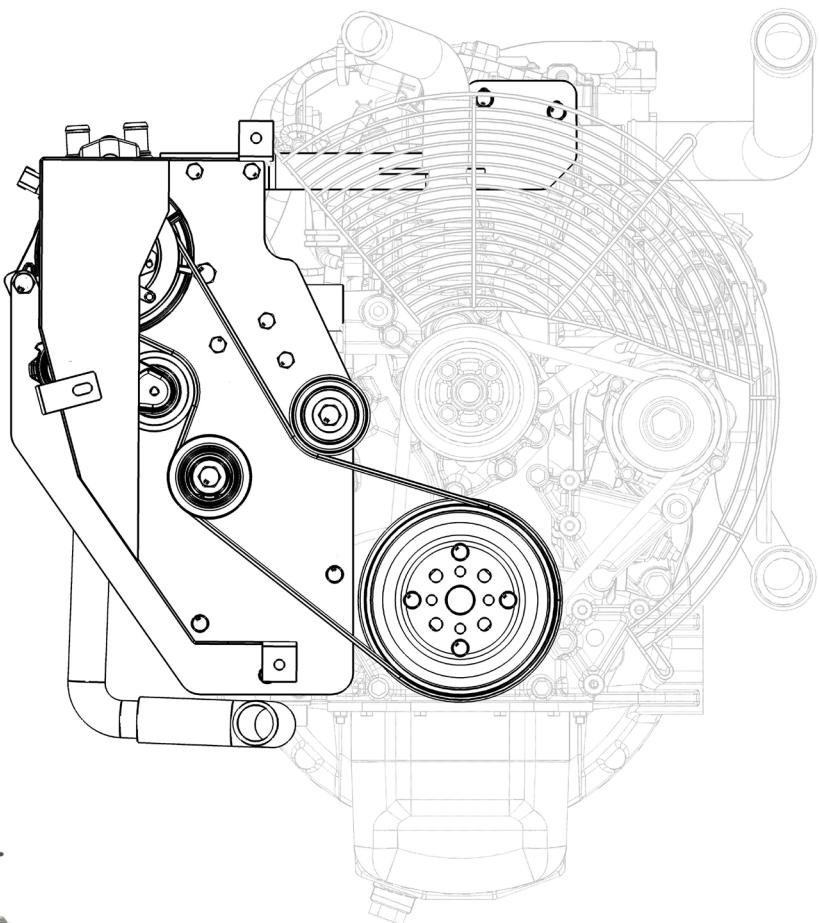




Thermal Load Management System

## Retrofit Manual: Atlas Copco Kits 130A & 130B

LHG700 Generator Thermal Load Management System  
Specifically designed for the  
Atlas Copco / Chicago  
Pneumatic CPG25 and CPG45  
equipped with the Isuzu 4LE2  
Series engine.



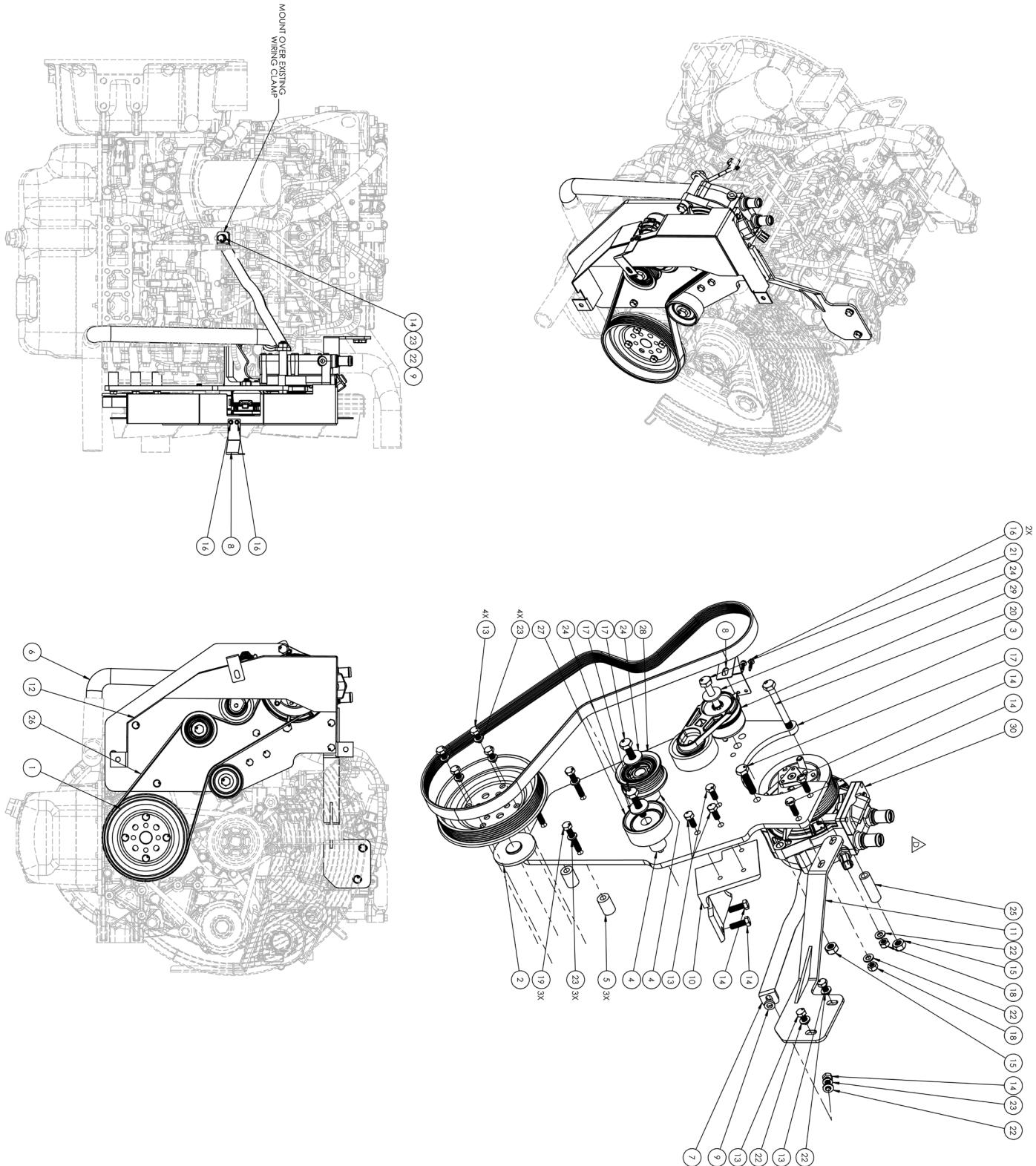


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## **2 Ventech TLMS-0130 Illustrations and Part Lists**

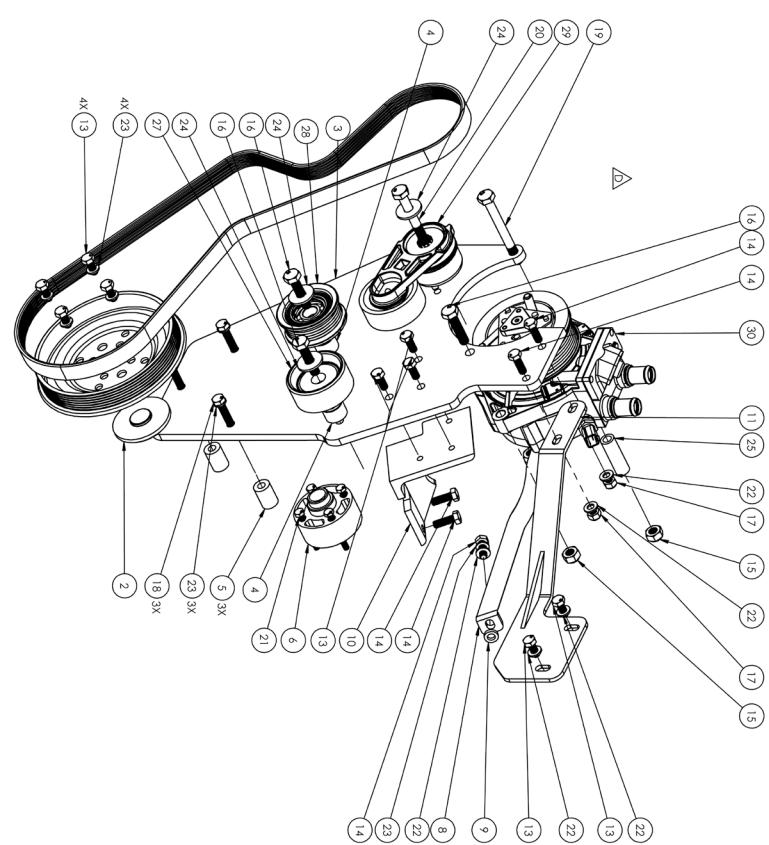
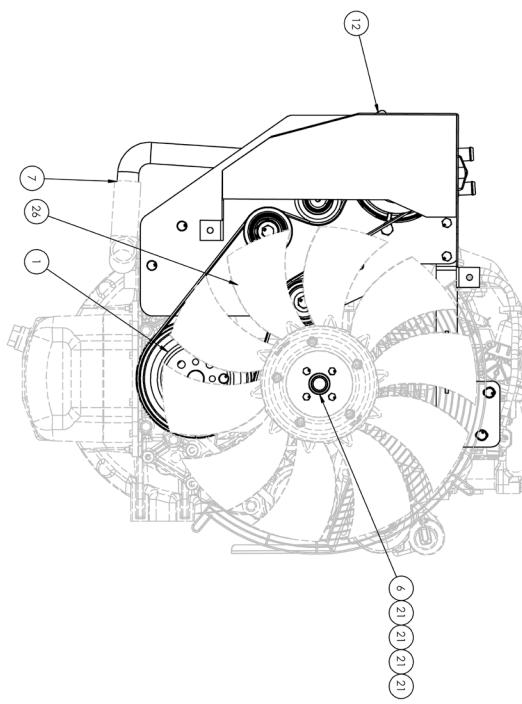
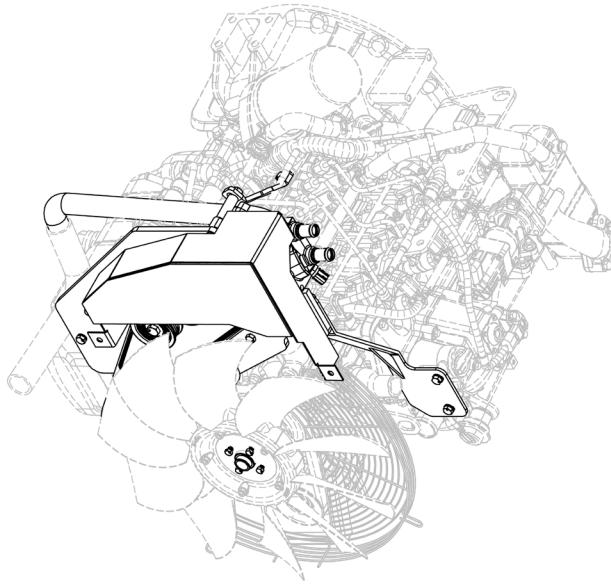
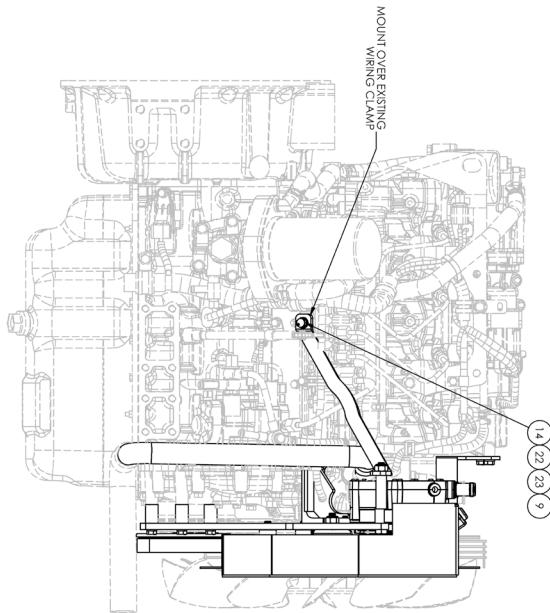
## 2.1 130A - Atlas Copco/CP QAS45 & CPG45 LHG Illustrations and Full Kit Parts List



Items in yellow are included in the Ventech TLMS-0130A Retrofit Kit.

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.
1	14-0421	A0	LHG 6-PK PULLEY (ALTER 14-0026)	NA
2	14-0435	B0	PULLEY ADAPTER	NA
3	14-0453	G0	BACKING PLATE	1
4	14-0456	C0	IDLER PULLEY SPACER	2
5	14-0459	B0	BOLT SPACER	3
6	14-0475	A0	COOLANT INLET TUBE	1
7	14-0546	B0	BRACKET, GUSSET	1
8	14-0549	D0	GUARD TIE BRACKET	1
9	14-0554	A0	BACKSTAY SPACER	1
10	140-0143	A0	MOUNTING BRACKET	NA
11	140-0144	A0	TOP STAY WELDMENT	NA
12	140-0146	B0	LHG BELT GUARD ASSEMBLY, 45KW	NA
13	920-0009	A0	M8-1.25 x 20 HEX HD BOLT - 8.8 - ZINC PLATED	NA
14	920-0010	A0	M8-1.25 x 25 HEX HD BOLT - 8.8 - ZINC PLATED	1
15	920-0013	A0	M10-1.5 NYLOC NUT - 8.8 - ZINC PLATED	NA
16	920-0014	A0	#8 X 3/4" HEX HEAD SELF-DRILLING SCREW	2
17	920-0019	A0	M10-1.5 x 45 HEX HD BOLT - 8.8 - ZINC PLATED	3
18	920-0031	A0	M8-1.25 NYLOC NUT	NA
19	920-0032	A0	M8-1.25 x 50 HEX BOLT - 8.8 - ZINC PLATED	2
20	920-0059	A0	M10-1.5 x 100 HEX HD BOLT - 8.8 - ZINC PLATED	NA
21	920-0152	A0	M10-1.5 x 75 HEX HD BOLT - 8.8 - ZINC PLATED	1
22	925-0002	A0	M8 FLAT WASHER	1
23	925-0012	A0	M8 LOCK WASHER	4
24	925-0031	A0	M10 OVERSIZED WASHER - ZINC PLATED	1
25	926-0013	A0	SPACER, M10 ID, 16mm OD, 50mm Lg.	NA
26	980-0081	A0	BELT, 6 RIB, DAYCO P/N 5060538	1
27	981-0005	A0	PULLEY, IDLER, 70mm DIA., 17mm ID, FLAT	NA
28	981-0018	A0	PULLEY, IDLER, 70mm DIA., 17mm ID, 6-RIB	1
29	982-0003	A0	TENSIONER, BELT, 70mm PULLEY, COW	1
30	LHG700 GEN		VENTECH LHG700 GENSET, 5/8" FITTINGS	NA
-	990-0108	A0	5/8" HEATER HOSE, 90 DEG. ELBOW, 24" LG. (NOT SHOWN)	NA
-	990-0115	A0	ELBOW, 3/8" NPT(M) TO 5/8" HOSE BARB (NOT SHOWN)	NA
-	990-0135	A0	BARB, 3/8" NPT(M) TO 5/8" HOSE (NOT SHOWN)	NA
-	990-0093	A0	SAE #10 WORM DRIVE HOSE CLAMP W/ LINER (NOT SHOWN)	NA
-	135-0036	A0	GENERATOR 2-PORT ECU W/ AMP MEASUREMENT (NOT SHOWN)	NA
-	130-0041	A0	TLMS POWER MEASUREMENT HARNESS (NOT SHOWN)	NA
-	130-0042	A0	TLMS LHG HARNESS (NOT SHOWN)	NA
-	-	A0	GROMMET, BUNA-N, 1-1/2" OD, 1/8" THK, 1/2" OD (NOT SHOWN)	NA

## 2.2 130B - Atlas Copco/CP QAS25 & CPG25 LHG Illustrations and Full Kit Parts List



Items in yellow are included in the Ventech TLMS-0130B Retrofit Kit.

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.
1	14-0421	A0	LHG 6-PK PULLEY (ALTER 14-0026)	NA
2	14-0435	B0	PULLEY ADAPTER	NA
3	14-0453	G0	BACKING PLATE	1
4	14-0456	C0	IDLER PULLEY SPACER	2
5	14-0459	B0	BOLT SPACER	3
6	14-0467	B0	SPACER, FAN, 31mm	NA
7	14-0475	A0	COOLANT INLET TUBE	NA
8	14-0546	B0	BRACKET, GUSSET	1
9	14-0554	A0	BACKSTAY SPACER	1
10	140-0143	A0	MOUNTING BRACKET	NA
11	140-0144	A0	TOP STAY WELDMENT	NA
12	140-0147	A0	LHG BELT GUARD ASSEMBLY, 45kW	NA
13	920-0009	A0	M8-1.25 x 20 HEX HD BOLT - 8.8 - ZINC PLATED	NA
14	920-0010	A0	M8-1.25 X 25 HEX HD BOLT - 8.8 - ZINC PLATED	1
15	920-0013	A0	M10-1.5 NYLOC NUT - 8.8 - ZINC PLATED	NA
16	920-0019	A0	M10-1.5 X 45 HEX HD BOLT - 8.8 - ZINC PLATED	3
17	920-0031	A0	M8-1.25 NYLOC NUT	NA
18	920-0032	A0	M8-1.25 x 50 HEX BOLT - 8.8 - ZINC PLATED	2
19	920-0059	A0	M10-1.5 x 100 HEX HD BOLT - 8.8 - ZINC PLATED	NA
20	920-0152	A0	M10-1.5 x 75 HEX HD BOLT - 8.8 - ZINC PLATED	1
21	920-0203	A0	M6-1.0 x 55 HEX HD BOLT - 8.8 - ZINC PLATED	NA
22	925-0002	A0	M8 FLAT WASHER	1
23	925-0012	A0	M8 LOCK WASHER	4
24	925-0031	A0	M10 OVERSIZED WASHER - ZINC PLATED	1
25	926-0013	A0	SPACER, M10 ID, 16mm OD, 50mm Lg.	NA
26	980-0081	A0	BELT, 6 RIB, DAYCO P/N 5060538	1
27	981-0005	A0	PULLEY, IDLER, 70mm DIA., 17mm ID, FLAT	NA
28	981-0018	A0	PULLEY, IDLER, 70mm DIA., 17mm ID, 6-RIB	1
29	982-0003	A0	TENSIONER, BELT, 70mm PULLEY, CCW	1
30	LHG700 GEN		VENTECH LHG700 GENSET, 5/8" FITTINGS	NA
-	990-0108	A0	5/8" HEATER HOSE, 90 DEG. ELBOW, 24" LG. (NOT SHOWN)	NA
-	990-0115	A0	ELBOW, 3/8" NPT(M) TO 5/8" HOSE BARB (NOT SHOWN)	NA
-	990-0135	A0	BARB, 3/8" NPT(M) TO 5/8" HOSE (NOT SHOWN)	NA
-	990-0093	A0	SAE #10 WORM DRIVE HOSE CLAMP W/ LINER (NOT SHOWN)	NA
-	135-0036	A0	GENERATOR 2-PORT ECU W/ AMP MEASUREMENT (NOT SHOWN)	NA
-	130-0041	A0	TLMS POWER MEASUREMENT HARNESS (NOT SHOWN)	NA
-	130-0042	A0	TLMS LHG HARNESS (NOT SHOWN)	NA
-	990-0215	A0	GROMMET, BUNA-N, 1-1/2" OD, 1/8" THK, 1/2" OD (NOT SHOWN)	NA

## 3 Introduction

### 3.1 Overview

The TLMS Kit 130 is designed to fit both the Atlas Copco / CP 25kVA and 45kVA Generator Models equipped with the Isuzu 4LE2 diesel engine. Some Kit 130s shipped from the factory between 11/1/20 and 12/1/22 were shipped with an early variant of Kit 130. That version has since been superseded. The pictures below depict the early variant and the current model brackets to assist with the evaluation if your kit is up to date. The purpose of this manual is to assist with the retrofitting of an early-variant generator with current configuration parts.



Early Bracket

Current Model Bracket

### 3.2 Mechanical Installation

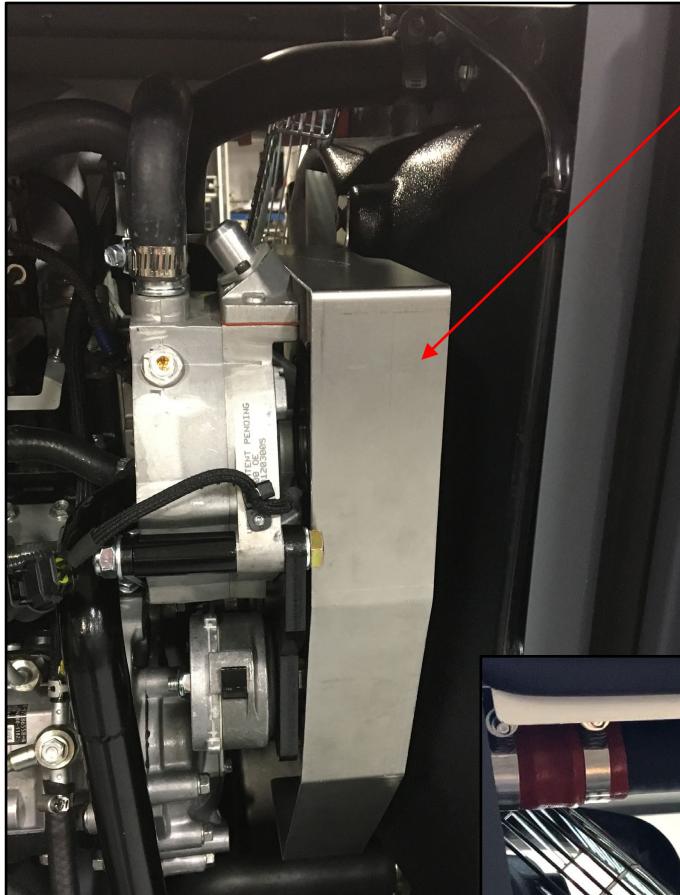
\*Where bolts are to be used, please use the following torque specs on fasteners (unless otherwise specifically identified):

	Class 8.8	Class 10.9	Units
M6	92.9	133	In-lbs
M8	225.4	232	In-lbs
M10	37.2	53.2	ft-lbs

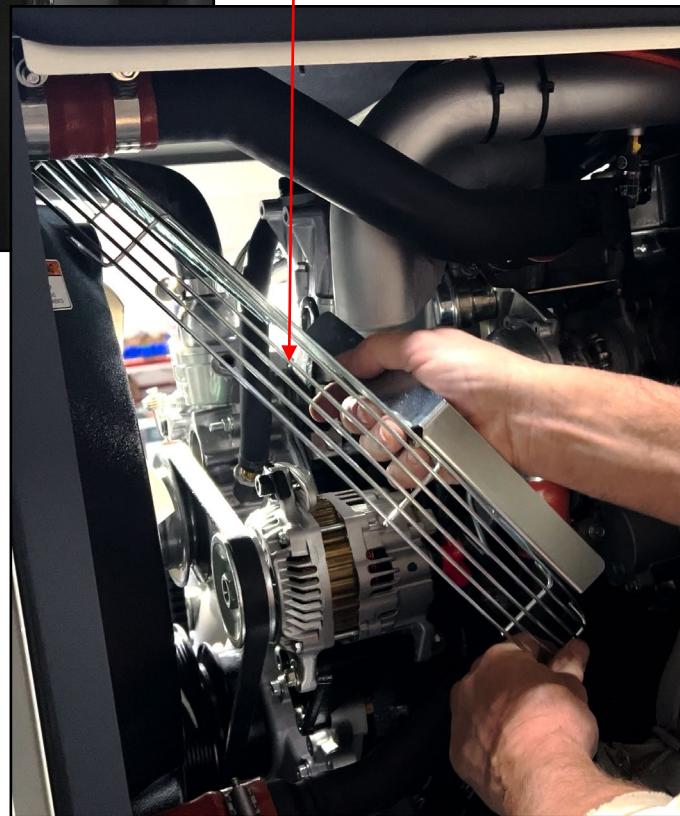
**IMPORTANT NOTE:** All bolts that are installed without lock washers should be treated with Loctite® 242 or a similar thread locker.

## 4 Prepare for the Retrofit Installation

### 4.1 Remove the LHG Belt Guard and Fan Guard



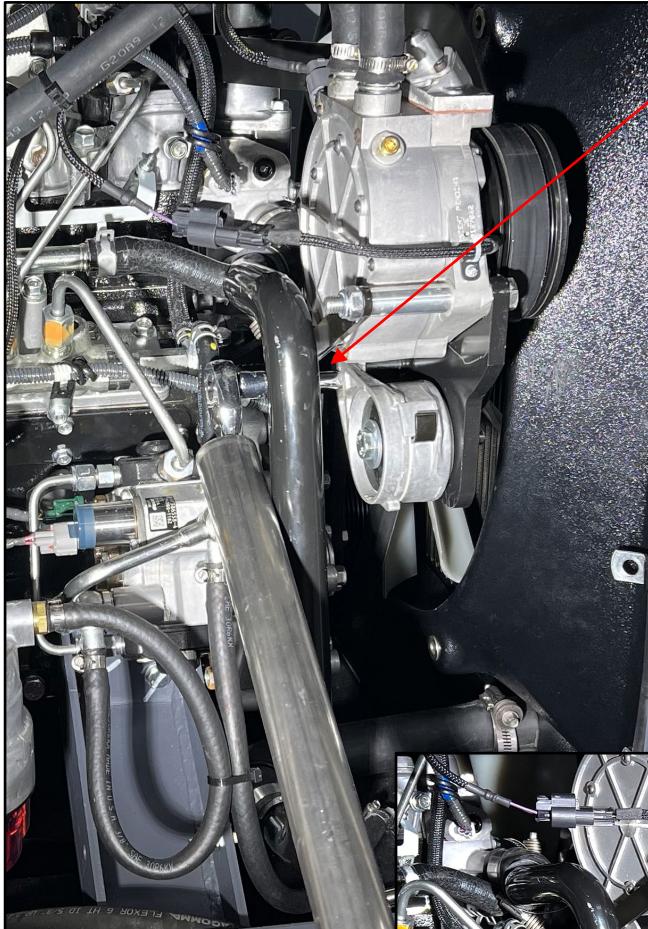
Remove the LHG Fan Guard



Remove the Fan Guard

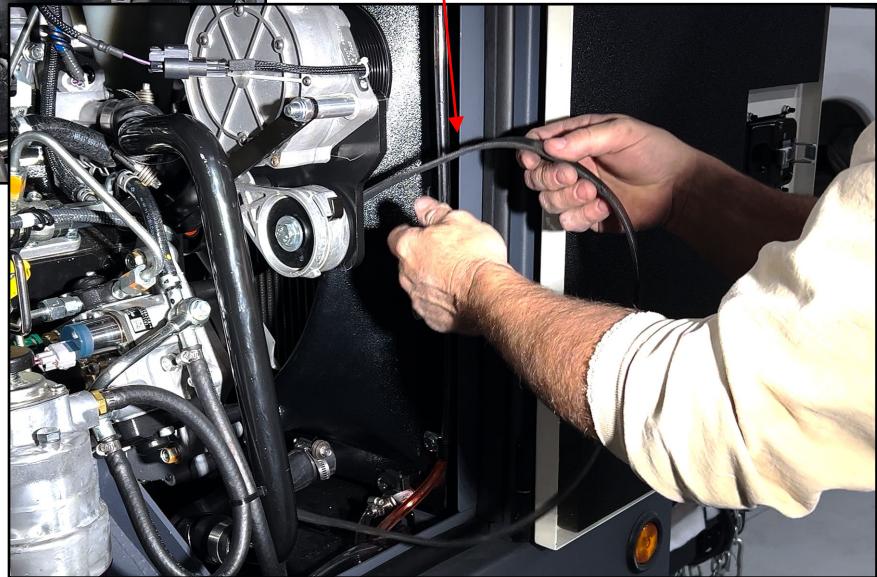
Retain bolts and mounting material for later use.

#### 4.2 Release and Remove the LHG Belt

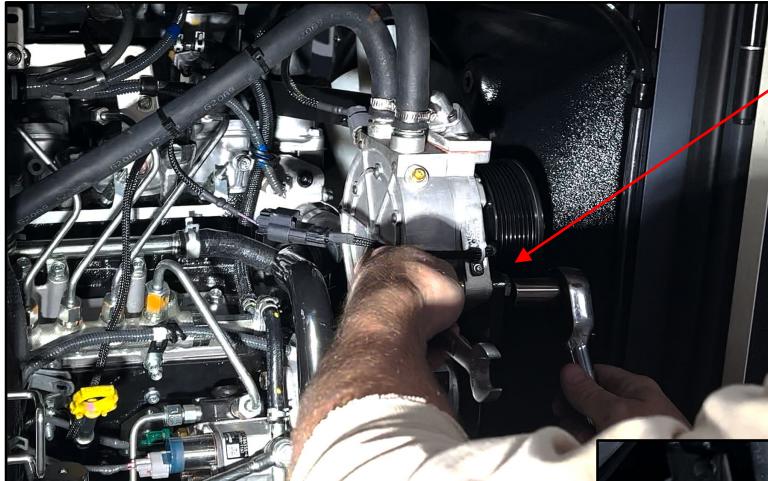


Release and remove the LHG Belt.

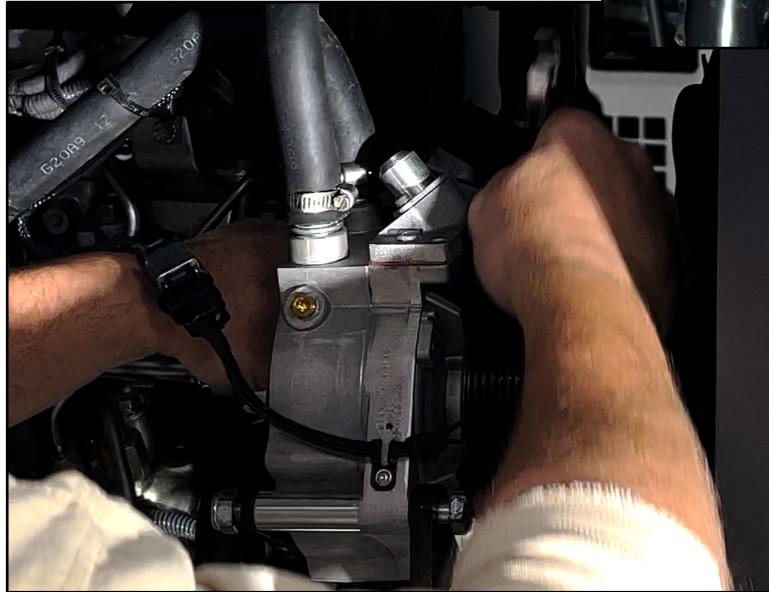
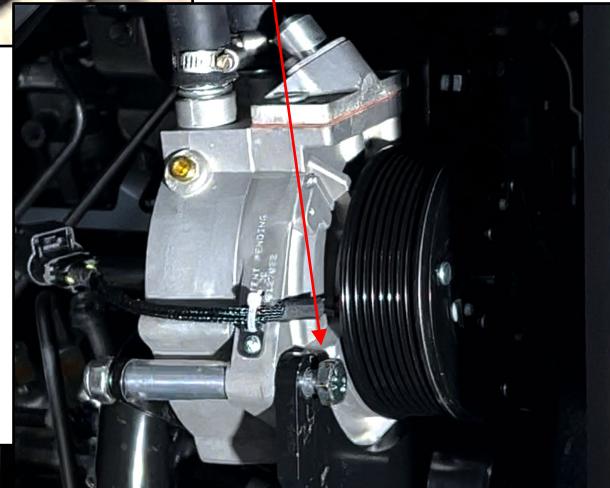
Discard the belt, a new one is supplied in the Retrofit Kit.



#### 4.3 Disconnect the LHG from the Backing Plate

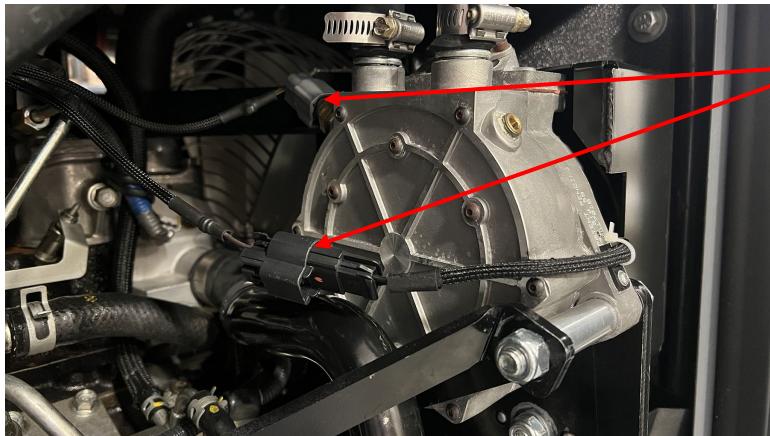


Loosen but do not remove the right side mounting bolt.



Remove the left side mounting bolt.

#### 4.4 Disconnect Wiring harness from the LHG



Disconnect LHG harness to LHG. And tuck the wiring aside (out of the way) to be reconnected later in the process.

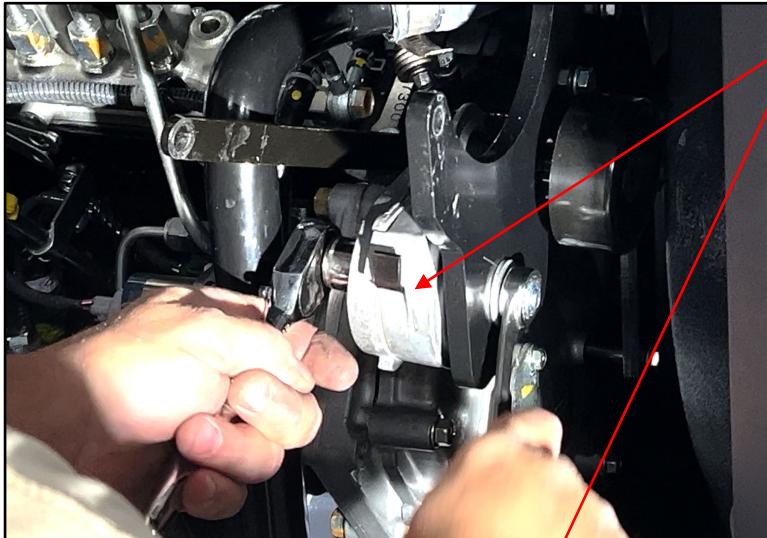
#### 4.5 Set the LHG Aside



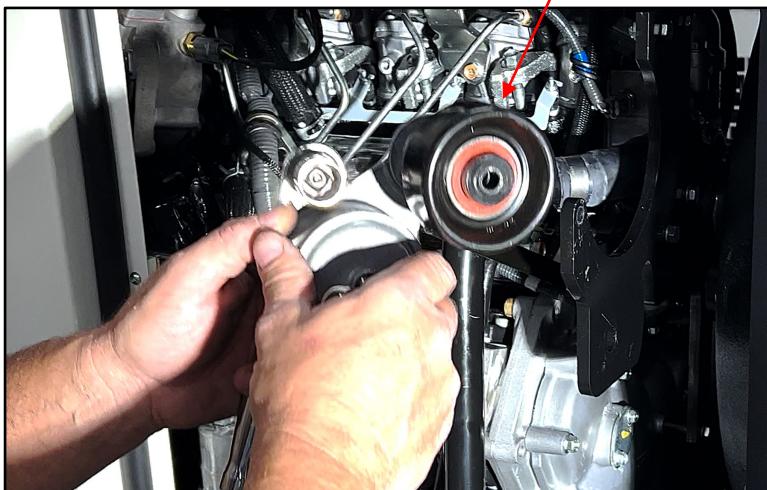
Holding the LHG, remove the right side mounting bolt, spacer, and washers, and carefully set the LHG aside.



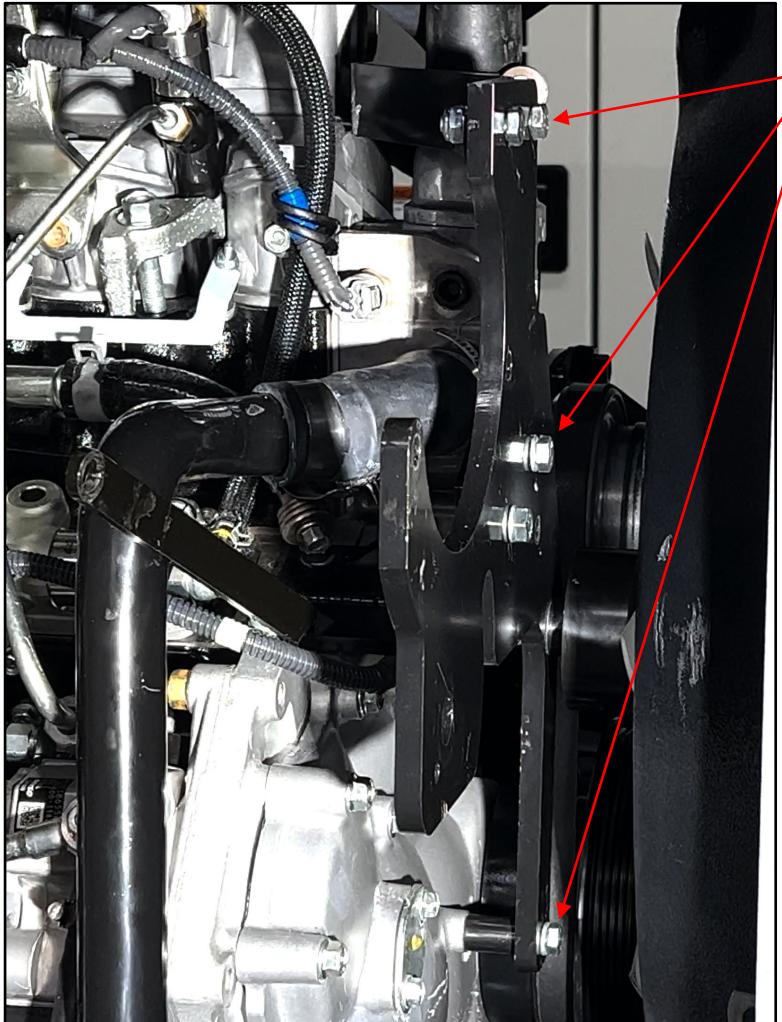
#### 4.6 Remove the Belt Tensioner



Remove the Belt Tensioner.

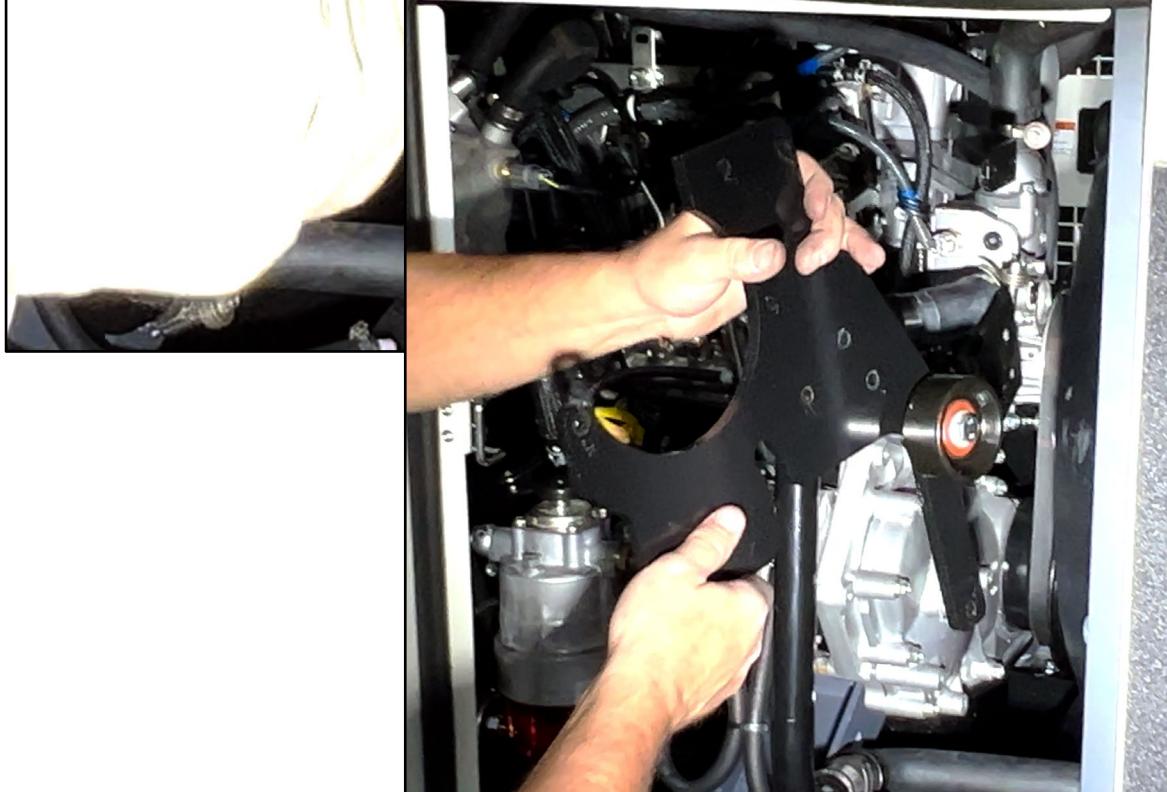


#### 4.7 Remove the Backing Plate

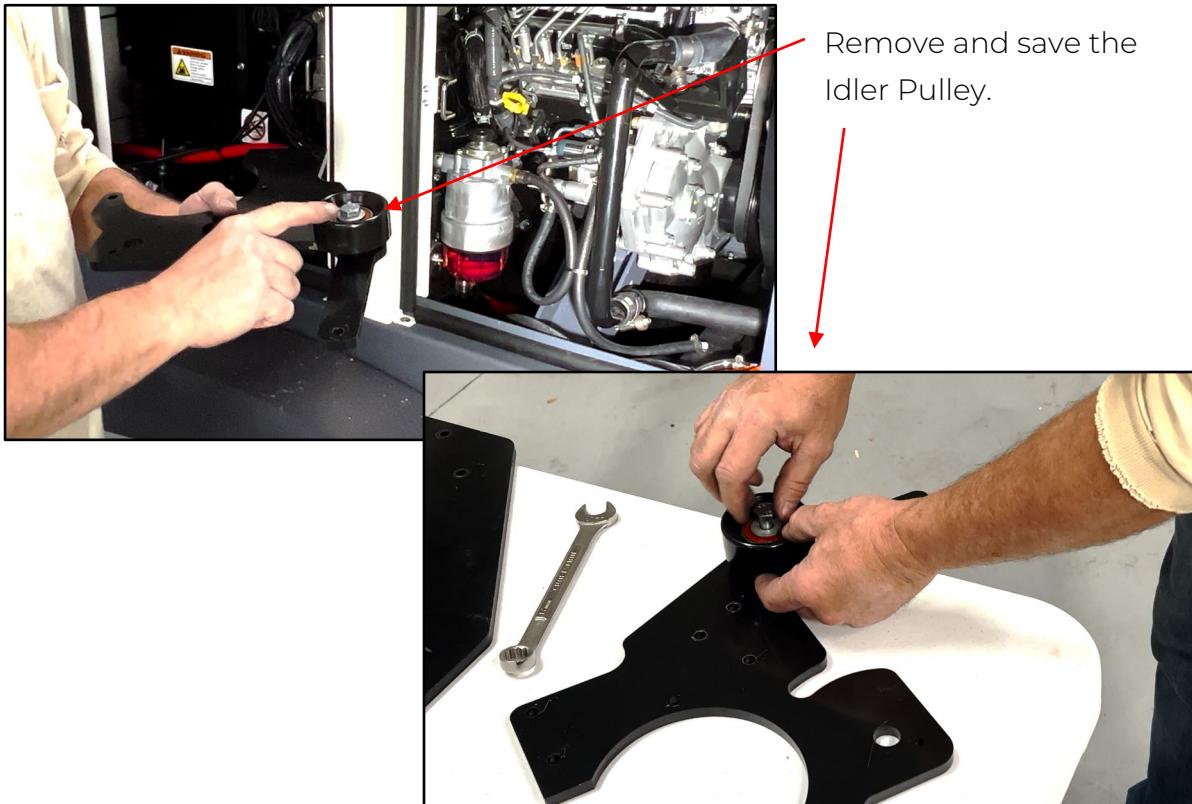


Remove the Backing Plate (6 bolts + various washers, nuts, and spacers).

See additional illustrations on the following page.



#### 4.8 Remove and Save the Idler Pulley



## 5 The Retrofit Installation

### 5.1 Prepare the New Retrofit Backing Plate

#### 5.1.1 Install the Flat Idler Pulley

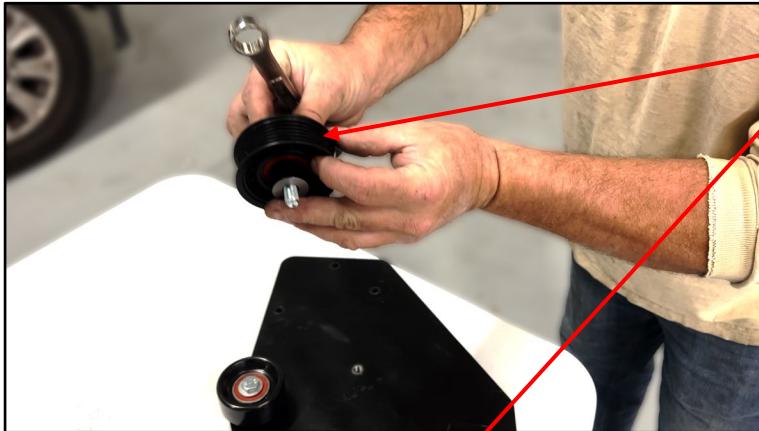


Install the Idler Pulley (981-0005-A0) saved from step 4.8 above, with Idler Pulley Spacer (14-0456-C0) and M10 Washer (925-0031-A0) to the Backing Plate (14-0453-G0), using Hex HD Bolt (920-0019-A0).

Note: the washer is in the front of the pulley and not shown in these pictures.

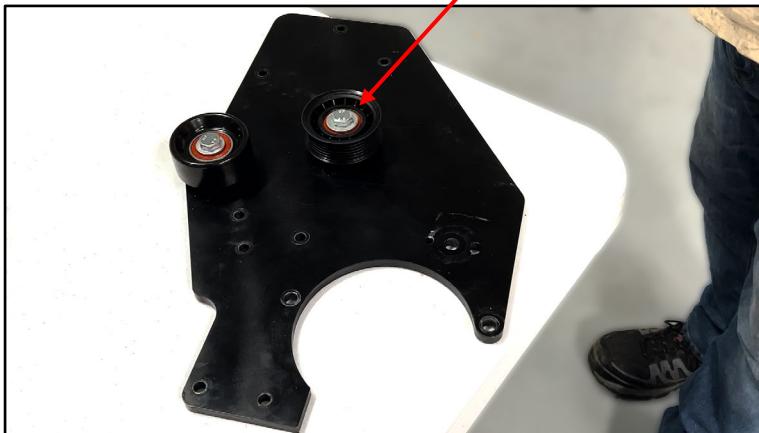


### 5.1.2 Install the Ribbed Idler Pulley

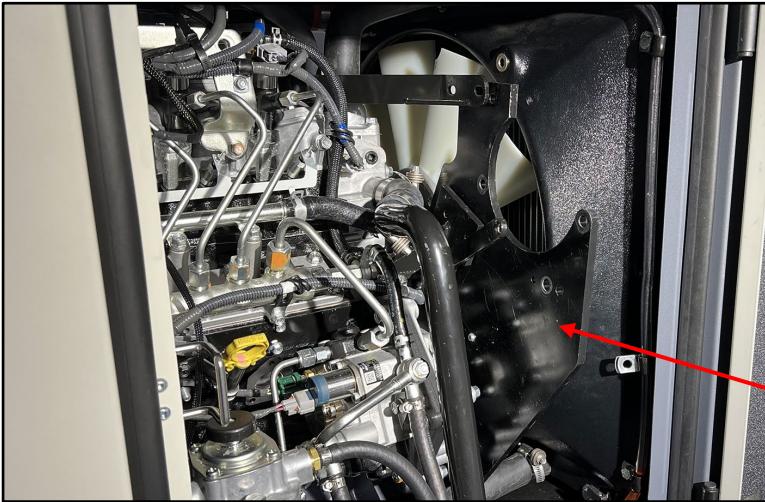


Install the Idler Pulley (981-0018-A0), with Idler Pulley Spacer (14-0456-C0) and M10 Washer (925-0031-A0) to the Backing Plate (14-0453-G0), using Hex HD Bolt (920-0019-A0).

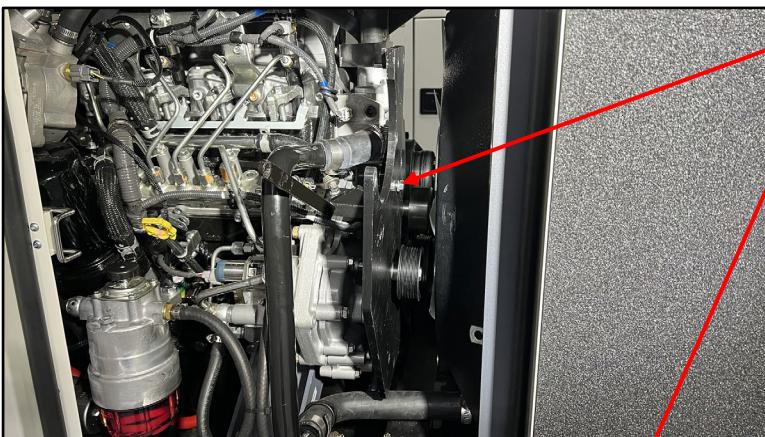
Note: the washer is in the front of the pulley.



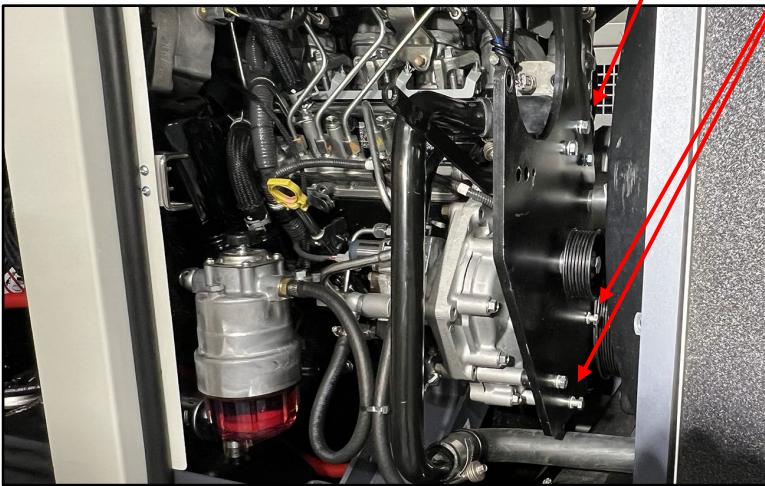
## 5.2 Mount the Backing Plate



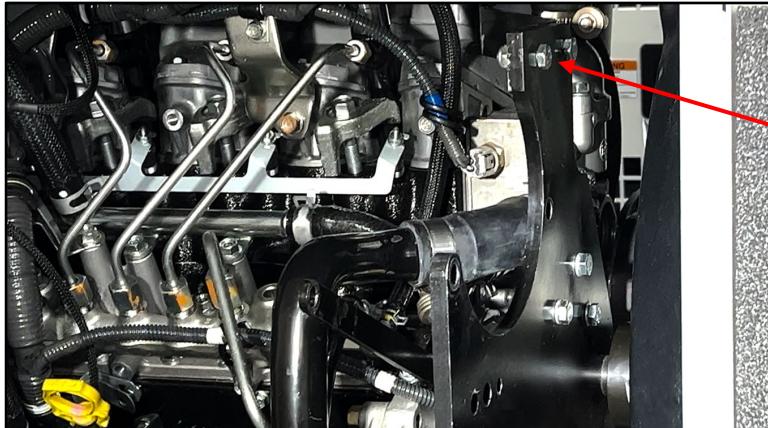
Make sure the bolts holding the Mounting Bracket (140-0143-A0) and the Support Bracket (14-0461-B0) are loose to allow for easier positioning and installation of the Backing Plate.



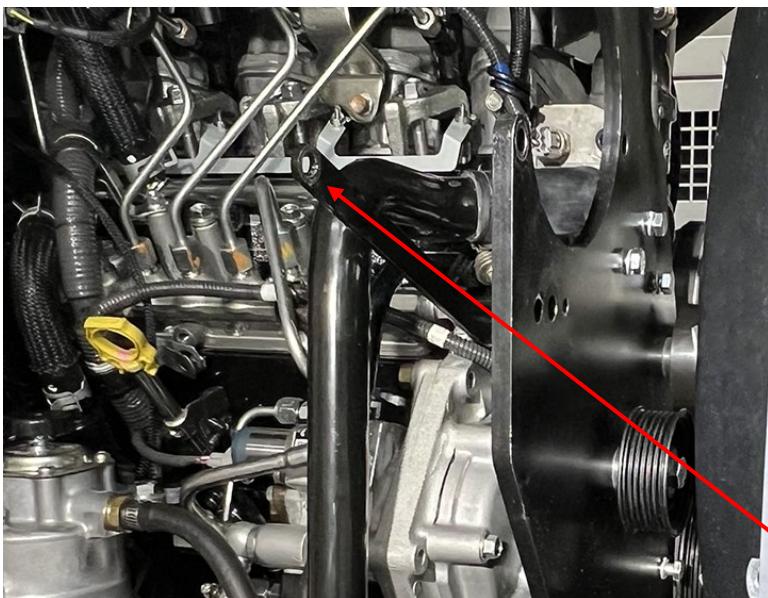
Position the Backing Plate (14-0453-G0) and begin by attaching it loosely to the Mounting Bracket (140-0143-A0) using 3 M8 1.25 x 20mm bolts (920-0009-A0).



Next, loosely attach the Backing Plate to the engine block as shown utilizing 3 Bolt Spacers (14-0459-B0) and 3 M8x50mm bolt (920-0032-A0) and 3 M8 lock washers (925-0012-A0).



Now attach the Backing Plate to the Top Stay Weldment (140-0144-A0) using 2 M8 1.25 x 25mm bolts (920-0009-A0), 2 M8 Flat Washers (925-0002-A0) and 2 M8 1.25 NYLOC nuts (920-0031-A0).

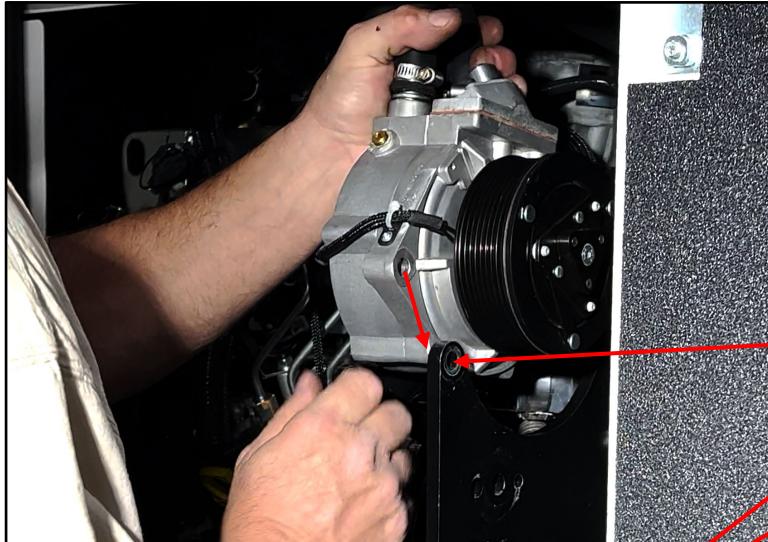


**IMPORTANT:** Finish the Backing Plate installation by tightening all the mounting bolts for the Backing Plate. Tighten the 3 engine block bolts (lowest bolts) first. Then tighten the 3 Mounting Bracket bolts and finally the top two, Stay bolts.

Finally, check and re-tighten all Backing Plate bolts from the bottom up, as necessary.

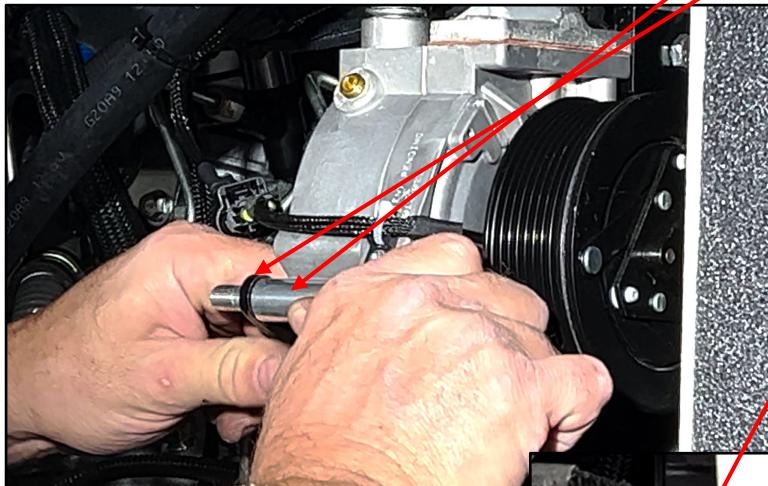
Leave the bolts connecting the Support Bracket to the engine loose to facilitate the LGH installation.

### 5.3 Install the LHG700

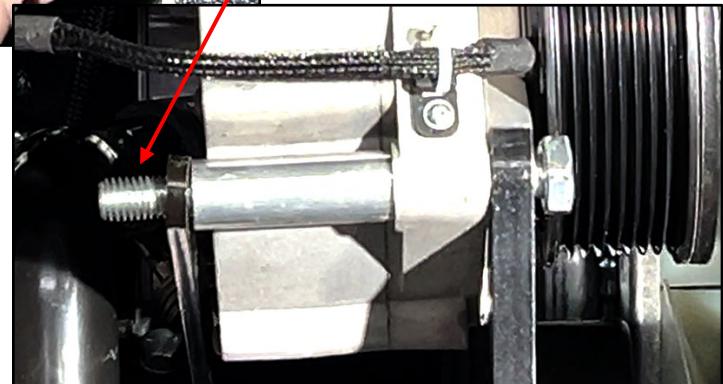


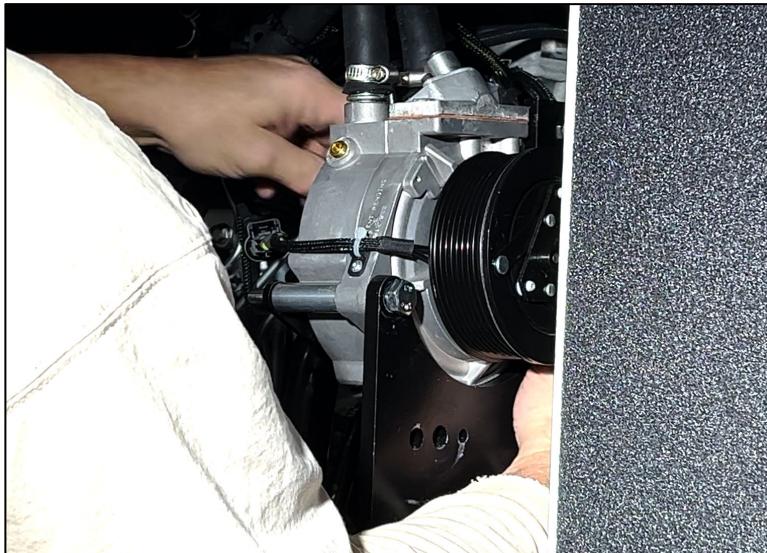
Install LHG700 into bracket assembly as shown.

On the outboard side, hold the LHG in place by inserting an M10x100mm bolt (920-0059-A0) through the backing plate and LHG700, followed by the M10 x 45mm spacer (926-0004-A0), Support Bracket (14-0461-B0)



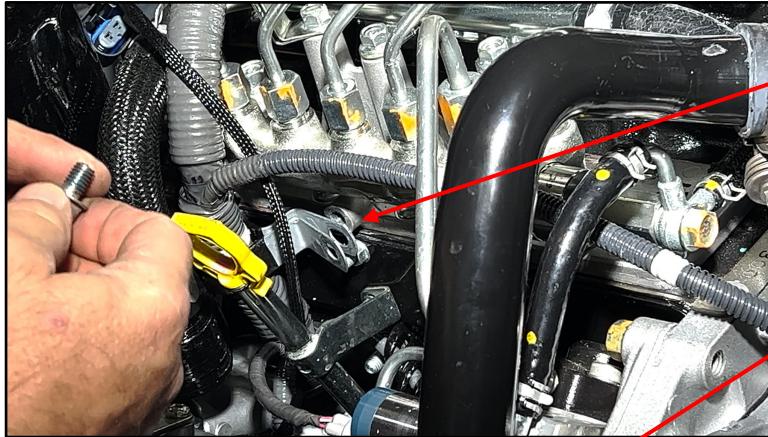
Do not install the M10 NYLOC nut (920-0013-A0) at this point.



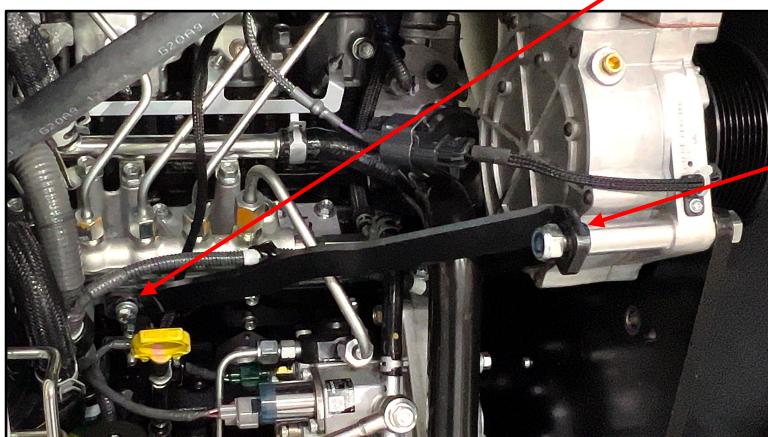


Attach the side nearest the engine using an M10x45mm bolt (920-0072-A0) and M10 NYLOC nut (920-0013-A0) and tighten.

## 5.4 Install the Bracket, Gusset



Remove the bolt holding the P-clip under the fuel lines on the left (LHG) side of the engine.



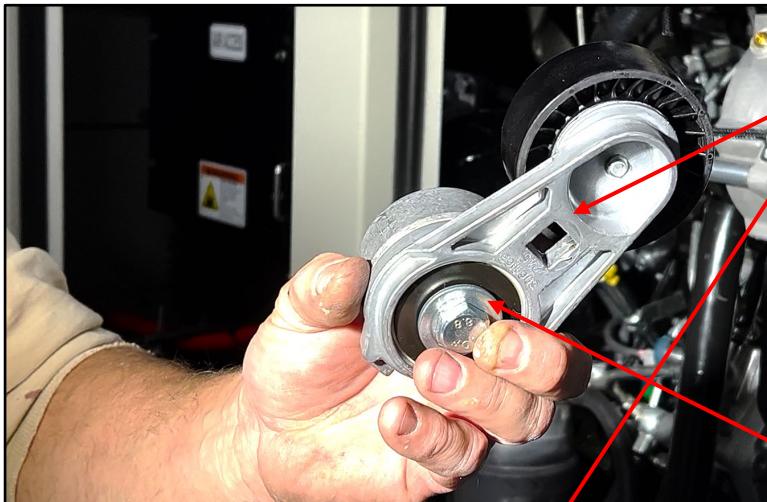
Install the Spacer (14-0554) IN FRONT of the P-Clip, the Gusset Bracket (14-0546-B0) IN FRONT of the Spacer, followed by the M8 Flat Washer (925-0002-A0), M8 lock washer (925-0012-A0) and an M8 1.25 x 25mm bolt (920-0009-A0) holding it all in place.

Now, connect it to the LHG assembly behind the Support Bracket using an M10 1.5 NYLOC Nut (920-0013-A0)

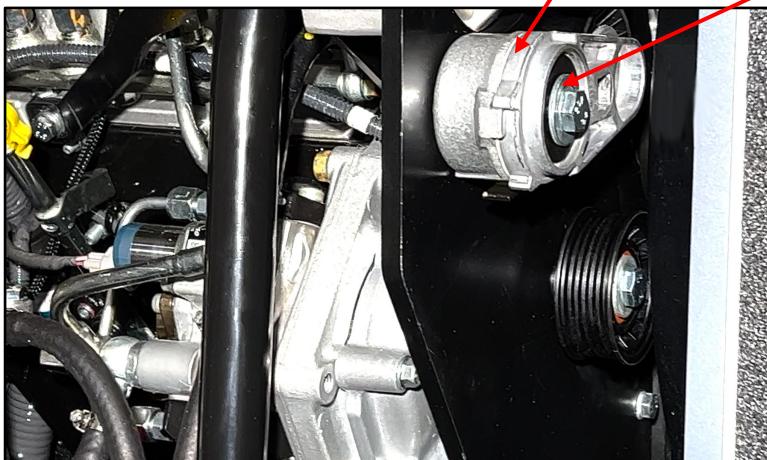
**IMPORTANT:** Tighten the bolts connecting the Support Bracket to the engine.

Check and tighten all Backing Plate, Bracket, Stay, and Weldment bolts from steps 5.4 through 5.6.

## 5.5 Install the Belt Tensioner

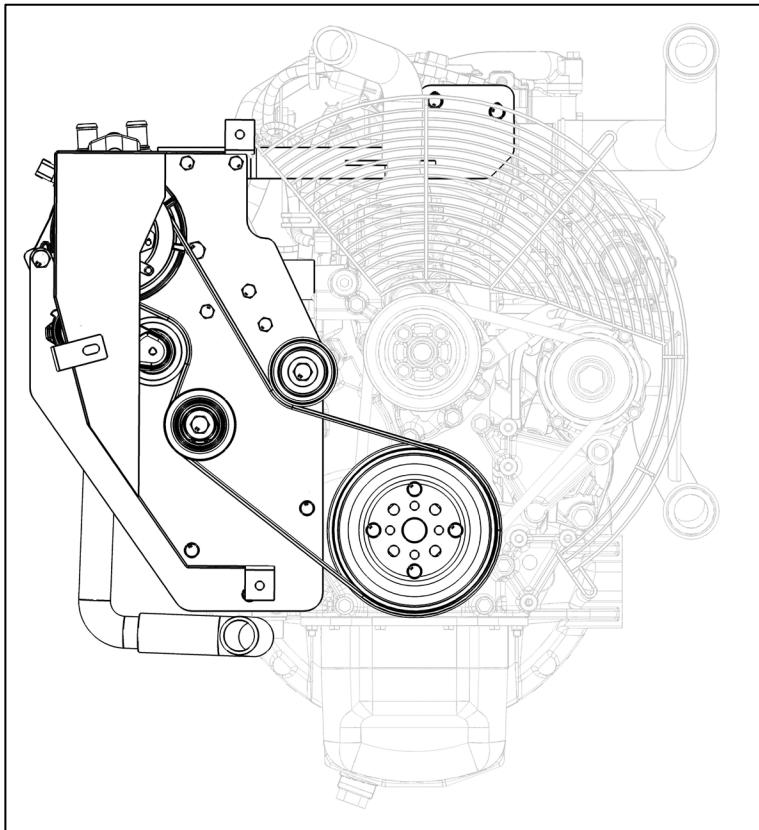


Attach the Belt Tensioner (982-0003-A0) using the M10 1.5 x 75mm bolt (920-0152-A0), oversized M10 washer (925-0031-A0), and M10 NYLOC nut (920-0013-A0)



\*Note: Oversized washer installs on fan-side of the backing plate, NOT under the NYLOC nut.

## 5.6 Install the Drive Belt

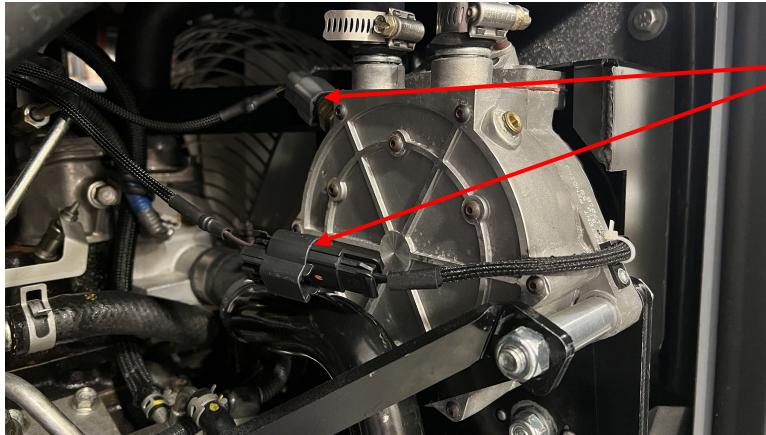


Install Belt (980-0072-A0), routing as shown in the diagram to the left.

It is often quicker and easier to have one person on either side of the engine working together for this step.



## 5.7 Reconnect Wiring harness to the LHG



Reconnect LHG harness to LHG..



Reinstall fan guard in its stock location using original hardware.

Wait to install the top bolt, which will hold in the LHG Belt Guard.

## 5.8 Modify the LHG Belt Guard



Modify the LHG belt guard assembly (140-0146-A0 for 45kW, 140-0147-A0 for 25kW), using the template in the kit and in Appendix A at the end of this document to cut an opening for the back of the Belt Tensioner.

NOTE: image shows an unmodified guard in the technician's hands and a modified guard mounted on the engine.

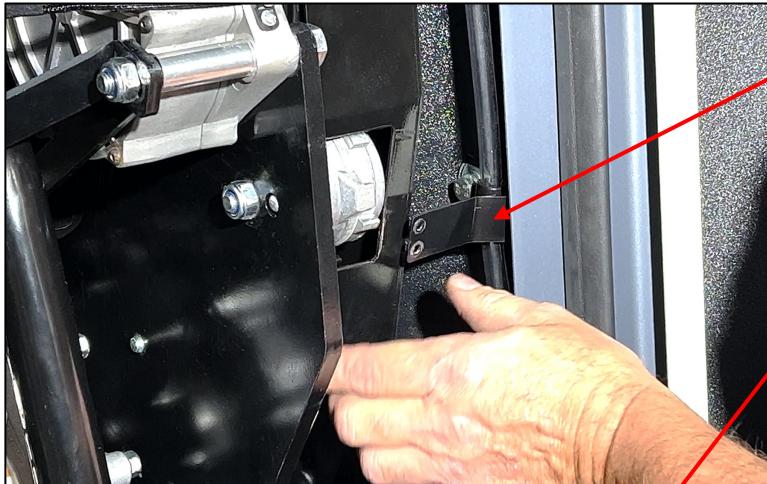
## 5.9 Install the LHG Belt Guard



Install the LHG belt guard assembly (140-0146-A0 for 45kW, 140-0147-A0 for 25kW).

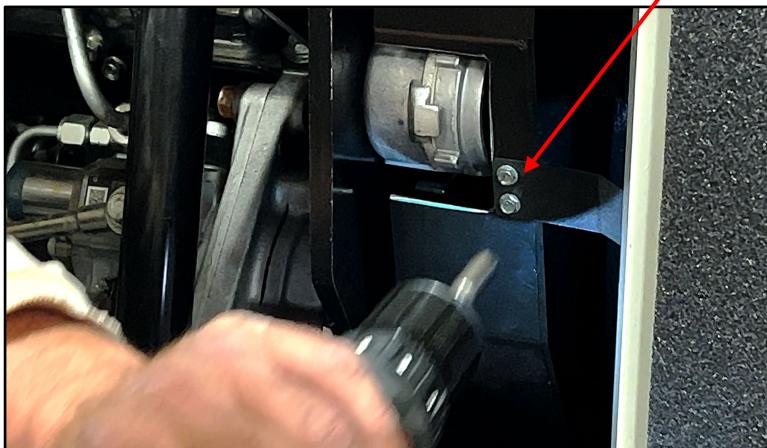
Note" this bolt will hold both the top of the belt guard and the top of the fan guard.

The bottom of the belt guard will be held in place by the remaining fan guard bolt, which is no longer necessary for the modified fan guard.

**5.10      Install the LHG Belt Guard Tie Bracket (**QAS & CPG 45kW ONLY**)**

Install the LHG Belt Guard Tie Bracket (14-0549-D0) behind the hose and P-Clamp, as shown here.

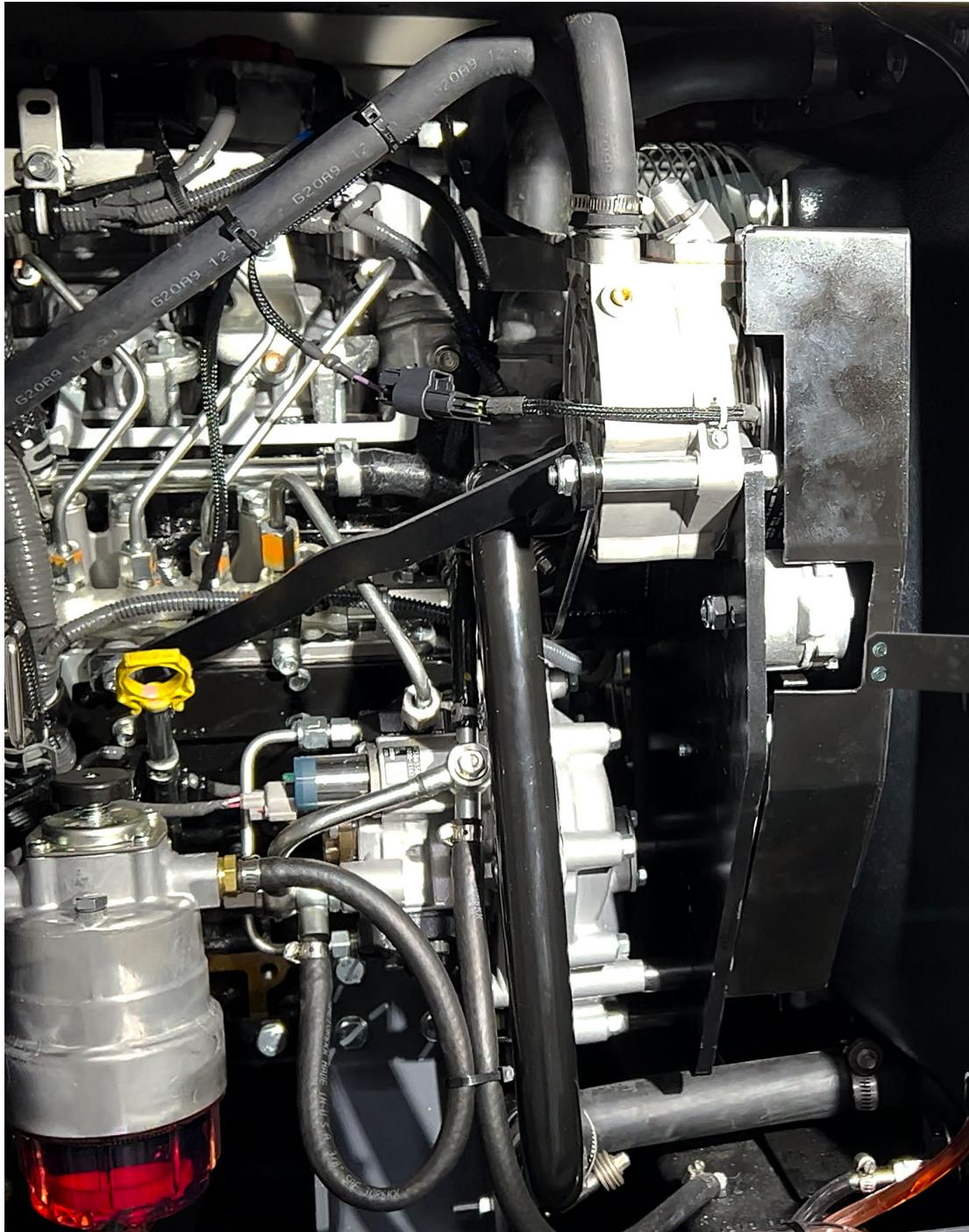
Secure the Tie Bracket to the Belt Guard using the two supplied #8 X 3/4" Hex Head Self-Drilling Screws (920-0014-A0).



## 5.11 Final Installation Steps

1. Check all electrical connections
2. Check all hose clamps for tightness
3. Check all Fasteners for tightness

### 5.11.1 A View of the Finished Retrofit Installation



## **6 Appendix A: LHG Belt Guard Assembly Modification Template**

The following page contains a to scale drawing and template that can be used for the LHG Belt Guard Assembly Modification mentioned in section 5.10. It was appended to this document as a letter-sized page (8.5" x 11").

If you intend to use this appendix as your template for the modification procedure, please make sure you DO NOT scale the page when reproducing it and double-check all measurements against the stated specifications.

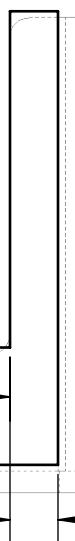
2

## REVISION HISTORY

DESCRIPTION

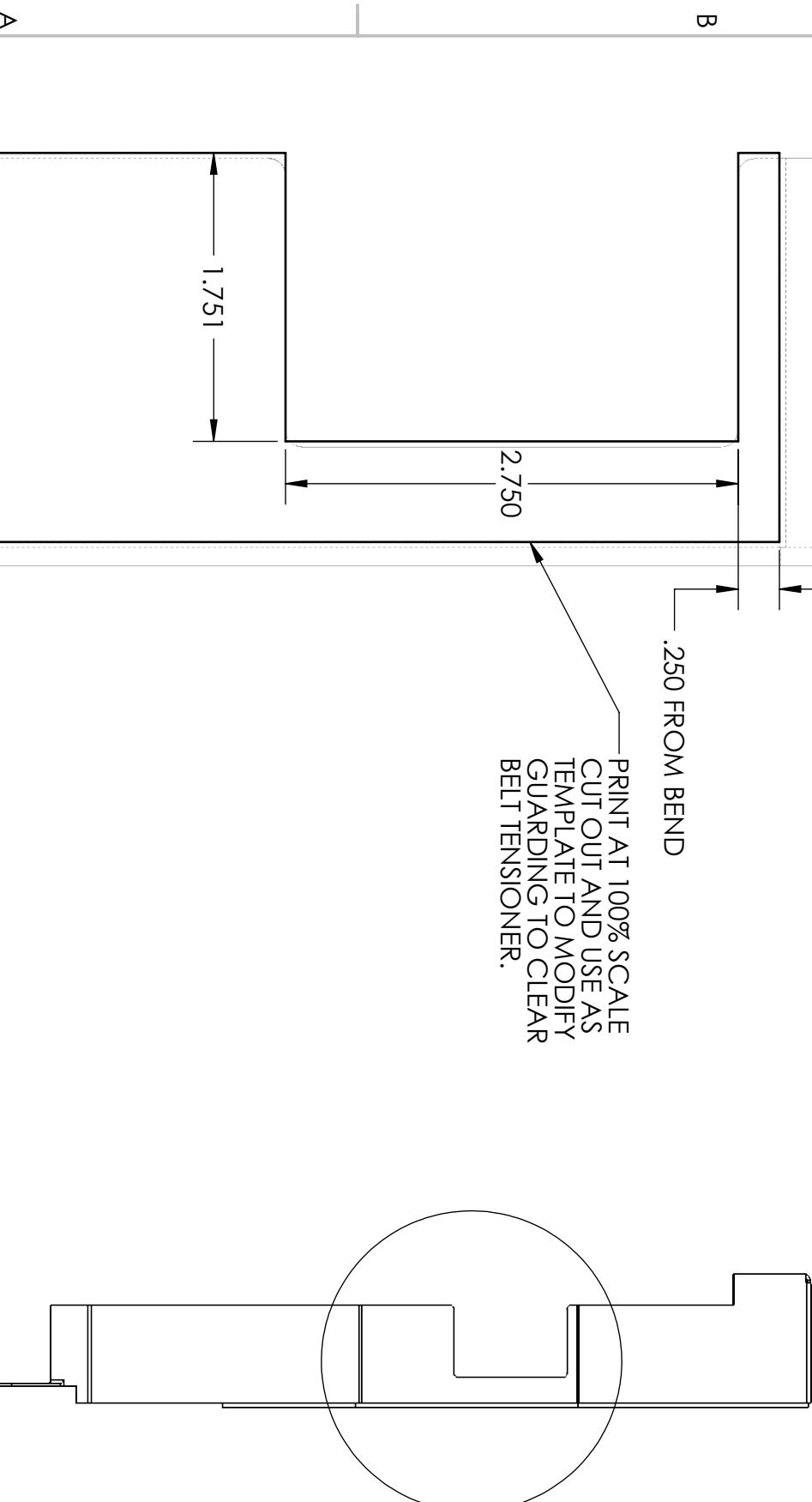
ENG.

REV.	DATE	DESCRIPTION	ENG.
A		ENGINEERING RELEASE	

DETAIL A  
SCALE 1:1

.250 FROM BEND

PRINT AT 100% SCALE  
CUT OUT AND USE AS  
TEMPLATE TO MODIFY  
GUARDING TO CLEAR  
BELT TENSIONER.



A

B

A

B

1

UNITS: INCH, POUND, SECOND

## NOTES:

1. STAMP ALL DETAILS WITH PART NUMBER
2. BREAK ALL SHARP EDGES AND DEBUR PART

# Ventech

28389 Beck Rd.  
Unit J-2  
Wixom, MI 48393  
(248)863-5226

PART NAME:  
**45KW BELT GUARD CUTTING TEMPLATE**

UNLESS OTHERWISE SPECIFIED:		DO NOT
ONE PLACE (X)	IMPERIAL ± .06	METRIC ± .3
TWO PLACE (XX)	IMPERIAL ± .01	METRIC ± .13
THREE PLACE (XXX)	IMPERIAL ± .005	METRIC ± .013
FOUR PLACE (XXXX)	IMPERIAL ± .0005	METRIC ± .005
ANGULAR TOLERANCE ± 5°		DRAWING

45KW BELT GUARD CUTTING TEMPLATE

PART MATERIAL:

MATERIAL: MATERIAL &lt;NOT SPECIFIED&gt;

REF.: KIT 130A

WEIGHT: 2.68 LBS.

DRAWING NUMBER:

140-0146-B0

SHEET SIZE: A

2

1