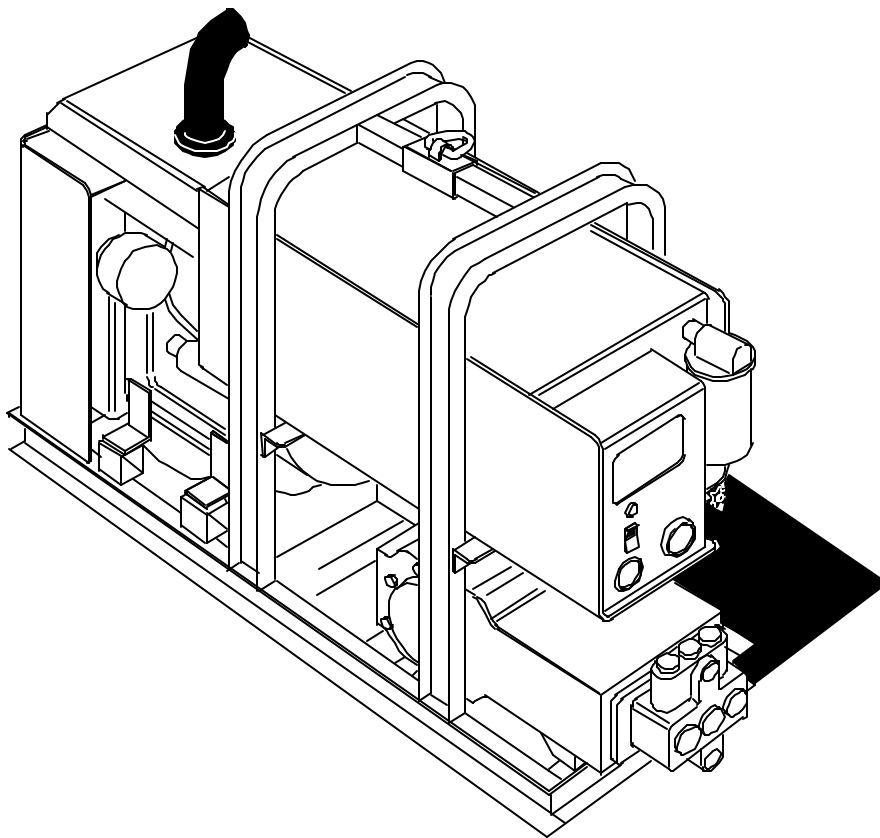


M3A

DRILLING FLUID SYSTEM

PARTS MANUAL



1450 South Spencer Road P.O. Box 388 Newton, Kansas 67114
Phone: (316) 283-5511 (800) 654-3484 Fax: (316) 283-6666

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STRAIGHTLINE PARTS ORDERING INFORMATION

Quality

StraightLine Manufacturing, Inc. is dedicated to providing quality products and services to satisfy our customers' needs. Quality is the responsibility of every StraightLine employee. Our focus is on continuously improving and innovating quality products.

How To Order

Contact your local StraightLine Dealer or call:

StraightLine Manufacturing, Inc
1450 South Spencer Road,
P.O. Box 388
Newton, Kansas 67114 / USA

1-888-367-8564 (parts dept. only, Toll Free)
1-316-283-6666 (parts department Fax)
1-800-654-3484 (StraightLine - Toll Free)
1-316-283-5511 (StraightLine switchboard)

Please have the drill's and/or mud skid's serial number and use StraightLine part numbers when ordering. All customer orders will be invoiced through the respective StraightLine Dealer when applicable. Credit card orders are welcome.

Conditions of Sale -- Terms and Delivery

With approved credit, 30 day terms will be granted. A 2% discount is available for payments postmarked by the 10th day of invoice date. No discounts are allowed on freight.

Claims and Returns

In all cases, risk of loss and damage to goods in transit shall fall upon the purchaser. It is the purchasers' responsibility to file any loss or damage with the carrier. Inspect all shipments for damage upon receipt. If any damage is noticed with packaging or carton, do not sign for or accept it without the driver making a notation on the freight bill or receipt. After receiving the shipment, remove the goods and thoroughly inspect immediately. If any concealed damage is discovered, notify the delivering carrier immediately in writing. Do not move damaged merchandise until further inspection has been made. Save the carton and packing material for inspection. Do not attempt to return any goods to our factory without making prior arrangements with StraightLine Manufacturing, Inc. Claims for shortages or inaccurate filling of orders must be made within 15 days after receipt of goods.

All returns must have a returned goods authorization number (RGA number) regardless of the reason for

return. Please contact the StraightLine parts department for an RGA number. This number must appear on the outside of the box as well as on a tag attached to the individual part. There will be a restocking charge applied on any items returned for credit or exchange when the error is not ours. Goods must be in new and original condition.

Packaging

Returned goods must be properly and securely packed to avoid damage in shipment. Goods damaged in shipment due to poor or improper packaging will not be warranted. Proper storage and shipment of warranty parts is a customer responsibility. If any components are damaged by rain, mud, rust, poor packaging, etc., the purchaser will be charged for the part.

Inspection Charge

Goods returned for warranty consideration, inspection, and/or testing, and found to be in acceptable working condition, or if the cause of failure is determined not to be a valid warranty issue, will be subject to a minimum \$25.00 inspection and handling charge for each item.

Replacement Part Warranty

Warranty allowance on service parts is based on 90 days from the purchase date to the original purchaser. There is no warranty on ground engaging tools. Warranty credit will be based on invoice price.

Genuine StraightLine parts that are replaced under this warranty and installed by an authorized StraightLine Dealer, StraightLine Service Center, or StraightLine Service Representative will be repaired or replaced, with a new or remanufactured part as StraightLine elects, if a defect in materials or workmanship appears during the period of coverage. No allowance will be made for labor to remove or install the part during the 90 day warranty period.

SPECIFIC POLICIES AND PROCEDURES FOR THE OPERATION OF THIS WARRANTY ARE SET FORTH IN STRAIGHTLINE'S NEW EQUIPMENT "WARRANTY POLICY" AND IN STRAIGHTLINE'S DEALER WARRANTY SERVICE - "POLICIES & PROCEDURES MANUAL".

STRAIGHTLINE WARRANTY INFORMATION SUMMARY

New Equipment Warranty

StraightLine Manufacturing, Inc. (Herein referred to as "StraightLine") warrants to the original owner each item of new equipment of its own manufacture against defective workmanship and material, under normal use and service, but not against damage of any kind resulting from misuse, neglect, abuse, improper use or maintenance. Units which have been used for demonstration purposes for less than 100 hours are "new" for this purpose.

Warranty Period

The warranty period to the original retail purchaser is twelve (12) months or 1,000 hours after date of delivery, whichever expires first. Ninety days on Service Parts (See the StraightLine Policies and Procedures Manual and the StraightLine New Equipment Warranty Policy for complete warranty information). This warranty is made to the original owner of new StraightLine equipment and is not transferable.

ALERT: StraightLine warranties are activated by receipt of the New Product Warranty Registration form which is sent with each new product. Registration forms on all new equipment must be completed and on file at StraightLine Manufacturing within fifteen (15) days of the date of delivery to the first purchaser. Failure to file will result in no warranty reimbursements.

Coverage

All parts which are defective in material or workmanship except component parts separately warranted by the original manufacturer will be repaired or replaced, at StraightLine's option. StraightLine will pay the cost of labor deemed reasonably necessary by StraightLine, to install any repaired or replaced part provided under this warranty, when labor is performed by authorized StraightLine personnel. The remedies set forth in this paragraph are exclusive and correction by StraightLine of product non-conformities in the manner provided above shall constitute fulfillment of all liabilities and obligations of StraightLine to those entitled to the benefit of this warranty. Warranty will not apply if failure is due to normal wear, exposure, accident, neglect, or improper protection, improper maintenance, improper winterizing and storage, or improper use.

Exclusions

This warranty shall not apply to general maintenance services or expendable replacement items. In addition, this warranty shall not apply to equipment not manufactured by StraightLine which is covered only by the warranty, if any, of its manufacturer. StraightLine reserves the right to discontinue models or options at any time or to change specifications, materials, or designs without notice and without incurring obligation.

Owner Responsibility

The owner is responsible for proper maintenance of the product. Any improper use, including failure to provide proper maintenance, operation after discovery of defective or worn parts, or operation beyond rated capacity shall void this warranty. This warranty shall not apply to any equipment which has been tampered with or altered after leaving our control, including but not limited to: foreign materials in the fluid system, pressure and speed in excess of published and recommended maximum, and damages resulting from repair by anyone except authorized StraightLine personnel. Charges for pick up, delivery, mileage, hauling, overtime, and service calls are not covered by this warranty.

Remedies Exclusive

The only remedies purchaser has in connection with the breach or performance of any warranty on StraightLine equipment are the remedies set forth above. StraightLine will not be responsible for any duty, taxes or other changes or liable for incidental or consequential damages, including, but not limited to, loss of profits, rental of substitute equipment, delay or other commercial loss. StraightLine's liability in all events is limited to the value of the product involved.

No Modification of Warranty

No StraightLine employee, representative or dealer is authorized to modify or change this warranty in any way or grant any other warranty unless the modification or change is made in writing and signed by an officer of StraightLine.

Drilling Fluid Circuit

All components of the drilling fluid circuit such as, but not limited to: The drilling fluid swivel, drilling fluid mixing/circulating pump, drilling fluid pressure pump, and related couplers, valves, seats, packings, seals, relief valves, bearings, shafts, housings, jets, etc., come in contact with an abrasive media when using Bentonite. These components are unquestionably wear items and are not covered under warranty.

Expendable Wear Items

Repair or replacement of expendable and normal wear items such as, but not limited to: Drill stem, ground engaging tools, bits, stakes, augers, saver subs, wrench jaws, cogs, and bodies, loose electrical wires, electrical umbilical cords and connectors, couplers, engine oil and filters, fuel filters, drill fluid strainers or filters, hydraulic oil and filters, drill fluid hoses and couplers, O-rings, roller chains and connector or repair links, sprockets, etc. will not be covered under this warranty. Warranty will not apply if failure is due to normal wear, exposure, accident, neglect, abuse, or improper protection, improper maintenance, improper winterization and storage, or improper use.

Limitations of Warranties and Applicable Law

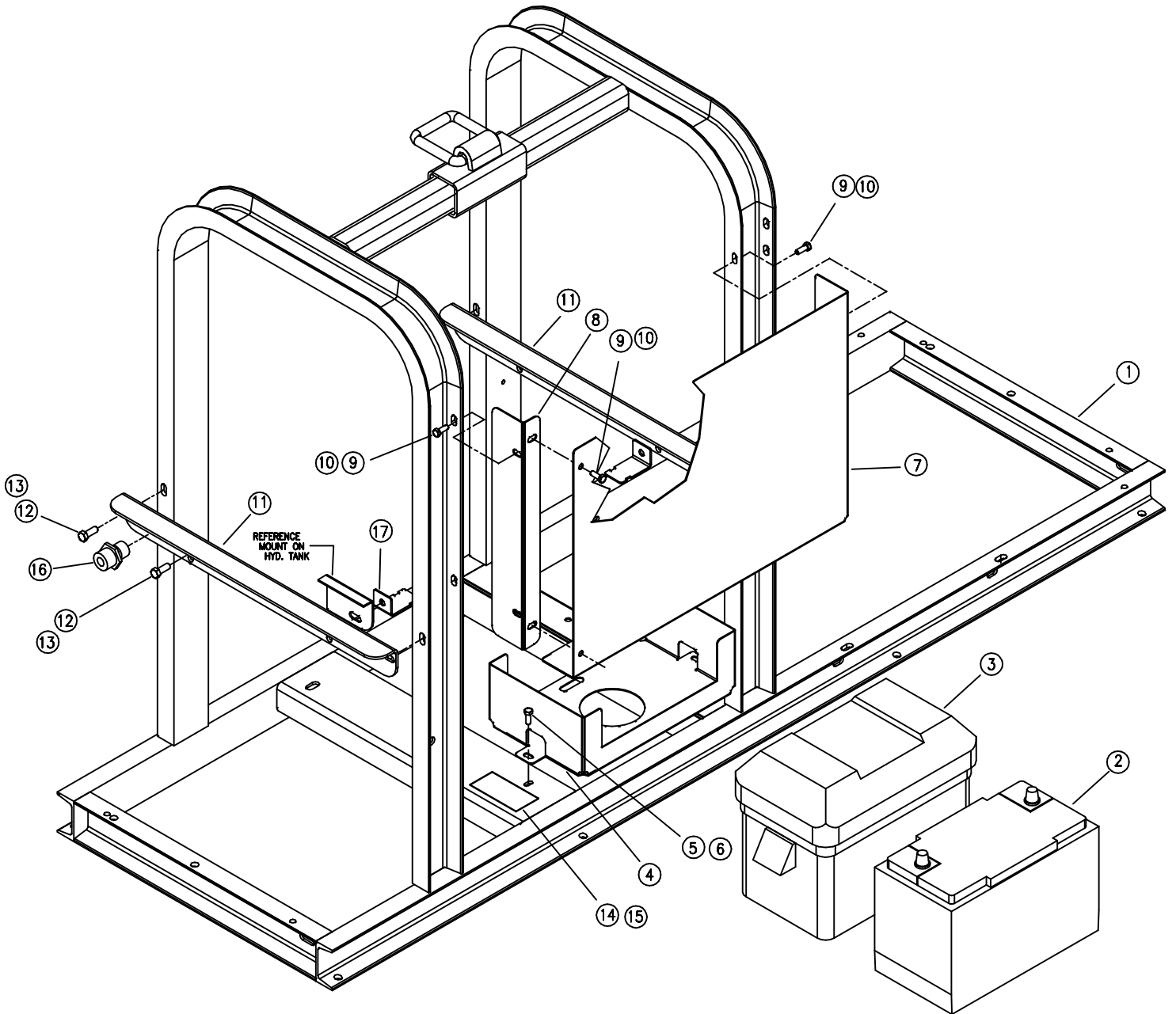
Where permitted by law, StraightLine's warranty is expressly limited to the conditions as stated in this warranty. There are no warranties which extend beyond the description on the face of this warranty and/or StraightLine's New Equipment Warranty Policy. This warranty is issued by StraightLine at Newton Kansas and shall be governed by and interpreted in accordance with the laws of the state of Kansas.

FOR COMPLETE AND SPECIFIC WARRANTY INFORMATION REGARDING NEW STRAIGHTLINE EQUIPMENT, SEE THE "NEW EQUIPMENT WARRANTY POLICY" THAT IS FURNISHED WITH EACH PIECE OF NEW STRAIGHTLINE EQUIPMENT WHEN IT IS DELIVERED TO THE ORIGINAL PURCHASER. THIS PAGE IS BASICALLY A SUMMARY OF THAT POLICY.

SPECIFIC POLICIES AND PROCEDURES FOR THE OPERATION OF THIS WARRANTY ARE SET FORTH IN STRAIGHTLINE'S DEALER WARRANTY SERVICE "POLICIES AND PROCEDURES MANUAL".

IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS ARE EXPRESSLY EXCLUDED BY STRAIGHTLINE.

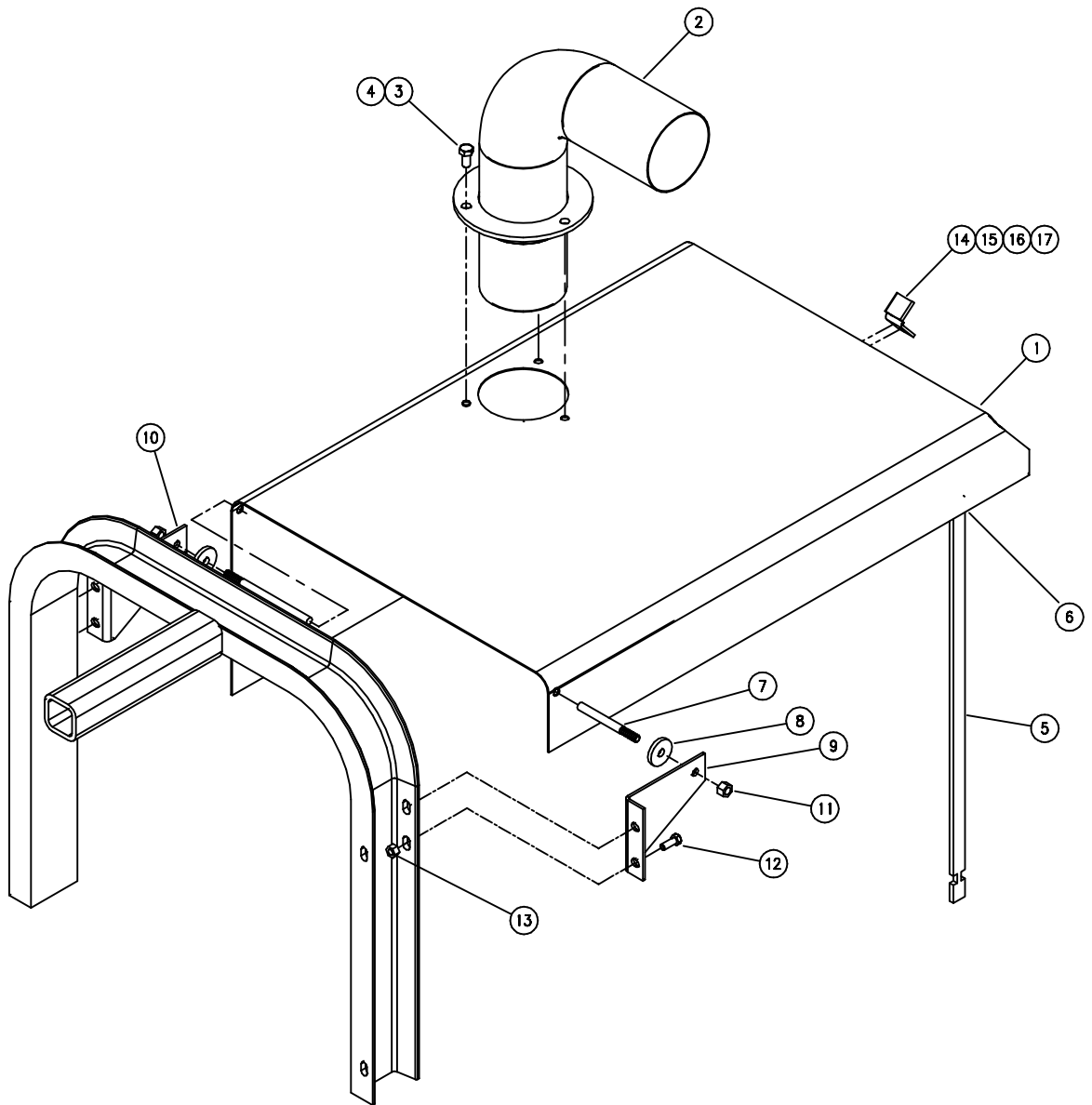
Main Frame Assembly



Main Frame Assembly Parts List

Item	Part Number	Description	Qty
1	470511	Frame Weldment	1
2	236-5319-02	Battery – 12V 1000 CCA	1
3	121069	Batter Box – With Lid and Strap	1
4	362452	Battery Frame	1
5	51618X34WHB	Hex Whiz Bolt – 5/16-18 X 3/4	2
6	51618WHN	Hex Whiz Nut – 5/16-18	2
7	262624	Front Panel – Umbilical Storage	1
8	262623	Front Panel Support Angle	1
9	51618X34WHB	Hex Whiz Bolt – 5/16-18 X 3/4	6
10	51618WHN	Hex Whiz Nut – 5/16-18	6
11	262435	Tank Support Angle	2
12	3816X1WHB	Hex Whiz Bolt – 3/8-16 X 1	8
13	3816WHN	Hex Whiz Nut – 3/8-16	8
14	750-118-02	Serial Number Plate	1
15	236-2488-02	Pop Rivet – 1/8 X 1/4 Grip	2
16	121137	Cable Clamp	1
17	162474	Harness Hanger	2

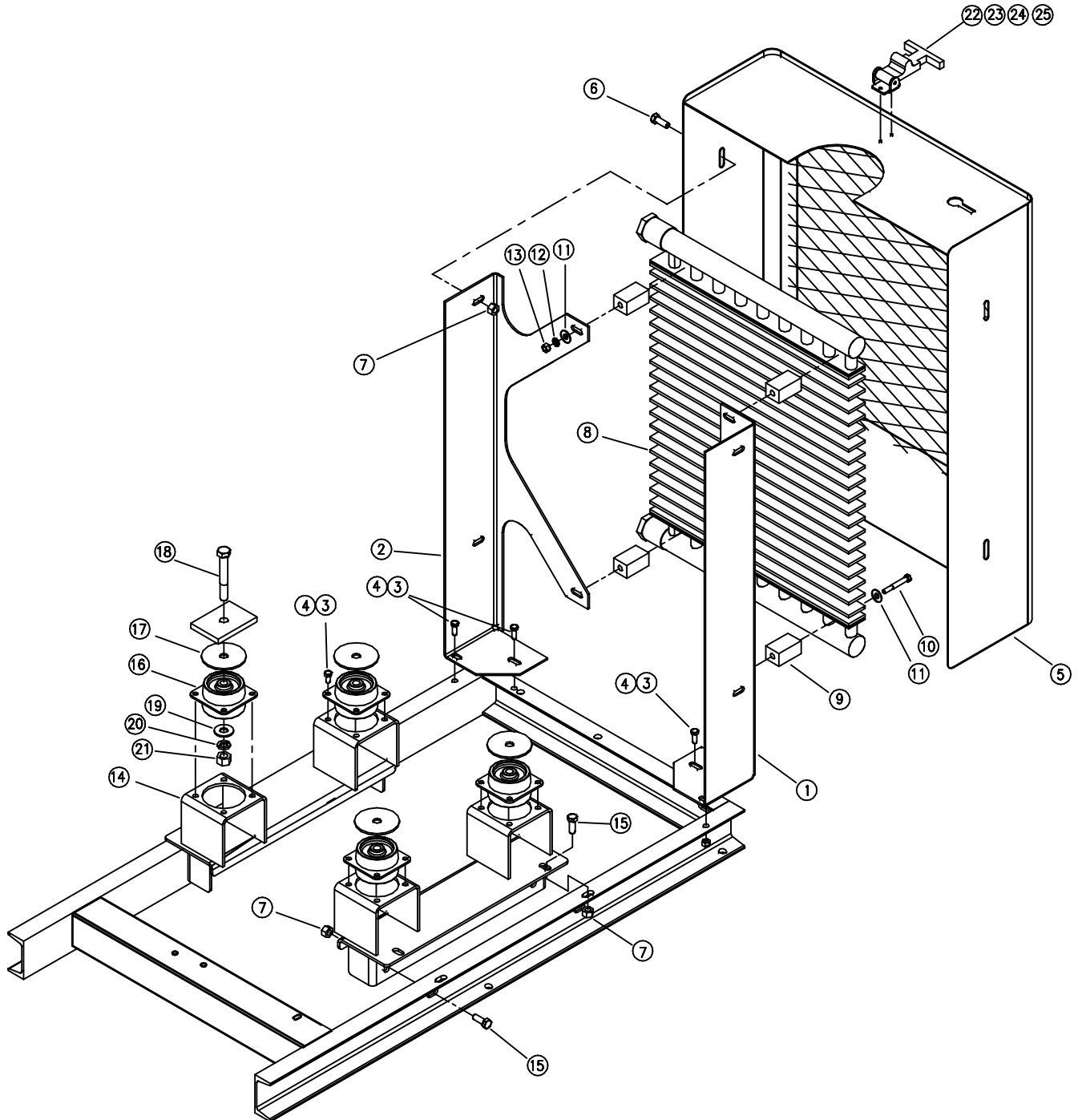
Hood Assembly



Hood Assembly Parts List

Item	Part Number	Description	Qty
1	370603	Engine Cover	1
2	270606	Exhaust Elbow – 4" With Flange	1
3	3816X34WHB	Hex Whiz Bolt – 3/8-16 X 3/4	3
4	3816WHN	Hex Whiz Nut – 3/8-16	3
5	262450	Cover Prop	1
6	701-100-02	Nylock Hex Nut – 5/16-18	1
7	262809	Pivot Rod	1
8	202-450-02	Rubber Washer – 1 3/8 X 3/8	2
9	262802	Right Engine Cover Bracket	1
10	262801	Left Engine Cover Bracket	1
11	701-105-02	Nylock Hex Nut – 3/8-16	2
12	51618X34WHB	Hex Whiz Bolt – 5/16-18 X 3/4	4
13	51618WHN	Hex Whiz Nut – 5/16-18	4
14	121095	Flexible Draw Latch	1
15	1024X34OHS	Machine Screw – 10-24 X 3/4 Oval Head	2
16	10LW	Lock Washer - #10	2
17	10LN	Lock Nut - #10	2

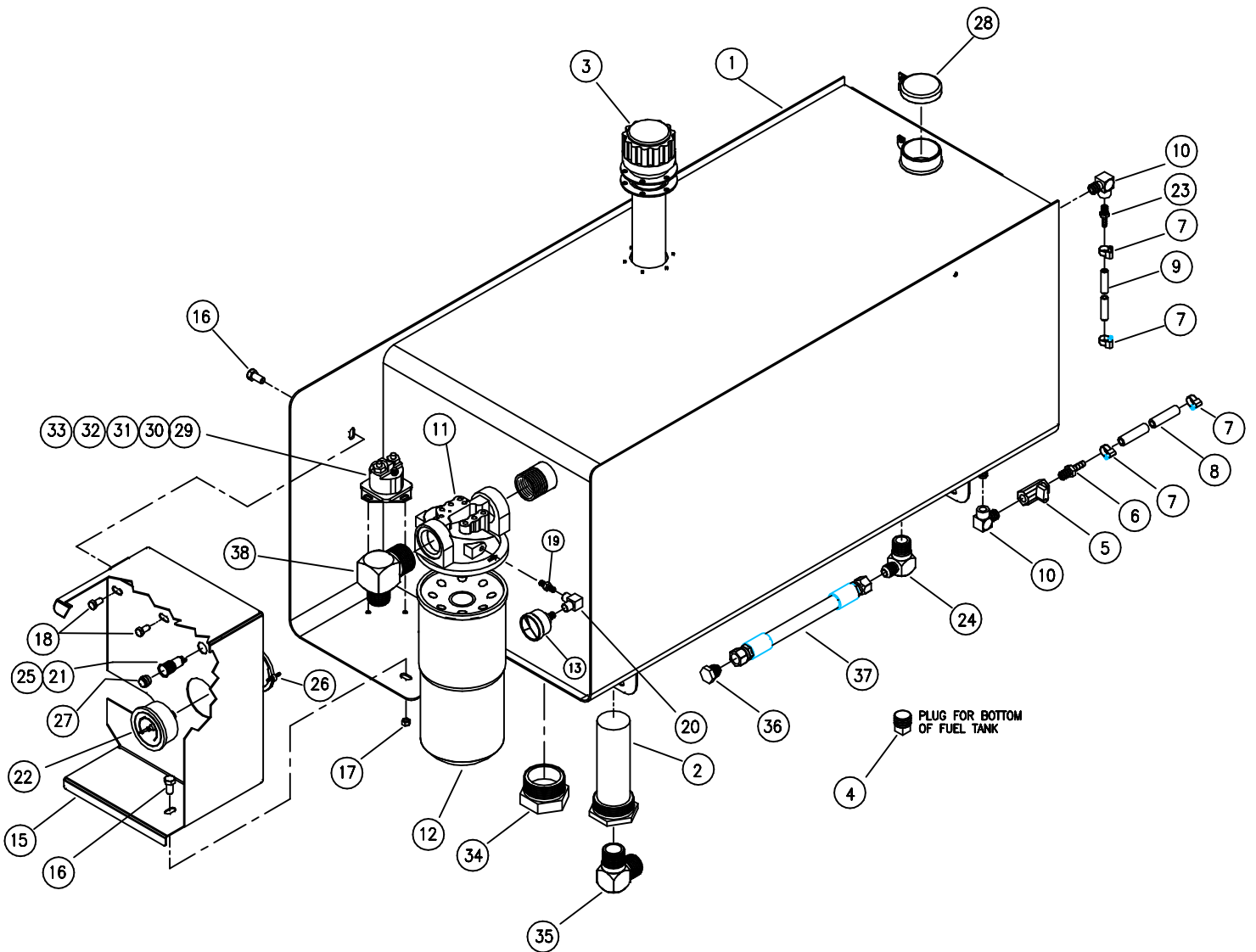
Engine Frame Assembly



Engine Frame Assembly Parts List

Item	Part Number	Description	Qty
1	262460	Right Cooler Mount	1
2	262461	Left Cooler Mount	1
3	51618X1WHB	Hex Whiz Bolt – 5/16-18X 1	20
4	51618WHN	Hex Whiz Nut – 5/16-18	20
5	370607	Oil Cooler Cover	1
6	3816X34WHB	Hex Whiz Bolt – 3/8-16 X 3/4	4
7	3816WHN	Hex Whiz Nut – 3/8-16	12
8	121109	Hydraulic Oil Cooler	1
9	202-006-02	Rubber Cooler Mount	4
10	51618X212HB	Hex Bolt – 5/16-18 X 2 1/2	4
11	516FW	Flat Washer – 5/16	8
12	516LW	Lock Washer – 5/16	4
13	51618HN	Hex Nut – 5/16-18	4
14	270062	Engine Mount Weldment	2
15	3816X1WHB	Hex Whiz Bolt – 3/8-16 X 1	8
16	120639	Engine Isolator Mount	4
17	201-007-02	Isolator Washer	4
18	1213X4HB	Hex Bolt – 1/2-13 X4	4
19	12FW	Flat Washer – 1/2	4
20	12LW	Lock Washer – 1/2	4
21	1213HN	Hex Nut – 1/2-13	4
22	221095	Flexible Draw Latch	1
23	1024X34OHS	Machine Screw – 10-24 X 3/4 Oval Head	2
24	10LW	Lock Washer - #10	2
25	10LN	Lock Nut - #10	2

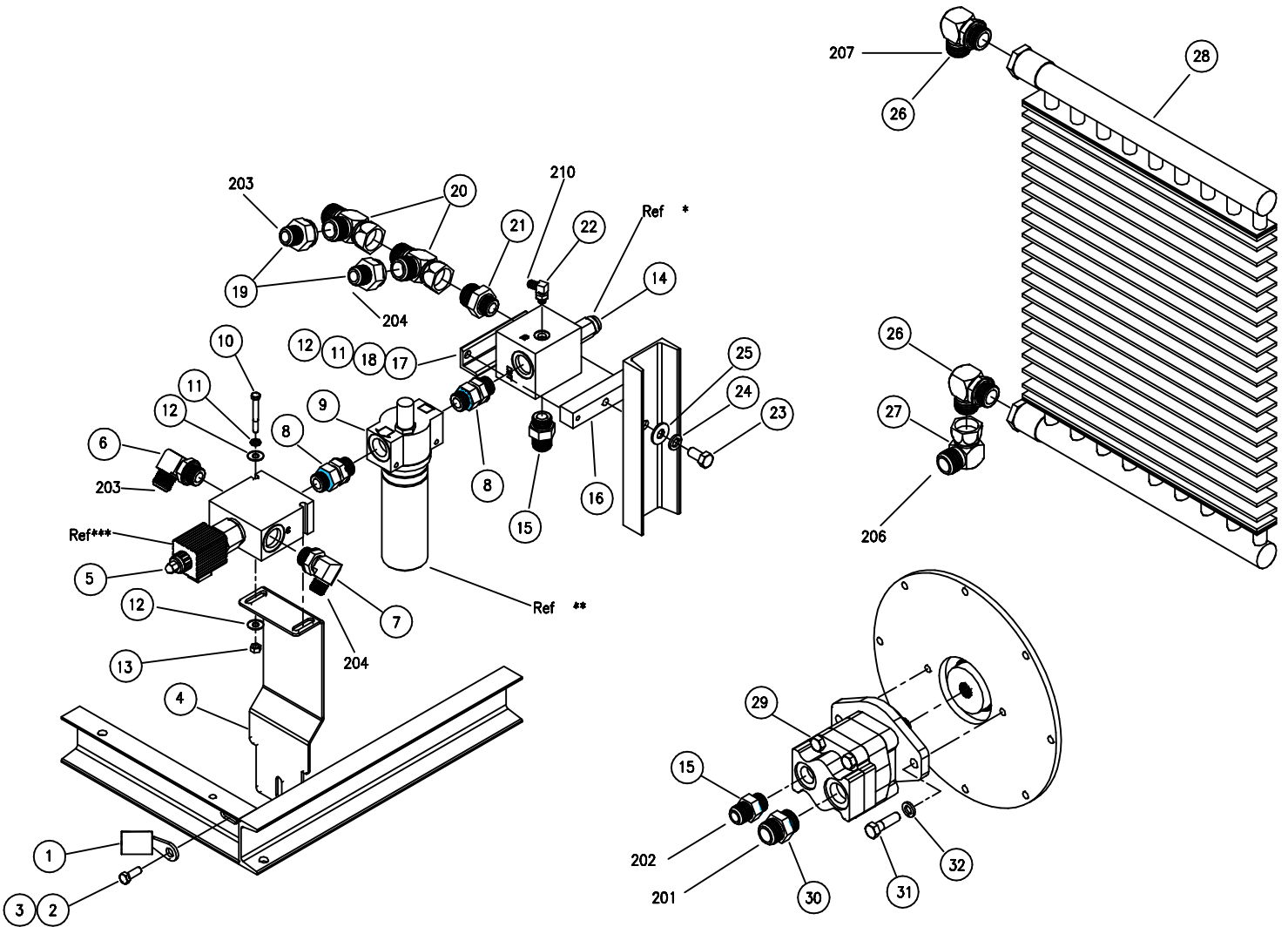
Fuel/Hyd Tank w/Control Panel



Hydraulic/Fuel Tank With Control Panel Parts List

Item	Part Number	Description	Qty
1	470513	Hydraulic/Fuel Tank	1
2	121049	Suction Strainer	1
3	120097	Vented Filler with Strainer	1
4	236-4931-02	Magnetic Drain Plug	1
5	236-3074-02	1/4" Petcock Valve	1
6	202-294-02	Adapter – 1/4" MP to –5 Hose Barb	1
7	701-404-02	#4 Hose Clamp	4
8	706-102-02	Fuel Supply Hose – 5/16"	24"
9	706-104-02	Fuel Return Hose – 1/4"	13"
10	202-231-02	Adapter – 4MP to 4FP	2
11	121088	Filter Base	1
12	121089	Filter Element	1
13	121090	Filter Gauge	1
14	120109	Magnet (Not Shown)	3
15	370605	Instrument Panel Housing	1
16	51618X34WHB	Hex Whiz Bolt – 5/16-18 X 3/4	2
17	51618WHN	Hex Whiz Nut – 5/16-18	1
18	8MMX12MMHB	Hex Bolt – 8mm X 12mm	2
19	236-5607-02	2MP Nipple	1
20	120720	90° Elbow – 2FP to 2FPX	1
21	120686	Indicator Lamp Housing	1
22	121042	0-6000 PSI Hydraulic Pressure Gauge	1
23	202-293-02	Adapter – 4MP to 1/4" Hose Barb	1
24	12MP8MJ90	90° Elbow Adapter – 3/4" MP to 1/2" JIC	1
25	120687	Indicator Lamp Bulb	1
26	121043	Gauge Clamp	1
27	120511	Indicator Lamp Lens – Amber	1
28	120099	Fuel Cap	1
29	236-4137-02	Hose Reel Relay	1
30	1420X1HB	Hex Bolt – 1/4-20 X 1	2
31	14LW	Lock Washer – 1/4	2
32	14FW	Flat Washer – 1/4	2
33	1420HN	Hex Nut – 1/4-20	2
34	32MPPLUG	2" Male Pipe Plug	1
35	16MP16MJ	Adapter – 1" MP to 1" JIC	1
36	8MJPLUG	1/2" JIC Plug	1
37	8-8FJX8FJX21R2	1/2" 3500 PSI Hose 21" Long	1
38	20MP16MJ90	90° Elbow Adapter – 1 1/4" MP to 1" JIC	1

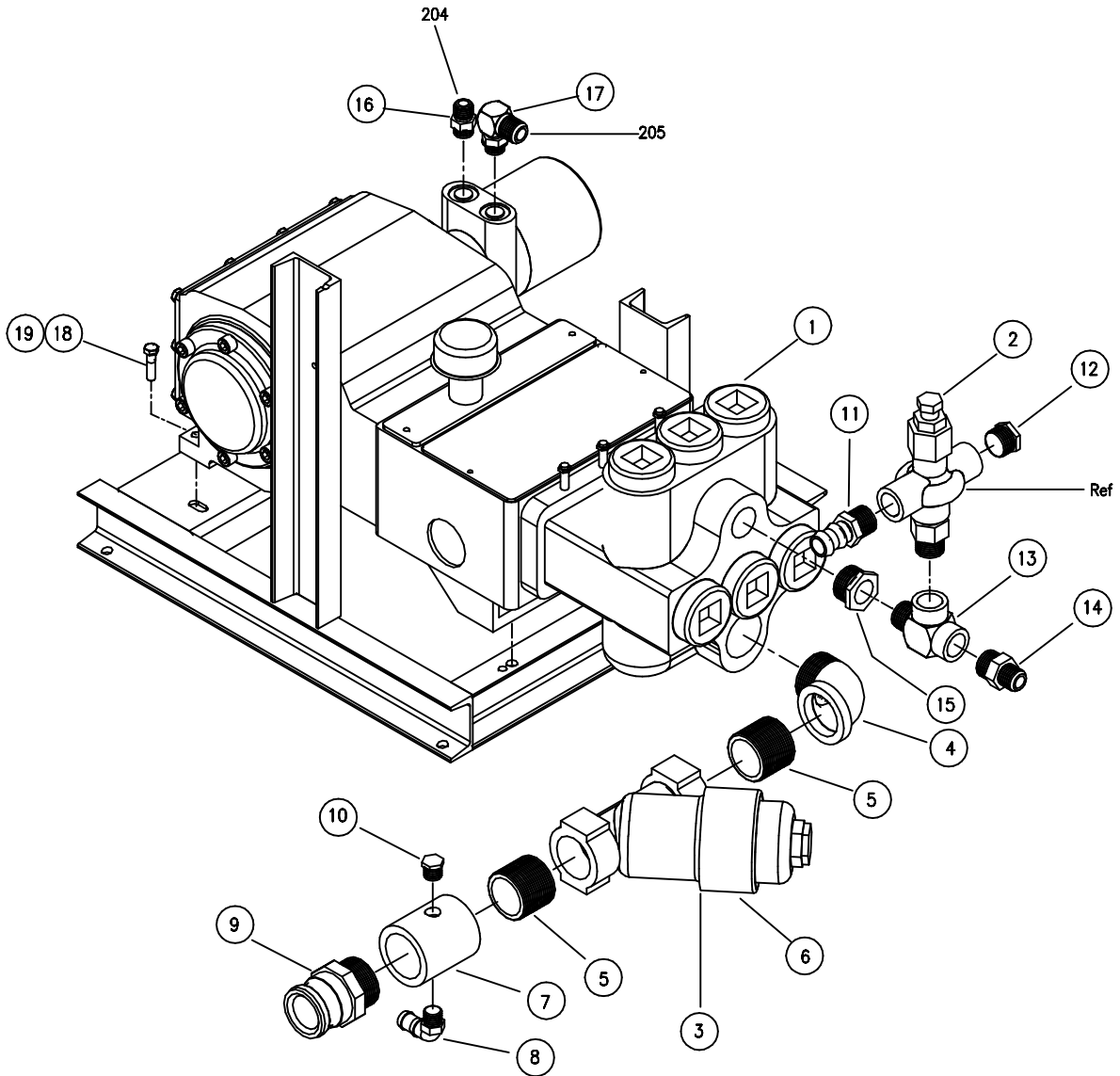
Hydraulic Components



Hydraulic Components Parts List

Item	Part Number	Description	Qty
1	101-111-02	Ground Lug	1
2	3816X1WHB	Hex Whiz Bolt – 3/8-16 X 1	1
3	3816WHN	Hex Whiz Nut – 3/8-16	1
4	262611	Flow Control Mounting Bracket	1
5	120094	Flow Control Valve	1
Ref	121096	Valve Cartridge	*
Ref	121097	Magnetic Coil	*
6	12MB12MJ90	90° Elbow – 3/4" MB to 3/4" JIC	1
7	12MB10MJ90	90° Elbow Adapter – 3/4" MB to 5/8" JIC	1
8	12MB12MB	Fitting – 3/4" MB	1
9	121158	Pressure Filter Assembly	1
Ref	121159	Filter Element	*
Ref	121156	Pressure Differential Switch	*
10	51618X3HB	Hex Bolt – 5/16-18 X 3	2
11	516LW	Lock Washer – 5/16	4
12	516FW	Flat Washer – 5/16	6
13	51618HN	Hex Nut – 5/16-18	2
14	236-3104-02	Relief Valve	1
Ref	236-5866-02	Valve Cartridge	*
15	12MB12MJ	Fitting – 3/4" MB to 3/4" JIC	1
16	162608	Relief Valve Mount	1
17	162610	Relief Valve Retainer	1
18	51618X4HB	Hex Bolt – 5/16-18 X 4	2
19	12MJ16MJ	Fitting Adapter – 3/4" JIC to 1" JIC	1
20	16MJ16MJ16FJXT	1" Tee Fitting	1
21	12MB16MJ	Fitting Adapter – 3/4" MB to 1" JIC	1
22	4MB4MJ90	90° Elbow – 1/4" MB to 1/4" JIC	1
23	1213X1HB	Hex Bolt – 1/2-13 X 1	1
24	12LW	Lock Washer – 1/2	1
25	12FW	Flat Washer – 1/2	1
26	16MB16MJ90	90° Elbow – 1" MB to 1" JIC	1
27	16MJ16FJX90	90° Elbow – 1" JIC to 1" JIC Swivel	1
28	121109	Oil Cooler	1
29	120177	Hydraulic Pump	1
30	16MB16MJ	Fitting Adapter – 1" MB to 1" JIC	1
31	1213X114HB	Hex Bolt – 1/2-13 X 1 1/4	2
32	12LW	Lock Washer – 1/2	2

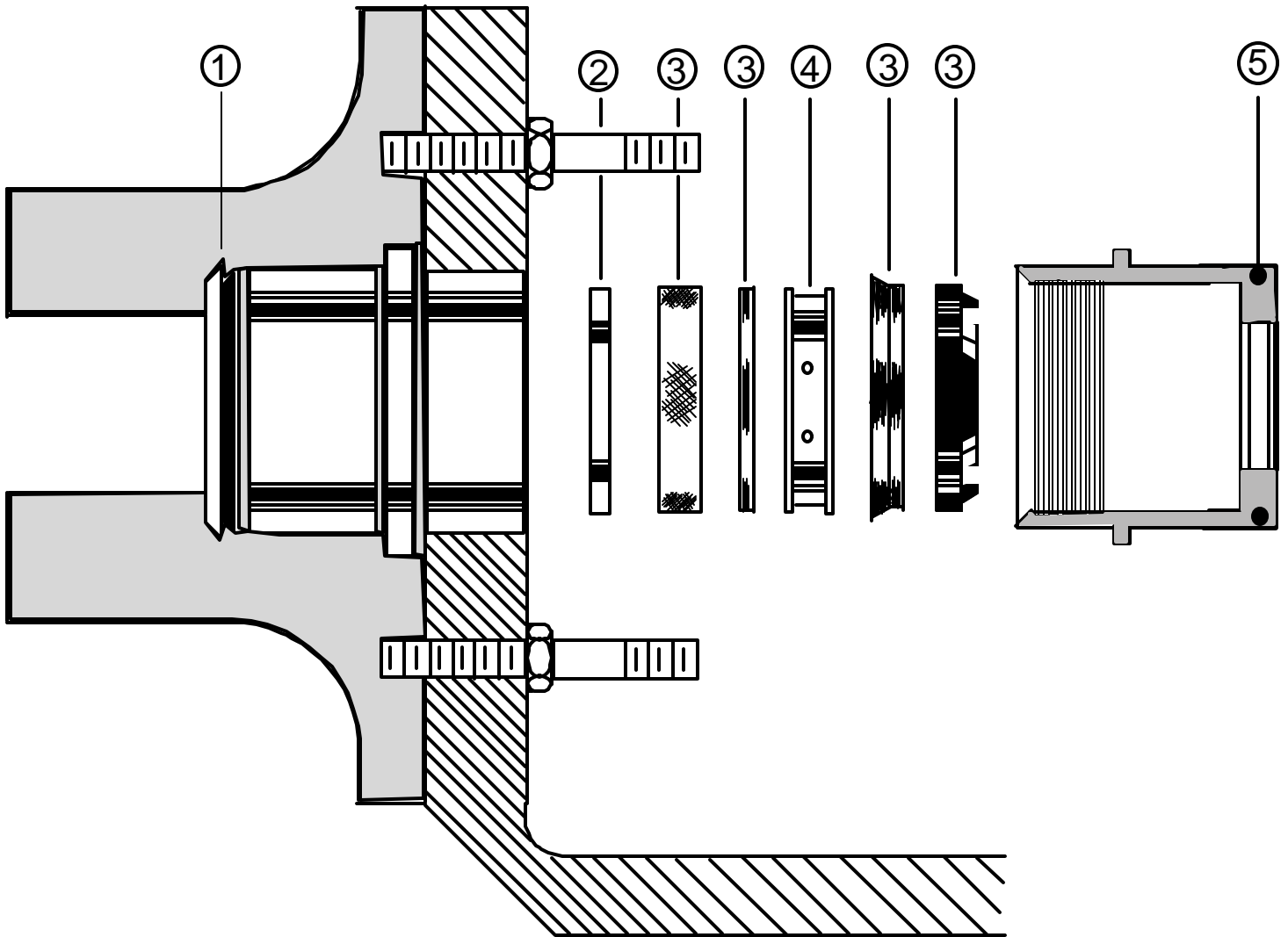
Pump Assembly



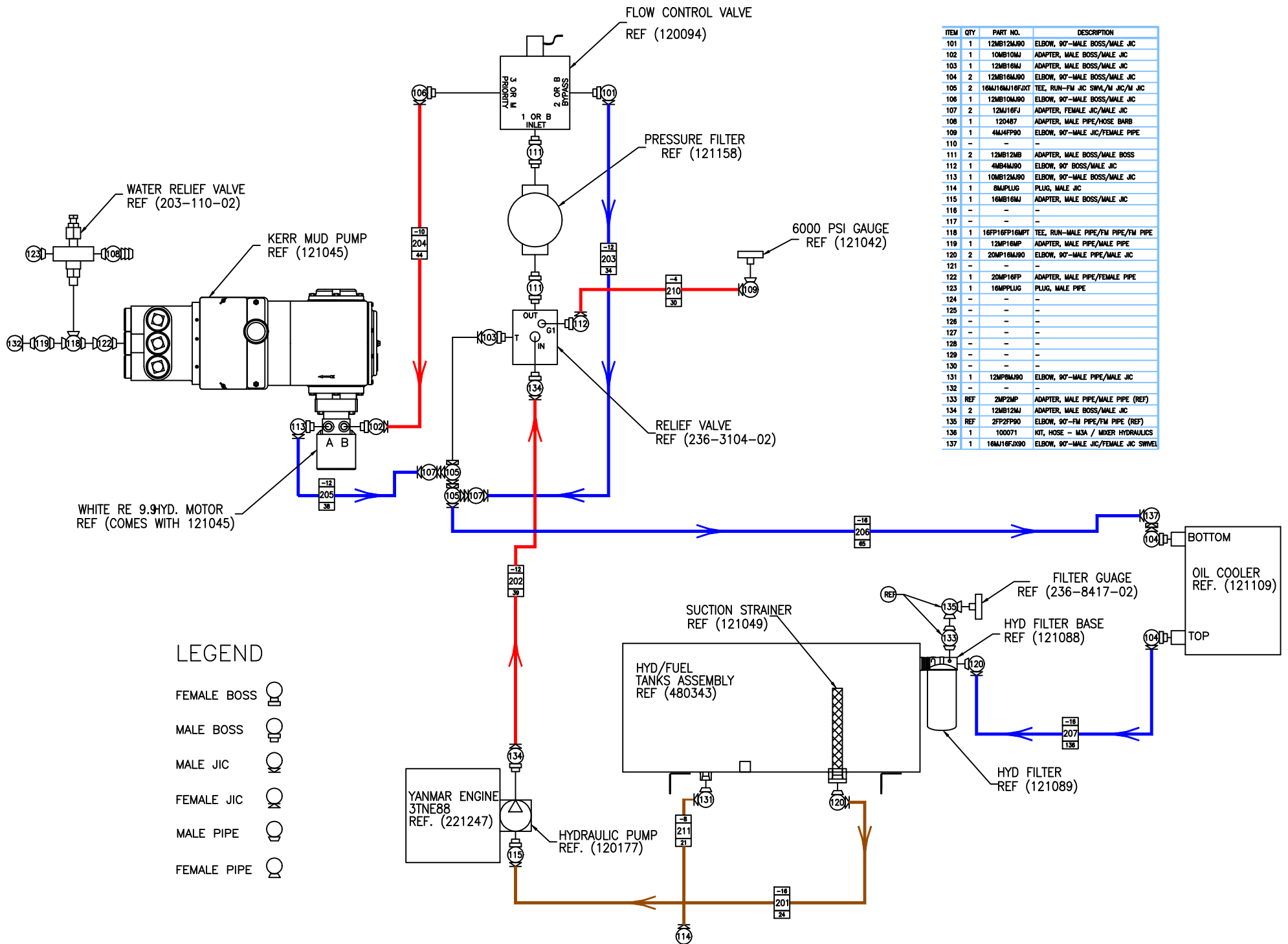
Drill Fluid Pump Assembly Parts List

Item	Part Number	Description	Qty
1	121045	Drill Fluid Pump – Kerr 3250	1
2	203-110-02	Drill Fluid Relief Valve	1
Ref	203-111-02	Ball & Seat (Standard)	*
Ref	236-4092-02	Ball & Seat (Carbide)	*
3	121242	20 Mesh Strainer Screen	1
4	236-8112-02	90° Street Elbow – 2"	1
5	236-3755-02	Pipe Nipple – 2"	2
6	121044	2" Y Strainer	1
7	236-5938-04	Drilled Coupling – 2"	1
8	203-181-02	90° Elbow Adapter – 1/2" NPT to 3/4" Hose Barb	1
9	236-3757-02	2" NPT to 2" Male Cam-Loc Coupler	1
10	8MPPLUG	1/2" NPT Plug	1
11	120487	Adapter – 1" NPT to 1" Hose Barb	1
12	16MPPLUG	1" NPT Plug	1
13	16FP16FP16MPT	1" Tee Fitting	1
14	16MP12MJ	Adapter – 1" NPT to 3/4" JIC	1
15	20MP16FP	Adapter – 1 1/4" NPT to 1" NPT	1
16	10MB12MJ	Adapter – 5/8" O-Ring Boss to 3/4" JIC	1
17	10MB12MJ90	90° Elbow Adapter – 5/8" O-Ring Boss to 3/4" JIC	1
18	3816X112HB	Hex Bolt – 3/8-16 X 1 1/2	4
19	3816WHN	Hex Whiz Nut – 3/8-16	4

KERR PUMP - BREAKDOWN



1.....	120976.....	O Ring.....	1
2.....	120983.....	Packing Ring.....	1
3.....	121232.....	Gaskets.....	4
4.....	120984.....	Lantern Ring.....	1
5.....	120976.....	O Ring.....	1



ITEM	QTY	PART NO.	DESCRIPTION
101	1	12MB12MA90	ELBOW, 90°-MALE BOSS/MALE JIC
102	1	10MB10M	ADAPTER, MALE BOSS/MALE JIC
103	1	12MB16M	ADAPTER, MALE BOSS/MALE JIC
104	2	12MB16M/90	ELBOW, 90°-MALE BOSS/MALE JIC
105	2	16MJ16M/16FJDT	TEE, RUN-FM JIC SWIV/M JIC/M JIC
106	1	12MB10M/90	ELBOW, 90°-MALE BOSS/MALE JIC
107	2	12MJ16FJ	ADAPTER, FEMALE JIC/MALE JIC
108	1	120487	ADAPTER, MALE PIPE/HOSE BARB
109	1	4MJ4FP90	ELBOW, 90°-MALE JIC/FEMALE PIPE
110	-	-	-
111	2	12MB12MB	ADAPTER, MALE BOSS/MALE BOSS
112	1	4MB4MJ90	ELBOW, 90° BOSS/MALE JIC
113	1	10MB12MA/90	ELBOW, 90°-MALE BOSS/MALE JIC
114	1	8MJPLUG	PLUG, MALE JIC
115	1	16MB16M	ADAPTER, MALE BOSS/MALE JIC
116	-	-	-
117	-	-	-
118	1	16FP16FP16MPT	TEE, RUN-MALE PIPE/FM PIPE/FM PIPE
119	1	12MP16MP	ADAPTER, MALE PIPE/MALE PIPE
120	2	20MP16M/90	ELBOW, 90°-MALE PIPE/MALE JIC
121	-	-	-
122	1	20MP16FP	ADAPTER, MALE PIPE/FEMALE PIPE
123	1	16MPPLUG	PLUG, MALE PIPE
124	-	-	-
125	-	-	-
126	-	-	-
127	-	-	-
128	-	-	-
129	-	-	-
130	-	-	-
131	1	12MP8M/90	ELBOW, 90°-MALE PIPE/MALE JIC
132	-	-	-
133	REF	2MP2MP	ADAPTER, MALE PIPE/MALE PIPE (REF)
134	2	12MB12MJ	ADAPTER, MALE BOSS/MALE JIC
135	REF	2FP2FP90	ELBOW, 90°-FM PIPE/FM PIPE (REF)
136	1	100071	KIT, HOSE - MSA / MIXER HYDRAULICS
137	1	16MJ16FJ/90	ELBOW, 90°-MALE JIC/FEMALE JIC SWIVEL

LEGEND

- FEMALE BOSS
- MALE BOSS
- MALE JIC
- FEMALE JIC
- MALE PIPE
- FEMALE PIPE

