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3000 Series Zeus Pod—Fluid Leak Troubleshooting Guide

Models Affected

Models Covered
All Zeus 3000 Series Pods

Scope

Worldwide

Situation

To aid in identifying the source of fluid leaks on a Zeus pod, the following guide is provided.

Zeus Pod Fluid Leak Troubleshooting Guide

Description of Failure	Leak Source Summary	Repair Procedure	Zeus Service Manual #52 Section Reference
Gearcase lube leaks into transmission. Gearcase lube reservoir level dropping and transmission fluid level increasing in fluid level (overflowing), high transmission temperature, slow going into gear.	Transmission cup plug loose or missing retaining ring. Location is internal to transmission and not visually seen.	Transmission is not repairable, and must be replaced.	7
Gearcase lube leaks out transmission/steering actuator mating surface.	Transmission mounting face O-ring damaged.	Remove transmission and replace O-ring.	7
Gearcase oil leaks. Water present in gearcase oil.	Missing or damaged seals between king pin adapter plate and steering actuator.	Pressure test gearcase as installed and with it removed. If as installed test is negative (leaks pressure), but gearcase removed test is positive (holds pressure), replace KPAP seals and O-rings. Reference Cummins Diesel Service Bulletin 2010-71.	8, 10

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Description of Failure	Leak Source Summary	Repair Procedure	Zeus Service Manual #52 Section Reference
Gearcase reservoir oil level decreasing, and having milky appearance.	Water in gearcase or gearcase not holding pressure. Drain tube O-rings not sealing. Propeller shaft seal failure. Missing or damaged O-ring on top of gearcase, bearing carrier or nose cone.	Pressure test gearcase. Replace propeller shaft seals, split line O-rings. Install new split ring. Reference Mercury Diesel Service Bulletin 2013-68.	10
Transmission oil level decreasing. Oil visible around the input shaft seal.	Transmission input shaft seal leak.	Transmission is not repairable, and must be replaced.	7
Transmission oil level decreasing. Oil visible on the exterior of the hose or fitting.	Loose transmission hose fitting, or damaged or missing O-rings. Hose fitting face seal or thread seal O-ring damaged or missing.	Tighten per specified torque. Replace fitting O-rings as needed.	7
Transmission oil or steering fluid levels decreasing.	Water cooler leaks.	Perform pressure test on cooler. Replace cooler if test fails.	6
Hydraulic fluid leaking into the gearcase. Gearcase fluid is a mixture of hydraulic oil and gear lube. Gearcase lube reservoir bottle level is increasing, hydraulic fluid level is decreasing.	Failed seals in steering actuator assembly.	Seals not serviceable. Replace steering actuator. Replace gearcase oil.	5, 6, 7, 8, 10
Water leak at steering actuator and midsection plate.	Damaged or missing steering actuator exhaust O-ring, or actuator to midsection plate O-ring.	Remove steering actuator and replace the respective O-ring.	7, 8
Hydraulic fluid level decreasing. Hydraulic oil visible on the exterior of the hose.	Hydraulic hose failure (crimp or hose is leaking).	Replace respective hose. Reference Mercury Diesel Service Bulletin 2012-65R1.	5
Hydraulic fluid level decreasing. Hydraulic oil visible on the exterior of the hose and fitting.	Loose hydraulic fitting. Hydraulic fitting face seal or thread seal O-ring damaged or missing.	Tighten per specified torque. Replace fitting O-rings as needed.	5
Hydraulic fluid leaking at high pressure filter assembly.	High-pressure filter plug/sensor oil leak.	Remove, reseal threads, and reinstall.	5
Hydraulic fluid leaking at trim tab manifold.	Trim manifold leaks from corrosion or blown O-ring.	Replace O-rings, or manifold assembly. If corrosion is related, verify MerCathode system is functional.	5
Hydraulic fluid leaking at steering/trim manifold.	Steering/trim manifold leaks from damaged O-ring at hose fitting or valve assembly.	Replace O-rings, or manifold assembly.	5
Hydraulic fluid level decreasing.	Trim cylinder rod seal failure.	Seals not serviceable. Replace trim cylinder.	5
Gearcase and steering reservoirs leaking.	Cracks in reservoirs, damaged during handling. Excessive fluid added to reservoir, during expansion and contraction due to temperature changes, the fluid overflows the reservoir.	Replace respective reservoir, cap, or O-ring.	5

The following tables identify specific locations and associated part numbers required.

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Steering Manifold	Part Number
Hydraulic fitting to manifold O-ring	8M0047401
Hydraulic fitting to hose face seal O-ring	8M0047399
Pressure transducer O-ring	8M0024307
Manifold to steering actuator O-ring (banjo fitting) (2)	8M0047401

Vertical Oil Cooler Fittings	Part Number
Fitting to cooler O-ring (4)	8M0047402
Fitting to hose face seal O-ring (4)	45253
Plug O-ring	8M0047402

Horizontal Cooler with Drop Box	Part Number
Fitting to cooler O-ring (2)	8M0047402
Fitting to hose face seal O-ring (2)	45253

Drop Box Cold Water Cooler	Part Number
Fitting (cooler to cooler hose) to cooler O-ring	45253
Fitting (transmission to cooler hose) to cooler O-ring	8M0047401
Fitting (transmission to cooler hose) face seal O-ring	45253

Steering Actuator	Part Number
Rotary seal (2)	8M0045622
Steering actuator to midsection plate O-ring	8M0007701
Oil drain plug O-ring	830749
Exhaust opening O-ring	8M0007558
Position sensor O-ring (2)	831985
Oil drain plug O-ring	896699

Hydraulic Hoses	Part Number
Oil cooler to reservoir tank	8M0049753
Steering/trim manifold to reservoir	8M0046071
Reservoir to pump	8M0040287
Case drain to oil cooler	8M0049763
Reservoir to pump adapter hose	8M0040286

Hydraulic Oil Reservoir	Part Number
Manifold return hose fitting face seal O-ring	45253
Manifold return hose fitting to reservoir O-ring	8M0047402
Reservoir to pump hose O-ring	8M0047403
Temperature sensor O-ring	896699

Gearcase Related	Part Number
Oil drain tube O-ring	8M0024744
Oil drain tube split ring	8M0079852
Front split line hole	891935

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Gearcase Related	Part Number
Drain plug seal	830749
Center bore O-ring	8M0007558
Inner propeller shaft seal	8M0033407
Outer propeller shaft seal	861694
Front nose cone O-ring	8M0007618
Bearing carrier O-rings (2)	87159

Transmission Related	Part Number
Fitting to hose face seal O-ring (2 places)	45253
Transmission to steering actuator O-ring	8M0007664
Temperature sensor O-ring (2)	896699
Pressure transducer O-ring	8M0024307
Dipstick O-ring	879194240
Drain plug seal (2)	879150094
Drain plug seal	879194238

Hydraulic Pump Related	Part Number
Pump mounting face O-ring	879312020
Case drain fitting to pump O-ring	8M0047401
Case drain fitting to hose face seal O-ring	45253
Oil-in fitting O-ring (2)	8M0047403
Oil-out fitting to pump O-ring	8M0047403
Oil-out fitting to hose face seal O-ring	8M0047399
Magnetic filter O-ring	8M0047403
Magnetic filter fitting to hose O-ring face seal	8M0047400

High-Pressure Hydraulic Filter	Part Number
Oil-in fitting to filter thread O-ring	8M0047402
Oil-in fitting to hose face seal O-ring	8M0047399
Oil-out fitting to filter O-ring	8M0047402
Oil-out fitting to hose face seal O-ring	8M0047399

King Pin Adaptor Plate	Part Number
Plate to steering actuator O-ring	8M0007557

Trim Tab Cylinder and Manifold	Part Number
Pressure transducer O-ring (2)	8M0024307
Manifold to trim cylinder O-ring (2)	8M0047401
Trim cylinder mounting O-ring	63351
Position sensor O-ring	831985
Manifold to cylinder O-ring (banjo fitting) (2)	8M0047401

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Fluid Where Used	Color	Comments	Part Number (Quart)
Transmission	Dark brown	Synthetic Power Steering Fluid, SAE 0W-30	858077K01
Steering actuator and trim system	Dark brown	Synthetic Power Steering Fluid, SAE 0W-30	858077K01
Gearcase (during break-in)	Brown	Premium Gear Lubricant, SAE 80W-90	858058K01
Gearcase (after break-in)	Green	High Performance Gear Lubricant, SAE 90	858064K01

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