

HYDRAULIC JACK UNITS

Elevator Equipment Corporation (EECO) is a leading supplier for hydraulic jack units, replacement cylinders, and pistons. EECO can provide jack units for any application, from small capacity residential to the largest freight elevators. We have over 30 standard size jack units with many piston wall thicknesses available to meet your specifications. Our engineering and sales staff can work with you to determine which EECO Jack Unit is right for your application.

All EECO jack units are designed by our knowledgeable engineering staff and manufactured by experienced production personnel using precision equipment. The latest CNC equipment and technology are utilized to assure strict adherence to essential dimensions and tolerances. All EECO products are designed and manufactured in accordance with the Safety Code for Elevators and Escalators, ASME A17.1/CSA B44. With years of testing and field study, EECO has designed jack units that are unparalleled in the industry for performance and reliability. The primary objective of Elevator Equipment Corporation is to provide a quality product that consistently meets or exceeds the contractual demands and expectations of our customers.

All EECO Products are "Green Compatible" as a standard when used with biodegradable (vegetable) oils that **do not** contain a high acidic property.



QUALITY ASSURANCE



Quality Control is an essential part of our manufacturing process. Every phase of production is monitored to assure that each jack unit is manufactured in accordance with engineering and customer specifications. From the initial process of receiving material, to the final step of placing the product on the truck, you can be assured that our high quality standards are met and that the finished product meets your requirements.

Material & Welding

All steel parts are fabricated and machined from high strength carbon steel. All welding is in accordance with the requirements of Part 8 of ASME A17.1/CSA B44. EECO welding is AWS certified.



JACK, PISTON OR CYLINDER REPLACEMENT

EECO specializes in Jack Unit replacement. We can provide an exact replacement, either piston, cylinder, or complete jack unit, regardless of original make or manufacturer. Before 1972 many companies installed hydraulic elevators with flat bottom in-ground jack units, many without any corrosion protection at all. Failures of these older designs may cause rupturing of the cylinder and uncontrolled decent of the elevator. Today's ASME A17.1/CSA B44, Section 8.6.5.8 requires single bottom jack units (cylinders) to be replaced with double bottom cylinders.

DELIVERY TIMES

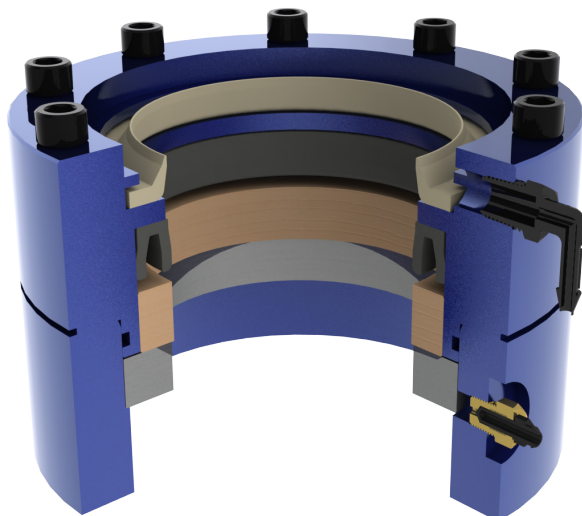
It is our goal to deliver a jack unit when needed. If rush delivery is required, EECO can manufacture and ship certain jack units in as little as 48 hours. Contact EECO for current lead times.

STANDARD FEATURES

Head, Bearing & Packing Gland

Our jack heads are designed for ease of disassembly when repacking. An oil collection groove is provided and arrangement is included to connect an oil drain line to catch and reclaim oil that collects in the groove (it is necessary for the piston to carry a film of oil through the packing in order to provide smooth and quiet operation). The packing gland arrangement consists of a "pressure balanced" "U" type seal, a bearing, and a wiper ring. Seals are designed for 150°F (65°C) maximum operating temperature.

We recommend a brand of ISO VG 32 turbine oil with a viscosity of 150 ssu @ 100° F (38° C). A biodegradable (vegetable)oil that **does not** contain a high acidic property is acceptable if it meets the same specifications.



Piston Details

The upper end of the piston is fitted with a drilled and tapped plate, to receive a standard bolt for attachment to the platen plate (special mounting arrangements can be provided). The bottom of the piston is closed with a steel plate and is fitted with a stop ring to prevent the piston from leaving the cylinder. The piston is ground and polished to a surface finish of 15 to 20 μin (.38 to .50 μm). Allowable variation in diameter after polishing is $\pm .015$ " (.381 mm).

Multi-section pistons are joined with an internally threaded coupling, using Acme type thread for ease of assembly with O-rings for a proper seal. All sections are assembled, sanded, and polished across the joints to ensure a matching surface.

Cylinder Details

Jack units manufactured for in-ground, or partial in-ground installations are furnished with a safety bulkhead and seamless steel pipe cap at the bottom of the cylinder. Holeless units include a flat steel mounting plate, all in accordance with ASME A17.1/CSA B44. Bleeder plugs are included to purge air from the jack unit.

Standard pit supports are welded to the cylinder for mounting to pit channels when required (various designs can be provided to suit any requirement). A threaded or grooved oil line connection is provided. All cylinders are thoroughly cleaned, inspected, and tested for oil leaks. They are then painted with a heavy coat of an anti-corrosive material. All in-ground jack units are equipped with inspection ports on the base plate.



PJR Jack

Model				Piston Wall Thickness		Piston Weight	
Piston Dia.		Cylinder Dia.					
in	(mm)	in	(cm)				
Area of Piston		Piston Disp.					
in ²	(cm ²)	gal/ft	(lit/m)	in	(mm)	lbs/ft	(kg/m)
PJR-275RS (Holeless Only)				0.178	(4.5)	5.7	(8.5)
2.750	(69.9)	4.50	(11.4)	0.240	(6.1)	6.5	(9.7)
5.94	(38.3)	0.31	(3.8)	0.303	(7.7)	8.5	(12.6)
				0.365	(9.3)	9.8	(14.6)
PJR-275				0.240	(6.1)	6.5	(9.7)
2.750	(69.9)	4.50	(11.4)	0.303	(7.7)	8.5	(12.6)
5.94	(38.3)	0.31	(3.8)	0.365	(9.3)	9.8	(14.6)
PJR-3NET				0.240	(6.1)	7.1	(10.6)
3.000	(76.2)	4.50	(11.4)	0.365	(9.3)	10.9	(16.2)
7.07	(45.6)	0.37	(4.6)				
PJR-3R				0.268	(6.8)	10.4	(15.5)
3.437	(87.3)	5.56	(14.1)	0.568	(14.4)	18.2	(27.1)
9.28	(59.9)	0.48	(6.0)				
PJR-3B7				0.256	(6.5)	11.6	(17.3)
3.875	(98.4)	6.63	(16.8)	0.365	(9.3)	15.1	(22.5)
11.79	(76.1)	0.61	(7.6)	0.574	(14.6)	21.2	(31.5)
PJR-4NET				0.240	(6.1)	9.8	(14.6)
4.000	(101.6)	6.63	(16.8)	0.303	(7.7)	13.7	(20.4)
12.57	(81.1)	0.65	(8.1)	0.365	(9.3)	15.7	(23.4)
PJR-4				0.275	(7.0)	14.4	(21.4)
4.375	(111.1)	6.63	(16.8)	0.375	(9.5)	18.1	(26.9)
15.03	(97.0)	0.78	(9.7)	0.468	(11.9)	21.9	(32.6)
				0.611	(15.5)	26.0	(38.7)
PJR-5NET				0.240	(6.1)	12.5	(18.6)
5.000	(127.0)	8.63	(21.9)	0.303	(7.7)	18.2	(27.1)
19.64	(126.7)	1.02	(12.7)	0.365	(9.3)	20.8	(31.0)
				0.490	(12.4)	26.0	(38.7)
				0.615	(15.6)	30.8	(45.8)
PJR-5				0.312	(7.9)	20.8	(31.0)
5.437	(138.1)	8.63	(21.9)	0.437	(11.1)	26.7	(39.7)
23.22	(149.8)	1.21	(15.0)	0.562	(14.3)	32.2	(47.9)
				0.687	(17.4)	37.3	(55.5)
PJR-6NET				0.240	(6.1)	15.3	(22.8)
6.000	(152.4)	8.63	(21.9)	0.365	(9.3)	26.3	(39.1)
28.27	(182.4)	1.47	(18.2)	0.490	(12.4)	32.7	(48.7)
				0.615	(15.6)	38.8	(57.7)
PJR-6				0.365	(9.3)	29.2	(43.5)
6.500	(165.1)	8.63	(21.9)	0.369	(9.4)	29.5	(43.9)
33.18	(214.1)	1.72	(21.4)	0.499	(12.7)	36.8	(54.8)
				0.656	(16.7)	45.2	(67.3)
				0.801	(20.3)	52.4	(78.0)
PJR-6SPL				0.365	(9.3)	29.2	(43.5)
6.500	(165.1)	10.75	(27.3)	0.369	(9.4)	29.5	(43.9)
33.18	(214.1)	1.72	(21.4)	0.499	(12.7)	36.8	(54.8)
				0.656	(16.7)	45.2	(67.3)
				0.801	(20.3)	52.4	(78.0)
PJR-7NET				0.240	(6.1)	20.2	(30.0)
7.000	(177.8)	10.75	(27.3)	0.365	(9.3)	30.1	(44.8)
38.48	(248.3)	2.00	(24.8)	0.490	(12.4)	39.7	(59.1)
PJR-7				0.240	(6.1)	19.6	(29.2)
7.500	(190.5)	10.75	(27.3)	0.365	(9.3)	35.1	(52.2)
44.18	(285.0)	2.30	(28.5)	0.490	(12.4)	43.3	(64.4)
PJR-8NET				0.240	(6.1)	21.0	(31.3)
8.000	(203.2)	10.75	(27.3)	0.365	(9.3)	36.4	(54.2)
50.27	(324.3)	2.61	(32.4)	0.490	(12.4)	44.9	(66.8)
				0.615	(15.6)	55.7	(82.9)
PJR-8				0.260	(6.6)	24.2	(36.0)
8.500	(215.9)	10.75	(27.3)	0.437	(11.1)	45.7	(68.0)
56.75	(366.1)	2.95	(36.6)	0.656	(16.7)	61.1	(90.9)
				0.812	(20.6)	71.8	(106.9)
PJR-8SPL				0.260	(6.6)	24.2	(36.0)
8.500	(215.9)	12.75	(32.4)	0.437	(11.1)	45.7	(68.0)
56.75	(366.1)	2.95	(36.6)	0.656	(16.7)	61.1	(90.9)
				0.812	(20.6)	71.8	(106.9)

PRESSURE RATINGS

PJR-275 - PJR-4NET series: 1000 psi (68.9 bar) maximum working pressure

PJR-4 - PJR-8SPL series: 680 psi (46.9 bar) maximum working pressure

LJ series: 500 psi (34.5 bar) maximum working pressure

DESCRIPTION OF A SINGLE STAGE

Single stage jack units (PJR & LJ series) consist of a single piston in a cylinder with head bearing and packing gland at the upper end where the piston collapses into the cylinder. Single stage jacks are designed for "guided" applications only, where the Jack unit is rigidly supported and guided through the use of guide rails and guide shoes and are designed for in-ground and holeless cantilever or dual holeless system applications.

Single stage jack units can be provided in one section up to 70 ft (21.3 m). Multi-section jack units can be provided in as many sections as required for the application.

SPECIALTY JACK UNITS

When an application involves lifting a load by means of a hydraulic jack that is internally guided without the need of external guide rails, an EECO double bearing jack is the solution. These jacks are designed so the double bearing span assures a safe and smooth operation of the elevator system. The seals in this type of jack are capable of withstanding rotational movement of the elevator cab while moving with no adverse effect on the life of the seals.

EECO is the leading manufacturer of hydraulic elevator jacks of standard holeless and in-ground single and multi-stage jacks. In addition, EECO designs and manufactures specialty jacks such as double bearing, double acting and double cylinder jacks.

Model				Piston Wall Thickness		Piston Weight	
Piston Dia.		Cylinder Dia.					
in	(mm)	in	(cm)				
Area of Piston		Piston Disp.					
in ²	(cm ²)	gal/ft	(lit/m)	in	(mm)	lbs/ft	(kg/m)
LJ-9				0.240	(6.1)	25.6	(38.1)
9.500	(241.3)	12.75	(32.4)	0.365	(9.3)	41.3	(61.5)
70.88	(457.3)	3.68	(45.7)	0.490	(12.4)	51.6	(76.8)
LJ-10				0.303	(7.7)	35.8	(53.3)
10.625	(269.9)	12.75	(32.4)	0.437	(11.1)	57.9	(86.2)
88.66	(572.0)	4.61	(57.2)	0.532	(13.5)	66.6	(99.1)
				0.781	(19.8)	88.7	(132.0)
LJ-10SPL				0.303	(7.7)	35.8	(53.3)
10.625	(269.9)	14.00	(35.6)	0.437	(11.1)	57.9	(86.2)
88.66	(572.0)	4.61	(57.2)	0.532	(13.5)	66.6	(99.1)
				0.781	(19.8)	88.7	(132.0)
LJ-12				0.437	(11.1)	72.9	(108.5)
12.625	(320.7)	16.00	(40.6)	0.625	(15.9)	93.6	(139.3)
125.19	(807.6)	6.50	(80.8)	0.939	(23.9)	126.7	(188.6)
LJ-14				0.437	(11.1)	80.4	(119.6)
13.875	(352.4)	16.00	(40.6)	0.688	(17.5)	110.9	(165.0)
151.20	(975.5)	7.85	(97.5)				
LJ-14SPL				0.437	(11.1)	80.4	(119.6)
13.875	(352.4)	18.00	(45.7)	0.688	(17.5)	110.9	(165.0)
151.20	(975.5)	7.85	(97.5)				
LJ-16				0.437	(11.1)	97.3	(144.8)
15.875	(403.2)	20.00	(50.8)	0.594	(15.1)	119.7	(178.1)
197.93	(1277.0)	10.28	(127.7)	0.781	(19.8)	145.5	(216.5)
LJ-18				0.437	(11.1)	90.6	(134.8)
17.875	(454.0)	22.00	(55.9)	0.500	(12.7)	119.6	(178.0)
250.95	(1619.0)	13.04	(161.9)	0.688	(17.5)	137.7	(204.9)
LJ-20				0.750	(19.1)	184.7	(274.9)
20.000	(508.0)	24.00	(61.0)				
314.16	(2026.8)	16.32	(202.7)				

DESCRIPTION OF A TELESCOPIC JACK

Two stage telescopic jack units (TJR series) consist of upper and lower pistons, a cylinder, and a head bearing and packing gland for each piston. The lower piston is fitted with an additional packing gland at the lower end which rides against the internally honed cylinder.

Three stage telescopic jack units (TJ3 series) consist of upper, intermediate, and lower pistons, a cylinder, and a head bearing and packing gland for each piston. The intermediate and lower pistons are fitted with additional packing glands at their lower ends which ride against the internally honed cylinder and lower piston.

All telescopic jacks have a synchronous design where all pistons raise and lower at the same speed and at the same time. Telescopic jacks are designed for in-ground and holeless cantilever or dual system applications.

Telescopic jacks are designed for "guided" applications only, where the Jack unit is rigidly supported and guided through the use of guide rails and guide shoes. In some applications a piston follower guide may be required on all moving heads to meet code requirements. (Contact EECO).

Two stage telescopic jacks are available from 1.6" to 4.5" (41 to 114 mm) upper piston diameter, in a wide range of wall thicknesses. Three stage telescopic jacks are available from 1.6" to 2.5" (41 to 64 mm) upper piston diameter. TJR & TJ3 series Jacks are all rated at 1200 psi (82.7 bar) maximum working pressure. Telescopic jacks are available in one section only (no multi-section).

Telescopic Jack Sizes

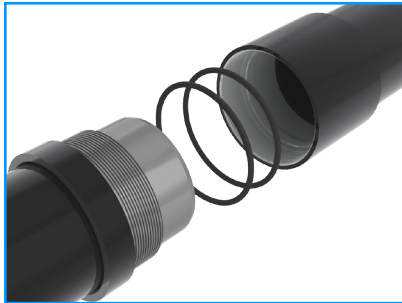
Model				Upper Piston Wall Thickness		Piston(s) Weight per Total Travel	
Upper Piston Dia.		Cylinder Dia.					
in	(mm)	in	(cm)				
Piston Disp. per Total Travel							
gal/ft		lit/m		in	(mm)	lbs/ft	(kg/m)
Two Stage Jack Unit							
TJR-160				0.437	(11.1)	3.2	(4.7)
1.600	(40.6)	3.60	(9.1)				
0.20		(2.5)					
TJR-175				0.500	(12.7)	3.9	(5.8)
1.750	(44.5)	3.75	(9.5)	Solid	-	4.7	(7.0)
0.22		(2.7)					
TJR-250				0.375	(9.5)	5.0	(7.4)
2.500	(63.5)	5.00	(12.7)	0.500	(12.7)	6.2	(9.3)
0.41		(5.1)		0.625	(15.9)	7.3	(10.8)
				0.750	(19.1)	8.2	(12.1)
TJR-275				0.375	(9.5)	5.5	(8.2)
2.750	(69.9)	5.75	(14.6)	0.500	(12.7)	7.0	(10.4)
0.51		(6.3)		0.625	(15.9)	8.3	(12.3)
				0.750	(19.1)	9.3	(13.9)
TJR-400				0.375	(9.5)	8.5	(12.6)
4.000	(101.6)	7.50	(19.1)	0.500	(12.7)	10.9	(16.2)
1.00		(12.4)		0.625	(15.9)	13.1	(19.5)
				0.750	(19.1)	15.2	(22.6)
TJR-450				0.375	(9.5)	9.6	(14.3)
4.500	(114.3)	8.00	(20.3)	0.500	(12.7)	12.4	(18.5)
1.14		(14.2)		0.625	(15.9)	15.1	(22.4)
				0.750	(19.1)	17.5	(26.0)
Three Stage Jack Unit							
TJ3-160				0.437	(11.1)	5.0	(7.4)
1.600	(40.6)	5.25	(13.3)				
0.31		(3.8)					
TJ3-250				0.375	(9.5)	6.4	(9.6)
2.500	(63.5)	7.25	(18.4)	0.500	(12.7)	7.3	(10.8)
0.62		(7.7)		0.625	(15.9)	8.0	(11.9)
				0.750	(19.1)	8.6	(12.8)

Recommended Overtravels

Car Speed		Bottom Overtravel		Top Overtravel	
ft/min	(m/s)	in	(mm)	in	(mm)
100	(0.5)	7	(178)	9	(229)
125	(0.6)	9	(229)	11	(279)
150	(0.8)	10	(254)	12	(305)
175	(0.9)	11	(279)	13	(330)
200	(1.0)	12	(305)	14	(356)

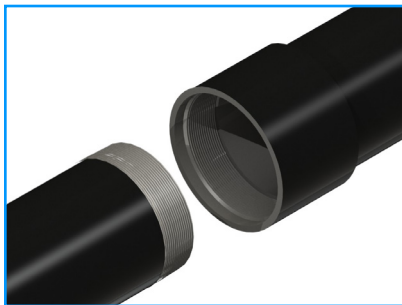


EECO has four different means of Cylinder Joints available to fit any job site requirements.



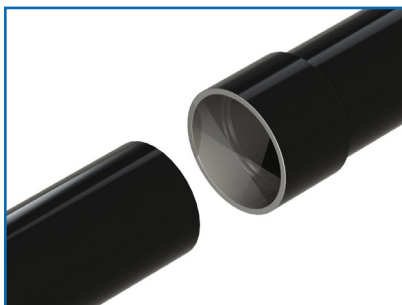
Threaded No Weld Joint

The threaded no weld cylinder joint is available up to 10" cylinder diameters. This joint system is designed with a double O-ring that will protect the cylinder joint from internal and external leakage. These joints can be welded, filling the 1/2 inch gap between couplings, if the specifications require or at the discretion of the Installation Company.



Threaded Joint

The threaded cylinder joint is available 12" through 16" cylinder diameters. The female threaded coupling is welded to the upper side of the next joint. The cylinder opposite section is threaded to screw into coupling where it is then welded in the field.



Slip-Fit Joint

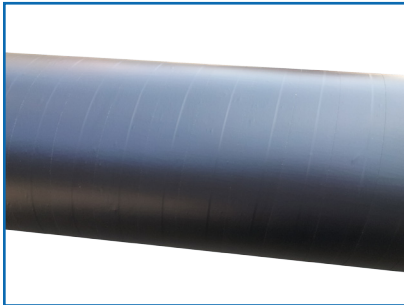
The slip-fit cylinder joint is available up to 16" cylinder diameters. A slip coupling is welded to the upper side of the next joint. The cylinder opposite section is then slid into the coupling where it is welded in the field. This joint type does not contain any threads.



Butt-Weld Joint

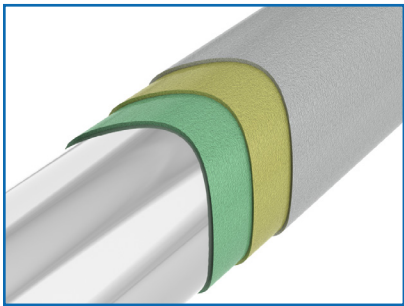
The butt-weld cylinder joint is available on all cylinder diameters. Each end of the cylinder section is beveled for welding in the field. This joint type is supplied with bolt lugs to line up and bolt the sections together during assembly and welding. Once welding is complete simply "knock off" or remove the bolt lugs from each joint area.

EECO can provide optional types of cylinder protection beyond the standard coating material, including:



Tape Wrap

Tape wrap or polyvinyl chloride tape is wrapped to a minimum of 20 mil in thickness or more if required. Tape wrap is a good means of protection for the cylinder of the jack unit from moisture than just the standard paint. It is black in color.

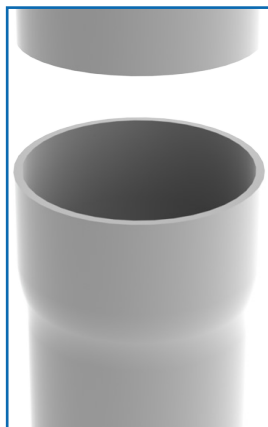


Epoxy Paint

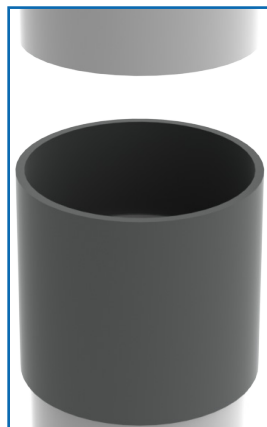
Epoxy paint is a better means of protection for the cylinder of the jack unit from moisture than the standard paint. It is applied in three separate coats to ensure proper coverage. For added protection combine epoxy paint and tape wrap.

Sealed PVC

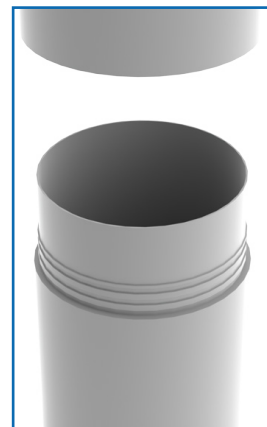
Sealed PVC is attached by a grooved coupling to a welded metal ring. As required by ASME A17.1/CSA B44, inspection ports are provided as a standard feature. Sealed PVC is available in schedule 40 or schedule 80 wall thicknesses and is furnished in as many sections as required, with a pipe end cap for sealing the lower end. Other connection types available include our flush threaded PVC pipe, which is available from sizes 8" through 12".



Bell End Joint



Coupling Joint



Flush Threaded

AVAILABLE OPTIONS & ACCESSORIES

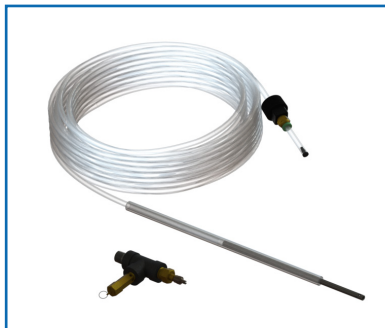


Model No. ELMS - 01

Electronic Leak Monitoring System

The **Electronic Leak Monitoring System (ELMS)** is designed as a discriminating device. That is, the monitor array is designed to report the presence of a liquid trapped between the jack cylinder and the sealed PVC liner and to determine whether the liquid is water or oil. A secondary test for verification of leakage can be made by applying a suction pump to the test line at the monitor control block. The minimum required space between the largest outside diameter of the cylinder assembly and inside diameter of the PVC should be 1.5".

NOTE: This system can only be utilized on new jack installations, or jack unit replacements, with sealed PVC liners.



Model No. EVS - 01

Evacuation System

The **Evacuation System (EVS)** is to be used to evacuate / inspect fluid leakage into the cavity between the cylinder and PVC liner of in-ground hydraulic jack system. The minimum required space between the largest outside diameter of the cylinder assembly and inside diameter of the PVC should be ½".