

KEITH
MANUFACTURING CO

Compact Drive

KEITH Manufacturing Co.

www.KeithWalkingFloor.com

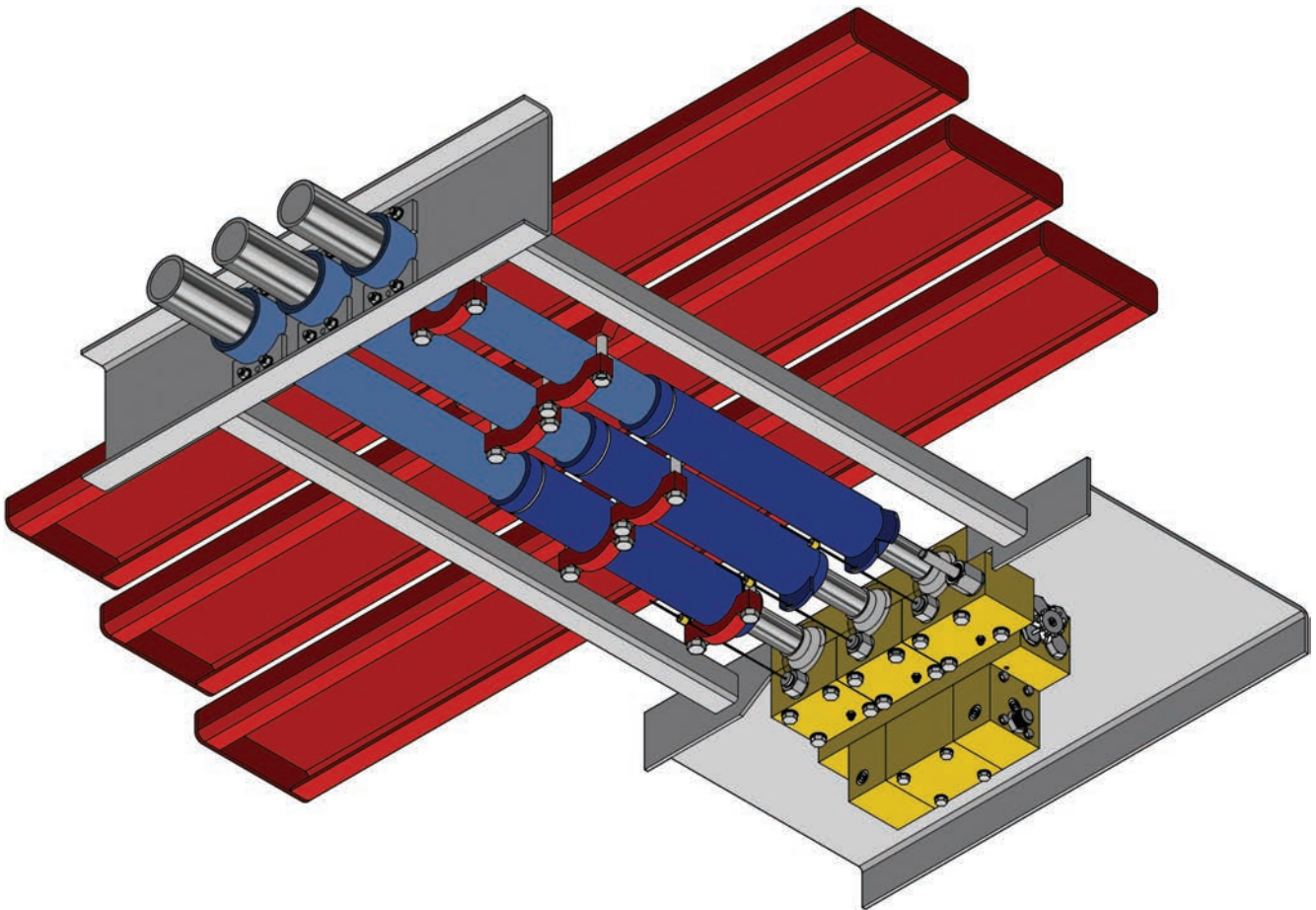
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35073



OWNER OPERATOR MANUAL & PARTS CATALOG

Original Instructions

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Not all parts or services available in all regions. Some components may only be sold assembled or in kits. Contact your regional office for information on available parts and services.

Service Information

- Use hydraulic oil or Vaseline to lubricate seals. Do NOT use grease.
- Do NOT use Teflon tape on any hydraulic components.
- When welding on drive frame, ground specifically to what you are welding on, otherwise it can short across component assemblies damaging seals and gaskets.
- KEITH sells flow meters, pressure testers for troubleshooting and several tools to aid in rebuilding components and drives.

Please have the following information readily available before contacting KEITH for support:

- Model Number (Located on the Serial Plate of the drive unit)
- Serial Number (Located on the Serial Plate on the drive unit)
- Quantity & length of floor slats
- Vehicle make and unit installer

KEITH® Standard Drive *WALKING FLOOR*® Unloading System Limited Warranty

1 Year Limited Warranty

KEITH Manufacturing Co. hereby warrants, to the first owner of a new **KEITH® Standard Drive Unloading System** from the factory or selling distributor, that the product shall be free from defects in material and workmanship for a period of **one year** after delivery or sale to the first registered owner. This warranty does not cover normal wear and tear and maintenance. A warranty card must be filled out and returned to KEITH Manufacturing Co. to activate this warranty.

Unloading system must only be used as recommended by KEITH Manufacturing Co. for normal use and service. This means the loading and/or unloading of uniformly distributed, non-corrosive material, properly restrained and secured, on properly maintained public roads, with gross vehicle weights not in excess of factory rated capacity. For stationary installations, normal use and service means the conveying of uniformly distributed, noncorrosive materials, with weights not in excess of factory rated capacity. The system must be installed according to **KEITH Manufacturing Co.** installation instructions. Preventative maintenance must be performed at regular intervals as specified in **KEITH Manufacturing Co.** manuals. ***See below for circumstances that void the KEITH limited warranty.***

Sole and Exclusive Remedy: If the product covered hereby fails to conform to the above stated warranty, **KEITH Manufacturing Co.**'s sole liability under this warranty and the owner's sole and exclusive remedy is limited to repair or replacement of the defective part(s) at a facility authorized by **KEITH Manufacturing Co.**

THE WARRANTY SET FORTH ABOVE IS EXPRESSLY MADE IN LIEU OF ANY OTHER WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY. KEITH MANUFACTURING CO. MAKES NO WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR WARRANTIES OF MERCHANTABILITY. FURTHER, KEITH MANUFACTURING CO. WILL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES SUCH AS, BUT NOT LIMITED TO, THE LOSS OF USE OF THE PRODUCT, DAMAGE TO THE PRODUCT, ATTORNEY'S FEES AND THE LIABILITY IN RESPECT TO ANY OTHER REASON.

TORT DISCLAIMER: KEITH MANUFACTURING CO. EXCLUDES ANY LIABILITY IN TORT WITH RESPECT TO THEIR PRODUCTS, INCLUDING ANY LIABILITY BASED ON STRICT LIABILITY IN TORT AND NEGLIGENCE.

If This Warranty Violates Law: To the extent any provision of this warranty, contravenes the law of any jurisdiction, that provision shall be inapplicable in such jurisdiction and the remainder of the warranty shall not be affected thereby.

Warranty Return Policy

Any defective part(s) must be shipped freight prepaid to the nearest **KEITH** facility. Please contact **KEITH** for additional information on proper locations. Before returning any item for repair or replacement, contact **KEITH Manufacturing Co.** at 1-800-547-6161 or TechDept@KeithWalkingFloor.com for a "Returned Goods Authorization" (RGA) number. Make sure the RGA number is on the outside of the shipping carton and all paperwork is included.

The following information is needed:

- | | |
|-----------------|------------------------------|
| a. Company name | e. Part number |
| b. Contact name | f. Quantity |
| c. Address | g. Reason for return |
| d. Phone number | h. Customer's account number |

The following circumstances void the KEITH Limited Warranty:

- Unloading system is not installed properly.
- Wet kit is not as recommended by KEITH or using an end dump or dump truck wet kit.
- Malfunction or problems caused by equipment which was not supplied by KEITH.
- Malfunction caused by improper repair work or repair work which is carried out by third parties.
- Malfunction caused using contaminated oil or oil of the wrong type.
- Malfunction caused by excessive heat over 140 °F [60 °C] due to a bad hydraulic pump on the truck or hydraulic wet kit or improper operation of the unloading system, for example, not fully opening and closing the ball valve.
- Defects in electrical components caused by incorrect connection and/or incorrect voltage levels.
- Preventative maintenance is not performed at regular intervals as specified in KEITH manuals.
- Malfunction caused by corrosive materials.
- Malfunction caused by overloading or improper use as stated in KEITH manuals.

Examples of wear items which are not covered by KEITH Limited Warranty:

- Floor seals
- Floor bearings
- Floor slats
- End plugs in slats
- Filter elements and components

1.0 Specifications

1.1 Hydraulic Drive Unit

Drive Style:		80 mm	90 mm	100 mm
Cylinder Bore Diameter:		3.15 in [80 mm]	3.54 in [90 mm]	3.94 in [100 mm]
Required Relief Valve Pressure Range:	Min:	2,800 PSI [195 bar]	2,800 PSI [195 bar]	2,800 PSI [195 bar]
	Max:	3,000 PSI [210 bar]	3,000 PSI [210 bar]	3,000 PSI [210 bar]
Maximum Pump Flow Rate:		30 gal/min [113 liters/min]	30 gal/min [113 liters/min]	30 gal/min [113 liters/min]
Max Temperature:		140 °F [60 °C]	140 °F [60 °C]	140 °F [60 °C]

Floor Speed vs Pump Flow Rate

Truck RPM	Pump Output	80 mm	90 mm	100 mm
		* Floor Speed		
500	10 gallon	4.9 ft./minute	3.7 ft./minute	2.9 ft./minute
550	15 gallon	7.4 ft./minute	5.6 ft./minute	4.4 ft./minute
725	20 gallon	9.8 ft./minute	7.5 ft./minute	5.8 ft./minute
1050	30 gallon	14.7 ft./minute	11.2 ft./minute	8.7 ft./minute

* With a Fuller 13 or 15 speed transmission, a bottom mount 118% series 442/489 Chelsea power take off and a Commercial P-51 pump with a 2 1/2" gear. Load/Unload times vary with pump flow rate, length of trailer, material type or other environmental variables.

1.2 General Wet Kit Specifications

Transmission	This wet kit is designed for a Fuller 13 or 15 speed transmission. All of the following information applies to this transmission. (P.T.O. specifications may vary with other transmissions. Please check with KEITH Mfg. Co. for specifications.)
Oil	Chevron AW46 hydraulic oil or equivalent.

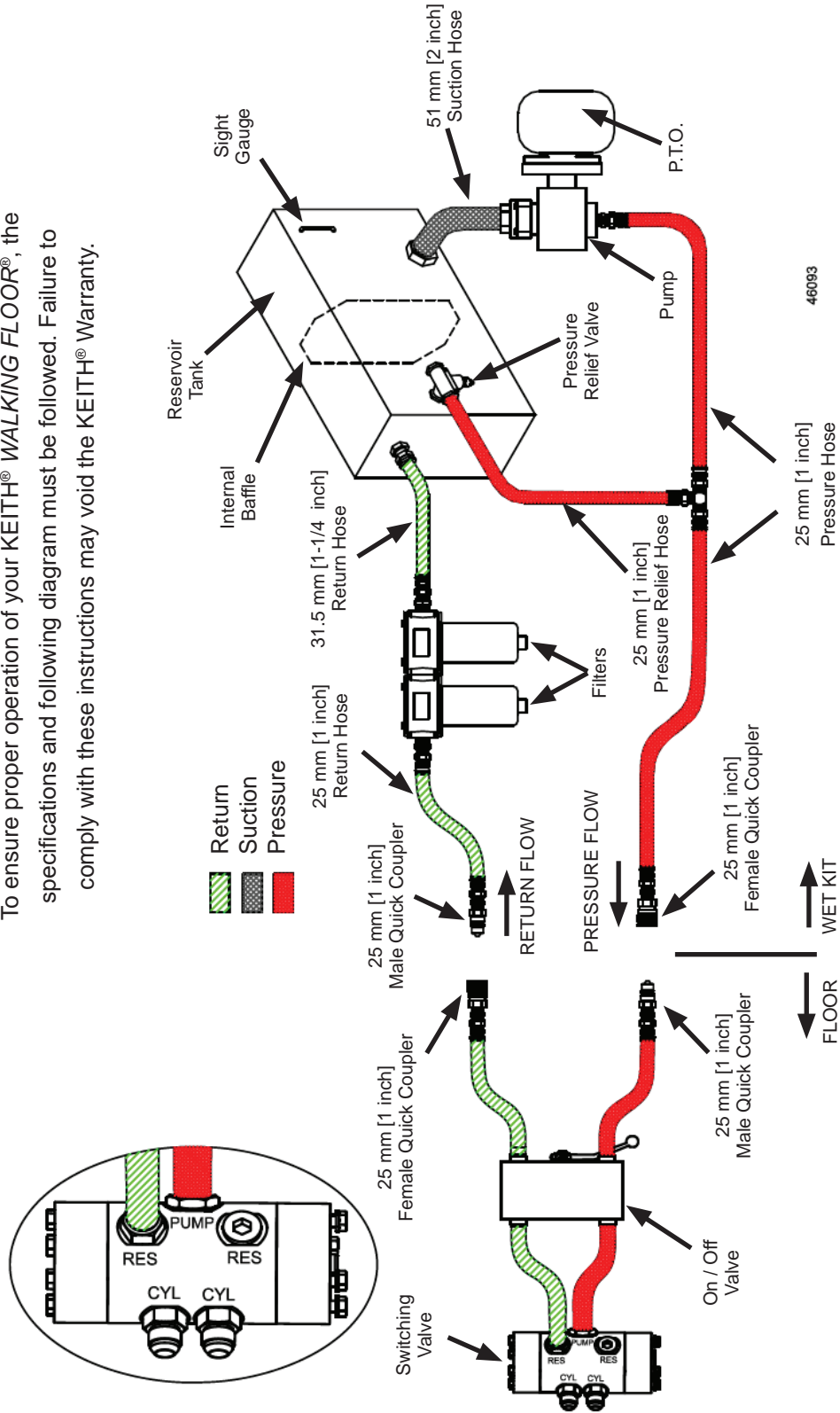
* PTO & Pump	Chelsea series 442/489 bottom mount (6 or 8 bolt) 118% power take off (electric over speed is highly recommended), or Muncie P.C. 65 with electric over speed. Commercial P-51 A297BE (Spl.) 25-25 (2" four bolt suction) with AnchorW43-32-32 flange.
Filter	Filter should be 10 to 30 micron on the return line. Filter should be a double element Zinga (or equivalent). Filter head #DF-15-25. MF 2215-25-0-2-0 Filter element #LE-10 or LE-30 (The filter element should be changed after the initial 6 hours of operation, then every 6 months thereafter. This may vary with the operating environment).
Hydraulic Reservoir	Sized to desired flow rate. Should hold approximately 1 liter [1 gallon] of oil for every liter per minute [gallon per minute] you plan to pump, i.e. 113 liters/min [30 gal/min] = 113 liter [30 gallon] reservoir. Minimum size 113 liters [30 gallons]
Suction Line	Unless tank is mounted above the pump, the suction line from the tank to the pump should be no more than 1.5 m [5 ft] in length with a minimum inside diameter of 51 mm [2 inch] [-32]. Must use suction hose ONLY! SAE-100R4
Pressure Line	Hose from truck to trailer should be rated at 3000 PSI minimum with a minimum inside diameter of 25 mm [1 inch] [-16]. SAE-100R2
Return Lines	Hose from trailer to wet kit filter should be rated at 3000 PSI minimum with a minimum inside diameter of 25 mm [1 inch] [-16]. SAE-100R1 Hose from wet kit filter to reservoir tank should be rated at 3000 PSI minimum with a minimum inside diameter of 31.5 mm [1¼ inch] [-20]. SAE-100R1
* Pressure Relief Valve	High quality valve, capable of relieving maximum pump flow rate at 210 bar [3000 PSI]. Relief valve must be set above cracking pressure ~ 195 bar [2800 PSI] and no higher than full open relief pressure ~ 210 bar [3000 PSI] Example: Cross #RD12D
Contact KEITH in your region for specific recommendations and advice regarding wet kits.	

* If the information about your pump and pressure relief valve is not known, have a pressure/flow check done by a professional.

1.3 Floor to Wet Kit Diagram

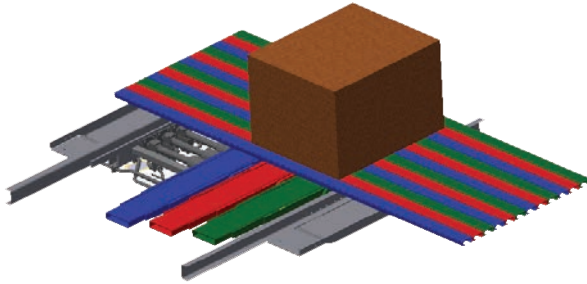
IMPORTANT

To ensure proper operation of your KEITH® WALKING FLOOR®, the specifications and following diagram must be followed. Failure to comply with these instructions may void the KEITH® Warranty.



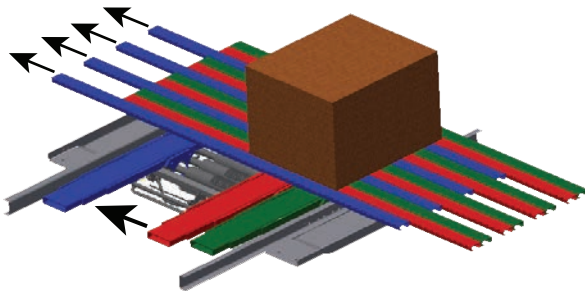
2.0 Operation

2.1 How It Works



Initial Stage

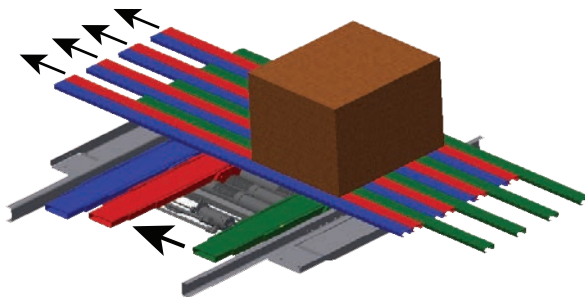
All slats are staged together toward the direction of material travel (discharge end).



Stage 1

The first group of slats (approximately every 3rd slat) moves under the load.

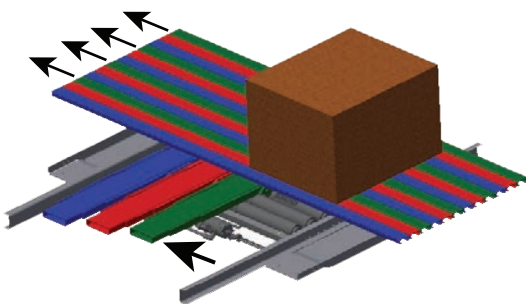
Load does not move.



Stage 2

The second group of slats moves under the load.

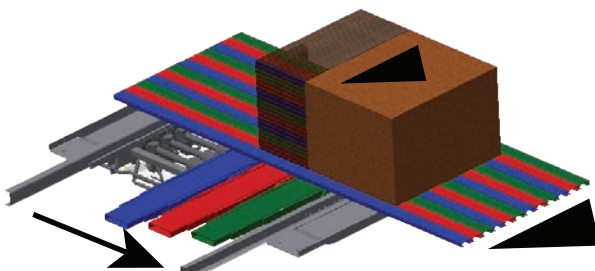
Load does not move.



Stage 3

The final group of slats moves under the load.

Load does not move.



Stage 4

All slats move together.

Load moves with the floor toward the discharge end.

(Stages 1, 2 & 3 require more pressure than Stage 4.)

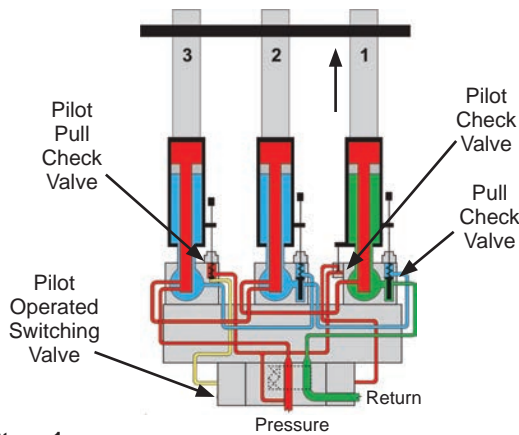
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2.2 Oil Flow Diagram

UNLOADING CYCLE



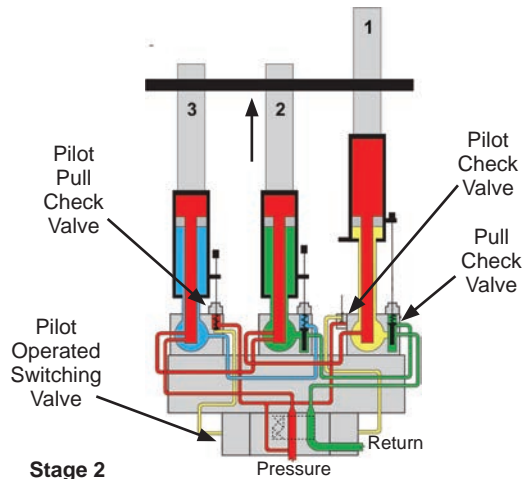
Front of Trailer - Viewed From Underneath



Stage 1

- Pressure in the rear of all cylinders.
- Cylinder #1 is open to return, causing it to move. (Load does not move.)
- Blocked by check valves.

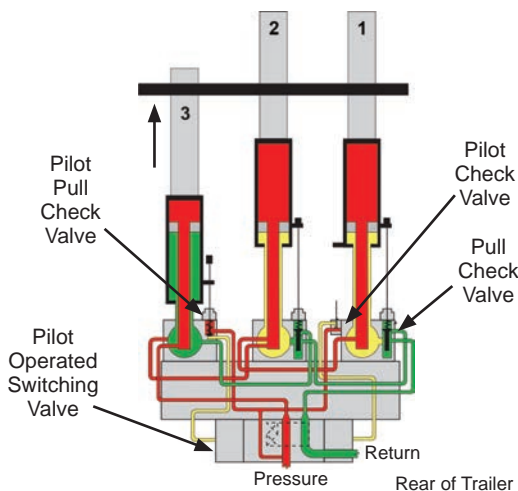
Note: Stage 1 requires more pressure than stage 4.



Stage 2

- Pressure still in rear of all cylinders.
- Cylinder #1 completes its full stroke, opening the check valve, allowing the oil in cylinder #2 to escape, causing it to move. (Load does not move.)
- Blocked by check valve.

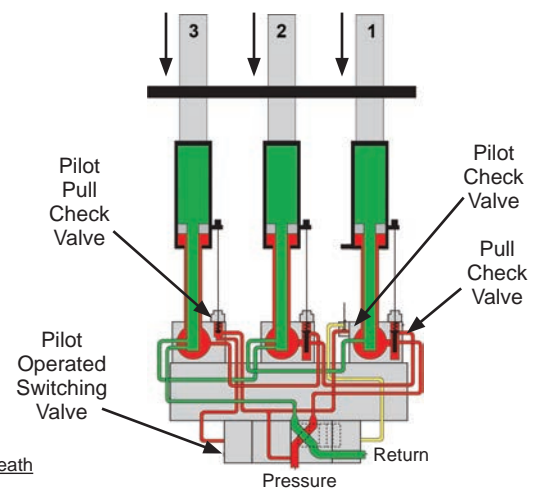
Note: Stage 2 requires more pressure than stage 1.



Stage 3

- Pressure still in rear of all cylinders.
- Cylinder #2 completes its full stroke, opening the check valve, allowing the oil in cylinder #3 to escape to return, causing it to move. (Load does not move.)

Note: Stage 3 requires more pressure than stage 2.



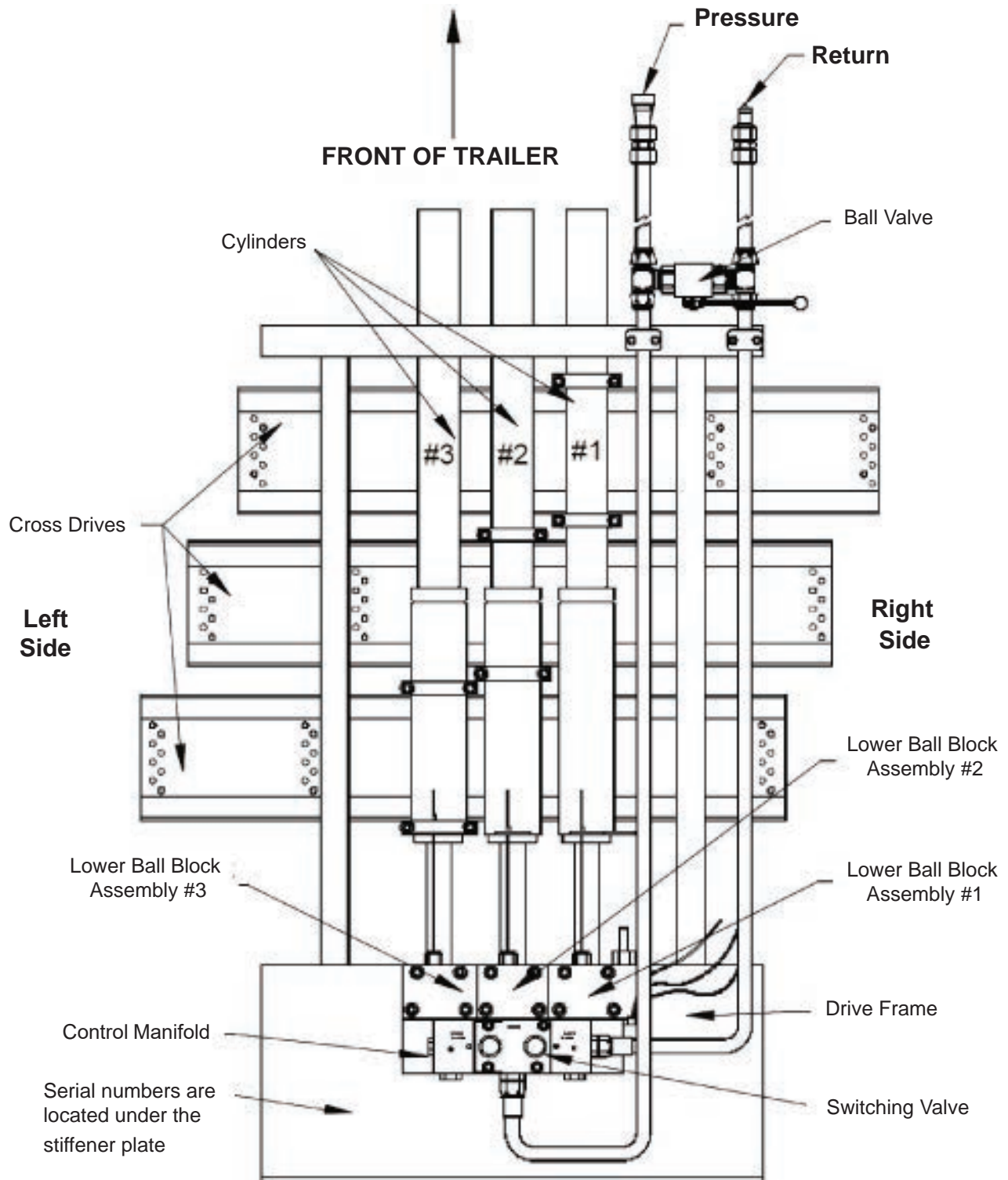
Stage 4

- Cylinder #3 completes its stroke, shifting the switching valve, which reverses pressure and return, transferring the pressure to the front of all cylinders.
- All cylinders are now open to return and move to the rear of the trailer together, moving the load.

As the cylinders complete their stroke, cylinder #1 shifts the switching valve, which reverses pressure and return, transferring the pressure to the rear of all cylinders again and the cycle starts over.

Note: Stage 4 requires less pressure than stages 1, 2, or 3.


2.3 Component Location Guide




2.4 Pre-Trip Checklist

- ✓ Inspect hoses and quick connectors for damage and contamination. Clean all dirt and water from connectors before hooking up (if applicable).
- ✓ Inspect drive unit for leaking fittings or hoses, and visible damage.
- ✓ Open truck or trailer doors and inspect flooring for damage. Inspect flooring at the rear of the truck or trailer for loose or bent slats that may have popped up.
- ✓ Hook up hydraulic connectors (if applicable). Pressure line of tractor to pressure line on trailer. Return line on tractor to return line on trailer. Operate the floor and inspect for leaks. Test the On/Off for proper operation. Test the load/unload for proper operation.
- ✓ If problems are found, report them to the maintenance shop as soon as possible.
- ✓ Secure truck or trailer doors and proceed.

As the driver, you will see damage or operational problems before anyone else. Please report issues and concerns as soon as possible.

 **WARNING:** Observations may be made while system is operating for troubleshooting purposes, but **NEVER** touch any moving part or attempt to make any adjustments to the system with the Power Take Off/Pumping system engaged or the *WALKING FLOOR*[®] unloader operating.

 **WARNING:** Do not attempt to make adjustments or repairs without consulting with a trained service technician from your company or KEITH (See 5.4 Technical Support section for contact information.)

2.5 Standard Operating Procedure

⚠ DANGER: ALWAYS have doors fully open! NEVER, under any circumstances, engage the *WALKING FLOOR*[®] unloader with the doors of the truck/trailer closed. Catastrophic failure to the truck/trailer, as well as serious injury or death may occur.

⚠ DANGER: Use caution when opening doors. Material can become compacted against doors and they can open violently causing serious injury or death.

⚠ DANGER: NEVER allow anyone to stand or move through the area where the load is being discharged or go under truck/trailer body or enter truck/trailer while the system is operating. Burial, loss of limb or life may occur.

⚠ WARNING: While unloading, NEVER leave truck and trailer unattended.

2.5.1 Drive with Ball Valve

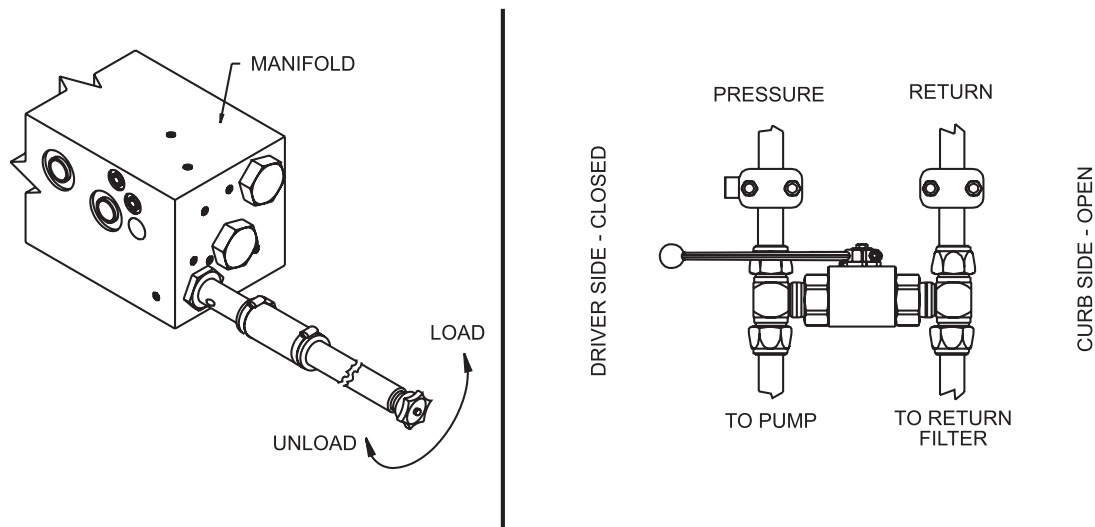


Diagram A: Control Valve Diagram B: Ball Valve

2.5.1.1. Unloading

1. Turn the control valve clockwise. (See diagram A.)
2. Make sure the ball valve (between the pressure and return lines) is in the closed position. (See diagram B.) This ball valve is used for the emergency shut-off.
3. Engage the P.T.O., then bring the tractor engine up to a predetermined unloading RPM. Your trailer floor should be operating.
4. To stop the floor at anytime during loading or unloading, just switch the ball valve, located between the pressure and return lines, to the open position. (See diagram B.)

2.5.1.2. Loading

1. Turn the control valve counter-clockwise. (See diagram A.)
2. Make sure the ball valve (between the pressure and return lines) is in the closed position. (See diagram B.) This ball valve is used for the emergency shut-off.
3. Engage the P.T.O., then bring the tractor engine up to a predetermined unloading RPM. Your trailer floor should be operating.
4. To stop the floor at anytime during loading or unloading, just switch the ball valve, located between the pressure and return lines, to the open position. (See diagram B.)

2.5.2 Drive with On/Off Valve

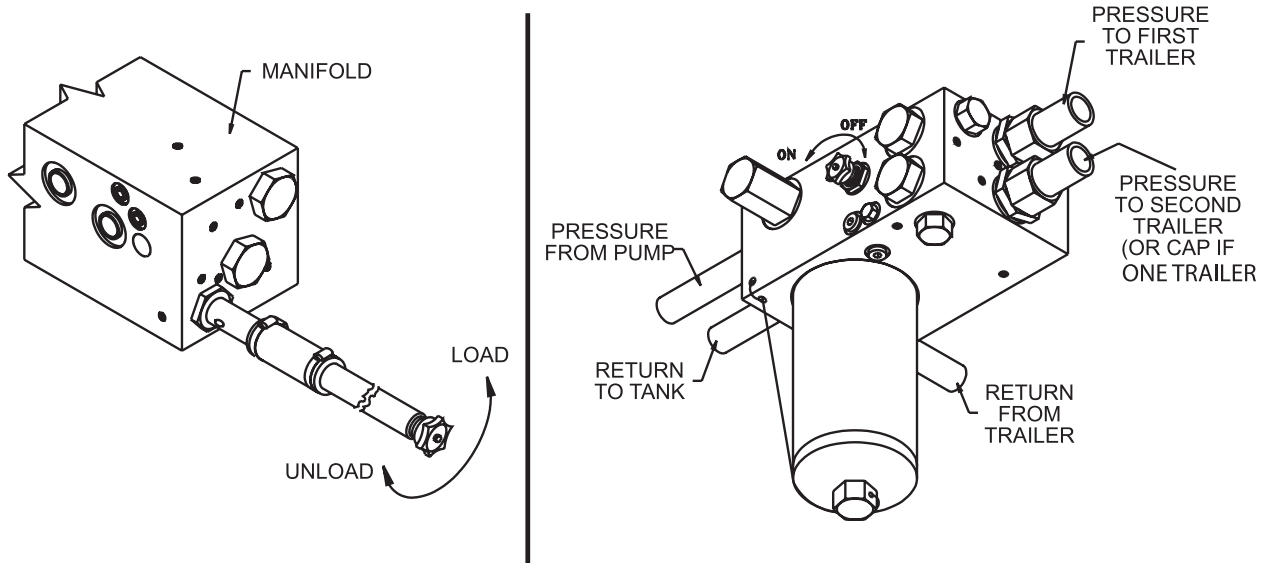


Diagram A: Control Valve

Diagram B: ON/OFF Filter Block

2.5.2.1. Unloading

1. Turn the control valve clockwise. (See diagram A.)
2. Make sure the on/off valve, located on the filter block, is in the on position. (See diagram B.) This filter on/off valve is used for the emergency shut-off.
3. Engage the P.T.O., then bring the tractor engine up to a predetermined unloading RPM. Your trailer floor should be operating.
4. To stop the floor at anytime during loading or unloading, just switch the on/off valve, located on the filter block, to the open position. (See diagram B.)

2.5.2.2. Loading

1. Turn the control valve counter-clockwise. (See diagram A.)
2. Make sure the on/off valve, located on the filter block, is in the on position. (See diagram B.) This filter on/off valve is used for the emergency shut-off.
3. Engage the P.T.O., then bring the tractor engine up to a predetermined unloading RPM. Your trailer floor should be operating.
4. To stop the floor at anytime during loading or unloading, just switch the on/off valve, located on the filter block, to the open position. (See diagram B.)

3.0 Troubleshooting

3.1 Problem / Solution - Troubleshooting

Unloading

Problem: Floor does not run at all.

Check: All items on START-UP check list:

- ✓ Is your entire system plumbed to the plumbing diagram?
- ✓ Pump: Will it pump 25-30 GPM at pressure?
- ✓ Relief Valve: Is it set at 2800-3000 PSI?
- ✓ Oil: Have you filled the reservoir?
- ✓ P.T.O.: Is it engaged?
- ✓ Quick Disconnects: Are they completely engaged?
- ✓ Ball Valve: Is the ball valve on the drive unit closed?
- ✓ Is the pressure line on the trailer attached to the pressure line on the tractor and the return line attached to the return line?

The pressure and return lines must attach to their proper ports on the switching valve.

Problem: Cycle starts then floor stops.

1. Specific trouble: Drivers side cylinder (#1) moves toward the front of the trailer, center cylinder (#2) moves toward the front of the trailer, passenger side cylinder (#3) moves toward the front of trailer, then the system stops.

Solution: Pilot push check valve is malfunctioning. Replace pilot push check valve.

2. Specific trouble: All three cylinders move **toward the rear** of the trailer, then the system stops.

Solution: Pilot pull check valve is malfunctioning. Check settings. Replace pilot pull check valve.

Note: If floor stops in the full rear position and the switching valve has switched, you may not have enough oil pressure. Less pressure is required to move the load than to pull the slats 1/3 at a time under the load.

Unloading

Problem: Does not cycle correctly.

1. **Specific trouble:** Cylinders (#1) and (#2) extend together toward the front of the trailer while unloading.

Solution: Pull check valve (#1) has malfunctioned. Replace the pull check valve.

2. **Specific trouble:** Cylinders (#2) and (#3) extend together toward the front while unloading.

Solution: Pull check valve (#2) has malfunctioned. Replace the pull check valve.

3. **Specific trouble:** All cylinders extend together toward the front while unloading.

Solution: Pull check valves (#1) and (#2) have malfunctioned. Replace the pull check valves.

Loading

Problem: Does not cycle correctly.

1. **Specific trouble:** Cylinders (#2) and (#3) extend together toward the rear of the trailer while loading.

Solution: Internal check valve (#3) has malfunctioned. Replace the pull check valve.

2. **Specific trouble:** Cylinders (#1) and (#2) extend together toward the rear of the trailer while loading.

Solution: Internal check valve (#3) has malfunctioned. Replace the pull check valve.

3. **Specific trouble:** All cylinders extend together toward the rear while loading.

Solution: Internal check valves (#1) and (#2) have malfunctioned. Replace the pull check valves.

Note: *When empty, some trailers will cycle in sequence forward 1-2-3, then back 3-2-1, (instead of all slats moving back together.) This is not a malfunction; no repairs are needed. When a load is put on a trailer, the drag will cause the floor to sequence properly.*

Unloading

Problem: Does not cycle correctly.

1. **Specific trouble:** Cylinder (#1) extends toward the front of the trailer. When it finishes, cylinder (#2) extends toward the front of the trailer at a slower rate and the pump works harder.

Solution: Pull check valve (#1) is out of adjustment. Break the Allen screws loose on the adjustment nut and move it toward the rear of the trailer, no more than 1/8" at a time.

Precaution: Don't move the adjustment nut more than 1/8" toward the rear of the trailer at any one time. If you over-adjust the pull check valve, you could damage the valve.

2. **Specific trouble:** Cylinder (#2) extends toward the front of the trailer. When it finishes, cylinder (#3) extends toward the front of the trailer at a slower rate and the pump works harder.

Solution: Pull check valve (#2) is out of adjustment. Break the Allen screws loose on the adjustment nut and move it toward the rear of the trailer, no more than 1/8" at a time. See precaution above)

3. **Specific trouble:** Cylinder (#1) extends toward the front of the trailer. Before it finishes its stroke, cylinder (#2) starts to extend toward the front of the trailer.

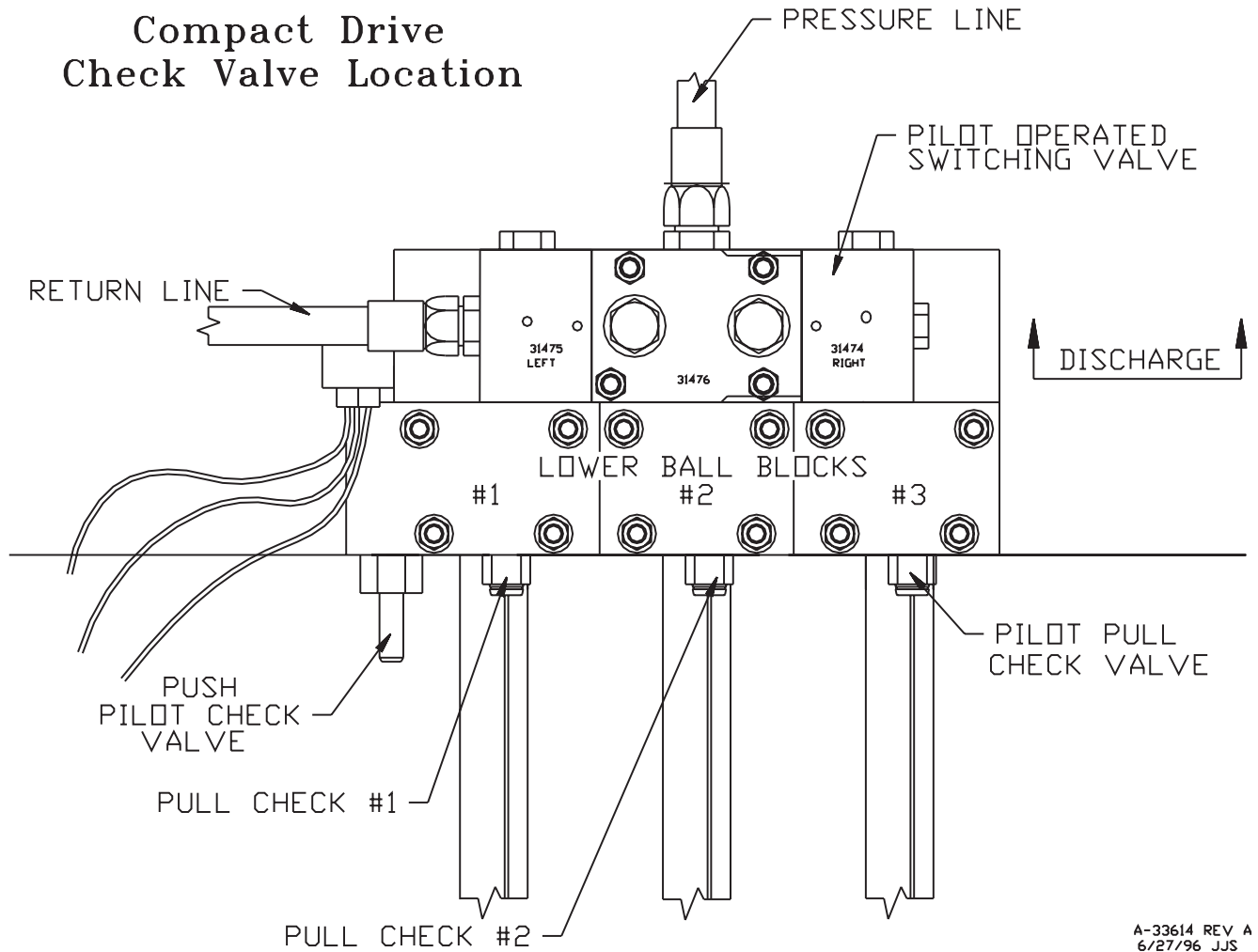
Solution: Pull check valve (#2) is leaking. Remove the check valve and look for damage or foreign material on valve seat or in seat area in block.

4. **Specific trouble:** Cylinder (#2) extends toward the front of the trailer. Before it finishes its stroke, cylinder (#3) starts to extend toward the front of the trailer.

Solution: Pull check valve (#1) is leaking. Remove the check valve and look for damage or foreign material on valve seat or in seat area in block.

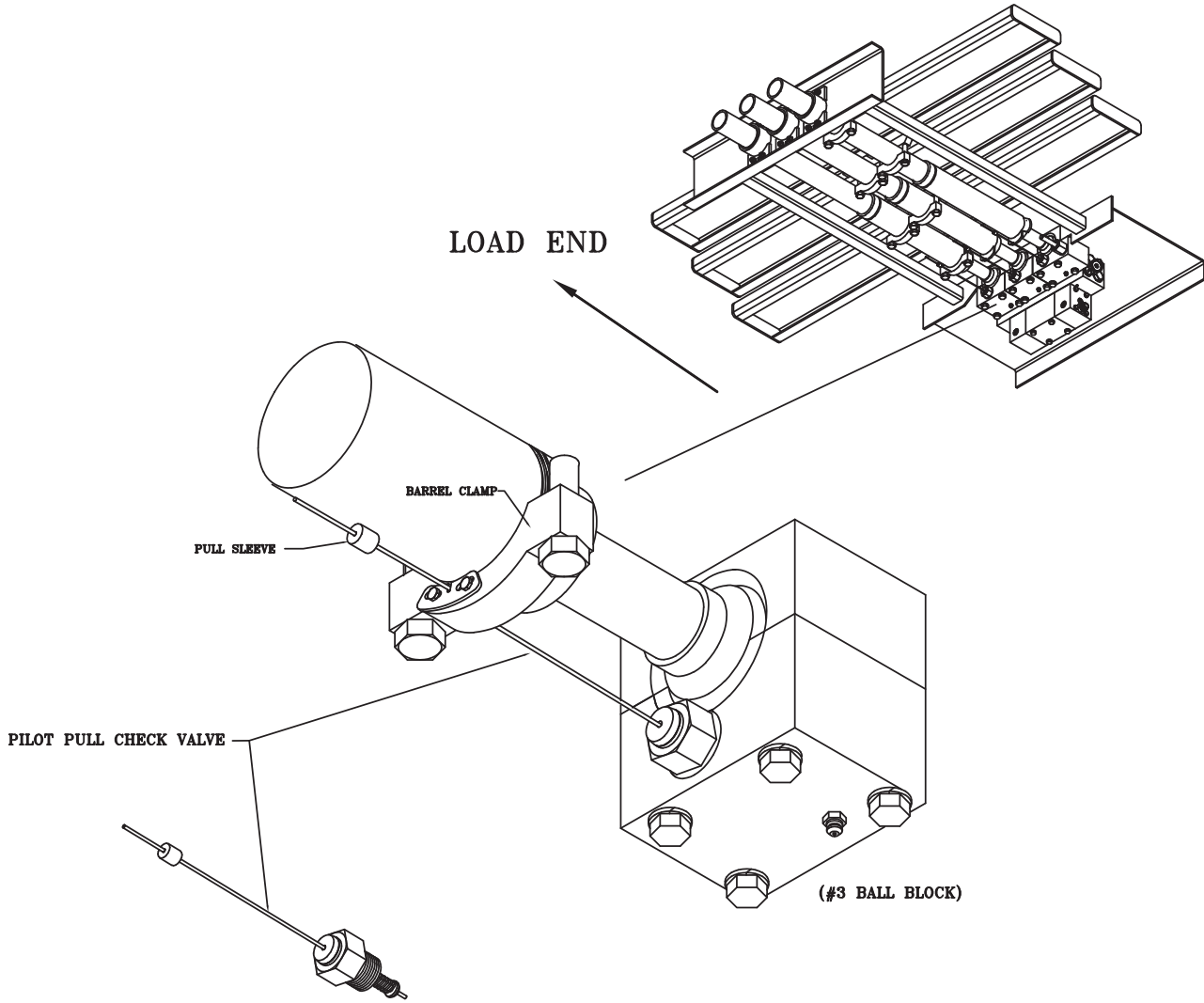
3.2 Adjustments & Replacement

Compact Drive Check Valve Location



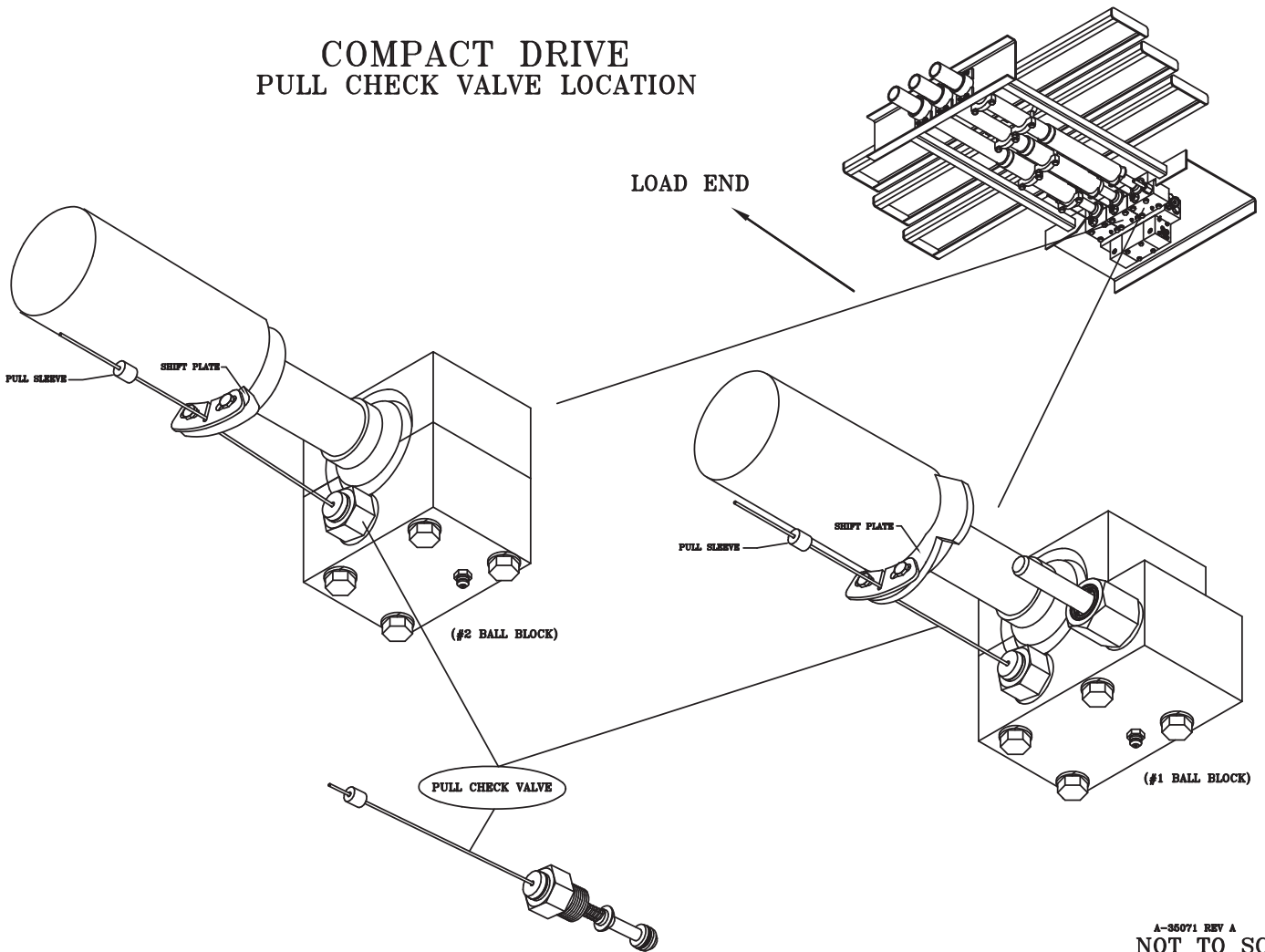
A-33614 REV A
6/27/96 JJS

COMPACT DRIVE PILOT PULL CHECK VALVE LOCATION



A-35073 REV A
NOT TO SCALE

COMPACT DRIVE PULL CHECK VALVE LOCATION



A-35071 REV A
NOT TO SCALE

3.2.1 Replacing a Pull Check Valve

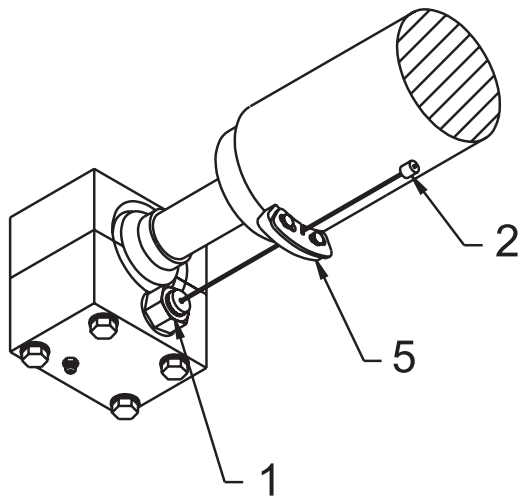


FIG. A

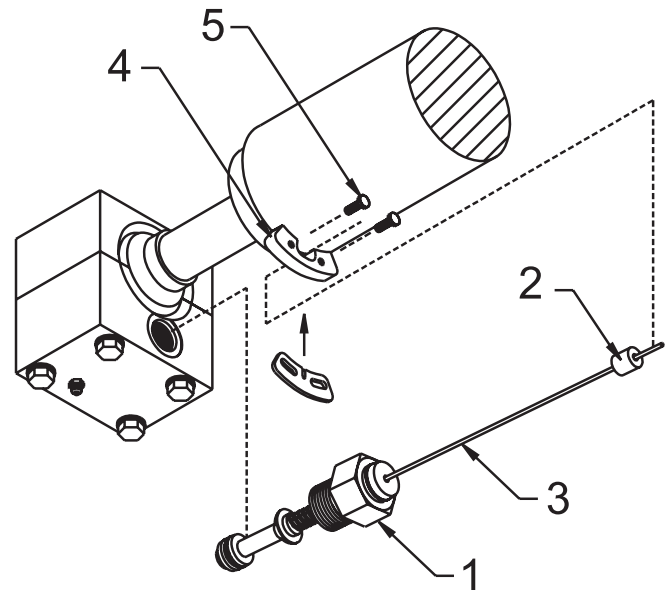


FIG. B

Tools required:

- 1-1/4" wrench
- 1/2" wrench
- 1/8" Allen wrench

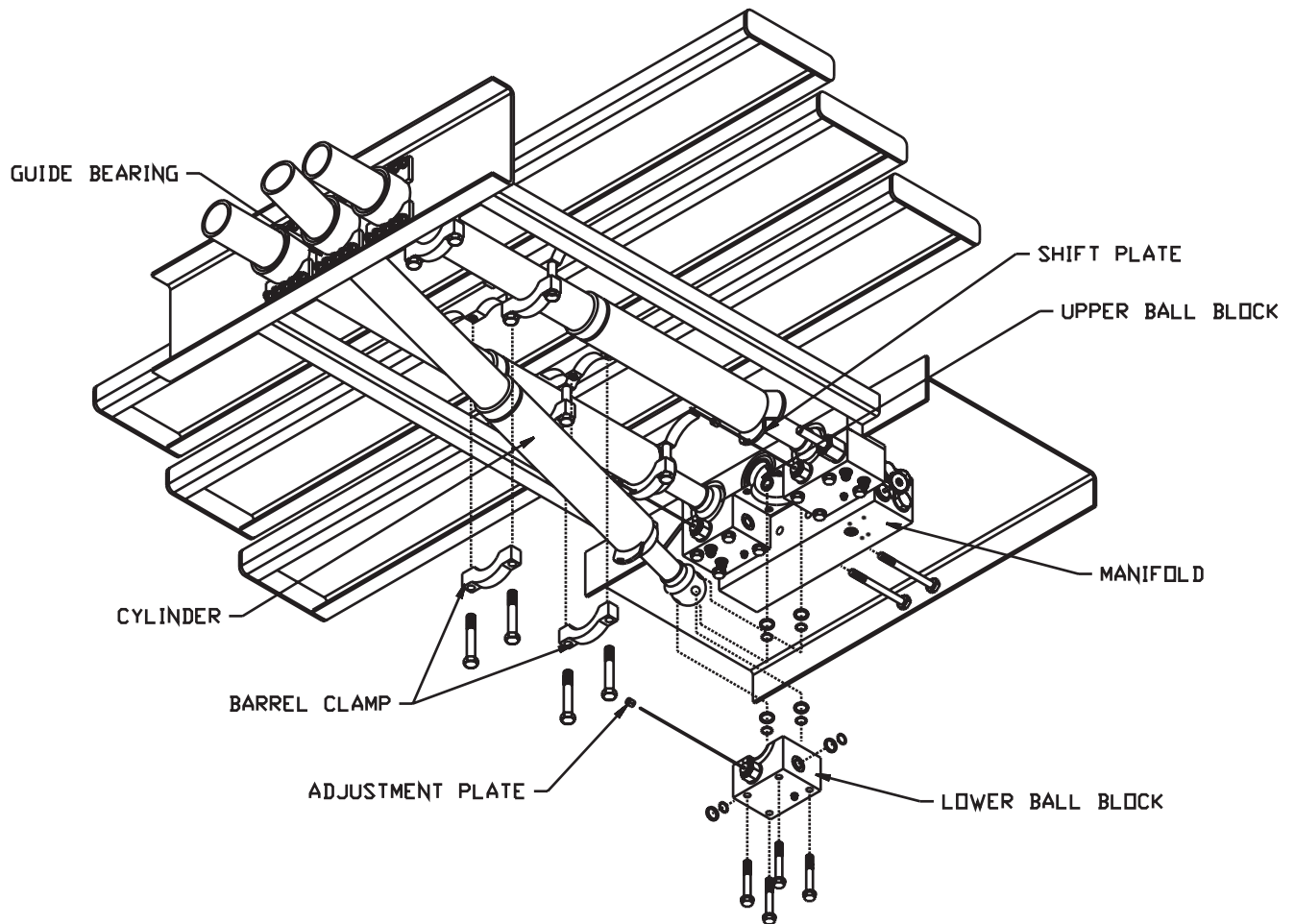
Removal:

1. Run the cylinder to the middle of the drive stroke in order to free it.
2. Remove the bolt (5).
3. Remove the check valve (1).

Installation:

1. Make sure the O-Ring surface is clean and that the O-Ring is seated properly on the check
2. valve.
3. Feed the pull check valve wire (3) through the shift plate (4) on the cylinder and screw in the
4. check valve.
5. Insert the shift plate bolt (5).
6. Put the adjustment nut (2) on the wire (3) and adjust the check valve (See Trouble Shooting Guide-Pull Check Valve.)
7. Run the floor and check for leaks.

3.2.2 Replacing a Internal Check Valve



Tools required:

- 5/16" wrench
- 3/4" wrench
- 1/2" wrench
- 1/8" Allen wrench

Removal:

1. Run the cylinder to the middle of the drive stroke in order to free it.
2. Remove the adjustment nut (1) by loosening the Allen screws.
3. Remove the lower ball block (2) by removing the four 1/2" bolts on top and remove one or two of the 5/8" bolts that run through the manifold (3).
4. Loosen the ten bolts that hold the guide bearing (6) in place so that the bearing will tip, allowing the cylinder to slide out.
5. Remove the lower barrel clamps (4) from the cross drive and remove the cylinder (5) from the drive frame.
6. Remove the check valve end cap, exposing the check valve components.

Replace the following parts:

All O-Rings and Back-up Rings

Internal Check Valve

Inner Tube

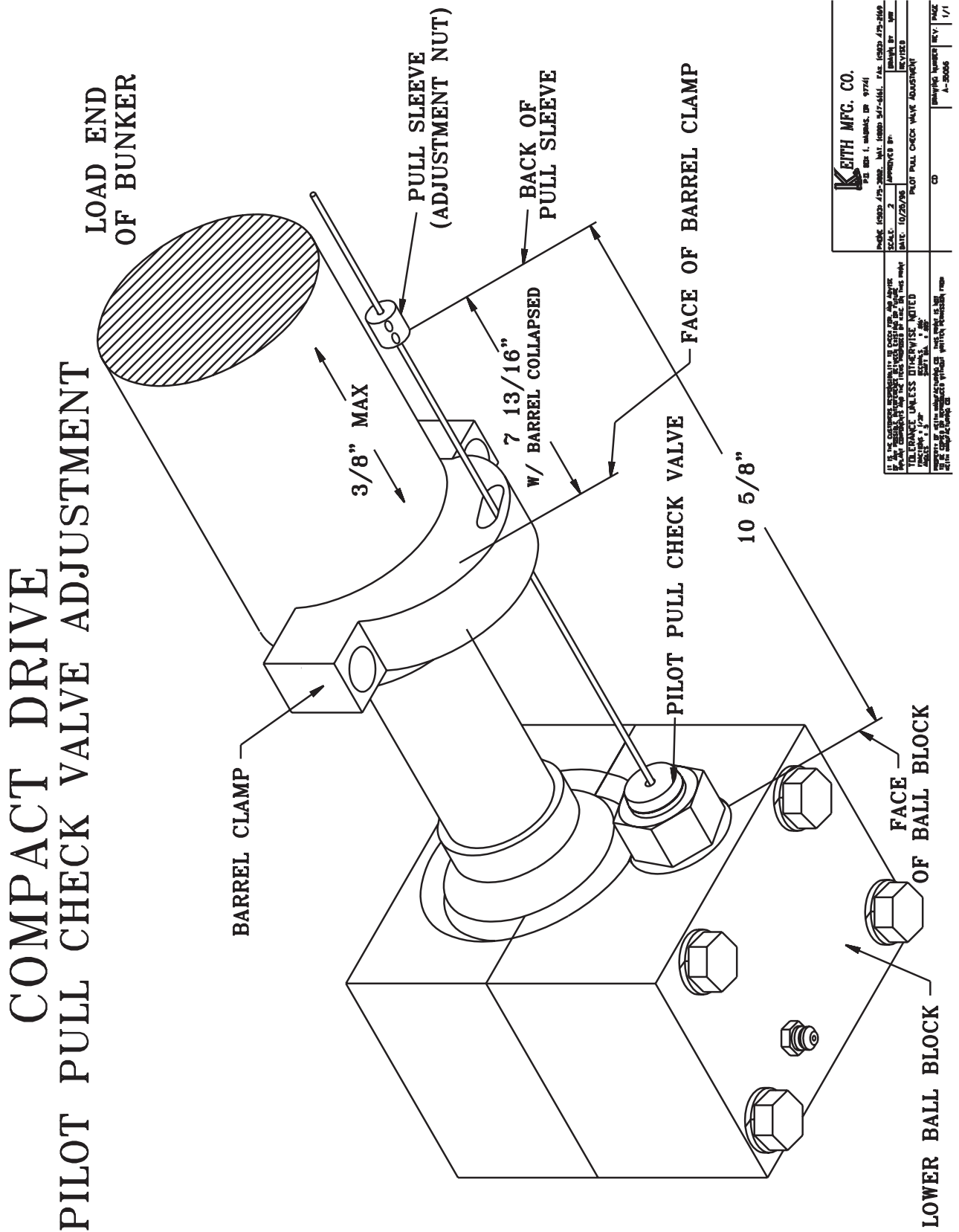
Springs, if they are broken

Check Valve Pilot, if they show wear

Installation:

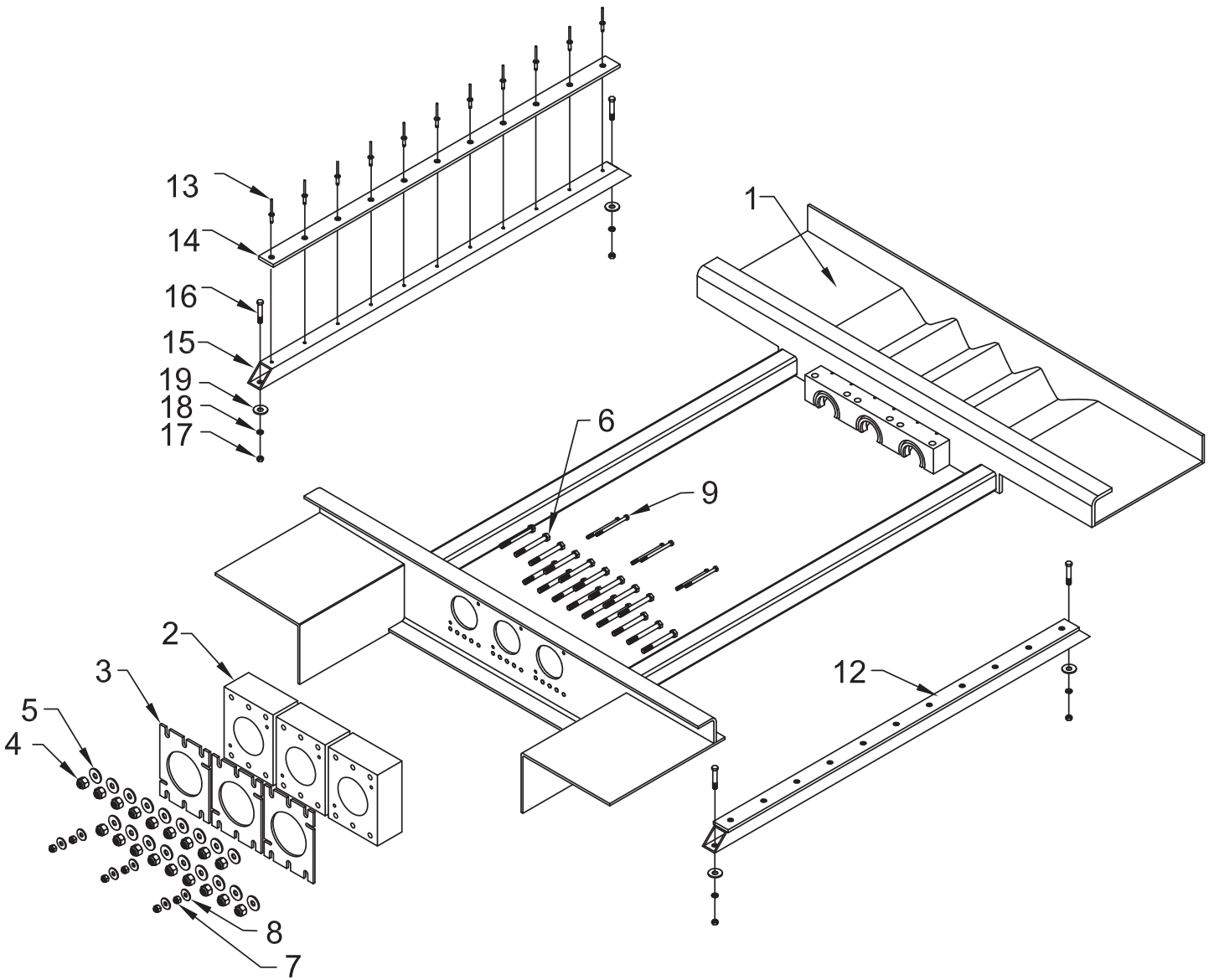
1. Make sure the O-Ring surface is clean and that the O-Rings are seated properly in the check valve.
2. Put all of the check valve components back into the rod and screw in the check valve end cap. Torque to 5 ft/lb.
3. Place the cylinder (5) back into the drive frame. Place it first into guide bearing (6), then into the upper ball block socket (7). Note: Make sure the cylinder is lined up with the cross drive clamps.
4. Make sure the ball O-Rings and back-up rings are clean and seated.
5. Place the ball socket and bolt on the lower ball block (2).
6. Put the manifold bolts in and then the barrel clamps (4).
7. Put the adjustment nut on the wire and adjust the check valve. (See TroubleShooting Guide-Pull Check Valve.)
8. Run the floor and check for leaks.

3.2.3 Pilot Pull Check Valve Adjustment



4.0 Parts Catalog

Drive Frame Assembly



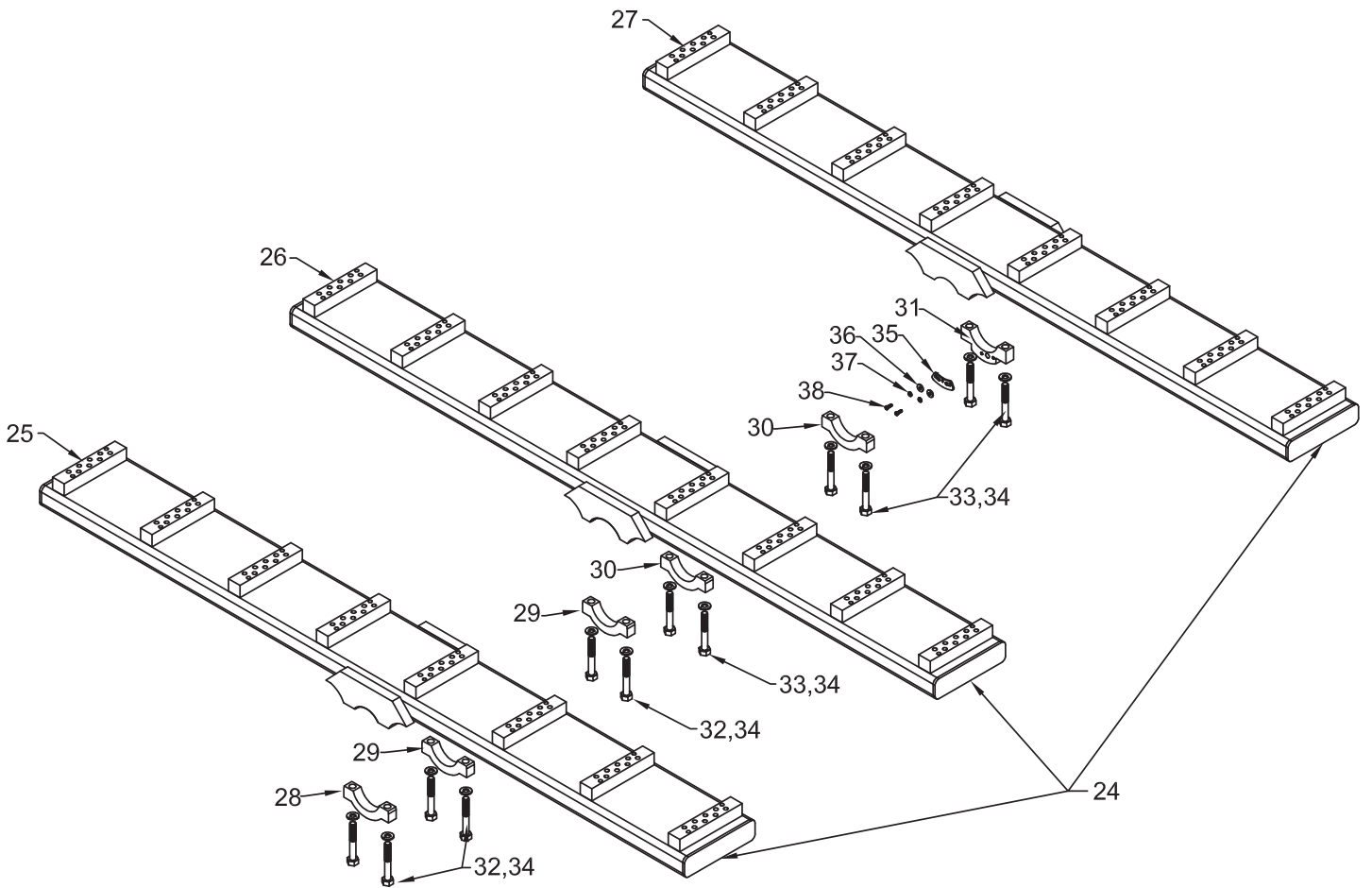
Drive Frame Assembly

ID #	Qty	Part #	Description
- ⁽¹⁾	(1)	-	Drive Frame Assembly (Includes items 1-9)
1 ⁽¹⁾	1	-	Drive Frame
2	3	04240501	Bearing Block Guide Tube
3	3	04240601	Bearing Backing Plate Guide Tube
4	18	86628000	Nut Hex Nylock 3/8"
5	18	86554000	Washer Flat 3/8"
6	18	86443000	Bolt Hex GR5 3/8"x3 1/2"
7	6	86626000	Nut Hex Nylock 1/4"
8	6	86551000	Washer Flat 1/4"
9	6	86422000	Bolt Hex GR5 1/4"x3 1/2"
12⁽¹⁾	(2)	03467802	Bearing 3/8" Cross-Drive Support Assembly (includes items 13-15)
13	11	86528000	Rivet 3/16"x1/2"
14 ⁽¹⁾	1	03453902	Bearing Cross-Drive Support 3/8" UHMW
15 ⁽¹⁾	1	03467701	Bearing Cross-Drive Support Tube
16	2	86437500	Bolt Hex GR5 3/8"x1"
17	2	86628000	Nut Hex Nylock 3/8"
18	2	86554000	Washer Flat 3/8"
19	2	86553500	Washer Large OD 3/8"

⁽¹⁾ Part numbers and descriptions vary based on drive configuration and application.

Note: The following parts guide is for KEITH® 24 slat Compact Drive systems. For all other systems please contact KEITH Mfg. Co. or KEITH *WALKING FLOOR* Europe.

Cross-Drive Assembly



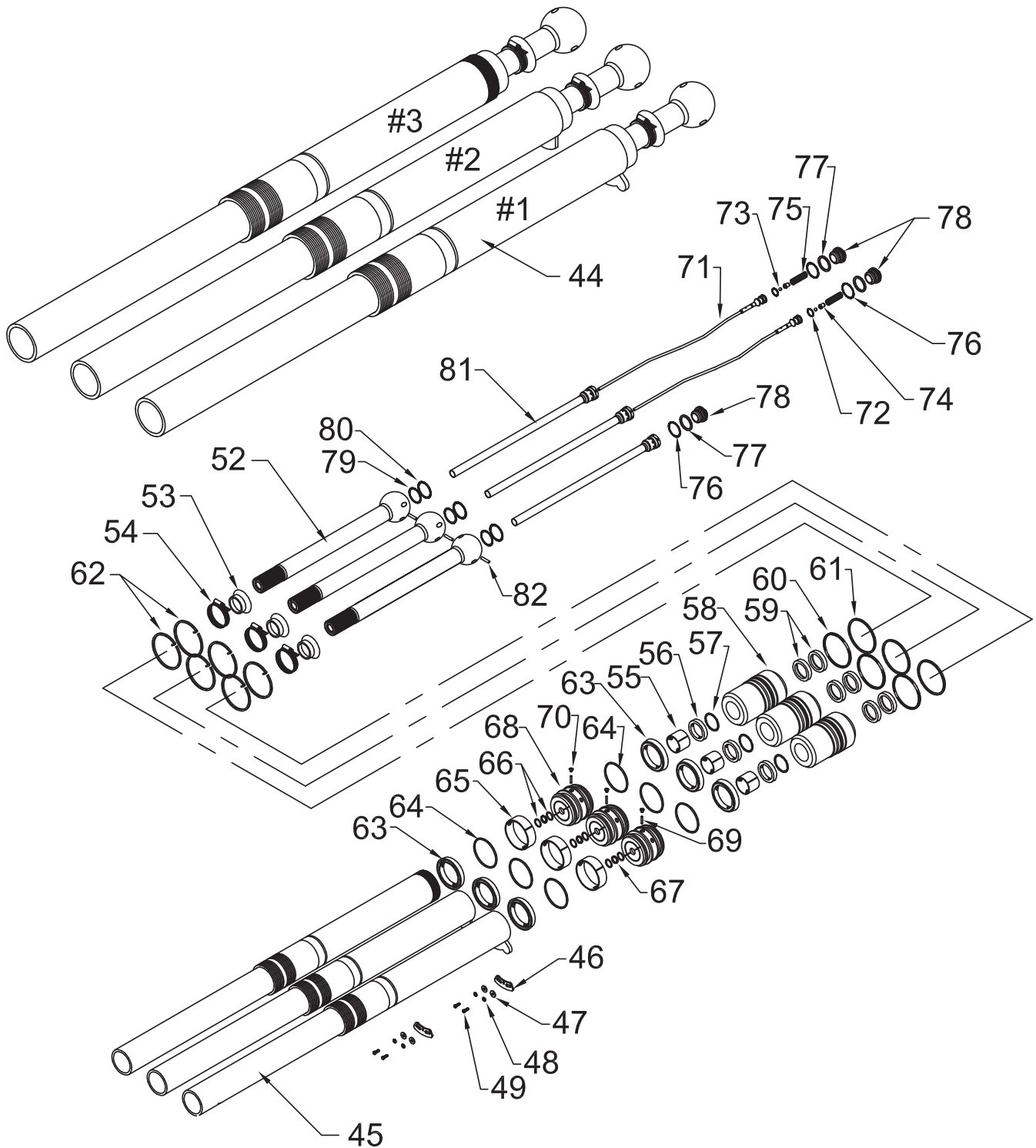
Cross-Drive Assembly

ID #	Qty	80 mm Part #	90 mm Part #	100 mm Part #	Description
24 ⁽¹⁾	(1)	03465101	03465105	03465109	Cross-Drive 24 Slat Set (includes items 25-27)
25 ⁽¹⁾	1	03465102	03465106	03465110	Cross-Drive 24 Slat #1
26 ⁽¹⁾	1	03465103	03465107	03465111	Cross-Drive 24 Slat #2
27 ⁽¹⁾	1	03465104	03465108	03465112	Cross-Drive 24 Slat #3
28 ⁽¹⁾	1	03101601			Clamp Lower Barrel 2.5"
29 ⁽¹⁾	2	03910501			Clamp Lower Barrel 3.0"
30 ⁽¹⁾	2	03509801	03350903		Clamp Lower Barrel Smooth
31 ⁽¹⁾	1	03509801	03350902	03330901	Clamp Lower Barrel Smooth For Pull Check
32	6	86467010			Bolt Hex Patchloc GR8 5/8"x3"
33	6	86468010			Bolt Hex Patchloc GR8 5/8"x3 1/2"
34	12	04430601			Washer Tab Lock 5/8"
35	1	03500201			Collar Pull Check Valve
36	2	86551000			Washer Flat 1/4"
37	2	86551500			Washer Lock 1/4"
38	2	86413000			Bolt Hex GR5 1/4"x3/4"

⁽¹⁾ Part numbers and descriptions vary based on drive configuration and application.

Note: The following parts guide is for KEITH® 24 slat Compact Drive systems. For all other systems please contact KEITH Mfg. Co. or KEITH *WALKING FLOOR* Europe.

80 mm Cylinder Assemblies



(1) Part numbers and descriptions vary based on drive configuration and application.

(2) Backup included w/seal

(3) Not sold separately. Included only with internal push check valve assembly.

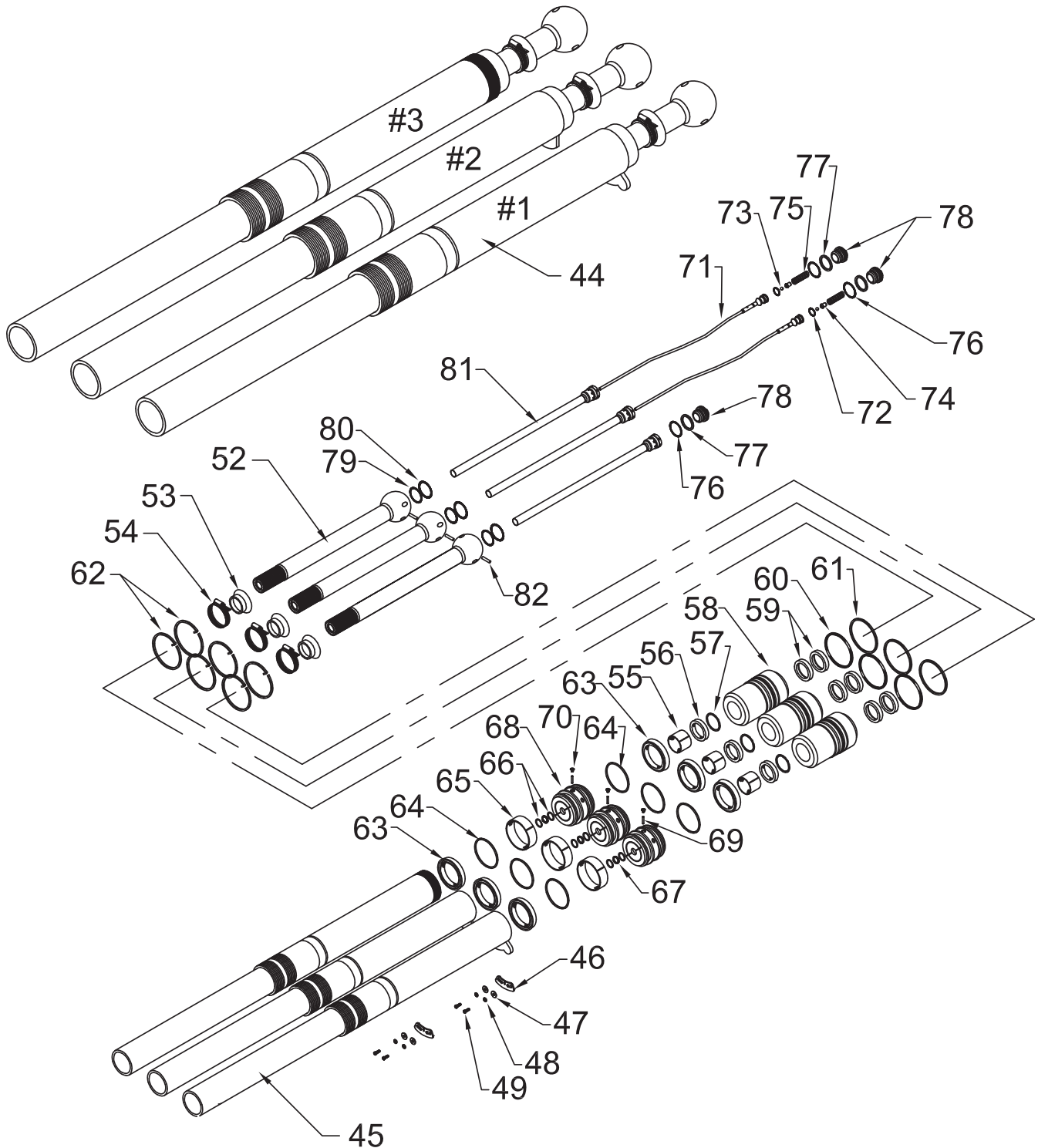
(4) Parts 71-75 are not used in the #1 cylinder

(5) The seal kit includes all necessary items required to rebuild the entire cylinder. It does not include items such as the rod or piston.

80 mm Cylinder Assemblies

ID #	Qty	Cyl #3 Part #	Cyl #2 Part #	Cyl #1 Part #	Description
44 ⁽¹⁾	(1)	04088901	04088701	04088501	Cylinder Assembly (Includes items 45-82)
45 ⁽¹⁾	1	04090701	04090601	04090501	Barrel
46	2		03500201		Collar Pull Check Valve
47	4		86551000		Washer Flat 1/4"
48	4		86551500		Washer Lock 1/4"
49	4		86413000		Bolt Hex GR5 1/4"x3/4"
- ⁽¹⁾	(1)	04089001	04088801	04088601	Rod W/Piston & Head Assembly (Includes items 52-82)
52 ⁽¹⁾	1	03104002	03103902	03103802	Rod & Ball Assembly
53	3		84801300		Dust Seal Cylinder Rod
54	3		84750950		Clamp Hose 2"
- ⁽¹⁾	(1)		03355901		Head Assembly (Includes items 55-62)
55	1		84401200		Wear Ring Rod Cylinder 45mm
56	1		84354200		Seal Rod Cylinder 45mm
57 ^{(1) (2)}	1		w/seal		Seal Backup Rod Cylinder 45mm
58	1		03313801		Head W/ Lockwire 80mm
59	2		84426600		Wiper Rod 45mm Canned
60 ⁽¹⁾	1		84384800		O-Ring 239
61 ⁽¹⁾	1		84393000		O-Ring Backup 8-239
62	2		03812109		Lock Wire 80mm Head Cylinder
- ⁽¹⁾	(1)		04149101		Piston Assembly (Includes items 63-70)
63 ⁽¹⁾	2		84350800		Seal Cylinder Piston 80mm
64 ^{(1) (2)}	2		w/seal		Seal Backup Piston Cylinder 80mm
65 ⁽¹⁾	1		84401000		Wear Ring Cylinder Piston 80mm
66	2		84390600		O-Ring Backup 8-210
67	1		84380200		O-Ring 210
68 ⁽¹⁾	1		03799101		Piston 80mm Aluminum Ported
69 ⁽¹⁾	1		86650400		Pin Drive Lock 3/16" x 1/2
70	1		84687200		6409-02 M O-Ring Socket Plug
- ⁽³⁾	(1)	03932201		-	Check Valve Assembly (Includes items 71-75)
71 ⁽⁴⁾	1	03376301		-	Check Valve Internal Push
72 ⁽⁴⁾	1	84380100		-	O-Ring 209 70 Durometer Urethane
73 ⁽⁴⁾	1	84800500		-	Ball 5/16" Chrome Steel
74 ⁽⁴⁾	1	03785801		-	Spring Follower Internal Check Valve
75 ⁽⁴⁾	1	84454250		-	Spring #4161
76	1		84382800		O-Ring 218
77	1		84392000		O-Ring Backup 8-218
78	1		03784701		End Cap Rod Ball
79	3		84382800		O-Ring 218
80	3		84383400		O-Ring 220
81	3		03671901		Inner Tube Assembly
82	3		04228802		Dowel Pin Cylinder Ball 1/4"x1 1/8"
- ⁽⁵⁾	-		04737301		Seal Kit (Includes items 55-57, 59-61, 63-67, 72, 76-77, 79-80)

90 mm Cylinder Assemblies

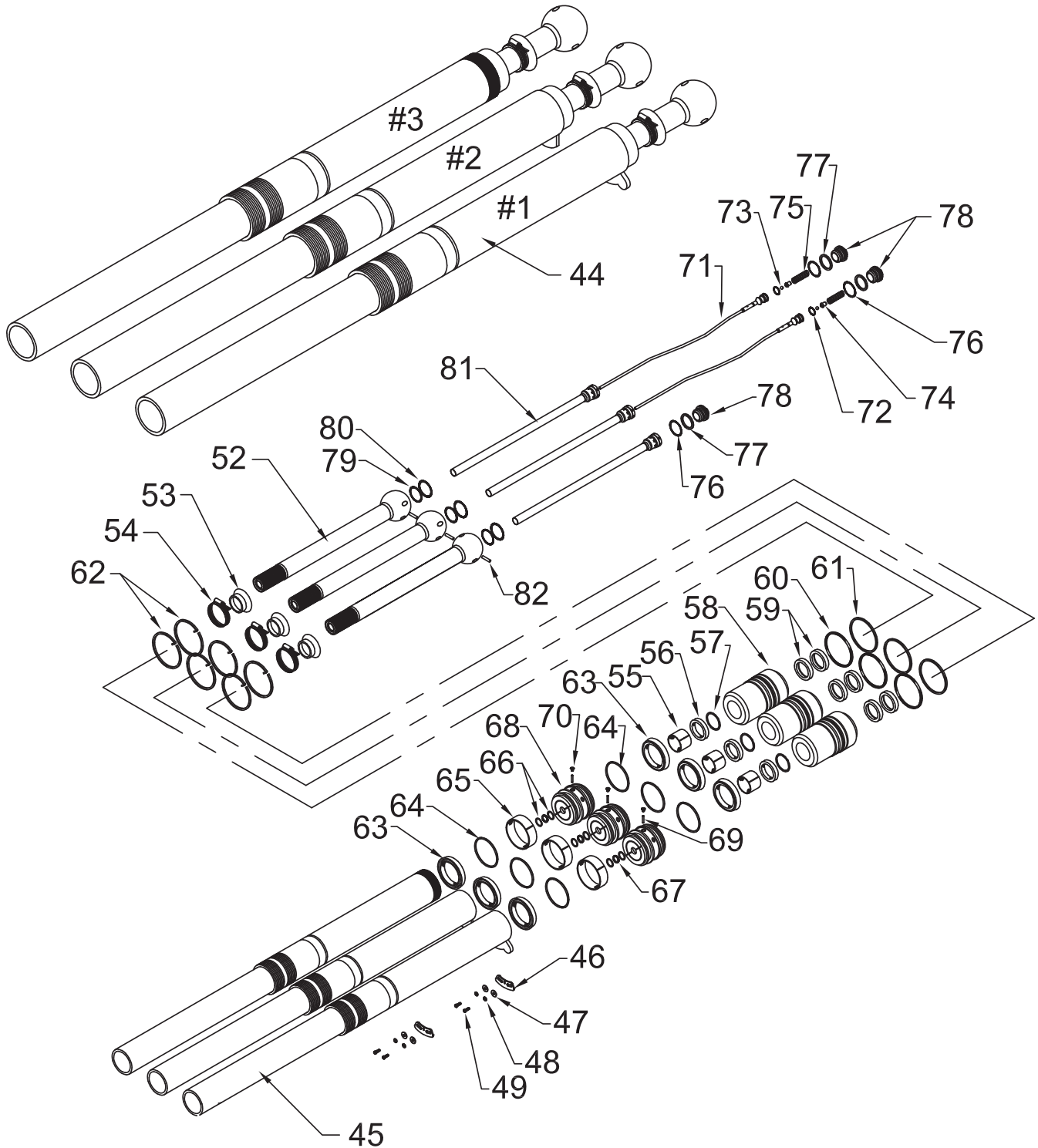


- (1) Part numbers and descriptions vary based on drive configuration and application.
- (2) Backup included w/seal
- (3) Not sold separately. Included only with internal push check valve assembly.
- (4) Parts 71-75 are not used in the #1 cylinder
- (5) The seal kit includes all necessary items required to rebuild the entire cylinder. It does not include items such as the rod or piston.

90 mm Cylinder Assemblies

ID #	Qty	Cyl #3 Part #	Cyl #2 Part #	Cyl #1 Part #	Description
44 ⁽¹⁾	(1)	04099201	04098502	04097802	Cylinder Assembly (Includes items 45-82)
45 ⁽¹⁾	1	04099501	04098802	04098102	Barrel
46	2		03500201		Collar Pull Check Valve
47	4		86551000		Washer Flat 1/4"
48	4		86551500		Washer Lock 1/4"
49	4		86413000		Bolt Hex GR5 1/4"x3/4"
- ⁽¹⁾	(1)	04099101	04098401	04097701	Rod W/Piston & Head Assembly (Includes items 52-82)
52 ⁽¹⁾	1	03104001	03103901	03103801	Rod & Ball Assembly
53	3		84801300		Dust Seal Cylinder Rod
54	3		84750950		Clamp Hose 2"
- ⁽¹⁾	(1)		04154201		Head Assembly (Includes items 55-62)
55	1		84401200		Wear Ring Rod Cylinder 45mm
56	1		84354200		Seal Rod Cylinder 45mm
57 ^{(1) (2)}	1		w/seal		Seal Backup Rod Cylinder 45mm
58	1		03341901		Head W/ Lockwire 90mm
59	2		84426600		Wiper Rod 45mm Canned
60 ⁽¹⁾	1		84384600		O-Ring 236 BUNA 90
61 ⁽¹⁾	1		84392800		O-Ring Backup 236 BUNA 90
62	2		03812104		Lock Wire 90mm Head Cylinder
- ⁽¹⁾	(1)		4154301		Piston Assembly (Includes items 63-70)
63 ⁽¹⁾	2		84354800		Seal Cylinder Piston 90mm
64 ^{(1) (2)}	2		w/seal		Seal Backup Piston Cylinder 90mm
65 ⁽¹⁾	1		84402600		Wear Ring Cylinder Piston 90mm
66	2		84390600		O-Ring Backup 8-210
67	1		84380800		O-Ring 210
68 ⁽¹⁾	1		03672101		Piston 90mm Aluminum Ported
69 ⁽¹⁾	1		86650400		Pin Drive Lock 3/16" x 1/2"
70	1		84687200		6409-02 M O-Ring Socket Plug
- ⁽³⁾	(1)	03932201		-	Check Valve Assembly (Includes items 71-75)
71 ⁽⁴⁾	1	03376301		-	Check Valve Internal Push
72 ⁽⁴⁾	1	84380100		-	O-Ring 209 70 Durometer Urethane
73 ⁽⁴⁾	1	84800500		-	Ball 5/16" Chrome Steel
74 ⁽⁴⁾	1	03785801		-	Spring Follower Internal Check Valve
75 ⁽⁴⁾	1	84454250		-	Spring #4161
76	1		84382800		O-Ring 218
77	1		84392000		O-Ring Backup 8-218
78	1		03784701		End Cap Rod Ball
79	3		84382800		O-Ring 218
80	3		84383400		O-Ring 220
81	3		03671901		Inner Tube Assembly
82	3		04228802		Dowel Pin Cylinder Ball 1/4"x1 1/8"
- ⁽⁵⁾	-		04737501		Seal Kit (Includes items 55-57, 59-61, 63-67, 72, 76-77, 79-80)

100 mm Cylinder Assemblies

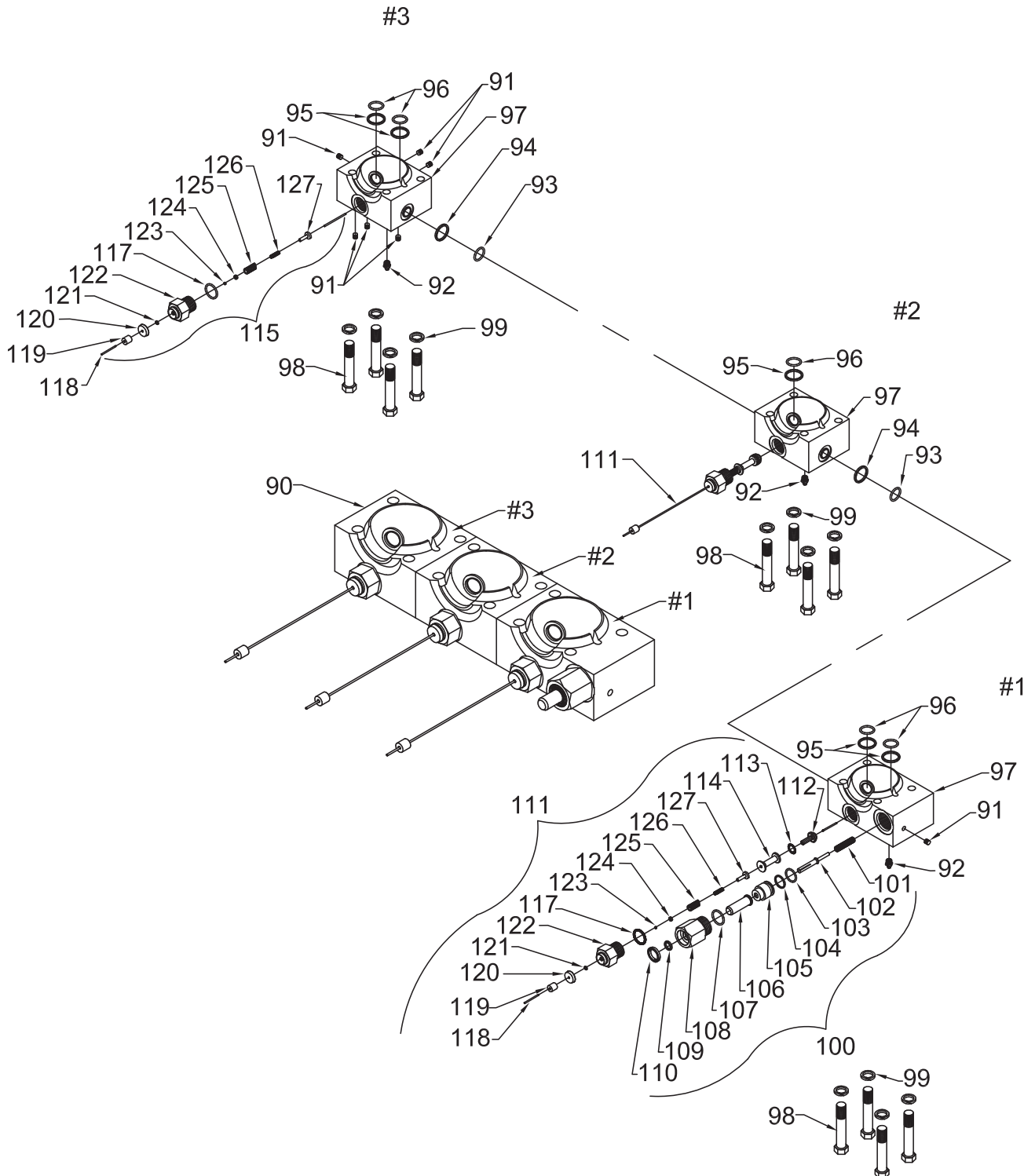


- (1) Part numbers and descriptions vary based on drive configuration and application.
- (2) Backup included w/seal
- (3) Not sold separately. Included only with internal push check valve assembly.
- (4) Parts 71-75 are not used in the #1 cylinder
- (5) The seal kit includes all necessary items required to rebuild the entire cylinder. It does not include items such as the rod or piston.

100 mm Cylinder Assemblies

ID #	Qty	Cyl #3 Part #	Cyl #2 Part #	Cyl #1 Part #	Description
44 ⁽¹⁾	(1)	04096501	04095901	04095301	Cylinder Assembly (Includes items 45-82)
45 ⁽¹⁾	1	04096801	04096201	04095601	Barrel
46	2		03500201		Collar Pull Check Valve
47	4		86551000		Washer Flat 1/4"
48	4		86551500		Washer Lock 1/4"
49	4		86413000		Bolt Hex GR5 1/4"x3/4"
- ⁽¹⁾	(1)	04097301	04097201	04097101	Rod W/Piston & Head Assembly (Includes items 52-82)
52 ⁽¹⁾	1	03104001	03103901	03103801	Rod & Ball Assembly
53	3		84801300		Dust Seal Cylinder Rod
54	3		84750950		Clamp Hose 2"
- ⁽¹⁾	3		04154101		Head Assembly (Includes items 55-62)
55	1		84401200		Wear Ring Rod Cylinder 45mm
56	1		84354200		Seal Rod Cylinder 45mm
57 ⁽¹⁾⁽²⁾	1		w/seal		Seal Backup Rod Cylinder 45mm
58	1		06719501		Head AL 100M CD Lockwire
59	2		84426600		Wiper Rod 45mm Canned
60 ⁽¹⁾	1		84384800		O-Ring 239
61 ⁽¹⁾	1		84393000		O-Ring Backup 8-239
62	2		03812107		Lock Wire 100mm Head Cylinder
- ⁽¹⁾	(1)		04154501		Piston Assembly (Includes items 63-70)
63 ⁽¹⁾	2		84355000		Seal Cylinder Piston 100mm
64 ⁽¹⁾⁽²⁾	2		w/seal		Seal Backup Piston Cylinder 100mm
65 ⁽¹⁾	1		84400800		Wear Ring Cylinder Piston 100mm
66	2		84390600		O-Ring Backup 8-210
67	1		84380200		O-Ring 210
68 ⁽¹⁾	1		03672001		Piston 100mm Aluminum Ported
69 ⁽¹⁾	1		86650250		Pin Drive Lock 3/16"x7/8"
70	1		84687200		6409-02 M O-Ring Socket Plug
- ⁽³⁾	(1)	03932201		-	Check Valve Assembly(Includes items 71-75)
71 ⁽⁴⁾	1	03376301		-	Check Valve Internal Push
72 ⁽⁴⁾	1	84380100		-	O-Ring 209 70 Durometer Urethane
73 ⁽⁴⁾	1	84800500		-	Ball 5/16" Chrome Steel
74 ⁽⁴⁾	1	03785801		-	Spring Follower Internal Check Valve
75 ⁽⁴⁾	1	84454250		-	Spring #4161
76	1		84382800		O-Ring 218
77	1		84392000		O-Ring Backup 8-218
78	1		03784701		End Cap Rod Ball
79	3		84382800		O-Ring 218
80	3		84383400		O-Ring 220
81	3		03671901		Inner Tube Assembly
82	3		04228802		Dowel Pin Cylinder Ball 1/4"x1 1/8"
- ⁽⁵⁾	-		04180901		Seal Kit (Includes items 55-57, 59-61, 63-67, 72, 76-77, 79-80)

Lower Ball Block Assemblies



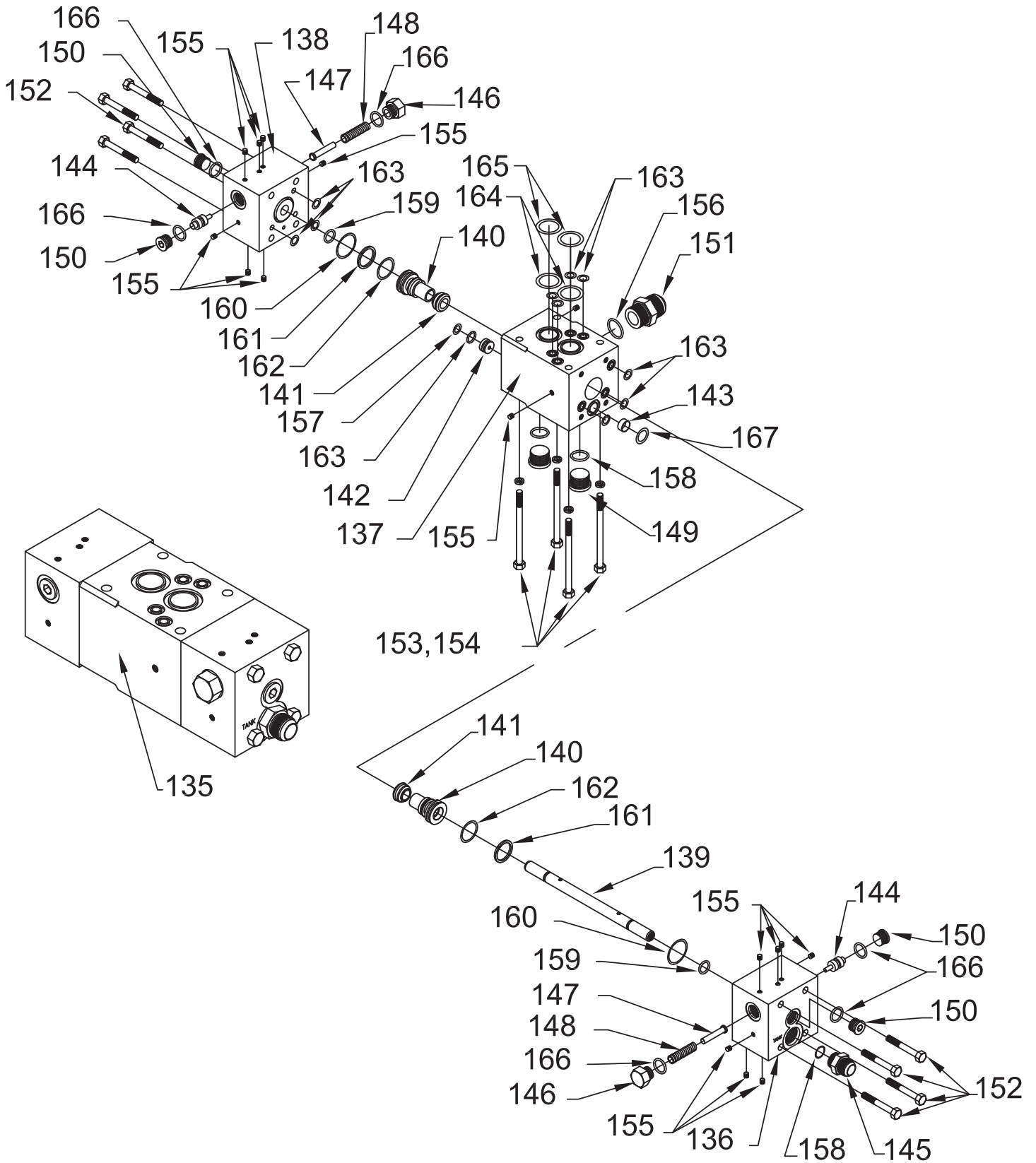
Lower Ball Block Assemblies

ID #	Qty	#3 Part #	#2 Part #	#1 Part #	Description
90	(1)	04167601	04167501	04167401	Ball Block Assembly (Includes 91-127)
91	(6)(0)(1)	84680770	-	84680770	1/16" Pipe Plug Socket 7/8" Taper
92	1	84704300			Fitting Grease 1/8" Pipe 1610B
93	1	84381000	-		O-Ring 212 Urethane
94	1	02100801	-		O-Ring Backup 8-212
95	(2)(1)(2)	84382000			O-Ring 214 Urethane
96	(2)(1)(2)	02100301			O-Ring Backup 8-214 Ball Block
97	1	03349501	03100501	03349401	Ball Block Lower #1
98	4	86457500			Bolt Hex GR8 1/2"x4"
99	4	86557000			Washer Lock 1/2"
100	(1)	-		03421101	Check Valve Pilot Signal Push (Includes 101-110)
101	1	-		84455000	Spring 9-0808-36
102	1	-		03126101	Check Valve Pilot
103	1	-		84380600	O-Ring 211
104	1	-		84390800	O-Ring Backup 8-211
105	1	-		03126201	Seat Check Valve Pilot
106	1	-		03294001	Plunger Short Check Valve
107	1	-		84387800	O-Ring 916
108	1	-		03312501	Nose Cap Push Check Valve
109	1	-		84352200	Seal Rod 5/8"
110	1	-		84427200	Wiper Canned 5/8" Rod
111⁽¹⁾⁽²⁾	(1)	-	03569408		Check Valve Pull Assembly (Includes 112-114, 117-127)
112	1	-	03567501		Check Valve Pull
113	1	-	84379000		O-Ring 206 Urethane
114	1	-	03567601		Check Valve End Poppet Pull
115	(1)	03543508	-		Check Valve Assembly Pilot Pull (Includes 117-127)
117	1	84387400			O-Ring 912
118	1	03544508			Check Valve Pull Wire
119	1	03531801			Check Valve Pull Stop
120	1	84801200			Dust Seal Check Valve Pull
121	1	84388400			O-Ring Backup 8-004
122	1	02102501			Cap Check Valve Pull
123	1	84351200			Seal Check Valve Pull 3/32" Rod
124	1	02103301			Washer Check Valve Pull
125	1	84453400			Spring Check Valve External Large #B-18273
126	1	84453200			Spring Check Valve External Small #B-18272
127	1	02101801			Poppet Pilot Pull Check Valve
-	-	04441301			Seal Kit Ball Block Lower (Includes items 93-96)

⁽¹⁾ The last digit in the pull check valve assemblies indicates cylinder stroke length (Example: 03569408 has a 8" cylinder stroke).

⁽²⁾ Not sold separately. Included only w/check valve pull assembly.

Switching Valve Assembly

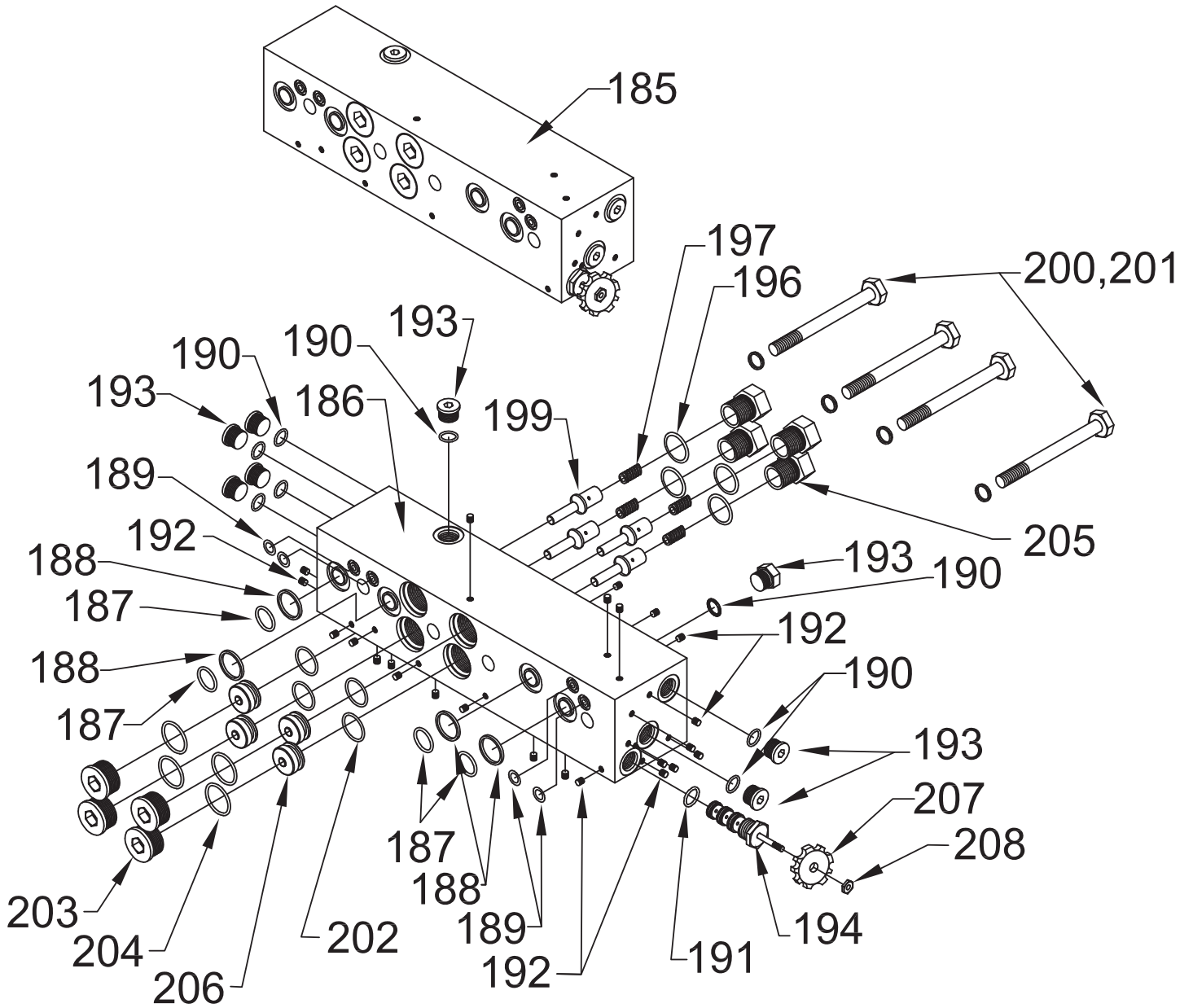


Switching Valve Assembly

ID #	Qty	Part #	Description
135	(1)	03341101	Switching Valve Assembly Pilot Operated (Includes items 136-167)
136	1	03147501	End Cap Left Pilot Operated Switching Valve
137	1	03147601	Body Pilot Operated Switching Valve
138	1	03147401	End Cap Right Pilot Operated Switching Valve
139	1	01335501	Rod Control Switching Valve
140	2	03718901	Poppet Switching Valve
141	2	03718801	Ring Poppet Switching Valve
142	1	03303101	Bushing O-Ring Tank Line
143	1	03312401	Bushing Tank
144	2	03147901	Plunger Pilot Operated Switching Valve
145	1	03341001	6400-16-12 Modified
146	2	03321601	-8 End Cap Pilot Operated Switching Valve
147	2	03319801	Pilot Check Valve Pilot Operated Switching Valve
148	2	84453400	Spring Check Valve External Large #B-18273
149	2	84687700	6409-12 M O-Ring Socket Plug
150	4	84687500	6409-08 M O-Ring Socket Plug
151	1	84685400	6400-16-16 Straight
152	8	86443500	Bolt Hex GR5 3/8"x3 3/4"
153	4	86459000	Bolt Hex GR8 1/2"x5"
154	4	86557000	Washer Lock 1/2"
155	16	84680770	1/16" Pipe Plug Socket 7/8" Taper
-(¹)	-	04181001	Seal Kit Pilot Operated Switching Valve (Includes items 156-167)
156	1	84387800	O-Ring 916
157	1	84378800	O-Ring 206
158	3	84387400	O-Ring 912
159	2	84379800	O-Ring 208 Urethane
160	2	84378200	O-Ring 126
161	2	84382200	O-Ring 216
162	2	01903101	O-Ring Backup 8-216
163	11	84376200	O-Ring 111
164	2	84382400	O-Ring 216 Urethane
165	2	01903101	O-Ring 216 Back-Up Nylatron
166	6	84387000	O-Ring 908
167	1	84380200	O-Ring 210

⁽¹⁾ The Switching Valve Seal Kit contains all necessary components to rebuild entire Switching Valve.

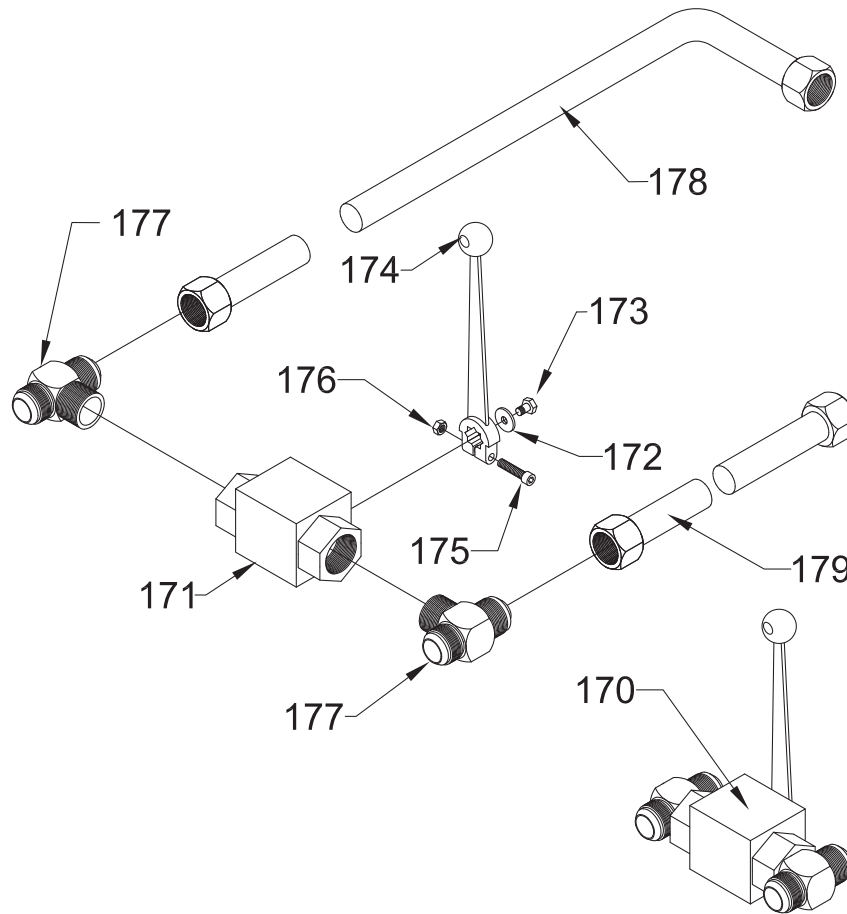
Control Manifold Assembly



Control Manifold Assembly

ID #	Qty	Part #	Description
185	(1)	03339101	Manifold Assembly (Includes items 186-208)
186	1	03349601	Body Manifold
187	4	84381000	O-Ring 212 Urethane
188	4	02100801	O-Ring Backup 8-212
189	4	84376200	O-Ring 111
190	8	84387000	O-Ring 908
191	1	84387200	O-Ring 910
192	24	84680770	1/16" Pipe Plug Socket 7/8" Taper
193	8	84687500	6409-08 M O-Ring Socket Plug
194	1	85105200	Control Valve Manual MRV4-10-K-0
-	-	85108798	Seal Kit for Cartridge Valves
196	4	84387400	O-Ring 912
197	4	84453400	Spring Check Valve External Large #B-18273
199	4	03502001	Poppet Pilot Check Valve Manifold
200	4	86471500	Bolt Hex GR8 5/8"x5 1/2"
201	4	86559000	Washer Lock 5/8"
202	4	84380400	O-Ring 210 Urethane
203	4	84687000	6409-16 M O-Ring Socket Plug
204	4	84387800	O-Ring 916
205	4	02702301	End Cap -12 Spring Pilot Operated
206	4	03502101	Piston Pilot Check Valve Block
207	1	84801600	Knob Cartridge Valve Manual
208	1	86625500	Nut Knob Valve Manual Cartridge
-	-	04189201	Seal Kit Control Manifold (Includes items 187-191, 196, 202, 204)

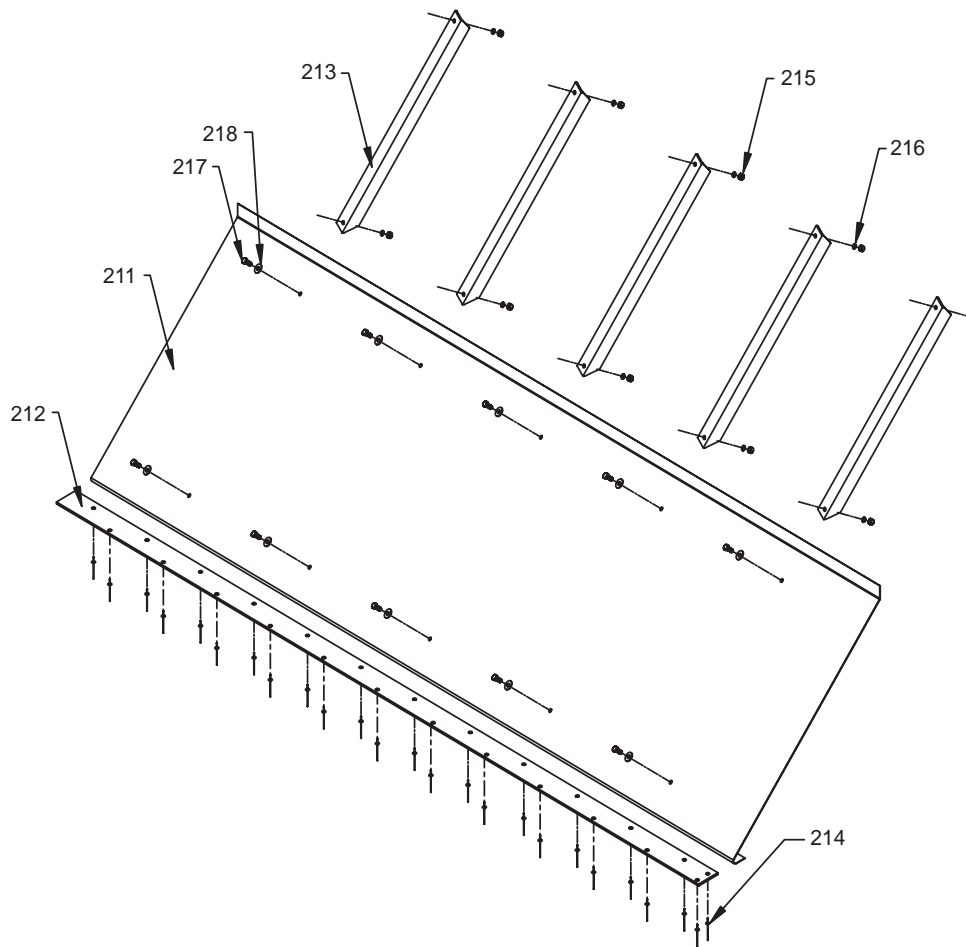
Ball Valve Assembly



Ball Valve Assembly

ID#	Qty	Part #	Description
170	(1)	84802600	Ball Valve 1" W/ Tees & Handle (Includes items 171-177)
171	(1)	84802800	Ball Valve Assembly 1" (includes items 172-173)
172	1	w/ball valve	Washer Flat 6mm
173	1	w/ball valve	Bolt Hex GR8 6mmx1mmx10mm
174	(1)	84802900	Handle Ball Valve (includes items 175-176)
175	1	w/handle	Bolt Socket Head GR8 6mmx1mmx30mm
176	1	w/handle	Nut Hex 6mmx1mm
177	2	84677880	2601-16-16-16 Tee
178	1	04177301	Tube Pressure Pilot Operated Switching Valve
179	1	04177401	Tube Return Pilot Operated Switching Valve

Shield Assembly



Shield Assembly

ID#	Qty	Part #	Description
-(-1)	1	03539550	Front Shield 96" Wide Assembly (Includes items 211-218)
211	1	03539750	Front Shield 96" Wide 14 Gauge
212	1	03540150	Bearing Strip Front Shield 1/4" x 2 7/8"
213 ⁽²⁾	5	03539901	Stiffener Angle Front Shield 1 1/2" x 1 1/2" x 3/16"
214 ⁽²⁾	25	86528000	Rivet 3/16" x 1/2"
215 ⁽²⁾	10	86628500	Nut Hex 3/8"
216 ⁽²⁾	10	86555000	Washer Lock 3/8"
217 ⁽²⁾	10	86437000	Bolt Hex GR5 3/8" x 3/4"
218 ⁽²⁾	10	86553500	Washer Large OD 3/8"

⁽¹⁾ Part numbers and descriptions vary based on trailer width and application.

⁽²⁾ Quantity varies based on trailer width and application.

Hydraulic Schematic

Hydraulic Schematic of CD System
(80mm COMPACT DRIVE)

