

CLIPPER

46

**CODE 401R
AUTO-DRIVE**

OWNER'S HANDBOOK

(English Version)

FROM SERIAL NO: 401R001001

Issue: 25/02/99

HANDBOOK: 401001 (Rev.2.)

CERTIFICATE OF CONFORMITY

I, the undersigned Peter Lundberg, of STIGA certify that the lawnmowers:

1. Machine Type No.	CODE 401R (S462)
2. Category.	Combustion Engine
3. Make.	Hayter
4. Type.	Rotary
5. Engine - Manufacturer.	Briggs & Stratton
- Type.	10C902
- Speed of rotation during test.	3000 rpm

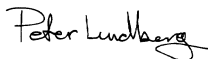
Conforms to the specifications of Directive 84/538/EEC as adapted to technical progress by Directive 87/252/EEC and amended by Directive 88/180/EEC.

Guaranteed maximum sound power level.	93 dB(A)
- Type of cutting device	Cutterbar (Singleblade Steel)
- Width of cutting device	46 cm
- Speed of rotation of the cutting device	3000 rpm

Issued at Tranäs, November 1997

Article No. 11-3690

Signed



Peter Lundberg / Certifications department

EC DECLARATION OF CONFORMITY

Company Name	STIGA
Machine Type No.	CODE 401R (S462)
Model	Clipper 46 Auto-Drive



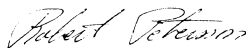
The product conforms with:

- Electromagnetic Compatibility directive 89/336/EEC
- Machine directives 89/392/EEC, 91/368/EEC and 93/44/EEC with special reference to the directive's Annex 1 regarding essential health and safety requirements in association with manufacturing.

I declare on behalf of Stiga that these machines conform to the EC Essential Health & Safety Requirements.

Issued at Tranäs, November 1997

Signed



Robert Petersson / Production Manager

VIBRATION INFORMATION

Lawnmower vibration information. RMS acceleration measured in 3 - axes at operators contact position on the handlebars. **CODE 401R = 8.9ms⁻².**

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INTRODUCTION

Thank you for purchasing a **Hayter** mower. The following pages are designed to help you gain safe and efficient service from your machine.

IMPORTANT: This 'Owners Handbook' should be regarded as part of the machine as it gives essential information regarding machine safety, operation, maintenance and specifications. Read and understand this handbook prior to operating your machine for the first time. Make sure you are familiar with all the controls and points of regular maintenance. If you have any doubts, consult your **Hayter** authorised dealer who will be pleased to give you assistance.

IMPORTANT: This machine is designed solely for use in a domestic grass cutting environment. 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 handbook 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 here in and all other generally recognised regulations on safety 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.

All **Hayter** mowers are robustly constructed and designed for efficient economical performance under normal mowing conditions. Correct operation and maintenance will ensure a long and satisfactory service life. Prior to despatch from our factory every effort is made to ensure your machine arrives in perfect condition. Your dealer will carry out a pre-delivery inspection to ensure that there has been no transit damage prior to installation. **Please allow your dealer to familiarise you with the controls and safety features of the machine during installation.**

Throughout this handbook all references to left hand and right hand are as viewed from behind the handlebar, facing in the direction of forward travel.

This owners handbook is based on information available at the time of publication.

HAYTER LIMITED reserve the right to make changes at any time without notice.

LIMITED WARRANTY

Hayter Limited warrants to the original user/purchaser that this unit shall be free from defects in material and workmanship under normal use and service for a period of three years from the date of purchase. The manufacturers of the engine and battery pack system (where applicable) furnish their own warranty and services are provided through their authorised network (Refer to "Engine/Battery Pack Warranty Statement"). To qualify for the full benefit of the warranty, the warranty registration card must be returned within 60 days of purchase. Subject to the conditions and exclusions noted in this limited warranty, we shall at our option, repair or replace any warranted part during the applicable period. If you are in doubt or experience any difficulty, please consult a Hayter Authorised Service Dealer for clarification.

To qualify for the extended warranty (second and third year) of the three year limited warranty the machine must have annual services carried out by an Authorised Hayter Service Dealer. These chargeable services should be carried out within 12 and 24 months of the date of purchase.

Excluded from the extended warranty period are those items which are subject to normal wear and tear e.g. tyres, wheels, cutterbars, cables, batteries and other consumable wearing parts.

All consumer machines which are fitted with a genuine Hayter friction disc as original equipment before use, are covered by a Lifetime Warranty against the engine crankshaft bending. Note: friction washers, blade brake units and other such devices are not applicable. Only machines fitted with a genuine Hayter friction disc, which are used in accordance with the recommended operating and maintenance procedures, are covered.

This warranty does not apply to any unit that has been tampered with, altered, misused, abused or used for hire, and will become invalid if non genuine Hayter parts are fitted. This warranty does not cover minor mechanical adjustments unless they are due to defective material or workmanship. Consult the Owner's Handbook or a Hayter Authorised Service Dealer for assistance when making these adjustments.

A warranty period of 90 days applies to machines used for commercial purposes.

To make a warranty claim, return the unit to a Hayter authorised dealer along with proof of purchase stating the machine serial number and date of purchase. The service receipt(s) or this Owners Handbook with the 1st/2nd year service boxes fully completed, must be produced as proof of entitlement to the extended warranty period. Subject to the conditions and exclusions in this limited warranty, the authorised dealer will, at our option, repair or replace any warranted part within the duration of the warranty period.

This limited 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 to : HAYTER LIMITED, Service Department, Spellbrook, Bishop's Stortford, Hertfordshire CM23 4BU

UK ONLY: Details of your local Hayter authorised dealer are contained in Yellow Pages or contact:- Freephone 0800 616298.

1st Year Service Record

DEALER STAMP

2nd Year Service Record

DEALER STAMP

Date.....

Date.....

Signed.....

Signed.....

SAFETY PRECAUTIONS

THIS SYMBOL MEANS BE ALERT! YOUR SAFETY IS INVOLVED. WHEN YOU SEE THIS SYMBOL BE ALERT TO THE POSSIBILITY OF INJURY. CAREFULLY READ THE MESSAGE THAT FOLLOWS AND INFORM OTHERS. EXERCISE GREAT CARE AND FOLLOW THE ADVICE GIVEN TO AVOID POTENTIALLY HAZARDOUS SITUATIONS. Your mower is perfectly safe if used correctly. Failure to observe the following simple precautions may result in serious injury.

Training:

Read the instructions carefully. Ensure that you are 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.



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



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

Preparation:

While mowing, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing sandals.



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



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 while the engine is running or when the engine is hot. Allow the engine to cool for at least 2 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 vapours have dissipated.

- Always use fresh fuel. Stale fuel can block the carburettor and cause leakage.


SAFETY PRECAUTIONS**Continued.**


- Replace fuel tank and container caps securely.
- 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.


 A damaged cutterbar or loose fixing bolt are major hazards. Before use, visually inspect the cutting mechanism to ensure that it is in good condition. A damaged cutterbar must be replaced immediately with a genuine **Hayter** replacement part. A cutterbar which is slightly worn can be re-sharpened. Ensure that both cutting edges are re-sharpened equally to maintain balance. An unbalanced cutterbar may cause serious damage to your machine. Refer to "Maintenance".


Operation:


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


 Always pull the starter cord slowly until resistance is felt, then pull the cord rapidly to avoid kickback and prevent hand or arm injury.


 Mow only in daylight or good artificial light.


 Avoid using the mower on wet grass, where feasible.

 Always be sure of your footing on slopes.


 Walk, never run.


 Mow across the face of 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.










 Stop the engine 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.

SAFETY PRECAUTIONS

Continued.













Operation continued:

-  Do not change the engine governor settings or overspeed the engine.
-  Disengage the ground drive clutch before starting the engine.
-  Start the engine carefully, with feet well away from the cutterbar.
-  Do not tilt the mower when starting the engine.
-  Do not put hands or feet near or under rotating parts.
-  Never pick up or carry a mower while the engine is running.
-  Stop the engine and disconnect the spark plug lead:
 - Before clearing blockages.
 - Before cleaning / checking or working on the mower.
 - After striking a foreign object. Inspect the mower for damage and make repairs before restarting and operating the mower.
 - If the mower starts to vibrate abnormally (check immediately).
-  Stop the engine:
 - Whenever you leave the mower.
 - Before refuelling.
-  Never touch the engine muffler / muffler guard or cooling fins when the engine is hot.

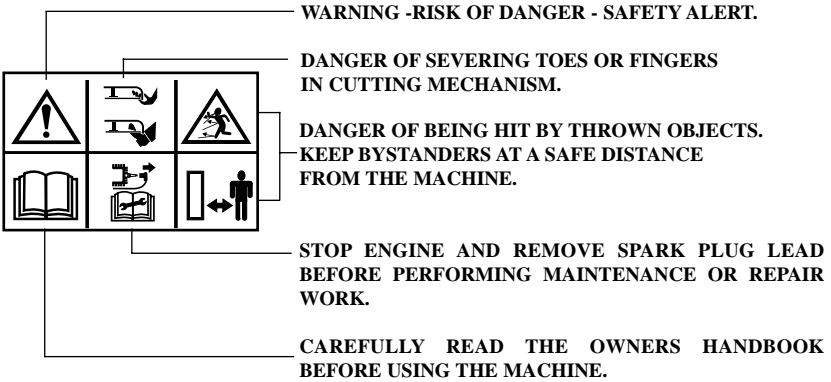


WARNING: THE CUTTERBAR CAN CONTINUE TO ROTATE AFTER THE ENGINE IS SWITCHED OFF

SAFETY PRECAUTIONS**Continued.****Maintenance and Storage:**

-  Keep all nuts, bolts and screws tight to ensure that the equipment is in safe operating condition.
-  Frequently check fuel lines and fittings for cracks or leaks and replace if necessary.
-  Never check for a spark with the spark plug removed. (Use an approved tester).
-  Never crank the engine with the spark plug removed.
-  Never strike the flywheel with a hammer or hard object as this may cause the flywheel to shatter in operation. Always use the correct tools to service the engine.
-  Never operate the engine without a muffler guard. Inspect the muffler periodically and replace if worn or leaking.
-  Never start the engine with the air-cleaner or air-cleaner cover removed.
-  Never store the mower with petrol in the tank within an enclosed area where fumes may reach an open flame or spark.
-  Allow the engine to cool before storing in any enclosure.
-  To reduce the fire hazard, keep the engine, muffler, cooling fins and petrol storage area free of grass, leaves, or excessive grease.
-  Replace worn or damaged parts for safety.
-  If the fuel tank has to be drained, it is essential that this be done outdoors.

DECALS


WARNING DECAL: Part No. 219189**ENGINE STOP**

SPECIFICATIONS

MODEL	CODE 401R Auto-drive
Engine	Briggs & Stratton Quattro 40
Engine Type	10C902
Engine / Cutterbar Speed	3000 rpm
Fuel Type	Unleaded Petrol
Fuel Capacity	1.5 litres
Oil Type	SAE 30 engine oil
Oil Sump Capacity	0.6 litres
Cutting Width	460mm
Cutting Height	35 - 65mm
Overall Dimensions	1320 x 515 x 1010mm
Dry Weight	27 Kg

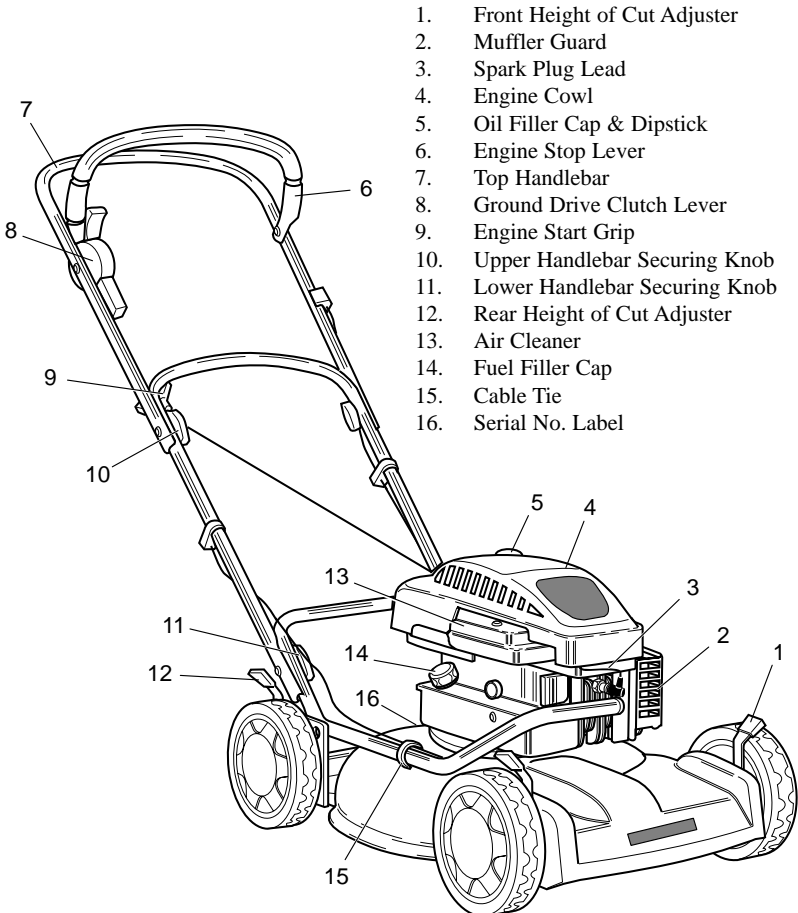
ASSEMBLY INSTRUCTIONS

SAFETY NOTICE

 Before using the mower, read the owner's handbook carefully. Pay particular attention to the safety precautions.



GENERAL ASSEMBLY



1. Front Height of Cut Adjuster
2. Muffler Guard
3. Spark Plug Lead
4. Engine Cowl
5. Oil Filler Cap & Dipstick
6. Engine Stop Lever
7. Top Handlebar
8. Ground Drive Clutch Lever
9. Engine Start Grip
10. Upper Handlebar Securing Knob
11. Lower Handlebar Securing Knob
12. Rear Height of Cut Adjuster
13. Air Cleaner
14. Fuel Filler Cap
15. Cable Tie
16. Serial No. Label

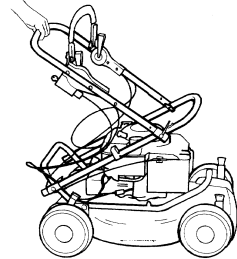
ASSEMBLING THE MOWER FOR THE FIRST TIME

Unpack the mower: Remove the mower from the packaging and take great care to ensure that the control cables between the engine and the upper handlebar are not damaged in the process. Check that the loose items have been supplied correctly. Refer to the delivery checklist opposite. If any items are missing, contact your local authorised Hayter Dealer.

DELIVERY CHECKLIST

Description	Quantity
<i>Owner's Handbook</i>	1
<i>Warranty Reg. Card</i>	1

Assemble the lower handlebar: Carefully unfold the lower handlebar into position behind the rear of the mower. Align with the base of the handlebar and lock in position using the lower securing knobs.

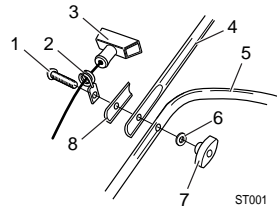


ST017

Assemble the upper handlebar: Carefully unfold the upper handlebar into position whilst taking great care to ensure that the control cables remain undamaged, untwisted and free of kinks.

Align with the lower handlebar and ensure that the rope guide is correctly orientated. Tighten the upper securing knobs.

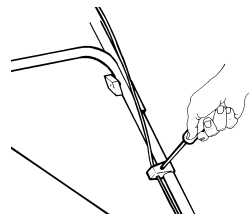
Operate the engine stop lever towards the handlebar and very slowly pull the engine start-grip away from the engine until there is sufficient slack in the rope to enable it to be threaded into the rope guide. Gently release the start-grip until it rests against the rope-guide.



ST001

1. Coach bolt M8
2. Rope guide
3. Engine start grip
4. Upper handlebar
5. Lower handlebar
6. Washer M8
7. Knob

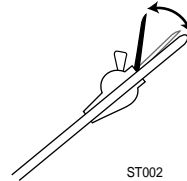
Align the control cables neatly along each leg of the handlebar and ensure that they are located in the plastic cable holders. Use a screwdriver to clamp the cable holders in position.



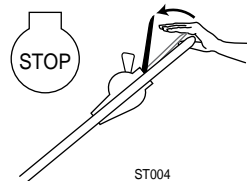
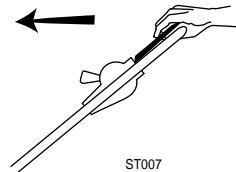
ASSEMBLING THE MOWER FOR THE FIRST TIME

Continued.

Check engine stop lever operation: Operate the engine stop lever several times. Ensure that the cable moves freely and that the lever returns automatically to the engine stop position when released.



Check the ground drive clutch lever operation: Operate the engine stop lever and push forward on the clutch lever until it locks into position. Release the engine stop lever to a half way position and check that the clutch lever releases automatically to the disengaged position. Operate several times and ensure that the cable and mechanism operates freely.

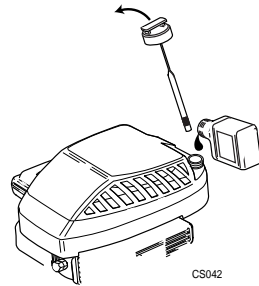


BEFORE STARTING THE ENGINE

IMPORTANT- PREVENT ENGINE DAMAGE: The engine is shipped without oil or petrol. The engine must be filled with the correct grade of oil and petrol before starting the engine.

Oil recommendations: Always use high quality detergent oil classified "For service SE, SF, SG" SAE 30 oil. Never use additives with recommended oils.

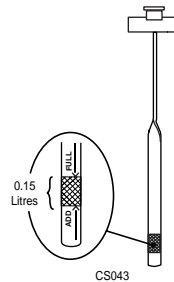
SAE 10W-30 multigrade oil may be used, but this will result in higher engine operating temperatures with consequential high oil consumption. It is imperative that the oil level is checked more frequently if this grade of oil is used in order to guard against serious engine damage.



Check oil level: Clean around the oil filler cap before removing. With the mower on a level surface, unscrew and remove the oil filler - dipstick. Wipe oil from it with a clean cloth. Screw the oil filler - dipstick back in place, then unscrew and remove it to check the oil level.

The oil level is correct when it is at the **full** mark on the dipstick. **DO NOT OVERFILL.**

Slowly fill with engine oil as necessary and replace the oil filler - dipstick.



IMPORTANT: The oil filler - dipstick must be firmly secured to prevent oil leakage during operation.

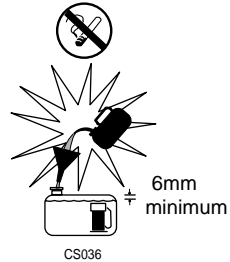
BEFORE STARTING THE ENGINE

Continued.

Fuel Recommendations: Always use clean, fresh unleaded petrol. Purchase fuel in quantities which can be used within 30 days. Never mix oil with petrol. For added engine protection Briggs & Stratton recommend the use of their fuel additive which is available from an authorised Briggs & Stratton service dealer.

Check fuel level: Clean around the fuel filler cap before removing and fill the fuel tank with clean unleaded petrol.

Do not overfill the fuel tank. Allow 6mm minimum of tank space for fuel expansion.



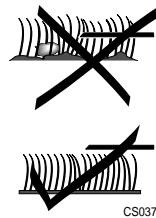
IMPORTANT: The fuel filler cap must be firmly secured to prevent fuel leakage during operation.



WARNING - PREVENT ACCIDENTS: The cutterbar rotates when the engine is operating.

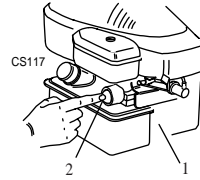
ALWAYS operate the engine stop lever several times and ensure the engine stop cable moves freely before starting the engine.

ALWAYS position the mower on a level stone free grass surface before starting the engine. Ensure that the cutterbar is set above grass height to prevent the engine being started under load.



TO START THE ENGINE

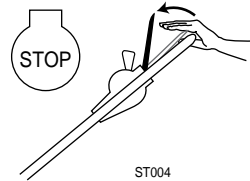
Operate the primer bulb: When starting the engine for the first time firmly push the primer bulb 5 times at 2 second intervals to provide the extra fuel required to start a cold engine. When starting a cold engine thereafter it should only be necessary to push the primer bulb 3 times. Operation of the primer bulb is usually unnecessary when starting a warm engine.



1. Engine
2. Primer Bulb

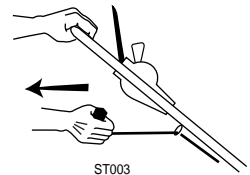
Operate the engine stop lever: Use one hand to hold the engine stop lever in the operating position firmly against the handlebar.

To start and operate the engine, the engine stop lever must be held in the operating position. If the engine stop lever is released the engine will stop.



ST004

Operate the engine start-grip: Stand behind the mower and maintain a firm hold on the handlebar and the engine stop lever to prevent the mower moving towards you. Use your right hand to hold the engine start - grip and pull slowly until resistance is felt, then pull rapidly to crank the engine. When the engine starts carefully return the engine start - grip to the storage position. If the engine does not start after 5 attempts - refer to "Fault Finding".

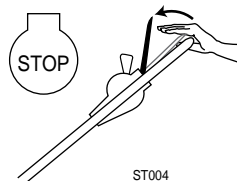


ST003

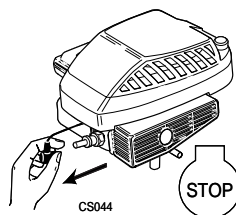
IMPORTANT - PREVENT ENGINE DAMAGE: Never pull the engine start - grip when the engine is running.

STOPPING THE ENGINE

Stopping the engine: Disengage the engine stop lever by releasing the lever.



Emergency stop: If the engine stop lever fails, disconnect the spark plug lead to stop the engine.

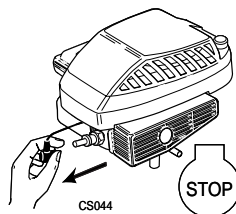


OPERATING THE MOWER

SAFETY NOTICE



WARNING - PREVENT ACCIDENTAL STARTING :
Always stop the engine and disconnect the spark plug lead before cleaning, inspecting or working on the machine.



SAFETY NOTICE



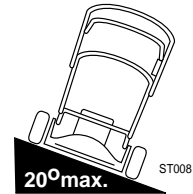
WARNING - PREVENT ACCIDENTS : Before mowing, thoroughly inspect the area where the mower is to be used and remove all objects which when contacted by the mower cutterbar could become dangerous projectiles.

Inspect the area for hidden obstructions which when contacted by the cutterbar could risk health and safety. Remember the location of these obstructions and ensure that you mow around them.



CS031

IMPORTANT- PREVENT ENGINE DAMAGE : DO NOT use the mower on a slope greater than 20 degrees.



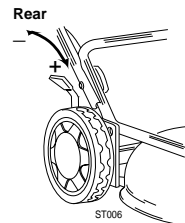
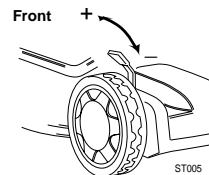
HEIGHT OF CUT

To adjust the height of cut: Adjust each wheel in turn. Adjust each front wheel by first moving the lever outward to “unlock” and then towards the rear of the mower to increase (+) or towards the front of the mower to decrease (-) the height of cut. Release the lever and ensure that it locks firmly in position.

Repeat this procedure for the two rear wheels. To increase (+) move the lever towards the front of the mower and to decrease (-) move the lever towards the rear of the mower.

Finally check that the height of cut settings are the same for all four wheels to ensure that the mower is level. There are four height of cut positions

Always select a height of cut to suit operating conditions. Aim to prevent engine overloading and blockages by avoiding low cuts in long grass conditions. Be prepared to make two cuts when the grass is long.

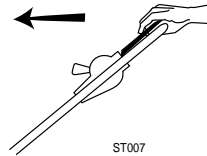


TRAVEL

Forward travel: Use the left hand to hold the engine stop lever against the handlebar and start the engine. Push downward on the handlebar to raise the front wheels until they are just out of contact with the ground. Use the right hand to push the ground drive clutch lever forwards until it locks into the engaged position. Remove the right hand and the clutch lever will remain in the engaged position. Lower the front wheels to the ground and the mower will drive in a forward direction.

Note: To disengage the drive without stopping the engine, release the engine stop lever to the half way position.

Reverse travel: Disengage the ground drive clutch lever by releasing the engine stop lever to the half way position. Hold and pull against the handlebar with both hands to reverse the mower towards you.



WARNING - PREVENT ACCIDENTS: Never raise the front of the mower excessively. Always reverse the mower carefully towards you. Always stop the engine before walking backwards with the mower.

TURNING THE MOWER

To make a wide turn: Steer the mower with the handlebar in the direction required.

To make a tight turn: Stop and apply downward pressure on the handlebar to raise the front wheels of the mower just above ground level and steer the mower using the handlebar in the required direction.

General manoeuvring: The mower may be manoeuvred in tight spaces with the ground drive engaged, by pushing downward on the handlebar to lift the front driving wheels slightly clear of the ground.



WARNING - PREVENT ACCIDENTS: DO NOT raise the front of the mower excessively when making turns. **NEVER** raise the rear of the mower when the engine is running.

MOVING THE MOWER ACROSS NON-GRASSED AREAS

Set the mower to its maximum height of cut to protect the cutting mechanism when moving the mower over surfaces other than grass.



WARNING - PREVENT ACCIDENTS: Push the mower carefully at slow walking speed with the engine stopped.

CUTTERBAR OPERATION

The cutterbar rotates at the same speed as the engine. The cutterbar will stop within three seconds of the engine being stopped.



WARNING - PREVENT ACCIDENTS : DO NOT operate the mower if the cutterbar fails to stop within three seconds. **Return the mower to your Hayter dealer for examination and repair.**



WARNING - PREVENT ACCIDENTS: ALWAYS stop the engine when a hidden obstruction or excessive vibration is encountered. **Disconnect the spark plug lead and examine the cutting mechanism. ALWAYS** replace a damaged cutterbar - refer to "Maintenance".

MOWING AND GRASS CARE TIPS

The Clipper 46 employs a mulching system. The grass is cut and then finely chopped before being forced down by blown air into the root area. The fine clippings should be left to break down naturally in order to fertilise the lawn. For best results, it is important that the grass is not cut too short.

In dry weather conditions leave the grass long to help retain ground moisture.

Aerate the lawn to stimulate soil organisms and root growth. In spring and late summer remove dead grass and aerate the lawn by raking or similar means.

Keep the cutterbar sharp. A blunt cutterbar will tear the grass and cause the tips to turn brown.

Always keep the underside of the deck clean.

Avoid mowing when the grass is wet. Grass clippings will stick to the underside of the deck and the mulching performance will be affected.

MOWING AND GRASS CARE TIPS**Continued.**

Prevent scalping. Plan your direction of travel to mow across hollows and humps.

Prevent grass damage. Take care when turning the mower.

Brush the lawn surface to disperse worm casts before mowing.

Spike compacted lawn areas with a fork. Fill the holes with sand to improve aeration and drainage.

Mow lawns in a different direction to the previous cut.

Mow lawns twice a week when the grass is growing vigorously in the summer.

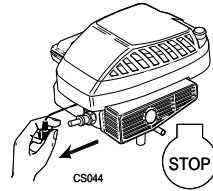
Mow lawns once a week in spring, autumn and during prolonged dry weather in the summer.

Prevent grass damage - DO NOT remove more than one third of the grass height in one cut.

MAINTENANCE

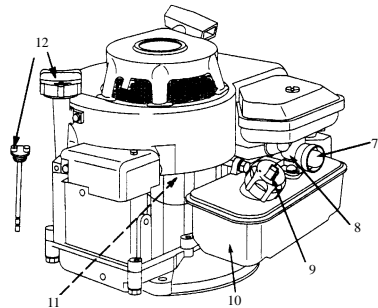
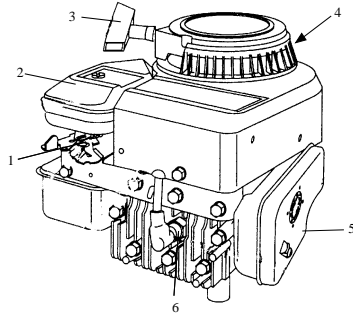


WARNING: PREVENT ACCIDENTS - Stop the engine and disconnect the spark plug lead before attempting to carry out maintenance procedures on the mower.



ENGINE

1. Governor control lever
2. Air cleaner
3. Start-grip
4. Finger Guard
5. Muffler
6. Spark plug
7. Primer bulb
8. Carburettor
9. Fuel Cap
10. Fuel tank
11. Flywheel
12. Oil fill/Dipstick



CARBURETTOR ADJUSTMENTS

Carburettor adjustments should only be made by an authorised Briggs & Stratton dealer. Under no circumstances should the engine be adjusted to run at a speed in excess of 3,000 r.p.m.

OIL SERVICE

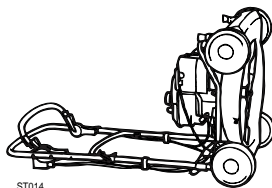
Refer to the Maintenance Schedule at the end of this section and ensure that the recommendations are followed. More frequent service is required when operating in adverse conditions.

- Check the oil level every 5 hours or daily before starting the engine and ensure that the correct oil level is maintained. Refer to-'Before Starting the Engine: Oil Recommendations' for oil checking procedure and filling instructions.
- Change the engine oil after the first 5 hours of operation and thereafter at the end of every grass cutting season. In circumstances where the engine is being operated for long periods under heavy load or high ambient temperatures, the oil should be changed at 25 hour intervals.
- Change the oil while the engine is warm. Refill with fresh clean oil of the recommended SAE viscosity grade. Refer to -'Before Starting the Engine:Oil Recommendations'.



WARNING - PREVENT ACCIDENTS: Drain fuel from the tank by running the engine until the fuel tank is empty before attempting to tip the mower for oil draining purposes.

- Remove the spark plug lead and allow the engine to cool. Slacken the lower handlebar securing knobs and move the handlebar assembly forwards. Tip the mower backwards until the handlebar assembly is supported on the ground, as shown. Remove the oil filler dipstick and drain the oil into a suitable container.

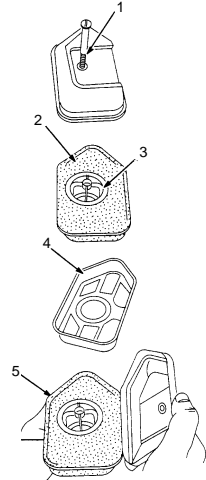


ST014

AIR CLEANER SERVICE

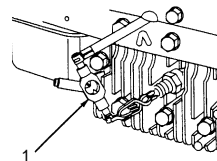
Refer to the Maintenance Schedule at the end of this section and ensure that the recommendations are followed. More frequent service is required when operating in adverse conditions.

- Replace the element if very dirty or damaged.
- Remove screw (1)
- Carefully remove the air cleaner to prevent debris from falling into the carburettor.
- Take the air cleaner apart and clean all parts. Wash the element (2) in liquid detergent and water. Wrap the element in a clean cloth and squeeze dry. **Saturate** the element in engine oil. Wrap in a clean cloth and squeeze to remove excess oil.
- Install the element and cup (3) into the body (4). Install the element so that lip (5) extends over the edge of the body to form a protective seal when cover is assembled.
- Install the air cleaner securely on the carburettor with the screw.



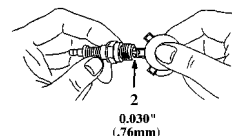
SPARK PLUG SERVICE

Use only Briggs & Stratton spark tester (1) to check for a spark as shown in the diagram.



Replace the spark plug every 100 hours or every season, whichever occurs first. A spark plug wrench is available from any authorised Briggs & Stratton service dealer.

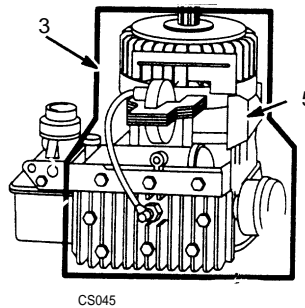
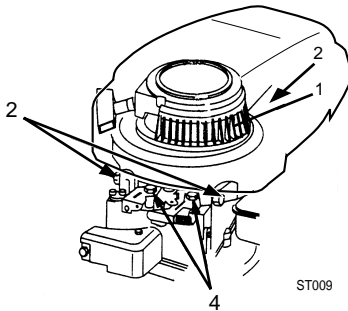
The spark plug gap (2) should be checked with a feeler gauge and set at 0.76mm.



KEEPING THE ENGINE CLEAN

⚠ WARNING - PREVENT ACCIDENTS : Accumulation of debris around the muffler could cause a fire. Inspect and clean the engine after every use.

Remove all grass and debris from the engine including the muffler / muffler guard, the air ways in the finger guard (1) and the surrounding deck areas on a daily basis after use.



IMPORTANT - PREVENT ENGINE DAMAGE: Never spray the engine with water during cleaning. Water can contaminate the fuel. Always clean with a brush or compressed air.

NOTE: Grass and debris may clog the engine's air cooling system especially after prolonged operation while cutting tall, dry grass. The internal cooling fins and surfaces may require cleaning to prevent overheating and engine damage.

- Remove the three screws (2) and lift the cowl and blower housing assembly to clean areas within the heavy line (3) as shown in the diagram.
- Do not loosen 2 band brake bracket screws (4).
- Do not bend or remove flywheel guard (5).

After cleaning replace the cowl and the blower housing assembly and secure with the 3 screws.

DECK HOUSING

Remove grass debris from the top and underside of the deck housing immediately after use. It is particularly important to keep the underside clean to preserve the mulching action and prevent corrosion.

If grass debris has dried onto the deck housing, it should be removed using a suitable brush. If necessary touch in any areas of damaged paintwork with a suitable paint to prevent rusting.

IMPORTANT - PREVENT DAMAGE: DO NOT use high pressure washing units to clean the mower.

SECURING NUTS AND BOLTS

Regularly check that all securing nuts and bolts are tight. Replace missing or damaged items immediately.



CS015

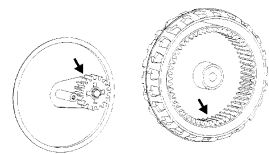
LUBRICATION

Apply a good quality medium grease to the inner control cables every 25 operating hours at the point of entry and exit from their outer casings.



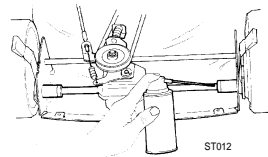
CS022

Clean the insides of the front drive wheels once a season. Remove the hub caps, screws, washers and wheels. Remove any debris from the gears and gear rings using a brush. Reassemble the wheels.



ST011

Lubricate the driveshaft slide bearings at least once a season. Set the mower at the minimum height of cut and remove the transmission casing to gain access to the lubrication points. Replace the transmission casing.



ST012

CLUTCH CABLE ADJUSTMENT

Check the clutch cable operation every 25 operating hours and adjust if necessary.

Adjustment is carried out as follows:

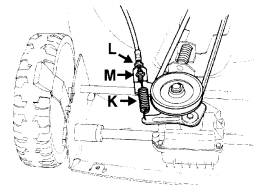
- Set the mower at the minimum height of cut position and remove the transmission casing.
- Use the left hand to hold the engine stop lever against the handlebar but do not start the engine. Use the right hand to push the ground drive clutch lever forwards until it locks into the engaged position. Push the mower in a forward direction until the front wheels lock.

In this position the tension spring (K) should have extended by approximately 9mm from the original position with the controls released.

- If the adjustment is incorrect, slacken the lock nuts (M) and rotate the cable adjuster (L) as necessary. Retighten the lock nuts.

- After adjustment check to ensure that there is a small amount of free play in the clutch control mechanism with the controls released.

- Replace the transmission casing.



ST013

CUTTERBAR



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

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

A damaged cutterbar that is out of balance will vibrate excessively and may break. **DO NOT** use an unbalanced cutterbar.

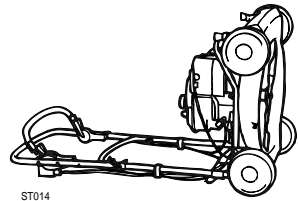
Regularly check that the bolt securing the cutterbar is tightened to the specified torque of 40Nm.

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

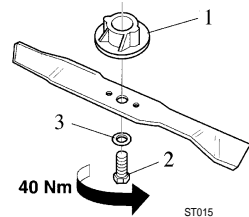
How to remove the cutterbar: Drain the fuel by operating the engine until the fuel tank is empty and the engine stops. **Remove the spark plug lead** and allow the engine to cool. Slacken the lower handlebar securing knobs and move the handlebar assembly forwards. Tip the mower backwards until the handlebar assembly is supported on the ground, as shown.

Firmly grip the end of the cutterbar with the gloved hand and remove the bolt and washer securing the cutterbar with a 9/16" A/F spanner.

How to assemble the cutterbar: Assemble the cutterbar with the blade cutting edges facing away from the engine. Secure the cutterbar using the blade holder, bolt and washer and tighten to a torque of 40Nm.



ST014



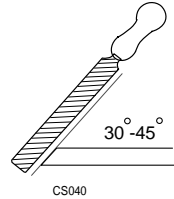
ST015

1. Blade Holder
2. Bolt
3. Washer

CUTTERBAR

Continued.

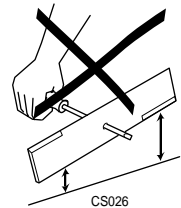
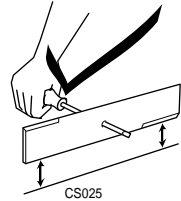
How to sharpen and balance the cutterbar: A slightly worn cutterbar may be re-sharpened. All cutting edges must be sharpened equally to ensure balance. Sharpen the cutterbar every 25 mowing hours or more frequently if conditions require. Remove the cutterbar from the mower and clean using a brush and water. Inspect the cutterbar for signs of damage.



WARNING - PREVENT ACCIDENTS: DO NOT use a damaged or excessively worn cutterbar.

Sharpen all the cutting edges with a flat file to restore the original cutting edges.

Ensure that the cutterbar is balanced. Use a screw driver with a round shaft to support the cutterbar through its centre hole. Hold the cutterbar horizontal and then release. A balanced cutterbar will remain horizontal. If the cutterbar is not balanced the heavy end will rotate downward. Sharpen the heavy end until the cutterbar is correctly balanced.



MAINTENANCE SCHEDULE

Follow the hourly or calendar intervals, whichever occurs first. More frequent service will be required if working for prolonged periods under dusty, dry conditions, or when airborne debris is present or after extensive operation cutting tall, dry grass.

AFTER FIRST 5 HOURS

- Change engine oil

EVERY 5 HOURS OR DAILY

- Check oil level
- Remove grass debris from around engine, muffler/muffler guard and air ways in the top cowl.
- Remove grass debris from top and underside of deck housing.
- Check condition of guards and safety devices.
- Check condition of cutterbar.

EVERY 25 HOURS OR EVERY SEASON

- Change engine oil if continuously operating under heavy load or high ambient temperature.
- Service air cleaner element.
- Grease inner control cables at point of entry and exit from their outer casings.
- Check clutch cable adjustment
- Sharpen cutterbar.

MAINTENANCE SCHEDULE Continued.**EVERY 50 HOURS OR EVERY SEASON**

- Change engine oil.
- Clean the insides of the front drive wheels.
- Lubricate the transmission drive shaft slide bearings.

EVERY 100 HOURS OR EVERY SEASON

- Clean engine cooling system. Clean more often under dusty conditions or when airborne debris is present or after prolonged operation whilst cutting tall, dry grass.
- Replace spark plug.

PREPARING THE MOWER FOR STORAGE

Handlebar storage: Slacken the upper and lower handlebar securing knobs and fold into the storage position. Take great care to ensure that the control cables do not become snagged or damaged during folding.

Storage for periods in excess of 30 days: Engines stored in excess of 30 days need to be protected with Briggs & Stratton fuel additive or drained of fuel to prevent gum from forming in the fuel system or on essential carburettor parts. To ensure your mower is maintained in good working order it is important that the following procedure is adopted. Refer to the Maintenance section as necessary.

Drain fuel from the engine by operating the engine until it stops.

Disconnect the spark plug lead.

Change the engine oil.

Remove the engine spark plug and pour 15ml of engine oil into the engine cylinder and replace the spark plug. Do not exceed the stated volume of oil as engine damage may occur on re-starting. **Do not replace the spark plug lead.** Operate the engine stop lever and slowly pull the engine start - grip once to crank the engine. This will distribute the oil and help prevent engine corrosion.

Clean grass and debris from the engine cylinder, cylinder head cooling fins, under blower housing and around and behind the muffler/muffler guard.

Clean all other areas of the mower.

Lubricate the mower.

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

Fold the handlebar to the storage position if desired. Rest the mower deck on wooden blocks with the wheels clear of the ground.

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

FAULT FINDING

PROBLEM	POSSIBLE FAULT	REMEDY
Engine will not turn over	Engine stop lever released Incorrect oil level Obstruction under deck	Operate engine stop lever Check oil level Remove obstruction
Engine smokes	Excess oil level Air cleaner plugged or dry.	Check oil level Service air cleaner
Engine runs then stops	Fuel starvation Fuel cap vent blocked	Fill fuel tank Clean fuel cap vent

FAULT FINDING

Continued.

PROBLEM	POSSIBLE FAULT	REMEDY
Engine will not start	Engine under load Fuel starvation Engine cold Incorrect/contaminated fuel Spark plug lead disconnected Engine brake not released Faulty spark plug	Raise height of cut Fill fuel tank Operate primer bulb. Drain fuel tank and fill with correct fuel Connect spark plug lead Operate engine stop lever Clean and adjust gap or replace
Engine runs rough	Spark plug lead becoming disconnected in use Faulty spark plug Air cleaner element blocked Incorrect/contaminated fuel	Connect spark plug lead Clean and adjust gap or replace Service air cleaner. Drain fuel tank and fill with correct fuel
Engine vibrates excessively	Mounting bolts loose Cutterbar bolt loose Cutterbar out of balance Engine crankshaft bent	Tighten bolts Tighten bolt Balance cutterbar Consult your dealer

FAULT FINDING

Continued.

PROBLEM	POSSIBLE FAULT	REMEDY
Uneven cut	Grass is wet	Mow dry grass
	Undulating ground conditions	Change direction of travel
	Cutterbar worn	Sharpen the cutterbar
	Cutterbar out of balance	Balance the cutterbar
	Wheels damaged	Inspect and replace as necessary
Mower is hard to push	Cut height too low	Increase cut height
	Wheels damaged	Inspect and replace as necessary
Mower will not self propel	Clutch out of adjustment	Adjust clutch
	Drive belt damage	Replace drive belt
Poor mulching performance	Underside of deck is dirty	Clean underdeck
	Height of cut set too low	Increase height of cut
	Cutterbar worn	Sharpen the cutterbar
	Grass is wet	Mow dry grass

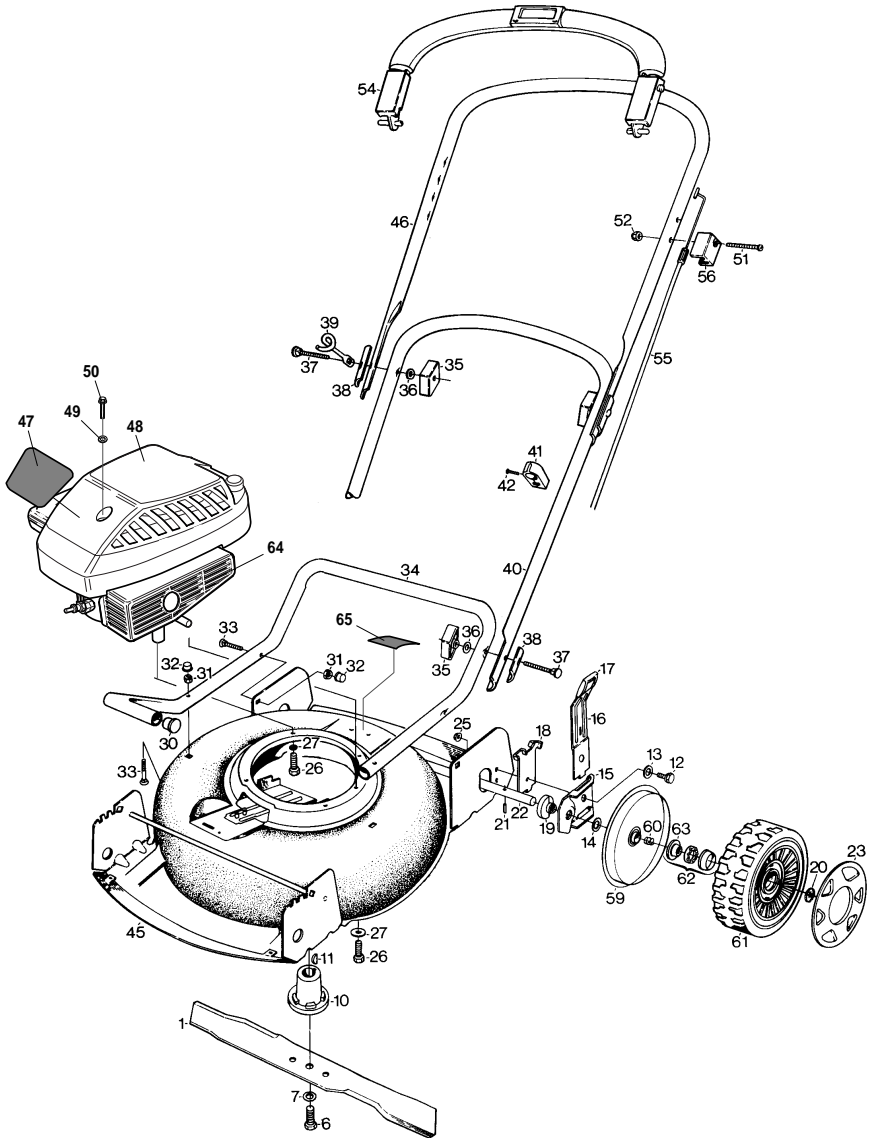
PARTS LIST

TEM NO.	DESCRIPTION	PART NO.	QTY
1	Blade	ST1111-3099-01	1
6	Blade bolt	ST9987-5257-12	1
7	Washer	ST9696-0011-01	1
10	Blade holder	ST1111-2142-01	1
11	Key	ST9600-0014-00	1
12	Shoulder bolt	ST1111-0545-00	2
13	Washer	ST9694-0003-00	2
14	Flat washer	ST9699-0069-02	2
15	Axle mounting	ST1111-1268-01	2
16	Control lever	ST1111-1337-01	2
17	*Plastic knob	ST1111-2549-01	1
18	Hole plate	ST1111-0497-00	2
19	Bushing	ST1111-2057-02	2
20	Wheel lock kit	ST1111-9042-01	1
20	*Lock washer	ST9675-0017-02	4
21	Slotted pin	ST9595-0182-00	2
22	Front axle	ST1111-2526-01	1
23	Hub cap-black	ST1111-3085-06	2
25	Nut	ST9739-0831-22	2
26	Screw	ST9955-3732-12	3
27	Flat washer	ST9699-0029-02	3
30	Plug	ST9403-0043-70	2
31	Lock nut	ST9747-0831-02	4
32	Nut guard	ST9403-0113-00	4
33	Screw	ST9898-0835-12	4
34	Handlebar-lower part	ST1111-2962-01	1
35	Handle bolt kit	ST1111-9030-02	2
35	*Locking knob	ST1111-0035-01	2
36	*Washer	ST9699-0025-02	2
37	*Screw	ST9899-3551-12	2
38	*Reinforcement	ST1111-0178-00	2
39	Eyelink	ST1111-3062-01	1
40	Handlebar-interm.part	ST1111-2961-01	1
41	Cable holder	ST1111-2018-01	1
42	Screw	ST9836-9216-12	1
45	Chassis-black	ST1111-3079-05	1
46	Handlebar-upper part	ST1111-2960-01	1

PARTS LIST

ITEM NO.	DESCRIPTION	PART NO.	QTY
47	Decal - Engine	401008	1
48	Engine - Cowl	ST1111318601	1
49	Washer	ST9699009902	1
50	Screw	ST9987473219	1
51	Screw	ST9948064016	1
52	Lock nut	ST9747063102	1
54	Control handle	ST1111295201	1
55	Engine brake cable	ST1111296803	
55	Engine brake cable	ST1111296805	1
56	Cable attachment	ST1111296901	1
59	Wheel cover	ST1111118003	2
60	Spring	ST1111113801	2
61	Wheel assy	ST1111266501	2
62	*Ball bearing kit	ST1111904701	1
63	*Bearing cone	ST1111118401	2
64	Engine	ST9500740405	1
65	Decal- Caution	219189	1

*These components form part of a sub-assembly.
The quantities indicated are per sub-assembly



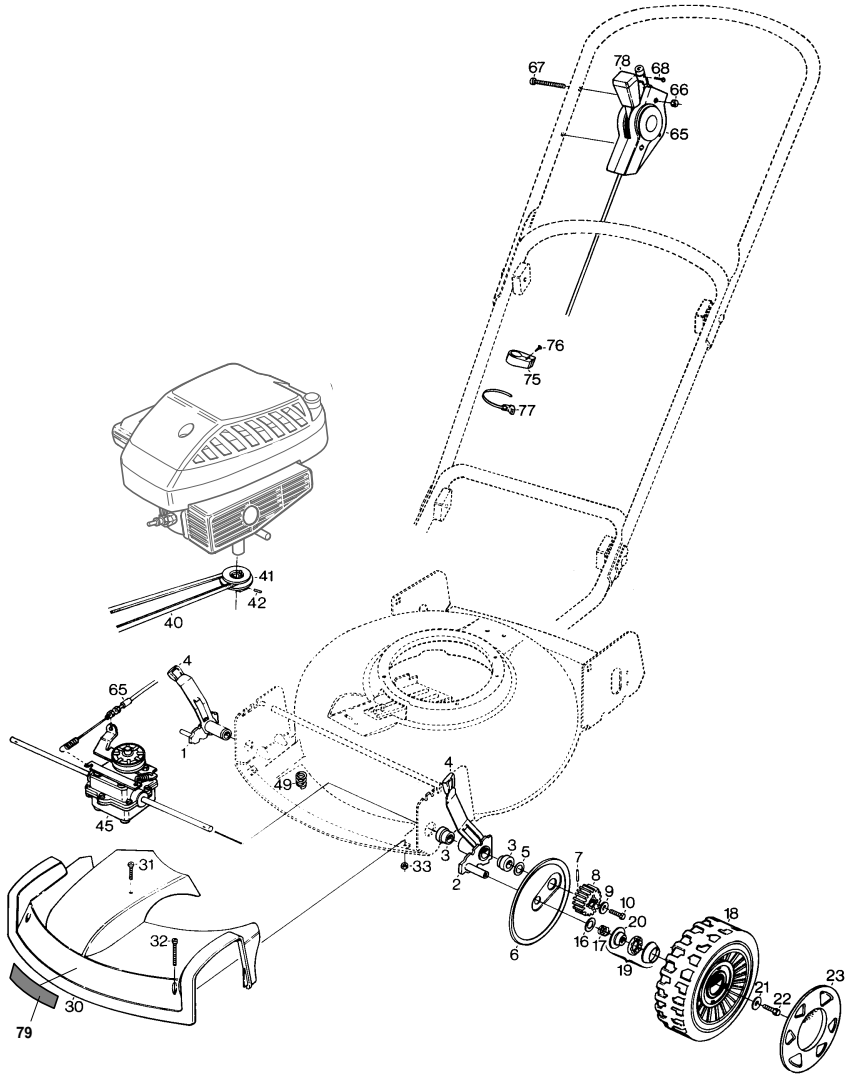
3D401102A

PARTS LIST

TEM NO.	DESCRIPTION	PART NO.	QTY
1	Wheel mounting-R.H.	ST1111290001	1
2	Wheel mounting-L.H.	ST1111290101	1
3	*Bronze bearing	ST9548001400	2
4	*Plastic knob	ST1111254901	1
5	Spacer	ST1111306501	2
6	Cover plate	ST1111256101	2
7	Pin	ST1111238201	2
8	Gear wheel	ST1111263502	2
9	Washer	ST9699010002	2
10	Screw	ST9943061216	2
16	Washer	ST9699003702	2
17	Spring	ST111113801	2
18	Wheel assy	ST1111266501	2
19	*Ball bearing kit	ST1111904701	1
20	*Bearing cone	ST1111118401	2
21	Washer	ST9699010002	2
22	Screw	ST9943061216	2
23	Hub cap-black	ST1111308506	2
30	Front cover-black	ST1111263302	1
31	Screw	ST9943053016	1
32	Screw	ST9943054016	2
33	Nut	ST9739053122	2
40	V-belt	ST1111906201	1
41	Engine belt pulley	ST1111291501	1
42	Set screw	ST9910061216	1
45	Transmission assy	ST1111305501	1
46	*Belt pulley dito	ST1111304701	1
47	*Locating pin	ST9594005500	1
49	Spring	ST1111306001	1
65	Clutch control	ST1111296503	1
66	Lock nut	ST9747063102	2
67	Screw	ST9948065516	2
68	Screw	ST9836951212	1
75	Cable holder	ST1111201801	1
76	Screw	ST9836921612	1
77	Cable holder	ST9579000800	1
78	Control knob-black	ST1111198702	1
79	Decal - Hayter	533005	1

*These components form part of a sub-assembly.

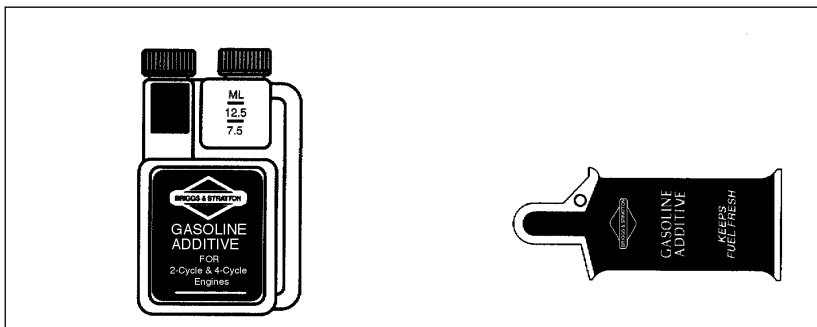
The quantities indicated are per sub-assembly



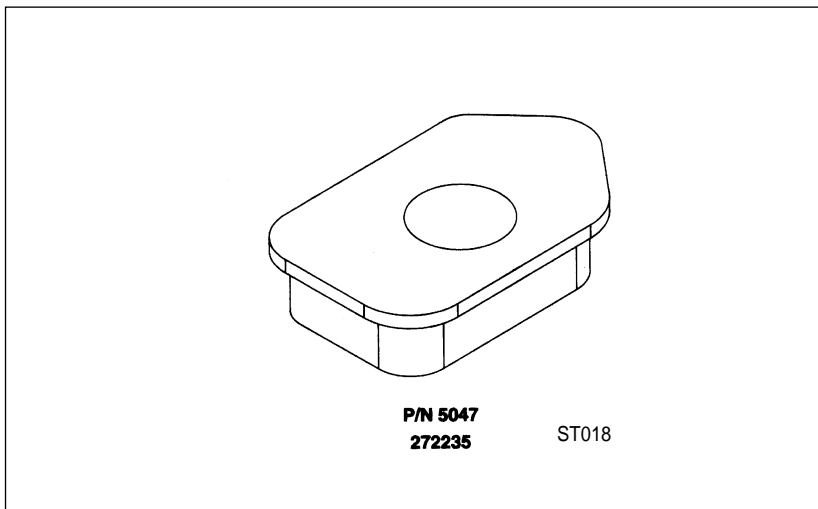
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These parts are available through an authorised Briggs & Stratton dealer.

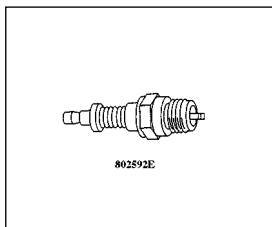
FUEL ADDITIVE



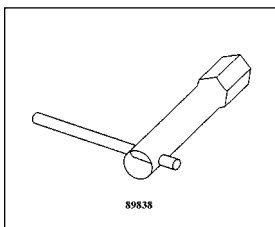
AIR CLEANER CARTRIDGE



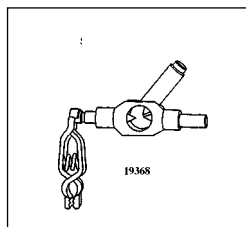
SPARK PLUG



SPARK PLUG WRENCH



SPARK PLUG TESTER



About Your Engine Warranty

Briggs & Stratton welcomes warranty repair and apologizes to you for any inconvenience. Any Authorized Service Dealer may perform warranty repairs. Most warranty repairs are handled routinely, but sometimes requests for warranty service may not be appropriate. For example, warranty would not apply if engine damage occurred because of misuse, lack of routine maintenance, shipping, handling, warehousing or improper installation. Similarly, warranty is void if the serial number of the engine has been removed or the engine has been altered or modified.

If a customer differs with the decision of the Service Dealer, an investigation will be made to determine whether the warranty applies. Ask the Service Dealer to submit all supporting facts to his Distributor or the Factory for review. If the Distributor or the Factory decides that the claim is justified, the customer will be fully reimbursed for those items that are defective. To avoid misunderstanding which might occur between the customer and the Dealer, listed below are some of the causes of engine failure that the warranty does not cover.

Improper maintenance:

The life of an engine depends upon the conditions under which it operates, and the care it receives. Some applications, such as tillers, pumps and rotary mowers, are very often used in dusty or dirty conditions, which can cause what appears to be premature wear. Such wear, when caused by dirt, dust, spark plug cleaning grit, or other abrasive material that has entered the engine because of improper maintenance, is not covered by warranty.

This warranty covers engine related defective material and/or workmanship only, and not replacement or refund of the equipment to which the engine may be mounted. Nor does the warranty extend to repairs required because of:

1. PROBLEMS CAUSED BY PARTS THAT ARE NOT ORIGINAL BRIGGS & STRATTON PARTS.
2. Equipment controls or installations that prevent starting, cause unsatisfactory engine performance, or shorten engine life. (Contact equipment manufacturer.)
3. Leaking carburetors, clogged fuel pipes, sticking valves, or other damage, caused by using contaminated or stale fuel. (Use clean, fresh, lead-free gasoline and Briggs & Stratton gasoline stabilizer, Part No. 5041.)
4. Parts which are scored or broken because an engine was operated with insufficient or contaminated lubricating oil, or an incorrect grade of lubricating oil (check oil level daily or after every 8 hours of operation. Refill when necessary and change at recommended intervals.) Read "Owner's Manual."
5. Repair or adjustment of associated parts or assemblies such as clutches, transmissions, remote controls, etc., which are not manufactured by Briggs & Stratton.
6. Damage or wear to parts caused by dirt, which entered the engine because of improper air cleaner maintenance, re-assembly, or use of a non-original air cleaner element or cartridge. (At recommended intervals, clean and re-oil the Oil-

- Foam® element or the foam pre-cleaner, and replace the cartridge.) Read "Owner's Manual."
7. Parts damaged by over-speeding, or overheating caused by grass, debris, or dirt, which plugs or clogs the cooling fins, or flywheel area, or damage caused by operating the engine in a confined area without sufficient ventilation. (Clean fins on the cylinder, cylinder head and flywheel at recommended intervals.) Read "Owner's Manual."
 8. Engine or equipment parts broken by excessive vibration caused by a loose engine mounting, loose cutter blades, unbalanced blades or loose or unbalanced impellers, improper attachment of equipment to engine crankshaft, over-speeding or other abuse in operation.
 9. A bent or broken crankshaft, caused by striking a solid object with the cutter blade of a rotary lawn mower, or excessive v-belt tightness.
 10. Routine tune-up or adjustment of the engine.
 11. Engine or engine component failure, i.e., combustion chamber, valves, valve seats, valve guides, or burned starter motor windings, caused by the use of alternate fuels such as, ill-qualified petroleum, natural gas, altered gasolines, etc.

Warranty is available only through service dealers which have been authorized by Briggs & Stratton Corporation, your nearest Authorized Service Dealer is listed in the "Yellow Pages" of your telephone directory under "Engines, Gasoline" or "Gasoline Engines," "Lawn Mowers," or similar category.

Briggs & Stratton Engine Owner Warranty Policy

Effective February 1, 1994, replaces all undated Warranties and all Warranties dated before February 1, 1994

LIMITED WARRANTY

"Briggs & Stratton Corporation will repair or replace, free of charge, any part, or parts of the engine that are defective in material or workmanship or both. Transportation charges on parts submitted for repair or replacement under this Warranty must be borne by purchaser. This warranty is effective for the time periods and subject to the conditions provided for in this policy. For warranty service contact your nearest Authorized Service Dealer as listed in the "Yellow Pages" under "Engines, Gasoline," "Gasoline Engines," "Lawn Mowers" or similar category. THERE IS NO OTHER EXPRESS WARRANTY. IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO ONE YEAR FROM PURCHASE, OR TO THE EXTENT PERMITTED BY LAW ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. LIABILITY FOR CONSEQUENTIAL DAMAGES UNDER ANY AND ALL WARRANTIES ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion 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."

Briggs & Stratton Corporation


F. P. Stratton, Jr.
Chairman and Chief Executive Officer

WARRANTY PERIOD

ENGINES	WITHIN U.S.A. AND CANADA		OUTSIDE U.S.A. AND CANADA	
	CONSUMER USE*	COMMERCIAL USE*	CONSUMER USE*	COMMERCIAL USE*
All Vanguard™ engines.	2 year - engine / Lifetime** - Magneton® Ignition			
All Diamond Plus®, Europa™, Industrial Plus™ and all I/C®.	2 year	1 year	2 year	1 year
Quantum® and Diamond Power®.	2 year	90 days	2 year †	90 days
All standard 2 through 18 HP engines installed on lawn mowers, riders, edgers, chippers, shredders, tillers, and all Sno/Gard engines.	2 year	90 days	1 year	90 days
All other standard 2 through 18 HP engines.	1 year	90 days	1 year	90 days

* For purposes of this warranty policy, "consumer use" means personal residential household use by the original retail consumer. "Commercial use" means all other uses, including use for commercial, income producing or rental purposes. Once an engine has experienced commercial use, it shall thereafter be considered as a commercial use engine for purposes of this warranty. *Engines used in competitive racing or on commercial or rental tracks are not warranted.*

** Lifetime limited warranty of the Magneton® ignition covers parts and labor for the first five (5) years from the date of purchase; thereafter only parts. "Lifetime" means lifetime of the engine in the hands of the original purchaser.

† One (1) year in Australia, New Zealand, Middle East and Africa.

NO WARRANTY REGISTRATION CARD IS NECESSARY TO OBTAIN WARRANTY ON BRIGGS & STRATTON ENGINES. YOU MUST SAVE THE PURCHASE RECEIPT. A PROOF OF PURCHASE DATE WILL BE REQUIRED TO OBTAIN WARRANTY.

Briggs & Stratton Engines Are Made Under One Or More Of The Following Patents: Design D-247,177 (Other Patents Pending)										
5,320,795	5,265,700	5,197,422	5,105,331	5,040,503	4,995,357	4,895,119	4,520,288	4,355,253	4,168,288	DES. 308,872
5,271,363	5,243,878	5,191,864	5,086,890	5,016,588	4,977,879	4,819,593	4,453,507	4,270,509	DES. 309,458	DES. 308,871
5,269,713	5,197,425	5,150,674	5,040,644	4,996,956	4,971,219	4,694,792	4,430,984	4,233,534	DES. 309,457	

Machine Serial No :

Engine Serial No :

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