

Operator's Manual

CONDOR HYDROSTATIC DRIVE

POWER UNIT Model No: 510D - Serial No. from 312030001

ATTACHMENTS - Serial No. from 312030001:

Verge Attachment 3 Blades - Code 214D

Verge Attachment 5 Blades - Code 243D

Rotary Attachment 30" - Code 212D

ATTENTION



**THIS SYMBOL MEANS
BE ALERT!**

YOUR SAFETY IS INVOLVED

**READ THIS MANUAL BEFORE USING THE CONDOR HYDROSTATIC
DRIVE 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 HAYTER APPROVED
COMMERCIAL DEALERS.**

| CONTENTS | Page No. |
|---|--------------------|
| Safety Precautions | 1.7 - 1.12 |
| Training | 1.7 |
| Preparation | 1.7 - 1.8 |
| Operation | 1.8 - 1.9 |
| Maintenance and Storage | 1.10 |
| Decals | 1.11 - 1.12 |
| EC Conformity Information | 1.13 - 1.14 |
| Noise / Vibration Levels | 1.13 |
| EC Declaration of Conformity | 1.14 |
| Introduction | 1.15 |
| Specifications | 1.16 - 1.18 |
| Engine | 1.16 |
| Transmission System | 1.16 |
| Cutterhead Drive System | 1.16 |
| Power Unit | 1.17 |
| Operator Controls | 1.17 |
| Weight and Dimensions | 1.17 |
| Recommended Lubricants And Hydraulic Fluids | 1.18 |
| Verge Attachments | 1.18 |
| Rotary Attachments | 1.18 |
| Assembling The Mower | 1.19 - 1.21 |
| Assembling and Removing the Cutterhead Attachments - Introduction | 1.19 |
| Assembling the Cutterhead to the Power Unit | 1.20 - 1.21 |
| Operating The Mower | 1.22 - 1.28 |
| Safety Notice | 1.22 |
| Operator Presence Controls | 1.22 |
| Identification of Controls | 1.23 |
| Braking System | 1.23 |
| Throttle Control | 1.23 |
| Travel | 1.23 - 1.24 |
| Transmission Bypass Valve Control | 1.24 |
| Ignition Switch | 1.25 |
| Cutterhead Drive Operation | 1.25 |
| Starting the Engine | 1.25 - 1.26 |
| Stopping the Engine | 1.26 |
| General Operating Hints | 1.27 |
| Adjusting Height of Cutter | 1.27 - 1.28 |
| Handlebar Height Adjustment | 1.28 |

| CONTENTS | Page No. |
|---|--------------------|
| MAINTENANCE | 1.29 - 1.43 |
| Maintenance | 1.29 |
| Engine | 1.30 |
| Running in period - at First 50 Hours of Use | 1.30 - 1.31 |
| Daily and before use | 1.31 - 1.33 |
| Every 50 hours | 1.34 |
| Every 200 hours | 1.35 - 1.37 |
| Rotary Attachment | 1.41 - 1.42 |
| Cutterblades | 1.42 |
| Preparing the Mower for Storage | 1.43 |
| GRASS CUTTING FAULTS - Both Types of Attachments | 1.44 |
| TROUBLE SHOOTING | 1.45 - 1.46 |
| ELECTRICAL CIRCUIT DIAGRAM | 1.47 |
| WARRANTY | 1.48 |
| NOTES | 1.49 - 1.50 |
| CUSTOMER INFORMATION | 1.51 |



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 CONDOR 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.



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.

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.



Replace faulty silencers.



Always ensure that the mower is in a safe operating condition. Frequently check all nuts, bolts and screws for tightness. Use only genuine Hayter replacement parts.



Damaged cutterblades or loose fixing bolts are major hazards. Before use, always visually inspect the cutting mechanism to ensure that there are in good condition. Damaged cutterblades must be replaced immediately with genuine Hayter replacement parts. Unbalanced cutterblades may cause serious damage to your machine. Refer to MAINTENANCE.



On attachment with twin cutterheads, take care as rotating one cutterblade will cause the other to rotate.

Preparation Continued



WARNING: Petrol is highly flammable.

- Store fuel in containers specifically designed for this purpose.
- Refuel outdoors only and do not smoke while refuelling.
- Add fuel before starting the engine. Never remove the cap from the fuel tank or add petrol whilst the engine is running or when the engine is hot. Allow the engine to cool for at least two minutes before refuelling.
- Do not attempt to start the engine if petrol is spilled or a smell of petrol is present. Move the mower away from the area of spillage and avoid creating any source of ignition until petrol vapors have dissipated.
- Always use fresh fuel. Stale fuel can block the carburettor and cause leakage.
- Replace fuel tank and oil tank caps securely.

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.



Avoid using the mower on wet grass, where feasible.



Walk, never run.



Do not use on slopes of more than 20 degrees.



Always be sure of your footing on slopes and stay alert for humps, hollows and other hidden hazards.



Ground conditions may affect the ability of the operator to maintain safe footing. Particular conditions may not permit safe operation on the slope limit stated.



Mow across the face of the slopes, never up and down.



Exercise extreme caution when changing direction on slopes.



Do not mow excessively steep slopes.



Use extreme caution when reversing or pulling the mower towards you.



Disengage the cutterhead drive if the mower has to be tilted for transportation when crossing surfaces other than grass and when transporting the mower to and from the area to be mowed.



Never operate the mower unless the guards are securely in position and in good condition and all safety devices are in place.



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



Disengage the cutterhead and ground drive clutches before starting the engine.

Operation Continued

Start the engine carefully, with feet well away from the cutting devices.



Do not tilt the mower when starting the engine.



Do not put hands or feet near or under rotating parts. Keep clear of discharge openings at all times.



Stop the engine, turn the ignition control to the 'off' position, set the parking brake and disconnect the spark plug lead:

- Before clearing blockages or unclogging the discharge chute.
- Before cleaning/checking or working the mower.
- After striking a foreign object. Inspect the mower for damage and ensure necessary repairs are made before re-starting.
- If the mower starts to vibrate abnormally (check immediately).



Stop the engine, turn the ignition control to the 'off' position, set the parking brake:

- Whenever you leave the mower.
- Before refuelling.
- Before making a height of cut adjustment.



Reduce throttle control setting during engine shutdown.



Turn off the fuel tap at the conclusion of mowing.



WARNING: The cutting devices can continue to rotate after the engine is switched off.

Maintenance and Storage



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.



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. On twin bladed cutterheads, take care as rotating one bottom plate will cause the other to rotate.

Health & Safety

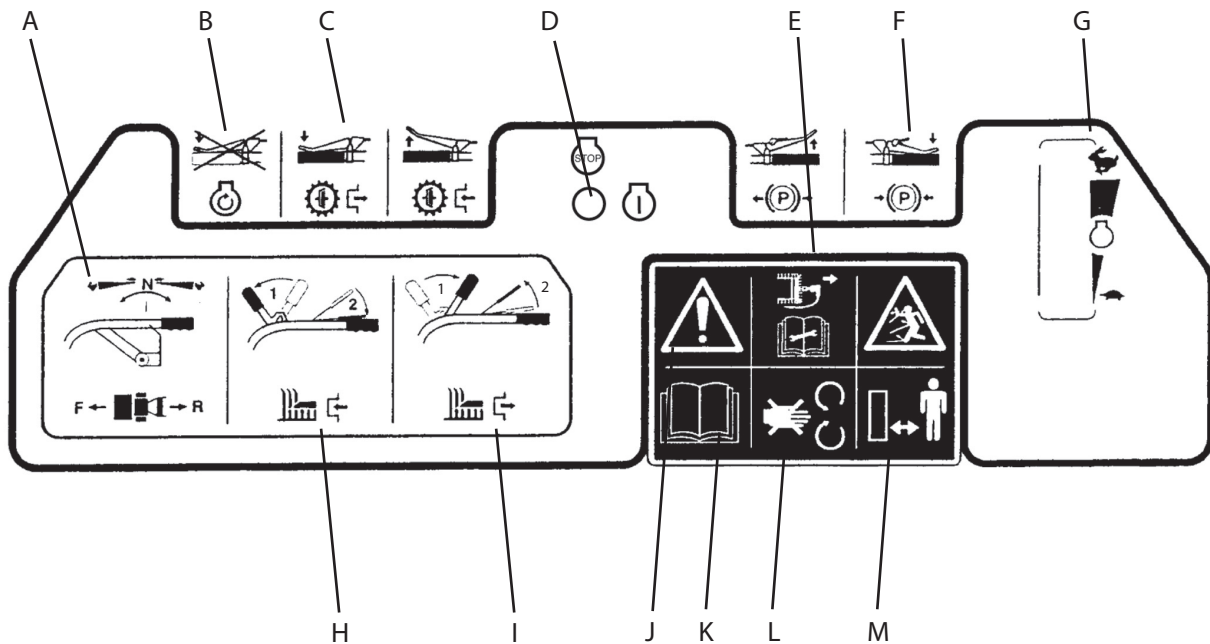
The Condor Mower has been designed and constructed so that, in so far as is reasonably practical, they meet the safety requirements of the Machinery Directive 2006/42/EC, they will not endanger the safety and health of those working with them. This is, however, subject to the machine being properly used 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: 510226 (2)

Location: Control Panel

- A) Ground travel control: controls forward & reverse transmission speed
- B) Bypass valve important: prevent damage - do not operate the bypass valve lever whilst the engine is running as this will cause a rapid temperature rise in the bypass valve.
- C) Hydrostatic unit bypass valve control - grip lever to close the bypass valve, grip lever to open bypass valve release.
- D) Engine stop/run switch
- E) Stop engine and remove spark plug lead before performing maintenance or repair work.
- F) Parking break - grip a latch lever to engage the parking brake. Unlatch and release lever to disengage the parking brake.
- G) Engine speed control - push the lever forward to increase engine speed, pull the lever back to reduce engine speed
- H) Engage cutterhead drive
- I) Disengage cutterhead drive
- J) WARNING: CAUTION - risk of danger/safety alert
- K) Carefully read the operators manual before using the machine
- L) Do not open or remove safety shields while the engine is running
- M) Danger of being hit by thrown objects. Keep bystanders at a safe distance



*Decals continued***Decal - Cutting height adjustment**

Part No: 320006 (3)

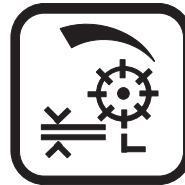
Location: R.H side of deck (212D)

Both sides of unit (214D, 243D)

**Decal - Cylinder cut adjustment**

Part No: 214053 (0)

Location: Top front of verge unit, both sides

**Decal - Severing of hand of fingers**

Part No: 40-13-010 (1)

Location: Both sides of the deck (212D)

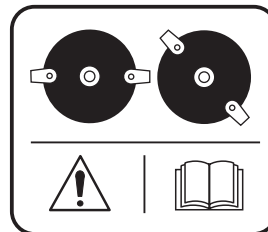
R.H side of deck (214D)

R.H side of deck (243D)

**Decal - Cutterhead timing**

Part No: 111-3904 (A)

Location: Between gearboxes on the rotary attachment



Noise Levels

Operator Daily Personal Noise Exposure:

HAYTER LIMITED 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 80 dB (A) $L_{EP,d}$

Sound pressure level:

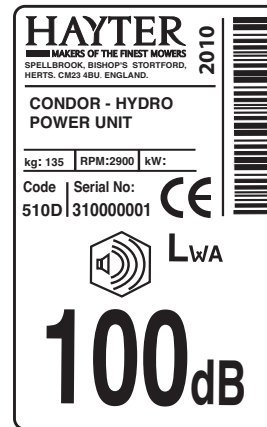
The sound pressure level at the operator's position is 87.5 dB (A) measured in accordance with European Standard EN836.

Sound power level:

The guaranteed sound power level is 100 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:

HAYTER LIMITED 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

WARNING: Under no circumstances can attachments other than those covered by the EC Declaration of Conformity or other attachments that may be introduced by Hayter Limited in the future, having a similar EC Declaration of Conformity, be supplied for or fitted to the Code 510D Condor Hydrostatic Drive Power Unit. Unauthorised use of other equipment will invalidate the EC Declaration of Conformity and may cause the mower to be unsafe. The fitting of genuine 'Hayter' attachments which fall outside the definition of 'Machinery' is permitted and is the only exception to this rule.

EC DECLARATION OF CONFORMITY

Manufactured by: HAYTER LIMITED,

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

declare that the lawnmower :



| Model name: | Condor Hydrostatic Power Unit | Condor Hydrostatic Power Unit | Condor Hydrostatic Power Unit |
|--|--|--|--|
| Type: | Pedestrian lawnmower | Pedestrian lawnmower | Pedestrian lawnmower |
| Model No: | 510 | 510 | 510 |
| Cutting width: | 81 cm | 81 cm | 81 cm |
| Speed of rotation of engine: | 2900 rpm | 2900 rpm | 2900 rpm |
| Attachment model no: | 212 | 214 | 243 |
| Cutting device model name: | 30" Rotary Attachment | 30" Verge Attachment | 30" Verge Attachment |
| Cutting width: | 76 cm | 76 cm | 76 cm |
| Speed of rotation of the cutting device: | 2800 rpm | 1230 rpm | 1230 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 2004/108/EC 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: | 99 dB(A) | 99 dB(A) | 99 dB(A) |
| Guaranteed sound power level: | 100 dB(A) | 100 dB(A) | 100 dB(A) |

Authorised Signatory:

S.A Maryniak
(Technical Director)

Date: 12.04.10

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 & EN 1033:

| | | | |
|-------------------------------------|----------------------|----------------------|----------------------|
| | 212 | 214 | 243 |
| Measured Vibration Level a_{hv} = | 3.0 ms^{-2} | 3.5 ms^{-2} | 3.5 ms^{-2} |
| Uncertainty of measurement K = | 2.0 ms^{-2} | 2.0 ms^{-2} | 2.0 ms^{-2} |

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

| | | | |
|----------------------------------|------------|------------|------------|
| | 212 | 214 | 243 |
| Measured Vibration Level a_w = | N/A | N/A | N/A |
| Uncertainty of measurement K = | N/A | N/A | N/A |

SOUND PRESSURE INFORMATION

Sound Pressure Level at the Operator Position measured in accordance with European Standard EN 836 & EN 11094:

| | | | |
|--|-----------------|-----------------|-----------------|
| | 212 | 214 | 243 |
| Measured Sound Pressure Level L_{PA} = | 86 dB(A) | 86 dB(A) | 86 dB(A) |
| Uncertainty of measurement K = | 3 dB(A) | 3 dB(A) | 3 dB(A) |

Serial No.

Introduction

The Condor Hydrostatic System is a total grass cutting system designed for professional use. A range of optional attachments are available which can be quickly interchanged.

This machine is 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 Operator's Manual also constitute essential elements of the intended use.

This machine 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 together with all other generally recognised regulations on safety and all road traffic regulations must be observed at all times.

Any arbitrary modifications carried out to this machine may relieve Hayter Limited of liability for any resulting damage or injury.

The unit is petrol engine powered and has separate clutch controls for engaging the cutterhead and ground drives. The Condor system is well balanced and incorporates a number of features for effortless safe mowing. The handlebar controls are 'user friendly' and incorporate an operator presence control system. This system will automatically disengage the cutterhead and ground drive clutches when the operator releases the controls.

The Condor Hydrostatic Mower is a precision built machine designed for robust use, a high standard of finish and long life. The way in which this mower is operated and maintained will have a profound effect on its performance and reliability.

This manual contains advice on the safe operation of the Condor Hydrostatic Mower, which is offered for guidance and protection of all those operating and servicing this machine.

In pursuit of continuous product development, Hayter Limited reserve the right to alter specifications without notice.

Cutterhead Variants: The Condor Hydrostatic Drive Power Unit can be fitted with a range of cutterhead configurations and optional extras:

30" Verge Attachment - 3 Blade

30" Verge Attachment - 5 Blade

30" Rotary Attachment

Optional Extras:

Narrow Wheel Kit.

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 2900 RPM UNLESS OTHERWISE STATED.

Engine

| | Condor |
|------------------------|---|
| Type: | HONDA GX340 UT2 4 - stroke, overhead valve, 1 cylinder |
| Speed Rating: | 2900 rpm (no load) |
| Power Rating: | 6.5 kw (8.7 hp) @ 2900 rpm |
| Capacity: | 337 cc |
| Air Cleaner: | Dual element type. |
| Cooling System: | Forced air |
| Oil Type: | SAE 10W-30 |
| Oil Capacity: | 1.1 Litres |
| Fuel Type: | Unleaded petrol |
| Fuel Capacity: | 6.1 Litres |

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

Transmission System

Drive Type: Hydraulic static differential transaxle

Cutterhead Drive System

Power Unit Intermediate Drive: Single clutch V-belt drive with integral engine lockout switch sensor

Power Unit Final Drive: Twin V-belt via countershaft

Verge Drive: Triple V-belt via countershaft

Rotary Attachment: Swinging cutterblades attached to circular bottom plates on coupled gearboxes with pulley brake.

Power Unit Specifications

Ground Speed: 0 - 9 km/hr (0 - 5.6 mph) forward
0 - 5 km/hr (0 - 3 mph) reverse

| Tyres | Tyre Type | Recommended max. tyre pressures |
|--------------|---------------------|--|
| Standard | 16 x 6.5 - 8 4 Ply | 1.9 bar (28 psi) |
| Option | 16 x 4.00 x 8 4 ply | 2.2 bar (32 psi) |

Parking Brake: Lever operated integral transaxle disc brake

Safety Features: Neutral start interlock
Operator presence control
Braked cutterhead drive (rotary attachment)

Operator Controls

Cutterhead drive: Hand operated lever to engage
(Maintain by twin hand-operator pressure control levers)

Engine Speed: Hand operated lever

Parking Brake: Hand operated lever with engagement lock

Forward and Reverse: Forward and reverse twin hand operator hand/thumb levers

Ignition: On/Off switch

Bypass Valve: Hand operated lever

Weight and Dimensions

| | 30" Rotary attachment fitted | 30" Verge attachment fitted |
|--------------------------------|-------------------------------------|--|
| Maximum Working Width: | 844 mm | 902 mm |
| Maximum Mowing Width: | 762 mm | 762 mm |
| Maximum Overall Length: | 2040 mm | 1680 mm |
| Overall Height: | 1160 mm | 1160 mm |
| Approx. Working Weight: | 195 kg 135 kg (Power unit only) | 218 kg (5 blade) 135 kg (Power unit only) |

Recommended Lubricants and Hydraulic Fluids

| | |
|-------------------------------------|--|
| Grease Points: | A good quality medium grease |
| Cutterhead gearbox (rotary): | SAE90 |
| Engine: | SAE10W-30 |
| Hydrostatic Unit: | BP Vanellus M20W, BP Energol HLP22 or equivalent |
| Transaxle: | SAE EP90 Transmission Oil |

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

Verge Attachments

| | Code 214D | Code 243D |
|----------------------------|------------------------------|------------------------------|
| Cylinder Drive: | V-Belt/Countershaft | V-Belt/Countershaft |
| Cutting Width: | 762 mm | 762 mm |
| Cylinder Diameter: | 190 mm | 190 mm |
| Cylinder Speed: | 1250 rpm | 1250 rpm |
| Height of Cut: | 17 mm (0.7") to 62 mm (2.4") | 17 mm (0.7") to 62 mm (2.4") |
| Number of Blades: | 3 | 5 |
| Smooth Rear Roller: | Standard | Standard |

Rotary Attachments

| | Code 212D |
|--------------------------|------------------------------|
| Drive: | V-Belt/Gearbox |
| Cutting Width: | 762 mm |
| Type of Blade: | 2 disc with swinging blades |
| Cutterbar Speed: | 2860 rpm |
| Height of Cut: | 20 mm (0.8") to 55 mm (2.2") |
| Number of Blades: | 4 (2 on each disc) |

Assembling and Removing the Cutterhead Attachments - Introduction

The Condor Hydrostatic Drive Power Unit Code 510D is designed to be used with either the 30" Rotary Cutterhead Attachment Code 212D or the 30" Verge Cutterhead Attachments Code 214D and 243D. Any of these attachments can be quickly mounted to or removed from the power unit.



WARNING: PREVENT ACCIDENTS - Stop the engine, apply the parking brake and disconnect the spark plug lead before attempting to remove or mount a cutterhead attachment.



WARNING: PREVENT ACCIDENTS - Do not attempt to carry out the following procedure by yourself, another person must assist you.

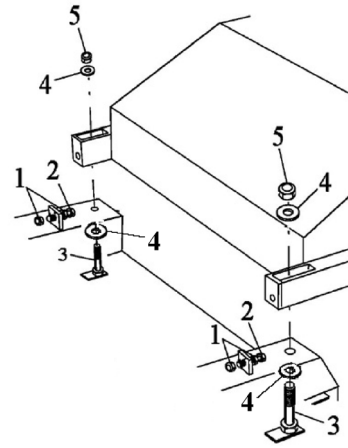
Power unit with 30" Rotary Cutterhead Attachment.



Assembling the Cutterhead Attachment to the Power Unit

1. Position the cutterhead attachment on level ground.
 2. Remove the cutterhead drive cover.
 3. Remove the power unit transmission guard.
 4. Remove the engine drive belt from the countershaft pulley.
 5. Loosen the lock nuts (item 1) and screw the two tensioning bolts (item 2) fully forward to provide maximum clearance for assembly. Refer to Fig 1.
 6. Position the cutterhead attachment close to the front of the power unit.
 7. One person should tilt the power unit down at the front by holding and raising the handles, whilst another person assembles the twin drive belts between the cutterhead pulley and the power unit countershaft pulley.
 8. Lower the handlebars, align the power unit to the cutterhead mountings and connect up using the two bolts, washers and nyloc nuts (items 3, 4 & 5). Do not fully tighten bolts at this stage. Refer to Fig 1.
- Note:** The rotary attachment has two mounting holes. Assemble using the right hand holes. Refer to Fig 2, item A.
9. Adjust the two tensioning bolts (item 2, Fig 1) equally to tension the twin drive belts. The bolts are correctly tensioned when a deflection of 13 mm is achieved using finger pressure. Refer to Fig 3.
 10. Tighten the locknuts (item 1) and nuts (item 5). Refer to Fig 1.
 11. Re-check the belt tensions as previously described and readjust if necessary. The twin drive belts are matched but it is quite normal for there to be slight differences in tension between them.

Fig 1



1. Nut
2. Tensioning Bolt
3. Mounting Bolt
4. Washer
5. Nyloc Nut

Fig 2

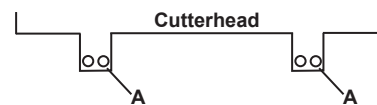
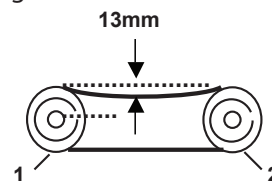


Fig 3



1. Drive pulley attachment (cutterhead)
2. Countershaft pulley (Power unit)

Assembling the Cutterhead Attachment to the Power Unit continued

12. Refit the drive belt from the engine to the countershaft pulley.
13. Refit the transmission guard to the power unit and drive cover to the cutterhead.

To remove the cutterhead attachment from the power unit:

This is achieved by adopting the procedure. '**To assemble the cutterhead attachment to the power unit**' in reverse order.

14. Route the cutterbrake cable from the rotary attachment over the countershaft pulley shaft on the power unit, under the support bracket and secure with a cable tie.
15. Route the cutterbrake cable over the micro switch bracket (fitted to the side of the engine) and secure at the same position as the microswitch wires with a cable tie.
16. From the microswitch bracket route the cable to follow the cutter clutch cable up the left hand handlebar to the anchor bracket and secure the cable adjuster into the bracket using the two nuts provided, refer to **MAINTENANCE - RUNNING IN PERIOD - AT FIRST 50 HOURS OF USE - CHECK CUTTERHEAD BRAKE CABLE ADJUSTMENT.**
17. Remove the pushfix which is secured to the eye at the end of the cutterbrake cable inner.
18. Fit the cable eye over the pin on the cutter clutch lever and secure into position with the pushfix.
19. Adjust the cutterbrake cable, refer to **MAINTENANCE - RUNNING IN PERIOD - AT FIRST 50 HOURS OF USE - CHECK CUTTERHEAD BRAKE CABLE ADJUSTMENT.**
20. Refit the transmission guard to the power unit and the drive cover to the cutterhead.



WARNING: PREVENT ACCIDENTS - Never operate the mower with the transmission guard or drive covers removed.

Safety Notice



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

- **The operator reads and understands this manual.**
- **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.**

Operator Presence Control

The controls incorporate an operator presence control (OPC) which is provided for the protection of the safety and health of the operator. This system has been designed to ensure that the cutterhead drive and ground drive clutches are automatically disengaged in the event of the operator releasing hold of the handlebars for whatever reason. Each handlebar is provided with an OPC lever and these are mechanically linked such that operation or either will activate the system. These levers are lightly spring loaded and are held down by the palm of the hand during operation. Release of the OPC levers will cause the cutterhead clutch to disengage (activating the brake to arrest the rotation attachment cutting devices).

The travel speed rocker levers are spring loaded and will return to the neutral position when released thereby halting the motion of the machine.

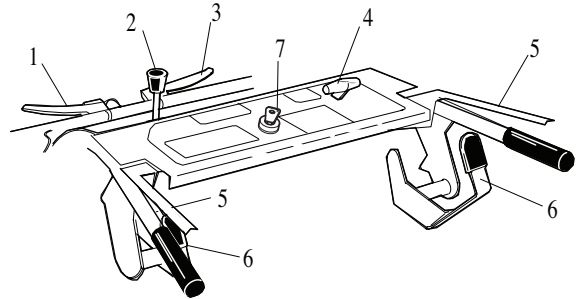
The engine can only be started when the cutterhead and ground speed controls are deactivated. The integral switch sensors will not allow the engine to be started unless this condition is satisfied.



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

Identification of Controls

1. Transmission Bypass Valve Lever
2. Cutterhead Clutch Control Lever
3. Parking Brake Lever
4. Throttle Control
5. Operator Presence Control (OPC) Levers.
6. Travel Rocker
7. Ignition Switch



Braking System

Parking Brake: The hydrostatic axle unit incorporates an integral parking brake. This is operated by the forward right hand lever. To operate the parking brake, depress the lever until the spring loaded locking catch automatically engages. To release the parking brake, depress the lever until the locking catch becomes free and then move it out of engagement, release the brake lever.

Parking brake engaged



Service Brakes: Service braking is achieved by the hydrostatic transmission system. When the forward and reverse travel controls are released or the engine speed is reduced, service braking occurs to reduce the travel speed.

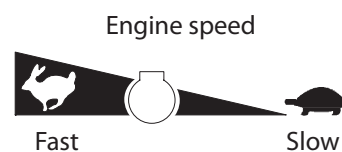


WARNING: PREVENT ACCIDENTS - The service braking system will not hold the mower at a standstill. ALWAYS ensure that the parking brake is engaged to park the mower at a standstill.

Throttle Control

Operate the throttle control forwards to increase the engine speed.
Operate the throttle control backwards to reduce engine speed.

Note: The engine speed dictates the speed of the other functions, i.e. travel and cutterhead.

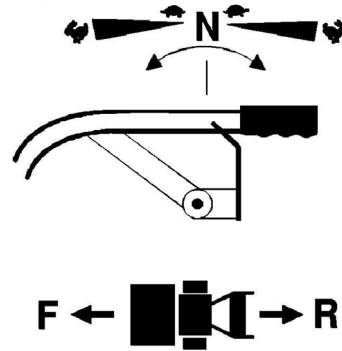


Travel

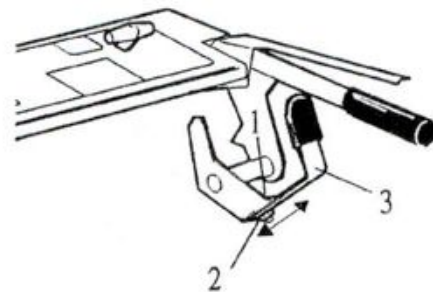
The forward and reverse travel rocker levers are duplicated on each handlebar. These are mechanically linked and activation of either will achieve the desired function. The control levers are spring centred and will automatically take up the 'neutral' position when deactivated.

Travel continued

Forward travel: Grip either handlebar and lay the thumb over the travel rocker lever. Push forward with the thumb to travel in the forward direction. The forward speed will increase as the rocker lever is pushed further forward or decrease as the lever is allowed to return under the action of the return spring. The required forward speed will be maintained by maintaining the control lever in the desired position.



Reverse travel: Grip either handlebar and lay the thumb over the travel rocker lever. Pull backwards/downwards with the base of the thumb to travel in a reverse direction. The reverse speed will increase as the rocker lever is further depressed or decrease as the thumb pressure is reduced and the lever returns under the return spring action.

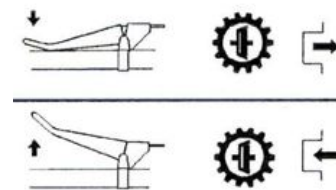


Stop travel: Release the travel rocker lever and it will automatically return to the neutral position, thereby causing the mower to come to a standstill.

Adjustment of travel rocker levers: Both LH and RH travel rockers levers are adjustable for operator comfort. To adjust, slacken the appropriate bolt (1) and move the lever assembly (3) in the required direction. Retighten the clamp bolt securely before operating machine.

Transmission Bypass Valve Control

When the engine is switched off, the hydrostatic transmission is locked and acts as an effective brake. This prevents the mower from being moved. Activation of the bypass valve lever will unlock the transmission and allow the machine to be moved in a forward or reverse direction. Depress and hold the bypass valve lever before attempting to move the mower and release it on completion of the manoeuvre.



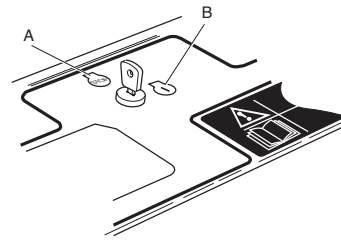
IMPORTANT: PREVENT DAMAGE - Do not operate the bypass valve lever while the engine is running as this will cause a rapid temperature rise in the hydrostatic system.

Ignition Switch

The engine may only be started when the ignition switch is in the 'on' position (B).



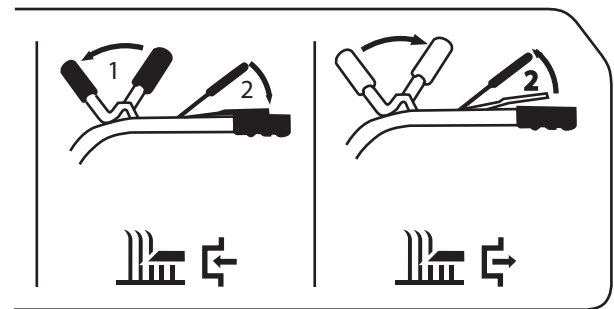
WARNING: PREVENT ACCIDENTS - Always switch the ignition key to the 'off' position (A) and remove the key when the mower is not in use.



Cutterhead Drive Operation

The cutterhead drive engagement mechanism is protected by the Operator Presence Control (OPC) system.

To engage cutterhead drive: Push the cutterhead clutch control lever forwards with the left hand while pushing downwards on the OPC lever with the palm of the right hand, release the cutterhead clutch control lever and the cutterhead drive will remain engaged until such time as the OPC levers are released. The OPC levers are duplicated on each handlebar and operation of either (or both) will keep the system activated.



Engage Cutterhead Drive

Disengage Cutterhead Drive

To disengage cutterhead drive: Release the OPC levers. Observe that the cutterhead clutch control lever automatically returns backwards to the disengaged position.



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

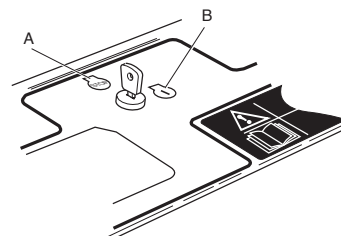
Starting the Engine

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



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

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



Starting the Engine continued

CAUTION: PREVENT DAMAGE - Before attempting to start the engine, ensure that the crankcase oil level is correct and check the fuel level.

Starting a cold engine: Turn the fuel valve and the engine switch to the 'on' position. Set the throttle control lever to approximately 70% full throttle and close the choke lever.

Turn the ignition key to the 'on' (B) position.

Pull the start grip with a steady motion to start the engine.

Gradually return the choke lever to the open position as the engine warms up.

Once the engine has warmed up increase the throttle setting as required for operation.



CAUTION: PREVENT DAMAGE - Do not allow the start grip to snap back against the engine. Return it gently to prevent damage.

Starting a warm engine: Follow the procedure for 'Starting a cold engine' except the use of the choke will not normally be required when starting a warm engine.

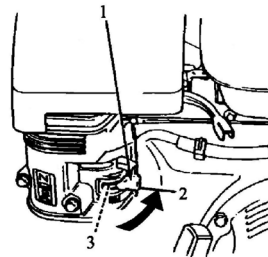
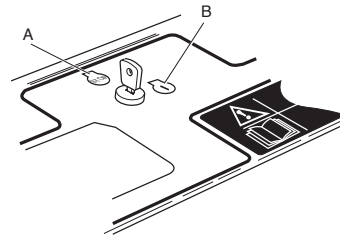
Stopping the Engine

To stop the engine: Turn the ignition key to the 'off' (A) position.

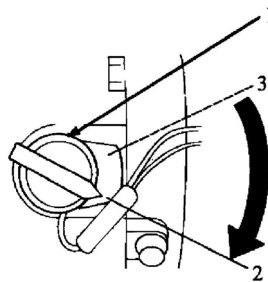
In normal use bring the mower travel to a stop, disengage the cutterhead drive and engage the parking brake before stopping the engine.



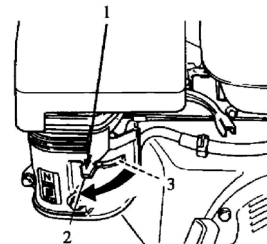
WARNING: PREVENT ACCIDENTS - If the engine fails to stop when the ignition switch is switched to the 'off' position (A), turn the engine to the 'off' position and close the fuel valve. The engine may also be stalled by closing the choke and opening the throttle control or removing the spark plug lead.



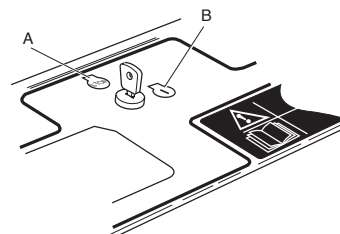
1. Fuel Valve
2. On
3. Off



1. Engine Switch
2. On
3. Off



1. Choke Lever
2. Close
3. Open



General Operating Hints

1. The rotational speed of the cutterhead should always be kept as high as possible to maintain the highest quality of cut. This in turn requires the mower engine speed to be kept as high as possible.
2. The quality of cut will deteriorate if the forward speed is too high. Always balance the quality of cut with the work rate required and set the forward speed accordingly.
3. **Never let the mower labour.** Reduce the forward speed or increase the height of cut. If a verge attachment is used, ensure that the cutting cylinder is not in heavy contact with the bottom blade. Regularly check the cutting cylinder to bottom blade adjustment every few hours even though cutting performance seems satisfactory. Rapid wear will take place if the bottom blade is in heavy or zero contact with the cutting cylinder.
4. **Rotary attachment.** Ensure that the cutterblade and bottom plates are maintained in good condition.
5. **Always disengage the cutterhead drive when transporting across ungrassed areas.**

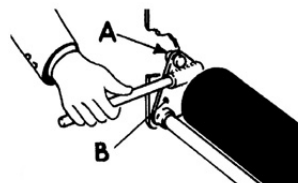
Verge attachment: Grass will lubricate the cutting edges in work. Excess heat will build up if the cutting cylinder is run out of work which will cause rapid wear to place. For this reason it is also wise to reduce the cutting cylinder speed when mowing lightly grassed areas or when the grass is dry.

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.

Adjusting Height of Cutter

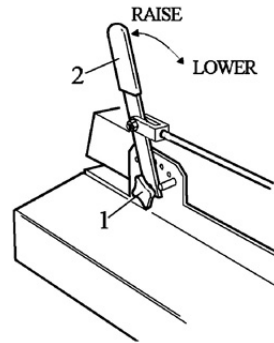
Verge attachment

Remove the set screw 'A' at each end and use a suitable tommy bar to reposition the height adjustments quadrants 'B' and align with the desired hole locations. Ensure that the same hole locations are selected at each end. Finally refit the setscrew and tighten securely.



*Adjusting Height of Cutter continued***30" Rotary Attachment.**

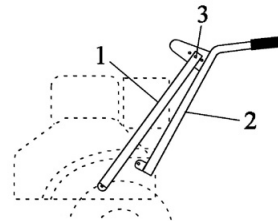
Loosen hand knob (1) sufficiently to allow lever (2) to be moved to the required height of cut position. Retighten the hand knob to secure the height of cut lever in position.



1. Hand knob
2. Height of Cut Lever

Handlebar Height Adjustment

The height of the handlebar may be adjusted at the connection between the handlebar stays (1) and the plate on the handlebar (2). Adjustment holes (3) provide 3 alternative handlebar settings. Ensure that the handlebars are set at the same level on each side of the mower.



Note: The length of the connecting rods to the travel control rocker levers must be re adjusted as necessary to ensure correct operation.

1. Handlebar Stay
2. Handlebar
3. Adjustment Holes

Maintenance

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

- The engine is switched off, the spark plug lead removed and the ignition switch is in the 'off' position.
- The parking break is applied.
- You have read and understood the maintenance section of the Operator's Manual.



IMPORTANT: PREVENT DAMAGE - Regular maintenance is essential for the continued safe operation of the mower. Correct servicing will prolong the working life of the mower and safeguard the "Hayter Warranty". Always fit genuine 'Hayter 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 transmission system always ensure that the work area and components are thoroughly clean before, during and after refitting.

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



WARNING: PREVENT ACCIDENTS - Remember the engine and transmission oil is hot after mower use. Allow to cool before carrying out maintenance procedures.



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

| <u>Substances</u> | <u>Assessed risk</u> |
|-------------------|----------------------|
| Petrol | High |
| Lubricating Oil | Low |
| Transmission Oil | Low |
| Gear box oil | Low |
| Grease | Low |

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

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

In case of petrol, keep away from all sources of ignition and wash with soap and water. Remove any contaminated clothing and wash thoroughly before use.

Avoid contact with eyes; wash with running water and seek medical attention.



Avoid ingestion; If swallowed seek medical attention.

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

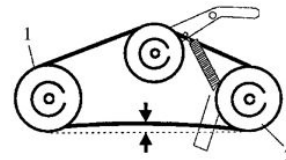
Engine

Refer to the engine manual for engine maintenance information. The engine is governed to run at a maximum speed of 2900 r.p.m. Under no circumstances must this speed be modified.

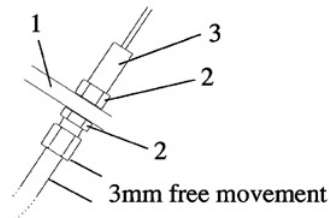
Running In Period - At First 50 Hours of Use

Check wheel nut torque: Power unit wheel nut torque setting 80Nm (60lbs ft).

Check belt tension - Engine / Countershaft drive: Ensure that the cutterhead drive is disengaged and check the free play at the centre of the belt as shown using finger pressure. If adjustment is required, slacken the engine securing bolts and move the engine towards the rear of the mower until the correct tension is obtained. Finally tighten the engine securing bolts.



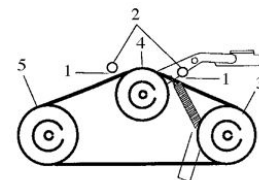
1. Countershaft Pulley
2. Engine Pulley



1. Anchor Plate on Handlebars
2. Locknut
3. Adjuster

Check cutterhead drive clutch cable adjustment: Ensure that the cutterhead drive is disengaged. Adjust the clutch cable by slackening off the locknuts at the anchor plate on the left hand handlebar and moving the adjuster to obtain 3mm free movement of the cable. Retighten the locknut.

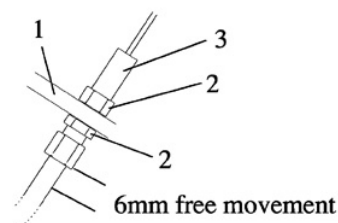
Note: The cutterhead drive clutch cable adjuster is positioned to the left of the cutterhead brake adjuster when fitted with a rotary cutterhead attachment.



1. 6mm Gap
2. Belt Guides
3. Engine Pulley
4. Idler Pulley
5. Countershaft pulley

Check belt guide clearance: Engage the cutterhead drive and check the clearance between the belt guides and the belt as shown. If adjustment is required slacken the idler pulley mounting bolt and move the belt guides into the correct position. Retighten the bolt.

Check cutterhead brake cable adjustment (Rotary attachment only): Ensure that the cutterhead drive is disengaged. Adjust the cutterhead brake cable by slackening off the locknuts at the anchor plate on the left hand handlebar and moving the adjuster to obtain 6mm free movement of the cable. Retighten the locknut.



1. Anchor Plate on Handlebars
2. Locknut
3. Adjuster

Note: The cutterhead brake cable adjuster is positioned to the right of the cutterhead drive clutch cable adjuster.

Running In Period - At First 50 Hours of Use continued

Check belt tension - Cutterhead input drive:

Check the free play at the centre of the drive belt span as shown using finger pressure. If adjustment is required, refer to **MOUNTING OF CUTTER-HEAD ATTACHMENT**.

Check belt tension - Main engine drive: Check the free play at the centre of the drive belt as shown using finger pressure. If adjustment is required adjust the jockey pulley bracket until the correct belt tension is obtained.

Daily and Before Use

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

Air cleaner (Dual element type): Check the air cleaner elements for holes or tears and replace if damaged. Clean the paper element.



CAUTION: PREVENT DAMAGE - Always replace a damaged air cleaner or damage to the engine will result. NEVER run the engine without the air cleaner correctly fitted.

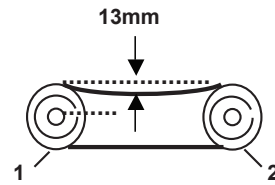
Check fuel level: Top up as necessary with unleaded petrol. Always top up before storing the mower over night to prevent water condensation from contaminating the fuel.



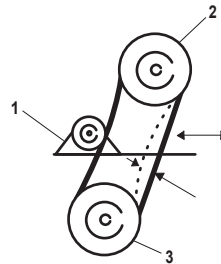
WARNING: PREVENT ACCIDENTS - Never use petrol or low flash point solvents when cleaning the air cleaner elements. A fire or explosion could result.



WARNING: PREVENT ACCIDENTS - Petrol is highly flammable. Observe all relevant safety precautions. Refer to SAFETY PRECAUTIONS - PREPARATION.



1. Drive Pulley Attachment (Cutterhead)
2. Countershaft Pulley (Power unit)



1. Drive Pulley Attachment (Cutterhead)
2. Countershaft Pulley (Power unit)

Daily and Before Use continued

Check hydrostatic unit oil level: Always check, prior to starting, when the mower is cold. Remove the reservoir cap and check the fluid level. The level should not be above the 'cold' mark. Top up, if necessary to the cold mark with the recommended grade of transmission fluid, refer to **SPECIFICATIONS**, and replace the reservoir cap. If the natural colour of the transmission fluid has become 'milky' or black, it is possible that an overheating or water contamination problem exists. In such cases, the mower should be checked by a Hayter dealer and the oil should be changed, refer to **MAINTENANCE - EVERY 200 HOURS**.



IMPORTANT: PREVENT DAMAGE - Do not overfill as this will reduce the expansion volume in the reservoir and leakage may occur at operating temperature. If frequent topping up is required, locate and repair any leaks. Operation at a low fluid level may result in permanent internal damage.

Check the operator presence controls: Stop the engine.

Check the operation of the microswitches, ensure the operation arm is free of any debris and that the roller rotates freely. Spray the hydrostatic unit neutral detent microswitch with a water repellent lubricant.

Engage the cutterhead drive and operate the OPC levers. The engine should not start when the normal starting procedures are followed.

Start the engine, engage the cutterhead drive and operate the OPC levers. Release the OPC levers and ensure that the cutterblades cease to rotate within 5 seconds.

Operate and hold the travel rocker lever in the forward travel direction. The engine should not start when normal starting procedures are followed. Carry out a similar check for reverse travel.



WARNING: PREVENT ACCIDENTS - Keep bystanders away when checking the operator presence control system. DO NOT use the mower unless the operator presence controls work correctly as described below. Consult your Hayter dealer if the system malfunctions.

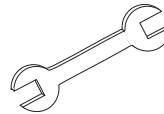
Daily And Before Use continued

Check travel controls: Start the engine.

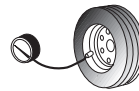
Engage forward travel and operate at maximum speed over level ground, release the travel controls and ensure that the mower comes to a stop.

Engage reverse travel and operate at maximum speed over level ground, release the travel controls and ensure that the mower comes to a stop.

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



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



Verge attachment: Examine the condition of the cutting cylinder and the bottom blade, adjust as necessary, refer to **MAINTENANCE - CUTTERHEAD CYLINDER TO BOTTOM BLADE ADJUSTMENT**.

Rotary attachment: Check the condition of the cutterblades and mounting arrangement for signs of wear, damage or looseness. Ensure that the cutterblades are not bent or cracked and that the cutterblade securing bolts are tight. Damaged or excessively worn cutterblades may be out of balance which will cause excessive vibration this may lead to breakage or result in serious damage to the machine.

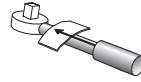


WARNING: PREVENT ACCIDENTS - Never use the mower if the cutterblades and mounting arrangement are seriously worn, damaged, out of balance or loose.

Remove all grass cuttings and build up of debris from the cutterhead area, the cooling air intake areas/external surfaces of the engine and the interlock microswitches.



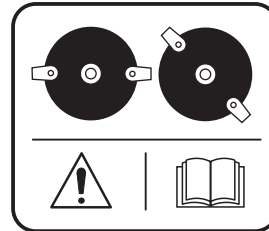
WARNING: PREVENT ACCIDENTS - Check all guards and safety devices. Never operate the mower unless the guards are securely in position, in good condition and all safety devices are in place and in good working order.

Every 50 Hours

Perform routine checks: Refer to **DAILY BEFORE USE**.

Check power unit wheel nut torque: Wheel nut torque setting - 80 Nm (60lbs ft)

Rotary attachment: Inspect the chain couplings between the cutter headgear boxes. Inspect sprocket teeth and chains for signs or wear.



IMPORTANT: PREVENT DAMAGE - If the chains / countershaft are removed for any reason, ensure that the cutterhead phasing is correct after refitting.

Lubrication

Transaxle: Check oil level on dipstick. This should be level with the hole indicator on the dipstick. Top up if necessary with the correct grade of transmission fluid, refer to **SPECIFICATIONS**. Top up fluid should be introduced through the dipstick tube.

Cutterhead Gearbox (Rotary Attachment): Remove filler plug on top of the gearbox and check oil level. Gearbox should be 3/4 full. If necessary top up with the correct grade of oil, refer to **SPECIFICATIONS**.

General: Lightly apply a good quality general purpose lubricating oil to the following points;
 All linkage pivot points
 All inner cables
 Rear roller quadrant pivot bushes (Verge Attachment).

Apply a good quality medium grade grease to the following points:

Front wheels (Rotary Attachments).
 Carrier pivot (Verge Attachments).
 Cylinder bearing housings (Verge Attachments).
 Chain couplings - between cutterhead gearboxes (Rotary Attachment).

Every 200 Hours

Perform routine checks: Refer to **DAILY BEFORE USE, EVERY 50 HOURS USE.**

Change transmission fluid: Hydrostatic Unit.

IMPORTANT: PREVENT DAMAGE - Dirt and contamination are the enemies of any hydraulic system. Ensure that the work area and the components are thoroughly clean before during and after refitting. Do not allow debris to become entrained within the hydraulic system.

It is recommended that the following procedure is adopted when carrying out an oil change.

- Remove the lower left hand cover and the rear fan guard screen to gain access to the hydrostatic unit.
- Disconnect the ball joint from the lower actuating lever by removing the 5/16" UNF hex, nut and spring washer.
- Slacken the main engine drive belt by loosening the jockey pulley bracket.
- Remove the 1/4" UNC Setscrew and retaining washer and remove the fan.
- Remove the 4 mounting bolts and support the hydrostatic unit.
- Remove the connecting pipe from the top of the hydrostatic unit and allow the residual oil to drain into a suitable can.
- Lift the unit and unhitch the drive belt.
- Lower the hydrostatic unit and remove from the machine.
- Thoroughly clean dirt and debris from around the hydrostatic unit.
- Remove the drain plug and allow the oil to drain into a suitable can. Rotate the input shaft to assist the draining procedure. Finally replace the drain plug and tighten securely.
- Turn the unit the right way up and remove the plastic cup (Note this has a left hand thread) and the upper bleed plug.

Every 200 Hours continued

- Carefully refill the unit with fresh transmission oil of the recommended grade, refer to **SPECIFICATIONS**, until fluid is seen to flow from the bleed plug aperture. Replace the cap securely and hand tighten the bleed plug.
- Remove the plastic reservoir (note this has a left hand thread), from the power unit. Thoroughly clean and ensure that the mesh screen is fully open.
- Refit the hydrostatic unit following the dismantling procedure in reverse order. Torque the 4 mounting bolts and the fan mounting bolt to 10.2 - 11.3Nm (7.5 - 8.3 lbs ft).
- Retention the engine drive belt, refer to **RUNNING IN PERIOD**.
- Reconnect the connecting pipe.
- Reconnect the ball joint to the actuating lever.
- Replace lower cover and fan guard screen.
- Do not replace the plastic reservoir at this stage.
- Remove the bleed plug from the top of the hydrostatic unit. Top up through the reservoir base until oil flows from the bleed plug aperture and keep topped up during the following procedure.

WARNING: PREVENT ACCIDENTS - Do not proceed to the next stage unless all guards have been replaced and fully secured.

- Start the engine and maintain as low a throttle setting as possible.
- Ease the machine forwards and backwards until all residual air has bled from the bleed plug aperture. Ensure that the reservoir cup is kept topped up during this process.
- Stop the engine and set the parking brake.
- Replace the bleed plug and secure.
- Replace the reservoir cap and hand tighten.

Every 200 Hours continued

- Top up the reservoir to the ‘‘COLD’’ level and replace the cap. Clean off any surplus oil from around the reservoir and the hydrostatic unit to prevent a build up of debris.

The procedure has now been completed.

Note - The oil change procedure can be accomplished without removing the hydrostatic unit but it will take an exceptionally long period to refill the unit through the small diameter feed pipe.

Check all belt tensions: Refer to **RUNNING IN PERIOD**.

Check cutterhead drive clutch cable adjustment: Refer to **RUNNING IN PERIOD**.

Check condition of cutterhead drive brake pad:
Replace if excessively worn.

Check cutterhead drive brake adjustment:
Refer to **RUNNING IN PERIOD**.

Power Unit General Maintenance

Transmission bypass valve: The lever should be adjusted so that the bypass valve plunger on the hydrostatic unit is fully depressed when the lever is just touching the handlebar cross-tube.

To adjust setting slacken adjuster nuts at end of cable. Adjust cable setting and lock the adjuster nuts. Check that the machine can be moved with the engine switched off when the bypass valve lever is operated.

Parking brake - cable adjustment: To adjust the cable, slacken off the locknut and turn the cable adjuster. A correctly set cable should have no slack. When the brakes are applied, the brake lever should operate smoothly and lock at the end of its travel.

Check that the parking brake has been applied by depressing the transmission bypass valve lever and try to pull or push the machine. The wheels should be locked. Re adjust the cable if the machine is able to be moved. Tighten the cable adjuster locknuts.

Power Unit General Maintenance

continued

Travel Speed: The forward and reverse stops restrain the hydrostatic unit actuating lever from being moved excessively and prevent internal components from being damaged. The setting dimensions shown should be used. These dimensions may be increased if the maximum speed of the machine is to be reduced, but the dimensions should never be less than those indicated.

To set the forward / reverse stops correctly for minimum travel speeds, loosen the adjuster locknuts and screw the adjuster screws away from the actuating lever. Operate the actuating lever by hand to its extreme / full travel position for forward travel and move the adjuster screw to stop the actuating lever 1.6mm before the extreme / full travel position is reached. Repeat this procedure for reverse travel except move the adjuster screw to stop the actuating lever 5mm before the extreme / full travel position is reached. Tighten the locknuts.

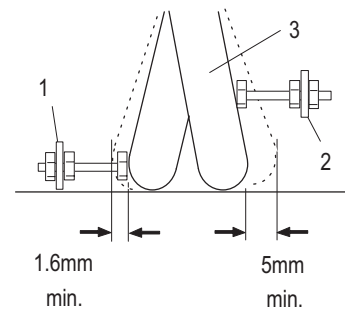
IMPORTANT: PREVENT DAMAGE - The hydrostatic unit may sustain permanent damage if the forward and reverse stops allow greater travel than the limits indicated.

Neutral detent mechanism: Should the mower creep forwards or backwards when the travel speed control levers are in the neutral position it will be necessary to adjust the neutral detent setting.

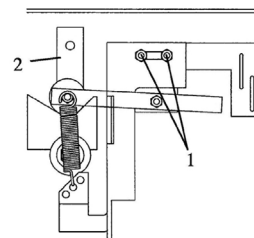
Slacken hex. nuts (1) and adjust the bracket on the slots until the actuating lever (2) of the hydrostatic unit is parallel with the side of the engine deck (Neutral position).

Retighten the hex nuts securely.

Recheck the mower operation and make further adjustments is necessary.



1. Forward stop / Adjuster
2. Reverse stop / Adjuster
3. Hydrostatic unit actuating lever



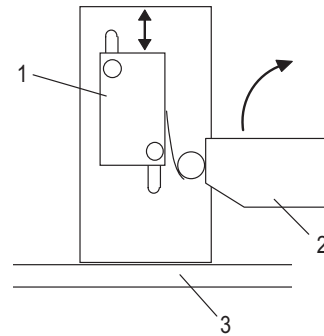
1. Hex nuts
2. Actuating lever (view from under the machine)

Power Unit General Maintenance

continued

Adjustment of engine lockout switches: The micro switch must be positioned such that when the actuating levers (transmission neutral detent lever or cutter clutch idler arm) are in the neutral/disengaged position the switches must be fully closed. To adjust, set the appropriate lever in the neutral/disengaged position, slacken off the switch mounting bolts and slide the switch along its mounting slots until the switch is heard to click shut. Retighten mounting bolts.

Check the operation of the operator presence controls, refer to **DAILY BEFORE USE**.



1. Transmission micro switch
2. Transmission neutral detent lever
3. Chassis

Verge Attachment

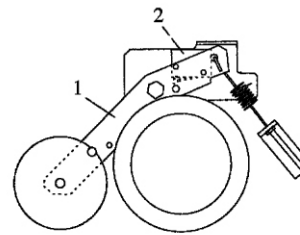


IMPORTANT: PREVENT DAMAGE - It is essential that the relationship between the bottom blade and the cutting cylinder is kept in good adjustment in order to ensure good cutting performance, minimum power consumption and prolonged life for the cutting edges.

Cutterhead cylinder to bottom blade adjustment: Carry out the following procedure before commencing work and re-check the settings every few hours.

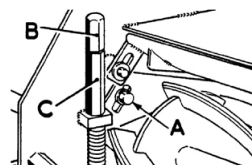
Check that the cutting cylinder is correctly set to the bottom blade by holding a thin piece of paper between the cutting cylinder and the bottom blade as shown. Carefully rotate the cylinder and check that the paper is cut cleanly at all points along the length of the blade. Hold the paper at 90 degrees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

If adjustment is necessary proceed as follows: Slacken the nearside and offside setscrews 'A'. Slacken both locknuts 'B'; and turn the adjusting nuts 'C' in a clockwise direction. The adjusting nuts should be rotated one flat of the nut at a time, alternating end to end, while rotating the cutting cylinder backwards until it is felt to be in 'fleeting' contact with the bottom blade along its entire length. Re check the cutting action along the length of the bottom blade using a thin piece of paper and making marginal adjustments as necessary.



1. Cutter clutch idler arm.
2. Cutter clutch micro switch .

1. Cutter clutch idler arm
2. Cutter clutch micro switch



Verge Attachment continued

Finally tighten locknuts 'B' using 2 spanners to avoid inadvertent movement of adjuster nuts 'C' and tighten setscrews 'A'. Recheck the cutting action as previously described to ensure that the setting has not moved.

If it is impossible to obtain a good clean paper cut across the entire length of the bottom blade it will be necessary to remove any high spots on the spirals/bottom blade with a stone. In severe cases it will be necessary to regrind the cutting cylinder and the bottom blade, refer to **GRINDING**.

Do not be tempted to over adjust 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 cutterhead is 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. 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 grinding: It will be necessary to carry out a grinding operation to correct cylinder spiral edges or a bottom blade edge which have become excessively rounded or distorted. A bottom blade which is nearing the end of its wear life should be replaced and this should be ground on its holder prior to fitting, refer to **CUTTERHEAD BOTTOM BLADE REPLACEMENT**.

Verge Attachment continued

Cutterhead grinding continued: When grinding operations are necessary it is essential that both cylinder and bottom blade are ground at the same time. The only exception to this rule is when a new cylinder is fitted in which case it is only necessary to grind the bottom blade. All such grinding operations should be carried out by your dealer on a quality, well maintained cylinder / bottom blade grinding machine.

Cutterhead bottom blade replacement: Remove the bottom blade holder by removing the three fixing bolts at each end and withdrawing from the cutterhead. Remove the worn bottom blade and discard the countersunk retaining screws. Fit the new blade to the holder and loosely assemble with new retaining screws. Tighten the centre retaining screws to a torque of 54 Nm (40 lbs ft). Continue by tightening the remaining fasteners 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 using new fixing bolts and tighten securely. Finally adjust the cylinder to the bottom blade, refer to **CUTTERHEAD CYLINDER TO BOTTOM BLADE ADJUSTMENT**.

Rotary Attachment



WARNING: PREVENT ACCIDENTS - NEVER work on the cutterblades unless the spark plug lead has been removed. The cutterblades have sharp edges. ALWAYS wear strong gloves to protect your hands when working on the cutterblades. DO NOT operate tools towards the cutting edges to avoid the risk of injury should the tool slip. ALWAYS use genuine Hayter replacement parts.



WARNING: PREVENT ACCIDENTS - ALWAYS renew both cutterblades on each bottom plate to ensure the cutting mechanism is balanced, NEVER replace cutterblades individually. ALWAYS use new bolts, nuts and washers when fitting new cutterblades.

Rotary Attachment continued



PREVENT DAMAGE: A damaged cutterblade will cause the cutting mechanism to be out of balance and excessive vibration will occur which may lead to breakage. **DO NOT** use an unbalanced cutting mechanism.

Replace the cutterblades every 2 years or sooner if excessively worn or damaged.



WARNING: PREVENT ACCIDENTS - It is wise to seek assistance when removing and inverting the cutterhead attachment.

The condition of the cutterblades and the mounting arrangement should be checked regularly for signs of wear or damage. Ensure that the cutterblades are not bent or cracked.

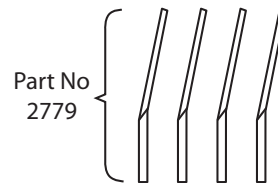
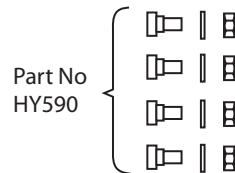
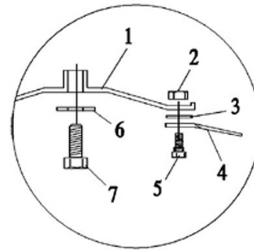
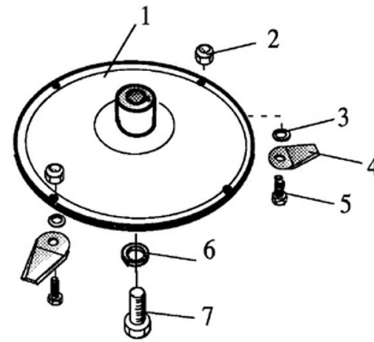
Regularly check that the bolts securing the cutterblades and bottom plate are secure.

To remove the cutterblades: Remove the cutterblade nut (2) and bolt (5).

How to assemble the cutterblades: Assemble cutterblades (4) such that they are below and pointing away from the bottom plate (1). Tighten the cutterblade nuts (2) and bolts (5) to a torque of 19Nm (14 lbs. ft.).

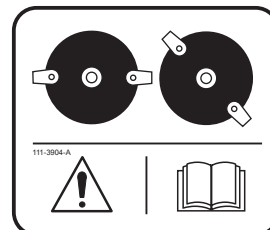
Tighten the bottom plate bolt (7) to a torque of 54Nm (40lbs. ft).

Always replace the tab washer (6) before re-assembly,



Cutterblades

Cutterblade phasing: IMPORTANT: PREVENT DAMAGE - The cutterheads must be correctly phased. Ensure that the cutterblades are fitted into the correct mounting holes the underdeck as shown.



Preparing the Mower for storage

Storage for long periods: To ensure that the mower is maintained in good working order it is important that the following procedure is adopted when the mower is stored for periods in excess of one month. Refer to the maintenance section and engine handbook as necessary.



WARNING: PREVENT ACCIDENTS - Ensure that the mower is outdoors, away from all possible sources of ignition and that the engine is cool prior to carrying out the following procedure.

Drain fuel from the engine and carburettor.

Disconnect the spark plug lead. Change the engine oil.

Remove the engine spark plug and pour a tablespoon of clean engine oil into the spark plug aperture. **Do not** exceed the stated volume of oil as engine damage may occur on restarting. Operate the engine start grip several times to crank the engine. This will distribute the oil. Replace the spark plug.

Pull the engine start - grip slowly until resistance is felt. Continue pulling until the notch on the starter pulley aligns with the hole on the recoil starter as shown in the engine Owner's Manual. At this point, the intake and the exhaust valves are closed and this will help to protect the engine from internal corrosion.

Clean all areas of the power unit, engine and cutter-head attachment.

Lubricate the mower.

Treat bare metal parts with a water repellent anti-corrosion product.

Rest the machine on wooden blocks to remove the weight of the mower from its wheels.

Cover the mower with a protective sheet and store it in a dry, ventilated area.

Rotary Attachment

| FAULT | POSSIBLE CAUSE | REMEDY |
|--------------|------------------------------|----------------------------------|
| Uneven cut | Undulating ground contours | Change direction of cut |
| | Cutterblades worn or damaged | Sharpen or replace as necessary |
| | Cutterblades out of balance | Replace as necessary |
| | Wheel damaged | Inspect and replace as necessary |
| Scalping | Height of cut too low | Raise the height of cut |

Verge Attachments

| FAULT | POSSIBLE CAUSE | REMEDY |
|---|---|--|
| Ridge lines in the cut across the direction of travel over full width | Forward speed too high | Reduce forward speed |
| | Cylinder speed too low | Increase mower engine speed |
| | Height of cut too low | Raise the height of cut |
| | Clutch system out of adjustment | Adjust as necessary |
| Some uncut or poor cut strands of grass | Cutting cylinder is partially out of contact with the bottom blade | Re adjust cutting cylinder to the bottom blade |
| | Cutting cylinder is in heavy contact with the bottom blade | Re adjust cutting cylinder to the bottom blade |
| | Height of cut is too high | Lower the height of cut setting |
| | Cutting edges of cutting cylinders / bottom blades are rounded | Re grind to restore the cutting edges |
| Lines of uncut or badly cut grass in direction of travel | Tram lining of cutting edges due to heavy contact caused by incorrect cutting cylinder to bottom blade adjustment | Re grind to restore the cutting edges |
| | Bottom blade in ground contact | Raise the height of cut |
| Scalping | Height of cut too low | Raise the height of cut |
| Excessive bottom blade wear | Bottom blade in heavy ground contact | Raise the height of cut |
| | Cutting edges of the cutting cylinder / bottom blade are rounded | Re grind to restore cutting edges |
| | Cylinder is in heavy contact with the bottom blade | Re adjust the cutting cylinder to the bottom blade |

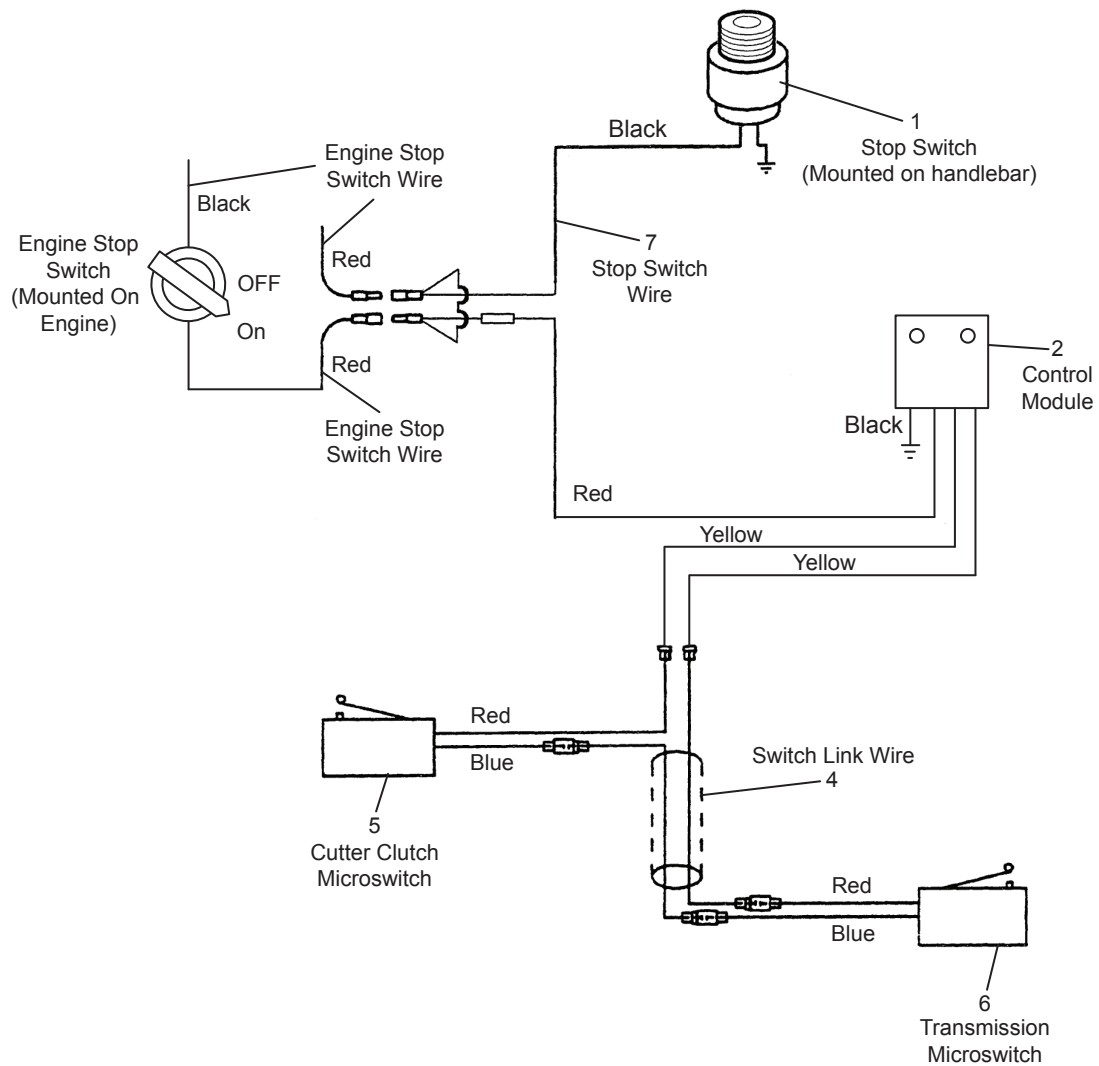
When using the following chart it may be found that overhaul of major components are necessary. In this case it is recommended that your authorised dealer make these repairs as they are properly equipped to do this work.



WARNING: PREVENT ACCIDENTS - ALWAYS switch off the mower engine, turn the ignition controls to the 'off' position and apply the parking brake before attempting to work on the mower.

| FAULT | POSSIBLE CAUSE | REMEDY |
|--|--|--|
| Engine will not start | Travel control interlock switch sensor not energised | Ensure travel control levers are in the neutral position Check setting of interlock switch sensor |
| | Ignition control switched off | Turn ignition control to the 'on' position |
| | Engine switch in the 'off' position | Turn the ignition switch to the 'on' position |
| | Cutterhead drive interlock switch sensor not engaged | Check setting of cutterhead interlock switch sensor Disengage the cutterhead drive |
| | Fuel valve closed | Turn the fuel valve to the 'on' position |
| | Insufficient 'choke' | Reset the choke lever |
| | For all other engine problems; refer to ENGINE HANDBOOK | |
| Lack of transmission drive | Parking brake engaged | Release parking brake |
| | Low oil level | Fill reservoir to correct level |
| | Air in system | Carry out 'bleeding' procedure |
| | Incorrect oil used | Drain reservoir and refill with correct oil |
| | Drive belt incorrectly tensioned | Re tension drive belt |
| | Broken drive belt | Replace drive belt |
| | Bypass valve open | Close bypass valve |
| | Incorrect linkage adjustment | Re adjust linkage setting |
| Defective hydrostatic unit or transaxle | Consult your authorised dealer | |
| Forward / backward transmission creep in neutral | Neutral adjustment incorrectly set | Re adjust neutral detent mechanism |
| Transmission system overheating | Blocked cooling fins | Clean fins |
| | Hydrostatic unit oil level low | Check reservoir and top up as necessary |
| | Air in hydrostatic system | Carry out 'bleeding' procedure |
| | Transaxle oil level low | Check the dipstick and fill to the correct level |
| | Parking brake engaged | Disengage parking brake |
| | Cutterhead drive brake engaged | Re adjust brake settings |
| | Defective cooling fan or fan drive | Check fan operation and service as required |

| FAULT | POSSIBLE CAUSE | REMEDY |
|--|--|--|
| Incorrect parking brake operation | Worn brake discs | Replace brake discs. Consult your authorised dealer. |
| | Incorrect cable adjustment | Re adjust the cable setting |
| Excessive noise in transmission system | Hydrostatic unit oil level low | Fill reservoir to the correct level |
| | Air in hydrostatic system | Carry out 'bleeding' procedure |
| | Transaxle oil level low | Check the dipstick and fill to the correct level |
| | Incorrect belt tension | Re adjust as necessary |
| | Excessive oil viscosity due to too cold conditions | Allow system to warm up |
| Low cutterhead power | Incorrect belt tensions | Re adjust belt tensions |
| | Incorrect cutterhead drive clutch adjustment | Re adjust as necessary |
| Lack of cutterhead drive | Broken drive belt | Replace drive belt |
| | Incorrect cutterhead drive clutch adjustment | Re adjust as necessary |
| After initial satisfactory operation the machine loses power | Worn hydrostatic unit | Replace as necessary |
| | Hydrostatic unit oil level low | Fill reservoir to correct level |
| | Incorrect oil viscosity | Drain system and refill with correct grade of oil |
| | Air in hydrostatic unit | Carry out 'bleeding' procedure |
| | Overheating | Refer to TRANSMISSION SYSTEM OVER HEATING |
| Cylinder 'knocks' while rotating (Verge attachment only) | Incorrect belt tensions | Re adjust belt tensions |
| | High spot on cylinder or bottom blade due to contact with a foreign object | Remove the high spot with a stone to restore cutting edges. Serious damage will necessitate re grinding. |
| | Worn cylinder bearings | Replace as necessary |
| Cutterhead vibrates excessively (Rotary attachment only) | Worn, damaged or loose cutterblades | Replace, re sharpen or tighten immediately |
| | Damaged or loose bottom plate | Replace, re sharpen or tighten immediately |



| Item No. | Description | Part No. |
|----------|--------------------------|----------|
| 1 | Switch Assembly C/W Keys | 510224 |
| 2 | Control Module Assy | 111-5820 |
| 4 | Cable Assy Microswitch | 510116 |
| 5 | Cutterclutch Microswitch | 510068 |
| 6 | Transmission Microswitch | 510069 |
| 7 | Cable Assy Engine Stop | 510227 |

HAYTER LIMITED Warrants to the original user / purchaser that this unit shall be free from defects in material and workmanship for a period of 12 calendar months from the date of delivery. This warranty excludes proprietary items which have the benefit of the supplying manufacturers warranty.

Engine manufacturers furnish their own warranties and provide services through their authorised network. If you experience any difficulty please contact your specialist Hayter dealer.

It is the end user / purchasers responsibility to ensure that the service schedule and service record book as applied are acted upon. HAYTER LIMITED reserve the right to request inspection of a service record book, where relevant at any reasonable time. Failure to keep the service schedule up to date may invalidate the warranty. Owners should therefore satisfy themselves that the products are operated and serviced correctly, particularly where they are operated on a contract or hire basis.

This warranty which is not capable of assignment does not apply to any unit that has been tampered with, altered, misused or abused and **will become invalid if non genuine Hayter parts are fitted**. This warranty does not cover minor adjustments unless they are due to defective materials or workmanship. Consult the owners handbook or your authorised Hayter dealer for assistance when making these adjustments.

To make a warranty claim contact your authorised Hayter dealer through whom the machine was originally supplied, indicating the machine serial number and purchase date. Subject to the conditions and exclusions in this warranty, the authorised dealer will at our option, repair or replace any warranted part within the duration of the warranty period.

This warranty gives you specific legal rights and is in addition to any statutory rights to which you may be entitled and your statutory rights are not affected by this warranty. If you need additional information concerning this written warranty or assistance in obtaining services please write or telephone: HAYTER LIMITED, Service Department, Spellbrook, Bishop's Stortford, Herts., CM23 4BU. Telephone: (01279) 723444.

1.50

NOTES

1.50

Machine Details

Engine Serial No:

Hydrostatic Unit Serial No:

Transaxle Serial No:

P.U Serial No:

Verge Attachment Serial No:

Rotary Attachment Serial No:

