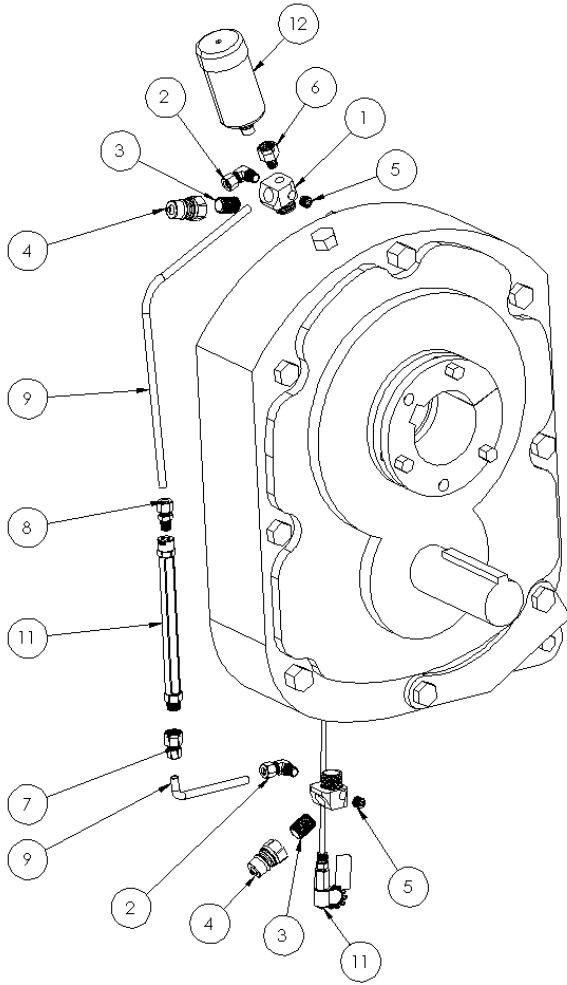




# Gearbox Installation Kits Instruction Manual



## Gearbox Installation Kit Instructions



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	14-00266 14-00267 14-00268	Gearbox Multi Component Fitting 3/4" NPTM	2
2	14-00274	3/8" Tube x 1/4" Male NPT Brass 90° Compression Elbow	2
3	14-00260	Brass 1/2" NPT Close Nipple	2
4	16070	Quick Disconnect, 1/2" Plug, Double Shut-Off, Brass	2
5	14-00276	Stainless Steel, 1/4 Pipe Size, Hex- Socket Plug	2
6	39238	Watchdog Desiccant Breather, ADAPTER, 1/4" MNPT x 3/8" FNPT	1
7	14-00272	Straight Adapter, 3/8" Tube OD x 3/8 Female Pipe	1
8	14-00273	3/8" Tube x 1/8" NPTM Compression Fitting	1
9	TB-00	Brass Tubing, 3/8" OD x .311 ID x .032" Wall	36"
10	BG-0750-3-C BG-0550-3-C BG-0350-3-C	Liquid Level Gauge, Sight Glass, 7.5", 5.5", or 3.5" x 5/8" OD	1
11	36204	Pitot Tube 1/4 NPTM Fx 12 SST	1
12	WG-050205-EX	Watchdog Desiccant Breather Gold 5.59"H x 2.54"DIA 5CFM EX Check Valve 3/8"Tri-fit	1

### Trico Gearbox Kit Part Numbers:

**40017 - Gearbox Kit #7, w/ 3/4" NPT Connections**

**40018 - Gearbox Kit #5, w/ 1/2" NPT Connections**

**40019 - Gearbox Kit #3, w/ 3/8" NPT Connections**

## INTRODUCTION

Gearbox Installation kits are designed to be adapted to fit a variety of different manufactured gearbox types and mounting positions. Kits allow for identification of proper oil level in the gearbox, reduces contamination by allowing desiccant breather filtration, provides quick disconnect ports to allow filtering with filtration equipment and has an oil sampling port designed for high viscosity oils. The number size of the kit, reflects the size in inches of the sight glass window. In selecting the correct kit for your gearbox, measure the height of case and select the best sight glass size and connection type based on the location of the oil level within the manufactured case and port threading. Refer to your OEM manufacturer to determine the correct oil height for your gearbox. Examples are provided below for typical Blador Dodge® Torque-Arm™ Gear Reducer.

The two Multiport Component fittings provided in the kit are mounted at the breather location and one at the drain location. When plumbed, the Level Gauge should be at the middle of the level location depending on the gearbox configuration. The parts diagram above depicts a

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## Gearbox Installation Kit Instructions

Dodge® Torque-Arm™ #7 Gear Reducing unit mounted in the position B configuration of Figure 1. Noting the breather, drain and level port plug positions from the OEM manual.

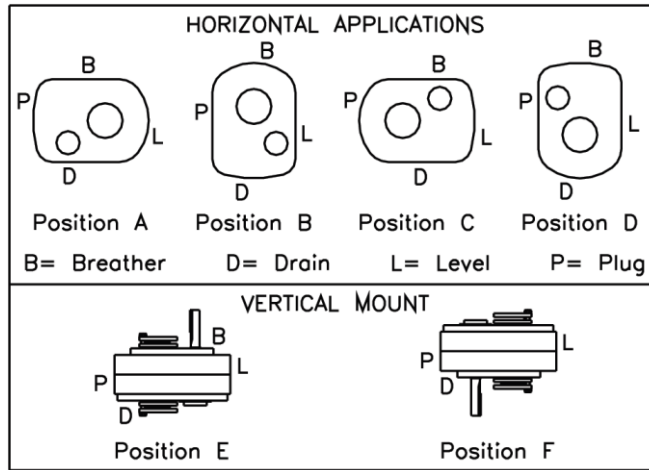


Figure 1. (Dodge® Manual MN1610)

### REQUIRED TOOLS

- 9/16 Open End Wrench
- 11/16 Open End Wrench
- 13/16 Open End Wrench
- 1-1/2" Open End Wrench
- Standard Hex Key set
- Tubing Bender for 3/8" dia. Tubing
- Tubing cutter
- Pipe Sealant
- Tape Measure
- Gearbox OEM manual

### INSTALLATION INSTRUCTIONS

The Gearbox Multi Component Fittings have three 1/4" NPTF connections located on the top and the sides of the fitting. This allows a variety of installation orientations to be achieved with the supplied fittings. Installation kits can accommodate different gearbox designs. Depending on the gearbox casting, in the installation process different adapters maybe need to raise the Multi component fittings enough to install them past casting ribs.

1. Inventory components of the kit
2. Determine gearbox port locations from OEM manuals (See Figure 1 for Standard Dodge® Torque-Arm™ Gear Reducer)
3. Verify gearbox lubrication type and quantity needed.
4. Clean outside of gearbox to remove debris around port locations.
5. Drain Gearbox from the drain plug identified in the OEM manual.
6. Remove the breather from the breather port location and remove level plug if equipped.

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7. Dry fit item #1 (Gearbox Multi Component Fitting) into the breather and drain ports to determine orientation of quick disconnects and where to place lines for the sight glass. Fittings can be rotated to allow sight glass to be oriented down the side or the face of the gearbox or allows for the installation around protective shrouds or cages. (Use adapters if needed)
8. After determining the Multi Component fitting orientation, make a note of the locations to install the hex plug #5 and the compression elbow #2 in the orientation desired.
9. Remove Multi Port Fitting #1 and install the hex plug #5 and compression elbow #2 using pipe sealant into #1. Reinstall the Multi Port Fitting #1 into the breather and drain ports of the gearbox using pipe sealant.

**Note:** make sure both compression elbows on the on the upper and lower Multi component fittings are on the same side when installed.

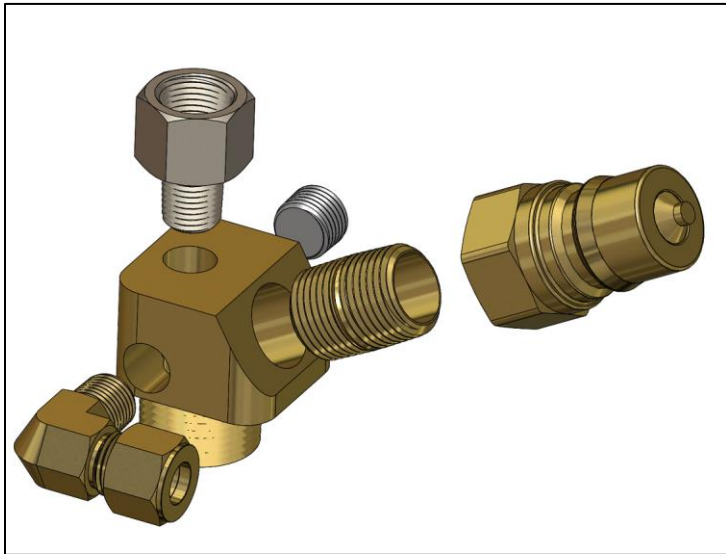


Figure 3: Upper fitting

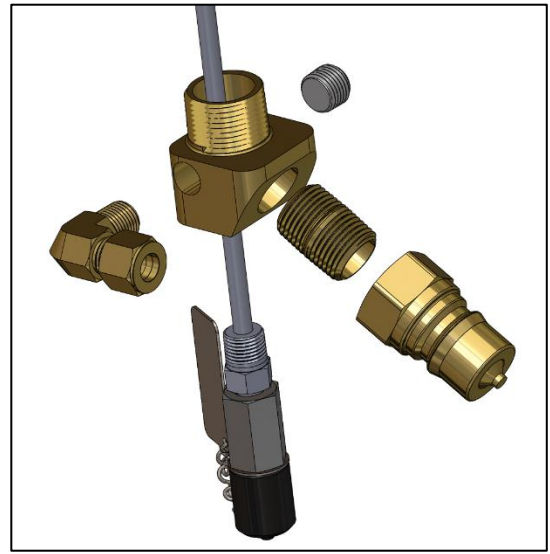


Figure 4: Lower Fitting

10. Starting from the compression elbow #2 on the drain side, measure the distance from the compression fitting to the side of the gearbox where the sight glass will be installed. Add  $\frac{1}{2}$ " to the dimension to allow for the diameter of the sight glass body next to the gearbox casting.
11. Transfer the distance measured to the brass tubing #9 and make a mark using a permanent marker.
12. Using a tube bender, bend the tubing from the mark to a desired angle to mount the sight gage.
13. Loosely place the bent tubing into the compression elbow at the bottom and holding it in the desired orientation place the sight glass alongside of the tubing so that the midpoint of the sight glass is at the location of the proper oil level in the gear box.

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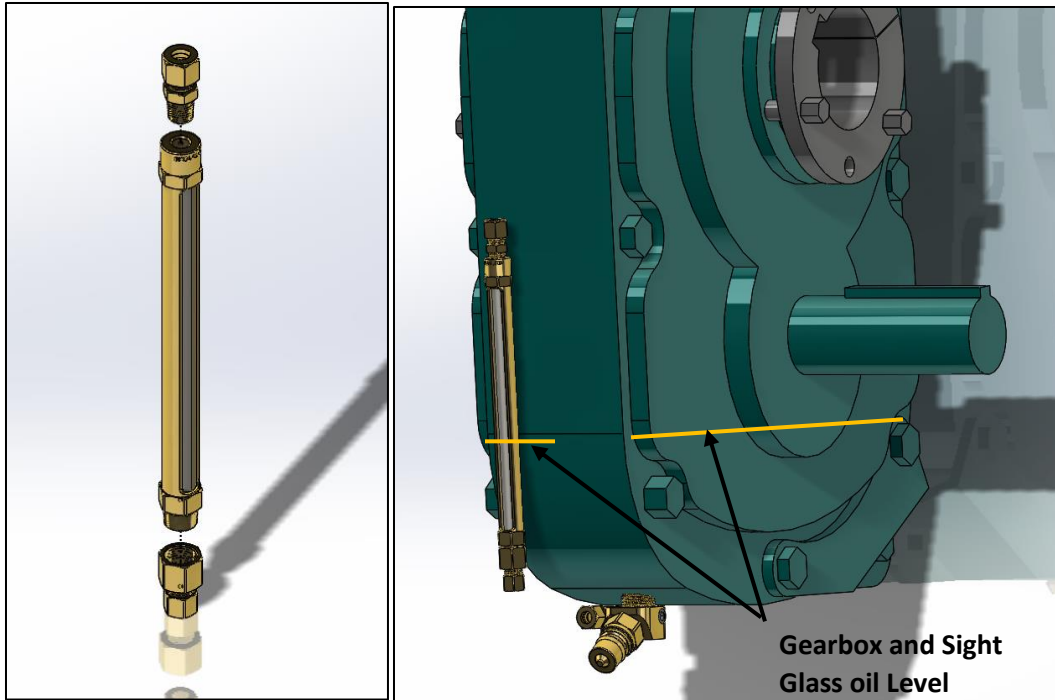


Figure 5: Sight glass location for Dodge® horizontal application B.

14. Make a mark on the tubing where the lower compression fitting of the sight glass connects and cut the tube at the mark with a tube cutter.
15. Place the tubing into the compression elbow at the bottom port and tighten the compression fitting.
16. Insert tubing into the end of the lower part of the sight glass compression fitting and tighten.
17. Place the tubing loosely into the top compression fitting of the sight glass and using a straight edge follow the angle of the compression elbow #2 on the upper breather fitting #1 to the tubing and make a mark. This is the plane the tubing must be bent, to make a connection with the upper compression elbow.
18. Bend the tubing to the correct angle to be connected to the upper fitting. Several bends can be made to make the connection if needed.
19. After the correct bends are made, place the tubing back into the upper compression fitting on the sight glass.
20. Make a mark on the tubing indicating where to cut the tube to make the connection with the upper compression elbow #2.
21. Remove and cut the tubing to the correct length.
22. Install the tubing into the upper sight level compression fitting and breather compression elbow and tighten connections.
23. Place pipe sealant on both sides of the brass nipple #3 and thread one each into the Multi port fitting #1 in the breather and drain locations.
24. Thread the quick connector #4 onto each of the pipe nipples and tighten the assembly.

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25. Using pipe sealant on the threads, thread the adapter #6 into the top port of the Multi Port fitting #1 located at the breather location and tighten.
26. Locate the pitot tube sample port.
27. Place the pitot tube into the port drain location on the lower multi-port fitting.
28. Keeping the pitot tube parallel with the fitting, insert the pitot tube into the open until the tip hits the gear set and make a mark on the pitot tube.
29. Remove the pitot tube and measure the distance, then subtract  $\frac{1}{2}$ ".
30. From the threaded portion of the sample port take the length calculated and measure down the pitot tube making a mark.
31. Using the tubing cutter cut the pitot tube at the mark. This will allow the pitot tube to sit off of the gear set enough to take an oil sample while in operation in the turbulent oil zone.
32. Place pipe sealant onto the threads of the sample port and thread the sample port and pitot tubing into the Multi port fitting located at the drain port.
33. Using a desiccant breather with a 3/8" NPT male connection thread the desiccant breather into the Adapter #6.

### FILLING & OPERATING INSTRUCTIONS

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1. With the desiccant breather removed and the level port plug removed, slowly fill the gearbox through the breather port with the correct amount of oil or until the oil comes out of the level port location.

**Note:** Filling the gearbox too quickly will cause the gearbox to be overfilled due to the time it takes for the oil to drain off of the gear sets. Remove excess oil if needed by draining or allowing it to seep from the level port location. Overfilled gearboxes will cause excess heat generation.

2. Once filled, mark the location of the oil in the sight glass to visually indicated that the gearbox is at the proper level during operation.
3. Place pipe sealant onto the Level plug and reinstall into the gearbox if applicable.
4. Thread the desiccant breather into Adapter # 6 until snug.

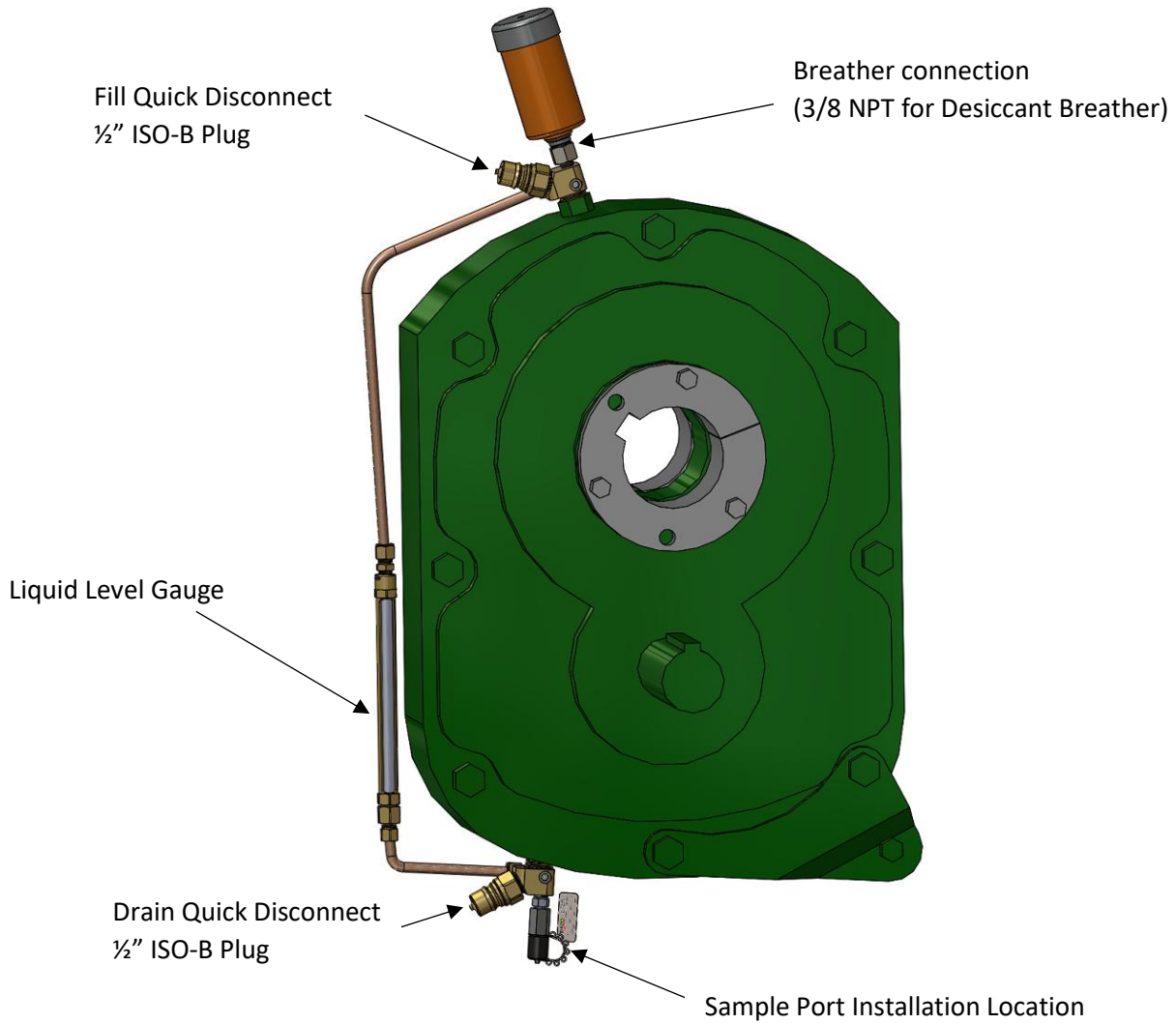
**Note:** During operation gearboxes can be filtered using filtering equipment by plugging into the quick disconnects at the breather and drain locations. Oil can also be quickly removed from the gearbox by connecting to the bottom quick disconnect and drain with a hose or the use of filtration equipment.

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