



# Harsco Track Technologies

Harsco

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## SERVICE BULLETIN MAINTENANCE OF WAY EQUIPMENT

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**DATE:** 3-4-2002 **BULLETIN NO:** 02-009

**TITLE:** SERVO VALVE CONVERSIONS - MOOG SERIES 73 TO SERIES 62

**RATING:**

<input type="checkbox"/>	<b>DIRECTIVE</b> (Action Is Required)	<input type="checkbox"/>	<b>ALERT</b> (Potential Problem)
<input type="checkbox"/>	<b>INFORMATION</b> (Action Is Optional)	<input checked="" type="checkbox"/>	<b>PRODUCT IMPROVEMENT</b> (Enhance Product)

**PRODUCT SERIES / MODEL:** 6700 Tamper

**SERIAL NO:** All Models Serial # 143980 and Lower

**SUMMARY:** Conversions are available that will convert machines using the older style Moog Series 73 servo valves to the new style Moog Series 62 servo valves currently being used.

**OPERATIONAL IMPACT:** The Moog Series 62 servo valves will improve machine reliability.

**ACTION:** Order the Conversion Group that conforms to the valve combination of your machine, or the valve combination you would like to convert to. The three available Conversion Groups are as follows:

430931-1 Converts Series 73 Servo Jacking / Servo Lining to  
Series 62 Servo Jacking / Servo Lining

430931-2 Converts Series 73 Servo Jacking / Manual Lining to  
Series 62 Servo Jacking / Manual Lining

430931-3 Converts Series 73 Servo Jacking / Manual Lining to  
Series 62 Servo Jacking / Servo Lining

**CONTACT:** If you have any questions or if we can be of any service, please contact Bill Perry or Doug Budreau at the Ludington, MI. facility, (231) 843-3431.

**SAFETY INFORMATION**

- **FOLLOW APPLICABLE RAILROAD LOCKOUT - TAGOUT PROCEDURE TO REMOVE ALL ENERGY SOURCES FROM MACHINE. FAILURE TO COMPLY COULD RESULT IN SEVERE BODILY INJURY.**

**430931-1 CONVERSION GROUP INSTALLATION****Servo Jacking / Servo Lining to Servo Jacking / Servo Lining**

See Figure 1, Figure 2, Figure 3 and Figure 4

1. Disconnect the electrical cables from the existing three servo valves.

*Note: Be sure to note which electrical cables are connected to the servo valves for proper re-assembly.*

2. See Figure 2. Remove the existing three servo valves, two adapter plates, manual hand valve, fittings and tubes as shown and discard.
3. See Figure 1 and Figure 2. Install the new components (1, 2, 3, 4, 5, 6, 7, and 8) as shown. Securely tighten all mounting hardware and hydraulic fittings securely.
4. Reconnect the electrical cables to the new servo valves.
5. In the overhead panel, replace the following modules:
  - 5.1 Replace existing module part # 230958-1 with new module part # 231850-2 (9).
  - 5.2 Replace existing module part # 230956-1 with new module part # 231851-2 (10).
6. See Figure 3 and Figure 4. Disconnect the existing hydraulic lines from the 90° bulkhead fitting as shown. Remove the existing 90° bulkhead fitting and discard. Disconnect the other end of the existing hydraulic line from the servo valve manifold and discard.
7. See Figure 3 and Figure 4. Install the new fittings, ball valve and hydraulic line (12, 13, 14, 15 and 16) as shown. Reconnect the other end of the new hydraulic line to the servo valve manifold. Securely tighten all hydraulic fittings and hose connections.
8. Start the engine and pressurize the jacking and lining circuits.
9. Check the new servo valves and all new hydraulic components for hydraulic leaks.
10. Operate the jacking and and lining functions to verify proper operation.

**430931-1 CONVERSION GROUP PART LIST**

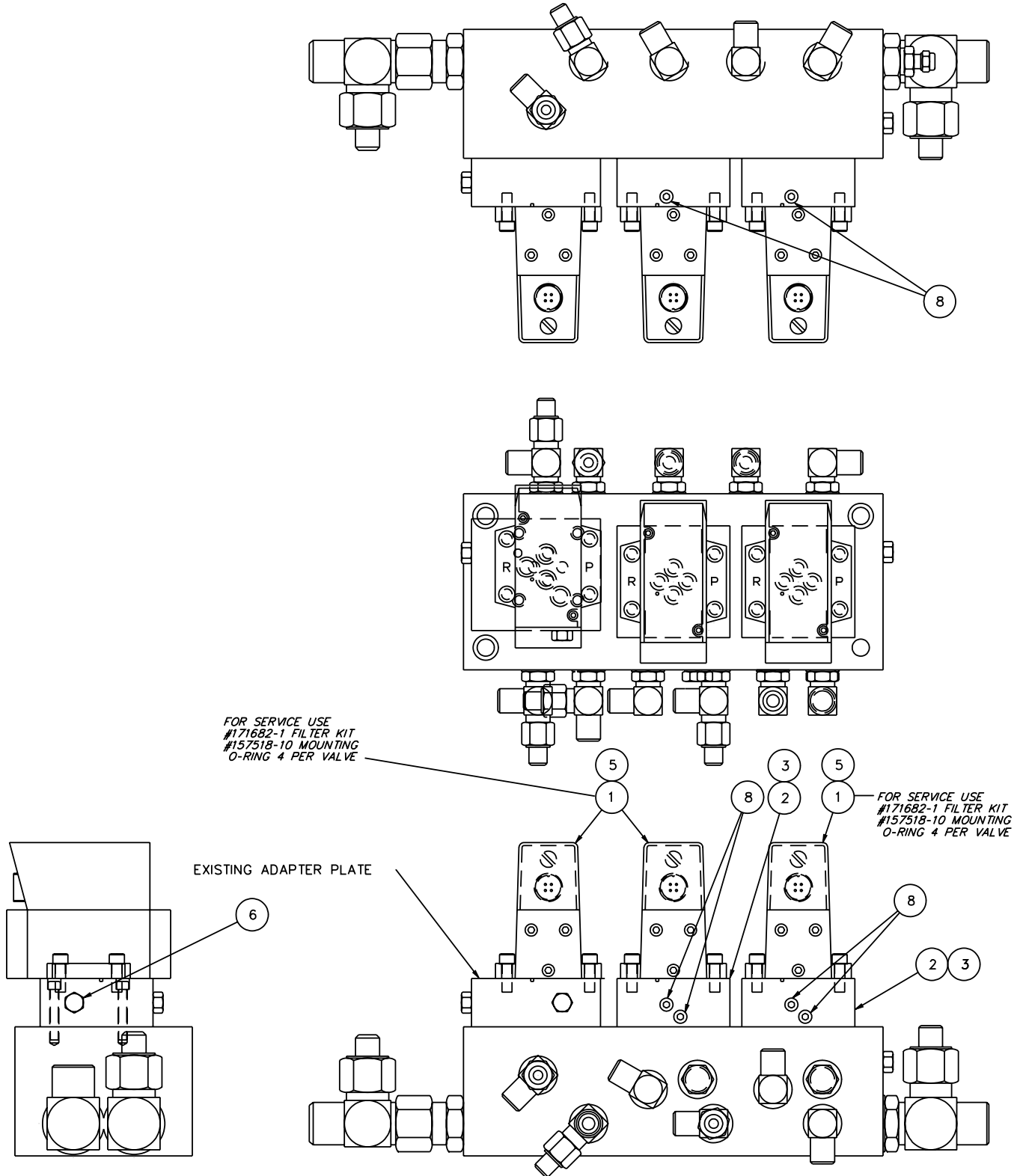
*Note: See Figure 1, Figure 2, Figure 3 and Figure 4 for Item Numbers.*

ITEM	PART NO	DESCRIPTION	QTY
	430931-1	SERVO JACKING / SERVO LINING TO SERVO JACKING / SERVO LINING CONVERSION . . . .	1
1	350227-1	Servo Valve, Flow Control . . . . .	3
2	411705-1	Manifold Adapter Plate . . . . .	2
3	157518-10	O-Ring, AS-013 . . . . .	6
4	250070-45	Cap Screw, 5/16"-18 x 1-1/2" Socket Head . . . . .	8
5	4611	Cap Screw, 5/16"-18 x 7/8" Socket Head . . . . .	12
6	150162-3	Plug, #4 O-Ring . . . . .	2
7	3858	Cap Nut, #4T . . . . .	1
8	3359	Plug, 1/8" Pipe Socket Head . . . . .	6
9	231850-2	Module Assembly . . . . .	1
10	231851-2	Module Assembly . . . . .	1
11	430931-DWG1	Drawing . . . . .	1
12	155394-8	Adapter, 90° Swivel #16 . . . . .	1
13	155372-5	Bulkhead Adapter, Straight #16 . . . . .	1
14	3192	Adapter, Straight #16 . . . . .	1
15	252019-1	Ball Valve, 1" . . . . .	1
16	600154-011	Hose Assembly . . . . .	1

**430931-1 CONVERSION GROUP INSTALLATION**

430931-1-1A

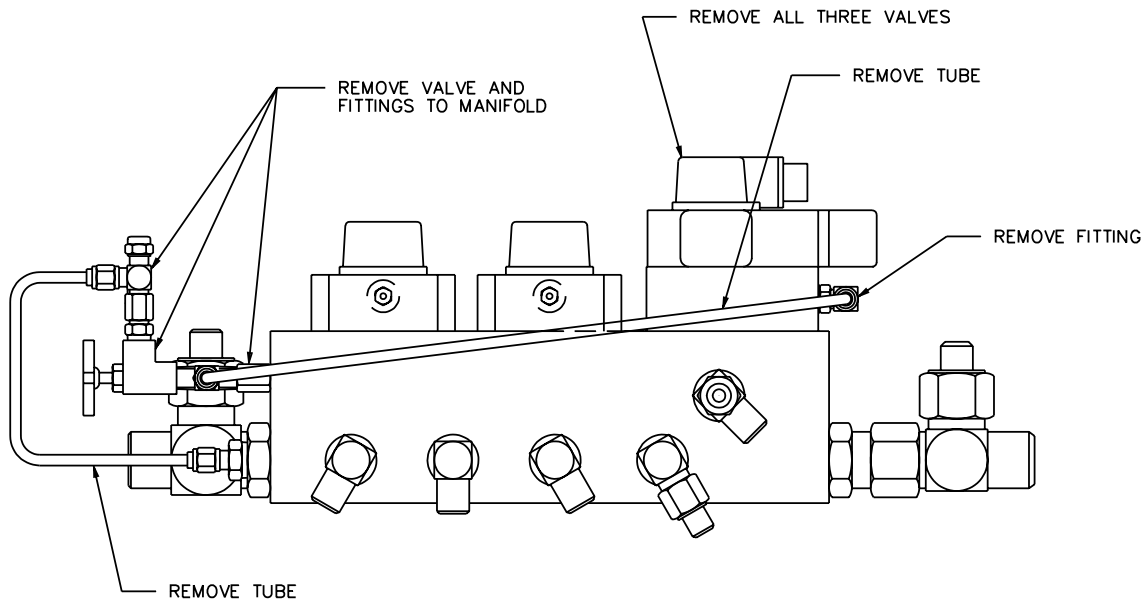
**FIGURE 1**  
**SERVO JACKING / SERVO LINING TO SERVO JACKING / SERVO LINING**



**430931-1 CONVERSION GROUP INSTALLATION**

430931-1-1B

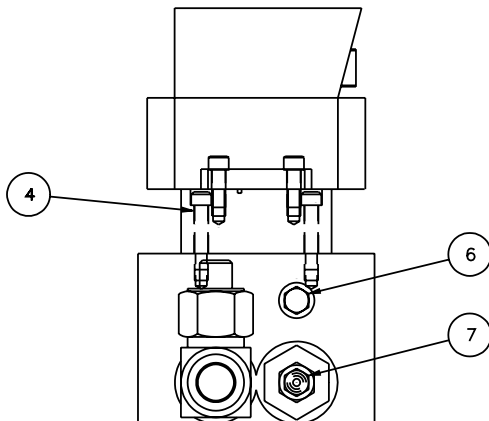
**FIGURE 2**  
**SERVO JACKING / SERVO LINING TO SERVO JACKING / SERVO LINING**



VIEW OF EXISTING MANIFOLD

ELECTRICAL ITEMS NOT SHOWN:  
IN THE OVERHEAD PANEL REPLACE  
THE FOLLOWING MODULES:

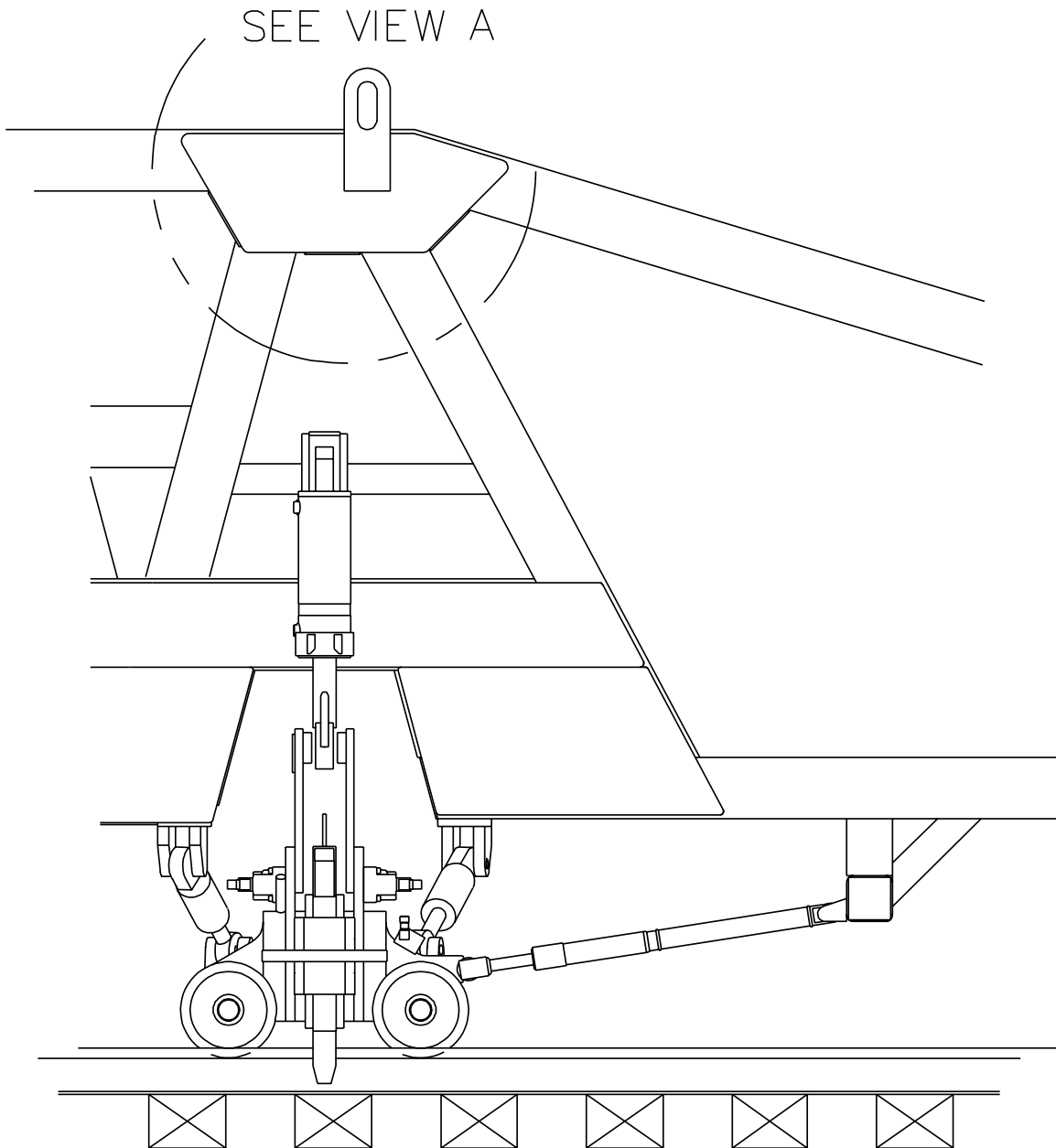
- #230958-1 WITH #231850-2 (9)
- #230956-1 WITH #231851-2 (10)



**430931-1 CONVERSION GROUP INSTALLATION**

430931-1-2A

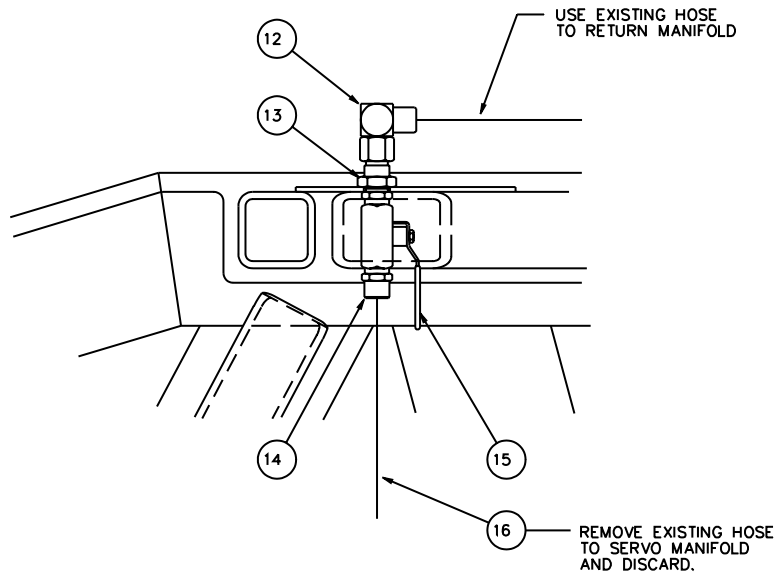
**FIGURE 3**  
**SERVO JACKING / SERVO LINING TO SERVO JACKING / SERVO LINING**



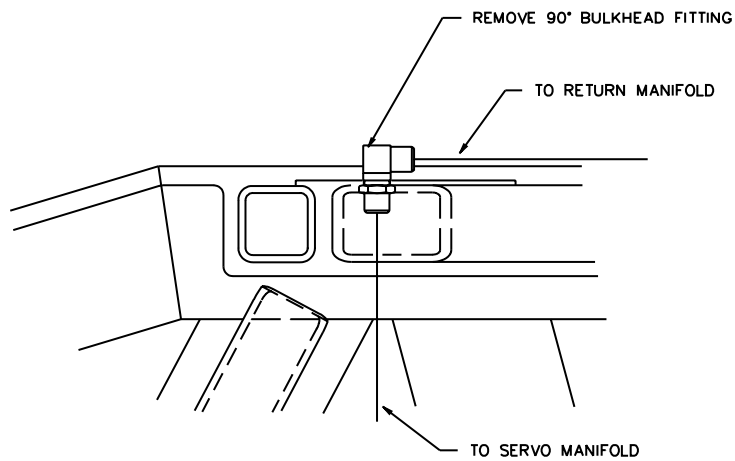
**430931-1 CONVERSION GROUP INSTALLATION**

430931-1-2B

**FIGURE 4**  
**SERVO JACKING / SERVO LINING TO SERVO JACKING / SERVO LINING**



**AFTER CHANGE**  
INSIDE OF VIEW 'A'



**BEFORE CHANGE**  
INSIDE OF VIEW 'A'

**SAFETY INFORMATION**

- **FOLLOW APPLICABLE RAILROAD LOCKOUT - TAGOUT PROCEDURE TO REMOVE ALL ENERGY SOURCES FROM MACHINE. FAILURE TO COMPLY COULD RESULT IN SEVERE BODILY INJURY.**

**430931-2 CONVERSION GROUP INSTALLATION****Servo Jacking / Manual Lining to Servo Jacking / Manual Lining**

See Figure 5, Figure 6, Figure 7 and Figure 8

1. Disconnect the electrical cables from the existing two servo valves.

*Note: Be sure to note which electrical cables are connected to the servo valves for proper re-assembly.*

2. See Figure 6. Remove the existing two servo valves and adapter plates, manual hand valve, fittings and tubes as shown and discard.
3. See Figure 5 and Figure 6. Install the new components (1, 2, 3, 4, 5, 6, 7, and 8) as shown. Securely tighten all mounting hardware and hydraulic fittings securely.
4. Reconnect the electrical cables to the new servo valves.
5. In the overhead panel, replace the following modules:
  - 5.1 Replace existing module part # 230958-1 with new module part # 231850-2 (9).
  - 5.2 Replace existing module part # 230956-1 with new module part # 231851-2 (10).
6. See Figure 7 and Figure 8. Disconnect the existing hydraulic lines from the 90° bulkhead fitting as shown. Remove the existing 90° bulkhead fitting and discard. Disconnect the other end of the existing hydraulic line from the servo valve manifold and discard.
7. See Figure 7 and Figure 8. Install the new fittings, ball valve and hydraulic line (12, 13, 14, 15 and 16) as shown. Reconnect the other end of the new hydraulic line to the servo valve manifold. Securely tighten all hydraulic fittings and hose connections.
8. Start the engine and pressurize the jacking and lining circuits.
9. Check the new servo valves and all new hydraulic components for hydraulic leaks.
10. Operate the jacking and and lining functions to verify proper operation.



**430931-2 CONVERSION GROUP PART LIST**

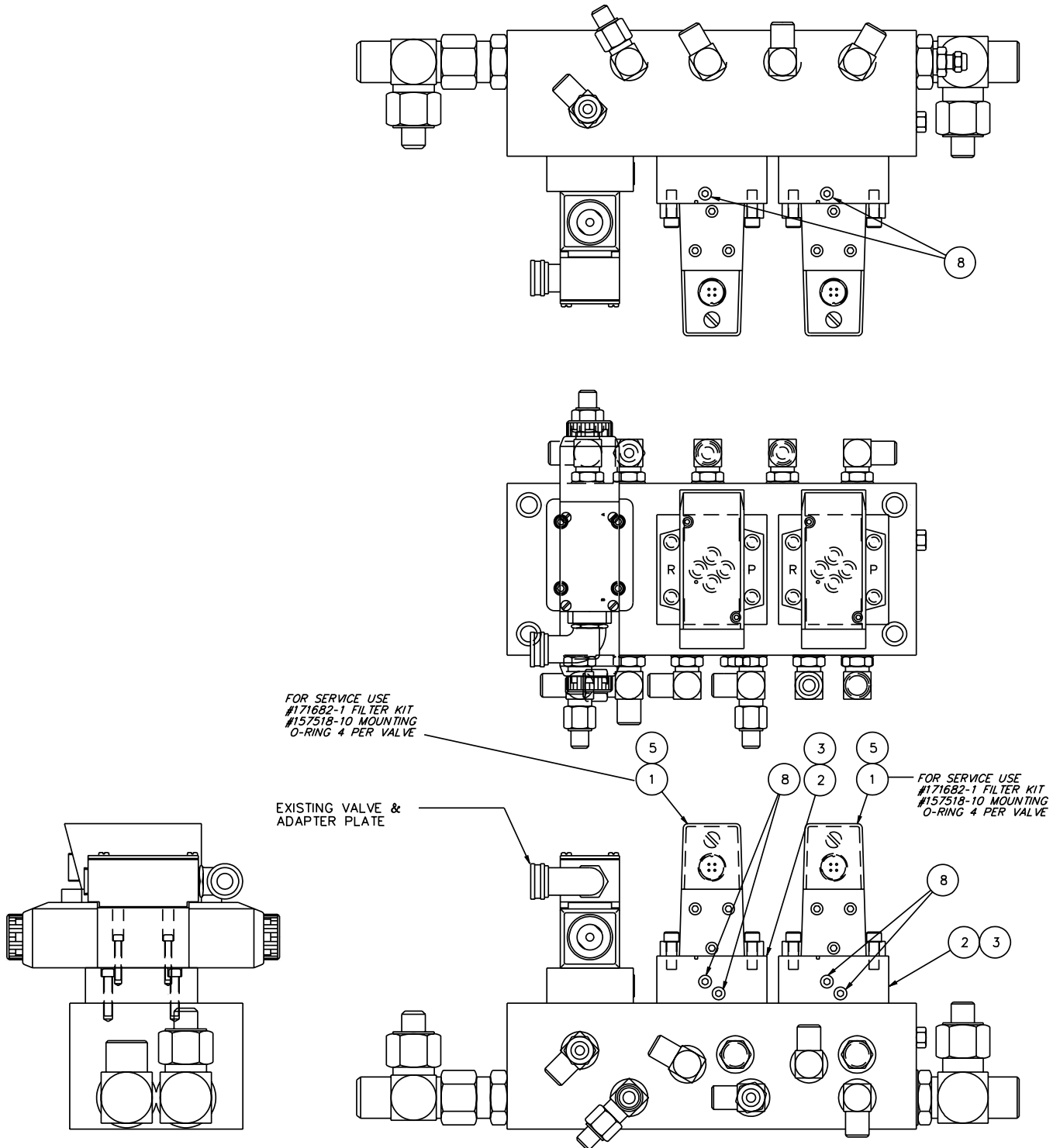
*Note: See Figure 5, Figure 6, Figure 7 and Figure 8 for Item Numbers.*

ITEM	PART NO	DESCRIPTION	QTY
	430931-2	SERVO JACKING / MANUAL LINING TO SERVO JACKING / MANUAL LINING CONVERSION . . .	1
1	350227-1	Servo Valve, Flow Control . . . . .	2
2	411705-1	Manifold Adapter Plate . . . . .	2
3	157518-10	O-Ring, AS-013 . . . . .	6
4	250070-45	Cap Screw, 5/16"-18 x 1-1/2" Socket Head . . . . .	8
5	4611	Cap Screw, 5/16"-18 x 7/8" Socket Head . . . . .	8
6	150162-3	Plug, #4 O-Ring . . . . .	1
7	3858	Cap Nut, #4T . . . . .	1
8	3359	Plug, 1/8" Pipe Socket Head . . . . .	6
9	231850-2	Module Assembly . . . . .	1
10	231851-2	Module Assembly . . . . .	1
11	430931-DWG2	Drawing . . . . .	1
12	155394-8	Adapter, 90° Swivel #16 . . . . .	1
13	155372-5	Bulkhead Adapter, Straight #16 . . . . .	1
14	3192	Adapter, Straight #16 . . . . .	1
15	252019-1	Ball Valve, 1" . . . . .	1
16	600154-011	Hose Assembly . . . . .	1

430931-2 CONVERSION GROUP INSTALLATION

430931-2-1A

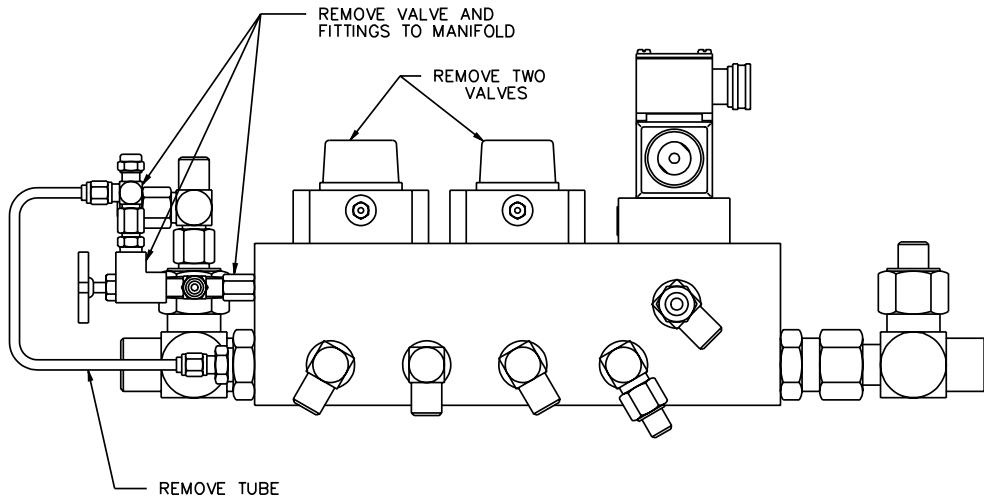
FIGURE 5  
SERVO JACKING / MANUAL LINING TO SERVO JACKING / MANUAL LINING



**430931-2 CONVERSION GROUP INSTALLATION**

430931-2-1B

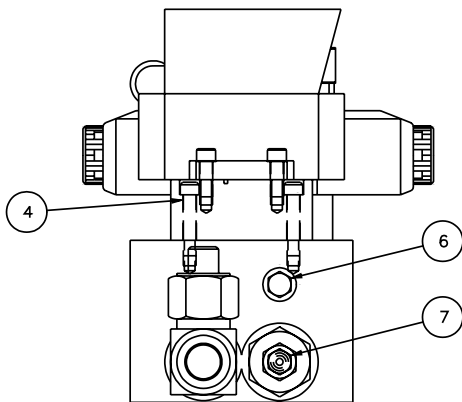
**FIGURE 6**  
**SERVO JACKING / MANUAL LINING TO SERVO JACKING / MANUAL LINING**



VIEW OF EXISTING MANIFOLD

ELECTRICAL ITEMS NOT SHOWN:  
IN THE OVERHEAD PANEL REPLACE  
THE FOLLOWING MODULES:

- #230958-1 WITH #231850-2 (9)
- #230956-1 WITH #231851-2 (10)

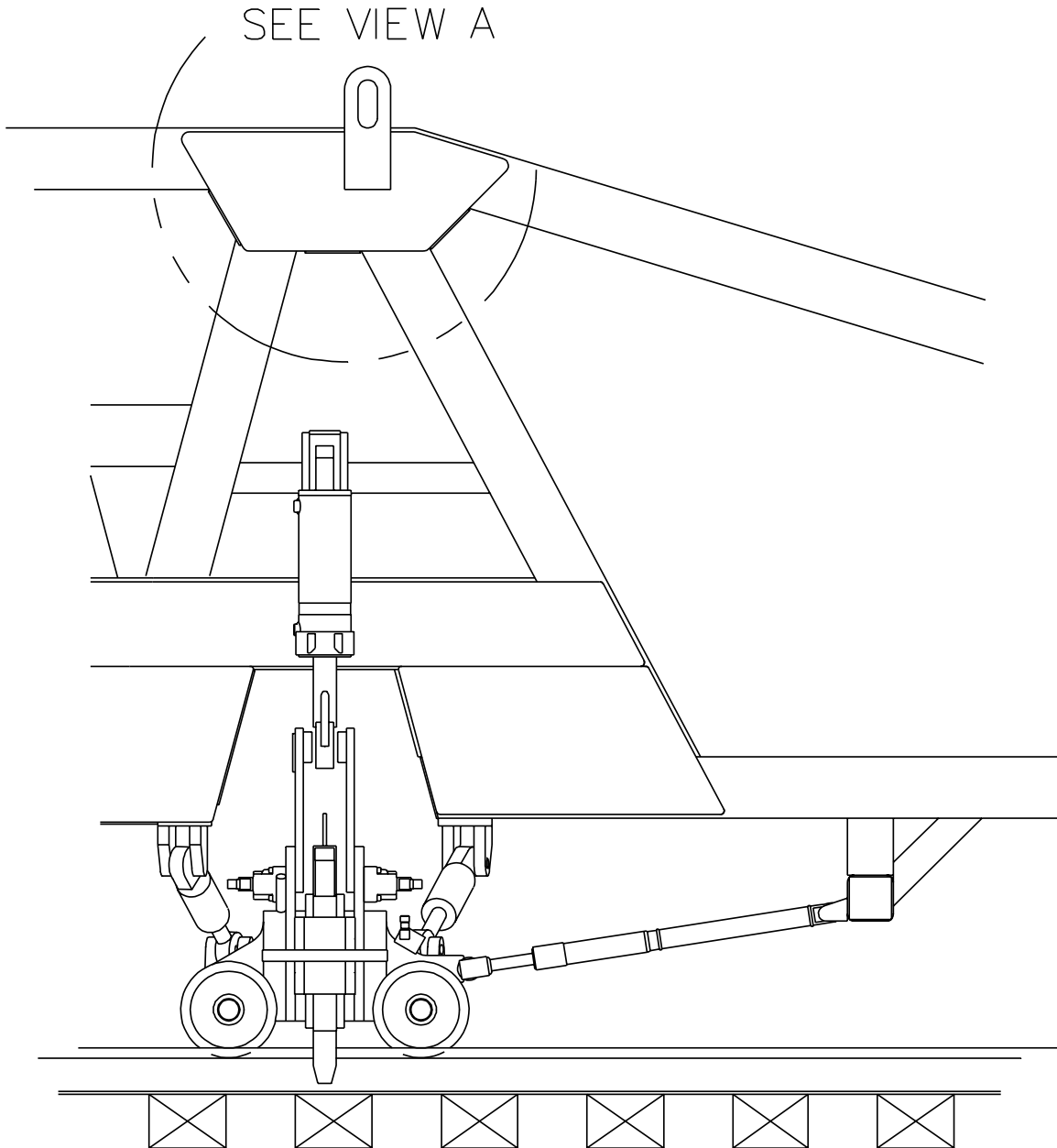


**430931-2 CONVERSION GROUP INSTALLATION**

430931-1-2A

FIGURE 7

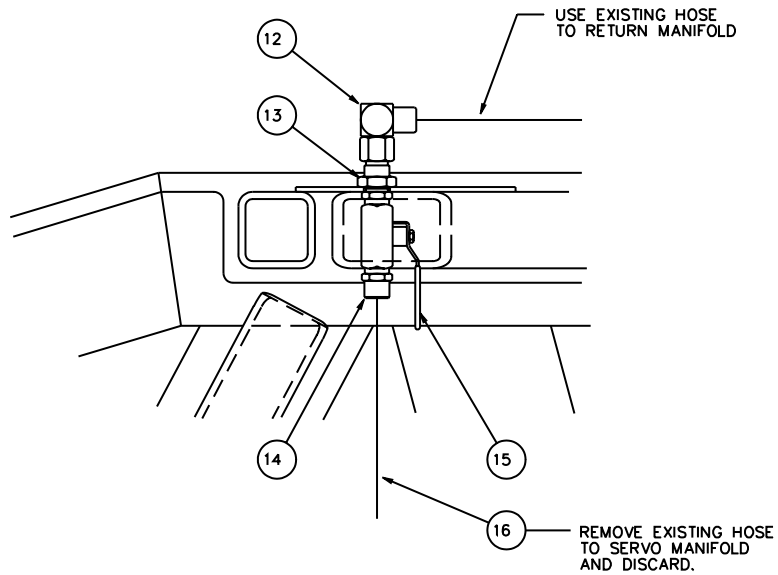
SERVO JACKING / MANUAL LINING TO SERVO JACKING / MANUAL LINING



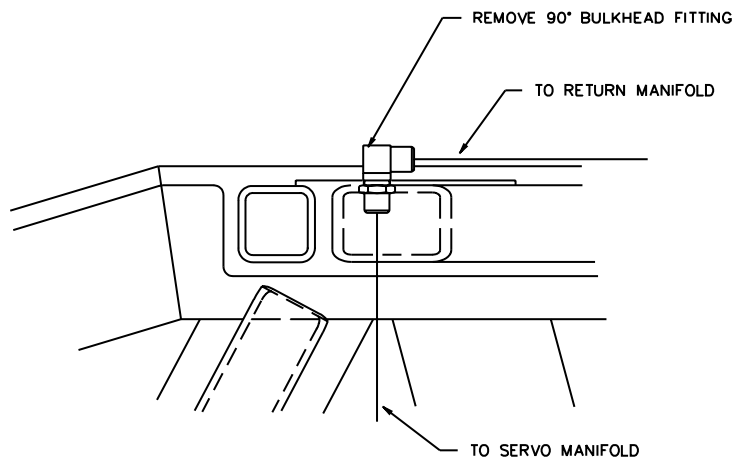
**430931-2 CONVERSION GROUP INSTALLATION**

430931-1-2B

**FIGURE 8**  
**SERVO JACKING / MANUAL LINING TO SERVO JACKING / MANUAL LINING**



**AFTER CHANGE**  
INSIDE OF VIEW 'A'



**BEFORE CHANGE**  
INSIDE OF VIEW 'A'

**SAFETY INFORMATION**

- **FOLLOW APPLICABLE RAILROAD LOCKOUT - TAGOUT PROCEDURE TO REMOVE ALL ENERGY SOURCES FROM MACHINE. FAILURE TO COMPLY COULD RESULT IN SEVERE BODILY INJURY.**

**430931-3 CONVERSION GROUP INSTALLATION****Servo Jacking / Manual Lining to Servo Jacking / Servo Lining**

See Figure 9, Figure 10, Figure 11 and Figure 12

1. Disconnect the electrical cables from the existing two servo valves and from the solenoid valve.

*Note: Be sure to note which electrical cables are connected to the servo and solenoid valves for proper re-assembly.*

2. See Figure 10. Remove the existing two servo valves and adapter plates, solenoid valve and adapter plate, manual hand valve, fittings and tubes as shown and discard.
3. See Figure 9 and Figure 10. Install the new components (1, 2, 3, 4, 5, 6, 7, 8, 17 and 18) as shown. Securely tighten all mounting hardware and hydraulic fittings securely.
4. Reconnect the electrical cables to the new servo valves.
5. In the overhead panel, replace the following modules:
  - 5.1 Replace existing module part # 230958-1 with new module part # 231850-2 (9).
  - 5.2 Replace existing module part # 230956-1 with new module part # 231851-2 (10).
6. See Figure 11 and Figure 12. Disconnect the existing hydraulic lines from the 90° bulkhead fitting as shown. Remove the existing 90° bulkhead fitting and discard. Disconnect the other end of the existing hydraulic line from the servo valve manifold and discard.
7. See Figure 11 and Figure 12. Install the new fittings, ball valve and hydraulic line (12, 13, 14, 15 and 16) as shown. Reconnect the other end of the new hydraulic line to the servo valve manifold. Securely tighten all hydraulic fittings and hose connections.
8. Start the engine and pressurize the jacking and lining circuits.
9. Check the new servo valves and all new hydraulic components for hydraulic leaks.
10. Operate the jacking and and lining functions to verify proper operation.

**430931-3 CONVERSION GROUP PART LIST**

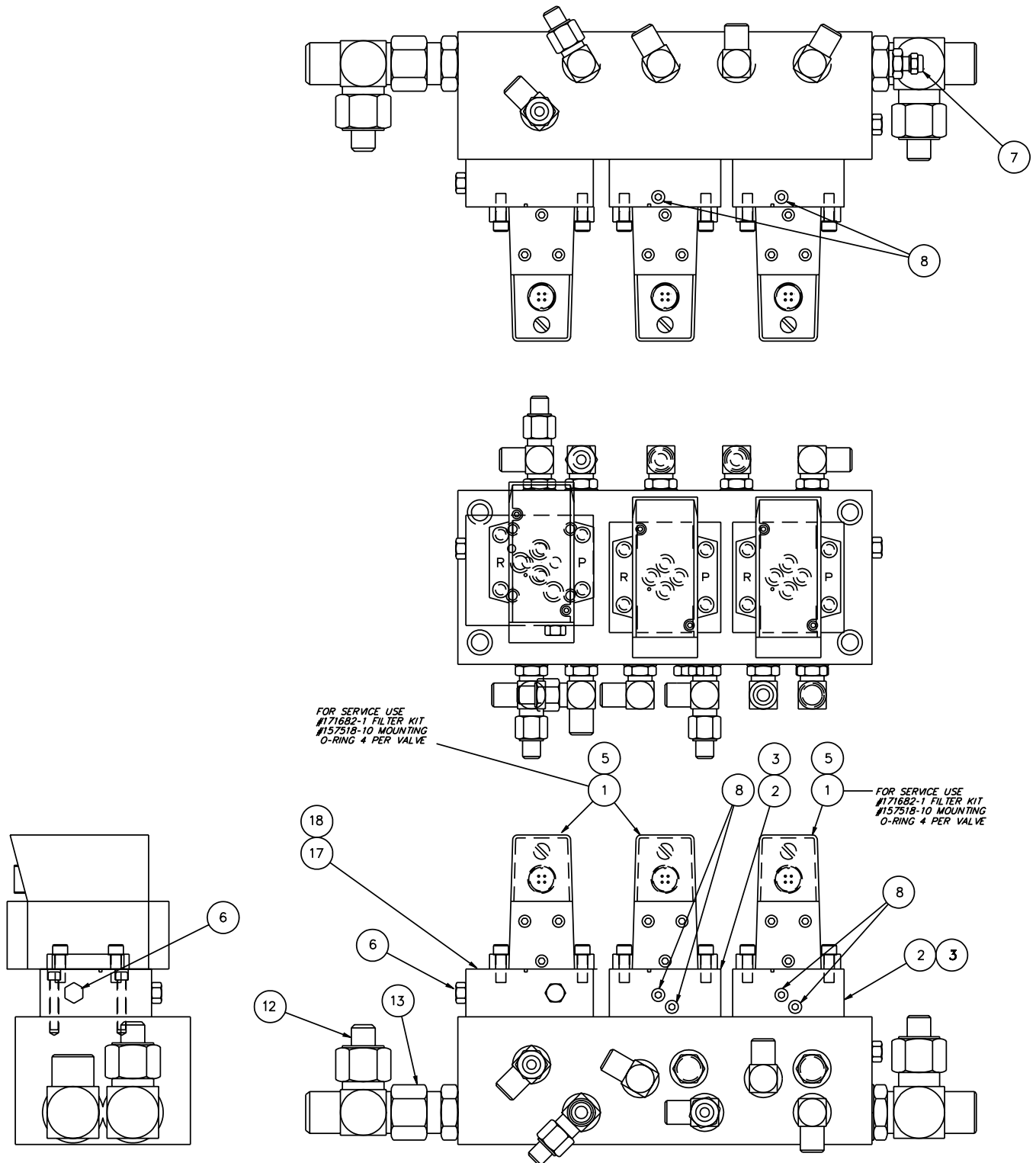
*Note: See Figure 9, Figure 10, Figure 11 and Figure 12 for Item Numbers.*

ITEM	PART NO	DESCRIPTION	QTY
	430931-3	SERVO JACKING / MANUAL LINING TO SERVO JACKING / SERVO LINING CONVERSION . . . .	1
1	350227-1	Servo Valve, Flow Control . . . . .	3
2	411705-1	Manifold Adapter Plate . . . . .	2
3	157518-10	O-Ring, AS-013 . . . . .	6
4	250070-45	Cap Screw, 5/16"-18 x 1-1/2" Socket Head . . . . .	8
5	4611	Cap Screw, 5/16"-18 x 7/8" Socket Head . . . . .	12
6	150162-3	Plug, #4 O-Ring . . . . .	3
7	3858	Cap Nut, #4T . . . . .	1
8	3359	Plug, 1/8" Pipe Socket Head . . . . .	6
9	231850-2	Module Assembly . . . . .	1
10	231851-2	Module Assembly . . . . .	1
11	430931-DWG3	Drawing . . . . .	1
12	155394-8	Adapter, 90° Swivel #16 . . . . .	1
13	155372-5	Bulkhead Adapter, Straight #16 . . . . .	1
14	3192	Adapter, Straight #16 . . . . .	1
15	252019-1	Ball Valve, 1" . . . . .	1
16	600154-011	Hose Assembly . . . . .	1
17	410791-1	Manifold Adapter Plate . . . . .	1
18	250070-22	Cap Screw, 1/4"-20 x 1-1/2" Socket Head . . . . .	4

430931-3 CONVERSION GROUP PART LIST

430931-3-1A

FIGURE 9  
SERVO JACKING / MANUAL LINING TO SERVO JACKING / SERVO LINING



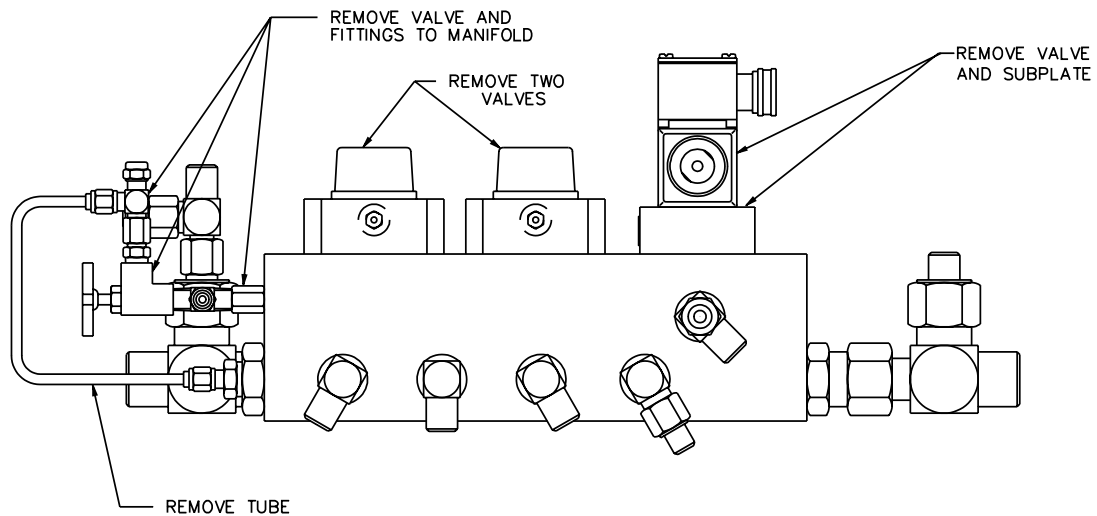


**430931-3 CONVERSION GROUP PART LIST**

430931-3-1B

FIGURE 10

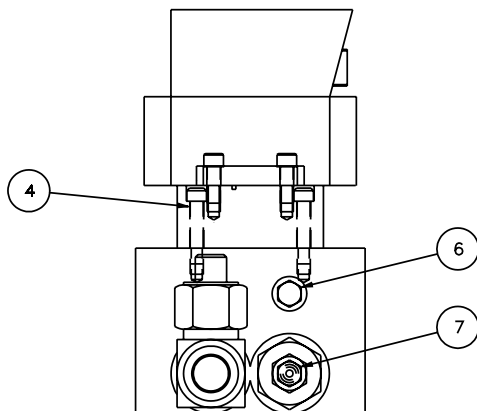
**SERVO JACKING / MANUAL LINING TO SERVO JACKING / SERVO LINING**



VIEW OF EXISTING MANIFOLD

ELECTRICAL ITEMS NOT SHOWN:  
IN THE OVERHEAD PANEL REPLACE  
THE FOLLOWING MODULES:

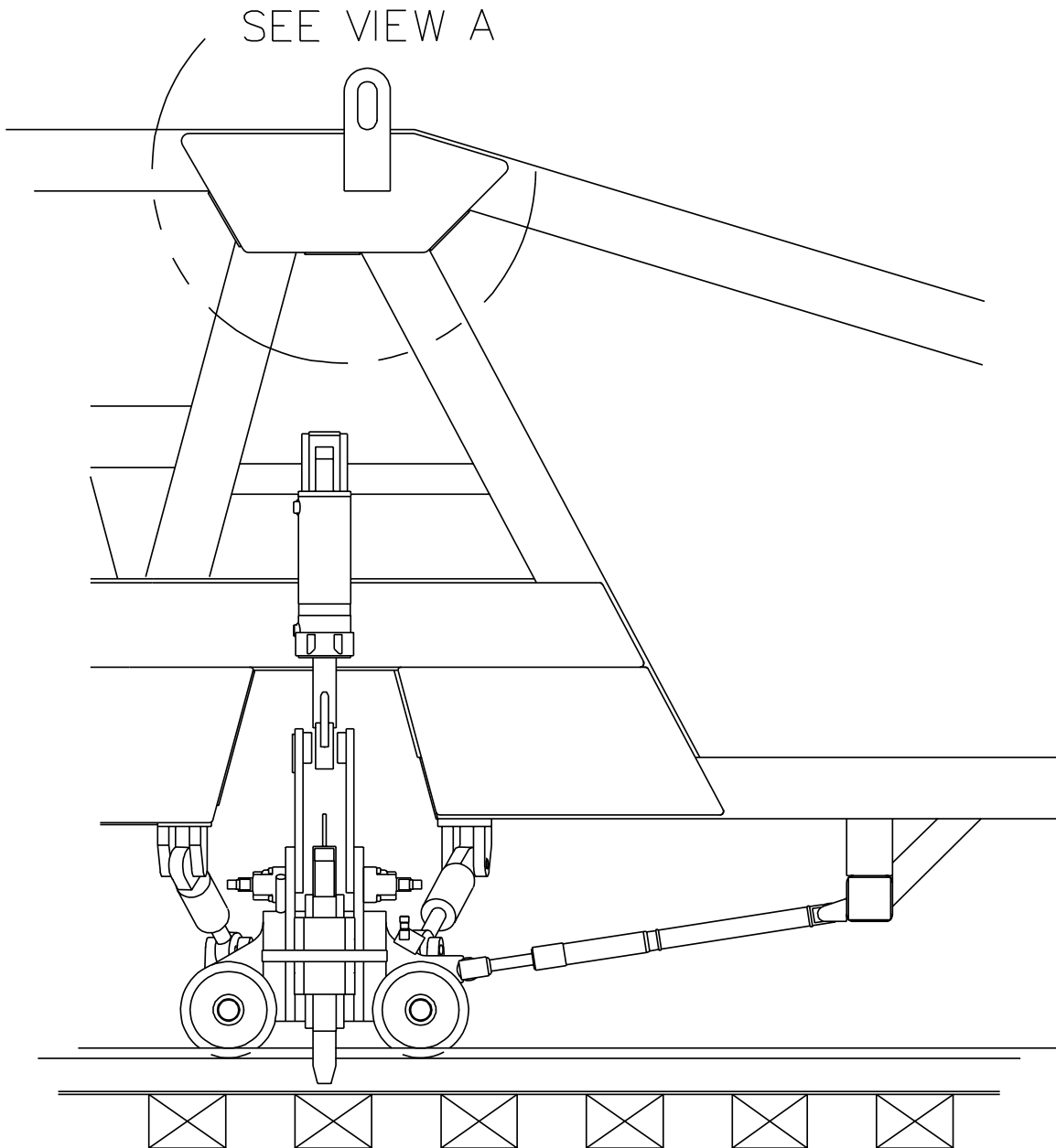
- #230958-1 WITH #231850-2 (9)
- #230956-1 WITH #231851-2 (10)



**430931-3 CONVERSION GROUP PART LIST**

430931-1-2A

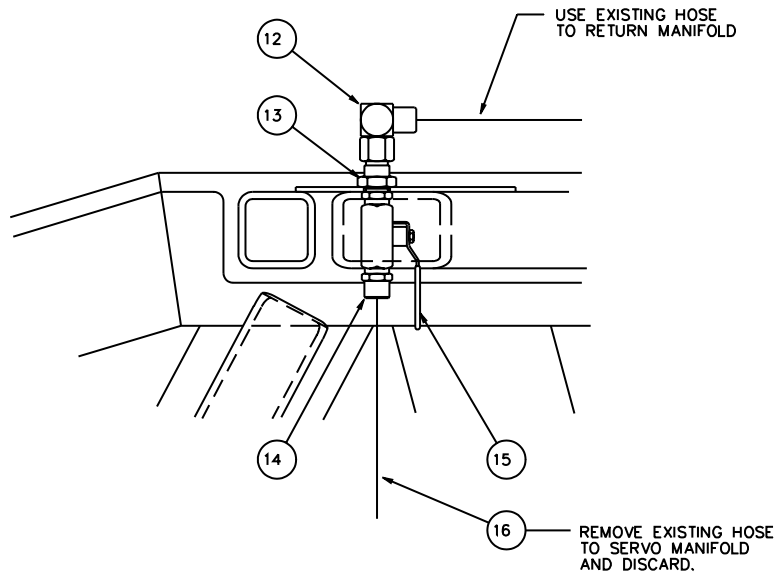
**FIGURE 11**  
**SERVO JACKING / MANUAL LINING TO SERVO JACKING / SERVO LINING**



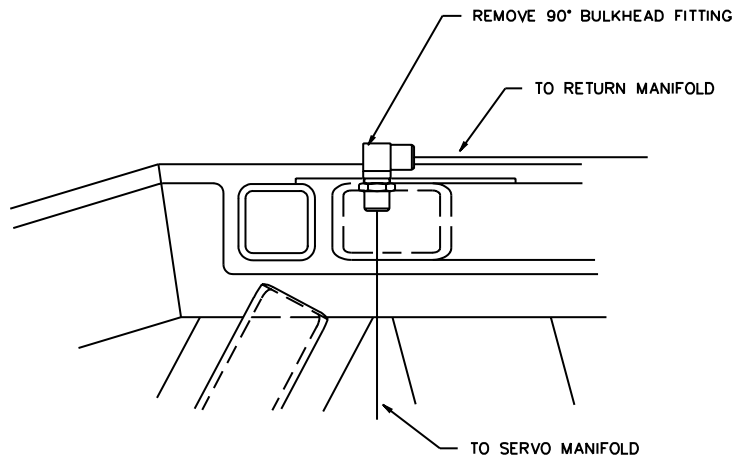
430931-3 CONVERSION GROUP PART LIST

430931-1-2B

FIGURE 12  
SERVO JACKING / MANUAL LINING TO SERVO JACKING / SERVO LINING



AFTER CHANGE  
INSIDE OF VIEW 'A'



BEFORE CHANGE  
INSIDE OF VIEW 'A'

