

**WINGET**

**OPERATING  
INSTRUCTIONS  
&  
SPARE PARTS  
LIST**

**2SE DIESEL  
DUMPER  
(CAPACITY 15 CWT)**

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## **INTRODUCTION**

This Parts & Operators Manual is a re-print of the manual last published in 1980 and contains some amended part numbers.

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 2SE 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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Safety is the responsibility of all persons working with this machine. Think "safety" at all times. ***Read and remember the contents of this handbook.***

**The safe working recommendations for specific tasks are found with the instructions for the relevant operation in this Handbook.**

## **MACHINE MODIFICATION**

**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 O11 8836935. Another useful publication is British Standard number BS 6264, "Procedure for Operator Training For Earth Moving Machinery" available from the British Standard Institution.

## **RUNNING-IN**

**WARNING** While a gradual 'running-in' of a new engine is not necessary, it is extremely important that the instructions given in *Section 2 "Operation"* on "Running-in a new engine" should be followed very closely during the first fifty hours of operation.



## **DRIVING**

**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.

Ensure that the seat is securely fixed to the machine. Where seat belt restraints are fitted as part of Rops/Fops protection they must be worn. 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.

*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.

## 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.

## TOWING

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



*Dumpers are not designed as towing vehicles. However, trailers may be towed provided that:*

- 1 The combined weight of the trailer and its load does not exceed the dumper "drawbar pull of 250kg (2500N)" and dumper "drawbar load of 50kg (500N)".
- 2 Trailers may be towed in first gear on level dry ground, provided a purpose made towing pin is used.
- 3 The dumper skip must be loaded with half the rated payload to ensure tyre adhesion when braking.

NEVER tow loads up, down or across gradients.

## GRADIENTS

**WARNING** 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.

## 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 Service - Hydraulic system**).

*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.

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.

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

*ALWAYS* ensure that when using a starting handle that it 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*).

## PREPARATION FOR USE

BEFORE THE DUMPER IS PUT INTO SERVICE ALWAYS CHECK THE FOLLOWING POINTS:—

(See Fig. 1)

1. **Engine**  
Check the oil level on the dipstick (A), topping up if necessary to the full mark. See also 'Recommended Lubricating Oils', page 12.
2. **Gearbox**  
Check the oil level on the dipstick (B), topping up if necessary to the full mark. See also 'Recommended Lubricating Oils', page 12.
3. **Drive Axle**  
Remove level plug (C) and check that oil is up to bottom of hole. Top up if necessary through filler plug (D). See also 'Recommended Lubricating Oils', Page 12.
4. **Steering box**  
Remove oil level/filler plug (E) (accessible through bracket) and top up if necessary. See also 'Recommended Lubricating Oils' Page 12.
5. **Fuel Tank**  
Remove filler cap (F) and fill 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.
6. **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 the Dumper Warranty.
7. **Hydraulic Brake System (if fitted)**  
Ensure the brake master cylinder reservoir is full of brake fluid. Top up if necessary to within 1/4" of the top of the reservoir. Use only brake fluid that conforms to SAE. J 1703.

N.B. For further Lubrication information see Fig. 5 and corresponding text (pages 8 & 9).



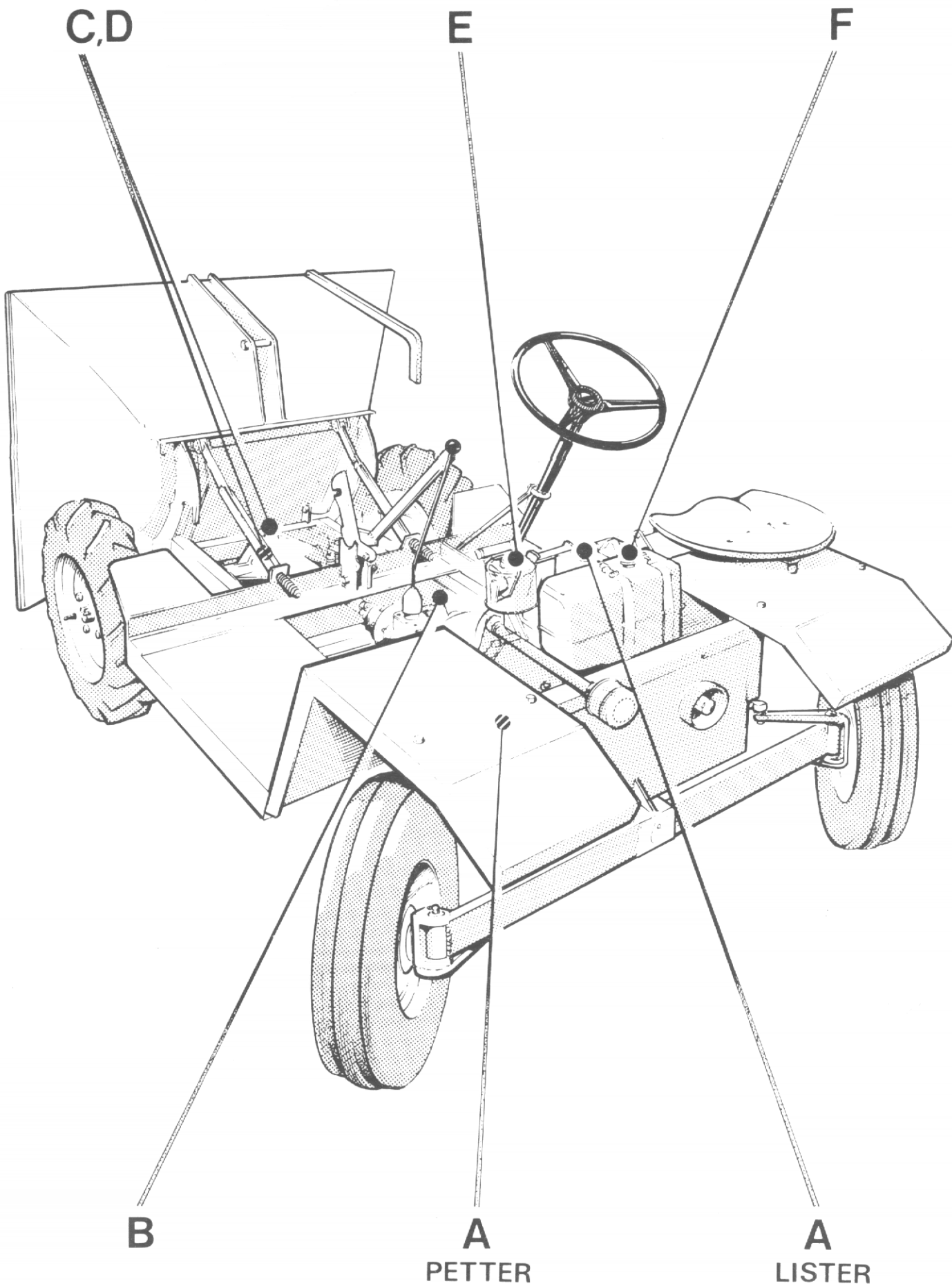


FIG.1

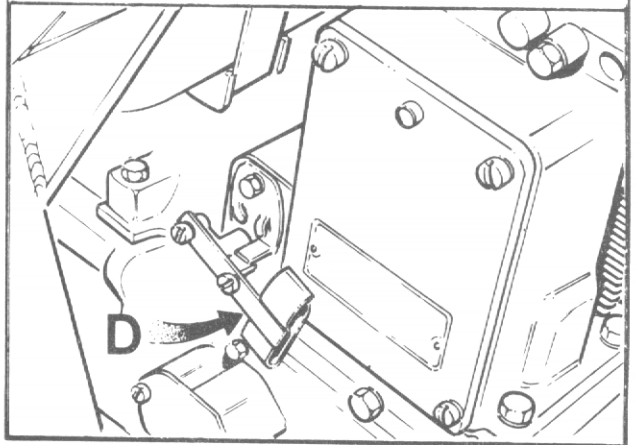
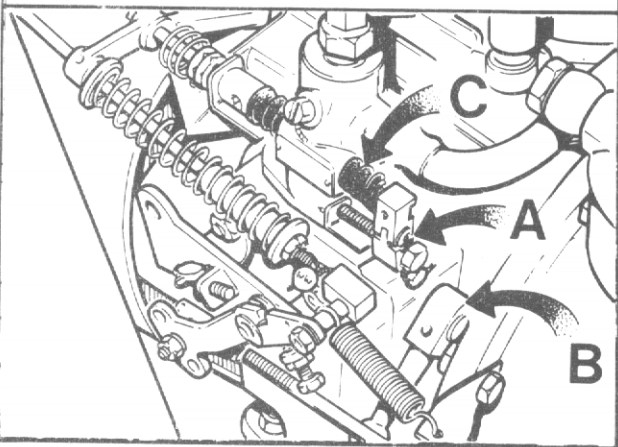
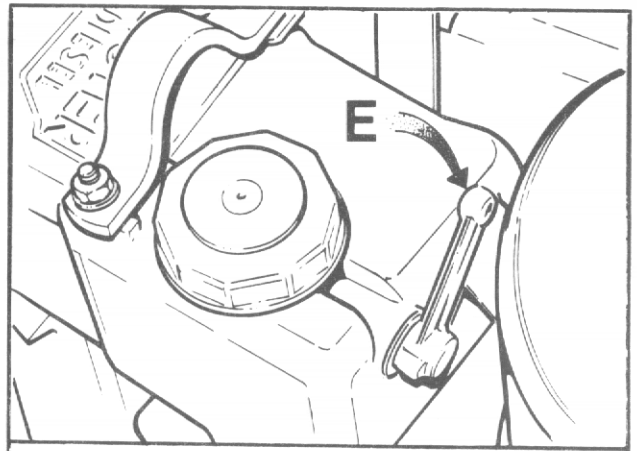
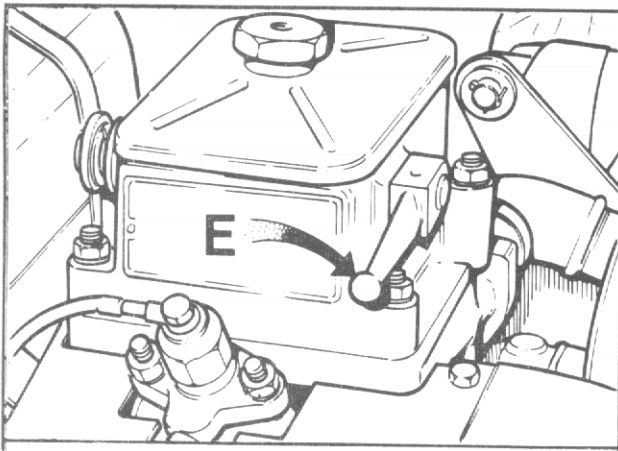


FIG 2

FIG 3

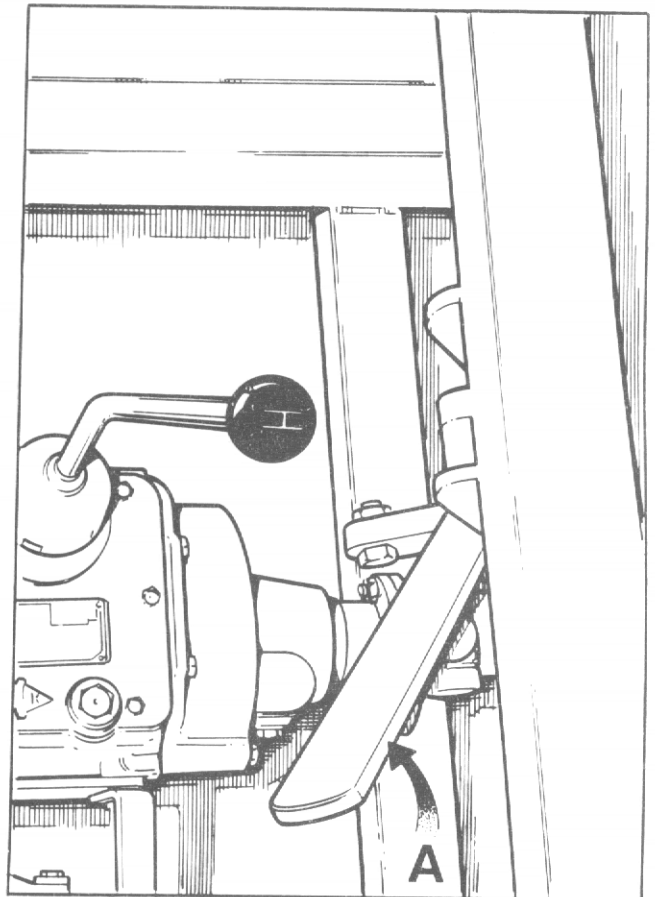
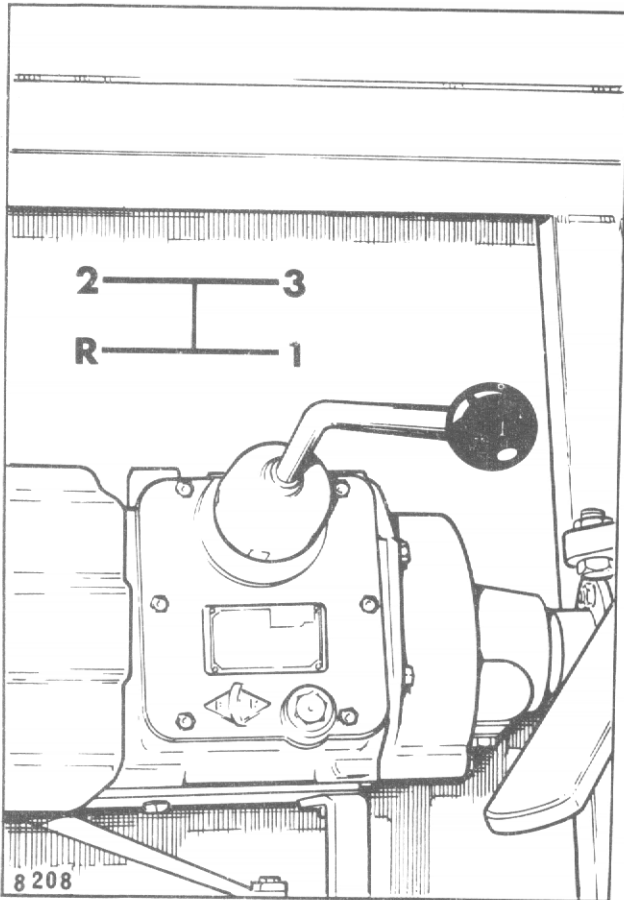


FIG 4

FIG 5

## OPERATION

### Starting

#### PETTER ENGINE

(See fig. 2)

1. Lift red-painted overload stop (A) situated on fuel pump immediately above priming lever (B), and move fuel pump racks (C) into fully-open position.
2. Operate priming lever (B) six times.

NOTE: This is unnecessary if engine is already warm.

3. Lift decompression lever (E), 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 lever and engine should fire.
4. If engine does not fire, lift decompression lever and slowly crank engine a few times before attempting to start again. Where ambient temperature is 50°F (-15°C) or below, a cold starting aid should be fitted.

#### LISTER ENGINE

(See fig. 3)

1. Pull out overload lever (D) and lift to its highest position.

NOTE: This is unnecessary if engine is already warm.

2. Lift decompression lever (E), 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 lever and engine should fire.
3. If engine does not fire, lift decompression lever and slowly crank engine a few times before attempting to start again. Where ambient temperature is 50°F (-15°C) or below, a cold starting aid should be fitted.
4. Set overload lever (D) horizontal when engine starts.

### Stopping

#### PETTER ENGINE

(See fig. 2)

Hold the fuel pump rack (C) in the fully forward position, or lift the priming lever to the horizontal, until engine stops, then release.

#### LISTER ENGINE

(See fig. 3)

Push overload lever (D) to its lowest position.

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.

NOTE: LISTER ENGINE has a self-bleeding fuel system.

### Gear Shift Lever

(See Fig. 4)

The dumper is fitted with three forward gears and one reverse gear. When changing gear, the clutch pedal is used in the normal manner.

### Skip Release Lever

(See Fig. 5)

1. To tip the skip pull release lever (A) far enough back to release catch pin. If two position catch is fitted skip will then tip to mid position. Further movement of lever will release catch from mid position. To release from load position to fully tipped position when two position catch is fitted, pull release lever fully back.
2. To return skip to parked position pull it back using tip handle, and ensure that skip locates in second notch on release lever (A).

## GENERAL MAINTENANCE

### Periodic Maintenance

1. DAILY check engine oil level and fill to full mark on dipstick, if necessary.
2. DAILY fill fuel tank, Never allow there to be a depth of less than 2" of fuel in tank.
3. WEEKLY check oil level in gearbox and fill to full mark on dipstick, if necessary.
4. WEEKLY remove level plug from drive axle. Oil level should be to bottom of hole. Top up, if necessary.
5. WEEKLY remove level/filler plug from steering box and top up if necessary.
6. WEEKLY apply grease to all grease nipples.
7. WEEKLY check all wheel nuts and tighten if necessary.
8. WEEKLY check tyre pressures (32 lbs./sq. in.)
9. OCCASIONALLY check all nuts and bolts and tighten, if necessary.

### Lubrication

(See fig 6)

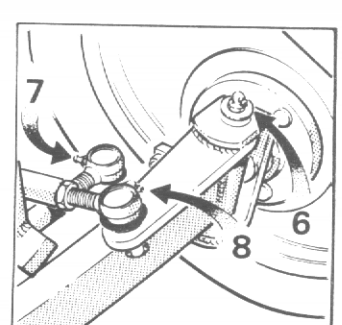
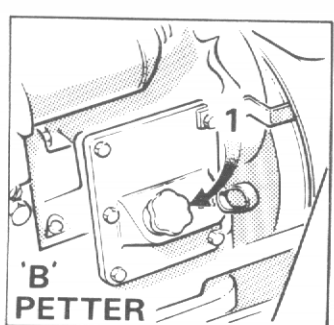
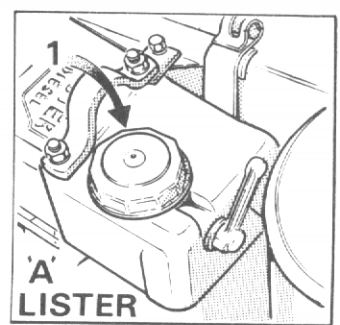
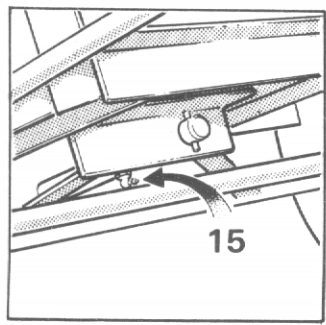
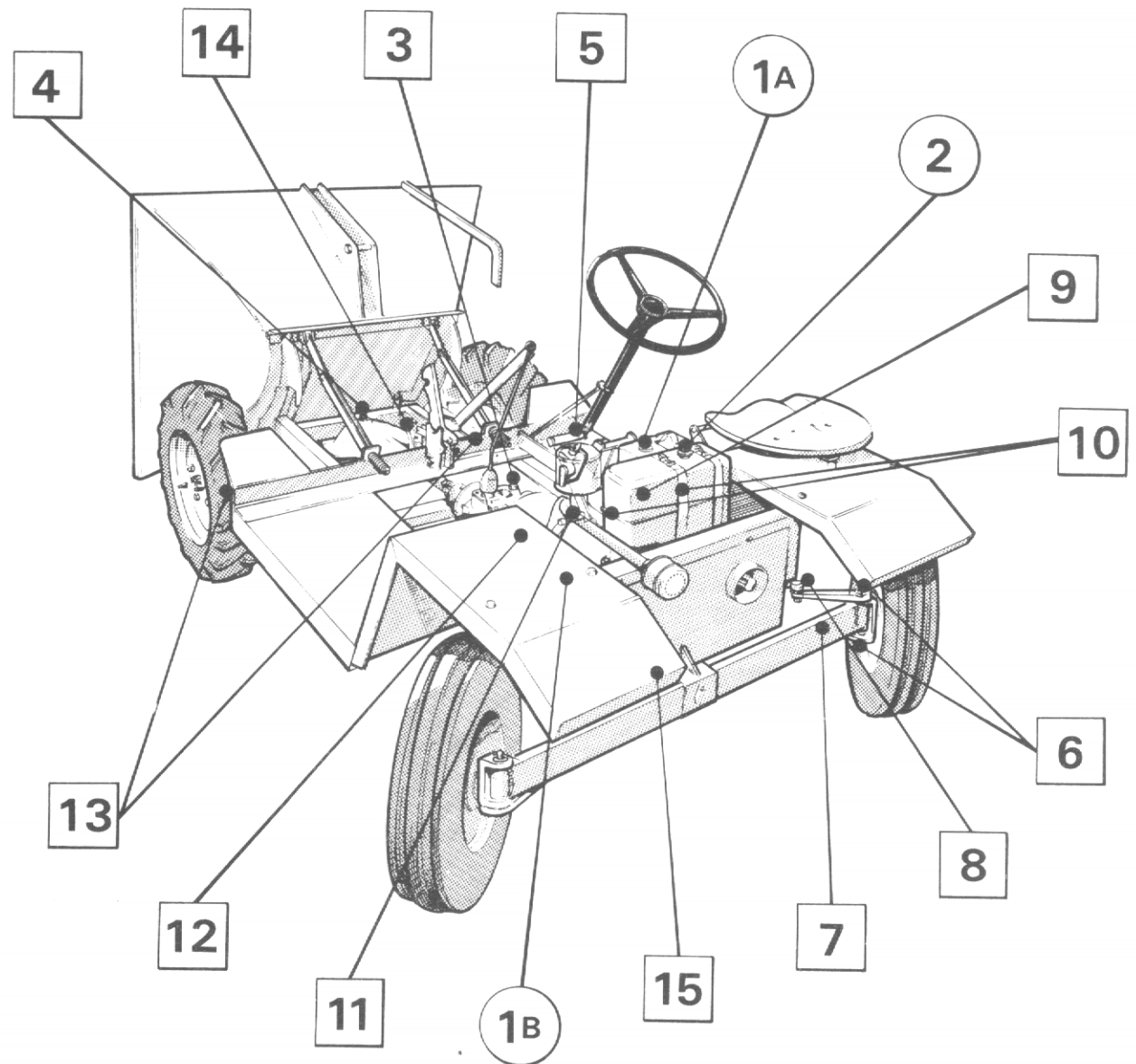
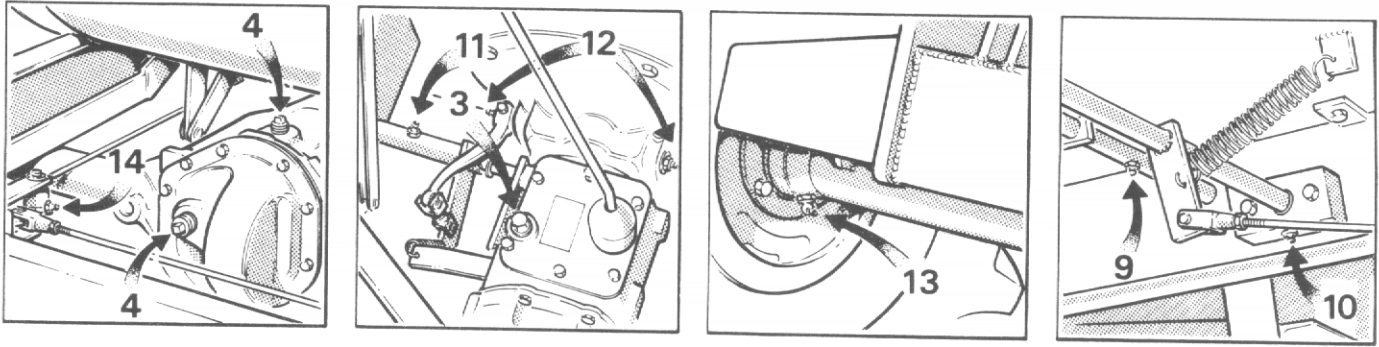
Period	Key to Fig.	Description	Lubrication	No. of points
Daily	1	Engine	Engine oil	1
	2	Fuel tank	Diesel Fuel	1
Weekly	3	Gearbox	Gearbox oil	1
	4	Drive Axle	Axle oil	1
	5	Steering box	Axle oil	1
	6	King pins	Grease Gun	4
	7	Track rod ball ends	Grease Gun	2
	8	Drag link ball ends	Grease Gun	2
	9	Accelerator Pedal	Grease Gun	1
	10	Footbrake Pedal Pivot Blocks	Grease Gun	2
	11	Clutch Pedal	Grease Gun	1
	12	Clutch Cross shaft	Grease Gun	2
	13	Drive Axle Hub bearings	Grease Gun	2
	14	Brake compensator lever	Grease Gun	1
	15	Steering Axle pivot	Grease Gun	1

NB. FOR RECOMMENDED LUBRICATING OILS SEE CHART ON PAGE 12.

### Oil Capacities

Engine (Petter).. . . . . 5 pts. (2.86 litres)	Drive Axle .. . . . 5½ pints (3.125 litres)
(Lister) .. . . . 3½pts. (2 litres)	Gear Box .. . . . 2 Pts (1.136 litres)

FOR FULL DETAILS OF THE LUBRICATION AND MAINTENANCE OF THE ENGINE REFER TO MANUFACTURERS MANUAL.



TP085

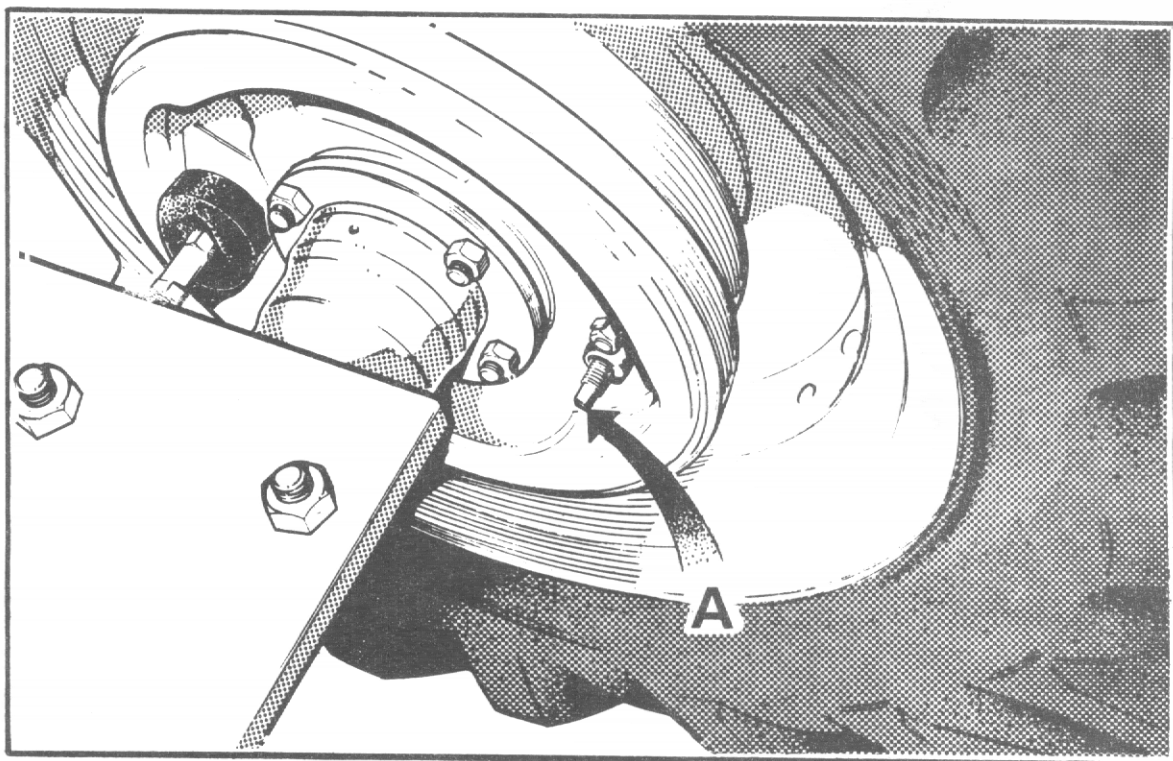
FIG. 6

**Brake Adjustment**  
(See fig. 7)

1. Ensure handbrake is fully off.
2. Pull off rubber cover from brake adjuster (A)
3. Screw adjuster clockwise until brakes are fully on.
4. Slacken adjuster anti-clockwise until brake shoes are just clear of drum.  
This will cause shoes to be centralised on drums and ensure that whole brake lining area is used.

**WARNING**

IF FOR ANY REASON THE ENGINE OR DRIVE AXLE IS REMOVED, WHEN RE-ASSEMBLING MAKE SURE THE PROP. SHAFT IS FULLY SECURED TO THE ENGINE AND DRIVE AXLE BEFORE TIGHTENING UP THE ENGINE/ DRIVE AXLE MOUNTINGS. THIS IS TO PRESERVE THE CORRECT FIXED LENGTH OF THE PROP. SHAFT WHICH IS VITAL TO THE CORRECT RUNNING OF THE DUMPER.



TP 087

**FIG. 7**

## SPECIFICATION

See Fig.8

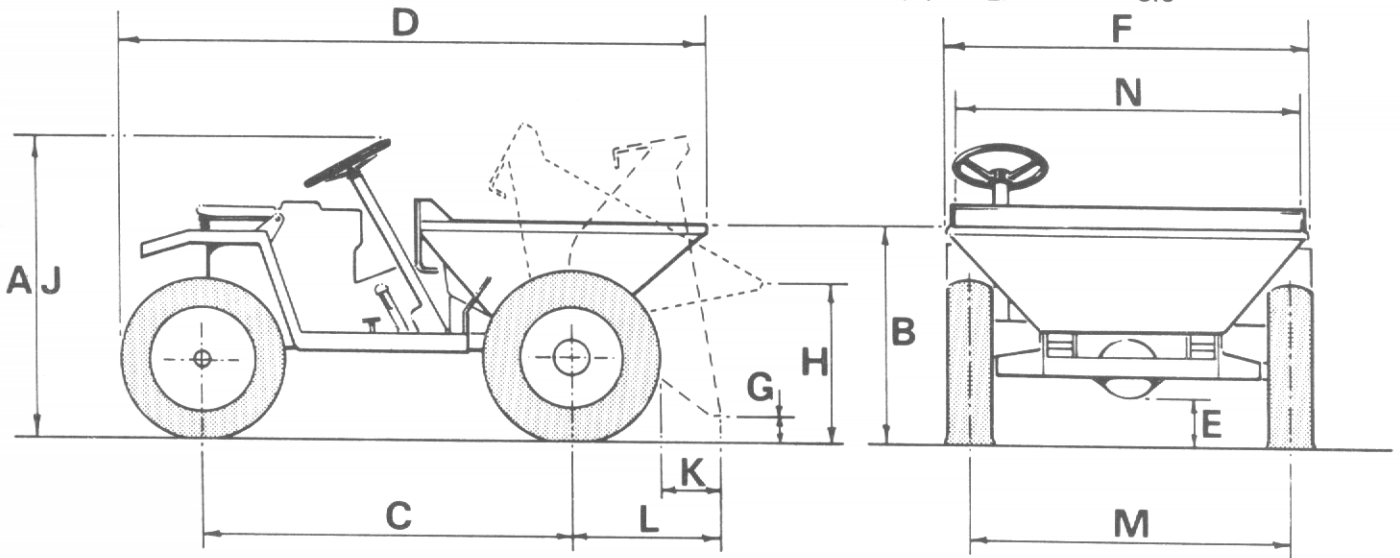
A	Overall height	4ft. 6in.	(1372 mm)
B	Skip loading height	3ft. 2in.	( 965 mm)
C	Wheelbase	5ft. 3½ in.	(1613 mm)
D	Overall Length	8ft. 5 in.	(2565 mm)
E	Ground clearance	8in.	( 203 mm)
F	Overall width	5ft 1½in.	(1562 mm)
G	Skip ground clearance when tipped	4in.	( 102 mm)
H	Skip ground clearance when tipped midway	2ft. 4in.	( 711 mm)
J	Overall height when tipped	4ft. 6in.	(1372 mm)
K	Discharge forward of tyre	11in.	( 279 mm)
L	Overhang	2ft. 1in.	( 635 mm)
M	Wheel track	4ft. 5½in.	(1359 mm)
N	Prow width	4ft.10in.	(1473 mm)
	Turning Circle	24ft. 9in.	(7544 mm)
	Vehicle weight	16 cwt	( 813 kg)
	Articulation	1ft. 2in.	( 356 mm)

### Skip Capacities

Water level	16 cu. ft	(.453 cu.m.)
Struck level	16 cu. ft	(.453 cu.m.)
Heaped capacity	26 cu. ft	(.736 cu.m.)
Maximum Payload	1680 lbs.	(762.72 kgs.)

### Road Speeds at 1650 R.P.M. (Petter Engine)

	m.p.h.	k.p.h.
1st	2.2	3.5
2nd	5.0	8.0
3rd	9.25	14.9
Rev.	2.4	3.9



TP087

FIG. 8

RECOMMENDED LUBRICATING OILS

COMPANY	ENGINE	TRANSFER BOX & DRIVE AXLE	GEARBOX	WHEEL BEARINGS & OTHER GREASE POINTS	HYDRAULIC SYSTEM
(U.K.) ESSO (Overseas)	ESSOLUBE HDX 20W  ESSOLUBE HDX 30 ESSOLUBE HDX 20W ESSOLUBE HDX 10W	GEAR OIL GP 90/140  GEAR OIL GP 140 GEAR OIL GP 90/140 GEAR OIL GP 80	ESSOLUBE HDX 30  ESSOLUBE HDX 30	BEACON 2  BEACON 2	NUUTO H44  NUUTO H 54 NUUTO H 44 NUUTO H 40
(U.K.) CASTROL	DEUSOL CRB 20  DEUSOL CRB 30 DEUSOL CRB 20 DEUSOL CRB 10	DEUSOL GEAR EP 90  DEUSOL GEAR EP 140 DEUSOL GEAR EP 90 DEUSOL GEAR EP 80	DEUSOL CRB 30  DEUSOL CRB 30	CASTROL SPHEEROL APT 2  CASTROL SPHEEROL APT 2	CASTROL HYSPIN AWS 32
(U.K.) SHELL (Overseas)	ROTELLA SX OIL 20/20W  ROTELLA SX OIL 30 ROTELLA SX OIL 20/20W ROTELLA SX OIL 10W	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 27
(U.K.) BP (Overseas)	VANELLUS M20W  VANELLUS M30 VANELLUS M20W VANELLUS M10W	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) ALL TEMPERATURES	DELVAC 1220  DELVAC 1230  DELVAC 1220  DELVAC 1210 DELVAC SPECIAL 10W-30	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	CENTLUBE HD 20  CENTLUBE HD 30 CENTLUBE HD 20 CENTLUBE HD 10	CENTURY EP 90  CENTURY EP 140 CENTURY EP 90 CENTURY EP 80	CENTLUBE HD 30  CENTLUBE HD30	REGULUS A2  REGULUS A2	CENTURY PWLA HYD OIL  CENTURY PWLA HYD OIL

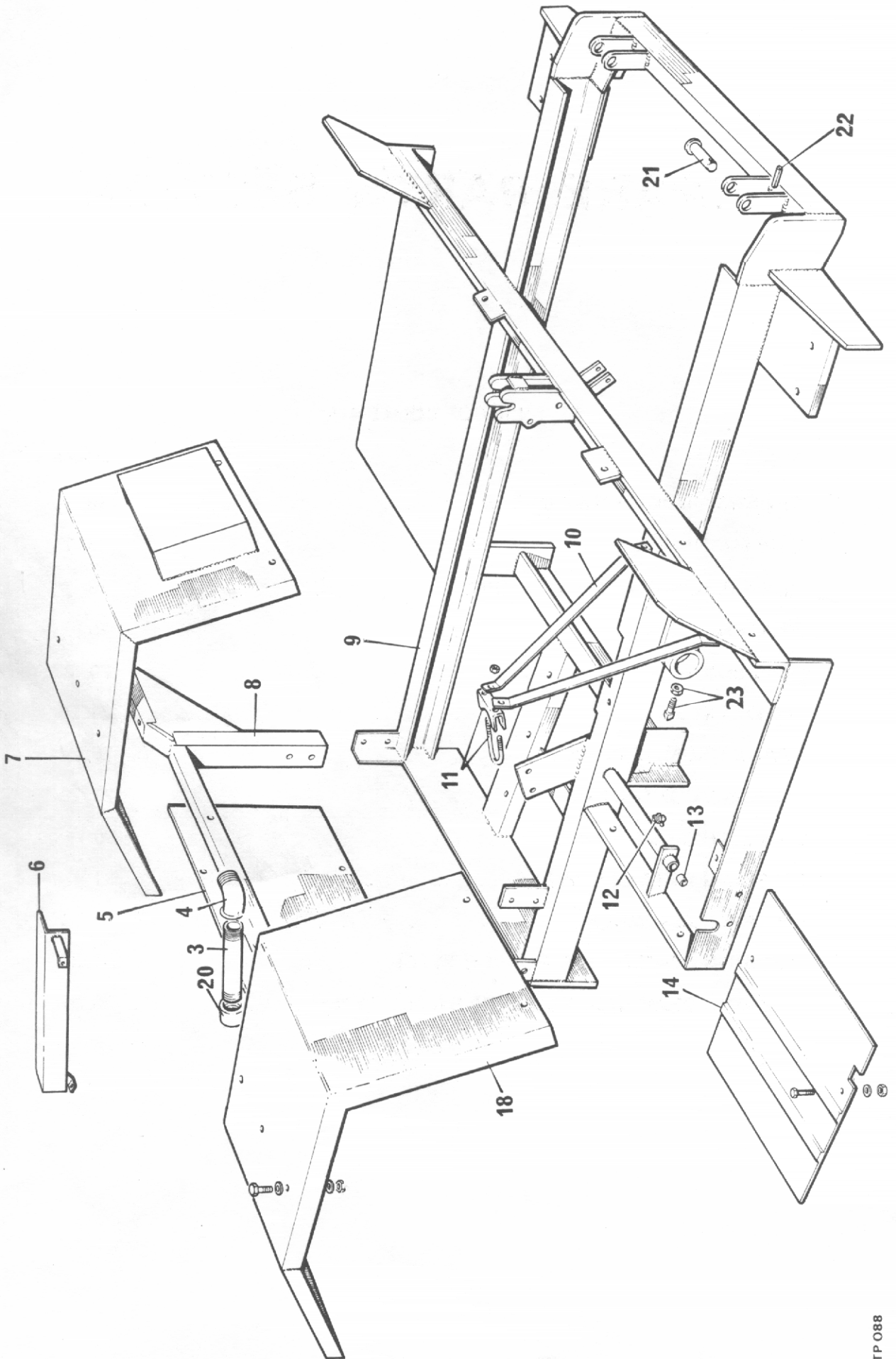
IN THE UNLIKELY EVENT OF THE ABOVE OILS NOT BEING AVAILABLE  
EQUIVALENT OILS SUPPLIED BY A REPUTABLE MANUFACTURER MAY BE USED



# SPARE PARTS SECTION

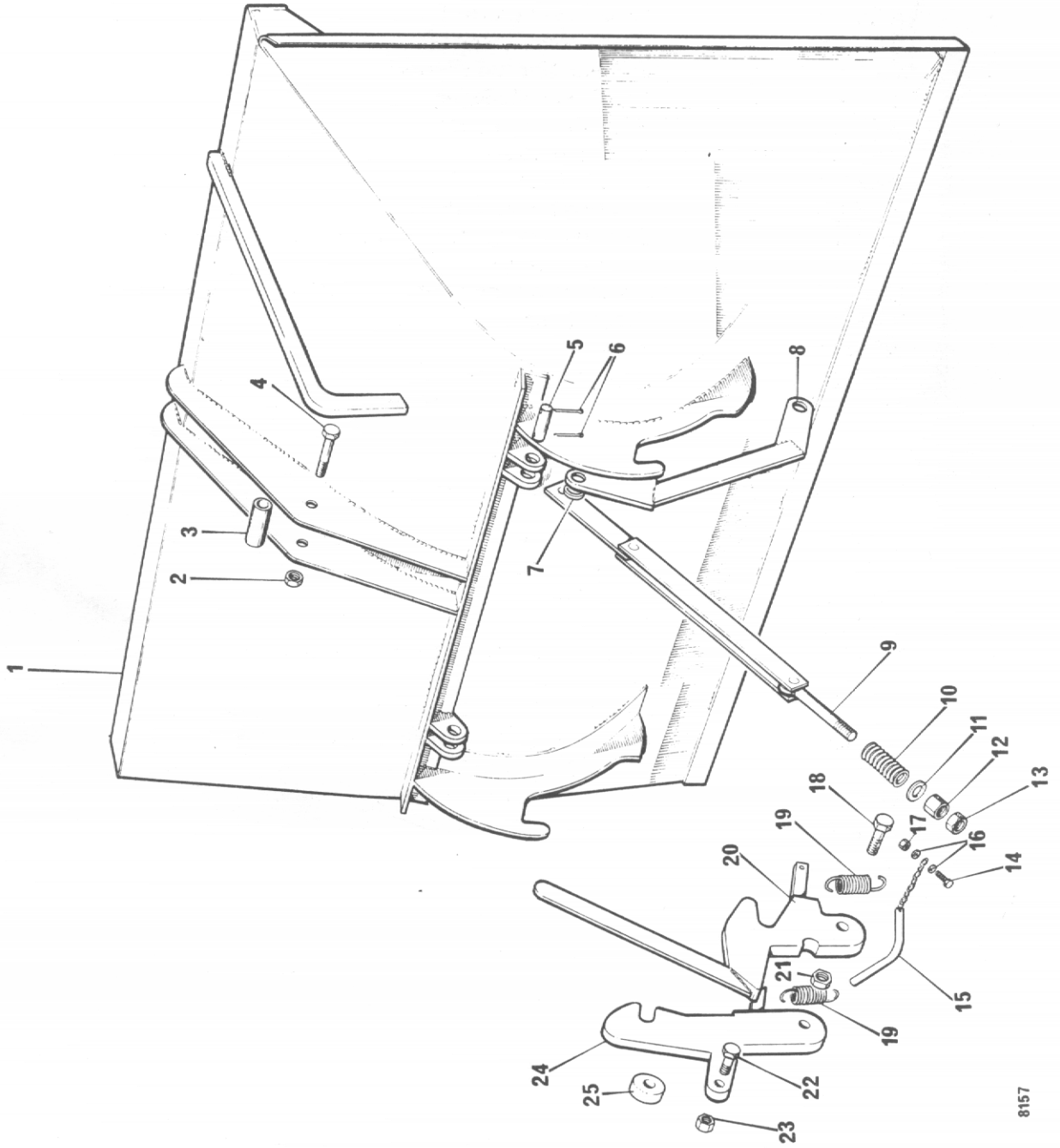
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STEERING GEAR (RECIRCULATING BALL TYPE) . . . . .	36, 37



### CHASSIS MUDWINGS AND COVERS

Item No.	Part No.	Description	Qty
2	20072.A01	Seat . . . . .	1
3	2 SE 100	Exhaust Pipe (Petter) . . . . .	1
	2 SE 95	Exhaust Pipe (Lister) . . . . .	1
4	C 165-3	Elbow 1" BSP Male & Female - (Petter) . . . . .	1
	2 SE 98	Elbow 1 1/4" BSP Male & Female - (Lister) . . . . .	1
5	2 SE 94	Rear Cover (Petter) . . . . .	1
	2 SE 88	Rear Cover (Lister) . . . . .	1
6	20108.A01	Exhaust Shroud (Petter) . . . . .	1
7	2 SE 61	Left Hand Mudwing. . . . .	1
8	2 SE 96	Rear Mudwing Support . . . . .	1
9	2 SE 60	Chassis (Petter) . . . . .	1
	2 SE 59	Chassis (Lister) . . . . .	1
10	2 SE 83	Steering Column Brace . . . . .	2
11	SYC 3	Steering Column Clamp 1 3/8" (Recirculating Ball type only) . . . . .	1
	SYC 7	Steering Column Clamp 1 3/4" (Cam & Roller type only)	1
12	T90	Grease Nipple . . . . .	1
13	WB0808	Bush . . . . .	2
14	2 SE 85	Drivers Footplate. . . . .	1
	2SE 118	Exhaust Bend (Lister ST1 only) . . . . .	1
18	40053.A01	Right hand mudwing . . . . .	1
20	C165-2	Socket 1" BSP (Petter) . . . . .	1
	2SE 102	Socket 1 1/4 BSP (Lister) . . . . .	1
21	2SE 106	Pivot Pin . . . . .	2
22	C 129A	Tension Pin . . . . .	2
23	C.212	12mm x 25mm long Cup Point Screw and Lock Nut .	2
	69S02E	Bolt (Seat fixing) . . . . .	4
	41S04	Washer (Seat fixing) . . . . .	4
	DM 159	M/c Identification & payload - Label . . . . .	1
	DM 154	WINGET - Label . . . . .	3
	DM 180	Winget Dumper Safety - Label . . . . .	1
	DM 197	Recommended Lubricants - Label . . . . .	1

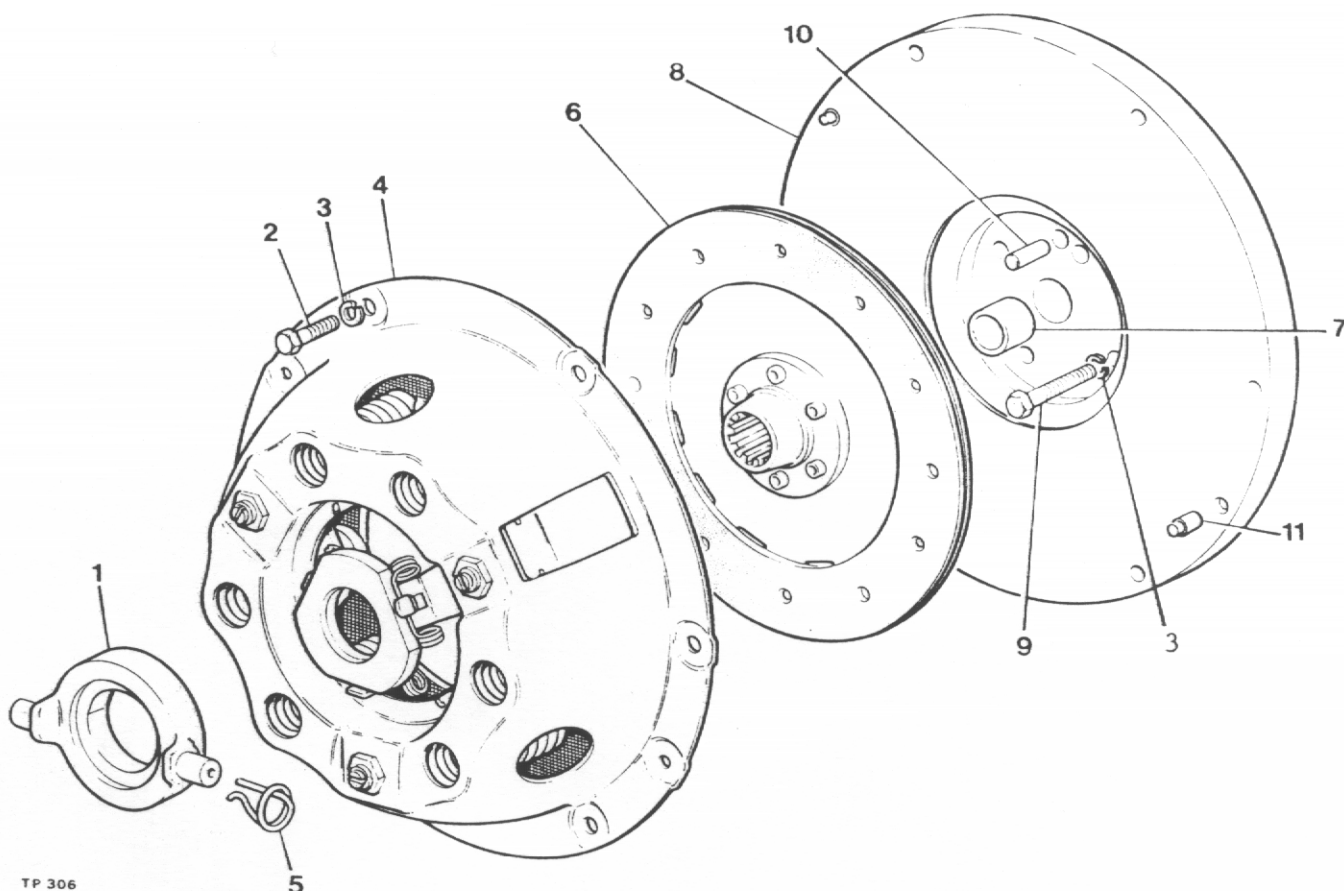


8157

## SKIP AND LINKAGE

Item No.	Part No.	Description	Qty
1	2 SE 63	Skip . . . . .	1
2		Nut 5/8" BSF . . . . .	1
3	C 140 A	Tube . . . . .	1
4		Bolt 5/8" BSF x 4.1/2" Long . . . . .	1
5	2 SE 69	Pin - (Check Chain) . . . . .	2
6		Split Pin 1/8" x 1" Long . . . . .	2
7	2 SE 73	Spacer . . . . .	2
8	2 SE 70	Radius Rod . . . . .	2
9	2 SE 68	Skip Check Link . . . . .	2
10	C173 A	Spring . . . . .	2
11	C143 B	Plain Washer . . . . .	2
12		Nut 1/2" BSF . . . . .	2
13		Locknut 1/2" BSF . . . . .	2
14		Setscrew 1/4" BSF x 1.1/2" Long . . . . .	1
15	2 SE 99	Pin and Chain . . . . .	1
16		Washer 1/4" Flat . . . . .	2
17		Nut 1/4" BSF . . . . .	1
18		Bolt 5/8" UNF x 3 1/4" long . . . . .	1
19	C 173 B	Spring . . . . .	2
20	2 SE 67	Skip catch Handle Assembly . . . . .	1
21		Nut 5/8" BSF . . . . .	1
22		Bolt 1/2" BSF x 1.1/4" Long . . . . .	1
23		Nut 1/2" BSF . . . . .	1
24	2 SE 97	Midway Catch . . . . .	1
25	10569.A01	Spacer in Lieu of Midway Catch . . . . .	1

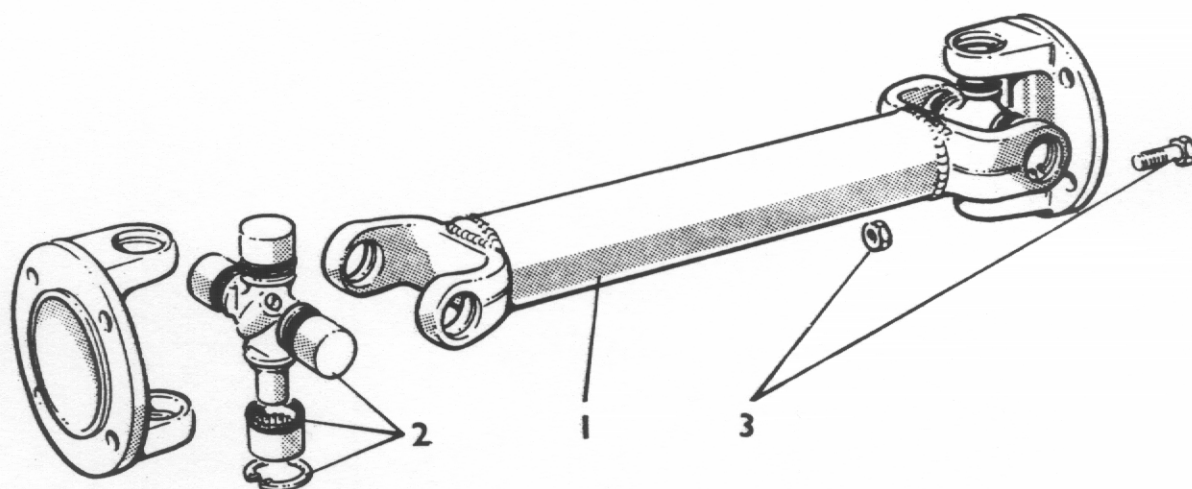
## FLYWHEEL AND CLUTCH ASSEMBLY



TP 306

Item No.	Part No.	Description	Qty.
1	10579A01	Clutch Release Bearing	1
2	28S02D	Screw Set	6
3	41S04	Washer Spring	10
4	10597A01	Cover Assembly	1
5	10579A101	Retainer Spring	2
6	10598A02	Drive Plate	1
7	10580A0101	Bush	1
8	10580A02	Flywheel Assembly (comprises of items 7, 8, & 11)	1
9	1S02C	Bolt, Petter PH Engine (drill for locking wire)	4
9A	6S02B	Bolt, Lister Engine (drill for locking wire)	4
10	C321	Dowel	1
11	10580A0102	Dowel	2
	10948A02	Clutch Kit (comprises of items 1, 4, 5 & 6)	1

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



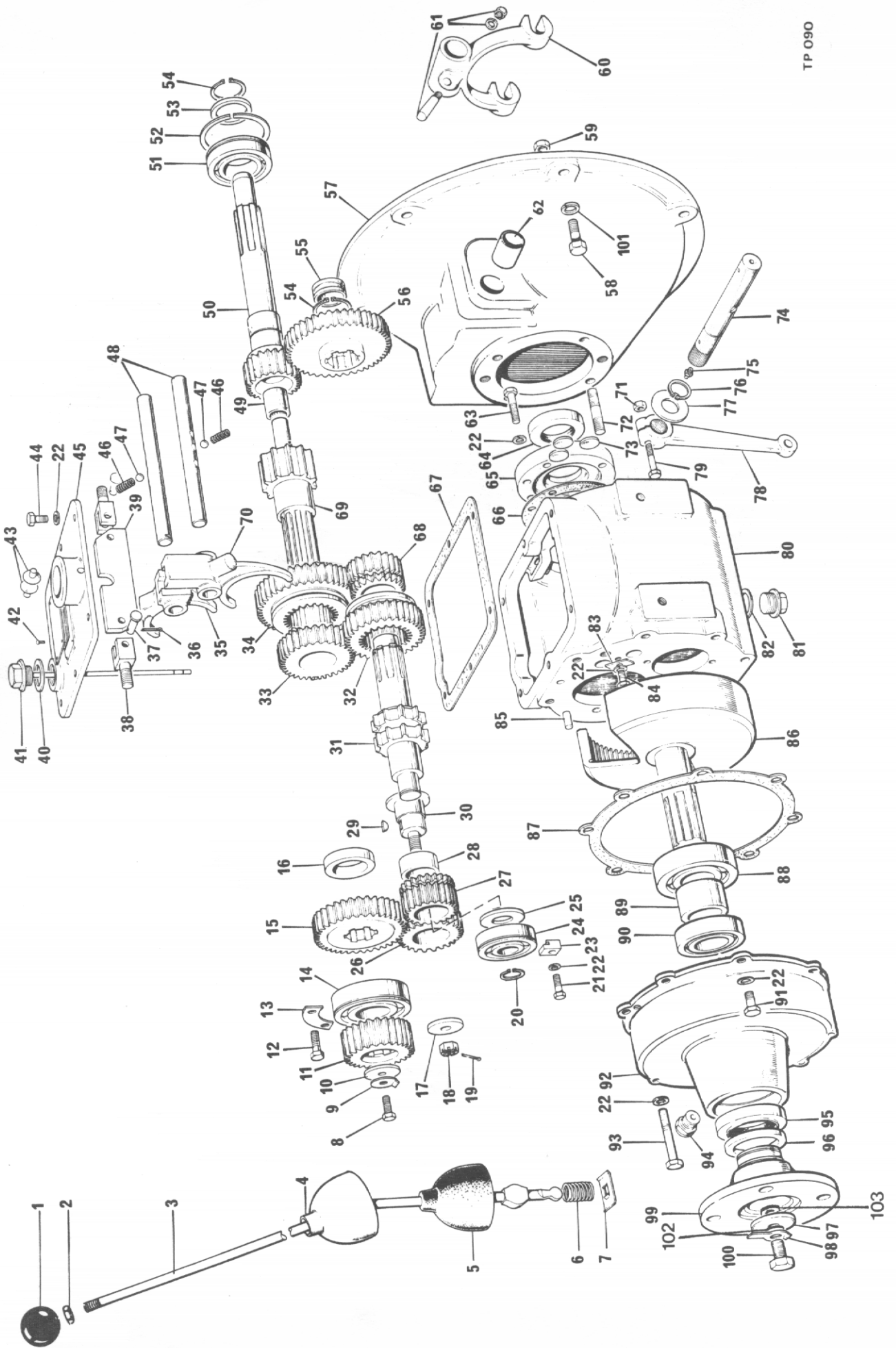
TP 089

### PROPSHAFT

Item No.	Part No.	Description	Qty.
1	20265A01	Propshaft	1

Two different propshafts have been fitted in the past, whilst shafts are interchangeable the repair kits are not. When ordering spares check dimensions of old universal joint before placing order

2	10313A04	Kit UJ, 63mm across, 22mm Cups	2
2	V601300	Kit UJ, 63mm across, 27mm Cups	2
3	6S02Z	Bolt 5/16"UNF x 1"	8
3A	107S02	Nut Nyloc 5/16UNF	8





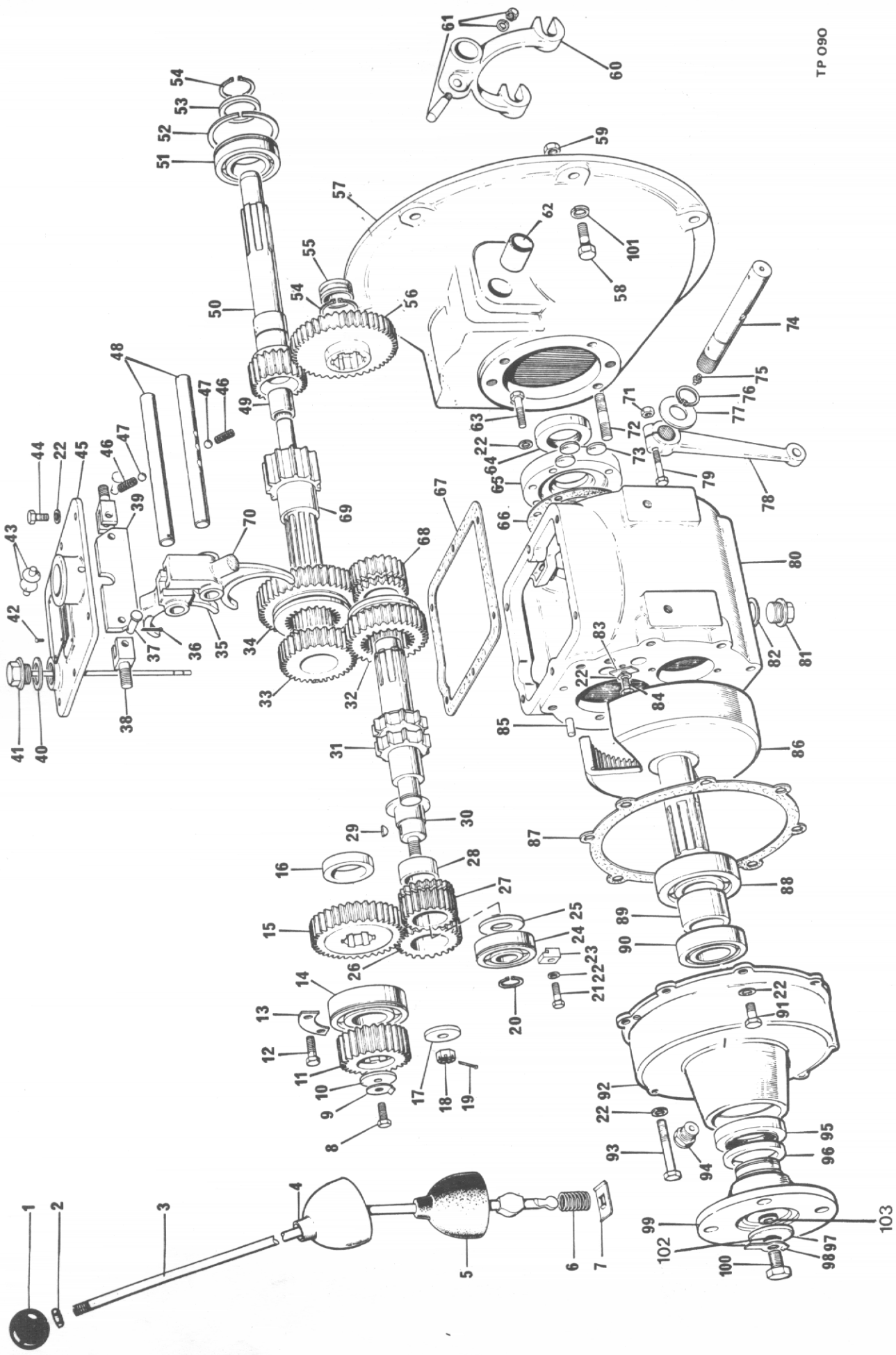
GEARBOX 40M/42 - NEWAGE 30106.A01

Item No.	Part No.	Description	Qty.
1	30101.A0201	Knob .....	1
2	95S .03	Locknut - Gear Lever .....	1
3	30106.A0102	Gear Lever .....	1
4	30101.A0203	Cap - Gear Lever .....	1
5	30101.A0204	Cover - Gear Lever .....	1
6	30101.A0205	Spring - Gear Lever .....	1
7	30101.A0206	Retaining Plate - Gear Lever .....	1
8	28S.03E	Screw - Mainshaft .....	1
9	30190.A0101	Lock Washer - Tab .....	1
10	30190.A0102	Washer - Reduction Pinion .....	1
11	30190.A0103	Reduction Pinion .....	1
12	28S.01B	Screw - Bearing Retainers .....	2
13	30190.A0104	Bearing Retainer - Small .....	1
14	30101.A0210	Bearing - Mainshaft Rear .....	1
15	30101.A0211	Output Gear .....	1
16	30101.A0212	Spacer - Output Gear .....	1
17	30101.A0213	Washer - Reverse Pinion Gear .....	1
18	102S .04	Nut - Reverse Spindle .....	1
19	44S .02C	Split Pin .....	1
20	30101.A0215	Circlip .....	1
21	28S.01D	Screw .....	2
22	67S.01	Washer .....	A/R
23	30190.A0105	Clip, Layshaft Bearing .....	2
24	30101.A0216	Layshaft Bearing .....	1
25	30101.A0217	Bearing Spacer .....	1
26	30101.A0218	Reverse Pinion .....	1
27	30101.A0219	Reverse Speed Gear .....	1
28	30101.A0220	Bush - Reverse Pinion .....	1
29	30101.A0221	Key, Reverse Pinion Shaft .....	1
30	30101.A0222	Shaft, - Reverse Pinion .....	1
31	30101.A0223	Layshaft .....	1
32	30101.A0224	2nd Speed Sliding Gear .....	1
33	30101.A0225	2nd Speed Gear .....	1
34	30101.A0226	1st Speed Gear .....	1
35	30101.A0227	Selector Fork 2nd & 3rd .....	1
36	44S.01C	Split Pin, Interlock .....	2
37	30101.A0228	Clevis Pin, Interlock .....	2
38	30101.A0229	Stud, Interlock .....	2
39	30101.A0230	Interlock Plate .....	1
40	42S .05	Seal, Dipstick .....	1
41	30101.A0232	Dipstick .....	1
42	30101.A0233	Drive Screw .....	4
43	30101.A0234	Pad - Gear Lever .....	2
44	28S.01C	Screw - Top Cover .....	6
45	30101.A0235	Top Cover .....	1
46	30097.A0185	Detent Spring .....	2
47	30101.A0236	Detent Ball .....	2
48	30101.A0237	Selector Shaft .....	2
49	30101.A0238	Bearing, Primary Shaft .....	1
50	30101.A0239	Primary Shaft .....	1

**IMPORTANT:** With effect from G/Box Batch No.B 1238 the following changes will take place:-

Item	Old Part No.	Description	New Part No.
41	30101.A0232	Dipstick	30218.A0223
31	30101.A0223	Layshaft	30101.A0266
55	30101.A0244	Bearing - Layshaft	30101.A0267

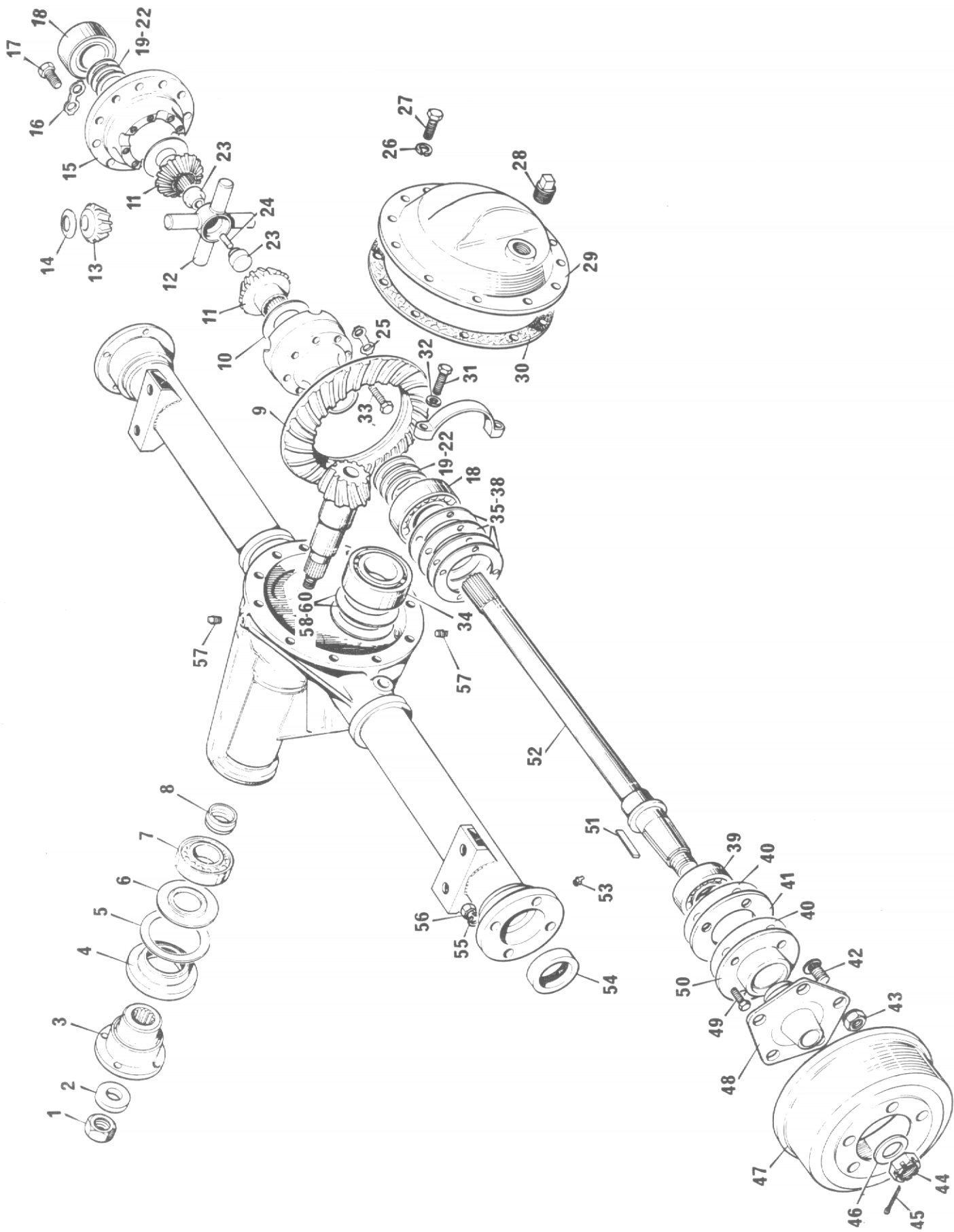
The layshaft will only be supplied complete with bearing as a replacement under part no. 30101.A0268 and will be totally interchangeable with current layshaft. (New Oil Capacity now 2 Litres previously .85 Litres)



TP 090

GEARBOX 40M/42 - NEWAGE 30106.A01

Item No.	Part No.	Description	Qty.
51	30101.A0240	Input Bearing .....	1
52	30101.A0241	Snap Ring .....	1
53	30101.A0242	Bearing Spacer .....	1
54	30101.A0243	Circlip .....	2
55	30101.A0244	Bush - Layshaft .....	1
56	30101.A0245	1st Reduction Gear .....	1
57	30101.A0246	Clutch Housing .....	1
58	3S.03E	Bolt - 3/8" B.S.F. x 1" (Petter) (G/Box - Eng.).	8
	69S.03E	Bolt - 3/8" U.N.C. x 1" (Lister) ( " " " ).	8
59	9S.03	Nut 3/8" U.N.F. ....	6
60	30097.A0110	Clutch Release Fork .....	1
61	30097.A0111	Cotter, Nut & Washer S/A .....	1
62	30097.A0114	Bush, Cross Shaft .....	2
63	6S.01B	Bolt, Front Cover .....	4
64	30101.A0247	Oil Seal - Input .....	1
65	30101.A0248	Front Cover .....	1
66	30101.A0249	Joint, Front Cover .....	1
67	30101.A0250	Joint, Top Cover .....	1
68	30101.A0219	Reverse Speed Gear .....	1
69	30190.A0106	Mainshaft .....	1
70	30101.A0252	Selector Fork 1st & Rev .....	1
71	9S.01	Nut, Clutch Lever .....	1
72	30101.A0253	Stud, Clutch Housing .....	6
73	30101.A0254	Sealing Disc, Selector Shaft .....	3
74	30101.A0255	Clutch Cross Shaft .....	1
75	30103.A0102	Grease Nipple .....	2
76	30101.A0256	Circlip .....	1
77	30097.A0133	Washer - Cross Shaft .....	1
78	30097.A0109	Clutch Release Lever .....	1
79	6S.01C	Bolt - Clutch Lever .....	1
80	30101.A0262	Casing .....	1
81	30190.A0108	Drain Plug .....	1
82	42S.05	Seal, Drain Plug .....	1
83	30101.A0259	Selector Locking Strip .....	1
84	28S.01C	Setscrew .....	2
85	30097.A0155	Dowel .....	2
86	30190.A0110	Internal Gear .....	1
87	30190.A0112	Joint - Reduction Housing .....	1
88	30190.A0111	Bearing - Internal Gear Front .....	1
89	30101.A0260	Spacer .....	1
90	30190.A0113	Bearing - Internal Gear Rear .....	1
91	28S.02D	Screw - Hex. Hd. ....	5
92	30190.A0114	Reduction - Housing .....	1
93	6S.02J	Bolt - Hex. Hd. ....	1
94	30097.A0171	Breather .....	1
95	30097.A0132	Oil Seal - Rear .....	1
96	30101.A0265	Dust Shield .....	1
97	30101.A0208	Washer - Coupling .....	1
98	30101.A0207	Lock Washer .....	1
99	30106.A0101	Coupling .....	1
100	28S.05E	Screw - Coupling .....	1
101	41S.05	Spring Washer .....	8
102	30143.A0111	Fibre Washer .....	1
103	30143.A0101	Fibre Washer .....	1



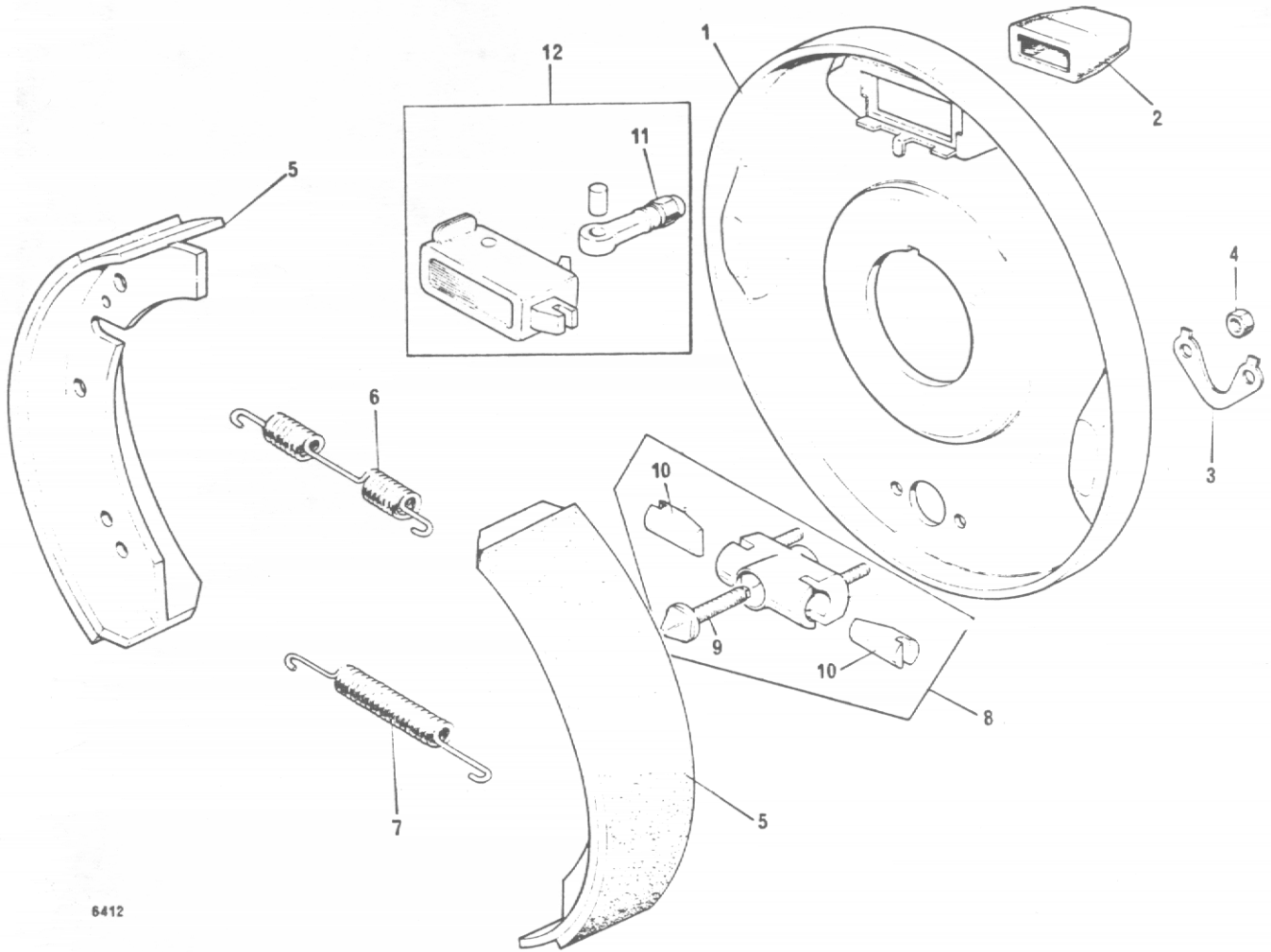
SALISBURY AXLE (30085.A03)

Item No.	Part No.	Description	Qty.
	30085.A03	Drive Axle Complete ..... <b>04HA001268CFA</b> .....	1
1	30166.A0106	Pinion Lock Nut .....	1
2	30088.A0101	Pinion Washer .....	1
3	30085.A0301	Companion Flange .....	1
4	30166.A0156	Pinion Oil Seal .....	1
5	30166.A0146	Pinion Seal Gasket .....	1
6	30085.A0102	Pinion Oil Slinger .....	1
7	30085.A0103	Pinion Bearing Outer .....	1
8	30085.A0104	Collapsible Spacer .....	2
9	30085.A0105	Service Drive Gear .....	1
10	30085.A0106	Differential Side Gear Thrust Washer .....	4
11	30085.A0107	Differential Side Gear .....	2
12	30085.A0108	Differential Pinion Mate Shaft .....	1
13	30085.A0109	Differential Pinion Mate .....	4
14	30085.A0110	Differential Pinion Mate Thrust Washer .....	4
15	30085.A0111	Differential Case .....	1
16	30085.A0112	Drive Gear Lock Straps .....	5
17	30085.A0113	Drive Gear Bolts .....	10
18	30085.A0114	Differential Bearings .....	2
19	30085.A0115	Differential Bearing Shims .003" .....	A/R
20	30085.A0116	Differential Bearing Shims .005" .....	A/R
21	30085.A0117	Differential Bearing Shims .010" .....	A/R
22	30085.A0118	Differential Bearing Shims .030" .....	A/R
23	30085.A0119	Axle Shaft Spacer .....	2
24	30242.A0144	Shaft Spacer Roll Pin .....	1
25	30085.A0120	Differential Case Lock Strap .....	4
26	30085.A0121	Bolt (Differential Cover) .....	10
27			
28	30085.A0122	Oil Level Plug .....	1
29	30085.A0123	Differential Cover .....	1
30	30085.A0124	Differential Cover Gasket .....	1
31	30166.A0103	Differential Bearing Cap Bolts .....	4
32	30166.A0157	Differential Cap Lock Washer .....	4
33	30085.A0125	Differential Case Bolts .....	8
34	30085.A0126	Pinion Bearing - Inner .....	1
35	30085.A0127	Wheel Bearing Shim .003" .....	A/R
36	30085.A0128	Wheel Bearing Shim .005" .....	A/R
37	30085.A0129	Wheel Bearing Shim .010" .....	A/R
38	30085.A0130	Wheel Bearing Shim .030" .....	A/R
39	30085.A0131	Hub Bearing .....	2
40	30085.A0132	Hub Oil Seal Gasket .....	4
41	30085.A0133	Bearing Retainer Plate .....	2
42	30085.A0134	Wheel Stud .....	10
43			
44	30085.A0135	Shaft Nut .....	2
45	30085.A0136	Shaft Split Pin ..... <b>44\$04E</b> .....	2
46	30085.A0137	Shaft Washer .....	2
47	30085.A0138	Brake Drum .....	2
48	30085.A0139	Wheel Hub .....	2
49	30085.A0140	Setscrew .....	8
50	30085.A0141	Hub Oil Seal Assembly .....	2
	30085.A0142	Hub Oil Seal (Not Illustrated) .....	2
51	30085.A0143	Shaft Key .....	2
52	30085.A0144	Axle Shaft .....	2
53	30085.A0145	Grease Nipple - Bearing .....	2
54	30085.A0146	Shaft Oil Seal .....	2

Item No.	Part No.	Description	Qty.
55	30170.A0110	Lock Washer .....	8
56	30171.A0109	Nut .....	8
57	30085.A0147	Drain & Filler Plug .....	2
58	30085.A0148	Pinion Bearing Shims .003" .....	A/R
59	30085.A0149	Pinion Bearing Shims .005" .....	A/R
60	30085.A0150	Pinion Bearing Shims .010" .....	A/R
	30085.A0151	Brake Assembly R.H. (See Sep. Illustration) .....	1
	30085.A0152	Brake Assembly L.H. ( " " " " ) .....	1
	30085.A0166	Service Carrier & Tube Assy.....	1
	30085.A0167	Diff. case Assy. (Comp. items 10,11,12,13,14,15, 23,24,25 & 33.....	1

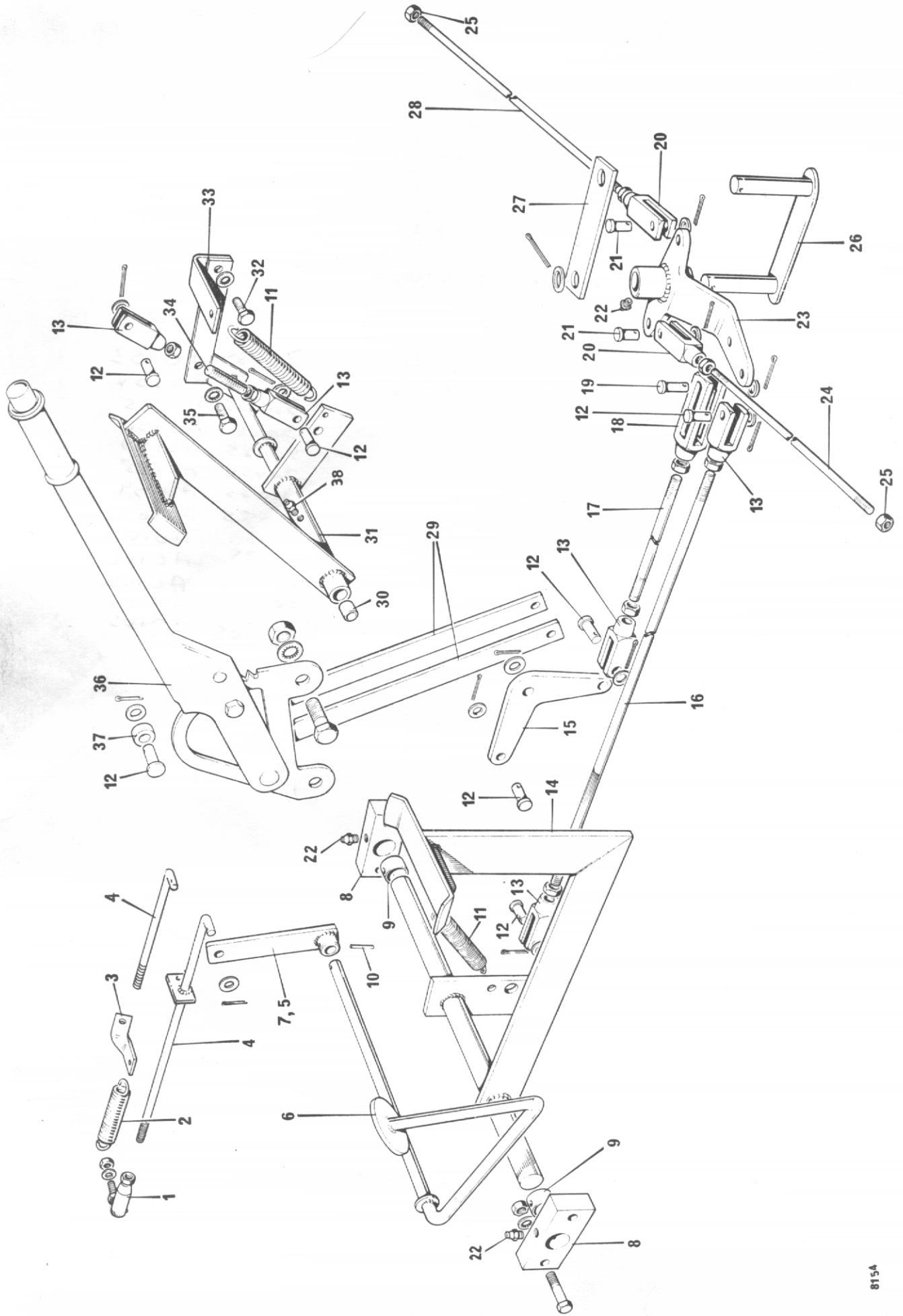
BRAKE DRUM ASSEMBLY

30085.A0151/30085.A0152 (SALISBURY AXLE)



6412

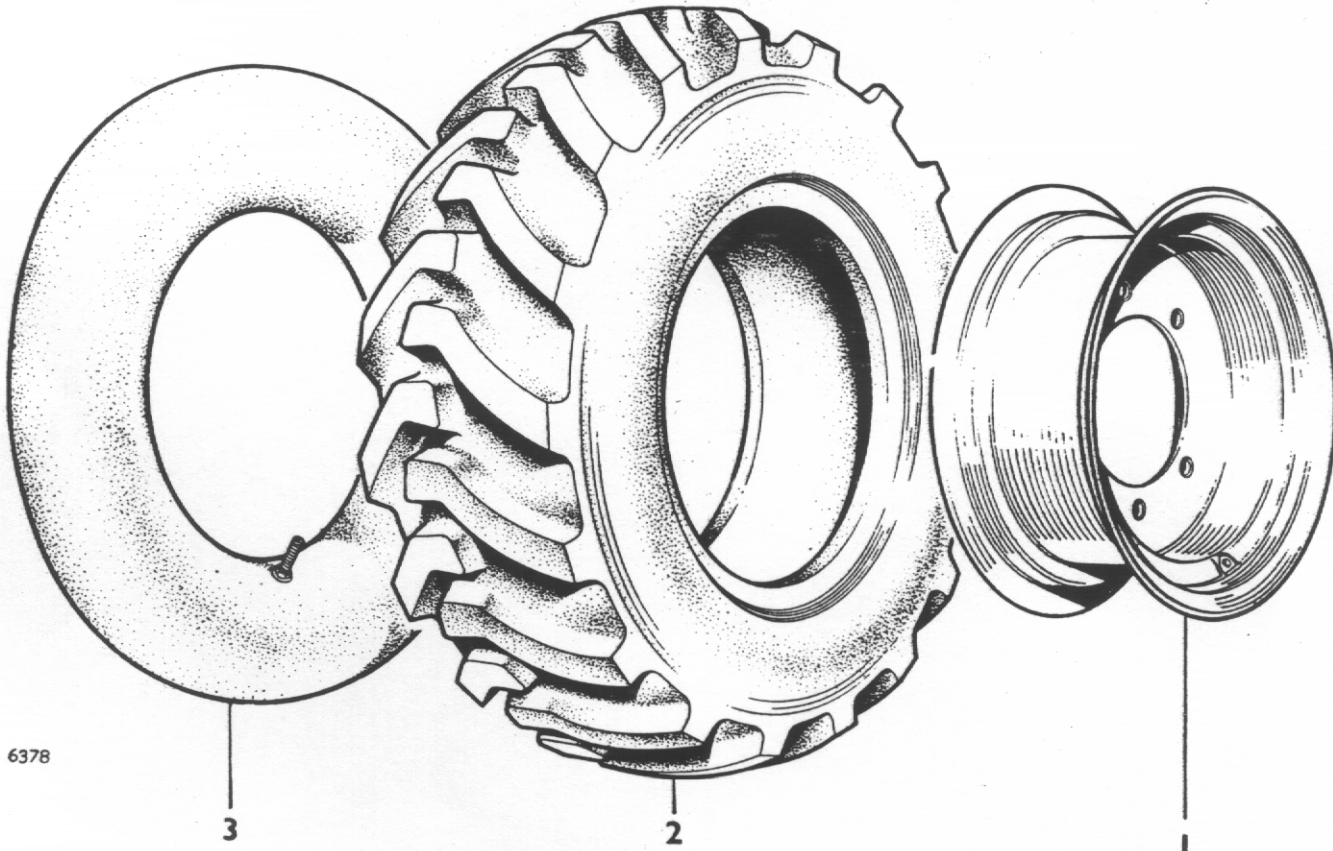
Item No.	Part No.	Description	Qty.
1	30085.A0153	Backplate Right Hand .....	1
	30085.A0154	Backplate Left Hand .....	1
2	30085.A0155	Boot .....	2
3	30088.A0156	Locking Plate .....	2
4	30085.A0157	Nut .....	4
5	30085.A0158	Brake Shoes <i>LB203</i> .....(Pairs).	2
6	30085.A0159	Pull off Spring .....	2
7	30085.A0160	Tension Spring .....	2
8	30085.A0161	Adjusting Assembly (with items 9 & 10) .....	2
9	30085.A0162	Adjuster Screw .....	2
10	30088.A0163	Tapper .....	4
11	30085.A0164	Pull Rod and Pin .....	2
12	30085.A0165	Expander Assembly (inch item 11) .....	2





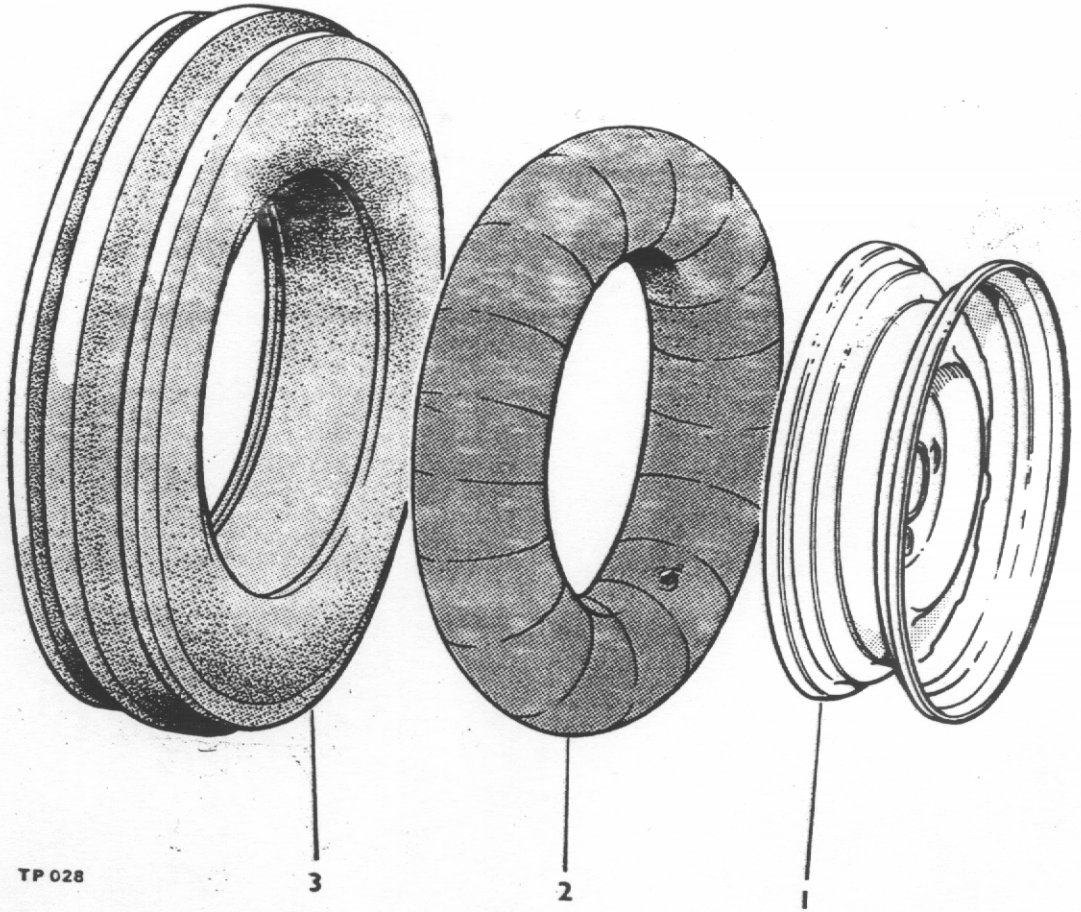
## PEDALS AND CONTROLS

Item No.	Part No.	Description	Qty
1	C 160/B	Accelerator Ball Joint . . . . .	1
2	C 173/D	Accelerator Spring . . . . .	1
3	C 163	Accelerator Spring Bracket . . . . .	1
4	2SE 117	Accelerator Rod — Lister . . . . .	1
	C 299	Accelerator Rod — Petter . . . . .	1
5	C 129	Accelerator Lever (Petter) . . . . .	1
6	C 137	Accelerator Pedal . . . . .	1
7	C308	Accelerator Lever (Lister). . . . .	1
8	2 SE 84	Footbrake Bearing Block . . . . .	2
9	WB 1212	Bush . . . . .	2
10	C 251-1	Tension Pin . . . . .	1
11	C 173/B	Spring . . . . .	2
12	C 174/X	Pin 3/8" Dia . . . . .	7
13	C 174/A	Clevis 3/8" BSF . . . . .	5
14	2 SE 64	Footbrake Pedal . . . . .	1
15	2 SE 82	Bell Crank Lever . . . . .	1
16	2 SE 53	Brake Rod 42" x 3/8" Dia. . . . .	1
17	2 ST 73	Brake Rod 31.1/4" x 3/8" Dia. . . . .	1
18	C 174/B	Clevis 3/8" BSF Slotted . . . . .	1
19	C 174/XL	Pin 3/8" Dia. . . . .	1
20	C 174/E	Clevis 5/16" UNF . . . . .	2
21	C 174/Y	Pin 5/16" Dia. . . . .	2
22	5 ST 100	Grease Nipple . . . . .	3
23	C 272	Compensator . . . . .	1
24	4/60 155	Brake Rod 12" x 5/16" Dia. . . . .	1
25		Locknut 5/16" UNF . . . . .	2
26	C 271	Link Assembly . . . . .	1
27	C 189 A	Link . . . . .	1
28	2 SE 54	Brake Rod 32" x 5/16" Dia. . . . .	1
29	2 SE 89	Handbrake Link Strap . . . . .	2
30	WB 0808	Bush . . . . .	2
31	2 SE 65	Clutch Pedal . . . . .	1
32		Setscrew 3/8" UNF x 1" Long . . . . .	1
33	2 SE 75	Clutch Pedal Mtg. Bracket . . . . .	1
34	C 184	Clutch Rod . . . . .	1
35		Setscrew 3/8" UNF x 3/4" Long . . . . .	2
36	303	Handbrake Assembly . . . . .	1
37	C 179	Handbrake link spacer . . . . .	1
38	131S.4	Grease Nipple (Short) . . . . .	1



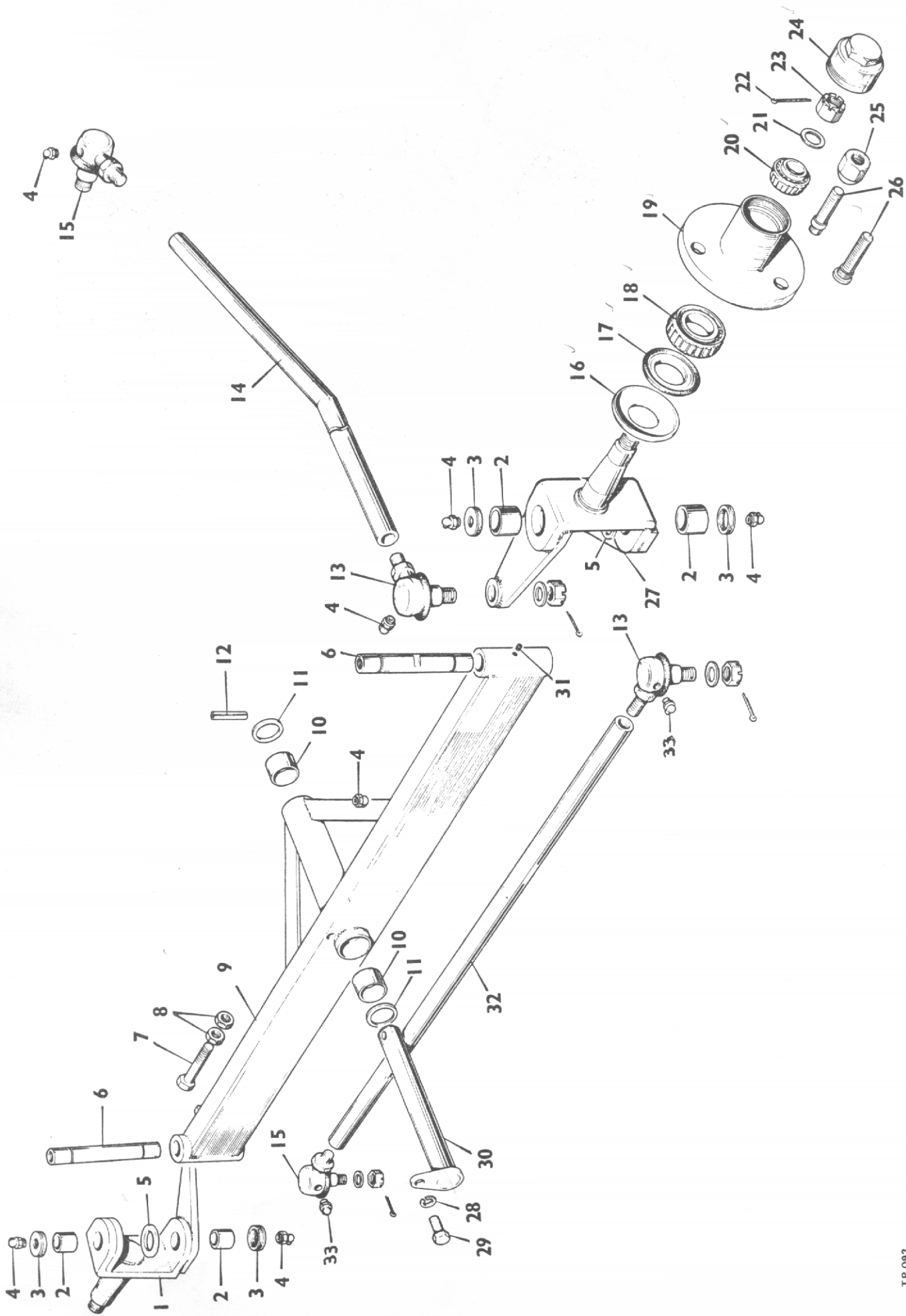
**DRIVE WHEELS & TYRES**

Item No.	Part No.	Description	Qty.
1	24S20	RH Wheel Assembly Complete	1
2	24S19	LH Wheel Assembly Complete	1
3	30033A01	Wheel Rim 4.00 x 16	2
	20S09	Tyre 600 x 16-4 Ply	2
	23S02	Tube 600 x 16	2



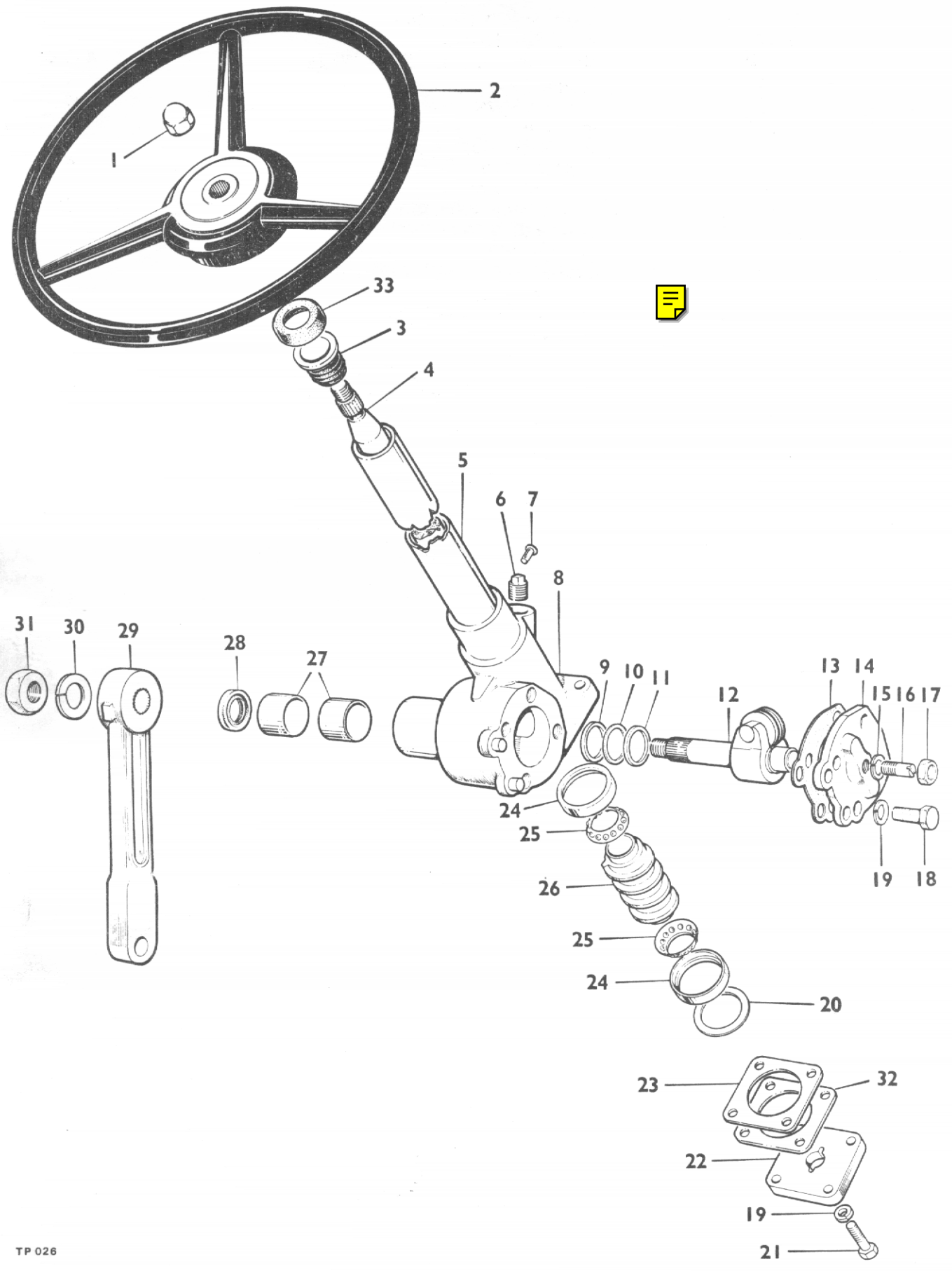
### STEERING WHEELS & TYRES

Item No.	Part No.	Description	Qty.
1	24S35	Steering Wheel Complete	2
2	LP598	Wheel Rim 4.00 x 16	2
2	23S01	Tube 5.50 x 16	2
3	21S02	Tyre 5.50 x 16-4 Ply	2




## STEERING ASSEMBLY

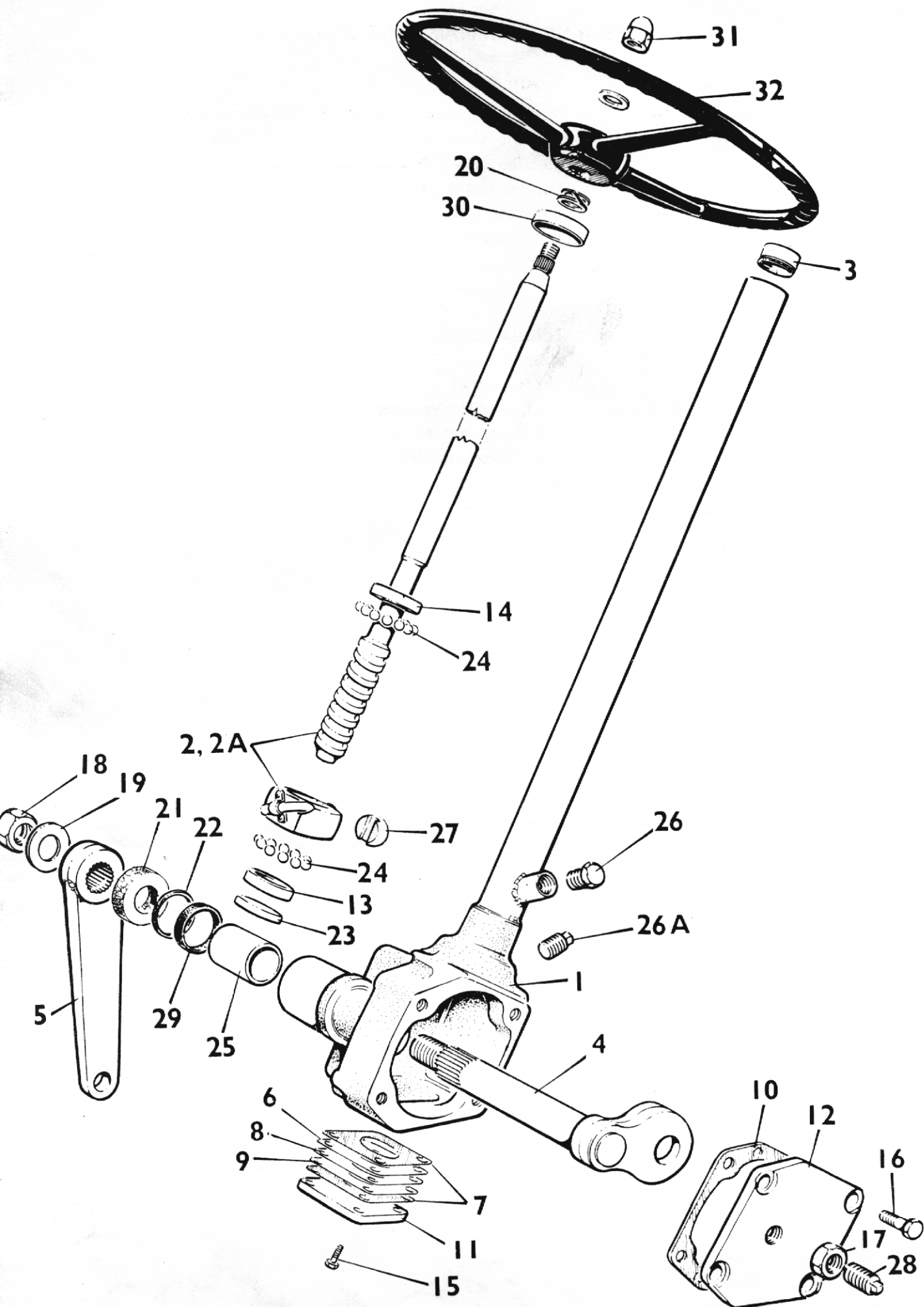
Item No.	Part No.	Description	Qty
1	2 SE 78	Stub Axle Left Hand . . . . .	1
2	C 190	King Pin Bushes . . . . .	4
3	C 180	King Pin Felt and Steel Washer . . . . .	4 Each
4	131802	Grease Nipple . . . . .	7
5	C 175	Thrust Washer . . . . .	4
6	L 264	King Pin . . . . .	2
7		Bolt 5/8" BSW x 2" . . . . .	2
8		Locknut 5/8" BSW . . . . .	4
9	2 SE 74	Steering Axle . . . . .	1
10	4 SHL 91	Articulating tube bush . . . . .	2
11	2 SE 57	Articulating tube washer . . . . .	2
12	4-35-29A	Tension Pin . . . . .	1
13	C 159 LH	Steering Ball Joint with Nut . . . . .	2
14	2 SE 50	Drag Link . . . . .	1
15	C 159 RH	Steering Ball Joint with Nut . . . . .	2
16	EC 2752	Washer . . . . .	2
17	186 C	Oil Seal . . . . .	2
18	K 14133/1	Bearing . . . . .	2
19	C 186	Hub (Comprising items 16,17, 18, 20, 24 & 26)	2
20	K 09074	Bearing . . . . .	2
21	10805	Washer 5/8" Flat . . . . .	2
22	44803C	Split Pin 1/8" x 1" . . . . .	2
23	92807	Nut-Slotted 5/8" BSF . . . . .	2
24	C 186 A	Hub Cap . . . . .	2
25	10668A01	Wheel Nut . . . . .	6
26	O 156	Wheel Stud . . . . .	6
27	2 SE 79	Stub Axle Right Hand . . . . .	1
28	41804	Spring Washer 5/16" . . . . .	1
29		Bolt 5/16" UNF x 3/4" Long . . . . .	1
30	2 SE 80	Axle Pivot Pin . . . . .	1
31	C 111A	King Pin Retaining Screw . . . . .	2
32	2 SE 51	Track Rod . . . . .	1
33	131801	Grease Nipple . . . . .	2



TP 026

## STEERING GEAR (CAM AND ROLLER TYPE)

Item No.	Part No.	Description	Qty.
(40294A01)	MGA 34849 	Steering column assy. complete less items, 1,2 & 29	1
1	C318	Steering wheel nut	1
2	40064 .A01	Steering wheel <i>✓ 200.2350</i>	1
3	PA3904A	Column top bush	1
4	P5244/30"	Inner shaft	1
5	P3911/24"	Outer tube	1
6	S 9033	Oil plug	1
7	S 9166	Pin	1
8	PA4426	Steering box c/w item 14	1
9	P4151	Thrust washer	2
10	P 3308	Shim	A/R
11	P 4150	Thrust washer	2
12	PA5229/4¼"	Rocker shaft c/w roller	1
13	P3306A	Cover plate gasket	A/R
14	MA 23984	Cover plate and bush	1
15	S 999	Spring washer	1
16	P 4222	Adjuster screw	1
17	P 4221	Nut	1
18	S 9240	Setscrew	4
19	S 902	Spring washer	8
20	P3342	Washer	1
21	S 9300	Setscrew	4
22	P 3907	Bottom cap	1
23	P 3301/.005"	Shim	A/R
24	P 3341	Outer race	2
25	PA2733	Cage and balls	2
26	P 3340	Cam	1
27	P 3309	Bush	2
28	S 9242	Oil seal	1
29	M 29629	Drop arm <i>40294A0101</i>	1
30	S 955	Spring washer	1
31	S 9332	Nut	1
32	P 3301G	Bottom cap liner	2
33	M33418	Inner column shroud	1





## STEERING GEAR (RECIRCULATING BALL TYPE)

Item No	Part No.	Description	Qty
	11-077	Steering gear complete (less items 5 & 32)	
1	SA-01-183	Box and Tube assembly . . . . .	1
2	SA-02-269	Inner column assembly and main nut (700mm long)	1
2A	SA-02-277	Inner column assembly and main nut (750mm long)	1
3	SA-21-004	Bearing assembly . . . . .	1
4	S-7-103	Rocker shaft . . . . .	1
5	2SE90	Drop arm . . . . .	1
6	S-10-14	End plate shim .005" . . . . .	3
7	S-10-15	End plate gasket . . . . .	2
8	S-10-42	End plate shim .002" . . . . .	2
9	S-10-111	End plate shim .010" . . . . .	2
10	S-10-191	Cover plate gasket . . . . .	1
11	S-11-83	End plate . . . . .	1
12	S-12-186	Cover plate . . . . .	1
13	S-23-32	Ballrace (small) . . . . .	1
14	S-23-33	Ballrace (large) . . . . .	1
15	10-3-37	End Plate bolt . . . . .	4
16	10-4-16	Cover Plate bolt . . . . .	4
17	11-7-2	Rocker shaft adjuster screw nut . . . . .	1
18	11-8-7	Rocker shaft nut . . . . .	1
19	12-8-36	Rocker shaft tab washer . . . . .	1
20	12-8-85	Spring . . . . .	1
21	12-9-61	Drop arm felt washer . . . . .	1
22	12-10-7	Oil seal retaining washer . . . . .	1
23	12-12-26	Inner column packing plate . . . . .	1
24	17-3-4	Steel ball . . . . .	54
25	19-9-17	Rocker shaft bush . . . . .	1
26	21-8-4	Oil Plug . . . . .	1
26A	21-7-2	Oil Plug . . . . .	1
27	24-5-5	Main nut roller . . . . .	1
28	25-7-2	Rocker shaft adjuster screw . . . . .	1
29	27-9-6	Oil seal . . . . .	1
30	32-8-8	Dust cap . . . . .	1
31	S9260	nut . . . . .	1
32	1036 B	Steering wheel . . . . .	1

# 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	2260.60
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".

$$84'' = 2133.60 \text{ mm.}$$

$$5/8'' = 15.875 \text{ mm.}$$

$$84 \frac{5}{8}'' = 2149.475 \text{ mm.}$$

# 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**