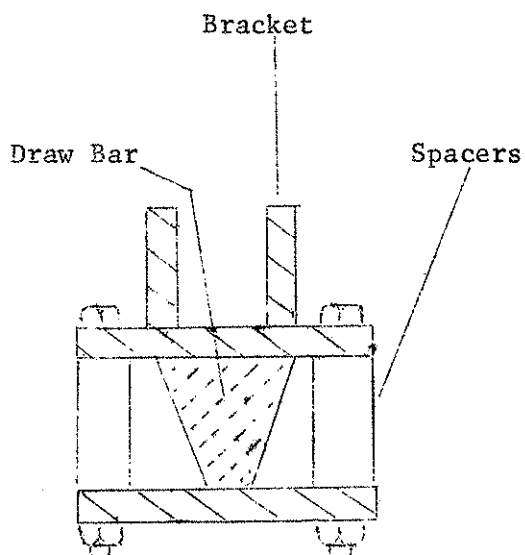


**OPERATION MANUAL AND  
SPARE PARTS LIST  
FOR**

**TS 15**

**F.W. McCONNEL LTD.  
TEMESIDE WORKS,  
LUDLOW, SHROPSHIRE. SY8 1JL  
TEL. LUDLOW (0584) 2345.**

NOTE: It has been found that spacers are required when fitting draw bar attachment bracket (see diagram 4) to Fordson Super Major. These are positioned as shown.



AT ALL TIMES THE INSTRUCTIONS GIVEN IN THIS MANUAL MUST BE STRICTLY ADHERED TO. CORRECTLY MAINTAINED AND OPERATED THIS MACHINE WILL RESPOND TO ALL REASONABLE DEMANDS MADE UPON IT AND GIVE YEARS OF RELIABLE SERVICE.

### 1. SAFETY

- a) Check wheel spacing on tractor is adequate and in line with recommendation and that adequate front weights are fitted to the tractor (see table 1).
- b) During transportation of loads have forks set at minimum height possible.
- c) Never stand under loaded forks or behind Tail Slave.
- d) Check for frayed or kinked hoses. If serious replace hoses. If very slight abrasion, prevent further fraying by protecting with insulation tape etc. or by slightly re-routing.
- e) Lubricate lifting chains regularly for safety and long life.

NOTE : The following tractors are not suitable for use with TS.15 Fork Lift.  
John Deere Vineyard. Ferguson TE 20. Ferguson Vineyard.

TABLE 1 TRACTOR WEIGHTS AND WHEEL SETTING			
Tractor	Front weight at 21" load centres	Front wheel weight	Rear wheel spacing min.
Ferguson 35	1,056 lbs	94 lbs	60"
65	525 lbs	94 lbs	60"
135	1,056 lbs plus	94 lbs	60"
165	525 lbs	94 lbs	60"
175	525 lbs	94 lbs	60"
Ford Dexta	300 lbs plus	70 lbs	60"
Super Major			
2000			
3000		180 lbs	60"
4000		90 lbs	60"
5000	240 lbs		
David Brown 880			
990			
1200			
Nuffield 342	700 lbs plus	100 lbs	60"
460			
10/42			
10/60		100 lbs	60"
3/45		700 lbs	
4/65			
Leyland 384			
344			
154			
International 275	400 lbs plus	90 lbs	60"
414			
434			
450			
614			
John Deere 2020			

## 2. FITTING INSTRUCTIONS

### Preparation of Tractor

- a. Tractor must have a hydraulic pump in good condition giving 2000 psi. min.
- b. Tractor must have a trailer pipe.
- c. Wheel ballast is strongly recommended.
- d. If not already fitted to the tractor use stabiliser bars, these should be positioned before fitting the Tail Slave.
- e. Check fitting (Table 1) and set wheels to correct spacing, also fit front body weights - these can be obtained from your dealer. Alternative or part front weighting can be achieved by using cantilever weights of front end loader, front pallet carriers, front tool boxes, etc. but **THE TOTAL FRONT WEIGHTING MUST BE ADEQUATE.**
- f. If the tractor has a spring cushion top link anchorage point use fixed anchorage point to attach special top link 'A'. (DIAG. 1). On Ford 4000 and 5000 tractors the heavy draft implement position should be used.
- g. If the tractor is not fitted with a standard draw bar a special attachment can be supplied to accept the Tail Slave mounting bracket K (DIAG.

1), (and Table 2).

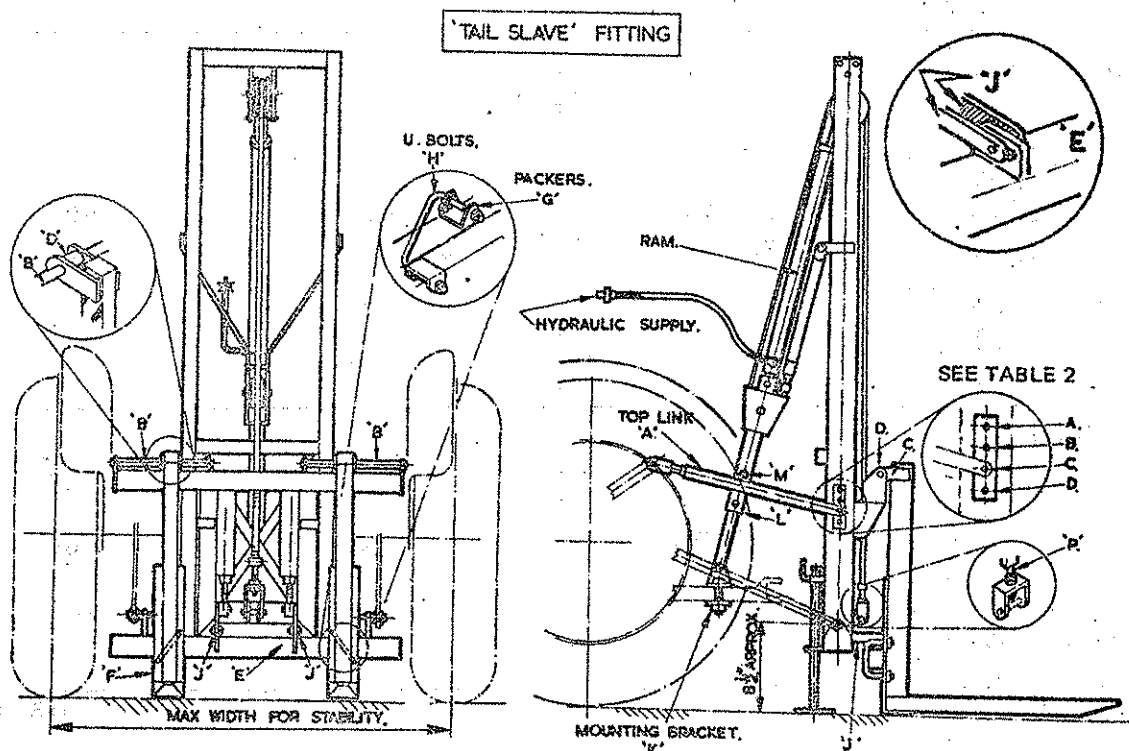
- h. Check tractor hydraulic system and replace selector valve if necessary. (See HYDRAULICS).
- i. Remove existing tractor top link.

**FITTING TAIL SLAVE TO TRACTOR.**  
(For BMC Mini, 4/25 and Leyland 154 see also Diagram 6).

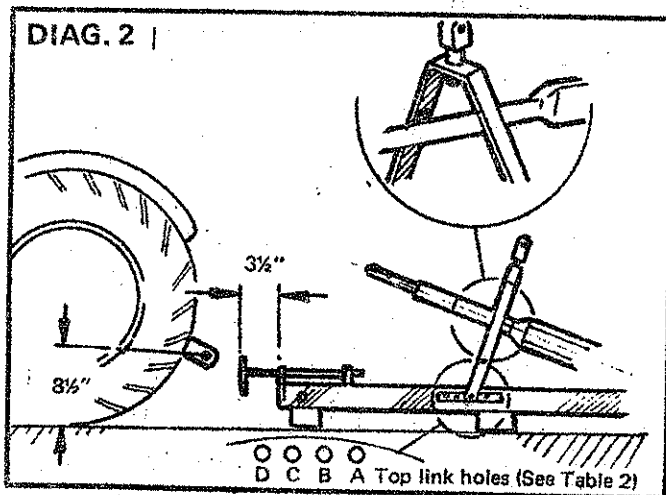
Before starting to fit the Tail Slave check that special top link (A-DIAG. 1), channel packers (G-DIAG. 1) and 'U' bolts (H-DIAG. 1) are included with your Tail Slave. If a special draw bar attachment has been ordered check that this is also included in the Tail Slave package.

- a. Lay Tail Slave channel frame on level ground adjacent to tractor rear links, with jack legs extended approx.  $3\frac{1}{2}$ " measuring from foot to underside of lug. (see DIAG. 2).
- b. Adjust tractor rear links equally to approx.  $8\frac{1}{2}$ " above ground level (see DIAG. 2).
- c. Detach special top link (A-DIAG. 1) from Tail Slave package and assemble to correct hole in Tail Slave mast (See Table 2). Ensure that telescopic leg passes through top link (see DIAG. 2).

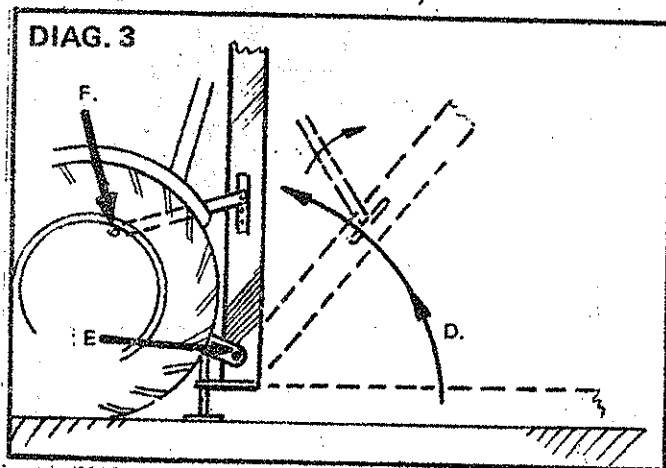
**DIAG. 1** FOR BMC MINI, 4/25 & LEYLAND 154 SEE ALSO DIAGRAM 6.



Read in conjunction with Table 2.



- d. Raise channel mast to a vertical position, pivoting on jacks and holding special top link up toward the hydraulic ram. (See DIAG. 3).
- e. Connect channel mast to lower tractor links. (See DIAG. 3).
- f. Connect special top link (already fitted to mast) to top link anchorage point (See DIAG. 3 and para. f, preparation of tractor).



- g. Do not attempt to fit lower end of ram strut yet.

#### ATTACHMENT OF FORKS TO TROLLEY

- a. Remove 'U' bolts (H-DIAG. 1) and channel packers (G-DIAG. 1) from cross beam (E-DIAG. 1).
- b. Remove inner split pins from fork attachment rods (B-DIAG. 1) and withdraw rods outwards to allow the fork attachment lugs (C-DIAG. 1) to be positioned. The locking collars (D-DIAG. 1) must be placed between the fork lugs before pushing attachment rod home and fitting pins.
- c. Space forks to your requirements equally on either side of mast centre line by sliding fork lugs along attachment rod. When in required

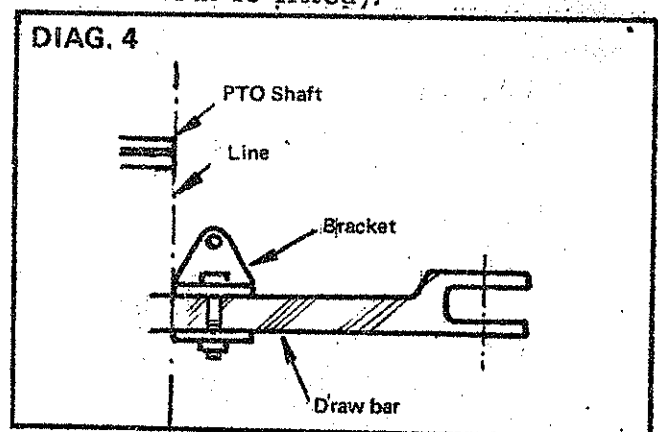
position lock by tightening the set screws in the locking collar.

- d. Fit 'U' bolts (H-DIAG. 1) and packers (G-DIAG. 1), check that fork is vertical and that cross beam (E-DIAG. 1) is symmetrical about mast centre line, this will ensure that connecting links (J-DIAG. 1) are correctly aligned. Tighten 'U' bolt nuts fully.

IT IS IMPORTANT THAT THESE ITEMS ARE FITTED CORRECTLY.

#### ATTACHMENT OF CHAIN AND RAM ASSEMBLY TO DRAWBAR.

- a. Remove draw bar mounting bracket from lower end of ram strut, attach the bracket to the draw bar (see para. g. preparation of tractor). The bracket should be positioned as close to the tractor end of the draw bar as possible. To check this position a vertical line should be dropped from the most rearward projection on the tractor (usually the PTO shaft) to the draw bar. (See DIAG. 4). The inner edge of the bracket should be brought up to this point and the clamp bolts and nuts fitted but not tightened. (The bracket may have to be moved slightly when strut is fitted).



- b. Remove bolt (M-DIAG. 1) from hydraulic ram strut. Check that hydraulic ram is in the approximate closed position. Fit the lower end of the strut to the drawbar attachment bracket, refit the bolt (M-DIAG. 1) through the strut moving the draw bar bracket if necessary, but keeping the ram closed. Tighten the draw bar bracket clamping bolts and check that the ram strut does not foul the end of the PTO shaft when the forks are fully raised.

## CHAIN ADJUSTMENT

- a. Final adjustment of the chain should only be made when the trolley is in the low position. Tighten or slacken the tensioning screw (T-DIAG. 1) as necessary.
- b. If the chain is over tensioned difficulty may be experienced in entering forks under pallet. If the chain is too slack it will be impossible to obtain maximum lift on the forks.

## HYDRAULICS

Couple the hydraulic pipe from the Tail Slave ram to the tractor hydraulic point by means of the self sealing coupling. The hydraulic point on the tractor to which the pipe is connected must also supply oil to the ram when the linkage arms are operated. Certain ford tractor models fitted with a two position hydraulic selector will have to be modified and fitted with a three position hydraulic selector to allow for the above condition.

## 3. OPERATION

The following checks must be made before using your Tail Slave.

- a. Raise tractor linkage slowly and check that there is clearance between the ram strut and the end of the PTO shaft with forks fully raised.
- b. Check that chain does not foul on special top link.

## 4. LUBRICATION

There are six grease nipples on your Tail Slave. These should be greased once a week. Keep all sliding and rotating parts oiled regularly. When storing the Tail Slave ensure that it is well greased, particularly the ram, inner shaft where it passes through the seal.

## 5. FORK TILT ADJUSTMENT

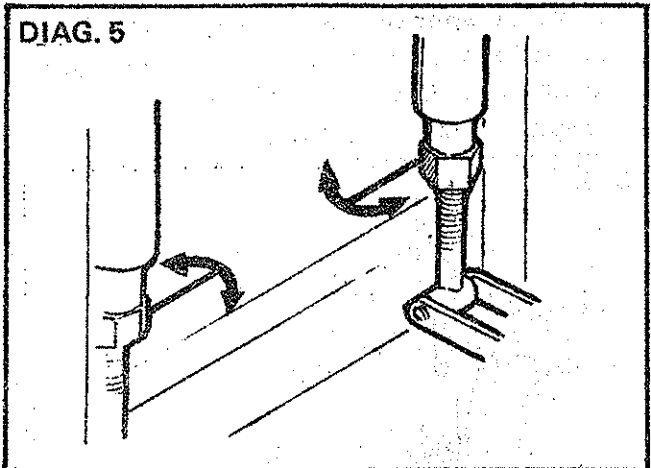
The automatic tilt mechanism has been set to tilt the forks downwards when not loaded. The forks are held in a downward position by means of a compression spring located in the tubular sleeve on each side of the carriage. Upon lifting a pallet the force required to lift the load overcomes the resistance

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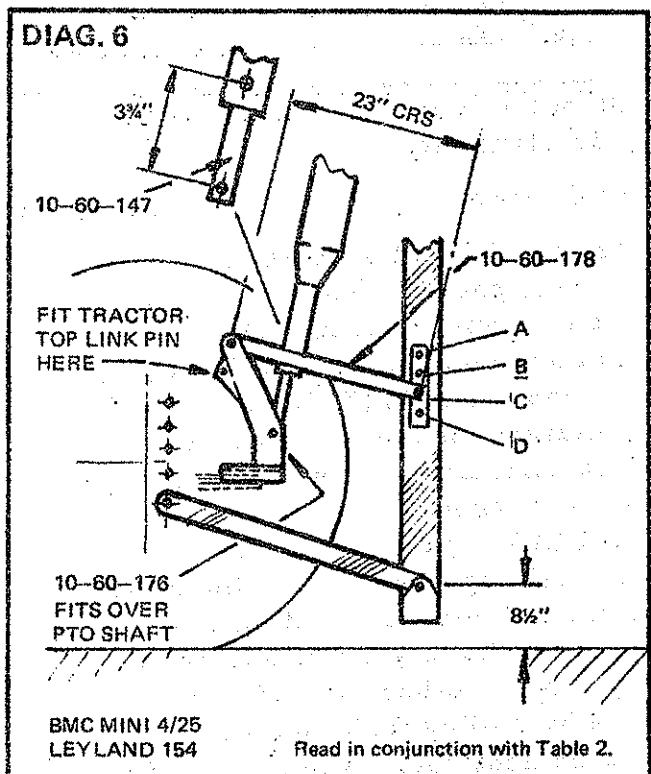
in the springs thus tilting the fork upwards.

- a. To adjust the tilt mechanism in order to remove downward tilt screw the plunger tube adjustment nut in an anti-clockwise direction to reduce the spring pressure until the forks are in the required position. This adjustment should be carried out with the forks empty or carrying an empty pallet. (See DIAG. 5).
- b. To adjust the tilt mechanism to give downward tilt, screw the adjustment nut in a clockwise direction to increase the spring pressure. This adjustment again should be carried out either with forks unloaded or carrying an empty pallet. (See DIAG. 5).

DIAG. 5



DIAG. 6



BMC MINI 4/25  
LEYLAND 154

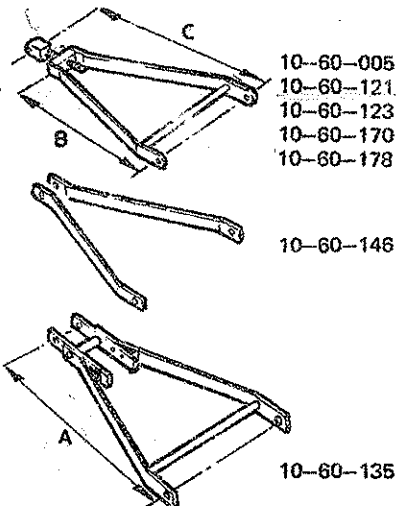
Read in conjunction with Table 2.

**TABLE 2**

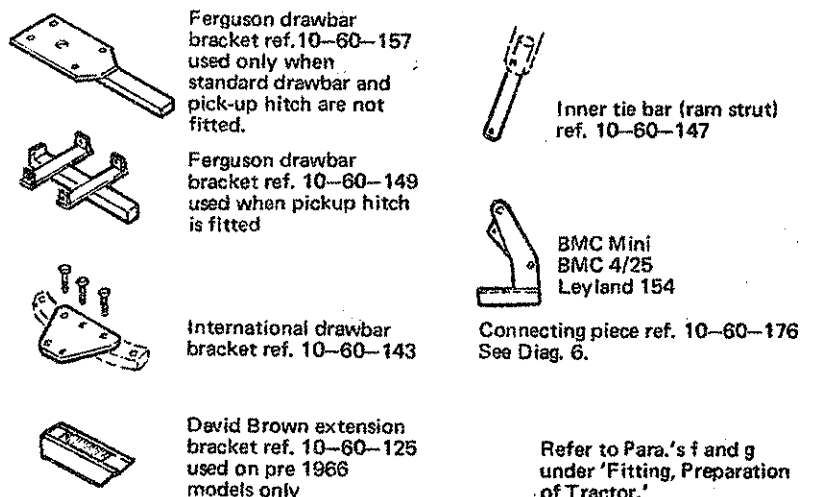
**TRACTOR FITTINGS**

Tractor	Top link ref.	Draw bar fitting ref.	DIM			Coupled Hydraulic	Coupling Req'd.	Non-Std. fittings used	Top link mounting hole	Remarks
			A	B	C					
Ferguson 35	10-60-135	10-60-149	26			Standard	Exactor	10-60-157	D	See also lower diag. for further drawbar details
35X	10-60-135					"	"			
65	10-60-135	Standard	28½			"	"		D	
135	10-60-135	10-60-149	26			"	"	10-60-157	D	
165	10-60-135	Standard	28½			"	"		D	
175	10-60-135	Standard	32½			"	"		B	
Ford Dexta	10-60-135	Standard	26				Lockheed		D	See para. HYDRAULICS
Super "	10-60-135						"		D	
Super Major	10-60-121			23½	26½		"		C	
2000	10-60-135		26			Standard	"		D	
3000	10-60-135		26			"	"		D	
4000	10-60-121	Standard		23½	26½	"	"		C	
5000	10-60-121	Standard		23½	27¾	"	"		C	
David 770	10-60-005			20	24¾	Standard	Exactor	¾" Banjo - F90	C	See also lower diag. for further details
Brown 880	10-60-005	Standard		20	23½	"	"	4'0" long	B	
990	10-60-005	Standard		20	25	"	"	"	A	
pre 1966 models 880	10-60-170	Standard		25	34	"	"	"	D	
990	10-60-170	Standard		25	36	"	"	"	C	
Nuffield DM4	10-60-005	Standard		20	25	Standard	Lockheed		D	When fitting see Diag. 6
DL3	10-60-005	"		20	25½	"	"		C	
342	10-60-005	"		20	23	"	"		C	
460	10-60-005	"		20	23	"	"		B	
10/42	10-60-005	"		20	23	"	"		C	
10/60	10-60-005	"		20	23	"	"		B	
Leyland 384										
344										
154	10-60-178			20	23	"	Lockheed	10-60-176		
Int. B250	10-60-005	10-60-143	23¾			Standard	Lockheed	10-60-147	D	
275	10-60-146	10-60-143	23¾			"	"	10-60-147	C	
414	10-60-146	10-60-143	23¾			"	"	10-60-147	C	
434	10-60-146	10-60-143	23¾			"	"	10-60-147	C	
450	10-60-123	Standard		25	28½	"	"		B	
614	10-60-123	Standard		25	28½	"	"		B	
John 1020	10-60-005	Standard		20	24	Standard	Lockheed	10-60-147		
Deere 1120	10-60-005	"		20	24	"	"	10-60-147		
BMC Mini	10-60-178			20	23	Standard	Lockheed	10-60-147		
425	10-60-178			20	23	"	"	+10-60-176 10-60-147 +10-60-176		

**TOP LINKS**



**DRAWBAR FITTINGS**

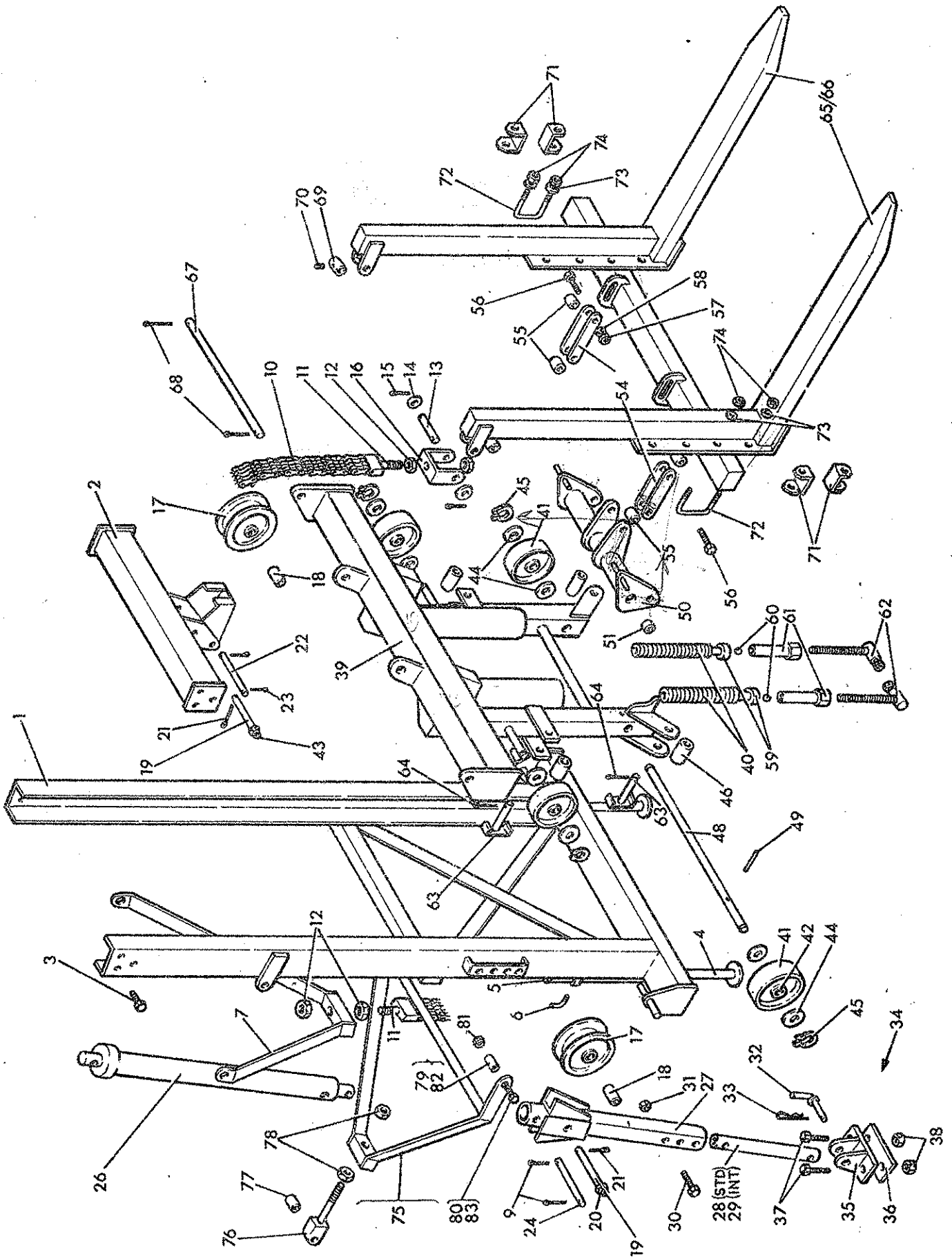


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## SPARE PARTS

Always order from your dealer or stockist  
quoting correct part number and quantity required.





**SPARE PARTS (FOR TRACTOR FITTINGS SEE TABLE 2)**

Item No.	Part No.	No. Off	Description	Item No.	Part No.	No. Off	Description
	10-60-800	1	CHANNEL MAST ASSEMBLY		86-30-227	1	.. Piston Seal Pressure Cup
			comprising:-		86-40-328	1	.. Wiper Seal
1	10-60-003	1	. Channel Mast	27	10-60-032	1	.. Ram Mounting Bracket
2	10-60-007	1	. Top Cross Member	28	10-60-028	1	.. Inner Telescopic Leg (Standard)
3	03-13-085	6	. 1"x1/2" BSF Setscrew	29	10-60-147	1	.. Inner Telescopic Leg (International)
4	10-60-015	2	. Jack c/w End Cap	30	02-13-185	1	.. 2.1/4" x 1/2" BSF Bolt
5	10-60-801	2	.. End Cap	31	01-43-005	1	.. 1/2" BSF Aeronut
6	10-60-014	2	. Clamping Screw - Jack	32	10-60-013	1	.. Mounting Pin - Drawbar Bracket
<b>CHAIN AND HYDRAULIC CYLINDER ASSEMBLY</b>				33	04-31-106	1	.. Spring Clip
7	10-60-006	1	. Chain Connecting Link c/w Washers and Splitpins	34	10-60-805	1	.. Drawbar Mounting Bracket Assy
*8	01-00-107	2	.. 3/4" Flat Washer	35	10-60-009	1	.. Mounting Bracket
9	05-03-105	2	. 1.1/4" x 3/16" Splitpin	36	10-60-012	1	.. Mounting Bracket Plate
10	10-60-802	1	. Chain c/w Anchor Bolts	37	03-13-245	2	.. 3" x 1/2" BSF Setscrew
11	10-60-803	2	.. Chain Anchor Bolt	38	01-43-005	2	.. 1/2" BSF Aeronut
12	01-34-006	4	.. 5/8" Whit. Locknut	10-60-002	1	CARRIAGE ASSY, comprising:-	
13	10-60-027	1	. Chain Connecting Pin c/w Washers & Pins	39	10-60-033	1	.. Carriage, W/A
14	01-00-106	2	.. 5/8" Flat Washer	40	10-60-021	2	.. Tilt Spring
15	05-03-103	2	.. 1.1/4" x 1/8" Splitpin	41	10-60-020	4	.. Carriage Roller c/w Bearing
16	10-60-017	1	. Chain Connecting Bracket	42	10-60-806	4	.. Bearing Bush 1.1/4" long
17	10-60-010	2	. Chain Pulley c/w Bushes	43	09-01-141	4	.. 1/4" DF Greaser
18	10-60-804	2	.. Bush, 1.3/4" long	44	01-00-109	8	.. 1" Flat Washer
19	10-60-026	2	. Chain Roller Pin c/w Greaser	45	04-11-116	4	.. Retaining Circlip
20	09-01-141	2	.. 1/4" DF Greaser	46	10-60-039	4	.. Carriage Side Roller c/w Bushes
21	05-03-125	2	.. 1.1/2" x 3/16" Splitpin	* 47	10-60-807	8	.. Bearing Bush, 3/4" long
22	10-60-031	1	. Hydraulic Ram Rod Pin	48	10-60-037	1	.. Tilt Pivot Shaft c/w Drive Pin
23	05-03-105	2	.. 1.1/4" x 3/16" Splitpin	49	05-06-186	1	.. 2.1/4" x 1/4" Grooved Pin
24	10-60-023	1	. Hydraulic Ram Base Pin	50	10-60-034	1	.. Tilt Torque Arm c/w Bearings
*25	05-03-105	2	.. 1.1/4" x 3/16" Splitpin	51	10-60-061	2	.. Bearing Bush 3/4" long
26	10-60-030	1	. Hydraulic Cylinder, comp	* 52	01-00-106	2	.. 5/8" Flat Washer
				* 53	05-03-083	2	.. 1" x 1/8" Splitpin
				54	10-60-018	4	.. Drag Link

SPARE PARTS continued

Item No.	Part No.	No. Off	Description
55	10-60-808	4	Drag Link Bush
56	03-13-125	4	1.1/2" x 1/2" BSF Bolt
57	01-43-005	4	1/2" BSF Aeronut
58	01-00-105	4	1/2" Flat Washer
59	10-60-022	2	Cap for Tilt Spring
60	09-05-120	2	5/8" dia. Steel Ball
61	10-60-036	2	Tilt Spring Plunger Tube
62	10-60-035	2	Tilt Spring Plunger Rod
63	10-60-038	4	Side Roller Pin c/w Splitpins
64	05-03-083	4	1" x 1/8" Splitpin
	10-60-004	1	BOTTOM TILT TUBE
	10-60-842	1	FORK ASSEMBLY 42"
65	11-57-011	2	Fork Welded Assembly, 42"
	10-60-836	1	FORK ASSEMBLY 36"
66	11-57-033	2	Fork Welded Assembly, 36"
			The following parts are common to both Forks
67	11-57-034	2	Fork Attachment Rod c/w Splitpins
68	05-03-165	4	2" x 3/16" Splitpin
69	11-57-023	2	Locating Collar c/w Setscrew
70	03-24-043	2	1/2" x 3/8" Whit. Square Head Setscrew
71	10-60-130	4	Channel Packers
72	10-60-016	2	'U' Bolt c/w Washers & Nuts
73	01-00-105	4	1/2" Flat Washer
74	01-43-005	4	1/2" BSF Aeronut

HYDRAULIC PARTS

* 85-01-002	1	Flexible Hose, 2'6" long
* 11-51-755	1	3/8" BSP Banjo Bolt
* 01-70-003	2	3/8" BSP Copper Washer
* 85-90-023	1	Female Self Sealing Coupling or

Item No.	Part No.	No. Off	Description
	* 85-90-043	1	Female Self Sealing Coupling - Exactor

TOP LINK PARTS

(	10-60-005	1	Top Link
75(	10-60-121	1	Top Link
(	10-60-123	1	Top Link
76	10-60-011	1	Top Link Adjuster
77	10-60-024	1	Pivot Bush - Top Link Adjuster
78	01-33-007	2	3/4" BSF Locknut
79	10-60-119	2	Top Link Pivot Sleeve
80	02-13-126	2	1.1/2" x 5/8" BSF Bolt
81	01-33-006	2	5/8" BSF Locknut
75	10-60-135	1	Top Link
79	10-60-119	2	Top Link Pivot Sleeve
80	02-13-126	2	1.1/2" x 5/8" BSF Bolt
81	01-33-006	2	5/8" BSF Locknut
75	10-60-146	2	Top Link
82	10-60-163	2	Top Link Pivot Sleeve
83	02-13-146	2	1.3/4" x 5/8" BSF Bolt
81	01-33-006	2	5/8" BSF Locknut
	10-60-125	1	Top Link Extension for David Brown
	03-13-207	1	2.1/2" x 3/4" BSF Setscrew

DRAWBAR PARTS

10-60-157	1	Ferguson Drawbar Bracket
10-60-149	1	Ferguson Trailer Hitch Bracket
10-60-143	1	International Drawbar Bracket c/w bolts.

\*Not illustrated

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