



PA 93

REAR MOUNTED
POWER ARM BOOM
3-POINT MOUNT

Published 07/92 (Publication # 172 Re-Printed 08/06)

P/N 71.93.858

PART'S MANUAL

PA 93
'Classic'
Parts Manual



ATENCIÓN! LEA EL INSTRUCTIVO

Si No Lee Ingles, Pida Ayuda a Alguien
Que Si Lo Lea Para Que le Traduzca las
Medidas de Seguridad.



An Operator's Manual was shipped with the equipment in the Manual Canister. This Operator's Manual is an integral part of the safe operation of this machine and must be maintained with the unit at all times. **READ, UNDERSTAND, and FOLLOW** the Safety and Operation Instructions contained in this manual before operating the equipment. If the Operator's Manual is not with the equipment, contact your dealer or Alamo Industrial (830-379-1480) to obtain a Free copy before operating the equipment.

ALAMO INDUSTRIAL

1502 East Walnut
Seguin, Texas 78155
830-379-1480



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TO THE OWNER/OPERATOR/DEALER

All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes the potential hazards and follows reasonable safety practices. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

BEFORE YOU START!! Read the safety messages on the implement and shown in your manual.
Observe the rules of safety and common sense!

 DANGER			
FAILING TO FOLLOW SAFETY MESSAGES AND OPERATING INSTRUCTIONS CAN CAUSE SERIOUS BODILY INJURY OR EVEN DEATH TO OPERATOR AND OTHERS IN THE AREA.			
1. 	2. NO RIDERS. NO CHILDREN OPERATORS. 	3. USE SAFETY SHOES, HARD HAT, SAFETY GLASSES, SEAT BELTS, & ROPS 	4. BLOCK UP SECURELY BEFORE WORKING UNDER. 
<p>1. Study and understand operator's manual, safety signs, and Instructional decals for tractor and implement to prevent misuse, abuse, and accidents. • Learn how to stop engine suddenly in an emergency. Be alert for passerby and especially children.</p> <p>2. Allow no children on or near implement or tractor. Allow no riders on tractor and implement. Falling off may cause serious injury or death from being run over by tractor or cutter or contact with rotating blades.</p> <p>3. Operate only with tractor having Roll-Over Protective Structure (ROPS) and with seatbelt fastened securely and snugly to prevent injury and possible death from falling off or tractor overturn. Personal Protective Equipment such as Hard Hat, Safety Glasses, Safety Shoes, and Ear Plugs are Recommended.</p> <p>4. Block up or support raised machine and all lifted components securely before putting hands or feet under or working underneath any lifted components to prevent crushing injury or death from sudden dropping or inadvertent operation of controls. Make certain area is clear before lowering or folding.</p> <p>5. Before transporting, put Lift Lever in detent or full-lift position. Secure the implement for transport by installing Cylinder Stops or Transport Pin on Pull-type implement center axle and Wing Transport Locks on folding implements. • Attach Safety Chain to cutter and towing unit securely. See Operator's Manual.</p> <p>6. Make certain that the SMV sign, Warning Lights, and Reflectors are clearly visible. Follow local traffic codes.</p> <p>7. Never operate with Cutting Head raised if passerby, bystanders, or traffic are in the area to reduce possibility of injury or death from Objects thrown by Blades under Guard or cutter structure.</p> <p>8. Before dismounting, secure implement in transport position or lower to ground. • Put tractor in park or set the brake, disengage PTO, stop engine, and remove key, and wait until noise of rotation Has ceased to prevent entanglement in rotating parts which can cause injury or death. • Never mount or dismount a moving vehicle. Crushing from runover may cause injury or death.</p>			
5. TRANSPORT SAFELY, LOCK UP. 	6. USE SMV, LIGHTS, & REFLECTORS. 	7. DO NOT OPERATE WITH CUTTER OR WING RAISED. 	8. DO NOT MOUNT OR DISMOUNT WHILE MOVING. 
00749117			

WARRANTY INFORMATION:

Read and understand the complete Warranty Statement found in this Manual. Fill out the Warranty Registration Form in full and return it to within 30 Days. Make certain the Serial Number of the Machine is recorded on the Warranty Card and on the Warranty Form that you retain.

PARTS ORDERING GUIDE

The following instructions are offered to help eliminate needless delay and error in processing purchase orders for the equipment in this section.

1. The Parts Section is prepared in logical sequence and grouping of parts that belong to the basic machine featured in this manual. Part Numbers and Descriptions are given to help locate the parts and quantities required.
2. The Purchase Order must include the name and address of the person or organization ordering the parts, who should be charged, and if possible, the serial number of the machine for which the parts are ordered.
3. The Purchase Order must clearly list the quantity of each part, the complete and correct part number (be sure to include all periods), and the basic name of the part.
4. The Manufacturer reserves the right to substitute parts where applicable.
5. Some parts are unlisted items which are special production items not normally stocked and are subject to special handling. Request a quotation for such parts before sending a Purchase Order.
6. The Manufacturer reserves the right to change prices without prior notice.

NOTE: Please refer to The Safety Section in the front of this Manual for the proper Part Number when ordering Replacement Safety Decals.



For maximum safety and to guarantee optimum product reliability, always use genuine Servis-Rhino Parts. The use of inferior replacement parts may cause premature or catastrophic failure which could result in serious injury or death. Direct any questions regarding parts to:



ALAMO INDUSTRIAL

1502 E. Walnut
Seguin, Texas 78155
830-379-1480



For best performance...

USE ONLY McCONNEL SERVICE PARTS

To be assured of the latest design improvements purchase your 'Genuine Replacements' from the Original Equipment Manufacturer: McCONNEL LIMITED through your local Dealer or Stockist.

Always quote:

- Machine Type
- Serial Number
- Part Number

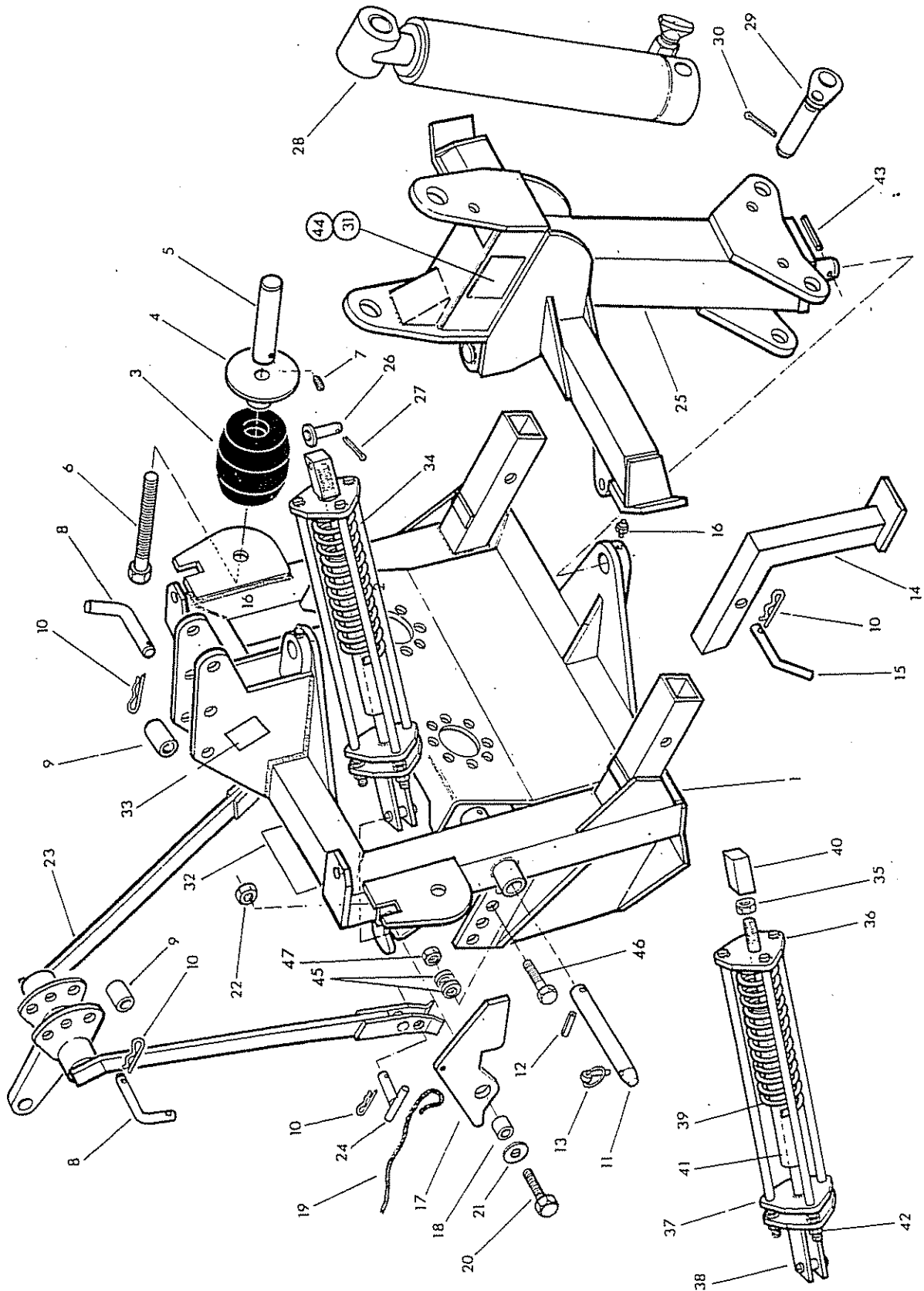
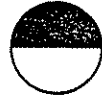
Design Improvements may have altered some of the parts listed in this manual – The latest part will always be supplied when it is interchangeable with an earlier one.

Notes

Dotted lines for writing notes.

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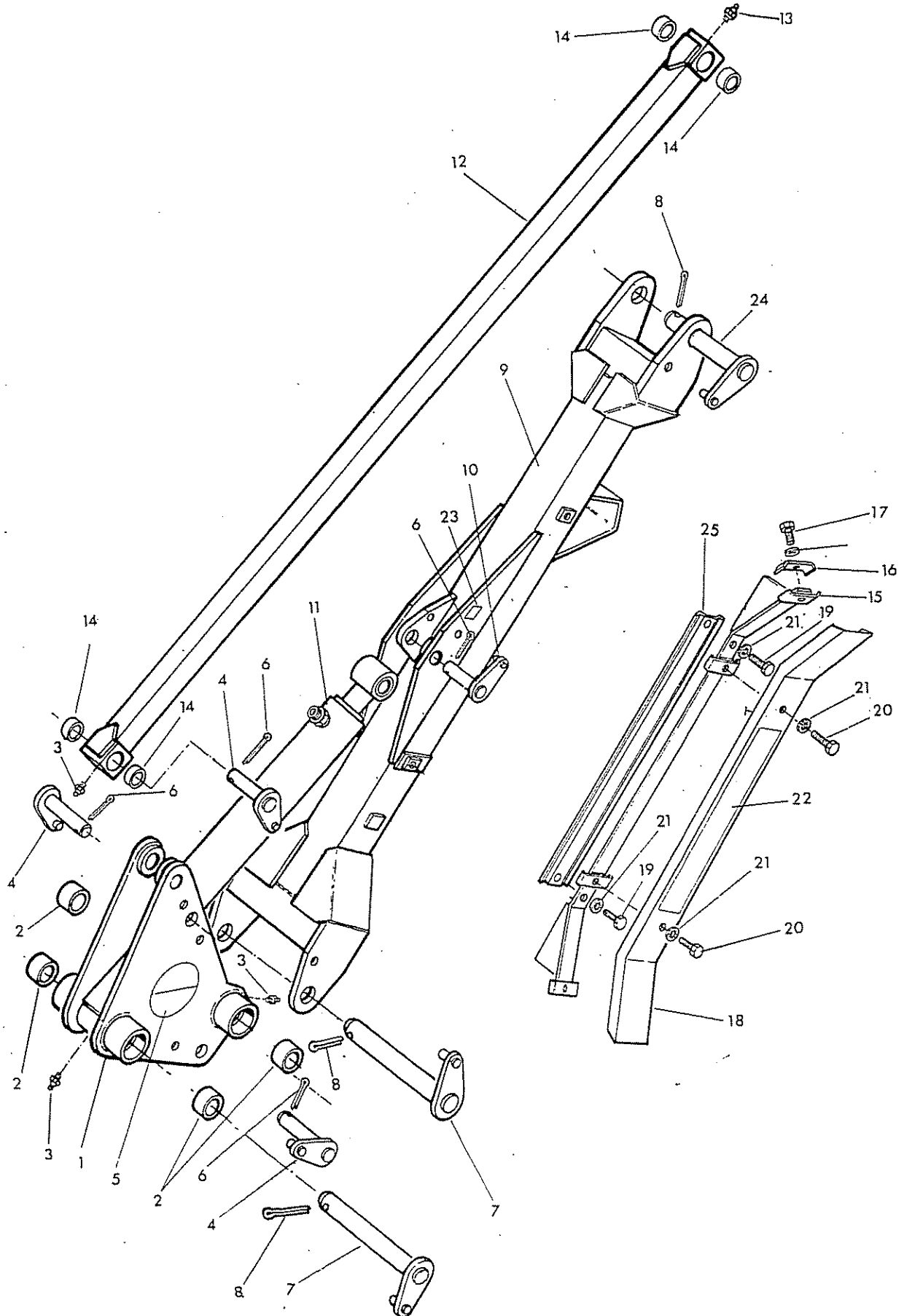
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Ref.	Part No.	Qty.	Description
MAIN FRAME, STABILISER & PILLAR			
1	71 93 391	1	Main frame
2	71 36 330	1	P.T.O. Shaft - not illustrated
3	71 35 033	1	Buffer
4	71 35 034	1	Buffer locating disc
5	71 93 323	1	Buffer abutment
6	71 35 293	1	Buffer bolt
7	93 63 034	1	Grubscrew
8	71 92 026	2	Top link pin
9	14 67 063	2	Sleeve
10	04 31 105	6	Spring cotter
11	71 93 020	2	Linkage pin
12	04 22 628	2	Spring dowel
13	04 31 217	2	Linch pin
14	71 92 307	2	Stand leg
15	71 92 023	2	Leg pin
16	09 01 121	2	Greaser
17	71 93 325	1	Latch
18	71 35 097	1	Spacer
19	71 35 036	1	Operating cord
20	92 13 106	1	Bolt
21	91 00 106	1	Plain washer
22	91 43 006	1	Self locking nut
23	71 92 405	1	Stabiliser
24	71 92 027	2	Stabiliser pin
25	71 93 356	1	Pillar
26	71 93 021	1	Anchor pin
27	95 01 406	1	Split pin
28	71 93 333	1	Lift ram assembly see page 57
29	71 93 025	1	Pin - Lift ram base
30	05 03 166	1	Split pin
31	13 35 246	1	Serial No. plate
32	71 35 295	1	Sticker - "Tighten check chains"
33	71 05 130	1	Sticker - "Read instruction book first"
34	71 35 314	1	Breakaway assistor spring assy. includes
35	01 11 006	1	Nut
36	71 35 315	1	Spring cage
37	71 35 316	1	Tie rod
38	71 35 317	1	Jaw end
39	71 35 298	1	Spring
40	71 35 081	1	Pinned end
41	71 35 318	1	Spacer
42	01 11 003	6	Nut
43	04 22 632	1	Spring Dowel
44	71 03 230	4	Pop rivet
45	71 92 080	4	Eccentric collar
46	92 13 148	2	Bolt
47	91 43 008	2	Self locking nut

MAIN ARM & ROCKER



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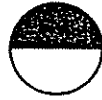
Ref.	Part No.	Qty.	Description
MAIN ARM ROCKER & TENSION LINK FOR STD. POWER MACHINES			
1	71 93 330	1	Rocker
2	72 13 023	4	Bush - Rocker pivot
3	09 01 121	3	Greaser
4	71 93 025	4	Pivot pin - Tension link, Reach base & lift ram rod
5	12 90 296	1	Sticker "Logo roundel"
6	05 03 166	5	Split pin
7	71 93 033	2	Pivot pin - Main Arm and rocker
8	95 01 509	3	Split pin dia
9	71 93 355	1	Main arm
10	71 93 022	1	Pivot pin - Reach
11	71 93 334	1	Reach ram assembly - see page 59
12	71 93 326	1	Tension link
13	09 01 124	1	Greaser
14	60 12 032	4	Bush
15	71 93 312	1	Hose guide - Main Arm
16	71 93 014	2	Hose clamp
17	92 13 085	2	Bolt
18	71 93 320	1	Hose cover - Main Arm
19	93 13 055	2	Bolt
20	93 13 055	2	Setscrew
21	91 00 305	6	Internal serrated washer
22	12 90 255	1	Sticker "McConnel"
23	60 55 002	1	Sticker "Sling here"
24	71 93 034	1	Pivot pin - Dipper

MAIN ARM ROCKER & TENSION LINK FOR HIGH POWER MACHINES

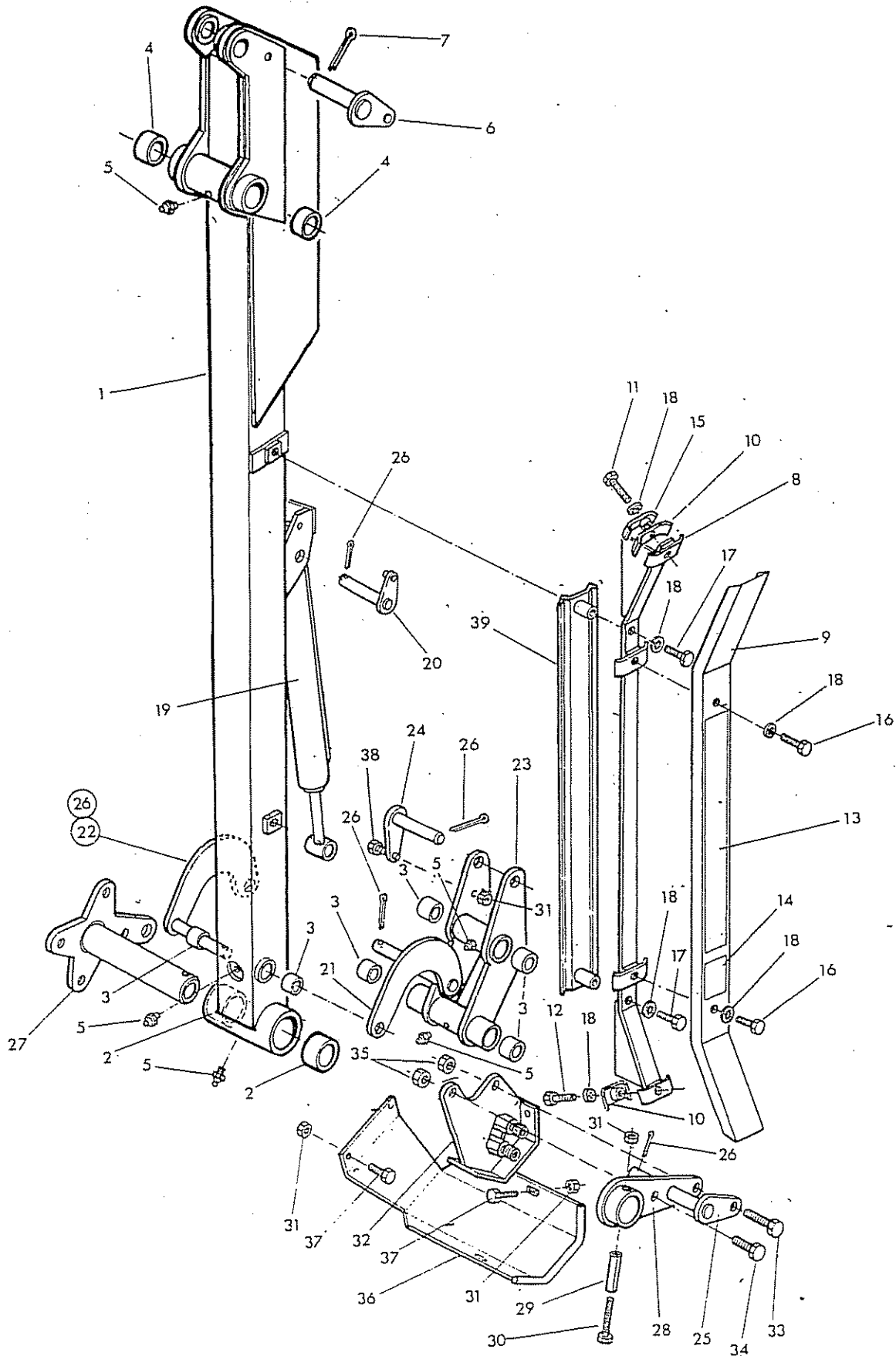
The parts list is identical to above with the following exceptions

15	71 95 309	1	Hose guide main arm
16	71 93 015	2	Hose clamp
17	92 13 095	2	Bolt
19	92 13 095	2	Bolt
25	71 95 311	1	Hose plate

STANDARD DIPPER



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Ref.	Part No.	Qty.	Description
STANDARD DIPPER ARM AND ANGLING FOR STANDARD POWER MACHINES			

1	71 93 308	1	Dipper arm
2	71 36 035	2	Bush - head pivot
3	41690-01	6	Bush - Radius arm pivot and slave link
4	72 13 023	2	Bush - Dipper pivot
5	09 01 121	4	Greaser
6	71 93 025	1	Pivot pin - Tension link
7	05 03 166	1	Split pin
8	71 93 313	1	Hose guide - dipper
9	71 93 321	1	Hose cover - dipper
10	71 93 014	2	Hose clamp
11	92 13 125	1	Bolt
12	92 13 085	1	Bolt
13	12 90 295	1	Sticker 'Power Arm'
14	12 90 292	1	Sticker '94'
15	71 93 019	1	Hose clip - angle
16	93 13 055	2	Bolt
17	93 15 055	2	Setscrew
18	91 00 305	6	Internal serrated washer dia 10
19	75 60 344	1	Angle ram assembly - (see page 50)
20	71 92 024	1	Pivot pin - Angle ram base
21	74 50 250	1	Radius arm - rear
22	74 50 251	1	Radius arm - front
23	71 92 309	1	Slave link
24	41693-01	1	Pivot pin - Angle ram rod
25	71 92 009	1	Pivot pin - Slave link
26	95 01 406	5	Split pin dia
27	71 92 308	1	Head pivot tube
28	71 92 316	1	Jaw plate
29	04 23 548	1	Spring dowel
30	92 13 185	1	Bolt
31	91 43 005	6	Self locking nut
32	71 92 321	1	Hose junction bracket
33	02 11 146	1	Bolt
34	02 11 126	1	Bolt
35	01 41 006	2	Self locking nut
36	71 92 324	1	Hose tray
37	93 13 045	4	Setscrew
38	93-15-055	2	Setscrew

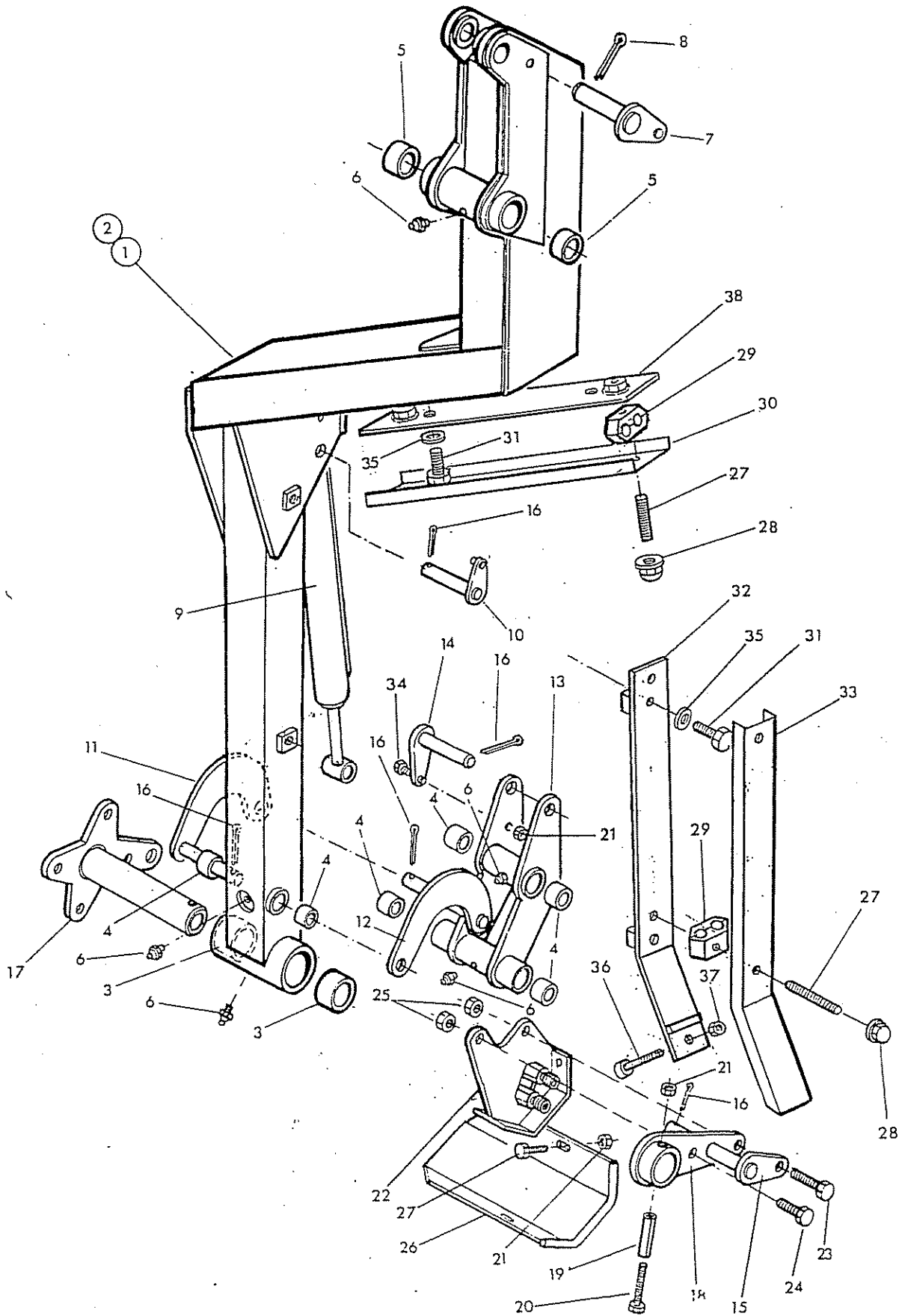
**STD DIPPER ARM & ANGLING MECHANISM FOR
HI POWER MACHINES**

8	71 95 310	1	Hose guide
10	71 93 015	2	Hose clamp
12	92 13 095	1	Bolt
14	92 13 095	2	Bolt
32	71 95 303	1	Hose junction bracket
39	71 95 312	1	Hose plate

MID CUT DIPPER



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Ref	Part No	Qty	Description
			MID CUT DIPPER ARMS AND ANGLING MECHANISM

R HAND

1	71 93 345		Dipper arm R Hand
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L HAND

2	71 93 346		Dipper arm L Hand
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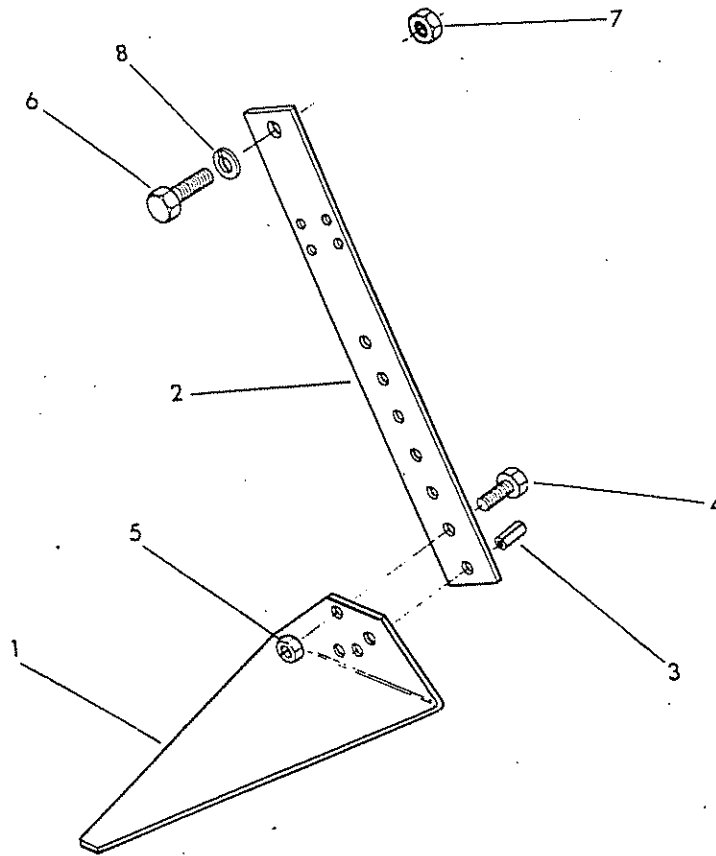
Items 3 to 38 inclusive are common to both mid cut dipper arm assemblies

3	71 36 035	2	Bush - head pivot
4	41690.01	6	Bush - radius arm pivot and slave link
5	72 13 023	2	Bush - dipper pivot
6	09 01 121	5	Greaser
7	71 93 025	1	Pivot pin - tension link
8	05 03 166	1	Split pin
9	75 60 344	1	Angle ram assembly
10	71 92 024	1	Pivot pin - angle ram base
11	74 50 251	1	Radius arm - front
12	74 50 250	1	Radius arm - rear
13	71 92 309	1	Slave link
14	41693.01	1	Pivot pin - angle ram rod
15	71 92 009	1	Pivot pin - slave link
16	95 01 406	5	Split pin dia
17	71 92 308	1	Head pivot tube
18	71 92 316	1	Jaw plate
19	04 23 548	1	Spring dowel
20	92 13 185	1	Bolt
21	91 43 005	6	Self locking nut
22	71 95 303	1	Hose junction bracket - Hi power
	71 92 321	1	Hose junction bracket - Std power
23	02 11 146	1	Bolt
24	02 11 126	1	Bolt
25	01 41 006	2	Self locking nut
26	71 98 333	1	Hose tray
27	04.282.76	4	Stud
28	91 00 025	4	Dome nut
29	42024.06	5	Hose clamp - 1 pair - Hi power
	71 90 148	1	Hose clamp - 1 pair - Std power
30	71 93 047	1	Hose cover
31	93 13 045	6	Bolt
32	42951.01	1	Hose guide
33	71 93 048	1	Hose cover
34	93 13 055	1	Setscrew
35	91 00 305	4	Internal serrated washer
36	92 43 154	1	Capscrew
37	91 43 004	1	Self locking nut
38	42952.01	1	Hose guide

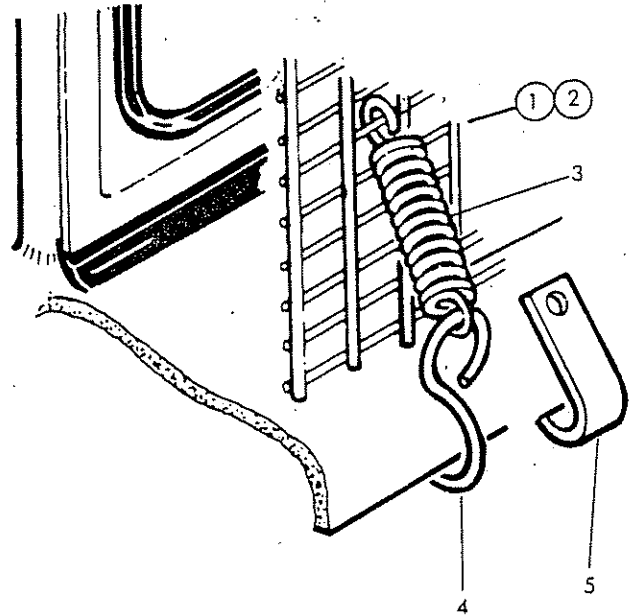
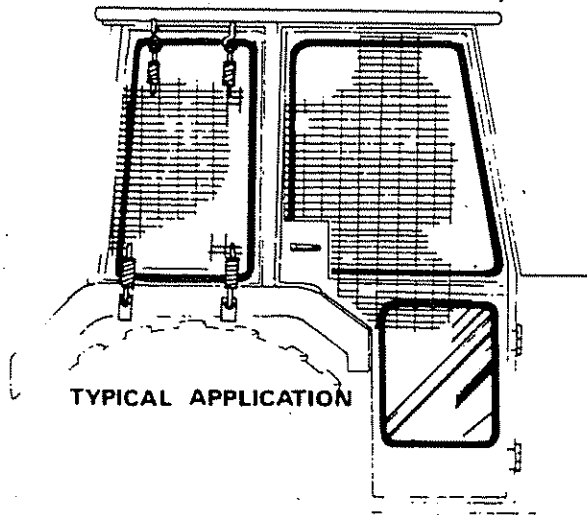
**CONTROL MOUNTING
ASSY**



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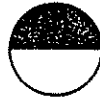


Ref.	Part No.	Qty.	Description
	71-90-319		CONTROL MOUNTING ASSEMBLY
1	71-09-320	1	Sandwich plate
2	71-09-146	1	Pillar including spring dowel
3	04-22-816	1	Spring dowel
4	93-13-066	1	Setscrew
5	91-13-006	1	Nut
6	93-11-086	1	Setscrew
7	01-11-006	1	Nut
8	01-00-206	1	Spring washer

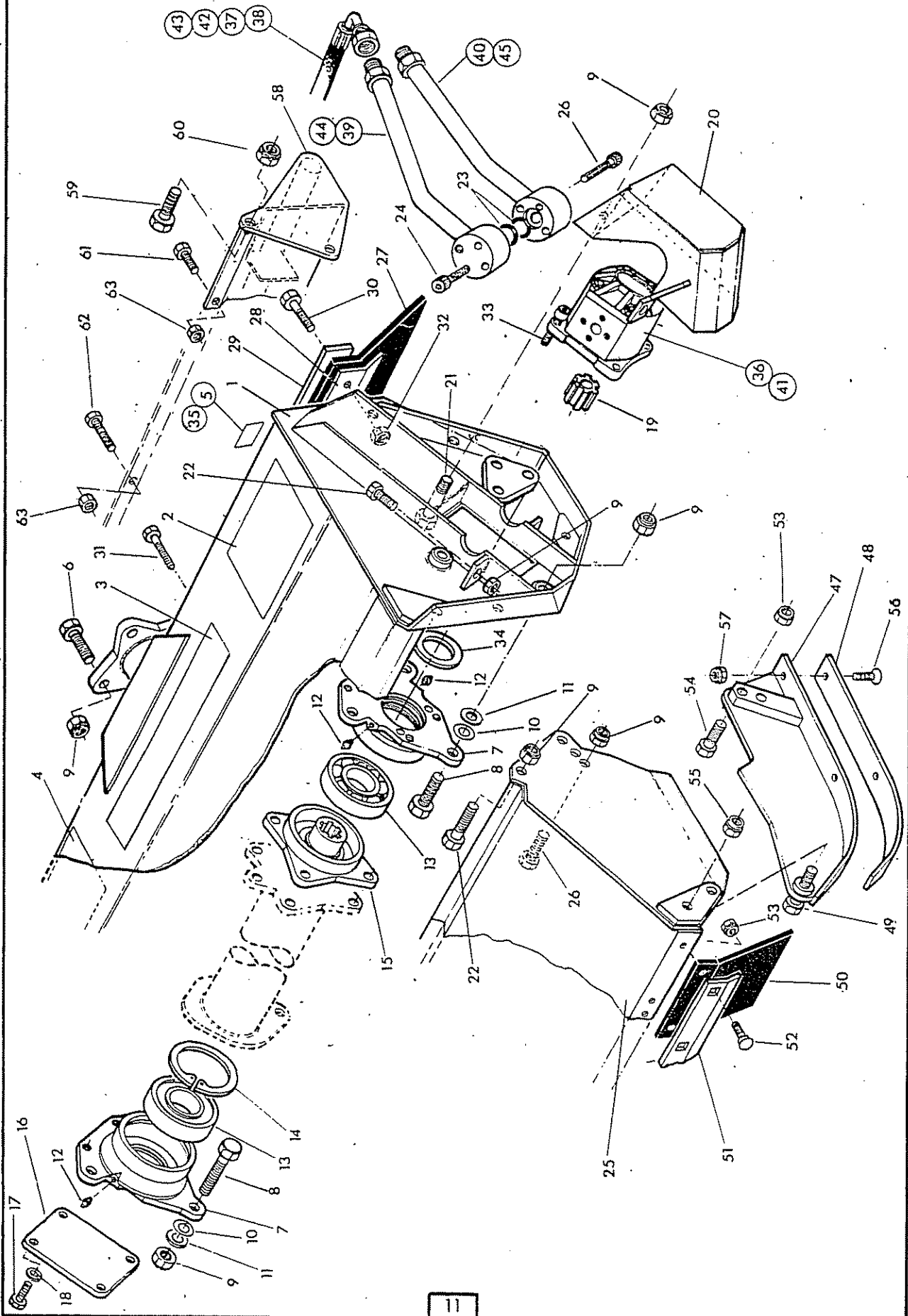


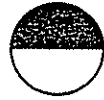
Ref.	Part No.	Qty.	Description
	73-13-324		CAB GUARD KIT
1	73-13-049	1	Guard panel - large
2	73-13-050	1	Guard panel - small
3	60-01-064	12	Spring
4	60-01-065	6	Hook
5	73-13-051	6	Hook

FLAIL HEAD CASING



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Ref.	Part No.	Qty.	Description
FLAIL HEAD CASING			
1	71 90 262	1	Flail casing
2	12 90 377	1	Sticker 'Flail head instructions
3	12 90 255	1	Sticker 'McConnel'
4	12 90 341	1	Sticker 'Flail guarding'
5	13 35 246	1	Serial No. plate
6	02 11 186	4	Bolt
7	71 90 261	2	Bearing housing
8	02 11 166	4	Bolt
9	01 41 006	17	Self locking nut
10	81 21 043	as reqd	Shim .015"
11	81 21 044	as reqd	Shim .025"
12	09 01 121	4	Greaser
13	06 00 018	2	Bearing
14	71 90 022	1	Internal circlip
15	71 90 472	1	Rotor hub
16	71 90 444	1	Cover plate
17	93 13 045	4	Setscrew
18	91 00 205	4	Spring washer
19	71 90 009	1	Drive coupling
20	71 90 488	1	Motor cover
21	02 11 266	1	Bolt
22	03 11 126	4	Setscrew
23	86 00 121	2	'O' ring
24	93 00 014	6	Capscrew 'wedglok'
25	71 90 288	1	Front hood
26	03 11 106	2	Setscrew
27	71 90 314	1	Rear flap
28	71 90 312	1	Mounting strip
29	71 90 313	1	Clamp strip
30	93 13 065	7	Setscrew
31	93 13 075	2	Setscrew
32	91 43 005	9	Self locking nut
33	93 00 144	4	Capscrew wedglok
34	71 90 015	1	Motor locating washer
35	71 03 230	4	Pop rivet

The following items 36-40 inclusive are also required for std power machines.

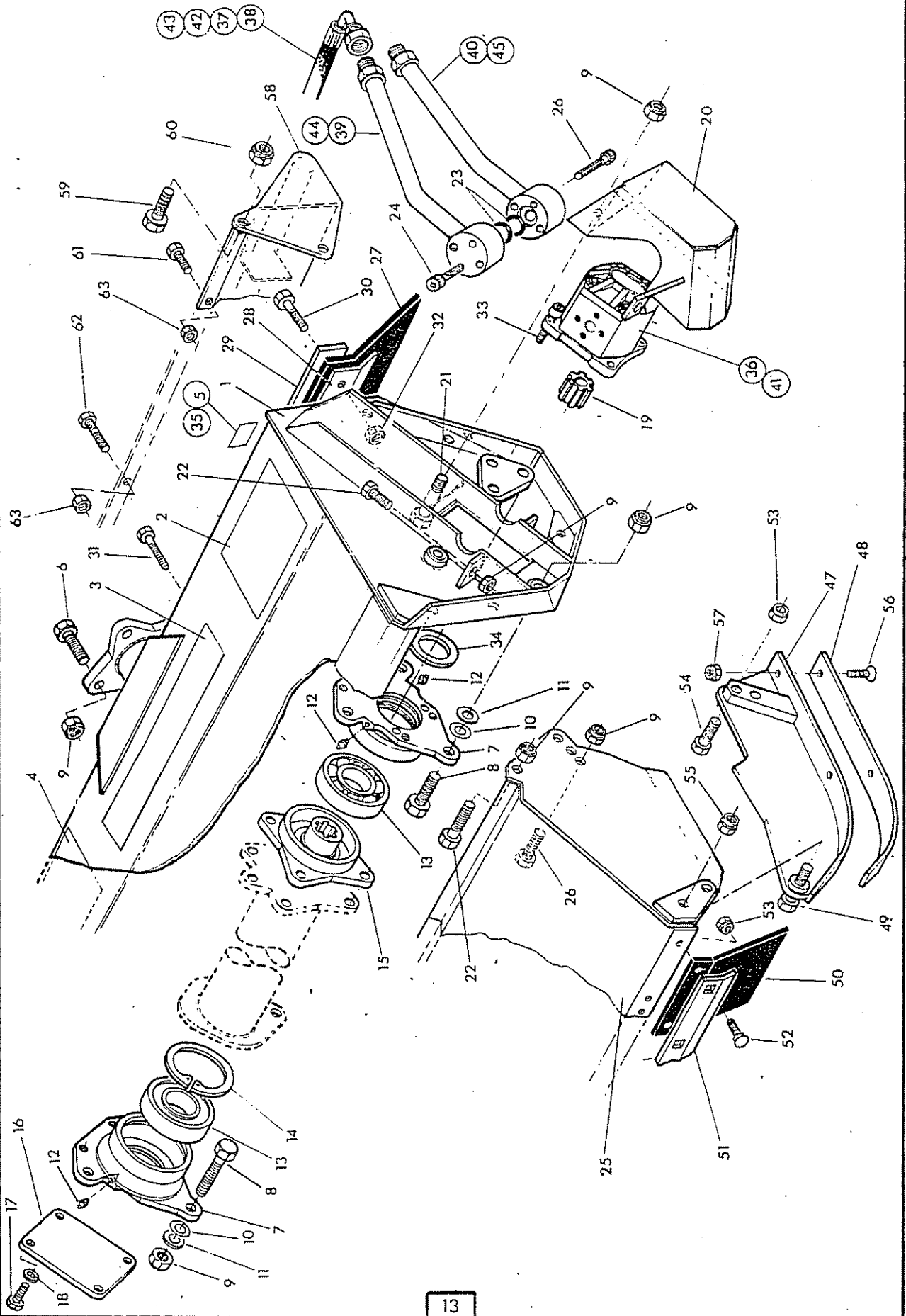
36*	83 01 281	1	Hydraulic motor
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Continued overleaf

FLAIL HEAD CASING



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FLAIL HEAD CASING continued.

37	85 38 015	2	Hose 3/4" BSP x 34" long for heads with motor outboard
38	85 38 025	2	Hose 3/4" BSP x 42" long for heads with motor inboard
39	71 90 295	1	Motor pipe upper
40	71 90 296	1	Motor pipe lower

86 99 236 SEAL KIT - for hydraulic motor

The following items 41-45 inclusive are also required for Hi Power machines

41	83 01 282	1	Hydraulic motor
42	85 01 097	2	Hose 1" BSP x 34" long for heads with motor outboard
43	85 01 154	2	Hose 1" BSP x 42" long for heads with motor inboard
44	71 90 297	1	Motor pipe upper
45	71 90 298	1	Motor pipe lower

86 99 236 SEAL KIT- for hydraulic motor

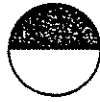
EXTRA PARTS FOR GRASS CUTTING

46	71 90 300	1	Skid R. Hand - not illus
47	71 90 301	1	Skid L. Hand
48	73 14 323	2	Replaceable skid
49	03 11 146	2	Setscrew
50	71 90 020	8	Flap
51	71 90 304	1	Flap clamp strip
52	92 93 054	16	Cup square bolt
53	91 43 004	16	Self locking nut
54	03 11 086	2	Setscrew
55	01 41 006	4	Self locking nut
56	93 33 065	6	Setscrew c/sunk
57	91 43 005	6	Self locking nut

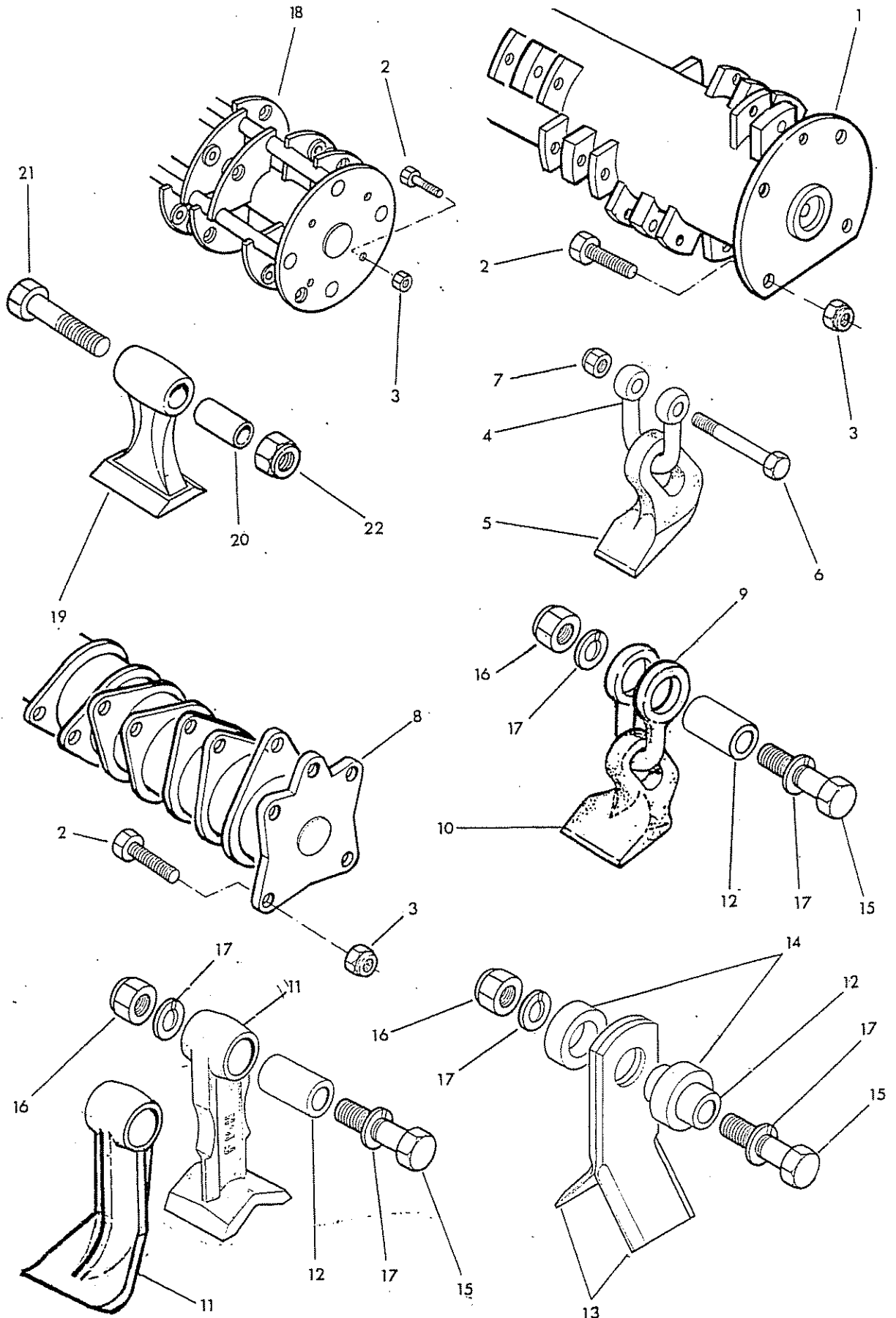
EXTRA PARTS FOR DOWNWARD CUTTING

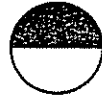
	71 90 310	1	Rear hood kit
58	71 90 285	1	Rear hood
59	03 11 106	4	Bolt
60	01 41 006	4	Self locking nut
61	93 13 045	7	Setscrew
62	93 13 055	2	Setscrew
63	91 43 005	9	Self locking nut

ROTOR & FLAIL OPTIONS



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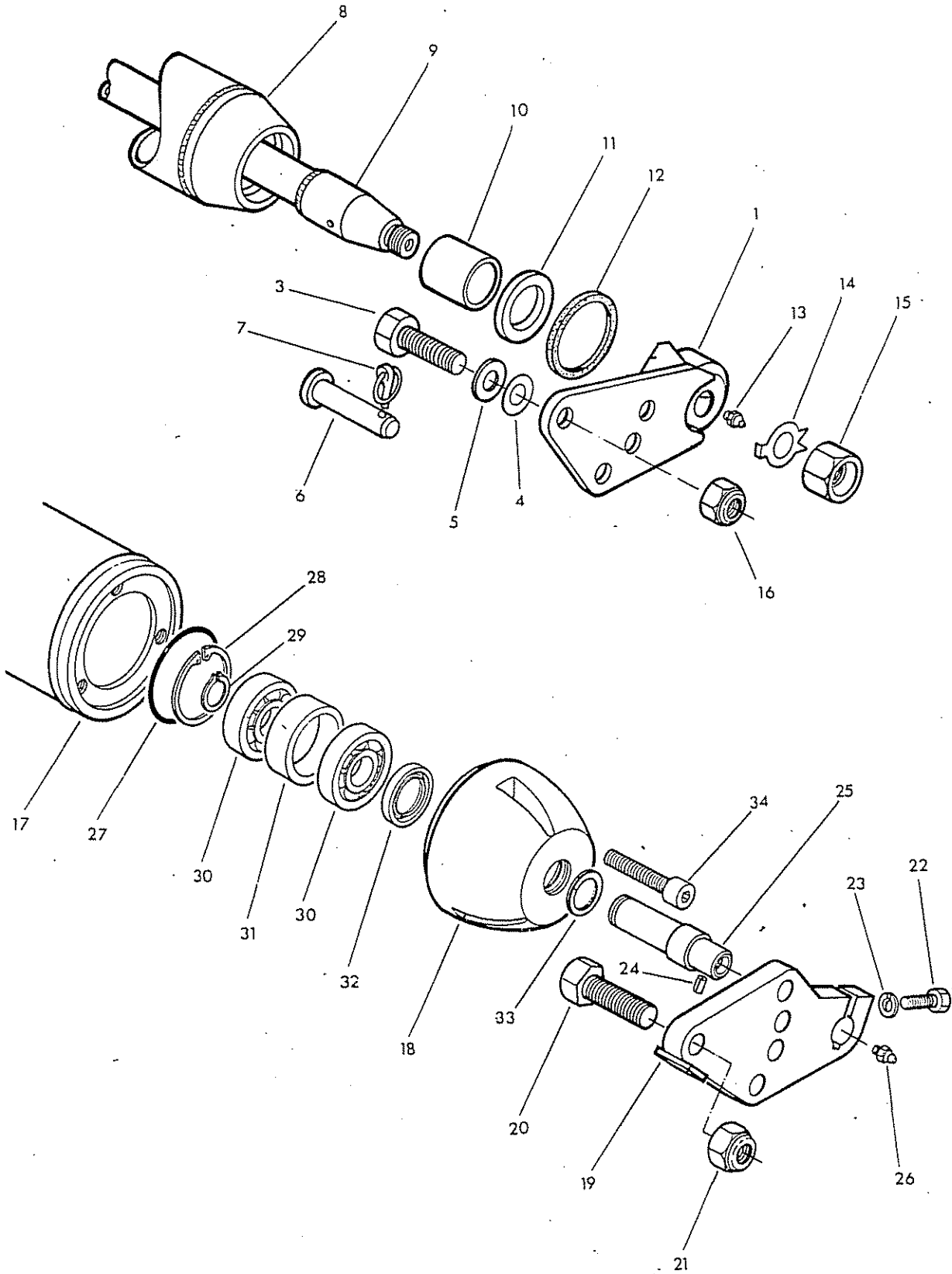
**McCORMELL**

Ref	Part No	Qty	Description
ROTORS AND FLAILS			
140mm DIA ROTOR SUITABLE FOR HI POWER FLAIL HEADS ONLY			
1	71 90 424	1	Rotor 1.2m (32 flail stations)
2	03 11 146	4	Setscrew 5/8 UNF x 1 3/4" long
3	01 41 006	4	Self locking nut 5/8 UNF
FLAIL FOR 140mm DIA ROTORS - Quantities shown are per flail station			
4	71 90 086	1	Shackle
5	71 90 463	1	Flail
6	71 90 088	1	Special bolt
7	01 41 004	1	Self locking nut 7/16 UNF
100mm DIA ROTOR SUITABLE FOR STANDARD AND HI POWER FLAIL HEADS			
8	71 90 320	1	Rotor (24 flail stations)
FLAIL OPTIONS FOR 100mm DIA ROTORS - Quantities show are per flail station.			
9	71 90 106	1	Shackle
10	71 90 462	1	Flail
11	73 14 366	1	Flail F10H
	73 90 276	1	Flail - alternative single edged!
12	73 14 223	1	Pivot bush
13	71 90 315	2	Flail
14	71 90 010	2	Flail spacer
15	73 14 201	1	Special bolt
16	01 41 006	1	Self locking nut 5/8 UNF
17	01 00 206	2	Spring washer 5/8" dia
OMEGA ROTOR SUITABLE FOR 1.2 METRE FLAIL HEADS			
18	71 90 465	1	Rotor (20 flail stations)
FLAIL FOR OMEGA ROTOR - Quantities are per flail station			
19	71 90 464	1	Flail
20	71 90 117	1	Bush
21	71 90 118	1	Special bolt
22	01 41 006	1	Self locking nut 5/8" UNF

ROLLER OPTIONS



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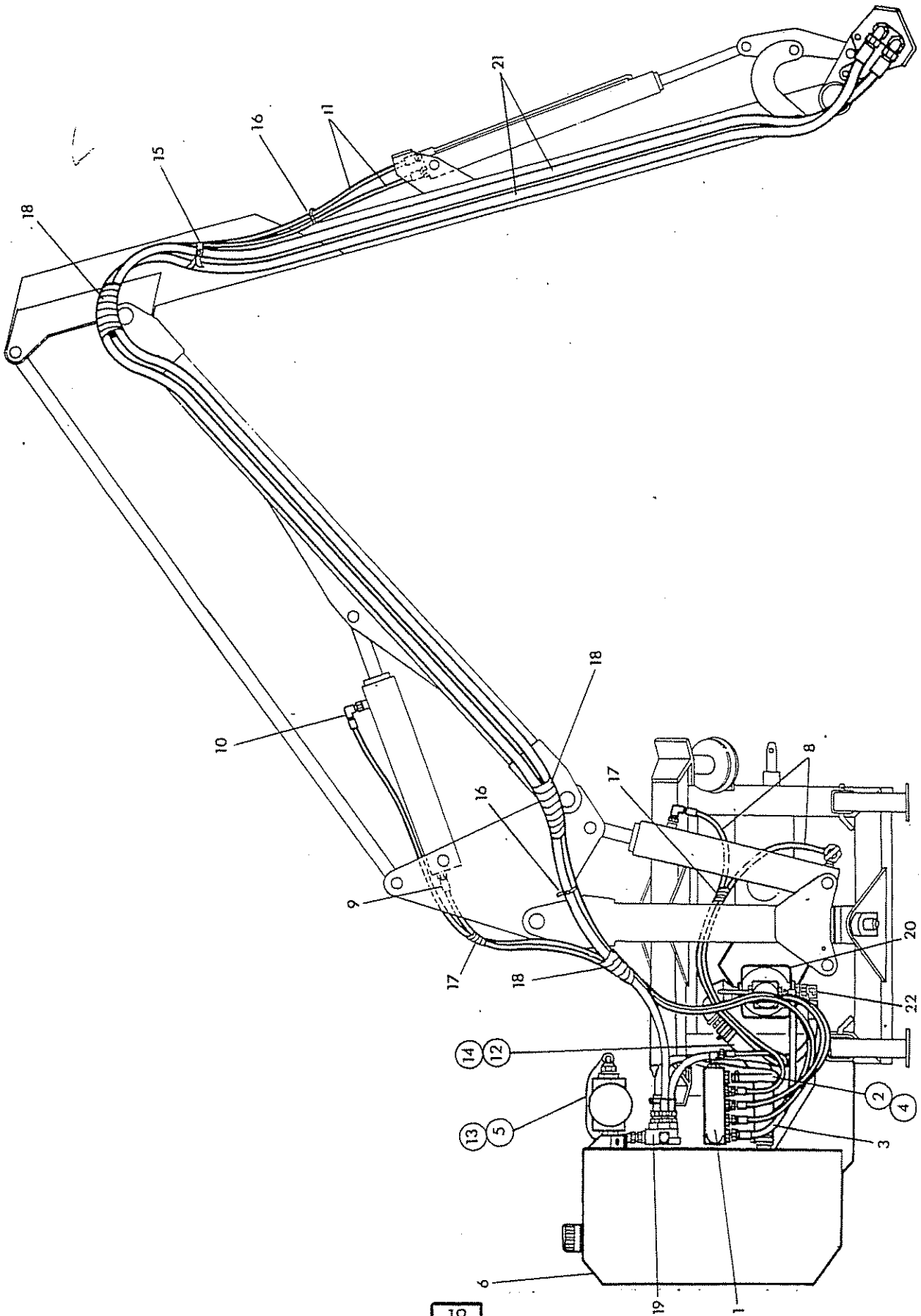
Ref.	Part No.	Qty.	Description
ROLLERS OPTIONS FOR 1.2m FLAIL HEADS			
BUSHED ROLLER ASSEMBLY			
1	71 90 306	1	Roller bracket L. Hand
2	71 90 305	1	Roller bracket R. Hand - not illus
3	02 11 166	2	Bolt
4	81 21 043	as reqd	Shim
5	81 21 044	as reqd.	Shim
6	71 90 032	2	Pin
7	04 31 213	2	Linch pin
8	71 90 307	1	Roller
9	71 90 308	1	Roller tie rod
10	72 13 023	2	Bush
11	71 90 026	2	Thrust washer
12	71 90 028	2	Felt seal
13	09 01 121	2	Greaser
14	71 90 023	2	Tab washer
15	71 14 176	2	Special nut
16	01 41 006	4	Self locking nut
BALL BEARING ROLLER ASSEMBLY			
17	71 90 434	1	Roller
18	71 90 429	2	Roller end
19	71 90 428	2	Mounting bracket
20	02 11 206	4	Bolt
21	01 41 006	4	Self locking nut
22	02 11 123	2	Bolt
23	01 00 203	2	Spring washer
24	04 25 408	2	Spring dowel
25	71 90 430	2	Stub axle
26	09 01 121	2	Greaser
27	86 00 139	2	'O' ring
28	04 11 262	2	Internal circlip
29	04 01 225	2	External circlip
30	06 00 088	4	Bearing
31	71 90 082	2	Spacer
32	86 29 125	2	Seal
33	04 12 120	2	Spring ring
34	93 00 104	6	Capscrew - self locking

HYDRAULIC INSTALLATION



McCOMBELL

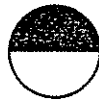
Std-arm T.I. 1



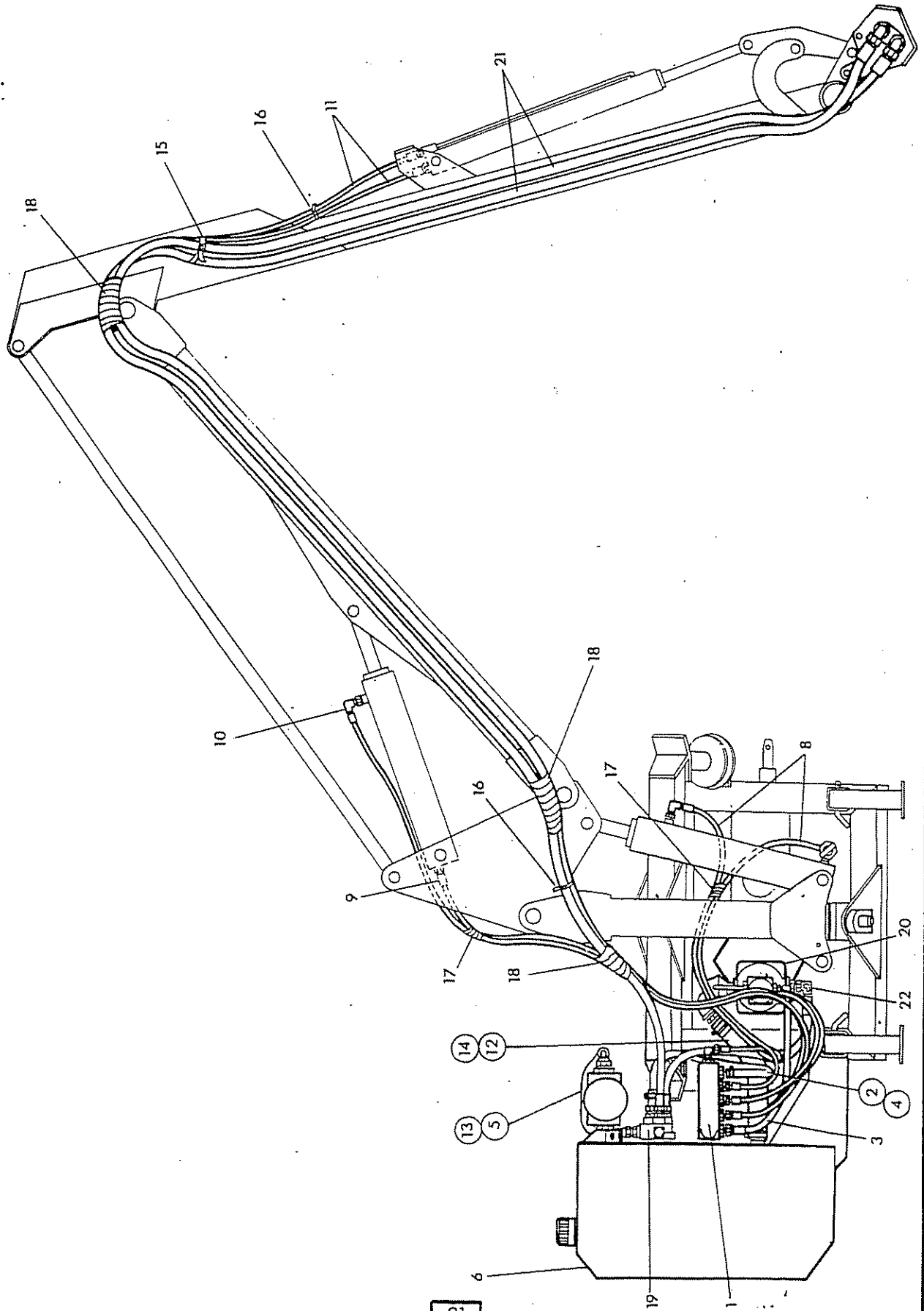


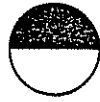
Ref.	Part No.	Qty.	Description.
HYDRAULIC INSTALLATIONS FOR STANDARD ARM T.I. MACHINES			
Items 1 to 17 inclusive are common to all standard arm T.I. hydraulic installations			
1	81 30 372	1	Control valve assembly (see pages 35 - 38)
2	85 01 158	1	Hose 5/8" bore x 24" long. Return to rotor on/off valve
3	85 11 253	1	Hose 3/8" BSP x 18" long. Supply from pump
4	09 04 204	2	Hose clip - 5/8 bore hose
5	85 00 836	1	Hose low pressure 1" bore x 36" long rotor valve-tank
6		1	Tank assembly (see page 53)
7	71 09 319	1	Control mounting assembly -not illus-(see page 9)
8	85 35 022	2	Hose 1/4 BSP x 48" long. Lift
9	85 15 132	1	Hose 1/4" BSPF x 64" long. Reach base
10	85 35 142	1	Hose 1/4" BSP S x 80" long. Reach gland
11	85 15 122	2	Hose 1/4" BSP x 162" long- Angle
12	85 01 122	1	Hose 1 1/2" bore x 11 3/4" long. Suction from tank
13	09 04 106	4	Hose clip
14	09 04 107	4	Hose clip
15	71 06 187	2	Hose tie
16	71 35 084	2	Hose tie
17	72 13 005	2	Hose armour coil

See over to continue



Std. arm T.I. 2





Ref.	Part No.	Qty.	Description
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HYDRAULIC INSTALLATIONS FOR STANDARD ARM T.I. MACHINES - Continued

The following additional items will be required for specific hydraulic installations.

HYDRAULIC INSTALLATION FOR R. HAND STD POWER. STD ARM T.I. MACHINES

18	71 93 026	3	Hose armour coil
19	81 25 377	1	Rotor Control valve assembly (see page 49)
20	80 13 459	1	Gearbox/pump assembly (See page 39)
21	85 38 065	2	Hose 3/4" BSP SF x 200" long-flail motor
22	85 38 045	1	Hose 3/4" BSP x 29" long-Pump- R.C. Valve

HYDRAULIC INSTALLATION FOR L.HAND STD POWER STD ARM T.I. MACHINES

18	71 93 026	3	Hose armour coil
19	81 25 378	1	Rotor control valve assembly (see page 49)
20	80 13 458	1	Gearbox/pump assemblies (see page 39)
21	85 38 065	2	Hose 3/4" BSP x 200" long-Flail motor
22	85 38 075	1	Hose 3/4" BSP x 20" long Pump- R.C. Valve

HYDRAULIC INSTALLATION FOR R. HAND HI POWER STD ARM T.I. MACHINES

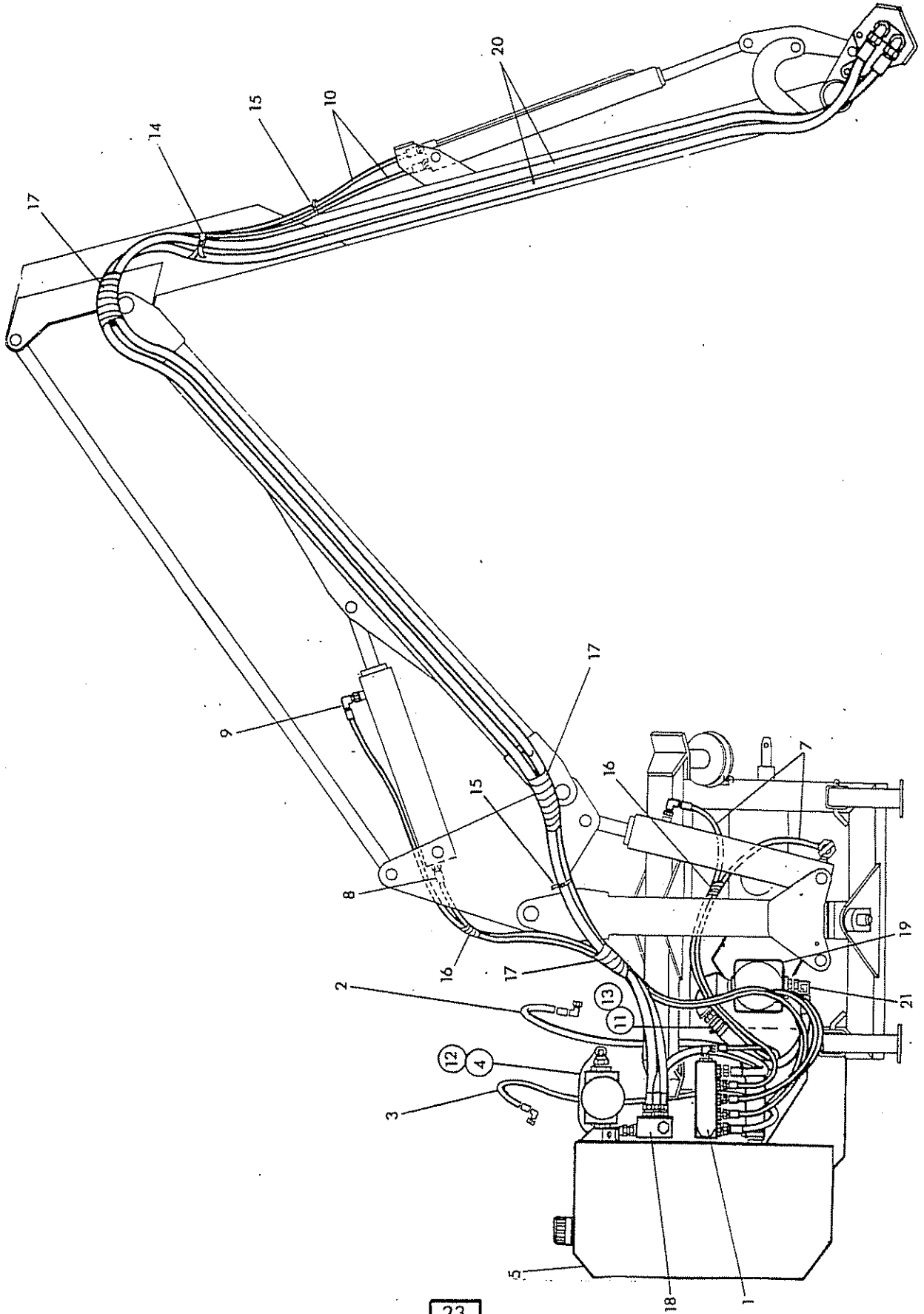
18	71 36 143	3	Hose armour coil
19	81 25 379	1	Rotor control valve assembly (see page 49)
20	80 13 472	1	Gearbox/pump assembly (see page 41)
21	85 01 183	2	Hose 1" BSP x 200" long-Flail motor
22	85 01 169	1	Hose 1" BSP x 29" long Pump R.C. Valve

HYDRAULIC INSTALLATION FOR L. HAND HI POWER STD ARM T.I. MACHINES

18	71 36 143	3	Hose armour coil
19	81 25 380	1	Rotor control valve assembly (see page 49)
20	80 13 471	1	Gearbox/pump assembly (see page 41)
21	85 01 183	2	Hose 1" BSP x 200" long-Flail motor
22	85 01 201	1	Hose 1" BSP x 17" long Pump- R.C. Valve



Std. arm S.I. 1





Ref.	Part No.	Qty.	Description
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**HYDRAULIC INSTALLATIONS FOR STANDARD
ARM S.I. MACHINES**

Items 1 to 16 inclusive are common to all standard arm S.I. hydraulic installation

1	81 30 372	1	Control valve assembly (see pages 35-38)
2	85 32 014	1	Hose 1/2" BSP x 80" long Return tractor
3	85 31 323	1	Hose 3/8" BSP x 80" long-Supply
4	85 00 836	1	Hose low pressure 1" bore x 36" long rotor valve-tank
5		1	Tank assembly (see page 53)
6	71 09 319	1	Control mounting assembly -not illus- (see page 9)
7	85 35 022	2	Hose 1/4" BSP x 48" long. Lift
8	85 15 132	1	Hose 1/4" BSP x 64" long. Reach base
9	85 35 142	1	Hose 1/4" BSP x 80" long. Reach gland
10	85 15 122	2	Hose 1/4" BSP x 162" long-Angle
11	85 01 122	1	Hose 1 1/2" bore x 11 3/4" long.Suction from tank
12	09 04 106	4	Hose clip
13	09 04 107	4	Hose clip
14	71 06 187	2	Hose tie
15	71 35 084	2	Hose tie
16	72 13 005	2	Hose armour coil

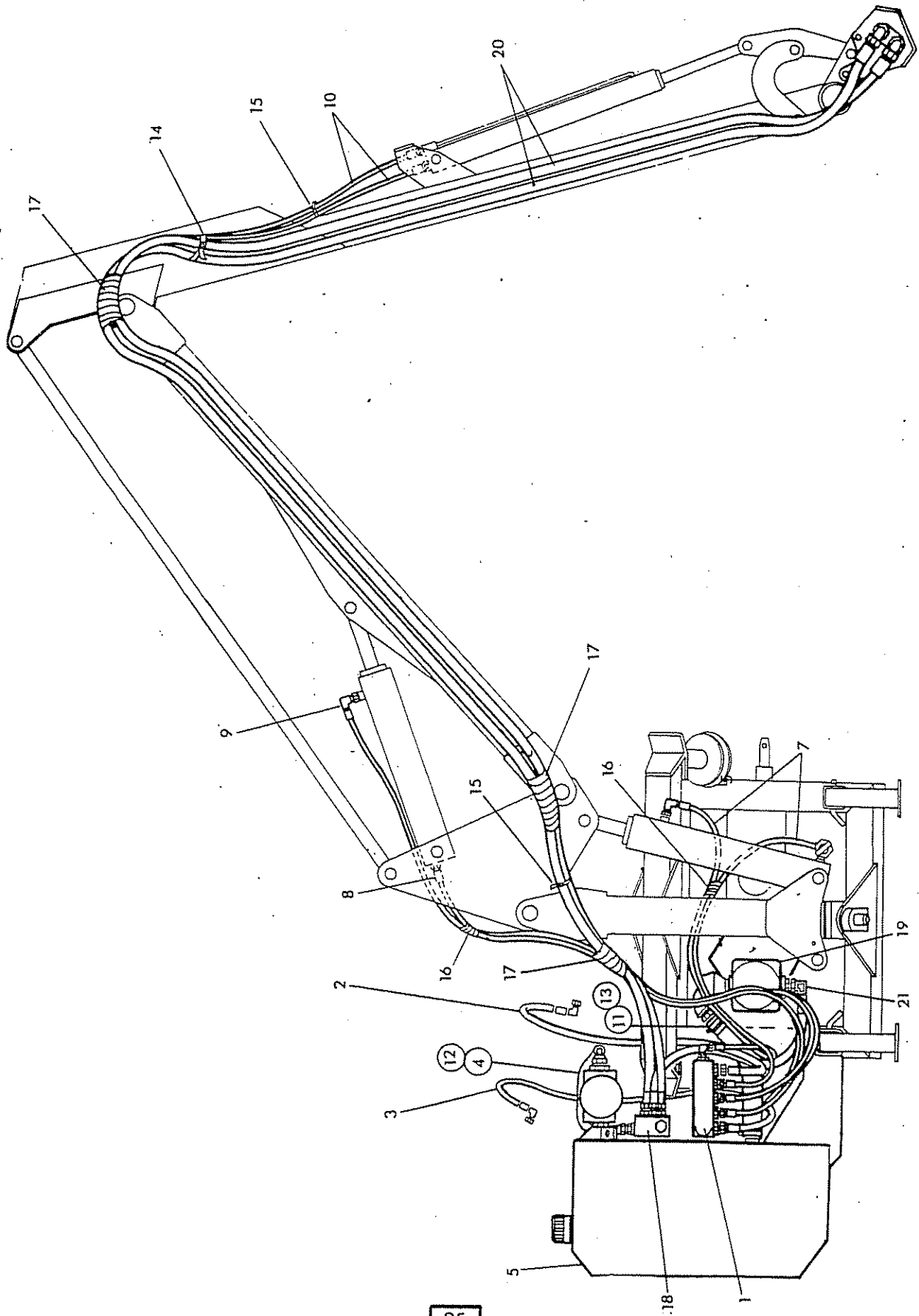
See over to continue

HYDRAULIC INSTALLATION



McCOMBI

Std. arm S.I. 2





Ref	Part No.	Qty.	Description
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**HYDRAULIC INSTALLATION FOR STANDARD
ARM S.I. MACHINES - continued**

The following additional items will be required for specific hydraulic installations

**HYDRAULIC INSTALLATION FOR R. HAND STD
POWER. STD ARM S.I. MACHINES**

17	71 93 026	3	Hose armour coil
18	81 25 360	1	Rotor relief valve assembly (see page 51)
19	80 13 457	1	Gearbox/pump assembly (See page 43)
20	85 38 065	2	Hose 3/4" BSP x 200" long-flail motor
21	85 38 045	1	Hose 3/4" BSP x 29" long-Pump- R.C. Valve

**HYDRAULIC INSTALLATION FOR L. HAND STD
POWER. STD ARM S.I. MACHINES**

17	71 93 026	3	Hose armour coil
18	81 25 360	1	Rotor relief valve assembly (see page 51)
19	80 13 456	1	Gearbox / pump assembly (see page 43)
20	85 38 065	2	Hose 3/4" BSP x 200"long-Flail motor
21	85 38 075	1	Hose 3/4" BSP x 20"long Pump-R.C.Valve

**HYDRAULIC INSTALLATION FOR R.HAND HI
POWER. STD ARM S.I. MACHINES**

17	71 36 143	3	Hose armour coil
18	81 25 400	1	Rotor Relief valve assembly (see page 51)
19	80 13 470	1	Gearbox/pump assembly (see page 45)
20	85 01 183	2	Hose 1" BSP x 200"long Flail motor
21	85 01 169	1	Hose 1" BSP x 29"long Pump- R.C. Valve

**HYDRAULIC INSTALLATION FOR L. HAND HI
POWER. STD ARM S.I. MACHINES**

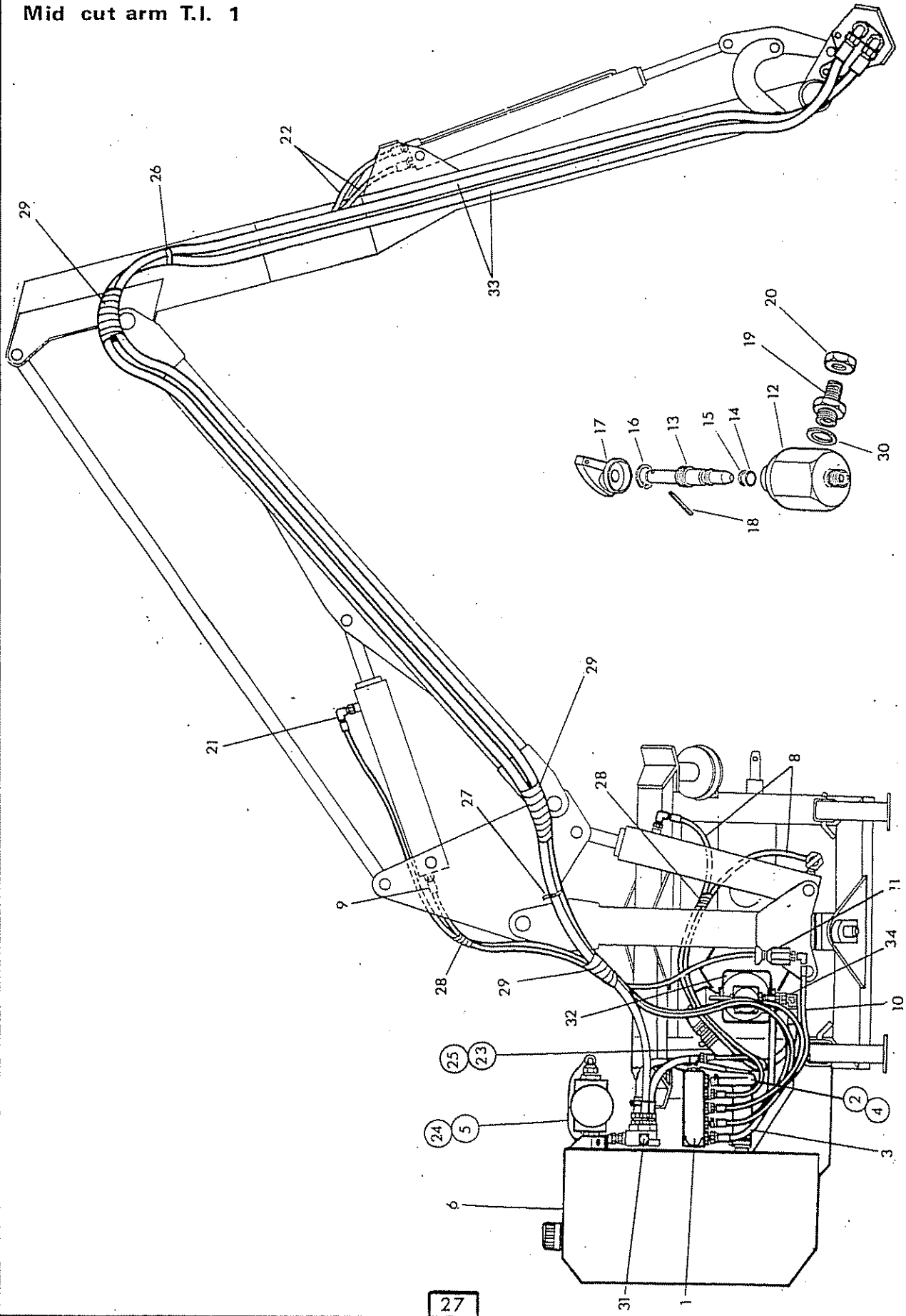
17	71 36 143	3	Hose armour coil
18	81 25 400	1	Rotor Relief valve assembly (see page 51)
19	80 13 469	1	Gearbox/pump assembly (see page 45)
20	85 01 183	2	Hose 1" BSP SF x 200" long-Flail motor
21	85 01 201	1	Hose 1" BSP x 17" long Pump R.C. Valve

HYDRAULIC INSTALLATION



McCOMB

Mid cut arm T.I. 1





Ref.	Part No.	Qty.	Description.
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HYDRAULIC INSTALLATIONS FOR MID CUT ARM T.I. MACHINES

Items 1 to 29 inclusive are common to all mid cut arm T.I. hydraulic installations

1	81 30 372	1	Control valve assembly (see pages 35-38)
2	85 01 158	1	Hose 5/8" bore x 24" long. Return to rotor on/off valve
3	85 11 253	1	Hose 3/8" BSP x 18" long. Supply from pump
4	09 04 204	2	Hose clip - 5/8 bore hose
5	85 00 836	1	Hose low pressure 1" bore x 36" long rotor valve-tank
6		1	Tank assembly (see page 53)
7	71 09 319	1	Control mounting assembly -not illus-(see page 9)
8	85 35 022	2	Hose 1/4 BSP x 48" long. Lift
9	85 32 192	1	Hose 1/4" BSP x 44" long Reach base - tap
10	85 35 102	1	Hose 1/4" BSP x 17" long Reach tap - valve.
11	71 35 005	1	Lock tap assembly compr :-
12	71 35 284	1	Tap body
13	71 35 006	1	Tap spindle
14	86 00 107	1	O ring
15	86 09 107	1	Anti extrusion ring
16	04 16 110	1	Internal circlip
17	81 08 006	1	Tap knob
18	04 20 820	1	Spring dowel
19	85 81 297	1	Bulkhead adaptor
20	01 39 001	1	Backnut
21	85 35 142	1	Hose 1/4" BSP x 80" long. Reach gland
22	85 15 212	2	Hose 1/4" BSP x 185" long- Angle
23	85 01 122	1	Hose 1 1/2" bore x 11 3/4" long. Suction from tank
24	09 04 106	4	Hose clip
25	09 04 107	4	Hose clip
26	71 06 187	2	Hose tie
27	71 35 084	2	Hose tie
28	72 13 005	2	Hose armour coil
29	86 50 103	1	Bonded seal

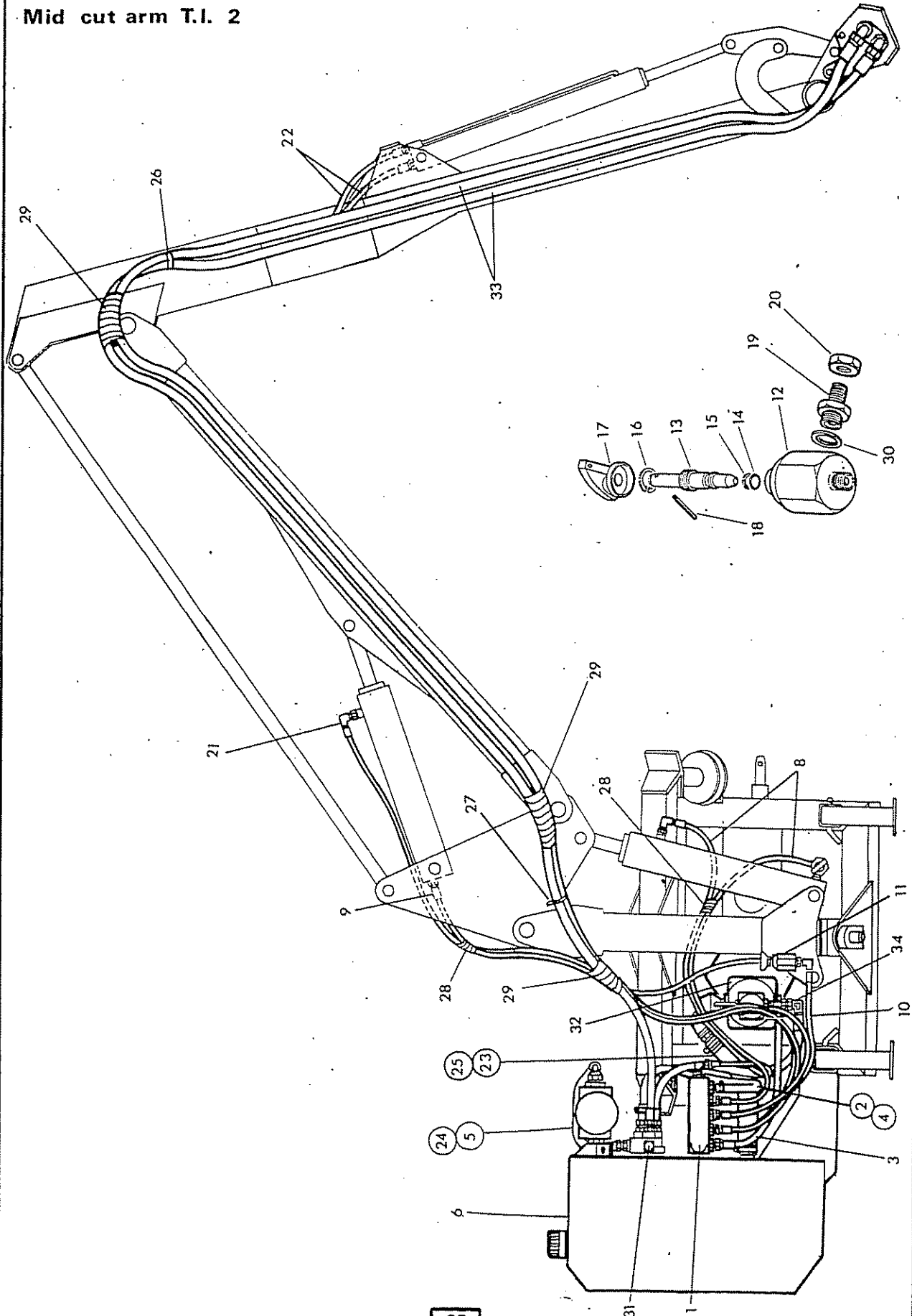
See over to continue

HYDRAULIC INSTALLATION



McCOMB

Mid cut arm T.I. 2





Ref	Part No.	Qty.	Description.
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**HYDRAULIC INSTALLATIONS FOR MID CUT
ARM T.I. MACHINES - Continued**

The following additional items will be required for specific hydraulic installations

**HYDRAULIC INSTALLATION FOR R. HAND STD
POWER MACHINES**

30	71 93 026	3	Hose armour coil
31	81 25 377	1	Rotor Control valve assembly (see page 49
32	80 13 459	1	Gearbox/pump assembly (See page 39)
33	85 01 132	2	Hose 3/4" BSP x 212" long-flail motor
34	85 38 045	1	Hose 3/4" BSP x 29" long-Pump- R.C. Valve

**HYDRAULIC INSTALLATION FOR L.HAND STD
POWER MACHINES**

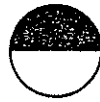
30	71 93 026	3	Hose armour coil
31	81 25 378	1	Rotor control valve assembly (see page 49)
32	80 13 458	1	Gearbox/pump assemblies (see page 39)
33	85 01 132	2	Hose 3/4" BSP x 212" long-Flail motor
34	85 38 075	1	Hose 3/4" BSP x 20" long Pump- R.C. Valve

**HYDRAULIC INSTALLATION FOR R. HAND HI
POWER MACHINE**

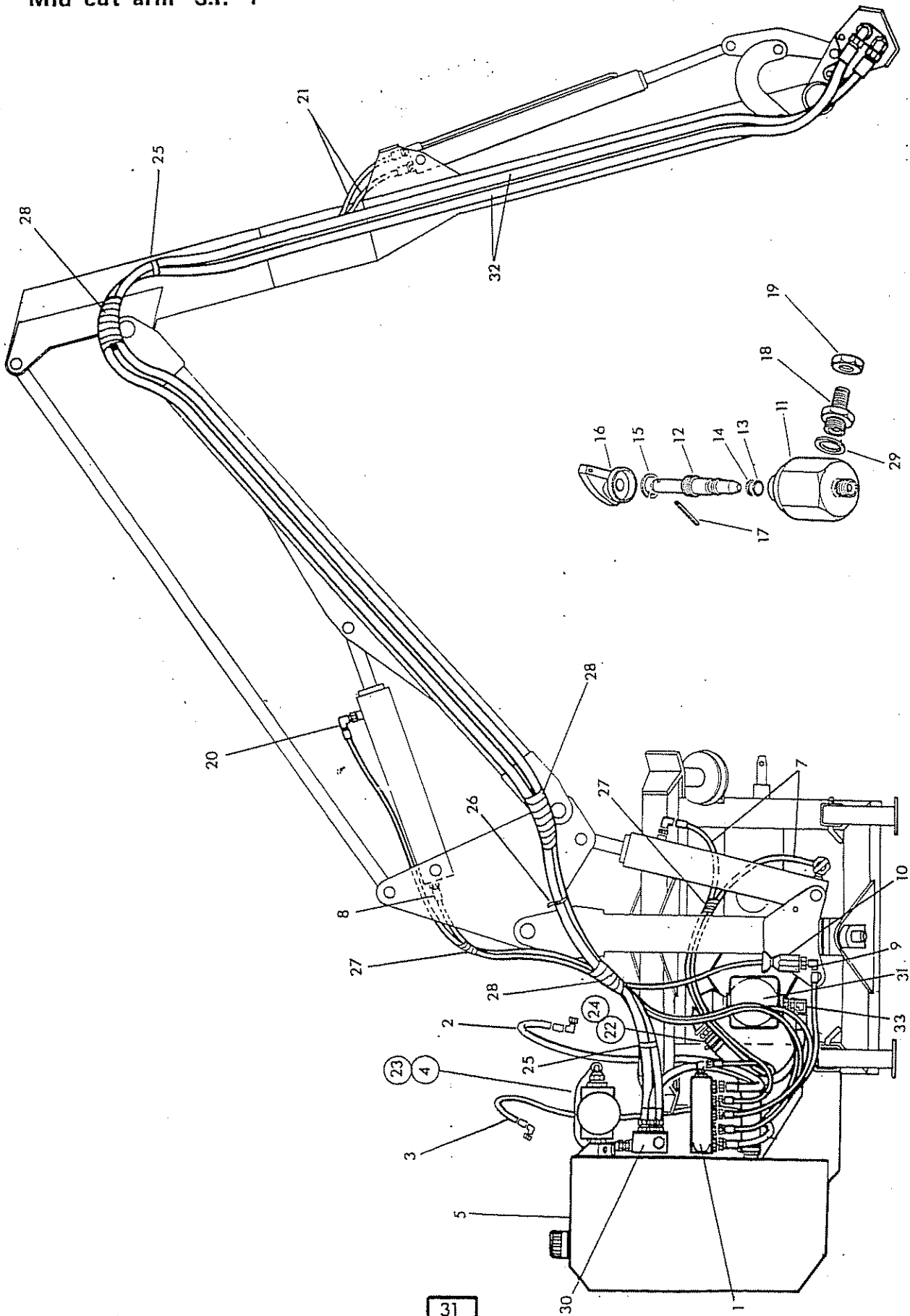
30	71 36 143	3	Hose armour coil
31	81 25 379	1	Rotor control valve assembly (see page 49)
32	80 13 472	1	Gearbox/pump assembly (see page 41)
33	85 01 205	2	Hose 1" BSP x 212" long-Flail motor
34	85 01 169	1	Hose 1" BSPx 29" long Pump R.C. Valve

**HYDRAULIC INSTALLATION FOR L. HAND HI
POWER MACHINES**

30	71 36 143	3	Hose armour coil
31	81 25 380	1	Rotor control valve assembly (see page 49)
32	80 13 471	1	Gearbox/pump assembly (see page 41)
33	85 01 205	2	Hose 1" BSP x 212" long-Flail motor
34	85 01 201	1	Hose 1" BSP x 17" long Pump- R.C. Valve



Mid cut arm S.I. 1



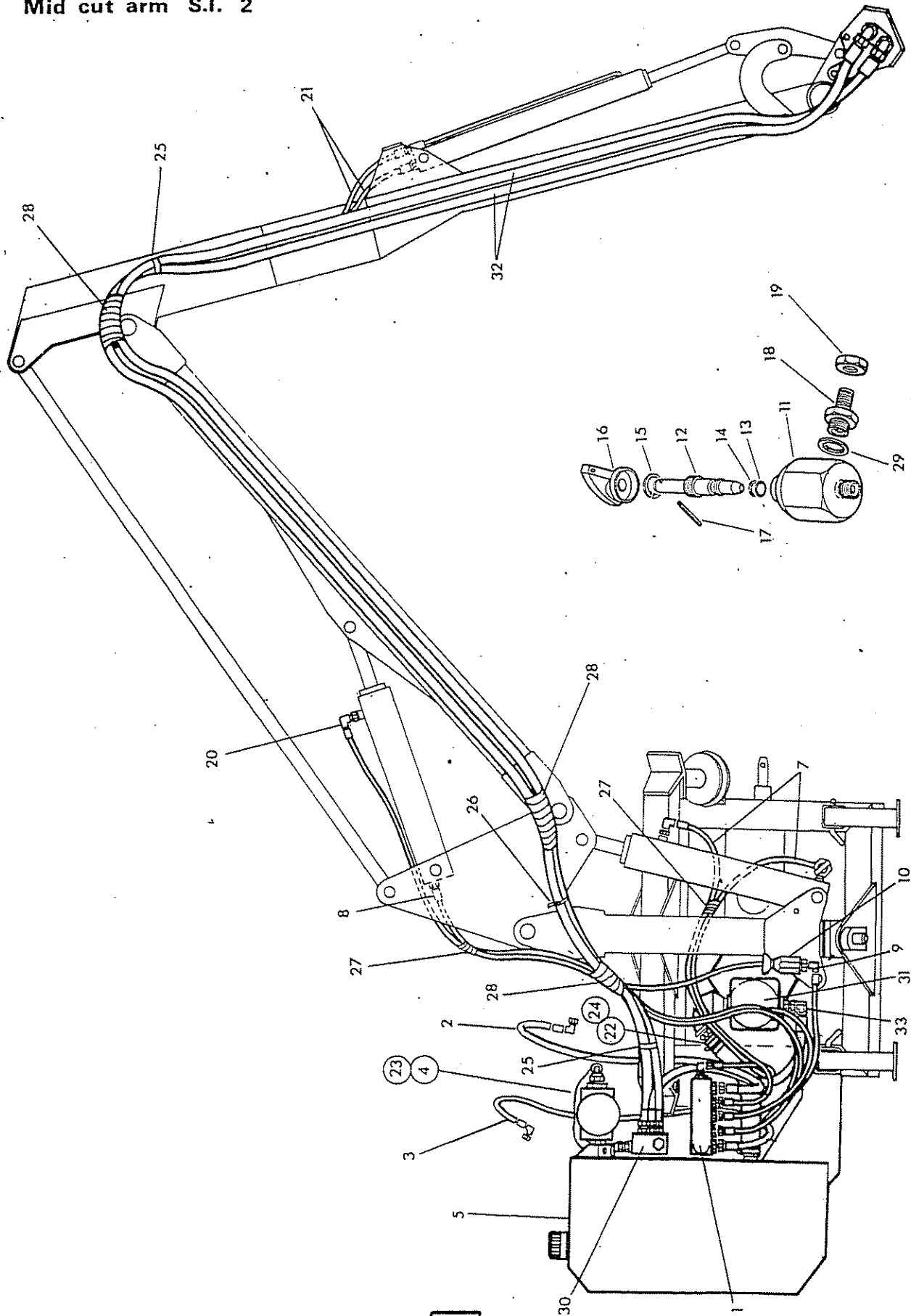


Ref.	Part No.	Qty.	Description
HYDRAULIC INSTALLATIONS FOR MID CUT ARM S.I. MACHINES			
Items 1 to 28 inclusive are common to all mid cut arm S.I. hydraulic installations			
1	81 30 372	1	Control valve assembly (see pages 35-38)
2	85 32 014	1	Hose 1/2" BSP x 80" long Return tractor .
3	85 31 323	1	Hose 3/8" BSP x 80" long-Supply
4	85 00 836	1	Hose low pressure 1" bore x 36" long rotor valve-tank
5		1	Tank assembly (see page 53)
6	71 09 319	1	Control mounting assembly -not illus- (see page 9)
7	85 35 022	2	Hose 1/4" BSP x 48" long. Lift SF - 90F
8	85 35 192	1	Hose 1/4" BSP x 44" long. Reach base- tap
9	85 35 102	1	Hose 1/4" BSP x 17" long. Reach tap - valve
10	71 93 050	1	Lock tap assembly compr :-
11	71 35 284	1	Tap body
12	71 35 006	1	Tap spindle
13	86 00 107	1	O ring
14	86 09 107	1	Anti extrusion ring
15	04 16 110	1	Internal circlip
16	81 08 006	1	Tap knob
17	04 20 820	1	Spring dowel
18	85 81 287	1	Bulkhead adaptor
19	01 39 001	1	Backnut
20	85 35 142	1	Hose 1/4" BSP x 80" long.Reach gland
21	85 15 212	2	Hose 1/4" BSP x 185" long-Angle
22	85 01 122	1	Hose 1 1/2" bore x 11 3/4" long.Suction from tank
23	09 04 106	4	Hose clip
24	09-04 107	4	Hose clip
25	71 06 187	2	Hose tie
26	71 35 084	2	Hose tie
27	72 13 005	2	Hose armour coil
28	86 50 103	1	Bonded seal

See over to continue



Mid cut arm S.I. 2





Ref.	Part No.	Qty.	Description
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**HYDRAULIC INSTALLATION FOR MID CUT
ARM SI. MACHINES - CONTINUED.**

The following additional items will be required for specific hydraulic installations

**HYDRAULIC INSTALLATION FOR R. HAND STD
POWER MACHINES**

29	91 93 026	3	Hose armour coil
30	81 25 360	1	Rotor relief valve assembly (see page 51)
31	80 13 457	1	Gearbox/pump assembly (See page 43)
32	85 01 132	2	Hose 3/4" BSP SF - 90F x 212" long-flail motor
33	85 38 045	1	Hose 3/4" BSP x 29" long-Pump- R.C. Valve

**HYDRAULIC INSTALLATION FOR L. HAND STD
POWER. MACHINE**

29	71 93 026	3	Hose armour coil
30	81 25 360	1	Rotor relief valve assembly (see page 51)
31	80 13 456	1	Gearbox / pump assembly (see page 43)
32	85 01 132	2	Hose 3/4" BSP x 212"long-Flail motor
33	85 38 075	1	Hose 3/4" BSP x 20"long Pump-R.C. Valve

**HYDRAULIC INSTALLATION FOR R.HAND HI
POWER MACHINES**

29	71 36 143	3	Hose armour coil
30	81 25 400	1	Rotor Relief valve assembly (see page 51)
31	80 13 470	1	Gearbox/pump assembly (see page 45)
32	85 01 205	2	Hose 1" BSP x 212"long Flail motor
33	85 01 169	1	Hose 1" BSP x 29"long Pump- R.C. Valve

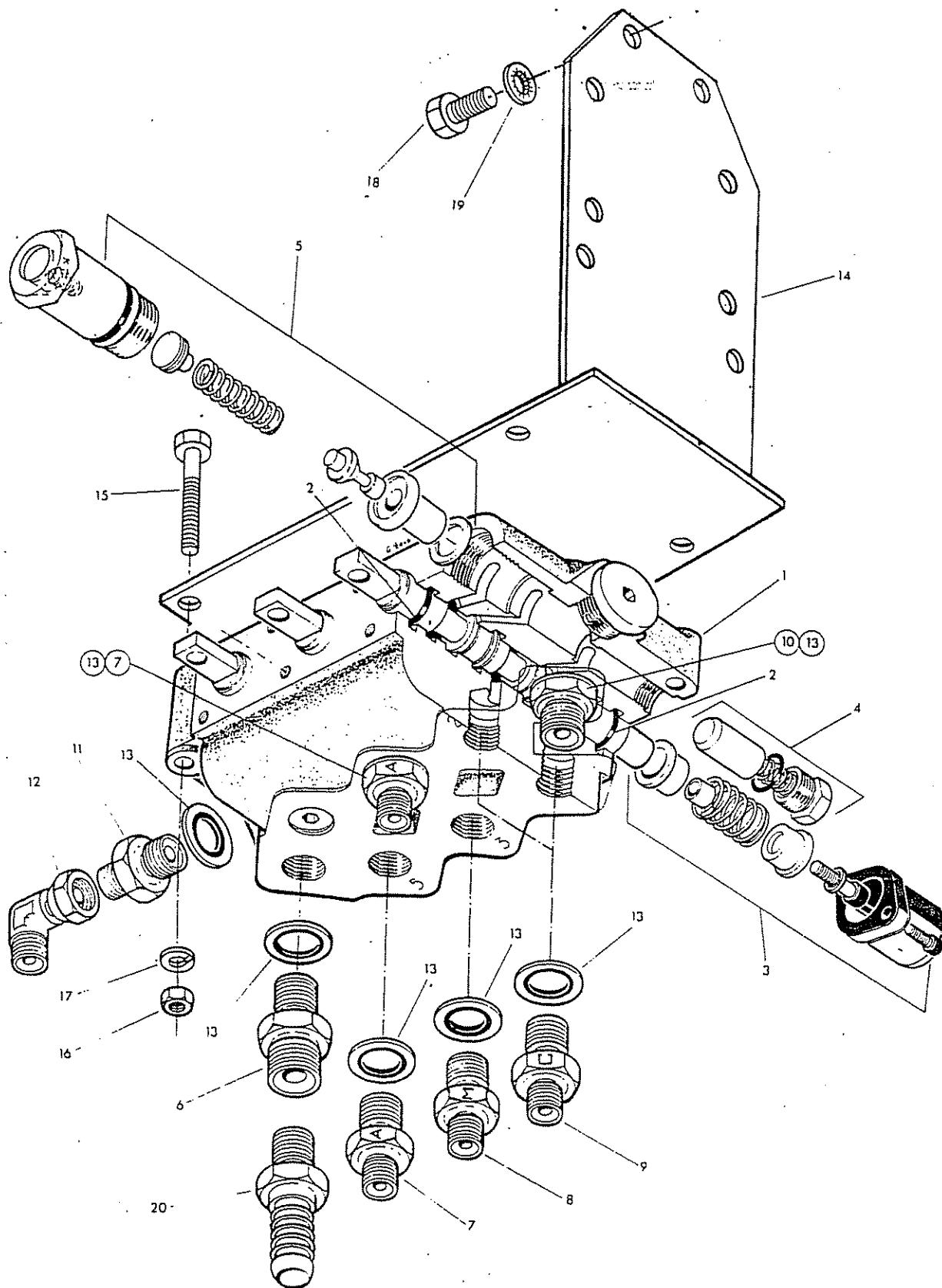
**HYDRAULIC INSTALLATION FOR L. HAND HI
POWER MACHINES**

29	71 36.143	3	Hose armour coil
30	81 25 400	1	Rotor Relief valve assembly (see page 51)
31	80 13 569	1	Gearbox/pump assembly (see page 45)
32	85 01 205	2	Hose 1" BSP x 212" long-Flail motor
33	85 01 201	1	Hose 1" BSP x 17" long Pump R.C. Valve

CONTROL VALVE



McCORMICK





Ref.	Part No.	Qty.	Description
	81-30-372		HYDRAULIC CONTROL ASSEMBLY FOR PA 93 SEMI INDEPENDENT MODEL
	81-30-376	1	Valve c/w connections
1	81-30-334	1	Valve block c/w spools 'O' rings
2	86-00-112	6	'O' ring
3	81-30-134	3	Centering spring assembly
4	81-30-022	1	Non-return valve assembly
5	G381-2539	1	Relief valve assembly
6	60-00-112	1	Union
7	81-30-046	2	Restrictor union A
8	81-30-066	1	Restrictor union M.
9	81-30-048	2	Restrictor union 'C'
10	60-00-113	1	Union
11	85-81-115	1	Union
12	85-81-190	1	Elbow
13	86-50-103	8	Bonded seal
14	71-93-322	1	Valve mounting plate
15	92-13-124	3	Bolt
16	91-13-004	3	Nut
17	91-00-204	3	Spring washer
18	93-13-045	2	Setscrew
19	91-00-305	2	Internal serrated washer dia
	86-00-163		SEAL KIT
	81-30-371		HYDRAULIC CONTROL ASSEMBLY FOR PA 93 FULLY INDEPENDENT MODEL

The parts list is identical to above with the following exceptions.

Second line becomes

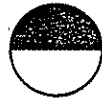
81-30-375	1	Valve c/w connections
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Item 6 becomes

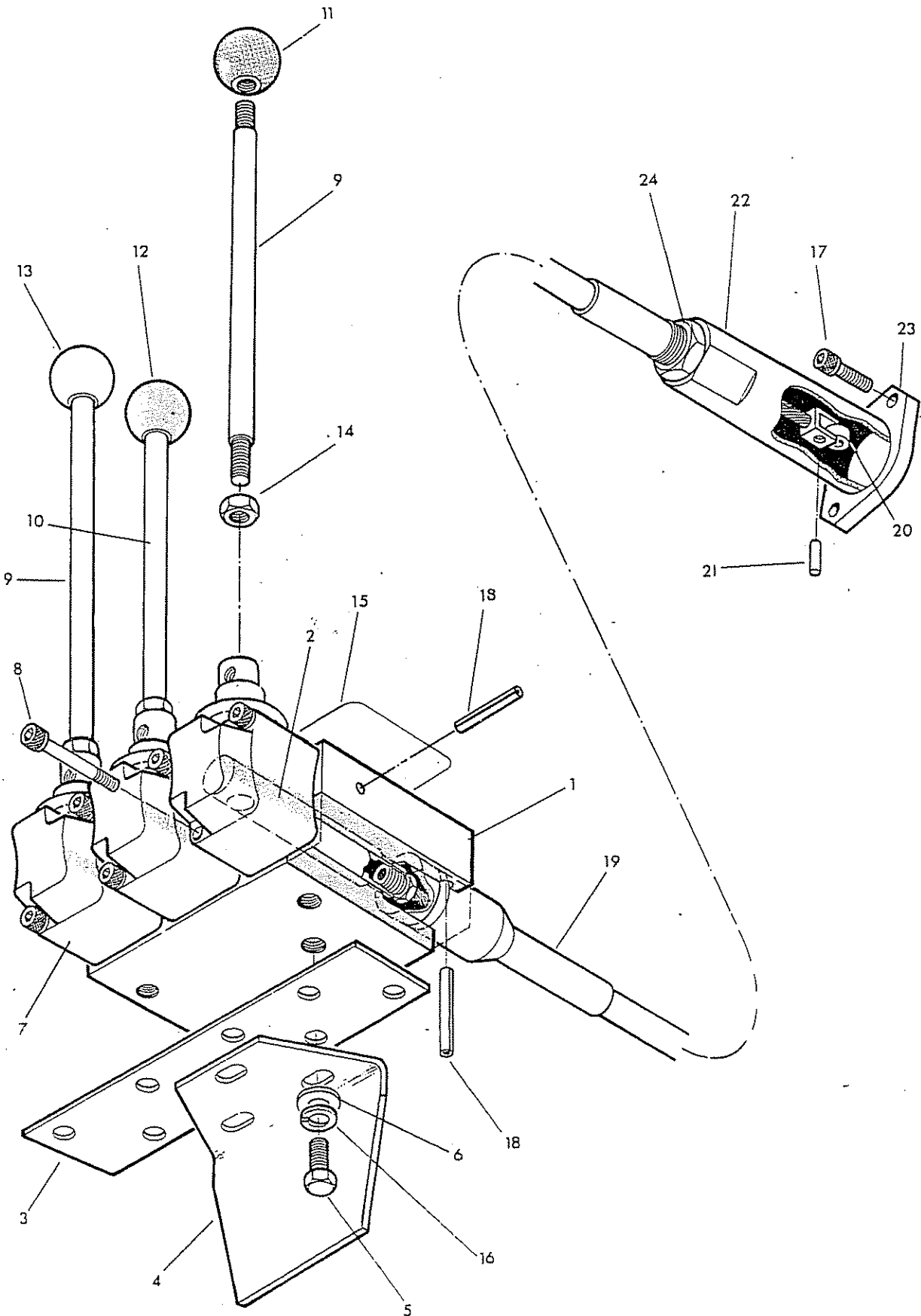
81-25-008	1	Return connection 5/8" bore
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Lever control. See following page

LEVER CONTROLS



McCONNEL





Ref.	Part No.	Qty.	Description
	81 30 371		HYDRAULIC CONTROL ASSY FOR T.I MODELS Continued
	81 30 372		HYDRAULIC CONTROL ASSY FOR S.I. MODELS Continued
1	81 30 391	1	Control block
2	81 30 144	3	Control block spindle
3	71 14 071	1	Control block mounting base
4	80 17 006	1	Mounting bracket
5	93 13 034	3	Setscrew
6	01 00 102	3	Thin washer
7	81 30 065	3	Lever pivot box assembly
8	92 43 072	6	Socket headed capscrew
9	71 09 131	2	Lever handle long
10	71 09 132	1	Lever handle short
11	09 03 112	1	Lever knob Reach (Red)
12	09 03 113	1	Lever knob Angle (Green)
13	09 03 114	1	Lever knob Lift (Yellow)
14	91 13 004	3	Hexagon nut
15	12 90 368	1	Operating instruction label
16	91 00 204	3	Spring washer
17	93 43 022	6	Socket headed capscrew
18	04 25 540	6	Spring dowel
19*	81 25 046	3	Cable & spacer & pin, sleeve, flange etc
20	71 15 158	1	Spool eye bush
21	71 15 160	1	Pin
22	71 15 162	1	Sleeve
23	81 25 050	1	Flange
24	01 31 006	1	Thin locknut

***Spare Note**

An alternative cable assembly may be fitted depending on supply availability

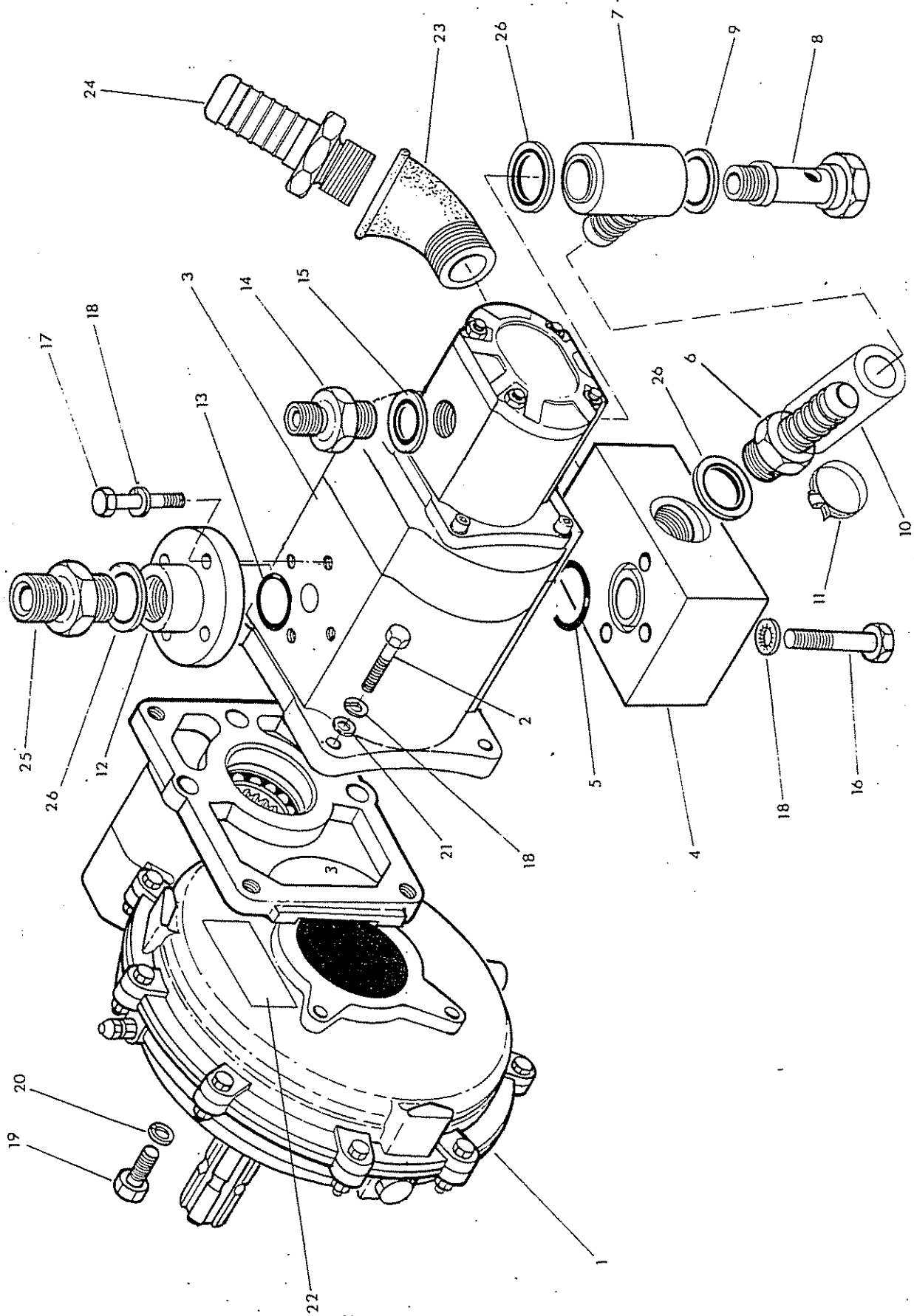
The complete assembly is interchangeable and retains the same PartNumber 81 25 046

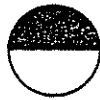
Individual cable components are not interchangeable thus before ordering spares the cable must be correctly identified

The cable listed above is BLACK

The alternative cable is RED and consists of

19	81 25 046	1	Cable assembly incl sleeve, flange etc
20	81 25 049	1	Cable sleeve
21	81 25 050	1	Flange
22	81 25 051	1	Pin
23	91 00 016	1	Thin locknut
24	80 17 004	1	Spool eye bush





Ref	Part No	Qty	Description
	80 13 459		GEARBOX PUMP ASSEMBLY -FOR STD. POWER T.I.M/CS R.HAND
	80 13 458		GEARBOX PUMP ASSEMBLY FOR STD. POWER T.I.M/CS L.HAND

The parts list for right and left hand is identical. Assemblies vary only in build arrangement and comprise:-

1	86 13 444	1	Gearbox
2	92 13 094	4	Bolt
3	82 01 466	1	Tandem pump CPL 33/5.7 - as shown -Compr.
	82 01 664	1	Large pump
	82 01 667	1	Small pump
	82 01 466	1	Tandem pump - cast iron end plate - alternative build compr:-
	82 01 684	1	Large pump
	82 01 677	1	Small pump
4	71 92 371	1	Suction block
5	86 00 122	1	'O' ring
6	85 81 301	1	Adaptor
7	80 13 096	1	Banjo
8	80 13 095	1	Banjo bolt
9	86 50 107	1	Bonded seal
10	85 01 213	1	Connecting hose
11	09 04 204	2	Hose clip
12	80 13 088	1	Pump flange
13	86 00 119	1	'O' ring
14	60 00 112	1	Adaptor
15	85 50 104	1	Bonded seal
16	92 13 144	3	Bolt
17	93 13 054	4	Setscrew
18	91 00 404	11	Shakeproof washer
19	93 13 056	4	Setscrew
20	91 00 206	4	Spring washer
21	91 00 104	7	Plain washer
22	12 90 054	1	Gearbox label
23*	85 81 283	1	Elbow
24*	85 81 367	1	Adaptor
25	85 81 136	1	Union
26	86 50 106	3	Bonded seal

86 99 215
86 99 231

PUMP SEAL KIT -33/5.7
PUMP SEAL KIT -Cast iron end plate

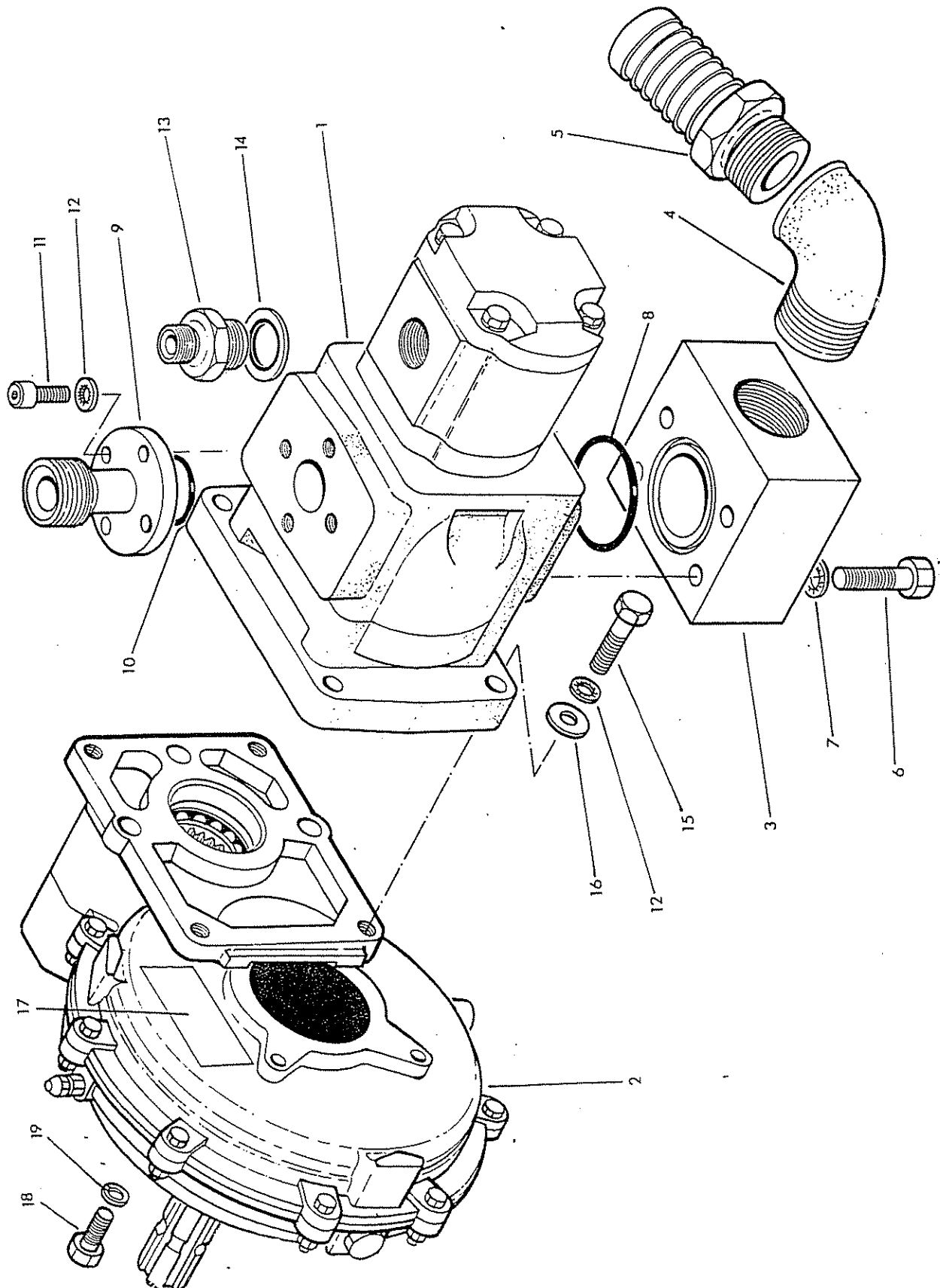
*Assembly note :- tems 20 and 21 to be assembled using PTFE tape

Spares note :- Check pump identification carefully before ordering section replacements.

PUMP/GEARBOX



McCOMBI





Ref	Part No	Qty	Description
			T.I PUMP AND GEARBOX L. HAND HI POWER - as illustrated

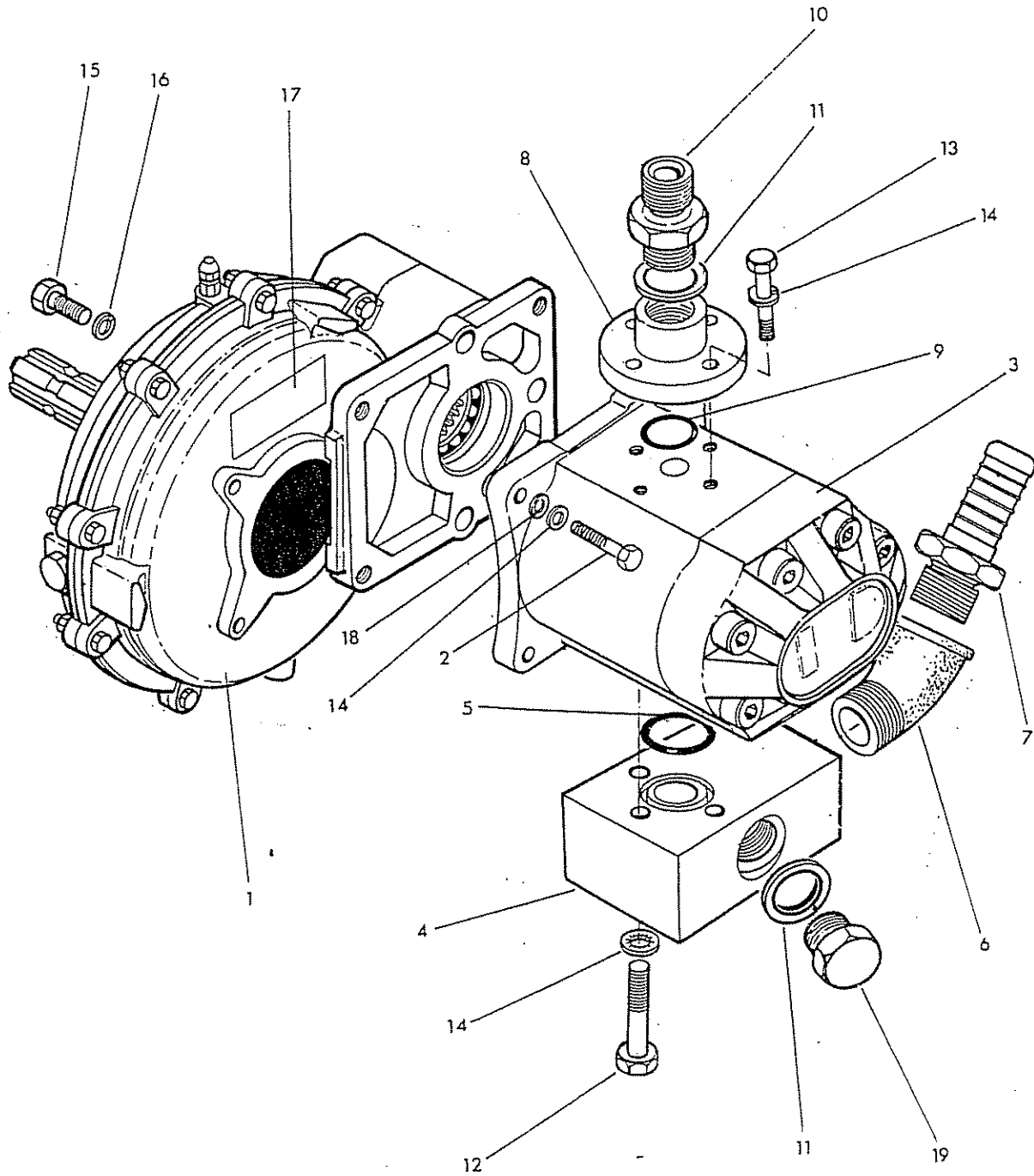
T.I PUMP AND GEARBOX R.HAND HI POWER

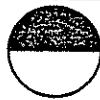
The parts list for right and left hand is identical. Assemblies vary only in build arrangement and comprise:-

1	82 01 685	1	Tandem pump compr:-
	82 01 165	1	Large-pump
	82 01 166	1	Small-pump
2	80 13 444	1	Gearbox
3	85 81 312	1	Suction flange
4	85 81 261	1	Elbow 90 degrees
5	85 81 367	1	Adaptor
6	92 13 146	4	Bolt
7	91 00 406	4	Shakeproof washer
8	86 00 304	1	'O' ring
9	80 13 090	1	Pressure connection
10	86 00 117	1	'O' ring
11	93 43 054	4	Cap screw
12	91 00 404	8	Shakeproof washer
13	60 00 112	1	Adaptor
14	86 50 104	1	Bonded seal
15	93 13 074	4	Bolt
16	91 00 104	4	Plain washer
17	12 90 054	1	Gearbox label
18	93 13 056	4	Setscrew
19	91 00 206	4	Spring washer

86 99 234

SEAL KIT





Ref	Part No	Qty	Description
	80 13 457		GEARBOX PUMP ASSEMBLY FOR STANDARD POWER S.I. MACHINES R.HAND
	80 13 456		GEARBOX PUMP ASSEMBLY FOR STANDARD POWER S.I. MACHINE L.HAND

The parts list for right and left hand is identical. Assemblies vary only in build arrangement and comprise:-

1	80 13 444	1	Gearbox -see page 47
2	92 13 094	4	Bolt
3	82 01 463	1	Pump CPL 33/5.7 - as shown
	82 01 463	1	Pump - cast iron end plate - alternative build
4	71 92 371	1	Suction block
5	86 00 122	1	'O' ring
6*	85 81 283	1	Elbow
7*	85 81 367	1	Adaptor
8	80 13 088	1	Pump flange
9	86 00 119	1	'O' ring
10	85 81 136	1	Union
11	86 50 106	2	Bonded seal
12	92 13 144	3	Bolt
13	93 13 054	8	Setscrew
14	91 00 404	11	Shakeproof washer
15	93 13 056	4	Setscrew
16	91 00 206	4	Spring washer
17	12 90 054	1	Gearbox label
18	91 00 104	7	Plain washer
19	85 81 302	1	Plug

86 99 215

PUMP SEAL KIT -33.5.7

86 99 231

PUMP SEAL KIT - Cast iron end plate

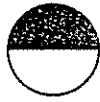
***Assembly note**

Items 6 & 7 to be assembled using PTFE tape

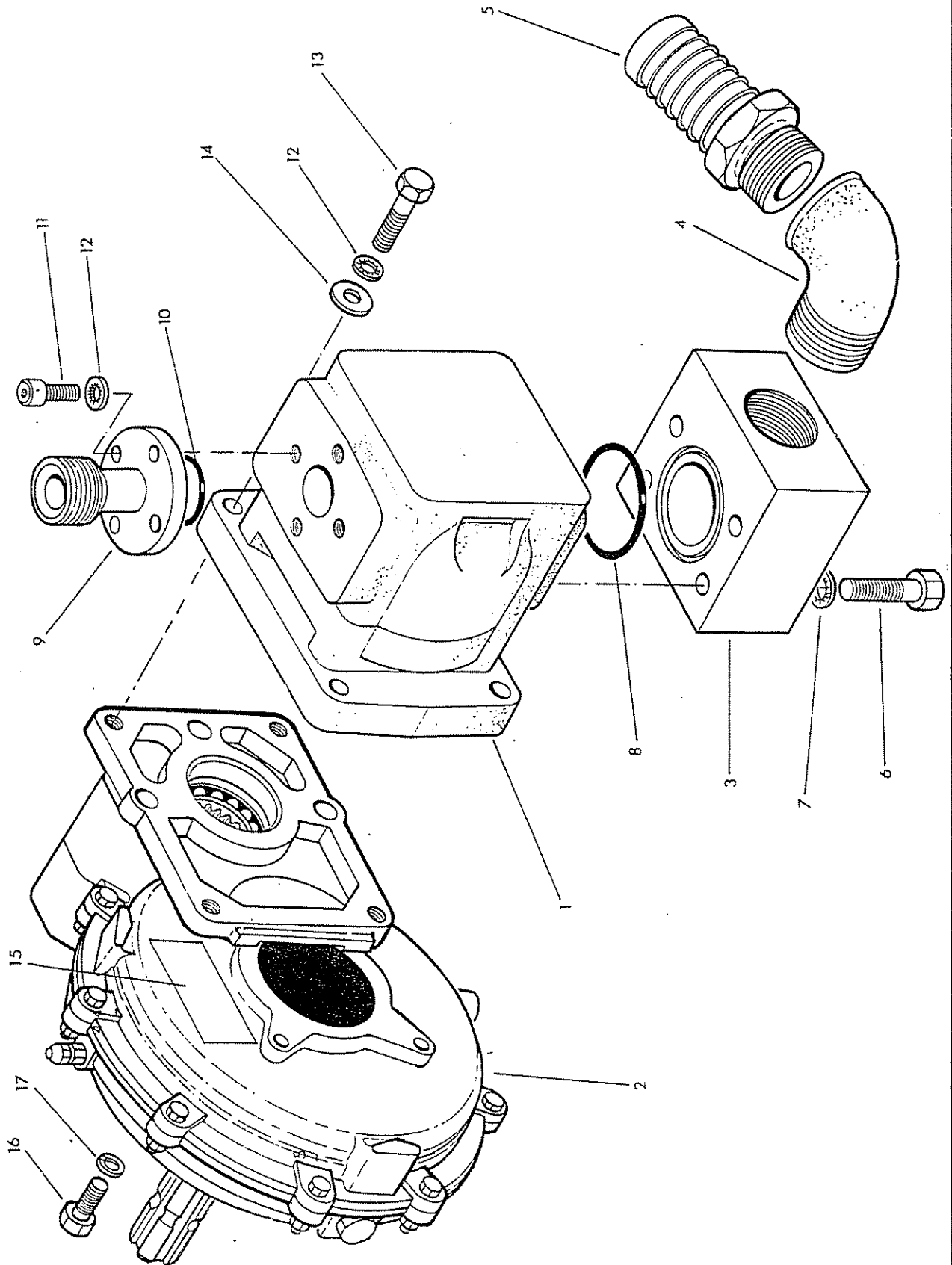
Spares note

Check pump carefully to correctly identify before ordering section replacements.

PUMP/ GEARBOX



McCOMB





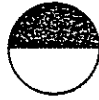
McCOWELL

Ref	Part No	Qty	Description
			S.I PUMP AND GEARBOX R.HAND HI POWER -
			S.I PUMP AND GEARBOX L.HAND HI POWER - as illustrated

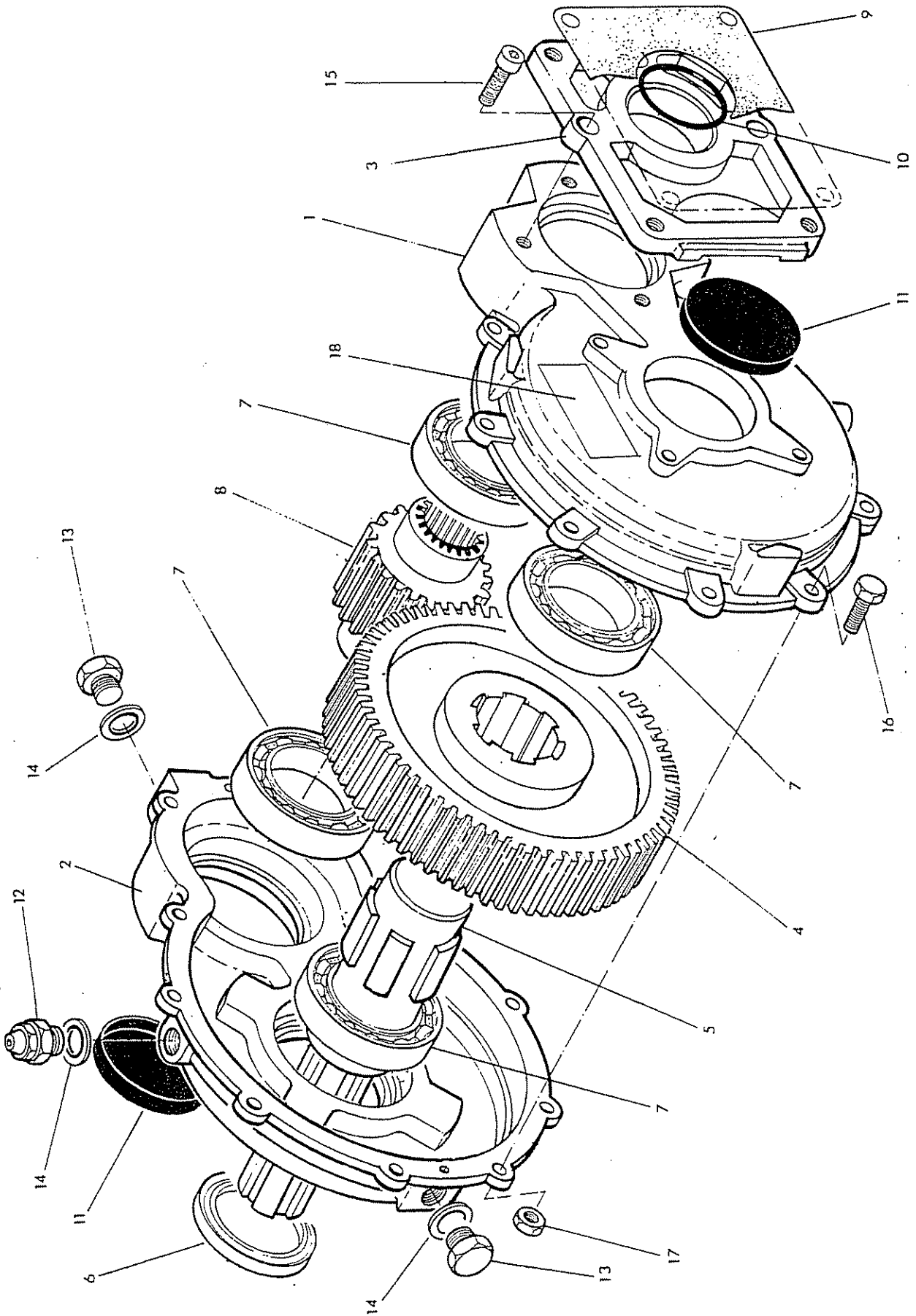
The parts list for right and left hand is identical. Assemblies vary only in build arrangement and comprise:-

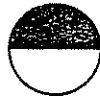
1	82 01 686	1	Pump
2	80 13 444	1	Gearbox
3	85 81 312	1	Suction flange
4	85 81 261	1	Elbow
5	85 81 367	1	Adaptor low pressure
6	92 13 146	4	Bolt
7	91 00 406	4	Shakeproof washer
8	86 00 304	1	'O' ring
9	80 13 090	1	Pressure connection
10	86 00 117	1	'O' ring
11	93 43 054	4	Cap screw
12	91 00 404	8	Shakeproof washer
13	93 13 074	4	Bolt
14	91 00 104	4	Plain washer
15	12 90 054	1	Gearbox label
16	93 13 056	4	Setscrew
17	91 00 206	4	Spring washer
	86 99 235		SEAL KIT

GEARBOX



McCONNELL





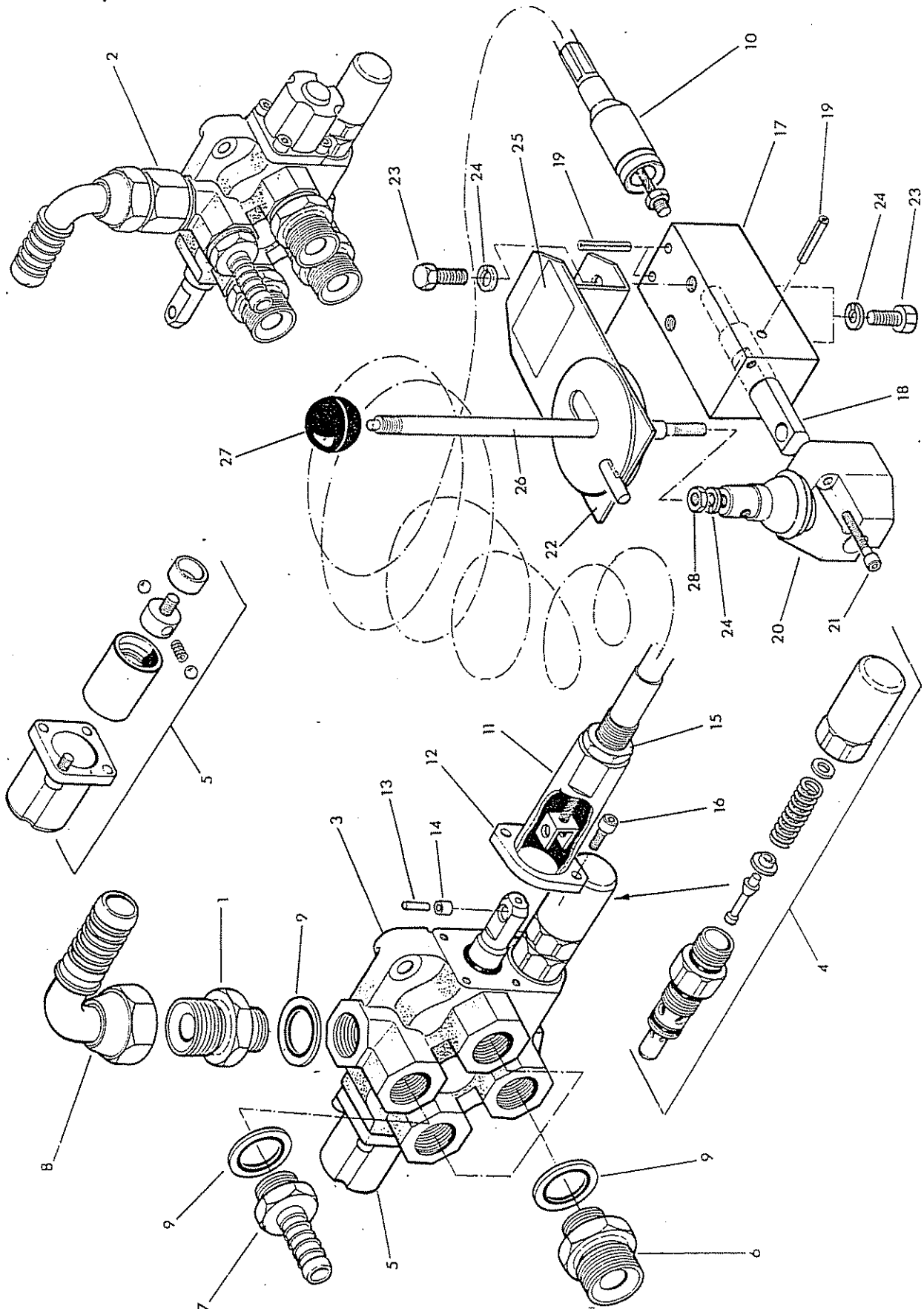
Ref	Part No	Qty	Description
	80 13 444		GEARBOX
1	80 13 100	1	Case - output side
2	80 13 101	1	Case - input side
3	80 13 102	1	Pump mounting flange
4	80 13 105	1	Gear
5	80 13 105	1	Shaft
6	86 29 196	1	Shaft seal
7	06 00 042	4	Bearing
8	80 13 104	1	Pinion
9	80 13 056	1	Gasket
10	86 00 523	1	'O' ring
11	80 13 106	2	End cover
12	80 13 107	1	Breather/adaptor
13	85 81 133	4	Plug
14	86 50 102	4	Bonded seal
15	93 43 045	3	Capscrew socket headed
16	92 13 064	10	Bolt
17	91 43 004	10	Self locking nut
18	12 90 054	1	Sticker

ROTOR CONTROL VALVE



McCOMNIC

T.I. only





Ref.	Part No.	Qty.	Description
	81 25 377		ROTOR CONTROL VALVE ASSEMBLY T.I. MACHINES STD POWER R. HAND shown exploded
1	80 02 086	1	Adaptor
	81 25 378		ROTOR CONTROL VALVE ASSEMBLY T.I. MACHINES STD POWER L. HAND - shown inset
2	85 81 295	1	Extended adaptor

Items 3 -28 inclusive are common to both R and L Hand std power rotor valves

3	81 25 355	1	Rotor control valve
4	81 25 107	1	Relief valve
5	81 25 109	1	Detent assembly
6	85 81 136	3	Union
7	85 81 269	1	Adaptor 3/4" BSP x 5/8" low pressure connection
8	71 14 005	1	Elbow 1" BSP F-1" low pressure connection
9	86 50 106	5	Bonded seal
10	81 25 102	1	Cable assembly c/w sleeve flange etc
11	81 25 097	1	Sleeve
12	81 25 098	1	Flange
13	81 25 099	1	Pin
14	81 25 100	1	Bush
15	01 31 006	1	Thin locknut
16	93 43 033	2	Capscrew - socket headed
17	81 25 093	1	Control block
18	81 30 053	1	Control spindle
19	05 25 525	3	Spring dowel dia
20	81 30 065	1	Pivot box assembly
21	92 13 072	2	Capscrew - socket headed
22	81 25 089	1	Lever control gate
23	93 13 034	4	Setscrew
24	91 00 204	5	Spring washer
25	12 90 338	1	Operating label
26	71 14 072	1	Lever
27	09 03 121	1	Knob - black
28	91 13 004	1	Thin nut

86 99 218 SEAL KIT

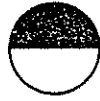
81 25 379 ROTOR CONTROL VALVE ASSEMBLY T.I.
MACHINES HI POWER R. HAND

81 25 380 ROTOR CONTROL VALVE ASSEMBLY T.I.
MACHINES HI POWER L. HAND

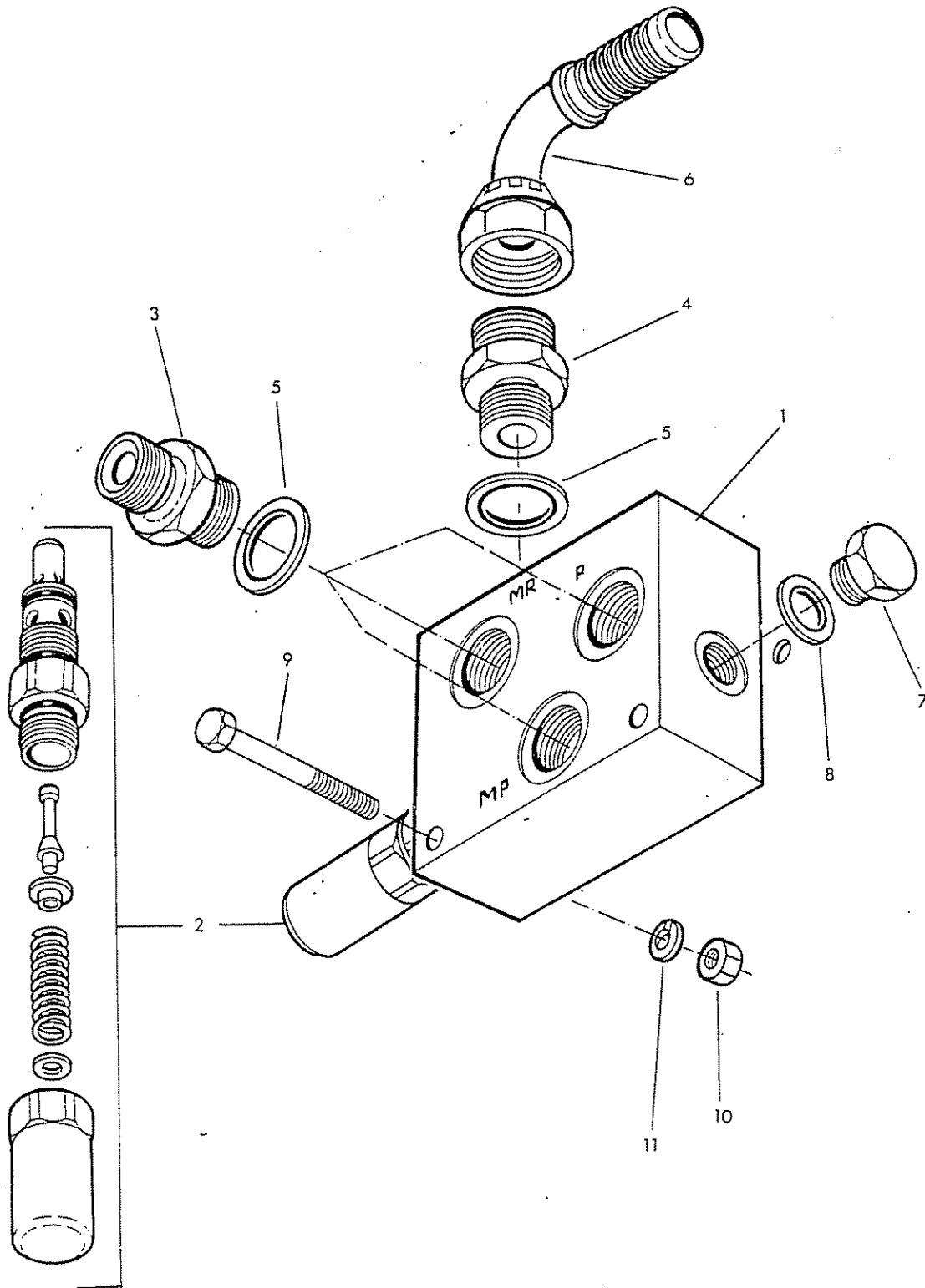
The parts list are identical with their std power counterparts except the following

3	81 25 356	1	Rotor control valve incl. relief valve and detent
4	81 25 108	1	Relief valve incl 'O' rings
6	80 02 086	3	Adaptor

ROTOR RELIEF VALVE



MCCORMELL

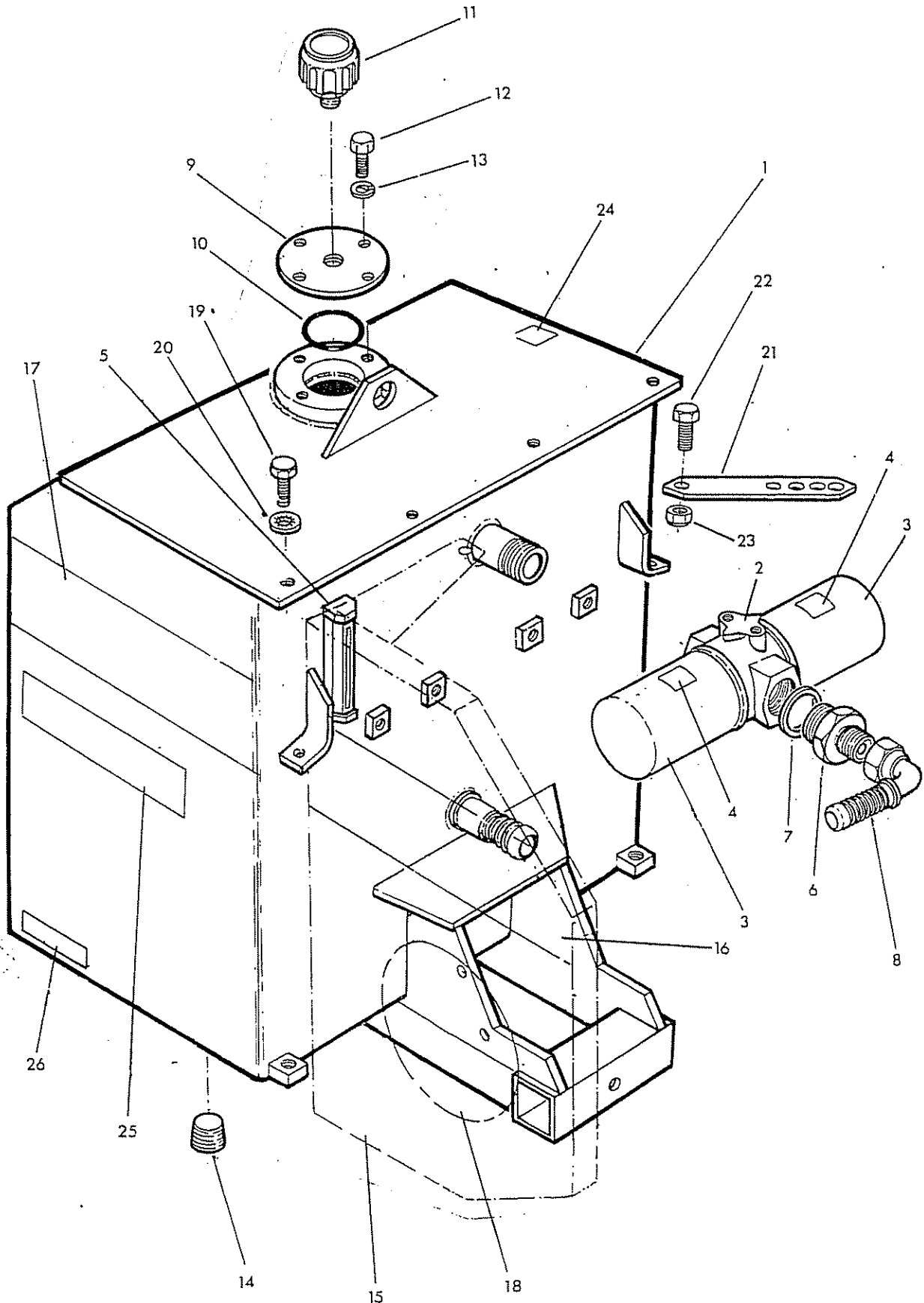


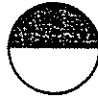


Ref.	Part No.	Qty.	Description
	81 25 360		ROTOR RELIEF VALVE ASSEMBLY -STD POWER (SI MODELS ONLY)
1	81 25 352	1	Valve block
2	81 25 107	1	Relief valve cartridge incl. 'O' rings
3	85 81 136	3	Union
4	80 02 086	1	Adaptor
5	86 50 106	4	Bonded seal
6	71 14 005	1	Swept 90 elbow
7	80 03 001	1	Plug
8	86 50 103	1	Bonded seal
9	92 13 135	2	Bolt
10	91 13 005	2	Nut
11	91 00 205	2	Spring washer
	81 25 400		ROTOR RELIEF VALVE ASSEMBLY HI POWER (S.I MODELS ONLY)

The parts list is identical to above with the following exception

2	81 25 108	1	Relief valve cartridge incl. 'O'ring
3	80 02 086	3	Adaptor



**McCONNEL**

Ref	Part No	Qty	Description
			ENDURO HYDRAULIC TANK AND COVER PLATE
	71 93 392		Oil tank assembly compr:-
1	71 93 386	1	Oil tank
2	84 01 060	1	Return filter head
3	84 01 041	2	Filter element
4	12 90 023	2	Sticker "filter instructions"
5	84 01 048	1	Level guage
6	85 81 291	1	Union
7	86 50 224	1	Bonded seal
8	71 14 005	1	Elbow
9	71 92 062	1	Cover
10	86 00 151	1	'O' ring
11	84 01 063	1	Breather
12	93 13 054	4	Set screw
13	91 00 204	4	Spring washer
14	85 81 203	1	Drain plug
15	71 93 389	1	Cover plate R. hand
16	12 90 283	1	Stripe - R. hand
17	12 90 287	1	Tank stripe PA93
18	12 90 365	1	Sticker 'McConnel' rounded
19	93 13 045	2	Set screw
20	91 00 305	2	Internal serrated washer
21	71 92 029	1	Tank strap
22	93 13 056	2	Set screw
23	91 43 006	2	Self locking nut
24	12 90 023	1	Label 'oil filter'
25	12 90 362	1	Sticker 'Hi Power'
26	12 90 053	1	Sticker 'Enduro'

ENDURO HYDRAULIC TANK AND COVER PLATE

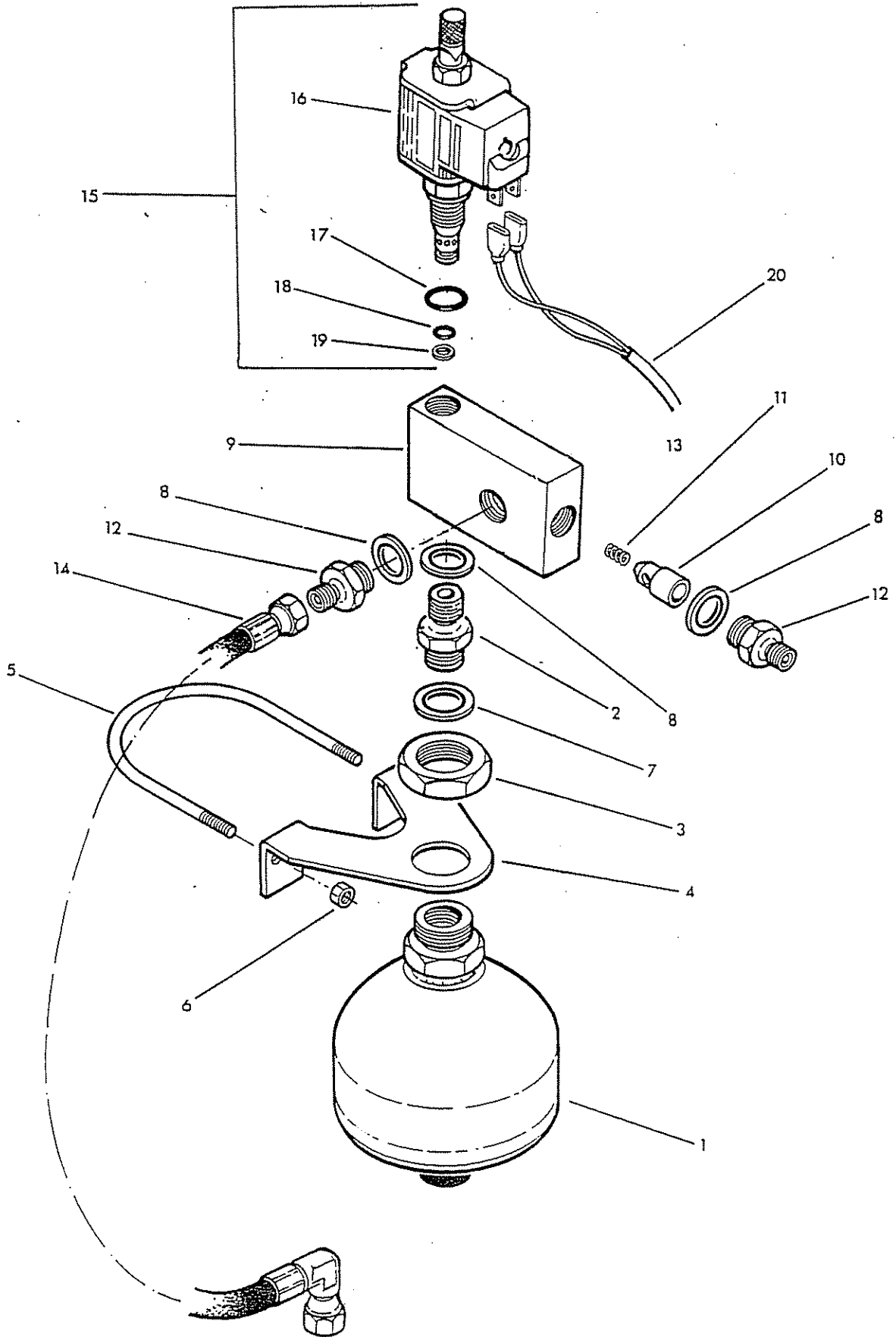
Parts are identical to the R. hand assembly with the following exceptions.

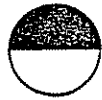
15	71 93 390	1	Cover plate L. hand
16	12 90 284	1	Stripe L. hand

LIFT FLOAT KIT



McCOMBELL



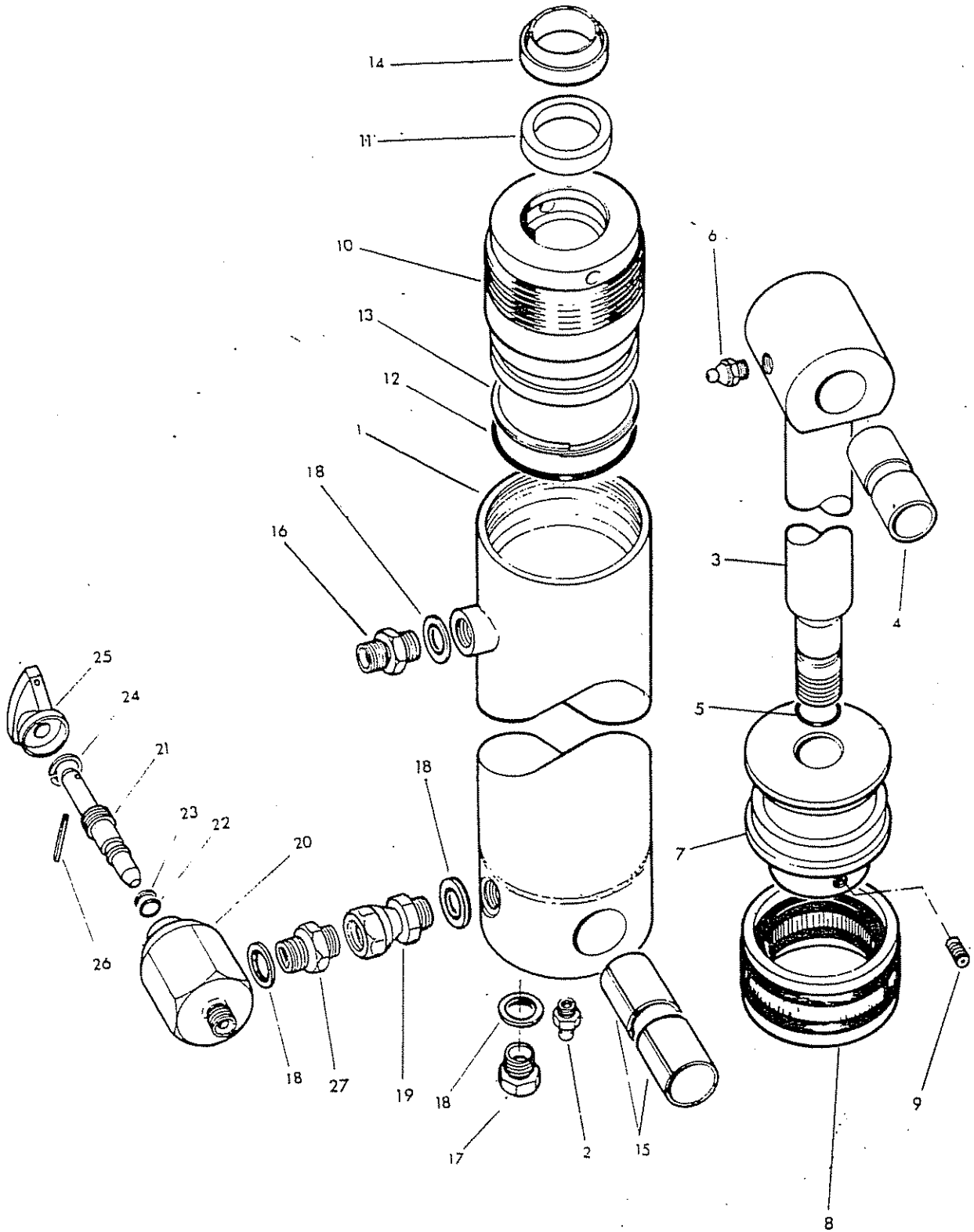


Ref.	Part No.	Qty.	Description
	81 26 290		LIFT FLOAT KIT - Quick response
1	81 26 042	1	Accumulator
2	G241 0380	1	Adaptor
3	81-26 035	1	Bulkhead nut
4	81 26 286	1	Bracket
5	81 26 031	1	U.bolt
6	91 43 004	2	Self locking nut
7	86 50 322	1	Bonded seal
8	86 50 103	3	Bonded seal
9	81 26 287	1	Control block
10	81 26 037	1	Response piston
11	81 16 011	1	Spring
12	85 81 115	2	Adaptor
13	12 90 061	1	Operating sticker
14	85 35 012	1	Hose 1/4" BSP x 12" long SF - 90F
15	81 30 183	1	Poppet valve including :-
16	81 30 184	1	Coil
17	87 00 017	1	O ring
18	87 00 511	1	O ring
19	87 09 511	1	Anti extrusion ring
20	84 02 159	1	Cable - electric machines only

LIFT RAM



McDONNELL



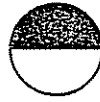


Ref.	Part No.	Qty.	Description
	71 93 333		LIFT RAM ASSEMBLY
1	71 35 283	1	Ram cylinder
2	09 01 121	1	Greaser
3	71 93 029	1	Piston rod
4	60 12 032	2	Bush
5	86 00 119	1	'O' ring
6	09 01 121	1	Greaser
7	71 35 004	1	Piston
8	86 38 740	1	Piston seal
9	93 63 023	1	Grub screw
10	71 35 282	1	Gland housing
11	86 29 164	1	Gland seal
12	87 00 740	1	'O' ring
13	87 09 740	1	Anti extrusion ring
14	86 29 147	1	Wiper
15	71 01 134	2	Bush - ram base
16	85 81 115	1	Union
17	80 03 001	1	Plug
18	86 50 103	4	Bonded seal
19	85 81 178	1	Swivel adaptor
	71 93 050	1	Lock tap assembly compr:
20	71 35 284	1	Tap body
21	71 35 006	1	Tap spindle
22	86 00 107	1	'O' ring
23	86 09 107	1	Anti extrusion ring
24	04 16 110	1	Internal circlip
25	81 08 006	1	Tap knob
26	04 20 820	1	Spring dowel
27	60 00 113	1	Union

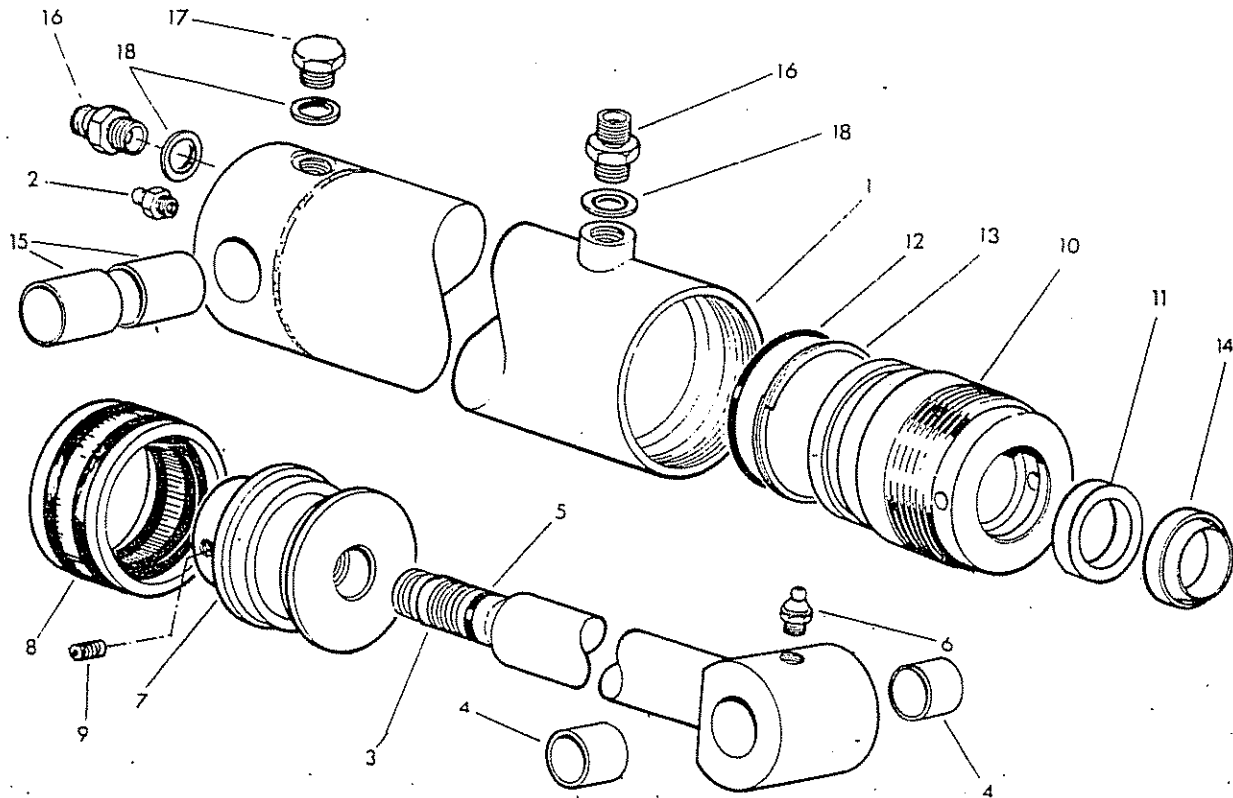
86 99 187 SEAL KIT

Assembly note Fully tighten item 9 and centre pop edge of hole to retain.

REACH RAM



McCORMICK



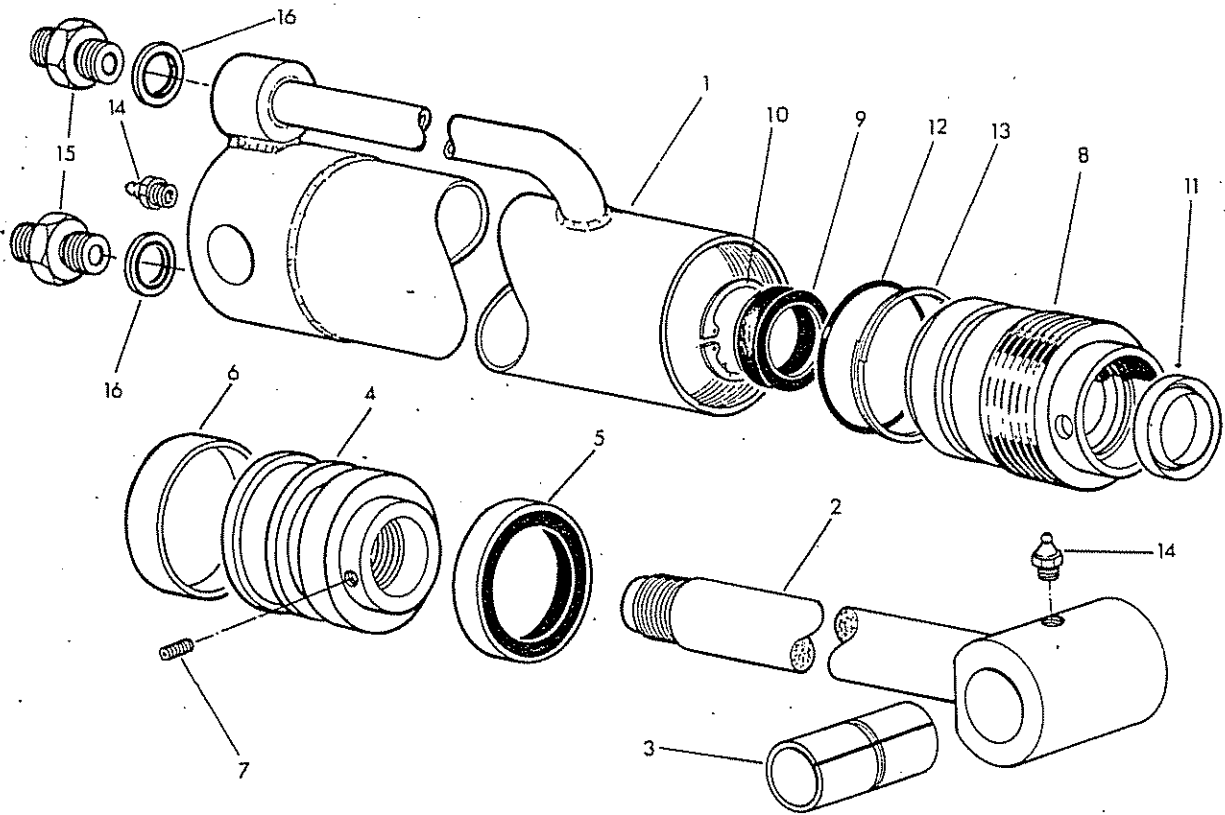
Ref.	Part No.	Qty.	Description
	71-93-334		REACH RAM ASSEMBLY
1	71-35-283	1	Ram cylinder
2	09-01-121	1	Greaser
3	71-93-029	1	Piston rod
4	60-12-032	2	Bush
5	86-00-119	1	'O' ring
6	09-01-121	1	Greaser
7	71-35-004	1	Piston c/w seal and grub screw
8	86-38-740	1	Piston seal
9	93-63-023	1	Grub screw
10	71-35-282	1	Gland housing
11	86-29-164	1	Gland seal
12	87-00-740	1	'O' ring
13	87-03-740	1	Anti extrusion ring
14	86-29-147	1	Wiper
15	71-01-134	2	Bush - ram base
16	85-81-115	2	Union
17	80-03-001	1	Plug
18	86-50-103	3	Bonded seal
	86-99-187		SEAL KIT

Assembly note Fully tighten item 9 and centre pop edge of hole to retain.

ANGLING RAM



MCCORMEL



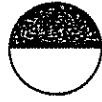
Ref.	Part No.	Qty.	Description
	75-60-344		ANGLING RAM ASSEMBLY
1	71-35-292	1	Cylinder
2	71-35-009	1	Rod
3	71-05-050	1	Bush
4	75-60-095	1	Piston
5	86-29-187	1	Piston seal
6	86-29-188	1	Bearing ring
7*	93-63-023	1	Grub screw socket head
8	71-35-291	1	Gland housing
9	86-29-148	1	Gland seal
10	04-16-240	1	Internal circlip
11	86-29-149	1	Wiper seal
12	86-00-302	1	'O' ring
13	86-09-302	1	Anti extrusion ring
14	09-01-121	2	Greaser
15	85-81-169	2	Union
16	86-50-102	2	Bonded seal
	86-99-188		SEAL KIT

*** Assembly note**

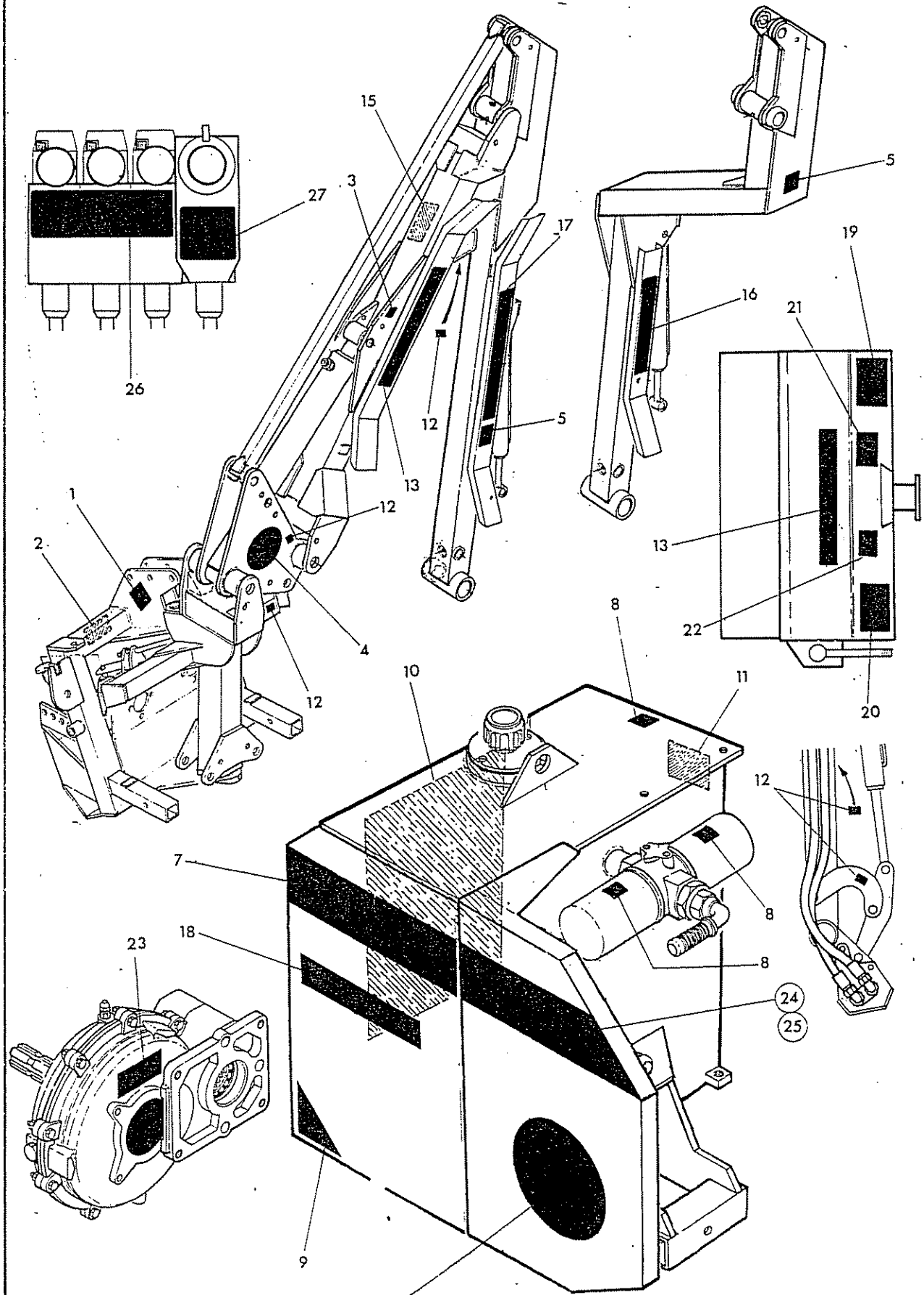
Tighten fully and centre punch edge of hole to secure.

6182

DECALS



McDONNELL



**McCONNEL**

Ref	Part No	Qty	Description
			STICKERS
1	71 05 130	1	Read book first
2	71 35 295	1	Tighten check chains
3	C0 55 002	1	Sling here symbol
4	12 90 296	1	Logo roundel
5	12 90 293	1	93
6	12 90 352	1	Gen. warning - despatched loose
7	12 90 283	1	PA93
8	12 90 023	3	Oil filter instructions
9	12 90 376	1	Enduro tank
10	12 90 391	1	General warning
11	0075 6494	1	Fitting P.T.O. shaft
12	0096 2764	5	Pinch point
13	12 90 255	2	McConnel
14	12 90 365	1	McConnel roundel
15	12 90 403	1	Breakaway return warning
16	12 90 361	1	Mid cut (mid cut only)
17	12 90 295	1	Power Arm (Std arm only)
18	12 90 362	1	Hi Power (Hi Power only)
19	12 90 377	1	Flail head instructions
20	12 90 341	1	Flail head gaurding
21	0075 6485	1	Rotating blade warning
22	12 90 392	1	Use McConnel spares
23	12 90 054	1	Gearbox oil capacity
24	12 90 283	1	Cover plate stripe (R.Hand only)
25	12 90 284	1	Cover plate stripe (L.Hand only)
26	12 90 368	1	Lever controls
27	12 90 338	1	R.C. valve controls (Ti only)



McCORMEL

Puef off sticker and affix to tractor in operators view.

Vignette à coller au poste de conduite de votre tracteur
bein en vue du conducteur.

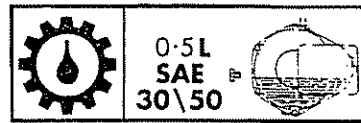
McCORMEL	McCORMEL
VITAL SAFETY RULES	IMPORTANTES REGLES DE SECURITE
<ul style="list-style-type: none"> - Read the instruction book first - Fit safety screens - If no cab fitted wear helmet and goggles - Keep all bolts and nuts tight. - PTO speed 500 R.P.M. - Always disengage PTO when rotor is OFF - Grease daily 	<ul style="list-style-type: none"> - Avant la premier mise en route, vous reporter au manue de l'utilisateu - Mettez en place les grilles de protection - Si le tracteur n'est pas equipe d'une cabine, portez un casque et des lunettes de securite - Verifier tous les jours, le bon serrage des boulons et de ecrous - En position de transport, debrazey la prise de force - Ne jamais dépasser 500 T/MN à la prise de force - Graisseur tous les jours

6

▲ DANGER ▲

FAILING TO FOLLOW SAFETY MESSAGES AND OPERATING INSTRUCTIONS CAN CAUSE SERIOUS INJURY OR DEATH TO OPERATOR OR OTHERS IN AREA.

1. Study operator manual and safety decals for tractor and flail mower thoroughly to prevent misuse, abuse and accidents. Practice before operating.
2. Operate only with safety cab or roll bars to prevent injury and possible crushing death from overturn. Allow no riders on machine. Falling off can cause serious injury or death by being run over by the tractor or by being cut by the mower. Allow no bystanders, especially children, near the tractor/mower.
3. Operator and assistants must wear a hard hat, safety glasses and shoes to prevent injury from falling or thrown objects.
4. Before transport, engage all transport devices. See operator manual.
5. Block up or support machine securely before placing any part of the body beneath the machine to prevent crushing, injury or death from sudden uncoupling. Make certain area is clear before lowering.
6. Make certain lights, reflectors, and in U.S.A., the SHW sign is clearly visible. Follow highway regulations. Slow down at night, in turns and on hillside.
7. Before dismantling, secure flail mower in transport position or lower to ground. Stop P.T.O., put tractor in gear or set hand brake, stop engine and remove the key. Never mount or dismount a moving vehicle to prevent possible injury or death.
8. Each rear wheel must have a minimum of 1000lbs contact with ground to prevent lateral instability and possible tip-over and bodily injury. Widen wheel track and add weights if needed. Contact manufacturer for counterweight procedure.
9. Rear mounted flail mowers move centre of gravity to rear and remove weight from front wheels. Add front ballast until at least 20% of the tractor's weight is on front wheels to prevent rearing up, loss of steering control and possible injury.
10. Never operate unit without an operator guard to prevent injury from falling or thrown objects. Keep bystanders at a safe distance. Stop cutting if they enter the danger area.
11. Never operate the machine without the correct flail head guards in position. Ensure they are in good condition.
12. Beware overhead obstructions. Keep at least five feet away from power lines to prevent accidental contact or electronic flashover and possible serious injury and death.
13. Transport carefully! Slow down even more on slopes and when turning. Never turn up a slope sharply or at high speed and use extra care in rough or bumpy areas to prevent overturn and possible crushing injury or death. If your view to the rear is blocked it is your responsibility to install mirrors that provide a rear view to prevent accidents from blind spots.



23

▲ DANGER ▲

1. MAKE CERTAIN DRIVELINES ARE OF THE CORRECT LENGTH AND SECURELY ATTACHED. DRIVELINE SEPARATION AND/OR PTO SHAF T FAILURE CAN CAUSE INJURY OR DEATH. (See Operator's Manual for procedure.)
2. MAKE CERTAIN THAT DRIVELINE SHIELDS ARE INSTALLED CORRECTLY AND TURN FREELY TO PREVENT INJURY OR DEATH FROM ENTANGLEMENT
3. IF DRIVELINE SHIELDS HAVE TETHER CHAINS, ATTACH TETHER CHAINS SECURELY TO MOWER AND TRACTOR TO PREVENT SHIELD ROTATION BELL AND OR SHIELD FAILURE AND SERIOUS INJURY OR DEATH
4. 540 PTO RPM UNLESS SPECIFICALLY MARKED OTHERWISE

11

▲ DANGER ▲ DO NOT OPERATE WITHOUT THE DRIVELINE SHIELD IN PLACE. FAILURE TO DO SO CAN CAUSE SERIOUS INJURY OR DEATH.	▲ DANGER ▲ ROTATING DRIVELINE KEEP AWAY	▲ DANGER ▲ DRIVELINE SHIELD POINTS DO NOT OPERATE WITHOUT THE DRIVELINE SHIELD IN PLACE. FAILURE TO DO SO CAN CAUSE SERIOUS INJURY OR DEATH.
--	--	---

10

GUARDING REQUIREMENTS EQUIPMENTS DE SECURITE

GROUND CUTTING COUPE DE SOL Always cut upwards. Roller set below flails. Skids recommended. Toujours couper en aspiration. Rouleau regle sous les fleaux. Pains recommandés.	HEDGE CUTTING TAILLE DE HAIES With flails cutting upwards. Roller set above flails. Les fleaux travaillent en aspiration. Rouleau regle au dessus des fleaux.	HEDGE CUTTING TAILLE DE HAIES With flails cutting downwards. Roller set above flails. Les fleaux travaillent en attaque. Rouleau regle au dessus des fleaux.
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20

▲ DANGER ▲

CUTTING BLADES THROWN OBJECTS

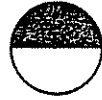
FLAIL ROTARY FLAIL ROTARY

KEEP AWAY - ROTATING BLADES

SERIOUS INJURY OR DEATH CAN RESULT FROM THROWN OBJECTS OR BLADE CONTACT.

- STOP MOWING IF PERSONS ARE NOT CLEAR OF THROWN OBJECTS
- DO NOT STAND ON OR NEAR MACHINE WHEN IN OPERATION
- DO NOT OPERATE WITH DEFLECTORS OR GUARDS REMOVED

21



McCONNEL



PINCH POINTS

12



02062764

McCONNEL

13



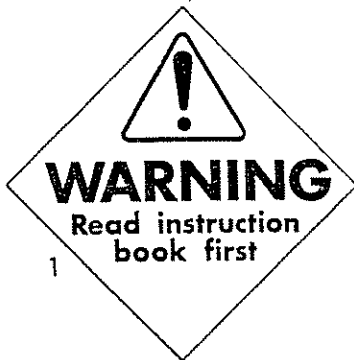
7



14



3



WARNING
Read instruction
book first

1

Power Arm

17

HI-POWER

18

MID-CUT

16

93

5



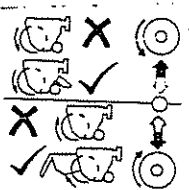
25



4



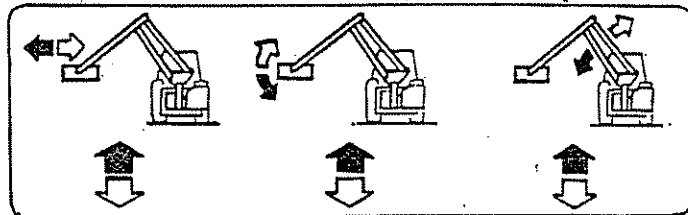
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27



9



26



2

TIGHTEN CHECK CHAINS AND/OR STABILISER BARS BEFORE OPERATION

▲ DANGER ▲

BEWARE AUTOMATIC BREAKAWAY
RETURN. KEEP WELL CLEAR OF THE
FRONT OF THE ARM AND HEAD.

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FLAIL PARTS INFORMATION

McConnel Flail Mowers use dynamically balanced and mated system components for Cutter Shafts (Rotors), Knives (Flails), Knife Hangers (Shackles), Bolts, Bushes, Rollers, Drivetrain Components, Bearings Belts and Belt Pulleys. McConnel parts are made and tested to meet close-tolerance specifications of balance, quality and consistency that assure long, trouble-free service. "Will-Fit" parts do not ordinarily meet McConnel Standards and could reduce Mower performance, void warranties, and present an increase in the safety hazard potential.

DON'T GAMBLE!
USE GENUINE McCONNEL SERVICE PARTS
See your McConnel dealer

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ATTENTION



Recommended P.T.O.
speed 500 r.p.m.

Vitesse recommandee
500 T/min a la
prise de force.

DANGER

Rotating cutters under here.

DANGER

Rotor ne pas approcher.

KEEP BOLTS TIGHT

Check bolt tightness after 1 hour,
4 hours, 10 hours and thereafter daily.

MAINTENEZ LES BOULONS SERRES

Et controlez serrage apres 1 heure,
4 heures, 10 heures puis chaque jour.

**BEWARE OF FLYING DEBRIS. KEEP PEOPLE AWAY.
ATTENTION AUX PROJECTIONS. SE TENIR A L'ECART.**

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IMPORTANT

We recommend that Element is replaced after first 50 hours service and every 500 hours service thereafter. Apply Oil film to gasket when replacing element.

Nous recommandons de remplacer la catouche une premiere fois apres 50 heures de service puis ensuite toutes les 500 heures. Enduire le joint d'une pellicule d'huile lorsqu'on change la catouche.

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ALAMO INDUSTRIAL LIMITED WARRANTY

1. LIMITED WARRANTIES

- 1.01 Alamo Industrial warrants for one year from the purchase date to the original non-commercial, governmental, or municipal purchaser ("Purchaser") and warrants for six months to the original commercial or industrial purchaser ("Purchaser") that the goods purchased are free from defects in material or workmanship.
- 1.02 Manufacturer will replace for the Purchaser any part or parts found, upon examination at one of its factories, to be defective under normal use and service due to defects in material or workmanship.
- 1.03 This limited warranty does not apply to any part of the goods which has been subjected to improper or abnormal use, negligence, alteration, modification, or accident, damaged due to lack of maintenance or use of wrong fuel, oil, or lubricants, or which has served its normal life. This limited warranty does not apply to any part of any internal combustion engine, or expendable items such as blades, shields, guards, or pneumatic tires except as specifically found in your Operator's Manual.
- 1.04 Except as provided herein, no employee, agent, Dealer, or other person is authorized to give any warranties of any nature on behalf of Manufacturer.

2. REMEDIES AND PROCEDURES.

- 2.01 This limited warranty is not effective unless the Purchaser returns the Registration and Warranty Form to Manufacturer within 30 days of purchase.
- 2.02 Purchaser claims must be made in writing to the Authorized Dealer ("Dealer") from whom Purchaser purchased the goods or an approved Authorized Dealer ("Dealer") within 30 days after Purchaser learns of the facts on which the claim is based.
- 2.03 Purchaser is responsible for returning the goods in question to the Dealer.
- 2.04 If after examining the goods and/or parts in question, Manufacturer finds them to be defective under normal use and service due to defects in material or workmanship, Manufacturer will:
 - (a) Repair or replace the defective goods or part(s) or
 - (b) Reimburse Purchaser for the cost of the part(s) and reasonable labor charges (as determined by Manufacturer) if Purchaser paid for the repair and/or replacement prior to the final determination of applicability of the warranty by Manufacturer. The choice of remedy shall belong to Manufacturer.
- 2.05 Purchaser is responsible for any labor charges exceeding a reasonable amount as determined by Manufacturer and for returning the goods to the Dealer, whether or not the claim is approved. Purchaser is responsible for the transportation cost for the goods or part(s) from the Dealer to the designated factory.

3. LIMITATION OF LIABILITY.

- 3.01 MANUFACTURER DISCLAIMS ANY EXPRESS (EXCEPT AS SET FORTH HEREIN) AND IMPLIED WARRANTIES WITH RESPECT TO THE GOODS INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
- 3.02 MANUFACTURER MAKES NO WARRANTY AS TO THE DESIGN, CAPABILITY, CAPACITY, OR SUITABILITY FOR USE OF THE GOODS.
- 3.03 EXCEPT AS PROVIDED HEREIN, MANUFACTURER SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO PURCHASER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS, OR DAMAGE CAUSED OR ALLEGED TO BE CAUSED DIRECTLY OR INDIRECTLY BY THE GOODS INCLUDING, BUT NOT LIMITED TO, ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES RESULTING FROM THE USE OR OPERATION OF THE GOODS OR ANY BREACH OF THIS WARRANTY. NOT WITHSTANDING THE ABOVE LIMITATIONS AND WARRANTIES, MANUFACTURER'S LIABILITY HEREUNDER FOR DAMAGES INCURRED BY PURCHASER OR OTHERS SHALL NOT EXCEED THE PRICE OF THE GOODS.
- 3.04 NO ACTION ARISING OUT OF ANY CLAIMED BREACH OF THIS WARRANTY OR TRANSACTIONS UNDER THIS WARRANTY MAY BE BROUGHT MORE THAN TWO (2) YEARS AFTER THE CAUSE OF ACTION HAS OCCURRED.

4. MISCELLANEOUS.

- 4.01 Proper Venue for any lawsuits arising from or related to this limited warranty shall be only in Guadalupe County, Texas.
- 4.02 Manufacturer may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.
- 4.03. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.
- 4.04 Applicable law may provide rights and benefits to purchaser in addition to those provided herein.

KEEP FOR YOUR RECORDS

ATTENTION: Purchaser should fill in the blanks below for his reference when buying repair parts and/or for proper machine identification when applying for warranty.

Alamo Industrial Implement Model _____ Serial Number _____

Date Purchased _____ Dealer _____

ATTENTION:
READ YOUR OPERATOR'S MANUAL

ALAMO INDUSTRIAL

1502 East Walnut St.
Seguin, Texas 78156
830-379-1480





TO THE OWNER/OPERATOR/DEALER

To keep your implement running efficiently and safely, read your manual thoroughly and follow these directions and the Safety Messages in this Manual. The Table of Contents clearly identifies each section where you can easily find the information you need.

The OCCUPATIONAL SAFETY AND HEALTH ACT (1928.51 Subpart C) makes these minimum safety requirements of tractor operators:

REQUIRED OF THE OWNER:

1. Provide a Roll-Over-Protective Structure that meets the requirements of this Standard; and
2. Provide Seatbelts that meet the requirements of this paragraph of this Standard and SAE J4C; and
3. Ensure that each employee uses such Seatbelt while the tractor is moving; and
4. Ensure that each employee tightens the Seatbelt sufficiently to confine the employee to the protected area provided by the ROPS.

REQUIRED OF THE OPERATOR

1. Securely fasten seatbelt if the tractor has a ROPS.
2. Where possible, avoid operating the tractor near ditches, embankments, and holes.
3. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
4. Stay off slopes too steep for safe operation.
5. Watch where you are going - especially at row ends, on roads, and around trees.
6. Do not permit others to ride.
7. Operate the tractor smoothly - no jerky turns, starts, or stops.
8. Hitch only to the drawbar and hitch points recommended by the tractor manufacturer.
9. When the tractor is stopped, set brakes securely and use park lock, if available.



Keep children away from danger all day, every day...



Equip tractors with rollover protection (ROPS) and keep all machinery guards in place...



Please work, drive, play and live each day with care and concern for your safety and that of your family and fellow citizens.



McCONNEL