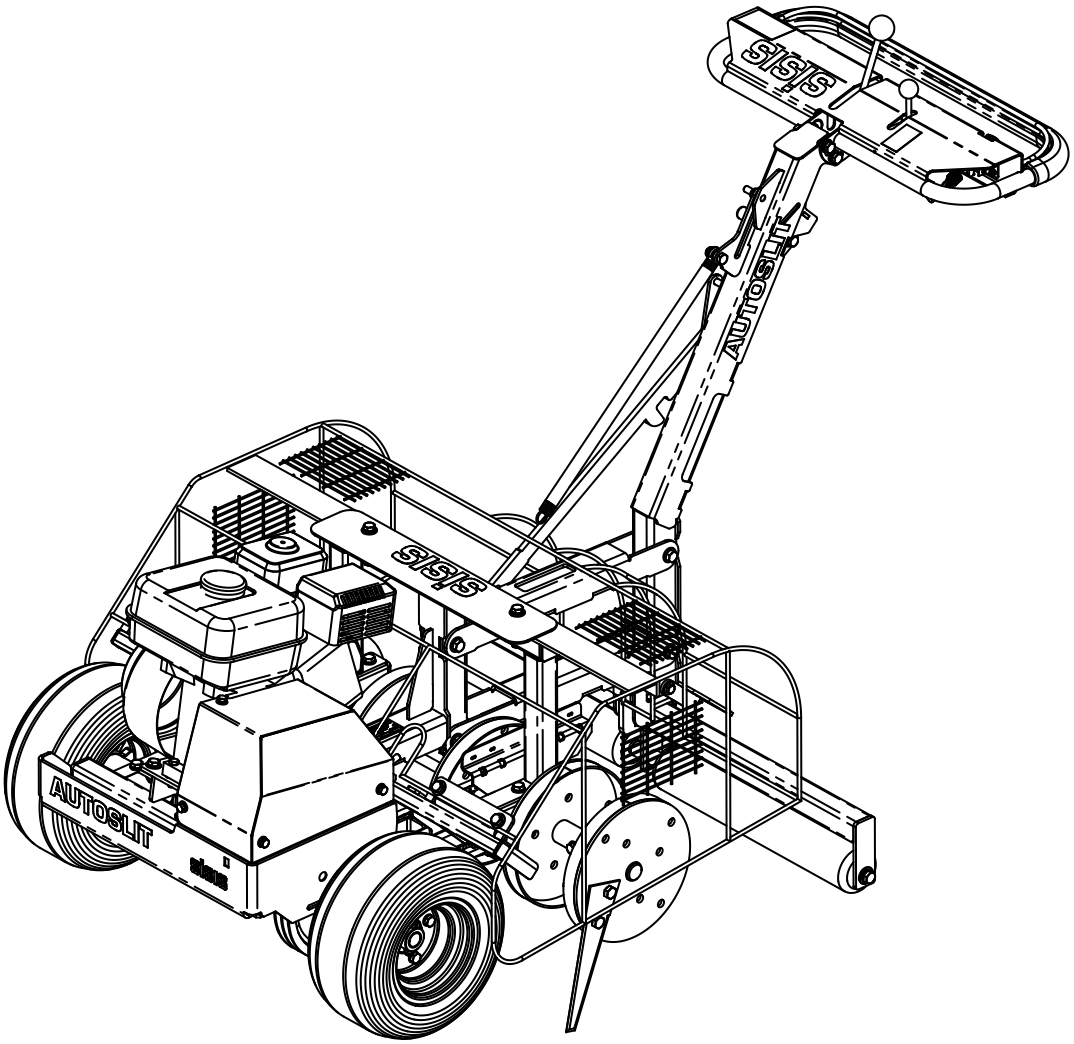
AUTOSLIT



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SP20018_REV_0
02/13

Certificate of Conformity

AUTOSLIT pedestrian slit aerator powered by Honda GX Petrol Engine

Manufacturer:- Howardson Ltd, Howardson Works, Kirk Langley, Derby, DE6 4NJ. UK

Owner of Technical Document:- Mr I.D. Howard, Howardson Ltd, Howardson Works Kirk Langley, Derby, DE6 4NJ, UK

Notified Body:- AV Technology Ltd, AVTECH house, Arkle Avenue, Stanley Green Trading Estate, Handforth, Cheshire, SK9 3RW, UK

I the under signed Declare that these machines:-

Tested at:- Howardson Works test site September 2011

Complies with the applicable requirements of:-

- Machine Directive 2006/42/EC
- Noise Directive 2000/14/EC (Annex VI Procedure 1)

Managing Director

Ian Howard

Serial Numbers

NOTE *MAKE A NOTE OF THE SERIAL NUMBERS OF YOUR MACHINE & ENGINE AND ALWAYS QUOTE THEM IN ANY COMMUNICATION WITH PERSONNEL AT DENNIS.*

MACHINE SERIAL NUMBER

ENGINE SERIAL NUMBER

Introduction

The reliability and quality of performance of the **AUTOSLIT** depends upon some simple care maintenance carried out regularly. This manual has been prepared to allow the user to carry out all such work.

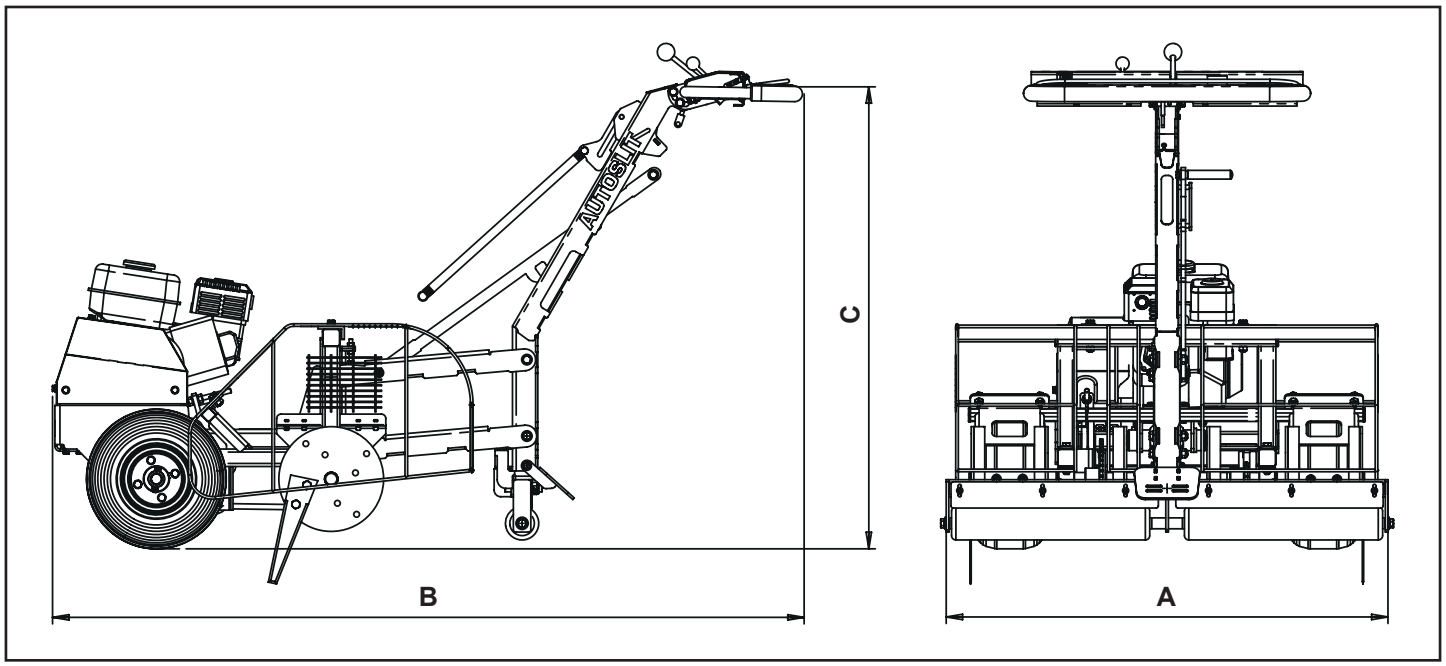
It is advisable to read the instructions carefully. Proper care and attention will enable the machine to give a continuous, satisfactory, and reliable service. Failure to carry out regular lubrication and maintenance as outlined in this manual may render any guarantee or warranty invalid.

In the case of any difficulty, or if further information or advice is required, our Service Department is always at your call. In the interests of speed and accuracy of information please quote the serial numbers of the machine and engine when making enquiries.

For the **AUTOSLIT**, this is to be found on a plate attached to the main frame. The engine number is stamped on either the crank case or the gear casing facing towards the front of the machine. We suggest you write the numbers on the front page of this book.

Contents

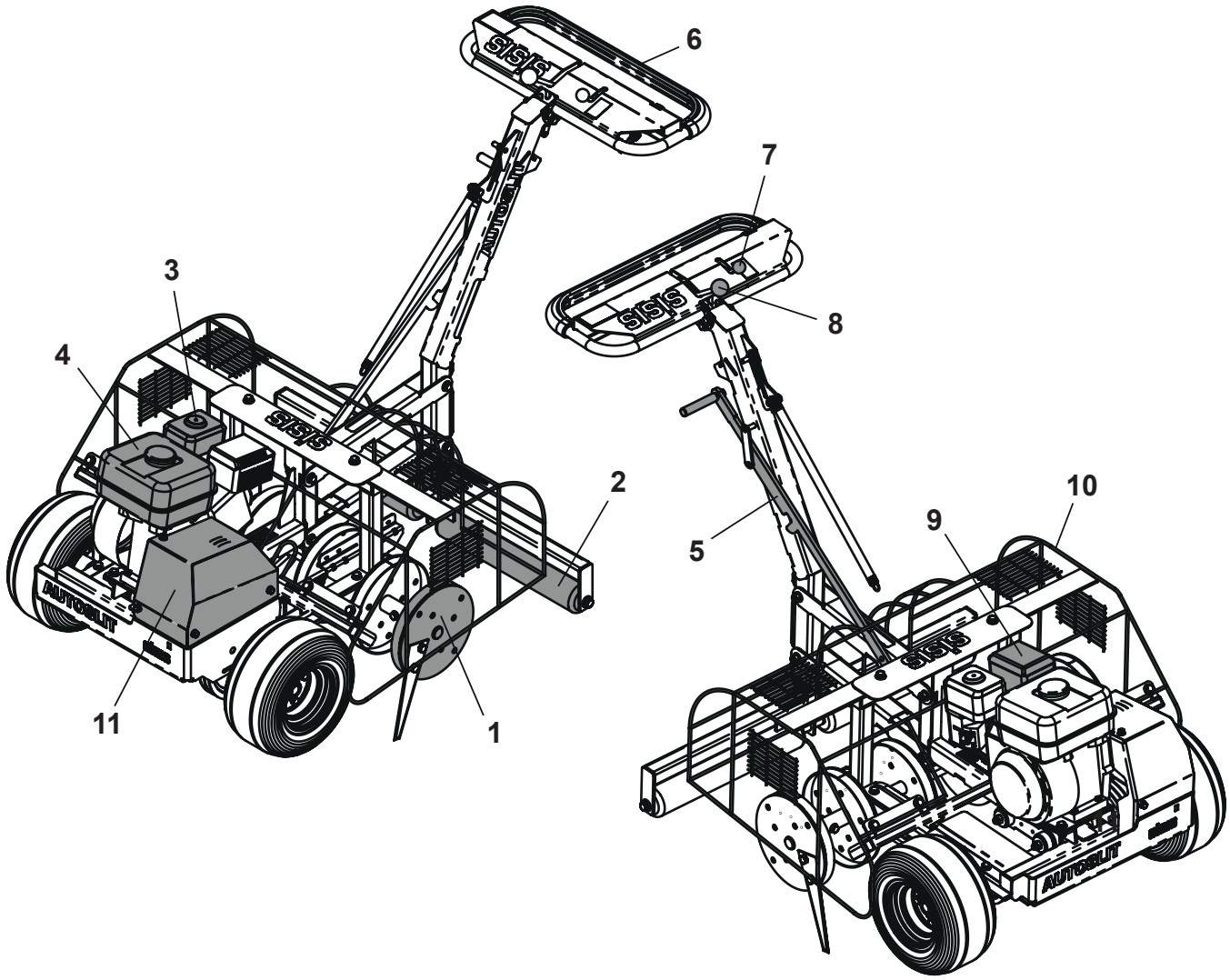
Technical Data



Model	AUTOSLIT
A - Width (M)	1.0
B - Length (M)	1.7
C - Height (M)	1.05
Weight (Kg)	160
Engine	Honda GX160 HXA
Wheels	13 x 6.5 -6 Slick
Number of Tines	30
Part Number - 152 x 3 thick	D6951
Part Number - 152 x 5 thick	D7493
Drive System	Belt Driven
Measured Sound Power Level dB(A) LWA	91
Guaranteed Sound Power Level dB(A) LWA	94

The **SISIS AUTOSLIT** is a pedestrian engine driven slit aerator, designed for the aeration of fine and outfield turf areas such as cricket, football, rugby, tennis, bowls and golf greens. The driven tine shaft fitted with selectable tines, aerates the surface in a smooth helix pattern. The tines are fitted to the driven tine plates and are configured to a patented design which allows the tines to enter and exit the ground with maximum subsurface disturbance and minimum surface disturbance.

A full width roller follows the tines to support the machine and reconstitute the surface with a pleasing striped finish. The depth of the tines is controlled by the cantilevered handle which is designed to raise the tines out of the ground requiring little operator effort. The front wheels are pneumatic slick tyres to reduce any surface marking.



1. Tine Shaft
2. Rear Roller
3. Air Filter
4. Fuel Tank
5. Height Lever
6. Deadmans Handle
7. Throttle Lever
8. Drive Engage
9. Exhaust
10. Guard
11. Belt Guard

In order to operate the machine safely please follow these Health and Safety guidelines.

TRAINING

CAUTION *READ THE INSTRUCTIONS CONTAINED IN THIS MANUAL WITH CARE. IF YOU ARE IN ANY DOUBT PLEASE ASK YOUR EMPLOYER OR CONTACT US DIRECT AT **SISIS**.*

- Be familiar with the controls and the proper use of the equipment.
- Never allow children or people unfamiliar with these instructions to use the **AUTOSLIT**. Local regulations or insurance may restrict the age of the operator.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.

PREPARATION

WARNING *PETROL IS HIGHLY FLAMMABLE AND WILL DAMAGE GRASS IF SPILT.*

A) Store fuel in containers specifically designed for this purpose.
B) Refuel out doors and do not refuel whilst smoking.
C) Add fuel before starting the engine. Never remove the cap of the fuel tank or add petrol while the engine is running or when the engine is hot.
D) If petrol is spilled do not attempt to start the engine but move the machine away from the area of spill and avoid creating any sources of ignition until the vapours have dissipated.

- Replace damaged or faulty silencers.
- Before using the machine always inspect the safety devices including the cut off switch and the blades for excessive wear or damage. Replace if necessary.

OPERATION

- Do not operate the engine in a confined space where dangerous **CARBON MONOXIDE** fumes can collect.
- Use extreme caution when reversing or pulling the machine towards you.

CAUTION *BEFORE YOU OPERATE THIS MACHINE **YOU MUST READ** AND **STUDY** THIS MANUAL. IF YOU ARE IN ANY DOUBT PLEASE ASK YOUR EMPLOYER OR CONTACT US DIRECT.*

OPERATING INSTRUCTIONS

The **SISIS AUTOSLIT** is delivered with a kit of tines and fasteners loose, for safety of transport. For fitting of the tines ensure they are orientated correctly to the direction of travel ***(See Figure 1)***. The 90 degree edge of the tine is located to face the outside. The bolts are fitted through and secured with the nut on the inside of the bobbin. Always use **SISIS** tines as these have been developed to a specification of hardness and bend tolerance for optimum wear giving abrasion resistance and long life.

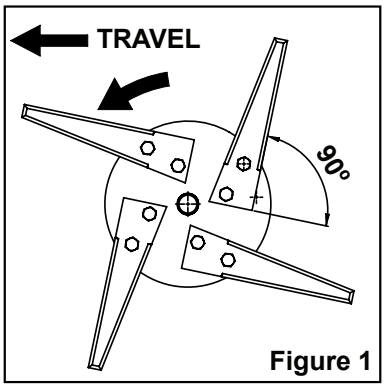


Figure 1

Before staring operation of the **AUTOLSIT** raise the machine onto a suitable surface to bring the engine level, check the oil level. Check all guards are securely fitted, and there are no loose fittings, worn or bent tines. The **AUTOSLIT** is fitted with safety switches and a 'Deadmans Handle' to ensure safe operation of the machine. To start the engine ensure that the drive engage/disengage lever is forward into the disengage drive position ***(See Figure 2)***.

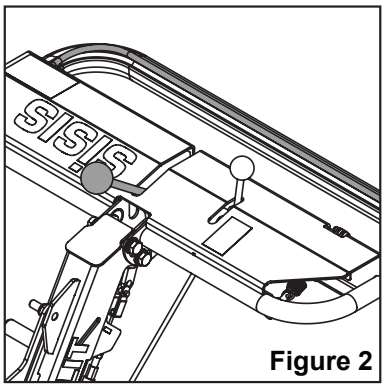


Figure 2

To start the engine from cold pull the throttle lever back to the choke position, using the recoil start the engine, adjust the throttle to tick over and allow to warm. To operate the **AUTOSLIT** hold and press down the 'Deadmans Handle', pull back the throttle lever to a mid position, increasing the engine's revs, and slowly pull back the drive enagage lever to the engage position ***(See Figure 3)***. Releasing the 'Deadmans Handle' cuts out the engine at any time.

The **AUTOSLIT** will now move forward as the wheels are driven from the V belt from the engine. Maneuovre the **AUTOSLIT** at the start of the first run. To lower the tines into the ground the 'Height Lever' requires lifting out of its catch position, ***(See Figure 4)***. The catch position is set to allow transport of the **AUTOSLIT** with the tines clear of the ground.

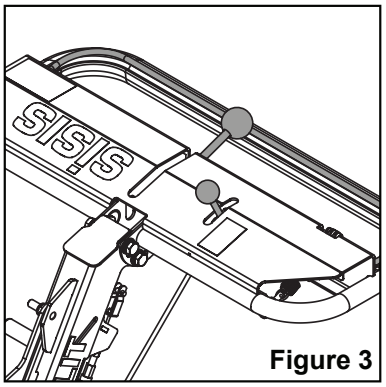


Figure 3

As the tines enter the turf to their full depth the 'Height Lever' adjusts its position. At the end of a run push forward the drive engage/disengage lever, this stops drive to the tine shaft.Push up on the Height Lever and the tines will exit the ground, stopping as the Height Lever finds the catch position.

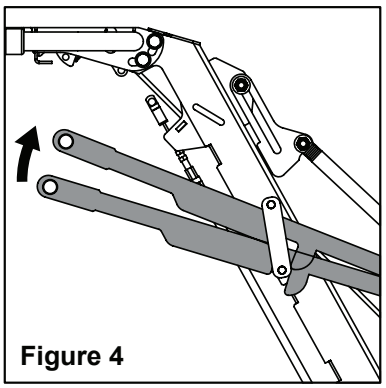


Figure 4

OPERATING INSTRUCTIONS

To aid maneouvre of the **AUTOSLIT** to the next run kick up the Rear Roller lock, this allows the rear roller to pivot. To lock again simply kick back down when the Rear Roller is straight ***(See Figure 5)***. Always slit in straight lines for best performance of the tines.

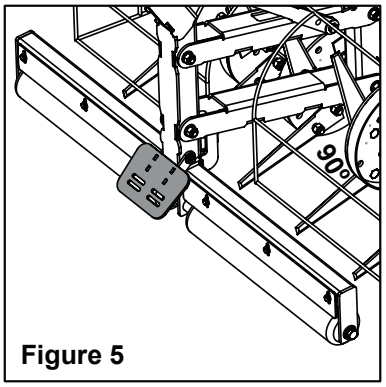


Figure 5

TINE DEPTH ADJUSTMENT

The slitting depth of the tines can be adjusted if required. Turn off the engine, and safely remove the tine wire mesh guard. Loosen and adjust the two depth screws as shown, once set secure with the lock nuts ***(See Figure 6)***. Replace and secure the tine wire mesh guard.

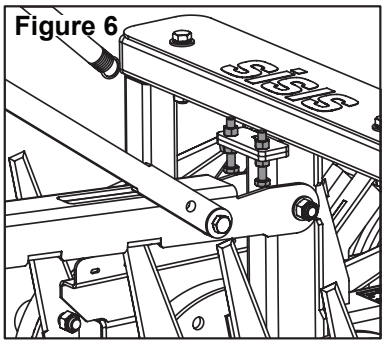


Figure 6

MAINTENANCE

Engine - Honda GX160 HX4
Engine Oil - SAE 10w-40
Gearbox - SEA 10w-40
Tyre Pressures - 26 PSI

- Check tyre pressures
- Check engine oil level
- Check reduction gearbox oil
- Check all parts are secure, all fasteners are tight
- Check tines for damage and wear
- Grease all bearing and wheel hubs grease nipples
- Lightly oil cables and pivots
- Wipe tines with oil before storage

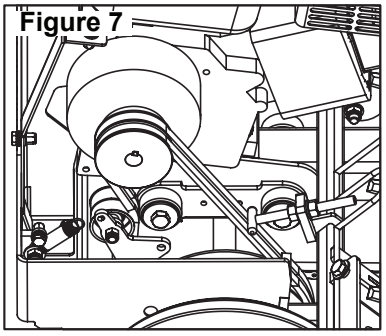


Figure 7

Check the belt tension. If the belt tension is insufficient to provide drive to the wheel axle pulley, remove the belt guard to gain access to tensioner and belt finger arrangement ***(See Figure 7 & 8)***. Release the belt tensioner by pushing the Drive Engage. Lever forward. Loosen the engine bolts and slide the engine forward so that any belt slack is removed, increase the tension but still allowing the engine pulley to turn without driving the belt.

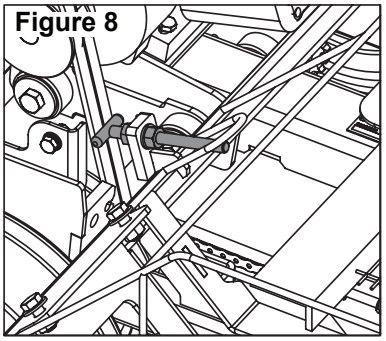


Figure 8

Apply the belt tensioner by pulling the Drive Engage Lever rearward. Now adjust the belt finger so that it is 2mm clear of the belt, secure with the 2 lock nuts. Further adjustment of the belt tensioner can be done by adjusting the cable adjustiong nuts at the handle ***(See Figure 9)***.

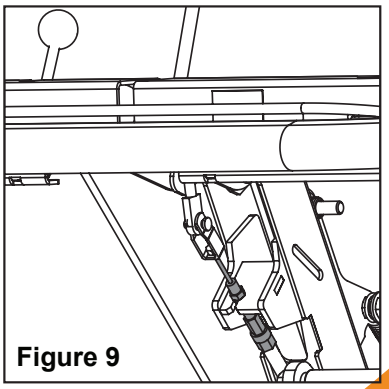
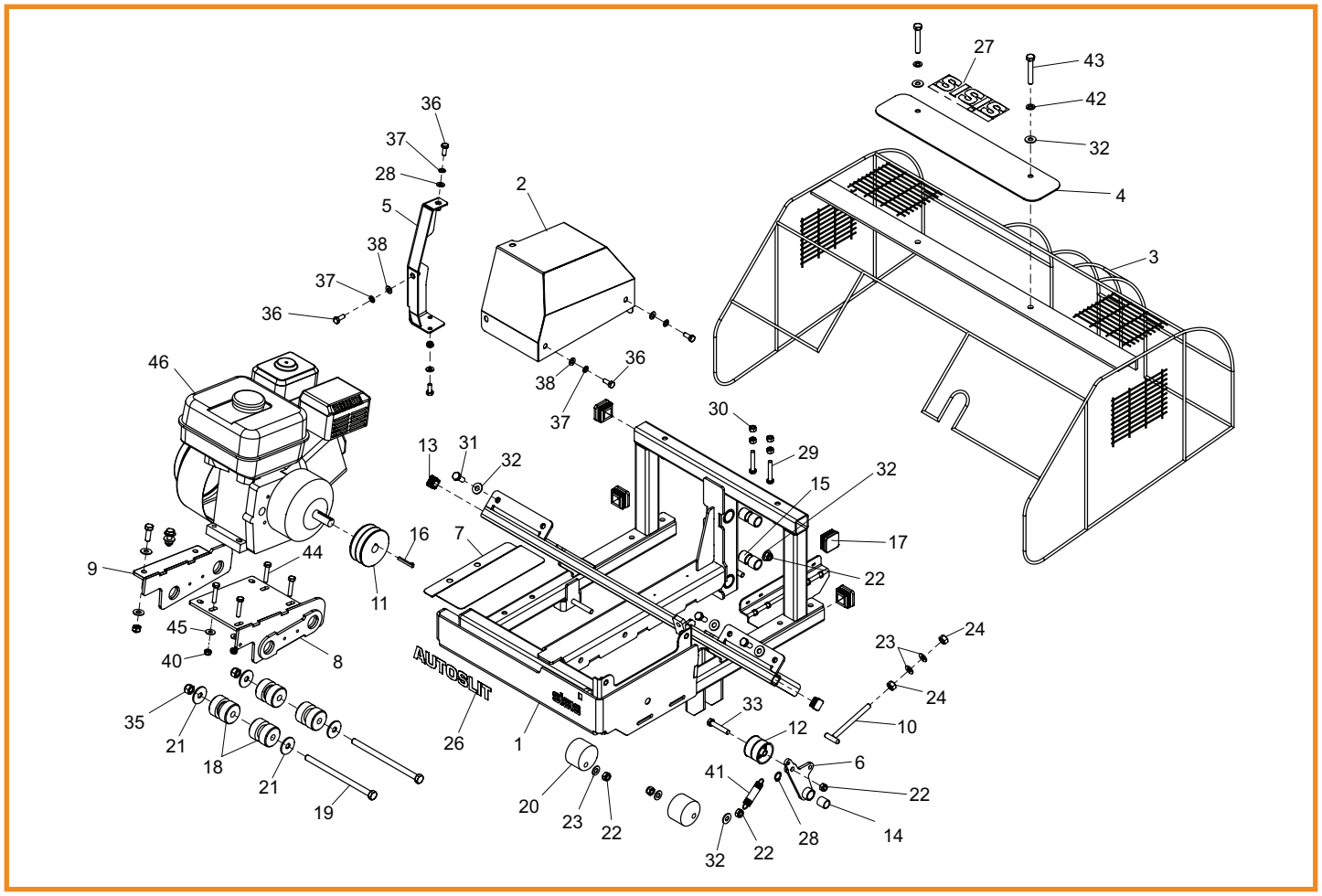
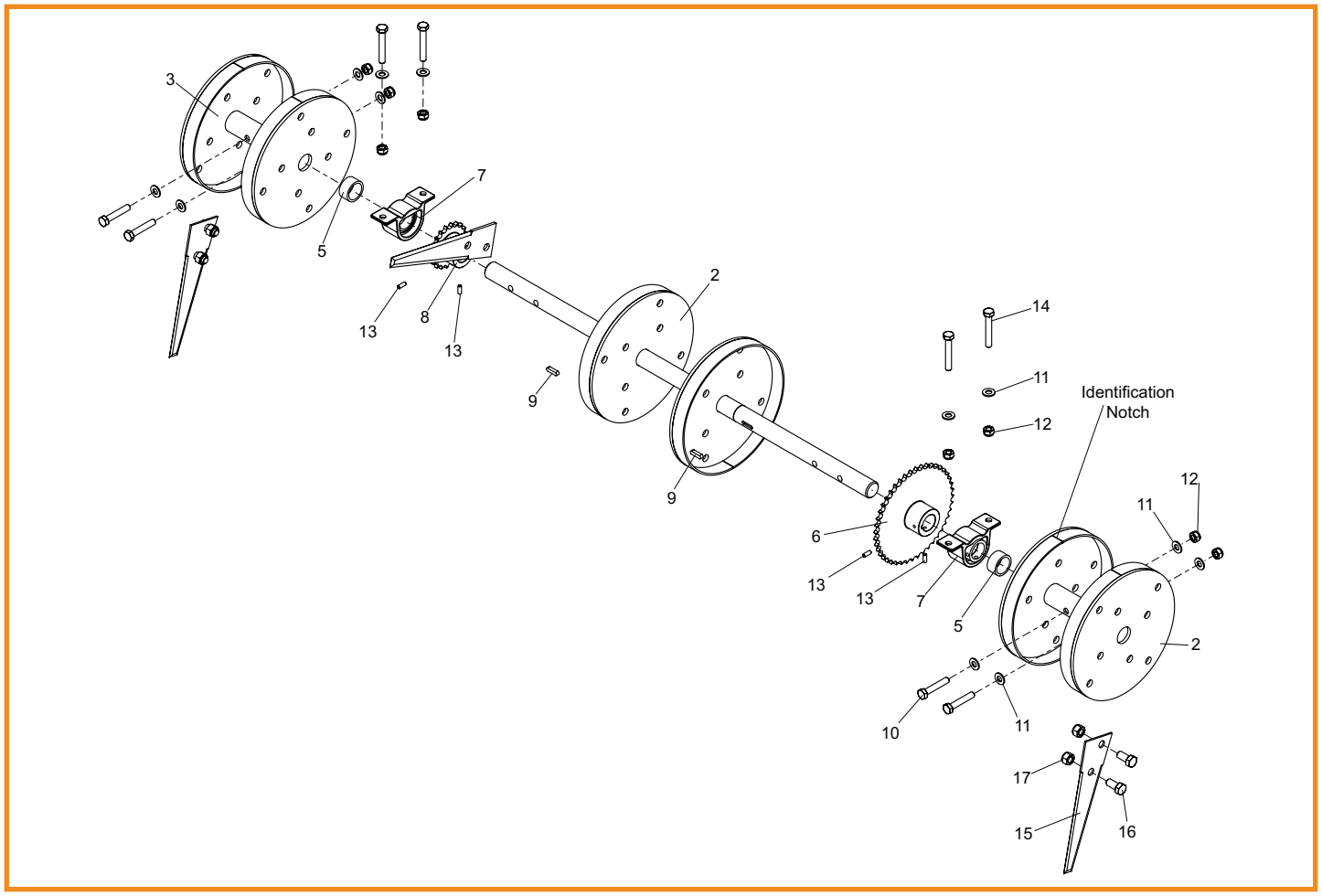


Figure 9



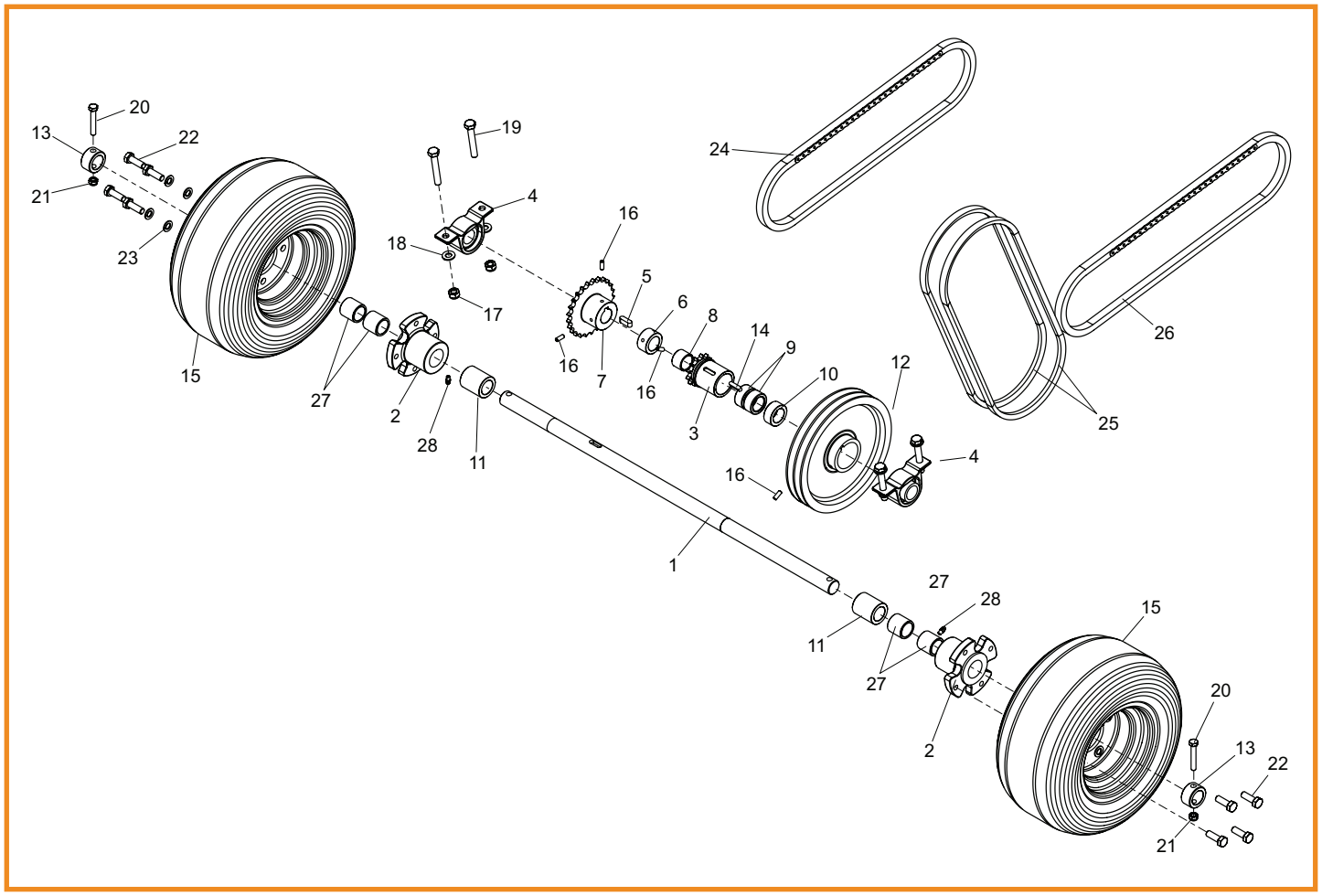
1.01 Main Chassis

Item No.	Part No.	Description	Quantity
1	F36185	Frame Assembly	1
2	401746	Belt Guard WA	1
3	F36153	Wire Guard Autoslit	1
4	F36202	Transfer Plate	1
5	401742	Guard Engine Side	1
6	401734	Lever Belt Tensioner WA	1
7	F36199	Chain Cover	1
8	F35603	Engine Mtd Bracket	1
9	F35605	Bracket Lock Plate	1
10	F36252	Belt Stay	1
11	F35197	Engine Pulley 80PCD 2A	1
12	D8435	Pulley	1
13	F21367	Tube Bung 25 x 25	2
14	F20606	Oilite Bush 16 x 20 x 20	1
15	D8381	Oilite Bush 20 x 25 x 20	4
16	D1005	Key Gib 3/16" x 3/16" x 1 3/4"	1
17	D8955	Tube Bung 40 x 40	5
18	F20008	Vib Mount GB22002-11	4
19	F21594	Hex Set Screw M12 x 200	2
20	F34649	Tensioner Block	2
21	F35628	Bracket Washer	4
22	SP02008	Nut M10 Nyloc (T)	6
23	SP03011	Washer M10 Form A	4
24	SP02007	Nut M10 STD	2
25	SP02044	Rivnut Hex M8 (0.5-3.0) [No Head]	4
26	SP18014	Decal Autoslit	1
27	F35013	Decal Sisis Black 50mm Height	1
28	D8188	Circlip D1400-16	1
29	SP01022	Hex Set Screw M8 x 50	2
30	SP02005	Nut M8 Std	4
31	SP01035	Hex Set Screw M10 x 25	4
32	SP03016	Washer M10 Form C	12
33	SP01013	Hex Set Screw 3/8" UNF x 2"	1
34	SP02018	Nut 3/8" UNF Nyloc (T)	1
35	SP02010	Nut M12 Nyloc (T)	2
36	SP01009	Hex Set Screw M8 X 20	6
37	SP03029	Washer M8 Spring Lock	4
38	SP03008	Washer M8 Form A	6
39	SP01105	Hex Set Screw M10 X 30	2
40	SP02006	Nut M8 Nyloc (T)	6
41	F20141	Tension Spring 16mm OD x 76mm Long x 1.6mm"	1
42	Sp03034	Washer M10 Spring Lock	2
43	E1-1130	Hex Bolt M10 x 65	2
44	SP01027	Hex Set Screw M8 x 40	4
45	SP03015	Washer M8 Form C	4
46	F21734	Engine Honda GX160 HX4-OH	1



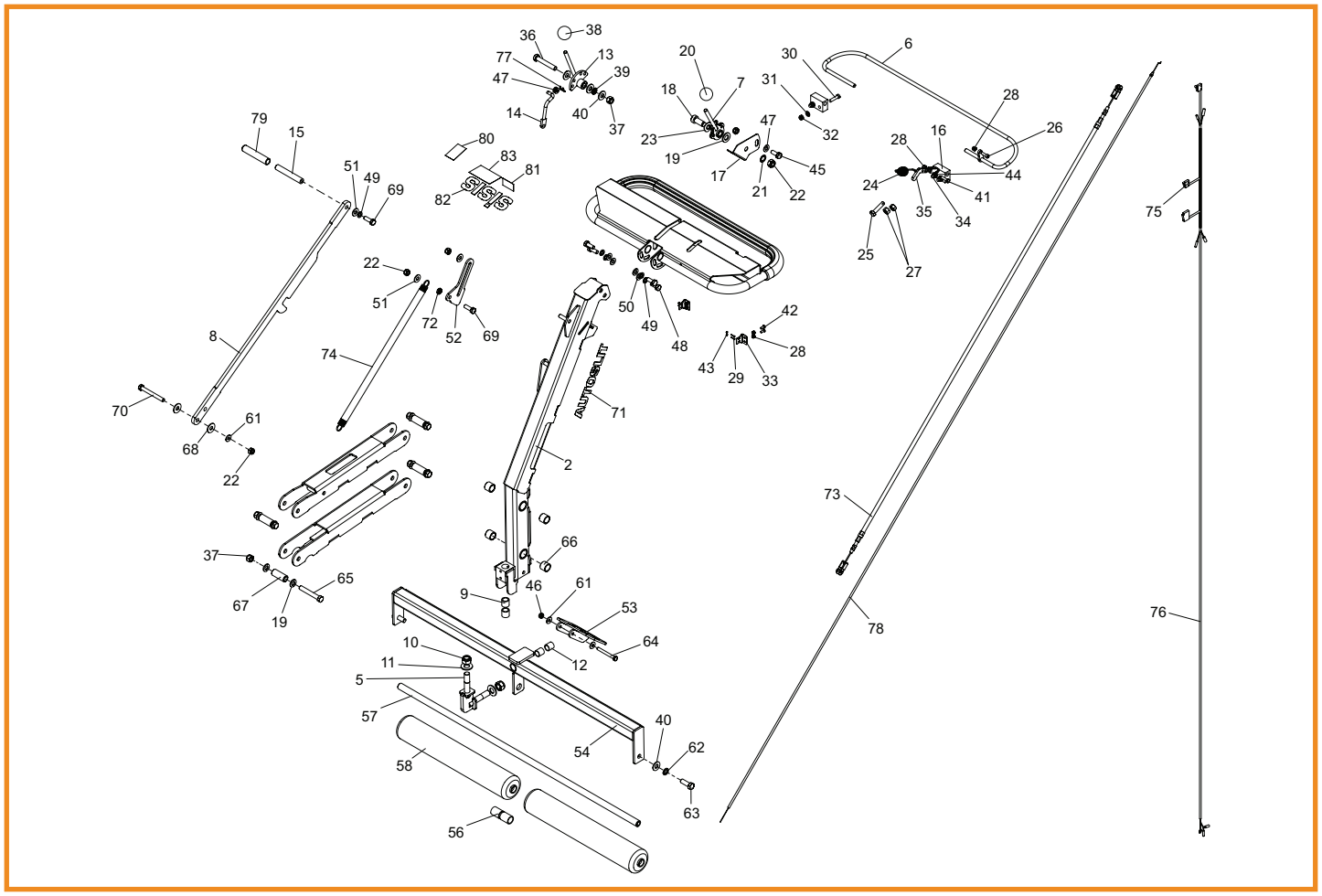
2.01 Tine Shaft Assembly

Item No.	Part No.	Description	Quantity
1	*F35182*	*Tine Shaft*	*1*
2	*401720*	*Tine Shaft Extension LH*	*1*
3	*401721*	*Tine Shaft Extension RH*	*1*
4	*F35546*	*Chain Pinion*	*1*
5	*F21596*	*Bearing PB Asahi BPP 6.Z*	*2*
6	*F35547*	*Chain Pinion*	*1*
7	*F35549*	*Sleeve 30 x 38 x 19*	*2*
8	*D6951*	*Tine*	*24*
9	*D8165*	*Key Parallel 6 x 6 x 25*	*2*
10	*D8229*	*Hex Set Screw M10 x 55*	*4*
11	*Sp03011*	*Washer M10 Form A*	*12*
12	*Sp02008*	*Nut M10 Nyloc (T)*	*8*
13	*D8036*	*Grub Screw M6 x 16*	*4*
14	*SP01059*	*Hex Set Screw M12 x 25*	*48*
15	*SP02010*	*Nut M12 Nyloc (T)*	*48*
16	*E1-1130*	*Hex Bolt M10 x 65*	*4*
17	*D7493*	*Tine*	*1*



3.01 Wheel Axle Assembly

Item No.	Part No.	Description	Quantity
1	*F35195*	*Drive Shaft*	*1*
2	*F35191*	*Wheel Hub*	*2*
3	*F35536*	*Pulley Sleeve*	*1*
4	*F21582*	*Bearing PB Asahi BPP 5.Z*	*2*
5	*D1934*	*Key Parallel 8 x 8 x 25*	*1*
6	*F35542*	*Locking Sleeve 20 x 25 x 40*	*1*
7	*F35548*	*Chain Pinion*	*1*
8	*D8129*	*Oilite Bush 25 x 30 x 20*	*1*
9	*F21583*	*Needle Roller Bearing RNA4904*	*2*
10	*F35543*	*Spacer 16 x 25 x 40*	*1*
11	*F35193*	*Spacer 44 x 25 x 40*	*2*
12	*F35537*	*Vee Belt Pulley 8" PCD 2A*	*1*
13	*F35194*	*Locking Collar 20 x 25 x 40*	*2*
14	*D8165*	*Key Parallel 6 x 6 x 25*	*1*
15	*F21061*	*Wheel*	*2*
16	*D8036*	*Grub Screw M6 x 16*	*4*
17	*SP02008*	*Nut M10 Nyloc (T)*	*4*
18	*SP03011*	*Washer M10 Form A*	*4*
19	*E1-1130*	*Hex Bolt M10 x 65*	*4*
20	*SP01022*	*Hex Set Screw M8 x 50*	*2*
21	*SP02006*	*Nut M8 Nyloc (T)*	*2*
22	*SP01105*	*Hex Set Screw M10 x 30*	*8*
23	*SP03034*	*Washer M10 Spring Lock*	*8*
24	*D2988*	*Roller Chain 87P x 1/2"*	*1*
25	*D2934*	*Belt 'V' A 40 A1050*	*2*
26	*D1721*	*Roller Chain 93P x 1/2"*	*1*
27	*F21581*	*Roller Clutch Torrington FCB25*	*4*
28	*D1947*	*Grease Nipple M6*	*2*



4.01 Handle Assembly

Item No.	Part No.	Description	Quantity
1	401766	Autoslit Handle Moulding Assy	1
2	401759	Handle Channel WA	1
3	401735	Lower Parallel WA	1
4	401738	Upper Parallel WA	1
5	401718	Ra Pivot WA	1
6	230180	Safety Bar W.A.	1
7	230190	Throttle Lever W.A.	1
8	401763	Plate Latch Thick	1
9	D8158	Oilite Bush 16 x 22 x 20	2
10	SP02028	Nut M16 Nyloc (T)	2
11	SP03021	Washer M16 Form C	2
12	F20606	Oilite Bush 16 x 20 x 20	2
13	290058	Control Lever Assy	1
14	F36200	Over Centre Rod	1
15	401765	Handle Lock Lever	1
16	229585	Pivot Block	2
17	230196	Throttle Plate	1
18	SP01029	Shoulder Bolt 12 x 25 M10	1
19	SP03012	Washer M12 Form A	9
20	SP03019	Washer M12 Wave	1
21	SP03020	Shim 12 x 18 x 1	2
22	SP02008	Nut M10 Nyloc (T)	4
23	J20017	Knob - Red	1
24	229167	Clutch Spring	1
25	229620	Bolt For Spring	1
26	SP01043	Cap Head M5 x 16	1
27	SP02005	Nut M8 STD	2
28	SP02002	Nut M5 Nyloc (T)	6
29	SP01070	Cap Head M2 x 12	4
30	SP01101	Screw M6 x 25 Slotted	4
31	SP03010	Washer M6 Form A	4
32	SP02004	Nut M6 Nyloc	4
33	240169	Sensor Angle Plate	2
34	401784	Link Safety Bar	2
35	401790	Link Safety Switch	1
36	E1-1166	Hex Bolt M12 x 75	1
37	Sp02010	Nut M12 Nyloc (T)	5
38	176457	Black Knob M10	1
39	D1887	Thackery Washer M12	1
40	SP03017	Washer M12 Form C	5
41	SP01004	Hex Set Screw M5 x 20	1
42	SP01069	Button Head M5 x 12	4

Item No.	Part No.	Description	Quantity
43	SP02032	Nut M2 STD	4
44	SP03009	Washer M5 Form A	1
45	SP01009	Hex Set Screw M8 x 20	1
46	SP02006	Nut M8 Nyloc (T)	2
47	SP03008	Washer M8 Form A	3
48	SP01035	Hex Set Screw M10 x 25	4
49	E1-1063	M10 Spring Washer	5
50	SP03011	Washer M10 Form A	4
51	SP03016	Washer M10 Form C	3
52	401773	Link Sliding Handle	1
53	F35506	Roller Lock	1
54	F35199	Roller Frame	1
55	F35200	Roller Spacer Frame	2
56	F35617	Roller Spacer	2
57	F35616	Roller Shaft	1
58	D2994	Roller	2
59	SP03014	Washer M6 Form C	6
60	SP01008	Hex Set Screw M6 x 16	6
61	SP03015	Washer M8 Form C	3
62	E1-1065	Spring Washer M12 Sq Section	2
63	SP01111	Hex Set Screw M12 x 35	2
64	E1-1116	Hex Set Screw M8 x 70	1
65	E1-1167	Hex Bolt M12 x 80	4
66	D8381	Oilite Bush 20 x 25 x 20	4
67	F35204	Pivot Pin	4
68	SP03018	Washer M10 Form G	2
69	SP01105	Hex Set Screw M10 x 30	2
70	E1-1136	Hex Bolt M10 x 90	1
71	SP18014	Decal Autoslit	1
72	SP02013	Nut M10 Lock (Thin)	1
73	F35376	Control Cable	1
74	F21836	Tension Spring	1
75	SP12049	Handle Controls Cable	1
76	SP12048	Harness Engine Autolsit	1
77	D1040	Split Pin 3/32" x 3/4""	2
78	SP12047	Throttle Cable Autoslit	1
79	F21806	Handle Grip 16ID x 100Lg	1
80	SP18001	Decal Throttle (Razor)	1
81	229599	Engine On / Off Decal	1
82	F35013	Decal Sisis Black 50mm Height	1
83	B32903	Union Jack Decal	1

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