

# MICRON

MICRO EXCAVATOR Handbook



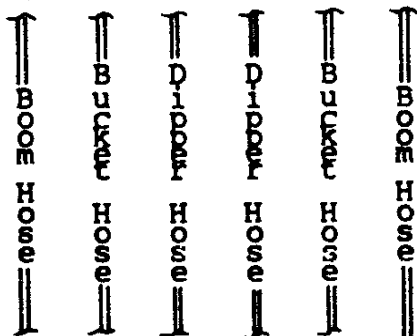
**F** FLEMING

PREPARING PART ASSEMBLED & EXPORT MACHINES FOR USE.

Remove components from packing, identify loose components with parts illustration.

- (1) If not already fitted, assemble left and right hand leg to chassis.
- (2) Assemble boom to slew post. Remove protective caps from boom hydraulic ram ports and extend ram until rod eye can be fitted to slew post. Replace protective caps.
- (3) With boom securely supported on stout wooden props fit dipper arm. Remove protective caps from dipper hydraulic ram ports and extend ram until rod eye can be fitted to dipper arm. Replace protective caps.
- (4)a. Remove hose cover from boom. Uncoil hydraulic hoses from beneath control valve. Identify hose function either by label or colour code on hose and ram port.

b. Lay out hoses under hose cover as follows:-



Adjust hoses to align painted mark on hose with cover edge. Refit hose cover to retain hose lines in position.

- c. Fit dipper ram hoses through rings to dipper ram ports.
  - d. Pass bucket ram hoses through rings on each side of boom. Fit hoses to boom ram ports.
  - e. Pass bucket ram hoses through rings on each side of dipper arm, fit bucket ram hoses to bucket ram ports.
- (5) Fit grease nipples to ram ends and pivot points if not already fitted.
  - (6) Remove filler cap fitted between levers and seat. Fill tank with Castrol Hydraulic Oil or equivalent (approx' 14 litres). Replace filler cap.
  - (7) Refer to engine handbook and prepare engine for operation.

DO NOT FORGET ENGINE OIL.

(8) Priming Hydraulic Pump.

Petrol engine: Remove spark plug lead from plug.

Diesel engine: Open the compressor or pull stop control.

Slowly crank engine for 2 minutes to prime hydraulic pump with oil.

Petrol engine: Replace spark plug lead.

Diesel engine: Reset decompression/stop lever.

### BLEEDING HYDRAULIC SYSTEM.

- (9) a. Start engine and set to run at 1/3 full engine speed. Select boom ram control lever to boom 'up' as soon as boom starts to lift, return lever to neutral. If boom does not lift within 30 seconds of starting engine, immediately stop engine and carry out hydraulic pump priming (8) again.
  - b. Select boom up and fully raise boom. Operate bucket control to fully extend and close bucket ram three times.
  - c. Operate dipper control to fully extend and close dipper ram three times.
  - d. Operate boom control to lower arms to ground, and full lift height, three times.
  - e. Operate leg ram control lever to fully extend and close leg ram, three times.
  - f. Lower boom until dipper arm end touches ground. Further operation of boom 'down' lever will cause front legs to be raised off the ground. Raise legs 50mm off the ground, remove leg adjustment pin and set each leg to its maximum width. Replace adjustment pins. Select boom 'up' which will cause legs to be lowered onto the ground. Set boom to full lift position.
  - g. Operate slew lever gently to fully slew the arms three times. Leave arms in central position. Stop engine.
- (10) Check hydraulic oil level as explained in (6). Top up to dip stick mark as required. (approx' 6 litres).
  - (11) Check all hydraulic connections for leakage.
  - (12) Grease all nipples with Castrol LM or equivalent.

### PREPARING ASSEMBLED MACHINE FOR USE.

- (1) Prepare engine for operation - Refer to engine handbook.  
DO NOT FORGET ENGINE OIL.
- (2) Remove cover fitted between levers and seat to expose hydraulic oil filler cap. Check that oil level is to dip stick mark. Replace filler cap.
- (3) Grease all nipples.
- (4) Check all pins secure, all bolts tight.
- (5) Fit bucket, see bucket fitting procedure.

### DAILY MAINTENANCE.

- (1) Engine: Oil level refer to handbook.
- (2) Remove oil filler cap fitted between levers and seat. Check that oil level is to dip stick mark. Replace filler cap.  
Min' to max' level on dipstick = 2.25 litres.  
Total hydraulic system capacity 20 litres.

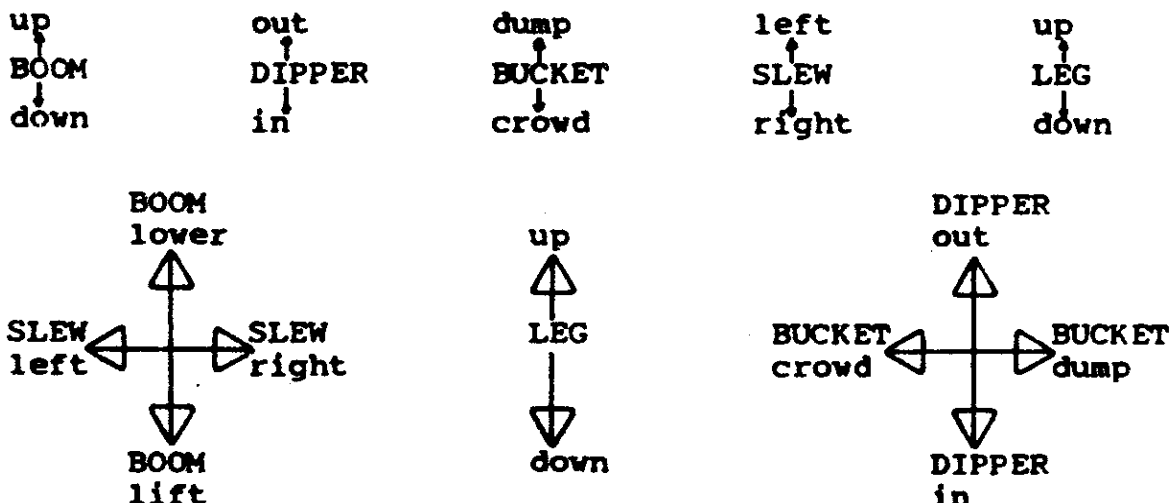
(3) Grease all nipples as follows:-

- |                                     |                         |
|-------------------------------------|-------------------------|
| (a) One each end of hydraulic rams. | 10 nipples.             |
| (b) Slew post.                      | 1 nipple .              |
| (c) Slew post/boom arm.             | 1 nipple .              |
| (d) Boom/Dipper.                    | 1 nipple .              |
| (e) Dipper/Bucket.                  | 1 nipple .              |
| (f) Bucket linkage.                 | 3 nipples.              |
|                                     | <u>          </u>       |
|                                     | Total 17 Gease nipples. |

- (4) Inspect all hoses and rams for leakage.
- (5) Check all bolts are tight and retaining pins are fitted to all pins.
- (6) Check bucket teeth bolts are tight.  
See engine handbook for all service intervals on engine.  
It is recommended that the hydraulic oil filter is changed annually.

**MACHINE OPERATION.**

**5 Lever System.**



With either system combinations of lever movement may be selected simultaneously.

**ADJUSTING AXLE WIDTH.**

Lower rear leg to raise wheel off ground. Withdraw pin retaining clip from underside of axle and remove pin. Adjust axle to wide or narrow setting. Refit pin and secure with clip.

**ADJUSTING LEG POSITION.**

Position bucket centrally to machine. Select boom lower which will cause legs to be lifted. Position feet 50mm above ground. Withdraw pin retaining clip from leg adjusting pin and remove pin. Set leg to either of three positions. Narrow, mid, or wide. Replace pin and secure with clip.

### FITTING BUCKETS,

Remove pin retaining clips from bucket. Drift out pin at rear of bucket (angling pin). Repeat operation on pin at front of bucket (Pivot Pin). Lift bucket clear. Position required bucket beneath dipper, align pin holes and fit bucket pivot pin, secure with clip. Fit bucket angling pin and secure with clip.

### LOADING MICRON ONTO TRAILER.

Position bucket centrally about 2 metre in front of legs. Set legs to narrow position as described in paragraph on "Adjusting leg position". Lower rear leg fully, raise front legs 0.7 metres from ground. Remove spring clips from four pins holding legs into position, remove pins from trailer front cross beam. Position trailer with mount pads beneath Micron leg mountings. Gently lower machine onto trailer ensuring that leg holding pins pass through the holes in the trailer mount pads. Fully crowd bucket and position in to Vee notch on draw bar.

Fit spring clips into all four leg mounting pins beneath trailer mounting pads. Fit pins through front legs and secure with spring pin.

Tie bucket to trailer draw bar. Raise rear leg.

### UNLOADING MICRON.

Reverse above procedure.

### FITTING HANDLING TROLLEY

Raise and crowd bucket, fit trolley spigot between bucket and dipper arm. By selecting boom lower legs will lift clear of ground.

### MOVING MICRON ON SITE.

Raise rear leg, fully extend arms, select boom 'down' to raise legs from ground. Select dipper 'in' and machine will be pulled forwards. As machine moves forward select 'boom up' to keep front legs just clear of the ground. This procedure may be used to move machine either forwards or backwards.

The machine may be turned by selecting slew and thus pointing it in the required direction of travel.

### DIGGING.

- (1) Set Micron arms at full reach with bucket in dump position over area to be dug.
- (2) Select boom 'down' to exert force onto bucket, then select bucket 'crowd' until the bucket cutting edge is facing the machine.
- (3) Select dipper 'in' to draw bucket towards the machine. Fully crowd bucket, lift boom to raise bucket 30cms above ground.
- (4) Gently select slew and position bucket over area to where spoil is to be dumped, select bucket dump.
- (5) Position bucket over hole and repeat from (2).

### SAFETY.

- (1) Keep all persons clear of moving arms and hydraulic rear leg.
- (2) Always operate controls gently to prevent sudden machine movements.
- (3) Never slew with bucket more than 30cms above the ground.
- (4) Never 'Walk' machine with legs more than 15cms above the ground.
- (5) Always set machine legs and axle to maximum width before use.
- (6) If machine starts to lift or topple due to excessive bucket loads - release controls and gently bring bucket towards machine at ground level or dump contents with bucket on the ground.

MICRON LUBRICATION GRADES.

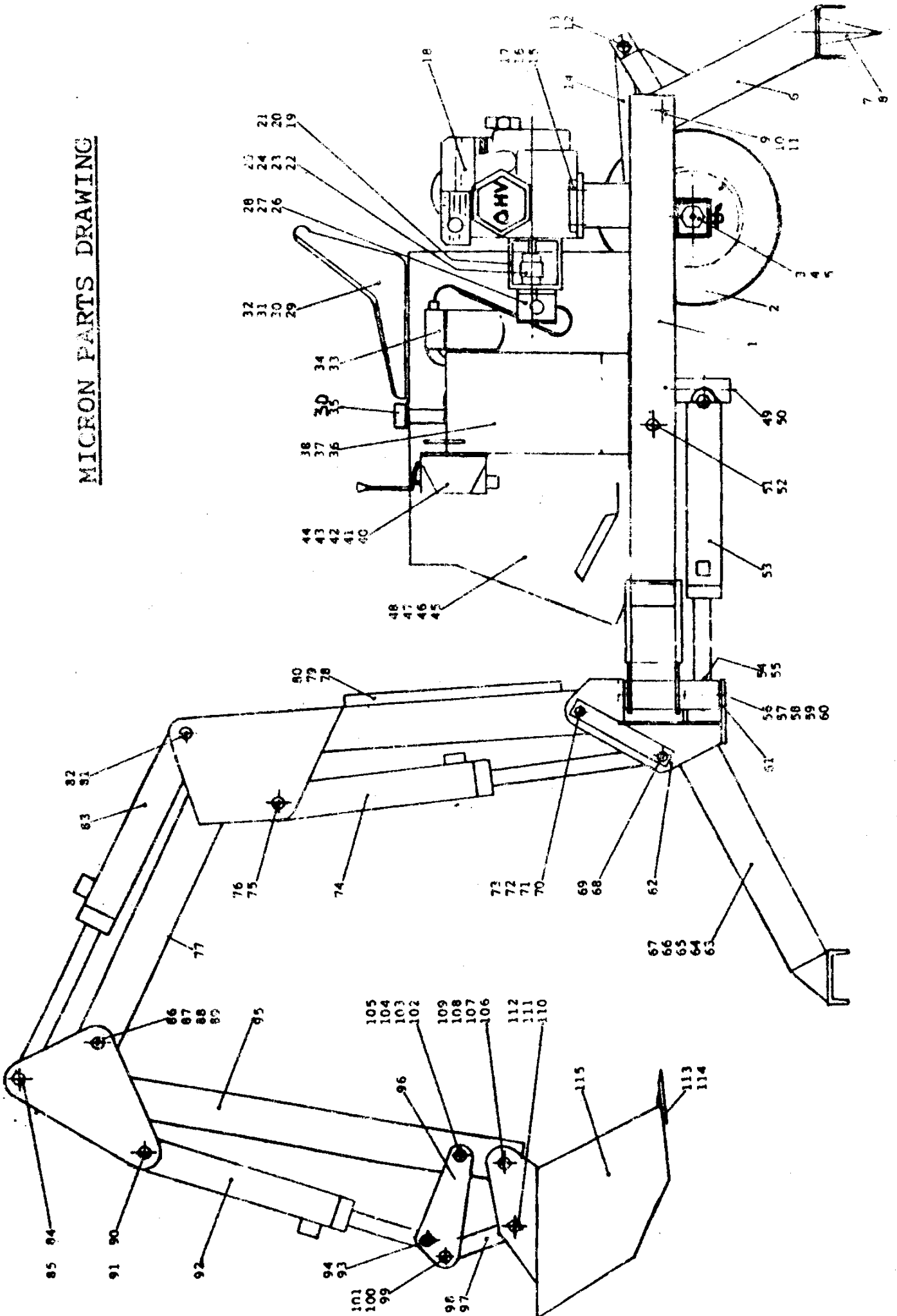
ENGINE.. See engine manufacturers handbook.

GREASE LUBRICATION POINTS.. 'CASTROL' LM. or equivalent.

<u>COMPANY</u>	<u>HYDRAULIC OIL</u>	<u>CLASSIFICATION</u>
ANTAR	Agria F.M. 10W/30	E
B.P.	Energol S.H.F. 80	H
	Energol S.H.F. 100	H
J. O. BUCHANAN	Alpha '0' 10W/30	E
	Hydroil 66	H
<u>CASTROL</u>	Hyspin AWH 46 (Not AWS 46)	H
	Hyspin AWH 68 (Not AWS 68)	H
	<u>Agricastrol Hydraulic Oil</u>	H
	Agricastrol Multi-use 10W/30 (Export only - not 20/30)	E
COMMA	Comma Lic. 10	H
DUCKHAMS	Farm Hydraulic Oil No. 4	H
	Fleetol Multilite 10W/30	E
ESSO	Univis N.46	H
FILTRATE	Hydraulic Oil 10W/30	E
GULF	Gulflube Motor Oil XHD 10W/30	E
	Gulflube Motor Oil HD 10W/30	E
	Hydraulic Oil E	H
	Harmony 43 AW	H
LORCO	FVT 32 Hydraulic Oil	H
MOBIL	DTE 15	H
PETROFINA	Fina Delta Multigrade 10W/30	E
	Fina Hydran 37	H
SHELL	Tellus T 33	H
	Tellus T 27	H
TEXACO	Haveline Motor Oil SAE 10	E
<u>CLASSIFICATION:</u>	H = Anti-Wear Hydraulic Oil	
	E = M.S. (most severe) Engine Oil	

Where machines may have to operate in high humidity conditions or where water may enter the system, the oil should be selected from the anti-wear hydraulic range only, Classification H.

MICRON PARTS DRAWING





MICRON PARTS LIST.

Item No.	Part No.	Description.	Qty.
	RF1135	Clasois.	1
1	AA001	Wheel Ass'y w/w Hub.	1
2	RF1146	Stub Axle Ass'y.	2
3	M1149/21	Axle Pin.	2
4	FLP12	'R' Clip.	2
5	RF1141	Rear Leg.	1
6	RF1152	Rear Leg Cleat. (Optional).	2
7	FLP31	Linch Pin (Optional).	2
8	M1149/20	Rear Leg - Pin.	1
9	M1146	Bush.	1
10	FRP2520	Roll Pin.	1
11	M1146/19	Pin. Leg Ram Rod.	1
12	FRP2520	Roll Pin.	1
13	RF1058	Leg Ram. ( See details page 11).	1
14	-	Engine Mount Bolt. (State engine type & size).	4
15	-	Engine Mount Nut. (State engine type & size).	4
16	-	Engine Mount Washer. (State engine type & size).	4
17	-	Engine - See hand book for details.	1
18	-	Bell Housing. (State engine type & size).	1
19	-	Bell Housing Bolt. (State engine type & size).	4
20	-	Bell Housing/Pump Bolt. (State engine type & size)	4
21	-	Coupling Ass'y. (State engine type & size).	1
22	-	Engine Shaft Key. (State engine type & size).	1
23	-	Pump Shaft Key. (State pump type)	1
24	FSM0608	Coupling Grub Screw.	1
25	HP1P3CC	Hydraulic Pump.	1
26	FFW31	Hydraulic Pump Shaft Washer.	1
27	FNSM08	Hydraulic Pump Shaft Nut.	1
28	AS019	Seat Pan.	1
29	RF1156	Dip Stick. Std.	1
30*	FHBM0835	Bolt.	4
31	FFW30	Washer.	4
32	HCF1518A	Filter Ass'y Complete.	1
33	HCF1518C	Filter Cartridge only.	1
34	HCC1562	Filler Cap.	1
35	RF1147	Tank. Std.	1
36*	FHBNC3710	Bolt.	4
37	FSW37	Spring Washer.	4
38	HK105	Control Valve (See details page 12)	1
39	FHBNC3725	Valve Mount Bolt.	3
40			

\* If MICRON is breaker drive type see seperate sheet for tank and dipstick.

MICRON PARTS LIST.

Item No'.	Part No'.	Description.	Qty.
41	FSNNC37	Valve Mount Nut.	3
42	FSW37	Valve Mount Washer.	3
43	RF1149	Hose Set (See details page 13).	1
44	-	Adaptors (See details page 13).	1
45	RF1148	Cover.	1
46	FHBNC3710	Cover Bolt.	4
47	FSNNC37	Cover Nut	4
48	FSW37	Cover Washer.	4
49	M1149/15	Pin. Slew Ram Body.	1
50	FRP2520	Roll Pin.	1
51	M1149/18	Pin, Leg Ram Body.	1
52	FRP2520	Roll Pin.	1
53	RF1058	Slew Ram (See details page 11).	1
54	M1149/14	Slew Ram Rod.	1
55	FRP2520	Roll Pin.	1
56	M1149/13	Pivot Pin.	1
57	AB001	Pivot Bush.	4
58	SD4402X72	Bush Spacer.	1
59	FGNNF25ST	Grease Nipple.	1
60	FHBNC3710	Bolt.	1
61	FFW15	Thrust Bearing.	1
62	RF1143	Pivot Post.	1
63	RF1140/L	Leg. Left Hand.	1
64	RF1140/R	Leg. Right Hand.	1
65	M1149/16	Pin. Leg Pivot.	2
66	M1149/17	Pin. Leg Lock.	2
67	FLP31	Linch Pin.	4
68	M1149/11	Pin. Boom Ram Rod.	1
69	FRP2520	Roll Pin.	1
70	M1149/12	Pin.Boom Pivot.	1
71	M1146	Bush.	1
72	FRP2520	Roll Pin.	1
73	FGNNF25ST	Grease Nipple.	1
74	RF1058	Boom Ram. (see details page 11).	1
75	M1149/10	Pin. Boom Ram Body.	1
76	FRP2520	Roll Pin.	1
77	RF1136	Boom.	1
78	M1148	Hose Cover.	1
79	FSNNC37	Nut.	2
80	FFW37	Washer.	2
81	M1149/9	Pin. Dipper Ram Body.	1
82	FRP2520	Roll Pin.	1
83	RF1058	Dipper Ram.(See details page 11).	1
84	M1149/7	Pin. Dipper Ram Rod.	1
85	FRP2520	Roll Pin.	1
86	M1149/8	Pin. Boom Dipper.	1
87	M1146	Bush.	1
88	FGNNF25ST	Grease Nipple.	1
89	FRP2520	Roll Pin.	1
90	M1149/6	Pin.Bucket Ram Body.	1

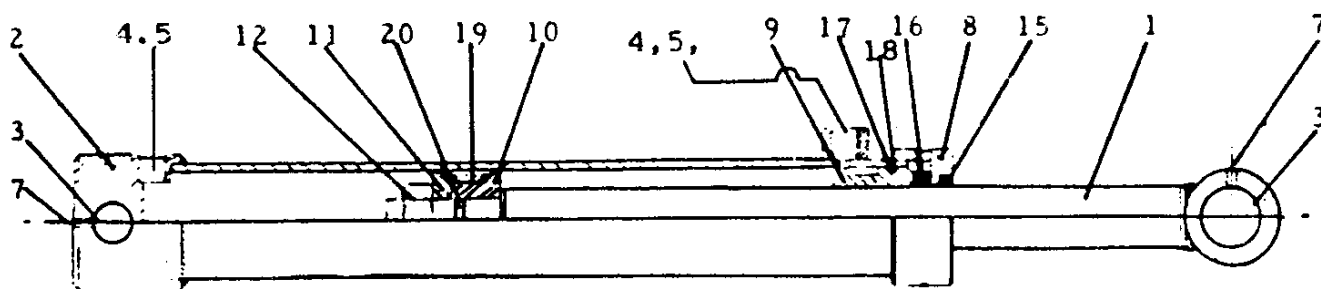
MICRON PARTS LIST.

Item No'.	Part No'.	Description.	Qty.
91	FRP2520	Roll Pin.	1
92	RF1058	Bucket Ram(Details page 11).	1
93	M1149/5	Pin. Bucket Ram Rod.	1
94	FRP2520	Roll Pin.	1
95	RF1137	Dipper.	1
96	RF1142	Bucket Actuator.	1
97	RF1138	Bucket Link.	1
98	FGNNF25ST	Grease Nipple.	2
99	M1149/4	Pin. Actuator - Link.	1
100	M1146	Bush.	1
101	FRP2520	Roll Pin.	1
102	M1149/3	Pin. Actuator - Dipper.	1
103	M1146	Bush.	1
104	FGNNF25ST	Grease nipple.	1
105	FRP2520	Roll Pin.	1
106	M1149/1	Pin. Bucket - Dipper.	1
107	M1146	Bush.	1
108	FGNNF25ST	Grease Nipple.	1
109	FLP31	Linch Pin.	1
110	M1149/2	Pin. Bucket - Link.	1
111	M1146	Bush.	1
112	FLP31	Linch Pin.	1
113	AS014	Bucket Tooth	1
114	FCSNF4317+N	Bucket Tooth Bolt/Nut.	2
115	RF1139	Bucket (State Width).	1

Always quote Machine Serial Number, Part Number, and description when ordering spare parts.

The serial number of the machine is stamped on the upper face of the chassis to the rear of the pivot post.

HYDRAULIC RAM ASSEMBLY Part No RF1058.

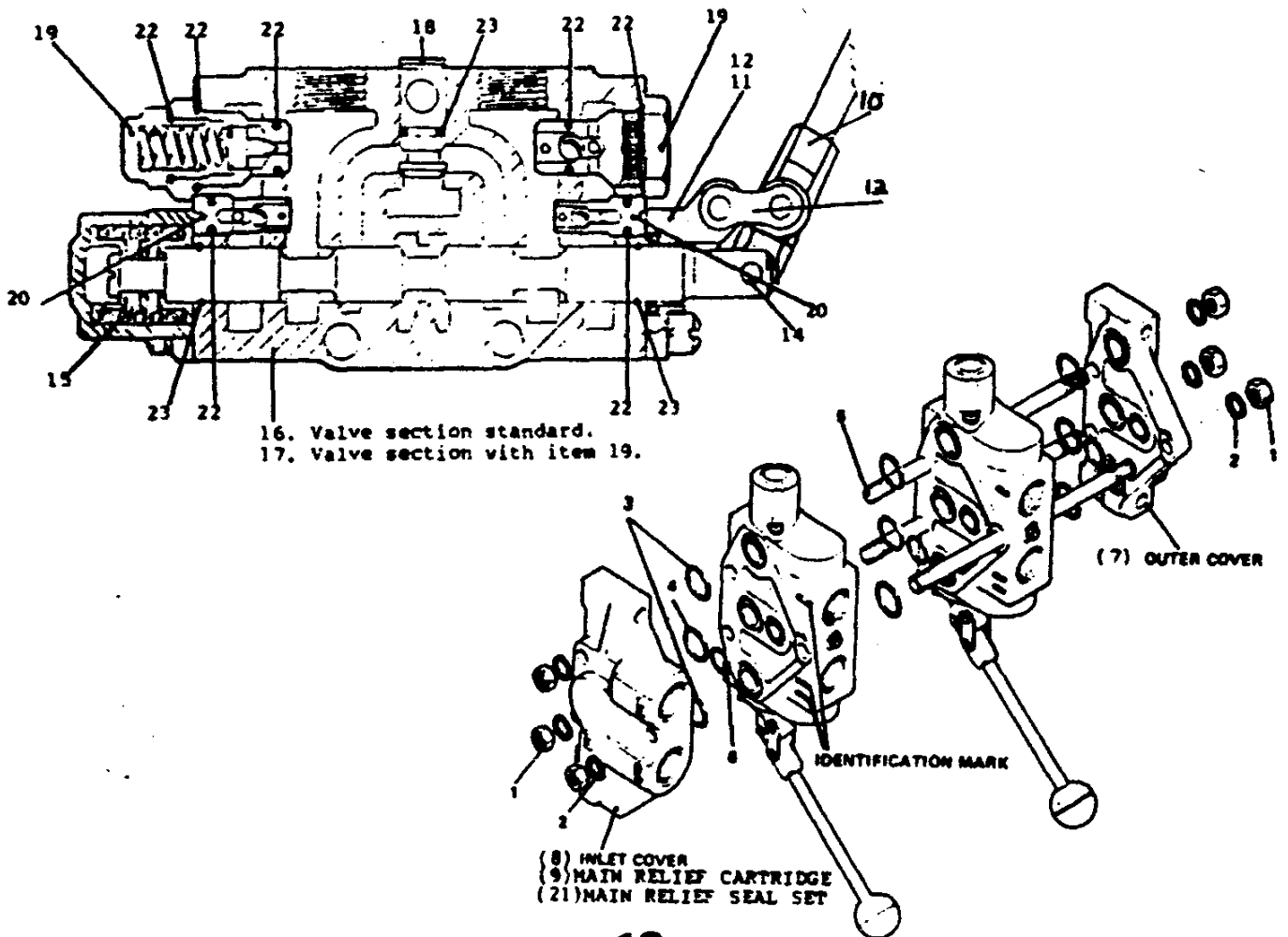


Item No	Part No	Description	Quantity
1	RF1058/2	Piston rod	1
2	RF1058/1	Body	1
3	M1146	Rod eye bush	1
4	HD25	Seal washer	2
5	HA2525	Adaptor	2
6			
7	FGNNF25ST	Grease nipple	2
8	RF1023/11	Cap	1
9	RF1023/8	Gland	1
10	RF1023/7	Piston carrier	1
11	RF1023/4	Piston washer	1
12	RF1023/3	Piston nut	1
13		not applicaple	-
14	RF1023/SS	Seal set	1
comprising:-			
15	HS33	Wiper seal	1
16	HS32	Gland seal	1
17	HO227	'O' Ring	1
18	HO227AE	Anti extrusion ring	1
19	HS31	Piston seal	1
20	HO117	'O' Ring	1

**KONTAK control valve.**

Parts list for 5 lever system and I.S.O. 3 lever system.

Item No	Part No	Description	Quantity	
			5-lever	I.S.O.
1	FSNNE37	Nut	6	
2	FSW37	Spring washer	6	
3	H0019	'O' Ring (face)	2	
4	H0020	'O' Ring (face)	1	
5	HK20A	Tie bolt	3	
6	H0016	'O' Ring (face)	1	
7	HK02	Outer cover	1	
8	HK01	Inlet cover	1	
9	HK03	Main relief cartridge (1650)	1	
10	HK33	Lever (Hi Flow)	5	1
11	HK34	Lever bracket(Hi Flow)	5	1
12	HK35	Screw (Hi Flow)	10	2
13	HK36	Link (Hi Flow)	5	1
14	HK37	Link pin (Hi Flow)	5	1
14A	HK38J	Joystick twin actuator assy	0	2
15	HK15	Rear end cap assembly	5	
16	HK31H	Valve section.Spade end.Standard	3	
17	HK30H	Valve section.Spade end.+ item 19.2 state function	2	state function
18	HK04	Check valve	5	
19	HK06	Service relief valve cartridge	4	state function
20	HK05	Anti cavitation valve	4	
21	HK29	Main relief valve seal set	1	
22	HK27	Service relief valve seal set	2	
23	HK28	Valve section spool seal set	5	



MICRON HYDRAULIC CIRCUIT FITTINGS.

Location.	Fitting.	Qty	Seal Washer	Qty
Filter.	HA5075	1	HD75	1
Pump Inlet.	HA3750	1	HD37	1
Pump Outlet.	HA2537	1	HD37	1
Valve Inlet.	HA2575	1	HD75	1
Valve Outlet.	HA5075	1	HD75	1
Valve Ports.	HA2550	10	HD50	10

HYDRAULIC HOSES.

Service.		Part No'	Qty
Tank Pump.		HW50A060B	1
Pump Valve.		HW25A130A	1
Valve Tank.		HZ50A080E	1
Valve-Boom Ram.	Body End	HW25A145B	1
Valve-Boom Ram.	Rod End	HW25A170A	1
Valve-Dipper Ram.	Body End	HW25A160B	1
Valve-Dipper Ram.	Rod End	HW25A200A	1
Valve-Bucket Ram.	Body End	HW25A270B	1
Valve-Bucket Ram.	Rod End	HW25A300A	1
Valve-Slew Ram.	Body End	HW25A085B	1
Valve Slew Ram.	Rod End	HW25A080A	1
Valve-Leg Ram.	Body End	HW25AQ70B	1
Valve-Leg Ram.	Rod End	HW25A110A	1

SPARE PARTS LIST FOR TRAILER & TROLLEY.

TROLLEY.

	Part No'.	Description.	Qty.
1	AA002	Wheel Ass'y 400 x 8.	2
2	FCP	Cotter Pin.	2
3	FFW10	Washer.	4
4	RF1154	Bucket Mount Bar.	1
5	RF1155	Handle/Axle Ass'y.	1

SKELETAL TRAILER. U.K.ROAD SPECIFICATION ONLY.

	Part No'.	Description.	
1	AA003	50mm Hitch.	1
2	FHBNC5040+N	Hitch Bolt/Nut.	2
3	RF1153	Chassis.	1
4	AA004L	Suspension Unit. L.H.	1
5	AA004R	Suspension Unit. R.H.	1
6	AA005	Hub Ass'y.	2
7	AA006	Wheel Ass'y plus cover 145 x 10	2
8	AA007	Wheel Nut.	8
9	M1149/22	Leg-Trailer mount Pin.	2
10	FLP31	Clip for above.	2
11	AA008	Light Board Ass'y.	1



