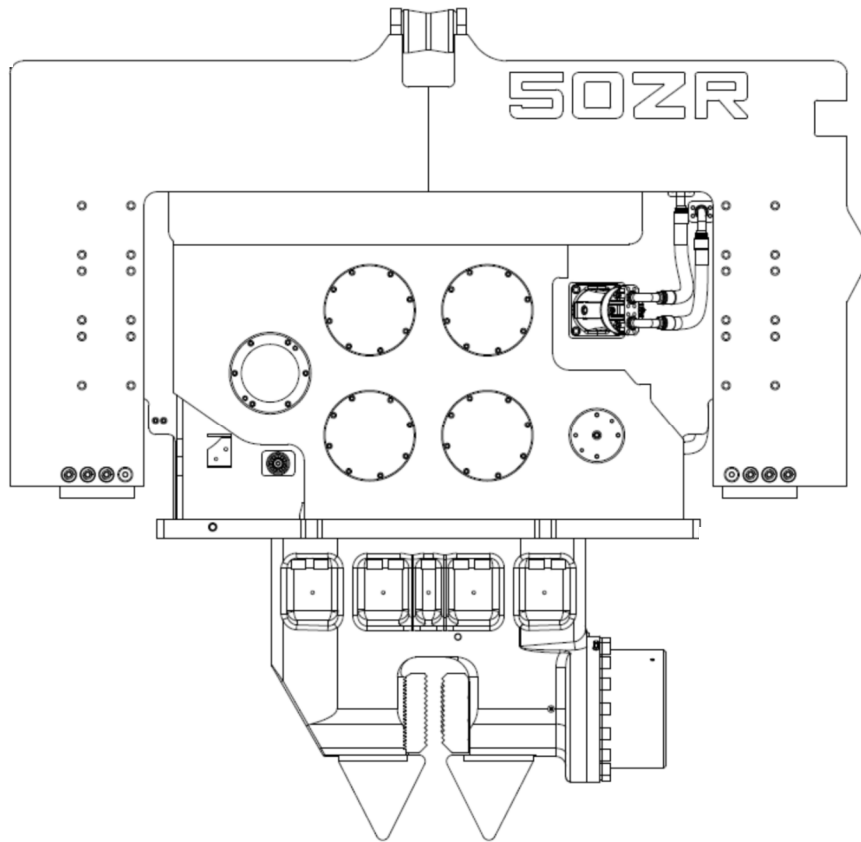

PARTS MANUAL

ICE Model 50ZR Vibratory Pile Driver/Extractors



**This Manual is for ICE Model 50ZR Vibrators
used with G-series Power Units
for serial numbers ZR50001 and up**



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Specializing in Pile Driving and Drilling Equipment

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International Construction Equipment, Inc. Standard Warranty

International Construction Equipment, Inc., hereafter referred to as ICE, warrants new products sold by it to be free from defects in material and workmanship for a period of one year after date of delivery to the first user and subject to the following conditions:

ICE's obligation and liability under this warranty is expressly limited to replacing, at ICE's option, any parts that appear to ICE upon inspection to have been defective in material or workmanship. Such parts shall be provided at no cost to the user at the business establishment of ICE or at the ICE distributor of the product during regular working hours.

This warranty shall not apply to component parts or accessories not manufactured by ICE and which carry the warranty of the manufacturer thereof or to normal maintenance parts (such as filters).

Replacements or repair parts installed in the product covered by this warranty are warranted only for the remainder of the warranty as if such parts were original components of said product.

ICE's obligation under this warranty shall not include any transportation charges, costs of installation, duty, taxes or any other charges whatsoever, or any liability for direct, indirect, incidental, or consequential damage or delay.

If requested by ICE, products or parts for which a warranty claim is made are to be returned, transportation paid, to ICE.

Any improper use, including operation after discovery of defective or worn parts, operation beyond rated capacity, substitution of parts not approved by ICE or any alteration or repair by others in such manner as in ICE's judgment affects the product materially and adversely shall void the warranty.

For impact pile hammers, driving in excess of 10 blows per inch (25mm) [set of 0.1 (2.5mm) per blow] is considered practical refusal. Driving in excess of 10 blows per inch (25mm) for more than 6 inches (150mm) or driving in excess of 20 blows per inch (25mm) at all is considered improper use and will void the hammer warranty.

For vibratory drivers, driving/extracting when the movement is less than 1" (25mm) per minute is considered practical refusal. Driving/extracting when movement is less than 1" (25mm) per minute for more than 5 minutes of driving/extracting or driving at all when penetration is less than 1" (25mm) per minute and amplitude is greater than 1" (25mm) [vibrator and pile are bouncing] is considered improper use and will void the vibrator warranty. Driving/extracting when bearing covers (paint removed) are above 210°F (100°C) is considered improper use and will void the vibrator warranty. Use of a vibrator on a batter without discussing the operation with ICE and getting prior written approval is considered improper use and will void the vibrator warranty.

For limited-access drills and top-drive rotary heads, the use of a down-the-hole hammer without discussing the operation with ICE and getting prior written approval is considered improper use and will void the drill warranty.

For leads, use in lengths or at batters exceeding the initial set-up without ICE evaluating the new set-up and providing prior written approval is considered improper use and will void the leads warranty.

For power units, welding on power units or other equipment with electrical or electronic controls must be done with the battery leads disconnected. Welding with battery leads connected will void the warranty.

ICE MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

No employee or representative is authorized to change this warranty unless such change is made in writing and signed by an officer of ICE.

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INTRODUCTION

Literature

This manual contains parts information for your ICE equipment. This manual should be stored in or near the power unit in a literature holder or literature storage area. Read, study and keep it with the equipment literature, ICE Operating and Maintenance Manual and CAT engine information. English is the primary language for the ICE publications. The English used facilities translation and consistency in electronic media deliver. Some photographs or illustrations in this manual show details or attachments that may be different from your equipment. Guards and covers may have been removed for illustrative purposes. Continuing improvement and advancement of product design may have caused changes to your equipment which are not included in this manual. Whenever a question arises regarding your equipment or this manual, please consult ICE or your ICE distributor for the latest available information.

Equipment Manual Set

The manuals for your ICE equipment consists of three or four manuals – 1) an Operation and Maintenance Manual for your power unit and vibrator or rotary head, 2) a Parts Manual for your power unit, 3) a Parts Manual for your vibrator or rotary head, and 4) a Vibrator Clamp and Accessories Parts Manual if you have a vibrator.

Description, General Parts Information, Ordering Parts, Parts Lists

These sections provide information and guidance for ordering replacement parts from ICE. In order to receive correct parts, please be prepared to provide equipment serial numbers to ICE.

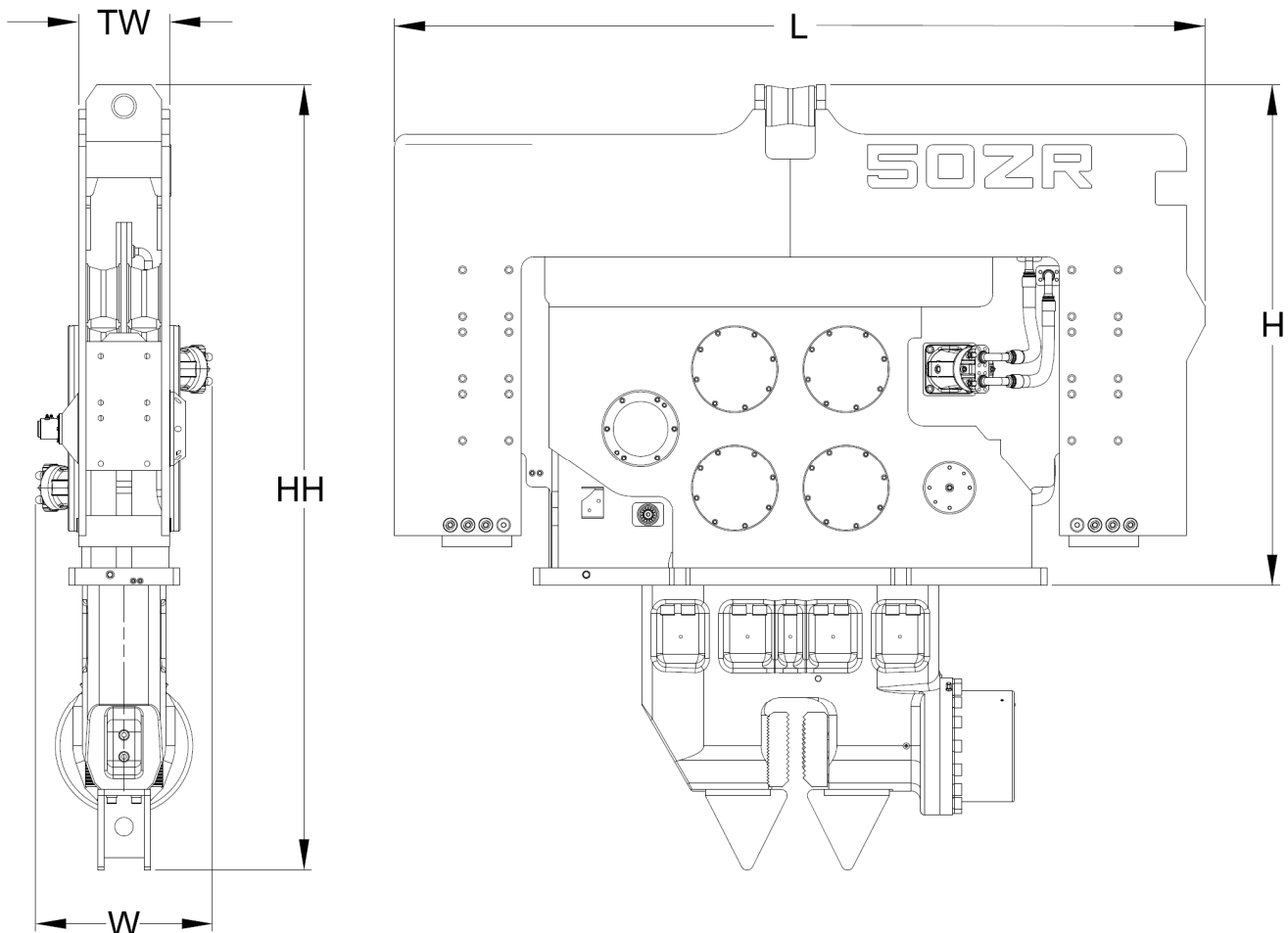
Information About Your Equipment

Vibrator Model: _____	Serial Number: _____
Clamp Model: _____	Serial Number: _____
Clamp Model: _____	Serial Number: _____
Caisson Beam Size: _____	Serial Number: _____
Other: _____	Serial Number: _____
Other: _____	Serial Number: _____
Other: _____	Serial Number: _____
Other: _____	Serial Number: _____

Section1: Description

General Description

- Variable moment – zero to 4400 in-lbs (51 kg-m)
- High centrifugal force for maximum pile penetration rates
- Up to 120 tons (1070 kN) line pull for extraction
- Variable moment allows zero eccentric moment at start-up and shut-down to eliminate disturbance to soil, structures and crane.
- Wrap-around suppressor for low headroom and low center of gravity.
- 595 HP (444 kW) CAT C15 meets Tier 3 (Stage IIIA) EPA & EU emission regulations.
- Full range of clamps available for sheet piling, H-Beams, pipe & caissons and timber & concrete piles.
- Maximum efficiency and reliability ensured by our open-loop hydraulic system. Highest quality, reliable piston pumps and motors.
- Remote-control pendant for vibrator and clamp with emergency stop. Engine speed control for fuel efficiency.
- Adaptable for underwater, low headroom or box leads operation.
- Environmentally-friendly, non-toxic, biodegradable hydraulic oil.
- Designed and manufactured in USA by ICE, world leader in cost-effective foundation equipment since 1974.



Specifications

Model 50ZR Vibrator Specifications		
Eccentric Moment	4400 in-lbs	51 kg-m
Max. Frequency	1650 vpm	
Driving Force	178 tons	1580 kN
Centrifugal Force	170 tons	1510 kN
Amplitude (free without clamp)	0.85 in	22 mm
Line pull for extension	120 tons	1070 kN
Weight (no clamp or hoses)	15,260 lbs	6922 kg
Non-vibrating weight	4960 lbs	2250 kg
Height (without clamp) (H)	80 in	2032 mm
Length (L)	131 in	3330 mm
Width (W)	31 in	787 mm
Throat Width (TW)	17.25 in	438 mm
Hydraulic hose length	150 ft	45 m
Hydraulic hose weight	1995 lbs	905 kg
Height with sheeting clamp– Model 196 (HH)	120 in	3025 mm
Weight with 196 sheeting clamp & 1/2 of hoses	18,800 lbs	8528 kg
Weight with beam, 6' caisson Model 100BH clamps & 1/2 hoses	20,590 lbs	9340 kg
Power unit	595GZ	

SECTION 2: GENERAL INFORMATION

Abbreviations

The following abbreviations are used throughout the parts lists and other parts of the manual.

Abbreviation	Definition
ASM	Assembly
BHCS	Button Head Cap Screw
Cyl	Cylinder
DC	Direct Current
FHCS	Flat Head Cap Screw
FLCS	Flanged Head Cap Screw
Ft	Foot
HC	High Collar
HHCS	Hex Head Cap Screw
HHPP	Hex Head Pipe Plug
HSSS	Hex Socket Set Screw
Hyd	Hydraulic
In	Inch
Lg	Long
mm	Millimeter
Mtg	Mounting

Abbreviation	Definition
NPT	National Pipe Thread
PHMS	Phillips Head Machine Screw
P/N	Part Number
Qty	Quantity
RHMS	Round Head Machine Screw
Sch	Schedule
SHCS	Socket Head Cap Screw
SHPP	Socket Head Pipe Plug
SHSS	Socket Head Shoulder Screw
S/N	Serial Number
Sol	Solenoid
TOE	Threaded One End
TEE	Threaded Each End
UNC	Unified Coarse Thread
UNF	Unified Fine Thread
V	Volts

Screws and bolts in abbreviated form are designated in the "Description" column of the part tables.

Listed below is a typical screw description: 0.50-13UNC x 1.50 SHCS

- 0.50 = Diameter in inches
- 13UNC = Threads Per Inch, Unified Coarse Thread
- 1.50 = Length in inches
- SHCS = Screw Type Abbreviation

Listed below is a typical metric bolt description: M12-1.75 X 40 SHCS

- M12 = Diameter in Millimeter
- 1.75 = Threads Pitch (1.75 mm between threads)
- 40 = Length in Millimeters
- SHCS = Bolt Type Abbreviation (Socket Head Cap Screw)

Serial Number Locations

The following ICE units are serial numbered separately:

Vibrator, power unit, clamp, caisson beam, 90° clamp plate.

In addition to the serial number plate itself on vibrators, power units and clamps, the serial number is stamped into each unit in one or more places as follows:

Type	Location
Vibrator	On top right side of suppressor housing On bottom flange of gear case under hydraulic motor
Power unit	Control panel side of unit at right corner of reservoir Beside fuel fill
Model 140C clamp	Between cylinder and pile guide On the flange of the hydraulic cylinder
Model 100BH clamp	On the flange of the hydraulic cylinder On casting next to hydraulic cylinder
Caisson beam	On end On face at end
90° clamp plate	On end On face at end

Section 3: ORDERING PARTS

Ordering Procedures

When ordering parts, be sure to include the model and serial number of the unit or component. The serial number may be located by referring serial number location table. Confirm all telephone orders in writing immediately to avoid duplicating shipment.

Original Equipment

Where component serial numbers are given, these apply only to equipment and components originally furnished with the unit. Where equipment has been changed or upgraded, these numbers may not be an adequate description.

Shipment

State to whose attention shipment is to be made and method of shipment desired, otherwise ICE's own judgment will be used.

Shortages

Claims for shortages or errors should be made immediately upon receipt of parts. No responsibility will be assumed for delay, damage or loss of material while in transit. Broken, damaged or lost material should be refused or a full description made of damage or loss to the carrier agent on the freight or express bill.

Return of Parts

If for any reason parts are returned to the factory or to any distributor from whom these parts were obtained, you must first obtain permission to return the parts. Shipping instructions will be given along with this permission. A ten percent handling charge must be assessed against the returned shipment unless an error is made by the factory or by the distributor when filling your order.

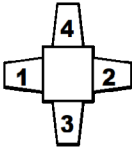
Recommended Spare Parts

The recommended spare parts list contains parts which are useful in keeping down-time to a minimum, especially in remote sites where unforeseen communication, customs, or transportation problems could cause delay of the delivery of an awaited part. Spare parts may be ordered individually or as a package group as shown in the parts list.

Fitting Description Code

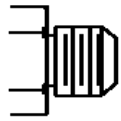

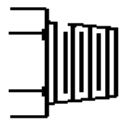






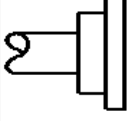
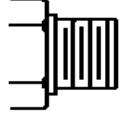
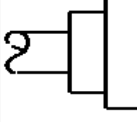
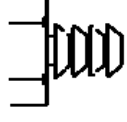
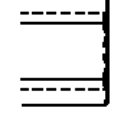

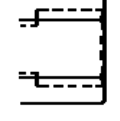



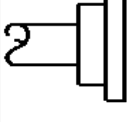
The Fitting Description Code describes hydraulic fittings. Use the Fitting Style Selector Chart to determine the type of fitting. This code is also used in the Hose Description Code.

FITT 2 L - 16 M 12 J 00 0 - 00L 0 0 0 1

<p>INCH/METRIC INDEX 2 - INCH FITTING 9 - METRIC FITTING</p> <p>CONFIGURATION OR SHAPE OF FITTING S - STRAIGHT FITTING L - 90 Deg. ELBOW V - 45 Deg. ELBOW T - TEE C - CAP P - PLUG U - UNION X - CROSS (4TH END FITTING REQ'D)</p> <p>FIRST END SIZE INDEX 2 - 1/16THS OF AN INCH* INDEX 9 - MILLIMETERS SEE GENERAL SPECIFICATION INCH/METRIC INDEX</p> <p>FIRST END FITTING STYLE SEE FITTING STYLE SELECTOR CHART</p> <p>SECOND END SIZE IF APPLICABLE - SEE FIRST END SIZE</p> <p>SECOND END FITTING STYLE IF APPLICABLE - SEE FIRST END FITTING STYLE</p> <p>THIRD END SIZE IF APPLICABLE - SEE FIRST END SIZE</p> <p>THIRD END FITTING STYLE IF APPLICABLE - SEE FIRST END FITTING STYLE</p>	<p>MATERIAL 1 - CARBON STEEL 2 - BRASS 4 - STAINLESS STL 5 - AAR MAL IRON 6 - MALLEABLE IRON 8 - FORGED STEEL</p> <p>SPECIAL NOTATIONS 4 - 046 ORIFICE 6 - 063 ORIFICE</p> <p>PRESSURE RATING 0 - NONE 1 - 125 LB. 3 - SCH40 4 - SCH80</p> <p>INSTALLATION AID OR STYLE OF HEAD O - NOT APPLICABLE H - REGULAR HEX Q - SQUARE HEAD (EXT.) R - SQUARE HEAD (INT.) S - HEX HEAD (INT SOCKET) T - HEX HEAD (EXT.)</p> <p>LENGTH CODE (ELBOWS & NIPPLES) 00S - SHORT (ELBOW) 00M - MEDIUM (ELBOW) 00L - LONG (ELBOW) 00X - EXTRA LONG (ELBOW) 00C - CLOSE (NIPPLE)</p> <p>PIPE NIPPLES (LONG) ONLY IN DEC. INCHES FOR INDEX 2 050 = 5.0 INCHES 105 = 10.5 INCHES</p> <p>IN MILLIMETERS FOR INDEX 9 120 = 12.0 MILLIMETERS 084 = 8.4 MILLIMETERS</p>	<p>* EXCEPTIONS 90 = 10" 96 = 6" 92 = 12" 98 = 8" 94 = 14" 99 = NON CODE SIZE</p> <div style="text-align: center; margin: 10px 0;">  </div> <p>FOURTH END SIZE & FITTING STYLE (CROSSES ONLY) SEE FIRST END FITTING SIZE OR END STYLE</p>
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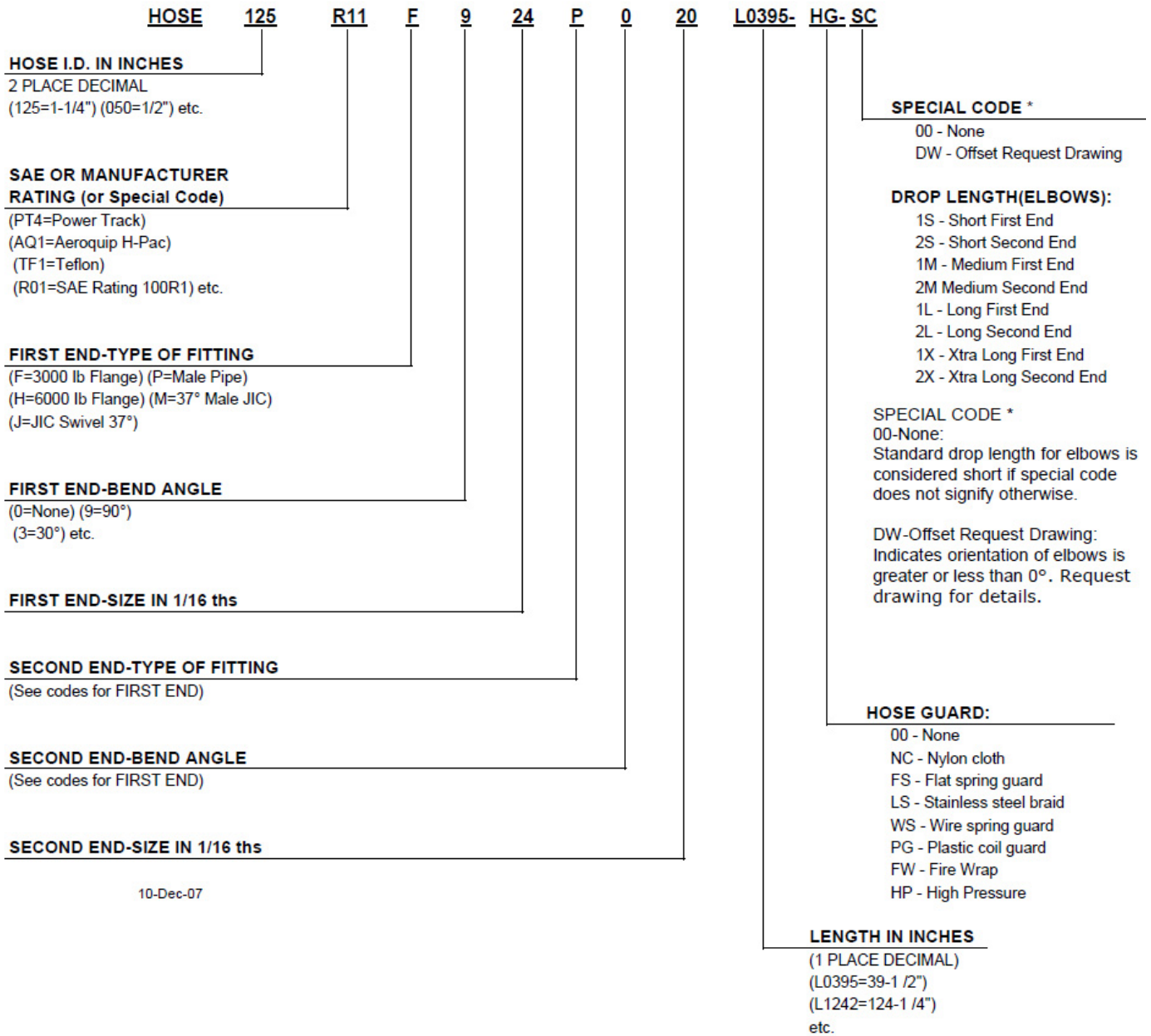
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Fitting Style Selector Chart

M		JIC MALE 37 DEG. FLARE	J		JIC FEMALE 37 DEG. FLARE (& SWIVEL)
P		MALE PIPE NPT	Q		FEMALE PIPE NPTF
R		S.A.E. MALE O-RING (& ADJUSTABLE)	K		S.A.E. FEMALE O-RING
B		JIC MALE 37 DEG. FLARE BULKHEAD	N		FEMALE PIPE NPSM-SWIVEL
D		MALE PIPE NPT SWIVEL	F		SPLIT FLANGE 3000 PSI CODE 61
S		B.S.P. MALE PIPE	H		SPLIT FLANGE 6000 PSI CODE 62
T		HOSE BARB	W		FEMALE BSP PIPE
Y		ORB MALE O-RING (& ADJUSTABLE)	X		ORB FEMALE O-RING
U		METRIC MALE FITTING	A		METRIC FEMALE FITTING
G		CRIMP HOSE END FITTING	C		CATERPILLAR SPLIT FLANGE

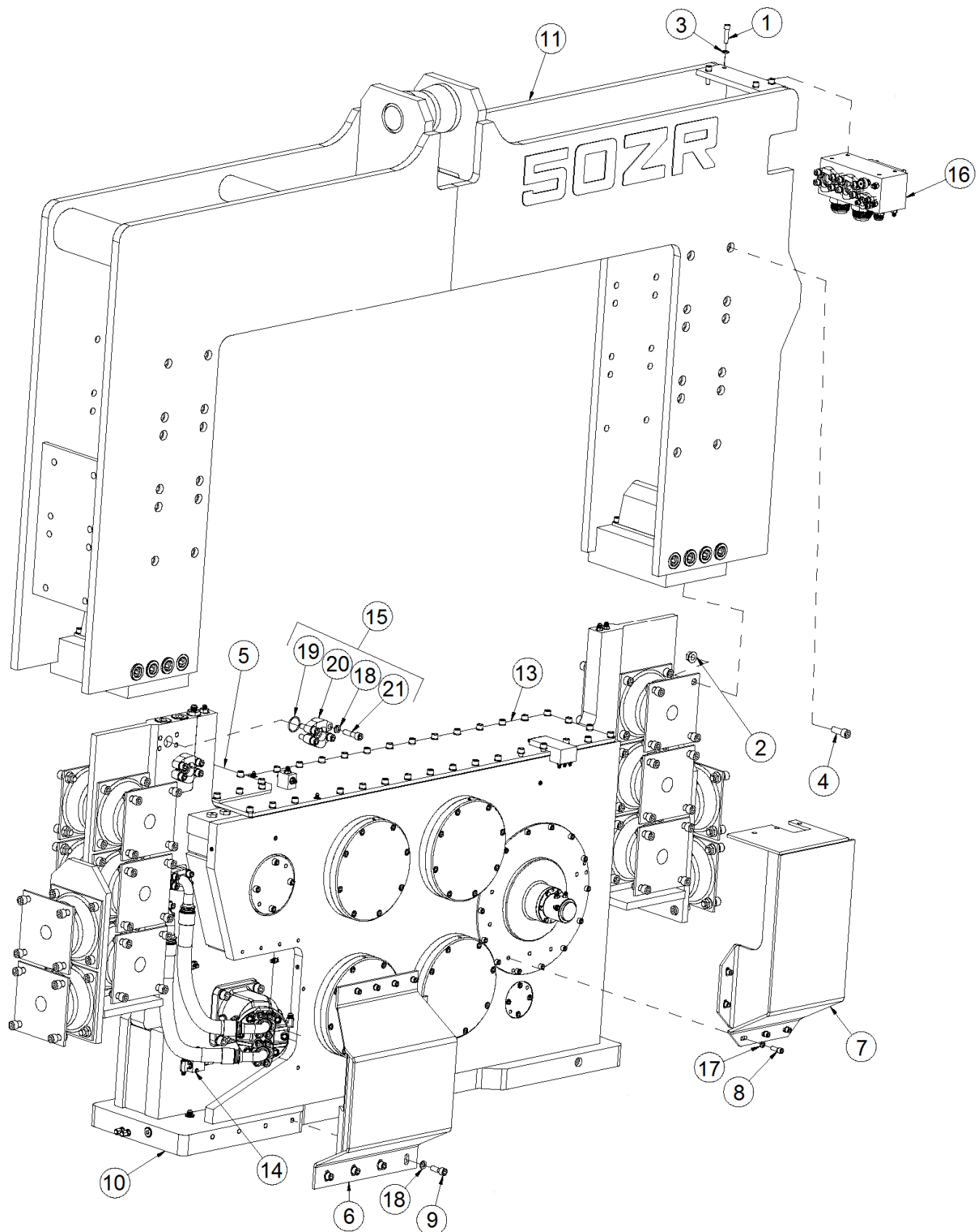
DEC 07

Hose Description Code



10-Dec-07

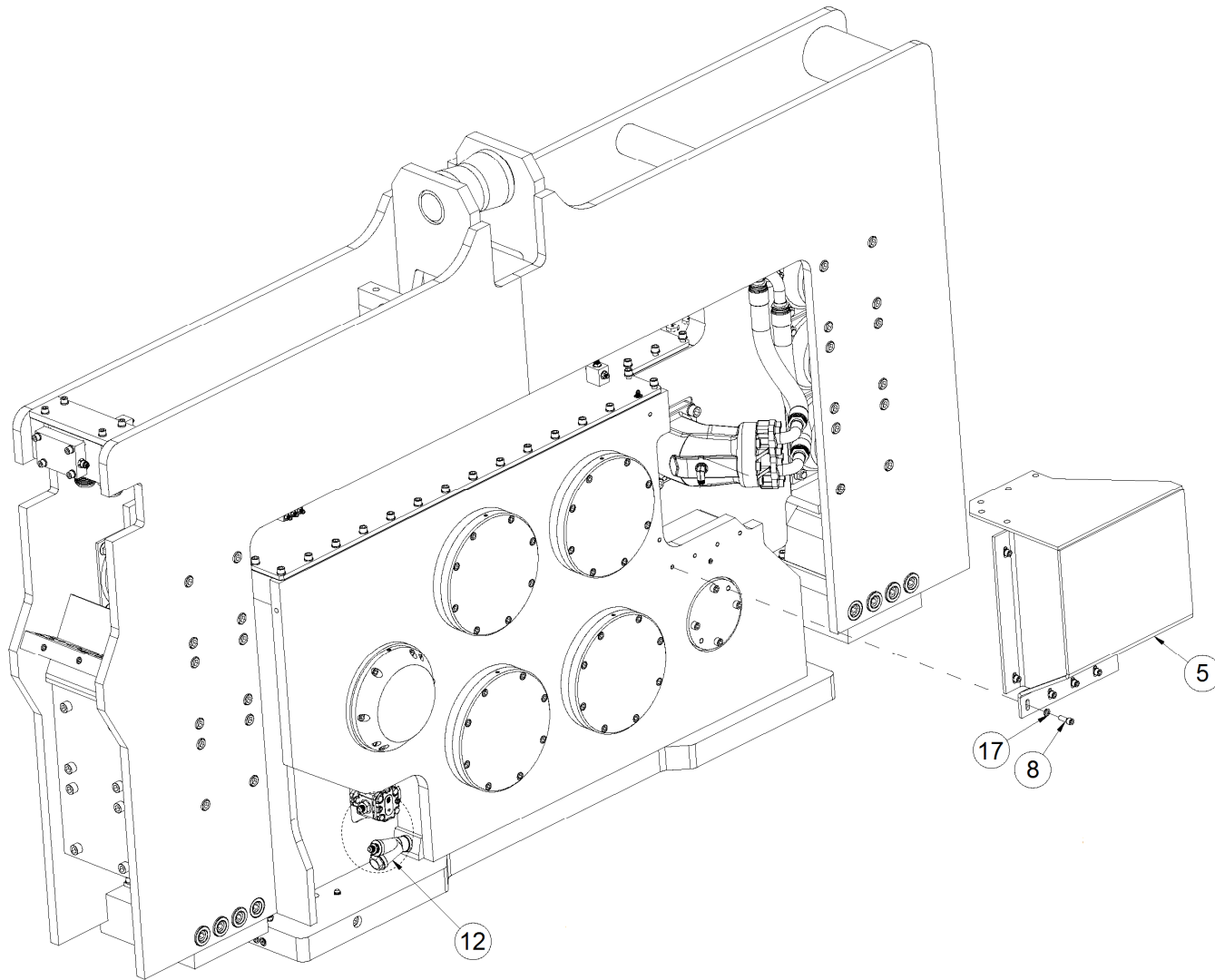
Assembly View A



Assembly View A

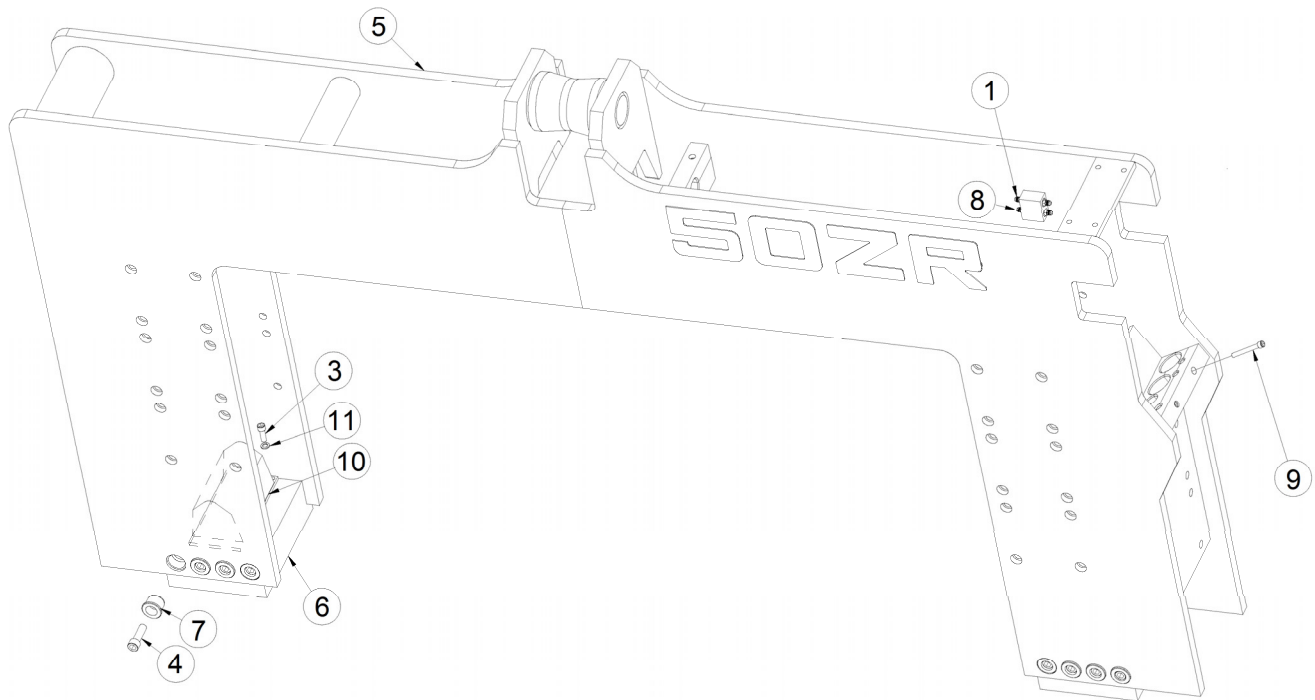
Item	Part #	Qty	Description
1	100011	4	0.50-13UNC x 2.00 SHCS
2	100782	64	0.75-10UNC Serrated Nut
3	1X30	4	0.50 Spring Lock Washer
4	1X4060	64	0.75-10UNC x 2.00 SHCS
5	510349	1	Upper Motor Guard
6	510350	1	Lower Motor Guard
7	510351	1	Shifter Cover
8	770423	19	M12-1.75 x 35 SHCS
9	771208	4	M16-2.00 x 45 SHCS
10	840960	1	Transmission Assembly
11	840983	1	Suppressor Group
12	841042	1	Lube Pump Group
13	841043	1	Cover Group
14	841048	1	Lube Relief Group
15	841050	2	24PH Metric Flange Kit
16	841051	1	Terminal Manifold
17	909402	19	M12 Split Lock Washer
18	909502	12	M16 Split Lock Washer
19	110119	2	2-225 O-ring
20	510361	4	24PH Metric Split Flange
21	771289	8	M16-200 x 60 SHCS

Assembly View B



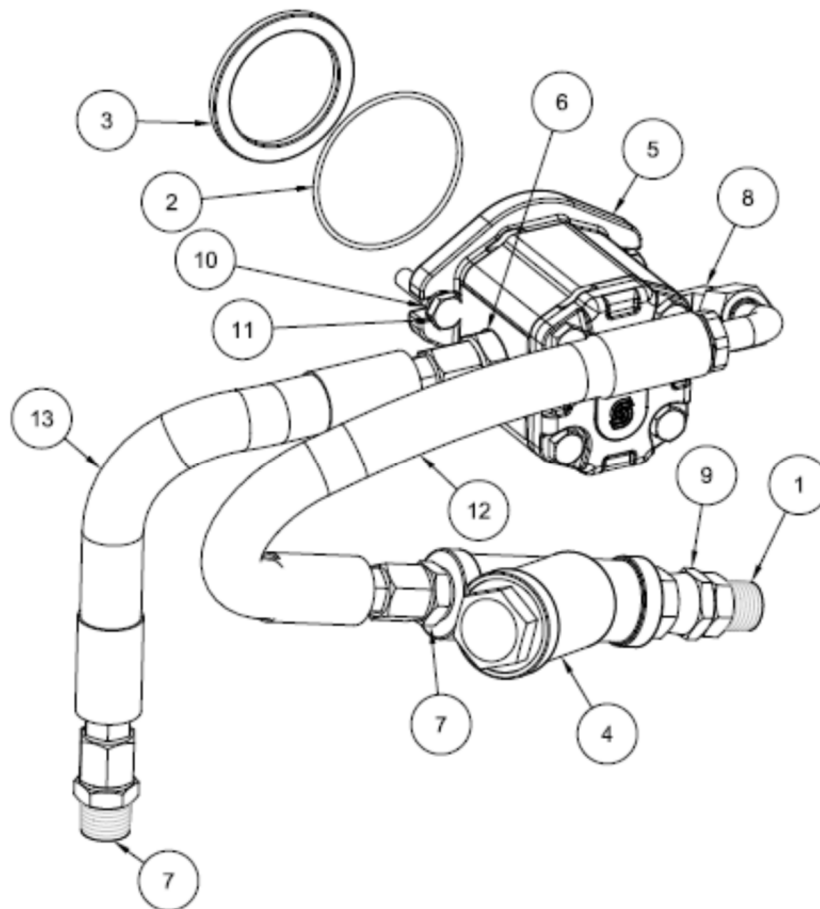
Item	Part #	Qty	Description
5	510349	1	Upper Motor Guard
8	770423	19	M12-1.75 x 35 SHCS
12	841042	1	Lube Pump Group
17	909402	19	M12 Split Lock Washer

Suppressor



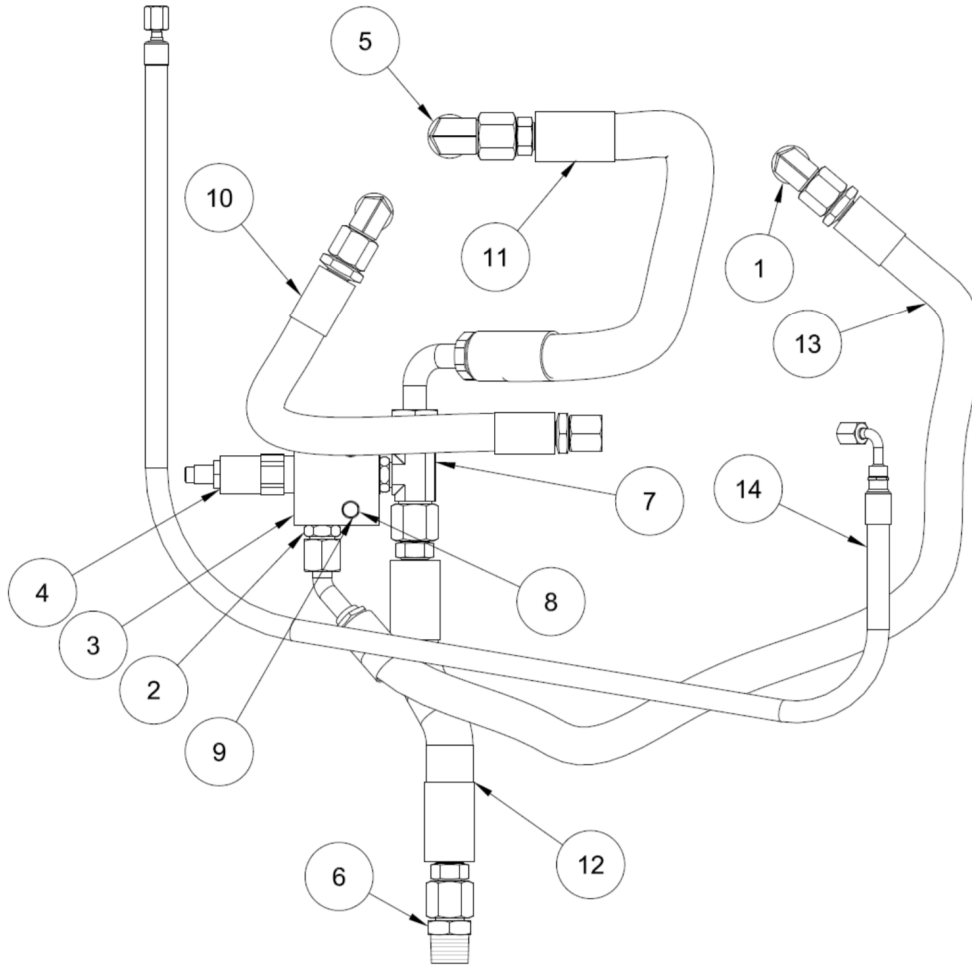
Item	Part #	Qty	Description
1	100053	8	FITT2S-06M06R000-000H001
3	510306	12	M14-2.00 x 40 SHCS
4	510310	16	M20-2.50 x 65 SHCS
5	510313	1	Suppressor Housing
6	510314	2	Stop Block
7	520045	16	Shear Bushing
8	730860	2	FITT2S-0406R000-000H001
9	771064	2	M12-1.75 x 100 SHCS
10	790071	2	Dual Pull Elastomer
11	909451	12	M14 Split Lock Washer

Lube Pump Group



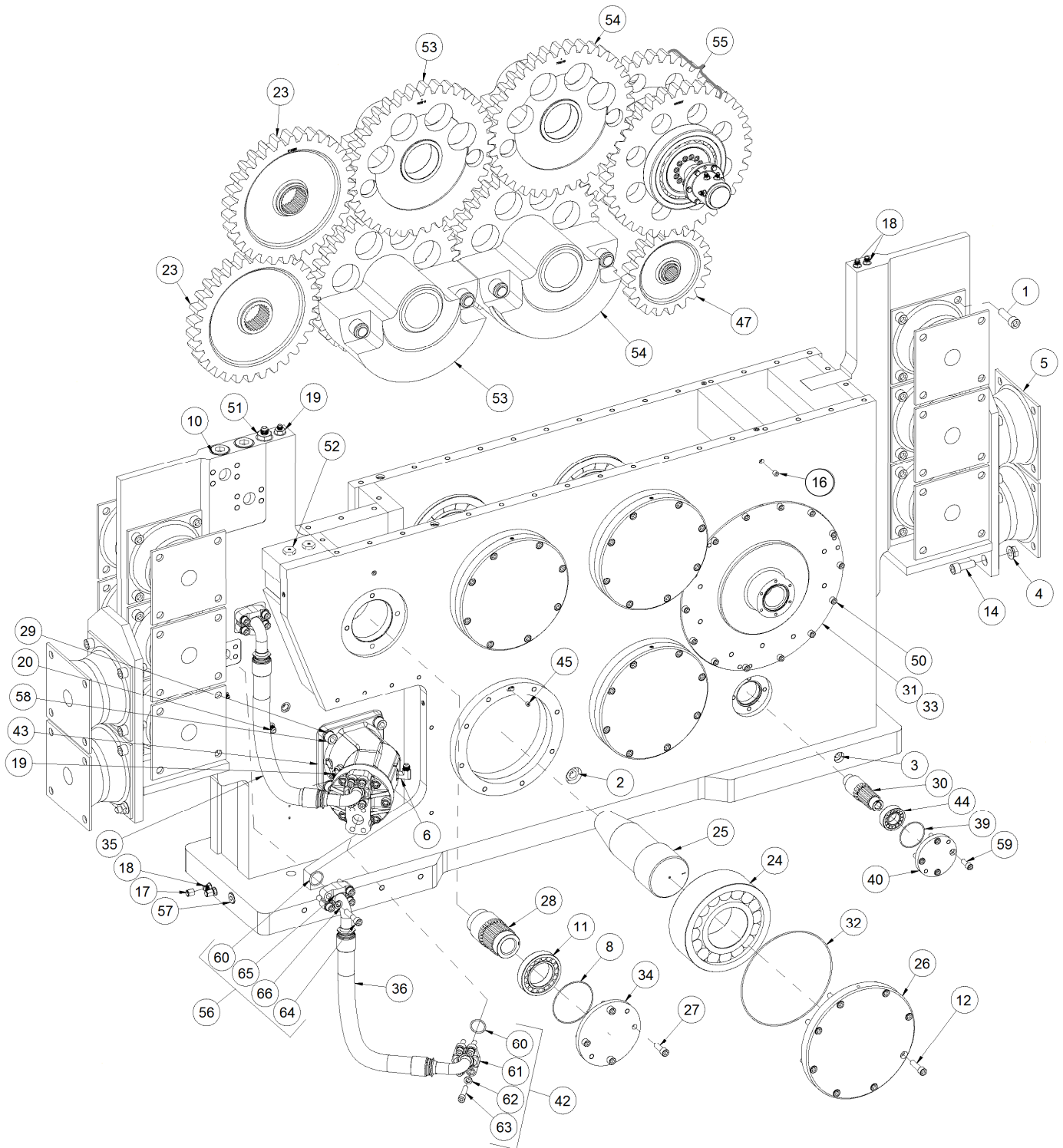
Item	Part #	Qty	Description
1	1X2597	1	FITT2S-12M12P000-000H001
2	500179	1	Viton O-ring (-152)
3	520060	1	Bushing
4	520083	1	Suction Housing with Filter
5	760366	1	RH Lube Pump (14cc)
6	760466	1	FITT2S-10M12R000-000H001
7	760467	1	FITT2S-10M12P000-000H001
8	760469	1	FITT2L-10M12R000-000H001
9	908506	1	FITT2S-12J12P000-000H001
10	909302	2	M10 Split Lock Washer
11	909310	2	M10-1.50 x 40 HHCS
12	510511	1	HOSE063R02J010J910L0220
13	510512	1	HOSE063R02J010J010L0137

Lube Pump Group



Item	Part #	Qty	Description
1	100787	2	FITT2L-08M08R000-000-000H001
2	1X8880	1	FITT2S-08M08R000-000H001
3	750098	1	Relief Valve Body
4	760309	1	Relief Valve
5	760465	1	FITT2L-10M10R000-000H001
6	760467	1	FITT2S-10M12P000-000H001
7	760470	1	FITT2T-10M10M08R-000H001
8	909103	2	M6 Split Lock Washer
9	909114	2	M6-1.00 x 45 HHCS
10	510398	1	HOSE050R02J008J008L0120
11	510513	1	HOSE063R02J012J910L0170
12	510600	1	HOSE063R02J010J010L0097
13	510601	1	HOSE050R02J008J408L0310
14	510375	1	HOSE025R01J004J904L0372

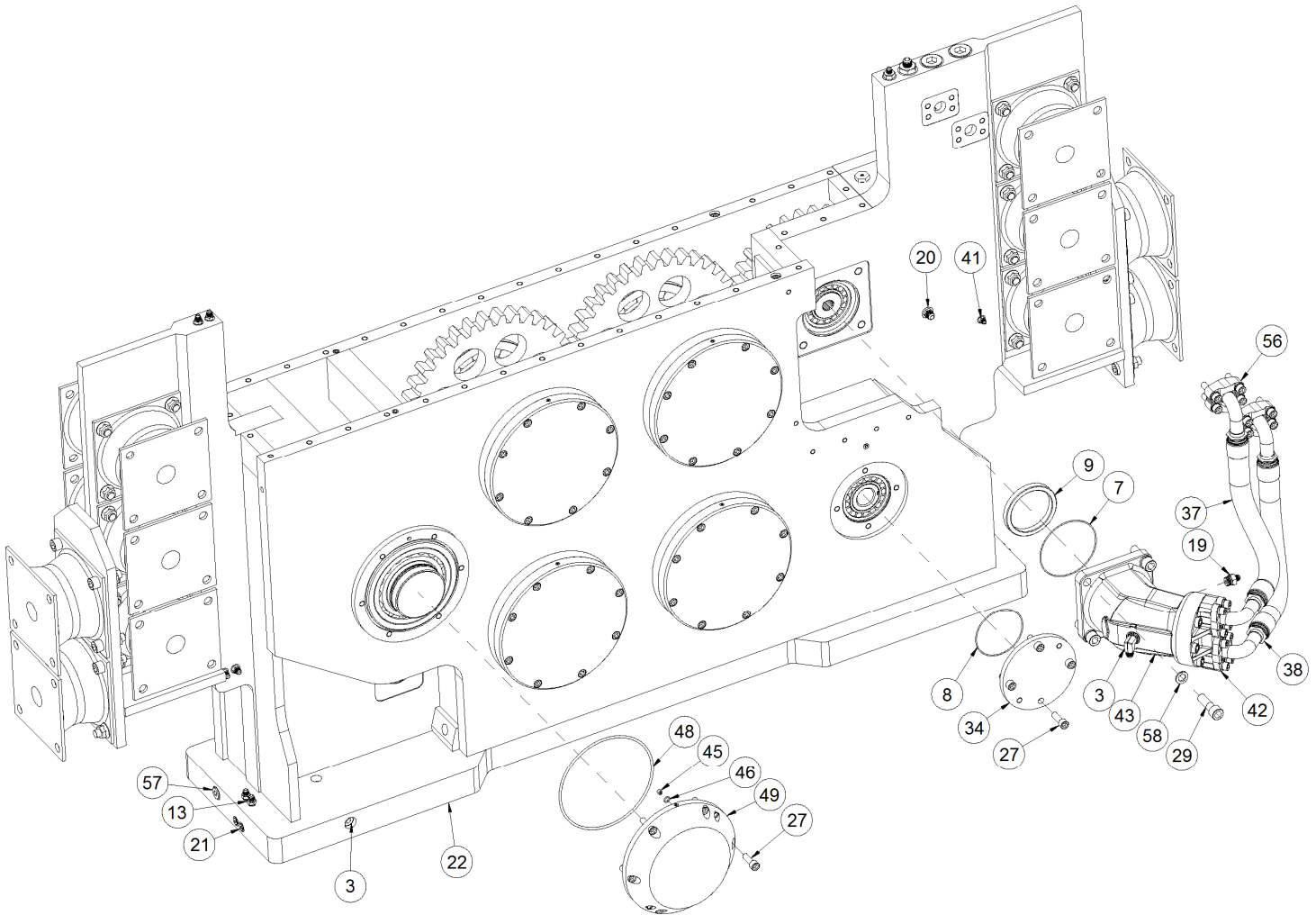
Gear Case View A



Gear Case View A

Item	Part #	Qty	Description	32	510345	8	2-277 Viton O-ring
1	100067	35	0.75-10UNC x 2.50 SHCS	33	510346	1	Shifter Cover Gasket
2	100185	1	Sight Gauge	34	510358	2	Bearing Cover
3	100187	3	FITT2P000000-000SM7	35	510359	1	HOSE125
4	100782	40	0.75-10UNC Serrated Nut	36	510360	1	HOSE2
5	100796	16	Elastomer	39	520050	1	Viton O-ring
6	100933	2	FITT2L-08M10R000-000H001	40	520064	1	Bearing cover
7	110195	2	O-ring 2-163	43	731221	2	Drive Motor
8	110197	2	O-ring 2-159	44	760287	2	Drive Shaft Bearing
10	110298	2	FITT2P-20R000000-000S001	45	76302	11	FITT2P-02P000000-000H028
11	110312	4	Motor Bearing	47	760353	1	Pump Drive Gear
12	110982	64	M14-2.00 x 50 SHCS	50	770404	14	M12-1.75 x 45 SHCS
14	1X4060	5	0.75-10UNC x 2.00 SHCS	51	780051	1	FITT2S-10M16R000-000H001
15	1X823	9	FITT2P-02P000000-000S001	52	810229	2	Centrifugal Breather
16	1X824	10	FITT2P-04000000-000S001	53	810675	2	Eccentric Assembly
17	1X8587	2	FITT2C-06J000000-000H001	54	840963	2	Eccentric Assembly
18	1X8607	6	FITT2S-06M06R000-000H001	55	840964	1	Actuator Group
19	1X8674	3	FITT2S06M10R000-000H001	56	841033	4	20PH Split Flange MM Kit
22	510297	1	Gear Case	57	908415	2	FITT2P-10R000000-000S001
23	510299	2	Motor Gear	59	909804	4	M12-1.75 x 30 SHCS
24	510320	8	Eccentric Bearing	60	100037	8	2-222 O-ring
25	510303	4	Eccentric Shaft	61	100045	8	20PH Split flange
26	510305	8	Bearing Housing	62	1X30	16	0.50 Spring Lock Washer
28	510309	2	Pinion Shaft	63	1X4024	16	0.50-13UNC x 2.25 SHCS
29	510310	8	M20-2.50 x 65 SHCS	64	520048	16	M14-2.00 x 60 SHCS
30	510311	1	Lube Shaft	65	731124	8	20PH Metric Flange Half
31	510329	1	Shifter Cover	66	909451	16	M14 Split Lock washer

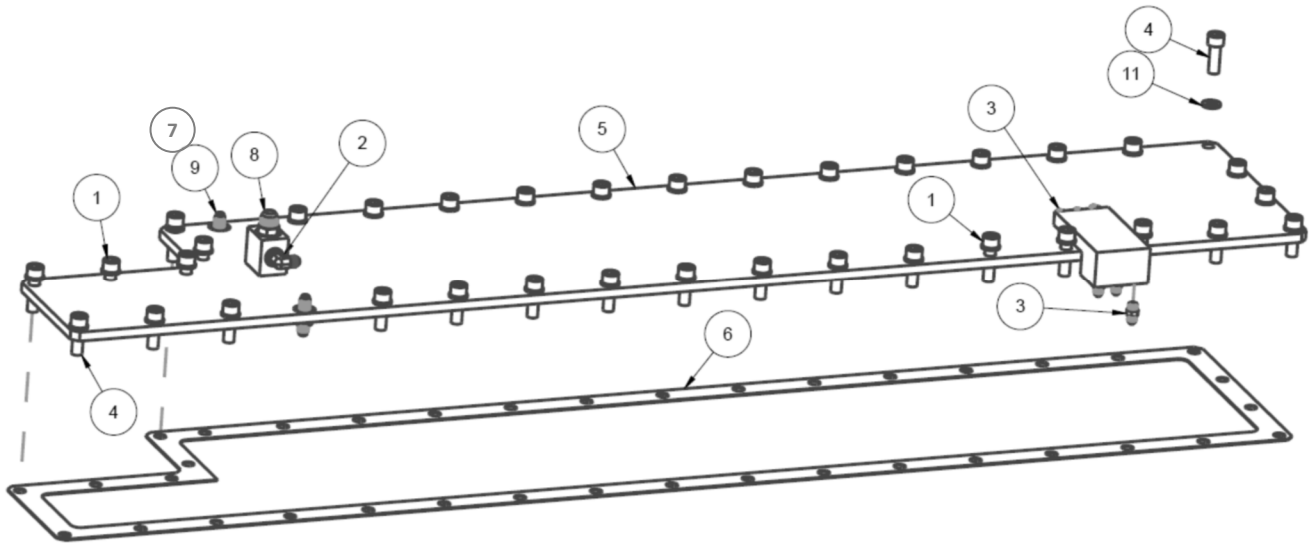
Gear Case View B



Item	Part #	Qty	Description
3	100187	3	FITT2P000000-000SM7
6	100933	2	FITT2L-08M10R000-000H001
7	110195	2	O-ring 2-163
9	110222	2	Motor Bearing Bushing
13	1X1151	2	FITT2S-06M06P000-000H001
20	1X8880	2	FITT2S-08M08R000-000H001
21	400992	2	FITT2P06R000000-000S001
27	510306	14	M14-2.00 x 40 SHCS
34	510358	2	Bearing Cover
37	510356	2	HOSE-3

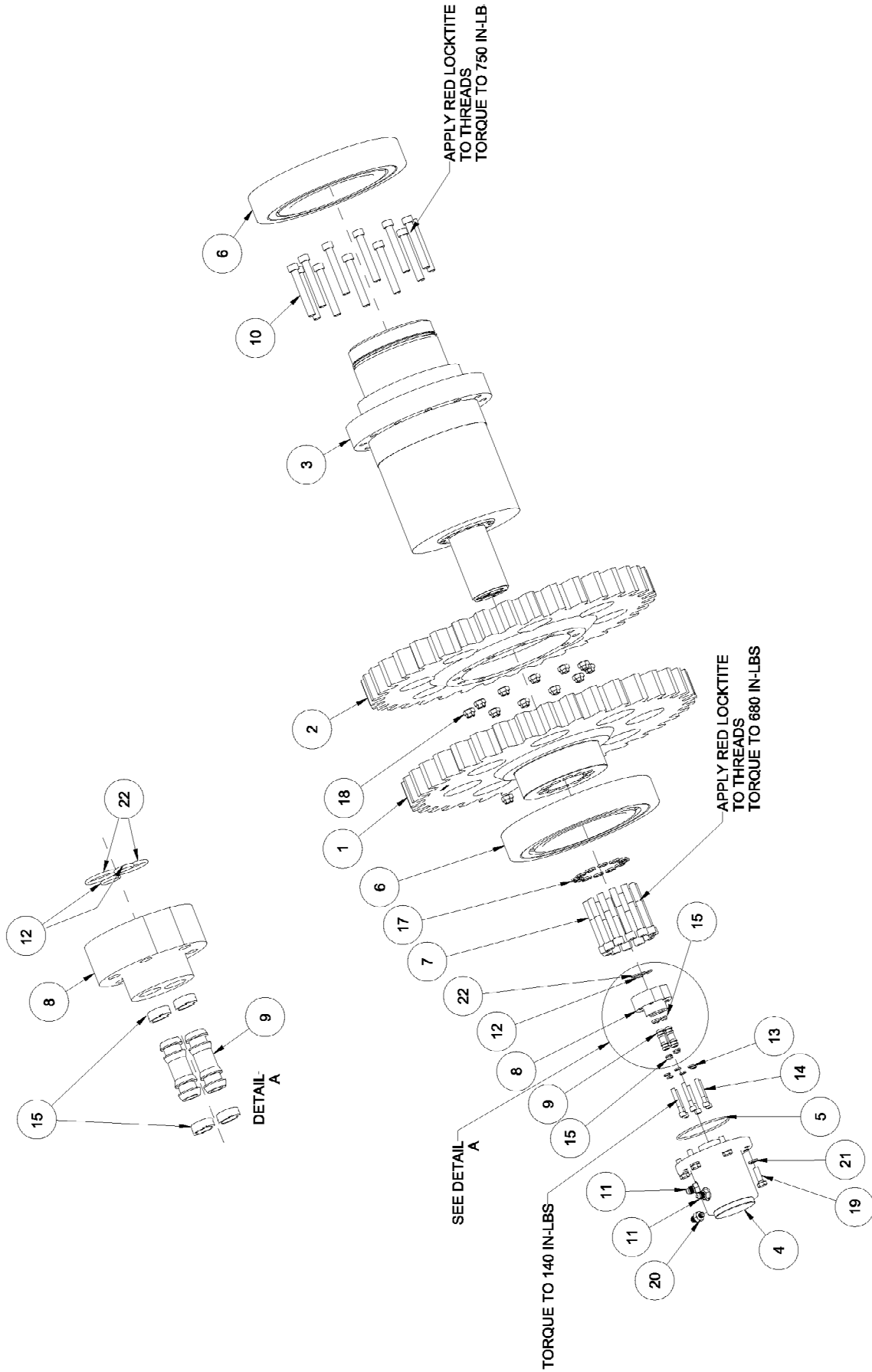
38	510357	2	HOSE-4
41	520069	2	FITT2S-04M04R000-000H028
42	702067	4	20PH Split Flange Kit
43	731221	2	Drive Motor
45	760302	11	FITT2P000000-000H063
46	760307	9	-111 Viton O-ring
48	760356	1	-250 Viton O-ring
49	760357	2	Bearing Cover
56	841033	4	20PH Split Flange MM Kit
57	908415	2	FITT2P-10R000000-000S001
58	909602	8	M20 Split Lock Washer

Transmission Cover



Item	Part #	Qty	Description
1	110982	8	M14-2.00 x 50 SHCS
2	1X8483	2	FITT2L-06M06R000-000H001
3	1X8766	6	FITT2S-04M04R000-000H001
4	510306	28	M14-2.00 x 40 SHCS
5	510347	1	Transmission Cover
6	510348	1	Transmission Cover Gasket
7	520087	1	3-906 O-ring
8	760468	1	FITT2S-10M10R000-000H001
9	908804	2	FITT2S-06B06M000-000H001
10	908992	2	Bulkhead Nut
11	909451	36	M14 Split Lock Washer

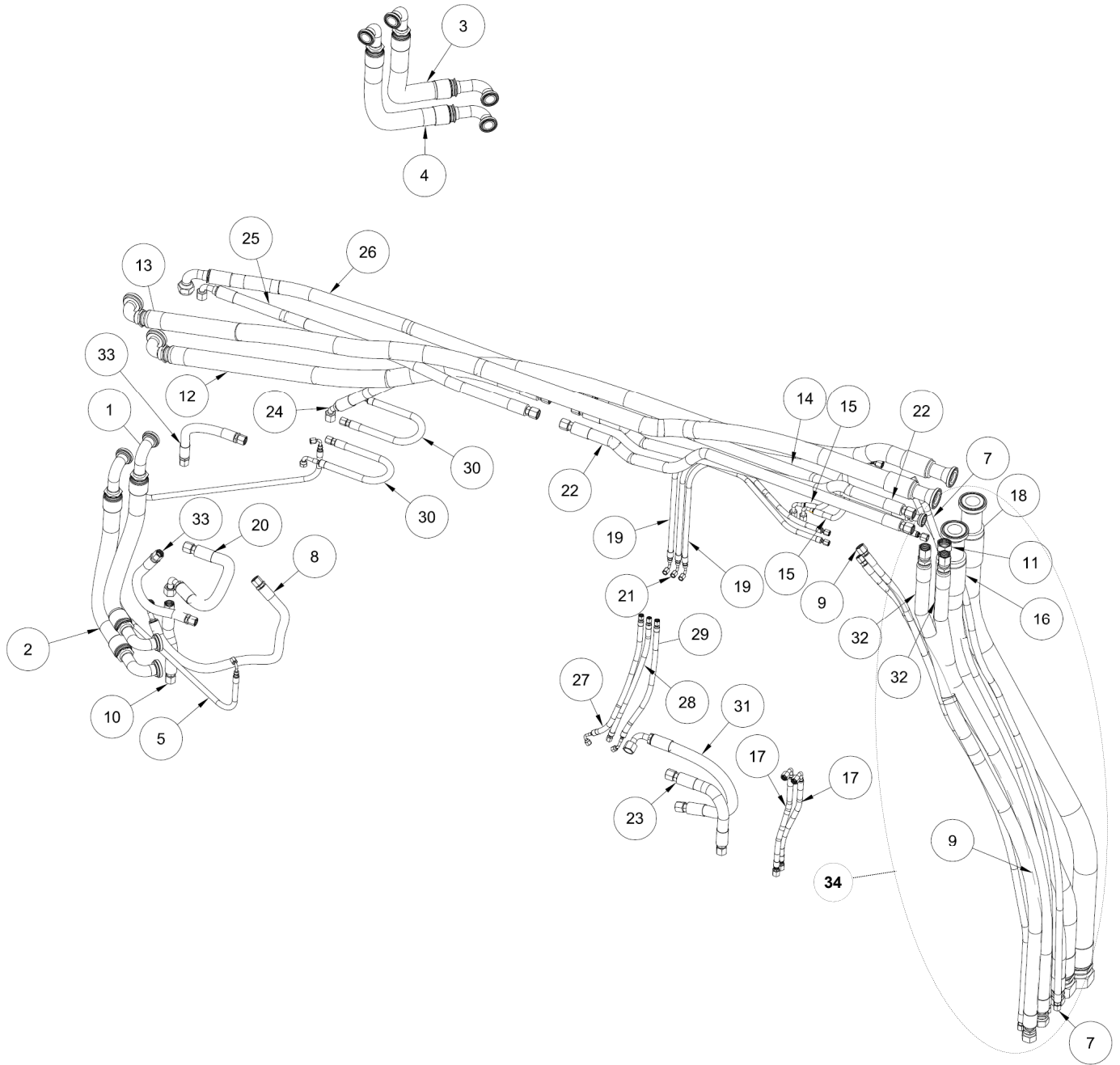
Actuator Group



Actuator Group

Item	Part #	Qty	Description
1	510307	1	Actuator Gear
2	510308	1	Actuator Gear
3	760233	1	Actuator Assembly
4	760232	1	Rotary Unit
5	500179	1	Viton O-ring -152
6	760242	2	Shifter Bearing
7	510364	12	M10-1.50 x 75 SHCS
8	760260	1	Coupling
9	760261	2	Shaft
10	510365	12	0.4375UNC x 3.00 SHCS
11	760272	2	FITT9S-04M12U000-000H001
12	1X8770	2	Viton O-ring -011
13	760270	6	M6 Hi-collar Lock Washer
14	760271	6	M6-1.00 x 40 SHCS
15	760488	4	Seal
17	909824	12	M10 Hi-collar Lock Washer
18	760268	12	0.4375 -14UNC Flex Nut
19	909208	6	M8-1.25 x 25 HHCS
20	760273	1	FITT9S-04M10U000-000H001
21	909203	6	M8 Split Lock Washer
22	760483	2	Viton O-ring -015

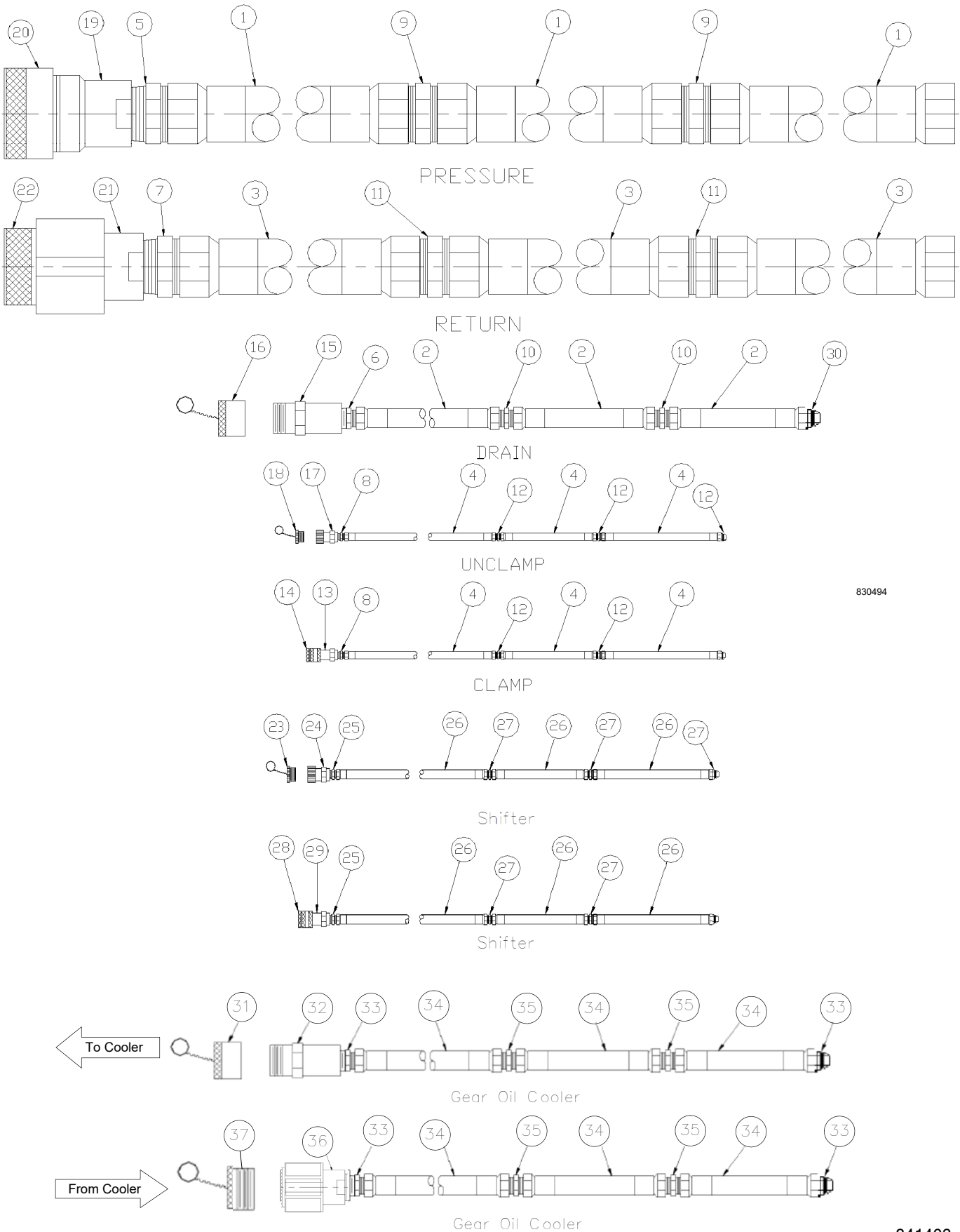
Internal Hose Group



Internal Hose Group

Item	Part #	Qty	Description
1	510371	1	HOSE125PT4H920H920L0255-00-DW
2	510372	1	HOSE125PT4H920H920L0280-00-DW
3	510373	1	HOSE125PT4H920H920L0255-00-DW
4	510374	1	HOSE125PT4H920H920L0245-00-DW
5	510375	1	HOSE025R01J004J904L0372-00-00
6	510376	1	HOSE025R01J004J904L0285-00-00
7	510379*	2	HOSE038R02J006J006L0780-HP-00
8	510601	1	HOSE050R02J008J408L0310-00-00
9	510380*	2	HOSE038R02J006J008L0780-HP-00
10	510600	1	HOSE063R02J010J010L0097-00-00
11	510381*	1	HOSE100R01J016J016L0720-00-00
12	510382	1	HOSE150PT4F024H924L1000-00-00
13	510383	1	HOSE150PT4F024H924L1020-00-00
14	510384	2	HOSE075R02F012HJ012L0460-00-00
15	510385	2	HOSE025R01J006J906L0320-00-00
16	510584*	1	HOSE200R13J032H024L0720-00-00
17	510386	2	HOSE038R01J006J906L01400-HP-00
18	510583*	1	HOSE200R13J032H024L0720-00-00
19	510387	2	HOSE025R02J004J904L0430-00-00
20	510513	1	HOSE063R02J010J910L0170-00-00
21	510388	1	HOSE025R01J904J006L0510-00-00
22	510389	2	HOSE063R01J010J010L0445-00-00
23	510512	1	HOSE063R01J010J010L0137-00-00
24	510390	1	HOSE063R01J010J410L0315-00-00
25	510391	1	HOSE063R01J010J410L0315-00-00
26	510392	1	HOSE100R02J016J916L0480-00-00
27	510393	1	HOSE025R01J004J904L0185-00-00
28	510394	1	HOSE025R01J004J004L0175-00-00
29	510395	1	HOSE025R01J004J404L0175-00-00
30	510396	2	HOSE038R02J006J906L0180-00-00
31	510511	1	HOSE063R02J010J910L0220-00-00
32	510397*	2	HOSE100R02J016J012L0720-00-00
33	510398	2	HOSE050R02J008J008L0120-00-00
34	850209*	1	Kit Whip Hose

Hose Assemblies - Interconnecting Bundle



830494

Hose Assemblies - Interconnecting Bundle

Item	Part #	Qty	Description	19	790291	1	1.50 Male Disconnect
1	140683	3	HOSE200R13J032J032L60000	20	720293	1	Dust Cap (1.50)
2	130787	3	HOSE100R02J016J016L60000	21	790292	1	1.50 Female Disconnect
3	110970	3	HOSE200R09J032J032L60000	22	790294	1	Dust Plug (1.50)
4	130793	3	HOSE038R02J006J006L62000	23	760443	1	1/2 Flat Face Plug
5	1X8930	1	FITT2S-32M24P000-000H001	24	760442	1	1/2 Flat Face Female QD
6	140759	1	FITT2S-16M12P000-000H001	25	1X1153	1	FITT2S-08M08P000-000H001
7	1X8930	1	FITT2S-32M32P000-000H001	26	130791	6	HOSE050R02J008J008L62000
8	130399	2	FITT2S-06M06P000-000H001	27	1X5110	3	FITT2S-08M08M000-000H001
9	110271	2	FITT2S-32M32M000-000H001	28	760441	1	1/2 Flat Face Cap
10	130789	2	FITT2S-16M16M000-000H001	29	760440	1	1/2 Flat Face Male QD
11	110271	2	FITT2S-32M32M000-000H001	30	140759	1	FITT2S-16M12P000-000H001
12	120081	1	FITT2S-06M06M000-000H001	31	120029	1	Dust Cap (1")
13	720295	1	Male QD (3/8") Flat Face	32	120023	1	1.0 Male disconnect
14	720296	1	Dust Cap (3/8")	33	1X2598	2	FITT2S-16M16P000-000H001
15	400251	1	0.75 Male disconnect	34	730889	6	HOSE075R02J012J012L62000
16	400253	1	0.75 DUST CAP	35	1X8606	4	FITT2S-12M12M000-000H001
17	720297	1	Female Disconnect (3/8")	36	120025	1	1.00 Female Disconnect
18	720298	1	Dust Plug (3/8")	37	120027	1	Dust Plug (1.00)

Model 140C Universal Clamp

Assembly No. 830053

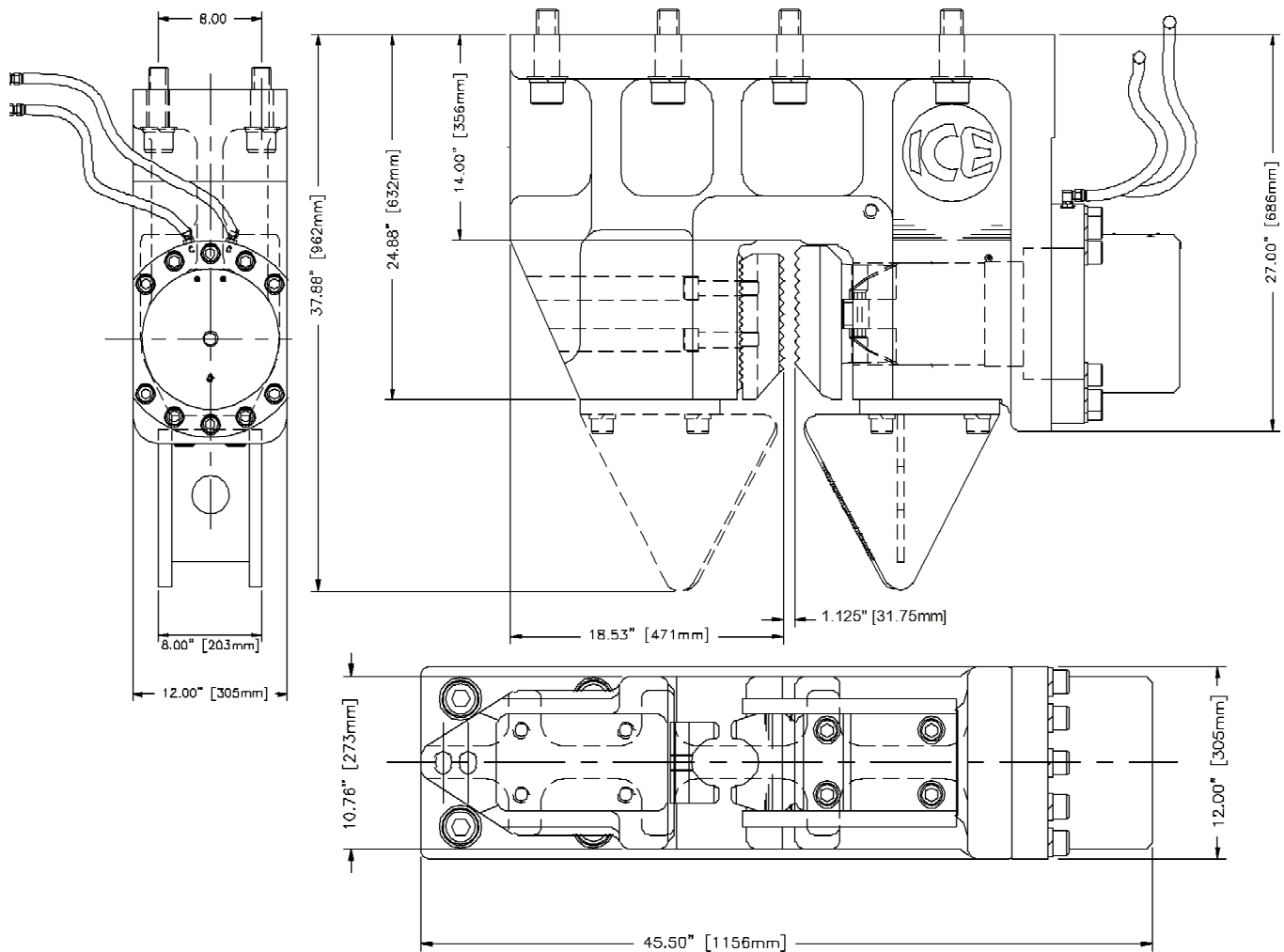
Manufactured Mar 05 to present

Serial numbers C09155 and up

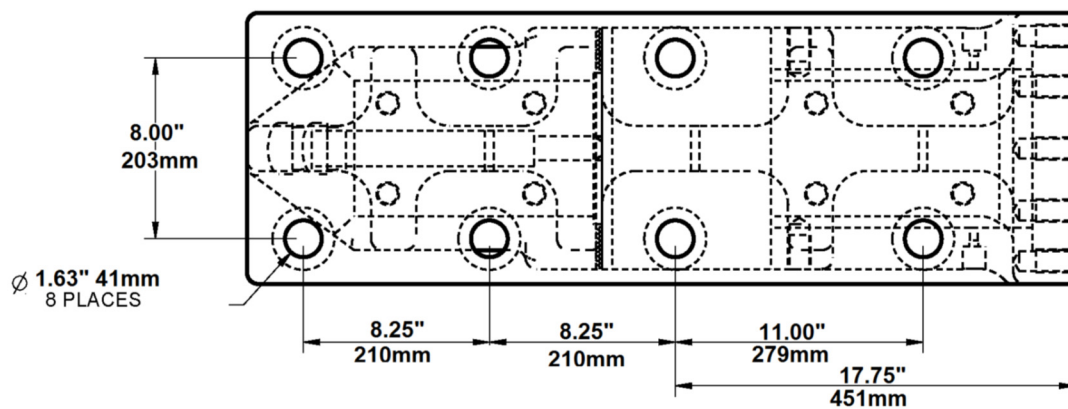
Clamping force – 140 tons at 5000 psi, 1245 kN at 345 bar

Weight – 2,200 lb, 1000 kg

Serial number location – Clamp serial number plate, stamped on clamp body and cylinder housing

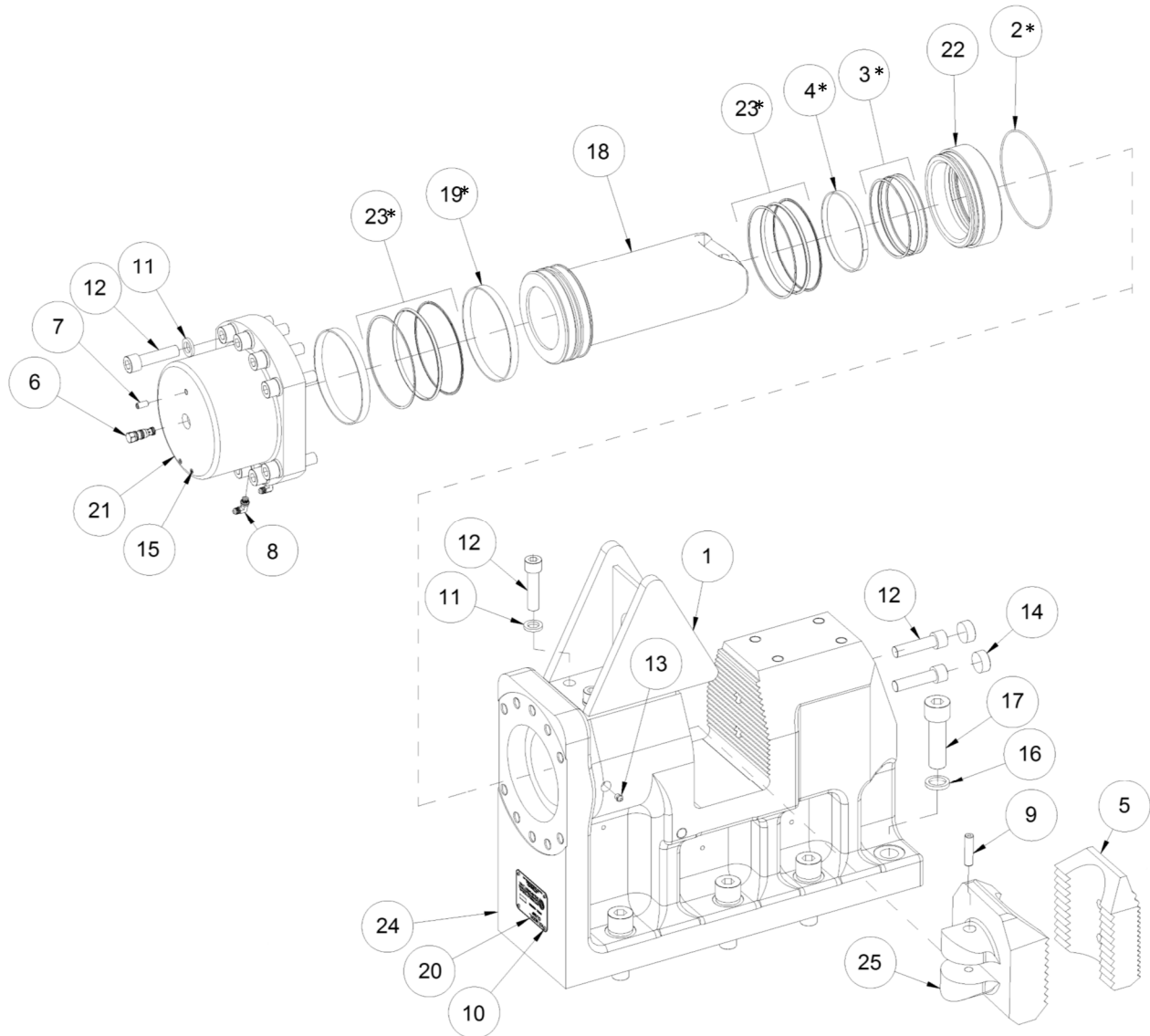


Bolt Pattern



Section 5: DESCRIPTION AND PARTS FOR ACCESSORIES AND CLAMPS

Model 140C Universal Clamp



Item	Part #	Qty	Part Description
			13 1X813 2 0.25 Grease Fitting
1	100983	1	Pile Guide
	830111	1	Seal Kit (contents*)
2	120401	1*	2-269 O-ring
3	120553	1*	T-seal Rod
4	120555	1*	Rod Bearing
5	120619	1	Fixed Jaw
6	120629	1	Holding Valve
7	120761	1	Pointed Set Screw
8	130057	2	FITT2L-06M06R000-000H001
9	130449	1	Spiral Pin
10	1X1516	4	#10 X 3/8 Drive Screw
11	1X34	14	Spring Lock Washer
12	1X8111	16	1.00-8UNC X 4.00 SHCS
			14 1X821 2 FITT2P-02P000000-000H001
			15 1X823 4 FITT2P-02P000000-000S001
			16 1X8502 8 1.50 Spring Lock Washer
			17 1X8548 8 1.50-6UNC x 5.00 SHCS
			18 720134 1 Piston
			19 720140 2* Piston Bearing
			20 730045 1 Clamp Serial Number Plate
			21 760068 1 Cylinder
			22 760073 1 Rod End Cap
			23 760074 2* Piston T-seal
			24 810493 1 Clamp Body
			25 810581 1 Movable Jaw

Model 196C Universal Clamp

Assembly No. 800315

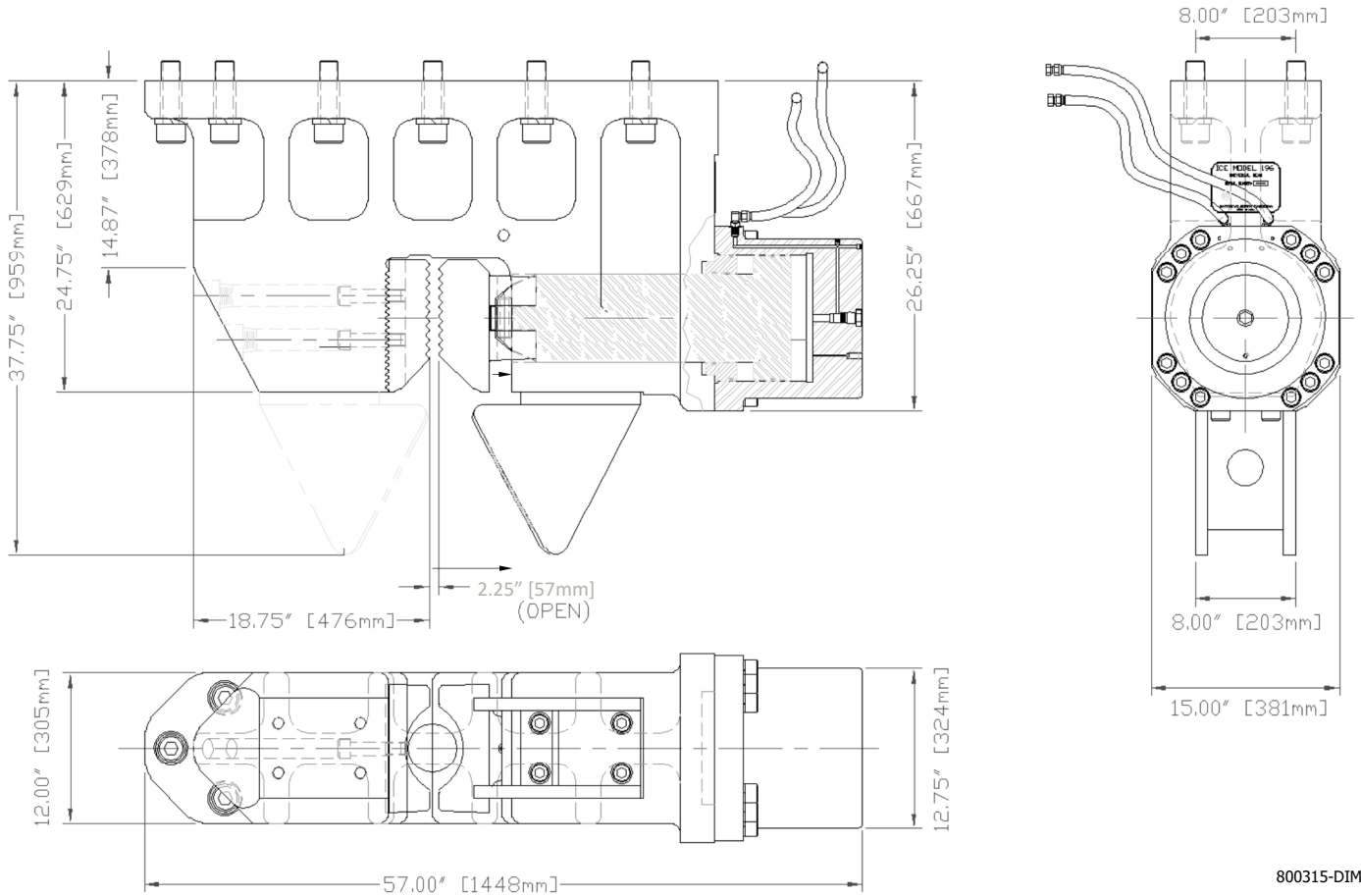
Manufactured Jan 02 to present

Serial numbers C52721 and up

Clamping force – 196 tons at 5000 psi (1744 kN at 345 bar)

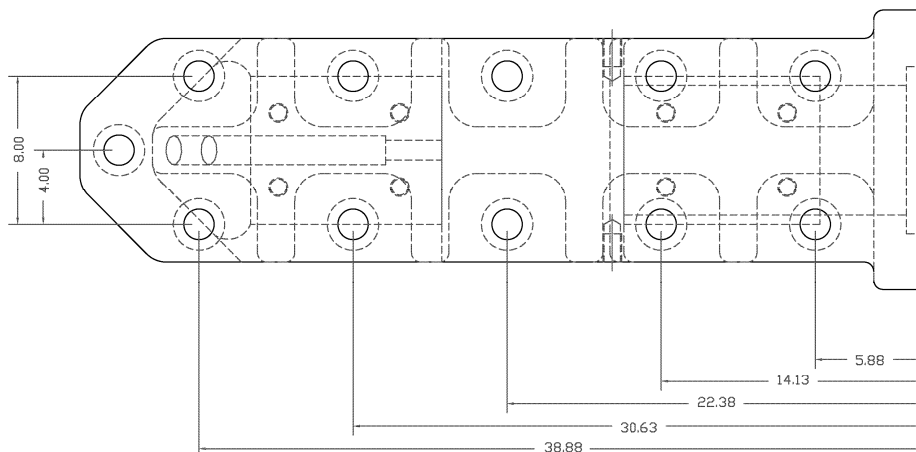
Weight – 2,900 lbs, 1315 kg

Serial number location - Clamp serial number plate, stamped on clamp body and cylinder housing

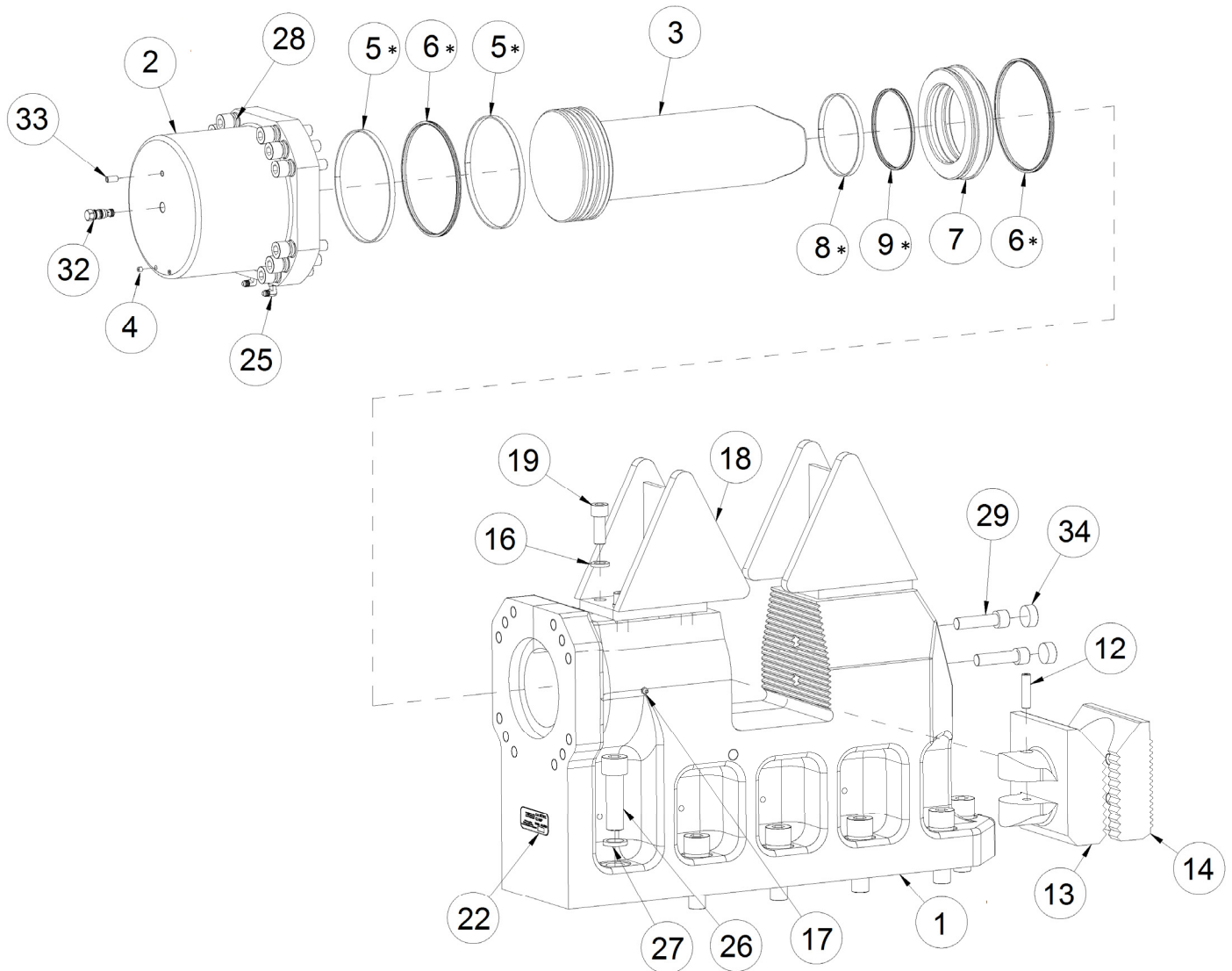


800315-DIM

Bolt Pattern



Model 196C Universal Clamp



Item	P/N	Qty	Part Description	Item	P/N	Qty	Part Description
1	810457	1	196 Clamp body	116	1X34	8	1.00 Spring Lock Washer
2	810459	1	Clamp cylinder housing	117	1X812	2	0.125 Grease Fitting
3	702089	1	Piston	118	100983	2	Pile Guide
4	1X823	2	FITT2P-02P000000-000S001	119	1X8511	8	1.00-8UNC x 2.50 SHCS
	810473	1	Seal Kit (contents*)	122	730045	1	Serial Number Plate
5	120551	2*	Piston Bearing	125	130057	2	FITT2L-06M06R000-000H001
6	120549	1*	Piston Seal	126	1X8548	11	1.50-6UNC x 5.00 SHCS
7	120539	1	Rod End Cap	127	1X8502	11	1.50 Spring Lock Washer
8	120555	1*	Rod Bearing	128	1X8512	12	1.00 Hi-Collar Lock Washer
109	120553	1*	Rod T-seal	129	1X8111	14	1.00-8UNC x 4.00 SHCS
112	130449	1	0.75 Spiral Pin	132	120629	1	Holding Valve
113	720334	1	Movable Jaw	133	120761	1	Pointed Set Screw
114	720333	1	Fixed Jaw	134	1X821	2	FITT2P-24P000000-000S001

6.5' HD Caisson Beam with Model 100BH Caisson Clamps

Assembly No. 840916

Used on Models 22, 28B, 28C, 28D, 416L, 44, 44B, 50B, 55B, 66, 66C, 77C Vibrators

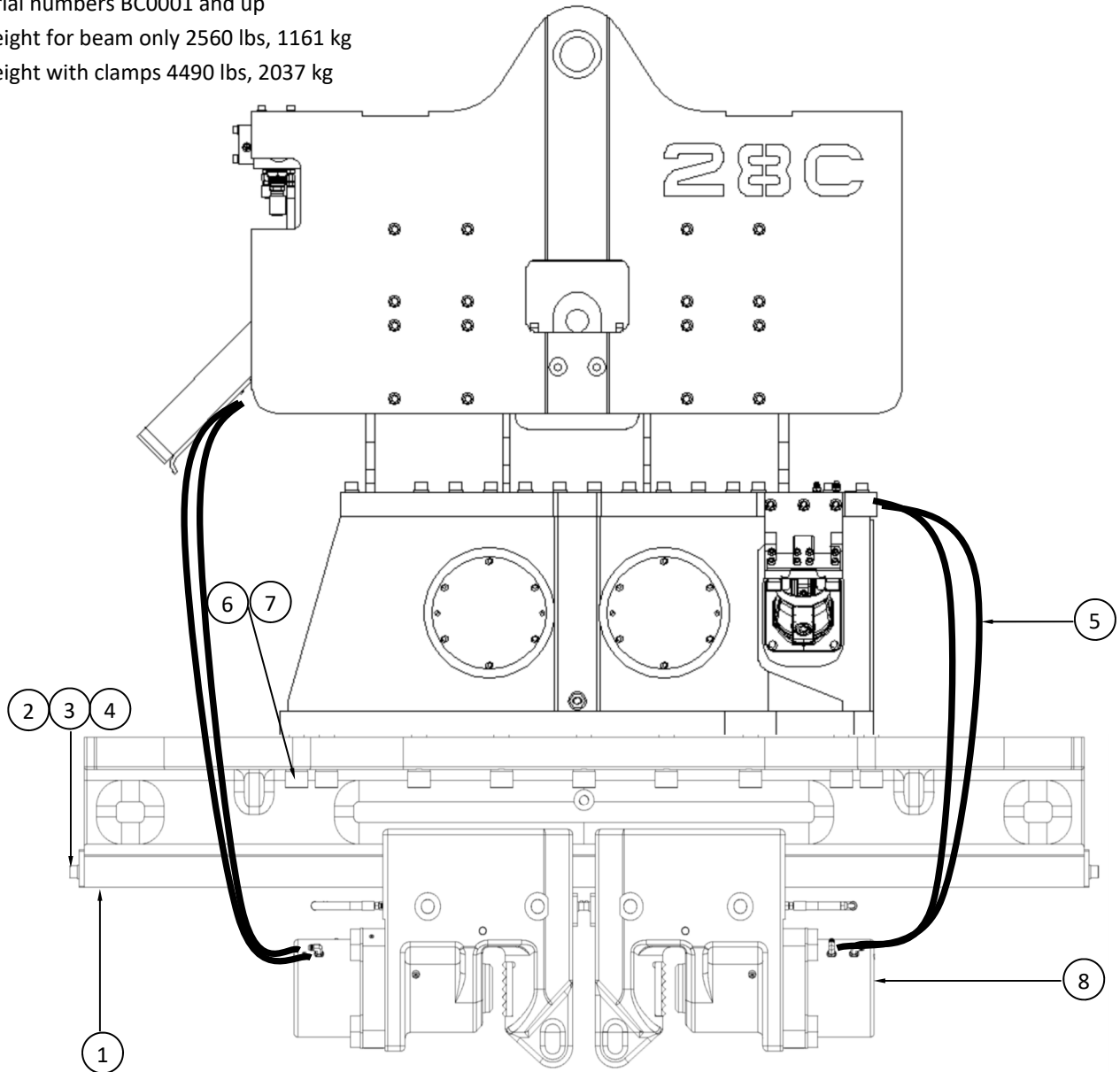
Used with Models 100B, 100BH Clamps

Manufactured as 6.5' caisson Beam since 2011

Serial numbers BC0001 and up

Weight for beam only 2560 lbs, 1161 kg

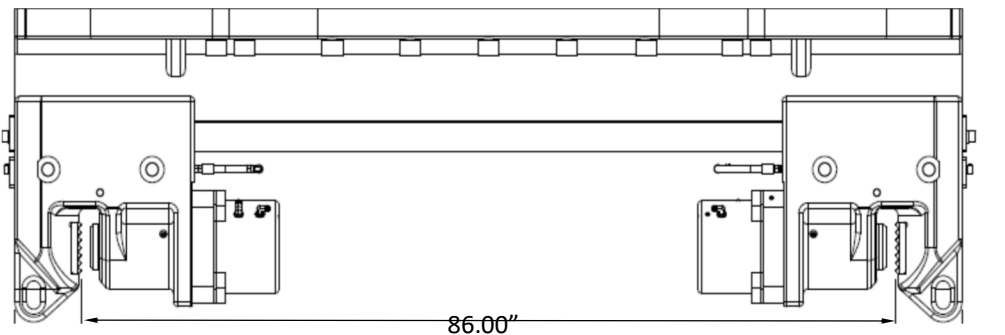
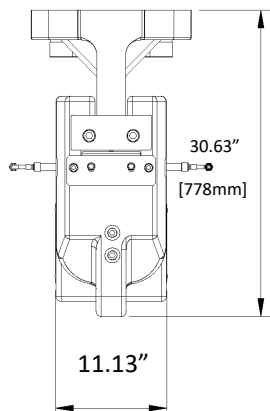
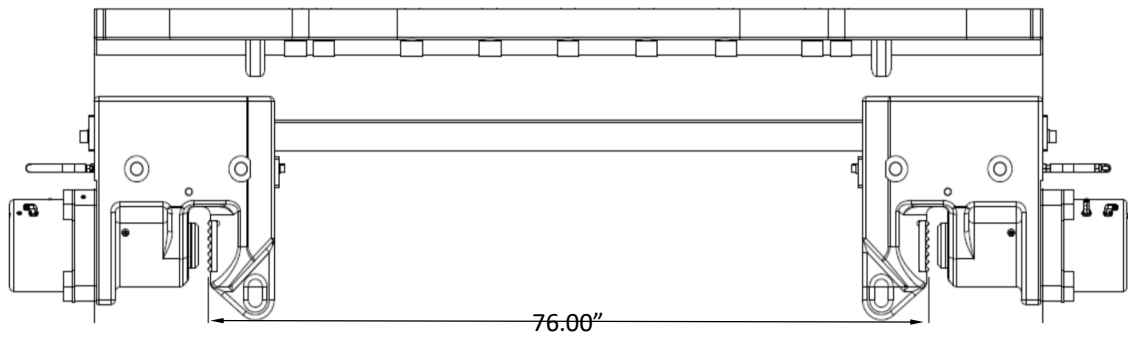
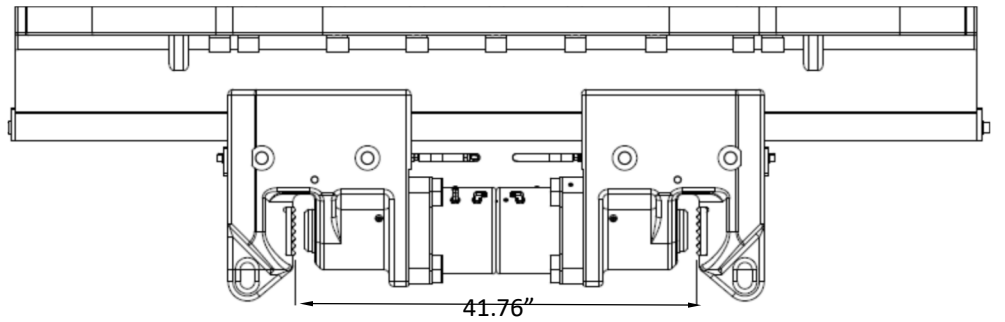
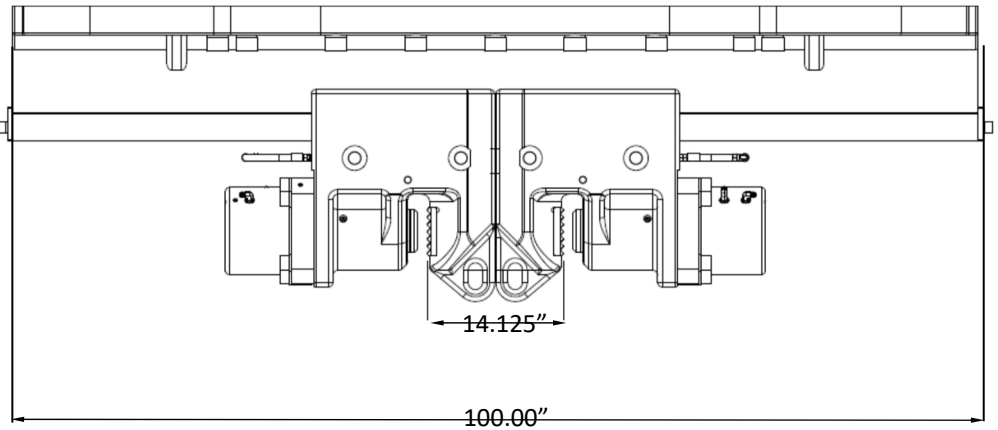
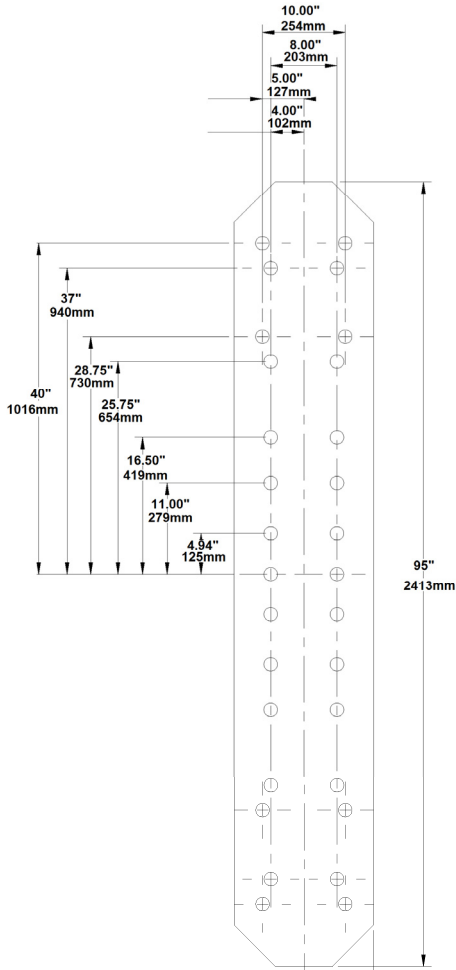
Weight with clamps 4490 lbs, 2037 kg



Item	Part Number	Qty	Part Description
1	720250	1	6.5' HD Caisson beam
2	120011	2	Clamp stop
3	400069	4	0.75-10UNC X 2.00 SHCS
4	1X32	4	0.75 Lock washer
5	100111	4	HOSE038R02J006J006L0875-C (models 22-55B)
	120009	4	HOSE038R02J006J006L0960-C (models 66 – 77C)
6	1X8502	18	1.50 Lock washer
7	1X8548	18	1.50-6unc X 5.00 SHCS
8	830057	2	Model 100BH Caisson Clamp

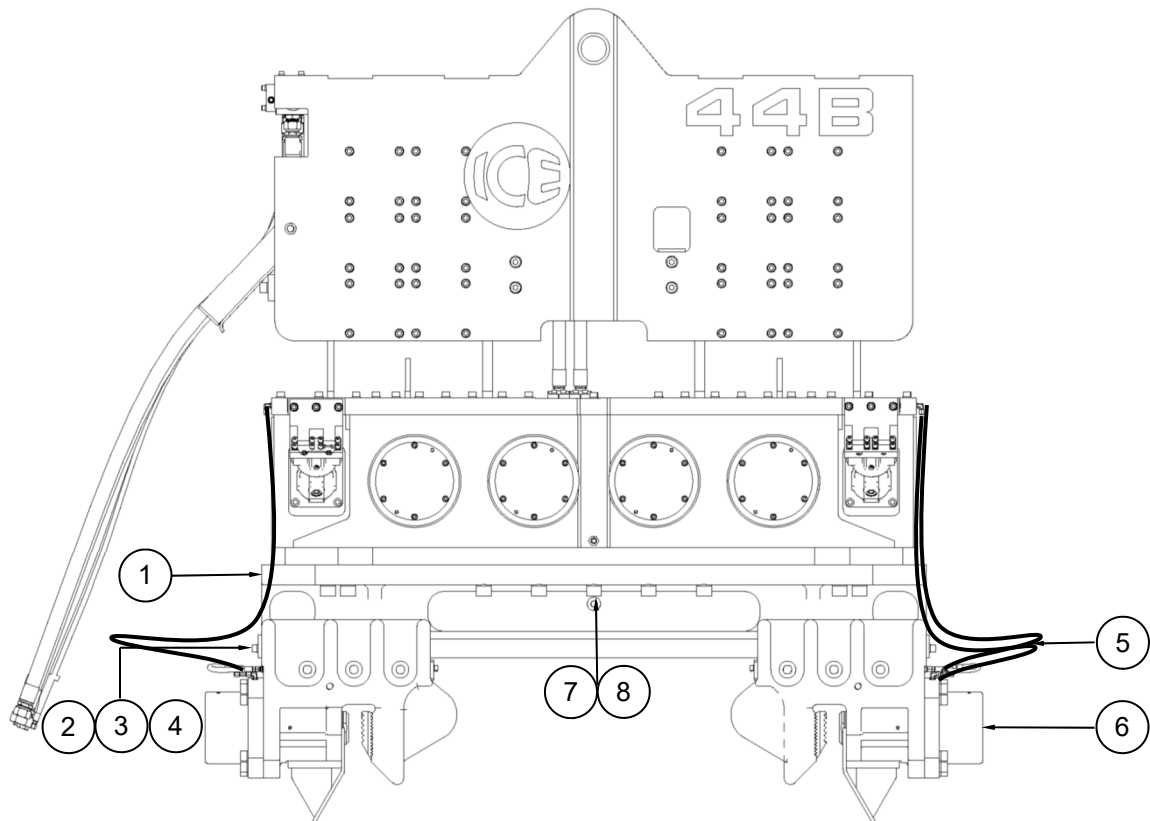
6.5' HD Beam with Model 100BH Caisson Clamps

Bolt Hole Pattern



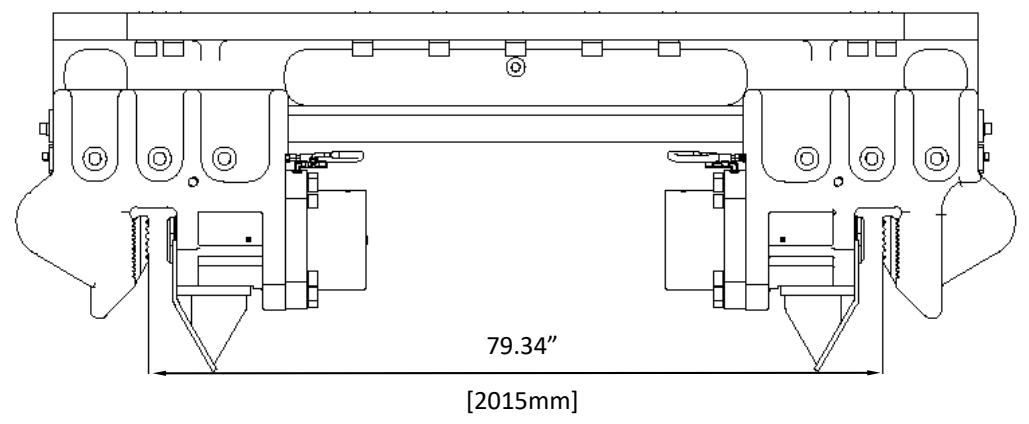
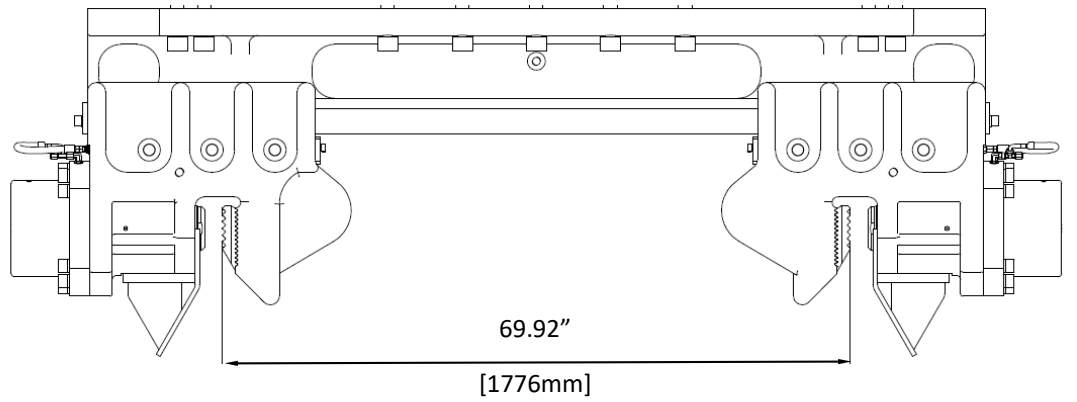
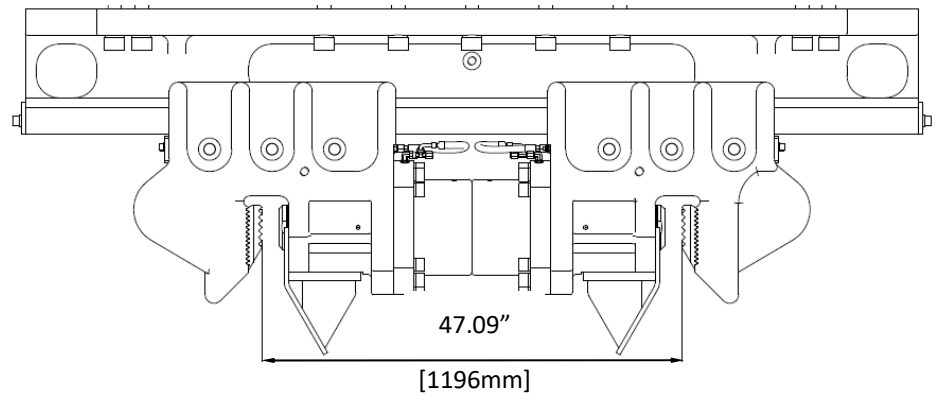
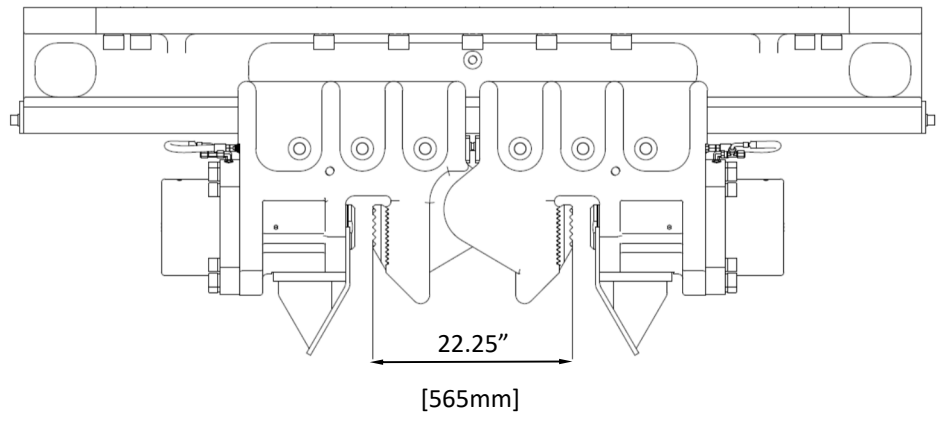
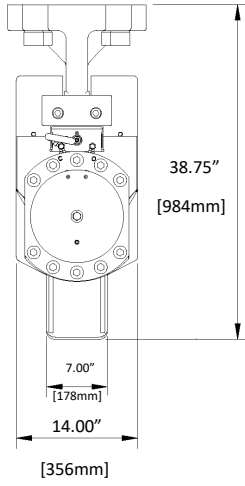
6.5' HD Caisson Beam and 142BH Clamps

Assembly No. 840917
 Used on Models 44, 44B, 50B, 55B, 66, 66C, 77C vibrators
 Used with Models 142B & 142BH Caisson clamps
 Manufactured 2011 to present
 Serial numbers BC0001 and up
 Weight for beam only - 2560 lbs, 1161 kg
 Weight with two Model 142BH clamps - 6112 lbs, 2772 kg
 Serial number location - Stamped on both side and end of beam



Item	Part Number	Qty	Description
1	720250	1	6.5' Caisson Beam
2	120011	2	Clamp Stop
3	400069	4	0.75-10UNC X 2.00 SHCS
4	100069	4	0.75 Lock Washer
5	100111	4	HOSE038R02J006J006L0875-C (models 44-55B)
	120193	4	HOSE038R02J006J006L1320S-C (models 66-77C)
6	800410	2	142BH Caisson Clamp
7	1X8548	18	1.50-6UNC X 5.00 SHCS
8	1X8502	18	1.50 Lock Washer

6.5' HD Caisson Beam and 142BH Clamps



12' Caisson Beam and Model 100BH Caisson Clamps

Assembly No. 840066

Used on Models 416L, 44, 44B vibrators

Used with Models 80, 80B, 80BH & 100BH Caisson clamps

Manufactured 1980-Dec 05 as 11' beam, Jan 06 to present as 12' beam

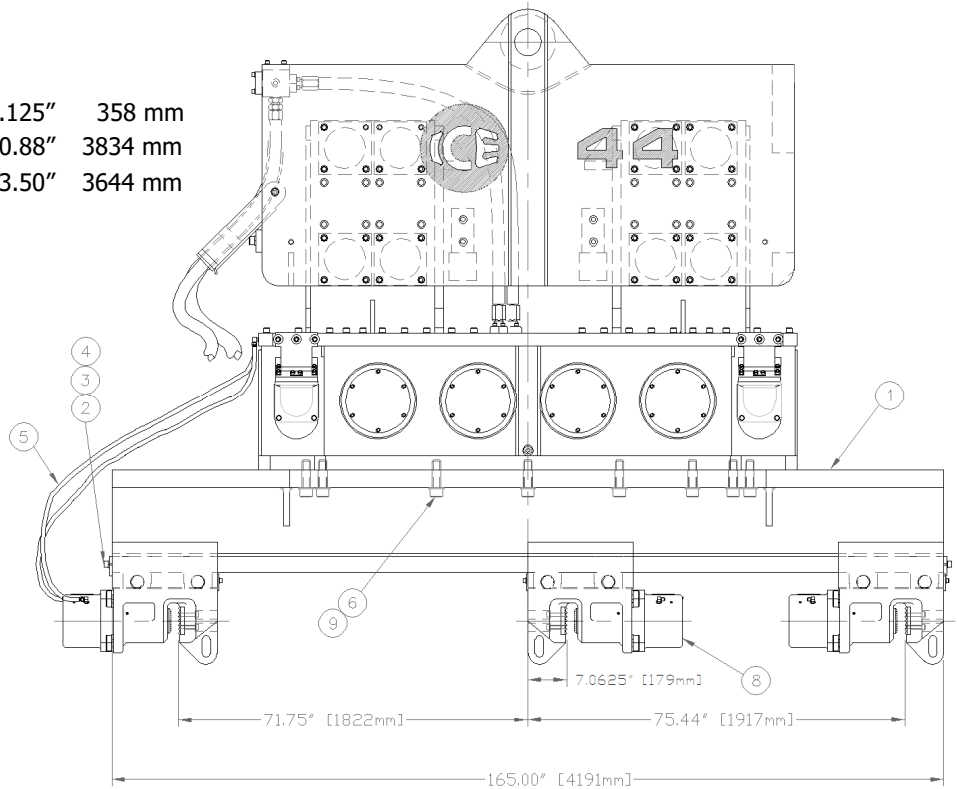
Serial numbers – 11' B61757-B61766, 12' B61767 and up

Weight for beam only - 4255 lbs, 1930 kg

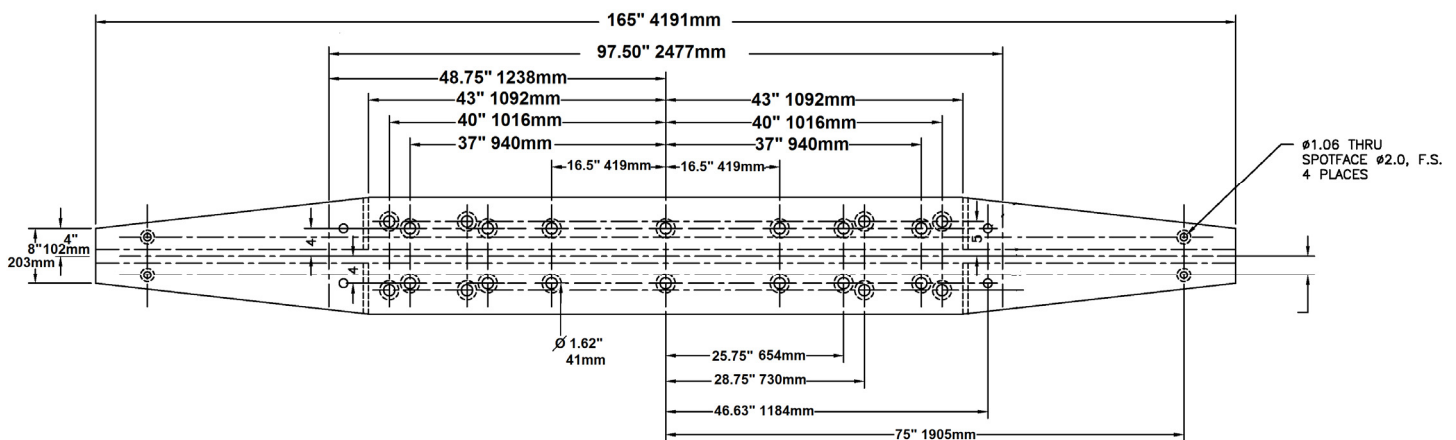
Weight with two Model 100BH clamps - 6185 lbs, 2805 kg

Serial number location - Stamped on both side and end of beam.

Minimum ID	14.125"	358 mm
Maximum OD with cylinders in	150.88"	3834 mm
Maximum ID with cylinders out	143.50"	3644 mm



Hole Pattern



Item	Part #	Qty	Part Description
1	720130	1	12' Caisson beam
2	120011	2	Clamp stop
3	400069	4	0.75-10UNC X 2.00 SHCS
4	1X32	4	0.75 Lock washer

Item	Part #	Qty	Part Description
5	120009	4	HOSE038R02J006J006L0960-C
6	1X8502	14	1.50 Lock washer heavy
8	830057	2	Model 100BH
9	1X8548	14	1.50-6UNC X 5.00 SHCS

12' Caisson Beam and Model 142BH Caisson Clamps

Assembly No. 800519

Used on Models 416L, 44, 44B, 66 & 66C vibrators

Used with Models 80, 80B, 80BH & 100BH caisson clamps

Manufactured 1980-Dec 05 as 11' beam, Jan 06 to present as 12' beam

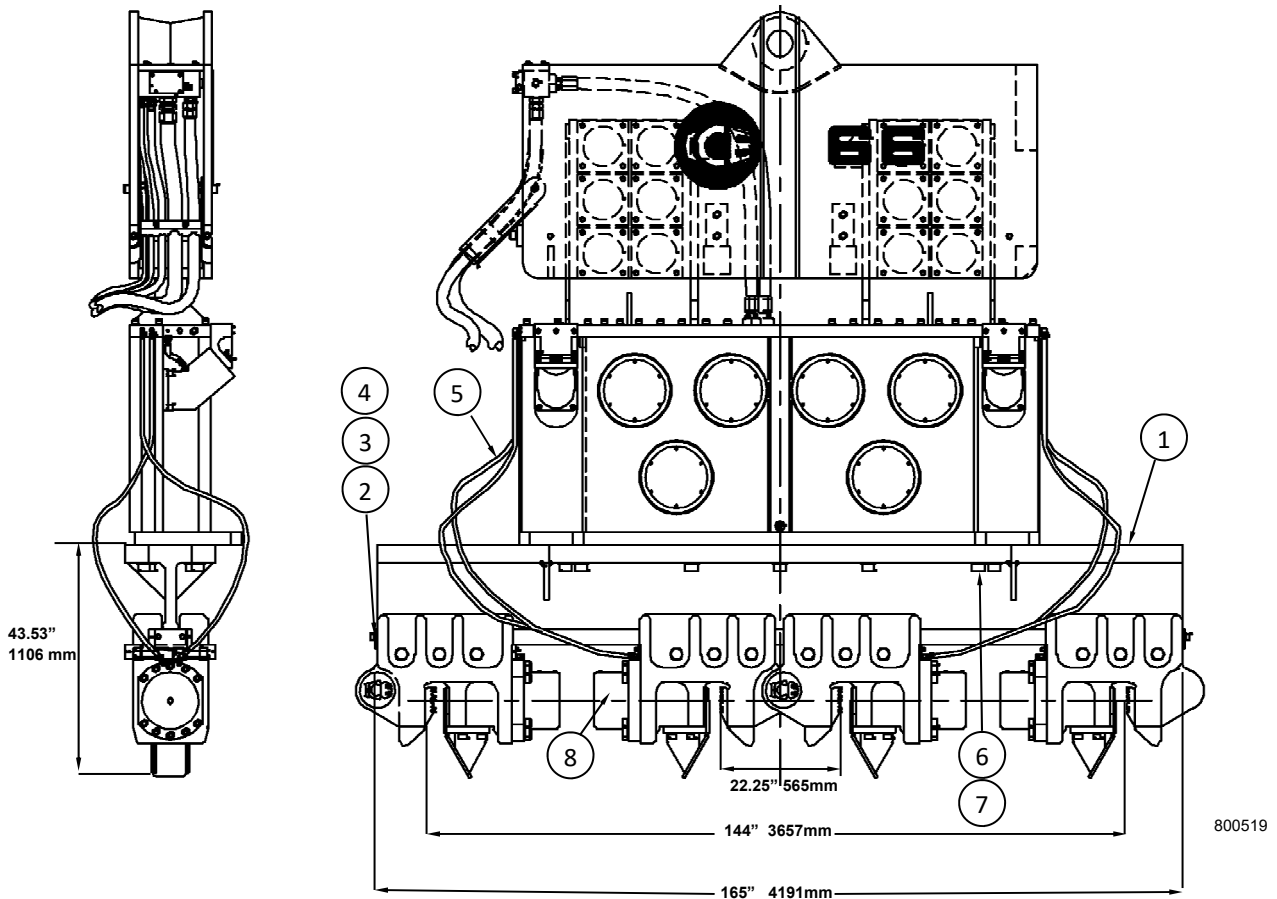
Serial numbers – 11' B61757-B61766, 12' B61767 and up

Weight for beam only - 4500 lbs, 2040 kg

Weight for beam and bolts 4556 lbs, 2067 kg.

Weight with two Model 142BH clamps– 8110 lbs, 3680 kg

Serial number location - Stamped on both side and end of beam.

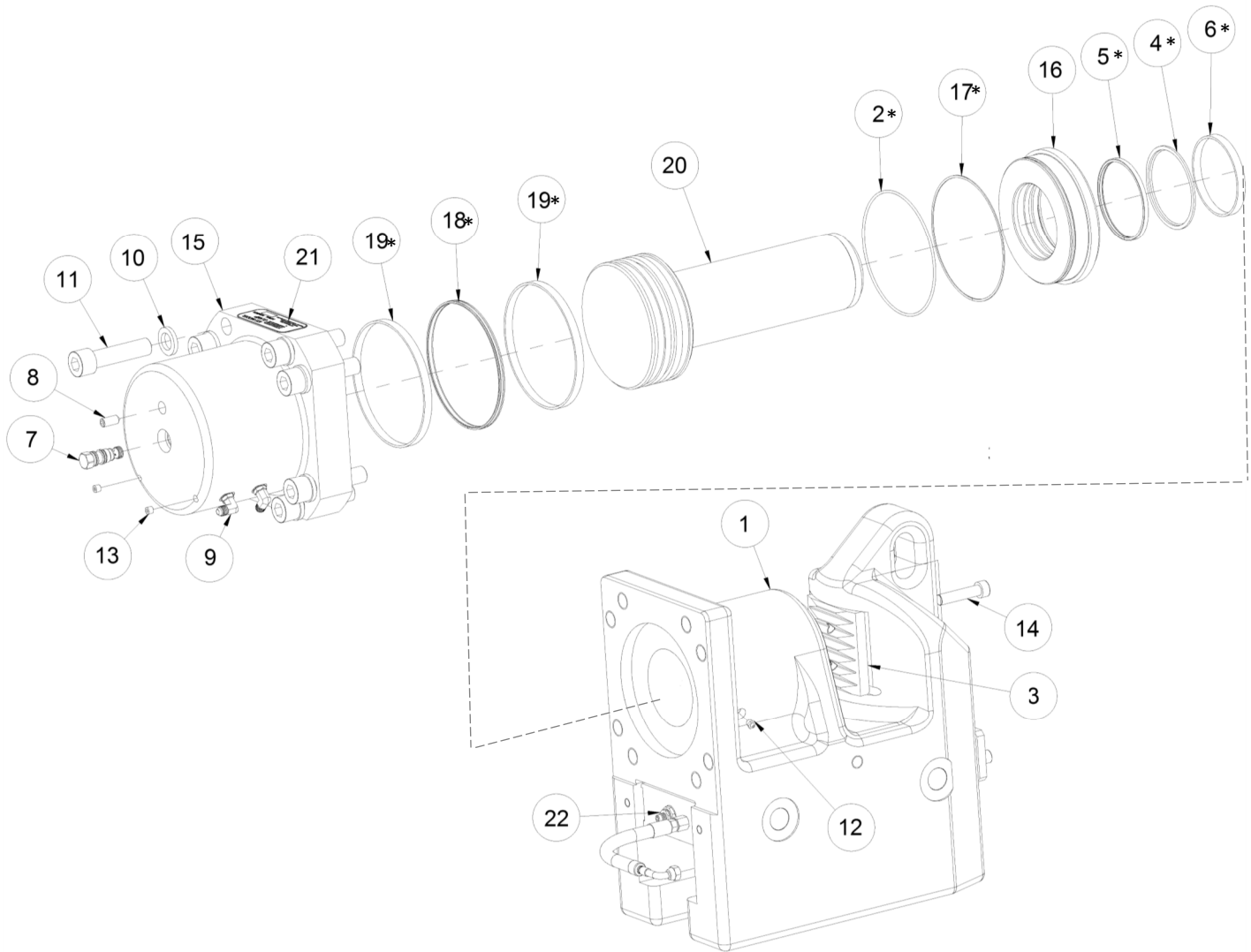


Minimum ID	22.25"	565 mm
Maximum OD with cylinders in	144"	3657 mm
Maximum ID with cylinders out	139"	3530 mm

Item	Part #	Qty	Part Description
1	720130	1	12' Caisson beam
2	120011	2	Clamp stop
3	400069	4	0.75-10UNC X 2.00 SHCS
4	1X32	4	0.75 Lock washer

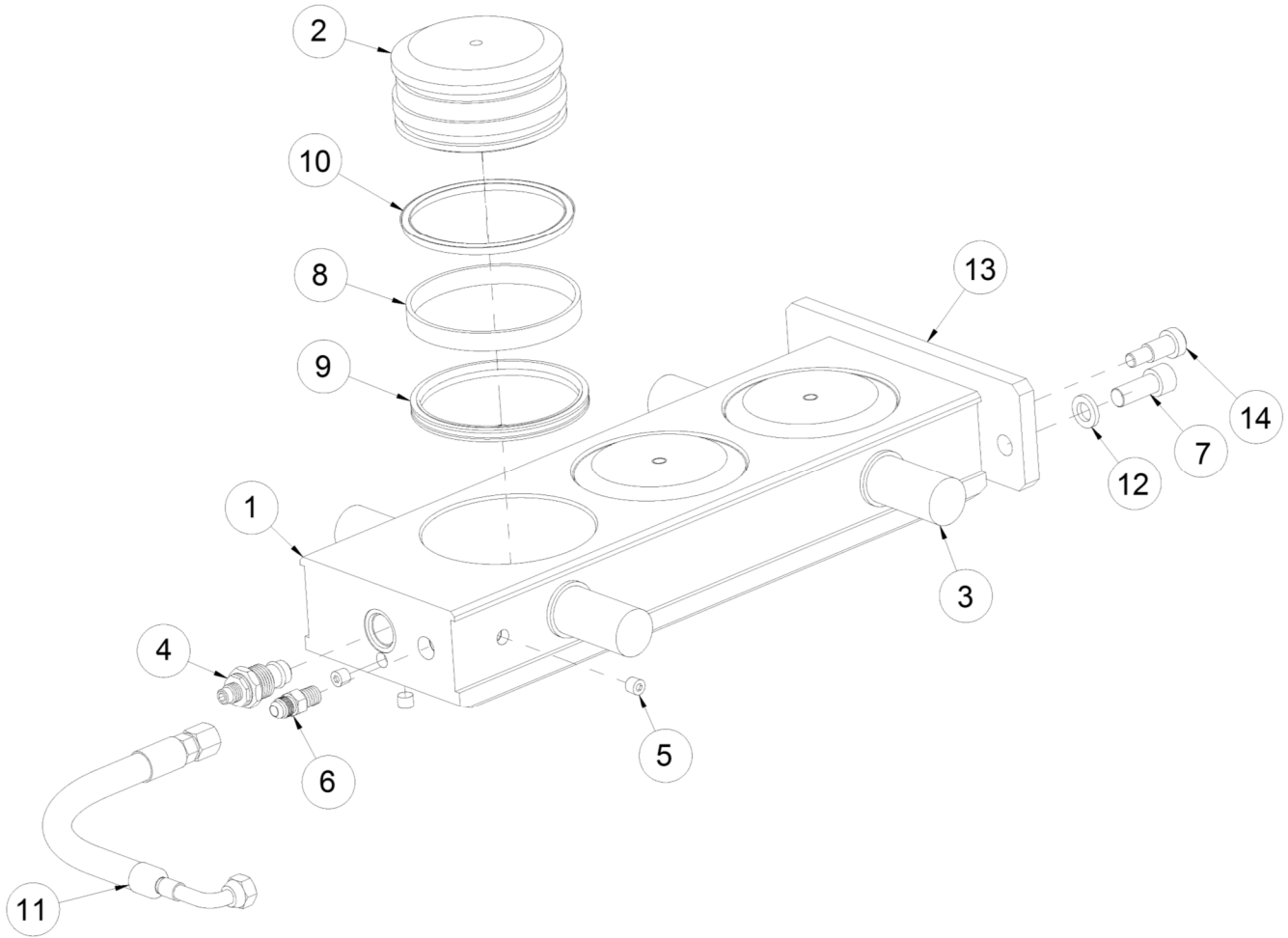
Item	Part #	Qty	Part Description
5	120009	4	HOSE038R02J006J006L0960-C
6	1X8502	14	1.50 Lock washer heavy
7	1X8548	14	1.50-6UNC X 5.00 SHCS
8	830236	2	142BH Clamp

Model 100BH Caisson Clamp with HydroLock™



Item	P/N	Qty	Part Description	11	1X8111	8	1.00-8UNC x 4.00 SHCS
1	720119	1	Clamp body 100B	12	1X812	2	0.125 Grease Fitting
2	120100	1*	2-263 O-ring	13	1X823	4	FITT2P-000000-000S001
3	120107	1	Fixed Jaw	14	400157	2	0.625-11 UNC X 2.75 SHCS
4	120345	1*	Rod wiper	15	720112	1	Cylinder housing
5	120625	1*	Rod T-seal	16	720113	1	Rod end cap
6	120627	1*	Rod bearing		830495	1	100B Seal kit (contains*)
7	120629	1	Holding valve cartridge	17	720116	1*	263 Back-up ring
8	120761	1	Pointed set screw	18	720117	1*	Piston T-seal
9	130057	3	FITT2L-06M06R000-000H001	19	720118	2*	Piston bearing
10	1X34	8	1.00 Spring Lock Washer	20	720146	1	Piston
11	1X8111	8	1.00-8UNC x 4.00 SHCS	21	730045	1	Clamp serial number plate
12	1X812	2	0.125 Grease Fitting	22	800399	1	100BHL HydroLock Assembly

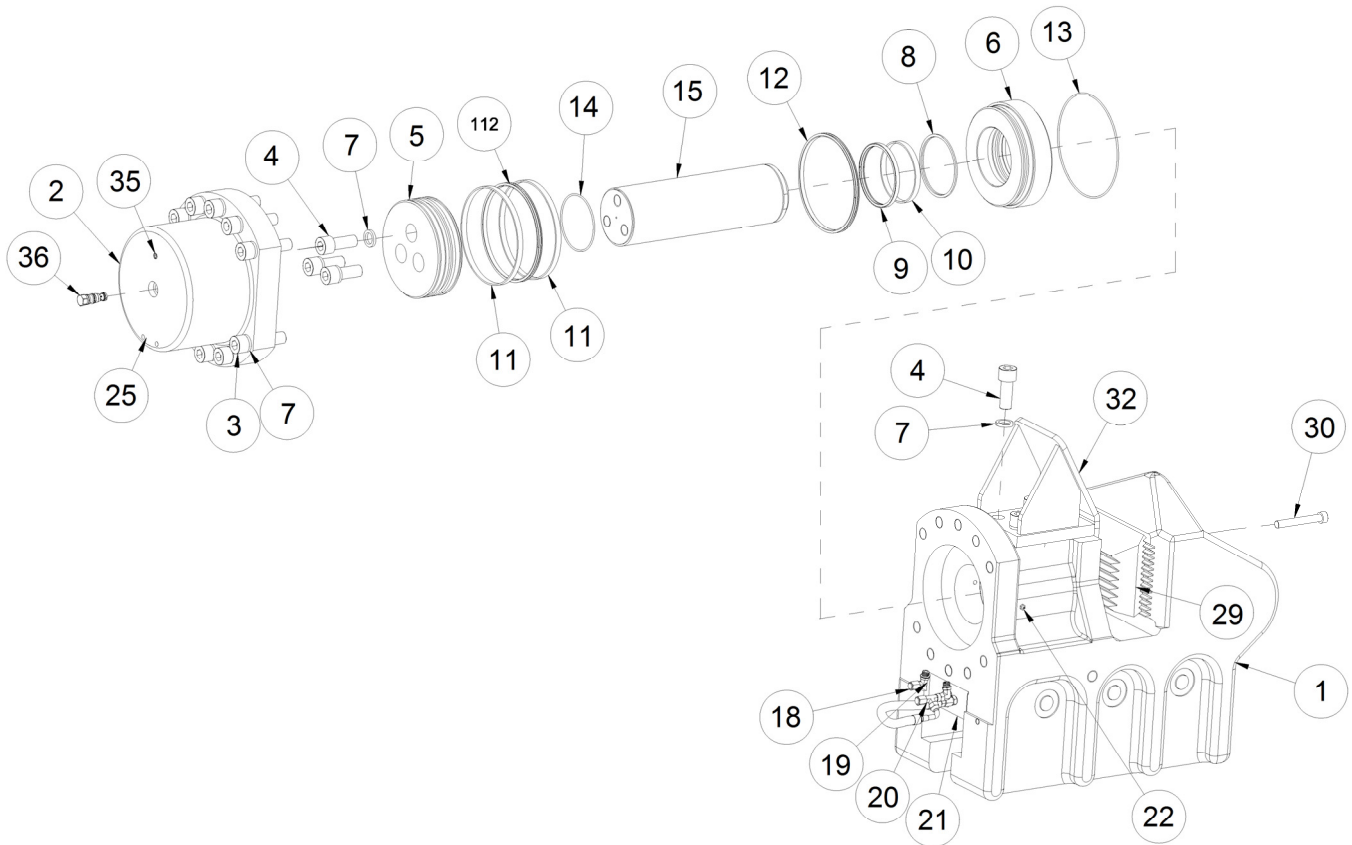
HydroLock™ Assembly



800339

Item	Part #	Qty	Part Description				
					841068	1	Seal Kit (contains*)
1	120639	1	Lock Body	108	120645	3*	Piston Bearing
2	120641	3	Piston	109	720300	3*	Piston T-seal
3	120643	4	Button	110	120649	3*	Piston Wiper
4	120651	1	Holding Valve	111	120657	2	HOSE038R02J006J906L008-0
5	1X823	1	FITT2P-02P000000-000S001	112	1X30	2	0.50 Spring Lock Washer
6	400203	3	FITT2S-06M06P000-000H001	113	120353	1	Retainer
7	100119	2	0.50-13UNC X 1.25 SHCS	114	140143	2	0.50-13UNC X 0.75 SHSS

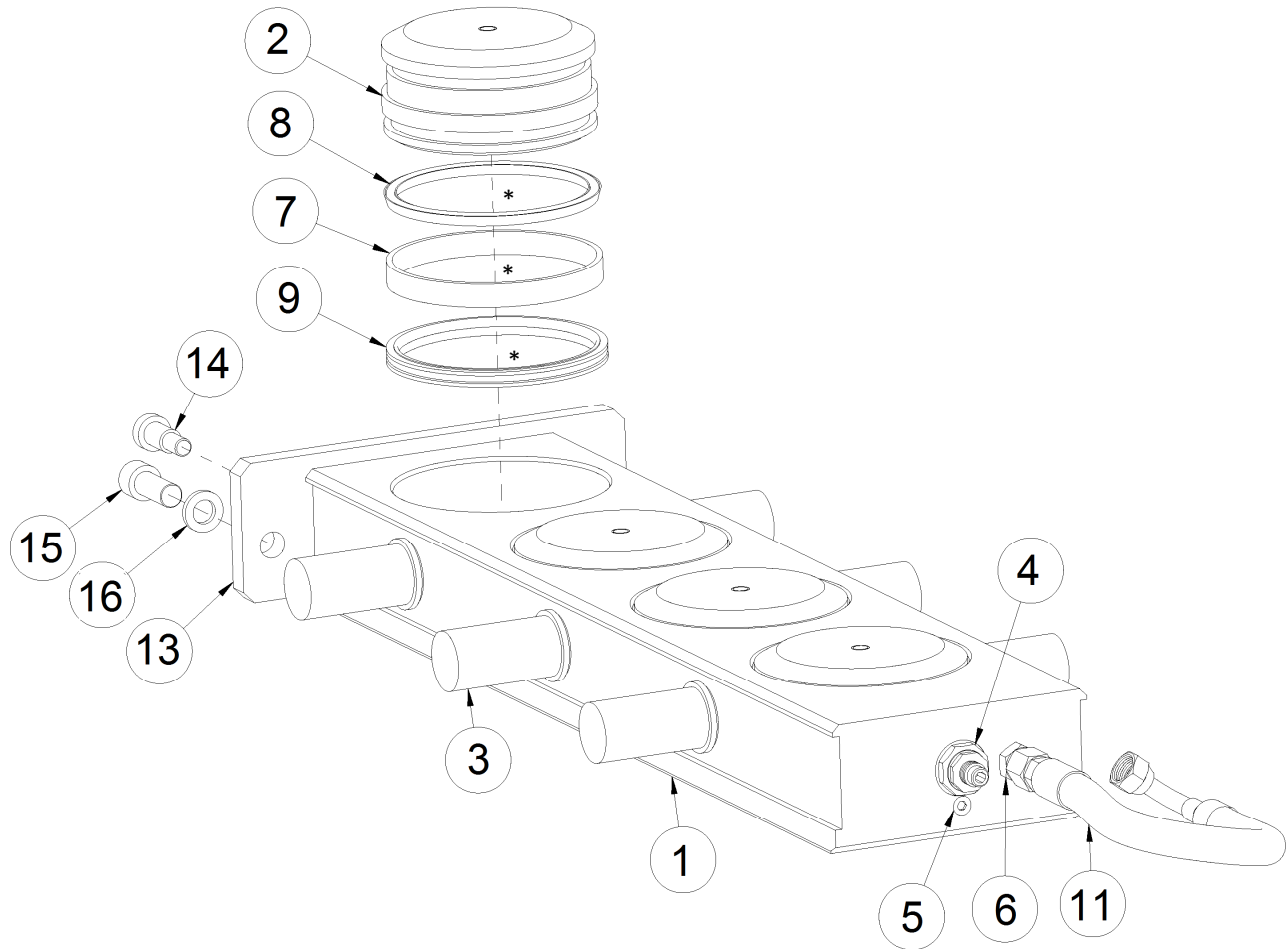
Model 142BH Caisson Clamp with HydroLock



830236.00.01

Item	P/N	Qty	Part Description	13	120401	1	2-269 O-ring
1	810183	1	Clamp Body	14	120683	1	2-248 O-ring
2	760068	1	Cylinder	15	120637	1	Piston Rod
3	1X8111	10	1.00-8UNC x 4.00 SHCS	18	1X8587	2	FITT2C-06j000000-000H001
4	1X8511	7	1.00-8UNC x 2.50 SHCS	19	130057	2	FITT2L06M06R000-000H001
5	720171	1	Piston	20	400702	1	FITT2T-06J06M06M-000H001
6	720172	1	Rod End cap	21	800559	1	Hydro-Lock
7	1X8512	17	1.00 Hi-collar Lock Washer	22	1X812	2	Grease fitting
	840198	1	Seal Kit (Item 108-114)	25	1X823	4	FITT2P-02P000000-000S001
8	120289	1	Rod Wiper	29	120261	1	Fixed Jaw
9	120685	1	Rod T-seal	30	100773	2	0.625-11UNC x 4.50 SHCS
10	120687	1	Rod Bearing	32	120259	1	Pile Guide
11	720174	2	Piston Bearing	35	120761	1	Pointed Set Screw
12	760074	2	Piston T-seal	36	120629	1	Holding Valve

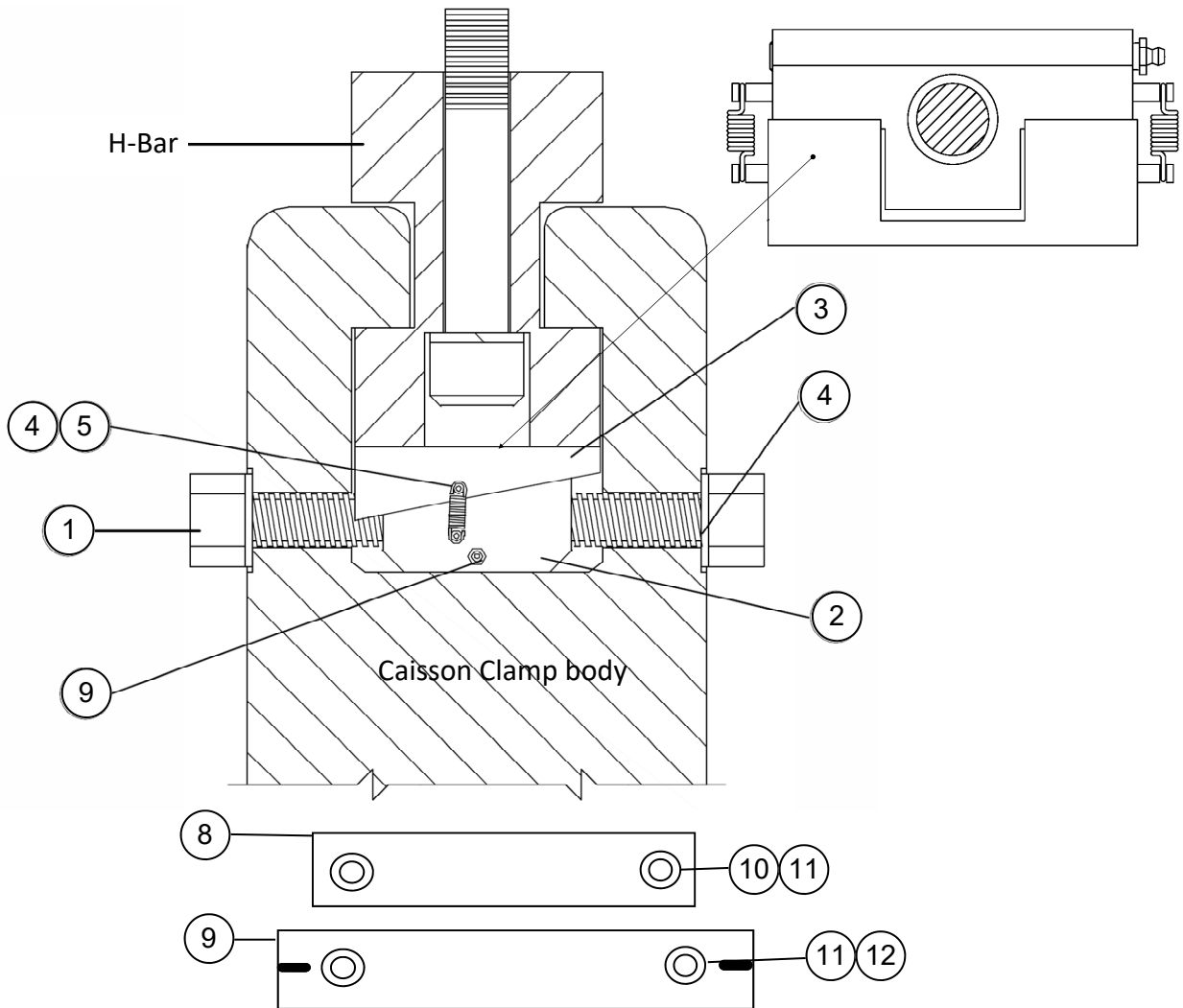
142BHL HydroLock Adapter



Item	P/N	Qty	Part Description
1	120773	1	Lock Body
2	120641	4	Piston
3	120643	6	Button
4	120651	1	Holding Valve
5	1X823	4	FITT2P-02P000000-000S001
6	1X1151	1	FITT2S-06M06P000-000H001
	841068	1	Seal Kit (contains*)
7	120687	4	Piston Bearing*
8	120649	4	Piston Wiper*
9	720300	4	Piston T-seal*
11	120657	1	HOSE038R02J006J906L0080-0
13	120653	1	Retainer
14	140143	2	0.50-13UNC x 0.75 SHSS
15	100119	2	0.50-13UNC x 1.25 SHCS
16	1X30	2	0.50 Spring Lock Washer

Optional Wedge Lock Assembly 840150

Assembly 840150 includes two Wedge-Lock Assemblies to replace Hydro-Lock assembly in each 100B Caisson Clamp & three for each 142B Caisson Clamp



For a single 100B Caisson Clamp

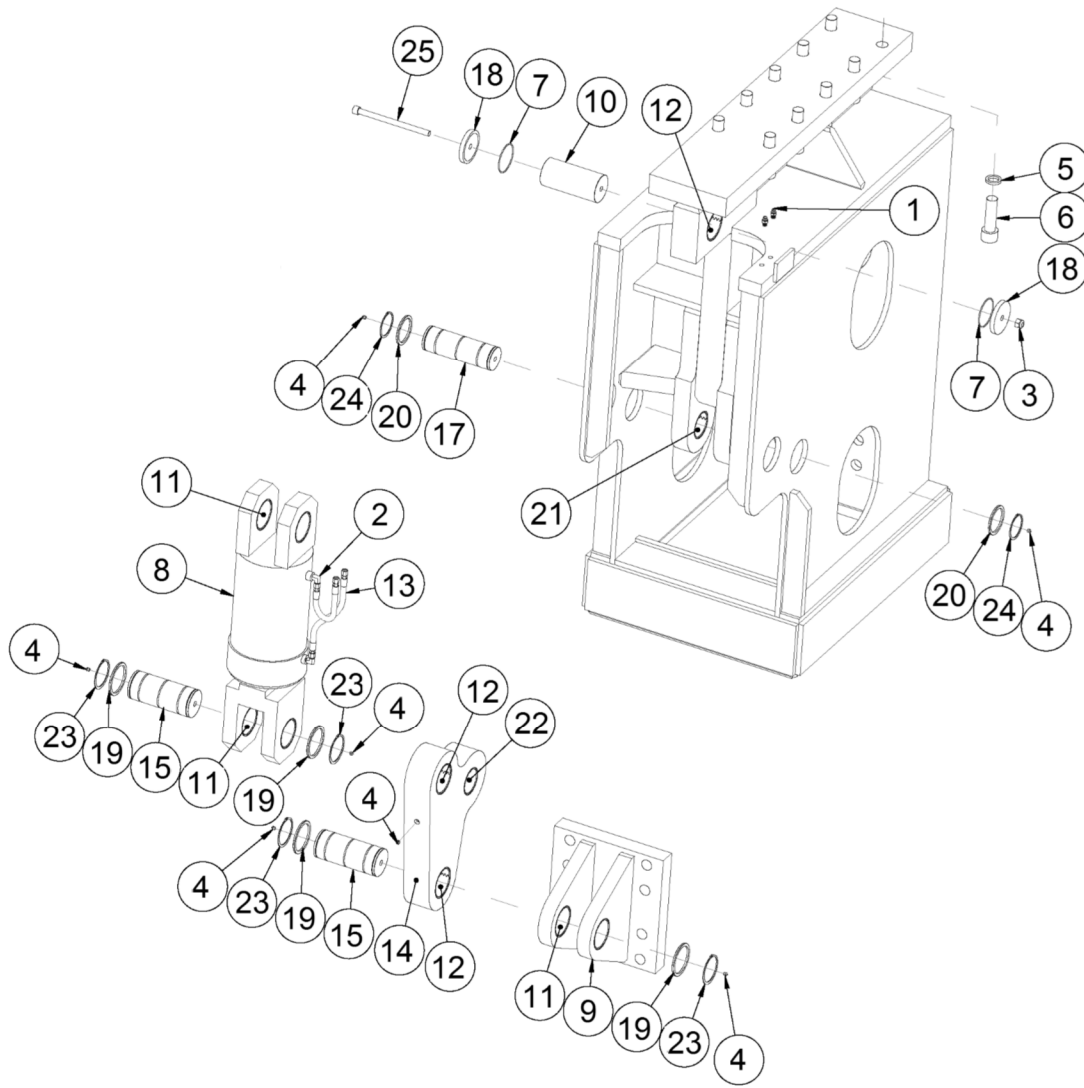
Item	P/N	Qty	Part Description
1	810109	2	Screw Assembly
2	120101	2	Wedge
3	120103	2	Lock
4	120113	8	Drive Pin
5	120115	4	Spring
6	1X812	2	Grease Fitting
*	1X823	2	FITT2P-02P000000-000S001
7	120111	4	1.25 HS Washer
8	120119	1	Wedge guard
9	120751	1	Cover Plate
10	100119	2	0.50-13UNC x 1.25 SHCS
11	100121	4	0.50 Lock Washer
12	100513	2	0.50-13UNC x 1.50 SHCS

For a single 142B Caisson Clamp

Item	P/N	Qty	Part Description
1	810109	3	Screw Assembly
2	120101	3	Wedge
3	120103	3	Lock
4	120113	12	Drive Pin
5	120115	6	Spring
6	1X812	3	Grease Fitting
*	1X823	3	FITT2P-02P000000-000S001
7	120111	6	1.25 HS Washer
8	120119	1	Wedge guard
9	120751	1	Cover Plate
10	100119	2	0.50-13UNC x 1.25 SHCS
11	100121	4	0.50 Lock Washer
12	100513	2	0.50-13UNC x 1.50 SHCS

* opposite side of grease fitting

Model 85 Timber/Concrete Clamp



Item	P/N	Qty	Part Description	Item	P/N	Qty	Part Description
1	1X1151	4	FITT2S-06M06P000-000H001	14	720309	1	Link
2	1X1172	2	FITT2L-06M08P000-000H001	15	720310	2	Pin
3	1X4513	4	0.75-10UNC Hex Lock Nut	16	720313	1	Clamp Frame
4	1X812	7	1/8" Grease Fitting	17	720310	2	Pin
5	1X8502	10	1.50 Lock Washer Extra Heavy	18	720315	2	Washer
6	1X8548	10	1.50-6UNC X 5.00 SHCS	19	720316	4	Washer
7	1X8953	8	2-242 O-ring	20	720317	2	Washer
8	720095	1	Hydraulic cylinder	21	720318	2	Spring Bushing
9	720097	1	Jaw base	22	720319	1	Spring Bushing
10	720098	4	Pin	23	720320	4	Retaining Ring
11	720104	6	Spring Bushing	24	720321	2	Retaining Ring
12	720105	4	Spring bushing 4" ID X 4 1/2" OD x 4"	25	720322	1	0.75-10UNC x 11.00 SHCS
13	720133	2	HOSE038R02J006J006L01500	*	720177	1	Seal kit
14	720309	1	Link	*	720133	1	HOSE038R02J006J006L0150

* Not shown

Recommended Spare Parts

Bulk

Part Number	Qty.	Description
810013	5 GAL	Hydraulic Fluid
810011	5 GAL	Vibrator gear case Lubricant
100726	1 GAL	Coolant/Anti-Freeze
100298	1 GAL	I C E Green Paint
100299	1 GAL	Primer

O-Ring Kit - 850129

P/N	Qty	Description
100037	12	2-222 O-Ring
100097	4	2-214 O-Ring
110119	14	2-225 O-Ring
110631	1	2-117 O-Ring
140255	2	2-113 O-Ring
400379	2	2-232 O-Ring

Tools

P/N	Qty.	Description
810045	1	Set of Allen Wrenches -Includes All Below:
100655	1	1/16" Allen Wrench - Long Arm
100691	1	5/64" Allen Wrench - Long Arm
100659	1	3/32" Allen Wrench - Long Arm
100661	1	7/64" Allen Wrench - Long Arm
100663	1	1/8" Allen Wrench - Long Arm
100665	1	9/64" Allen Wrench - Long Arm
100667	1	5/32" Allen Wrench - Long Arm
100669	1	3/16" Allen Wrench - Long Arm
100671	1	7/32" Allen Wrench - Long Arm
100673	1	1/4" Allen Wrench - Long Arm
100657	1	5/16" Allen Wrench - Long Arm
100675	1	3/8" Allen Wrench - Long Arm
100677	1	7/16" Allen Wrench - Long Arm
100679	1	1/2" Allen Wrench - Long Arm
100683	1	5/8" Allen Wrench - Long Arm
100685	1	3/4" Allen Wrench - Long Arm
100687	1	7/8" Allen Wrench - Short Arm
100689	1	1" Allen Wrench - Short Arm

