CAT C7 FAN BEARING REPLACED WITH GREASE-ABLE BEARING

BACKGROUND:
My previous Tiffin motor home was a 1998 Allegro Bus with Cat 3126 engine. This engine had a grease zerk for the fan hub bearing and was able to grease this bearing on a periodic basics.
In 2006, I traded the Bus for a new Tiffin 2006 Phaeton with a CAT C7. The fan hub bearing is a sealed without a grease zerk. A friend has CAT C7 in his 2007 Phaeton. In Feb 2017 the fan bearing hub came apart at 72000 miles on I-20 west of Odessa, TX. Bottom line $2700 later a sealed fan bearing was replaced by Freightliner in Odessa. In order to replace the bearing, Freightliner cut a hole in the fan shroud to access the bearing. After searching the internet I found that hub bearing failures have been occurring on motor homes that have the CAT C7
Since my coach has 62000 miles, the CAT C7 may be headed for the same problem. The reason that CAT used the sealed bearing was there was no easy way to grease a hub bearing. Under the existing CAT C7 configuration in a Phaeton it would be almost impossible to grease a hub bearing.

REPLACE HUB WITH ACCESSIBLE GREASEABLE BEARING: Working with CAT HOLT in Fort Worth, we came up with a part substitutions configuration that provided an accessible grease-able hub bearing on my CAT C7. Several fan hub parts from the CAT 3126 engine are being incorporated in the CAT C7 fan hub. Table 1 shows the part comparison between the two engines. This configuration was installed in my 2006 Phaeton by CAT HOLT in Ft[1] Worth. **The key to this installation is getting access to the fan and hub without removing the inter-cooler, radiator and hoses.** Prior to the installed an access hole was cut into the top of the fan shroud which allowed access to the fan and hub. This was done ahead of time to save cost. See Figures

FIGURE 1: CAT C7 WITH EXISTING SEALED BEARING. This figure shows the existing configuration with a seal bearing.

FIGURE 2: CAT C7 FAN BEARING LUBRICATION. This configuration shows a grease-able fan hub bearing via a 3' grease fitting relocation hose.

Table 1

CONVERT CAT C7 SEALED FAN BEARING TO LUBRICATED FAN BEARING.
REPLACE ITEMS 4,5,AND 6 WITH ITEMS 2,5,3, AND 9 FROM THE CAT 3126 ENGINE VERSION.

CAT C7 SEE FIGURE 1 CURRENT FAN BEARING VERSION			CAT 3126B VERSION SEE FIGURE 2 WITH FAN BEARING LUBRICATION		
ITEM		QTY	ITEM		
1	111-7238	1PLATE	4	111-7238	THRUST PLATE
2	190-3956	1PULLEY	6	190-3956	PULLY
3	190-3968	1SHAFT-FAN	7	190-3968	FAN SHAFT
4C	307-9798	1BEARING AS	2	61-9235	BEARING AS ROLLER
5C	226-7914	1BRACKET	5	134-5690	BRACKET-FAN BEARING
6C	228-5827	1RETAINER-BEARING	3	100-4026	RETAINER-BEARING
7M	5C-7423	4SCREW(4 EA)	8	5C-7423	SCREW(4 EA)
8M	6V-3940	3BOLT(3 EA)	10	6V-3940	BOLT(3 EA) (6 TOTAL)
9M	6V-5219	2BOLT(2 EA)	11	6V-5219	BOLT(2EA)
10C	9M-1974	3WASHER-HARD(3 EA)	12	9M-1974	WASHER-HARD(3 EA)
11M	6V-5215	1BOLT			
12M	6V-5217	3BOLT			
			9	5M-6509	SEAL O RING

The grease fitting relocation hose can be obtain from www.greaseextensionhoses.com. The 1/8" NPT female nipple and 1/8" NPT x 2" pipe is available at ACE Hardware.

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FIGURE 3 CAT C7 PARTS LAYOUT: Figure 3 depicts the parts layout . Note the 3" NPT 1/8" pipe extension. This extends the grease hose above the pulley. **Figure 4** depicts the routing of the grease fitting relocation hose. The hose should be tie wrapped to the shroud frame housing.

FIGURE 5 ACCESS TO FAN: Figure 5 shows a metal cover over a cutout of the fan shroud that was made to access the fan and hub bearing. **Figure 6** shows the access to the fan. The fan was removed and moved forward to the inter-cooler. This allowed access to the fan belt and hub bearing. **Figure 7 and 8** shows the cover that was fabricated to cover the hole. The shroud is made of fiberglass and was cut out using an oscillating saw. The cover is made from the fiber glass cutout and sheet metal. The sheet metal is riveted to the fiber glass that was cut out. The cover is attached to the shroud by using six self tapping medal screws.

SUMMARY: This installation of a grease-able fan bearing was done as a preventative maintenance measure. This motor home is 11 years old and I am approaching 80. I will not be buying another motor home. I guess you could consider this as an upgrade. A friend cut the access hole and made the cover. This reduced the labor cost of the installation . The cost of parts was just under $300 and cost of labor about $650. The two engine belts were also replaced. If this bearing failure would have occurred on the road, this cost of repair could be in the $2500 to $3000 range. You may not consider the install of a grease-able fan bearing at this time, However, I would recommend cutting the access hole.

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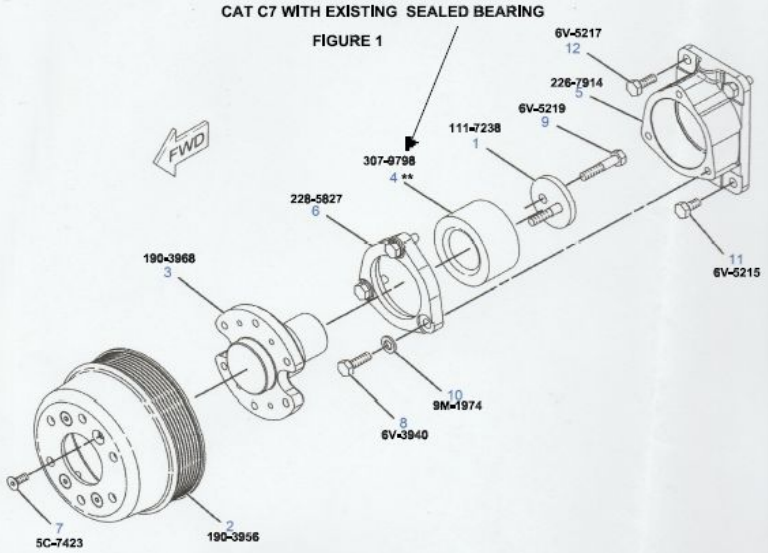
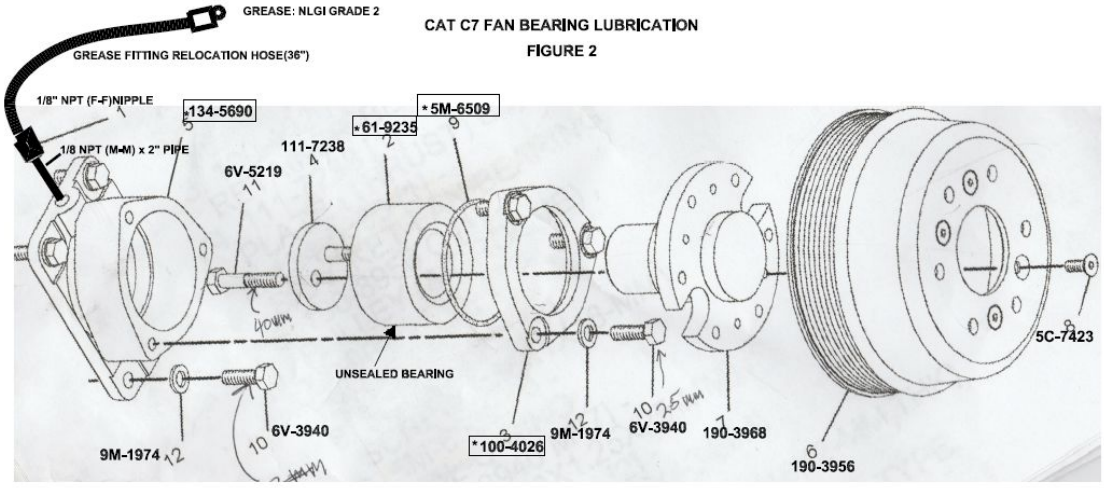
CAT C7 WITH EXISTING SEALED BEARING

FIGURE 1



** SEALED BEARING PRONE TO FAILURE

PTCg6diuvplbdjt0.cgm

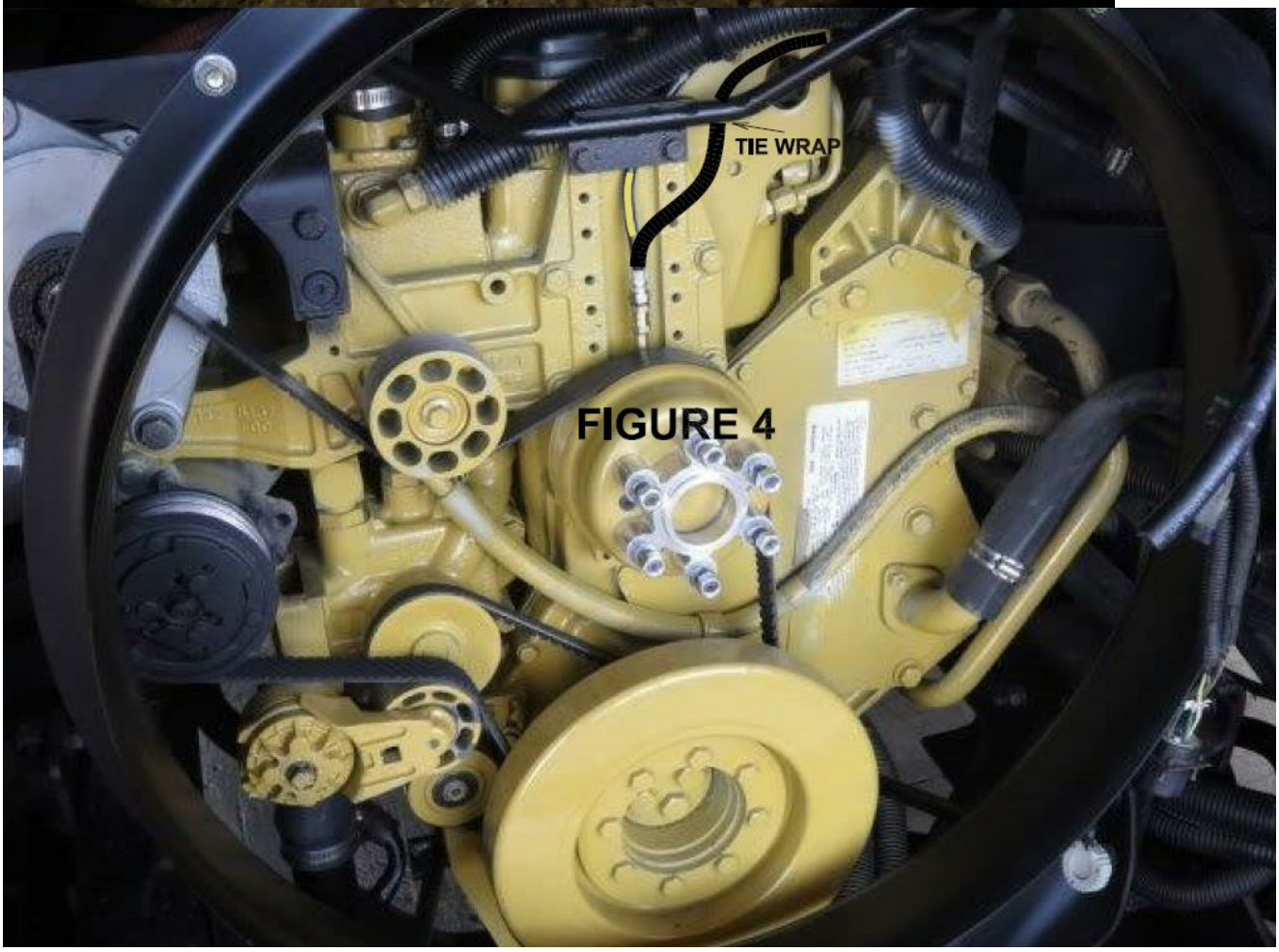


CAT C7 FAN BEARING LUBRICATION

FIGURE 2

*NOTE: THESE CAT PARTS REPLACE THE PARTS ON CURRENT C7 VERSION


GREASE FITTING RELOCATION HOSE
1/8" NPT X 36"
(WWW.GREASEEXTENSIONHOSES.COM)
FIGURE 3
BULKHEAD AND GREASE FITTING
GREASE: NLGI GRADE 2
*190-3968
1/8" NPT FEMALE NIPPLE **
1/8" NPT X 2' PIPE EXTENSION**
*61-9235
*6V-5219
*111-7238
* 5M-6509
*100-4026
*190-3956
*134-5690
* CAT PART NUMBER
** AVAILABLE AT ACE HARDWARE
CAT C7 FAN BEARING LUB COMPONENTS


TIE WRAP
FIGURE 4

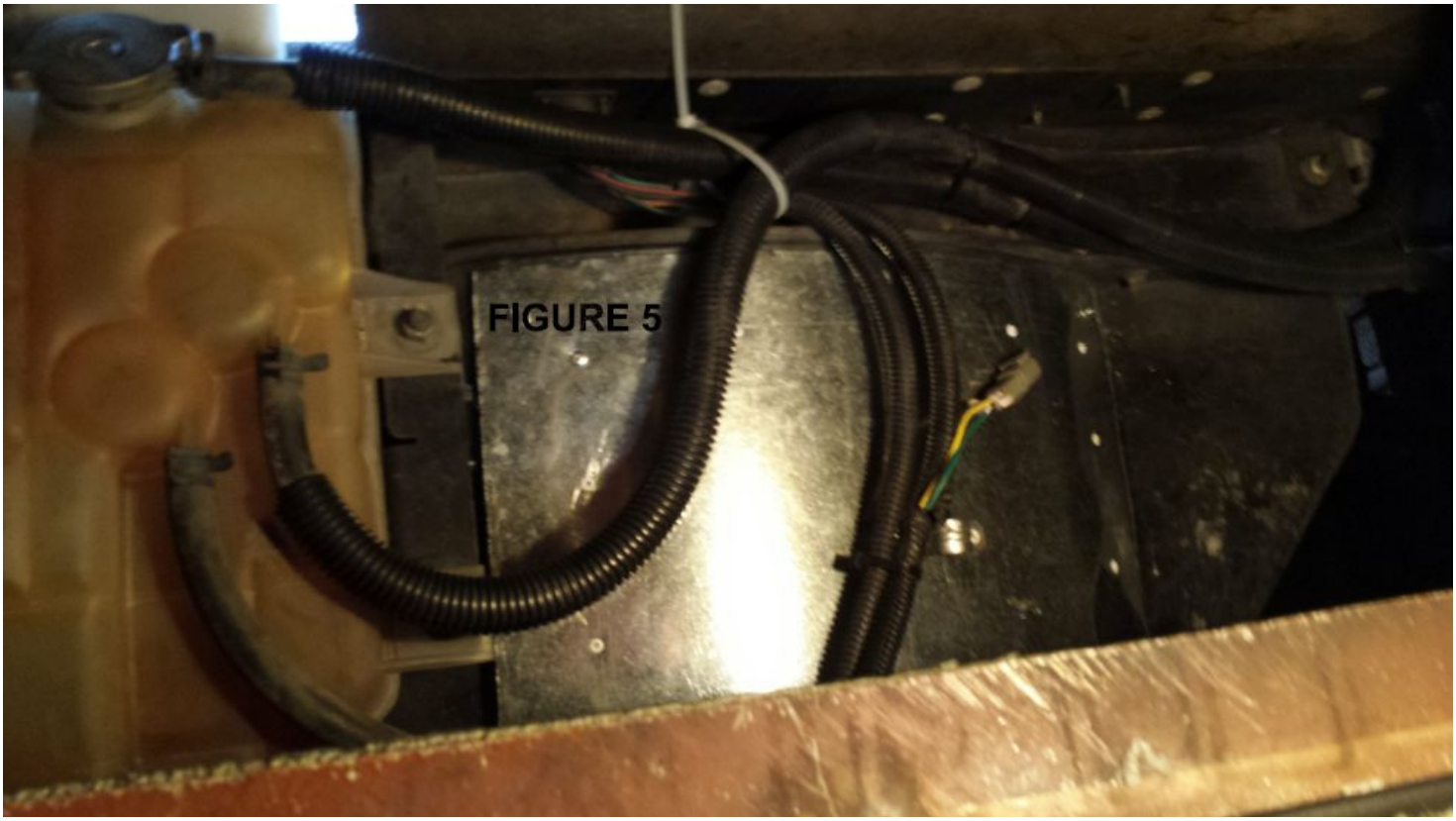
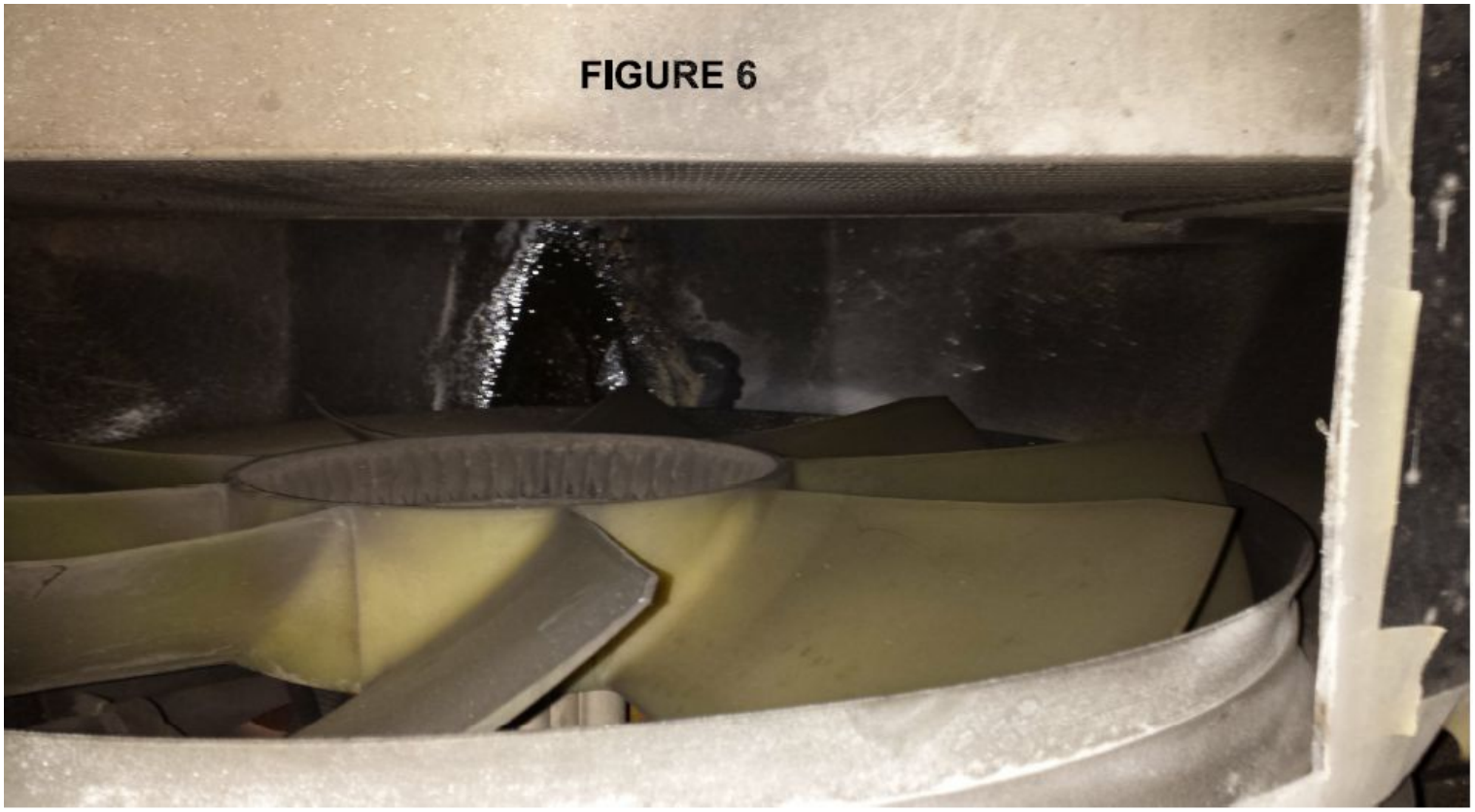


FIGURE 5

FIGURE 6



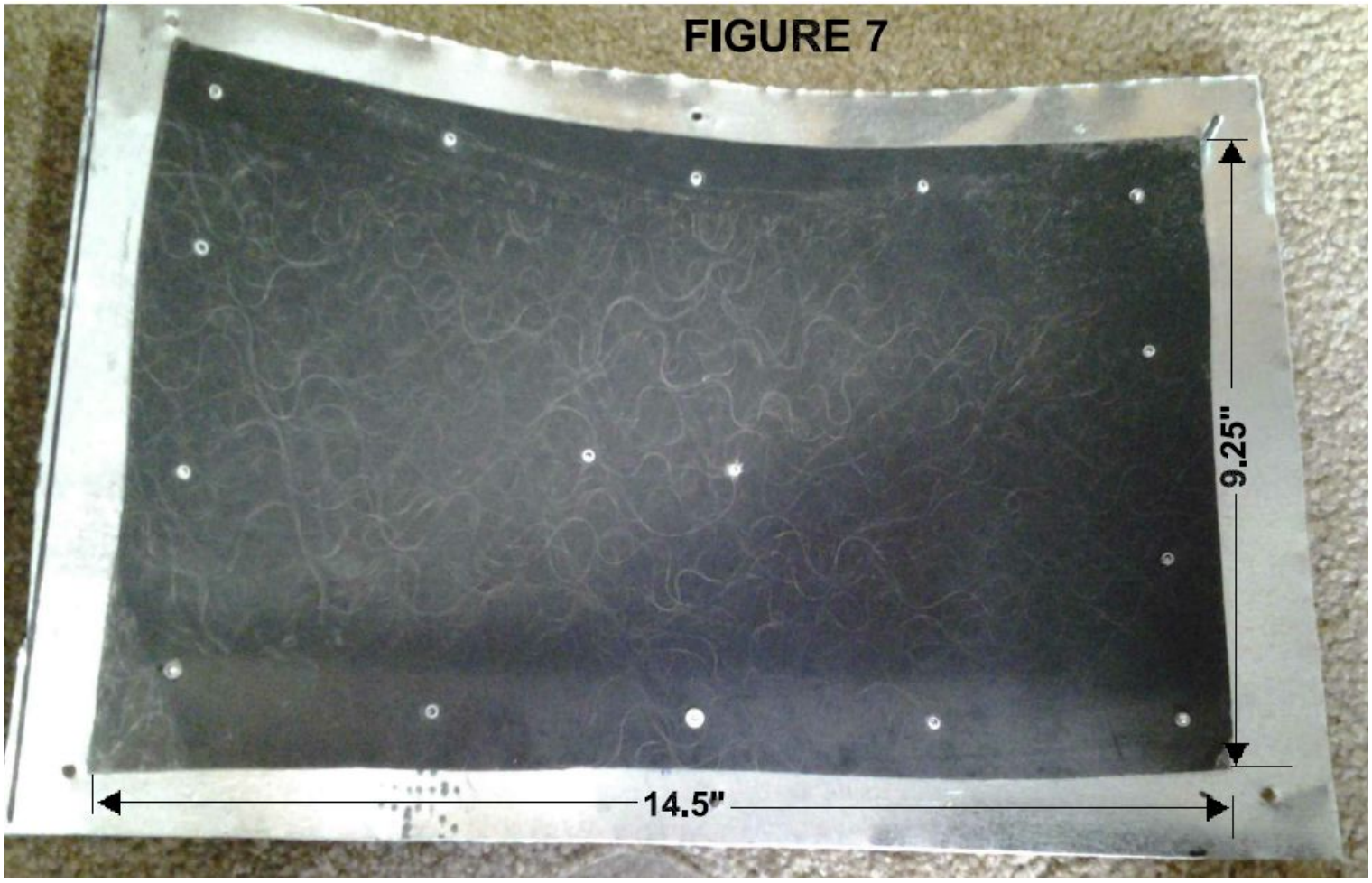


FIGURE 7
9.25"
14.5"

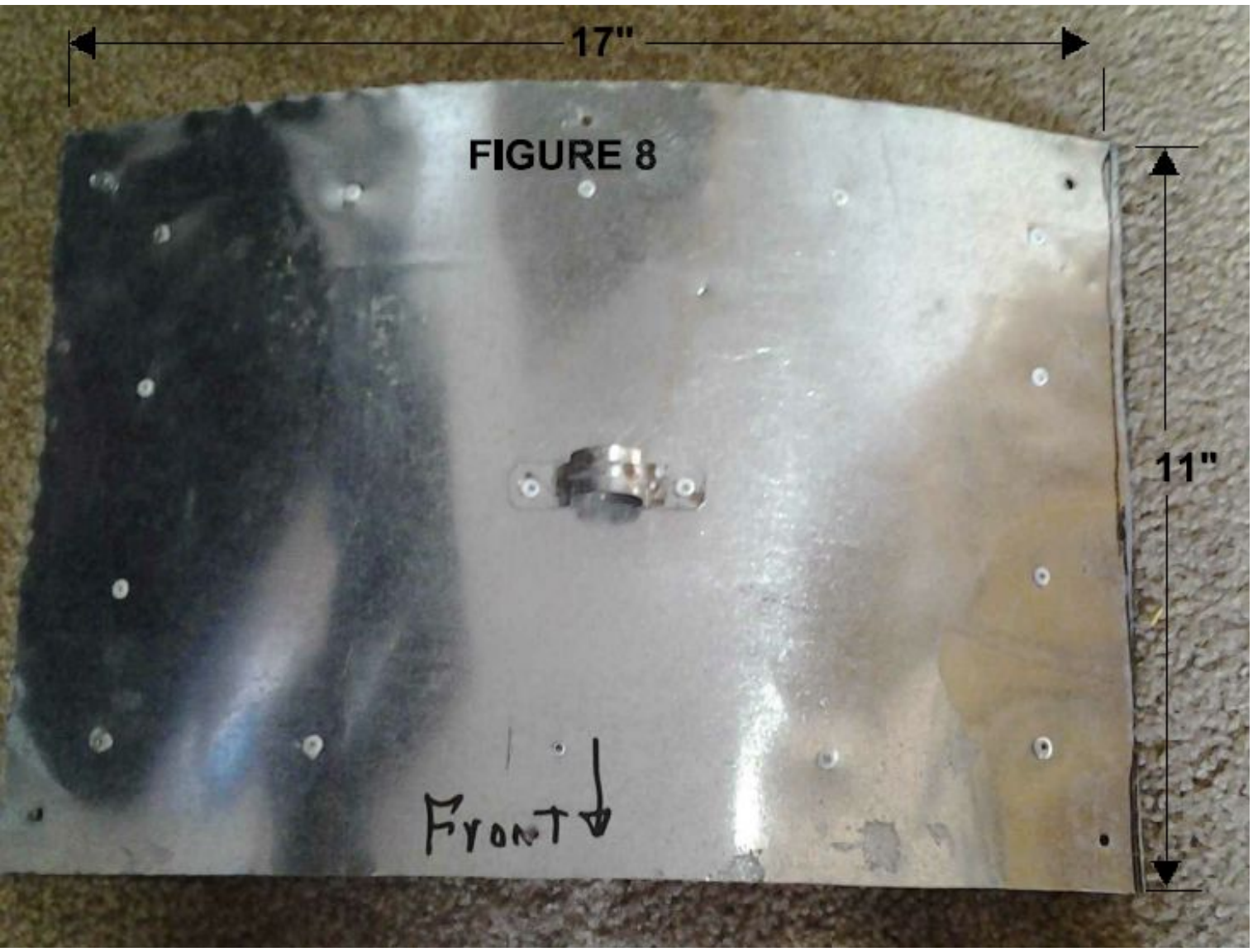


FIGURE 8

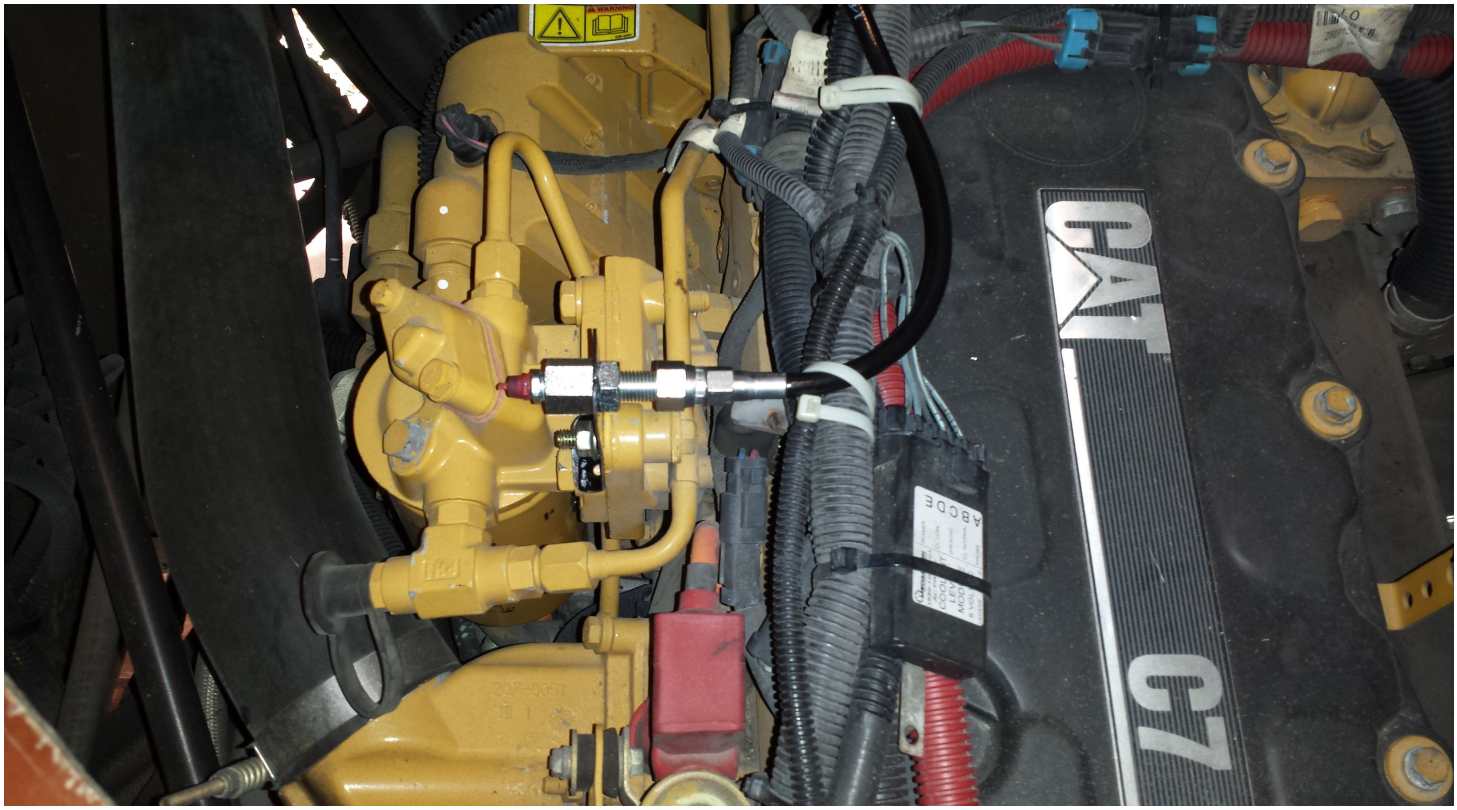


FIGURE 9