

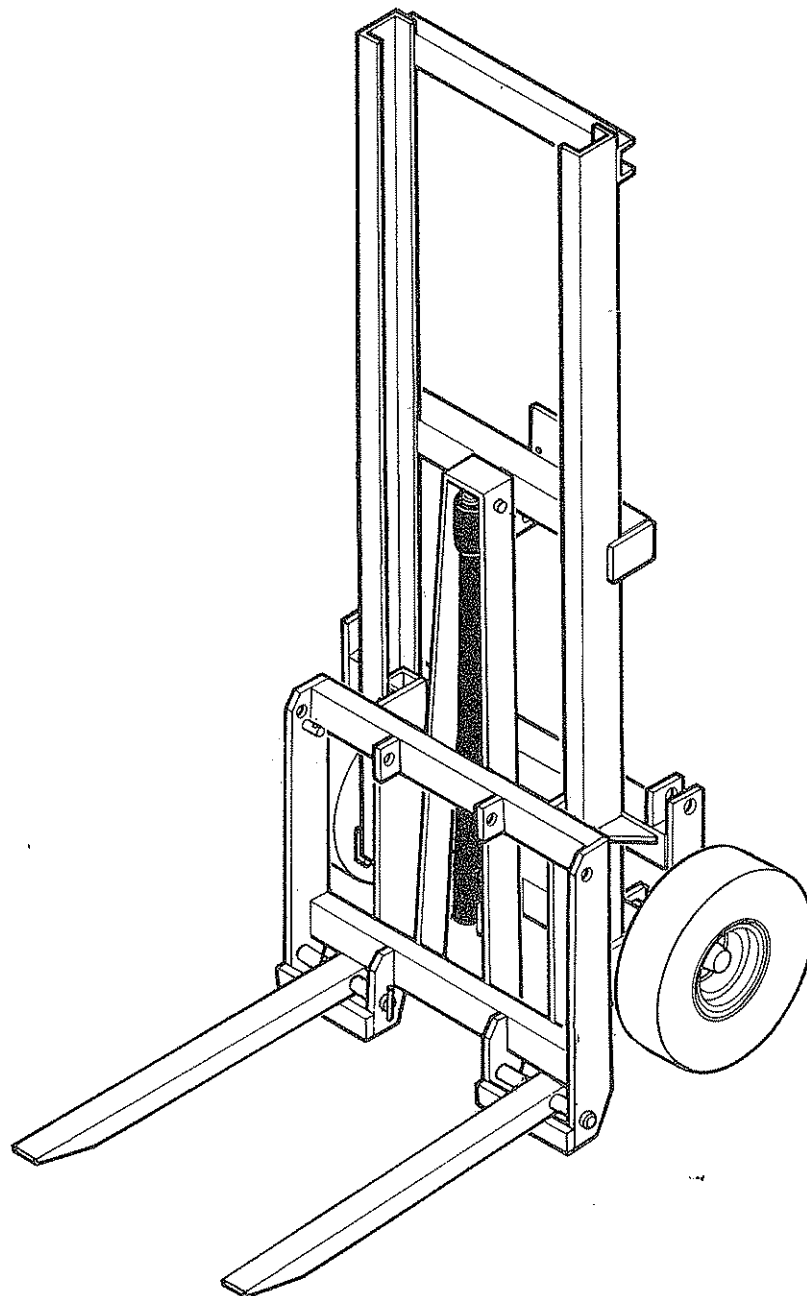
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FL 20 & FL 20N

Operation & Spares manual



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FOR NOTES

GENERAL INFORMATION

Read this manual before fitting or operating the machine. Whenever any doubt exists contact your dealer or the McConnel Service Department for assistance.

Use only McConnel spare parts on McConnel equipment and machines. This manual includes an illustrated spare parts breakdown and the interpretation which precedes it should be read before ordering replacement components.

DEFINITIONS

The following definitions apply throughout this manual:

WARNING

An operating procedure, technique etc., which can result in personal injury or loss of life if not observed carefully.

CAUTION

An operating procedure, technique etc., which can result in the damage of either machine or equipment if not observed carefully.

NOTE

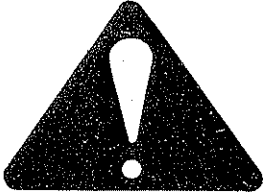
An operating procedure, technique etc., which is considered essential to emphasise.

Left and Right-Hand

This term is applicable to the machine when fitted to the tractor and viewed from the rear. This also applies to tractor references.

Record the serial number of your machine on this page and always quote this number when ordering spares. Whenever information concerning the machine is requested remember to also state the type of tractor to which it is fitted.

MACHINE SERIAL NUMBER	INSTALLATION DATE
MODEL DETAILS	
DEALERS NAME	
DEALERS TELEPHONE NUMBER	



WARNING

- NEVER ... permit inexperienced personnel to operate the machine without supervision.
- ... stand under or behind loaded forks.
- ... exceed the maximum recommended load.
- ALWAYS ... check very carefully that the fork lift can be mounted and operated through its full range of movement when fitted to a tractor with safety cab.
Some types of safety cab render it impossible to fit a fork lift to the tractor.
- ... remember it is illegal to modify the structure of a safety cab to operate a fork lift.
- ... ensure tractor and machine are adjusted for maximum stability.
- ... travel with the load at minimum height (with allowance for uneven surfaces) and with mast tilted towards the tractor.
- ... lower the lift forks and stop tractor engine before carrying out any adjustments or maintenance.
- ... ensure that the lift forks are fully extended under the pallet and that the load is not carried on the tip of the forks.
- ... remove fork lift from the tractor on firm level ground and ensure that it is stable when in the parked position.
- ... check for overhead obstruction prior to working the machine.
- ... check for any difference in pallet sizes, obstacles etc. and ensure that lift forks do not engage adjacent pallets or other obstructions.
- ... ensure that all hoses are not strained, pinched or chafed.
- ... keep tight all bolts and nuts and check security of mounting pins.

FITTING

TRACTOR SELECTION

The tractor selected should have a minimum relief valve setting of 2500 P.S.I. (170 Bar).

Linkage isolation should be available.

Check chains or stabiliser bars must be fitted.

Category II linkage is required for the FL20 and category I for the FL20 N.

Tractors whose safety cabs project excessively to the rear should be avoided as there is a possibility that the mast will foul the cab during tilting operations.

The FL20 and FL20N are 1000 kg (1 Ton) rated forklifts. To fully utilise this performance the tractor, when complete with its wheel weights must weigh a minimum 1200 kgs.

TRACTOR PREPARATION

Irrespective of the size of tractor it must be stable whilst operating the forklift under all conditions. Rear and front wheel weights should be added up to the manufacturers maximum as necessary. In addition the wheels should be set as wide as practically possible to give maximum stability.

ATTACHMENT TO TRACTOR

With the forklift standing on its wheels and carriage, reverse the tractor up squarely and connect the tractor draft links.

Connect the ram hoses to the tractors hydraulic services. The lift ram should not be connected to a double acting service as the resulting back pressure could result in a slow drop.

Extend the top link ram and connect into the tractors top link jaws. For Cat. I tractors a sleeve is supplied. In some cases the standard Cat. II ball end may be too large. In these cases an alternative Cat. I ball end, part No. 10 20 042 is available. It is not permissible to grind the Cat. II end to fit.

The top link ram is correctly set when the mast is vertical with the ram at mid-stroke. If problems are encountered an extended Cat. II screwed end is available.

To fit alternative ball ends the retaining pin must be driven out through the access hole in the side of the tube and the end screwed out. Ensure that the retaining roll pin is replaced after fitting the new end as this prevents the ball end being unscrewed beyond the safe minimum engagement.

Tighten check chains/stabiliser bars.

Cut the operation instruction label and stick in a convenient location on or near the control handles. Check that the handle movements correspond to the label. This may mean re-connecting the hoses.

Carefully operate the top link ram and check that the mast does not foul the cab or roll bar when fully retracted.

If clearance cannot be maintained the tractor/cab combination is unsuitable.

Operate the machine through its full range of movements checking that hoses are not pinched, kinked, stretched or chafed.

Check the level of the transmission oil and top up as necessary with oil from the recommended list in the tractors handbook.

REMOVAL FROM TRACTOR

Choose a firm level site.

Lower the wheels and carriage to the ground making sure that the mast is vertical. When parked the forks are clear of the ground, do not be tempted to tilt the mast rearward until the forks contact the ground as they can fold up and cause the machine to fall over when it is detached from the tractor.

Disconnect hydraulics from the tractor and support hose ends clear of the ground.

Disconnect the three point linkage leaving the top link ram connected to the fork lift.

Check the fork lift wheels in both directions to provide extra stability.

STORAGE

If the machine is to be left standing for an extended period of time lightly coat the exposed portions of the ram rods with grease. Subsequently this grease which becomes contaminated with dust and grit should be wiped off before the rams are next moved.

If the machine is to be stored outside tie a piece of tarpaulin or canvas over the control valve – do not use a plastic bag as this could promote rapid corrosion.

OPTIONAL EXTRAS

HYDRAULIC CONTROL VALVE

Both forklifts are available with their own control valves.

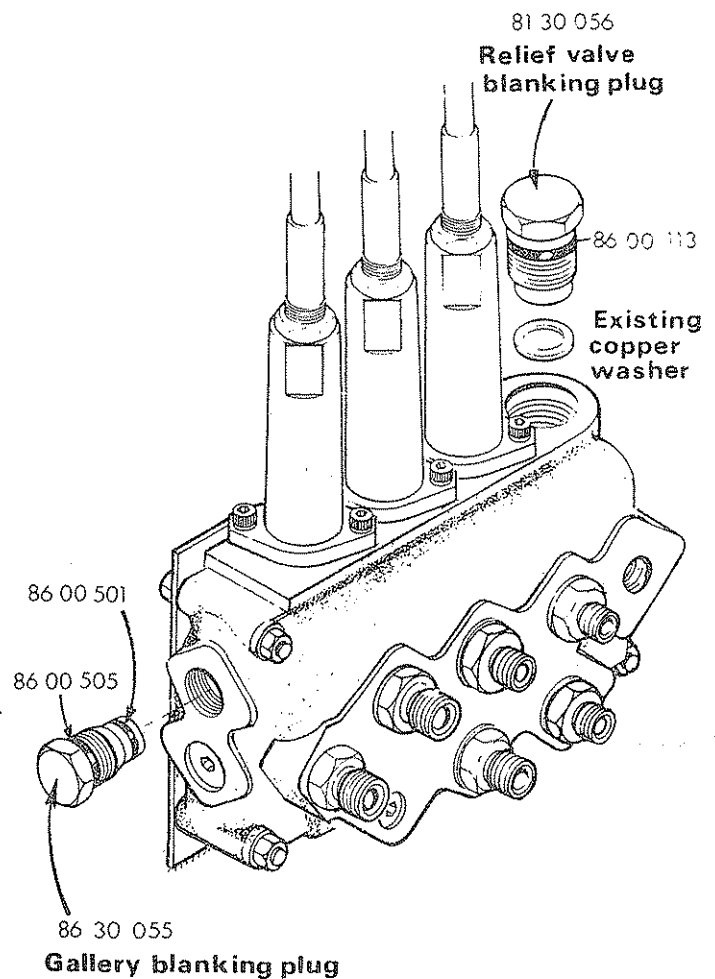
When coupling up the hydraulics the supply and return hoses should go to the tractors gearbox or hydraulic reservoir. Returning the oil through the tractor spool valve is not recommended as the back pressure could result in a slow drop.

On "Dual Power" Ford tractors special installation of the return line will be necessary as per the tractor manufacturers instructions.

John Deere tractors utilise a "closed centre" hydraulic system therefore to operate a forklift with its own control valve certain modifications need to be made. There are the two following alternatives.

A flow limiting valve manufactured by John Deere is available to provide an 'open centre' external supply sufficient for Fork lift requirements. For further advice consult your John Deere dealer.

Alternatively, components are available from F W McConnell to convert the standard 'open centre' valve. The kit, part no. 81 30 059 consists of a relief valve blanking plug which should be installed in place of the existing relief valve. Take care when extracting the relief valve not to damage the copper sealing washer as it is re-used with the blanking plug. In addition a pressure gallery blanking plug is installed in place of the standard blanking plug in the upper position on the valve outlet end.



Should the control valve be fitted subsequent to purchase of the fork lift the operator instruction label is mounted on the cross beam below the valve. Re-connect the ram hoses to the service ports indicated on page

CABLE CONTROL KIT

A cable control kit which operates on a push/pull principle is available which mounts in the cab and allows remote control of the control valve.

Installation

The lever pivot boxes must be removed from the control valve and re assembled onto the cable control blocks in accordance with the operating label. Access to the lever pivot pin is beneath the weather gaiter.

Attaching cables to the valve :-

Unscrew the locknut and sleeve and slide up the cable to allow access to fit the cable clevis to the spool end.

Re-position the locknut and sleeve and screw lightly into position on the valve face. Do not fully tighten.

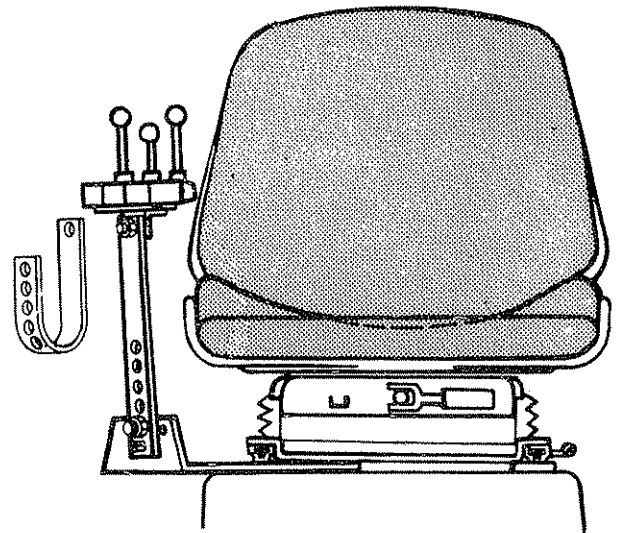
Rotate the sleeve until the levers are at right angles to the cable control blocks, this allows an equal amount of travel in both directions.

Lock in position and fully tighten down the cable flange.

Mounting controls on the tractor.

The control unit is bolted to an adjustable stalk that is attached to a seat bracket which is of universal design for mounting in many models of tractor. The bracket is normally trapped between the seat runners and their mounting base. It may sometimes be necessary to drill extra holes in the seat bracket to accommodate these mounting points or to find the ideal operator position.

On tractors other than quiet cab models it is permissible to attach the control unit to the mudwing or the cladding of the cab observing the proviso that no structural member of the cab should be drilled. For this purpose the stalk can be bent round in a 'U' shape.



In deciding the final position of the control unit consider that tight bends in the cable will reduce their operational life. The cable run should be as straight as possible with any bends having a minimum radius of 8".

SIDESHIFT

Fitting:-

Remove the forks and fit the sideshift frame to the carriage. Refit the forks to the sideshift frame.

Assemble the sideshift ram into position between the lugs on the sideshift frame and the carriage.

Route the hoses down and around the outside of the mast, from where they sweep back up and connect to either the vacant hydraulic outlets on the tractor or the relevant service ports on the forklifts hydraulic control valve. See page

Liberally grease the sideshift slides in preparation for work.

Where the forklift has its own hydraulic control valve operate the sideshift and check that the motion coincides with the operator instruction label.

OPERATION

SAFETY

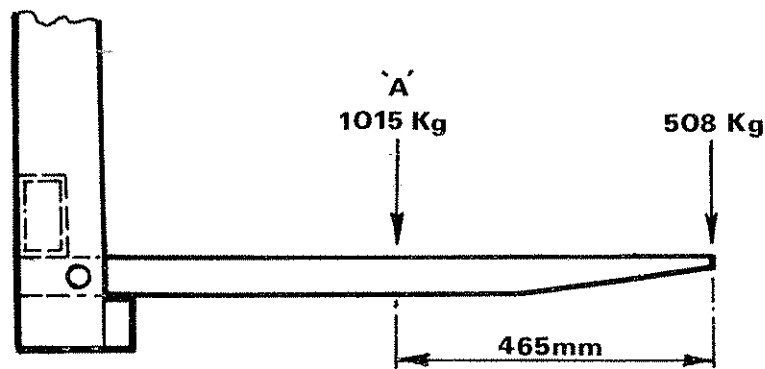
Read the instruction book carefully before attempting to operate the machine paying particular attention to aspects relating to safety. THEY ARE THERE FOR YOUR OWN GOOD.

MACHINE CONTROLS

Before commencing work select a clear unobstructed site and operate the forklift without load until the controls and the feel of the machine are familiar. This is a wise precaution for all operators and a must for the inexperienced.

OPERATIONAL LIMITATIONS

NEVER NEVER attempt to exceed the maximum safe working load shown below.



Excess power available in the first stage of the lift ram may encourage the operator to exceed the SWL shown above. It is vigorously stressed that this should, under no circumstances, be attempted as breakages to either the forklift or tractor could occur which may result in personal injury. In addition warranty claims for breakages of this nature will not be entertained.

The tractor/forklift combination must be stable under all working conditions.

The FL20 and FL20N are 1000 kg (1 Ton) rated forklifts. To fully utilise this capacity the tractor when complete with its weights must weigh 1200 kg minimum.

It is possible to attach the forklifts to a number of smaller Cat I tractors but the safe working loads must be reduced accordingly.

Eg. For a tractor of 700kg when complete with its wheel weights a maximum safe working load at position 'A' of 500kg ($\frac{1}{2}$ ton) is recommended.

PRE OPERATIONAL CHECKS.

Check that hoses do not get picked, kinked or stretched during operation.

Check that machine movements correspond to the operation instruction decal.

Check that all pins and fasteners are secure.

Check daily that the forklifts wheel nuts are tight and that tyre pressure is 70 psi

Check that the clearance between the carriage rollers and the mast channel is $1\frac{1}{2}$ mm (1/16 ins) per side. As wear occurs this clearance must be maintained by shimming the rollers as shown on page

Check that the side and inner faces of the mast channel; the fork slides and the sideshift slides, if fitted, are liberally greased.

OPERATIONAL TIPS

Set the forks as wide as possible.

When driving under the pallet check that the fork tips do not engage adjacent pallets or any other obstructions.

Ensure that the lift forks are fully extended under the load and that the load is not carried on the tip of the forks.

Before raising the load check that there are no overhead obstructions, this is especially important when working inside a building or in the vicinity of overhead cables.

WARNING

To avoid the possibility of flashover in the vicinity of high voltage overhead power lines never work closer than 1.5 metres minimum. If in any doubt consult the local electricity board or a qualified electrician for advice on a safe plan of working.

When transporting, tilt the mast towards the tractor and carry the load as low as possible making allowances for uneven surfaces and ensure that the sideshift, if fitted, is centrally located on the carriage. During transport the linkage should be set in position control with the fork lift wheels just making contact with the ground and only carrying a small proportion of the load. Too much weight on the wheels will cause rapid wear of the wheel bearings and tyres.

If encountering traction problems in soft ground conditions the three point linkage of the tractor may be raised slightly to remove all the load from the fork lift wheels and provide weight transfer to the rear wheels of the tractor. This manoeuvre is carried out in 'Position Control'!

Do not exceed 3 mph when travelling with loaded forks.

Operating a forklift on sloping ground is not recommended but if it is absolutely unavoidable always reverse directly up the slope when loaded.

On approaching the unloading area raise the forks to the minimum height necessary and complete the approach slowly.

When the forklift is not in use fold up the forks and secure in position with the R clips.

MAINTENANCE

LUBRICATION

Grease liberally at daily intervals the sides and inner face of the mast channel and the fork slide pins.

In addition the side shift slides, if fitted should be greased similarly.

FASTENERS

Ensure that all nuts and bolts are tight, and that pins are in position and securely fixed.

HYDRAULIC HOSES

The condition of all hoses should be checked during routine servicing. Hoses that have been chafed or damaged on their outer casing should be securely wrapped with waterproof adhesive tape to prevent the metal braid from rusting. Hoses that have suffered damage to the metal braid should be replaced immediately.

Hose replacement:-

Replace one hose at a time to avoid the risk of wrong connections.

When the hose is screwed to an additional fitting or union, use a second spanner on the union to avoid breaking both seals.

Do not use jointing compound on threads.

Avoid twisting the hose. Adjust the hose line to ensure freedom from rubbing or trapping before tightening the hose and connections.

Hose Warranty:-

Warranty is limited to replacement of hoses which have failed due to faulty manufacture or materials. Warranty will not be considered on hoses that have suffered damage by abrasion, cuts or being pinched or trapped in work.

Neither will a claim be considered where the hose end has been damaged by a blow or where the threads of the unions have been damaged by overtightening.

CABLES

The cables operate on a push/pull system with the spool centring springs always returning the spool to the neutral position when the handle is released.

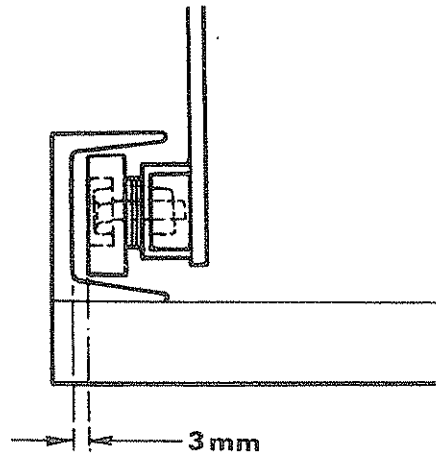
Care should be taken during installation and operation to ensure that the cables are not trapped or kinked. Any abrasion or damage to the outer casing should be sealed with plastic insulation tape to prevent moisture penetrating the cable.

No routine adjustment of the cables are necessary as they do not stretch. The threaded sleeve is correctly adjusted when the handle is at right angles to the cable spindle block.

Caution;- On no account should any attempt be made to lubricate the cables which are assembled with a special lubricant during manufacture.

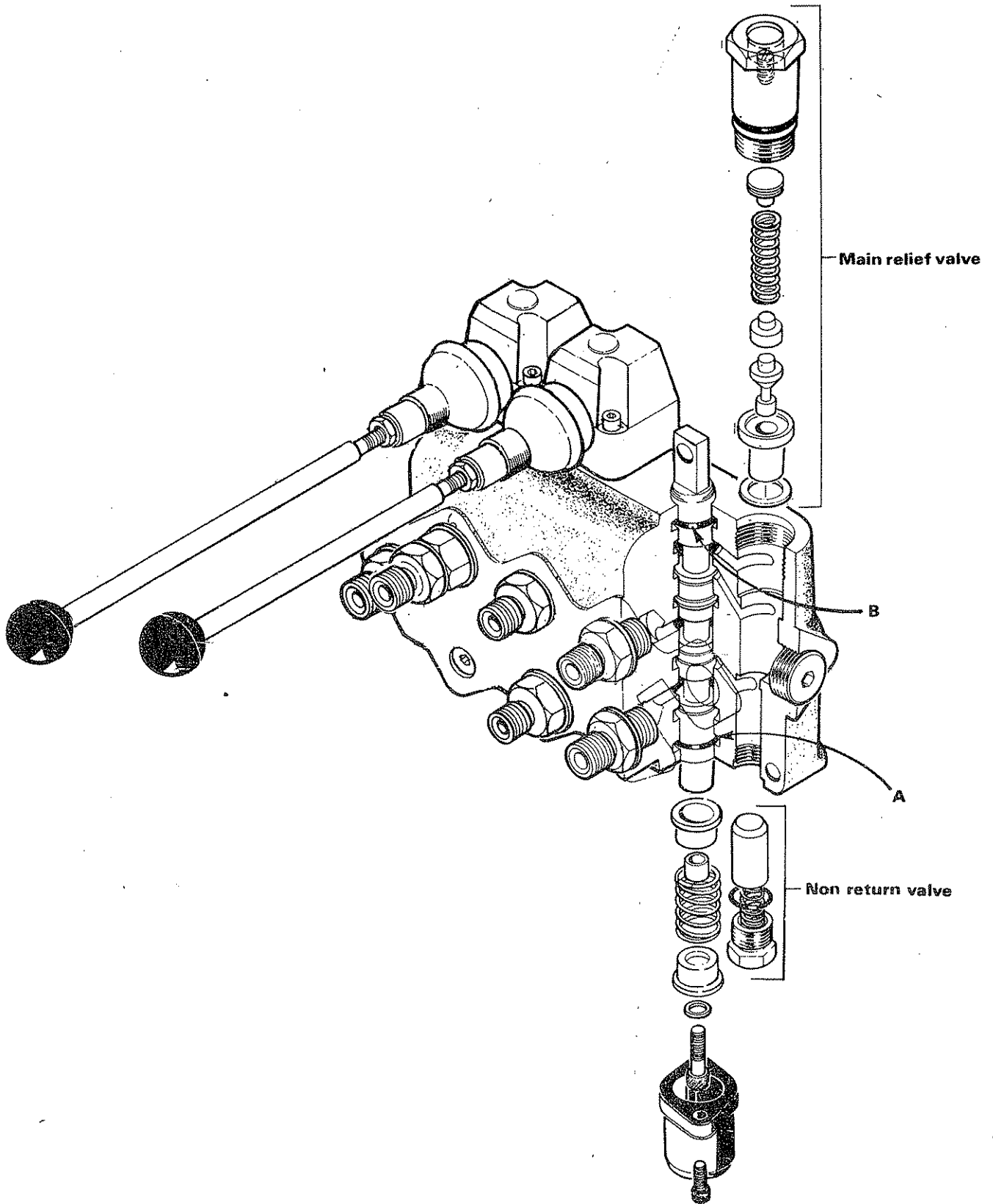
CARRIAGE ROLLERS

The clearance of the carriage rollers should be $\frac{1}{2}$ mm (1/16 in) per side or 3 mm (1/8 in) as shown when the carriage is pushed to one side.



Should the carriage action become jerky check this clearance and shim the rollers in the position shown as necessary.

By lowering the carriage fully to the floor access can be gained to remove the roller without raising the fork lift wheels clear of the ground.



Non Return Valve

The non return valve prevents the feedback of oil from the service parts. It is unlikely to need attention but if remove for cleaning a new 'O' ring should be used when refitted.

Replacing spool 'O' rings

Note: Owing to the sharp edges in the design of the spool, failure to carry out the following procedure could result in damage to the 'O' rings resulting in external leakage.

Extract the lever pivot pin and remove the lever and lever pivot box from the valve. Alternatively remove the cable end from the spool.

Remove the cover at the opposite end of the spool and unscrew the return spring or detent assembly whichever is necessary.

Pull the spool through the block from the handle end, until the 'O' ring marked 'A' is accessible. Remove the 'O' ring from its groove using a smooth edged hook.

Completely remove the spool from the block out of the return spring end.

Remove the 'O' ring marked 'B' and refit the new 'O' ring.

Lightly oil the spool and replace it in the block from the return spring end pushing it through far enough to clear the 'O' ring groove 'A'.

Fit new 'O' ring in groove 'A'.

Push the spool back through from the handle end far enough to re assemble the return spring or detent assembly plus the cover.

Re-assemble the lever pivot box/lever assembly or the cable end of the valve.

Main Relief Valve

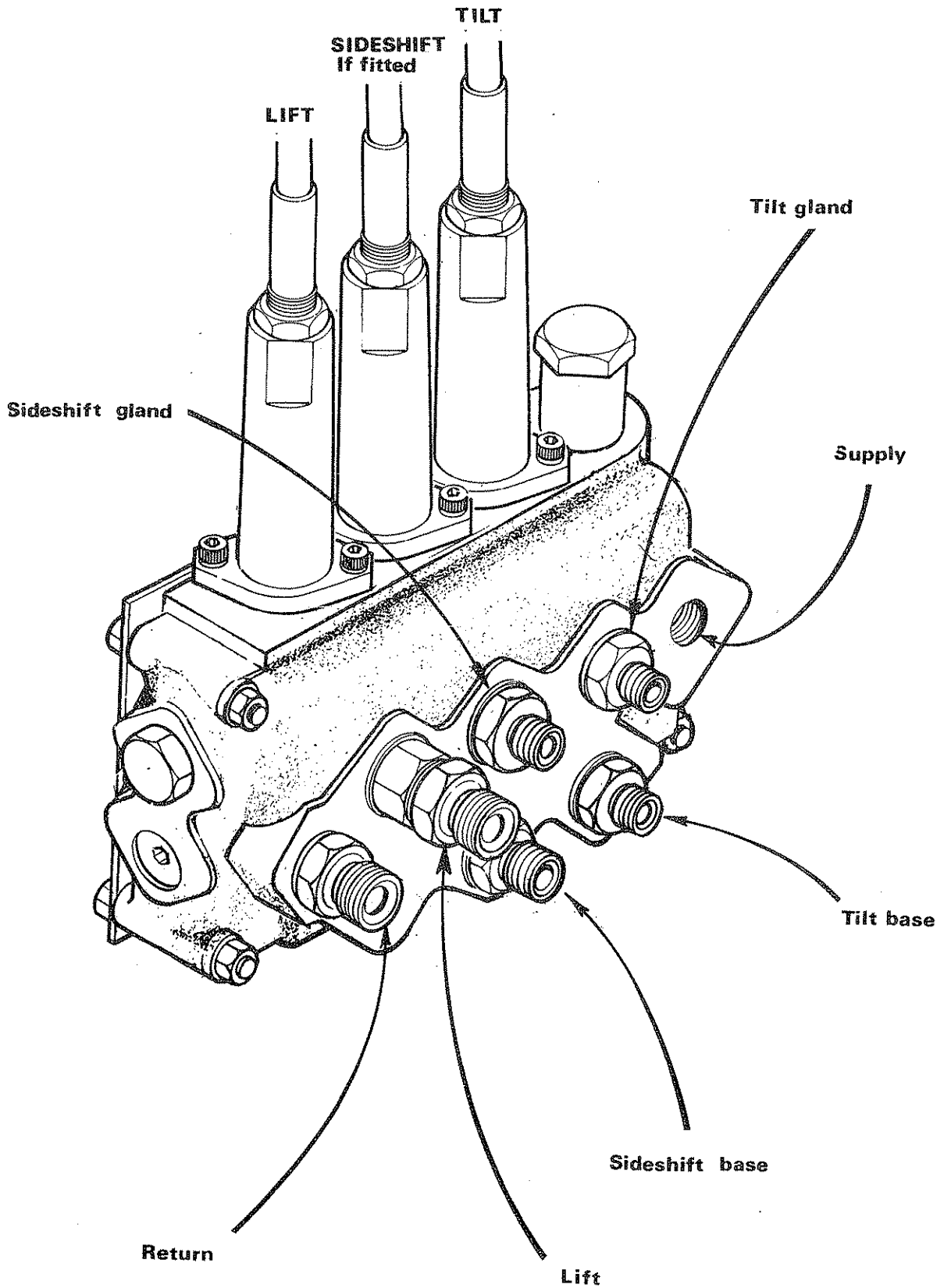
The main relief valve is pressure set at the factory to 2500 PSI (170Bar) and is non adjustable. A sticking relief valve will probably cause overheating and /or loss of power. If this is suspected it should be dismantled and examined for dirt and damage. Undo the large hexagon housing, the relief valve spring, needle and seat can now be withdrawn. If difficulty is experienced in extracting the seat remove the non-return valve at the opposite end of the gallery and drive out with a soft brass drift. Take care not to damage the copper sealing washer positioned between the seat and the locating shoulder in the block.

Blow out the valve with compressed air and examine the components for damage. These components are specially hardened steel and should only display a seating witness - any further damage will require the complete valve to be replaced.

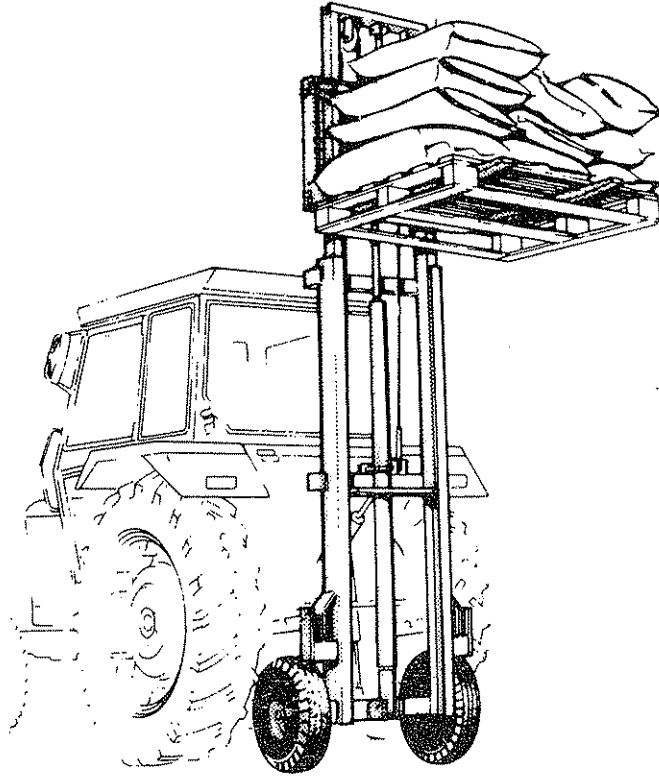
CAUTION.

Under no circumstances be tempted to add shims into this valve in a misguided attempt to increase the power of the machine. This could damage the tractor, and may cause personal injury.

HOSE CONNECTIONS
BSP Valve shown illustrated



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 F.W. McConnel Ltd. through your local dealer or stockist.

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

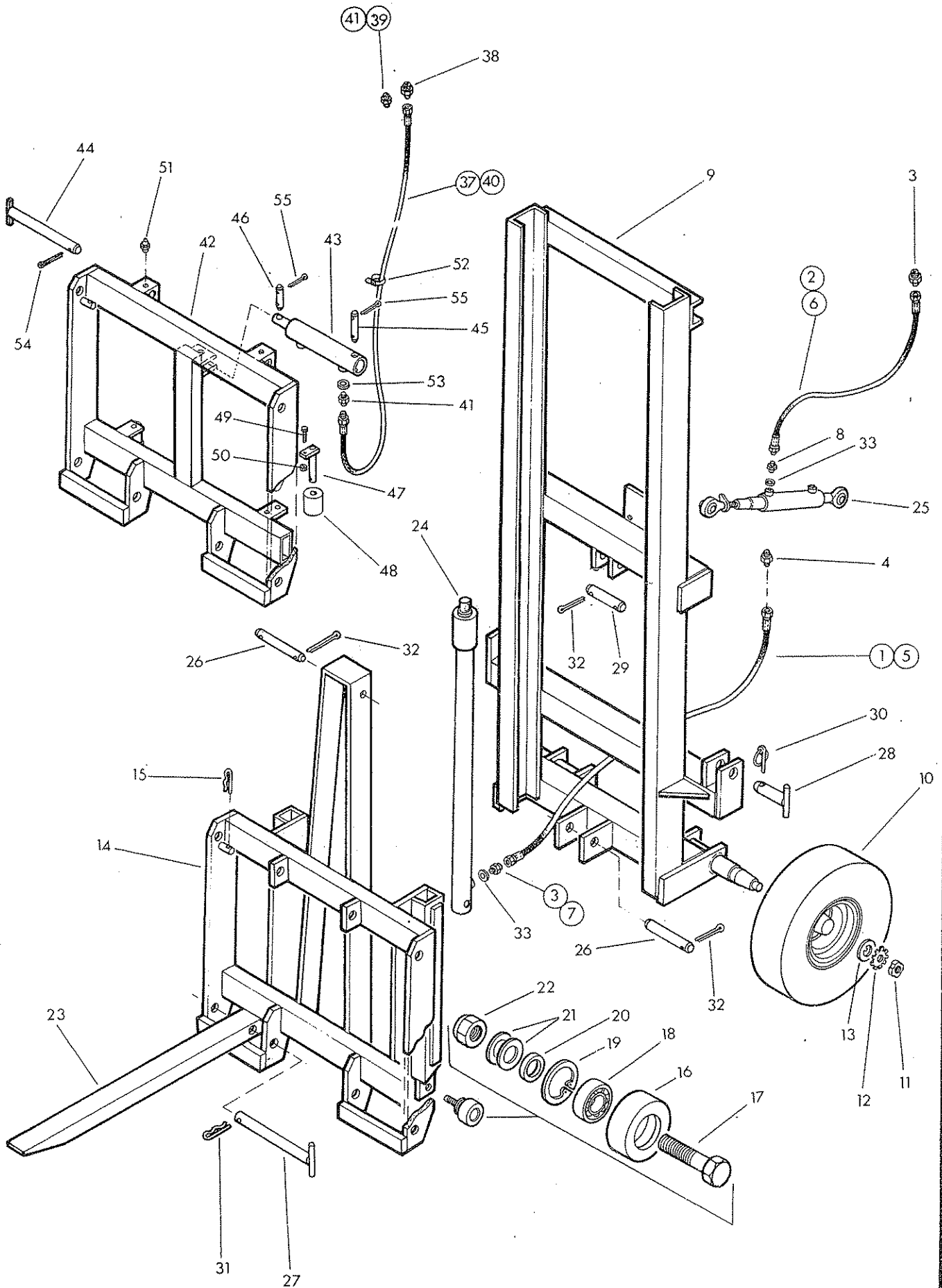
Design improvement may have altered some of the parts listed in this manual - The latest part will always be supplied when it is interchangeable with an earlier one.

Model. | FL 20

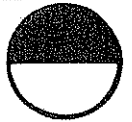
GENERAL ASSEMBLY

McCOMEL

Registered office: Temeside Works,
Ludlow, Shropshire SY8 1JL, England.
Telephone: Ludlow (0584) 3131
Telex: 35313



Model.

McCORMELRegistered office: Temeside Works,
Ludlow, Shropshire SY8 1JL, England.
Telephone: Ludlow (0584) 3131
Telex: 35313

Ref	Part No.	Qty	Description
	10 20 252		FL20 FORKLIFT WITH <u>BSP</u> HYDRAULICS
1	85 13 054	1	Hose ½" BSP SF x 65" long - lift
2	85 21 043	2	Hose 3/8 BSP SF - SM x 45" long - tilt
3	60 00 112	3	Union 3/8 BSP - ½ BSP M-M
4	85 81 110	1	Union ½ BSP M-M
	10 20 254		FL20 FORKLIFT WITH <u>JIC</u> HYDRAULICS
5	85 13 109	1	Hose 7/8" JIC SF x 65" long - lift
6	85 11 888	2	Hose ¾ JIC SF x 45" long - tilt
7	85 81 222	1	Union 3/8 BSP - 7/8 JIC MM
8	71 03 062	2	Union 3/8 BSP - ¾ JIC MM

Items 9 - 35 inclusive are common to both forklifts.

9	10 20 262	1	Mast
10	10 20 270	2	Wheel tyre and hub assy - see page 24
11	10 20 008	2	Wheel nut
12	10 20 009	2	Tab washer
13	10 20 010	2	Special washer
14	10 20 263	1	Carriage
15	04 31 104	2	Spring cotter
16	10 20 267	2	Roller
17	10 20 025	2	Special bolt
18	06 00 075	2	Bearing
19	04 16 252	2	Internal circlip
20	10 20 024	2	Spacer
21	10 20 023	as regd.	Shroud washer
22	91 43 008	2	Self locking nut M20
23	10 20 266	2	Fork
24	10 20 281	1	Lift ram assembly - see page 25
25	10 20 282	1	Top link ram assembly - see page 25
26	10 20 027	2	Pivot pin - Lift ram
27	10 20 026	2	Fork pin
28	10 20 030	2	Bottom link pin - Cat II
29	10 20 031	1	Top link pin - Cat II
30	04 31 217	2	Linch pin
31	04 31 105	2	Spring cotter
32	95 01 406	6	Split pin Ø 5 x 40
33	86 50 103	3	Bonded seal 3/8 BSP
34	12 90 010	1	Machine controls label
35	71 35 295	1	Check chain label
36	12 90 275	1	Safe working load label

Not illustrated

SUB-ASSEMBLIES

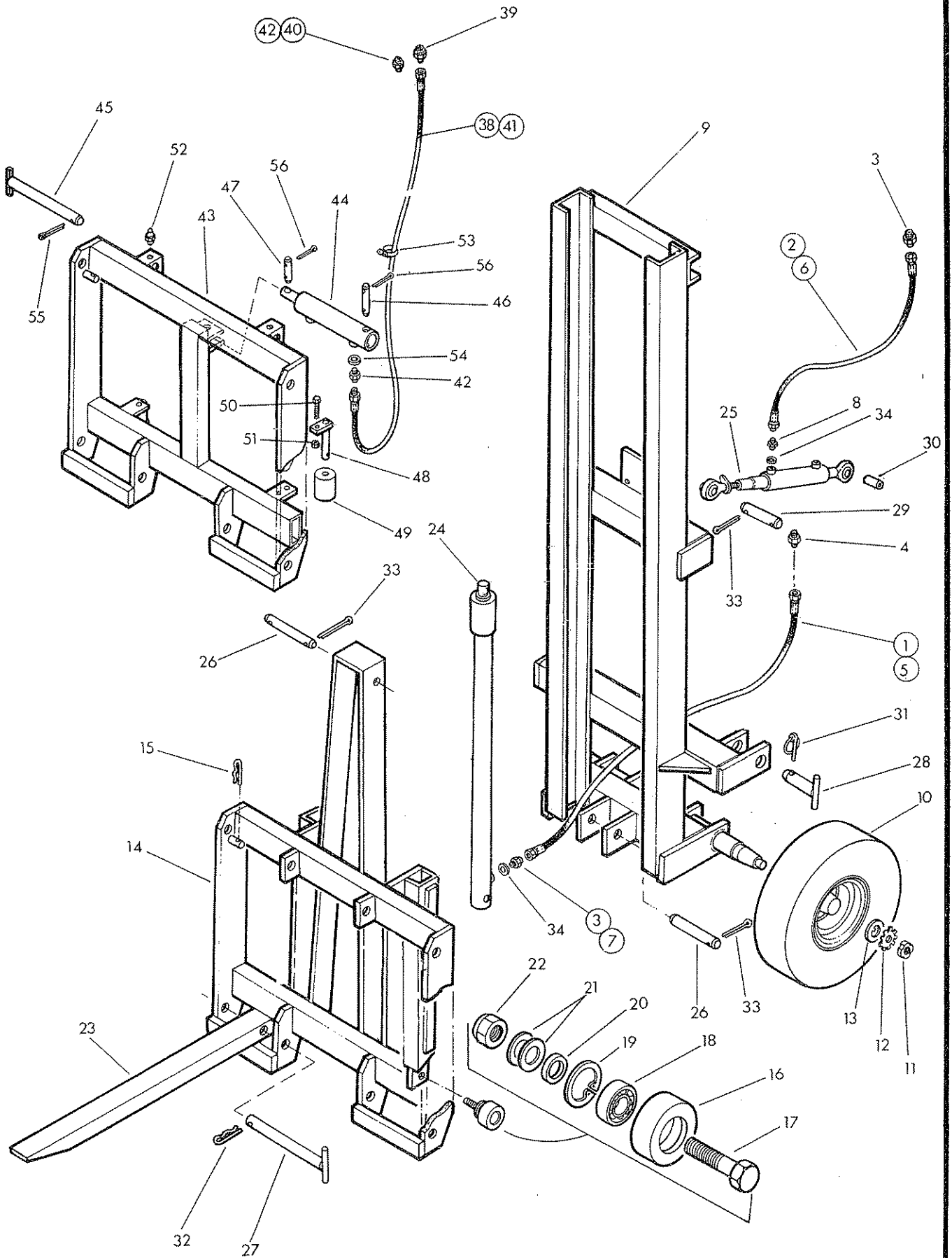
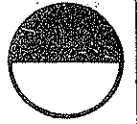
10 20 022	2	Roller assembly compr items 16 -21 inclusive
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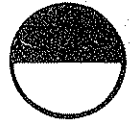
OPTIONAL EXTRAS

10 20 285		SIDESHIFT KIT - <u>BSP</u> HYDRAULICS	
37	85 21 053	2	Hose 3/8 BSP SM - SF x 101" long
38	60 00 112	2	Union 3/8 BSP - ½ BSP MM (tractor connection)
39	60 00 113	2	Union 3/8 BSP MM (control valve connection)
10 20 286		SIDESHIFT KIT <u>JIC</u> HYDRAULICS	
40	85 11 028	2	Hose ¾ JIC SF x 101" long
41	71 03 062	4	Union 3/8 BSP ¾ JIC MM (Ram and C Valve)

The remaining items are common to both sideshift kits

42	10 20 321	1	Frame
43	10 20 283	1	Sideshift ram assy. see page 25
44	10 20 032	2	Mounting pin
45	10 20 033	1	Ram base end pin
46	10 20 034	1	Ram rod end pin
47	10 20 073	2	Roller pin
48	10 20 072	2	Roller
49	93 13 065	2	Setscrew M10 x 30
50	91 43 005	2	Self locking nut M10
51	09 01 121	2	Greaser 1/8 BSP
52	71 06 187	2	Plastic hose tie
53	86 50 103	2	Bonded seal 3/8 BSP
54	95 01 509	2	Split pin Ø 10 x 50
55	95 01 406	4	Split pin Ø 5 x 40





Ref	Part No.	Qty	Description
	10 20 301		FL20 N FORKLIFT WITH <u>BSP</u> HYDRAULICS
1	85 13 054	1	Hose 1/2" BSP SF x 65" long - lift
2	85 21 043	2	Hose 3/8 BSP SF - SM x 45" long - tilt
3	60 00 112	3	Union 3/8 BSP - 1/2 BSP M-M
4	85 81 110	1	Union 1/2 BSP M-M
	10 20 303		FL20N FORKLIFT WITH <u>JIC</u> HYDRAULICS
5	85 13 109	1	Hose 7/8 JIC SF x 65" long - lift
6	85 11 888	2	Hose 3/4 JIC SF x 45" long - tilt
7	85 81 222	1	Union 3/8 BSP - 7/8 JIC MM
8	71 03 062	2	Union 3/8 BSP - 3/4 JIC MM

Items 9 - 35 inclusive are common to both forklifts

9	10 20 312	1	Mast	
10	10 20 270	2	Wheel tyre and hub assy - see page 24	
11	10 20 008	2	Wheel nut	
12	10 20 009	2	Tab washer	
13	10 20 010	2	Special washer	
14	10 20 313	1	Carriage	
15	04 31 104	2	Spring cotter	
16	10 20 267	2	Roller	
17	10 20 025	2	Special bolt	
18	06 00 075	2	Bearing	
19	04 16 252	2	Internal circlip	
20	10 20 024	2	Spacer	
21	10 20 023	as regd.	Shroud washer	
22	91 43 008	2	Self locking nut M20	
23	10 20 266	2	Fork	
24	10 20 281	1	Lift ram assembly - see page 25	
25	10 20 282	1	Top link ram assembly - see page 25	
26	10 20 027	2	Pivot pin - lift ram	
27	10 20 026	2	Fork pin	
28	10 20 029	2	Bottom link pin - Cat I	
29	10 20 028	1	Top link pin - Cat I	
30	14 67 063	2	Cat I sleeve	
31	04-31 217	2	Linch pin	
32	04 31 105	2	Spring cotter	
33	95 01 406	6	Split pin \varnothing 5 x 40	
34	86 50 103	3	Bonded seal 3/8 BSP	
35	12 90 010	1	Machine controls label	
36	71 35 295	1	Check chain label	not illustrated
37	12 90 275	1	Safe working load label	

SUB ASSEMBLIES

10 20 022	2	Roller assembly compr: items 16 - 21 inclusive
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OPTIONAL EXTRAS

10 20 285		SIDESHIFT KIT <u>BSP</u> HYDRAULICS	
38	85 21 053	2	Hose 3/8 BSP SM-SF x101" long
39	60 00 112	2	Union 3/8 BSP - 1/2 BSP MM (tractor connection)
40	60 00 113	2	Union 3/8 BSP MM (control valve connection)
10 20 286		SIDESHIFT KIT <u>JIC</u> HYDRAULICS	
41	85 11 028	2	Hose 3/4 JIC SF x 101" long
42	71 03 062	4	Union 3/8 BSP 3/4 JIC MM (Ram and C valve)

The remaining items are common to both sideshift kits

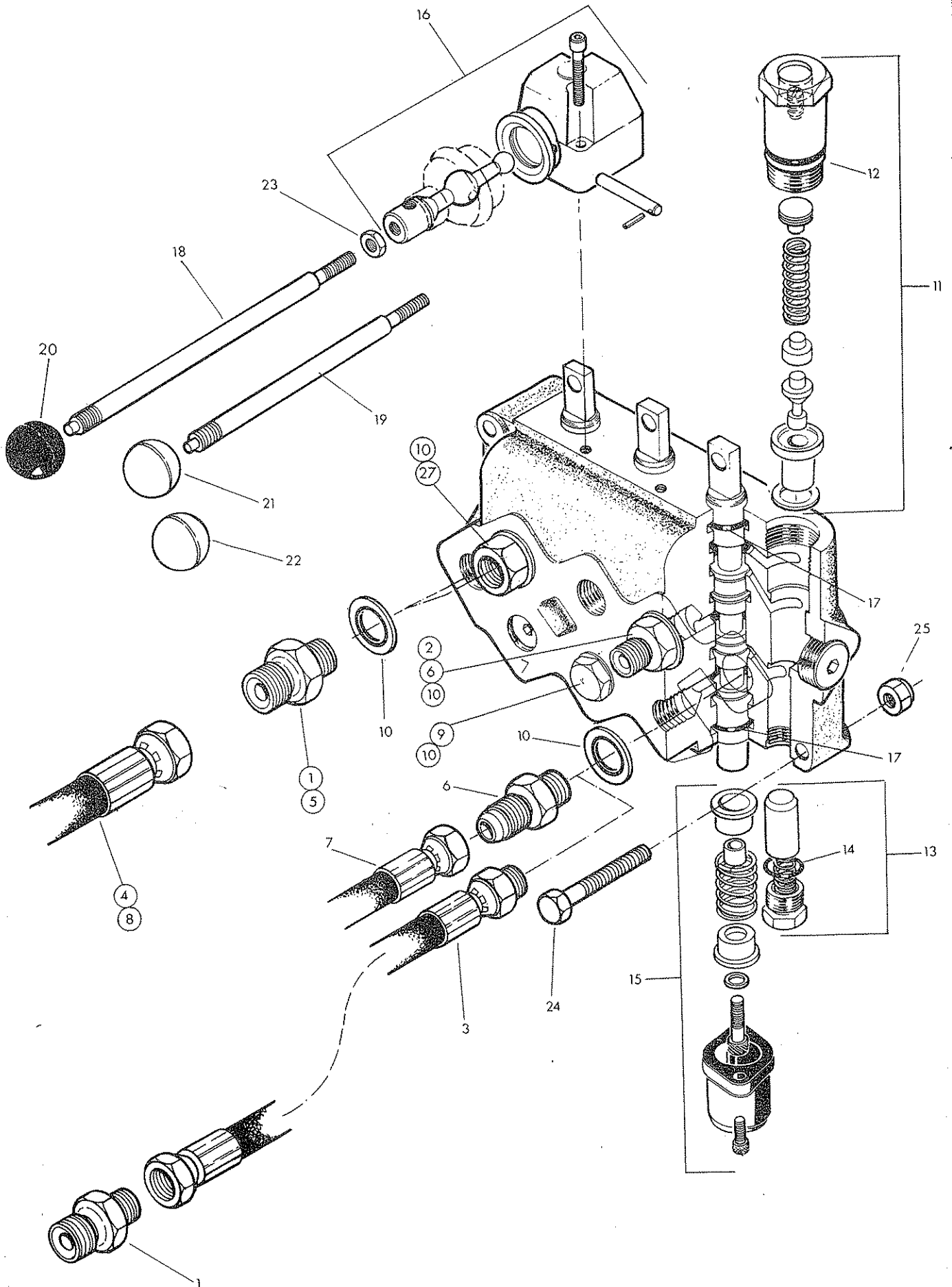
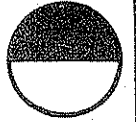
43	10 20 321	1	Frame
44	10 20 263	1	Sideshift ram assy see page 25
45	10 20 032	2	Mounting pin
46	10 20 033	1	Ram base end pin
47	10 20 034	1	Ram rod end pin
48	10 20 073	2	Roller pin
49	10 20 072	2	Roller
50	93 13 065	2	Setscrew M10 x 30
51	91 43 005	2	Self locking nut M10
52	09 01 121	2	Greaser 1/8 BSP
53	71 06 187	2	Plastic hose tie
54	86 50 103	2	Bonded seal 3/8 BSP
55	95 01 509	2	Split pin \varnothing 10 x 50
56	95 01 406	4	Split pin \varnothing 5 x 40

Model.

CONTROL VALVE KIT

MCCOMEL

Registered office: Temeside Works,
Ludlow, Shropshire SY8 1JL, England.
Telephone: Ludlow (0584) 3131
Telex: 35313





OPTIONAL EXTRA

Ref	Part No.	Qty	Description
	10 20 290		CONTROL VALVE KIT - BSP
1	60 00 112	3	Union 3/8 BSP - 1/2 BSP MM
2	60 00 113	2	Union 3/8 BSP - MM
3	85 21 043	1	Hose - supply - 3/8 BSP SF-SM x 45" long
4	85 23 104	1	Hose - return - 1/2 BSP SF - SM x 45" long
	10 20 291		CONTROL VALVE KIT - JIC
5	85 81 222	2	Union 3/8 BSP - 7/8 JIC MM
6	71 03 062	3	Union 3/8 BSP - 3/4 JIC MM
7	85 11 888	1	Hose - supply 3/4 JIC SF - SF x 45" long
8	85 23 109	1	Hose - return 7/8 JIC SF - SM x 45" long

The following items are common to both control valve kits

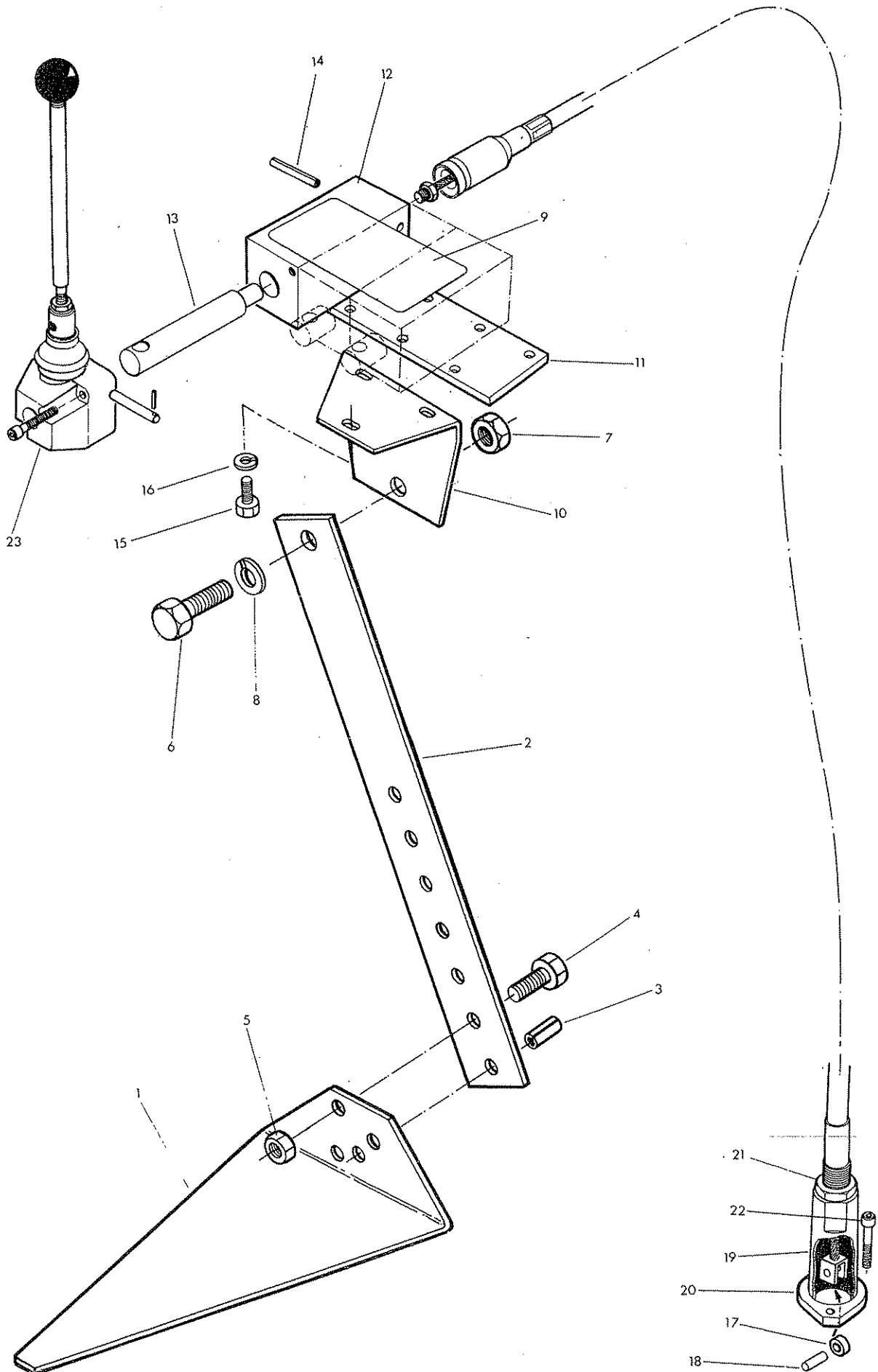
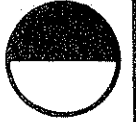
9	80 03 001	2	Blank plug 3/8 BSP
10	86 50 103	8	Bonded seal 3/8 BSP
	81 30 261	1	Valve assembly complete with:-
11	G381-2540	1	. Main relief valve 2500 PSI (170 Bar)
12	86 00 113	1	.. 'O' Ring
13	81 30 022	1	. Non return valve assembly
14	86 00 501	1	.. 'O' Ring
15	81 30 134	3	. Spool centering assembly
16	81 30 065	3	. Lever pivot box assembly
17	86 00 112	6	. Spool 'O' ring
18	71 09 131	2	Lever - long
19	71 09 132	1	Lever - short
20	09 03 114	1	Knob - yellow - lift
21	09 03 113	1	Knob - green - sideshift
22	09 03 112	1	Knob - red - tilt
23	91 13 004	3	Locknut M8
24	92 13 124	3	Bolt M8 x 55
25	91 43 004	3	Self locking nut M8
26	12 90 010	1	Operating sticker - Not illustrated
27	85 81 238	1	Extension adaptor 3/8 BSP M- F
	86 99 163		VALVE SEAL KIT

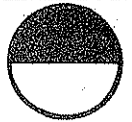
Model.

CABLE CONTROL KIT

MCCONEL

Registered office: Temeside Works,
Ludlow, Shropshire SY8 1JL, England.
Telephone: Ludlow (0584) 3131
Telex: 35313





Ref	Part No.	Qty	Description
	10 20 295		CABLE KIT - OPTIONAL EXTRA
	71 09 319	1	Valve mounting Plate & pillar compr:-
1	71 09 320	1	. Sandwich Plate
2	71 09 146	1	. Pillar complete with sp. dowel
3	04 22 816	1	. Spring dowel
4	93 13 066	1	. Setscrew M12 x 30
5	91 13 006	1	. Nut M12
6	03 11 086	1	. Setscrew 5/8 UNF x 1" long
7	01 11 006	1	. Plain nut 5/8 UNF
8	01 00 206	1	. Spring washer 5/8 dia
9	12 90 011	1	Operator label
10	80 17 006	1	Control bracket
11	71 14 071	1	Control block mounting base
12	81 30 052	3	Control block
13	81 30 053	3	Spindle
14	04 25 522	3	Spring dowel $\varnothing 5 \times 22$
15	93 13 034	6	Setscrew M8 x 16
16	91 00 104	6	Plain washer $\varnothing 8$
*	10 20 040	3	Cable assy 1.5 M c/w sleeve flange etc
17	71 15 158	1	. Spacer
18	71 15 160	1	. Pin
19	71 15 162	1	. Sleeve
20	81 25 050	1	. Flange
21	01 31 006	1	. Thin locknut 5/8 UNF
22	93 43 032	6	Capscrew - socket hd - M5 x 16

* Spares note:-

An alternative cable assembly may be fitted depending on supply availability.

The complete assembly is interchangeable and thus retains the same assembly Part No. 10 20 040.

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

The cable listed above is manufactured by "BOWDEN" and is BLACK.

The alternative cable manufactured by "TELEFLEX MORSE" is RED and comprises of :-

	10 20 040	3	Cable assy 1.5 M c/w Flange etc
17	80 17 004	1	. Spacer
18	80 17 005	1	. Pin
19	81 25 049	1	. Sleeve
20	81 25 050	1	. Flange
21	91 00 016	1	. Thin locknut $\varnothing 16 \times 1.5$ pitch

23 Lever pivot box c/w handle is shown for ref only.

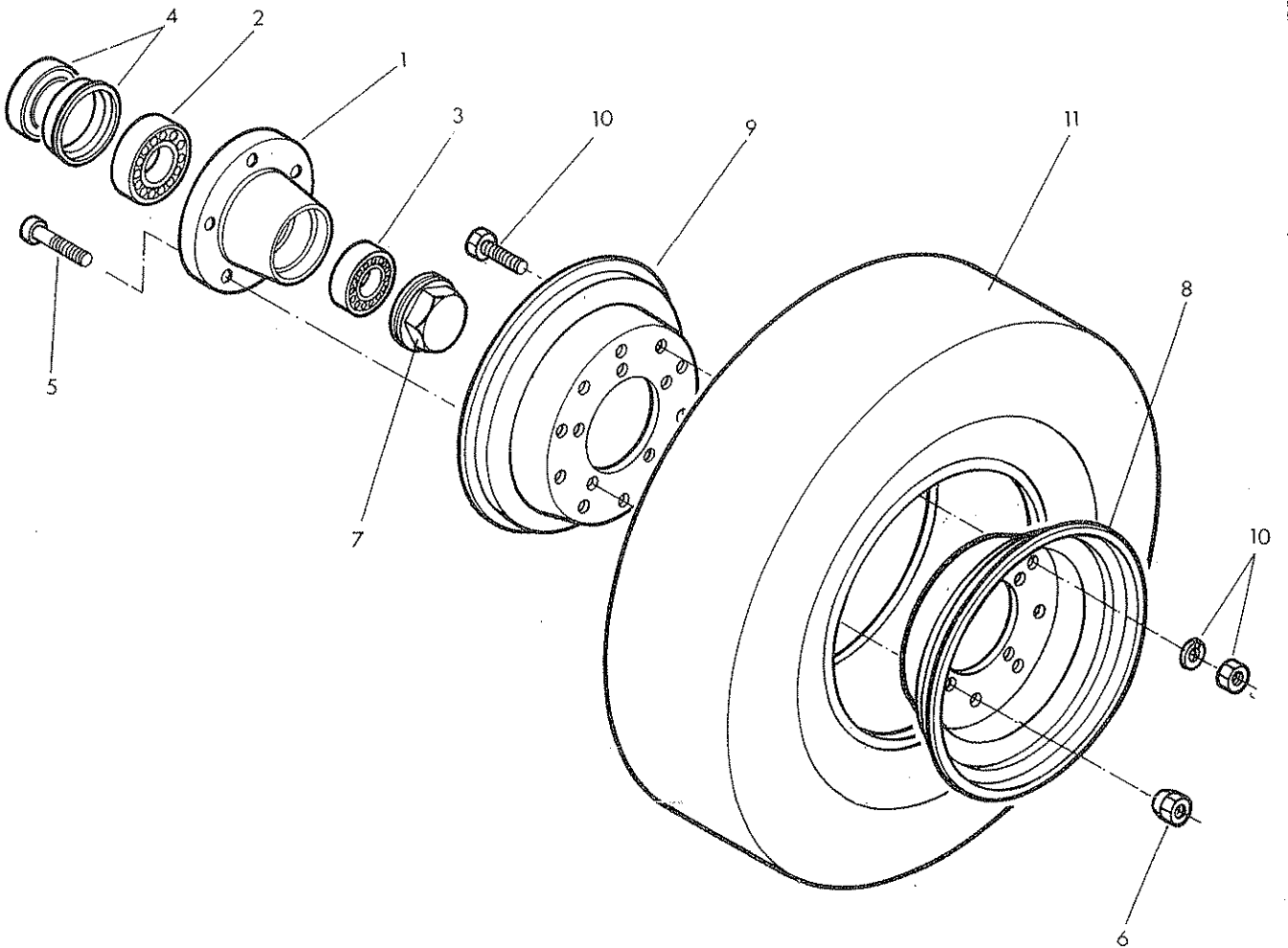
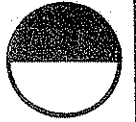
When cable kits are supplied subsequently as conversions the lever pivot box is dismantled from the control valve and assembled to the cable block in the position shown.

Model.

WHEEL & HUB

McCONNEL

Registered office: Temeside Works,
Ludlow, Shropshire SY8 1JL, England.
Telephone: Ludlow (0584) 3131
Telex: 35313



Ref	Part No.	Qty	Description
HUB AND WHEEL			
1	10 20 279	1	Wheel hub
2	06 00 076	1	Inner bearing
3	06 00 077	1	Outer bearing
4	86 29 166	1	Labyrinth seal
5	10 20 045	5	Wheel stud
6	10 20 036	5	Stud nut
7	10 20 037	1	Hub cap
8	10 20 273	1	Outer rim
9	10 20 274	1	Inner rim
10	10 20 272	10	Rim bolt c/w nut & washer
11	10 20 275	1	Tyre 5.00 x 8 - 8 ply.
12	10 20 276	1	Inner tube 5.00 x 8
13	10 20 277	1	Tyre liner 5.00 x 8

} not illustrated

SUB-ASSEMBLIES

- 10 20 278 Hub assembly compr. items 1 - 7
- 10 20 271 Rim and tyre compr. items 8 - 13

Model.

HYDRAULIC RAMS

McCONEL

Registered office: Temeside Works,
Ludlow, Shropshire SY8 1JL, England.
Telephone: Ludlow (0584) 3131
Telex: 35313



10 20 281	LIFT RAM ASSEMBLY FL20 & FL20N
86 99 205	Seal kit
10 20 282	TILT/TOP LINK RAM ASSEMBLY FOR FL20 & FL20N
86 99 206	Seal kit
10 20 046	Category 2 screwed end
10 20 069	Spring dowel
10 20 048	Locking collar 1 1/8 UNC
	Optional extras
10 20 043	Extended Category 2 screwed end
10 20 042	Category 1 screwed end
10 20 283	SIDESHIFT RAM ASSEMBLY FL20
86 99 207	Seal kit

F W McConnell Ltd

agricultural & industrial machinery

Registered office: Temeside Works
Ludlow, Shropshire, SY8 1JL England

registered number 305192 England

telephone: Ludlow 3131 (std 0584)

telex: 35313

cables: Powerarm Ludlow

