



Count on it.

Part No. 111-3985 Rev A

Operator's Manual

T4240 4WD 5-PLEX BASE UNIT

Model No: 02750-Serial No. from 310000001



Original Instructions (EN)
Date: 24.06.10

ATTENTION



**THIS SYMBOL MEANS
BE ALERT!**

YOUR SAFETY IS INVOLVED

**READ THIS MANUAL BEFORE USING THE T4240 MOWER.
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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This manual should be regarded as part of the machine, as it gives essential information regarding machine safety, operation, maintenance and specifications.



READ THIS MANUAL BEFORE USING THE T4240 MOWER, 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 parking 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 to **OPERATOR PLATFORM LATCHING MECHANISM**.
-  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 to **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 to **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**.
-  Always make sure that the folding R.O.P.S is secured in its vertical operating position before use.

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 to **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.

Slopes



Do not use on a slope of more than **16** 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 89/355/EEC, as amended by 95/63/EEC 'Provision and Use of Work Equipment Directive' should be considered.



Stability angles given are maximum figures for a machine equipped with a R.O.P.S and are for guidance only. Particular conditions such as wet grass or uneven ground may not permit safe operation on the slope limits stated.



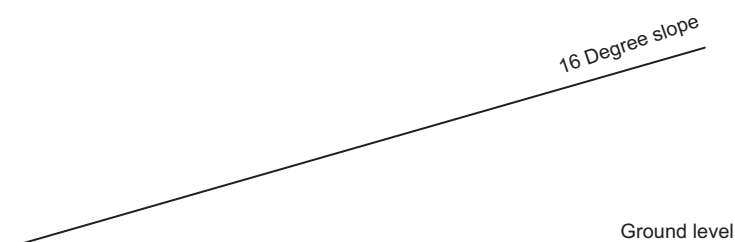
Remember there is no such thing as a 'safe' slope. Travel on grass slopes requires particular care. To guard against overturning or loss of traction when travelling or mowing on a slope:

- 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.

Fig 1



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.
- Ensure the transmission is in neutral and engage 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.



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.



Always wear the seat belt when the folding R.O.P.S is in its vertical operating position.



Never wear the seat belt when the folding R.O.P.S is NOT in its vertical operating position.



Pay particular attention when operating due to the additional weight towards the front of the machine.

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 vapors.
- 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 depressurisation. 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.

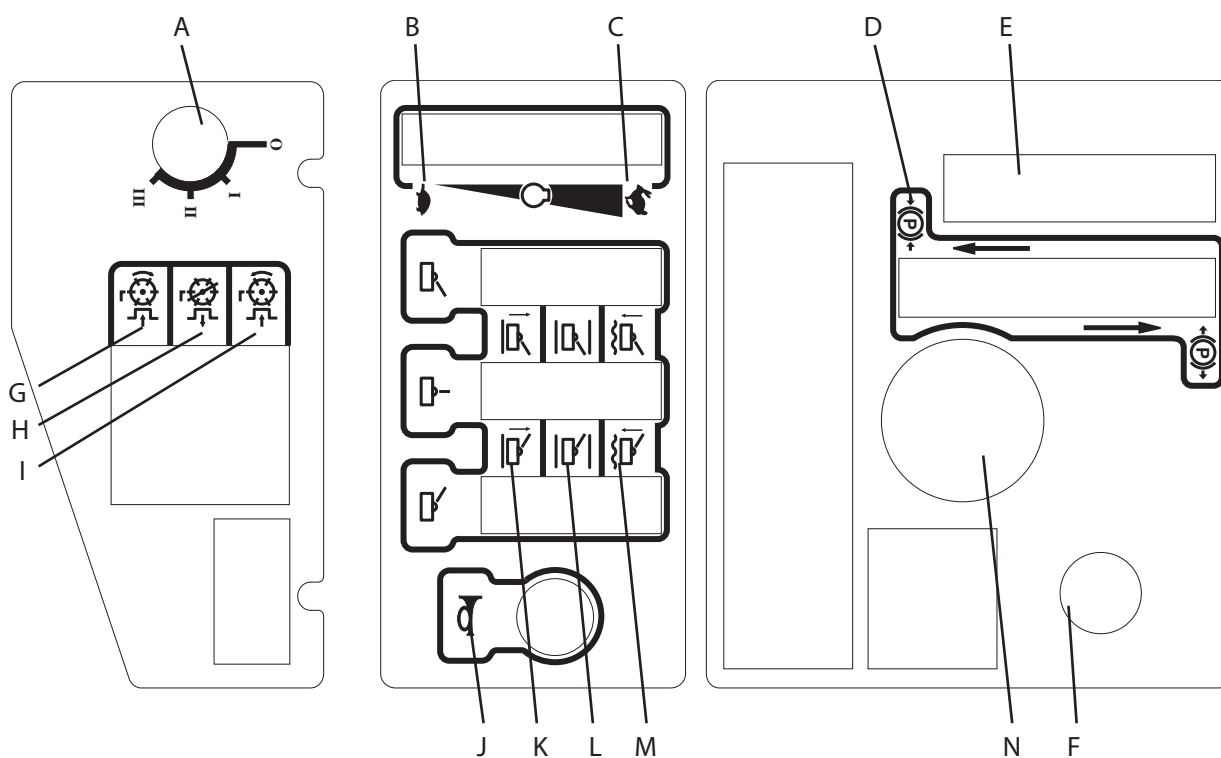
The T4240 Mower has been designed and constructed so that, in so far as is reasonably practical, they meet the safety requirements of the Machinery Directive 2006/42/EC, they will not endanger the safety and health of those working with them. This is, however, subject to the machine being properly used 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.

Decals**Decal - Control Panel**

Part No: 994912 (1)

Location: Control Panel

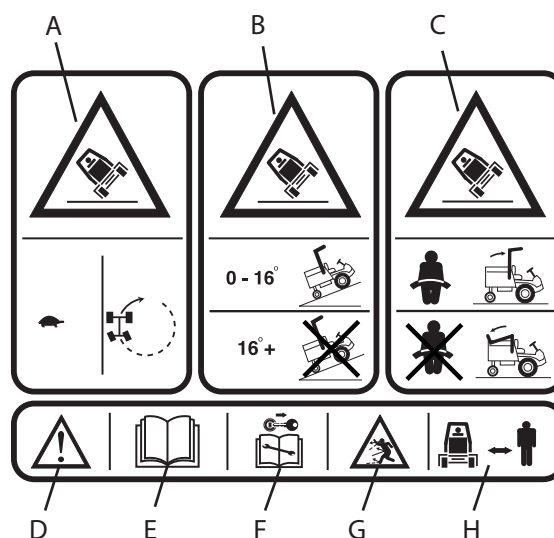
- | | |
|------------------------------|-------------------------|
| a) Ignition Switch | h) Cutters - off |
| b) Engine Speed - Slow | i) Cutters - Forward |
| c) Engine Speed - Fast | j) Horn |
| d) Parking Brake - Engage | k) Cutters - Lift |
| e) Parking Brake - Disengage | l) Cutters - Hold |
|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



Decals continued**Decal - Inclines** Part No: 111-0936 (A)

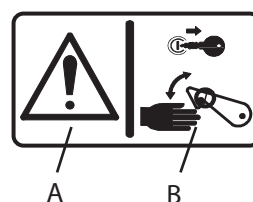
Location: Centre Platform

- a) Warning - Travel slowly when turning and on slopes
- b) Warning - Maximum Slope
- c) Warning - Seat belt must be worn only with a R.O.P.S in the vertical position.
- 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 (0)

Location: LH / RH / Centre Arms

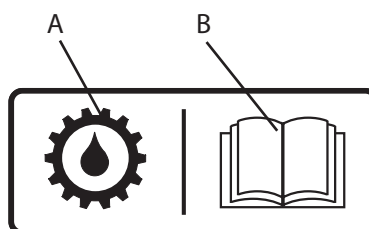
- a) Caution
- b) Stop engine/Remove ignition key before releasing or operating safety latches.

**Decal - Transmission Oil**

Part No: 111-3901 (A)

Location: Oil filler bracket mounted behind fuel tank.

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



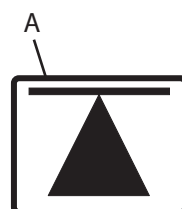
Important: Fill the machine with the recommended oil to the correct level. Failure to do so will cause serious damage and invalidate the warranty.

Decal - Jacking/Support Point

Part No: 70-13-072 (0)

Location: Front Axle - 2 points
Rear Towing eye

- a) Jacking and Support Point

**Decal - Diesel**

Part No: 70-13-078 (0)

Location: Fuel Tank

Diesel fuel only

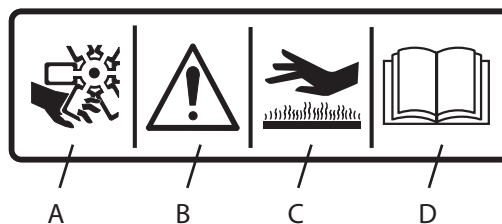


Decals continued**Decal - Engine Fan/Radiator**

Part No: 111-3902 (A)

Location: Engine Fan Cowl

- a) Danger of severing fingers
- b) Caution
- c) Warning - Hot Surfaces
- d) Read and understand the Operators Manual



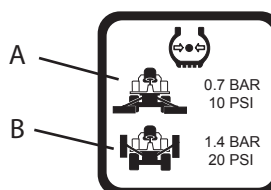
Important: Only remove radiator cap when the engine is cool.

Decal - Tyre Pressure

Part No: 950832 (2)

Location: LH/RH Chassis - 4 places

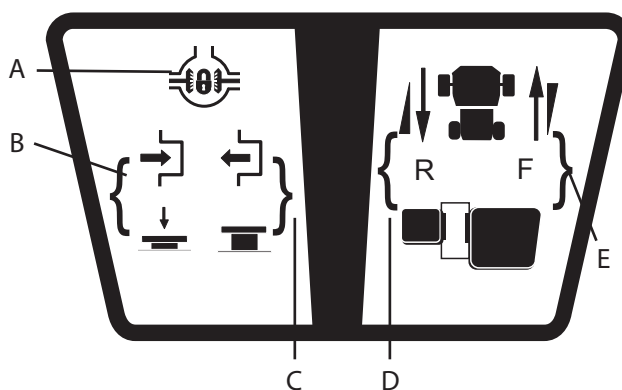
- a) Mowing
- b) Road Travel

**Decal - Diff Lock / Control Pedal**

Part No: 953876 (0)

Location: Centre Platform

- a) Differential Lock
- b) Depress to engage diff-lock
- c) Release to dis-engage diff-lock
- d) Reverse speed - directional control
- e) Forward speed - directional control

**Decal - Noise**

Part No: 922854

Location: Base of seat on GRP

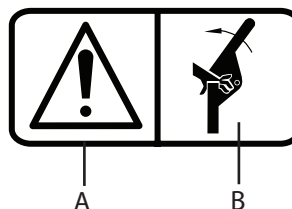


Decals continued**Decal - Warning Crush Hazard**

Part No: 111-0773 (A)

Location: Side of the ROPS frame

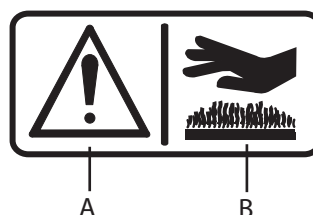
- a) Safety Alert - Be aware to the possibility of injury
- b) Crushing fingers. Force applied from side

**Decal - Warning Hot Surface**

Part No: 950889 (1)

Location: Right hand side of the machine

- a) Safety Alert - Be aware to the possibility of injury
- b) Warning - Hot surface

**Decal - Serial Number**

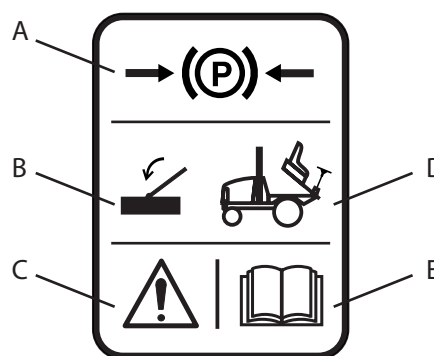
Location: Rear Bulkhead

**Decal - Prevent Platform Damage**

Part No: 111-3909 (A)

Location: Platform, Seat well

- a) Engage parking brake
- b) Lower cutterheads
- c) Caution
- d) Raise/lower platform
- e) Read and understand the Operators Manual

**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.

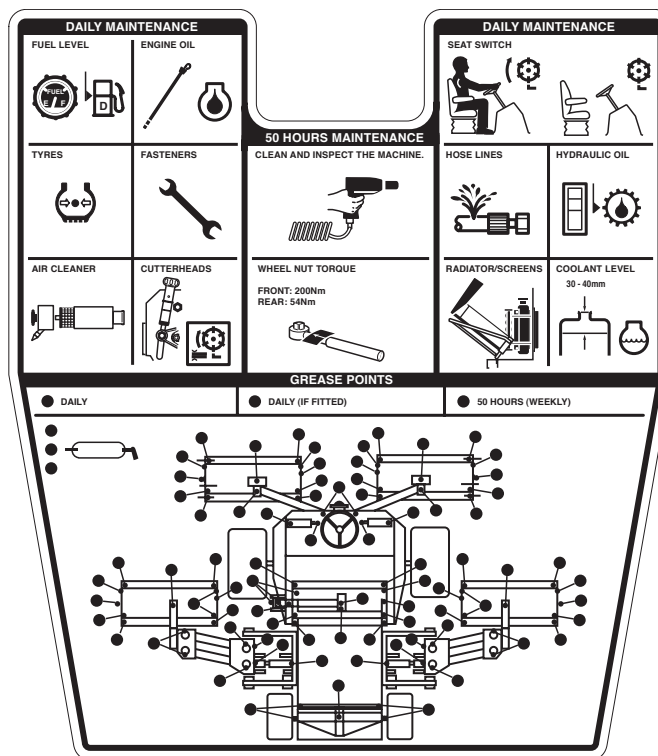


*Decals continued***Decal - Maintenance T4240**

Part No: 953812 (2)

Location: Underside of engine

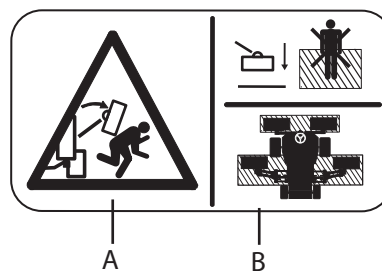
Cover next to latch

**Decal - Warning Cutterheads Crush Hazard**

Part No: 953829 (1)

Location: Platform LH/RH Sides

- a) Warning of cutterheads being lowered
- b) Do not stand in the area indicated when the cutterheads are being lowered or raised

**Decal - Pedal Backstop**

Part No: 953877 (1)

Location: Platform RH Side

- a) Forward travel
- b) Slow
- c) Fast



Noise Levels

Operator Daily Personal Noise Exposure:

TORO have 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 sound pressure level at the operator's position is 85 dB (A) measured in accordance with European Standard EN836.

Sound power level:

The guaranteed 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 should refer to the 2003/10/EC Directive for minimum health and safety requirements regarding exposure and risks to physical agents (noise).



Wear Hearing
Protection

Vibration Levels

Operator Daily Personal Vibration Exposure:

TORO have 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 vibration exposure level.

Under certain working conditions the operator may be exposed to vibration levels above those stated.

EC DECLARATION OF CONFORMITY

Manufactured for: Toro Company

By: Hayter Limited

Address: Spellbrook, Bishop's Stortford, Herts. CM23 4BU. ENGLAND

declare that the lawnmower



Model name: **T4240**

Type: Ride-on cylinder

Model No: 02750

Cutting width: 346 cm

Speed of rotation of the cutting device: 1050 rpm

Engine manufacturer: Kubota

Speed of rotation of engine: 2800 rpm

Complies with the provisions of Directive: 2006/42/EC Essential Health & Safety Requirements relating to the Design & Construction of Machinery and Safety Components and the regulations transposed into national law.

Also Directive 79/622/EEC Roll-over protection structures of wheeled agricultural or forestry tractors (static testing), as amended and the regulations transposed into national law.

Also Directive 2004/108/EEC Electromagnetic Compatibility and the regulations transposed into national law.

Also Directive 2000/14/EC Noise emission in the environment by equipment for use outdoors, as amended 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: 104 dB(A)

Guaranteed sound power level: 105 dB(A)

Authorised Signatory:

S.A Maryniak
(Technical Director)

Date: 12.04.2010

Declaration done and technical documentation kept at:

HAYTER LIMITED

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

VIBRATION INFORMATION

Hand / Arm Vibration Level at the Operator Position measured in accordance with European Standard EN 836:

02750

Measured Vibration Level a_{hv} = **0.5** ms^{-2}

Uncertainty of measurement K = **0.5** ms^{-2}

Whole Body Vibration Level at the Operator Seat measured in accordance with European Standard EN 836:

02750

Measured Vibration Level a_w = **0.1** ms^{-2}

Uncertainty of measurement K = **0.1** ms^{-2}

SOUND PRESSURE INFORMATION

Sound Pressure Level at the Operator Position measured in accordance with European Standard EN 836:

02750

Measured Sound Pressure Level L_{PA} = **86** dB(A)

Uncertainty of measurement K = **2** dB(A)

Introduction

The T4240 mower is a diesel engine powered self propelled machine with hydraulic systems for ground drive, cutterhead drive and steering. The machine operates in four wheel drive, at all times, however, the transmission system can be operated in both 'work' and 'transport' modes. These modes can be selected by the operator. In order to optimise machine performance and reduce transmission system wear it is advisable to operate the machine in the appropriate mode. 'Work' signifies cutting operations and 'transport' signifies travelling between work sites. A differential lock function may be selected.

The T4240 mower is a precision built machine 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 this machine is operated and maintained will have a profound effect on its performance and reliability.

This manual contains advice on the T4240 mower which should be operated, serviced and repaired only by persons who are familiar with its 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 unauthorised modifications carried out to this machine may relieve TORO of liability for any resulting damage or injury.

In the pursuit of continuous product development TORO reserve the right to alter specifications without notice.

Cutterhead Variants: The T4240 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 (8")	4, 6, 8, 10	Yes	Yes
	254mm (10")	4, 6	Yes	No

Optional Extras:

Beacon Kit - Amber flashing warning light.

Lighting Kit - Complies with EC traffic regulations.

R.O.P.S. Cab - Full weather protection and roll - over protection (Available in standard, deluxe and super deluxe).

Cab Tilt Kit - Enables the cab to be tilted.

Deluxe Seat Kit - Vinyl covering, includes air suspension unit, head rest, lumbar support and extended arm rests.

Note: with a ROPS cab fitted the stability angle will decrease, 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 chassis LH side. This will help the 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

	T4240
Type:	Kubota V2203 Diesel 4 cylinders in line
Power Rating:	35.3 kw (47.3 hp) @ 2800 rpm DIN 70020
Capacity:	2197 cc (134 cu in)
Air Cleaner:	Clean air drawn through a screened air intake via a cyclonic air cleaner with built in pre-cleaner.
Cooling System:	Water cooled
Battery:	12V 480 Amps S. A. E.
Alternator:	40 Amps
Starter:	1.4 kw (1.6 hp) Electric
Cold Starting:	Glow plug
Idle Speed:	1250 (\pm 50) rpm
Fuel Type:	Diesel

IMPORTANT - PREVENT DAMAGE: For further information regarding the engine, refer to the Engine Manual.

Transmission System

Drive Type:	Hydraulic
Pump:	Variable displacement hydraulic piston pump with integral charge pump servo assisted
Wheel Motors:	Front Axle - 'twin lock' radial piston, fixed displacement, with integral disc brake (pressure released) Rear Axle - radial piston, fixed displacement
Differential Lock:	Electro - hydraulic control valve with pedal control (only available in 'work' mode)
Drive:	4WD in 'work' and 'transport' modes.
Relief Valve Setting:	Main service relief 350 bar (5075 psi) differential Charge pressure relief 29 bar (421 psi) differential

Cutterhead Drive System

Drive Type:	Hydraulic
Pump:	Tandem hydraulic gear type
Delivery Rate:	31 Litres per minute (6.8 UK gallons per minute, each circuit)
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 (2.9 UK gallons 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
Wing units:	Mechanical spring power assistance to lower
Relief Valve:	115 bar (1668 psi)
Weight Transfer:	Variable hydraulic applied weight transfer acting on all cutterheads

Hydraulic System

Hydraulic Oil Type:	Refer to RECOMMENDED LUBRICANTS AND HYDRAULIC FLUIDS
Capacity:	77 Litres (17 UK gallons)
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 to 2500 particles / ml < 15 µ 40 to 80 particles / ml > 15 µ
Maximum Oil Temperature:	95° C (203° F)

Vehicle Specifications

Travel Speed:	0 - 24 km/hr	(0 - 15 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	0.7 bar (10 psi)	1.4 bar (20 psi)	1.7 bar (25 psi)
Rear Axle	20 x 10 - 8 4 ply	0.7 bar (10 psi)	1.4 bar (20 psi)	1.7 bar (25 psi)

Wheel Nut Torque Settings:	Front Axle	200Nm (148 lbf.ft)
	Rear Axle	54Nm (40 lbf.ft)

Service Brakes: Closed loop hydrostatic service braking operating on front 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 (7.1") at 13mm (.5") 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
- Back lapping facility
- Differential lock
- Engine coolant and hydraulic oil overheat audible warning (horn)
- Variable cutterhead weight transfer/traction assistance
- 4WD in 'work' and 'transport' modes
- Hydraulic oil filter blocked telltales on control panel
- Wing arm breakback

Safety Features:

- Neutral start interlock on transmission pump, parking brake and cutterhead drive switch.
- Operator presence control (seat switch).
- 2 Post folding ROPS designed and tested to European Directive 79/622/EEC.

Operator Controls

Steering:	Automotive padded steering wheel with adjustable steering column
Cylinder Drive:	Electric switch (forward - off - reverse)
Engine Speed:	Hand lever
Parking Brake:	Hand lever
Forward and Reverse:	Separate foot operated pedals
Ignition:	Key start, shut - off and engine preheat
Differential Lock:	Foot pedal
‘Work’ or ‘transport’ modes:	Electric switch
Cutterhead Position:	Hand lever
Cutterhead Lift Configuration:	Electric switch (2 positions)
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 ‘Work’ mode active

Weight and Dimensions

Wheel Base:	1610 mm (63.4")
Working Width:	3640 mm (143.3")
Cutting Width:	3460 mm (136.2")
Transport Width:	1890 mm (74.5") at 13mm (1/2") height of cut
Overall Length:	2930 mm (115")
Overall Height:	1775 mm (70") with R.O.P.S folded 2385 mm (94") with R.O.P.S in its vertical operating position
Working Weight:	Including 2 post R.O.P.S, 8" 6 blade cutterheads and full tank of fuel. It excludes the operator and any other options. 1870 kg (4123 lb)

Recommended Lubricants and Hydraulic Fluids

Grease Points:	A good quality medium grease
Engine:	Refer to Engine Operators Manual

Hydraulic System:

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

Cutterhead

	MK3 200 mm Cutterhead	MK3 254 mm Cutterhead
Cutting Width:	762 mm (30")	762 mm (30")
Cylinder Diameter:	200 mm (8")	254 mm (10")
Cylinder Speed:	1050 rpm approx	1050 rpm approx
Height of Cut:	12 mm (0.5") to 80 mm (3")	12 mm (0.5") to 80 mm (3")
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 to **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 to **SAFETY PRECAUTIONS**.

This machine is fitted with a R.O.P.S as standard to increase operator safety in the event of the machine rolling over.

The R.O.P.S frame may be folded down to allow access into area of restricted height.

While the R.O.P.S is folded down it does not provide any protection in the event of a roll over and should not be considered as a Roll Over Protective structure.

Operator Presence Control

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 in 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.

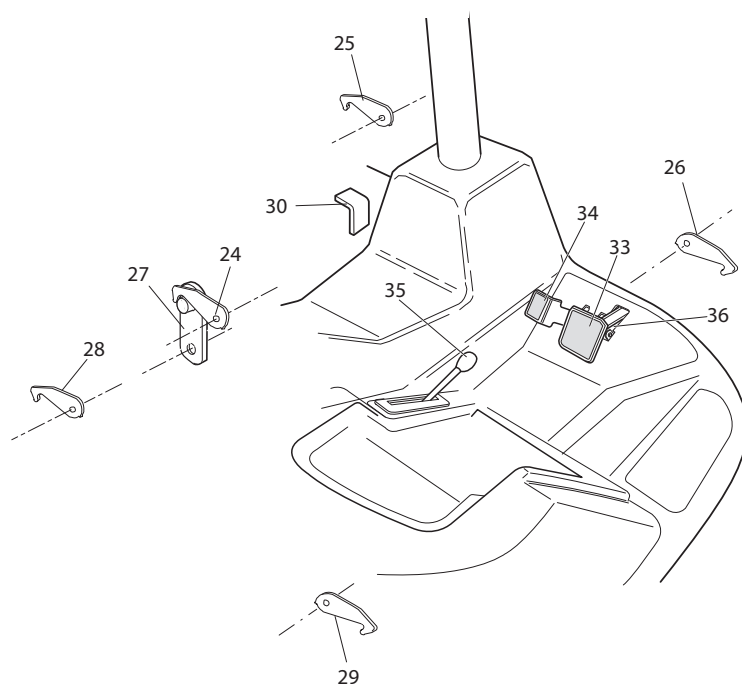
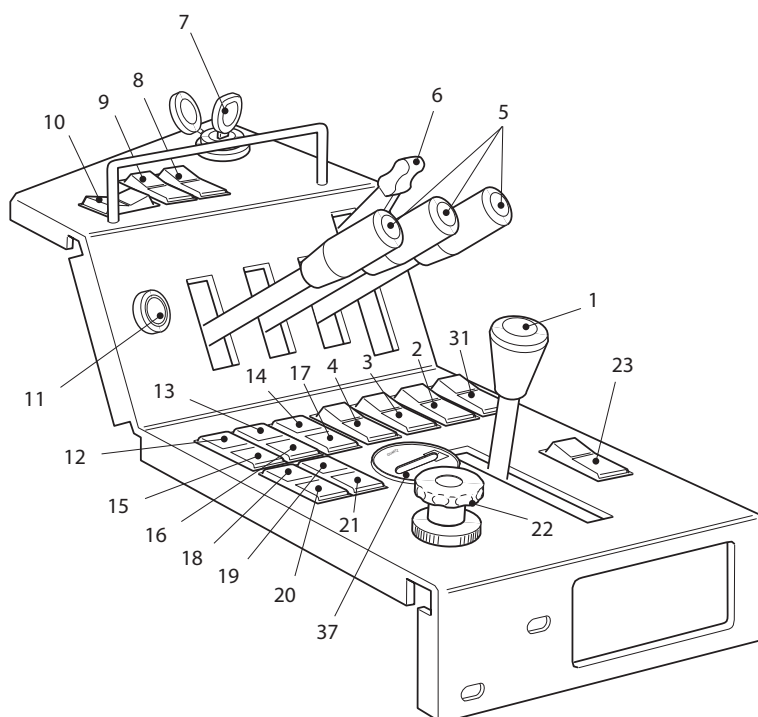
Note: The engine will cut out if the operator leaves the seat without engaging the parking brake.



WARNING: PREVENT ACCIDENTS - Do not operate the turf 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 Control Panel Components

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. 'Work' / 'transport' mode switch
24. Centre cutterhead transport latch
25. LH front cutterhead transport latch
26. RH front cutterhead transport latch
27. Centre cutterhead transport latch
28. LH wing unit transport latch
29. RH wing unit transport latch
30. Differential lock pedal
31. Dual lift configuration switch
32. Wash / wipe switch
(supplied with cab kit)
33. Forward travel pedal
34. Reverse travel pedal
35. Forward travel speed backstop lever
36. Reverse travel speed backstop cam
37. Hour meter



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.



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 -

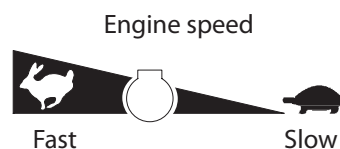
Take care when using the emergency braking. Remain seated and hold on to the steering wheel to prevent ejection from the mower caused by the front wheel brakes being applied suddenly when travelling.

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.

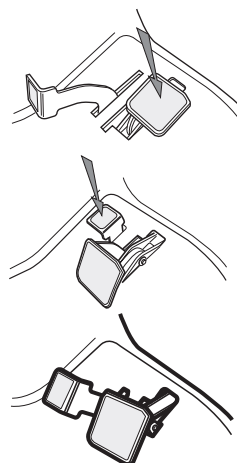


Travel

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.



Work / Transport Modes



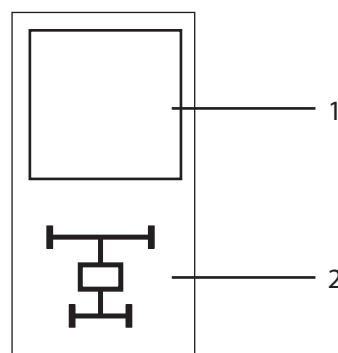
WARNING: PREVENT ACCIDENTS -

Ensure that the modes selected is appropriate to the mode of operation of the machine.

Select 'work' mode when operating the mower in conditions of poor traction when maximum tractive performance is required. Selecting 'work' mode will enable the use of the differential lock.

Select 'transport' mode when operating the mower in conditions of good traction. For example when travelling on the public highway or mowing large, level, open areas. Selecting 'transport' mode in these conditions will reduce transmission system wear and tear.

Differential lock is not available for use when 'transport' mode is selected.



- 1. Transport mode
- 2. Work mode

Transport Latches



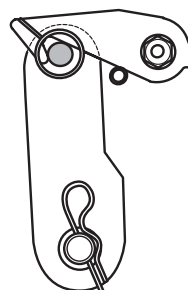
WARNING: PREVENT ACCIDENTS -

ALWAYS raise the cutterheads to the transport position and secure with the transport latches and safety locks when travelling between work areas.

Front and wing cutterhead transport latches:



Centre cutterhead transport latch:



WARNING: PREVENT ACCIDENTS -

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

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 is effective only when 'work' mode is selected.

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 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.

Travel Control Pedals

**WARNING: PREVENT ACCIDENTS -**

Ensure that the transmission control cable is securely fastened to the travel control pedal mechanism. Ensure that both the cable and pedals 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.

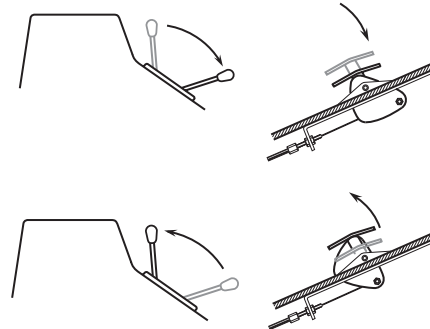
This is of particular importance after the platform has been opened and subsequently closed following inspection maintenance operations.

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

Forward Travel Speed Backstop Lever

The backstop lever can be used to limit the movement of the forward pedal for accurate forward travel speed, and the clip rate required. Operate the lever in a forward direction to increase the travel speed setting and in a rearward direction to decrease.

Note: This is not a cruise control device. Releasing the forward travel pedal will allow it to return to neutral.



Operator Platform Latching Mechanism



WARNING: PREVENT ACCIDENTS -

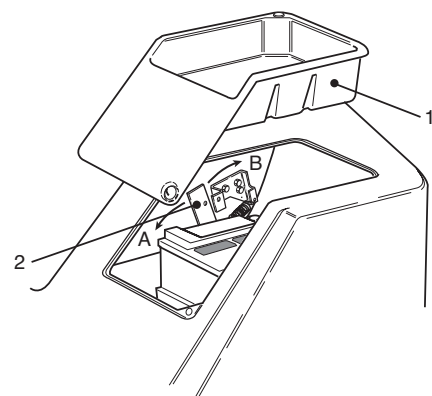
Never operate the mower without first checking that the operator platform latching mechanism is fully engaged and in good working order. Check behind the seat and ensure that the top of the platform is flush with the top of the fuel tank. Also check beneath the tool tray and ensure that the release lever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



IMPORTANT: PREVENT DAMAGE -

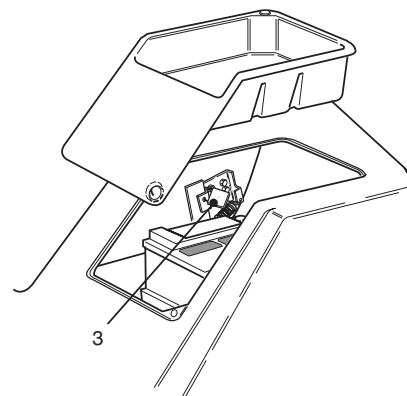
Engage the parking brake and lower the cutterheads to the ground. Remove ignition key and close ignition key and close ignition cover before raising and lowering the platform.

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 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.



- | | |
|-------------------------|------------|
| 1. Tool tray | A. Release |
| 2. Locking latch handle | B. Lock |
| 3. Padlock | |

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 -**

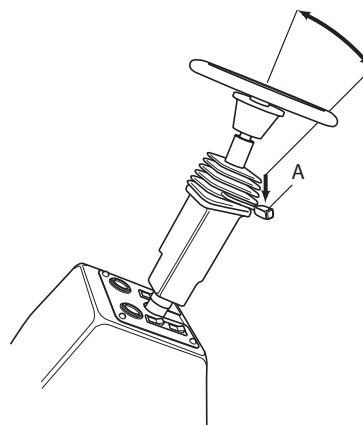
Before operating the mower, ensure that the steering column adjuster mechanism is in good working order and that the steering wheel is locked securely in position.

**WARNING: PREVENT ACCIDENTS -**

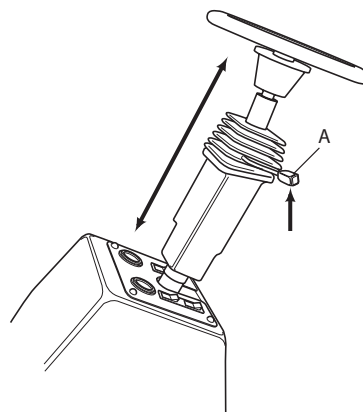
Adjustment of the steering wheel and steering column should only be carried out when the mower is at a standstill with the parking brake engaged.

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.



Folding the R.O.P.S

The R.O.P.S frame may be folded down to allow access into areas of restricted height.



WARNING: PREVENT ACCIDENTS - While the R.O.P.S frame is folded down it does not provide any protection in the event of a roll-over and should not be considered as a Roll Over Protective Structure.

1. Lower the cutterheads, apply the parking brake and switch off the engine.
2. Support the weight of the upper frame (item 1) while removing the hand nuts, washers and retaining bolts (items 2, 3 & 4) from the pivot brackets. Refer to Fig 2.
3. Carefully lower the frame downwards until it rests on the stops.
4. Insert the retaining bolts in the lower hole and fully tighten the hand nuts to support the upperframe in its lowered position.
5. To raise the frame, follow these instructions in reverse order.



WARNING: PREVENT ACCIDENTS - When in the raised position, both retaining bolt assemblies (items 2, 3 & 4) must be installed and fully tightened to ensure full R.O.P.S protection.



WARNING: PREVENT ACCIDENTS - Be careful lowering and raising the R.O.P.S frame to prevent entrapment of fingers between fixed part and pivot part of the structure.



Keep all nuts, bolts and screws correctly torqued ensure that the equipment is in safe working condition.

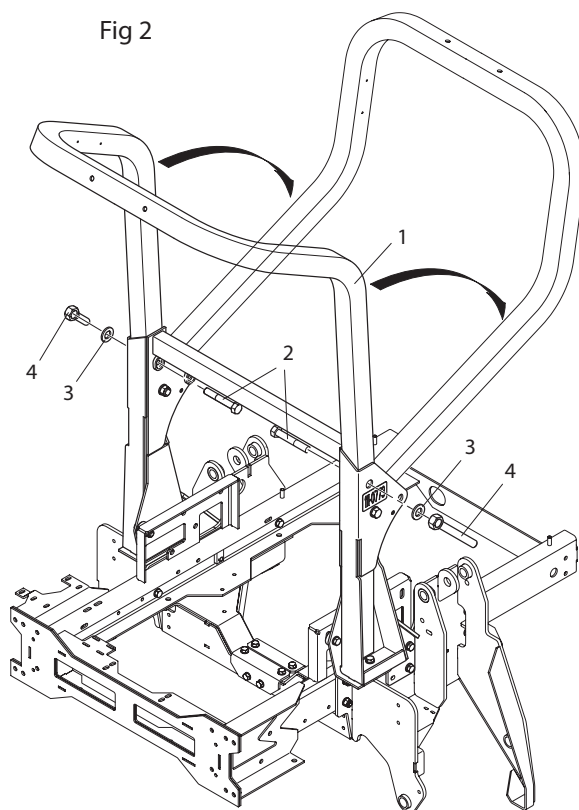


Replace worn or damaged parts for safety.



Ensure that the seat belt and mountings are in safe working order.

Fig 2



Operator Seat

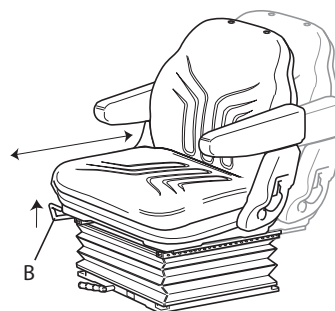


WARNING: PREVENT ACCIDENTS - Before operating the mower ensure that the operator seat mechanisms are in good working order and that the seat is locked securely in position.

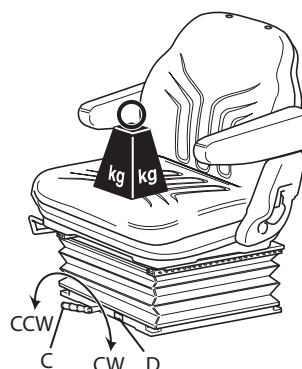


WARNING: PREVENT ACCIDENTS - Adjustment of the seat mechanisms should only be carried out when the mower is at a standstill with the parking brake engaged.

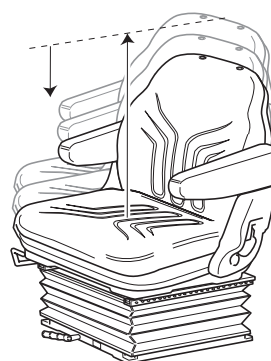
Fore/Aft Adjustment: Move lever 'B' upwards to adjust the Fore/Aft position of the seat. Release the lever to lock the seat in position.



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 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:

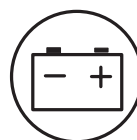
The engine coolant warning light illuminates, the horn is actuated and the cutters stop.

**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 (203° F) 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

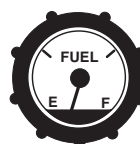
Turn the ignition key to position II. The engine pre-heat indicator light will illuminate. When the correct pre-heat temperature is achieved, the indicator light will switch off. When this condition is achieved, turn the ignition key to position III to start the engine.



IMPORTANT: PREVENT DAMAGE - Attempting to start a cold engine before the pre-heat is used can cause unnecessary wear to the battery.

Fuel Level Gauge

Displays fuel tank level.



Hour Meter

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.

Cutterhead Drive Switch Indicator Light

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

***Parking Brake Indicator Light***

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

***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.

***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.

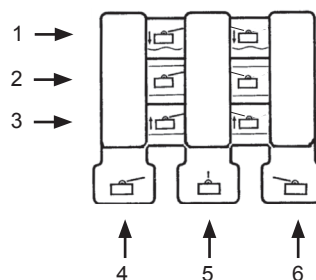
Cutterhead Position Control

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 into position. If the cutterhead drive switch is in the 'on' position, the cylinder drive will engage when the cutterheads are approximately 300mm (11.8") above ground level.

IMPORTANT: PREVENT DAMAGE - The lift control levers must be locked in position 1 while moving. 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 (11.8") 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. LH wing or LH wing & LH front*
5. Centre & LH/RH front or centre*
6. RH wing or RH wing & RH front*

*Depending on which lift configuration is selected. Refer to 'dual lift configuration control'.

Dual Lift Configuration Control

The dual lift configuration control function enables the lift controls to be used in two ways as follows:

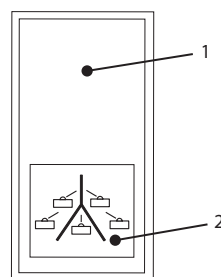
Five gang mode, lift configuration 1:

Control switch in position 1

LH lift lever 3 controls LH wing cutterhead

Centre lift lever 4 controls LH front & centre & RH front cutterheads

RH lift lever 5 controls RH wing cutterhead



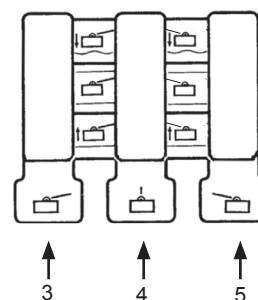
Three / five gang mode, lift configuration 2:

Control switch in position 2

LH lift lever 3 controls LH wing & LH front cutterheads.

Centre lift lever 4 controls centre cutterhead

RH lift lever 5 controls RH wing & RH front cutterheads.



With the LH and RH wing cutterheads locked in the fully raised transport position.

Control switch in position 2

LH lift lever 3 controls LH front cutterhead

Centre lift lever 4 controls centre cutterhead

RH lift lever 5 controls RH front cutterhead

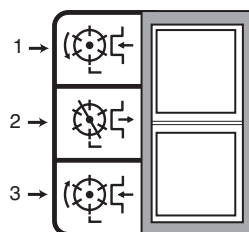
1. 5 gang mode
2. 3 / 5 gang mode
3. LH lift lever
4. Centre lift lever
5. RH lift lever

Cutterhead Drive Engagement

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

Briefly operate the lift control levers to raise the cutterheads, thereby removing the cutterhead suspension deadweights and wing units stored energy reaction from the transport latch mechanisms.

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



1. Forward
2. Off
3. Reverse

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.



WARNING: PREVENT ACCIDENTS - Refer to 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'**.

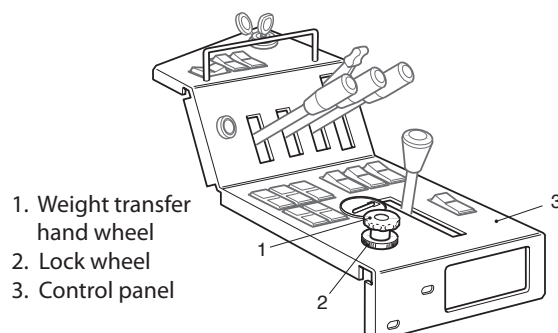
To engage weight transfer: The amount of weight transfer can be varied to suit operating conditions by rotating the weight transfer hand wheel as follows;

Release the lock wheel underneath the hand wheel $\frac{1}{2}$ 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;

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

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

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.

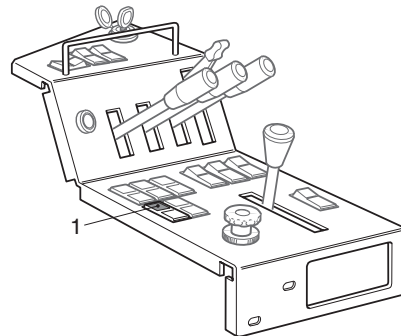
Turn the ignition key to the 'preheat' position 'II' and hold until the engine pre-heat indicator light goes out.

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'.



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'.



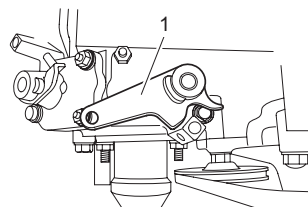
1. Engine pre-heat indicator light

Stopping The Engine

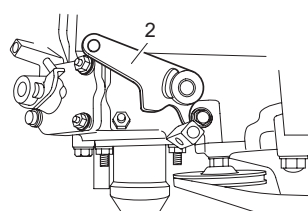


To stop the engine: Turn the ignition key to position '0'.

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.



1. Engine RUN position



1. Engine STOP position

Unblocking Cutting Cylinders



WARNING: PREVENT ACCIDENTS - Before attempting to clear any blockage from the cutting cylinders on this machine 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 to **MAINTENANCE - CUTTERHEADS**.

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 work rate 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 un-grassed 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 to **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.

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.

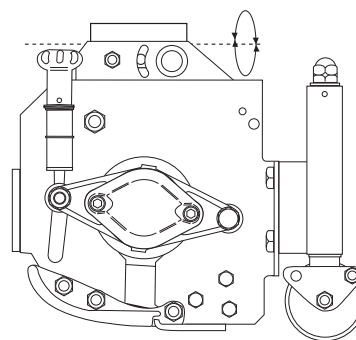
Cutterhead General Information

The mower is designed to be used with MK3 200mm (8") fixed or floating cutterheads or MK3 254mm (10") fixed cutterheads.

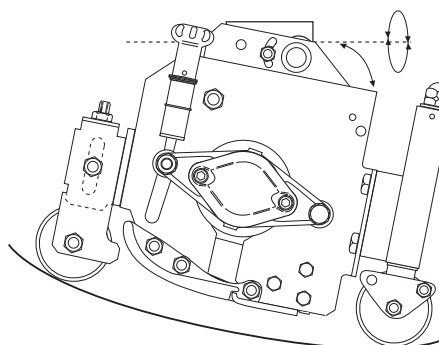
It is essential that the relationship between the bottom blades and the cutting cylinders are kept in good adjustment and that cutting edges are kept sharp to ensure good cutting performance, minimum power consumption and prolonged life for the cutting edges, refer to **MAINTENANCE - CUTTERHEADS**.

MK3 Fixed Cutterheads 200mm (8") / 254mm (10"): 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 (8") Cutterhead illustrated).



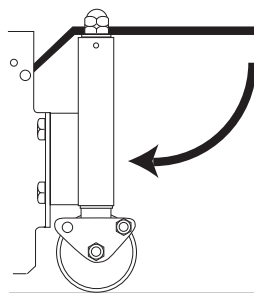
MK3 Floating Cutterhead 200mm (8"): When the mower is set up with floating cutterheads the height of cut is gauged by the front and rear rollers. The cutterhead is allowed to pivot fore and aft as well as laterally. This arrangement is recommended for high quality grass areas and performs well where grass is short and the ground undulations are severe.



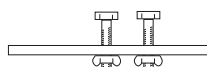
Grass deflectors: The rear grass deflectors must always be correctly fitted. The deflectors should be set as low as possible to deflect grass discharge to the ground.



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.



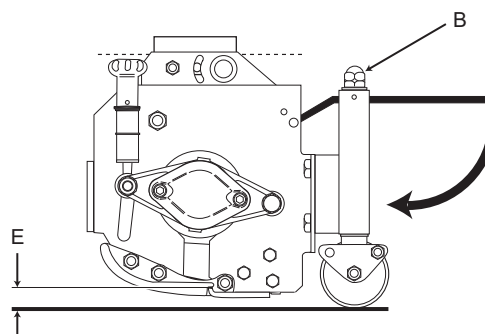
TORO part no. 63-01-760

MK3 200 mm (8") Fixed Cutterhead

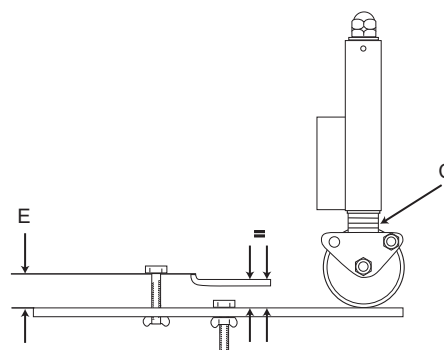
Height of cut adjustment: The height of cut is gauged by the position of the rear roller.

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'.



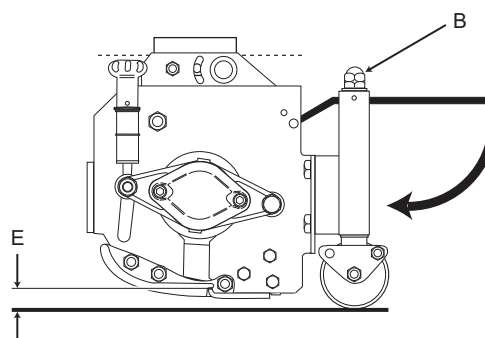
Ensure that all cutterheads are set at the same height of cut by either referring to the indicator rings 'C' or by using a height of cut gauge across the full width of each cutterhead for greater accuracy as shown.

***MK3 254 mm (10") Fixed Cutterhead***

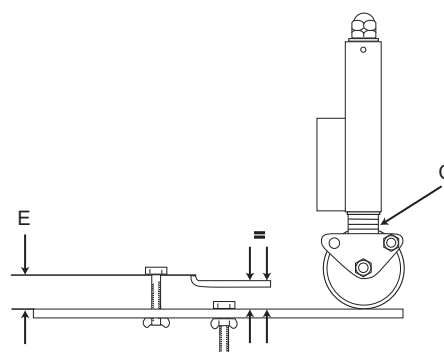
Height of cut adjustment: The height of cut is gauged by the position of the rear roller.

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'.

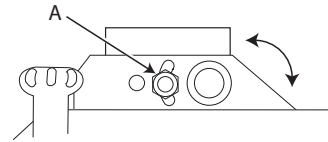


Ensure that all cutterheads are set at the same height of cut by either referring to the indicator rings 'C' or by using a height of cut gauge across the full width of each cutterhead for greater accuracy as shown.



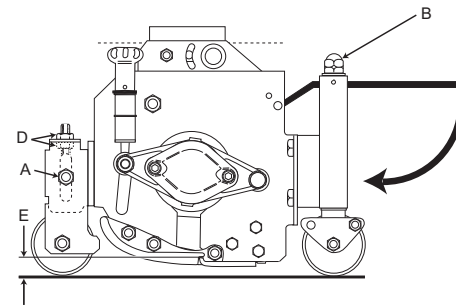
MK3 200 mm (8") Floating Cutterhead

Pivot knuckle fixing: Secure the bolt in the rear 'floating' slot position 'A' as shown.



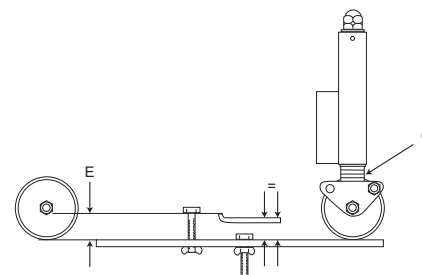
Height of cut adjustment: The height of cut is gauged by the position of the front and rear rollers.

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.



WARNING: PREVENT ACCIDENTS - Stored energy devices and systems are used on the T4240 mower. It is essential that this stored energy is safely dissipated before maintenance or other service or operations are performed on these devices and systems on the machine.

Dissipate stored energy as described below:

Hydraulics:

Transmission System: Ensure that the machine is on level ground, engage the parking brake and switch the engine off. Depress for forward and reverse travel pedals alternatively several times.

Cutterhead Lift System: Lower the cutterheads to the ground and switch the engine off. Raise and lower the lift levers several times leaving them in the 'down/float' position.

Cutterhead Drive System: Lower the cutterheads to the ground with the cutterhead drive switch in the 'off' position and switch the engine off.

Wing Cutterhead Springs: Lower the wing cutterheads to the ground.

Operator Platform Gas Spring: Raise the platform fully.



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 'Warranty'. Always fit genuine 'TORO 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 to **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.

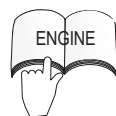
When disposing of hazardous waste products, take them to an authorised disposal site.
Waste products must not be allowed to contaminate surface water, drains or sewerage systems.

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



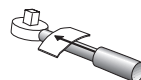
Engine

Refer to the **ENGINE OPERATOR'S MANUAL** for maintenance information.



Running In Period

Check wheel nut torque settings:



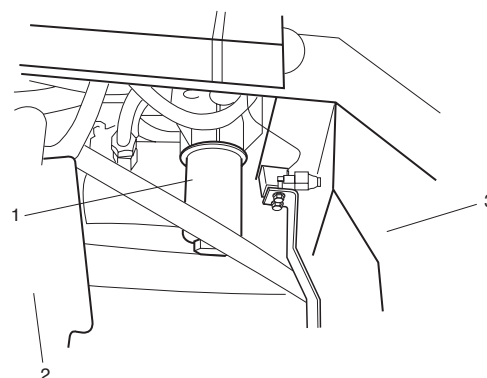
During first 50 hours of use and in addition to routine checks. Refer to DAILY AND BEFORE USE. Check wheel nut torques twice a day.

Front axle wheel nut torque setting - 200 Nm (148 lbf.ft).

Rear axle wheel nut torque setting - 54 Nm (40 lbf.ft).

Running In Period - At First 50 Hours

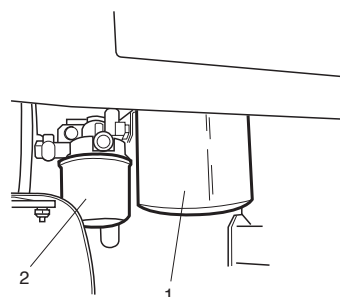
Change the transmission oil filter: Unscrew and remove the bottom of the transmission oil filter housing. Withdraw the filter element and discard. Refit a new filter element (Part no. 924708) and replace the housing.



- 1. Transmission oil filter
- 2. Centre cutterhead
- 3. Hydraulic oil tank

Change the hydraulic oil return filter:

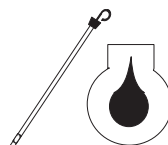
Unscrew and remove the return filter canister and discard. Refit a new filter canister (Part no. 924692).



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

Daily And Before Use

Check engine oil level: If the oil level is below the upper mark on the dipstick, top up with the correct grade of engine oil to the required level, refer to **ENGINE MANUAL**.



Check engine radiator coolant level:

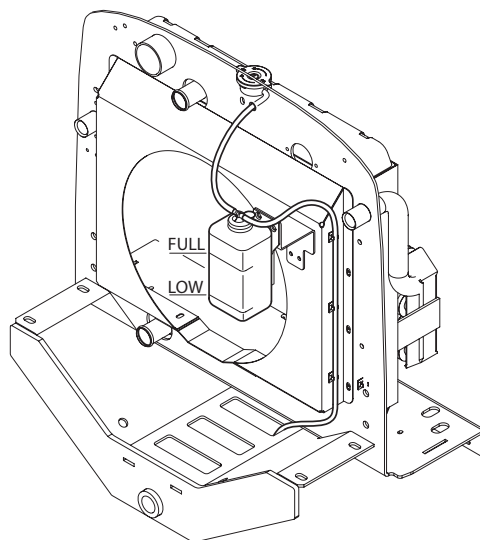


WARNING: PREVENT ACCIDENTS -

Avoid scalding. DO NOT remove the radiator filler cap unless the engine is cool. Turn the filler cap slowly to release system pressure before removing the filler cap completely.

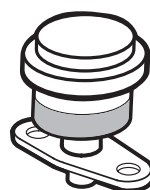


Keep coolant between 'full' and 'low' when engine is cold at all times.



IMPORTANT: If you see RED in the Filter Blockage Indicator the air filter needs replacing.

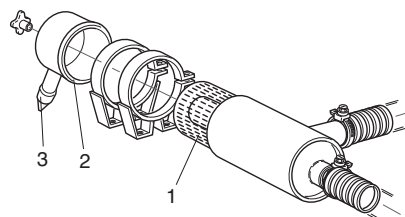
Cleaning the air cleaner: Remove the air filter and tap it repeatedly with the palm of the hand to remove dust particles. **DO NOT** damage the air filter by hitting it against a hard object. Inspect the air filter for signs of damage.



IMPORTANT: PREVENT DAMAGE -

Always replace a damaged air filter or damage to the engine will result. NEVER run the engine without the air filter correctly fitted.

Clean the inside of the cleaner dust bowl with a dry cloth and check that the dust boot is not obstructed.



1. Air filter
2. Dust bowl
3. Dust boot

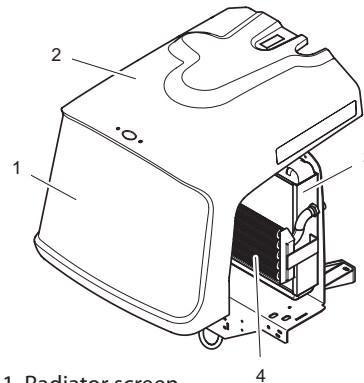
Replace the air filter and assemble the dust bowl, with the dust boot facing below horizontal level.

Daily And Before Use continued

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



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.



- 1. Radiator screen
- 2. Engine cover
- 3. Radiator
- 4. Oil cooler

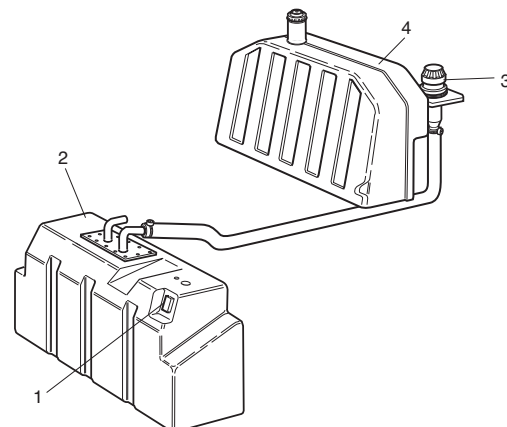
Check fuel level: Top up as necessary with diesel fuel. Always top up before storing the mower overnight to prevent water condensation from contaminating the fuel.



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 to **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

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

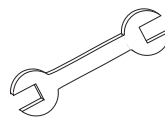


WARNING: PREVENT ACCIDENTS - ALWAYS replace worn or damaged hydraulic hose-lines immediately. **DO NOT** operate the mower with defective hydraulic hose-lines.

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

Daily And Before Use continued

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

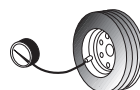


Check safety devices:



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 to **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 to **EVERY 50 HOURS, GREASE PIVOT POINTS**.

Check cutterheads: Examine the condition of the cutting cylinders and bottom blades. Adjust as necessary, refer to **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 to **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 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.

Daily And Before Use continued

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.

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 authorised 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 to **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.

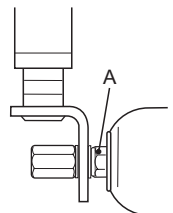
Parking brake interlock switch: Stop the engine. Engage the parking brake and turn the ignition key to position 'I'. The parking brake indicator light should illuminate. Refer to **OPERATING THE MOWER**. Disengage the parking brake. The indicator light should go out and the engine should not start when the ignition key is turned.

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 to 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.



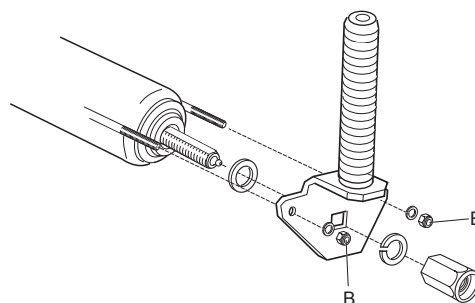
Grip the roller and move from side to side and up and down. If excessive movement is detected proceed as follows:

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.

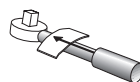


IMPORTANT: PREVENT DAMAGE - Do not over tighten the scraper wires.

Check wheel nut torque settings:

Front axle wheel nut torque setting - 200Nm (148 lbf.ft).

Rear axle wheel nut torque setting - 54 Nm (40 lbf.ft).

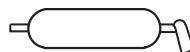


Greasing the transmission control unit:

It is important to grease the transmission control unit. This is done using the remote grease nipple located adjacent to the hydraulics oil tank filler. Pump grease into the unit until it can be seen exuding from both ends of the control unit.

Every 50 Hours continued**Grease pivot points :**

Clean and grease all grease points with a good quality compound of the grade specified, refer to **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.

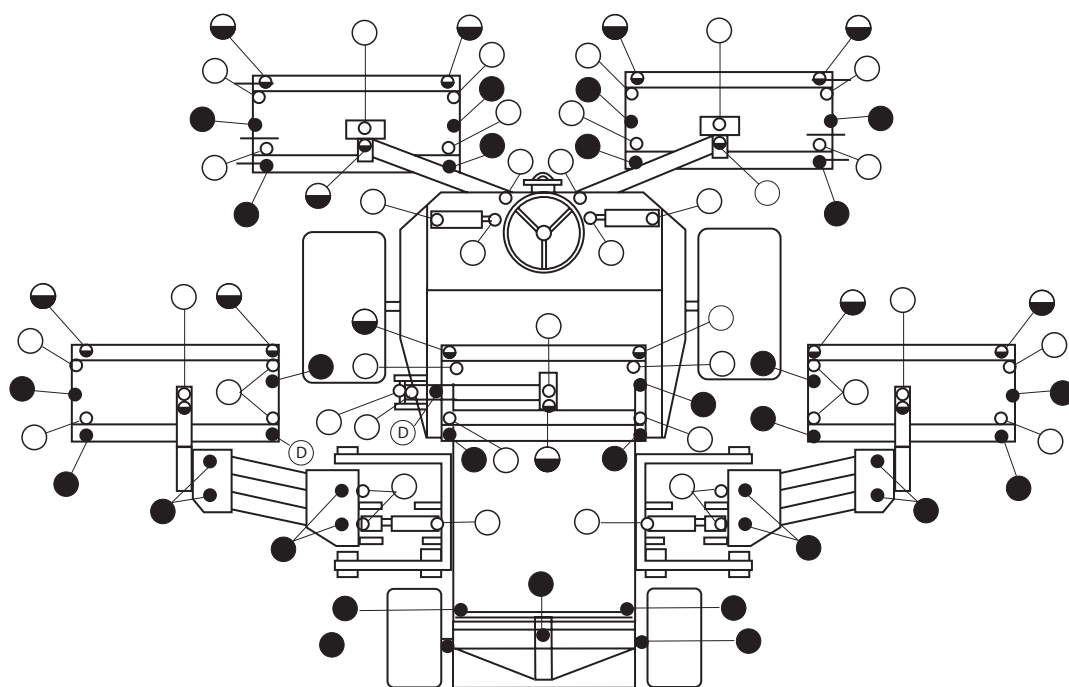
Grease Daily

● Medium grade grease

Grease every 50 hours (weekly)

◐ Medium grade grease (if fitted)

○ Medium grade grease



Every 250 Hours

Perform routine checks: Refer to - **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.

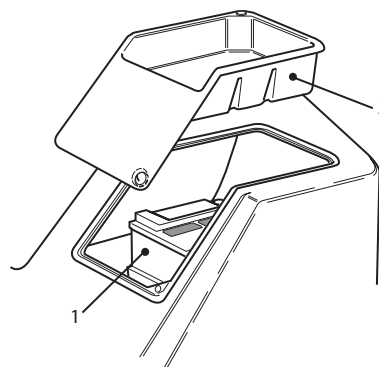
Battery fluids are corrosive. Take care to avoid contact with the skin or eyes. In the event of a spillage, drench the affected area with water. If the eyes are affected, seek medical attention. Remove any contaminated clothing and clean thoroughly before use.

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.

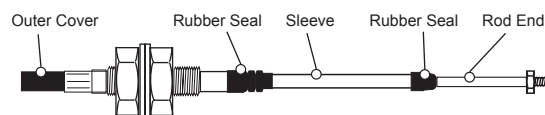
IMPORTANT: PREVENT DAMAGE - Check the condition of the battery cables. Replace cables showing signs of wear or damage and tighten any loose connections as necessary.



Visually inspect transmission control cable and operating mechanism:

Check the condition and security of the cable and operating mechanism at the speed control pedals 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.
- 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 to - **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.

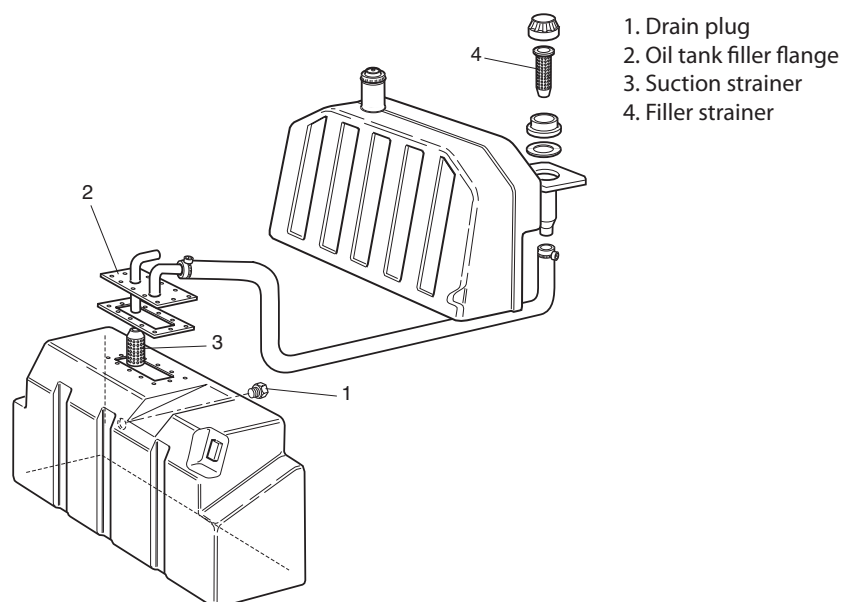
Remove the oil filler cap strainer and clean before replacing. Renew the strainer if there are any signs of damage.

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

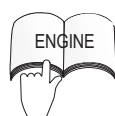
Renew the transmission oil filter element, refer to **RUNNING IN PERIOD AT FIRST 50 HOURS.**

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

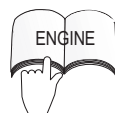
Run the machine and operate all hydraulic systems until the hydraulic oil is warm. Recheck the oil level and top up as necessary to the upper mark on the sight level gauge.



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 to **ENGINE MANUAL.**



Renew the engine fuel filter element: Refer to **ENGINE MANUAL.**



Every 500 Hours continued**Check electrical system:**

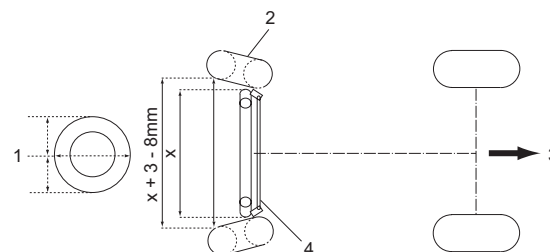
Inspect all electrical connections and cables and replace any which are damaged or corroded. Spray a good quality water inhibitor onto exposed connections to prevent moisture ingress.

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 mm (.12") - 8 mm (.31").

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 - 8 mm less than the distance between the rear sidewalls.

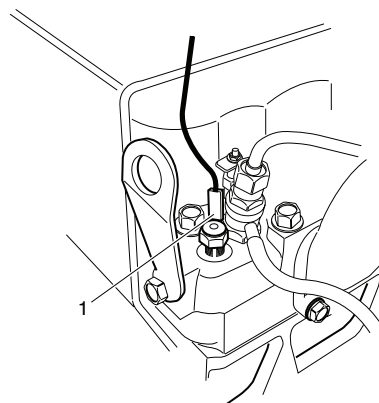
To adjust the alignment of the rear wheels, first back off the left hand and right hand locknuts on the track rod assembly. (Left hand locknut is a left hand thread). Rotate the track rod to achieve the correct 'toe - in' as described above and tighten the locknuts securely.



1. Wheel centre height
2. Tyre
3. Direction of forward travel
4. Track-rod assembly

Check the engine overheat warning system:

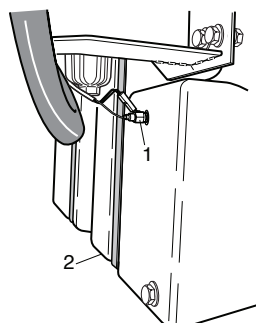
Turn the ignition key to the 'ignition on' position 'I'. Disconnect the red/grey wire terminal from the engine temperature switch and touch the metal terminal of this wire onto a suitable earth point, ensuring that the metal surfaces make good contact. The horn will sound and the engine coolant temperature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



1. Temperature switch

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.



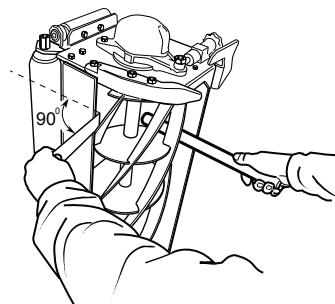
1. Temperature switch
2. Hydraulic oil tank

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° (right angles) to the bottom blade to obtain the correct cutting action.



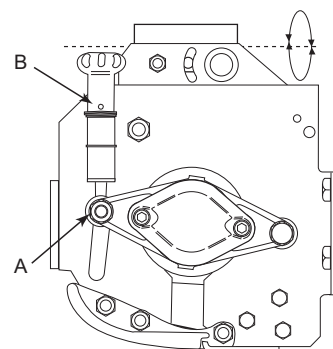
WARNING: PREVENT ACCIDENTS - Ensure that people are clear of the cutting cylinders as rotation of one may cause others to rotate.

If adjustment is necessary proceed as follows;

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

Turn hand wheel '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 back lapping procedure to reprocess the cutting edges. In severe cases it will be necessary to regrind the cutting cylinder and the bottom blade, refer to **BACK LAPPING/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 tram lining 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.

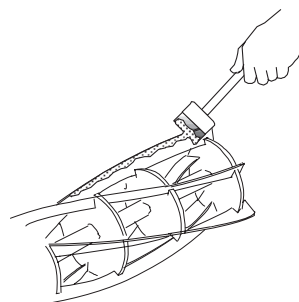
Lack of attention to adjustment can therefore be foolhardy as maintenance costs will escalate. The quality of cut will also be seriously affected as will the health and growth of the grass.

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 Back Lapping

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.

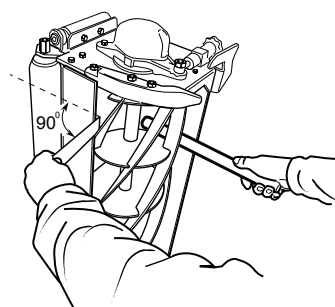


The back lapping process:

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 (1 lb)	63-07-088
11.25 kg (25 lb)	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/back lap' 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 back lapping 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 to **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 authorised 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 40Nm (30 lbf.ft). 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.

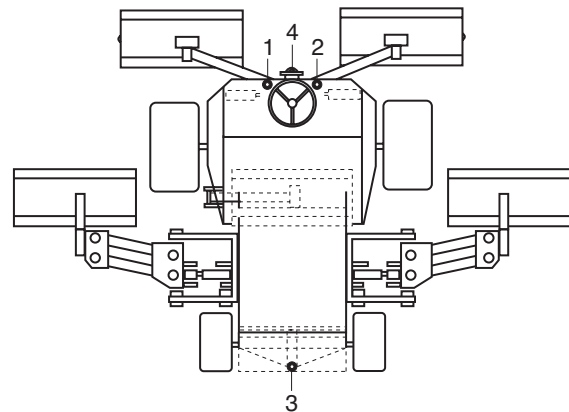
Adjust the cutting cylinder position to give adequate clearance for fitting the new bottom blade holder. Refit the bottom blade holder assembly to the cutterhead using the original fixing bolts and tighten to a torque of 35Nm (26 lbf.ft). Finally adjust the cylinder to the bottom blade, refer to **CUTTERHEAD 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 (2 Tons).
- 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.



1. Front left hand lifting point
2. Front right hand lifting point
3. Rear lifting point

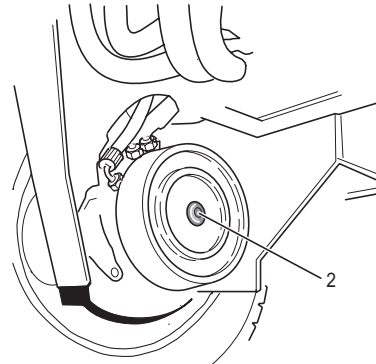
WARNING: PREVENT ACCIDENTS - When the mower is raised off the ground:

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

Towing The Mower

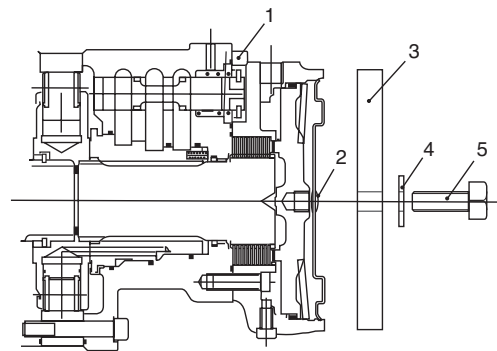
Towing procedure:

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 that 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 :-

1. 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 set screw (item 5) into the threaded hole in the brake piston until the brake is released.
2. Identify the left hand front wheel motor disc brake assembly and repeat the previous procedure.



1. Front wheel motor - 950620
2. Hex Plug - 950639
3. Brake release bar
4. Washer - M12 - 09485
5. Setscrew M12 x 40 - ZDH1L040U

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

Open the transmission bypass valve situated as shown on top of the transmission pump. The valve is fully open at 3 anti-clockwise revolutions. Do not open the valve past 3 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.

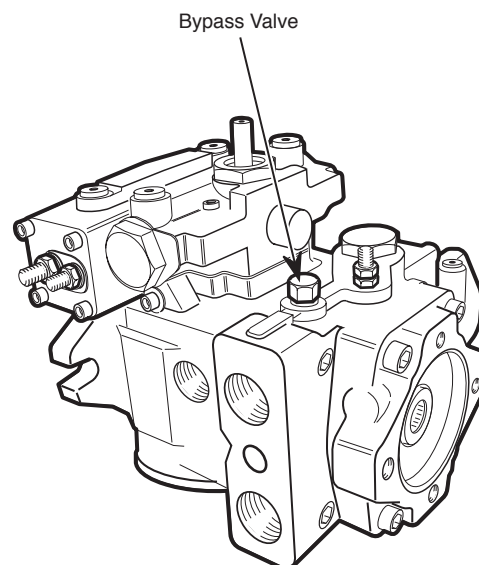
The mower is now in a freewheel condition and can be towed for a short distance at slow speed. Remove wheel chocks before towing.

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 :-

1. Close the transmission bypass valve. Turn clockwise and tighten to a torque of 48 Nm (30 lbf.ft) - 52 Nm (50 lbf.ft).



Towing The Mower continued

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

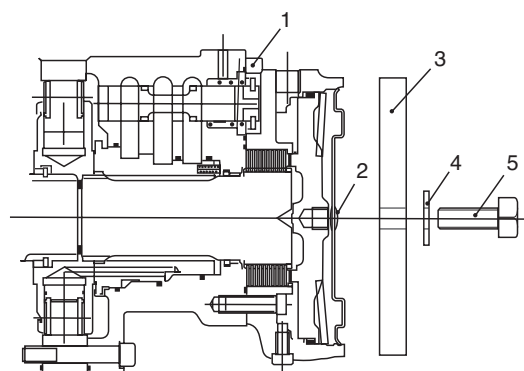
1. Identify the right hand front wheel motor disc brake assembly. Rotate the setscrew (item 5) anti-clockwise and remove together with washer (item 4) and brake release bar (item 3). Reassemble the rubber plug (item 2) into the motor end plate.
2. Identify the left hand front wheel motor disc brake assembly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



1. Front wheel motor - 111-2557
2. Hex Plug - 950639
3. Brake release bar
4. Washer - M12 - 09485
5. Setscrew M12 x 40 - ZDH1L040U



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.

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

FAULT	POSSIBLE CAUSE	REMEDY
Lines of uncut or badly cut grass in direction of travel	Tram lining of cutting edges due to heavy contact caused by poor cutting cylinder to bottom blade adjustment	Back lap 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
Excessive bottom blade wear	Bottom blade in heavy ground contact	Raise height of cut
	Cutting edges of the cutting cylinder/bottom blade are rounded	Back lap 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

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 authorised dealer make these repairs as they are properly equipped to do this work.



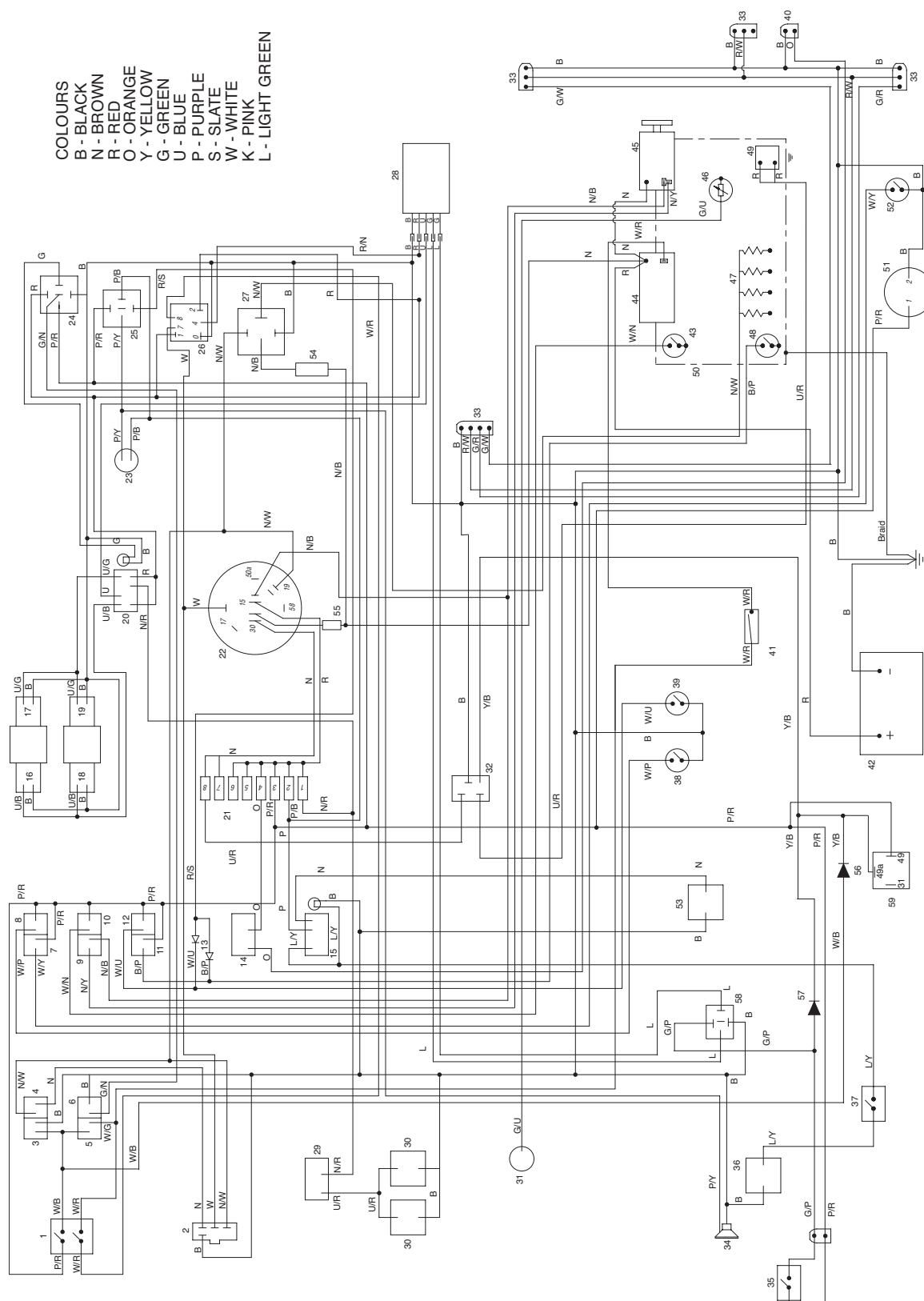
WARNING: PREVENT ACCIDENTS - ALWAYS Apply the parking brake, switch off the engine and remove the ignition key before attempting to work on the mower.

FAULT	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 to ENGINE HANDBOOK	
Differential lock non operational Flat battery	Defective switch	Check switch and replace if necessary
	Defective solenoid valve	Service or replace solenoid valve
	Defective wiring	Check wiring/connections as necessary
	Terminal connection loose or corroded	Clean and tighten terminal connections. Recharge battery
	Loose or defective alternator belt	Re tension or replace drive belt, refer to ENGINE HANDBOOK
	Defective battery	Recharge battery Replace battery
	Electrical short circuit	Trace short circuit and make good
Hydraulic oil system overheating	Blocked radiator screen	Clean screen
	Blocked oil cooler fins	Clean fins
	Blocked engine radiator matrix	Clean matrix
	Low relief valve setting	Have relief valve cleaned and pressure checked. Consult your authorised dealer
	Low oil level	Fill reservoir to correct level
	Brakes engaged	Disengage brakes
	Cutting cylinders tight on bottom blades	Readjust settings
	Defective fan or fan drive	Check fan operation and service required
Incorrect brake operation	Faulty wheel motor brake assembly	Consult your authorised dealer
	Worn brake discs	Replace brake discs Consult your authorised dealer

FAULT	POSSIBLE CAUSE	REMEDY
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
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 travel pedal linkage	Check linkage and replace defective parts
	Defective transmission pump	Have the transmission pump overhauled by your authorised dealer
	Transmission relief valve open	Close relief valve, refer to MAINTENANCE - TOWING THE MOWER
	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 setting
Work/transport modes non-operational	Defective control switch	Check switch and replace if necessary
	Defective solenoid valve	Service or replace solenoid valve
	Defective wiring	Check wiring connections and repair/replace as necessary
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 authorised dealer
	Low hydraulic oil level	Fill hydraulic oil reservoir to correct level

FAULT	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 to SPECIFICATIONS
	Oil filter element blocked	Change filter element
	Faulty pressure relief valve	Have relief valve cleaned and pressure checked. Consult your authorised dealer
	Overheating	Check cylinder to bottom blade adjustment. Reduce work rate 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 back lap to restore cutting edges. Serious damage will require re grinding
	Worn cylinder bearings	Replace as necessary
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 authorised 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

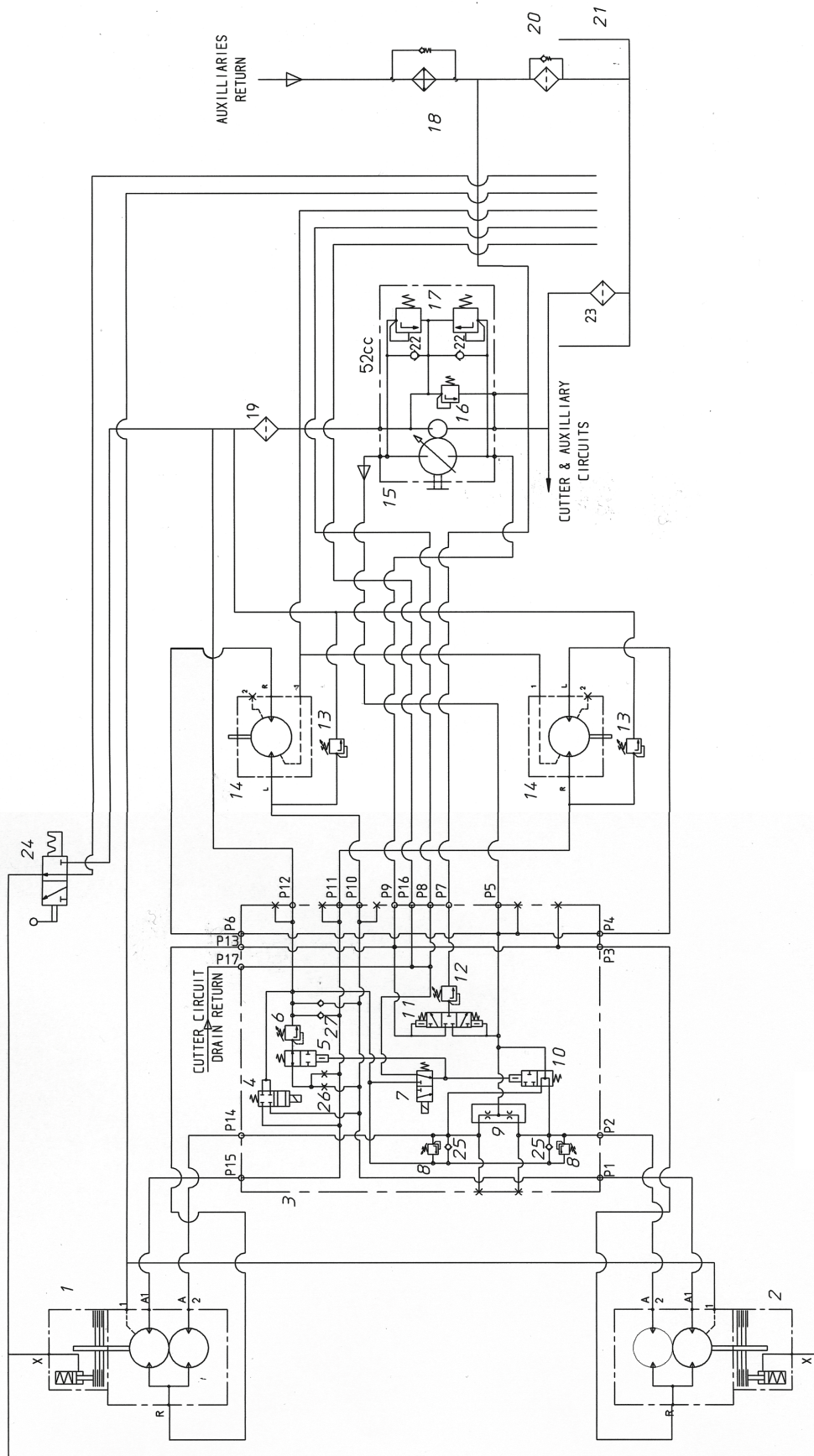
FAULT	POSSIBLE CAUSE	REMEDY
Cutterheads fail to start up when lowered into work	Faulty seat sensor switch	Check mechanical and electrical operation of switch
	Low oil level	Fill hydraulic oil reservoir to correct level
	Diverter valve jammed	Free off and lubricate or replace the diverter valve as necessary
	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 authorised 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	Overhaul control valve
	- Electrical fault	Have electrical system checked
Cylinders rotate in wrong direction	Hoses wrongly connected	Check hydraulic circuit and re connect as necessary
	Cutterhead drive switch wrongly connected	Check switch electrical connections



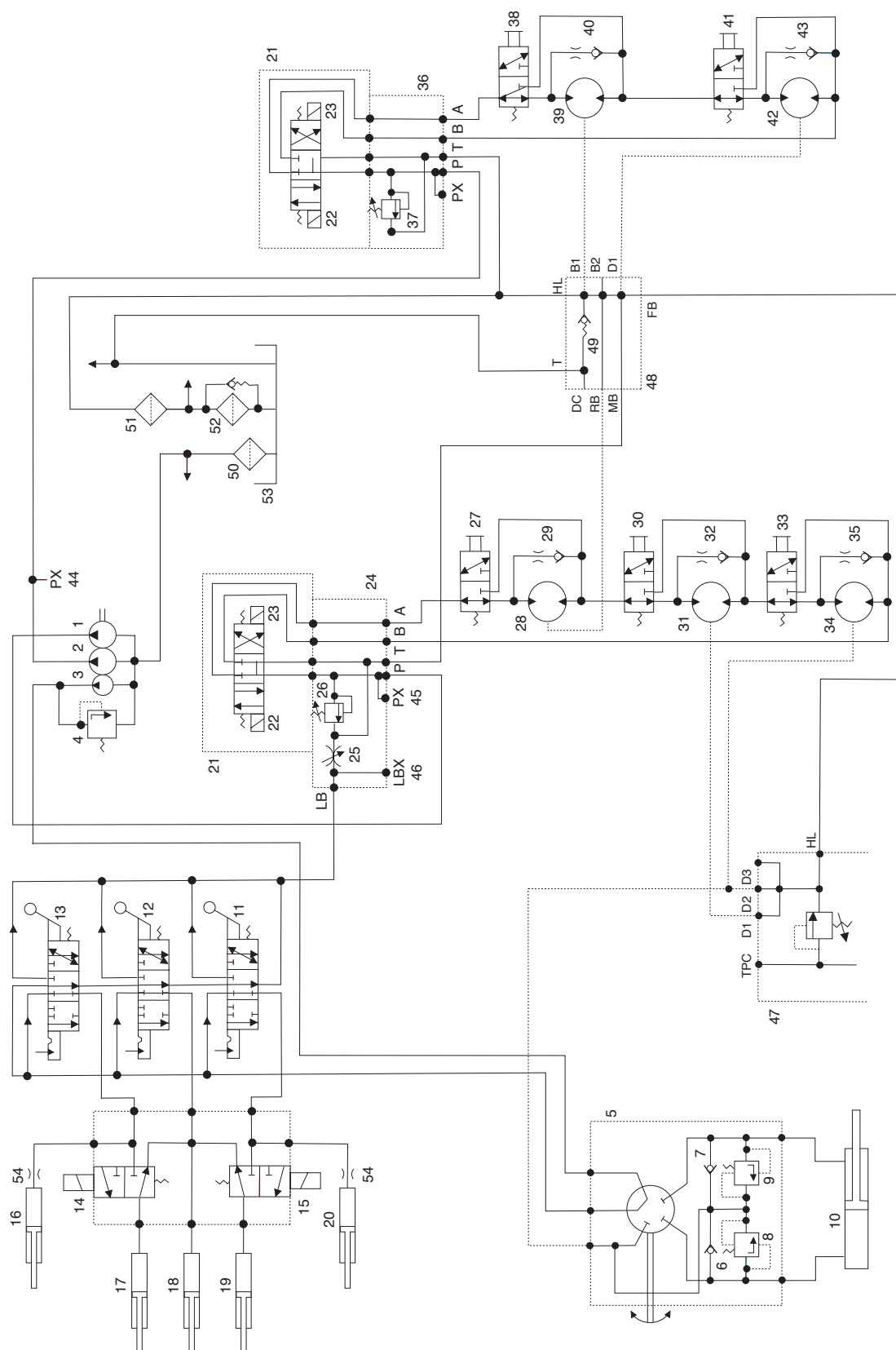
Item no	Description	Part No	Qty
1.	Switch - Parking Brake Interlock	950865	
2.	Glow Plug Timer	15694-65992	
3.	Light - Parking Brake	924601/950858	
4.	Light - Glow Plugs	924601/950857	
5.	Light - Neutral	924601/950862	
6.	Light - Cutterhead Drive Off	924601/950861	
7.	Light - Return Filter	924601/950866	
8.	Light - Pressure Filter	924601/950863	
9.	Light - Battery Warning	924601/924605	
10.	Light - Engine Oil Pressure	924601/924606	
11.	Light - Engine Coolant Temperature	924601/924602	
12.	Light - Hydraulic Oil Temperature	924601/924603	
13.	Diodes - Overheat - Audible Warning	950868	
14.	Switch - Beacon (supplied with beacon kit)	924608	
15.	Switch - Work/Transport Mode	924607	
16.	Solenoid - Centre Cutterhead Drive Reverse	70-06-246	
17.	Solenoid - Centre Cutterhead Drive Forwards	70-06-246	
18.	Solenoid - Wing Cutterhead Drive Reverse	70-06-246	
19.	Solenoid - Wing Cutterhead Drive Forwards	70-06-246	
20.	Switch - Cutterhead Drive	924864	
21.	Fusebox	70-09-096	
1.	10A Cutter Drive & Lift Configuration	70-09-026	
2.	10A Transmission & Horn	70-09-026	
3.	3A Instruments	70-09-024	
4.	Blank (Beacon)	-	
5.	Blank (Cab Wipers) or (Air Suspension Seat)	-	
6.	Blank (Lighting Kit)	-	
7.	Blank (Lighting Kit)	-	
8.	30A Engine Start (Fuel Solenoid)	70-09-027	
22.	Switch - Ignition	74-09-009	
23.	Switch - Horn	924618	
24.	Relay - Cutterhead Drive Warning Lamps	70-09-148	
25.	Relay - Overheat Audible Warning	70-09-148	
26.	Relay - Neutral Start	995718	
27.	Relay - Glow Plugs	92462 5	
28.	Timer - Operator Presence Interlock	70-01-512	
29.	Switch - Cutterhead Lift Configuration	924608	
30.	Solenoids - Lift Configuration	63-06-082	
32.	Relay - Fuel Solenoid	16259-60250	
33.	Connectors for Lighting Kit	-	
34.	Horn	70-09-108	
35.	Switch - Operator Seat	111-0410	
36.	Solenoid - Differential Lock	910627	
37.	Switch - Differential Lock	994860	
38.	Switch - Pressure Filter	-	
39.	Switch - Hydraulic Oil Temperature	940852	
40.	Connection for Beacon Kit	-	
41.	Switch - Neutral/Starter Interlock	111-0143	
42.	Battery	70-09-015	
43.	Switch - Engine Oil Pressure	-	
44.	Starter Motor	-	

Item no	Description	Part No	Qty
45.	Alternator/Regulator	-	
46.	Engine Temperature Sender (supplied with temp kit)	-	
47.	Glow Plugs	-	
48.	Switch - Engine Overheat	-	
49.	Solenoid - Fuel	1A021-60014	
50.	Engine	950950	
51.	Hour meter	910850	
52.	Switch - Return filter	-	
53.	Solenoids - Work/Transport Mode	910627	
54.	Fuse - Engine Glow plugs 60A	-	
55.	Fuse - Main 60A	-	
56.	Diode - Parking Brake	950868	
57.	Diode - Seat Switch	950868	
58.	Relay - Seat Switch	70-09-148	
59.	Delay Module - Seat	924722	

1.73 TRANSMISSION/BRAKE HYDRAULIC CIRCUIT DIAGRAM 1.73



Item no	Description	Part No
1	Motor - Front Wheel Twinlock - 332cc/Rev	953686
2	Motor - Front Wheel Twinlock - 332cc/Rev	953682
3	Manifold - Front Transmission	953683
4	Valve - Solenoid - Work/Transport	-
5	Valve - Pilot Operated - Diff Lock	-
6	Relief Valve - Serial Lines - 80 bar	-
7	Valve Solenoid - Diff Lock	-
8	Relief Valve - Front Motor - 375 Bar	-
9	Flow Divider - Front Wheels	-
10	Valve - Pilot Operated - Diff Lock	-
11	Shuttle Valve - Hot Oil Purge	953687
12	Relief Valve - Hot Oil Purge	-
13	Relief Valve - Serial Line - 375 Bar	953710
14	Wheel Motor - Rear - 130cc/Rev	953685
15	Pump - Transmission - 52cc/Rev	953684
16	Relief Valve - Charge Pump - 29 Bar	-
17	Relief Valves - Fwd/Rev - 350 Bar	-
18	Oil Cooler	111-2215
19	Filter - Charge - 10 Micron	950597
20	Filter - Return - 10 Micron	924865
21	Hydraulic Oil Tank	953802
22	Check Valve - Transmission Fwd/Rev	-
23	Suction Strainer - 125 Micron	950608
24	Valve - Brake	70-06-015W
25	Check Valve	-
26	Orifice - 1.5mm Dia.	-



Item no	Description	Part No
1	Gear pump - Centre Cutterhead Drive	74-06-154
2	Gear pump - Wing Cutterhead Drive	74-06-154
3	Gear pump - Steering and Cutterhead Lift	74-06-154
4	Relief Valve - Steering 110 bar	-
5	Steering Unit	111-1835-03
6	Check Valve - Steering Shock Bypass R.H	-
7	Check Valve - Steering Shock Bypass L.H	-
8	Relief Valve - Steering Shock L.H	-
9	Relief Valve - Steering Shock R.H	-
10	Steering Cylinder - Rear Axle	924724
11	Spool Valve - Cutterhead Lift L.H	111-1399
12	Spool Valve - Cutterhead Lift Centre	111-1399
13	Spool Valve - Cutterhead Lift R.H	111-1399
14	Solenoid Valve 131 or 212 R.H	111-1403
15	Solenoid Valve 131 or 212 L.H	111-1403
16	Hydraulic Cylinder - RH Wing Cutterhead	953603
17	Hydraulic Cylinder - RH Front Cutterhead	910109W
18	Hydraulic Cylinder - Centre Cutterhead	910109W
19	Hydraulic Cylinder - LH Front Cutterhead	910109W
20	Hydraulic Cylinder - LH Wing Cutterhead	953603
21	Solenoid Valve Assembly - Cutterhead Drive (2- pl)	70-06-245
22	Solenoid Cutting Cylinders Forwards (2-pl)	70-06-246
23	Solenoid Cutting Cylinders Reverse (2-pl)	70-06-246
24	Cutter Drive Control Manifold Front and Centre	910699
25	Restrictor Valve - Variable Weight Transfer	910709
26	Relief Valve - Cutterheads Front and Centre - 250 bar	910708
27	Diverter Valve - Centre Cutterhead	953601
28	Hydraulic Motor - Centre Cutterhead	940602
29	Check Valve/Orifice - Motor Bypass Centre Cutterhead	-
30	Diverter Valve - L.H. Front Cutterhead	953601
31	Hydraulic Motor - L.H. Front Cutterhead	940602
32	Check Valve/Orifice - L.H. Front Cutterhead	-
33	Diverter Valve - R.H. Front Cutterhead	953601
34	Hydraulic Motor - R.H. Front Cutterhead	910696
35	Check Valve/Orifice - R.H. Front Cutterhead	-
36	Cutter Drive Control Block Wing Cutterhead	953600
37	Relief Valve - Wing Cutterhead - 250 bar	953610
38	Diverter Valve - R.H. Wing Cutterhead	953601
39	Hydraulic Motor - R.H. Wing Cutterhead	910696
40	Check Valve/Orifice - R.H. Wing Cutterhead	-
41	Diverter Valve - L.H. Wing Cutterhead	953601
42	Hydraulic Motor - L.H. Wing Cutterhead	940602
43	Check Valve/Orifice - L.H. Wing Cutterhead	-
44	Test Point - Cutterhead Drive - Wing	910615
45	Test Point - Cutterhead Drive - Front & Centre	910615
46	Test Point - Weight Transfer	910615
47	Front Transmission Manifold	950616
48	Return Bypass Manifold	910616
49	Check Valve - Oil Cooler Bypass - 4 bar	910641
50	Suction Strainer	950608
51	Oil Cooler	111-2215
52	Return Filter - Bypass Check Valve - 2 Bar	924865
53	Oil Tank	953802
54	Orifice - Wing Cutterhead Hydraulic Cylinder 1.4mm (2 pl)	65-06-019



The Toro Total Coverage Guarantee

A Limited Warranty

Conditions and Products Covered

The Toro® Company 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. This warranty is applicable to all products with the exception of Aerators (refer to separate warranty statements for these products). Where a warrantable condition exists, we will repair the Product at no cost to you including diagnostics, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

* Product equipped with an hour meter.

Instructions for Obtaining Warranty Service

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

Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196
E-mail: commercial.warranty@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 failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This 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, or modified non-Toro branded accessories and products. A separate warranty may be provided by the manufacturer of these items.
- Product failures which result from failure to perform recommended maintenance and/or adjustments. Failure to properly maintain your Toro product per the Recommended Maintenance listed in the *Operator's Manual* can result in claims for warranty being denied.
- 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, brakes pads and linings, clutch linings, blades, reels, bed knives, 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, fertilizers, water, or chemicals, etc.
- Normal noise, vibration, wear and tear, and deterioration.
- 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 are covered for the duration of the original product warranty and 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 remanufactured parts for warranty repairs.

Note Regarding Deep Cycle Battery Warranty:

Deep cycle batteries have a specified total number of kilowatt-hours they can deliver during their lifetime. Operating, recharging, and maintenance techniques can extend or reduce total battery life. As the batteries in this product are consumed, the amount of useful work between charging intervals will slowly decrease until the battery is completely worn out. Replacement of worn out batteries, due to normal consumption, is the responsibility of the product owner. Battery replacement may be required during the normal product warranty period at owner's expense.

Maintenance is at Owner's Expense

Engine tune-up, lubrication cleaning and polishing, replacement of Items and Conditions Not Covered filters, coolant, and completing Recommended Maintenance are some of the normal services Toro products require that are at the owner's expense.

General Conditions

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

Neither The Toro Company nor 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. Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you.

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

Countries Other than the United States or Canada

Customers should contact their Toro Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact the Toro importer. If all other remedies fail, you may contact us at Toro Warranty Company.

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Distributor:	Country:	Phone Number:
Atlantis Su ve Sulama Sisstemleri Lt	Turkey	90 216 344 86 74
Balama Prima Engineering Equipment	Hong Kong	852 2155 2163
B-Ray Corporation	Korea	82 32 551 2076
Casco Sales Company	Puerto Rico	787 788 8383
Ceres S.A.	Costa Rica	506 239 1138
CSSC Turf Equipment (pvt) Ltd	Sri Lanka	94 11 2746100
Cyril Johnston & Co.	Northern Ireland	44 2890 813 121
Equiver	Mexico	52 55 539 95444
Femco S.A.	Guatemala	502 442 3277
G.Y.K Company Ltd	Japan	81 726 325 861
Geomechaniki of Athens	Greece	30 10 935 0054
Guandong Golden Star	China	86 20 876 51338
Hako Ground and Garden	Sweden	46 35 10 0000
Hako Ground and Garden	Norway	47 22 90 7760
Hayter Limited (UK)	United Kingdom	44 1279 723 444
Hydroturf Int, Co Dubai	United Arab Emirates	97 14 347 9479
Hydroturf Egypt LLC	Egypt	202 519 4308
Ibea S.P.A	Italy	39 0331 853611
Irriamc	Portugal	351 21 238 8260
Irrigation Products Int'l Pvt Ltd	India	86 22 83960789
Jean Heybroek b.v.	Netherlands	31 30 639 4611
Lely (UK) Limited	United Kingdom	44 1480 226 800
Maquiver S.A	Columbia	57 1 236 4079
Maruyama Mfg. Co. Inc	Japan	81 3 3252 2285
Metra Kft	Hungary	36 1 326 3880
Mountfield a.s.	Czech Republic	420 255 704 220
Munditol S.A.	Argentina	54 11 4 821 9999
Oslinger Turf Equipment SA	Ecuador	593 4 239 6970
Oy Hako Ground and Garden Ab	Finland	358 987 00733
Parkland Products Ltd	New Zealand	64 3 34 93760
Prochaska & Cie	Austria	43 1 278 5100
RT Cohen 2004 Ltd	Israel	972 986 17979
Riversa	Spain	34 9 52 83 7500
Roth Motorgerate GmBh & Co.	Germany	49 7144 2050
Sc Svend Carlsen A/S	Denmark	45 66 109 200
Solvvert S.A.S.	France	33 1 30 81 77 00
Spypros Stavrinides Limited	Cyprus	357 22 434131
Surge Systems India Limited	India	91 1 292299901
T-Markt Logistics Ltd	Hungary	36 26 525 500
Toro Australia	Australia	61 3 9580 7355
Toro Europe BVBA	Belgium	32 14 562 960

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:****Cutter Control Valve (Front & Centre) Serial No:****Cutter Control Valve (Wing) Serial No:**

