

Procedure 7.19 - Replacing the Sheave, Sheave Shaft or Sheave Bearings

Removing the Sheave Assembly

The sheave assembly consists of the sheave, the sheave shaft, and the bearing assemblies.

1. Remove the covers as described in Procedure 7.1.

WARNING

Before continuing with this procedure, review the Warning and Caution statements listed in Section One, Things You Should Know.

2. Press down a stairarm with one hand. With your other hand, grasp and pull the end of the stairarm belt connected to the return spring. Release the stairarm. Remove the belt from the toothed pulley and idler pulley (refer back to Diagram 7.10). Repeat this step for the second stairarm belt.
3. Choose one:

IF...

You are replacing the right sheave bearing

You are replacing the left sheave bearing

You are replacing both bearings or the sheave shaft or the sheave assembly

THEN...

Perform Steps 4 and 5 for the right toothed pulley

Perform Steps 4 and 5 for the left toothed pulley

Perform Steps 4 and 5 for both toothed pulleys

4. Using the snap ring pliers, remove the retaining ring from the toothed pulley (refer back to Diagram 7.15).
5. Remove the five thrust washers, toothed pulley, and wave washer from the end of the sheave shaft.
6. Loosen the drive belt by pushing down on the top of the drive belt idler arm. Hold the idler arm down while you pull the belt out of the sheave rim. Place the belt on the left end of the sheave shaft.
7. Remove the fasteners that secure the left sheave bearing to the sheave bracket. Repeat this step for the right sheave bearing.
8. Remove the sheave assembly from the sheave brackets and away from the drive belt.

Removing a Bearing From the Sheave Shaft

Set the sheave assembly on a work bench or table when you perform the next step.

9. Remove the loose flange from the end of the sheave shaft (see Diagram 7.17). Remove the set screws that secure the bearing to the sheave shaft. Slide the bearing and second flange from the sheave shaft. Discard the bearing and set aside the set screws and flanges. If you are removing both bearings, repeat this step for the second bearing.
10. If you are replacing the sheave or sheave shaft...

THEN...

Continue with the next step.

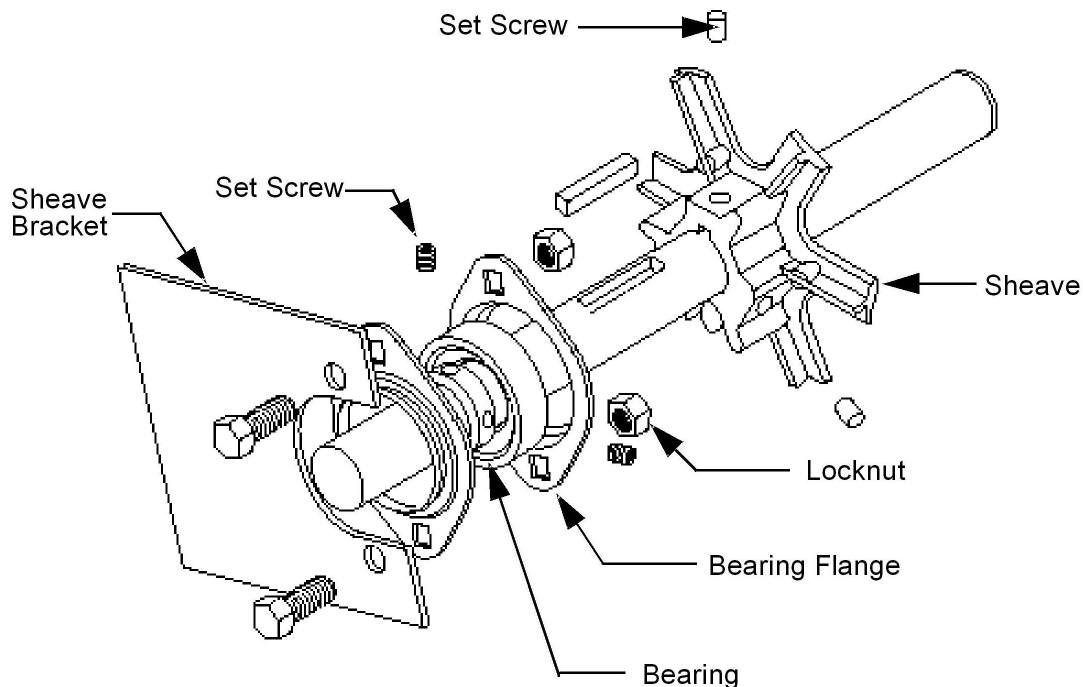
OTHERWISE...

Skip to Step 14.

Removing the Sheave From the Sheave Shaft

11. Remove the set screws that secure the sheave to the sheave shaft. Pull the sheave from the shaft.
12. Pry the key out of the key slot on the shaft.

Diagram 7.17 - The Sheave Assembly



Replacing the Sheave On the Sheave Shaft

Look at the key slot on the sheave assembly. The length of shaft to the right of the key slot is longer than the length of shaft to the left of the key slot. When you slide the sheave onto the shaft, make sure that the sheave hub faces the left end of the shaft.

13. Position the key in the key slot in the sheave shaft. Push the sheave shaft through the sheave so that the key is centered on the key slot in the sheave.

Note:

When you slide the sheave onto the shaft, make sure that the sheave hub faces the left end of the shaft.

Replacing the Bearing On the Sheave Shaft

14. Slide the two flanges and a bearing onto one end of the shaft. A flange must be on each side of the bearing as seen in Diagram 7.16. The flange shoulders must face away from the bearing. If you are replacing both bearings, repeat this step for the second bearing.

Replacing the Sheave Assembly

When you install the sheave assembly, the hub must be on the left side of the climber.

15. Stand at the back of the climber and face the disk assembly. The drive belt must be positioned over the disk hub and behind the drive belt idler (refer back to Diagram 7.15). Line up the drive belt in the center of the grooves on the disk hub.

Note:

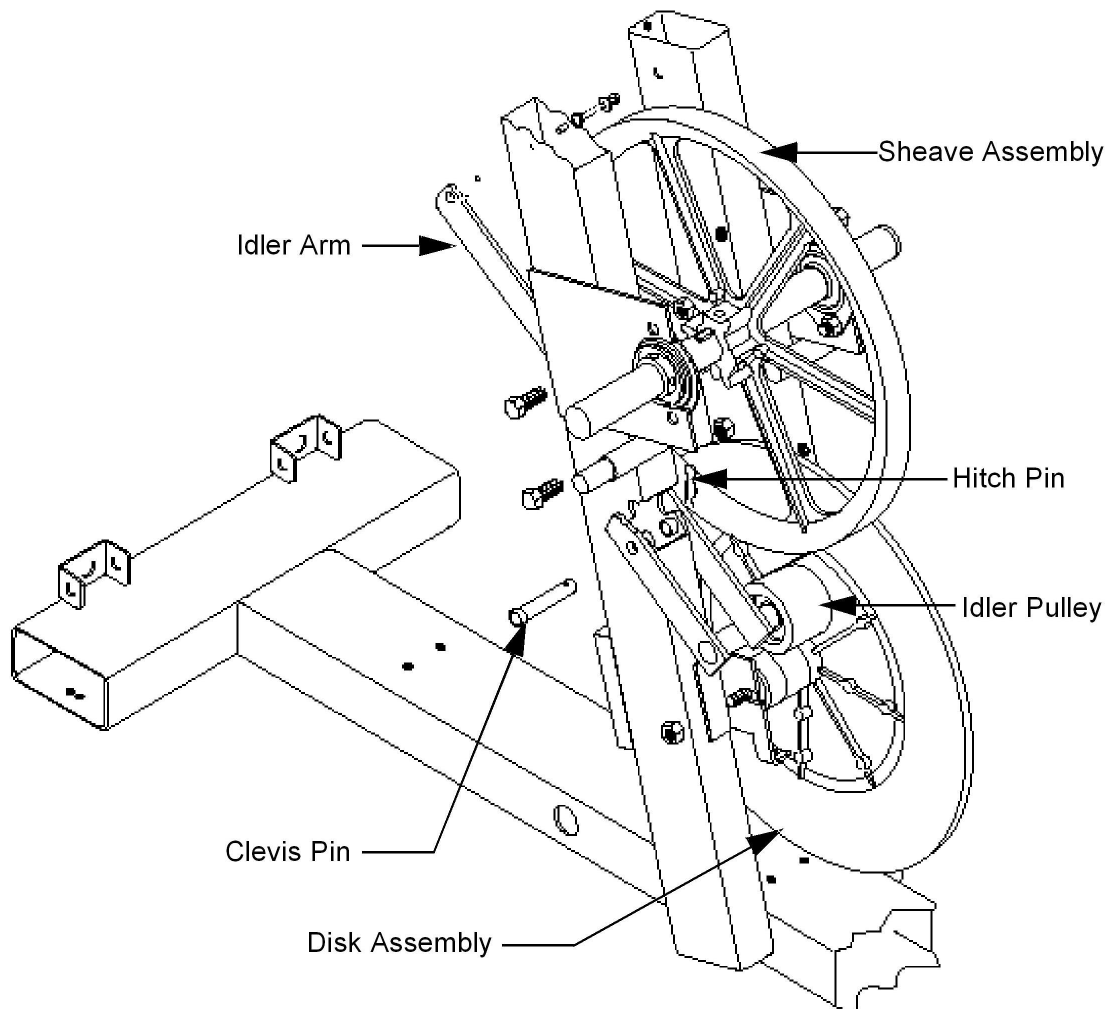
Place the four flanges inside of the sheave brackets when you perform the next step.

16. Lift the drive belt from the disk hub. Push the sheave assembly through the belt. Place the belt on the sheave shaft as you slide the sheave assembly into the sheave brackets (see Diagram 7-18).

Note:

Perform Steps 17 through 19 for each bearing you are mounting on the sheave shaft.

17. Hold the flange on one end of the sheave shaft against the sheave bracket. Place two bolts through the sheave bracket and flange.
18. Slide the bearing next to the sheave bracket. Hold the bearing in place.
19. Slide the second flange next to the bearing and onto the bolts positioned through the first flange and sheave bracket. Using your fingers, thread the two locknuts onto the bolts.

Diagram 7.18 - The Sheave Assembly

20. Mount the drive belt on the sheave by performing the following sub-steps:
- a. Kneel on the right side of the climber and face the sheave.
 - b. Hold the drive belt between the 12 o'clock and 3 o'clock positions on the sheave rim.
 - c. Turn the sheave counterclockwise.

Note:

As you move the sheave, the belt will position itself on the rim.

- d. Grasp the drive belt at the 4 o'clock position.
- e. Turn the sheave counterclockwise to fully seat the belt on the sheave rim.

Note:

Make sure that the belt is on the sheave rim before you continue with this procedure.

Installing the Toothed Pulleys and Toothed Belts

21. Slide a thrust washer, the wave washer, and three more thrust washers onto one end of the sheave shaft.
21. Slide the toothed pulley and the remaining thrust washer onto the sheave shaft. Using the snap ring pliers, install the retaining ring next to the thrust washer.
21. Lift the stair arm assembly from the frame weldment. Grasp the belt and lift it over the toothed pulley. Route the belt under the idler pulley.
21. If you are installing both of the toothed pulleys and belts, repeat Steps 21 through 23 for the remaining toothed pulley and belt.

Checking the Alignment of the Belts

22. Kneel behind the stairarms. Press down on the ends of the stairarms. Watch the belts as they move over the toothed pulleys and idlers pulleys.
23. If the belts are centered on the toothed pulleys and idlers pulleys...

THEN...

Continue with the next step.

OTHERWISE...

Skip to Step 29.

Note:

Do not remove the bolts from the sheave brackets and outer flanges when you perform the next step.

24. Remove the locknuts that are holding the right bearing flanges to the sheave bracket. Remove the inner flange from the bolts. Repeat this step for the left bearing flanges.
25. Skip to Step 34.

Note:

To center the belts on the toothed pulleys, you must re-position the sheave assembly. Remove the bolts that secure the bearing flanges to the mounting brackets to move the sheave assembly as described in Step 28.

26. Remove the locknuts and bolts that are holding the right bearing flanges to the sheave bracket. Repeat this step for the left bearing flanges.
27. Re-position the sheave assembly.

Note:

The bearing flanges secure the sheave assembly to the climber frame. Install the sheave assembly to the climber frame as described in Steps 31 through 36.

28. Hold an outer flange next to the sheave bracket. Place bolts through the sheave bracket and flange. Repeat this step for the second outer flange.
29. Slide the bearing next to the outer flange. Hold the bearing in place.
30. Add a drop of blue loctite to the tip of two set screws. Install the set screws on the sheave bearing.
31. Slide the inner flange next to the bearing and onto the bolts positioned through the outer flange and sheave bracket.
32. Install the locknuts that secure the flanges to the sheave bracket.
33. Repeat Steps 28 through 33 for the sheave bearing and flanges on the opposite side of the sheave shaft.

Checking the Alignment of the Drive Belt

34. Kneel behind the stair arms. Press down on the ends of the stair arms. Watch the drive belt as it moves on the sheave, drive belt idler, and disk hub.
35. If the drive belt does not track correctly...

THEN...

Continue with the next step.

OTHERWISE...

Skip to Step 38.

Note:

Adjust drive belt tracking by re-positioning the sheave on the sheave shaft as described in Step 28. Secure the sheave to the sheave shaft with the set screws removed from the sheave in Step 11.

36. Gently tap the sheave to re-position it on the sheave shaft.
37. Add a drop of blue loctite to the tip of each set screw. Install the screws on the sheave hub.
38. Check the operation of the climber as described in Section Four, then replace the covers as described in Procedure 7.1.