

WINGET

OPERATING INSTRUCTIONS & SPARE PARTS LIST

4B50 DIESEL DUMPER (CAPACITY 2450KG)

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INTRODUCTION

This Parts & Operators Manual is a re-print of the manual last published in 1981 and contains some amended part numbers.

Note: this publication is applicable to machines with serial numbers from and including 4B50-101.

Health & Safety legislation and working practices applicable to Site Dumpers, both 2 and 4 wheel Drive, Rigid Chassis and Articulated Chassis have changed considerably in the years since this manual was last published and immediately following this Introduction are notes on the Safe Use of Site Dumpers. These notes supersede and replace all previous 'Dumper Safety' notes issued with Winget 4B50 Four Wheel Drive Dumpers.

Reference is made on a number of pages to 'bolt c/w nut and washer', this no longer the case, fixings such as nuts, bolts, screws and washers should be ordered as individual items. A number of Whitworth and B.S.F fixings are now no longer available, in these cases the nearest metric equivalent size will be supplied.

The contents of this manual although correct at the time of publication, may be subject to alteration by the manufacturers without notice and Winget Limited can accept no responsibility for any errors or omissions contained within the following pages. Nor can we accept any liability whatsoever arising from the use of this manual howsoever caused.

Winget Limited operate a policy of continuous product development. Therefore, some illustrations or text within this publication may differ from your machine.

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DUMPER SAFETY

Safety is the responsibility of all persons working with this machine. Think "safety" at all times. Read and remember the contents of this handbook.

MACHINE MODIFICATIONS

WARNING Any modifications to the machine will affect its working parameters and safety factors. Refer to the Manufacturers before fitting any non-standard equipment or parts.



The Manufacturers accept no responsibility for any modifications made after the machine has left the factory, unless previously agreed by the Manufacturers in writing; the Manufacturers will accept no liability for damage to property, personnel or the machine if failure is brought about due to such modifications, or fitment of spurious parts.

TRAINING

WARNING Only trained operators should use this machine.



Operators should hold an appropriate full motor vehicle driving licence and undergo both a safety awareness course and a driver training course for Site dumpers run by the C.ITB or equivalent body leading to the award of a CTA.

It is strongly recommended that operators read the H.S.E. publication "Safe Working with Small Dumpers" which is available from government bookshops (HMSO) or from other bookshops quoting the following number ISBN 011 8836935. Another useful publication is British Standard number BS 6264, "Procedure for Operator Training For Earth Moving Machinery" available from the British Standard Institution.

OPERATION

WARNING NEVER use the machine for purposes other than those for which it was designed. This machine was designed to carry loads such as soil, clay, sand, wet concrete, stone or other similar materials. It was not designed to carry loads which may move around in the skip uncontrollably, nor to carry any loads or materials which overhang the skip in any way. If in any doubt as to the suitability of this machine for a particular task, contact your nearest Distributor or the Manufacturer for advice.



ALWAYS be aware of local and national regulations governing the use of the machine.

NEVER commence work with the machine until the "Daily (or every ten hours)" service checks have been made. (See Service Section for details)

ALWAYS check wheel nut tightness daily.

NEVER carry passengers.

Where seat belt restraints are fitted as part of Rops/Fops Protection they must be worn. Ensure that the seat and seat belt are securely fixed to the machine. Check that the seat belt is in good condition, free from cuts and frayed edges.

ALWAYS remain in the driving seat whenever the engine is running. Never attempt to operate any controls unless seated.

ALWAYS apply the parking brake before leaving the driver's seat.



DUMPER SAFETY

NEVER dismount with the engine running, and never leave the machine unattended with the key in the starter switch.

When Battery Isolators are fitted they must be activated only when the engine is turned off except in cases of emergency.

Activating a Battery Isolator when the engine is running can result in damage to the electrical components and circuits.

NEVER fill the fuel or hydraulic tanks with the engine running.

ALWAYS drive only on surfaces that are known to be stable.

ALWAYS keep the floor plates and walkways clean.

NEVER drive the machine close to the edge of any excavation. Always use effective wheel stops to prevent the machine running close to the edge. Make sure that the stops are in proportion to the size of the wheels and are set sufficiently far enough back from the edge of any excavation to prevent the weight of the load causing a collapse.

NEVER adjust the tyre pressures in an attempt to improve traction on soft ground or obtain a softer ride on hard ground. Incorrectly adjusted tyres can affect the steering and handling characteristics.

NEVER attempt to free a machine which is 'bogged down' by pushing with the bucket of a backhoe loader, tracked excavator or other similar machine.

NEVER make unnecessary "crash stops" when travelling at speed, especially in forward direction.

NEVER work under an unpropped skip. *If the dumper was supplied with a special Skip Support always ensure that it is used.*

Some articulating dumpers are manufactured with an articulation lock. If your machine has this feature proceed as follows:

ALWAYS fit the articulation lock when working within the articulation point crush zone.

NEVER attempt to lift the machine unless the articulation lock is engaged.

SKIPS AND LOADING

WARNING *NEVER* exceed the rated payload. The weights of all loads above skip water level must be checked.



NEVER remain on the machine when loading the skip with excavators or loaders. Stop the engine, apply the parking brake, dismount, and stand well clear.

ALWAYS ensure that the load is evenly distributed in the skip.

NEVER carry loads or heap materials in such a manner as to affect the forward vision.

ALWAYS take extra care when tipping non free running loads.

NEVER use the skip in a tipped position to bulldoze heaped materials level or to backfill material into excavations.

DUMPER SAFETY

TOWING

WARNING NEVER attempt to start the engine of a dumper by towing or pushing.



Dumpers are not designed as towing vehicles, but loads (including weight of trailer) not exceeding the rated payload of the dumper may be towed on dry level ground in first gear, providing the dumper skip is loaded with half the rated payload to ensure tyre adhesion when braking.

ALWAYS use a purpose made towing pin.

NEVER tow loads up, down or across gradients.

GRADIENTS

WARNING NEVER operate *Four Wheel Drive articulated steer dumpers* on any gradients which exceed 25% (1 in 4), or across gradients which exceed 16% (1 in 6).



NEVER operate *Two Wheel Drive rigid chassis dumpers* on any gradients which exceed 10% (1 in 10), or across gradients which exceed 10% (1 in 10).

ALWAYS remember that slippery or loose surface conditions can adversely affect safe machine operation, including braking, particularly on gradients.

ALWAYS choose routes that avoid steep, slippery or loose gradients.

NEVER coast down gradients. Always negotiate gradients in first gear.

ALWAYS drive forwards up gradients when loaded.

ALWAYS reverse down gradients when loaded.

ALWAYS keep the load facing uphill.

NEVER park on a gradient. If this is unavoidable, ALWAYS chock the wheels.

NEVER attempt to turn on a gradient.

NEVER tow up, down or across a gradient.

NEVER operate high discharge or rotating skips on gradients.

HYDRAULICS

WARNING ALWAYS "Dump" residual pressure from the system before leaving the machine or before carrying out any maintenance or adjustments.



If maintenance work requires the skip to be in the raised position, then it must be raised and supported before dumping the pressure.

Dump pressure by switching off the engine, then moving the hydraulic control lever several times in each direction.

NEVER leave the machine unattended with pressure in the system.

ALWAYS purge hydraulic rams before commencing work. With the engine running operate the hydraulic control to fully extend and retract the rams.

ALWAYS practise the greatest cleanliness in maintaining hydraulic components.

DUMPER SAFETY

SERVICING

WARNING ALWAYS report any defect at once, before an accident or consequential damage can occur.



ALWAYS conform to service schedules except where:

- 1 Warning lights or warning indicators call for immediate attention.
- 2 Adverse conditions necessitate more frequent servicing.

ALWAYS wear correctly fitting protective clothing. Loose or baggy clothing can be extremely dangerous when working on running engines or machinery.

ALWAYS, where possible, work on or close to engines or machinery only when they are stopped. If this is not practical, remember to keep tools, test equipment and all parts of your body well away from the moving parts.

ALWAYS dump pressure from the hydraulic system before carrying out any kind of maintenance or adjustment. (*see Hydraulics Warnings*).

ALWAYS avoid contact with exhaust pipes, exhaust manifolds and silencers when the engine is running; these can be very hot.

ALWAYS work out of doors, or in a well-ventilated area.

NEVER run an engine in an enclosed space. Exhaust fumes in enclosed areas can kill.

ALWAYS disconnect battery cables and remove battery before using an external charger, carrying out welding repairs or to prevent unauthorised usage when unattended or during a repair.

NEVER allow unqualified personnel to attempt to repair, remove or replace any part of the machine, or anyone to remove large or heavy components without adequate lifting tackle.

NEVER attempt to modify or repair Rops Frames or Fops Canopies by welding, drilling or any other means. Attempts to do so will invalidate Rops/Fops Certification.

ALWAYS obtain advice before mixing oils; some are incompatible. If in doubt drain and refill.

NEVER allow oils and fuels to come into regular contact with skin. This can lead to serious skin diseases including, medical evidence suggests, skin cancer. ALWAYS wear protective gloves when handling oils and fuels whether topping up, draining or refilling. ALWAYS wash hands if oils or fuels come into contact with the skin.

Many liquids used in this machine are harmful if taken internally or splashed into the eyes. In the event of accidentally swallowing oils, fuels, anti-freeze, battery acid etc, DO NOT encourage vomiting, seek qualified medical assistance immediately.

ALWAYS dispose of waste oils and fuels into waste oil storage tanks. If storage tanks are not available consult your distributor or local authority for addresses of local designated disposal points. It is illegal to dispose of waste oil into drains or water courses or to bury it.

DUMPER SAFETY

Equipment which includes friction materials will sometimes contain asbestos. When removing friction material dust from components, such as when servicing brakes or clutches, do not blow out with an airline; it could be harmful to inhale the dust. Remove the dust with a vacuum cleaner or wipe clean with a damp rag. Waste should be placed in a sealed container, marked, and disposed of in accordance with local or national regulations.

The accumulated dust found in clutch housings may contain lead/antimony. No food should be eaten at a work place contaminated by this dust. Hands must be washed before eating. Do not blow out dust with an airline.

ALWAYS ensure that the starting handle is clean and in good condition. Keep the engine starting dog, and the part of the starting handle that mates with it, lightly lubricated (*Refer to the Engine Handbook*).

NEVER work under an unpropped skip. ***If the dumper was supplied with a special Skip Support always ensure that it is used.***

Some articulating dumpers are manufactured with an articulation lock. If your machine has this feature, ALWAYS fit the articulation lock when servicing or working on the machine.

PREPARATION FOR USE

Before the Dumper is put into service, always check the following points:-

ENGINE

Check the oil level on the dipstick, topping up if necessary to the full mark.

GEARBOX

Check the oil level on the dipstick, topping up if necessary to the full mark.

DRIVE AXLES AND TRANSFER CASE

Remove filler/level plugs from drive axles and filler/level plug from transfer case and check that oil is up to bottom of holes. Top up if necessary, through filler/level plugs.

FUEL TANK

Fill tank with diesel oil until approximately 1" from the top.

NOTE: Never allow fuel level to fall below 2" deep in the bottom of the tank.

HYDRAULIC TANK

Fill the hydraulic tank to within 2" of the top. Before removing the cap, clean the surrounding area to prevent the possible entry of foreign matter.

BRAKE SYSTEM

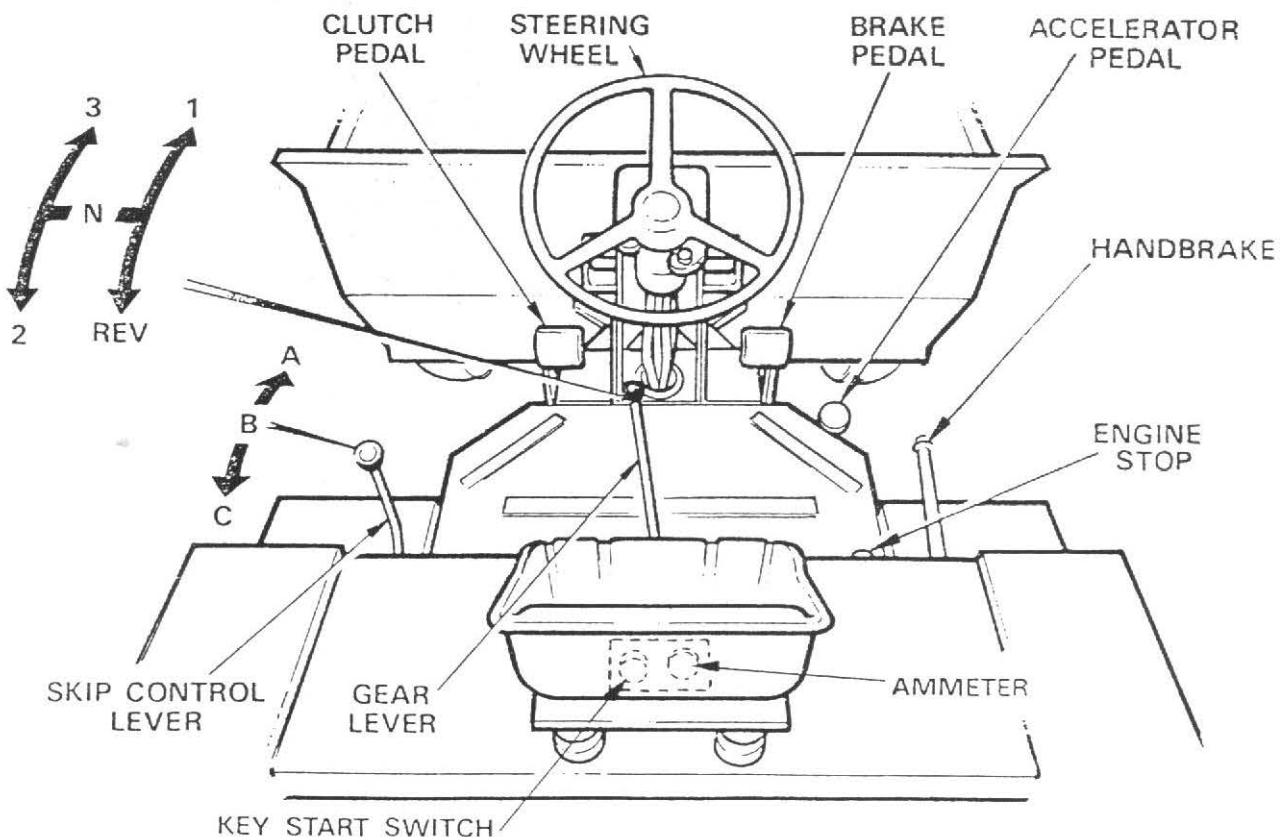
Ensure that the fittings are tight on hoses supplying the brake master cylinder from the main hydraulic tank.

MISCELLANEOUS

Check all wheel nuts for tightness.

Check all nuts and bolts for tightness, loose nuts and bolts may lead to damage not covered by Warranty.

N.B. FOR FURTHER INFORMATION ABOUT LUBRICATION AND RECOMMENDED OILS SEE RECOMMENDED LUBRICANT CHART & GENERAL MAINTENANCE SECTION.



SPECIFICATION FOR MACHINES WITH FORWARD TIP SKIP

A	Overall Height	1830 mm	(6' 0 ")
B	Skip Loading Height	1270 mm	(4' 2 ")
C	Wheelbase	1790 mm	(5' 10½")
D	Overall Length	3750 mm	(12' 3½")
E	Ground Clearance	310 mm	(1' 0½")
F	Overall Width	1830 mm	(6' 0 ")
G	Skip Ground Clearance when Tipped	450 mm	(1' 5½")
H	Overall Height Tipped	2440 mm	(8' 0 ")
J	Discharge Forward of Tyre	540 mm	(1' 9½")
K	Overhang	600 mm	(1' 11½")
L	Wheeltrack	1525 mm	(5' 0 ")
M	Prow Width	1700 mm	(5' 7 ")

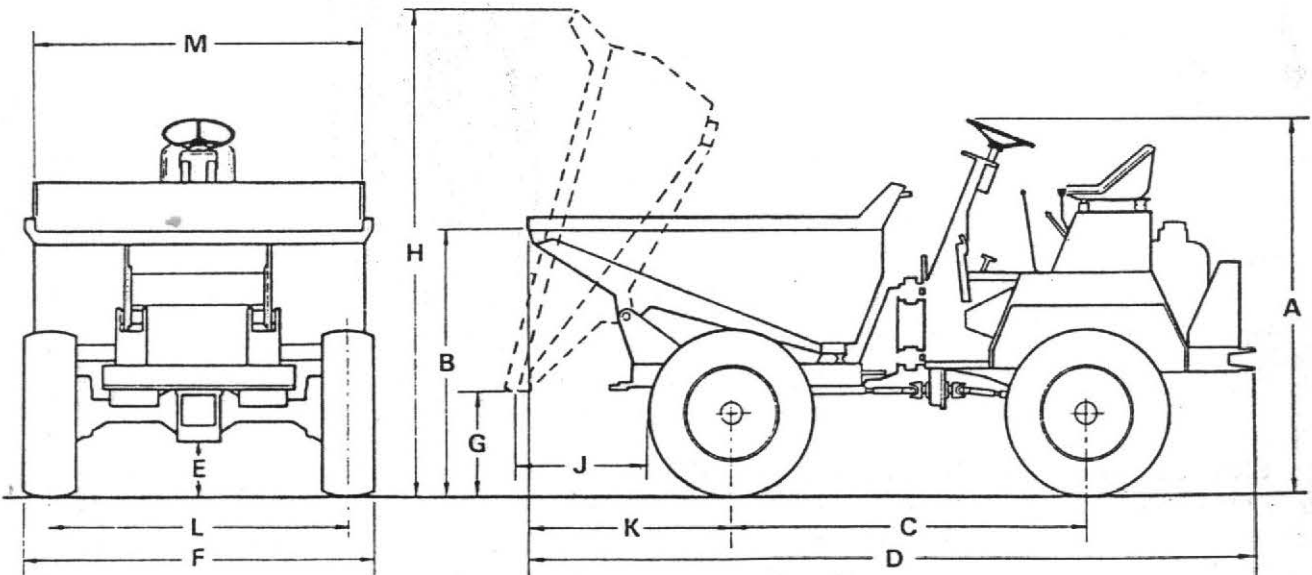
Skip		Turning Circle	7570 mm	(24' 10")	
Water Level	1.0 M ³	(35 ft. ³)	Unladen Weight	2150 kgs.	(4741 lbs.)
Struck Level	1.29 M ³	(45 ft. ³)	Hyd. Relief Valve	138 Kg/cm ²	(2000 psi.)
Heaped Level	1.75 M ³	(62 ft. ³)	Rear Axle Artic.	355 mm	(1' 2")
Maximum Payload	2450 kg.	(5600 lbs.)	Tank Capacities		
Oil Capacities			Hydraulic	26.3 Ltrs.	(8 gall.)
Transfer Box	.85 Ltrs.	(1½ pts.)	Diesel	26.3 Ltrs.	(8 gall.)
Gearbox	.85 Ltrs.	(1½ pts.)	Tyre Pressure	35 p.s.i.	
Drive Axle	4.6 Ltrs.	(8 pts.)			
Engine Lister	7.5 Ltrs.	(13.2 pts.)			
Engine Petter	6.8 Ltrs.	(12 Pts.)			

Road Speeds

	Lister		Petter	
	m.p.h.	k.p.h.	m.p.h.	k.p.h.
1st	2.28	3.66	1.93	3.1
2nd	5.34	8.58	4.5	7.26
3rd	9.82	15.78	8.3	13.35
Rev	2.55	4.1	2.16	3.47

Engine Specification

Petter PH.2 | 2.200 R.P.M.
 Lister
 ST3 @ 2600 R.P.M.
 30 BHP (22.38 KW.)
 Lister ST3 S. & E. Schedule 1080



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SPECIFICATION FOR MACHINES WITH HIGH DISCHARGE SKIP

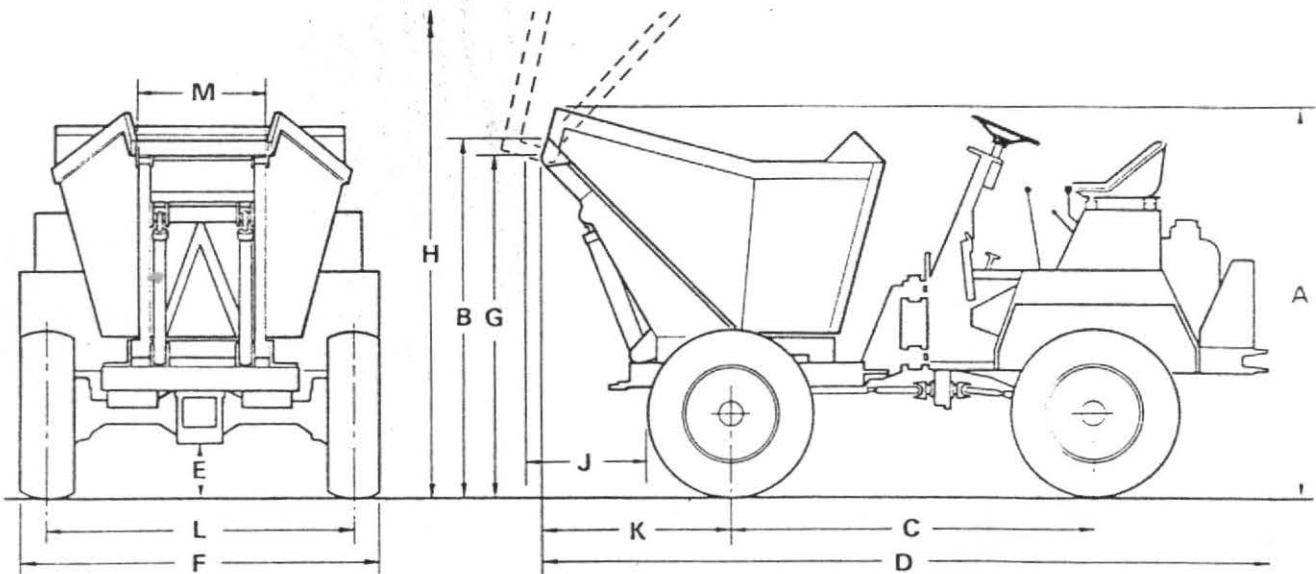
A Overall Height	2040 mm	(6' 8½")
B Skip Loading Height	1865 mm	(6' 1½")
C Wheelbase	1790 mm	(5' 10½")
D Overall Length	3800 mm	(12' 5½")
E Ground Clearance	310 mm	(1' 0½")
F Overall Width	1800 mm	(5' 10½")
G Skip Ground Clearance	1735 mm	(5' 8½")
H Overall Height Tipped	3335 mm	(10' 11½")
J Discharge Forward of Tyre	520 mm	(1' 8½")
K Overhang	922 mm	(3' 0½")
L Wheeltrack	1525 mm	(5' 0")
M Prow Width	667 mm	(2' 2½")

Skip		Turning Circle	7570 mm	(24' 10")
Water Level	.963 m ³ (34 ft. ³)	Unladen Weight	2260 Kgs.	(4983 lbs.)
Maximum Payload	2040 Kgs. (4480 lbs.)	Hyd.Relief Valve	138 Kg/cm ²	(2000 psi.)
Oil Capacities		Rear Axle Artic.	355 mm	(1' 2")
Transfer Box	.85 Ltrs. (1½ pts.)	Tank Capacities		
Gearbox	.85 Ltrs. (1½ pts.)	Hydraulic	26.3 Ltrs. (8 gall.)	
Drive Axle	4.6 Ltrs. (8 pts.)	Diesel	26.3 Ltrs. (8 gall.)	
Engine Lister	7.5 Ltrs. (13.2 pts.)	Tyre Pressure	35 p.s.i.	
Engine Petter	6.8 Ltrs. (12 Pts.)			

Road Speeds

Engine Specification

	Lister		Petter		Petter P.H. 2		2.200 R.P.M.
	m.p.h.	k.p.h.	m.p.h.	k.p.h.	Lister		
1st	2.28	3.66	1.93	3.1	ST3 @ 2600 R.P.M.		
2nd	5.34	8.58	4.5	7.26	30 BHP (22 .38 KW)		
3rd	9.82	15.78	8.3	13.35	Lister ST3 S. & E. Schedule 1080		
Rev	2.55	4.1	2.16	3.47			



TP433

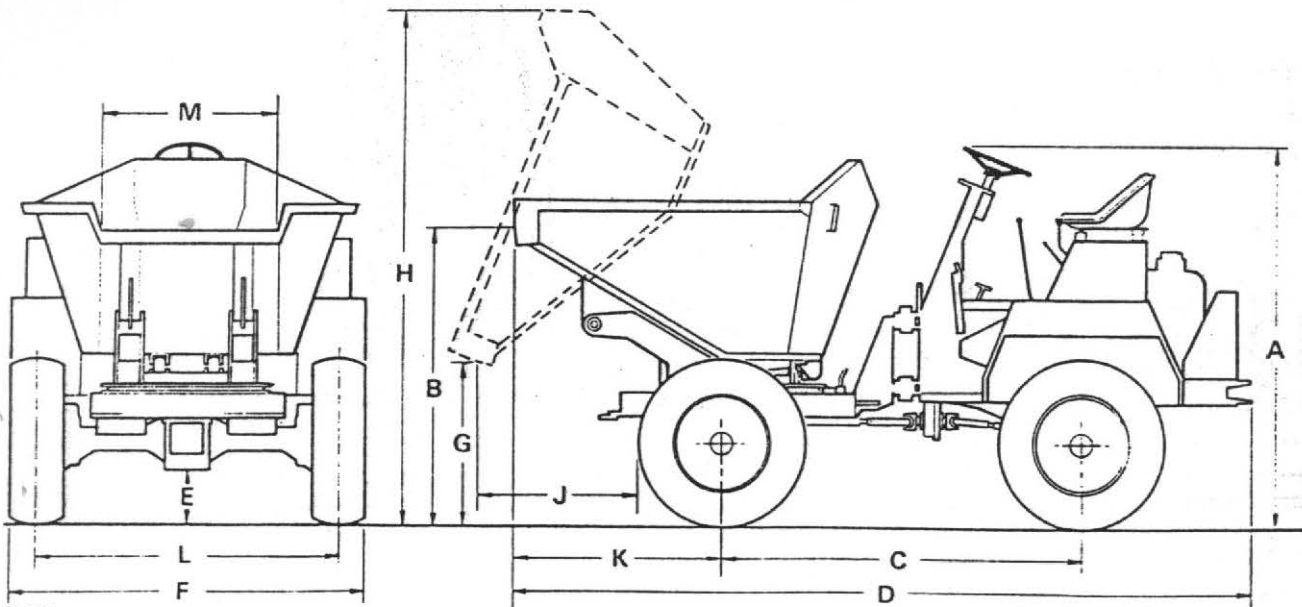
SPECIFICATION FOR MACHINES WITH ROTATING TIP SKIP

A Overall Height	1995 mm	(6' 6½")
B Skip Loading Height	1305 mm	(4' 3½")
C Wheelbase	1790 mm	(5' 10½")
D Overall Length	3920 mm	(12' 10½")
E Ground Clearance	310 mm	(1' 0½")
F Overall Width	1800 mm	(5' 10½")
G Skip Ground Clearance when Tipped	615 mm	(2' 0½")
H Overall Height Tipped	2595 mm	(8' 6½")
J Discharge Forward of Tyre	610 mm	(2' 0 ")
K Overhang	1100 mm	(3' 7½")
L Wheeltrack	1525 mm	(5' 0 ")
M Prow Width	310 mm	(1' 8 ")
	1067 mm	(3' 6 ")

Skip			Turning Circle	7570 mm	(24' ")
Water Level	.849 M ³	(30 ft. ³ / ₃)	Unladen Weight	2440 Kgs.	(5360 lbs.)
Struck Level	.963 M ³	(34 ft. ³ / ₃)	Hyd. Relief Valve	138 Kg/cm ²	(2000 psi.)
Heaped Level	1.217 M ³	(43 ft. ³ / ₃)	Rear Axle Artic.	355 mm.	
Maximum Payload	2040 kgs.	(4480 lbs.)	Tank Capacities		
Oil Capacities			Hydraulic	26.3 Ltrs.	(8 galls.)
Transfer Box	.85 Ltrs.	(1½ pts.)	Diesel	26.3 Ltrs.	(8 galls.)
Gearbox	.85 Ltrs.	(1½ pts.)	Tyre Pressure	35 p.s.i.	
Drive Axle	4.6 Ltrs.	(8 pts.)			
Engine Lister	7.5 Ltrs.	(13.2 pts.)			
Engine Petter	6.8 Ltrs.	(12 Pts.)			

Road Speeds

	Lister		Petter		Engine Specification
	m.p.h.	k.p.h.	m.p.h.	k.p.h.	Petter P.H. 2 2.200 R.P.M.
1st	2.28	3.66	1.93	3.1	Lister
2nd	5.34	8.58	4.5	7.26	ST3 @ 2600 R.P.M.
3rd	9.82	15.78	8.3	13.35	30 BHP (22.38 KW)
Rev	2.55	4.1	2.16	3.47	Lister ST3 S. & E. Schedule 1080



TP 434

RECOMMENDED LUBRICATING OILS

SALISBURY AXLES

COMPANY		ENGINE	DRIVE AXLE TRANSFER BOX & STEERING BOX	GEARBOX	WHEEL BEARINGS & OTHER GREASE POINTS	HYDRAULIC SYSTEM
(U.K.) ESSO	SUMMER	ESSOLUBE HDX 20W	GEAR OIL GP 85W/140	ESSOLUBE HDX 30	BEACON 2	NUTO H32
	WINTER	ESSOLUBE HDX 30	GEAR OIL GP 85W/140	ESSOLUBE HDX 30	BEACON 2	NUTO H68
(Overseas)	ABOVE 32°C	ESSOLUBE HDX 20W	GEAR OIL GP 85W/140	ESSOLUBE HDX 30	BEACON 2	NUTO H32
	0-32°C	ESSOLUBE HDX 10W	GEAR OIL GP 80W			NUTO H22
	BELOW 0°C					
(U.K.) CASTROL	SUMMER	DEUSOL CRI 20	DEUSOL GEAR EP 90	DEUSOL CRI 30	CASTROL SPHEEROL APT 2	CASTROL HYPIN AWS 32
	WINTER	DEUSOL CRI 30	DEUSOL GEAR EP 140	DEUSOL CRI 30	CASTROL SPHEEROL APT 2	
	ABOVE 32°C	DEUSOL CRI 20	DEUSOL GEAR EP 90			
	0-32°C	DEUSOL CRI 10	DEUSOL GEAR EP 80			
	BELOW 0°C					
(U.K.) SHELL	SUMMER	ROTELLA SX OIL 20/20W	SPIRAX 90 EP	ROTELLA SX OIL 30	RETINAX A	TELLUS OIL 37
	WINTER	ROTELLA SX OIL 30	SPIRAX 140 EP	ROTELLA SX OIL 30	RETINAX A	
	ABOVE 32°C	ROTELLA SX OIL 20/20W	SPIRAX 90 EP			
	0-32°C	ROTELLA SX OIL 10W	SPIRAX 80 EP			
	BELOW 0°C					
(U.K.) BP	SUMMER	VANELLUS M20W	GEAR OIL SAE 90 EP	VANELLUS M30	ENERGREASE L2	ENERGOL HLP 65
	WINTER	VANELLUS M30	GEAR OIL SAE 140 EP	VANELLUS M30	ENERGREASE L2	
	ABOVE 32°C	VANELLUS M20W	GEAR OIL SAE 90 EP			
	0-32°C	VANELLUS M10W	GEAR OIL SAE 80 EP			
	BELOW 0°C					
(U.K.) MOBIL	SUMMER	DELVAC 1220	MOBILUBE HD 90	DELVAC 1230	MOBILGREASE MP	DTE 24
	WINTER	DELVAC 1230	MOBILUBE GX 90	DELVAC 1230		
		ABOVE 32°C	DELVAC 1230	MOBILUBE HD 140	MOBILGREASE SUPER	
		0-32°C	DELVAC 1220	MOBILUBE GX 140		
	BELOW 0°C	DELVAC 1220	MOBILUBE HD 90			
	ALL TEMPERATURES	DELVAC 1210	MOBILUBE GX 90	DELVAC 1230		
		DELVAC SPECIAL 10W-30	MOBILUBE HD 80			
			MOBILUBE GX 80			
(U.K.) WALKERS CENTURY	SUMMER	CENTURY ROIL 20W 20	CENTURY EP 90	CENTURY ROIL 30	REGULUS A2	CENTURY PWLA HYD OIL
	WINTER	CENTURY ROIL 30	CENTURY EP 140	CENTURY ROIL 30	REGULUS A2	CENTURY PWLA HYD OIL
	ABOVE 32°C	CENTURY ROIL 20W 20	CENTURY EP 90			
	0°C-32°C	CENTURY ROIL 10W	CENTURY EP 80			
	BELOW 0°C					
(Overseas)						
IN THE UNLIKELY EVENT OF THE ABOVE OILS NOT BEING AVAILABLE EQUIVALENT OILS SUPPLIED BY A REPUTABLE MANUFACTURER MAY BE USED						

RECOMMENDED LUBRICATING OILS

NEWAGE AXLES

COMPANY	ENGINE	NEWAGE DRIVE AXLE	HAMWORTHY DRIVE AXLE	TRANSFER BOX	GEARBOX	WHEEL BEARINGS & OTHER GREASE POINTS	HYDRAULIC SYSTEM	
(U.K.) ESSO (Overseas)	SUMMER WINTER ABOVE 32°C 0°C - 32°C BELOW 0°C	ESSOLUBE HDX 20W ESSOLUBE HDX 30 ESSOLUBE HDX 20W ESSOLUBE HDX 10W	TORQUE FLUID 62	IL 2082 IL 2082 IL 2082	GEAR OIL GP 85W/140 GEAR OIL GP 85W/140 GEAR OIL GP 85W/140 GEAR OIL GP 80W	ESSOLUBE HDX 30 ESSOLUBE HDX 30	BEACON 2 BEACON 2	NUTO H32 NUTO H68 NUTO H32 NUTO H22
(U.K.) CASTROL (Overseas)	SUMMER WINTER ABOVE 32°C 0°C - 32°C BELOW 0°C	DEUSOL CRI 20 DEUSOL CRI 30 DEUSOL CRI 20 DEUSOL CRI 10	AGRICASTROL AS AGRICASTROL AS SPECIAL	AGRICASTROL AS AGRICASTROL AS AGRICASTROL MD	DEUSOL EP 90 DEUSOL GEAR EP 140 DEUSOL GEAR EP 90 DEUSOL GEAR EP 80	DEUSOL CRI 30 DEUSOL CRI 30	CASTROL SPHEEROL APT 2 CASTROL SPHEEROL APT 2	CASTROL HYSPIN AWS 32
(U.K.) SHELL (Overseas)	SUMMER WINTER ABOVE 32°C 0°C - 32°C BELOW 0°C	ROTELLA SX OIL 20/20W ROTELLA SX OIL 30 ROTELLA SX OIL 20/20W ROTELLA SX OIL 10W	DONAX T12 (INITIAL FILL) SPIRAX EP 80 (Top up only) DONAX T12 (INITIAL FILL) SPIRAX EP 80 (Top up only) S.7224 (INITIAL FILL) SPIRAX HD 75 (Top up only)	SPIRAX 90 EP SPIRAX 140 EP SPIRAX 90 EP SPIRAX 80 EP	ROTELLA SX OIL 30 ROTELLA SX OIL 30	RETINAX A RETINAX A	TELLUS OIL 37	
(U.K.) BP (Overseas)	SUMMER WINTER ABOVE 32°C 0°C - 32°C BELOW 0°C	VANELLUS M20W VANELLUS M30 VANELLUS M20W VANELLUS M10W	B.P. HYDRAULIC TF-8 B.P. HYDRAULIC TF-8 B.P. TRACTRAN (Top up only)	GEAR OIL SAE 90 EP GEAR OIL SAE 140 EP GEAR OIL SAE 90 EP GEAR OIL SAE 80 EP	VANELLUS M30 VANELLUS M30	ENERGREASE L2 ENERGREASE L2	ENERGOL HLP 65	
(U.K.) MOBIL (Overseas)	SUMMER WINTER ABOVE 32°C 0°C - 32°C BELOW 0°C ALL TEMPERATURES	DELVAC 1220 DELVAC 1230 DELVAC 1220 DELVAC 1210 DELVAC SPECIAL 10W-30	MOBIL FLUID 422 MOBIL FLUID 422 MOBIL FLUID 427	MOBILUBE HD 90 MOBILUBE GX 90 MOBILUBE HD 140 MOBILUBE GX 140 MOBILUBE HD 90 MOBILUBE GX 90 MOBILUBE HD 80 MOBILUBE GX 80	DELVAC 1230 DELVAC 1230	MOBILGREASE MP MOBILGREASE SUPER	DTE 24	
(U.K.) WALKERS CENTURY (Overseas)	SUMMER WINTER CENTURY ABOVE 32°C 0°C - 32°C BELOW 0°C	CENTURY ROIL 20W 20 CENTURY ROIL 30 CENTURY ROIL 20W 20 CENTURY ROIL 10W	CENTLUBE F.76 COMPOUND CENTLUBE F.76 COMPOUND CENTLUBE E.76 COMPOUND	CENTURY EP 90 CENTURY EP 140 CENTURY EP 90 CENTURY EP 80	CENTURY ROIL 30 CENTURY ROIL 30	REGULUS A2 REGULUS A2	CENTURY PWL A HYD. OIL CENTURY PWL A HYD. OIL	

IN THE UNLIKELY EVENT OF THE ABOVE OILS NOT BEING AVAILABLE
EQUIVALENT OILS SUPPLIED BY A REPUTABLE MANUFACTURER MAY BE USED

OPERATING INSTRUCTIONS

ELECTRIC STARTING MACHINES

STARTING

1. Check that the Engine Stop Control knob is fully down.
2. Insert the ignition key in the isolating switch and turn clockwise.
3. Turn key further clockwise against spring load. DO NOT operate starter motor for more than 20 seconds at a time.
4. When engine is cold, "overload" may be required to facilitate starting and is set and returned to normal position as described in "Manual Starting" - see below.

STOPPING

Pull out stop control knob and hold fully out until engine stops. Release stop control knob when engine has ceased to turn. Turn key switch to OFF position.

MANUAL STARTING MACHINES

STARTING

(LISTER)

1. Pull out overload lever (situated on R.H. side of engine, above speed control arm) and lift to its highest position.

(PETTER)

1. Lift red-painted overload stop situated on the fuel pump rack above and to the rear of the priming levers and move fuel pump rack into fully open position. Operate priming levers six times. NOTE: This is unnecessary if engine is already warm.
2. Lift decompression lever(s) (positioned on top of engine) and turn engine as fast as possible using starting handle. When engine is turning at a good speed, knock down decompression levers and engine should fire.
3. If engine does not fire, lift decompression levers and slowly crank engine a few times before attempting to start again. Where ambient temperature is -15°C (5°F) or below, a cold starting aid should be fitted.
4. Set overload lever horizontal when engine starts. (LISTER)

STOPPING

Pull out stop control knob and hold fully out until engine stops. Push in stop control knob when engine has ceased to turn.

IMPORTANT

1. DO NOT stop engine by means of decompression levers, this will lead to damaged valve seats and cylinder head joints.
2. DO NOT stop engine by closing fuel tap or by allowing fuel tank to run dry, this will allow air into fuel lines and necessitate bleeding and priming system.

GEAR CHANGING - (FOUR B 30, FOUR B 40, FOUR B 50 & FOUR B 60)

The Dumper is fitted with three Forward and one Reverse gear. When changing gear, the clutch pedal is used in the normal way.

SKIP CONTROL LEVER (See Controls Layout)

1. Control lever has three positions DUMP (A), HOLD (B) and RETURN (C).
2. Push lever forward to DUMP (A) to deposit load.
3. Pull lever back to RETURN (C) to return skip to carrying position.

NOTE: If lever is released when in the DUMP or RETURN position, it will automatically return to HOLD (B) position and motion of skip will cease. In this way, speed at which load is deposited can be finely controlled.

ROTATING SKIP (IF FITTED)

Pull cranked release lever on turntable catch fully back to release turntable. Revolve skip to required position. To lock in position lift release lock lever and ensure that locking lug locates in turntable locking plate. Cranked release lever will return to its former position.

GENERAL MAINTENANCE

PERIODIC MAINTENANCE

DAILY check engine oil level and fill to full mark on dipstick, if necessary.

DAILY fill fuel tank, or as often as proves necessary to approximately 1" of top. Never allow there to be a depth of less than 2" of fuel in tank.

DAILY check tyre pressures and condition of tyres (refer to specification page).

WEEKLY check oil level in gearbox and fill to full mark on dipstick if necessary.

WEEKLY remove filler/level plugs from drive axles and transfer case. Oil level should be to bottom of holes. Top up if necessary through filler/level plugs.

WEEKLY check oil level in hydraulic tank. Always clean the surrounding area before removing cap to prevent possible entry of foreign matter. Fill tank, if necessary to 2" of top.

WEEKLY check that fittings are tight on feed pipe from hydraulic tank to master cylinder. Check for leaks.

WEEKLY apply grease to all grease nipples.



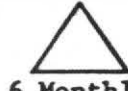
WEEKLY check all wheel nuts and tighten if necessary.

WEEKLY check all nuts and bolts and tighten if necessary.

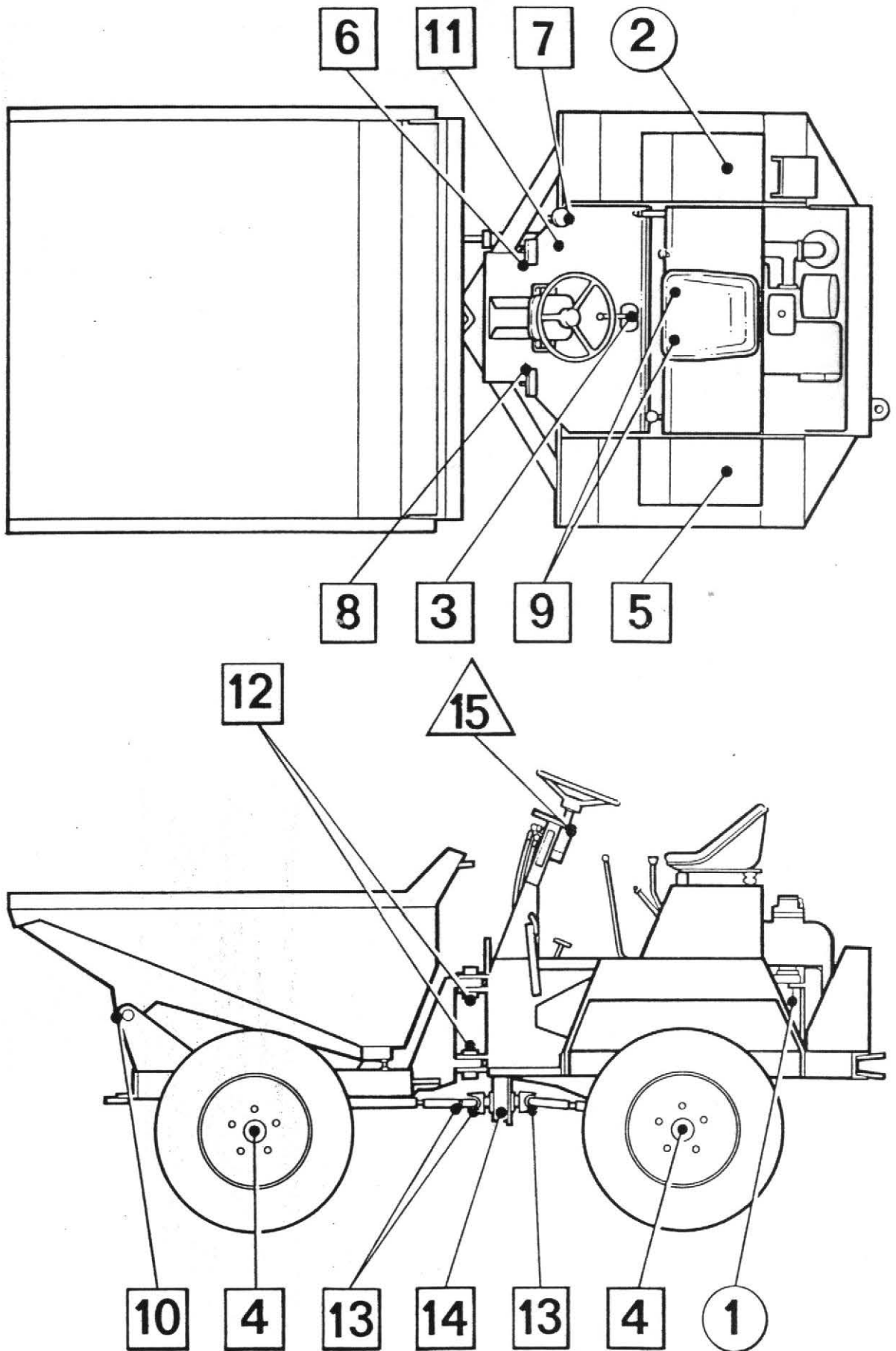
EVERY SIX MONTHS repack steering column with water repellent grease.

IMPORTANT: CHANGE HYDRAULIC OIL FILTER ELEMENT AFTER FIRST 100 HOURS AND THEREAFTER EVERY 300 HOURS.

Lubrication

Period	Key	Description	Lubrication	No. of Points
Daily 	1	Engine	Engine Oil	1
	2	Fuel Tank	Diesel Fuel	1
Weekly 	3	Gearbox	Gearbox Oil	1
	4	Drive Axles	Axle Oil	2
	5	Hydraulic Tank	Hydraulic Oil	1
	6	Footbrake Pedal	Grease Gun	1
	7	Accelerator Pedal	Grease Gun	1
	8	Clutch Pedal	Grease Gun	1
	9	Clutch Cross Shaft	Grease Gun	2
	10	Skip Pivot	Grease Gun	2
	11	Handbrake Cable	Grease Gun	1
	12	Chassis Centre Pivot	Grease Gun	2
	13	Prop Shafts & Universal Joints	Grease Gun	10
	14	Transfer Case	Axle Oil	1
	15	Rear Axle Pivot	Grease Gun	1
6 Monthly 	16	Steering Column	Water Repellent Grease	1

NOTE: For full details of the lubrication and maintenance of the engine refer to Manufacturers Manual.



TP431

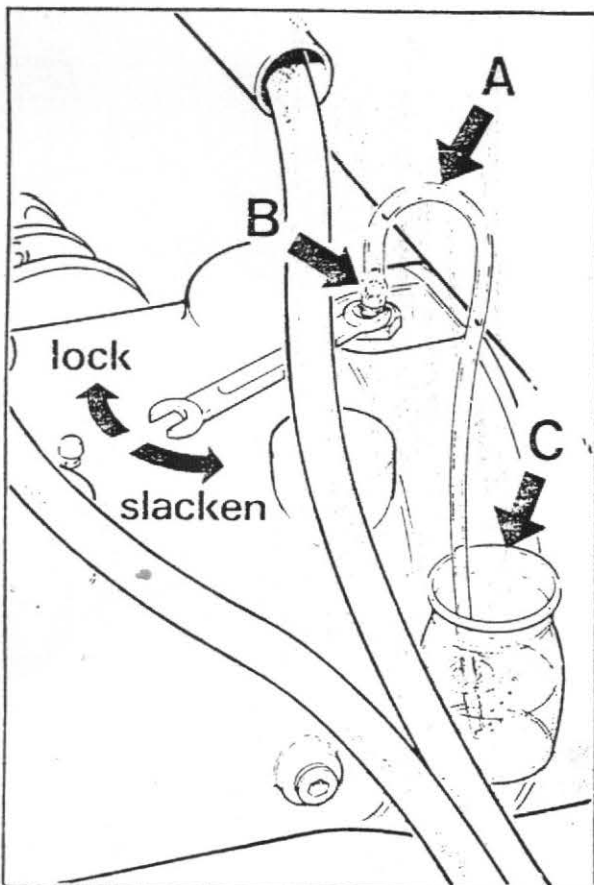
BRAKE SYSTEM (OIL IMMERSED BRAKES)

The brake system is designed to require the minimum of maintenance and no defects should normally occur. If air is present in the system, it will be indicated by sluggish response of the brakes and by spongy action of the brake pedal. This may be due to air being introduced at a loose joint. Any defects must be remedied immediately and the complete system bled.

To bleed the system, proceed as follows:-

1. Check that all connections are tight and the bleed screw is closed.
2. Check that there is sufficient oil in main hydraulic tank.
3. Attach bleeder tube (A) to the bleed screw (B) on the L.H. side of the front axle and immerse other end in a small quantity of hydraulic oil contained in a glass jar (C). Slacken bleed screw and operate brake pedal up and down to its full stroke, until oil pumped into the jar contains no air bubbles. Hold down pedal and close bleed screw. Remove bleeder tube and release pedal.
4. Lock the bleed screw.
5. Apply normal working load on brake pedal for two or three minutes and examine the entire system for leaks.

NOTE: ALWAYS ENSURE THAT FREE PLAY EXISTS BETWEEN BRAKE PEDAL AND MASTER CYLINDERS. UNLESS THE PISTONS IN BOTH MASTER CYLINDERS ARE ALLOWED TO FULLY RETURN, BRAKE PRESSURE WILL BUILD UP AND THE BRAKES WILL REMAIN ON.



HYDRAULIC SYSTEM

The single hydraulic pump provides power for both the skip operation and steering. The main hydraulic valve splits the pump output into two circuits with controlled rate priority flow to steering circuit. If the hydraulic system fails to operate completely or does so extremely slowly carry out the following procedure.

1. Check that hydraulic tank is full of oil.
2. Check that the return line filter element has been regularly changed in accordance with the maintenance schedule. If not, change filter element. (E).
3. Check that the hydraulic pressures are correct.

TIP CIRCUIT

- a) Fit a 2.500lb/sq.in. gauge into the hydraulic system at the base of the skip ram.
- b) Operate control lever to dump skip and check that pressure reading on gauge is 2000 lb/sq.in. when ram is fully extended and relief valve is "blowing."

STEERING CIRCUIT

- a) Fit a 2.500 lb/sq.in gauge into the hydraulic system at the base of the steering ram.
- b) Turn steering wheel with machine on "full lock" and check that the reading on the gauge is 2000 lb/sq.in.

NOTE: If correct pressure is not attained:

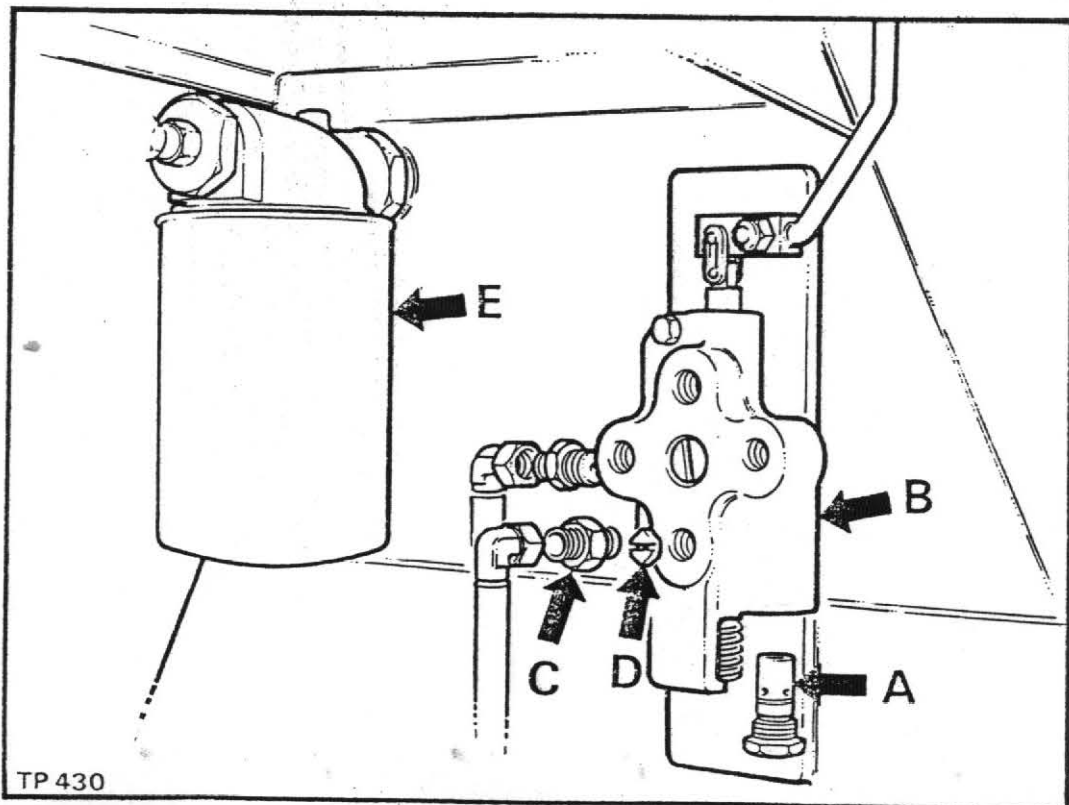
TIP CIRCUIT

4. Remove relief valve cartridge (A) (hexagon head) from the bottom of the control valve (B) and replace with a new one.
5. Remove hose adaptor (C) from control valve, remove hexagonal orifice plate (D) and wash in white spirit. Dry using moisture-free compressed air. DO NOT poke wire etc., into the orifice. Re-fit plate and hose adaptor with slot of orifice plate facing outwards.

STEERING CIRCUIT

6. Remove relief valve cartridge (A) (hexagon head) from the bottom of the control valve (B) and replace with a new one.

If none of these procedures correct the fault contact your Winget agent. Periodically check the hose between the pump and the tank to ensure it is not deformed. Any deformation in the hose may result in a restricted flow of fluid and damage to the pump.



RECOMMENDED TORQUE FIGURES FOR FASTENERS

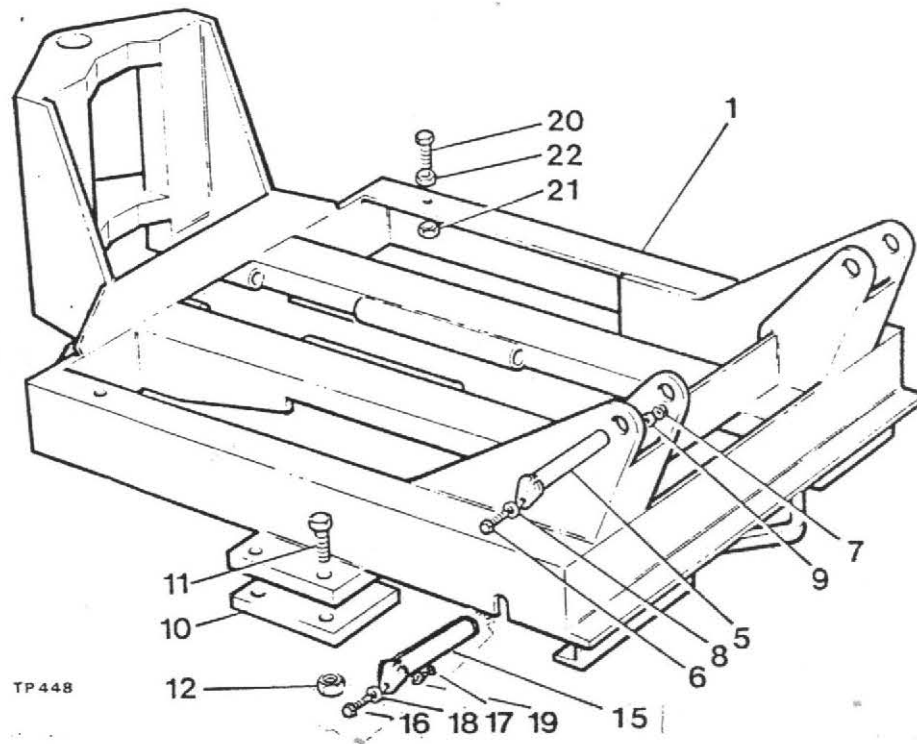
DESCRIPTION	TIGHTENING TORQUE	
	lb.ft.	Kg.m.
Bolt & Nut M6	8	(1.1)
Bolt & Nut M8	21	(3.0)
Bolt & Nut M10	42	(5.9)
Prop Shaft Bolts 3/8" UNF	29	(4.32)
Prop Shaft Bolts 7/16" UNF	46	(6.85)
Engine Bolts/Nuts M12	72	(10.7)
Axle Bolts ½" UNF	72	(10.7)
Wheel Nuts 5/8" BSF	180	(25)
Wheel Nuts 7/8" BSF	300	(42)
Wheel Nuts M18	200	(28)
Axle Bolts/Nuts M16	180	(26.8)
Steer Ram Nuts/Bolts 1¼" UNF/BSF	1080	(161.0)
Centre Pivot Nuts/Bolts 1½" UNF	1880	(279.7)

SPARE PARTS SECTION

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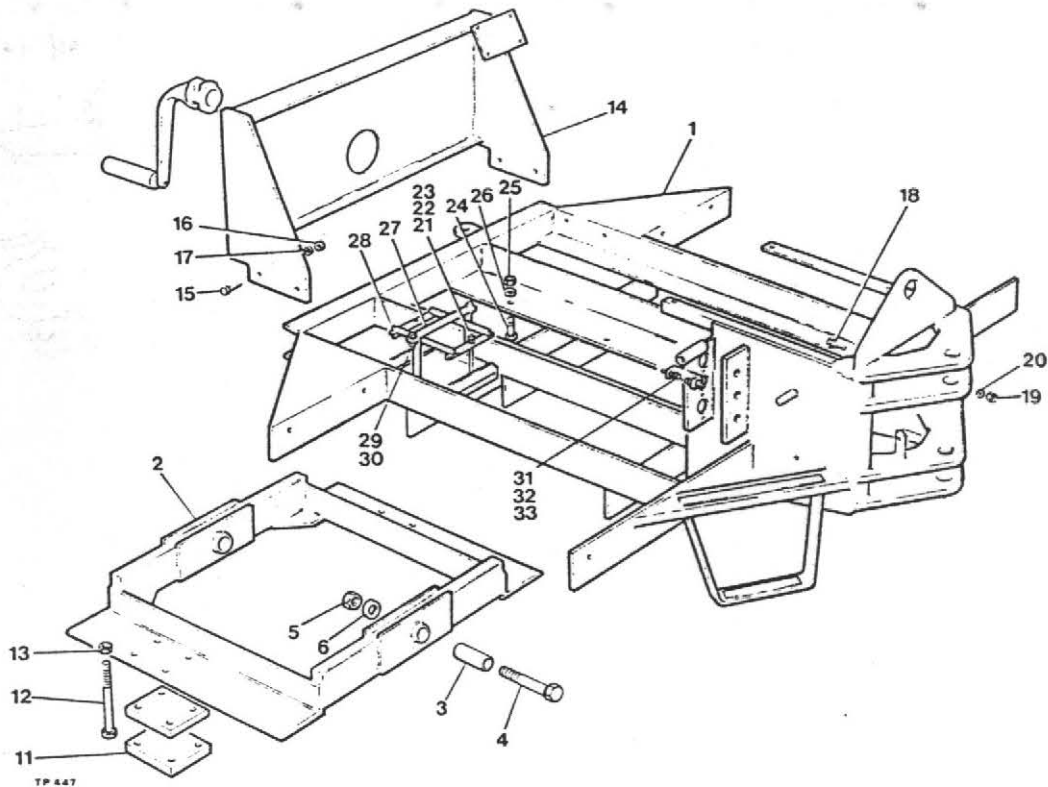
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Item No.	Part No.	Description	Qty.
1	40100.A23	Chassis - Front Fwd. Tip only	1
		Chassis - Front Rotating Skip	1
		Chassis - Front High Discharge	1
5	10470.A01	Pin - Skip Pivot (Fwd. Tip only)	2
6	11S.04E	Bolt - Hex. Hd. M10 x 30	2
7	7S.04	Nut - M10.....	2
8	12S.20	Washer - Plain 10 I.D.	2
9	17S.05	Washer - Spring 10mm I.D.	2
10	CSE 193	Plate - Axle Clamp	2
11	6S.06V	Bolt - 5/8" UNF x 8" Long	8
12	132S.06	Locknut - 5/8" UNF 'Penloc'	8
15	10470.A04	Pivot Pin	2
16	11S.04E	Screw - Hex. Hd.	2
17	7S.04	Nut - Hex.	2
18	12S.20	Washer - Plain	2
19	17S.05	Washer - Spring	2
20	11S.07P	Screw - M20 x 80 Long	2
21	56S.07	Nut - Half - M20	2
22	7S.07	Nut - Full - M20	2

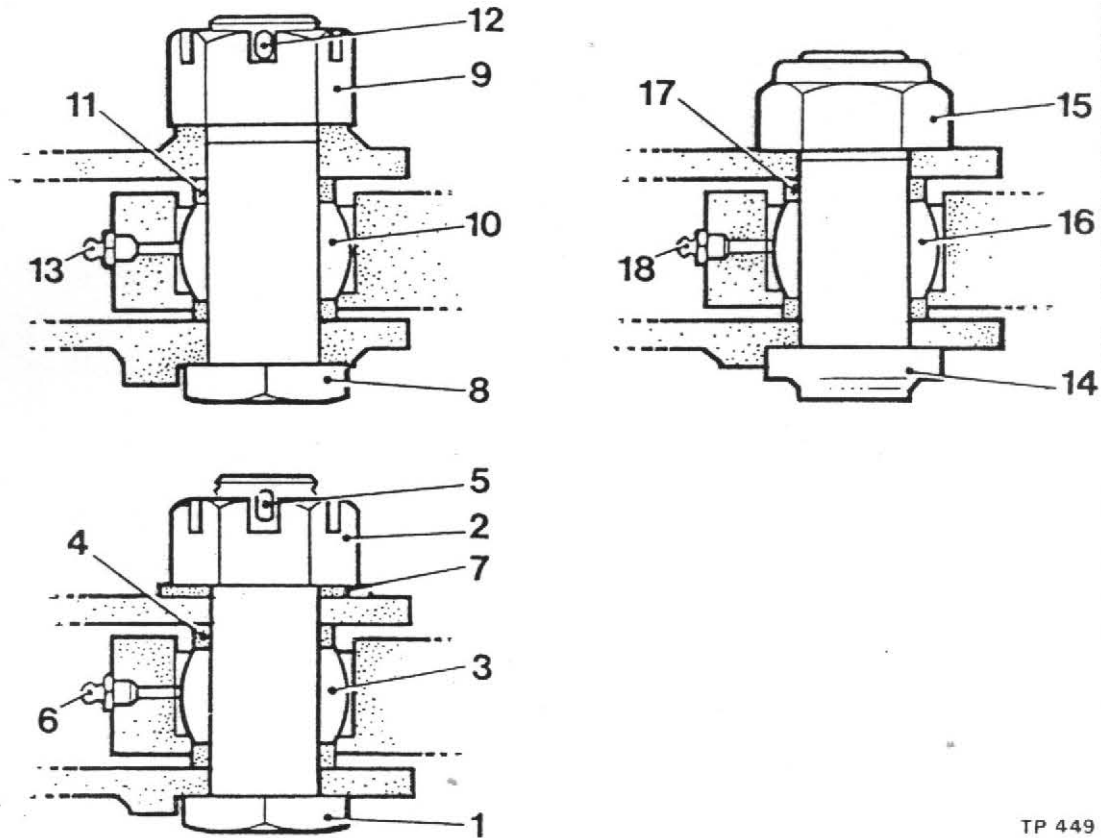
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Item No.	Part No.	Description	Qty.
1	40076.A03	Chassis - Rear	1
2	30127.A01	Frame - Articulating	1
3	10588.A01	Bush - Pivot	2
4	8S.08S	Bolt - M24 x 130mm Long	2
5	61S.08	Locknut - M24	2
6	12S.10	Washer - 24mm I.D.	2
11	CSE 193	Plates - Axle Clamp	4
12	6S.06	Bolt - 5/8" UNF x 8 1/2" Long	8
13	132S.06	Locknut - 5/8" UNF 'Penloc'	8
14	40105.A04	Frame - Rear (Lister)	1
	40105.A06	Frame - Rear (Petter)	1
15	11S.04C	Bolt - M10 x 25	4
16	7S.04	Nut - M10	4
17	12S.05	Washer - 10mm I.D.	4
18	11S.05D	Screw - Hex. Hd. M12 x 3.0 Long	4
19	61S.05	Nut - M12	4
20	12S.05	Washer - Plain 12 I.D.	4
21	40S.A17	Rod - Battery Tie	2
22	9S.01	Nut - Hex. 1/4" UNF	8
23	10S.01	Washer - Plain 1/2" I.D.	4
24	6S.05K	Bolt - Hex. Hd. 1/2" UNF x 3" Long (Lister).....	4
	6S.05D	Bolt 1/2" UNF x 1 5/8" (Eng. Securing Petter)...	4
25	132S.05	Locknut - 1/2" UNF 'Penloc'	4
26	10S.04	Washer - Plain 1/2" I.D.	4
27	30080.A0203	Locking Bar - Battery	1
28	10559.A01	Battery Clamp Assembly	1
29	94S.04	Nut - Hex. Self Locking M10	2
30	11S.04C	Screw Hex. Hd. M10 x 25	2
31	11S.03C	Screw Hex. Hd. M8 x 25	2
32	7S.03	Nut - Hex. M8	4
33	17S.04	Washer - Spring M8	2

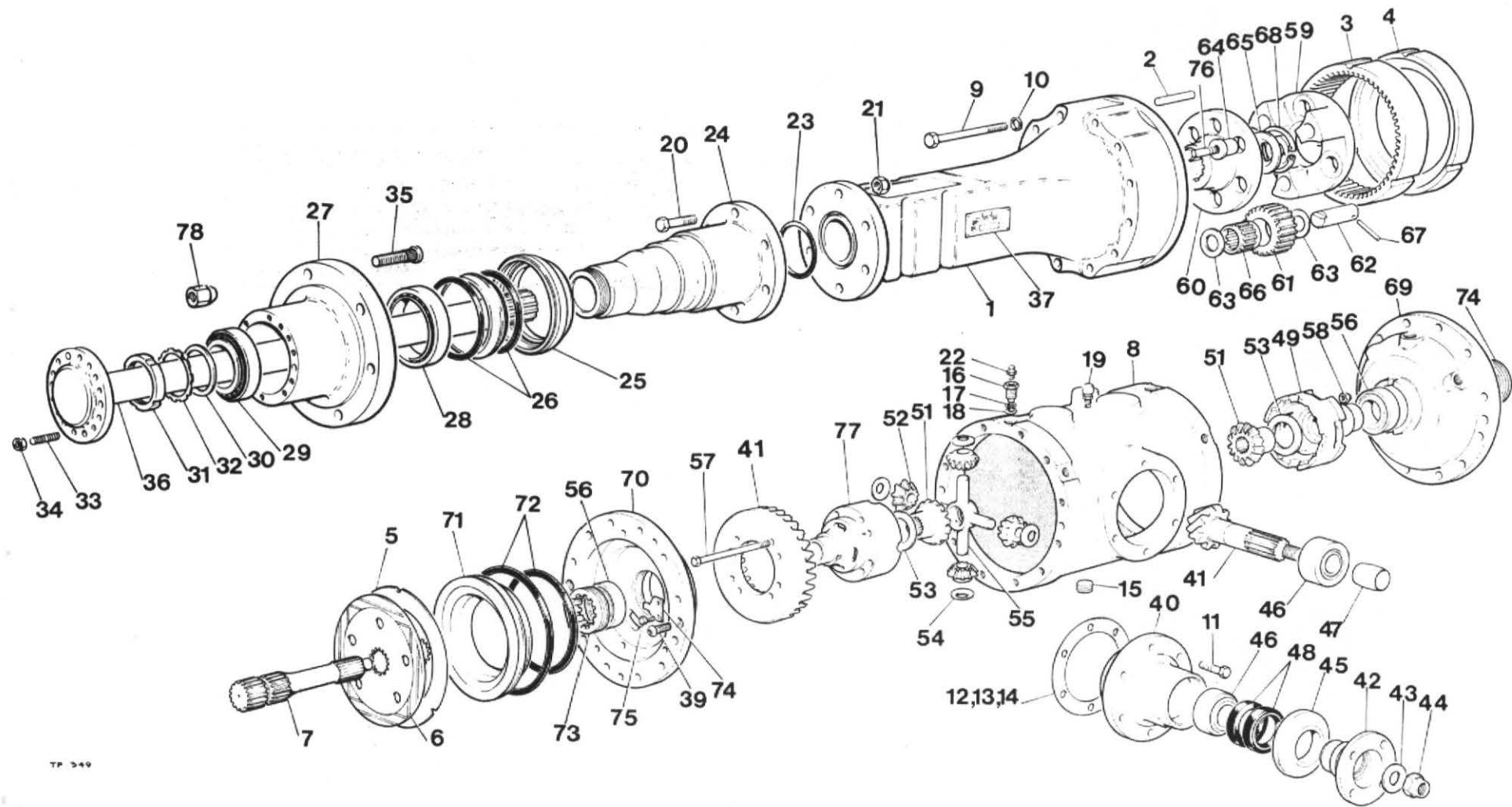
CENTRE PIVOT & STEERING RAM BOLTS

ALTERNATIVE ARRANGEMENTS



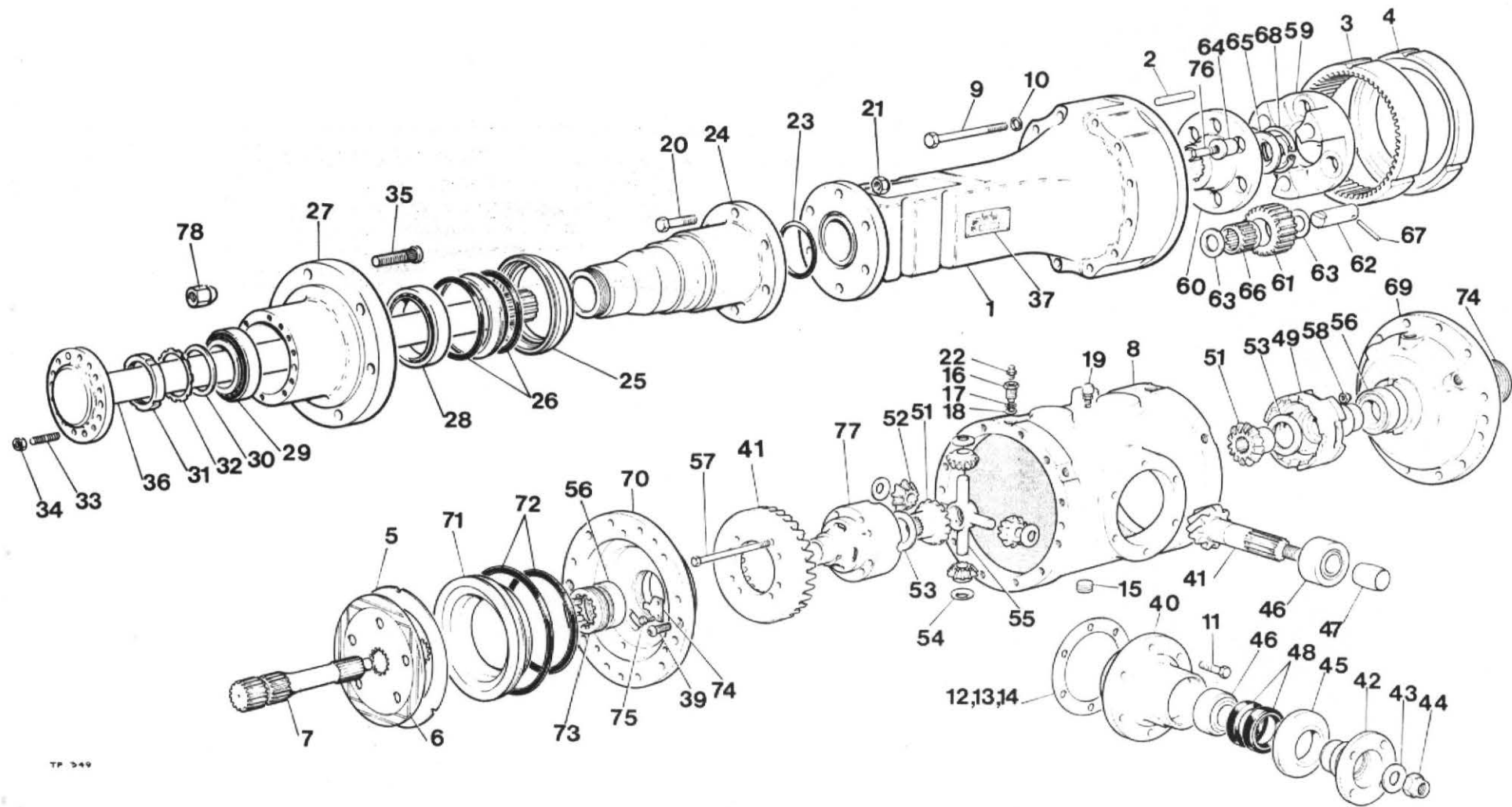
TP 449

Item No.	Part No.	Description	Qty.
1	10375.A06	Bolt - Centre Pivot 1½" UNF	2
2	102S.14	Nut - Centre Pivot 1½" Slotted	2
3	4-60-214	Bearing - Centre Pivot	2
4	ESE 199	Spacer.....	4
5	44S.052	Pins - Split 3/16" Dia. x 3" Long	2
6	131S.02	Nipples - Grease 1/8" BSP	2
7	10S.10	Washer - Flat 1½" I.D. x 2,7/8" O.D. x .192 Thk....	2
8	10375.A06	Bolt - Centre Pivot 1½" UNF	2
9	102S.14	Nut - Centre Pivot 1½" UNF	2
10	4-60-214	Bearing - Centre Pivot	2
11	ESE 199	Spacer.....	4
12	44S.052	Pins - Split 3/16" Dia. x 3" Long	2
13	131S.02	Nipples - Grease 1/8" BSP	2
14	10375.A07	Centre Pivot Bolt 1½" UNF	2
15	107S.11	Nut - Nyloc (Thin) 1½" UNF	2
16	4-60-214	Bearing	2
17	ESE 199	Spacer.....	4
18	131S.02	Nipples - Grease 1/8" BSP	2
<u>Steering Ram Bolts</u>			
19	10599.A01	Bolt - Steering Ram 1½" UNF x 4,3/8" Long	2
20	10600.A01	Nut - 1½" UNF	2
21	67S.13	Washer - Shakeproof 1½"	2



**DRIVE AXLE
(NEWAGE 351)**

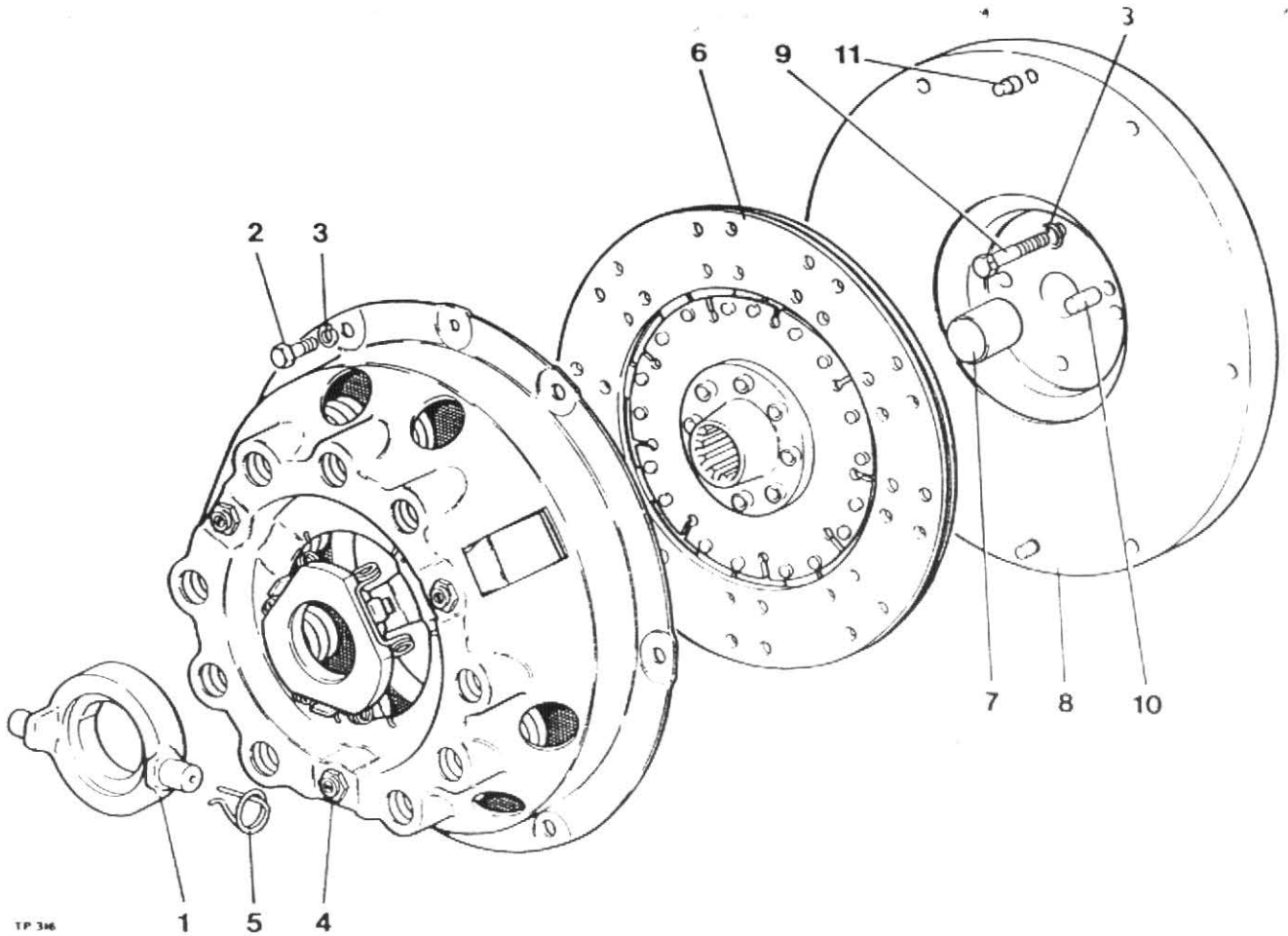
Item No.	Part No.	Description	Qty. Per Axle
	30082.A02	Axle complete	
1	30082.A0201	Axle Arm	2
2	30082.A0202	Pin	6
3	30082.A0203	Annulus	2
4	30082.A0204	Brake Spacer Plate	2
5	30082.A0205	Brake Fixed Plate	2
6	30082.A0206	Oil Immersed Brake Disc	2
7	30082.A0207	Sun Gear	2
8	30082.A0208	Main Axle Casing	1
9	4S.4Q	Bolt	24
10	17S.4	Spring Washer	24
11	11S.4	Hex.Hd. Screw	6
12	30082.A0209	Pinion Adjusting Shim	A/R
13	30082.A0210	Pinion Adjusting Shim	A/R
14	30082.A0211	Pinion Adjusting Shim	A/R
15	30082.A0212	Hex. Socket BSP TR Plug	2
16	30082.A0213	Brake Pipe Adaptor	2
17	49S.2	"O" Ring	2
18	30082.A0269	Dowty Washer	2
19	30082.A0214	Relief Valve	1
20	8S.5E	Bolt	12
21	59S.04	Nyloc Nut	12
22	30082.A0215	Brake Bleed Valve	2
23	30082.A0268	"O" Ring	2
24	30082.A0216	Stub Axle	2
25	30082.A0217	Oil Seal Housing	2
26	30082.A0218	Hub Oil Seal	2
27	30082.A0219	Hub	2
28	30082.A0220	Hub Inner Bearing	2
29	30082.A0221	Hub Outer Bearing	2
30	30082.A0222	Hub Bearing Spacer	2
31	30082.A0223	Bearing Lock Nut	2
32	30082.A0224	Tab Washer	2
33	30082.A0267	Stud	16
34	59S.04	Nyloc Nut	16
35	30082.A0225	Wheel Stud	12
36	30082.A0226	Axle Shaft	2
37	30082.A0227	Label	1
38	15S.1A	Hammer Drive Screw	4
39	30082.A0266	Hex. Socket Button Hd. Screw	4
40	30082.A0228	Input Pinion Cartridge	1
41	30082.A0270	Spiral Bevel Wheel & Pinion Assy.	1
42	30082.A0230	Drive Flange	1
43	30082.A0231	Drive Flange Washer	1
44	30082.A0232	Drive Flange Nut	1
45	30082.A0233	Oil Seal Cover	1
46	30082.A0234	Pinion Bearing	2
47	30082.A0235	Pinion Bearing Spacer	1
48	30082.A0236	Pinion Oil Seal	2
49	30082.A0237	Diff Case Process Assembly R.H.	1
51	30082.A0239	Diff Wheel	2
52	30082.A0240	Diff Pinion	4
53	30082.A0241	Diff Wheel Thrust Washer	2
54	30082.A0242	Diff Pinion Thrust Washer	4
55	30082.A0243	Diff Spider	1
56	30082.A0244	Diff Bearing	2
57	8S.4Q	Bolts	8
58	59S.03	Nyloc Nuts	8



DRIVE AXLE (cont'd)
(NEWAGE 351)

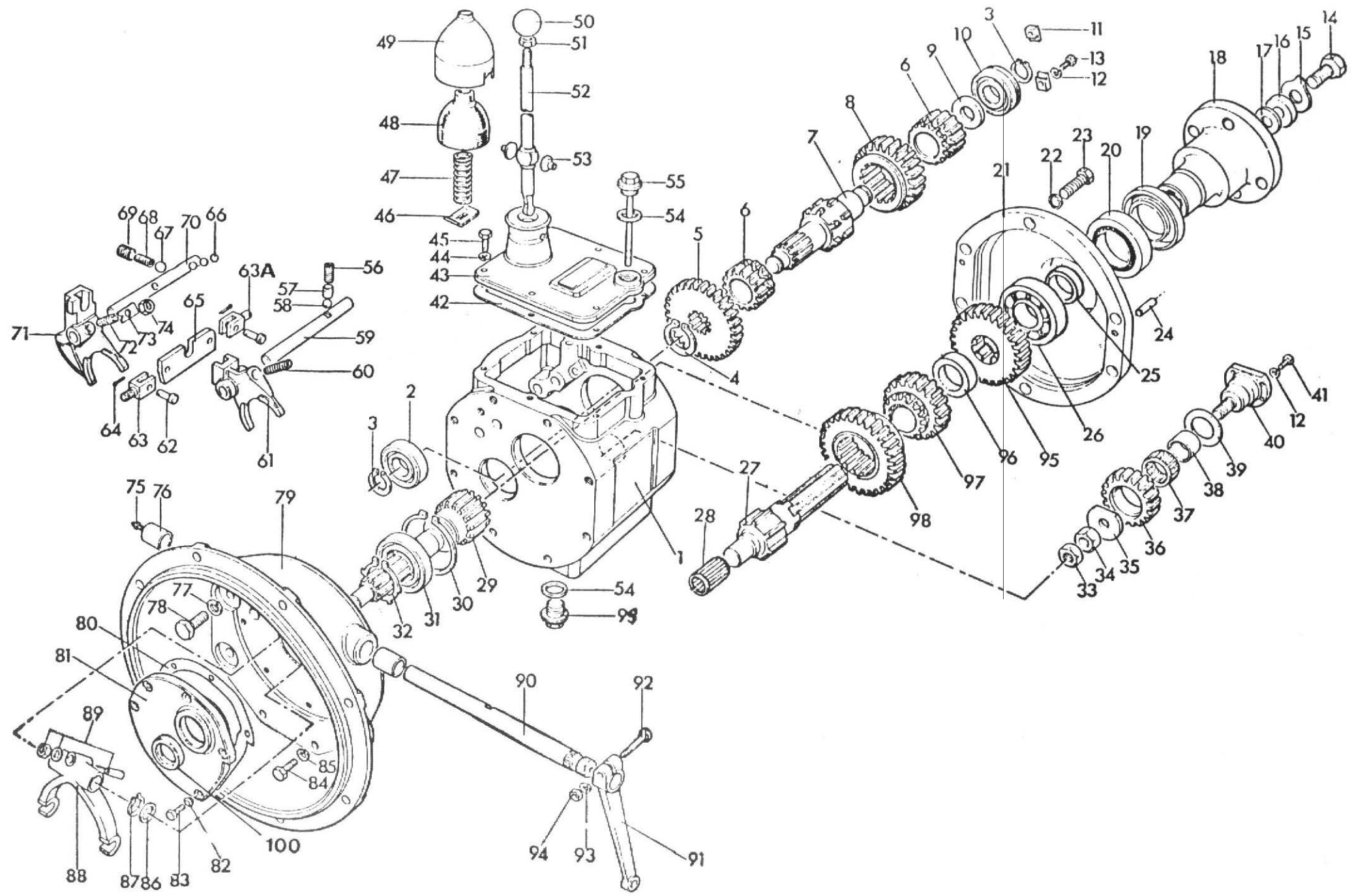
Item No.	Part No.	Description	Qty. Per Axle
59	30082.A0245	Planet Carrier	2
60	30082.A0246	Carrier Drive	2
61	30082.A0247	Planet Gear	6
62	30082.A0248	Planet Pin	6
63	30082.A0249	Planet Thrust Washer	12
64	30082.A0250	Planet Carrier Bush	6
65	30082.A0251	Axle Shaft Thrust Spacer	2
66	30082.A0252	Planet Cage Roller	6
67	30082.A0253	Spring Dowel	6
68	30082.A0265	Circlip	2
69	30082.A0254	Brake Cylinder R.H.....	1
70	30082.A0255	Brake Cylinder L.H.....	1
71	30082.A0256	Brake Piston	2
72	30082.A0257	Piston Oil Seal - Set	2
73	30082.A0259	Bearing Adjusting Nut	2
74	30082.A0260	Adjusting Nut Lock Plate	2
75	30082.A0261	Screw Lock Plate	4
76	30082.A0262	Planet Carrier Bolt	6
77	30082.A0263	Diff. Case L.H.....	1
78	10668A02	Wheel Nut	12

FLYWHEEL & CLUTCH



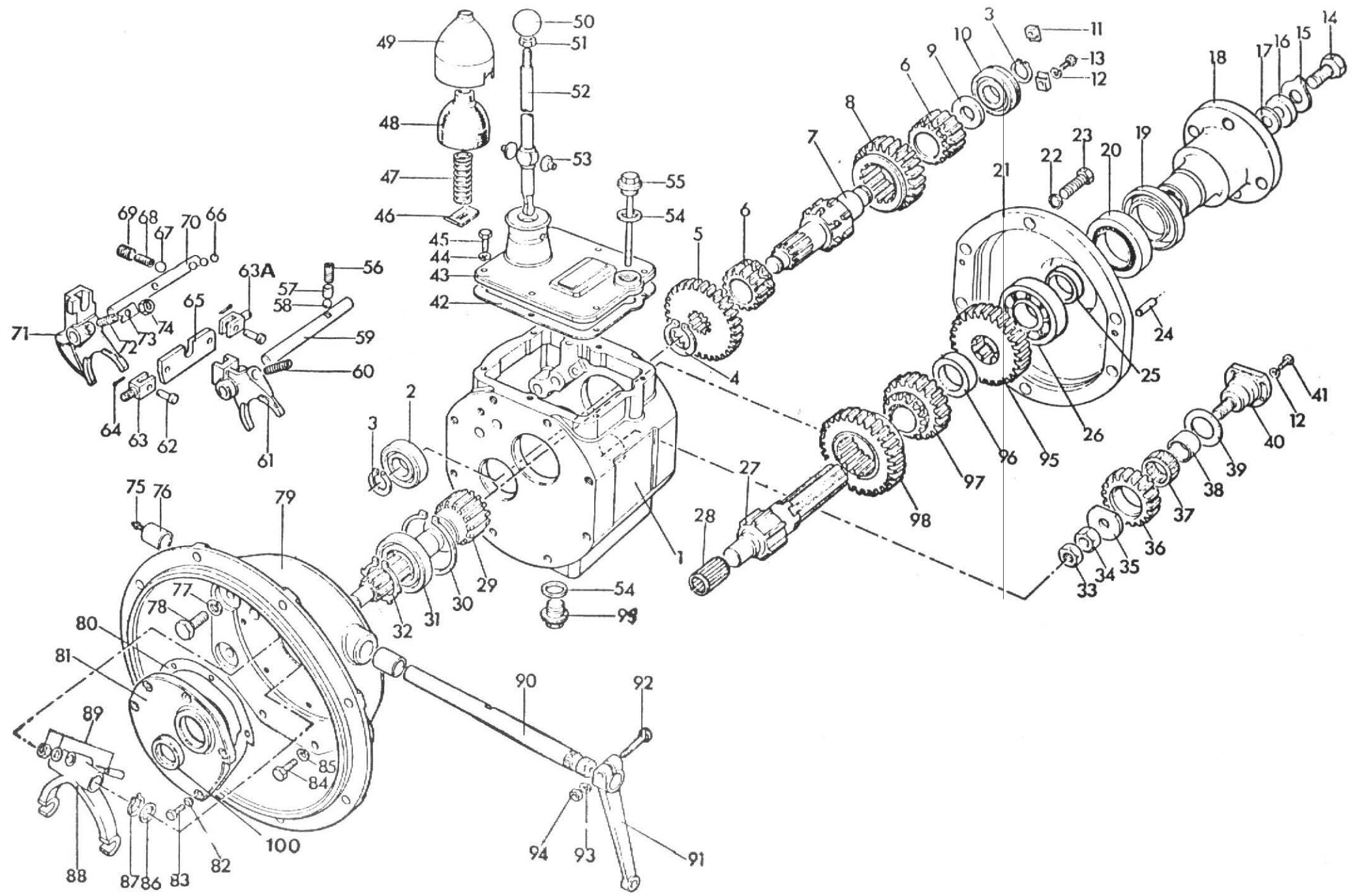
Item No.	Part No.	Description	Qty.
1	10579A01	Clutch Release Bearing	1
2	28S02D	Screw Set	6
3	41S04	Washer Spring	10
4	10597A02	Cover Assembly 9"	1
5	10579A0101	Retainer Spring	2
6	10598A03	Drive Plate 9"	1
7	10580A0101	Bush	1
8	10580A01	Flywheel Assembly 9"	1
		(comprises of items 7, 8, & 11)	
9	1S02C	Bolt, Petter PH Engine	4
		(drill for locking wire)	
9A	6S02B	Bolt, Lister Engine	4
		(drill for locking wire)	
10	C321	Dowel	1
11	10580A0102	Dowel	2
	10948A03	Clutch Kit 9"	1
		(comprises of items 1, 4, 5 & 6)	

It is recommended that instead of drilling the head of the bolts (item 9/9A) for locking wire that one of each of tabwashers part no's 10531A02 and 10531A03 are used to prevent the bolts working loose.



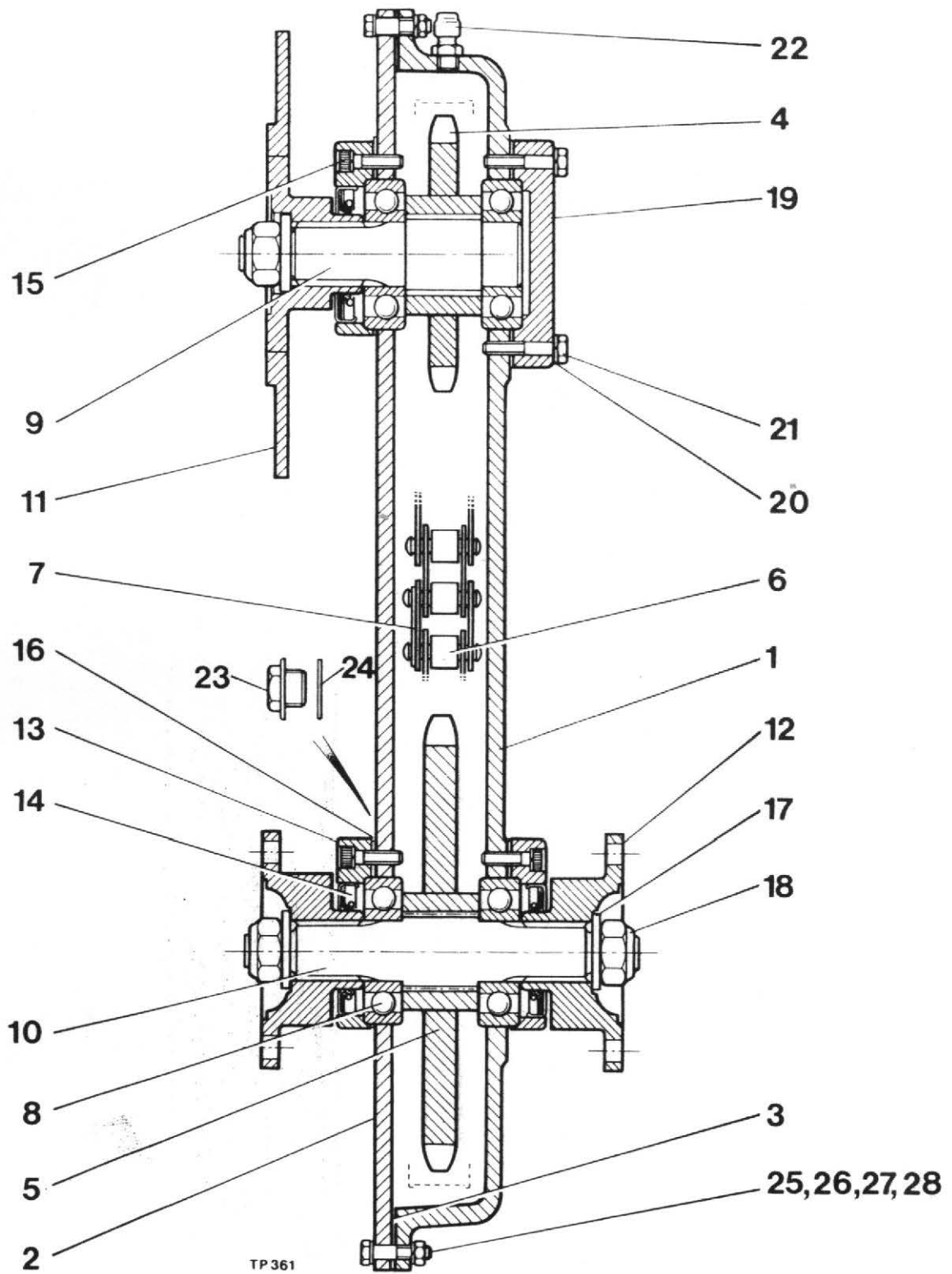
GEARBOX

Item No.	Part No.	Description	Qty.
	30218.A02	Gearbox (Lister)	
	30218.A03	Gearbox (Petter)	
1	30218.A0204	Gearcase	1
2	30218.A0205	Ballbearing 6304	1
3	30218.A0206	Circlip	2
4	30101.A0243	Circlip	1
5	30101.A0245	Gear - First Reduction	1
6	30101.A0219	Gear - Reverse Speed	2
7	30218.A0207	Layshaft	1
8	30101.A0224	Gear - Second Speed	1
9	30101.A0217	Spacer	1
10	30101.A0216	Bearing	1
11	30190.A0105	Clip	2
12	30102.A0105	Washer	2
13	28S.01D	Screw	2
14	28S.05E	Screw	1
15	30101.A0207	Washer - Tab	1
16	30101.A0208	Washer	1
17	30143.A0101	Washer - Fibre	1
18	30101.A0264	Flange - Output (Lister)	1
18	30218.A0203	Flange - Output (Petter)	1
19	30101.A0265	Shield - Dust	1
20	30097.A0132	Seal - Oil	1
21	30101.A0262	Cover - End	1
22	10389.A01	Washer - Spring	6
23	11S.04C	Bolt	6
24	30218.A0208	Dowel	2
25	30218.A0209	Spacer	1
26	30101.A0210	Bearing	1
27	30218.A0210	Mainshaft - Plain Output	1
28	30218.A0211	Bearing - Needle	1
29	30218.A0212	Shaft - Input	1
30		Ring - Snap	
31	30218.A0213	Bearing - Ball (incl. item 30)	1
32	30218.A0214	Circlip	1
33	30218.A0215	Locknut - Hex. ½" UNF	1
34	30218.A0216	Nut	1
35	30218.A0217	Washer - Idler	1
36	30218.A0218	Rev. - Pinion	1
37	30218.A0219	Bearing - Needle	1
38	30218.A0220	Ring - Inner	1
39	30218.A0221	Washer - Thrust	1
40	30218.A0222	Shaft - Idler	1
41	28S.01C	Screw	4
42	30101.A0235	Cover - Top	1
43	30101.A0250	Joint	1
44	17S.03	Washer - Spring	6
45	11S.02A	Screw	6
46	30101.A0206	Plate - Retaining	1
47	30101.A0205	Spring	1
48	30101.A0204	Cover - Rubber	1
49	30101.A0203	Cover - Protective	1
50	30101.A0201	Knob	1
51	95S.03	Nut	1

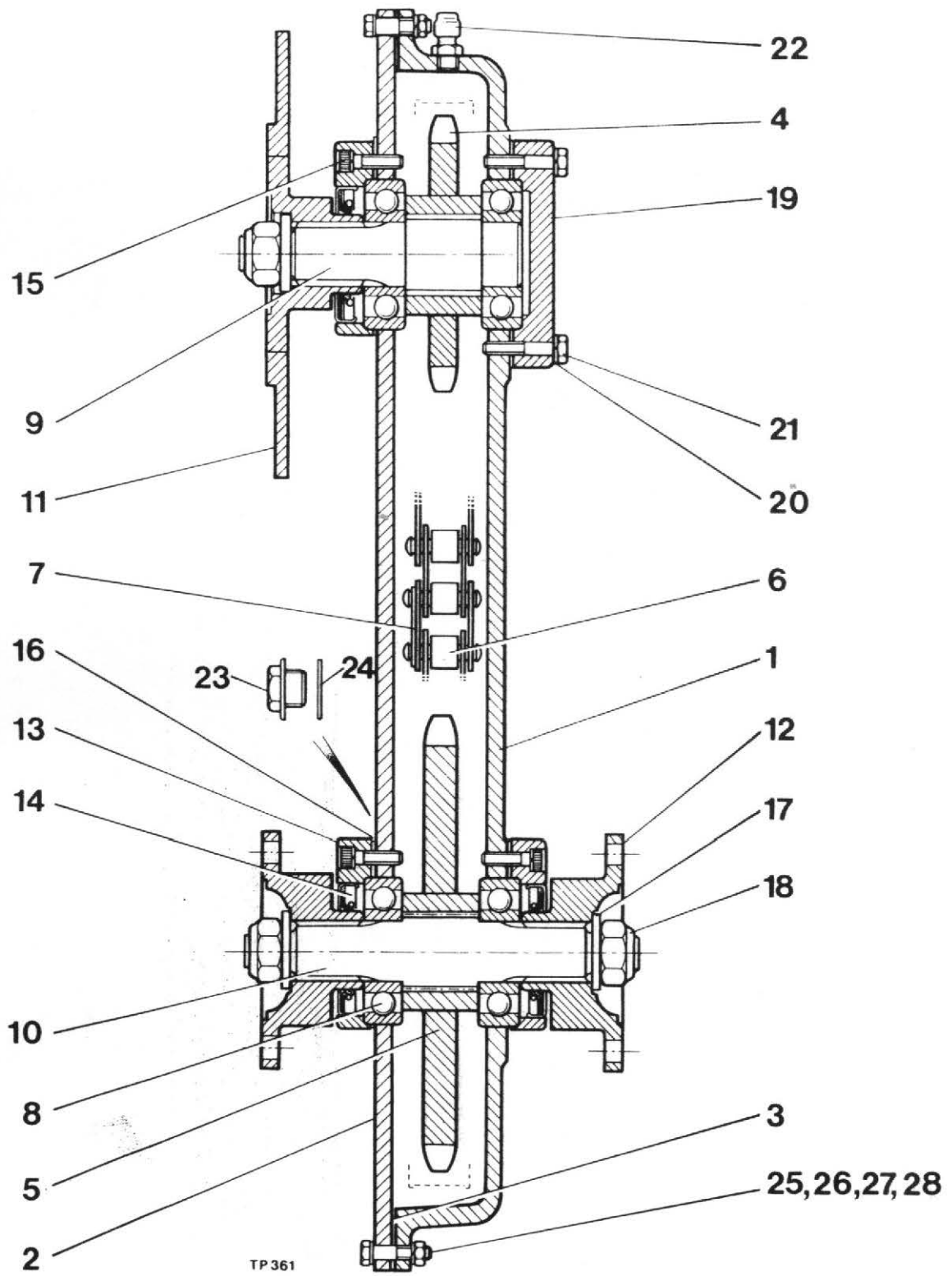


GEARBOX (Cont'd)

Item No.	Part No.	Description	Qty.
52	20210.A03	Lever - Selector (Lister)	1
52	20210.A04	Lever - Selector (Petter)	1
53	30101.A0234	Pad - Gear Change	2
54	30101.A0231	Washer - Marsl	2
55	30218.A0223	Dipstick 70M	1
56	30097.A0185	Spring	2
57	30218.A0224	Spring - Packing Detent	1
58	30101.A0236	Ball - Detent	2
59	30218.A0225	Shaft - Selector 2nd & 3rd Speeds	1
60	30218.A0226	Screw - Grub M8 x 8mm Long	1
61	30218.A0227	Fork - Selector 2nd & 3rd Speeds	1
62	30101.A0228	Pin - Clevis	2
63	30101.A0229	Stud - Int.	1
63A	30218.A0228	Stud - Int.	1
64	44S.01C	Pin - Split	2
65	30101.A0230	Plate - Interlocking	1
66	30218.A0229	Ball - Steel 7mm dia.	3
67	30101.A0236	Ball - Detent	2
68	30097.A0185	Spring	2
69	30218.A0230	Screw - Grub M12 x 16mm Long	1
70	30218.A0231	Shaft - Selector 1st & Reverse	1
71	30218.A0232	Fork - Selector 1st & Reverse	1
72	30218.A0233	Screw - Grub M8 x 8mm Long	1
73	30218.A0234	Washer - Locking	1
74	30218.A0235	Nut	1
75	30103.A0102	Nipple	2
76	30097.A0114	Bush	2
77	30218.A0236	Washer - Spring	6
78	11S.04D	Screw	6
79	30218.A0237	Housing - Clutch	1
80	30218.A0238	Cover - Gasket Front	1
81	30218.A0239	Cover - Front (includes item 100).....	1
82	30097.A0102	Washer - Nyltite M6	6
83	11S.02A	Screw	6
84	30218.A0240	Screw	2
85	17S.04	Washer - Spring	2
86	30097.A0133	Washer	1
87	30101.A0256	Circlip	1
88	30097.A0110	Fork - Clutch	1
89	30097.A0111	Nut, Washer & Cotter Pin	1
90	30097.A0117	Shaft - Clutch	1
91	30097.A0109	Lever - Clutch	1
92	6S.01C	Bolt	1
93	30102.A0105	Washer	1
94	9S.01	Nut	1
95	30101.A0211	Gear - Output	1
96	30101.A0212	Spacer	1
97	30101.A0225	Gear - 2nd. Speed	1
98	30218.A0241	Gear - 1st. Speed	1
99	30097.A0163	Plug - Drain	1
100	30097.A0105	Oil Seal	1

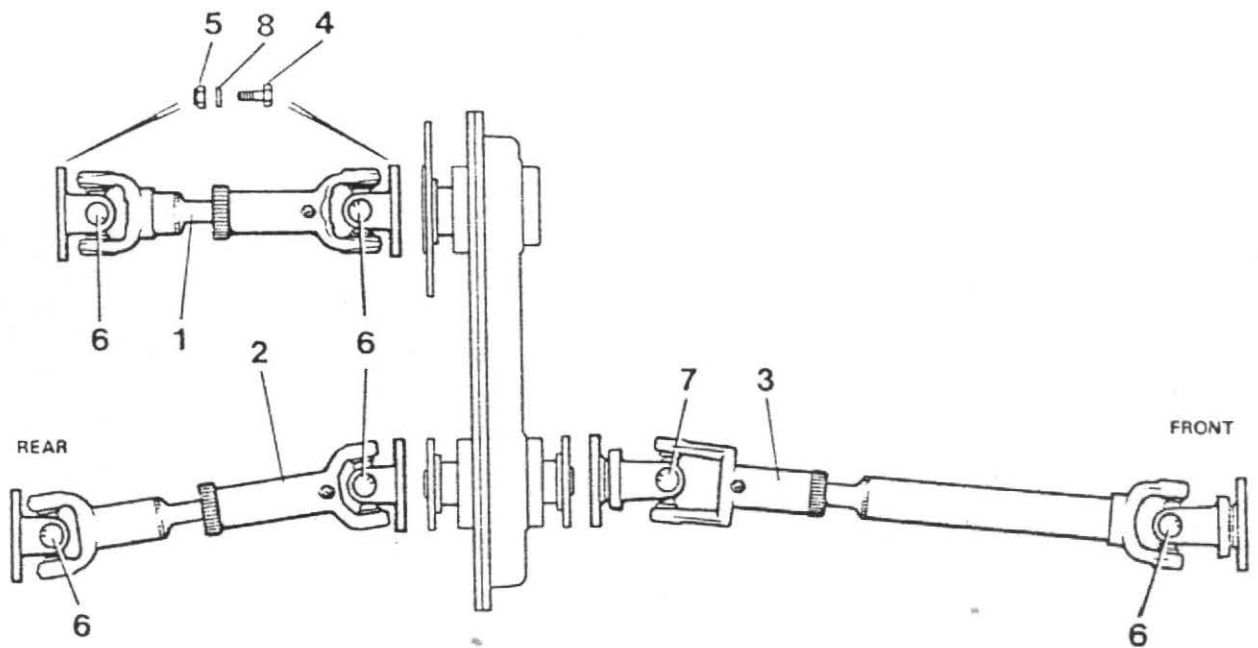


Item No.	Part No.	Description	Qty.
	40054.A07	Transfer Box complete (1" Pitch Chain)	1
1	40061.A01	Case	1
	40062.A01	Plate - Cover }only supplied 	1
		}as assembly 	1
3	30072.A01	Gasket	1
4	10294.A01	Wheel - Chain 15 Teeth (1" Pitch)	1
5	20076.A01	Wheel - Chain 26 Teeth (1" Pitch)	1
6	80S.01	Chain - Rollers (1" Pitch)	1
7	81S.01	Link - Connecting (1" Pitch).....	1
8	88S.06	Ball Bearing	4
9	4-60-252	Shaft - Input	1
10	4-60-253	Shaft - Output	1
11	CSE 164	Flange - Input (c/w Handbrake Flange)	1
12	10297.A01	Flange - Ouput	2
13	4-35-102	Housing - Oil Seal	3
14	89S.01	Seal - Oil	3
15	90S.02H	Screw - Cap ½" UNF x 1" Long	12
16	10293.A01	Gasket	4
17	10S.06	Washer - ¾" I.D.	3
18	107S.07	Locknut - ¾" UNF	3
19	10298.A01	Cover - End	1
20	10S.01	Washer - ½" I.D.	4
21	90S.02H	Screw - Cap ½" UNF x 1" Long	4
22	10305.A01	Breather	1
23	10301.A01	Plug - Level/Filler	1
24	CP 1068	Washer - Fibre ½" BSP	1
25	8S.02C	Bolt - Hex. Hd. M6 x 35 Long	24
26	12S.02A	Washer - M6 I.D.	24
27	17S.03A	Washers - Spring M6 I.D.....	24
28	7S.02A	Nut - M6	24

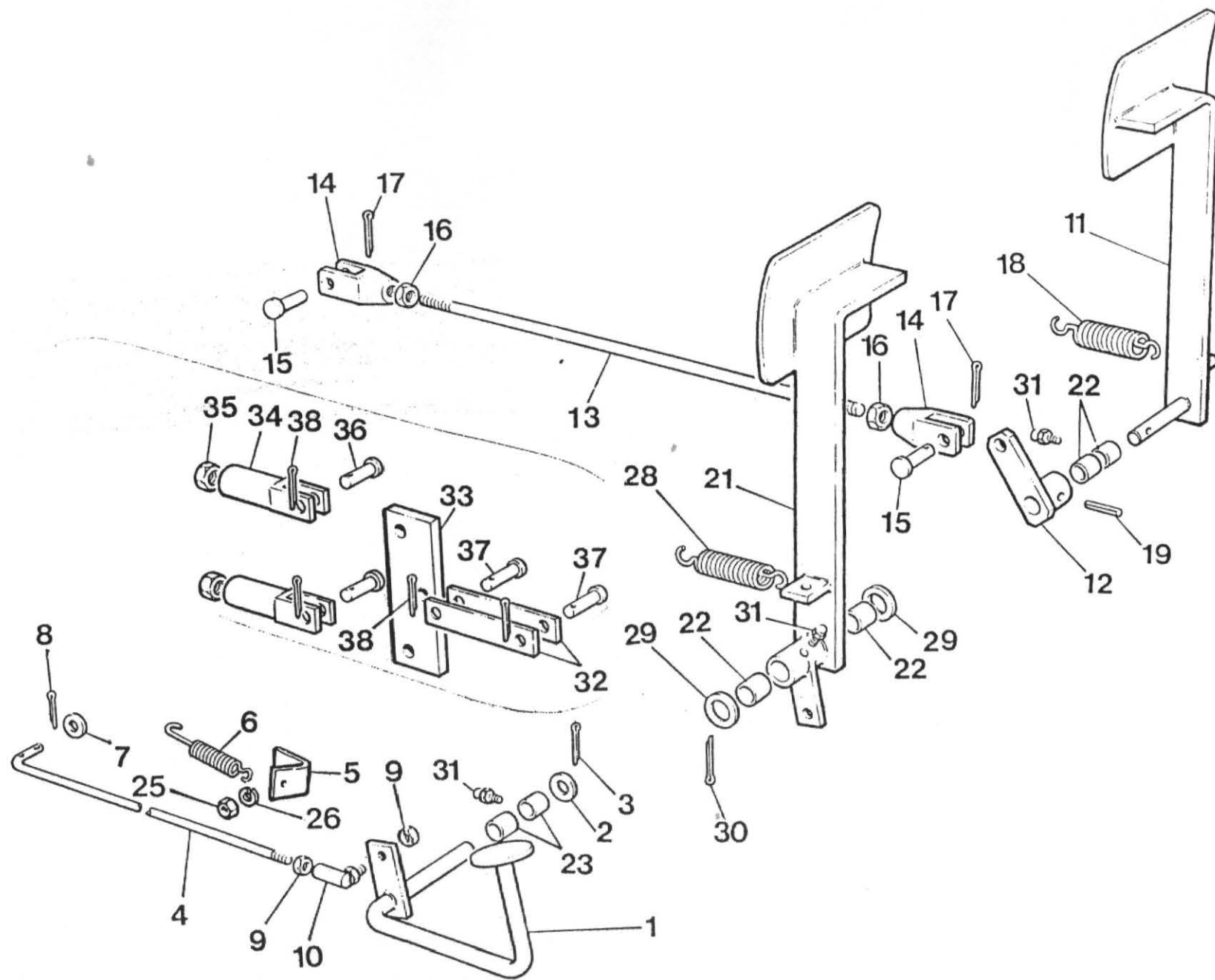


Item No.	Part No.	Description	Qty.
	40054.A06	Transfer Box complete (3/4" Pitch)	1
1	40061.A01	Case	1
	40062.A03	Plate - Cover }only supplied 	1
3	30072.A01	Gasket	1
4	10294.A04	Wheel - Chain 20 Teeth (3/4" Pitch)	1
5	20076.A02	Wheel - Chain 35 Teeth (3/4" Pitch)	1
6	80S.04	Chain - Roller (3/4" Pitch)	1
7	81S.02	Link - Connecting (3/4" Pitch)	1
8	88S.06	Ball Bearing	4
9	10299.A01	Shaft - Input	1
10	10300.A01	Shaft - Output	2
11	20078.A01	Flange - Input (c/w Handbrake Flange)	1
12	10297.A01	Flange - Output	2
13	10562.A01	Housing - Oil Seal	3
14	89S.02	Seal - Oil	3
15	90S.02H	Screw - Cap 1/2" UNF x 1" Long	16
16	10293.A01	Gasket	4
17	10S.06	Washer - 3/4" I.D.	3
18	107S.07	Locknut - 3/4" UNF	3
19	10298.A01	Cover - End	1
20	10S.01	Washer 1/2" I.D.	4
21	90S.02H	Screw - Cap 1/2" UNF x 1" Long	4
22	10305.A01	Breather	1
23	10301.A01	Plug - Level/Filler	1
24	42S.05	Washer - Fibre 1/2" BSP	1
25	8S.02C	Bolt Hex. Hd. M6 x 35 Long	24
26	12S.02A	Washer - M6 I.D.	24
27	17S.03A	Washer - Spring M6 I.D.	24
28	7S.02A	Nut - M6	24

PROP. SHAFTS



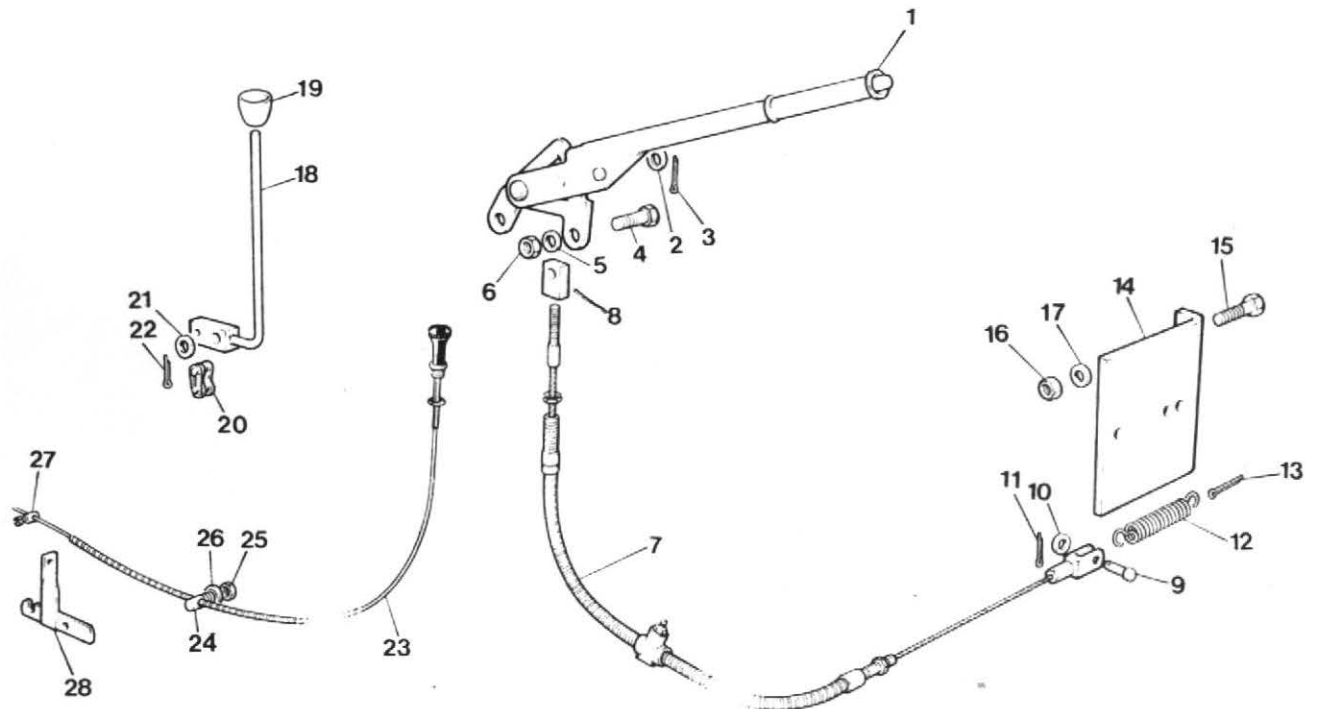
Item No.	Part No.	Description	Qty.
1	10401.A01	Prop Shaft (Lister)	1
	10342.A02	Prop Shaft (Petter)	1
2	10342.A01	Prop Shaft	1
3	40077.A01	Prop Shaft	1
4	ESE 214	Bolt - Prop Shaft 7/16" UNF	24
5	132S.04	Nut - 7/16" UNF	24
6	10568.A01	Repair Kit (Std. Angle)	A/R
7	10568.A02	Repair Kit (Wide Angle)	A/R
8	41S.06	Washer - Spring (Use under Bolt Head)	24



PEDAL CONTROLS

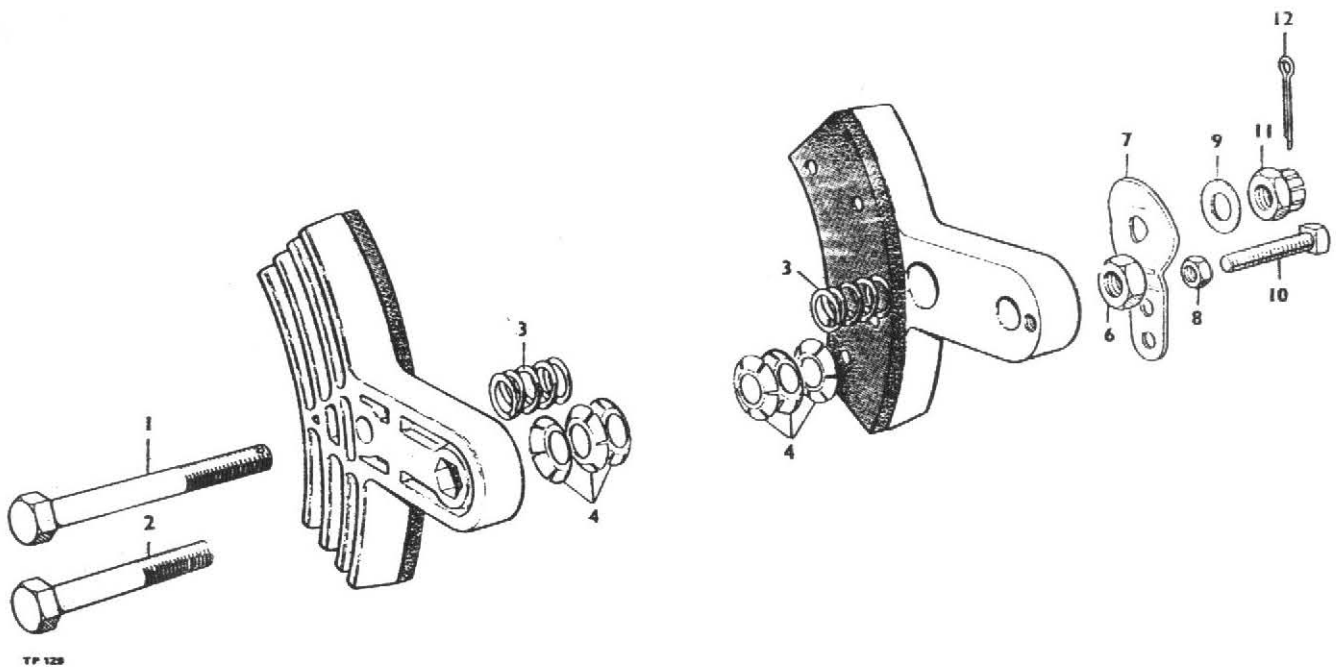
Item No.	Part No.	Description	Qty.
1	20231.A02	Pedal - Accelerator	1
2	10S.04	Washer - ½" I.D.	1
3	44S.02C	Pin - Split 3/32" Dia. x 1"	1
4	10362.A03	Rod - Accelerator (Lister)	1
	20166 A03	Rod - Accelerator (Petter)	1
5	10360.A02	Bracket	1
6	C173D	Spring	1
7	10S.12	Washer ½"	1
8	44S.01C	Pin - Split 1/16" Dia. x 1"	1
9	74S.02	Nut - Hex. ½" BSF	1
10	C160B	Ball End	1
11	20096.A05	Pedal - Clutch	1
12	10563.A03	Lever - Clutch	1
13	38S.C58	Rod - Clutch	1
	40S.C24	Rod-Clutch (Petter)	1
14	C174A	Clevis (Lister).....	2
	C174J	Clevis 3/8" UNF (Petter).....	2
15	10650.A17	Pin - Clevis	2
16	74S.04	Nut - Half 3/8" BSF (Lister).....	2
	95S.03	Nut Half 3/8" UNF (Petter).....	2
17	44S.02C	Pin - Split 3/32" Dia. x 1"	2
18	C173B	Spring	1
19	54S.07M	Pin - Tension	1
21	20232.A01	Pedal - Brake	1
22	43S.02	Bush	4
23	43S.03	Bush	2
25	9S.02	Nut - Hex. 5/16" UNF	1
26	41S.04	Washer - Spring 5/16"	1
28	C173B	Spring	1
29	10S.17	Washer - Plain	1
30	44S.04	Pin - Split 5/32" x 1½" Long	1
31	131S.03	Nipple - Grease	3
32	10436.A02	Link - Pedal	2
33	20117.A06	Beam - Compensator	1
34	10454.A02	Clevis - Special	2
35	95S.03	Nut - Hex. Half 3/8" UNF	2
36	10650.A17	Pin - Clevis 3/8" Dia.....	2
37	10650.A18	Pin - Clevis 3/8" Dia.....	2
38	44S.02C	Pin - Split 3/32" Dia. x 1"	4

VALVE CONTROL, HANDBRAKE AND ENGINE STOP



TP436

Item No.	Part No.	Description	Qty.
1	20208.A01	Lever - Handbrake	1
2	10S.14	Washer - 10 I.D.	1
3	44S.01C	Pin - Split 1/16" Dia. x 1"	1
4	11S.04C	Bolt - Hex. Hd. M10 x 25	2
5	7S.04	Nut - M10	2
6	17S.04	Washer - Spring 10 I.D.	2
7	10367.A03	Cable - Handbrake	1
8	L309	Block - Cable End	1
9	10650.A13	Pin - Clevis	1
10	10S.01	Washer - Plain 1/4" I.D.	1
11	44S.01C	Pin - Split 1/16" x 1" Long	1
12	C173D	Spring - Return	1
13	44S.05E	Pin - Split 3/16" x 1 1/2" (Return Spring)	1
14	20191.A01	Bracket - Brake Caliper	1
15	11S.04C	Bolt - Hex. Hd. M10 x 25	2
16	7S.04	Nut - M10	2
17	12S.05	Washer - Plain	2
18	10520.A03	Lever - Hyd. Control Valve	1
19	10211.A01	Knob - Control Lever	1
20	4-60-178	Link - Connecting	1
21	10S.14	Washer - Plain 3/8" I.D.	1
22	44S.02	Pin - Split	1
23	4-60-239	Cable - Engine Stop	1
24	4-60-242	Screw - Clamp	1
25	9S.03	Nut - 3/8" UNF	1
26	67S.04	Washer - Shakeproof - Internal	1
27	4-35-196	Nipple - Solderless	1
28	10346.A01	Control - Engine Stop (Lister only)	1

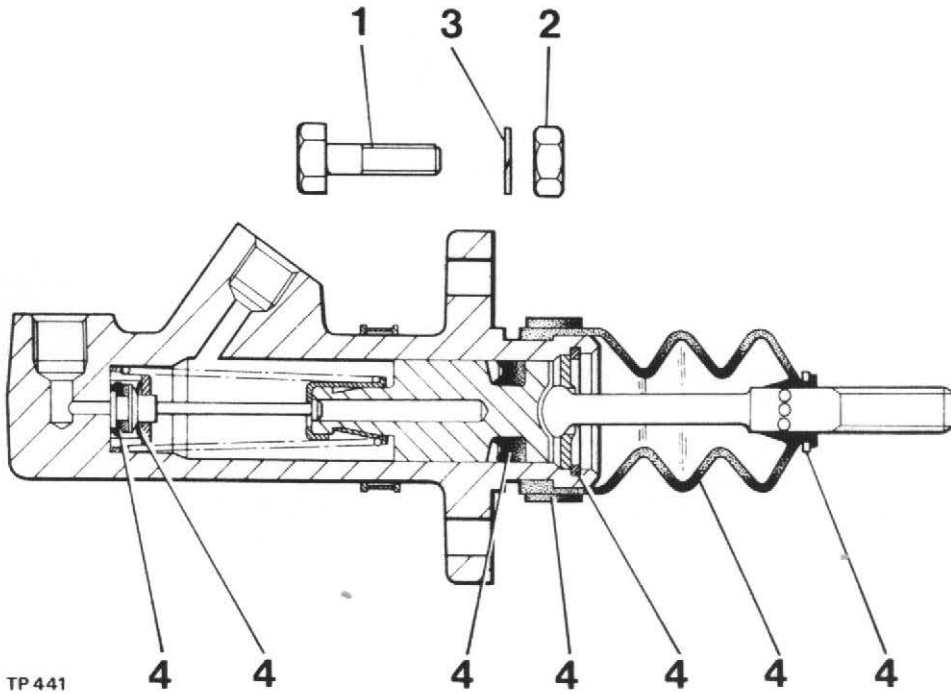


CALIPER, parking brake

Item	Part no	Description	Qty
1A	10578A01	CALIPER, one pair, assembly	1
1	28S02T	SCREW	1
2	28S02P	SCREW	1
3	10578A0101	SPRING, centring	2
4	10578A0102	WASHER, tension	6
6	9S02	NUT	1
7	10578A0104	CAM	1
8	230S01	NUT, locking	1
9	10578A0105	WASHER	1
10	66S01H	SCREW, set	1
11	227S02	NUT, castle	1
12	44S01C	PIN, cotter	1
13	1072A4	PAD c/w rivets	2

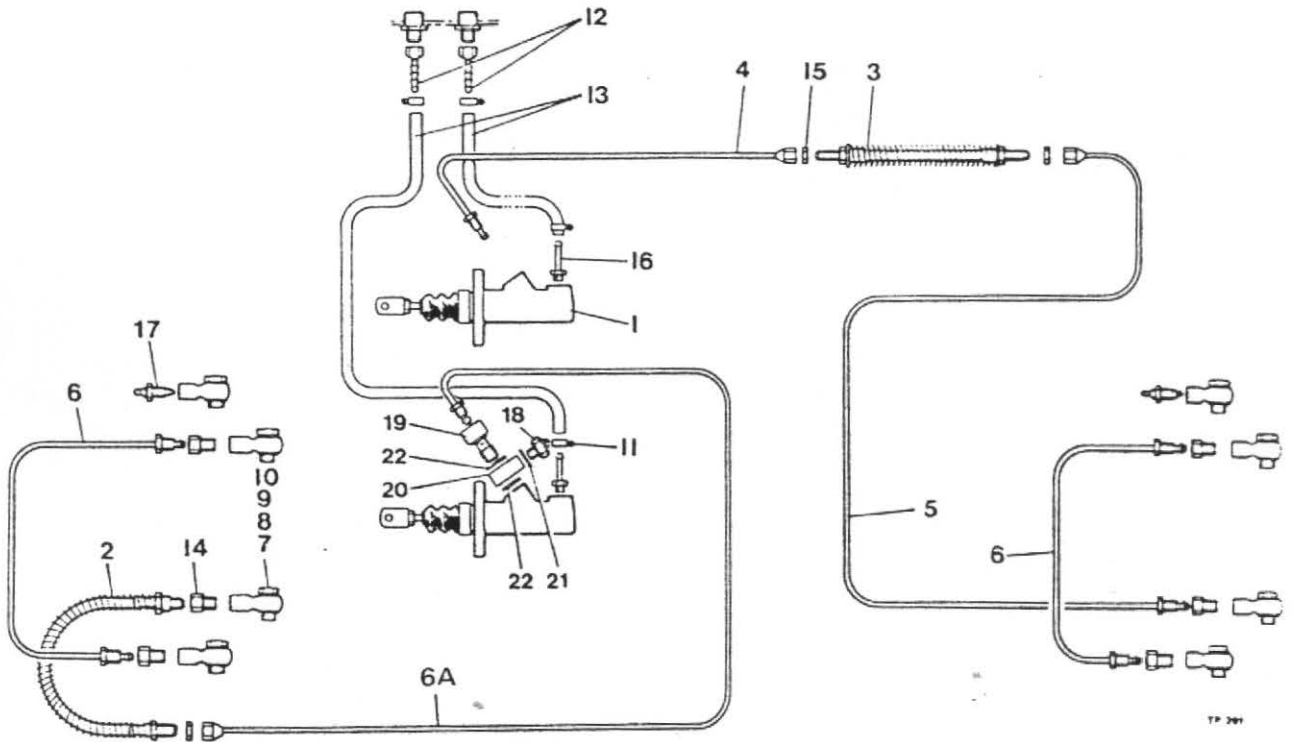
BRAKE MASTER CYLINDER

(OIL IMMERSED BRAKES)



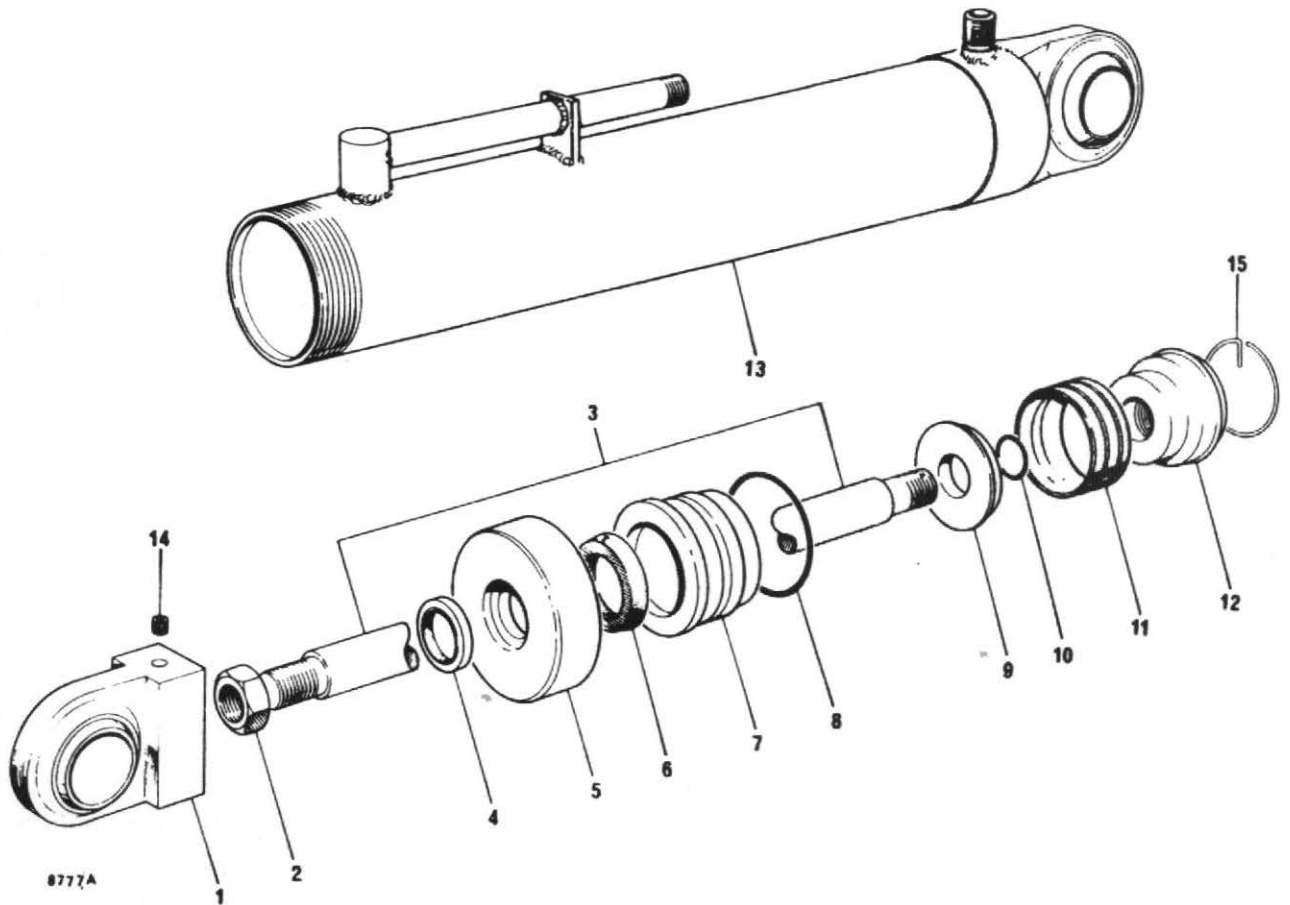
Item No.	Part No.	Description	Qty.
	20102.A02	Master Cylinder	2
1	8S.3B	Bolts Hex. Hd. M8 x 30 Long	4
2	61S.3	Nuts M8	4
3	12S.3	Plain Washer	4
4	10570.A01	Service Kit	A/R

BRAKE PIPES AND FITTINGS
NEWAGE AXLES (OIL IMMersed BRAKES)



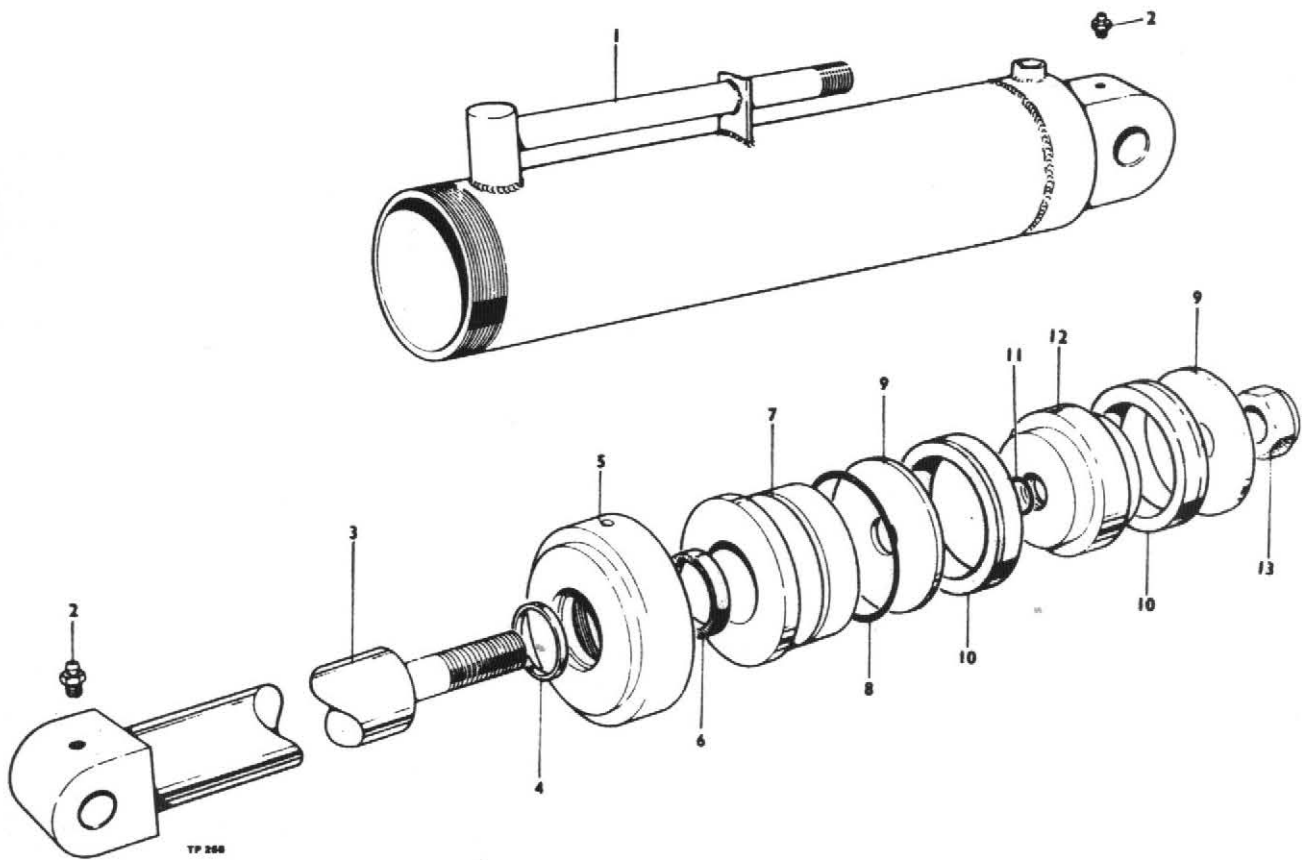
Item No.	Part No.	Description
1	20102.A02	Master Cylinder
2	10516.A02	Flexible Brake Hose
3	10517.A02	Flexible Brake Hose
4	10577.A0101	Brake Pipe 6mm x 770 Lg. Male/Female
5	10577.A0102	Brake Pipe 6mm x 965 Lg. Male/Female
6	10577.A0202	Brake Pipe 6mm x 425 Lg. Male/Male
6A	10577.A0111	Brake Pipe 6mm x 560 Lg. Male/Female
7	64474287	Banjo
8	376102W	Banjo Bolt
9	378700	Washer
10	378703	Washer
11	165S.01	Pipe Clip
12	110S.1A	Nozzle ½" BSP
13	29S.07	Hose ½" Bore x 1000mm Long
14	10354.A02	Brake Pipe Adaptor
15	10582A01	Half Nut M12
16	10542.A01	Stub Pipe Assembly
17	30082.A0215	Brake Bleed Valve (see also Axle section)
18	10744.A01	Brake Switch (if fitted)
19	10656.A01	Special Bolt (if fitted)
20	10387.A01	Connector (if fitted)
21	3787 03	Washer (if fitted)
22	10661.A01	Washer (if fitted)

HYDRAULIC RAM
 ROTATING SKIP AND TYPE A SKIP



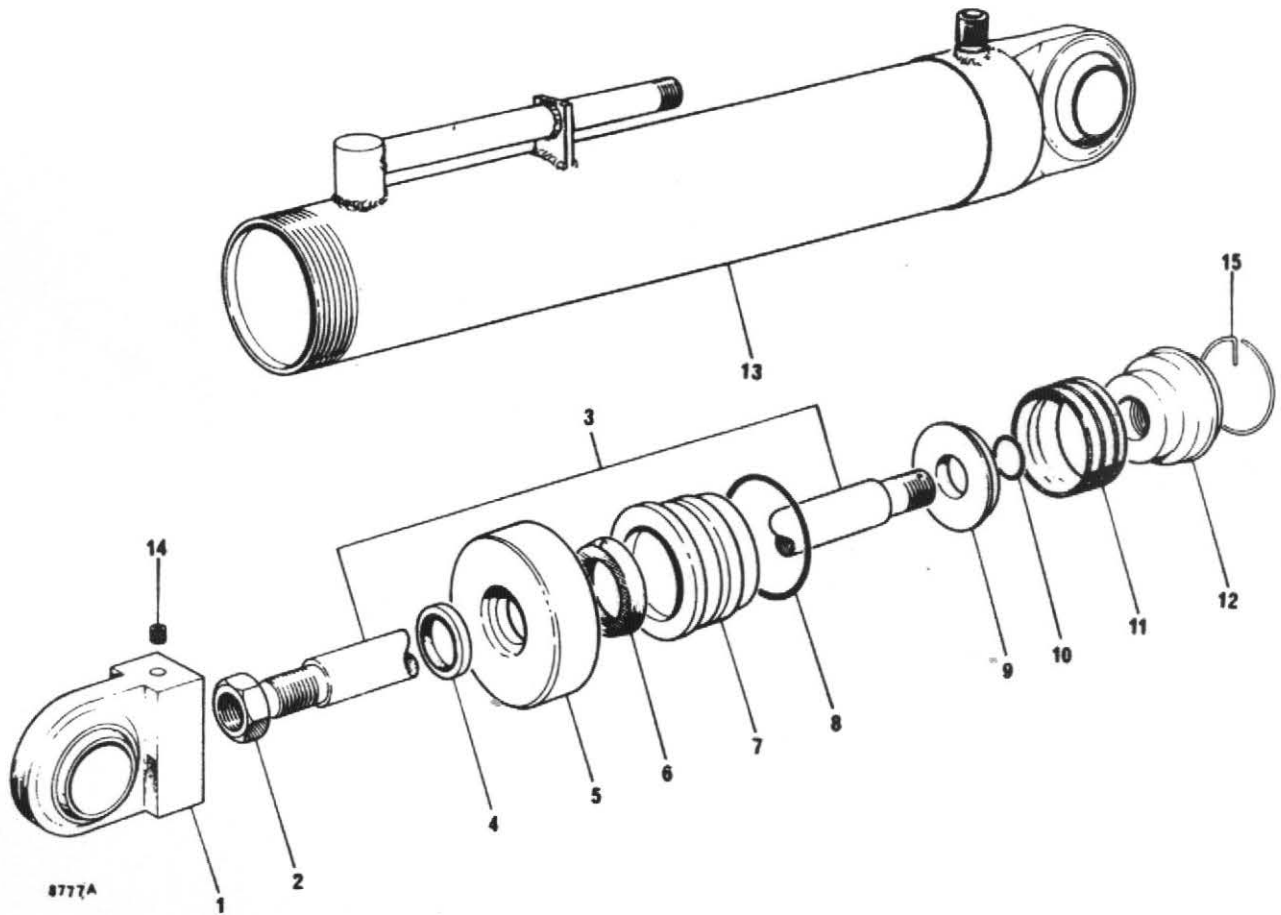
Item No.	Part No.	Description	Qty.
	30161.A01	Ram Complete	2
1	30121.A0101	Piston Rod Fitting	1
2	30121.A0102	Locknut	1
3	30161.A0101	Piston Rod	1
4	30121.A0104	Wiper	1
5	30121.A0105	Tube Cap	1
6	30121.A0106	Sleeve Seal	1
7	30121.A0107	Sleeve	1
8	30121.A0108	Sleeve 'O' Ring	1
9	30121.A0109	Backing Washer	1
10	30121.A0110	Piston 'O' Ring	1
11	30121.A0111	Piston Seal	1
12	30121.A0112	Piston Head	1
13	30161.A0102	Cylinder, Bosses & End Cap	1
14	30121.A0114	Grub Screw	1
15	30121.A0115	Spring Ring	1
	CSE 189	Seal Kit (Comprising items 4,6,8,10 & 11) ..	A/R

HYDRAULIC RAM (HIGH DISCHARGE SKIP)



Item No.	Part No.	Description	Qty.
	30162.A01	Ram Assembly Complete (Two per high discharge m/c's only)	
1	30162.A0101	Ram Body	1
2	30162.A0102	Grease Nipple	2
3	30162.A0103	Piston Rod	1
4	30162.A0104	Wiper	1
5	30162.A0105	Tube Cap	1
6	30162.A0106	Sleeve Seal	1
7	30162.A0107	Sleeve	1
8	30162.A0108	Sleeve "O" Ring	1
9	30162.A0109	Backing Washer	2
10	30162.A0110	Piston Seal	2
11	30162.A0111	Piston "O" Ring	1
12	30162.A0112	Piston Head	1
13	30162.A0113	Lock Nut	1
	CSE 190	Seal Kit (comprising items 4,6,8,10 & 11)	A/R

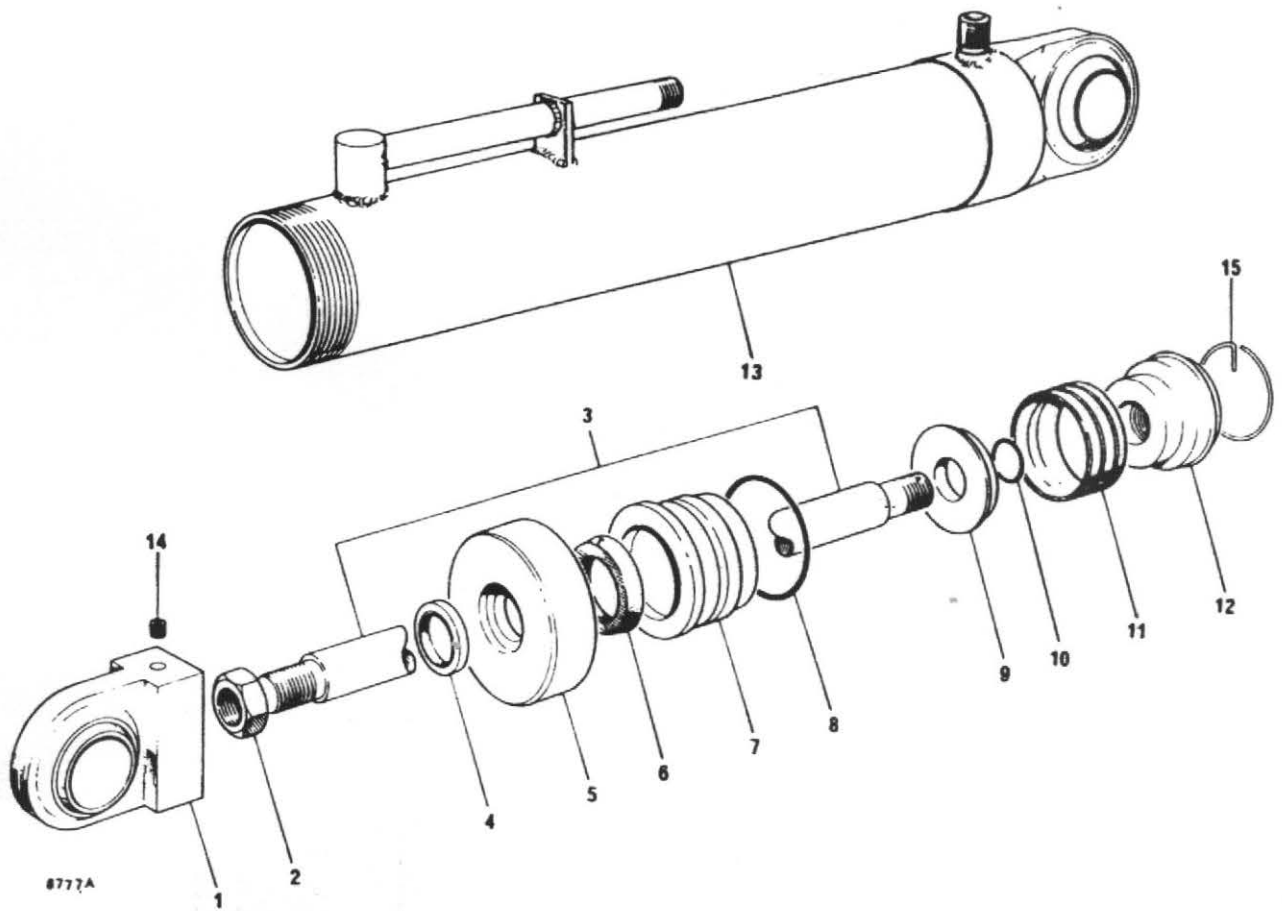
HYDRAULIC RAM (STEERING)



Item No.	Part No.	Description	Qty.
	30121.A01	Ram Complete (1 per Machine)	
1	30121.A0101	Piston Rod Fitting	1
2	30121.A0102	Locknut	1
3	30121.A0103	Piston Rod	1
4	30121.A0104	Wiper	1
5	30121.A0105	Tube Cap	1
6	30121.A0106	Sleeve Seal	1
7	30121.A0107	Sleeve	1
8	30121.A0108	Sleeve 'O' Ring	1
9	30121.A0109	Backing Washer	1
10	30121.A0110	Piston 'O' Ring	1
11	30121.A0111	Piston Seal	1
12	30121.A0112	Piston Head	1
13	30121.A0113	Cylinder, Bosses & End Cap	1
14	30121.A0114	Grub Screw	1
15	30121.A0115	Spring Ring	1
	CSE 189	Seal Kit (comprising items 4,6,8,10 & 11) ..	A/R

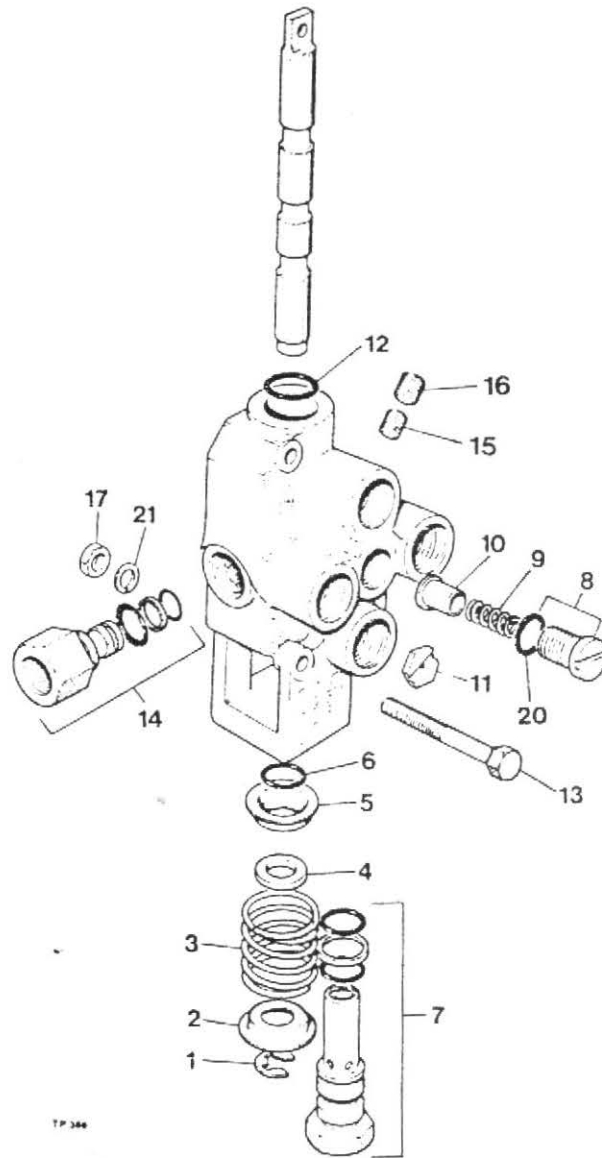
HYDRAULIC RAM

(TYPE B SKIP)



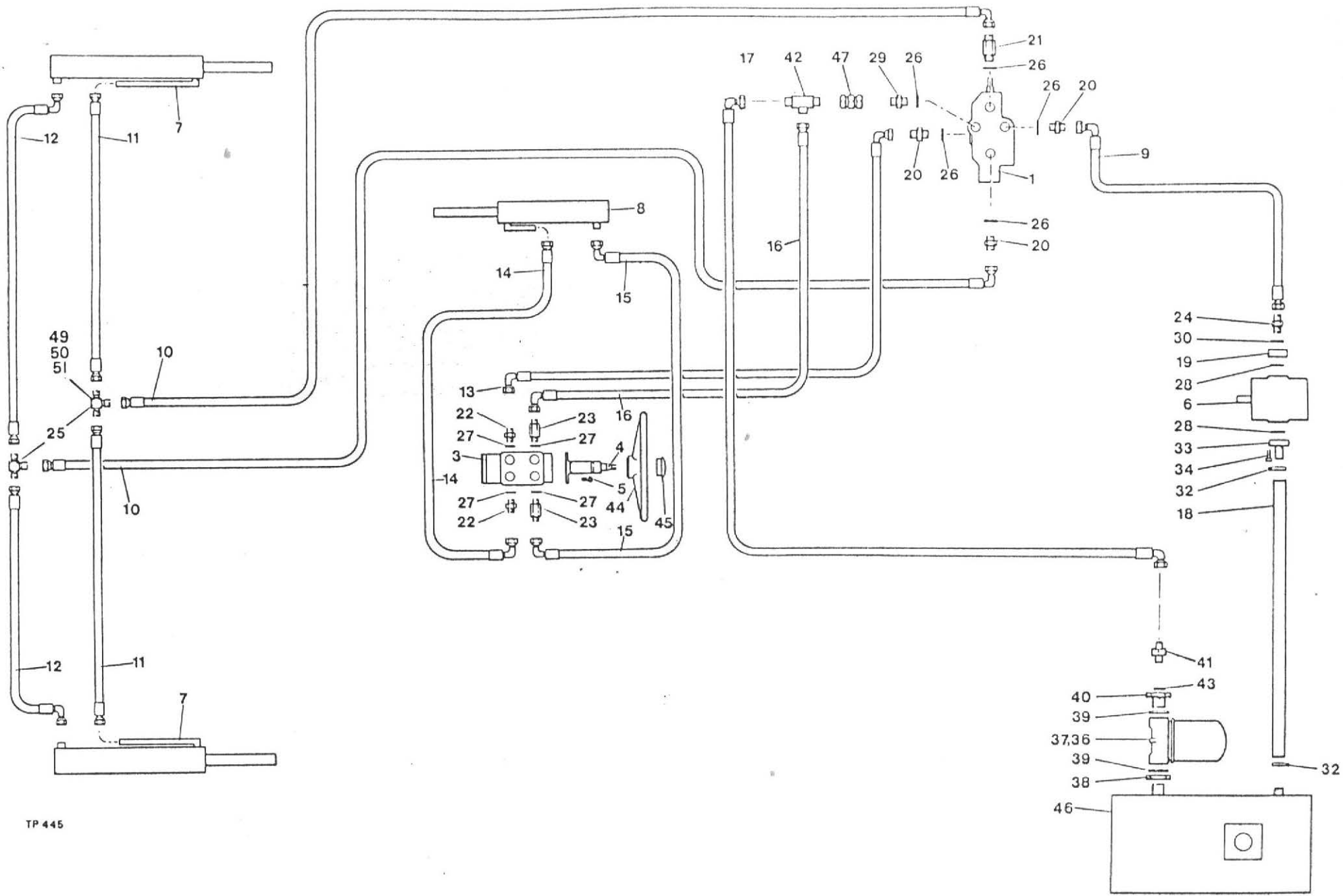
Item No.	Part No.	Description	Qty.
	30161.A04	Ram Complete	2
1	30121.A0101	Piston Rod Fitting	1
2	30121.A0102	Locknut	1
3	30161.A0101	Piston Rod	1
4	30121.A0104	Wiper	1
5	30121.A0105	Tube Cap	1
6	30121.A0106	Sleeve Seal	1
7	30121.A0107	Sleeve	1
8	30121.A0108	Sleeve 'O' Ring	1
9	30121.A0109	Backing Washer	1
10	30121.A0110	Piston 'O' Ring	1
11	30121.A0111	Piston Seal	1
12	30121.A0112	Piston Head	1
13	30161.A0102	Cylinder, Bosses & End Cap	1
14	30121.A0114	Grub Screw	1
15	30121.A0115	Spring Ring	1
16	10695.A02	Restrictor - Stroke (not illustrated)	2
	CSE 189	Seal Kit (Comprising items 4,6,8,10 & 11) ..	A/R

HYDRAULIC CONTROL VALVE



Item No.	Part No.	Description	Qty.
	30057.A02	Control Valve Complete (2000 p.s.i.)	1
1	30131.A0101	Clip Ring	1
2	30131.A0102	Shallow Washer	1
3	30131.A0103	Spool Spring	1
4	30131.A0104	Washer Spacer	1
5	30131.A0105	Deep Washer	1
6	30057.A0101	"O" Ring	1
7	30131.A0107	Relief Valve Assembly (2000 p.s.i.)	1
8	30057.A0103	Lift Check Plug Assembly	1
9	30131.A0109	Lift Check Spring	1
10	30131.A0110	Lift Check Plunger	1
11	30131.A0111	Orifice Plate	1
12	30057.A0104	"O" Ring	1
13	6S.3H	Bolt 5/16" UNF x 2½" Long	2
14	30057.A0105	Pressure Beyond Plug	1
15	30131.A0116	Plug 1/16"	1
16	30131.A0117	Plug 1/8"	1
17	9S.2	Nut 5/16" UNF	1
18	30057.A0106	Seal Repair Kit (Relief Valve)	A/R
19	30057.A0107	Seal Repair Kit	A/R
20	30131.A0118	"O" Ring	1
21	41S.4	Spring Washer 5/16" Dia.	2

TP 346



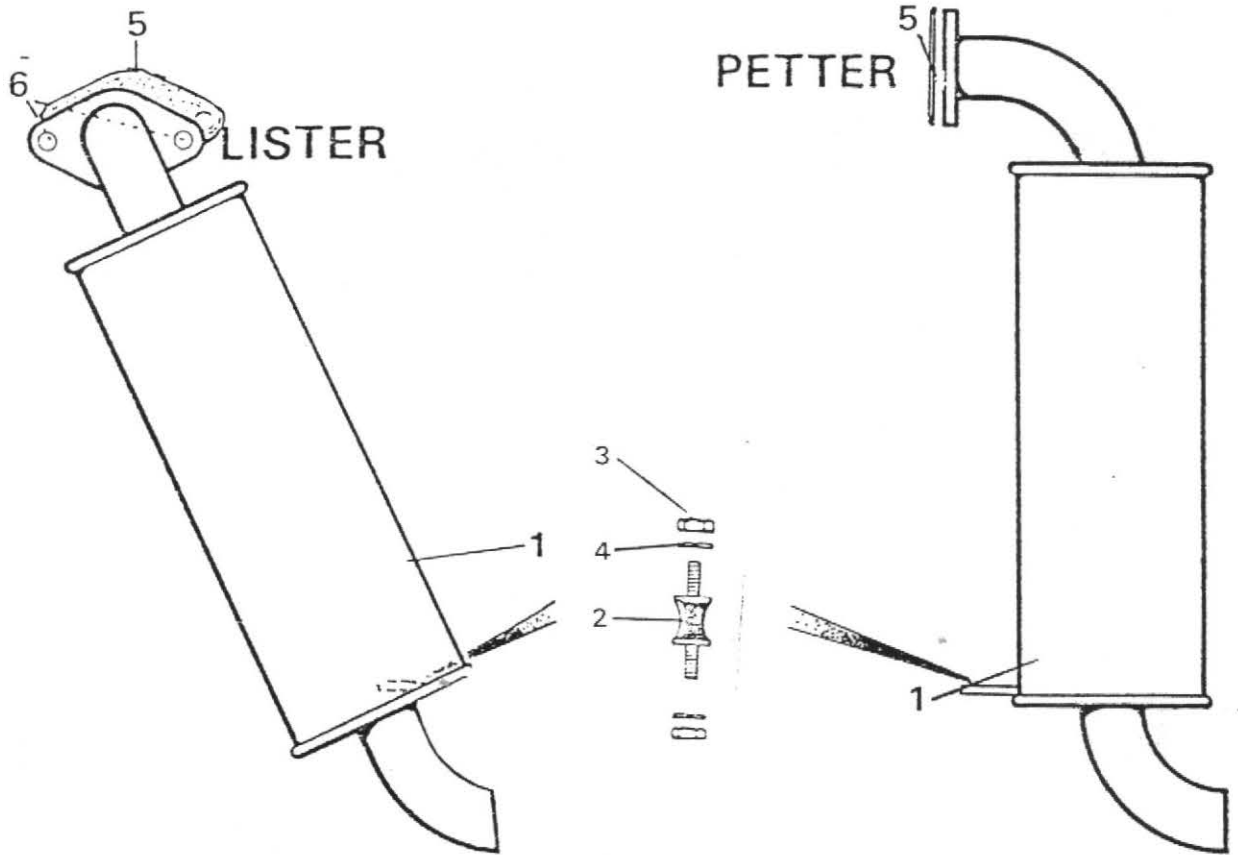
Item No.	Part No.	Description	Qty.
1	30057.A02	Control Valve	1
	CSE 178	Steering Valve complete (Danfoss)	1
3	CSE 178-2	Steering Valve (Danfoss)	1
4	CSE 178-1	Steering Column (Danfoss)(c/w Steering Wheel Nut)	1
5	103S.04B	Capscrow 3/8" UNC x 3/4" Long	2
	69S.03C	Bolt 3/8" UNC x 1 1/4" Long (Steering Valve Fixing - Danfoss)	2
	67S.04	Shakeproof Washer 3/8" dia. (Steering Valve Fixing - Danfoss)	2
	CSE 182	Steering Valve Spacer (Steering Valve Fixing - Danfoss)	2
6	10535.A01	Pump (Petter)	1
	10539.A01	Pump (Lister)	1
7		Hydraulic Cylinder (Skip)	2
8		Hydraulic Cylinder (Steering)	1
9	31S.02Q	Hose 3/8" x 34" Long ST x 90° (Petter).....	1
	36S.02FF	Hose 3/8" x 51" Long 90° x 90° at 180° (Lister) ..	1
10	31S.02D	Hose 3/8" x 112" Long ST x 90°	2
11	35S.021	Hose 3/8" x 25" Long ST x ST	2
12	31S.02AA	Hose 3/8" x 20" Long ST x 90°	2
13	36S.0211	Hose 3/8" x 89" Long 90° x 90° @ 270°	1
14	31S.02C	Hose 3/8" x 77" Long ST x 90°	1
15	36S.02HH	Hose 3/8" x 77" Long 90° x 90° @ 135°	1
16	31S.02E	Hose 3/8" x 99" Long ST x 90°	1
17	36S.03HN	Hose 1/2" x 16" Long 90° x 90°	1
18	37S.013	Hose 3/4" Cotton Braid x 23" Long (Petter).....	1
	37S.015	Hose 3/4" Cotton Braid x 55" Long (Lister)	1
19	4-35-261	Adaptor Plate	1
20	CSE 186	Adaptor, Short 7/8" JIC. x 3/8" BSP	3
21	4-60-158	Adaptor, Long 7/8" JIC. x 3/8" BSP	1
22	126S.04	Adaptor, Short 3/4" UNF. x 3/8" BSP	2
23	4-60-115	Adaptor, Long 3/4" UNF. x 3/8" BSP	2
24	T.14J	Adaptor, 3/8" BSP x 3/8" BSP	1
25	4-35-388	Tee and Bracket	1
26	49S.01	"O" Ring	5
27	49S.02	"O" Ring	4
28	49S.11	"O" Ring	2
29	DSE 115	Adaptor, 7/8" JIC. x 1/2" BSP	1
30	100S.03	Seal 3/8" BSP	1
32	97S.07	Hose Clip 1" - 1,3/8"	2
33	10475.A01	Adaptor Plate	1
34	103S.03C	Capscrow 5/16" UNC x 1" Long	4
36	10363.A01	Return Line Filter	1
37	10363.A02	Filter Element	1
38	72S.07	Back Nut 1,1/4" BSP	1
39	100S.09	Seal, 1,1/4" BSP	2
40	111S.1A	Reducing Bush 1,1/4" Male x 1/2" Female BSP	1
41	122S.04	Adaptor, Male/Male 1/2" BSP	1
42	113S.01	Unequal Male Tee 1/2" x 3/8" x 1/2" BSP	1
43	100S.04	Seal 1/2" BSP	1
44	40064.A01	Steering Wheel	1
45	10314.A01	Steering Wheel Cap	1
46		Hydraulic Tank	1

Item No.	Part No.	Description	Qty.
47	164S.05	Adaptor, 1/2" BSP Female x 1/2" BSP Female	1
49	8S.02A	Bolt M6 x 25mm Long	1
50	7S.02	Nut M6	1
51	17S.03	Washer M6	1
	177	Cable Tie (Not illustrated)	3

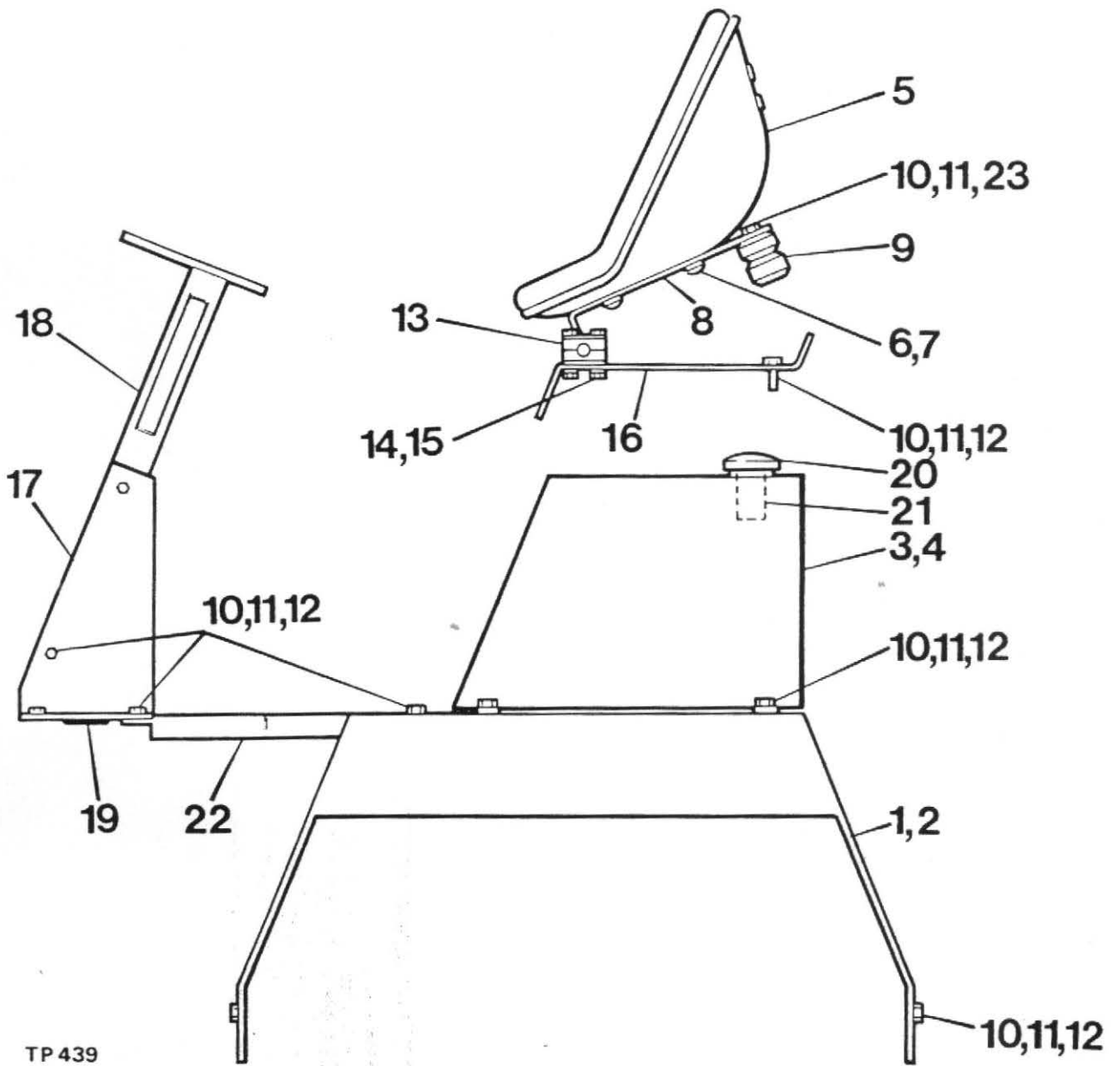
Item No.	Part No.	Description	Qty.
		HIGH DISCHARGE SKIP	
11	31S.02CC	Hose 3/8" x 13 1/2" ST x 90°	2
25	121S.04	Tee 3/8" BSP Equal Male	2
		ROTATING SKIP	
11	31S.02CC	Hose 3/8" x 13 1/2" ST x 90°	2
25	ASE 148	Bracket - 6 way	1

Hydraulic Pump (part No. 10589A01) - LISTER
fitted from M/C No. 4B.50.185

EXHAUST SYSTEM



Item No.	Part No.	Description	Qty.
1	30154.A05	Exhaust (Petter)	1
	30154.A06	Exhaust (Lister)	1
2	10371.A01	Rubber Mounting	1
3	7S.03	Hex. Nuts M8	2
4	17S.04	Washer - Spring M8	2
5	10293.A03	Exhaust Gasket (Lister)	1
	10293.A02	Exhaust Gasket (Petter)	1
6	6S.02D	Bolt - Hex. Hd. 5/16" UNF x 1,5/8" Long	2



TP 439

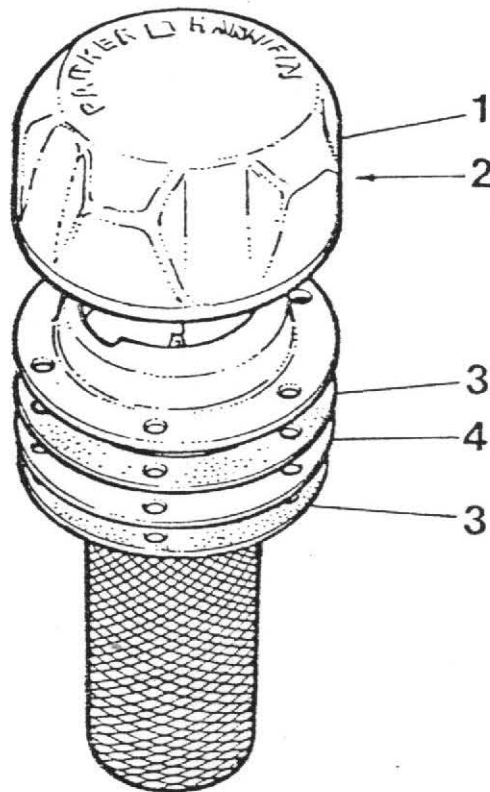
Item No.	Part No.	Description	Qty.
1	40280.A02	Mudwing - L.H.	1
2	40279.A02	Mudwing - R.H.	1
3	40282.A05	Tank - L.H. (Hydraulic Oil)	1
4	40281.A02	Tank - R.H. (Diesel Oil)	1
5	4-35-301	Seat	1
6	11S.03B	Bolts - Seat M8 x 20	4
7	17A.4	Washers - Spring M8	4
8	30148.A03	Frame - Seat	1
9	10519.A01	Spring - Rubber	1
10	7S.04	Nut - Self Locking M10	A/R
11	11S.04C	Bolt - Hex. Hd. M10 x 25	A/R
12	17S.05	Washer -	A/R
13	186S.14	Strainer	1
14	901S.001	Sealing Washer	1
15			
16	30025.A04	Plate - Seat Support	1
17	30184.A02	Plate - Mounting	1
18	30125.A02	Column - Steering	1
19	4-35-375	Grommet	1
20	10378.A03	Cap - Filler	2
21	10379.A03	Strainer	2
22	30163.A03	Floorplate Lister	1
	30163.A05	Floorplate Petter	1
23	C180B	Washer - Plain 3/8" I.D.	2
	10447.A04	Panel - Instrument	1
	10468.A01	Bracket	2
	10371.A02	Mounting - Flexible	4
	61S.09	Nut - Hex. M4	8
	7S.04	Nut - Hex. M10	2
	17S.04	Washer - Spring M10	2
	11S.04C	Screw - Hex. Hd. M10 x 25	2
	30063.A02	Cover - Engine (Optional) Lister	1
	30063.A04	Cover - Engine (Optional) Petter	1
	11S.04C	Screw - Hex. Hd. M10 x 25	4
	7S.04	Nut - Hex. M10	4
	17S.05	Washer - Spring M10	4
	12S.19	Washer - Plain M10	2

ALTERNATIVE FILLER CAP

Some machines are fitted with Parker Hannifin filler caps (see sep. illus.) in which case the following part numbers apply:-

Item No.	Part No.	Description	Qty.
3	40282.A07	Tank - Hyd. (Parker Hannifin Filler Cap)	1
4	40281.A08	Tank - Fuel (Parker Hannifin Filler Cap)	1

FILLER UNIT (PARKER HANNIFIN)



Item No.	Part No.	Description	Qty.
	10565.A01	Filler Cap Assembly complete	
1	10565.A0102	Cap	1
2	10565.A0101	Gasket - Cork (Cap)	1
3	10565.A0103	Gasket - Paper	2
4	10565.A0104	Basket - Strainer	1
5	101S.07E	Rivet	6

AIR CLEANERS

(LISTER)

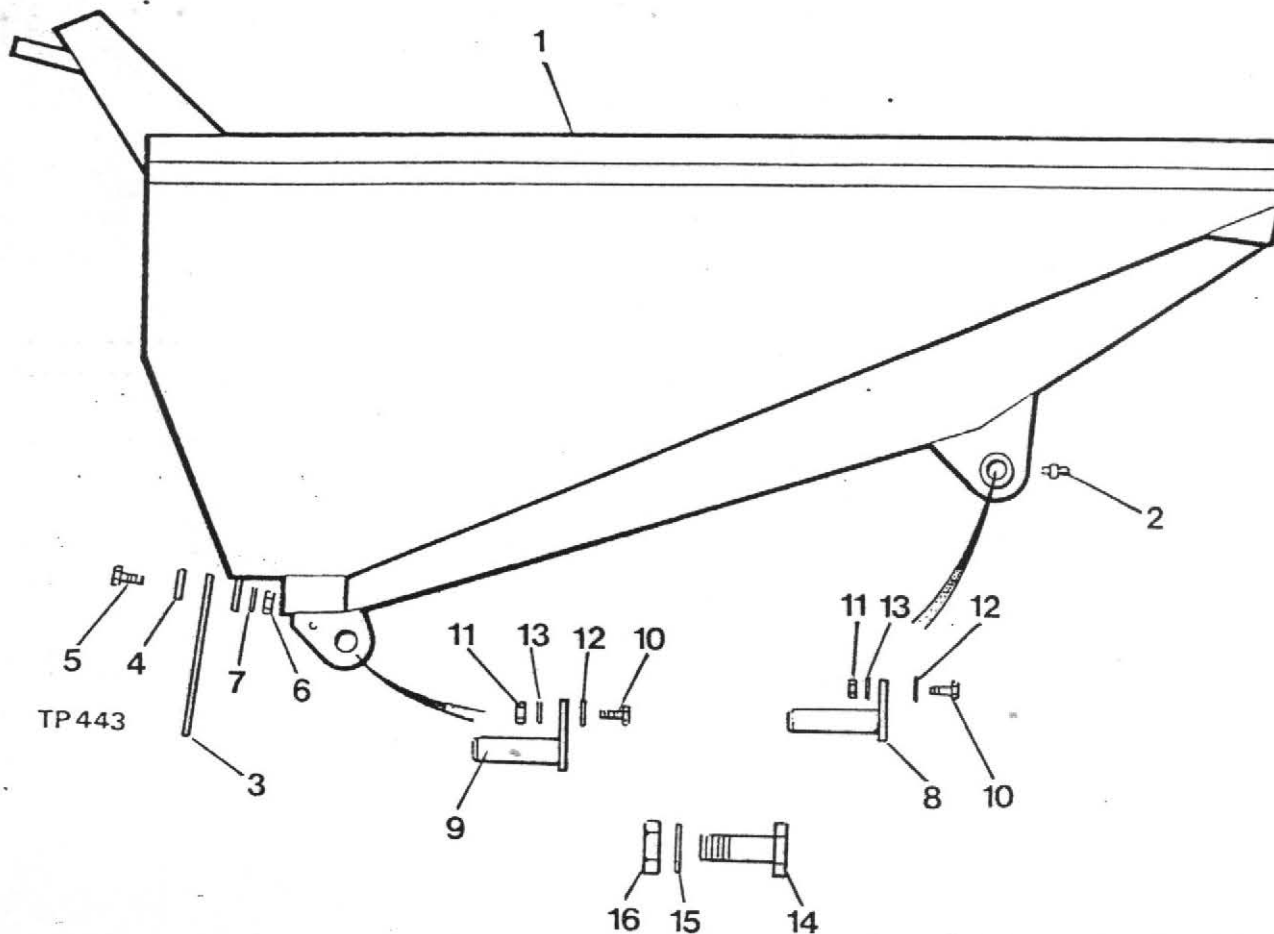
Item No.	Part No.	Description	Qty.
1	10532.A03	Air Cleaner	1
2	10534.A04	Stack Cap	1
3	10533.A04	Mounting Bends	2
4	10532.A0301	Element	1
9	10585.A01	Elbow - Connecting	1
10	97S.15	Hose Clips	2
11	11S.04C	Screws - Hex. Hd. M10 x 25	4
12	7S.04	Nuts - Hex. M10	4
13	12S.05	Washer - Plain M10	4

(PETTER)

Item No.	Part No.	Description	Qty.
1	10532.A01	Air Cleaner Assembly complete.....	1
2	10534.A01	Stack Cap	1
3	10533.A01	Mounting Bands	2
4	10532.A0101	Element Assembly	1
5	166S.02	Hose (Petter)	1
6	97S.15	Hose Clip (Petter)	2
10			
11	11S.03C	Setscrew Hex. Hd. M8 x 25 Long.....	4
12	61S.3	Nut M8	4
13	12S.3	Washer M8	4
14	10320.A01	Pipe Adaptor	1

FORWARD TIP SKIP

TYPE B



Item No.	Part No.	Description	Qty.
1	40276.A02	Skip	1
2	131S.03	Grease Nipple	2
3	10483.A01	Mudflap	2
4	10484.A01	Plate(Mudflap fixing).	2
5	11S.04F	Screw M10 x 40(" ").	6
6	7S.04	Nut M10(" ").	6
7	12S.05	Washer M10(" ").	6
8	10470.A01	Skip Pivot Pin	2
9	10470.A04	Ram Pivot Pin(Skip fixing).	2
10	11S.04E	Screw M10 x 35(Pivot Retaining).	4
11	7S.04	Nut M10(" ").	4
12	12S.20	Washer M10(" ").	4
13	17S.05	Washer M10(" ").	4
14	10352.A01	Ram Pivot Bolt 1 1/4" UNF ... (Chassis fixing).	2
15	105S.09	Washer	2
16	10600.A01	Half Nut 1 1/4" UNF	2

SKIP OPTION - (TYPE 'A' SKIP)

10881.A03	Skip kit Complete Compr.	1
40088.A03	Skip	1
4-35-110	Ram Pivot Bolt 1 1/4" B.S.F. ... (Skip fixing).	2
74S.10	Nut 1 1/4" B.S.F.	2

FUEL SYSTEM 4B50 (LISTER)

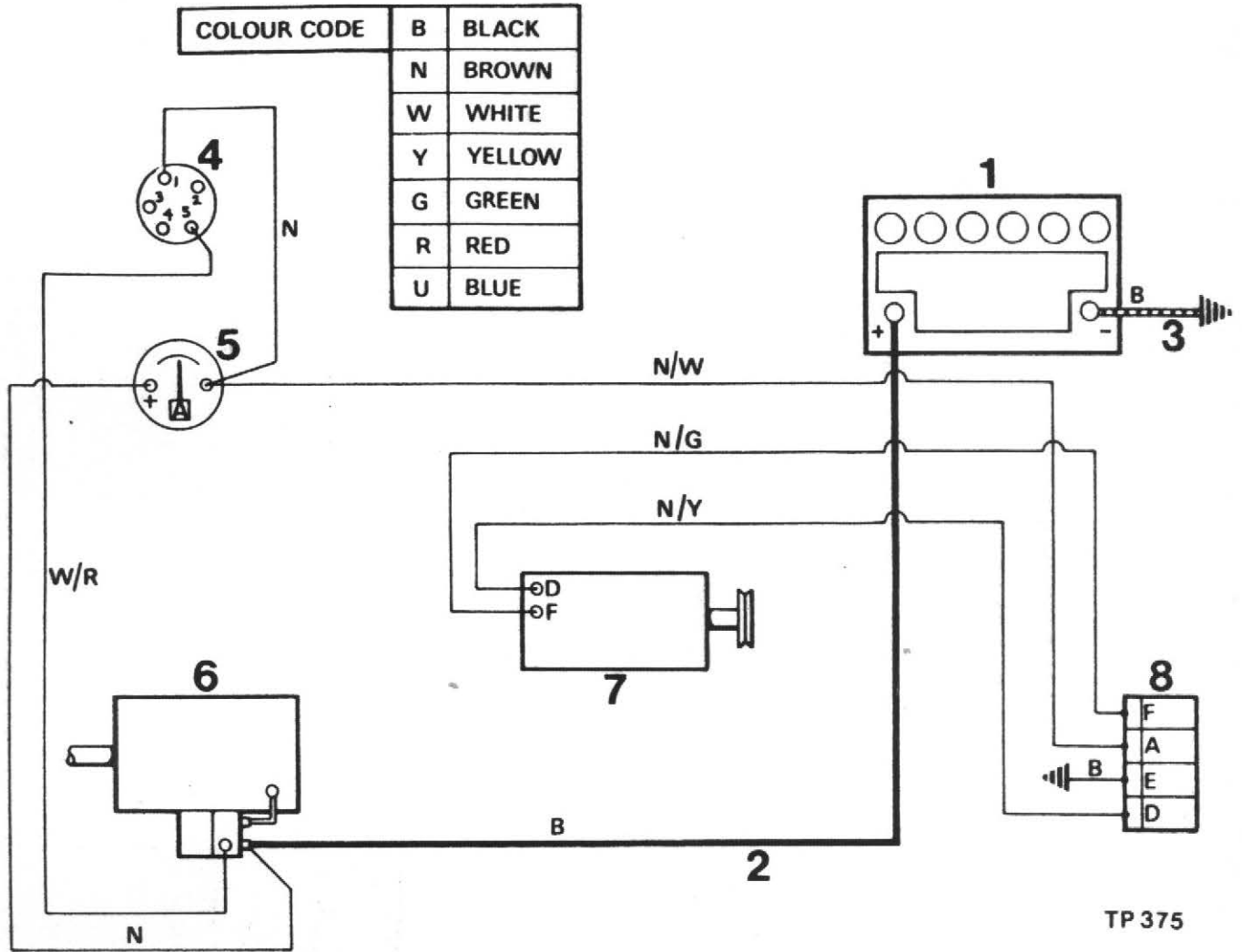
Item No.	Part No.	Description	Qty.
1	29S.05	Pipe - Tank to Filter 8mm O.D. x 60" Long	1
2	117S.02	Banjo Coupling c/w Bolt & Washer	1
3	118S.1A	Stand Pipe Elbow (Lift Pump)	1
4	10576.A0202	Pipe (Bleed & Back) 3/16" Bundy Tube x 30"	1
5	10576.A0101	Union - Pipe 3/8" UNF	1
6	10576.A0102	Stub Pipe 3/16" Bundy Tube x 80mm	1
7	29S.08	Tube - Bleed 15" Long 1/8" I.D. x 9/32" O.D.....	1
8	82S.03C	Screw - Rd.Hd. 2BA x 1/2" Long	1
9	85S.01	Nut - Nyloc 2BA	1
10	17S.02	Washer - Spring M5 Single Coil	1
11	4S.133	'P' Clip	1

WHEELS & TYRES 4B50

Item No.	Part No.	Description	Qty.
1	24S.08	Wheel - Assembly complete R.H.	2
	24S.07	Wheel - Assembly complete L.H.	2
2	30183.A02	Wheel	4
3	20S.02	Tyre - 10.5 x 18 x 8 Ply	4
4	23S.04	Tube - 10.5 x 18	4
5	10668.A02	Nuts - Wheel	24

WIRING DIAGRAM (ELECTRICAL SYSTEM)

(LISTER)

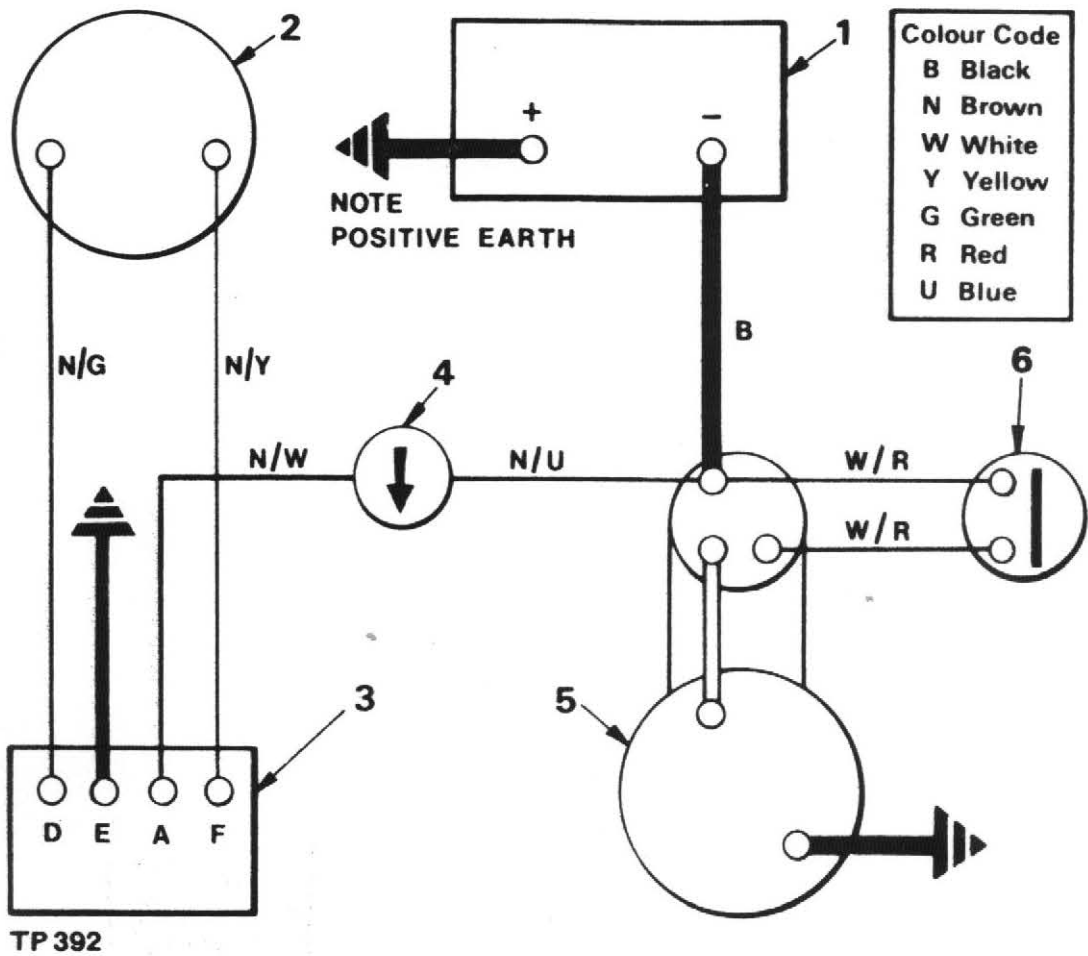


TP 375

Item No.	Part No.	Description	Qty.
1	109S.1	Battery	1
	109S.3	Battery (Alternative)	1
2	10227.A01	Positive Cable c/w End Fittings	1
3	10228.A01	Negative Cable c/w End Fittings	1
4	10614.A02	Switch c/w Keys	1
5	10612.A02	Ammeter	1
6	10613.A02	Starter Motor & Solenoid	1
7	10610.A02	Generator	1
8	10611.A02	Regulator	1
9	20105.A01	Wiring Harness Complete (Not Illustrated) ..	1
10	FSE 448	Adhesive Clip (Large) (Not Illustrated)	A/R
11	FSE 449	Adhesive Clip (Small) (Not Illustrated)	A/R

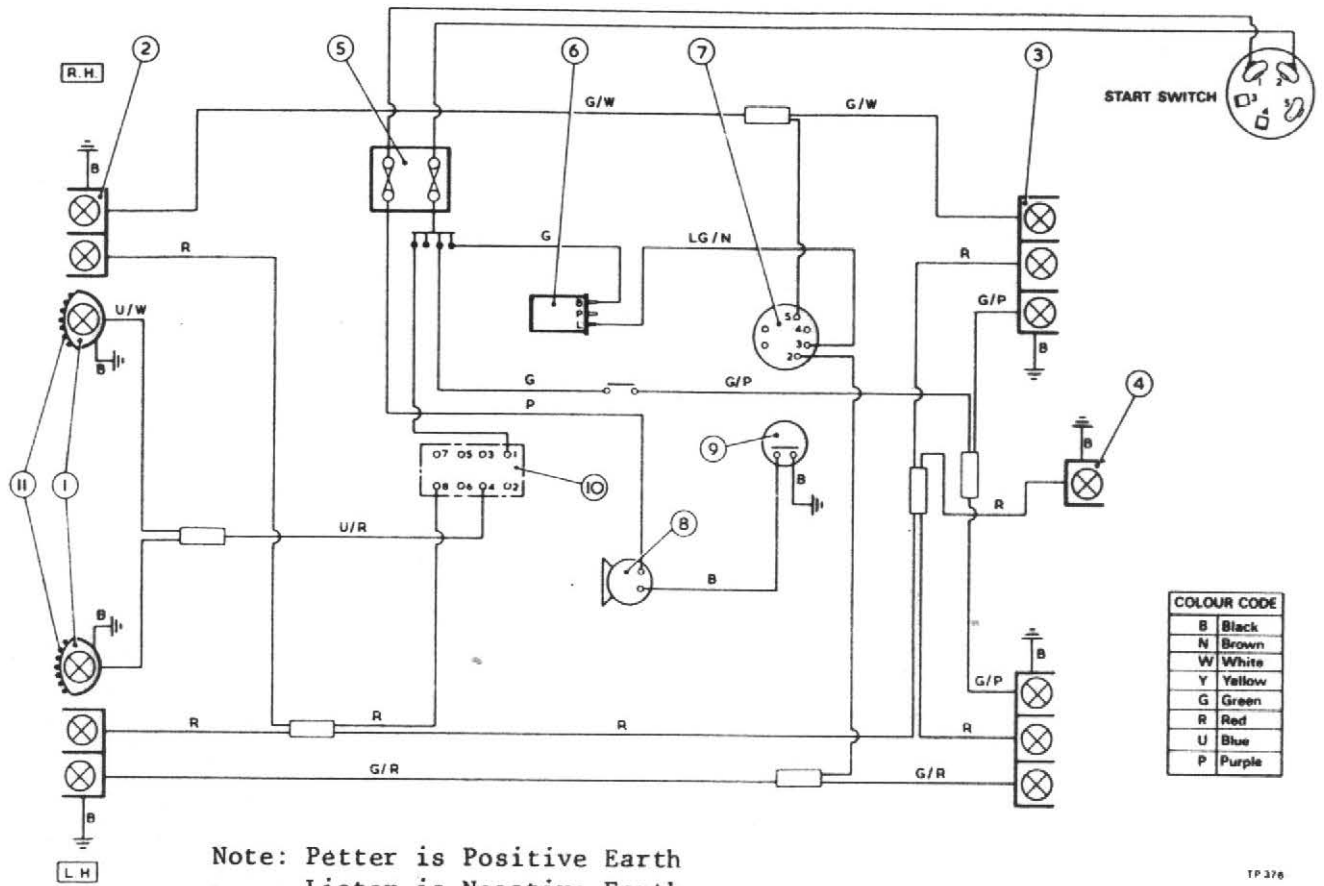
WIRING DIAGRAM (ELECTRICAL SYSTEM)

PETTER



Item No.	Part No.	Description	Qty.
	109S.1	Battery	1
1	109S.3	Battery (Alternative)	1
2	10610.A01	Dynamo	1
3	10611.A02	Regulator	1
4	10612.A02	Ammeter	1
5	10613.A01	Starter c/w Solenoid	1
6	10614.A01	Starter Switch	1
	201105.A02	Wiring Harness (Not illustrated)	1

WIRING DIAGRAM
(FULL ROAD LIGHTING KIT)
(PETTER & LISTER)



COLOUR CODE	
B	Black
N	Brown
W	White
Y	Yellow
G	Green
R	Red
U	Blue
P	Purple

TP 376

Item No.	Part No.	Description	Qty.
1	20013.A0112	Headlight	2
2	FSE.333	Side Light/Indicator	2
3	FSE.334	Rear Light/Indicator	2
	82S.3E	Screw Rd. Hd. 2BAx $\frac{1}{2}$ " Lg.-Side & Rear Lights	16
	85S.1	Nut Selflocking 2BA-Side & Rear Lights	16
	12S.1	Washer Plain-Side & Rear Lights	16
4	10615.A01	Number Plate Light	1
5	10644.A01	Fuse Box	1
6	10616.A01	Flasher Unit	1
	82S.3C	Screw Rd. Hd. 2BA x $\frac{1}{2}$ " Lg.-Flasher Unit	1
	12S.1	Washer Plain 2BA - Flasher Unit	1
	85S.1	Nut Selflocking 2BA - Flasher Unit	1
7	10617.A01	Indicator Switch	1
	82S.7C	Screw Rd. Hd. 6BA x $\frac{1}{2}$ " Lg.-Indicator Switch	2
	85S.3	Nut Selflocking 6BA - Indicator Switch.....	2
8	10618.A01	Horn c/w Bracket	1
	85S.3	Nut Selflocking 6BA - Horn	2
9	10619.A01	Horn Button	1
	82S.7E	Screw Rd. Hd.	2
	85S.3	Nut Selflocking	2
10	10620.A01	Light Switch c/w Bezel	1
11	10216.A01	Stone Guard - Headlights	2

LABELS

Item No.	Part No.	Description	Qty.
1	20235.A02	Machine Identification	2
2	20235.A05	Machine Identification	2
3	10284.A01	Dump Return Label	1
4	DM.198	Steering Lock Warning	2
5	DM.157	Warning Label (Skip)	1
6	10540.A01	Tyre Pressure Label	4
7	20132.A03	Dumper Safety Label	1
8	10546.A03	Diesel Fuel Label	1
9	10546.A04	Hydraulic Oil Label	1
10	10317.A02	Chassis Label	1
11	DM.196	Lubrication Label (Newage Axles)	1
12	FSE 357	Engine Stop Label	1
13	ESE 236	Engine Stop Label	1
14	4-60-233-1	Negative Earth Label	1
15	101S.05E	Pop Rivets (Sealed Type)	10
16	15S.01A	Hammer Drive Screws	4
17	10480.A01	Operators Handbook	1
18	10215.A02	Filter Instruction Label	1
19	10215.A03	Filter Instruction Label	1
20	10541.A01	Payload Label	1
21	10541.A06	Payload Label	1
22	DM.154	Winget Label	3
23	10479.A01	Winget Label	3

DECIMAL, FRACTIONAL AND METRIC EQUIVALENTS

Inches		Milli- metres	Inches		Milli- metres
Fractions	Decimals		Fractions	Decimals	
1/64	0.015625	0.397	33/64	0.515625	13.097
1/32	0.03125	0.794	17/32	0.53125	13.494
3/64	0.046875	1.191	35/64	0.546875	13.891
1/16	0.0625	1.588	9/16	0.5625	14.288
5/64	0.078125	1.984	37/64	0.578125	14.684
3/32	0.09375	2.381	19/32	0.59375	15.081
7/64	0.109375	2.778	39/64	0.609375	15.478
1/8	0.125	3.175	5/8	0.625	15.875
9/64	0.140625	3.572	41/64	0.640625	16.272
5/32	0.15625	3.969	21/32	0.65625	16.669
11/64	0.171875	4.366	43/64	0.671875	17.066
3/16	0.1875	4.763	11/16	0.6875	17.463
13/64	0.203125	5.159	45/64	0.703125	17.859
7/32	0.21875	5.556	23/32	0.71875	18.256
15/64	0.234375	5.953	47/64	0.734375	18.653
1/4	0.250	6.350	3/4	0.750	19.050
17/64	0.265625	6.747	49/64	0.765625	19.447
9/32	0.28125	7.144	25/32	0.78125	19.844
19/64	0.296875	7.541	51/64	0.796875	20.241
5/16	0.3125	7.938	13/16	0.8125	20.638
21/64	0.328125	8.334	53/64	0.828125	21.034
11/32	0.34375	8.731	27/32	0.84375	21.431
23/64	0.359375	9.128	55/64	0.859375	21.828
3/8	0.375	9.525	7/8	0.875	22.225
25/64	0.390625	9.922	57/64	0.890625	22.622
13/32	0.40625	10.319	29/32	0.90625	23.019
27/64	0.421875	10.716	59/64	0.921875	23.416
7/16	0.4375	11.113	15/16	0.9375	23.813
29/64	0.453125	11.509	61/64	0.953125	24.209
15/32	0.46875	11.906	31/32	0.96875	24.606
31/64	0.484375	12.303	63/64	0.984375	25.003
1/2	0.500	12.700	1	1.000	25.400

INCHES INTO MILLIMETRES

Inches	0	1	2	3	4	5	6	7	8	9
0	0	25.40	50.80	76.20	101.60	127.00	152.40	177.80	203.20	228.60
10	254.00	279.40	304.80	330.20	355.60	381.00	406.40	431.80	457.20	482.60
20	508.00	533.40	558.80	584.20	609.60	635.00	660.40	685.80	711.20	736.60
30	762.00	787.40	812.80	838.20	863.60	889.00	914.40	939.80	965.20	990.60
40	1016.00	1041.40	1066.80	1092.20	1117.60	1143.00	1168.40	1193.80	1219.20	1244.60
50	1270.00	1295.40	1320.80	1346.20	1371.60	1397.00	1422.40	1447.80	1473.20	1498.60
60	1524.00	1549.40	1574.80	1600.20	1625.60	1651.00	1676.40	1701.80	1727.20	1752.60
70	1778.00	1803.40	1828.80	1854.20	1879.60	1905.00	1930.40	1955.80	1981.20	2006.60
80	2032.00	2057.40	2082.80	2108.20	2133.60	2159.00	2184.40	2209.80	2235.20	2260.00
90	2286.00	2311.40	2336.80	2362.20	2387.60	2413.00	2438.40	2463.80	2489.20	2514.61

Use in conjunction with above table.

Example: Find equivalent mm. for 84 5/8".

84" = 2133.60 mm.

5/8" = 15.875 mm.

84 5/8" = 2149.475 mm.

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm