

McCONNEL
POWER ARM
Model 'S'

POWER ARM MODEL 'S'

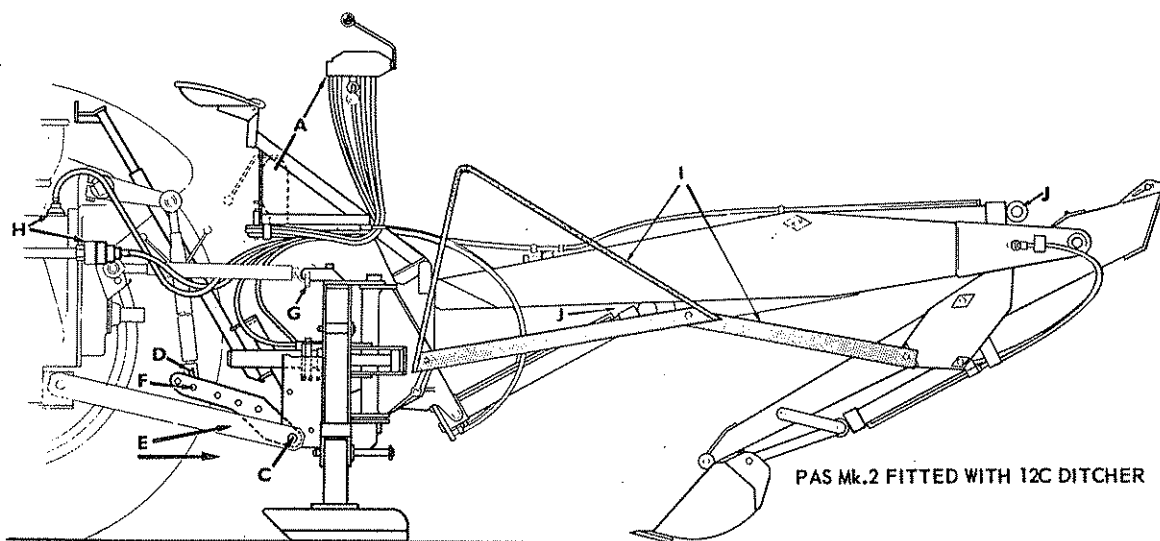
GENERAL

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POWER ARM MODEL 'S'

GENERAL



First introduced during December 1962 and still in current production. Consists of an 'A' shaped frame which carries a centrally mounted slewing column onto which is attached the hydraulically controlled Armhead. Slewing is through 180°. A 4-valve Hydraulic Control Unit is required and is included in the price of the basic machine. The complete Power Arm can be quickly attached to the tractor's three point linkage. The supply to the 4-valve H.C.U. is from a self-sealing coupling on the tractor and a return connection is supplied to complete the hydraulic circuit. Serial Numbers commenced at 00S21 and continued to 35S67 in June 1967. The Mark II frame was then introduced, the serial numbers recommencing at 00A21. Therefore frames with an 'S' in the serial number are Mark I, and frames with an 'A' in the serial number are Mark II. Existing Armheads can be used on either model. All are painted green.

CONVERTING FROM ONE TRACTOR MODEL TO ANOTHER

The Power Arm Model 'S' will fit on most popular tractors and fittings for these are usually available ex stock. To convert from one tractor to another is simple and inexpensive, the only parts required being:-

1. Filler Plug Bush for Return Connection - usually required
2. Hydraulic Supply Connection - only required if tractor is not fitted with a self-sealing coupling.
3. Drop Link Connection Pins and Bushes - sometimes required.

ORDERING CONVERSIONS

Orders (or quotations) for conversions should be worded as follows to ensure correct interpretation of what is required.

" For Power Arm Model 'S', serial number..... (state serial no of P.A.S.)
 for use with Armhead/s.....
 (state serial no of Armhead/s) Please supply
 (or quote for) one set of parts to convert from
 (state make and model of tractor) to (state make
 and model of tractor) The new tractor is/is
 not* fitted with a self-sealing coupling for
 external hydraulic connections.

* Delete as applicable

MODIFICATION HISTORY

Date	Details of Modification	Embodiment From Serial Number	Service Information Sheet
23. 4.64	Modification to Slew Links and Slew Link Pivots	11 S 15	138/May'64
10. 9.64	Modification to Single Keel Skid Feet	14 S 40	139/Aug. '64
10. 9.64	Auxiliary Control Valve modified to include Cross Port Relief	14 S 40	140/Sep. '64
April 65	Leg Spreader Brackets introduced as optional extra - to give greater stability	-	142/Apr. '65
21. 5.65	New Piston and Gland Seal assemblies for Lift Ram	20 S 21	143/May'65
July 65	Introduction of modified Combining Valve for use with Ferguson Multi-Power Tractors	-	144/July'65
Apr. '65	New type King Pin and Bushes	19 S 30	149/Apr. '66
June 67	P.A.S. Mark II introduced	00 A 21	-

POWER ARM MODEL 'S'

GENERAL

P.A.S. LIFT RAMS (painted yellow)

The Lift Ram on Mark I machines was originally 2" bore x 19" stroke, double acting (71-01-270). On 21st May 1965 an improved type of Piston and Gland Seal assembly was introduced which is interchangeable with earlier types. Since May 1965 the new Seals have been supplied against all orders for Spares. See Service Information Sheet No.143/May'65.

A Long Stroke Lift Ram was introduced in October 1965, which is 2.1/4" bore x 21" stroke. See PAS/LL/Oct.'65 and Ram Seal Identification Chart.

SPARE PARTS

See Parts Lists for both P.A.S. Mk I and Mk II on the following pages.

ARMHEADS 12 B AND 12 C DITCHER/TRENCHER

ARMHEAD 12B DITCHER/TRENCHER (painted green)

This was introduced with the Power Arm Model 'S' during December 1962. Serial Numbers commenced at 00G21 and continued in production until June 1967 (Serial number 33G32), when it was superseded by the 12C Ditcher/Trencher. This Armhead consists of a long main arm which is attached to the Slewing Column of the P.A.S. and raised or lowered with the P.A.S. (yellow) Lift Ram. To the end of the Main Arm is attached a 2-piece Drop Arm. The lower part is known as either Drop Arm, Lower Half, Wide (Pt.No: 70-12-254) to

which all the Ditching Buckets and the 13" Tile Trencher Bucket can be attached, or Drop Arm, Lower Half, Narrow (Pt.No: 70-12-257) which is used for the 5.1/2" and 11" Trenching Buckets only. The Drop Arm is hydraulically powered by a 2" bore x 19" stroke double acting Ram (painted red). With the exception of external fittings this ram is identical to the yellow lift ram of the P.A.S. All Buckets are operated by a 2" bore x 12" stroke double acting Ram (painted green). The 12B Ditcher/Trencher can be fitted to either the P.A.S. Mk.I or P.A.S. Mk.II.

MODIFICATION HISTORY

Date	Details of Modification	Embodiment From Serial Number	Service Information Sheet
21. 5.65	New Piston and Gland Seal assemblies for Reach Ram	19 G 25	143/May'65
1.11.65	Modification to Ram attachment on Main Arm. Introduction of Long Stroke Digging Ram (see Sheet PAS/LD/Oct.'65)	21 G 47	145/Aug'66
June '67	Superseded by Armhead 12 C	00 D 21	
6. 6.68	Slave Link and Radius Arm modified. King Pin Bush 71-02-167 superseded by 71-02-180 (2 off)	15 D 02	
24. 6.68	Reach Ram base end Pin hole increased from 7/8" to 1" dia. 71-05-033 reduced from two off to one off and replaced by 72-12-019. 71-01-315 Long stroke Digging Ram replaced by 72-12-275 which is identical except for 1" dia. hole in base end.	16 D 01	157/July'68

ARMHEAD 12C DITCHER/TRENCHER (painted yellow)

Introduced June 1967 (Serial number 00D21) to supersede the 12B. The 12C will fit on to the P.A.S. Mk.I or P.A.S. Mk.II.

The following Buckets may be fitted to the Lower Drop Arm, Narrow, on the 12B or 12C.
5.1/2" Trenching Bucket
11" Trenching Bucket

GRABS FOR 12 B and 12 C

The GSM/KB - Silage/Manure Grab can be fitted to the Upper Half Drop Arm of the 12B.
The GSM/KC - Silage/Manure Grab can be fitted to the Upper Half Drop Arm of the 12C.

TRENCHER BUCKETS FOR 12B AND 12C

The following Buckets may be fitted to the Lower Drop Arm, Wide, on the 12B or 12C.
20" Heavy Duty Ditching Bucket
24" Heavy Duty Ditching Bucket
28" Heavy Duty Ditching Bucket
13" Tile Trenching Bucket
36" Cleaning Bucket
48" Cleaning Bucket
48" Reed Bucket
Sheep Drain Bucket
Herder Bucket Mower

SPARE PARTS

See Spare Parts Lists for both 12B and 12C on the following pages.

POWER ARM MODEL 'S'

ARMHEAD 14 SLEWLOADER

ARMHEAD 14 SLEWLOADER FOR P.A.S. (painted green)

This Armhead was introduced during September 1964 and has continued in production since that date. Serial Numbers started at 00 L21.

The Armhead consists of a parallelogram shaped structure attached to the Slewing Column of the P.A.S; the top member being a cantilever to which the appropriate grab is attached.

The Reach Ram (red), and Bucket Ram (green) which is used for opening and closing the Grab, are the same as used on the Armhead 12 Ditcher/Trencher. No. 14 Armheads supplied before 29.9.65 (Serial No: 02L52) are only suitable for use with 19" stroke Lift and Reach Rams and a 12" stroke Bucket Ram, but can be modified to use the longer (21") stroke Lift and Reach Rams if necessary although there is no operational advantage in doing this. Machines with Serial numbers 02L52 to 06L99 can use either 19" or 21" stroke Rams but the former is strongly recommended. In June 1967 (Serial No: 06L01) the Armhead was modified to provide for use of the new 13.7/8" stroke Bucket Ram. On no account must a 13.7/8" stroke Bucket Ram be used to operate Grabs produced before June 1967.

GRABS FOR ARMHEAD 14

The following Grabs may be fitted to the Armhead 14 Slewloader:-

- Silage/Manure Grab
- Beet/Rootcrop Grab
- Bulk Grab
- Sludge/Slurry Grab

Note: None of the above Grabs produced before June 1967 (Slewloader Serial No: 06L01) must be operated by the new 13.7/8" stroke Bucket Ram. Use only a 12" stroke Ram. Grabs supplied since this date are not affected and are identifiable by a hexagonal hole in the Swivel Plate.

ACCESSORIES FOR USE WITH P.A.S. Mk1 and Mk2 and ARMHEADS 12 and 14:

Filter: To give added protection to the Hydraulic Control Unit and tractor's hydraulic system

P.A.S. Cab: For the operator when using the swivelling seat

De-Luxe Seat: A comfortable cushion seat with back rest as an alternative to the standard pan seat

Lég Spreaders: For additional stability

Scraper Blade: For spoil removal

Drop Arm - Extra Long: For extra reach when ditch cleaning. Necessary for use with Herder Bucket Mower

Lift Booster: For additional lifting power

Details of all these accessories will be found immediately following the P.A.S. Spare Parts Lists.

HERDER BUCKET MOWER

Introduced in 1967. This is a 6'0" Bucket with a Cutterbar and reciprocating Knife at its front edge. It is used for cutting and removing grass, weeds and reeds from dykes and large ditches. The knife is hydraulically driven from a Hydra Pump and Tank Set which is fitted to the tractor. The Bucket Mower is mounted on a PAS/12 B or PAS/12 C Power Arm using an Extra Long Drop Arm. For Spare Parts see following pages.

HYDRA PUMP AND TANK SET

This consists of a Dowty PTO driven pump which is attached to, and driven by, the tractor's PTO shaft, and an oil reservoir with provision for mounting on the P.A.S. frame. It is necessary when using the Herder Bucket Mower and is also necessary for efficient operation of the P.A.S. on tractors with very low output auxiliary hydraulic services.

MODIFICATION HISTORY

Date	Details of Modification	Embodiment From Serial Number	Service Information Sheet
29. 9.65	Provision for use of 19" or 21" stroke Reach Ram - See details after Ram spare parts.	02 L 52	
June '67	Armhead and Grabs modified to use 21" stroke Reach Rams and 13.7/8" stroke Bucket/Grab Rams only. <u>Note:</u> 13.7/8" stroke Bucket/Grab Rams MUST NOT BE USED to operate Grabs manufactured before this date.	06 L 01	
24. 6.68	Hole in Reach Ram base end increased from 7/8" to 1". Ram Pin remains 7/8" dia. (70-14-015) but is fitted with two sleeves (71-01-158)	08 L 11	157/July'68

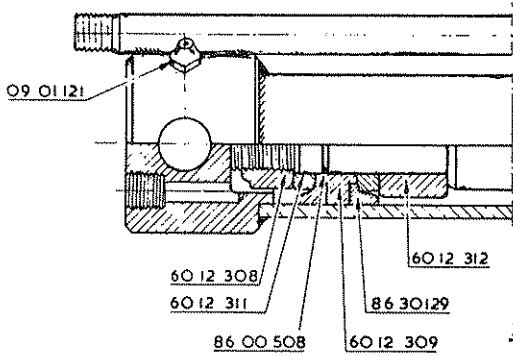
POWER ARM MODEL 'S'

TRACTOR FITTINGS

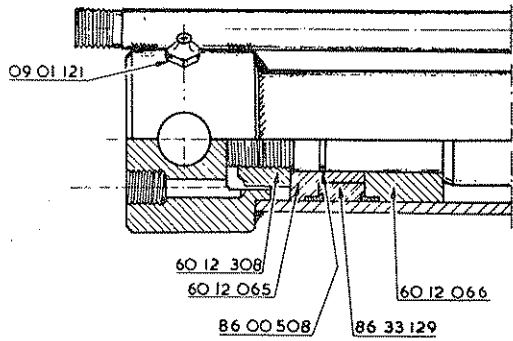
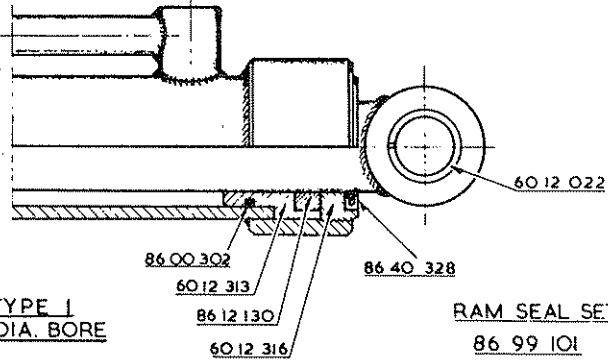
TRACTOR		THESE PARTS INCLUDED IN PRICE ON INITIAL EQUIPMENT				THESE ITEMS CHARGED EXTRA			
MODEL	HYDRAULIC CONNECTION	CONTROL LEVER FITTING	S.S. COUPLING H.C.U. SUPPLY	OTHER ITEMS	AUX. SEAT BRKT.	ADJUSTABLE STABILISER BRACKET	OTHER ITEMS	TRACTOR SHEET No.	
	PRESSURE	RETURN							
DAVID BROWN	880, 990 Selectomatic	80-02-137	85-90-033	-	-	-	D.B. Isolating Valve	TS/DB/Nov'62	
	Other Models with 2000 psi Hydraulics	80-02-122	85-90-033	-	-	-	D.B. Isolating Valve	TS/DB/Nov'62	
FERGUSON	F.E.35, 135, MF 65, 165 and 175	80-02-127	85-90-023	-	71-01-278	68-02-254	Valve	TS/FERC/Nov'62	
	Dexta (pre 1965)	80-02-011 80-02-012	85-90-023 Pin	71-01-053	71-01-278	68-02-254	Valve	TS/FDX/Apr'65	
	Dexta 2000 and 3000	80-02-011 80-02-013	85-90-023 Pin	71-01-053	71-01-278	68-02-254	Valve	TS/FDX/Apr'65	
	New Major and Power Major with Fordson Aux: Service Valve	80-02-009	85-90-023	-	-	-	Valve	TS/NFM/Nov'62	
	New Major and Power Major with McConnell Valve	80-02-121	85-90-023	-	-	-	Valve	TS/NFM/Nov'62	
	New Performance and Super Major	80-02-121	85-90-023	-	-	-	Valve	TS/NFM/Nov'62	
	Ford 4000	80-02-121	85-90-023	-	-	68-02-254	Valve	TS/FSM/Nov'62	
	Ford 5000	80-02-128	85-90-023	71-01-130	-	68-02-254	Valve	TS/FSM/Nov'62	
I.H.C.	250, 275 414, 484 450, 614	80-02-136 80-02-136 80-02-136	85-90-023 85-90-023 85-90-023	71-01-060 71-01-060 71-01-060	-	-	Control	TS/IHC/Nov'62	
NUFFIELD	3 and 4 without draft control	80-02-121	85-90-023	-	-	-	Quadrant	TS/N/Nov'62	
	342 and 460	80-02-009	85-90-023	-	-	-	Quadrant	TS/NDC/Nov'62	
ZETOR	3011, 4011, 3045	80-02-142 80-02-143	85-90-023	-	-	-	Quadrant	TS/Z/Nov'62	

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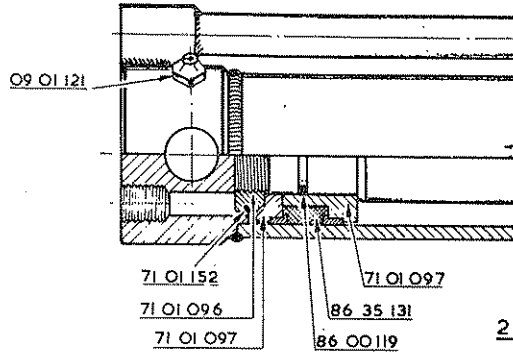
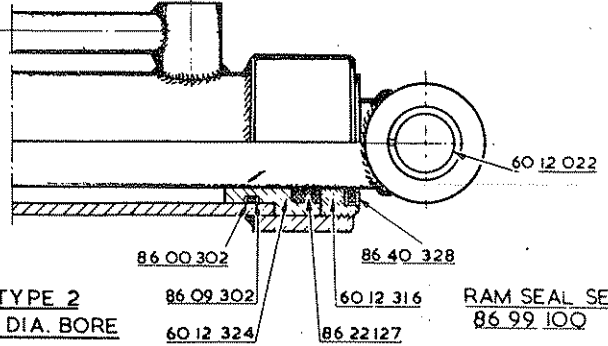
RAMS



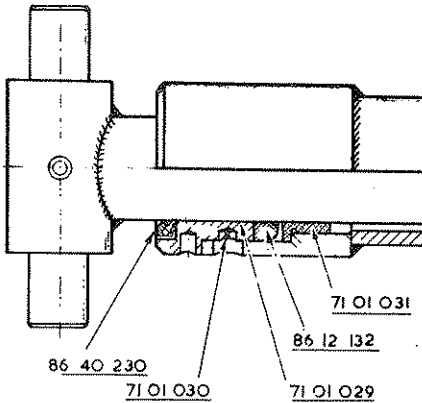
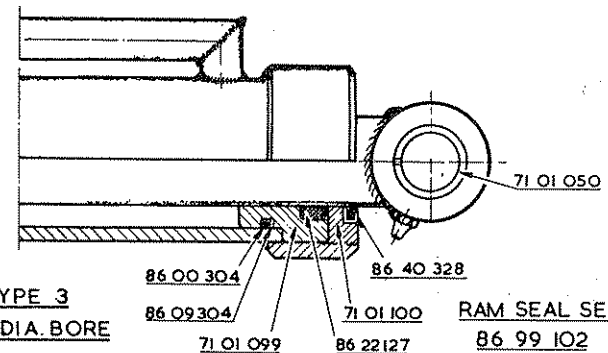
TYPE 1
2" DIA. BORE



TYPE 2
2" DIA. BORE



TYPE 3
2 1/4" DIA. BORE



TYPE 4
SLEW RAM

RAM SEAL SET
86 99 103

GENERAL INFORMATION

- BUCKET RAMS are painted GREEN
- REACH RAMS (also known as DIGGING RAMS) are painted RED
- LIFT RAMS are painted YELLOW
- SLEW RAMS are painted BLACK

The illustration above shows all Rams and Seals that are used on the P.A.S. Power Arm and its Armheads. Details of the respective external fittings will be found in the spare parts list for the respective Rams.

POWER ARM MODEL 'S'

RAMS

TYPE 1 (2" dia. Bore)

All BUCKET RAMS (12" stroke) on PAS 1/12 B and PAS 1/14 were to this design. REACH RAMS and LIFT RAMS (19" stroke) to this design were used on PAS 1/12 B and 14 until May 1965 (PAS serial number 19S96) when they were superseded by Type 2.

The improved Piston and Gland Seal assemblies as used on the Type 2 Rams are interchangeable and it is strongly recommended that in the event of failure a conversion to Type 2 seals should be made using Conversion Set Part No: 88-99-104. See Service Information Sheet 143/May'65.

TYPE 1 SPARE PARTS

Part No.	No.	Description
	Off	
09-01-121	1	Grease Nipple
60-12-022	1	Rod End Bush
86-00-508	*1	'O' Ring for Piston/Rod Seal
60-12-308	1	Aeronut for Piston Rod
60-12-309	1	Piston c/w Seal
86-30-129	*2	. Piston Seal
60-12-311	2	Spacer
60-12-312	1	Piston Stop Sleeve
60-12-313	1	Gland Housing c/w Seal and 'O' Ring
86-12-130	*1	. Gland Seal
86-00-302	*1	. 'O' Ring for Gland/Cylinder Seal
60-12-316	1	Gland Nut c/w Wiper
86-40-328	*1	. Piston Rod Wiper
86-99-101		Seal Kit - contains items marked*

TYPE 2 (2" dia. Bore)

Fitted as REACH and LIFT Rams (19" stroke) to all PAS 1/12 B and 14 from May 1965 (PAS Serial number 19S97 onwards) except when Long Stroke Ram, Type 3, was specified.

Some REACH and LIFT RAMS on earlier machines may now have been converted to this design. See Service Information Sheet 143/May'65.

TYPE 2 SPARE PARTS

Part No.	No.	Description
	Off	
09-01-121	1	Grease Nipple
60-12-022	1	Rod End Bush
86-00-508	*1	'O' Ring for Piston/Rod Seal
60-12-308	1	Aeronut for Piston Rod
60-12-065	1	Piston c/w Seal
86-33-129	*1	. Piston Seal
60-12-066	1	Piston Stop
60-12-324	1	Gland Housing c/w Seal and 'O' Ring
86-22-127	*1	. Gland Seal
86-00-302	*1	. 'O' Ring for Gland/Cylinder Seal
86-09-302	*1	. Anti Extrusion Ring for Gland 'O' Ring
60-12-316	1	Gland Nut c/w Wiper
86-40-328	*1	. Piston Rod Wiper
86-99-100		Seal Kit - contains items marked*
86-99-104		Conversion Set - contains all parts necessary to convert Type 1 Ram to Type 2

TYPE 3 (2 1/4" dia. Bore)

LONG STROKE REACH RAMS (20.7/8" stroke) of this design were fitted as an optional extra to some PAS 1/12 B machines after October 1965.

BUCKET RAMS (13.7/8" stroke) and REACH and LIFT RAMS (20.7/8" stroke) of this design are fitted to all PAS 2/12 C machines.

Note: On some of these Rams the Piston Nut is locked with a 5/16" x 3/8" Grubscrew. Other types are locked with a Spring Steel Wire. The latter type is always supplied as spares. When replacing the Gland 'O' Ring Seal it is important that the anti-extrusion ring (if fitted) is also replaced above the 'O' Ring.

TYPE 3 SPARE PARTS

Part No.	No.	Description
	Off	
09-01-121	1	Grease Nipple
71-05-050	1	Rod End Bush
86-00-119	*1	'O' Ring for Piston Rod
71-01-096	1	Piston Nut c/w Locking Ring
71-01-152	1	. Locking Ring
71-01-097	1	Piston Assembly c/w Seal
86-35-131	*1	. Piston Seal
71-01-099	1	Gland Housing c/w Seal and 'O' Ring
86-22-127	*1	. Gland Seal
86-00-304	*1	. 'O' Ring
86-09-304	1	. Anti Extrusion Ring (not required on some Rams)
71-01-100	1	Gland Nut c/w Wiper
86-40-328	*1	. Piston Rod Wiper
86-99-102		Seal Kit - Contains items marked*

TYPE 4 (Slew Ram)

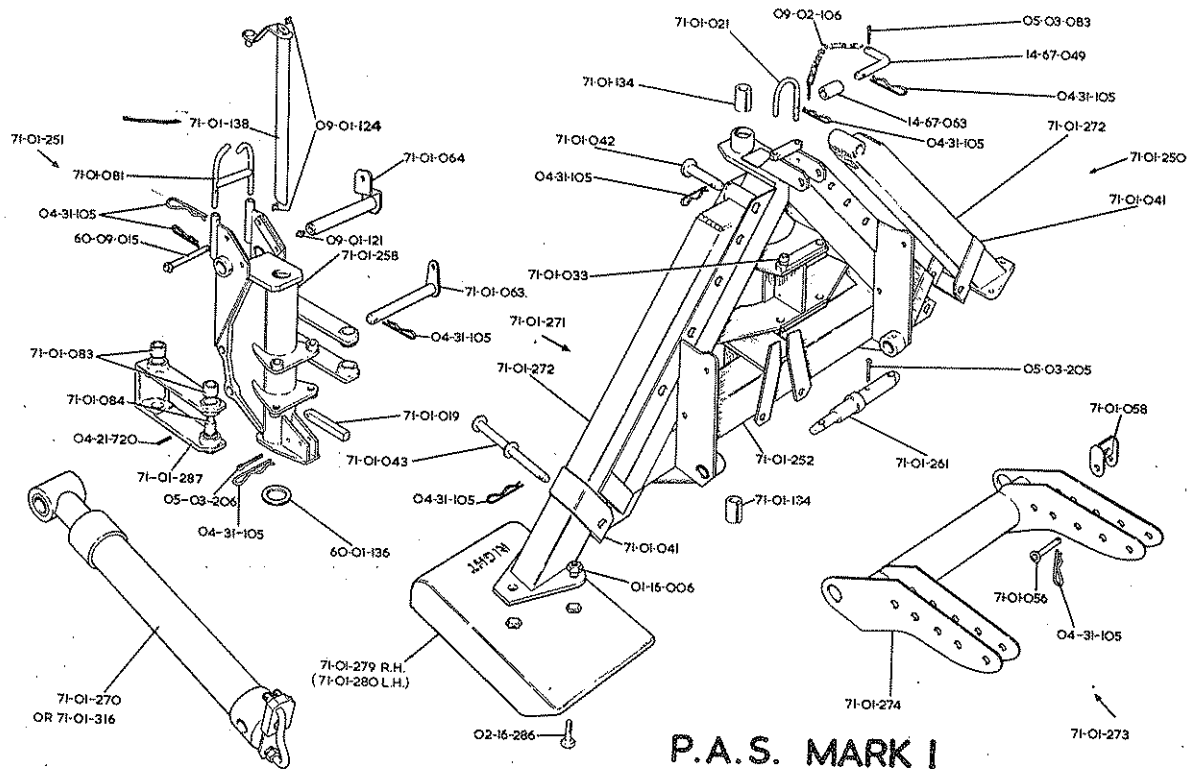
The latest type of Slew Ram is illustrated. The parts listed will fit any Slew Ram on PASMk.1 or Mk.2.

Part No.	No.	Description
	Off	
71-01-029	1	Slew Ram Head Bush c/w Locking Wire
71-01-030	1	. Locking Wire
86-40-230	*1	Piston Rod Wiper
71-01-031	1	Slew Ram Insert
86-12-132	*1	Gland Seal
86-99-103		Seal Kit - contains items marked*

POWER ARM MODEL 'S'

MARK I SPARE PARTS

PAS12/SP/May'63
Revised Oct. '65



P.A.S. MARK I

Part No. No. Description
Off

MAIN FRAME SPARE PARTS

71-01-250	1	MAIN FRAME ASSEMBLY, comprising:-
71-01-252	1	. Main Frame c/w Bushes
71-01-033	4	.. Slew Ram Bush
71-01-134	2	.. King Pin Bush
71-01-261	2	. Linkage Pin c/w Splitpins
05-03-205	2	.. 2.1/2" x 3/16" Splitpin
14-67-049	1	. Top Hitch Pin c/w Sleeve
14-67-063	1	.. Sleeve only
09-02-106	1	.. Attachment Chain c/w Splitpin
05-03-083	2	... 1" x 1/8" Splitpin
71-01-021	1	. Small Hose Guide c/w Spring Cotter
04-31-105	1	.. Spring Cotter
71-01-251	1	SLEWING COLUMN ASSEMBLY, comprising:-
71-01-258	1	. Slewing Column
71-01-138	1	. King Pin c/w Greasers
09-01-124	2	.. Grease Nipple
60-01-136	1	. Thrust Washer
71-01-287	2	. Slew Link c/w Bushes and Pins
71-01-083	8	. Slew Link Bush
71-01-084	4	.. Slew Link Pin c/w Spring Dowel
04-21-720	4	.. 1.1/4" x 7/32" Spring Dowel
71-01-064	1	. Armhead Pivot Pin c/w Locking Pin and Greaser
60-09-015	1	.. Locking Pin c/w Spring Cotter
04-31-105	1	... Spring Cotter
09-01-121	1	.. Grease Nipple
71-01-088	1	. Lift Ram Pivot Pin c/w Spring Cotter

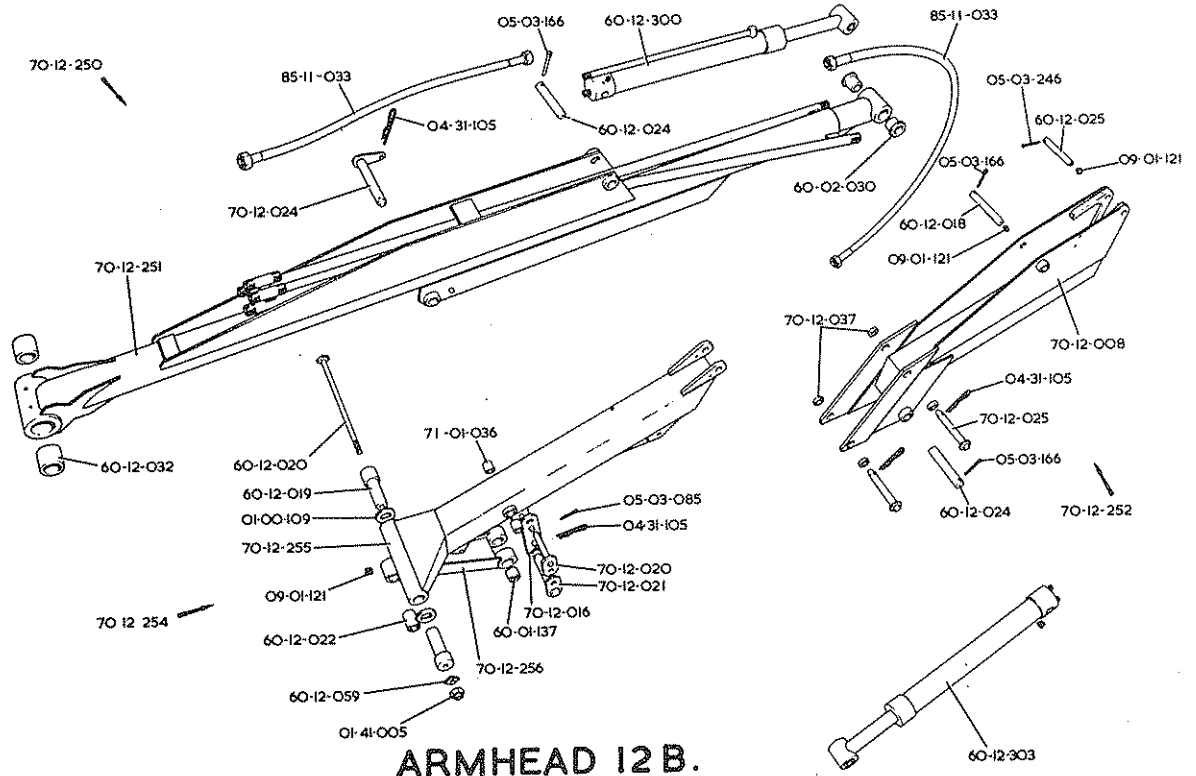
Part No. No. Description
Off

04-31-105	1	.. Spring Cotter
71-01-019	1	. Transport Latch c/w Splitpin and Spring Cotter
05-03-206	1	.. 2.1/4" x 1/4" Splitpin
04-31-105	1	.. Spring Cotter
71-01-081	1	. Large Hose Guide c/w Spring Cotter
04-31-105	1	.. Spring Cotter
71-01-271	1	ADJUSTABLE LEGS AND FEET ASSEMBLY, comprising:-
71-01-272	2	. Adjustable Leg
71-01-279	1	. R.H. Skid Foot c/w Bolts and Nuts
71-01-280	1	. L.H. Skid Foot c/w Bolts and Nuts
02-16-286	6	. 3.1/2" x 5/8" UNC Bolt
01-16-006	6	.. 5/8" UNC Nut
71-01-042	2	. Leg Hinge Pin c/w Spring Cotter
04-31-105	2	.. Spring Cotter
71-01-041	2	. Leg Strap
71-01-043	2	. Leg Strap Pin c/w Spring Cotter
04-31-105	2	.. Spring Cotter
71-01-273	1	LIFT FRAME ASSEMBLY, comprising:-
71-01-274	1	. Lift Frame, bare
71-01-058	2	. Lift Eye c/w Pin
71-01-056	2	.. Lift Eye Pin c/w Spring Cotter
04-31-105	2	... Spring Cotter
71-01-270	1	LIFT RAM ASSEMBLY - For details see RAM SPARE PARTS LIST
or		
71-01-316		

POWER ARM MODEL 'S'

ARMHEAD 12 B SPARE PARTS

PAS12/SP/May '63
Revised Nov. '66

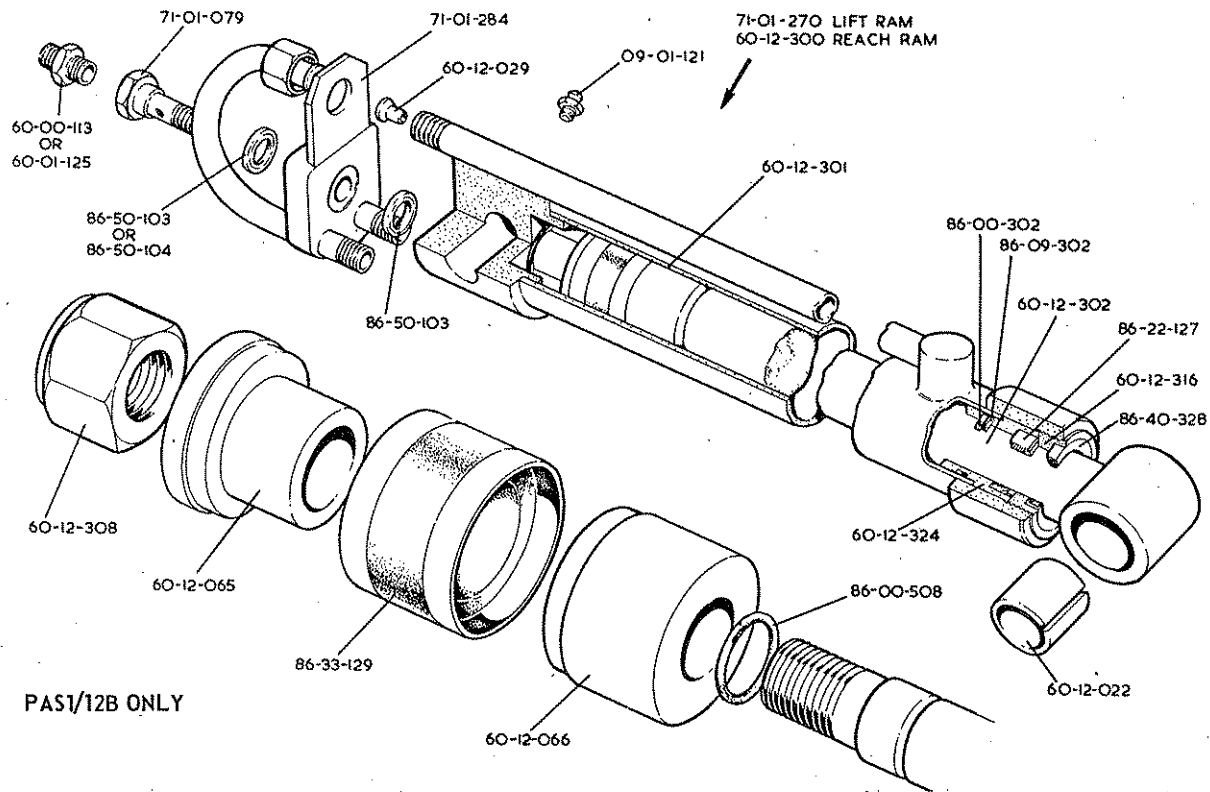


ARMHEAD 12 B.

Part No.	No. Off	Description	Part No.	No. Off	Description
70-12-250	1	MAIN ARM ASSEMBLY, comprising:-	70-12-254	1	Lower Half - Wide, comprising:-
70-12-251	1	.. Main Arm c/w Bushes	70-12-255	1	.. Ditching Arm c/w Bushes
60-12-032	2	.. Main Arm Pivot Bushes	71-01-036	2	.. Radius Arm Pivot Bush
60-02-030	2	.. Drop Arm Pivot Bushes	09-01-121	1	.. Grease Nipple
70-12-024	1	.. Lift Ram Rod Pivot Pin c/w Spring Cotter	70-12-016	1	.. Radius Arm c/w Pins
04-31-105	1	.. Spring Cotter	70-12-020	1	.. Radius Arm Pivot Pin c/w Splitpin
60-12-024	1	.. Ram Pivot Pin c/w Splitpin	05-03-085	1 1" x 3/16" Splitpin
05-03-166	1	.. 2" x 1/4" Splitpin	70-12-021	1	.. Slave Link Pivot Pin c/w Spring Cotter
70-12-252	1	DROP ARM ASSEMBLY, comprising:-	04-31-105	1 Spring Cotter
70-12-008	1	.. Upper Half c/w Pins and Bushes	70-12-256	1	.. Slave Link c/w Bushes
60-12-018	1	.. Drop Arm Pivot Pin c/w Splitpin and Greaser	60-01-137	2	.. Slave Link Bush
05-03-166	1	... 2" x 1/4" Splitpin	60-12-022	1	.. Rod End Bush
09-01-121	1	.. Grease Nipple	60-12-019	2	.. Bucket Pivot
70-12-037	4	.. Joint Pin Bush	01-00-109	2	.. 1" Plain Washer
70-12-025	2	.. Drop Arm Joint Pin c/w Spring Cotter	60-12-020	1	.. Tie Bar c/w Washer and Nut
04-31-105	2	.. Spring Cotter	60-12-059	1	... 1/2" Square Washer
60-12-025	1	.. Rod Pivot Pin c/w Splitpin and Greaser	01-41-005	1	... 1/2" UNF Aeronut
05-03-246	1	.. 3" x 1/4" Splitpin	85-11-033	4	FLEXIBLE HOSE 32" LONG
09-01-121	1	.. Grease Nipple	60-12-300	1	REACH RAM, complete
60-12-024	1	.. Ram Pivot Pin c/w Splitpin	60-12-303	1	BUCKET RAM, complete
05-03-166	1	.. 2" x 1/4" Splitpin			- For details see RAM SPARE PARTS LIST
					BUCKETS, complete - For details see BUCKET SPARE PARTS LIST

POWER ARM MODEL 'S'

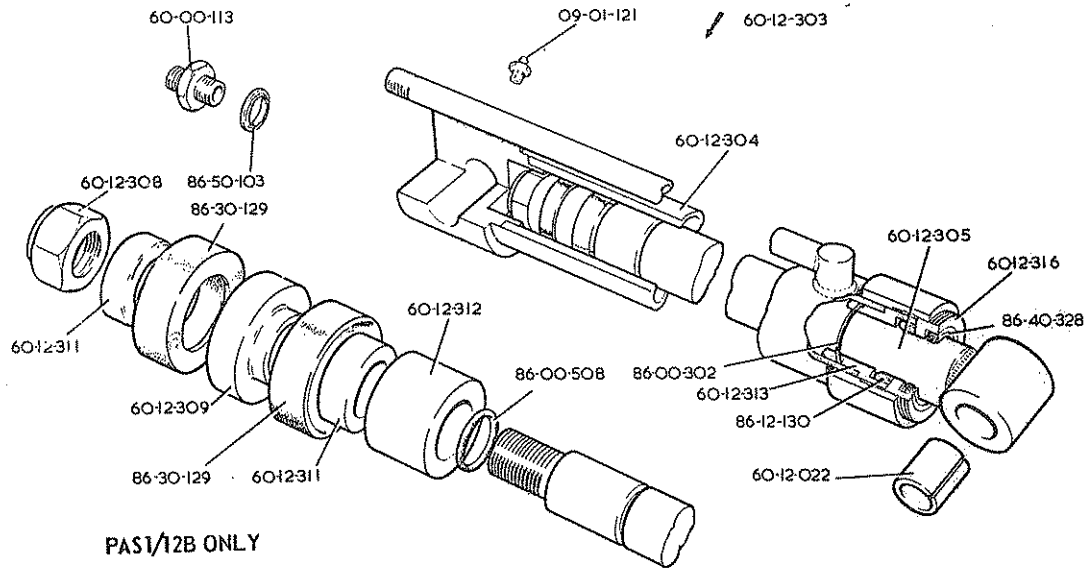
LIFT AND REACH RAM SPARE PARTS



Part No.	No. Off	Description
71-01-270	1	LIFT RAM, complete, comprising:-
60-12-301	1	. Lift Ram Cylinder
60-12-302	1	. Lift Ram Rod c/w Aeronut, 'O' Ring and Bush
71-01-284	1	. Lift Ram Connection Assembly c/w Banjo Bolt and Seals
71-01-079	1	.. Banjo Bolt
86-50-103	1	.. 3/8" BSP Bonded Seal
86-50-104	1	.. 1/2" BSP Bonded Seal
60-12-300	1	REACH RAM, complete, comprising:-
60-12-301	1	. Reach Ram Cylinder
60-12-302	1	. Reach Ram Rod c/w Aeronut, 'O' Ring and Bush
60-12-029	1	. Restrictor - No.56
60-00-113	1	. Double Male Union
86-50-103	1	. Bonded Seal 3/8" BSP

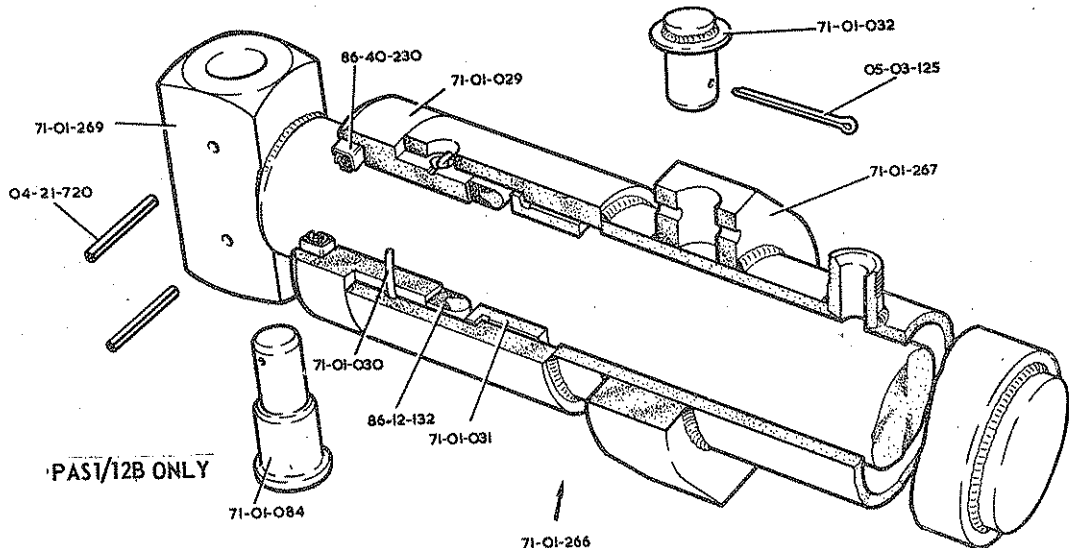
Part No.	No. Off	Description
THE FOLLOWING PARTS ARE COMMON TO BOTH RAMS		
60-12-022	2	.. Rod End Bush
86-00-508	2	.. 'O' Ring for Piston/Rod Seal
60-12-308	2	.. Aeronut for Piston Rod
60-12-065	2	. Piston c/w Seal
86-33-129	2	.. Piston Seal
60-12-066	2	. Piston Stop
60-12-324	2	. Gland Housing c/w Seal and 'O' Ring
86-22-127	2	.. Gland Seal
86-00-302	2	.. 'O' Ring for Gland/Cylinder Seal
86-09-302	2	.. Anti Extrusion Ring for Gland 'O' Ring
60-12-316	2	. Gland Nut c/w Wiper
86-40-328	2	.. Piston Rod Wiper
09-01-121	2	. Grease Nipple

POWER ARM MODEL 'S' BUCKET RAM SPARE PARTS



Part No.	No. Off	Description	Part No.	No. Off	Description
60-12-303	1	BUCKET RAM, complete, comprising:-	60-12-313	1	. Gland Housing c/w Seal and 'O' Ring
60-12-304	1	. Bucket Ram Cylinder	86-12-130	1	.. Gland Seal
60-12-305	1	. Bucket Ram Rod c/w Aeronut, 'O' Ring and Bush	86-00-302	1	.. 'O' Ring for Gland/Cylinder Seal
60-12-022	1	.. Rod End Bush	60-12-316	1	. Gland Nut c/w Wiper
86-00-508	1	.. 'O' Ring for Piston/Rod Seal	86-40-328	1	.. Piston Rod Wiper
60-12-308	1	.. Aeronut for Piston Rod	09-01-121	1	. Greaser
60-12-309	1	. Piston c/w Seal	60-00-113	1	. Double Male Union
60-12-311	2	. Spacer	86-50-103	1	. Bonded Seal 3/8" BSP
60-12-312	1	. Piston Stop Sleeve			

SLEWING RAMS SPARE PARTS

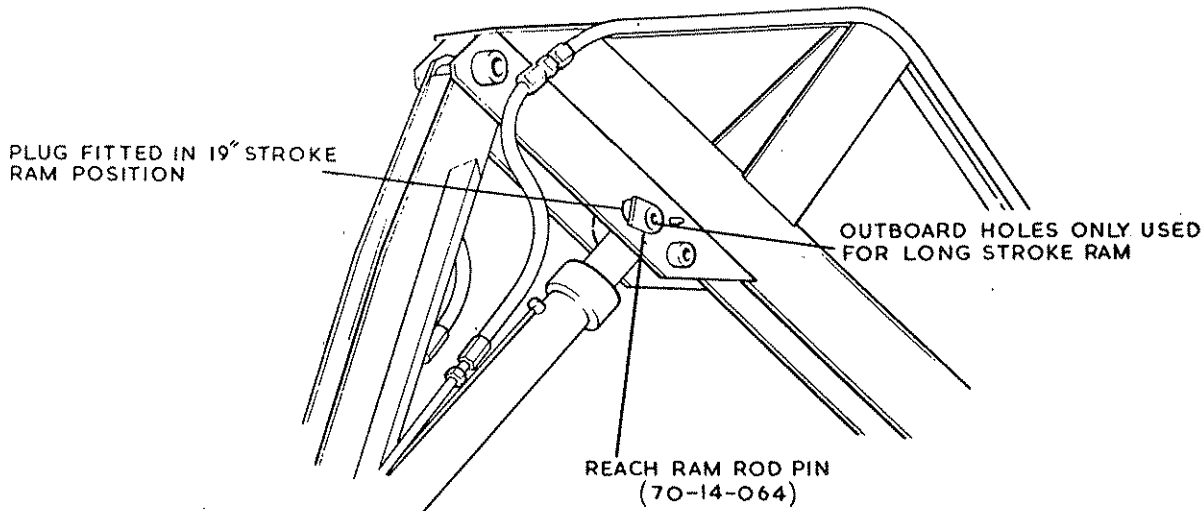


Part No.	No. Off	Description	Part No.	No. Off	Description
71-01-266	2	SLEW RAM, complete, comprising:-	04-21-720	4	... 1.1/4" x 7/32" Spring Dowel
71-01-267	2	. Slew Ram Cylinder c/w Pivot Pin	71-01-029	2	. Slew Ram Head Bush c/w Locking Wire
71-01-032	4	.. Slew Ram Pivot Pin c/w Splitpins	71-01-030	2	.. Locking Wire
05-03-125	4	... 1.1/2" x 3/16" Splitpin	71-01-031	2	. Slew Ram Insert
71-01-269	2	. Slew Ram Piston Rod c/w Pivot Pin	86-12-132	2	. Gland Seal
71-01-084	4	.. Slew Ram Rod Pivot Pin c/w Spring Dowel	86-40-230	2	. Piston Rod Wiper

POWER ARM MODEL 'S'

LONG STROKE DIGGING RAM

PAS/LD/Oct.'65



1. IDENTIFICATION

Long Stroke Digging Rams have a stroke of 21" but are best identified on a machine by an increased diameter (3.1/4" or more at the Gland End) and an enlarged boss with a screwed-in union or restrictor on the rigid pipe connection.

19" Stroke Reach Rams have a diameter of 3" or less at the Gland End, and a plain thread cut on the end of the rigid pipe connection.

'DIGGING' or 'REACH' Ram Assemblies are always painted RED.

2. FITTING:

No. 12B Ditcher/Trencher Digging Ram

Fit the No.50 Restrictor (Pt.No: 60-01-125) to the rigid pipe gland end connection. Fit the 3/8" BSP Double Male Union (Pt.No: 60-00-113) to the base end connection. Fit the 12B Main and Drop Arms and connect the two 32" hoses.

NOTE: The No.56 Restrictor (Pt.No: 60-12-029) is not required.

It is strongly recommended that a LIFT BOOSTER (see PAS Appendix Section) is used with the 19" Stroke Lift Ram to avoid upsetting the balance of power.

No. 14 SLEWLOADER REACH RAM

There is no operational advantage from the use of a Long Stroke Reach Ram on a Slewloader. If 19" stroke Rams are already fitted they are best used, and the Long Stroke Ram kept on the 12B.

SLEWLOADER BOOMS for use with the Long Stroke Rams must have TWO ALTERNATIVE ROD PIN POSITIONS, of which the OUTBOARD holes MUST BE USED as shown in the Figure below. Machines Serial Number 02 L 52 and subsequent have two pin positions. Earlier machines must be modified or used with 19" stroke Rams only.

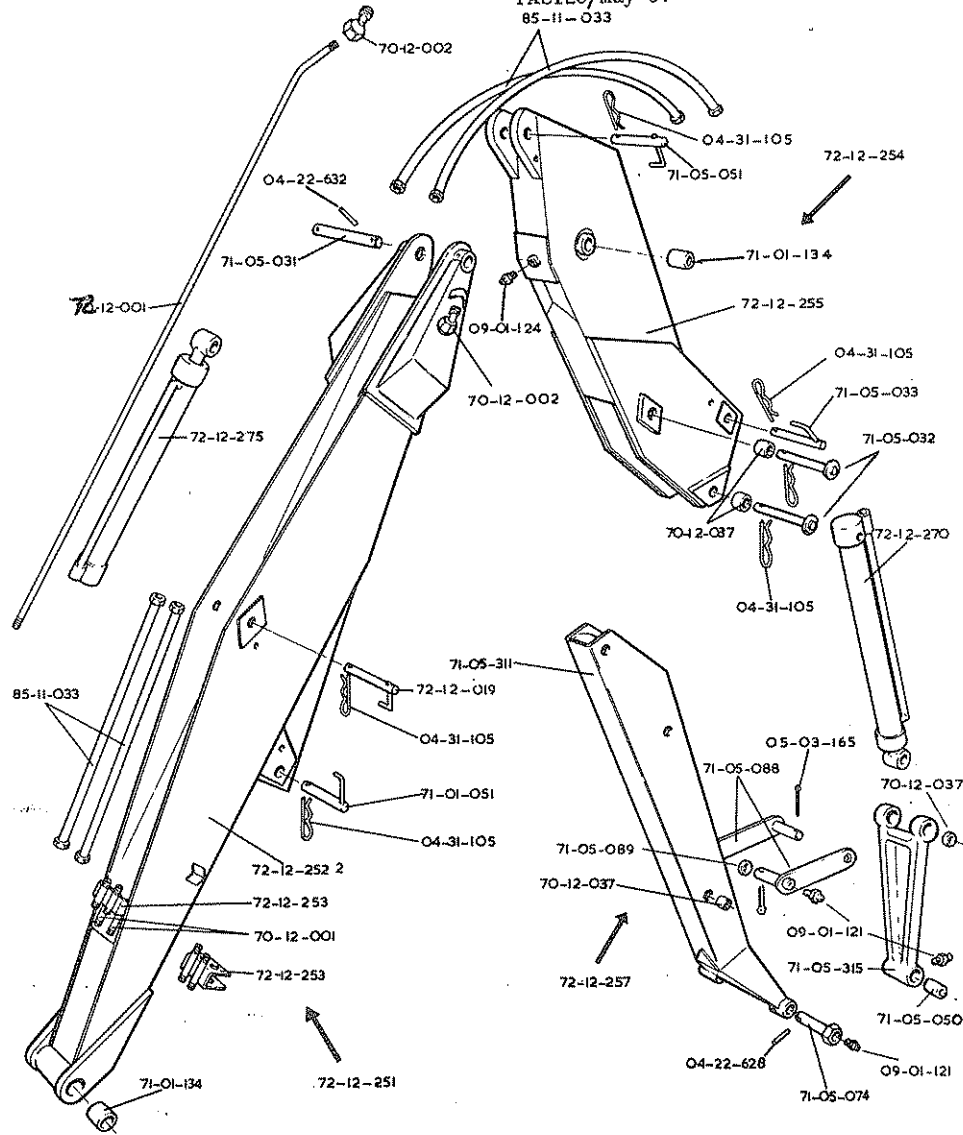
WARNING: Use of a Long Stroke Ram in the wrong position could result in a bent piston rod, or worse. To prevent accidental use of the wrong holes, it is strongly recommended that a Blanking Plug (Pt.No: 70-14-065) is fitted from inside the sideplate and secured with a split pin as shown in the Figure below.

Fit the No.50 Restrictor to the base end connection, and the 3/8" BSP Union to the rigid pipe gland end connection (i.e. reverse the positions given under 12B Ditcher/Trencher opposite).

Fit to Tension Link using standard pin, and to the Boom with the 'tail' of the special pin, (Pt.No: 70-14-064) located in the unblanked hole. Connect the H.C.U. Reach hoses in the normal manner.

POWER ARM MODEL 'S' ARMHEAD 12 C SPARE PARTS

PAS12C/May '67
85-11-033



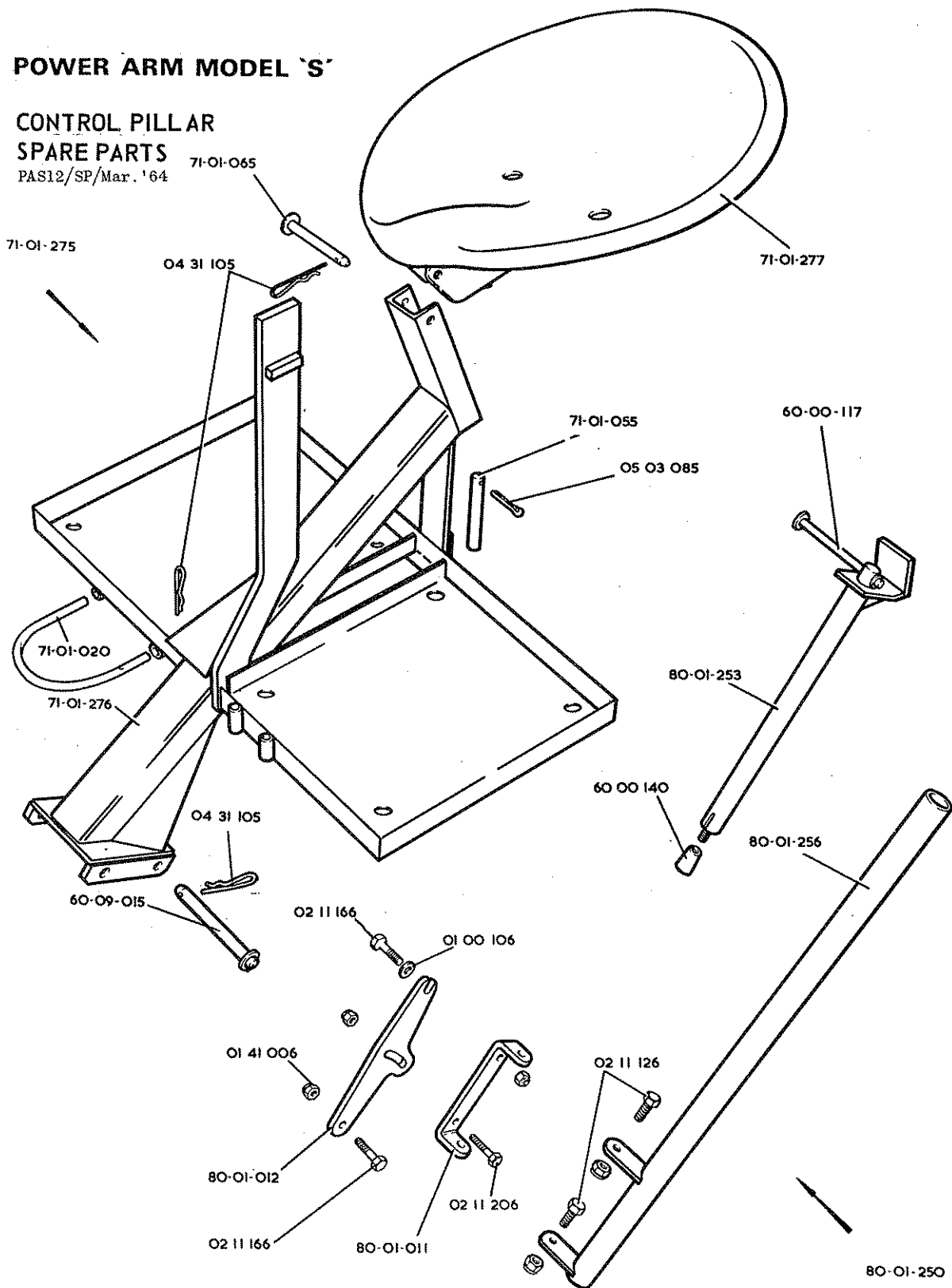
Part No.	No. Off	Description
72-12-250	1	12 C MAIN ARM DITCHER/TRENCHER ASSEMBLY, comprising:-
72-12-251	1	MAIN ARM ASSEMBLY, comprising:-
72-12-252	1	Main Arm c/w Bushes
71-01-134	2	.. Steel Bush
71-05-031	1	.. Reach Arm Pivot Pin c/w Spring Dowel
04-22-632	1	.. 2" x 3/8" Spring Dowel
72-12-001	2	.. Rigid Pipe
72-12-002	2	.. 45° Union
72-12-253	1	.. Hose Pipe Bracket
71-05-051	1	.. Rod End Pin c/w Spring Cotter
04-31-105	1	.. Spring Cotter
72-12-019	1	.. Ram Base Pin c/w Spring Cotter
04-31-105	1	.. Spring Cotter
72-12-254	1	DROP ARM ASSEMBLY - UPPER, comprising:-
72-12-255	1	.. Drop Arm - Upper c/w Bushes and Greaser
71-01-134	2	.. Steel Bush
70-12-037	4	.. Joint Pin Bush
09-01-124	1	.. Grease Nipple
71-05-051	1	.. Rod End Pin c/w Spring Cotter
04-31-105	1	.. Spring Cotter
71-05-033	1	.. Ram Base End Pin c/w Spring Cotter
04-31-105	1	.. Spring Cotter
71-05-032	2	.. Arm Joint Pin c/w Spring Cotter
04-31-105	2	.. Spring Cotter

Part No.	No. Off	Description
72-12-257	1	DROP ARM ASSEMBLY - LOWER HALF WIDE, comprising:-
71-05-311	1	.. Ditcher Arm c/w Bushes
70-12-037	2	.. Bush
71-05-088	2	.. Radius Arm Pin c/w Splitpin and Greaser
05-03-165	2	.. Splitpin
09-01-121	2	.. Grease Nipple
71-05-315	1	.. Slave Link c/w Bushes and Greaser
71-05-050	1	.. Steel Bush
70-12-037	2	.. Steel Bush
09-01-121	1	.. Grease Nipple
71-05-089	2	.. Sleeve
71-05-074	2	.. Bucket Pivot Pin c/w Greaser and Spring Dowel
09-01-121	2	.. Grease Nipple
04-22-628	2	.. 1.3/4" x 3/8" Spring Dowel
72-12-006	2	.. Bucket Washer
85-11-033	4	FLEXIBLE HOSE 32" LONG
72-12-275	1	REACH RAM, complete
72-12-270	1	BUCKET RAM, complete
		For details see RAM SPARES LIST
		BUCKET, complete - For details see BUCKET SPARES LIST

POWER ARM MODEL 'S'

CONTROL PILLAR SPARE PARTS

PAS12/SP/Mar. '64

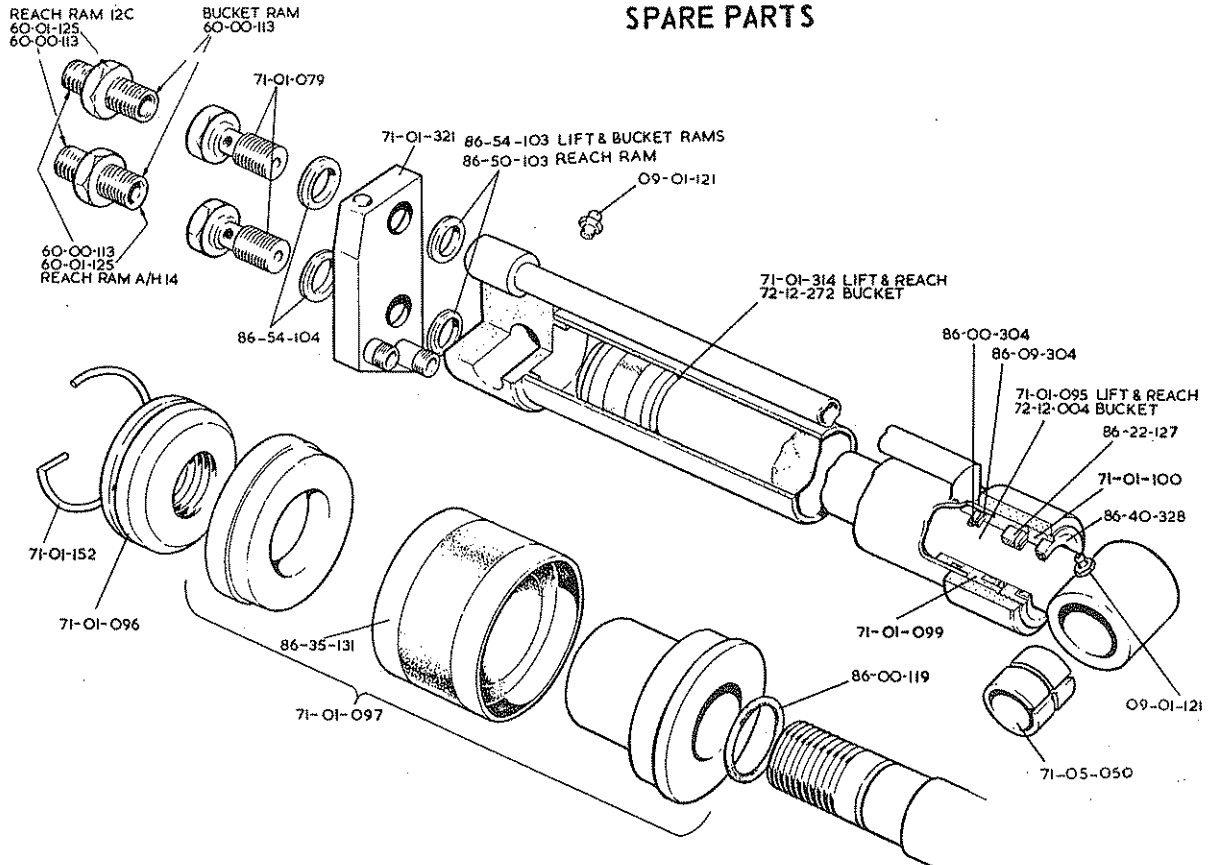


Part No.	No. Off	Description
80-01-250	1	FORWARD CONTROL PILLAR ASSEMBLY, comprising:-
80-01-256	1	. Control Box Pillar
80-01-253	1	. Control Pillar Extension c/w Clamp Rod and Nut
60-00-117	1	.. Clamp Rod c/w Tommy Bar and Nut
60-00-140	1	... Cone Nut
80-01-011	1	. Pillar Support
80-01-012	1	. Quadrant Plate
02-11-206	1	. 2.1/2" x 5/8" UNF Bolt
02-11-166	2	. 2" x 5/8" UNF Bolt
02-11-126	2	. 1.1/2" x 5/8" UNF Bolt
01-41-006	5	. 5/8" UNF Aeronut
01-00-106	1	. 5/8" Plain Washer

Part No.	No. Off	Description
71-01-275	1	REAR CONTROL PILLAR ASSEMBLY, comprising:-
71-01-276	1	. Rear Control Pillar c/w Locking Pin
60-09-015	1	.. Locking Pin c/w Spring Cotter
04-31-105	1	... Spring Cotter
71-01-277	1	. Seat Pan c/w Pivot Pin
71-01-065	1	.. Seat Pivot Pin c/w Spring Cotter
04-31-105	1	... Spring Cotter
71-01-055	1	. Hose Retainer Pin c/w Splitpin
05-03-085	1	.. 1" x 3/16" Splitpin
71-01-020	1	. Large Hose Guide c/w Spring Cotter
04-31-105	1	.. Spring Cotter

POWER ARM MODEL 'S'

LONG STROKE LIFT RAM SPARE PARTS



Part No.	No. Off	Description
71-01-316	1	LONG STROKE LIFT RAM, complete, comprising:-
71-01-317	1	.. Ram Assembly, comprising:-
71-01-314	1	.. Ram Cylinder
71-01-095	1	.. Ram Rod c/w Bush, 'O' Ring, Nut and Greaser
71-01-321	1	.. Lift Ram Connection Assembly c/w Banjo Bolts and Seals
71-01-079	2	.. Banjo Bolt
86-54-103	2	.. 3/8" BSP Bonded Seal
86-54-104	2	.. 1/2" BSP Bonded Seal
72-12-275	*1	LONG STROKE REACH RAM, complete, comprising:-
71-03-303	*1	.. Ram Assembly comprising:-
71-03-304	*1	.. Ram Cylinder
71-01-095	1	.. Ram Rod c/w Bush, 'O' Ring, Nut and Greaser
60-00-113	1	.. 3/8" BSP Double Male Adapter
60-01-125	1	.. Restrictor No.50
86-50-103	2	.. 3/8" BSP Bonded Seal

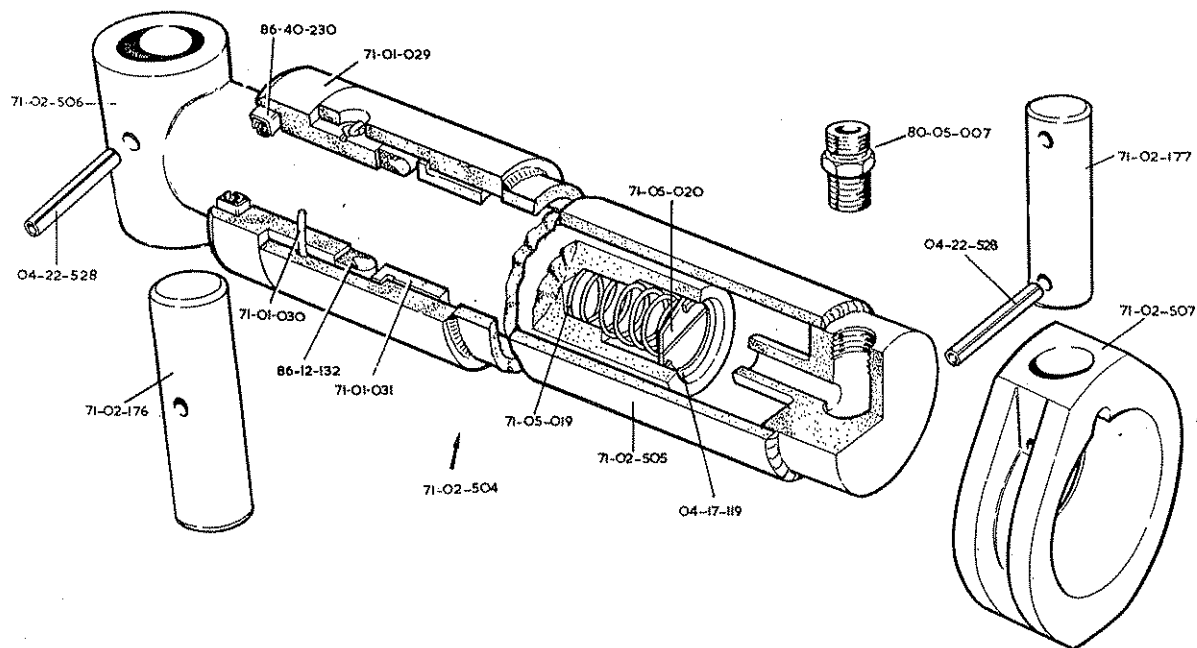
*These Rams have 1" dia. holes for Ram Base Pin, effective from June 1968. For Rams with 7/8" dia. holes, Pt.Nos: are 71-01-315, 71-01-317 and 71-01-314 respectively

Part No.	No. Off	Description
72-12-270	1	LONG STROKE BUCKET RAM, complete, comprising:-
72-12-271	1	.. Bucket Ram Assembly, comprising:-
72-12-272	1	.. Ram Cylinder
72-12-004	1	.. Ram Rod c/w Bush, 'O' Ring and Nut
60-00-113	2	.. 3/8" BSP Double Male Adapter
86-54-103	2	.. 3/8" BSP Bonded Seal
THE FOLLOWING PARTS ARE COMMON TO ALL THREE RAMS		
71-05-050	3	.. Bush - Rod End
86-00-119	3	.. 'O' Ring for Piston Rod
71-01-096	3	.. Piston Nut c/w Locking Ring
71-01-152	3	.. Locking Ring
71-01-097	3	.. Piston Assembly c/w Seal
86-35-131	3	.. Piston Seal
71-01-099	3	.. Gland Housing c/w Seal and 'O' Ring
86-22-127	3	.. Gland Seal
86-00-304	3	.. 'O' Ring
86-09-304	3	.. Anti Extrusion Ring - Not required on some Rams
71-01-100	3	.. Gland Nut c/w Wiper
86-40-328	3	.. Piston Rod Wiper
09-01-121	6	.. Grease Nipple

POWER ARM MODEL 'S'

SLEWING RAMS SPARE PARTS

PAS12C/SP/May '67



Part No.	No. Off	Description
71-02-504	2	SLEW RAM, complete, comprising:-
71-02-505	2	. Slew Ram Cylinder
71-02-506	2	. Slew Ram Rod c/w Pivot Pins and Cushions
71-02-176	2	.. Rod Pivot Pin c/w Spring Dowel
04-22-528	2	... 1.3/4" x 5/16" Spring Dowel
71-05-019	2	.. Spring
71-05-020	2	.. Cushion Plate
04-17-119	2	.. Spring Fastener

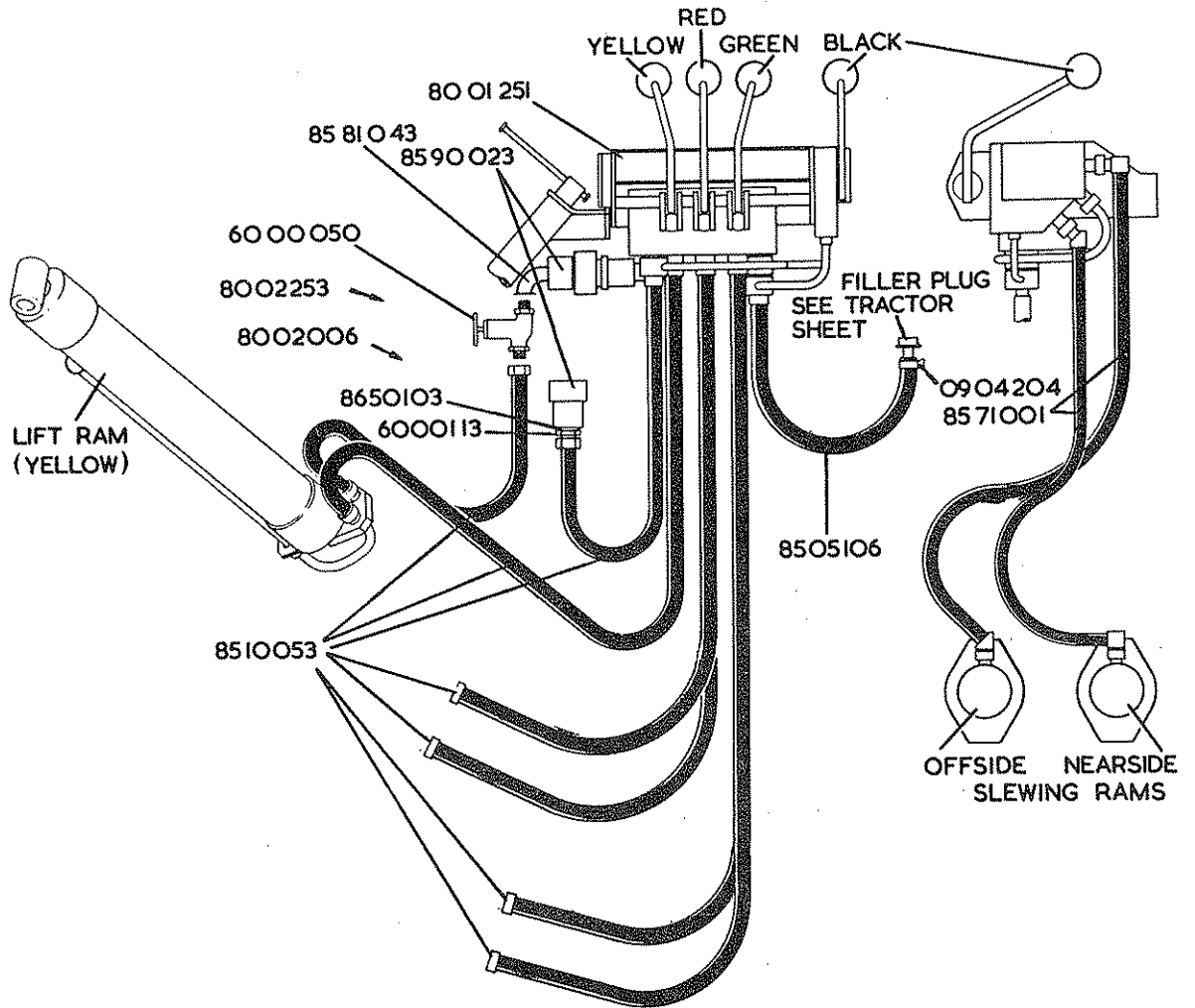
Part No.	No. Off	Description
71-01-029	2	. Slew Ram Head Bush c/w Locking Wire
71-01-030	2	.. Locking Wire
86-40-230	2	. Piston Rod Wiper
71-01-031	2	. Slew Ram Insert
86-12-132	2	. Gland Seal
80-05-007	2	. Male Union
71-02-507	2	SLEW RAM TRUNNION c/w Pins
71-02-177	4	. Slew Ram Pivot Pin c/w Spring Dowels
04-22-528	4	.. 1.3/4" x 5/16" dia. Spring Dowel

POWER ARM MODEL 'S'

HOSE LOOM SPARE PARTS

PAS12/SP/May '63

Revised Jan. '66



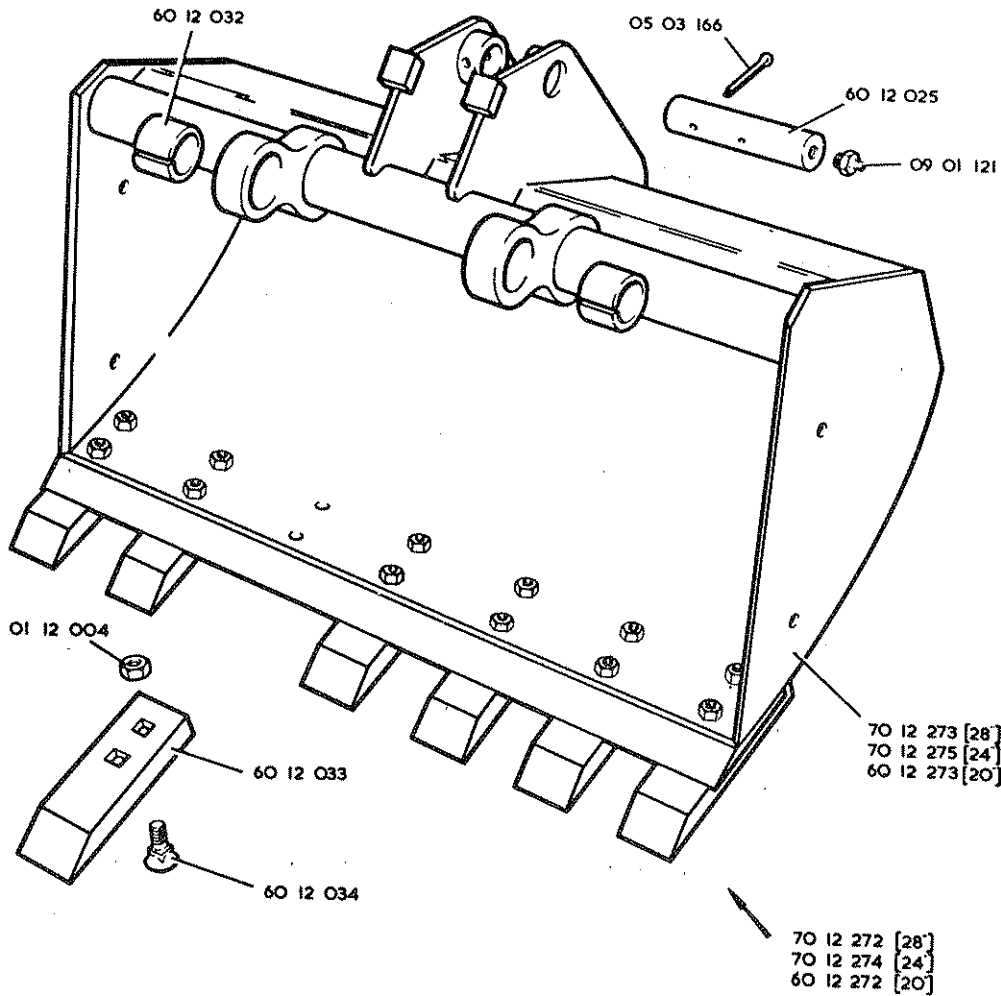
Part No.	No. Off	Description
80-01-251	1	4 VALVE CONTROL UNIT - For details see H.C.U. Spare Parts List
80-02-253	1	Lift Ram Connection, comprising:-
85-90-023	1	. Self-Sealing Coupling, Female Half
85-81-043	1	. Male - Female Elbow
60-00-050	1	. Hydraulic Tap
80-02-006	1	Supply Connection, comprising:-
85-90-023	1	. Self-Sealing Coupling, Female Half

Part No.	No. Off	Description
60-00-113	1	. 3/8" x 3/8" BSP Hex. Nipple
86-50-103	1	. 3/8" BSP Bonded Seal
85-11-053	7	Flexible Pipe 8'10" long
85-71-001	2	Slew Ram Hose 7'3" long
85-05-106	1	Return Pipe 8'10" long c/w Hose Clips
09-04-204	2	. Hose Clip with Thumbscrew FILLER PLUG BUSH - For details see TRACTOR SHEET

POWER ARM MODEL 'S'

HEAVY DUTY BUCKETS SPARE PARTS

PAS12/SP/May '63



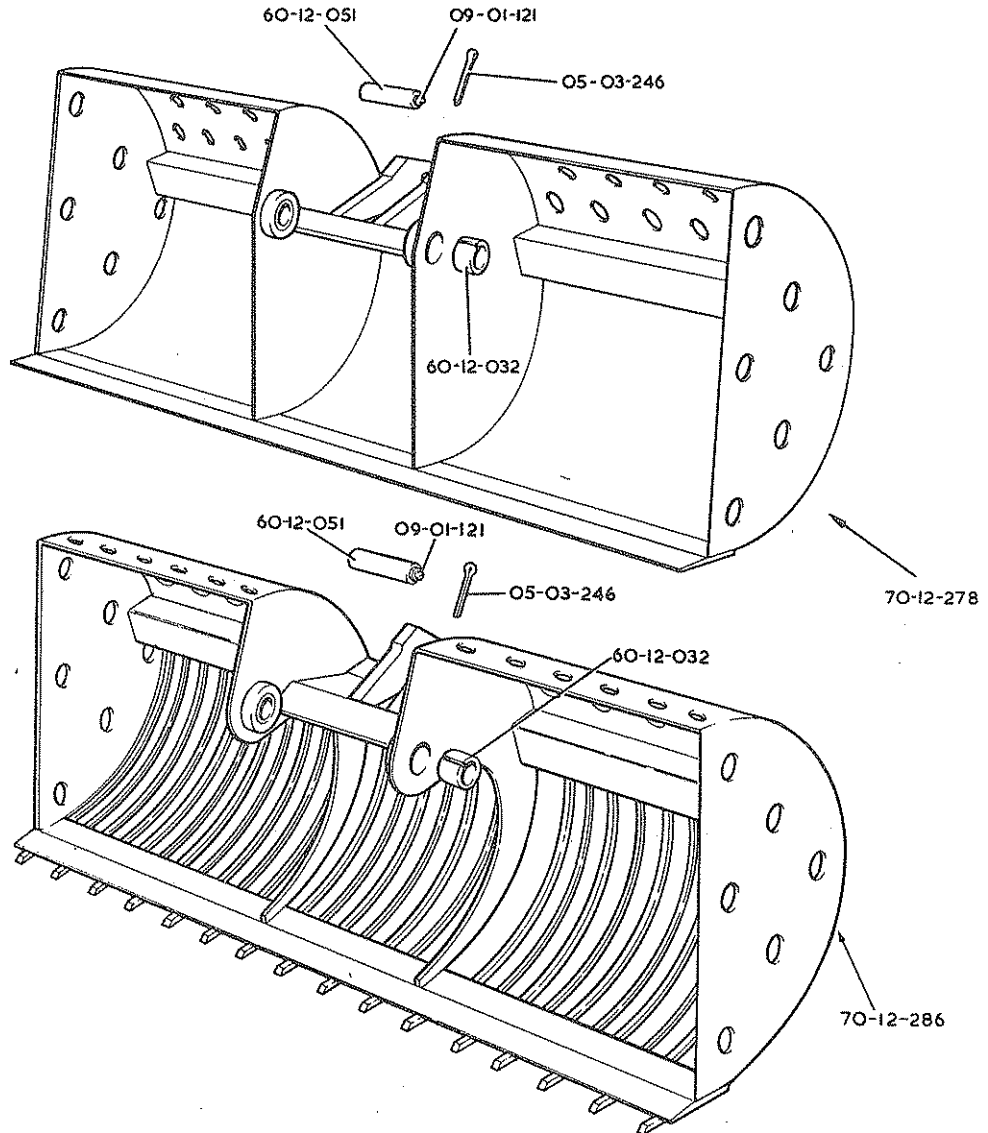
Part No.	No. Off	Description
60-12-272	1	20" HEAVY DUTY BUCKET, complete, comprising:-
60-12-273	1	. 20" Heavy Duty Bucket c/w Pins and Bushes
60-12-032	2	.. Bucket Pivot Bush
60-12-025	1	.. Rod Pivot Pin c/w Splitpin and Greaser
05-03-166	1	... 2" x 1/4" Splitpin
09-01-121	1	... Grease Nipple
60-12-033	5	. Bucket Tine c/w Bolts and Nuts
60-12-034	10	.. Tine Bolt c/w Nut
01-12-004	10	... 7/16" UNC Nut
70-12-274	1	24" HEAVY DUTY BUCKET, complete, comprising:-
70-12-275	1	. 24" Heavy Duty Bucket c/w Pins and Bushes
60-12-032	2	.. Bucket Pivot Bush
60-12-025	1	.. Rod Pivot Pin c/w Splitpin and Greaser

Part No.	No. Off	Description
05-03-166	1	... 2" x 1/4" Splitpin
09-01-121	1	... Grease Nipple
60-12-033	6	. Bucket Tine c/w Bolts and Nuts
60-12-034	12	.. Tine Bolt c/w Nut
01-12-004	12	... 7/16" UNC Nut
70-12-272	1	28" HEAVY DUTY BUCKET, complete, comprising:-
70-12-273	1	. 28" Heavy Duty Bucket c/w Pins and Bushes
60-12-032	2	.. Bucket Pivot Bush
60-12-025	1	.. Rod Pivot Pin c/w Splitpin and Greaser
05-03-166	1	... 2" x 1/4" Splitpin
09-01-121	1	... Grease Nipple
60-12-033	7	. Bucket Tine c/w Bolts and Nuts
60-12-034	14	.. Tine Bolt c/w Nut
01-12-004	14	... 7/16" UNC Nut

POWER ARM MODEL 'S'

48" DITCH CLEANING AND WEED BUCKETS SPARE PARTS

PAS12/SP/Feb.'64
Revised Feb.'65



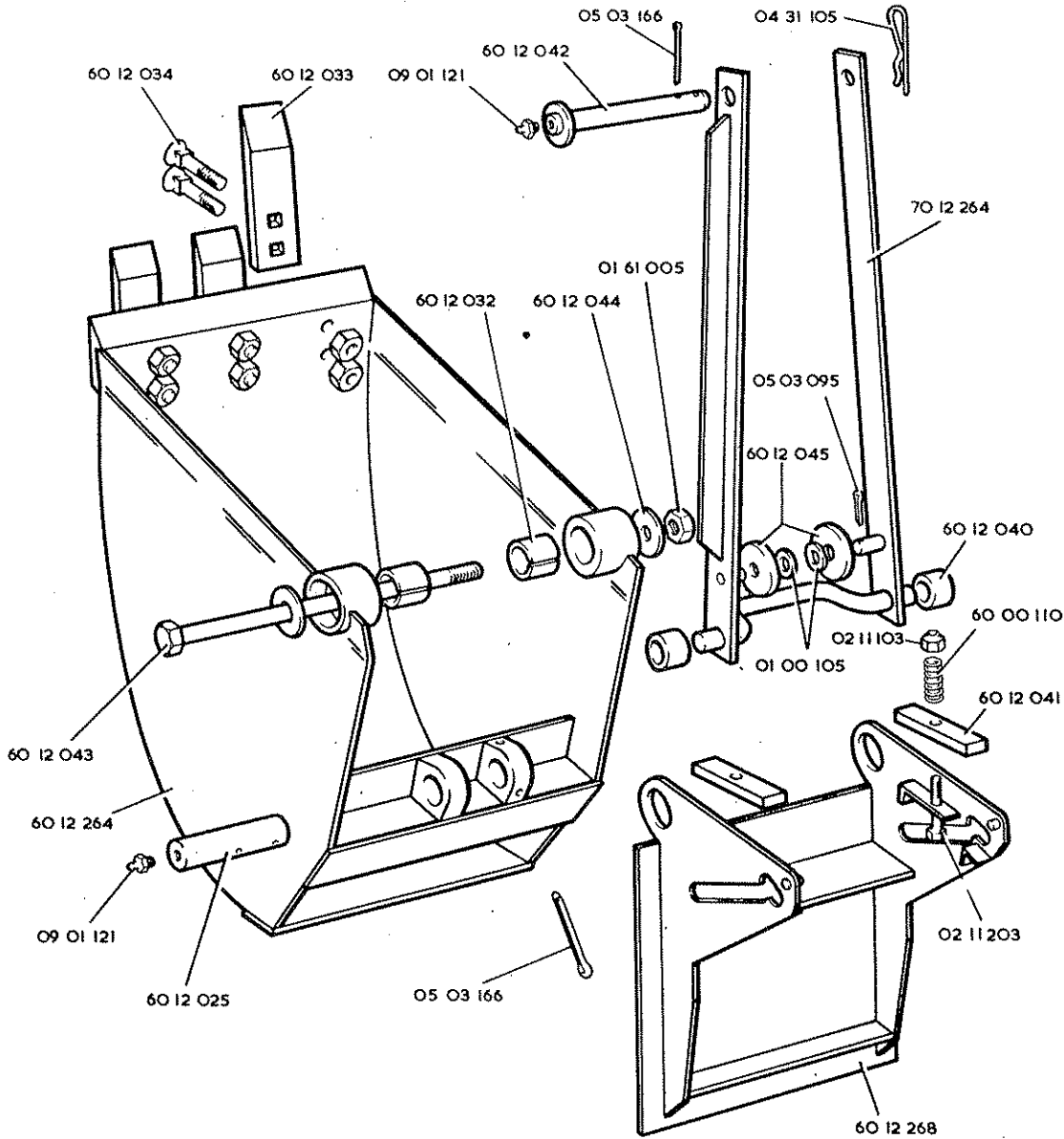
Part No.	No. Off	Description
70-12-278	1	48" DITCH CLEANING BUCKET ASSEMBLY c/w Bushes and Rod Pivot Pin
60-12-032	2	. Bucket Pivot Bush
60-12-051	1	. Rod Pivot Pin c/w Greaser and Splitpin
09-01-121	1	.. Grease Nipple
05-03-246	1	.. 3" x 1/4" Splitpin

Part No.	No. Off	Description
70-12-286	1	48" WEED BUCKET ASSEMBLY c/w Bushes and Rod Pivot Pin
60-12-032	2	. Bucket Pivot Bush
60-12-051	1	. Rod Pivot Pin c/w Greaser and Splitpin
09-01-121	1	.. Grease Nipple
05-03-246	1	.. 2" x 1/4" Splitpin

POWER ARM MODEL 'S'

13" TILE TRENCHING BUCKET SPARE PARTS

PAS12/Aug. '63



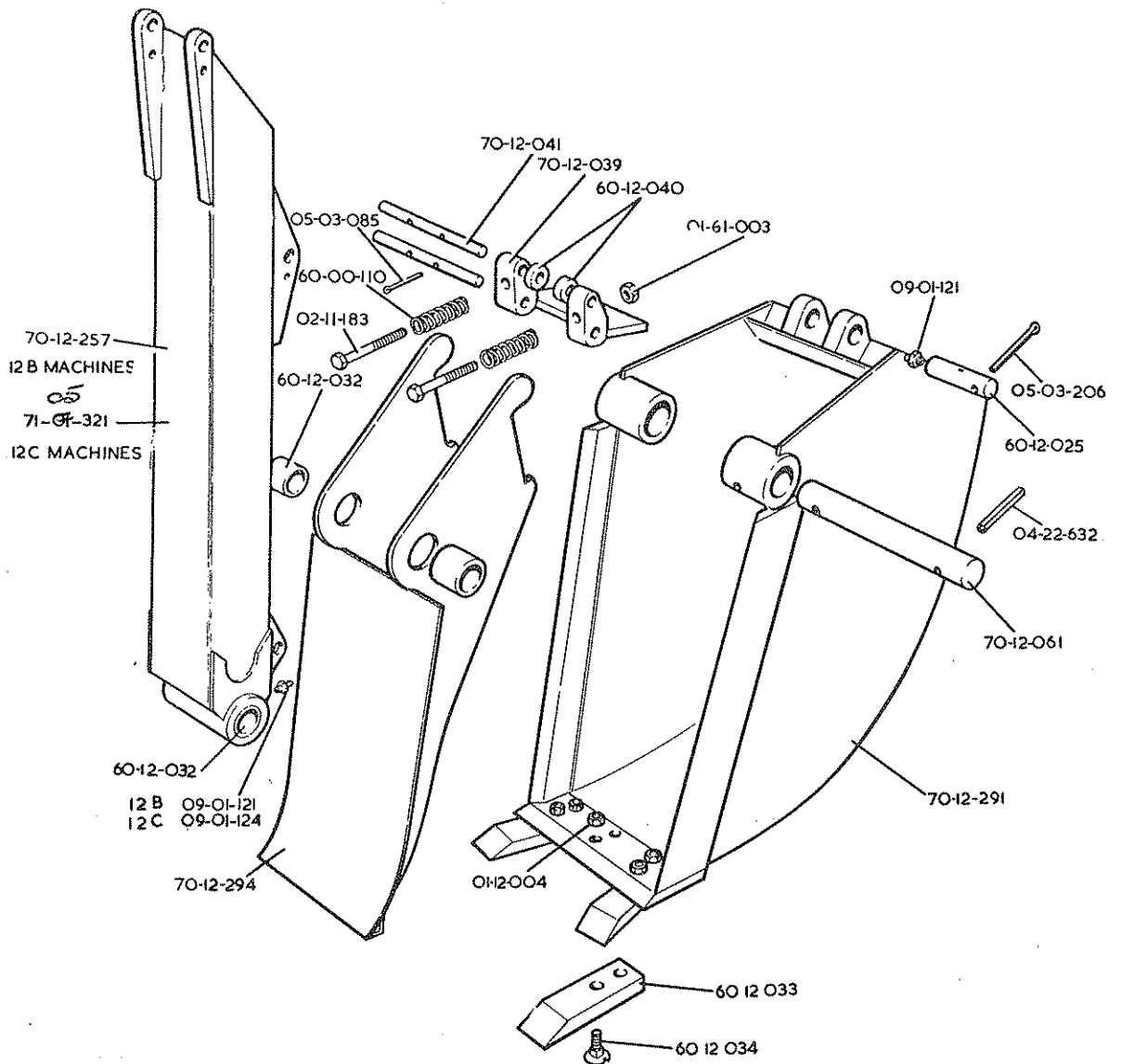
Part No.	No. Off	Description
60-12-263	1	13" TRENCHER BUCKET ASSEMBLY, complete, comprising:-
60-12-264	1	. Bucket c/w Bushes
60-12-032	2	.. Bucket Pivot Bush
60-12-033	3	. Bucket Tine c/w Bolts and Nuts
60-12-034	6	.. Tine Bolt and Nut
60-12-268	1	. Ejector Plate c/w Latch Bars, Springs and Bolts
60-12-041	2	.. Latch Bar
60-00-110	2	.. Spring
02-11-203	2	.. 2.1/2" x 3/8" UNF Bolt
01-61-003	2	.. 3/8" UNF Nylok Nut
70-12-264	1	. Reaction Member c/w Rollers
60-12-045	2	.. 2.3/4" dia. Roller

Part No.	No. Off	Description
01-00-105	2	.. 1/2" dia. Washer
05-03-095	2	.. 1.1/8" x 3/16" Splitpin
60-12-042	1	. Special Ram Pivot Pin c/w Greaser
09-01-121	1	.. Grease Nipple
05-03-166	1	.. 2" x 1/4" Splitpin
04-31-105	1	.. Spring Cotter
60-12-040	2	. Ejector Roller
60-12-043	1	. Tie Bar c/w Washers and Nut
60-12-044	2	.. Special Washer
01-61-005	1	.. 1/2" UNF Nylok Nut
60-12-025	1	. Rod Pivot Pin c/w Splitpin and Greaser
05-03-166	1	.. 2" x 1/4" Splitpin
09-01-121	1	.. Greaser

POWER ARM MODEL 'S'

11" TRENCHER BUCKET SPARE PARTS

PAS12C/SP/May'67



Part No.	No. Off	Description
70-12-290	1	11" TRENCHER BUCKET ASSEMBLY, complete, comprising:-
70-12-291	1	. Bucket c/w Bushes and Pivot Pin
60-12-032	2	.. Bucket Pivot Bush
70-12-061	1	.. 11" Bucket Pivot Pin c/w Spring Dowels
04-22-632	2	... 2" x 3/8" Spring Dowel
60-12-033	3	. Bucket Tine c/w Bolts and Nuts
60-12-034	6	.. Tine Bolt
01-12-004	6	.. 7/16" UNC Plain Nut
70-12-294	1	. Ejector Plate
60-12-025	1	. Rod Pivot Pin c/w Splitpin and Greaser
05-03-206	1	.. 2.1/2" x 1/4" Splitpin
09-01-121	1	.. Greaser
70-12-257	*1	DROP ARM LOWER HALF (NARROW) c/w Bushes
60-12-032	*2	. Bucket Pivot Bush
09-01-121	*1	. Grease Nipple
		*For 12 B Machines

Part No.	No. Off	Description
71-05-321	Φ1	DROP ARM LOWER HALF (NARROW) c/w Bushes
60-12-032	Φ2	. Bucket Pivot Bush
09-01-121	Φ1	. Grease Nipple
		ΦFor 12 C Machines
70-12-040	1	EJECTOR LATCH ASSEMBLY, comprising:-
70-12-039	1	. Ejector Latch
60-00-110	2	. Spring
02-11-138	2	. 2.1/4" x 3/8" UNF Bolt
01-61-003	2	. 3/8" UNF Nylok Nut
70-12-041	2	. Latch Pivot Pin c/w Splitpin
05-03-085	4	.. 1" x 3/16" Splitpin
60-12-040	2	. Ejector Roller

POWER ARM MODEL 'S'

McCONNEL-HERDER BUCKET MOWER

FITTING INSTRUCTIONS PAS 12B/12C

1. Drive out bucket pivot pins from existing bucket if fitted. Remove Rod End pivot pin.
2. Remove Radius Arms and Slave Link from Drop Arm. Close Bucket Ram to prevent damage to rod.
3. Remove existing Drop Arm from machine and replace with Drop Arm Extra Long. Fit Radius Arms (two pairs), Slave Link Extra Long and standard Slave Link to Arm.
4. Fit McConnel-Herder Bucket to Arm, using existing bucket pivot pins, and secure with rollpins. Adjust stroke of Ram and secure end of Slave Link to Bucket Bracket with pin supplied. Secure with splitpin.
5. Fit P.T.O. Pump to tractor P.T.O. shaft and Hydraulic Tank to P.A.S. (see illustration).
6. Clip Foot Control Unit (F.C.U.) to right hand footboard (viewed from tractor).
7. Attach one end of each 17'6" Hose to the two top unions on the F.C.U., pass through hose guides on slewing column under base end of Reach Ram. Clip two hoses together approximately under

INSTALLATION SPARE PARTS

Part No.	No. Off	Description
72-12-264	1	DROP ARM EXTRA LONG, WIDE, complete, comprising:-
72-12-265	1	. Drop Arm Extra Long c/w Bushes
70-12-037	4	.. Bush
71-05-073	2	. Radius Arm Pin c/w Splitpin and Greaser
71-05-088	2	. Radius Arm Pin c/w Splitpin & Greaser
05-03-162	4	... 2" x 3/16" Splitpin
09-01-121	4	.. Grease Nipple
71-05-315	1	. Slave Link c/w Bushes and Greaser
72-12-267	1	. Slave Link Long c/w Bushes and Greaser
70-12-037	4	.. Bush) for 71-05-315 and
71-05-050	2	.. Bush) 72-12-267
09-01-121	2	.. Grease Nipple
71-05-089	2	. Sleeves
71-05-074	2	. Bucket Pivot Pin c/w Greaser and Dowel
09-01-121	2	.. Grease Nipple
04-22-628	2	.. 1.3/4" x 3/8" Spring Dowel
72-12-006	2	. Bucket Washer

gland end of Ram, pass either side of Drop Arm pivot and secure to Bucket hoses with two clips; pass under gland end of Bucket Ram, between radius arms to unions on Bucket Motor.

8. Connect one end of 59" Hose to lower connection on F.C.U., pass other end through hose guide under right hand footboard to top of filter mounted on tank. Connect 59" Hose between bottom of Filter and Hydraulic Pump.

9. Fit suction hose between pump and left hand connection on tank (viewed from tractor). Use two hose clips each end.

10. Connect 58" length of plastic return hose to F.C.U. side connection, pass through hose guide under right hand footboard to right hand connection on tank.

11. Fit No.56 Restrictor in Gland End connection of Reach and Bucket Rams.

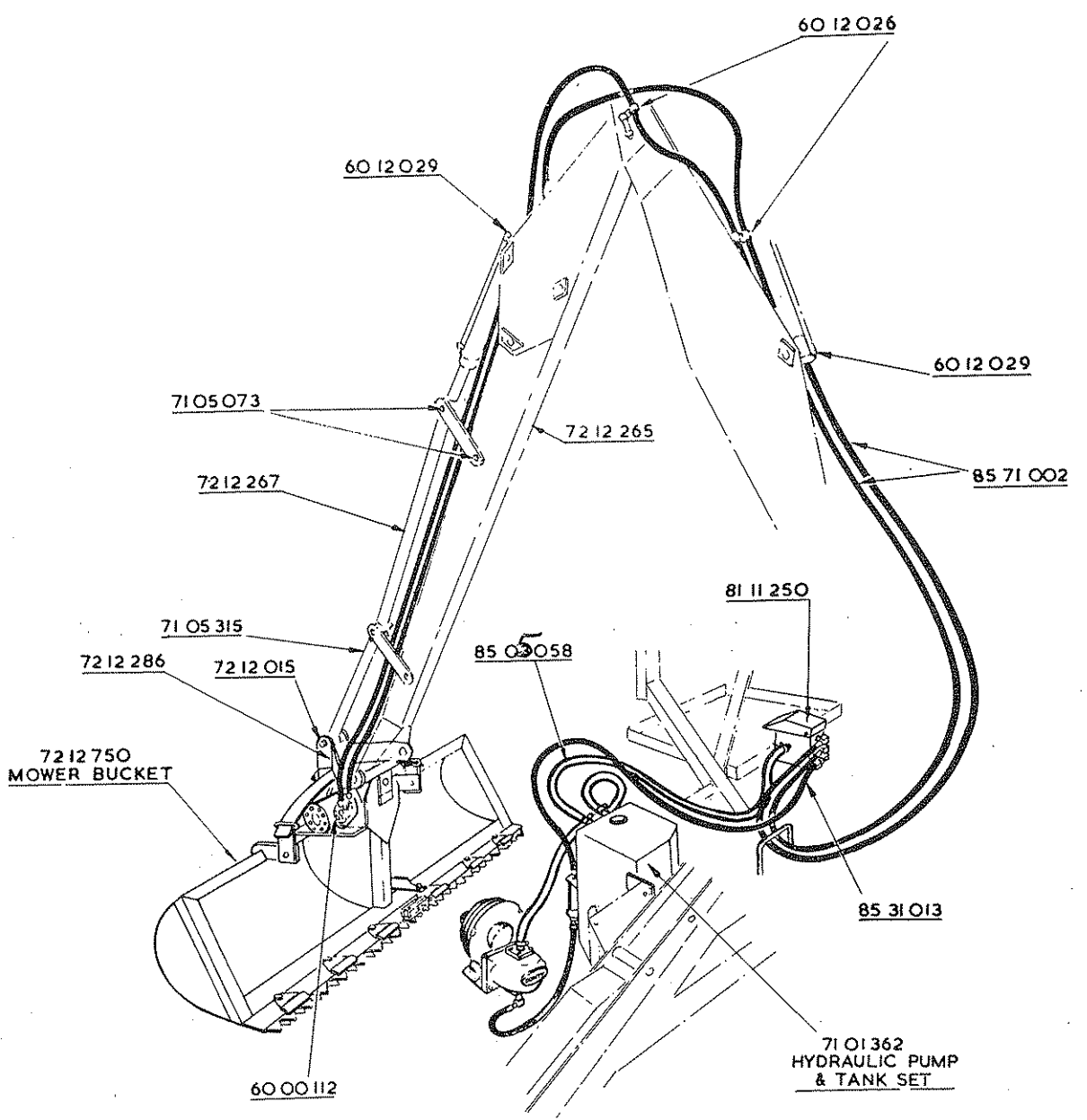
NOTE: These instructions also apply to fitting McConnel-Herder Bucket on PAS 12 B, except for fitting of Drop Arm Extra Long, radius arms and extra long Slave Link.

Part No.	No. Off	Description
72-12-286	1	BUCKET MOUNTING BRACKET c/w Pin
72-12-015	1	. Pin c/w Spring Cotter
04-31-105	1	.. Spring Cotter
72-12-750	1	MOWER BUCKET, complete - see separate Spare Parts List
71-01-362	1	HYDRA PUMP AND TANK SET - see separate Spare Parts List
81-11-250	1	FOOT CONTROL VALVE, complete
85-71-002	2	Flexible Hydraulic Pipe - Control Valve to Motor
60-00-112	2	Reducing Connector - for Hydraulic Motor
60-12-026	3	Hose Clip
60-12-029	2	Restrictor
85-31-013	1	Flexible Hydraulic Pipe 59" long - Filter to Valve
85-05-058	1	By-Pass Pipe - Valve to Tank
09-04-106	2	Hose Clip for 85-03-058

For IMPLEMENT SPARE PARTS see following pages.

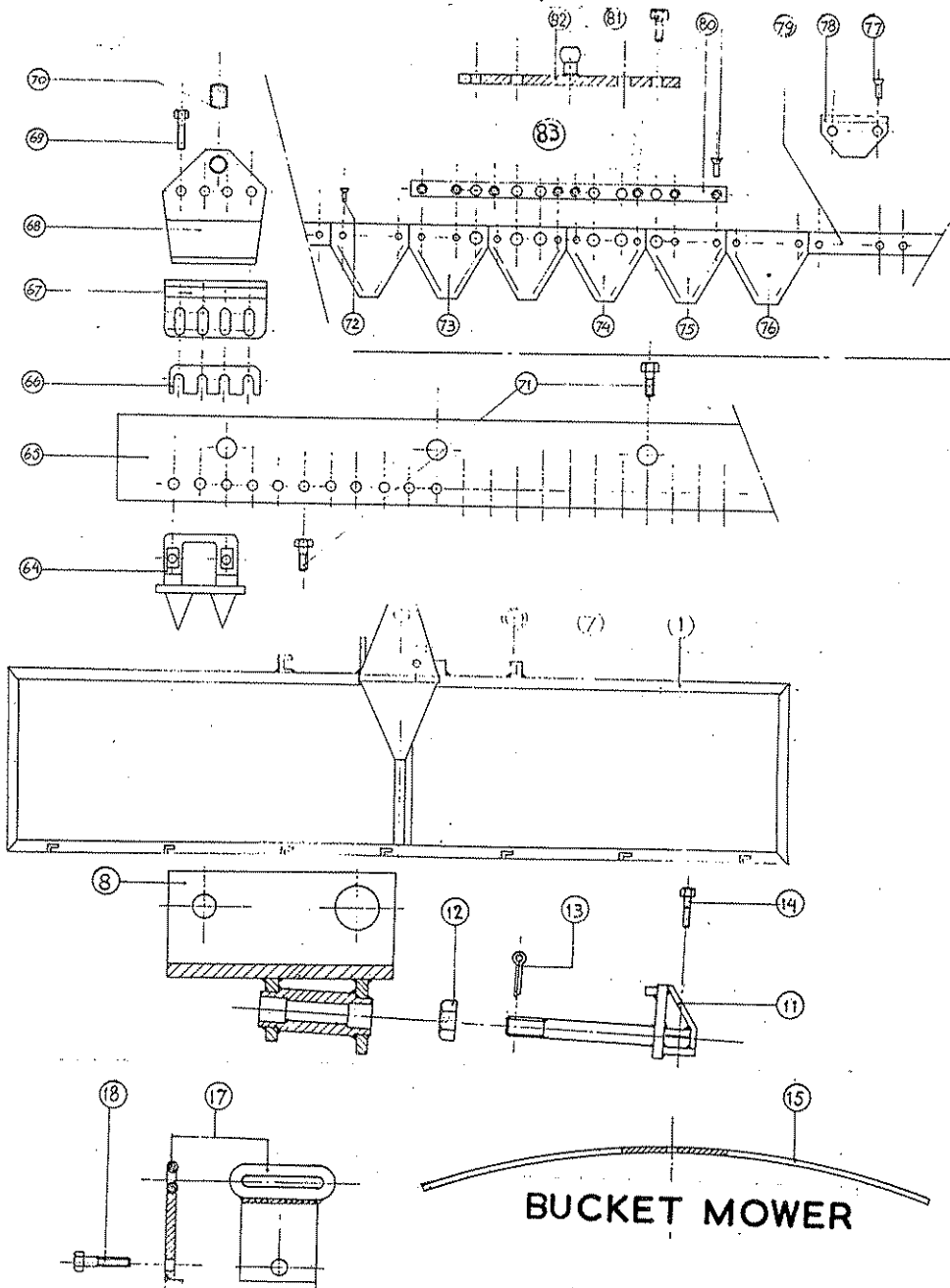
POWER ARM MODEL 'S'

McCONNELL-HERDER BUCKET MOWER



ASSEMBLY OF BUCKET MOWER

POWER ARM MODEL 'S'



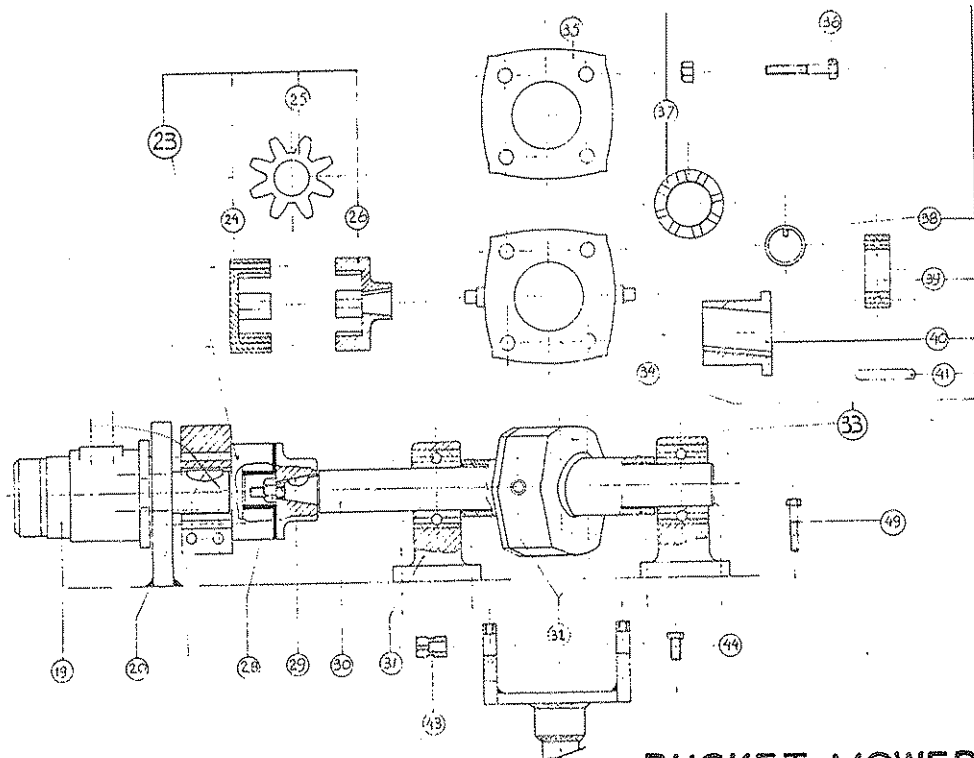
Drawing Ref:	Part No.	No.	Description
-	72-12-750	1	MOWER BUCKET, complete, comprising:-
1	72-12-755	1	. Bucket, Welded Unit c/w Bushes
7	60-12-032	2	.. Bush
8	72-12-286	1	Bucket Mounting Bracket - this item is not included in the above assembly.
9			
10			
11	72-12-756	1	. Pivot Pin c/w Nut and Splitpin
12	01-72-009	1	.. 1" UNC Slotted Nut
13	05-03-163	1	.. 2" x 1/8" Splitpin
14	02-12-082	1	. 1" x 5/16" UNC Setscrew
15	72-12-773	1	. Leaf Spring
17	72-12-775	2	. Spring Hanger
18	02-11-105	2	. 1.1/4" x 1/2" UNF Bolt
19	72-12-817	1	. Hydraulic Orbit Motor
20	72-12-778	1	. Woodruff Key
23	72-12-751	1	. Complete Drive Coupling
24	72-12-752	1	.. Half Coupling - Motor End
25	72-12-753	1	.. Rubber Coupling
26	72-12-754	1	.. Half Coupling - Shaft End

Drawing Ref:	Part No.	No.	Description
28	01-11-005	1	.. 1/2" UNF Nut
29	72-12-757	1	. Woodruff Key
30	72-12-758	1	. Horizontal Drive Shaft
31	72-12-759	2	. Plummer Block Bearing
32	72-12-760	2	. Spacer Sleeve
33	72-12-761	1	. Tumbler Bearing
34	72-12-762	1	.. Bearing Housing
35	72-12-763	1	.. Bearing Cover Plate
36	72-12-764	4	.. 8mm x 60 Bolt and Nut
37	72-12-765	1	.. Locking Nut
38	72-12-766	1	.. Locking Ring
39	72-12-767	1	.. Bearing
40	72-12-768	1	.. Bearing Bush
41	72-12-769	1	.. Key
42	72-12-770	1	. Vertical Shaft c/w Yoke and Bearings
-	72-12-772	2	.. Ball Bearing
-	72-12-771	2	.. Circlip for Bearing
45	72-12-774	1	. Vertical Bearing, complete.
47	72-12-776	1	.. Bearing Sleeve
48	72-12-777	1	.. Needle Bearing
49	02-11-125	2	.. 1.1/2" x 1/2" UNF Bolt

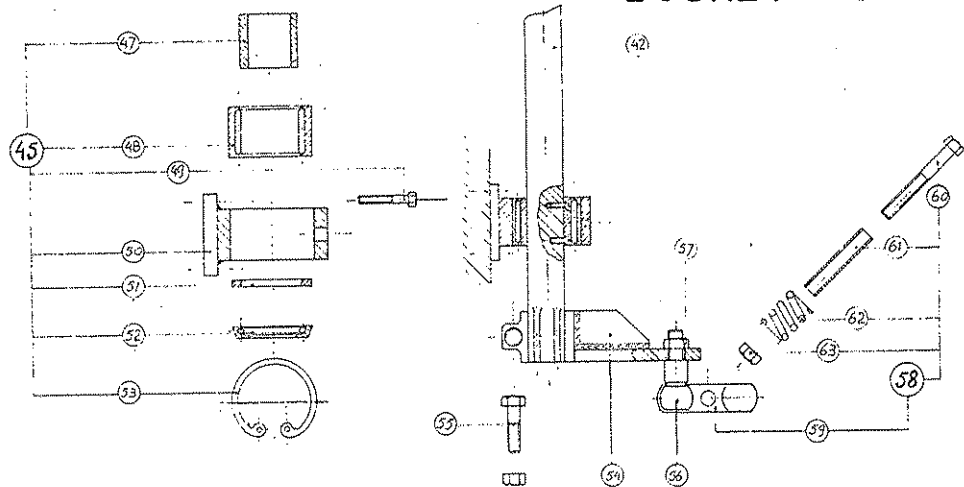
continued

POWER ARM MODEL 'S'

McCONNEL-HERDER BUCKET MOWER



BUCKET MOWER



SPARE PARTS *continued*

Drawing Ref.	Part No.	No. Off	Description	Drawing Ref.	Part No.	No. Off	Description
50	72-12-779	1	.. Bearing Housing	67	72-12-797	6	.. Lower Wearing Plate
51	72-12-780	2	.. Distance Piece	68	72-12-798	6	.. Top Wearing Plate
52	72-12-781	2	.. Oil Seal	69	72-12-799	12	.. 10 mm x 25 Bolt
53	72-12-782	2	.. Circlip	70	72-12-800	6	.. Adjuster Grub Screw
54	72-12-783	1	.. Drive Arm c/w Bolts	71	72-12-801	25	.. 10 mm x 25 Bolt
55	02-11-163	2	.. 2" x 3/8" UNF Bolt	72	72-12-802	40	.. 13mm long Rivet
	01-41-003	2	.. 3/8" UNF Aeronut	73	72-12-803	1	.. Left Drive Section
56	72-12-785	1	.. Ball Joint c/w Nut	74	72-12-804	2	.. Middle Drive Section
57	72-12-786	2	.. 16mm Nut	75	72-12-805	1	.. Right Drive Section
58	72-12-787	1	.. Cup Joint, complete	76	72-12-806	20	.. Normal Section
59	72-12-788	Pr	.. Cup Joint	77	72-12-807	8	.. 16 mm long Rivet
60	72-12-789	1	.. 12 mm x 90 Bolt	78	72-12-808	6	.. Back Wearing Plate
61	72-12-790	1	.. Sleeve	79	72-12-809	1	.. Knife Back
62	72-12-791	1	.. Spring	80	72-12-810	1	.. Reinforcing Strip
63	72-12-792	2	.. 12mm Nut	81	72-12-811	4	.. 8 mm x 25 Bolt
64	72-12-793	18	.. Double Finger	82	72-12-812	1	.. Knife Drive Plate
65 a	72-12-795	1	.. Cutterbar, bare, 6 ft.	-	72-12-814	6	.. 18 mm Locknut for 72-12-800
66	72-12-796		.. 2 mm Shim } as	-	72-12-815	1	.. Knife, complete, 6 ft.
66 a	72-12-816		.. 5 mm Shim } reqd				(comprises parts 72-80)

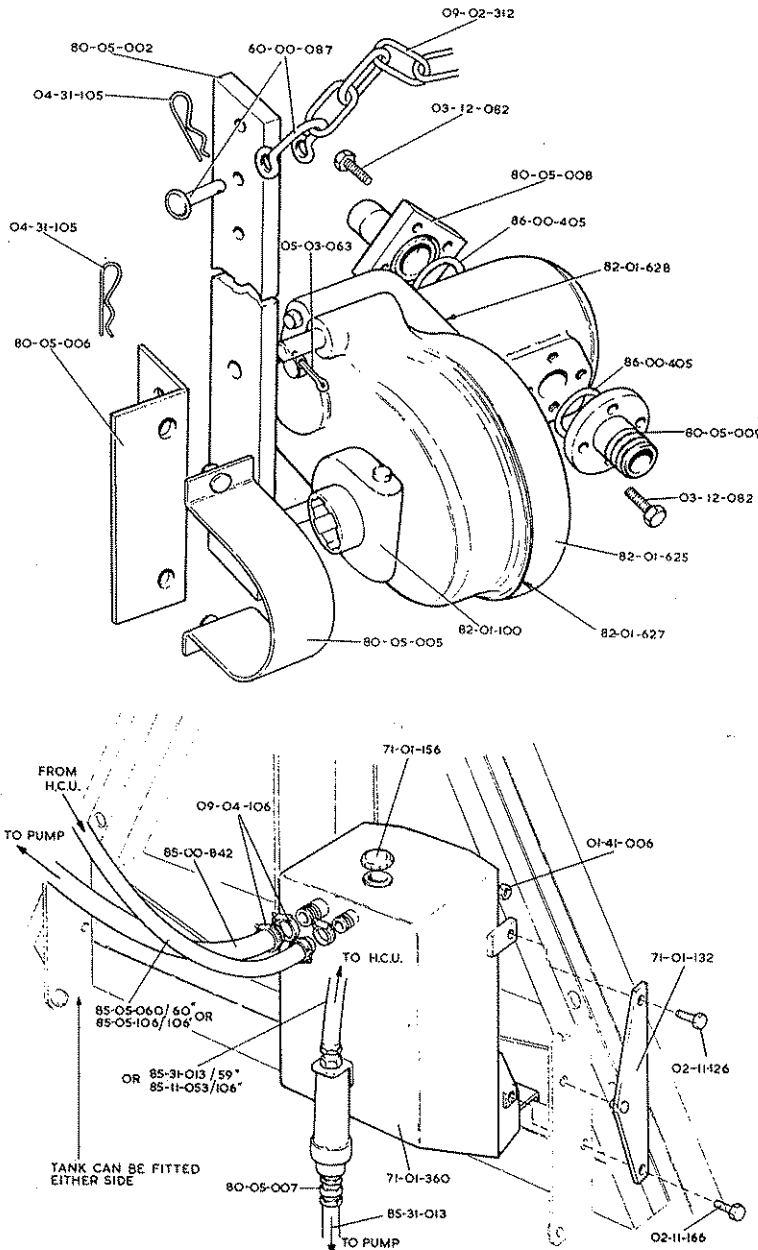
POWER ARM MODEL 'S'

HYDRA PUMP AND TANK SET SPARE PARTS

Part No.	No. Off	Description
71-01-362	1	HYDRA PUMP AND TANK SET, complete
71-01-360	1	Oil Tank
71-01-156	1	Filler Cap
82-01-625	1	P.T.O. Geared Pump
82-01-626	1	Shaft Seal
82-01-627	1	Gasket
82-01-628	1	Gasket
82-01-100	1	Splined Coupling
80-05-008	1	Pressure Connection c/w 'O' Ring and setscrews
80-05-009	1	Suction Connection c/w 'O' Ring and Setscrews
86-00-405	2	'O' Ring for Pressure and Suction Connections
03-42-103	8	1" x 5/16" UNC Setscrew
80-05-005	1	Guard for Pump Coupling
80-05-006	1	Guard Mounting Bracket

Part No.	No. Off	Description
71-01-132	1	Attachment Plate
85-00-842	1	Suction Hose - Tank to Pump
09-04-106	4	Hose Clip for Suction Hose
85-31-013	1	Flexible Hydraulic Pipe 59" long, Pump to Filter
80-05-007	1	3/8" - 3/8" BSP Union - Filter
80-05-001	1	Torque Bar and Chain complete
80-05-002	1	Torque Bar only
09-02-312	1	Chain only
60-00-087	1	Shackle c/w Pin
04-31-105	2	Spring Cotter for Shackle Pin
05-03-063	2	3/4" x 1/8" Splitpin
02-11-166	1	2" x 5/8" UNF Bolt
02-11-126	1	1.1/2" x 5/8" UNF Bolt
01-41-006	2	5/8" UNF Aeronut

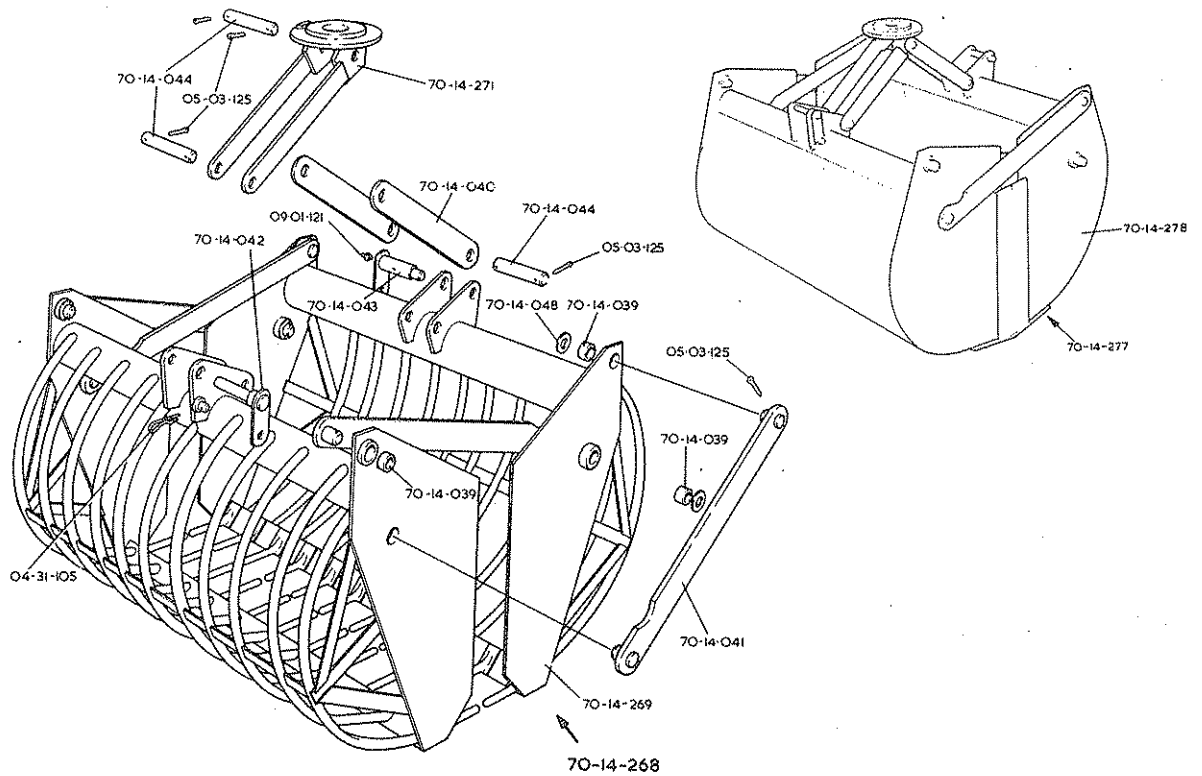
NOTE: For details of Filter see separate Spare Parts List.



POWER ARM MODEL 'S'

BEET GRAB & BULK GRAB. APPENDIX G. BR/L

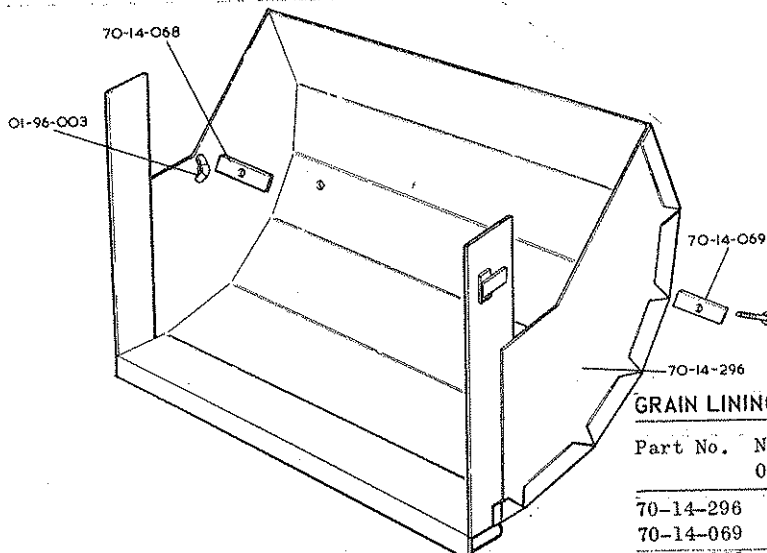
Ref: PAS/G.BR/L/Nov. '66
Revised June '67



SPARE PARTS

Part No.	No. Off	Description
70-14-268	1	BEET GRAB, complete, comprising:-
70-14-269	2	. Beet Grab Halves c/w Bushes
70-14-277	1	BULK GRAB, complete, comprising:-
70-14-278	2	. Bulk Grab Halves c/w Bushes
THE FOLLOWING PARTS ARE COMMON TO BOTH GRABS		
70-14-039	8	.. Bush
70-14-042	1	. Ram Pin, Base End, c/w Spring Cotter
04-31-105	1	.. Spring Cotter
70-14-043	1	. Ram Pin, Rod End, c/w Greaser and Spring Cotter

Part No.	No. Off	Description
09-01-121	1	.. Grease Nipple
04-31-105	1	.. Spring Cotter
70-14-298	1	. Suspension Frame
70-14-072	2	. Suspension Link
70-14-044	3	. Suspension Link Pin c/w Splitpins
05-03-125	6	.. 1.1/2" x 3/16" Splitpin
70-14-041	4	. Cross Link c/w Splitpins and Washers
05-03-125	8	.. 1.1/2" x 3/16" Splitpin
70-14-048	8	.. Special Washer



GRAIN LINING SPARE PARTS

Part No.	No. Off	Description
70-14-296	2	GRAIN LINING, complete, comprising:-
70-14-069	4	. Strap
70-14-068	4	. Clamp c/w Wing Nut
01-96-003	4	.. Wing Nut 3/8" UNC

POWER ARM MODEL 'S'

SLUDGE & SLURRY GRAB.

APPENDIX G.S/S

Ref: PAS/G/S/S/Dec.'66

Revised Oct.'67

IMPORTANT

If an old type Sludge and Slurry Grab is used with the latest type of Grab Swivel Assembly, Part Number 71-05-302, then a modified Suspension Carrier, 70-14-292, will be required which has a hexagon hole cut through the centre.

FITTING

Follow the key letter sequence in the figure as follows:-

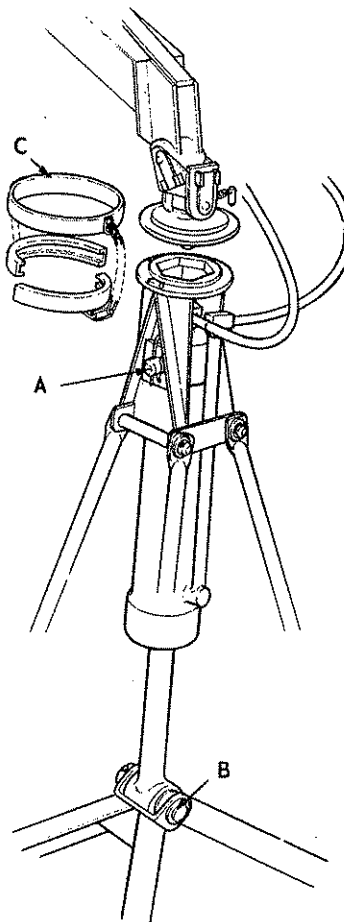
- A. Fit the base end of the GREEN Ram on the top pin in the Grab Suspension Carrier. Secure the pin with Spring Cotter.

IMPORTANT: The Ram must be assembled in the Grab so that the hoses are lead away from the Armhead to prevent damage during working. A baulking plate is welded to the Armhead side of the suspension carrier to obstruct the rigid pipe on the ram and prevent wrong assembly.

- B. Fit the Rod End of the Ram to the Ram Rod Pin and secure with splitpin.

- C. Fit the Grab to the Suspension Swivel with two split rings and secure by containing the rings with locking ring shroud.

Note: Welded stops on the swivel and the grab top flange will prevent the grab turning far enough to damage the hoses during working if correctly fitted.



MAINTENANCE

Oil the moving parts of the grab linkage daily.

SPARE PARTS

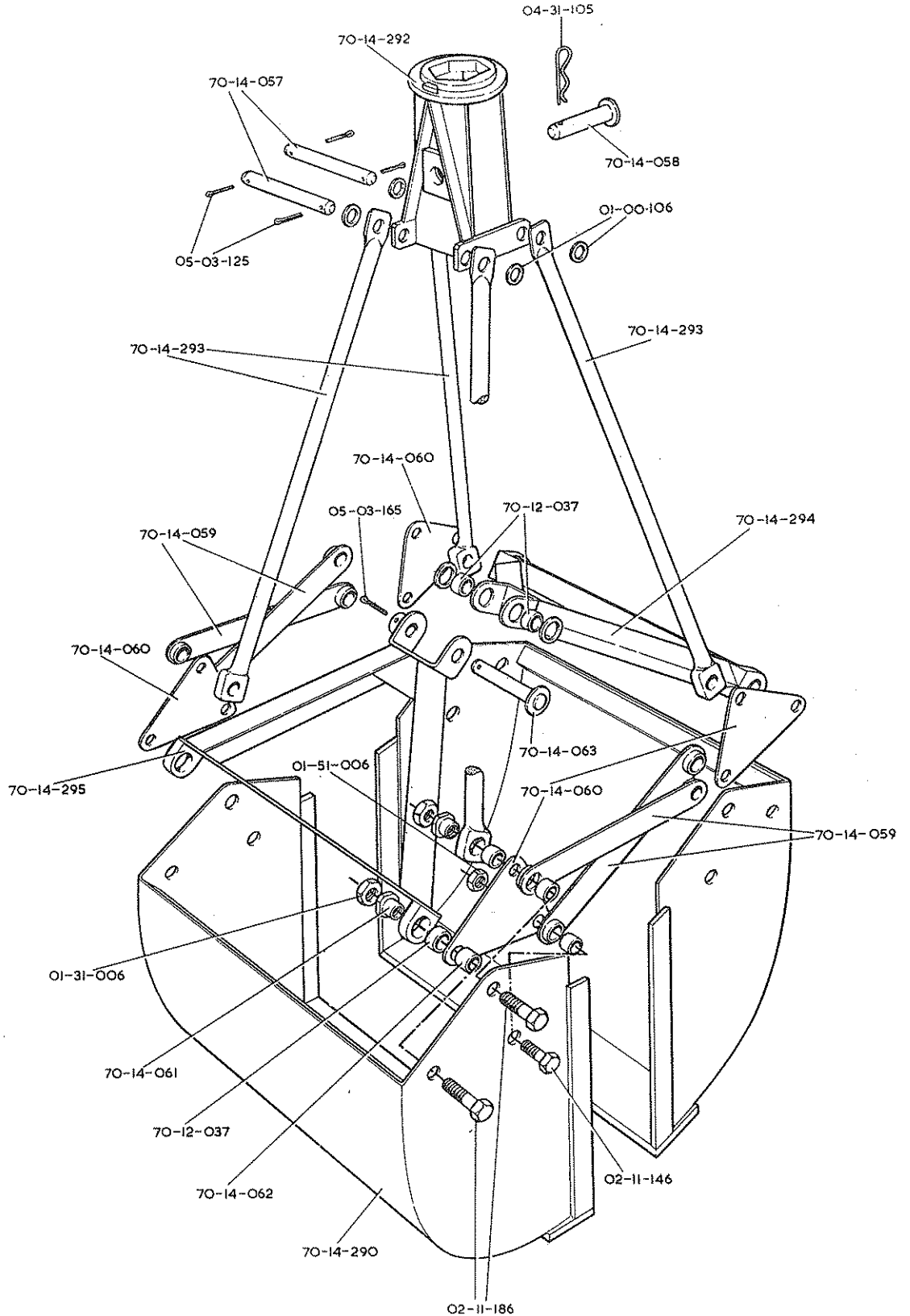
Part No.	No. Off	Description
70-14-289	1	SLUDGE/SLURRY GRAB, complete, comprising:-
70-14-290	2	. Grab Half, Welded Assembly
70-14-292	1	. Ram Suspension Carrier c/w Link Pins
70-14-057	2	.. Linkage Pin c/w Washers and Splitpin
01-00-106	4	... Washer
05-03-125	4	... Splitpin
70-14-058	1	.. Ram Base Pin c/w Spring Cotter
01-31-105	1	.. Spring Cotter
70-14-293	4	. Suspension Link c/w Bushes
70-12-037	4	.. Bush
70-14-294	1	. Ram Link Inner c/w Bushes
70-12-037	4	.. Bush

Part No.	No. Off	Description
70-14-295	1	. Ram Link Outer c/w Bushes
70-12-037	2	.. Bush
70-14-059	4	. Cross Link c/w Bushes
70-12-037	8	.. Bush
70-14-060	4	. Tie Plate
70-14-062	12	. Sleeve
02-11-186	8	. 2.1/4" x 5/8" Pivot Bolt c/w Sleeve Nut and Locknut
70-14-061	8	.. Sleeve Nut
01-31-006	8	.. 5/8" UNF Locknut
02-11-146	4	. 1.3/4" x 5/8" UNF Pivot Bolt c/w Nut
01-51-006	4	.. 5/8" UNF Thin Aeronut
70-14-063	1	. Ram Rod Pin c/w Splitpin
05-03-165	1	.. 2" x 3/16" Splitpin

POWER ARM MODEL 'S'

SLUDGE & SLURRY GRAB. APPENDIX G.S/S

Ref: PAS/G/S/S/Dec. '66
Revised Oct. '67



For details and SPARE PARTS see over

POWER ARM MODEL 'S'

SILAGE MANURE GRAB & TINE PLATES. APPENDIX G.S.M.

Ref: PAS/GSM/Nov. '64
Revised July '67

FITTING

IMPORTANT: If an old type of Silage and Manure Grab is used with the latest type of 2.1/4" bore x 13.7/8" stroke Ram then 70-14-267 Ram Frame should be replaced by 70-14-297.
Stops on the Ram Frame prevent the 59" hose connections being damaged by contact with the boom, and incorrect fitting of the Ram.

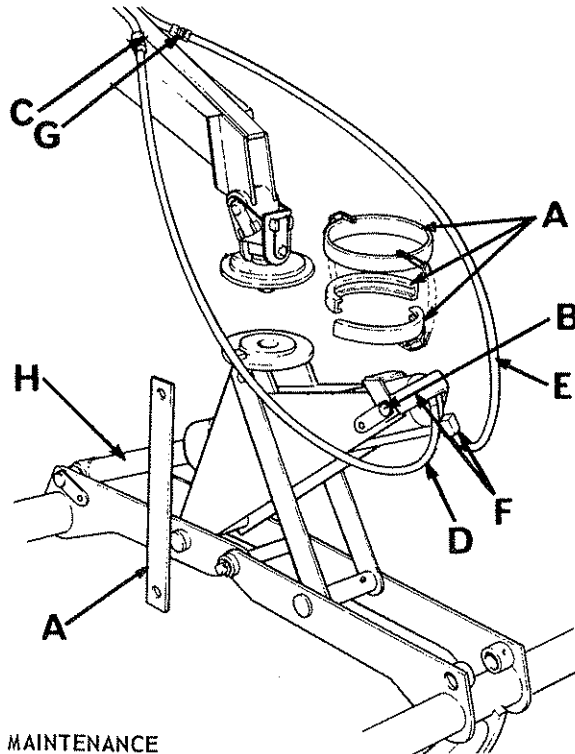
For Spare Parts purposes, both Tine Bars of the Grab are identical and carry bosses for the Ram Rod End Pin, of which only one pair is used.

To ensure correct assembly, follow the key letter sequence in the figure opposite as follows:-

- A. Remove grey painted packing strip from side of Frame and REPLACE BOTH SPLITPINS. Fit Grab to Suspension Swivel with Split Clamps and secure both halves with outer Shroud.
- B. Fit the base end of the GREEN Ram to the upper corner of the Ram Frame with the rigid pipe on the UNDERSIDE of the Ram Cylinder.
- C. Slacken both 59" Hose straight end connections to Boom.
- D. Connect the 90° end fitting of nearside 59" hose to base end of Ram.
- E. Connect the 90° end fitting of offside 59" hose to gland end of Ram.
- F. Set both 90° fittings to lead hoses downward from the Ram and tighten securely.
- G. Re-tighten straight connection to Boom
- H. Adjust stroke of Ram and secure Rod End to Tine Bar as shown opposite

SILAGE AND MANURE GRAB SPARE PARTS

Part No.	No. Off	Description
70-14-263	1	SILAGE AND MANURE GRAB, complete, comprising:-
70-14-264	2	. Tine Bar c/w Bushes
70-14-028	8	.. Bush - Tine Bar
70-14-034	1	. Ram Rod End Pin c/w Greaser and Spring Cotter
09-01-121	1	.. Grease Nipple
04-31-105	1	.. Spring Cotter
70-14-031	1	. Distance Piece
70-14-032	1	. Joint Pin c/w Washers and Splitpin



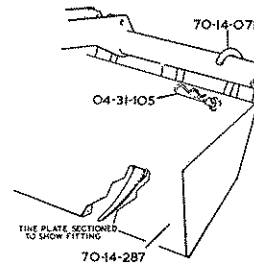
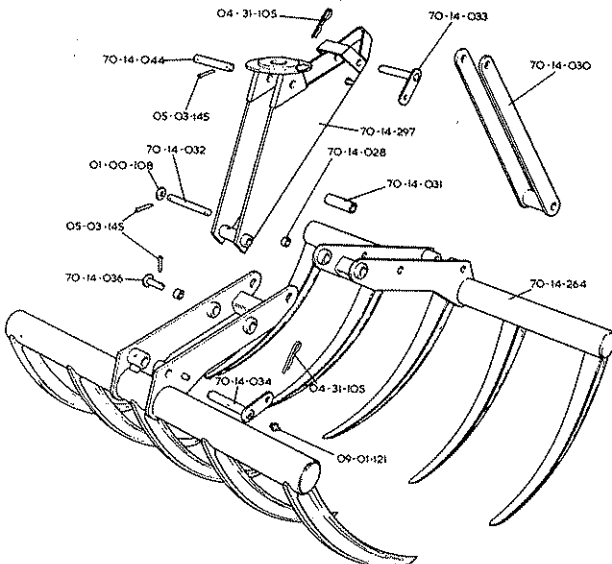
MAINTENANCE

The pivot points of the Tine Bars all carry oil retaining bushes and when in use should be oiled daily.

IMPORTANT

When replacing joint pin, ensure that distance piece is correctly fitted and that bosses on both Tine Bars face outwards.

Part No.	No. Off	Description
01-00-108	2	.. 7/8" Washer
05-03-145	2	.. 1.3/4" x 3/16" Splitpin
70-14-297	1	. Ram Frame
70-14-036	4	. Pivot Pin c/ Splitpin
05-03-145	4	.. 1.3/4" x 3/16" Splitpin
70-14-033	1	. Ram Pin, Base End, c/w Spring Cotter
04-31-105	1	.. Spring Cotter
70-14-030	1	. Link
70-14-044	1	. Link Pin c/w Splitpins
05-03-145	2	.. 1.3/4" x 3/16" Splitpin



TINE PLATES - Optional Extra Equipment

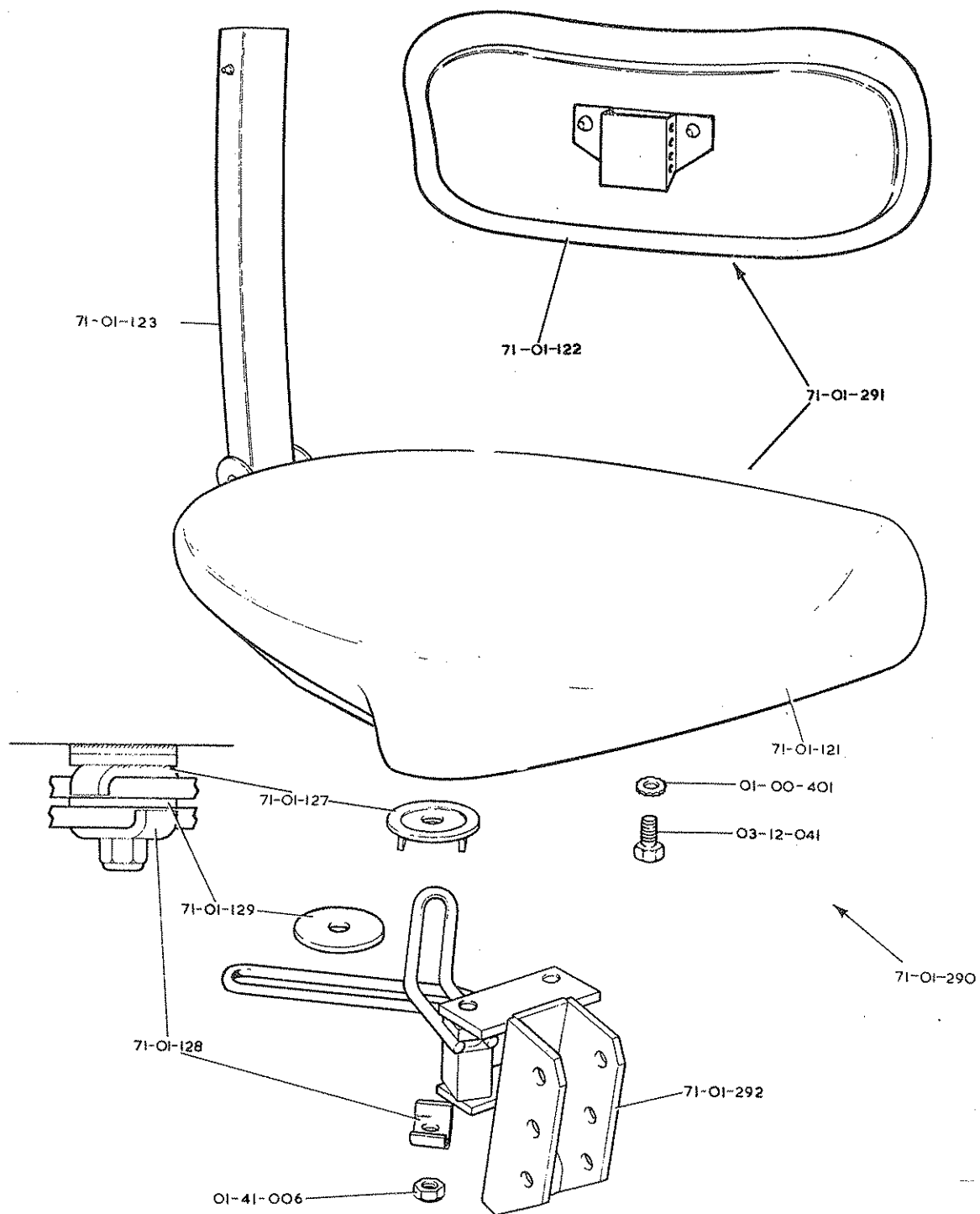
To assist final cleaning up of yards, a pair of Tine Plates may be fitted inside the Tine Points as shown.

Part No.	No. Off	Description
70-14-287	2	TINE PLATE, complete, comprising:-
70-14-071	4	. Attachment Hook c/w Spring Cotter
04-31-105	4	.. Spring Cotter

POWER ARM MODEL 'S'

DELUX SEAT.(PRE. FEB. '68)
APPENDIX H.

Ref: PAS/H/Sept.'66



SPARE PARTS

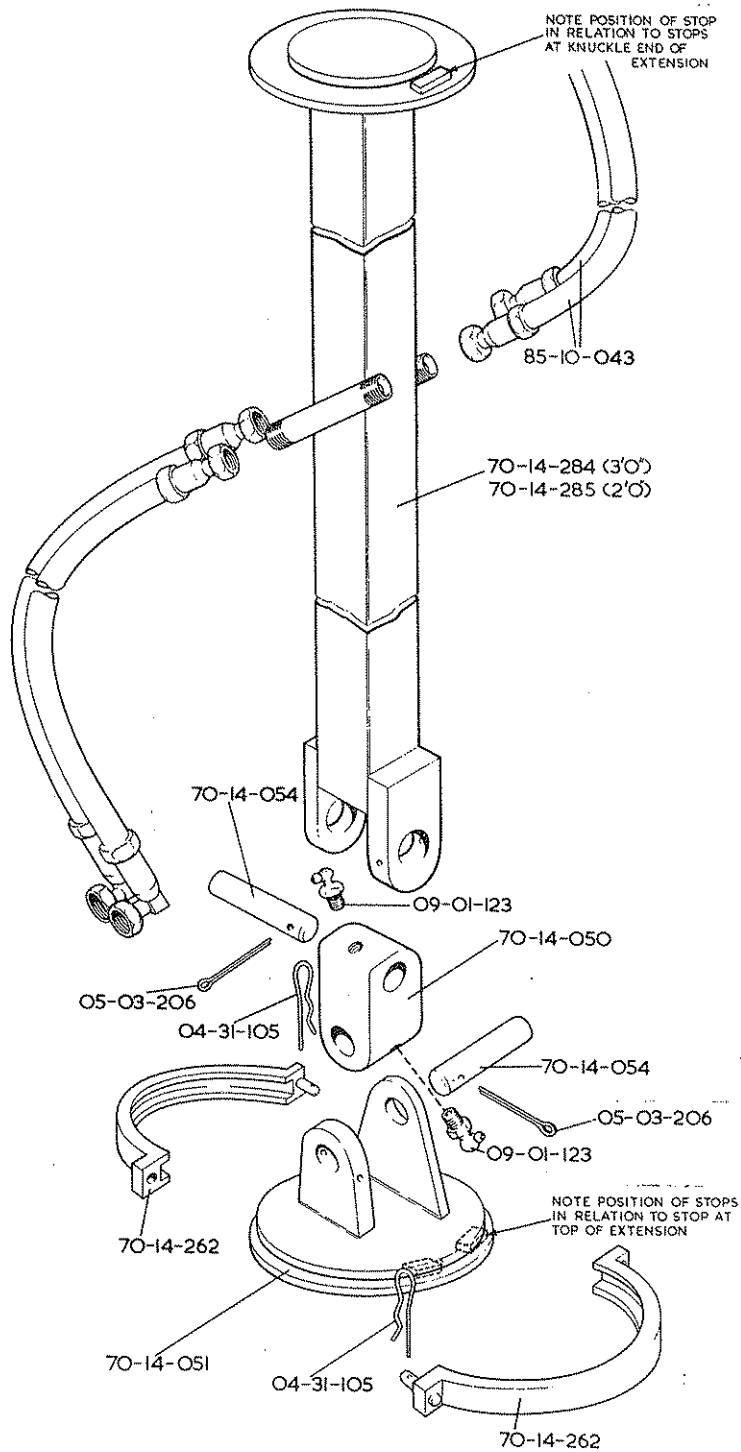
Part No.	No. Off	Description
71-01-290	1	DE-LUXE SEAT ASSEMBLY, complete, comprising:-
71-01-291	1	.. Seat Assembly, comprising:-
71-01-123	1	.. Seat Support Bracket c/w Nut
01-41-006	1	... 7/8" UNF Aeronut
71-01-121	1	.. Seat Cushion c/w Screws
03-12-041	4	... 1/2" x 1/4" UNC Setscrew

Part No.	No. Off	Description
01-00-401	4	... 1/4" Serrated Washer
71-01-122	1	.. Back Rest
71-01-292	1	.. Carrier Bracket
71-01-127	1	.. Upper Clamp
71-01-128	1	.. Clamp Plate
71-01-129	1	.. Special Washer

POWER ARM MODEL 'S'

2FT. & 3FT. GRAB EXTENSION. APPENDIX J.

Ref: PAS/J/Sep'66



SPARE PARTS

Part No.	No. Off	Description
70-14-281	1	3 FT GRAB EXTENSION, complete, comprising:-
70-14-284	1	. Grab Extension Piece - 3 Ft.
70-14-282	1	2 FT GRAB EXTENSION, complete, comprising:-
70-14-285	1	. Grab Extension Piece - 2 Ft.

THE FOLLOWING PARTS ARE COMMON TO BOTH ASSEMBLIES

Part No.	No. Off	Description
70-14-050	1	. Knuckle c/w Grease Nipple
09-01-123	2	.. Grease Nipple, Right-angled
70-14-054	2	. Swivel Pin c/w Splitpin
05-03-206	2	.. Splitpin
70-14-051	1	. Swivel Jaw
70-14-262	2	. Swivel Clamping Ring c/w Spring Cotters
04-31-105	2	.. Spring Cotter
85-10-043	2	. Flexible Hose 58" long

**POWER ARM MODEL 'S'
ARMHEAD 12B & 12C
CONVERSION TO GRAB.
APPENDIX K.C.**

Ref: PAS/KC/Sep.'67

1. INTRODUCTION

These instructions cover the conversion to Grab Loader of all 12B and 12C Machines.

All 12C Main Arms carry the necessary lugs to fit the Lift Ram Guard (Pt.No: 72-12-263) but earlier machines will need some modification which should be carried out at the owner's discretion. Use of the Guard is strongly recommended, but if welded permanently in place, care must be taken to provide sufficient clearance for the Lift Ram with the Lift Booster in any position.

(a) **IMPORTANT** The Damped Knuckle Assembly can only be used with Grabs having a hexagon hole in the Suspension Plate. Earlier Grabs can be modified by fitting new Suspension Frames.

(b) Beet Grabs can only be used with the Long Stroke Bucket Ram supplied with all the 12C machines if the Grab Suspension Plate has a hexagon hole in the centre. Earlier Grabs must be modified by fitting new Suspension Frames and Links.

2. FITTING

(a) Disconnect the Bucket Ram Hoses from the Ram and remove the Drop Arm Lower Half complete with Bucket and Ram.

(b) Fit the Swivel Extension between the Drop Arm Side Plates with the cut-outs by the elongated holes uppermost and secure by the special pin through the outer holes. The spacer provided must be fitted outside the side plate on the 12C and inside on the 12B.

(c) Fit one of the standard Drop Arm Joint Pins through the inner holes in the Drop Arm and the elongated holes of the Extension.

3. FITTING THE GRAB

(a) Fit the Bucket Ram to the Grab as shown in the correct Grab Appendix.

(b) Place the Grab under the Drop Arm in such a position that the Hoses point AWAY from the Main Arm.

(c) Lift the Locking Ring Shroud of the Swivel, releasing the two Split Clamp Rings.

(d) Offer the two plates of the Swivel and Grab together and assemble both halves of the Clamp Ring.

(e) Secure by containing the Split Rings with the Locking Ring Shroud.

4. FITTING THE GUARD

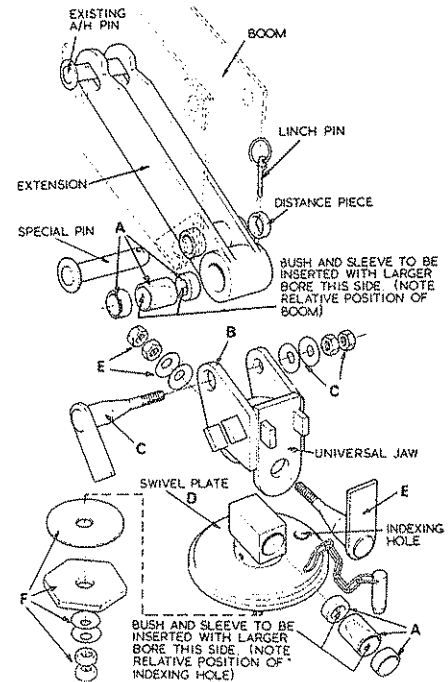
To prevent possible damage of the Lift Ram, a Guard (Pt.No: 72-12-263) is fitted to the Main Arm by inserting the legs of the Guard through the lug on the 12C Main Arm and securing with Spring Cutters.

5. FITTING THE HOSES

(a) Fit the 59" lengths of Hose to the Grab Ram as shown in the correct Grab Appendix.

(b) Lead the hoses over the top of the Drop Arm and under the Bucket Guard. **DO NOT** leave the hoses trailing loosely or they will tangle in the Grab.

(c) Connect the 59" lengths to the existing Bucket Ram Hoses, using the Double Male Connections. Note: The 59" lengths are not long enough to reach the rigid pipe connections on the Main Arm.



6. ADJUSTMENT

(a) To control the violent swing of the Grab when slewing, both suspension pivots are fitted with coned Friction Sleeves adjusted by 5/8" locknuts. **NEVER TIGHTEN FRICTION SLEEVES SOLID.**

Always back Locknuts off half a turn to prevent jamming. With both Friction Sleeves slackened, the Grab may be swung into a vertical face, such as a silage clamp too high to be worked from the top.

(b) The freedom of rotation is controlled by a damping device at the bottom of the swivel. If adjustment is required, remove Grab and slacken or tighten nuts as necessary.

(c) Should a fixed position be required, the Grab can be indexed and located in any one of four positions by means of a locating pin. For free rotation the Locating Pin must be left hanging by its safety chain.

7. MAINTENANCE

Correct re-assembly of Swivel Damper Assembly is important for full efficiency of operation and the following point should also be noted:- **KEEP FRICTION DISC AND SLEEVES FREE OF OIL OR GREASE.**

Discs which have become 'glazed' in use may be cleaned with degreasing fluid or diesel fuel.

DO NOT USE PARAFFIN OR T.V.O.

Re-assemble as follows - see illustration above

- A. Bushes and Friction Disc must be fitted the correct way and in the order shown to the Extension Arm and to the Indexing Hole on the Swivel Plate.
- B. Fit the Universal Jaw over the boss end of Extension Arm WITH OFFSET OF JAW OUTWARD FROM EXTENSION ARM.
- C. Fit Swivel Pin, two Spring Discs (hollow side inwards) and two Locknuts.
- D. Fit Swivel Plate to Universal Jaw (Note relative position of indexing hole on plate).
- E. Fit Swivel Pin, two Spring Discs (hollow side inwards) and two Locknuts.
- F. Fit Friction Disc, Damping Plate, two Spring Discs (hollow side inwards) and two Locknuts.
- G. Tighten all Locknuts to suit.

For SPARE PARTS LIST see overleaf

POWER ARM MODEL 'S'

PUMP & TANK PACK APPENDIX P.

Ref: PAS/P/Mar.'68

FITTING

1. When the pump unit is used, the Lift Frame Assembly, Pt.No: 71-01-273, is not required and it should be removed by knocking out the linkage pins on which it pivots. The tractor three-point linkage should be left as standard with the drop link attached to the draft links. No linkage isolation is required, and the tractor's hydraulic control lever may be left in the 'DOWN' position while the machine is working and is only used to raise the implement in the normal way for transport. No allowance for 'sinkage' is required, and no hydraulic connections are required to the tractor.

2. Before fitting pump to tractor PTO shaft, remove brass plug from gearbox casing and FILL gearbox with tractor Universal Oil. No further topping up is required as the gearbox is subsequently supplied from the hydraulic circuit.

The female spline of the pump is fitted directly to the PTO shaft, the spring loaded plunger in the collar surrounding the pump spline should be depressed allowing the pump to be pushed on to the PTO shaft until the plunger locates in the shaft retaining groove. A guard, Pt.No: 80-05-005 is supplied and must be fitted to cover the exposed rotating parts. The guard is mounted on to the bracket 80-05-003 (see Spares illustration) by means of two studs, and secured with spring cotters.

The Torque Arm is attached to the tractor top link or draft by its chain, to prevent the pump rotating (see figure). The chain should be attached to the torque arm as near the end as possible, in order to reduce the load on the pump bearings. Whenever possible it is preferable to mount the pump with the suction connection pointing upwards.

3. The Hydraulic Tank, Pt.No: 71-01-360, can be fitted inside either linkage pin plate of the PAS frame (see Figure) by securing to attachment plate 71-01-132.

4. The Filter is secured to the bracket on the side of the tank with its detachable end plug in the downward position. The H.C.U. supply hose is connected to the upper (small end) of the filter. The Flexible Hose, 85-31-013, is conn-

ected by its straight end fitting to the large end of the Filter and the opposite end of the hose is connected to the pressure connection on the pump.

The H.C.U. Green return hose should be looped around the tractor top link and fitted to the smaller of the two connections on the front of the tank. Hose 85-00-842 is connected to the second connection on the front of the tank and the other end is secured to the suction connection of the pump.

IT IS MOST IMPORTANT THAT THE SUCTION HOSE IS NOT KINKED OR TWISTED

5. It is important to secure firmly all hose and filler plug connections to prevent air getting into the system. To ensure that a good seal is made, it is advisable to use a jointing compound such as 'Wellseal' at the connection at each end of the suction hose 85-00-842. MAKE CERTAIN suction and delivery connections (80-05-008 & 9) are secured firmly to pump body.

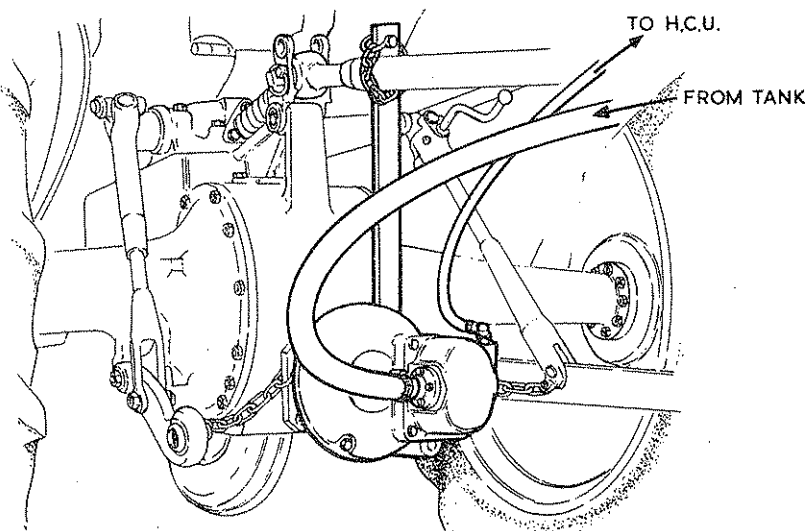
FILLING PUMP AND TANK

6. A good Universal Oil (SAE 20W/30) is recommended. The tank should be filled with approximately 5 gallons of oil to within 2" of the top of the tank. For filling pump see paragraph 2. Prime suction hose 85-00-842 with oil before connecting end to tank connection, using 'Wellseal'.

7. The best PTO speed will depend upon the machine in use and the skill of the operator. Earlier machines (S12B and S14) with 2" bore Rams will give satisfactory results at a PTO speed of 335 rpm. Later machines (S12C and S14) with 2.1/4" bore Rams require a PTO speed of 440 rpm to give a similar speed of operation.

In all cases the speed should be restricted slightly with an unpractised operator to prevent excessive shock loadings on the machine. Most operators will find that as their skill improves they can speed up the pump without affecting smoothness of operation. Just as a car can be driven too fast for safety or mechanical reliability, the life of the machine will be affected by excessive and uncontrolled pump speed.

It should be noted that a Self-Sealing Coupling should NEVER be used in the hose line between tank and H.C.U.





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