

WINGET

**OPERATING
INSTRUCTIONS
&
SPARE PARTS
LIST**

**3SH DIESEL
DUMPER
(CAPACITY 22.5 CWT)**

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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.

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 3SH 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'
2. **Gearbox**
Check the oil level on the dipstick (B), topping up if necessary to the full mark. See also 'Recommended Lubricating Oils'
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'
4. **Steering box**
Remove oil level/filler plug (E) (accessible through bracket) and top up if necessary. See also 'Recommended Lubricating Oils'
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.
8. **Hydraulic Tank**
Fill the hydraulic tank (G). Before removing the cap, clean the surrounding area, to prevent the possible entry of foreign matter. DO NOT MIX OILS. See also 'Recommended Lubricating Oils'

N.B. For further Lubrication information see Fig. 6 and corresponding text (pages 8 & 9).

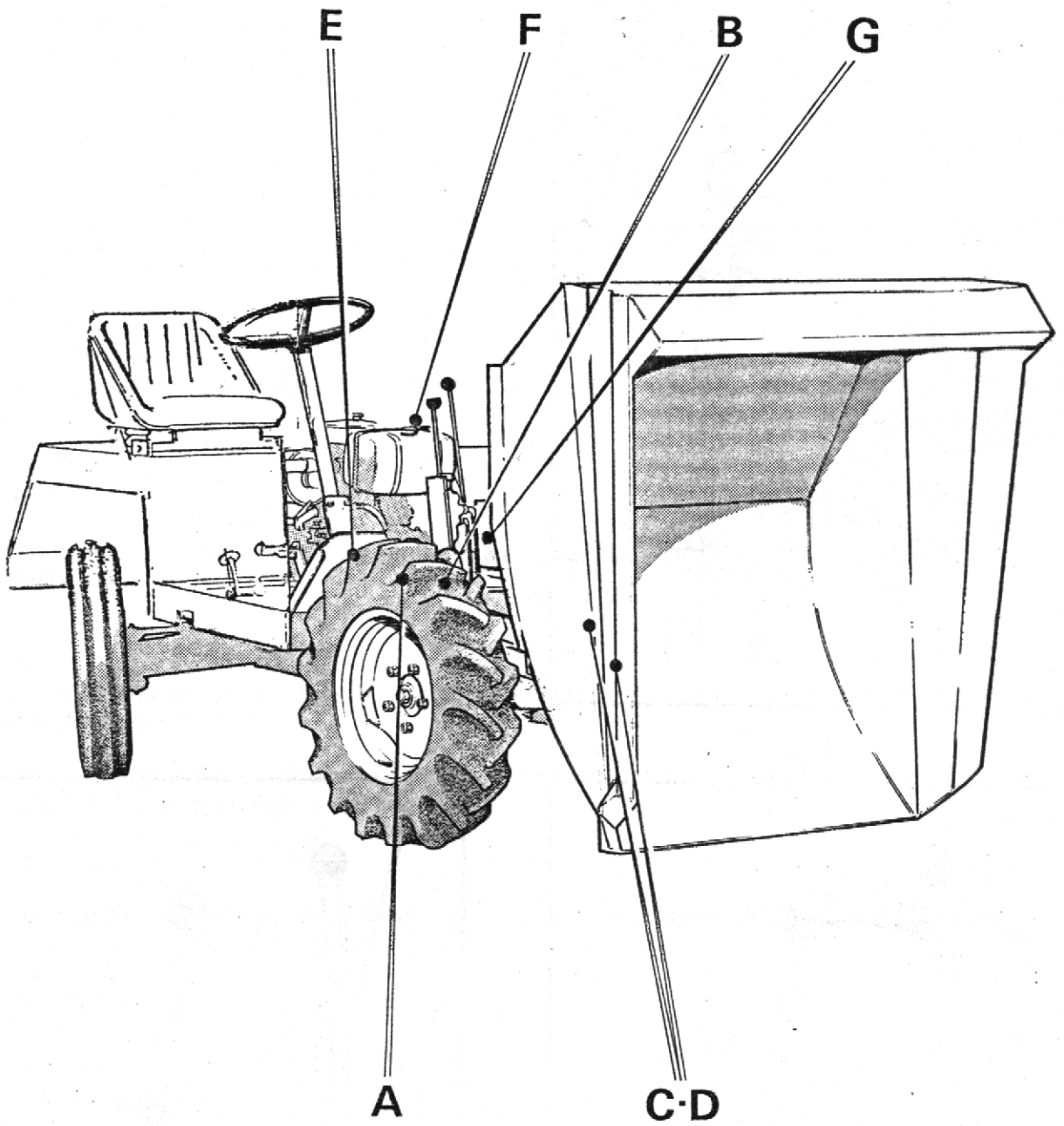


FIG. 1

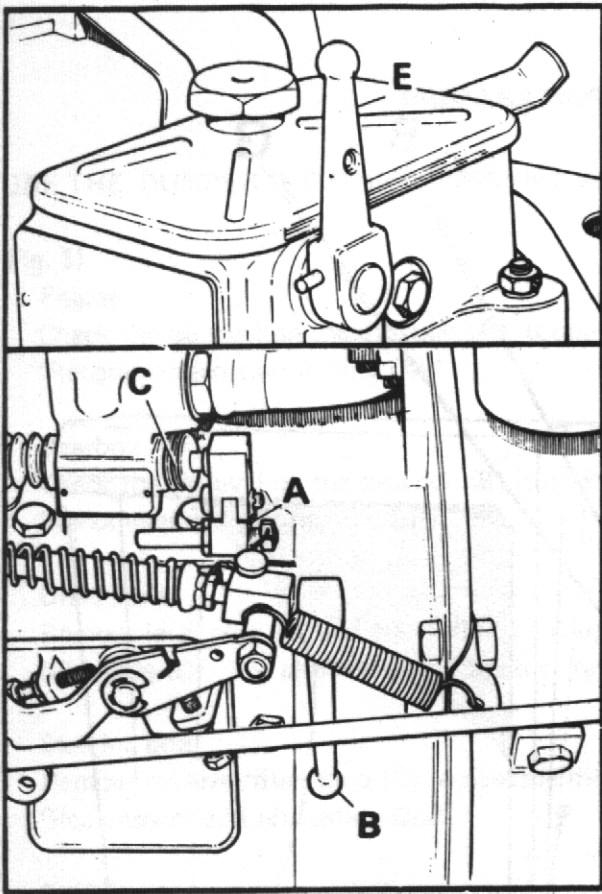


FIG 2

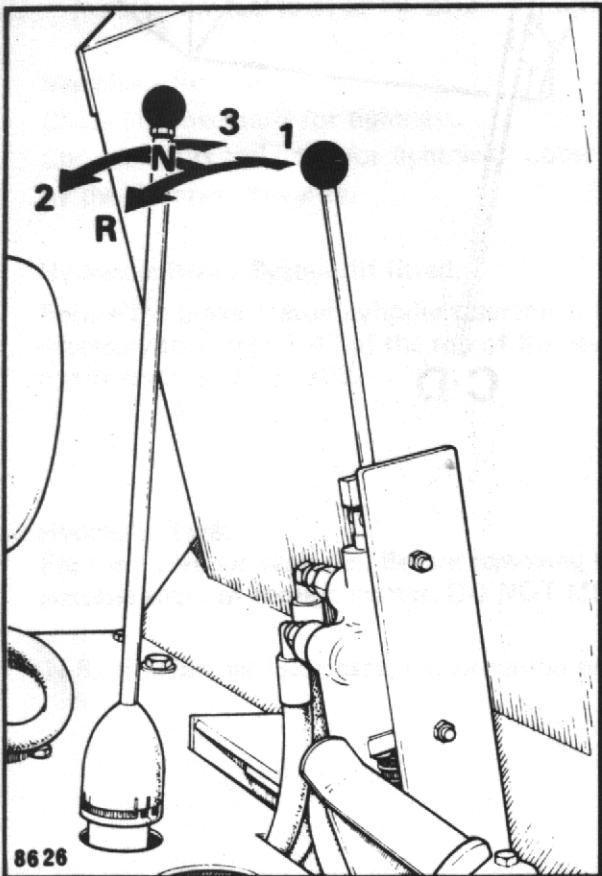


FIG 4

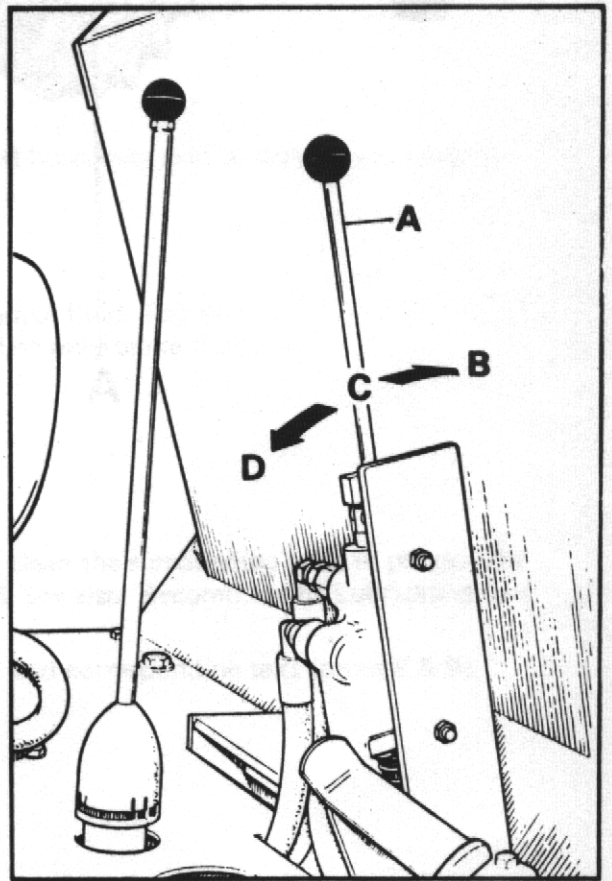


FIG 5

OPERATION

Starting

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 5°F (-15°C) or below, a cold starting aid should be fitted.

Stopping

Fig. 2

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

IMPORTANT:

1. DO NOT stop engine by means of decompression lever, 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 Shift Lever

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 Control Lever

Fig. 5

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

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

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.
10. WEEKLY check oil level in hydraulic tank. Always clean surrounding area before removing cap, to prevent possible entry of foreign matter. Fill tank, if necessary, to within 1" of top.

Lubrication

(See fig. 6)

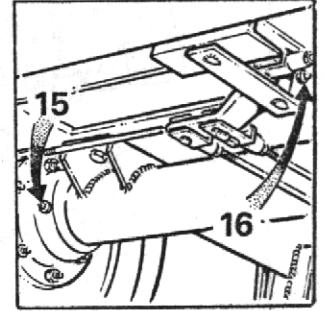
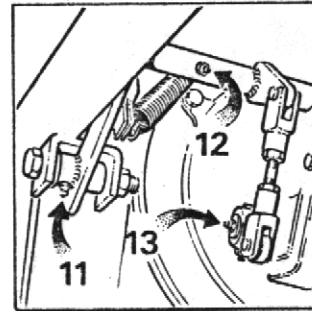
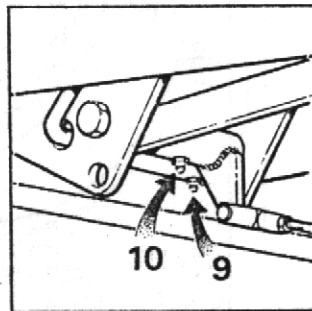
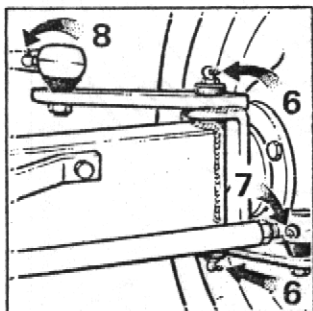
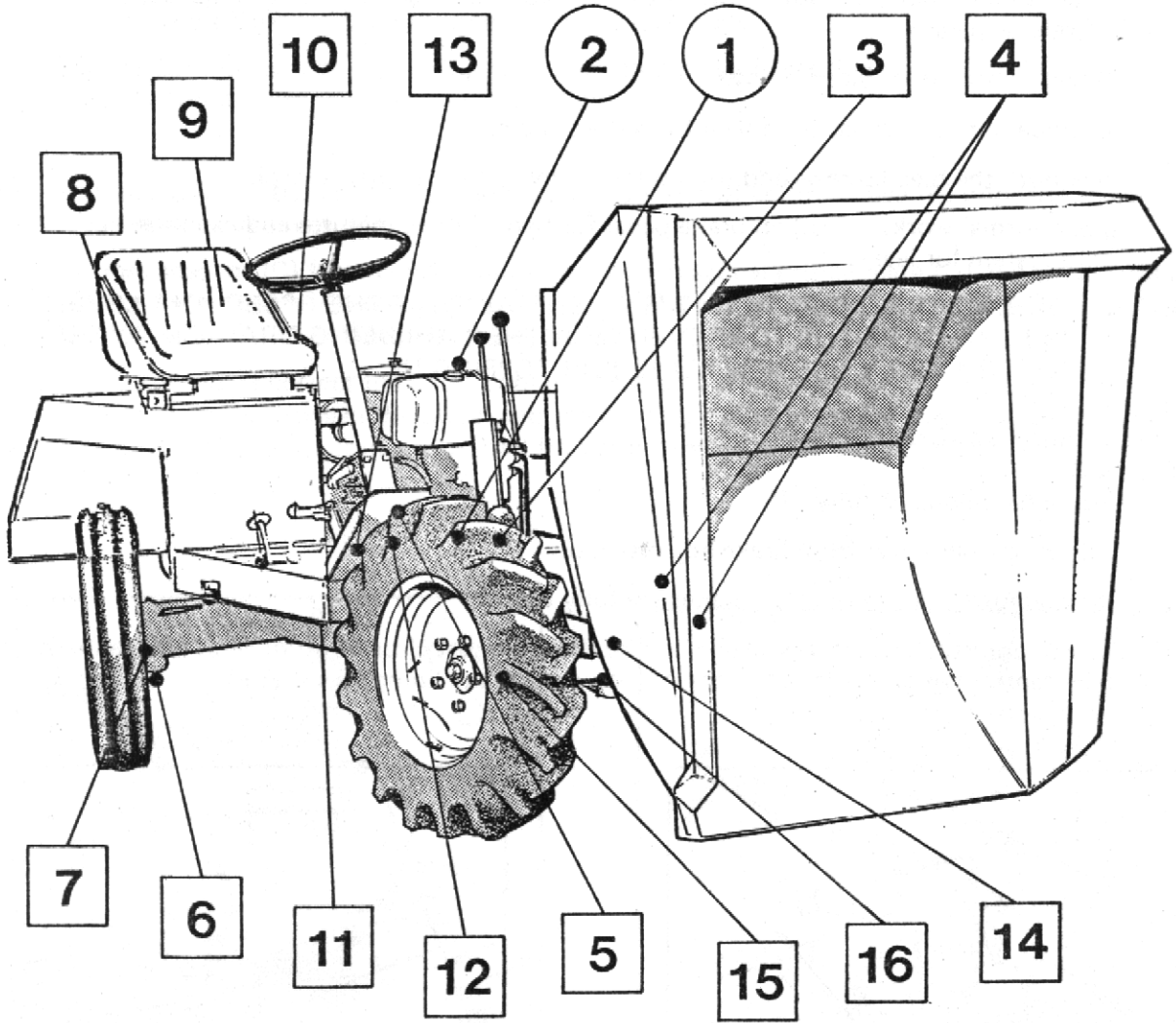
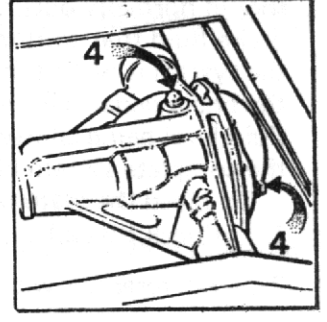
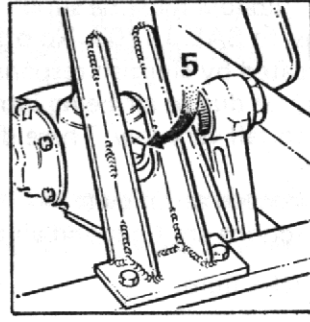
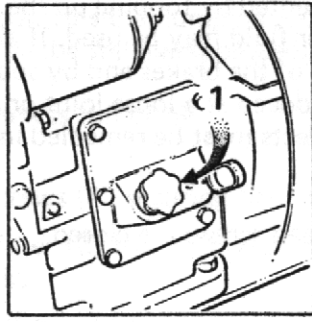
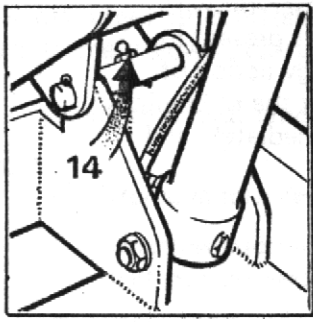
| Period | Key to Fig. | Description | Lubrication | No. of points |
|--------|-------------|---|---------------|---------------|
| Daily | 1 | Engine | Engine oil | 1 |
| | 2 | Fuel tank | Diesel Fuel | 1 |
| Weekly | 3 | Gearbox | Gearbox oil | 1 |
| | 4 | Drive Axle | Axle oil | 1 |
| | 5 | Steering 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 | Grease Gun | 1 |
| | 11 | Clutch Pedal | Grease Gun | 1 |
| | 12 | Clutch Transfer lever | Grease Gun | 1 |
| | 13 | Clutch Cross shaft | Grease Gun | 2 |
| | 14 | Skip Pivot | Grease Gun | 2 |
| | 15 | Drive Axle Hub bearings | Grease Gun | 2 |
| | 16 | Brake compensator lever | Grease Gun | 1 |
| | 17 | Brake master cylinder reservoir (if fitted) | Brake fluid | 1 |
| | 18 | Hydraulic Tank | hydraulic oil | 1 |

NB. FOR RECOMMENDED LUBRICATING OILS SEE CHART

Oil Capacities

| | |
|--|--|
| Engine 5 pts. (2.86 litres) | Drive Axle 8 pts. (4.57 litres) |
| Hydraulic oil tank 4 imp. gallons (18 litres) | Gear Box 2 pts. (.86 litres) |

- NOTES:
1. The rear steering axle and stabilizer assembly articulation points consist of bearings that require no lubrication.
 2. The drive from gearbox to axle is through flexible couplings that require no lubrication.
 3. For full details of the lubrication and maintenance of the engine refer to Manufacturers Manual.



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FIG 6

Hydraulic Brake System

The brake system is designed to require the minimum of maintenance, and providing the hydraulic fluid in the reservoir is not allowed to fall below the recommended level, no defects should normally occur. Fluid loss must be supplemented by topping up the reservoir with brake fluid that conforms to SAE J 1703. No other fluid may be used. 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 or by the reservoir fluid level being allowed to fall very low. These defects must be remedied immediately and the complete system bled.

To bleed the system, proceed as follows:—

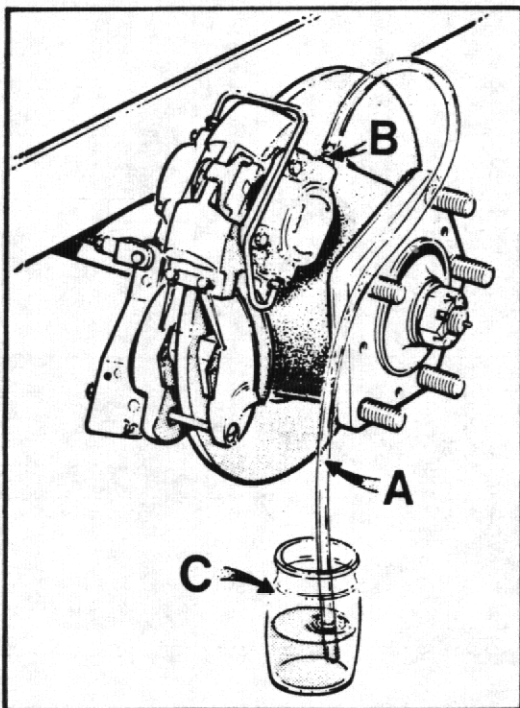
1. Check that all connections are tight and all bleed screws are closed.
2. Fill reservoir with brake fluid.
3. Attach bleeder tube (A) (See fig. 5) to one of the bleed screws (B) and immerse other end in a small quantity of brake fluid contained in a glass jar (C). Slacken bleed screw and operate brake pedal up and down to its full stroke, until fluid pumped into the jar contains no air bubbles. Hold down pedal and close bleed screw. Remove bleeder tube and release pedal.
4. Repeat on the other bleed screw.
5. Continue until all air has been bled from the system.
6. Lock both the bleed screws and top up the reservoir to the correct level.
7. Apply normal working load on brake pedal for two or three minutes and examine the entire system for leaks.

NOTE: DURING THE OPERATION IT IS ESSENTIAL THAT THE RESERVOIR LEVEL IS KEPT TOPPED UP TO PREVENT FURTHER AIR BEING DRAWN INTO THE SYSTEM. ONLY USE NEW FLUID FOR TOPPING UP.

Brake Adjustment (Drum Brakes)

(See fig. 6)

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,



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FIG. 5

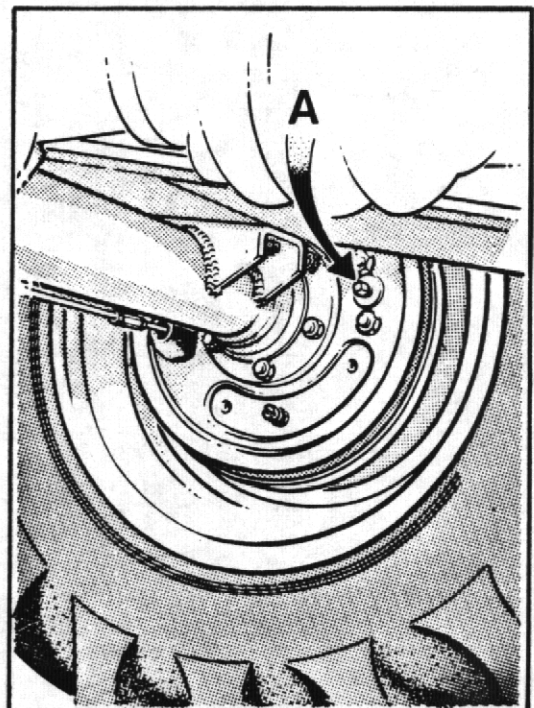


FIG. 6

Main Hydraulic System

The main hydraulic system controls the dumping and return of the skip. If the skip fails to operate or does so extremely slowly, carry out the following procedures until the fault is rectified.

1. Check that hydraulic tank is full of oil.

Fig. 9

2. a) Remove four setscrews (A) securing filler cap assembly (B) and remove assembly.
b) Unscrew suction filter (C) from inside of tank (D) and wash in white spirit. Dry with moisture-free compressed air.
c) Replace suction filter and filler cap assembly.

NOTE:- If suction filter cannot be thoroughly cleaned, fit a new one.

3. Check that hydraulic pressure is correct.
a) Fit a 2500 p.s.i. gauge into hydraulic line to base of rams.
b) Operate control lever to dump skip and check that pressure reading on gauge is 2000 p.s.i. when ram is fully-extended and relief valve is 'blowing'.

Fig. 10

4. Remove relief valve cartridge (A) (hexagon head) from end of control valve (B) opposite to control lever 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 orifice. Re-fit plate and hose adaptor, with slot of orifice plate facing outwards.

If none of these procedures correct the fault, contact your local Winget agent.

Periodically check the hose between the pump and the hydraulic tank to ensure that it is not deformed. Any deformation in the hose may result in a restricted flow and damage to the pump.

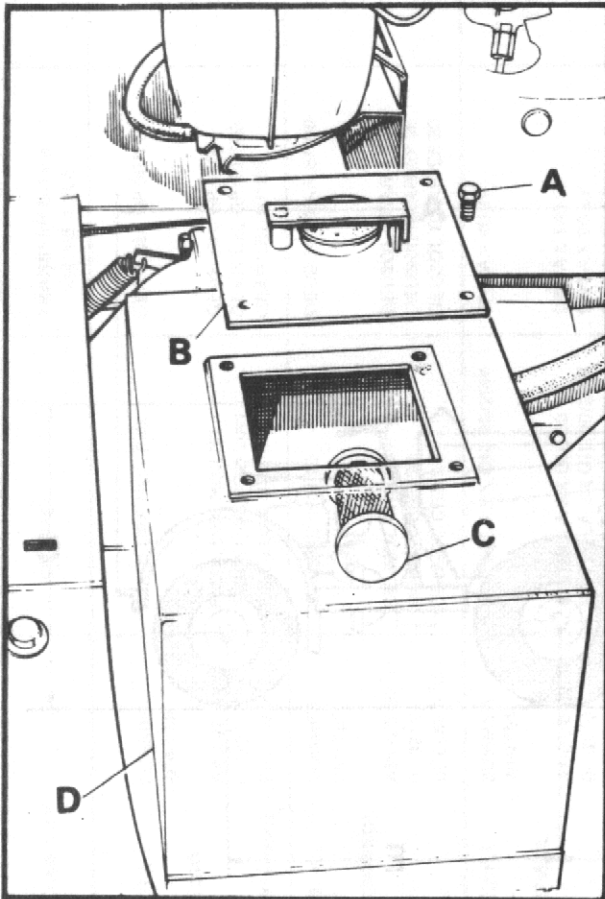


FIG 9

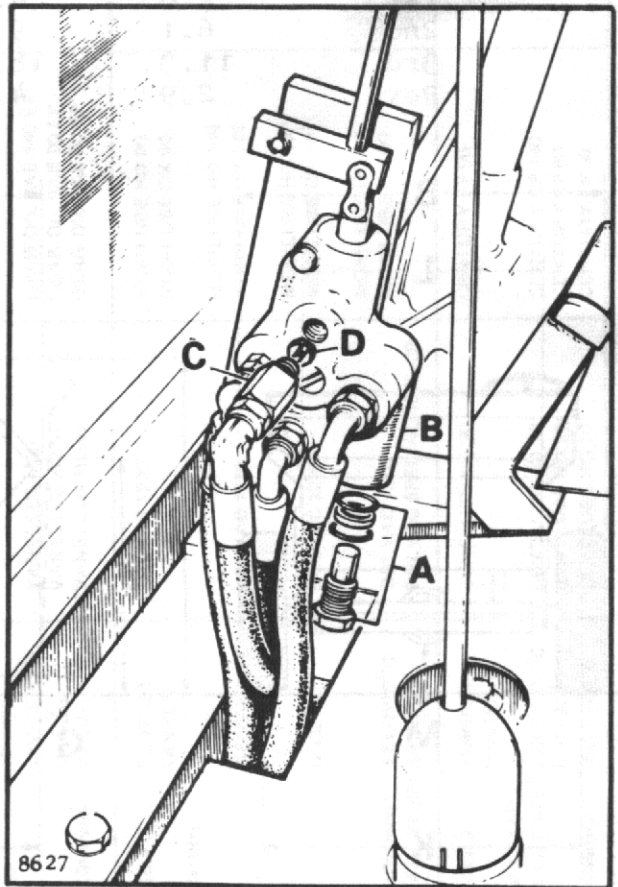


FIG 10

MACHINE SPECIFICATION

Key to Fig. 11

| | | | |
|----|-----------------------------------|--------|-----------|
| A. | Overall length | 9'-1" | (2770 mm) |
| B. | Overall width | 5'-3" | (1600 mm) |
| C. | Overall height | 4'-7" | (1400 mm) |
| D. | Overall height when tipped | 4'-8" | (1420 mm) |
| E. | Wheelbase | 5'-0" | (1525 mm) |
| F. | Skip loading height | 3'-6½" | (1080 mm) |
| G. | Skip ground clearance when tipped | 3" | (75 mm) |
| H. | Discharge forward of tyre | 11" | (280 mm) |
| J. | Overhang | 2'-6" | (760 mm) |
| K. | Wheeltrack | 4'-7" | (1400 mm) |
| L. | Prow width | 3'-4" | (1015 mm) |
| M. | Ground clearance | 10" | (255 mm) |

Miscellaneous

| | | |
|--------------------------------------|-----------|------------|
| Minimum turning circle(kerb to kerb) | 22'-9" | (6.9 m) |
| Unladen weight | 2352 lb. | (1068 kg.) |
| Rear Axle articulation | 1ft. 2in. | (35.5 cm.) |

Road Speeds

| | M.P.H. | K.P.H. |
|------|--------|--------|
| 1st | 2.6 | 4.25 |
| 2nd | 6.1 | 9.8 |
| 3rd | 11.3 | 18.2 |
| Rev. | 2.9 | 4.7 |

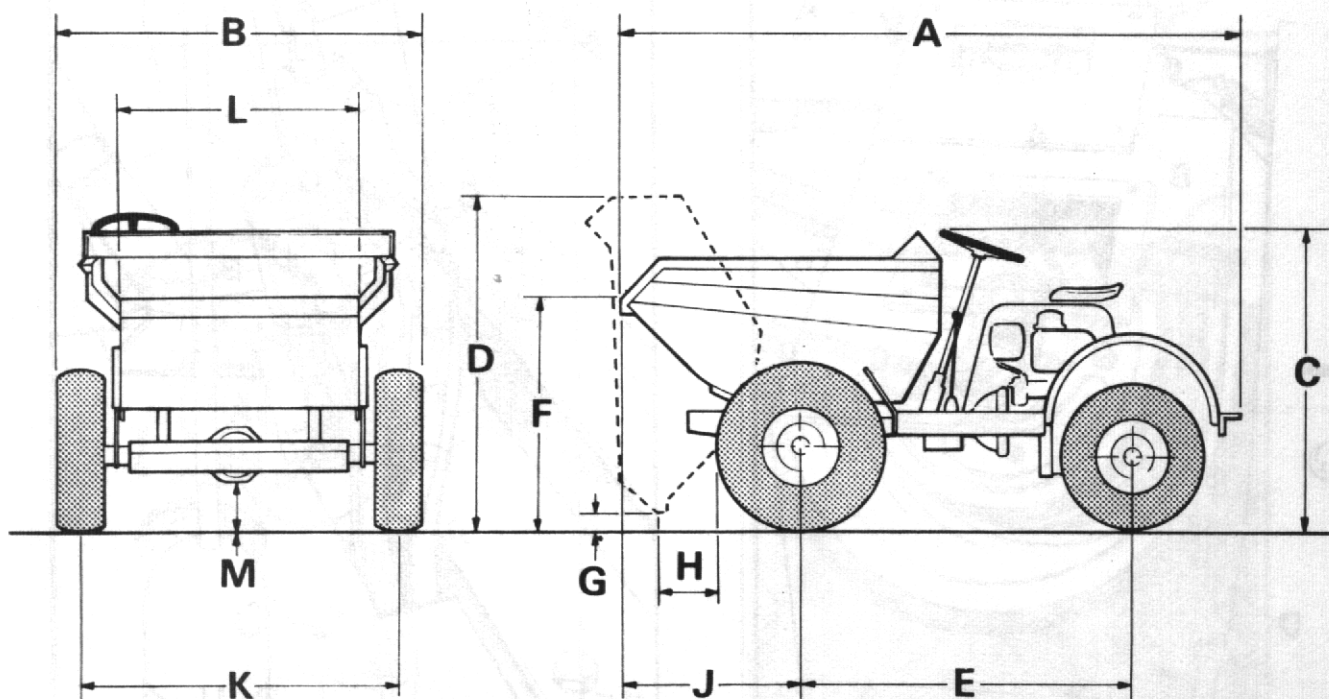


FIG. 11

RECOMMENDED LUBRICATING OILS

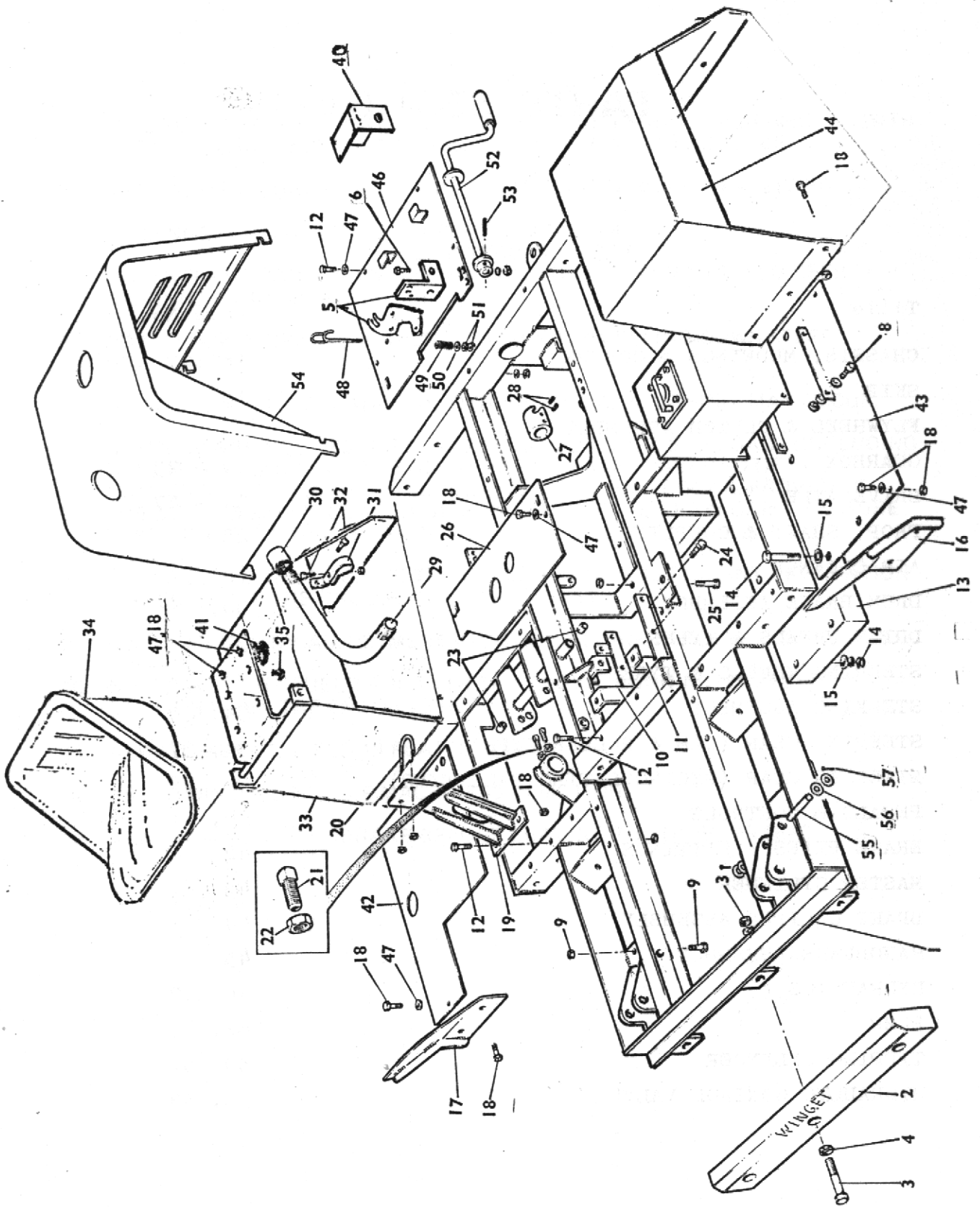
| COMPANY | ENGINE | TRANSFER BOX & DRIVE AXLE | GEARBOX | WHEEL BEARINGS & OTHER GREASE POINTS | HYDRAULIC SYSTEM |
|---|---|--|--|--|---|
| (U.K.) ESSO (Overseas) | ESSOLUBE HDX 20W ESSOLUBE HDX 30 ESSOLUBE HDX 20W ESSOLUBE HDX 10W | GEAR OIL GP 90/140 GEAR OIL GP 140 GEAR OIL GP 90/140 GEAR OIL GP 80 | ESSOLUBE HDX 30 ESSOLUBE HDX 30 | BEACON 2 BEACON 2 | NUTO H44 NUTO H 54 NUTO H 44 NUTO 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 HD:30 | 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

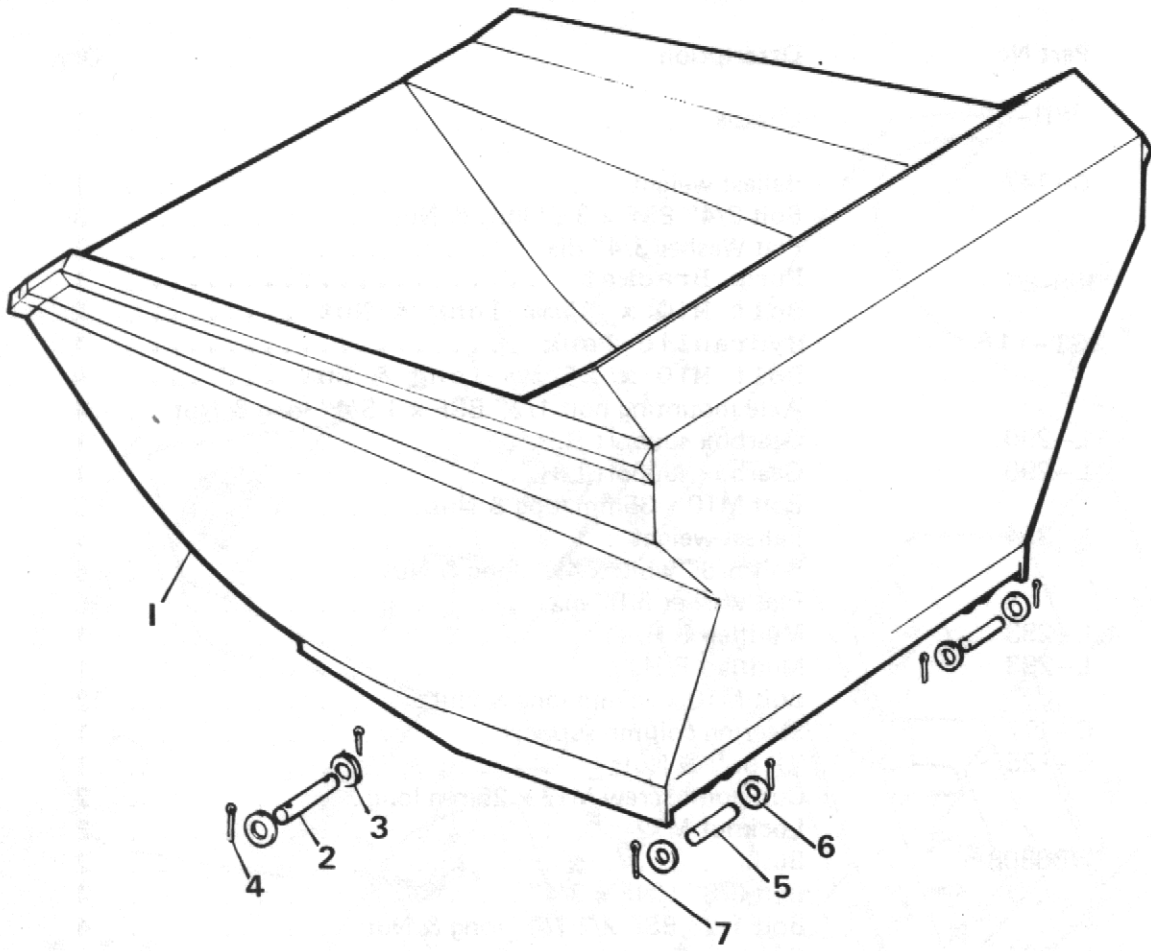
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CHASSIS, MUDWINGS & COVERS

| Item No. | Part No. | Description | Qty. |
|----------|-----------|---|------|
| 1 | 40177.A01 | Chassis | 1 |
| 2 | C-147 | Ballast weight | 1 |
| 3 | | Bolt 3/4" BSF x 3 1/2" long & Nut | 3 |
| 4 | | Flat Washer 3/4" dia | 3 |
| 5 | 3SH-80 | Pump Bracket | 1 |
| 6 | | Bolt M10 x 35mm long & Nut | 2 |
| 7 | 2ST-118 | Hydraulic Tank | 1 |
| 8 | | Bolt M10 x 25 mm long & Nut | 4 |
| 9 | | Axle mounting bolt 1/2" BSF x 1 3/4" long & Nut | 4 |
| 10 | L-290 | Gearbox support R.H. | 1 |
| 11 | L-290 | Gearbox support L.H. | 1 |
| 12 | | Bolt M10 x 35mm long & Nut | 8 |
| 13 | L-254 | Ballast weight | 1 |
| 14 | | Bolt 5/8" whit. x 4 1/2" long & Nut | 5 |
| 15 | | Flat washer 5/8" dia. | 10 |
| 16 | L-283 | Mudflap L.H. | 1 |
| 17 | L-283 | Mudflap R.H. | 1 |
| 18 | | Bolt M10 x 25mm long & Nut | 2 |
| 19 | C-117 | Steering column support | 1 |
| 20 | C-125 | 'U' Bolt & Nuts | 1 |
| 21 | | Cup point screw M12 x 25mm long | 2 |
| 22 | | Locknut M12 | 2 |
| 23 | WB0808 | Bush | 2 |
| 24 | | Bolt 3/8" UNF x 3/4" | 4 |
| 25 | | Bolt 1/2" BSF x 2 1/4" long & Nut | 4 |
| 26 | L-284 | Gearbox Cover | 1 |
| 27 | L-259 | Starter Dog | 1 |
| 28 | | Grub Screw 7/16" whit x 1/2" long | 2 |
| 29 | C-165-1 | Exhaust Pipe | 1 |
| 30 | C-165-2 | Exhaust Socket | 1 |
| 31 | L-315 | Exhaust Pipe, Support Brkt. | 1 |
| 32 | | Bolt M6 x 16mm long | 2 |
| 33 | 40220.A01 | Mudwing R.H. | 1 |
| 34 | 20072.A01 | Seat | 1 |
| 35 | | Bolt 5/16 in UNC x 3/4" long | 4 |
| 40 | 10592.A02 | Hydraulic Pump Drive Guard Assembly | 1 |
| 41 | 10519.A01 | Rubber Spring | 2 |
| 42 | L-286 | Footplate R.H. | 1 |
| 43 | L-285 | Footplate L.H. | 1 |
| 44 | 40220.A02 | Mudwing L.H. | 1 |
| 46 | L-287 | Rear Cover | 1 |
| 47 | | Flat washer 10mm dia. | 12 |
| 48 | L-287A | Starting handle retaining clip | 1 |
| 49 | L-256C | Spring | 1 |
| 50 | | Flat washer 1/4" dia | 1 |
| 51 | | Nut 1/4" whit | 2 |
| 52 | L-294 | Starting handle | 1 |
| 53 | | Tension Pin 3/8" dia x 2 1/4" long | 1 |
| 54 | 40232.A02 | Engine Cover | 1 |
| 55 | 3SH-84 | Ram pivot pin | 2 |
| 56 | | Flat washer 7/8" dia. | 8 |
| 57 | | Split pin 1/8" dia. | 4 |

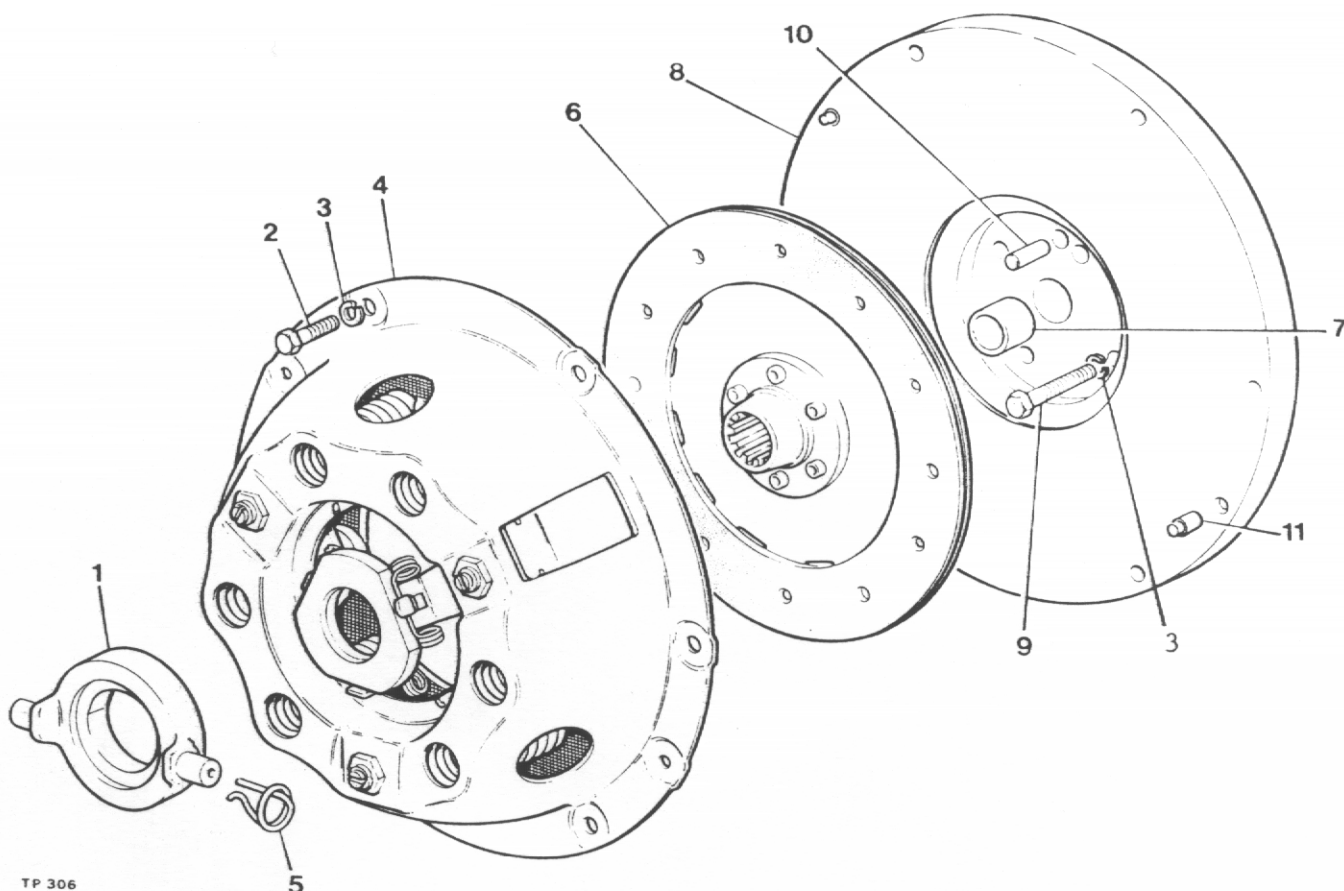


TP165

SKIP & RELEASE LEVER

| Item No. | Part No. | Description | Qty |
|----------|----------|---------------------------------------|-----|
| 1 | 3SH-52 | Skip | 1 |
| 2 | 3SH-65 | Skip pivot pin | 2 |
| 3 | | Flat washer $\frac{7}{8}$ " dia. | AR |
| 4 | | Split pin $\frac{3}{16}$ " dia. | 4 |
| 5 | 3SH-83 | Ram pivot pin | 2 |
| 6 | | Flat washer $\frac{5}{8}$ " dia. | 4 |
| 7 | | Split pin $\frac{1}{8}$ " dia. | 4 |

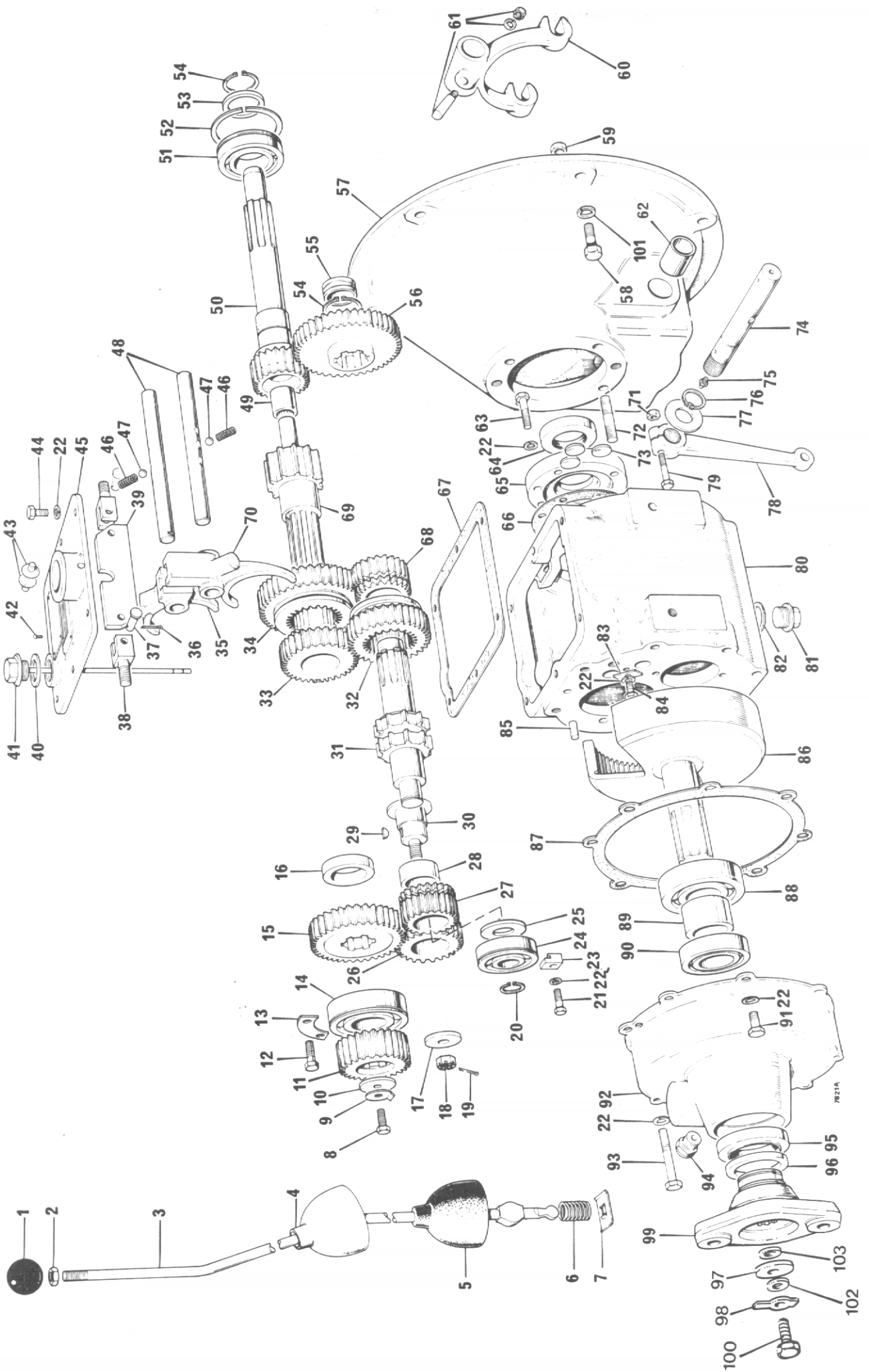
FLYWHEEL AND CLUTCH ASSEMBLY



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.



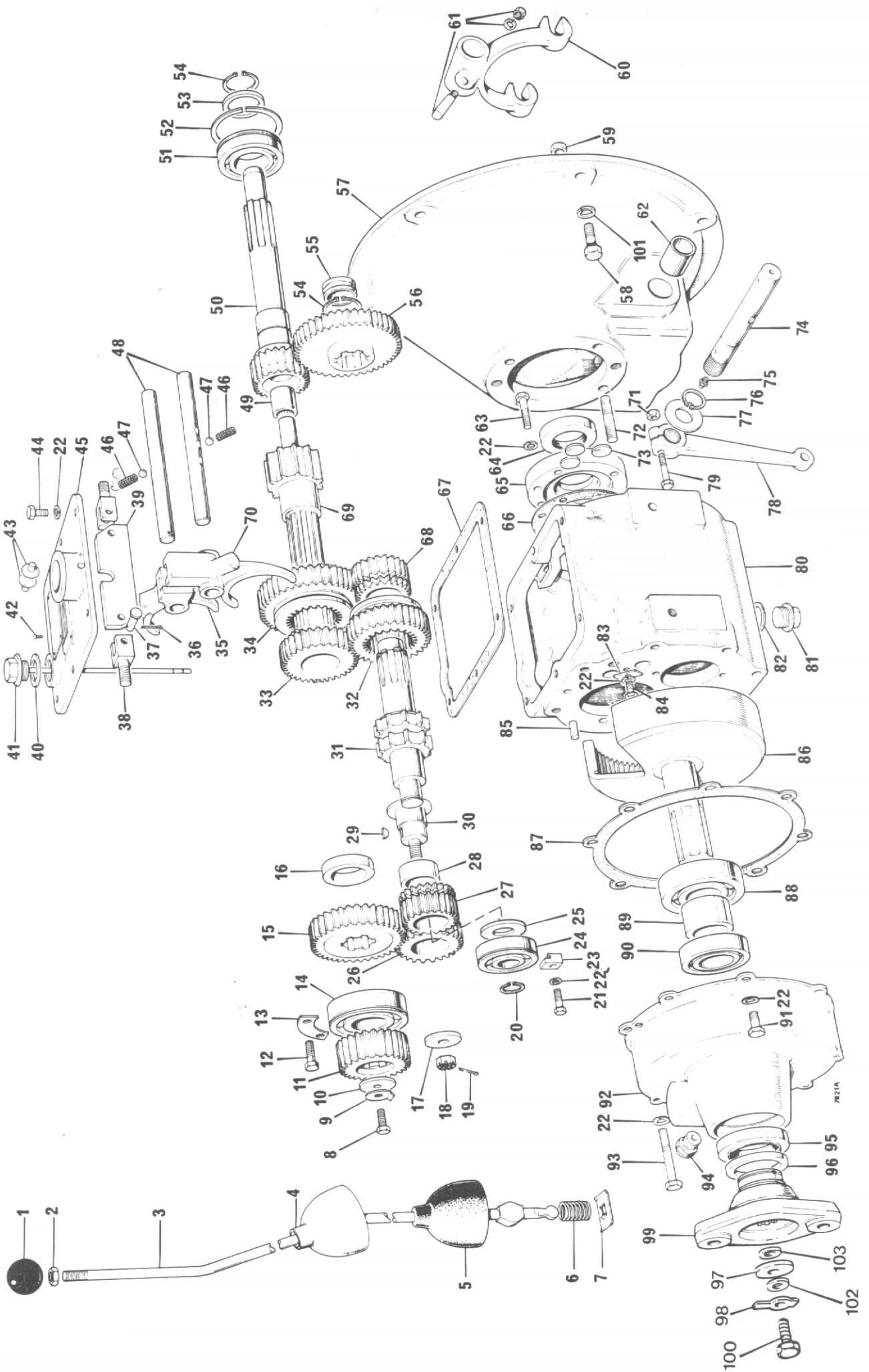
GEARBOX 40M/42 - NEWAGE 30106.A01

| Item No. | Part No. | Description | Qty. |
|----------|-------------|------------------------------------|------|
| 1 | 30101.A0201 | Knob | 1 |
| 2 | 95S .03 | Locknut - Gear Lever | 1 |
| 3 | 30101.A0202 | 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:-

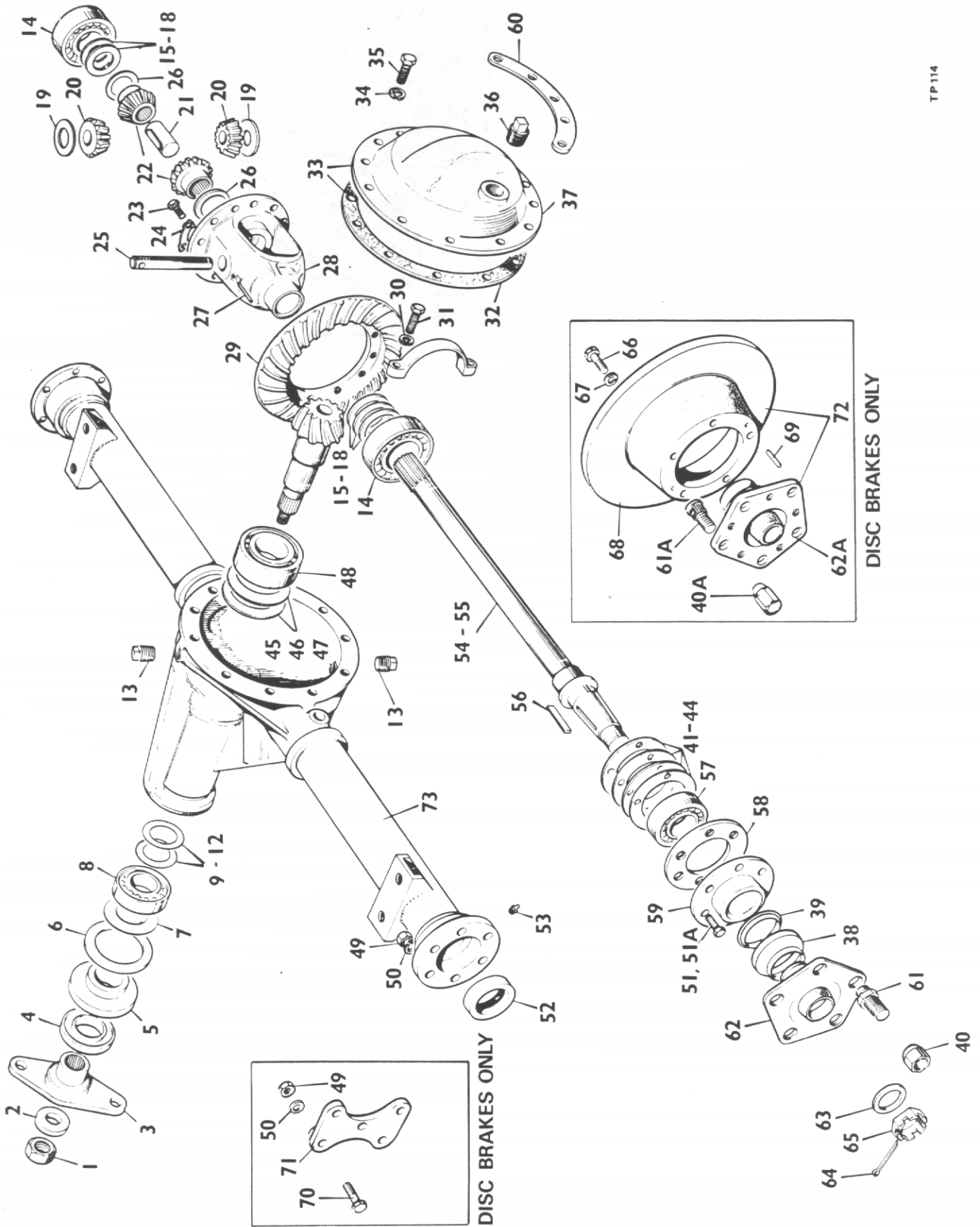
| Item | Old Part No. | Description | New Part No. |
|------|--------------|--------------------|--------------|
| 41 | 30101.A0232 | Dipstick | 30218.A0223 |
| 31 | 30101.A0223 | Layshaft | 30101.A0266 |
| 55 | 30101.A0244 | Bearing - Layshaft | 30101.A0267 |

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)



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 Wash  | 1 |
| 99 | 30105.A0102 | 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 |

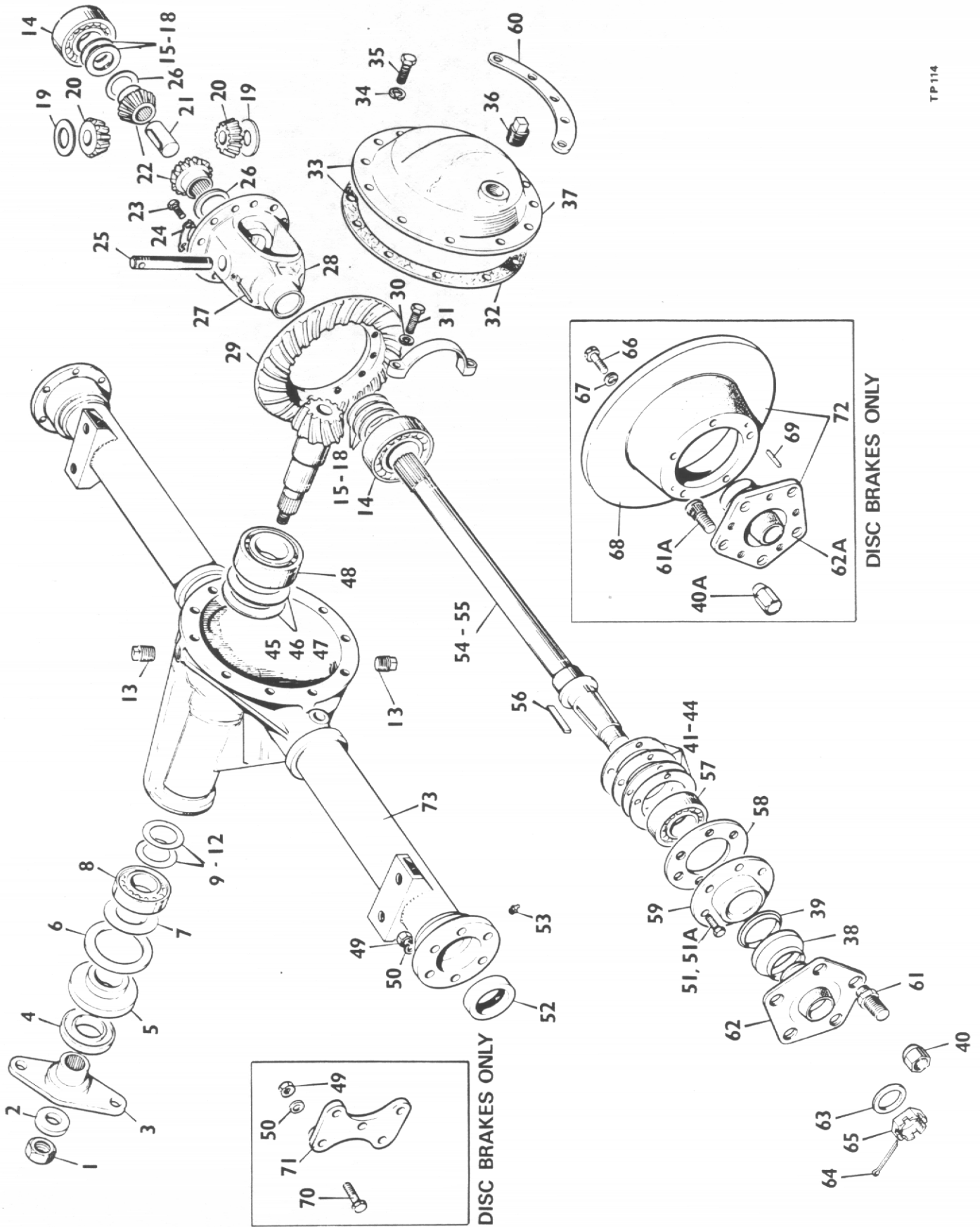


DISC BRAKES ONLY

DISC BRAKES ONLY

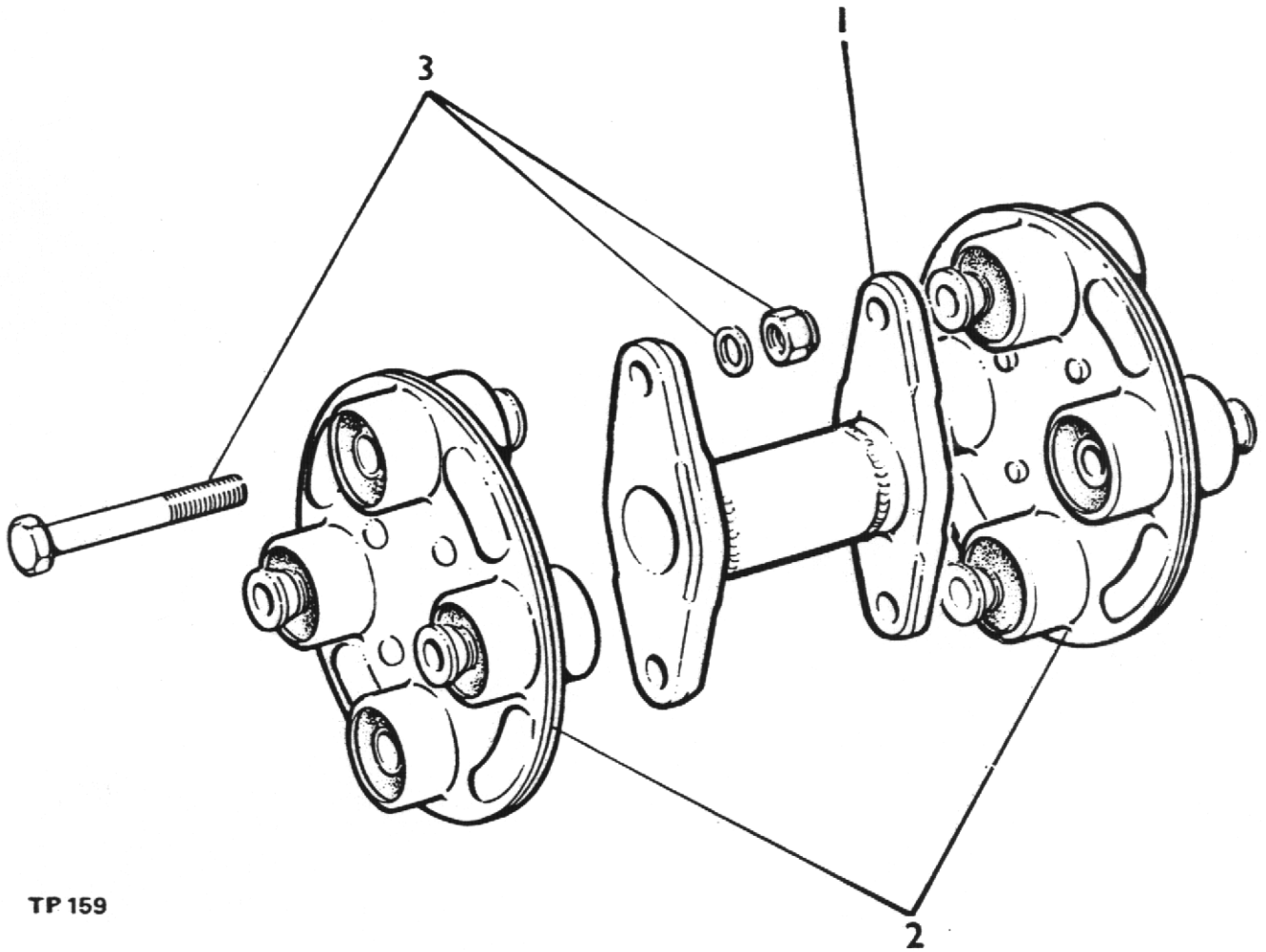
DRIVE AXLE

| Item No. | Part No. | Description | Qty. |
|----------|-------------|--|------|
| | 5HA-001-274 | Drive Axle Complete with drum brakes (1 per m/c) | |
| | 5HA-001-174 | Drive Axle Complete with disc brakes (1 per m/c) | |
| 1 | 12 LN-NF9B | Pinion Nut | 1 |
| 2 | 12W-24 | Pinion Nut Washer ¾" dia std. heavy pattern | 1 |
| 3 | 3HA-102-10 | Companion Flange Assembly | 1 |
| 4 | 2HA-021 | Companion Flange Dust Shield | 1 |
| 5 | 8HA-019-3 | Pinion Oil Seal | 1 |
| 6 | 2HA-020 | Pinion Oil Seal Gasket | 1 |
| 7 | 2HA-036 | Pinion Oil Slinger | 1 |
| 8 | 5HA-022 | Pinion Bearing, Outer | 1 |
| 9 | 5HA-039 | Pinion Bearing Adjusting Shim Outer .003" | A/R |
| 10 | 5HA-040 | Pinion Bearing Adjusting Shim Outer .005" | A/R |
| 11 | 5HA-041 | Pinion Bearing Adjusting Shim Outer .010" | A/R |
| 12 | 5HA-042 | Pinion Bearing Adjusting Shim Outer .030" | A/R |
| 13 | HA-059 | Filler and Drain Plug (each) | 1 |
| 14 | 5HA-024/1 | Differential Bearing | 2 |
| 15 | 5HA-046 | Differential Bearing Shim .003" | A/R |
| 16 | 5HA-047 | Differential Bearing Shim .005" | A/R |
| 17 | 5HA-048 | Differential Bearing Shim .010" | A/R |
| 18 | 5HA-049 | Differential Bearing Shim .030" | A/R |
| 19 | 5HA-037 | Differential Pinion Mate Thrustwasher | 2 |
| 20 | 5HA-008-1 | Differential Pinion Mate | 2 |
| 21 | 5HA-033-3 | Axle Shaft Spacer | 1 |
| 22 | 5HA-007-2 | Differential Side Gear | 2 |
| 23 | 5HA-075-2 | Drive Gear Screw | 12 |
| 24 | 5HA-074-1 | Drive Gear Tabwasher | 6 |
| 25 | 5HA-012 | Differential Pinion Mate Shaft | 1 |
| 26 | 5HA-038 | Differential Side Gear Thrustwasher | 2 |
| 27 | 5HA-013 | Differential Pinion Mate Shaft Lock Pin | 1 |
| 28 | 5HA-006 | Differential Case | 1 |
| 29 | 5HA-105 15 | Drive Gear and Pinion Assembly Complete | 1 |
| 30 | 8 LW-115 | Differential Bearing Cap Springwasher ½" dia | 4 |
| 31 | 8 B-NC-36 | Differential Bearing Cap Bolt | 4 |
| 32 | 5HA-026 | Gear Carrier Cover Gasket | 1 |
| 33 | 5HA-064-17 | Gear Carrier Cover Assembly | 1 |
| 34 | 6LW-105 | Cover Screw Springwasher | 10 |
| 35 | 6B-NC10 | Cover Screw | 10 |
| 36 | HA-059 | Level Plug | 1 |
| 37 | 5HA-064-1 | Gear Carrier Cover | 1 |
| 38 | 5HA-030-4 | Shroud | 2 |
| 39 | 5HA-032-14 | Seal | 2 |
| 40 | C 177 | Wheel Nut (Drum brakes only) | 10 |
| 40A | R340 | Wheel Nut (Disc brakes only) | 10 |
| 41 | 5HA-050-3 | Axle Shaft Bearing Shim .003" | A/R |
| 42 | 5HA-051-3 | Axle Shaft Bearing Shim .005" | A/R |
| 43 | 5HA-052-3 | Axle Shaft Bearing Shim .010" | A/R |
| 44 | 5HA-053-3 | Axle Shaft Bearing Shim .030" | A/R |
| 45 | 5HA-043 | Pinion Adjusting Shim, Inner .003" | A/R |
| 46 | 5HA-044 | Pinion Adjusting Shim, Inner .005" | A/R |
| 47 | 5HA-045 | Pinion Adjusting Shim, Inner .010" | A/R |
| 48 | 5HA-023 | Pinion Bearing Inner | 1 |
| 49 | 6N-NF5 | Bearing Retainer Nut 3/8" UNF | 12 |
| 50 | 6W-12 | Spring Washer | 12 |
| 51 | 6B-NF 18/B | Bearing retainer bolt (drum brakes only) | 12 |
| 51A | 6B NF 21 | Bearing retainer bolt (disc brakes only) | 6 |
| 52 | 5HA-027 | Axle Shaft Oil Seal | 2 |
| 53 | 5HA-056-1 | Axle Shaft Bearing Grease Nipple | 2 |
| 54 | 5HA-005-51 | Axle Shaft RH. (complete with Nut) | 1 |
| 55 | 5HA-005-51 | Axle Shaft LH. (complete with Nut) | 1 |
| 56 | 5HA-029 | Axle Shaft Key | 2 |
| 57 | 5HA-025 | Axle Shaft Bearing | 2 |
| 58 | 5HA-035-5 | Axle Shaft Bearing Retainer | 2 |
| 59 | 5HA-057-3 | Hub oil seal assembly | 2 |
| 60 | 4-35-235 | Differential cover support | 1 |



DRIVE AXLE (Cont'd.)

| Item No. | Part No. | Description | Qty. |
|----------|-------------|--|------|
| 61 | 5HA-055-6 | Wheel stud (drum brakes only) | 10 |
| 61A | 5HA-055-17 | Wheel stud (disc brakes only) | 10 |
| 62 | 5HA-028-37 | Wheel hub complete | 2 |
| 62A | 5HA-028-56 | Wheel hub c/w studs (Disc brakes only) | 2 |
| 63 | 18W-32 | Axle shaft washer | 2 |
| 64 | 12SP-18 | Axle shaft cotter 3/16" x 2" | 2 |
| 65 | 18-SN-NF-12 | Axle shaft Nut | 2 |
| 66 | 6B-NF-21 | Brake disc bolt (disc brakes only) | 10 |
| 67 | 6LW-105 | Brake disc bolt lockwasher (disc brakes only) | 10 |
| 68 | 10HA-136 | Brake disc (disc brakes only) | 2 |
| 69 | 6D-16 | Brake disc dowel (disc brakes only) | 4 |
| 70 | 6B-NF24A | Caliper bracket bolt (disc brakes only) | 6 |
| 71 | 5HA-137 | Caliper bracket (disc brakes only) | 2 |
| 72 | 5HA-028-52 | Hub & Disc Assembly (disc brakes only) | 2 |
| | 5HA-082-5 | Differential case Assembly (comprising items 19, 20, 21, 22, 25, 26, 27 & 28) | |
| 73 | 5HA-101-73 | Service Carrier & Tube Assembly | 1 |

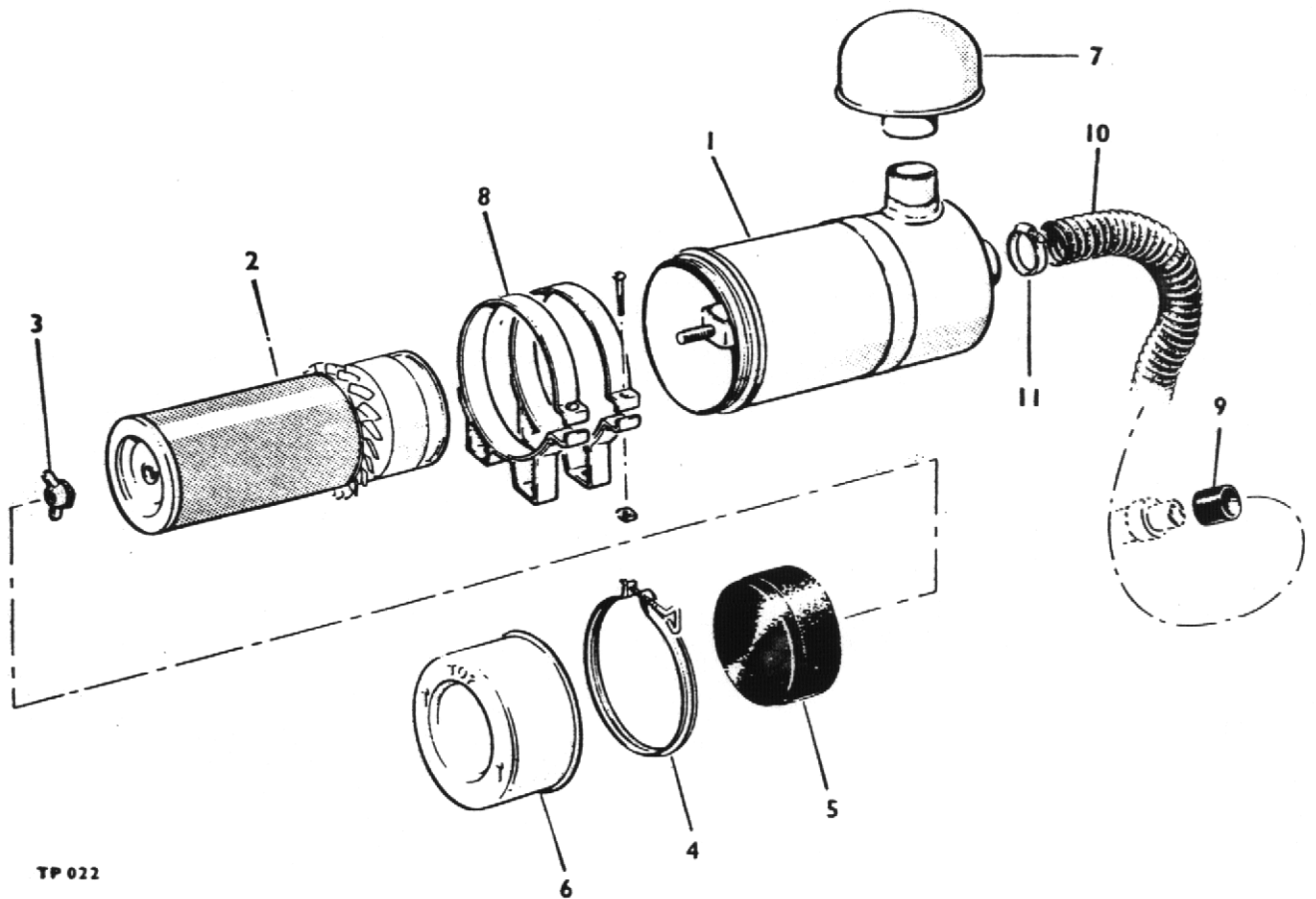


TP 159

PROPSHAFT

| Item No. | Part No. | Description | Qty. |
|----------|----------|-------------------------------|------|
| 1 | 76491 | Prop shaft assembly complete | 1 |
| 1 | L307 | Prop shaft tube | 1 |
| 2 | 10325A01 | Coupling | 2 |
| 3 | 10326A01 | Coupling bolt, washer and nut | 8 |

Item 3 consists of bolt 8S05L, flat washer 267S19 and binx nut 61S05

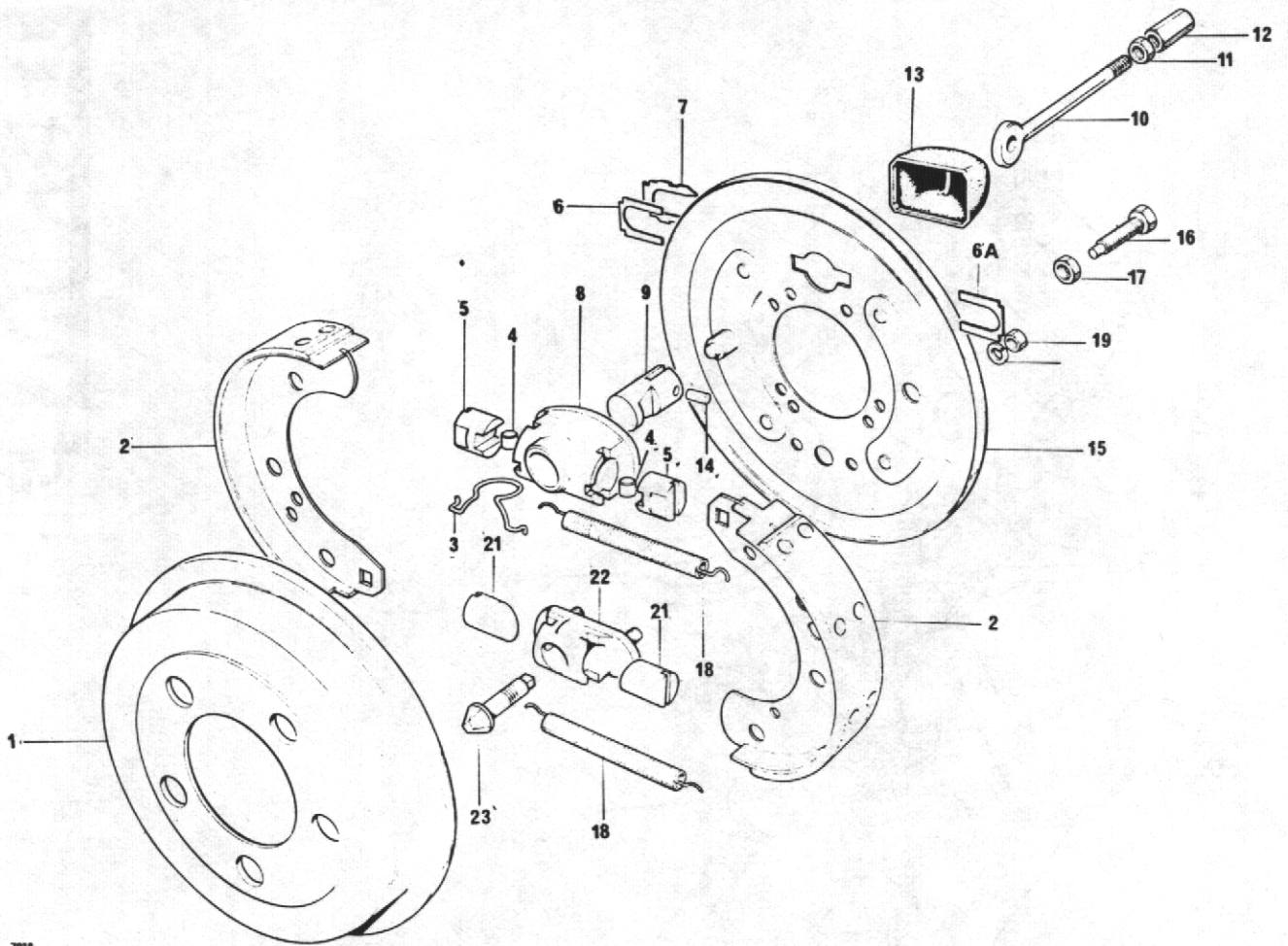


TP 022

AIR CLEANER

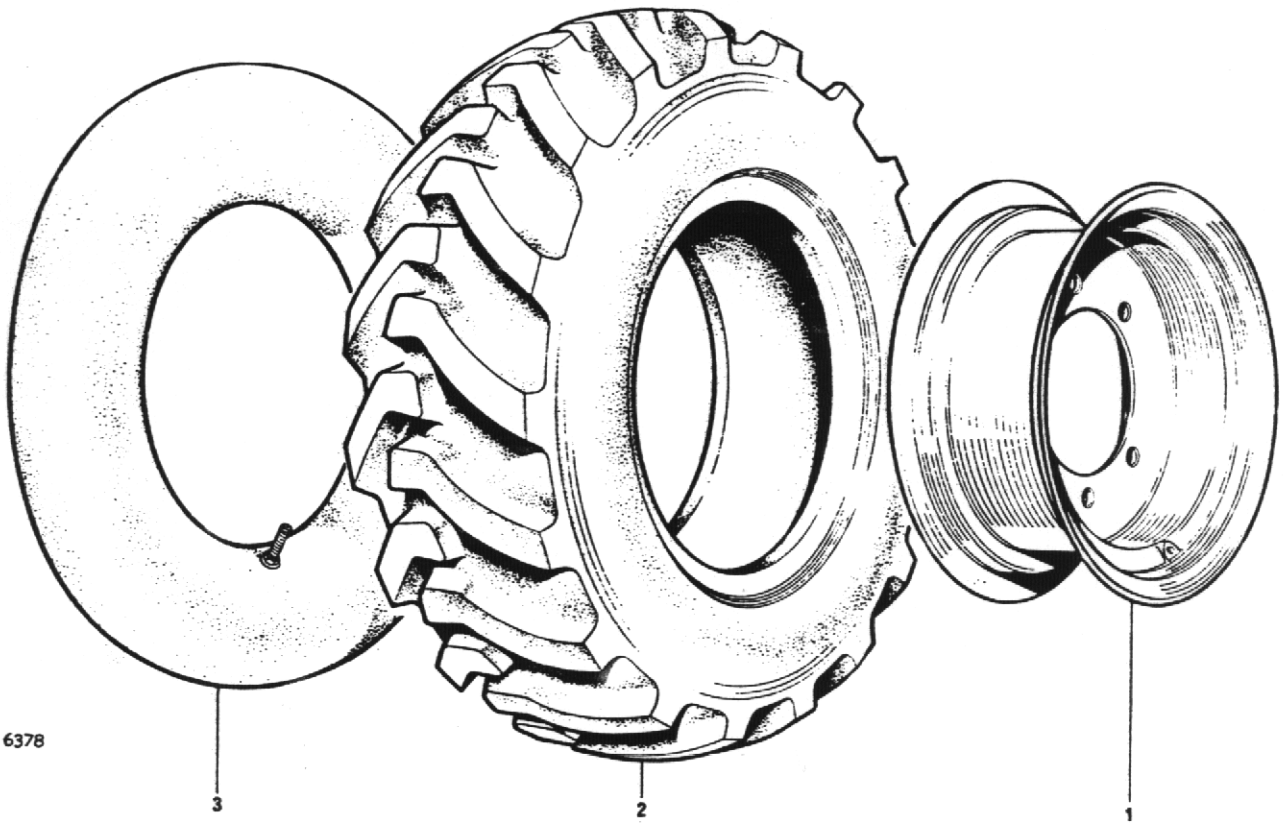
| Item No. | Part No. | Description | Qty. |
|----------|------------|----------------------------------|------|
| 1 | 10532A02 | Air Cleaner Assembly | 1 |
| 2 | 10532A0101 | Element | 1 |
| 3 | V600487 | Nut & Gasket Kit | 1 |
| 4 | 220229002 | Clamp Body | 1 |
| 5 | 220229003 | Skirt, baffle | 1 |
| 6 | 220229004 | Cup | 1 |
| 7 | 10534A02 | Stack Cap | 1 |
| 8 | 10533A02 | Bracket | 2 |
| 9 | 10320A06 | Sleeve Adapter | 1 |
| 10 | | Hose Flexible 2" Bore x 35" Long | 1 |
| 11 | 97S12 | Clip Hose | 2 |

DRUM BRAKE ASSEMBLY



7818

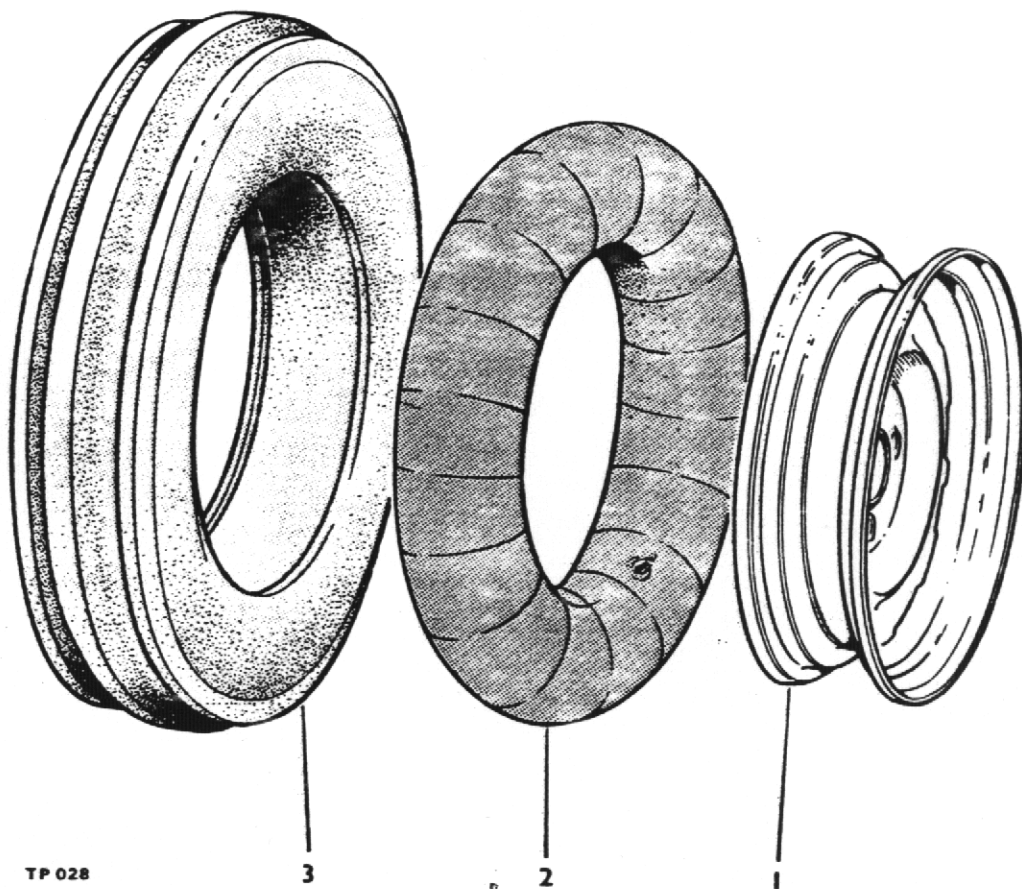
| Item | Part No. | Description | Qty. |
|------|-------------|--|------|
| 1 | 30088.A0128 | Brake Drum | 1 |
| 2 | 20298.A0101 | Lined Shoe | 2 |
| 3 | 20298.A0102 | Spring | 1 |
| 4 | 20298.A0103 | Roller | 2 |
| 5 | 20298.A0104 | Tappet Expander | 2 |
| 6 | 20298.A0105 | Plate | 1 |
| 6A | 20298.A0106 | Plate | 1 |
| 7 | 20298.A0107 | Locking Plate | 1 |
| 8 | 20298.A0108 | Expander Housing | 1 |
| 9 | 20298.A0109 | Plunger | 1 |
| 10 | 20298.A0110 | Drawlink | 1 |
| 11 | 20298.A0111 | Locknut | 1 |
| 12 | 20298.A0112 | Barrel Nut | 1 |
| 13 | 20298.A0113 | Dust Cover | 1 |
| 14 | 20298.A0114 | Pin | 1 |
| 15 | 20298.A0115 | Brake Back Plate | 1 |
| 16 | 1S.02C | Setscrew 5/16" BSF | 2 |
| 17 | 1S.03 | Nut 5/16" BSF | 2 |
| 18 | 20298.A0116 | Spring | 2 |
| 19 | 20298.A0117 | Nut | 2 |
| 20 | 20298.A0118 | Washer | 2 |
| 21 | 20298.A0119 | Tappet Adjuster | 2 |
| 22 | 20298.A0120 | Adjuster Housing | 1 |
| 23 | 20298.A0121 | Wedge | 2 |
| 24 | 20298.A0122 | Service Kit (Adjuster) (N.I.) | A/R |
| 25 | 20298.A0123 | Adjuster Assy. (Compr: 19-25) | A/R |
| 26 | 20298.A0124 | Expr. Assy. (Compr: items 3,4,5,8,9,10,11,12,& 14 | A/R |



6378

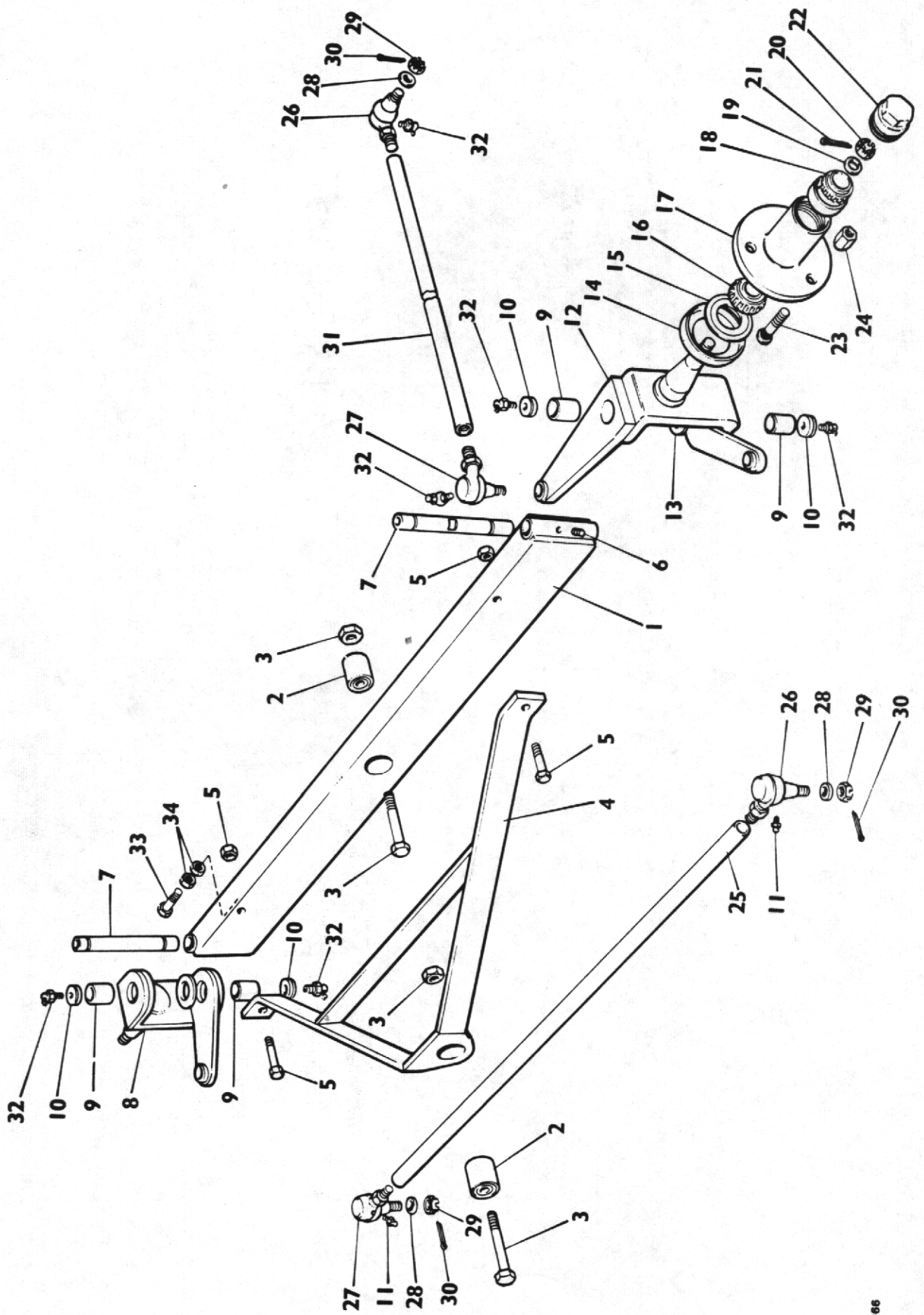
DRIVE WHEELS AND TYRES

| Item No. | Part No. | Description | Qty. |
|----------|----------|----------------------|------|
| | 24S04 | R/H Wheel Assembly | 1 |
| | 24S03 | L/H Wheel Assembly | 1 |
| 1 | 30192A01 | Wheel rim 5.50 x 16 | 2 |
| 2 | 20S08 | Tyre 7.50 x 16-6 ply | 2 |
| 3 | 23S03 | Tube 7.50 x 16 | 2 |



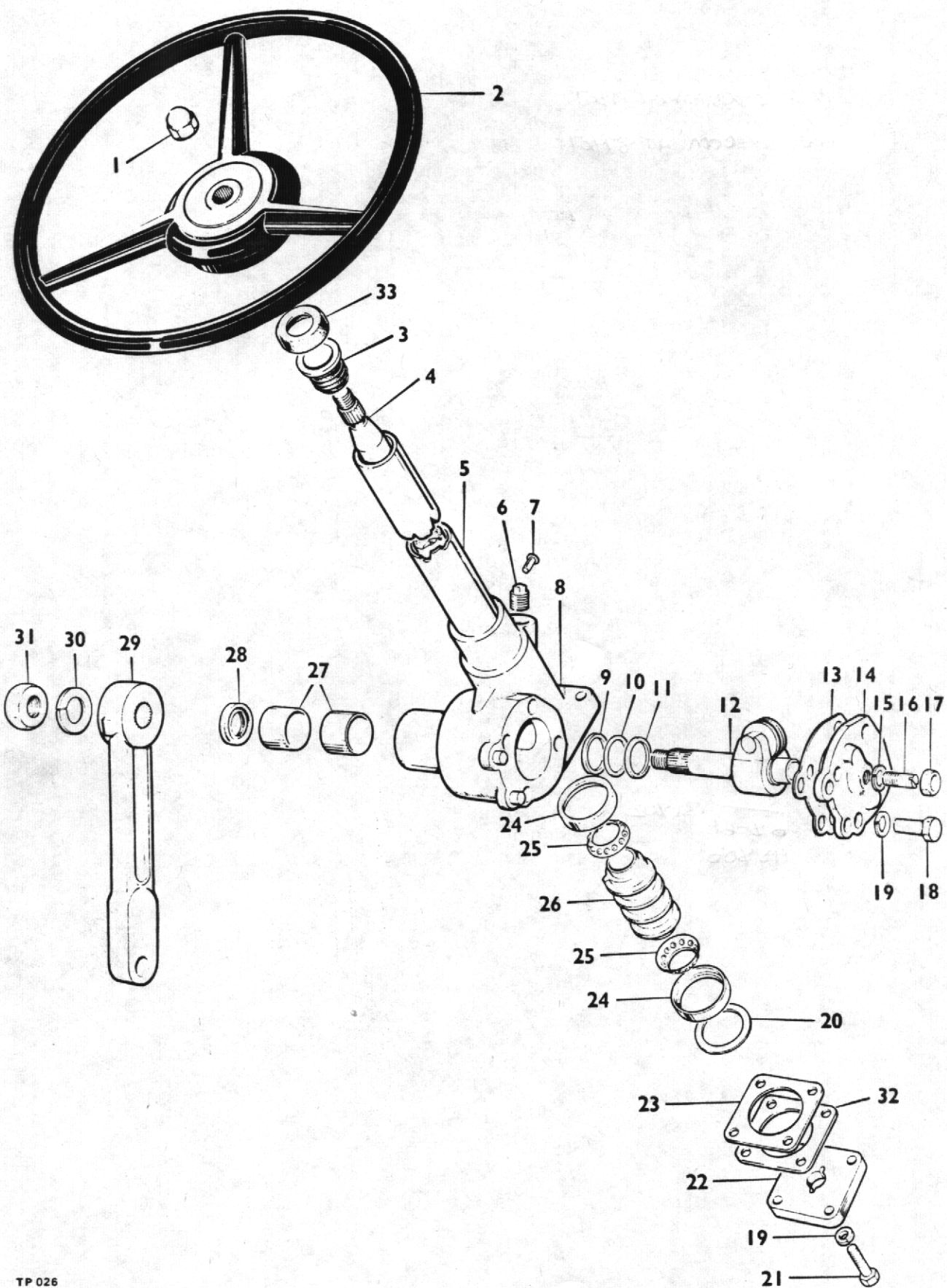
STEERING WHEELS AND TYRES

| Item No. | Part No. | Description | Qty. |
|----------|----------|-------------------------|------|
| 1 | 24S37 | 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 16-6 ply | 2 |



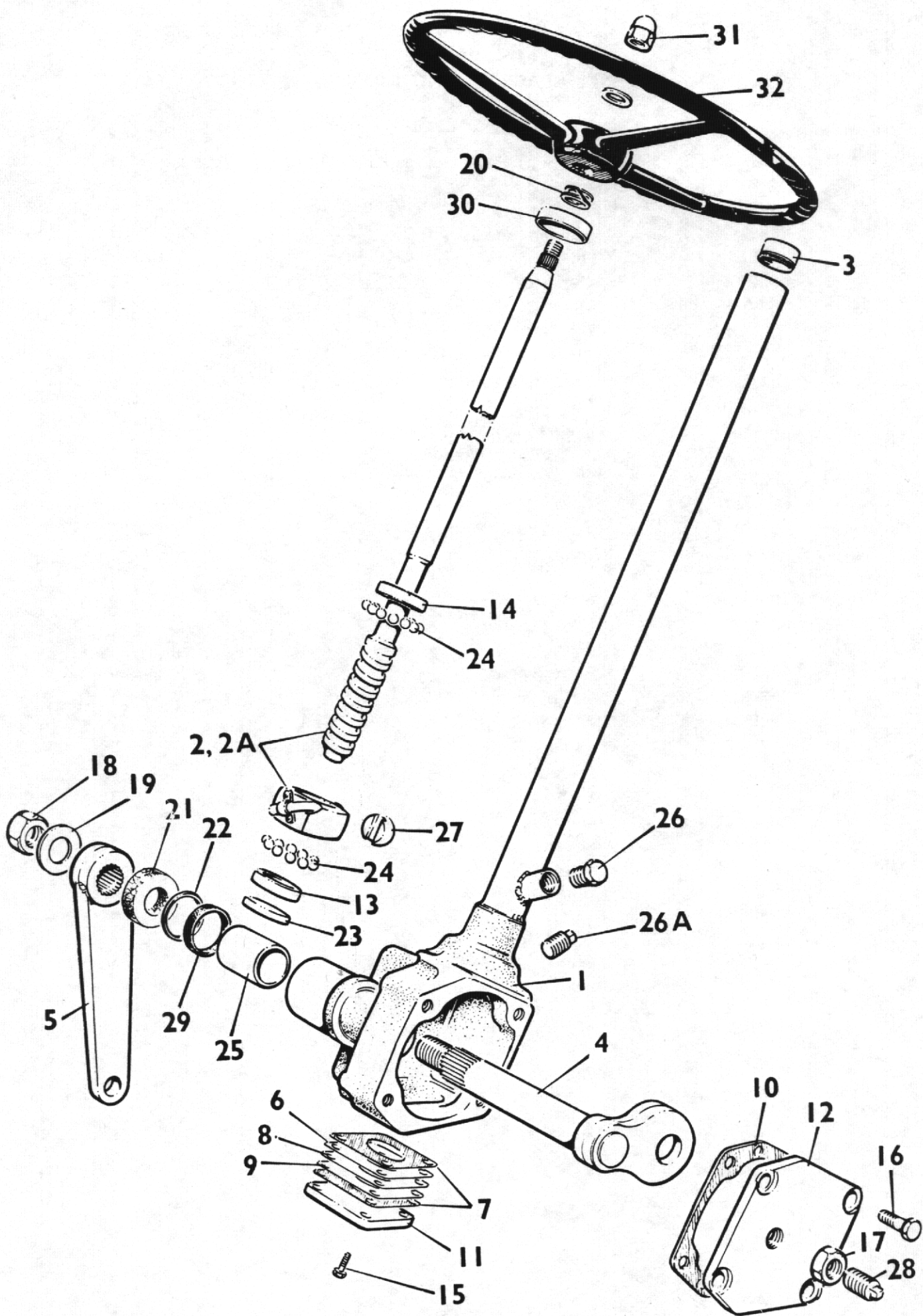
STEERING ASSEMBLY

| Item No. | Part No. | Description | Qty |
|----------|-------------------------|---|-----|
| 1 | L-261 | Axle Beam | 1 |
| 2 | E-2245 | Axle & Stabiliser Bush | 2 |
| 3 | BOLT 6\$06MM NUT 9\$07 | Axle & Stabiliser Pivot Bolt 7/8" UNF x 4" long & Nut | 2 |
| 4 | L-262 | Axle Stabiliser | 1 |
| 5 | BOLT 6\$06MM NUT 87\$07 | Bolt 5/8" UNF x 3 1/2" long & Nut | 2 |
| 6 | C-111A | King Pin retaining screw 7/16" whit | 2 |
| 7 | L-264 | King Pin | 2 |
| 8 | L-267-L.H. | Stub Axle Assembly L.H. | 1 |
| 9 | C-190 | King Pin Bush | 4 |
| 10 | C-180A | King Pin washer - felt | 4 |
| | C-180B | King Pin washer - steel | 4 |
| 11 | T-ST | Grease nipple | 2 |
| 12 | L-267-R.H. | Stub Axle Assembly R.H. | 1 |
| 13 | C-175 | Thrust washer | 2 |
| 14 | EC-2752 | Dust Cover | 2 |
| 15 | C-186C | Hub bearing Oil seal | 2 |
| 16 | K-14138-1 | Hub bearing (Inner) | 2 |
| 17 | C186 | Hub Assembly Complete (Including items 14,15,16, 18,22,23, & 24) | 2 |
| 18 | K-09074 | Hub bearing (outer) | 2 |
| 19 | | Hub washer 5/8" dia bright | A/R |
| 20 | C-186B | Hub Nut 5/8" BSF slotted | 2 |
| 21 | | Split Pin 1/8" dia | 2 |
| 22 | C-186A | Hub Cap | 2 |
| 23 | 0156 | Wheel stud | 6 |
| 24 | C-177 | Wheel Nut | 6 |
| 25 | L-308T | Track Rod | 1 |
| 26 | C-159-L.H. | Steering Ball Joint L.H. | 2 |
| 27 | C-159-R.H. | Steering Ball Joint R.H. | 2 |
| 28 | | Flat washer | 4 |
| 29 | | Slotted Nut | 4 |
| 30 | | Split Pin 1/8" dia x 1" long | 4 |
| 31 | L-308D | Drag Link | 1 |
| 32 | 13\$02 | Grease nipple | 6 |
| 33 | 6\$06F | Stop Bolt 5/8" UNF x 2" long | 2 |
| 34 | 9\$06 | Locknut 5/8" UNF | 4 |



STEERING GEAR (CAM AND ROLLER TYPE)

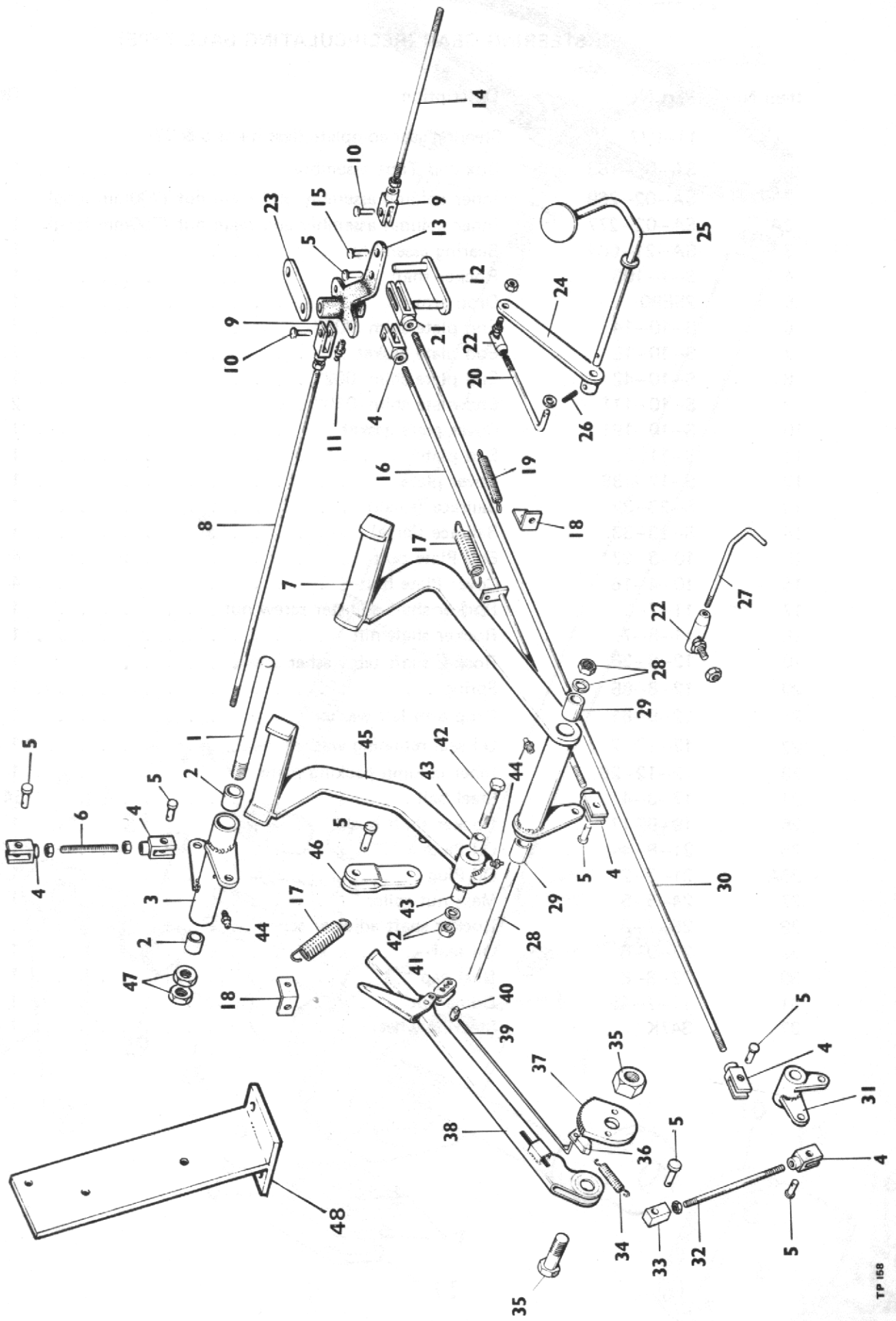
| Item No. | Part No. | Description | Qty. |
|----------|--------------|---|------|
| | MGA 34849 | Steering column assy. complete less items, 1,2 & 29 | 1 |
| 1 | C 304 | Steering wheel nut | 1 |
| 2 | 347 K | Steering wheel | 1 |
| 3 | PA3904A | Column top bush | 1 |
| 4 | P5244/30" | Inner shaft | 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 | QA757 | 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 | 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 |



Switzer
L. J. Zink
10-10-10

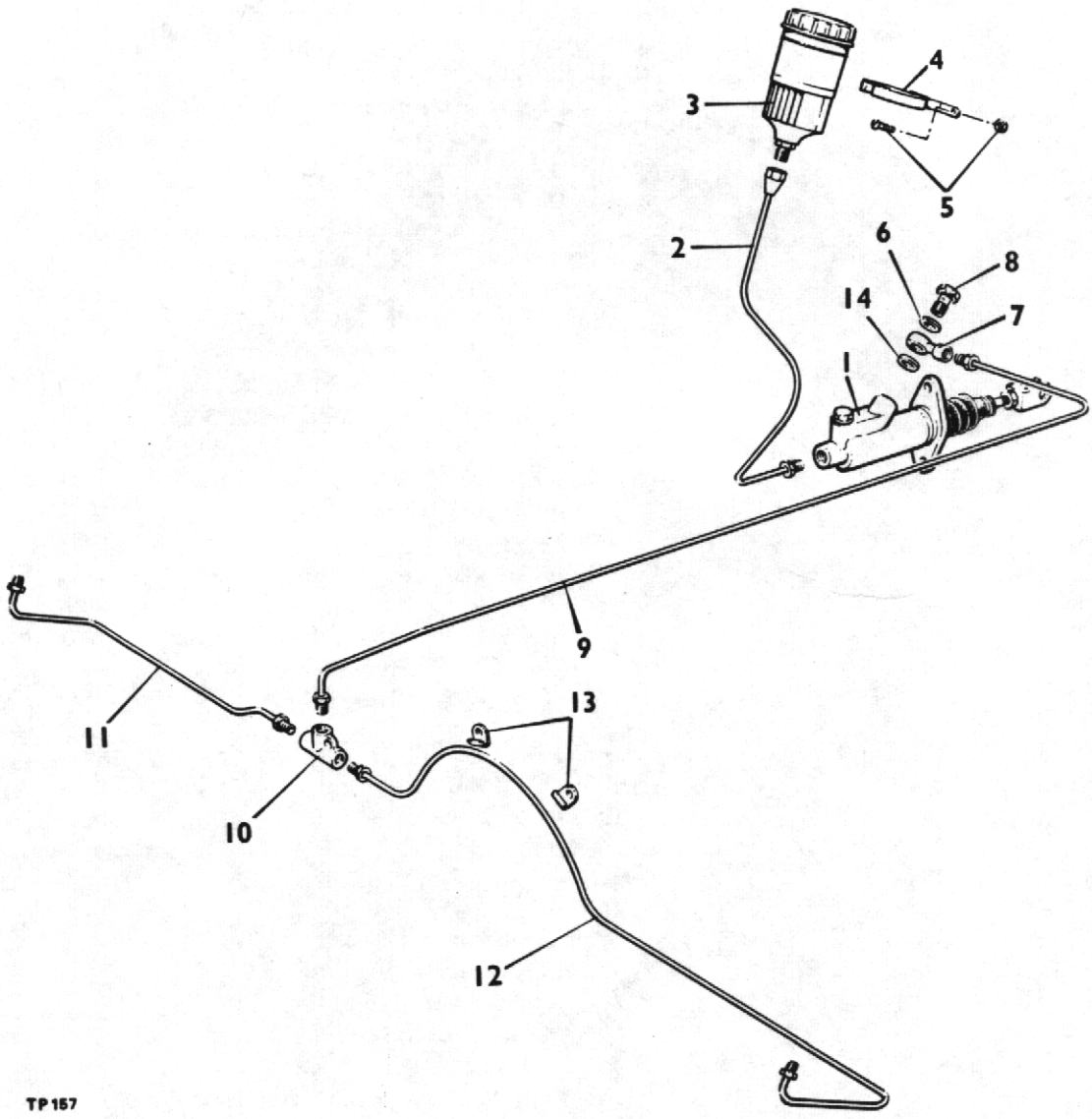
STEERING GEAR (RECIRCULATING BALL TYPE)

| 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 | 11-7-45 | Dome nut | 1 |
| 32 | 347K | Steering wheel | 1 |



PEDALS & CONTROLS

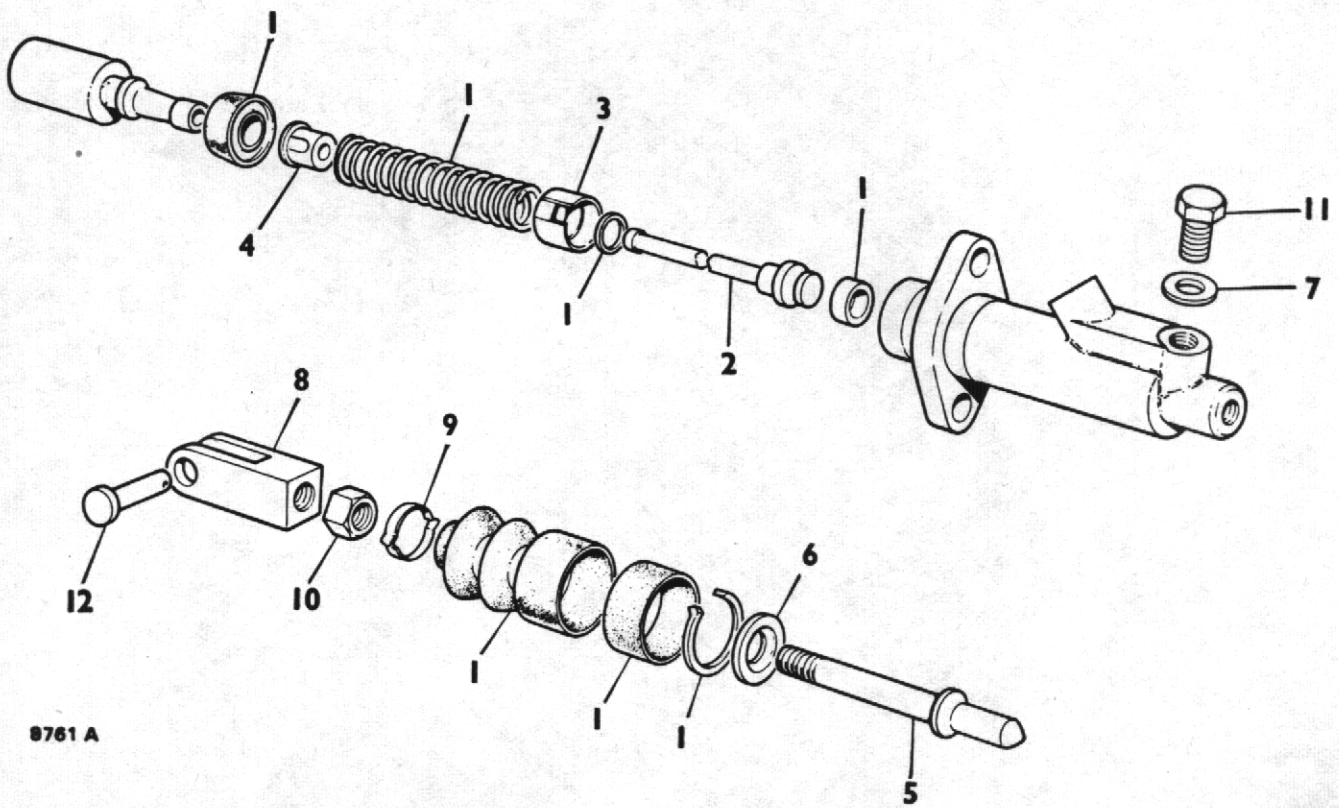
| Item No. | Part No. | Description | Qty. |
|----------|----------|--|------|
| 1 | L357 | Clutch Transfer Lever Pivot Pin | 1 |
| 2 | WB 0808 | Clutch Transfer Lever Bush | 2 |
| 3 | L280 | Clutch Transfer Lever. | 1 |
| 4 | C 174 A | Fork End (Drum Brakes Only) ²⁺²⁺² | 6 |
| | C 174A | For End (Disc Brakes Only) ³ | 5 |
| 5 | C 174 X | Clevis Pin (Drum Brakes Only) ²⁺²⁺² | 8 |
| | C 174 X | Clevis Pin (Disc Brakes Only) ³⁺² | 6 |
| 6 | C 184 | Clutch Adjusting Rod (3/8" BSF) | 1 |
| 7 | C 122 | Footbrake Pedal (Drum Brakes Only) | 1 |
| | C 258 | Footbrake Pedal (Disc Brakes Only) - (Not Illustrated) | 1 |
| 8 | L 278 B | Brake Rod 1/4" UNF x 31.1/4" Long (Drum Brakes Only) | 1 |
| | L 329/2 | Brake Rod 1/4" UNFx30.1/2" Long (Disc Brakes Only) | 1 |
| 9 | C 174 C | Clevis (Drum Brakes Only) | 2 |
| | C 174 C | Clevis (Disc Brakes Only) | 4 |
| 10 | C 174 Y | Clevis Pin (Drum Brakes Only) | 2 |
| | C 174 Y | Clevis Pin (Disc Brakes Only) | 4 |
| 11 | 5ST 100 | Grease Nipple | 1 |
| 12 | C 271 | Compensator Link Assembly (Drum Brakes Only) | 1 |
| | C 189 B | Compensator Link Pin (Disc Brakes Only) (Not Illustrated) | 2 |
| 13 | C 272 | Compensator Lever (Drum Brakes Only) | 1 |
| | 5ST 76 | Compensator Lever (Disc Brakes Only) (Not Illustrated) | 1 |
| 14 | L 278 A | Brake Rod 1/4" UNF x 8.3/4" Long (Drum Brakes Only) | 1 |
| | L 329/1 | Brake Rod 1/4" UNF x 8.1/4" Long (Disc Brakes Only) | 1 |
| 15 | C 174 XL | Clevis Pin (For slotted fork) - (Drum brakes Only) | 1 |
| 16 | L 277A | Footbrake Rod 3/8" BSF x 40" Long (Drum brakes Only) | 1 |
| 17 | C 173 B | Return Spring | 2 |
| 18 | C 163 | Spring Retainer | 2 |
| 19 | C 173 D | Accelerator Rod Return Spring | 1 |
| 20 | C 299 | Accelerator Rod | 1 |
| 21 | C 174 B | Slotted Fork (Drum Brakes Only) | 1 |
| 22 | C 160 B | Ball End | 2 |
| 23 | C 189 A | Compensator Link (Drum Brakes Only) | 1 |
| | L 329/5 | Compensator Link (Disc Brakes Only) | 2 |
| 24 | C 129 | Accelerator Pedal Lever | 1 |
| 25 | C 137 | Accelerator Pedal | 1 |
| 26 | C 129 A | Tension Pin 3/16" x 1.1/4" Long | 1 |
| 27 | C299-1 | Priming Lever. | 1 |
| 28 | C319 | Footbrake Pedal Pin and 2 Nuts ³ / ₄ " UNF | 1 |
| 29 | WB 1212 | Footbrake Pedal Bush | 2 |
| 30 | L 277 B | H/Brake Rod 3/8" BSF x 47.1/2" (Drum Brakes Only) | 1 |
| | L329/3 | H/Brake Rod 3/8" BSF x 49.1/2" (Disc Brakes Only) | 1 |
| 31 | L 292 | H/Brake Transfer Lever | 1 |
| 32 | L 306 | H/Brake Connecting Rod | 1 |
| 33 | L 309 | H/Brake Rod End | 1 |
| 34 | 14423/A | H/Brake Pawl Spring | 1 |
| 35 | L298 | H/Brake Lever Carrier Bolt and Nut | 1 |
| 36 | 14418/A | Pawl | 1 |
| 37 | C 156/A | H/Brake Lever Quadrant | 1 |
| 38 | L 291 | H/Brake Assembly Complete | 1 |
| 39 | 14419/A | H/Brake Pawl Rod | 1 |
| 40 | 000022/A | Pin, Latch Pivot Arm | 1 |
| 41 | 14425 A | Arm, Latch Pivot | 1 |
| 42 | C 126/A | Clutch Pedal Bolt and Nut | 1 |
| 43 | WB 1010 | Clutch Pedal Bush | 2 |
| 44 | T/ST | Grease Nipple | 3 |
| 45 | C 126 | Clutch Pedal | 1 |
| 46 | L 296 | Clutch Connecting Link | 1 |
| 47 | | Half Nut 1/2" BSF | 2 |
| 48 | 3SHD 55 | Control Valve Bracket | 1 |



TP 157

BRAKE PIPES AND FITTINGS

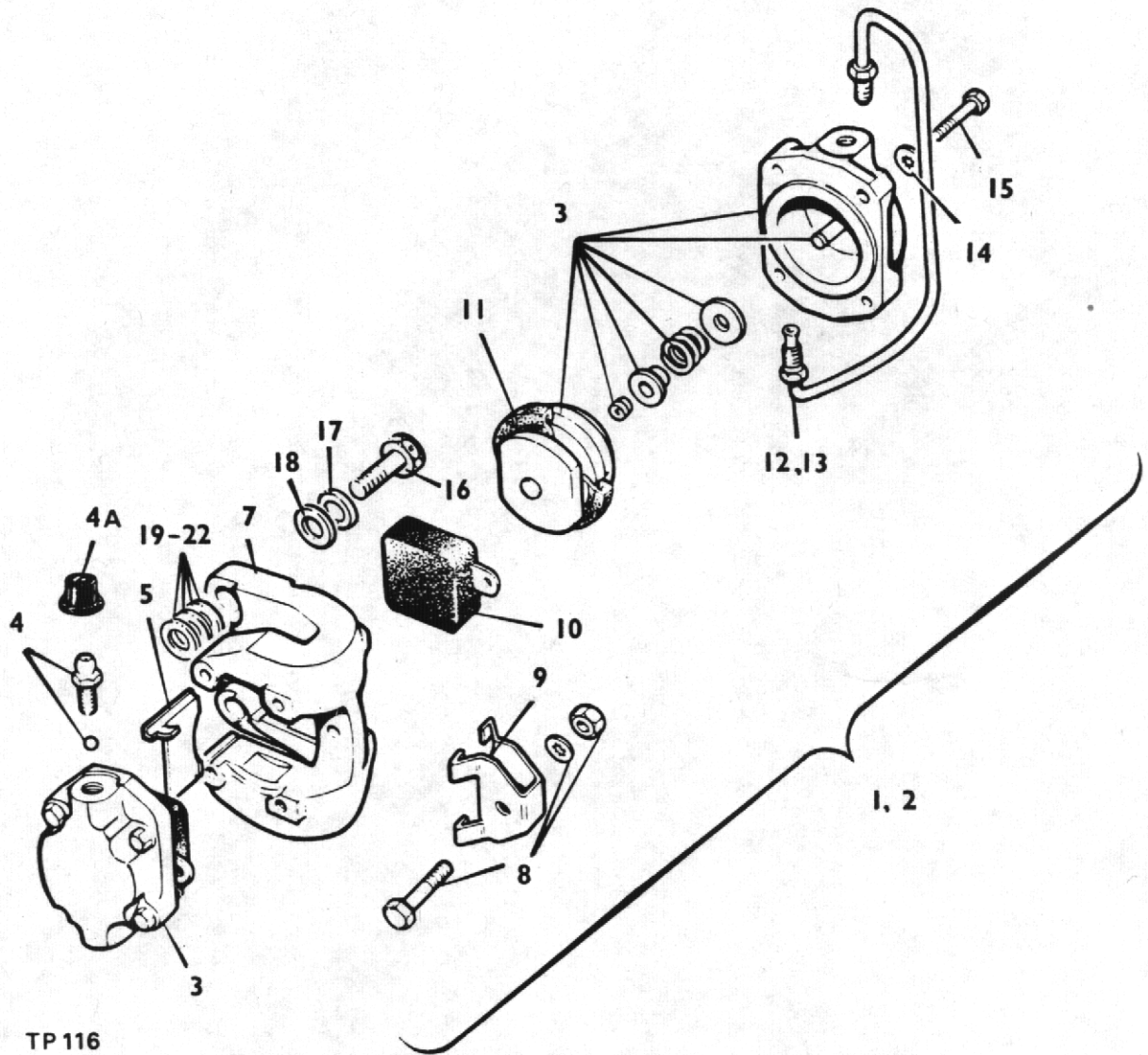
| Item No. | Part No. | Description | Qty |
|----------|----------|---|-----|
| 1 | 64067970 | Master Cylinder (complete) | 1 |
| 2 | DM 89-1 | Pipe 1/4" dia x 21" long (master cylinder to reservoir) | 1 |
| 3 | 64046158 | Reservoir | 1 |
| 4 | 64477544 | Reservoir clip | 1 |
| 5 | | Screw 2BA x 1/2" long & locknut | 2 |
| 6 | 378700 | Copper washer | 1 |
| 7 | 64474287 | Banjo | 1 |
| 8 | 376102W | Banjo Bolt | 1 |
| 9 | DM78-3 | Pipe 3/16" dia x 43" long (master cylinder to tee) | 1 |
| 10 | 64474341 | Tee piece | 1 |
| 11 | DM78-2 | Pipe 3/16" dia x 21" long (tee to RH brake caliper) | 1 |
| 12 | DM78-1 | Pipe 3/16" dia x 38" long (tee to LH brake caliper) | 1 |
| 13 | 4S132 | Clip | 1 |
| 14 | 378703 | Copper washer | 1 |



8761 A

MASTER CYLINDER ASSEMBLY

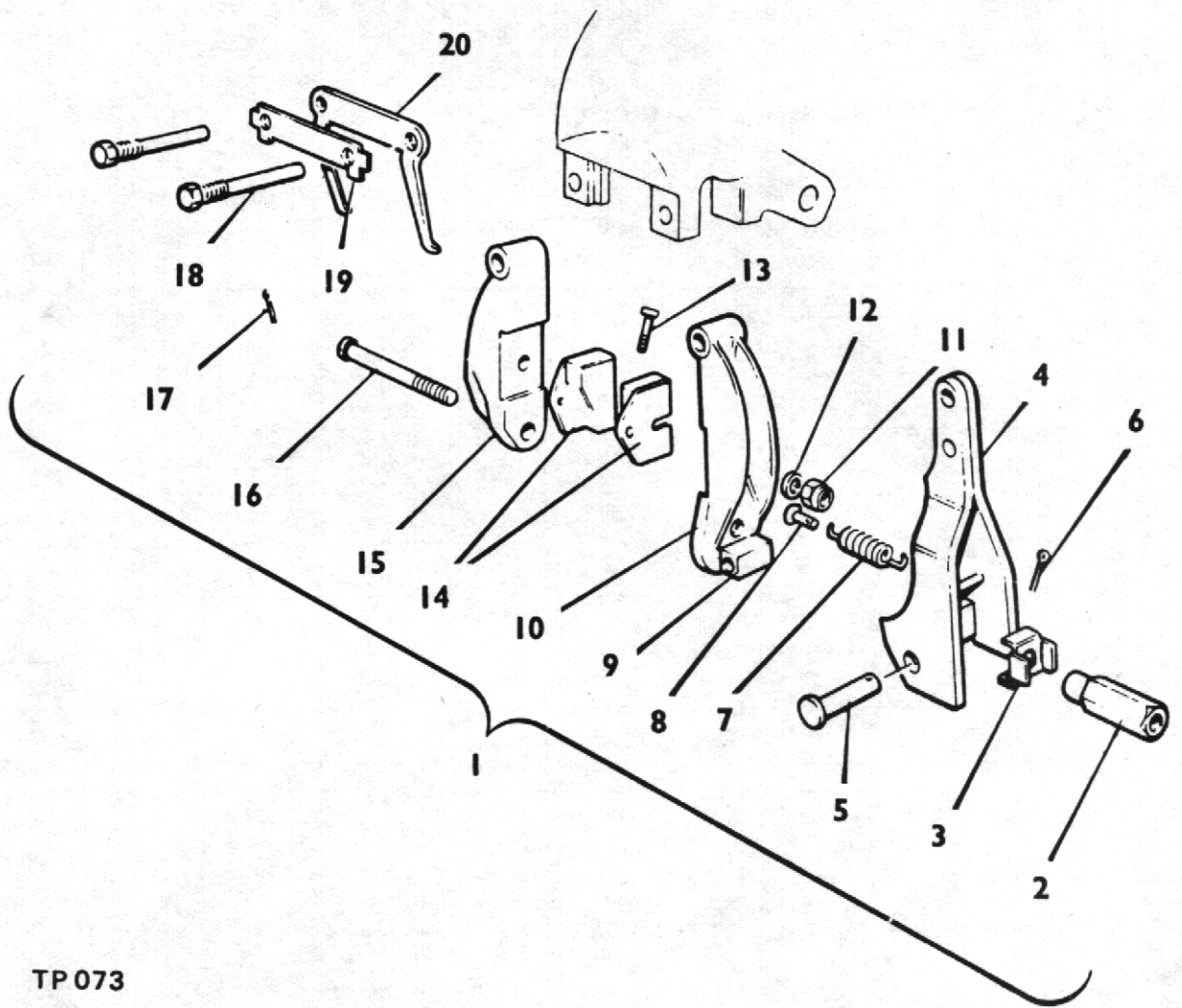
| Item No. | Part No. | Description | Qty. |
|----------|-----------|----------------------------|------|
| | 64067970 | Master Cylinder (Complete) | 1 |
| 1 | SP 1996/2 | Seal Kit | 1 |
| 2 | 378641 | Valve Stem | 1 |
| 3 | 318001 | Valve Spacer | 1 |
| 4 | 64673391 | Valve Spring Retainer | 1 |
| 5 | 351257 W | Push Rod | 1 |
| 6 | 378242 | Retaining Washer | 1 |
| 7 | 378700 | Washer | 1 |
| 8 | 64671286 | Clevis | 1 |
| 9 | 378312 | Dust Cover Retainer | 1 |
| 10 | 64100052 | Locknut | 1 |
| 11 | 64110348 | Plug | 1 |
| 12 | C174 Y | Clevis Pin | 1 |



TP 116

BRAKE CALIPER ASSEMBLY

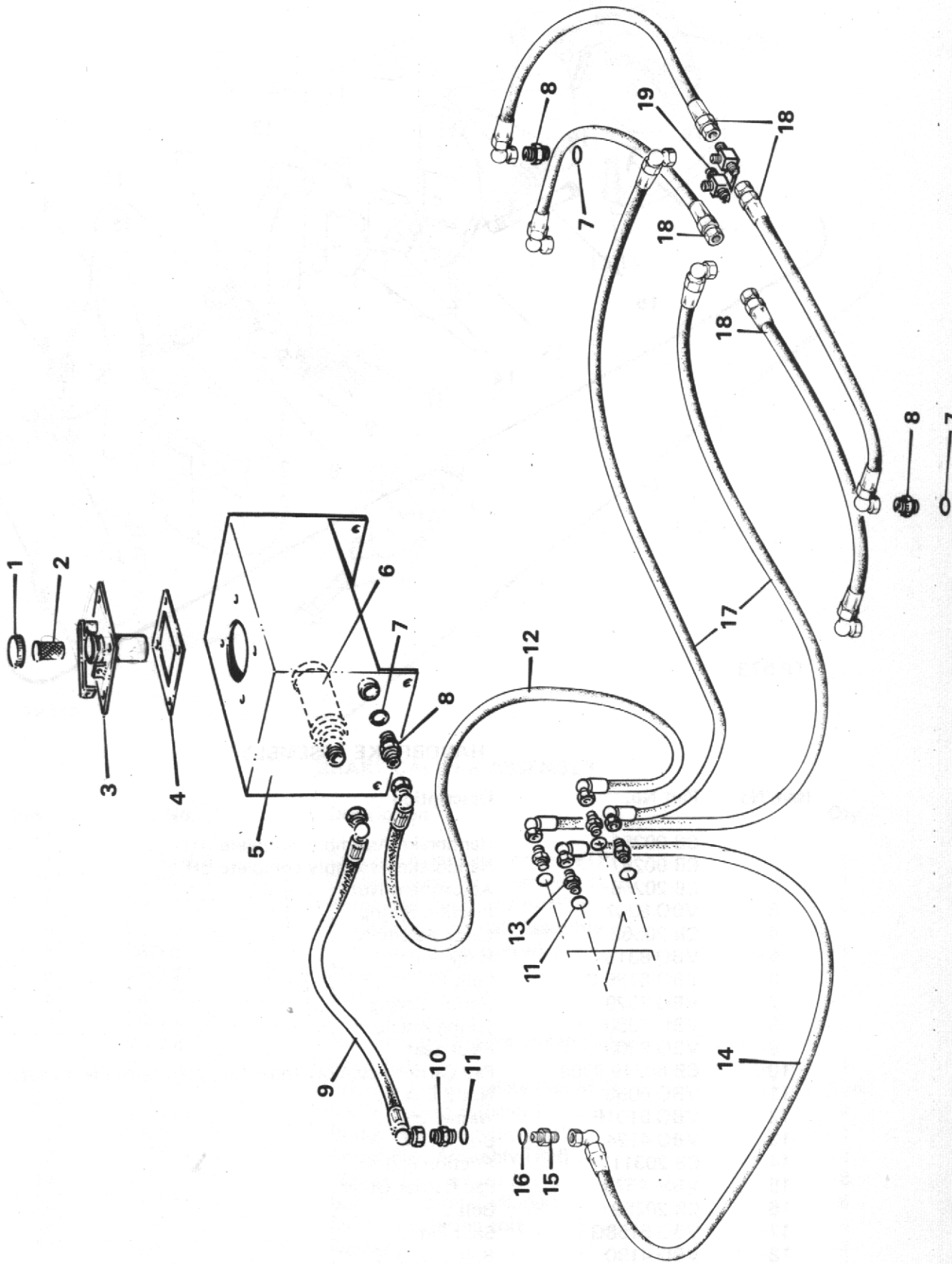
| Item No. | Part No. | Description | Qty |
|----------|-----------|-----------------------------------|-------|
| 1 | CB 90262 | Caliper Assembly Complete (RH) | 1 |
| 2 | CB 90263 | Caliper Assembly Complete (LH) | 1 |
| 3 | VBO 5505 | Piston and Cylinder Assembly | 2 |
| 4 | VBO 8378 | Bleed Screw and Ball Assembly | 1 |
| 4A | CBO 849 | Dust Cover (Bleedscrew) | 1 |
| 5 | VBO 5133 | Plate, Support | 1 |
| 6 | CB 60253 | Body, Caliper (LH) | 1 |
| 7 | CB 60252 | Body, Caliper (RH) | 1 |
| 8 | VBO 8491 | Nut, Bolt and Washer (Keep Plate) | 1 |
| 9 | VBO 5123 | Keep Plate | 1 |
| 10 | VBO 8360Y | Friction Pad Complete (Set of 4) | 1 set |
| 11 | VBO 8210A | Seal Kit (Dust & Piston) | 2 |
| 12 | VBO 3927 | Bridge Pipe Assembly (LH) | 1 |
| 13 | VBO 3928 | Bridge Pipe Assembly (RH) | 1 |
| 14 | VBO 6101L | Washer, Shakeproof | 8 |
| 15 | VBO 5100 | Bolt, Retaining (Cylinder) | 8 |
| 16 | 7BNF22B | Caliper mounting bolt | 4 |
| 17 | 7W16 | Washer | 4 |
| 18 | 7W14 | Washer | 4 |
| 19 | 5HA138 | Shim .003" | A/R |
| 20 | 5HA139 | Shim .005" | A/R |
| 21 | 5HA140 | Shim .010" | A/R |
| 22 | 5HA141 | Shim .030" | A/R |



TP 073

HANDBRAKE ASSEMBLY

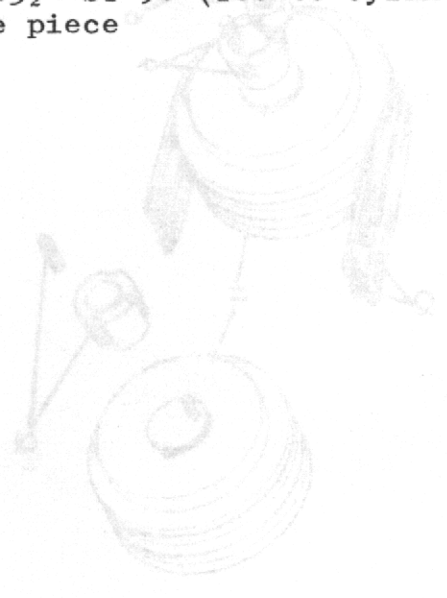
| Item No. | Part No. | Description | Qty |
|----------|---------------|---|-----|
| 1 | CB 90256 | Handbrake Assembly complete RH | 1 |
| | CB 90257 | Handbrake Assembly complete LH | 1 |
| 2 | CB 20258 | Adjustment Nut | 1 |
| 3 | VBO 8307 | Friction Spring | 1 |
| 4 | CB 20562 | Lever Assembly | 1 |
| 5 | VBO 8315 | Hinge Pin | 1 |
| 6 | VBO 6135 D | Split Pin | 1 |
| 7 | VBO 7329 | Return Spring | 1 |
| 8 | VBO 7330 | Spring Anchor | 1 |
| 9 | VBO 8308 | Pivot Seat | 1 |
| 10 | CB 60249 8308 | Pad Carrier Assembly Inner Complete with Pivot Seat | 1 |
| 11 | VBO 6050 | Nut 2 B.A. | 2 |
| 12 | VBO 6101F | Washer | 2 |
| 13 | VBO 4124 | Bolt | 2 |
| 14 | CB 20311Y | Friction Pad | 2 |
| 15 | VBM 4573 | Pad Carrier Outer | 1 |
| 16 | CB 20289 | Bolt | 1 |
| 17 | VBO 6158G | Split Pin | 1 |
| 18 | VBO 4190 | Bolt | 2 |
| 19 | VBO 4226 | Tab Washer | 1 |
| 20 | VBM 4635/1 | Retraction Plate | 1 |

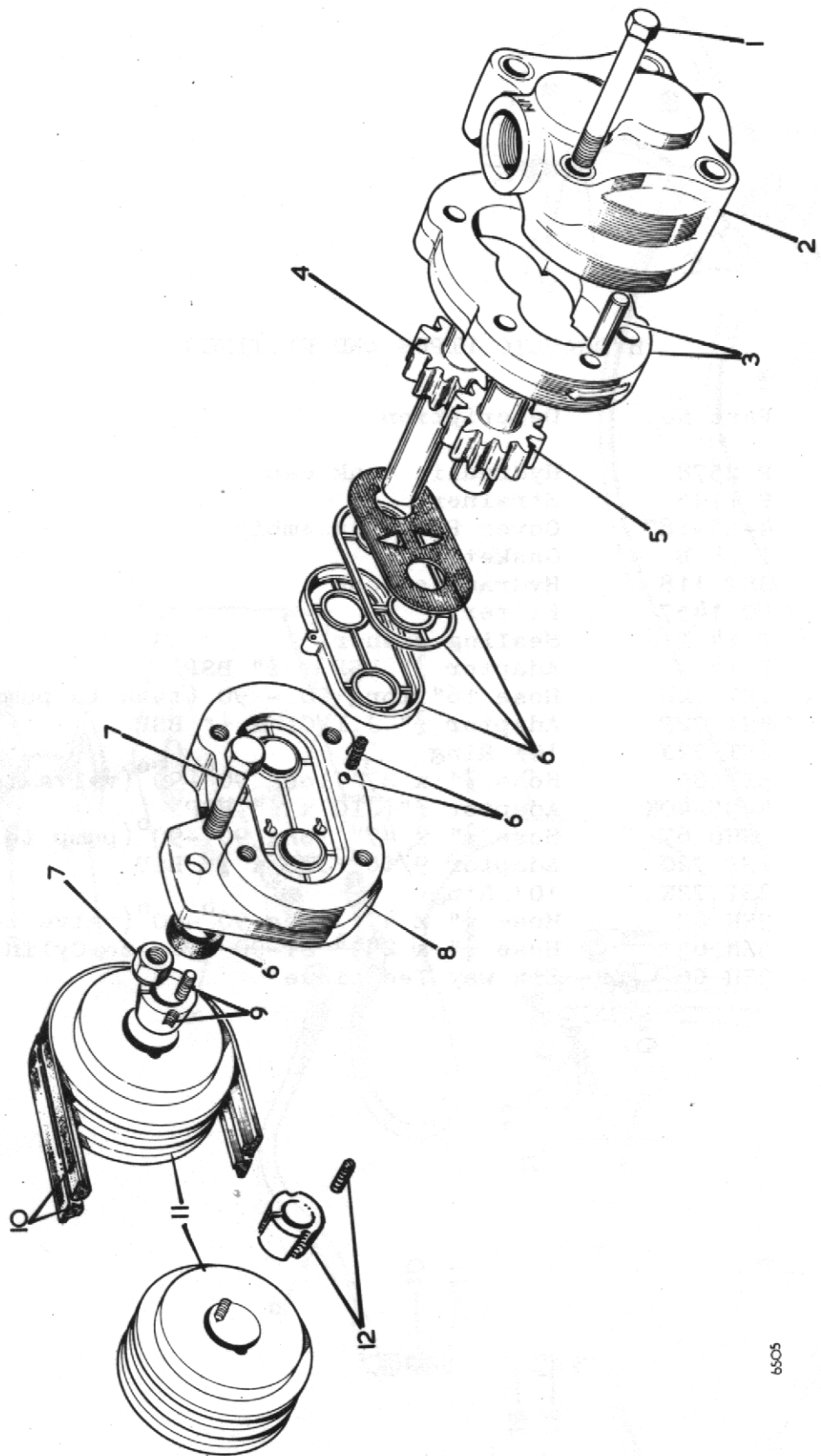




HYDRAULIC PIPES AND FITTINGS

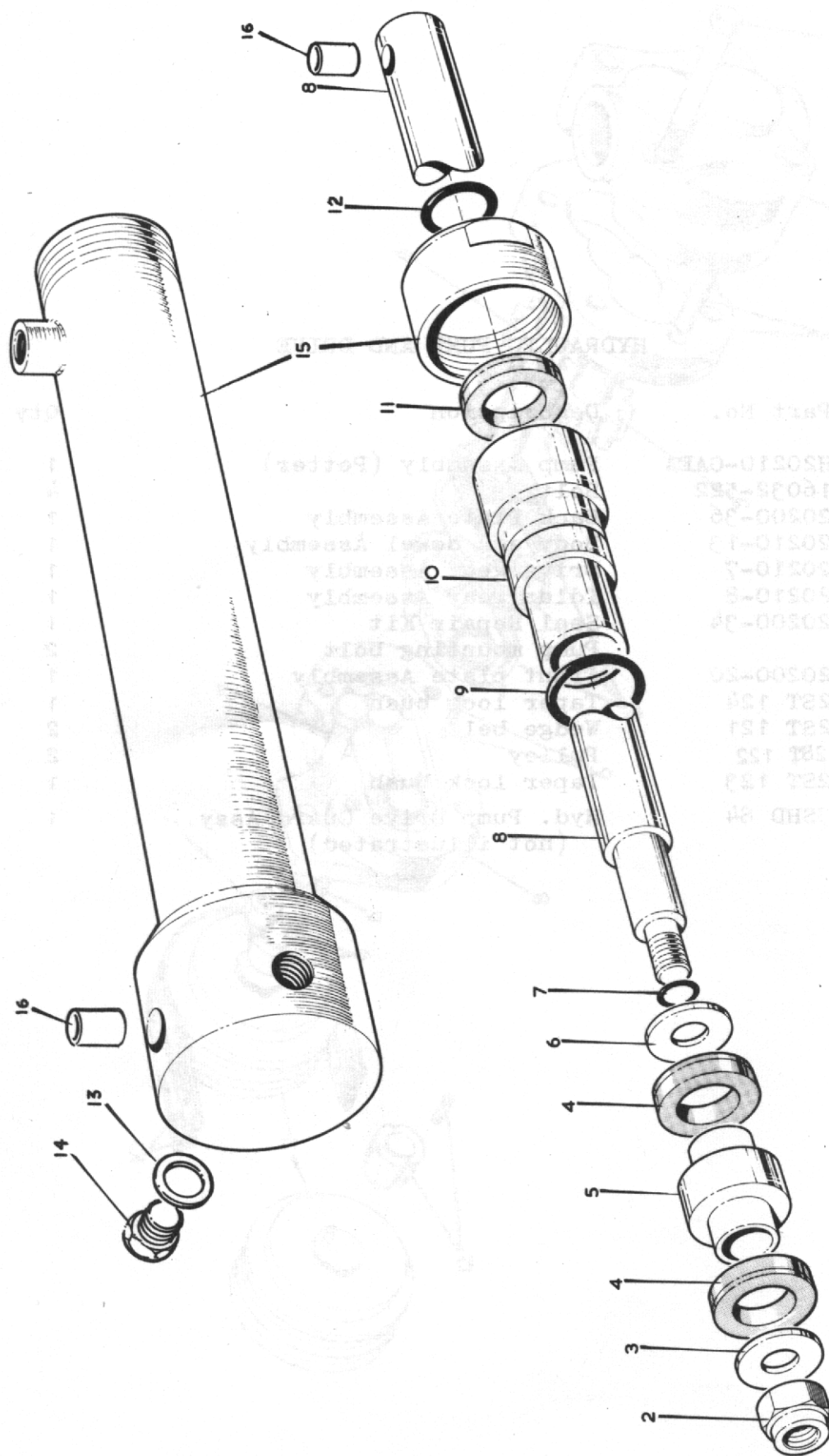
| Item No. | Part No. | Description | Qty |
|----------|----------|--|-----|
| 1 | P 2578 | Hydraulic tank cap | 1 |
| 2 | P 1145 | Strainer | 1 |
| 3 | 4-35-187 | Cover Plate Assembly | 1 |
| 4 | T 18 B | Gasket | 1 |
| 5 | 2ST 118 | Hydraulic tank | 1 |
| 6 | UC 1457 | Filter | 1 |
| 7 | T 14 I | Sealing washer | 3 |
| 8 | T 14 J | Adaptor $\frac{3}{8}$ " BSP x $\frac{3}{8}$ " BSP | 3 |
| 9 | 2ST 72E | Hose 16" long 90 - 90 (tank to pump) | 1 |
| 10 | 2ST 72F | Adaptor $\frac{3}{4}$ " J.I.C. x $\frac{1}{2}$ " BSP | 1 |
| 11 | 2ST 72J | 'O' Ring | 5 |
| 12 | 5ST 85 | Hose $\frac{3}{8}$ " x 27" long 90°-90° (valve to tank) | 1 |
| 13 | 4-35-40K | Adaptor $\frac{3}{4}$ " JIC x $\frac{3}{8}$ " BSP | 4 |
| 14 | 3SHD 67 | Hose $\frac{3}{8}$ " x 47" long 90°-90° (pump to valve) | 1 |
| 15 | 2ST 72G | Adaptor 9/16" JIC x $\frac{3}{8}$ " BSP | 1 |
| 16 | 2ST 72K | 'O' Ring | 1 |
| 17 | 3SH 62 | Hose $\frac{3}{8}$ " x 47" long 90°-90° (valve to Tee) | 2 |
| 18 | 3SH 63 | Hose $\frac{3}{8}$ " x 23 $\frac{1}{2}$ " ST-90 (Tee to Cylinders) | 4 |
| 19 | 3SH 66 | Six way Tee piece | 1 |





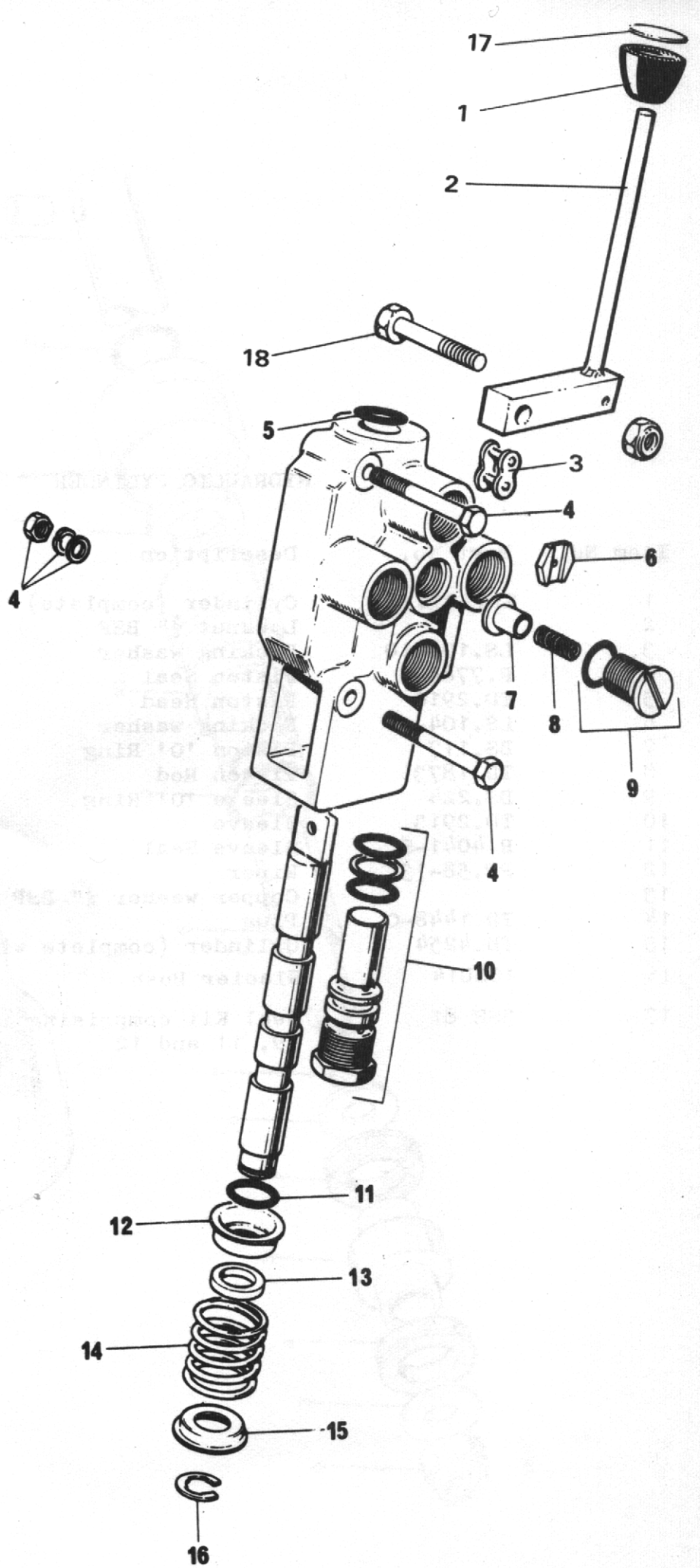
HYDRAULIC PUMP AND DRIVE

| Item No. | Part No. | Description | Qty |
|----------|-------------|--|-----|
| | H20210-OAEA | Pump Assembly (Petter) | 1 |
| 1 | 16032-522 | Bolt | 4 |
| 2 | 20200-36 | Back Plate Assembly | 1 |
| 3 | 20210-13 | Body and dowel Assembly | 1 |
| 4 | 20210-7 | Drive gear Assembly | 1 |
| 5 | 20210-8 | Idler gear Assembly | 1 |
| 6 | 20200-34 | Seal Repair Kit | 1 |
| 7 | | Pump mounting bolt | 2 |
| 8 | 20200-20 | Front plate Assembly | 1 |
| 9 | 2ST 124 | Taper lock bush | 1 |
| 10 | 2ST 121 | Wedge belt | 2 |
| 11 | 2ST 122 | Pulley | 2 |
| 12 | 2ST 123 | Taper lock bush | 1 |
| 13 | 3SHD 84 | Hyd. Pump Drive Guard Assy. (not illustrated) | 1 |



HYDRAULIC CYLINDER

| Item No. | Part No. | Description | Qty |
|----------|-----------|---|-----|
| 1 | TD.10742 | Cylinder (complete) | 2 |
| 2 | | Locknut $\frac{5}{8}$ " BSF | 1 |
| 3 | LS.104-10 | Backing washer | 1 |
| 4 | R.7784-S | Piston Seal | 2 |
| 5 | TD.2910 | Piston Head | 1 |
| 6 | LS.104-11 | Backing washer | 1 |
| 7 | BS.117 | Piston 'O' Ring | 1 |
| 8 | TD.1873 | Piston Rod | 1 |
| 9 | BS.224 | Sleeve 'O' Ring | 1 |
| 10 | TD.2913 | Sleeve | 1 |
| 11 | R.4041-S | Sleeve Seal | 1 |
| 12 | PP.58-13 | Wiper | 1 |
| 13 | | Copper washer $\frac{3}{8}$ " BSP | 1 |
| 14 | TD.1448-C | Plug | 1 |
| 15 | TD.4254 | Cylinder (complete with tube cap) | 1 |
| 16 | 10DU14 | Glacier Bush | 3 |
| 17 | 3SH 81 | Seal Kit comprising items 4, 7, 9, 11 and 12 | A/R |



HYDRAULIC CONTROL VALVE

| Item No. | Part No. | Description | No. Off |
|----------|-------------|--|---------|
| | 3SH 88 | Control Valve Assembly | |
| | 300-024-AAD | Hydraulic Control Valve | 1 |
| 1 | F4-45-184 | Control Knob | 1 |
| 2 | 3SHD 82 | Valve Control Lever | 1 |
| 3 | 4-60-178 | Connection Link | 1 |
| 4 | | Bolt 5/16" UNF x 2½" Long, Nut and Washers | 2 |
| 5 | 100-147-063 | 'O' Ring | 1 |
| 6 | 16097-451 | Orifice Plate | 1 |
| 7 | 30501-12 | Lift Check Plunger | 1 |
| 8 | 30501-13 | Lift Check Spring | 1 |
| 9 | 30501-17 | Lift Check Plug Assembly | 1 |
| 10 | 30131A0107 | Relief Valve Assembly | 1 |
| 11 | 100-146-012 | 'O' Ring 3/32" dia. x 5/8" i/d | 1 |
| 12 | 30501-10 | Deep Washer | 1 |
| 13 | 16048-31 | Washer, Spacer | 1 |
| 14 | 30501-39 | Spool Spring | 1 |
| 15 | 15546-6 | Shallow Washer | 1 |
| 16 | 16124-50 | Clip Ring ½" Shaft | 1 |
| 17 | DM 156 | Hyd. Valve Control Knob label | 1 |
| 18 | | Bolt M10 x 50 mm long & nut | 1 |
| 19 | 16097-3-35 | Orifice Plate (Not Illustrated) | 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 | 1678.40 | 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".

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

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

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

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