

E-Z LIFT 2000TM BMC/TMC SERVICE MANUAL

EZ90018-EZ90538
EZ90549-EZ90689

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Warranty

HIGHLINE Mfg. Inc. warrants its products to the original owner for a period of one year from date of purchase, subject to the following provisions:

- **One-Year Warranty covers Parts & Labor**
- Warranty registration must be submitted to HIGHLINE Mfg. Inc. within 30 days of purchase.
- HIGHLINE Mfg. Inc. is not liable for any damages to this equipment resulting from use of this equipment that is inconsistent with this manual and such is not covered under this warranty.
- All warranty service must be handled through an authorized HIGHLINE Mfg. Inc. dealer. At the time of requesting warranty service, the purchaser must present evidence of the delivery date of the equipment.
- The purchaser shall pay any premium for requested overtime, any charge for making service calls, and any charges incurred in transporting the equipment to and from the location of the warranty service. Freight costs associated with warranty repairs are not reimbursable.
- Any labor subject to warranty must be authorized by a HIGHLINE Mfg. Inc. representative, before work is started.
- Warranty will be void if any component of this equipment is altered or modified in any way, unless written permission is given by HIGHLINE Mfg. Inc.
- HIGHLINE Mfg. Inc. will not assume any responsibility for any damage occurring to equipment which this equipment may be attached.
- Warranty terms and conditions are subject to provincial and state legislation.

Warranty is limited to the Purchase price paid for the equipment, not to exceed the Manufacturers suggested retail price. **ANY LIABILITY RESULTING FROM THE WORKMANSHIP OF THIS EQUIPMENT** is limited to the purchase price paid. HIGHLINE Mfg. Inc. assumes no responsibility whatsoever for liability resulting from misuse, improper operation, or lack of maintenance of this equipment.

NOTE: HIGHLINE MFG. INC. RESERVES THE RIGHT TO WAIVE ALL RESPONSIBILITY OF DAMAGE OR INJURY TO VEHICLES, LOADS, E-Z LIFT 2000 TM EQUIPMENT AND OBJECTS IF SAFE OPERATING PRACTICES ARE NOT OBSERVED AND FOLLOWED.

NOTE: HIGHLINE MFG. INC. RESERVES THE RIGHT TO WAIVE ALL RESPONSIBILITY OF DAMAGE OR INJURY IF MODIFICATIONS TO ORIGINAL E-Z LIFT UNIT ARE MADE BY ANY PERSON/PARTY.

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1. Service

To ensure safety, proper performance, and long life of the E-Z Lift 2000 TM, the following requirements for inspection, testing, and maintenance, must be observed. Regular inspection and maintenance must be performed for the warranty of the E-Z Lift 2000 TM to remain valid.

It is the owner's responsibility to ensure an equipment log is kept that provides a complete history of the equipment, including details of all inspection, testing, and maintenance.

INSPECTION

The following inspection items have been classified based on their importance to the safety of the crane and the degree of their exposure to wear, deterioration, or malfunction.

Equipment, which has been idle for more than one month, should be inspected thoroughly.

If the crane is damaged, or suspected of damage, a special inspection must be carried out.

Table 1.1 Frequent Inspection (prior to operation)

Item to Inspect	Check for
Crane controls	Proper operation Visible damage
Emergency stop button	Proper function
Hydraulic components	Leakage Damage
Placards, decals, and markings	Missing Illegible
Electrical systems	Visible damage Deterioration
Crane hooks	Damage
Vehicle parking brake	Proper function
Hydraulic oil	Proper level
Guards	In place and secured

Table 1.2 Periodic Inspection (semiannually or every 500 hours)

Item to Inspect	Check for
Crane structure	Deformation Corrosion Cracks
Weld	Cracks*
Pins, shafts, sprockets, and locking devices	Wear Cracking Distortion
Chain sprockets and chain	Wear
Vehicle frame	Cracks
Hydraulic hose, fittings, and tubes	Leakage Deformation Abrasion
Hydraulic pump and motor	Leaks Unusual noise Vibration Pressure loss Overheating
Hydraulic valves	Cracks Leaks Unrestricted spool travel Proper return to neutral position Relief valves settings Load holding capability
Hydraulic cylinders	Drifting Leakage Damaged rods or barrel Welds Deformed connecting joints
Hydraulic filters	Excessive rubber or metallic contamination indicating component failure somewhere in the system
Electrical system and components	Deterioration and wear not readily visible
Fasteners	Condition Tightness

* Experience has shown that highly stressed welded structures when repeatedly subjected to varying stresses caused by twisting, shock, bending, and intentional and/or unintentional overloads, often become subject to weld cracking which may be attributed to fatigue of the welded joint. This condition is not uncommon in construction equipment. Equipment should be periodically inspected for evidence of weld fatigue. The frequency of this inspection should be commensurate with age of the equipment, the severity of the application, and the experience of the operator and maintenance personnel.

TESTING

The operation, controls, and safety devices of this unit have been tested by the manufacturer prior to shipment from the factory.

Cranes must be retested by a qualified person if any load sustaining parts have been altered, replaced, or repaired.

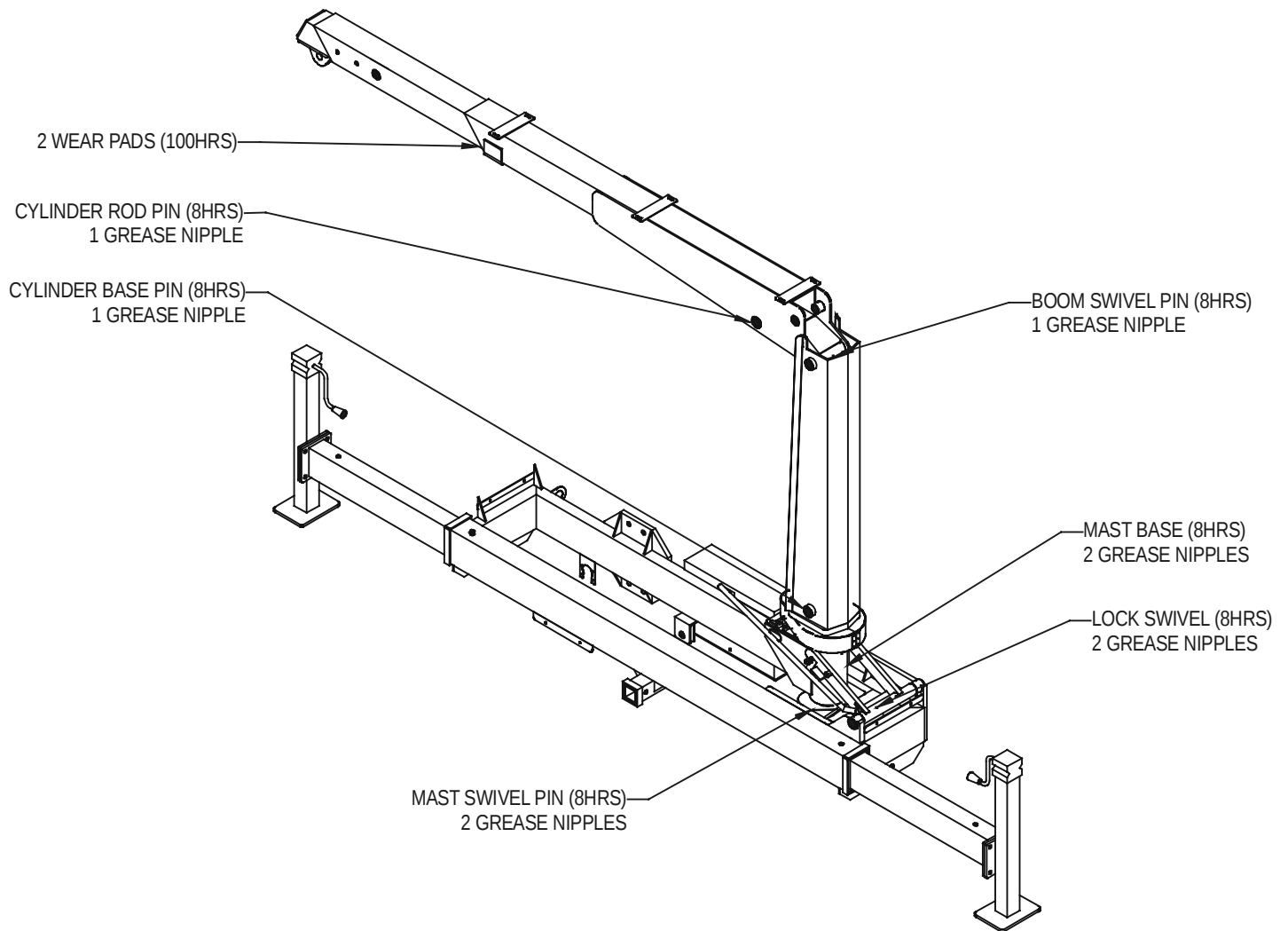
MAINTENANCE

Maintenance must be performed in a safe manner, taking into account the following precautions:

- Only competent personnel should do the repairs and adjustments.
- Situate the crane where it is not a hazard. If this is not possible, ensure the area where the work is being performed is kept clear of unauthorized personnel;
- Ensure the controls cannot be inadvertently actuated;
- Turn off the vehicle and disconnect the crane power supply unless required for performing the maintenance work;
- Place “warning” or “out of order” signs on the crane controls;
- When working on the boom, ensure it is secured on a safe position preferably lowered to the ground;
- Relieve hydraulic oil pressure from all circuits before loosening or removing hydraulic components;
- Ensure replacement parts are to equal or better specifications and function like the original parts;
- Visually inspect all components, which may have been affected by the maintenance work prior to returning the crane into service.

Table 1.3 Maintenance Schedule

MAINTENANCE ACTIVITY	SEMI-ANNUALLY OR EVERY
Grease components	8 hours
Oil rotational chain	50 hours
Grease Wear Pads	100 hours
Replace hydraulic oil filter	500 hours
Replace hydraulic oil	1000 hours



TROUBLESHOOTING

1. Remote Does Not Work

- Blown fuse
- Broken wire
- Solenoid wire disconnected
- Solenoid coil not working
- Faulty Switch
- Dead Battery

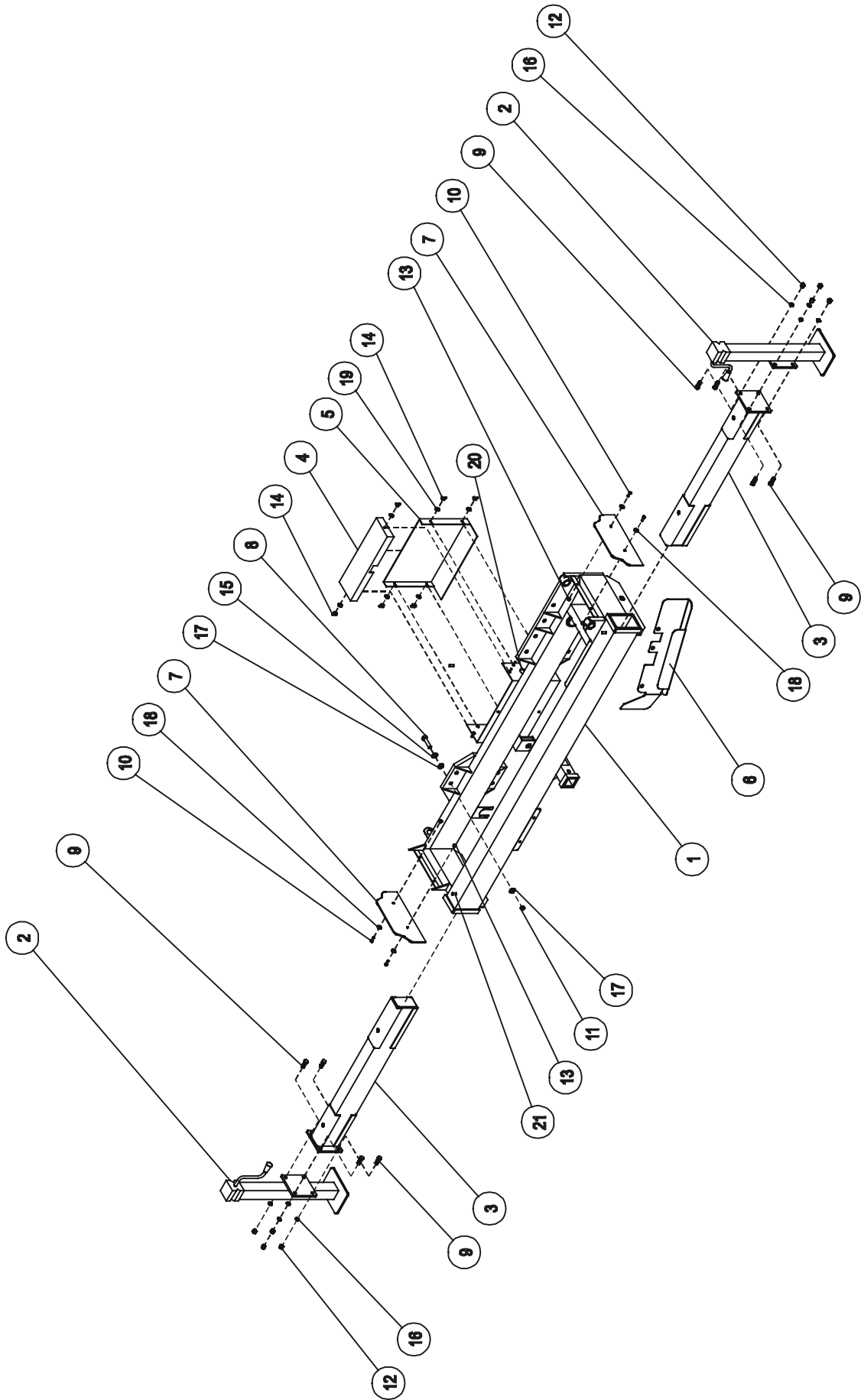
2. Power Pack Runs but E-Z Lift 2000 TM does not Operate

- Low oil in Reservoir
- Broken hose
- Solenoids not working

2. Parts

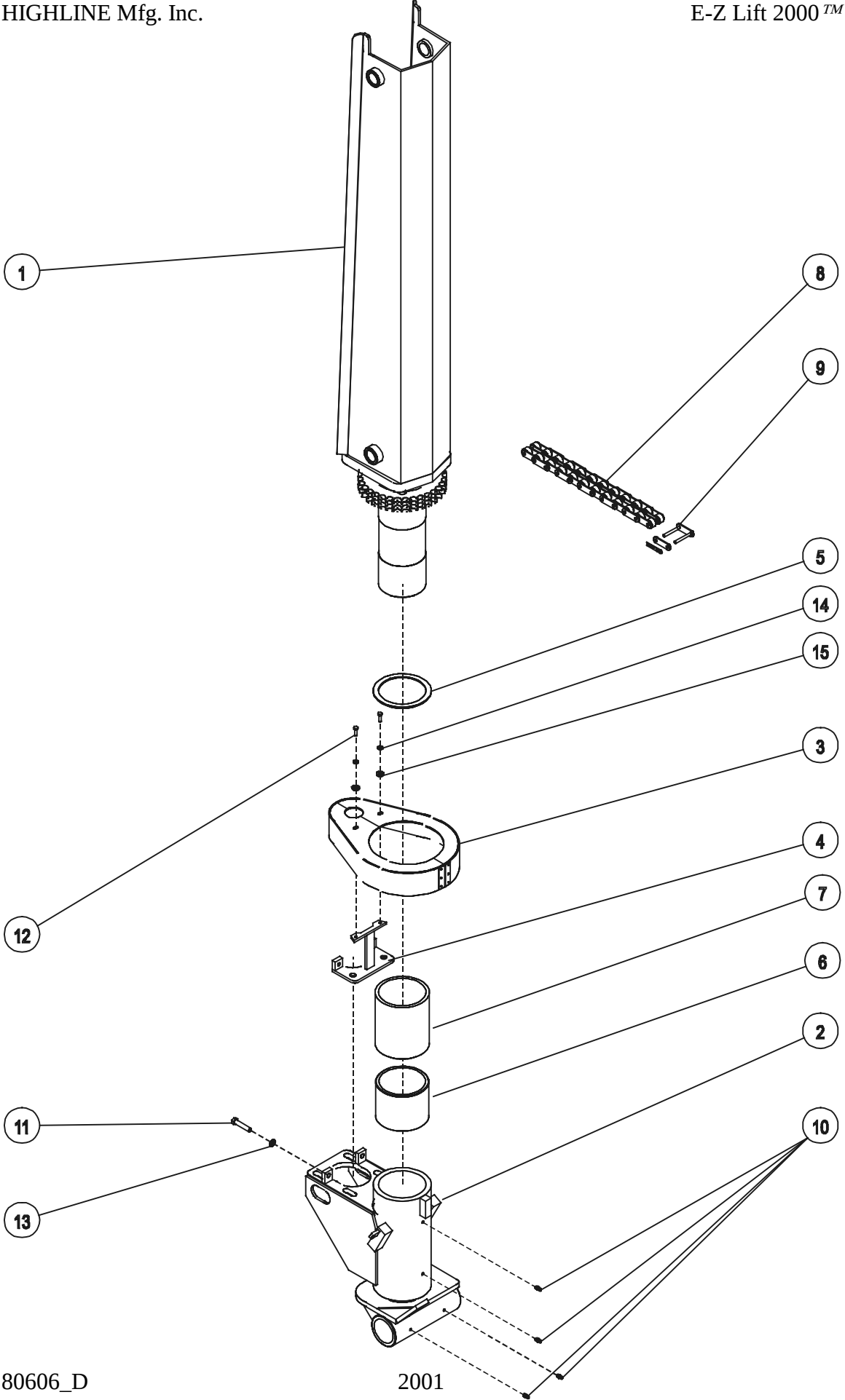
Frame And Outriggers

Item No.	Part No.	Description	Quantity
1			
Truck	80470	Frame	1
Trailer	80422	Frame,Ez2000,TMC	
2	80471	Jack, Rigger	2
3	80472	Leg, Extension, Rigger	2
4	E3840	Plt, Top, Guard, Valve	1
5	E3843	Plt, Bottom, Guard, Valve	1
6	E3950	Plt, Holder, Hose, Hyd	1
7	E3975	Cap, S, End, Cover	2
8	31055	Bolt, Hex, 5/8 x 2 1/2, UNC Gr8, ZP	11
9	31528	Bolt, Hex, 1/2 x 1 1/2, UNC Gr8, ZP	8
10	31062	Bolt, Hex, 5/16 x 1, UNC Gr5, ZP	4
11	31426	Nut, Hex, 5/8, UNC, Gr8, ZP	11
12	31427	Nut, Hex, 1/2, UNC, Gr8, ZP	8
13	31177	Nut, Nylock, 5/16, UNC	4
14	31532	Nut, Wing, 1/4	6
15	31218	Washer, Lock, 5/8, ZP	11
16	31244	Washer, Lock, 1/2, ZP	8
17	31240	Washer, Flat, 5/8, ZP	22
18	31239	Washer, Flat, 5/16, ZP	4
19	31237	Washer, Flat, 1/4, ZP	6
20	32767	Grommet, Rubber, 1 1/2 x 3/4	4
21	30481	Clamp,Jig,V,300	2
Or	31732	Pin,QR,3/8x1.0,ZP,Tether	2



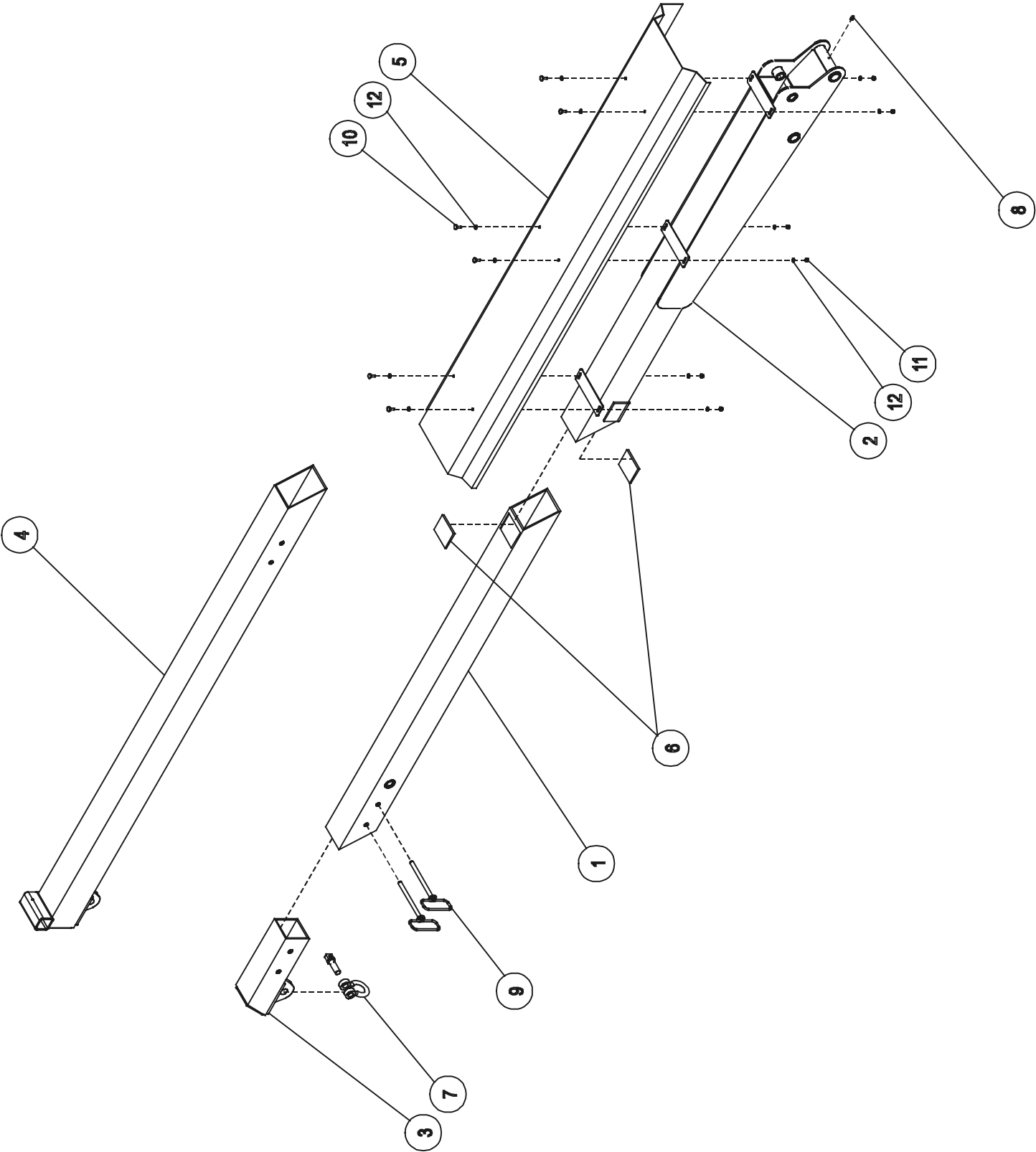
Mast And Pivot Support

Item No.	Part No.	Description	Quantity
1	80473	Mast	1
2	80478	Support, Pivot, Mast	1
3	80483	Guard, Chain	1
4	80486	Tightener, Motor	1
5	E3841	Bushing, Mast	1
6	E3783	Bushing, Lower, Mast	1
7	E3784	Bushing, Upper, Mast,	1
8	30079	Drv, Chain, Roller, 60-2H, Renold	2.75 FT
9	30080	Drv, Chain, Connector, 60-2H, Renold	1
10	30207	Zerk, Grease, 1/4-28, UNF	4
11	31521	Bolt, Hex, 3/8 x 2, UNC Gr5, ZP, FT	2
12	31534	Bolt, Hex, 1/4 x 1/2, UNC Gr5, ZP	2
13	31319	Washer, Lock, 3/8, ZP	2
14	31245	Washer, Lock, 1/4, ZP	2
15	31237	Washer, Flat, 1/4, ZP	2



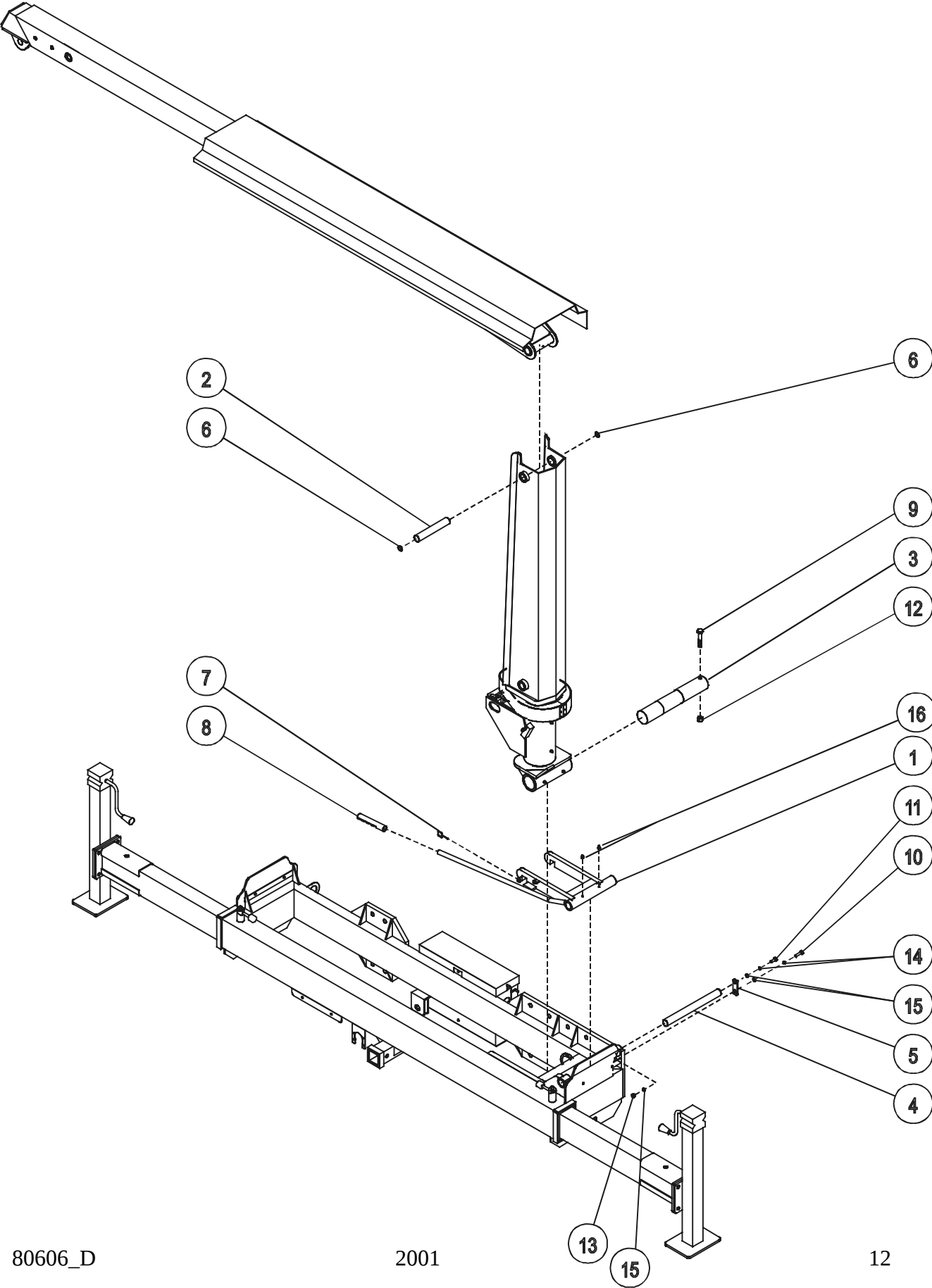
Booms and Extensions

Item No.	Part No.	Description	Quantity
1	80474	Boom, Stage, Two	1
2	80475	Boom, Stage, One	1
3	80477	Hook, Extension	1
4	80492	Boom, Stage, Three	1
5	E3920	Cover	1
6	E3976	Pad, Wear, Plastic	2
7	30082	Shackle, Forged, 5/8	1
8	30207	Zerk, Grease, 1/4-28, UNF	1
9	30376	Pin, Hitch, 5/8 x 6	2
10	31033	Bolt, Hex, 1/4 x 3/4, UNC Gr5, ZP	6
11	31174	Nut, Nylock, 1/4	6
12	31237	Washer, Flat, 1/4, ZP	12



Frame, Mast And Booms

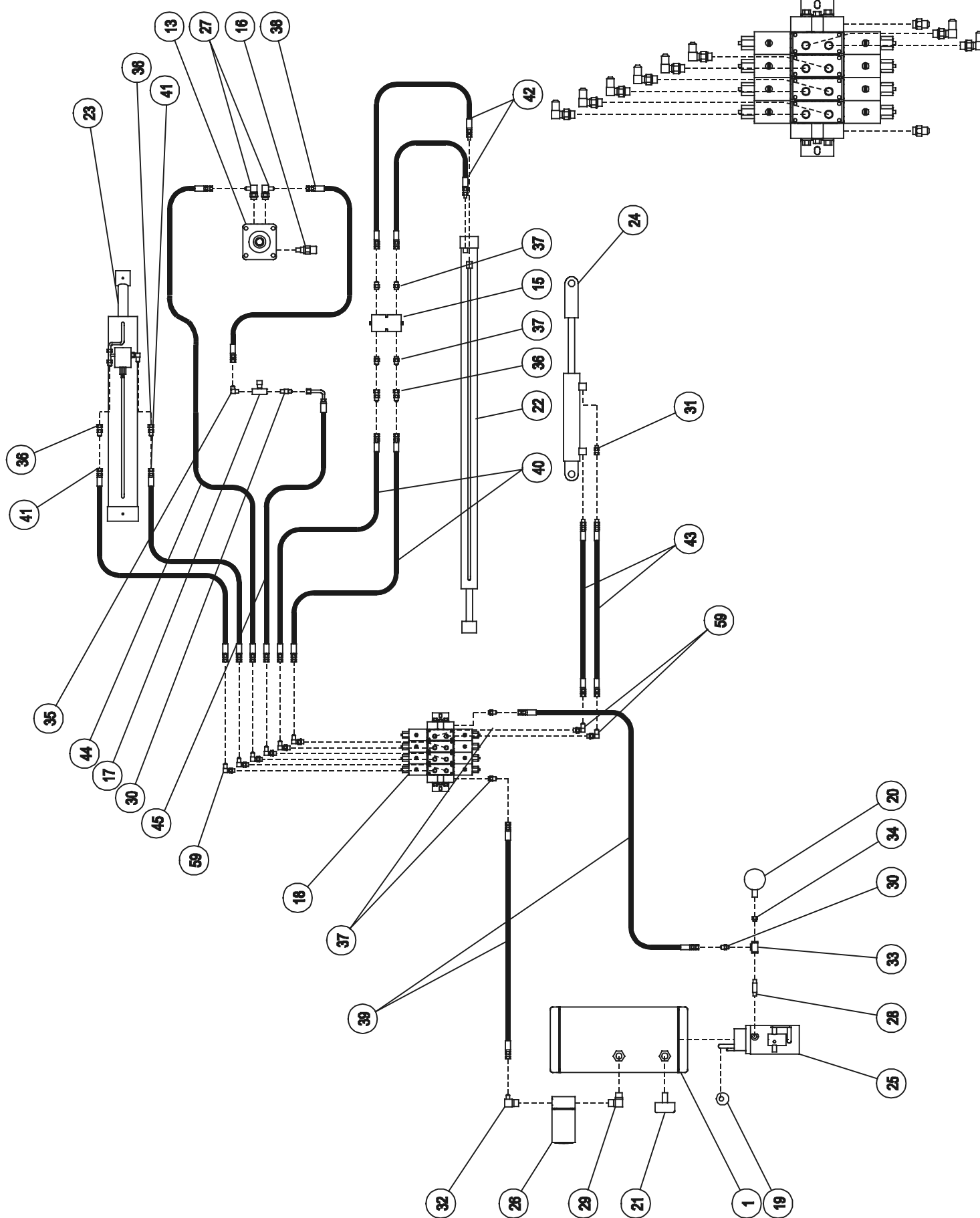
Item No.	Part No.	Description	Quantity
1	80476	Lock, Mast	1
2	E3922	Pin, Cylinder, Mast, Bottom	1
3	E3927	Shaft, Pivot, Support, Mast	1
4	E3928	Pin, Lock, Mast	1
5	E3930	Plt, Pin , Retainer, Lock, Mast	1
6	30471	Ring, Snap, Internal, 1 1/4"	2
7	92092	Pin, Lynch, 3/16 x 1 1/4	1
8	92190	Grip, Handle, Rubber	1
9	31026	Bolt, Hex, 1/2 x 4, UNC Gr5, ZP,	1
10	31521	Bolt, Hex, 3/8 x 2, UNC Gr5, ZP, FT	1
11	31043	Bolt, Hex, 3/8 x 1, UNC Gr5, ZP,	1
12	31173	Nut, Nylock, 1/2, UNC	1
13	31176	Nut, Nylock, 3/8, UNC	1
14	31319	Washer, Lock, 3/8, ZP	2
15	31351	Washer, Flat, 3/8, ZP	3
16	30207	Zerk, Grease, 1/4 - 28, UNF	2

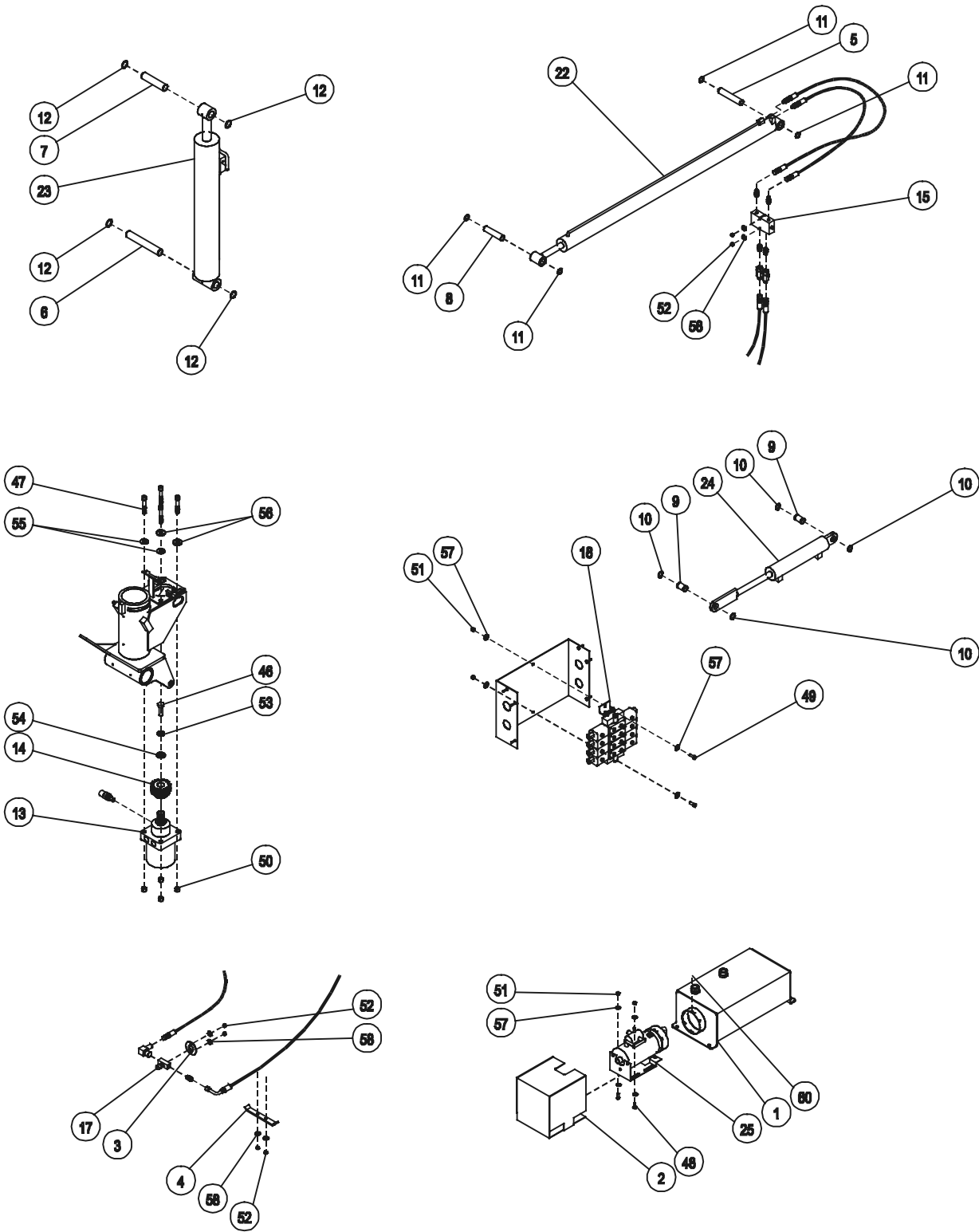


Hydraulic Assembly

Item No.	Part No.	Description	Quantity
1	80465	Reservoir, Hydraulic	1
2	80493	Cover, Pack, Power	1
3	E3478	Plt, Holder, Control, Flow	1
4	E3846	Plt, Clamp, Hose, Hyd	1
5	E3921	Pin, Cylinder, Extension, Bottom	1
6	E3922	Pin, Cylinder, Mast, Bottom	1
7	E3924	Pin, Cylinder, Mast, Top	1
8	E3926	Pin, Cylinder, Extension, Top	1
9	E3929	Pin, Cylinder, Open/Close	2
10	30379	Ring, Snap, External, 1"	4
11	30470	Ring, Snap, Internal, 1"	4
12	30471	Ring, Snap, Internal, 1 1/4"	4
13	30048	Hyd, Motor, 45.6, 127, 1500	1
14	30078	Drv, Sprocket, 60, 13T2R, 1 1/4, 11 Spline	1
15	30050	Hyd, Valve, Check, Double	1
16	30094	Hyd, Valve, Relief, 2000	1
17	30395	Hyd, Valve, Control, Flow	1
18	92183	Hyd, Valve, Solenoid, FPS-4	1
19	30072	Hyd, Filter, Pack, Power	1
20	30393	Gauge, Pressure, 3000 psi, 4MP	1
21	30394	Hyd, Cap, Breather, 12MP	1
22	30397	Hyd, Cylinder, 2 x 48	1
23	90131	Hyd, Cylinder, 4 x 24	1
24	90132	Hyd, Cylinder, 2 x 10	1
25	92180	Hyd, Power, Pack,	1
26	92181	Assembly, Filter,	1
27	30046	Hyd, Fitting, Elbow, 10MB-6MJ	2
28	30047	Hyd, Fitting, Nipple, 2 1/2, 6MP	1
29	30049	Hyd, Fitting, Elbow, 12MP	1
30	30386	Hyd, Fitting, Adapter, 6MJ-6MP	2
31	30388	Hyd, Fitting, Restrictor, 4MP-4FPX,#65,	1
32	30391	Hyd, Fitting, Elbow, 6MJ-12MP	1
33	30392	Hyd, Fitting, Tee, 6FP	1
34	30401	Hyd, Fitting, Reducer, 6MP-4FP	1
35	30426	Hyd, Fitting, Elbow, 6MJ-6MP90	1
36	30444	Hyd, Fitting, Live Swivel, 6MJ-6FJX	4
37	32641	Hyd, Fitting, Adapter, 6MJ-6MB	6
38	30084	Hyd, Hose, 1/4 x 26, 6FJX	1
39			
Truck	30381	Hyd, Hose, 3/8 x 160, 6FJX	2
Trailer	31694	Hyd, Hose, 3/8 x 48, 6FJX	2
40	30382	Hyd, Hose, 1/4 x 110, 6FJX	2
41	30383	Hyd, Hose, 1/4 x 100, 6FJX	2
42	30385	Hyd, Hose, 1/4 x 24, 6FJX-4MP	2
43	30387	Hyd, Hose, 1/4 x 32, 6FJX-4MP	2
44	30519	Hyd, Hose, 1/4 x 76, 6FJX	1
45	30402	Hyd, Hose, 1/4 x 43, 6FJX-6FJX90T	1

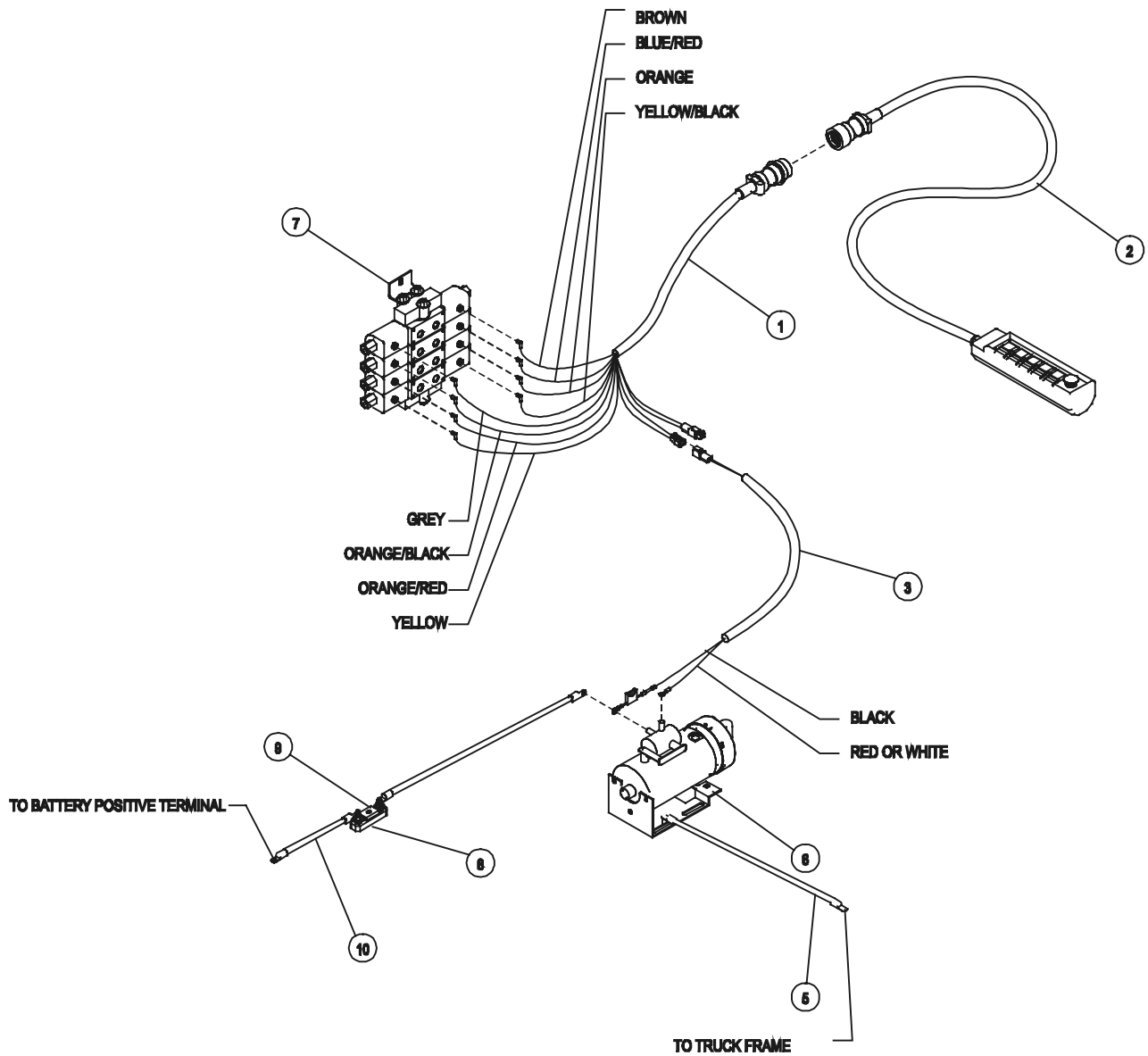
Item No.	Part No.	Description	Quantity
46	31545	Bolt, Hex, 5/8 x 1, UNF, Gr5, ZP	1
47	31540	Bolt, SHCS, 1/2 x 3, UNC, Gr5, ZP	4
48	31062	Bolt, Hex, 5/16 x 1, UNC, Gr5, ZP	4
49	31533	Bolt, Hex, 5/16 x 3/4, UNC, Gr5, ZP	2
50	31173	Nut, Nylock, 1/2, UNC	4
51	31177	Nut, Nylock, 5/16, UNC	6
52	31174	Nut, Nylock, 1/4, UNC	6
53	31218	Washer, Lock, 5/8, ZP	1
54	31240	Washer, Flat, 5/8, ZP	1
55	31236	Washer, Flat, 1/2, ZP	2
56	45171	Washer, Flat, 1.5 OD x .52 ID x .25 TH	2
57	31239	Washer, Flat, 5/16, ZP	8
58	31237	Washer, Flat, 1/4, ZP	6
59	30390	Hyd, Fitting, Elbow, 6MB-6MJ90	8
60	31352	Screw, Machine, #10 x 3/8, Panhead	6





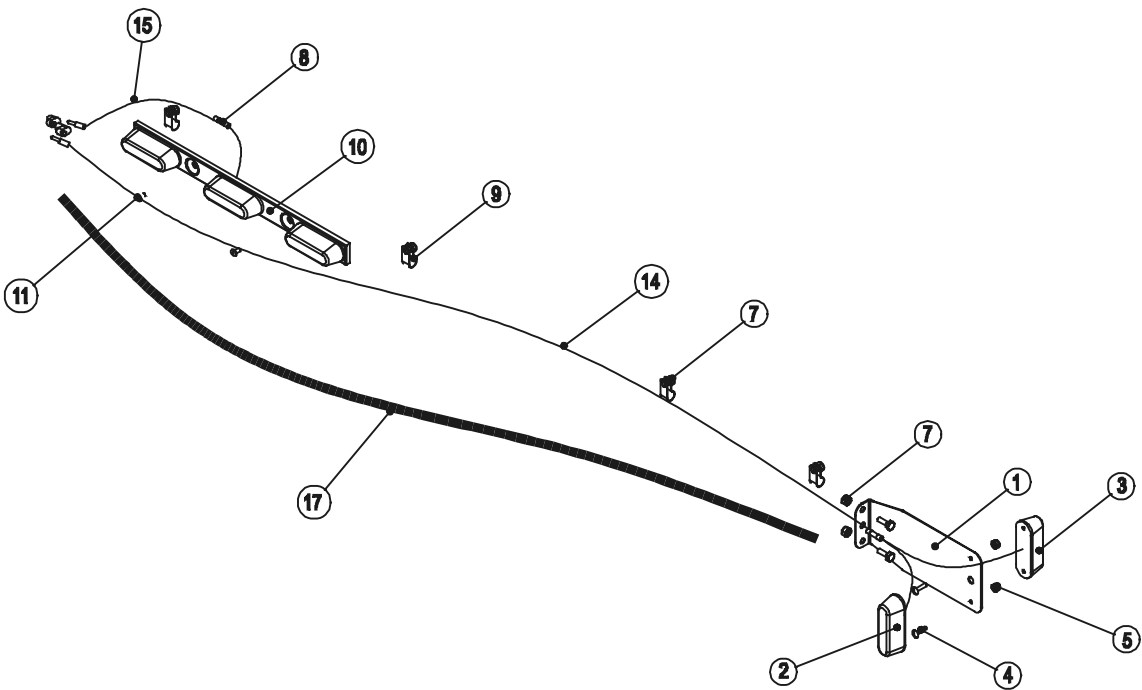
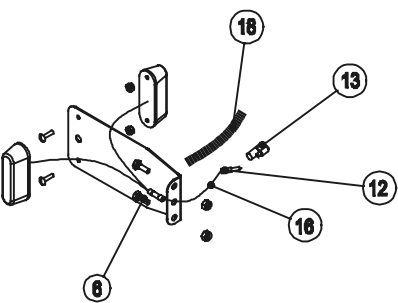
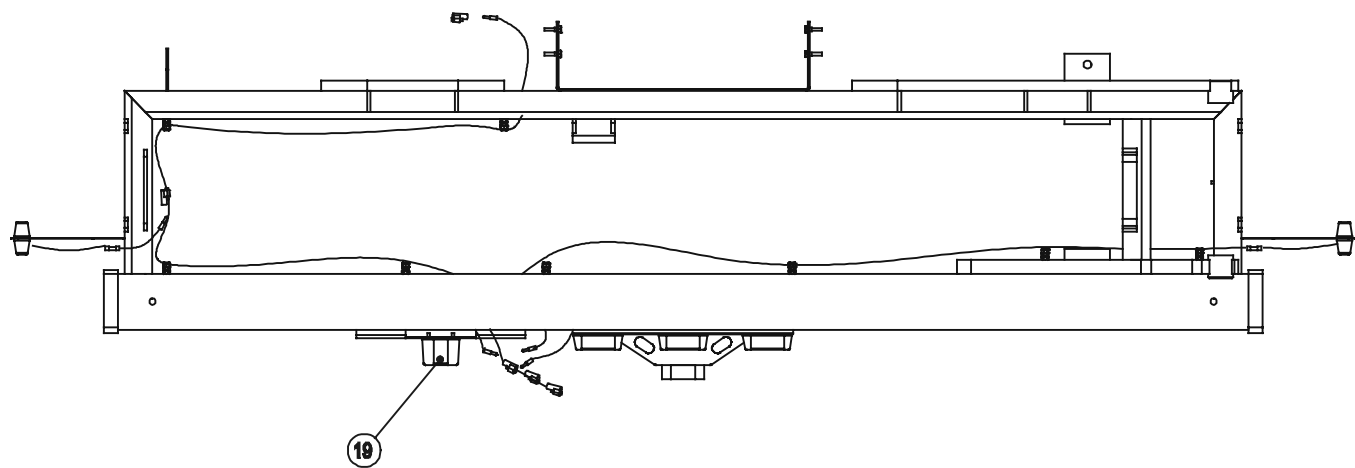
Electrical Schematic

Item No.	Part No.	Description	Quantity
1	80489	Harness, Extension	1
2	80607	Control, Remote	1
3			
Truck	80491	Harness, Extension, Power	1
Trailer	80601	Harness, Extension, Power,TMC	1
4			
Truck	80495	Cable, Power, Battery	1
Trailer	80602	Cable, Power, Battery,TMC	1
5			
Truck	80496	Cable, Ground, Frame	1
Trailer	80603	Cable, Ground, Frame,TMC	1
6	92180	Hyd, Power, Pack	1
7	92183	Hyd, Valve, Solenoid	1
8	31699	Elec, Holder, Fuse	1
9	31698	Elec, Fuse, 300A, 12VDC	1
10		#2 AWG Cable c/w Lugs (supplied by customer)	1



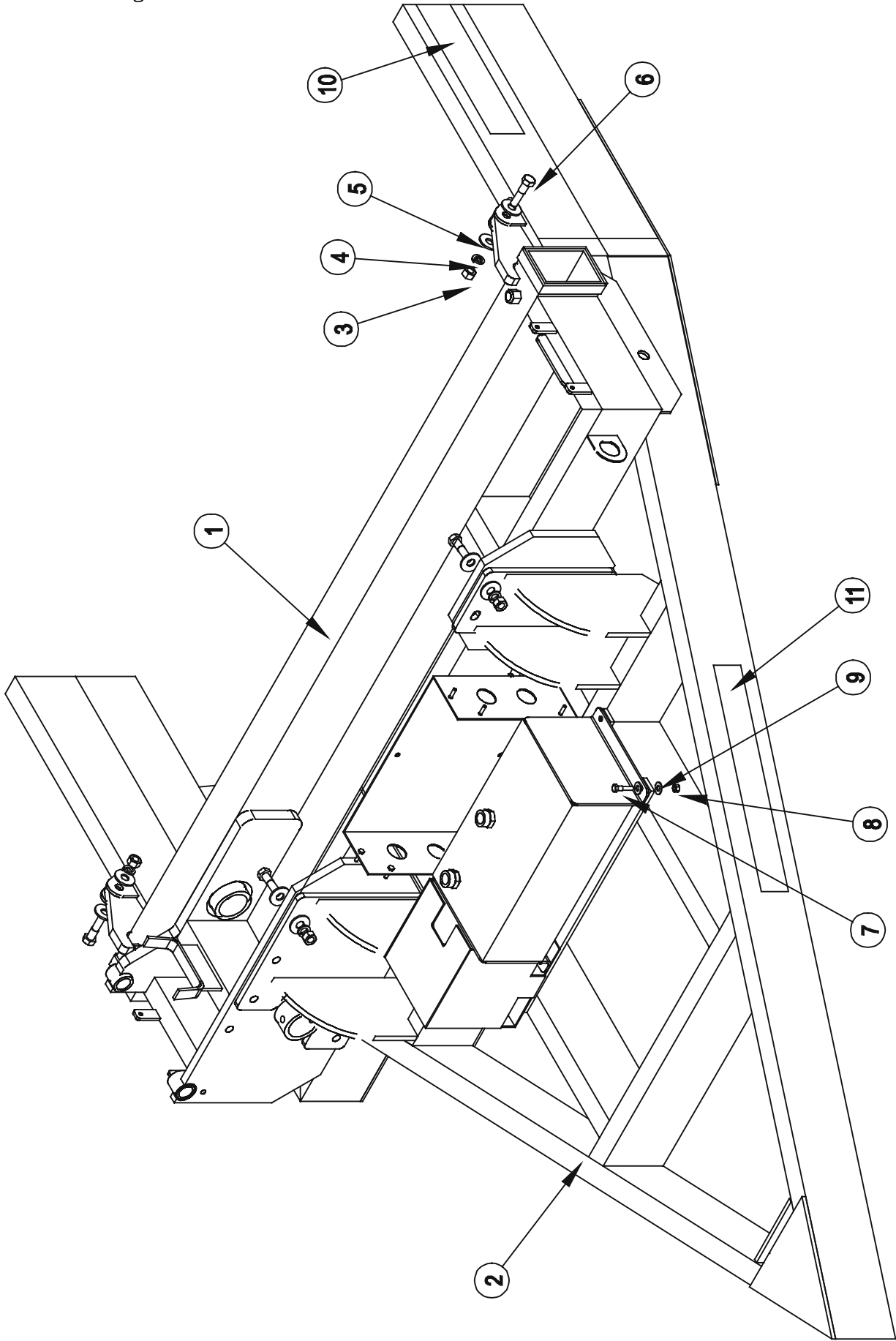
LIGHTING ASSEMBLY

Item No.	Part No.	Description	Quantity
1	E4262	Light Holder,Side	2
2	31690	Elec,Light,Red	5
3	31689	Elec,Light,Amber	2
4	31530	Screw,Mach,#10-24x3/4,RD	4
5	31529	Nut,Nylock,3/16,UNC,Gr5,ZP	4
6	31033	Bolt,Hex,1/4x3/4,UNC,Gr5,ZP	4
7	31174	Nut,Nylock,1/4,UNC,ZP	8
8	30408	Elec,Conn,Butt,16-14	3
9	31649	Elec,Clamp,Cable,1/2	4
10	31691-01	Elec,Light X 3,Red	1
11	31739	Rivet,ST,3/16x.565,.375 Head	2
12	31700	Elec,Plug,Bul Tip Con,M,.157	3
13	31692	Elec,Plug,Bul Tap Con,F,.157	3
14	92149	Elec,Wire,16,Black,Strand	6
15	92149	Elec,Wire,16,Black,Strand	1
16	92149	Elec,Wire,16,Black,Strand	.5
17	31734	Elec,Wire,Corrigated,1/4	6
18	31734	Elec,Wire,Corrigated,1/4	1
19	31693	Elec,Light,License Plt,Chrome	1



TRAILER

Item No.	Part No.	Description	Quantity
1	80422	Frame,EZ2000,TMC	1
2	E4250	Trailer,EZ2000	1
3	31426	Nut,Hex,5/8,UNC,Gr8,ZP	12
4	31218	Washer,Lock,5/8,ZP	12
5	31240	Washer,Flat,5/8,ZP	24
6	31055	Bolt,Hex,5/8x2-1/2,UNC,Gr8,ZP	12
7	31044	Bolt,Hex,3/8x1-1/2,UNC,Gr5,ZP	4
8	31351	Washer,Flat,3/8,ZP	8
9	31485	Nut,Hex,3/8,UNC,Gr5,ZP	4
10	E4267	Decal,EZLift TMC,42x3.5	2
11	E5251	Decal,Highline,15x3.5	2



DECALS

Item No.	Part No.	Description	Quantity
1	E3481	Decal,Danger,Moving Equipment	2
2	E3938	Decal,Caution	1
3	E3939	Plt,Serial	1
4	E3941	Decal,Electrocution-Hazzard	3
5	E3944	Decal,Danger,Do Not Hoist	5
6	E3946	Decal,Danger,Pinch Point	7
7	E3947	Decal,Danger,Do Not Stand	2
8	E3948	Decal,Danger,Do Not Operate	2
9	E4253	Decal,Warning,Don't Exceed 1500	1
10	E4254	Decal,Warning,Misc	1
11	E4261	Decal,Extension,Id	2
12	30058	Decal,Mast,Ez2000 Lift,LH	1
13	E4268	Decal,Mast,EZ2000 Lift,RH	1
14	30288	Rivet,Steel,1/8x.390	4
15			
Truck	E3936	Decal,Chart,Rating,Load,Boom	1
Trailer	E4252	Decal,Load Rating Chart,TMC	1
16	31736-1	Level,Vial,Bubble,1-3/4	2
17	31736-2	Level,Mounting Flange	2
18	32979	Decal,Refl,Amb,2	2
19	32980	Decal,Refl,Red,2	2
20	30059	Decal,Frame,Ez2000 Lift (Truck Only)	1

