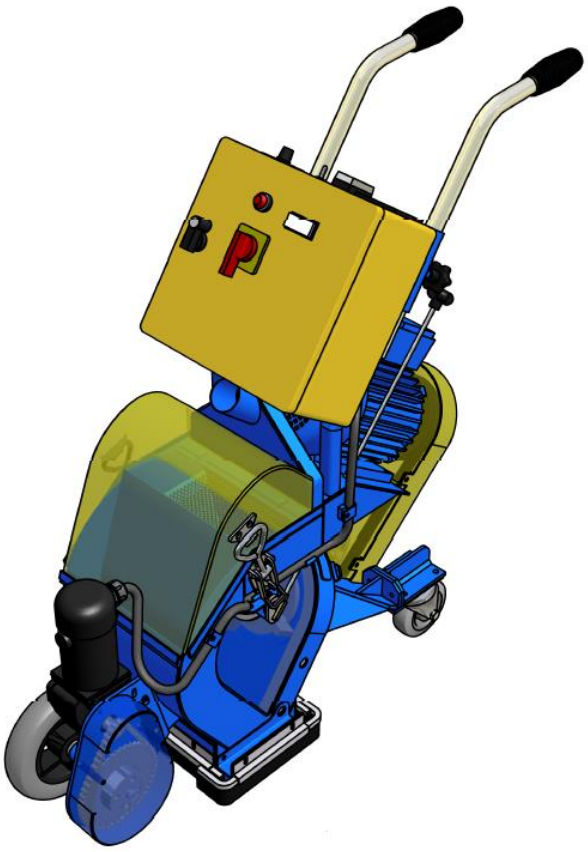
SPE International Ltd, Honeyholes Lane, Dunholme, Lincoln, England, LN2 3SU
Telephone: 01673 860709

SPE9ES-2A

COMPLETE MANUAL



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REV.	DATE	DESCRIPTION	APPROVED BY:
-			

SAFETY PRECAUTIONS

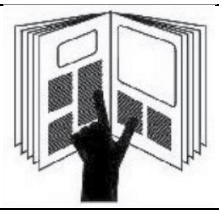
	**DANGER** **EXPLOSION HAZARD** Never operate the machine in an explosive atmosphere, near combustible materials, or where ventilation does not clear exhaust fumes.
	**WARNING** **BURN HAZARD** Never come into contact with the engine or muffler when engine is operating or shortly after it is turned off. Serious burns may occur.
	**WARNING** **ROTATING HAZARD** Never place hands or feet inside safety guard rings. Serious injury will result from contact with rotating blades.
	**CAUTION** **MOVING PARTS** Before starting the machine, ensure that all guards and safety devices are in place and functioning properly.
	**ATTENTION** **READ OWNER'S MANUAL** Read and understand owner's manual before using this machine. Failure to follow operating instructions could result in serious injury or death.

TABLE OF CONTENTS

1. About This Manual

This Manual contains the information and procedures to assist you to operate and maintain the SPE9ES Shot Blaster safely and correctly. Read this Manual before you operate or service the equipment. If you need additional information or assistance, please get in touch with our Customer Service Department:

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2. Introduction

The life of your SPE equipment and the delivery of the high performance built into it will depend on the care it receives throughout its life. It is the operator's responsibility to ensure that the maintenance operations outlined in this manual are carried out regularly and daily checks for wear etc. are maintained with great discipline.

Where the terms 'right' or 'left' occur in this manual they refer to the respective sides of the equipment when viewed from the operator handle of the machine.

Your SPE 9ES equipment has been designed and built to produce reliable and economic output for many hours of service. However, no amount of engineering ingenuity or care during manufacture can alleviate the need for reasonable attention and avoidance of mis-use by the operator.

It is as important to be thoroughly familiar with the points requiring periodical attention, as it is to know how to operate the unit. Regular maintenance will result in minimum operating costs.

3. Machine Description

The **SPE9ES** has been developed for the preparation of concrete and steel surfaces.

The machine is electrically driven with its own integral system, which operates the forward drive of the machine along the surface being prepared to allow a consistent operation.

The cleaning operation is performed by abrasive being thrown at high velocity against the surface to be cleaned. The throwing action is achieved through centrifugal force, where a wheel with paddle type blades attached radially is revolved at a continuous shaft speed of 5000 rpm when using mains power at 50 Hz. Onto this wheel, abrasive is fed in such a manner that it travels along the radial length of the blades and is then thrown off in a high velocity stream at the surface to be cleaned. The energy put into the abrasive is sufficient to enable it to rebound from the work surface. This rebound (kinetic energy) is used to recover the abrasive for re-use. The machine is designed so that the blast wheel is throwing abrasive at an inclined angle relative to the work surface. This means that after striking the work surface, the abrasive rebounds at a similar angle into the reclaim duct

which directs it back into the hopper for re-use. Assisting with this reclaim cycle, the air flow created by the dust collector enters the machine through a brush screen at the rear of the cabinet and flows across the work surface, up the reclaim duct, through the separator and into the dust collector then through the fan and into the atmosphere.

Abrasive is contained within the machine at the work surface levels by seals around the machine. There is a brush screen across the air intake at the rear and magnetic seals at each side. An alternative seal system is available for the preparation of steel surfaces.

4. Major Components

The **SPE9ES** machine is assembled from several major components. It is essential that the operator becomes familiar with the names and functions of these components before attempting to carry out servicing procedures.

MAIN HOUSING
The main housing is the frame of the machine. Externally all other major components are attached to it and internally wear liners and all blast wheel components are fitted.

ABRASIVE STORAGE HOPPER
This contains the abrasive

SEPARATOR
Within this component the flow of abrasive and dust laden air is separated. It is constructed in such a way that as the air flow passes through the separator the speed/flow of the abrasive and dust is reduced which results in the heaviest particles (the steel abrasive) falling out of the flow and into the storage hopper for re-use. The lighter dust and debris stays within the air flow and passes through the separator on the way to the dust collector.

ELECTRIC PANEL
This panel contains all the electrical components such as the stop/start button for the blast motor and the controls for the variable drive system, the amp meter and all electrical protection equipment.

ABRASIVE FEED CONTROL LEVER
This lever operates the butterfly valve in the feed spout between the abrasive storage hopper and the blast wheel. When the lever is down it is closed and when it is pulled upwards the butterfly valve is opened and the abrasive is allowed to travel onto the blast wheel in a progressive controlled fashion.

DRIVE WHEEL
There is one drive wheel located at the front of the machine.

5. Basic Operation

1. Do not push the machine unless the front drive wheel lock assembly is in a free wheel position
2. Do not attempt to start the blast motor without first operating the low load start lever/integral belt tensioner
3. Do not open the abrasive control valve when the blast motor and blast wheel are not turning at max rpm
4. Do not exceed the maximum loading indicated on the amp meter (12 amps)
5. All equipment must be completely isolated from the electrical supply before carrying out any adjustments or maintenance
6. The machine should be kept dry at all times and must not be operated on wet surfaces

TO BEGIN OPERATION

1. Remove the separator cover and place the abrasive into the storage hopper. Do not overfill, allow a clearance of approx. 25mm. Replace the separator cover and secure with the over centre clips.
2. Connect the 9ES machine and vacuum to the electrical supply
3. Switch on the vacuum
4. Switch on the isolator on the 9ES machine
5. Move the belt tensioner located at the rear of the belt guard fully to the LEFT and hold. Press the green start button on the panel. After 5 seconds slowly release the belt tensioner lever to the right.
6. To move the machine forward firstly make sure that the front drive wheel lock assembly (part no 11202A) is in the locked position. Engage the forward/reverse switch on the panel to the required direction, then turn the drive wheel speed control knob clockwise to move the machine forward at a constant speed.
7. Pull open the abrasive control lever valve assembly until the required amp reading is reached on the amp meter. Maximum 12 amps
8. The machine will now be blasting the surface. The finish achieved can be varied by adjusting the abrasive control lever and the forward speed of the machine.
9. To stop the machine blasting. Close the abrasive control valve and move the forward/reverse switch to the neutral position.
10. To stop the blast motor. Press the red stop button on the panel. DO NOT operate the belt tensioner lever to stop machine.

6. Safety

Only trained operatives should be allowed to operate the SPE9ES-2 Autoblast machine.

NOTE: It is possible that the noise level produced by the 9ES Autoblast machine could exceed 90dbA. Appropriate PPE must be worn, and the equipment must be used in line with guidelines laid down by the Health and Safety Executive.

Never tip machine backward whilst in use.

Always ensure that all power leads are disconnected before attempting to adjust or service the machine. Do not use or store in wet conditions as electrical components are not waterproof.

Noise and vibration will occur at various levels dependant on the work being undertaken. SPE have assessments conducted under test conditions detailed in the operating manual, however, it is recommended that additional tests are taken on site to provide the operator with accurate information on using the equipment within guidelines laid down by the Health and Safety Executive.

7. Specifications & Electrical Requirements

Model	SPE9ES-2A
Voltage (V)	220
Motor Power	3 HP (2.2 kW)
Frequency (Hz)	60
Working Width (mm)	230
Length (mm)	960
Height (mm)	840
Width (mm)	340
Weight (kg)	89
Plug size	16A 3-pin
Cable size	2.5mm 3-core
Cable Length	30m
Generator	8 kVA
Suggested Vacuum	VAC316

8. Servicing Information

TO REPLACE THE BLAST WHEEL
Remove the rear belt guard and belt. Remove the four set screws holding the rear wheel and shaft assembly to the main body. This gives access to the blast wheel. Take off the central cap head screw and remove the blast wheel. Clean the hub assembly and fit the new blast wheel. Refit and firmly tighten the centre screw. Replace all items in reverse order.

TO REPLACE THE CAGE
Unscrew the bolts holding the abrasive feed tube and remove the cage clamps. Withdraw the cage after taking note of the position of the two slots on the outer ring of the cage. Place in the new cage with the slots in the correct position. Replace the clamps and tube as previously removed. Minor adjustment to the cage position may be necessary to set the blast pattern correctly.

9. Troubleshooting

Isolate the power supply before carrying out the following inspections:

DECREASED FLOW OF ABRASIVE
1. Check there is sufficient abrasive in the hopper
2. Empty the shot and check for obstructions on the screen in the hopper (usually paint flakes) or in the butterfly valve in the feed chute. To empty the abrasive, open the abrasive valve with the blast motor in a slow run or wind down speed.

MACHINE IS TRAILING/LEAVING EXCESSIVE AMOUNTS OF ABRASIVE BEHIND
1. Check the vacuum is working correctly and efficiently – Filter shaker on vacuum must be agitated every 10-15 minutes.
2. Check that one or both side seals were not stuck/jammed up when the manganese side seals were fitted
3. Check under the machine and examine that, if urethane seals are fitted they are all in position and are not worn
4. Check the blast wheel, control cage and liners are not excessively worn
5. Check the cage is in the correct position and if not adjust accordingly
6. Check the drive belt is in good condition and not slipping

MACHINE DUMPS ALL ABRASIVE OR DUMPS OCCASIONALLY
1. Check all items 1 - 6 above
2. Check that the working surface is dry and is not contaminated with oil deposits, wet etc.
3. If the machine has dumped abrasive, and after the hopper has been refilled, make sure that no abrasive is still under the machine blast area on the floor when re-starting to blast or the machine will not reclaim.
4. If the machine occasionally dumps the abrasive when heavy blasting or exposing aggregate on concrete then slow the forward speed of the machine down and decrease the amount of abrasive being thrown down by the wheel to allow for the separation system to cope with the amount of debris being removed from the surface.

MACHINE SUFFERS REDUCTION IN BLASTING POWER
- Check all the items above. If all are OK, there must be a reduction in revs under load. Check the drive belt from the blast motor to the blast wheel

NO SUPPLY OF POWER TO MACHINE
- If using a generator then check the panel fuses and the circuit breaker switch is in the working position.
- If using the mains, then check the fuses on the electrical supply

MACHINE TRIPS OUT POWER SUPPLY
- Check the extension lead being used is 2.5mm with a maximum length of 30mtrs.

BLAST PATTERN IS HEAVY TO ONE SIDE
- Control cage needs re-setting – see page 6

10. Noise & Vibration Assessment

Manufacturer	SPE
Type:	Blaster
Model No.	SPE9ES – Electric
Operation :	Free Running
HAV Note:	Acoustic Associates

HAND-ARM VIBRATION

Frequency Weighted Energy Equivalent Accelerations ($a_{h,w}$)

Measurement Position	Acceleration (m/s^2)			
	X axis	Y axis	Z axis	Vector Sum
Handle	0.43	0.50	0.84	1.06

NOISE LEVELS

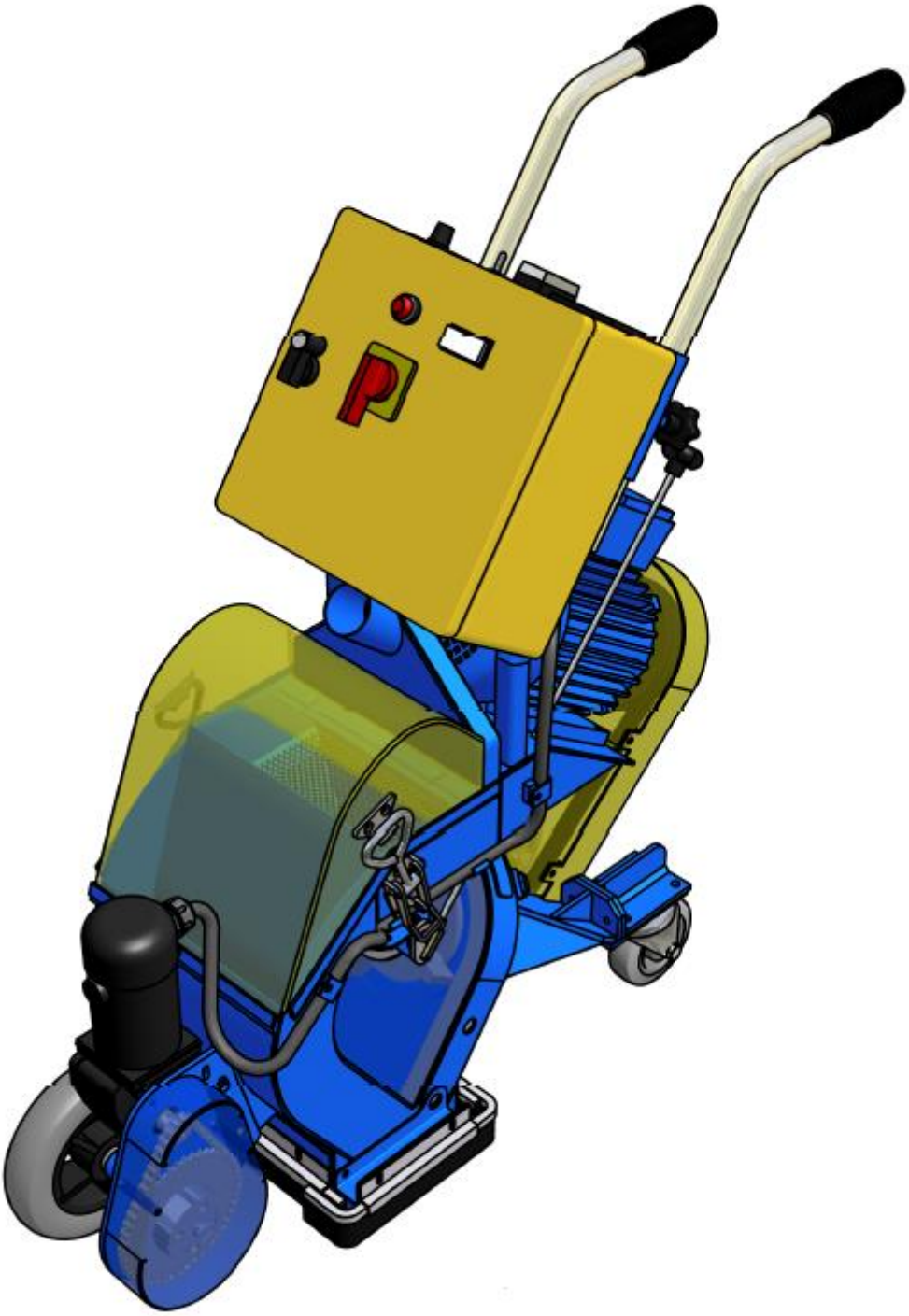
Sound Power Level (L_{WA})

L_{WA} at Octave Band Centre Frequency (Hz)								Sound Power Level L_{WA}
63	125	250	500	1000	2000	4000	8000	
56.1	65.9	77.0	103.0	90.1	87.0	84.0	69.8	**103.4**

Operator's Ear

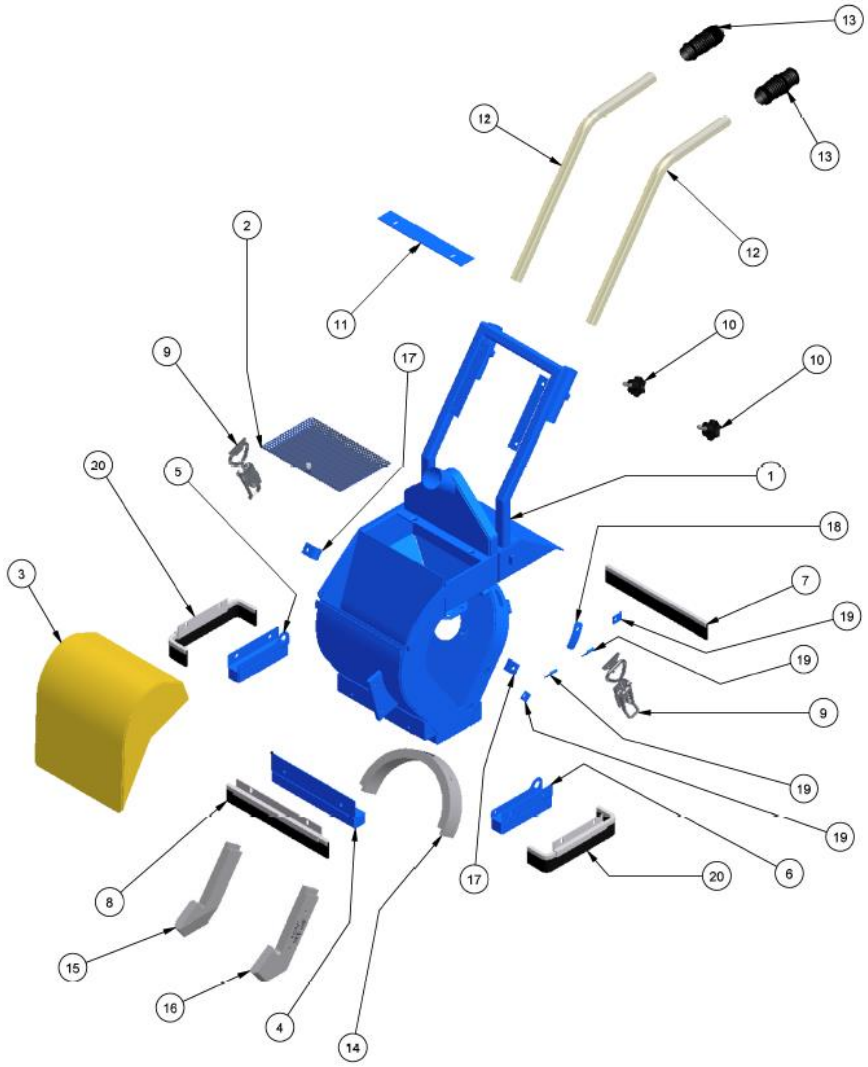
$L_{Aeq,T}$ at Octave Band Centre Frequency (Hz)								Overall Level ($L_{Aeq,T}$)	L_{Peak} dB(C)
63	125	250	500	1000	2000	4000	8000		
41.3	49.9	63.2	90	74.1	68.2	66.5	50.1	**90.2**	**99.3**

11. Parts Breakdown



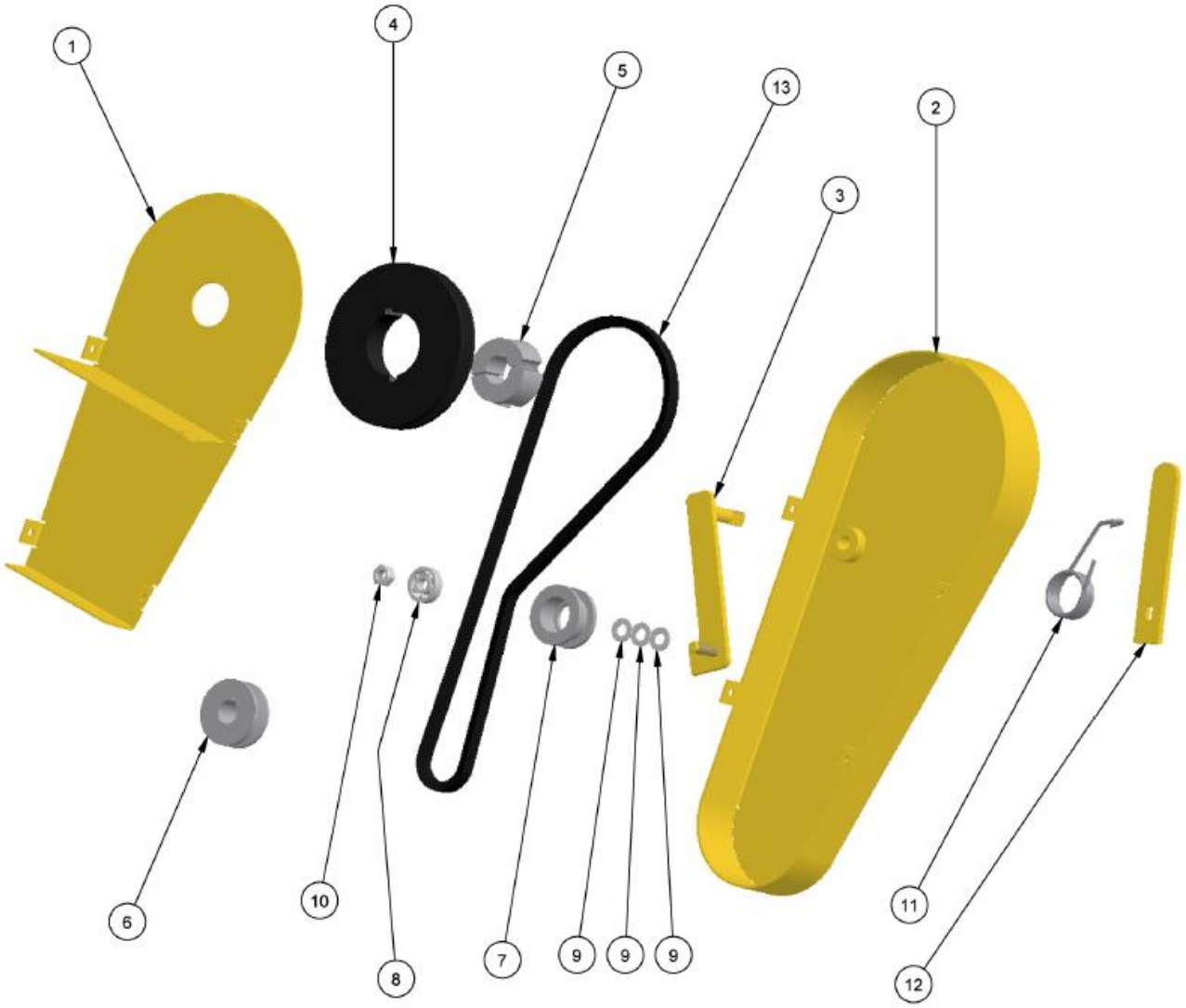
9ES Main Body

Item No.	Part Number	Description	Qty.
1	11000A	Body Assembly	1
2	11007A	Abrasive Grill	1
3	11001A	Separator Cover	1
4	11500	Front Magnet	1
5	11501	Right Hand Magnet	1
6	11502	Left Hand Magnet	1
7	11504	Rear Brush	1
8	11503	Front Brush	1
9	10064	Over-Centre Latch	2
10	C321	Threaded Knob (M10)	2
11	11013	Adjustable Baffle	1
12	11011	Handle	2
13	9104	Handlebar Grip	2
14	11004	Hood Liner	1
15	11005	Right Hand Side Liner	1
16	11006	Left Hand Side Liner	1
17	11301A	Cage Retaining Lug	2
18	11024	Liner Slot Cover	1
19	11210	Cable Retaining Lug	4
20	11505	Side Brush	2



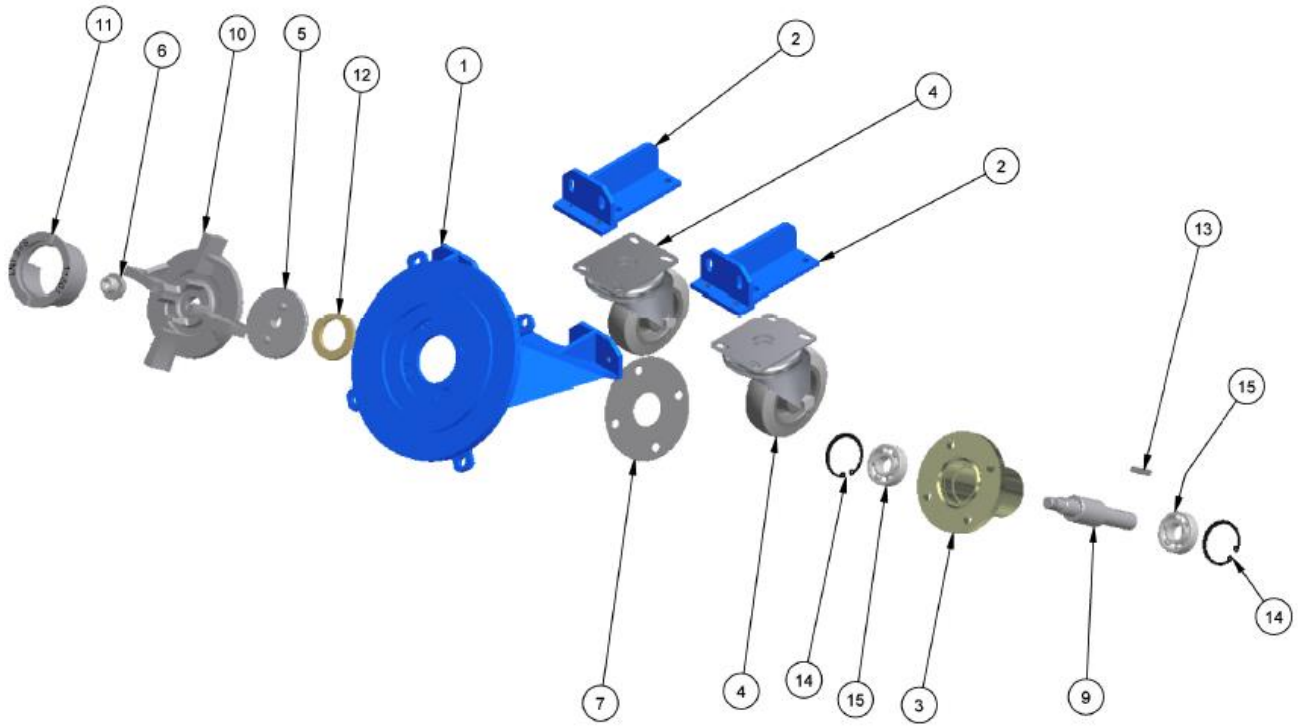
9ES Belt Guard

Item No.	Part Number	Description	Qty.
1	11010	Belt Guard Base Plate	1
2	11008	Belt Guard	1
3	11319	Tensioner Lever	1
4	11308A	Blast Motor Pulley (1groove)	1
5	11324	Taper Lock Bush [1610 – 24mm]	1
6	11309A	Blast Shaft Pulley (1groove)	1
7	11317	Tensioner Pulley	1
8	11310	Bearing	1
9	WASH001	Washer M10	3
10	NUT001	Hex Nut M10	1
11	11316	Tensioner Spring	1
12	11318	Tensioner Lever Outer	1
13	11307	V-Belt	1



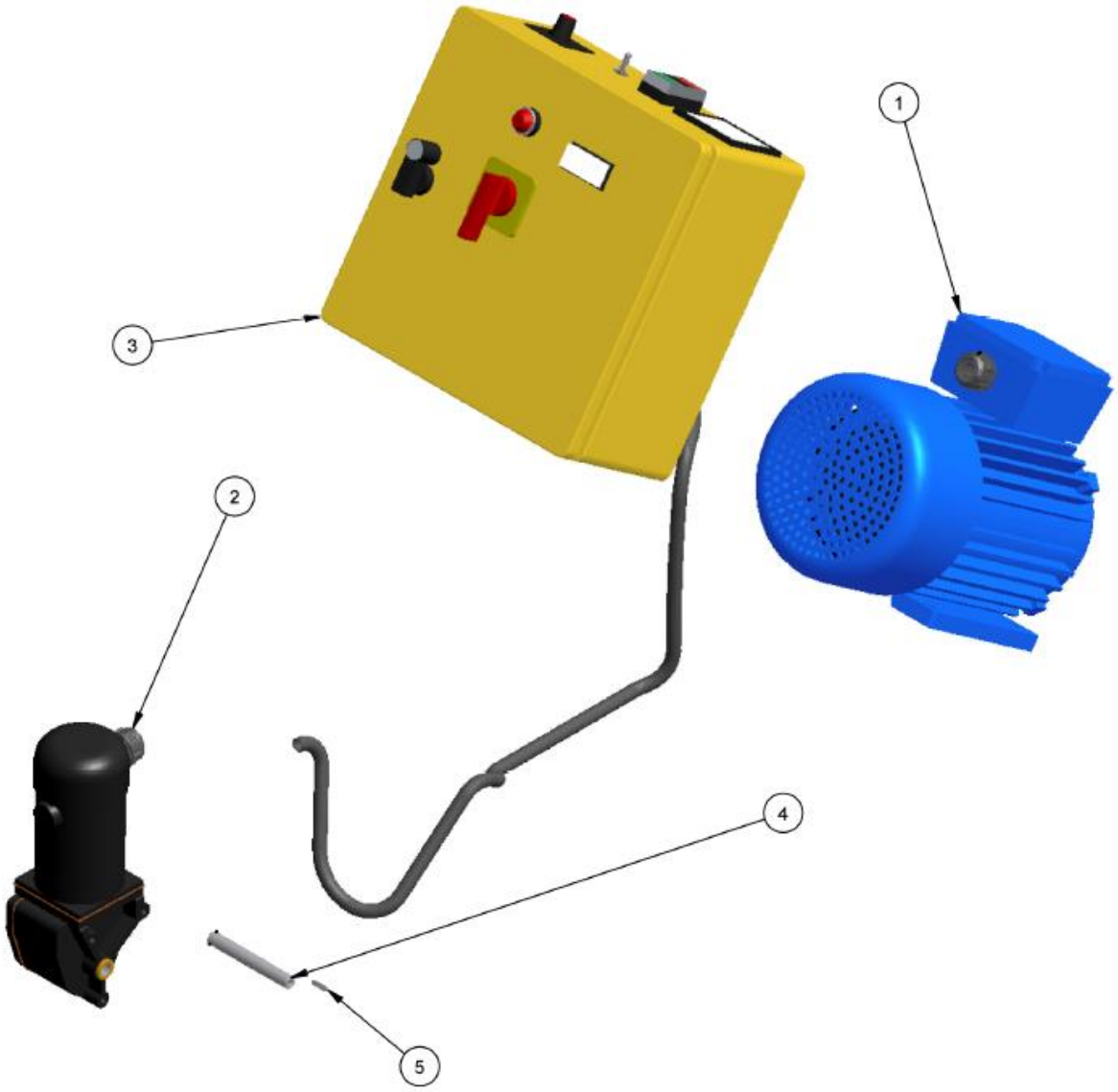
9ES Blast Wheel Housing

Item No.	Part Number	Description	Qty.
1	11032	Blast Wheel Mount	1
2	11033	Rear Wheel Bracket	2
3	11320	Bearing Housing	1
4	11207	Rear Wheel (Castor)	2
5	11305	Blast Wheel Drive Plate	1
6	11314	Blast Wheel Lock Nut	1
7	11320A	Seal Retaining Plate (2mm)	1
-	11320B	Seal Retaining Plate (3mm) NOT SHOWN	-
9	11313A	Blast Shaft	1
10	11302	Blast Wheel Assembly	1
11	11301	Blast Wheel Cage	1
12	11305A	Felt Seal	1
13	11323	6x35 Parallel Key	1
14	9132	Int. Circlip	2
15	11321	Bearing	2



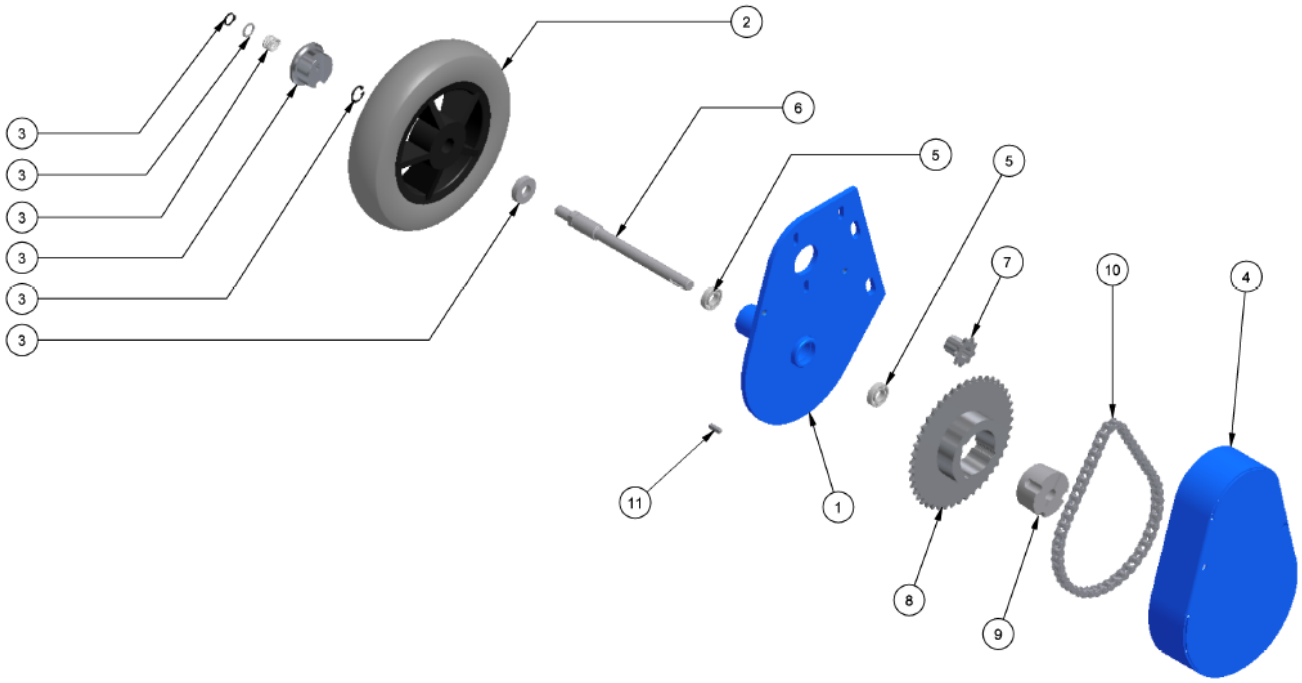
9ES Electrical

Item No.	Part Number	Description	Qty.
1	9146	Motor	1
2	11200	Drive Motor	1
3	???	Electrical Panel	1
4	11209A	Drive Shaft	1
5	3119A	4x16 Parallel Key	1



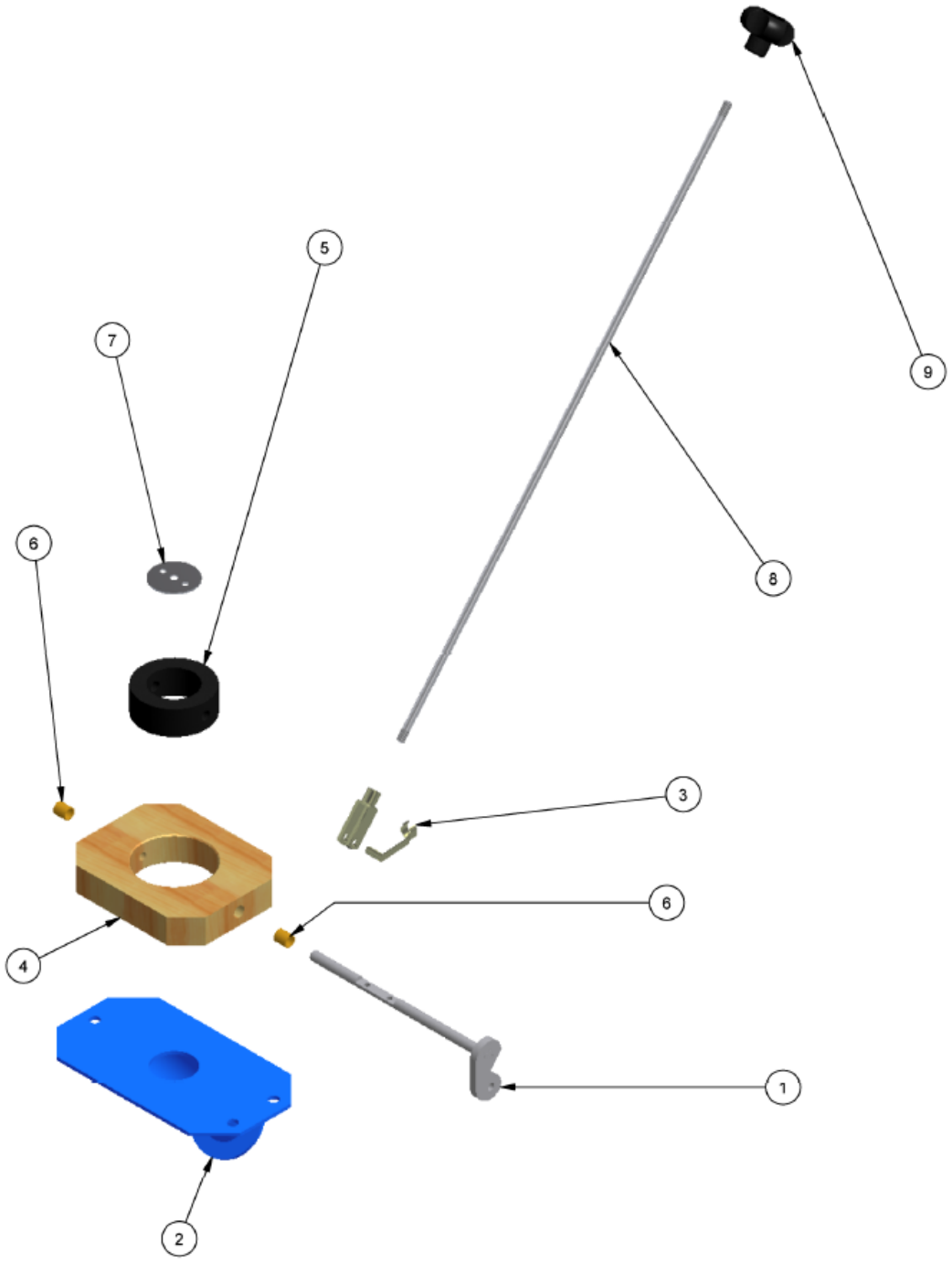
9ES Front Wheel

Item No.	Part Number	Description	Qty.
1	11200A	Front Wheel Mounting	1
2	11201	Front Drive Wheel	1
3	11202A	Locking Mechanism	1
4	11009	Chain Guard	1
5	11203	Bearing	2
6	11202B	Front Driven Shaft	1
7	11206A	Front Drive Sprocket	1
8	11204A	Front Driven Sprocket	1
9	11204B	Taper Lock Bush [1210 – 12mm]	1
10	11205A	3/8” Drive Chain	1
11	9113A	4x16 Parallel Key	1



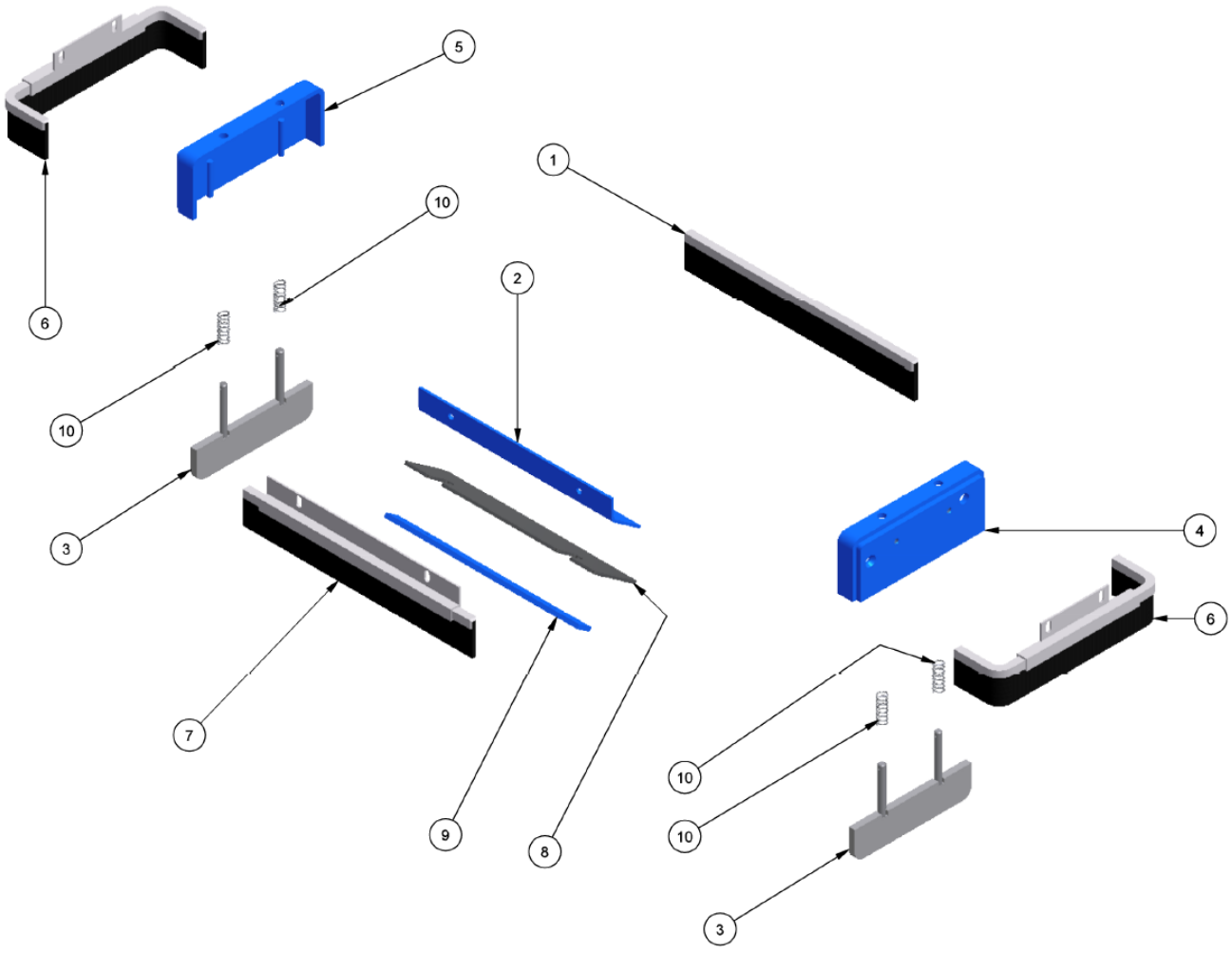
9ES Shot Valve

Item No.	Part Number	Description	Qty.
1	11402	Valve Block Spindle	1
2	11002	Feed Spout	1
3	11404B	Valve Control Clevis	1
4	11400	Valve Block	1
5	11401	Valve Block Liner	1
6	11403	Valve Block Oilite Bush	2
7	11405	Shot Valve Butterfly	1
8	11404C	Valve Control Rod	1
9	11404A	Valve Control Knob	1



9ES Alternate Seals

Item No.	Part Number	Description	Qty.
1	11504	Rear Brush	1
2	11507	Front Seal Support	1
3	11508	Steel Side Seal	2
4	11509A	R/H Steel Seal Holder	1
5	11508A	L/H Steel Seal Holder	1
6	11511	Side Brush (Metal Seals)	2
7	11503	Front Brush	1
8	11506	Front Urethane Seal	1
9	11507A	Front Seal Clamp	1
10	11512	Spring	4



12. Warranty

The standard warranty period of this equipment is **12 months** from the despatch date in accordance with the company Conditions of Sale (copy attached).

Warranty start date:	**As despatch date**
Model:	*SPE9ES-2*
Serial no:	
Customer name:	
Customer Address:	

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Web site:	**www.spe-int.com**

13. Declaration of Conformity

WE

SPE INTERNATIONAL LTD

OF Honeyholes Lane, Dunholme, Lincoln, LN2 3SU

DECLARE that under our sole responsibility for the supply/manufacture of the product

(Description/name) **SPE9ES Autoblast Machine**

(Model/type) **SPE9ES – 2A**

to which this declaration relates is in conformity with the following standards and other normative documents following the provisions of Directive 2006/42/EC.

.....
Brian Jacklin – Technical Manager

SPE

BARTELL GLOBAL

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