

## Belt Changing Guides

### Removal

**FIG. 98:** Before Removing or Installing any drive belts.

Lower the header to the ground.

Remove the starter key.

Engage the parking brake.

Disconnect the battery at battery switch.

Raise or remove shields or guards and locate the guards away from the drive so that the guards do not cause problems with working on the drive.

Loosen tensioner until the belt is slack and can be removed without prying. Never pry off a belt, as the sheave can be damaged. Prying off belts also adds risk of injury.

Inspect the old belt for any not normal wear. Excessive or not normal wear can indicate problems with the drive or past maintenance procedures. Refer to the Belt Problem and Wear Guide.

Inspect the sheaves for not normal or excessive wear, damage, distortion, and pitting. If surfaces show pitting or excessive wear, the sheave must be replaced.

Check the sheaves for deposits of dirt and dust in the bottom of the grooves. Clean sheaves with a damp cloth. Do not sand or scrape the grooves to remove debris.

### Installation

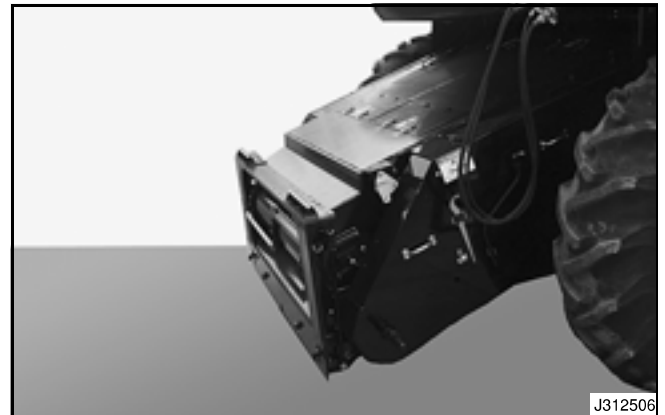
Check the sheave alignment. For long belt life the sheaves must be aligned properly.

**FIG. 99:** Order a new belt by the part number, not by measuring the old belt.

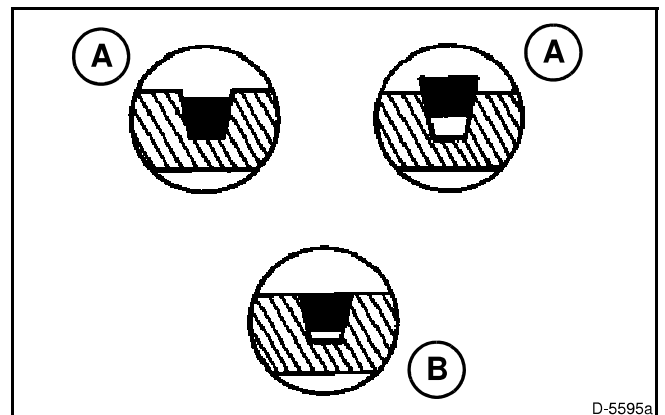
Time must be taken to make sure the selection of the proper size belts for the different sheaves is correct.

(A) Indicates the wrong belt installed.

(B) Indicates the correct belt installed.



**FIG. 98**



**FIG. 99**

## General Information

**FIG. 100:** Replace all belts on multiple belt drives. Never replace a single belt or part of a multiple belt drive. If a new belt is used with old belts, the load will not be divided evenly between the belts. Mixing new and old belts can lead to early belt failure and not even sheave wear.

(A) Indicates a new belt position.

(B) Indicates a used belt position.

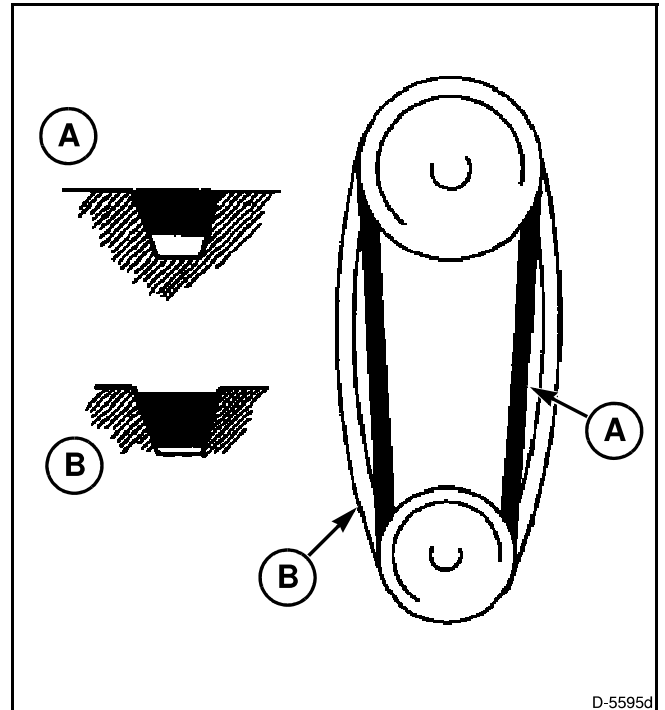


FIG. 100

**FIG. 101:** When replacing a belt, never force a belt over the rim of a pulley. Do not pry or use force to install the belt (A). This can break the cords in the belt. Loosen all the tensioners before installing the new belt. If the belt still can not be easily installed, run the belt over the rim while rotating the pulley (B).

Tension the belts making sure the belts are at the correct tension. More belts are damaged by not enough tension than by too much tension. But, do not over tension the belt as this damages the belt tensile members and puts an additional load on the shafts and bearings.

Rotate the belt drive three revolutions. Check the belt tension and adjust as necessary.

Check the drive alignment and adjust as necessary.

Install the guards or shields.

Start the drive, looking and listening for any not normal noise or vibration. If possible, stop the drive and check the bearings and sheaves for excessive heat. If the bearings and sheaves are too hot the belt tension can be too high or the bearings are not properly lubricated or failing. Temperature can be checked with an infrared pyrometer.

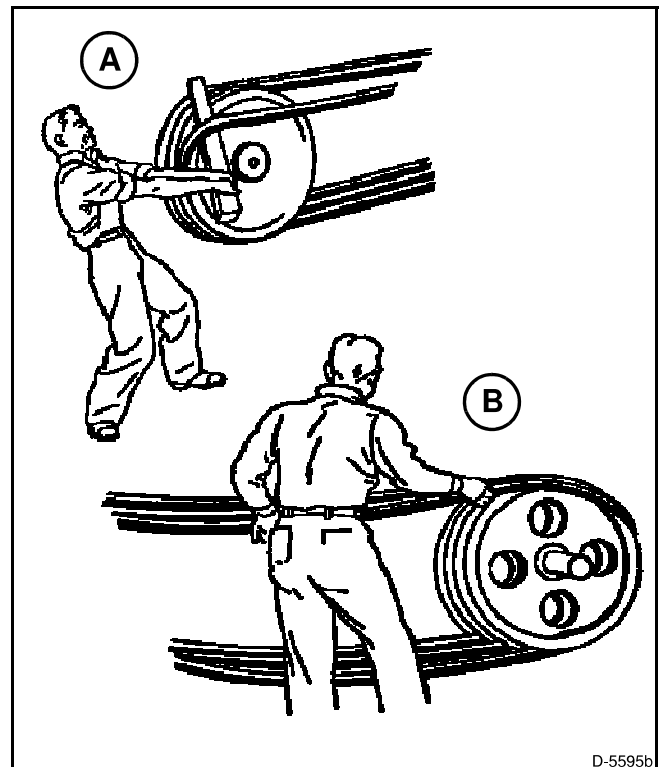


FIG. 101

## Belt Sheave Alignment

**FIG. 102:** Check the sheave and shaft alignment. Running the belts with the sheaves out of alignment will cause severe side wear.

Not aligned belt drives will be noisier than properly aligned drives since interference is at the belts enter point into the sheave.

To check the alignment use a long straight edge (1) made of wood, metal, or any rigid material. Line the straight edge along the outside face of both sheaves. If the drive is properly aligned, the straight edge will contact each sheave evenly. The straight edge must touch the two outer edges of each sheave for a total of four points of contact.

Shafts not in alignment (C) will show up as a gap (2) between the outside face of the sheave and the straight edge.

Check for tilting or shafts not aligned by using a bubble level. For proper alignment, the bubble must be in the same position as measured on each shaft.

Not aligned correctly Parallel (A).

Not aligned correctly Angular (B).

Rotate the drive and look for excessive sheave movement. If excessive sheave movement is seen inspect sheave and shaft. If no problem can be seen, remove and install sheave. Not correctly mounted sheaves or out of round sheaves are some times the root of vibration or more severe problems. A dial indicator can be used to measure side to side sheave movement or diameter vibration by holding the dial indicator up to the sheave sidewall or top of the belt inside the pulley groove.

**IMPORTANT:** Always turn off the machine before using the dial indicator. Rotate the drive by hand to make your measurements.

## Belt Run In Procedure

A run in procedure is needed for all belt drives so that the best belt life can be reached.

A run in procedure is made of starting the drive and operating the drive under full load for up to 24 hours. After the belts have run-in, stop the drive and check the belt tension.

Running the belts under full load for an extended period of time will seat the belts into the sheave grooves.

Belt tension will drop after the first run-in and seating procedure. This is normal. Adjust the belt tension as necessary.

Since tension in belts will drop after the first run-in and seating procedure, failure to check and tension the belt will result in low belt tension and belt slippage. This slippage will result in early belt failure.

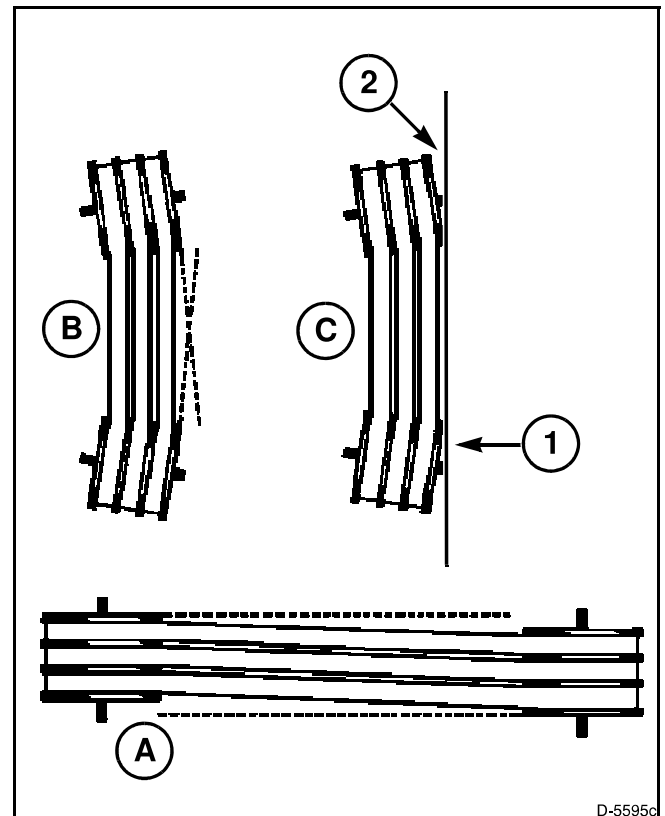


FIG. 102

# General Information

## Belt Troubleshooting

When troubleshooting a belt drive problem, stand back and watch the drive while the drive is in operation and when drive is not. Is there a warm rubber smell? Is the belt moving around the drive in a normal way? Are there chirping, squealing, or grinding noises? Is there a deposit of dust or debris under the drive which will cause problems with the belts?

When the belt drive makes excessive noise, the belt is frequently blamed. To find the problem spray the belt with soapy water while the drive is running. If the noise goes away, or decreases, the belt is part of the problem. If the noise is still present, the problem can be caused by other drive components.

*NOTE: Do not use belt conditioner or dressing on the belts.*

Not correctly tightened belt drives can make noise.

## Belt Problem and Wear Guide

The following charts show some of the more common types of drive belt failures and possible causes for each failure.

When problem solving a drive belt failure, determine which problem or SYMPTOM / OBSERVATION shows the failure that is occurring. Then find the POSSIBLE CAUSES and take action as shown under the CORRECTIONS / REMEDY column.

**TABLE 1 Short Belt Life and Early Belt Failure**

Symptom / Observation	Possible Causes	Corrections / Remedy
Rapid belt failure, when no reason can be seen.	Belt tensile member broken or damaged from not correct installation.	Properly install a new original equipment belt and adjust belt tension and idler spring.
	Worn driver or driven sheave grooves (check with groove gauge).	Replace worn sheaves. Properly install a new original equipment belt and adjust belt tension and idler spring.
	Driver or driven sheave center distances vary during operation.	Check for failed bearings and loose bearing housing mounting hardware and repair as required. Properly install a new original equipment belt and adjust belt tension and idler spring.

**TABLE 2 Belt Extended Beyond Idler or Sheave Take Up**

<b>Symptom / Observation</b>	<b>Possible Causes</b>	<b>Corrections / Remedy</b>
Idler spring can not be adjusted to properly tension drive belt.	Belt extended and worn.	Properly install a new original equipment belt and adjust belt tension and idler spring.
	Belt tensile member broken.	Properly install a new original equipment belt and adjust belt tension and idler spring.
	Belt over loaded.	Reduce load on belt. Properly install a new original equipment belt and adjust belt tension and idler spring.
Belt strands not equal.	Sheaves not aligned (not equal work done by each belt strand).	Align the sheaves. Properly install a new original equipment belt and adjust the belt tension and idler spring.
	Belt tensile members broken or damaged from not correct installation.	Properly install a new original equipment belt and adjust the belt tension and idler spring.
	Trash or debris fell into the sheave grooves.	Clean trash or debris from the sheave grooves. Correct the cause of trash or debris entering the sheave grooves and make sure all the protective shields are installed. Properly install a new original equipment belt and adjust the belt tension and idler spring.
	Belt strand lengths not matched.	Properly install a new original equipment belt and adjust the belt tension and idler spring.