD 2009-11

Correction

Axius engines in the field should be upgraded to the new production design components.

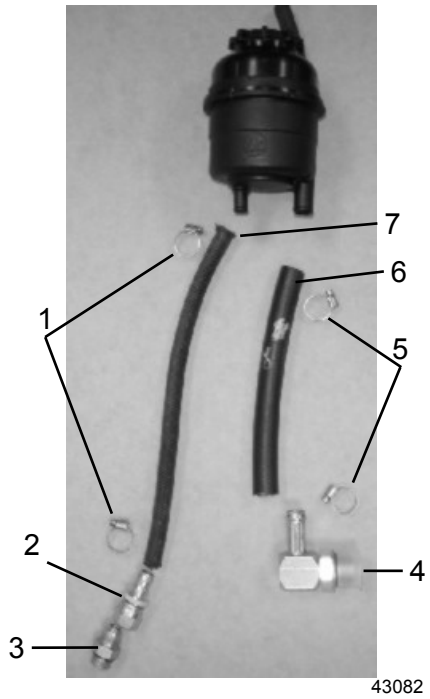
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Parts Information

Order the individual parts to perform this field upgrade from Cummins MerCruiser Diesel.



1 - Hose clamp
2 - Hose swivel
3 - Adapter fitting
4 - Pump fitting
5 - Hose clamp
6 - Flexible hose
7 - Flexible hose

Qty.	Description	Part Number
4	Hose clamp (11 × 20 mm)	815504206
2	Hose swivel—barbed fitting	8M2019260
2	Adapter fitting	8M2019259
2	Pump fitting—90° elbow	8M2019156
4	Hose clamp (14 × 33 mm)	815504212
2	Flexible hose (21 cm (8.25 in.))	8M2019155
2	Flexible hose (53 cm (21 in.))	883968
AR	Dexron III Automatic Transmission Fluid	Obtain locally

Removal

IMPORTANT: If removing any hydraulic component for service, immediately cap all open hydraulic hose fittings and component inlet and outlet fittings. Install the hydraulic hoses in one uninterrupted process. Do not leave the hydraulic system open longer than required to complete the installation.

IMPORTANT: Overtightening the hydraulic hose fittings can damage the fitting threads, O-ring, or sealing surface. Do not exceed torque specifications for the hydraulic hose fittings. To ensure proper torque, use an extension and crowfoot to apply torque at 90°.

NOTICE

Discharge of oil, coolant, or other engine/drive fluids into the environment is restricted by law. Use caution not to spill oil, coolant, or other fluids into the environment when using or servicing your boat. Be aware of the local restrictions governing the disposal or recycling of waste, and contain and dispose of fluids as required.

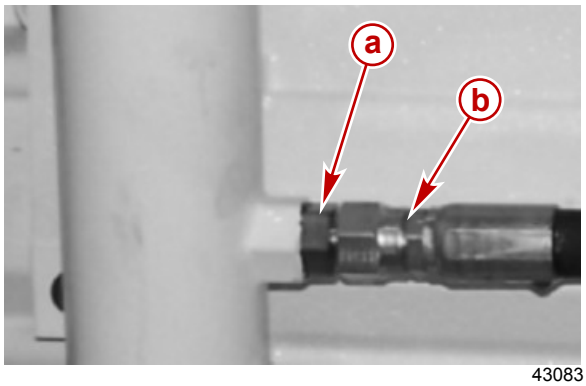
1. Position oil-absorbent pads to catch and contain any fluids spilled during this procedure.

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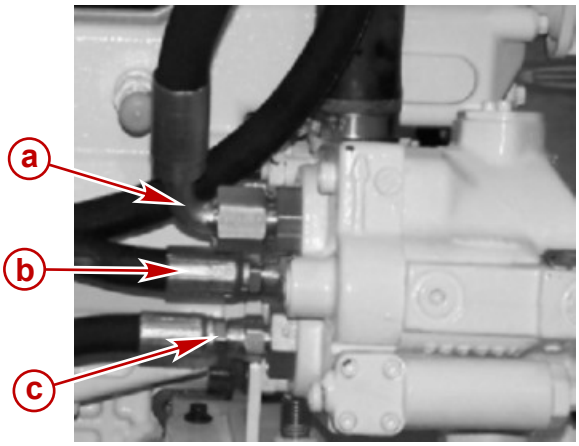
2. Drain the fluid from hydraulic fluid reservoir into a suitable container by removing the hose connected to the hydraulic fluid cooler outlet fitting.



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a - Hydraulic fluid cooler outlet fitting
b - Hose connection

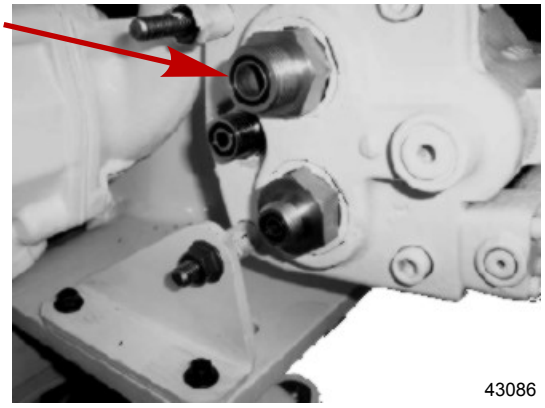
3. Remove and discard the hydraulic fluid cooler outlet fitting currently installed.
4. Remove the hydraulic fluid reservoir–to–steering pump hose at the pump connection. Drain the fluid into an appropriate container.



43084

a - Reservoir-to–steering pump hose
b - Pump case drain hose
c - High-pressure outlet hose

5. Disconnect the high-pressure and pump case drain hoses from the steering pump to improve service access. Contain and dispose of any released fluid properly.
6. Remove the inlet fitting from the back of the steering pump and discard.


43086

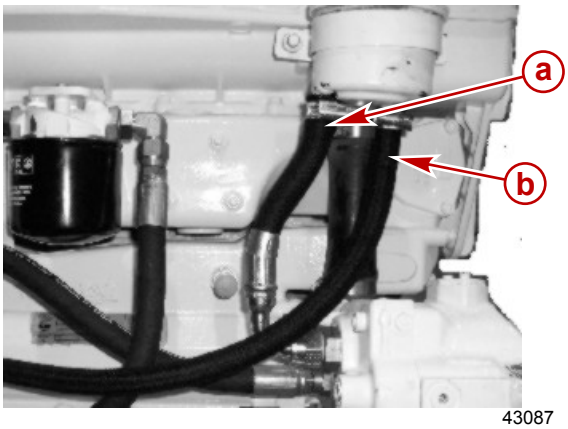
Inlet fitting

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7. Remove both the hydraulic fluid cooler–to-reservoir hose and pump-to-reservoir hose at the reservoir connection. Contain and dispose of any released fluid properly. Discard the hoses and clamps.

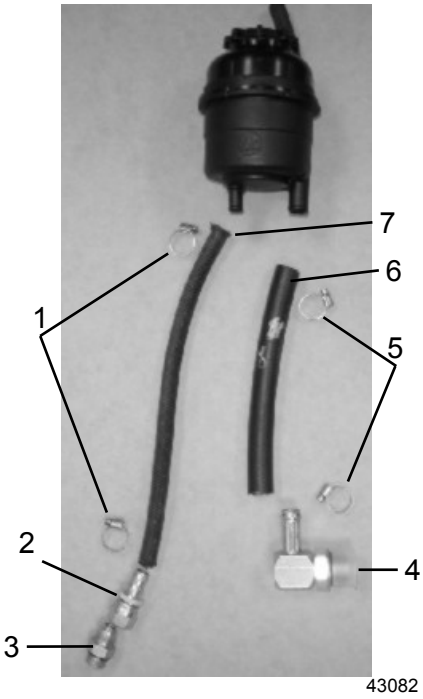


43087

a - Pump-to-reservoir hose
b - Hydraulic fluid cooler–to-reservoir hose

Installation

Parts for this upgrade are available separately through the normal process for ordering service parts.



43082

1 - Hose clamp (11× 20 mm)
2 - Hose swivel—barbed fitting
3 - Adapter fitting
4 - Pump fitting—90° elbow
5 - Hose clamp (14 × 33 mm)
6 - Flexible hose (8.25 in.)
7 - Flexible hose (21 in.)

1. Using a hose cutter, cut the hydraulic fluid cooler outlet–to-reservoir hose to specification.

Engine Model	Hose Length
QSD 2.8L	32.4 cm (12.75 in.)
QSD 4.2L	51.5 cm (20.25 in.)

2. Clean and lubricate the hydraulic fluid cooler outlet threads.

Tube Ref No.	Description	Where Used	Part No.
28	Dexron III Automatic	Hydraulic fluid cooler outlet threads	Obtain Locally

3. Clean and lubricate the hydraulic fluid cooler adaptor fitting threads and O-ring.

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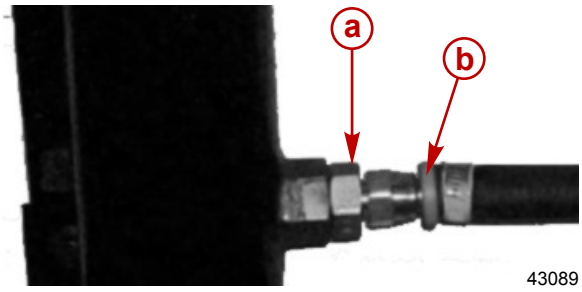
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Tube Ref No.	Description	Where Used	Part No.
28	Dexron III Automatic	Adaptor fitting threads and O-ring	Obtain Locally

4. Install the hydraulic fluid cooler adaptor fitting and tighten to specification.

Description	Nm	lb-in.	lb-ft
Fluid cooler adaptor fitting	56	–	41



a - Fluid cooler adaptor fitting
b - Hose swivel

5. Install the hose swivel in the fluid cooler adaptor fitting and tighten to specification.

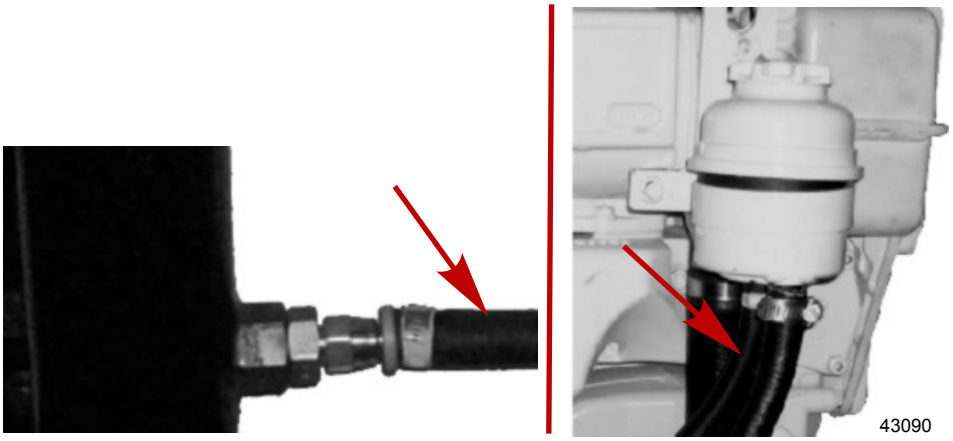
Description	Nm	lb-in.	lb-ft
Hose swivel	26	–	19

IMPORTANT: Ensure the reservoir's larger hose connection is positioned away from the engine. Loosen the reservoir retaining bracket and adjust the position of the reservoir's larger hose connection as needed. Secure the reservoir bracket.

6. Lightly coat the smaller diameter reservoir hose fitting with lubricant.

Tube Ref No.	Description	Where Used	Part No.
95	2-4-C with Teflon	Reservoir hose fitting	92-802859A 1

7. Install the upgrade flexible hose (previously cut to length) with hose clamps (11 × 20 mm) to the fluid cooler hose swivel and to the smaller reservoir connection. Tighten the hose clamps to specification.



Description	Nm	lb-in.	lb-ft
Hose clamp	3	26.5	–

8. Clean and lubricate the pump inlet threads and the new pump fitting threads and o-ring.

Tube Ref No.	Description	Where Used	Part No.
28	Dexron III Automatic	Fitting threads and O-ring	Obtain Locally

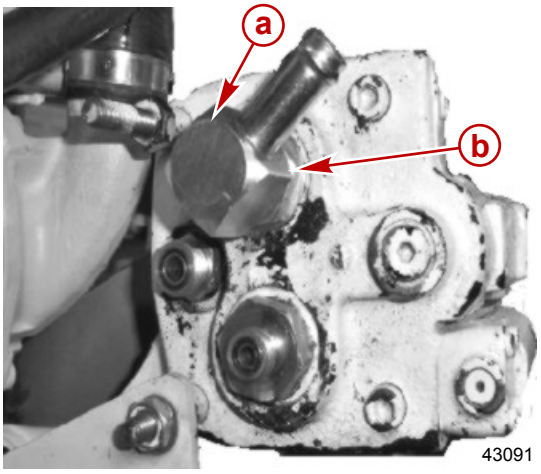
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IMPORTANT: Overtightening the pump fitting jam nut will damage the O-ring seal and cause a fluid leak.

9. Thread the new pump fitting into the pump until the O-ring seal and washer contacts the pump housing. Position the pump fitting hose barb as shown, so it does not interfere with the other pump connections. Tighten the pump fitting jam nut to specification.



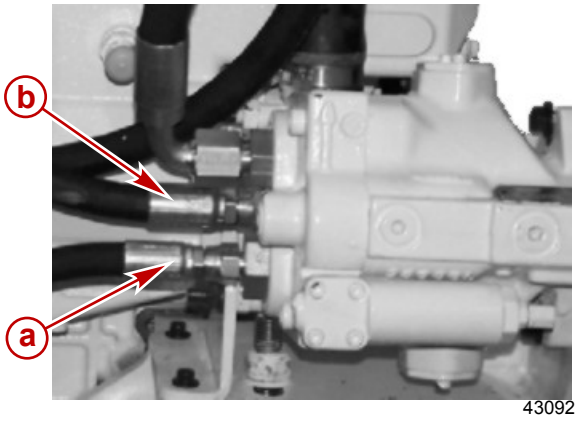
a - Pump fitting
b - Jam nut

Description	Nm	lb-in.	lb-ft
Pump fitting jam nut	30	–	22

10. Clean and lubricate the drain and hose fittings of the high-pressure pump case.

Tube Ref No.	Description	Where Used	Part No.
28	Dexron III Automatic	Fitting threads	Obtain Locally

11. Connect the high-pressure and the pump case drain hoses to the pump and tighten the fittings to specification.



a - High-pressure hose
b - Pump case drain hose

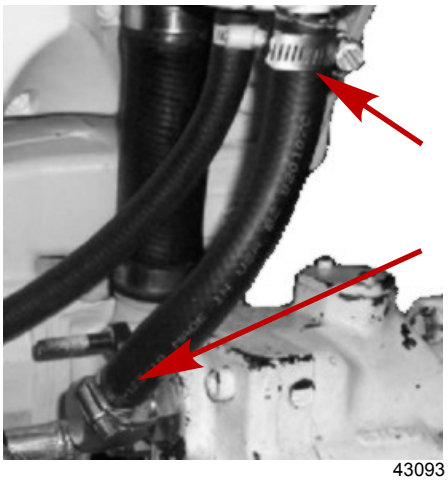
Description	Nm	lb-in.	lb-ft
High-pressure hose	50	–	37
Pump case drain hose	50	–	37

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12. Install the upgrade flexible hose with hose clamps (14 × 33 mm) to the reservoir and to the new pump fitting. Tighten the hose clamps to specification.

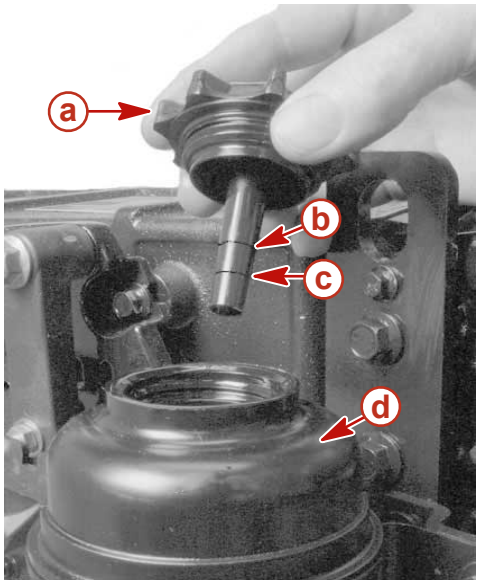


43093

Description	Nm	lb-in.	lb-ft
Hose clamp	3	26.5	–

13. Add the specified fluid to the hydraulic fluid reservoir to the full cold mark.

Tube Ref No.	Description	Where Used	Part No.
28	Dexron III Automatic	Hydraulic fluid reservoir	Obtain Locally



13064

a - Cap with dipstick
b - Full hot mark
c - Full cold mark
d - Fluid reservoir

14. Perform the component removal and installation steps 1–12 on the second engine.
15. Complete the procedures outlined in service bulletin **CMD 2009-11 Installation of the High-Pressure Filter Kit on Diesel Axius Models** before refilling the hydraulic system.

NOTICE

Without sufficient cooling water, the engine, the water pump, and other components will overheat and suffer damage. Provide a sufficient supply of water to the water inlets during operation.

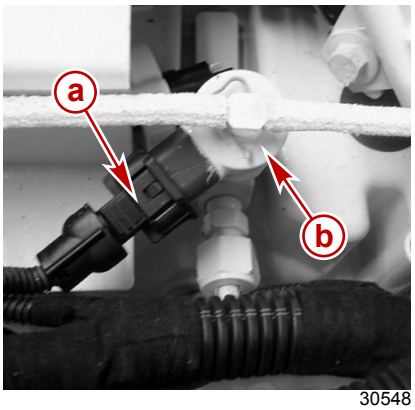
16. If the boat is out of the water, supply the engine and sterndrive with cooling water.

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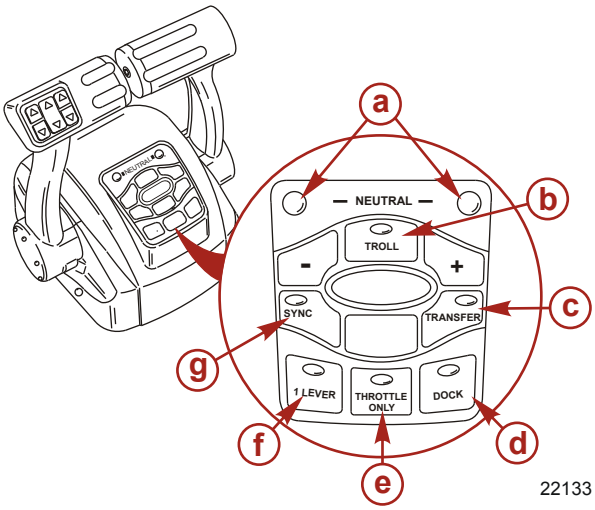
17. To crank the engine without starting, disconnect all the engine wiring harness connectors from the injectors.



30548

a - Harness connector
b - Injector

18. Crank the engine for 5–10 seconds. Check and add hydraulic steering fluid as necessary to obtain the correct level. Inspect all hydraulic hoses and connections for leaks.
19. Reconnect all the fuel injector connectors and start the engine. Let the engine idle for 10 minutes. Do not move the helm or joystick at this time, and do not exceed 10 minutes of idle time. Shut down the engine, recheck the fluid reservoir, and fill as needed.
20. Start the engine again and activate the Throttle Only mode on the ERC pad. Use the joystick to control movement of the drive. Move the joystick from port to starboard and back again **five times** to purge air from the steering actuator valves. Deactivate Throttle Only mode.



22133

Axius CAN trackpad
a - "NEUTRAL" LEDs
b - "TROLL" button
c - "TRANSFER" button
d - "DOCK" button
e - "THROTTLE ONLY" button
f - " 1 LEVER" button
g - "SYNC" button

21. Turn the steering wheel from port to starboard and back again **ten times** to purge air from the hydraulic system. Fill the power steering reservoir as needed. Inspect all hydraulic hoses and connections for leaks, and tighten as necessary.

Warranty

CMD will pay parts and labor costs associated with this filter installation within the normal terms and conditions of the engine's warranty. Submit a warranty claim through your normal warranty processing channel, listing the following information:

- MerCruiser engine serial number
- Flat rate code: MS22
- Labor: 1.0 hour
- Part code: 815
- Failure code: 26

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