

CSG637 – Fan Drive Upfit for the United Airlines TUG MT8 Freight Tractor with the Ford CSG637 LPG



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Table of Content – Page 1.

- Expected Assembly Time for this 18” FAN UP Fit Kit is 2 shifts.
- Purpose: Install NEW Fan Bearing Assembly with NEW 18” Cooling Fan.
- Accessing the EDI Service Manuals for the CSG637, Slide 4.
- LSG635 Fan Drive Assembly for Installation on CSG637, Slide 5.
- **Section 1: Remove the Radiator Assembly, Fan Drive & Air Cleaner, Slide 6.**
- **Section 2: Disassemble the Thermostat Housing, Remove Serpentine Belt & Water Pump, Slide 10.**
- **Section 3: Remove and Install the NEW Crank Pulley with NEW Crank Bolt, Slide 13.**
- **Section 4: Reassemble the Water Pump, Thermostat Housing and 18” Fan Drive System, Slide 16.**

Table of Content – Page 2.

- **Section 5: Preparing the TUG Cooling Compartment for the NEW Radiator Mounting Plate, Slide 24.**
- **Section 6: Reassemble the NEW Radiator Mounting Plate, Radiator and NEW Fan Shroud, Slide 26.**
- **Section 7: Assemble the NEW Air Cleaner Fresh Air Intake Pipe, Slide 31.**
- **Section 8: Refill Coolant, Check Engine Oil Level and Check Transmission Fluid Level, Slide 34.**

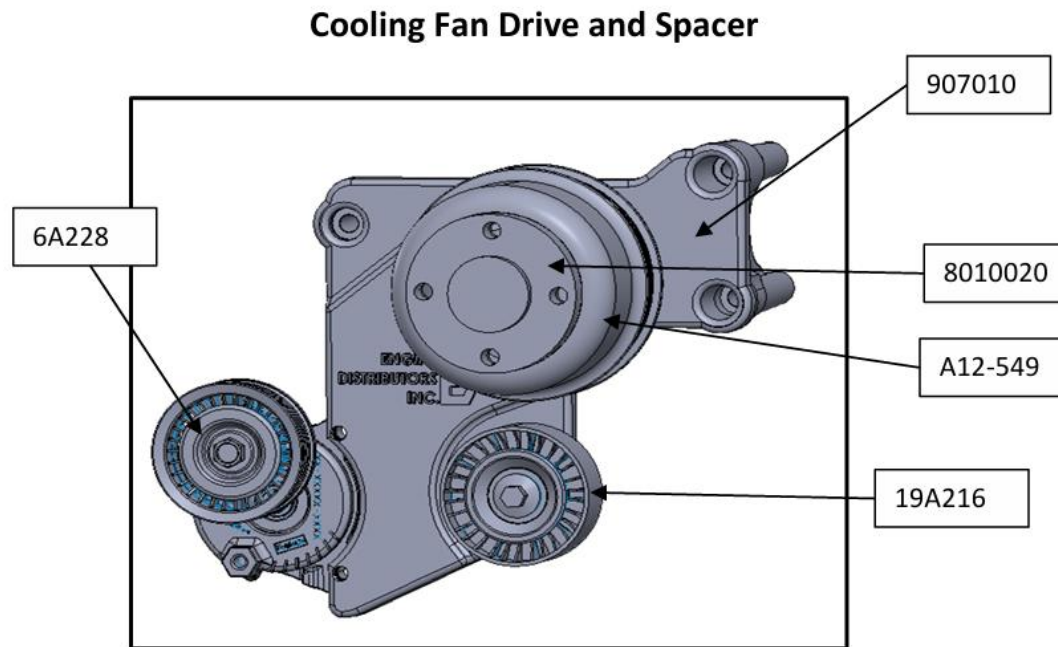


Getting to the EDI technical service and parts manuals for the CSG637 and LSG635 engines.

- Editechinfo.com
- “public info” tab across the top.
- “service documentation” column going down.
- Scroll down to “CSG637”
- Look and Click “service manual”
- Manuals Load as .pdf.

LSG635 Fan Drive Being Installed in CSG637

LSG635 Fan Drive Bearing Assm



LSG635 Fan Drive BOM

Quantity	Description	Part #
1	Fan Drive Kit with Bearing - Kit includes cast bracket, hardware, bearing and tapered shaft.	907010
1	Pusher Fan Spacer	8010020
1	Suction Fan Spacer	9030050
1	Suction Cooling Fan 18" (radiator 39000406)	449150-18
1	Pusher Cooling Fan 18" (radiator 39000406)	296150-18
1	Suction Fan (MI CAT)	9010130
1	Suction Fan Spacer (MI CAT)	9030040
1	Tensioner Assembly	6E5Q-6A228-BD
1	Idler Assembly	4S7Q-19A216-JA
1	Fan Pulley	A12-549
1	Fan Belt	5060500

Section 1) Removing the Existing Radiator Assembly, Fan Drive & the Air Cleaner.





Remove Radiator Assembly – Page 1

- Remove air cleaner to gain easier access and save for reassembly along with the fasteners.
- Disconnect and remove the fresh air intake piping at the Bosch throttle valve and save for reassembly along with the hose clamps. Dispose of the metal portion of the air tube along with the rubber u-tube.
- Drain coolant from the petcock on the bottom of the radiator assembly.
- Disconnect the (2) lower transmission cooler lines on the bottom of the radiator assembly. Tie up both lines with string or wire to prevent the fluid drain of the transmission pan or transmission coolers.
- Remove (4) M6 bolts holding on fan shroud. Keep the bolts and discard the fan shroud. Hang the fan shroud on the fan pulley housing during radiator disassembly.

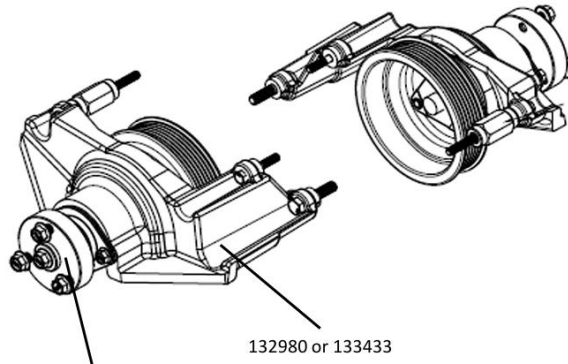


Remove Radiator Assembly – Page 2

- Remove the top and bottom radiator hoses completely along with the clamps. Organize parts for reuse and quick identification.
- Remove the degas line from the radiator to the engine thermostat housing.
- Pull the radiator assembly forward for clearance and then lift up and remove from the TUG MT8. Disassemble the radiator and overflow bottle from the steel mounting plate and recycle ¼" steel plate.
- Save all the radiator and overflow bottle mounting hardware (6) M10 bolts for the radiator mounting bracket and (2) M8 bolts, flat washer and nylock nuts.

Remove the Original Gray 14" Fan and 1.5" Fan Spacer.

- Remove the (3) M8 bolts that hold the gray fan and fan hub to the Fan drive shaft.
- If the Fan Bearing Bracket is still intact, remove the (3) M6 bolts mounting it.
- The (3) M6 bolts driving the fan shaft in front of the water pump pulley.
- Recycle the entire fan, fan drive parts, and shroud or save parts for ongoing fan repairs.

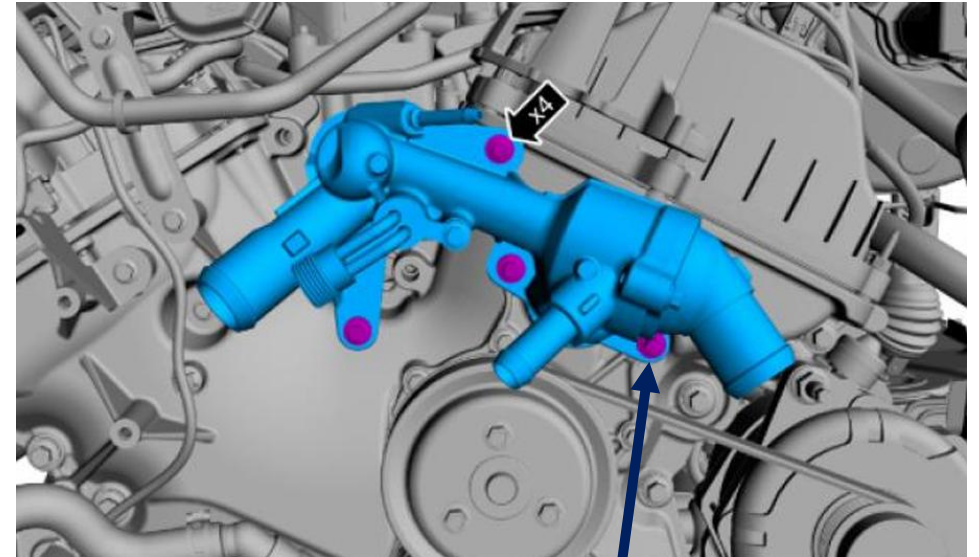


Section 2: Disassemble the Thermostat Housing, Remove Serpentine Belt & Water Pump.

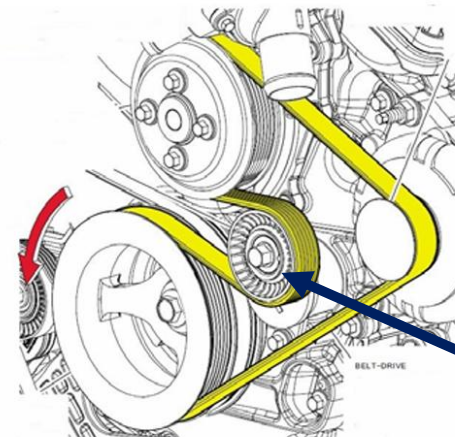


Remove the Thermostat Housing & Serpentine Belt.

- Remove the thermostat housing and save along with one of the (4) M6 bolts. Refer to CSG637 Service Manual page 02-62 for more detailed description.
- Put a 13mm socket on the Tensioner and Remove the Serpentine Belt. Save the belt for reinstall in a clean oil and grease free area.



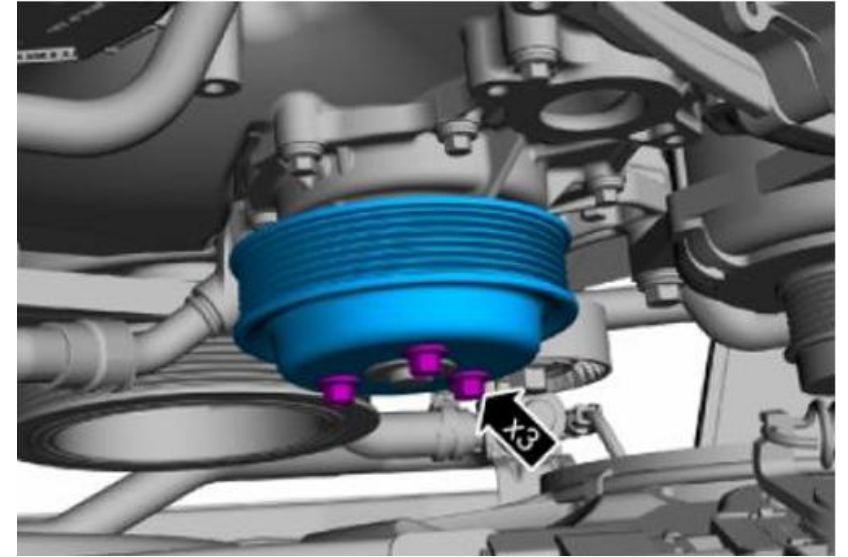
This Bolt & Location
is Reused



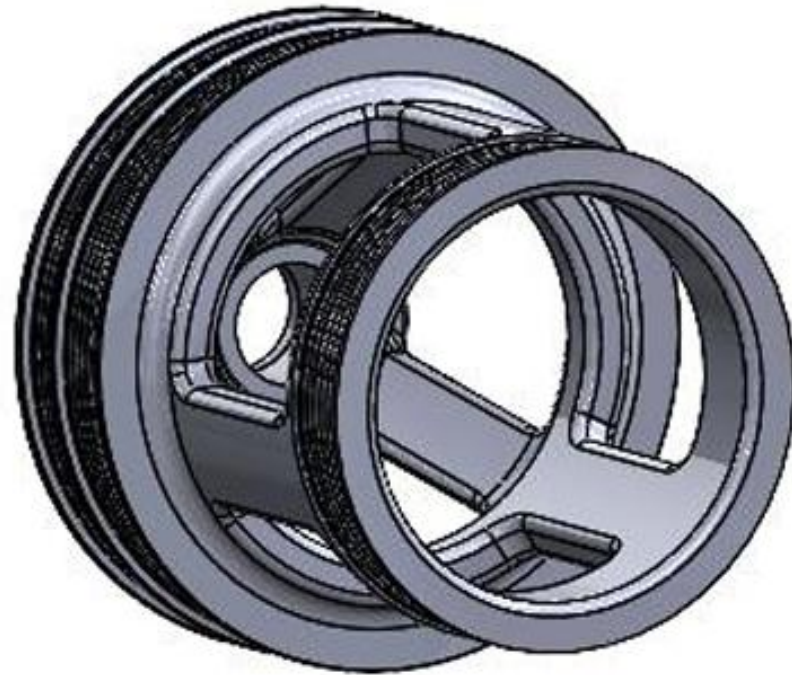
Belt Tensioner

Remove the Water Pump.

- Remove the water pump pulley and discard pulley but save (3) M8 bolts.
- Remove the (8) M4 bolts from the water pump and discard the water pump but save all the M4 bolts for reinstall of the new water pump.



Section 3: Remove and Install the New Crank Pulley Using a New Crank Bolt.



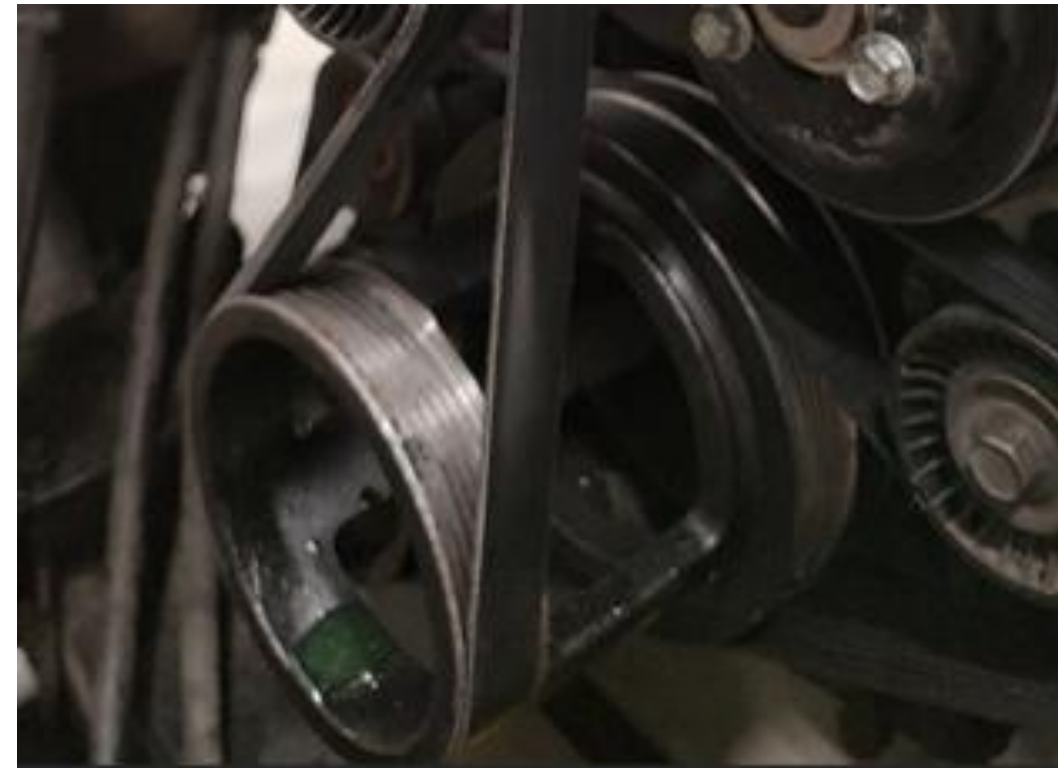
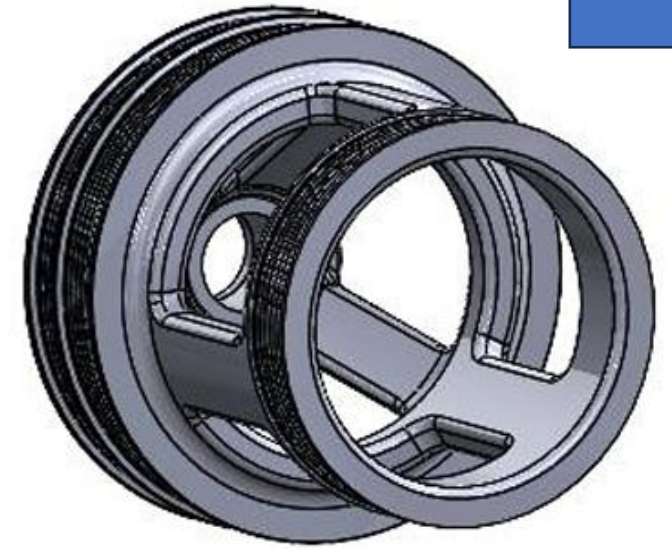
Remove and Install the NEW Crank Pulley & NEW Crank Bolt.

- Remove the Old Crank Bolt using a $\frac{3}{4}$ " drive electric or air impact wrench with a 21 mm deep well socket. Dispose of the Old Crank Bolt.
- Use the Wheel Puller Shown or Equivalent to remove the Old Crank Pulley and Recycle or Save for a Spare.
- Find the Correct NEW Crank Bolt Length from the 2 provided. Install the washer on the Crank Bolt Selected. F5RZ-6A340-B M12 48mm long. HL3Z-6A340-A M12 90mm long. Select the correct bolt.
- Install the NEW crank pulley 134050 (3 belt tracks) on the crankshaft. If the NEW crank bolt does not start tap lightly on crank pulley with a urethane mallet or put in a piece of wood and tap with a steel hammer.



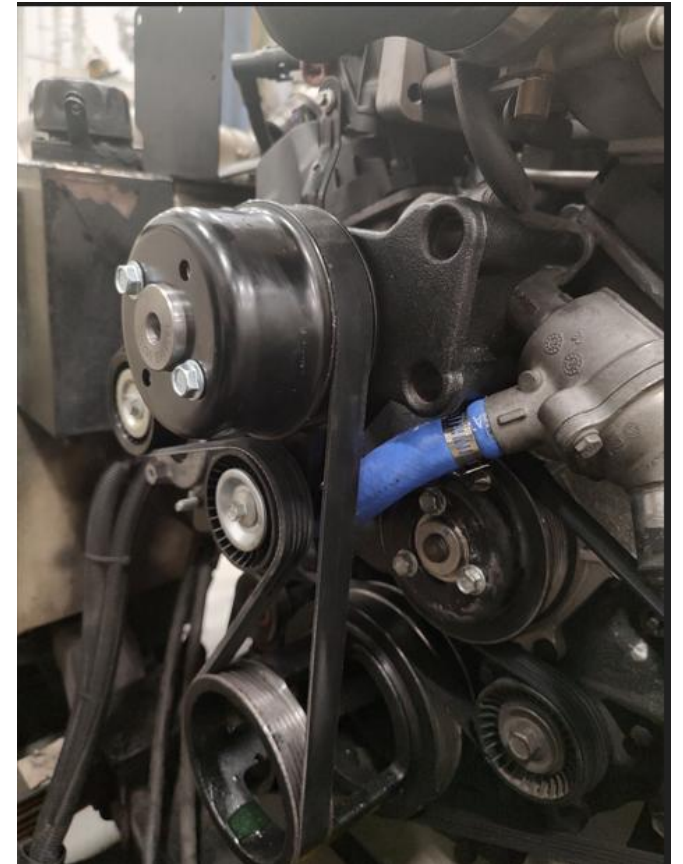
Remove and Install the NEW Crank Pulley & NEW Crank Bolt.

- Tighten the NEW Crank Bolt to **89 ft lbf** with the NEW Crank Pulley and old washer. Inspect to Ensure the Crank Pulley is fully seated close to the timing cover and on to the Crank Shaft Shoulder.
- You can use a bar between the spokes on crank pulley closest to the engine to hold the crank pulley from turning while tightening.
- Loosen 1 full bolt turn, then **torque to 37 ft lbs.**
- Tighten NEW Crank Bolt **90 degrees.**



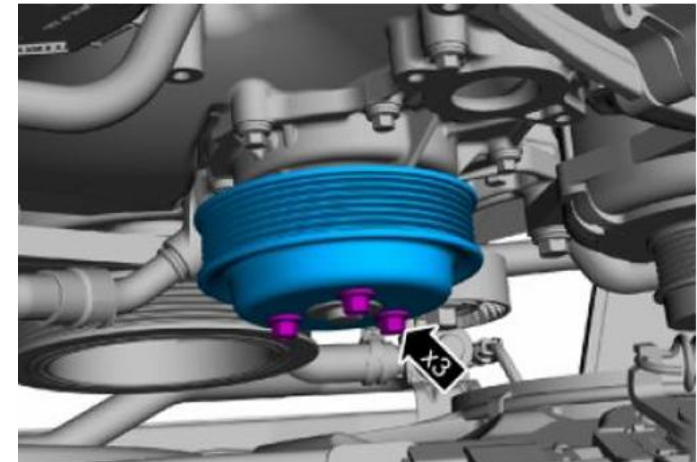
Section 4: Reassemble the Water Pump, Thermostat Housing and 18" Fan Drive System.

New 18" Fan Drive, NEW Crank Pulley, NEW Water Pump and NEW Fan Drive Bearing Assembly.



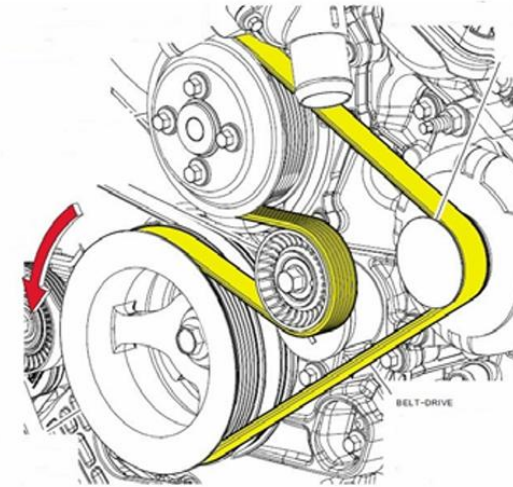
Reassemble the NEW Water Pump.

- Locate the NEW Water Pump BL3Z-8501-D with the internal gaskets installed. After cleaning the gasket surface on the engine block, install the NEW Water Pump in the opening. Attach with the (8) M4 bolts.
- Torque the (8) M4 bolts **to 89 in lbs.** Then turn **45 degrees**. Ref CSG637 service manual 05-12.
- Locate the New Water Pump Pulley ER3Z-8509-A and Install with the (3) M8 bolts previously removed. Torque to **18 ft lbs each**. Ref CSG637 service manual 02-142.

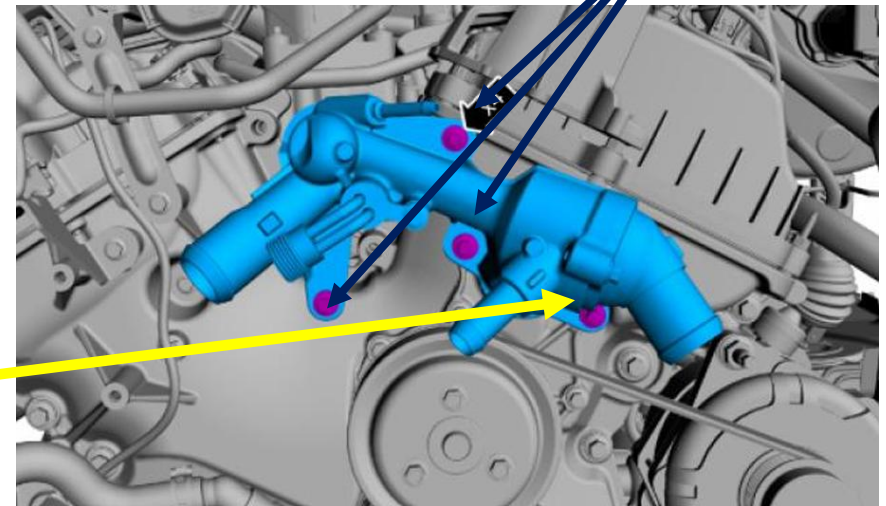


Reinstall the FEAD Belt and Thermostat Housing.

- Install FEAD belt as indicated in the attached drawing by pulling back tensioner with the routing shown.
- Install the existing thermostat housing on the front cover above the NEW Water Pump. Make sure to clean out and add the NEW 15mm Oring AT42-8527-A on the intake manifold.
- Thread in the lower right M6 bolt and lightly snug to secure the thermostat housing to the engine front cover.

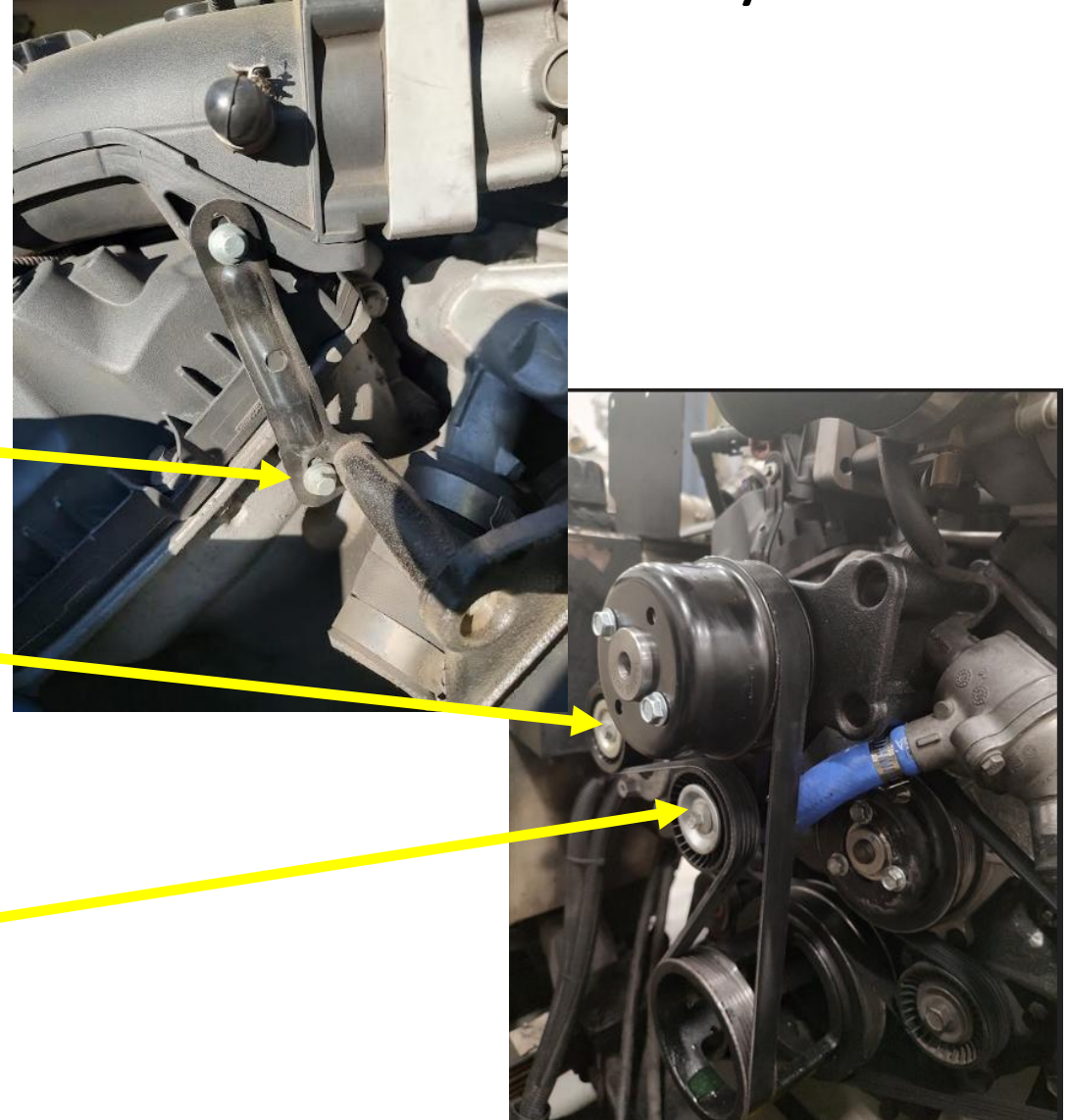


**DO NOT INSTALL
These 3 BOLTS**



Assembling the New Fan Bearing Assembly.

- Find the NEW Fan Bearing Assembly including the Casting, Shaft and Bearings all Assembled 907010. Find the NEW (4) long M6x1 stainless steel, threaded rod, the (4) M6 stainless flat washers and the (4) single M6 Ny Lock Nuts.
- Find the 4th mounting bolt on the passenger side head and remove it. Send it to the recycle bin.
- Find the NEW Belt Tensioner 6E5Q-6A228-BD and Install with the (2) M6 bolts. Torque to **18 ft lbs**.
- Find the NEW Belt Idler 4S7Q-19A216-JA and install the assembly with (1) M6 Bolts and torque to **18 ft lbs**. Ref CSG service manual page 002-142 for all 3 steps above.



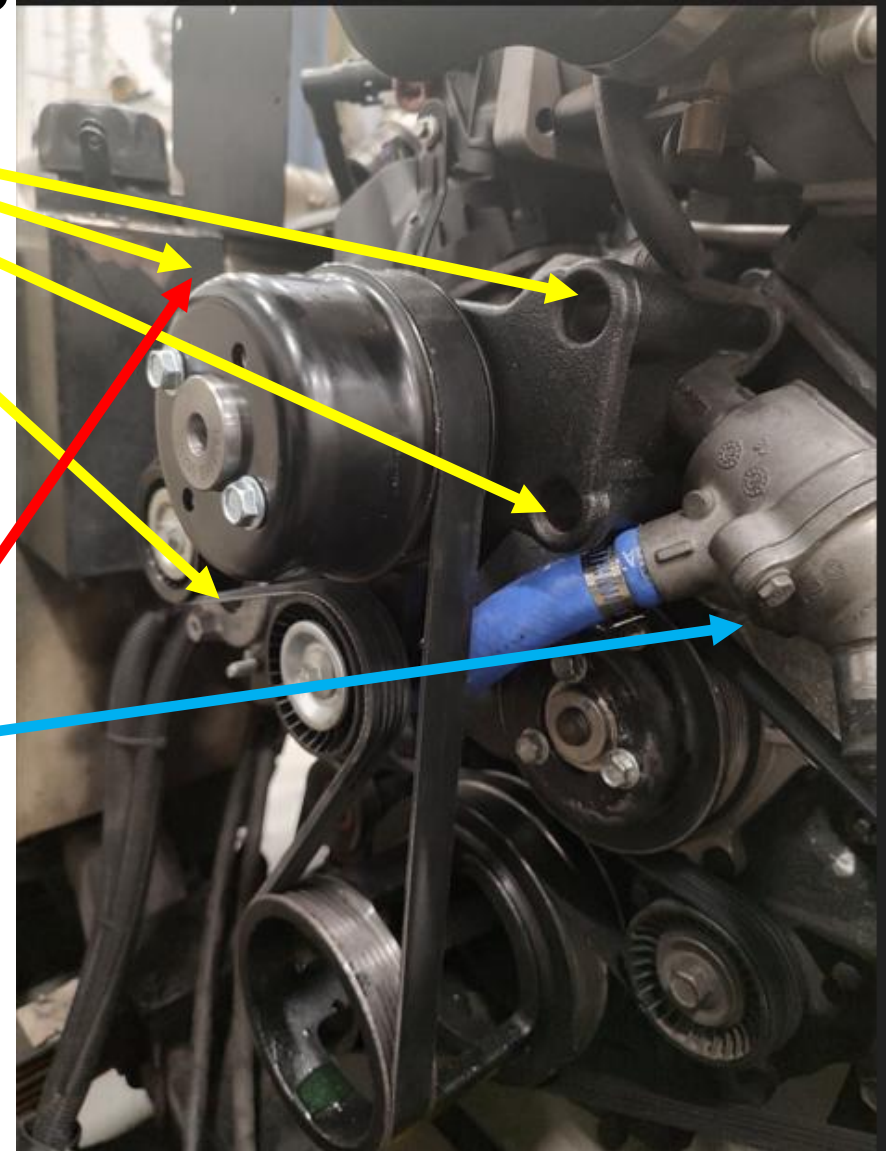
Installing the (4) M6 threaded rods to the front cover

- Add the (4) M6 threaded rods to the engine front cover. Add red locktite to each of the stainless threaded rods.
- Thread by hand the (4) threaded rods into the front cover as far as possible.
- Tighten the (4) threaded rods into the front cover to 71 in lbs using the double M6 bolt technique.



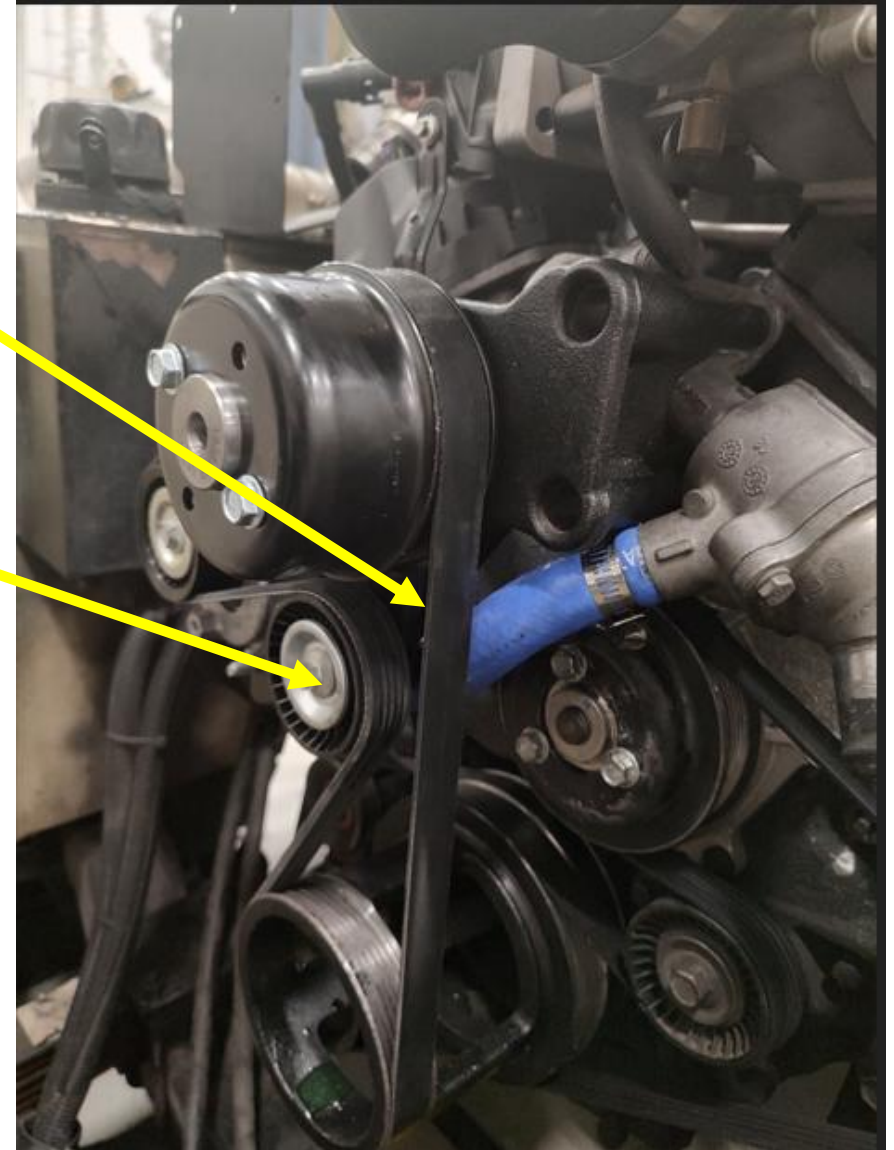
Installing the New Fan Bearing Assembly.

- Locate the NEW Fan Bearing Assembly 907019 including the Casting, Shaft and Fan Bearings. On the previously mounted M6 Stainless steel rods use the (4) M6 washers and (4) MG ny-lock nuts. Torque to **71 in lbs & 45 deg.**
- Locate the Installed M6 bolt in the thermostat housing and torque to **71 in lbs and 45 deg.** Ref CSG service manual page 05-11 on all 3 steps above.
- Cut off the excess threaded rod on the left most bolt when facing the engine from the radiator



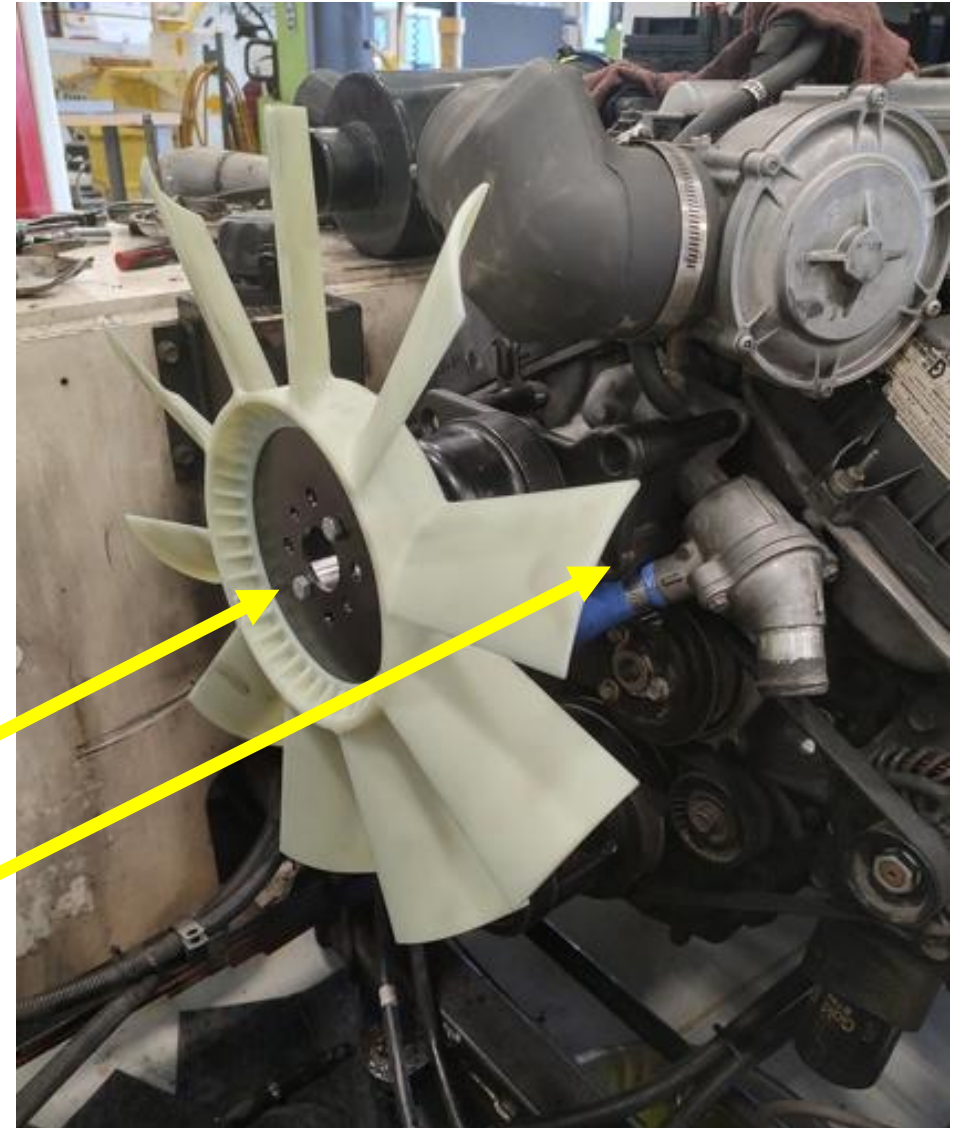
Installing the NEW Fan Belt

- Thread Fan Belt 5060500 over Crank Pulley, Fan Bearing Pulley, Idler and Tensioner in the correct location.
- Pull back tensioner with a 13mm socket and ratchet on the pulley bolt.
- Place NEW Fan Belt on all 4 pulleys routed as shown.



Installing the NEW the NEW 18" Suction Fan and Fan Spacer.

- Locate the (2) NEW 0.9" Fan Spacers 9030050 and Assemble to the Fan Bearing Shaft Flange lining up the thru holes into the Fan Bearing Assembly 907010 threaded holes.
- Locate the NEW 18" Suction Fan and assemble onto the Fan Spacer starting the (4) M8x1.25 – 60mm long bolts. After all (4) M8 bolts are started and finger tight, torque the M8 bolts to **35 ft lbs.**
- **IMPORTANT:** Please note blade pitch direction. Engine rotates clockwise from the radiator.

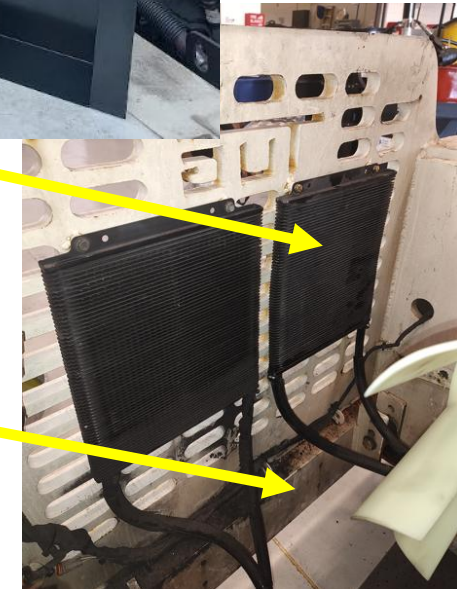




Section 5: Preparing the TUG Cooling Compartment for the NEW Radiator Mounting Plate.

Preparing the TUG Cooling Compartment.

- Put the NEW Fan Shroud 7050010 up and over the NEW 18" Fan as close to the Engine Block as Possible.
- Move the Air to Transmission Oil Cooler from the Lower Rock Guard Mounting Back to the Front Grill using the same Hardware.
- Remove and Recycle the Rock Guard Pan in the Bottom of the Freight Tractor Cooling Compartment.





Section 6: Reassemble the NEW Radiator Mounting Plate, Radiator and NEW Fan Shroud.

Load the Radiator into the Cooling Compartment



- Set Radiator Assembly into the Cooling Compartment with Hose Outlets to the Engine Block.
- Set the Radiator Assembly on a Floor Jack and Raise to Appropriate Level in the Engine.
- Put on the Lower Radiator Hose and Attach it to the Engine Block. Tip Back to Top of Radiator for Easy Fan and Shroud Access
- Assemble 3/8" NPT hex nipple and the 3/8" NPT coupling with pipe tape to the driver's side Radiator Input for the transmission cooling line extension coming from the transmission side.
- Install the 2 Transmission Hoses to the Bottom of the Radiator and Tighten Hydraulic Fittings.

Mount the Radiator Mounting Plate & Radiator into the TUG Sidewall.



- Load the Radiator Mounting Plate in Between the TUG Fender Walls with the Mounting Bracket Facing Forward.
- Mount the (2) Lower Radiator Mounting Bolts 3/8"x16 and Lock Washers through the same threaded holes in the Fender Wall. Leave Loose to Pivot.
- Mount the (6) M8 Bolts to Attach the Radiator to the Mounting Plate.
- Mount the (2) M6 Bolts and Nuts to Attach the Overflow Bottle Bracket to Radiator Mounting Plate.

Mount the Radiator Mounting Plate & Radiator in the TUG Fender Well.

- Tip Up the Radiator Mounting Plate with Radiator and Assemble the (2) Top 3/8"x16 Bolts into the threaded fender wall of the TUG.
- Mount the (2) top M6 Fan Shroud Bolts to the Radiator.
- **IMPORTANT: Ensure the Front Face of the Fan is Parallel with the Rear Face of the Radiator on all 4 locations (top, bottom, right, left) within 1/8".**
- **IMPORTANT: Ensure the Rear Face of the Fan sticks out of the Rear face of the Fan Shroud by 1.0" +/- 1/8".**
- Tighten the (4) 3/8"x16 Mounting Bolts for the Radiator Mounting Plate thru the Firewall.

Mount the Radiator Mounting Plate & Radiator in the TUG Fender Well.

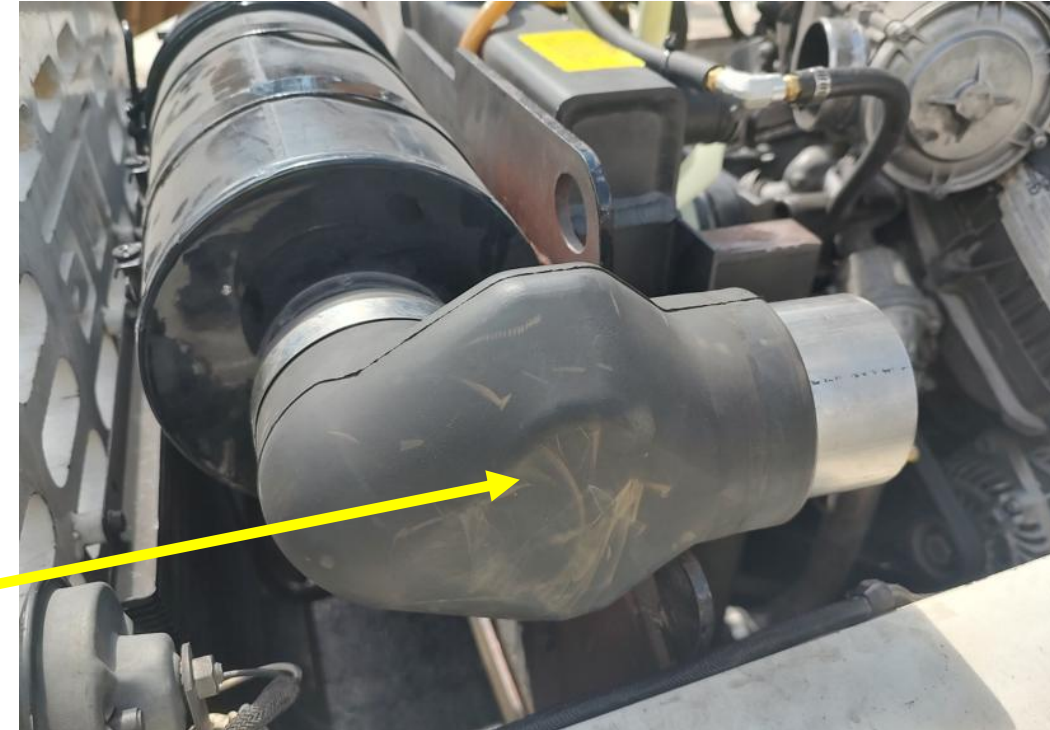
- **IMPORTANT: Ensure the 18" Suction Fan is in the Center of the 19" Fan Shroud within +/- 1/4".**
- Tighten the (6) M8 Mounting Bolts for the Radiator to the Radiator Mounting Plate.
- Tighten the (2) M6 Top Mounting Bolts for the Fan Shroud.

Section 7: Assemble the Air Cleaner and NEW Fresh Air Intake Pipe.



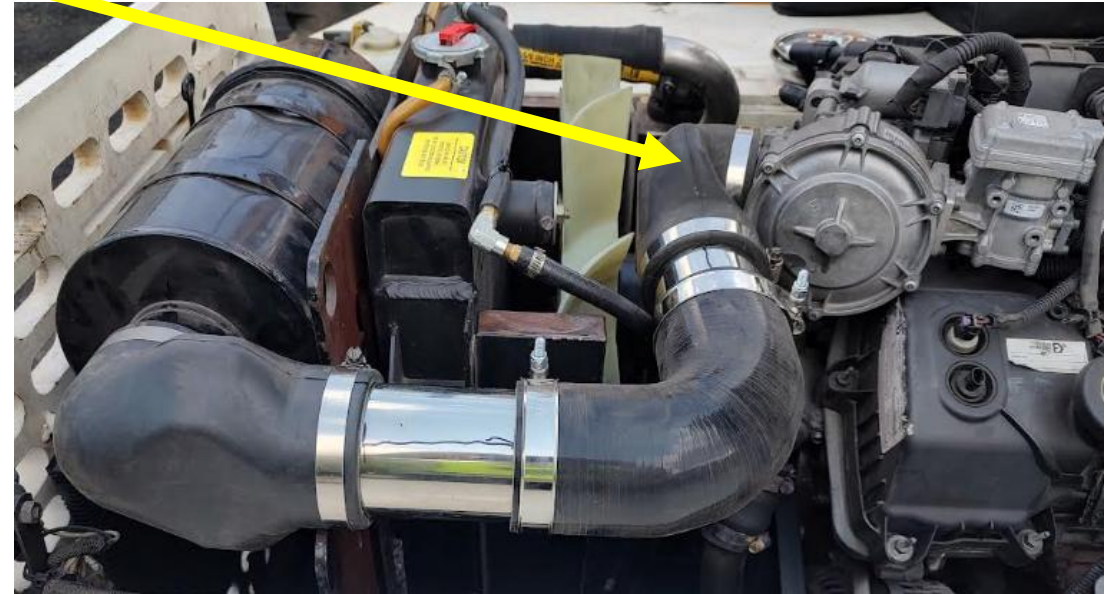
Assemble the Air Cleaner

- Mount the Air Cleaner Saddle Mounting Bolts with the (4) M6 bolts removed from the Air Cleaner Bracket Previously.
- Use the Air Cleaner Clamps to Mount the Air Cleaner Assembly Inside the Saddle.
- Add the New 3" Cobra Right Angle 90 Deg Elbow P547694 and secure with the Hose Clamp Removed from the Original Assembly.



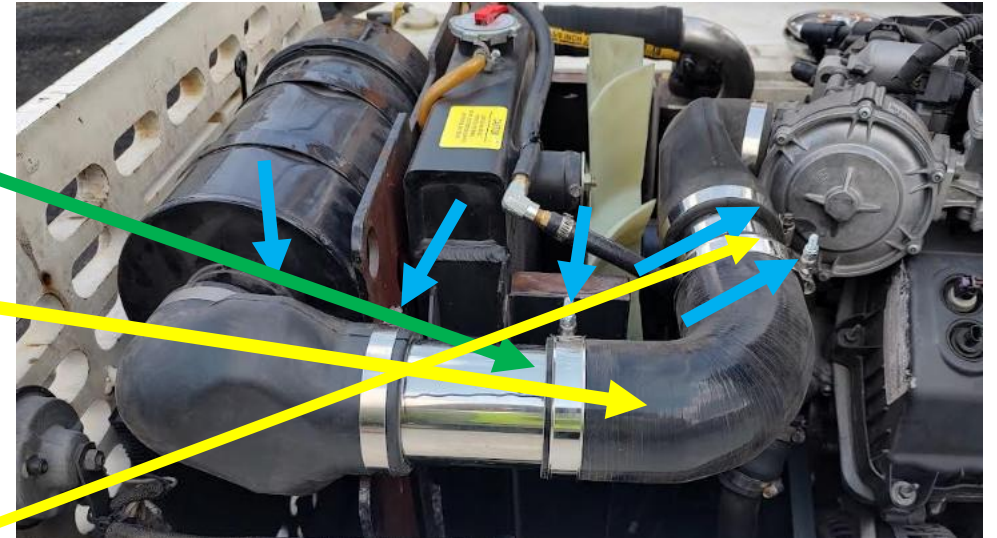
Assemble the Intake Air 3" Cobra Elbow on the Bosch Throttle Body.

- Remove the existing 3" ID Intake Air Cobra Elbow and hose clamp from the Air Cleaner & Install on the Bosch Throttle Body with the Air Entrance Pointed to the Driver's Side.
- Tighten the Hose Clamp with the Bolt toward the Radiator on the Driver's Side.
- Your NEW Fan Assembly engine work is now completed.



Assemble the 3 Pieces of the Fresh Air Piping

- Find the NEW 6-1/2" pc of 3" OD Stainless Tube and use the existing hose clamp from the previous intake.
- Find the NEW 3" ID Silicone 90 Degree Elbow with the (2) NEW Hose Clamps and assemble to the 6-1/2" 3" OD stainless tube.
- Find the NEW 6-1/2" pc of 3" Stainless Tube and use an Existing Hose Clamp from the Previous Intake and Insert Tube and Tighten both Clamps.
- Make Sure all the Hose Clamp Worms are Positioned as Shown in the Attached Picture with Blue Arrows.



Refill Coolant, Check Engine Oil,
Check Transmission Fluid & START
Engine. Fan Upfit Kit Completed.



Photos of Completed Fan UP Fit Assembly for Reference.



Front



Driver's Side

Passenger's Side





Check Fluids and Prepare for Ignition.

- Refill Coolant in Top Radiator Tank to Fill Engine Block, Radiator, and then 1/2 fill the Over Flow Bottle. Use Red Extended Life Coolant Only. Approximately 1 gallon Required.
- Check Engine Oil Level and Top Off with 5W-20 API SP Engine Oil as Required. Purchase Correct Oil if not Available.
- Add an Additional ½ Quart of Mercon LV through the Transmission Dipstick before Starting Engine.
- START TUG.
- With Engine Started and Warm and Transmission HOT and in Neutral, Add Mercon LV Transmission Fluid as Required to Achieve Mid Level on the Transmission Dipstick.
- When Engine has been HOT and Cooled Down, Check Coolant Level Again in the Top Radiator Tank and the Over Flow Bottle. Fill as Required for the Top Tank to be Full and the Overflow Bottle ½ full. Monitor Coolant Level over the 1st 2 Weeks of Operation.

125001A Parts Breakdown

9-9-2026

Parts Breakdown

item	qty	part #	FAN ASSEMBLY
1	1	449150-18	fan
2	2	9030050	fan spacers
3	4	1510116	bolts
item	qty	part #	RADIATOR ASSEMBLY
4	1	7050010	fan shroud
5	1	7050020	finger guard / logo plate
6	1	7050030	fan mounting plate
item	qty	part #	INTAKE ASSEMBLY
7	1	P547694	3" ID cobra elbow
8	2	49010	3" OD stainless pipe
9	2	2050080	3" ID hose clamps
10	1	P105532	3" ID black rubber intake elbow
item	qty	part #	3.5L WATER PUMP
11	1	BL3Z-8501-C	water pump
12	1	ER3Z-8509-A	water pump pulley
13	3	W719168-S437	water pump pulley bolt
14	1	AT4Z-8527-A	Oring thermostat housing
item	qty	part #	CRANKSHAFT PARTS
15	1	134050	crank pulley
16	1	HL3Z-6A340-A	crank bolt
17	1	F5RZ-6A340-B	crank bolt
18	1	F1AZ-6378-A	crank bolt washer
item	qty	part #	FAN DRIVE ASSEMBLY
19	1	4060240S	fan drive bearing assembly
20	1	6E5Q-6A228-BD	tensioner assembly
21	1	4S7Q-19A216-JA	idler assembly
22	1	5060500	belt fan
23	1	A12-549	pulley fan
24	1	4040180	black bracket
25	2	W503275-S437	bracket bolt
26	1	5260600	m6 nut
item	qty	part #	TRANSMISSION LINE EXTENDER
27	1	4464K731	hex pipe nipple, 3/8"x3/8" NPT
28	1	4464K213	pipe coupling, 3/8"NPT 2x

