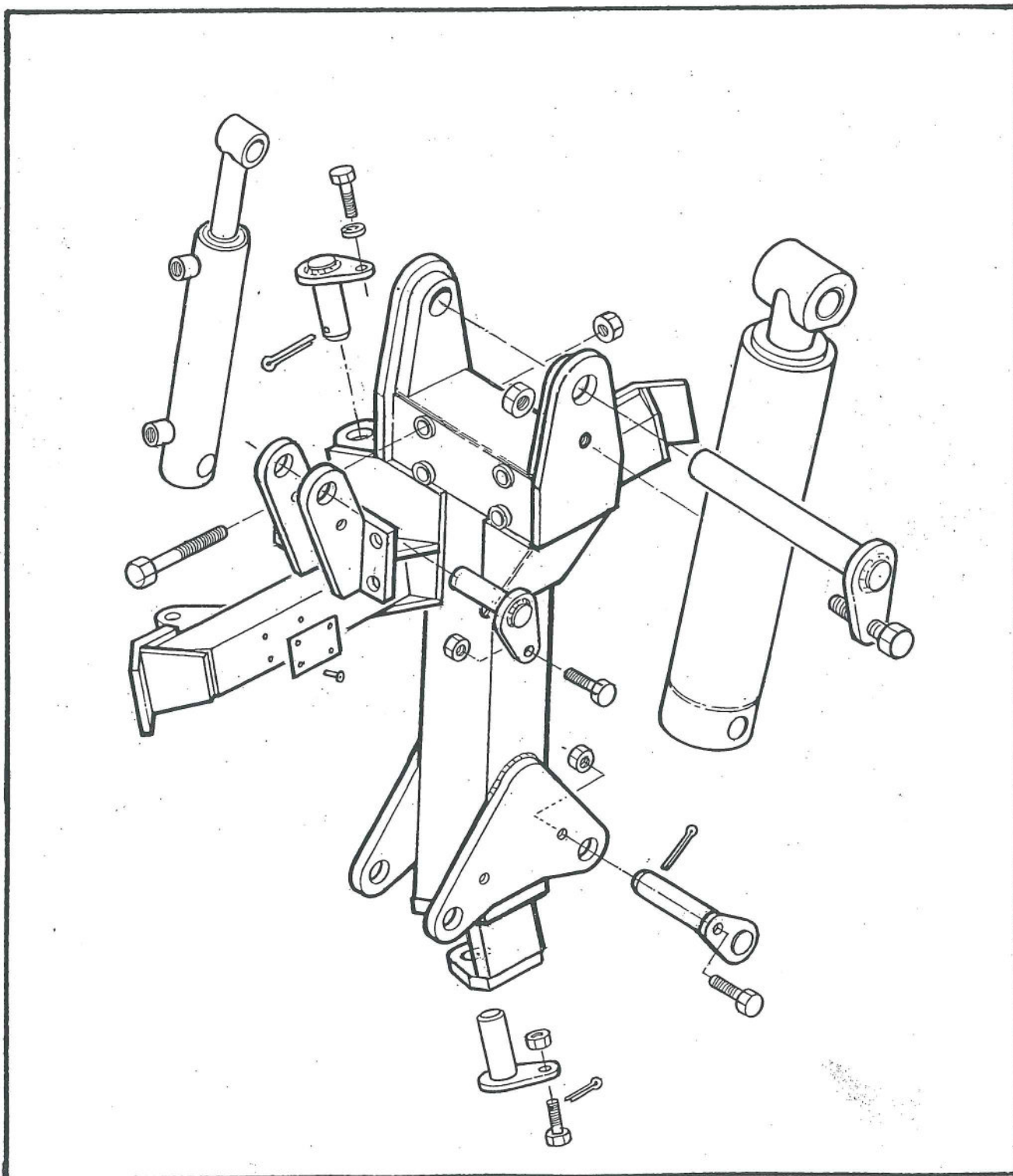


# SERIE MAG 480 S

## Pièces détachées

Pour les machines à commandes électriques



# SPARE PARTS MANUAL

## FOR BEST PERFORMANCE....

### USE ONLY McCONNEL SPARE PARTS

To be assured of the latest design improvements purchase your genuine replacements from the original equipment manufacturer **McConnel Ltd.** through your local dealer or stockist.

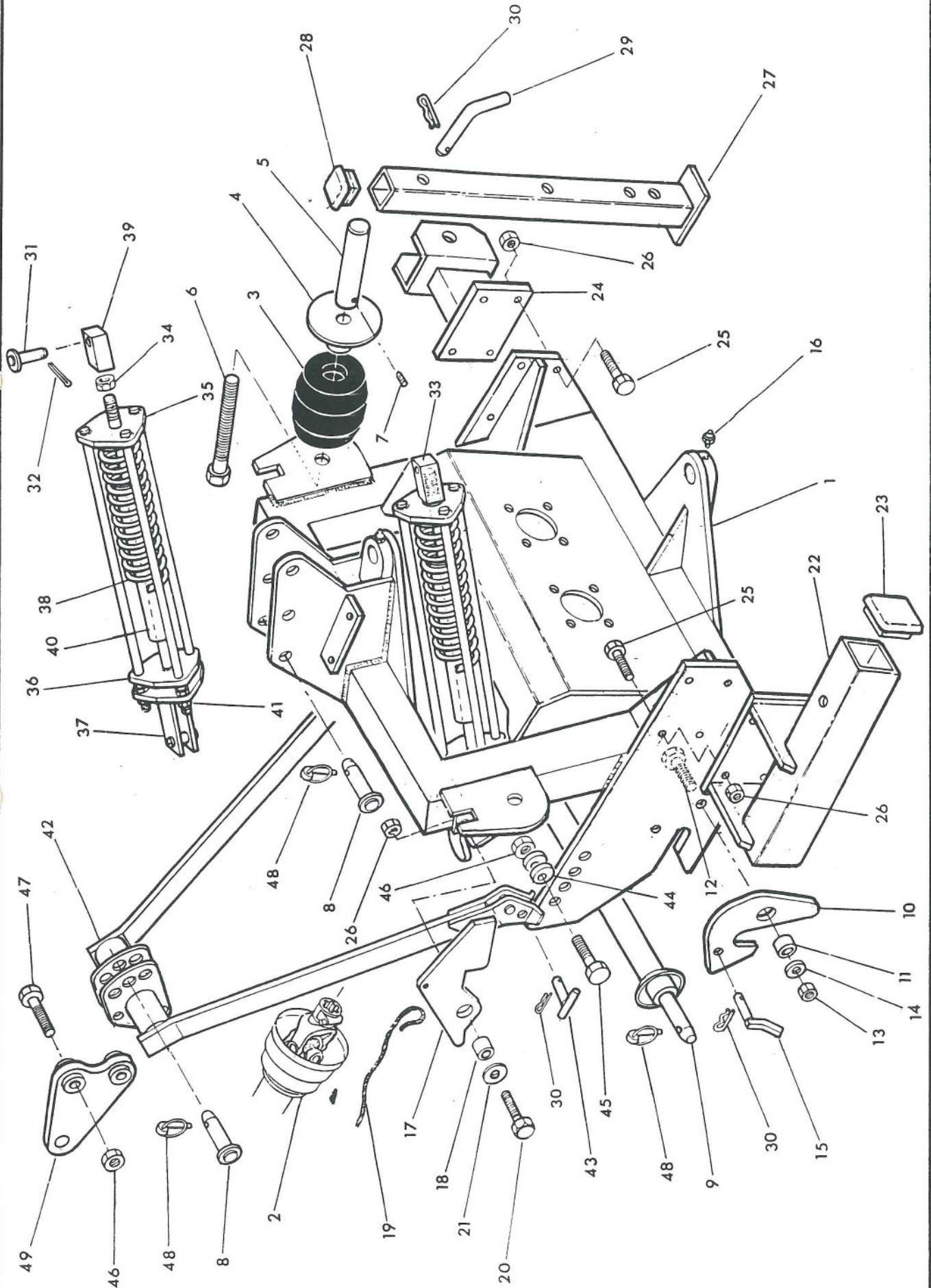
Always quote machine type and serial number as well as the part number.

Design improvement 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.

MAIN FRAME



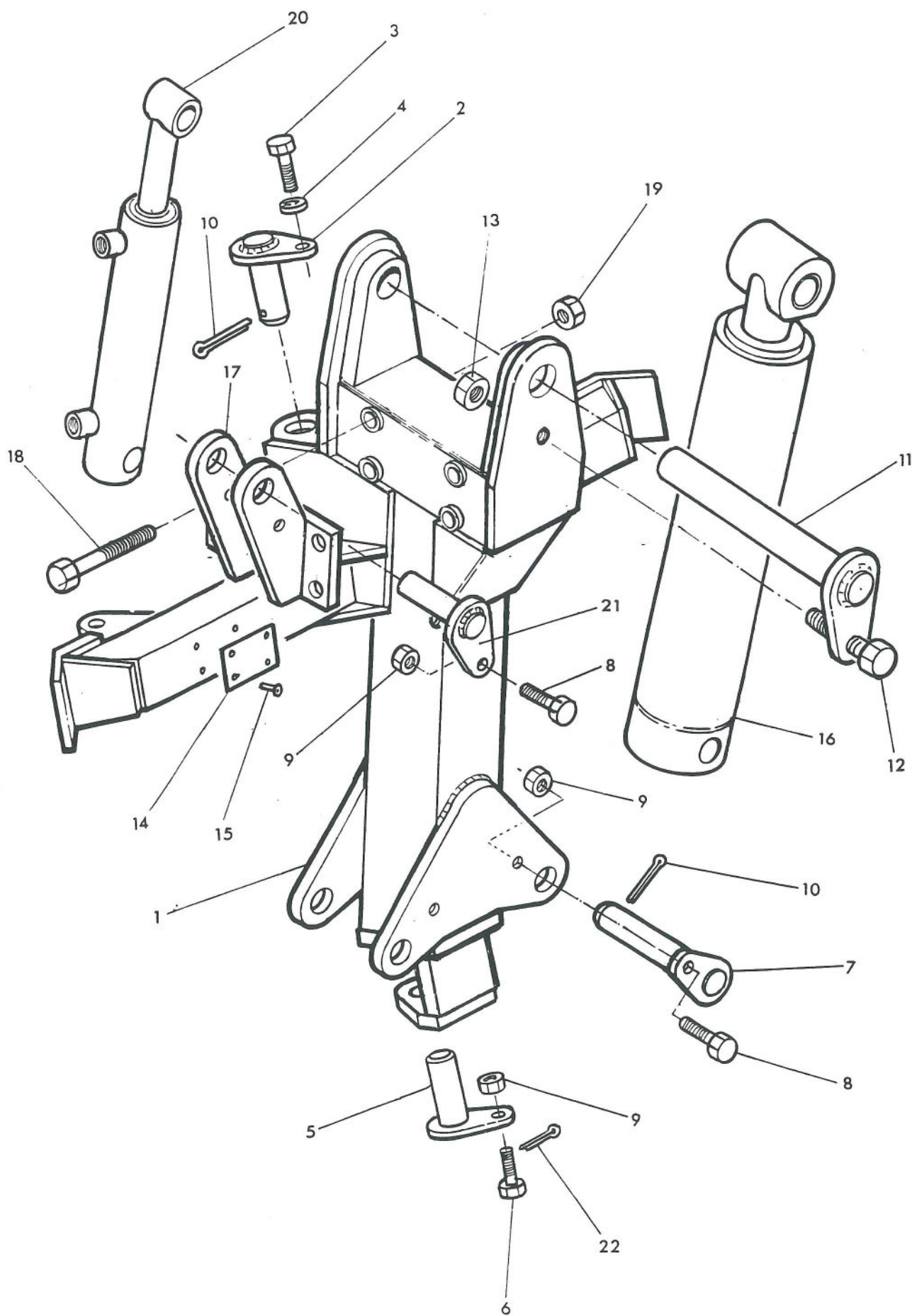
McCOMB





# McDONNELL

Ref	Part No.	Qty	Description
<b>MAIN FRAME &amp; STABILISER</b>			
1	42957.01	1	Main frame
2	71 36 330	1	P.T.O. shaft - not illus.
3	71 35 033	2	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 M8 x 12
8	71 18 112	2	Top hitch pin
9	42333.02	1	Hitch bar
10	42591.02	2	Catch hook
11	42801.02	2	Spacer sleeve
12	92 13 148	2	Bolt M20 x 70
13	91 43 008	2	Self locking nut M20
14	91 00 108	2	Plain washer dia 20
15	43011.01	2	Lock pin
16	09 01 121	2	Greaser 1/8 BSP straight
17	42965.01	1	Latch
18	42801.02	1	Spacer
19	71 35 036	1	Operating cord
20	92 13 127	1	Bolt M16 x 60
21	01 00 106	1	Plain washer 5/8 dia
22	42959.01	1	Tank mounting bracket
23	41580.01	1	Plug
24	42958.01	1	Leg bracket
25	92 13 107	8	Bolt M16 x 50
26	91 43 007	9	Self locking nut M16
27	41773.01	1	Stand leg
28	71 91 108	1	Plug
29	71 92 023	1	Leg pin
30	04 31 105	5	Spring cotter
31	71 93 021	1	Anchor pin
32	95 01 406	1	Split pin dia 5 x 40
33	71 35 314	1	Breakaway assistor spring assy. includes:
34	01 11 006	1	Nut
35	71 35 315	1	Spring cage
36	71 35 316	1	Tie rod
37	71 35 317	1	Jaw end
38	71 35 298	1	Spring
39	71 35 081	1	Pinned end
40	71 35 318	1	Spacer
41	01 11 003	6	Nut
42	41915.05	1	Stabiliser
43	71 92 027	2	Stabiliser pin
44	71 92 080	4	Eccentric collar
45	92 13 148	2	Bolt M20 x 70
46	91 43 008	4	Self locking nut M20
47	92 13 208	2	Bolt M20 x 100
48	04 31 217	5	Linch
49	74 99 501	1	Tongue





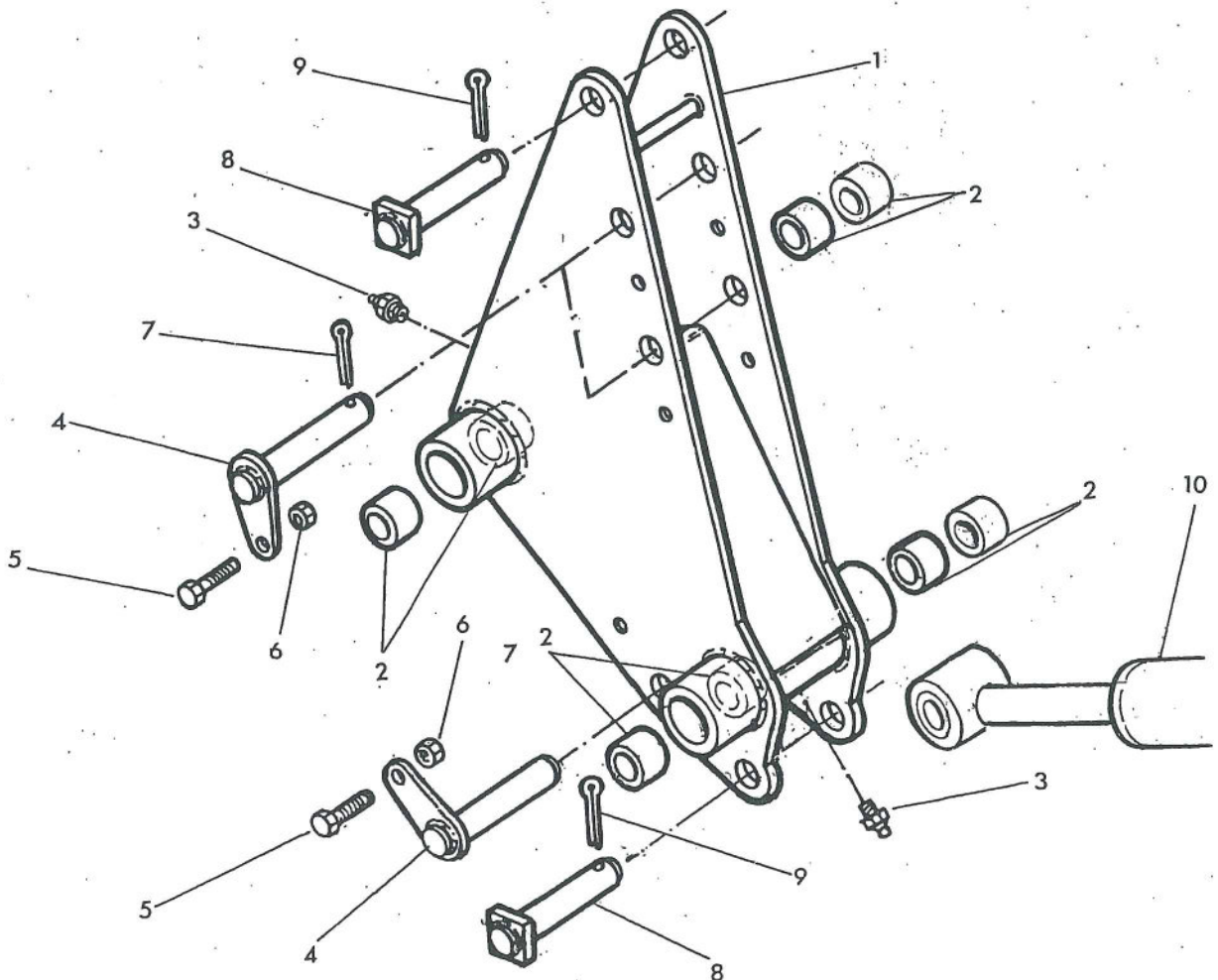
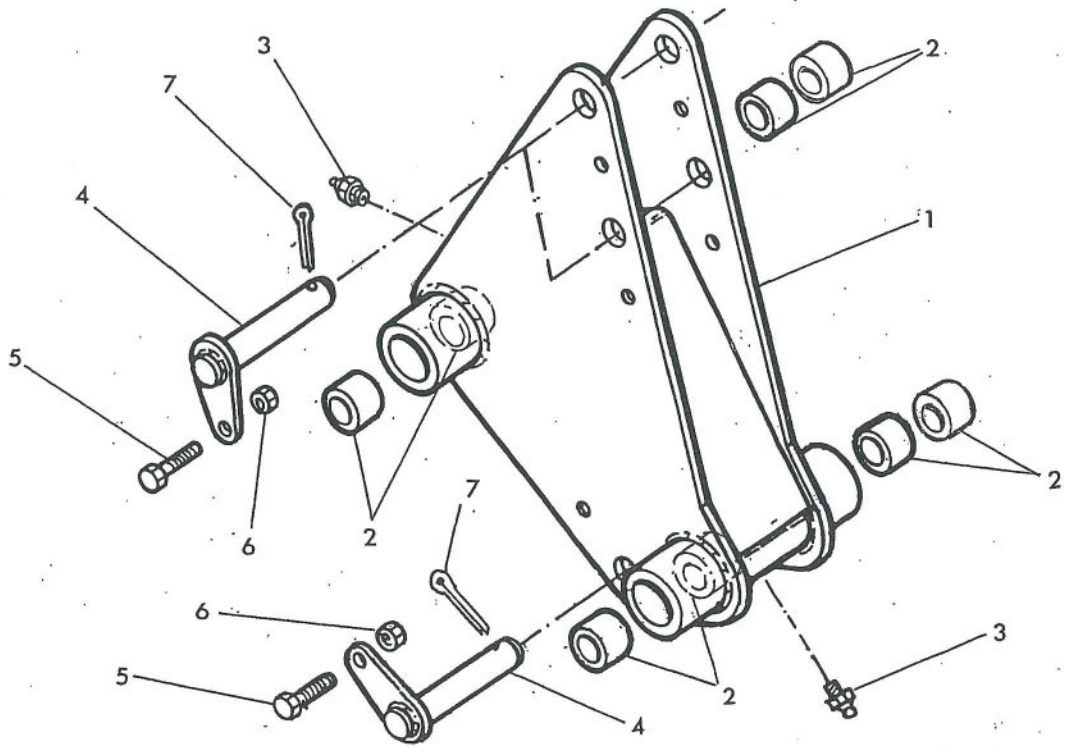
Ref	Part No.	Qty	Description
<b>PILLAR ASSEMBLY</b>			
1	42963.01	1	Pillar
2	41692.07	1	Pin - top pivot
3	92 13 075	1	Bolt M10 x 35
4	91 00 205	1	Spring washer dia 10
5	41692.08	1	Pin - bottom pivot
6	42269.02	1	Special screw M10 x 35
7	41692.09	1	Pin - lift ram base
8	93 13 065	2	Setscrew M10 x 30
9	91 43 005	3	Self locking nut M10
10	95 01 507	2	Split pin M6 x 50
11	41556.01	1	Pin - rocker pivot
12	92 13 127	1	Bolt M16 x 60
13	91 43 007	1	Self locking nut M16
14	13 35 246	1	Serial No. Plate
15	71 03 230	4	Pop rivet 1/8 dia
16	42095.02	1	Lift ram assembly
17	43005.01	1	A.H.C. bracket
18	92 13 326	4	Bolt M12 x 160
19	91 43 006	4	Self locking nut M12
20	75 60 356	1	Compensator ram
21	41693.01	1	Pin - comp. ram base
22	95 01 255	1	Split pin dia 4 x 25

} A.H.C.  
only

ROCKERS



McCORMICK





Ref	Part No	Qty	Description
<b>ROCKER - NON AHC</b>			
1	71 93 330	1	Rocker
2	72 13 023	8	Bush
3	09 01 121	2	Greaser 1/8 BSP straight
4	41694.01	3	Pin
5	93 13 065	3	Setscrew M12 x 30
6	91 43 006	3	Self locking nut M12
7	05 03 166	3	Split pin 1/4" dia x 2"

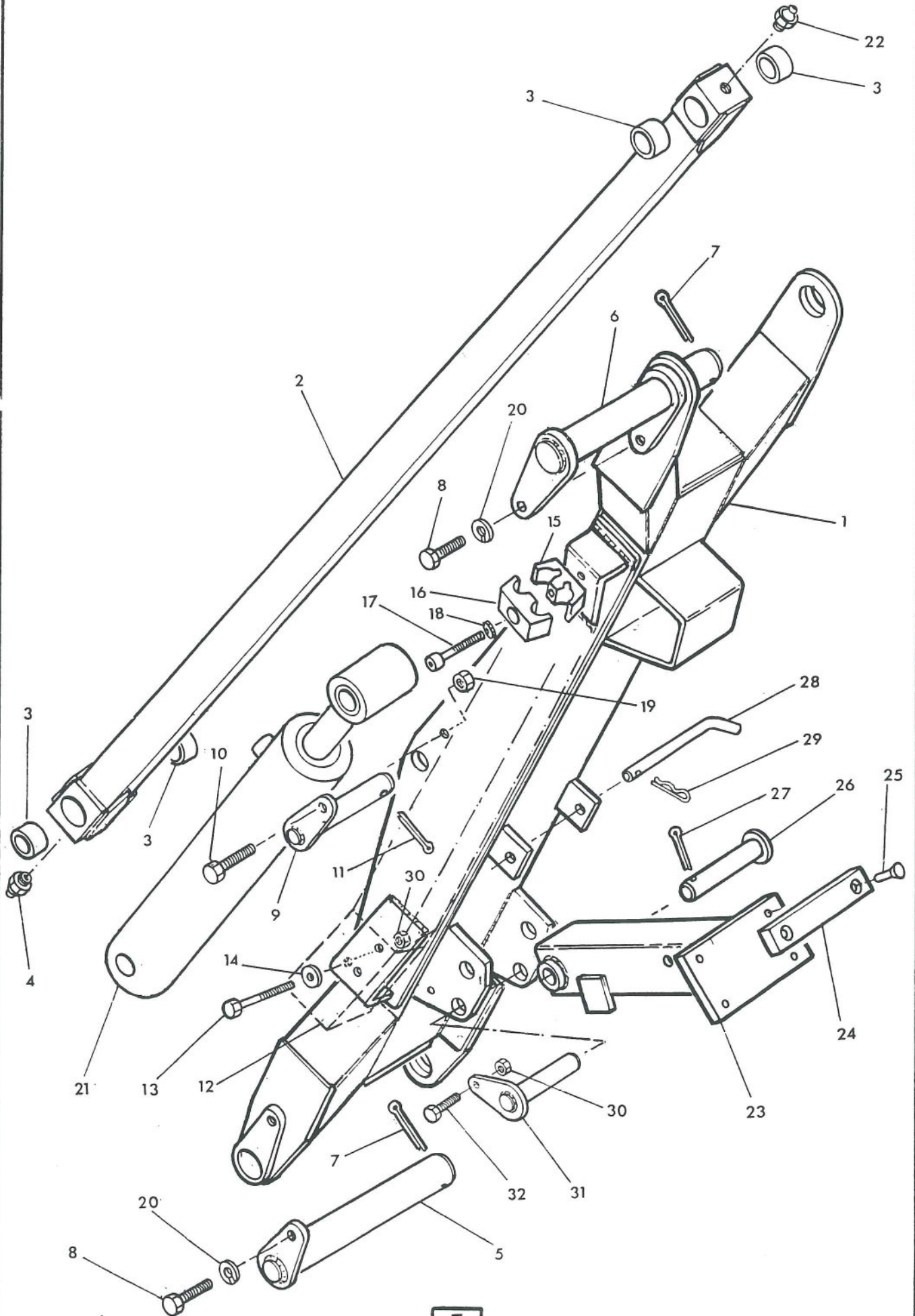
Ref	Part No	Qty	Description
<b>ROCKER - AHC</b>			
1	71 95 300	1	Rocker
2	72 13 023	8	Bush
3	09 01 121	2	Greaser 1/8 BSP straight
4	41694.01	3	Pin
5	93 13 065	3	Setscrew M12 x 30
6	91 43 006	3	Self locking nut M12
7	05 03 166	3	Split pin 1/4" dia x 2"
8	71 95 003	2	Pin compensator ram rod
9	95 01 406	2	Split pin dia 5 x 40
10	75 60 356	1	Compensator ram



MAIN ARM



McCONEL





Ref	Part No	Qty	Description
<b>MAIN ARM</b>			
1	41597.06	1	Main arm
2	41662.02	1	Tension link
3	60 12 032	4	Bush
4	09 01 121	1	Greaser 1/8 BSP - straight
5	41686.01	1	Pivot pin - main arm
6	41687.01	1	Pivot pin - dipper arm
7	95 01 509	2	Split pin dia 10 x 50
8	93 13 067	2	Setscrew M16 x 30
9	41688.01	1	Pivot pin - reach ram rod
10	93 13 076	1	Setscrew M12 x 35
11	05 03 166	1	Split pin 1/4" dia 2" long
12	41665.02	1	Hose guard
13	92 13 185	2	Bolt M10 x 90
14	91 00 105	2	Plain washer dia 10
15	06.430.19	2	Hose clamp lower
16	42024.06	1	Hose clamp upper - 1 pair
17	92 43 154	2	Capscrew M8 x 75
18	91 00 404	2	Shakeproof washer dia 8
19	91 43 006	1	Self locking nut M12
20	91 00 207	2	Spring washer dia 16
21	71 93 334	1	Reach ram
22	09 01 124	1	Greaser 1/8 BSP 67 degrees
23	43021.01	1	Transport prop
24	10 75 041	2	Pad
25	10 75 047	4	Countersunk rivet
26	43023.01	1	Pin - prop pivot
27	95 01 406	1	Split pin dia 5 x 40
28	43020.01	1	Pin - prop - stowage
29	04 31 105	1	Spring cotter
30	91 43 005	3	Self locking nut M10
31	75 60 064	1	Pin - comp. ram base
32	92 13 065	1	Bolt M10 x 30

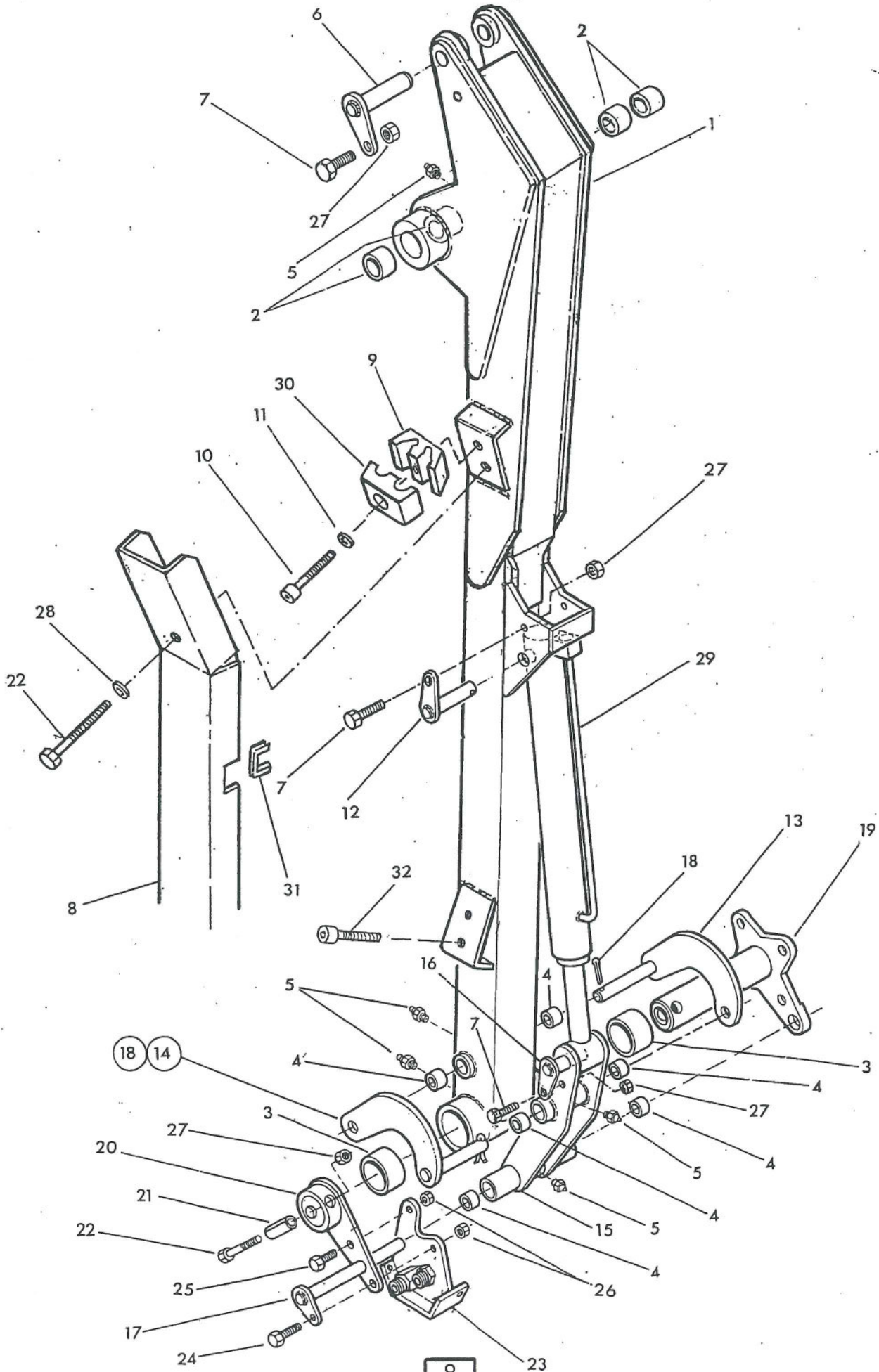
Std  
arm  
machines  
only

AHC  
only

DIPPER ARM



McCONEL





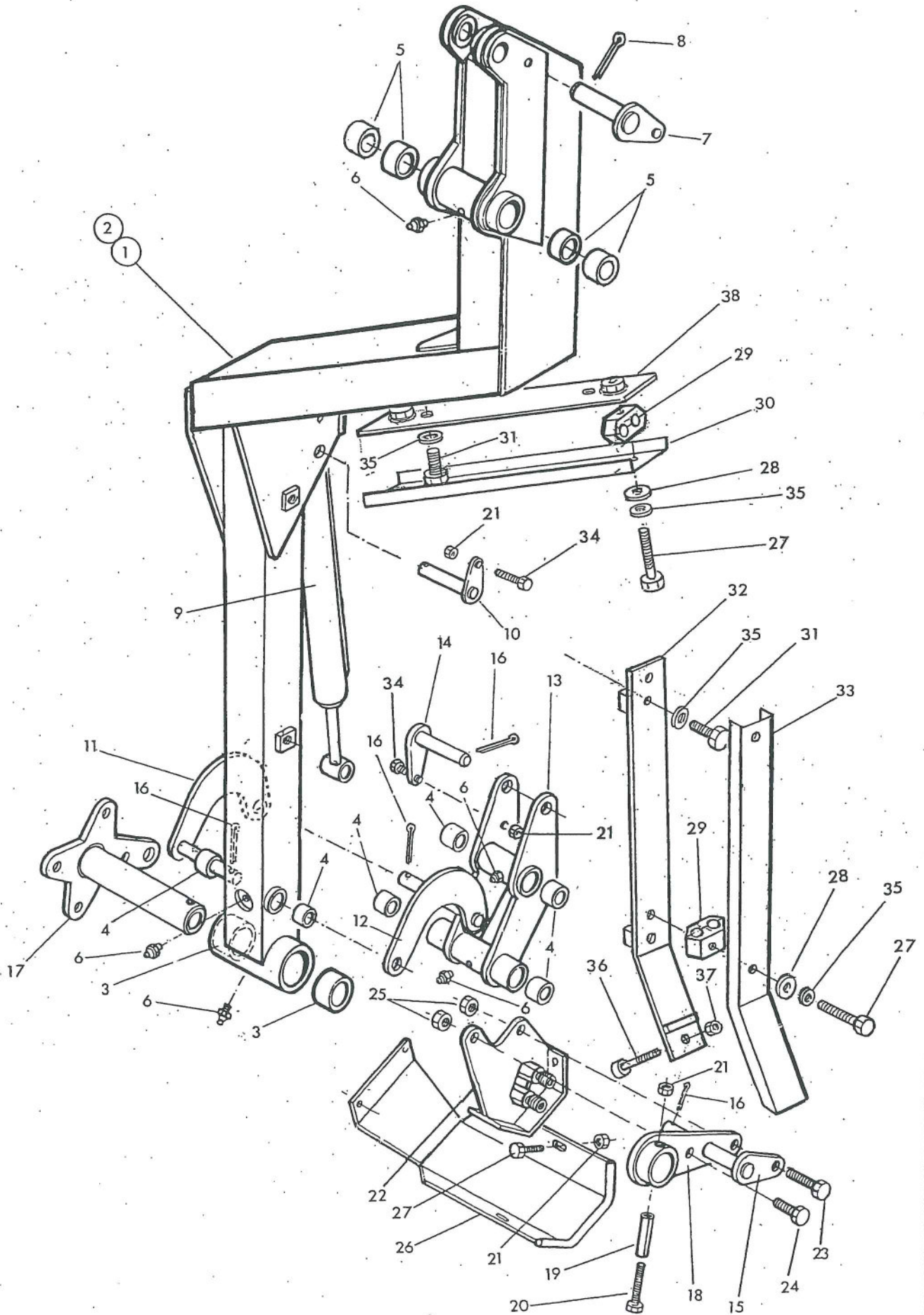
# McCORMEL

Ref. Part No.	Qty.	Description
<b>DIPPER ARM AND FITTINGS</b>		
41649.02	1	Dipper arm
2 72 13 023	4	Bush - Dipper pivot
3 71 36 035	2	Nylon head bush
4 41690.01	6	Bush 1" dia
5 09 01 121	5	Greaser 1/8 BSP straight
6 41692.01	1	Pin - Tension link
7 93 13 075	3	Setscrew M10 x 35
8 41665.04	1	Hose guard
9 06 430.19	1	Hose clamp lower
10 92 43 154	1	Capscrew M8 x 75
11 91 00 404	2	Shakeproof washer dia 8
12 41691.01	1	Pin - Angle ram base
13 74 50 251	1	Radius arm front
14 74 50 250	1	Radius arm rear
15 74 50 252	1	Slave link
16 41693.01	1	Pin - Angle ram rod
17 71 92 009	1	Pin 1" - slave link
18 95 01 406	4	Split pin dia 5 x 40
19 71 92 308	1	Head pivot tube
20 71 92 316	1	Jaw plate
21 04 23 548	1	Spring dowel 5/8" dia x 3" long
22 92 13 185	3	Bolt M10 x 90
23 71 95 303	1	Hose junction bracket
24 02 11 146	1	Bolt 5/8 UNF X 1 3/4" long
25 02 11 126	1	Bolt 5/8 UNF x 1 1/2" long
26 01 41 006	2	Self locking nut 5/8 UNF
27 91 43 005	4	Self locking nut M10
28 91 00 105	2	Plain washer dia 10
29 75 60 344	1	Angling ram
30 71 93 063	1	Hose clamp upper
31 41741-01	1	Rubber edge strip
32 92 43 124	1	Capscrew M8 x 60

MID CUT DIPPER



McCormick



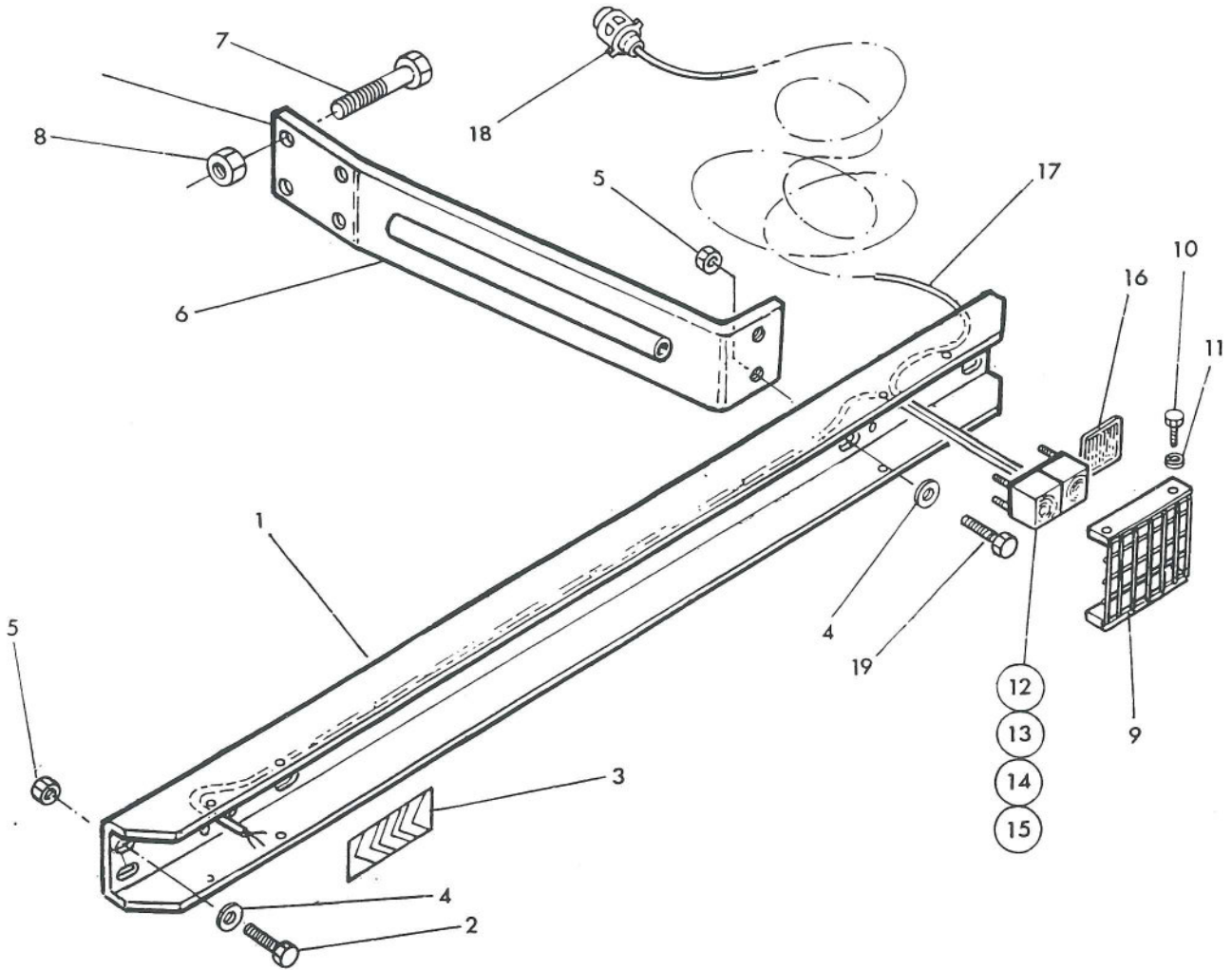


Ref	Part No	Qty	Description
<b>MID CUT DIPPER ARMS AND ANGLING MECHANISM</b>			
1	71 93 345		Dipper arm
3	71 36 035	2	Bush - head pivot
4	41690.01	6	Bush - radius arm pivot and slave link
5	72 13 023	4	Bush - dipper pivot
6	09 01 121	5	Greaser
7	71 93 025	1	Pivot pin - tension link
8	05 03 166	1	Split pin
9	75 60 344	1	Angle ram assembly
10	71 93 044	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	4	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
23	02 11 146	1	Bolt
24	02 11 126	1	Bolt
25	01 41 006	2	Self locking nut
26	71 92 324	1	Hose tray - direct drive head
	72 90 346	1	Hose tray - belt drive head
27	92 13 145	4	Bolt M10 x 70
28	91 00 105	4	Plain washer dia 10
29	42024.06	5	Hose clamp - 1 pair
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	2	Setscrew
35	91 00 305	8	Internal serrated washer
36	92 43 154	1	Capscrew
37	91 43 004	1	Self locking nut
38	42952.01	1	Hose guide

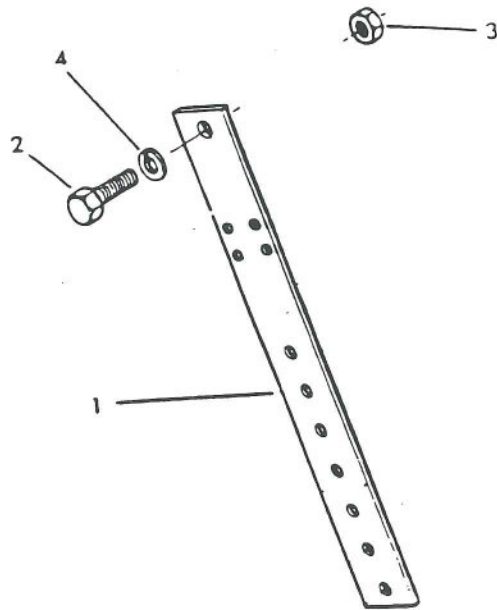
**LIGHT BAR (Option)**



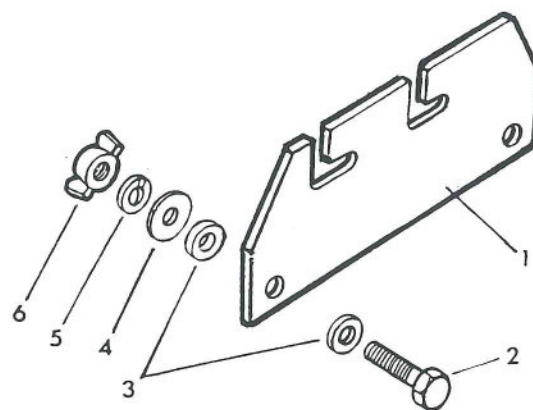
**McDONNELL**



Ref	Part No.	Qty	Description
	<b>74 93 630</b>		<b>LIGHT BAR KIT</b>
1	41549.01	1	Light bar
2	93 13 065	2	Setscrew M10 x 30
3	12 90 347	2	Sticker - chevron
4	91 00 105	4	Plain washer dia 10
5	91 43 005	4	Self locking nut M10
6	42966.01	1	Ligh bar mount
7	92 13 127	4	Bolt M16 x 60
8	91 43 007	4	Self locking M16
9	75 60 353	2	Light guard
10	93 13 023	8	Setscrew M6 x 12
11	91 00 203	8	Spring washer dia 6
12	75 60 086	2	Light incl:
13	75 60 087	2	Stop/tail bulb 12v
14	75 60 088	2	Flasher bulb 12v
15	93 00 142	8	Self tap screw M5 x 12
16	75 60 093	2	Reflector - self adhesive
17	75 60 090	1	Cable
18	75 60 089	1	Plug - 7 pin
19	92 13 085	2	Bolt M10 x 40



Ref	Part No	Qty	Description
<b>CONTROL UNIT MOUNTING ASSY</b>			
1	71 09 146	1	Pillar
2	93 11 086	1	Setscrew
3	01 11 006	1	Nut
4	01 00 206	1	Spring washer



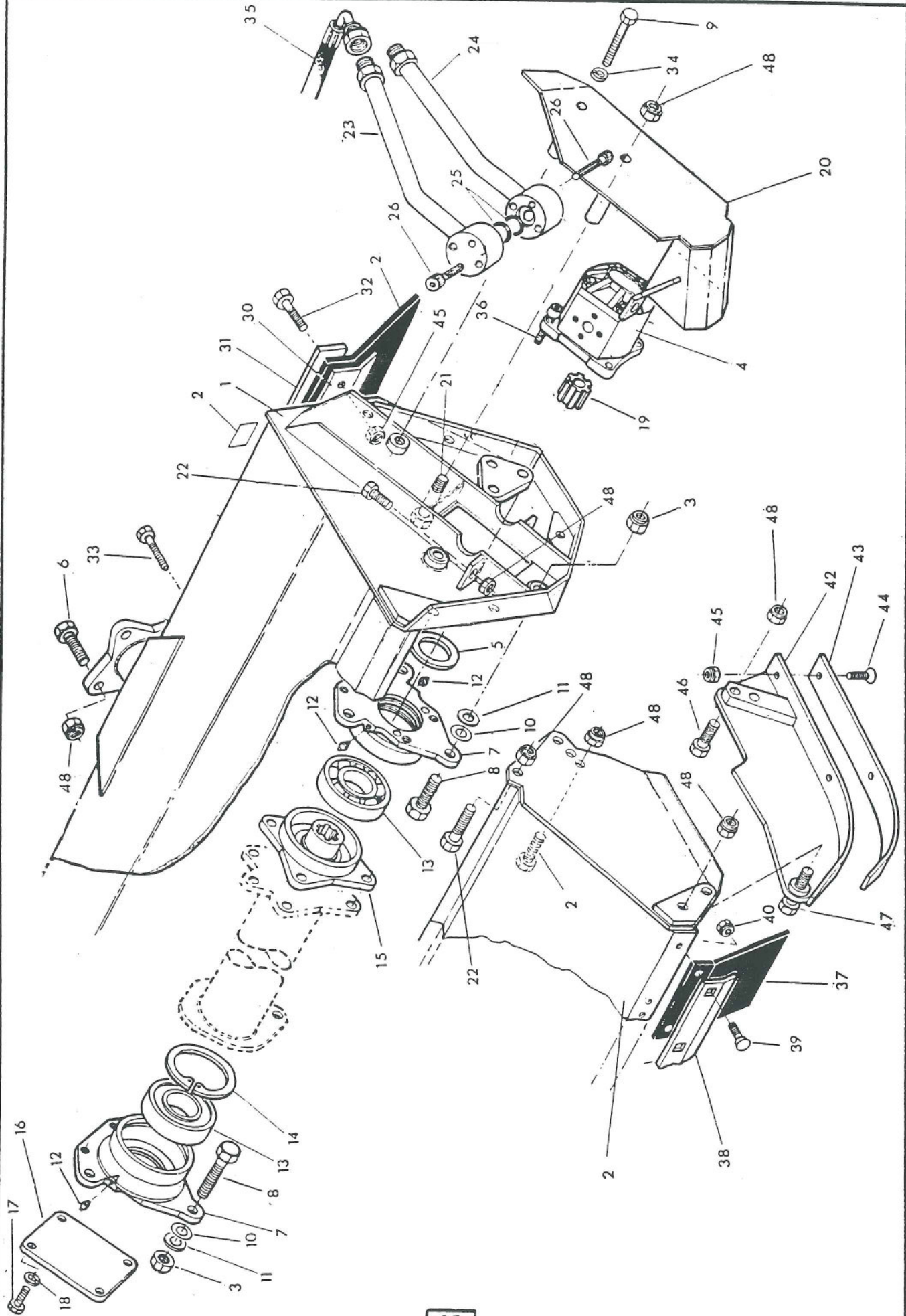
Ref	Part No	Qty	Description
<b>CONTROL UNIT MOUNTING ASSY</b>			
1	03.583.01	1	Bracket
2	93 13 094	2	Setscrew M8 x 45
3	03.152.01	4	Rubber washer
4	91 00 104	2	Plain washer dia 8
5	91 00 204	2	Spring washer dia 8
6	91 93 004	2	Wingnut M8



FLAIL CASING - Direct drive



McCOMBI



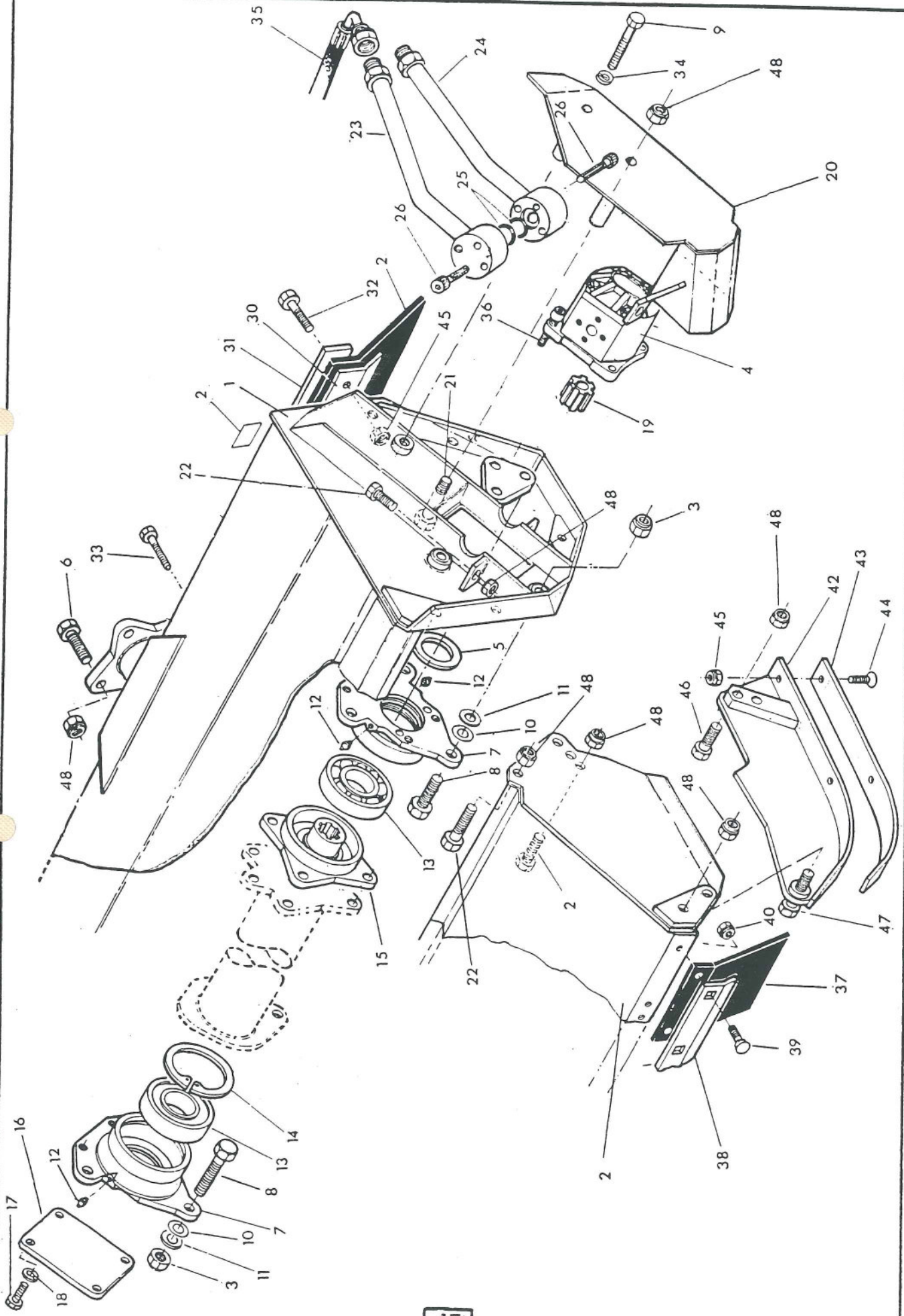


Ref	Part No.	Qty	Description
<b>FLAIL HEAD CASING - DIRECT DRIVE</b>			
1	71 90 262	1	Flail casing
2	13 35 246	1	Serial No. Plate
3	91 00 024	6	Special nut M16 fine
4	83 01 282	1	Hydraulic motor
5	71 90 015	1	Motor locating washer
6	02 11 186	4	Bolt 5/8 UNF x 2 1/4 long
7	71 90 261	2	Bearing housing
8	92 00 023	6	Special bolt M16 fine x 55
9	02 11 326	1	Bolt 5/8 UNF x 4" long
10	81 21 043	as req	Shim .015"
11	81 21 044	as req	Shim .025"
12	09 01 121	4	Greaser 1/8 BSP - straight
13	06 00 018	2	Bearing
14	71 90 022	1	Internal circlip dia 120
15	71 90 571	2	Rotor hub
16	71 90 444	1	Cover plate
17	93 13 045	4	Setscrew M10 x 20
18	91 00 205	4	Spring washer dia 10
19	71 90 573	1	Drive coupling
20	42282.01	1	Motor cover
21	02 11 566	1	Bolt 5/8 UNF x 7" long
22	03 11 126	2	Setscrew 5/8 UNF x 1 1/2" long
23	71 90 378	1	Motor pipe - upper
24	71 90 379	1	Motor pipe - lower
25	86 00 121	2	'O' ring
26	93 00 014	6	Capscrew 'wedglok'; M10 x 60
27	71 90 288	1	Front hood
28	03 11 106	2	Setscrew 5/8 UNF x 1 1/4" long
29	71 90 314	1	Rear flap
30	71 90 312	1	Mounting strip
31	71 90 313	1	Clamp strip
32	93 13 065	7	Setscrew M10 x 50
33	93 13 075	2	Setscrew M10 x 35
34	01 00 206	1	Spring washer dia 5/8
35	85 01 154	2	Hose 1" BSP x 42" long
36	93 00 144	4	Capscrew 'wedglok' M10 x 45
	86 99 236		SEAL KIT for hydraulic motor
	86 29 209		Shaft seal

# FLAIL CASING - Direct drive



# FLAIL CASING



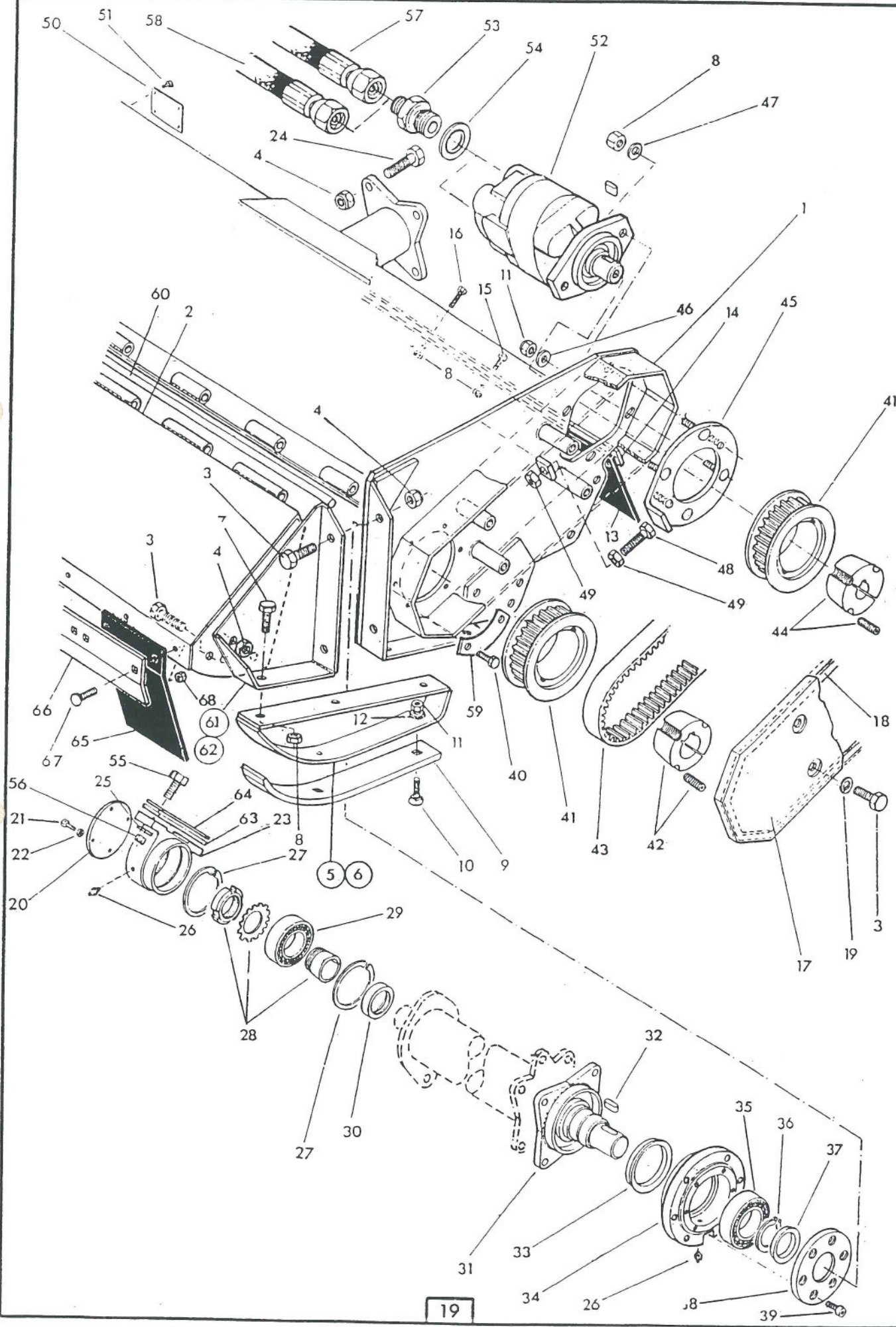


Ref	Part No.	Qty	Description
			FLAIL HEAD CASING - DIRECT DRIVE
	72 90 375		FRONT FLAP KIT
37	72 90 053	8	Flap
38	71 90 304	1	Flap clamp strip
39	92 93 054	16	Cup square bolt
40	91 43 004	16	Self locking nut
	71 90 421		SKID KIT
41	71 90 300	1	Skid R. hand - not illus.
42	71 90 301	1	Skid L. hand
43	73 14 323	1	Wear skid
44	93 13 065	6	Setscrew c/sunk M10 x 30
45	91 43 005	15	Self locking nut M10
46	03 11 146	2	Setscrew 5/8 UNF x 1 3/4" long
47	03 11 086	2	Setscrew 5/8 UNF x 2 1/4" long
48	01 41 006	15	Self locking nut 5/8 UNF

FLAIL CASING - Belt drive



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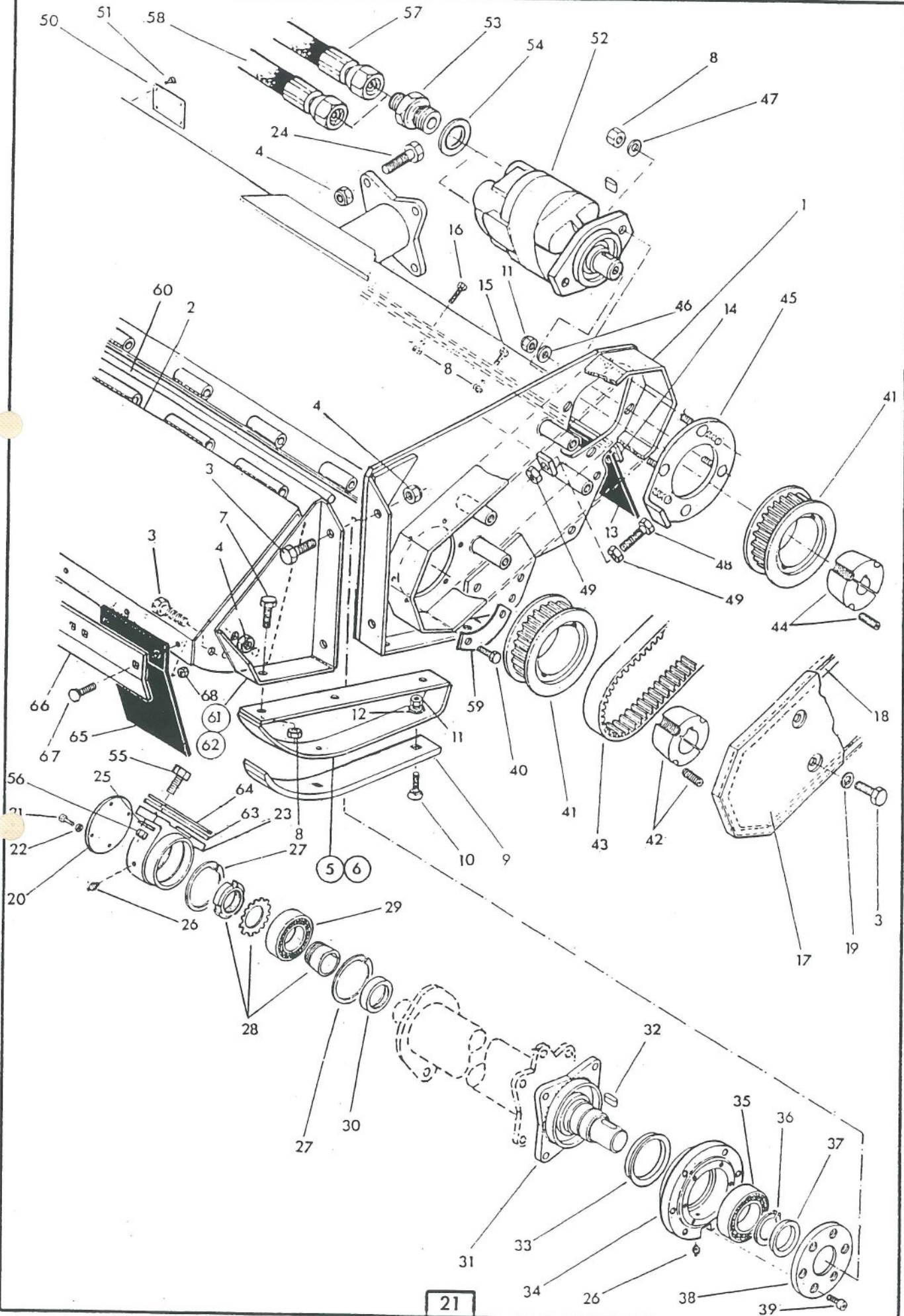


Ref	Part No.	Qty	Description
<b>1.2M BELT DRIVE FLAIL HEAD CASING</b>			
1	72 90 333	1	Hood
2	72 90 386	1	Front hood
3	03 11 106	10	Setscrew 5/8" UNF x 1 1/4" long
4	01 41 006	10	Self locking nut 5/8" UNF
5	72 90 389	1	Skid - R. hand
6	72 90 390	1	Skid - L. hand
7	93 13 055	6	Setscrew M10 x 25
8	91 43 005	23	Self locking nut M10
9	72 90 391	2	Wear skid
10	60 12 034	6	Tine bolt 7/16" UNC
11	01 42 004	10	Self locking nut 7/16" UNC
12	01 00 104	6	Plain washer 7/16" dia
13	72 90 348	1	Rear flap
14	72 90 347	1	Clamp strip
15	93 13 065	6	Setscrew M10 x 30
16	93 13 075	3	Setscrew M10 x 35
17	72 90 343	1	Belt cover
18	72 90 052	1	Seal strip
19	01 00 206	4	Spring washer 5/8" dia
20	72 90 042	1	Bearing cogger - free end
21	93 13 033	4	Setscrew M6 x 16
22	91 00 203	4	Spring washer dia 6
23	72 90 322	1	Bearing housing
24	02 11 186	4	Bolt 5/8" UNF x 2 1/4" long
25	10 65 077	2	Special washer 5/8" dia
26	09 01 121	2	Greaser 1/8" BSP straight
27	72 90 056	2	Internal circlip dia 110
28	06 00 097	1	Adaptor sleeve assembly
29	06 00 096	1	Bearing - free end
30	72 90 013	1	Bearing adaptor
31	72 90 323	1	Drive hub
32	72 90 017	1	Key
33	72 90 048	1	Seal

FLAIL CASING - Belt drive



McDONNELL





Ref	Part No.	Qty	Description
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**1.2M BELT DRIVE FLAIL HEAD CASING  
continued**

34	72 90 321	1	Bearing housing - drive end
35	06 00 095	1	Bearing - drive end
36	04 01 255	1	External circlip dia 55
37	72 90 049	1	Seal
38	72 90 023	1	Bearing retainer
39	93 43 034	6	Capscrew M8 x 16
40	93 13 045	6	Setscrew M10 x 20
41	72 90 047	2	Drive sprocket
42	72 90 016	1	Taper lock drive bush dia 40
43	72 90 046	1	Belt
44	05.424.07	1	Taper lock drive bush dia 7/8"
45	72 90 426	1	Motor mounting plate
46	72 90 051	4	Special washer
47	91 00 105	2	Plain washer 10 dia
48	93 13 117	1	Belt adjuster screw M16 x 55
49	91 13 007	2	Nut M16
50	13 35 246	1	Serial No. Plate
51	71 03 230	4	Pop rivet 1/8" dia
52	43010.03	1	Hydraulic motor
53	80 02 086	2	Adaptor 3/4" BSP - 1" BSP MM
54	86 50 106	2	Bonded seal 3/4" BSP
55	92 00 023	2	Special bolt M16 fine x 55
56	91 00 024	2	Special nut M16 fine
57	85 01 227	1	Hose 1" BSP x 21" long SF-135F
58	85 01 228	1	Hose 1" BSP x 22 1/2" long SF-135F
59	72 90 073	3	Tab washer dia 10
60	72 90 061	1	Pivot rod
61	72 90 388	1	Hood carrier bracket L. hand
62	72 90 387	1	Hood carrier bracket R. hand not illus.
63	72 90 425	as req	Shim 3.0mm
64	72 90 424	as req	Shim 2.0mm

**72 90 375**

**FRONT FLAP KIT**

65	72 90 053	8	Front flap
66	71 90 304	1	Clamp strip
67	92 93 054	16	Dome headed coach bolt M8 x 25
68	91 43 005	16	Self locking nut M8

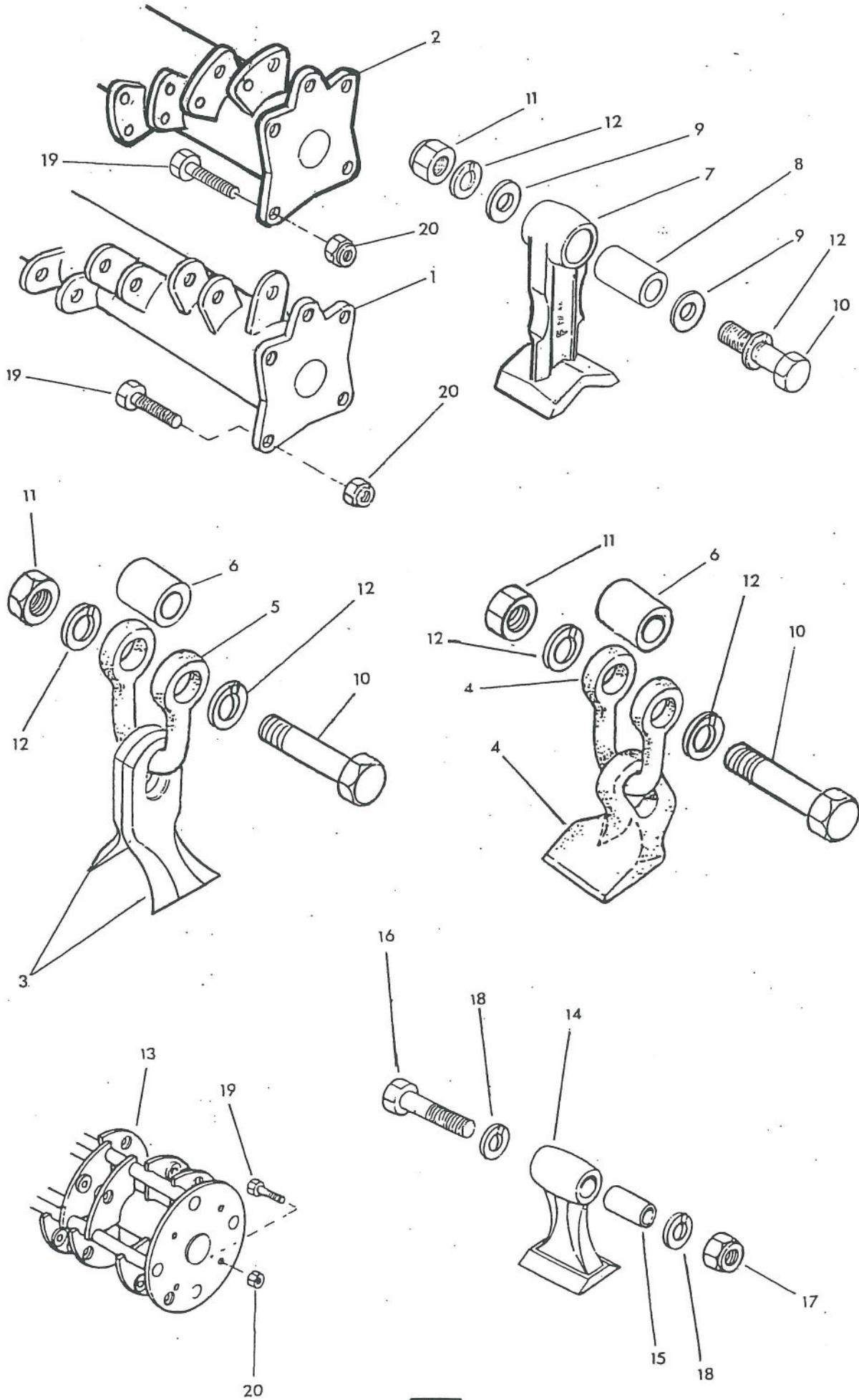
**43010.01**

**SEAL KIT**

86 29 223

Shaft seal







Ref	Part No	Qty	Description
<b>ROTORS AND FLAILS</b>			
1	73 90 270	1	Rotor - 24 flail positions
2	42636.01	1	Rotor - 36 flail positions

The following flails are suitable for use with 73 90 270 and 42636.01

Note: Quantities are per flail position

3	41654.01	2	Flail
4	71 90 462	1	Flail
5	73 90 013	1	Shackle
6	73 90 018	1	Spacer sleeve
7	73 14 366	1	Flail
8	73 14 223	1	Pivot boss
9	73 90 005	2	Spacer
10	73 90 006	1	Special bolt 5/8" UNF x 4" long
11	01 41 006	1	Self locking nut 5/8" UNF
12	01 00 206	2	Spring washer 5/8" dia
13	71 90 465	1	Rotor - Omega

The following are used with 71 90 465

14	81 90 464	20	Flail
15	71 90 117	20	Bush
16	73 90 006	20	Special bolt 5/8" UNF x 4" long
17	01 41 006	20	Self locking nut 5/8" UNF
18	01 00 206	20	Spring washer 5/8" dia

The following are used with all rotors

19	92 00 025	2	Special bolt M16 fine x 50
20	91 00 024	2	Special nut M16 fine

### ROTOR ASSEMBLIES - DIRECT DRIVE

71 90 501	Rotor assembly 24 position - Hedge
71 90 502	Rotor assembly 24 position - Grass
71 90 503	Rotor assembly 24 position - Universal
71 90 581	Rotor assembly 36 position - Hedge
71 90 582	Rotor assembly 36 position - Grass
71 90 583	Rotor assembly 36 position - Universal
71 90 471	Rotor assembly - Omega

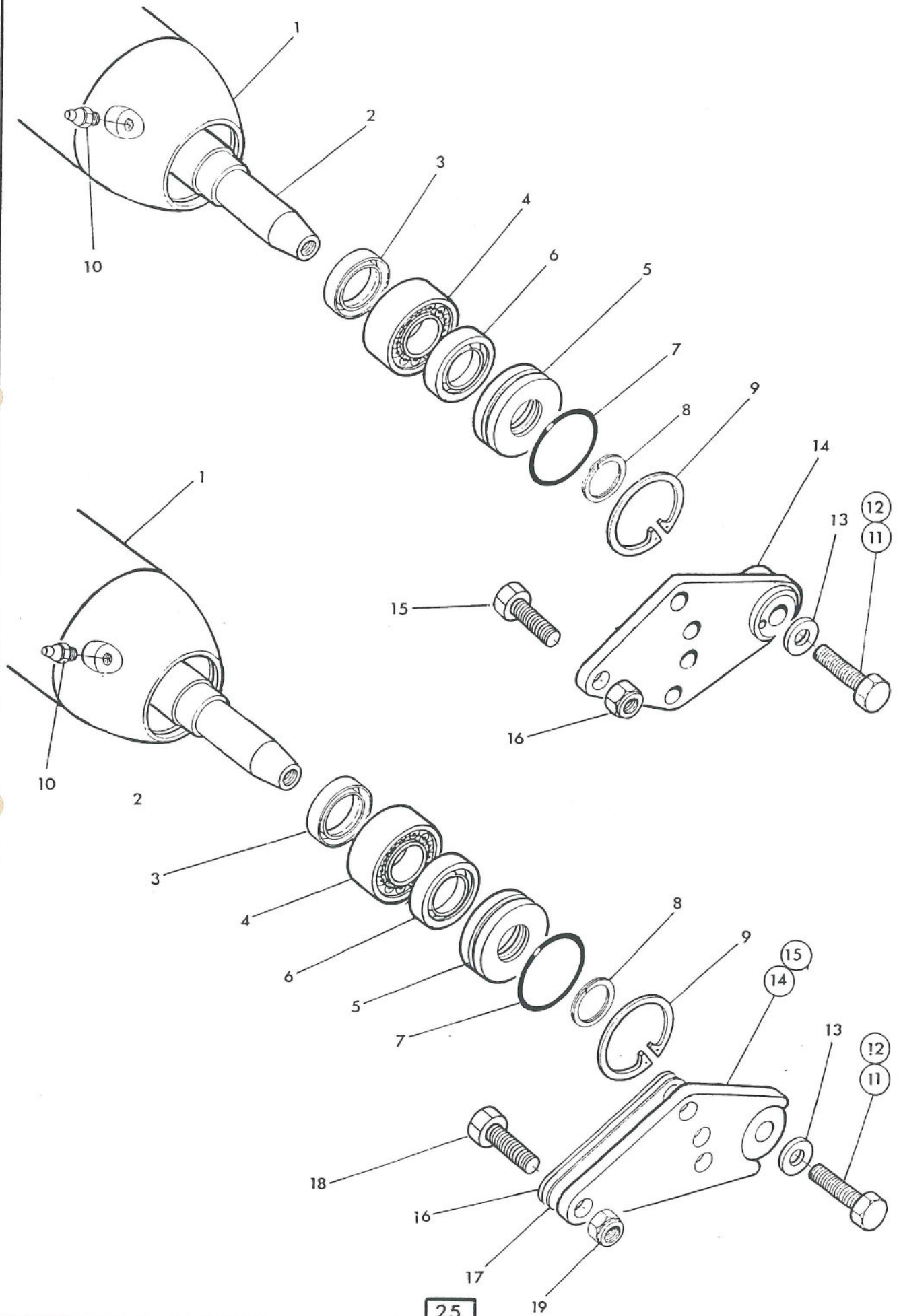
### ROTOR ASSEMBLIES - BELT DRIVE

73 90 271	Rotor assembly 24 position - Hedge
73 90 272	Rotor assembly 24 position - Grass
73 90 273	Rotor assembly 24 position - Universal
73 90 319	Rotor assembly 36 position - Hedge
73 90 320	Rotor assembly 36 position - Grass
73 90 321	Rotor assembly 36 position - Universal
71 90 498	Rotor assembly Omega

ROLLERS



McCOMEL





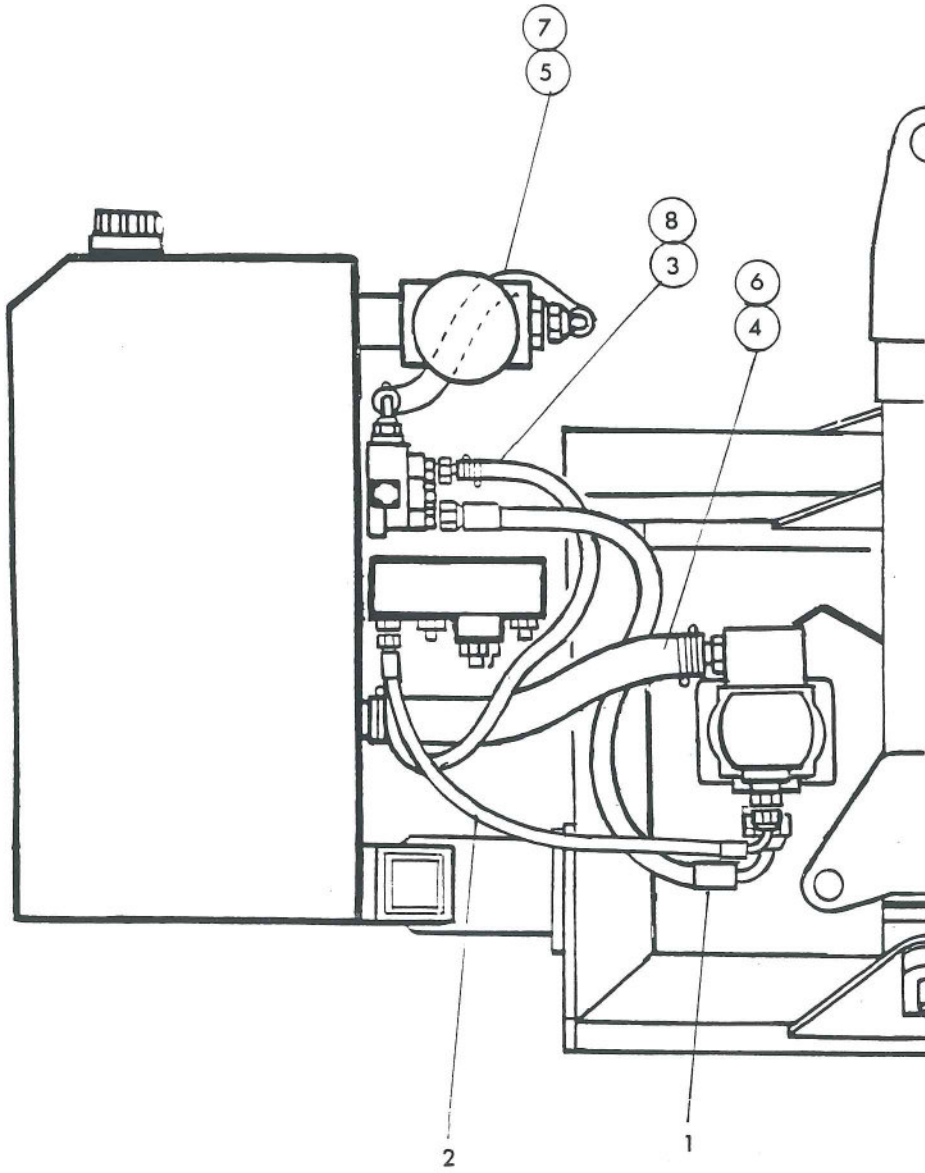
Ref	Part No.	Qty	Description
<b>ROLLER ASSEMBLIES</b>			
<b>42241.25                      DIRECT DRIVE HEADS</b>			
1	42241.10	1	Roller
2	42242.04	1	Roller axle
3	86 29 181	2	Seal
4	06 00 099	2	Bearing
5	73 90 011	2	Seal carrier
6	86 29 125	2	Seal
7	86 00 422	2	'O' ring
8	04 12 120	2	Spring ring
9	04 11 262	2	Circlip - internal
10	09 01 121	2	Greaser 1/8 BSP straight
11	93 00 150	1	Special set screw M12x30 L Hand
12	93 00 149	1	Special set screw M12x30 R Hand
13	42503.02	2	Special washer
14	42246.03	2	Roller bracket
15	02 11 186	4	Bolt 5/8 UNF x 2 1/4
16	01 41 006	4	Self locking nut 5/8 UNF

<b>42241.24                      BELT DRIVE HEADS</b>			
1	42241.10	1	Roller
2	42242.04	1	Roller axle
3	86 29 181	2	Seal
4	06 00 099	2	Bearing
5	73 90 011	2	Seal carrier
6	86 29 125	2	Seal
7	86 00 422	2	'O' ring
8	04 12 120	2	Spring ring
9	04 11 262	2	Circlip - internal
10	09 01 121	2	Greaser 1/8 BSP straight
11	93 00 150	1	Special set screw M12x30 L Hand
12	93 00 149	1	Special set screw M12x30 R Hand
13	42503.02	2	Special washer
14	42246.01	1	Roller bracket L Hand
15	42246.02	1	Roller bracket R Hand
16	42257.02	as req.	Shim 2mm
17	42257.01	as req.	Shim 1.2mm
18	93 13 097	4	Setscrew M16x45
19	91 43 007	4	Self locking nut M16

**HOSE INSTALLATION -  
primary circuit**



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Ref Part No. Qty Description

**PRIMARY CIRCUIT**

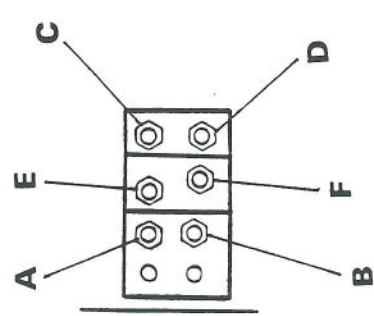
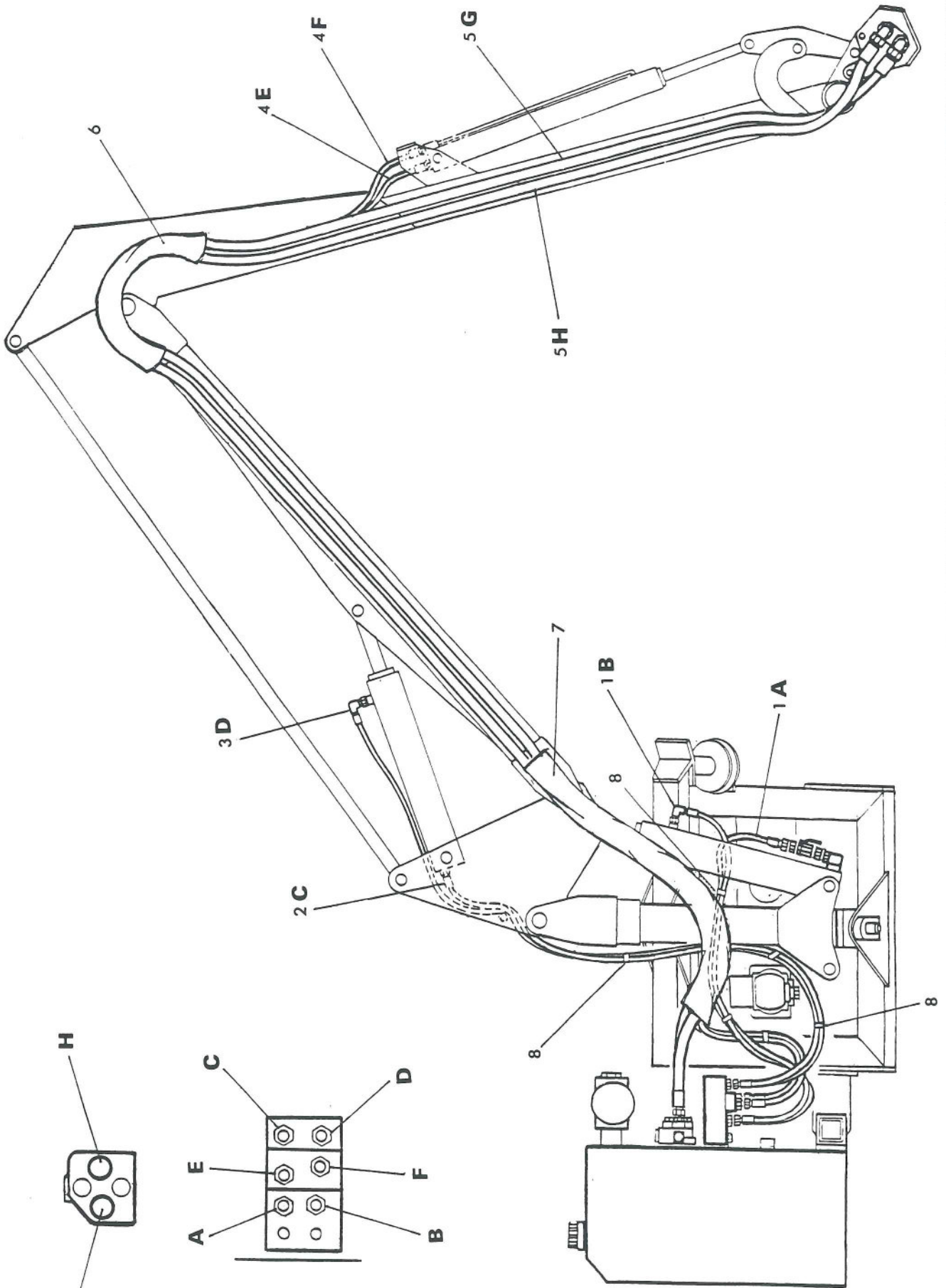
Main control valve  
Rotor control valve  
Pump and gearbox  
Hydraulic reservoir

1	85 01 169	1	Hose 1" BSPx29" long. Pump-R.C.valve
2	85 31 353	1	Hose 3/8" BSPx22" long. Pump - main valve
3	85 01 158	1	Hose 5/8"bore x 24"long.Main valve-R.C.valve
4	85 01 252	1	Hose 1 1/2" bore x 14" long - suction
5	85 00 828	1	Hose 1" bore x 28 " long. R.C. valve - tank
6	09 04 107	4	Hose clip - 1 1/2" bore
7	09 04 106	4	Hose clip 1" bore
8	09 04 204	2	Hose clip 5/8" bore

HOSE INSTALLATION -  
service circuit



**McDONNELL**





Ref Part No. Qty Description

HOSE INSTALLATION - Service circuits

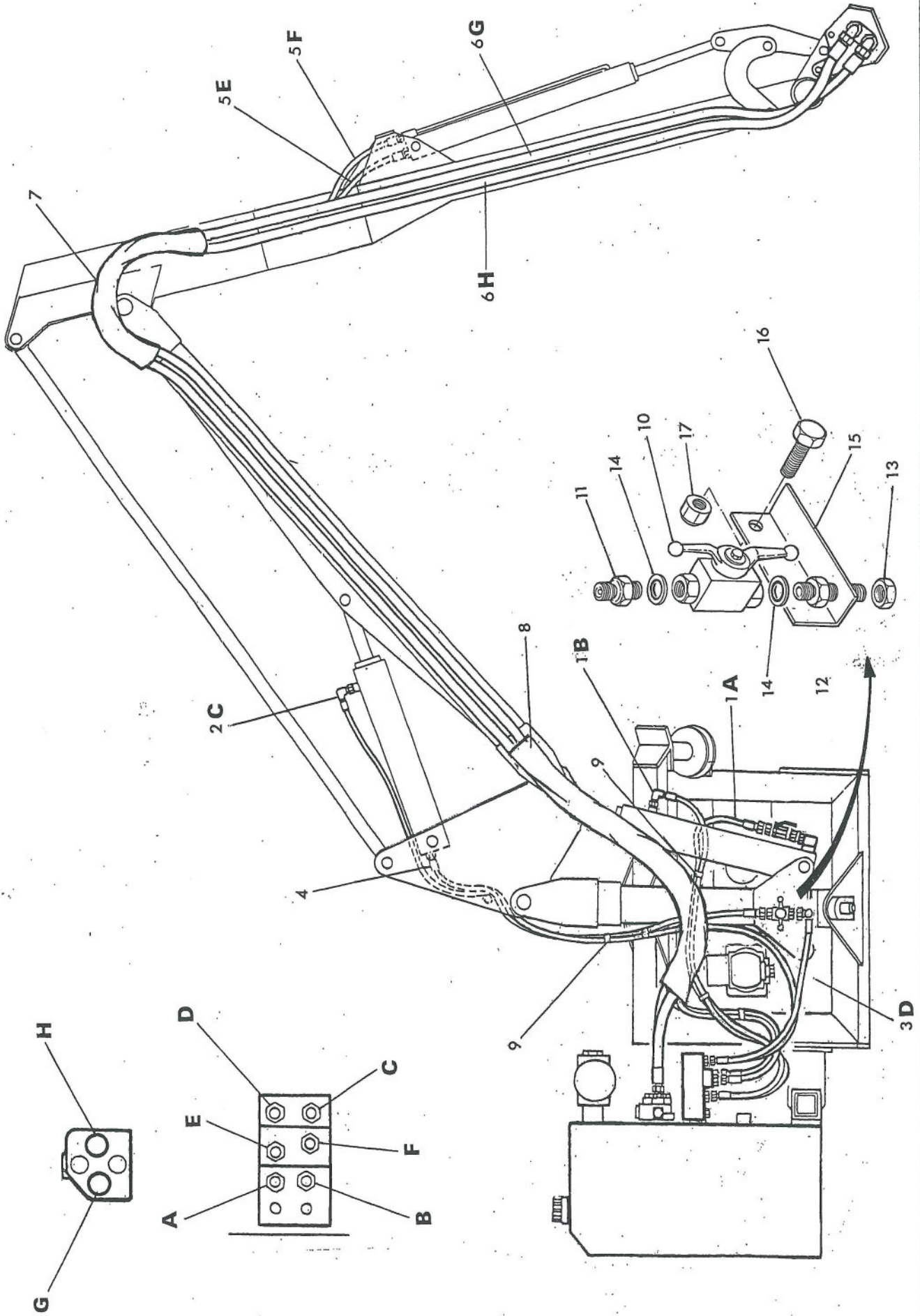
1	85 35 022	2	Hose 1/4" BSP x 48" long - lift
2	85 15 132	1	Hose 1/4" BSP x 64" long - reach base
3	85 35 142	1	Hose 1/4" BSP x 80" long - reach gland
4	85 15 072	2	Hose 1/4" BSP x 174" long - angle
5	85 01 205	2	Hose 1" BSP x 212" long - flail motor
6	75 50 063	1	Hose sleeve 30" long
7	42374.20	1	Hose sleeve 1.0m long
8	71 35 084	6	Hose tie



HOSE INSTALLATION -  
service circuit - Midcut

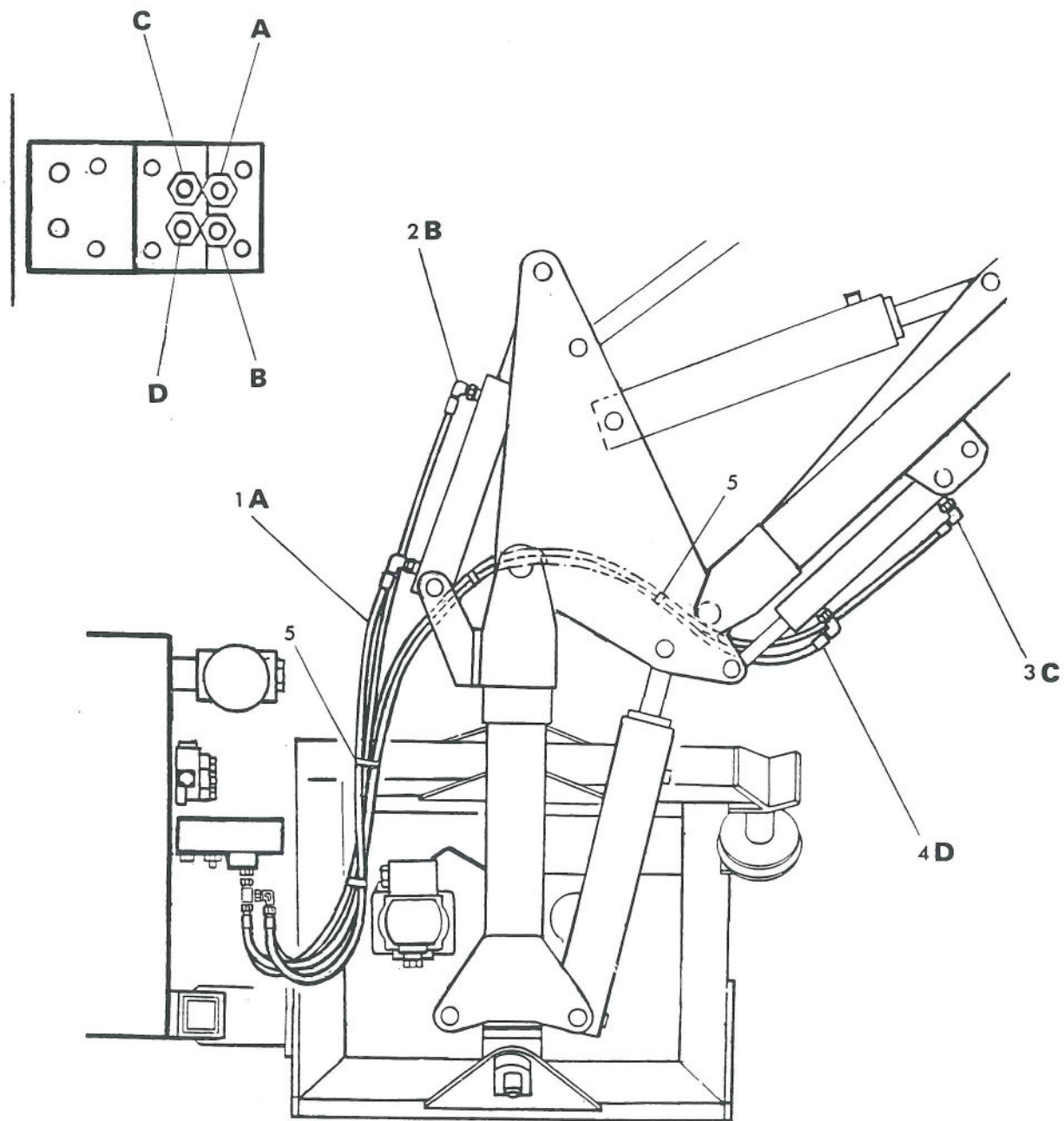


**McCormell**





Ref	Part No.	Qty	Description
<b>HOSE INSTALLATION - Service circuits midcut model</b>			
1	85 35 022	2	Hose 1/4" BSP x 48" long - lift
2	85 35 142	1	Hose 1/4" BPS x 80 " long - reach gland
3	85 35 102	1	Hose 1/4" BSP x 17" long-reach base (valve-tap)
4	10 001 23	1	Hose 1/4" BSP x 51" long-reach base (tap-ram)
5	85 15 182	2	Hose 1/4" BSP x 200" long - angle
6	85 01 243	2	Hose 1" BSP x 220" long - flail motor
7	75 50 063	1	Hose sleeve 30" long
8	42374.20	1	Hose sleeve 1.0m long
9	71 35 084	6	Hose tie
10	81 30 181	1	Tap
11	85 81 169	1	union 1/4" BSP MM
12	71 05 153	1	Bulkhead union 1/4" BSP MM
13	01 39 001	1	Locknut 1/4" BSP
14	86 50 102	1	Bonded seal 1/4" BSP
15	43111.01	1	Mounting bracket
16	93 13 075	1	Setscrew M10 x 35
17	91 43 005	1	Self locking nut M10





Ref Part No Qty Description

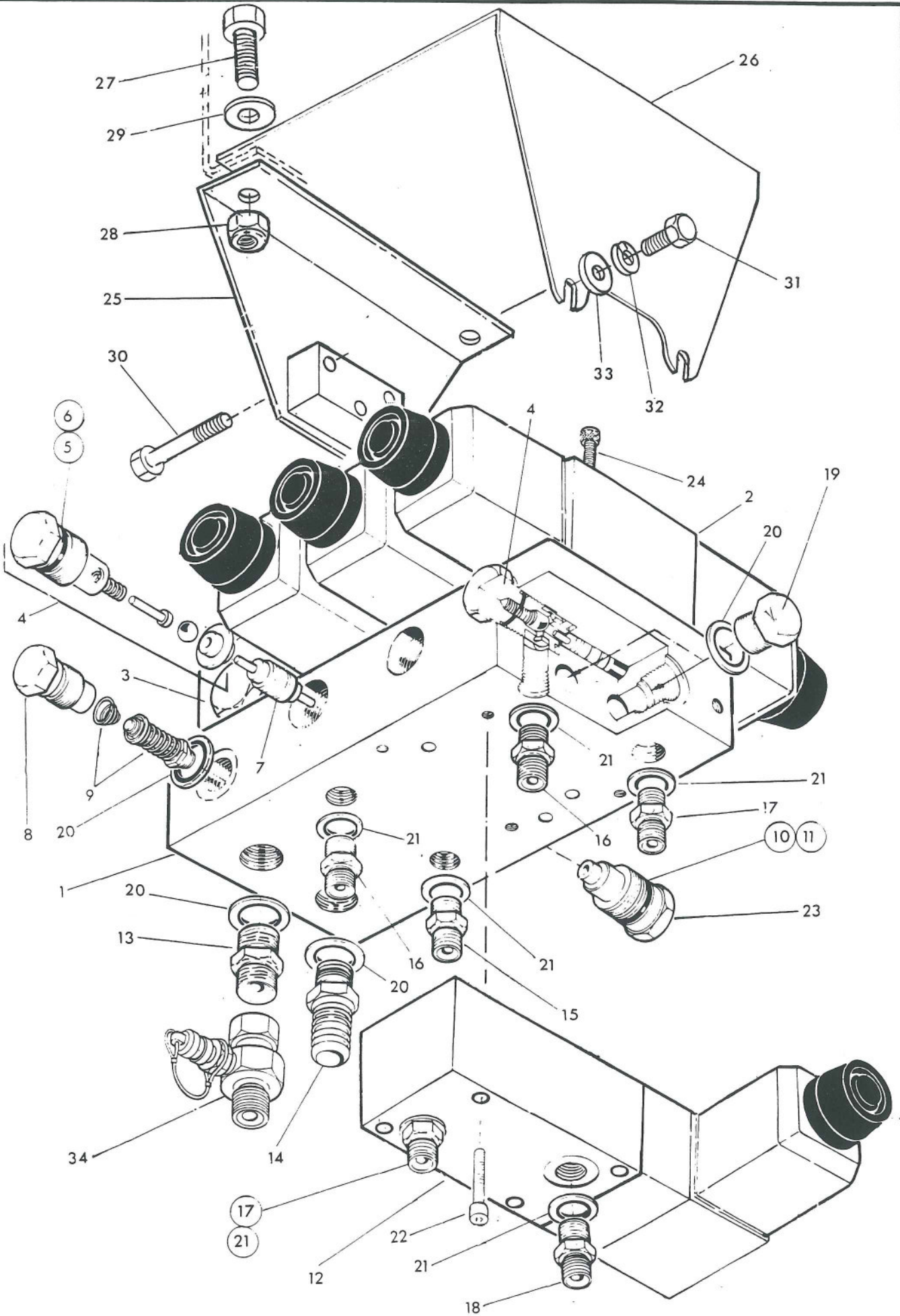
## HOSE INSTALLATION - AHC Variations

1	85 35 192	1	Hose 1/4 BSP x 44" long - lift comp base
2	85 35 022	1	Hose 1/4 BSP x 48" long - lift comp gland
3	85 35 052	1	Hose 1/4 BSP x 70" long - reach comp base
4	85 35 072	1	Hose 1/4 BSP x 60" long - reach comp gland
5	71 35 084	4	Hose tie

CONTROL VALVE



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REF	PART NO	QTY	DESCRIPTION
			<b>ELECTRIC CONTROL VALVE 480E</b>
	81 30 318		Solenoid/manifold assembly compr:
1	81 30 321	1	Manifold block
2		3	Double solenoid valve
3		1	Single solenoid valve
4	81 30 090	5	Check valve assembly incl:
5	87 00 644	1	'O' ring
6	87 09 644	1	Anti extrusion ring
7	81 30 087	3	Actuator
8	81 30 032	1	Relief valve cap
9	81 30 029	1	Relief valve c/w spring
10	87 09 644	1	Anti extrusion ring
11	87 00 644	1	'O' ring
12		1	Angle float valve
13	60 00 113	1	Union 3/8 BSP MM
14	81 25 008	1	Return connection
15	80 02 117	1	Union 1/4 BSP - 1/4 BSP MM
16	81 30 105	2	Restrictor union H 1/4 BSP MM
17	81 30 038	2	Restrictor union L 1/4 BSP MM
18	81 30 037	1	Restrictor union S 1/4 BSP MM
19	80 03 001	2	Plug 3/8 BSP
20	86 50 103	5	Bonded seal 3/8 BSP
21	86 50 102	6	Bonded seal 1/4 BSP
22	92 43 082	4	Socket headed setscrew M5 x 40
23	81 30 078	1	Check valve gallery plug
24	92 43 062	16	Capscrew socket headed M5 x 30
25	43070.01	1	Valve mounting bracket
26	43071.01	1	Valve cover
27	92 13 075	2	Bolt M10 x 35
28	91 43 005	2	Self locking nut M10
29	91 00 105	2	Plain washer dia 10
30	93 13 054	3	Bolt M8 x 25
31	93 13 034	2	Setscrew M8 x 16
32	91 00 204	2	Spring washer dia 8
33	91 00 104	2	Plain washer dia 8
34	81 31 004	1	Test point union 3/8 BSP MF

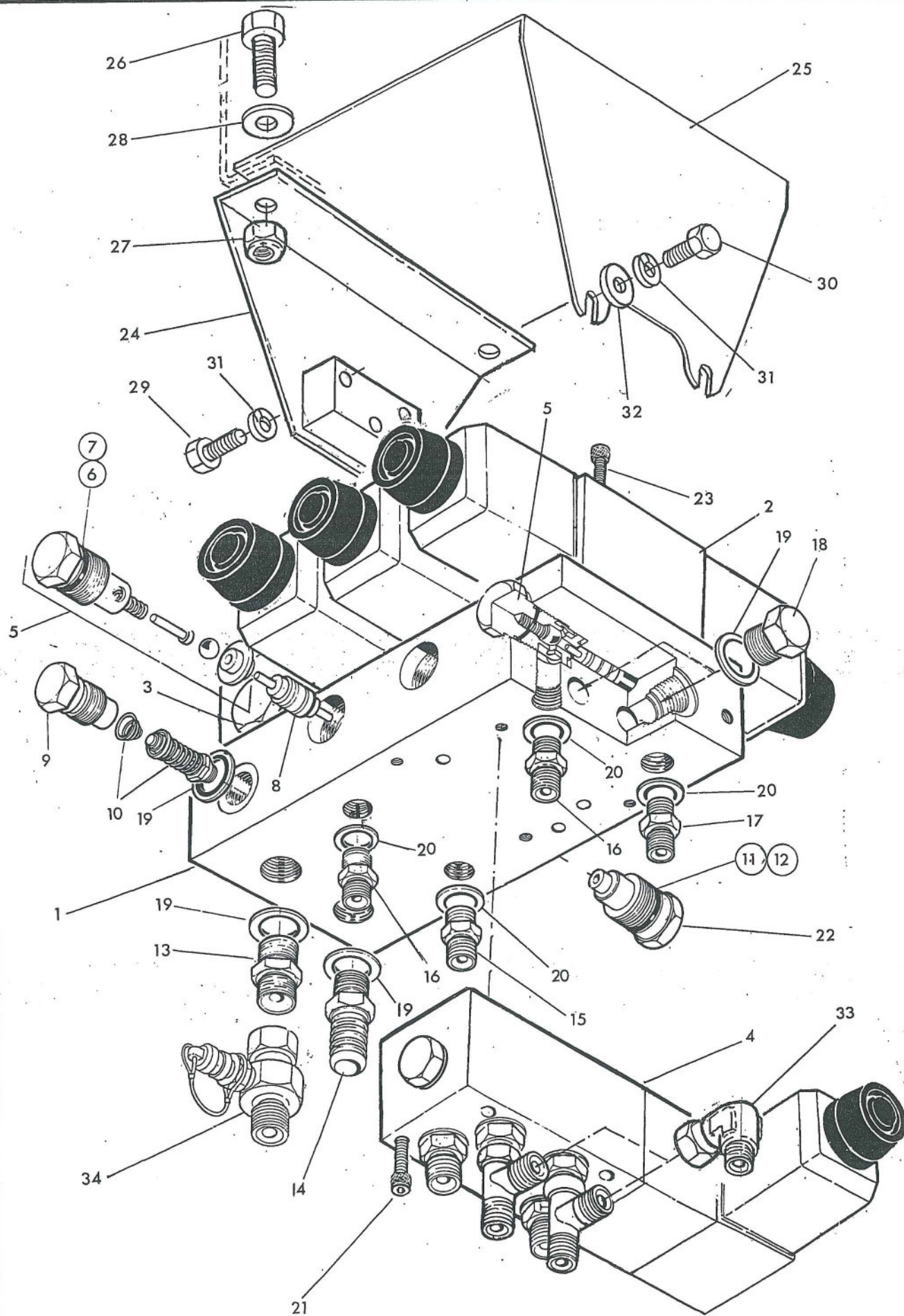
86 99 197

SEAL KIT

# CONTROL VALVE - AHC



# McCORMICK





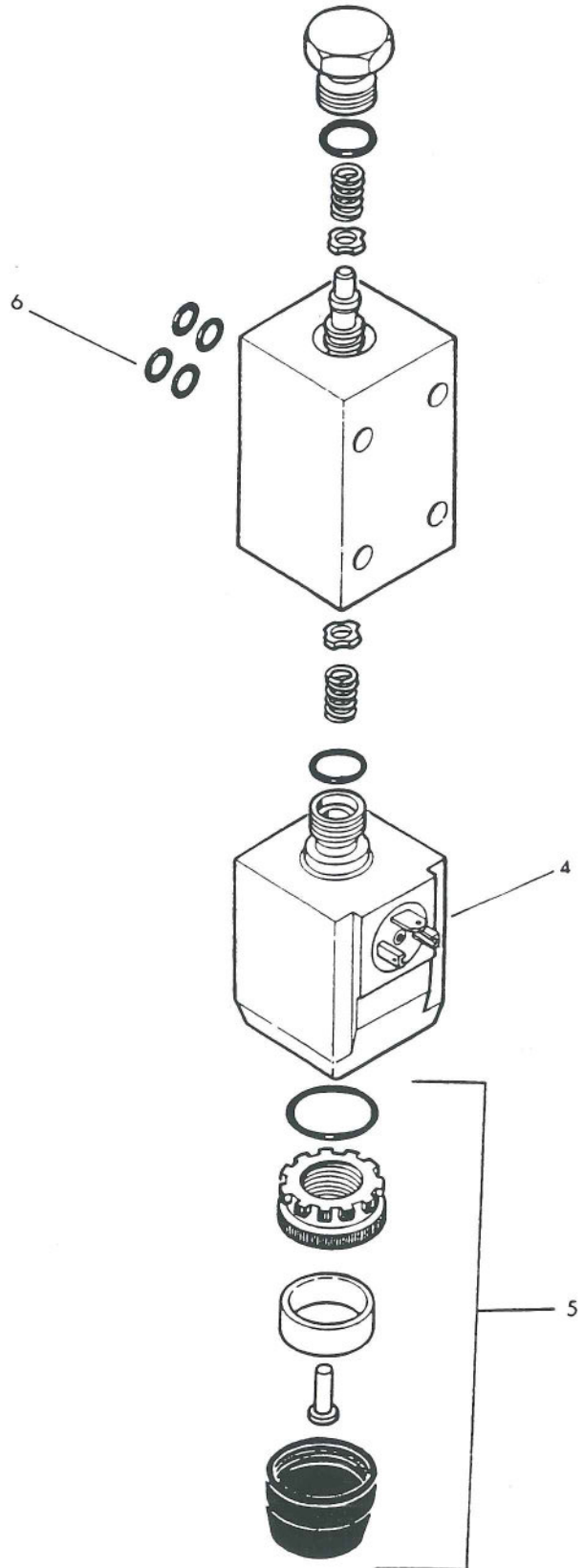
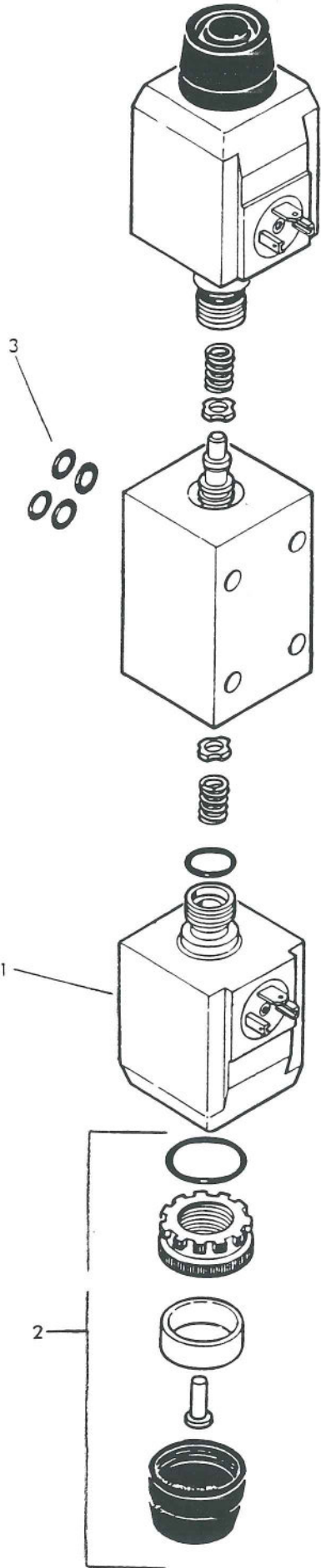
REF	PART NO	QTY	DESCRIPTION
			<b>ELECTRIC CONTROL VALVE 480E - AHC</b>
	81 30 364		Solenoid/manifold assembly compr:
1	81 30 321	1	Manifold block
2		3	Double solenoid valve
3		1	Single solenoid valve
4		1	Head compensator and angle float valve
5	81 30 090	5	Check valve assembly incl:
6	87 00 644	1	'O' ring
7	87 09 644	1	Anti extrusion ring
8	81 30 087	3	Actuator
9	81 30 032	1	Relief valve cap
10	81 30 029	1	Relief valve c/w spring
11	87 09 644	1	Anti extrusion ring
12	87 00 644	1	'O' ring
13	60 00 113	1	Union 3/8 BSP MM
14	81 25 008	1	Return connection
15	80 02 117	1	Union 1/4 BSP - 1/4 BSP MM
16	81 30 105	2	Restrictor union H 1/4 BSP MM
17	81 30 038	1	Restrictor union L 1/4 BSP MM
18	80 03 001	2	Plug 3/8 BSP
19	86 50 103	5	Bonded seal 3/8 BSP
20	86 50 102	4	Bonded seal 1/4 BSP
21	92 43 082	4	Socket headed setscrew M5 X 40
22	81 30 078	1	Check valve gallery plug
23	92 43 062	16	Capscrew socket headed M5 x 30
24	43070.02	1	Valve mounting bracket
25	43071.02	1	Valve cover
26	92 13 075	2	Bolt M10 x 35
27	91 43 005	2	Self locking nut M10
28	91 00 105	2	Plain washer dia 10
29	92 13 054	3	Bolt M8 x 25
30	93 13 034	2	Setscrew M8 x 16
31	91 00 204	5	Spring washer dia 8
32	91 00 104	2	Plain washer dia 8
33	85 81 190	2	Elbow 1/4 BSP MF
34	81 31 004	1	Test point union 3/8 BSP MF
	<b>86 99 197</b>		<b>SEAL KIT</b>



SOLENOIDS

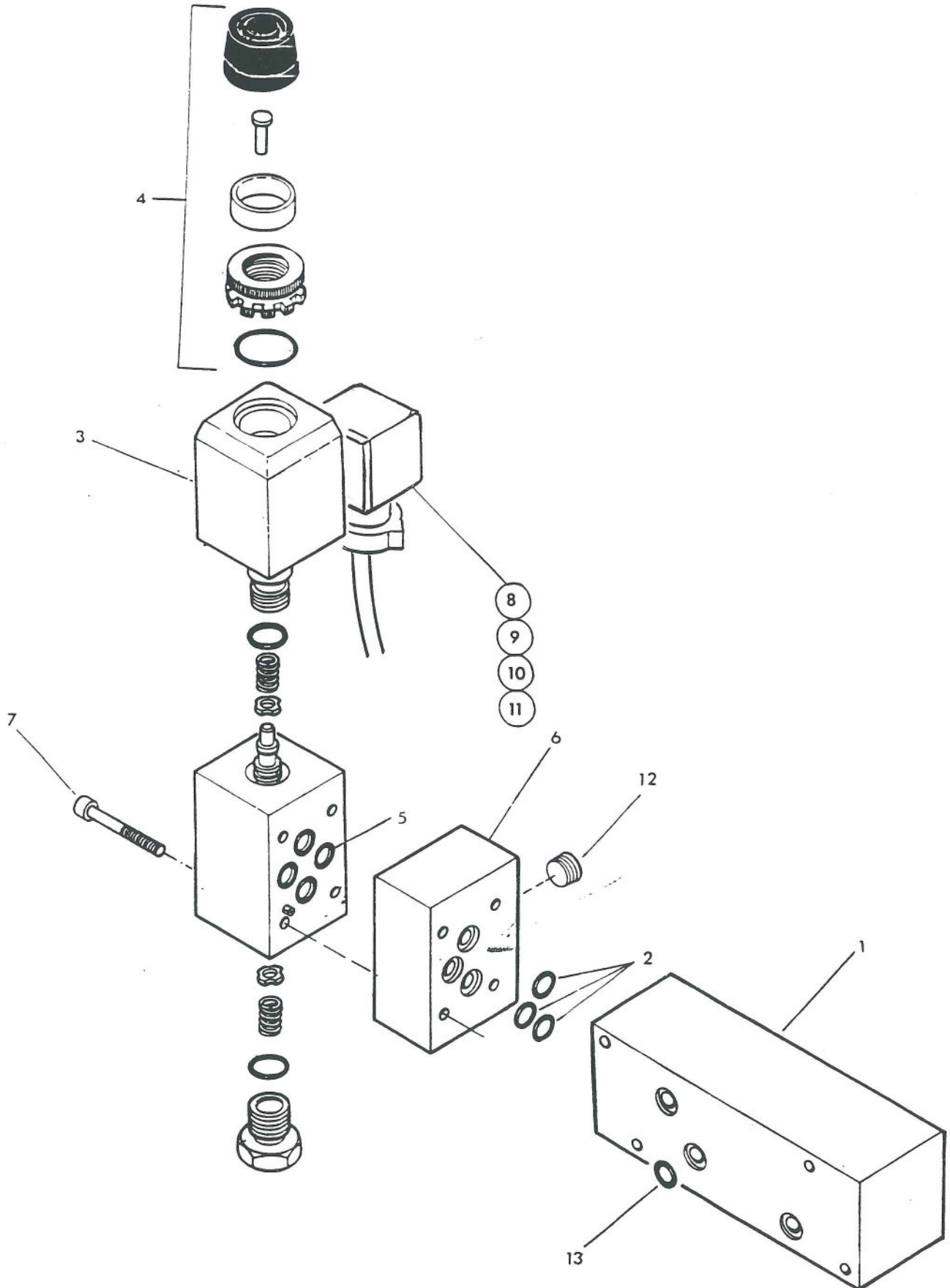


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REF	PART NO.	QTY	DESCRIPTION
	<b>81 30 455</b>		<b>DOUBLE SOLENOID VALVE</b>
1	81 30 175	2	Coil
2	81 30 176	2	Manual override kit
3	86 00 107	4	'O' ring
	<b>81 30 456</b>		<b>SINGLE SOLENOID VALVE</b>
4	81 30 175	1	Coil
5	81 30 176	1	Manual override kit
6	86 00 107	4	'O' ring
	<b>86 99 224</b>		<b>SEAL KIT</b>



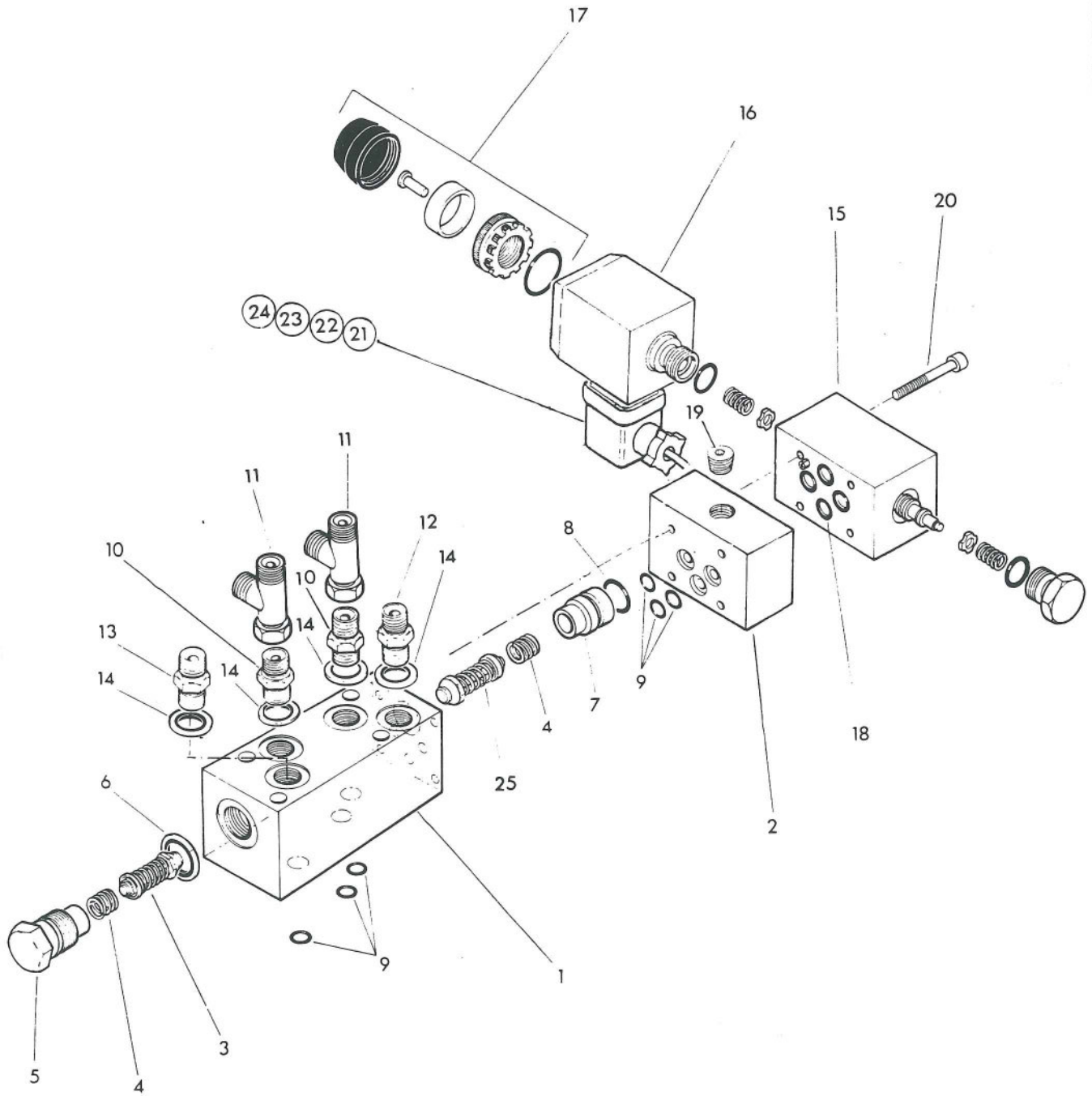


REF	PART NO	QTY	DESCRIPTION
			<b>ANGLE FLOAT VALVE - for non AHC models</b>
1	81 30 323	1	Float valve block
2	87 00 511	4	'O' ring
	81 30 457	1	Angle float solenoid incl:
3	81 30 175	2	Coil
4	81 30 176	1	Manual override kit
5	86 00 107	4	'O' ring
6	81 26 280	1	Bridging plate
7	92 43 102	4	Setscrew socket headed
8	84 02 338	1	Wiring harness incl: plug & gasket
9	07.835.04	1	Plug c/w screw & gasket
10	07.835.03	1	Screw
11	07.835.02	1	Gasket
12	85 82 041	1	Plug 1/8 BSP
13	87 00 511	3	'O' ring
	<b>86 99 224</b>		<b>SOLENOID SEAL KIT</b>

COMPENSATOR VALVE / ANGLE  
FLOAT



McCORMICK



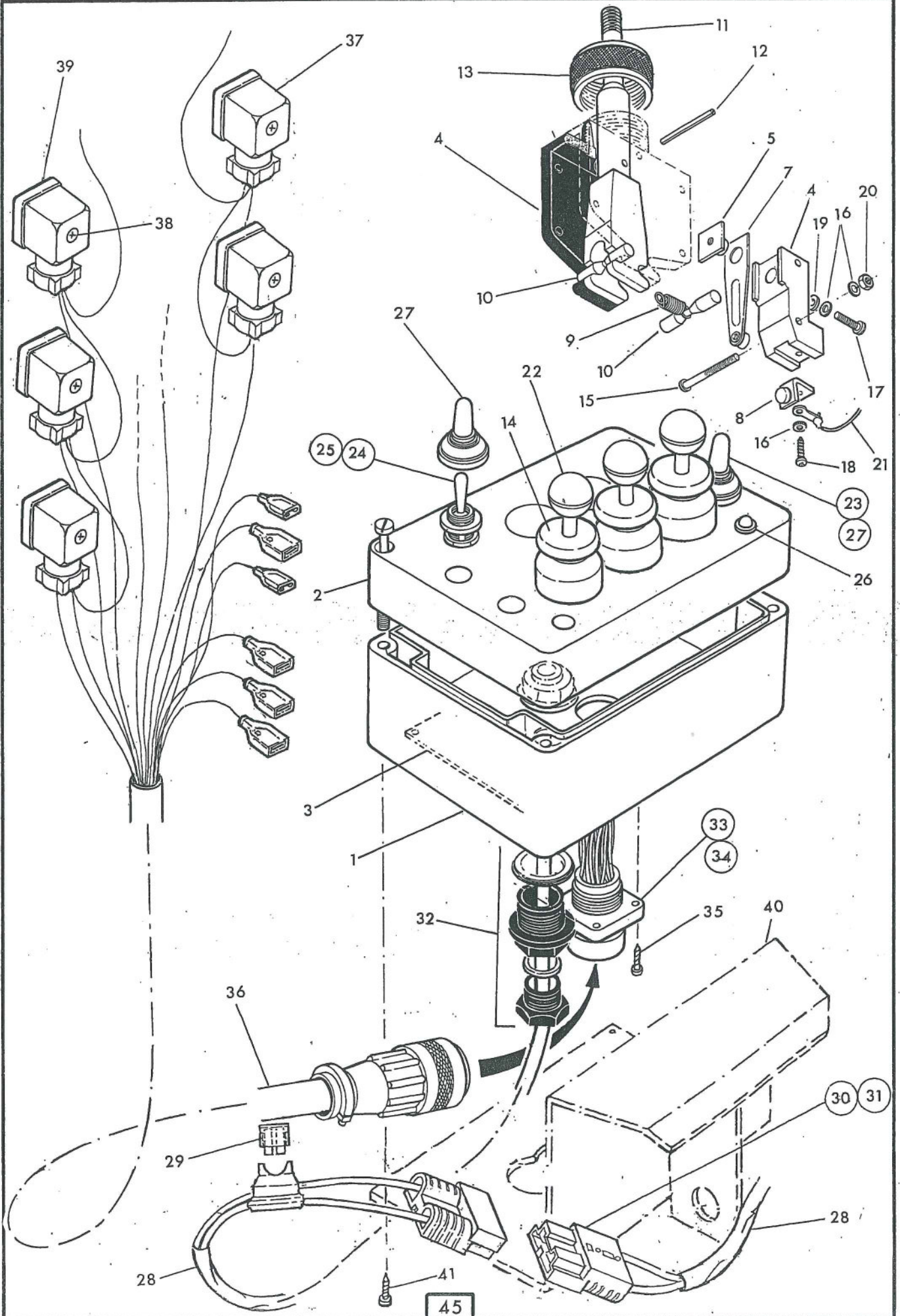


REF	PART NO	QTY	DESCRIPTION
<b>HEAD COMPENSATOR AND ANGLE FLOAT VALVE 480E - AHC</b>			
1	81 30 361	1	Valve block
2	81 26 280	1	Bridging plate
3	81 30 141	1	Relief valve cartridge
3	81 16 011	2	Spring
5	81 30 032	1	Relief valve cap
6	86 50 103	1	Bonded seal 3/8 BSP
7	81 30 140	1	Relief valve plug
8	86 00 109	1	'O' ring
9	87 00 511	7	'O' ring
10	85 81 169	2	Union 1/4 BSP MM
11	85 81 254	2	Tee piece MFM 1/4 BSP
12	81 30 037	1	Restrictor union S 1/4 BSP MM angle gland
13	81 30 038	1	Restrictor union L 1/4 BSP MM angle base
14	86 50 102	4	Bonded seal 1/4 BSP
15	81 30 457	1	Single solenoid valve compr:
16	81 30 175	1	Coil
17	81 30 176	1	Manual override kit
18	86 00 107	4	'O' ring
19	85 82 041	1	Plug 1/8 BSPT
20	92 43 102	4	Capscrew - socket headed M5 x 5
21	84 02 338	1	Wiring harness and plug
22	07.835.04	1	Plug inc: screw & gasket
23	07.835.03	1	Screw
24	07.835.02	1	Gasket
25	81 30 151	1	Relief valve cartridge
<b>86 99 224</b>			<b>SOLENOID SEAL KIT</b>

SWITCHBOX & LOOM



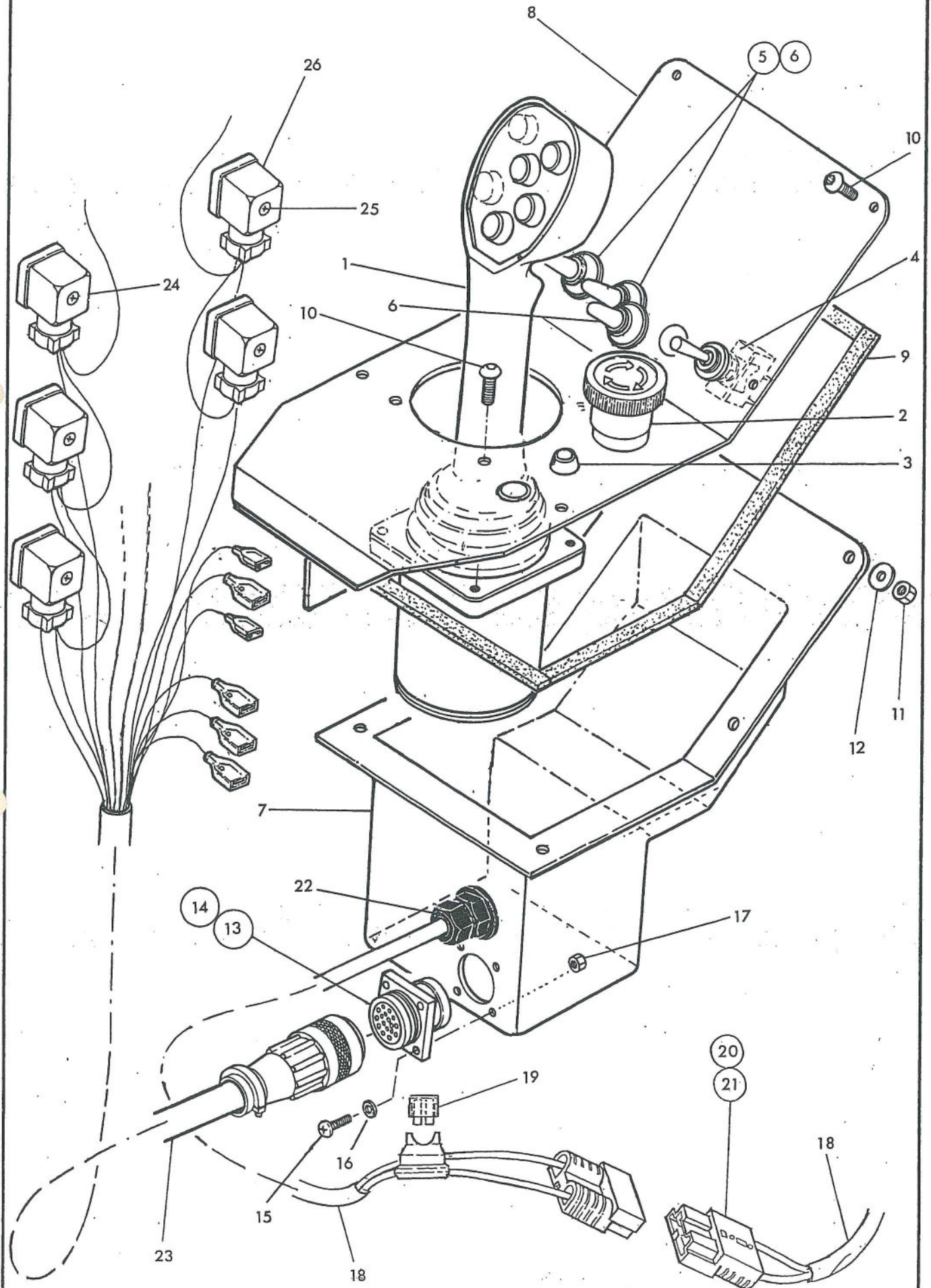
McCormel





Ref. Part No.	Qty.	Description
41845.01		MULTI 3 LEVER SWITCHBOX FOR GEAR HYDRAULIC MACHINES
1	1	Box
2	1	Lid c/w screws
3	1	Circuit board
	3	Lever switch unit comprising:-
4	1	Switch body
5	2	Contact holder
6	2	Spring contact retainer
7	2	Spring contact
8	2	Fixed contact
9	1	Spring
10	2	Bar
11	1	Lever
12	1	Spring dowel dia 3 x 20
13	1	Bezel ring
14	1	Lever gaiter
15	4	Screw - posidrive panhead M3 x 25
16	8	External serrated washer dia 3
17	2	Screw posidrive pan head M3 x 12
18	2	Self tapping screw No.4 type B x10mm long
19	2	Plain washer dia 3
20	2	Nut plated M3
21	3	Loom - lever switch
22	3	Knob - black
23	1	Switch - power on/off-
24	1	Switch - Float
25	1	Loom - Float switch
26	1	L.E.D. and loom
27	2	Weather gaiter
28	1	Power loom incl.
29	1	Fuse
30	2	Contact housing
31	4	Contacts
32	1	Gland
33	1	Socket shell
34	14	Pin socket
35	4	Screw No.10 x 1/2" long
36	1	Loom incl. connections
37	7	Plug incl. screw + gasket
38	1	Screw
39	1	Gasket
40	1	Mounting bracket
41	4	Self tapping screw No.10 x 1/2" long





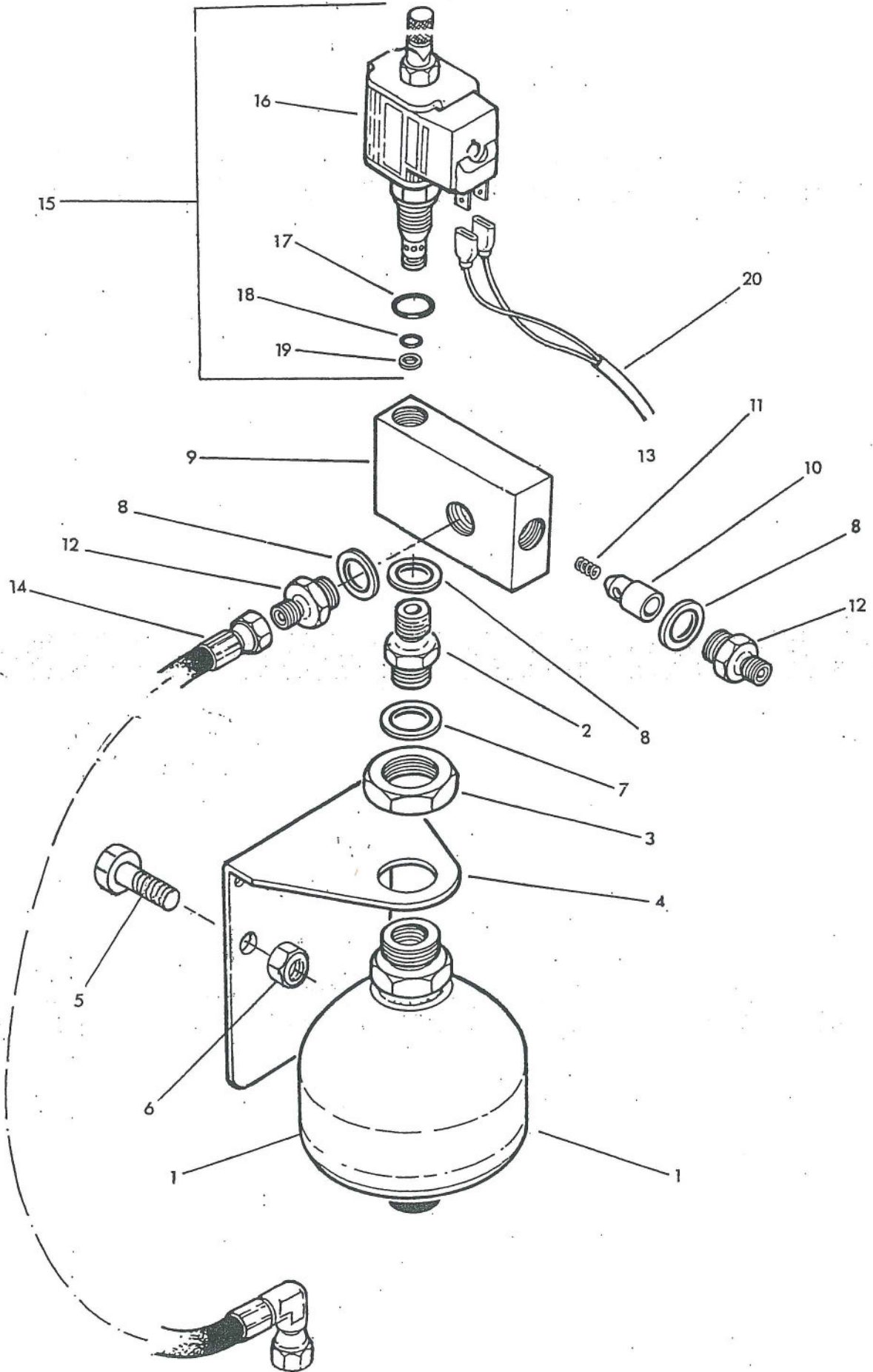


Ref. Part No.	Qty.	Description
41590.03		MONOLEVER CONTROL ASSY FOR GEAR HYDRAULICS
1 41590.33	1	Joystick incl. circuit board
2 84 02 184	1	Power on/emergency stop
3 84 02 174	1	L.E.D. main power on
4 84 02 182	1	Switch - slew/auto reset
5 84 02 023	2	Switch Lift and angle float
6 84 02 024	3	Weather cover
7 75 50 300	1	Cover pod
8 75 50 339	1	Top plate
9 72 90 052	1	Sealing strip -cut to suit
10 93 00 125	10	Screw - button head M6 x 16
11 91 43 003	6	Self locking nut M6
12 91 00 103	6	Washer dia 6
13 84 02 189	1	Socket shell
14 84 02 192	14	Female socket pin
15 92 00 007	4	Screw posidrive panhead M3 x 10
16 91 00 400	4	External serrated washer dia 3
17 91 00 013	4	Nut - plated M3
18 84 02 232	1	Power loom incl.
19 43 034.03	1	Fuse
20 84 02 230	2	Contact housing
21 84 02 229	4	Contacts
22 84 02 042	1	Gland
23 41844.02	1	Loom c/w plug incl.
24 07.835.04	7	Plug incl. screw + gasket
25 07.835.03	1	Screw
26 07.835.02	1	Gasket

LIFT FLOAT KIT

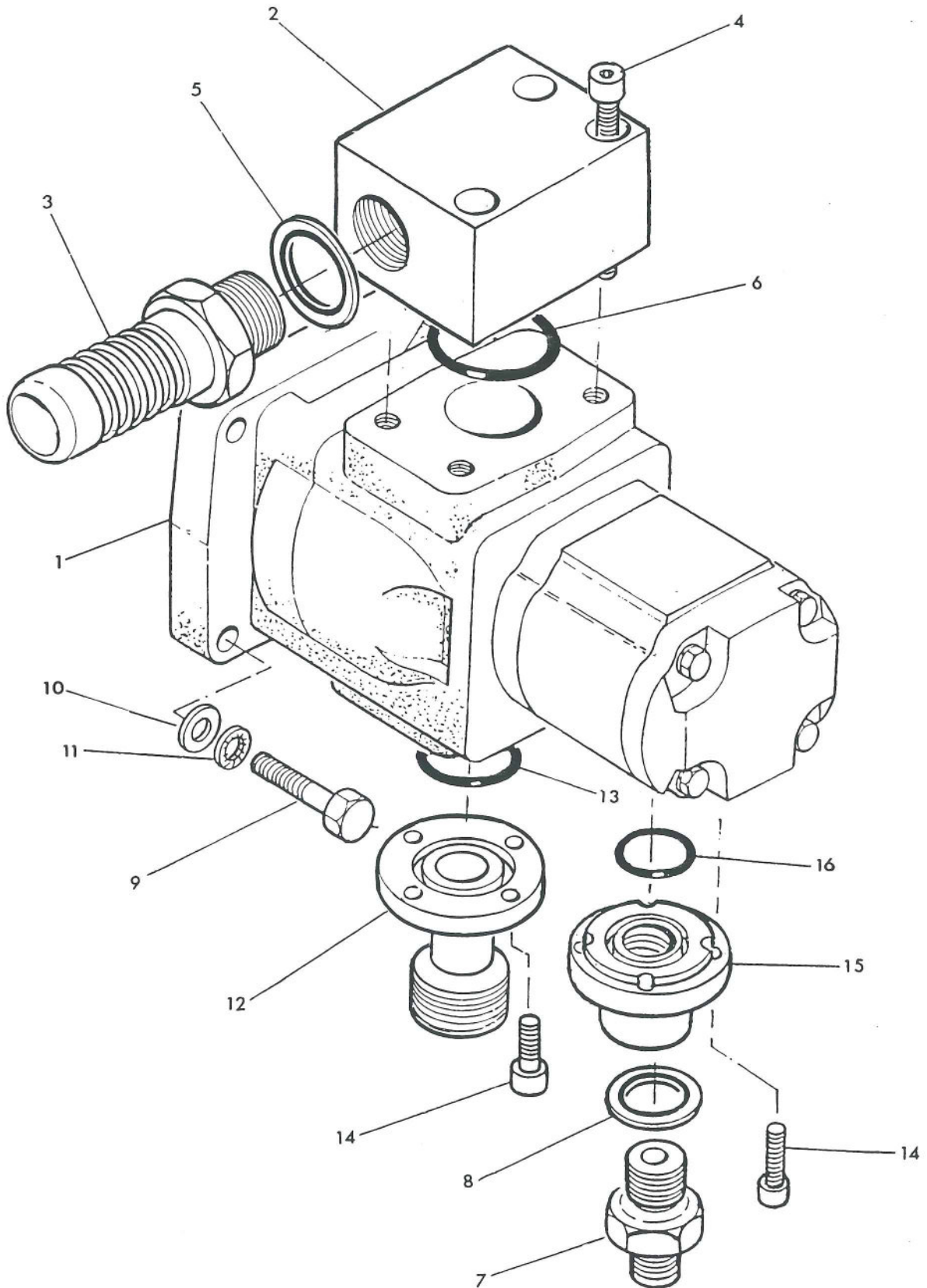


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REF.	PART NO.	QTY.	DESCRIPTION
	81 26 319		LIFT FLOAT KIT - Quick response
1	81 26 044	1	Accumulator
2	G241 0380	1	Adaptor M22
3	81 26 035	1	Bulkhead nut M33
4	81 26 318	1	Bracket
5	93 13 056	2	Setscrew M12 x .25
6	91 43 006	2	Self locking nut M12
7	86 50 322	1	Bonded seal M22
8	86 50 103	3	Bonded seal 3/8" BSP
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 3/8" BSP -1/4" BSP
13	12 90 061	1	Operating sticker
14	85 35 012	1	Hose 1/4" BSP x 18" 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 02 195	1	Cable



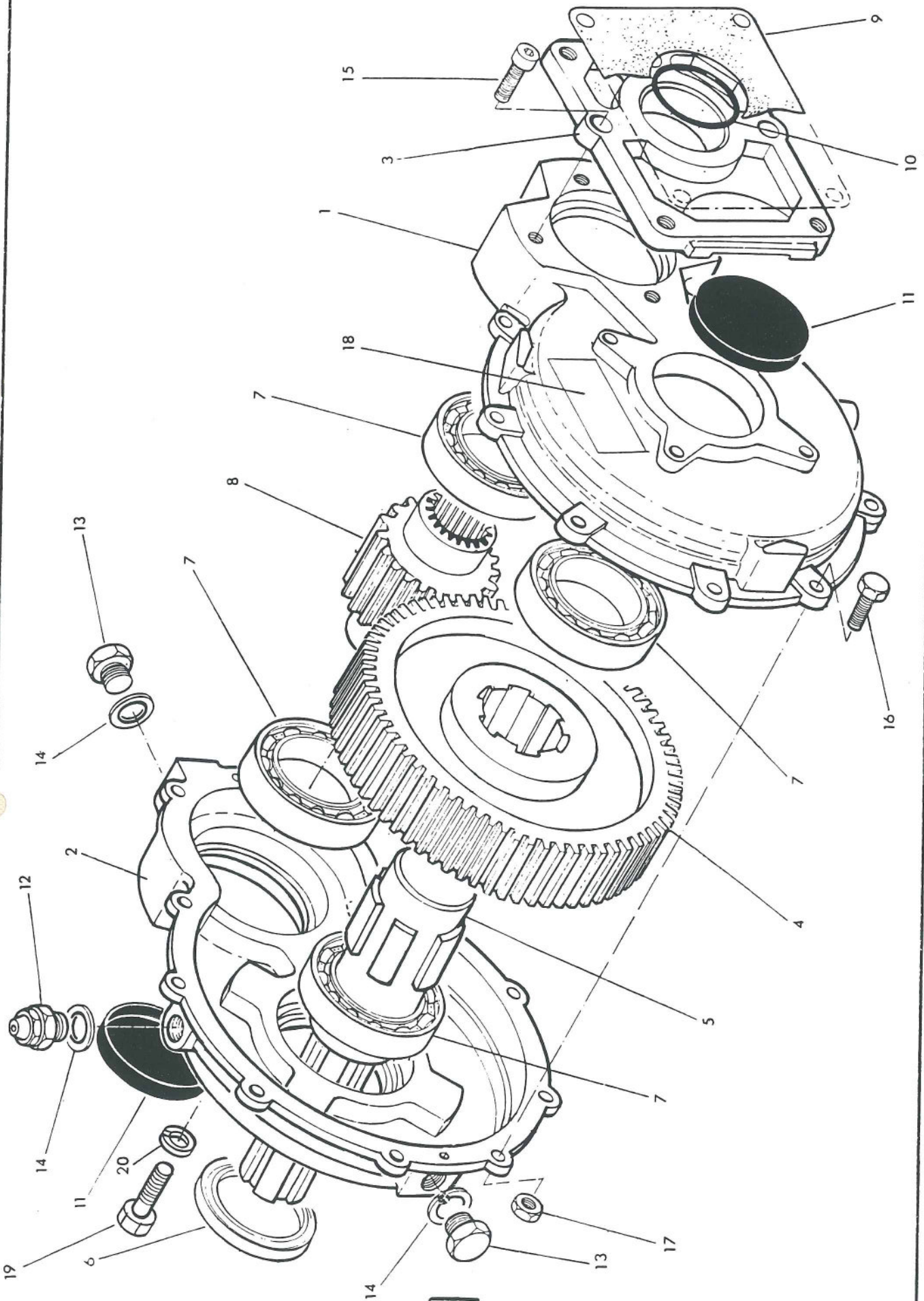


Ref	Part No.	Qty	Description
<b>PUMP ASSEMBLY</b>			
1	82 01 700	1	Tandem pump compr:
	82 01 165	1	Large pump
	82 01 166	1	Small pump
2	42142.01	1	Suction flange
3	85 81 260	1	Adaptor 1 1/4 BSP - 1/2 low pressure
4	92 43 126	3	Capscrew M12 x 60
5	86 50 109	1	Bonded seal 1 1/4 BSP
6	86 00 304	1	'O' ring
7	85 81 110	1	Adaptor 1/2 BSP - 3/8 BSP MM
8	86 50 104	1	Bonded seal 1/2 BSP
9	93 13 074	4	Bolt M8 x 35
10	91 00 104	4	Plain washer dia 8
11	91 00 404	7	Shakeproof washer dia 8
12	80 13 090	1	Pressure connection
13	86 00 117	1	'O' ring
14	93 00 147	8	Capscrew M8 x 20
15	42029.01	1	Pressure connection
16	86 00 405	1	'O' ring
	<b>86 99 234</b>		<b>SEAL KIT</b>
	<b>86 29 209</b>		<b>Shaft seal</b>

GEARBOX



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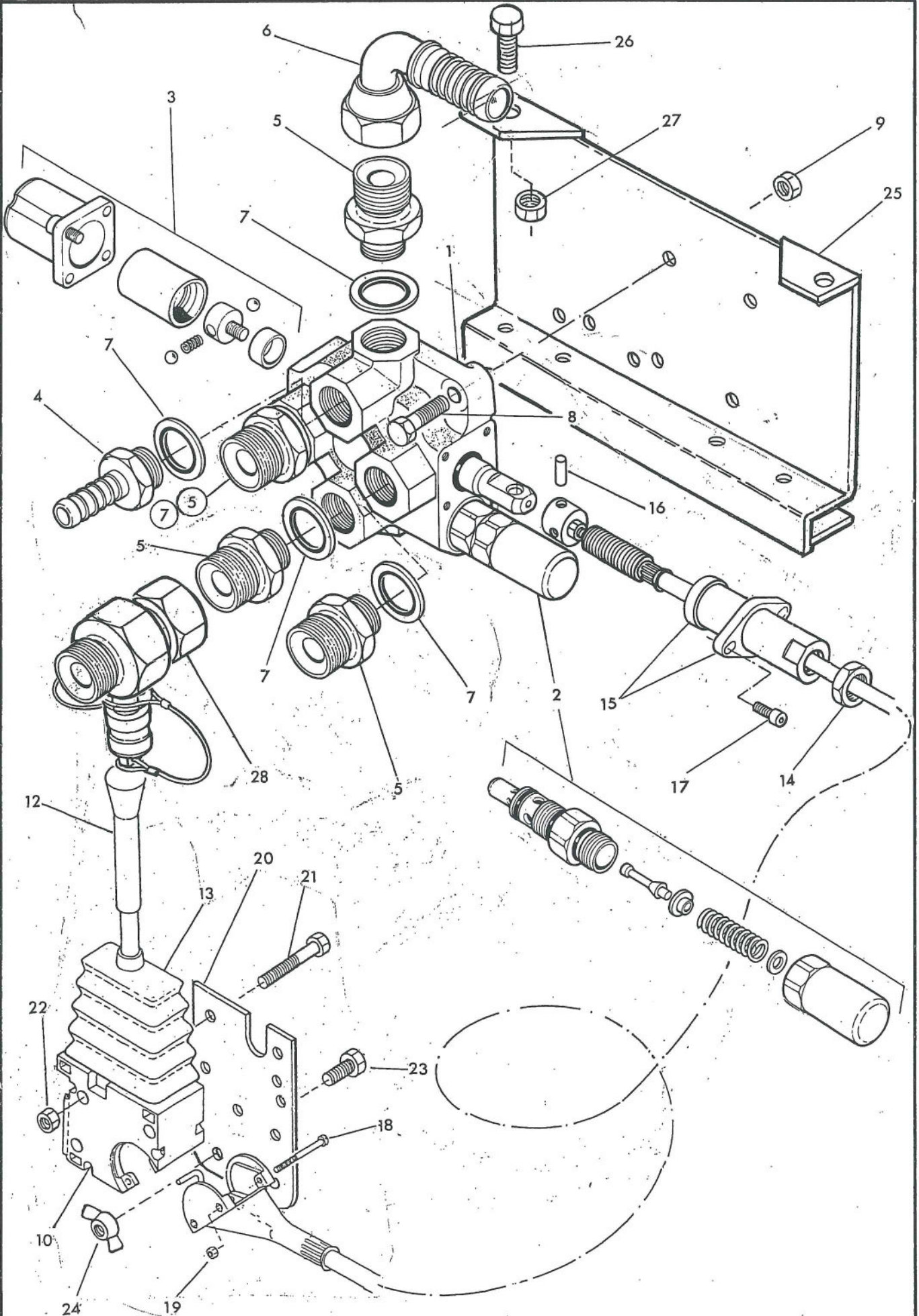
Ref.	Part No.	Qty.	Description
	80 13 444		GEARBOX
1	80 13 100	1	Case - output side
2	80 13 101	1	Case - input side
3	80 13 102	1	Pump mounting flange
4	80 13 103	1	Gear 72t
5	80 13 105	1	Shaft
6	86 29 196	1	Shaft seal
7	06 00 042	4	Bearing
8	80 13 104	1	Pinion 17t
9	80 13 056	1	Gasket
10	86 00 523	1	'O' ring
11	80 13 106	2	End cover
12	80 13 107	1	Breather/adaptor
13	85 81 133	4	Plug 1/4 BSP
14	86 50 102	4	Bonded seal 1/4 BSP
15	93 43 045	3	Capscrew socket headed M10 x 20
16	92 13 064	10	Bolt M8 x 30
17	91 43 004	10	Self locking nut M8
18	12 90 054	1	Sticker
19	93 13 056	4	Setscrew M12 x 25
20	91 00 206	4	Spring washer dia 12



# ROTOR CONTROL VALVE



# McCORMICK



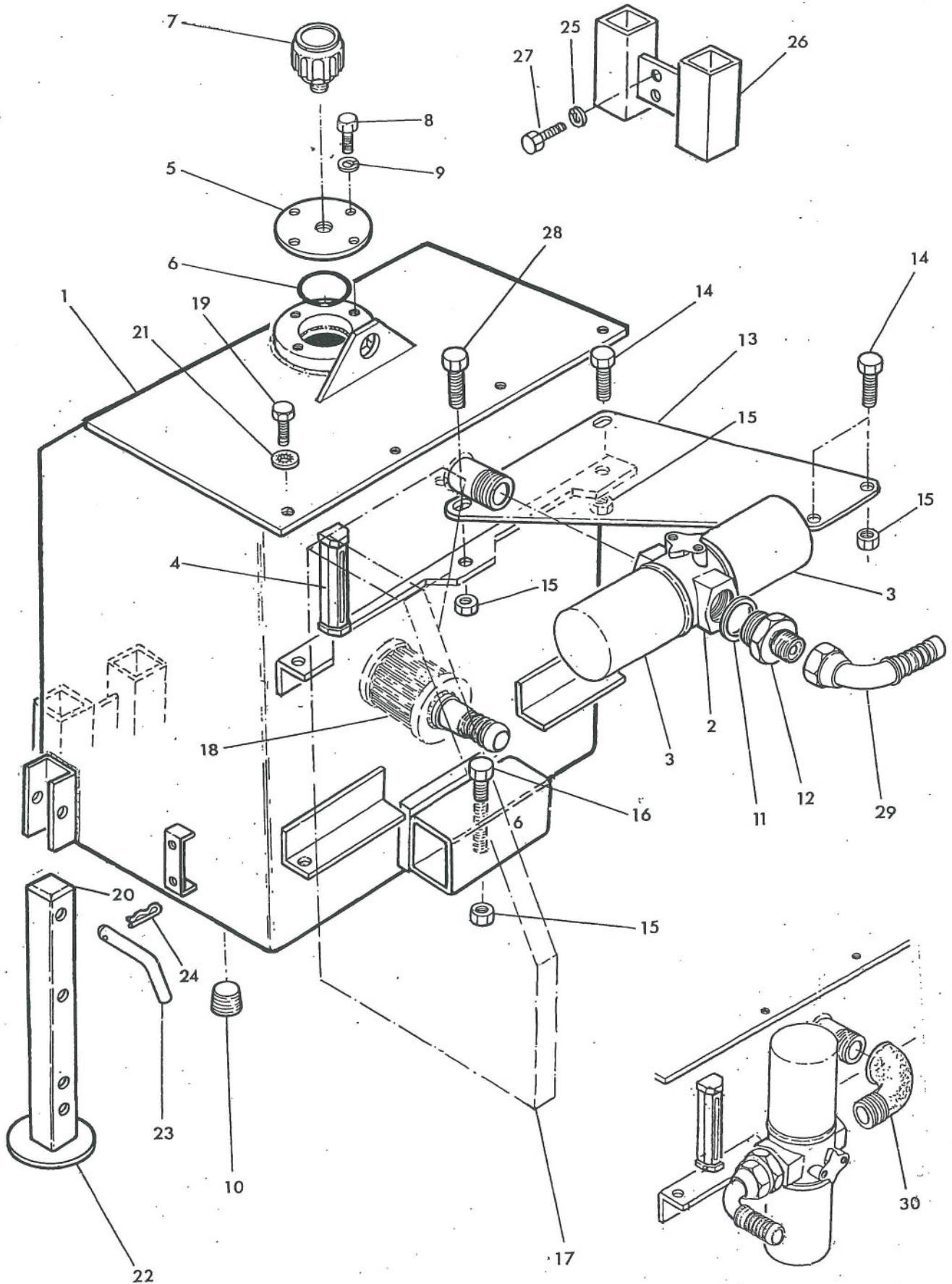


REF	PART NO	QTY	DESCRIPTION
<b>ROTOR CONTROL VALVE ASSEMBLY</b>			
1	81 25 356	1	Rotor control valve
2	81 25 108	1	Relief valve 2750psi (190 bar)
3	81 25 109	1	Detent assembly
4	85 81 269	1	Adaptor 3/4 BSP x 5/8 low pressure
5	80 02 086	4	Adaptor 3/4 BSP - 1 BSP
6	71 14 005	1	Elbow 1 BSP F x 1 low pressure
7	86 50 106	5	Bonded seal 3/4 BSP
8	92 13 095	2	Bolt M10 x 40
9	91 43 005	2	Self locking nut M10
	80 17 041	1	Lever and cable assembly
10	80 17 025	1	Lever pivot box
11	80 17 028	1	Lever
12	80 17 027	1	Knob
13	80 17 026	1	Weather gaiter
14	80 17 014	1	Locknut
15	80 17 018	1	Flange and sleeve
16	80 17 021	1	Pin
17	93 43 023	2	Capscrew M6 x 12
18	93 73 081	2	Screw M4 x 40
19	91 13 001	2	Nut M4
20	76 50 282	1	Lever mounting plate
21	92 13 113	3	Bolt
22	91 43 003	3	Self locking nut
23	93 13 034	2	Setscrew
24	91 93 004	2	Wingnut
25	43.069.01	1	Valve mounting bracket
26	93 13 056	1	Setscrew M12 x 25
27	91 43 006	1	Self locking nut M12
28	81 31 012	1	Test point 1 BSP MF
	<b>86 99 218</b>		<b>SEAL KIT</b>

TANK



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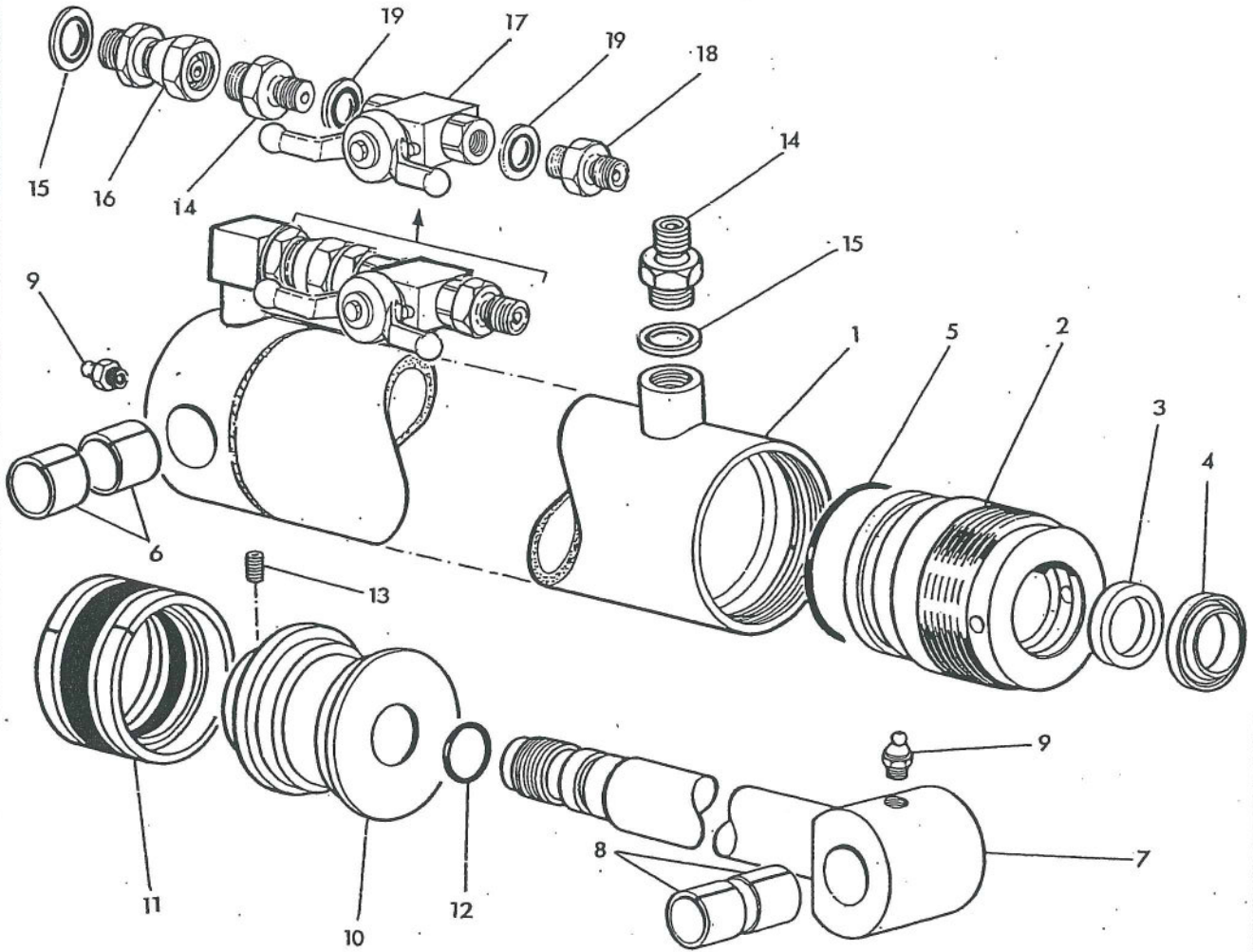


Ref	Part No.	Qty	Description
<b>OIL TANK AND FITTINGS</b>			
1	41523.01	1	Oil tank
2	84 01 060	1	Filter head
3	84 01 041	2	Filter element
4	84 01 048	1	Level guage
5	71 92 063	1	Cover
6	86 00 151	1	'O' ring
7	84 01 063	1	Breather
8	93 13 054	4	Setscrew M8 x 25
9	91 00 204	4	Spring weasher dia 8
10	85 81 203	1	Drain plug
11	86 50 224	1	Bonded seal
12	85 81 291	1	Adaptor
13	41553.03	1	Tank stay bracket
14	93 13 066	3	Setscrew M12 x 30
15	91 43 006	5	Self locking nut M12
16	92 13 226	1	Bolt M12 x 110
17	41529.06	1	Tank fairing
18	84 01 047	1	Strainer
19	93 13 045	2	Setscrew M10 x 20
20	71 91 108	2	Plastic bung
21	91 00 305	2	Shakeproof washer dia 10
22	41773.01	2	Stand leg
23	71 92 023	2	Leg pin
24	04 31 105	2	Spring cotter
25	91 00 205	2	Spring washer dia 10
26	41743.01	1	Leg stow bracket
27	91 13 065	2	Setscrew M10 x 30
28	93 13 076	1	Setscrew M12 x 35
29	71 14 005	1	Adaptor 1" BSP F - 1" low pressure
	85 81 104	1	90 degrees elbow 1 1/2" BSP M-F AHC only

LIFT RAM



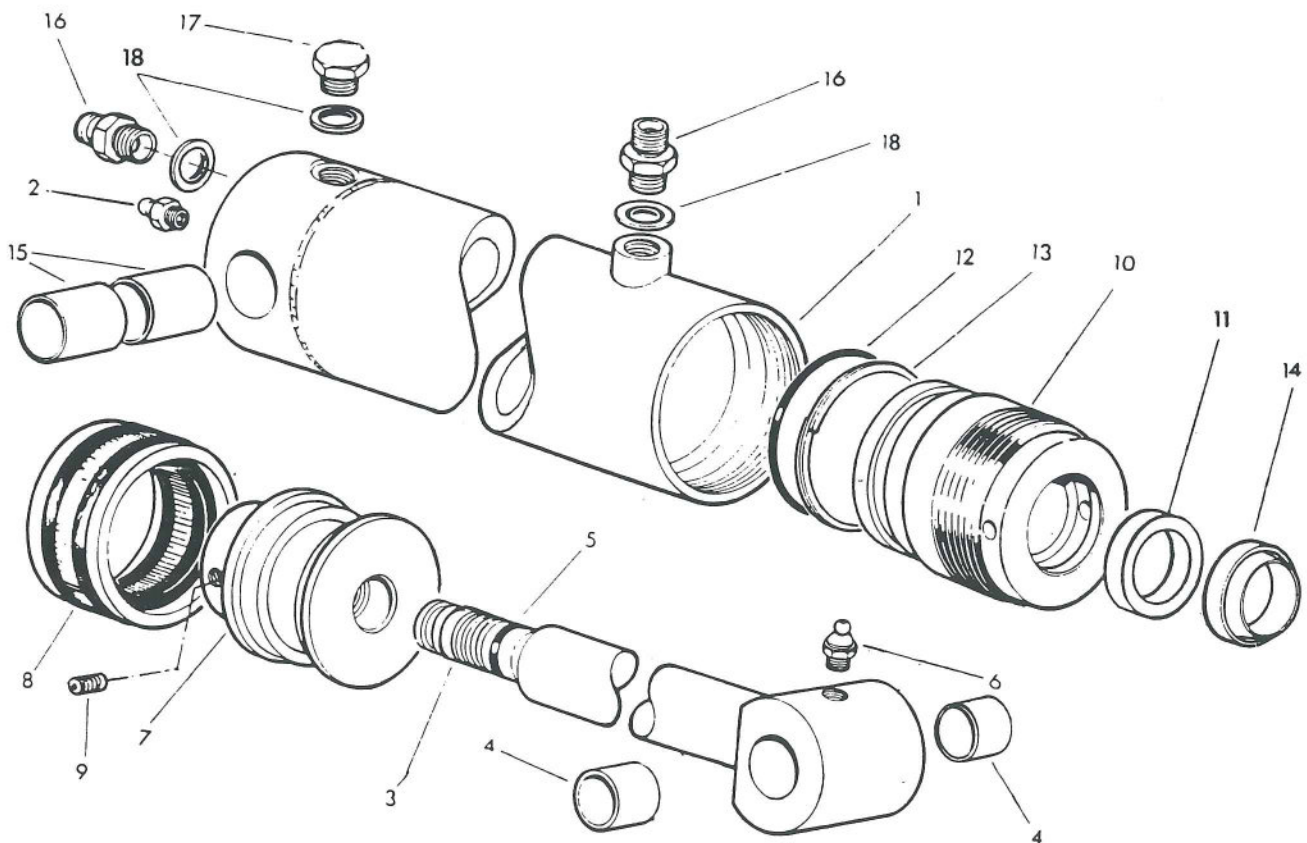
**McCormel**



Ref	Part No	Qty	Description
	<b>42095.02</b>		<b>LIFT RAM ASSEMBLY</b>
	42095.01	1	Lift ram compr:
1	42095.31	1	Barrel
2	42095.38	1	Gland housing
3	86 29 158	1	Gland seal
4	86 29 152	1	Rod wiper
5	86 00 742	1	'O' ring
6	71 01 134	2	Bush
7	42968.01	1	Rod
8	60 12 032	2	Bush
9	09 01 121	2	Greaser 1/8 BSP straight
10	42095.34	1	Piston
11	86 38 742	1	Piston seal
12	86 00 119	1	'O' ring
13	93 63 023	1	Grubscrew M6 x 12
14	85 81 115	2	Union 3/8 BSP - 1/4 BSP MM
15	86 50 103	2	Bonded seal 3/8 BSP
16	85 81 178	1	Swivel union 3/8 BSP MF
17	81 30 181	1	Tap
18	85 81 169	1	Union 1/4 BSP MM
19	86 50 102	2	Bonded seal 1/4 BSP

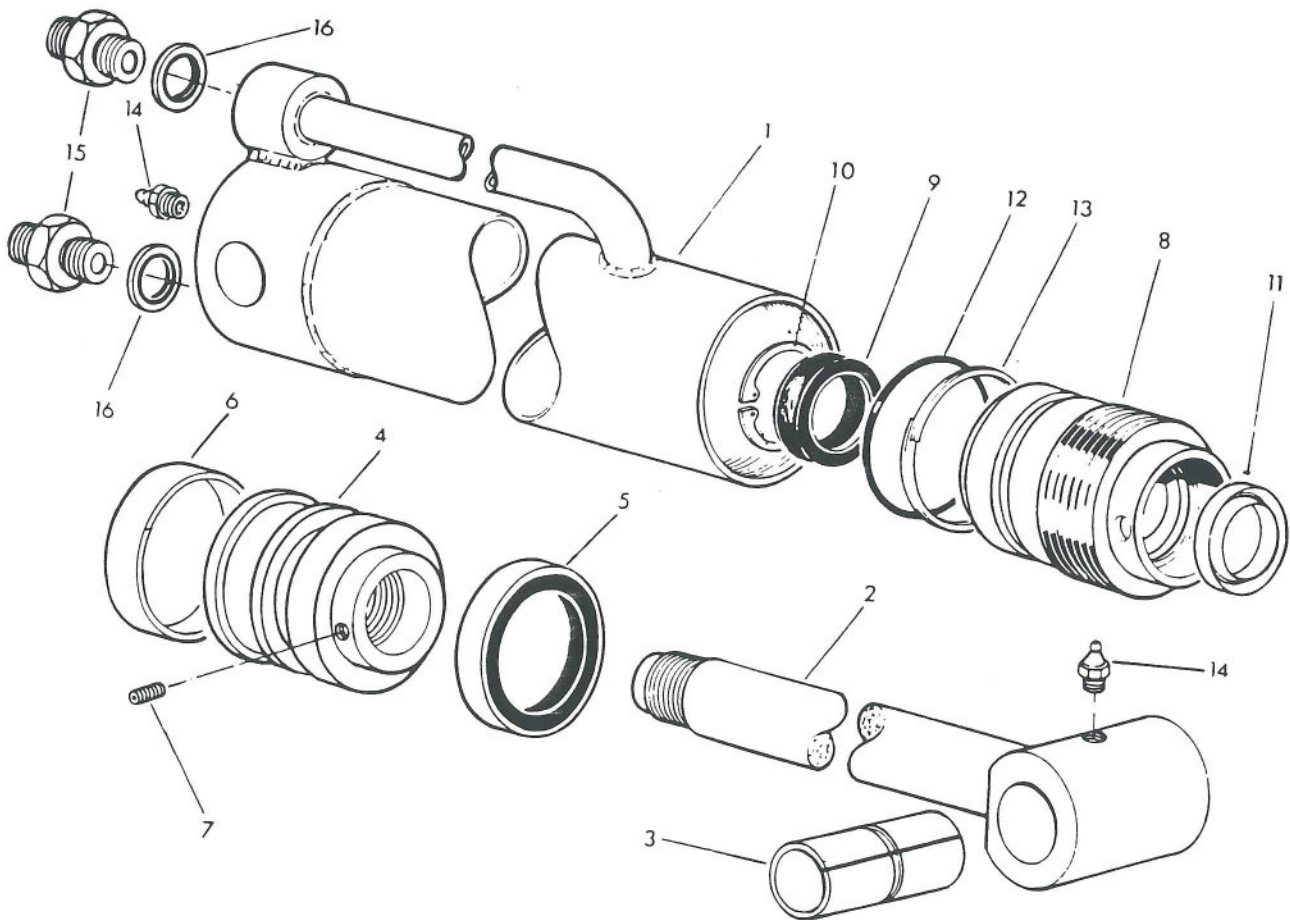
86 99 249

SEAL KIT



Ref.	Part No.	Qty.	Description
	<b>71-93-334</b>		<b>REACH RAM ASSEMBLY</b>
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	87-09-740	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
	<b>86-99-187</b>		<b>SEAL KIT</b>

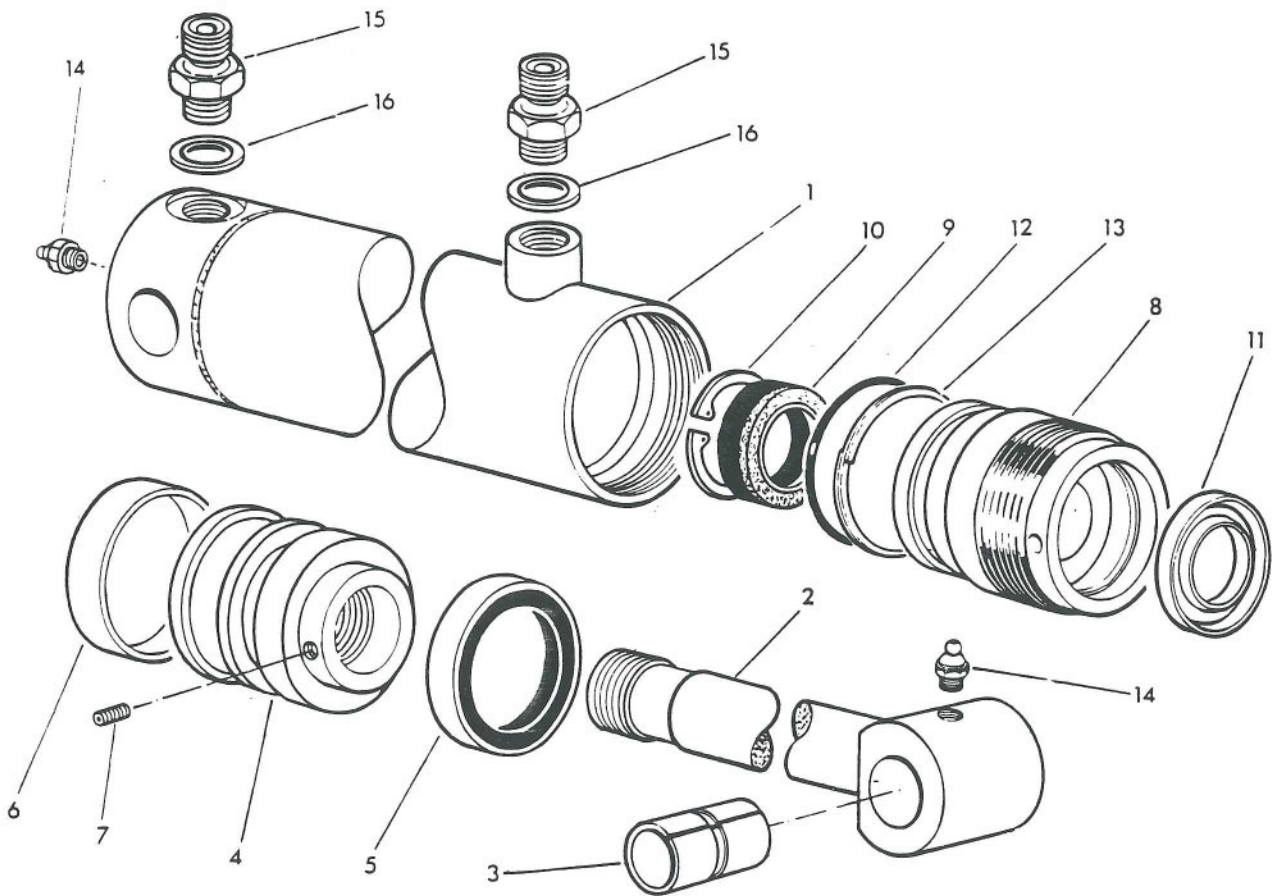
**Assembly note** Fully tighten item 9 and centre pop edge of hole to retain.



Ref.	Part No.	Qty.	Description
	<b>75 60 344</b>		<b>ANGLING RAM ASSEMBLY</b>
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 M6 x 12
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 1/4 BSP MM
16	86 50 102	2	Bonded seal 1/4" BSP
	<b>86 99 188</b>		<b>SEAL KIT</b>

\*Assembly note

Tighten fully and centre punch edge of hole to secure.



Ref.	Part No.	Qty.	Description
	<b>75-60-356</b>		<b>COMPENSATOR RAM ASSEMBLY</b>
1	71-95-305	1	Cylinder
2	71-95-010	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	Grubscrew 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

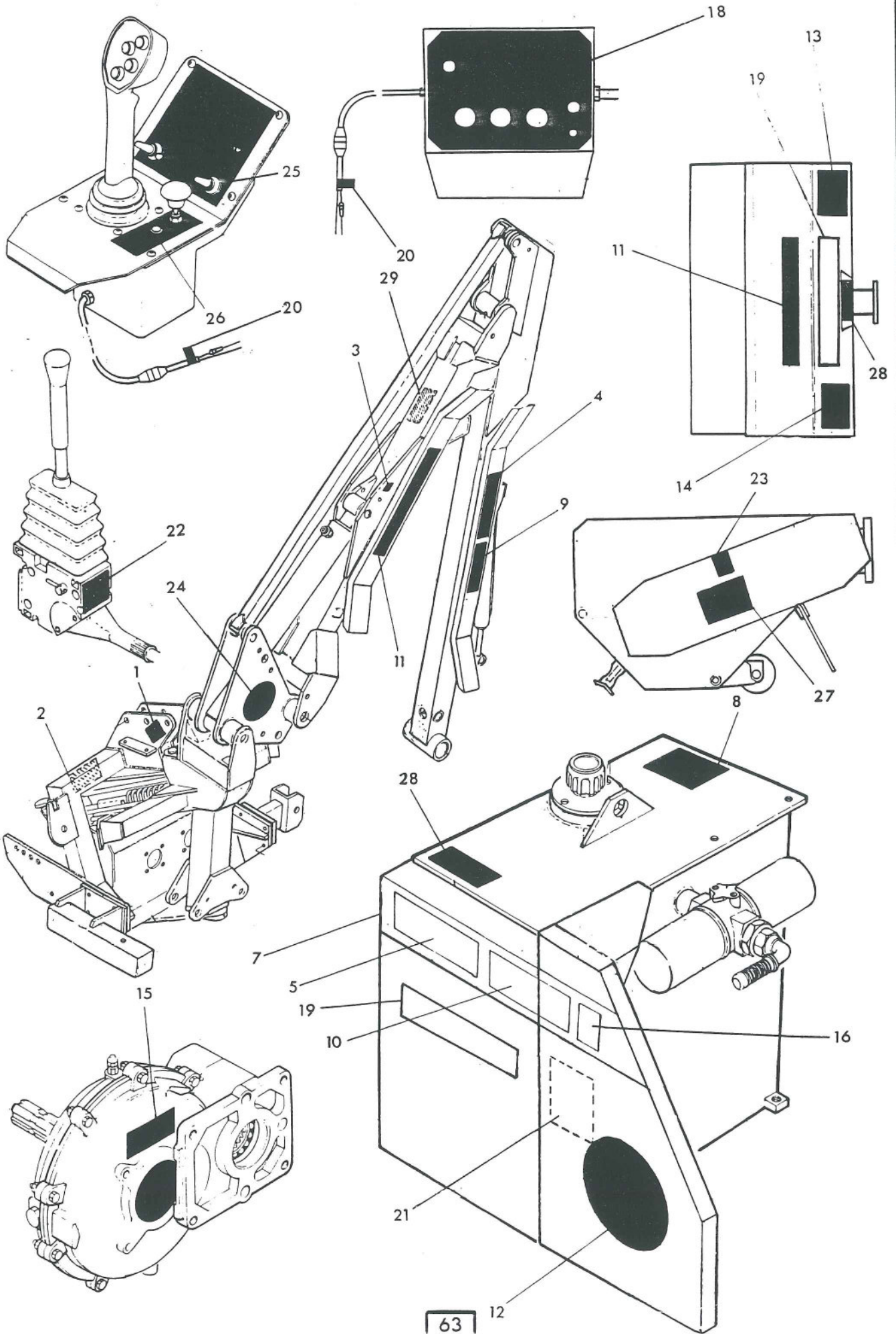
**86-99-188**

**SEAL KIT**

**\* Assembly note**

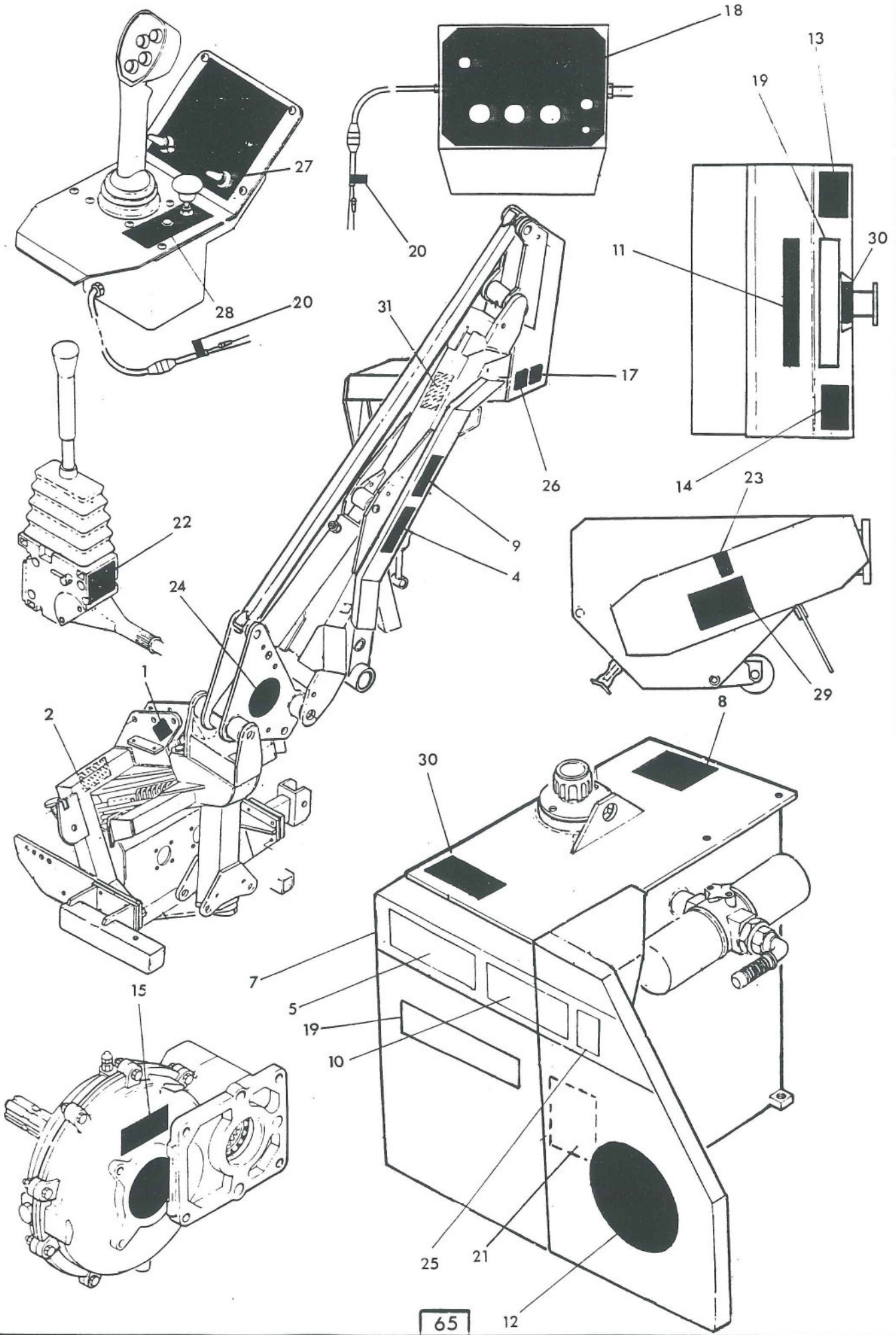
Tighten fully and centre punch edge of hole to secure.







REF	PART NO	QTY	DESCRIPTION
			<b>STICKERS - Electric machines</b>
1	71 05 136	1	Read book first
2	12 90 331	1	Tighten check chains
3	12 90 074	1	Sling here symbol
4	12 90 411	2	Mag - black
5	12 90 412	1	Mag - yellow
6	12 90 352	1	Gen. warning - despatched loose
7	12 90 432	1	Tank stripe
8	12 90 475	1	Greasing
9	12 90 415	2	480 - black
10	12 90 418	1	480 - yellow
11	12 90 255	1	McConnel
12	12 90 365	1	McConnel roundel
13	12 90 377	1	Flail head instructions
14	12 90 341	1	Flail head guarding
15	12 90 054	1	Gearbox oil capacity
16	12 90 072	1	E - yellow
17	12 90 071	2	E - black
18	12 90 351	1	Switch box controls
19	12 90 435	2	Agram
20	84 02 105	1	Connection warning
21	71 09 143	1	Solenoid connections
22	12 90 338	1	Rotor controls
23	12 90 065	1	Belt tension - belt drive heads only
24	12 90 296	1	Roundel
25	12 90 451	1	Controls joystick only
26	12 90 080	1	Power - joystick controls only
27	12 90 478	1	Belt pulley alignment
28	12 90 500	2	52hp
29	12 90 450	1	Breakaway return warning





# McCONNEL

REF	PART NO	QTY	DESCRIPTION
			<b>STICKERS - Electric machines M model</b>
1	71 05 136	1	Read book first
2	12 90 331	1	Tighten check chains
3	12 90 074	1	Sling here symbol
4	12 90 411	2	Mag - black
5	12 90 412	1	Mag - yellow
6	12 90 352	1	Gen. warning - despatched loose
7	12 90 432	1	Tank stripe
8	12 90 475	1	Greasing
9	12 90 415	2	480 - black
10	12 90 418	1	480 - yellow
11	12 90 255	1	McConnel
12	12 90 365	1	McConnel roundel
13	12 90 377	1	Flail head instructions
14	12 90 341	1	Flail head guarding
15	12 90 054	1	Gearbox oil capacity
16	12 90 072	1	E - yellow
17	12 90 071	2	E - black
18	12 90 458	1	Switch box controls
19	12 90 435	2	Agram
20	84 02 121	1	Connection warning
21	71 09 143	1	Solenoid connections
22	12 90 338	1	Rotor controls
23	12 90 065	1	Belt tension - belt drive heads only
24	12 90 296	1	Roundel
25	12 90 069	1	M - yellow
26	12 90 057	2	M - black
27	12 90 451	1	Controls - joystick only
28	12 90 080	1	Power - joystick controls only
29	12 90 478	1	Belt pulley alignment
30	12 90 500	2	52hp
31	12 90 450	1	Breakaway return warning