

Service Bulletin

Machinery Affected: *SmartCrane[™]* Wall Panel Stacker
Document: SB187
Title: Replacing the Lifting Shaft
Applies To: All Welded Lifting Shafts
Distribution: Customers, All



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Effectivity	All

Purpose and Scope

SmartCrane wall panel stackers previously used welded lifting shafts. Over time, normal use may fatigue the weld. A non-welded shaft is now available to replace the welded shaft and reduce the effect of wear on the lifting mechanism.

It is recommended that all welded lifting shafts be replaced with non-welded shafts to ensure shaft strength. This Service Bulletin contains instructions for replacing the lifting shaft, leveling and squaring the gripper, and checking and adjusting the brake.

Overview

The parts included in this kit are shown in Table 1. Please ensure all parts are present before starting this procedure.

Table 1: Parts in SB187KIT

Qty.	Part Description	Part #
1	Drive shaft assembly	60359-501
4	Lift strap	589002
20 ft	Chain, #80	554008
2	Label, Max. Capacity	691543
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Before beginning the procedure, gather the supplies listed in Table 2.

Table 2: Customer-Supplied Items

Qty.	Part Description
1	Allen wrench set
1	Standard socket set
1	Ratchet
1	Standard wrench set
1	Torque wrench

If you have any questions, call MiTek Machinery Division Customer Service at 800-523-3380.

Procedure



Electrical Lockout/Tagout Procedures

WARNING	
	<p>ELECTROCUTION HAZARD!</p> <p>Verify that all power to the machine has been turned off and follow approved lockout/tagout safety procedures before performing any maintenance.</p> <p>All electrical work must performed by a qualified electrician.</p> <p>If it is absolutely necessary to troubleshoot an energized machine, follow NFPA 70E for proper procedures and personal protective equipment.</p>

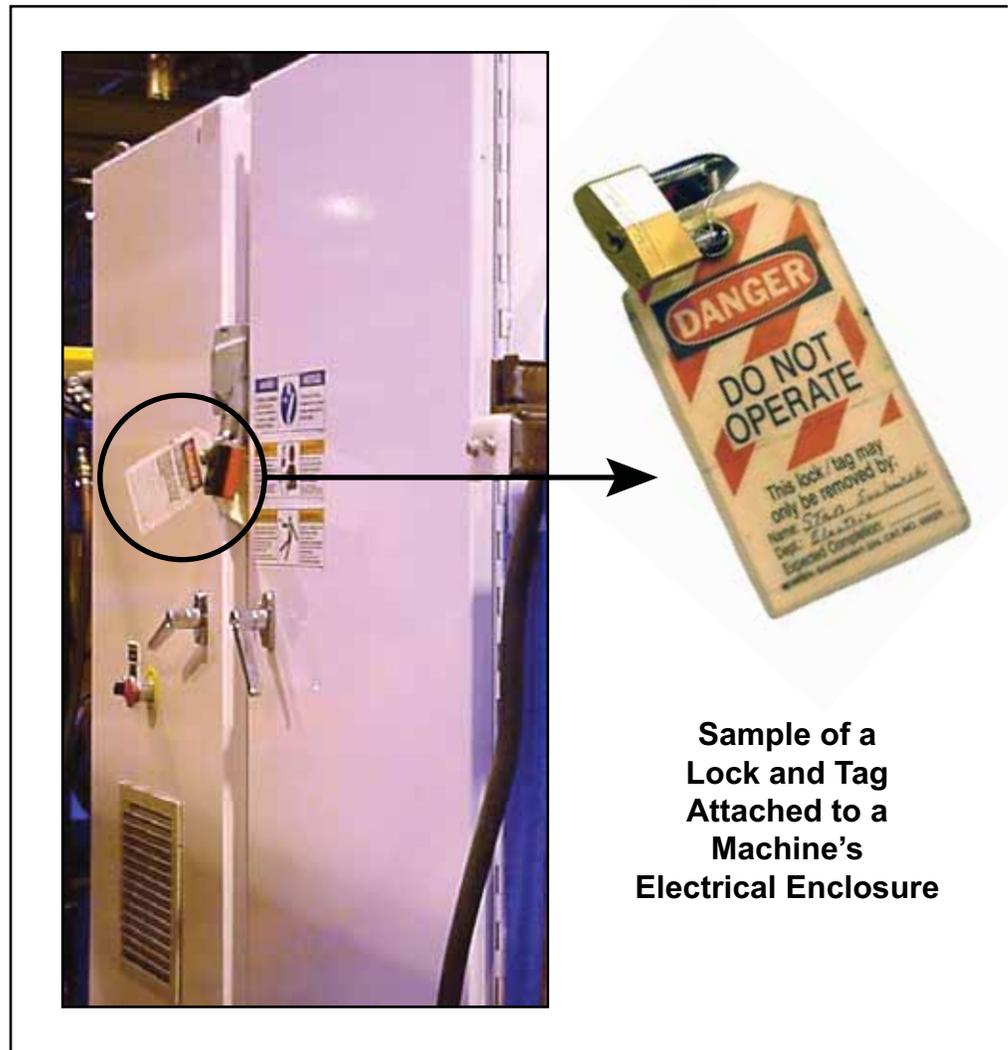
Before performing maintenance on any machine with electrical power, lockout/tagout the machine properly. When working on a machine outside of the machine’s main electrical enclosure, not including work on the electrical transmission line to the machine, follow your company’s approved lockout/tagout procedures which should include, but are not limited to the steps here.

1. Engage an E-stop on the machine.
2. Turn the disconnect switch handle on the machine’s main electrical enclosure to the “off” position. See Figure 1.

WARNING	
	<p>ELECTROCUTION HAZARD.</p> <p>When the disconnect switch is off, there is still live power within the disconnect switch’s enclosure. Always turn off power at the building’s power source to the equipment before opening this electrical enclosure!</p>

3. Attach a lock and tag that meets OSHA requirements for lockout/tagout.

Figure 1: Lockout/Tagout on the Main Electrical Enclosure



Air Over Oil System Lockout/Tagout Procedure

WARNING	
	<p>MOVING PARTS CAN CRUSH AND CUT.</p> <p>Always verify that power to the machine has been turned off and follow approved lockout/tagout procedures.</p> <p>Turn off the shutoff valve before performing any maintenance on the equipment.</p>

WARNING	
	<p>HIGH PRESSURE HAZARD.</p> <p>Bleed hydraulic lines before performing any maintenance on the air over oil system.</p>

Pneumatic System Lockout/Tagout Procedure

WARNING	
	<p>MOVING PARTS CAN CRUSH AND CUT.</p> <p>Always verify that power to the machine has been turned off and follow approved lockout/tagout procedures.</p> <p>Turn off the air switch before performing any maintenance on the equipment.</p>

WARNING	
	<p>HIGH PRESSURE HAZARD.</p> <p>Bleed pneumatic before performing any maintenance on the pneumatic system.</p>

Replacing the Lifting Shaft

Installing the New Shaft



1. Lower the gripper assembly all the way to the floor, resting it on a wall panel or 2x4.
2. Lockout/tagout the machine.
3. Remove the chain from the lifting drive gear motor.
4. Release the caliper brake by loosening the Allen-head screws to release the spring on both sides.
5. Remove the bolts and bearings that hold the lifting shaft in place.
6. The lifting shaft is also held by two (2) two-piece pillow block bearings. Remove the top portion of each bearing.
7. Carefully lift the old shaft out of the machine with a forklift.
8. Put the new shaft in place with a forklift, aligning the lifting shaft sprocket with the gear motor sprocket and aligning the strap rolls to the guide flange wheels.

CAUTION

If any locking bolts are loosened to make horizontal adjustments to the shaft, they MUST be re-tightened using the procedure listed in the *Adjusting Power Lock Torque* section on page 9.

9. Reinstall the bolts and bearings.
10. Reinstall the drive motor chain.
11. Remove the lockout/tagout devices and restart the machine.



You must replace the straps, level the gripper, and adjust the brake before operating the machine.

Adjusting the Brake

To adjust the brake so the gripper assembly stops within 6 in. (without a panel):

1. Switch the machine to manual mode.
2. Lower the gripper assembly so it rests on top of a wall panel.
3. Switch the machine operation mode to OFF.
4. Release the brake.
 - If your machine does not have a computer, press and hold CLAMP and RELEASE buttons at the same time to disengage the brake.
 - If your machine does have a computer, select SMART CRANE from the menu bar in the Squaring Conveyor or Power Framer software. Select SET BRAKE. The brake will open.
5. Using a 1/4-in. Allen wrench, turn the bolt in until you cannot see any light between the brake pad and the disc.
6. Back the bolt out until you can just see light coming between the brake pad and the disc. The brake pad and disc should be as close to touching as possible, without touching.
7. Adjust the bolt on the other side of the brake in the same way.
8. Tighten the nuts, restart the machine, check the brake adjustment. Continue to adjust as necessary until the gripper assembly stops within 6 in.
9. Engage the brake.

Checking the Brake Adjustment

To check the braking operation:

1. Remove any lockout/tagout devices and start the machine.
2. Switch the machine to manual mode.
3. With the cart in the home position, start lowering the gripper assembly until it reaches full speed.
4. After the gripper assembly reaches full lowering speed, press the E-stop while you are lowering the gripper. The gripper assembly should stop within 6 in. If it does not, complete the *Adjusting the Brake* section on page 6.

Replacing the Straps



1. Lower the gripper assembly all the way to the floor, resting it on a wall panel or 2x4.
2. Remove the bolts that are holding the old straps to the drive shaft on top of the machine.
3. Remove the U-bolts that are attaching the old straps to the gripper assembly.
4. Attach one end a new strap to the U-bolt and the other end of the strap to the mounting bolt on the drive shaft. Make sure the straps are not twisted. Attach the other strap in the same way.

CAUTION

The attachment point of the straps to the mounting bolts on the drive shaft wheels must be exactly parallel to ensure the straps are the same length.

5. Restore power to the machine.
6. Press the joystick upward to lift the gripper assembly off of the wall panel.
7. Check to make sure the gripper assembly is level. The corner under the electrical enclosure should be about 1 to 2 in. lower than the opposite side. If the gripper assembly is not level, see the *Squaring and Slanting the Gripper Alignment* section on page 8.

Squaring and Slanting the Gripper Alignment

The alignment of the gripper assembly is adjusted by changing the length of the straps. The side with the brake should be about 1 to 2 in. lower than the opposite side.

To adjust the gripper squaring and slanting:

1. Loosen the bolts that mount the flange guide pulley on either side of the gripper belt strap pulleys. See Figure 2.
2. Loosen or tighten the bolts on the adjustment angle until the gripper is square.
3. Retighten the bolts on the gripper belt strap pulleys.
4. Unbolt the strap. See Figure 3.
 - a) Loosen and pull out the bolt the strap is attached to on the pulley wheel.
 - b) Remove the strap from the bolt.
 - c) Reinsert and tighten the bolt.
5. Reposition the strap on another bolt. The straps should be even.

Figure 2: Flange Guide Pulley

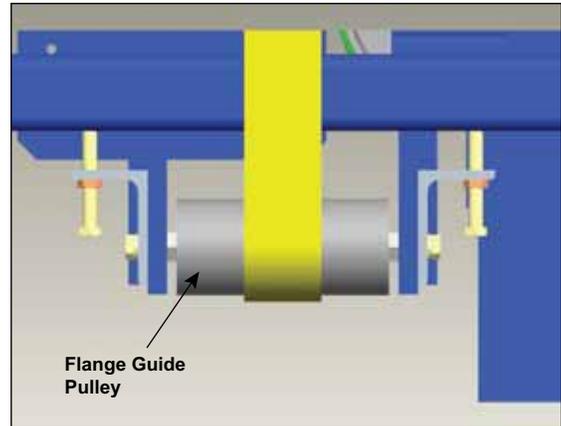
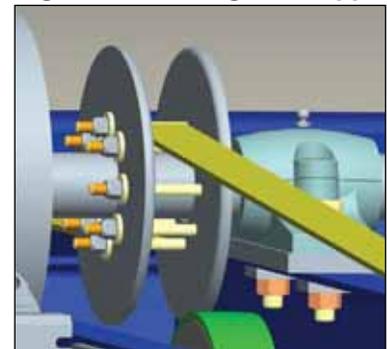


Figure 3: Leveling the Gripper



- a) Loosen and pull out the bolt to which the strap will be attached.
 - b) Put the strap on the bolt.
 - c) Reinsert and tighten the bolt.
6. Micro-adjust the straps by loosening or tightening the U-bolt. See Figure 4.

Figure 4: U-Bolt

Adjusting Power Lock Torque

This section should only be completed if locking bolts have been loosened during a horizontal adjustment of the lifting shaft.

1. Tighten the four bolts positioned diagonally with a torque of 7.425.
1. Tighten the other four bolts with a torque of 7.425.
2. Increase the tightening torque on the four bolts positioned diagonally to 14.85.
1. Tighten the other four bolts with a torque of 14.85.
2. Increase the tightening torque to 29.7 and tighten the bolts.
3. Check the tightening torque of the locking bolts, starting with the top bolt and proceeding clockwise.

Applying the Labels

Two labels (691543) are supplied in SB187KIT. Place one label on the side of the gripper facing the operator. Place the second label on the opposite side of the gripper, on the outside surface.

END OF SERVICE BULLETIN