



PROTERRA



INFORMATION BULLETIN

ISSUE DATE:	08/23/23
SERVICE BULLETIN SUBJECT:	DuoPower Gearbox Oil Filter PMI Update
VINs or MODELS AFFECTED:	All DuoPower Vehicles
COMPLETE BY:	Next Service Opportunity
SERVICE BULLETIN #:	IB-23-124
LABOR OPERATION CODE:	N/A

NOTICE! It is expected that this process will require 1 hour per bus. Please schedule appropriately to minimize vehicle downtime.

DuoPower Gearbox Oil Filter PMI Update

Description:

Due to recent findings of degraded filters in low mileage DuoPower Gearbox Oil Filters, the PMI has been TEMPORARILY updated from **100,000 miles to 6,000 miles**. This procedure describes the process to replace the oil filter and gearbox oil. Proterra continues to work with our suppliers to validate a more robust filter media.

This document should be retained and referred to for future maintenance until the replacement filter has been identified and a long term PM schedule established. Please ensure that this document is available for parts and maintenance staff.

Tools/Parts Required:

Tools and Supplies Required:

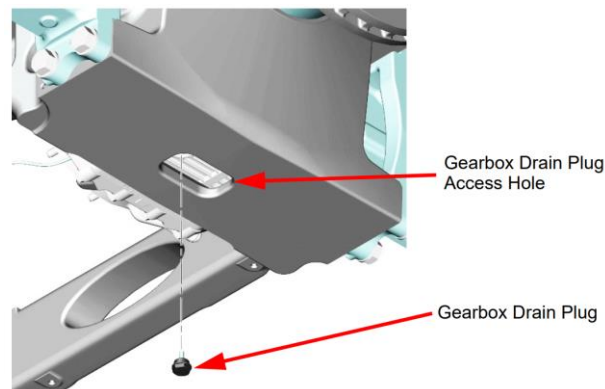
10mm Socket	
13mm Socket	
Torque Wrench	
Fluid Fill Pump	
Marker	
Gearbox Oil (Not Supplied)	2-10 Qts

Kit Parts Required:

Proterra Part Number	Vendor	Vendor Part Number	QTY Needed
052501	Engineered Machined Products	1370135016	2 EA

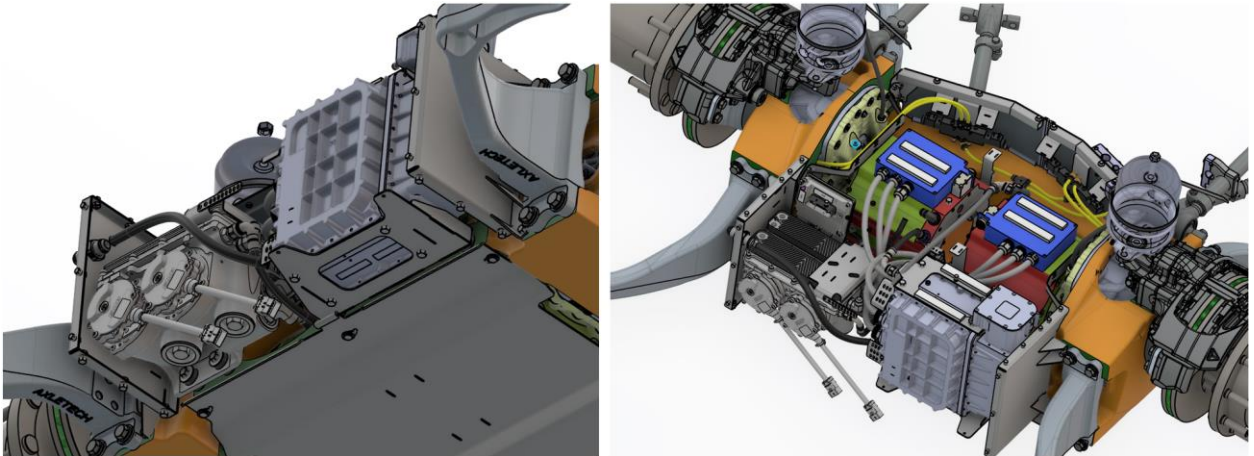
Procedure:

1. Use the Proterra approved Lockout/Tagout procedure to make the bus safe for work.
2. Using four Wheel Lifts, raise the bus into the air. Using four Jack Stands, support the bus for safety.
3. Gain access to the street side gearbox oil drain plug on the bottom side of the gearbox.
4. Place catch pan underneath the gearbox oil drain plug.
5. Remove the drain plug and allow fluid to drain.



6. Analyze the oil in the sample catch pan. If the oil contains particles of the decaying filter, ensure all the street side gearbox oil has been drained.
7. Reinstall the drain plug.
8. Discard the oil that was initially drained.
9. Repeat Step 5-11 for the curb side gearbox oil.

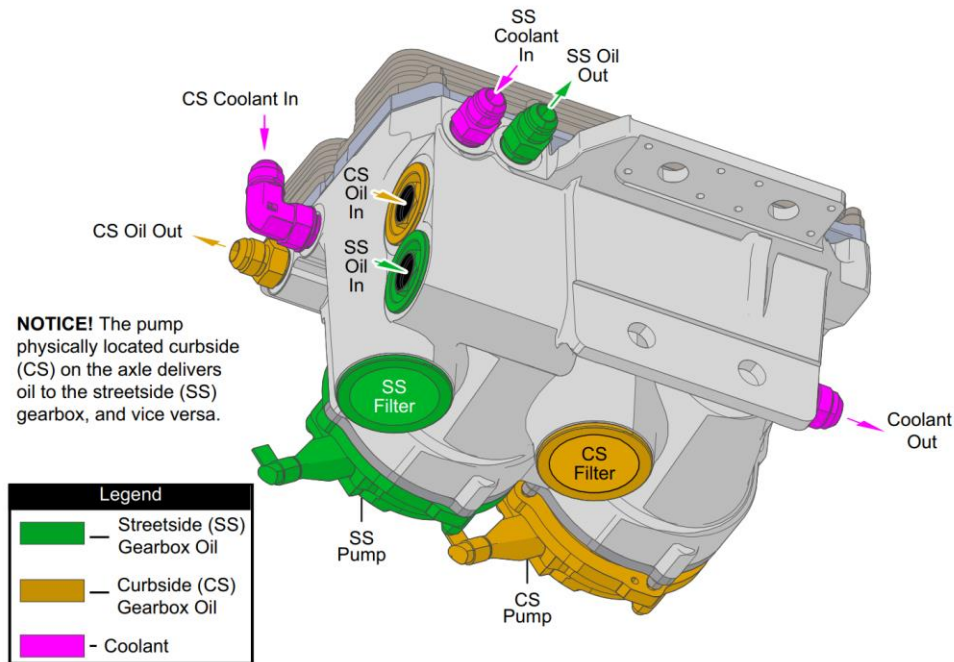
10. Remove the DuoPower front/rear cover plates and top plates to provide access to the system. Retain fasteners for reinstall.



11. Verify the oil module torque stripes are present on the oil filter caps and oil strainer caps. If no torque stripes are present, apply torque stripes before proceeding.
12. Remove and inspect the street side oil filter. If the oil filter is decaying, ensure all the street side gearbox oil has been drained.



NOTE: The Oil Module is located on the Street Side of the DuoPower axle. The filter physically located towards the curb side is the Street Side oil filter. The filter located towards the Street Side is the Curb Side oil filter.

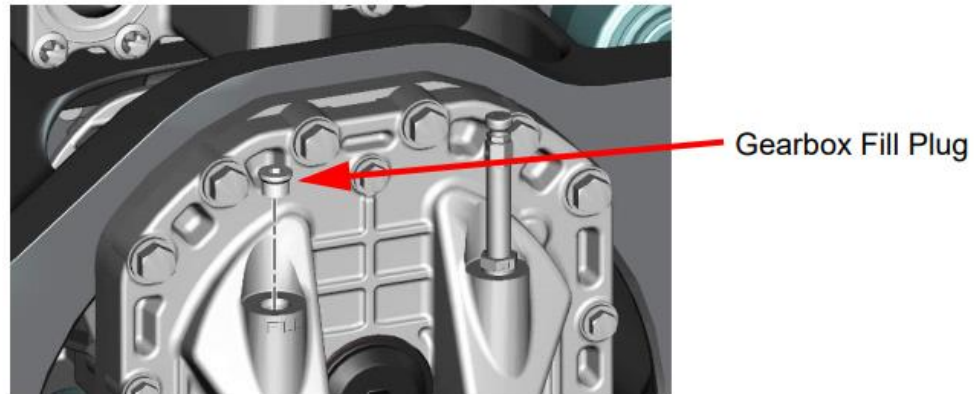


13. Remove and inspect the Street Side wire mesh filter. Clean off any debris if necessary and reinstall. If filter debris is found in the wire mesh filter, all of the gearbox oil will need to be replaced.

NOTE: The Street Side prefilter is located on the lower side of the module while the Curb Side prefilter is located on the upper side.

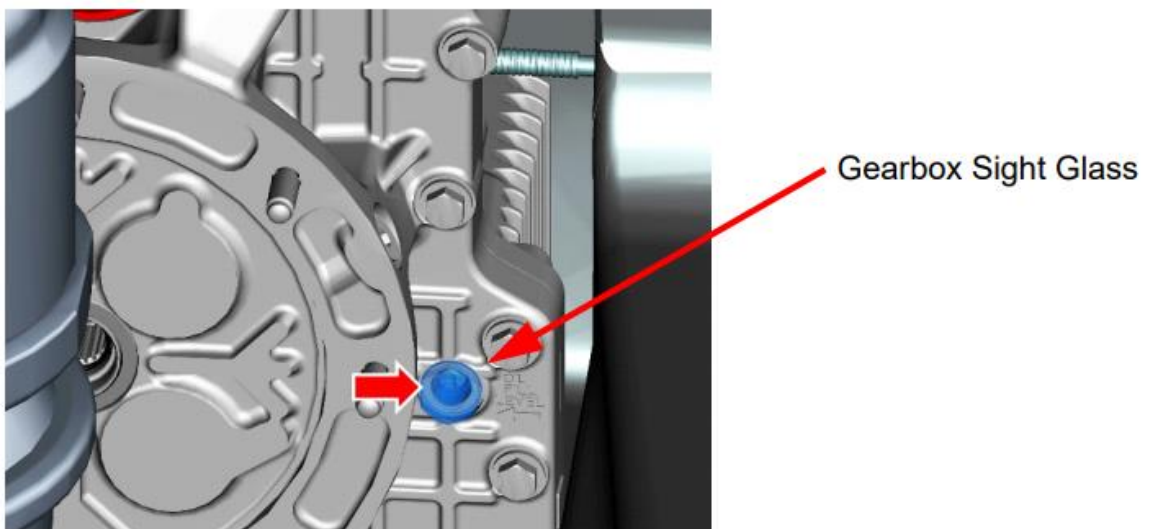
14. Apply degreaser to a rag and clean the threads on the oil filter caps, strainer caps and the oil module.
15. Repeat Steps 14-15 for the Curb Side Gearbox.
16. Install the 2 new oil filters.
17. Reinstall both oil filter caps and strainer caps by realigning the torque stripes.
18. Check and clean the street side drain plug and then install drain plug into the bottom of the gearbox. **Torque drain plug to 18 ft-lbs.**

19. Remove the street side gearbox fill plug.



20. Using a fluid fill pump with angled fill tip, fill the street side gearbox with the recommended fluid until seen in the sight glass.

NOTE: Gearbox fluid alternatives shown in Appendix A.



21. Apply a small amount of gearbox oil to the O-ring seal on the fill plug and then install the street side gearbox fill plug. **Torque to 13 ft-lbs (18 Nm).**
22. Repeat Steps 20-23 for the Curb Side Gearbox.
23. Run both the Street Side and Curb Side oil pumps to purge any air from the system.
24. If necessary, top off gearbox oil until fluid is seen in both sight glasses.
25. Install the removed axle panels with the retained fasteners.
26. Remove the Jack Stands and lower the bus using the Wheel Lifts.

Appendix A: Gearbox Oil Alternatives

Allied Oil and Tire Co.	Allied Syntx MTF 7000 Synthetic Transmission Fluid
Bardahl de Mexico S.A. de C.V.	Bardhl Gear Oil MTF Fully SYN PS-386
BASF Corporation	EMGARD MTF 7000
BG Products, Inc.	SAE 40 Full Synthetic Transmission Oil
BP Lubricants USA Inc.	Transmax Manual E Longlife 40
Chevron Products	Delo® Syn-trans XE SAE 75W90
Chrysan Industries	Chrysan PS-386 MTF
CHS Incorporated	Maxtron MT 40
Citgo Petroleum Corp	Syndurance Synthetic MTF
	Mystik SX-7000 Synthetic MTF
Comercial Importadora S.A. de C.V.	Synquest CD 50
Comercial Roshfrans, S.A. de C.V.	Gear Plus CD-700 (Synthetic Transmission Fluid)
David Weber Oil Co.	Gibraltar Syngear PS-386 SAE 40
Exxon Mobil Fuels and Lubricants	Mobil Delvac 1 Transmission Fluid 40
Federated Co-Operatives Ltd.	MTA EA Synthetic
Fuchs Petrolub	Fuchs Titan Cytrac ETN SAE 40
Industrial Villanueva, S.A. DE C.V.	Invisa Synthetic Oil Gear AC SAE 75W-90
Lubrication Engineers, Inc.	Synolec Transmission Fluid SAE 40 (640)
Mercedes-Benz Australia/Pacific Pty Ltd	Alliance Prime Trans Plus 40
Navistar	Fleetrite PS-386 Synthetic Manual Transmission Lubricant
Northland Products Co.	Northland Synergy Synthetic® ExP Transmission 50
Petro-Canada Lubricants Inc.	TRAXON E Synthetic MTF (Synthetic Transmission Fluid)
Phillips 66 Company	Triton® Synthetic MTF
	Kendall SHP® Synthetic MTF
Quick Smart Products P/L	Road Trans MTF PS-386
Raloy Lubricantes, S.A. C.V.	Raloy Transintex Plus SAE 40
Repsol Lubricantes Y Especialidades S.A.	Repsol Cartago LD 40
Royal Manufacturing Co.	Monarch Syntran Plus SAE 40
Safety-Kleen Oil	Performance Plus Synthetic HD PS-386 Transmission Fluid
Shell	Spirax S6 GME 40
Texas Refinery	Syntex 2000 SAE40 Synthetic Manual Transmission Lubricant
The Valvoline Company	Syn Gard™ Transmission Fluid E386
Total Mexico S.A. DE C.V.	Transmission SYN 7000
TOTAL Specialties USA, Inc.	TOTAL Transmission Gear 8 FE SAE 40
Warren Oil	America Max Full Synthetic SAE 40 Manual Transmission Fluid
	Lubriguard SAE 40 Synthetic Heavy Duty Transmission Fluid
	PURUS Synthetic SAE 40 Heavy Duty Transmission Fluid