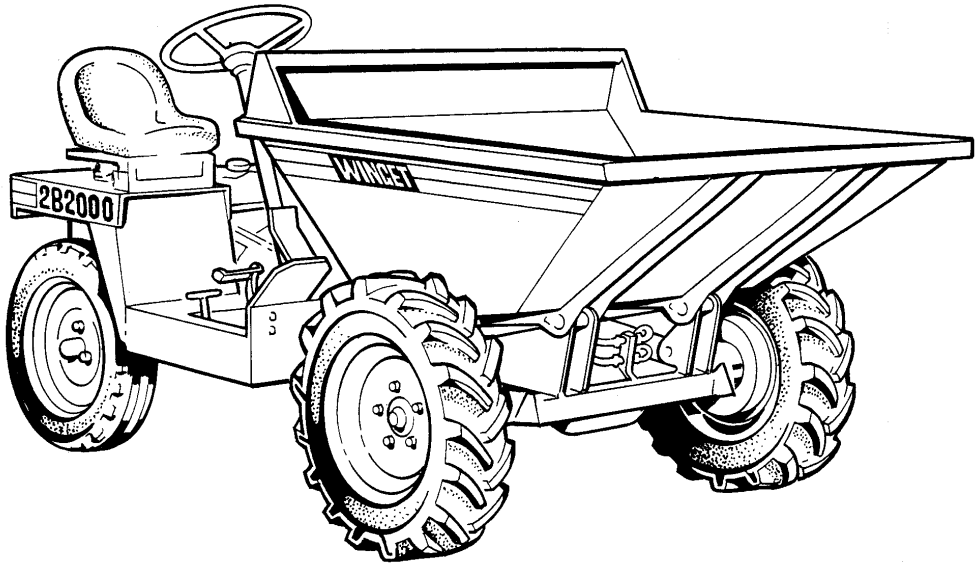
DUMPER
2B2000

Series 2 Hydraulic Steering



OPERATORS HANDBOOK
&
PARTS

From Serial No 20159 December 2014
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WINGET

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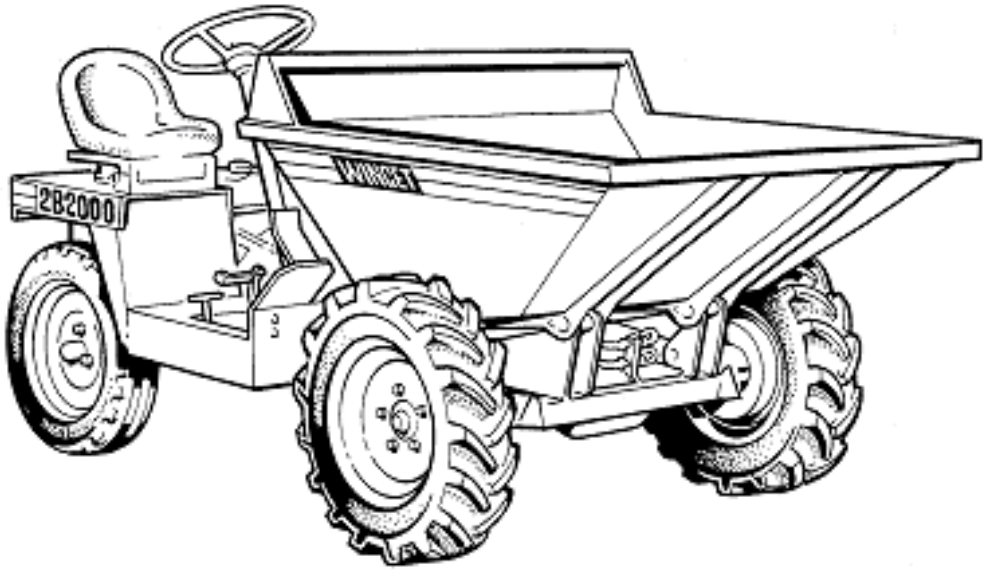


The contents of this Handbook, although correct at the time of publication, may be subject to alteration by the Manufacturers without notice.

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

CONTENTS

THE HANDBOOK

The contents of this Handbook, although correct at the time of publication may be subject to alteration by the Manufacturers without notice.
Winget Limited operate a policy of continuous product development. Therefore, some illustrations or text within this publication may differ from your machine.

WARNING

The operator must read all the Handbook and fully understand its contents before attempting to operate the machine.

THE HANDBOOK MUST NOT BE REMOVED FROM THE MACHINE.

The Handbook should be kept clean and in good condition. Additional copies of the Handbook can be obtained from your Distributor.

The contents of this Operator's Handbook are designed as a guide to the machine's controls, operation, working capacities and maintenance. It is ***not*** a training manual.

Only trained operators should use this machine. Consult your Distributor for details of authorised training courses.

In this Handbook are **WARNING** notes. They are preceded by this symbol:

WARNING

WARNING

These notes are used to indicate that the procedure being described in the Handbook must be followed to avoid serious injury or death to yourself or to others; or damage to the machine.
The warnings are also used to protect the machine from unsafe servicing practices.

Pay particular attention to the warnings given in the Handbook.

If you have any doubts about any aspect of the machine's capability or servicing procedures, you must consult the manufacturer.

MACHINE IDENTIFICATION

Please record the model and serial numbers of your dumper in the spaces provided and quote them when ordering parts.

Model – Year ……
Dumper serial no. ……
Key, start ……
Engine serial no. ……
Gearbox serial no. ……

Front axle serial no. ……
Ram, tipping, L.H. ……
Ram, tipping, R.H. ……
Front tyre size ……
Rear tyre size ……

WARRANTY TERMS & CONDITIONS

The Manufacturer assures you that if any part of the machine becomes defective due to faulty manufacture or materials within 12 months from the date of purchase, the part will be repaired or replaced under warranty free of charge by any authorised Winget Distributor. Warranty repairs ***must*** be carried out by Winget Distributors.
This Warranty is given to the first owner and may be transferred to subsequent owners for the balance of the Warranty period.

The Manufacturer's liability only extends to the costs of repair or replacement of the faulty parts and necessary labour charges involved in the repairs. The Company accepts no liability for any consequential loss, damage or injury, resulting directly or indirectly from any defect in the goods.

Items not covered by Warranty and considered to be the customer's responsibility include normal maintenance services; replacement of service items and consumables; replacement required due to abuse, accident, misuse or improper operation; replacement of wearable items e.g. pins, bushes, brake linings, clutch linings etc.
The Warranty will not apply where the equipment is modified, converted, or used for purposes other than those for which it was designed, unless clearance for the modifications etc. have been granted by the Manufacturer, in writing.
The Pre-Delivery Inspection and Warranty Registration Document must be completed correctly and returned to the Manufacturer within 7 days of sale date. Failure to do so may result in the claim being subsequently rejected.

Tyres and tubes are not covered by Warranty, but are covered by the tyre manufacturer's own warranty system which provides against defects in material or workmanship.
Engines are covered separately by the engine manufacturers, and engine warranty repairs must be handled by the relevant engine manufacturers' distributors.
No claim will be considered if other than genuine Winget Limited parts, which must be obtained from Winget Limited via an authorised Distributor, are used to effect a repair, or if lubricants other than those recommended by Winget Limited are used.
The equipment must be serviced in accordance with the service schedules laid down by Winget Limited. Evidence that these have been complied with may be required before Warranty Claims are reimbursed.

The Manufacturer's policy is one of continuous improvement. Winget Limited reserve the right to change specifications without notice. No responsibility will be accepted for discrepancies which may occur between specification of machines and the descriptions contained in publications.

Safety is the responsibility of the 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.I.T.B. or equivalent body leading to the award of a CTA.

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

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.

1.2 SAFE WORKING

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 start 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 the 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.

NEVER try to operate the skip whilst steering on hydraulic power steering models, there is **no** priority flow to the steering

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.

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.

ALWAYS dispose of unserviceable batteries safely. Comply with local byelaws and national regulations on the disposal of hazardous waste. Consult your local authority for addresses of local designated disposal points.

Equipment that includes friction materials will sometimes contain asbestos. When removing friction material dust from components, such as when servicing brakes or clutch, 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, 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).*

DECALS

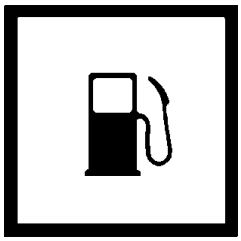
Attached to the dumper are several pictorial warning decals

Ensure that all warning decals fitted to the mixer are legible. If any should become detached, they must be replaced immediately.

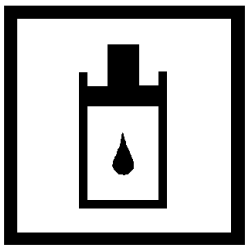
For detailed information on how to safely use the items described by the decals, see the "Safe working, Operation and Servicing" sections of this Handbook.

Brief descriptions of the pictorial decals are as follows:

Fuel tank filling point.



Hydraulic oil filling point.

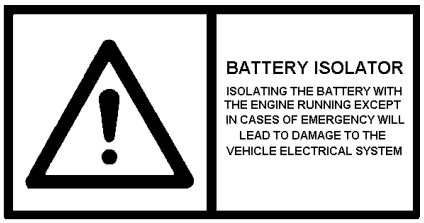


Remove starting handle.

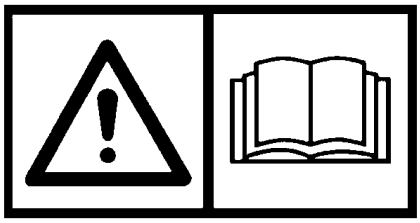
Attach lifting hooks to this eye.

Wear ear protection.

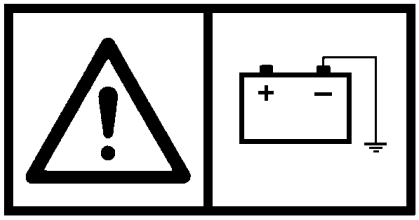
The battery isolator is situated close to this decal.



Read Operators Handbook, or Operators Handbook storage place.

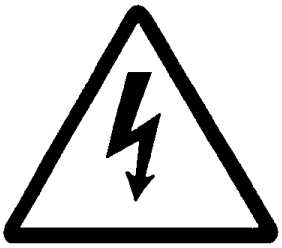


The battery negative terminal is connected to earth.

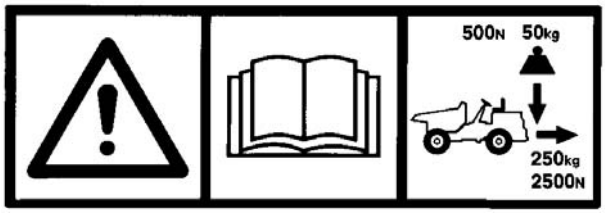


Wear eye protection.

Beware of electrical hazards.



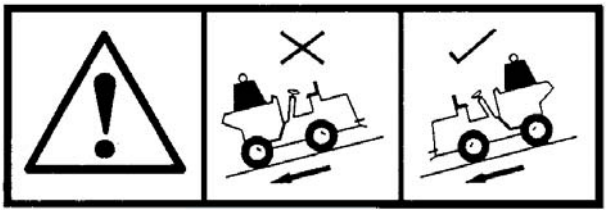
This decal indicates the maximum loads that the dumper towbar can carry and pull.



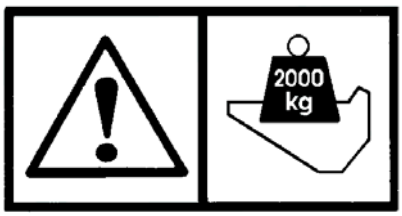
These surfaces may be hot.

Forks and buckets are not to be used to push or lift the dumper.

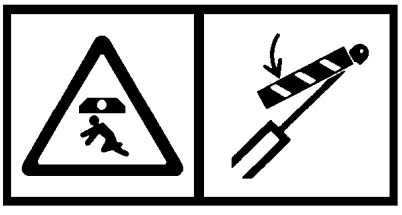
When loaded, always REVERSE down gradients.



The figure shown on this decal is the maximum load for the skip onto which this decal is fastened.



ISO Skip Support, when used, is pinned around the tipping ram rod to prevent the ram from closing.

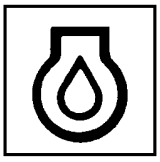


ISO 8999 safety symbols used with Lister/Petter engines

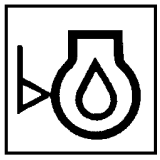
Read the handbook

Stop control (on engine)

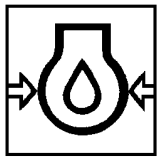
Diesel fuel fill



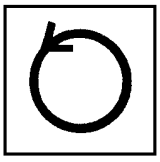
Engine oil fill



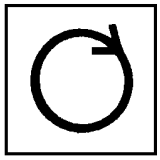
Engine oil level



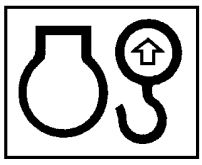
Engine oil pressure



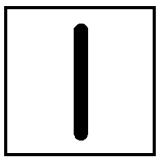
Anti-clockwise rotation



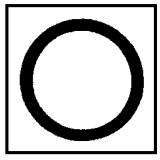
Clockwise rotation



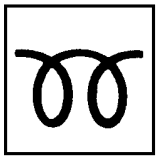
Lifting eye - engine only



On



Off

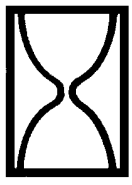


Pre-heat

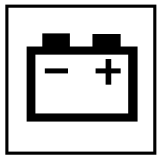
Rotational speed control

Linear speed control

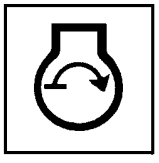
Tachometer



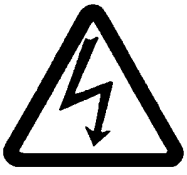
Elapsed hours



Battery charging



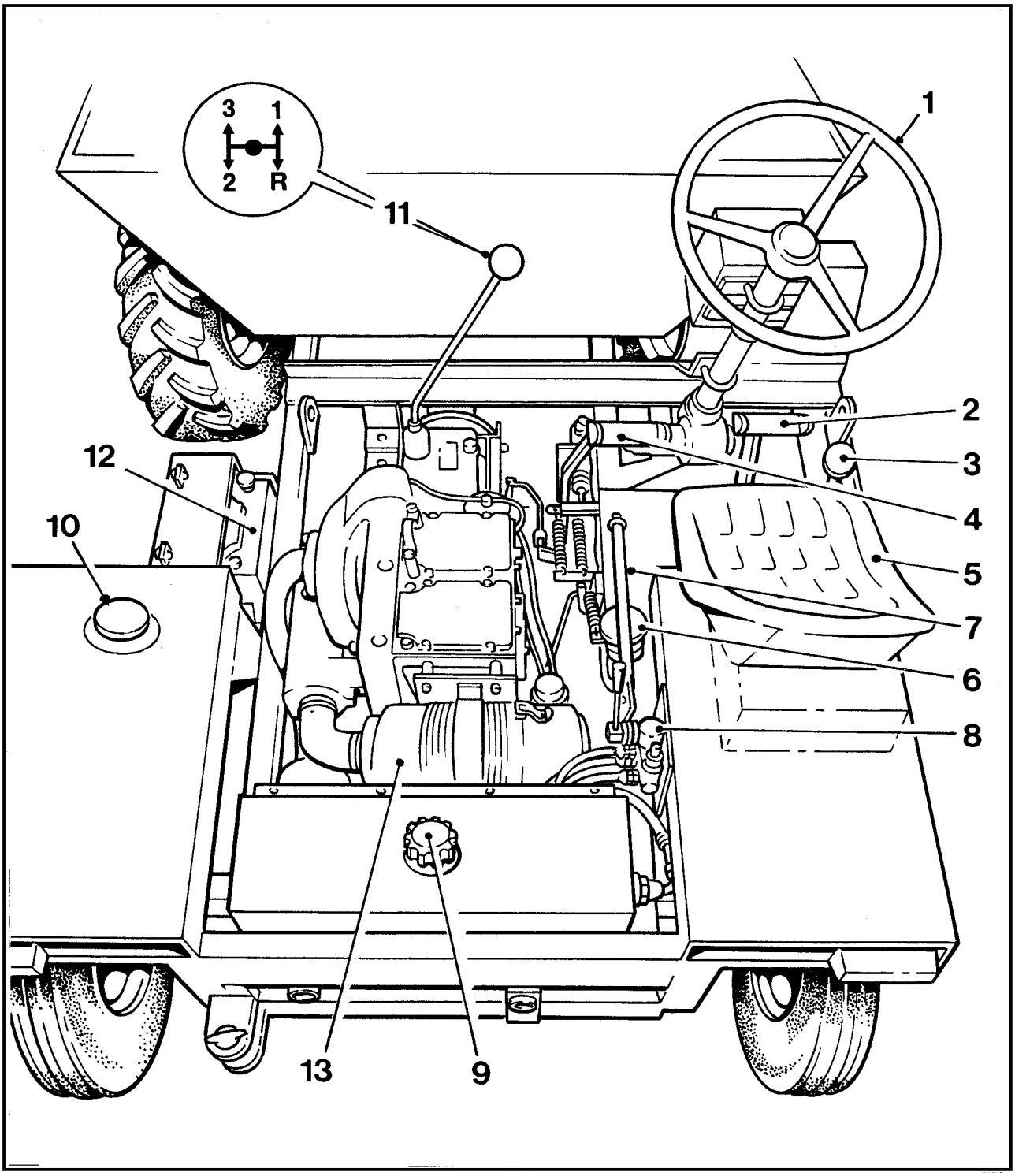
Engine cranking



Electrical hazards

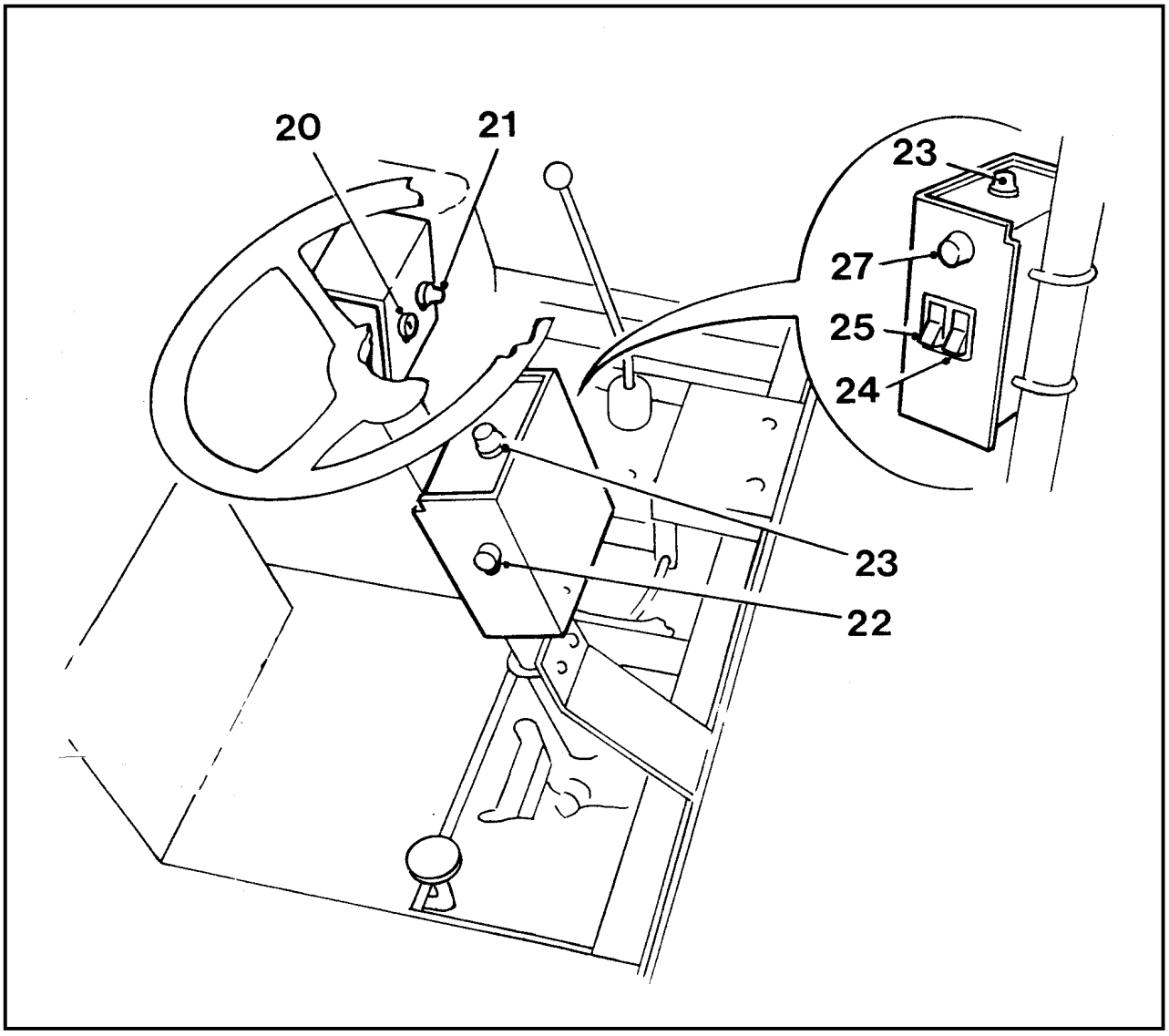
General hot surface warning

CONTROLS AND SERVICE POINTS



1 Steering wheel
2 Brake
3 Accelerator
4 Clutch
5 Seat
6 Brake oil reservoir
7 Parking brake
8 Skip control, tip/return
9 Hydraulic oil filler cap
10 Fuel filler cap
11 Gear lever
12 Battery
13 Engine air cleaner

ELECTRICAL CONTROLS



20 Key start switch
21 Warning light: battery charging
22 Switch: direction indicators
23 Warning light: direction indicators
24 Switch: hazard warning lights
25 Switch: side and head lights
27 Horn

Safety warnings

Read also the *"Safe Working"* Section before operating the dumper.

WARNING

ALWAYS wear correctly fitting protective clothing. Loose or baggy clothing can be extremely dangerous when operating or servicing machinery.

Only skilled personnel are permitted to work with this machine.

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

Starting the engine

WARNING

NEVER use ether type starting aids.

ALWAYS stop the engine if the battery charge warning light (where fitted) fails to cancel.

ALWAYS stop the engine if warning lights illuminate. Detect the fault before continuing.
DO NOT PROCEED IF A FAULT IS EVIDENT

NEVER attempt to start the dumper by pushing or towing.

NEVER operate controls unless you are seated on the machine, and ALWAYS remain in the driving seat whenever the engine is running.

Running-in a new engine

While a gradual 'running-in' of a new engine is not necessary, it is **EXTREMELY IMPORTANT** that the following instructions should be followed very closely during the first fifty hours of operation.

1 Avoid overloading the engine.

2 Use the lower gears when operating with heavy loads, and avoid continuous operation at constant engine speeds.

3 Check the instruments frequently, and keep the oil compartments and the hydraulic reservoirs filled to their recommended levels.

4 Do not operate the engine at high speeds without a load.

5 Do not allow the engine to run at idle speeds for long periods; this may cause bore glazing and an increase in oil consumption.

Operating in this way throughout the machine's life will prove beneficial to its overall performance and efficiency.

Pre-start Checks

WARNING

NEVER commence work with the machine until the checks detailed in "Every 10 operating hours, or daily" have been carried out. (See Service Schedule).

Check that all controls are clean and not slippery, and that they all function correctly.

Check that the areas around pivot points, rams and linkages are all free from mud, ice and debris.

Check that all grab handles, steps and platforms are clean and dry.

Check the machine for any obvious damage or faults.

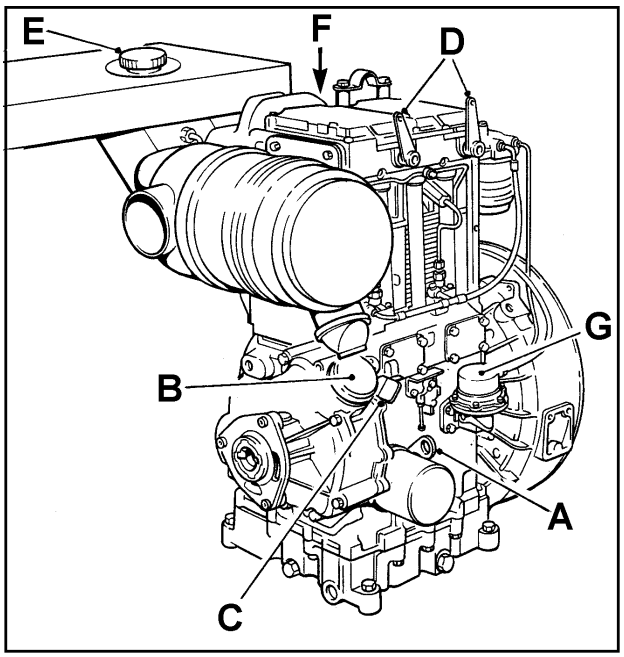
Check that all decals can be clearly read.

DRIVING THE DUMPER

TR2 engines

Description

A Dipstick
B Lubricating oil filler
C Engine control
D Decompressor levers
E Fuel tank
F Cold start oil cups
G Fuel lift pump

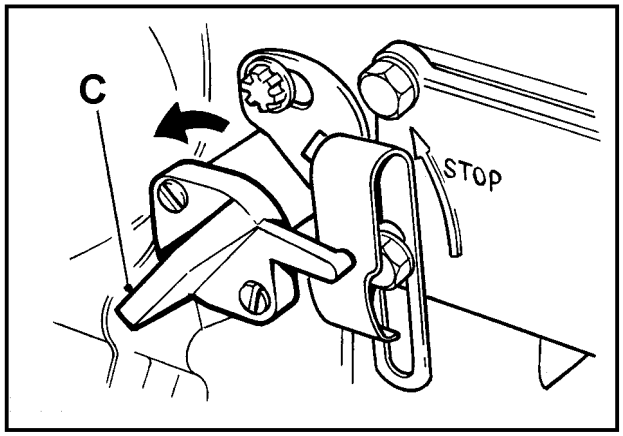


Automatic Exess Fuel Device

The engine is fitted with an automatic excess fuel device which becomes operative, ready for the next start, when the engine is stopped.

If the engine stops other than by the operation of the engine control, the control **(C)** must be turned anti-clockwise to the 'STOP' position and released before the device can operate.

As the engine runs up to speed the excess fuel device will automatically reset to the normal running position.



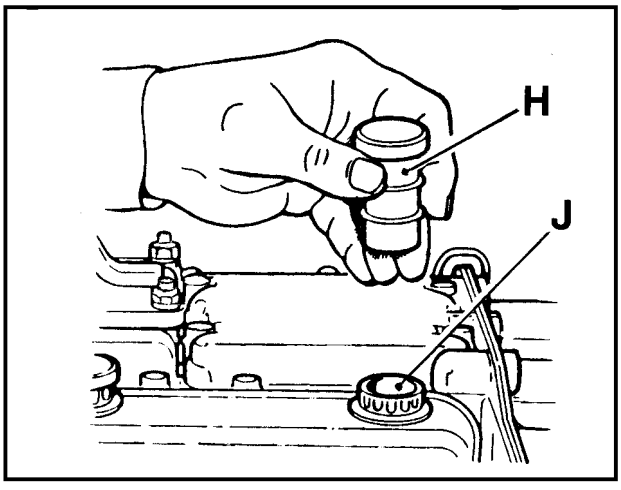
Cold Starting Below -10°C (14°F)

A cup and plunger is normally fitted to the combustion air intake port on TR engines.

With the fuel turned on, turn the engine for up to 20 revolutions to prime the fuel and lubrication systems.

Withdraw the plunger **(H)** and fill one third of the cup **(J)** with the same type of lubricating oil as used in the engine.

Replace the plunger and inject the oil just before starting the engine.



WARNING *The device must not be used more than three times in succession during the same attempt to start the engine.*

Hand starting TR2 engines

Ensure the parking brake is in the raised "ON" position.

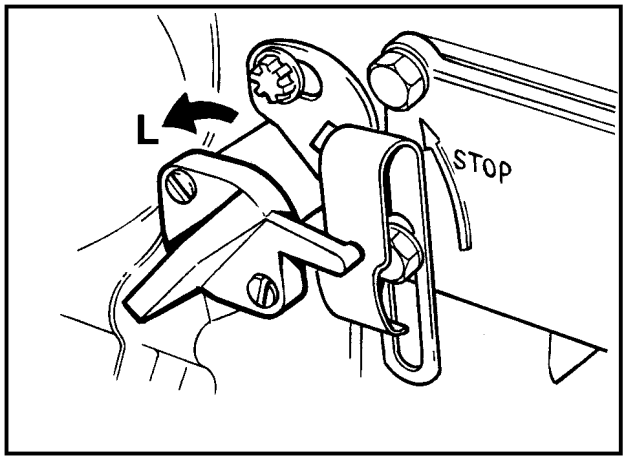
Ensure gear lever is in the neutral position.

Always use the correct starting handle which has been designed for the engine.

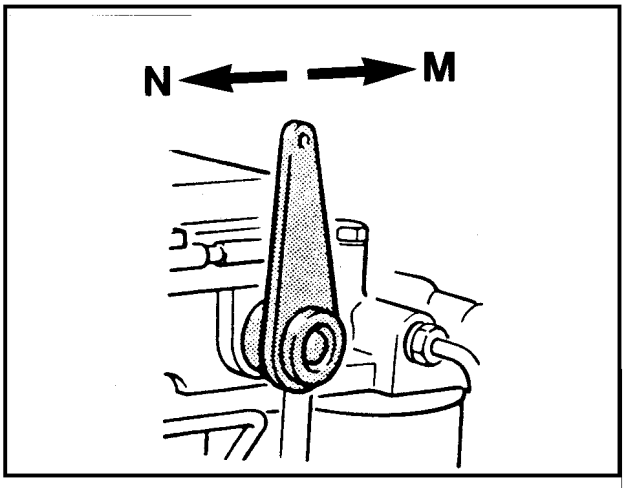
Ensure there are no burrs on the handle.

Before attempting to use the handle, clean and lightly oil that part of it which fits onto the engine.

WARNING *Do not attempt to use a handle if it is damaged in any way.*



Turn the engine control lever anti-clockwise to the "STOP" position **(L)** and release it.



Move the decompressor levers towards the flywheel **(M).**

Insert the correct handle into the starting housing.

Turn the engine slowly for up to 20 turns to prime the combustion chamber and lubricating oil system.

Maintaining a firm grip on the starting handle, crank the engine really fast and when sufficient speed is obtained move the decompressor levers away from the fly wheel **(N)** and continue to crank until the engine fires.

Retain a firm grip on the handle and remove it from the engine.

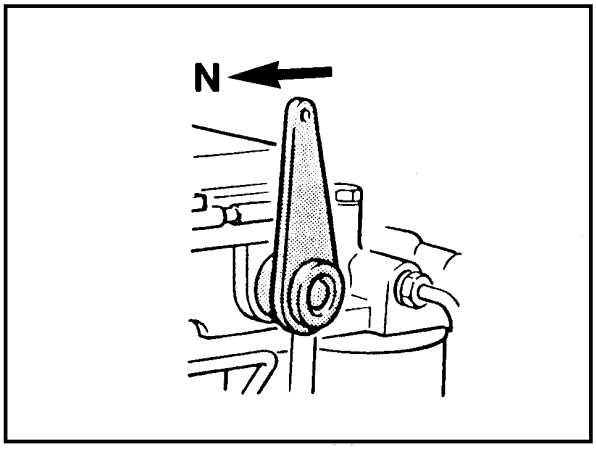
DRIVING THE DUMPER

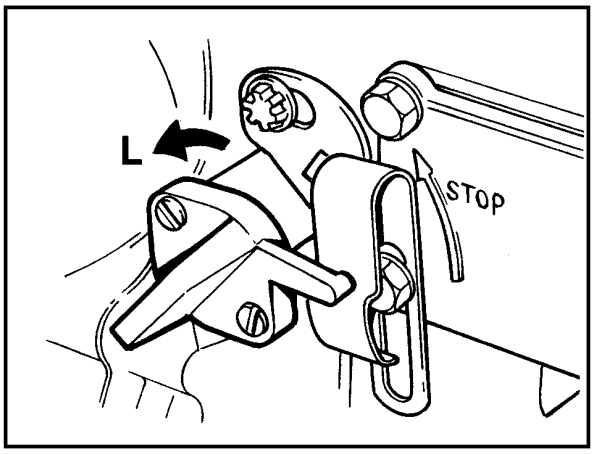
Key Starting TR2 engines

Ensure the parking brake is in the raised "ON" position.

Ensure the gear lever is in the neutral position.

Fully depress and hold down both clutch and accelerator pedals.





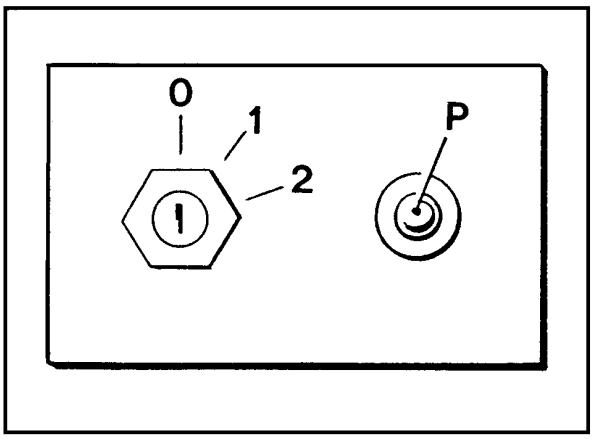
Check that the decompressor levers, (if fitted) are away **(N)** from the flywheel.

Turn the engine control lever anti-clockwise to the "STOP" position **(L)** and release it.

Turn the start key clockwise to position **(1),** the battery charging light **(P)** will illuminate.

Turn the key and hold at the *"START"* position **(2)** until the engine fires and then release it immediately.

If the engine fails to start within 20 seconds, release the key and attempt to restart after allowing sufficient time for all moving parts to stop.



Stopping the engine

WARNING *Never stop the engine by operating the decompressor levers or valve damage may occur.*

Key start engines: *Turning the starter key to the "OFF" (0) position will not stop the engine.*

It is advisable to run on light load for a few minutes before stopping.

Turn the engine control anti-clockwise to the "STOP" position **(L)** and hold it there until the engine comes to rest.

Key start engines: After the engine has stopped, turn the starter key to the "OFF" **(0)** position.

Gradients

IMPORTANT: Read the notes in "Safe Working" and also remember the following:

Slippery or loose surface conditions can adversely affect safe machine operation, particularly on gradients.

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

NEVER park the machine on a gradient.

NEVER attempt to turn on, or drive across, a gradient.

ALWAYS drive forwards up gradients when loaded.

ALWAYS reverse down gradients when loaded.

NEVER tow up or down gradients.

NEVER operate on a gradient which exceeds 10% (1 in 10), or across gradients which exceed 10% (1 in 10). This should be reduced where surfaces are wet or unstable.
NEVER operate high discharge or rotating skip options on gradients.

Braking

The brake pedal operates a hydraulic master cylinder that supplies oil to brakes within the front axle.

The handbrake operates a caliper that acts upon a disc mounted on the transmission.

There are no brakes on the rear axle.

Engaging gear lever

When changing gear, always depress the clutch pedal before moving the gear lever from one gear to another.

Stopping the dumper

IMPORTANT: Never make unnecessary 'crash' stops when travelling at speed, especially in forward direction.

Release accelerator and brake to a halt progressively.

Select neutral gear.

Apply parking brake when stationary.

Stop the engine. Turn the starter key to the 'OFF' position, and remove the key.

Leaving the dumper

Ensure the machine is parked on firm, level ground. Do not park on a gradient.

Check that the parking brake is applied. Ensure that the skip is fully lowered.

With the engine stopped, operate the hydraulic lever (where fitted) fully in each direction several times to 'dump' hydraulic pressure from the system.

Remove starter key (where fitted) from switch.

Electric start dumpers: If unattended for some time, remove earth cable from battery, or activate the Battery Isolator, (where fitted).

DRIVING THE DUMPER

Skip operation

Loading

Never remain on the dumper when using excavators or loaders to load the skip. Stop the engine, apply the parking brake, dismount, and stand well clear.

Ensure that the load is evenly distributed in the skip. Never carry loads in such a manner as to affect the forward vision.

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

Tipping

Only discharge on level ground.

It is recommended that only free flowing materials be tipped. *Take extra care when tipping non free running loads.*

Skip control lever

The control lever has three positions; they are, Tip (or Dump), Hold and Return.

To tip the skip:
Move the lever to DUMP.
To return the skip:
Move the lever to RETURN.

If the lever is released when in the DUMP or RETURN position, it will automatically return to the central HOLD position and movement of the skip will stop. In this way, the speed at which the skip is tipped can be finely controlled.

Skip Operation & Steering

Do not attempt to steer the dumper at the same time as operating the skip.

The hydraulic system does <u>not</u> provide priority flow to the steering system therefore the steering will fail to work whilst the skip is being operated.

Towing with the dumper

Dumpers are not designed as towing vehicles, however, trailers may be towed providing that:

1 The combined weight of the trailer and its load does not exceed the specified maximum dumper drawbar pull and dumper drawbar load *(see "specifications").*

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.

Towing the dumper

The dumper should only be towed if recovery is needed of a broken-down unit, or to free a "bogged down" machine.

Always ensure that ropes, chains, etc. used to tow the dumper have sufficient safe working load capability.

When towing the dumper, always ensure that the speed is kept to an absolute minimum.

Always tow the dumper with the gear lever in neutral.

Never attempt to start the dumper by pushing or towing.

Be aware that steering operation will be severely limited if the engine is not running towing should only be carried out at minimum speed

WARNING ***Read the safety notes in "Safe Working", Section 1 of this book. Also note the following:***

Safe handling of oils, filters and filter elements

WARNING

Do not allow oils to come into regular contact with skin. This can lead to serious skin diseases. Medical evidence suggests they may include skin cancer.

Always wear protective gloves when handling oils for topping up, draining, or refilling.

Dispose of waste oil 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.

The materials used in the manufacture and treatment of some filters and elements may cause irritation or discomfort if they come into contact with the eyes or mouth and they may give off toxic gases if they are burnt.

After handling any filters or oils the users hands should be thoroughly washed, particularly before eating.

Used filter elements contain some of the filtered oil and should be handled and disposed of with care.

3.2 SERVICE

SERVICE SCHEDULE

IMPORTANT: The engine will require additional services or adjustments in addition to those listed below (See the appropriate Engine Operator's handbook or Workshop Manual).

WARNING *Warning lights and indicators REQUIRE IMMEDIATE ACTION.*

SERVICE OPERATION	*REFERENCE*	*PAGE*
Every 10 operating hours, or daily, ***the above and the following***		
Fuel filter	Engine	3.6
Engine oil level	Engine	3.4
Fuel tank level	Engine	3.7
Air cleaner	Engine	3.7
Wheel nut tightness	Wheels & tyres	3.10
Axle oil seals	Front axle	3.9
Brake oil reservoir	Brake system	3.18
Hydraulic oil level & hose connections	Hydraulic system	3.16
Every 50 operating hours, or weekly, ***the above and the following***		
Axle nuts	Front axle	3.9
Front axle oil level	Front axle	3.9
Tyre pressure & condition	Wheels & tyres	3.10
Battery electrolyte level	Battery	3.11
Grease nipples	Greasing	3.13
Gearbox oil levels	Gearbox	3.8
Steering Valve	Security & Leaks	3.12
Parking brake Check function of the parking brake and adjust if necessary.		
Propeller shaft Tighten securing nuts.		
Brake pedal travel Check the action of the brake pedal; it should have a short travel and firm action. If travel is excessive, or action spongy, have the brakes serviced by your distributor.		
First 100 operating hours		
Hydraulic oil filter	Hydraulic system	3.17

SERVICE SCHEDULE

SERVICE OPERATION	*REFERENCE*	*PAGE*

***Every 125 operating hours,** the above and the following*

Air cleaner element	Engine	3.7

***Every 250 operating hours,** the above and the following*

Engine oil & filter	Engine	3.5

***Every 500 operating hours,** the above and the following*

Fuel filter	Engine	3.6
Frame assembly bolts	Check all structural nuts & bolts for tightness.	

***Every 1000 operating hours,** the above and the following*

Hydraulic oil & filter	Hydraulic system	3.17
Gearbox oil change	Gearbox	3.8
Front axle oil change	Front axle	3.8

***Every 2000 operating hours, or 2 years,** the above and the following*

Brake system overhaul	Braking system	3.18

Extra services

Dirty working conditions

Increase the frequency of all services during extremes of dirt, heat and cold, especially those relating to clean air, cooling efficiency, lubrication and machine cleanliness.

Laying-up protection

When a machine is to remain idle, remove the battery to the workshop. Seal all openings: air intake, exhaust breathers. Grease bright parts and protect rubber components from direct sunlight. Fill the fuel tank, check the tyre pressures and exhaust any pressure from the hydraulic system.

ENGINE

Lister-Petter TR2

These engines will require additional services and adjustments in addition to those quoted in this handbook. Please refer also to the relevant Engine Operator's Handbook or Workshop Manual.

Engine lubrication oil

For engine oil grades and oil change periods when operating in temperatures above 30°C, *see "Engine Handbook".*

WARNING

Lubrication oil cleanliness is vital for the successful operation of your engine. The oil should be stored under the cleanest possible conditions. When changing or topping-up oil, use only clean receptacles.

Always wear protective gloves when handling oils for topping up, draining, or refilling.

Oils and fuels can cause skin irritation. Wear suitable protective clothing to prevent skin contact.

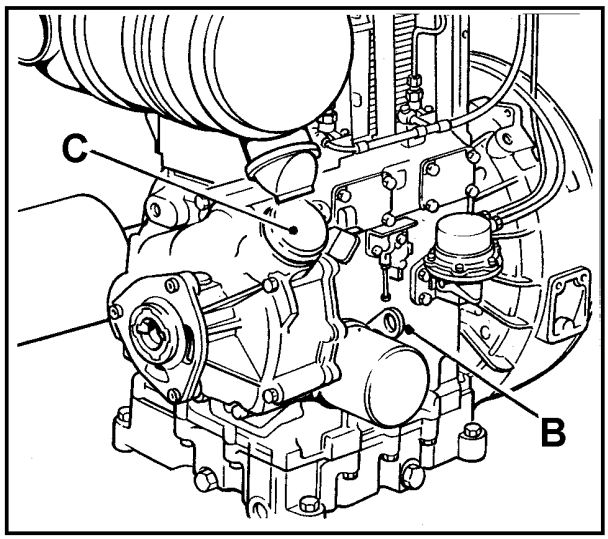
After handling oils the users hands should be thoroughly washed, particularly before eating.

Every 10 operating hours, or daily

Check lubrication oil level as follows:

Stop the engine and allow the oil to settle.

Remove and clean dipstick **(B)**, then check that the oil is at the full mark. If level is low, top up through the filler **(C)** to the full mark with clean oil of the correct grade. DO NOT OVERFILL.
For correct grade of engine oil, see "Specifications".

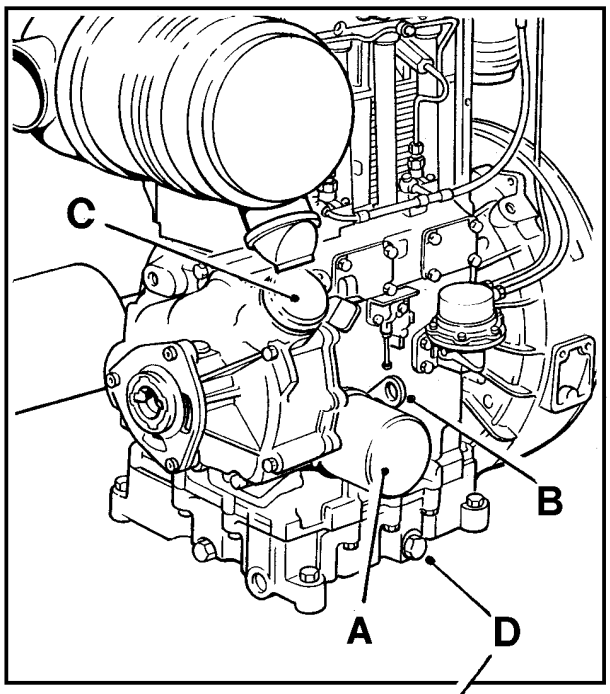


Every 250 hours

Oil filter

Change oil filter element as follows:

Using a suitable strap wrench, unscrew and remove the old filter **(A).**
Do not attempt to clean the old filter! Dispose of it safely.
Thoroughly clean the crankcase filter housing face.
Apply a small amount of clean engine oil to the filter sealing joint.
Do not use a strap wrench to fit the new element.
Screw on the new filter by hand, until the sealing joint is just touching the crankcase and then tighten a further half turn.



Drain and refill the oil sump

Change the sump oil as follows:

If possible run the engine immediately before draining the oil.

Place a suitable container under the drain plug. Remove the drain plug **(D)** and drain oil.

Clean and coat the threads of the drain plug with an appropriate sealant.

Replace the drain plug **(D)** taking care not to overtighten it.

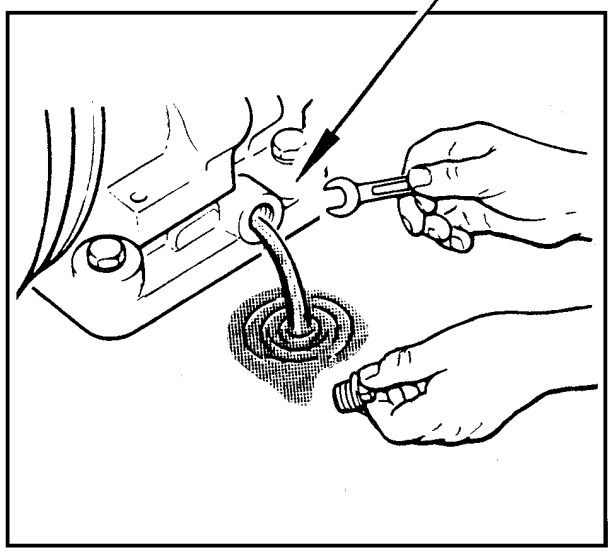
Fill the sump through the oil filler **(C)** to the top mark on the dipstick **(B).**

Start the engine, run it for a few minutes and check the drain plug, and the oil filter, do not leak.

Stop the engine, allow the oil to settle for 2 minutes. then check the level on the dipstick **(B).**

Add more oil if necessary.

For correct grade of engine oil, see "Specifications".



ENGINE

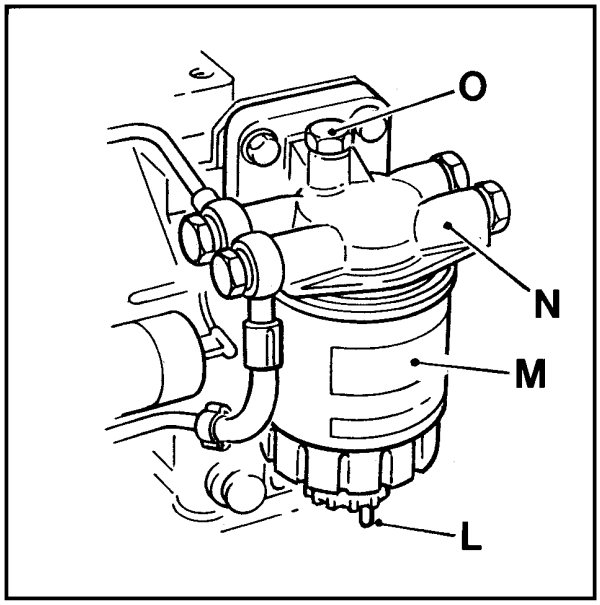
Fuel system

Every 10 operating hours, or daily

Fuel filter (Cartridge Agglomerator)

Check the glass bowl at the base of the agglomerator for water.

If water is present, drain it by unscrewing the drain tap **(L)** sufficiently to allow the water to empty, then retighten tap.



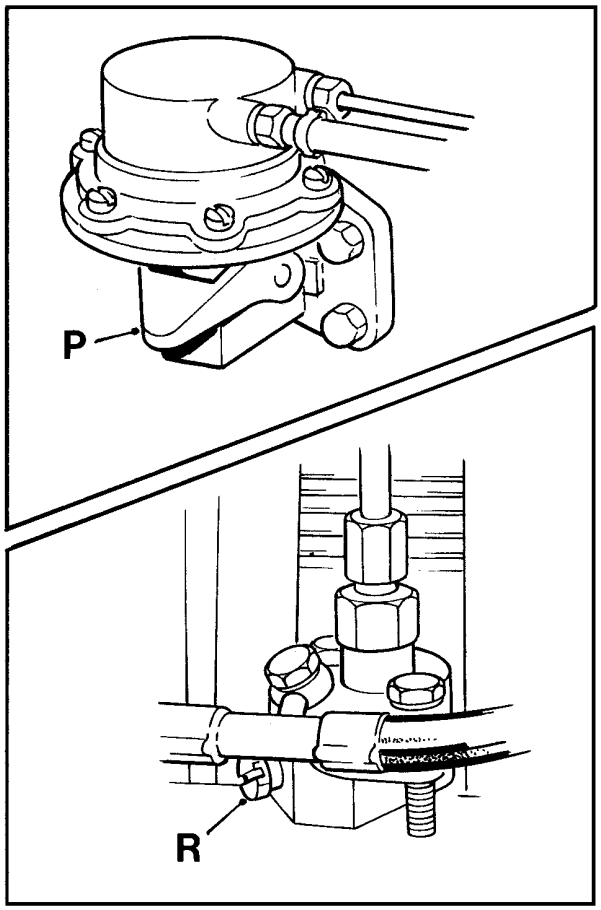
Every 500 hours

Fuel filter (Cartridge Agglomerator)

The cartridge agglomerator is an essential part of the engine and should be renewed every 500 hours, or more frequently if for any reason the fuel is known to be dirty.
A strap wrench is required to remove the agglomerator from the engine, *but it must not be used to fit a replacement.*
Before changing the agglomerator read the safety precautions concerning Filters and Elements on page 3.1.

To change the agglomerator:

Using a suitable strap wrench, unscrew the cartridge **(M)** from the head **(N).**
Screw a new cartridge onto the head and hand tighten it.



Priming the fuel system

Prime the system as follows:

Fill the fuel tank.
Move the engine control lever to the RUN position.
Release the bleed screw **(0)** on the agglomerator, then operate the priming lever **(P)** on the lift pump until a full air free flow is obtained.

Retighten bleed screw **(0).**

Vent each injector pump in turn by releasing screw **(R),** then operating the priming lever **(P)** on the lift pump until a full air free flow is obtained.

Retighten bleed screw **(R),** then repeat for other injector pump.

Every 10 operating hours, or daily

Fuel tank

Fill the fuel tank at the end of each day to reduce overnight condensation within the tank.

WARNING *Never mix gasoline or any other fuel mixes with diesel fuel because of increased fire or explosion risks.*

Never remove the filler cap, or refuel, with the engine running.

Never smoke when refilling the tank.

To fill the tank:

Stop the engine.

Clean the area around the filler cap. Remove the cap.

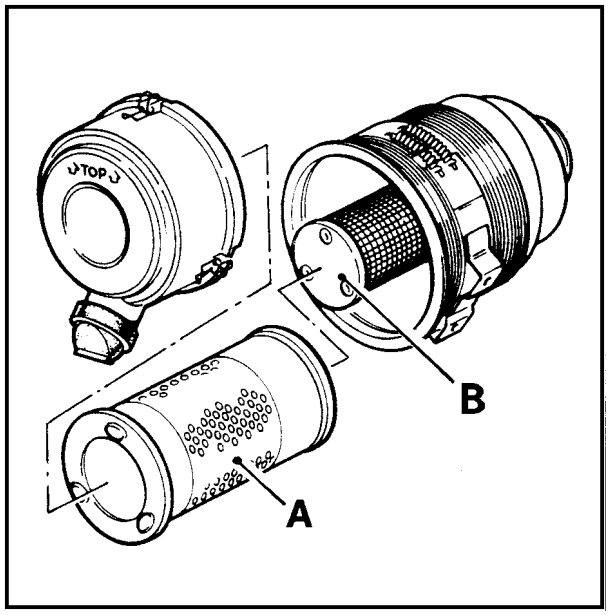
Fill the tank. *Do not fill the tank to capacity. Allow room for expansion, and wipe up spilt fuel immediately, otherwise paintwork will be damaged.*

Replace cap.

Every 10 operating hours, or daily

Air cleaner: clean/replace

Clean or replace the outer element **(A)** under *very* dusty conditions as described below:



Every 125 operating hours

Air cleaner: clean/replace

Clean or replace the outer element **(A)** under *moderately* dusty conditions as described below:

Access the elements by unhooking the retaining clips and removing the cover.

Remove the outer element **(A)** and clean or replace it as necessary.

Replace the element.

Replace the cover with the inlet facing downwards.

WARNING *No attempt must be made to clean the inner element **(B).***

*After the outer element **(A)** has been cleaned three times the inner element **(B)** must be replaced.*

GEARBOX

Safe handling of oils

WARNING *Do not allow oils to come into regular contact with skin. This can lead to serious skin diseases. Medical evidence suggests they may include skin cancer.*

Always wear protective gloves when handling oils for topping up, draining, or refilling.

Dispose of waste oil 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.

Every 50 operating hours, or weekly

Check gearbox oil level

Check the gearbox oil level when the machine has stood for 2 minutes.

Clean the area around the dipstick/filler **(V)** before removing.

Remove the dipstick and check the oil level. Top-up between the two marks **(W).** *It is most important not to overfill.*

For the correct type and grade of oil, *see "Specifications".*

Every 1000 operating hours

Change gearbox oil

Clean the areas surrounding the dipstick **(V)** and drain plugs **(X).**

Place a suitable container beneath the drain plug.

CAUTION: Before removing the drain plug be sure to stand to one side to avoid the oil that will spill from the hole.

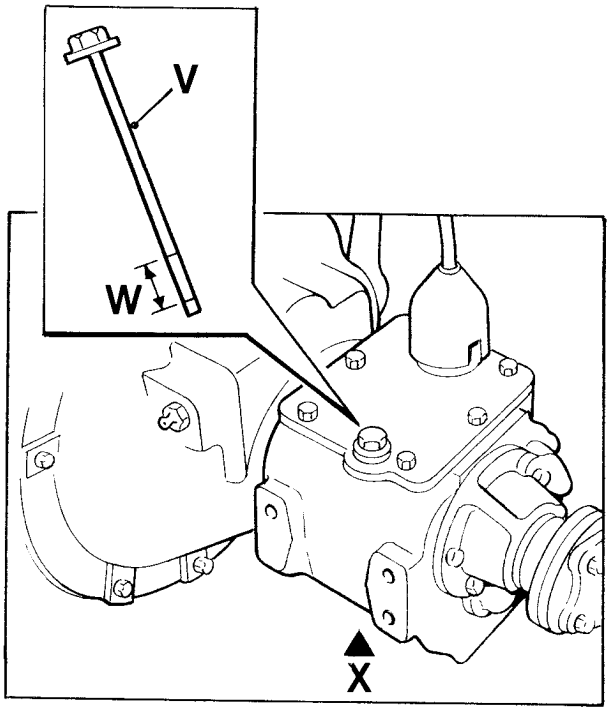
Remove the drain plug **(X)** and drain the gearbox. *(Do not lose its sealing washer.)*

Replace drain plug with its sealing washer.

Remove the dipstick **(V)** from the filler hole.

Fill with oil. Check that the final level is between the two marks on the dipstick. *It is most important not to overfill.*

For the correct type and grade of oil, *see "Specifications".*



Every 10 operating hours, or daily

Check for leaks

Check for oil leaks around joints and seals.

Every 50 operating hours, or weekly

Tighten securing nuts

Tighten axle arm/main case joint securing nuts and half shaft nuts.

Axle oil level

Do not check the oil level until the machine has stood for 2 minutes.

Clean the area surrounding level/filler plug **(D)** before removing it.

The oil is correct when level with the bottom of the level/filler plug hole.

If the level is low, top-up with clean oil of the correct grade through the hole.

Replace plug **(D).**

For the correct type and grade of oil, see "Specifications".

Every 1000 operating hours

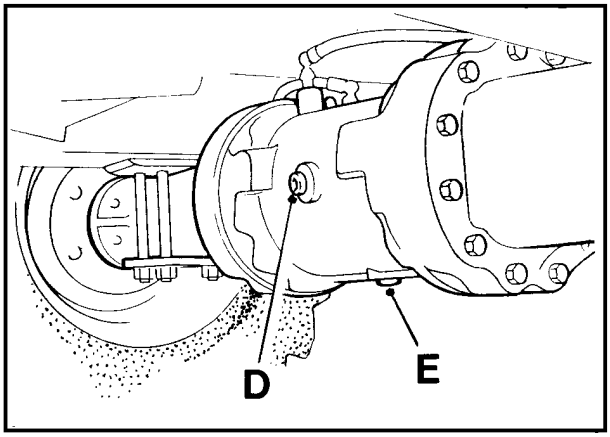
Axle oil change

Change the lubrication oil in the front axle as follows:

Clean the areas surrounding the level/filler plug **(D),** and drain plug **(E)** .

Place a suitable container beneath the drain plug.

CAUTION: Before removing the plugs be sure to stand to one side to avoid the oil that will spill from the drain hole.



Remove drain plug **(E)** and drain oil from the casing. Replace drain plug.

Refill at the level/filler hole **(D)** with clean oil of the correct grade.

The level is correct when oil reaches the bottom of the hole.

Replace plug **(D).**

For the correct type and grade of oil, see "Specifications".

WHEELS & TYRES

Every 10 operating hours, or daily

Wheel nuts

Tighten wheel nuts whenever necessary, every ten hours or daily.

After a wheel change, the nuts should be checked several times a day until they maintain their correct setting.

For wheel nut tightening torque, see "Specifications".

Every 50 operating hours, or weekly

Tyre pressures

WARNING

ALWAYS ensure that when adding air to a tyre the area is clear of personnel.

NEVER over-inflate a tyre beyond its specified pressure.

NEVER adjust the tyre pressure 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.

Check the tyre pressures only when the tyres are cold.

For correct pressures see "Specifications".

Tyre condition

Check the tyres for damage and deterioration.

Safe handling of batteries

WARNING

The battery contains a sulphuric acid electrolyte which can cause severe burns and produce explosive gases.

Wear protective clothing, gloves and goggles when servicing the battery.

Avoid contact with the skin, eyes or clothing. If spilled onto the skin, flush immediately with cold water. If splashed into the eyes, flush immediately with cold water for 15 minutes and get prompt medical attention.

Do not take internally. If accidentally swallowed, call a doctor immediately.

Do not use a naked flame or smoke near the battery. Do not produce sparks with cable clamps when charging the battery or starting the engine with a slave battery.

Always disconnect battery leads, or activate battery isolator where fitted, before carrying out any maintenance to the electrical system.

ALWAYS dispose of unserviceable batteries safely. Comply with local byelaws and national regulations on the disposal of hazardous waste. Consult your local authority for addresses of local designated disposal points.

Every 50 hours

Check battery electrolyte level

The battery is situated beneath a cover on the left-hand side of the dumper.

Ensure that the electrical connections are clean and tight, and coat the terminals with petroleum jelly to protect them from corrosion.

Remove battery filler plugs and check that the electrolyte level is between 6 - 9 mm (0.25 - 0.37 in) above the tops of the separators.

If necessary, top-up with distilled water. Replace battery filler plugs and tighten securely.

Battery removal

WARNING

if the battery is to be removed from the machine, ensure the following procedure is used.

Switch the engine off.

Remove the starter key from the machine.

Ensure all electrical circuits are switched off. Activate the battery isolator, where fitted.

Remove the battery cover and clamp.

Disconnect the earth **(-)** load from the battery before removing the positive**(+)** load.

Lift the battery from the machine.

WARNING

When installing the battery, the positive ***(+)*** *lead MUST be connected first.*

STEERING VALVE

Every 50 operating hours, or weekly

Steering Valve Retention

Check the screws retaining the steering valve and bracket, ensuring they are tight. Check the valve for signs of leaks or damaged hoses.

GREASING

Every 50 operating hours, or weekly

WARNING *Always use lubricants of the grade specified.*

Always lubricate and service BEFORE work commences, and WITHIN the periods specified.

Grease points

Clean nipples BEFORE and AFTER greasing. Apply the grease gun until clean grease appears.

Location of grease points

A Tipping rams (2 on each ram)

B Skip pivots (2)

C Propeller shaft (3)

E Brake pedal pivot shaft (2)

F Clutch pedal pivot shaft (2)

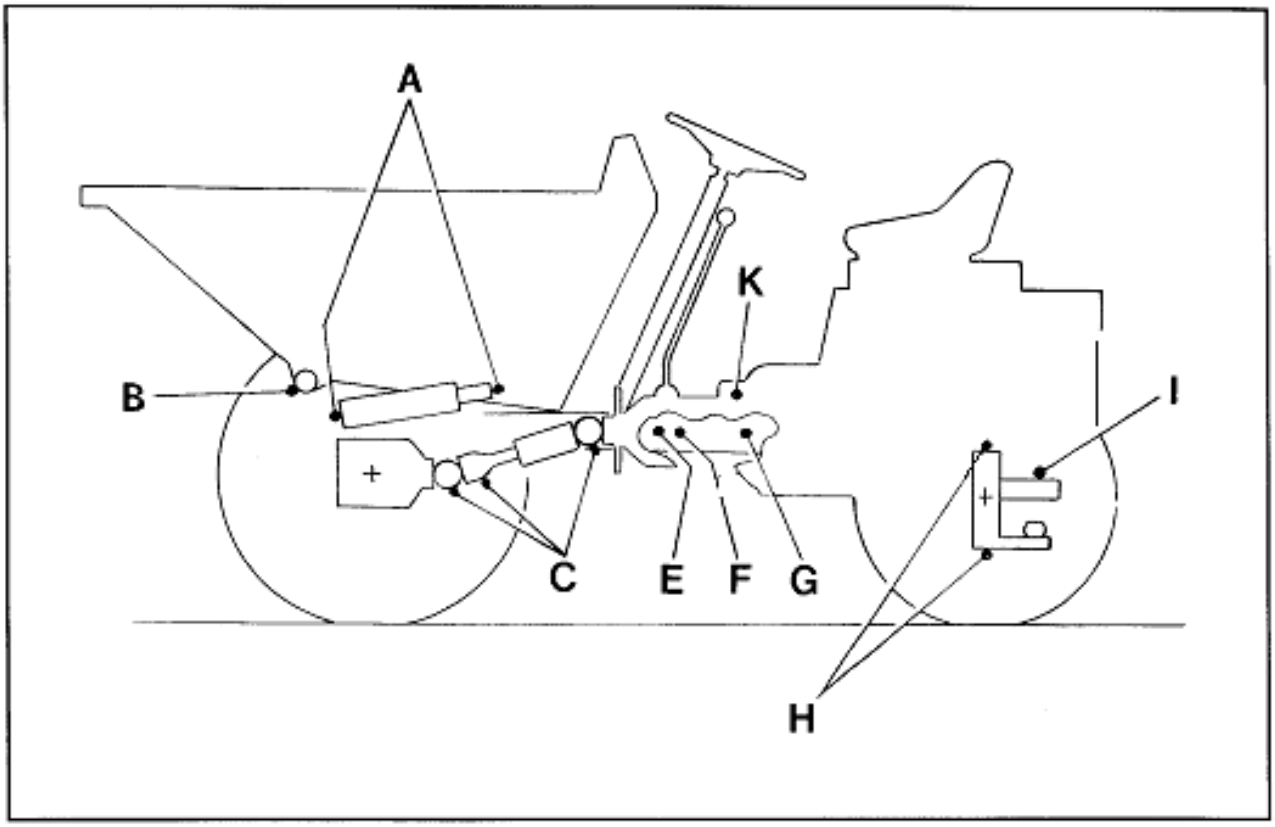
G Accelerator pivot shaft (2)

H King pins (2 on each pin)

I Axle centre pin (1)

K Gearbox lever pivot (1 each side of gearbox)

Clean and lubricate all linkages not fitted with a grease nipple.



HYDRAULIC SYSTEM

Hydraulic System Safety
(see also "Safe Working" section)

WARNING 

Do not allow oils to come into regular contact with skin. This can lead to serious skin diseases. Medical evidence suggests they may include skin cancer.

Always wear protective gloves when handling oils for topping up, draining, or refilling.

Always practice the greatest cleanliness when servicing hydraulic components.

Always clean the areas around filler points, filters etc., before and after servicing.

Dispose of waste oil 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.

Dumping hydraulic pressure

WARNING 

Always dump all hydraulic pressure from the system before servicing any hydraulic component.

To dump pressure:

Stop the engine.

Move the skip control lever several times in each direction.

Description of hydraulic system

The hydraulic system provides power for skip tipping and steering.

The main components consist of:

Tank: The tank is filled through a filler/strainer which incorporates an oil level indicator. The filler cap is fitted with a breather. In the bottom of the tank is a suction filter.

Pump: The pump is driven directly from the engine.

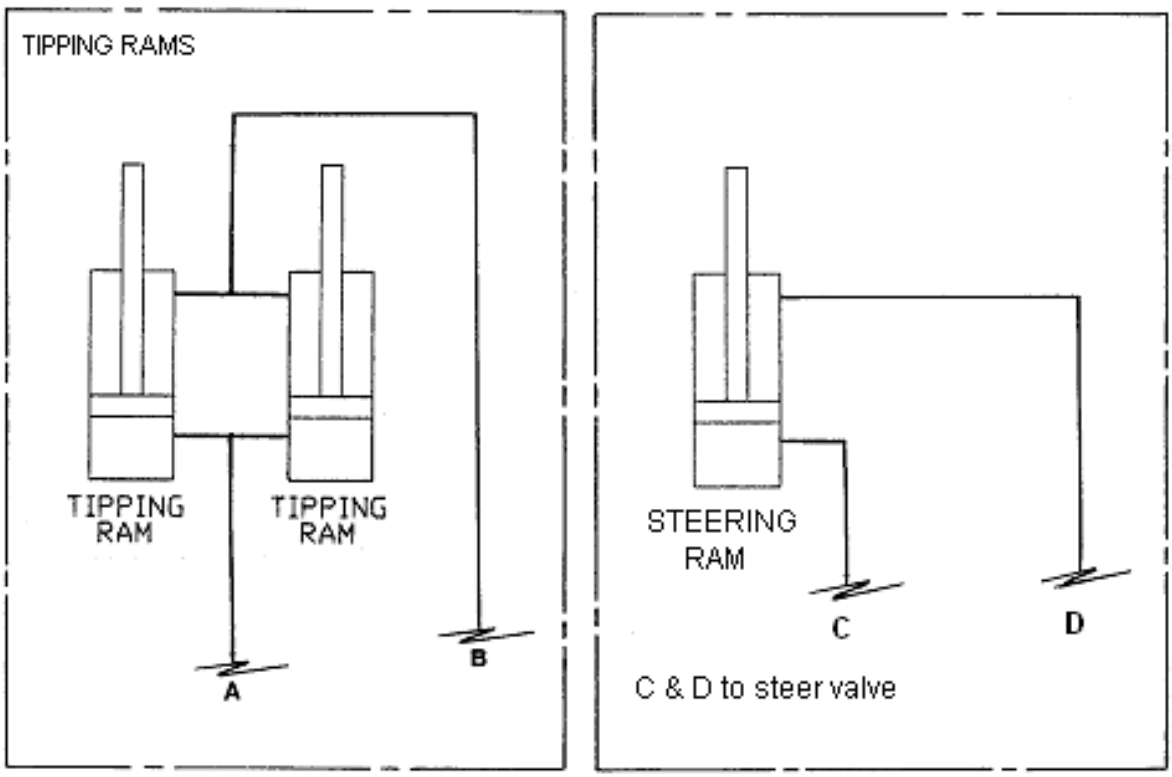
Filter: The filter is situated in the bottom of the tank. The oil is drawn from the tank, through the filter to the pump.

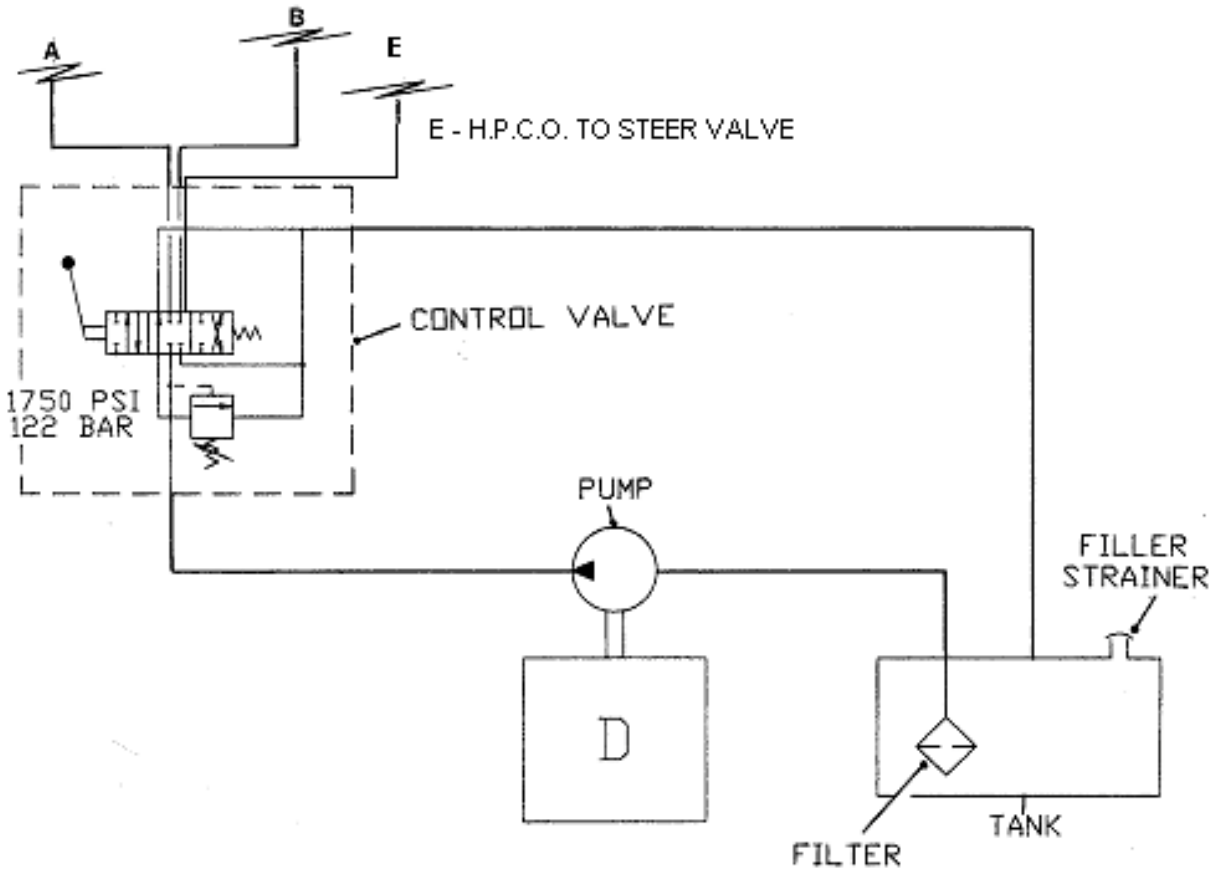
Tipping control valve: The control valve receives oil from the pump and delivers it to the skip tipping rams. The rate of oil flow to the rams is proportional to the distance that the control valve lever is moved.

If the control lever is held either fully to the left or right after the rams have reached their full stroke, a relief valve opens, allowing the oil to return to the tank.

A high pressure carryover within the control valve supplies oil under pressure to the steering valve. The system does not provide priority flow to the steering therefore the steering should not be operated when the skip is being tipped or lowered.

Hydraulic system





HYDRAULIC SYSTEM

Hydraulic System Checks

If the hydraulic system fails to operate completely, or does so extremely slowly, carry out the following procedure.

Check that the hydraulic tank is full of oil to the correct level. The level is correct when the cone at the base of the filler neck is visible.

Check that the filter has been regularly cleaned in accordance with the maintenance schedule. If not, clean filter.

Check that the hydraulic pressure is correct as follows:

Fit a 3000 lb/in^2 gauge into the hydraulic system at the base of the skip ram.

Operate control lever to tip skip and check the pressure reading on the gauge when ram is fully extended and relief valve is 'blowing'.

See"Specifications" for correct pressure.

If this procedure does not correct the fault, contact your Distributor.

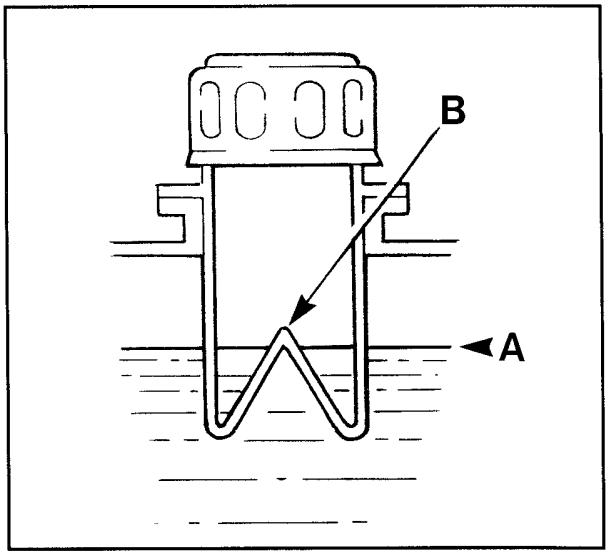
Periodically check the hose between the pump and the hydraulic tank to ensure that it is not deformed. Any deformation in the hose may result in a restricted flow and damage to the pump.

Every 10 operating hours, or daily

Check hydraulic oil level

Do not check oil level before closing the tipping rams, and the engine has been stopped for 2 minutes.

The oil level **(A)** is correct when the cone **(B)** at the base of the filler neck is visible. Do not overfill; it will cause leakage from the breather!



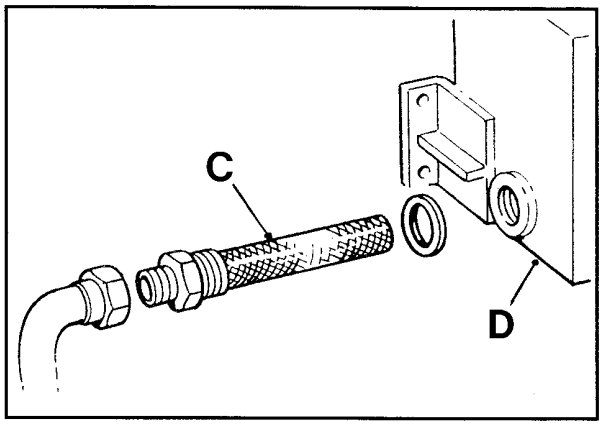
First 100 operating hours

Clean / change hydraulic oil filter

WARNING *Before cleaning filter, stop the engine and dump hydraulic pressure.*

Place *a clean* suitable container beneath the hydraulic tank filter. Clean the area surrounding the filter.

Carefully unscrew the filter **(C)** from the tank **(D)** allowing the oil to drain into the container.



Provided that the oil does not become contaminated it can be used to refill the tank after the filter has been cleaned and replaced.

Wash the filter in white spirit and check it for any damage. *If the filter cannot be thoroughly cleaned, fit a new one.*

Screw the filter back into the tank.

Fill tank with oil. (The oil level (A) is correct when the cone (B) at the base of the filler neck is visible.) For the correct type of oil, see *"Specifications".*

Run the engine to circulate the oil.

Operate the hydraulic control to purge any air from the system.

Stop the engine and top up the tank as required.

Check the areas around the filter for leaks.

Every 1000 operating hours

Clean / change hydraulic oil filter

Clean or change the hydraulic oil filter, using the procedure described in the previous *"First 100 operating hours".*

Every 1000 operating hours

Change hydraulic oil

Run the engine and operate the hydraulics to warm the oil. Fully close the tipping rams.

Switch off the engine and dump hydraulic pressure.

Clean the area surrounding the hydraulic tank filter and filler cap.

Place a suitable container on the ground beneath the filter to catch oil.

CAUTION: Before removing the filter be sure to stand to one side to avoid the oil that will spill from the hole.

Carefully remove the filter and drain the oil from the tank.

Flush out the tank with clean hydraulic oil, taking extreme care to remove all dirt and foreign matter.

Refit the filter.

Clean the filler cap breather.

Refill the tank with clean oil of the correct type and grade. For the correct type of oil, see *"Specifications".*

Run the engine to circulate the oil.

Operate the hydraulic control to purge any air from the system.

Stop the engine and top up the tank as required.

Check the area around the filter for leaks.

BRAKING SYSTEM

Daily or every 10 hours

Brake oil reservoir

Check oil level. Never allow the oil to fall more than 10 mm below top level mark.

Brake System

The service brakes consist of totally sealed oil immersed multi-plate discs fitted within the front axle. (The rear axle is not fitted with brakes.)

The brake system is designed to require the minimum of maintenance, and no defects should normally occur.

If air is present in the system, it will be indicated by sluggish response and by spongy action of the brake pedal.

To bleed the system, proceed as follows:

A Check that all connections are tight and the bleed screws are closed.

B Check that there is sufficient oil in the brake reservoir.

WARNING

Clean the areas surrounding bleed screws and brake reservoir before servicing.

Do not allow the reservoir to empty during the bleeding procedure.

C Attach bleeder tube **(1)** to the bleed screw **(2)** on the left hand side of the front axle and immerse the other end of the tube in a small quantity of hydraulic oil contained in a glass jar **(3).**

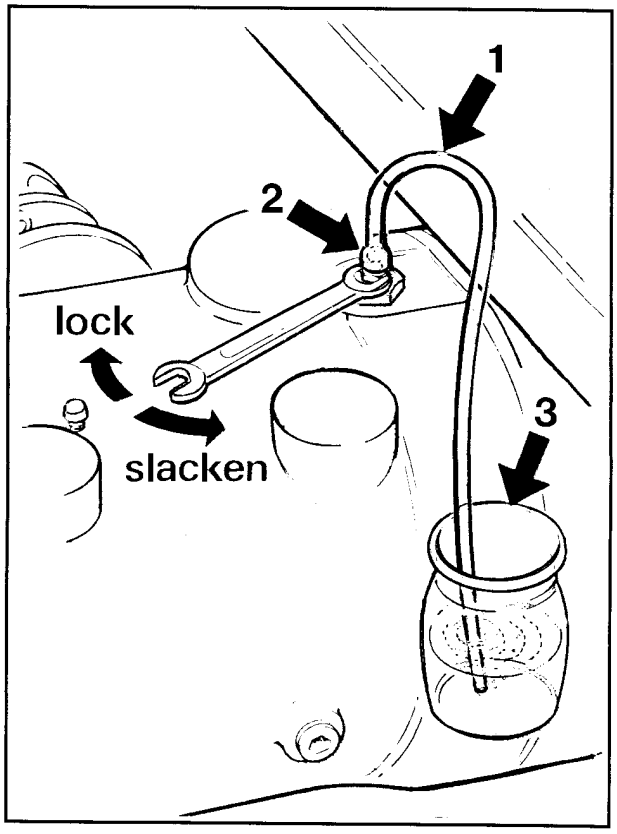
Slacken bleed screw and depress the brake pedal to its full extent. Hold the pedal down and tighten bleed screw. Release pedal and wait 5 to 10 seconds. Slacken the bleed screw and repeat process until the oil pumped into the jar contains no air bubbles. Hold down the pedal and close the bleed screw.
Remove bleeder tube and release pedal.

D Lock the bleed screw.

F Top up brake reservoir.

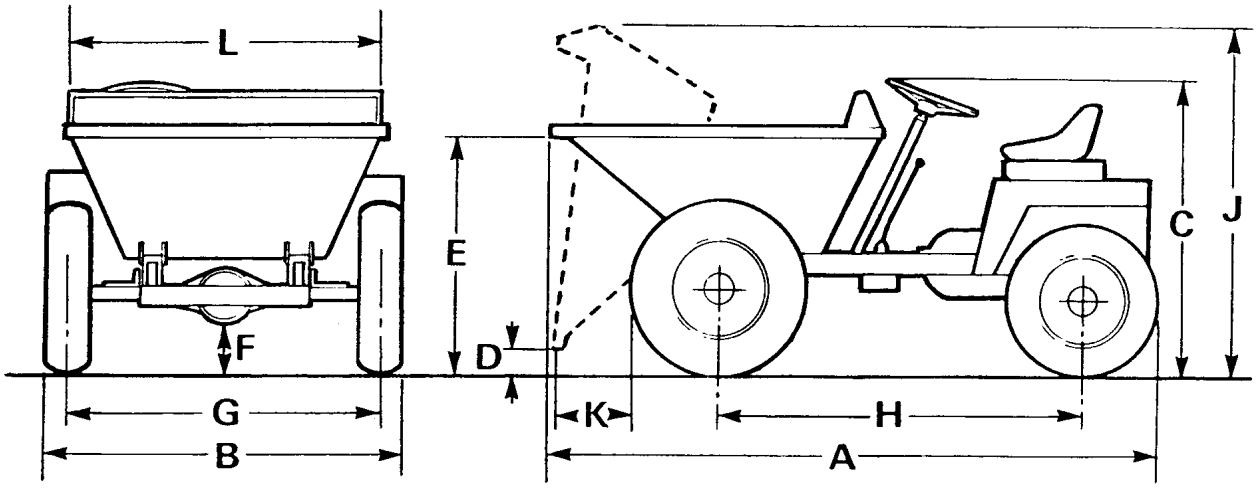
G Apply normal working load on brake pedal for two or three minutes and examine the entire system for leaks.

Note: **Always ensure that free play of 1 to 2 mm exists between the master cylinder push rod and the piston when the brake pedal is released.**



DIMENSIONS

	Earth skip	*m*	*ft in*
A	Overall length	3.250	10’ 8"
B	Overall width	1.805	5’ 11”
C	Overall height	1.450	4’ 9”
D	Skip discharge height	0.130	0’ 5”
E	Skip loading height	1.365	4’ 6”
F	Ground clearance	0.265	0’ 10”
G	Track	1.475	4’ 10”
H	Wheel base	2.095	6’ 10”
J	Maximum skip height when tipped	--------	--------
K	Skip discharge forward of tyres	0.500	1’ 8”
L	Skip discharge width	1.554	5’ 1”
	Articulation	--------	--------
	Turning circle	--------	--------



4.2 TECHNICAL INFORMATION

SPECIFICATIONS

ENGINE	Lister-Petter TR2:	Two cylinder, direct injection, naturally aspirated, flywheel fan air cooled diesel.
		Rotation: Anti-clockwise when looking on the flywheel.
	TR2:	Power output: 13.1 kW (17.5 bhp) @ 1800 rev/min.
ELECTRICS	(Where fitted)	12 volt negative earth.
FUEL	System:	Two element fuel pumps.
	Fuel specification:	BS2869:1988 Class A2, or BS EN590:1995 Class Al.
	Fuel tank capacity:	25 litres
	Fuel filter:	Cartridge Agglomerator.
	Air cleaner:	Dual element, heavy duty.
AXLES	Front:	Heavy duty with fully floating half shafts.
	Rear:	Centrally pivoted steer axle (without brakes).
BRAKE	Service:	Front axle braking. Totally sealed oil immersed multi-plate disc brakes, featuring fully automatic adjustment for wear.
	Parking:	Hand operated, ratchet type, actuating disc brake on transmission.
TRANSMISSION	Heavy duty constant mesh gearbox, with 3 forward and 1 reverse gear.	
HYDRAULICS	Pump:	Gear type.
	Control valve:	Sectional or monobloc with pressure relief valve.
	Filter:	Suction strainer mounted within the hydraulic tank.

VIBRATION DECLARATION

Whole body vibration level $\mathbf{a_w}$ (m/s^2) :- 0.7 - 0.8 Typical*

*__Note:__ *The absence of a harmonised test code together with the variable conditions under which this equipment may be used allows only representative figures to be quoted.*

Hand/arm vibration level $\mathbf{a_{ha}}$ (m/s^2) :- Less than 2.5

SPECIFICATIONS

ROAD SPEEDS *with engine at 1800 rev/min*

1st Gear		*2nd Gear*		*3rd Gear*		*Reverse*	
km/h	*(mph)*	*km/h*	*(mph)*	*km/h*	*(mph)*	*km/h*	*(mph)*
3.87	(2.4)	8.71	(5.45)	15.65	(9.78)	4.32	(2.66)

LUBRICANTS AND FLUIDS Total oils (factory fill) Capacities

Engine Lub. Oil	Rubia H 10W/40	2.7 litres
Note: For engine oils used in temperatures above 30 deg. C consult the Engine Handbook		
Gearbox	Rubia B 20W/30	2.0 litres (approx)
Front axle	Universal plant oil *or* Transmission MP	3.5 litres
Steering	Azzola ZS46	27.3 litres (tank)
Hydraulic system	Azzola ZS46	27.3 litres (tank)
Braking system	Azzola ZS22	0.3 litres (approx)
General grease	Multis EP 2	*as required*
General lubrication oil	Rubia B 20W/30	*as required*

TYRE PRESSURES

Front	2.35 bar	(35 lb in^2)
Rear	2.35 bar	(35 lb in^2)

ADJUSTMENTS

Wheel nuts torque	200 lbf ft	(271 Nm)
Engine	*(see Engine Workshop Manual)*	

TYRES

Front	10.0/75 x 15 traction
Rear	6.00 x 16 ribbed

DRAWBAR LOAD

Weight on drawbar	500 N	(50 kg)
Drawbar pull	2500 N	(250 kg)

NOISE LEVELS

TR2 engine	94 LPA	107 LWA

HYDRAULIC PRESSURES

	120.7 bar	(1750 psi)

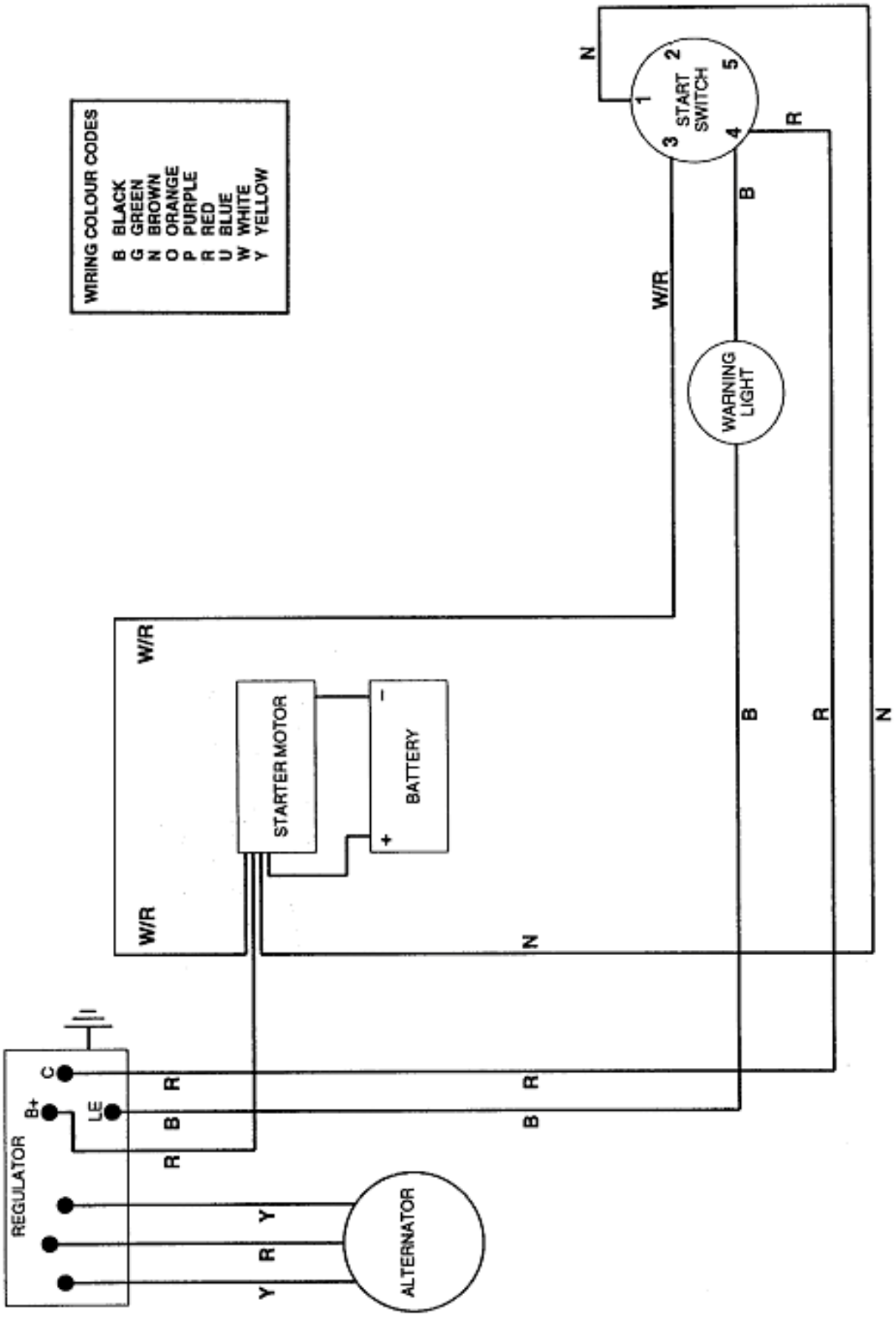
SKIP LOAD CAPACITIES

Payload	2000 kg (4410 lbs)
Water level	1020 litres (36 ft^3)
Struck	1020 litres (36 ft^3)
Heaped	1430 litres (50.5 ft^3)

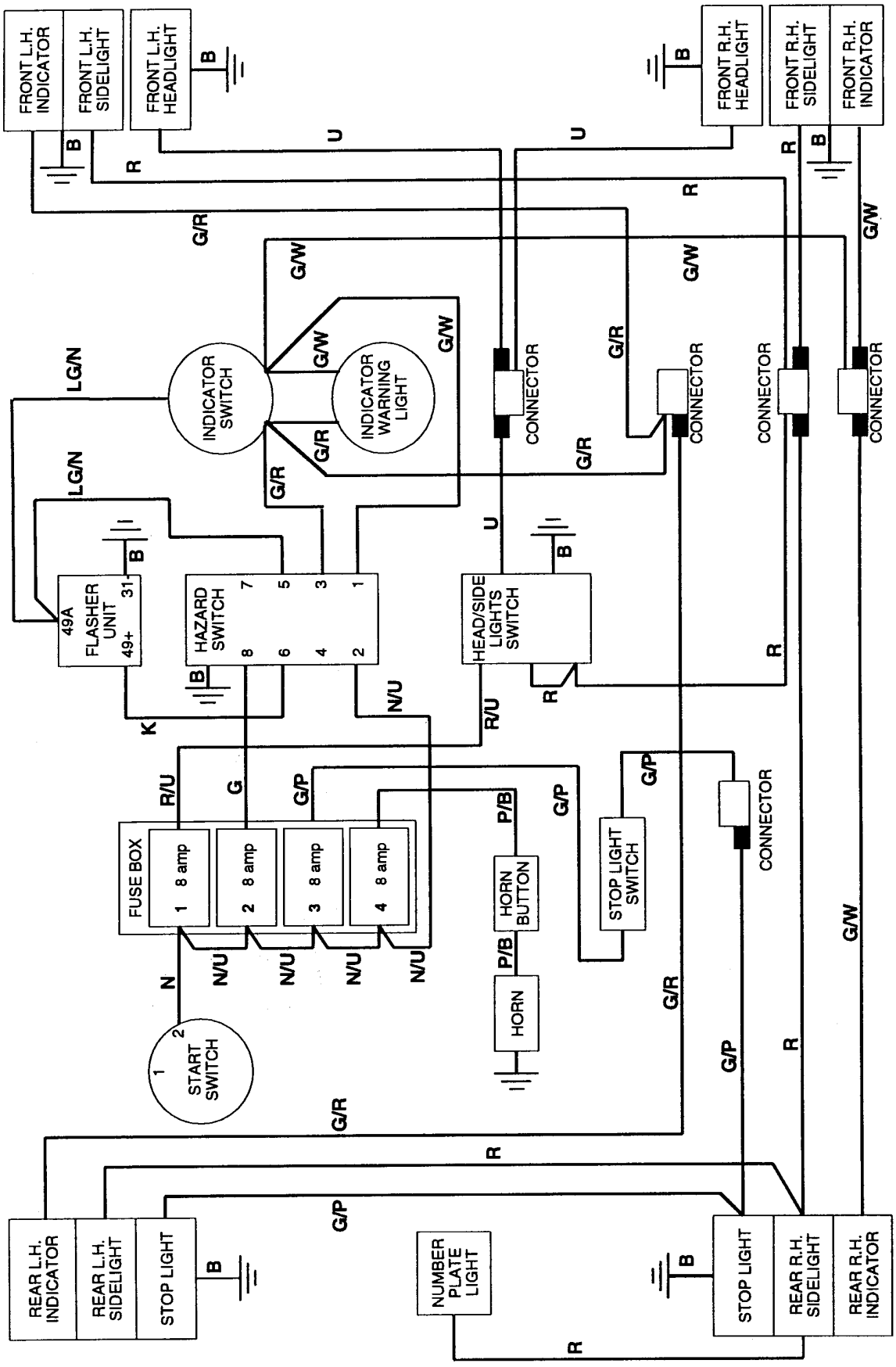
MACHINE WEIGHT

Unladen	1150 kg	(2535 lbs)

MAIN ELECTRICAL CIRCUIT (without road lights)

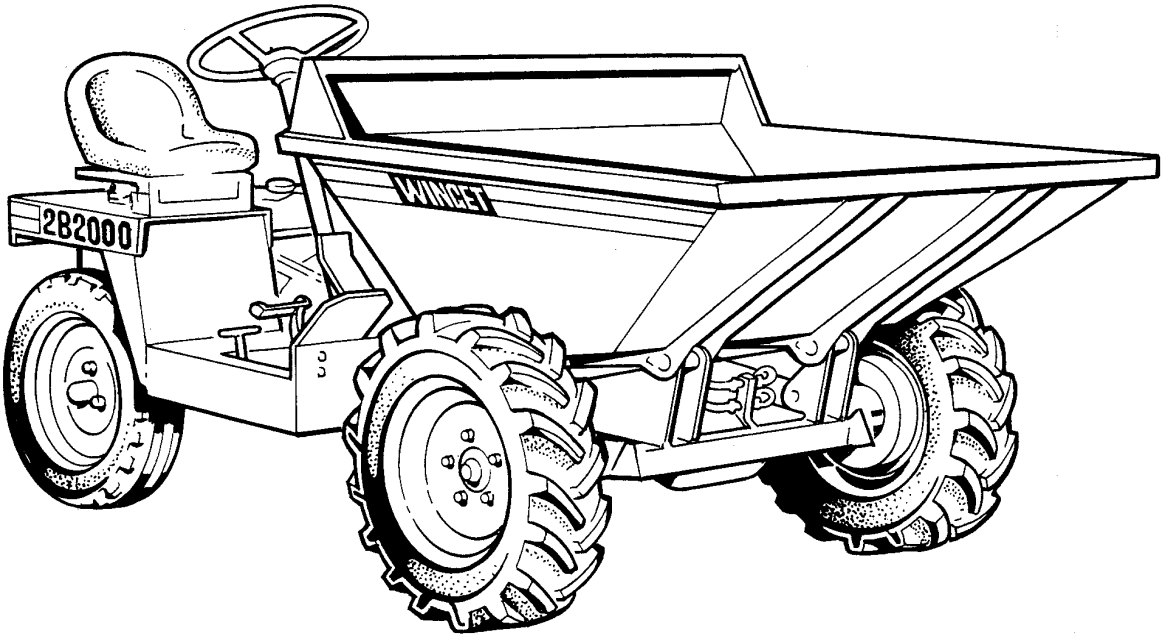


ROAD LIGHTS ELECTRICAL CIRCUIT



2B2000
DUMPER

PARTS



Contents

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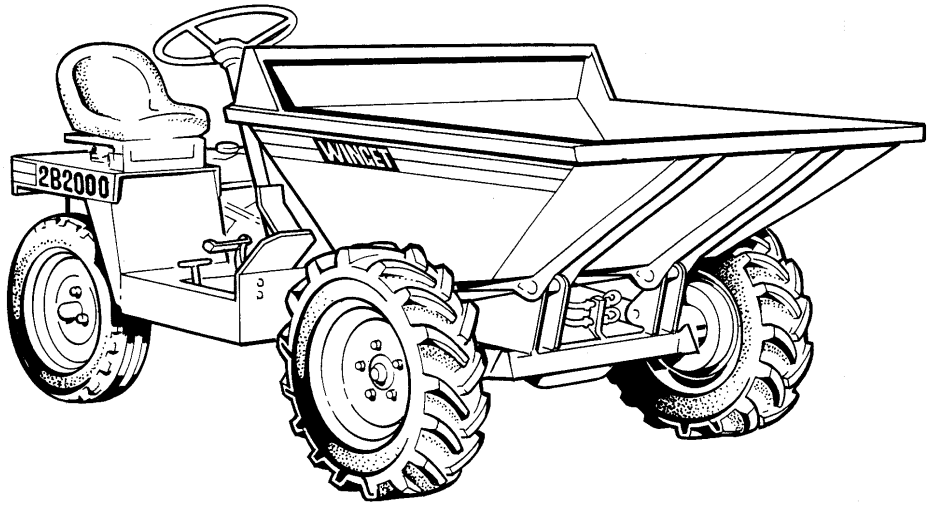
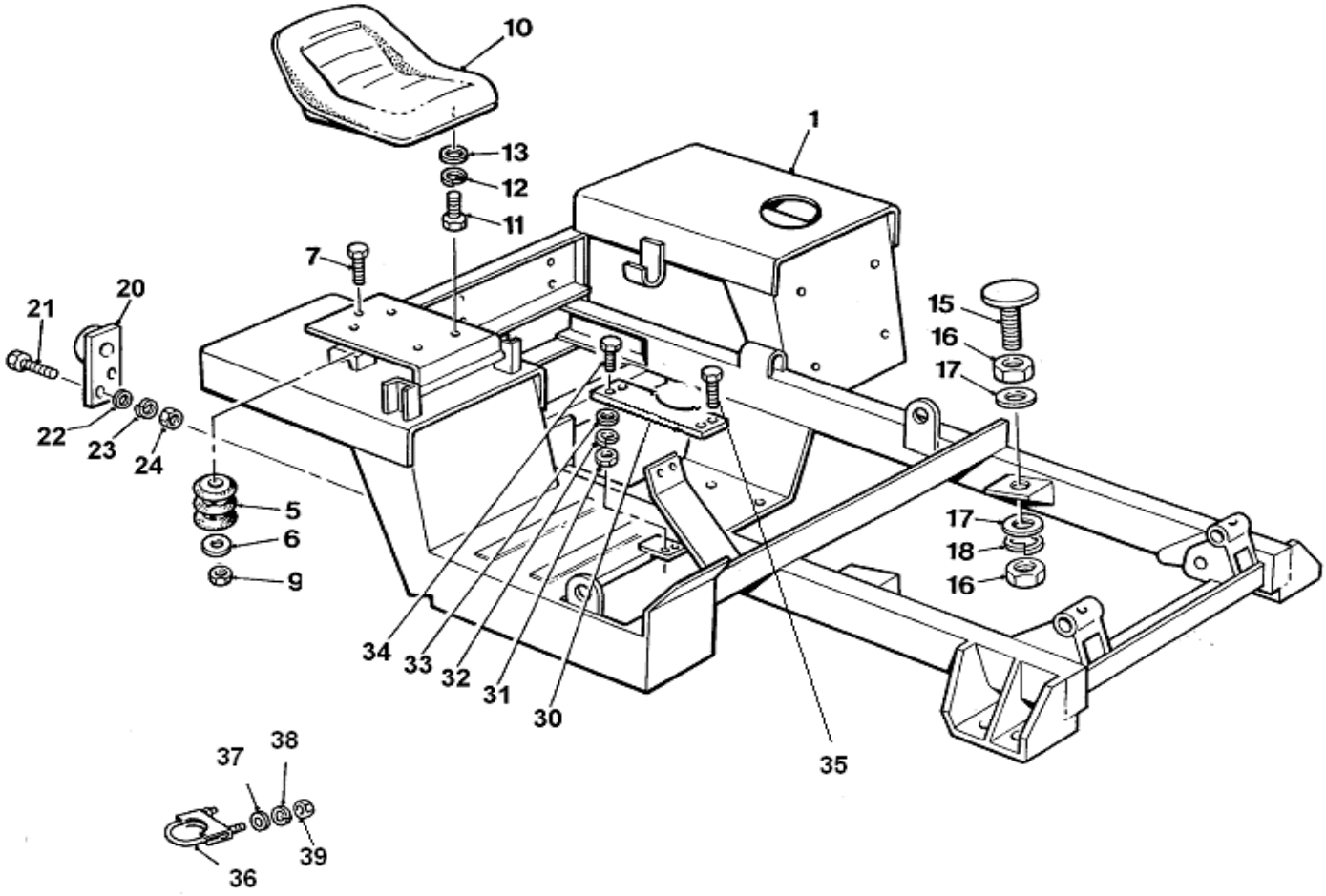
DUMPERS

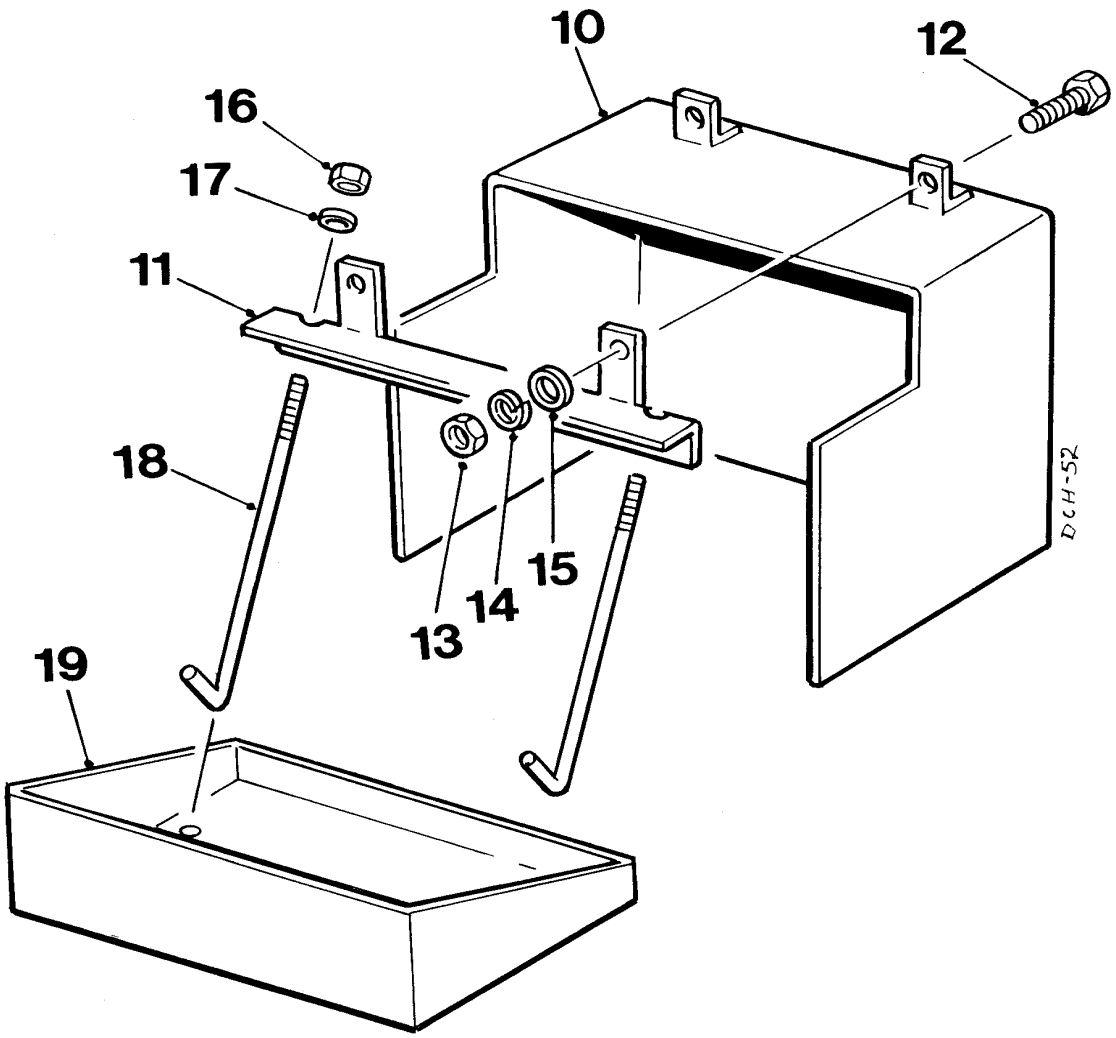


Chassis, Panels & Skip

2B2000 Dumper



Item	Part no	Serial no	Description	Qty
1	40298A04		CHASSIS	1
5	10519A01		SPRING, rubber	1
6	V2004220		WASHER, large diameter	1
7	11S04E		SCREW, set	1
9	59S03		NUT, nyloc	1
10	V2000954		SEAT	1
11	11S03B		SCREW, set	4
12	17S04		WASHER, spring	4
13	267S05		WASHER, flat	4
15	V2004234		SCREW, “Special”, skip stop	2
16	7S08		NUT	4
17	267S12		WASHER, flat	4
18	17S11		WASHER, spring	2
20	20355A07		BRACKET, starting handle support	1
21	11S04E		SCREW, set	2
22	267S06		WASHER, flat	4
23	17S05		WASHER, spring	2
24	7S04		NUT	2
30	V2006339	20159 /	BRACKET, steering column support	1
31	7S04	20159 /	NUT	4
32	17S05	20159 /	WASHER, spring	4
33	267S06	20159 /	WASHER, flat	4
34	11S04D	20159 /	SCREW, set	2
35	8S04K	20159 /	BOLT	2
36	153S05		"U" BOLT, c/w nuts, discard clamp	1
37	267S05		WASHER, flat	2
38	17S04		WASHER, spring	2
39	7S03		NUT	2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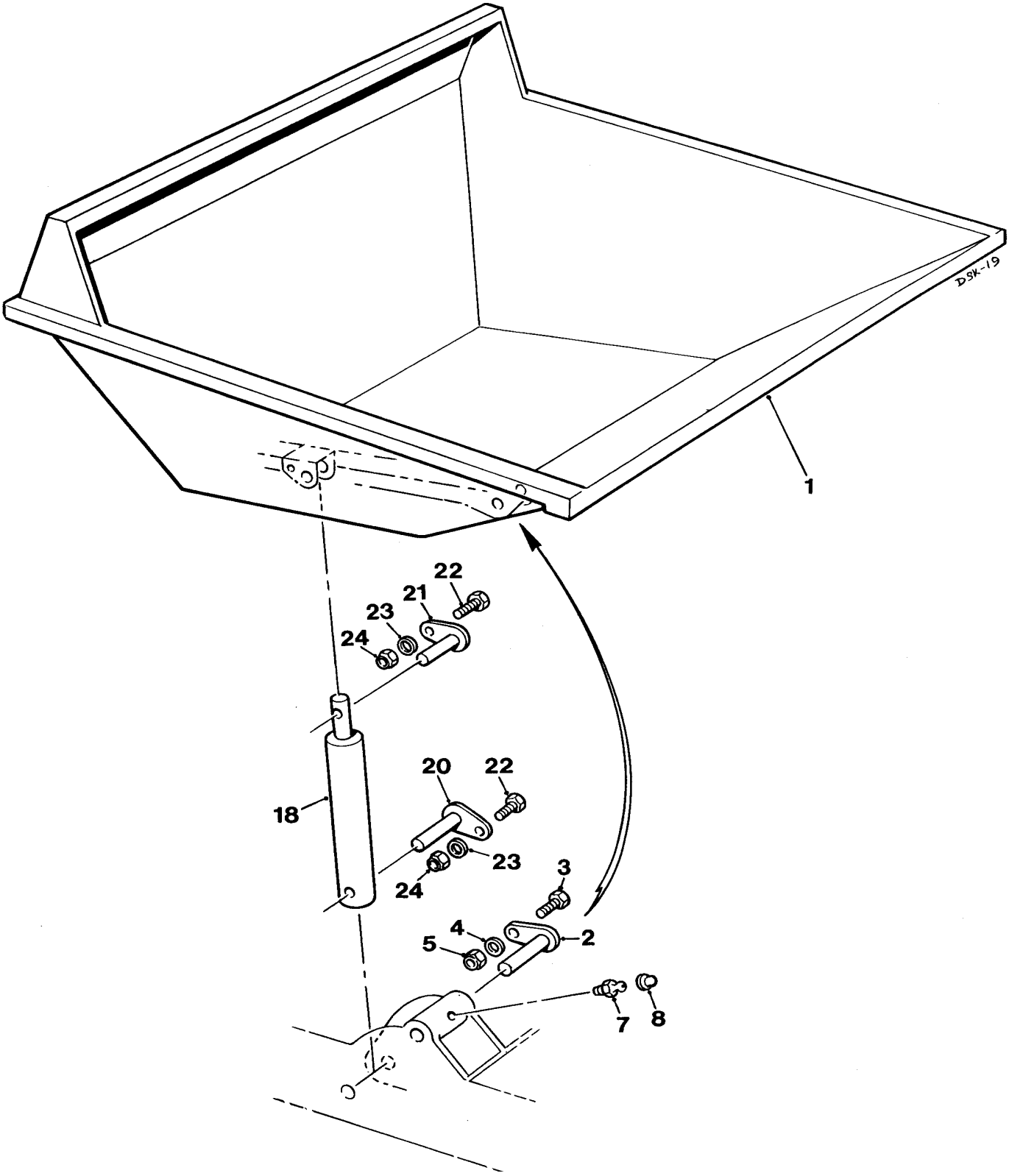
DCH-52

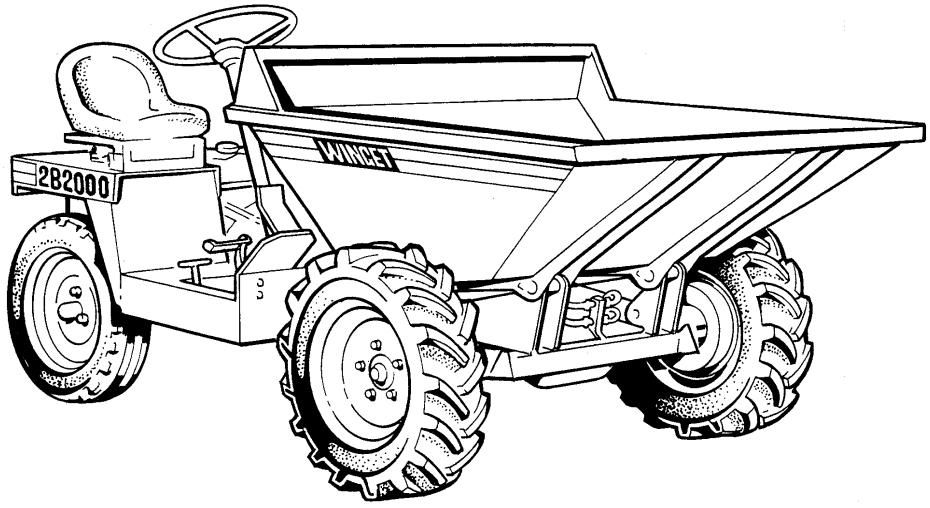
Item	Part no	Serial no	Description	Qty
10	513358600		COVER, battery	1
11	V2004055		CLAMP, battery	1
12	11S04C		SCREW,set	2
13	7S04		NUT	2
14	17S05		WASHER, spring	2
15	267S06		WASHER, flat	2
16	61S02		NUT	2
17	267S04		WASHER, flat	2
18	V2004120		ROD, clamp	2
19	513358500		TRAY, battery *(welded to chassis)*	1

2B2000 Dumper

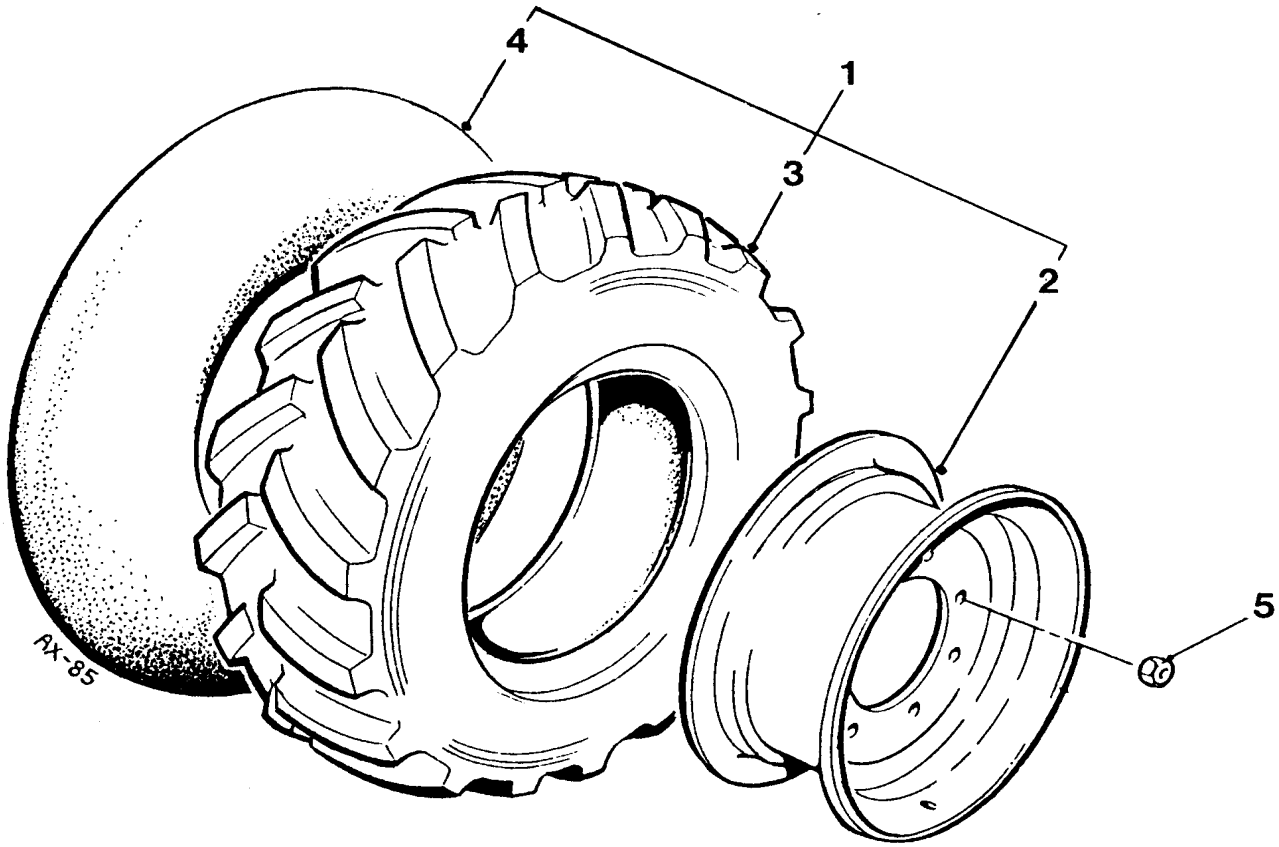


Item	Part no	Serial no	Description	Qty
1	40295A10		SKIP, earth	1
2	10470A10		PIN, pivot, skip	2
3	11S04D		SCREW, set	2
4	267S06		WASHER, flat	2
5	59S03		NUT, self locking, ‘Nyloc’	2
7	131S01		NIPPLE, grease	2
8	176S01		CAP, grease nipple	2
18	—---—-		RAM, *(see hydraulics section)*	2
20	10470A11		PIN, pivot, ram lower	2
21	10470A12		PIN, pivot, ram upper	2
22	11S04D		SCREW, set	4
23	267S06		WASHER, flat	4
24	59S03		NUT, self locking, ‘Nyloc’	4

2B2000
DUMPERS



Axles & Wheels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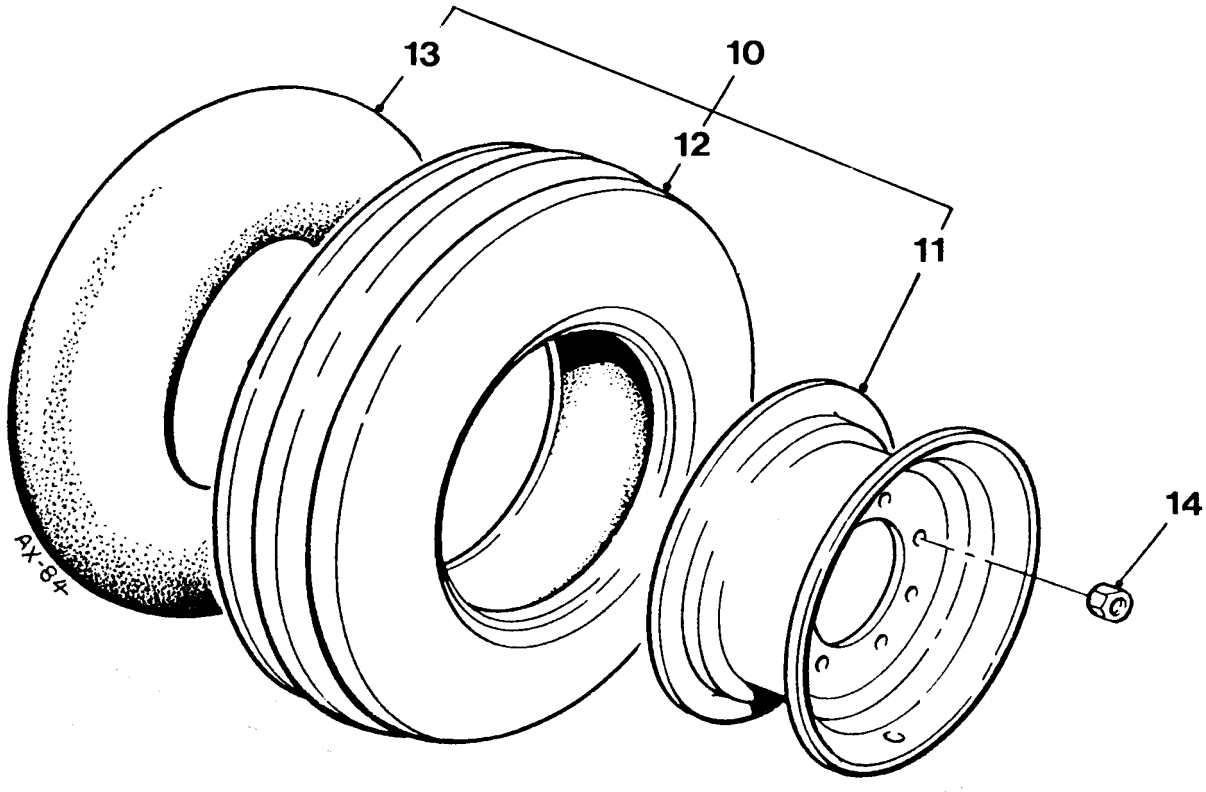
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AX-84

Item	Part no	Serial no	Description	Qty

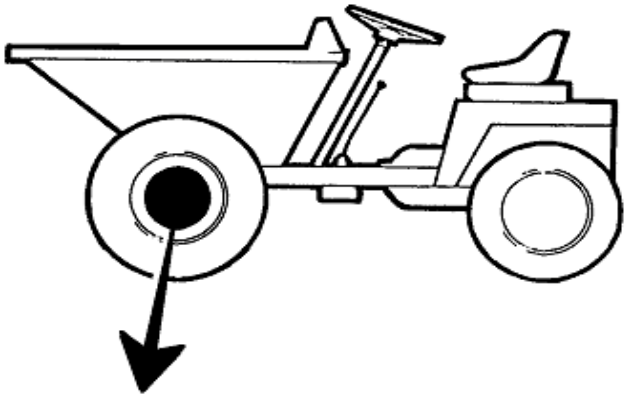
Check rim & tyre size before ordering.

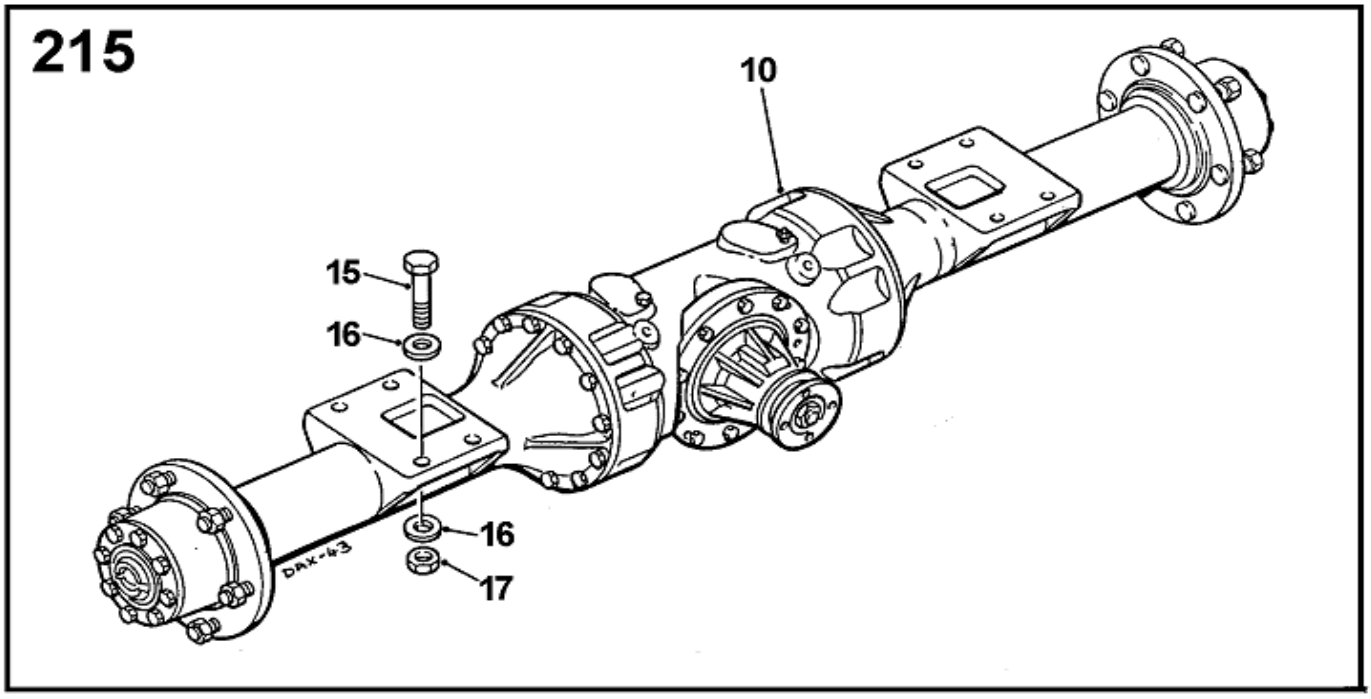
Front wheels

1	24S96	20141 /	WHEEL, front, L.H., assembly	1
1	24S97	20141 /	WHEEL, front, R.H., assembly	1
2	20131A02	20141 /	RIM, wheel, 9.00 x 15.3	1
3	20S17		TYRE, 10.0/75 x 15.3	1
4	23S11		TUBE, 10.0 x 15.3	1
5	10668A01		NUT, wheel	10

Rear wheels 6.00 x 16

10	475600019	20159/	WHEEL, rear, assembly	2
11	V602680		RIM, wheel, 16"	1
12	475600017		TYRE, 6.00 x 16	1
13	475600018		TUBE, 6.00 x 16	1
14	V602678		NUT, wheel	10

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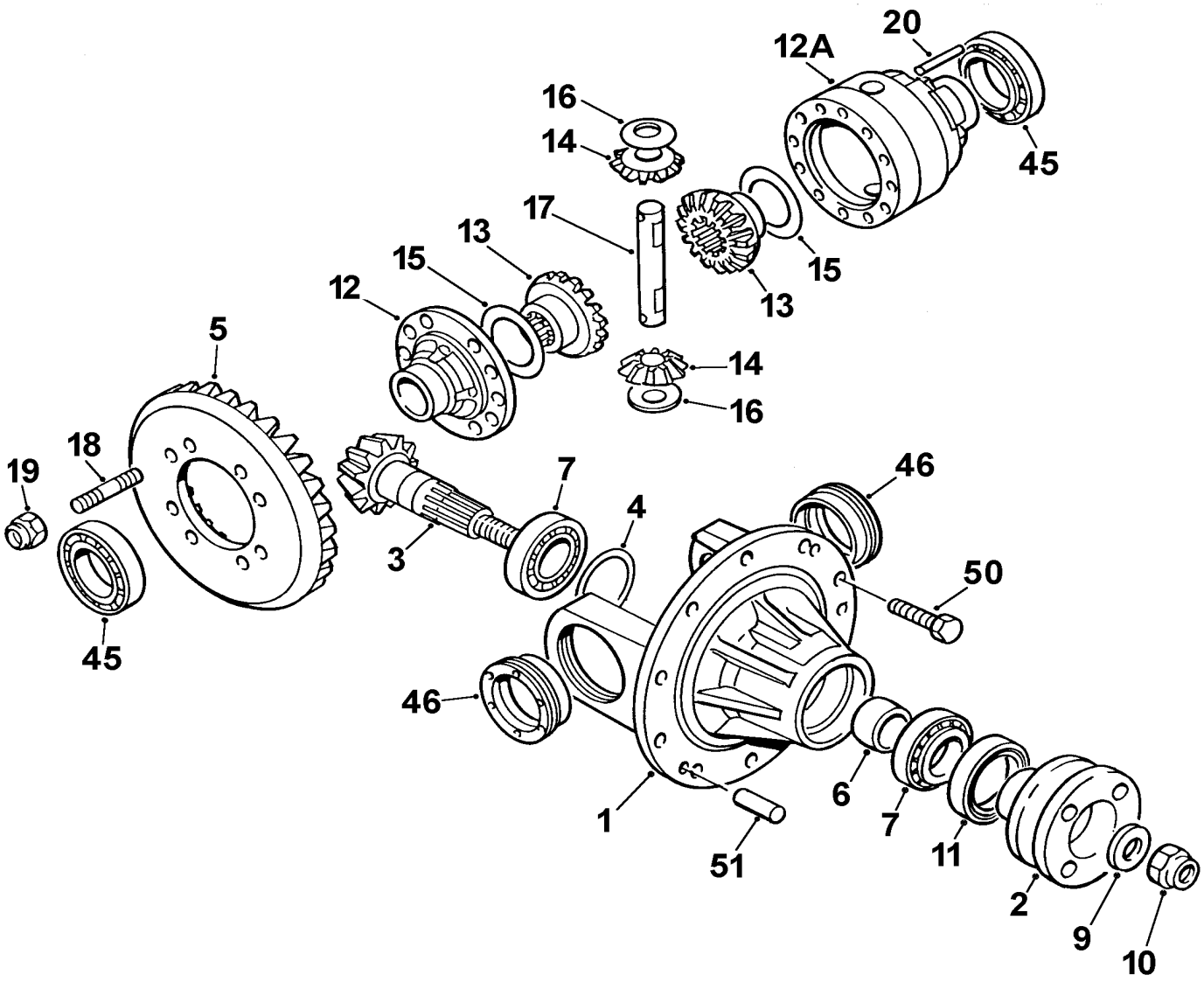
Item	Part no	Serial no	Description	Qty
10	30156A13	20141 /	**AXLE, 215** *(See page B-4 for Input pinion & differential)* *(See page B-5 for planet carrier & axle casing)* *(See page B-6 for hub & axle shaft)* *(See page B-7 for brakes)*	1
15	8S06G		BOLT	8
16	267S09		WASHER, flat	16
17	59S11		NUT, “Nyloc”	8

215 series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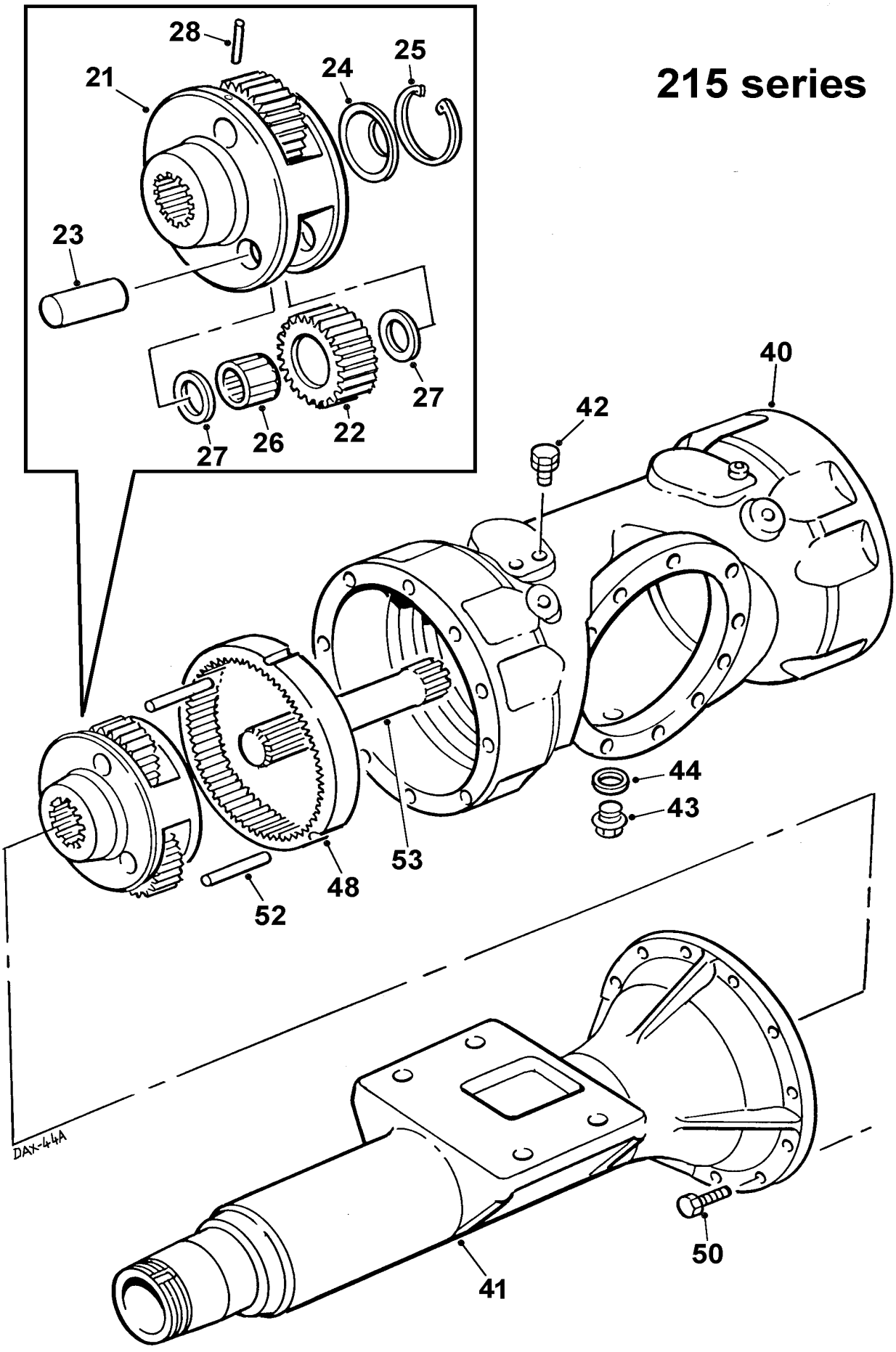
INPUT PINION & DIFFERENTIAL

Newage 215 series drive axle. ***From dumper serial number 20141***

Item	Part no	Serial no	Description	Qty
1	30082A0401	20141 /	PINION, input cartridge	1
2	30082A0402		FLANGE, input drive, c/w seal shield	1
3	30082A0403		PINION, spiral bevel	1
4	30082A0282		SHIM, 0.25mm	2
....	30082A0280		SHIM, 0.3mm	2
....	30082A0281		SHIM, 0.4mm	2
5	30082A0403		WHEEL, spiral bevel	1
6	30082A0235		SPACER	1
7	30082A0234		BEARING, cup & cone assembly	2
....	30082A0274		BEARING, cup	1
....	30082A0273		BEARING, cone	1
9	30082A0231		WASHER, plain	1
10	30082A0232		NUT	1
11	30082A0236		SEAL, oil	2
12	30082A0404		COVER, differential	1
12A	30082A0405		CASING, differential	1
13	30082A0283		WHEEL, differential	2
14	30082A0284		PINION, differential	2
15	30082A0241		WASHER, thrust	2
16	30082A0242		WASHER, thrust	2
17	30082A0303		SPIDER, differential, (half)	1
18	30082A0406		STUD	8
19	59S03		NUT, 'Nyloc'	8
20	30082A0306		PIN, Spirol	2
45	119325000		BEARING, cup & cone assy.	2
46	30082A0416		NUT, bearing adjustment	2
50	8S04B		BOLT	34
51	30156A0112		DOWEL, 10dia x 20mm	2

215 series

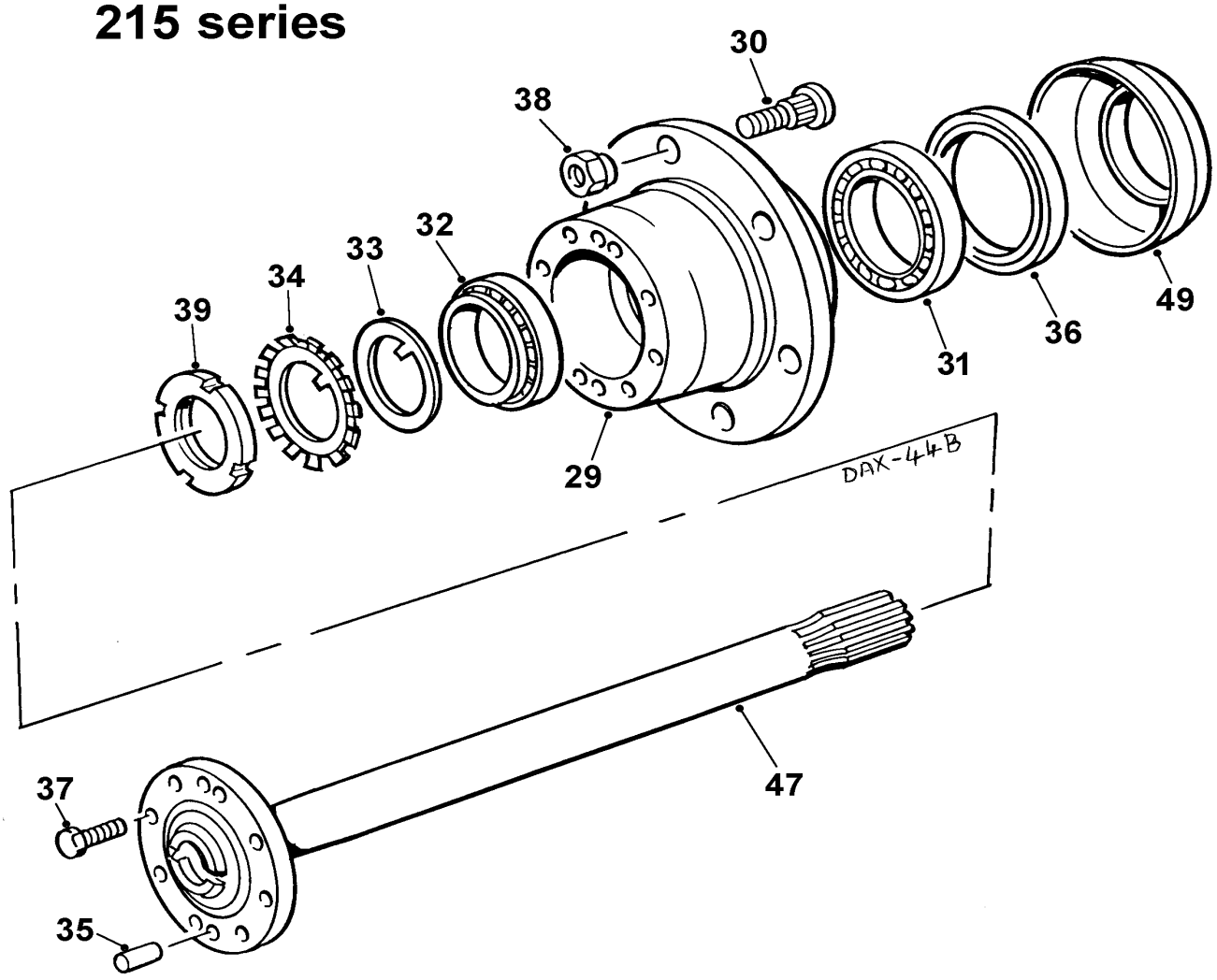


PLANET CARRIER & AXLE CASING

Newage 215 series drive axle. ***From dumper serial number 20141***

Item	Part no	Serial no	Description	Qty
21	30156A0802	20141 /	CARRIER, planet	2
22	30156A0803		GEAR, planet	6
23	30156A0804		PIN, planet	6
24	30156A0805		SPACER	2
25	30082A0265		CIRCLIP	2
26	30082A0289		BEARING, needle	6
27	30082A0249		WASHER, thrust	12
28	30156A0162		DOWEL, spring	6
40	30082A0413		CASING, main	1
41	30082A0414		ARM, axle (1475mm)	2
42	30082A0415		BREATHER	1
43	30097A0163		PLUG, drain	2
44	100S04		SEAL, bonded	2
48	30156A0202		ANNULUS	2
50	8S04B		BOLT	34
52	30156A0102		DOWEL, 8dia x 60mm	4
53	30082A0418		GEAR, sun	2

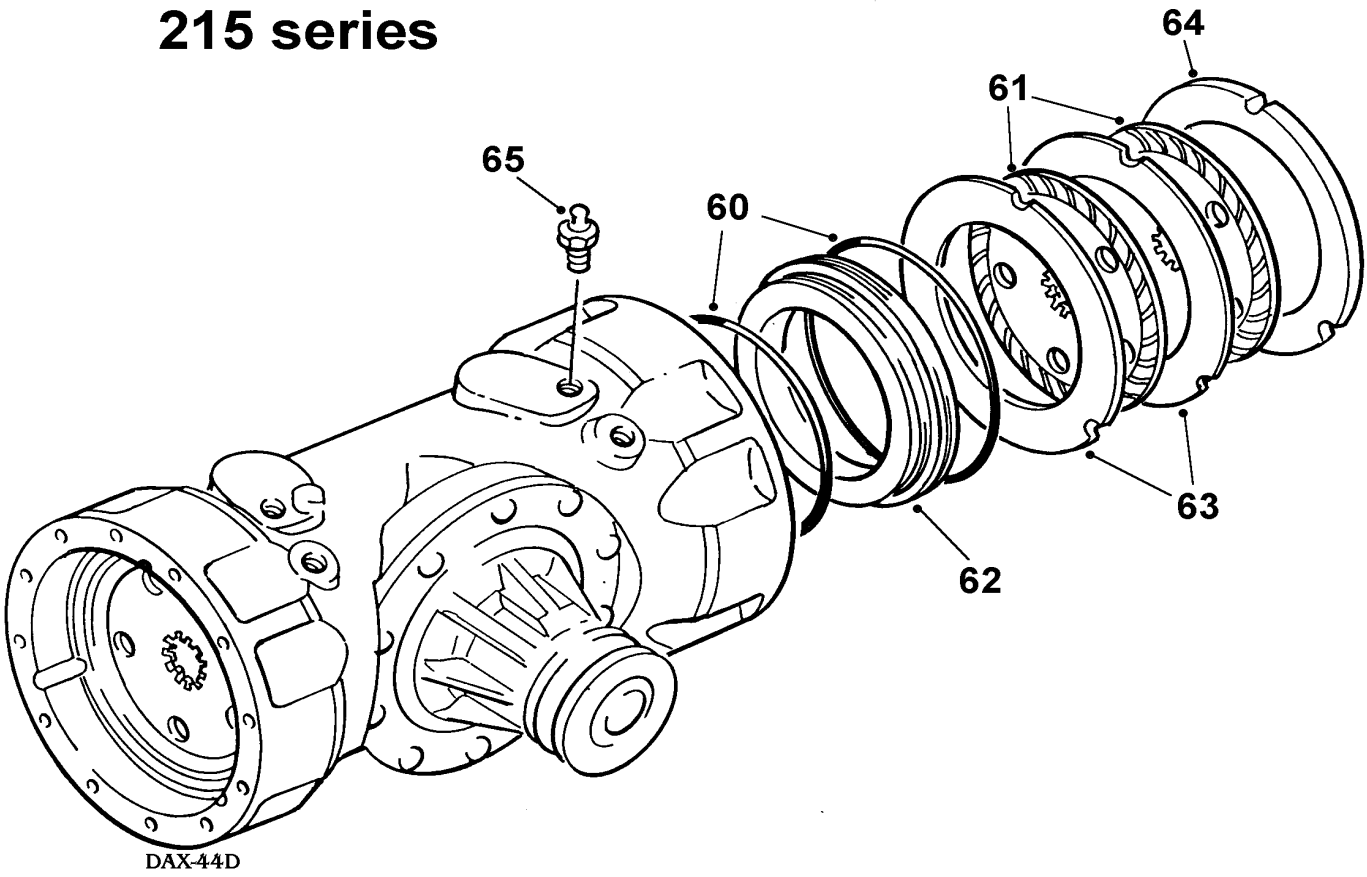
215 series



Newage 215 series drive axle. ***From dumper serial number 20141***

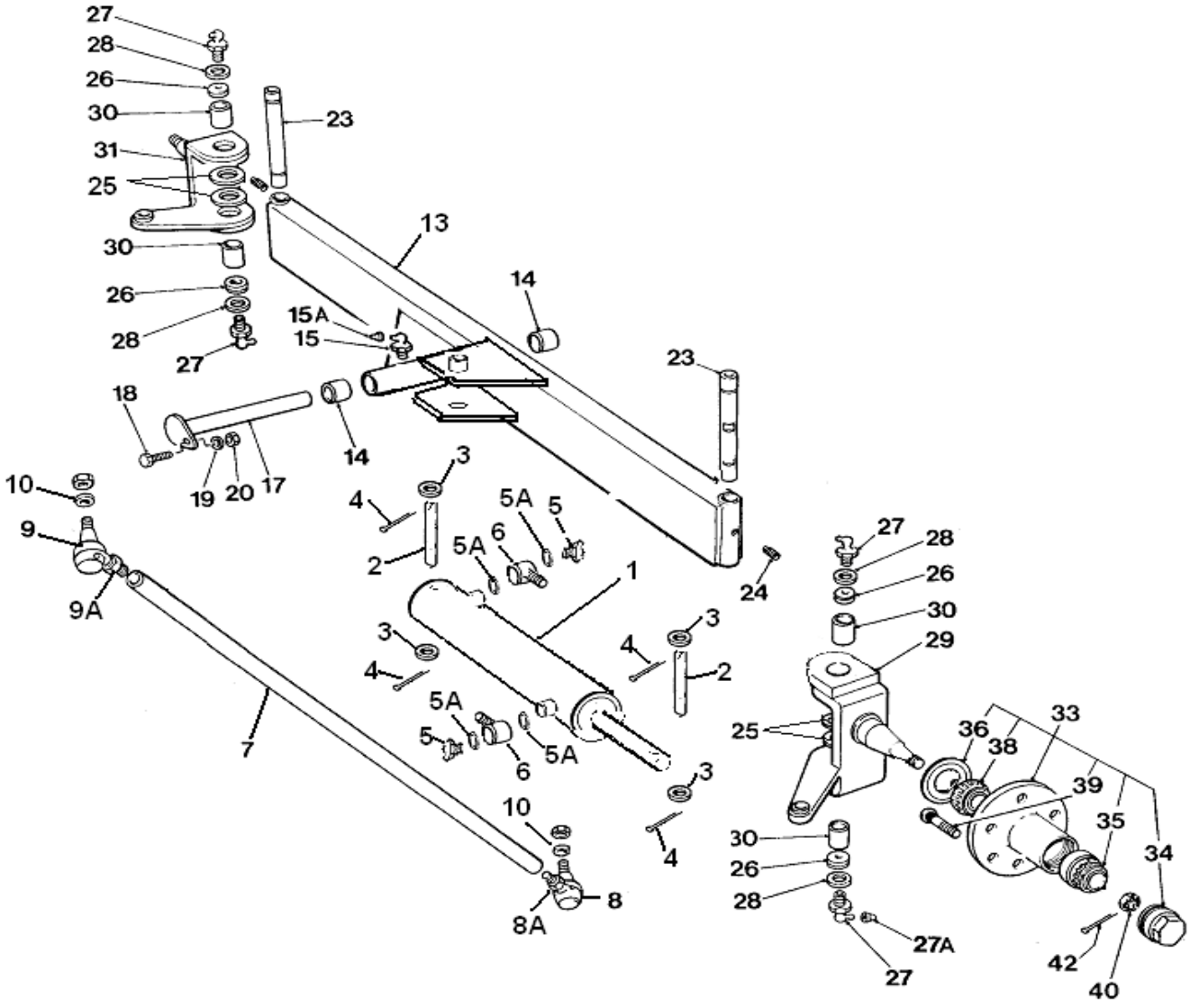
Item	Part no	Serial no	Description	Qty
29	30082A0407	20141 /	HUB	2
30	30156A0122		STUD, wheel	10
31	30082A0408		BEARING	2
32	30082A0409		BEARING	2
33	30082A0222		SPACER	2
34	30347A0201		LOCKWASHER	2
35	30156A0112		DOWEL, spring	4
36	30082A0410		SEAL, oil	2
37	8S04B		BOLT	16
38	.....		NUT, wheel *(see "Wheels", page B-1)*	10
39	30082A0411		LOCKNUT	2
47	30082A0417		SHAFT, axle (1475mm)	2
49	30082A0422		COVER, seal, wheel hub	2

215 series



Newage 215 series drive axle. ***From dumper serial number 20141***

Item	Part no	Serial no	Description	Qty
60	30156A0108	20141 /	KIT, 'O' ring seals, brake piston	2
*61	30156A0908		DISC, brake, sintered	4
62	30156A0107		PISTON, brake	2
*63	30156A0909		PLATE, brake, fixed	4
*64	30156A0910		SPACER, brake	2
65	30082A0419		VALVE, brake bleeding	1
	*30156A0911		KIT, brake plates, consisting of items marked *	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Item	Part no	Serial no	Description	Qty
1	V2005330		RAM, steering	1
			see page H6	
2	V2005342		PIN, retaining	2
3	267S08		WASHER, flat	4
4	44S16J		PIN, split	4
5	115S03		BANJO,bolt	2
5A	100S02		SEAL, bonded	4
6	114S06D		BANJO, body, straight male	2
7	V2006345		TRACK ROD, 11/16" UNF threads	1
8	V2006335		BALL JOINT, RH, 11/16" UNF c/w nut	1
8A	95S13		NUT THIN, lock RH 11/16" UNF	1
			order one 95S13 with each R.H. ball joint	
9	V2006334		BALL JOINT, LH, 11/16" UNF c/w nut	1
9A	272S17		NUT THIN, lock LH 11/16" UNF	1
			order one 272S13 with each L.H. ball joint	
10	267S07		WASHER, flat, M12	2
13	30298A02		AXLE, steering	1
14	4SHL91		BUSH, axle pivot	2
15	131S02		NIPPLE, grease, 90 deg	1
15A	176S01		CAP, grease nipple	1
17	20161A05		PIN, axle pivot	1
18	8S04C		BOLT	1
19	267S06		WASHER	1
20	59S03		NUT, nylon insert	1
23	L264		KING PIN	2
24	185S05D4		SCREW, grub	2
25	C175		WASHER, thrust	4
26	C180A		WASHER, felt	4
27	131S02		NIPPLE, grease, 90 deg	4
27A	176S01		CAP, grease nipple	4
28	C180B		WASHER, flat, special	4
29	V2006325		STUB AXLE, R.H.	1

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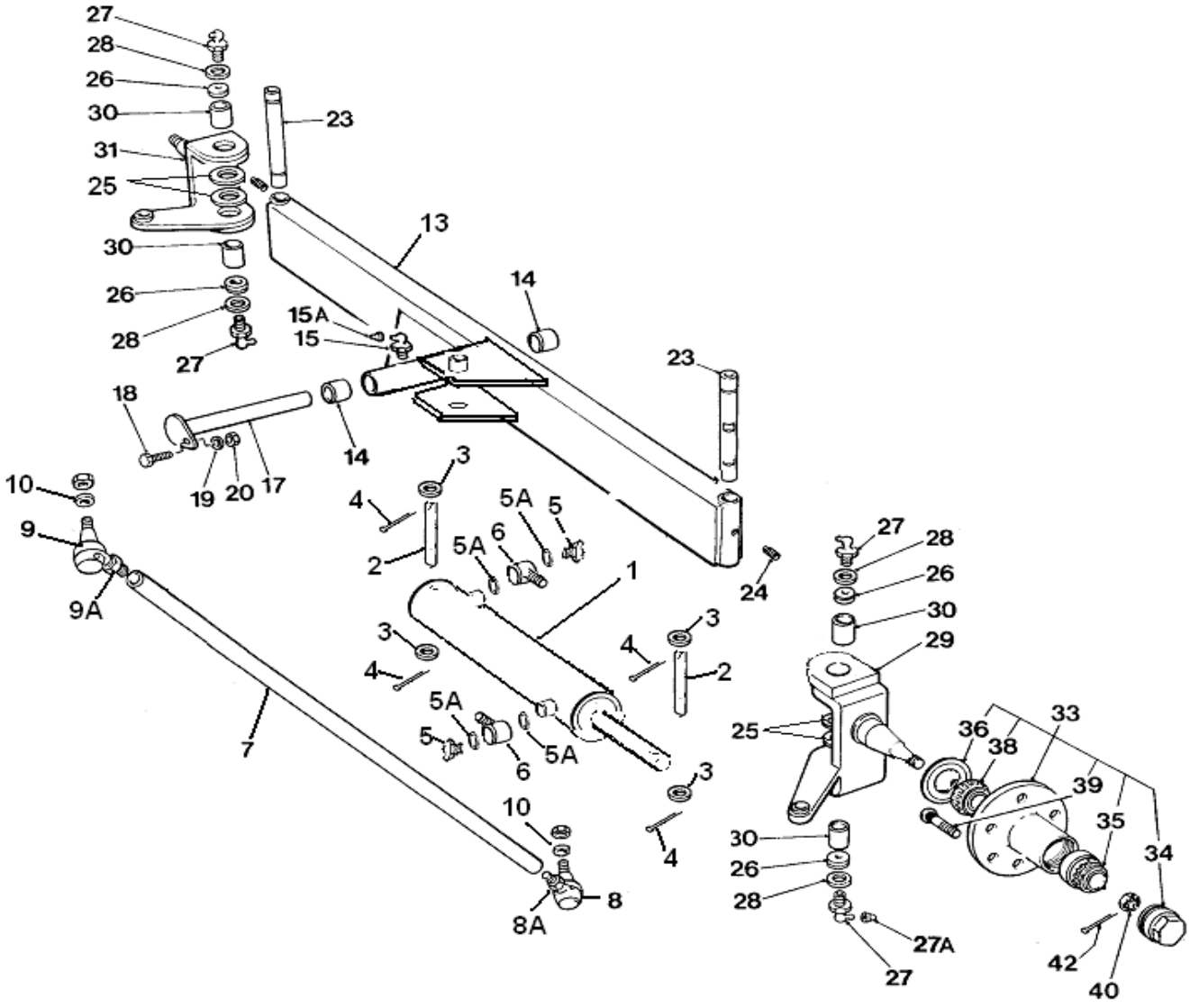
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Item	Part no	Serial no	Description	Qty
30	C190		BUSH, king pin	4
31	V2006324		STUB AXLE, L.H.	1
-	V602679		HUB, assembly	2
33	-		HUB *(order V602679 assembly)*	1
34	V602676		HUB CAP	1
35	V602666		BEARING, hub, outer	1
36	V602668		SEAL, oil, hub bearing	1
38	V602667		BEARING, hub, inner	1
39	V602677		STUD, wheel	3
40	V603755		NUT, slotted, 40mm across flats	1
42	44S04E		PIN, split	1

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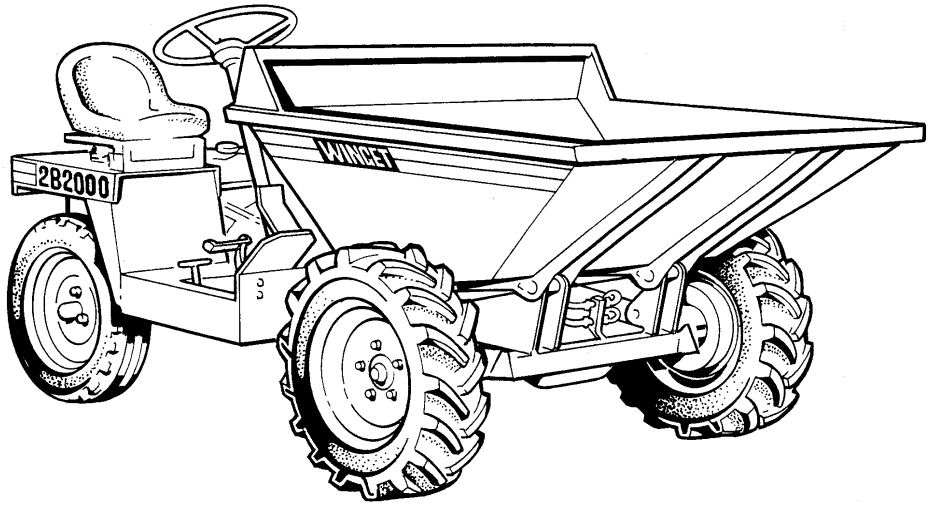
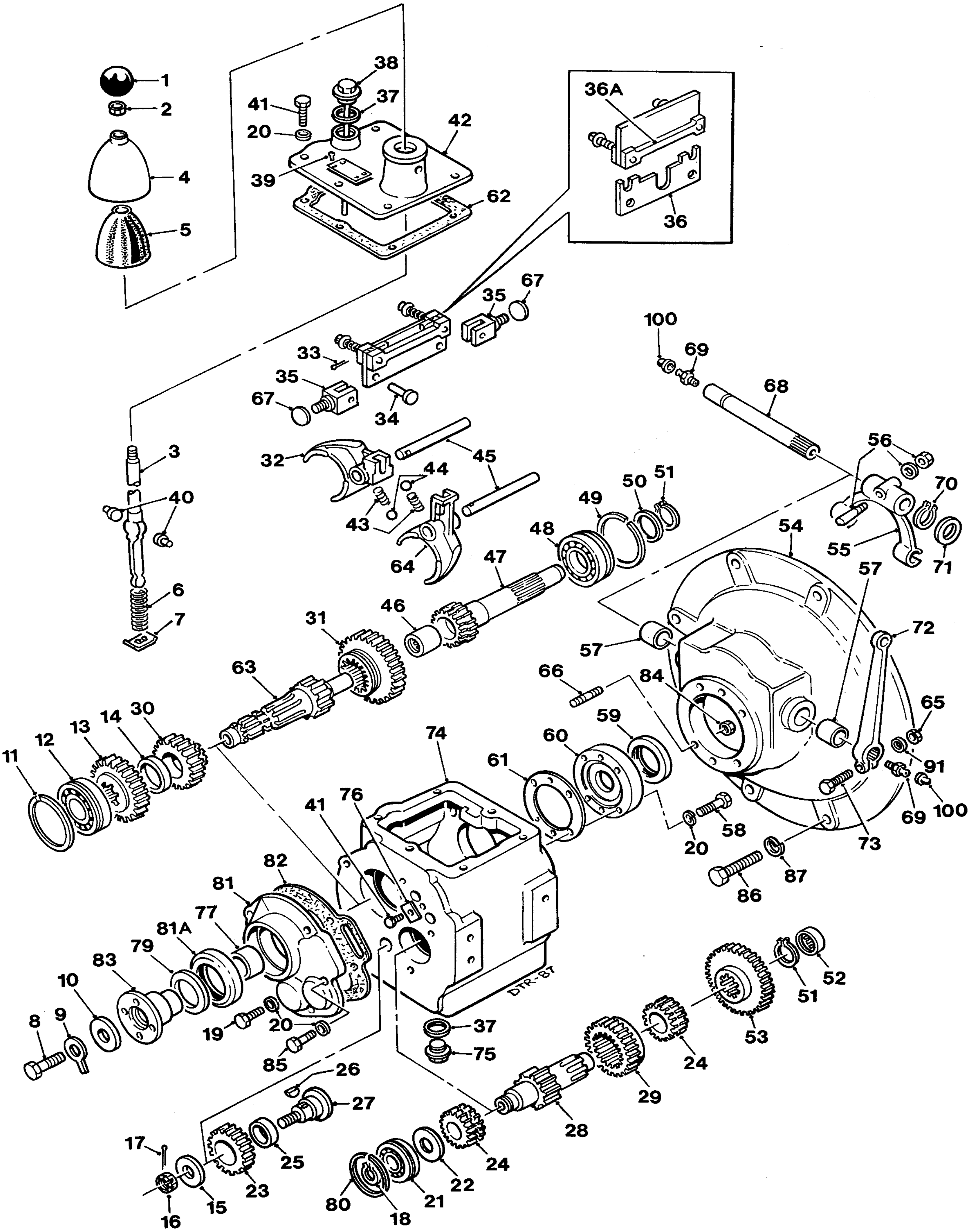
DUMPERS



Transmission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DTR-BT

Item	Part no	Serial no	Description	Qty
-	30101A04		GEARBOX, (40M2S322), assembly,	1
1	30101A0201		KNOB, gear lever	1
2	95S03		NUT, locking	1
3	20097A05		LEVER, gear	1
4	30101A0203		CAP, gear lever	1
5	30101A0204		GAITER, gear lever	1
6	30101A0205		SPRING, gear lever	1
7	30101A0206		PLATE, gear lever retaining	1
8	28S05E		BOLT	1
9	30101A0207		WASHER, tab	1
10	30101A0208		WASHER	1
11	30101A0209		RING, snap	1
12	88S06E		BEARING, mainshaft, rear	1
13	30101A0211		GEAR, output	1
14	30101A0212		SPACER, output gear	1
15	30101A0213		WASHER, reverse pinion shaft	1
16	102S04		NUT, slotted	1
17	44S02C		PIN, split	1
18	30218A0206		CIRCLIP	1
19	28S01D		BOLT	3
20	30039A0169		WASHER, nylon	9
21	88S04E		BEARING, layshaft	1
22	30101A0217		SPACER, bearing	1
23	30101A0218		PINION, reverse	2
24	30101A0219		GEAR, reverse	2
25	30101A0220		BUSH, reverse pinion	1
26	30101A0221		KEY	1
27	30101A0222		SHAFT, reverse pinion	1
28	30101A0280		LAYSHAFT	1
29	30101A0224		GEAR, 2nd speed, sliding	1
30	30101A0225		GEAR, 2nd speed	1
31	30101A0226		GEAR, 1st speed	1
32	30101A0227		FORK, 2nd & 3rd selector	1
33	44S01C		PIN, split	2
34	30101A0228		PIN, clevis	2
35	30101A0229		CLEVIS, interlock plate	2
36	30101A0276		PLATE, interlock	1
36A	30101A0275		SPRUNG INTERLOCK, c/w tool	1
37	42S05		WASHER, sealing	2
38	30218A0248		DIPSTICK, (flange to bottom =159mm)	1
39	—-		SCREW, drive (for serial no. plate)	4

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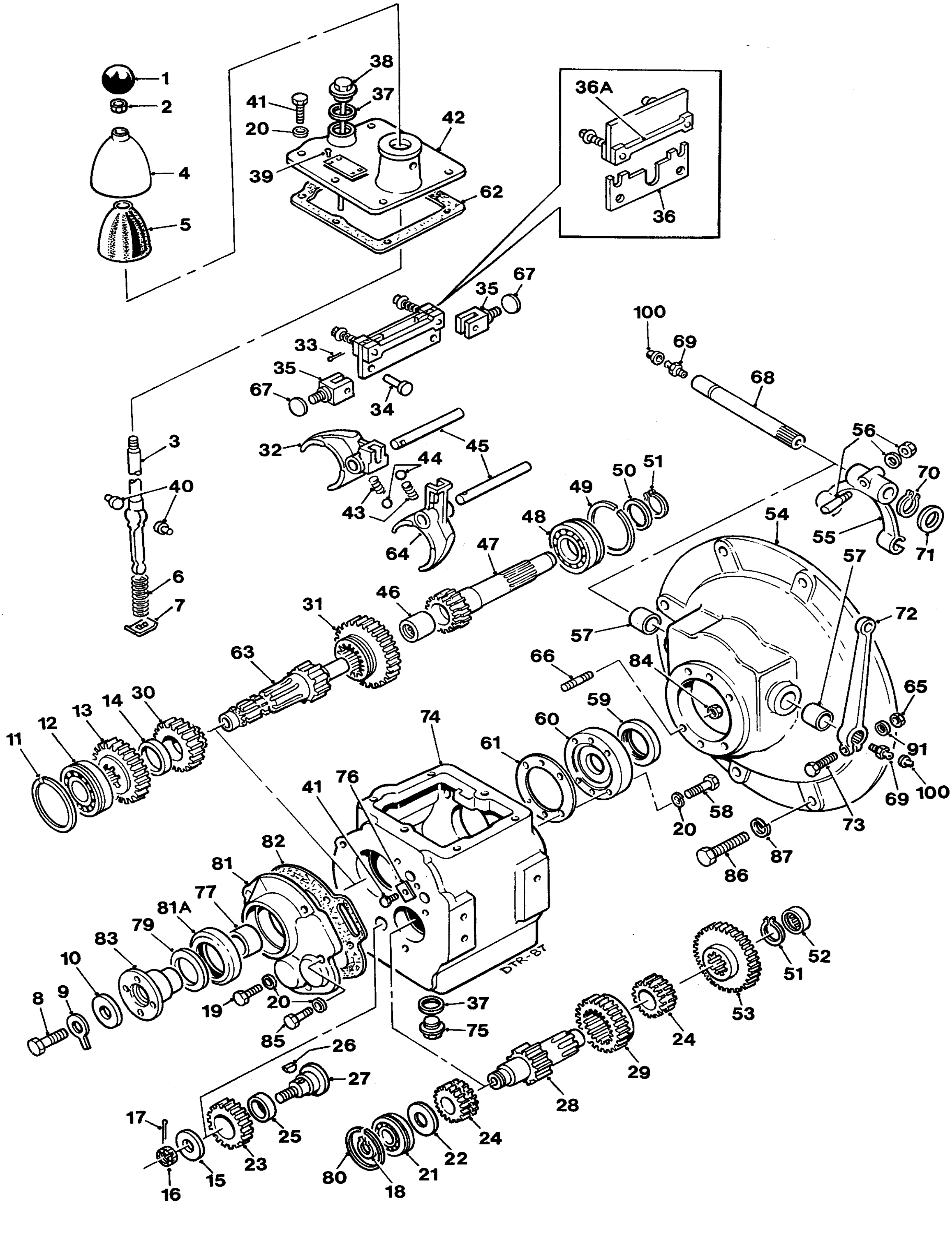
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Item	Part no	Serial no	Description	Qty
40	30101A0234		PAD, gear lever	2
41	28S01C		BOLT	7
42	30101A0235		COVER, top	1
43	30097A0185		SPRING, detent	2
44	30097A0199		BALL, detent	2
45	30101A0237		SHAFT, selector	2
46	30101A0238		BEARING, needle *(part of item 47)*	1
47	30101A0239		SHAFT, primary, assy. *(with item46)*	1
48	88S16F		BEARING, input	1
49	30101A0241		RING, snap	1
50	30101A0242		SPACER, bearing	1
51	30101A0243		CIRCLIP	2
52	30101A0279		BEARING (Metric), layshaft	1
53	30101A0245		GEAR, 1st reduction	1
54	30101A0246		HOUSING, clutch	1
55	30097A0110		FORK, clutch release	1
56	30097A0111		COTTER, NUT & WASHER	1
57	30097A0114		BUSH, cross shaft	2
58	6S01A		BOLT	4
59	30101A0247		SEAL, *(part of item 60)*	1
60	30101A0248		COVER, front assy. *(with item 59)*	1
61	30101A0249		GASKET, front cover	1
62	30101A0250		GASKET, top cover	1
63	30101A0251		OUTPUT SHAFT	1
64	30101A0252		FORK, selector, 1st & reverse	1
65	9S01		NUT	1
66	30101A0253		STUD	6
67	30101A0254		PLUG	3
68	30101A0255		SHAFT, clutch cross	1
69	131S06		NIPPLE, grease	2
70	30101A0256		CIRCLIP	1
71	30097A0133		WASHER, cross shaft	1
72	30097A0109		LEVER, clutch release	1
73	6S01C		BOLT	1
74	30101A0281		CASE, gearbox	1
75	30097A0163		PLUG, drain	1
76	30101A0259		STRIP, selector locking	1
77	30101A0260		SPACER	1
79	30101A0265		SHIELD, dust	1

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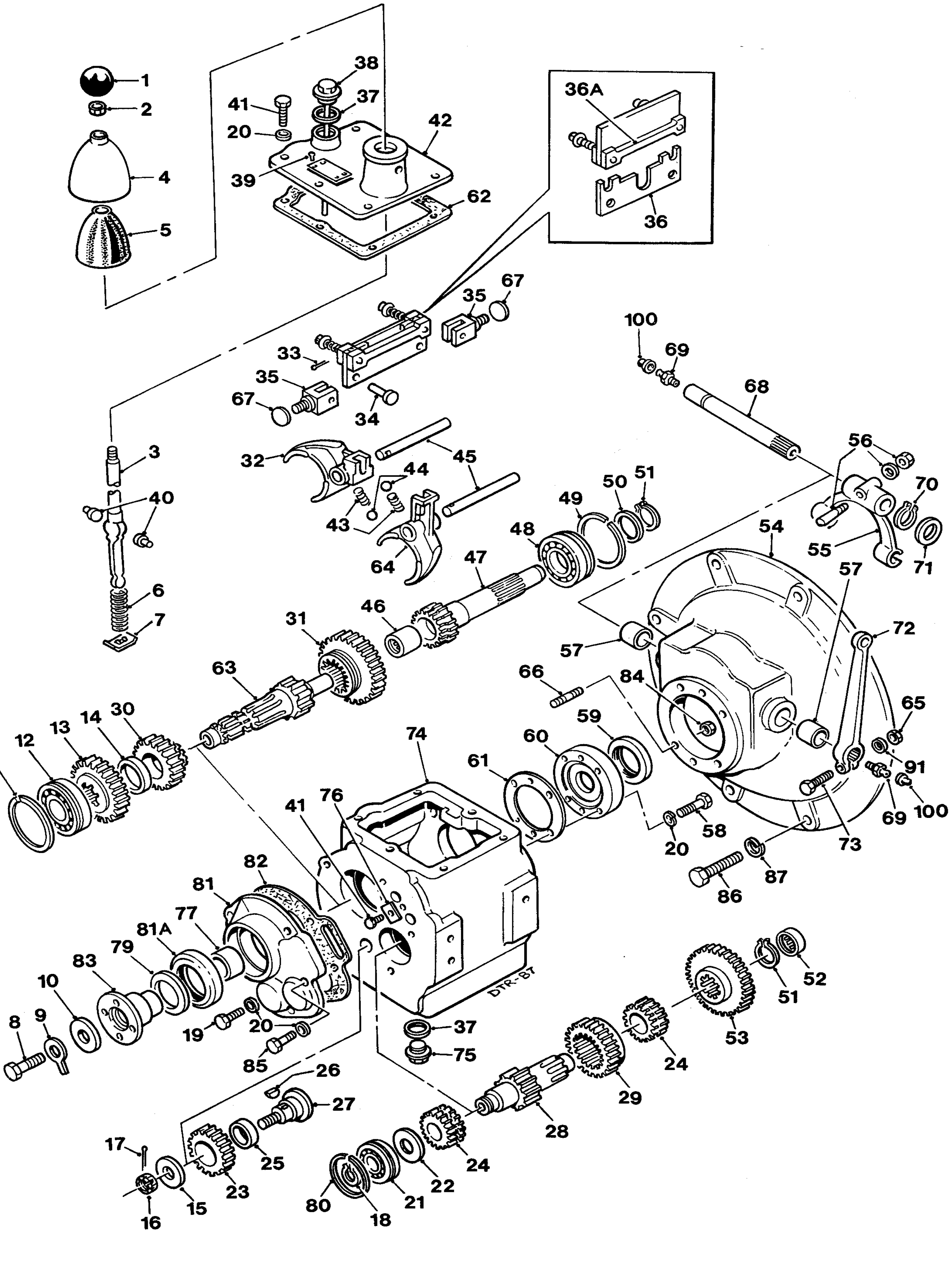
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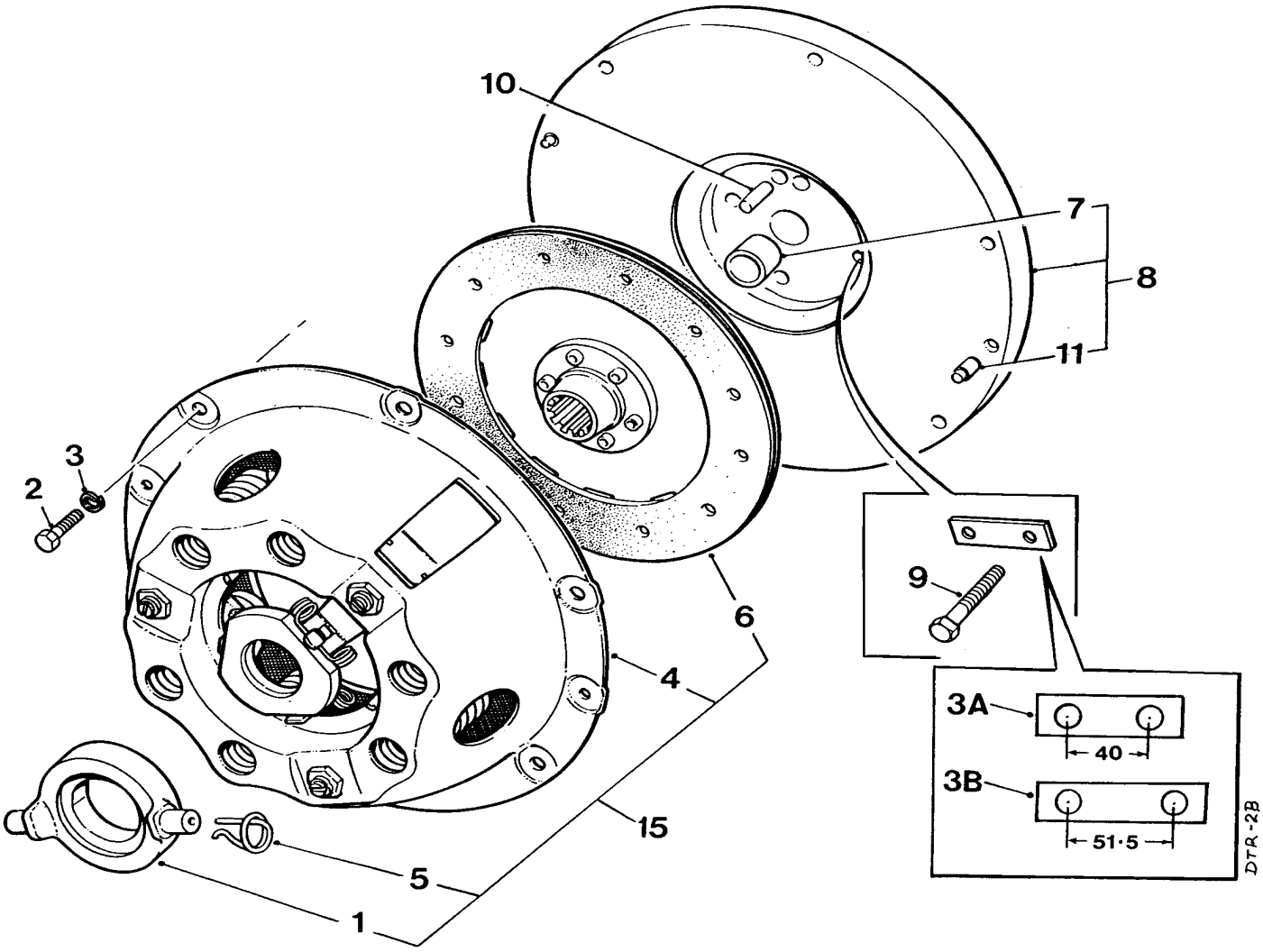
Item	Part no	Serial no	Description	Qty
80	30101A0261		RING, snap	1
81	30101A0262		COVER, output, assembly	1
81A	89S02		SEAL, oil	1
82	30101A0263		GASKET, output cover	1
83	30218A0203		COUPLING	1
84	107S03		NUT	6
85	6S01B		BOLT	2
86	11S04C		SCREW, set, gearbox to engine, Metric	8
87	17S05		WASHER, spring, Metric	8
91	67S01		WASHER, shake proof	1
100	176S01		CAP, grease nipple	2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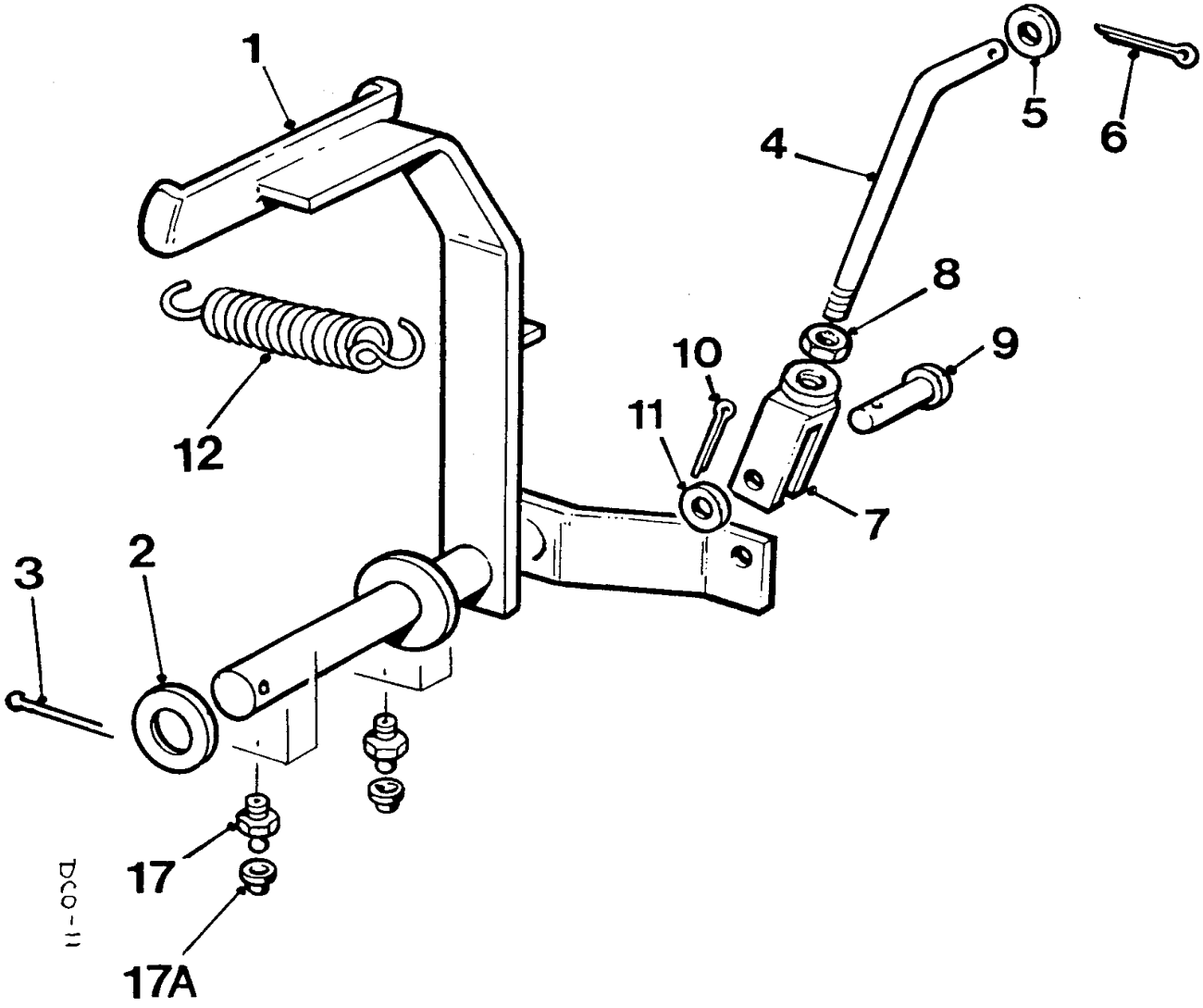
Item	Part no	Serial no	Description	Qty
1	10579A01		BEARING, release	1
2	28S02D		SCREW	6
3	41S04		WASHER, spring	6
3A	10531A02		WASHER, locking, 60mm long,	1
3B	10531A03		WASHER, locking, 70mm long,	1
4	10597A01		COVER	1
5	10579A0101		SPRING, retaining, release bearing	2
6	10598A02		PLATE, drive, 8"	1
7	10580A0101		BUSH	1
8	10580A02		FLYWHEEL, 8"	1
9	8S03B		BOLT	4
10	C321		DOWEL	1
11	10580A0102		DOWEL	2
15	10948A02		KIT, Clutch repair *Consists of items 1,4,5 & 6*	1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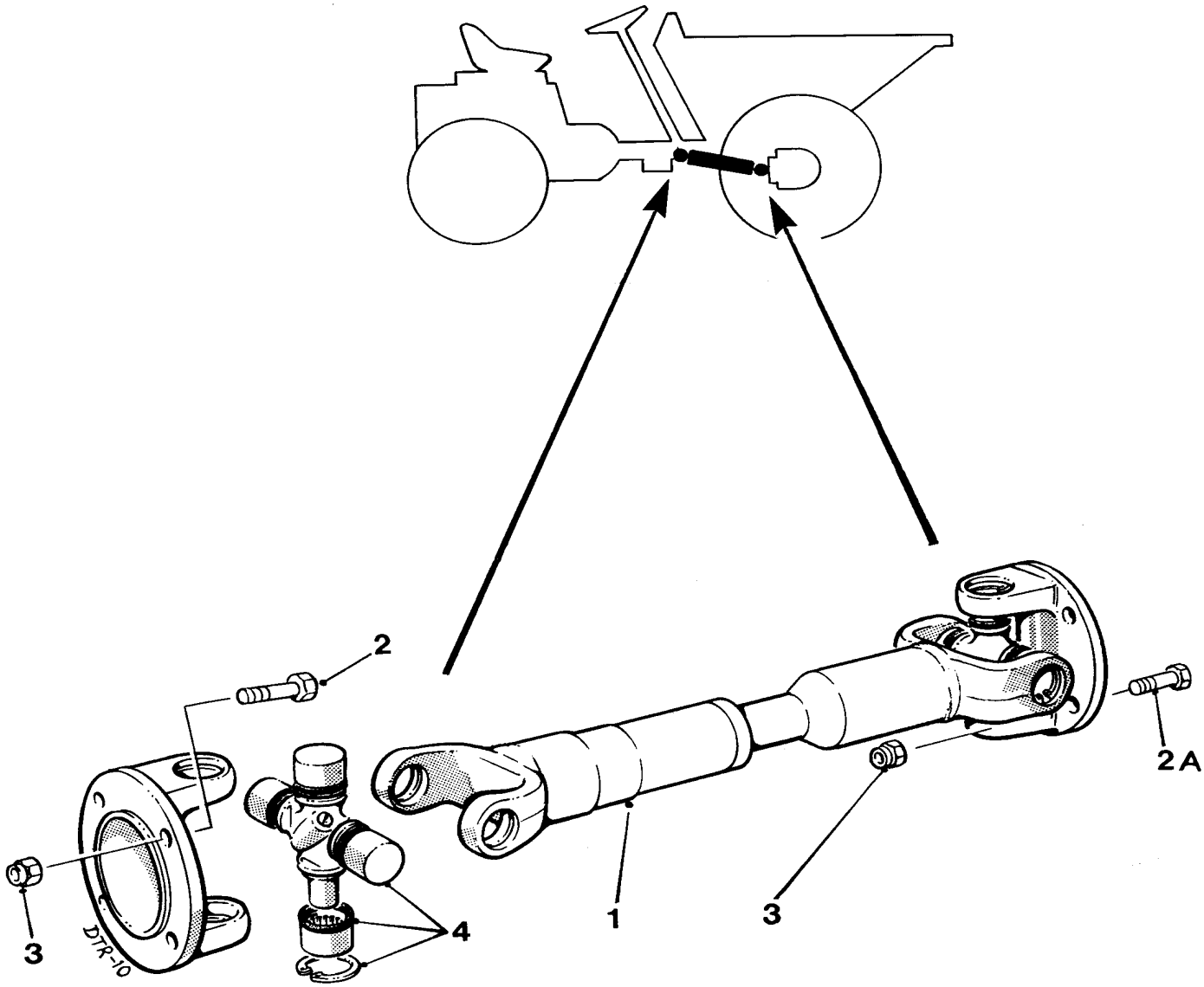
Item	Part no	Serial no	Description	Qty
1	20096A07		PEDAL, clutch	1
2	10S08		WASHER, flat	1
3	44S05E		PIN, split	1
4	10481A05		ROD, clutch	1
5	10S03		WASHER, flat	1
6	44S03C		PIN, split	1
7	C174J		CLEVIS	1
8	95S03		NUT	1
9	10650A18		PIN, clevis	1
10	44S02C		PIN, split	1
11	10S03		WASHER, flat	1
12	C173B		SPRING, return	1
17	131S01		NIPPLE, grease	2
17A	176S01		CAP, grease nipple	2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Item	Part no	Serial no	Description	Qty
1	20088A04		PROPELLER SHAFT	1
-	176S01		CAP, grease nipple *(not illustrated)*	3
2	6S03C		BOLT, gearbox end, 1 1/2“ long	4
2A	6S03A		BOLT, axle end, 1 1/8“ long	4
3	107S14		NUT, self-locking “Nyloc” full	8
4	10568A01		KIT, U/J, repair	AR

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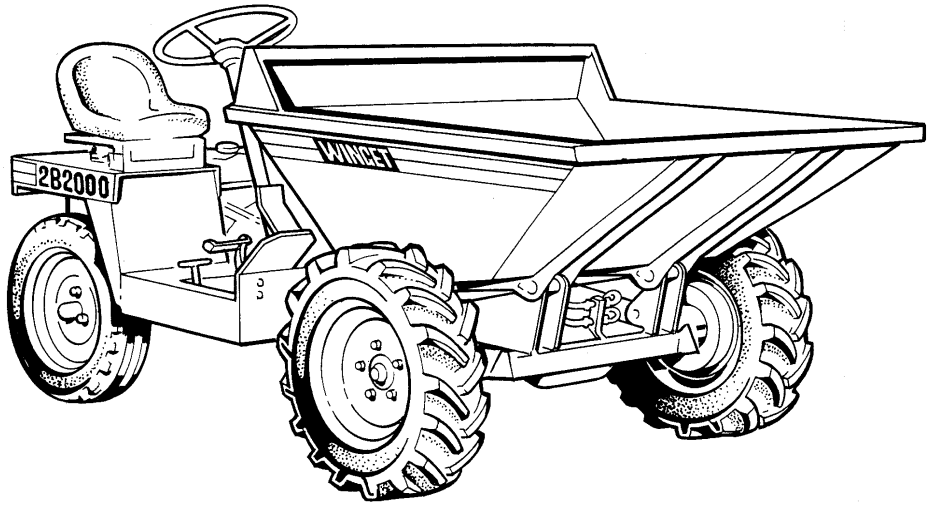
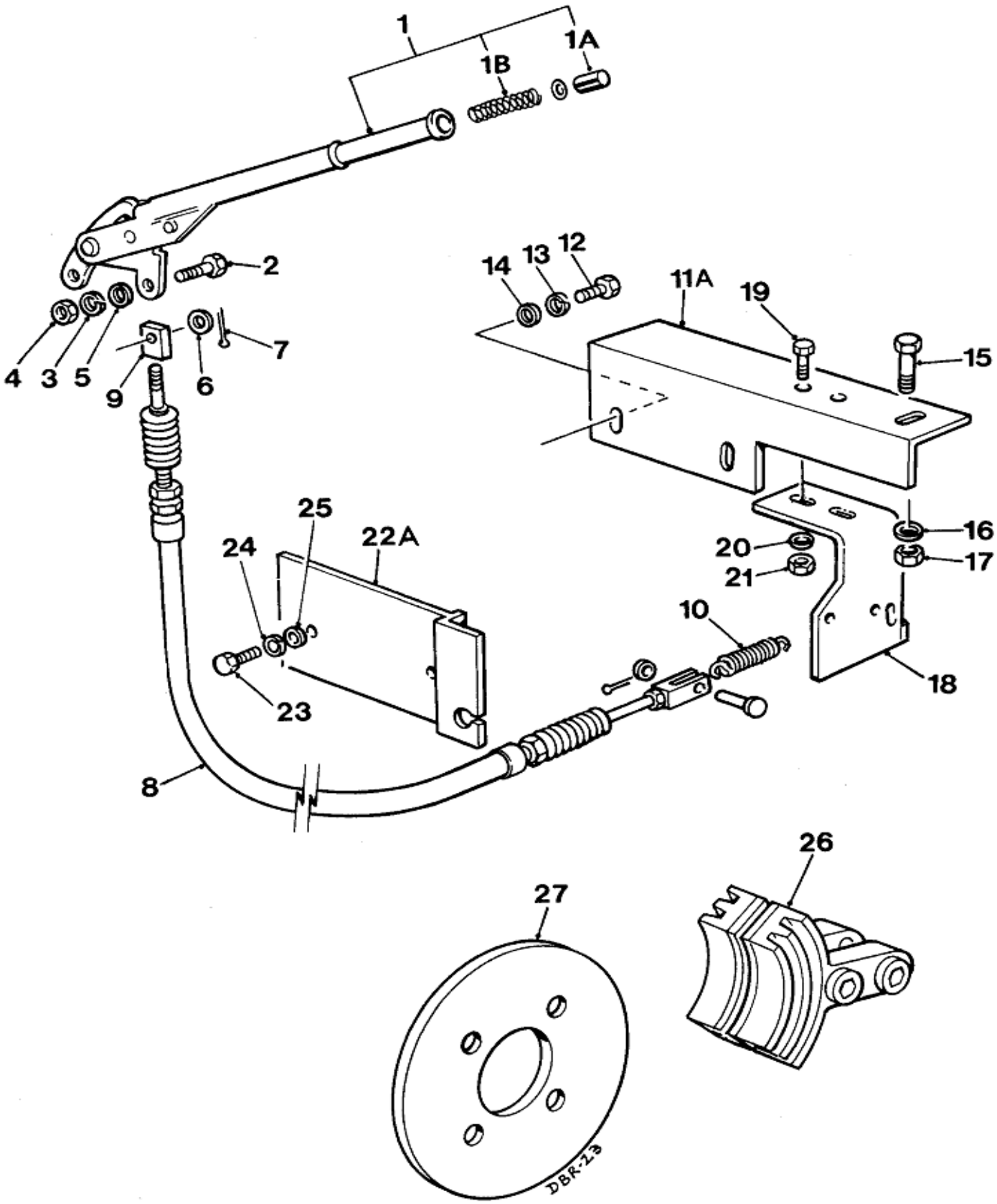
DUMPERS



Brakes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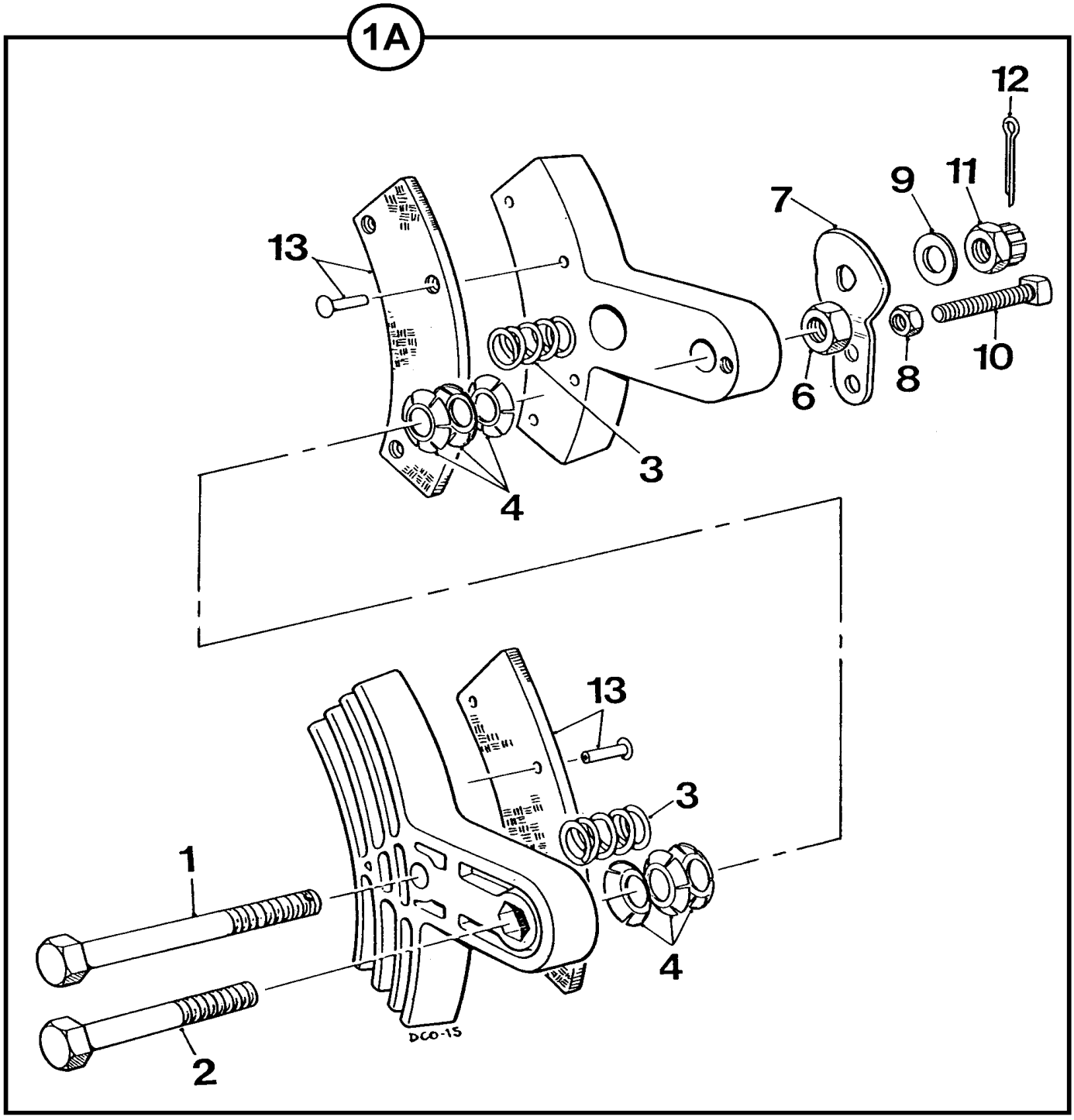
HANDBRAKE, CALIPER & DISC

Item	Part no	Serial no	Description	Qty
1	20208A01		LEVER, handbrake assembly	1
1A	20208A0101		BUTTON, handbrake	1
1B	20208A0102		SPRING, handbrake	1
2	11S04C		SCREW	2
3	17S05		WASHER, spring	2
4	7S04		NUT	2
5	267S06		WASHER, flat	2
6	10S03		WASHER, flat	1
7	44S02B		PIN, split	1
8	20273A02		CABLE, handbrake	1
9	L309		BLOCK	1
10	C173D		SPRING, return	1
11A	20282A11		BRACKET, gearbox mounting	1
12	28S03D		SCREW, set	2
13	41S05		WASHER, spring	4
14	10S03		WASHER, flat	2
15	8S05D		BOLT	1
16	267S07		WASHER, flat	1
17	59S04		NUT, nylon insert	1
18	20282A07		BRACKET, caliper mounting	1
19	11S03C		SCREW, set	2
20	267S05		WASHER, flat	2
21	59S12		NUT, nylon insert	2
22A	20282A08		BRACKET	1
23	28S03D		SCREW, set	2
24	41S05		WASHER, spring	2
25	10S03		WASHER, flat	2
26	10578A01		CALIPER, disc brake	1
27	10385A02		DISC, handbrake	1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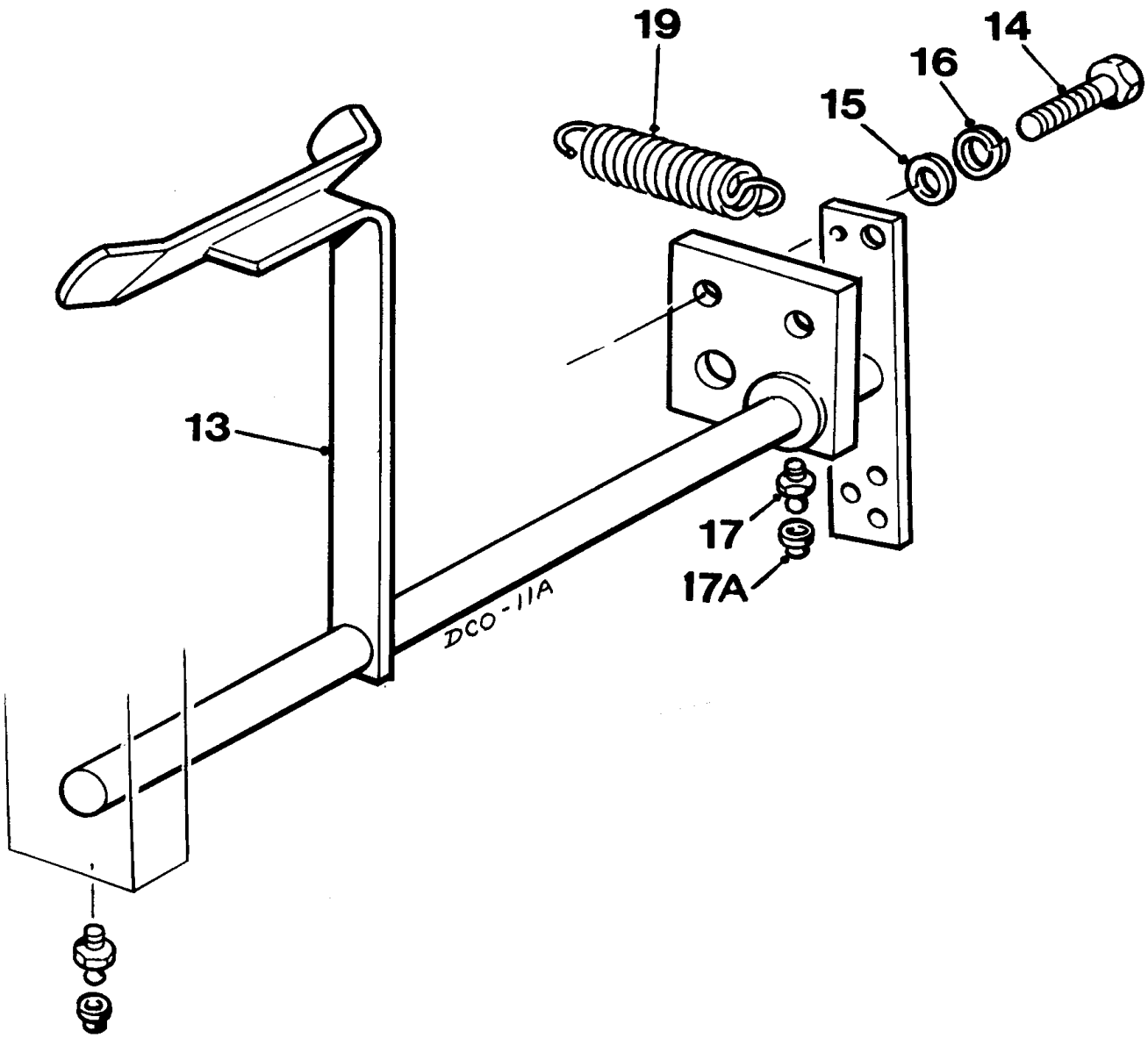
Item	Part no	Serial no	Description	Qty
		ALLOY CALIPERS		
1A	10578A01		CALIPER, one pair, assembly	1
1	11116		SCREW, with hole for pin, item 12	1
2	28S02P		SCREW	1
3	10578A0101		SPRING, centring	4
4			TENSION WASHER (obsolete) ***use item 3 above***	
6	9S02		NUT	1
7	10578A0104		CAM	1
8	230S01		NUT, locking	1
9	10578A0105		WASHER	1
10	66S01H		SCREW, set	1
11	227S02		NUT, castle	1
12	44S01C		PIN, cotter	1
13	1072A4		PAD c/w rivets	2
		STEEL CALIPERS		
1A	10578A01		CALIPER, one pair, assembly	1
1	8S03M		BOLT	1
2	8S03J		BOLT	1
3	10578A0101		SPRING, centring	4
6	59S12		NUT, nyloc	1
7	10578A0104		CAM	1
8	7S02		NUT	1
9	10578A0105		WASHER	1
10	11S02H		SCREW, set	1
11	59S12		NUT, nyloc	1
13	1072A4		PAD c/w rivets	2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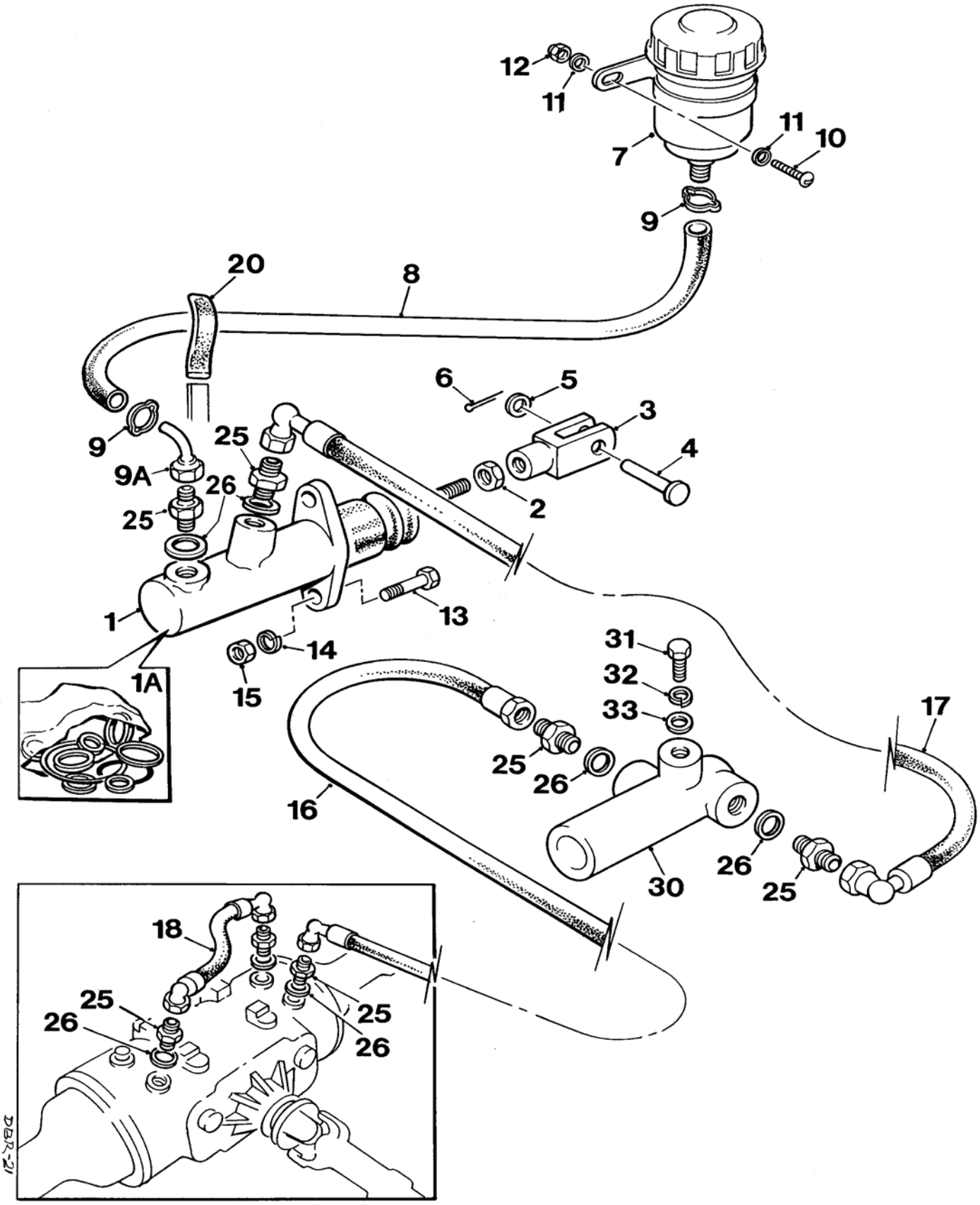
Item	Part no	Serial no	Description	Qty
13	20232A04		PEDAL, brake	1
14	8S04C		BOLT	2
15	267S06		WASHER, flat	2
16	17S05		WASHER, spring	2
17	131S01		NIPPLE, grease,	2
17A	176S01		CAP, grease nipple	2
19	C173B		SPRING	1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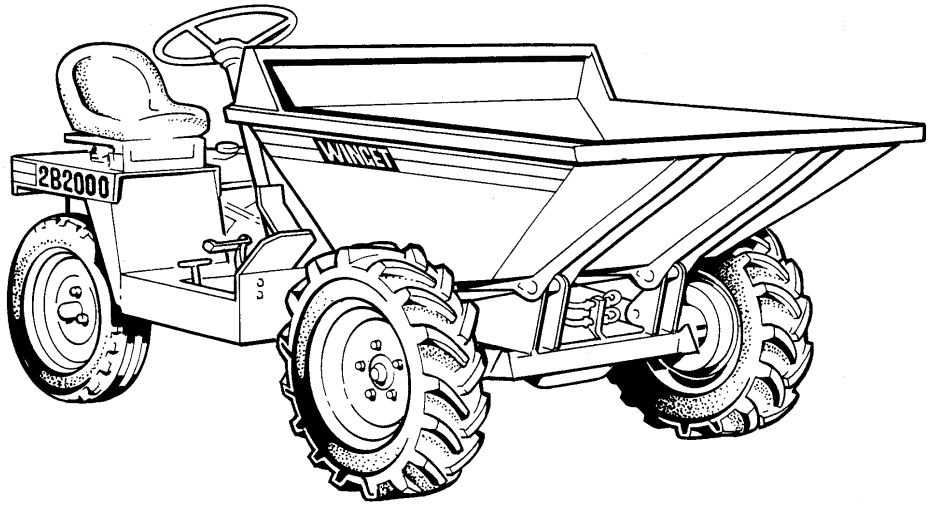
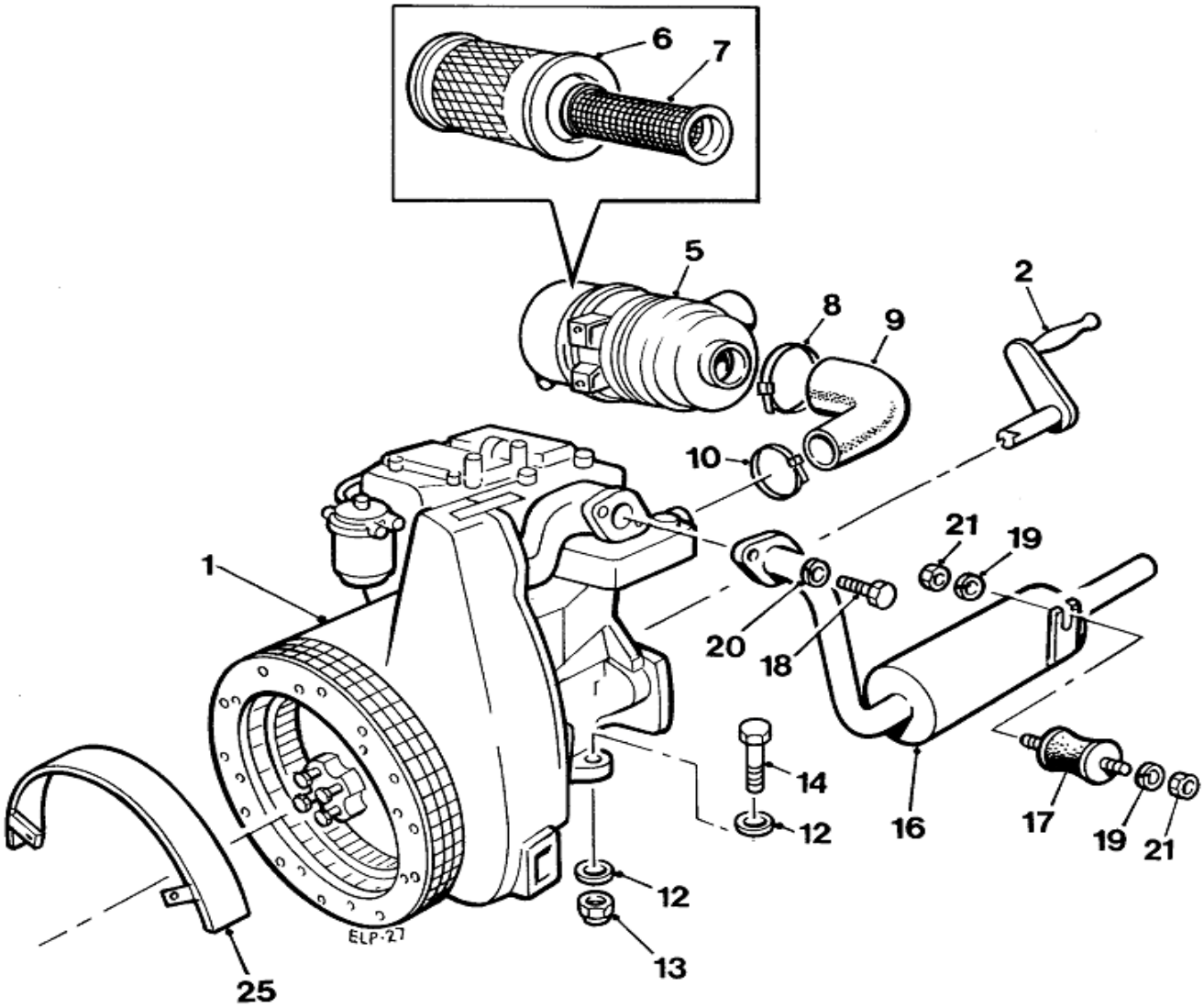
Item	Part no	Serial no	Description	Qty
1	V2004651		MASTER CYL. M10 rod, **GIRLING**	
1A	10570A01		REPAIR KIT, m/cyl. **GIRLING**	
2	7S04		NUT, 10mm	1
3	V2004648		CLEVIS, 10mm	1
4	10650A18		PIN, clevis	1
5	10S03		WASHER, flat	1
6	44S02C		PIN, split	1
7	V2003030		RESERVOIR c/w clip	1
8	V2002991		HOSE, (res. to m/cyl.) order by meter	
9	V2003029		CLIP, hose	2
9A	129S01A		PIPE, stub	1
10	82S03E		SCREW, set	2
11	10S73		WASHER, flat	4
12	85S01		NUT, self-locking “Nyloc”	
13	8S03B		BOLT	2
14	17S04		WASHER, spring	2
15	7S03		NUT	2
16	31S01Q		HOSE, (axle to regulator valve)	1
17	53S01W		HOSE, (master cyl. to regulator valve)	1
18	53S01W		HOSE, (axle bridge)	1
20	208143000		SLEEVE, P.V.C., black	3
25	V2003515		ADAPTOR	7
26	298S03		SEAL, bonded	7
30	V2004617		VALVE, pressure regulator	1
31	11S03C		SCREW,set	1
32	17S04		WASHER, spring	1
33	267S05		WASHER, flat	1

2B2000
DUMPERS



Engine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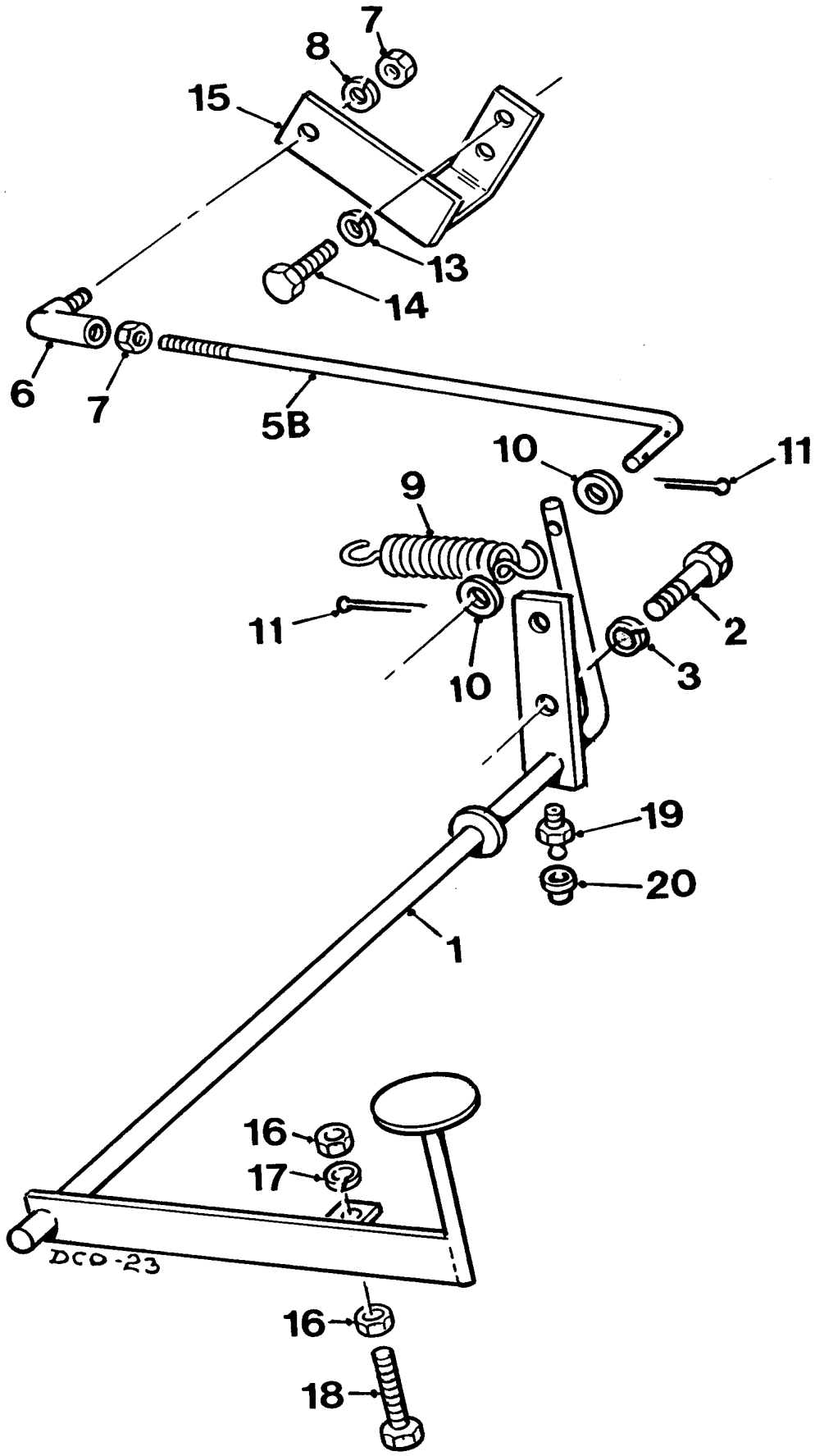
ELP-27

Item	Part no	Serial no	Description	Qty
1	V2000761		ENGINE, Lister-Petter TR2, hand start	1
1A	V2000762		ENGINE, Lister-Petter TR2, elect start	1
2	20354A03		HANDLE, engine starting	1
5	V2004182		AIR CLEANER, assembly	1
6	V2004185		ELEMENT, main	1
7	V2004186		ELEMENT, safety	1
8	97S17		CLIP, hose	1
9	V2004183		ELBOW, rubber	1
10	97S13		CLIP, hose	1
12	267S07		WASHER, flat	8
13	59S04		NUT, self-locking, “Nyloc”	4
14	8S05J		BOLT	4
16	30154A20		SILENCER	1
17	10371A01		MOUNTING, rubber	1
18	411411035		SCREW, set	2
19	17S04		WASHER, spring	2
20	17S05		WASHER, spring	2
21	7S03		NUT	2
25	10987A02		COVER, clutch housing	1

Following parts are not illustrated

26	555289000		BRACKET, hose retaining	1
27	V2003560		CLIP, hose "P"	1
28	11S04C		SCREW, set	1
29	267S06		WASHER, flat	2
30	17S05		WASHER, spring	1
31	7S04		NUT	1
32	66S04A		SCREW, set	1
33	41S06		WASHER, spring	1
34	267S07		WASHER, flat	1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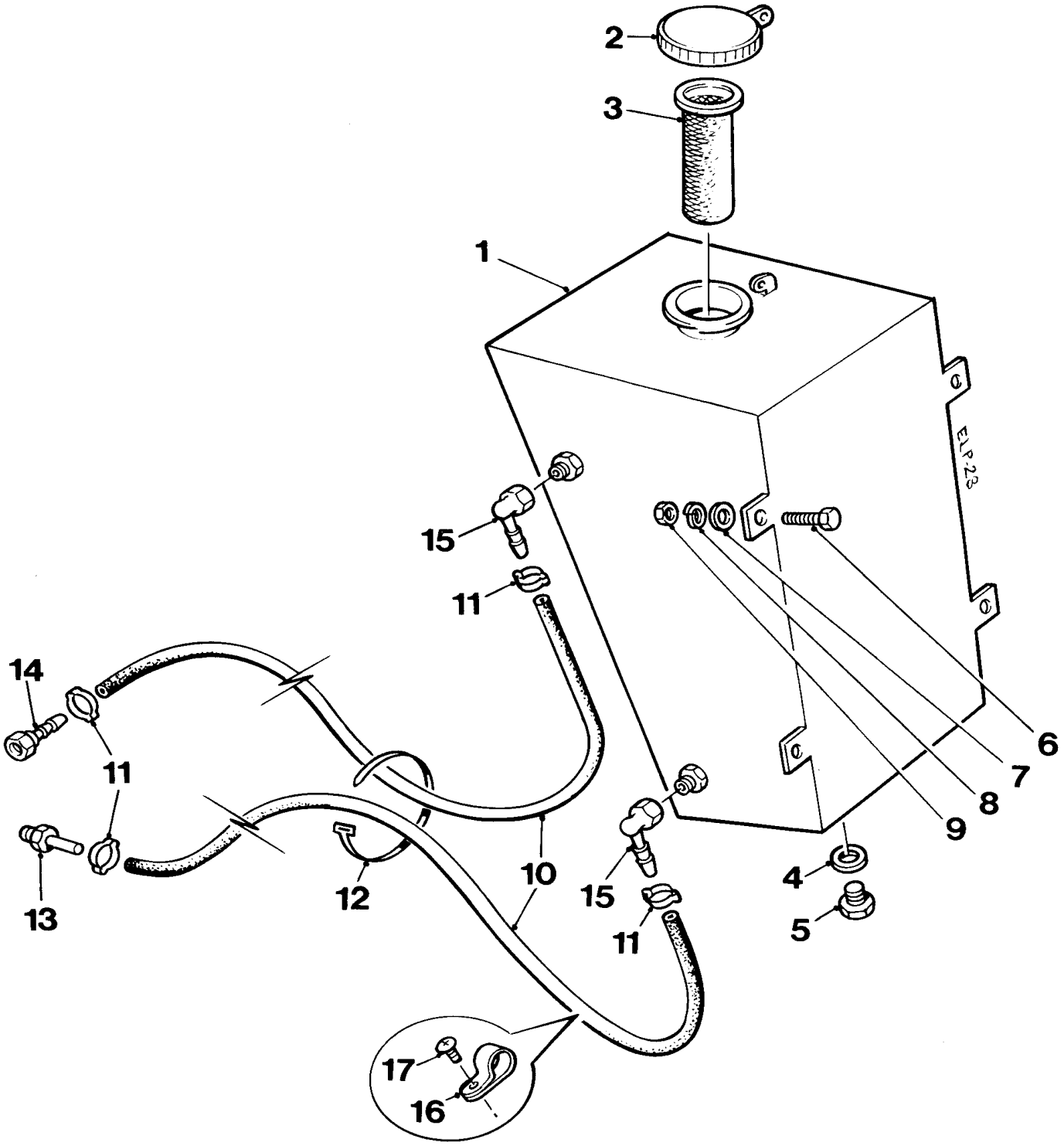
Item	Part no	Serial no	Description	Qty
1	20231A03		PEDAL, accelerator	1
2	8S04C		BOLT	2
3	17S05		WASHER	2
5B	10362A20		ROD	1
6	C160B		BALL END	1
7	2S02		NUT	2
8	41S03		WASHER, spring	1
9	C173D		SPRING, return	1
10	267S04		WASHER, flat	1
11	44S02C		PIN, split	2
13	17S03		WASHER, spring	2
14	11S02A		SCREW, set	2
15	11031A01		LEVER, pivot	1
16	7S03		NUT	2
17	17S04		WASHER, spring	1
18	11S03J		SCREW, set	1
19	131S01		NIPPLE, grease	2
20	176S01		CAP, grease nipple	2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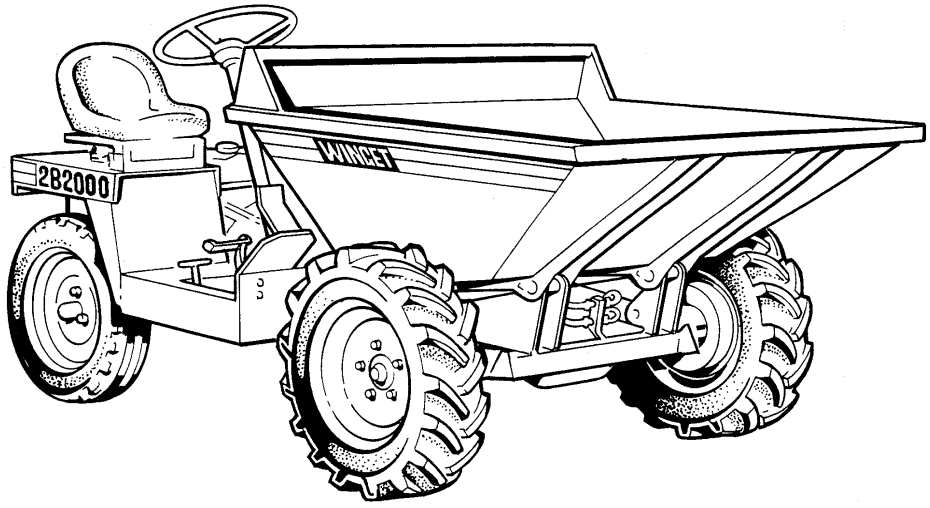
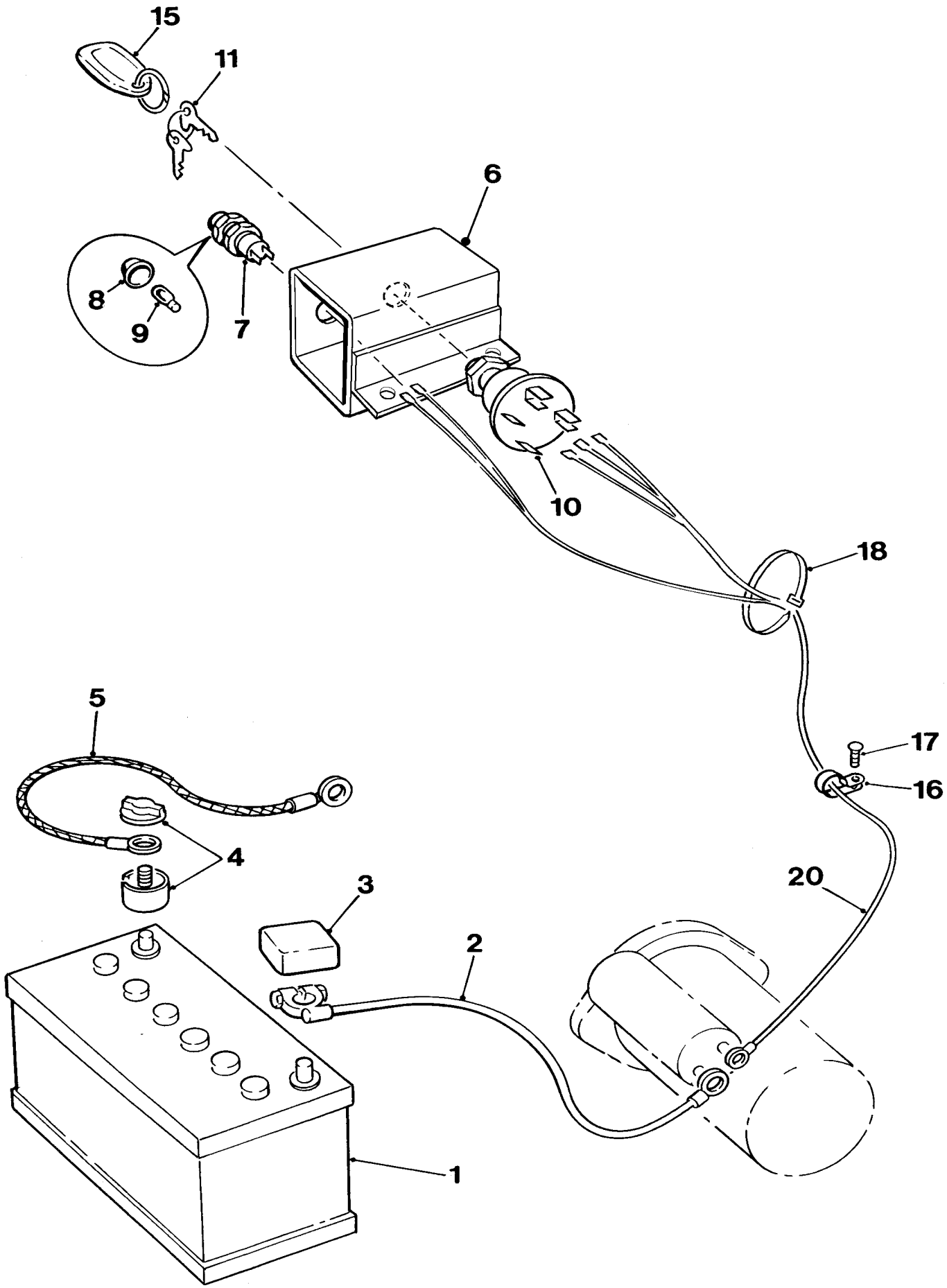
ELP 23

Item	Part no	Serial no	Description	Qty
1	40281A16		TANK, fuel	1
2	10378A03		CAP, fuel tank	1
3	10379A03		STRAINER	1
4	100S02		SEAL, bonded	1
5	127S02		PLUG, drain	1
6	11S04C		SCREW, set	4
7	267S06		WASHER, flat	4
8	17S05		WASHER, spring	4
9	7S04		NUT	4
10	2002991		PIPE, fuel	(order by metre) AR
11	V2003029		CLIP, “O”	4
12	V2003166		TIE, cable	4
13	V2003327		FITTING, male	1
14	110S01H		FITTING, female	1
15	135S01A		FITTING, elbow	2
16	143262000		CLIP, “O”	2
17	178SPS03B		SCREW	2

2B2000
DUMPERS



Electrics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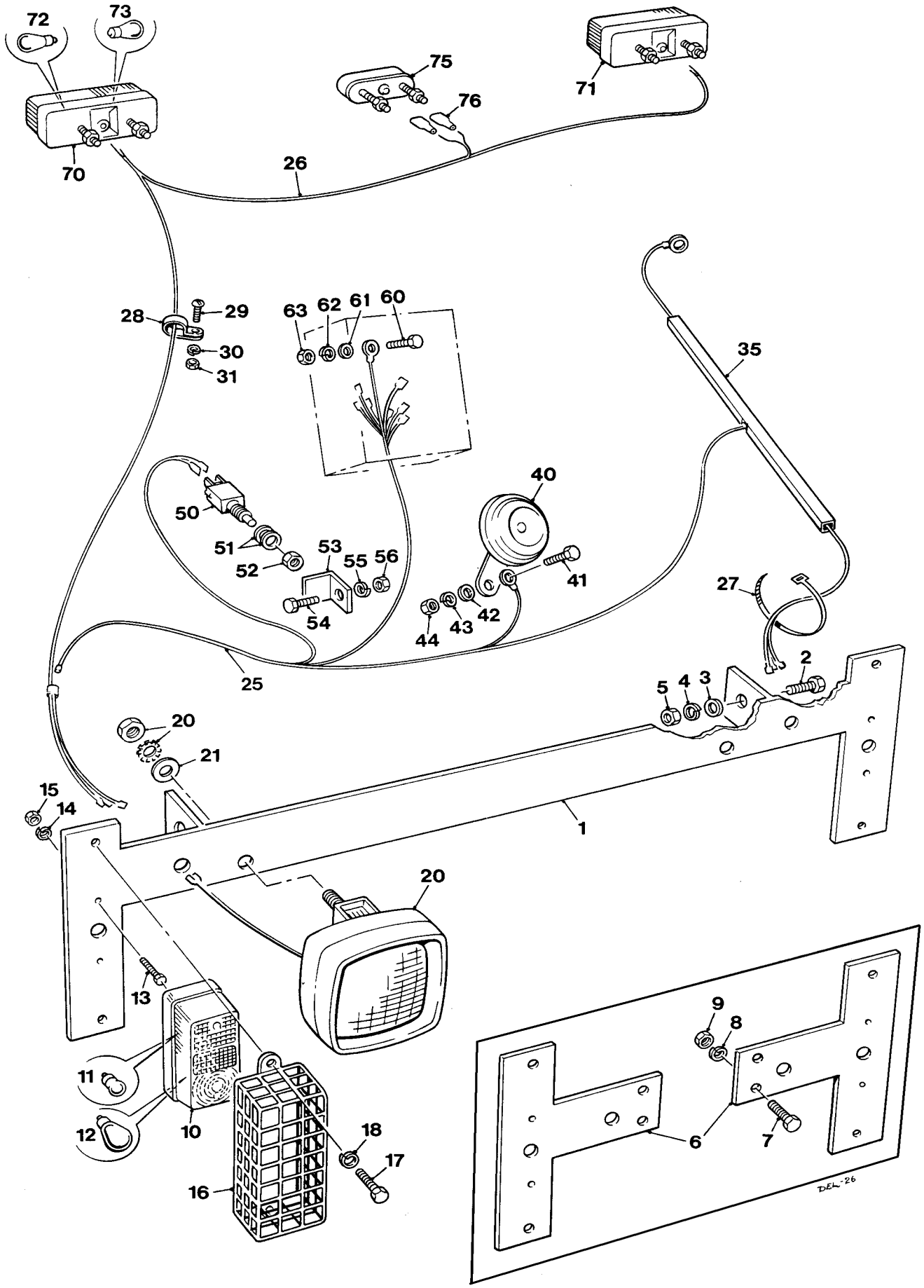
MAIN ELECTRICAL CIRCUIT

F - 1

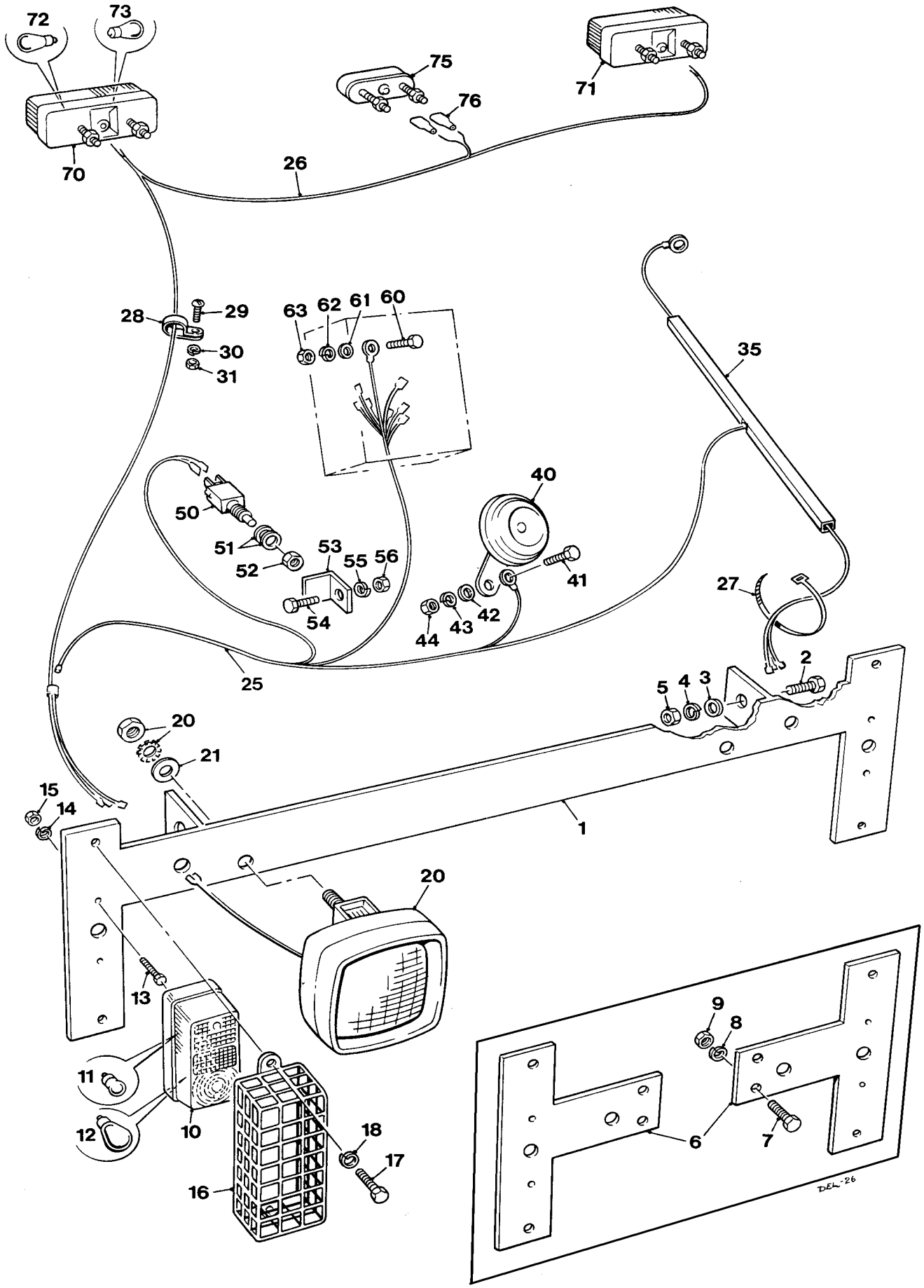
Item	Part no	Serial no	Description	Qty
1	109S08		BATTERY	1
2	10989A06		CABLE, positive	1
3	V2004204		INSULATOR, battery positive terminal	1
4	V2004214		ISOLATOR, battery negative terminal	1
5	V2003510		CABLE, earth	1
6	V2005168		PANEL, instruments	1
7	V602634		LIGHT, battery charging	1
8	V602635		LENS	1
9	V602636		BULB	1
10	V2004189		SWITCH, key start	1
11	V601179		KEY, start switch	1
15	V2003540		RING, key	1
16	143200900		CLIP, cable	2
17	178SPS04C		SCREW, self-tapping	2
18	V2003111		TIE, cable	3
20	30231A11		LOOM	1

2B2000 Dumper



Item	Part no	Serial no	Description	Qty
1	10973A03		BRACKET, front lights	1
2	11S05F		SCREW, set	2
3	267S07		WASHER, flat	2
4	17S06		WASHER, spring	2
5	7S05		NUT	2
10	V2003652		LIGHTS, R.H. front	1
—	V2003637		LIGHTS, L.H. front *(not illustrated)*	1
11	———		BULB, sidelight 12V 5W	1
12	———		BULB, indicator 12V 21W	1
13	11S01C		SCREW, set	4
14	17S02		WASHER, spring	4
15	7S01		NUT	4
16	V2003158		GUARD	2
17	11S03AA		SCREW, set	4
18	17S04		WASHER, spring	4
20	V2003638		LIGHT, head, c/w nut & locking washer	2
21	V2004220		WASHER, Special	2
25	20105A15		LOOM, front	1
26	20105A14		LOOM, rear	1
27	V2003111		TIE, cable, 200mm long	8
27	V2003253		TIE, cable, 390mm long	4
28	143200900		CLIP, nylon	8
29	16S05B		SCREW	8
30	17S10		WASHER, spring	8
31	7S09		NUT	8
35	V2004043		CONDUIT	AR
40	V2003144		HORN	1
41	11S03C		SCREW, set	1
42	267S05		WASHER, flat	1
43	17S04		WASHER, spring	1
44	7S03		NUT	1
50	V2003168		SWITCH, brake lights	1
51	267S07		WASHER, flat	AR
52	95S05		NUT	1

Continued >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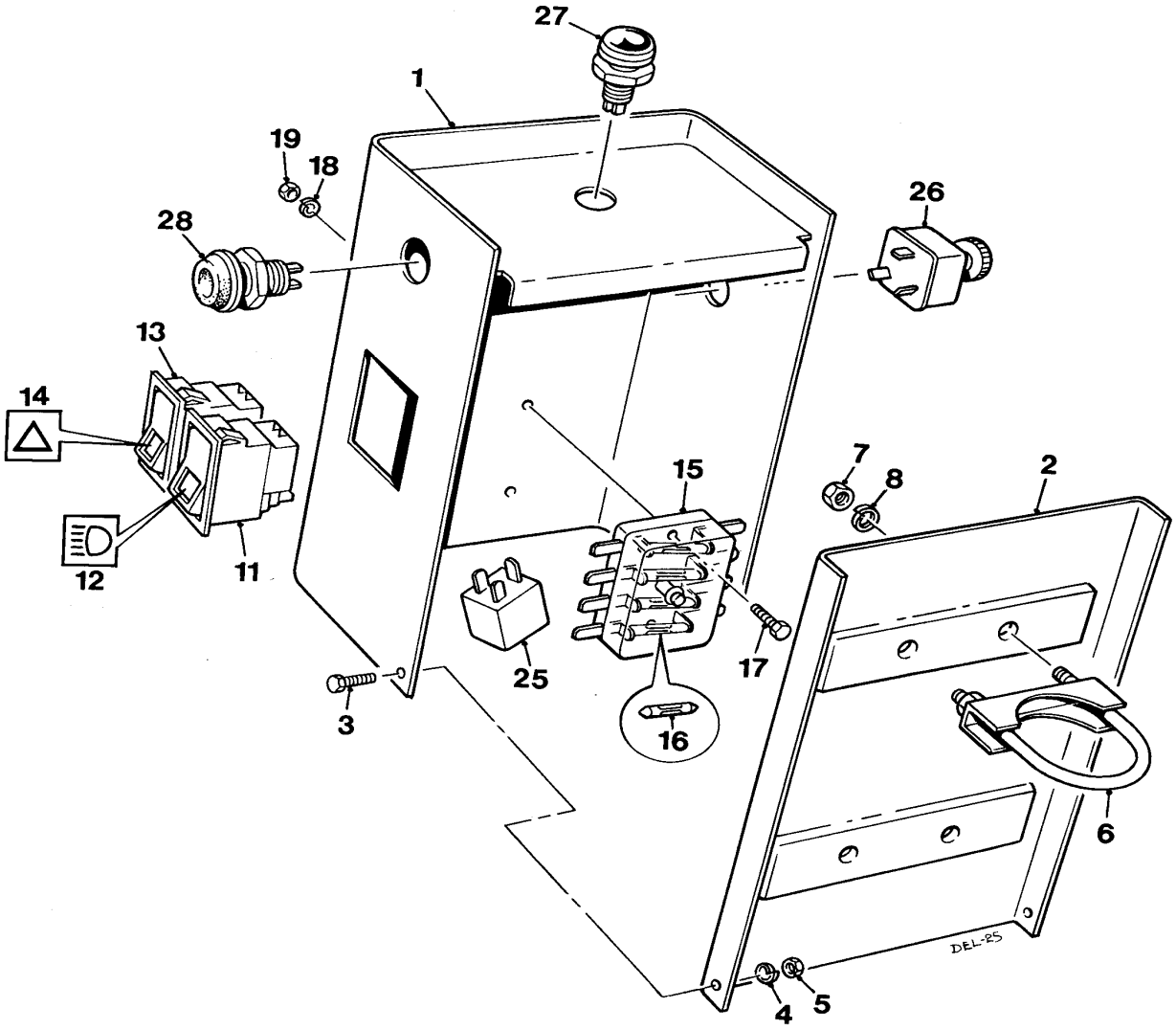
DEL-26

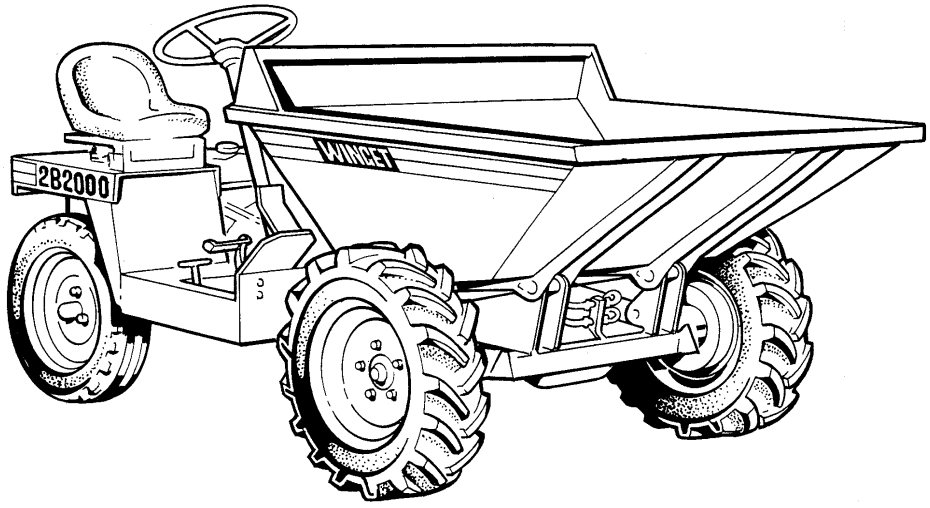
Item	Part no	Serial no	Description	Qty
53	————		BRACKET	1
54	11S03C		SCREW, set	1
55	17S04		WASHER, spring	1
56	7S03		NUT	1
60	11S03B		SCREW, set (for earth terminal)	1
61	267S05		WASHER, flat	1
62	17S04		WASHER, spring	1
63	7S03		NUT	1
70	V2003651		LIGHT, R.H. rear, assembly	1
71	V2003636		LIGHT, L.H. rear, assembly	1
72	————		BULB, indicator, 12V 21W	1
73	————		BULB, brake/rear light, 12V 21/5W	1
75	V2003639		LIGHT, number plate	1
76	191906000		CONNECTOR, 1/4“ female Lucar	2

2B2000 Dumper

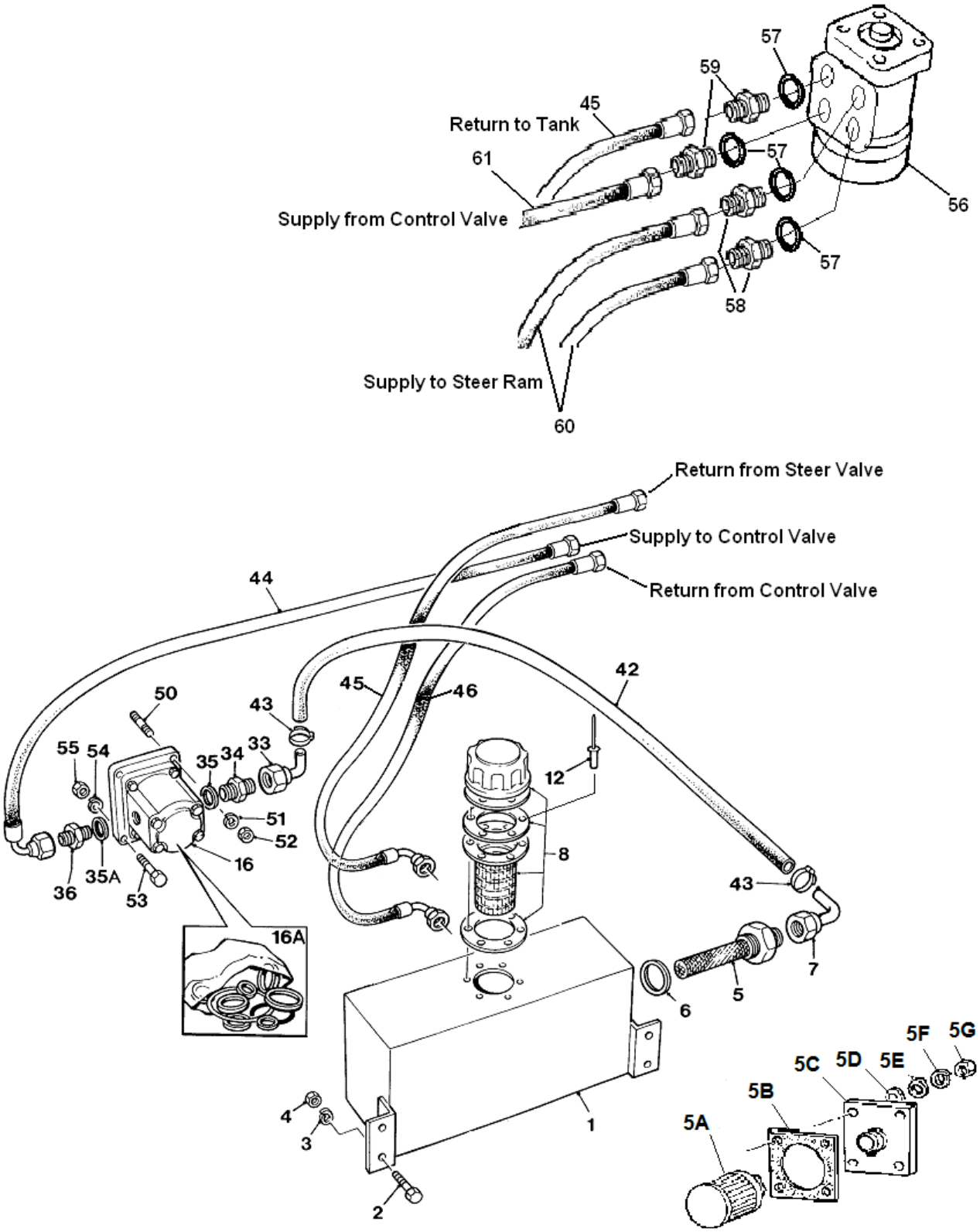


Item	Part no	Serial no	Description	Qty
1	30267A04		CONSOLE	1
2	20318A01		BACKPLATE, console	1
3	11S01AA		SCREW, set	2
4	17S02		WASHER, spring	2
5	7S01		NUT	2
6	153S05		CLAMP, (discard bracket) assembly	1
7	7S03		NUT	2
8	17S04		WASHER, spring	2
11	V2003644		SWITCH, lights	1
12	V2003646		INSERT, mainbeam	1
13	V2003641		SWITCH, hazard lights	1
14	V2003647		INSERT, hazard lights	1
15	V601177	/20151	FUSE BOX	
16	V601173		FUSE, blade, use with item 15A	AR
17	11S01A		SCREW, set	2
18	17S02		WASHER, spring	2
19	7S01		NUT	2
25	V2003640		UNIT, flasher	2
26	V2003642		SWITCH, indicators	1
27	V2000326		LIGHT, indicator warning	1
28	V2003570		BUTTON, horn	1

2B2000
DUMPERS



Hydraulics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Return to Tank
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Supply from Control Valve
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Supply to Steer Ram
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Return from Steer Valve
Supply to Control Valve
Return from Control Valve
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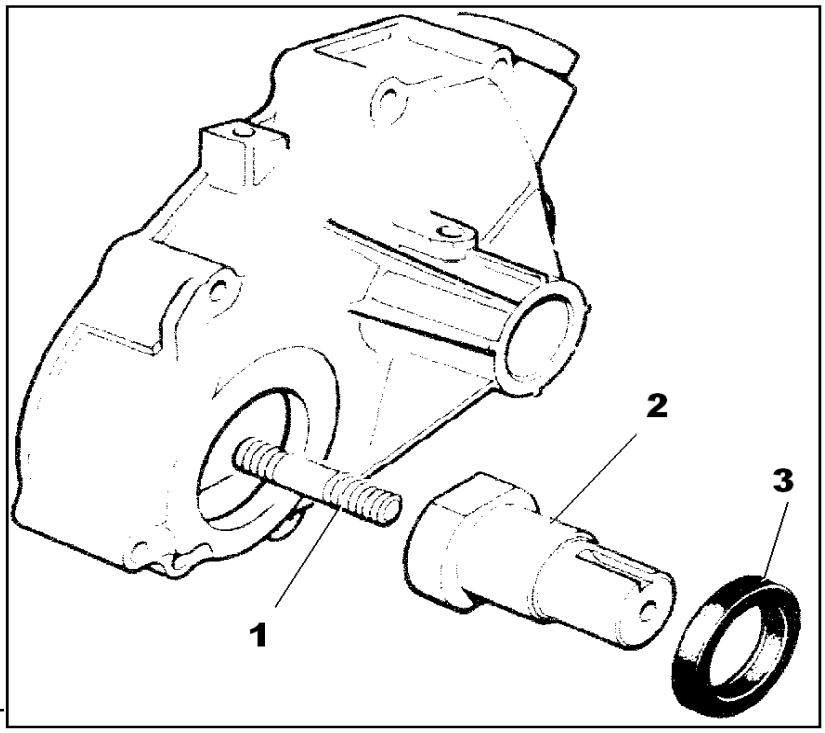
Item	Part no	Serial no		Description	Qty
1	30286A08			TANK, hydraulic	1
2	11S04C			SCREW	4
3	17S05			WASHER	4
4	7S04			NUT	4
5	901S02	/20163		FILTER, suction	1
5A	V2005355	20164/		FILTER, suction	1
5B	V2005356	20164/		GASKET, plate mounting	1
5C	V2006399	20164/		PLATE, filter mounting	1
5D	186S02	20164/		WASHER, nylon	4
5E	267S04	20164/		WASHER, flat	4
5F	17S03	20164/		WASHER, spring	4
5G	7S02	20164/		NUT	4
6	100S08	/20163		SEAL, bonded	1
7	129S05E			ELBOW	1
8	10565A01			CAP, filler, complete	1
12	101S07E			RIVET	2
16	10977A03			PUMP, Dowty/Ultra, Clockwise Rot	1
		Refer to Page H-1A for Direct Drive Hydraulic Pump			
16A	10190A01			KIT, pump repair, “Dowty & Ultra”	AR
33	129S05E			ELBOW	1
34	119S13			ADAPTOR, inlet "Dowty/Ultra" pump	1
35	100S04			SEAL, bonded, inlet "Dowty/Ultra"	1
35A	100S04			SEAL, bonded	1
36	119S08			ADAPTOR	1
42	37S01K			HOSE, 600mm long	1
43	V2003232			CLIP, hose	2
44	31S02S			HOSE, pump to control valve	1
45	31S02M			HOSE, tank return from steer valve	1
46	31S02AA			HOSE, tank return from control valve	1
50	—-		#	STUD	1
51	17S05			WASHER, spring	1
52	7S03			NUT	1
53	8S03C			BOLT	3
54	17S05			WASHER, spring	3
55	7S03			NUT	3
			#	***See TR Engine Parts Catalogue***	
56	—-			VALVE, steer, *see Page H7*	1
57	100S04			SEAL, bonded	4
58	119S04			ADAPTOR, m/m unequal	2
59	119S08			ADAPTOR, m/m unequal	2
60	321S01G			HOSE, steer valve to steer ram	2
61	31S02M			HOSE, control valve to steer valve	1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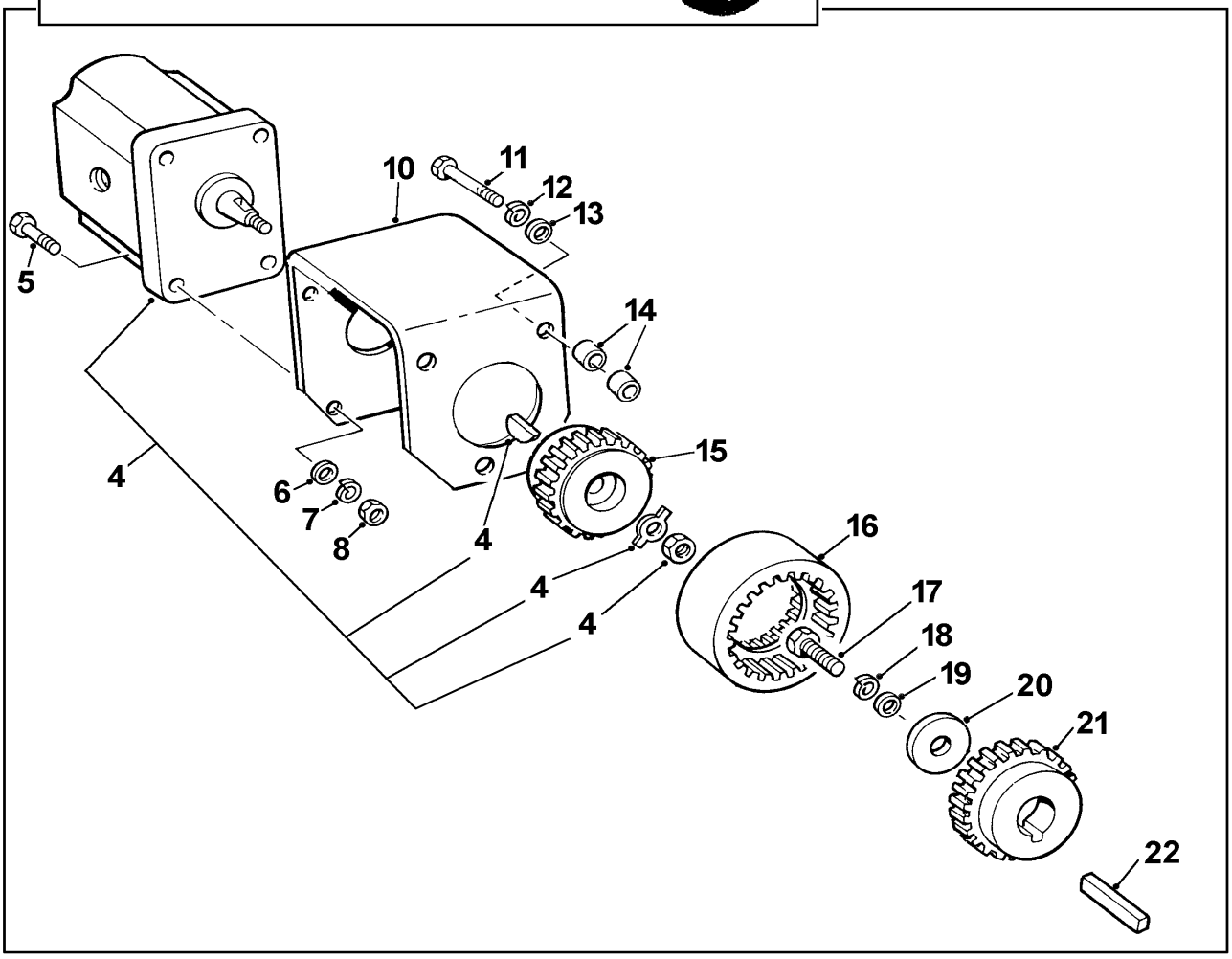
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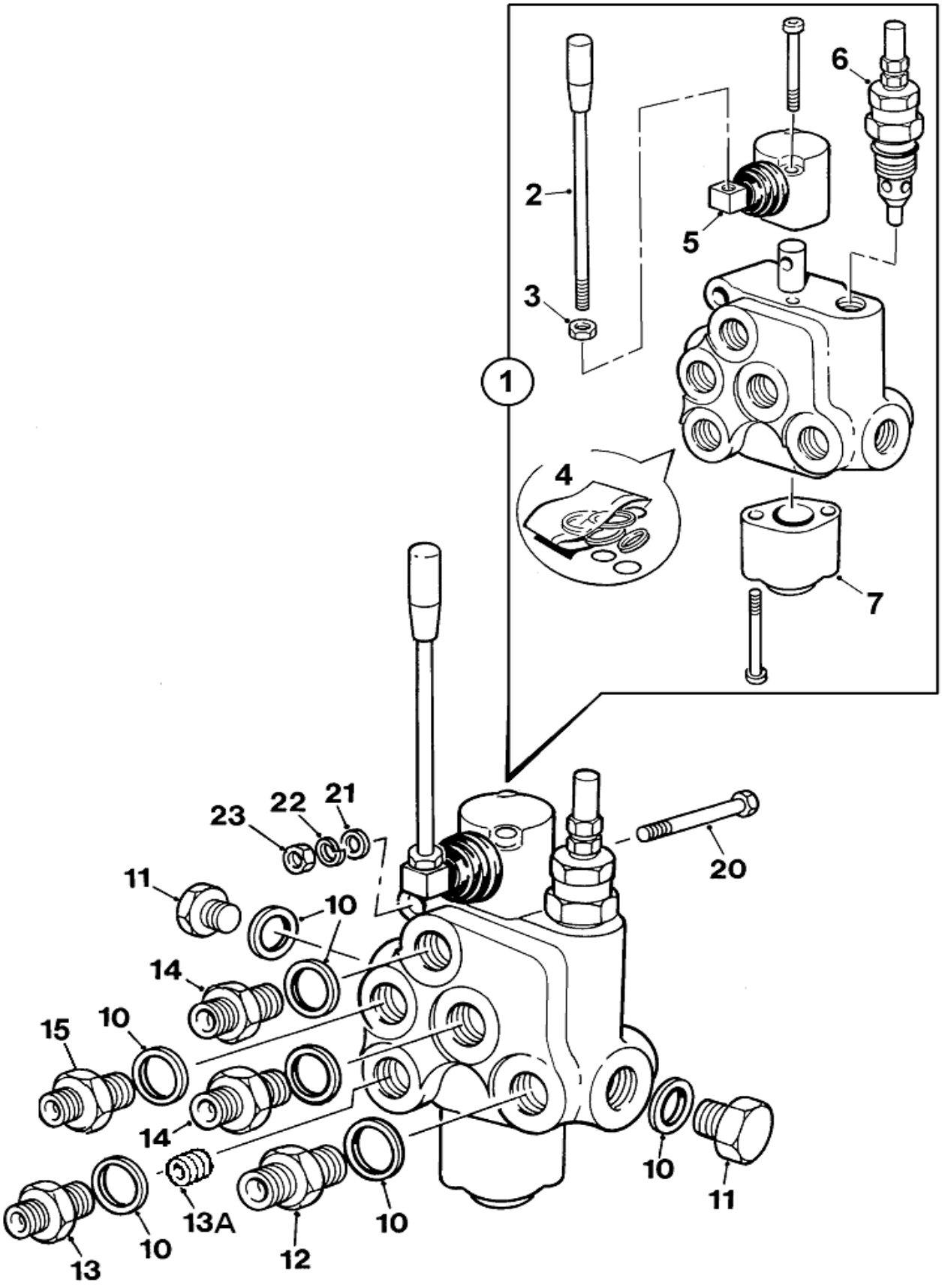
Item	Part no	Serial no	Description	Qty
1	V2006390		STUD	1
2	V2006381		EXTENSION SHAFT, pump drive	1
3	417732500		SEAL, oil	1
4	10977A06		PUMP, hydraulic, Anti-Clockwise Rot	1
		Refer to page H-1 for pump adaptors		
5	8S02C		BOLT	4
6	267S04		WASHER, flat	4
7	17S03		WASHER, spring	4
8	7S02		NUT	4
10	V2006385		BRACKET, pump mounting	1
11	8S03N		BOLT	3
12	17S04		WASHER, spring	3
13	267S05		WASHER, flat	3
14	51340800		SPACER	6
15	V2006383		COUPLING, driven half, pump	1
16	V603660		SLEEVE COUPLING, nylon	1
	V2006389		COUPLING, assembly	
		Consists of items 15, 16 & 21		
17	11S03B		SCREW, set	1
18	17S04		WASHER, spring	1
19	267S05		WASHER, flat	1
20	V2004220		WASHER SPECIAL, flat	1
21	V2006384		COUPLING, drive half, engine shaft	1
22	305110550		KEY, parallel, (cut to length)	1
		Following Parts are not illustrated		
23	V2006388		GUARD, coupling	1
24	11S03B		SCREW, set	1
25	17S04		WASHER, spring	1
26	267S05		WASHER, flat	1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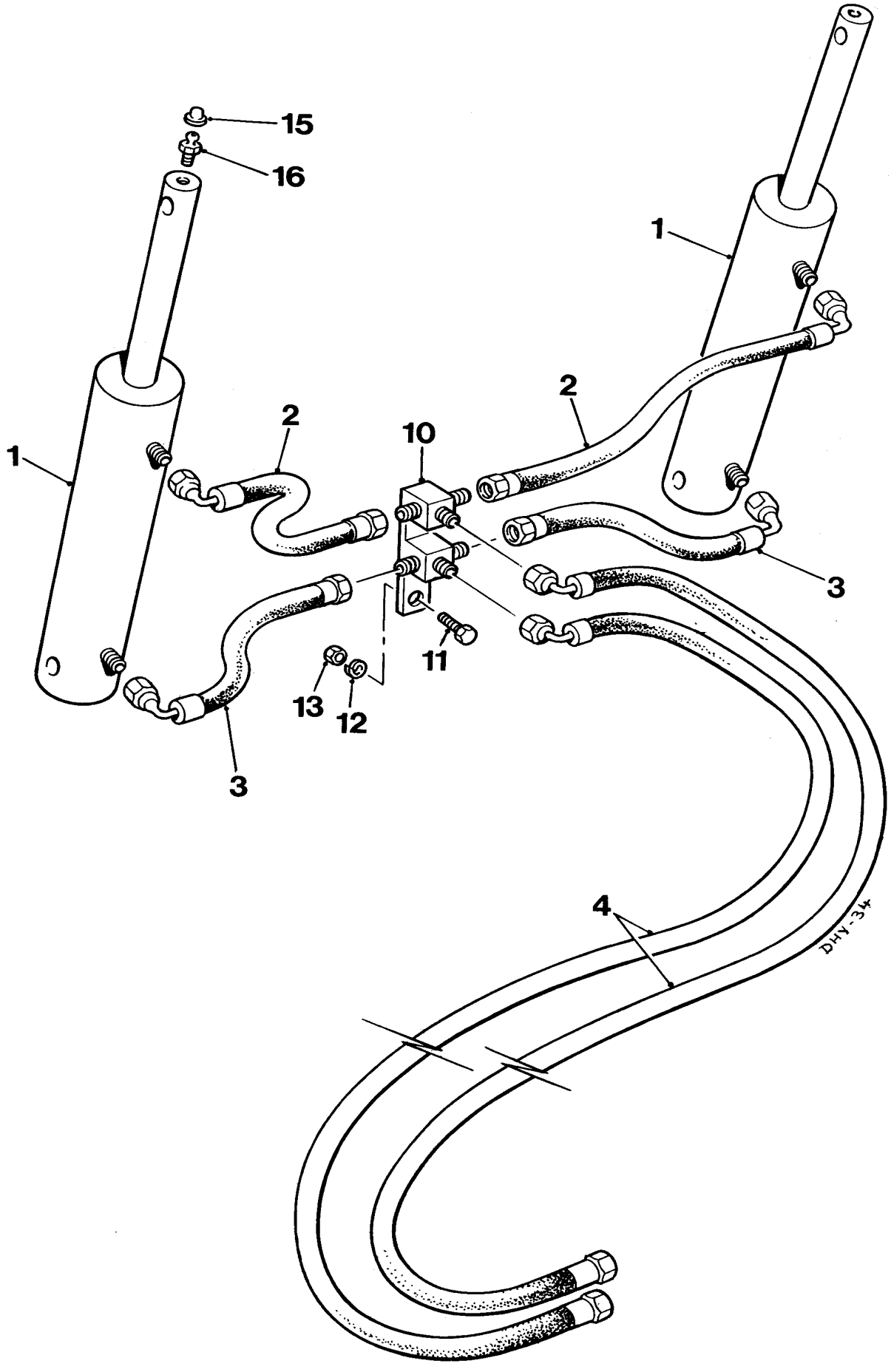
Item	Part no	Serial no	Description	Qty
1	V2004106		VALVE, control, assembly	
2	V602630		HANDLE	1
3	7S04		NUT	1
4	V602629		KIT, control valve repair	AR
5	V603565		END CAP, lever	1
6	V603605		VALVE, relief	1
7	V603606		END CAP, spring base	1
10	100S03		SEAL, bonded	7
11	127S03		PLUG, male	3
12	122S03		ADAPTOR, m/m, supply from pump	1
13	122S03		ADAPTOR, m/m, to steering valve	1
13A	V2004607		PLUG, H.P.C.O.	1
14	93S01		ADAPTOR, bulkhead, m/m, to tip rams	2
15	122S03		ADAPTOR, m/m, return to tank	1
20	8S03H		BOLT	2
21	267S05		WASHER, flat	2
22	17S04		WASHER, spring	2
23	7S03		NUT	2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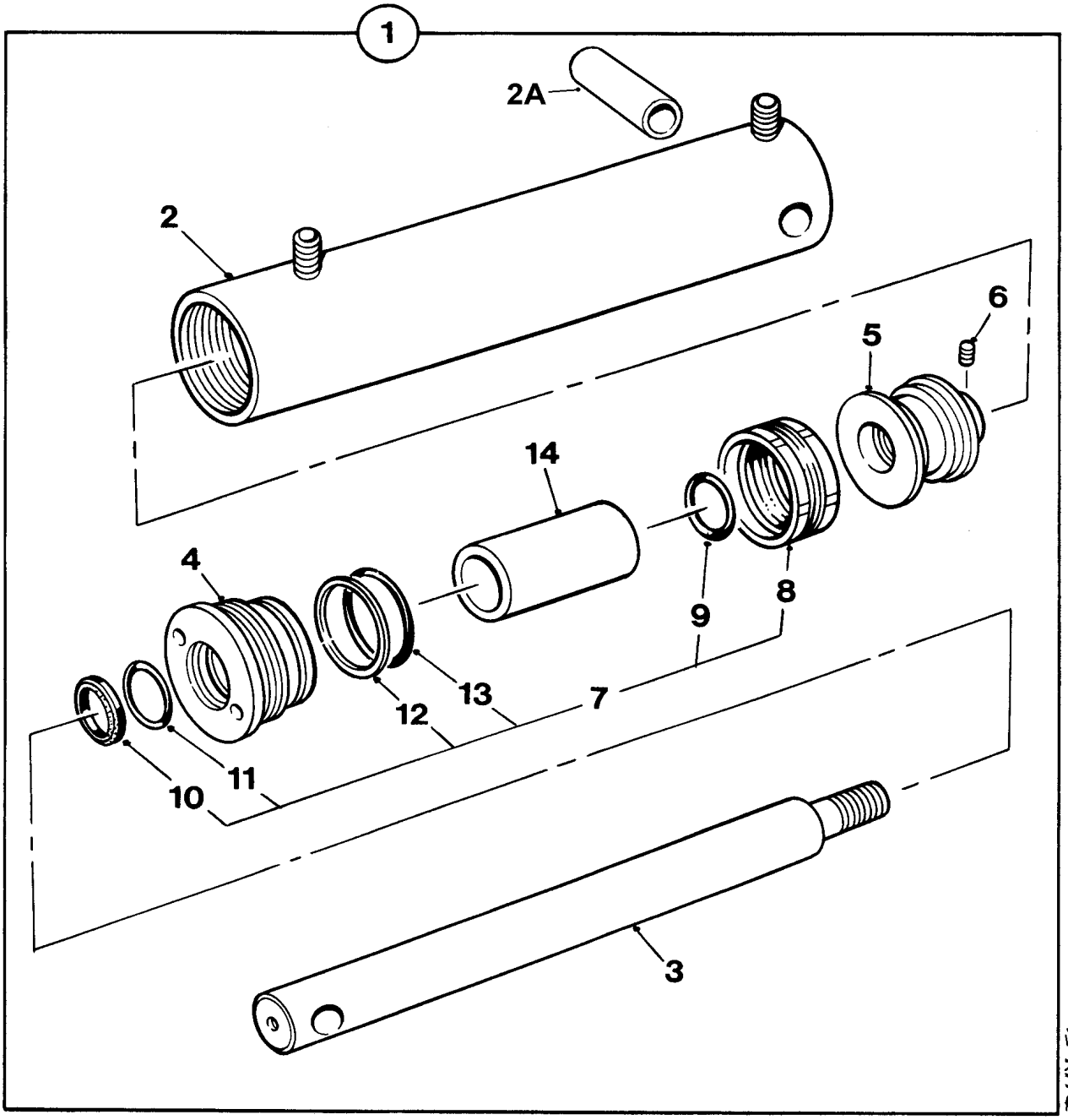
DHY-34

Item	Part no	Serial no	Description	Qty
1	30287A04		RAM (see page H-5)	2
2	31S01JJ		HOSE, to ram upper port	2
3	31S01BB		HOSE, to ram lower port	2
4	31S02YY		HOSE, control v. to tee bracket	2
10	V2004615		FITTING, double tee bracket	1
11	11S03B		SCREW, set	1
12	17S04		WASHER, spring	1
13	7S03		NUT	1
15	176S01		CAP, grease nipple	4
16	131S01		NIPPLE, grease, straight	2
—	131S02		NIPPLE, grease, 90 deg.	2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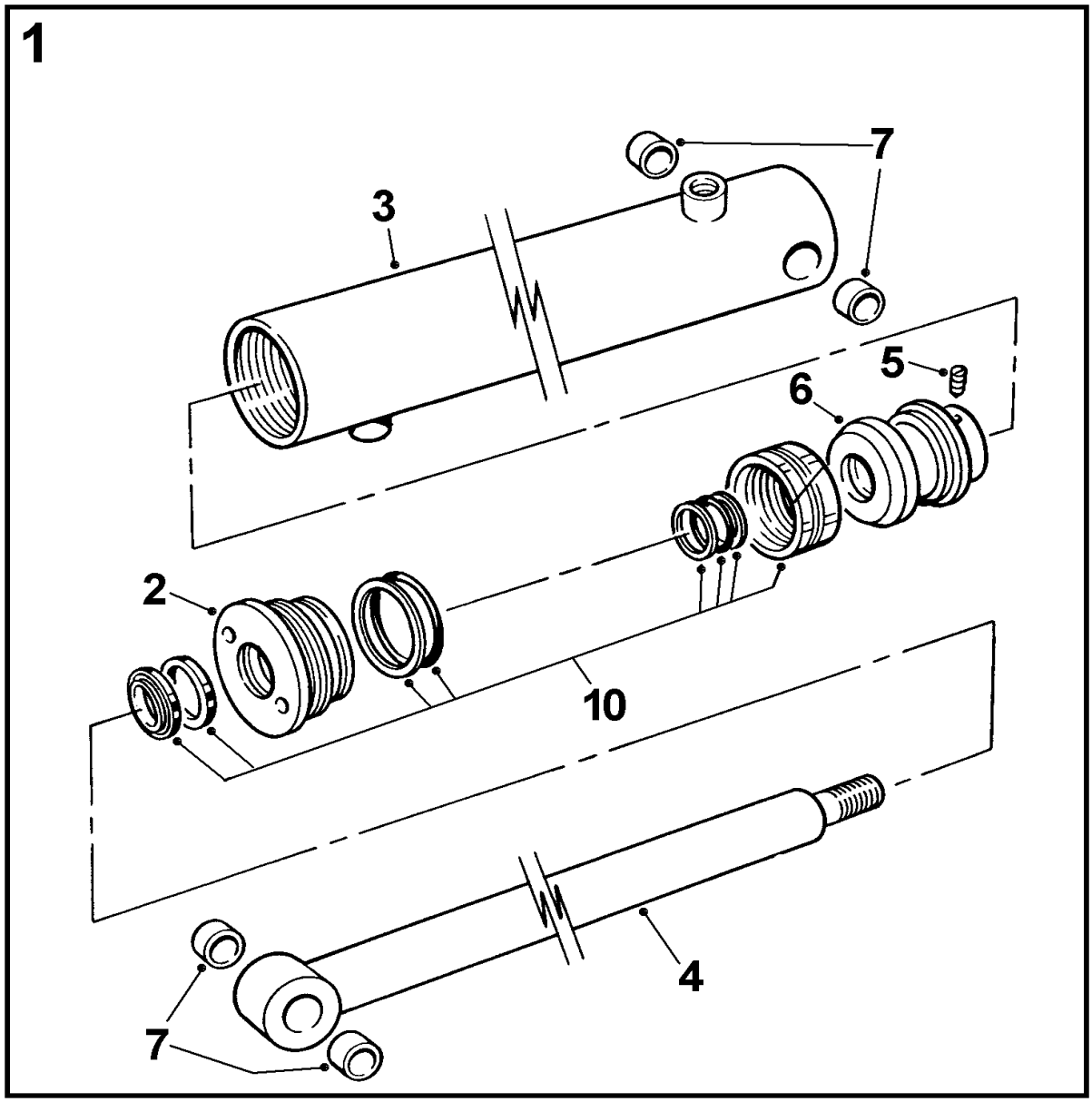
DHY-51

Item	Part no	Serial no	Description	Qty
1	30287A04		RAM, hyd, assembly	1
2	30287A0304		CYLINDER	1
2A	V2004682		BUSH	1
3	30287A0302		ROD, piston	1
4	30121A0402		CAP	1
5	30121A0401		PISTON	1
6	57S04D2		GRUBSCREW	1
7	CSE204		KIT, seals	1
8	30121A0118		SEAL, piston	1
9	30113A0308		SEAL, ‘O’ ring	1
10	30121A0104		SEAL, wiper	1
11	30121A0117		SEAL, rod	1
12	30121A0119		RING, anti-extrusion	1
13	30121A0110		SEAL, ‘O’ ring	1
14	30287A0401		SPACER	1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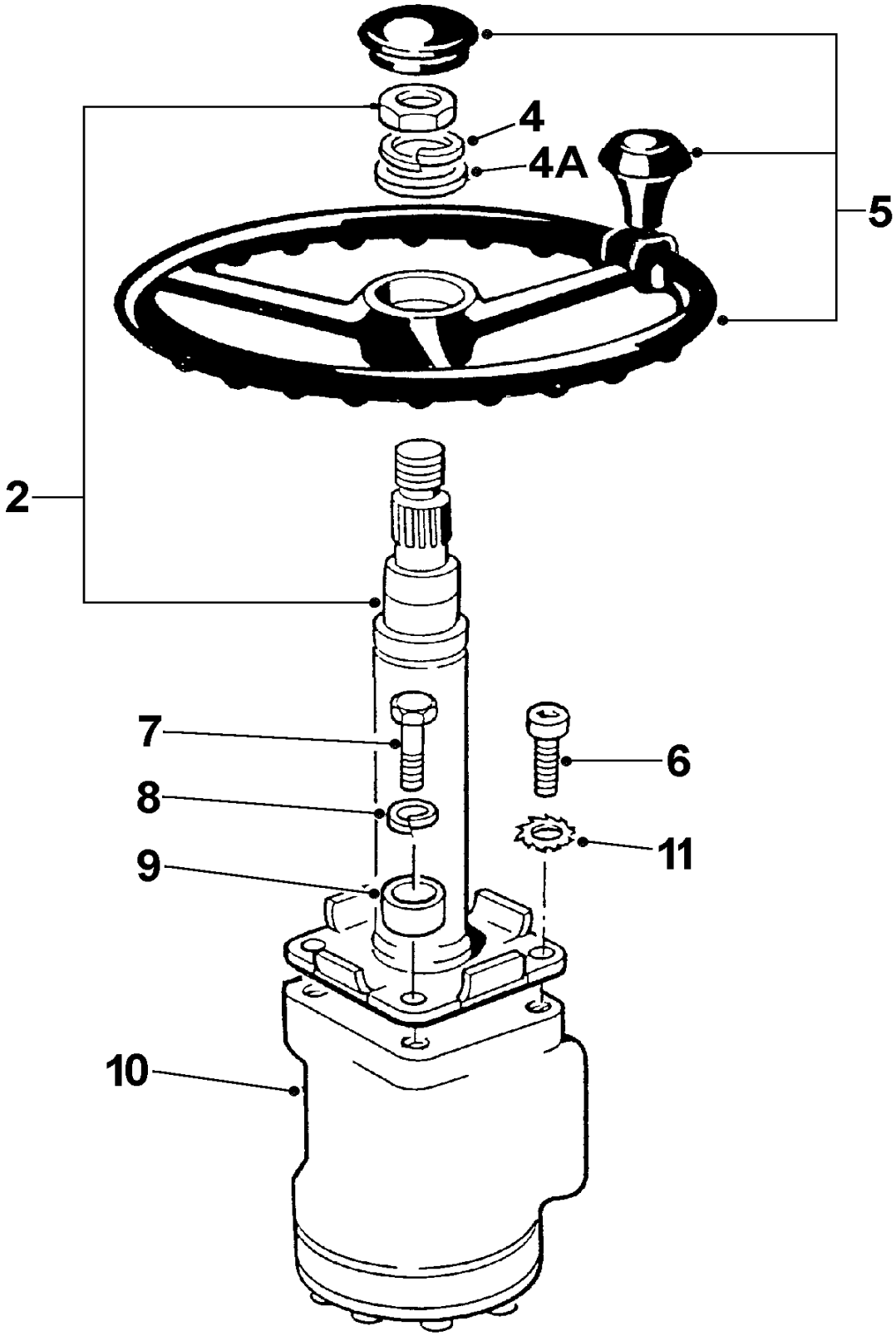
Item	Part no	Serial no	Description	Qty
1	V2005330		RAM, assembly, steering	1
2	V603576		RETAINER, cylinder	1
3	V603577		CYLINER	1
4	V603578		ROD	1
5	V603579		SCREW, grub	1
6	V603580		PISTON	1
7	V603013		BUSH	4
10	V603574		KIT, seals	1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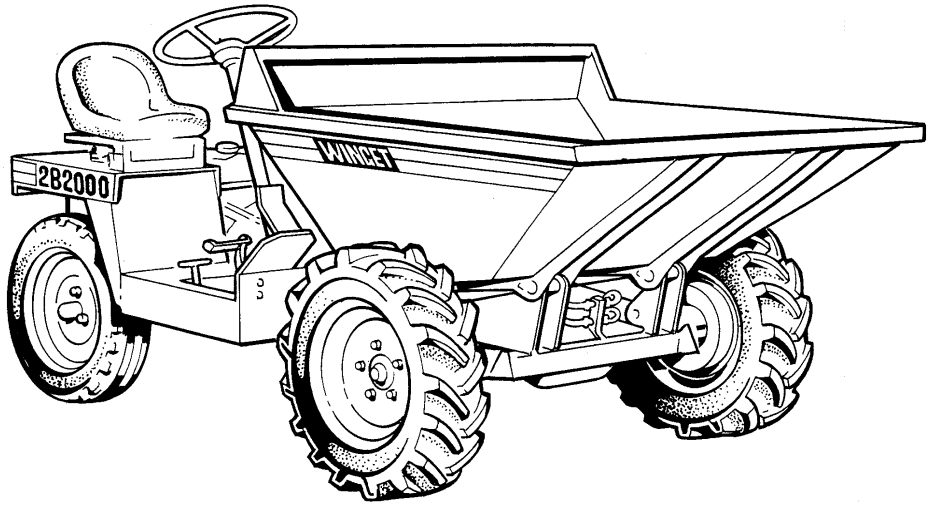
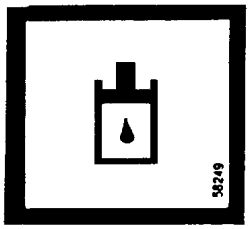
Item	Part no	Serial no	Description	Qty
2	V2002872		COLUMN, steering	1
4	17S08		WASHER, spring	1
4A	267S09		WASHER, flat	1
5	V2004152		WHEEL, steering c/w spinner	1
6	68S05C		SCREW, socket cap	1
7	8S04C		BOLT	3
8	17S05		WASHER, spring	3
9	CSE182		SPACER	3
10	V2006352		VALVE, steering	1
10A			KIT, seals	1
11	13S04		WASHER, shakeproof	1

2B2000
DUMPERS



Miscellaneous

1



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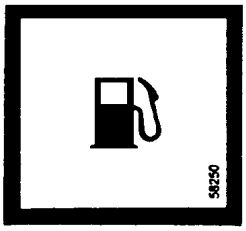

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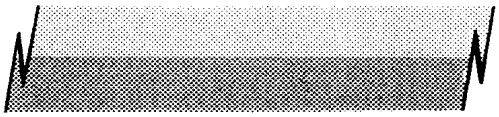

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WINGET

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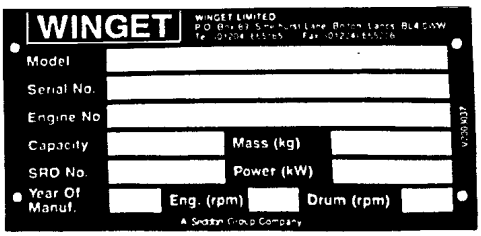
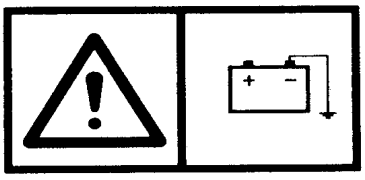


7

TAKE EXTRA CARE WHEN TIPPING
NON FREE RUNNING LOADS

8



9

WARNING
DO NOT WORK UNDER
UNPROPPED SKIP

10

2B 2000

11

RECOMMENDED LUBRICATING OILS

COMPANY		ENGINE	DRIVE AXLE	TRANSFER BOX	GEARBOX	WHEEL BEARINGS & OTHER GREASE POINTS	HYDRAULIC SYSTEM
(U.K.)	SUMMER WINTER	ESSOLUBE HDX 30/40		GEAR OIL GP 80W/140	ESSOLUBE HDX 30	BEACON 2	NUTO H32
ESSO	ABOVE 32°C 0°C-32°C	ESSOLUBE HDX 30 ESSOLUBE HDX 30/40	TORQUE FLUID 62	GEAR OIL GP 80W/140 GEAR OIL GP 80W/140	ESSOLUBE HDX 30	BEACON 2	NUTO H68 NUTO H32 NUTO H21
(Overseas)	BELOW 0°C	ESSOLUBE HDX 10W		GEAR OIL GP 80W			
(U.K.)	SUMMER WINTER	DELBOIL CH 30	AGRICASTROL AS	DELBOIL EP 90	DELBOIL CH 30	CASTROL SPHEROL APT 2	
CASTROL	ABOVE 32°C 0°C-32°C	AGRICASTROL AS SPECIAL DELBOIL CH 30		DELBOIL GEAR EP 140 DELBOIL GEAR EP 90	DELBOIL CH 30	CASTROL SPHEROL APT 2	CASTROL HYSPIN AWS 32
(Overseas)	BELOW 0°C	DELBOIL CH 10		DELBOIL GEAR EP 80			
(U.K.)	SUMMER WINTER	ROTELLA SX OIL 30/50W		SPIRAX 90 EP	ROTELLA SX OIL 30	RETINAX A	
SHELL	ABOVE 32°C 0°C-32°C	ROTELLA SX OIL 30 ROTELLA SX OIL 20W		SPIRAX 140 EP SPIRAX 90 EP	ROTELLA SX OIL 30	RETINAX A	TELLUS OIL 37
(Overseas)	BELOW 0°C	ROTELLA SX OIL 10W		SPIRAX 90 EP			
(U.K.)	SUMMER WINTER	VANELLUS M30W		GEAR OIL SAE 90 EP	VANELLUS M30	ENERGREASE L2	
BP	ABOVE 32°C 0°C-32°C	VANELLUS M30 VANELLUS M20W		GEAR OIL SAE 140 EP GEAR OIL SAE 90 EP	VANELLUS M30	ENERGREASE L2	ENERGOL HLP 46
(Overseas)	BELOW 0°C	VANELLUS M20W		GEAR OIL SAE 80 EP			
(U.K.)	SUMMER WINTER	DELVAC 1230		MOBILUBE HD 80 MOBILUBE HD 90	DELVAC 1230	MOBILGREASE MP	
MOBIL	ABOVE 32°C	DELVAC 1230		MOBILUBE HD 140			DTE 24
	0°C-32°C	DELVAC 1230	MOBILFLUID 422	MOBILUBE GX 140 MOBILUBE HD 90		MOBILGREASE SUPER	
(Overseas)	BELOW 0°C	DELVAC 1310		MOBILUBE HD 80 MOBILUBE GX 90			
ALL TEMPERATURES		DELVAC SPECIAL 10W-30		MOBILUBE GX 80	DELVAC 1230		
(U.K.)	SUMMER WINTER	CENTURY ROL 20W 30		CENTURY EP 90	CENTURY ROL 30	REGULUS A2	CENTURY PWL A HYD. OIL
WALKERS CENTURY	ABOVE 32°C 0°C-32°C	CENTURY ROL 30 CENTURY ROL 20W 20		CENTURY EP 140 CENTURY EP 90			
(Overseas)	BELOW 0°C	CENTURY ROL 10W		CENTURY EP 80	CENTURY ROL 30	REGULUS A2	CENTURY PWL A HYD. OIL

Part N° DM 198

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

12

WARNING!
TIGHTEN WHEEL
NUTS DAILY

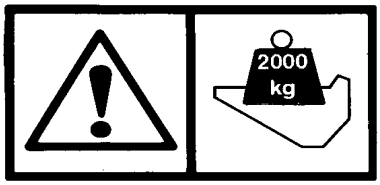
13

35 p.s.i.

14

Top up with Hydraulic
Oil ONLY
DO NOT use Brake
Fluid

15



Item	Part no	Serial no	Description	Qty
—	V603571		KIT, decals, 2B2000 *Each kit contains all decals required for one dumper*	1 kit
1	V2003100		DECAL, Hydraulic oil	
2	V2003101		DECAL, Diesel fuel	
3	V2003038		DECAL, Stripe, bodywork,	
4	V2003039		DECAL, Winget logo	
5	10284A01		DECAL, Dump/return	
6	V2003037		PLATE, Serial Number	
7	10536A02		DECAL, Non free running loads	
8	V2004235		DECAL, Negative earth	
9	DM157		DECAL, Skip warning	
10	V2003375		DECAL, 2B2000	
11	DM196		DECAL, Lubrication oils	
12	V2003142		DECAL, Warning - wheel nuts	
13	10540A02		DECAL, 35psi tyre pressure	
14	10848A01		DECAL, Brake fluid	
15	V2004608		DECAL, Max. payload 2000kgs	

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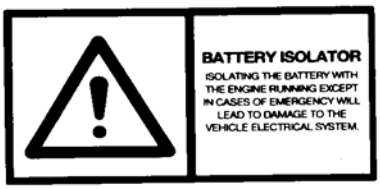

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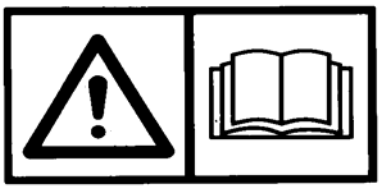

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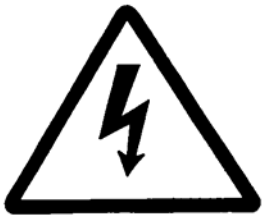

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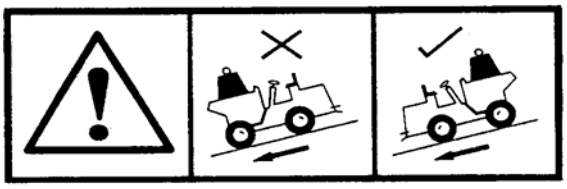

Item	Part no	Serial no	Description	Qty
1	504694600		DECAL, Safety warning	
2	V2003598		DECAL, British made	
3	V2004744		DECAL, Eye protection	
4	V2003665		DECAL, Lift here	
5	V2004137		DECAL, Ear defenders	
6	V2004227		DECAL, Battery isolator	
7	V2004229		DECAL, Operators handbook	
8	V2004245		DECAL, No buckets, No forks	
9	V2004244		DECAL, Towbar loadings	
10	V2004282		DECAL, Hot surfaces	
11	V2004307		DECAL, Electrical hazard	
12	V2004288		DECAL, Starting handle	
13	V2004450		DECAL, Gradients	
14	V2005126		DECAL, Restrict Visibility (not illustrated)	

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