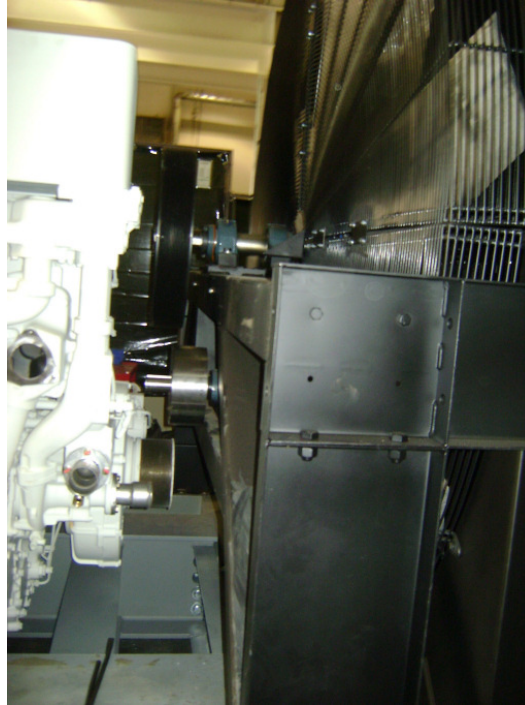




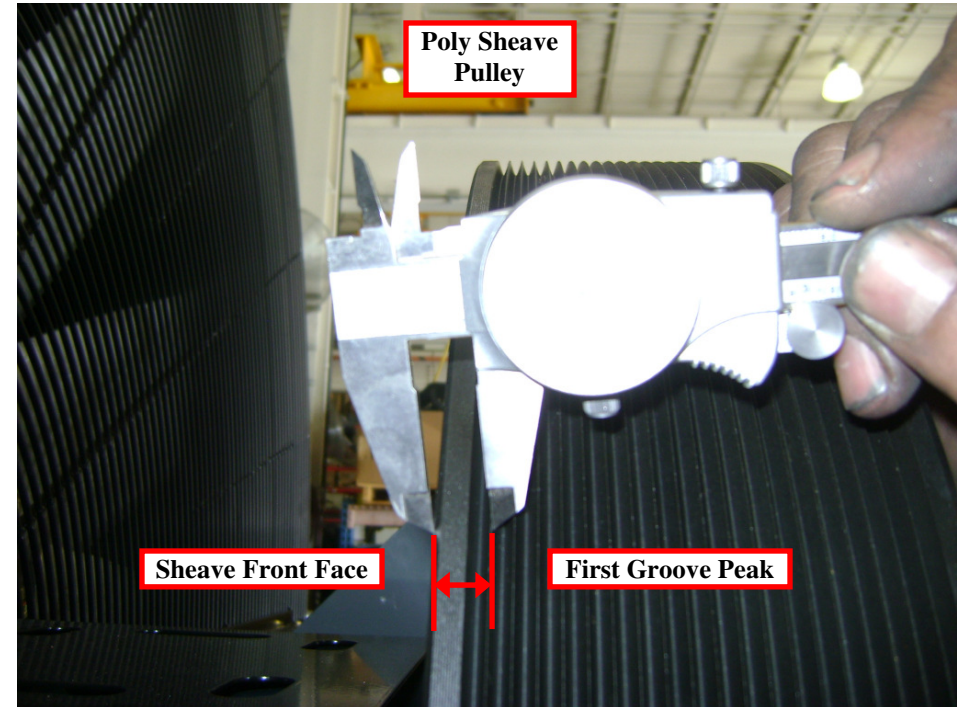
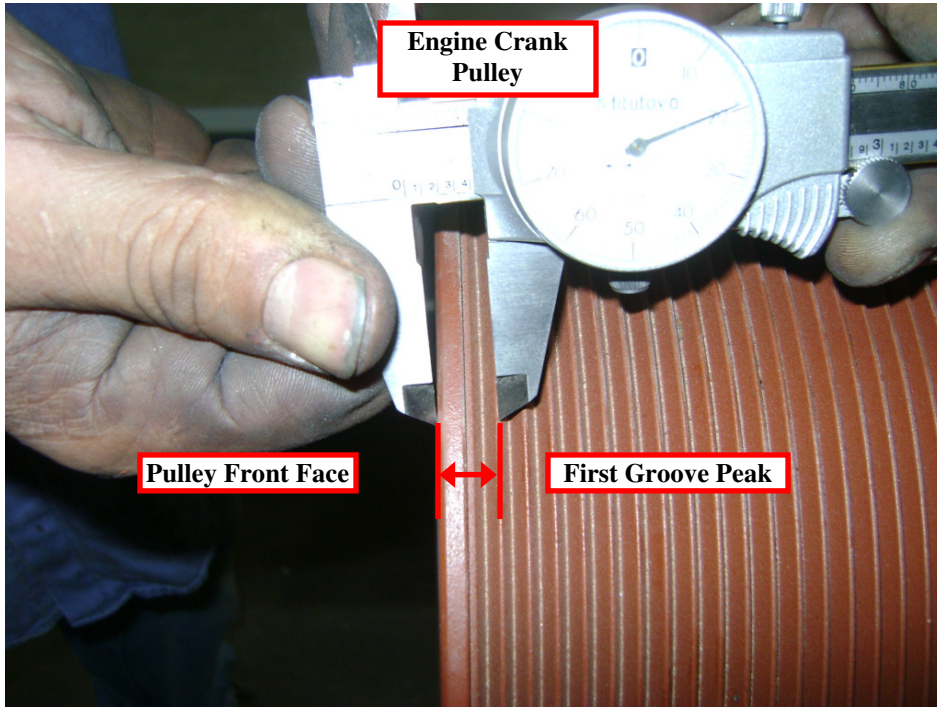


Indirect Drive Radiator Poly Sheave & Idler Alignment



General Notes

- Arrow below denotes part in reference to table! (Red) 
- Part quantities are called out in table per picture!
- Letter used to call out part in reference to corresponding table! 
- Letter sequence starts over at the beginning of every page.
- This eye symbol is an alert to take specific notice of a critical instruction (i.e. engine fan orientation, special orientation of ball valves, etc...) 
- This torque symbol is an alert to tighten hardware (i.e. nuts, bolts, clamps, etc...) to a specified torque value and paint mark after final torque has been applied. 
- If **torque** is specified apply paint mark.



Radiator Mounting				
All				
P/N	Description	QTY	Letter	Torque

Steps:

- Using a dial indicator measure from the front of the engine crank pulley to the first groove peak; record measurement.

Radiator Mounting				
All				
P/N	Description	QTY	Letter	Torque

Steps:

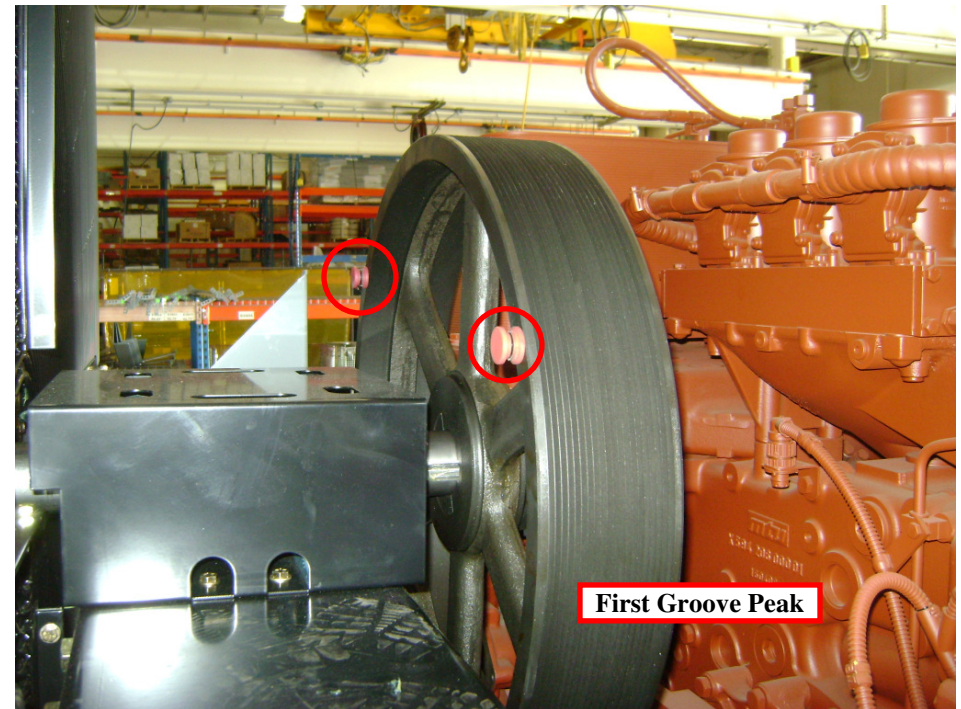
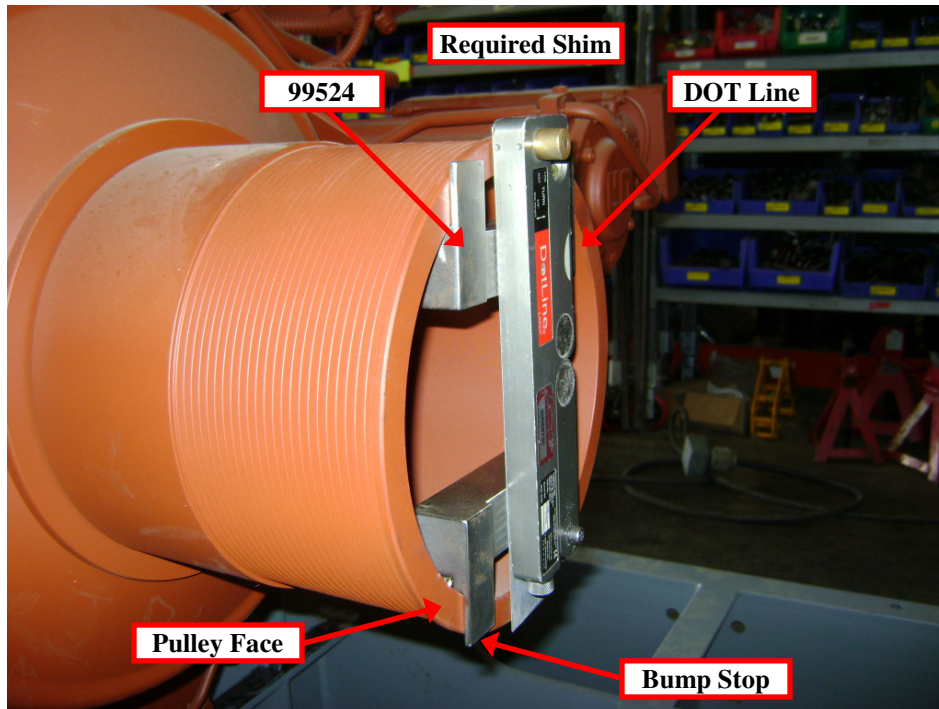
- Using a dial indicator measure from the radiator side of the poly sheave to the first groove peak; record measurement.
- After the measurement is taken minus the poly sheave value from the engine crank pulley value to find the difference in flange thickness to determine the appropriate shim to use; this insures that the DOT Line laser tool is in a level plane when mounted to the crank pulley.
- Ex: $.07 - .055 = .015$ shim required.

Tools Needed:

- ◆ Dial Indicator

Tools Needed:

- ◆ Dial Indicator



Radiator Mounting				
All				
P/N	Description	QTY	Letter	Torque

Steps:

5. Mount the pulley alignment bracket set with in the engine crank pulley interior bore.
6. Make sure the alignment fixture bump stops sits flush against the pulley face.
7. Place the shim or shims to use down the center of the alignment fixtures.
8. Place the DOT Line laser on top of the shim so the laser eye is point up towards the poly sheave.
9. Make sure the laser tool is set to "LINE" and not "DOT".
10. Turn on the DOT Line laser tool; use caution trying not to look directly at the laser.

Tools Needed:

- ◆ Ludefca DOT Line Laser Tool (L1000 or equivalent)
- ◆ S4000 Pulley Alignment Bracket Set (MTU OE #99524)
- ◆ Shim Stock

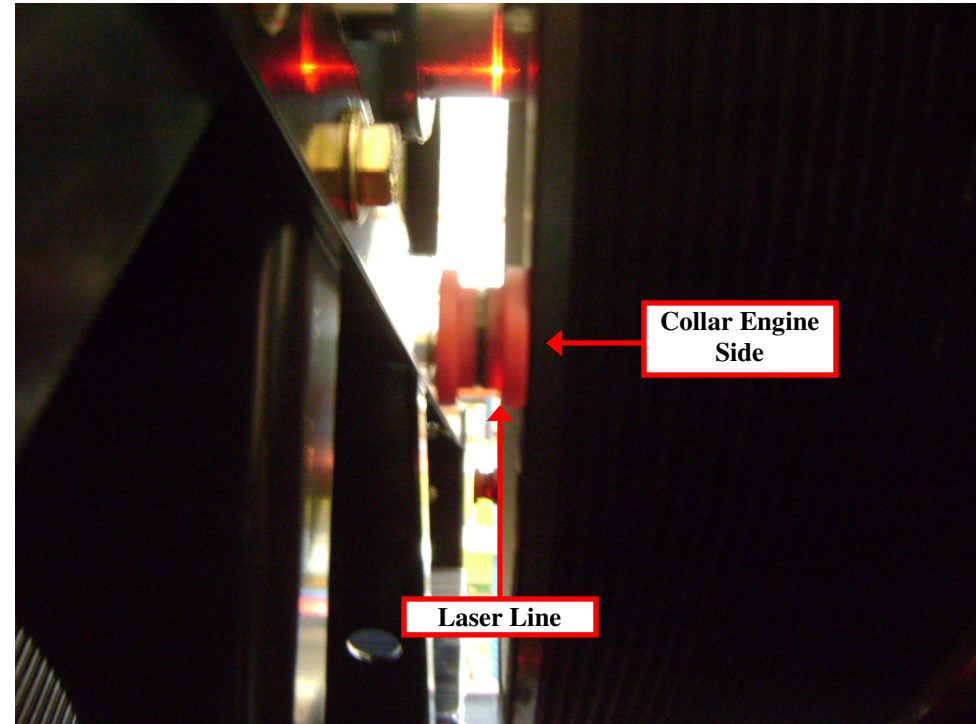
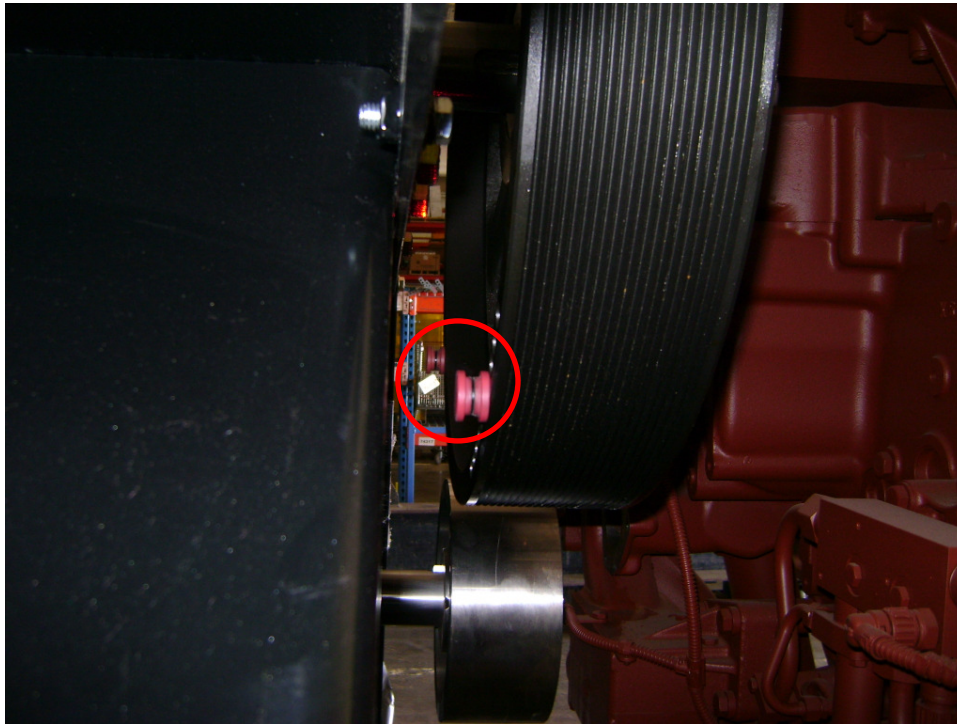
Radiator Mounting				
All				
P/N	Description	QTY	Letter	Torque

Steps:

11. Place 2 of the DOT Line laser "red" pucks at the top half of the poly sheave; around the 10 and 2 o'clock positions.

Tools Needed:

- ◆ Ludefca DOT Line Laser Pucks (L1000 or equivalent)



Radiator Mounting				
All				
P/N	Description	QTY	Letter	Torque

Radiator Mounting				
All				
P/N	Description	QTY	Letter	Torque

Steps:

- 12. Place the other 2 DOT Line laser “red” pucks on the lower half of the poly sheave: around the 4 and 8 o’clock positions.
- 13. Using a rawhide hammer tap the poly sheave until the “red” line appears on all 4 pucks.

Steps:

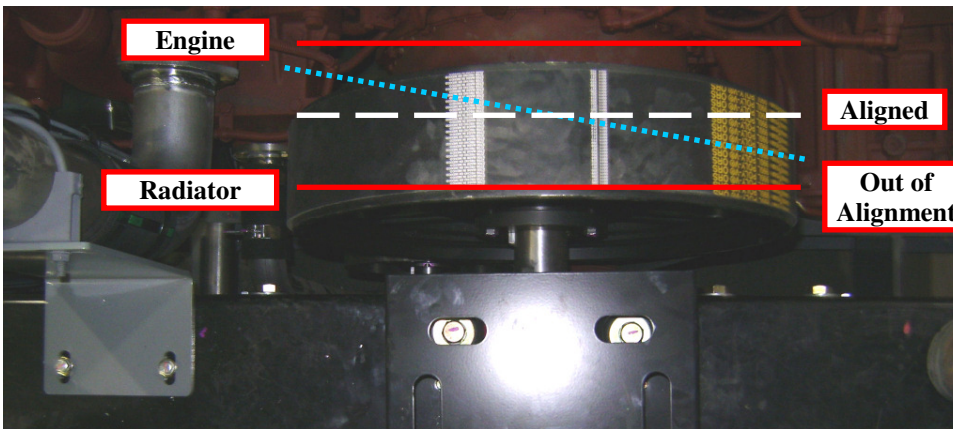
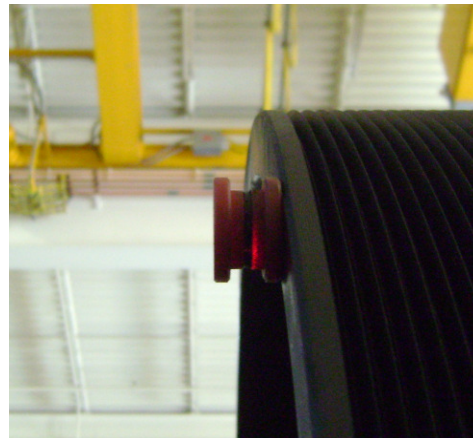
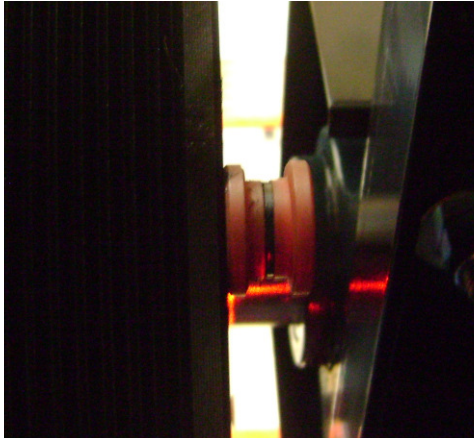
- 14. “Red” line is lined up near the puck collar as seen above, engine side.
- 15. All 4 pucks need to appear like this before tighten of the sheave.

Tools Needed:

- ◆ Ludefca DOT Line Laser Pucks (L1000 or equivalent)

Tools Needed:

- ◆ Rawhide Hammer



Radiator Mounting				
All				
P/N	Description	QTY	Letter	Torque

Radiator Mounting				
All				
P/N	Description	QTY	Letter	Torque

Steps:

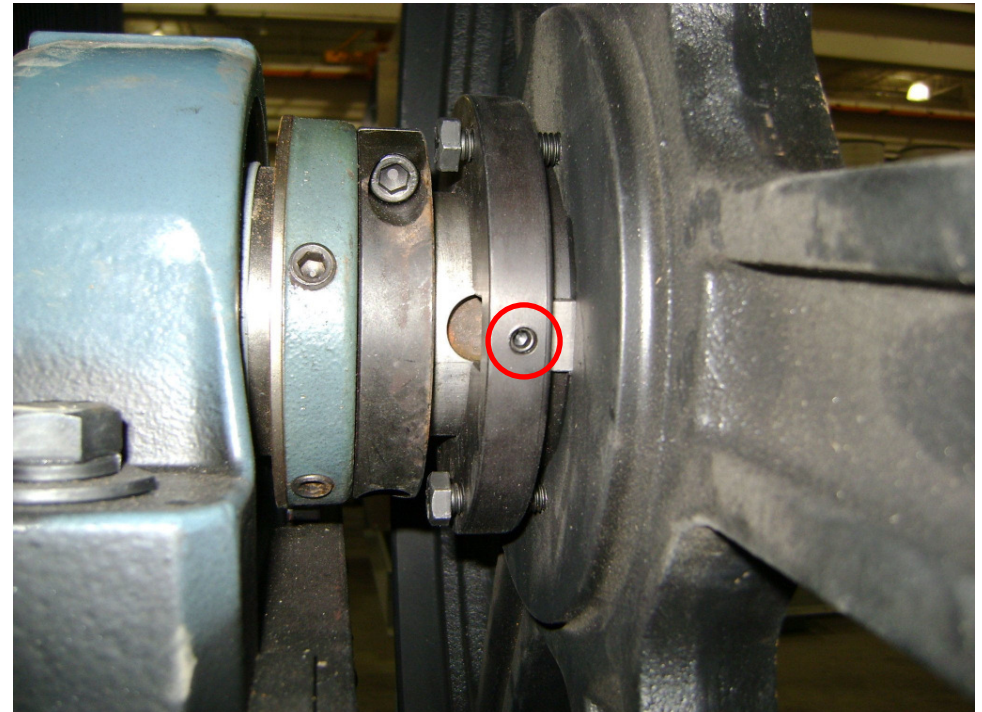
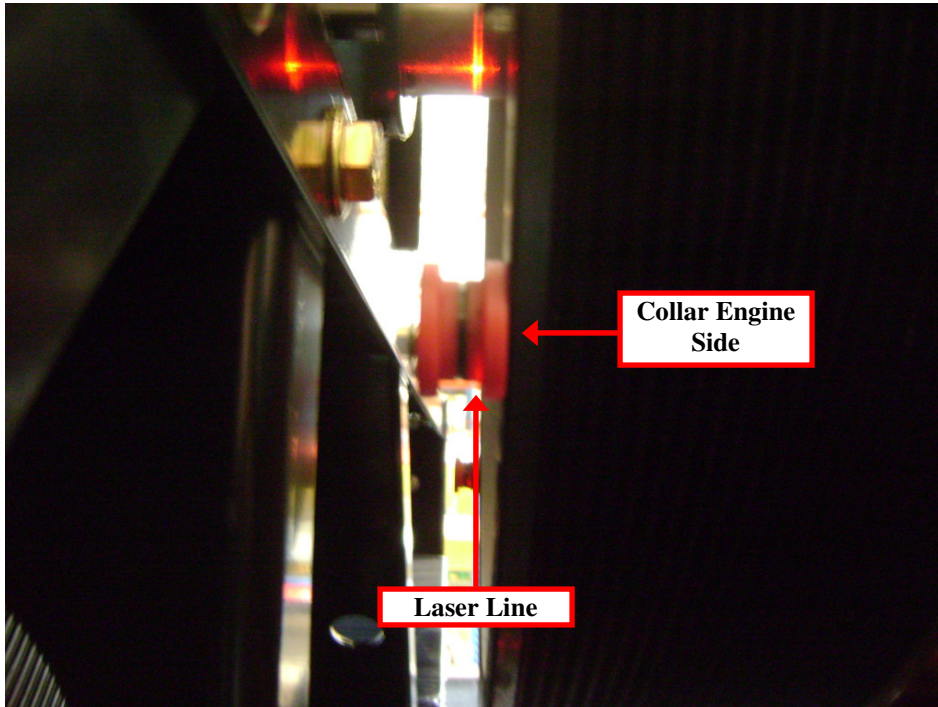
16. If the red line is offset from left to right, meaning the red line appears on the engine side of the right side pucks and then appears on the radiator side of the left side pucks putting the radiator out of vertical angular alignment with the engine, the radiator must be squared to the engine.

Steps:

17. To square the radiator to the engine use the Porta Power and or a "Come-Along".
18. The Porta Power will be installed on the side that needs pushed away from the engine and the "Come-Along" will be installed on the side that needs to come towards the engine.
19. Adjust in small increments so the red laser line is in the same location on all 4 "red" pucks.

Tools Needed:

- ◆ 4 Ton Porta Power
- ◆ Come-Along



Radiator Mounting				
All				
P/N	Description	QTY	Letter	Torque

Steps:

- 20. "Red" line is lined up near the puck collar as seen above, engine side.
- 21. All 4 pucks need to appear like this before tighten of the sheave.
- 22. Use a rawhide hammer to adjust poly sheave to achieve **Step 21**.

Radiator Mounting				
All				
P/N	Description	QTY	Letter	Torque

Steps:

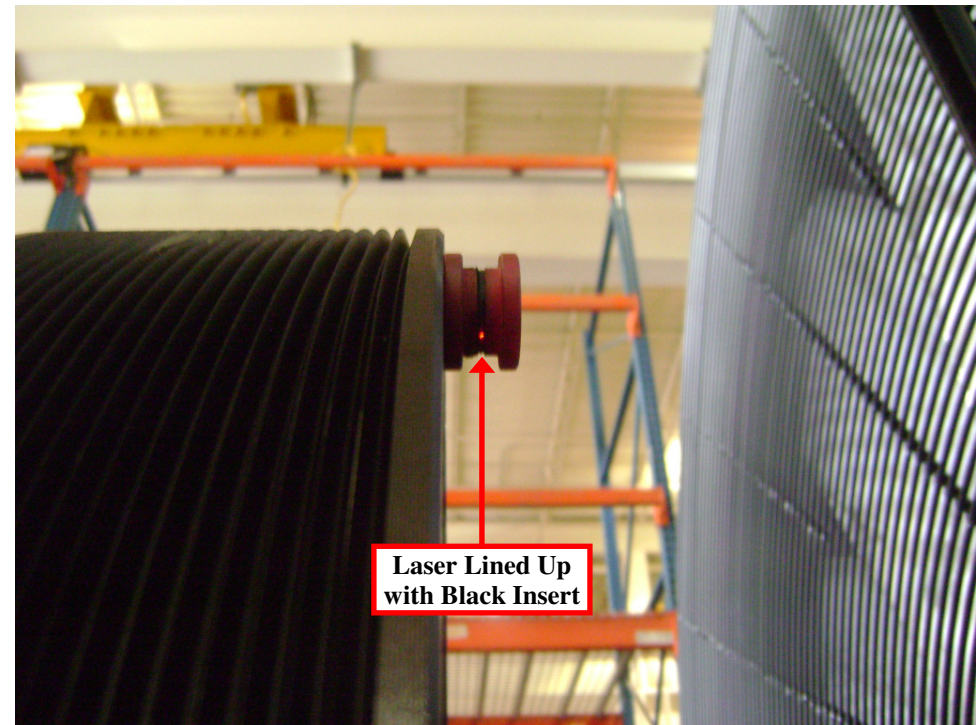
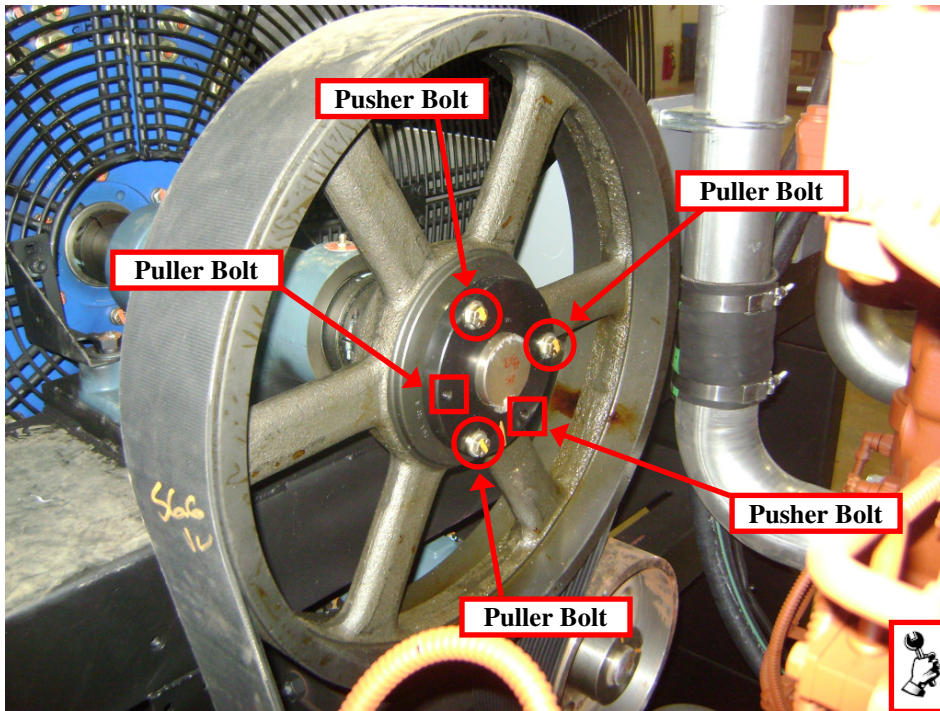
- 23. Tighten poly sheave key stock set screw to keep the key stock in place during tighten of the split taper bushing and poly sheave.

Tools Needed:

- ◆ Rawhide Hammer

Tools Needed:

- ◆ 3/8" Dr 5/32" Allen Hex Socket
- ◆ 3/8" Dr Ratchet



Radiator Mounting All				
P/N	Description	QTY	Letter	Torque
97969	3/8"-16 X 1-3/4" GR 8 YELLOW ZINC	3	A	29 ft lbs
87301	WASHER FLAT 3/8" SAE GR9 YEL Z	3	A	

Radiator Mounting All				
P/N	Description	QTY	Letter	Torque

Steps:

24. Begin tightening the split taper bushing puller bolts while rotating the poly sheave.
25. Tighten puller bolts in equal increments until snug so the bushing pulls the sheave in straight.
26. A Torque must be applied following the tightening sequence from **steps 24-25**.
27. Tighten poly sheave set screw to **13 ft lbs**.
28. If the sheave needs adjusted then the bushing will have to be **"backed off"**.
29. To back off the sheave insert 3/8-16 x 1.5" (**QTY 3**) bolts into the bushing pusher bolt locations.
30. Loosen the puller bolts almost all the way out without removing them; tighten the pusher bolts to separate the poly sheave and split taper bushing.
31. Repeat alignment procedure.

Tools Needed:

- ◆ 3/8" Dr Torque Wrench
- ◆ 3/8" Drive 9/16" Socket
- ◆ 3/8" Dr 5/32" Allen Hex Socket
- ◆ 9/16" Ratchet Wrench

Steps:

32. After the final torque has been applied to the puller bolts and set screw **check all** 4 "red" pucks to make sure that the laser line is on the black insert material found on the pucks.
33. If not then repeat the alignment process until this achieved.

Model Change Records

Date: 11-10-2010
Change: Assembly document created.

Job Traveler: N/A
By Who: Chris Vermillion Approved: Chad Massman

Date: 8-2-2011
Change: Clarified hardware torque and fasteners to be used. Removed training form.

Job Traveler: _____
By Who: Chris Vermillion Approved: Chad Massman

Date: _____
Change: _____

Job Traveler: _____
By Who: _____ Approved: _____

Date: _____
Change: _____

Job Traveler: _____
By Who: _____ Approved: _____

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Job Traveler: _____
By Who: _____ Approved: _____