This kit contains O-rings and backup rings for the hydraulic units listed below:

Use the chart at the end of this document to sort O-rings by size. This kit contains more O-rings than needed for any application. The small bag contains -903, -904, and -906 O-rings for the SAE O-ring plugs. See note on chart about these O-rings. Use red -008 O-rings only on EZ-V Insta-Act pilot-operated check valve spools. Apply light film of hydraulic fluid to all O-rings before installation.

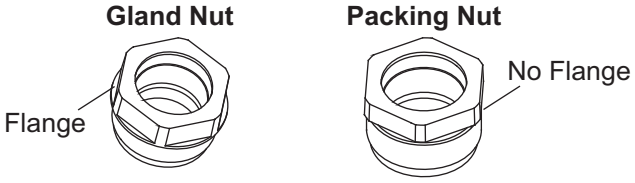
GLAND NUT RAMS (Hex Flange Head on Nut)

Piston Locknut to Rod (Double-Acting Rams Only)
2" Rams: 100–120 ft-lb
1-1/2" Rams: 35–40 ft-lb

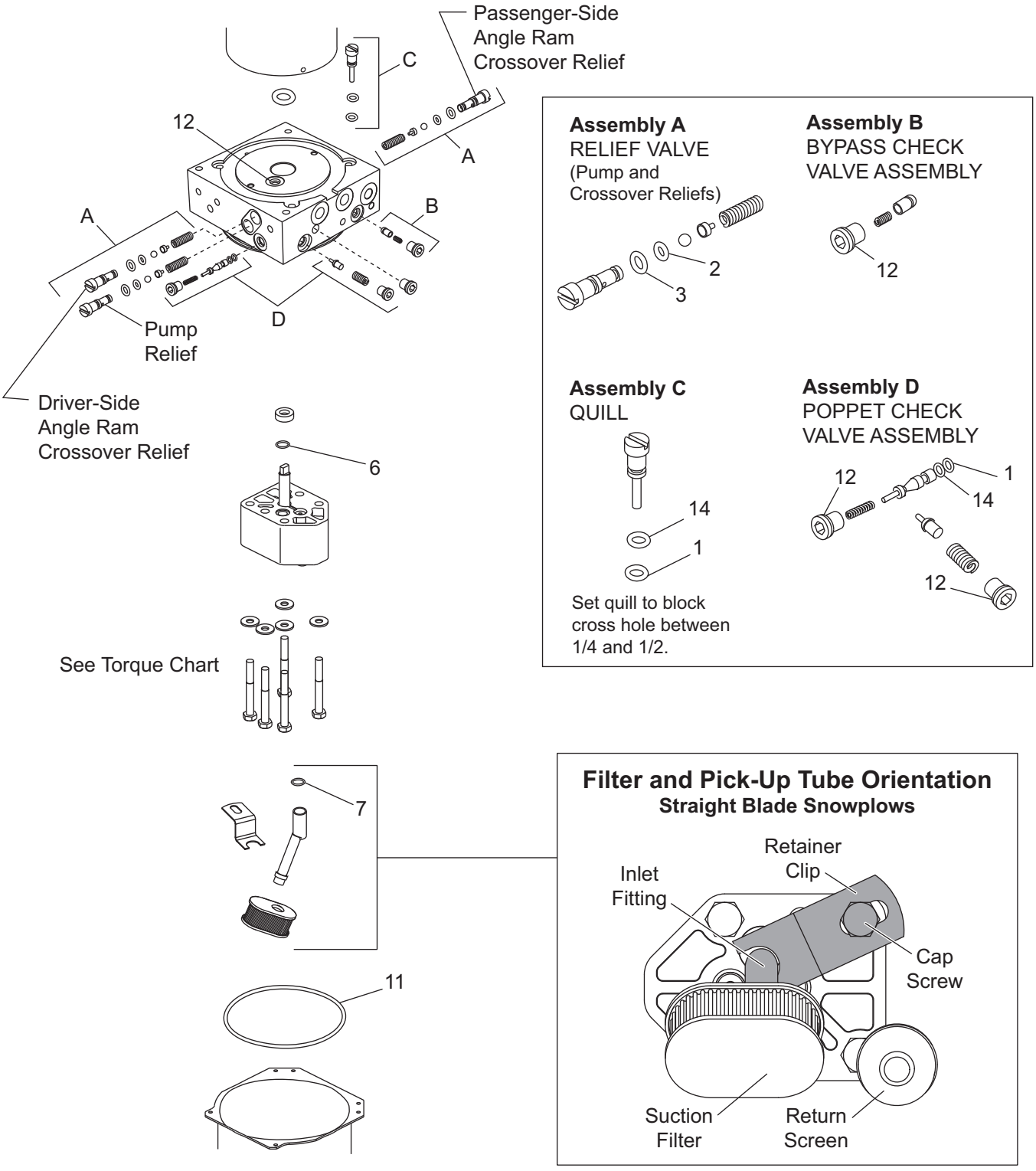
Gland Nut
1" Single-Acting & 1-1/2" Double-Acting Rams: 120–150 ft-lb
All Other Rams: 150–180 ft-lb
Alternate Method: Thread nut into coupling. Insert feeler gauge (0.015" for 1" single-acting and 1-1/2" double acting rams, 0.012" for all other rams) between front surface of cylinder tube face and hex of gland nut. Tighten the gland nut until it is snug against the feeler gauge. Remove the feeler gauge, and tighten the gland nut an additional **1/4 turn.** This adjustment procedure will provide the torque listed above. Undertightening may result in nut loosening during snowplow operation.

PACKING NUT RAMS (Hex Head on Nut)

Lift Ram Packing Nut (Single-Acting Rams Only)
Tighten packing nut not more than 1/4 turn after you feel packing nut contact packing. Overtightening affects ram operation and packing life.



Insta-Act® HYDRAULIC UNIT PARTS DIAGRAM (Straight Blades)



Item	Part	Qty*	Description	
1	25622	2	O-Ring	-006
2	55371	3	O-Ring	-008 (black)
3	25731	3	O-Ring	-010
6	56274	1	O-Ring	-013
7	56416	1	O-Ring	-014
11	66519	1	O-Ring	-250
12	26784	4	O-Ring	-903
14	56315	2	Backup	-006

* Qty used for this application. Kit contains extra parts.

Assemble parts as shown and tighten relief valve stems until spring is fully compressed. Then, back off valve stem (rotate counterclockwise) the number of turns indicated in the chart.

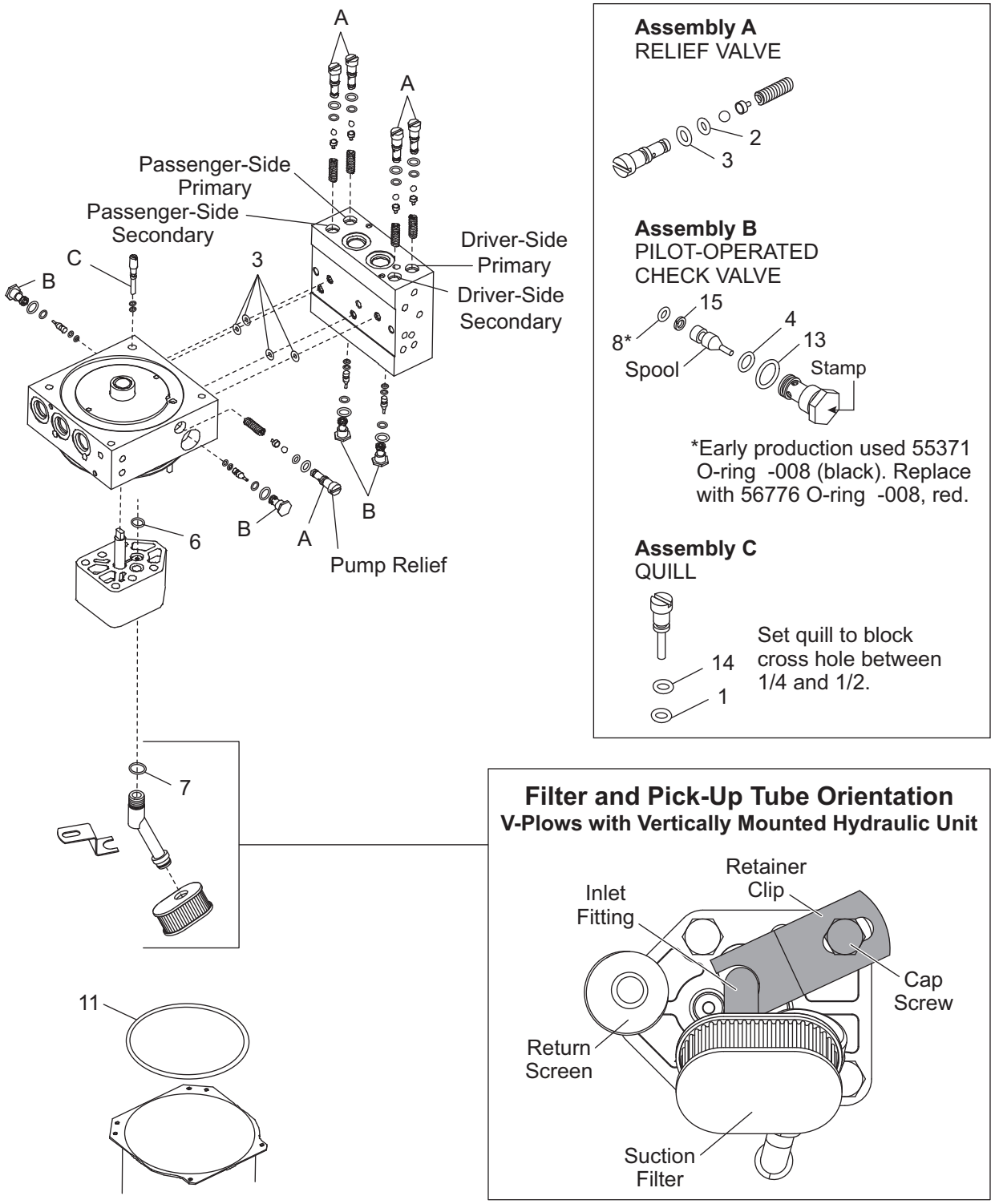
Relief Valve	No. of Turns Off (CCW) from Fully Seated	Approximate Relief Valve Pressure (± 50 psi)
Pump Relief	2-1/2 to 2-3/4	1750**
Driver- & Passenger-Side Angle Ram Crossover Relief	1 to 1-1/4	4000

** Install a tee in line with the passenger-side angle ram hydraulic hose and attach a 3000 psi gauge. Read the pressure at pump relief when holding the angle left function button. Adjust pump relief valve to obtain 1750 ± 50 psi. Relieve pressure before adjusting.

TORQUE CHART FOR Insta-Act® HYDRAULIC UNITS (Straight Blades)

Straight Blades		
Location	**Fastener Size**	**Torque (in-lb)**
Pump Cap Screws	5/16-18 x 2-1/2 **with** Flat Washer **or** 5/16-18 x 2-1/4 **without** Flat Washer	150–160
Motor Terminals (+ and –)	5/16-18 or 5/16-24 Nut	50–60
Motor to Manifold Cap Screws	1/4-20 x 6-1/4	55–65
Reservoir Screws	#10-24 x 5/16	30–35
Valve Cartridges	7/8 Head Hex	120–144
Coil Nuts	3/4 Head Hex Jam Nut	40–60
Cartridge/Coil Cover Screws	#8-32 x 1/2	15–20
SAE O-Ring Plugs	1/8 or 5/32 Internal Hex	55–65
Manifold Mount Bolts	1/4-20 x 2-3/4	105–115

EZ-V® Insta-Act® HYDRAULIC UNIT PARTS DIAGRAM



Item	Part	Qty*	Description
1	25622	1	O-Ring -006
2	55371	5	O-Ring -008 (black) 90 durometer
3	25731	9	O-Ring -010
4	66627	4	O-Ring -011 (Check Valves Stamped V4 and Lower)
	25730	4	O-Ring -012 (Check Valves Stamped V5 and Higher)
6	56274	1	O-Ring -013
7	56416	1	O-Ring -014
8	56776	4	O-Ring -008, red 70 durometer
11	66519	1	O-Ring -250
13	56569	4	O-Ring -906
14	56315	1	Backup -006
15	66628	4	Backup -008

* Qty used for this application. Kit contains extra parts.

Assemble parts as shown and tighten relief valve stems until spring is fully compressed. Then, back off valve stem (rotate counterclockwise) the number of turns indicated in the chart.

Relief Valve	No. of Turns Off (CCW) from Fully Seated	Approximate Relief Valve Pressure (± 50 psi)
Pump Relief	2-1/4 to 2-3/4	1750**
Driver- & Passenger-Side Angle Ram Primary Relief	1-1/4 to 1-1/2***	3500
Driver- & Passenger-Side Angle Ram Secondary Relief	1 to 1-1/4***	4000

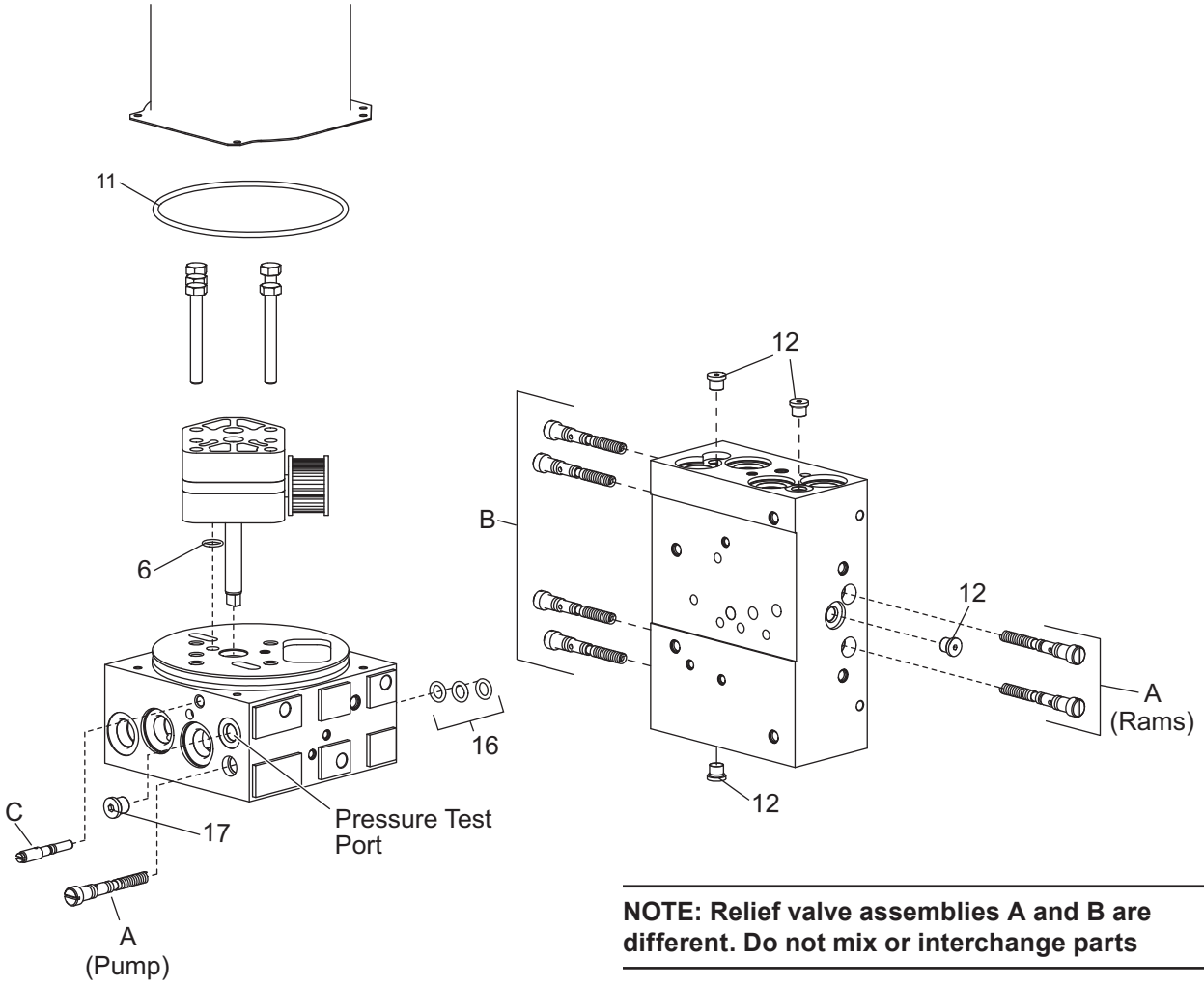
** Install a tee in line with the passenger-side rod-end angle ram hydraulic hose and attach a 3000 psi gauge. Read the pressure at pump relief when holding the right retract function button. Adjust pump relief valve to obtain 1750 ± 50 psi. Relieve pressure before adjusting.

*** Be certain the ram primary relief valve stem is backed out 1/4 turn farther than the secondary relief valve stem.

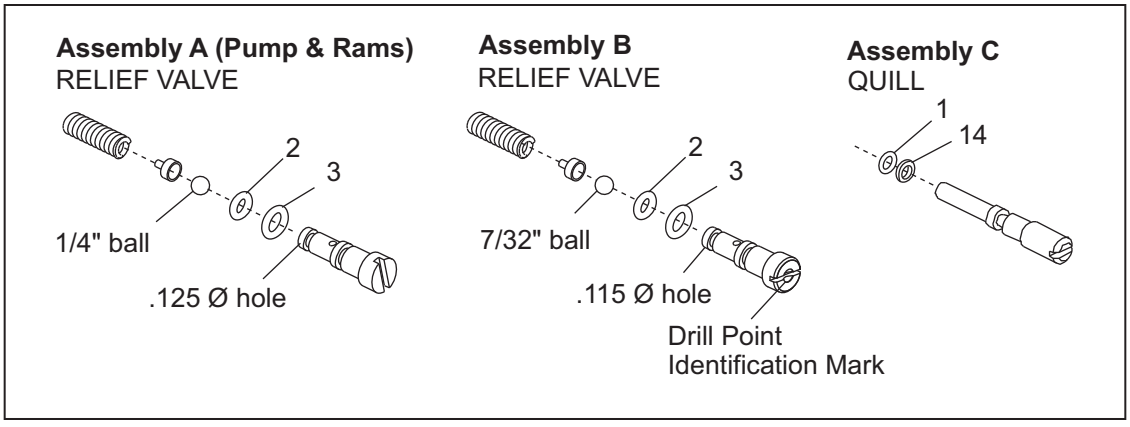
TORQUE CHART FOR EZ-V® Insta-Act® HYDRAULIC UNIT

EZ-V Blades		
Location	**Fastener Size**	**Torque (in-lb)**
Pump Cap Screws	5/16-18 x 2-1/2 **with** Flat Washer **or** 5/16-18 x 2-1/4 **without** Flat Washer	150–160
Motor Terminals (+ and –)	5/16-18 or 5/16-24 Nut	50–60
Motor to Manifold Cap Screws	1/4-20 x 6-1/4	55–65
Reservoir Screws	#10-24 x 5/16	30–35
Valve Cartridges	7/8 Head Hex	120–144
Coil Nuts	3/4 Head Hex Jam Nut	40–60
Cartridge/Coil Cover Screws	#8-32 x 1/2 Long	15–20
SAE O-Ring Plugs	1/8 or 5/32 Internal Hex	55–65
Manifold Mount Bolts	1/4-20 x 2-3/4	105–115
Check Valves	11/16 Hex Head	120–144
Secondary to Primary Manifolds	1/4-20 x 2-1/2	105–115

XtremeV™ Insta-Act® HYDRAULIC UNIT PARTS DIAGRAM



NOTE: Relief valve assemblies A and B are different. Do not mix or interchange parts



Item	Part	Qty*	Description
1	25622	1	O-Ring -006
2	55371	7	O-Ring -008 (black) 90 durometer
3	25731	7	O-Ring -010
6	56274	1	O-Ring -013
11	66519	1	O-Ring -250
12	26784	4	O-Ring -903
14	56315	1	Backup -006
16	29077	3	O-Ring -110
17	44343	1	O-Ring -904

* Qty used for this application. Kit contains extra parts.

Relief valves B use 7/32" ball and stem is marked with drill point in screwdriver slot.
Relief valves A and C use 1/4" ball and stem is unmarked. DO NOT MIX OR INTERCHANGE PARTS.

Adjustment. Screw stem in until spring is fully compressed and back out number of turns in chart.

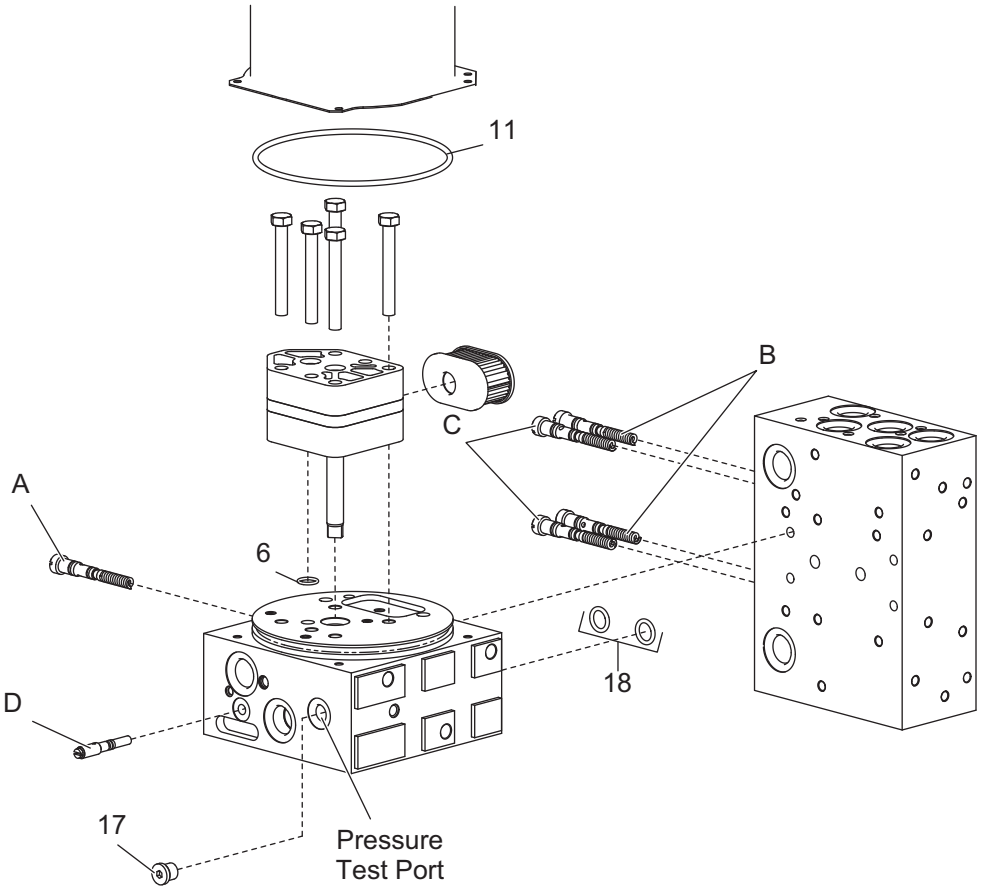
Relief Valve	No. of Turns Off (CCW) from Fully Seated	Approximate Relief Valve Pressure (± 50 psi)
A (rams)	1-1/4	3700
B	1-1/4	4600
A (pump)	2-1/2	2250**

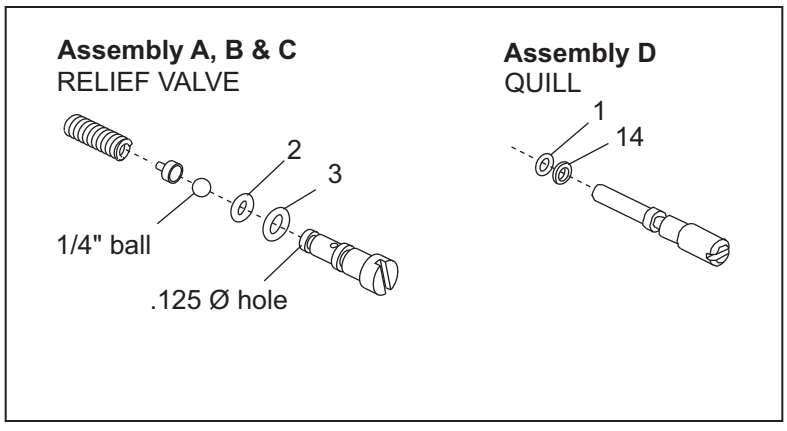
** Attach 3000 psi gauge to pressure test port above valve. Read pump relief pressure when holding the right retract button. Adjust pump relief valve to obtain 2250 ± 50 psi. Relieve pressure before adjusting.

TORQUE CHART FOR XtremeV™ Insta-Act® HYDRAULIC UNIT

XtremeV Blades		
Location	**Fastener Size**	**Torque (in-lb)**
Pump Cap Screws	5/16-18 x 2-1/2	150–160
Motor Terminals (+ and –)	5/16-18 Nut	50–60
Motor to Manifold Cap Screws	1/4-20 x 6-1/4	55–65
Reservoir Screws	#10-24 x 5/16	30–35
Solenoid Valves	7/8 Head Hex	19–21 ft-lb
Coil Nuts	3/4 Head Hex Jam Nut	40–60
Cover Screws	1/4-20 x 1/2 Shoulder Screw	60–80
SAE O-Ring Plugs	1/8 or 5/32 Internal Hex	55–65
Hydraulic Unit Mount Bolts	3/8-16 x 1	25–33 ft-lb
Check Valves	7/8 Hex Head	19–21 ft-lb
Secondary to Primary Manifolds	1/4-20 x 3	10–13 ft-lb
Motor Relay Small Terminals	10-32 Nut	15 max
Motor Relay Large Terminals	5/16-24 Nut	35 max
Motor Relay Mount Screws	1/4-20 x 1/4	78–85
Plow Module Mount Screws	1/4-20 x 5/8	60–70

XLS™ Insta-Act® HYDRAULIC UNIT PARTS DIAGRAM





Item	Part	Qty*	Description	
1	25622	1	O-Ring	-006
2	55371	5	O-Ring	-008 (black) 90 durometer
3	25731	5	O-Ring	-010
6	56274	1	O-Ring	-013
11	66519	1	O-Ring	-250
14	56315	1	Backup	-006
17	44343	1	O-Ring	-904
18	44905	2	O-Ring	-112 (spotted)

***** Qty used for this application. Kit contains extra parts.

Assemble parts as shown and tighten relief valve stems until spring is fully compressed. Then, back off valve stem (rotate counterclockwise) the number of turns indicated in the chart.

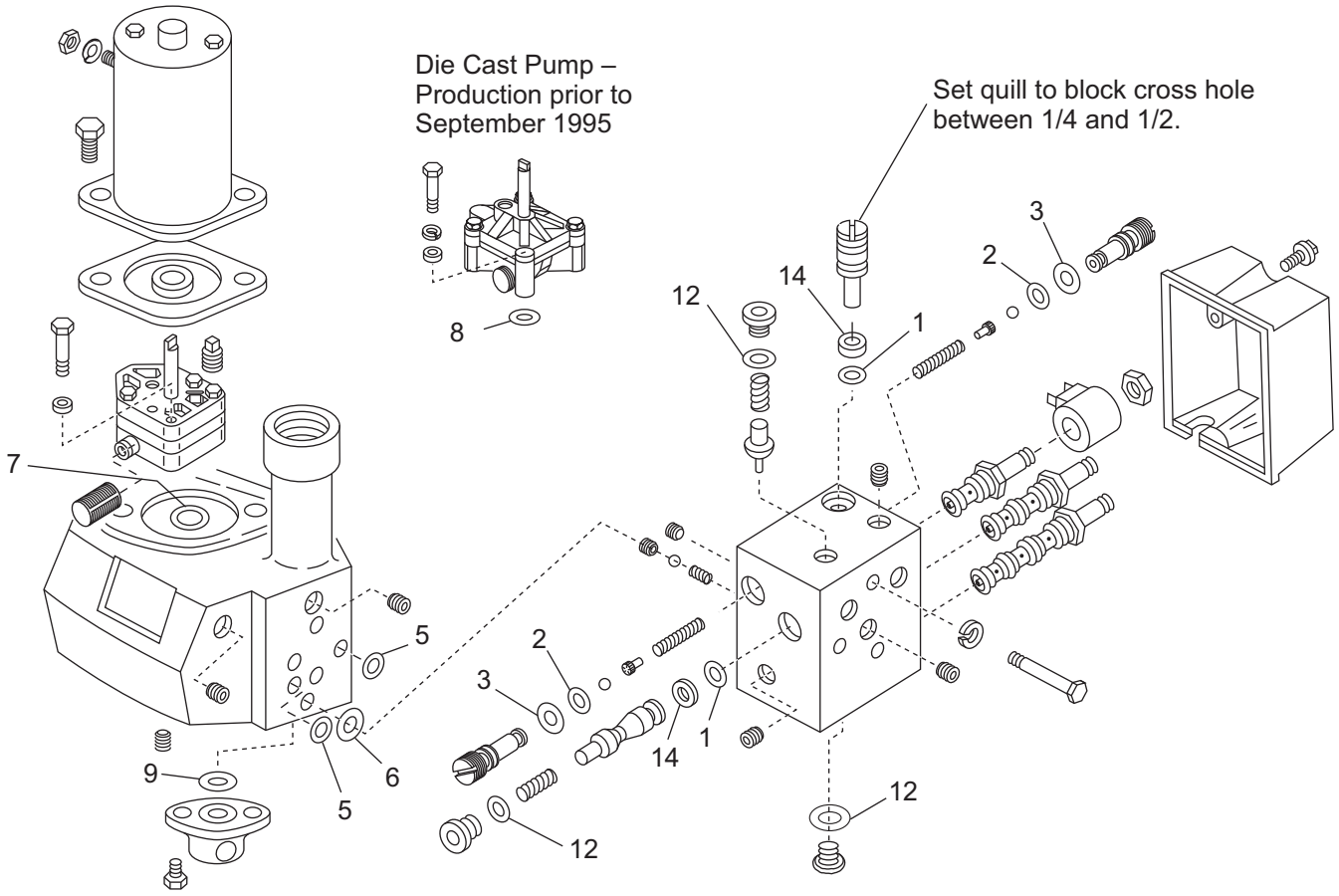
Relief Valve	No. of Turns Off (CCW) from Fully Seated	Approximate Relief Valve Pressure (± 50 psi)
A	2-1/4	2250**
B	3-1/8	1500
C	3	1700

** Attach 3000 psi gauge to pressure test port on face with coils. Read pump relief pressure when holding the angle right button. Adjust pump relief valve located on port side to obtain 2250 ± 50 psi. Relieve pressure before adjusting.

TORQUE CHART FOR XLS™ Insta-Act® HYDRAULIC UNIT

XLS Blades		
Location	**Fastener Size**	**Torque (in-lb)**
Pump Cap Screws	5/16-18 x 2-1/2	150–160
Motor Terminals (+ and –)	5/16-18 Nut	50–60
Motor to Manifold Cap Screws	1/4-20 x 6-1/4	55–65
Reservoir Screws	#10-24 x 5/16	30–35
Solenoid Valves	7/8 Head Hex	19–21 ft-lb
Coil Nuts	3/4 Head Hex Jam Nut	40–60
Cover Screws	1/4-20 x 1/2 Shoulder Screw	60–80
SAE O-Ring Plugs	1/8 or 5/32 Internal Hex	55–65
Hydraulic Unit Mount Bolts	3/8-16 x 1	25–33 ft-lb
Check & PO Check Valves	7/8 Hex Head	19–21 ft-lb
Secondary to Primary Manifolds	1/4-20 x 3	10–13 ft-lb
Motor Relay Small Terminals	10-32 Nut	15 max
Motor Relay Large Terminals	5/16-24 Nut	35 max
Motor Relay Mount Screws	1/4-20 x 1/4	75–85
Plow Module Mount Screws	1/4-20 x 5/8	60–70

SEHP HYDRAULIC UNIT PARTS DIAGRAM



Item	Part	Qty*		Description
1	25622	2	O-Ring	-006
2	55371	2	O-Ring	-008 (black)
3	25731	2	O-Ring	-010
5	25730	2	O-Ring	-012
6	56274	1	O-Ring	-013
7	56416	1	O-Ring	-014
8	5821	1	O-Ring	-115
9	5823	1	O-Ring	-216
12	26784	3	O-Ring	-903
14	56315	2	Backup	-006

***** Qty used for this application. Kit contains extra parts.

See Torque Chart on Page 9.

Assemble parts as shown and tighten relief (cushion) valve stems until spring is fully compressed. Then, back off valve stem (rotate counterclockwise) the number of turns indicated in the chart.

Angle Ram (Dia. x Stroke)	No. of Turns Off (CCW) from Fully Seated	Approximate Relief (Cushion) Valve Pressure (± 50 psi)
1-1/2" x 6"	1-3/4	2500
1-1/2" x 12"	1-3/8	3500
2" x 16"	1-3/8	3500

TORQUE CHART FOR SEHP HYDRAULIC UNITS (Straight Blades Only)

Location	Fastener Size	Torque (in-lb)
Base Lug	5/16-18 x 1-1/4	180–215
Pump	5/16-18 x 2-1/4 (Die Cast Pump only) or 5/16-18 x 2-1/2	175–185
Front or Rear Motor	7/16-14 x 1-1/4	180–240
Rear Motor	7/16-14 x 1-1/2	180–240
Valve Manifold	1/4-20 x 3-1/4	50–55
Motor Terminals (+ and –)	5/16-24 Nut	50–60
Cable Ground Bolt to Motor Frame	5/16-18 x 1/2	175–185
Valve Cartridges	7/8 Head Hex	120–144
Coil Nuts	3/4 Head Hex Jam Nut	48–50
Cartridge/Coil Cover Screws	#8-32 x 1/2	15–20
SAE O-Ring Plugs	1/8 or 5/32 Internal Hex	55–65

Lift Ram Packing Nut Adjustment: Tighten packing nut not more than 1/4 turn after you feel packing nut contact packing. Overtightening affects ram operation and packing life.

HYDRAULIC HOSE AND FITTING INSTALLATION

NOTE: Overtightening JIC hose fitting ends will result in a fractured fitting.

DO NOT use any type of sealant or tape on the fittings or hoses. This could damage product. Always use two wrenches to ensure proper tightening of fittings and hoses.

SAE O-Ring Style

Fittings

1. Turn jam nut on fitting as far back as possible.
2. Lubricate O-ring with clean hydraulic fluid.
3. Screw fitting into port by hand until the washer contacts port face and shoulder of the jam nut threads.
4. Unscrew fitting to proper position no more than one full turn.
5. Using two wrenches, hold fitting body in position and tighten jam nut until the washer again contacts port face, then tighten an additional 1/8 to 1/4 turn to lock fitting in place. Final torque on the jam nut should be approximately 20 ft-lb.

Hydraulic Hoses

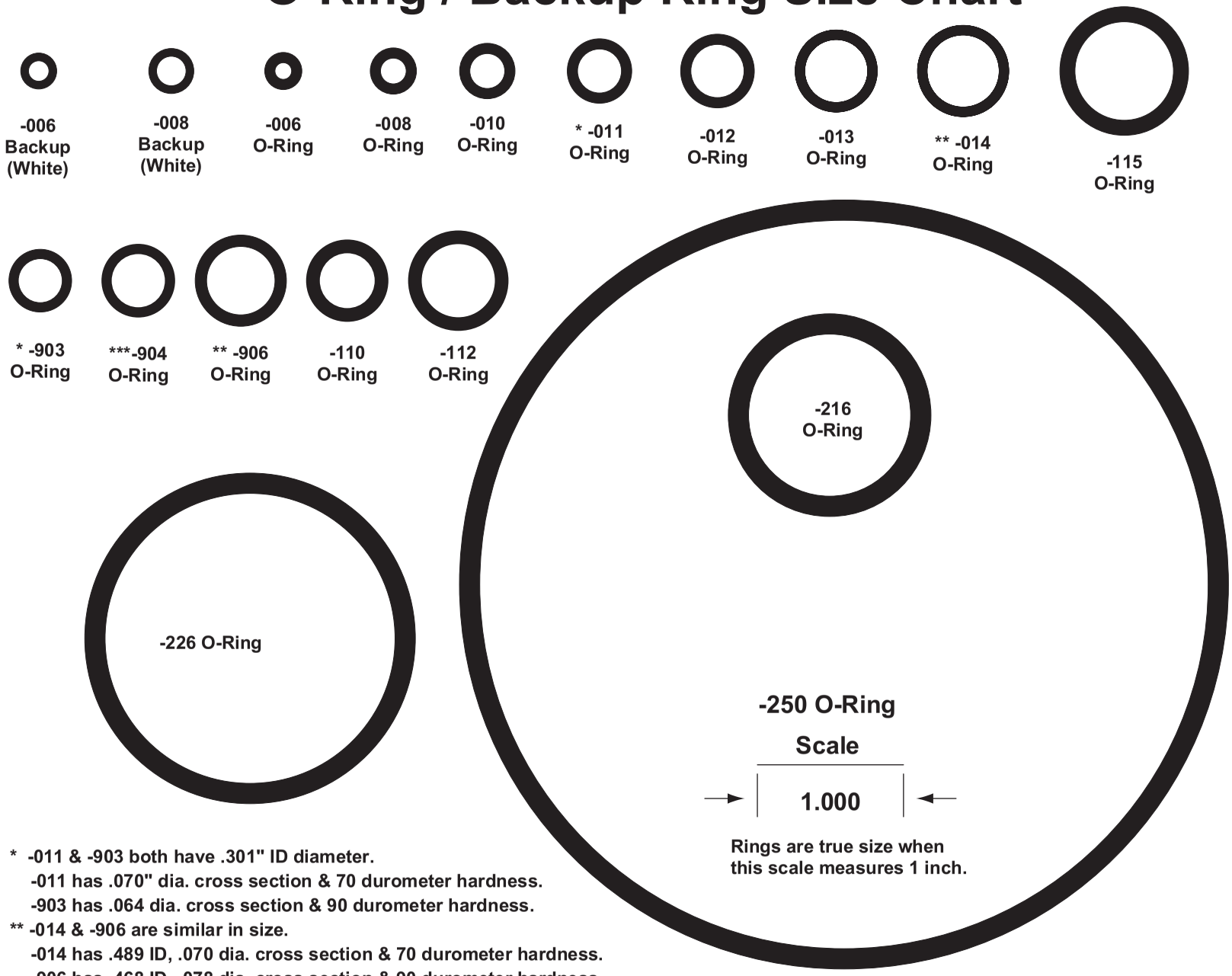
1. Screw flare nut onto fitting flare and hand tighten.
2. Align hose so there are no twists or sharp bends.
3. Using two wrenches, hold the hose in position and tighten flare nut 1/8 to 1/4 turn beyond hand tight. Final torque on the flare nut should be approximately 20 ft-lb.

NPTF Pipe Thread Style

1. Screw fitting into female pipe port to the finger tight position.
2. Wrench tighten fitting to the appropriate turns from finger tight (TFFT) shown in chart stopping at the position where the joining tube can be attached. Avoid overtightening and then backing out the fitting to make the connection as this will likely result in a leaking or weeping connection.

Pipe Thread Size (NPTF)	TFFT
1/8-27	2.0–2.5
1/4-18	1.5–2.0
3/8-18	2.0–2.5
1/2-14	2.0–2.5
3/4-14 & Larger	1.5–2.0

O-Ring / Backup Ring Size Chart



* -011 & -903 both have .301" ID diameter.
-011 has .070" dia. cross section & 70 durometer hardness.
-903 has .064 dia. cross section & 90 durometer hardness.

** -014 & -906 are similar in size.
-014 has .489 ID, .070 dia. cross section & 70 durometer hardness.
-906 has .468 ID, .078 dia. cross section & 90 durometer hardness.

*** -012 & -904 are similar in size.
-012 has .364 ID, .070 dia. cross section & 70 durometer hardness.
-904 has .351 ID, .072 dia. cross section & 90 durometer hardness.

NOTES:

NOTES:

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