

Installation Instructions



1515, 2015, 2515, 2015P and 2515P Marker Option

Used with:

- 1515 Soybean Machine
- 2015 Soybean Machine
- 2515 Soybean Machine
- 2015P Bean Machine
- 2515P Bean Machine



When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

General Information

These instructions explain how to install the Marker Option for 3-point soybean machines. The markers fold and unfold hydraulically for field operation. The marker disks leave a line for the bean machine operator to follow on the next field pass. Markers are mounted on the bean machine frame and require two hydraulic remote valves on the tractor. A sequence valve is available so markers can be operated on one hydraulic circuit.

These instructions apply to:

| | |
|----------|---------------------------------|
| 113-666A | 15 Ft. Bean Machine Dual Marker |
| 113-682A | 20 Ft. Bean Machine Dual Marker |
| 113-663A | 25 Ft. Bean Machine Dual Marker |
| 113-466A | 3-Pt Sequence Valve Kit-Field |
| 113-686A | 15 Ft. BM Marker Bolt Plate Kit |

Manual Update

Refer to the soybean machine operator's manual for detailed information on safely operating, adjusting, troubleshooting and maintaining the Marker Option. Refer to the parts manual for part identification.

Manual Numbers

| | |
|----------|---------------------------------------|
| 173-159M | 1515, 2015 and 2515 Operator's Manual |
| 173-159P | 1515, 2015 and 2515 Parts Manual |
| 173-208M | 2015P and 2515P Operator's Manual |
| 173-208P | 2015P and 2515P Parts Manual |

Before You Start

Pages 9 and 10 are a detailed listing of parts included in the Marker Option package. Use this list to inventory parts received.

Assembly Instructions

Marker Assembly, 1515, 2015 and 2015P

Refer to Figure 1.

1. Lower bean machine into field position. Allow 9 feet on each end of a 15-foot bean machine and 11 feet on each end of a 20-foot bean machine for marker assembly.
2. Mount first marker section (1) on bean machine 7 x 5 inch frame tube (2). Mount marker as far out on the frame as possible. Secure marker with 3/4 inch u-bolts (3), lock washers and nuts (4).

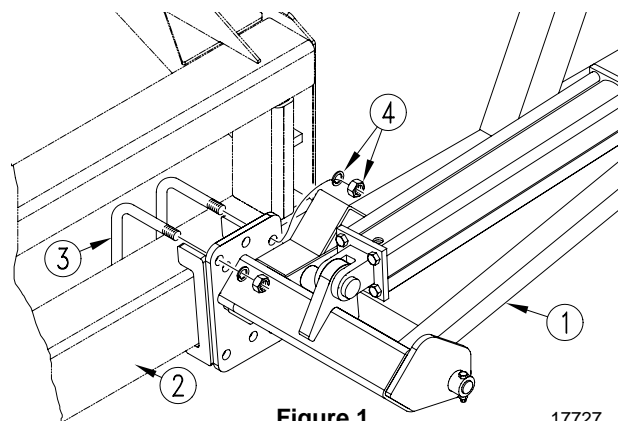


Figure 1
First Marker Section Assembly

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2 | Marker Option

Refer to Figure 2.

3. Remove port plugs on cylinder and carefully unfold first marker section. Rotate hinge section (5) into a horizontal position.
4. Align holes of break-away section (6) with holes in hinge section. Bolt sections together with stop block (7) on break-away section facing up. Use 5/8 inch pivot bolt (8), lock nut (9), 3/8 x 1 3/4 inch, grade 2 shear bolt (10) and lock nut (11).

5. Repeat steps for other marker.

6. Adjust marker disks so they are square with ground when markers are lowered in field position. Refer to *Marker Adjustments* in operator's manual.

IMPORTANT: Be sure shear bolt is a grade 2 bolt. Failure to use a grade 2 bolt can cause marker damage.

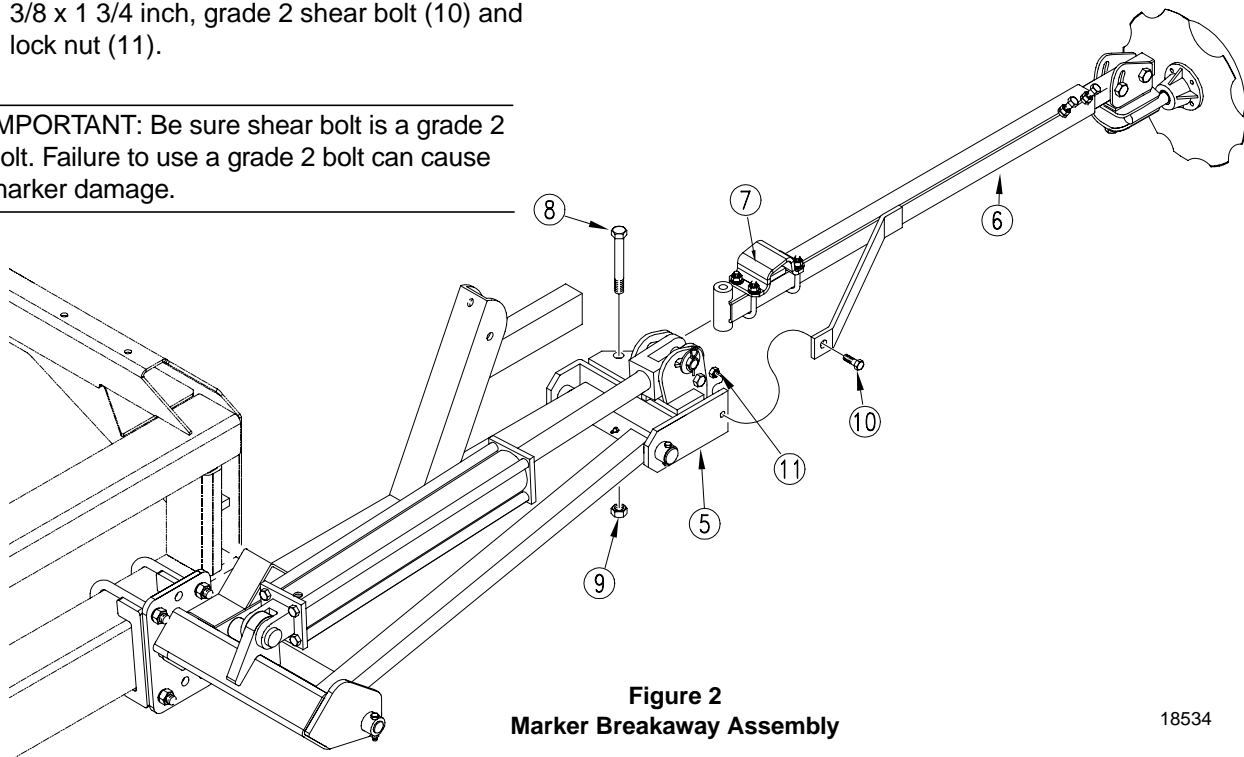


Figure 2
Marker Breakaway Assembly

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Marker Assembly, 1515 Alternate Location

If you will be using the 15-foot bean machine with a dual-tire tractor, mount markers on the 2 x 5 inch vertical frame tube to accommodate the gauge wheels. To mount markers in alternate location, you will need Great Plains kit 113-686A.

Refer to Figure 3.

1. Lower bean machine into field position. Allow 9 feet on each end of bean machine for marker assembly.
2. Mount first marker section (1) on 2 x 5 inch vertical frame tube (2). Place mounting plate (3) behind vertical tube. Use 3/4 inch bolts (4) through marker and mounting plate. Secure bolts with lock washers and nuts (5).
3. Complete steps 3 through 6 on page 2 to complete marker assembly.

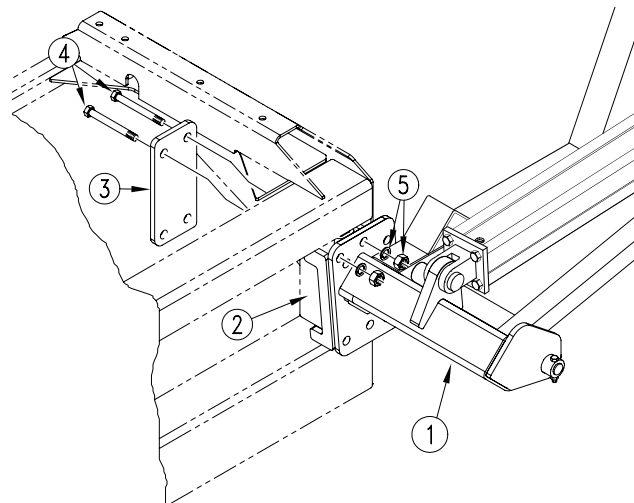


Figure 3
1515 Alternate Mounting

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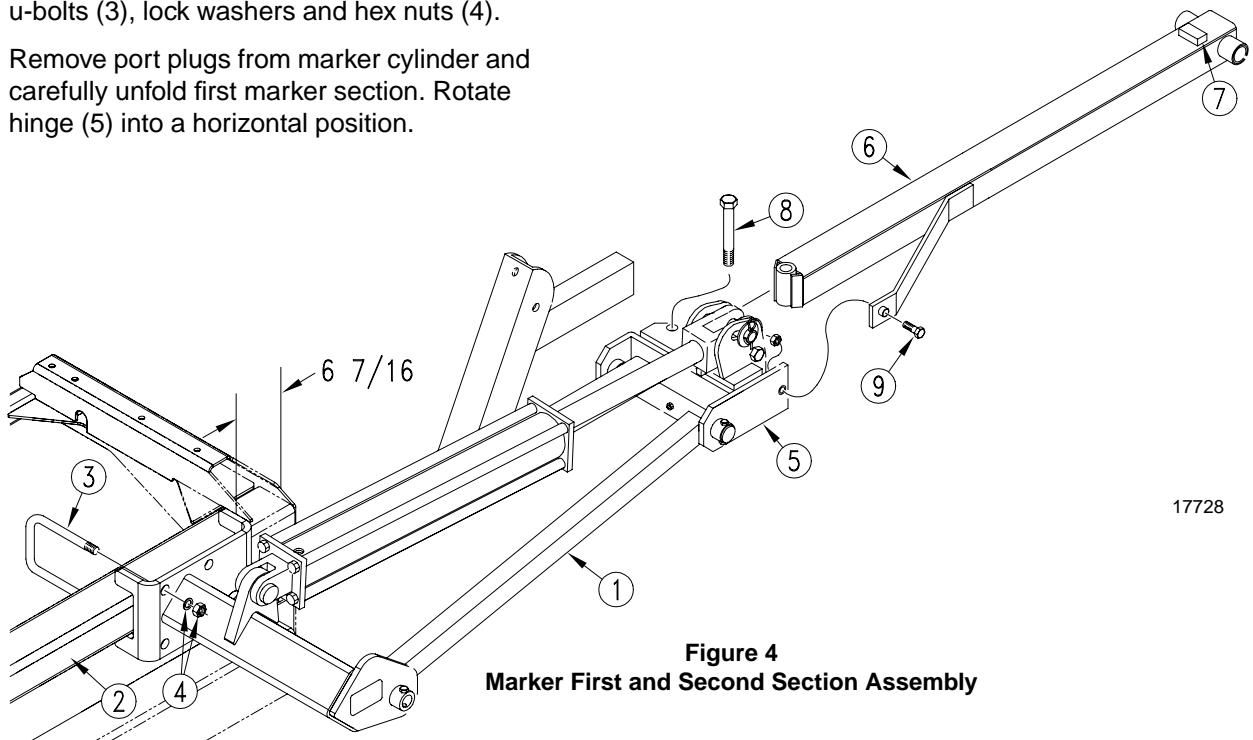
Marker Assembly, 2515 and 2515P

Refer to Figure 4.

1. Lower bean machine into field position. Allow 15 feet of clearance from each end of bean machine box for marker assembly.
2. Attach first marker section (1) to 4 x 5 inch frame tube (2). Mount marker so edge of mount is 6 7/16 inches in from edge of bean machine. Secure marker to bean machine frame with 5/8 inch u-bolts (3), lock washers and hex nuts (4).
3. Remove port plugs from marker cylinder and carefully unfold first marker section. Rotate hinge (5) into a horizontal position.

4. Assemble second marker section (6) onto first section so that stop block (7) on second section faces up. Secure sections with 5/8 inch bolt (8) and lock nut and 3/8 x 2 inch, grade 2 shear bolt (9) and lock nut.

IMPORTANT: Use a grade 2 bolt for the shear bolt or marker damage will occur during field operation.



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Figure 4
Marker First and Second Section Assembly

5. Refer to Figure 5. Place third marker section (10) over end of second section and insert hinge pin (11) through second- and third-section pivot. Secure hinge pin with the 1/4 x 2 inch bolt (12) and lock nut.

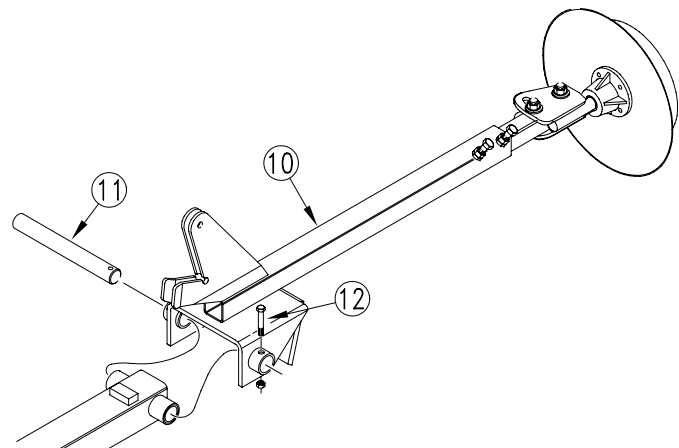


Figure 5
Marker Third Section Assembly

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4 | Marker Option

Refer to Figure 6.

6. Bolt chain pivot (13) to first marker section with 3/8 x 3 1/4 inch bolt (14) and lock nut so chain pivot pivots freely on bolt.
7. Bolt chain bar (15) to third marker section with the 3/8 x 1 1/2 inch bolt (16) and lock nut so chain bar pivots freely on bolt.
8. Connect marker chain (17) to chain bar and chain pivot with utility clevis (18). With marker disk adjusted for seeding width and disk touching the ground, remove chain slack with utility clevis nearest bean machine.
9. Assemble full-threaded, 3/8 inch stop bolt (19) and lock nuts on lift-arm extension (20) so head of stop bolt extends as little as possible. After the marker is bled and folded, adjust stop bolt to remove slack from chain. Refer to *Marker Chain Adjustments* in the operator's manual.

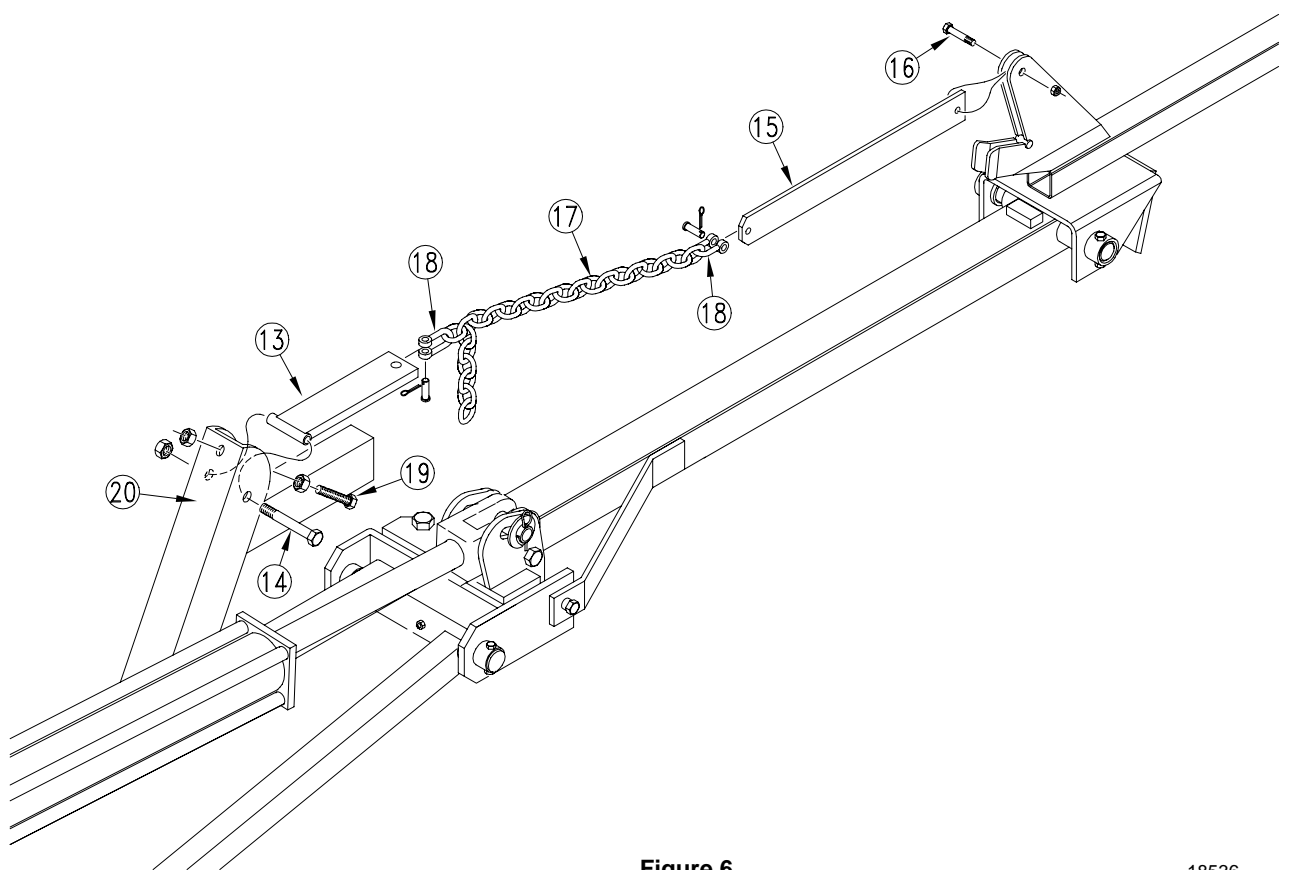


Figure 6
Marker Chain Assembly

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Carrier Assembly, 2015 and 2515

To assemble carrier onto bean machine frame, refer to Figure 7. Refer to Table 1 for mounting dimensions.

1. Assemble transport-carrier mount (1) on bean machine frame. Center mount A inches from outside end of bean machine frame. Use $1/2 \times 6 \frac{1}{32} \times 7$ inch u-bolts (2), flat washers, lock washers and hex nuts (3). Slide mount forward so its leading edge is about B inches ahead of front edge of bean machine frame tube.
2. Bolt transport carrier (4) to transport-carrier mount so top surface of saddle (5) is about C inches above top of bean machine frame tube. Secure transport carrier with $1/2 \times 2 \times 3$ inch u-bolts (6), lock washers and hex nuts (7).
3. After installing and bleeding hydraulics, transport carrier may require further adjustment. When folded, the second marker section should rest in the transport-carrier saddle. Refer to *Marker Adjustments* in the operator's manual.

| Dimension | 20-Foot Bean Machine | 25-Foot Bean Machine |
|-----------|----------------------|----------------------|
| A | 38 inches | 55 1/2 inches |
| B | 3 1/16 inches | 2 5/8 inches |
| C | 29 inches | 36 3/8 inches |

Table 1
Carrier Mounting Dimensions

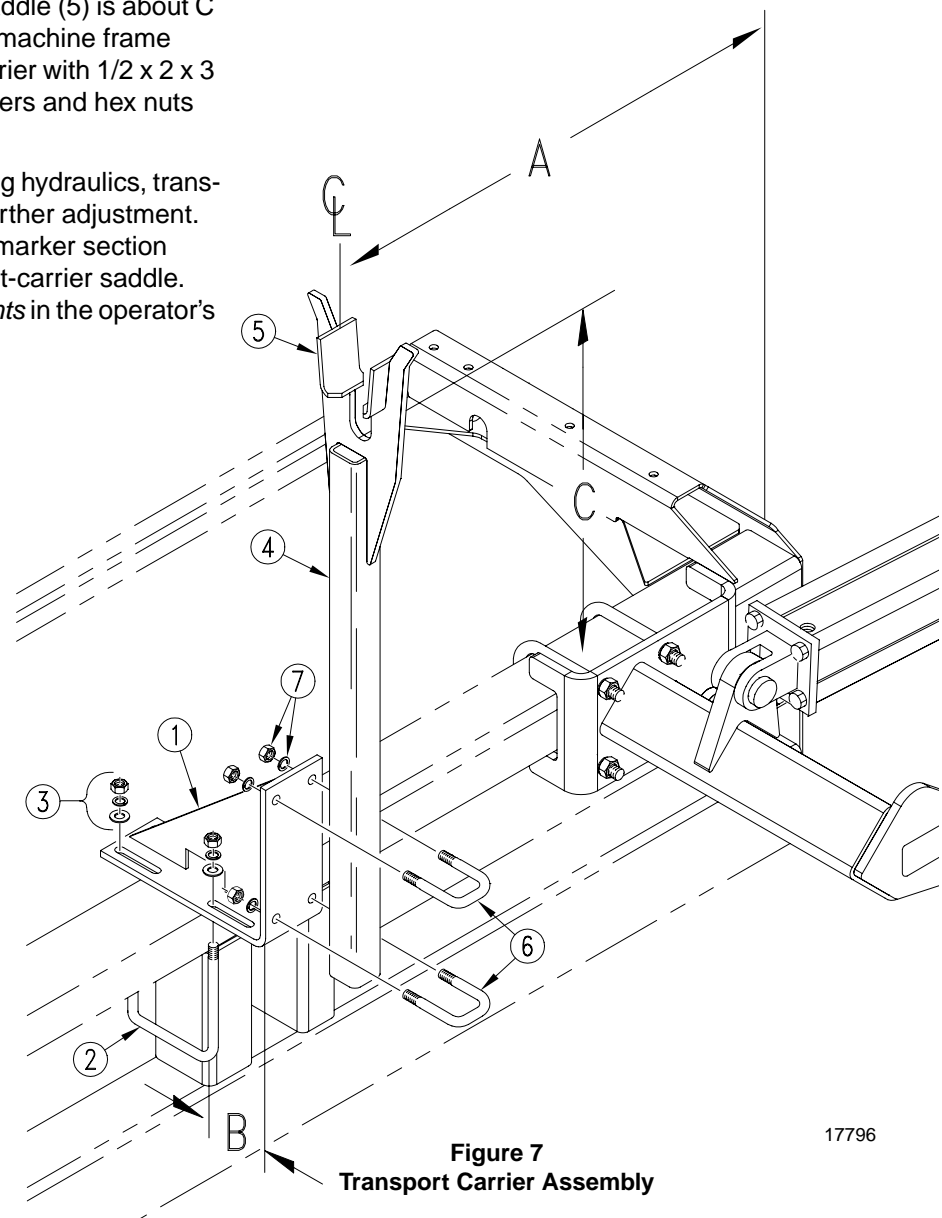


Figure 7
Transport Carrier Assembly

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Installing Marker Hydraulics

Without Sequence Valve

Refer to Figure 8.

1. Install elbow fittings (1) in cylinder ports.
2. At rod end of each cylinder, install an adaptor (2) into elbow fitting. Install a needle valve (3) in adaptor.

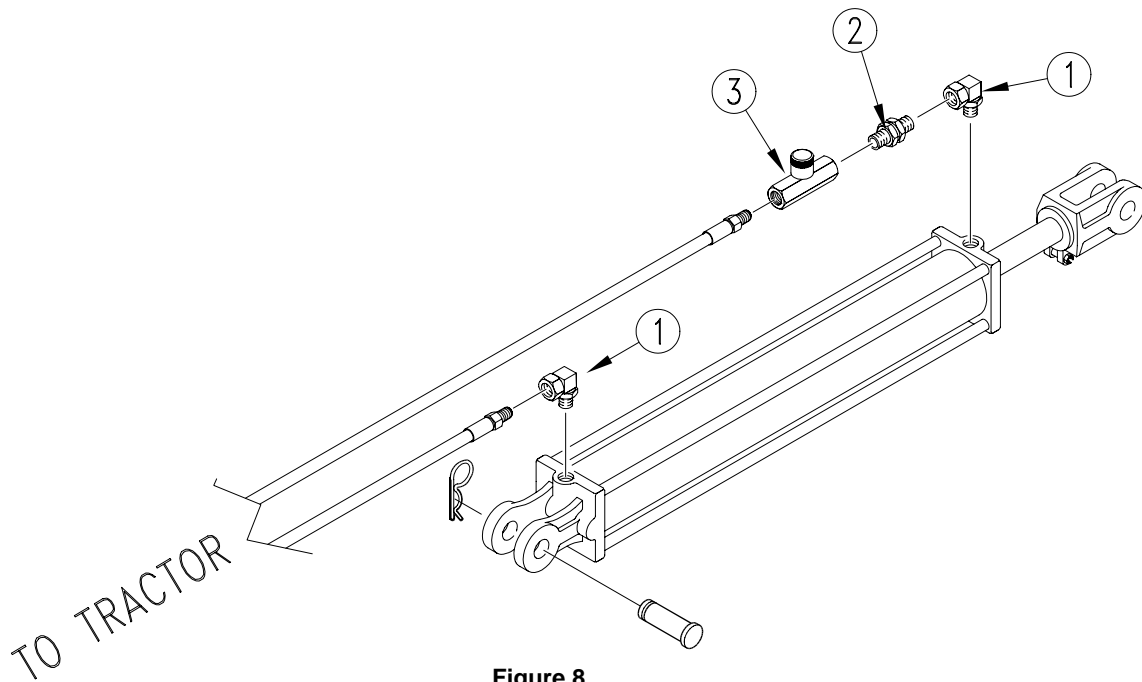


Figure 8
Needle Valve Assembly

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3. Connect hydraulic hoses to fittings and route hydraulic hoses to tractor outlets. Route hydraulic hoses through transport-carrier mount at cutout. Use black cable ties to secure hydraulic hoses to bean machine frame.
4. Using orange cable ties, secure a plastic hose holder to each pair of hydraulic hoses near tractor outlets. See Figure 9.
5. Proceed with "Bleeding Marker Hydraulics," page 8.

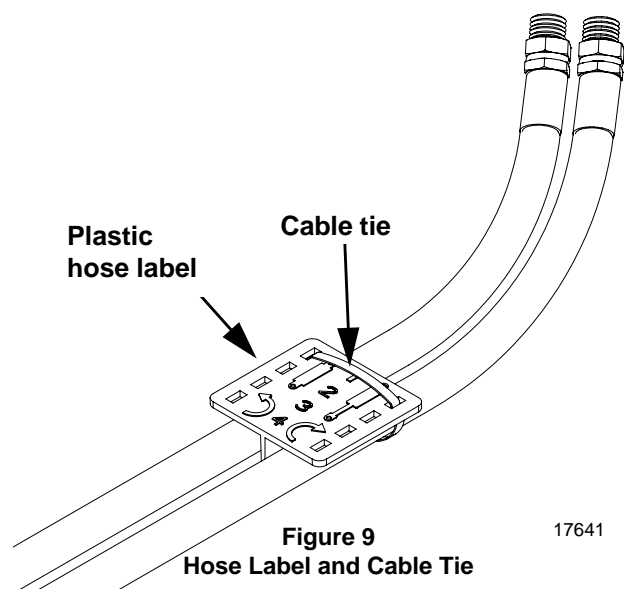


Figure 9
Hose Label and Cable Tie

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With Sequence Valve

Refer to Figure 10.

1. Mount sequence valve (1) on bean machine using mounting plate (2). Bolt plate to inside end of left-hand-box panel (3) using one 1/2-inch hex bolt (4).
2. Bolt valve to mounting plate with two 3/8 x 3/4-inch hex bolts and lock washers (5).
3. Install elbow fittings in cylinder ports. Discard adaptor fitting and two needle valves provided in marker kit.
4. Use hoses provided to connect valve ports to cylinders. Refer to Figure 11 for port connections.
5. Connect your own hydraulic hoses to ports on front of valve. Route hoses to tractor outlets.
6. Using orange cable tie, secure plastic hose label to hydraulic hoses near tractor outlets. See Figure 9 on the previous page.
7. Proceed with "Bleeding Marker Hydraulics," page 8.

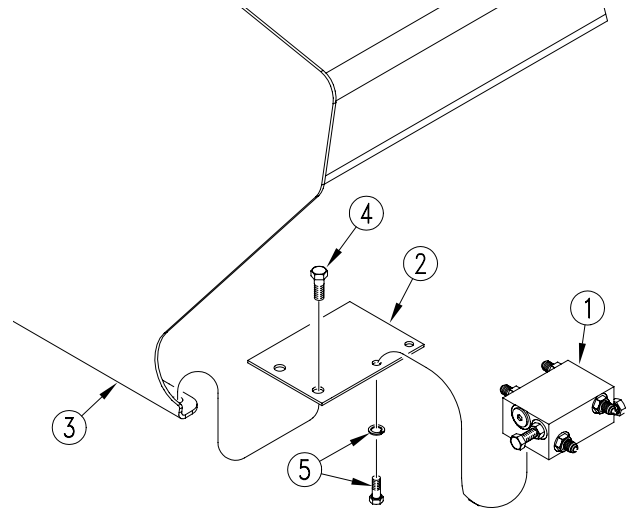


Figure 10
Sequence Valve Assembly

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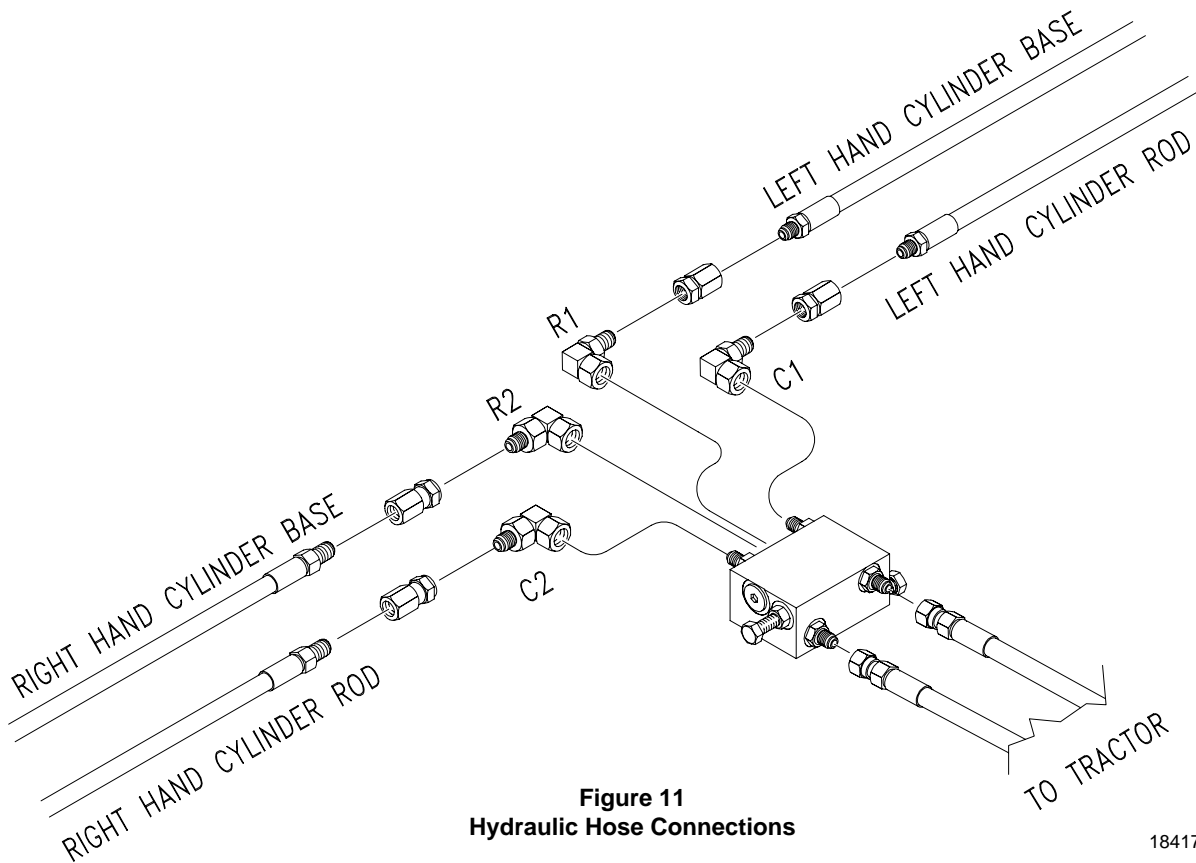


Figure 11
Hydraulic Hose Connections

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Bleeding Marker Hydraulics



CAUTION!

You may be injured if hit by a folding or unfolding marker. Markers may fall quickly and unexpectedly if the hydraulics fail. Never allow anyone near the bean machine when folding or unfolding the markers.



WARNING!

Escaping fluid under pressure can have sufficient pressure to penetrate the skin. Check all hydraulic lines and fittings before applying pressure. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, not body parts, and wear heavy gloves to check for suspected leaks. If injured, seek medical assistance from a doctor that is familiar with this type of injury. Foreign fluids in the tissue must be surgically removed within a few hours or gangrene will result.

1. Check that tractor hydraulic reservoir is full.
2. With both markers lowered into field position, loosen hydraulic-hose fittings at rod and base ends of marker cylinders. If applicable, loosen fittings on back side of sequence valve.

IMPORTANT: Never bleed an O-ring fitting. Instead, bleed a nearby pipe or JIC fitting.

3. With tractor idling, activate tractor hydraulic valve until oil seeps out around a loosened fitting. Tighten that fitting.

IMPORTANT: JIC fittings do not require high torque. JIC and O-ring fittings do not require sealant. Always use liquid pipe sealant when adding or replacing pipe-thread fittings. To avoid cracking hydraulic fittings from over tightening, do not use plastic sealant tape.

4. Reactivate tractor hydraulic valve until oil seeps out around another loosened fitting. Tighten that fitting. Repeat process until all loosened fitting have been bled and tightened.
5. Adjust marker folding to a safe speed. Refer to *Marker Adjustment* in the operator's manual.

113-666A 15 Ft. Bean Machine Dual Marker

Your kit includes:

| Qty. | Part No. | Part Description |
|------|----------|----------------------------|
| 1 | 113-598V | 15' DUAL FF HOSE BUNDLE |
| 1 | 113-680K | 15FT BM DUAL MARKER BUNDLE |
| 1 | 113-681K | 15FT BM DUAL MARKER HRDWR |
| 1 | 113-685M | MANUAL BM MARKERS-99 |
| 2 | 800-300C | CABLE TIE 2 DIA MIN - ORG |
| 2 | 817-348C | PLASTIC HOSE LABEL |

113-682A 20 Ft. Bean Machine Dual Marker

Your kit includes:

| Qty. | Part No. | Part Description |
|------|----------|-----------------------------|
| 1 | 113-597V | 20' DUAL FF HOSE BUNDLE |
| 1 | 113-683K | 20FT BM DUAL MARKER BUNDLE |
| 1 | 113-684K | 20FT BM DUAL MARKER HRDWR |
| 1 | 113-685M | MANUAL BM MARKERS-99 |
| 2 | 800-300C | CABLE TIE 2 DIA MIN - ORG |
| 2 | 817-348C | PLASTIC HOSE LABEL |
| 2 | 838-265C | DECAL REFLECTOR AMBER 1 1/2 |

113-663A 25 Ft. Bean Machine Dual Marker

Your kit includes:

| Qty. | Part No. | Part Description |
|------|----------|-----------------------------|
| 1 | 113-624V | 24' 3PT DUAL MARKER HOSE B |
| 1 | 113-678K | 25FT BM DUAL MARKER BUNDLE |
| 1 | 113-679K | 25FT BM DUAL MARKER HRDWR |
| 1 | 113-685M | MANUAL BM MARKERS-99 |
| 2 | 800-300C | CABLE TIE 2 DIA MIN - ORG |
| 2 | 817-348C | PLASTIC HOSE LABEL |
| 2 | 838-265C | DECAL REFLECTOR AMBER 1 1/2 |

10 Marker Option**113-466A 94 3Pt Sequence Valve Field Kit**

Your kit includes:

| Qty. | Part No. | Part Description |
|------|----------|----------------------------|
| 1 | 113-488D | SEQUENCE VALVE MOUNT BRACK |
| 2 | 802-014C | HHCS 3/8-16X3/4 GR5 |
| 2 | 804-013C | WASHER LOCK SPRING 3/8 PLT |
| 1 | 810-197C | VALVE,SEQUENCE SHOEMAKER |
| 4 | 811-169C | EL 9/16MJIC 9/16FJIC |
| 4 | 811-440C | AD 1/2FNPT X 9/16FJICS |
| 1 | 113-488D | SEQUENCE VALVE MOUNT BRACK |
| 2 | 802-014C | HHCS 3/8-16X3/4 GR5 |
| 2 | 804-013C | WASHER LOCK SPRING 3/8 PLT |
| 1 | 810-197C | VALVE,SEQUENCE SHOEMAKER |
| 4 | 811-169C | EL 9/16MJIC 9/16FJIC |
| 4 | 811-440C | AD 1/2FNPT X 9/16FJICS |
| 1 | 113-671H | 25 BM LH MARKER MOUNT |

113-686A 15 Ft. BM Marker Bolt Plate Kit

Your kit includes:

| Qty. | Part No. | Part Description |
|------|----------|----------------------------|
| 2 | 113-661D | BM MARKER MOUNT BOLT PLATE |
| 8 | 802-095C | HHCS 3/4-10X7 GR5 |
| 8 | 803-027C | NUT HEX 3/4-10 PLT |
| 8 | 804-023C | WASHER LOCK SPRING 3/4 PLT |