

Hydraulic Cylinder Replacement Kit (STR0206-01)

STR0206-01 Replacement Kit Components

Part Number	Size	Description	Qty
ST0008	N/A	Cylinder, Hydraulic	1
H0016-07	3/8-24 X 1-25	Bolt, Hex Head	1
H0017-02	3/8 X 24	Washer, Split Lock	2
H0037-01	3/8-16 X 2	U-bolt	1
H0004-03	3/8-16	Nut, Lock - Nylon Insert	2
H0016-28	1/4-20 X 2.0	Bolt, Zinc Plated	4
HDW0001-03	1/4 - 20	Washer, Flat	8
H0004-01	1/4 - 20	Nut, Lock - Nylon Insert	4

GENERALNOTES:

The followings NOTES apply to all repair/replacement operations.

- Do not over-tighten bolts at assembly areas. Tighten bolts securely. Upon completion of assembly apply proper torque to all fasteners using an appropriate size torque wrench.
- Make sure replacement Hydraulic Cylinder is mounted 90° degrees perpendicular to the chassis.

REQUIRED TOOLS: The following tools are required for replacing the Transport Stretcher Hydraulic Cylinder.

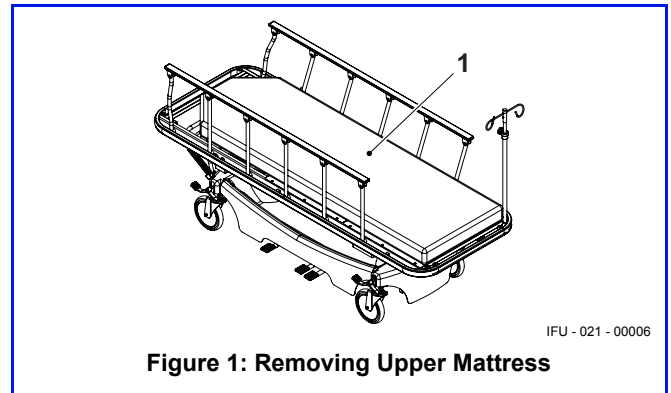
- Socket, 7/16" 6 point
- Wrench, open-end, 7/16"
- Wrench, open-end, 1/2"
- Wrench, open-end, 9/16"
- Screwdriver, #1 Phillips-head
- Adjustable saw horse
- Wooden block, 6-inches to 8-inches in height.
- 6" Torpedo Level
- Torque Wrench, 25 -250 lbf-in (282.5-2825 Ncm)

A: Hydraulic Cylinder Removal

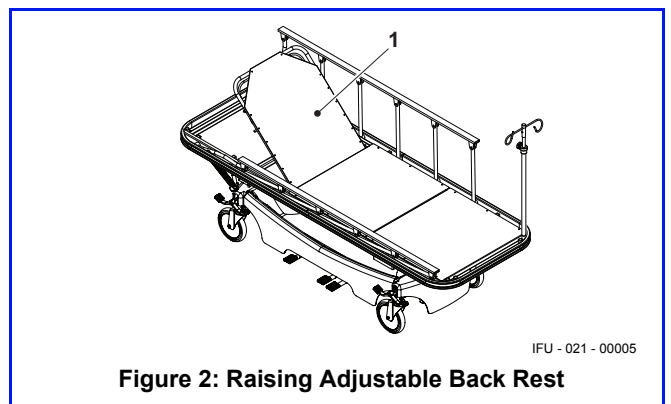
The following procedures should be used to remove and replace the Hydraulic Cylinder.

Access the head-mounted or foot-mounted Hydraulic Cylinder using the following steps.

1. Remove the Upper Mattress from the stretcher and set aside (See Figure 1, Item 1).



2. Lift the Adjustable Back Rest (p/n: SMST001-P) (See Figure 2, Item 1) and lock into the upper position.



3. Using a #1 Phillips screwdriver, remove two Phillips #8 x 1/2" screws (p/n: H0012-01) that attach the upper ring of the Bellows (p/n: ST0024) to the frame. See Figure 3, Items 1, and 2.
4. Using a 9/16" open-end wrench, remove 3/8"-24 x 1-1/4" bolt (p/n: H0016-07), 3/8" split lock-washer (p/n: H0017-02), and 3/8" flat washer (p/n: HDW0001-01) in top of frame attaching the Hydraulic Cylinder (p/n: ST0008). See Figure 3, Items 3, 4, and 5.
5. Using a 1/2" open end wrench, remove the 5/16"-18 bolt (p/n: H0016-02) and 5/16"

split lock-washer (p/n: H0017-01) from side of block. See Figure 3, Items 6, and 7.



NOTE: It is not necessary to loosen the attaching hardware for the bellows on the opposite end of the stretcher. The Bed Assembly pivots by turning the entire Hydraulic Cylinder piston.

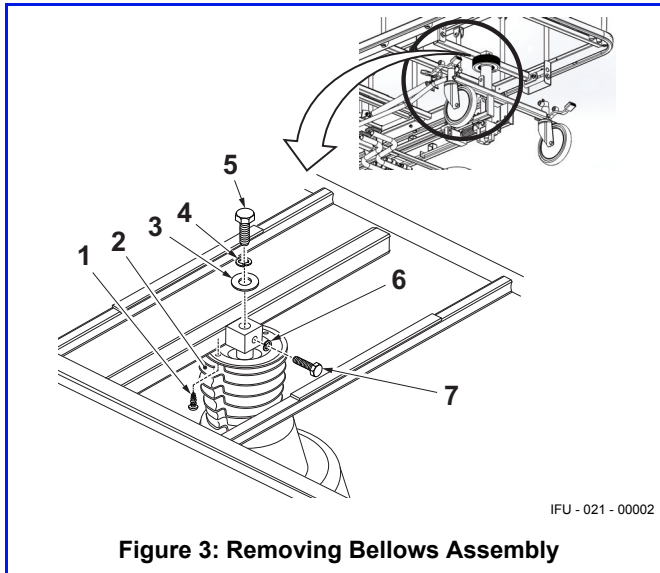


Figure 3: Removing Bellows Assembly

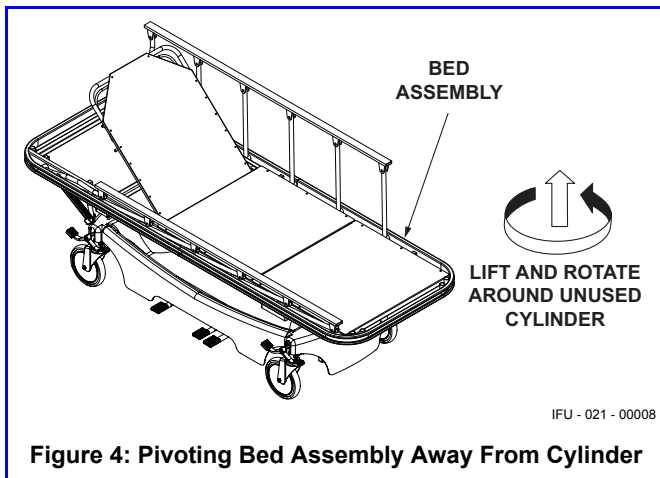


Figure 4: Pivoting Bed Assembly Away From Cylinder

6. Lift upward on Bed Assembly (p/n: STR0110) and pivot the entire assembly to the side. See Figure 4. Support the Top Stretcher Assembly (p/n: PTF1000-29-Top-AS) with an adjustable saw horse or rolling cart. The top assembly weighs 126.6 pounds (57.2 kg). Any object can be used as long as it can support the weight of the bed top assembly and is tall enough to keep the bed assembly stable so that it will not tip over.

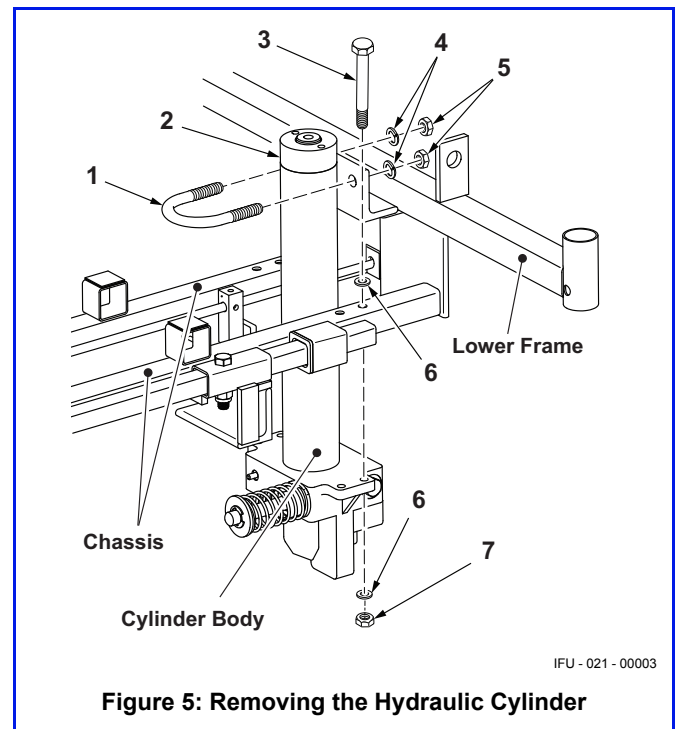


Figure 5: Removing the Hydraulic Cylinder

7. Lift the lower shroud upward and place a 6" to 8" wooden block on the lower chassis to allow access to the lower portion of the Hydraulic Cylinder.
8. Using a 9/16" open end wrench, remove the two 3/8"-16 hex nuts (p/n: H0029-02), and two 3/8"-16 split lock washers (p/n: H0017-02) from the 3/8"-16 X 2" U-bolt (p/n: H0037-01) (See Figure 5, Items 4, 5) attaching the Hydraulic Cylinder to the lower frame.
9. Using a 7/16" socket and a 7/16" open-end wrench, loosen and remove four 1/4"-20 x 2" bolts (p/n: H0016-28), eight 1/4" flat washers (p/n: HDW001-03) and four 1/4" x 20 nylon insert lock-nuts (p/n: H0004-01) See Figure 5, Items 3, 6, and 7.

10. Lower Hydraulic Cylinder through bottom. The Hydraulic Cylinder must be completely closed, with the piston even with the top.

B: Hydraulic Cylinder Installation

Install the new Hydraulic Cylinder (p/n: ST0008) using the following steps.

1. Position the Hydraulic Cylinder from the bottom of the chassis. Align the four bolt holes on the cylinder body with the four holes on the lower chassis.
2. Position one of four 1/4"-20 x 2" bolts (p/n: H0016-01) and 1/4" flat washer (p/n: HDW001-03) through the chassis rail and then the cylinder body. See Figure 6, Items 3, and 5. Secure with new 1/4" -20 flat washer and 1/4"-20 nylon insert lock nut (p/n: H0004-01). See Figure 6, Items 5, and 6.
3. Insert remaining three 1/4"-20 x 2" bolts (p/n: H0016-01) and three 1/4" flat washers (p/n: HDW001-03) through the chassis rail and then the cylinder body. Secure in place with three 1/4" flat washers and three new 1/4" x 20 nylon insert locknut nuts (p/n: H0004-01). Using a 7/16" socket and 7/16" open-end wrench, tighten the lock nuts until hand tight. See Figure 6, Items 6 and 7. Set torque to 72.5 lbf-in (850 Ncm).
4. Insert a 3/8" -16 x 2" U-bolt (p/n: H0037-01) (See Figure 6, Item 1) around the Hydraulic Cylinder (p/n: ST0008) and insert the threaded ends through the holes in the chassis block.
5. Place two new 3/8"-16 split lock washers (p/n: H0017-02) and two 3/8"-16 hex nuts (p/n: H0029-02) over the threaded portions of the U-bolt. See Figure 6, Items 4, and 5.

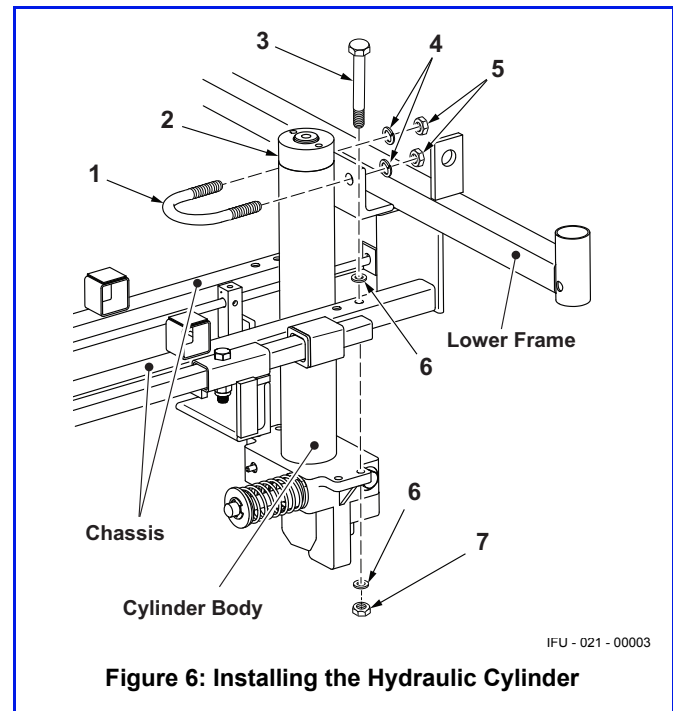
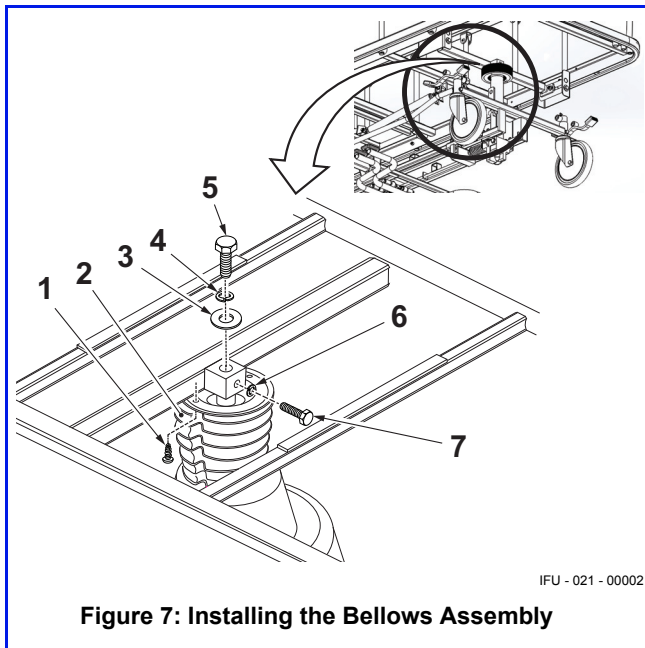


Figure 6: Installing the Hydraulic Cylinder

6. Before final tightening, use a small level and check both sides of the Hydraulic Cylinder making sure it is installed perpendicular to chassis. Once level, tighten the 3/8"-16 hex nuts and lock washers. Set the torque for the hex nuts to 236 lbf-in (2,666 Ncm).
7. Lift upward on Bed Assembly (p/n: STR0110) and pivot the entire assembly until the block on the upper crossbar fits over the end of the Hydraulic Cylinder.
8. Using a 9/16" open end wrench, install the 3/8"-24 x 1-1/4" bolt (p/n: H0016-07), one 3/8" split lock washer (p/n: H0017-02), and one 3/8" flat washer (p/n: HDW0001-01) through the top of the frame and into the top of the Hydraulic Cylinder (p/n: ST0008). See Figure 7, Items 3, 4, and 5. Set torque to 236 lbf-in (2,666 Ncm).
9. Insert one 5/16"-18 x 1/2" bolt (p/n: H0016-02) into side of block with a new 5/16" split lock washer (p/n: H0017-02). See Figure 7, Items 6 and 7. Set the torque to 132 lbf-in (1,491 Ncm).

- Bring up Bellows Assembly (p/n: ST0024) and attach bellows to cross bar using two Phillips #8 x 1/2" self tapping pan-head screws (p/n: H0012-01) (See Figure 7, Items 1 and 2).



Installation of the foot-mounted Hydraulic Cylinder is the same as the head-mounted except the foot portion of the bed back-rest (p/n: SMST001-P) does not elevate.

C: Preparing Hydraulic Cylinders for Use After Installation:

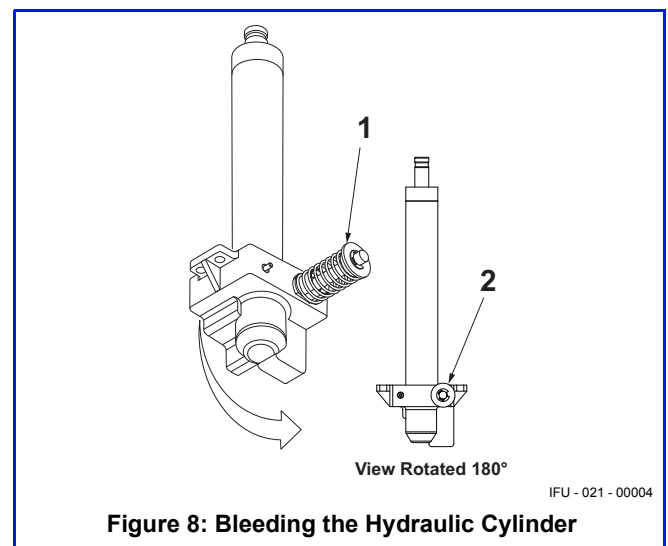
All self contained Hydraulic Cylinders used on Stretchers must have excess air bled out of the cylinders after shipping and before installation. The following procedures will make sure the cylinders will preform properly.

Air Bleed Procedure:



CAUTION: The air bleeding procedure must be followed on all units after shipping and prior to installation. Failure to follow this Caution will result in improper performance characteristics.

- Position cylinder vertically with rod end facing upward.
- Using the pump plunger, operate the Hydraulic Cylinder to its maximum height or full extension. See Figure 8, Item 1.
- Pump Hydraulic Cylinder three to four more times after reaching full extension.
- Depress retract plunger (See Figure 8, Item 2) and apply load to the cylinder rod until it completely retracts.
- Repeat these steps for three more complete cycles.
- The cylinder is now ready to be installed on the stretcher.



MAC Medical Technical Support

Phone: (618) 476-3550

Toll Free: (877) 828-9975

Fax: (618) 476-3337

www.macmedical.com