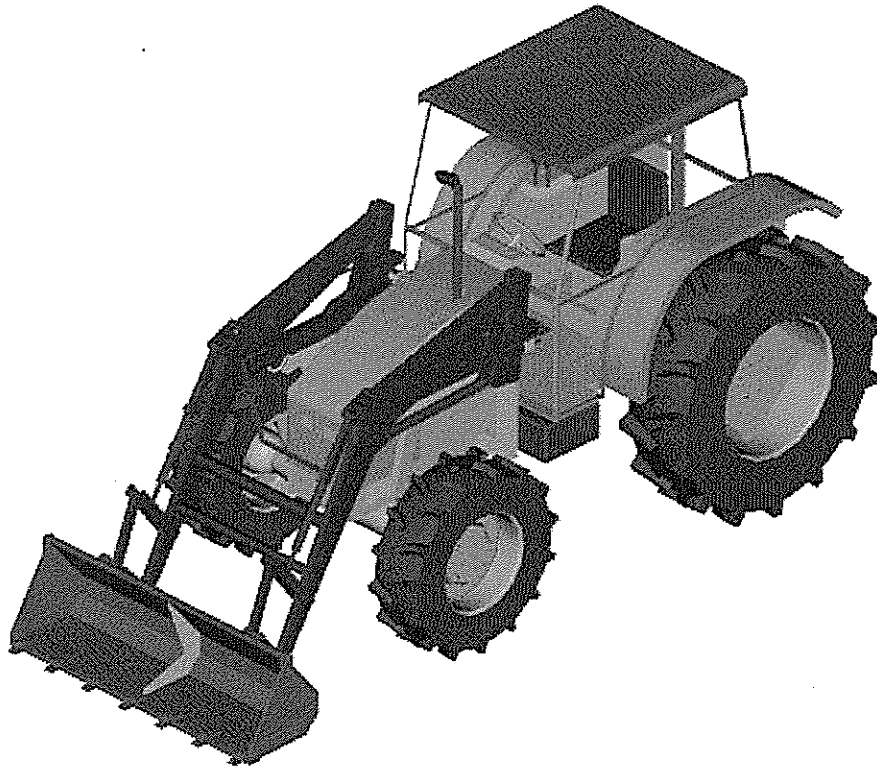


FRONT END LOADERS



Operator's & Parts Manual

TUBE-LINE MANUFACTURING LTD

3928 STEFFLER RD, R.R.#4
ELMIRA, ONTARIO N3B 2Z3
TELEPHONE (519)-664-0488 FAX (519)-664-0492
TOLL FREE (888)-856-6613
email: sales@tubeline.ca

CONTENTS

- Page 1. Table of Contents
- Page 2. Introductory Letter
- Page 3. Owner Records
- Page 4. Do's & Don'ts
- Page 5. Warranty
- Page 6. Installation Instructions
- Page 12. Operation/Maintenance
- Page 13. Service/Troubleshooting
- Page 14. Loader Illustrations/Parts Guide
- Page 32. Loader Tool Carrier Illustration/Parts Guide
- Page 33. Bucket Level Indicator Illustration/Parts Guide
- Page 34. Valve Illustrations/Parts Guide
- Page 44. **IMPORTANT** Valve Notice

Dear Customer:

Congratulations in purchasing the finest loader manufactured. Our loader will provide you with many years of service, but as with any product, proper operation and service must be maintained to insure its longevity. This manual contains all the pertinent information needed to operate and maintain your loader.

The FREY line of loaders are designed to fit compact agricultural tractors in the 15 to 120 HP range and are specifically designed to be used in agriculture and livestock businesses. The loader has been manufactured to be user friendly as far as operating, mounting and dismounting.

It is very important that you take the time to read and familiarize yourself with this manual. Be sure that you have signed the loader **WARRANTY REGISTRATION** card and your dealer has sent it to our office for registration.

We at FREY sincerely appreciate your business and our commitment is to customer satisfaction. Please contact your dealer or our customer service unit with any questions about our loaders or any of our other products.

Thank You!

Frey Industries Ltd

OWNER RECORDS

Model : _____

Serial No: _____

Date Purchased: _____

Dealer : _____

NOTES

1. Abbreviations: N.A. -- not applicable
 O.L. -- obtain locally
 A.R. -- as required

2. All fasteners are Grade 5 UNC

DO'S

1. Read this manual before operating the loader. It is important to become familiar with and follow all recommended safety precautions.
2. Rollover protection is recommended for your tractor while operating the loader.
3. Follow all mounting and operating instructions carefully.
4. Move the wheels to the widest adjustment and add rear weight to insure maximum stability.
5. Lower the loader to the lowest position, stop the engine, relieve the hydraulic system pressure and set the tractor brakes before leaving the operator's seat.
6. When the tractor is in motion, keep the loader in a lower position. This will insure that your vision will not be hampered.
7. Be sure to slow down when making turns with your tractor to prevent accidentally hitting objects with your loader arms.
8. Before disconnecting the hydraulic hoses, release any hydraulic pressure from the system to prevent serious injury from rapidly escaping pressurized oil.
9. Adjust your tractor speed when the loader is carrying a load according to the conditions and terrain.
10. If you are operating the loader with a hydraulic valve, always be sure to use smooth motions when operating the levers to prevent jerking of the loader and always be sure the levers return to their neutral position. **Never Assume Anything!!!**

DO NOT'S

1. Do not hesitate to contact your dealer for assistance in mounting and operation of your loader.
2. Do not make drastic movements with the tractor or loader.
3. Do not continue operation if tractor balance is affected.
4. Do not exceed loader specifications.
5. Do not use loader for moving large, shiftable or loose loads that are not properly secured to the attachment. This will prevent the load from falling off or rolling down the loader boom arms.
6. Do not use the loader for lifting or carrying people for any reason.
7. Do not stand, walk or work under a raised loader under any condition.
8. Do not use the loader for backgrading. This improper use of the loader puts extreme stress on the latching device which could cause it to fail.
9. Do not run the loader into a mound of material at a rapid speed. This kind of action could cause serious damage to your loader or tractor or it could result in a serious injury.
10. Do not strictly use the lift arms for lifting the load. The tilt cylinders should be used to assist you in lifting your load.
11. **Very Important!!!** Never operate the loader without the safety pins installed on the main loader frame and attachments. Failure to do so could cause the loader or attachments to come unlatched from the mounting frame.

Failure to comply with the above "Do's" and "Do Not's" may result in equipment failure and/or personal injury!

WARRANTY

Frey Industries Ltd warrants each item of farm equipment distributed by FREY, to be free from defects from material and workmanship under reasonable use and service. The obligation of the Company under this warranty is limited to the repairing, the replacing or the refunding of the purchase price, less reasonable depreciation, as the Company may elect, for part or parts which shall be returned to a Distributor or Dealer of the Company with transportation charges prepaid by the purchaser, and as to which examination shall disclose to the Company's satisfaction to have been defective in material or workmanship, provided that such part or parts shall be reported to the Dealer or Distributor as being defective not later than twelve months from the date of the first use by the original purchaser. This warranty does not obligate TAS to bear the cost of labour in replacement of such defective parts.

This warranty shall not apply to equipment which has been altered, improperly maintained, or repaired so as in the Company's judgement, to have adversely affected its performance. The Company makes no warranty of any character with respect to electric motors, belts, hydraulic hoses, valves, cylinders, or other items not manufactured by the Company.

The Company's warranty and its obligation hereunder is in lieu of all other warranties, including without limitation, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE and all other representations to the Distributor, Dealer and original purchaser, that extend beyond the description of the equipment. The Company shall not be liable for incidental and consequential damages or either of them of any nature whether based on tort or contract. No person is authorized to give warranties or to assume any liabilities unless made in writing by an authorized representative of FREY.

COMPLETE AND RETURN WARRANTY CARDS

INSTALLATION INSTRUCTIONS

Models ML160, ML180, ML180S, ML190, ML200, ML280, ML460 & ML560 Loaders

Operation #1 -- Mounting Sideframes

Operation #2 -- Loader Preparation

Operation #3 -- Mounting Loader for Models ML160, ML180, ML180S, ML190, ML280, ML460 & ML560.

Operation #4 -- Mounting Attachments

Operation #1 -- Mounting Sideframes

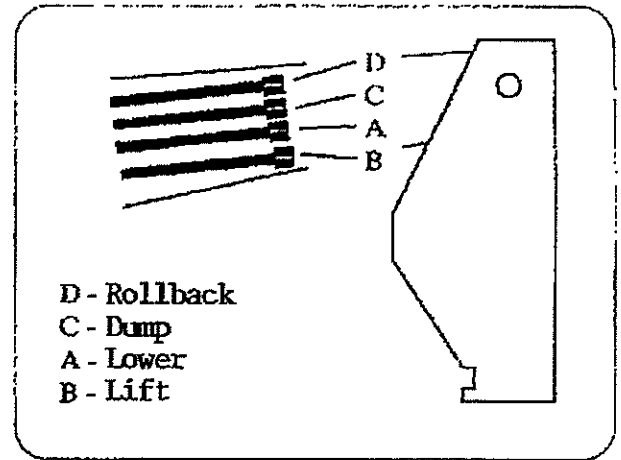
STEPS --

1. Take L.H. sideframes to L.H. side of tractor.
2. Using hoist, raise sideframe up to side of tractor aligning bolt holes in tractor to frame.
3. Take appropriate bolts and start threading them into tractor (do not tighten). (Page 7)
4. If axle brackets are required, at this point assemble but do not tighten bolts. (Page 7)
5. After all bolts have been started, return and tighten all bolts securely.

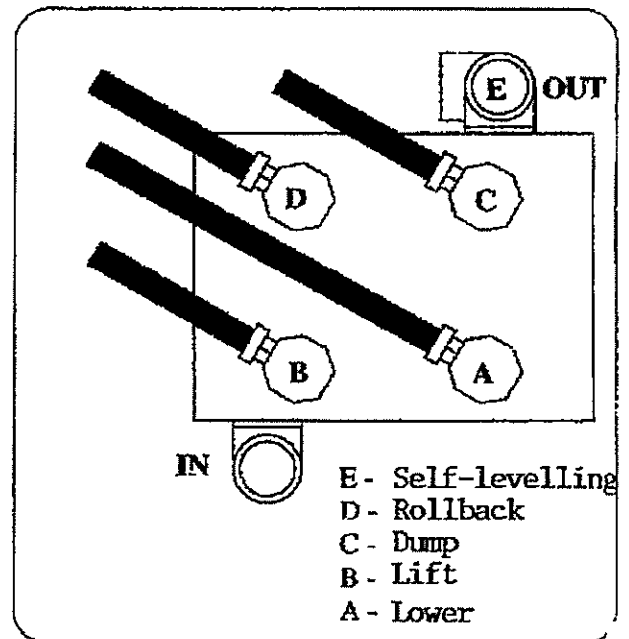
-- Repeat process for R.H. side

Operation #2 -- Loader Preparation

6. Mount valve on R.H. loader post.
7. With hoses supplied in bag kit, assemble them from valve to loader as shown in figures #2.
8. Dealer should cut the 1/2" hose to length from the valve to the tractor making sure the hose is long enough to reach the valve when the loader is removed.
9. Hook pressure hose to in-port on valve.
Hook suction hose to out-port on valve.



Figures : STEP #7



Figures : STEP #9

The ports on the valve Fig.2 connect to the corresponding lines on the loader.

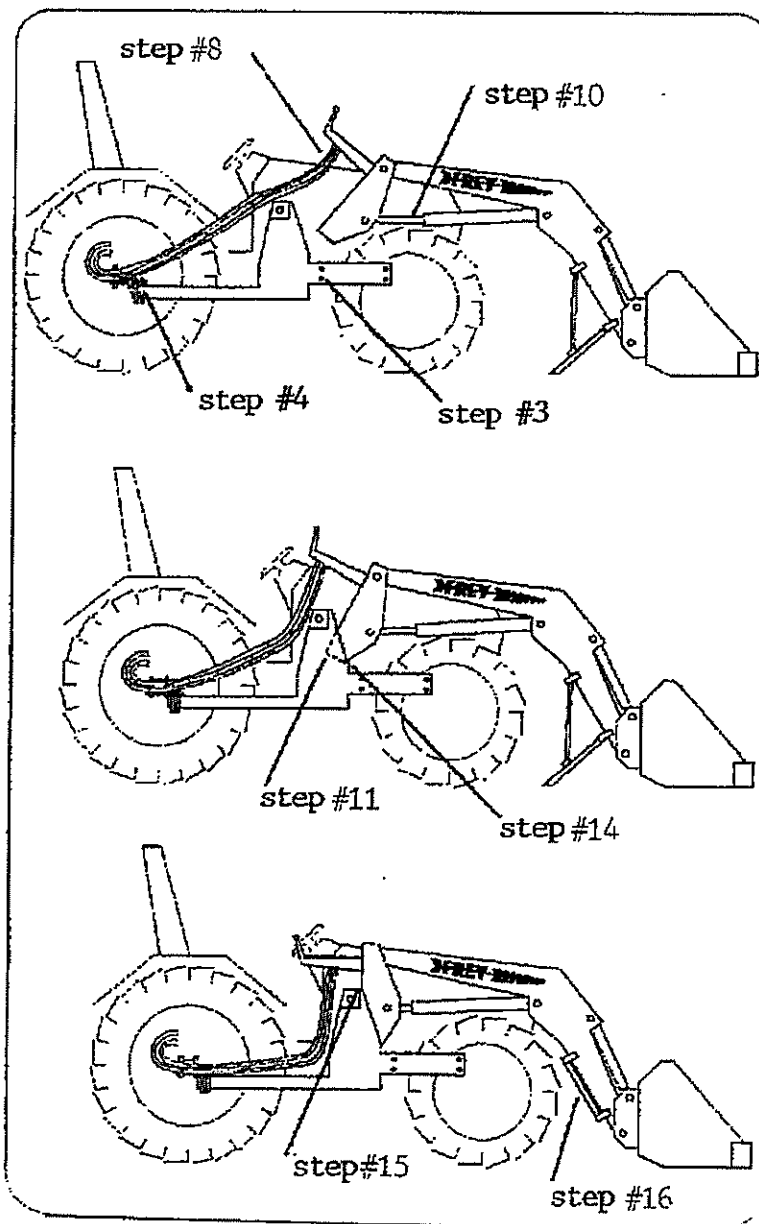
Fig.1

For example, port A on the valve connects to line A on the loader

Operation #3 -- Mounting Loader for Models ML160, ML180, ML180S, ML190, ML200, ML280, ML460 & ML560.

10. Stand loader in upright position with cylinders fully extended as shown in figure #3.
11. Drive tractor into loader until loader posts touch inside of sideframe sockets on tractor.
12. Hook up pressure and return hoses to tractor.
13. Rev tractor for approximately 30 seconds to fill loader cylinder full of hydraulic oil.
14. Reach ahead and grab valve handles, lower loader post into sideframe sockets until posts are secured under pin of sideframe as shown in figure #3.
15. Take large wedges supplied in bag kit and drop through lock brackets of frames using hair pins to secure pins.
16. Raise stands on loader into travelling position.
17. Loader is secured -- ready to operate.

Figures 3



INSTALLATION INSTRUCTION

ML360, ML500 & ML750 Loaders

Each tractor model requires different sideframe mounting kits and most kits attach to the rear axle for added strength. The mounting consists of attaching the left and right sections of the mounting frame to your tractor. We highly recommend, because of tight tolerances, that you leave all the mounting bolts loose until you install the loader on the mounting frame. After the loader has been installed, tighten all bolts on the mounting frame.

Step 1:

Be sure the loader is positioned on level ground (See Fig. A). Drive the tractor into position close enough so that the quick connect couplings on the loader hoses can be attached to the couplers at the hydraulic manifold on the tractors mounting frame.

Step 2:

To install the loader on the mounting frame, turn the bucket or other loader attachment downward so that it pushes into the ground as seen in figure A or figure B. The most important thing is that one of these methods be used so that the tractor doesn't push the loader forward.

(PLEASE NOTE) If you roll the bucket all the way under (refer to figure C) and try to dismount or mount the loader you are in danger of bending the self levelling arms on the loader. If this is done, Frey Industries Division cannot honour a warranty claim to replace the self levelling arms!

THE CORRECT LOADING
POSITIONS ARE AS SHOWN:

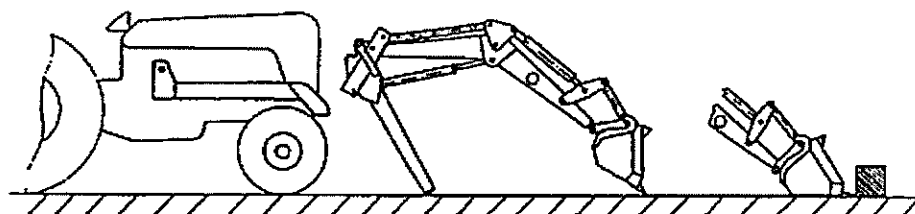


Figure - A

Figure - B

INCORRECT AND DANGEROUS
DISMOUNT POSITIONS AS FOLLOWS:

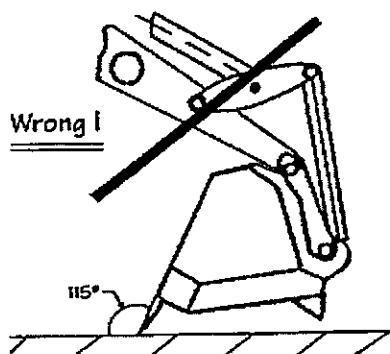


Figure - C

Step 3:

After connecting the hoses, activate your tractor remotes or hydraulic valve on the lift cylinders until the rear part of the loader is lifted into the air far enough to clear the mounting frame (please refer to Figure D).

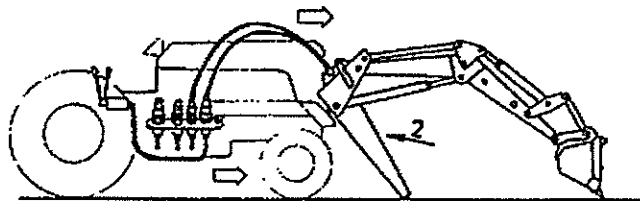


Figure - D

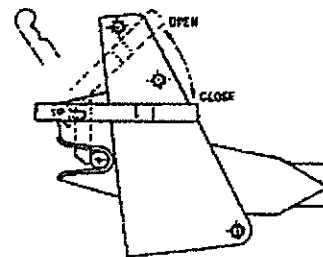


Figure - E

Step 4:

Be sure you have opened the main latching lever to the open position (please refer to Figure E). The tractor should be driven slowly forward until the wrap around loader frame touches the mounting frame support arms. Slowly begin to slide towards the round latch at the back of the loader mounting frame (Refer to Figure F). The loader will slide onto the mounting frame support arms until the hook on the loader (refer to Figure G) engages the loader mounting frame rear carrier pins.

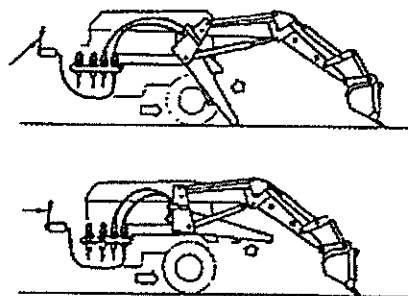


Figure - F

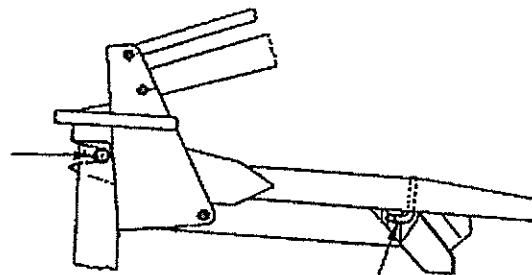


Figure - G

Step 5:

Once the loader has slid back as far as it can, lower the main latching lever (refer to Figure E) to secure the loader. Do not forget to install the safety pins to prevent the lever from unlatching.

Step 6:

After the loader has been installed, tighten all bolts in the mounting frame and connect the remaining hydraulic lines to the quick release manifold (See Figure H).

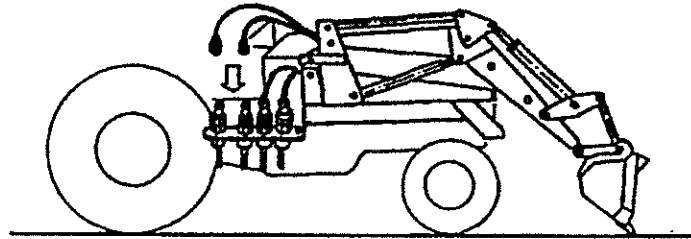


Figure - H

You have now completed the quickest loader mount in the industry. With practice you should be able to mount the loader in 5-8 minutes.

DISMOUNTING

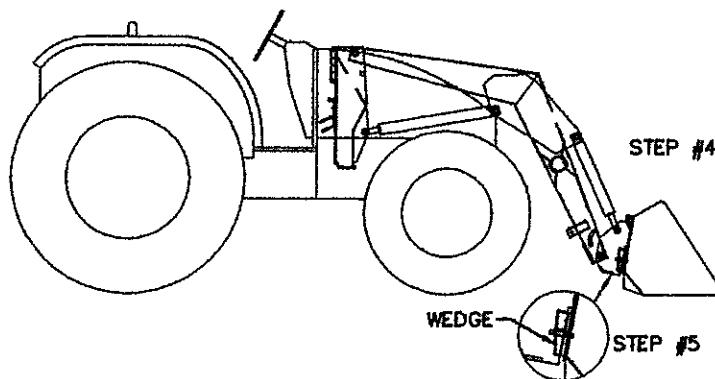
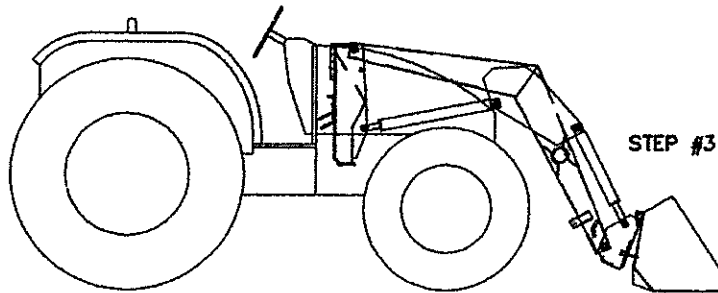
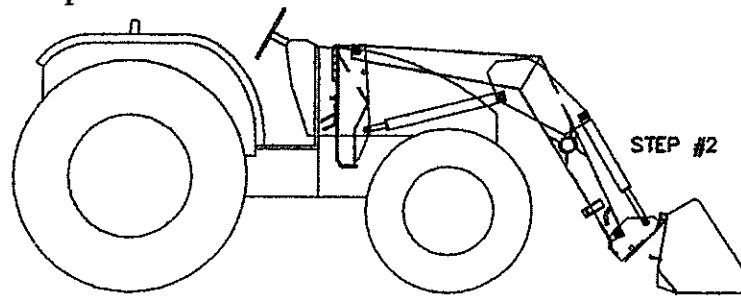
Dismounting the loader is just as simple and quick as mounting it. The most important thing to remember is that you need to be on level ground before attempting the dismount and be sure that you have the bucket in the proper position (See figure A or B) and simply reverse the mounting procedure to dismount. Extreme Caution should be taken not to damage your hoses and hydraulic lines when mounting and dismounting the loader. When the loader is in its' highest position, the stability of your tractor is greatly reduced, so please use Extreme Caution!

**CAUTION - Before operating the loader please proceed to
Loader Operation on Page 12.**

MOUNTING ATTACHMENTS (WEDGE ON)

STEPS

1. Drive up to bucket making sure the bucket and backplate on loader are square to each other.
2. Tilt backplate on loader ahead as shown and at same time drive into bucket.
3. When backplate touches bucket raise loader until backplate catches angle on bucket.
4. Tilt backplate backwards until bucket is on.
5. Take wedges and drop through slots on bucket to lock backplate in place.
6. Install hitch pins so wedges can not fall out.
7. To remove bucket reverse process.



Loader Operation/Maintenance

1. Once the hydraulics have been installed, you must bleed the air from the hydraulic system before operation. Leaving air in the system could be very dangerous because it greatly affects the performance of the loader. Loosen the hyd. fittings on the lower cylinders and activate the tractor remote or auxiliary valve until clean, uncontaminated oil flows out. The loader will go up and down smoothly without jerking and there should be no unusual noises coming from the hydraulic system. Always be sure that all connections have been properly tightened.
2. After completion of Item 1 above, recheck all mounting frame bolts for proper torque. Initial operation can cause loosening of the fasteners. Please double check again after the first hour of operation and again after 10 hours of operation.
3. Our loader can be used in many different functions and will perform up to expectations, however, the loader **has not** been designed to be used in any type of digging and we highly recommend you refrain from this activity. **The loader warranty does not cover damage that occurs as a result of misuse.**
4. There are two primary positions for the loader; the neutral position and the working position.

When the loader is in the neutral position, there is no hydraulic oil movement in any of the loader's cylinders. If you are using the tractor remotes, the loader will remain in neutral until you open the remote by moving the remote lever on the tractor. If you are using an additional hydraulic valve the oil will pass through the valve and back to the tank until the lever on the valve is actuated and then the oil will travel to the lift or bucket cylinders. The loader is in the working position when you open the tractor remote or auxiliary valve by pushing or pulling the lever. This allows the oil to travel to the cylinders that activates their movement in either lifting or tilting function.

5. The hydraulics can be installed on your tractor in many different ways. This is usually decided at the dealership where you purchased the loader. We recommend that you familiarize yourself on how your dealer installed your hydraulics. This can help us in the future if you need to check your system for hydraulic leaks or any other unseen problem. If you have purchased an auxiliary valve to operate your loader, be sure that you allow the hydraulic oil to warm up before operating the loader. If the hydraulic fluid has not warmed up, its viscosity will be too low; it will not move properly and could damage the hydraulic lines. After the hydraulic oil has reached its operating temperature, always limit the number of times you open and close your valve. By repeatedly opening and closing the valve you could overheat your tractor hydraulic system.

After installing the mounting frames turn and oscillate front tires making sure there is no interference restricting turning. If interference occurs, the wheels may have to be widened or oscillating stops may have to be adjusted.

SERVICE

1. Check your tractor's hydraulic oil often and check the hydraulic fittings for any looseness that may occur after prolonged use.
2. If the control valve is making noise, it will need to be adjusted.
3. All grease points should be greased regularly especially if you use the loader often.
4. Please change the oil in the loader every 500 hours if it's being used in heavy work conditions, 800 hours if in normal working conditions and 1100 hours if being used in light applications.
5. If your loader is in need of major service we highly recommend that you take it to your closest TAS dealer for repairs.
6. FREY will only honor warranties performed by qualified technicians approved by our company.
7. Replacement parts can be obtained at your nearest authorized FREY dealer.
8. **(VERY IMPORTANT)** When ordering parts it is essential that you give the model of your loader, serial number, date of purchase, what kind of tractor it is mounted on and the part number required. (Refer to the parts catalog at the back of the manual to find the part number you need.)
9. **NEVER** use any attachments that are not specifically designed for our loader. Doing so will void your warranty.

TROUBLESHOOTING

<u>PROBLEM</u>	<u>REASON</u>	<u>SOLUTION</u>
Oil leaking	Loose hyd. fittings Loose fittings Damaged gaskets Damaged pipelines Damaged couplers	Tighten hyd. fittings Tighten fittings Repair gaskets Repair pipes Repair couplers
Loader jerks and makes noise	Not enough oil in system Vibration in pressure lines Air in loader system Dirty oil Water in the oil	Add oil Secure the lines Bleed the air out Change oil Change oil
Movement of the loader lift cylinder is uncontrolled	Air in cylinder Damaged seals Deformed seals Pressure isolation	Bleed the hydraulic system Change seals Change cylinder Control & change isolation

LOADER

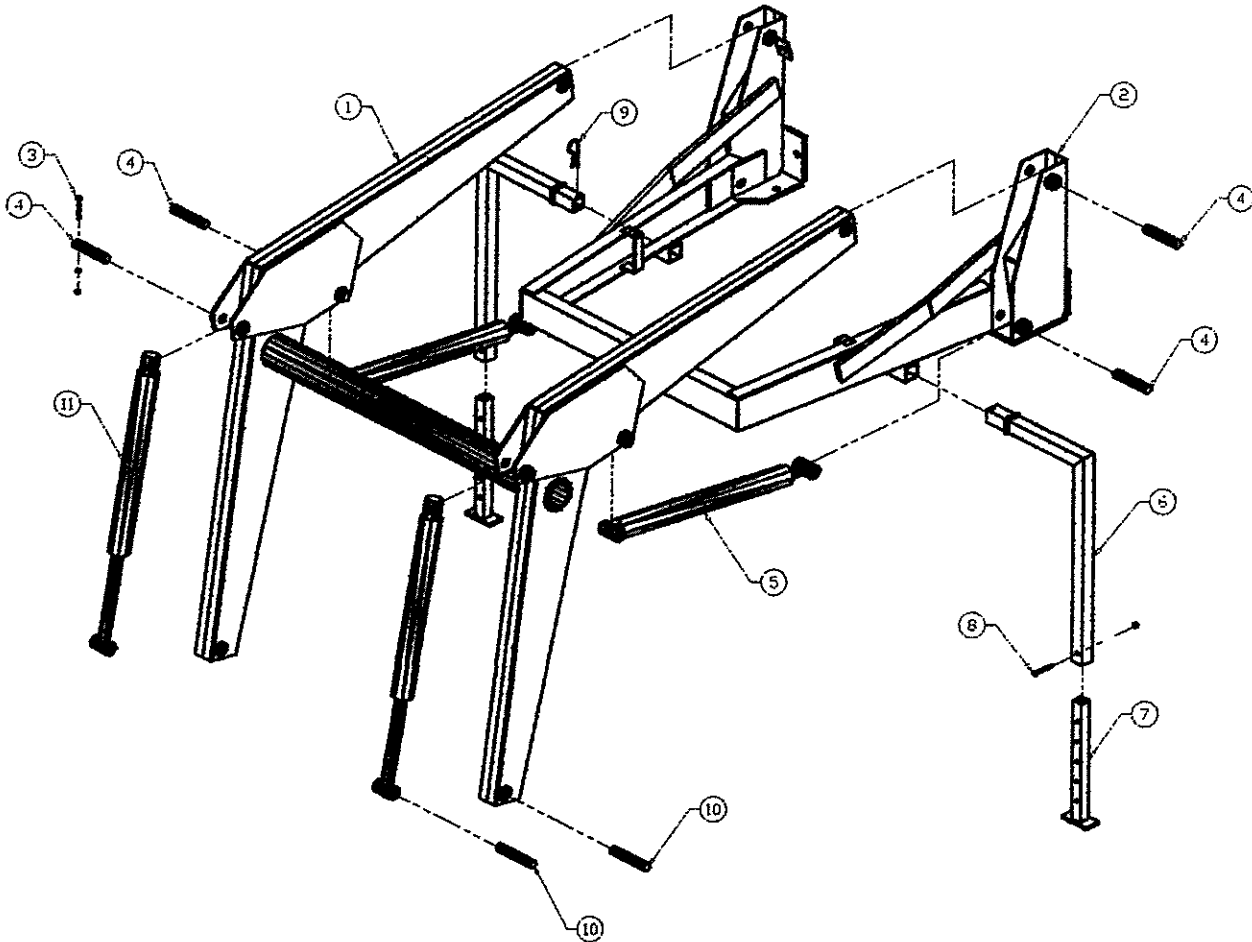
ILLUSTRATIONS

&

PARTS

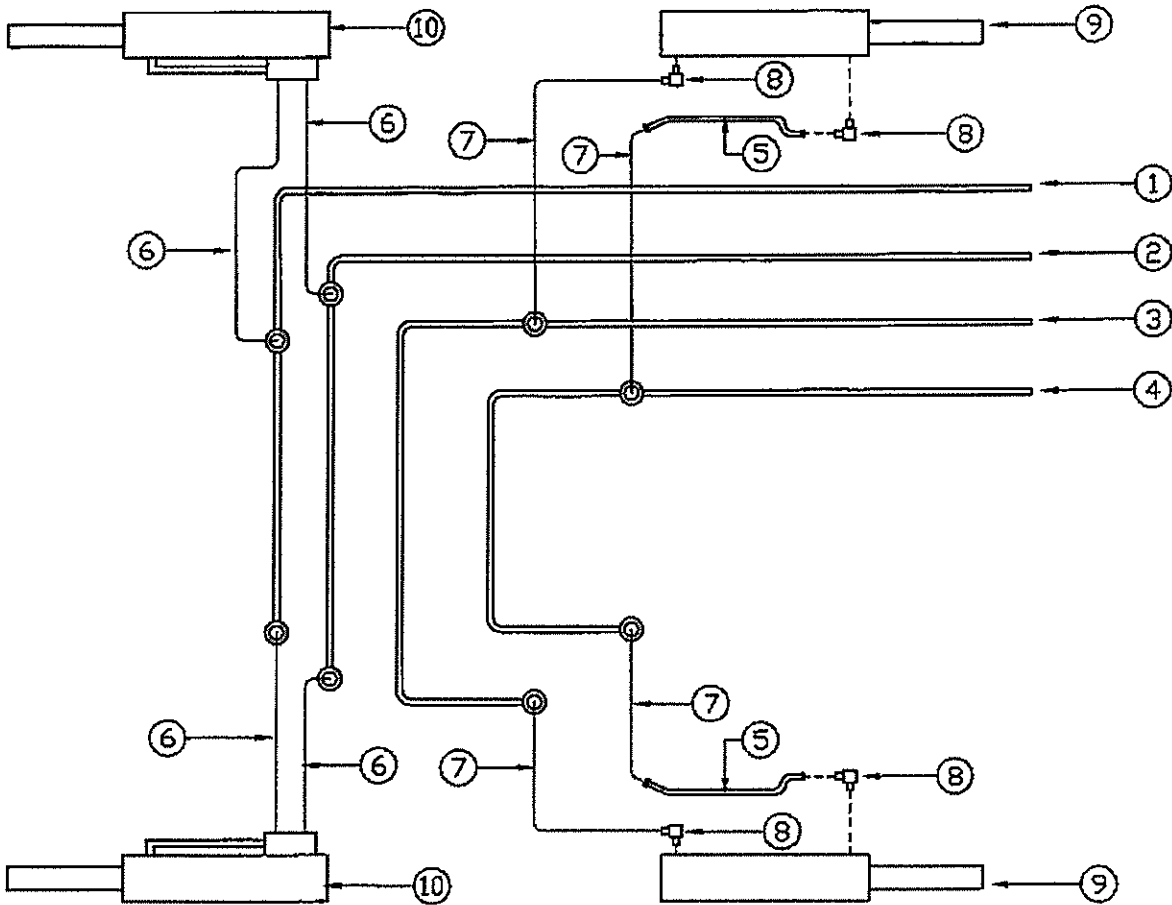
GUIDE

Model ML160 LOADER ASSEMBLY



No.	Description	Part No.	Qty	No.	Description	Part No.	Qty
1	Loader Main Boom	21598	1	7	Leg Extension	21620	2
2	Loader Yoke Assembly	21610	1	8	Hex Bolt-5/16x1 1/2 & Nut	O.L.	2
3	Hex	O.L.	12	9	Hairpin-5/32 x 3	O.L.	2
4	Hinge Pin-3/4x4	21590	8	10	Hinge Pin-3/4x4	21590	4
5	Lift Cylinder	P87-009	2	11	Bucket Cylinder	P02-066	2
6	Loader Stand	21647	2				

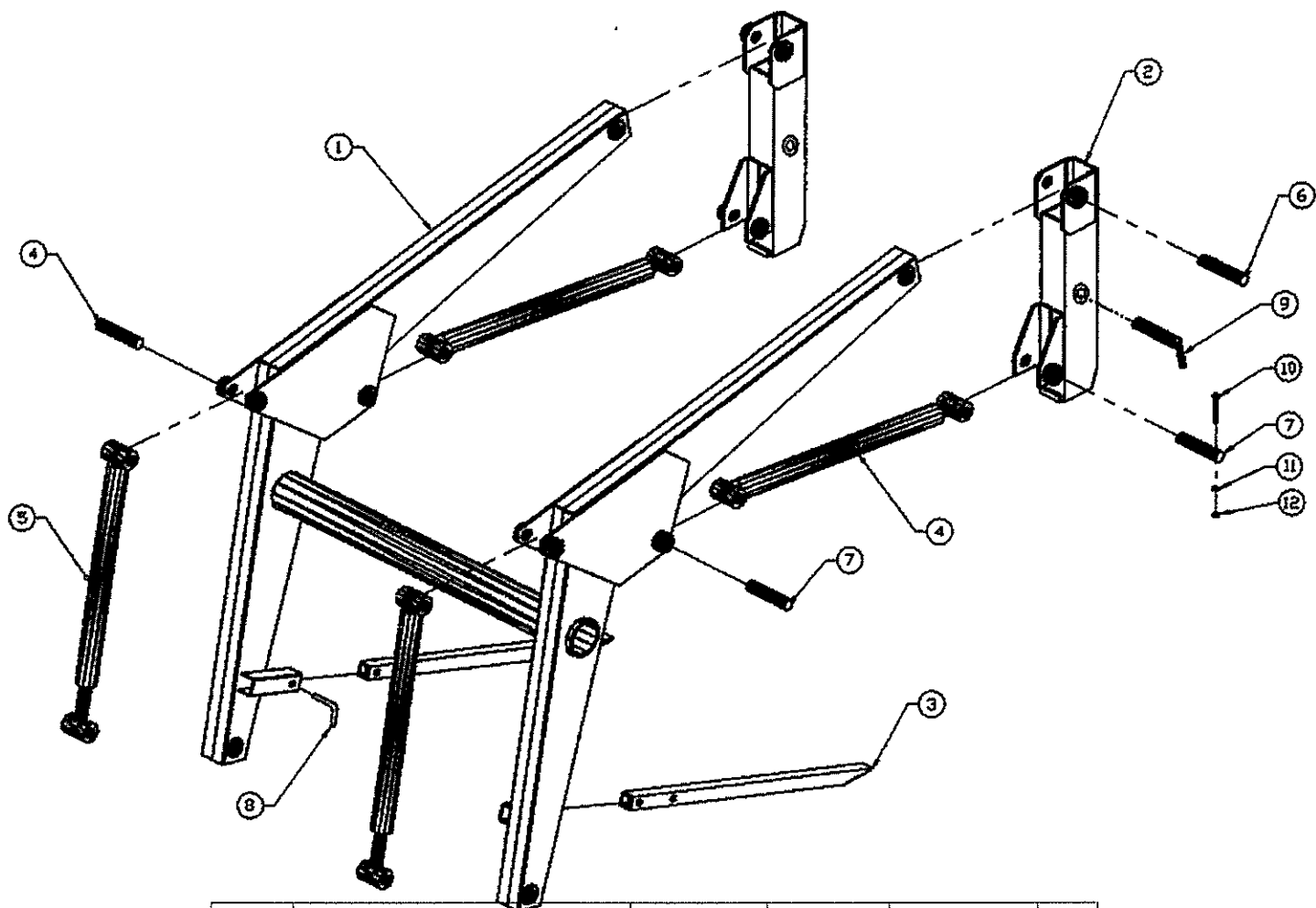
Model ML160 HYDRAULIC SYSTEM



No.	Description	Part No.	Qty
1	Hyd. Tube, Top Line	22639	1
2	Hyd. Tube, 2nd Line Down	22640	1
3	Hyd. Tube, 3rd Line Down	22641	1
4	Hyd. Tube, Bottom Line	22642	1
5	Hyd. Tube, Transfer Line	22651	2
6	Hyd. Hose, Bucket	22664	4
7	Hyd. Hose, Lift	22665	4
8	Hyd. Fitting, 90 Deg. Elbow	HF C5405x6x6	4
9	Cylinder, Lift	P87-009	2
10	Cylinder, Bucket	P02-066	2

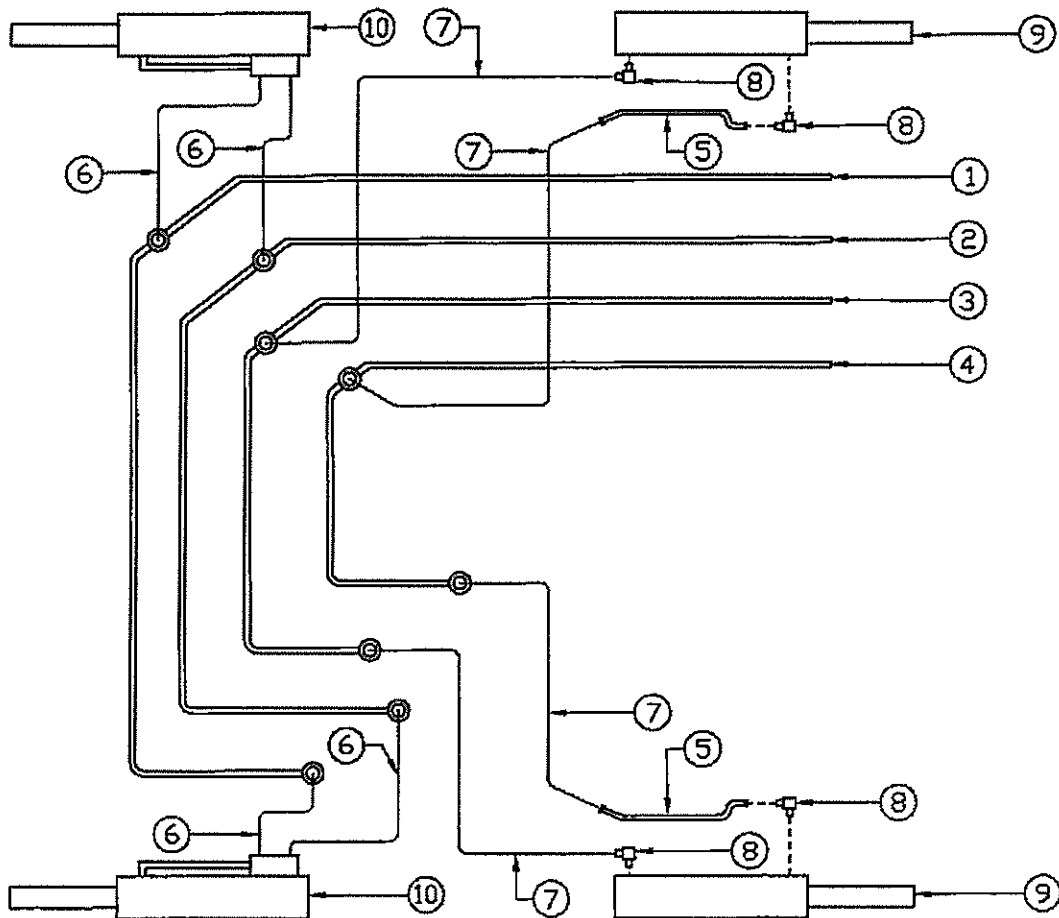
NOTE: HYDRAULIC HOSES FROM VALVE TO LOADER, SUPPLIED WITH HYDRAULIC VALVE KIT.

Model ML180, ML180S, ML190 LOADER ASSEMBLY



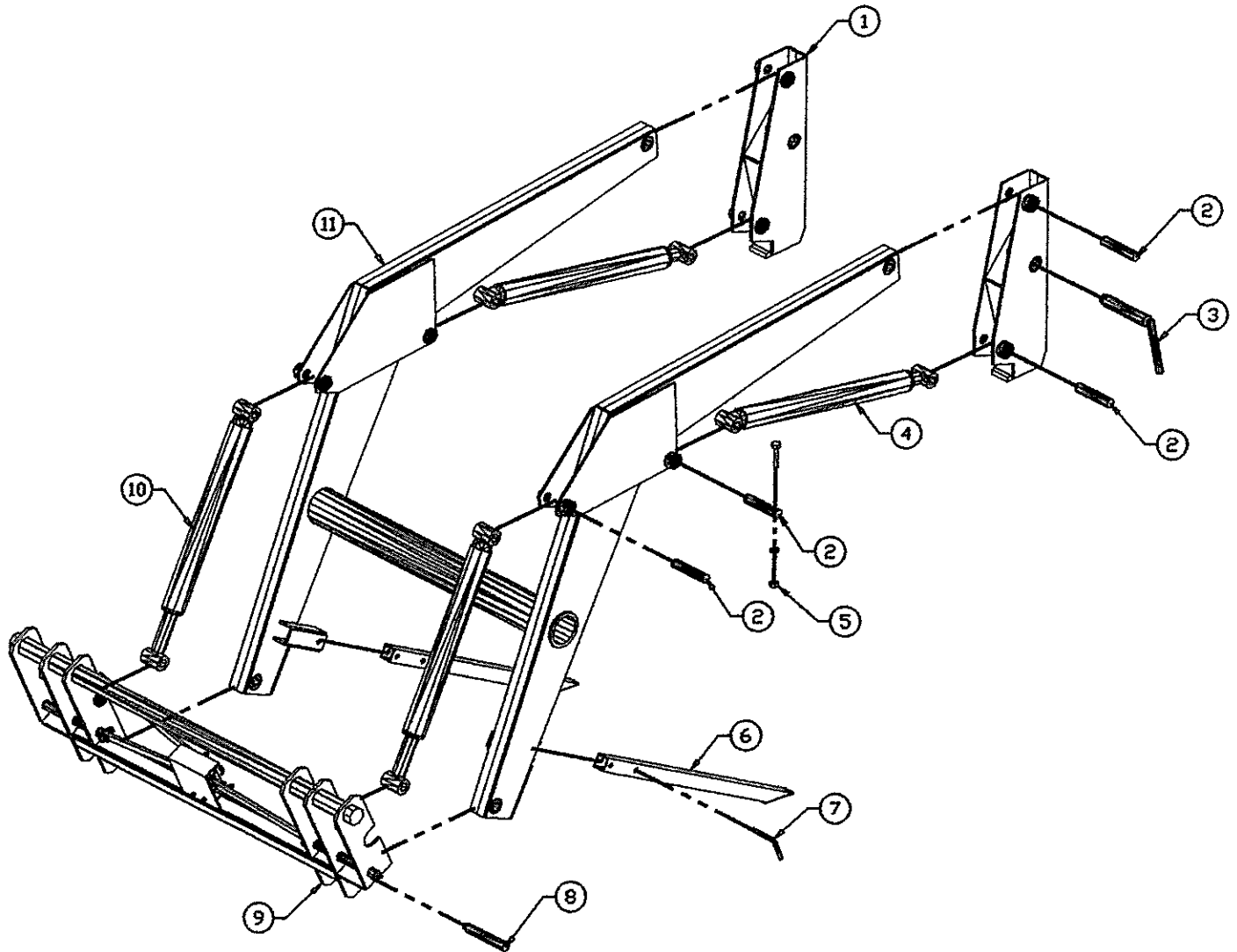
No.	Description	Part No. ML180	Part No. ML180S	Part No. ML190	Qty
1	Boom	21236	21995	21995	1
2	Post	22625	22625	22625	2
3	Leg Stand	21492	21492	21492	2
4	Lift Cylinder	P88-020	P88-020	P88-020	2
5	Bucket Cylinder	P02-065	P02-065	P99-163	2
6	Pin 1 x 5 1/2	21036	21036	21036	2
7	Pin 1 x 5	21035	21035	21035	6
8	Leg Stand Pin	21447	21447	21447	2
9	Post Pin	22435	22435	22435	2
10	Bolt, 5/16 x 2 1/2	O.L.	O.L.	O.L.	8
11	Lockwasher, 5/16	O.L.	O.L.	O.L.	8
12	Hex Nut, 5/16	O.L.	O.L.	O.L.	8

Model ML180, ML180S, ML190 HYDRAULIC ASSEMBLY



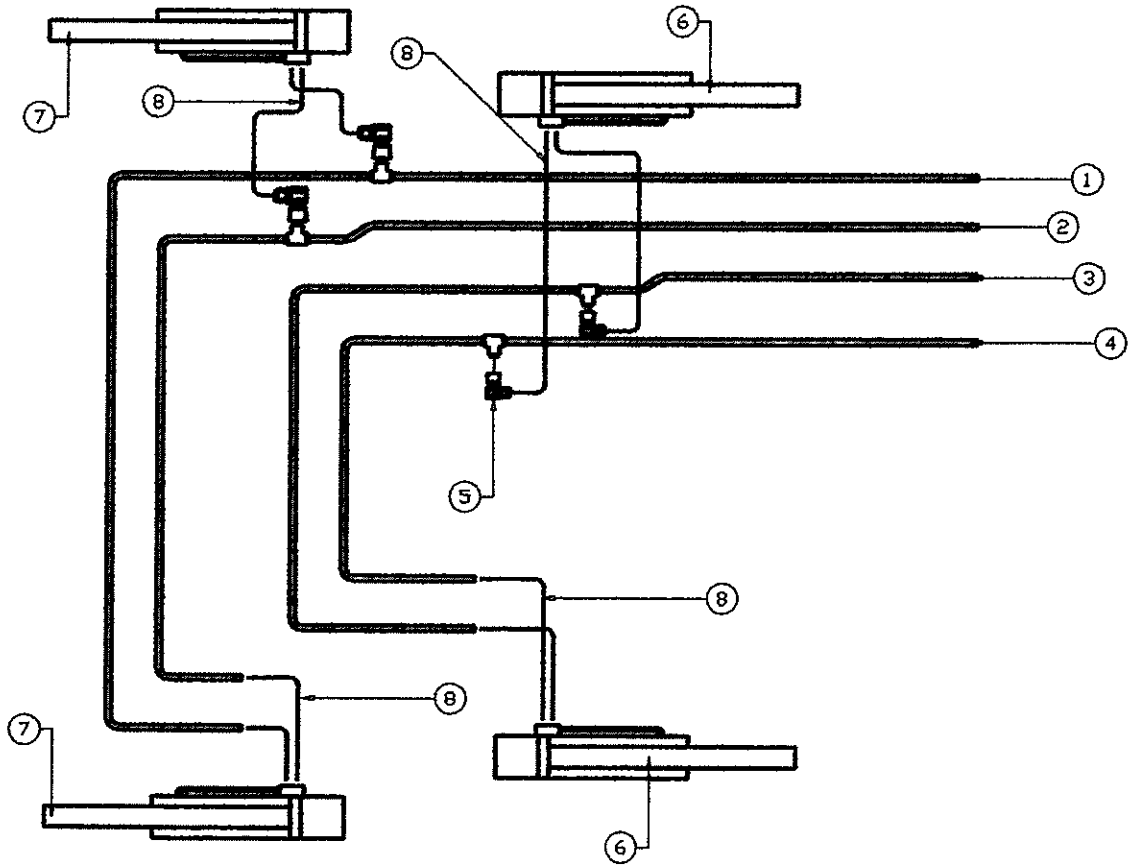
No.	Description	Part No. ML180	Part No. ML180S	Part No. ML190	Qty
1	Hyd. Tube, Top Line	22643	22660	22660	1
2	Hyd. Tube, 2nd Line Down	22644	22661	22661	1
3	Hyd. Tube, 3rd Line Down	22645	22662	22662	1
4	Hyd. Tube, Bottom Line	22646	22663	22663	1
5	Hyd. Tube, Transfer Line	22652	22652	22652	2
6	Hyd. Hose, Bucket	22666	22666	22666	4
7	Hyd. Hose, Lift	22665	22665	22665	4
8	Hyd. Fitting, 90 Deg. Elbow	HF C5405x6x6	HF C5405x6x6	HF C5405x6x6	4
9	Cylinder, Lift	P88-020	P88-020	P88-020	2
10	Cylinder, Bucket	P02-065	P02-065	P99-163	2

ML200 LOADER ASSEMBLY



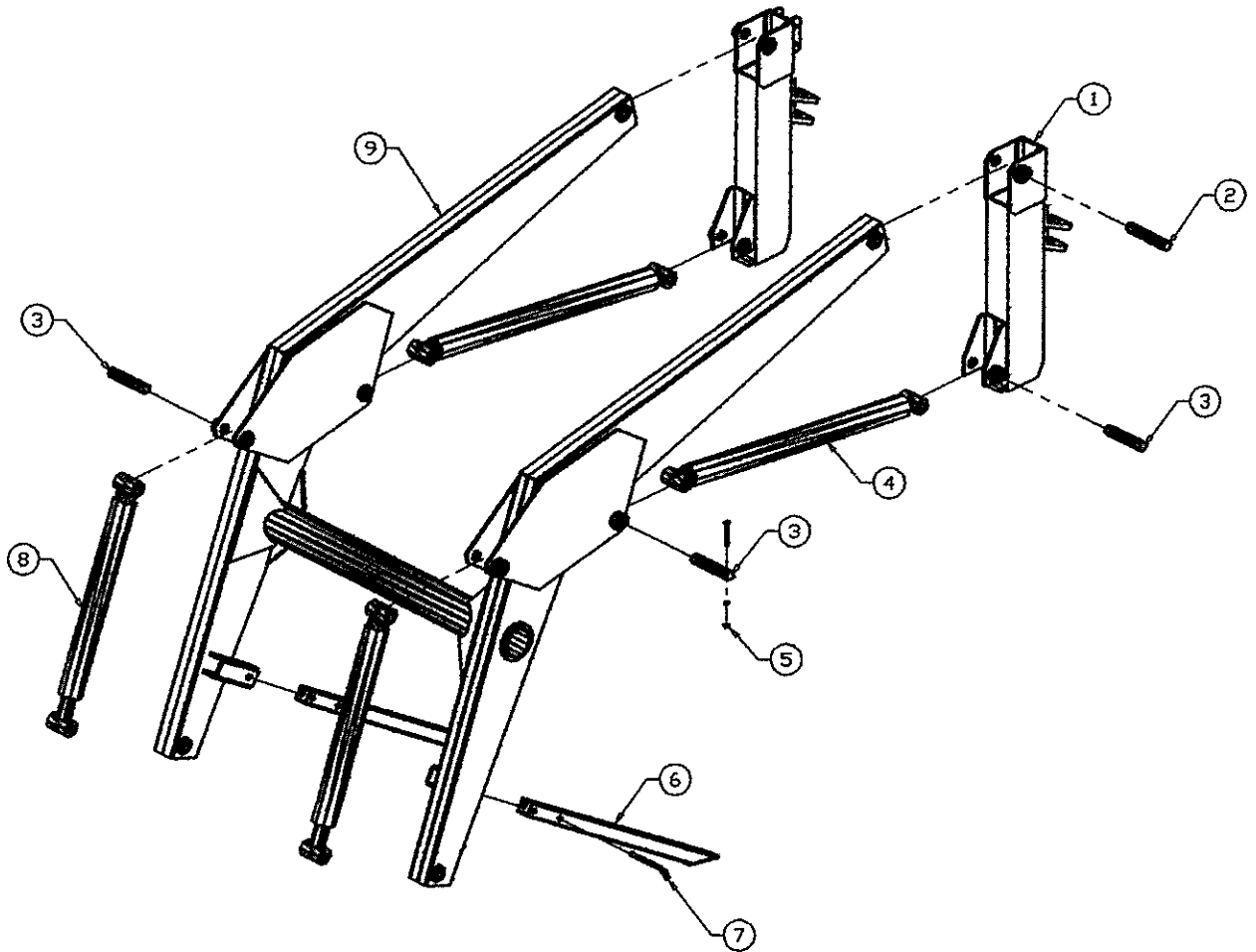
NO.	DESCRIPTION	PART. NO.	QTY
1	Post	22431	2
2	Hinge Pin - 4 1/2"	21451	8
3	Post Pin	22435	2
4	Lift Cylinder - 2"	P99-164	2
5	Hex Bolt - 5/16 x 2 1/2, LW, HN		12
6	Loader Leg	21850	2
7	Parking Lock Pin	21447	2
8	Hinge Pin - 6"	21114	4
9	Quicktach Plate	QTP 22291	1
10	Bucket Cylinder - 2"	P99-163	2
11	Boom	22428	1

ML200 HYDRAULIC SYSTEM



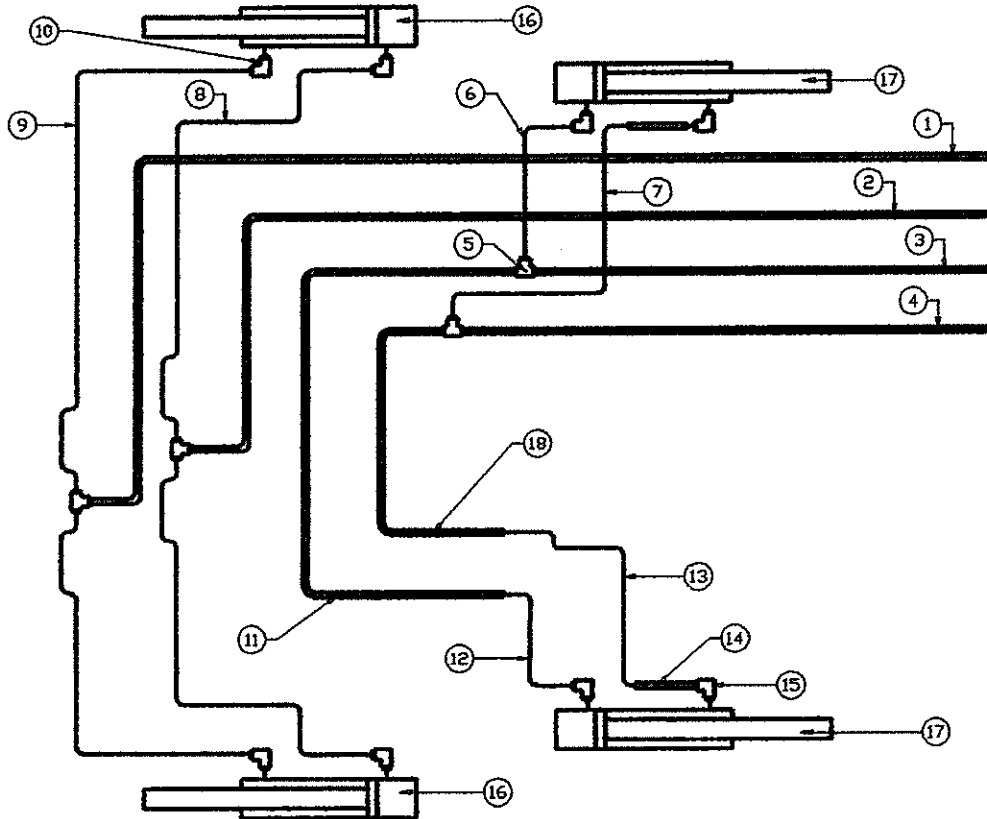
NO	DESCRIPTION	PART NO.	QTY
1	1/2" Hyd. Tubing - 88 3/4" Long	22441	1
2	1/2" Hyd. Tubing - 90 1/2" Long	22439	1
3	1/2" Hyd. Tubing - 89 1/2" Long	22438	1
4	1/2" Hyd. Tubing - 91 3/4" Long	22440	1
5	90 Deg. Elbow	C5506x8	4
6	Lift Cylinder	P99-164	2
7	Bucket Cylinder	P99-163	2
8	1/2" Hyd. Hose - 20" Long	22452	8

ML280 LOADER ASSEMBLY



No.	Description	Part No.	Qty	No.	Description	Part No.	Qty
1	Post	21003	2	6	Loader Leg	21850	2
2	Hinge Pin - 5 1/2"	21036	2	7	Parking Lock Pin	21447	2
3	Hinge Pin - 5"	21035	6	8	Bucket Cylinder - 2"	P87-015	2
4	Lift Cylinder - 2"	P88-019	2	9	Boom	21002	1
5	Hex Bolt - 5/16 x 2 1/2, LW, &		8		Seal Kit - 2"	P87-015S	

ML280 HYDRAULIC SYSTEM



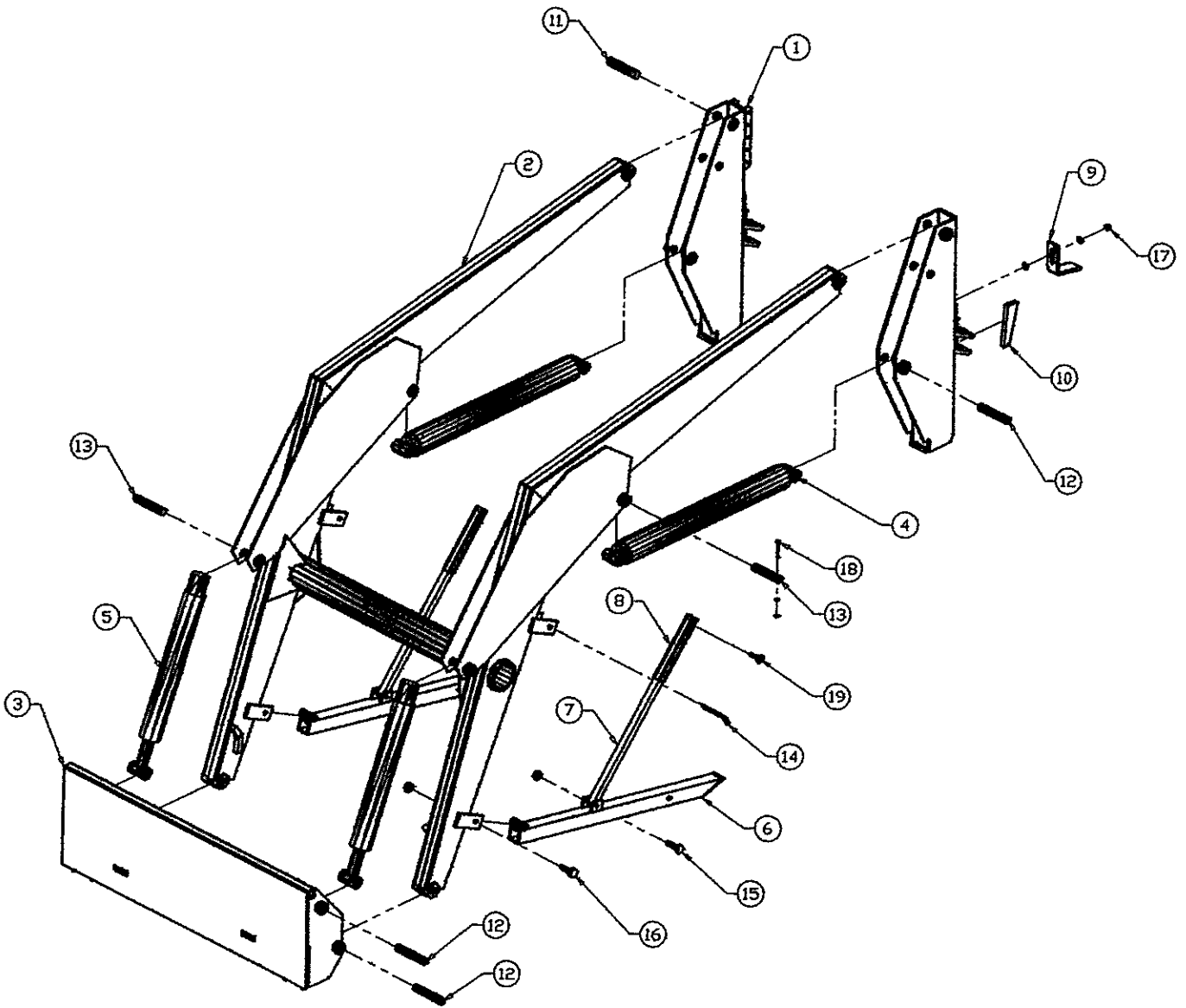
No.	Description	Part No.	Qty
3	Hydraulic Tubing	21041	2
4	Hyd. Hose 16 1/2 Length	21049	1
5	Hyd. Hose 11 3/4 Length	21045	1
6	Hyd. Hose 16 1/2 Length	21044	1
7	Hyd. Hose 11 3/4 Length	21046	1
8	Hyd. Hose 29 Length	21043	2
9	Hyd. Hose 17 3/4 Length	21047	2
10	Hydraulic Tubing	21040F	2

No.	Description	Part No.	Qty
11	Hydraulic Tubing	21040B	1
12	Hydraulic Tubing	21040C	1
13	Hydraulic Tubing	21040E	1
14	Hydraulic Tubing	21040D	1
15	90 Elbow Fitting	5405X8	4
17	Tee Fitting	5705X8	3
18	90 Elbow 3/8 N.P.T.	3409X6	2

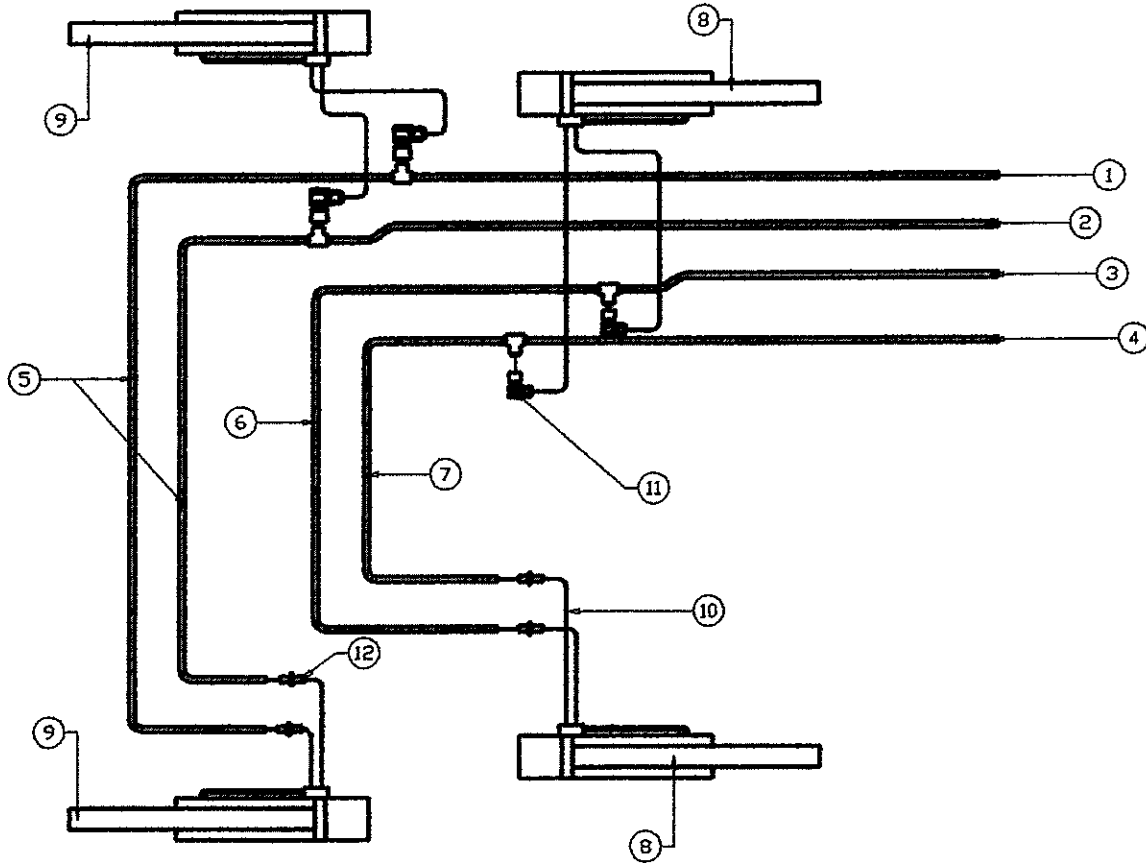
ML460/ML560

Item No.	Description	Part No.	Qty	Part No.	Qty
		ML460	ML460	ML560	ML560
1	Post	21358	2	21296	2
2	Boom	21497	1	21499	1
3	Quicktach Plate	21162	1	21162	1
4	Lift Cylinder - 3"	---	---	P86-021	2
	- 2 1/2"	P00-021	2	---	---
5	Bucket Cylinder - 2 1/2"	P00-015	2	P82-022	2
6	Lower Leg	21445	2	21298	2
7	Upper Leg	21310	2	21310	2
8	Leg Extension	22090	2	22090	2
9	Lock Bracket	21313	2	21313	2
10	Wedge	21423	2	21423	2
11	Hinge Pin - 5 1/2	21121	2	21121	2
12	Hinge Pin - 5 1/2	21036	6	21036	6
13	Hinge Pin - 5	21035	4	21035	4
14	Clevis Pin	21447	2	21447	2
15	Hex Bolt & nut - 1/2 x 2 1/2	O.L.	2	O.L.	2
16	Hex Bolt & nut - 1/2 x 4 1/2	O.L.	2	O.L.	2
17	Locknut & 2 Flatwashers - 1/2	O.L.	2	O.L.	2
18	Hex Bolt, LW, & HN - 5/16 x 2 1/2	O.L.	12	O.L.	12
19	Pin	22091	2	22091	2
---	Seal Kit - all 2 1/2" Cylinders	P82-022S		P82-022S	
---	- all 3" Cylinders	P85-027S		P85-027S	

LOADER ASSEMBLY



ML460 HYDRAULIC SYSTEM

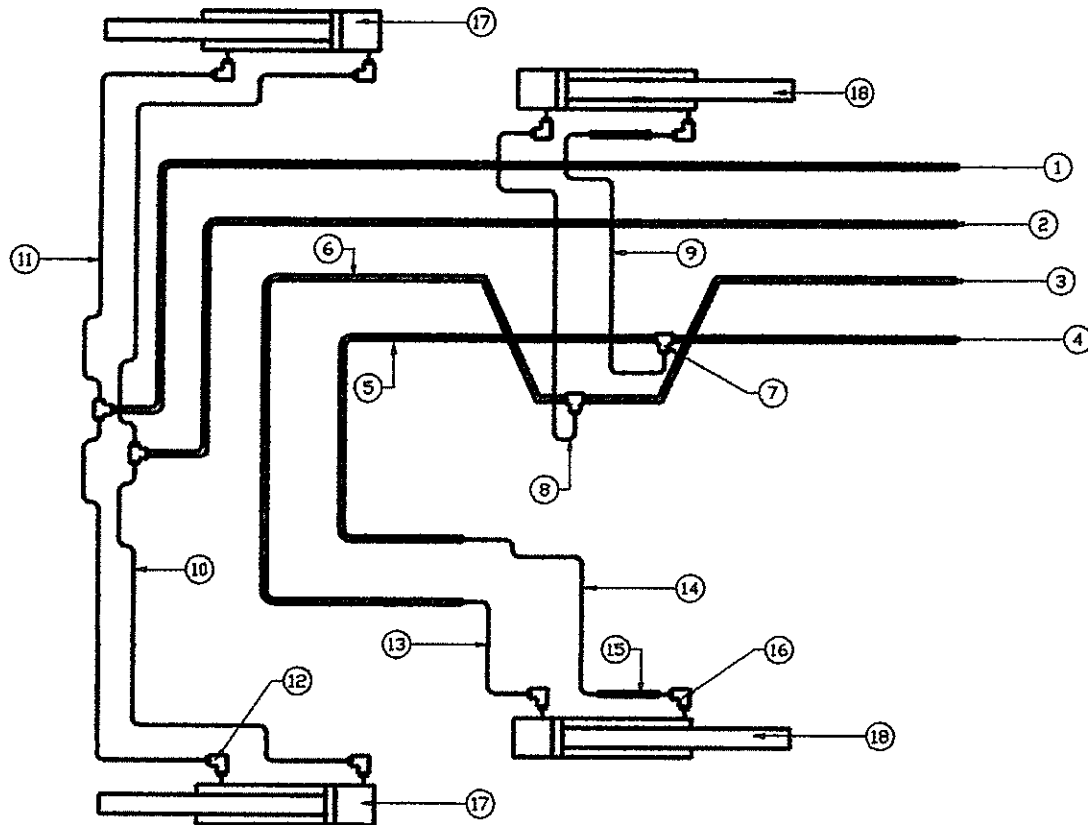


No.	Description	Part No.	Qty
1	1/2" Hydraulic Tubing	22115	1
2	1/2" Hydraulic Tubing	22116	1
3	1/2" Hydraulic Tubing	21368	1
4	1/2" Hydraulic Tubing	21369	1
5	1/2" Hydraulic Tubing	22114	2
6	1/2" Hydraulic Tubing	21367	1
7	1/2" Hydraulic Tubing	21365	1
8	Lift Cylinder	P00-021	2
9	Bucket Cylinder	P00-015	2
10	3/8" Hydraulic Hose 20" Long	22452	8
11	90 Deg. Hyd. Elbow	5505x8	4
12	Hyd. Male Union	5506x8	4

NOTE:

Hydraulic Hoses from Valve to loader, supplied with hydraulic valve.

ML560 HYDRAULIC SYSTEM



No.	Description	Part No.	Qty
1	1/2" Hyd. Tubing - 1st Lin	21377	1
2	1/2" Hyd. Tubing - 2nd Lin	21378	1
3	1/2" Hyd. Tubing - 3rd Lin	21371	1
4	1/2" Hyd. Tubing - 4th Lin	21370	1
5	1/2" Hyd. Tubing - 4th Lin	21396	1
6	1/2" Hyd. Tubing - 3rd Lin	21397	1
7	Hyd. Tee Fitting	5705x8	4
8	3/8" Hyd. Hose - 20" Long	21418	1
9	3/8" Hyd. Hose - 15" Long	21419	1

No.	Description	Part No.	Qty
10	3/8" Hyd. Hose - 20" Long	21409	2
11	3/8" Hyd. Hose - 35" Long	21401	2
12	90 Deg. Str. Elbow	3409x6	2
13	3/8" Hyd. Hose - 18" Long	21404	2
14	3/8" Hyd. Hose - 22" Long	21417	1
15	1/2" Hyd. Tubing	21041	2
16	90 Deg. Hyd. Elbow	5405x8	4
17	Bucket Cylinder	P82-022	2
18	Lift Cylinder	P86-021	2

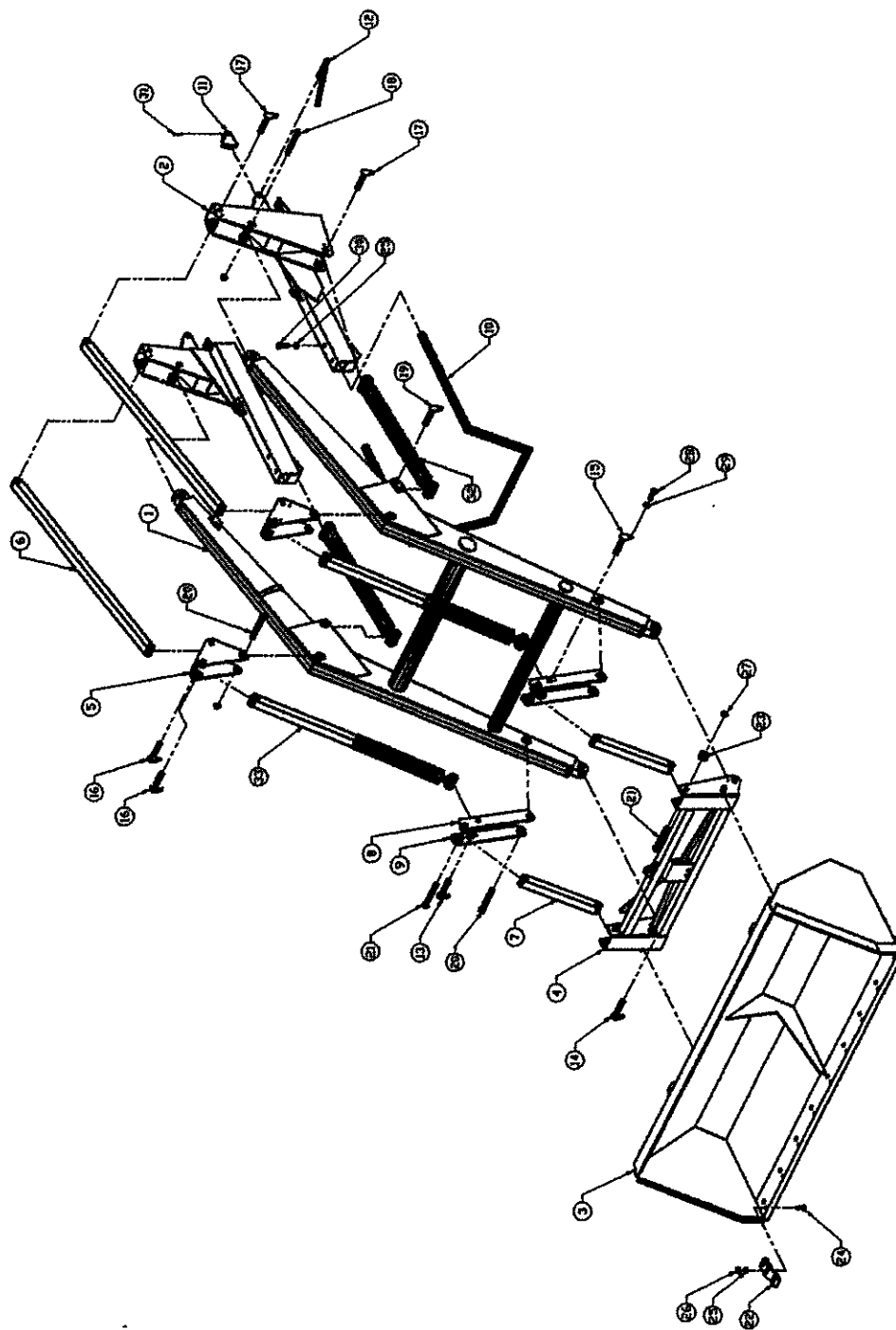
NOTE:

Hydraulic Hoses from Valve to loader, supplied with hydraulic valve.

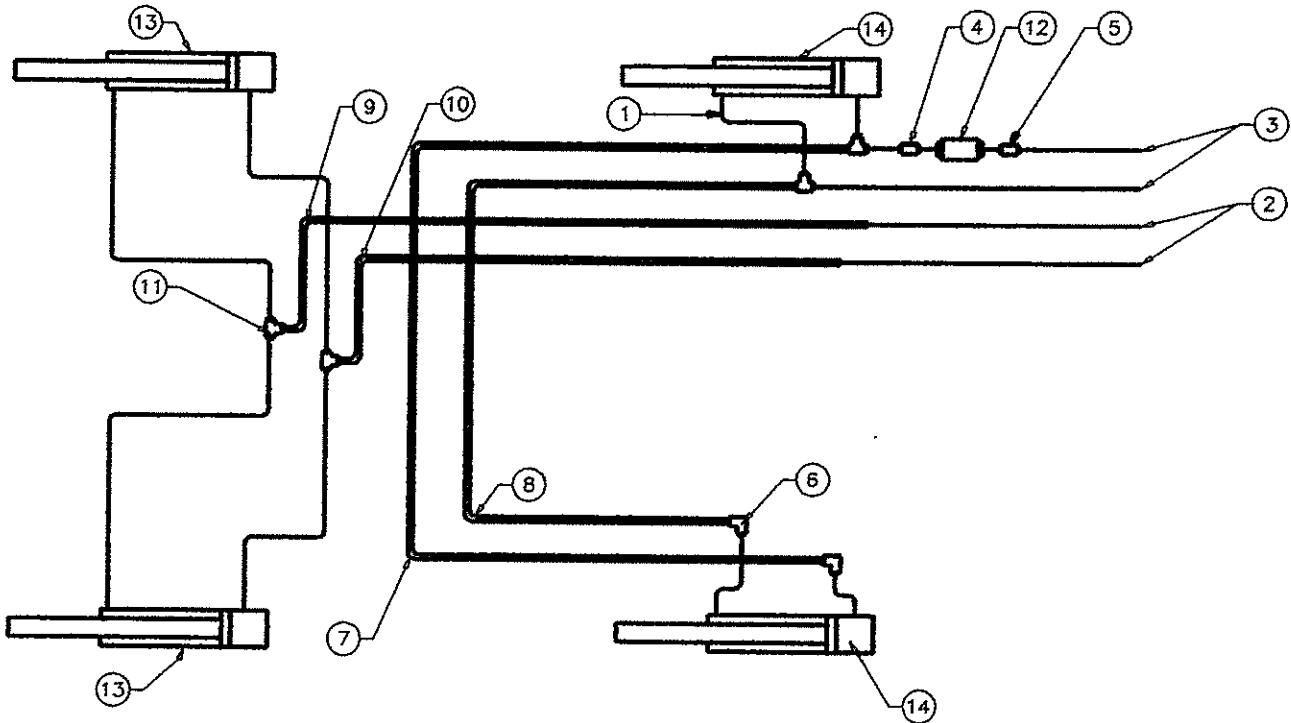
ML360/ML500/ML750

No	Description	Part No. ML360	Qty ML360	Part No. ML500	Qty ML500	Part No. ML750	Qty ML750
1	Mainframe	38131100	1	38241000	1	38290200	1
2	Support Frame (LH &	38131200	1	38262000	1	38290100	1
3	Bucket STD	56100000	1	56200000	1	56300000	1
4	Tool Carrier	38243500	1	38243500	1	35120320	1
5	Pivot Assembly (LH)	38244000	1	38244000	1	38290300	1
5	Pivot Assembly (RH)	38244010	1	38244010	1	38290301	1
6	Parallelogram Arm 11	38107000	2	38107000	2	35120600	2
7	Parallelogram Arm 1	38108000	2	38108000	2	35120700	2
8	Side Lever - Inner	38109000A	2	38109000A	2	(LH) 38290400	1
8	Side Lever - Inner	----		-----		(RH) 38290403	1
9	Side Lever - Outer	38109000B	2	38109000B	2	(LH) 38290500	1
9	Side Lever - Outer	----		-----		(RH) 38290501	1
10	Protective Stand	22292	1	22292	1	22292	1
11	Wedge	38125201	2	38125201	2	38125201	2
12	Handle	38125001	2	38125001	2	38125001	2
13	Pin for Bucket Indicator	38102212	1	38102212	1	22214	1
14	Pin	38250000	2	38250000	2	35121600	2
15	Pin	38115000	1	38115000	1	22216	1
16	Pin	38115000	4	38115000	4	50508000	4
17	Pin	50510000	4	50508000	4	38290010	4
18	Pin	38116000	2	38100002	2	25120001	2
19	Pin	38102211	2	38102211	2	50508000	2
20	Pin	38100002	4	38100002	4	22215	4
21	Pin	38100001	4	38100001	4	38100001	4
22	Bucket Tooth	56450010	9	56450010	9	56450010	9
23	Bushing	38240005	2	38240005	2	38240005	2
24	Plow Bolt 5/8 x 2	----	18	----	18	----	18
25	Lockwasher 5/8	----	22	----	22	----	22
26	Hex Nut 5/8	----	18	----	18	----	18
27	Lock Nut 7/8	----	10	----	10	----	10
28	Hex Bolt 5/16 x 1	----	14	----	14	----	14
29	Lockwasher 5/16	----	14	----	14	----	14
30	Hex Bolt 5/8 x 3 1/2	----	4	----	4	----	4
31	Spring Pin 5/16 x 1 3/4	----	2	----	2	----	2
32	Lift Cylinder	P92-014	2	P92-021	2	P97-121	2
33	Bucket Cylinder	P92-024	2	P92-025	2	P97-120	2

LOADER ASSEMBLY



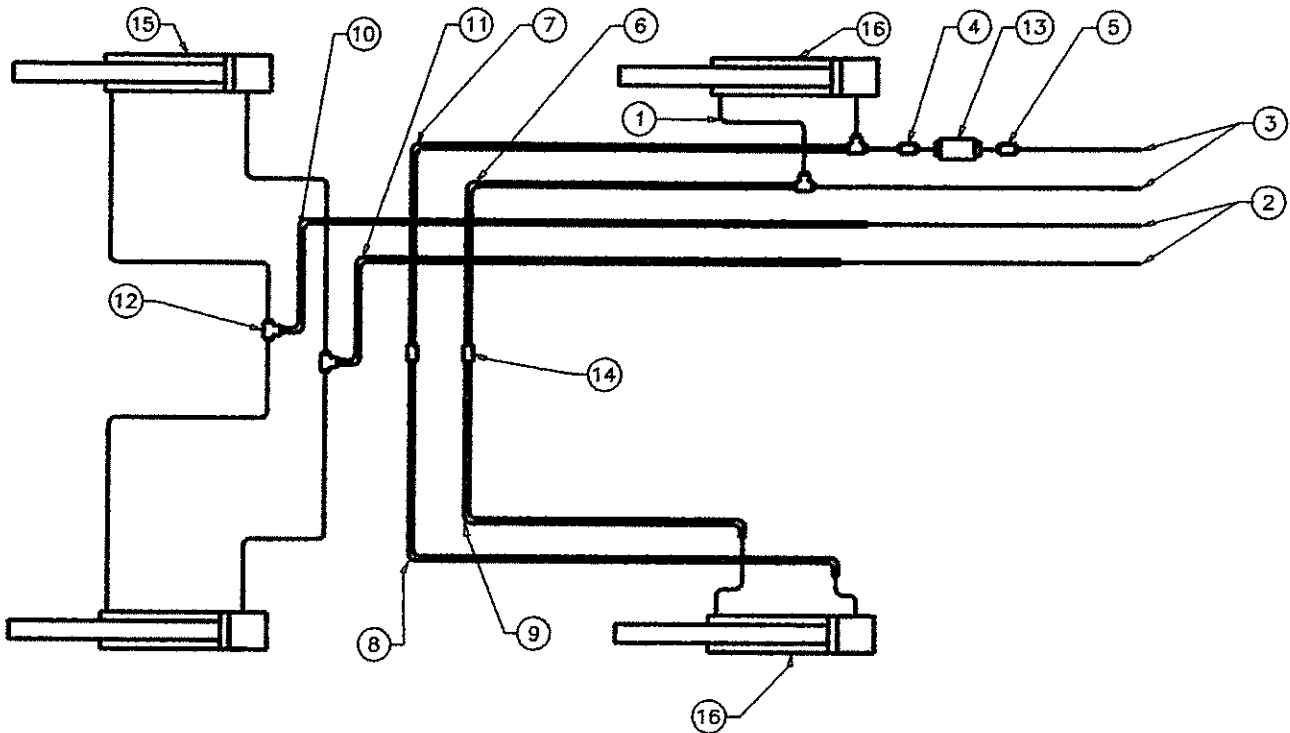
ML360 HYDRAULIC ASSEMBLY



No	Description	Part No.	Qty
1	3/8" Hyd. Hose 28" Long	21975	8
2	3/8" Hyd. Hose 85" Long	22149	2
3	3/8" Hyd. Hose 41" Long	21962	2
4	Hydraulic Fitting	5205x8x8	1
5	37 Female Swivel - 1/2" ML	9100x8x8	1
6	90 Deg. Hyd. Elbow	5505x8	2
7	3/8" Hyd. Tubing (Lifts)	22152	1

No	Description	Part No.	Qty
8	3/8" Hyd. Tubing (Lifts)	22151	1
9	3/8" Hyd. Tubing	22154	1
10	3/8" Hyd. Tubing	22153	1
11	Hyd. Tee Fitting	5705x8	4
12	1/2" Ball Valve	BV73-100	1
13	Bucket Cylinder	P92-024	2
14	Lift Cylinder	P92-014	2

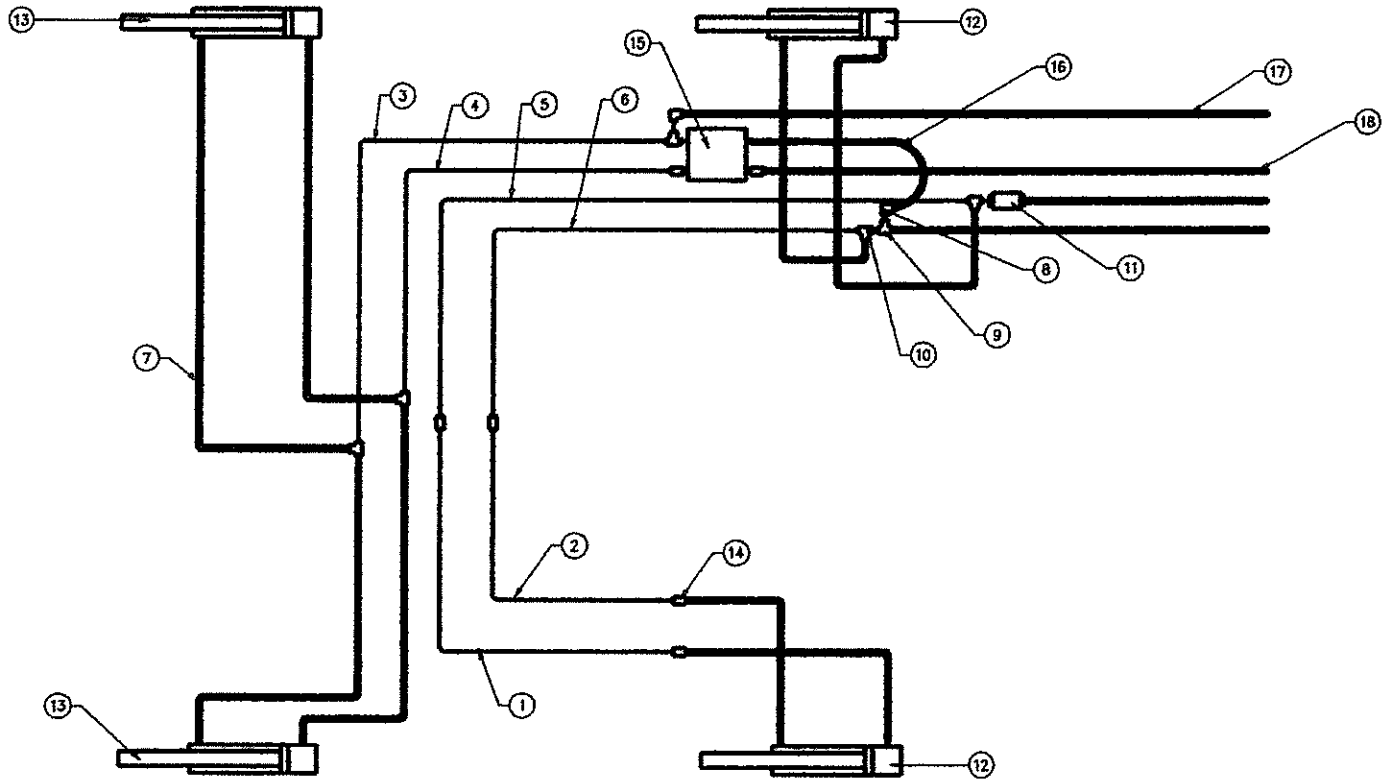
ML500 HYDRAULIC ASSEMBLY



No	Description	Part No.	Qty
1	3/8" Hyd. Hose 28" Long	21975	8
2	3/8" Hyd. Hose 85" Long	22149	2
3	3/8" Hyd. Hose 41" Long	21962	2
4	Hydraulic Union	5205x8x8	1
5	37 Female Swivel - 1/2"	9100x8x8	1
6	3/8" Hyd. Tubing (Lifts)	22141A	1
7	3/8" Hyd. Tubing (Lifts)	22139A	1
8	3/8" Hyd. Tubing (Lifts)	22141B	1

No	Description	Part No.	Qty
9	3/8" Hyd. Tubing (Lifts)	22139B	1
10	3/8" Hyd. Tubing	22138	1
11	3/8" Hyd. Tubing	22140	1
12	Hyd. Tee JIC Fitting	5705x8	4
13	1/2" Ball Valve	BV73-100	1
14	Hyd. Union	5305x8	2
15	Bucket Cylinder	P92-025	2
16	Lift Cylinder	P92-021	2

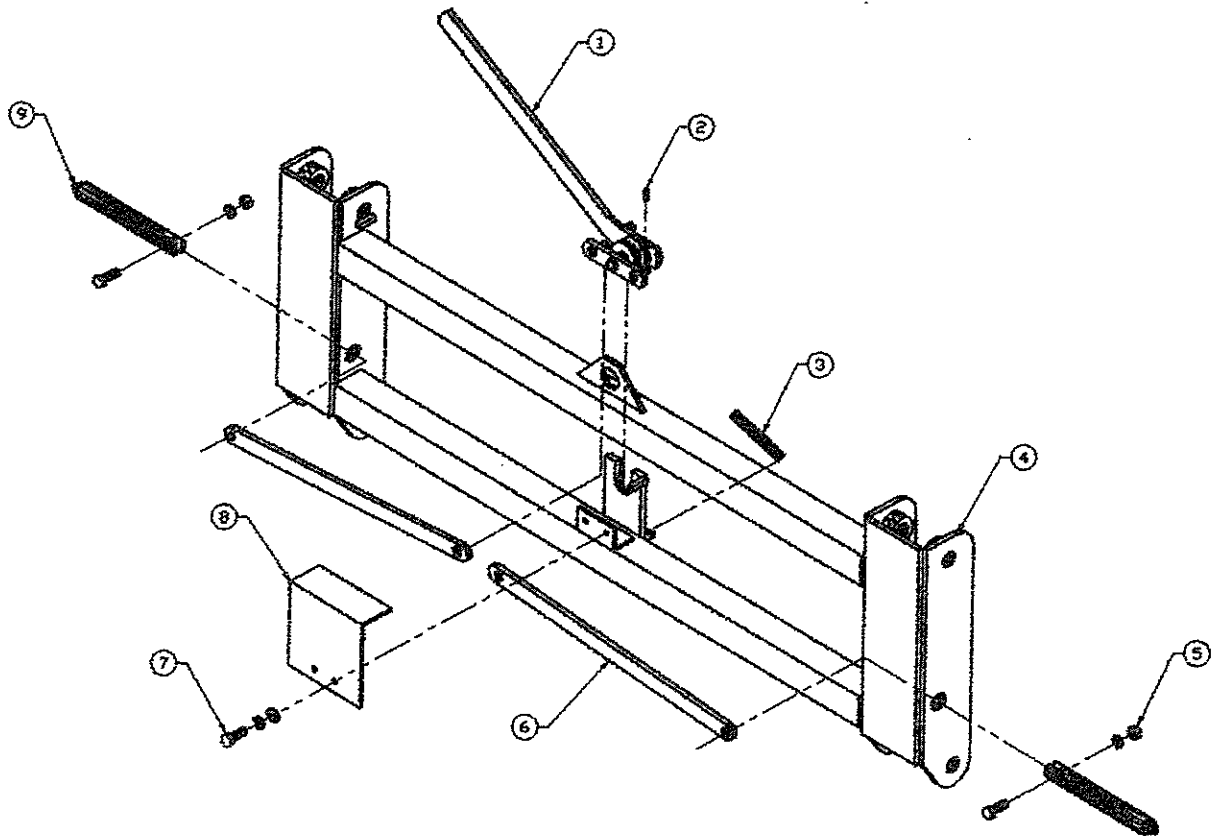
ML750 HYDRAULIC ASSEMBLY



No	Description	Part No.	Qty
1	1/2" Hyd. Tubing	22206	1
2	1/2" Hyd. Tubing	22211	1
3	1/2" Hyd. Tubing	22207	1
4	1/2" Hyd. Tubing	22208	1
5	1/2" Hyd. Tubing	22210	1
6	1/2" Hyd. Tubing	22209	1
7	3/8" Hyd. Hose - 30" Long	21975	8
8	90 Deg. Hyd. Elbow	5506x8	2
9	Tee Fitting	6602-8	2

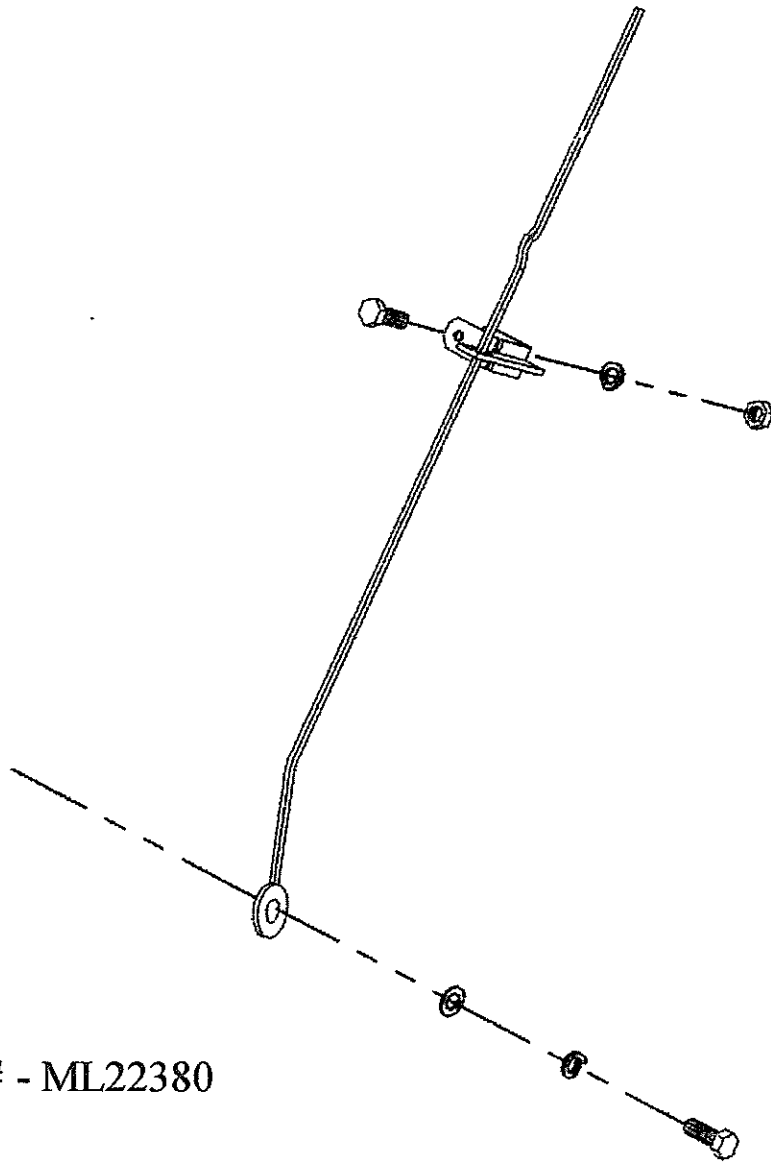
No	Description	Part No.	Qty
10	Hyd. Tee Fitting	5705x8	4
11	1/2" Ball Valve	BV73-100	1
12	Lift Cylinder	P97-121	2
13	Bucket Cylinder	P97-120	2
14	Male Union Fitting	5305x8	6
15	Relief Block	TH08B018	1
16	3/8" Hyd. Hose - 15" Long	21419	1
17	3/8" Hyd. Hose - 85" Long	22149	2
18	3/8" Hyd. Hose - 50" Long	22218	2

LOADER TOOL CARRIER REPLACEMENT PARTS



No.	Description	ML360	Qty	ML500	Qty
1	Arm Assembly	35120370	1	35120370	1
2	Cotter Pin	CP 5/32 x 1 1/2	2	CP 5/32 x 1 1/2	2
3	Spring	10600003	1	10600003	1
4	Tool Carrier Weldment	38243520	2	38243520	2
5	HB, HN, LW 7/16x1 1/2	O.L.	2	O.L.	2
6	Lever	35120352	2	35120352	2
7	HB, HN, LW 1/4x1/2	O.L.	2	O.L.	2
8	Shield	35120353	1	35120353	1
9	Lock Pin	35120351	2	35120351	2

BUCKET LEVEL INDICATOR

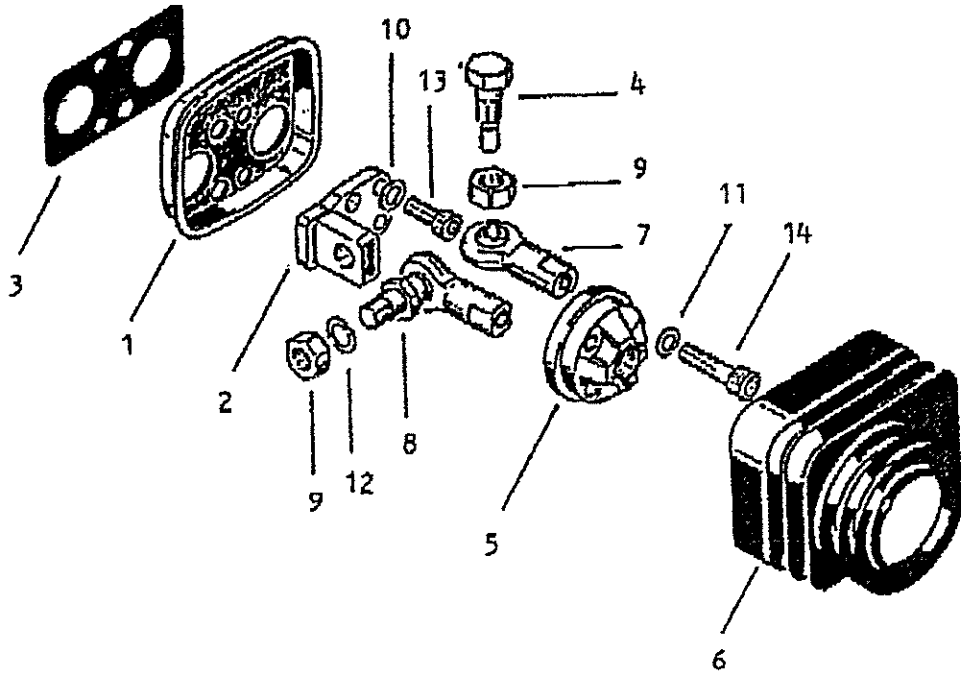


PART # - ML22380

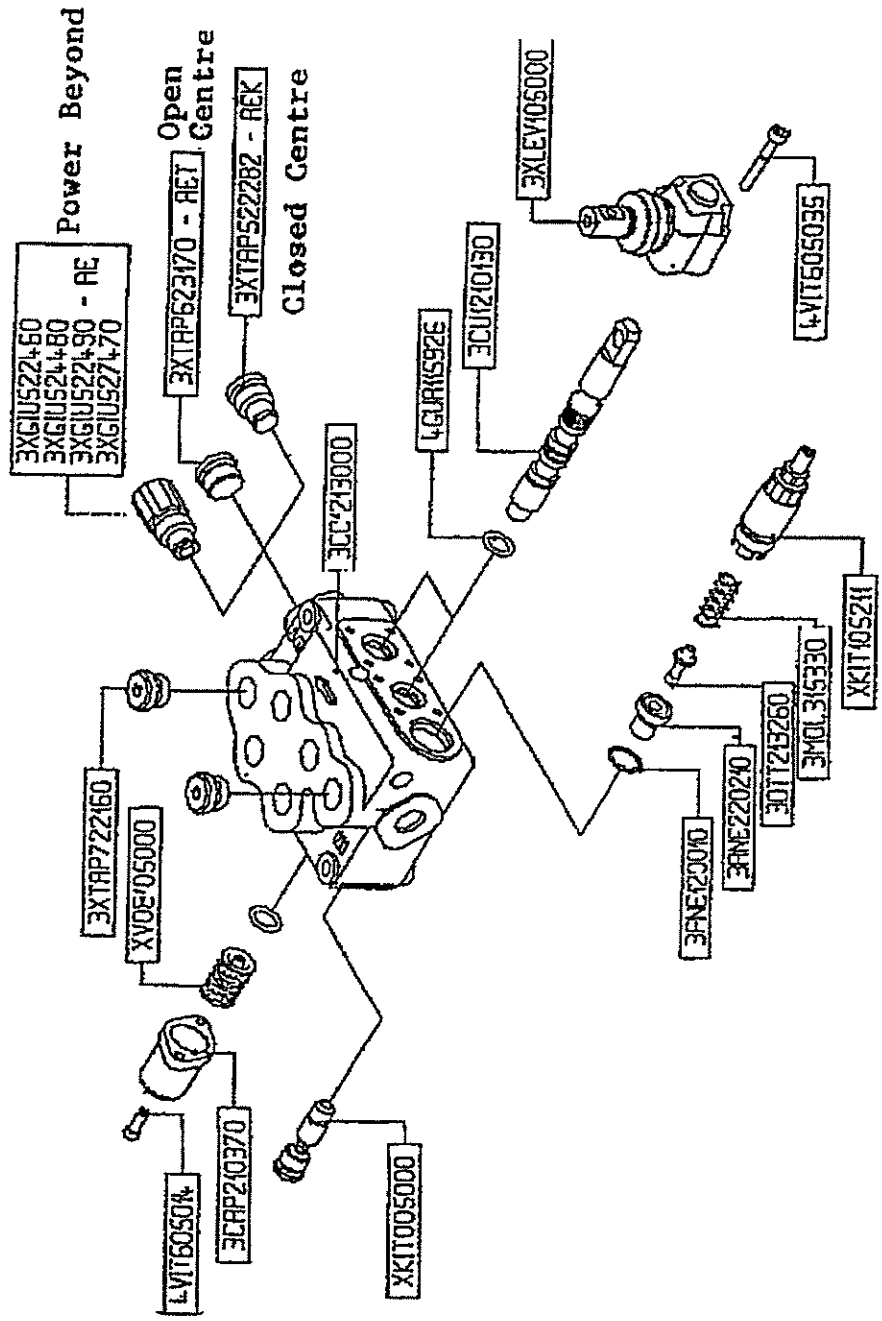
VALVE
ILLUSTRATIONS
&
PARTS
GUIDE

SD5 VALVE

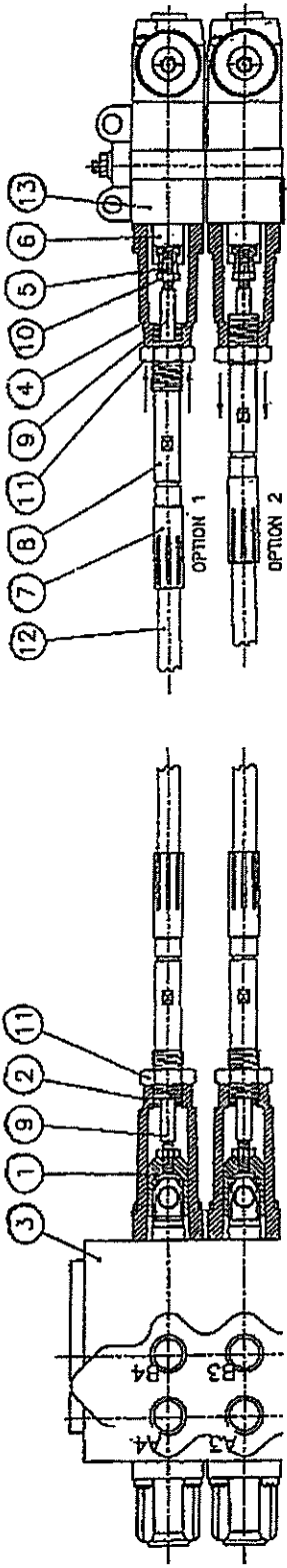
LCB 5 - 5CL0205000



Item No.	Part No.	Description	Alternate #	Qty.
1	3FLA125100	Flange		1
2	3FUL220000	Fulcrum		1
3	3GUA167050	Seal		1
4	3PER513340	Pin	21869	1
5	3POR340240	Articulation roller	21870	1
6	3SOF200590	Rubber bellow	21868	1
7	4ART006000	Tuthill	21867	1
8	4ART106000	Connecting rod	21866	2
9	4DAD208125	M8 nut		3
10	4ROS305312	5,3x8,9x1,2 washer		4
11	4ROS606407	6,4x13x0,8 washer		3
12	4ROS608408	8,4x13x0,8 washer		2
13	4VIT605014	Screw M5x14		4
14	4VIT606025	Screw M6x25		3



SD5 HYDRAULIC CONTROL VALVE UP TO 15 GPM



CONNECTOR KIT

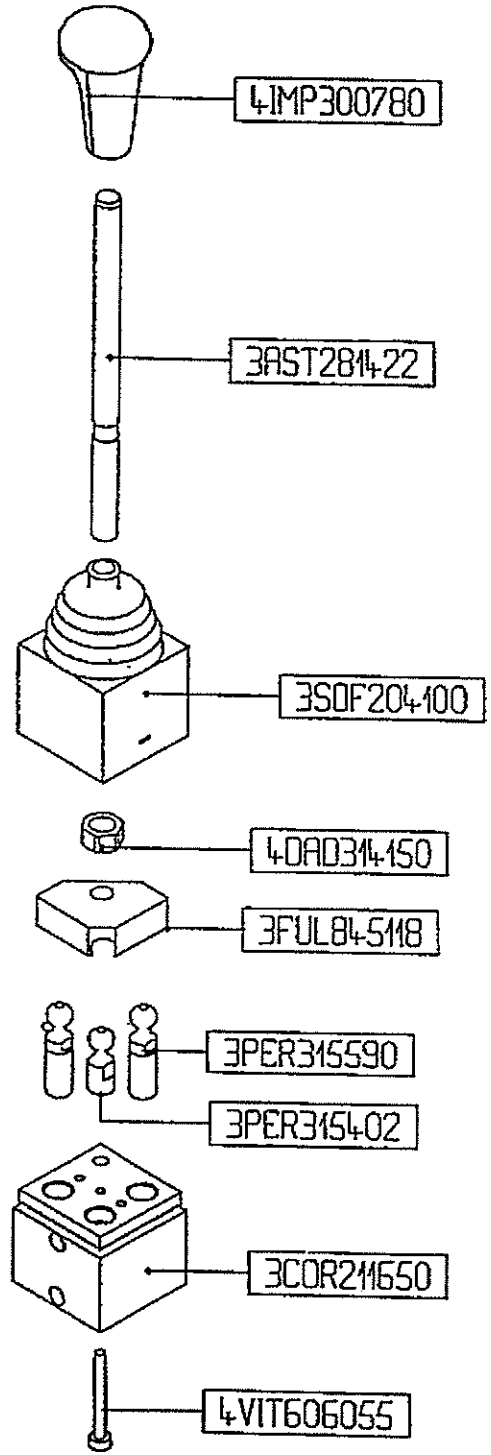
SD5 - PART # VAL 22045
SD11 - PART # VAL 22044

④

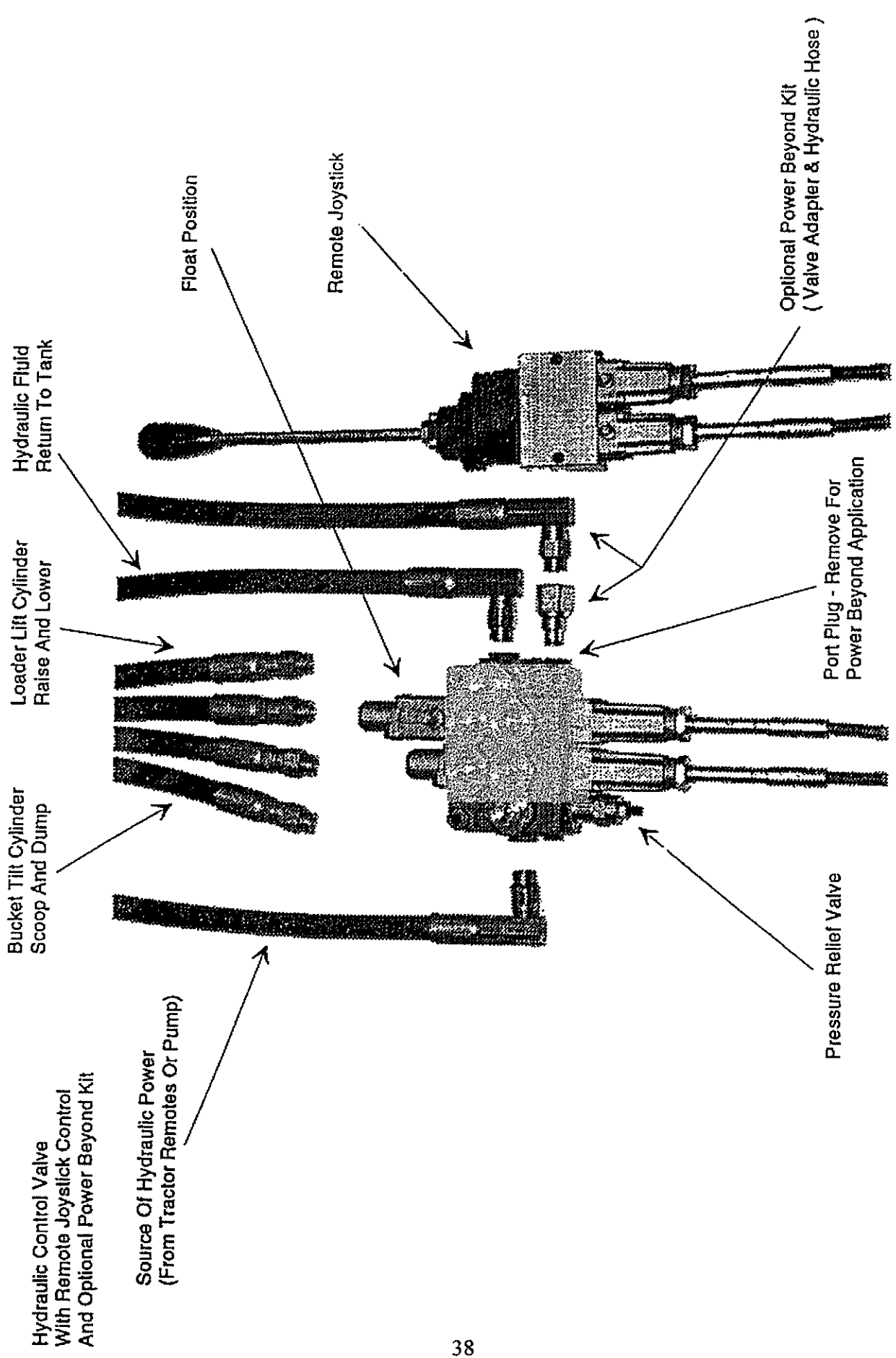
1.5 m CABLE - PART # VAL 22048

⑫

DUAL REMOTE ACTUATOR



PART NO. VAL 22047



Hydraulic Control Valve
With Remote Joystick Control
And Optional Power Beyond Kit

Source Of Hydraulic Power
(From Tractor Remotes Or Pump)

Bucket Tilt Cylinder
Scoop And Dump

Loader Lift Cylinder
Raise And Lower

Hydraulic Fluid
Return To Tank

Float Position

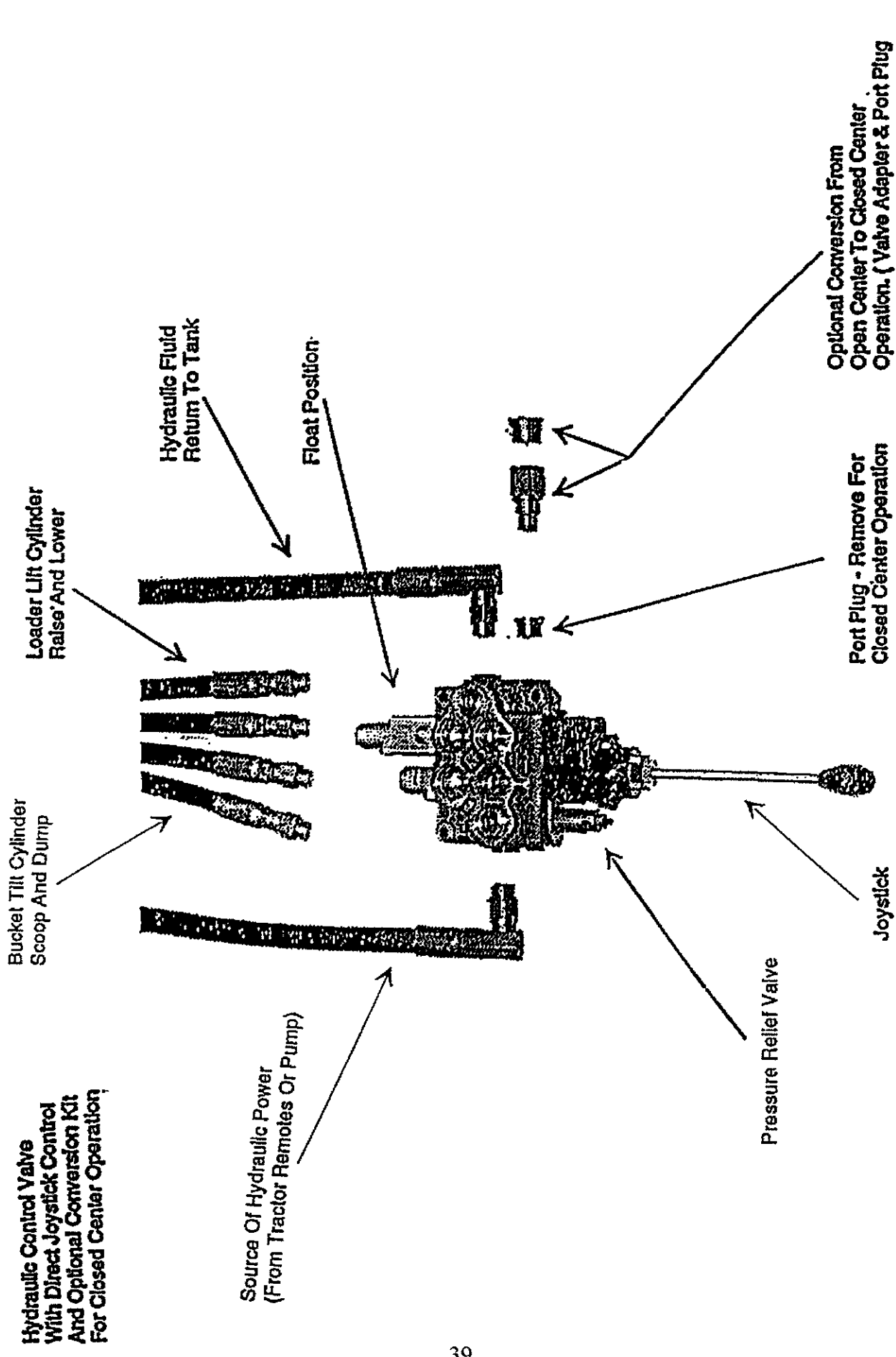
Remote Joystick

Optional Power Beyond Kit
(Valve Adapter & Hydraulic Hose)

Port Plug - Remove For
Power Beyond Application

Pressure Relief Valve

WARNING: Your New Valve Has a Float Position identified by the Longer Spring Mechanism Opposite the Joystick Cable Connections. (See Illustration) Your Loader Lift Cylinder Hoses Must be Installed Such That When You Push the Joystick Forward, The Loader Goes into its Down Cycle. The Float Position is Activated When The Joystick is Pushed Fully Forward. DO NOT Install The Hoses Where The Lift Cycle Is Activated by Pushing the Joystick Forward !



**Hydraulic Control Valve
With Direct Joystick Control
And Optional Conversion Kit
For Closed Center Operation**

**Source Of Hydraulic Power
(From Tractor Remotes Or Pump)**

**Bucket Tilt Cylinder
Scoop And Dump**

**Loader Lift Cylinder
Raise And Lower**

**Hydraulic Fluid
Return To Tank**

Float Position

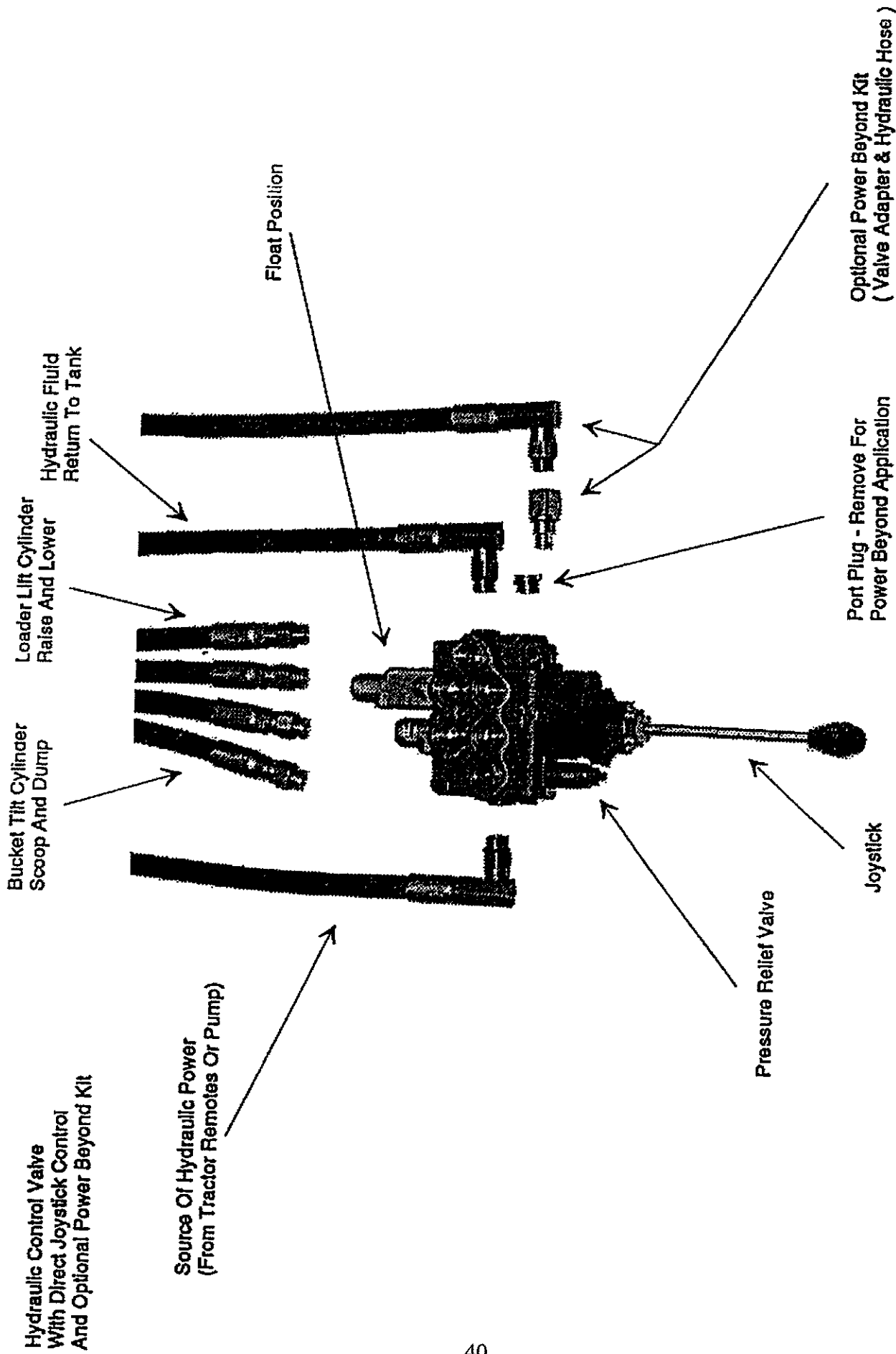
Pressure Relief Valve

Joystick

**Port Plug - Remove For
Closed Center Operation**

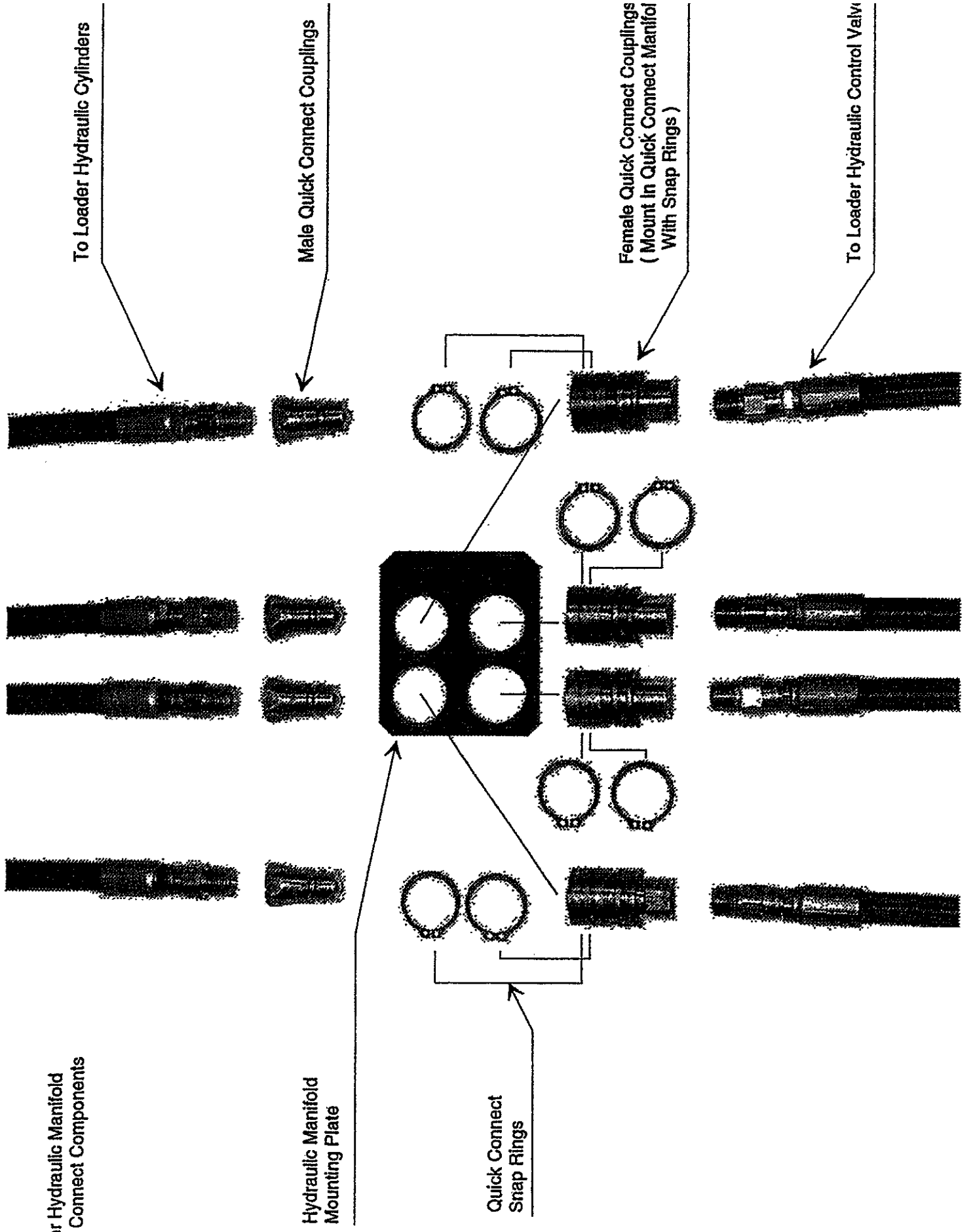
**Optional Conversion From
Open Center To Closed Center
Operation. (Valve Adapter & Port Plug**

WARNING: Your New Valve Has a Float Position Identified by the Longer Spring Mechanism Opposite the Joystick Cable Connections. (See Illustration) Your Loader Lift Cylinder Hoses Must be Installed Such That When You Push the Joystick Forward, The Loader Goes into its Down Cycle. The Float Position is Activated When The Joystick is Pushed Fully Forward. DO NOT Install The Hoses Where The Lift Cycle is Activated by Pushing the Joystick Forward I



WARNING: Your New Valve has a Float Position Identified by the Longer Spring Mechanism Opposite the Joystick (See Illustration) Your Loader Lift Cylinder Hoses Must be Installed Such That When You Push The Joystick Forward, The Loader Goes into its Down Cycle. The Float Position is Activated When the Joystick is Pushed Fully Forward. DO NOT Install The Hoses Where the Lift Cycle is Activated by Pushing the Joystick Forward !

Loader Hydraulic Manifold
Quick Connect Components



NOTICE

INSTALLATION OF HYDRAULIC VALVE

When installing the hydraulic control valve on the front end loader, it is very important that the operator does not reverse the flow of the oil through the valve. The control valve has backpressure ratings of (1100 p.s.i.), however, if the flow of oil is accidentally reversed, the valve will receive full tractor pressure which will exceed 2000 p.s.i. If the valve receives more than the rated 1100 p.s.i. backpressure, the seals and gaskets will be damaged and excessive leakage will occur.

When installing the control valve, it is recommended connecting the return line directly back to sump on the tractor which will ensure the oil cannot change direction through the valve. If this is not possible the operator must be aware that he cannot change oil flow through the valve.

HYDRAULIC VALVE INSTALLATION

To prevent back pressure in hydraulic control valve the following steps should be taken:

1. OPEN CENTRE VALVE

When installing this valve the pressure line should be connected to the remote valves on the tractor. The return port on the valve should be installed directly into the tractor transmission or sump. When installing in this manner, the risk of creating excessive back pressure is eliminated.

2. POWER BEYOND VALVE

The power beyond valve is recommended on all tractors. When using this valve the hydraulic lines from the loader valve will be connected directly into hydraulic lines on the tractor. The pressure line on the loader valve should be connected to the pressure line on the tractor hydraulic pump. The power beyond port on the valve, the line should be connected to the return side of the pressure line on the pump of the tractor. The return line on the valve should be connected to the reservoir on the tractor. (Refer to the hydraulic schematic).

NOTE: Warranty is void on all valves that are damaged due to backpressure.