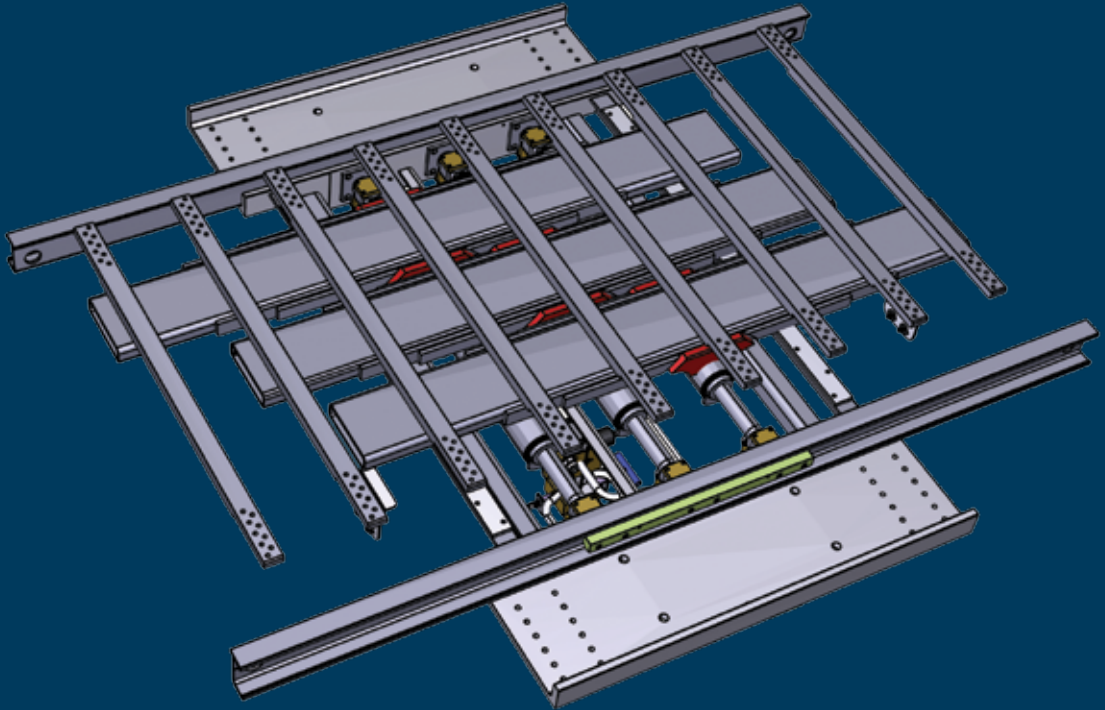


KEITH Mfg. Co.
World Headquarters
800-547-6161
541-475-3802
541-475-2169 fax



KEITH® V-FLOOR® DX OWNERS MANUAL Original Instructions

- Advanced Switching Valve
 - Center Frame Design
- Cross-Drive Bearing Support
 - External Check Valves
 - Utilizes Durable KEITH® RUNNING FLOOR II® Technology
- Strong Drive Frame
- Interchangeable Cylinders
- No Hydraulic Hoses



KEITH Mfg. Co.
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Madras, OR 97741
(800) 547 6161
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sales@keithwalkingfloor.com

We at KEITH Mfg. Co. are very happy that you have decided to equip your trailer with the V-FLOOR® DX unloading system that utilizes KEITH® RUNNING FLOOR II® technology. We take great pride in the fact that we manufacture the simplest and lowest maintenance self-unloading system available. Installing the V-FLOOR® DX unloader in your trailer provides you with the versatility to unload virtually any type of material.

The following pages contain information on the operation and maintenance of your V-FLOOR® DX unloader. Also included is a troubleshooting guide and detailed views of the various parts contained in the V-FLOOR® DX system.

In addition, we have provided information on the type of hydraulic wet kit that will be needed on your tractor. **Please be sure to use the recommended pumps, filters and pressure relief valves listed, or approved equivalent equipment. It is critical to adhere to the outlined hydraulic wet kit specifications. Failing to follow the guidelines concerning required operation pressures can lead to your system operating improperly.**

Please review the entire manual before operation the V-FLOOR® DX unloading system. If you have any questions or concerns, do not hesitate to contact our factory on our toll-free line, 800-547-6161 or via email at techdept@keithwalkingfloor.com and our trained personnel will be happy to assist you.

Thank you again for equipping your trailer with a V-FLOOR® DX unloader.

Sincerely,

Keith Foster
Founder

Mark Foster
President

OPERATION

Warranty..... 3
 Safety..... 5
 Safety Decals..... 6
 Operation of Your V-FLOOR® DX Unloader.....7.
 How It Works..... 8
 Component Location Guide..... 9
 Plumbing Diagram..... 10
 Start-Up Check List..... 11
 Oil Flow Diagram.....12
 Wet Kit Information..... 13

MAINTENANCE

Switching Valve Troubleshooting..... 14
 Switching Valve Adjustment..... 15
 Check valve Troubleshooting..... 15
 Replacing Check Valve..... 16
 Control Valve, Ball Valve Troubleshooting..... 17
 Hydraulic Cylinders Troubleshooting..... 18
 Repairing Cylinders..... 19
 Preventive Maintenance..... 20
 Maintenance Guidelines..... 59
 Warranty Registration..... 60

COMPONENTS

Drive Frame..... 21
 Cross Drive Assembly..... 21-26
 Cylinder Assembly..... 27
 Hydraulic Tubes and Fittings..... 29-32
 Check Valve Assembly..... 32-35
 Control Valve Assembly..... 36
 Switching Valve Assembly..... 40
 Ball Valve Assembly..... 42-49
 Restrictor Valve Assembly..... 50
 On/OFF Ball valve and Control Valve Handles..... 51
 Flooring..... 58
 UHMW Shield..... 60



V-FLOOR® DX LIMITED WARRANTY

KEITH Mfg. Co. hereby warrants, only to the first owner of a new **KEITH® V-FLOOR® DX unloader** 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 to the first registered owner. **Hydraulic parts and components shall be warranted as free from defects in material and workmanship for a period of two years to the first registered owner. This warranty does not cover normal wear and tear and maintenance and is not to be construed as a service contract.**

Owners Obligation: To qualify for warranty coverage, a “warranty card must be completed and returned to Keith Mfg” and the equipment must be subject to normal use and service only.

Definition of Normal Use and Service: Normal use and service 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, non-corrosive materials, with weights not in excess of factory rated capacity.

Sole and Exclusive Remedy: If the product covered hereby fails to conform to the above stated warranty, **KEITH Mfg. 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 Mfg. Co.** This is the owner’s sole and exclusive remedy for all contract claims, and all tort claims including those based on the strict liability in tort and negligence. Any defective part(s) must be shipped freight prepaid to **KEITH Mfg. Co.**, Madras, Oregon.

Except As Expressly Set Forth Above, KEITH Mfg. Co. Makes No Warranties:

Expressed, implied or statutory, specifically: No warranties of fitness for a particular purpose or warranties of merchantability are made. Further, **KEITH Mfg. Co.** will not be liable for incidental damages or consequential damages such as, but not limited to, loss of use of the product, damage to the product, towing expenses, attorney’s fees and the liability you may have in respect to any other reason.

Tort Disclaimer: KEITH Mfg. Co. shall not have any liability in tort with respect to the 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.



A summary of the warranty conditions are as follows:

- The warranty period is for the first equipment owner only
- A warranty period of (1) one year for the entire V-FLOOR® DX unloader from date of sale by trailer manufacturer.
- A warranty period of (2) two years for the hydraulic parts and components from date of sale by trailer manufacturer.
- The V-FLOOR® DX unloader must be installed by the trailer builder according to KEITH® installation procedures.
- KEITH recommended maintenance and control procedures must be followed.
- In the case of a malfunction, trailer manufacturer, or KEITH must be informed.

The following components are not covered by the warranty:

- Malfunction of equipment, or caused by equipment, which was not supplied by KEITH Mfg. Co.
- Malfunction caused by the use of dirty oil, or oil of the wrong type.
- Malfunction caused by overheated oil: maximum temperature 60 °C or 140 °F.
- Malfunction caused by corrosive materials.
- Malfunction caused by overloading or improper use.
- Malfunction caused by repair work performed by an unauthorized third party.
- Filter elements and components which are subject to wear-and-tear.
- Defects in electrical components due to incorrect connection and/or incorrect voltage levels.

The warranty is void if:

- The V-FLOOR® DX unloader is used for purposes which have not been recommended by KEITH Mfg. Co.
- The wet kit does not meet KEITH system recommendations.
- The V-FLOOR® DX unloader is not installed properly.
- Loads in excess of legal limits are moved with the system without written permission from KEITH Mfg. Co.

To Prevent Possible Injury or Death

Do Not:

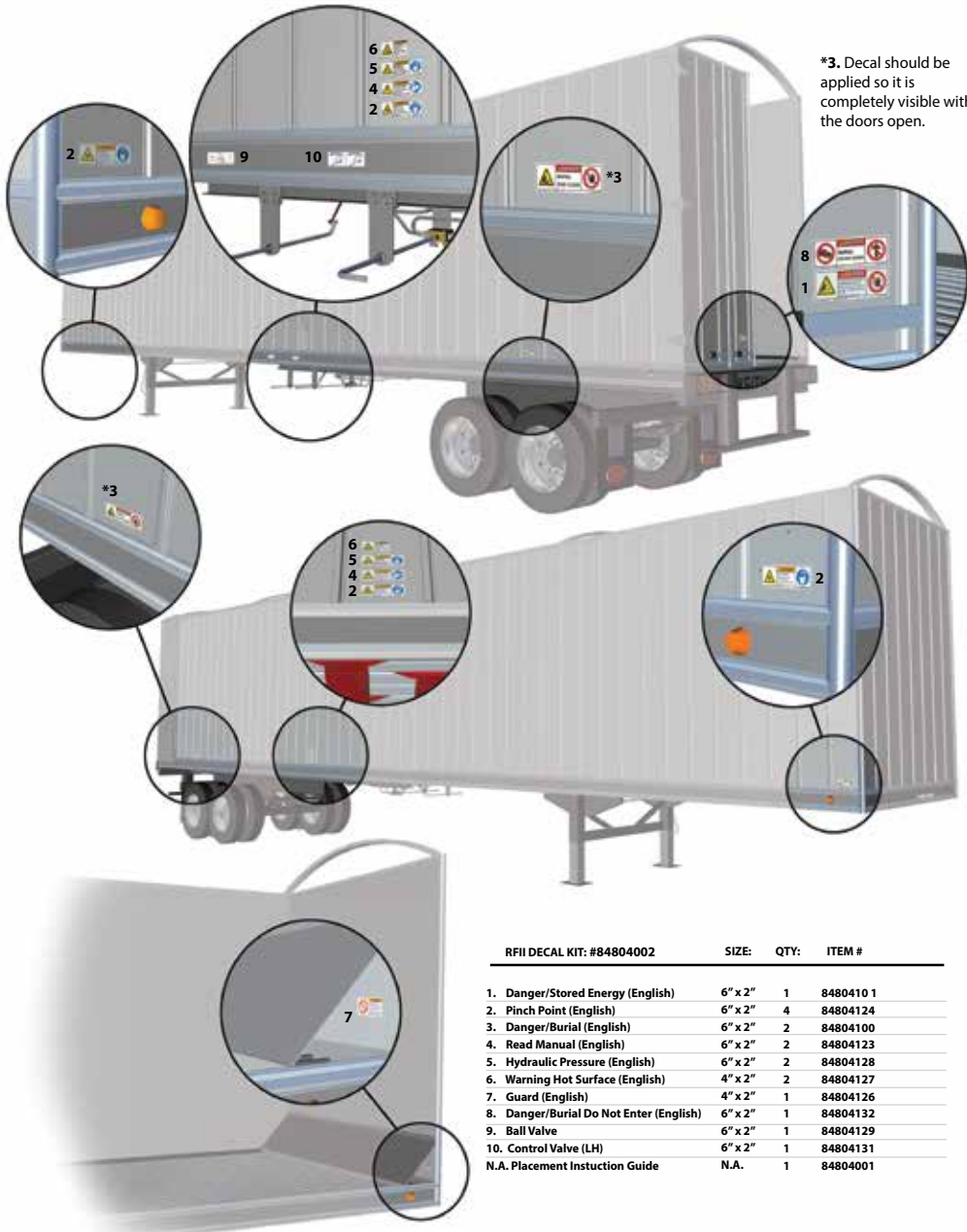
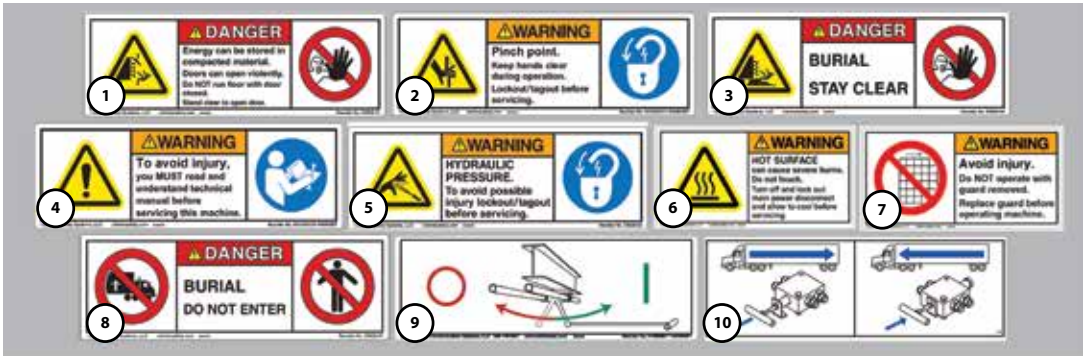
1. Operate the floor with the doors closed.
2. Stand behind the trailer or in the discharge area when the floor is operating.
3. Make adjustments to the unloading mechanism with the floor operating.
4. Operate unloader when protective covers and screens are not in place.
5. Go underneath the trailer when floor is operating.
6. Leave the trailer unattended while the unloader is in operation.

Always:

1. Disengage the trailer from the (P.T.O.) hydraulic power unit before service and maintenance.
2. Shut off the power supply before going underneath the trailer.
3. Stay away from any oil leaks when hydraulic pressure is high.
4. Shut off the hydraulic power take off unit (P.T.O) before moving the trailer.

!!Keep your hands, body parts and loose clothing away from the floor slats and drive mechanism when the unloading system is in operation!!

Each decal notifies the operator of instructions or potential safety hazards associated with the KEITH® *WALKING FLOOR*® unloader. If your dealer has not placed the decals during installation, please follow the decal placement guide provided and place the decals as directed. If you have not been provided with the operational and safety decals, please contact your dealer, or KEITH Mfg. Co. directly and we will provide a set of decals for your application and use. If you have any questions or concerns regarding the decal placement, please don't hesitate to contact your dealer or KEITH Mfg. Co.



*3. Decal should be applied so it is completely visible with the doors open.

RFII DECAL KIT: #84804002	SIZE:	QTY:	ITEM #
1. Danger/Stored Energy (English)	6" x 2"	1	8480410 1
2. Pinch Point (English)	6" x 2"	4	84804124
3. Danger/Burial (English)	6" x 2"	2	84804100
4. Read Manual (English)	6" x 2"	2	84804123
5. Hydraulic Pressure (English)	6" x 2"	2	84804128
6. Warning Hot Surface (English)	4" x 2"	2	84804127
7. Guard (English)	4" x 2"	1	84804126
8. Danger/Burial Do Not Enter (English)	6" x 2"	1	84804132
9. Ball Valve	6" x 2"	1	84804129
10. Control Valve (LH)	6" x 2"	1	84804131
N.A. Placement Instruction Guide	N.A.	1	84804001

Operation of your KEITH® V-FLOOR® DX Unloader

UNLOADING

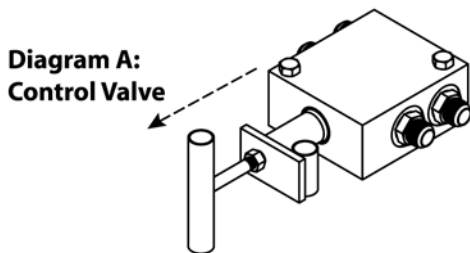
1. Before beginning to unload, make sure the trailer door is open.
2. To unload with your KEITH® V-FLOOR® DX system, pull the control valve handle all the way out. (See Diagram A.)
3. Make sure that the ball valve, located between the pressure and return lines, is in the closed (run) position. (See Diagram B.) This ball valve is used for the emergency shut-off.
4. Engage the P.T.O., then bring the tractor engine up to the predetermined unloading RPM. Your trailer floor should now be operating.
5. To stop the floor at any time during the loading or unloading process, switch the ball valve to the open (stop) position. (See Diagram B.)

LOADING

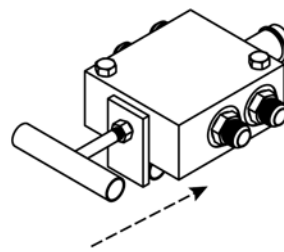
1. To load with your bi-directional KEITH® V-FLOOR® DX system, simply turn the control valve handle parallel to the ground and push it all the way in. (See Diagram A.) Then follow instructions 3, 4 and 5 listed above.

!!Note!!

Make sure the trailer door is open BEFORE starting the floor or the trailer door may be damaged. The nose of the trailer may also be damaged by the load force when loading.

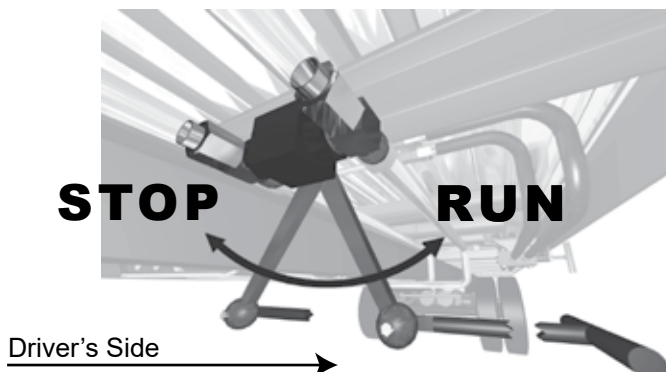


PULL TO UNLOAD
Handle Pulled Completely Out



PUSH TO LOAD
Handle Pushed Completely In

Diagram B:
Ball Valve



How It Works



Initial State

All slats/planks at discharge end.



Stage 1

The first group of slats/planks moves under the load.

Load does not move.



Stage 2

The second group of slats/planks moves under the load.

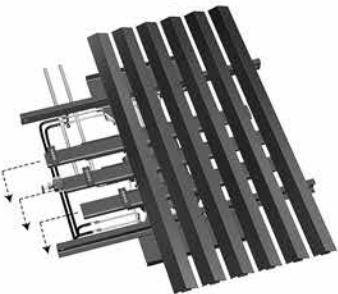
Load does not move.



Stage 3

The final group of slats/planks moves under the load.

Load does not move.



Stage 4

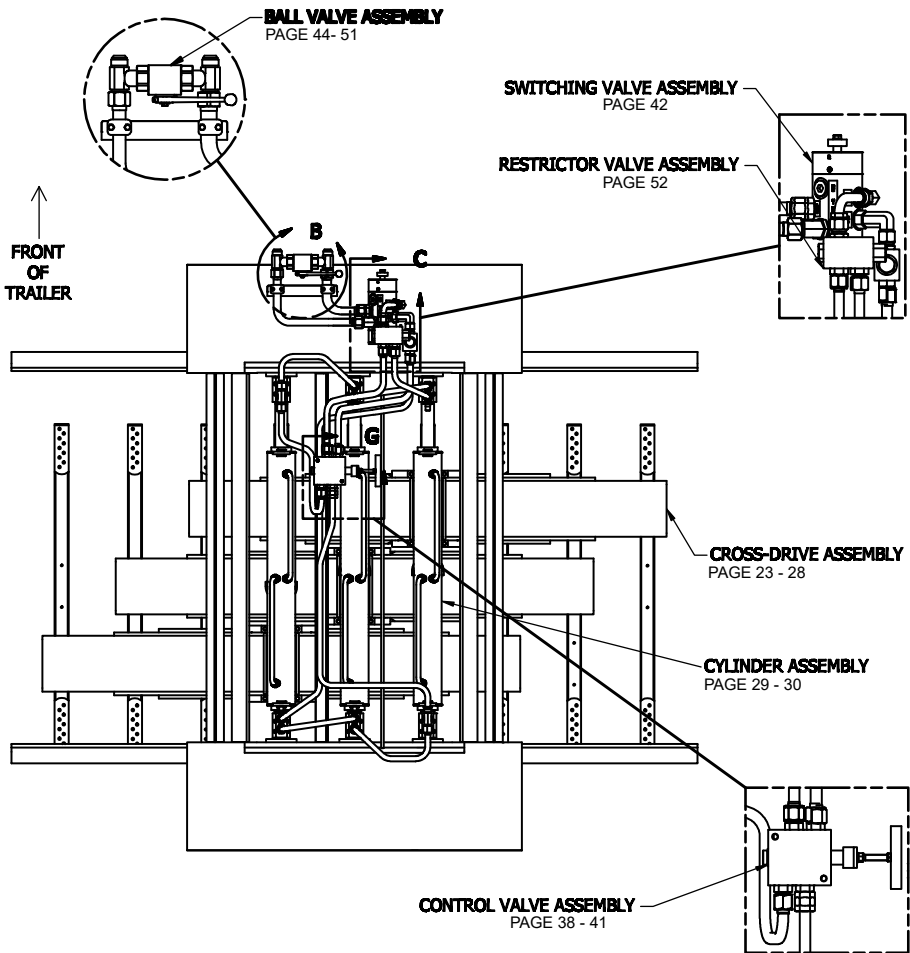
All slats/planks move together.

Load moves toward the discharge end.

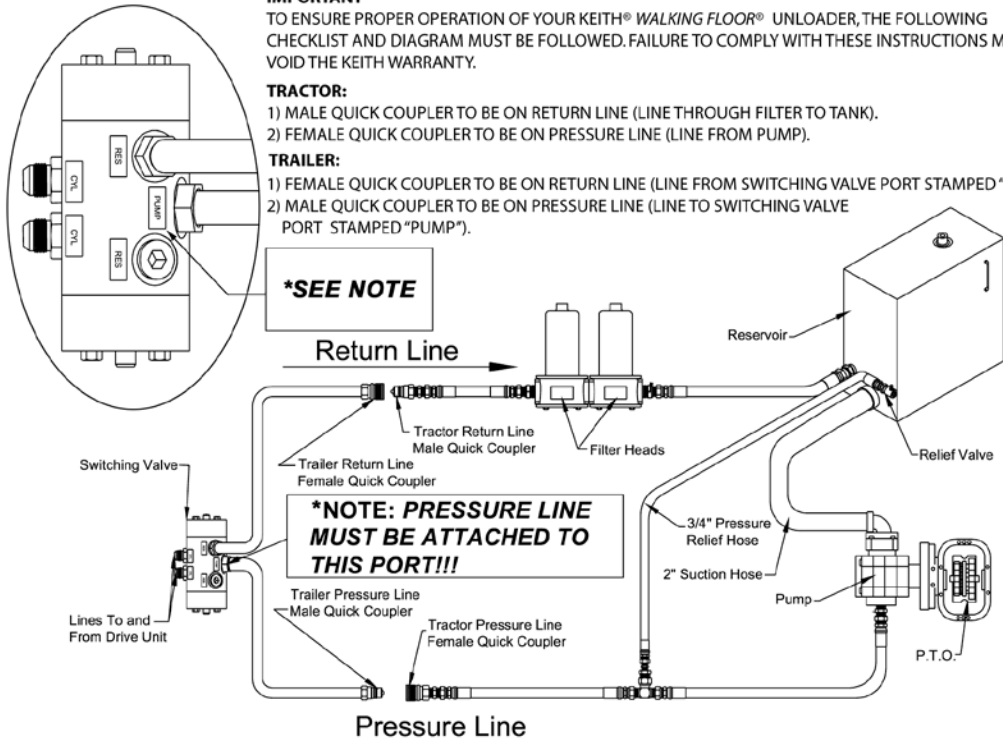
(Stages 1, 2 & 3 require more pressure than stage 4.)

Component Location Guide (View from underneath the trailer).

Component Location Guide (View from underneath the trailer)



Plumbing Diagram



***NOTE: The pressure and return lines must attach to their proper ports on the switching valve. If you have any questions or problems, call KEITH Mfg. Co. at 800-547-6161.**

Start-Up Check List for the KEITH® V-FLOOR® DX System

Before starting your new KEITH® V-FLOOR® DX unloader, a quick start-up check should be made.

1. Is your entire system plumbed to the plumbing diagram?
2. *Pump: Will it pump 30-35 GPM at 3000 PSI?
3. *Relief Valve: Is it set at 2800-3000 PSI?
4. Oil: Have you filled the reservoir?
5. Power Take Off: Is the P.T.O. engaged?
6. Quick Disconnects: Are they the same size and type? Are they completely engaged?
7. Ball Valve: Is the ball valve on the drive unit closed?
8. Is the pressure line on the trailer attached to the pressure line on the tractor and the return line on the trailer attached the return line on the tractor?

*If the information about your pump and relief valve is not known, a pressure/flow check will help determine this information. Be sure that your entire wet kit system meets the requirements of the hydraulic wet kit specifications in this manual.

KEITH® RUNNING FLOOR II™ OIL FLOW DIAGRAM (UNLOAD CYCLE)

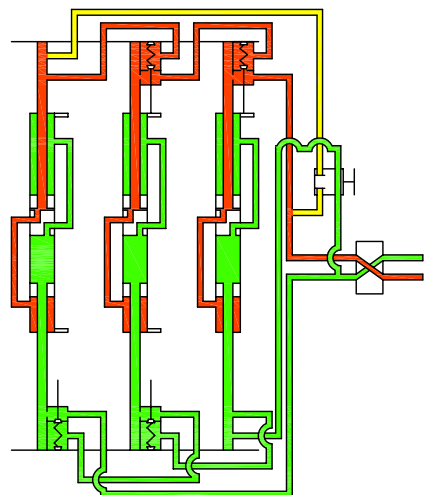
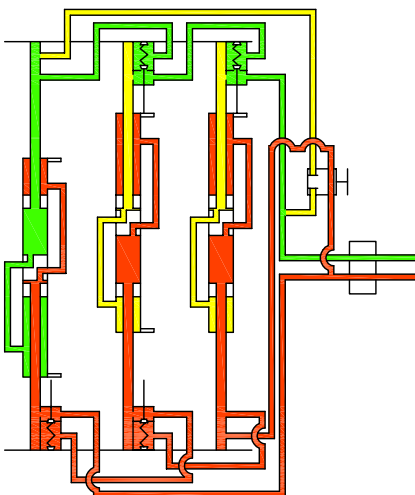
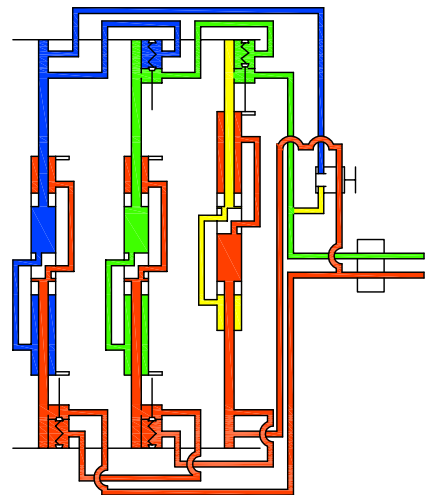
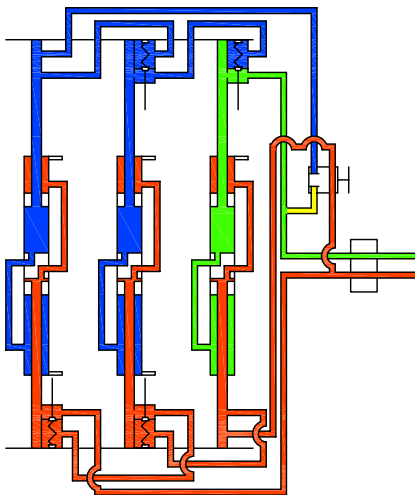
KEITH MFG. CO.

P.O. BOX 1, MADRAS, OR 97741

PHONE 1(503) 475-3802, NAT. 1(800) 547-6161, FAX 1(503) 475-2169

- Pressure
- Return
- Blocked Return Oil
- Standing Oil

GP
8/29/01
D-45600



Wet Kit Information

Transmission:	This wet kit is designed for a Fuller 13 or 15 speed transmission. All of the following information applies to this transmission. Power Take Off (P.T.O.) specifications may vary with other transmissions. Please check with KEITH Mfg. Co. for other specifications.
Oil:	Chevron AW46 hydraulic oil or equivalent.
P.T.O.:	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.
Pump:	Commercial P51 type with dowelled housing; 2 1/2" gear (2" four bolt suction) with Anchor W43-32-32 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 6 hours initially, and then every 6 months thereafter. This may vary with the operating environment.)
Hydraulic Reservoir:	Should hold approximately 1 gallon of oil for every gallon per minute you plan to pump, i.e. 40 GPM = 40 gallon reservoir. Reservoir should hold a minimum of 40 gallons of oil.
Suction Line:	Suction line from the tank to the pump should be no more than 5' in length and a minimum of 2" inside diameter. Example: SAE-100R4. (This type of line has a spiral wire to keep the hose from collapsing under suction.)
Pressure Line:	Hose from truck to trailer should be 1" 16 SAE-100R2.
Return Line:	Hose from trailer to filter should be 1" 16 SAE-100R1. Hose from filter to tank should be 1 1/4" 20 SAE-100R1.
*Pressure Relief Valve:	High quality valve, with the ability to relieve full pump flow at 3000 PSI.

***Note: It is critical that this relief valve is set at no less than 2800 PSI and no more than 3000 PSI.**

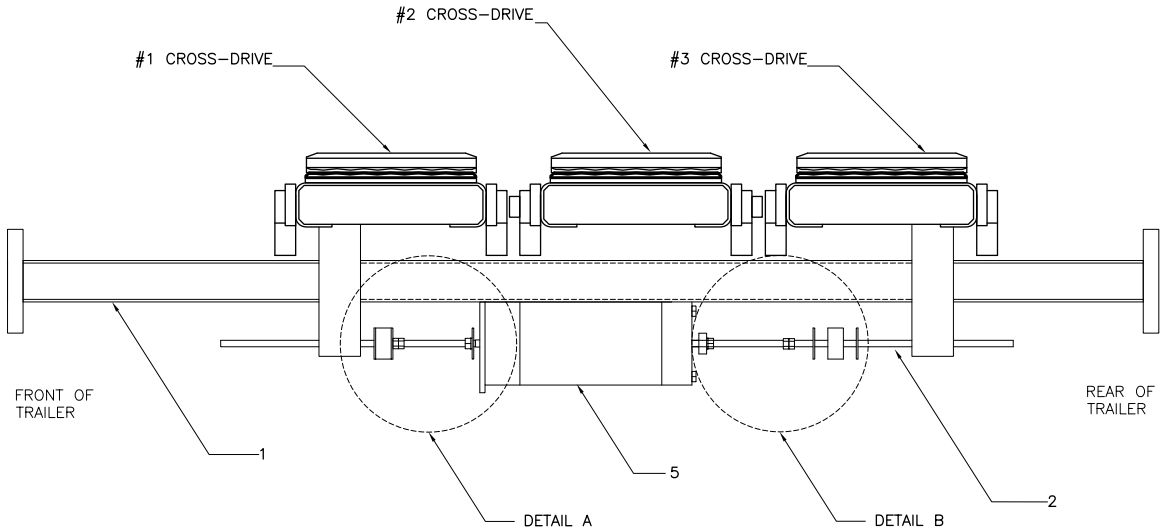
SWITCHING VALVE TROUBLESHOOTING

- Problem:** Cylinder (#1) moves toward the front of the trailer. Cylinder (#2) moves toward the front of the trailer. Cylinder (#3) moves toward the front of the trailer; then the system stops.
- Cause:** The threaded rod nuts on the discharge end of the switching valve are not adjusted correctly.
- Solution:** Break the two nuts apart and adjust toward the rear of the trailer.
- Problem:** All three cylinders move toward the rear of the trailer; then the system stops.
- Cause:** The threaded rod nuts on the forward end of the switching valve are not adjusted correctly, or there is not enough hydraulic pressure. (See note.)
- Solution:** Break the two nuts apart and adjust toward the front of the trailer.
- Problem:** Floor runs fine empty or with a light load, but will not cycle with a heavy load.
- Cause:** The nuts on the threaded rod are slightly out of adjustment, or there is not enough hydraulic pressure. (See note.)
- Solution:** Break the two nuts apart and adjust them.

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.*

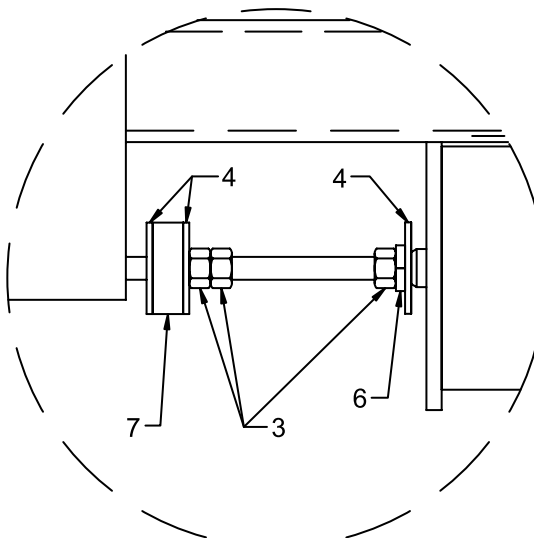
When empty, some trailers will cycle in sequence forward 1-2-3, then back 3-2-1, (instead of all slats moving back together.) This is not a malfunction; no repairs are needed. When load is put on a trailer, the drag will cause the floor to sequence properly.

SWITCHING VALVE ADJUSTMENT

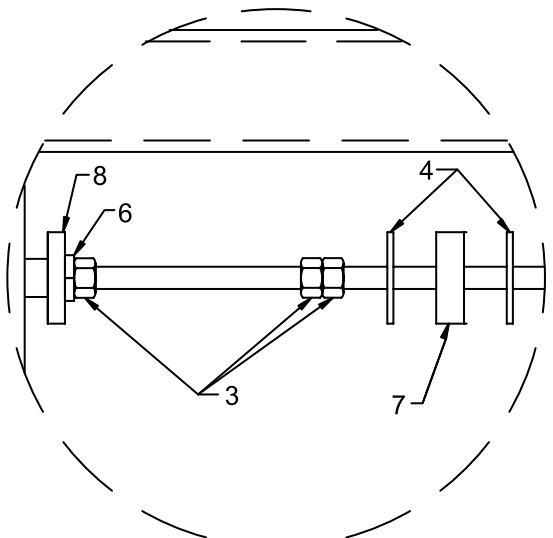


- 1. 2" x 2" Steel Tube
- 2. 3/8" Threaded Rod (typ. 2 pcs)
- 3. 3/8" Nuts
- 4. 3/8" Flat Washers

- 5. Switching Valve
- 6. 3/8" Lock Washer
- 7. Switching Valve Grommet
- 8. Switching Valve Limit Cap



Detail A



Detail B

Check Valve Troubleshooting

The exterior check valve is designed to vent oil from the return side of the cylinder. It does not direct pressurized oil into the cylinder.

Unloading

Problem:	Cylinders (#1) and (#2) extend together toward the front of trailer.
Cause:	The check valve at the forward end of cylinder (#1) has malfunctioned.
Solution:	Rebuild or replace the check valve.
Problem:	Cylinders (#2) and (#3) extend together toward the front of trailer.
Cause:	The check valve at the forward end of cylinder (#2) has malfunctioned.
Solution:	Rebuild or replace the check valve.
Problem:	All three cylinders extend together toward the front of trailer.
Cause:	The check valves at the forward end of cylinders (#1) and (#2) have malfunctioned (Unlikely) or oil is leaking in the control valve and “floating” the check valves.
Solution:	Rebuild or replace the check valves or control valve.

Loading

Problem:	Cylinders (#2) and (#3) extend together toward the rear of trailer.
Cause:	The check valve at the rear end of cylinder (#3) has malfunctioned.
Solution:	Rebuild or replace the check valve.
Problem:	Cylinders (#1) and (#2) extend together toward the rear of trailer.
Cause:	The check valve at the rear end of cylinder (#2) has malfunctioned.
Solution:	Rebuild or replace the check valve.
Problem:	All three cylinders extend together toward the rear of trailer.
Cause:	The check valves at the rear end of cylinders (#2) and (#3) have malfunctioned (Unlikely) or oil is leaking in the control valve and “floating” the check valves.
Solution:	Rebuild or replace the check valves or control valve.

See “Replacing a Check Valve” Page 16

The check valves at the rear of the cylinders (discharge end) do nothing when you are unloading. The check valves at the rear are used for loading only.

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.

Replacing a Check Valve

Replacing a KEITH® RUNNING FLOOR II® DX external check valve is a simple procedure. The tools required to do this are:

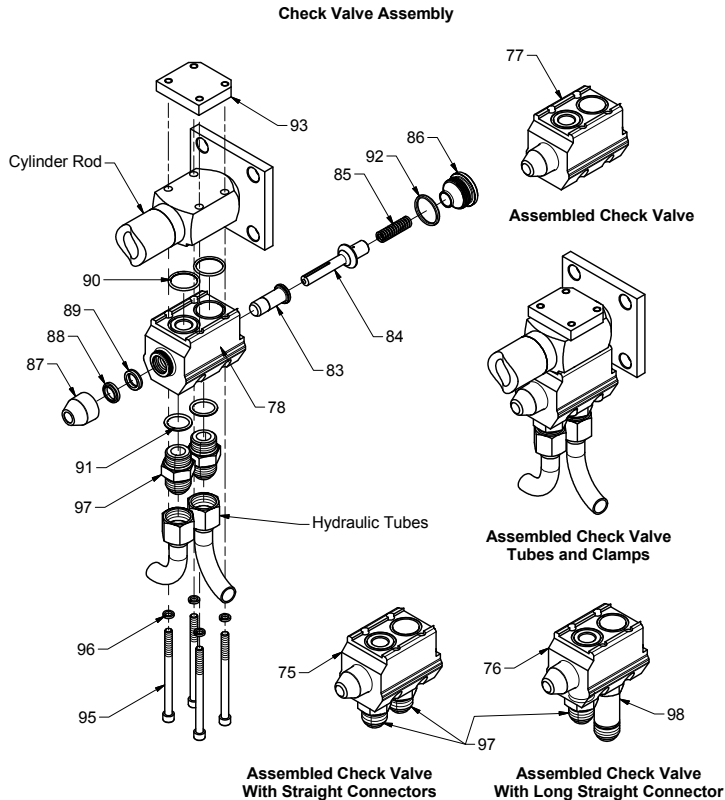
- (1) 1/4" Allen wrench
- (1) 1-1/4" Open end wrench

DISASSEMBLY

Before removing any bolts, run the cylinder away from the check valve in order to free it. Next remove the four socket head 5/16 x 4 1/2" bolts and tube clamp. Loosen the other end of the tubes and remove the check valve.

ASSEMBLY

First, make sure all of the surfaces are clean and the O-rings are in the proper places. Put the new check valve in place making sure it seats flat on the rod end. Put the 5/16" x 4 1/2" socket head bolts in and tighten the bolts down. Tighten bolts in a x-pattern. Snug each bolt first. Then torque each bolt. Attach the hydraulic tubes to the check valve and tighten. Run the floor and check for leaks.



Control Valve, Ball Valve Troubleshooting

Control Valve

The control valve controls the direction of material movement (Load or unload).

Hydraulic oil is directed through the valve by moving the valve handle in or out. When the handle is pulled out, the *WALKING FLOOR*® system unloads. The oil is flowing through the outside hydraulic lines and blocked from flowing through the inside lines. When the valve handle is pushed in, the floor loads. Oil flows through the inside lines and is blocked from flowing through the outside lines.

If the valve spool becomes worn or scored, a hydraulic bypass will be created and the oil will get hot. Isolate the valve by pulling the handle out. Remove the two inside hydraulic lines, cap the valve and plug the lines. If the drive unit runs without the oil getting hot, the valve needs to be changed.

Ball Valve

Note: The ball valve is intended to use as the start and stop valve and the emergency shut off!

The ball valve will start or stop the floor.

The ball valve is open when the handle is pushed in. Oil is allowed to flow through the ball valve and back to the tank. When the handle is pulled out, the valve is closed. Oil flows to the drive unit. If the ball valve gets hot to the touch, the inner seals are worn or damaged. This can occur from using the wrong hydraulic pump, bad quick couplers, or from any problem that causes a hydraulic bypass. The ball valve has two Teflon® cup seals; one located on each side of the ball port. If these seals get hot, they will break down. This causes hydraulic oil to slip by, creating heat. You may not be able to move the load because of loss of pressure. The ball valve needs to be rebuilt or replaced.

Hydraulic Cylinders Troubleshooting

Hydraulic Cylinders

Hydraulic cylinders are usually damaged from heat or foreign materials (Causing seals, wear sleeve, etc. to break down).

The way to check the cylinders is to use an infrared heat detector or by touching each end of the cylinder barrel. If you find one end or both that are warmer than the other cylinders, it usually indicates which cylinder is damaged.

Caution: Never touch any component part of the Running Floor II® DX drive or perform this check while the drive unit is operating or P.T.O. engaged. Always shut the system down before performing maintenance.

Problem:	Cylinder (#1) moves fine, (#2) moves fine, (#3) will start to move then suddenly stop. (#3) will then travel four to five inches and move fast.
Solution:	The cylinder (#3) clamp is too tight. This could happen on any one of the three cylinders. Re-torque to 135 ft-lbs.
Problem:	After (#1) cylinder, the left side cylinder, has been changed, the system is operated. (#1) moves to the check valve and opens the check valve. (#2) moves forward, but stops before it reaches the check valve and the hydraulics are at high pressure.
Solution:	Cylinder (#1) was not installed in the correct position. This is not allowing (#2) to travel the distance needed to open the (#2) check valve. The correct measurements for the Running Floor II® 3.0" and 3.5" cylinders are as follows: Cylinder (#1) from end of barrel to front smooth clamp = 1 ½" Cylinder (#3) from end of barrel to front smooth clamp = 1 ½" Cylinder (#2) center cross drive on barrel Do not measure from the cylinder head.
Problem:	In the Unload mode in empty trailer: As all three cylinders travel toward the rear of the trailer, cylinder #3 moves faster than #1 or #2. Cylinder #2 is slowed down because it is bypassing internally or has a mechanical restriction.
Solution:	There is not enough restriction on cylinder (#3). It is recommended to install an RV-2 valve, a restrictor valve, between the switching valve and cylinder or a check valve with a heavier internal spring.

Repairing Cylinders

To repair or replace the cylinder, you have to remove the hydraulic tubes and the check valves on each end of the cylinder that will be removed. There will be a total of twelve 5/8" bolts. Each end of the cylinder will have four and there will be four bolts from the cross-drive. Leave one bolt on each end of the cylinder to hold it in place, but loosen it so that it is almost out. Have one person on each end of the cylinder remove the bolt and let the cylinder down. Use the same method to put the cylinder back in.

Before installing the new cylinder, be sure to check the threaded pad on the cylinder and upper clamp on the cross-drive for damage. If the threads are damaged, replace with a new barrel or cross-drive, if necessary. The threaded pads must mate perfectly and the barrel clamps must be tightened properly to prevent slippage. (135 ft-lbs).

Note: In all RUNNING FLOOR II® DX units, cylinder (#1) is located on the left side of the trailer. It is also the first cross-drive that moves to the front of the trailer.

Rule of Thumb:

If you have a cylinder leaking due to heat, usually all three cylinders will need to be (or should be) repaired or replaced.

Suggested Preventive Maintenance Schedule

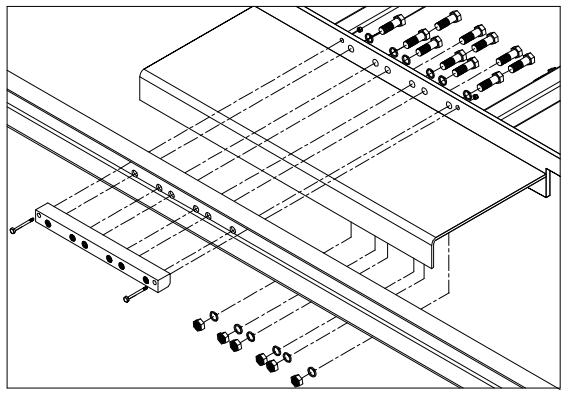
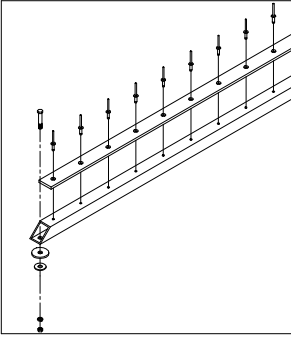
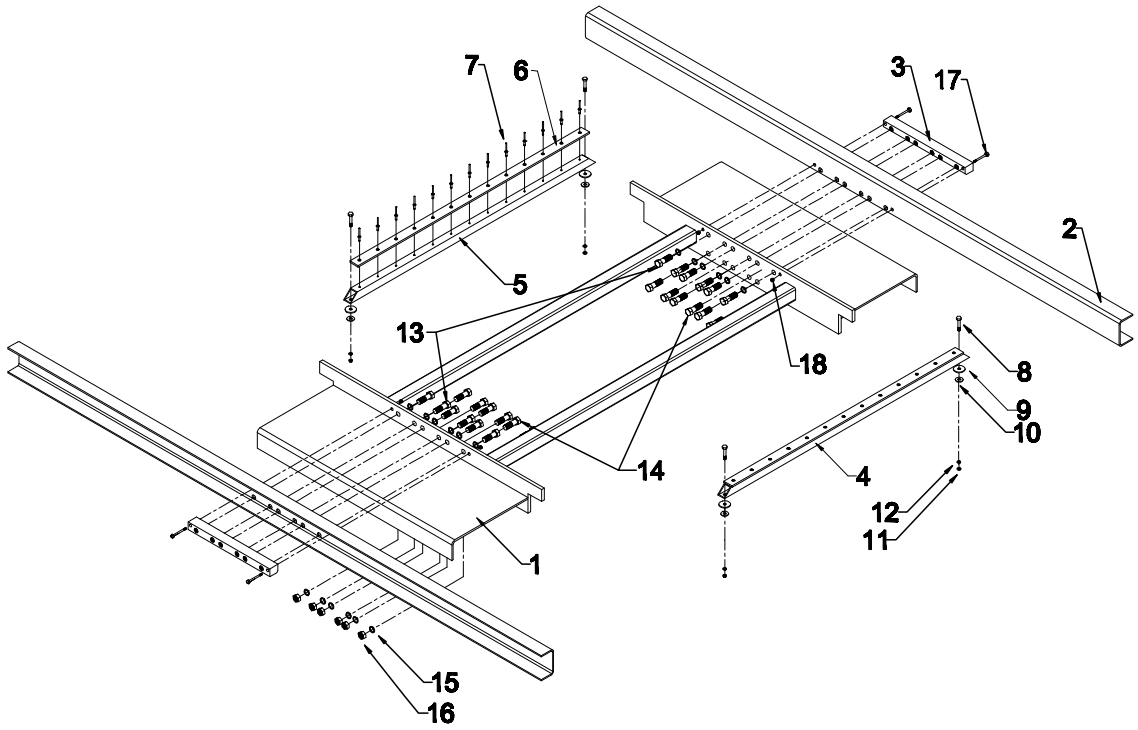
New Trailer:

1. Check torque on barrel clamp bolts before first load and after the first week of operation. 5/8" bolts/135-lbs. (See page 61)
2. Check torque on floor bolts after one week of operation.
 - 5/16" bolts/22-lbs.
 - 3/8" bolts/42-lbs.
 - 5/8" bolts/180-lbs 9 Slat Kwik Klamp .
 - 5/8" bolts/150-lbs 24 Slat Kwik Klamp.
 - 3/8" bolts/45-lbs Integrated V Slat.
3. Visually check for hydraulic leaks. Check the cylinder area, around the pressure and return hydraulic tubes, around the switching valve, check valves, and the quick disconnect. If leaks are found, retighten the fittings.

Used Trailer:

1. Visually check for hydraulic leaks.
2. Visually inspect the cross-drive support bearing for excessive wear. Replace if needed.
3. Visually inspect the cross-drive tubes and drive shoes for damage. Replace or repair as needed.
4. Inspect flooring for loose slats or bent slats that may have popped up due to impact damage.
5. Visually inspect for excessive wear of the floor bearings over each vehicle tire. Replace as needed.
6. The type of material being transported will affect the timing of the following procedure. A general guide for slat rotation or replacement is after approximately 3,000 loads. Check for wear on the rear of the slats and if they are worn more than 75% of the original thickness, it is suggested to remove and rotate the flooring end-for-end for extended life.
7. Pressure wash the drive unit, sub-deck and slats at least twice per year. Once per quarter, if possible.
8. Cycle the system and observe for proper operation in the load and unload modes.
9. Check the torque of the barrel clamp and floor bolts. See torque chart Page 61.

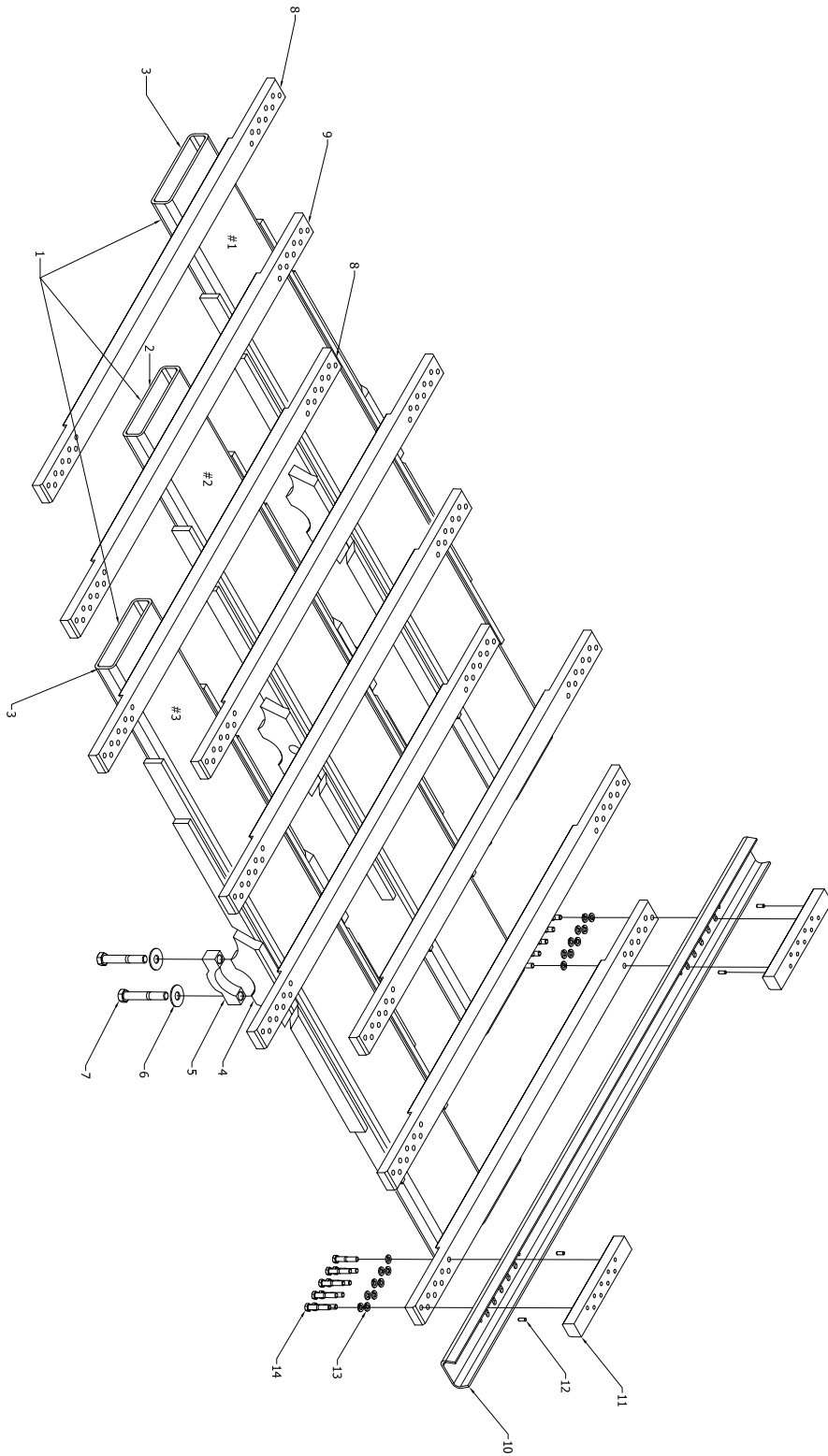
Note: The hydraulic wet kit must meet KEITH Mfg. Co. requirements and must be properly maintained to avoid damaging the *WALKING FLOOR*® system.



ID #	QUANTITY	DESCRIPTION	PART NUMBER
-	1	Drive Frame Assembly	-
-	-	Includes items 1-18	-
1 ⁽¹⁾	1	Drive Frame Steel	-
2 ⁽¹⁾⁽²⁾	2	Channel Formed 4"x2 1/4"x3/16"	w/frame
3 ⁽¹⁾	2	Nut Bar Threaded 10.5" Cylinder Centers	05047001
3 ⁽¹⁾	2	Nut Bar Threaded 10.0" Cylinder Centers	05181401
4 ⁽¹⁾	2	Bearing 1/4" Cross-Drive Support Assembly	03467801
-	-	Includes items 5-7	-
5 ⁽¹⁾	1	Bearing Cross-Drive Support Tube	03467701
6 ⁽¹⁾	1	Bearing Cross-Drive Support 1/4" UHMW	03453901
7	13	Rivet 3/16"x1/2"	86528000
8	4	Bolt Hex GR5 3/8"x1 1/4"	86438000
9	4	Washer Large OD 3/8"	86553500
10	4	Washer Flat 3/8"	86554000
11	4	Nut Hex 3/8"	86628500
12	4	Washer Lock 3/8"	86555000
13	12	Bolt Hex GR8 5/8"x2 3/4", (3.0" Cyl)	86466500
13	12	Bolt Hex GR8 5/8"x3", (3.5" Cyl)	86467000
14	12	Bolt Hex GR8 5/8"x2", (3.0" Cyl)	86464500
14	12	Bolt Hex GR8 5/8"x2 1/4", (3.5" Cyl)	86465500
15	24	Washer Lock 5/8"	86559000
16	24	Nut Hex 5/8"	86632000
17	4	Bolt Hex GR5 1/4"x2 1/4", (3.0" Cyl)	86419500
17	4	Bolt Hex GR5 1/4"x2 1/2", (3.5" Cyl)	86420000
18	4	Nut Hex Nylock 1/4"	86626000

(1) Part numbers and descriptions vary based on drive configurations

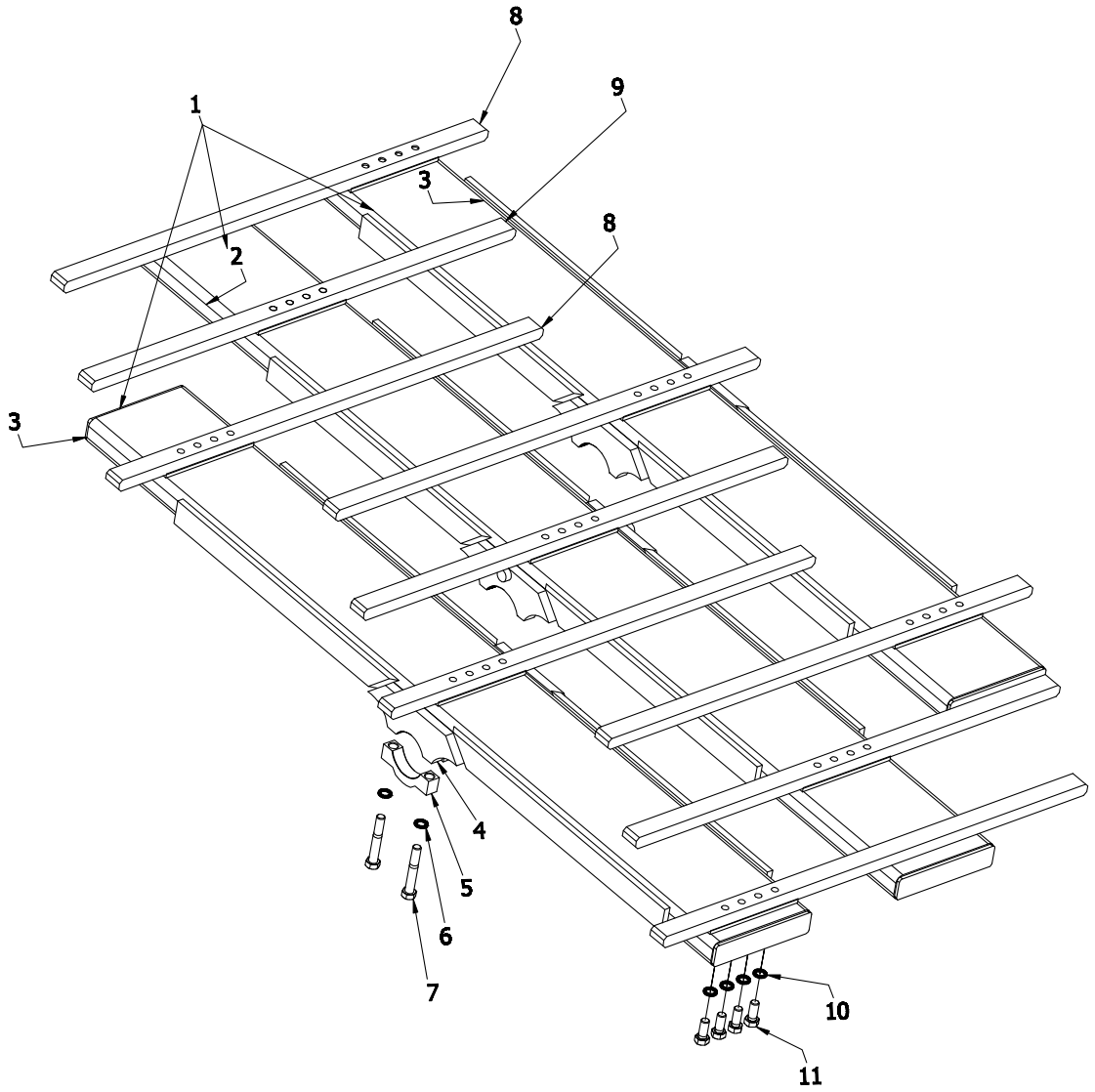
(2) Formed channels are included with the frame. In many applications they are non-removable.



PARTS LIST

ID#	QUANTITY	DESCRIPTION	PART NUMBER
1*	1	3" KVD X-Drive Assembly Cross-Drive 9 V-Slat, 10.5" SC & CC Bolted Shoe	5981101
1*	1	3.5" KVD X-Drive Assembly Cross-Drive 9 V-Slat, 10.5" SC & CC Bolted Shoe	5979801
1*	1	3" KVD X-Drive Assembly Cross-Drive 9 V-Slat, 10.0" SC & CC Bolted Shoe	6039001
1*	1	3.5" KVD X-Drive Assembly Cross-Drive 9 V-Slat, 10.0" SC & CC Bolted Shoe	5981601
2*	1	Cross Drive 3.0" Cylinder Bore #2, 10.5" CC	5981103
2*	1	Cross Drive 3.5" Cylinder Bore #2, 10.5" CC	5979803
2*	1	Cross Drive 3.0" Cylinder Bore #2, 10.0" CC	6039003
2*	1	Cross Drive 3.5" Cylinder Bore #2, 10.0" CC	5981603
3*	2	Cross Drive 3.0" Cylinder Bore #1 & #3, 10.5" CC	5981102
3*	2	Cross Drive 3.5" Cylinder Bore #1 & #3, 10.5" CC	5979802
3*	2	Cross Drive 3.0" Cylinder Bore #1 & #3, 10.0" CC	6039002
3*	2	Cross Drive 3.5" Cylinder Bore #1 & #3, 10.0" CC	5981602
4*	3	Threaded Clamp 3.0" Lower Cross Drive	3024501
4*	3	Threaded Clamp 3.5" Lower Cross Drive	3024601
4*	3	Smooth Clamp 3.0" Lower Cross Drive	3024401
4*	3	Smooth Clamp 3.5" Lower Cross Drive	3024701
5*	6	Clamp 3.0" Lower Cross Drive	03910501
5*	6	Clamp 3.5" Lower Cross Drive	03910601
6	12	Washer Tab Lock 5/8"	04430601
6	12	Washer, Wedge Locking 5/8" (3.0" Cyl)	86559010
6	12	Washer, Wedge Locking 5/8" (3.5" Cyl)	86559090
7*	12	Bolt Hex Patchlock GR8 5/8" x 4" (3.0" Cyl)	86470010
7*	12	Bolt Hex Patchlock GR8 5/8" x 4-1/2" (3.5" Cyl)	86470010
8	6	V-Floor Long Drive Shoe, 9 Hole, #1 & #3	5977601
9	3	V-Floor Long Drive Shoe, 9 Hole, #2	5977601
10*	9	Alum Drive Channel 10.5" SC	6191601
10*	9	Alum Drive Channel 10.0" SC	6341401
10*	9	Steel Drive Channel 10.5" SC	5977701
10*	9	Steel Drive Channel 10.0" SC	6006201
11	18	Aluminum Drive Channel Nut Bar	5979701
12	36	1/4"x5/8" Roll Pin	86651405
13	162	3/8" lock washer	86555000
14	162	3/8"x 2" Hex Bolts, Grade 8 with patchlock	86439521

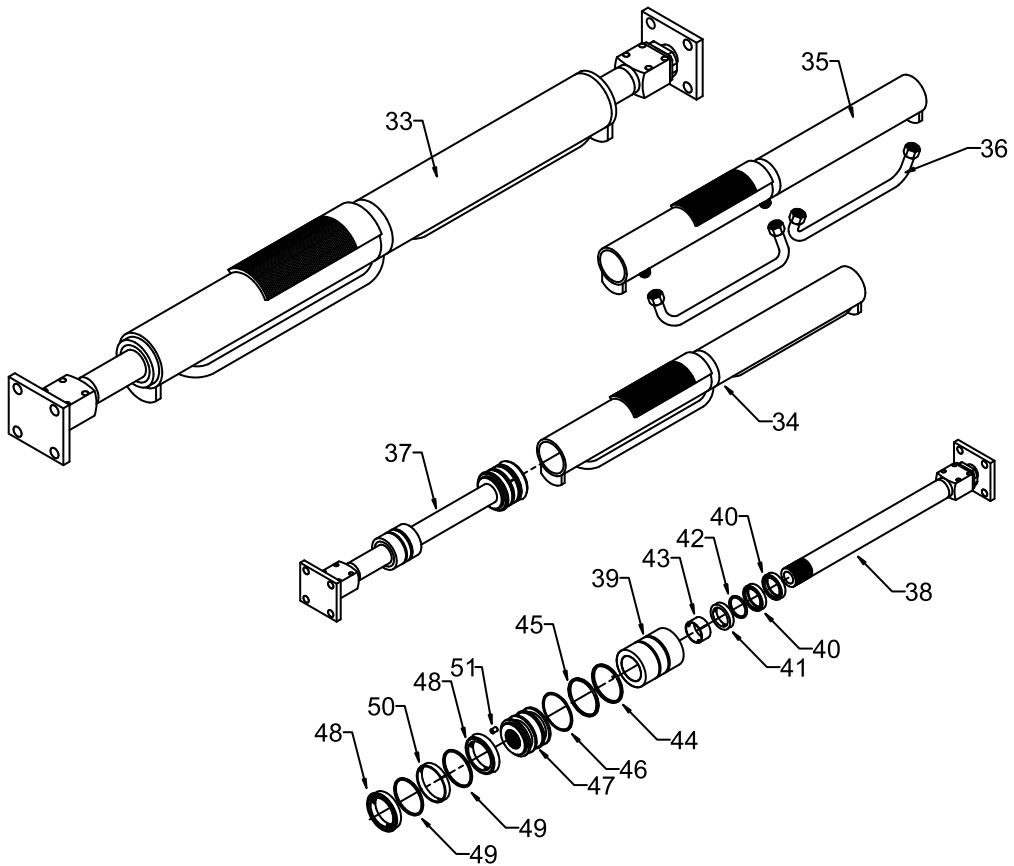
* Part numbers and descriptions vary based on drive configurations



PARTS LIST

ID#	QUANTITY	DESCRIPTION	PART NUMBER
1*	1	3" KVD X-Drive Assembly Cross-Drive 9 V-Slat, 10.5" SC & CC Bolted Shoe	5471701
1*	1	3.5" KVD X-Drive Assembly Cross-Drive 9 V-Slat, 10.5" SC & CC Bolted Shoe	5471704
1*	1	3" KVD X-Drive Assembly Cross-Drive 9 V-Slat, 10.0" SC & CC Bolted Shoe	6723901
1*	1	3.5" KVD X-Drive Assembly Cross-Drive 9 V-Slat, 10.0" SC & CC Bolted Shoe	6723904
2*	1	Cross Drive 3.0" Cylinder Bore #2, 10.5" CC	5471703
2*	1	Cross Drive 3.5" Cylinder Bore #2, 10.5" CC	5471706
2*	1	Cross Drive 3.0" Cylinder Bore #2, 10.0" CC	6723903
2*	1	Cross Drive 3.5" Cylinder Bore #2, 10.0" CC	6723906
3*	2	Cross Drive 3.0" Cylinder Bore #1 & #3, 10.5" CC	5471702
3*	2	Cross Drive 3.5" Cylinder Bore #1 & #3, 10.5" CC	5471705
3*	2	Cross Drive 3.0" Cylinder Bore #1 & #3, 10.0" CC	6723902
3*	2	Cross Drive 3.5" Cylinder Bore #1 & #3, 10.0" CC	6723905
4*	3	Threaded Clamp 3.0" Upper Cross Drive	3024501
4*	3	Threaded Clamp 3.5" Upper Cross Drive	3024601
4*	3	Smooth Clamp 3.0" Upper Cross Drive	3024401
4*	3	Smooth Clamp 3.5" Upper Cross Drive	3024701
5*	6	Clamp 3.0" Lower Cross Drive	03910501
5*	6	Clamp 3.5" Lower Cross Drive	03910601
6	12	Washer, Wedge Locking 5/8", (3.0" Cyl)	86559010
6	12	Washer, Wedge Locking 5/8", (3.5" Cyl)	86559090
7*	12	Bolt Hex Patchlock GR8 5/8" x 4" (3.0" Cyl)	86470010
7*	12	Bolt Hex Patchlock GR8 5/8" x 4-1/2" (3.5" Cyl)	86470010
8	6	V-Floor Long Drive Shoe, 9 Hole, #1 & #3	5381701
9	3	V-Floor Long Drive Shoe, 9 Hole, #2	5381801
10	36	5/8" DISC LOCK WASHERS	86559090
11	36	Bolt Hex GR8 5/8" x 1-1/2"	86463500

* Part numbers and descriptions vary based on drive configurations



Cylinder Assembly			
33	1	Cylinder 3.0" Assembly	04567901
33	1	Cylinder 3.5" Assembly	04568001
-	-	Includes items 34-51	
34	1	Barrel Weld Assembly 3.0" Cylinder	04560901
34	1	Barrel Weld Assembly 3.5" Cylinder	04561001
-	-	Includes items 35 & 36	
35	1	Barrel Assembly 3.0" Cylinder	04560601
35	1	Barrel Assembly 3.5" Cylinder	04560701
36	2	Cylinder Cross-Over Tube Assembly	04560801
37	2	Rod W/Piston & Head 3.0" Assembly	02553201
37	2	Rod W/Piston & Head 3.5" Assembly	02553301
-	-	Includes items 38-51	
38 ⁽¹⁾	1	Rod 45mm W/Block & Plate	02568501

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

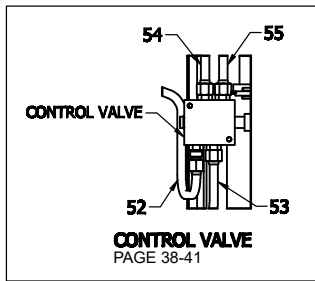
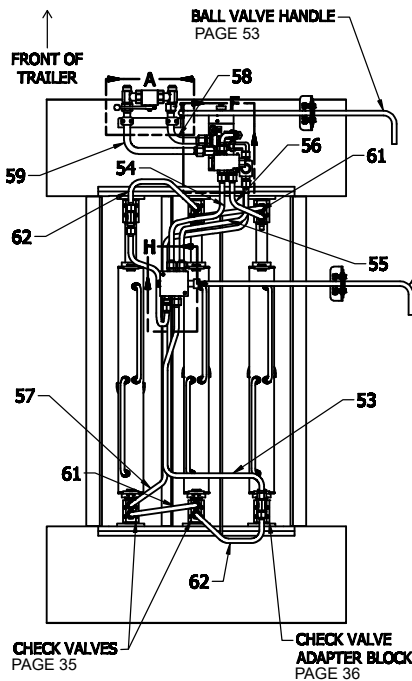
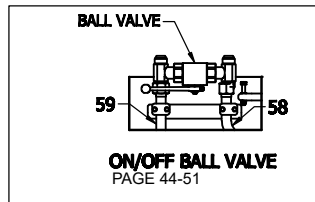
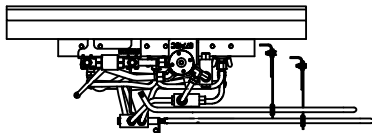
PARTS LIST (CONT.)

ID #	QUANTITY	DESCRIPTION	PART#
-	1	Head 3.0" Assembly Cylinder	03808501
-	1	Head 3.5" Assembly Cylinder	03811001
-	-	Includes items 39-46	
39	1	Head 3.0" Cylinder	01786201
39	1	Head 3.5" Cylinder	02553501
40	2	Wiper Rod 45mm Canned	84426600
41	1	Seal Rod Cylinder 45mm	84354200
42 ⁽²⁾	1	Seal Backup Rod Cylinder 45mm	w/seal
43	1	Wear Ring Rod Cylinder 45mm	84401200
44	1	Lock Wire 3.0" Head Cylinder	03812102
44	1	Lock Wire 3.5" Head Cylinder	03812104
45	1	O-Ring 232, (3.0" Cyl)	84384200
45	1	O-Ring 236, (3.5" Cyl)	84384600
46	1	O-Ring Backup 8-232, (3.0" Cyl)	84392400
46	1	O-Ring Backup 8-236, (3.5" Cyl)	84392800
-	1	Piston 3.0" Assembly Cylinder	03808101
-	1	Piston 3.5" Assembly Cylinder	03810901
-	-	Includes items 47-51	
47	1	Piston 3.0" Cylinder	02564801
47	1	Piston 3.5" Cylinder	02553601
48	2	Seal Piston Cylinder 3.0"	84353600
48	2	Seal Piston Cylinder 3.5"	84353800
49 ⁽²⁾	2	Seal Backup Piston Cylinder 3.0" & 3.5"	w/seal
50	1	Wear Ring Piston 3.0"	84404600
50	1	Wear Ring Piston 3.5"	84404800
51	1	Pin Drive Lock 3/16" x 1/2"	86650400
- ⁽³⁾	1	Seal Kit 3.0" Cylinder Metric	03877501
- ⁽³⁾	1	Seal Kit 3.5" Cylinder Metric	03877601
-	-	Includes items 40-46 & 48-50	

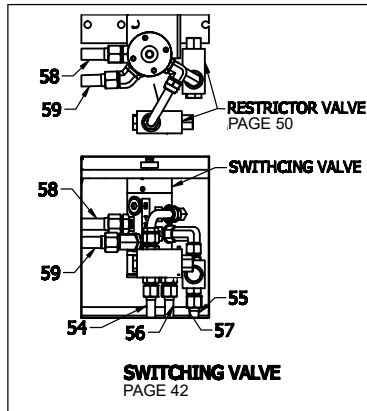
(2) Backup included with seal.

(3) The seal kit includes all necessary items required to rebuild the entire cylinder. It does not include items such as the Rod or Piston.

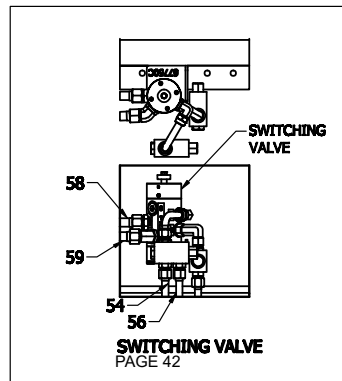
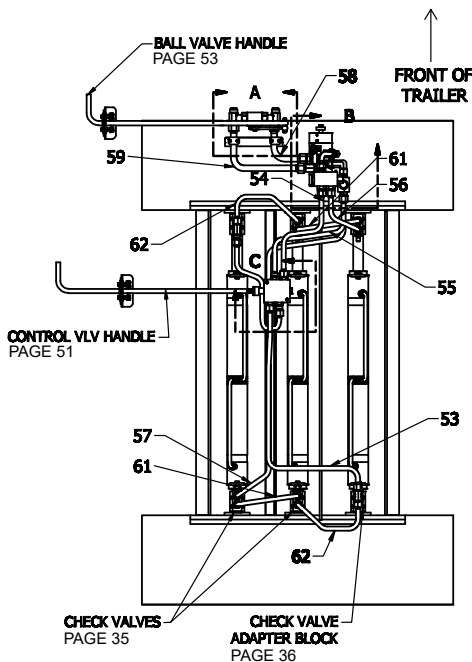
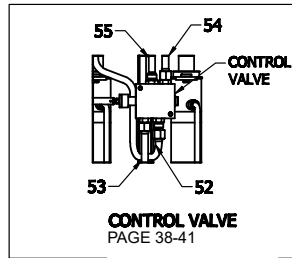
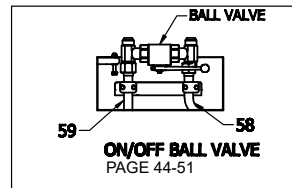
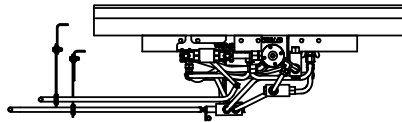
			PART #	PART #	PART #	PART #
V9 KRFII-DX-11 & DX-15, LEFT HAND CONTROLS						
ID#	QUANTITY	DESCRIPTION	DX-11, 10.0	DX-15, 10.0	DX-11, 10.5	DX-15,10.5
52	1	#52 Tube	6663001	6800201	6653001	*
53	1	#53 Tube	6663101	6800301	6653101	*
54	1	#54 Tube	6653201	6800401	6653201	*
55	1	#55 Tube	6653301	6800501	6653301	*
56	1	#56 Tube	6663201	6663201	6653401	*
57	1	#57 Tube	6663301	6663301	6653501	*
58	1	#58 Tube	6653601	6653601	6653601	*
59	1	#59 Tube	6653701	6653701	6653701	*
61	2	#61 Tube	6663401	6663401	6654401	*
62	2	#62 Tube	6663501	6663501	6654501	*

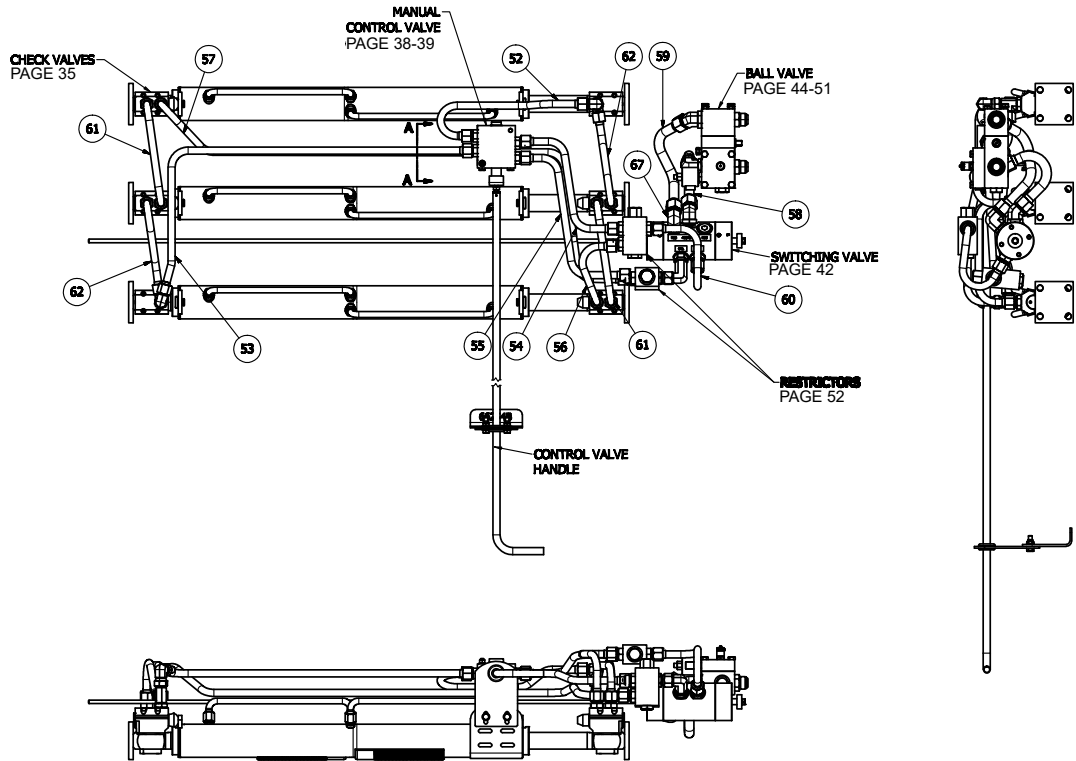


CONTROL VALVE HANDLE PAGE 53

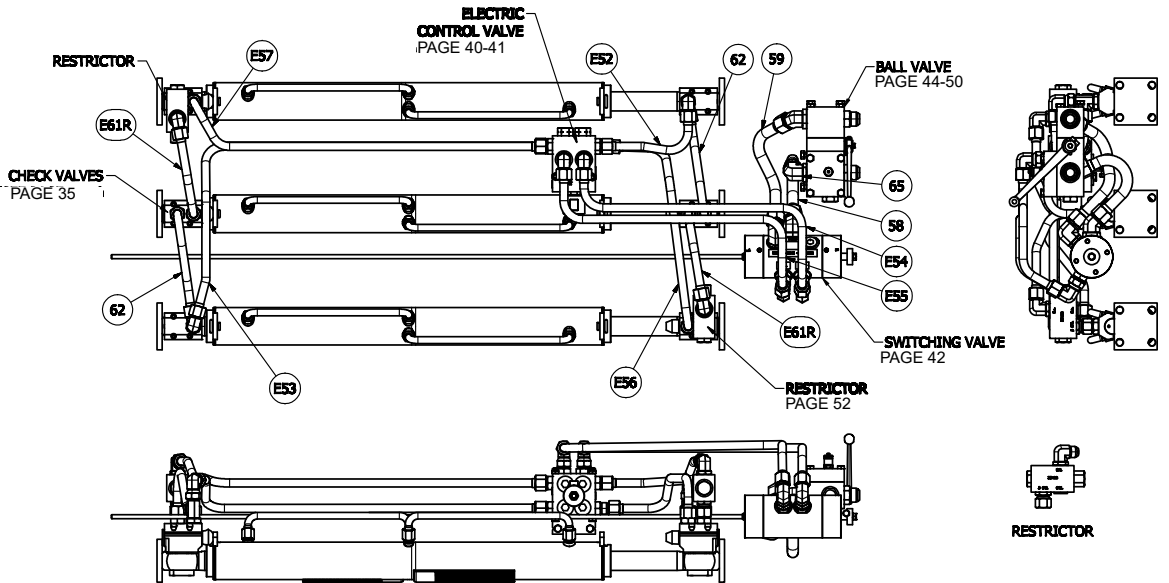


				PART #	PART #	PART #	PART #
V9 KRFII-DX-11 & DX-15, RIGHT HAND CONTROLS							
ID#	QUANTITY	DESCRIPTION	DX-11, 10.0	DX-15, 10.0	DX-11, 10.5	DX-15,10.5	
52	1	#52 Tube	6663601	*	6658501	*	
53	1	#53 Tube	6663701	*	6658601	*	
54	1	#54 Tube	6658701	*	6658701	*	
55	1	#55 Tube	6658801	*	6658801	*	
56	1	#56 Tube	6663201	*	6653401	*	
57	1	#57 Tube	6663301	*	6653501	*	
58	1	#58 Tube	6653601	*	6653601	*	
59	1	#59 Tube	6653701	*	6653701	*	
61	2	#61 Tube	6663401	*	6654401	*	
62	2	#62 Tube	6663501	*	6654501	*	

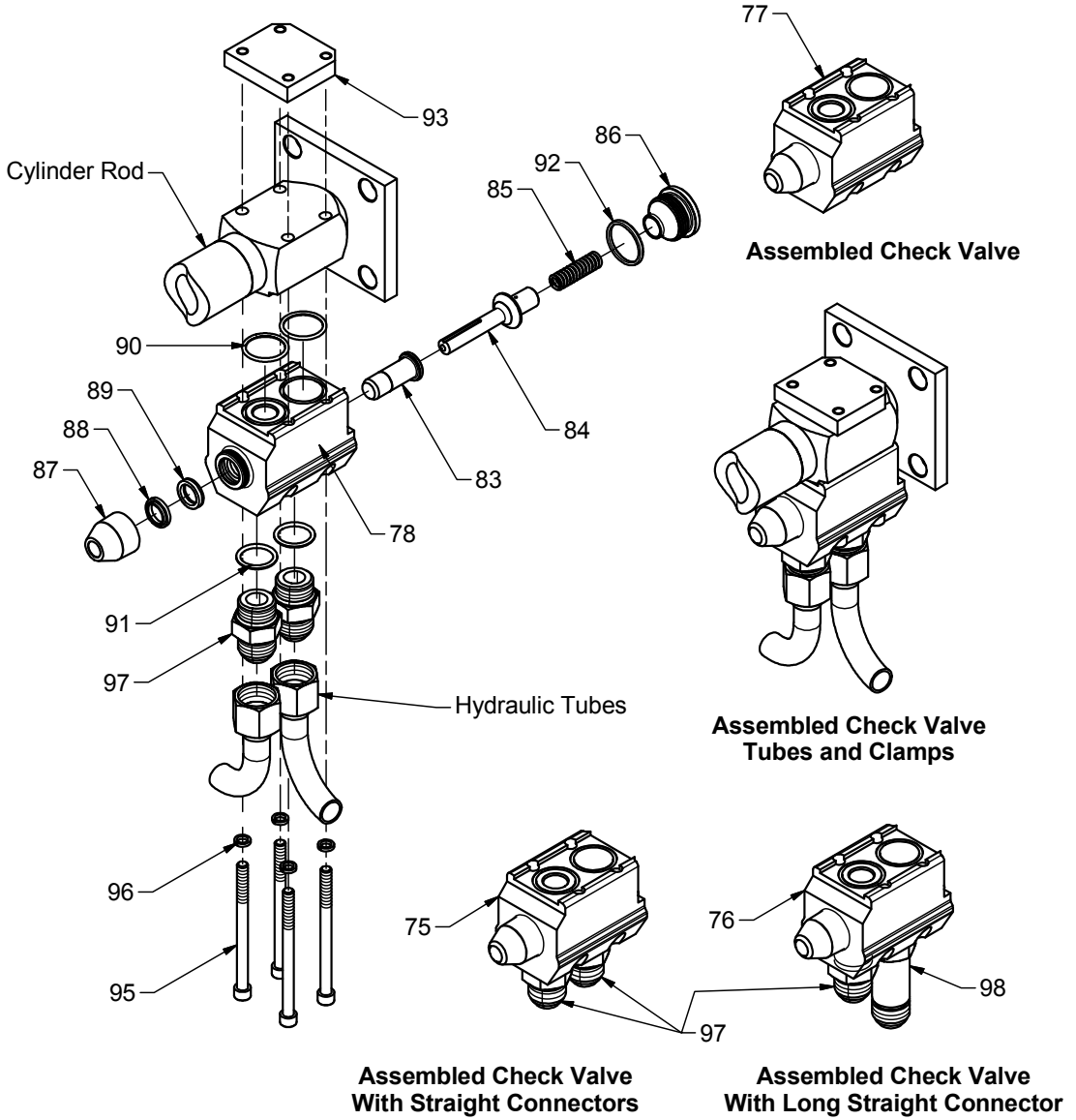


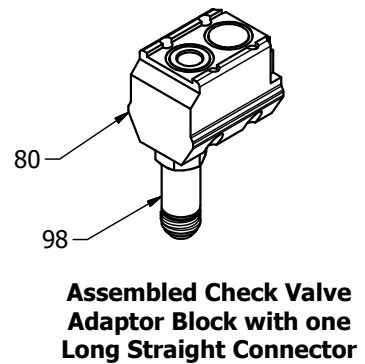
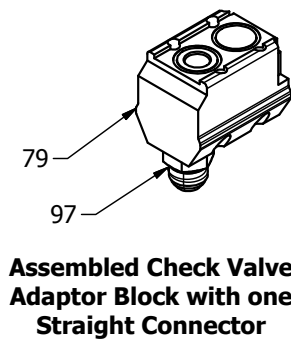
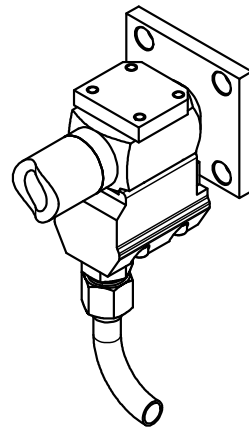
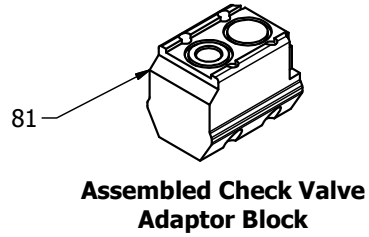
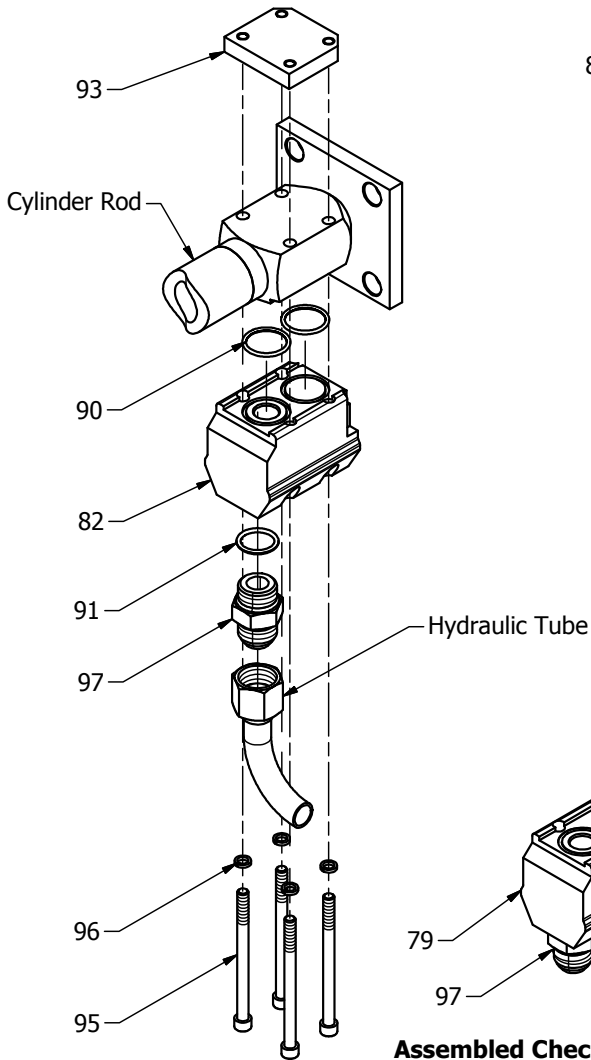


V9 KRFII-EURO, MANUAL CONTROL VALVE, 10.5" CYL. CENTERS			
ID#	QUANTITY	DESCRIPTION	DX-EURO
52	1	#52 Tube	6833101
53	1	#53 Tube	6833201
54	1	#54 Tube	6836901
55	1	#55 Tube	6837001
56	1	#56 Tube	6833301
57	1	#57 Tube	6833401
58	1	#58 Tube	6756101
59	1	#59 Tube	6756201
60	1	#60 Tube	6810101
61	2	#61 Tube	6654401
62	2	#62 Tube	6832901

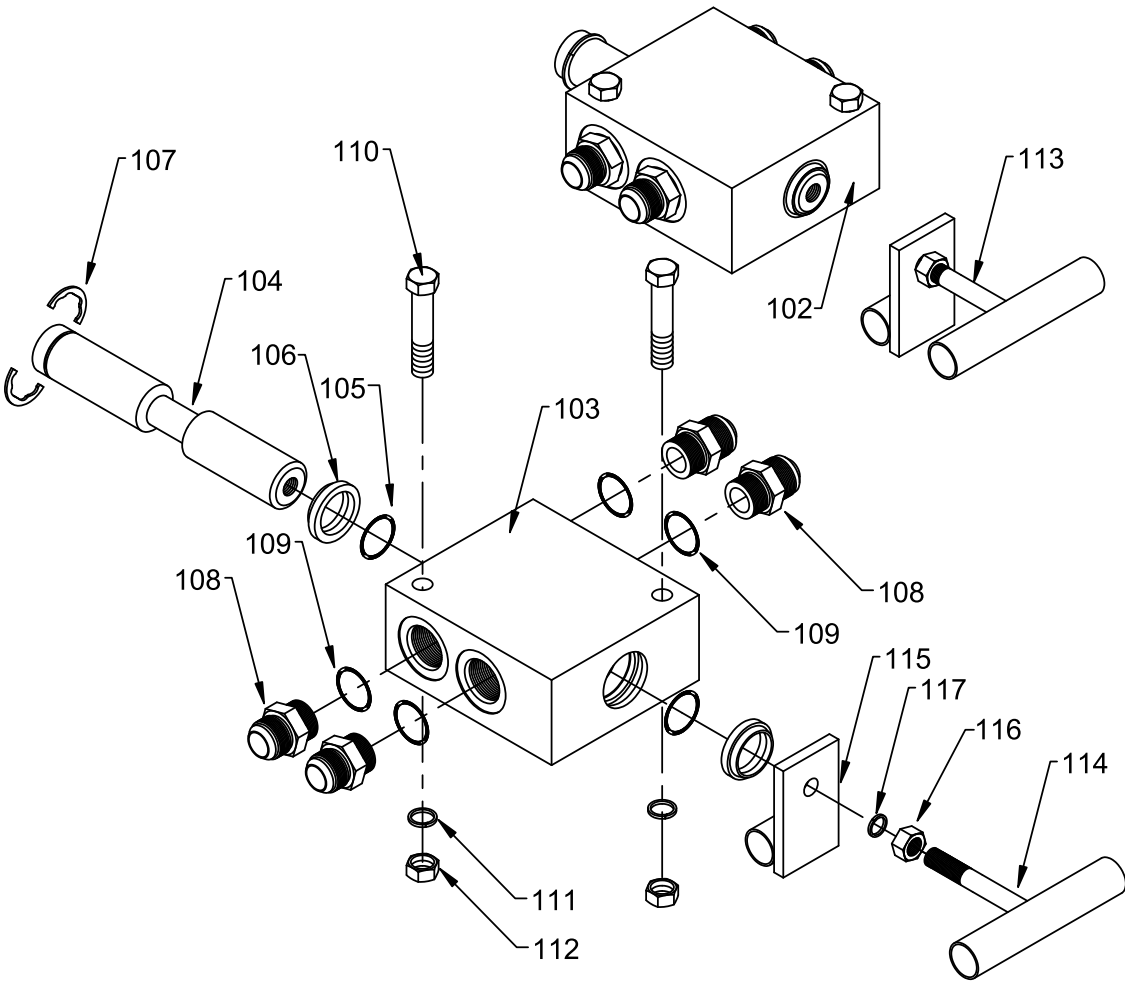


V9 KRFI-EURO, ELECTRIC CONTROL VALVE, 10.5" CYL. CENTERS			
ID#	QUANTITY	DESCRIPTION	DX-EURO
E52	1	#52 ECV Tube	6832401
E53	1	#53 ECV Tube	6832501
E54	1	#54 ECV Tube	6835101
E55	1	#55 ECV Tube	6835201
E56	1	#56 ECV Tube	6832601
E57	1	#57 ECV Tube	6832701
58	1	#58 Tube	6756101
59	1	#59 Tube	6756201
E61R	2	#61 ECV Restrictor Tube	6832801
62	2	#62 Tube	6832901





#ID	QUANTITY	DESCRIPTION	PART NUMBER
Check Valve Assembly Parts List			
75	1	Check Valve External Assembly w/Straight Connector	6520101
-	-	Includes items 77, 97, 98	-
76	1	Check Valve External Assembly w/Long Connector	6520102
-	-	Includes items 77, 97, 98	-
77	1	Check Valve External Assembly (no connectors)	6520103
-	-	Includes Items 78, 83-92	-
78	1	Body Check Valve External	6602901
79	1	Check Valve Adaptor Block Assembly w/Straight Connector	6613501
-	-	Includes items 81, 97	-
80	1	Check Valve Adaptor Block Assembly w/Long Connector	6613502
-	-	Includes items 81, 98	-
81	1	Check Valve Adaptor Block Assembly (no connectors)	6613503
-	-	Includes items 82, 86, 90, 91, 92	-
82	1	Body Check Valve External Adaptor Block	6602901
83	1	Plunger Check Valve External	1771101
84	1	Rod Check Valve External	1766901
85	1	Spring Check Valve External Large #B-18273	84453400
-	1	Seal Kit Check Valve External	6691301
86	1	End Cap	3654501
-	-	Includes Items 87-92	-
87	1	Dust Boot Check Valve External	84801100
88	1	Plunger Wiper Check Valve External	84426800
89	1	Seal Rod 5/8" Check Valve External	84352200
90	2	O-Ring 122	84377800
91	2	O-Ring 912	84387400
92	1	O-Ring 916	84387800
93	1	Clamp Top Check Valve External	2513001
95	4	Bolt Socket Head 5/16 x 4-1/2" S.S.	86435014
96	4	Washer Lock 5/16"	86553000
97	1 or 2	Staight Threaded Connector W/O-Ring 912	84685000
98	1	Long St. Threaded Connector W/O-Ring 912	84685010

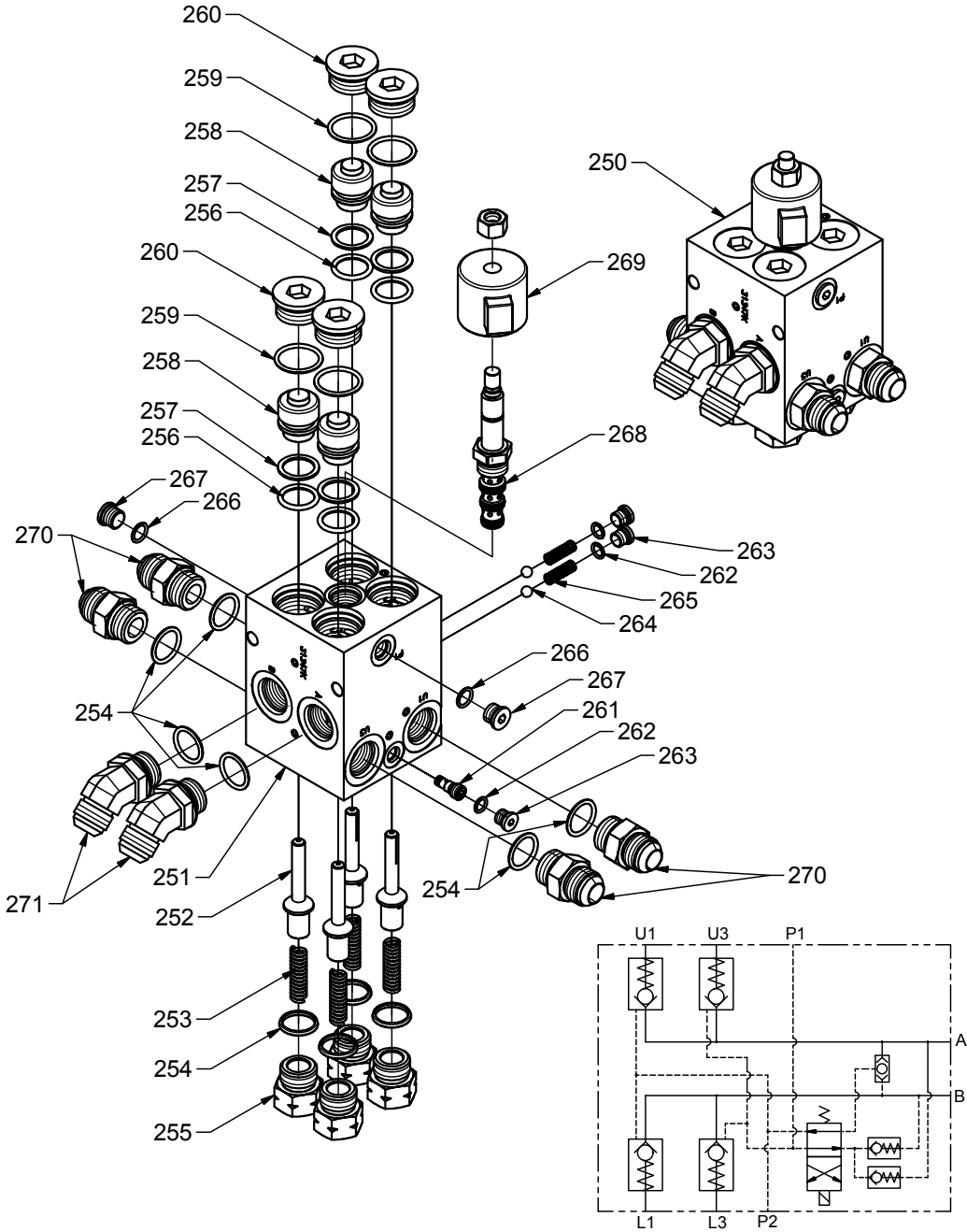


PARTS LIST

ID#	QUANTITY	DESCRIPTION	PART NUMBER
102	1	Control Valve Load/Unload Assembly	02552701
-	-	Includes items 103-109	-
103	1	Body Control Valve	01049501
104	1	Spool Control Valve	03423201
-	1	Seal Kit Control Valve Load/Unload	03877901
-	-	Includes items 105-107	-
105	2	O-Ring 214 B-70	84381800
106	2	Wiper 1" Rod	84427000
107	1	Snap Ring 2-Piece For Spool	84801000
108	4	6400-12-10 Straight	84684900
109	4	O-Ring 910	84387200
110	2	Bolt Hex GR5 3/8"x3"	86442000
111	2	Washer Lock 3/8"	86555000
112	2	Nut Hex 3/8"	86628500
113	1	Handle Assembly Control Valve Load/Unload	02552601
-	-	Includes items 114-117	-
114 ⁽¹⁾	1	"T" Handle	-
115 ⁽¹⁾	1	"T" Handle Plate	-
116	1	Nut Hex 3/8"	86628500
117	1	Washer Lock 3/8"	86555000

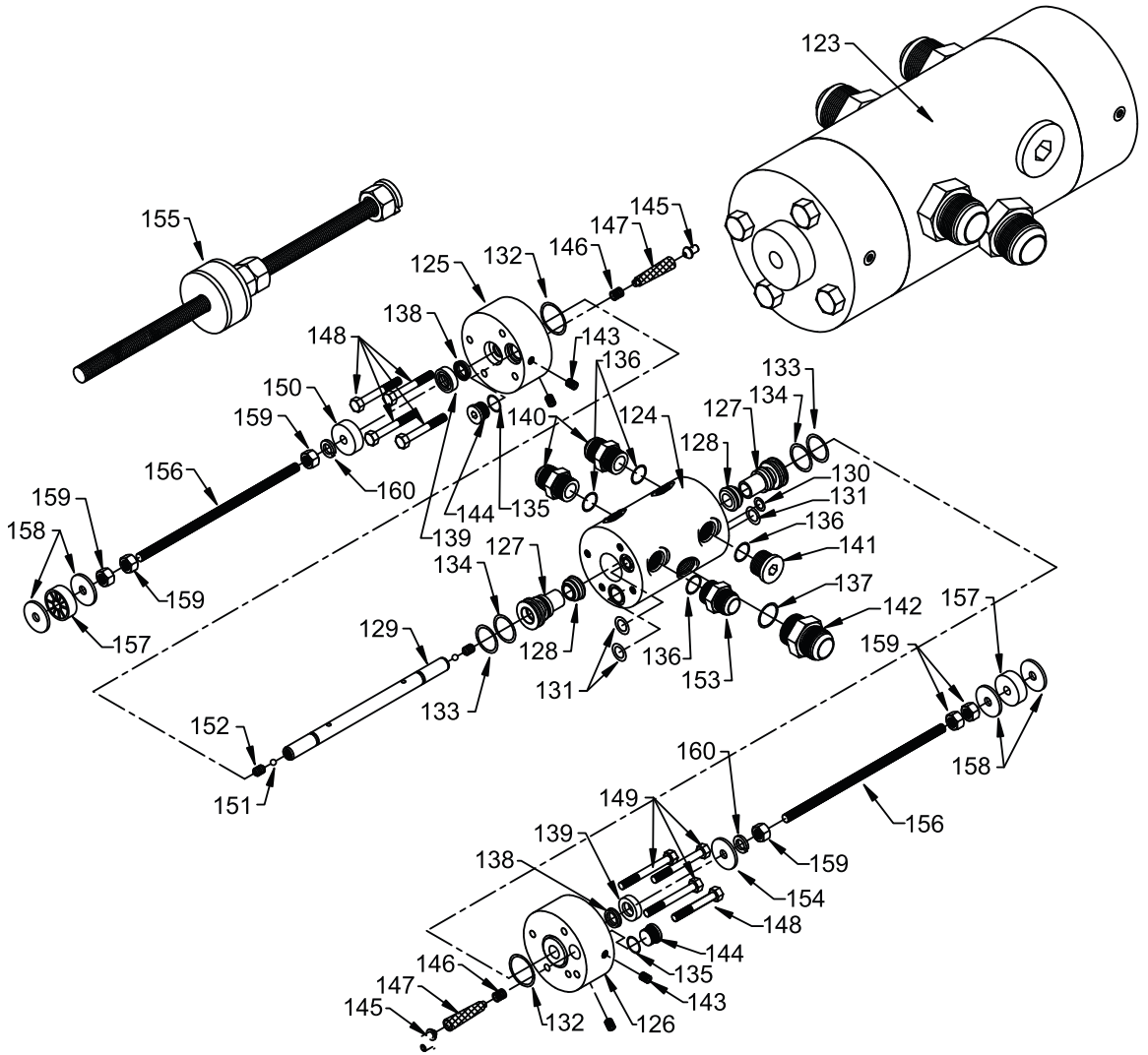
(1) Not sold separately. Included only with Control Valve Assembly.

Electric Load/Unload Control Valve



ELECTRIC LOAD/UNLOAD CONTROL VALVE ASSEMBLY V-FLOOR® DX

#ID	QUANTITY	DESCRIPTION	PART NUMBER
ELECTRIC LOAD/UNLOAD CONTROL VALVE PARTS LIST			
250	1	Electric Load/Unload Control Valve Assembly	3244601
		Includes items 251-269	
251	1	Electric Control Valve Body	3134701
252	4	Pilot Operated Check Valve	3138401
253	4	Ext Check Valve Spring Large	84453400
254	10	912 O-Ring	84387400
255	4	-12 Pilot Operated Spring End Cap	3860201
256	4	8-213 O-Ring	84391200
257	4	213 O-Ring	84381200
258	4	Plunger Pilot Operated Check Valve	3123601
259	4	916 O-Ring	84387800
260	4	6409-16 MSAE O-Ring Socket Plug	84687900
261	1	Shuttle Valve LS04-B-30-0-N	85104800
262	3	904 O-Ring	84386600
263	3	6409-04 MSAE O-Ring Socket Plug	84687400
264	2	5/16" Chrome Steel Ball	84800500
265	2	1-9 Spring	84450800
266	2	906 O-Ring	84386800
267	2	6409-06 MSAE O-Ring Socket Plug	84687400
268	1	SV-10-40M-12DG Solenoid Valve	85108600
269	1	Coil 115 Dac Din 6366115	85600650
270	4	6400-12-12 MSAE-MJIC Straight Connector	84685000
271	2	6802-12-12 MSAE-MJIC 45 Deg Elbow	84691975



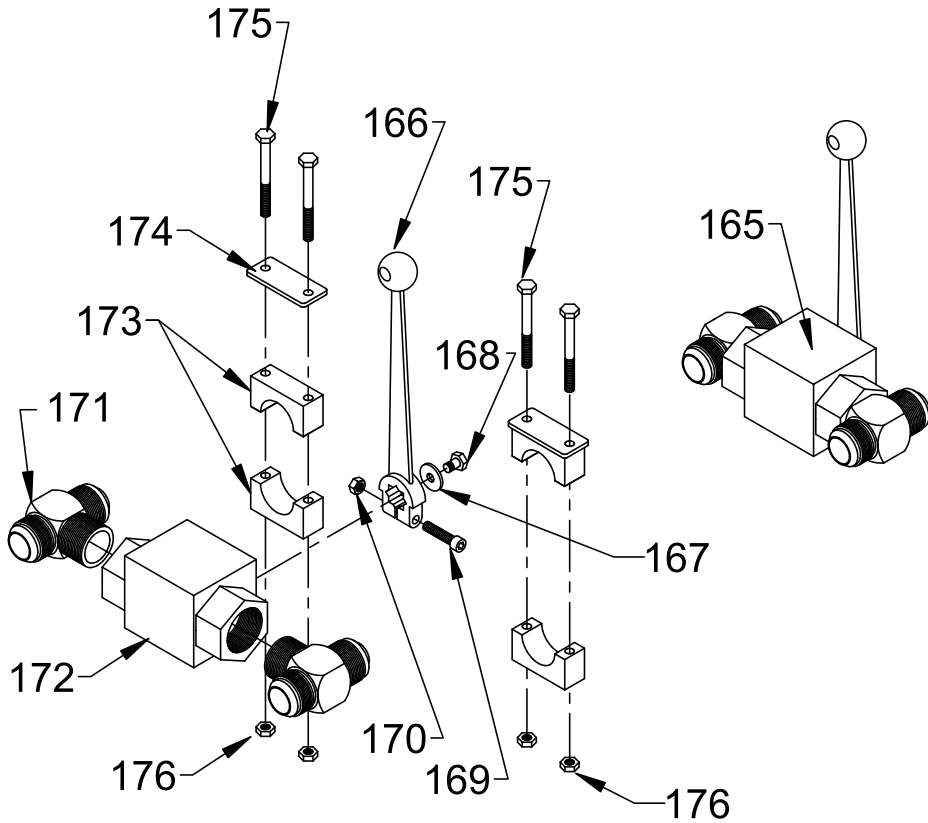
PARTS LIST

ID#	QUANTITY	DESCRIPTION	PART NUMBER
123⁽¹⁾	1	Switching Valve Assembly SAE	03888901
-	-	Includes Items 124-154	-
124 ⁽¹⁾	1	Body Switching Valve	04504601
125 ⁽¹⁾	1	End Cap Right Switching Valve	04504701
126 ⁽¹⁾	1	End Cap Left Switching Valve	04504801
127	2	Poppet Switching Valve	03718901
128	2	Ring Poppet Switching Valve	03718801
129	1	Rod Control Switching Valve	01335501
_⁽²⁾	1	Seal Kit Switching Valve	03878001
-	-	Includes items 130-139	-
130	1	O-Ring 111	84376200
131	3	O-Ring 117 Urethane	84377200
132	2	O-Ring 126	84378200
133	2	O-Ring 216	84382200
134	2	O-Ring Backup 8-216	84391600
135	2	O-Ring 908	84387000
136	4	O-Ring 912	84387400
137	1	O-Ring 916	84387800
138	2	Seal Rod 5/8"	84352200
139	2	Wiper Canned 5/8" Rod	84427200
_⁽³⁾	3	O-Ring 011	84375200
_⁽³⁾	1	O-Ring 114	84376700
_⁽³⁾	2	O-Ring 124	84378000
_⁽³⁾	1	1/2" Pipe Plug Socket 7/8" Taper	84680790
140	2	6400-12-12 Straight	84685000
141	1	6409-12 M O-Ring Socket Plug	84687700
142	1	6400-16-16 Straight	84685400
143	4	1/8" Pipe Plug Socket 7/8" Taper	84680780
144	2	6409-08 M O-Ring Socket Plug	84687500
145	2	Pilot Filter Seat	04502701
146	2	Spring S157	84451750
147	2	Filter Element CF0563-46	84012700
148	5	Bolt Hex GR5 3/8"x2 1/2"	86441000
149	3	Bolt Hex GR5 3/8"x3"	86442000
150	1	Cap Limit Switching Valve	02552101
151	2	Ball 5/16" Chrome Steel	84800500
152	2	Set Screw 3/8"x3/8" Half Dog	86435500
153	1	6400-16-12 Straight	84685300
154	1	Washer Large OD 3/8"	86553500
155	2	Rod Threaded Assembly Switching Valve	03869701
-	-	Includes Items 156-160	-
156	1	Threaded Rod 3/8"x18"	86603000
157	1	Switching Valve Grommet	83217500
158	2	Washer Large OD 3/8"	86553500
159	3	Nut Hex 3/8"	86628500
160	1	Washer Lock 3/8"	86555000

(1) Part numbers vary for Switching Valves made before 1998.

(2) The Switching Valve Seal Kit contains all necessary components to rebuild all Switching Valve models.

(3) Not Shown. For use with previous model Switching Valve.

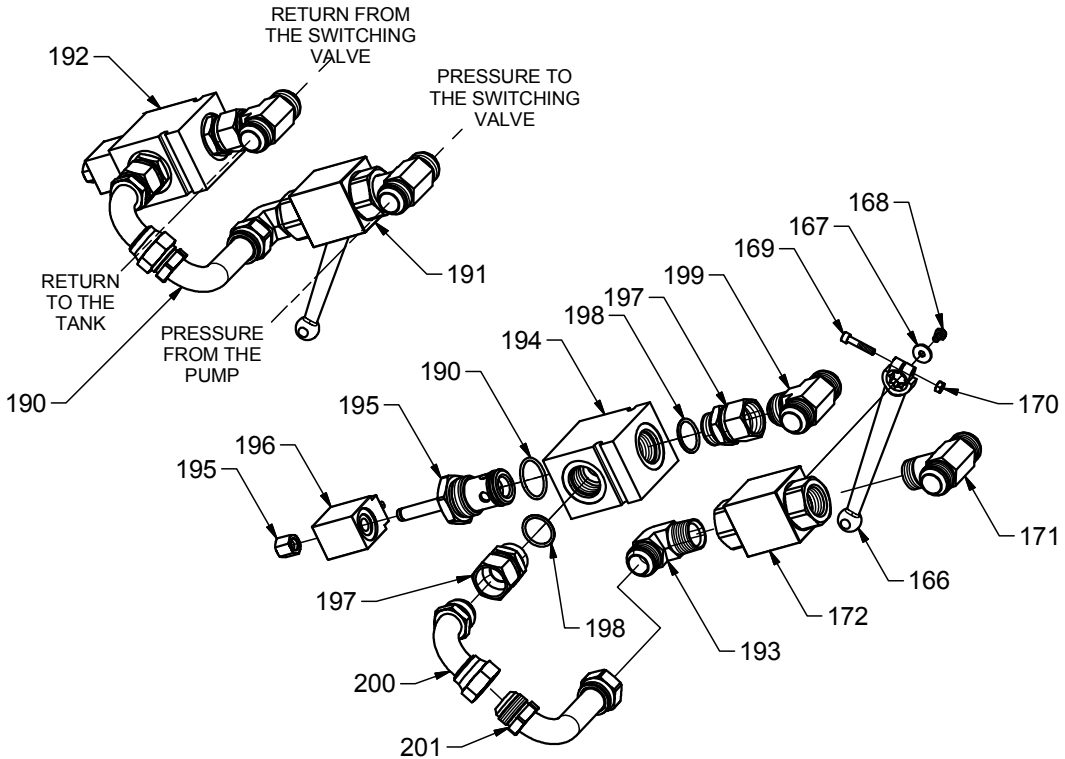


PARTS LIST

ID#	QUANTITY	DESCRIPTION	PART NUMBER
165	1	Ball Valve 1" W/ Tees & Handle	84802600
-	-	Includes items 166-172	-
166	1	Handle Ball Valve	84802903
167	1	Washer Flat 6mm	w/ball valve
168	1	Bolt Hex GR8 6mmx1mmx10mm	w/ball valve
169	1	Bolt Socket Head GR8 6mmx1mmx30mm	w/handle
170	1	Nut Hex 6mmx1mm	w/handle
171	2	2601-16-16-16 Tee	84677880
172	1	Ball Valve Assembly 1"	84802800
-	2	Clamp Hydraulic Tube 1" Kit	04631101
-	-	Includes items 173-176	-
173 ⁽¹⁾	1	Clamp Hydraulic Tube 1" Set	84750300
174	1	Plate Clamp Tube Top COP-3	84751200
175	2	Bolt Hex GR5 1/4"x2 1/4"	86419500
176	2	Nut Hex Nylock 1/4"	86626000

(1) 1 set includes 2 clamp halves.

ELECTRIC ON/OFF BALL VALVE ASSEMBLY

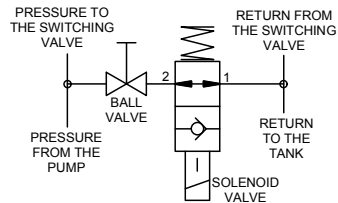


INSTALLATION

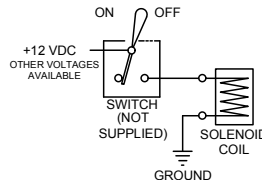
REMOVE THE EXISTING BALL VALVE. THE BALL VALVE IS MOUNTED ON THE FRONT OF THE DRIVE FRAME ON THE DRIVERS SIDE. THE BALL VALVE IS MOUNTED BETWEEN THE PRESSURE AND RETURN LINES. INSTALL THE ELECTRICAL ON/OFF CONTROL ASSEMBLY. CONNECT THE PRESSURE AND RETURN LINES AS SHOWN. SUPPLY ELECTRICAL POWER TO THE SOLINOID. INSTALL A SWITCH IN THE ELECTRICAL SUPPLY COIL. RUN THE WIRING IN WATER-TIGHT FLEX CONDUIT.

OPERATION

SHIFT THE BALL VALVE HANDLE TO THE OPEN POSITION. SET THE ELECTRICAL SWITCH TO THE OFF POSITION. ENGAGE THE PTO TO START THE HYDRAULIC PUMP. SWITCH THE ELECTRICAL SWITCH TO THE ON POSITION TO START THE WALKING FLOOR. THE SOLENOID COIL MUST BE ENERGIZED FOR THE WALKING FLOOR TO RUN. TO START OR STOP THE FLOOR AT THE DRIVE USING THE BALL VALVE.
 - SET ELECTRICAL SWITCH TO THE OFF POSITION.
 - CLOSE THE BALL VALVE TO START THE WALKING FLOOR.
 OPEN THE BALL VALVE TO STOP THE WALKING FLOOR.

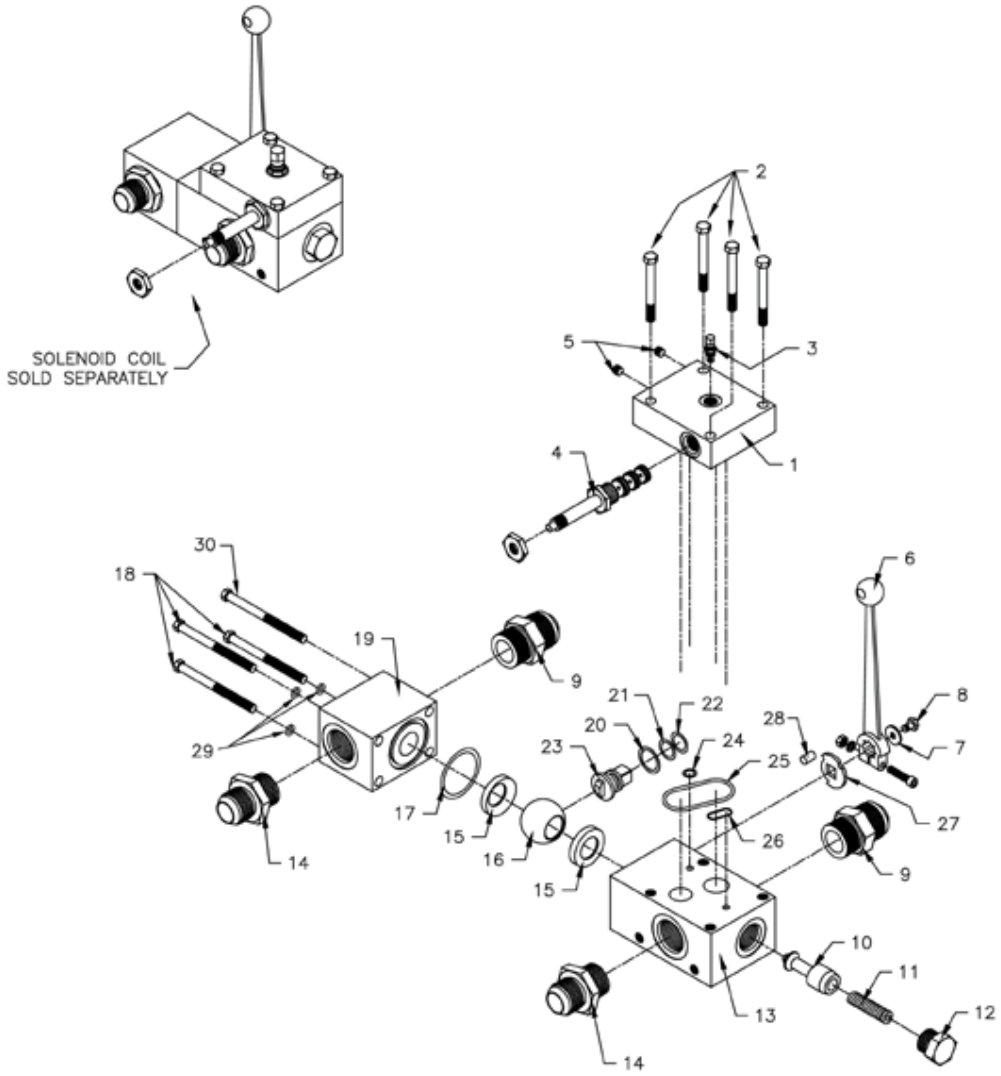


HYDRAULIC SCHEMATIC

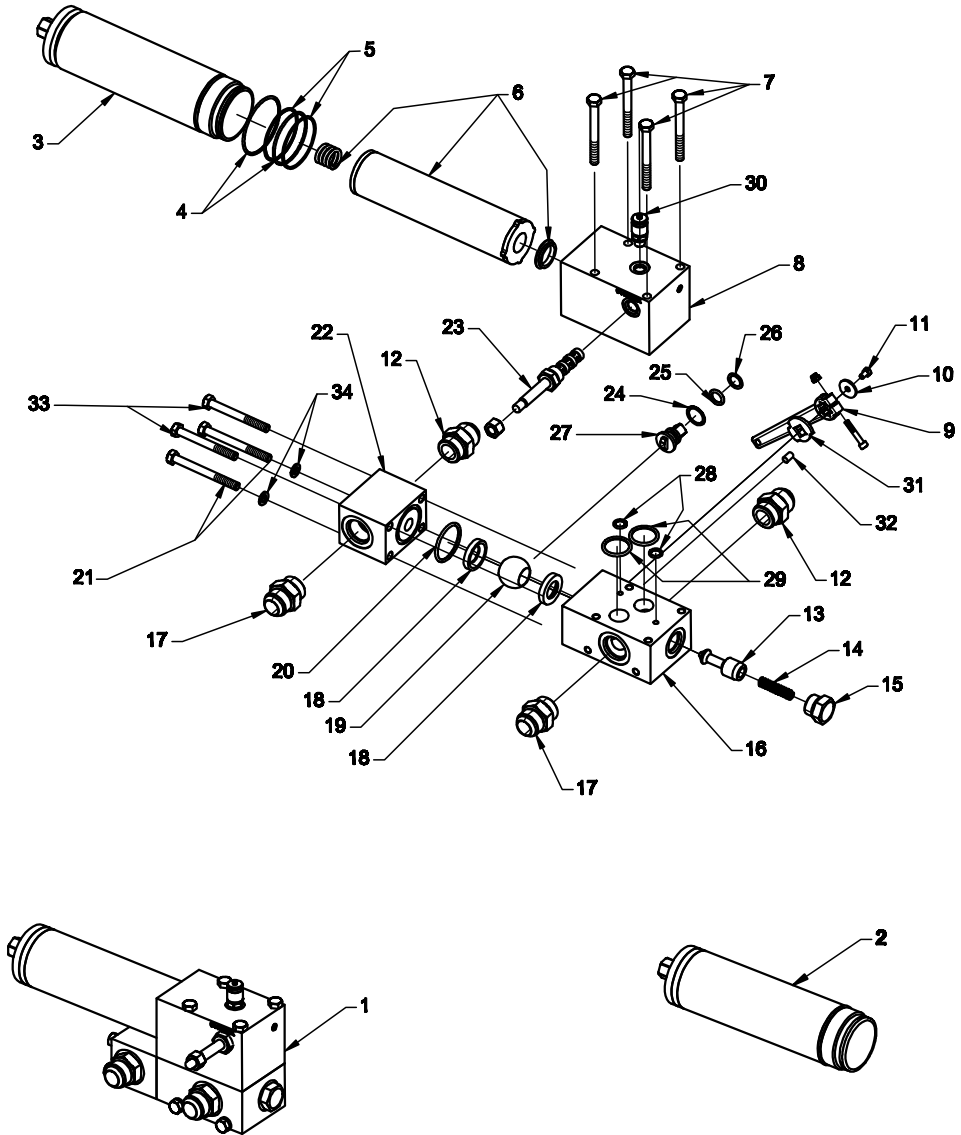


WIRING DIAGRAM

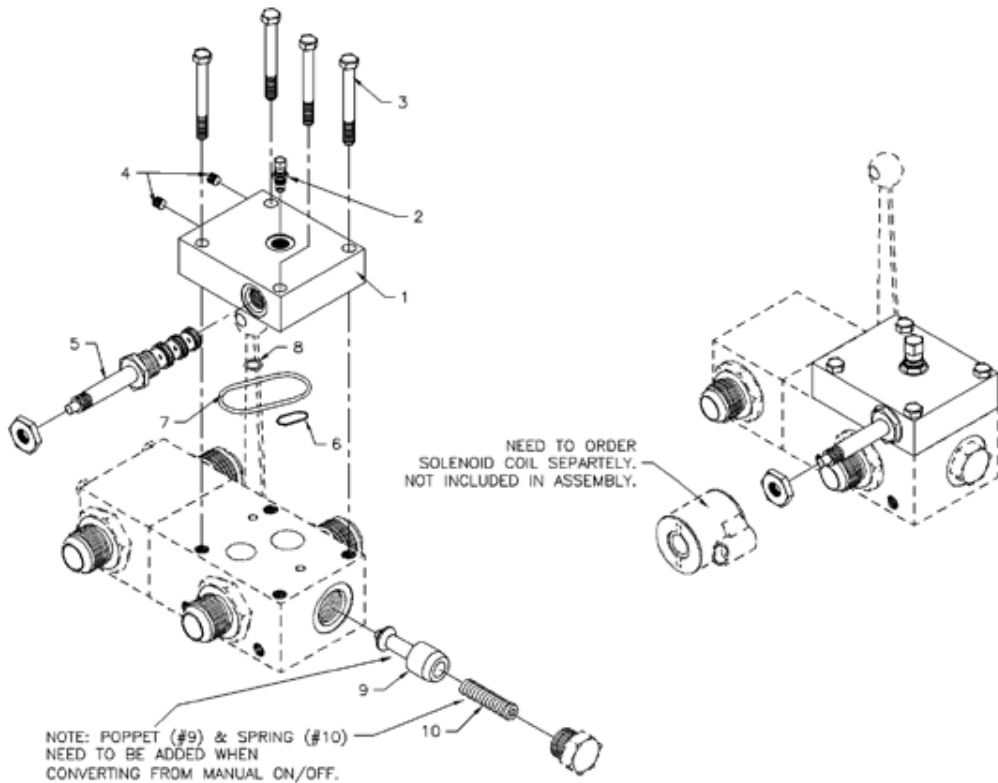
#ID	QUANTITY	DESCRIPTION	PART NUMBER
ELECTRIC ON/OFF BALL VALVE PARTS LIST			
166	1	Handle Ball Valve	84802900
167	1	Washer Flat 6mm	w/ball valve
168	1	Bolt Hex GR8 6mm x 1mm x 10mm	w/ball valve
169	1	Blot Socket Head GR8 6mmx1mmx30mm	w/handle
170	1	Nut Hex 6mm x 1mm	w/handle
171	1	2601-16-16-16 Tee	84677880
172	1	Ball Valve Assembly 1"	84802800
190	1	Electric On/Off Ball Valve Assembly	3426601
		Includes items 191 & 192	
191	1	Manual On/Off Ball Valve Assembly	84802601
		Includes items 166 - 172 & 193	
192	1	Electric Solenoid Valve Assembly	85108200
		Includes items 194 - 196	
193	1	2501-16-16 Male Elbow	84677400
194	1	Body Valve 20822 566409 2-Way	85101600
195	1	Valve Cartridge SV3-20-0-0-00	85108120
196	1	Coil, 12 VDC w/Lead Wire MC 30545	85600300
197	1	6402-16-16 Swivel St. Thread Connector	84686200
198	2	916 Buna-90 O-Ring	84387800
199	1	2603-16-16-16 Union Tee	84678100
200	1	63UA-16-16 Bent Stem 90 Deg.	84683200
201	1	63UC-16-16 Long Bent Stem 90 Deg.	84683700



Electric/Manual ON/OFF Ball Valve			
ID #	QUANTITY	DESCRIPTION	PART NUMBER
	1	Ball Valve Assembly Pilot Operated/Manual	06525902
		Includes items 1-30	
1	1	Electric Cover Plate On/Off Ball Valve	04795702
2	4	Bolt Hex M10x1.5x50mm	87008530
3	1	Test Coupling SMK20-G1/4VC	84904000
4	1	Solenoid Cartridge Valve SV10-40	85108800
5	2	1-16" NPT Pipe Plug Socket 7/8" Taper	84680770
6	1	Handle Ball Valve	0647501
7	1	Washer Flat M6	87075400
8	1	Bolt Hex M6x1x10mm GR8	87002450
9	2	2404-16-16 BSPP Straight	84671400
10	1	Poppet On/Off	04438401
11	1	Spring Check Valve External Large #B-18273	84453400
12	1	6408-12 O-Ring Plug	84686900
13	1	Valve Housing	04436602
14	2	6400-16-16 Straight	84685400
15	2	Ball Valve Seal Bushing	04337301
16	1	Ball Valve Ball	04337101
17	1	O-Ring 225	84383800
18	4	Bolt Hex M10x1.5x100mm	87011000
19	1	Non-Valve Housing	04437902
20	1	Spud Wear Washer	04337601
21	1	O-Ring 208	84379600
22	1	208 O-Ring Backup Buna 90	84390100
23	1	Spud Shaft	04438101
24	1	O-Ring 112	84376300
25	1	O-Ring Backup 8-228	84384000
26	1	O-Ring 216	84382200
27	1	Spud Stop	84802910
28	1	Dowel Pin 5/16"x1/2"	86651500
29	3	Washer Lock M10	87076500
30	1	Bolt Hex M10x1.5x90mm	87010500

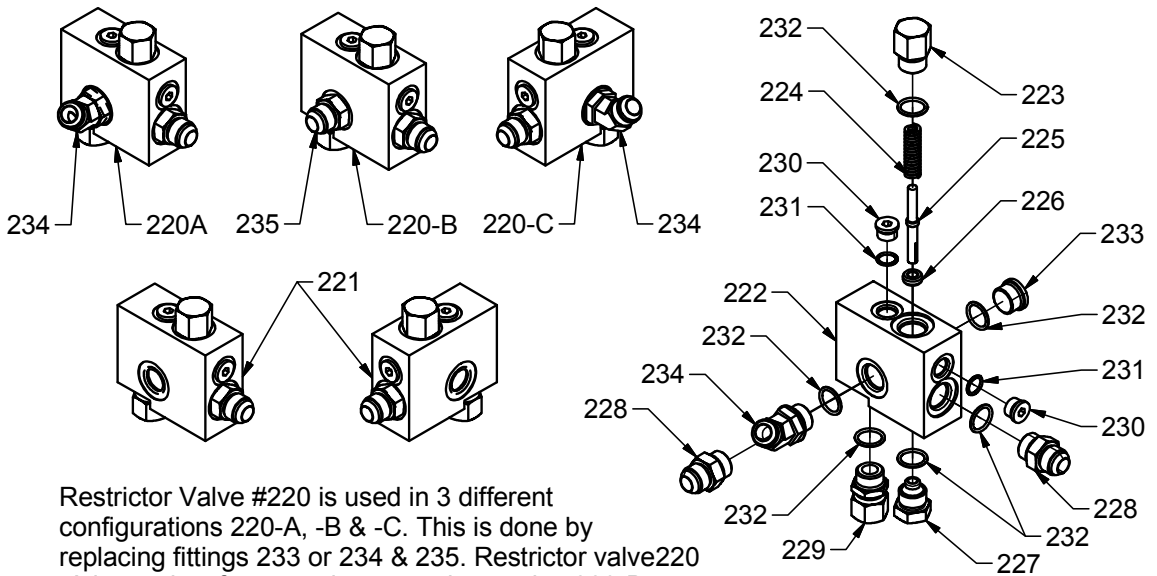


Electric/Manual ON/OFF Ball Valve with Fairley Arlon Filter			
ID#	QUANTITY	DESCRIPTION	PART NUMBER
1	1	Pilot Operated/Manual Ball Valve	06513102
		Includes items 2, 6-34	
2	1	Welded Filter Canister Assembly	06151502
		Includes items 3-5	
3	1	Welded Filter Canister	06151501
4	2	O-Ring 147	84378447
5	2	O-Ring Backup 8-147	84389047
6	1	Filter Element Fairley Arlon #MXW2-GDL20	84006520
7	4	Bolt Hex M10x1.5x110mm	87011500
8	1	Filter Block Fairley Arlon	04436501
9	1	Handle Ball Valve	06457402
10	1	Washer Flat M6	87075400
11	1	Bolt Hex M6x1x10mm	87002450
12	2	2404-16-16 BSPP Straight	84671400
13	1	Poppet On/Off	04438401
14	1	Spring Check Valve External Large #B-18273	84453400
15	1	6408-12 O-Ring Plug	84686900
16	1	Valve Housing	04436602
17	2	6400-16-16 Straight	84685400
18	2	Ball Valve Seal Bushing	04337301
19	1	Ball Valve Ball	04337101
20	1	O-Ring 225	84383800
21	2	Bolt Hex M10x1.5x100mm	87011000
22	1	Non-Valve Housing	04437902
23	1	Solenoid Cartridge Valve SV10-40	85108800
24	1	Spud Wear Washer	04337601
25	1	O-Ring 208	84379600
26	1	208 O-Ring Backup Buna 90	84390100
27	1	Spud Shaft	04438101
28	2	O-Ring 112	84376300
29	2	O-Ring 218	84382800
30	1	Test Coupling SMK20-G1/4VC	84904000
31	1	Spud Stop	84802910
32	1	Dowel Pin 5/16"x1/2"	86651500
33	2	Bolt Hex M10x1.5x90mm	87010500
34	2	Washer Lock M10	87076500



Electric/Manual On/Off Ball Valve Conversion Kit			
ID #	QUANTITY	DESCRIPTION	PART NUMBER
	1	Conversion Kit On/Off Electric	04839502
		Includes items 1-10	
1	1	Electric Cover Plate On/Off Ball Valve	04795702
2	1	Test Coupling SMK20-G1/4VC	84904000
3	4	Bolt Hex M10x1.5x50mm	87008530
4	2	1-16" NPT Pipe Plug Socket 7/8" Taper	84680770
5	1	Solenoid Cartridge Valve SV10-40	85108800
6	1	O-Ring 216	84382200
7	1	O-Ring 228	84384000
8	1	O-Ring 112	84376300
9	1	Poppet On/Off	04438401
10	1	Spring #B-18273	84453400

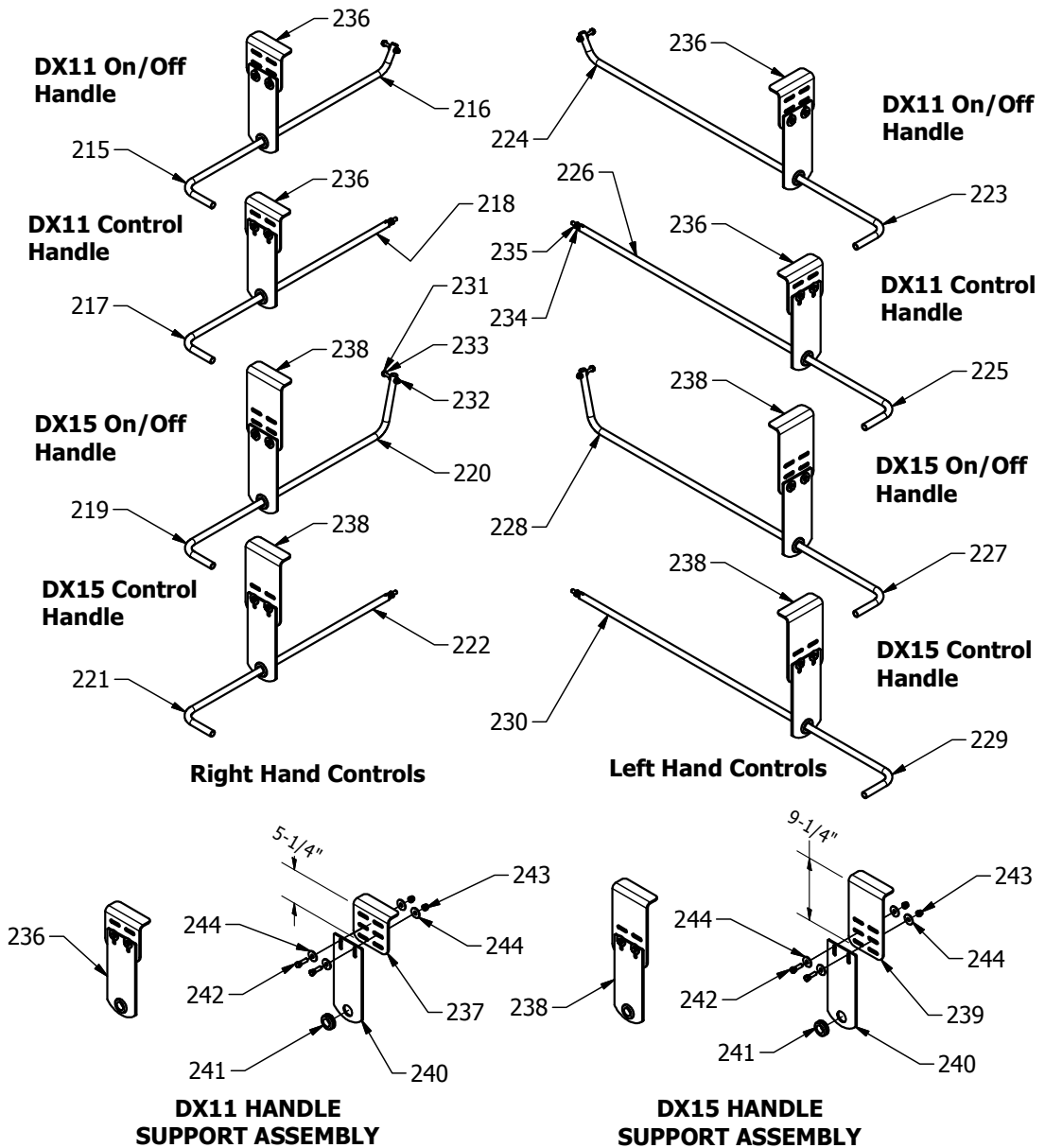
Restrictor Valve Assembly



Restrictor Valve #220 is used in 3 different configurations 220-A, -B & -C. This is done by replacing fittings 233 or 234 & 235. Restrictor valve 220-A is used as front restrictor, restrictor valve 220-B is used as front restrictor on right hand DX-11 and restrictor valve 185-C is used as rear restrictor.

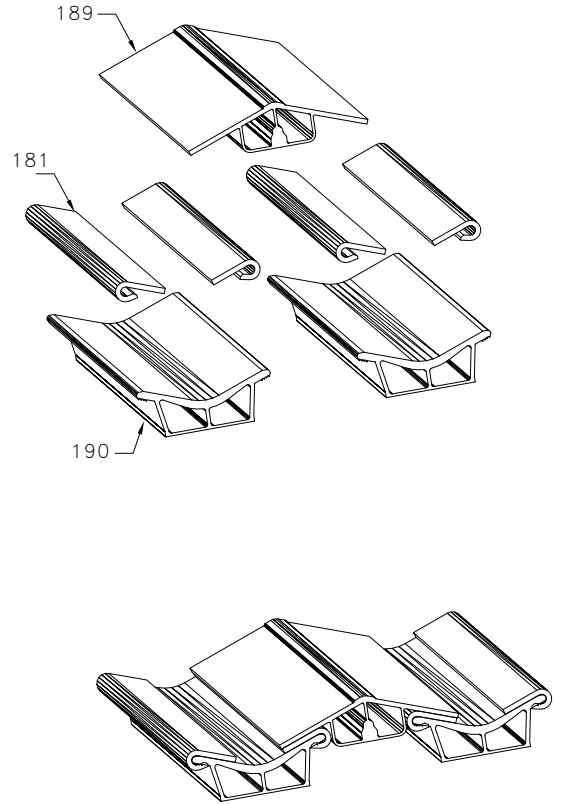
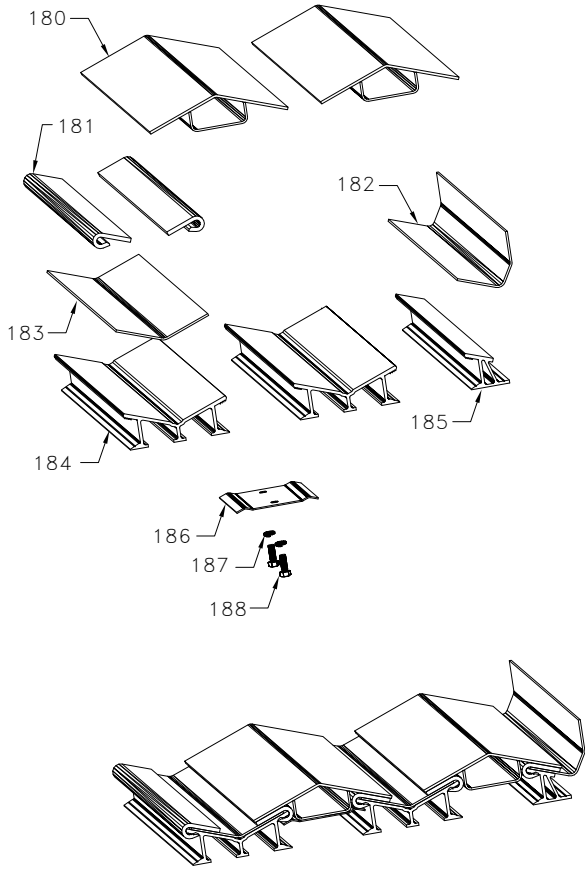
#ID	QUANTITY	DESCRIPTION	PART NUMBER
Restrictor Valve Parts List			
220	1	Restrictor Valve Assembly with Fittings	6549901
-	-	Includes items 256 - 269	-
221	1	Restrictor Valve Assembly without Fittings	6549902
-	-	Includes items 257 - 266	-
222	1	Restrictor Valve Body	6549601
223	1	Restrictor Rod End Cap Spring End	3349001
224	1	Spring Danly Yellow	84455400
225	1	Restrictor Rod	3348901
226	1	Restrictor Valve	1951901
227	1	Restrictor Rod End Cap Small End	3349101
228	1	6400-12-12 Straight Connector	84685000
229	1	6402-12-12 Swivel Straight Thread	84686100
230	2	6408-H-8 Hollow Hex Plug	84687500
231	2	908 O-Ring	84387000
232	6	912 O-Ring	84387400
233	1	6408-H-12 Hollow Hex Plug	84687700
234	1	6802-12-12 45° Straight Thread Elbow	84691950
235	1	6400-12-12 Straight Connector	84685000

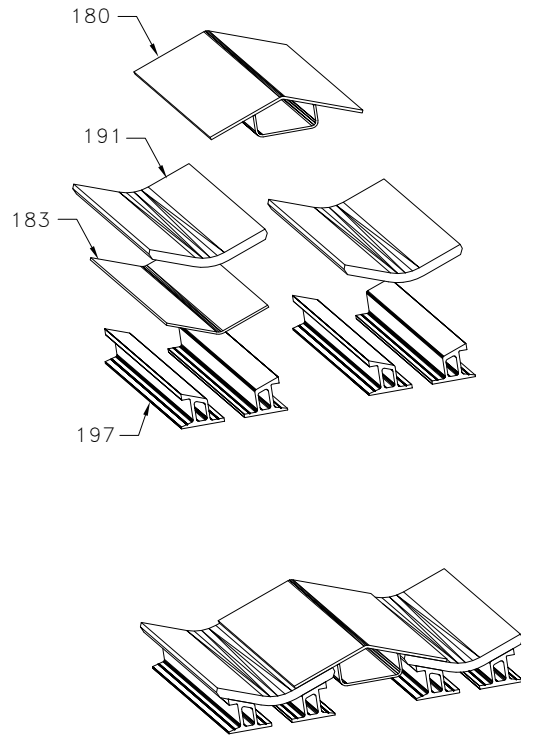
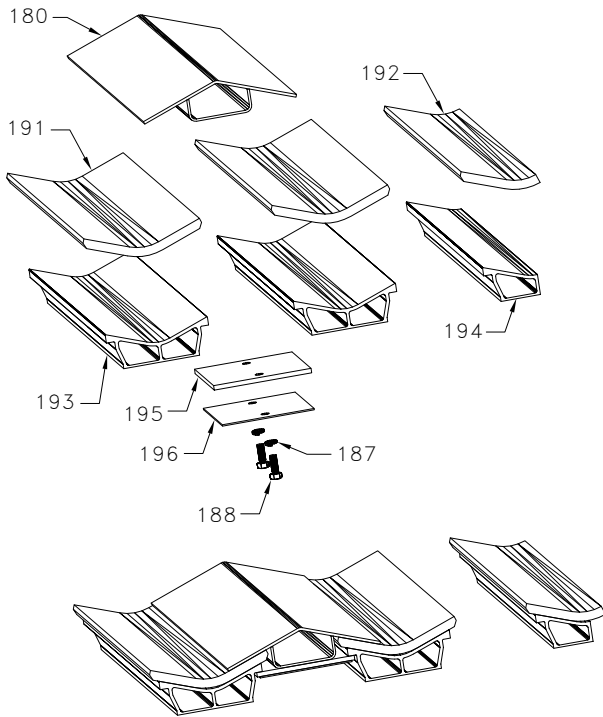
SAE On/Off Ball Valve & Control Valve Handle Assemblies for DX11 & DX15



**SAE ON/OFF BALL VALVE & CONTROL VALVE HANDLE ASSEMBLIES FOR DX11 & DX15
V-FLOOR® DX**

#ID	QUANTITY	DESCRIPTION	PART NUMBER
		ON/OFF BALL VALVE & CONTROL VALVE HANDLE ASSEMBLIES, DX11 & DX15	
215	1	DX11 On/Off Ball Valve Handle Assembly Right Hand	6625501
216	1	DX11 On/Off Ball Valve Handle	6625101
-	-	Includes items 231-233 & 236	-
217	1	DX11 Control Valve Handle Assembly Right Hand	6627301
218	1	DX Control Valve Handle	6714801
-	-	Includes items 234, 235 & 236	-
219	1	DX15 On/Off Ball Valve Handle Assembly Right Hand	6698601
220	1	DX15 On/Off Valve Handle	6698801
-	-	Includes items 231-233 & 238	-
221	1	DX15 Control Valve Handle Assembly Right Hand	6698701
222	1	DX Control Valve Handle	6714801
-	-	Includes items 234, 235 & 238	-
223	1	DX11 On/Off Ball Valve Handle Assembly Left Hand	6712901
224	1	DX11 On/Off Valve Handle	6713001
-	-	Include items 231-233 & 236	-
225	1	DX11 Control Valve Handle Assembly Left Hand	6712501
226	1	DX Control Valve Handle	6747601
-	-	Includes items 234, 235 & 236	-
227	1	DX15 On/Off Ball Valve Handle Assembly Left Hand	6713101
228	1	DX15 On/Off Valve Handle	6713201
-	-	Includes items 231-233 & 238	-
229	1	DX15 Control Valve Handle Assembly Left Hand	6712701
230	1	DX Control Valve Handle	6747601
-	-	Includes items 234, 235 & 238	-
231	1	Bolt Hex GR5 5/16" x 1-3/4"	86439500
232	1	Nut Hex Nylock 5/16"	86627500
233	3	Washer Flat 5/16"	86552500
234	1	Nut Hex 3/8"	86628500
235	1	Washer Lock 3/8"	86555000
236	1	DX11 Handle Support Assembly	6627101
237	1	DX11 Angle Mount Plate	6625401
-	-	Includes items 240-244	-
238	1	DX15 Handle Support Assembly	6747801
239		DX15 Angle Mount Plate	6698501
-	-	Includes items 240-244	-
240	1	On/Off & Control Valve Handle Mount Plate	3690401
241	1	Groumet Handle Support	83218400
242	2	Bolt Hex GR5 3/8" x 1-1/4"	86428500
243	2	Nut Hex Nylock 3/8"	86628000
244	4	Washer Flat 3/8"	86554000



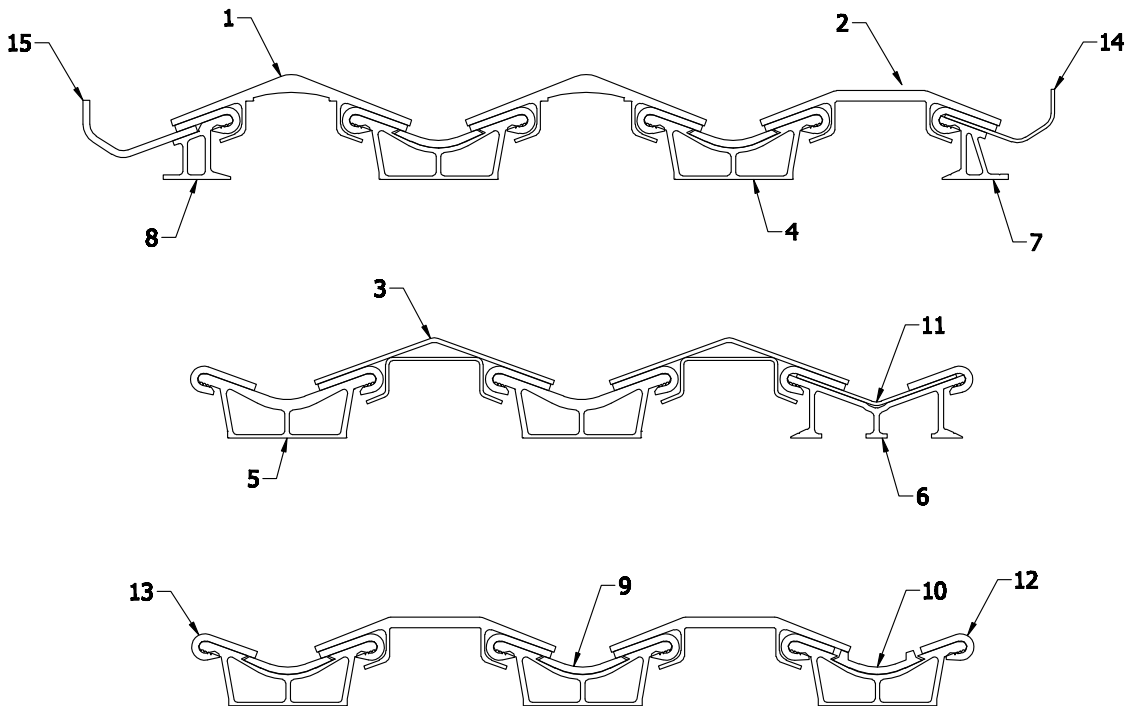
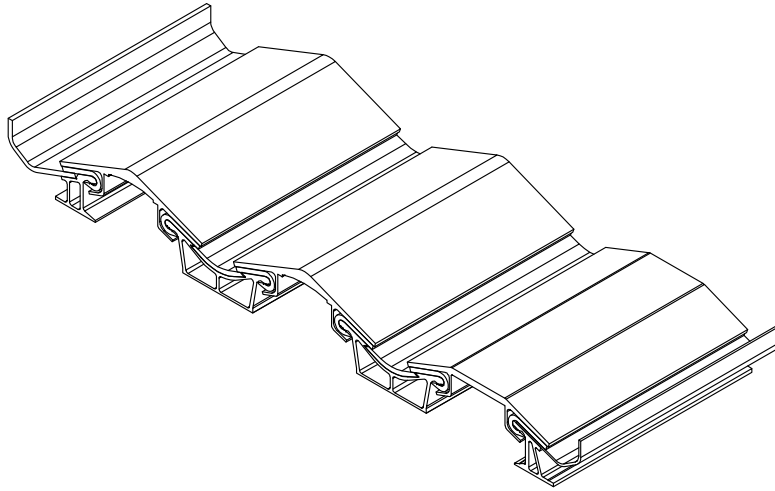


PARTS LIST

ID#	QUANTITY	DESCRIPTION	PART NUMBER
180*	9	5/32" Steel V-Floor® Slat	02448
180*	9	1/8" Steel V-Floor® Slat	02459
181*	18	J-Bearing Extended	832493
182*	-	Side Seal (12 ft Sections)	05084601
183*	8	1/8" Bottom V-Pan	02460**
184*	8	Bolt Down Sub-Deck	02491**
185*	2	Side Seal Sub-Deck	02492**
186	-	Hold Down Plate	05045501
187	-	3/8" Lock Washer	86555000
188	-	3/8" x 1" HCS w/ Patch Lock	86437500
189	9	7/32" Aluminum V-Floor® Slat	02453**
190	8	Weld Down Sub-Deck and Pan	02490**
191	8	1/2" Quick-Silver Asphalt Bearing	02457**
192	2	1/2" Side Seal Quick-Silver Asphalt Bearing	05493001
193	8	Weld Down Sub-Deck and Pan For Asphalt Bearing	02478**
194	2	Side Seal Weld Down Sub-Deck and Pan For Asphalt Bearing	05437801
195	-	1/4" Hold Down Bearing (Quick-Silver)	05211101
196	-	Flat Hold Down	05211201
197	18	Bolt Down Sub-Deck For Asphalt Bearing	02479**

* Part numbers and descriptions vary based on drive configurations

** Last four numbers indicate length

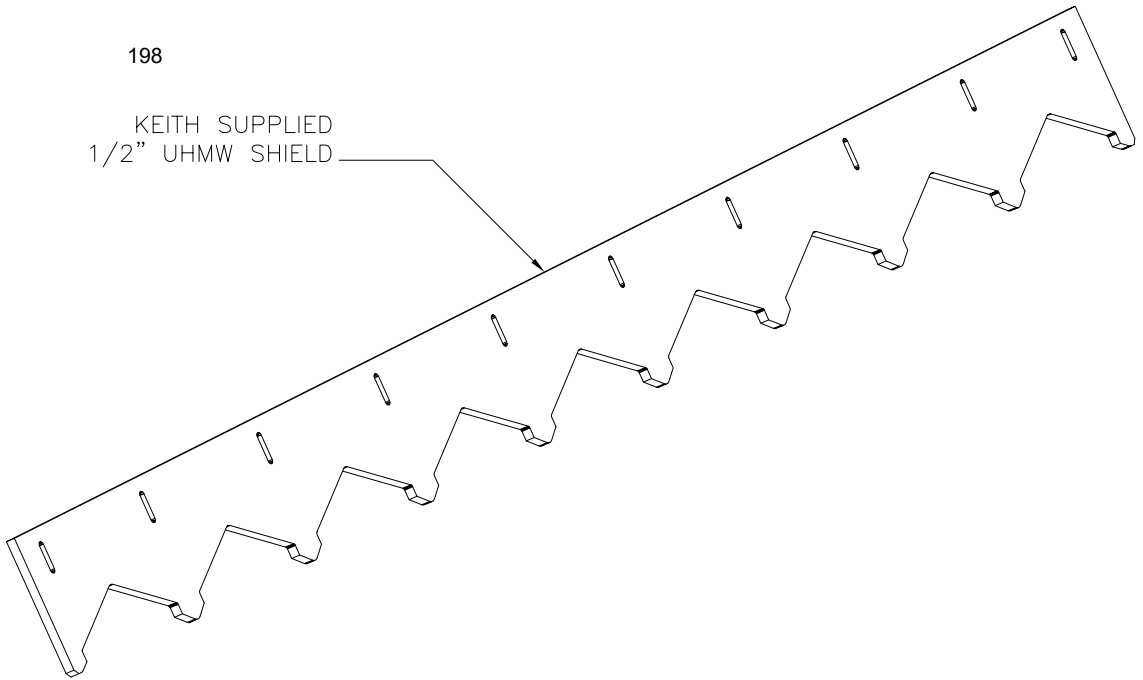


PARTS LIST

ID#	QUANTITY	DESCRIPTION	PART NUMBER
1*	9	Aluminum V-Slat with Integrated Hold Down, 10.5" SC	2531**
1*	9	Aluminum V-Slat with Integrated Hold Down, 10.0" SC	2644**
2*	9	Flat Top Aluminum V-Slat with Integrated Hold Down, 10.5" SC	2631**
3*	9	Steel Integrated Slat, .157" thick, 10.5" SC	5661701
3*	9	Steel Integrated Slat, .118" thick, 10.5" SC	5661702
3*	9	Steel Integrated Slat, .157" thick, 10.0" SC	6008501
3*	9	Steel Integrated Slat, .118" thick, 10.0" SC	6008502
4*	8	Weld Down Sub-Deck with Insert Groove	2527**
5*	8	Weld Down Sub-Deck	2490**
6*	8	Bolt Down Sub-Deck	2491**
7	2	Side Seal Sub-Deck (For Steel Walls)	2492**
8	2	Side Seal Sub-Deck (For Alum Walls)	2502**
9	8	Alum Flat Sub-Deck Insert	2529**
10	8	Alum Two Ridge Sub-Deck Insert	2528**
11	8	1/8" Bottom V-Pan	2460**
12	18	Yellow UHMW J-Bearing	2446**
13	18	Orange UHMW J-Bearing	2493**
14	-	Steel Side Seal (12 ft Sections)	5408101
15	-	Alum Side Seal (10 ft Sections)	5408102

* Part numbers and descriptions vary based on drive configurations

** Last four numbers indicate length



PARTS LIST

ID#	QUANTITY	DESCRIPTION	PART NUMBER
198*	1	Keith Supplied 1/2" UHMW Shield	05408001

* Part numbers and descriptions vary based on drive configurations

**Maintenance For Your New
KEITH® RUNNING FLOOR II® and Hydraulic Wet Kit**

1. For proper operation of your new RUNNING FLOOR II® equipped trailer and wet kit, make sure the pressure and return lines are hooked up correctly. It is important to periodically inspect hoses and connectors for damage and contamination. Clean all dirt and water from connectors before hooking up.
2. Change the hydraulic return filter element after the first six (6) hours of operation and then every six (6) months. This may vary with the operating environment.
3. During the first two (2) weeks of operation, it will be necessary to check and tighten all floor bolts. Floor bolts should be checked regularly for proper torque, in accordance with a preventive maintenance program, as loose floor bolts will cause serious damage to floor slats.
4. After the first week of operation, you must check and tighten the lower cross-drive clamps that fasten the cross-drives to the cylinder. Also check the end cylinder rod plates that fasten the cylinders to the drive frame.
5. During the first several weeks of operation, examine the check valve and tube clamps regularly to ensure that they are securely fastened.

Recommended Bolt Torque Values

Bolt Description		Torque
Bolt Hex 3/8"	Integrated Slat Shoes	45 FT-LBS
Nut Hex 5/8"	Kwik-Klamp® Shoes (See pg. 16)	180 FT-LBS
Bolt Hex 5/8" HCS	Lower cross–drive clamp bolt (Over torque may distort the barrel enough to bind the piston.)	135 FT-LBS (See Pg. 20)
Bolt Hex 5/8" HCS	Rod end plates	135 FT-LBS
Bolt Hex 5/16" HCS	Check Valve and tube clamp bolts	20 FT-LBS

Problems and Trouble-Shooting

KEITH Mfg. Co. 24-hour Fax Service (541) 475-2169
 KEITH Mfg. Co. Customer Service and Support (800) 547-6161 or (541) 475-3802
 Monday - Friday, 7 am to 4 pm Pacific Standard Time
 Email: techdept@keithwalkingfloor.com

Before you call, please review the following:

1. See start-up check list on page 9.
Re-checking items on this list can solve most problems.
2. We will be better able to help solve any problems if you have the information indicated below before you call.
 - a. Model Number
 - b. Serial Number
 - c. Number of floor slats
 - d. Trailer make
 - e. Cylinder bore size
 - f. Drive unit model

**PLEASE FILL OUT AND RETURN IMMEDIATELY TO
KEITH Mfg. Co.**

The warranty registration card must be completed and on file at KEITH Mfg. Co. in order for the warranty period to begin on the purchase date. If no purchase date is registered, the beginning of the warranty will be the date of the manufacture if no other date can be determined.

Please make sure the serial number listed on the card coincides with the serial number plate on the drive unit.

Please print or type

KEITH® V-FLOOR® DX unloading System Warranty Registration Card

Purchaser		
Address	Phone	
City	State/Prov.	
Country	Postal Code	
Original Purchase Date of System		
Model No.		
Serial No. (See page 8 for location guide)		
Installed in:	New Trailer	Used Trailer
Dealer Name & Location		
Type of Material Unloaded		

I have fully read the KEITH Mfg. Co. warranty information and I/we fully understand and agree to the terms of the warranty.

Signature _____ Date _____

Note: To validate the warranty, this registration card must be filled out completely and returned to KEITH Mfg. Co. within ten (10) days of purchase and/or installation.

Please fax, mail or email this warranty registration information to KEITH Mfg. Co. at:

**Warranty Registration
KEITH Mfg. Co.
P.O. Box 1
Madras, OR 97741-0001
Fax: (541) 475-2169
Email: techdept@keithwalkingfloor.com**

CUT HERE

!!CAUTION!!
To prevent Possible Injury or Death

DO NOT:

1. Operate the floor with the doors closed.
2. Stand behind the trailer or in the discharge area when floor is operating.
3. Make adjustments to the unloading mechanism with floor operating.
4. Operate the unloader when protective covers and screens are not in place.
5. Go underneath the trailer when floor is operating.
6. Leave the trailer unattended while the unloader is in operation.

ALWAYS:

1. Disengage the trailer from the hydraulic power unit (P.T.O.) before service and maintenance.
2. Shut off the power supply before going underneath the trailer.
3. Stay away from any oil leaks when hydraulic pressure is high.
4. Shut off the hydraulic power take off unit (P.T.O.) before moving the trailer.

!!Keep your hands, body parts and loose clothing away from the floor slats and drive mechanism when the unloading system is in operation!!



KEITH