



Count on it.

Part No. 111-0464 Rev A

Operator's Manual

Reelmaster 3220-D and 3240-D

Code: 650D-Serial No. from 260000001

Code: 651D-Serial No. from 260000001



Original Instructions (EN)

ATTENTION



**THIS SYMBOL MEANS
BE ALERT!**

YOUR SAFETY IS INVOLVED

**READ THIS MANUAL BEFORE USING THE REELMASTER® 3220-D OR 3240-D.
IT IS ESSENTIAL THAT OPERATORS STUDY IT FOR THEIR OWN SAFETY.**

**ALL OPERATORS SHOULD SEEK AND OBTAIN PROFESSIONAL AND
PRACTICAL INSTRUCTIONS ON THE SAFE USE OF THE MOWER. THESE
SERVICES ARE AVAILABLE THROUGH TORO APPROVED COMMERCIAL DEALERS.**

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READ THIS MANUAL BEFORE USING THE REELMASTER® 3220-D OR 3240-D , IT IS ESSENTIAL THAT OPERATORS STUDY IT FOR THEIR OWN SAFETY.



THE FOLLOWING PRECAUTIONS MUST BE TAKEN TO HELP PREVENT ACCIDENTS. A CAREFUL OPERATOR WHO USES COMMON SENSE IS THE SAFEST OPERATOR.

TRAINING



Read the instructions carefully. Be familiar with the controls and the proper use of the equipment. Learn how to stop the mower quickly in an emergency.



Never allow children or people unfamiliar with these instructions to use the mower. Local regulations may restrict the age of the operator.



Never mow while people, especially children, or pets are nearby.



Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.



Do not carry passengers.



All drivers should seek and obtain professional and practical instruction. Such instruction should emphasise:

- The need for care and concentration when working with this machine.
- The need to slow down when making tight turning manoeuvres. Failure to take adequate care can affect stability leading to loss of control of the machine particularly when operating in transport mode.
- Control of a ride-on-machine sliding on a slope will not be regained by application of the brake. The main reasons for loss of control are:
 - Insufficient wheel grip.
 - Being driven too fast.
 - Inadequate braking.
 - The type of machine is unsuitable for the task.
 - Lack of awareness of the effect of ground conditions, especially slopes.
 - Incorrect load distribution.

PREPARATION



Check that the machine complies with all applicable regulations, including those in force when used on the public highway.



While mowing, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals. Eye protection should be worn.



Thoroughly inspect the area where the equipment is to be used and remove all objects which can be thrown by the machine.



Never operate the machine without first checking that the operator platform latching mechanism is fully engaged and in good working order, refer - 'OPERATOR PLATFORM LATCHING MECHANISM'.

PREPARATION**Continued.**

Ensure that the cutterheads are fully raised with the latches and safety locks engaged in position before transporting the mower.



Replace faulty silencers.



Check the condition of the tyres and ensure that they are inflated to the correct pressures, refer - SPECIFICATIONS.

This is particularly important if the machine is to be taken on the public highway.



Check that the mower is in good working order, paying particular attention to the brakes and steering. Also ensure that the forward/reverse speed control pedals move freely to neutral when released.



Before use, always visually inspect to see that the blades, blade bolts and cutting cylinders are not worn or damaged. Replace worn or damaged components.



Check the mower hydraulic system, particularly the hydraulic hoses, fittings and hose supports. Worn, crushed or damaged hoses can burst, with risks to health and damage to the machine and surrounding turf areas.



After refuelling and adding oil to the hydraulic oil tank ensure that the caps are replaced securely.



Check that all linkages, connections and pivot nuts are secure and that wheel nuts are torqued correctly, refer - SPECIFICATIONS.



Before operating the machine ensure that there are no foreign objects or liquids on the platform or pedals - ALWAYS KEEP THE OPERATOR PLATFORM CLEAN/CLEAR.

OPERATION

Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.



Mow only in daylight or in good artificial light.



Before attempting to start the engine, engage the parking brake, disengage the cutterhead drive system and ensure that the forward/reverse speed controls are in the neutral position.



Never operate the machine without first checking that the operator platform latching mechanism is fully engaged and in good working order, refer - OPERATOR PLATFORM LATCHING MECHANISM.



Stored energy devices are charged when the outer wing units are in transport position. Always operate the relevant lift controls to provide hydraulic support for the wing units suspensions before attempting to release the transport latches.

OPERATION**Continued.****SLOPES**

Do not use on a slope of more than **19** degrees. Care should be taken when using the mower on any slope where ground conditions are such that there may be a risk of the mower rolling over. The requirements of SI 1998 No. 2306 "Provision and Use of Work Equipment Regulations" should be considered. R.O.P.S (Roll Over Protective Structures) are available, refer to INTRODUCTION - Optional Extras.



Stability angles given are maximum figures and are for guidance only. Particular conditions such as wet grass or uneven ground may not permit safe operation on the slope limits stated.

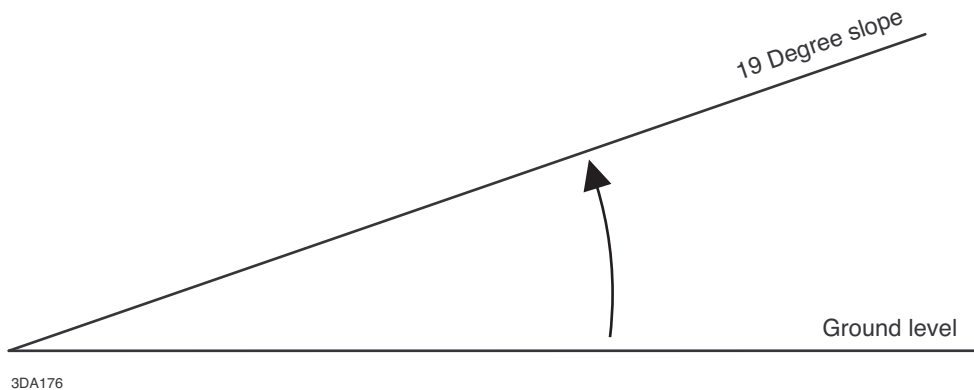


Remember there is no such thing as a "safe" slope. Travel on grass slopes requires particular care. To guard against overturning or loss of traction when travelling or mowing on a slope:

- Exercise extreme care when changing direction on a slope.
- Do not stop or start suddenly.
- Engage drive slowly.
- Keep machine speed low.
- Avoid tight turns.
- Stay alert for humps, hollows and other hidden hazards.
- Keep away from sharp inclines and steep drops.
- A thorough risk assessment should be carried out by a competent person before travelling or mowing on a slope.



Never park on a slope.



OPERATION**Continued.**

Watch out for traffic when crossing or near roadways.



Use extreme caution when reversing.



Disengage the cutterhead drive system before crossing surfaces other than grass.



When using the machine, never direct discharge of material towards bystanders or allow anyone near the machine while in operation.



Never operate the mower with defective guards, shields or without safety protective devices in place and in good working order.



Do not change the engine governor settings or overspeed the engine. Operating an engine at excessive speed may increase the risk of personal injury.



Before leaving the operator's position:

- Disengage the drive to the cutterheads.
- Lift cutterheads to the transport position and securely lock the safety latches or alternatively lower cutterheads to the ground.
- Change into neutral and set the parking brake.
- Stop the engine and remove the ignition key.



Engage the parking brake, disengage the drive to the cutterheads, stop the engine and remove ignition key :

- Before releasing blockages.
- Before checking, cleaning or working on the mower.
- After striking a foreign object. Inspect the mower for damage and make repairs before restarting and operating the equipment.
- If the machine starts to vibrate abnormally (check immediately).
- Before refuelling.
- Before making cutterhead adjustments.



Disengage the drive to the cutterheads when transporting or not in use.



Reduce the throttle setting during engine run - out.



Never work on the mower when the engine is running.



Always keep feet and hands well away from the cutting cylinders when making adjustments.



Never operate the mower without first checking that the operator platform is securely latched.

HANDLING AND STORAGE OF FLUIDS**Hydraulic Oil**

- Avoid contact with eyes and prolonged contact with skin.
- Protective goggles should be worn when pouring.
- Use of gloves or barrier cream is recommended.
- Wash hands thoroughly after contact.
- Store under cover, away from heat and sources of ignition.

**Diesel Oil**

- Avoid skin and eye contact.
- Wear impervious gloves when regular contact is likely and goggles when there is risk of splashing.
- Wash hands thoroughly after contact.
- Store in a cool dry well ventilated place away from heat and sources of ignition, in vessels specifically designed for storing fuel oils.

**Lubricating Oil**

- Avoid skin and eye contact.
- Wear impervious gloves when regular contact is likely and goggles when there is risk of splashing.
- Wash hands thoroughly after contact.
- Store in a cool dry well ventilated place away from heat and sources of ignition.

**Anti- Freeze**

- Keep away from heat, sparks, and flames.
- Avoid skin and eye contact and breathing vapours.
- Store in a closed container in a cool dry well ventilated area.

MAINTENANCE AND STORAGE

-  Take care when rotating a cutting cylinder as this can cause other cylinders to rotate.
-  When the machine is to be parked, stored or left unattended, lift the cutterheads to the transport position and engage the safety locks or lower the cutterheads to the ground.
-  Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
-  Allow the engine to cool before storing in any enclosure.
-  To reduce the risk of fire, keep the engine, silencer, fuel tank and battery compartment free of grass, leaves or excessive grease.
-  Frequently check fuel lines and fittings for cracks or leaks and replace if necessary.
-  Replace worn or damaged parts for safety.
-  Ensure that all safety decals are properly secured and in good condition.
-  If the fuel tank has to be drained, this should be done outdoors.
-  Be careful during adjustment of the machine to prevent entrapment of the fingers between moving blades and fixed parts of the machine.
-  Never attempt to disconnect any part of the hydraulic system before de-pressurisation. This may be achieved by lowering all cutterheads to the ground, stopping the engine and removing the ignition key.
-  Avoid skin or eye contact with hydraulic or diesel fluids. Wear protective clothing.
-  Leaking fluids under pressure can penetrate the skin or eyes, causing serious injury. Always use a piece of cardboard or paper when searching for leaks.

Health and Safety at Work Act:

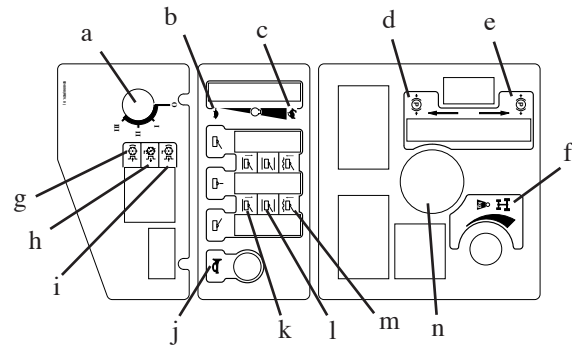
In accordance with section 6 of the Health and Safety at Work Act 1974, the Reelmaster® 3220-D and 3240-D Mowers have been designed and constructed so that, in so far as is reasonably practical, they will not endanger the safety and health of those working with them. This is, however, subject to the machine being properly used and maintained according to the conditions stated in this manual and elsewhere, which have been found necessary as a result of the research and testing of The Toro Company.

DECALS

Decal - Control Panel Part No: 924898

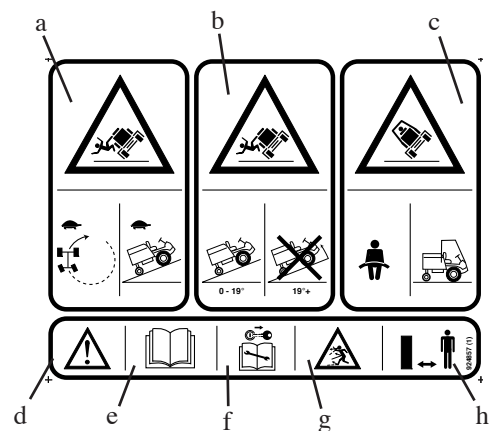
Location: Control Panel.

- | | |
|------------------------------|-------------------------|
| a) Ignition Switch | h) Cutters - Off |
| b) Engine Speed - Slow | i) Cutters - Forward |
| c) Engine Speed - Fast | j) Horn |
| d) Parking Brake - Engage | k) Cutters - Lift |
| e) Parking Brake - Disengage | l) Cutters - Hold |
| f) Weight Transfer - Control | m) Cutters - Drop/Float |
| g) Cutters - Reverse | n) Hour Meter |

**Decal - Inclines** Part No: 924857 (1)

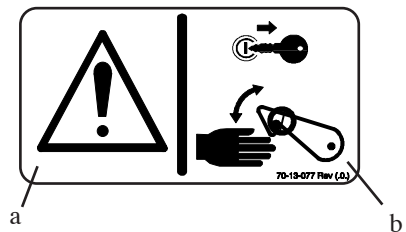
Location: Centre Platform.

- a) Warning - Travel slowly when turning and on slopes
- b) Warning - Maximum Slope without ROPS
- c) Warning - Seat belt must be worn with a ROPS fitted.
- d) Caution
- e) Read Operators Manual
- f) Stop engine/Remove ignition key before servicing or maintenance
- g) Beware of flying objects
- h) Keep Bystanders Clear

**Decal - Danger Latch** Part No: 70-13-077

Location: LH / RH / Centre Arms

- a) Caution
- b) Stop engine/Remove ignition key before releasing or operating safety latches.

**Decal - Diesel** Part No: 70-13-07

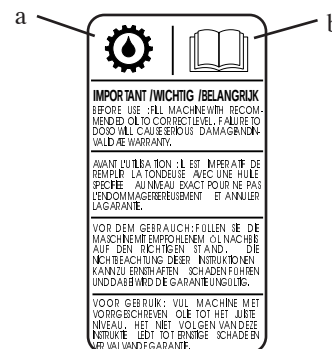
Location: Fuel Tank

- a) Diesel fuel only

**Decal - Transmission Oil** Part No: 70-13-071

Location: Oil Filler Bracket Mounted Behind Fuel tank.

- a) Transmission Oil
- b) Read and understand the Operators Manual.



DECALS

Continued.

Decal - Jacking / Support Point Part No: 70-13-072

Location: Front Axle - 2 Points

Rear Towing Eye

a) Jacking and Support Point

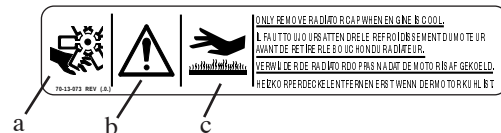
**Decal - Engine Fan / Radiator** Part No: 70-13-073

Location: Engine Fan Cowl

a) Danger of Severing Fingers

b) Caution

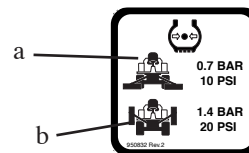
c) Warning - Hot Surfaces

**Decal - Tyre Pressure** Part No: 950832

Location: LH/RH Chassis - 4 Places

a) Mowing

b) Road Travel

**Decal - Diff Lock / Control Pedal** Part No: 924812

Location: Centre Platform.

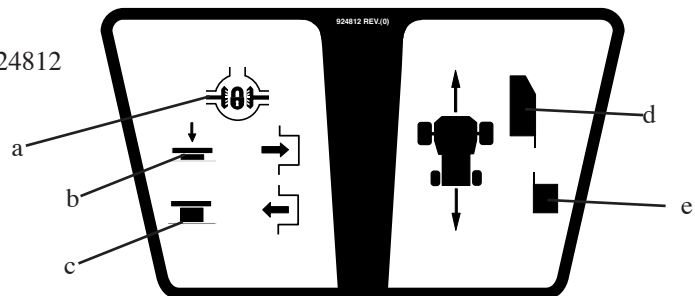
a) Differential Lock

b) Depress to engage Diff-lock

c) Release to Dis-engage Diff-lock

d) Forward Speed & Directional Control

e) Reverse Speed & Directional Control



DECALS

Continued.

Decal - Serial Number

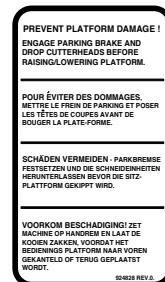
Location: Rear Bulkhead



Decal - Prevent Platform Damage

Part No. 924828

Location : Platform, Seatwell.

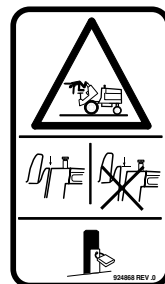


Decal - Warning Platform Latch

Part No. 924868

Location: Next to Platform Latch

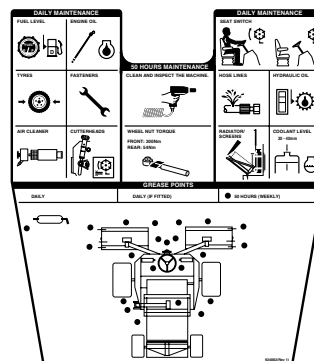
Warning - Prevent Accidents: Ensure platform is correctly seated and the latch is fully locked before operating the machine.



Decal - Maintenance

Part No. 924882

Location: Underside of Engine Cover next to Latch.



Decal - Noise

Part No. 922854

Location: Base of Seat on GRP



NOISE LEVELS

Operators Daily Personal Noise Exposure: The Toro Company has no control over site conditions, duration of use, state of maintenance or adjustment of the mower. All of these factors will affect the operator's daily personal noise exposure level - $L_{EP,d}$

Under typical working conditions operators could be exposed to a daily personal noise exposure level in excess of 85 dB (A) $L_{EP,d}$

Sound pressure level:

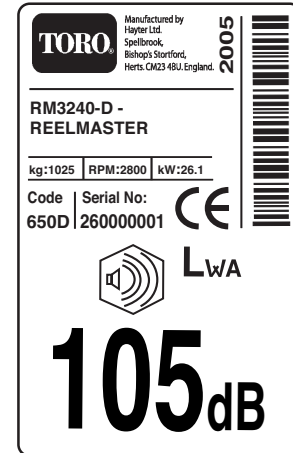
The maximum sound pressure level at the operator's position is 84 dB (A) measured in accordance with European Standard EN836.

Sound power level:

The maximum sound power level is 105 dB(A) measured in accordance with EC Directive 2000/14/EC.

If hearing protection is required, ear protectors with good attenuation in the 63 - 8000 Hz frequency range should be used.

Employers of personnel using this machine are advised to read the 'Noise at Work Regulations' as the operator's daily personal exposure level could be above the 'First Action Level'.



**Wear Hearing
Protection**

EC DECLARATION OF CONFORMITY

EC DECLARATION OF CONFORMITY

Manufactured for The Toro Company
By: HAYTER LIMITED,
Spellbrook, Bishop's Stortford, Herts. CM23 4BU. ENGLAND

**declare that the lawnmower:**

Model name:	RM3220-D	RM3220-D
Type:	Ride-on Rotary	Ride-on Rotary
Model No:	CODE 650D	CODE 651D
Cutting width:	2120mm	2120mm
Speed of rotation of the cutting device:	1050 rpm	1050 rpm
Engine manufacturer:	Kubota	Kubota
Speed of rotation of engine:	2850 rpm	2850 rpm

Complies with the provisions of Directive: 98/37/EC Essential Health & Safety Requirements Relating to the Design & Construction of Machinery and Safety Components, as amended and the regulations transposed into national law.

Also Directive 89/336/EEC Electromagnetic Compatibility, as amended and the regulations transposed into national law.

Also Directive 2000/14/EC Noise emission in the environment by equipment for use outdoors and the regulations transposed into national law.

Procedure applied for the conformity assessment: ANNEX VI, procedure 1.

Notified Body: Sound Research Laboratories Ltd. Holbrook House, Little Waldingfield,
Sudbury, Suffolk. CO10 0TH. ENGLAND
Notified body identification No: 1088

Measured sound power level:	101 dB(A)	101 dB(A)
Guaranteed sound power level:	105 dB(A)	105 dB(A)

Complies with harmonized standards: EN 292, EN 836 and EN ISO 14982

Signed

S.A. Maryniak
(Technical Director)

Date: 15.12.05

Declaration done and technical documentation kept at:

HAYTER LIMITED
Spellbrook, Bishop's Stortford,
Herts. CM23 4BU ENGLAND

VIBRATION INFORMATION

The vibration level at the operator contact positions, measured in accordance with European Standard EN 836

CODE650D	Steering Wheel Does not exceed 2.5ms^{-2}	Seat Does not exceed 2.5ms^{-2}
CODE651D	Steering Wheel Does not exceed 0.5ms^{-2}	Seat Does not exceed 0.5ms^{-2}

INTRODUCTION

The Toro Reelmaster® 3220-D is a diesel engine powered self propelled machine with hydraulic systems for ground drive, cutterhead drives and steering. The machine operates in two wheel drive. The 3240-D machine also is a diesel engine powered self propelled machine and operates in two wheel drive with automatic four wheel drive on demand. A differential lock function may be selected. The transmission system is converted automatically to engage drive to all 4 wheels when the machine speed decreases as a result of front wheel traction slip. 2WD is automatically re-engaged when traction slip is reduced.

The Toro Reelmaster® 3220-D and 3240-D are precision built machines designed solely for cutting grass and similar low lying ground vegetation within the limitations stated in this manual. Use in any other way is considered as contrary to the intended use. Compliance with and strict adherence to the conditions of operation, service and repair as specified in this Operators Manual also constitute essential elements of the intended use. The way in which these machines are operated and maintained will have a profound effect on its performance and reliability.

This manual contains advice on the The Toro Reelmaster® 3220-D and 3240-D which should be operated, serviced and repaired only by persons who are familiar with their particular characteristics and who are acquainted with the relevant safety procedures.

The safety precautions listed herein and all other generally recognised regulations on safety and all road traffic regulations must be observed at all times.

Any arbitrary modifications carried out to these machines may relieve The Toro Company of liability for any resulting damage or injury.

In the pursuit of continuous product development The Toro Company reserves the right to alter specifications without notice.

Cutterhead Variants: The The Toro Reelmaster® 3220-D and 3240-D can be fitted with a range of cutterhead configurations and optional extras:

Cutterhead	Cylinder diameter	Number of blades	Fixed Heads	Floating Heads with smooth or grooved front rollers
MK3 Cutterhead	200mm	4, 6, 8, 10.	✓	✓
	254mm	4, 6	✓	

Optional Extras:

Beacon Kit - Amber flashing warning light.

Lighting Kit - Complies with EC traffic regulations.

R.O.P.S (Roll Over Protective Structure) 2 post design.

Cab R.O.P.S. - Full weather protection and roll - over protection.

We recommend the fitting of a Hayter approved R.O.P.S only, to increase operator safety in the event of a machine rolling over.

Note: with a R.O.P.S. fitted stability angle is decreased to 15 degrees on both the LT322 and LT324, due to the higher centre of gravity of the machine.

When fitting optional extra kits to the mower be sure to fix the serial number decal supplied with the kit to the rear bulkhead underneath the engine cover. This will help the Toro spare parts department to supply the correct spare parts throughout the service life of the mower.

Left and Right: Throughout this manual the terms 'Left' and 'Right' refer to the machine when looking in the direction of forward travel.

SPECIFICATIONS

ALL FIGURES ARE NOMINALLY QUOTED AT THE RATED ENGINE SPEED OF 2800 RPM UNLESS OTHERWISE STATED.

ENGINE	3220-D	3240-D
Type:	Kubota V1305 -E. 4 Cylinders in line.	Kubota V1505 -BB. 4 Cylinders in line.
Power Rating:	31.1hp (24.0 kw) @ 2800 RPM. DIN 70020.	35hp (26.1 kw) @ 2800 RPM. DIN 70020.
Capacity:	1335 cc.	1498 cc.
Air Cleaner:	Clean air drawn through screened air intake in-front of radiator via a cyclonic air cleaner with built in pre-cleaner.	Clean air drawn through screened air intake in-front of radiator via a cyclonic air cleaner with built in pre-cleaner.
Cooling System:	Water-Cooled.	Water-Cooled.
Battery:	12V. 480 Amps S.A.E.	12V. 480 Amps S.A.E.
Alternator:	40 Amps.	40 Amps.
Starter:	1.2 KW Electric.	1.2 KW Electric.
Cold Starting:	Glow Plug.	Glow Plug.
Idle Speed:	1250(+50) R.P.M	1250(+50) R.P.M.
Fuel Type:	Diesel.	Diesel.

IMPORTANT: PREVENT DAMAGE - for further information regarding the engine, refer to - ENGINE MANUAL .

TRANSMISSION SYSTEM

Drive Type:	Hydraulic.
Pump:	Variable displacement hydraulic piston pump with integral charge pump and pedal control.
Wheel Motors:	Front Axle - Radial piston, fixed displacement, with integral disc brake (pressure released). 3240-D Only: Rear Axle - Gear motor, fixed displacement.
Differential Lock:	Electro - hydraulic control valve with pedal control.
Drive:	2WD (front axle) with differential lock (selectable). 3240-D Only: Automatic 4WD on demand (forward & reverse).
Relief Valve Setting:	3220-D: Main service relief 250 bar (3265 psi) differential. 3240-D: Main service relief 300 bar (4350 psi) differential. Charge pressure relief 18.5 bar (268 psi) differential.

CUTTERHEAD DRIVE SYSTEM

Drive Type:	Hydraulic.
Pump:	Hydraulic gear type.
Delivery Rate:	31 Litres per minute.
Cutterhead Motors:	Hydraulic gear type, reversible, pressure balanced with integral differential pressure sensing relief check valve. Direct drive.
Control:	Electro-hydraulic. Automatic diverter valve safety cut-off.
Relief Valve Setting:	250 bar (3625 psi) differential.

CUTTERHEAD LIFT SYSTEM AND STEERING

Drive Type:	Hydraulic.
Pump:	Hydraulic gear pump with integral relief valve.
Delivery Rate:	11 Litres per minute.
Steering:	Power beyond hydrostatic steering valve with priority flow to steering and auxiliary flow to cutterhead lift system. Manual emergency steering.
Cutterhead Lift Control:	Mechanical-hydraulic.
Relief Valve:	105 bar (1522 psi).
Weight Transfer:	Variable hydraulic applied weight transfer acting on all cutterheads.

HYDRAULIC SYSTEM

Hydraulic Oil Type:	Refer - RECOMMENDED LUBRICANTS AND HYDRAULIC FLUIDS.
Capacity:	40 Litres.
Cooling:	Forced air finned tube oil cooler.
Suction Line Filtration:	125 micron no bypass mesh filter.
Return line Filtration:	10 micron with 2 bar (29 psi) bypass check valve.
Transmission Filtration:	10 micron no bypass pressure filter.
Maximum Oil Contamination Level:	ISO Code 18/13 or better (ISO 4406) 1300 - 2500 Particles/ml < 15 μ 40 - 80 Particles/ml > 15 μ
Maximum Oil Temperature:	95°C

VEHICLE SPECIFICATIONS

Travel Speed: 0-22 km/hr (0-14 mph) forward.
0-11 km/hr (0-7 mph) reverse.

Tyres	Tyre Type	Recommended Tyre Pressures		
		Turf Conditions	Road Conditions	Max Pressure
Front axle	26 x 12 - 12 4 ply Trelleborg turf pattern.	0.7 bar (10 psi)	1.4 bar (20 psi)	1.7 bar (25 psi)
Rear axle	18 x 9.5 - 8 6 ply Dico turf pattern.	0.7 bar (10 psi).	1.4 bar (20 psi)	1.7 bar (25 psi)

Wheel Nut Torque Setting: Front axle 200Nm
Rear axle 54Nm

Service Brakes: Closed loop hydrostatic service braking operating on drive wheels only.

Parking Brake: Lever operated oil immersed disc brakes on front wheels only. Pressurised hydraulic oil release with mechanical override for emergency towing purposes.

Ground Clearance: 180mm at 13mm cut height and with cutterheads raised.

Steering: Hydrostatic rear wheel steering, emergency manual steering.

Features: Tilting operator platform.
Lockable engine cover.
Adjustable suspension seat with folding arms.
Adjustable steering column.
Cutterhead parking latches with safety locks.
Backlapping facility.
Differential lock (selectable).
Engine coolant and hydraulic oil overheat audible warning (horn).
Variable cutterhead weight transfer/traction assistance.
2WD **(3240-D Only: 4WD on demand (forward & reverse))**.
Hydraulic oil filter blocked telltales on control panel.

Safety Features: Neutral start interlock on transmission pump, parking brake and cutterhead drive switch.
Operator presence control (seat switch).

OPERATOR CONTROLS

Steering:	Automotive padded steering wheel.
Cylinder Drive:	Electrical switch (forward - off - reverse).
Engine Speed:	Hand operated lever.
Parking Brake:	Hand operated lever.
Forward and Reverse:	Forward and reverse foot pedal.
Ignition:	Key start, shut - off and engine preheat.
Differential Lock:	Foot pedal.
Cutterhead Position:	Hand operated lever.
Horn:	Button switch.
Weight Transfer:	Hand wheel.

INSTRUMENTATION

Warning Lights:	Engine oil pressure. Battery charge. Engine coolant temperature. Hydraulic transmission oil temperature.
Gauges:	Digital hour meter. Fuel level. Hydraulic oil level sight glass.
Indicator Lights:	Engine pre-heat. Hydraulic return filter blocked. Hydraulic transmission filter blocked. Cutterhead drive switch off. Parking brake engaged. Transmission neutral.

WEIGHT AND DIMENSIONS

Wheel Base:	1440 mm.
Working Width:	2300 mm.
Cutting Width:	2120 mm.
Transport Width:	1575 mm at 13mm height of cut.
Overall Length:	2690 mm.
Overall Height:	1520 mm.
Approx. Working Weight:	1250 kg less operator, no options fitted. (The exact weight depends on the cutterhead configuration).

RECOMMENDED LUBRICANTS AND HYDRAULIC FLUIDS

Grease Points: A good quality medium grease.

Engine: Refer - ENGINE OPERATORS MANUAL.

Hydraulic System:

Ambient Temperature Range	
0 - 30°C (32 - 86°F)	15 - 40 °C (59 - 104°F)
I S O viscosity grade 46 hydraulic oil.	I S O viscosity grade 68 hydraulic oil.

Should you be in any doubt please contact your Toro dealer. Using incorrect grades will cause premature wear of hydraulic components and invalidate warranty.

CUTTERHEADS

	MK3 200mm Cutterhead	MK3 254mm Cutterhead
Cutting Width:	762 mm.	762 mm.
Cylinder Diameter:	200 mm.	254 mm.
Cylinder Speed:	1050 rpm approx.	1050 rpm approx.
Height of Cut:	12 - 80 mm.	12 - 80 mm.
Number of Blades:	4, 6, 8, 10	4, 6
Smooth Rear Roller:	Standard.	Standard.
Smooth Front Roller:	Optional.	-
Grooved Front Roller:	Optional.	-
Configuration:	Fixed / Floating.	Fixed

SAFETY NOTICE

WARNING: PREVENT ACCIDENTS - Before operating the mower it is essential that;

- The operator reads and understands this manual.
- The operator platform latching mechanism is fully engaged and in good working order, refer - **OPERATOR PLATFORM LATCHING MECHANISM**.
- The daily maintenance checks have been properly carried out and the mower is in good working order.
- The operator should wear safety clothing and eye protection. Failure to do so could result in risk to health and safety.
- The area where the equipment is to be used is inspected and all objects which may be thrown by the machine are removed.

Operate safely on slopes;

It is essential to follow safe working practices when working on slopes. In order to avoid potentially hazardous situations, it is essential that the operator understands and observes the relevant safety precautions listed in this manual, refer - **'SAFETY PRECAUTIONS'**.

OPERATOR PRESENCE CONTROLS

Cutting Cylinder Drive Lockout: Drive to the cutting cylinders is only possible when the operator is seated. If the operator raises off the seat for a period of more than one second, a switch is activated and drive to the cutting cylinders is automatically disengaged. To re-engage drive to the cutting cylinders, the operator must return to the seat, then operate the cutterhead drive switch to the 'OFF' position before moving it back to the 'ON' position. If the operator rises off the seat for a brief moment during normal work, drive to the cutting cylinders is not affected.

The engine can only be started with the cutterhead drive switch in the 'OFF' position.

Engine Start Lockout: The engine can only be started when the forward/reverse travel pedal is released to the 'NEUTRAL' position, the cutterhead drive switch is in the 'OFF' position and the parking brake is engaged. When these circumstances are satisfied, switches are activated permitting the engine to be started.

Engine Run Interlock: Once the engine is started the operator must be seated before the parking brake is released for the engine to continue to run.

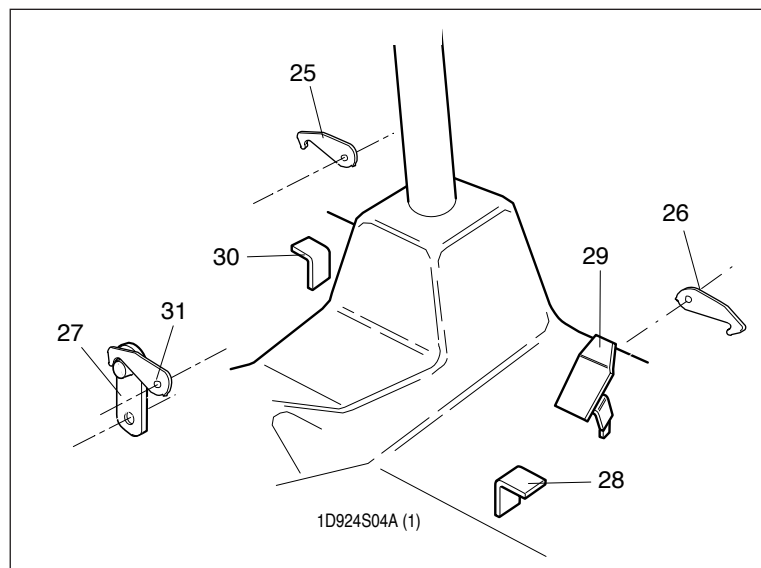
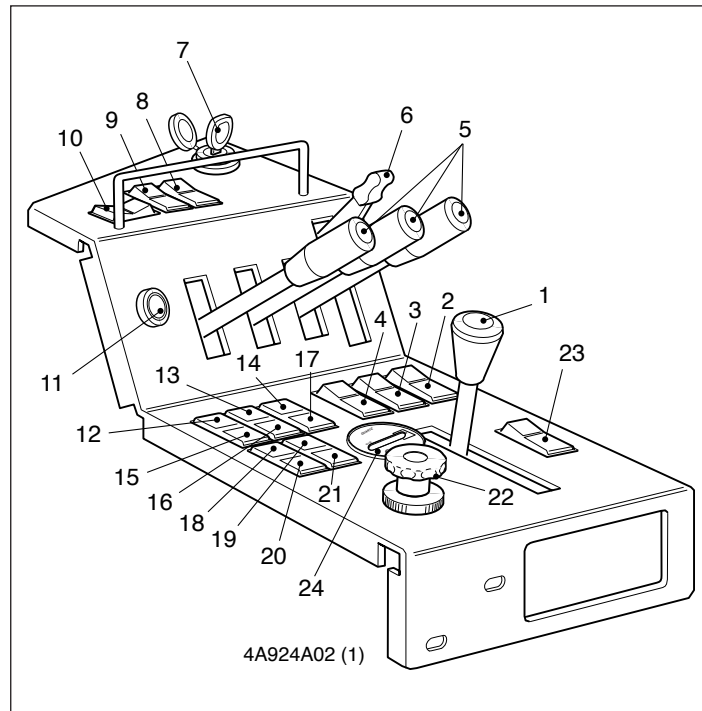
With the engine running and the machine moving with the travel pedal depressed, the engine will continue to run when the operator rises from the seat. If the travel pedal is then allowed to return to neutral the engine will cut out.



WARNING: PREVENT ACCIDENTS - Do not operate the Reelmaster®® mower if the operator presence controls are defective in any way. ALWAYS replace faulty parts and check that they function correctly before operating the mower.

IDENTIFICATION OF CONTROLS

1. Parking brake lever.
2. Lighting switch
(supplied with lighting kit).
3. Warning beacon switch
(supplied with beacon kit).
4. Hazard warning switch
(supplied with lighting kit).
5. Cutterhead position controls.
6. Throttle control lever.
7. Ignition key.
8. Cutterhead drive switch.
9. Dip beam / main beam light switch
(supplied with lighting kit).
10. Direction indicator switch
(supplied with lighting kit).
11. Horn button.
12. Transmission oil filter indicator.
13. Oil pressure indicator.
14. Transmission temperature indicator.
15. Return oil filter indicator.
16. Battery warning indicator.
17. Engine temperature warning indicator.
18. Glow plug indicator.
19. Cutterhead drive off indicator.
20. Parking brake indicator.
21. Transmission neutral indicator.
22. Weight transfer control.
23. Wash / wipe switch
(supplied with cab kit).
24. Hour Meter
25. Left hand cutterhead safety latch.
26. Right hand cutterhead safety latch.
27. Centre cutterhead transport latch.
28. Reverse travel pedal.
29. Forward travel pedal.
30. Differential lock pedal.
31. Centre cutterhead safety latch.



BRAKING SYSTEM

Parking brake : Move the parking brake lever to its rear position to engage the parking brake. Do not operate the mower with the parking brake engaged.



Parking brake engaged



WARNING : PREVENT ACCIDENTS - The parking brake operates on the front wheels only. Do not park the mower on a slope.

Service brakes : Service braking is achieved by the hydraulic transmission system. When the forward or reverse travel pedals are released or the engine speed reduced, service braking becomes effective and travel speed is automatically reduced. To increase the braking effect, push the transmission pedal into the neutral position. Service braking is effective on the front wheels only.



WARNING : PREVENT ACCIDENTS - The service braking system will not hold the mower at a standstill. ALWAYS ensure the parking brake is engaged to park the mower at a standstill.

Emergency braking : In the event of service brake failure, turn the ignition off to bring the mower to a standstill.



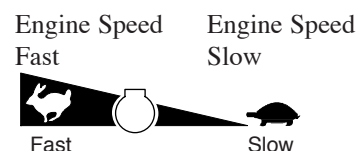
WARNING: PREVENT ACCIDENTS - Take care when operating the braking system. Remain seated and hold on to the steering wheel to prevent ejection from the mower caused by the front wheel brakes being applied suddenly when travelling.

THROTTLE CONTROL

Operate the throttle control in a forward direction to increase the engine speed.

Operate the throttle control in a rearward direction to reduce engine speed.

Note that the engine speed dictates the speed of the other functions, i.e. travel, cutting cylinder, position controls.



TRAVEL

Forward travel: Depress the forward travel pedal to increase forward travel speed. Release the pedal to reduce speed.



Reverse travel: Depress the reverse travel pedal to increase reverse travel speed. Release the pedal to reduce speed.



Stop (Neutral): Release the forward or reverse travel pedal.

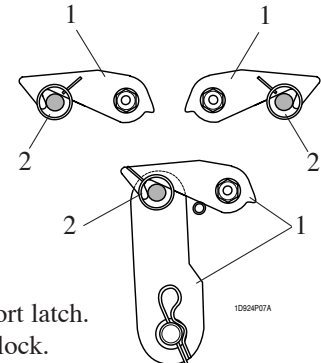
TRANSPORT LATCHES



WARNING : PREVENT ACCIDENTS - ALWAYS raise the cutterheads to the transport position and secure with the transport latches and safety locks when travelling between work areas.

Front cutterhead transport latches:

Centre cutterhead transport latch:



- 1. Transport latch.
- 2. Safety lock.

DIFFERENTIAL LOCK



WARNING : PREVENT ACCIDENTS - Do not engage the differential lock at high speed. The turning circle will increase with the differential lock engaged.

The differential lock operates in both 'forwards' and 'reverse' and can be engaged whilst the mower is travelling slowly. Engage the differential lock to prevent excessive wheel spin when the drive wheels lose traction. Engine power demand increases when the differential lock is engaged. Prevent excessive power requirements by operating with differential lock at SLOW speed.



Engaging differential lock: Depress the differential lock pedal.

Disengaging differential lock: Release the differential lock pedal.

SPEED CONTROL PEDAL

The speed control pedal can be adjusted to provide two speed ranges.

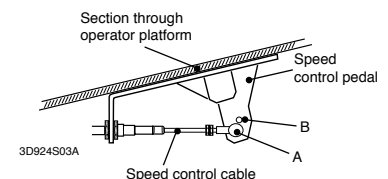
Securing the speed control cable through hole 'A' will provide 0-22 km/hr (0-14 mph) forward and 0-11 km/hr (0-7 mph) reverse. Securing the cable through hole 'B' will provide 0-19 km/hr (0-12 mph) forward and 0-8 km/hr (0-5 mph) reverse.



WARNING: PREVENT ACCIDENTS - Ensure that the control cable is securely fastened to the travel control pedal mechanism. Ensure that both the cable and pedal articulate freely through their full range of travel and that the mechanism freely returns to neutral when released.



WARNING: PREVENT ACCIDENTS - Ensure that the control cable is correctly routed underneath the operator platform such that it is clear of any obstructions and impediments to its operation.



OPERATOR PLATFORM LATCHING MECHANISM



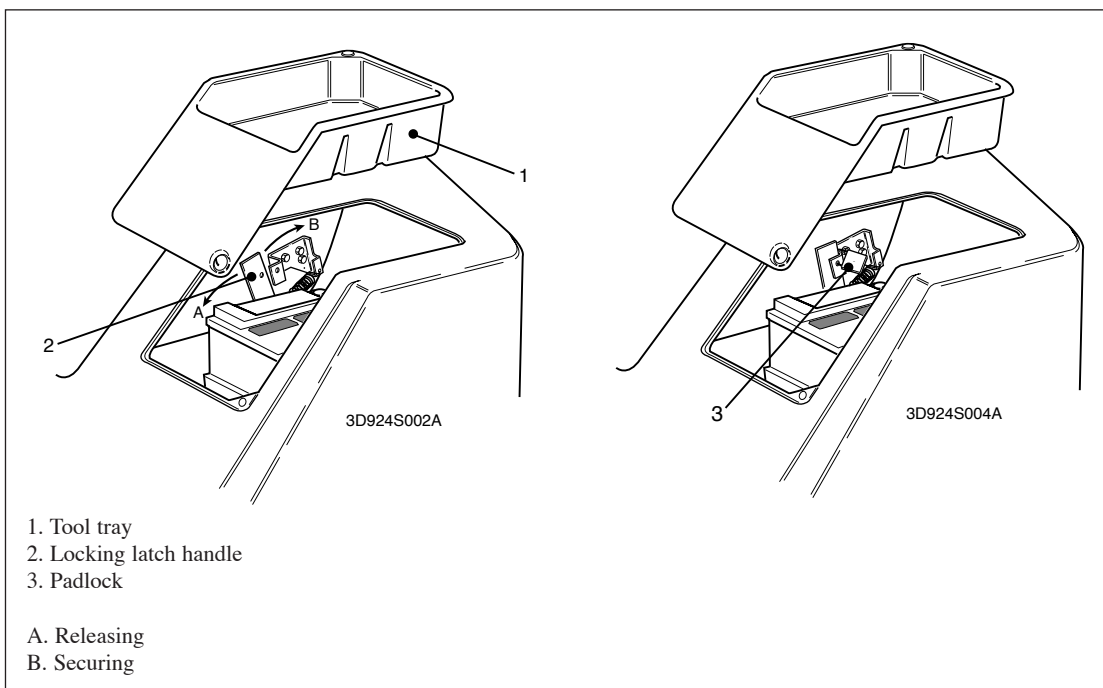
WARNING: PREVENT ACCIDENTS - Never operate the mower without first checking that the operator platform latching mechanism is fully engaged and in good working order. Check behind the seat and ensure that the top of the platform is flush with the top of the fuel tank. Also check beneath the tool tray and ensure that the release lever is padlocked in the correct position.

IMPORTANT: PREVENT DAMAGE - Engage the parking brake and lower the cutterheads to the ground. Remove ignition key and close ignition cover before raising or lowering the platform.



Releasing the platform: Release and remove the tool tray from the left hand side of the platform. Release the padlock securing the locking latch handle with the key provided. Move the locking latch handle towards the front of the mower (position A) until the latch hooks clear the locking bar and raise the platform. The gas spring will provide assistance.

Securing the platform: Lower the platform carefully. The gas spring will provide assistance. Move the locking latch handle towards the front of the mower (position A) as the platform nears the fully lowered position. This will ensure that the latch hooks clear the locking bar. Fully lower the platform and move the locking handle towards the rear of the mower (Position B) until the latch hooks fully engage the locking bar. Replace the padlock in order to secure the locking latch handle in place.



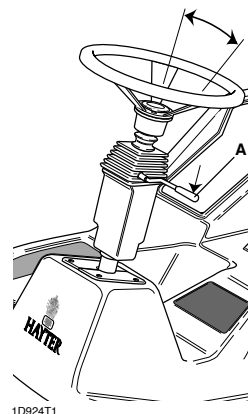
ADJUSTABLE STEERING COLUMN

WARNING: PREVENT ACCIDENTS - Never operate the mower without first checking that the steering column adjuster mechanism is in good working order and that, once adjusted and locked, the steering wheel remains securely in position.

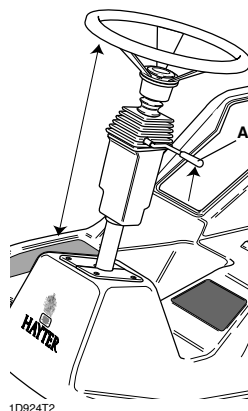


WARNING: PREVENT ACCIDENTS - Adjustment of the steering wheel and steering column should only be carried out when the mower is at a standstill with the parking brake engaged.

Adjusting the angle of inclination of the steering wheel: Move lever 'A' downwards to adjust the angle of steering wheel. Release the lever to lock the steering wheel in position.



Adjusting the length of the steering column: Move the lever 'A' upwards to adjust the length of the steering column. Release the lever to lock the steering column in position.



OPERATOR SEAT

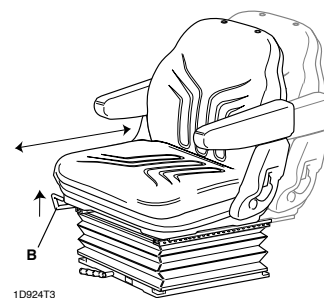


WARNING: PREVENT ACCIDENTS - Never operate the mower without first checking that the operator seat mechanisms are in good working order and that, once adjusted and locked, the seat remains securely in position.

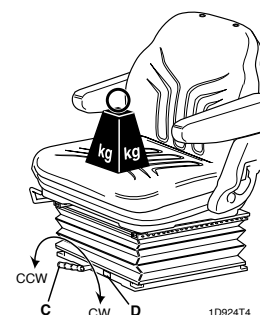


WARNING: PREVENT ACCIDENTS - Adjustment of the seat mechanisms should only be carried out when the mower is at a standstill with the parking brake engaged.

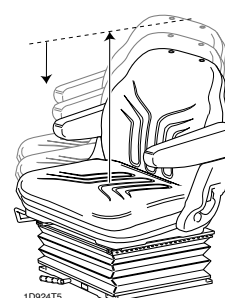
Fore/Aft Adjustment: Move lever 'B' upwards to adjust the Fore/Aft position of the seat. Release the lever to lock the seat in position.



Operator weight adjustment: Rotate handle 'C' clockwise as shown to increase suspension stiffness and counter-clockwise to decrease. Dial 'D' indicates when the optimum suspension adjustment has been set according to operator weight (kg).



Height adjustment: Manually lift the seat for incremental height adjustment. To lower lift the seat to beyond its highest setting, then allow it to drop to the lowest setting.

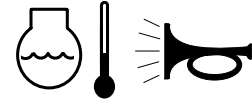


Backrest adjustment: Pull handle 'E' outwards to adjust the seat backrest angle. Release the handle to lock the seat backrest in position.

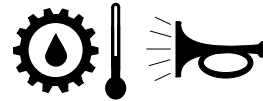


WARNING SYSTEMS

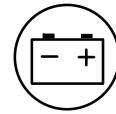
Engine coolant overheating warning : The engine coolant warning light illuminates and the horn is actuated.



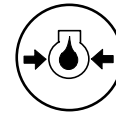
Hydraulic oil overheating warning : The hydraulic oil warning light illuminates and the horn is actuated when the hydraulic oil in the reservoir exceeds 95°C approx.



Low battery charge warning : The battery charge warning light illuminates.



Low engine oil pressure warning light : The engine oil pressure warning light illuminates.

**AUDIBLE WARNING HORN**

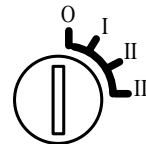
Depress the horn button to provide an audible warning.

IMPORTANT : PREVENT DAMAGE - The horn is automatically actuated when an engine coolant or hydraulic oil overheat condition occurs. **STOP** the engine immediately and effect remedial action before restarting.



IGNITION KEY

0 = Engine off.
 I = Engine run / Auxiliary on.
 II = Engine pre-heat.
 III = Engine start.



WARNING : PREVENT ACCIDENTS - Always remove the ignition key when the mower is not in use.

IMPORTANT : PREVENT DAMAGE - Always fit the protective cap when the ignition key is removed to prevent ingress of dirt and moisture from damaging the mechanism.

ENGINE PRE-HEAT INDICATOR LIGHT

Turn the ignition key to position II. The engine pre-heat indicator light will illuminate. When the correct pre-heat temperature is achieved the indicator light will switch off. When this condition is achieved turn the ignition key to position III to start the engine.



WS044

IMPORTANT: PREVENT DAMAGE. Attempting to start a cold engine before the pre-heat indicator light switches off can cause unnecessary wear to the battery.

FUEL LEVEL GAUGE

Displays fuel tank level.



WS023

E = Empty.
 F = Full.

HOURLMETER

Displays engine running hours.



TRANSMISSION NEUTRAL INDICATOR LIGHT

Illuminates when the travel control pedal is in the neutral position and the ignition key is turned to position 'I'.

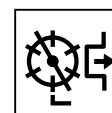
Note: The parking brake must be engaged for the transmission neutral indicator light to illuminate.



WS041

CUTTERDECK DRIVE SWITCH INDICATOR LIGHT

Illuminates when the cutterdeck drive switch is in the 'off' position and the ignition key is turned to position 'I'.



WS046

PARKING BRAKE INDICATOR LIGHT

Illuminates when the parking brake is engaged and the ignition key is turned to position 'I'.

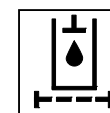


WS045

HYDRAULIC RETURN FILTER INDICATOR LIGHT

Illuminates when the return filter element is blocked.

Note: The engine must be running for the hydraulic return filter indicator light to illuminate. The indicator light may illuminate briefly when the hydraulic oil is cold.

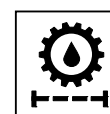


WS043

HYDRAULIC TRANSMISSION FILTER INDICATOR LIGHT

Illuminates when the transmission filter element is blocked.

Note: The engine must be running for the hydraulic return filter indicator light to illuminate. The indicator light may illuminate briefly when the hydraulic oil is cold.



WS042

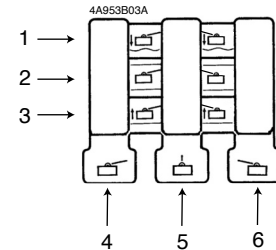
CUTTERHEAD POSITION CONTROL

The cutterheads may be raised or lowered independently using the bank of 3 lift control levers.

To lower the cutterheads, operate the lift control levers in a downward direction until locked in position 1. If the cutterhead drive switch is in the 'ON' position, the cylinder drive will engage when the cutterheads are approximately 300mm above ground level.

IMPORTANT: PREVENT DAMAGE - The lift control levers must be locked in position 1 whilst mowing. NEVER mow with the lift control levers in position 2 (neutral).

To raise the cutterheads, operate the lift control levers in an upward direction and hold in position 3. If the cutterhead drive switch is in the 'ON' position the cylinder drive will disengage when the cutterheads are approximately 300mm above ground level. Release the lift control levers when the cutterheads are at the required height. The control levers will automatically return to position 2 (neutral).



1. Down / float.
2. Neutral.
3. Raise.
4. Left hand cutterhead
5. Centre cutterhead.
6. Right hand cutterhead

CUTTERHEAD DRIVE ENGAGEMENT

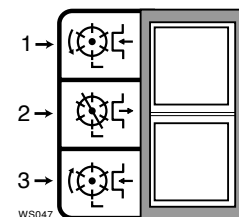
The cutterhead drive can be engaged only when the operator is seated correctly, refer - OPERATOR PRESENCE CONTROLS.

Release the cutterhead latches. Operate the cutterhead position controls to the down / float position and lower all cutterheads to the ground ready for mowing.

Forward rotation cutterhead drive engagement : Operate the cutterhead drive switch to the 'Forward' position.

Reverse rotation cutterhead drive engagement : Operate the cutterhead drive switch to the 'Reverse' position.

To disengage all cutterhead drives : Operate the cutterhead drive switch to the 'Off' position.



1. Forward.
2. Off.
3. Reverse.



WARNING : PREVENT ACCIDENTS - Refer OPERATOR PRESENCE CONTROLS for additional information.

WEIGHT TRANSFER / TRACTION ASSISTANCE

A variable hydraulic weight transfer system is provided for improving tyre grip with the grass surface - **'Traction Assistance'**.

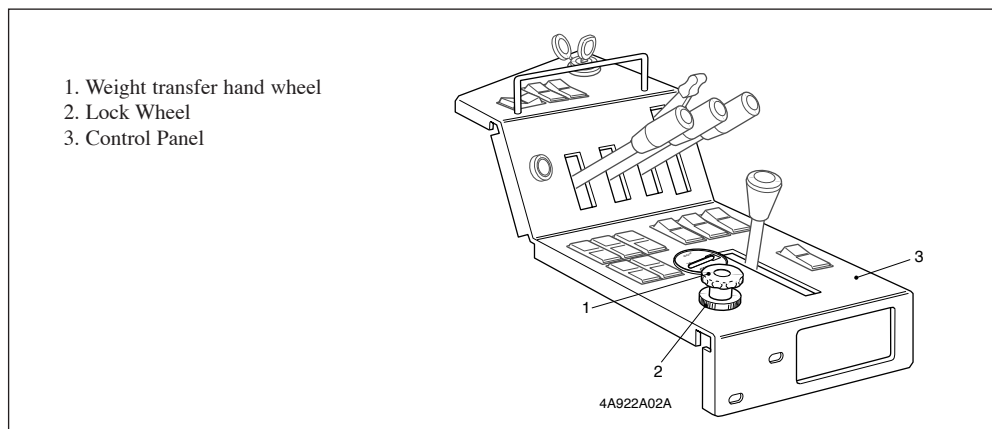
Hydraulic pressure in the cutterhead lift system provides a lifting force which reduces cutterhead weight on the ground and transfers the weight as a downward force onto the mower's tyres. This action is known as **'Weight Transfer'**.

To engage weight transfer: The amount of weight transfer can be varied to suit operating conditions by rotating the weight transfer hand wheel as follows;

Release the lock wheel underneath the hand wheel 1/2 turn anti-clockwise and hold.

Rotate the hand wheel: - Anti-clockwise to reduce weight transfer.
 - Clockwise to increase weight transfer.

Tighten the lock wheel.

**STARTING THE ENGINE**

WARNING: PREVENT ACCIDENTS - Before starting the engine check that ;

- The area is clear of bystanders.
- The cutterhead drive is disengaged.
- The parking brake is engaged.
- The travel control pedals are in neutral.
- You have read and understood the **SAFETY PRECAUTIONS** section in this manual.

This machine is fitted with an Engine Start Lockout, refer - **OPERATOR PRESENCE CONTROLS**.

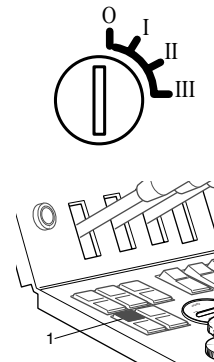
STARTING THE ENGINE**Continued.**

Starting a cold engine: Set the throttle control lever to approximately 70% full throttle.

Turn the ignition key to the 'ignition on' position "I" and check that the engine oil pressure and battery charge warning lights illuminate.

Turn the ignition key to the 'preheat' position "II" and hold until the engine pre-heat indicator light goes out.

Turn the ignition key to the 'start' position "III" and hold to crank the engine. As soon as the engine starts release the ignition key back to position 'I'.



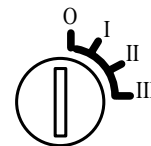
1. Engine pre-heat indicator light

WARNING: PREVENT DAMAGE - When the engine is operating all warning lights should be 'off'. If a warning light illuminates, stop the engine immediately and have the fault rectified before restarting.

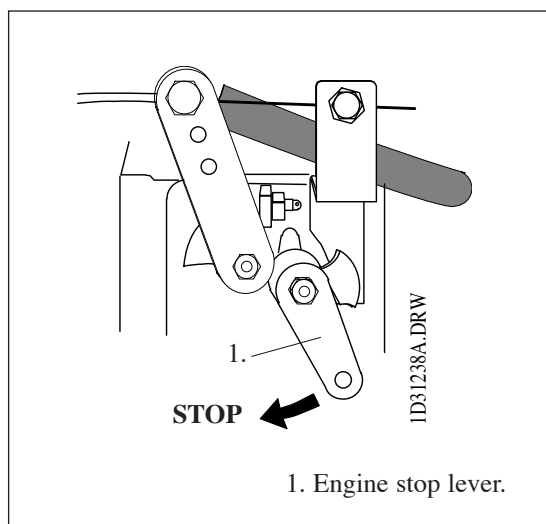
Starting a warm engine: Engine pre-heating is unnecessary when restarting an engine which has been stopped for a few minutes. Follow the cold engine starting procedure without holding in 'preheat' position "II".

STOPPING THE ENGINE

To stop the engine: Turn the ignition key to position '0'.



WARNING: PREVENT ACCIDENTS - If the engine fails to stop when the ignition key is turned to '0' operate the engine stop lever in a forward direction. Keep hands clear of moving objects and hot engine parts whilst the engine is running.



UNBLOCKING CUTTING CYLINDERS

WARNING: PREVENT ACCIDENTS - Before attempting to clear any blockage from the cutting cylinders on this machines ensure all of the following:

- Stop the machine on level ground.
- Apply the parking brake and disengage all drives.
- Lower the cutting units to the ground or securely lock in the designated transport positions.
- Stop the engine and remove the ignition key to isolate all power sources and check that they are stopped.
- Release all stored energy devices.
- Check that all moving parts are stationary.

NEVER ATTEMPT TO ROTATE THE CUTTING CYLINDERS BY HAND as there may be some residual pressure in the hydraulic system which could cause injury through sudden movement of the cylinder(s) when the blockage is released.

Always wear protective gloves and use a suitable strong wooden instrument. Ensure that this will fit between the blades and through the cylinder and is long enough to provide sufficient leverage to release the blockage and any residual hydraulic system pressure by rotating or rocking the cylinder. Make sure that the wooden instrument is properly supported in the cylinder and avoid the use of excessive force to prevent damage.

Only when the cylinder has a degree of free movement should the source of the blockage be removed. Ensure that the wooden instrument is also removed before restarting the power source.

If the cylinder requires readjustment or repair, refer - MAINTENANCE - Cutterheads.

CENTRE CUTTERHEAD HEIGHT OF CUT CORRECTION ADJUSTMENT

With all cutterheads set at the same HOC via the indicator rings, it may be noticeable that the centre unit produces a higher cut finish compared to the wing units. The centre unit is pulled and the wing units are pushed this presents marginally different cutting angles relative to the ground. The amount of HOC variation, which results from this will be influenced by the terrain but satisfactory results can usually be achieved by setting the centre cutterhead HOC indicator ring lower than the wing unit settings.

GENERAL OPERATING HINTS

1. The rotational speed of the cutting cylinders should always be kept as high as possible in order to maintain the highest quality of cut. This in turn requires that the engine speed be kept as high as possible.
2. The quality of cut will deteriorate if the forward speed is excessive. Always balance the quality of cut with the workrate required and set the forward speed accordingly.
3. Never let the engine labour. Reduce the forward speed or increase the height of cut. Check that the cutting cylinders are not in heavy contact with their bottom blades.
4. Regularly check the cutting cylinder to bottom blade adjustment every few hours even though cutting performance appears to be satisfactory. Heavy contact or excessive clearances between the cylinder and bottom blades will cause rapid wear to take place.
5. Always disengage the cutterhead drive when travelling across ungrassed areas. Grass will lubricate the cutting edges whilst mowing. Excessive heat will build up if the cutting cylinders are run when not mowing and this will cause rapid wear to take place. For this reason it is also wise to reduce cutting speed when mowing lightly grassed areas or when the grass is dry.
6. Cutting performance is best when cutting against the lie of the grass. In order to take advantage of this fact, the operator should attempt to alternate the direction of mowing between cuts.
7. Take care not to leave uncut strips of grass at the overlap points between adjacent cutterheads by avoiding tight turns.
8. It is generally wise to remove rear roller scrapers where conditions allow, as optimum grass discharge is achieved without them. Scrapers should be refitted when conditions are such that mud and grass start to build up on the rollers. When refitting the scraper wires care must be taken to ensure that they are correctly tensioned, refer - MAINTENANCE - EVERY 50 HOURS.



WARNING : PREVENT ACCIDENTS -Take care when travelling over obstacles such as roadside kerbs. **ALWAYS** travel at slow speed over obstacles to prevent damage to the machines tyres, wheels and steering system. Ensure that tyres are inflated to the recommended pressures.

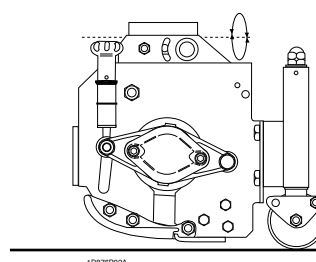
CUTTERHEAD GENERAL INFORMATION

The mower is designed to be used with MK3 200mm fixed or floating cutterheads or MK3 254mm fixed cutterheads.

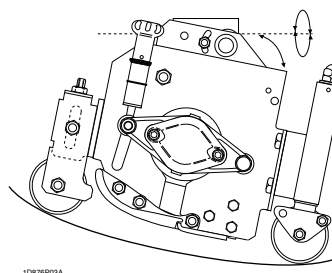
It is essential that the relationship between the bottom blades and the cutting cylinders are kept in good adjustment and that cutting edges are kept sharp to ensure good cutting performance, minimum power consumption and prolonged life for the cutting edges, refer - MAINTENANCE - Cutterheads.

Fixed MK3 200mm/254mm Cutterheads: When the mower is set up with fixed cutterheads the height of cut is gauged by the rear roller and the cutterhead is allowed to pivot laterally to follow ground contours. This arrangement is normally recommended for general mowing requirements.

(MK3 200mm Cutterhead illustrated).



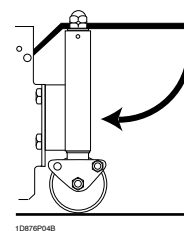
Floating MK3 200mm Cutterheads: When the mower is set up with floating cutterheads the height of cut is gauged by the front and rear rollers. The cutterhead is allowed to pivot fore and aft as well as laterally. This arrangement is recommended for high quality grass areas and performs well where grass is short and the ground undulations are severe.



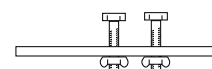
Grass deflectors: The rear grass deflectors must always be correctly fitted. The deflectors should be set as low as possible to deflect grass discharge to the ground.



WARNING: PREVENT ACCIDENTS - Always ensure that the grass deflectors are angled below horizontal level, otherwise risks to health and safety may result.



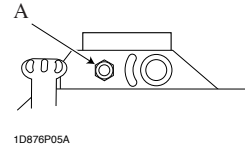
Height of cut gauge: An optional height of cut gauge is available to assist in achieving accurate cut height settings. It is suitable for both fixed and floating cutterheads.



Part No. 63-01-760

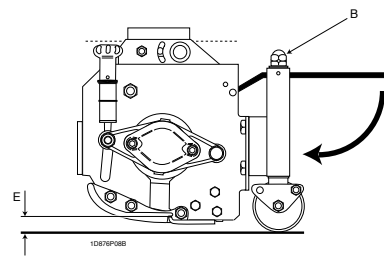
MK3 200mm FIXED CUTTERHEAD

Pivot knuckle fixing: Secure the bolt in the front “fixed” hole position ‘A’ as shown.



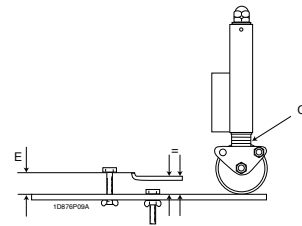
Height of cut adjustment: The height of cut is gauged by the position of the rear roller.

Turn the adjusting nut assembly ‘B’ both ends clockwise to decrease height of cut ‘E’ or anti-clockwise to increase height of cut ‘E’.



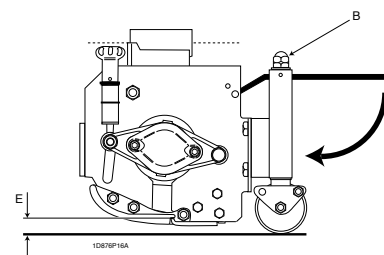
IMPORTANT: PREVENT DAMAGE - Do not attempt to unlock the nut assemblies, ‘B’.

Ensure that all cutterheads are set at the same height of cut by either referring to the indicator rings ‘C’ or by using a height of cut gauge across the full width of each cutterhead for greater accuracy as shown.

**MK3 254mm FIXED CUTTERHEAD**

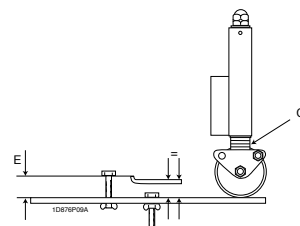
Height of cut adjustment: The height of cut is gauged by the position of the rear roller.

Turn the adjusting nut assembly ‘B’ both ends clockwise to decrease height of cut ‘E’ or anti-clockwise to increase height of cut ‘E’.



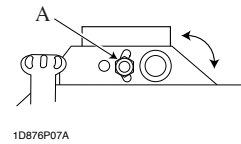
IMPORTANT: PREVENT DAMAGE - Do not attempt to unlock the nut assemblies ‘B’.

Ensure that all cutterheads are set at the same height of cut by either referring to the indicator rings ‘C’ or by using a height of cut gauge across the full width of each cutterhead for greater accuracy as shown.



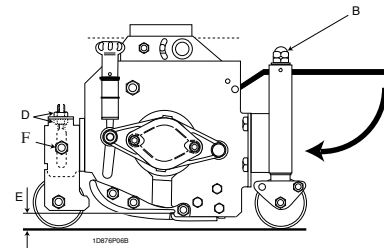
MK3 200mm FLOATING CUTTERHEAD

Pivot knuckle fixing: Secure the bolt in the rear “floating” slot position ‘A’ as shown.



Height of cut adjustment: The height of cut is gauged by the position of the front and rear rollers.

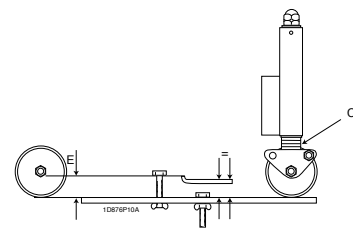
To alter the rear roller position, turn the adjusting nut assembly ‘B’ both ends clockwise to decrease height of cut ‘E’ or anti-clockwise to increase height of cut ‘E’.



IMPORTANT: PREVENT DAMAGE - Do not attempt to unlock the nut assemblies, ‘B’.

To alter the front roller position loosen bolts ‘F’. Release and turn adjusting nuts ‘D’ both ends clockwise to increase the height of cut or anti-clockwise to decrease the height of cut.

Ensure that all cutterheads are set at the same height of cut by referring to the indicator rings ‘C’ or use the height of cut gauge across the full width of each cutterhead as shown.



Tighten nuts ‘D’ and ‘F’ both ends.

MAINTENANCE

WARNING : PREVENT ACCIDENTS - When carrying out maintenance procedures it is essential that:

- The engine is switched off and the ignition key removed.
- The parking brake is applied.
- There is no pressure in the hydraulic system.
- The cutterheads are fully down on the ground.
- The safety precautions in this manual have been read and understood.

IMPORTANT: PREVENT DAMAGE: Regular maintenance is essential for the continued safe operation of the machine. Correct servicing will prolong the working life of the machine and safeguard the "Toro Warranty". Always fit genuine service parts as these are accurately matched to the required duty.

Dirt and contamination are the enemies of any hydraulic system. When carrying out maintenance procedures on the hydraulic system always ensure that the work area and the components are thoroughly clean before, during and after refitting. Ensure that all open hydraulic lines and ports, etc. are plugged during maintenance procedures.

The recommended service intervals are based on normal operating conditions. Severe or unusual conditions will necessitate shorter service intervals.

ALWAYS grease pivot points immediately after pressure washing or steam cleaning, refer - EVERY 50 HOURS, GREASE PIVOT POINTS.



WARNING: PREVENT ACCIDENTS - The engine, transmission oil and hydraulic systems will be hot after machine use. Allow the systems to cool before working on the machine, particularly before working on the engine or when changing oil or oil filters.

MAINTENANCE

Continued.



WARNING : PREVENT ACCIDENTS - Use hazardous substances carefully.
The following fluids are identified as being hazardous;

<u>Substances</u>	<u>Assessed risk</u>
Diesel oil	Low
Lubricating oil	Low
Hydraulic oil	Low
Grease	Low
Anti - freeze	Medium
Battery acid	High

When using any of the above fluids it is recommended that eye protection and gloves are worn and that care is taken to prevent spillage.

Avoid contact with skin; wash off spillage with soap and water.

In the case of battery acid drench with water and seek medical attention. Remove any contaminated clothing and clean thoroughly before use.

Avoid contact with eyes; wash with running water and seek medical attention if symptoms persist. In the case of battery acid, seek medical attention immediately.

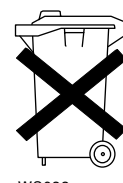
Avoid ingestion; if swallowed seek medical attention.

Keep clear of high pressure fluid escaping from pinholes, cracked connections etc. High pressure fluid can penetrate the skin. Seek immediate medical advice if any fluid is injected into the skin. Always use a piece of cardboard or paper when searching for leaks.

CAUTION: PREVENT ENVIRONMENTAL DAMAGE - Dispose of hazardous substances correctly.

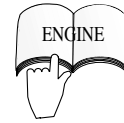
When disposing of hazardous waste products, take them to an authorised disposal site. Waste products must not be allowed to contaminate surface water, drains or sewerage systems.

CAUTION: PREVENT ENVIRONMENTAL DAMAGE - Dispose of used battery correctly. The battery has a separate collection mark. This means that the battery must not be disposed of with general waste. It must be taken to an authorised disposal site



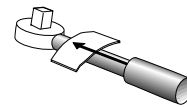
ENGINE

Refer to the Engine Operator's Manual for maintenance information.

**RUNNING IN PERIOD**

Check wheel nut torque settings:

During first 50 hours of use and in addition to routine checks. Refer - DAILY AND BEFORE USE. Check wheel nut torques twice a day.

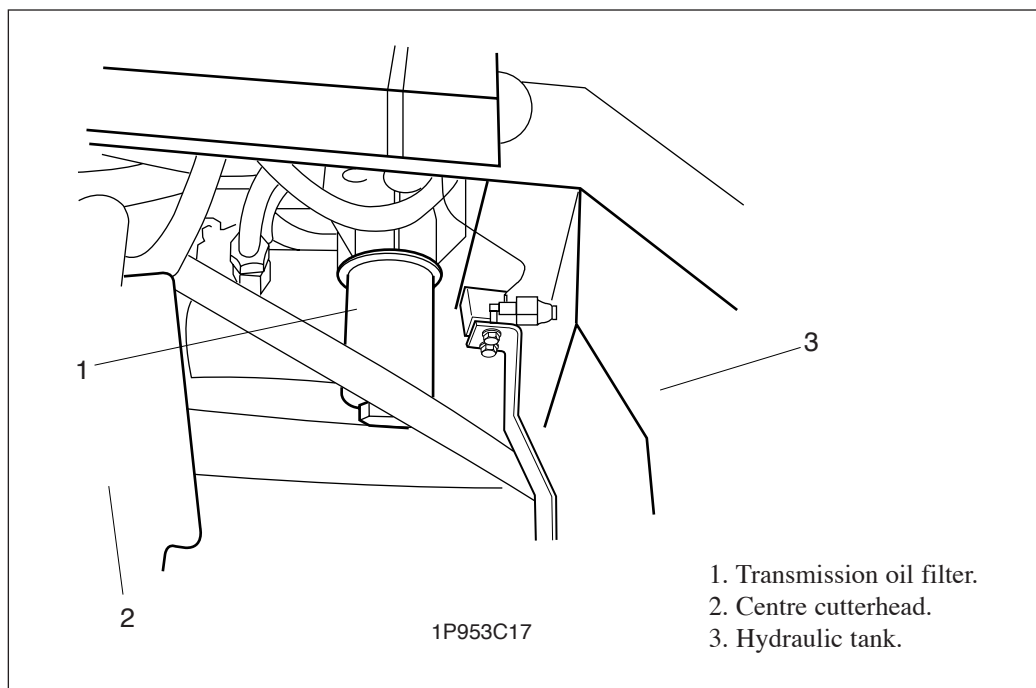


Front axle wheel nut torque setting - 200 Nm.

Rear axle wheel nut torque setting - 54 Nm.

RUNNING IN PERIOD - AT FIRST 50 HOURS

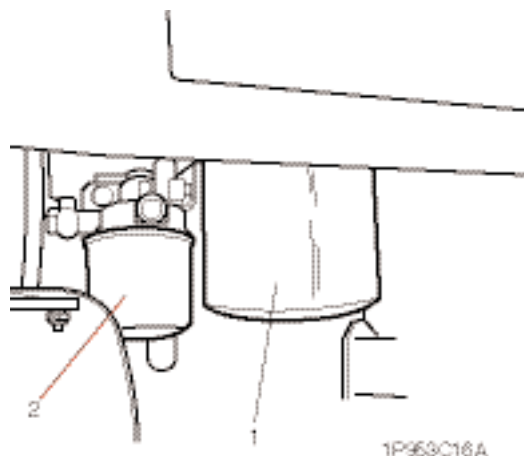
Change the transmission oil filter: Unscrew and remove the bottom of the transmission oil filter housing. Withdraw the filter element and discard. Refit a new filter element (part no. 924709) and replace the housing.



RUNNING IN PERIOD - AT FIRST 50 HOURS**Continued.**

Change the hydraulic oil return filter: Unscrew and remove the return filter canister and discard. Refit a new filter canister (part no. 924692).

Left Hand Side of Machine



- 1. Hydraulic oil return filter.
- 2. Engine fuel filter.

MS016

WELKE DEEL VAN DE MOTOR NIET AANRAKEN.
DO NOT TOUCH ANY PART OF THE MOTOR.

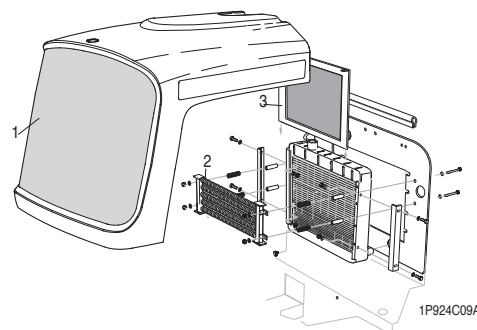
Diagram illustrating the internal structure of the 1P924C13A component. The main view shows a rectangular assembly with multiple horizontal layers and a central channel. A detailed cross-section view on the right shows a U-shaped profile with a width of 30 - 40mm and a flared top. A separate view on the far right shows a cross-section of a bulbous container with a wavy line indicating a liquid level.

Diagram illustrating a three-part assembly. Part 1 is a cylindrical component with a threaded section on the right. Part 2 is a smaller cylindrical component that fits into the left side of Part 1. Part 3 is a small, pointed component that fits into the left side of Part 2. The text "IDT2444.DWG" is visible in the upper left corner.

- Replace the air filter and assemble the dust bowl, with the dust boot facing below horizontal level.

DAILY AND BEFORE USE**Continued.**

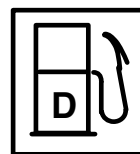
Clean the primary radiator screen: Clean the primary radiator screen. Check the oil cooler, secondary screen and engine radiator grille for debris and clean as necessary using a brush or airline. The secondary screen can be removed for cleaning. Re-assemble the secondary screen. If water is used, these areas should be allowed to dry out completely before use.



1. Radiator primary screen.
2. Oil cooler
3. Secondary screen

IMPORTANT: PREVENT DAMAGE - NEVER operate the mower with a damaged radiator screen or engine damage could result from overheating. Clean the radiator screen more regularly in dry conditions.

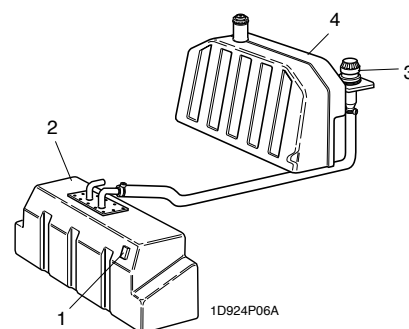
Check fuel level: Top up as necessary with diesel fuel. Always top up before storing the mower over-night to prevent water condensation from contaminating the fuel.



Check hydraulic oil level: If the oil level is below the upper mark on the sight level gauge, top up with the correct grade of hydraulic oil as necessary, refer- SPECIFICATIONS.



WARNING : PREVENT DAMAGE - If there is noticeable hydraulic oil loss, the leakage source must be rectified before using the mower. NEVER operate the mower when the hydraulic oil level is below the bottom mark on the sight level gauge. NEVER operate the mower with contaminated oil.



1. Sight level gauge
2. Oil tank
3. Oil filler cap.
4. Fuel tank.

DAILY AND BEFORE USE**Continued.**

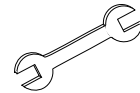
Check hydraulic hose-lines: Inspect hydraulic hose-lines for signs of wear or damage.



WARNING: PREVENT ACCIDENTS - ALWAYS replace worn or damaged hydraulic hose-lines immediately. DO NOT operate the mower with defective hydraulic hose-lines.

Inspect the mower for signs of oil leakage. Tighten fittings or replace seals as required.

Check fasteners: Check that all nuts, bolts and pins are secured correctly in place and in good condition.



Check safety devices:

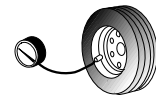


WARNING - PREVENT ACCIDENTS : Ensure that all safety guards, shields and protective devices are securely in place and in good working order.

Check tyres: Examine the condition of the tyres and check that inflation pressures are correctly set, refer - SPECIFICATIONS.



WARNING - PREVENT ACCIDENTS : Ensure that damaged tyres are replaced. Ensure that tyre tread depths comply with road traffic regulations.



Grease all rear axle components including the centre axle beam pivot pin, both steering yokes, track rod ball joints and steering cylinder ball joints, refer - EVERY 50 HOURS, GREASE PIVOT POINTS.

Check cutterheads: Examine the condition of the cutting cylinders and bottom blades. Adjust as necessary, refer - CUTTERHEAD CYLINDER TO BOTTOM BLADE ADJUSTMENT.

Grease all cutterhead rollers with a good quality medium grade grease and ensure that sufficient grease is injected such that clean grease is seen to escape from the roller end cap, refer - EVERY 50 HOURS.

If no grease can be seen escaping from the roller end cap it can be assumed that the rear seal has failed, resulting in the the roller shell being filled with grease.

Note: Care should be taken if an industrial power greaser is used as this may result in damage to the bearing sealing arrangement.

Check forward/reverse travel pedal action: With the engine switched 'off', operate the forward and reverse travel pedals through the full range of articulation and ensure that the mechanism returns freely to the neutral position.



WARNING - PREVENT ACCIDENTS: Do not operate the machine if there are any signs of 'Stickiness' in the pedal mechanism which prevents a free return to the neutral condition.

DAILY AND BEFORE USE

Continued. —

Check operator presence controls:



WARNING : PREVENT ACCIDENTS - Keep bystanders away when checking operator presence control interlock switches. **DO NOT** use the mower unless the operator presence controls work correctly as described below. If difficulties arise, consult your "Toro dealer".

Operator presence seat switch: Sit on the operator seat and start the engine. Lower the cutterheads to the ground and engage the cutter drive in the forward direction. Rise from the operators seat and check that the cutting cylinders come to a stop after an initial 0.5 to 1 second delay. Repeat with the cutting cylinders running in reverse.

Cutter drive interlock switch: Stop the mower engine. Operate the cutter drive switch to the 'off' position and turn the ignition key to position 'I'. The cutterhead drive switch indicator light should illuminate. Refer - OPERATING THE MOWER.

Operate the switch to the 'forward' position. The indicator light should go out and the engine should not start when the ignition key is turned. Repeat for the 'reverse' position.

Parking brake interlock switch: Stop the engine. Engage the parking brake and turn the ignition key to position 'I'. The parking brake indicator light should illuminate. Refer - OPERATING THE MOWER.

Disengage the parking brake. The indicator light should go out and the engine should not start when the ignition key is turned.

Sit on the operator seat and start the engine. Release the parking brake. Rise from the operator seat and check that the engine stops.

Transmission neutral interlock switch: Stop the mower engine and remove the foot from the forward/reverse travel pedals. Turn the ignition key to position 'I' and the transmission neutral indicator light should illuminate. Application of light pedal pressure in a forward and reverse direction should cause the indicator light to go out. Take extreme care to ensure that the area around the mower is clear before checking that the engine will not start under this condition.

EVERY 50 HOURS

Perform routine checks : Refer - DAILY BEFORE USE.

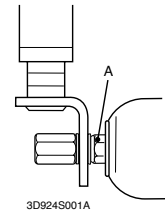
Check cutterhead roller bearing adjustment:

Important: Prevent Damage - It is essential that the cutterhead roller bearings are kept in good adjustment in order to ensure maximum working life. If roller end float is allowed to become excessive premature bearing failure will result.

Grip the roller and move from side to side and up and down. If excessive movement is detected proceed as follows:

Carefully tighten nuts 'A' at each end of the roller with the spanner provided, just sufficiently to remove any end float.

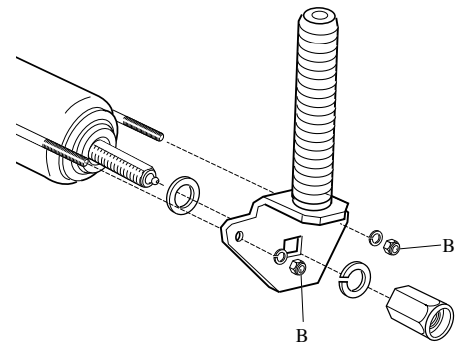
Note: The roller should still rotate freely after adjustment. Overtightening of nuts 'A' could lead to premature bearing failure.



Check cutterhead rear roller scraper wire tension:

It is important that the scraper wires are correctly tensioned so as to ensure correct operation and maximum working life. Carefully tighten the scraper wire retaining nuts 'B' so as to just remove any slack from the scraper wires then tighten nuts 'B' a further four full turns to correctly tension the wire.

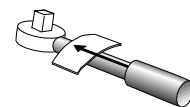
IMPORTANT: PREVENT DAMAGE - Do not over tighten the scraper wires.



Check wheel nut torque settings:

Front axle wheel nut torque setting - 200Nm.

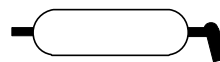
Rear axle wheel nut torque setting - 54 Nm.



EVERY 50 HOURS

Continued.

Grease pivot points : Clean and grease all grease points with a good quality compound of the grade specified, refer - SPECIFICATIONS.

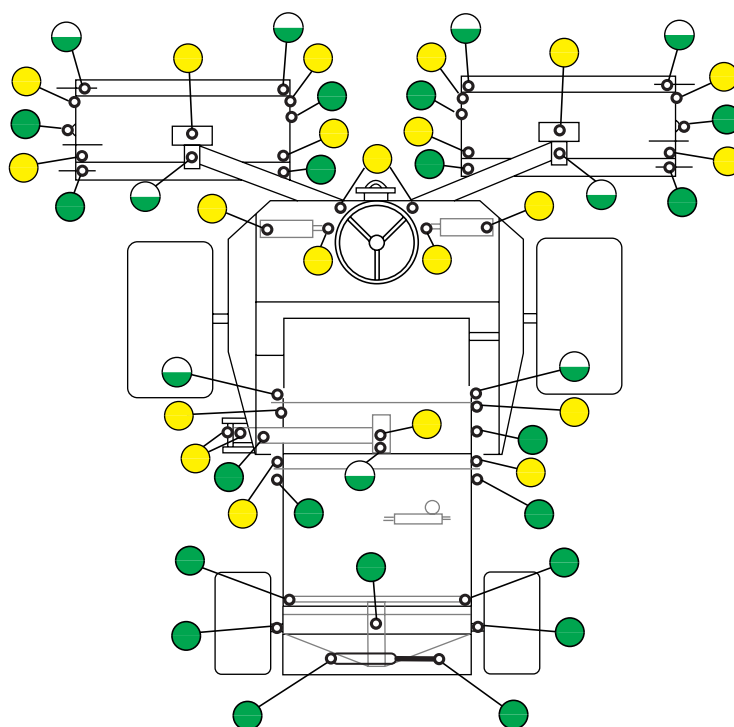


Replace any grease nipples which are damaged.

Grease all cutterhead grease points and ensure that sufficient grease is injected such that clean grease is seen to escape from the roller end caps. This provides visible evidence that the roller seals have been purged of grass debris etc. and will ensure maximum working life.

GREASE POINTS

- DAILY
- DAILY (IF FITTED)
- 50 HOUR (WEEKLY)



EVERY 250 HOURS

Perform routine checks : Refer - DAILY BEFORE USE.

- EVERY 50 HOURS.

Check battery condition :



WARNING : PREVENT ACCIDENTS - Explosive gases are produced by the battery. Work in a well ventilated area, away from all sources of ignition.

Battery fluids are corrosive. Take care to avoid contact with the skin or eyes. In the event of a spillage, drench the affected area with water. If the eyes are affected, seek medical attention. Remove any contaminated clothing and clean thoroughly before use.

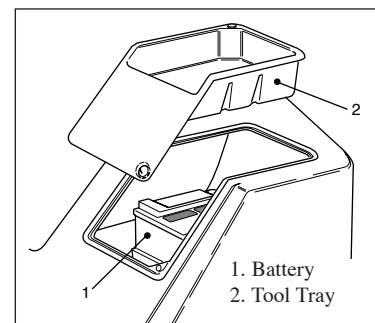
When removing the battery, always disconnect the negative (-) cable first.

When replacing the battery, always connect the negative (-) cable last.

Remove the tool tray to gain access to the battery. Remove any corrosion from the battery terminals using a wire brush and apply petroleum jelly to the terminals to prevent further corrosion. Clean the battery compartment.

Under normal operating conditions the battery will not require any further attention. If the machine has been subject to continuous use under high ambient temperature conditions, the battery electrolyte may require topping up. Remove the cell covers and top up with distilled water to a height 15mm below the top of the battery. Replace the cell covers.

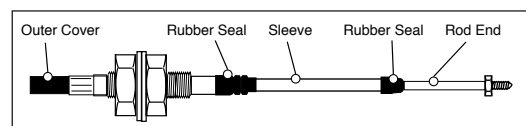
IMPORTANT : PREVENT DAMAGE - Check the condition of the battery cables. Replace cables showing signs of wear or damage and tighten any loose connections as necessary.



Visually inspect transmission control cable and operating mechanism:

Check the condition and security of the cable and operating mechanism at the speed control pedal and transmission pump ends.

- Remove build up of dirt, grit and other deposits.
- Ensure that the ball joints are securely anchored and check that mounting brackets and cable anchors are tight and free from cracks.
- Inspect end fittings for wear, corrosion, broken springs and replace if necessary.
- Ensure that the rubber seals are correctly located and in good condition.
- Ensure that the articulating sleeves supporting the inner cable are in good condition and firmly attached to the outer cable assembly at the crimped connections. If there are any signs of cracking or detachment fit new cable immediately.
- Check that sleeves, rods and inner cable are free from bends, kinks and other damage. If there are any signs of such failure, fit a new cable immediately.
- Check the condition of the neutralising device and replace if worn.
- With the engine switched 'Off', operate the pedal controls through the entire range and ensure that the mechanism moves smoothly and freely to the neutral position without 'Sticking' or 'Hanging up'.



EVERY 500 HOURS

Perform routine checks : refer

- DAILY BEFORE USE.
- EVERY 50 HOURS.
- EVERY 250 HOURS.

Thoroughly clean the machine:

IMPORTANT: PREVENT DAMAGE - Keep water away from electrical components. Use a dry cloth or brush to clean such areas.

Service the hydraulic system : This procedure is best carried out when the hydraulic oil is warm (not hot). Lower the cutterheads to the ground and drain the hydraulic system by removing the hydraulic tank drain plug. Remove the oil tank filler flange to gain access to the suction strainer. Unscrew and remove the strainer and clean with paraffin or petrol before replacing. Renew the strainer if there are any signs of damage.

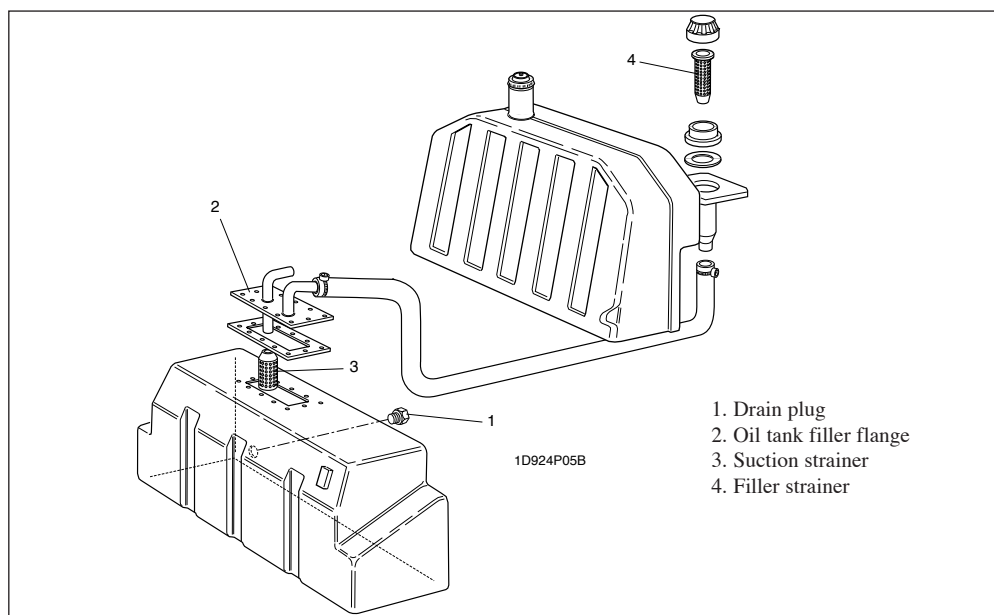
Remove the oil filler cap strainer and clean before replacing. Renew the strainer if there are any signs of damage.

Renew the return line oil filter element, refer - RUNNING IN PERIOD AT FIRST 50 HOURS.

Renew the transmission oil filter element, refer - RUNNING IN PERIOD AT FIRST 50 HOURS.

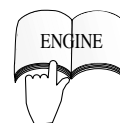
Replace the drain plug and refill the hydraulic tank with fresh clean hydraulic oil of the recommended grade, refer - SPECIFICATIONS.

Run the machine and operate all hydraulic systems until the hydraulic oil is warm. Recheck the oil level and top up as necessary to the upper mark on the sight level gauge.

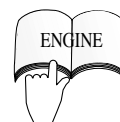


EVERY 500 HOURS**Continued.**

Renew the engine air cleaner filter: Check the condition of the air cleaner hoses. Replace any hose which is damaged and tighten the connections, refer - ENGINE MANUAL.



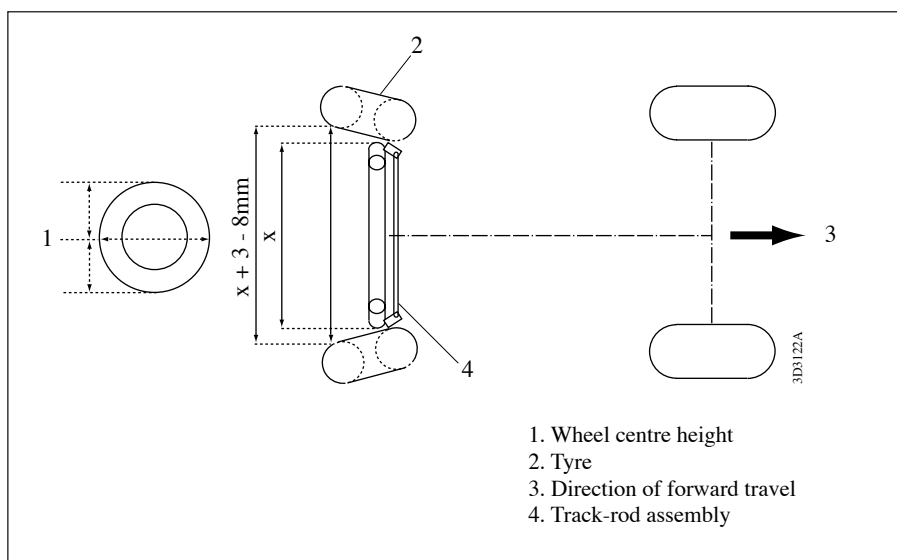
Renew the engine fuel filter element: Refer - ENGINE MANUAL.



Check electrical system: Inspect all electrical connections and cables and replace any which are damaged or corroded. Spray a good quality water inhibitor onto exposed connections to prevent moisture ingress.

Check rear wheel alignment: To prevent excessive tyre wear and ensure safe machine operation, the rear wheels must be correctly aligned to 'toe - in' by 3 - 8mm.

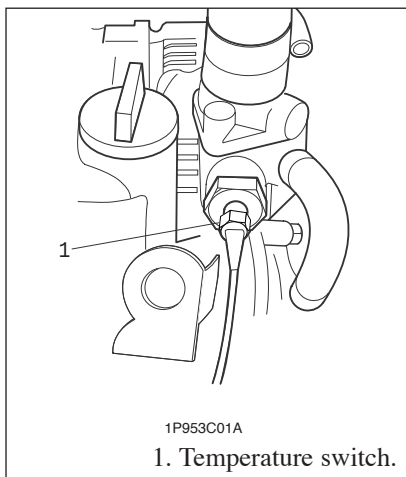
Set the rear wheels in the straight ahead position. Measure and compare the distance between the front sidewalls and the rear sidewalls at the wheel centre height. The distance between the front sidewalls must be set 3 - 8mm less than the distance between the rear sidewalls.



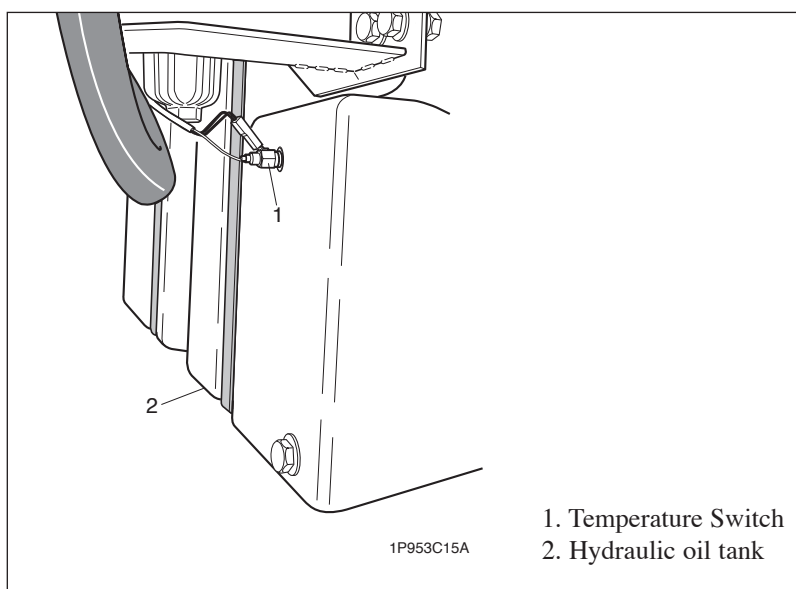
To adjust the alignment of the rear wheels, first back off the left hand and right hand locknuts on the track rod assembly. (Left hand locknut is a left hand thread). Rotate the track rod to achieve the correct 'toe - in' as described above and tighten the locknuts securely.

EVERY 500 HOURS**Continued.**

Check the engine overheat warning system: Turn the ignition key to the 'ignition on' position 'I'. Disconnect the red/grey wire terminal from the engine temperature switch and touch the metal terminal of this wire onto a suitable earth point, ensuring that the metal surfaces make good contact. The horn will sound and the engine coolant temperature warning light will illuminate to confirm correct operation. If the system is faulty, make repairs before operating the mower.



Check the hydraulic oil overheat warning system: Turn the ignition key to the 'ignition on' position 'I'. Disconnect the red/blue wire terminal from the hydraulic tank temperature switch and touch the metal terminal of the wire onto a suitable earth point, ensuring that the metal surfaces make good contact. The horn will sound and the hydraulic oil temperature warning light will illuminate to confirm correct operation. If the system is faulty, make repairs before operating the mower.

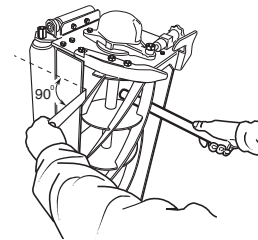


CUTTERHEAD CYLINDER TO BOTTOM BLADE ADJUSTMENT

IMPORTANT : PREVENT DAMAGE - It is essential that the relationship between the bottom blades and the cutting cylinders is kept in good adjustment in order to ensure good cutting performance, minimum power consumption and prolonged life for the cutting edges.

Carry out the following procedure before commencing work and re-check the settings every few hours.

Check that the cutting cylinder is correctly set to the bottom blade by holding a thin piece of paper between the cutting cylinder and the bottom blade as shown. Carefully rotate the cylinder as shown and check that the paper is cut cleanly at all points along the length of the blade. Hold the paper at 90 degrees (right angles) to the bottom blade to obtain the correct cutting action.

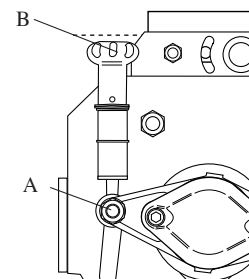


WARNING: PREVENT ACCIDENTS - Ensure that people are clear of the cutting cylinders as rotation of one may cause others to rotate.

If adjustment is necessary proceed as follows;

Release nut 'A' 1/4 turn both ends.

Turn handwheel 'B' each end alternately whilst rotating the cutting cylinder backwards until the bottom blade is in 'fleeting' contact with the cylinder along its entire length. Re-check the cutting action along the length of the bottom blade using a thin piece of paper making marginal adjustments as necessary.



Tighten nut 'A' both ends.

If it is impossible to obtain a good clean paper cut across the entire length of the bottom blade it will be necessary to carry out the backlapping procedure to reprocess the cutting edges. In severe cases it will be necessary to regrind the cutting cylinder and the bottom blade, refer - BACKLAPPING / GRINDING.

Do not be tempted to over adjust, thus causing heavy contact between the cylinder and bottom blade, as this will cause very rapid uneven wear to take place leading to tramlining and waviness of the cutting edges. The frictional losses will be high and a significant amount of power will be absorbed, thus reducing the power available for cutting. The heating effect due to friction will cause excessive expansion to take place which will further aggravate the situation by increasing the contact pressure.

If the cutterheads are allowed to operate for more than a few hours without adjustment the running wear will eventually cause the cylinder to run out of contact with the bottom blade. At this stage very rapid rounding of the cutting edges will occur as grass and abrasive particles pass through the clearance between the blades.

Lack of attention to adjustment can therefore be foolhardy as maintenance costs will escalate. The quality of cut will also be seriously affected as will the health and growth of the grass.

An experienced operator will notice when a cutterhead starts to go out of adjustment; when the grass ceases to be cut cleanly and the cut ends become ragged.

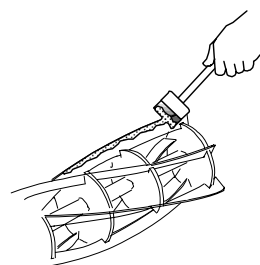
CUTTERHEAD BACKLAPPING

This process is recommended for restoring the sharp cutting edges to cylinders and bottom blades which are essential for good quality grass cutting.

This process can only deal with a small amount of metal removal to restore the cutting edges. If the blade edges are seriously worn or damaged it will be necessary to remove the component parts and have them reground.

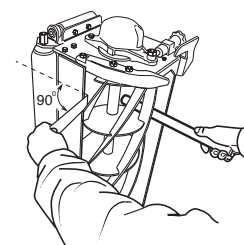
The backlapping process:

1. Check that the mower engine is switched off and the parking brake applied.
2. Adjust the cutting cylinders to the bottom blades to obtain 'fleeting contact'.
3. Apply a medium grade detergent based carborundum paste to the cutting edges of the cylinders with a long handled brush.



80 Grade Carborundum paste	
	Part No:
0,45 kg	63-07-088
11,25 kg	63-07-086

4. Ensure that the area surrounding the cutterheads is clear of people and keep hands and feet clear of the cutting cylinders during the period when the mower engine is running.
5. Sit on the operator seat, start the mower engine and set the engine speed at idle.
6. Operate the cutterhead drive switch to the 'reverse/backlap' position for a period of time and listen to the grinding action .
7. Operate the cutterhead drive switch to the 'off' position and switch off the mower engine when the grinding action has stopped.
8. Thoroughly clean the blade edges and adjust the cutting cylinders to the bottom blades. Check that a thin piece of paper can be cut cleanly at all points along the cutting edges while rotating the cylinders by hand.
9. If further backlapping is necessary repeat steps 2 to 8.
10. Thoroughly remove and wash off all traces of the carborundum paste from the cylinders and bottom blades.



CUTTERHEAD GRINDING

It will be necessary to carry out a grinding operation to correct cylinder spiral edges or bottom blade edges which have become excessively rounded or distorted. Bottom blades which are nearing the end of their wear life should be replaced. The new blades should be ground on their holders prior to fitting, refer - CUTTERHEAD BOTTOM BLADE REPLACEMENT. When grinding operations are necessary it is essential that both cylinders and bottom blades are ground at the same time. The only exception to this rule is when a new cylinder is fitted in which case it is only necessary to grind the bottom blade. All such grinding operations should be carried out by your dealer on a quality, well maintained cylinder/ bottom blade grinding machine.

CUTTERHEAD BOTTOM BLADE REPLACEMENT

Remove the bottom blade holder by removing the three fixing bolts at each end and withdraw from the cutterhead. Remove the worn bottom blade and discard the countersunk screws and securing nuts. Fit the new blade to the holder and loosely assemble with new countersunk screws and securing nuts. Tighten the centre bolts to a torque of 40 Nm. Continue by tightening the remaining bolts to the same torque by working from the centre out towards the blade ends.

The new bottom blade must be ground on its holder prior to refitting to the cutterhead. Adjust the cutting cylinder position to give adequate clearance for fitting the new bottom blade holder. Refit the bottom blade holder assembly to the cutterhead using the original fixing bolts and tighten to a torque of 35 Nm. Finally adjust the cylinder to the bottom blade, refer - CUTTERHEAD CYLINDER TO BOTTOM BLADE ADJUSTMENT.

RAISING THE MOWER OFF THE GROUND

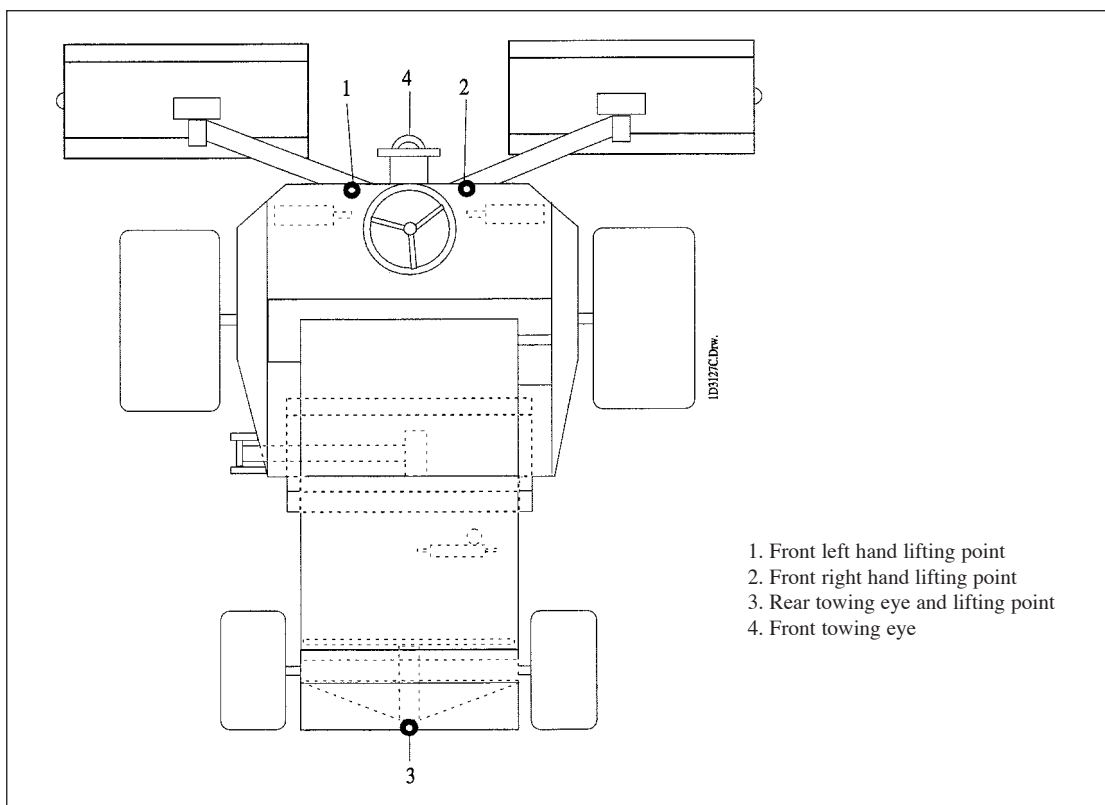
WARNING: PREVENT ACCIDENTS - Before raising the mower ensure that:

- The lifting device to be used is in good condition and capable of supporting the weight of the mower securely. Minimum lift capacity 2000 Kg.
- The mower is on level ground.
- The parking brake is applied.
- The engine is switched off and the ignition key removed.
- The ground under the lifting device is level and firm.
- The lifting device is secure against one of the mowers lifting points.
- If raising the front of the mower, both of the rear wheels must be chocked securely to prevent the mower rolling away. Note that the parking brake only operates on the front wheels.



WARNING: PREVENT ACCIDENTS - When the mower is raised off the ground:

- NEVER crawl under the mower.
- NEVER start the engine.



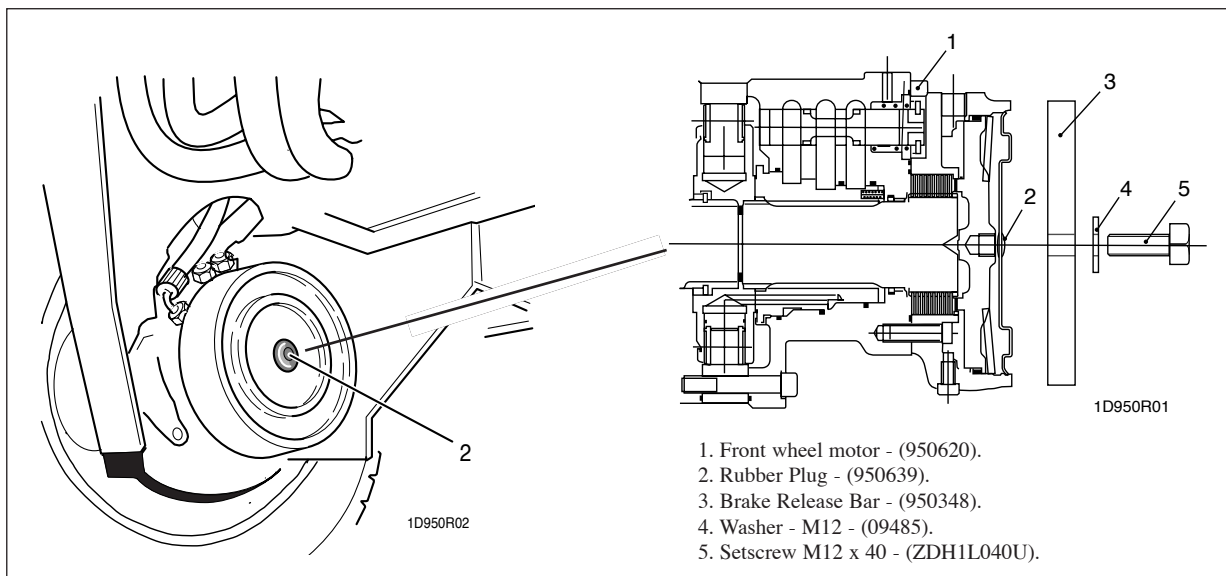
TOWING THE MOWER

Towing procedure : Connect a rigid tow bar between the towing eye on the mower and a suitable towing vehicle. Ensure that the towing vehicle specification is suited to braking the combined vehicle weight to rest whilst effecting complete control at all times. Ensure the towing vehicle's parking brake is applied. Chock the mower front wheels to prevent the mower rolling away.

De-commission the front wheel motor disc brakes as follows :-

i) Identify the right hand front wheel motor disc brake assembly and remove the rubber plug (item 2). Position a M12 x 40mm long setscrew (item 5) with washer (item 4) through the brake release bar (item 3) and into the hole in the centre of the motor end plate. Tighten the setscrew (item 5) into the threaded hole in the brake piston until the brake is released.

ii) Identify the left hand front wheel motor disc brake assembly and repeat the previous procedure.



TOWING THE MOWER**Continued.**

De-commission the hydraulic service braking system as follows:-

- i) Open the 2 transmission relief valves A and B situated on the transmission pump. The valves are fully open at 2 anticlockwise revolutions. Do not open the valves past 2 revolutions.

The steering must be operated manually when the mower is being towed. The steering will feel heavy as there is no hydraulic assistance when the engine is switched off.

The mower is now in a free wheel condition and can be towed for a short distance at slow speed. Remove wheel chocks before towing.

After towing the mower: To return the mower to its normal working condition the following procedure must be adopted.

Chock the front wheels and re-commission the hydraulic service braking system as follows :-

- i) Close the 2 transmission relief valves. Turn clockwise and tighten to a torque of 41- 68 Nm.

Re-commission the front wheel motor disc brakes as follows :-

- i) Identify the right hand front wheel motor disc brake assembly. Rotate the setscrew (item 5) anti-clockwise and remove together with Washer (item 4) and brake release bar (item 3). Reassemble the rubber plug (item 2) into the motor end plate.
- ii) Identify the left hand front wheel motor disc brake assembly and repeat the previous procedure.

Store the brake release bars, washers and setscrews (items 3, 4 and 5) for future use.

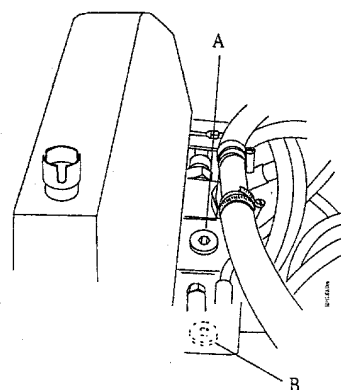
Remove the wheel chocks.

Disconnect the tow bar.

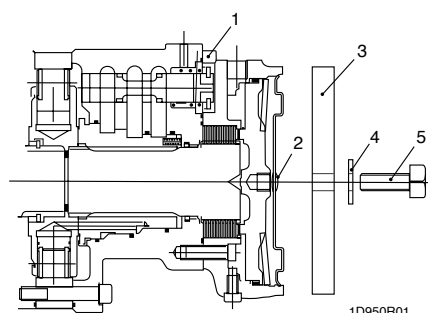
The mower braking system will now operate in the normal way.



WARNING: PREVENT ACCIDENTS - Before using the mower, ensure that the braking system operates correctly. Carry out initial checks with the mower at slow speed. Do not operate the mower with a defective braking system. Do not operate the mower with the brakes de-commissioned.



A. and B. Transmission Relief Valves.



1. Front wheel motor - (950620).
2. Rubber Plug - (950639).
3. Brake Release Bar - (950348).
4. Washer - M12 - (09485).
5. Setscrew M12 x 40 - (ZDH1L040U).

1D950R01

GRASS CUTTING FAULTS

FAULT	POSSIBLE CAUSE	REMEDY
Areas of uncut grass at point of overlap between cutting cylinders.	Turning too tightly. Mower sliding sideways when travelling across face of a slope. One end of cutterhead out of ground contact caused by: - Poorly routed hoses or wrongly positioned hydraulic adaptors. - Pivot pins seizing. - Grass build up under cutterhead.	Reduce turning radius. Mow up/down slope. Reroute hoses/reposition hydraulic adaptors. Free off and grease pivot pins. Remove grass.
Ridge lines in the cut across the direction of travel over full width.	Forward speed too high. Cylinder speed too slow. Height of cut too low.	Reduce forward speed. Increase mower engine speed. Raise height of cut.
Ridge lines in the cut grass across the direction of travel over the cutting width of one cylinder.	Cylinder is running slow.	Refer - TROUBLE SHOOTING for remedy.
Step in cut grass height at point of overlap between cutting cylinders.	Inconsistent height of cut setting on one cylinder. Raise/Lower position control not in float position. One end of cutterhead out of ground contact caused by: - Poorly routed hoses or wrongly positioned hydraulic adaptors. - Pivot pins seizing. - Grass build up under cutterhead.	Check and readjust height of cut setting. Operate position control to float position. Reroute hoses/reposition hydraulic adaptors. Free off and grease pivot pins. Remove grass.

GRASS CUTTING FAULTS

Continued.

FAULT	POSSIBLE CAUSE	REMEDY
Some uncut or poorly cut strands of grass.	Cutting cylinder is partially out of contact with the bottom blade.	Readjust cutting cylinder to bottom blade.
	Cutting cylinder is in heavy contact with the bottom blade.	Readjust cutting cylinder to the bottom blade.
	Height of cut is too high.	Lower height of cut setting.
	Cutting edges of cutting cylinders/bottom blades are rounded.	Backlap or regrind to restore cutting edges.
Lines of uncut or badly cut grass in direction of travel.	Tramlining of cutting edges due to heavy contact caused by poor cutting cylinder to bottom blade adjustment.	Backlap or regrind to restore cutting edges.
	Bottom blade in ground contact.	Raise height of cut.
	Nose down attitude of bottom blade.	Readjust cutterhead to ensure bottom blade is parallel to ground.
	Cutterheads bouncing.	Reduce forward speed. Reduce weight transfer.
	Worn cylinder bearings/bearing housing pivots.	Replace worn parts.
	Loose components in cutterhead.	Check and retighten as necessary.
Scalping.	Undulations too severe for height of cut setting.	Use floating cutterheads.
	Height of cut too low.	Raise height of cut.

GRASS CUTTING FAULTS

Continued.

FAULT	POSSIBLE CAUSE	REMEDY
Excessive bottom blade wear.	Bottom blade in heavy ground contact.	Raise height of cut.
	Cutting edges of the cutting cylinder/ bottom blade are rounded.	Backlap or regrind to restore cutting edges.
	Cylinder is in heavy contact with the bottom blade.	Readjust the cutting cylinder to the bottom blade.
	Damaged cutting cylinder or bottom blade.	Regrind or replace as necessary.
	Excessively abrasive ground conditions.	Raise height of cut.

TROUBLE SHOOTING

When using the following chart it may be found that overhaul of major components or hydraulic pressure adjustments are necessary. In this case it is recommended that your dealer make these repairs as he is properly equipped to do this work.



WARNING: PREVENT ACCIDENTS - ALWAYS Apply the parking brake, switch off the engine and remove the ignition key before attempting to work on the mower.

PROBLEM	POSSIBLE CAUSE	REMEDY
Engine will not start with ignition key.	Transmission neutral interlock switch not energised.	Remove foot from forward/reverse pedals. Check setting of transmission neutral interlock switch.
	Parking brake interlock switch not energised.	Operate parking brake lever to the ON position Check setting of parking brake interlock switch.
	Cutterhead drive interlock switch not energised.	Move cutterhead drive switch to the 'OFF' position. Check setting of cutterhead interlock switch.
	Faulty electrical connection.	Trace and correct fault.
	For all other engine problems, refer - ENGINE HANDBOOK.	
Flat Battery.	Terminal connection loose or corroded.	Clean and tighten terminal connections. Recharge battery.
	Loose or defective alternator belt.	Re-tension or replace drive belt, refer - ENGINE HANDBOOK.
	Defective battery.	Recharge battery. Replace battery.
	Electrical short circuit.	Trace short circuit and make good.

TROUBLE SHOOTING**Continued.**

PROBLEM	POSSIBLE CAUSE	REMEDY
Differential lock non operational.	Defective switch.	Check switch and replace if necessary.
	Defective solenoid valve.	Service or replace solenoid valve.
	Defective wiring.	Check wiring/connections as necessary.
Hydraulic oil system overheating.	Blocked radiator screen.	Clean screen.
	Blocked oil cooler fins.	Clean fins.
	Blocked secondary screen.	Clean screen.
	Blocked engine radiator matrix.	Clean matrix.
	Low relief valve setting.	Have relief valve cleaned and pressure checked. Consult your Toro dealer.
	Low oil level.	Fill reservoir to correct level.
	Brakes engaged.	Disengage brakes.
	Cutting cylinders tight on bottom blades.	Readjust settings.
Incorrect brake operation.	Defective fan or fan drive.	Check fan operation and service as required.
	Faulty wheel motor brake assembly.	Consult your Toro dealer.
	Worn brake discs.	Replace brake discs. Consult your Toro dealer.

TROUBLE SHOOTING**Continued.**

PROBLEM	POSSIBLE CAUSE	REMEDY
Lack of transmission drive.	Parking brake engaged.	Release parking brake.
	Low oil level.	Fill reservoir to correct level.
	Incorrect oil used.	Drain reservoir and refill with correct oil.
	Defective drive pedal linkage.	Check linkage and replace defective parts.
	Defective transmission pump.	Have the transmission pump overhauled by your Toro dealer.
	Transmission relief valve open.	Close relief valve, refer - Operating the mower-TOWING.
	Broken drive coupling.	Replace drive coupling.
	Transmission filter blocked.	Replace transmission filter.
Forward/backward transmission creep in neutral.	Transmission neutral adjustment incorrectly set.	Readjust transmission neutral linkage setting.
Lack of steering.	Defective steering valve.	Service or replace steering valve.
	Defective hydraulic cylinder.	Service or replace hydraulic cylinder.
	Damaged steering hose.	Replace defective hose.

TROUBLE SHOOTING

Continued.

PROBLEM	POSSIBLE CAUSE	REMEDY
Excessive noise in hydraulic system.	Faulty pump.	Identify noisy pump and service or replace.
	Faulty motor.	Identify noisy motor and service or replace.
	Air leaking into system.	Tighten or replace hydraulic fittings particularly in suction lines.
	Suction strainer blocked or damaged.	Clean and replace suction strainer or renew as necessary.
	Excessive oil viscosity due to cold conditions.	Allow system to warm up.
	Low relief valve setting.	Have relief valve cleaned and pressure checked. Consult your Toro dealer.
	Low hydraulic oil level.	Fill hydraulic oil reservoir to correct level.

TROUBLE SHOOTING

Continued.

PROBLEM	POSSIBLE CAUSE	REMEDY
After initial satisfactory operation machine loses power.	Worn pump or motor.	Replace as necessary.
	Low hydraulic oil level.	Fill hydraulic oil tank to correct level.
	Incorrect oil viscosity.	Renew oil in hydraulic tank with hydraulic oil of correct viscosity grade, refer - SPECIFICATIONS.
	Oil filter element blocked.	Change filter element.
	Faulty pressure relief valve.	Have relief valve cleaned and pressure checked. Consult your Toro dealer.
	Overheating.	Check cylinder to bottom blade adjustment. Reduce workrate i.e. increase height of cut or reduce forward speed. Incorrect hydraulic oil grade, refer - Problem 'Hydraulic Oil System Overheating'.
	Leaks on suction hose.	Check and tighten fittings. Replace hose if necessary.
Cylinder "knocks" while rotating.	High spot on cylinder or bottom blade due to contact with foreign object.	Remove high spot with a stone and backlap to restore cutting edges. Serious damage will necessitate regrounding.
	Worn cylinder bearings.	Replace as necessary.

TROUBLE SHOOTING

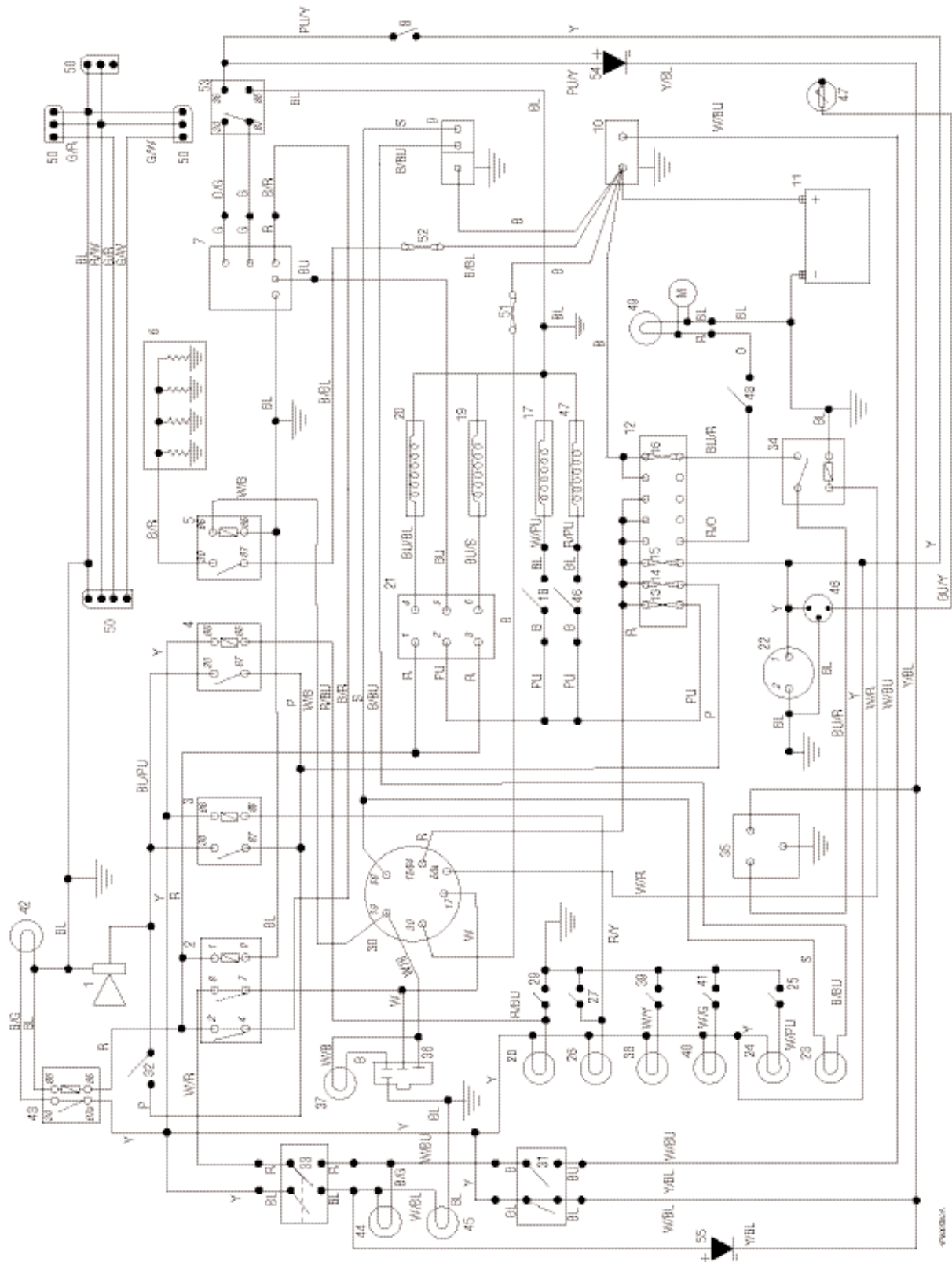
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PROBLEM	POSSIBLE CAUSE	REMEDY
One cylinder rotates slowly.	Cutting cylinder bearing seized.	Replace as necessary.
	Incorrect rotation motor fitted.	Check motor and replace if necessary.
	Diverter valve only partly open.	Free off and lubricate or replace diverter valve as necessary.
	Motor integral check valve jammed open.	Have check valve cleaned and checked.
	Cutting cylinder tight on the bottom blade.	Readjust setting.
	Motor worn.	Replace motor.
Cutterhead fails to lift out of work.	Lift cylinder seal failure.	Replace seals.
	Pressure relief valve jammed open or wrongly set.	Have relief valve cleaned and pressure checked. Consult your Toro dealer.
	Defective control valve.	Overhaul control valve.
	Mechanical blockage.	Remove blockage.
Cutterheads do not follow ground contours.	Incorrect hose routing or incorrect orientation of hydraulic fittings.	Move cutterheads throughout extremes of movement and observe any tightness in the hoses. Correctly route hoses and orientate fittings as necessary.
	Tightness in pivots.	Free off and grease as necessary.
	Mower operated in 'hold' position.	Move position control lever to 'down/float' position.
	Weight transfer set too high.	Reduce weight transfer.

TROUBLE SHOOTING

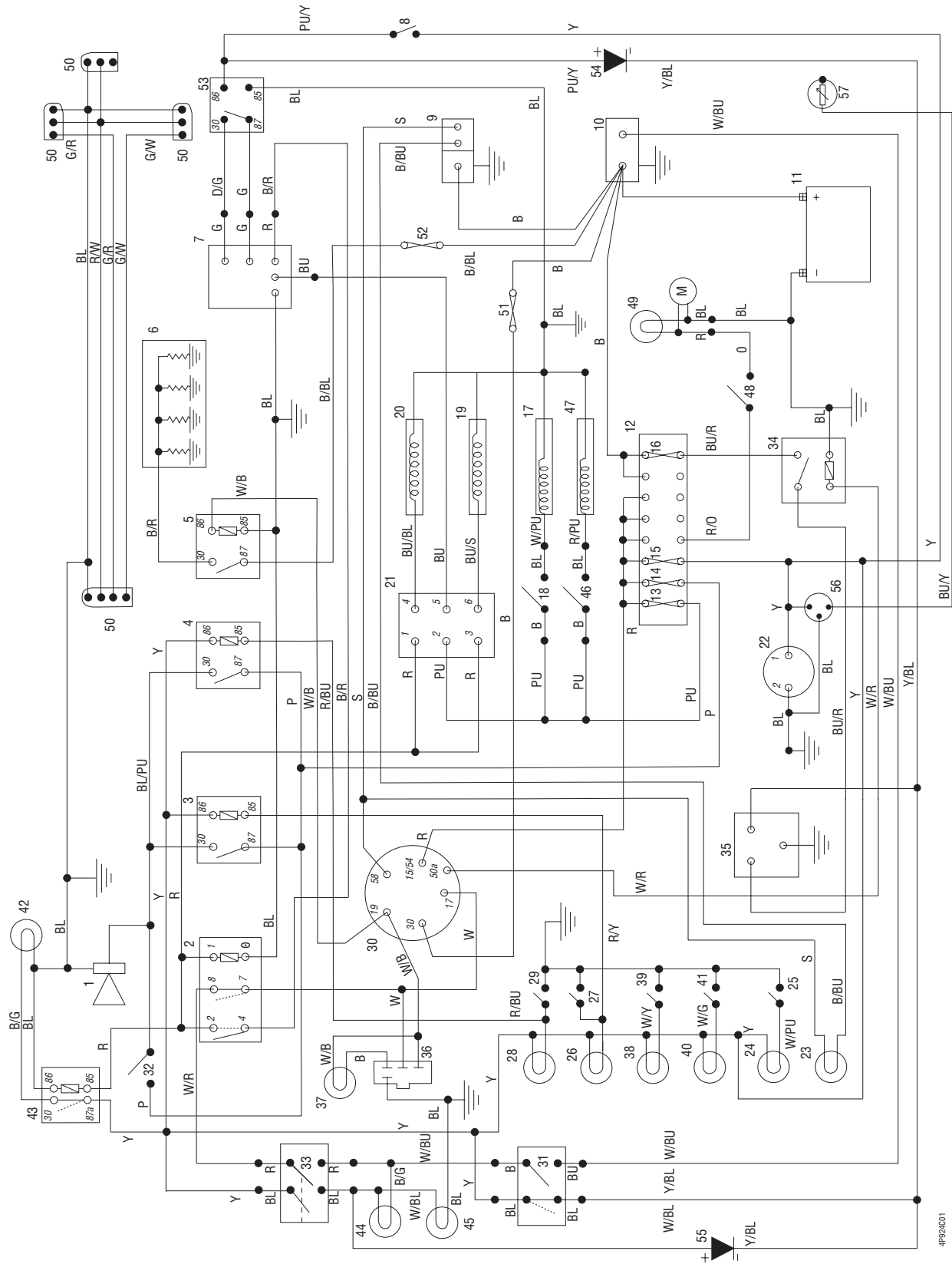
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PROBLEM	POSSIBLE CAUSE	REMEDY
Cutterheads fail to start up when lowered into work.	Faulty seat sensor switch.	Check mechanical and electrical operation of switch.
	Low oil level.	Fill hydraulic oil reservoir to correct level.
	Diverter valve jammed.	Free off and lubricate or replace the diverter valve as necessary.
	Sheared drive shaft.	Check motor and cylinder drive shafts and replace if necessary.
	Pressure relief valve jammed open or wrongly set.	Have relief valve cleaned and pressure checked. Consult your Toro dealer.
	Cutting cylinder jammed.	Free off as necessary.
	Cutting cylinder tight on bottom blade.	Readjust setting.
	Cutterhead control valve in the 'off' position caused by: - Defective control valve. - Electrical fault.	Overhaul control valve. Have electrical system checked.
Cylinders rotate in wrong direction.	Hoses wrongly connected.	Check hydraulic circuit and reconnect as necessary.
	Cutterhead drive switch wrongly connected.	Check switch electrical connections.



ITEM NO. DESCRIPTION

1	Horn.	70-09-108
2	Relay - Neutral Start.	995713
3	Relay - Engine Coolant Temperature Warning.	70-09-148
4	Relay - Hydraulic Oil Temperature Warning.	70-09-148
5	Relay - Glow Plug.	924625
6	Glow Plugs - Engine.	-
7	Timer.	70-01-512
8	Switch - Seat.	953819
9	Alternator / Regulator - Engine.	-
10	Starter Motor - Engine.	-
11	Battery.	70-09-015
12	Fuse Box.	70-09-096
13	Fuse - 10 Amp.	70-09-026
14	Fuse - 5 Amp.	70-09-025
15	Fuse - 3 Amp.	70-09-024
16	Fuse - 30 Amp.	70-09-027
17	Solenoid - Differential Lock.	910627
18	Switch - Differential Lock.	924624
19	Solenoid - Cutterhead Drive Front.	70-06-246
20	Solenoid - Cutterhead Drive Rear.	70-06-246
21	Switch - Cutterhead Drive.	924864
22	Hourmeter.	910850
23	Light - Battery Warning.	924605
24	Light - Engine Oil Pressure Warning.	924606
25	Switch - Engine Oil Pressure.	-
26	Light - Engine Coolant Temperature Warning.	924602
27	Switch - Engine Coolant Temperature.	-
28	Light - Hydraulic Oil Temperature Warning.	924603
29	Switch - Hydraulic Oil Temperature.	940852
30	Switch - Ignition.	74-09-009
31	Switch - Neutral Start.	995711
32	Switch - Horn.	924618
33	Switch - Parking Brake Interlock.	924624
34	Relay - Fuel Solenoid.	16259-60250
35	Solenoid - Engine Fuel.	-
36	Glow Plug Timer	15694-65992
37	Glow Plug Lamp	924601/950857
38	Return Filter Lamp	924601/950866
39	Return Filter Switch	-
40	Pressure Filter Lamp	924601/950863
41	Pressure Filter Switch	-
42	Cutterhead Drive Off Lamp	924601/950861
43	Relay - Cutter Lamp Off	70-09-148
44	Neutral Lamp	924601/950862
45	Parking Brake Lamp	924601/950858
46	Temp Gauge and Hour Meter (Kit)	-
47	Sender - Temp (Kit)	-
48	Switch - Beacon (Supplied with Beacon Kit)	924608
49	Rotating Beacon (Supplied with Beacon Kit)	70-01-493
50	Connectors for Lighting Kit	-
51	Fuse - Main 50A	995714
52	Fuse - Engine Glow Plugs 50A	995714
53	Relay - Seat Switch	70-90-148
54	Diode - Seat Switch	950868
55	Diode - Parking Brake	950868



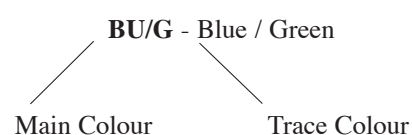
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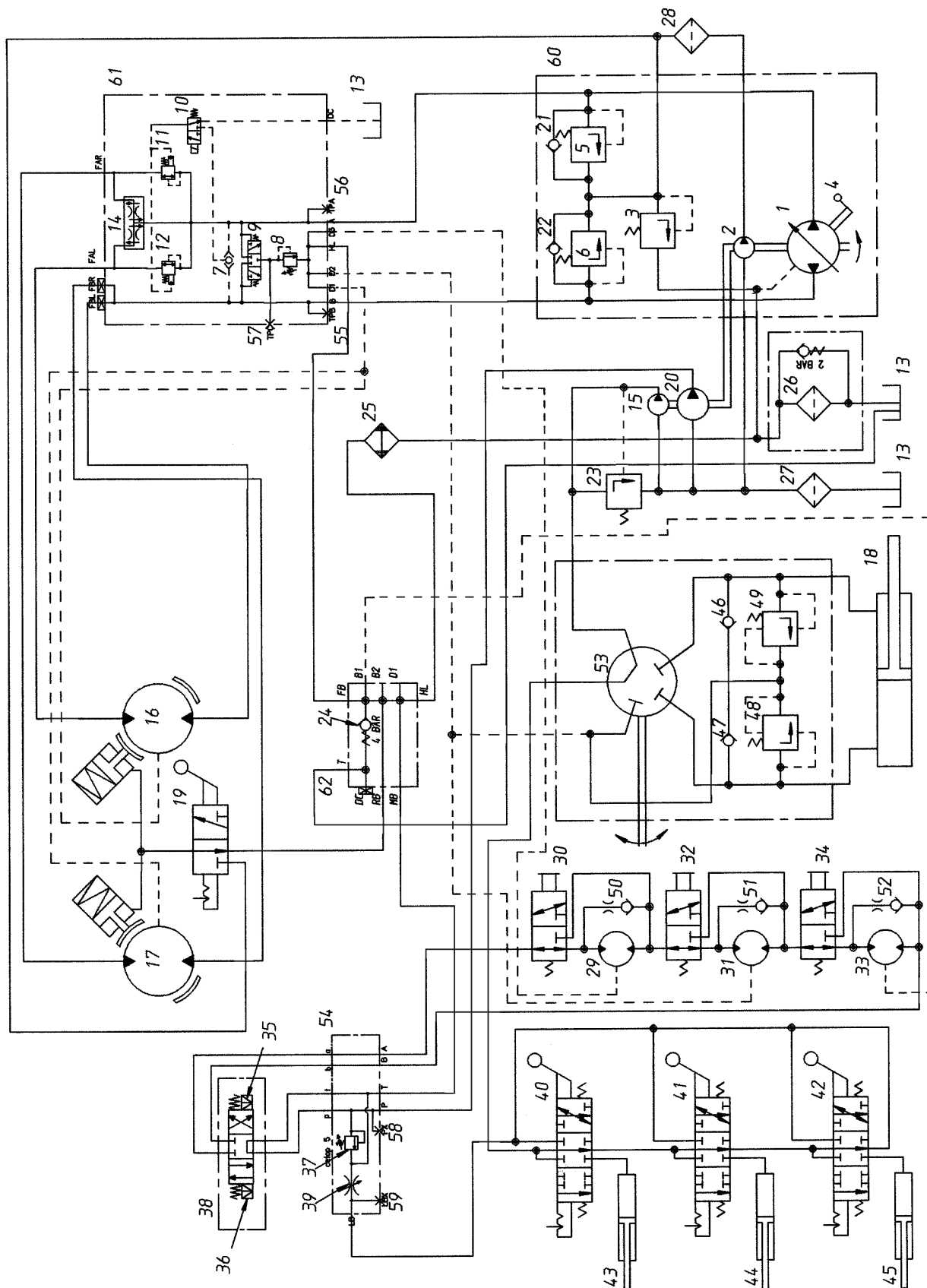
Wire Colour Code

1	Horn.	70-09-108
2	Relay - Neutral Start.	995713
3	Relay - Engine Coolant Temperature Warning.	70-09-148
4	Relay - Hydraulic Oil Temperature Warning.	70-09-148
5	Relay - Glow Plug.	924625
6	Glow Plugs - Engine.	-
7	Timer.	70-01-512
8	Switch - Seat.	953819
9	Alternator / Regulator - Engine.	-
10	Starter Motor - Engine.	-
11	Battery.	70-09-015
12	Fuse Box.	70-09-096
13	Fuse - 10 Amp.	70-09-026
14	Fuse - 5 Amp.	70-09-025
15	Fuse - 3 Amp.	70-09-024
16	Fuse - 30 Amp.	70-09-027
17	Solenoid - Differential Lock.	910627
18	Switch - Differential Lock.	924624
19	Solenoid - Cutterhead Drive Front.	70-06-246
20	Solenoid - Cutterhead Drive Rear.	70-06-246
21	Switch - Cutterhead Drive.	924864
22	Hourmeter.	910850
23	Light - Battery Warning.	924605
24	Light - Engine Oil Pressure Warning.	924606
25	Switch - Engine Oil Pressure.	-
26	Light - Engine Coolant Temperature Warning.	924602
27	Switch - Engine Coolant Temperature.-	-
28	Light - Hydraulic Oil Temperature Warning.	924603
29	Switch - Hydraulic Oil Temperature.	940852
30	Switch - Ignition.	74-09-009
31	Switch - Neutral Start.	995711
32	Switch - Horn.	924618
33	Switch - Parking Brake Interlock.	924624
34	Relay - Fuel Solenoid.	16259-60250
35	Solenoid - Engine Fuel.	-
36	Glow Plug Timer	15694-65992
37	Glow Plug Lamp	924601/950857
38	Return Filter Lamp	924601/950866
39	Return Filter Switch	-
40	Pressure Filter Lamp	924601/950863
41	Pressure Filter Switch	-
42	Cutterhead Drive Off Lamp	924601/950861
43	Relay - Cutter Lamp Off	70-09-148
44	Neutral Lamp	924601/950862
45	Handbrake Lamp	924601/950858
46	Temp Gauge and Hour Meter (Kit)	-
47	Sender - Temp (Kit)	-
48	Switch - Beacon (Supplied with Beacon Kit)	924608
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54	Diode - Seat Switch	950868
55	Diode - Parking Brake	950868
56	Temp Gauge & Hour Meter (Kit)	-
57	Sender - Temp (Kit)	-

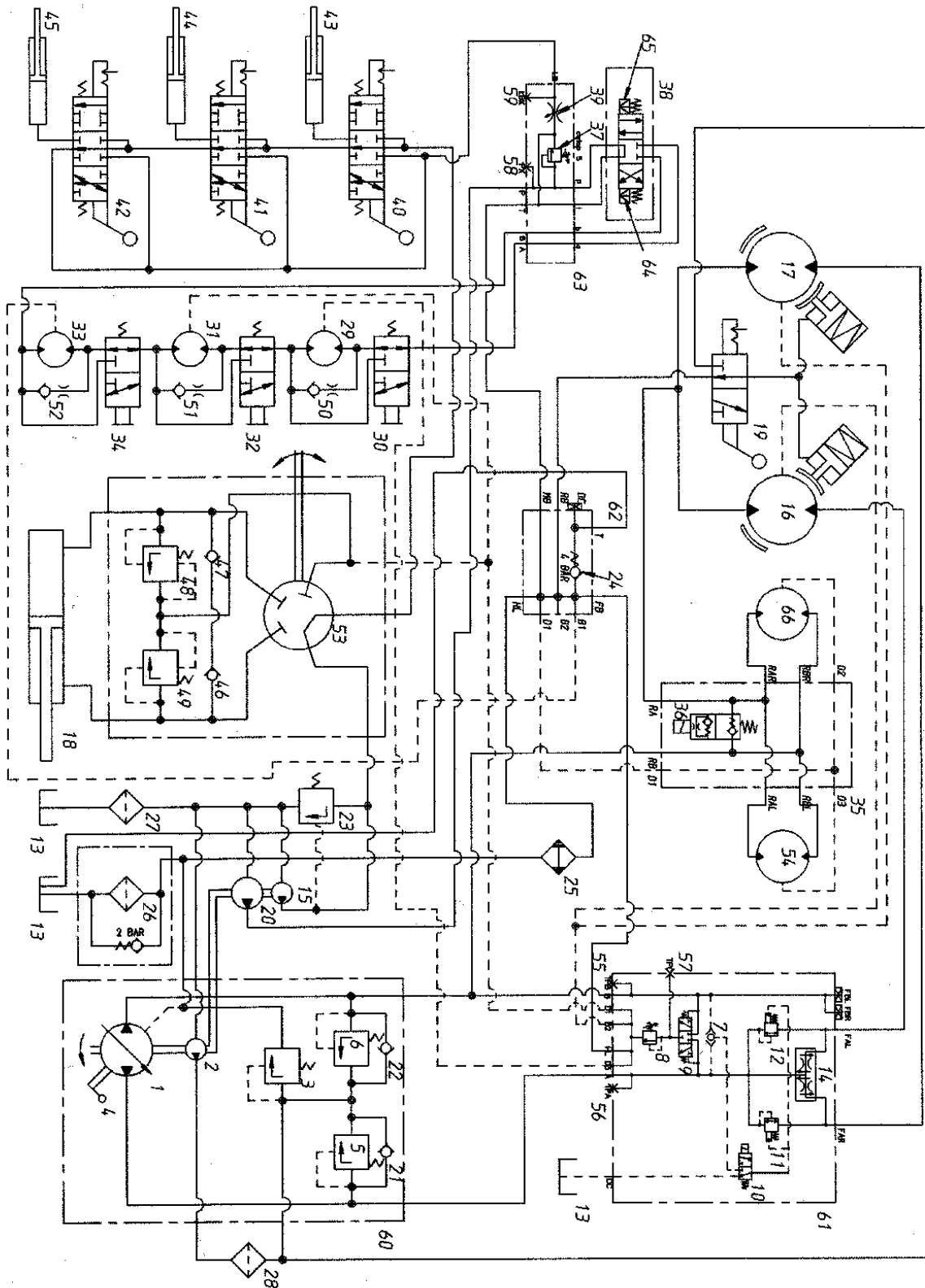
B	Brown.	W	White.
G	Green.	Y	Yellow.
P	Pink.	O	Orange.
R	Red.	BU	Blue.
S	Slate Grey.	BL	Black.
PU	Purple.		

Example 2 Colour Wire:





ITEM NO.	DESCRIPTION	Part No.
1	Axial Piston Pump - Variable Displacement.	-
2	Charge Pump.	-
3	Relief Valve - Charge Pump - 18.5 bar.	-
4	Mechanical Control.	-
5	Relief Valve - Forward Travel - 250 bar.	910645
6	Relief Valve - Reverse Travel - 250 bar.	910645
7	Shuttle Valve - Load Sensing.	910629
8	Relief Valve - Hot Oil Purge.	910630
9	Shuttle Valve - Hot Oil Purge.	910628
10	Solenoid Valve - Difflock.	910626
11	Pilot Operated Diverter Valve - Difflock Front RH	910625
12	Pilot Operated Diverter Valve - Difflock Front LH	910925
13	Hydraulic Oil Tank.	910912
14	Flow Divider - Front Axle.	910624
15	Gear Pump - Steering and Cutterhead Lift.	910695
16	Front LH Wheel Motor - Pressure Release Disc Brake.	950620
17	Front RH Wheel Motor - Pressure Release Disc Brake.	950620
18	Steering Cylinder - Rear Axle.	70-01-195W
19	Brake Control Valve.	70-06-015W
20	Gear Pump - Cutterhead Drive.	910695
21	Check Valve - Transmission Forward Bypass.	-
22	Check Valve - Transmission Reverse Bypass.	-
23	Relief Valve - 110 bar.	-
24	Check Valve - Oil Cooler Bypass - 4 bar.	910641
25	Oil Cooler.	70-06-171
26	Return Filter - Bypass Check Valve - 2 bar .	924865
27	Suction Strainer - No Bypass.	65-06-305
28	Pressure Filter - No Bypass.	950597
29	Hydraulic Motor - LH Front Cutterhead.	940602
30	Diverter Valve - LH Front Cutterhead.	953601
31	Hydraulic Motor - RH Front Cutterhead	910696
32	Diverter Valve - RH Front Cutterhead	953601
33	Hydraulic Motor - Centre Cutterhead	940602
34	Diverter valve - Centre Cutterhead	953601
35	Solenoid - Cutting Cylinders Reverse.	70-06-246
36	Solenoid - Cutting Cylinders Forwards.	70-06-246
37	Relief Valve - Cutterheads - 250 bar.	910708
38	Solenoid Valve - Cutterhead Drive.	70-06-245
39	Restrictor Valve - Variable Weight Assist.	910709
40	Spool Valve - Cutterhead Lift LH.	-
41	Spool Valve - Cutterhead Lift Centre	-
42	Spool Valve - Cutterhead Lift RH	-
43	Hydraulic Cylinder - LH Front Cutterhead	910109
44	Hydraulic Cylinder - Centre Cutterhead	910109
45	Hydraulic Cylinder - RH Front Cutterhead	910109
46	Check Valve - Steering Shock Bypass RH	-
47	Check Valve - Steering Shock Bypass LH	-
48	Relief Valve - Steering Shock LH	-
49	Relief Valve - Steering Shock RH	-
50	Check Valve / Orifice - Motor Bypass LH Front Cutterhead.	-
51	Check Valve / Orifice - Motor Bypass RH Front Cutterhead	-
52	Check Valve / Orifice - Motor Bypass Centre Cutterhead	-
53	Steering Unit	910649W
54	Valve Cutter Sub Plate.	910699



ITEM NO.	DESCRIPTION.	PART NO:
1	Axial Piston Pump - Variable Displacement.	-
2	Charge Pump.	-
3	Relief Valve - Charge Pump -18.5 bar.	-
4	Mechanical Control.	-
5	Relief Valve - Forward Travel - 300 bar.	940692
6	Relief Valve - Reverse Travel - 300 bar.	940692
7	Shuttle Valve - Load Sensing.	910629
8	Relief Valve - Hot Oil Purge.	910630
9	Shuttle Valve - Hot Oil Purge.	910628
10	Solenoid Valve - Difflock.	910626
11	Pilot Operated Diverter Valve - Difflock Front RH.	910625
12	Pilot Operated Diverter Valve - Difflock Front LH.	910625
13	Hydraulic Oil Tank.	910912
14	Flow Divider - Front Axle.	910624
15	Gear Pump - Steering and Cutterhead Lift.	910695
16	Front LH Wheel Motor - Pressure Release Disc Brake.	950620
17	Front RH Wheel Motor - Pressure Release Disc Brake.	950620
18	Steering Cylinder - Rear Axle.	70-01-195W
19	Brake Control Valve.	74-06-015W
20	Gear Pump - Cutterhead Drive.	910695
21	Check Valve - Transmission Forward Bypass.	-
22	Check Valve - Transmission Reverse Bypass.	-
23	Relief Valve - 110 bar.	-
24	Check Valve - Oil Cooler Bypass - 4 bar.	910641
25	Oil Cooler.	70-06-171
26	Return Filter - Bypass Check Valve - 2 bar .	924865
27	Suction Strainer - No Bypass.	65-06-305
28	Pressure Filter - No Bypass.	950597
29	Hydraulic Motor - LH Front Cutterhead.	940602
30	Diverter Valve - LH Front Cutterhead.	953601
31	Hydraulic Motor - RH Front Cutterhead.	910696
32	Diverter Valve - RH Front Cutterhead.	953601
33	Hydraulic Motor - Centre Cutterhead.	940602
34	Diverter Valve - Centre Cutterhead.	953601
35	Rear Porting Manifold.	924687
36	Solenoid Valve - Forward/Reverse Check Valve 4WD.	924688
37	Relief Valve - Cutterheads - 250 bar.	910708
38	Solenoid Valve - Cutterhead Drive.	70-06-245
39	Restrictor Valve - Variable Weight Assist.	910709
40	Spool Valve - Cutterhead Lift LH.	-
41	Spool Valve - Cutterhead Lift Centre.	-
42	Spool Valve - Cutterhead Lift RH.	-
43	Hydraulic Cylinder - LH Front Cutterhead.	910109
44	Hydraulic Cylinder - Centre Cutterhead.	910109
45	Hydraulic Cylinder - RH Front Cutterhead.	910109
46	Check Valve - Steering Shock Bypass RH.	-
47	Check Valve - Steering Shock Bypass LH.	-
48	Relief Valve - Steering Shock LH.	-
49	Relief Valve - Steering Shock RH.	-
50	Check Valve / Orifice - Motor Bypass LH Front Cutterhead.	-
51	Check Valve / Orifice - Motor Bypass RH Front Cutterhead.	-
52	Check Valve / Orifice - Motor Bypass Centre Cutterhead.	-
53	Steering Unit.	910649W
54	Wheel Motor LH Rear.	70-01-018W

ITEM NO.	DESCRIPTION.	PART NO:
55	Test Point - Transmission Reverse.	910615
56	Test Point - Transmission Forward.	910615
57	Test Point - Transmission Charge.	910615
58	Test Point - Cutterhead Drive.	910615
59	Test Point - Weight Transfer.	910615
60	Transmission Pump Assembly.	924690W
61	Transmission Manifold.	910602
62	Cooler Bypass Manifold.	910616
63	Valve - Cutter Sub Plate.	910699
64	Solenoid - Cutting Cylinders Reverse.	70-06-246
65	Solenoid - Cutting Cylinders Forwards.	70-06-246
66	Wheel Motor - RH Rear.	70-01-019W



The Toro Commercial Parts Warranty
A Ninety - Day Limited Warranty

Conditions and Products Covered

The Toro Company (Toro) and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Commercial Product ("Part") to be free from defects in materials or workmanship for ninety (90) days. Where a warrantable condition exists, we will repair the Part at no cost to you. This warranty begins on the date the Part is purchased by the original retail purchaser.

Instructions for Obtaining Warranty Service

You are responsible for notifying the nearest Commercial Products Distributor or Authorized Commercial Products Dealer for replacement as soon as you believe a warrantable condition exists. You must provide the Commercial Products Distributor with a copy of the original Parts purchase invoice for warranty consideration. The Commercial products Distributor will provide a replacement part, repair, or reimbursement at invoice amount.

If you need help locating a Commercial Products Distributor or Authorized Dealer, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Toro Commercial Products Service Department
Spellbrook
Bishops Stortford
CM23 4BU
England
+44 (0)1279 603019
Email: uk.service@toro.com

Items and Conditions Not Covered

Not all product failure or malfunctions that occur during the warranty period are defects in materials or workmanship. This express warranty does not cover the following:

- Part failures which result from installation and use of add-on, modified, or unapproved accessories
- Part failures which result from failure to perform required maintenance and/or adjustments
- Part failures which result from use in an abusive, negligent or reckless manner

- Parts subject to consumption through use unless found to be defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, blades, cylinders, bedknives, tines, spark plugs, castor wheels, tires, filters, belts and certain sprayer components such as diaphragms, nozzles, and check valves, etc.
- Failures caused by outside influence. Items considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved coolants, lubricants, additives, or chemicals, etc.
- Normal "wear and tear" items. Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows, etc.

General Conditions

Repair or, at our option, replacement by an authorized Toro Distributor or Dealer is your sole remedy under this warranty.

Parts replaced under this warranty become the property of Toro. Toro will make the final decision whether to repair any existing part or assembly or replace it. Toro may use factory remanufactured parts rather than new parts for some warranty repairs.

Neither the Toro Company nor the Toro warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the Emissions warranty referenced below if applicable, there is no other express warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty.

This warranty gives you the specific legal rights, and you may also have other rights which vary from country to country.



The Toro General Commercial Products Warranty
A Two-Year Limited Warranty

Conditions and Products Covered

The Toro Company (Toro) and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Commercial Product ("Product") to be free from defects in materials or workmanship for two years or 1500 operational hours*, whichever occurs first. Where a warrantable condition exists, we will repair the Product at no cost to you including diagnosis, labor, parts and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

* Product equipped with hour meter

Instructions for Obtaining Warranty Service

You are responsible for notifying the Commercial Products Distributor or Authorized Dealer from whom you purchased the Product as soon as you believe a warrantable condition exists.

If you need help locating a Distributor or Authorized Dealer, or If you have any questions regarding your warranty rights or responsibilities, you may contact us at:
Toro Commercial Products Service Department
Spellbrook
Bishops Stortford
CM23 4BU
England
+44 (0)1279 603019
Email: uk.service@toro.com

Owner Responsibilities

As the Product owner, you are responsible for required maintenance and adjustments stated in your Operator's Manual. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim.

Items and Conditions Not Covered

Not all product failure or malfunctions that occur during the warranty period are defects in materials or workmanship. This express warranty does not cover the following:

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, modified, or unapproved accessories
- Product failures which result from failure to perform required maintenance and/or adjustments
- Product failures which result from operating the Product in an abusive, negligent or reckless manner

- Parts subject to consumption through use unless found to be defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, blades, reels, bedknives, tines, spark plugs, castor wheels, tires, filters, belts and certain sprayer components such as diaphragms, nozzles, and check valves, etc.
- Failures caused by outside influence. Items considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved coolants, lubricants, additives, or chemicals, etc.
- Normal "wear and tear" items. Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows, etc.

Parts

Parts scheduled for replacement as required maintenance are warranted for the period of time up to the scheduled replacement time for that part.

Parts replaced under this warranty become the property of Toro. Toro will make the final decision whether to repair any existing part or assembly or replace it. Toro may use factory remanufactured parts rather than new parts for some warranty repairs.

General Conditions

Repair by an authorized Toro Commercial Product Distributor or Authorized Dealer is your sole remedy under this warranty.

Neither the Toro Company nor the Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the Emissions warranty referenced below if applicable, there is no other express warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty.

This warranty gives you the specific legal rights, and you may also have other rights which vary from country to country.

MACHINE DETAILS**Model:****Machine Serial No.:****Engine Serial No.:****Cutterhead Serial No.s:**

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Transmission Pump Serial No.:**Transmission Valve Block Front Serial No.:****Transmission Valve Block Rear Serial No.:****Cutter Control Valve Serial No.:**