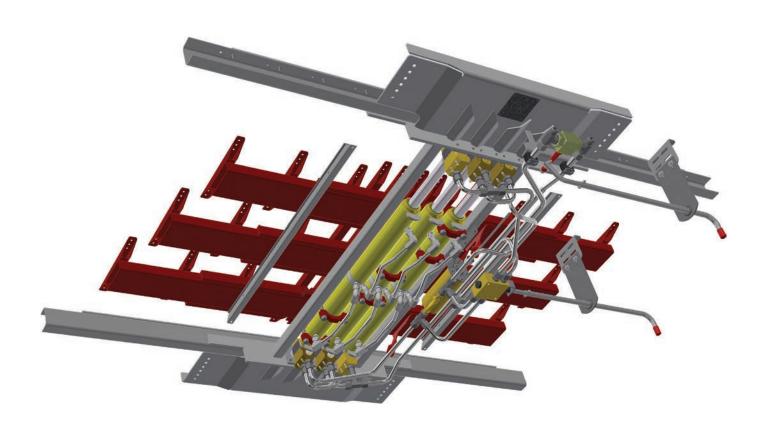


# RUNNING FLOOR II® DX

KEITH Manufacturing Co. www.KeithWalkingFloor.com

World Headquarters

Toll-Free: 800-547-6161 Phone: +1-541-475-3802



11369701



### PARTS CATALOG

**Original Instructions** 

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Released: 2024-02-27 DOC06272 Rev. G

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### PARTS CATALOG

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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, 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.

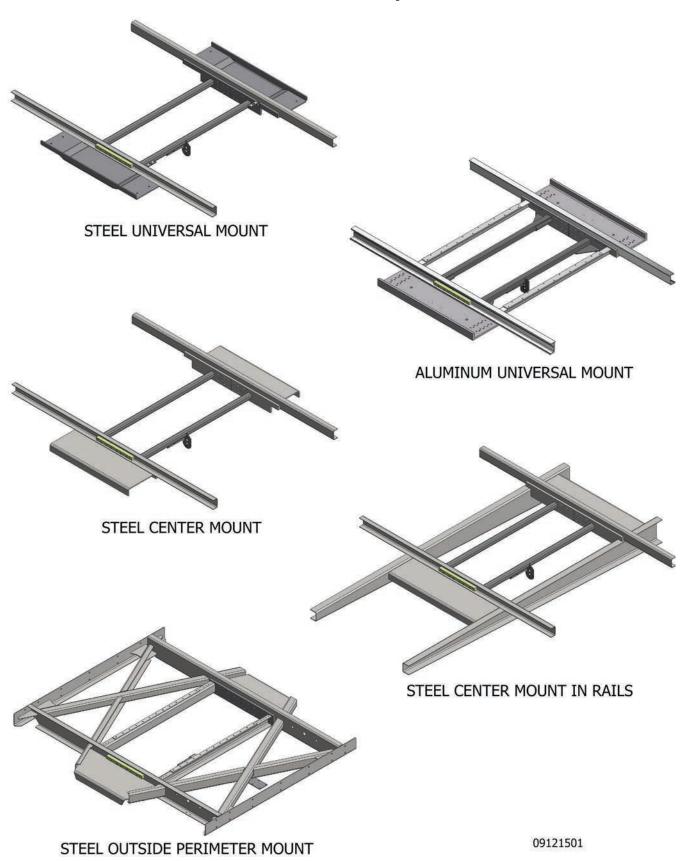
KEITH Mfg. fabricates many standard drive systems, included in this parts catalog, and also fabricates custom drive systems, too numerous to include, therefore KEITH requires the following information from your drive system to ensure we provide you with most accurate information. Please have the following 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

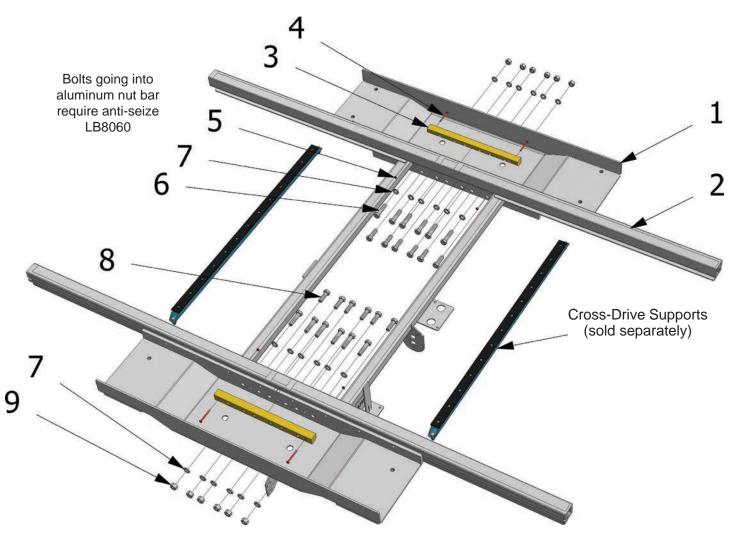
Safety Decals									
		Pla	ety Decal acement uide #'s	84804319	84804321	84804320	84804322	84804323	
<u>Old - 2019</u> ( <u>Worded)</u>	<u>2020 - Future</u> ( <u>Wordless)</u>		Decal Kit #'s	RFII MCV LH Kit #84804331	RFII MCV DX RH Kit #84804333	RFII MCV DXE RH Kit #84804332	KFD & RFII ECV LH Kit #84804334	KFD & RFII ECV RH Kit #84804335	
Energy can be stored in compacted material. Doors can open violentily. Doors can open violentily. Doors for in short with door closed. Stand diest to open door.		1	84804311	1	1	1	1	1	
WARNING Pinch point. Keep hands clear during operation. Lockout/ragout before servicing.		2	84804312	4	4	4	4	4	
DANGER BURIAL STAY CLEAR	Total Mark Sales (All Paris Like Sales Sal	3	84804313	2	2	2	2	2	
To avoid injury, you MUST read and understand technical manual before servicing this machine.		4	84804314	2	2	2	2	2	
HYDRAULIC PRESSURE. To avoid possible injury lockout/tragout before servicing.	THE THE TIME IS NOT THE TIME IN THE TIME IS NOT THE TIME IN THE TIME IS NOT THE TIME IN THE TIME IS NOT THE TI	5	84804315	2	2	2	2	2	
WARNING  HOT SURPACE  On out touch.  Tom out and sich out  and down to pool before  and the plant U.I.  The pool to pool before  and the plant U.I.  The pool to pool before  and the plant U.I.  The pool to pool before  and the plant U.I.  The pool to po		6	84804316	2	2	2	2	2	
Avoid injury. Do NOT operate with guard removed. Replace guard before operating machine.		7	84804317	1	1	1	1	1	
DANGER BURIAL DO NOT ENTER	TO SECOND OF THE PROPERTY OF T	8	84804318	1	1	1	1	1	
	<del></del>					D	UC0627	2 Rev G	

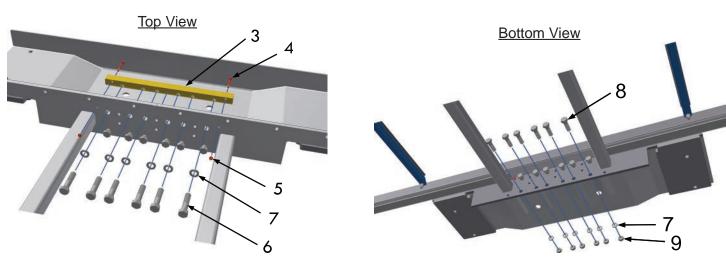
	Safety	Decals							
			Pla	ety Decal acement uide #'s	84804319	84804321	84804320	84804322	84804323
<u>Old - 2019</u> (Worded)	<u>2020 - Future</u> (Wordless)			Decal Kit #'s	RFII MCV LH Kit #84804331	RFII MCV DX RH Kit #84804333	RFII MCV DXE RH Kit #84804332	KFD & RFII ECV LH Kit #84804334	KFD & RFII ECV RH Kit #84804335
O			20	84804129	1	1	1	1	1
Controls on Left Side of Truck/Trailer	Left Side of								
	Rig	controls on ght Side of uck/Trailer	23	84803906		1			
	Rig	controls on ght Side of uck/Trailer	24	84804130			1		
Controls on Left Side of Truck/Trailer			25	84803904				1	
	Rig	controls on ght Side of uck/Trailer	26	84803905					1

### **Drive Frame Styles**



### **Drive Frame & Related Components**





Qty

ID#

1(1)

2 (1) (2)

3 (1)

SAE Part #	Metric Part #	Description
_ (1)	_ (1)	Drive Frame Assembly (Includes items 1-16)
-	-	Drive Frame Steel
w/frame	w/frame	Channel Formed 4"x2 1/4"x3/16"
01253701	01253702	Nut Bar Cylinder Mount 4.5" Cylinder Centers
01173101	01173102	Nut Bar Cylinder Mount 5.0" Cylinder Centers
01253801	01253802	Nut Bar Cylinder Mount 6.0" Cylinder Centers
05181401	05181402	Nut Bar Cylinder Mount 10.0" Cylinder Centers

Nut Bar Cylinder Mount 10.5" Cylinder Centers

Hex Nut Nylock (1/4", M6 x 1) Zinc

Bolt Hex (GR5 1/4"x2 1/4", GR8.8 M6 x 1 x 60) (3.0" Cyl)

Bolt Hex (GR5 1/4"x2 3/4", GR8.8 M6 x 1 x 70) (3.5" Cyl)

Bolt Hex (GR5 1/4"x2 3/4", GR8.8 M6 x 1 x 70) (4.0" Cyl)

Bolt Hex (GR8 5/8"x2 3/4", 10.9 M16 x 2 x 65) (3.0" Cyl)

Bolt Hex (GR8 5/8"x2-1/2", 10.9 M16 x 2 x 70) (4.0" Cyl)

Bolt Hex (GR8 5/8"x2 1/4", 10.9 M16 x 2 x 55) (3.5" Cyl)

Bolt Hex (GR8 5/8"x3", 10.9 M16 x 2 x 70) (3.5" Cyl)

Bolt Hex (GR8 5/8"x2", 10.9 M16 x 2 x 50) (3.0" Cyl)

Bolt Hex (GR8 5/8"x2", 10.9 M16 x 2 x 55) (4.0" Cyl)

**Drive Frame & Related Components** 

Nut Hex (5/8", M16 x 2)

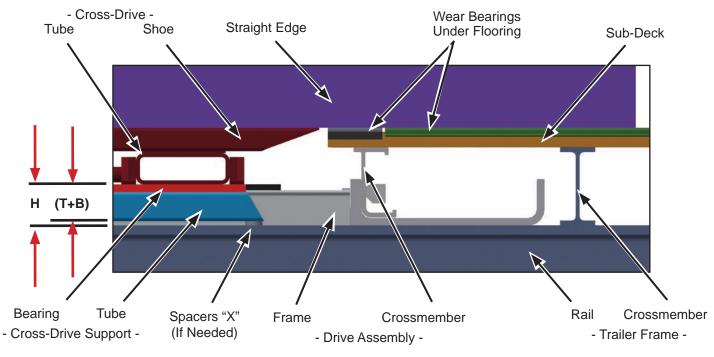
Washer Lock (5/8", M16)

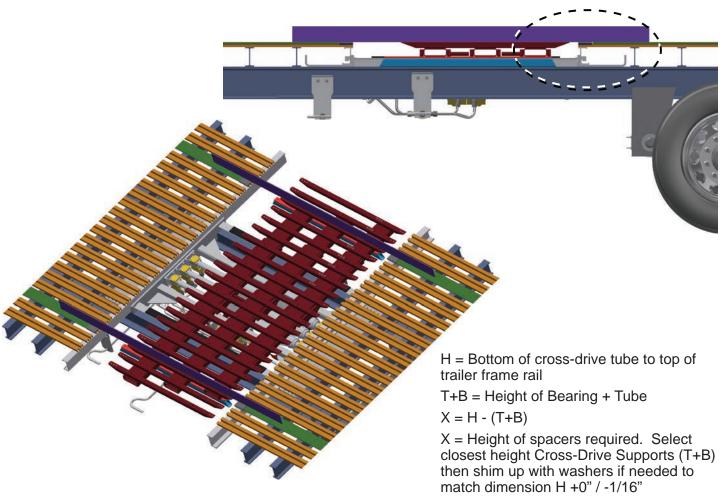
Longer bolts (#6 & #8) may be required for thicker **Aluminum frames!** 

<sup>(1)</sup> Part numbers and descriptions vary based on the drive configuration and application. Drive serial number must be provided to determine actual part numbers.

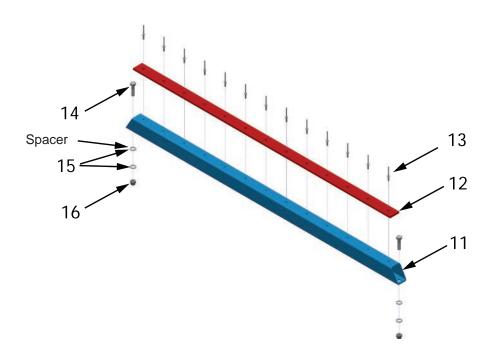
<sup>(2)</sup> Formed Channels are included with frame. In many applications they are non-removable.

### **Drive Leveling / Installation Reference**





### **Cross-Drive Support Assemblies**

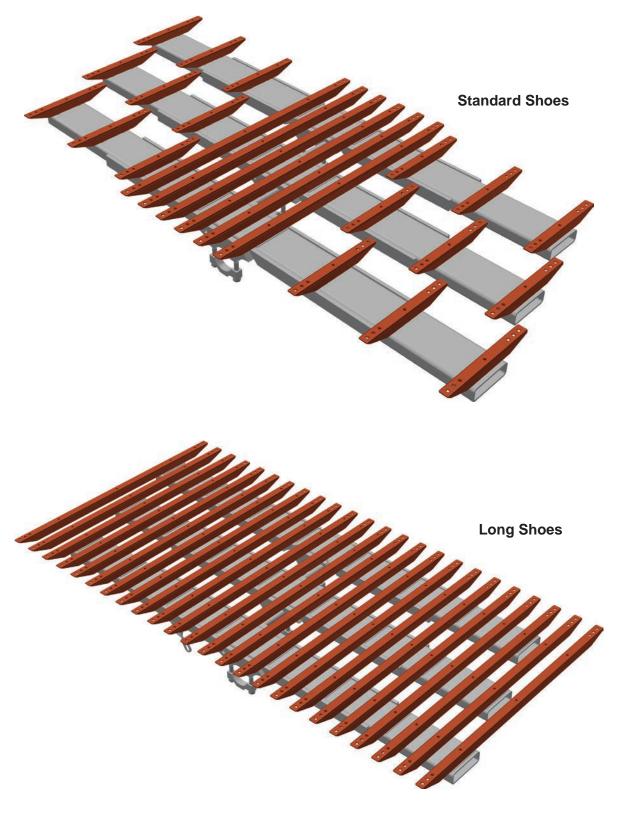


	Cross-Drive Support Assemblies										
ID#	Qty	Part #	Part #	Part #	Description						
_ (1)	2	03467804	03467802	03467805	Cross-Drive Support Assembly (Includes items 11-17)						
T+B	-	1-1/2" 1-5/8" [38 mm] [41 mm]		1-7/8" [48 mm]	Combined Height of Tube & Bearing (#11+#12)						
<b>11</b> <sup>(1)</sup>	1		03467702		Tube ST 1-1/4"x1-1/4"x45"						
		03453901	01		Bearing Strip UHMW 1/4"x1-1/2"x42-1/2"						
12 <sup>(1))</sup>	1	-	03453902	-	Bearing Strip UHMW 3/8"x1-1/2"x42-1/2"						
		-	-	03453904	Bearing Strip UHMW 5/8"x1-1/2"x42-1/2"						
13	13		86528150		Rivet 3/16"x1/2" AB6-8						
14	2		87008520		Bolt Hex M10 x 1.5 x 40 mm						
15	4		87076000		Washer Flat M10 (1/16" Spacer "X")						
16	2		87102000		Nut Hex Nylock M10 x 1.5						

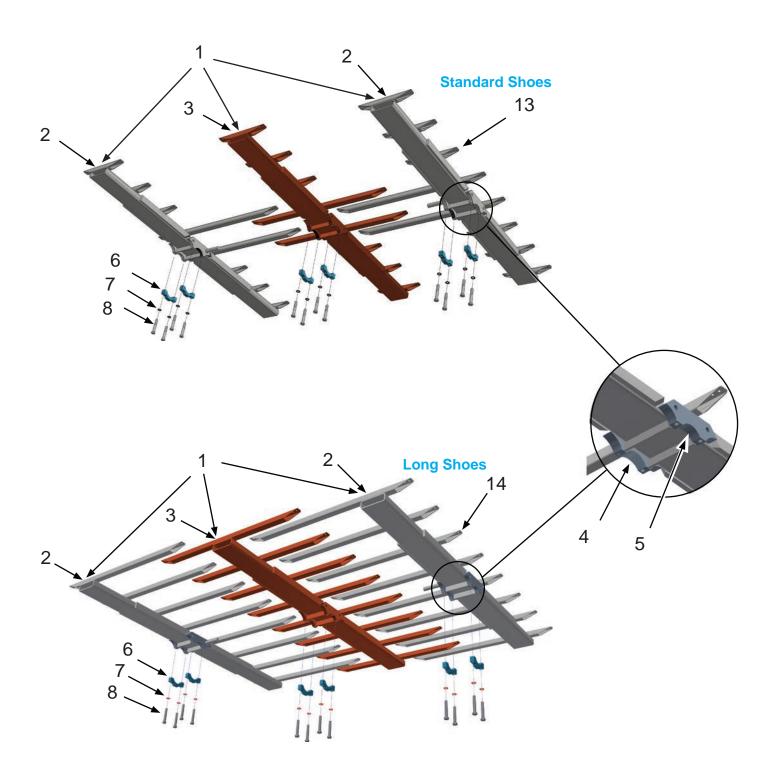
<sup>(1)</sup> Part numbers and descriptions vary based on the drive configuration and application. Drive serial number or measurements from drive installed in trailer must be provided to determine actual part numbers.

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### **Cross-Drive Shoe Variations**



### **Cross-Drive Assembly**

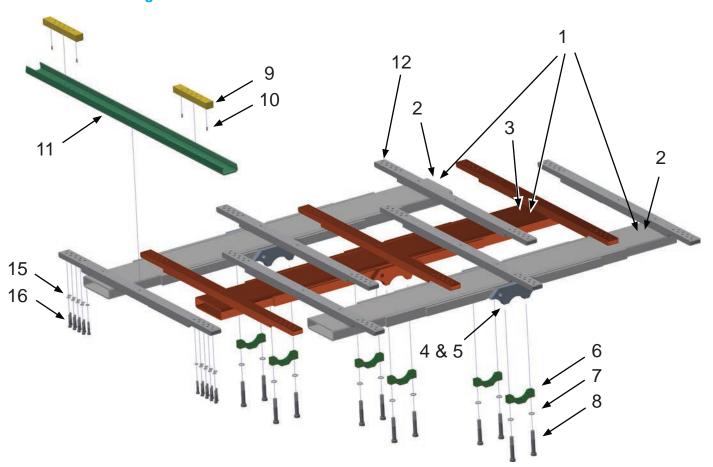


	Cross-Drive Assembly										
ID#	Qty	3.0" Cyl SAE Part #	3.0" Cyl Metric Part #	3.5" Cyl SAE Part #	3.5" Cyl Metric Part #	4.0" Cyl SAE Part #	4.0" Cyl Metric Part #	Description			
<b>1</b> <sup>(1)</sup>	-	-	-	-	-	-	-	Cross-Drive Set (Includes items 2-5)			
2 <sup>(1)</sup>	2	-	-	-	-	-	-	Cross-Drive #1 & #3			
3(1)	1	-	-	-	-	-	-	Cross-Drive #2			
		03024501	03024502	03024601	03024602	06837801	06837802	Upper Threaded Weld On Clamp			
4	1/XDR	-	-	08053301	08053302	-	-	Upper Threaded Weld On Clamp 1.5" Thick			
		03024401	03024402	03024701	03024702	06837901	06837902	Upper Smooth Weld On Clamp			
5	1/XDR	1	-	08053201	08053202	-	-	Upper Smooth Weld On Clamp 1.5" Thick			
6	3	-	-	-	-	0961	11701	Lower Threaded Cross-Drive Clamp			
	6	0391	10501 03910601			06839301		Lower Smooth Cross-Drive Clamp			
7	12		8655	9090		87078401		Washer Nord-Lock 5/8", 3/4" (2 PCS=1)			
	12	86470010	-	-	-	-	-	Bolt Hex Patchloc GR8 5/8"x4"			
	12	-	87017880	-	-	-	-	Bolt Hex Patchloc M16x100mm CL10.9			
	12	-	-	86470510	-	-	-	Bolt Hex Patchloc GR8 5/8"x4 1/2"			
8	12	-	-	-	87018510	-	-	Bolt Hex Patchloc M16x120mm CL10.9			
O	6	-	-	-	-	86474050	-	Bolt Hex 3/4"x5" GR8 ZN			
	6	1	-	-	-	86474060	-	Bolt Hex 3/4"X5-1/2" GR8 ZN			
	6	1	-	-	-	-	87019600	Bolt Hex M20x120 CL10.9			
	6	-	-	-	-	-	87020100	Bolt Hex M20x140 CL10.9			
13	1/slat		0300	5501		-	-	Short Drive Shoe 14" 3 Hole (Standard)			
13	1/slat		0421	3901		-	-	Short Drive Shoe 15" 4 Hole (Standard)			
	1/slat		0371	9001		-	-	Long Drive Shoe 43" 3 Hole			
14	1/slat	0769	0601	0300	5701	0797	75810	Long Drive Shoe 43" 4 Hole 3/8" 5/16" holes, No Holes			

<sup>(1)</sup> Part numbers and descriptions vary based on drive configuration and application. Drive serial number must be provided to determine actual part numbers.

### **Cross- Drive Assembly (V-Floor)**

### **Integrated V-Floor Slat**



### **Cross-Drive Assembly (V-Floor)**

ID#	Qty	3.0" Cyl 3.0" Cyl SAE Metric Part # Part #		SAE Metric SAE Metric		4.0" Cyl SAE Part #	4.0" Cyl Metric Part #	Description
<b>1</b> <sup>(1)</sup>	-	-	-	-	-	-	-	Cross-Drive Set (Includes items 2-5)
2(1)	2	-	-	-	-	-	-	Cross-Drive #1 & #3
3 <sup>(1)</sup>	1	-	-	-	-	-	-	Cross-Drive #2
4	1/XDR	03024501	03024502	03024601	03024602	06837801	06837802	Upper Threaded Weld On Clamp
5	1/XDR	03024401	03024402	03024701	03024702	06837901	06837902	Upper Smooth Weld On Clamp
6	3	-	-	-	-	0961	1701	Lower Threaded Cross-Drive Clamp
	6	0391	0501	0391	0601	0683	9301	Lower Smooth Cross-Drive Clamp
7	12		8655	9090		8707	8401	Washer Nord-Lock 5/8", 3/4" (2 PCS=1)
	12	86470010	-	-	-	-	-	Bolt Hex Patchloc GR8 5/8"x4"
	12	-	87017880	-	-	-	-	Bolt Hex Patchloc M16x100mm CL10.9
	12	-	-	86470510	-	-	-	Bolt Hex Patchloc GR8 5/8"x4-1/2"
8	12	-	-	-	87018510	-	-	Bolt Hex Patchloc M16x120mm CL10.9
0	12	-	-	-	-	86474050	-	Bolt Hex 3/4"x5" GR8 ZN
	12	-	-	-	-	86474060	-	Bolt Hex 3/4"X5-1/2" GR8 ZN
	12	-	-	-	-	-	87019600	Bolt Hex M20x120 CL10.9
	12	-	-	-	-	-	87020100	Bolt Hex M20x140 CL10.9
9	2/slat			0597	9701			Nut Bar
10	1/bar			8665	1405			Roll Pin 1/4" x 5/8"
	1/slat			0634	1401			Drive Channel Aluminum 10.0" SC
	1/slat			0619	1601			Drive Channel Aluminum 10.5" SC
11	1/slat			1002	9801			Drive Channel Aluminum 11.5" SC
11	1/slat			0600	6201			Drive Channel Steel 10.0" SC
	1/slat			0597	7701			Drive Channel Steel 10.5" SC
	1/slat			0988	4001			Drive Channel Steel 11.5" SC
12(1)	1/slat			0597	7601			V-Floor Long Drive Shoe 9 hole
15	18/slat			8655	5000			Washer Lock 3/8"
16	18/slat			8643	9521			Bolt Hex Patchloc 3/8"x2" ZN

<sup>(1)</sup> Part numbers and descriptions vary based on the drive configuration and application. Drive serial number must be provided to determine actual part numbers. Some shoes #12 will require (2) shim washers (86552520 Flat Washer 5/16"X1"X1/8") under them for proper installation.

#### **Hydraulic Tubes & Fittings**

KEITH Mfg. fabricates many standard drive systems, included in this parts catalog, and also fabricates custom drive systems, too numerous to include, therefore KEITH requires the following information from your drive system to ensure we provide you with most accurate information. 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

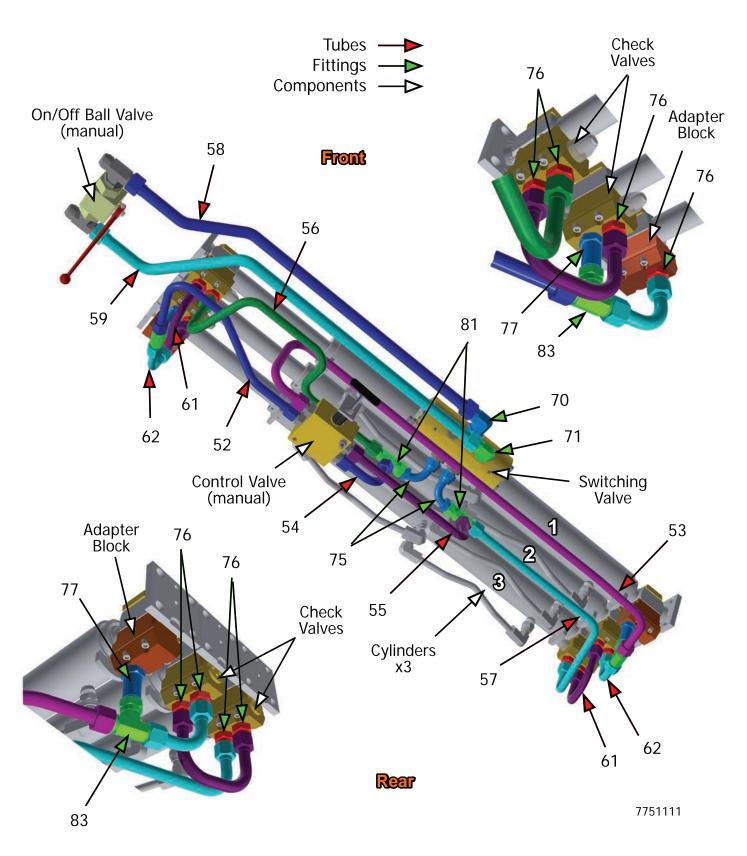
#### **Service Information**

- Use hydraulic oil or Vaseline to lubricate seals. Do NOT use grease.
- Do NOT use Teflon tape on any hydraulic components.
- Use the following chart for tightening tubes and fittings.

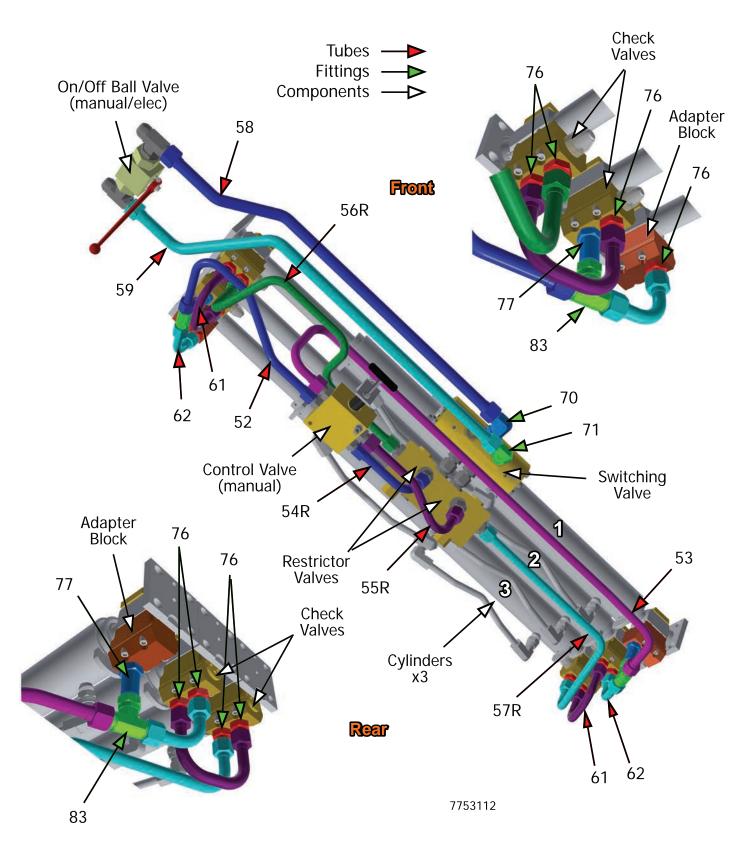
Sizes	Tubes	Swivel Nuts or Hoses
-6 JIC	2 FFWR	1-1/2 FFWR
-8 JIC	2 FFWR	1-1/2 FFWR
-12 JIC	1-1/2 FFWR	1-1/4 FFWR
-16 JIC	1-1/2 FFWR	1 FFWR
-12 ORFS	1/2 FFWR	1/2 FFWR
-16 ORFS	1/2 FFWR	1/2 FFWR

- FFWR (Flats From Wrench Resistance)
- JIC (Joint Industry Council, 37° flare seating surface)
- ORFS (O-Ring Face Seal)

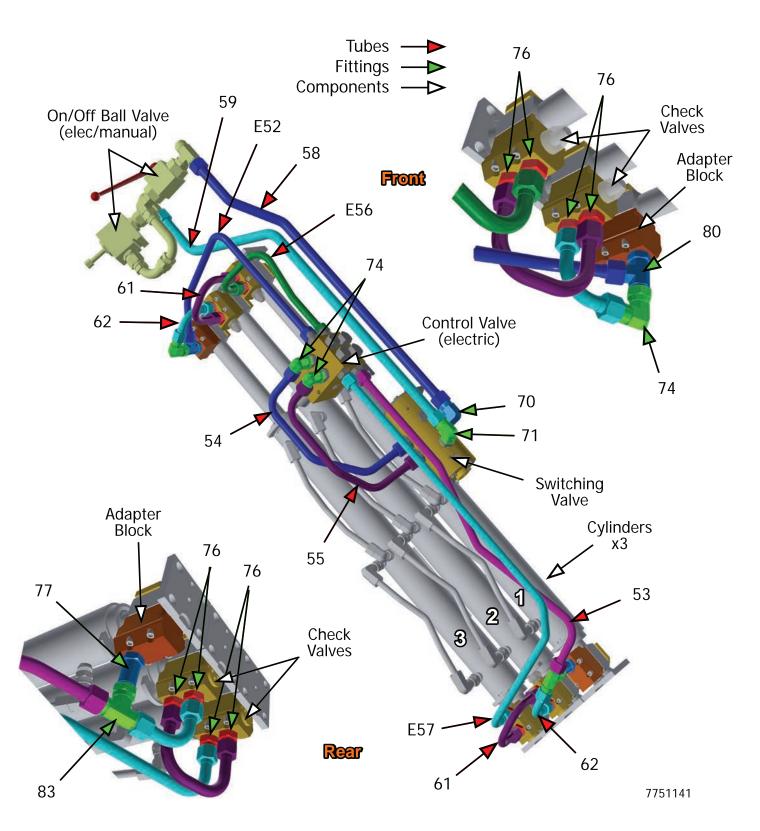
#### **DX Left Side Controls - Manual Control Valve**



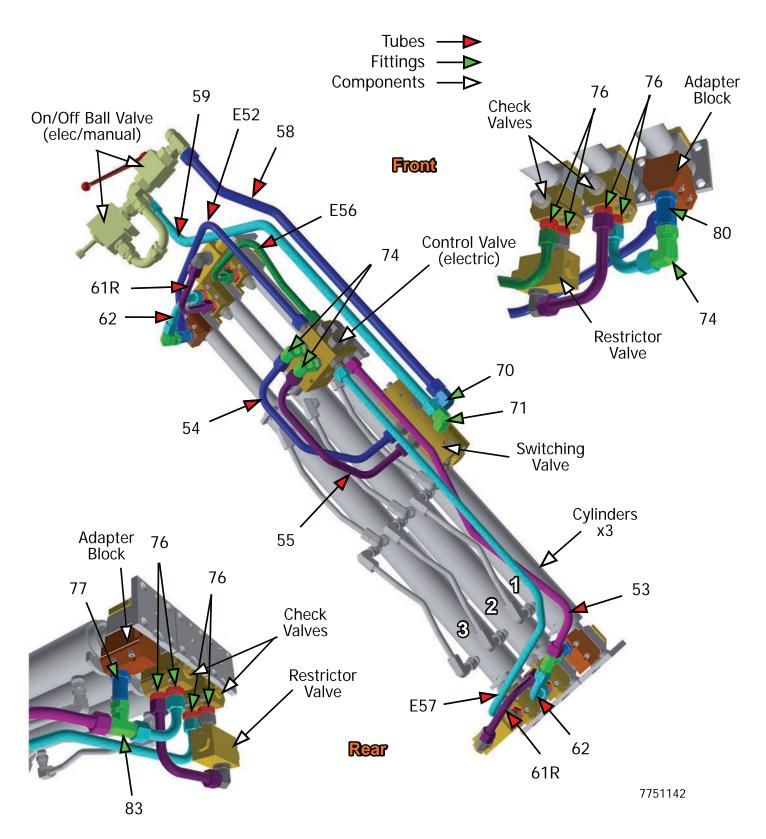
#### **DX Left Side Controls - Manual Control Valve with Restrictor Valves**



#### **DX Left Side Controls - Electric Control Valve**



#### **DX Left Side Controls - Electric Control Valve with Restrictor Valves**

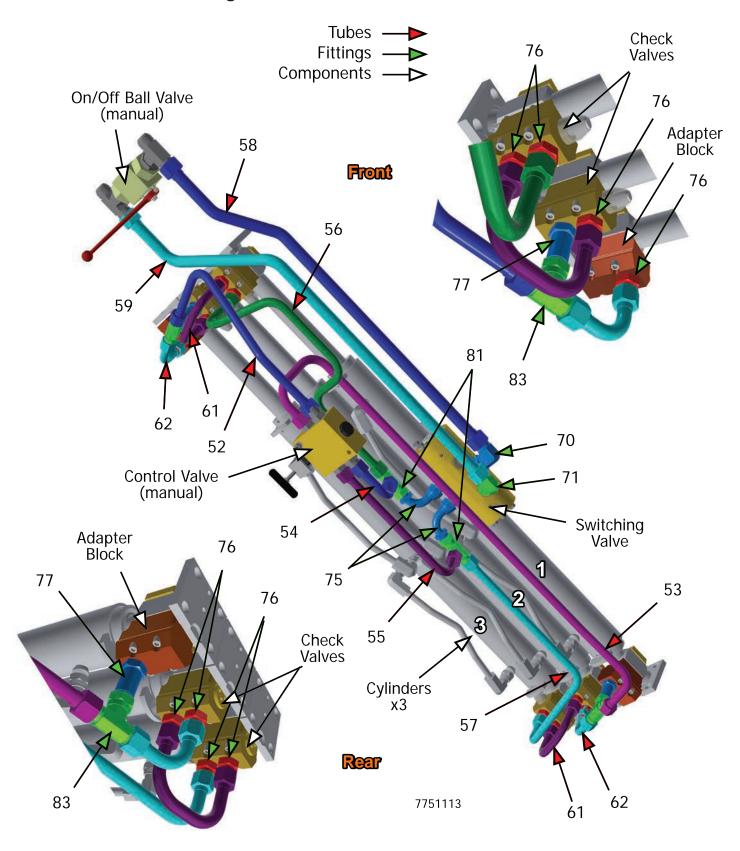


#### **DX Left Side Controls Table**

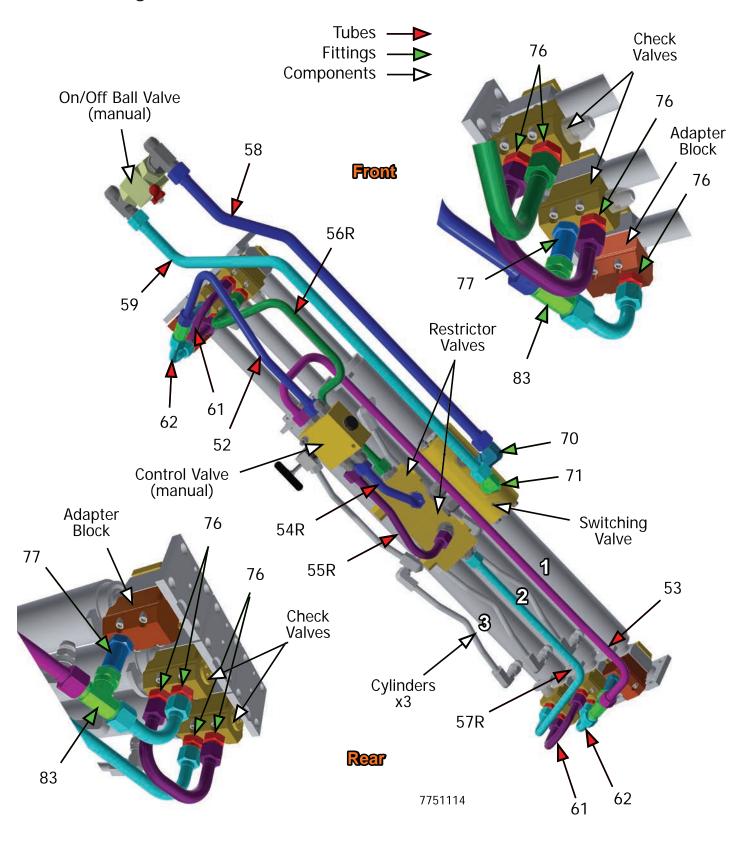
	ID#	Manual CV	Manual CV w/ Restrictors	Electric CV	Electric CV w/ Restrictors	Description
	52	1	1			#52 Tube - Control Valve to Front Check Valve 2
	E52			1	1	#E52 Tube - Control Valve to Front Adapter Block 3
	53	1	1	1	1	#53 Tube - Control Valve to Rear Adapter Block 1
	54	1		1	1	#54 Tube - Control Valve to Switching Valve Front CYL
	54R		1			#54R Tube - Control Valve to Front Restrictor Valve
	55	1		1	1	#55 Tube - Control Valve to Switching Valve Rear CYL
SES	55R		1			#55R Tube - Control Valve to Rear Restrictor Valve
	56	1				#56 Tube - Front Check Valve 1 to Switching Valve Front CYL
<u>ပ</u>	56R		1			#56R Tube - Front Check Valve 1 to Front Restrictor Valve
dr	E56			1	1	#E56 Tube - Front Check Valve 1 to Control Valve
HYDRAULIC TUBES	57	1				#57 Tube - Rear Check Valve 3 to Switching Valve Rear CYL
Ŧ	57R		1			#57R Tube - Rear Check Valve 3 to Rear Restrictor Valve
	E57			1	1	#E57 Tube - Rear Check Valve 3 to Control Valve
	58	1	1	1	1	#58 Tube - Switching Valve PUMP to Ball Valve
	59	1	1	1	1	#59 Tube - Switching Valve RES to Ball Valve
	61	2	2	2		#61 Tube - Check Valve to Check Valve
	61R				2	#61R Tube - Check Valve 2 to Restrictor Valve
	62	2	2	2	2	#62 Tube - Check Valve 2 to Adapter Block
	70	1	1	1	1	Elbow: 16 Male JIC - 16 Male ORB
	71	1	1	1	1	Elbow: 12 Male JIC - 16 Male ORB
	74			3	3	Elbow: 12 Male JIC - 12 Female JIC
GS	75	2				Sweep Elbow: 12 Male JIC - 12 Female JIC
FITTINGS	76	8	8	8	8	Straight: 12 Male JIC - 12 Male ORB
뷴	77	2	2	1	1	Long Straight: 12 Male JIC - 12 Male ORB
	80			1	1	Run Tee: 12 Male JIC - 12 Male ORB - 12 Male JIC
	81	2				Run Tee: 12 Male JIC - 12 Female JIC- 12 Male JIC
	83	2	2	1	1	Branch Tee: 12 Male JIC - 12 Male JIC- 12 Female JIC

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#### **DX Right Side Controls - Manual Control Valve**



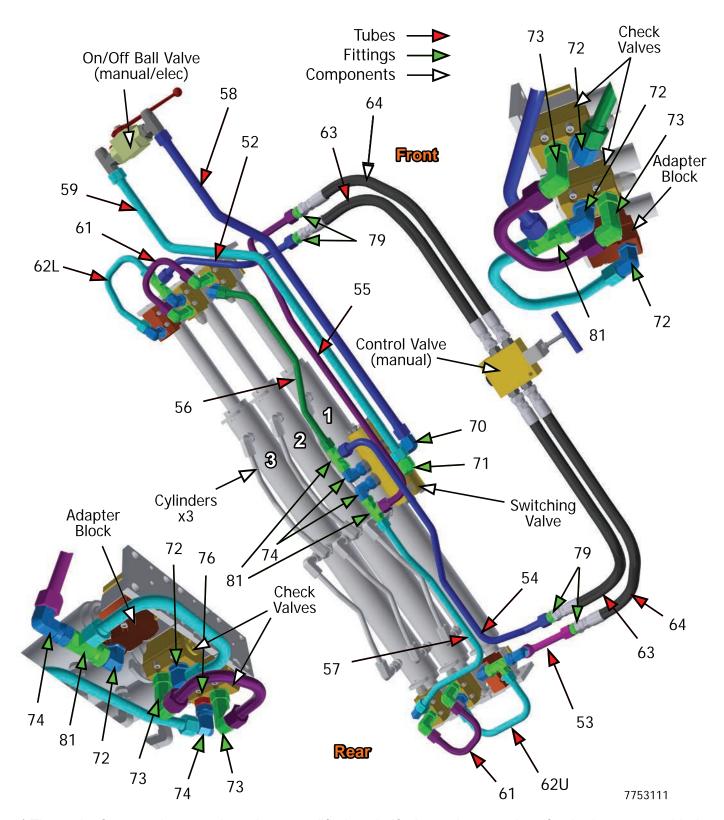
#### **DX Right Side Controls - Manual Control Valve with Restrictor Valves**



### **DX Right Side Controls Table**

	ID#	Manual CV	Manual CV w/ Restrictors	Description
	52	1	1	#52 Tube - Control Valve to Front Check Valve 2
	53	1	1	#53 Tube - Control Valve to Rear Adapter Block 1
	54	1		#54 Tube - Control Valve to Switching Valve Front CYL
	54R		1	#54R Tube - Control Valve to Front Restrictor Valve
(0	55	1		#55 Tube - Control Valve to Switching Valve Rear CYL
JBE	55R		1	#55R Tube - Control Valve to Rear Restrictor Valve
IC TI	56	1		#56 Tube - Front Check Valve 1 to Switching Valve Front CYL
AUL	56R		1	#56R Tube - Front Check Valve 1 to Front Restrictor Valve
HYDRAULIC TUBES	57	1		#57 Tube - Rear Check Valve 3 to Switching Valve Rear CYL
Ξ.	57R		1	#57R Tube - Rear Check Valve 3 to Rear Restrictor Valve
	58	1	1	#58 Tube - Switching Valve PUMP to Ball Valve
	59	1	1	#59 Tube - Switching Valve RES to Ball Valve
	61	2	2	#61 Tube - Check Valve to Check Valve
	62	2	2	#62 Tube - Check Valve 2 to Adapter Block
	70	1	1	Elbow: 16 Male JIC - 16 Male ORB
	71	1	1	Elbow: 12 Male JIC - 16 Male ORB
SS	75	2		Sweep Elbow: 12 Male JIC - 12 Female JIC
FITTINGS	76	8	8	Straight: 12 Male JIC - 12 Male ORB
듄	77	2	2	Long Straight: 12 Male JIC - 12 Male ORB
	81	2		Run Tee: 12 Male JIC - 12 Female JIC- 12 Male JIC
	83	2	2	Branch Tee: 12 Male JIC - 12 Male JIC- 12 Female JIC

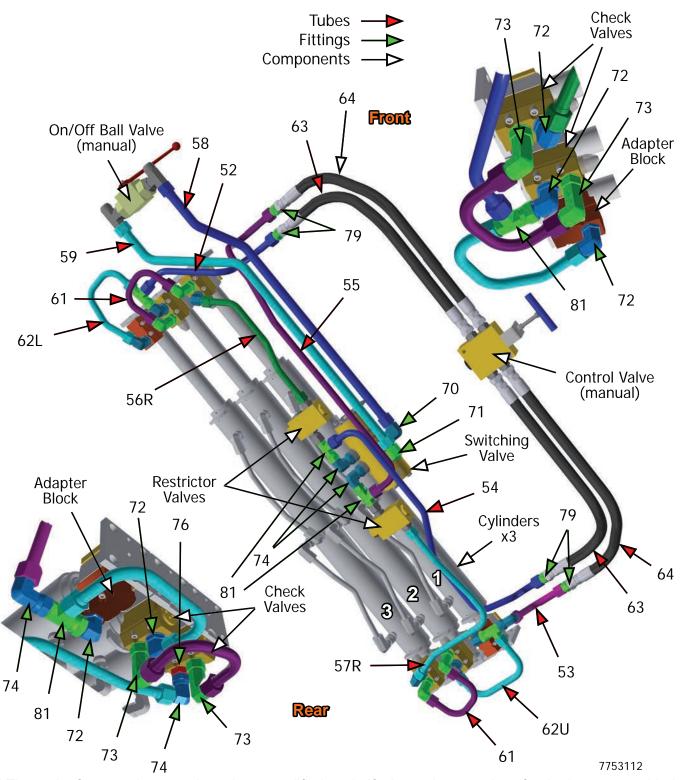
#### DX Truck Body & Outside Perimeter Frame - Left Side Controls - Manual Control Valve



<sup>\*</sup> The path of some tubes may have been modified to clarify the end connections for the images provided.

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# DX Truck Body & Outside Perimeter Frame - Left Side Controls - Manual Control Valve with Restrictor Valves



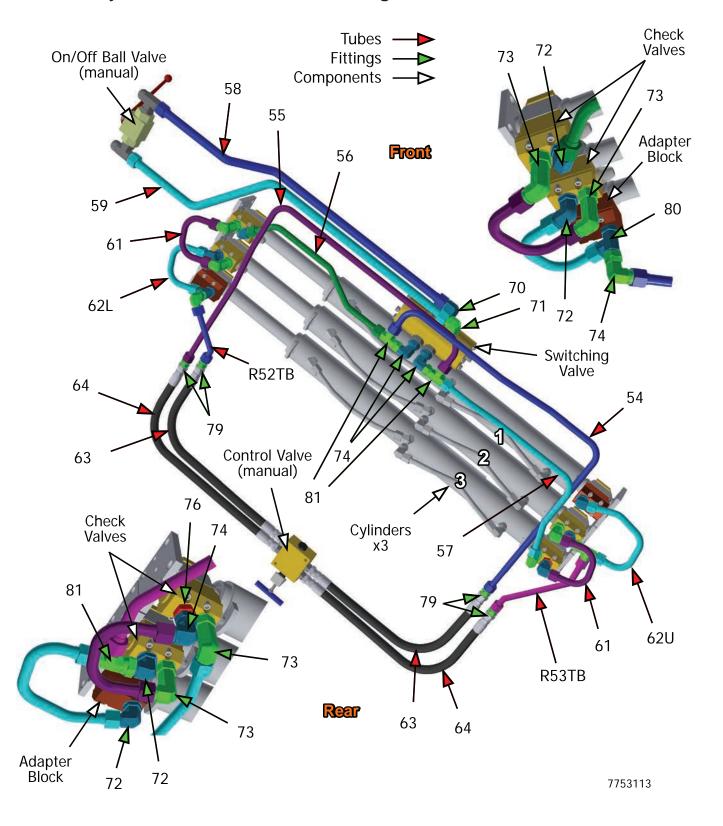
<sup>\*</sup> The path of some tubes may have been modified to clarify the end connections for the images provided.

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### **DX Truck Body - Left Side Controls Table**

	ID#	Manual CV	Manual CV w/ Restrictors	Description
	52	1	1	#52 Tube - Control Valve to Front Check Valve 2
	53	1	1	#53 Tube - Control Valve to Rear Adapter Block 1
	54	1	1	#54 Tube - Control Valve to Switching Valve Front CYL
တ္သ	55	1	1	#55 Tube - Control Valve to Switching Valve Rear CYL
HOSES	56	1		#56 Tube - Front Check Valve 1 to Switching Valve Front CYL
エ •ŏ	56R		1	#56R Tube - Front Check Valve 1 to Front Restrictor Valve
	57	1		#57 Tube - Rear Check Valve 3 to Switching Valve Rear CYL
TUBES	57R		1	#57R Tube - Rear Check Valve 3 to Rear Restrictor Valve
[2]	58	1	1	#58 Tube - Switching Valve PUMP to Ball Valve
HYDRAULIC	59	1	1	#59 Tube - Switching Valve RES to Ball Valve
YDR	61	2	2	#61 Tube - Check Valve to Check Valve
I	62L	1	1	#62L Tube - Check Valve 2 to Front Adapter Block 3
	62U	1	1	#62U Tube - Check Valve 2 to Rear Adapter Block 1
	63	2	2	#63 Hose - Shorter Inside Hose
	64	2	2	#64 Hose - Longer Outside Hose
	70	1	1	Elbow: 16 Male JIC - 16 Male ORB
	71	1	1	Elbow: 12 Male JIC - 16 Male ORB
(n	72	5	5	Elbow: 12 Male JIC - 12 Male ORB
Ď N	73	4	4	Long Elbow: 12 Male JIC - 12 Male ORB
FITTINGS	74	4	4	Elbow: 12 Male JIC - 12 Female JIC
"	76	1	1	Straight: 12 Male JIC - 12 Male ORB
	79	4	4	Straight: 12 Male JIC - 12 Male JIC
	81	4	4	Run Tee: 12 Male JIC - 12 Female JIC- 12 Male JIC

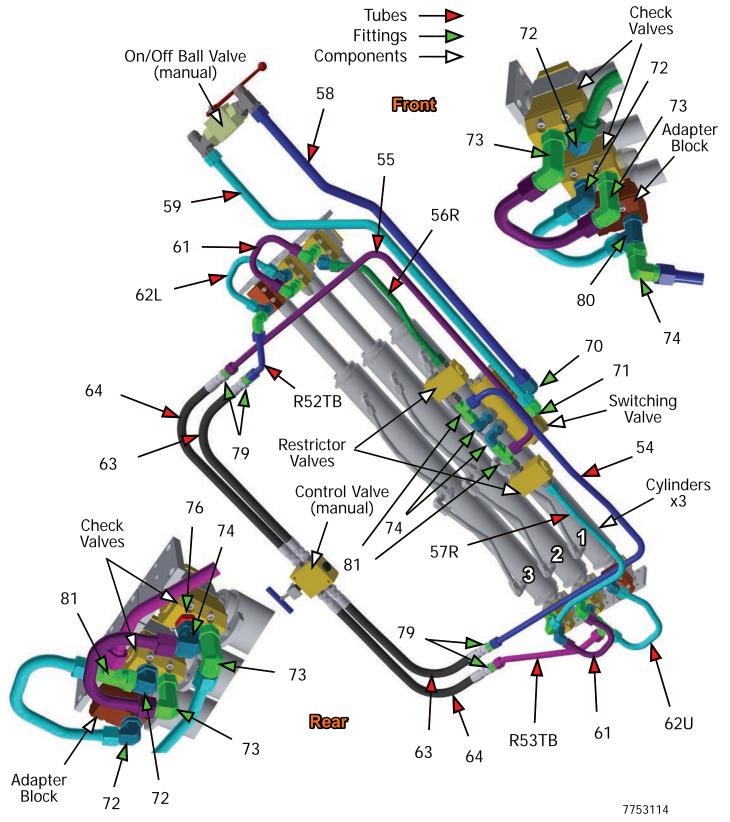
#### DX Truck Body & Outside Perimeter Frame - Right Side Controls - Manual Control Valve



<sup>\*</sup> The path of some tubes may have been modified to clarify the end connections for the images provided.

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# DX Truck Body & Outside Perimeter Frame - Right Side Controls - Manual Control Valve with Restrictor Valves



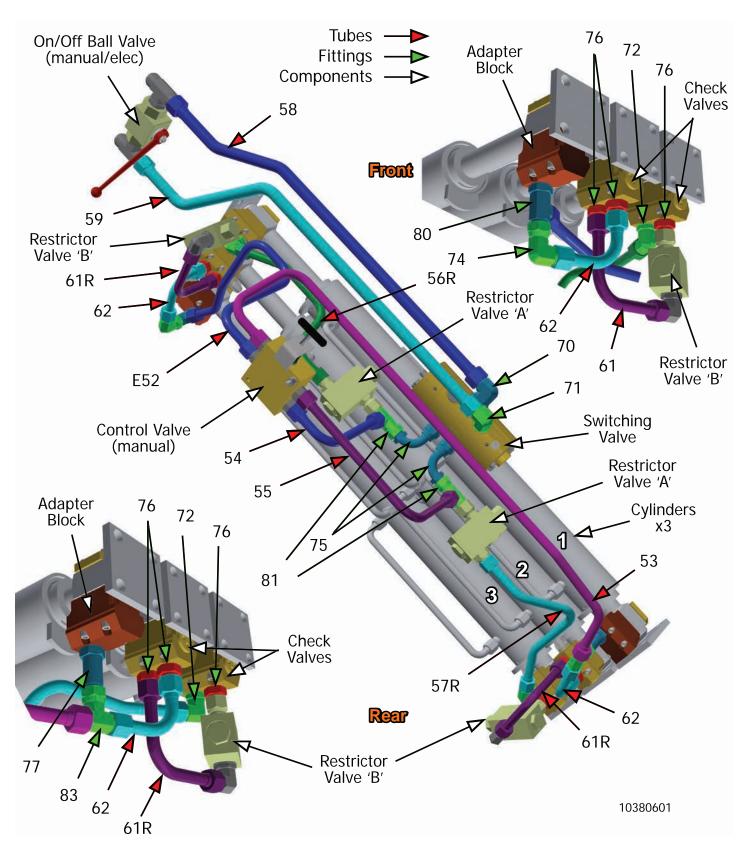
<sup>\*</sup> The path of some tubes may have been modified to clarify the end connections for the images provided.

### **DX Truck Body - Right Side Controls Table**

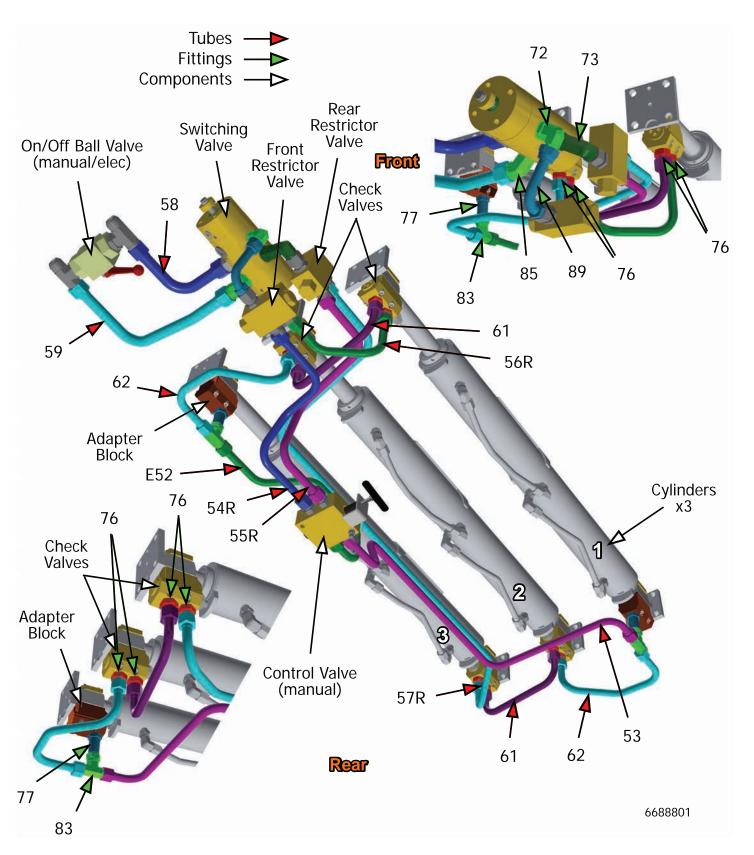
	ID#	Manual CV	Manual CV w/ Restrictors	Description
S	R52TB	1	1	#R52 Tube - Control Valve to Front Adapter Block 3
	R53TB	1	1	#R53 Tube - Control Valve to Rear Check Valve 2
	54	1	1	#54 Tube - Control Valve to Switching Valve Front CYL
	55	1	1	#55 Tube - Control Valve to Switching Valve Rear CYL
& HOSES	56	1		#56 Tube - Front Check Valve 1 to Switching Valve Front CYL
& H(	56R		1	#56R Tube - Front Check Valve 1 to Front Restrictor Valve
ES	57	1		#57 Tube - Rear Check Valve 3 to Switching Valve Rear CYL
TUB	57R		1	#57R Tube - Rear Check Valve 3 to Rear Restrictor Valve
HYDRAULIC TUBES	58	1	1	#58 Tube - Switching Valve PUMP to Ball Valve
	59	1	1	#59 Tube - Switching Valve RES to Ball Valve
	61	2	2	#61 Tube - Check Valve to Check Valve
	62L	1	1	#62L Tube - Check Valve 2 to Front Adapter Block 3
	62U	1	1	#62U Tube - Check Valve 2 to Rear Adapter Block 1
	63	2	2	#63 Hose - Shorter Inside Hose
	64	2	2	#64 Hose - Longer Outside Hose
	70	1	1	Elbow: 16 Male JIC - 16 Male ORB
FITTINGS	71	1	1	Elbow: 12 Male JIC - 16 Male ORB
	72	4	4	Elbow: 12 Male JIC - 12 Male ORB
	73	4	4	Long Elbow: 12 Male JIC - 12 Male ORB
	74	4	4	Elbow: 12 Male JIC - 12 Female JIC
	76	1	1	Straight: 12 Male JIC - 12 Male ORB
	79	4	4	Straight: 12 Male JIC - 12 Male JIC
	80	1	1	Run Tee: 12 Male JIC - 12 Male ORB - 12 Male JIC
	81	3	3	Run Tee: 12 Male JIC - 12 Female JIC- 12 Male JIC

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DX V8 Left Side Controls - Manual Control Valve with Restrictor Valves



#### DX V9 Left Side Controls - Manual Control Valve with Restrictor Valves



#### DX V8 & V9 Table

	ID#	Manual CV w/ Restrictors	Manual CV w/ Restrictors	Description
		V8	V9	
	E52	1	1	#E52 Tube - Control Valve to Front Adapter Block 3
	53	1	1	#53 Tube - Control Valve to Rear Adapter Block 1
	54	1		#54 Tube - Control Valve to Switching Valve Front CYL
	54R		1	#54R Tube - Control Valve to Front Restrictor Valve
HYDRAULIC TUBES	55	1		#55 Tube - Control Valve to Switching Valve Rear CYL
1	55R		1	#55R Tube - Control Valve to Rear Restrictor Valve
JLIC	56R	1	1	#56R Tube - Front Check Valve 1 to Front Restrictor Valve
RAI	57R	1	1	#57R Tube - Rear Check Valve 3 to Rear Restrictor Valve
ЧYD	58	1	1	#58 Tube - Switching Valve PUMP to Ball Valve
	59	1	1	#59 Tube - Switching Valve RES to Ball Valve
	61		2	#61 Tube - Check Valve to Check Valve
	61R	2		#61R Tube - Check Valve 2 to Restrictor Valve
	62	2	2	#62 Tube - Check Valve 2 to Adapter Block
	70	1		Elbow: 16 Male JIC - 16 Male ORB
FITTINGS	71	1		Elbow: 12 Male JIC - 16 Male ORB
	72	2	1	Elbow: 12 Male JIC - 12 Male ORB
	73		1	Long Elbow: 12 Male JIC - 12 Male ORB
	74	1		Elbow: 12 Male JIC - 12 Female JIC
	75	2		Sweep Elbow: 12 Male JIC - 12 Female JIC
	76	6	8	Straight: 12 Male JIC - 12 Male ORB
	77	1	2	Long Straight: 12 Male JIC - 12 Male ORB
	80	1		Run Tee: 12 Male JIC - 12 Male ORB - 12 Male JIC
	81	2		Run Tee: 12 Male JIC - 12 Female JIC- 12 Male JIC
	82	1		Branch Tee: 12 Male JIC - 12 Male JIC- 12 Male ORB
	83		2	Branch Tee: 12 Male JIC - 12 Male JIC- 12 Female JIC
	85		1	45 Elbow: 12 Male JIC - 16 Male ORB
	89		1	Long Sweep Elbow: 12 Male JIC - 12 Female JIC

#### **Hydraulic Fittings Chart**





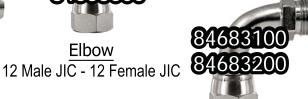
Long Elbow 12 Male JIC - 12 Male ORB



84688600

**Elbow** 

Sweep Elbow 12 Male JIC - 12 Female JIC 16 Male JIC - 16 Female JIC



**Elbow** 

16 Male JIC - 16 Male ORB 16 Male JIC - 12 Male ORB

12 Male JIC - 12 Male ORB

Long Straight

12 Male JIC - 12 Male ORB



Straight

12 Male JIC - 12 Male JIC









Straight 12 Male JIC - 12 Male ORB

Straight 12 Female JIC - 12 Male ORB



Run Tee

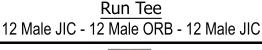
12 Male JIC - 12 Female JIC- 12 Male JIC





[84687,900] 846877,00

Plug 16 Male JIC 12 Male JIC





**Branch Tee** 

12 Male JIC - 12 Male JIC- 12 Male ORB

**Branch Tee** 12 Male JIC - 12 Male JIC- 12 Female JIC





Hollow Hex Plug 16 Male ORB 12 Male ORB



45° Elbow

16 Male JIC - 16 Female JIC 12 Male JIC - 12 Female JIC





Long Sweep Elbow 12 Male JIC - 12 Female JIC 16 Male JIC - 16 Female JIC

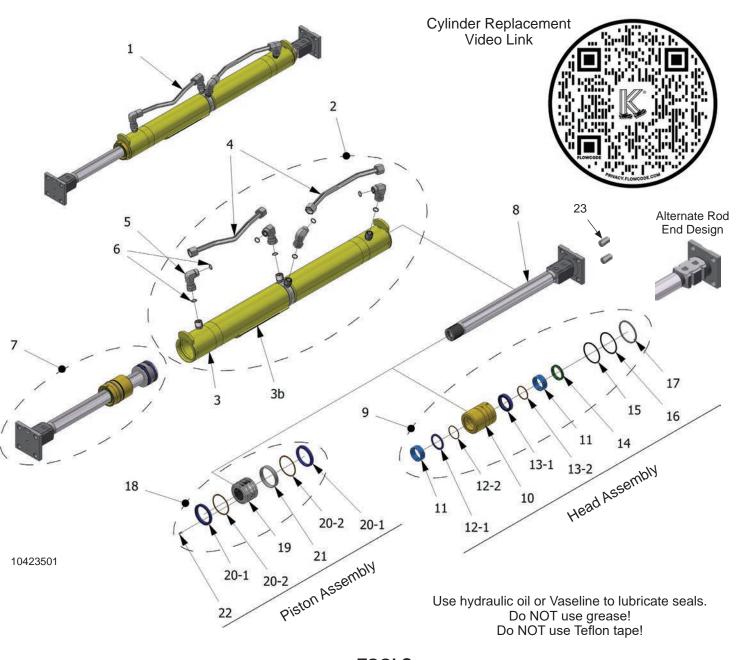
#### 45° Elbow

16 Male JIC - 16 Male ORB 16 Male JIC - 12 Male ORB

12 Male JIC - 12 Male ORB

### Cylinder Assembly - ORFS (Post Jan. 2020)

Drive serial number must be provided to determine actual part numbers.



#### **TOOLS**

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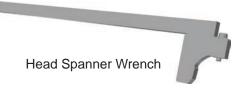
from barrel



Piston Wrench



Rod Nose Cone for head installation



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# **Cylinder Assembly - ORFS**

ID#	Qty	3.0" Part #	3.5" Part #	4.0" Part #	Description
1	-	10423501	10423601	10628601	Cylinder Assembly (Includes items 2-23)
2	(1)	10423301	10423401	10628501	Barrel Assembly - ORFS (Includes items 3-6)
3	1	10423101	10423201	10628401	Barrel Weld Assembly Cylinder (Includes item 3b)
3b	1	02552301	03027101	-	Threaded Pad Weld On
4	2	1060	4901	10634301	Cylinder Cross-Over Tube Assembly - ORFS
5	4		84694048		10 C6LO-S 10-10 MORFS X FORFS Swivel 90 EL - ORFS
6	8		85766640		#10 Trap Seal, Parker 10367
7	(2)	02553201	02553301	10053201	Rod w/Piston & Head Assemblies (Includes items 8-22)
8	1	0179	1201	09612001	Rod 45 mm w/Block & Plate
9	(1)	03808501	03811001	06321201	Head Assembly (Includes items 10-17)
10	1	06372501	06375501	06811301	Head Cylinder
11	2		84401205		PTFE Wear Ring Rod Cylinder 45 mm (Blue)
12-1	1		84400201		Buffer Seal Rod Cylinder 45 mm
12-2	1		w/Seal		Buffer Seal Back-up Rod Cylinder 45 mm
13-1	1		84354200		Seal Rod Cylinder 45 mm
13-2	1		w/Seal		Seal Backup Rod Cylinder 45 mm
14	1		84426605		Wiper Rod 45 mm
15	1	84384200	84384600	84385000	O-Ring (232, 236) BUNA 90
16	1	84392400	84392800	84393200	O-Ring Backup (232, 236) BUNA 90
17	1	03812102	03812104	03812106	Lock Wire Square
18	(1)	03808101	03810901	06321101	Piston Assembly (Includes items 19-22)
19	1	02564801	02553601	01334402	Piston Cylinder
20-1	2	84353600	84353800	84352500	Seal Piston Cylinder
20-2	2	w/Seal	w/Seal	w/Seal	Seal Backup Piston Cylinder
21	1	84404600	84404800	84405400	Wear Ring Piston
22	1		86650400		Pin Drive Lock 3/16" x 1/2"
23	4		86654310		Alignment Locating Dowel Pin 10 mm x 20 mm
_(2)	-	06528901	06529001	-	Seal Kit Cylinder Metric * (Includes items 6, 11-17 & 20-22)
					TOOLS
	-	03572201	03572202	03572203	Barrel Pass Ring
-	-		06504301		Head Spanner Wrench - for Round Hole Style Head
-	-		04190201		Rod Nose Cone (45 mm = 1.772")
-	-	06354201	05808301	-	Piston Wrench

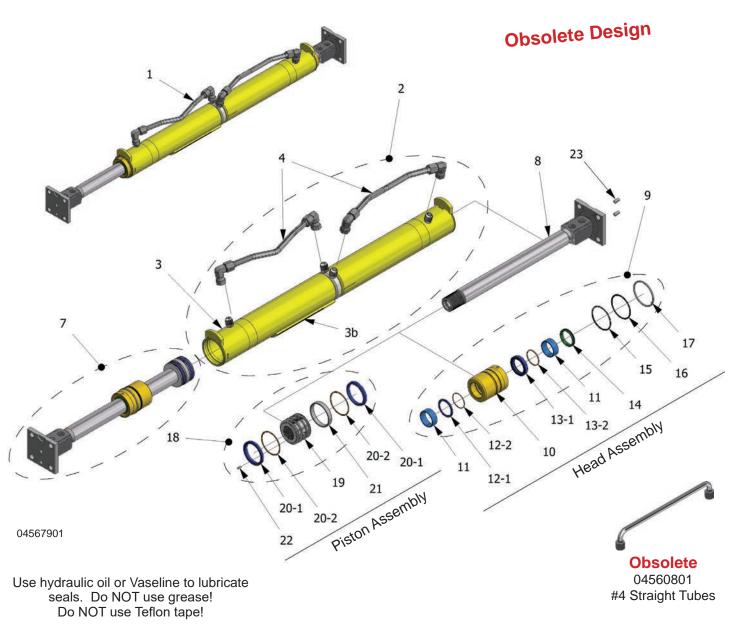
<sup>(2)</sup> Seal kit includes all necessary items required to rebuild the entire cylinder. It does not include items such as the Barrel, Tubes & Fittings, Rod, Head or Piston.

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### Cylinder Assembly - JIC (Pre Jan. 2020)

Drive serial number must be provided to determine actual part numbers.



### **TOOLS**



Barrel Pass Ring for removing piston from barrel



Piston Wrench



Rod Nose Cone for head installation



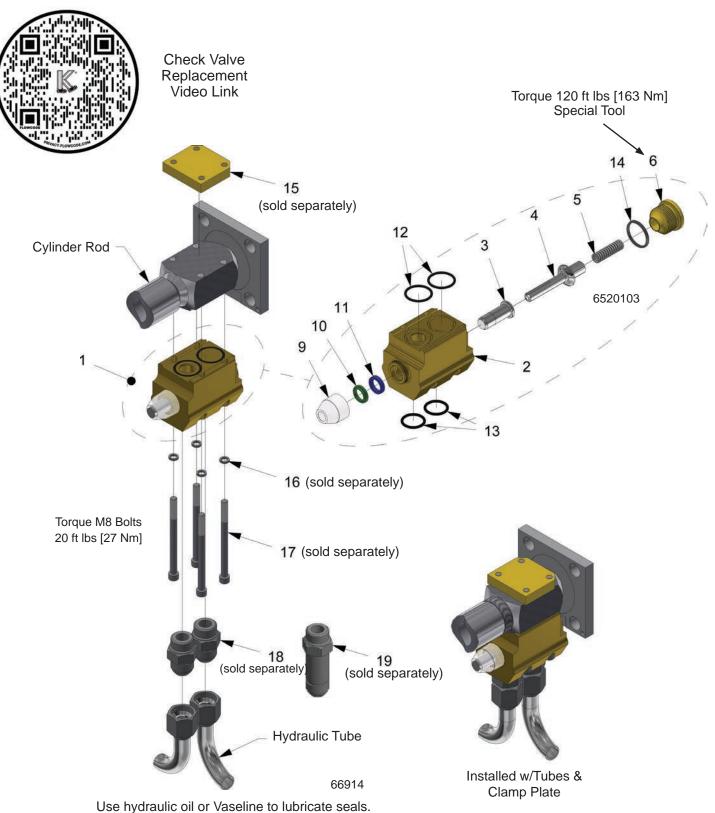
### Cylinder Assembly - JIC

					Oyilliaci	Assembly - Jic
ID#	Qty	3.0" Part #	3.0" Diesel Part #	3.5" Part #	4.0" Part #	Description
1	-	04567901	04567903	04568001	09611801	Cylinder Assembly (Includes items 2-23)
2	(1)	04560901	04560901	04561001	09612201	Barrel Assembly (Includes items 3-4)
3	1	045	60601	04560701	-	Barrel Weld Assembly (Includes item 3b)
3b	1	025	52301	03027101	-	Threaded Pad Weld On
4	2		09806	6201		Cross-Over Tube Assembly - (wave style replace straight)
7	(2)	02553201	02553203	02553301	10053201	Rod W/Piston & Head Assembly (Includes items 8-22)
8	1		01791201		9612001	Rod 45 mm W/Block & Plate
9	(1)	03808501	03808503	03811001	06321201	Head Assembly (Includes items 10-17)
10	1	06372501	06372501	06375501	06811301	Head - Round Hole Style
<b>11</b> <sup>(1)</sup>	2		84401	205		PTFE Wear Ring Rod Cylinder 45 mm (Blue)
12-1	1		84400	)201		Buffer Seal Rod Cylinder 45 mm
12-2	1		w/se	eal		Buffer Seal Back-up Rod Cylinder 45 mm
13-1	1		84354	1200		Seal Rod Cylinder 45 mm
13-2	1		w/se	eal		Seal Backup Rod Cylinder 45 mm
14	1		84426	605		Wiper Rod 45 mm
15	1	84384200	84384210	84384600	84385000	O-Ring Buna 90 (232, 232 Viton, 236, 240)
16	1	84392400	84392410	84392800	84393200	O-Ring Backup Buna 90 (8-232, 232 Viton, 8-236, 240)
17	1	038	12102	03812104	03812106	Lock Wire Square
18	(1)	038	08101	03810901	06321101	Piston Assembly (Includes items 19-22)
19	1	025	64801	02553601	01334402	Piston
20-1	2	843	53600	84353800	84352500	Seal Piston
20-2	2	W/	/seal	w/seal	w/seal	Seal Backup Piston
21	1	844	04600	84404800	84405400	Wear Ring Piston
22	1		86650	)400		Pin Drive Lock 3/16" x 1/2"
23	4		86654	1310		Alignment Locating Dowel Pin 10 mm x 20 mm
-	-	-	-	-	-	Cylinder Seal Kits (Include items 11-17 & 20-22)
_(2)	-	-	-	-	10172801	Seal Kit 4.0" Cylinder
_(2)	-	-	-	-	04737101	Seal Kit 4.0" Cylinder 1.772 Rod (Metric) (1993 to Present)
_(2)	-	06528901	-	-	-	Seal Kit 3.0" Cylinder SAE (*Serial #0901023 01/05/2009 - Present)
_(2)	-	-	09294201	-	-	Seal Kit 3.0" Diesel Cylinder 04567903
_(2)	-	1	-	06529001	-	Seal Kit 3.5" Cylinder (*Serial #0901033 01/14/2009 - Present)
						TOOLS
-	-	035	72201	03572202	03572203	Barrel Pass Ring
_			06504	1301		Head Spanner Wrench - for Round Hole Style Head (post 2009)
-	-		04190	)201		Rod Nose Cone (45 mm = 1.772")
-	-	063	54201	05808301	-	Piston Wrench

<sup>&</sup>lt;sup>(1)</sup> Previous versions of the piston used (1) blue wear ring 84401205 and (1) gray wear ring 84401105 which has now been replaced with a second blue wear ring.

 $<sup>^{(2)}</sup>$  Seal kit includes all necessary items required to rebuild the entire cylinder. It does not include items such as the Barrel, Tubes & Fittings, Rod, Head or Piston.

### **Check Valve Assembly**



Do NOT use grease!

Do NOT use Teflon tape!

# **Check Valve Assembly**

ID#	Qty	Standard Part #	Diesel Part #	Description
1	-	06520103	06520111	External Check Valve Assembly (Includes items 2-6, 9-14)
2	1	0660	2901	Body Check Valve External
3	1	0177	'1101	Plunger Check Valve External
4	1	0176	6901	Rod Check Valve External
5	1	8445	3400	Spring Check Valve External Large #B-18273
6	1	0365	4501	End Cap Check Valve External Threaded
-	-	03878101	-	External Check Valve Seal Kit (Includes items 9-14)
9	1	0661	3801	Dust Boot Check Valve External
10	1	8442	:6800	Plunger Wiper Check Valve External
11	1	8435	2200	Seal Rod 5/8" Check Valve External
12	2	84377800	84377810	122 O-Ring (Buna 90, Viton)
13	2	84387400	84387410	912 O-Ring (Buna 90, Viton)
14	1	84387800	84387810	916 O-Ring (Buna 90, Viton)

ID#	Qty	SAE Part #	Metric Part #	Description
15	1	02513001	02513002	Top Clamp Check Valve External
16	4	8655	3001	Washer High Collar Lock 5/16"
17	4	86432511	87007493	Bolt Socket Head (5/16" x 4 1/2", M8 x 110mm)
18	2	8468	35000	Straight Threaded Connector W/O-Ring 912
19	1	8468	35010	Long St. Threaded Connector W/O-Ring 912

_	_	
_	_	_

ID#	Qty	Part #	Description
-	-	08248301	Check Valve 4 Prong Raised End Cap Tool (Nov '13 - Present)
-	-	08248201	Check Valve 2 Prong Raised End Cap Tool (Jan '98 - Nov '13)

(Feb '09 - Nov '13) (Nov '13 - Present)



2 Hole Raised Cap



4 Hole Raised Cap



2 Prong Raised Cap

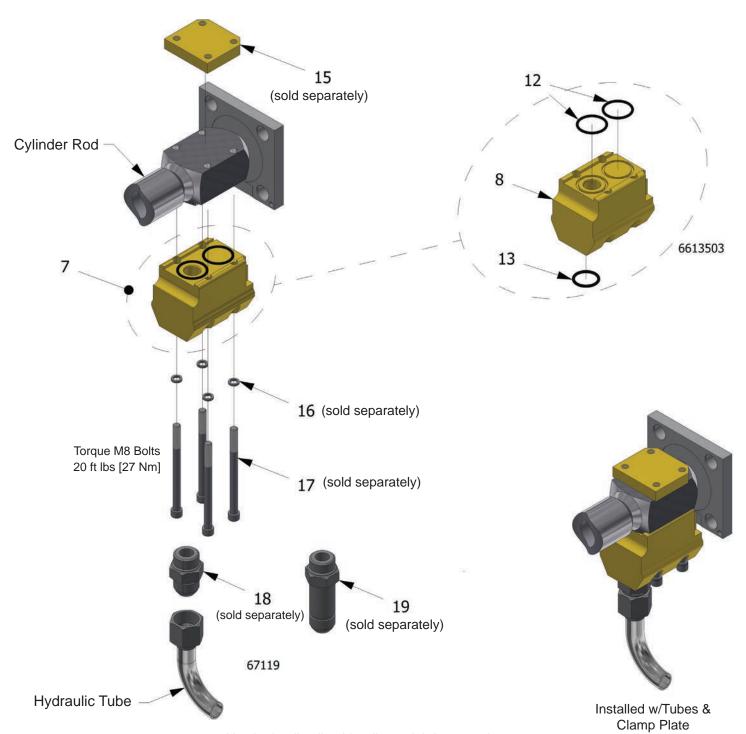


4 Prong Raised Cap

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### **Adapter Block Assembly**

See link for Check Valve Replacement Video



Use hydraulic oil or Vaseline to lubricate seals.

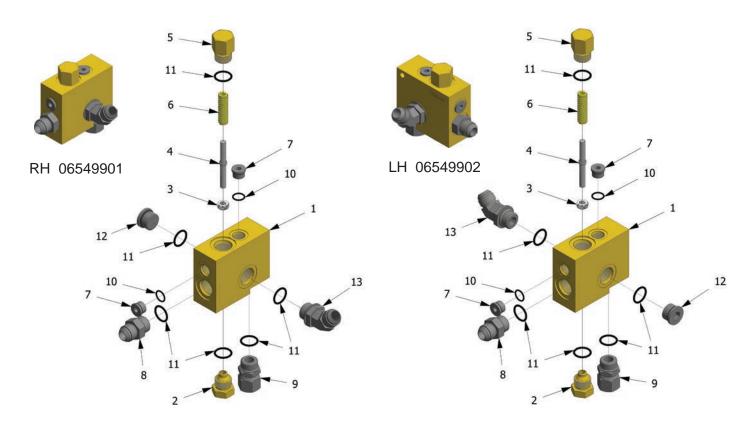
Do NOT use grease!

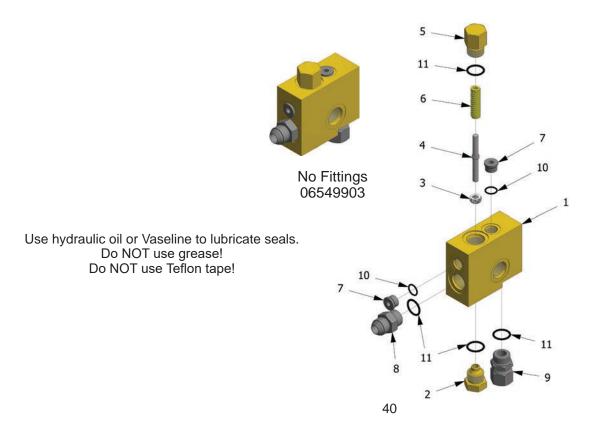
Do NOT use Teflon tape!

			Adapter Block Assembly
ID#	Qty	Part #	Description
7	-	06613503	Adapter Block Assembly (Includes items 8, 12-13)
8	1	06609401	Body Check Valve Adapter Block
-	-	03878102	Adaptor Block Seal Kit (Includes items 12-13)
12	2	84377800	122 O-Ring BUNA 90
13	1	84387400	912 O-Ring BUNA 90

			Adapte	er Block Related Components
ID#	Qty	SAE Part #	Metric Part #	Description
15	1	02513001	02513002	Top Clamp Check Valve External
16	4	8655	3001	Washer High Collar Lock 5/16"
17	4	86432511	87007493	Bolt Socket (5/16" x 4 1/2", M8 x 110mm)
18	-	8468	5000	Straight Threaded Connector W/O-Ring 912
19	-	8468	5010	Long St. Threaded Connector W/O-Ring 912

### **Restrictor Valve Assembly**

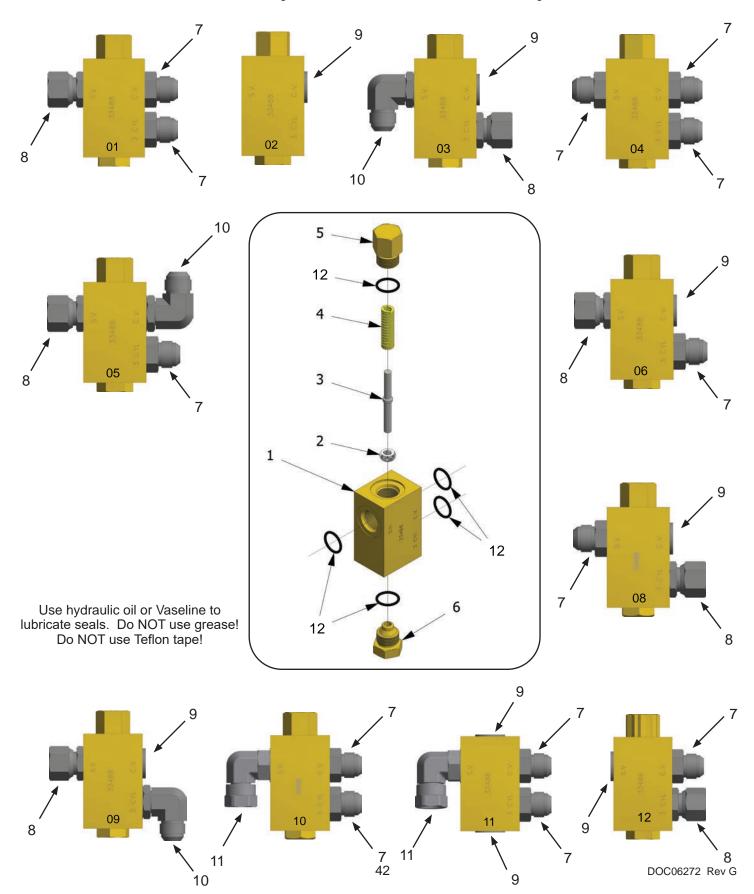




# **Restrictor Valve Assembly**

ID#	Qty	Part #	Part #	Description
-	-	06549901 & 02	06549903	Restrictor Valve Assembly (Includes all items listed below)
1	1	065496	01	Restrictor Valve body
2	1	033491	01	End Cap, Restrictor Guide Rod
3	1	019519	01	Restrictor Spool
4	1	033489	01	Restructor Guide Rod
5	1	033490	01	Spring Cap, Hex
6	1	844554	.00	Spring Die, Rect Wire, Yellow, Danley 9-1010-36
7	2	846875	00	08 HP5ON-S Hollow Hex Plug M O-Ring
8	1	846850	00	12 F5OX-S Straight Thread Connector MJIC X M O-Ring
9	1	846861	00	12 F65OX-S Straight Thread M O-Ring X FJIC
-	-	068322	01	Restrictor Valve Seal Kit (Includes items 10-11)
10	2	843870	00	908 O-Ring Buna 90
11	6 or 4	843874	.00	912 O-Ring Buna 90
12	1	84687700	-	12 HP5ON-S Hollow Hex Plug M O-Ring
13	1	84691950	-	12 V5OX-S Straight Thread Elbow MJIC X 45 ADJ O-Ring

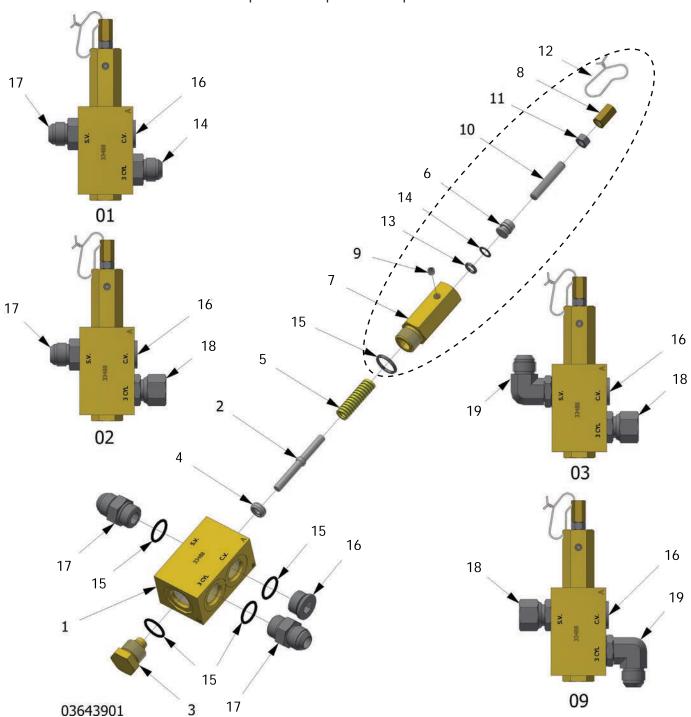
# **One-Way Restrictor Valve Assembly**



												Restric	Restrictor Valve Assembly
#0					Que	ınti	Quantities	,,				Part #	Description
	2	05	03	04	05	90	08	60	10	7	12		033487xx One-Way Restrictor Valve Assembly (Includes all items listed below)
_	_	_	-	_	~	_	_	_	~	-	-	03348801	Restrictor Valve Body KRFII
2	_	_	-	_	-	_	_	_	_		-	01951901	Collar Restrictor Internal CKV KRFII/WFII 80&90MM Manifold
3	_	_	-	_	~	_	_	_	~		-	03348901	Restrictor Rod for One-Way Restrictor KRFII
4	_	_	_	_	_	_	_	_	_	١.	-	84455400	Spring 9-1010-36 .625 X 2.5 Yellow Extra Heavy Load
2	_	_	-	_	~	~	_	_	~		_	03349001	Spring End Cap LG for One-Way Restrictor Rod KRFII
9	_	_	-	_	~	_	_	_	~		-	03349101	End Cap Restrictor Valve KRFII
7	7			က	~	_	_	ı	7	7	-	84685000	12 F5OX-S Straight Thread Connector MJIC X M O-Ring (6400-12-12)
8	_	٠	-	٠	~	~	_	_	٠		-	84686100	12 F65OX-S Straight Thread M O-Ring X FJIC (6402-12-12-O)
6		_	-			_	_	_		7	-	84687700	12 HP5ON-S Hollow Hex Plug M O-Ring Hex Socket (6408-H12-O)
10		٠	7	٠	~	•	ı	_	٠	٠	1	84691500	12 C5OX-S Straight Thread Elbow MJIC X ADJ O-Ring (6801-12-12)
11		٠	•	•	•		- 1	ı	~	-	1	84692990	12 AOEX6-S Swivel Elbow (6809-12-12-NOW)
•		٠	•	٠	٠	•	•	•	٠	٠	•	06832201	Restrictor Valve Seal Kit (Includes item 12)
12	2	3	2	2	2	2	2	2	2	2	2	84387400	O-Ring 912 Buna 90

### **Adjustable Restrictor Valve Assembly**

Oil flow from port 3 CYL to port C.V. or port S.V. is restricted. Oil flow from port S.V. to port C.V. or port 3 CYL is free flow. Oil flow from port C.V. to port S.V. or port 3 CYL is free flow.



Use hydraulic oil or Vaseline to lubricate seals.

Do NOT use grease!

Do NOT use Teflon tape!

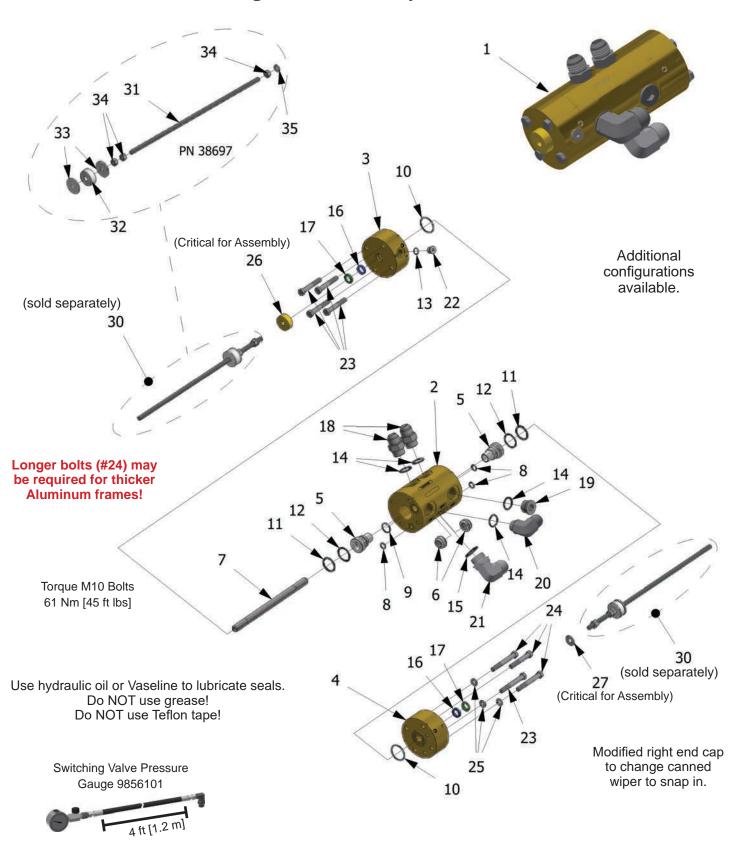
### **Adjustable Restrictor Valve Assembly**

ID#	Qty	Qty	Qty	Qty	Part #	Description
-	01	02	03	09	036439xx	Adjustable Restrictor Valve Assembly (Includes items below)
1	1	1	1	1	03348801	RESTRICTOR VALVE BODY
2	1	1	1	1	03348901	RESTRICTOR GUIDE ROD
3	1	1	1	1	03349101	END CAP, RESTRICTOR ROD GUIDE
4	1	1	1	1	03436901	RESTRICTOR SPOOL
5	1	1	1	1	84455400	DIE SPRING, RECT WIRE, YELLOW, DANLEY 9-1010-36
-	-	-	-	-	06995401	Adjustable Screw Assembly to Fit Restrictor Valve (Includes 6-15)
6	1	1	1	1	03434701	SPRING PLUNGER
7	1	1	1	1	03434801	SPRING CAP FOR ADJUSTMENT SCREW
8	1	1	1	1	03437601	NUT COVER BK KRFII FOR RESTRICTOR VALVE
9	1	1	1	1	84680770	1/16 HHP-S PIPE PLUG SOCKET 1/16", 7/8" TAPER
10	1	1	1	1	86440500	HEX SOCKET SET SCREW, 3/8-16 X 2 1/4
11	1	1	1	1	86628100	JAM NUT HEX GR8 ZN 3/8-16
12	1	1	1	1	80900300	SAFETY WIRE BAR RD SS WIRE .064
13	1	1	1	1	84376200	111 O-RING BUNA 90
14	1	1	1	1	84389000	111 BACK-UP RING BUNA
15	5	5	5	5	84387400	912 O-RING BUNA 90
16	1	1	1	1	84687700	12 HP5ON-S HOLLOW HEX PLUG M O-RING
17	2	1	-	-	84685000	12 F5OX-S STRAIGHT THREAD CONNECTOR MJIC X M O-Ring
18	-	1	1	1	84686100	12 F65OX-S STRAIGHT THREAD M O-RING X FJIC
19	-	-	1	1	84691500	12 C5OX-S STRAIGHT THREAD ELBOW MJIC X ADJ

### **Restrictor Adjustment Instructions**

- 1. Remove the safety wire #12 that is through the holes in the spring cap #5 and the cover nut #8.
- 2. Remove the cover nut #8.
- 3. Loosen the jam nut #11.
- 4. Remove the pipe plug #9.
- 5. Install pressure gauges at inlet port 3 CYL and outlet port S.V or port C.V.
- 6. Adjust the pressure drop when oil is flowing from port 3 CYL to port S.V.
- 7. Turn the set screw in to increase the pressure drop (flow restriction), turn the set screw out to decrease the pressure drop (flow restriction).
- 8. After adjusting lock the jam nut #11.
- 9. Re-install the pipe plug #9.
- 10. Re-install the cover nut #8.
- 11. Replace the safety wire #12.

### Switching Valve Assembly (Nov 2014 - Present)



	Switching Valve Assembly (Nov 2014 - Present)									
ID#	Qty	Metric Part #	SAE Part #	Diesel SAE Part#	Description					
1	-	03888902	03888901	03888911	Switching Valve Assembly (Includes	Items 2-27)				
2	1	04504602	0450	04601	Body Switching Valve (not sold sepa	rately)				
3	1		04504701		End Cap Right Switching Valve (not	sold separately)				
4	1		04504801		End Cap Left Switching Valve (not so	old separately)				
5	2		03718901		Poppet Switching Valve					
6	2		03718801		Ring Poppet Switching Valve					
7	1	01335502	0133	35501	Control Rod Switching Valve					
_(1)	-	0387	8001	-	Seal Kit Switching Valve (Includes	items 8-17)				
8	3	8437	6200	84376201	O-Ring 111 (Buna 90, Viton)					
9	1	8437	7000	84377201	O-Ring 117 (Buna 90, Viton)					
10	2	8437	8200	84378210	O-Ring 126 (Buna 90, Viton)					
11	2	84382200		84382210	O-Ring 216 (Buna 90, Viton)					
12	2	84391600		84391610	O-Ring Backup 216 (Buna 90, Vito	iton				
13	1	8438	6800	84386801	O-Ring 906 (Buna 90, Viton)					
14	4	8438	7400	84387410	O-Ring 912 (Buna 90, Viton)					
15	1	8438	7800	84387810	O-Ring 916 (Buna 90, Viton)	Lowcost III. 11 17 11 17 11 17 11 17 17 17 17 17 17				
16	2		84352200	)	Seal Rod 5/8"	No. P. FLOWCOUL				
17	2		84426800		Wiper Snap In 5/8" Rod	Switching Valve Replacement &				
18	2		84685000		6400-12-12 Straight	Adjustment Video Link				
19	1	84687700		)	6408-12 M O-Ring Socket Plug					
20	1	84691700		-	6801-16-12 Straight Threaded Elbow	1				
			-	84685300	6400-16-12 Straight Threaded					
21	1	8469	1800	-	6801-16-16 Straight Threaded Elbow	1				
		-		84685400	6400-16-16 Straight Threaded					
_22	1	84687400			6408-6 M O-Ring Socket Plug					
_23	5	87009000			Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]					
_24	3			42000	Bolt Hex M10 x 75mm [GR5 3/8"x3"]					
25	3	87076500 86555000			Washer Lock M10 [3/8"]					
_26	1		02552101		Cap Limit Switching Valve (Critical fo					
27	1		86553500	)	Washer Large OD 3/8" (Critical for As	ssembly)				

<sup>&</sup>lt;sup>(1)</sup> The Switching Valve Seal Kit contains all necessary components to rebuild all Switching Valve models.

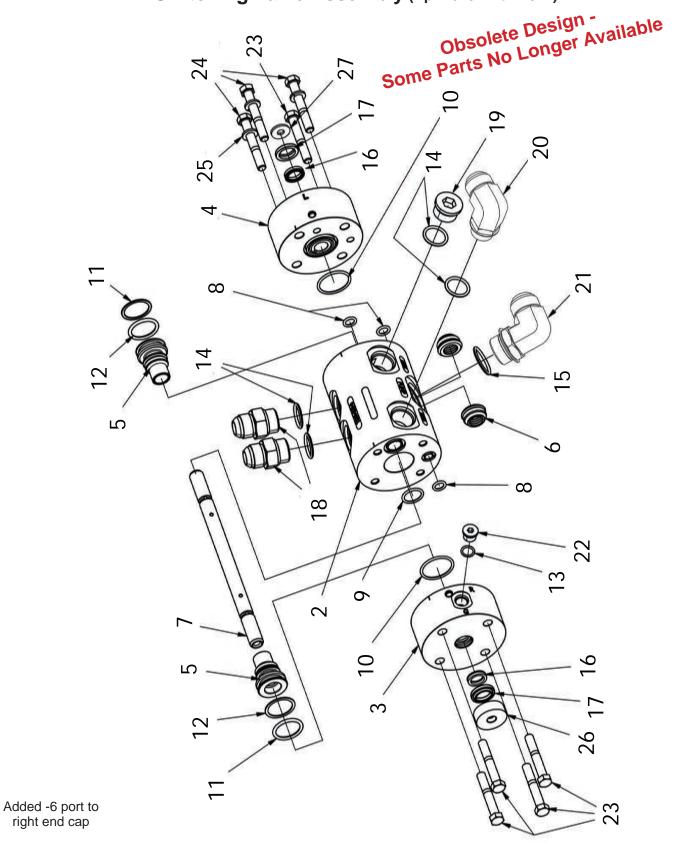
# **Threaded Rod Assembly** RFII Style (Critical for Assembly) (Critical for Assembly) V-Floor Style 30-b 32

(Critical for Assembly)

	Threaded Rod Assembly - RFII Style							
ID#	Qty	Metric	SAE	Description				
30	-	03869702	03869701	Rod Threaded Assembly RFII (Includes Items 31-35)				
31	1	10488401	10488301	Actuator Rod Threaded (M10-1.5 x 406mm , 3/8"-16x16")				
32	1	83217500		Switching Valve Grommet				
33	2	86553500		Washer Large OD 3/8"				
34	3	87101500	86628500	Nut Hex (M10 x 1.5, 3/8")				
35	1	87076500	86555000	Washer Lock (M10, 3/8")				

	Threaded Rod Assembly - V-Floor Style								
ID#	Qty	Metric	SAE	Description					
30-b	-	07332602	07332601	Rod Threaded Assembly V-Floor (Includes Items 32-36)					
32	2	83217500		Switching Valve Grommet					
33	5	86553500		Washer Large OD 3/8"					
34	5	87101500	86628500	Nut Hex (M10 x 1.5, 3/8")					
35	1	87076500	86555000	Washer Lock (M10, 3/8")					
36	1	87151000	86603600	Actuator Rod Threaded (M10-1.5 x 200mm , 3/8"-16x72")					

### Switching Valve Assembly (Apr 2013 - Nov 2014)

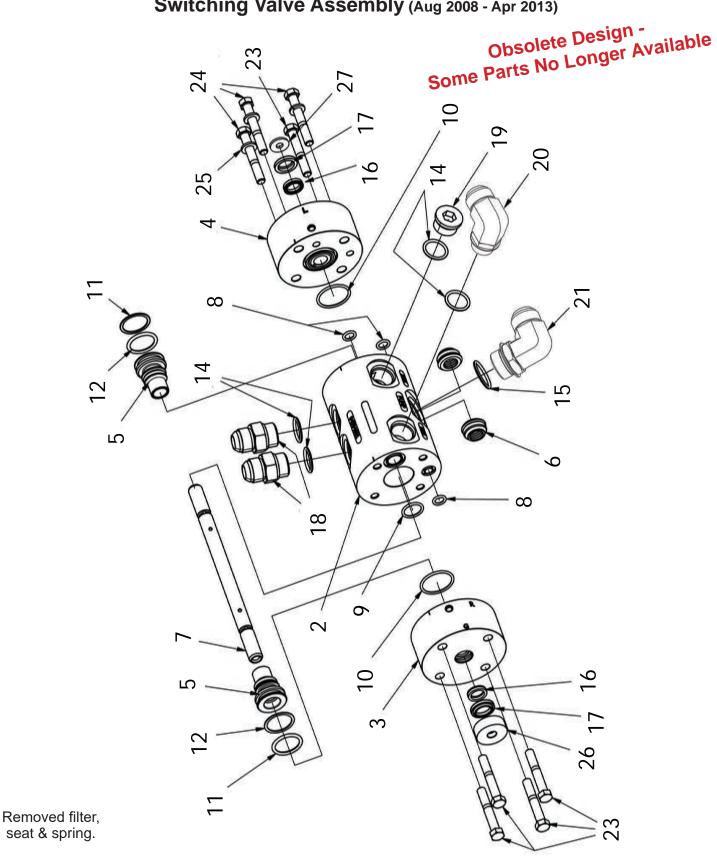


Discription		Switching Valve Assembly (Apr 2013 - Nov 2014)								
2         1         04504702         04504601         Body Switching Valve (not sold separately)           3         1         04504701         End Cap Right Switching Valve (not sold separately)           4         1         04504801         End Cap Left Switching Valve (not sold separately)           5         2         03718801         Poppet Switching Valve           6         2         03718801         Ring Poppet Switching Valve           7         1         01335502         01335501         Control Rod Switching Valve           8         3         84376200         84376201         O-Ring III (Buna 90, Viton)           9         1         84377000         84377201         O-Ring 117 (Buna 90, Viton)           10         2         84378200         84378210         O-Ring 126 (Buna 90, Viton)           11         2         84382200         84382210         O-Ring 216 (Buna 90, Viton)           12         2         84391600         84391610         O-Ring Backup 216 (Buna 90, Viton)           13         1         84387400         84387410         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387810         O-Ring 916 (Buna 90, Viton)           15         1         84387600	ID#	Qty			SAE	Description				
3         1         04504701         End Cap Right Switching Valve (not sold separately)           4         1         04504801         End Cap Left Switching Valve (not sold separately)           5         2         03718901         Poppet Switching Valve           6         2         03718801         Ring Poppet Switching Valve           7         1         01335502         01335501         Control Rod Switching Valve           4         1         03878001         -         Seal Kit Switching Valve (Includes items 8-17)           8         3         84376200         84376201         O-Ring 111 (Buna 90, Viton)           9         1         84377000         84377201         O-Ring 117 (Buna 90, Viton)           10         2         84378200         84378210         O-Ring 126 (Buna 90, Viton)           11         2         84382200         84382210         O-Ring 216 (Buna 90, Viton)           12         2         84391600         84391610         O-Ring 906 (Buna 90, Viton)           13         1         84386800         84386801         O-Ring 912 (Buna 90, Viton)           14         4         84387400         84387410         O-Ring 916 (Buna 90, Viton)           15         1         843878200		-	03888902	03888901	03888911	Switching Valve Assembly (Includes Items 2-27)				
4         1         04504801         End Cap Left Switching Valve (not sold separately)           5         2         03718901         Poppet Switching Valve           6         2         03718801         Ring Poppet Switching Valve           7         1         01335502         01335501         Control Rod Switching Valve (Includes items 8-17)           8         3         84376200         84376201         O-Ring 111 (Buna 90, Viton)           9         1         84377000         84377201         O-Ring 117 (Buna 90, Viton)           10         2         84378200         84378210         O-Ring 126 (Buna 90, Viton)           11         2         84382200         84382210         O-Ring 216 (Buna 90, Viton)           12         2         84381600         84381610         O-Ring Backup 216 (Buna 90, Viton)           13         1         84386800         84387410         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387410         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         8446700         6400-12-12 Straight T	_2_	1	04504702	0450	04601	Body Switching Valve (not sold separately)				
5         2         03718901         Poppet Switching Valve           6         2         03718801         Ring Poppet Switching Valve           7         1         01335502         01335501         Control Rod Switching Valve           L(1)         1         03878001         -         Seal Kit Switching Valve (Includes items 8-17)           8         3         84376200         84376201         O-Ring 111 (Buna 90, Viton)           9         1         84377000         84377201         O-Ring 117 (Buna 90, Viton)           10         2         84378200         84378210         O-Ring 126 (Buna 90, Viton)           11         2         84382200         84382210         O-Ring 216 (Buna 90, Viton)           12         2         84381600         84381610         O-Ring Backup 216 (Buna 90, Viton)           13         1         84386800         84386801         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387410         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84462700         Wiper Canned 5/8" Rod <td>_3_</td> <td>1</td> <td></td> <td>04504701</td> <td></td> <td></td>	_3_	1		04504701						
6         2         03718801         Ring Poppet Switching Valve           7         1         01335502         01335501         Control Rod Switching Valve (Includes items 8-17)           8         3         84376200         84376201         O-Ring 111 (Buna 90, Viton)           9         1         84377000         84377201         O-Ring 117 (Buna 90, Viton)           10         2         84378200         84378210         O-Ring 126 (Buna 90, Viton)           11         2         84382200         84382210         O-Ring 216 (Buna 90, Viton)           12         2         84391600         84391610         O-Ring Backup 216 (Buna 90, Viton)           13         1         84386800         84386801         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387410         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight           19         1         84687400         6408-12 M O-Ring Socket Plug <t< td=""><td>_4_</td><td>1</td><td></td><td>04504801</td><td></td><td>End Cap Left Switching Valve (not sold separately)</td></t<>	_4_	1		04504801		End Cap Left Switching Valve (not sold separately)				
7         1         01335502         01335501         Control Rod Switching Valve           L <sup>(1)</sup> 1         03878001         -         Seal Kit Switching Valve (Includes items 8-17)           8         3         84376200         84376201         O-Ring 111 (Buna 90, Viton)           9         1         84377000         84377201         O-Ring 117 (Buna 90, Viton)           10         2         84378200         84378210         O-Ring 126 (Buna 90, Viton)           11         2         84382200         84382210         O-Ring 216 (Buna 90, Viton)           12         2         84391600         84391610         O-Ring Backup 216 (Buna 90, Viton)           13         1         84386800         84387410         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387810         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight Threaded Elbow           20         1         84687700         6801-16-12 Str	_5_	2		03718901		Poppet Switching Valve				
-(1) 1 03878001 - Seal Kit Switching Valve (Includes items 8-17)  8 3 84376200 84376201 O-Ring 111 (Buna 90, Viton)  9 1 84377000 84377201 O-Ring 117 (Buna 90, Viton)  10 2 84378200 84378210 O-Ring 126 (Buna 90, Viton)  11 2 84382200 84382210 O-Ring 216 (Buna 90, Viton)  12 2 84391600 84391610 O-Ring Backup 216 (Buna 90, Viton)  13 1 84386800 84386801 O-Ring 906 (Buna 90, Viton)  14 4 84387400 84387410 O-Ring 912 (Buna 90, Viton)  15 1 84387800 84387810 O-Ring 916 (Buna 90, Viton)  16 2 84352200 Seal Rod 5/8"  17 2 84427200 Wiper Canned 5/8" Rod  18 2 84685000 6400-12-12 Straight  19 1 84687700 6408-12 M O-Ring Socket Plug  20 1 84691700 - 6801-16-12 Straight Threaded Elbow  21 1 84687400 6400-16-16 Straight Threaded  22 1 84687400 6408-6 M O-Ring Socket Plug  23 5 87009000 86441000 Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]  24 3 87009511 86442000 Bolt Hex M10 x 75mm [GR5 3/8"x2 1/2"]	_6_	2		03718801		Ring Poppet Switching Valve				
8         3         84376200         84376201         O-Ring 111 (Buna 90, Viton)           9         1         84377000         84377201         O-Ring 117 (Buna 90, Viton)           10         2         84378200         84378210         O-Ring 126 (Buna 90, Viton)           11         2         84382200         84382210         O-Ring 216 (Buna 90, Viton)           12         2         84391600         84391610         O-Ring Backup 216 (Buna 90, Viton)           13         1         84386800         84386801         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387410         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight           19         1         84687700         6801-16-12 Straight Threaded Elbow           20         1         84691800         -         6801-16-16 Straight Threaded           21         1         84685400         6400-16-16 Straight Threaded           22 </td <td>_7</td> <td>1</td> <td>01335502</td> <td>013</td> <td>35501</td> <td>, and the second second</td>	_7	1	01335502	013	35501	, and the second				
9         1         84377000         84377201         O-Ring 117 (Buna 90, Viton)           10         2         84378200         84378210         O-Ring 126 (Buna 90, Viton)           11         2         84382200         84382210         O-Ring 216 (Buna 90, Viton)           12         2         84391600         84391610         O-Ring Backup 216 (Buna 90, Viton)           13         1         84386800         84386801         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387410         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight           19         1         84687700         6408-12 M O-Ring Socket Plug           20         1         84691800         -         6801-16-12 Straight Threaded           21         1         84685400         6400-16-16 Straight Threaded Elbow           21         1         84687400         6408-6 M O-Ring Socket Plug           23         5	_(1)	1	0387	8001	-	Seal Kit Switching Valve (Includes items 8-17)				
10         2         84378200         84378210         O-Ring 126 (Buna 90, Viton)           11         2         84382200         84382210         O-Ring 216 (Buna 90, Viton)           12         2         84391600         84391610         O-Ring Backup 216 (Buna 90, Viton)           13         1         84386800         84386801         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387410         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight           19         1         8468700         6408-12 M O-Ring Socket Plug           20         1         84691700         -         6801-16-12 Straight Threaded Elbow           21         1         84691800         -         6801-16-12 Straight Threaded           22         1         84687400         6400-16-16 Straight Threaded           22         1         84687400         6408-6 M O-Ring Socket Plug           23         5	_8_	3	84370	6200	84376201	O-Ring 111 (Buna 90, Viton)				
11         2         84382200         84382210         O-Ring 216 (Buna 90, Viton)           12         2         84391600         84391610         O-Ring Backup 216 (Buna 90, Viton)           13         1         84386800         84386801         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387410         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight           19         1         84687700         6408-12 M O-Ring Socket Plug           20         1         84691700         -         6801-16-12 Straight Threaded Elbow           21         1         84691800         -         6801-16-16 Straight Threaded Elbow           21         1         84687400         6408-6 M O-Ring Socket Plug           23         5         87009000         86441000         Bolt Hex M10 x 75mm [GR5 3/8"x2 1/2"]           24         3         87009511         86442000         Bolt Hex M10 x 75mm [GR5 3/8"x3"]	_9	1	8437	7000	84377201	O-Ring 117 (Buna 90, Viton)				
12         2         84391600         84391610         O-Ring Backup 216 (Buna 90, Viton)           13         1         84386800         84386801         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387410         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight           19         1         84687700         6408-12 M O-Ring Socket Plug           20         1         84691700         -         6801-16-12 Straight Threaded Elbow           21         1         84691800         -         6801-16-16 Straight Threaded Elbow           21         1         84687400         6408-6 M O-Ring Socket Plug           23         5         87009000         86441000         Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]           24         3         87009511         86442000         Bolt Hex M10 x 75mm [GR5 3/8"x3"]	10	2	84378	3200	84378210	O-Ring 126 (Buna 90, Viton)				
13         1         84386800         84386801         O-Ring 906 (Buna 90, Viton)           14         4         84387400         84387410         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight           19         1         84687700         6408-12 M O-Ring Socket Plug           20         1         84691700         -         6801-16-12 Straight Threaded Elbow           21         1         84691800         -         6801-16-16 Straight Threaded Elbow           21         1         84687400         6400-16-16 Straight Threaded           22         1         84687400         6408-6 M O-Ring Socket Plug           23         5         87009000         86441000         Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]           24         3         87009511         86442000         Bolt Hex M10 x 75mm [GR5 3/8"x3"]	11	2	84382	84382200 84382210 O-Ring 216 (Buna 90, Viton)		O-Ring 216 (Buna 90, Viton)				
14         4         84387400         84387410         O-Ring 912 (Buna 90, Viton)           15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight           19         1         84687700         6408-12 M O-Ring Socket Plug           20         1         84691700         -         6801-16-12 Straight Threaded Elbow           21         1         84691800         -         6801-16-16 Straight Threaded Elbow           21         1         84685400         6400-16-16 Straight Threaded           22         1         84687400         6408-6 M O-Ring Socket Plug           23         5         87009000         86441000         Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]           24         3         87009511         86442000         Bolt Hex M10 x 75mm [GR5 3/8"x3"]	12	2	8439 <sup>-</sup>	1600	84391610	O-Ring Backup 216 (Buna 90, Viton)				
15         1         84387800         84387810         O-Ring 916 (Buna 90, Viton)           16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight           19         1         84687700         6408-12 M O-Ring Socket Plug           20         1         84691700         -         6801-16-12 Straight Threaded Elbow           21         1         84691800         -         6801-16-16 Straight Threaded Elbow           21         1         84685400         6400-16-16 Straight Threaded           22         1         84687400         6408-6 M O-Ring Socket Plug           23         5         87009000         86441000         Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]           24         3         87009511         86442000         Bolt Hex M10 x 75mm [GR5 3/8"x3"]	13	1	84386	6800	84386801	O-Ring 906 (Buna 90, Viton)				
16         2         84352200         Seal Rod 5/8"           17         2         84427200         Wiper Canned 5/8" Rod           18         2         84685000         6400-12-12 Straight           19         1         84687700         6408-12 M O-Ring Socket Plug           20         1         84691700         -         6801-16-12 Straight Threaded Elbow           21         1         84691800         -         6801-16-16 Straight Threaded Elbow           21         1         84685400         6400-16-16 Straight Threaded           22         1         84687400         6408-6 M O-Ring Socket Plug           23         5         87009000         86441000         Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]           24         3         87009511         86442000         Bolt Hex M10 x 75mm [GR5 3/8"x3"]	14	4	8438	7400	84387410 O-Ring 912 (Buna 90, Viton)					
17       2       84427200       Wiper Canned 5/8" Rod         18       2       84685000       6400-12-12 Straight         19       1       84687700       6408-12 M O-Ring Socket Plug         20       1       84691700       -       6801-16-12 Straight Threaded Elbow         21       1       84691800       -       6801-16-16 Straight Threaded Elbow         21       1       -       84685400       6400-16-16 Straight Threaded         22       1       84687400       6408-6 M O-Ring Socket Plug         23       5       87009000       86441000       Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]         24       3       87009511       86442000       Bolt Hex M10 x 75mm [GR5 3/8"x3"]	15	1	8438	7800	84387810	O-Ring 916 (Buna 90, Viton)				
18       2       84685000       6400-12-12 Straight         19       1       84687700       6408-12 M O-Ring Socket Plug         20       1       84691700       -       6801-16-12 Straight Threaded Elbow         20       1       84691800       -       6801-16-16 Straight Threaded Elbow         21       1       84685400       6400-16-16 Straight Threaded         22       1       84687400       6408-6 M O-Ring Socket Plug         23       5       87009000       86441000       Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]         24       3       87009511       86442000       Bolt Hex M10 x 75mm [GR5 3/8"x3"]	16	2		84352200		Seal Rod 5/8"				
19       1       84687700       6408-12 M O-Ring Socket Plug         20       1       84691700       -       6801-16-12 Straight Threaded Elbow         21       1       84685300       6400-16-12 Straight Threaded         21       1       84691800       -       6801-16-16 Straight Threaded Elbow         21       1       84685400       6400-16-16 Straight Threaded         22       1       84687400       6408-6 M O-Ring Socket Plug         23       5       87009000       86441000       Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]         24       3       87009511       86442000       Bolt Hex M10 x 75mm [GR5 3/8"x3"]	17	2		84427200		Wiper Canned 5/8" Rod				
20     1     84691700     -     6801-16-12 Straight Threaded Elbow       -     84685300     6400-16-12 Straight Threaded       21     1     84691800     -     6801-16-16 Straight Threaded Elbow       -     84685400     6400-16-16 Straight Threaded       22     1     84687400     6408-6 M O-Ring Socket Plug       23     5     87009000     86441000     Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]       24     3     87009511     86442000     Bolt Hex M10 x 75mm [GR5 3/8"x3"]	18	2		84685000		6400-12-12 Straight				
20     1       -     84685300       6400-16-12 Straight Threaded       21     1       -     84691800       -     84685400       6400-16-16 Straight Threaded       22     1       84687400     6408-6 M O-Ring Socket Plug       23     5       87009000     86441000       Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]       24     3       87009511     86442000       Bolt Hex M10 x 75mm [GR5 3/8"x3"]	19	1		84687700		6408-12 M O-Ring Socket Plug				
- 84685300 6400-16-12 Straight Threaded  21 1 84691800 - 6801-16-16 Straight Threaded Elbow  - 84685400 6400-16-16 Straight Threaded  22 1 84687400 6408-6 M O-Ring Socket Plug  23 5 87009000 86441000 Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]  24 3 87009511 86442000 Bolt Hex M10 x 75mm [GR5 3/8"x3"]	20	4	8469 <sup>-</sup>	1700	-	6801-16-12 Straight Threaded Elbow				
21       1       -       84685400       6400-16-16 Straight Threaded         22       1       84687400       6408-6 M O-Ring Socket Plug         23       5       87009000       86441000       Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]         24       3       87009511       86442000       Bolt Hex M10 x 75mm [GR5 3/8"x3"]	20		-		84685300	6400-16-12 Straight Threaded				
-     84685400     6400-16-16 Straight Threaded       22     1     84687400     6408-6 M O-Ring Socket Plug       23     5     87009000     86441000     Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]       24     3     87009511     86442000     Bolt Hex M10 x 75mm [GR5 3/8"x3"]	21	1	8469 <sup>-</sup>	1800	-	6801-16-16 Straight Threaded Elbow				
23       5       87009000       86441000       Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]         24       3       87009511       86442000       Bolt Hex M10 x 75mm [GR5 3/8"x3"]	21	'	-		84685400	6400-16-16 Straight Threaded				
24 3 87009511 86442000 Bolt Hex M10 x 75mm [GR5 3/8"x3"]	22	1		84687400		6408-6 M O-Ring Socket Plug				
	23	5	87009000	864	41000	Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]				
	24	3	87009511	864	42000	Bolt Hex M10 x 75mm [GR5 3/8"x3"]				
25 3 87076500 86555000 Washer Lock M10 [3/8"]	25	3	87076500	865	55000	Washer Lock M10 [3/8"]				
26 1 02552101 Cap Limit Switching Valve (Critical for Assembly)	26	1		02552101		Cap Limit Switching Valve (Critical for Assembly)				
27 1 86553500 Washer Large OD 3/8" (Critical for Assembly)	27	1		86553500		Washer Large OD 3/8" (Critical for Assembly)				

<sup>&</sup>lt;sup>(1)</sup> The Switching Valve Seal Kit contains all necessary components to rebuild all Switching Valve models.

Note: All new switching valve assemblies are interchangeable with past assemblies. Internal parts are not necessarily interchangeable.

# Switching Valve Assembly (Aug 2008 - Apr 2013)

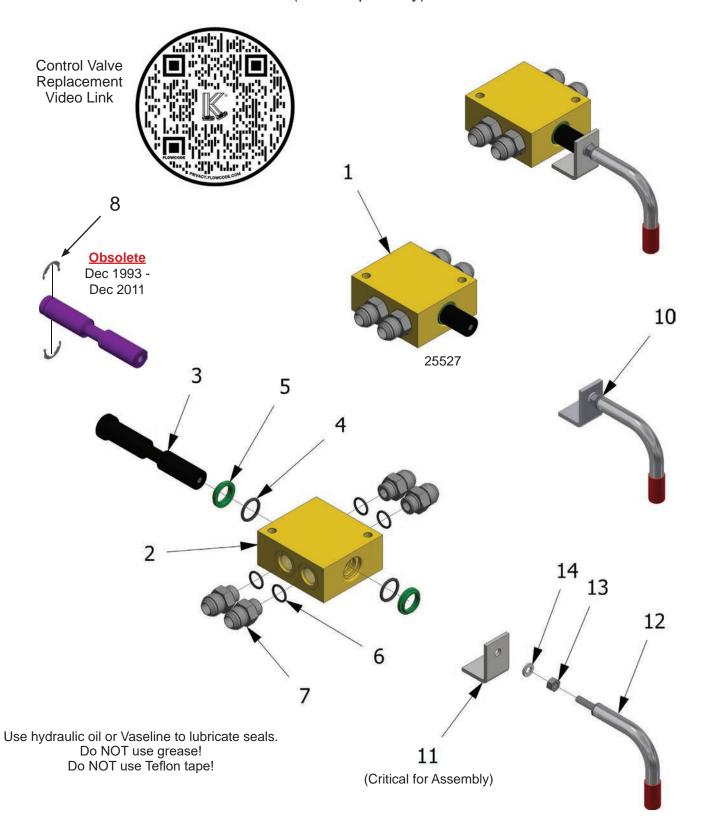


Switching Valve Assembly (Aug 2008 - Apr 2013)								
Qty	Metric SAE Part # Part #		Diesel SAE Part #	Description				
-	03888902	03888901	03888911	Switching Valve Assembly (Includes Items 2-27)				
1	04504702	0450	04601	Body Switching Valve (not sold separately)				
1		04504701		End Cap Right Switching Valve (not sold separately)				
1		04504801		End Cap Left Switching Valve (not sold separately)				
2		03718901		Poppet Switching Valve				
2		03718801		Ring Poppet Switching Valve				
1	01335502	0133	35501	Control Rod Switching Valve				
1	03878	3001	-	Seal Kit Switching Valve (Includes items 8-17)				
3	84376	5200	84376201	O-Ring 111 (Buna 90, Viton)				
1	84377	7000	84377201	O-Ring 117 (Buna 90, Viton)				
2	84378	3200	84378210	O-Ring 126 (Buna 90, Viton)				
2	84382	2200	84382210	O-Ring 216 (Buna 90, Viton)				
2	8439	1600	84391610	O-Ring Backup 216 (Buna 90, Viton)				
4	84387	84387400		O-Ring 912 (Buna 90, Viton)				
1	84387800		84387810	O-Ring 916 (Buna 90, Viton)				
2		84352200		Seal Rod 5/8"				
2		84427200		Wiper Canned 5/8" Rod				
2		84685000		6400-12-12 Straight				
1		84687700		6408-12 M O-Ring Socket Plug				
4	84691	1700	-	6801-16-12 Straight Threaded Elbow				
'	-		84685300	6400-16-12 Straight Threaded				
4	84691	1800	-	6801-16-16 Straight Threaded Elbow				
1	-		84685400	6400-16-16 Straight Threaded				
5	87009000 864		41000	Bolt Hex M10 x 65mm [GR5 3/8"x2 1/2"]				
3	87009750 8644		42000	Bolt Hex M10 x 75mm [GR5 3/8"x3"]				
3	87076500 865550		55000	Washer Lock M10 [3/8"]				
1	02552101			Cap Limit Switching Valve (Critical for Assembly)				
1		86553500		Washer Large OD 3/8" (Critical for Assembly)				
	- 1 1 1 2 2 1 1 3 1 2 2 4 1 2 2 1 1 1 5 3 1 1 1	Part #  - 03888902 1 04504702 1 1 2 2 2 2 1 01335502 1 03878 3 84378 1 84378 2 84388 2 84388 2 84388 2 84388 2 84388 2 84388 1 84388 2 84388 1 84388 1 84388 1 84698	Qty         Metric Part #         SAE Part #           -         03888902         03888901           1         04504702         0450           1         04504701         04504801           2         03718901         03718801           1         01335502         0133           1         0387801         0133           3         84376200         0           1         8437700         0           2         8438200         0           2         84387400         0           4         84387400         0           4         84387200         0           2         84427200         0           2         84685000         0           1         84691700         0           2         84691700         0           3         8700900         8644           3         87076500         8654           3         87076500         8655           1         02552101         1           1         86553500         1	Qty         Metric Part #         SAE Part #         Diesel SAE Part #           -         03888902         03888901         03888911           1         04504702         04504701           1         04504801         04504801           2         03718901         03718801           1         01335502         0133501           1         03878001         -           3         84376201         84376201           1         84377200         84377201           2         84382200         84382210           2         84382200         84387410           4         84387400         84387410           1         843872200         84387810           2         84427200         84685000           1         84687700         -           2         84685000         -           1         84691800         -           2         84685000         -           3         84691800         -           84685400         -         84685400           5         87009000         86441000           3         87076500         8655000           1				

<sup>&</sup>lt;sup>(1)</sup> The Switching Valve Seal Kit contains all necessary components to rebuild all Switching Valve models.

Note: All new switching valve assemblies are interchangeable with past assemblies. Internal parts are not necessarily interchangeable.

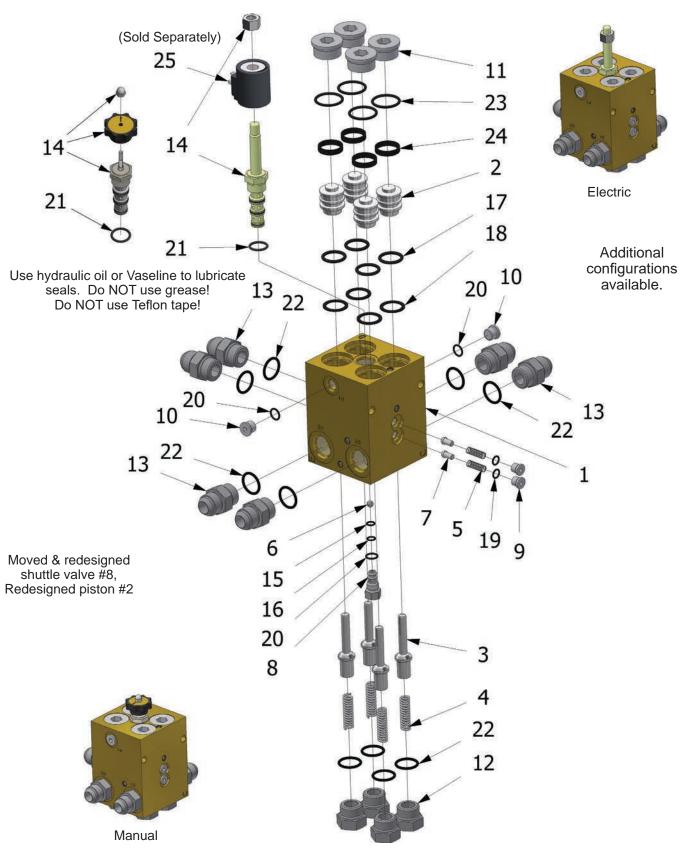
# Control Valve (Load/Unload) Assembly & Handle Assembly - Manual (Sold Separately)



	Control Valve Assembly							
ID#	Qty	Metric Part #	SAE Part #	Diesel SAE Part #	Description			
1	•	02552702	02552701	02552711	Control Valve Load/Unload Assembly (Includes items 2-8)			
2	1		01049501		Body Control Valve (not sold separately)			
3	1	03423202 (red)	l l		Spool Control Valve (Metric, SAE) (not sold separately)			
-	-	03877901		-	Seal Kit Control Valve Load/Unload (Includes items 4-6)			
4	2	8438	31800	84381700	O-Ring 214 (Buna 70, Viton)			
5	2	8442	84427000		Wiper 1" Rod			
6	4	84387200 84387300		84387300	O-Ring 910 (Buna 90, Viton)			
7	4	84684900			6400-12-10 Straight			
_8_	1		84801000		Snap Ring (2 Pcs) OBSOLETE			

	Handle Assembly							
ID#	Qty	Metric SAE Part # Part #		Description				
10	-	11310302	11310301	Handle Assembly Control Valve Load/Unload (Includes Items 11-14)				
11	1	06998701		Spool End Stop (Critical for Assembly)				
12	1	11229430	11229429	Control Valve Handle Assembly (See Handle Section for options)				
13	1	87101500	86628500	Nut Hex 10mm [GR8 ZN 3/8-16]				
14	1	87076500	86555000	Washer Lock 10mm [3/8"]				

# Control Valve (Load/Unload) Assembly - Electric/Manual (Jan 2022 - Present)

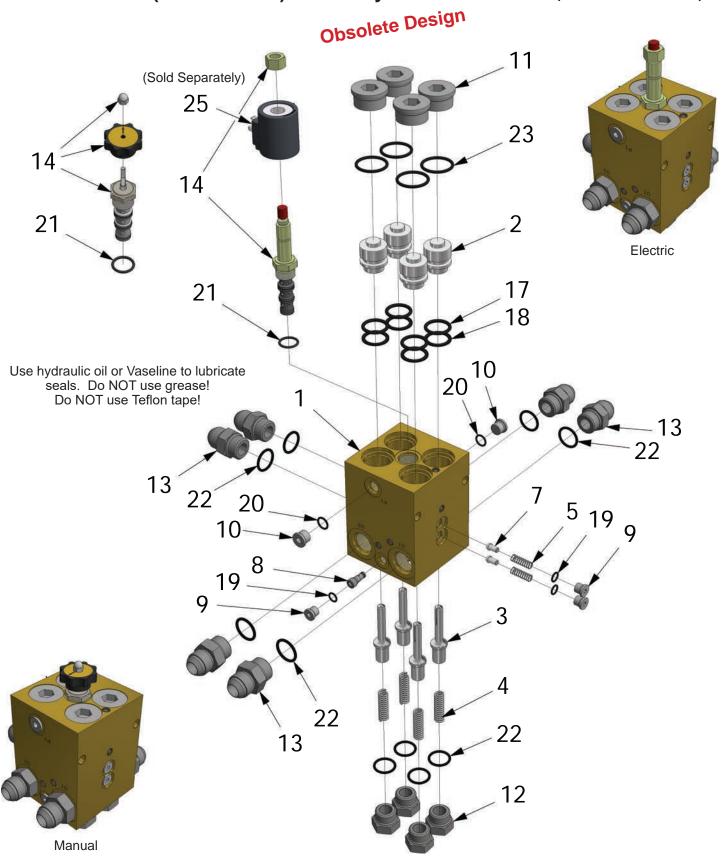


# Control Valve (Load/Unload) Assembly - Electric/Manual (Jan 2022 - Present)

ID#	Qty	Electric Part #	Manual Part #	Description
_(1)	-	03244610	03244630	Control Valve (Load/Unload) Assembly (Includes items 1-24)
1	1	0313	4702	CONTROL VALVE 6 PORT TWO-WAY (Black) (not sold separately)
2	4	0312	3601	PISTON, CHECK VALVE ACTUATOR
3	4	0313	8401	PILOT OPERATED CHECK VALVE
4	4	8445	3400	SPRING CHECK VALVE EXTERNAL LARGE #B-18273
5	2	8445	0800	SPRING, .328" OD X 1.0" LG, .027 WIRE, 10.5 COILS
6	1	8480	0500	5/16" CHROME BALL
7	2	1128	7801	POPPET 6-PORT CTV 032446 TO TANK
8	1	1130	8201	SHUTTLE VALVE SEAT 6 PORT #32446
9	2	8468	7300	04 HP5ON-S HOLLOW HEX PLUG M O-RING HEX SOCKET
10	2	8468	7400	06 HP5ON-S HOLLOW HEX PLUG M O-RING HEX SOCKET
11	4	8468	7900	16 HP5ON-S HOLLOW HEX PLUG M O-RING HEX SOCKET
12	4	10014101		-12 END CAP MODIFIED was 3860201
13	6	84685000		12 F5OX-S STRAIGHT THREAD CONNECTOR MJIC X M O-RING
14	1	85108800	-	Solenoid Valve SV-10-40M-0-N-0 HF
14	1	-	85105200	Cartridge Valve MRV4-10-K-O VIC
-	-	8510	8798	Seal Kit for Cartridge Valves
-	-	0466	1701	Seal Kit Control Valve Electric (Includes items 17-24)
15	1	8437	5200	011 O-RING BUNA 90
16	1	8438	8406	011 BACK-UP BUNA 90
17	4	8438	1200	213 O-RING BUNA 90
18	4	84391200		8-213 BACK-UP BUNA 90
19	2	84386600		904 O-RING BUNA 90
20	3	84386800		906 O-RING BUNA 90
21	1	84387200		910 O-RING BUNA 90
22	10	84387400		912 O-RING BUNA 90
23	4	8438	7800	916 O-RING BUNA 90
24	4	8440	5415	WEAR RING BRONZE PTFE 1/4 X 1/16
25	1	varies	-	Coil (Sold Separately) Contact KEITH for Information

<sup>&</sup>lt;sup>(1)</sup> Part number and descriptions vary based on drive configuration and application.

### Control Valve (Load/Unload) Assembly - Electric/Manual (Mar 2000 - Jan 2022)



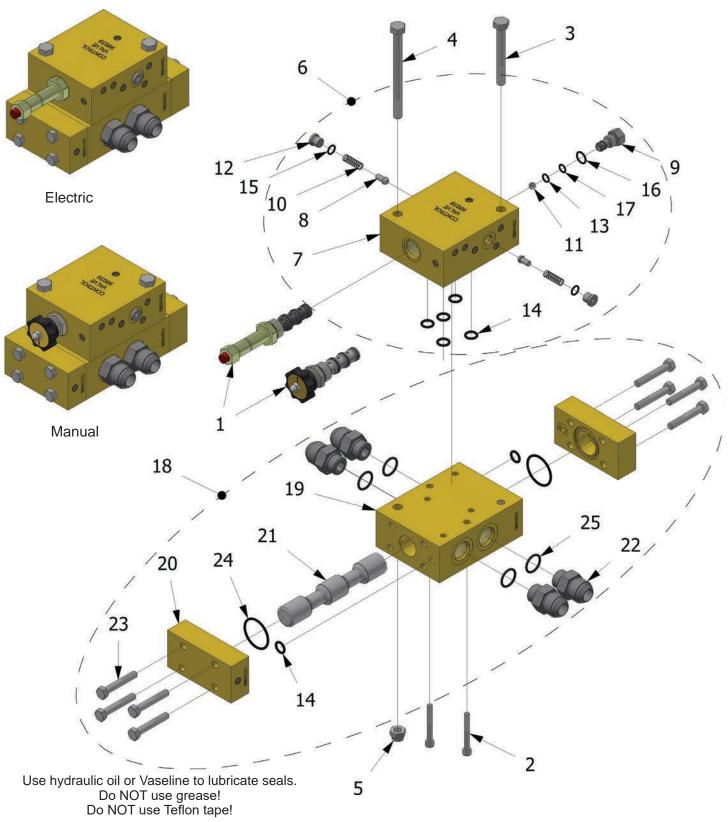
# Control Valve (Load/Unload) Assembly - Electric/Manual (Mar 2000 - Jan 2022)

ID#	Qty	Electric Part #	Manual Part #	Description
_(1)	-	03244610	03244630	Control Valve (Load/Unload) Assembly (Includes items 1-23)
1	1	0313	4701	Electric Control Valve Body
2	4	0312	3601	Plunger Pilot Operated Check Valve
3	4	0313	8401	Plunger Pilot Operated Check Valve Pilot Operated Check Valve  Obsolete Design
4	4	8445	3400	Ext Check Valve Spring Large
5	2	8445	0800	I-9 Spring
7	2	1128	7801	Poppet 6-Port CTV 032446 To Tank (Replaces 84800500 5/16" Chrome Ball)
8	1	8510	4800	Shuttle Valve LS04-B-30-0-N
9	3	8468	7300	6409-04 MSAE O-Ring Socket Plug
10	2	8468	7400	6409-06 MSAE O-Ring Socket Plug
11	4	84687900		6409-16 MSAE O-Ring Socket Plug
12	4	1001	4101	-12 Pilot Operated Spring End Cap (Replaces 03860201 Spring Cap)
13	6	84685000		6400-12-12 MSAE-MJIC Straight Connector
14	1	85108800	1	Solenoid Valve SV-10-40M-0-N-0 HF
14	1	-	85105200	Cartridge Valve MRV4-10-K-O VIC
-	-	8510	8798	Seal Kit for Cartridge Valves
-	-	0466	1701	Seal Kit Control Valve Electric (Includes items 17-23)
17	4	8438	1200	O-Ring 213 Buna 90
18	4	84391200		O-Ring Back-Up 8-213 Buna 90
19	3	84386600		O-Ring 904 Buna 90
20	2	84386800		O-Ring 906 Buna 90
21	1	84387200		O-Ring 910 Buna 90
22	10	84387400		O-Ring 912 Buna 90
23	4	8438	7800	O-Ring 916 Buna 90
25	1	varies	-	Coil (Sold Separately) Contact KEITH for Information

<sup>(1)</sup> Part number and descriptions vary based on drive configuration and application.

Note: All new control valve assemblies are interchangeable with past assemblies. Internal parts are not necessarily interchangeable.

### Pilot Operated Control Valve (Load/Unload) Assembly - Electric/Manual

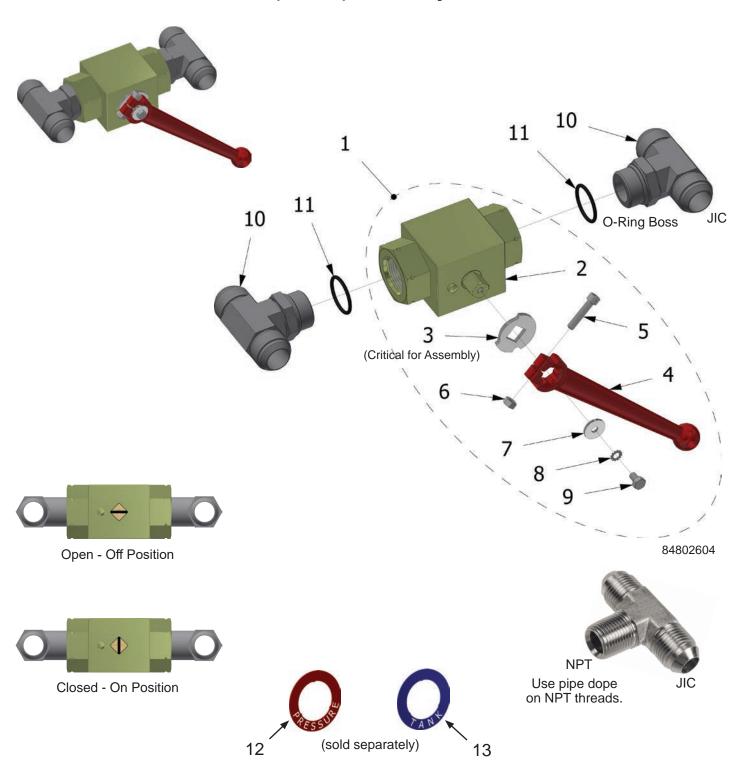


# Pilot Operated Control Valve (Load/Unload) Assembly - Electric/Manual

ID#	Qty	Electric Part #	Manual Part #	Description
_(1)	-	09803901	-	Electric Control Valve Assembly Pilot Operated (Includes items 1-25)
_(1)	-	-	09803902	Manual Control Valve Assembly Pilot Operated (Includes items 1-25)
1	1	85108800	-	Cartridge Valve, Hydraforce, 4-WAY, 2 Position, SV10-40M-0-N-0
1	1	-	85105200	Rotary Valve, Cartridge, 4-WAY, 2 Position, MRV4-10
2	2	8700	)4410	BOLT SOCKET HEAD 6MMX50MM
3	1	8701	0000	BOLT HEX GR10.9 10MMx80MM
4	1	8701	1560	BOLT HEX GR10.9 10MMx120MM
5	1	8710	2000	NUT HEX NYLOCK 10mm
6	1	0980	4301	CONTROL VALVE ACTUATOR ASSY
7	1	0980	)4401	ACTUATOR BODY CONTROL VALVE
8	2	1128	7801	POPPET 6-PORT CTV 032446 TO TANK
9	1	1130	8201	SHUTTLE VALVE SEAT 6 PORT #32446
10	2	8445	00800	SPRING, .328" OD X 1.0" LG, .027 WIRE, 10.5 COILS
11	1	8480	0500	5/16" CHROME BALL
12	2	8468	37300	04 HP5ON-S HOLLOW HEX PLUG M O-RING HEX SOCKET
13	1	8437	'5200	011 O-RING BUNA 90
14	5	8437	6200	111 O-RING BUNA 90
14	2	8437	6200	111 O-RING BUNA 90
15	2	8438	86600	904 O-RING BUNA 90
16	1	8438	6800	906 O-RING BUNA 90
17	1	8438	8406	011 BACK-UP BUNA 90
18	1	0980	4501	BODY ASSEMBLY, ELECTRIC CONTROL VALVE
19	1	0980	4001	ELECTRIC CONTROL VALVE BODY
20	2	0980	)4101	END CAP, PILOT OPERATED CONTROL VALVE
21	1	09804201		SPOOL, CONTROL VALVE
22	4	84684900		12-10 F5OX-S Straight Thread Connector MJIC X M O-RING
23	8	87006090		BOLT HEX GR8.8 8MMx50MM
24	2	8437	78200	126 O-RING BUNA 90
25	4	8438	37200	910 O-RING BUNA 90
26	-	1152	8101	Seal Kit (Includes items 13-17, 24-26 & Seal Kit for Cartridge Valve #1)

<sup>&</sup>lt;sup>(1)</sup> Part number and descriptions vary based on drive configuration and application.

### Ball Valve (On/Off) Assembly JIC - Manual



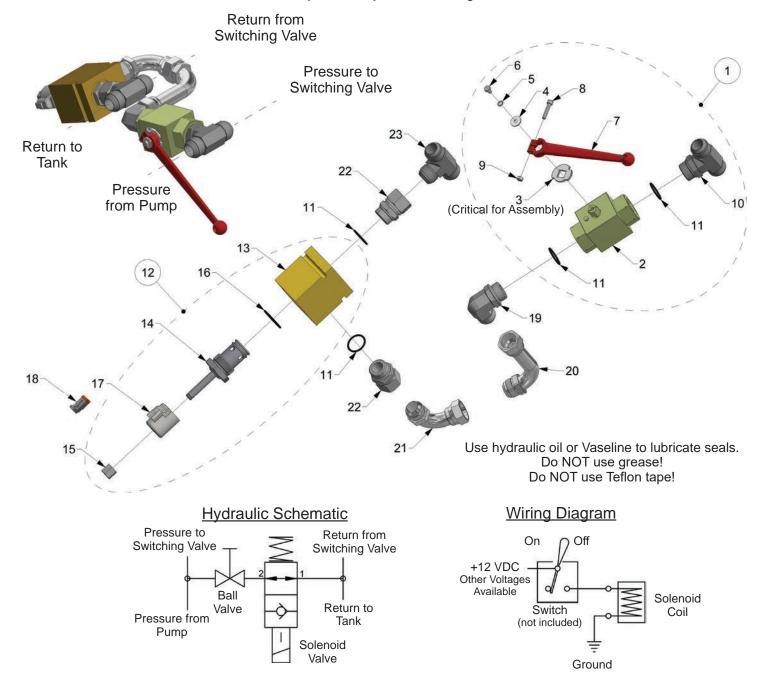
Use hydraulic oil or Vaseline to lubricate seals.

Do NOT use grease!

Do NOT use Teflon tape!

	Ball Valve (On/Off) Assembly JIC - Manual							
ID#	Qty	O-Ring Boss JIC Part #	NPT JIC Part #	Description				
	_	84802604	-	Ball Valve Assembly 1" w/ O-Ring Boss Port (Includes items 2-11)				
		-	84802600	Ball Valve Assembly 1" w/ NPT Port (Includes items 2-11) Obsolete				
1	1	84802620	-	Ball Valve 1" O-Ring Boss Port (Includes items 2-9)				
	<u>'</u>	-	84802800	Ball Valve 1" BKH 1NPT-1123 Port (Includes items 2-9)				
2	1	84802605	-	Ball Valve Body 1" O-Ring Boss Port				
	'	-	84802859	Ball Valve Body AE2N1-11DB NPT Port				
3	1	84802910		Spud Stop LW56 (Critical for Assembly)				
4	1	848029	900	Ball Valve Handle Assembly (Includes items 4-6)				
5	1	87003	100	Bolt Socket Head GR8 6mmx1mmx30mm				
6	1	871005	510	Nut Hex 6mmx1mm				
	-	87075	503	Handle to BV Bolt Kit (Includes items 7-9)				
7	1	870754	400	Washer Flat 6 mm				
8	1	87075	501	Star Washer External Tooth M6				
9	1	870024	460	Bolt Hex GR8 6mmx1mmx12mm				
10	2	84692110	-	16 S5OX-S Straight Thread Tee MJIC X MJIC X ADJ O-Ring (6803-16-16-16)				
		-	84677880	16 STX-S Male Branch Tee MJIC X MJIC X MPIPE				
11	2	84387800	-	916 O-RING BUNA 90				
12	1	114673	301	PLATE ID RED PRESSURE (sold separately)				
13	1	114673	302	PLATE ID BLUE TANK (sold separately)				

### Ball Valve (On/Off) Assembly - Electric



#### **INSTALLATION**

- 1. Remove the existing ball valve. It is mounted on the front of the drive frame, on the drivers side, between the pressure and return lines.
- 2. Install the electrical on/off control assembly.
- 3. Connect the pressure and return lines as shown.
- 4. Supply electrical power to the solenoid.
- 5. Install the switch in the electrical supply coil.
- 6. Run the wiring in water-tight flex conduit.

#### **OPERATION**

- 1. Shift the ball valve handle to the open position.
- 2. Set the electrical switch to the Off position.
- 3. Engage the PTO to start the hydraulic pump.
- 4. Turn electrical switch to the On position to start the walking floor. (Solenoid coil must be energized for the walking floor to move.)

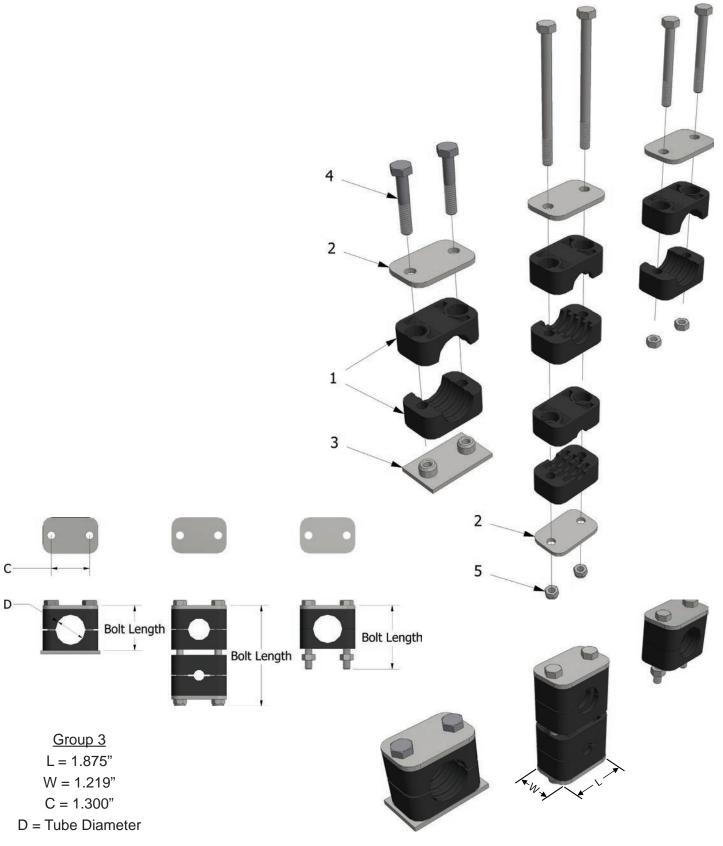
To start or stop the floor using the manual ball valve on the drive.

- Set the electrical switch to the Off position.
- Close the ball valve to start the walking floor.
- Open the ball valve to stop the walking floor.

# **Ball Valve (On/Off) Assembly JIC - Electric**

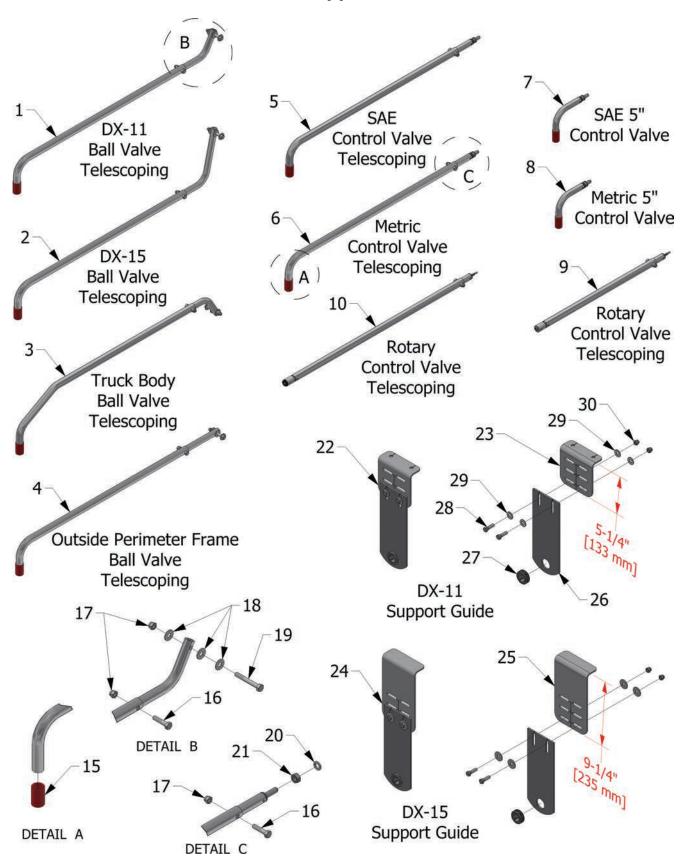
ID#	Qty	O-Ring Boss JIC Part #	NPT JIC Part #	Description
-	-	03426	601	Electric On/Off Ball Valve Assy (Includes items 1-23)
1	1	84802604	84802601	Manual On/Off Ball Valve Assy (Includes items 2-11)
		84802620	-	Ball Valve Body Assy 1" O-Ring Boss (Includes items 3-6)
2	1	-	84802800	Ball Valve 1" BKH 1NPT-1123 w/Handle, Bolt & Flat Washer (Includes items 3-6)
3	1	84802	910	Spud Stop (critical for assembly)
4	1	87075	400	Washer Flat 6mm
5	1	87075	501	Star Washer External Tooth M6
6	1	87002	460	Bolt Hex GR8 6mm x 1mm x 12mm
7	1	84802	900	Ball Valve Handle Assembly (Includes items 8-9)
8	1	87003	100	Bolt Socket Head GR8 6mmx1mmx30mm
9	1	87100510		Nut Hex 6mm x 1mm
10	1	84692110	-	16 S5OX-S STRAIGHT THREAD TEE MJIC X MJIC X ADJ O-RING (6803-16-16-16)
	Į Į	-	84677880	16 STX-S MALE BRANCH TEE MJIC X MJIC X MPIPE (2601-16-16-16)
11	4,2	84387800		916 O-Ring Buna 90
12	1	85108200		Electric Solenoid Valve Assembly (Includes items 11-17)
13	1	85101600		Body Valve 20822 566409 2-Way
14	1	85108	120	Valve Cartridge SV3-20-0-16H-12DN
	-	85108	798	Seal Kit for Cartridge Valves
15	1	85108	001	NUT SV3 VALVE CART 02-175698
16	1	84388	000	920 O-Ring Buna 90
17	1	85602615		Coil, 12 VDC w/Deutsch Conn. Vickers
18	1	06414701		CONNECTOR KIT DEUTSCH DT06-2S
19	1	84691800	-	16 C5OX-S STRAIGHT THREAD ELBOW MJIC X ADJ O-RING (6801-16-16)
		-	84677400	2501-16-16 Male Elbow 84691800
20	1	84683700		63UC-16-16 Long Bent Stem 90 Deg.
21	1	84683200		63UA-16-16 Bent Stem 90 Deg.
22	2	84686	200	6402-16-16 Swivel St. Thread Connector
23	1	84678	100	2603-16-16 Union Tee

# **Tube Clamps**



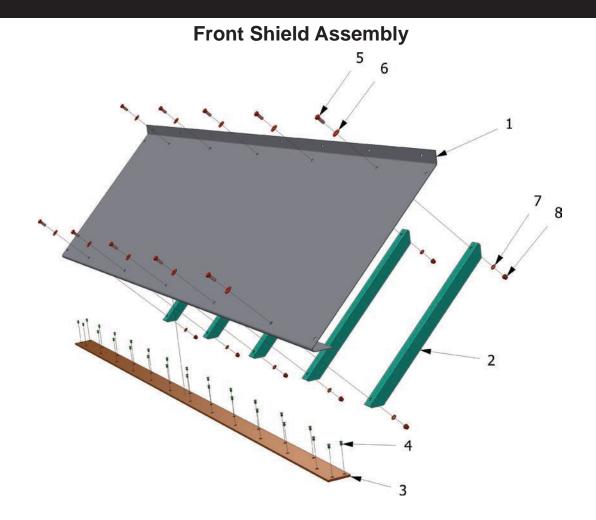
						Tube Clambs	amne	
#	Ş	Part #	Part #	Description				
	L							
•	•	04631101					•	Tube Clamp Assembly 1" Tube Group 3 3100-PP
•		•	04631102	-	-			Tube Clamp Assembly 3/4" Tube Group 3 3075-PP
•	٠	•	-	04631103	•			Tube Clamp Assembly 3/8" Tube Group 3 3038-PP
•		•	•	•	04631104			Tube Clamp Assembly 1/2" Tube Group 3 30840-PP
		•		•		04631105		Tube Clamp Assembly 7/8" Tube Group 3 3087-PP
_	1 pair	84750300	,	1	1			Clamp 1" Tube Group 3 3100-PP
1	1 pair	,	84750200	-	-	,	1	Clamp 3/4" Tube Group 3 3075-PP
1	1 pair	,		84750100	-	-	-	Clamp 3/8" Tube Group 3 3038-PP
1	1 pair	,			84750060			Clamp 1/2" Tube Group 3 30840-PP
_	1 pair	,				84750230	,	Clamp 7/8" Tube Group 3 3087-PP
~ 67	1-2	84751200	84751200	84751200	84751200	84751200		Cover Plate COP-03
က	_	,	,	84748990	84748990	84748990		Bolt Plate - Weld On STW-03 1/4"
3	1	,	-	-	-	,	84748991	Bolt Plate - Weld On STW-03 1/4" Unplated
3	_	,	,	,	1	,	84748992	Bolt Plate - Weld On STW-03 1/4" SS
3	1	,	-	-	-	-	84748995	Bolt Plate - Weld On STW-03 M6
4	2	•	86416500	-	-	-	-	Hex Bolt 1/4" x 1-1/2
4	2	86419500	-	86419500	86419500	86419500	1	Hex Bolt 1/4" x 2-1/4"
4	2	-	-	-	-	-	87004510	Hex Bolt 6mm x 1 x 55mm
4	2	-	-	-	-	-	87004600	Hex Bolt 6mm x 1 x 85mm
4	2	,	-	-	-	-	87004570	Hex Bolt 6mm x 1 x 70mm
DOC	2	86626000	86626000	86626000	86626000	86626000	-	Hex Nut - Nylock 1/4"-20
က 06272	2	1	1	-	ı	1	87105000	Hex Nut - Nylock M6x1
Rev G								

### **Handle Assemblies & Support Guide Assemblies**



	Handle Assemblies							
ID#	Qty	Part #	Description					
1	-	11262401	Telescoping DX11 Ball Valve Handle Assembly (Includes items 15-19)					
2	-	11262501	Telescoping DX15 Ball Valve Handle Assembly (Includes items 15-19)					
3	-	11262601	Telescoping DX-TB Ball Valve Handle Assembly (Includes items 15-19)					
4	-	11262701	Telescoping DX-OSP Ball Valve Handle Assembly (Includes items 15-19)					
5	-	11262801	Telescoping DX Control Valve Handle Assy SAE (Includes items 15-17, 20-21)					
6	-	11262901	Telescoping DX Control Valve Handle Assy Metric (Includes items 15-17, 20-21)					
7	-	11229429	Control Valve Handle Assembly DX-SAE 5" (Includes items 15, 20-21)					
8	-	11229430	Control Valve Handle Assembly DX-MET 5" (Includes items 15, 20-21)					
9	-	11263001	Telescoping 23-39" Rotary DX Control Valve Handle Assembly Metric (Includes items 16-17)					
10	-	11263101	Telescoping 33-59" Rotary DX Control Valve Handle Assembly Metric (Includes items 16-17)					
15	1	85711565	ROUND END CAP - RED875" ID X 1.5" LONG FOR HANDLES					
16	1	87005950	BOLT HEX 8.8 8-1.25MM X 35MM ZN					
17	2	87101000	NUT HEX NYLOCK 8MM-1.25					
18	3	86552500	WASHER FLAT 5/16" ZINC					
19	1	87006200	BOLT HEX 8.8 8-1.25MM X 60MM ZN					
20	1	86555000	WASHER LOCK 3/8"					
	1	87076500	WASHER LOCK 10MM					
21	1	86628500	NUT HEX GR8 ZN 3/8-16					
1 87101500 NUT HE		87101500	NUT HEX 10MM					

	Support Guide Assemblies							
ID#	Qty	Part #	Description					
22	-	06627102	DX11 Handle Mount Support Assembly (Included items 23 & 26-30)					
23	1	06625401	DX11 Angle Mount Plate 5-1/4"					
24	-	06747801	DX15 Handle Mount Support Assembly (Included items 25-30)					
25	1	06698501	DX15 Angle Mount Plate 9-1/4"					
26	1	03690401	Handle Mount Plate					
27	1	83218400	Grommet 1 X .25 X 1.375 2572					
28	2	87008510	BOLT HEX 10.9 10MM X 35MM					
29	4	87076000	WASHER FLAT 10MM					
30	2	87102000	NUT HEX NYLOCK 10MM					



			Fron	t Shield Assembly
ID#	Qty	36" 30" Part # Part #		Description
-	-	035395xx*	035396xx*	Front Shield Assembly x Length (Includes all items below)
1	1	035397xx	-	Formed Sheet, 36" x Length, 16 Gauge Galvanized
	l l	-	35398xx	Formed Sheet, 30" x Length, 14 Gauge Galvanized
2	varies	03539901	03540001	Stiffener Angle 1-1/2" x 1-1/2"x 1/8"
3	1	0354	0110	UHMW Bearing Strip 102" 1/4 X 2-7/8 No Holes
4	varies	8652	8000	Pop Rivet .188"x.250"375" Grip, AL AB6-6
5	2/stiffener	86437000	-	Bolt Hex GR8 ZN 3/8"-16 X 3/4"
	Z/Sulleriel	-	86437500	Bolt Hex GR8 ZN 3/8-16x1
6	2/stiffener	86554000		Washer Flat 3/8
7	2/stiffener	86555000		Washer Lock 3/8
8	2/stiffener	8662	8500	Nut Hex GR8 ZN 3/8-16

<sup>\*</sup> Part numbers and descriptions vary based on trailer width and application.

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