TECHNICAL BULLETIN

WALINGA® INC.
ENGINEERED TRANSPORTATION EQUIPMENT

Subject:

ULTRA-VAC MAINTENANCE

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MAINTENANCE SAFETY

Unsafe workshop and servicing practices increase the risk of injury around machinery. Review the following safety guidelines for important information regarding safety involved with maintenance operations.

- Read, understand and follow all operating, maintenance and safety information provided.
- Clear the area of bystanders, especially small children, when carrying out any maintenance or repairs or making any adjustments.
- Place all controls in neutral, stop and lock-out the engine, remove the ignition key and wait for all moving parts to stop before servicing, adjusting or maintaining.
- Support the machine with blocks or safety stands when working beneath the machine.
- Follow good shop practices:
    a. Keep the service area clean and dry.
    b. Ensure electrical outlets and tools are properly grounded.
    c. Use adequate lighting for the job at hand.
- Use only tools, jacks and hoists of sufficient capacity for the job.
- Keep hands, feet, hair, and clothing away from all moving and/or rotating parts.
- Before applying pressure to a hydraulic system, ensure all lines, fittings and couplers are tight and in good condition.
- Relieve pressure from the hydraulic circuit before servicing.
- Ensure all guards are in place and properly secured when maintenance work is complete.

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MAINTENANCE PROCEDURES

Drive Belt Tension

Rotational power is transmitted to the blower through the belt drive. To obtain efficient transmission of power and optimal belt life, the belts must be properly tensioned. Belts that are too tight will stretch and wear quickly or overload the bearings on the input shaft or the blower. Belts that are too loose will not transmit the required power and will slip, overheat and wear out quickly.

To adjust the belt tension, proceed as follows:

1. Clear the area of bystanders, especially small children.
2. Place all controls in neutral, stop and lock-out the engine, remove the ignition key and wait for all moving parts to stop.
3. Remove the bolts securing the belt guard and remove the belt guard. Place the belt guard to the side in an area where it will not obstruct access to the pulleys or belts.

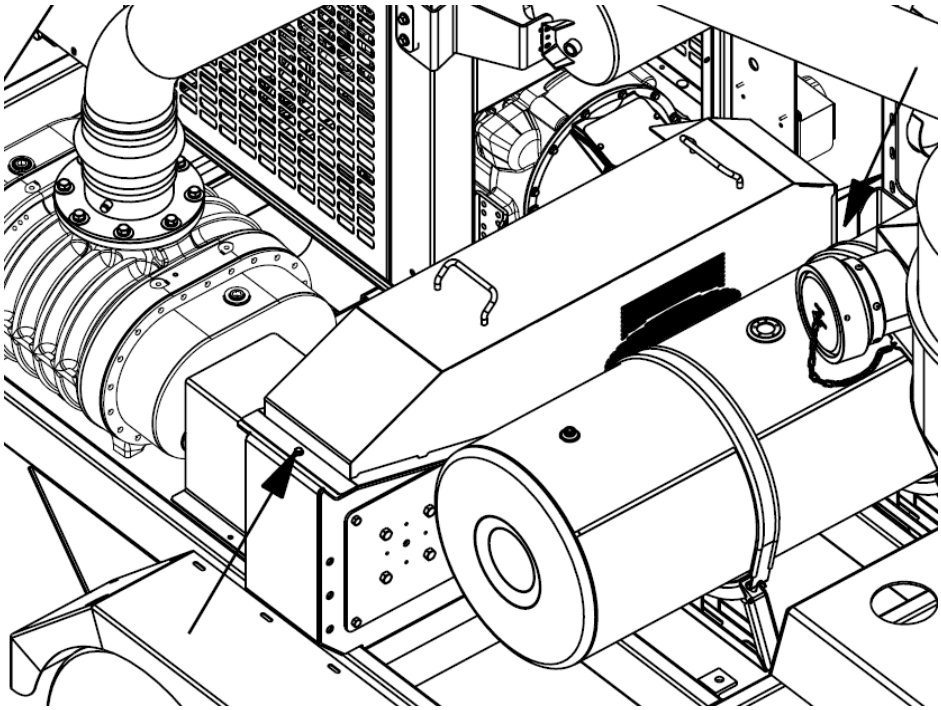


Figure 1: Belt guard fasteners

4. Inspect the belts for any signs of excessive wear or damage. Replace if necessary.

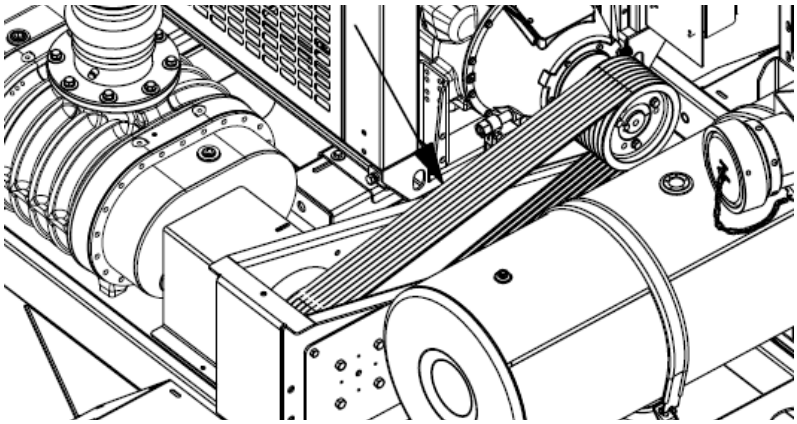


Figure 2: Drive belts

5. Use a belt tensioning tool to determine the belt deflection in a static condition. Reference ***Figure 3*** and ***Table 1*** for requirements.

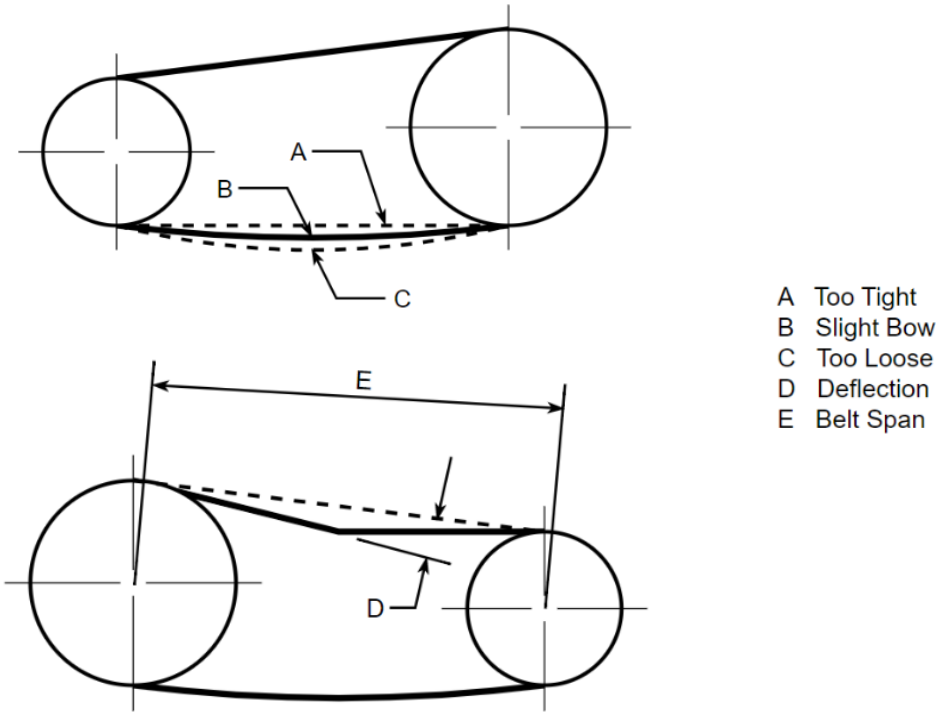
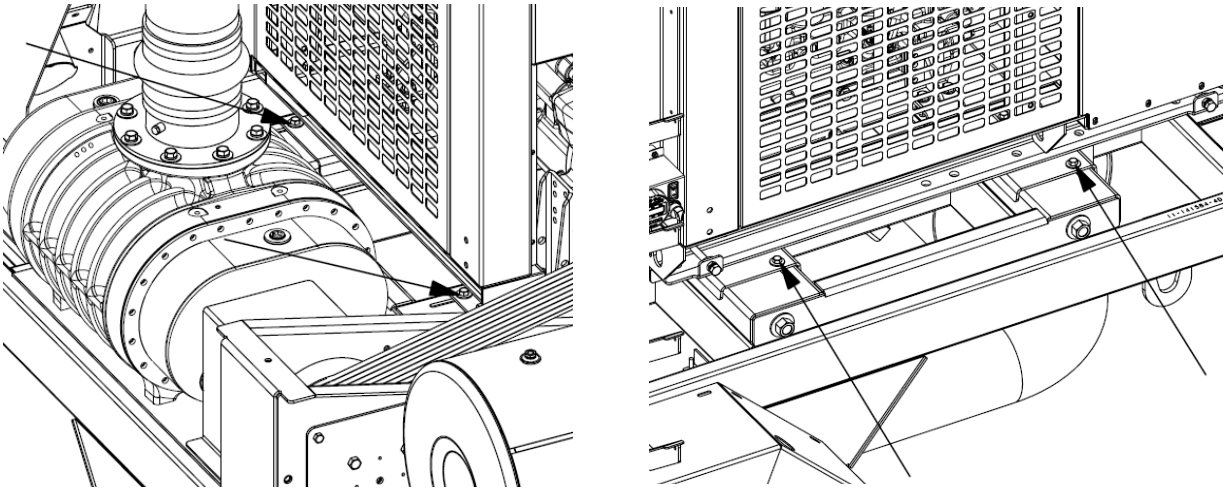


Figure 3: Drive belt deflection

Table 1: Drive belt tension

Model	Belt Tension		Belt Deflection
	New Belt	Old Belt	
5614D	7.96 lbs (3.6 kg)	5.97 lbs (2.7 kg)	9/16 in (14.3 mm)
6614D	16 lbs (7.3 kg)	12 lbs (5.4 kg)	3/8 in (9.5 mm)
7614D	16 lbs (7.3 kg)	12 lbs (5.4 kg)	3/8 in (9.5 mm)
7816D	13.3 lbs (6.0 kg)	11 lbs (5.0 kg)	5/16 in (8.3 mm)

6. Loosen the four positioning bolts on the bottom of the engine.



LEFT SIDE RIGHT SIDE

Figure 4: Engine positioning bolts

7. Turn the adjusting bolts on the bottom of the engine slide to adjust the belt tension. Ensure the adjusting bolts are adjusted equally to maintain pulley alignment.

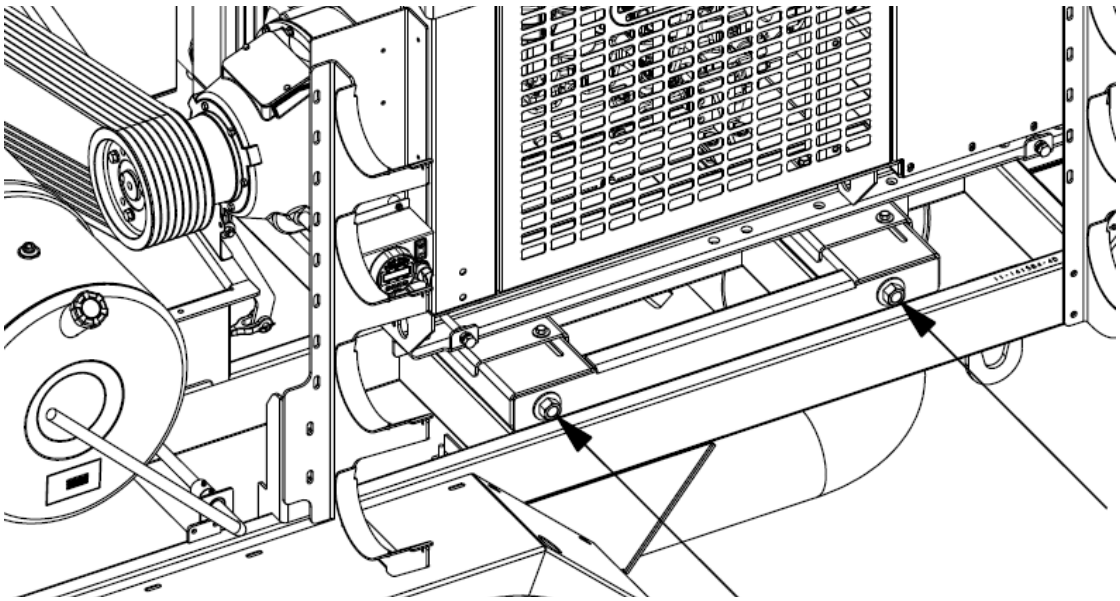


Figure 5: Engine adjusting bolts

8. Check the tension to ensure it meets the requirements specified in ***Table 1***.
9. Rotate the belts a half turn by hand and recheck the tension.
10. Check and adjust the alignment of the pulleys with reference to the next section, *Drive Belt and Pulley Alignment*.
11. Tighten the four positioning bolts on the bottom of the engine, with reference to ***Figure 4***.
12. Loosen the adjusting bolts to take the tension off the bolts.
13. Install and secure the belt guard.

Drive Belt and Pulley Alignment

Rotational power is transmitted to the blower through the belt drive. To obtain efficient transmission of power and optimal belt life, the pulleys must be aligned. Pulleys that are not properly aligned will result in rapid belt wear.

To check and adjust the pulley alignment, proceed as follows:

1. Clear the area of bystanders, especially small children.
2. Place all controls in neutral, stop and lock-out the engine, remove the ignition key and wait for all moving parts to stop.
3. Remove the bolts securing the belt guard in place and remove the belt guard, reference ***Figure 1***. Place the belt guard to the side in an area where it will not obstruct access to the pulleys or belts.
4. Lay a straight edge across the face of the two pulleys. If the gap between either pulley and the straight edge exceeds 1/16 inch (1.5 mm), the pulley must be realigned.

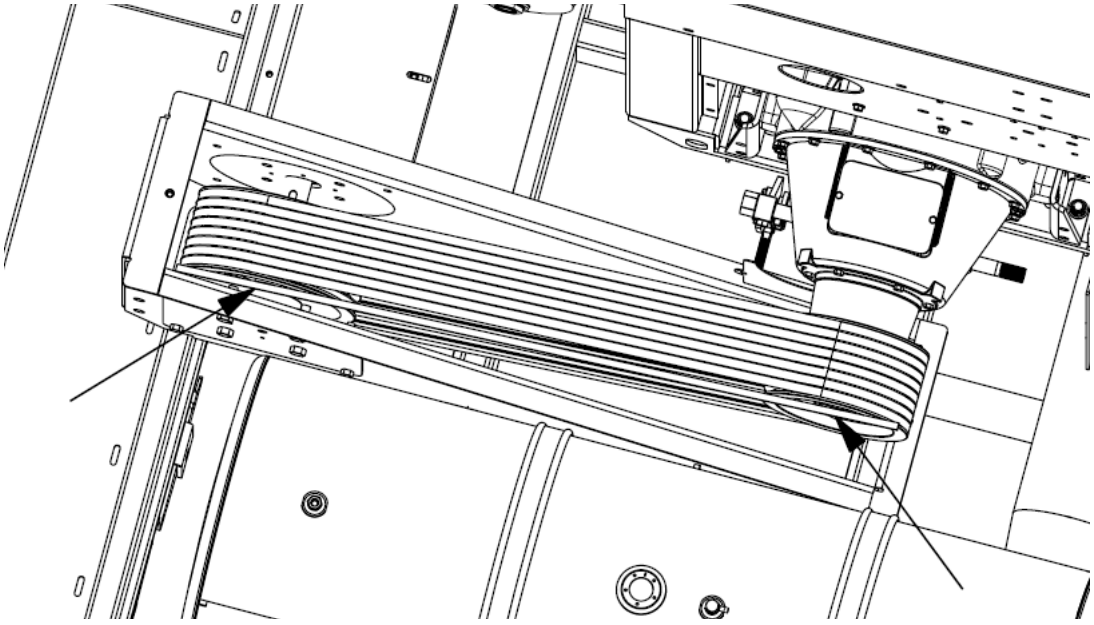


Figure 6: Straight edge positioning

5. Review ***Figure 7*** for the different types of alignment issues.

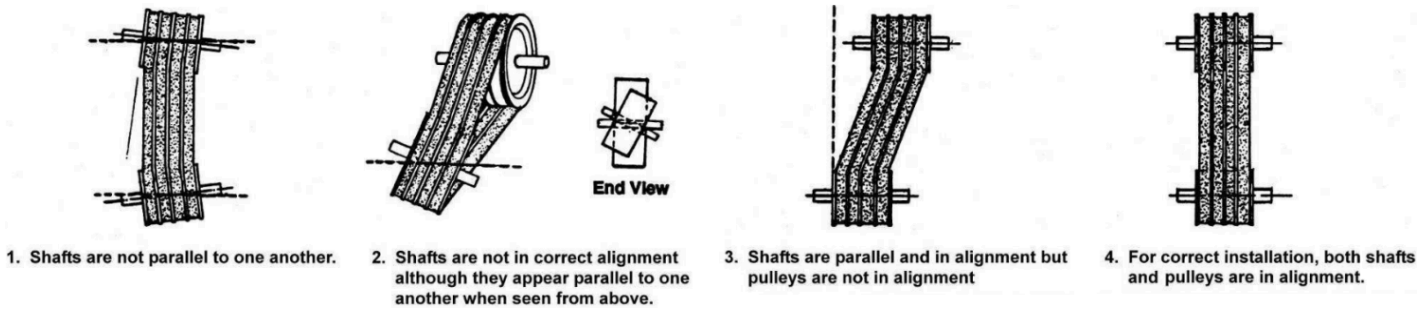


Figure 7: Pulley and shaft misalignments

6. Before making any adjustments to the alignment of the pulleys, loosen the belts.
7. If there is angular misalignment (***Figure 7 (1) and (2))***, turn the adjusting bolts (as seen in ***Figure 5***) on the engine or motor to adjust the angular shaft alignment.
8. To adjust parallel alignment (***Figure 7 (3))***, loosen the sheave and bushing on one or both shafts and adjust as required to achieve parallel alignment. Ensure the bolts of the pulley bushing are not over-tightened.

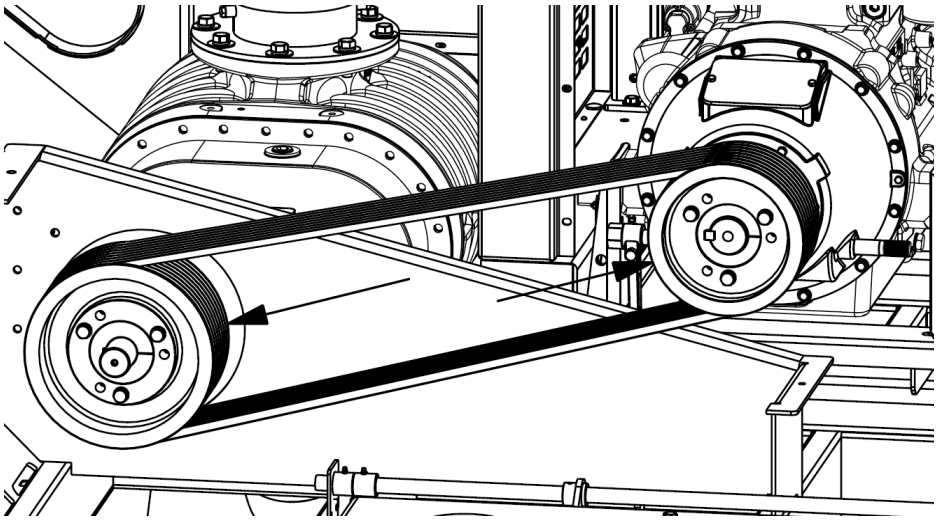


Figure 8: Sheave and bushing adjustment

9. Refer to the previous section, *Drive Belt Tension*, to set the correct belt tension.
10. Install and secure the belt guard.

Clutch Adjustment

Power is transmitted from the engine to the belt drive installation through the clutch. To obtain efficient transmission of power, the clutch must remain properly adjusted.

New power take-offs (PTO) must have the clutch adjustment checked before being placed into service and after the first 8-10 hours of operation. This includes any PTOs with new friction plates. New friction plates have a wear-in period, during which the clutch may require several adjustments before the new plates are sufficiently worn-in.

After the wear-in period, the clutch adjustment should be checked regularly. Applications that have frequent engagements, such as waiting between trucks, will need more frequent adjustments than applications where the clutch is engaged less frequently. The clutch must be adjusted before it overheats, will not pull into position, or the operating lever will not remain engaged, all of which are indicators of an out-of-adjustment clutch.

It is the responsibility of the operator to ensure the clutch is correctly adjusted at all times.

To check and adjust the clutch, proceed as follows:

1. Clear the area of bystanders, especially small children.
2. Place all controls in neutral, stop and lock-out the engine, remove the ignition key and wait for all moving parts to stop.
3. Disconnect the engagement handle extension from the clutch hand lever.

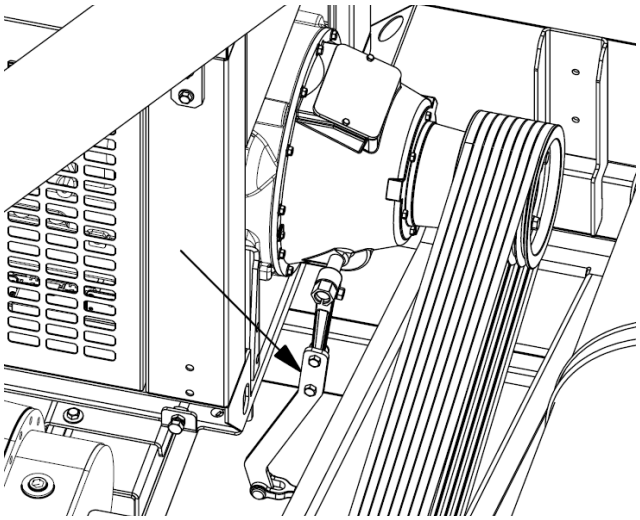


Figure 9: Engagement handle extension

4. If necessary, loosen and reinstall the hand lever on the lever shaft on the opposite side of the clutch housing for improved access to the hex end.

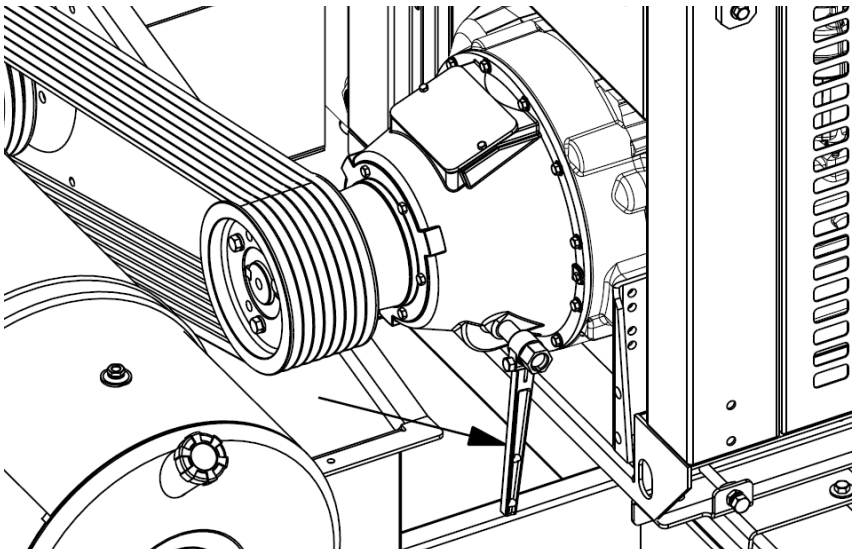


Figure 10: Hand lever alternative mounting

5. Fit a torque wrench with a socket over the hex end located at the base of the hand lever.

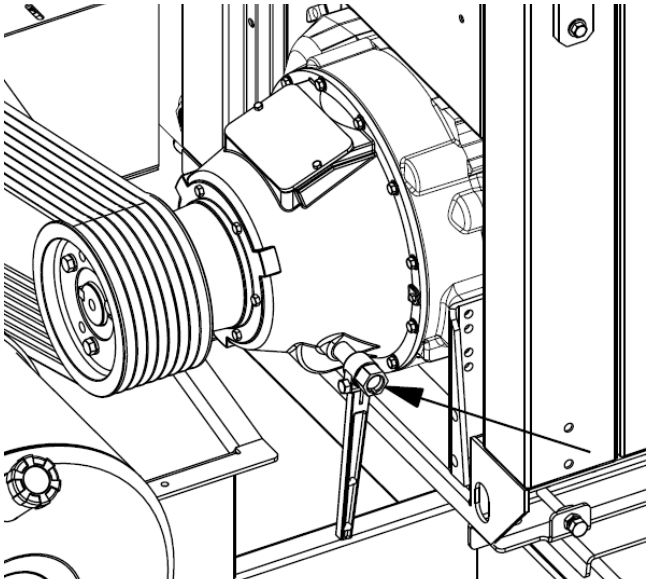


Figure 11: Torque measurement location

6. Remove the instruction cover plate from the clutch housing. **WARNING:** Do **NOT** run the clutch with the cover plate removed, doing so may result in serious injury.

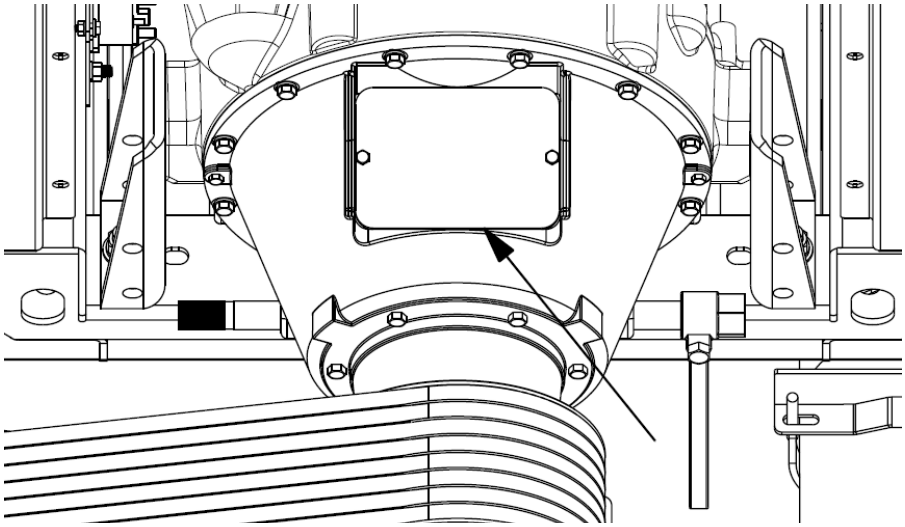


Figure 12: Instruction cover plate

7. Disengage the clutch and rotate the clutch pack by hand until the adjusting ring lock pin is visible and accessible.

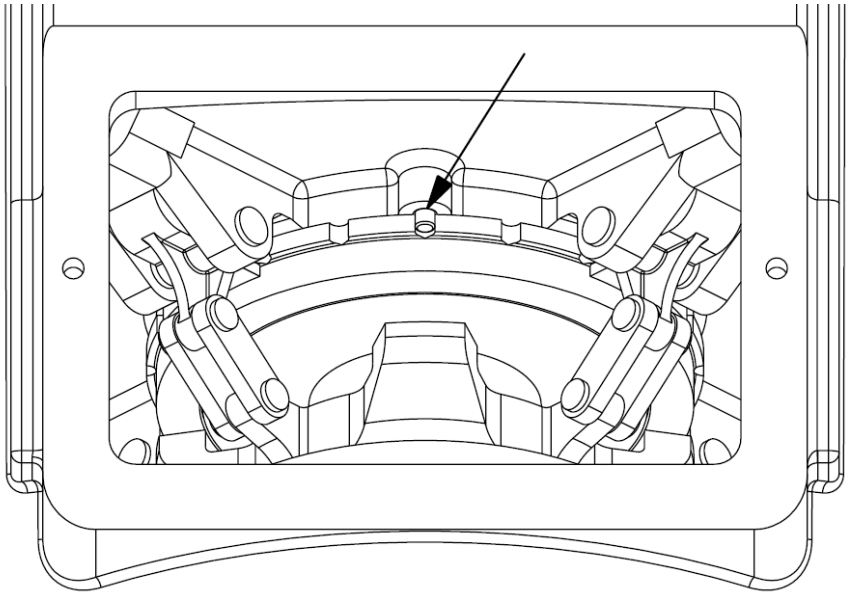


Figure 13: Adjusting ring lock pin

8. Refer to the removed instruction cover plate for the required engagement torque. Using the torque wrench installed on the hex end of the engagement handle, measure the torque required to engage the clutch.
9. To adjust the engagement torque, disengage the adjusting ring lock pin by pushing it in with a blunt tool such as a slotted screwdriver.

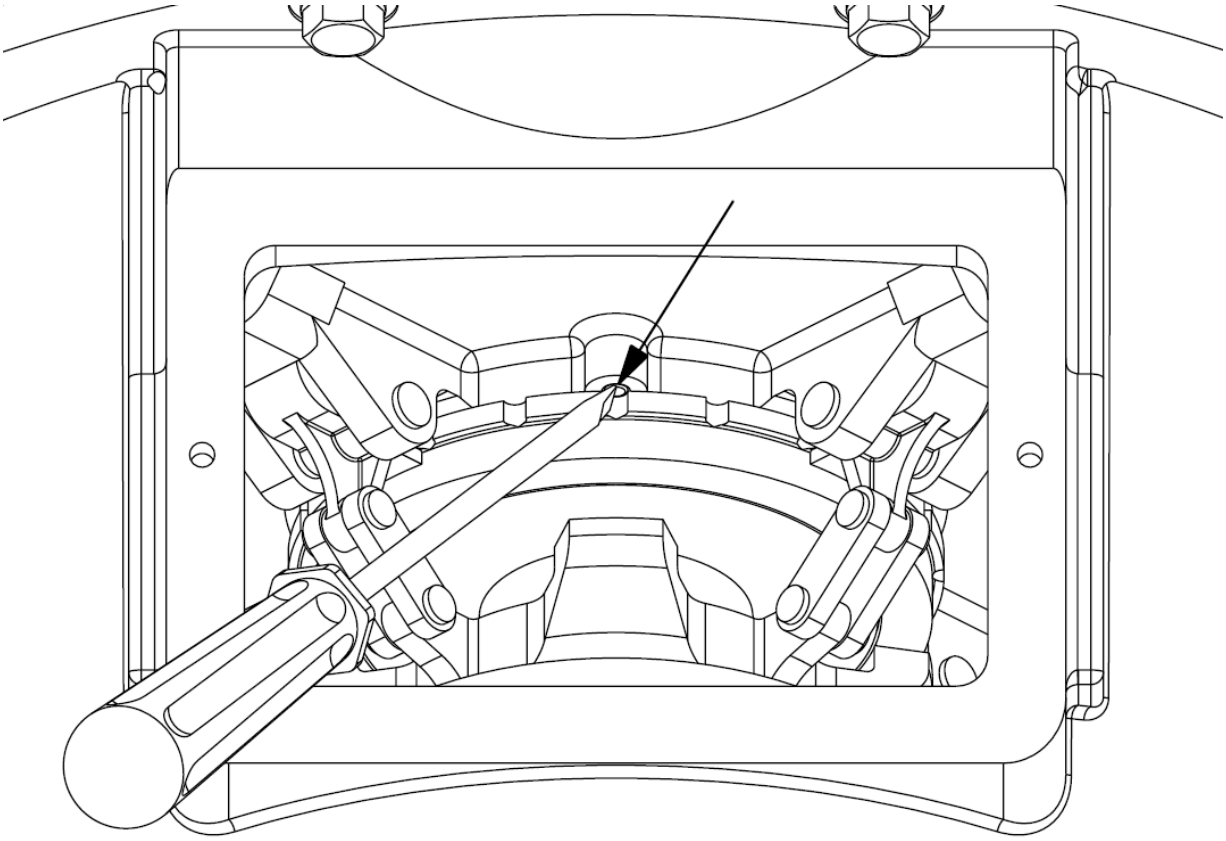


Figure 14: Lock pin disengagement

10. If the measured torque is greater than the required torque, rotate the adjusting ring in a clockwise (CW) direction when viewed from the shaft end. If the measured torque is less than the required torque, rotate the adjusting ring in a counter-clockwise (CCW) direction when viewed from the shaft end. Allow the lock pin to engage after rotating one notch in the adjusting ring.

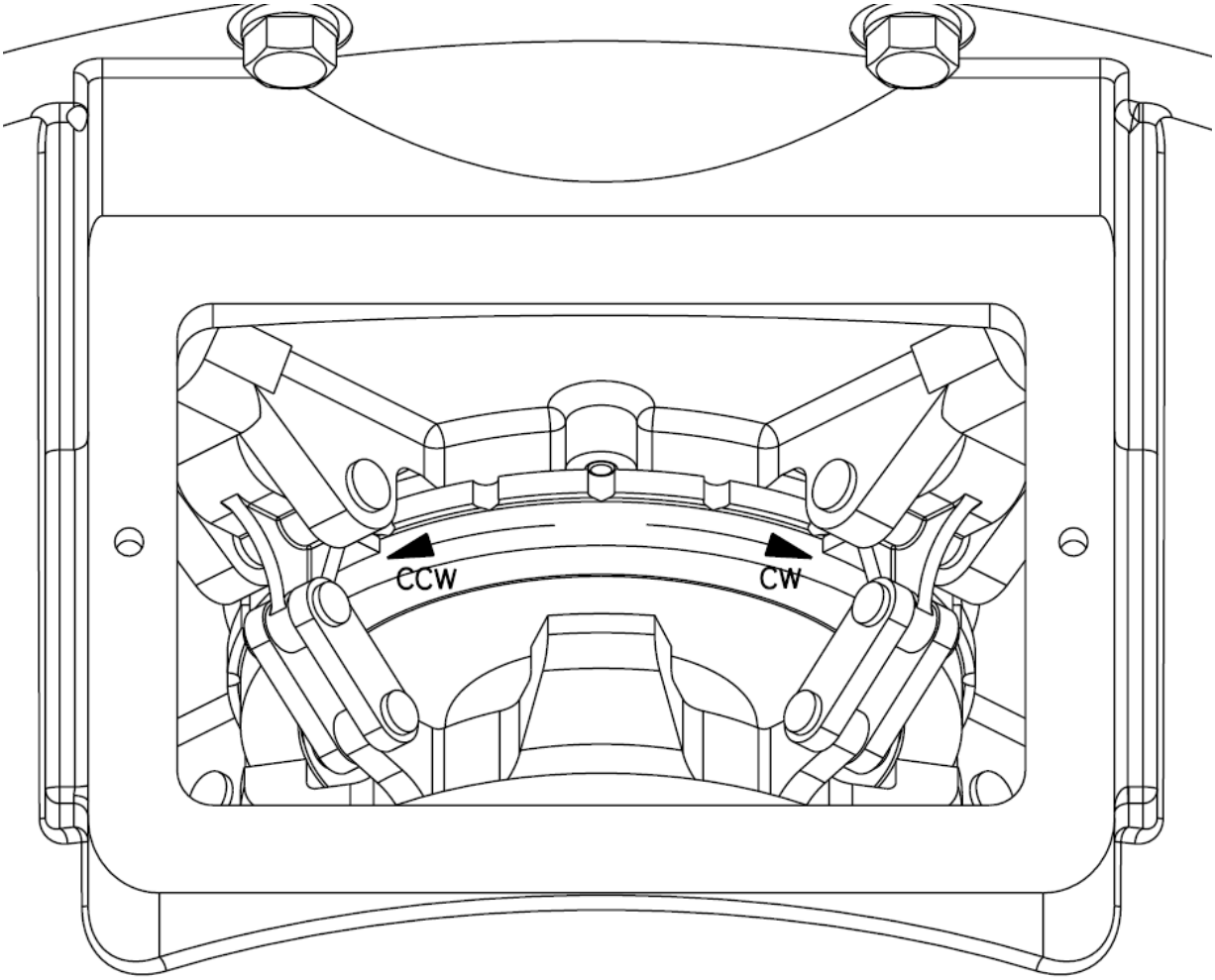


Figure 15: Adjusting ring rotation

11. Measure the adjusted engagement torque. Repeat *Step 10* as required until the required engagement torque is reached.
12. Reinstall the instruction clever plate and secure in place with the mounting hardware.
13. If required, reinstall the clutch hand lever to the original side of the clutch housing.

14. Reinstall the clutch engagement handle extension and secure in place with the mounting hardware.

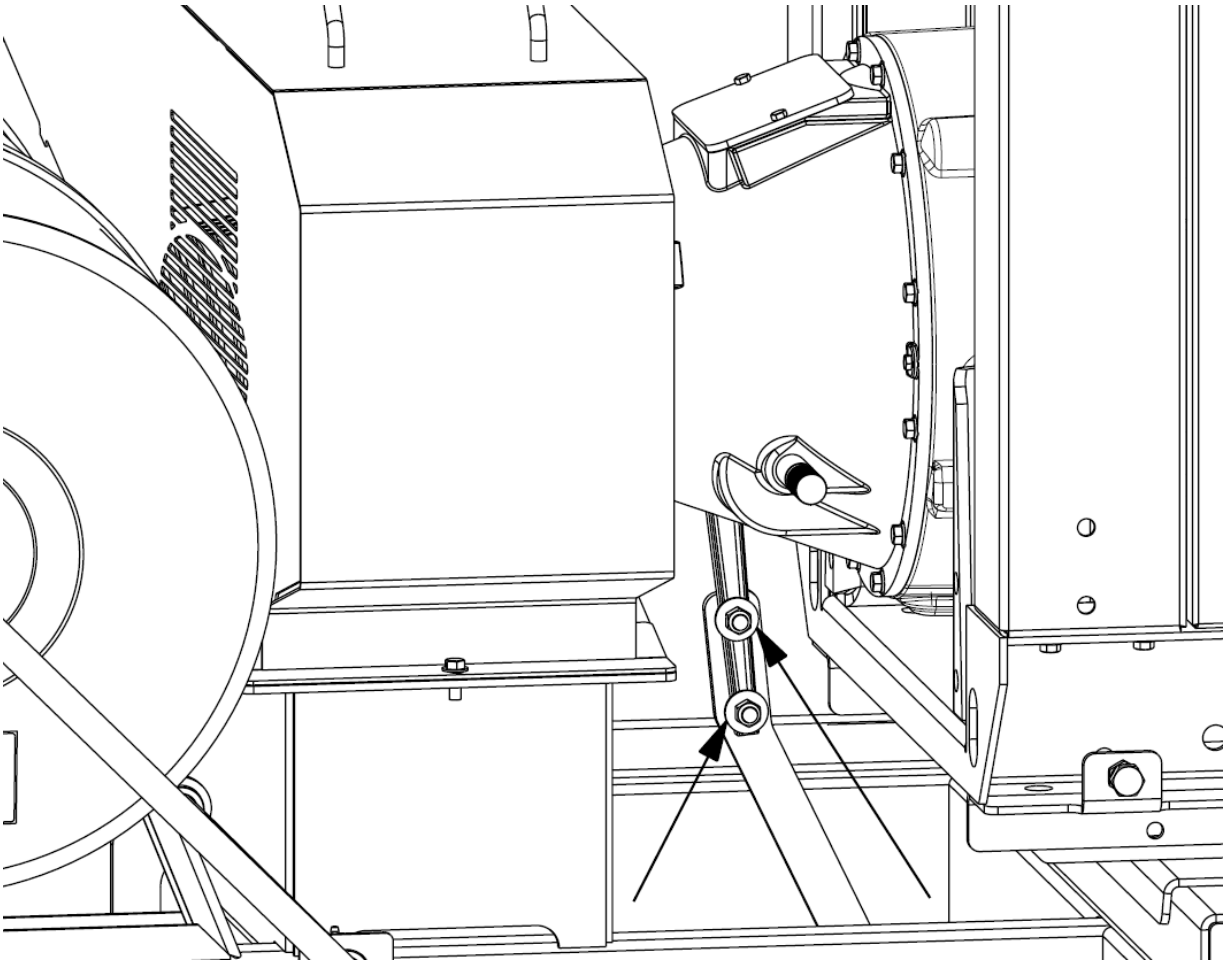


Figure 16: Engagement handle extension installation

15. Reinstall and secure all guards before operation.