

# Operating and Maintenance Instructions

## Rail Scrubbing Machine



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## **Contents**

1. *Contents*
2. *Introduction and Specifications*
3. *Benefits of using the RS200H*
4. *Warnings and Safety Instructions*
5. *Risk Assessment*
6. *Features of the RS200H*
7. *How does the RS200H unit work?*
8. *Starting the RS200H*
9. *Using the RS200H*
10. *Further notes*
11. *Maintenance Instructions*
12. *General Maintenance Details*
13. *General Maintenance Details*

## ***Introduction***

The RS200H unit has been designed to allow rapid and easy cleaning of railhead in situations where train borne equipment is either too expensive or impractical.

The RS200H unit is for use by a single operator on short stretches of track where a clean rail head is required quickly.

The RS200H unit must only be used by correctly trained personnel under the supervision of a properly certified individual and all relevant “Network Rail” standards and safety requirement must be strictly adhered to at all times.

Any and all adjustments to the equipment must be carried out in a “position of safety” and never on or near the line.

## ***Specifications***

### ***Dimensions***

*Height (handle upright): 985mm*  
*Width: 335.5mm*  
*Length: 1140mm*

*Weight: 47kg*

*Noise emissions: 75.5dBA no load (adjacent to operator)*  
*89dBA full load (adjacent to operator)*

*Vibration readings: Aeq  $\Sigma 8.42ms^2$*

*Time to reach EAV (Exposure Action Value) –*  
***42mins/man per day.***

*Time to reach ELV (Exposure Limit Value) –*  
***2hrs 50mins/man per day.***

*See [www.hse.gov.uk/vibration](http://www.hse.gov.uk/vibration) for further information.*

### ***Engine:***

*Type: Honda GX160*  
*Power 4kW (5.5hp) at 3600rpm*  
*Engine oil capacity: 0.65l*  
*Engine oil type: SAE 10W-30*  
*Fuel tank capacity: 2litres*  
*Fuel type: Unleaded*  
*Spark plug: NGK BPR5ES*

## ***Benefits of using the RS200H Rail Scrubber***

- Immediate low cost solution to contaminated rail heads ensuring a “clean” line in minutes.
- The RS200H is fitted with two 25watt/12volt lamps that make working in the dark much easier.
- The RS200H unit is lightweight, easy to handle, is self powered and is easily operated and maintained by a single operator.  
NOTE:- Due to (HSE) lifting requirements the unit will need two operators in order to lift the unit onto the track initially but, in an emergency, the unit is light enough to be removed from the track by one operator.
- The RS200H unit is safe to operate, incorporating a dead man’s handle to ensure that the wire scrubber brush is stopped quickly when the unit is de-activated.
- The working parts of the scrubber are covered to ensure that the operator is protected from all moving parts when the unit is in operation.
- All the controls are mounted within easy reach of the operator to eliminate the need to “bend over “ the unit during operation
- The unit has been designed with a “wide handle” to allow for two handed “safe” operation giving good control over the unit in use.
- The operating parts are vibration isolated from the operator contact to reduce operator fatigue and discomfort.

## Warnings and Safety instructions.

Read these instructions carefully before operating, maintaining or servicing this product.  
Please keep these instructions in a safe accessible place.



Read and observe the following safety precautions and warnings. Careless or improper use of this equipment may result in serious or fatal injury.



Always wear a dust mask, safety goggles and ear protection. Wear a helmet where applicable.



### **WARNING!**

Indicates instant possibility of severe personal injury or loss of life, if instructions are not followed.



### **CAUTION!**

Indicates a possibility of personal injury or equipment damage, if instructions are not followed.

### **Operator Safety**

- Always read the instructions carefully so as to avoid any injury or damage when unfamiliar with this equipment.
- Always wear heavy clothing, boots and gloves. Do not wear loose clothing, short pants, sandals etc. and ensure that long hair is tied up above shoulder length.
- Do not operate this equipment when tired, ill or under the influence of alcohol, drugs or medication.
- Never allow an inexperienced person to operate this equipment.
- Keep all carrying handles and levers free from oil.
- Keep hands away from the wire brush when it is rotating. Ensure that it has stopped rotating before touching the wire brush.
- Never use a larger diameter wire brush than specified for use with this equipment.
- Ensure that the wire brush being used is free from damage.
- Wear safety goggles when operating the machine.

### **Tool Safety**

- Inspect the entire piece of equipment before use.
- Replace damaged components, lubricate where necessary and ensure that all fasteners are secure.
- Use only accessories that have been recommended by the manufacturer. Failure to do so could result in damage to the product and may invalidate the warranty.



### **WARNING!**

Never modify the product in any way. Do not use your equipment for any job other than for which it is intended.

### **Maintenance safety**

- Maintain according to the manufacturers recommended procedures.
- Use only genuine replacement components as recommended by the manufacturer.

### **Transport and Storage**

- Before moving the product, ensure that the wire brush has stopped rotating.
- After use, clean the equipment and accessories, and store in a dry place.

## ***Features of the RS200H***



## ***How does the RS200H Work***

The RS200H unit is pushed manually along the rail to be cleaned. The cleaning brush mounted beneath the unit “scrubs” the rail as the unit is pushed along.

The brush is driven by the engine drive shaft.

The engine incorporates an electronic cut-off feature to ensure that the rotation of brush is stopped when the handle is released.

NOTE:- Do not attempt to place the RS200H unit on the track or dismount it whilst the engine is running.

The RS200H unit is a petrol driven unit and requires checking and maintenance at each use as well as regular maintenance at specified intervals (see the maintenance section for details).

## ***Mounting and Dismounting the RS200H***



Note: Although the RS200H has rollers fitted with ball races, it cannot be pushed along the ground.

The RS200H has a weight of **47kg**, and as such should only be lifted by two people. Once on the track, the handle should be extended and the clamping screws tightened and locked in the upright position.



The machine must be lifted onto the track by 2 men using the lifting handles.



Once on the track, lift the handle and tighten the two locking knobs.

## Starting the RS200H



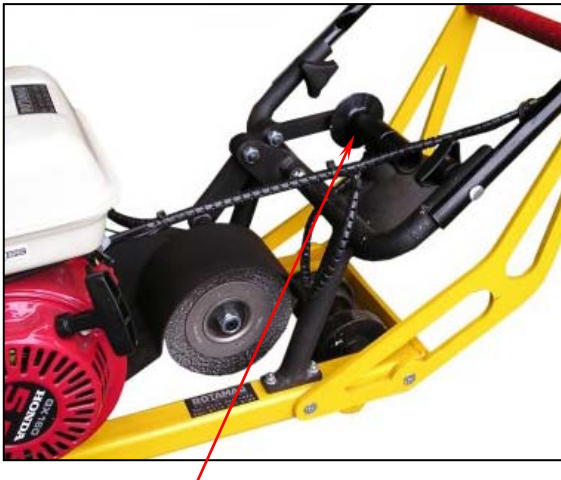
### Important

Before starting the engine, the user is responsible for checking the level of oil and the level of the fuel. Ensure that only **UNLEADED** fuel is used.

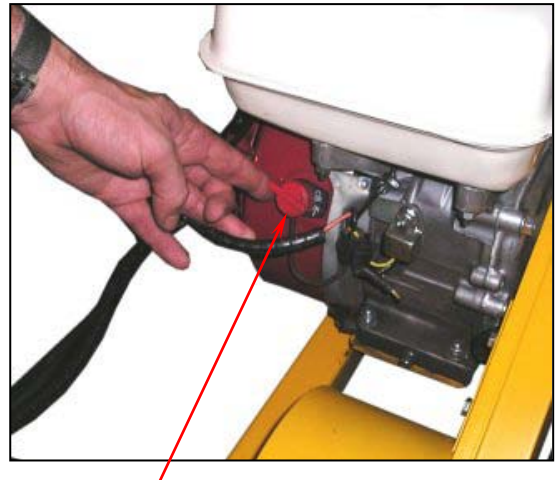


Ensure that relevant safety equipment has been provided and is in use .viz. Safety glasses, ear defenders, dust mask, safety hat etc.

Before starting the RS200H, ensure that the brush operating lever is in the lifted position as shown below. The starting procedure can now commence.



Before attempting to start the engine, ensure that the brush operating lever is in the lifted position.



Turn the engine **on/off** switch to the **on** position.



Push the fuel switch to the **on** position. If starting the engine from cold push the choke lever to the **on** position. (Located above the fuel switch)



Hold the dead man's lever. Set the throttle lever to  $\frac{3}{4}$ 's. Pull the engine start cord sharply.

## Using the RS200H

Once the engine has started, leave the throttle lever in the  $\frac{3}{4}$ 's position and leave the choke in **on** position (if started cold) until the engine has warmed up enough to maintain idle speed. Switch the choke to the **off** position when the engine has warmed up.



Never attempt to start the engine if the scrubber wheel is in contact with the rail head.



Increase the speed of the engine to normal running speed by moving the throttle to the "hare" position. Move the brush operating lever to the forward position to allow the wheel to come into contact with the rail head.



The operator must ensure that he has a tight hold on the machine when lowering the brush as it will try to drive along the track.

The operator can now move slowly down the track length to be treated, moving in both directions if necessary, to remove the contaminants.

The engine can be stopped at any time simply by releasing the dead man's lever. This action causes the engine to stop.

The machine is fitted with two 12v/25watt lights. This is to facilitate rail scrubbing when used at night. The lamps are powered whilst the engine is running.



## ***Further notes***

### ***NOTE:***

Before attempting to treat a section of rail, ensure that all relevant “Network Rail” and local instructions are in force and are being adhered to.

- If at any time it is required that the unit be pushed along the track without the need to clean the rail, the rail scrubber brush should be lifted back up to prevent any damage occurring to the brush by sliding it along the track, with the engine stationary. This can be performed either with the engine running or not. If the distance involved is excessive, then the engine should be stopped.
- When dismounting the unit for removal from site, the engine should be stopped and a second operator called to help lift the unit from the track.
- Never lift the unit from the track whilst the engine is running as this could cause instability.
- If at any time the unit stops, do not attempt any repairs whilst the unit is on or near the line. Always remove the unit to a “position of safety” to carry out any maintenance or adjustments.

# Maintenance Instructions

## ***Schedule of Maintenance - Engine***

Regular service should be carried out at every indicated month or operating hour intervals whichever occurs first.

Task		Each use	First month or 20hrs	Every 3 months or 50hrs	Every 6 months or 100 hrs	Annually or 300hrs
<b>Engine oil</b>	Check level	*				
	Change		*		*	
<b>Air Cleaner element</b>	Check	*				
	Change		*		*	
<b>Spark plug</b>	Clean-adjust		*			
	Change				*	
<b>Spark arrester</b>	Clean				*	
<b>Valve clearance</b>	Check-adjust					*
<b>Fuel filter</b>	Check			*		
	Change				*	*
<b>Fuel tube</b>	Check/Change					*
	If necessary					*
<b>Lamp bulb</b>	Check/Change	*				
	If necessary					
<b>Wire brush</b>	Check/Change	*				
	If necessary					
<b>Drive belt</b>	Check		*	*		
	Change					*

Engine Oil :- In areas where extremes of temperature are likely to be encountered please consult the engine manufacturers literature:-

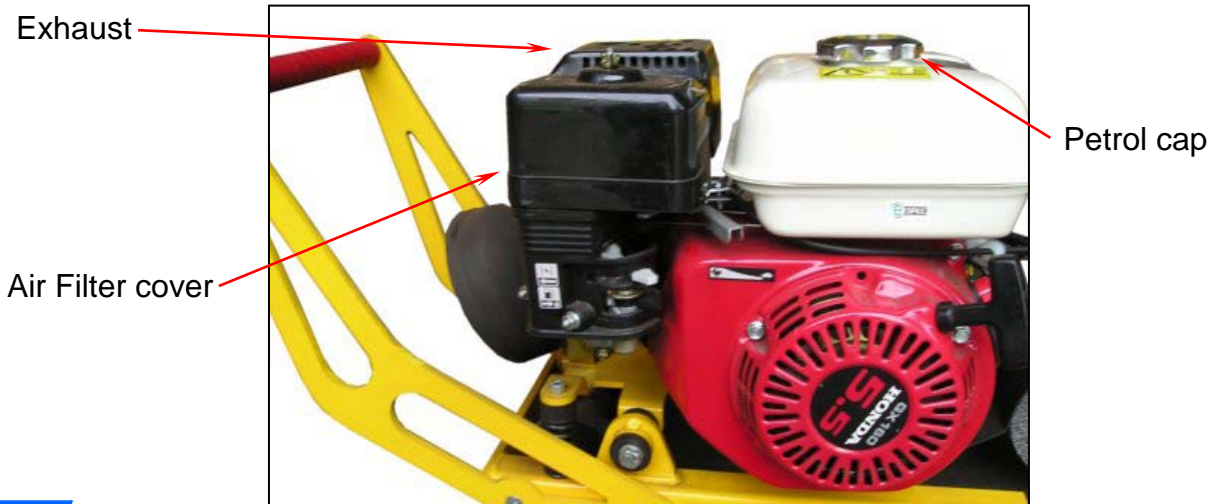
NOTE:- SAE 10W-40 is recommended for general use.

Engine oil capacity for the GXV 160 is 0.65 litres. (refer to the engine manufacturers maintenance manual for details of how to check oil level, top up oil and drain the sump to replace with fresh oil)

NOTE:- The engine manufacturer's maintenance manual is supplied with this manual.

NOTE:- An operator trained in the use and maintenance of this machine can carry out the tasks shown in red. All other tasks, should be carried by a qualified fitter or Tracman service engineer.

## General Maintenance Details



### **Fuel Safety**

- Fill the engine with 4 stroke fuel only.
- Fill in a well ventilated area.
- Use a petroleum approved container for the fuel.
- Do not smoke or allow others to smoke when using or refueling the machine.
- When refueling, stop the engine and allow it to cool before filling.
- Clean up all fuel spills before starting the engine.

### **Air filter cleaning :-**

The air filter should be checked at every use and if found to be obstructed with debris, should be replaced. The filter should be replaced in any case every 3 months or every 50 hours running. (see the engine manufacturers maintenance manual for details of how to replace the air filter.)

NOTE:- If the RS200H unit is used in a very dusty environment, it may be necessary to check and replace the air filter more frequently, as the cleanliness of the air filter has a direct effect on the efficiency of the engine.

### **Spark Plug :-**

For location of the spark plug and details of setting see the engine manufacturers maintenance manual. The spark plug setting should be checked/replaced every 6 months or every 100 hours running.

All these items require to be inspected at least once a year (see the engine manufacturers maintenance manual for details)

### **Lamp Bulb:-**

The lamp bulbs should be checked at each use by starting the engine. If necessary, the bulbs can be replaced by peeling back the rubber outer, to release the lens and parabola. This will expose the bulb bayonet fitting. Replace the bulb with our part number RS200-LUB and refit the lens and parabola.

## General Maintenance Details

### Drive Belt :-

The drive belt should be checked after the first month of use and replaced on a quarterly basis thereafter. Unscrew and remove the guard covering the drive belt. Ensure that there is only around ½" of lateral movement on the belt.



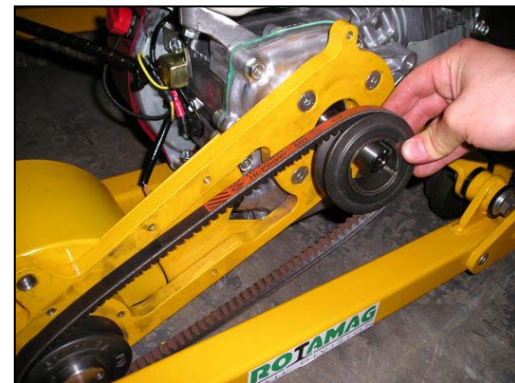
Remove the guard to expose the drive belt to check for excessive play



Remove the two grub screws retaining the taper-lock bush on the drive pulley



Screw the grub screws into the jacking holes to release the taper-lock bush



Remove the taper-lock bush and replace the belt. Re-fitting is a reversal of this procedure

### Scrubber Brush:-

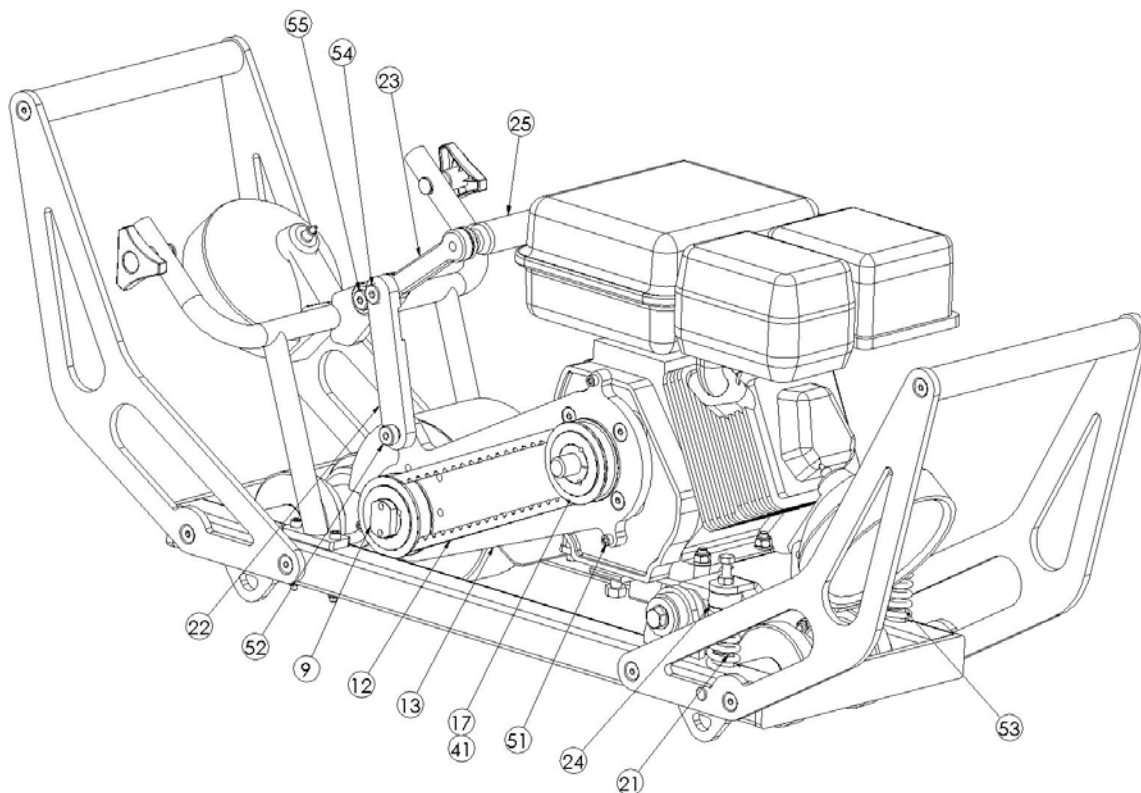
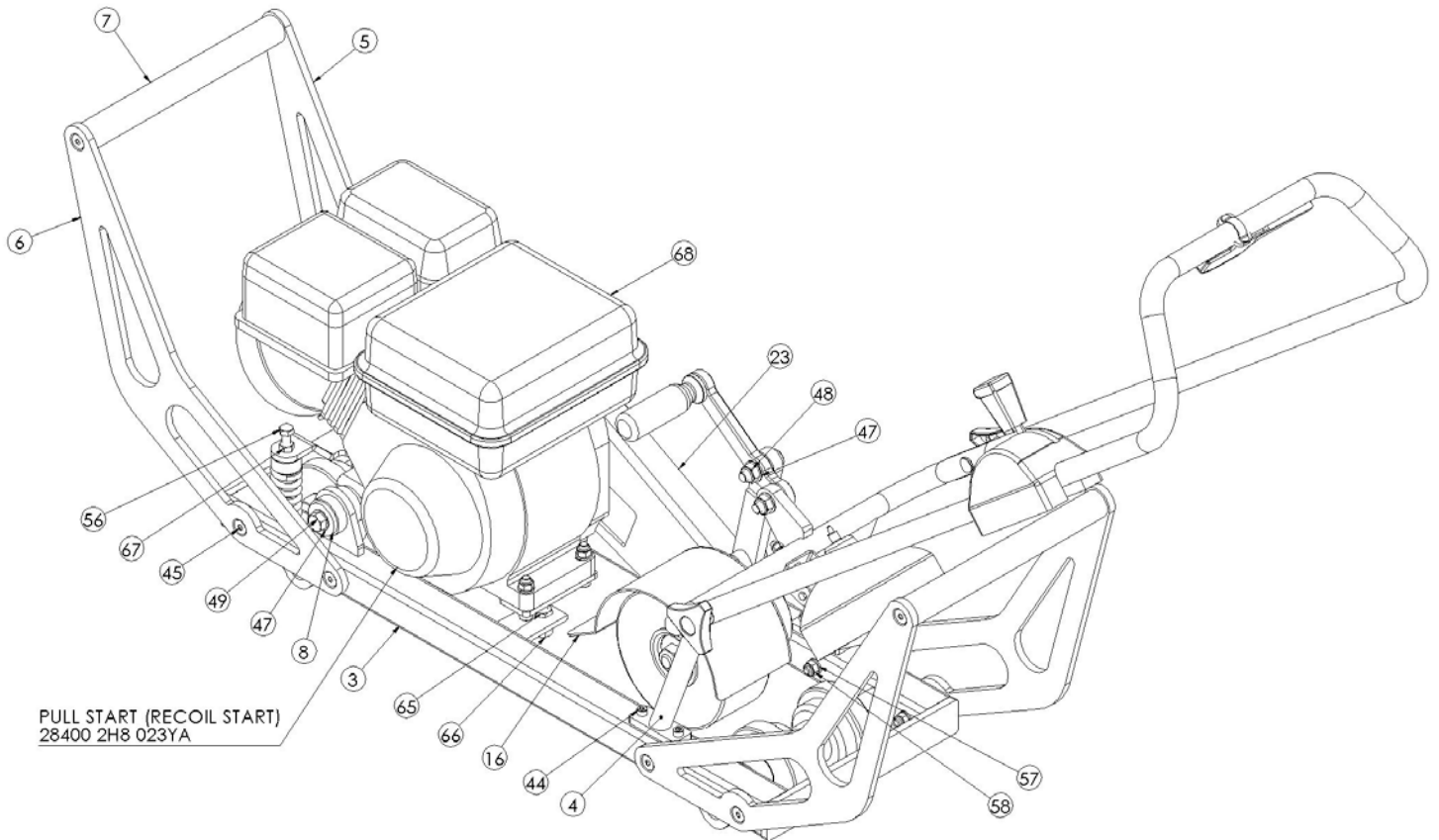
Check and replace when necessary. Use the spanners supplied to remove the retaining lock-nut. Remove the wheel and refit the new one.

### NOTE:-

It is essential that the above maintenance schedules are adhered to, in order to keep the RS200H unit in good running order. This will ensure that the RS200H unit will perform well each time it is used.

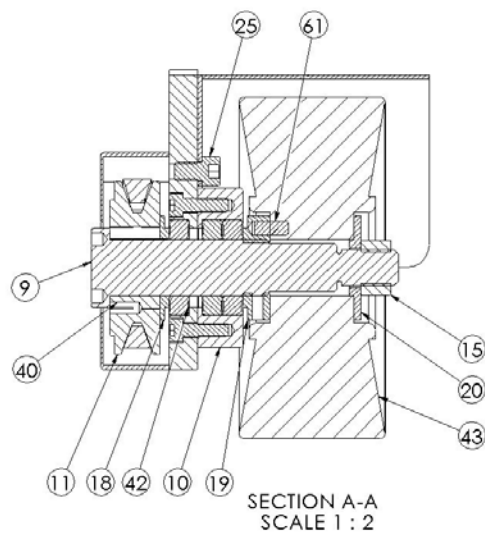
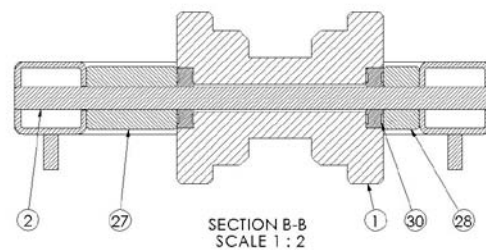
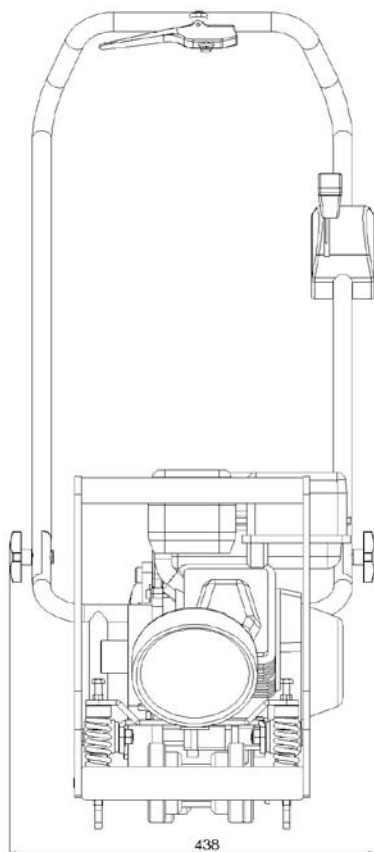
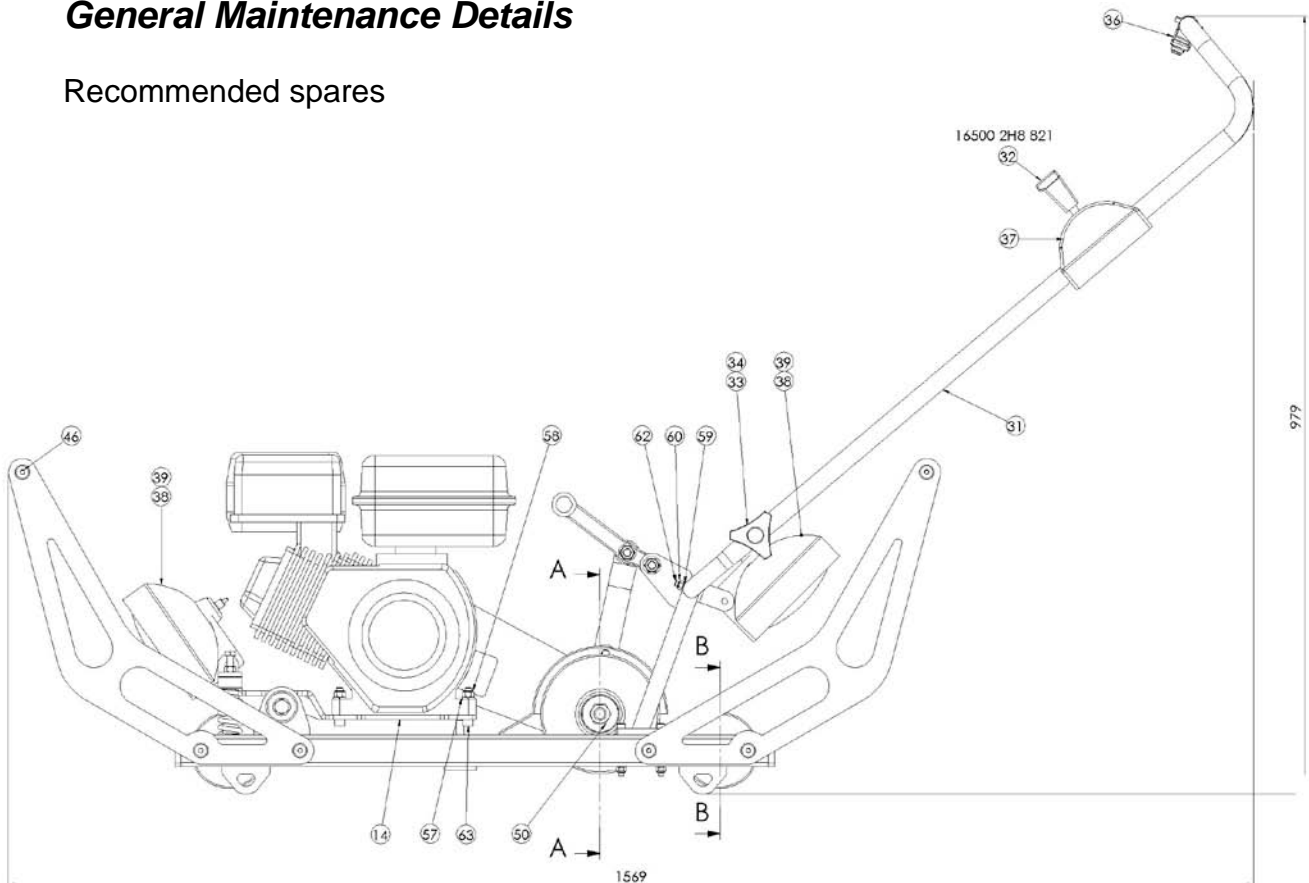
## General Maintenance Details

### Recommended spares



## General Maintenance Details

Recommended spares



## General Maintenance Details - Recommended spares

Item No	Drg No	Description	No. off
1	RS200-01A	ROLLER	2
2	RS200-01B	AXLE	2
3	RS200-02	SCRUBBER CHASSIS	1
4	RS200-03	SCRUBBER LOWER HANDLE	1
5	RS200-15A	SCRUBBER CARRY HANDLE LH	2
6	RS200-15B	SCRUBBER CARRY HANDLE RH	2
7	RS200-16A	SCRUBBER LIFTING HANDLE	2
8	RS200-20	ANTI-VIBRATION MOUNT ASSY	2
9	RS200-21	BRUSH DRIVE SHAFT	1
10	RS200-22	BRUSH BEARING HOUSING	1
11	RS200-23	71 X 1 SPA 1108 PULLEY	2
12	RS200-23A	V BELT A730MC A27.5MN 13X700LI	1
13	RS200-24	SWING ARM	1
14	RS200-25	MOTOR PLATE	1
15	RS200-32	BELT GUARD	1
16	RS200-33	BRUSH GUARD	1
17	RS200-34	SEE ITEM 11	
18	RS200-35	PULLEY SPACER WASHER	1
19	RS200-36	BRUSH SPACER WASHER	1
20	RS200-37	BRUSH RETAINING WASHER	1
21	RS200-38	SPRING GUIDE	2
22	RS200-40	ACTUATING LINK	1
23	RS200-41	ACTUATING ARM	1
24	RS200-42	SPRING GUIDE	2
25	RS200-45	ACTUATING HANDLE	1
26			
27	RS200-56	50MM SPACER	2
28	RS200-57	20MM SPACER	2
29			
30	RLS4Z(LINKS10)	BEARING	4
31	RS200-HA1	HANDLE BAR UPPER	1
32	RS200-HA2	THROTTLE CONTROL LEVER	1
33	RS200-HA3	HANDLE BOLT BAR	2
34	RS200-HA4	TRI-HAND WHEEL	2
35			
36	RS200-HA8	DEAD MANS LEVER	1
37	RS200-HA9	HAYTER THROTTLE HANDLE FLEX 1834	1
38	RS200-LU	RS200 12V LAMP PT.N0.56-01-00	2
39	RS200-LUB	LAMP BULB LUCAS PT.LLB335T	2
40	RS200-23B	1108 X 25MM DIA. TAPER LOCK BUSH	1
41	RS200-34A	1108 X 3/4" DIA. TAPER LOCK BUSH	1
42	RS200-22A	BEARING 6905ZZ	3
43	RS200-SB1	6" DIA.X 2" BRUSH	1
44	SC660CAP	M6 X 60 LG CAPSCREW	6
45	SC860CSK	M8 X 60 LG CSK SCREW	8
46	SC824CSK	M8 X 25 LG CSK SCREW	8
47	FWR-M10	M10 FLAT WASHER	6
48	NYLOC-NUT-M10	M10 NYLOC NUT	4
49	FB1060	M10 X 60 LG BOLT	2
50	NUT-M16	M16 NYLOC NUT	1

## **General Maintenance Details** - Recommended spares

Item No	Drg No	Description	No. off
51	SC615CAP	M6 X 15 CAPSCREW	3
52	SC1016SB	M10 X 16 LG SHOULDER BOLTS	1
53	LINKS12	RETURN SPRING	2
54	SC1025SB	M10 X 25 LG SHOULDER BOLTS	1
55	SC1020SB	M10 X 20 LG SHOULDER BOLTS	1
56	SET840	M8 X 40 Lg SET SCREW	2
57	SPWR-M8	M8 SPRING WASHER	12
58	NYLOC-NUT-M8	M8 NYLOC NUT	12
59	SPWR-M6	M6 SPRING WASHER	5
60	NYLOC-NUT-M6	M6 NYLOC NUT	5
61	DWL-6X15	6 DIA.X 15 LG DOWEL	1
62	SC635CAP	M6 X 35 LG CAP SCREW	1
63	SC840CAP	M8 X 40 LG CAP SCREW	4
64	SC812CAP	M8 X 12 LG CAPSCREW	
65	FB1040	M10 X 40 LG BOLT	
66	NUT-M10LOCK	M10 LOCK NUT	
67	NUT-M8LOCK	M8 LOCK NUT	2
68	GX160	HONDA GX 160 ENGINE	1



For further information and spares contact:

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