SPE20ES

Operating Manual

This manual provides the basic information required
and is only to be used as a guideline.
The SPE machines are manufactured and covered by
SPE design registrations granted and pending.
SPE International Ltd reserves the right to alter the
equipment design and specification as required
without notice.

The SPE product range is subject to amendment and
improvement as a result of on going research

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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 operators responsibility to ensure that the maintenance operations outlined in this book 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 20E series machine 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 miss use by the operator.

It is important to be as 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.

Instruction on connection to a power supply varies from generator to mains power and also from site to site. The equipment is supplied with all plugs and sockets to enable the easy and correct connection of all our electrical equipment. The equipment itself can be 380/415 volt - 3 phase.

IMPORTANT NOTICE
ALL THE EQUIPMENT MUST BE KEPT DRY AND SHOULD NOT BE USED IN WET CONDITIONS

MACHINE DESCRIPTION

The SPE 20E series is normally for use in non-hazardous areas. The machine is electrically driven with its own integral hydraulic system which operates the forward and reverse drive of the machine.

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 3,500 rpm when using a generator at 60hz. Onto this wheel abrasive is fed in such a manner that it travels along the radial length of the blades and then is 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 which means that after striking the work surface 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, air flow created by the exhaust fan enters the machine through a brush screen at the rear of the cabinet flows across the work surface and into the dust collector and through the fan into the atmosphere.

Abrasive is contained within the machine at work surface level by urethane resilient seals at the front, a brush screen across the air intake at the rear and manganese and urethane seals at each side.

IDENTIFICATION OF MAJOR COMPONENTS

SPE 20E series machine is assembled from several major components and it is essential that the Operator becomes familiar with the names and functions of the separate components before attempting to carry out servicing procedures.

MAIN HOUSING

The Main Housing is the frame of the machine. Externally - all other components are attached to it. Internally - wear liners and all blast wheel components are fitted.

ABRASIVE STORAGE HOPPER

Hopper to contain abrasive.

SEPARATOR

Within this component which is fixed above the abrasive storage hopper 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 speed of the flow is reduced. This results in the heaviest particles which are the steel abrasives falling out of the flow into the storage hopper for re-use. The lighter dust and debris stay with the air flow and pass through the separator and into the dust collector.

EXHAUST FAN

This component creates total air flow through the machine. Air is allowed into the machine through an aperture at the bottom of the back plate of the housing. The air then flows across the work surface up the reclaim zone through the separator and into the dust collector and then out through the exhaust fan.

DRIVE WHEELS

In conjunction with the front castor there are left and right drive wheels which are the machines means of support.

ELECTRICAL PANEL

Contains all electrical equipment and the starter button for the Blast Motor, Fan Motor and hydraulic Pump Motor.

DRIVE

The drive is an independent hydraulic system contained within the 'V' of the cabinet. It has its own oil tank submersed in which is the hydraulic tank. There is a simple On/Off switch on the electrical panel to operate this motor. The flow of oil through the valve and the motor are governed by a flow control regulating the amount of oil which is directed to the wheel motors which then governs the speed of the motors whether it be in the 'Forward' or 'Reverse' position. The hydraulic tank contains its own relief valves which are pre-set and has filters on both pressure and return line.

DIRECTIONAL CONTROL VALVES

These control the direction of the flow of hydraulic power to the drive wheel motors. The control has a three position function:- forward, reverse and neutral.

Left and Right controls are independent of each other giving instant forward, reverse and precise steering control. When both controls are in reverse position the machine drives reverse. When one control is in the forward position and the other in the reverse position the machine turns upon its centre point. Therefore, by using the directional control valves through their independent forward - neutral - reverse range the machine can be manoeuvred precisely.

SPEED CONTROL VALVE

This contains the quantity of the flow of hydraulic power through the directional control valves to the drive wheel motors. Rotating the speed control valve in a clockwise direction decreases the flow which in turn decreases the speed of the machine in whatever direction the directional controls are set. Rotating the speed control valve in an anti-clockwise direction increases the directional speed of the machine from stop to full speed. Therefore by using the speed control valve the forward/reverse speed of the machine is precisely controlled.

ABRASIVE FEED CONTROL LEVER

The abrasive feed control lever operates the butterfly valve in the feed spout between the abrasive storage hopper and the blast wheel. Forward is off. As the lever is pulled backwards the butterfly valve is opened and the abrasive is allowed to travel onto the blast wheel in a progressive controlled fashion.

ABRASIVE FEED CONTROL CAGE ADJUSTMENT

The control cage governs the point at which abrasive is put on to the blast wheel. Any particles fed on to a revolving wheel (such as is fitted to the SPE machine) will be thrown off this wheel at about 180 degrees from the point at which it was put on. Therefore with SPE equipment where abrasive must be thrown off downwards it follows the abrasive must be fed on to the wheel in an upwards direction. This will be set to an approximate position when the machine leaves the factory but as the cage wears it will be necessary to adjust the position of the cage to maintain optimum efficiency and production speed. The position of the cage should also be checked prior to any blasting operation.

The cage is a flanged sleeve with an opening in it. Abrasive flows through the centre of the sleeve and out of the opening on to the blast wheel. The flange of the cage is located in the cage retaining ring which is welded to the machine housing. Turning the cage within its housing adjusts the position where the abrasive is put on to the blast wheel.

To find out where the machine is throwing its most concentrated abrasive pattern the following procedure should be followed with the machine positioned on a **STEEL** surface.

1/ Check that the notch in the flange of control is in its uppermost position. (Notch indicates the Position of the opening in cage sleeve which cannot be seen when the cage is assembled into the machine.)

2/ With the machine ready for blasting pull back the abrasive control lever and load the blast wheel. Without moving the machine, allow this blasting operation to continue for approximately one minute at approximately 25 to 30 amps.

3/ Stop abrasive flow and move the machine forward until the blasted area is accessible. With both hands feel the temperature of the blasted area - the point which has received the most concentration of abrasive will be considerably warmer. An even temperature left to right indicates the control cage is correctly positioned. If the left side is warmest then the control cage needs to be moved in a clockwise direction looking from the front of the machine. If the right side is warmest then the control cage needs to be moved in an anti-clockwise direction.

4/ To make cage adjustments make sure the blast wheel motor is turned off and the blast wheel has stopped turning. Loosen the two sets of screws locking the control cage and move the cage in the desired direction no more than 1/4" (6mm). Tighten the locking screws and start up the blast wheel and check the blasting pattern as in 2 & 3 above. This process to be repeated until an even temperature across the blast pattern is achieved.

START-UP PROCEDURE

1/ First check that the power supply is available and connected. This equipment must be protected at source by a 30 MA residual circuit breaker.

2/ Check to see that the hydraulic oil is at the correct level on the site level gauge located on the side of the hydraulic reservoir.

3/ To rotate the blast motor press the green 'Start' button adjacent to the blast motor label. The motor will run for 9 or 10 seconds at approximately 60 amps during start-up. Once the motor has attained the normal revolutions per minute the electrical trip system will operate and then the motor will run at 3/5 amps.

4/ The large capacity fan which sits on top of the separation unit is operated by red and green 'On/Off' buttons respectively which are situated on the Control Panel. This fan needs to be in operation the whole of the time the machine is running as without this fan in operation the machine will not function.

5/ Press the green starter button to engage the hydraulic pump motor. This button is adjacent to the pump motor label. The pump is now operational and is already pumping oil to the control system. **THE MACHINE IS NOW READY TO OPERATE.**

EYE PROTECTION It is advisable that goggles are worn by both operator and assistant although the quantity of abrasive lost is minimal

EAR PROTECTION It is advisable that ear protection is worn by both operator and assistant

BLASTING OPERATION

1/ Check that all the electric motors are rotating in the correct direction. The method of manufacture ensures that if one motor is correct then they are all correct. The same principle applies if one is running in the wrong direction.

2/ Put two sacks (approximately 112 lbs/50 kg) of abrasive into the abrasive storage hopper through the access door at the rear of the separator.

3/ Slowly pull the abrasive feed control lever backwards which will allow abrasive to flow onto the blast wheel and which will cause pressure to increase in the electric circuit.
Continue to pull backwards on abrasive feed control lever until the ammeter indicates a steady reading of approximately 20 amps with a maximum 40 amp usage. The machine is now throwing abrasive at the work surface and effectively cleaning.

4/ With both directional control valves in the forward position slowly turn the speed control valve anticlockwise and the machine will move forward. Increase the speed of the forward movement from slow (2 ft/0.6m per minute) to such a speed that the blasted surface produced just achieves the blasting standard specified. In practice it will be found that work surfaces being blasted will vary from area to area and the forward speed of the machine will have to be adjusted to suit varying conditions. The amount of abrasive being fed to the blast wheel can also be adjusted to suit conditions.

5/ Steer the machine with the directional control valves over the work surface varying the speed to produce the blasting standard required until the job is complete.

SERVICE INFORMATION

Prior to any maintenance total electrical isolation must be carried out to all moving parts.

DAILY MAINTENANCE

The machine has only one wheel which requires lubrication and that is the front pivot wheel. The wheel requires two pumps with a grease gun daily.

OIL

Machine Oil Grade H129
Compressor Oil Grade DIN 51506

PERIODIC CHECKS FOR WEAR

If the machine is being used every day an inspection to assess wear taking place to the blast wheel blades and liners must be carried out every day. To carry out the inspection proceed as follows:-

1/ Make sure the power unit is stopped and isolate the electrical supply.

2/ The machine can be tipped backwards and inspection of the blades and liners can be made from underneath.

BLAST WHEEL BLADES

Wear will take place in the form of grooves worn into the blades along the path taken by abrasive from the centre of the blast wheel outwards. Wear grooves are acceptable until 90% of blades thickness has been worn away. When this point is reached replace **ALL** the blades as a set.

FRONT URETHANE SEALS

Wear occurs through exposure to abrasive on the inside and by continually bearing on work surface. Wear will be indicated by the increasing amount of abrasive left in trails on each side of the machine and the high velocity abrasive escaping forward of the machine.

TO REPLACE FRONT SEAL SYSTEM

The seal system comprises of three separate urethane elements of differing depth and width. This is to ensure that a good fit is maintained between the side seals at both sides and the working surface at the bottom. Seals are located in a seal box across the front of the cabinet and are clamped in place by a bolt and plate system.

To obtain access to front seal system:-

1. Make sure power unit is stopped.
2. Allow machine to tip backwards until rear of the blast wheel motor rests on the work surface. This will lift the front of the machine and give access to the front seal locating box.
3. Unscrew the bolts across front seal locating box this releases the clamp system holding the seals in place. Pull the worn seals out of the locating box
4. Fit the new seal section, each inter spaced with a steel strip. Tighten clamp and set screws.
5. Start up and commence work.

REAR BRUSH SEAL

Seal comprises of a single brush strip located in the seal box across the rear of the cabinet and clamped in place by four locking screws.

To replace rear seal brush:-

1. Unscrew the four locking screws and pull out the worn brush seal.
2. Fit new brush seal into the seal box and tighten the locking screw.

BLAST WHEEL BLADES AND IMPELLOR REMOVAL

Wear takes place to these components with use. To replace worn components:-

1. Make sure the power unit has stopped and isolate the electrical supply.
2. Remove the bolts holding the housing top cover and remove the cover exposing the blast wheel, blades etc.
3. Remove the two sets of screws holding the control cage and withdraw the cage from machine.
4. Prevent the blast wheel from turning by placing the lever between the blades from the top. Unscrew hexagon headed screw from centre of impellor and remove.
5. Tap fingers (tapered bottom section of the impellor locks the blast wheel blades in position). Then remove the impellor - this action will release the blades. The blades become tight in their slots after use a hammer and bar is required to release the blades from their location slots.

To replace blast wheel blades:-

1. Prior to replacing blades make sure all dust etc is removed if possible by compressed air supply before fitting.
2. One by one fit blades. When all the blades are tapped into position the impellor can be fitted.
3. To fit the impellor - notice there are notches cut into the lower tapered edge of the impellor and these locate with formations on the end of the blast blades.
4. Replace the hexagon headed fixing screw and spring washer into the centre of the impellor and turn down tight. Tap fingers of the impellor with a soft mallet to ensure that the impellor is locating correctly.
5. Spin the blast wheel by hand to check by sight that the impellor is running true (any run out usually means that the impellor is not correctly located).
6. Finally tighten the hexagon headed screw by placing bar between blast wheel and cabinet to stop rotation and then making sure the hexagon headed impellor fixing screw is really tight.
7. Replace the abrasive control cage (with notch uppermost) and the control cage locking screws. At this stage rotate the blast wheel by hand to make sure there is nothing restricting or catching during the rotation as any such fault must be located and corrected at this stage
8. Replace the housing top cover and fixing bolts.
9. Replace the feed spout assembly.

NOTE: The blast wheel blades are supplied as balanced sets of seven. For this reason they must not be replaced as a single item or mixed with other sets of blades.

FAULT FINDING

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1. DECREASED FLOW OF ABRASIVE

a. Check there is sufficient abrasive in the hopper.

b. Dump shot and check for obstructions on the screen in the hopper (usually paint flakes) or in the butterfly valve in the feed chute. To dump the abrasive open abrasive valve with the blast motor in a slow run or wind down speed.

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2. MACHINE IS TRAILING/LEAVING EXCESSIVE AMOUNTS OF ABRASIVE BEHIND

a. Check the dust collector is working correctly and efficiently

b. Check that one or both side seals are not stuck/jammed up when fitted with manganese side seals.

c. Check the fan is working on the dust collector at the correct rotation - 3 phase only.

d. Check under machine and examine that the urethane seals are all in position and are not worn.

e. Check blades, cage, impellor and liners are not excessively worn.

f. Check the cage is in the correct position and if not adjust accordingly.

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3. MACHINE DUMPS ALL ABRASIVE OR DUMPS OCCASIONALLY

a. Check all items in 2 above.

b. Check that the working surface is dry and is not contaminated with oil deposits etc.

c. If the machine has dumped abrasive and after the hopper has been refilled make sure no abrasive is still under the machine blast area on the floor when re-starting to blast or the machine will not reclaim.

d. If the machine occasionally dumps the abrasive when heavy blasting or exposing aggregates 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.

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4. MACHINE SUFFERS REDUCTION IN BLASTING POWER

a. Check all items above. If all are OK there must be a reduction in revs under load. Check the drive belts from the blast motor to the blast wheel.

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5. NO SUPPLY OF POWER TO MACHINE

a. If using a generator check the panel fuses and circuit breaker switch is in the working position.

b. If using the mains check the fuses on the electrical supply.

6. POWER TO THE MACHINE BUT AN ELECTRICAL FAULT

FAULT	CHECK LIST
MAIN MOTOR	
1. No indicator lamp on	a. 380v or 415v supply on, correct voltages on all phases. b. 20 amp fuses in a serviceable condition. c. Loose connections. d. Test Lamp and Transformer.
2. Indicator lamp on Motor	a. Stop button released. b. all List 1 then check following c. Over load trips out, check following:- Rotor has free movement on the motor d. Motor connections. e. Contractor main contact points.
3. Motor Start trips on overload	a. List 1 check a, b & c b. List 2 check a, b, c, & e. c. Test motor winding
FAN HYDRAULIC PUMP	
4. Motor not starting	a. 380v or 440v supply on correct voltage on all phases b. 20 amp fuses in a serviceable condition c. Loose connection d. Overload trips out, check following:- Rotor has free movement on the motor. e. Motor connections. f. Contact points not burnt. g. Motor Winding.

DUST COLLECTOR UNIT

These units are mobile and remote from the machines giving high manoeuvrability to the SPE machine and making it capable of dealing with high volumes of debris being removed.

OPERATION

Dust laden air is drawn by the exhaust fan into the cabinet to the filtration cartridges (filters), clean air is then exhausted through the fan to the atmosphere.

Dust filtration units are cleaned by blowing compressed air into them from the inside thus creating negative pressure on the external surface of filters and allowing the dust collected to fall into dust storage pan at the bottom on the cabinet.

Air to the clean dust filters is fed from air reservoir impulses which are controllable and adjustable both for interval and duration within the timing unit.

The electronic pulse controller is fully automatic and requires no maintenance. The board and solenoids are 100v AC supplied by a transformer fitted within the panel. A facility is provided to enable the interval of the pulse and the duration of each valve to be varied to suit the characteristics of the compressor. The interval between the pulse should be approximately 7/8 seconds.

The relief valve on the compressor should be approximately 100 psi.
The duration of the pulse should be set so the compressor is just able to rebuild the pressure to the relief valve setting just before the 7/8 second interval is reduced.
Dust laden air is drawn by the exhaust fan into the cabinet to the filter elements and clean air is then exhausted through the fan to atmosphere.

SERVICE INFORMATION

ROUTINE INSPECTION

To maintain the optimum performance of the dalmatic filters a routine inspection should be made to minimise down time in the event of the malfunction of the equipment particularly on continuous performance applications. Any abnormal change in pressure absorbed across the filter elements indicates a change in operating conditions and a fault to be rectified. A prolonged stoppage of compressed air will cause an excessive build up of dust on the filter elements with consequent loss of suction.

After the fault has been rectified resumption of compressed air cleaning will return the filter to normal efficiency although it may be necessary to operate the Dalmatic Controller in still air conditions for a short period to dislodge the accumulated dust before putting the filter into operation.

To clear the filter elements switch off the main fan only and allow the pulse controller to perform several complete cleaning cycles before switching off the compressor etc.

DAILY/WEEKLY SERVICING SCHEDULE

A record should be kept of all pressure checks to aid speedy diagnosis of faulty operation.

1. Open the valve at the bottom of the moisture separator bowl and allow the collected water to drain off. Then close the valve. Drain tanks daily
2. Sealing - Check the dust seals on all joints for damage or ageing and ensure that they are properly seated. This is particularly important where the unit is located outside or in wet atmosphere to prevent entry of water. Faulty seals must be replaced.
3. Moisture separator - Isolate the compressed air supply then remove and clean the filter element.
4. Filter elements (insert and pads) - Remove each filter and check the general condition of the filter. Clean each filter using a vacuum cleaner. If the dust is of an abrasive nature it is advisable to examine the elements more frequently. Filters showing holes must be replaced.
5. Jet tubes - check the tubes are clean and the jet orifices are clear.
6. Air manifold - Remove the drain plug and air inlet connections and clean out any accumulated sludge. Check the pressure relief valve for connection operation.
7. Compressor unit - Filter unit to be inspected daily and to be replaced on a weekly. Oil level to be checked daily and to be changed on a monthly basis

BASIC FAULT FINDING

These are three main faults which may occur.

1. Part loss of suction

2. Total loss of suction

3. Effluent in the clean air outlet.

Service Engineers should rectify any incipient faults they may find during fault tracing eg: loose Terminals, perished hoses etc.
Disconnect the solenoid coils and fit a new fuse and switch on. If the fuse is intact then it is almost certain the fault was in the solenoid valve circuits and these should be replaced by good ones.

LIGHT EMITTING DIODE (LED) INDICATION

a. If the LED lights up then the electrical circuit should be operating satisfactorily.
b. If the LED is not operating, disconnect all the common output leads (ie: one per solenoid valve) from the PCB output terminal strip. Switch on and check for LED indication.
c. If it fails to light up, replace the fuse and check again.
d. If it still fails to light up, the PCB needs to be replaced.

ASSISTANT INSTRUCTIONS

Normally the crew for the SPE Machine consists of one trained operator and a trainee/assistant.
Whilst the blasting operation is being performed the assistant must carry out the following duties:-

1. Watch the hose being pulled by the machine to make sure it does not snag on any projection which might damage the hoses.

2. Fit and maintain hose bundle trolleys to minimise friction between hose bundle and work surface.

3. Assist by making sure there is sufficient free hose whilst the operator is carrying out 180 degree turn at each end of the blasting run.

4. Keep work area tidy by sweeping any abrasive scattered into the next run to be taken by the machine where it will be picked up by the machine and re-used.

5. Generally assist with setting up the equipment by checking the oils, re-fuelling power unit etc.

SPE20ES
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Spare Parts Breakdown

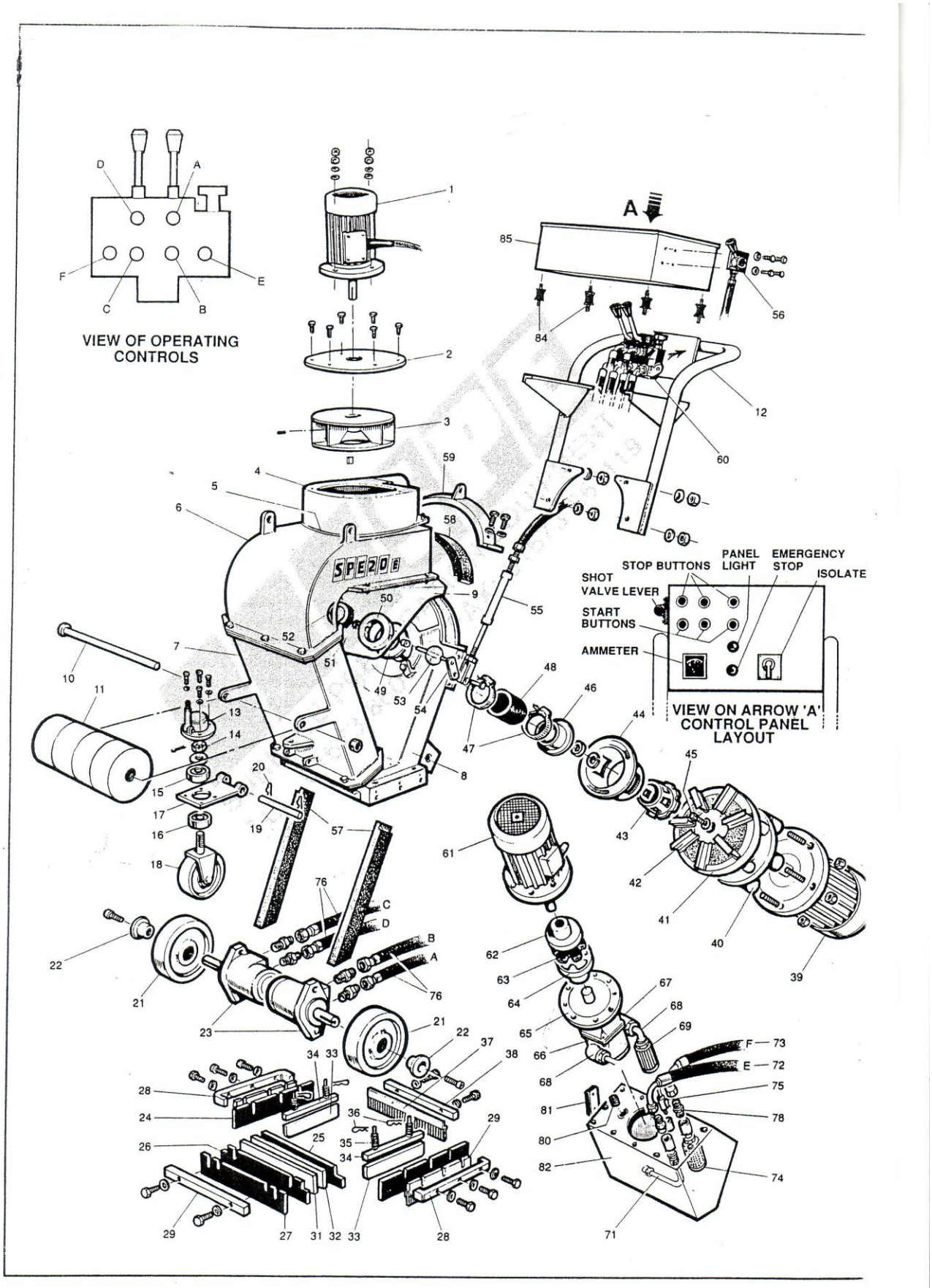
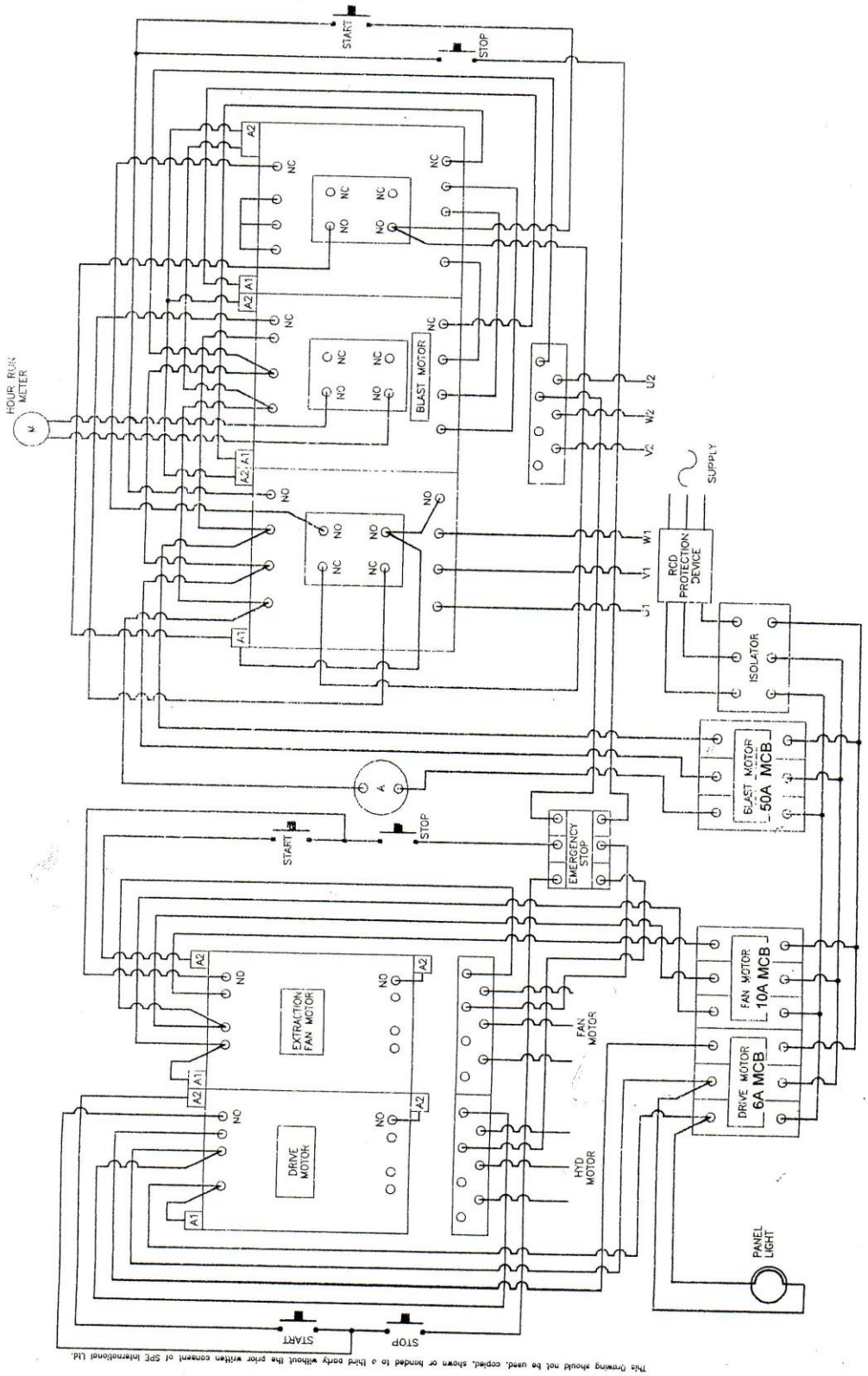
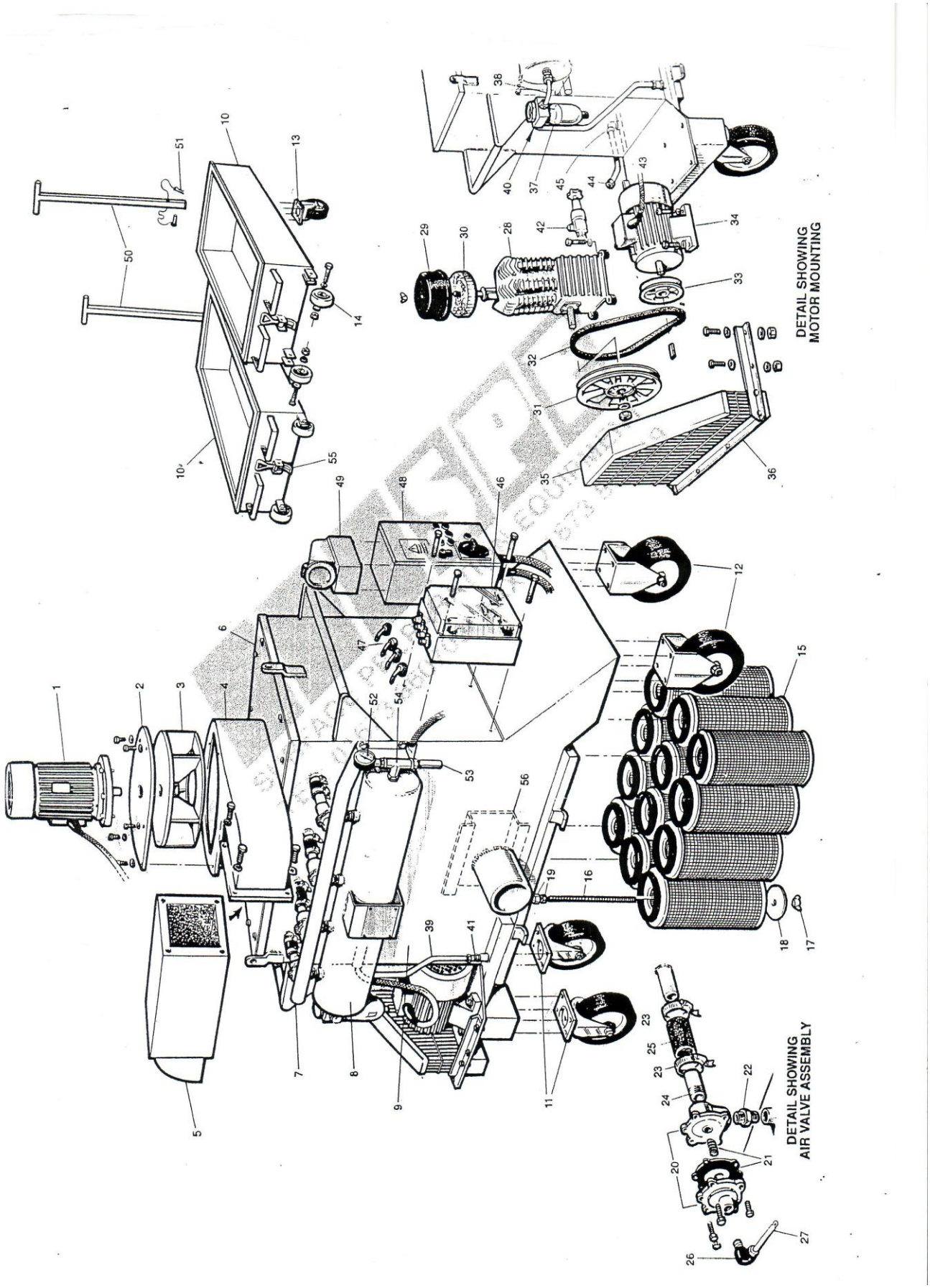

VIEW OF OPERATING CONTROLS
VIEW ON ARROW 'A' CONTROL PANEL LAYOUT
STOP BUTTONS
PANEL LIGHT
EMERGENCY STOP
ISOLATE
SHOT VALVE LEVER
START BUTTONS
AMMETER
SPE20E

Fig no	Part no	Description	Fig no	Part no	Description
1	05003	Fan motor	45	02004	Impellor bolt & spring washer
2	01031	Fan casing top plate	46	03022	Feed spout (cage end)
3	01033	Fan impellor	47	03026	Hose clip (2)
4	01030	Fan casing	48	03027	Shot tube
5	01032	Fan casing bottom plate	49	03023	Feed spout (hopper end)
6	01002	Separator unit	50	08046	Shot valve body
7	01001	Reclaim housing	51	08047	Oilite bush (2)
8	01000	Blast catsinet	52	08045	Shot valve line
9	01003	Abrasive hopper	53	08044	Shot valve butterfly
10	01042	Balance weight support pin	54	03025	Shot valve spindle
11	01023	Balance Weights (4)	55	08043A	Shot valve control cable
12	01043	Handle	56	08042	Shot valve control lever
13	07022	Hub	57	03000	R/H Side liner
14	07033	Castleated nut		03001	L/H Side liner
15	07021	Bearing upper	58	03002	Hood liner
16	07032	Bearing lower	59	03028	Hood liner cover
17	01045	Front wheel support plate	60	09010	Steering & speed control valve
18	01018	Front wheel	61	05006	Pump motor
18A	01019	Stub axle	62	02012	Motor coupling
19	01046	Support plate pivot pin	63	02011	Coupling spider
20	08051	Retaining clip (2)	64	02013	Pump coupling
21	01025	Drive wheel (2)	65	09055	Bell housing
22	07035	Retaining hub (2)	66	09042	Hydraulic pump
23	09009	Wheel motor (2)	67	09056	Port connector (inlet)
24	03007	Side skirt seal (2)	68	09057	Port connector (outlet)
25	03004	Inner front seal (2)	69	04006	Filter (in tank suction)
26	03005	Intermediate front seal	70	04022	Elbow
27	03006	Outer front seal	71	04023	Pipe (port connector to tank lid)
28	01015	Side brush & seal retaining bar	72	04015	Hydraulic hose (tank to control valve)
29	03010	Side brush (2)	73	04016	Hydraulic hose (return, valve to tank)
30	01016	Front seal retaining bar (outer)	74	09011	Diffuser (in tank return)
31	01047	Inner seal retaining bar (drilled)	75	09008	Tank breather tap
32	01048	Inner seal retaining bar (plain)	76	04014	Hydraulic hose (4) (wheel motor)
33	03003	Steel side seal (2)	77	09058	½" B.S.P M-M adaptor (10)
34	01013	Tension bar (2)	78	09061	¾" B.S.P M-M adaptor
35	01014	Side seal spring (4)	79	09059	¾" x ½" B.S.P M-M adaptor
36	08051	Retaining pin (4)	80	04024	Tank filter plug
37	03009	Rear brush	81	09007	Sight level gauge
38	01049	Rear brush retaining bar	82	04025	Hydraulic tank
39	05000	Blast motor	83	01044	Handle mounting bar
40	05027	Blast motor mounting plate	84	05028	Electric panel rubber mount (4)
41	02000	Blast wheel	85	05009	Electric control panel
42	02001	Blast wheel blades (7 per set)		0200	Crank
43	02003	Impellor		0213	Bearing shell
44	02002	Control cage		0221	Oil ring
				0199	Conn rod

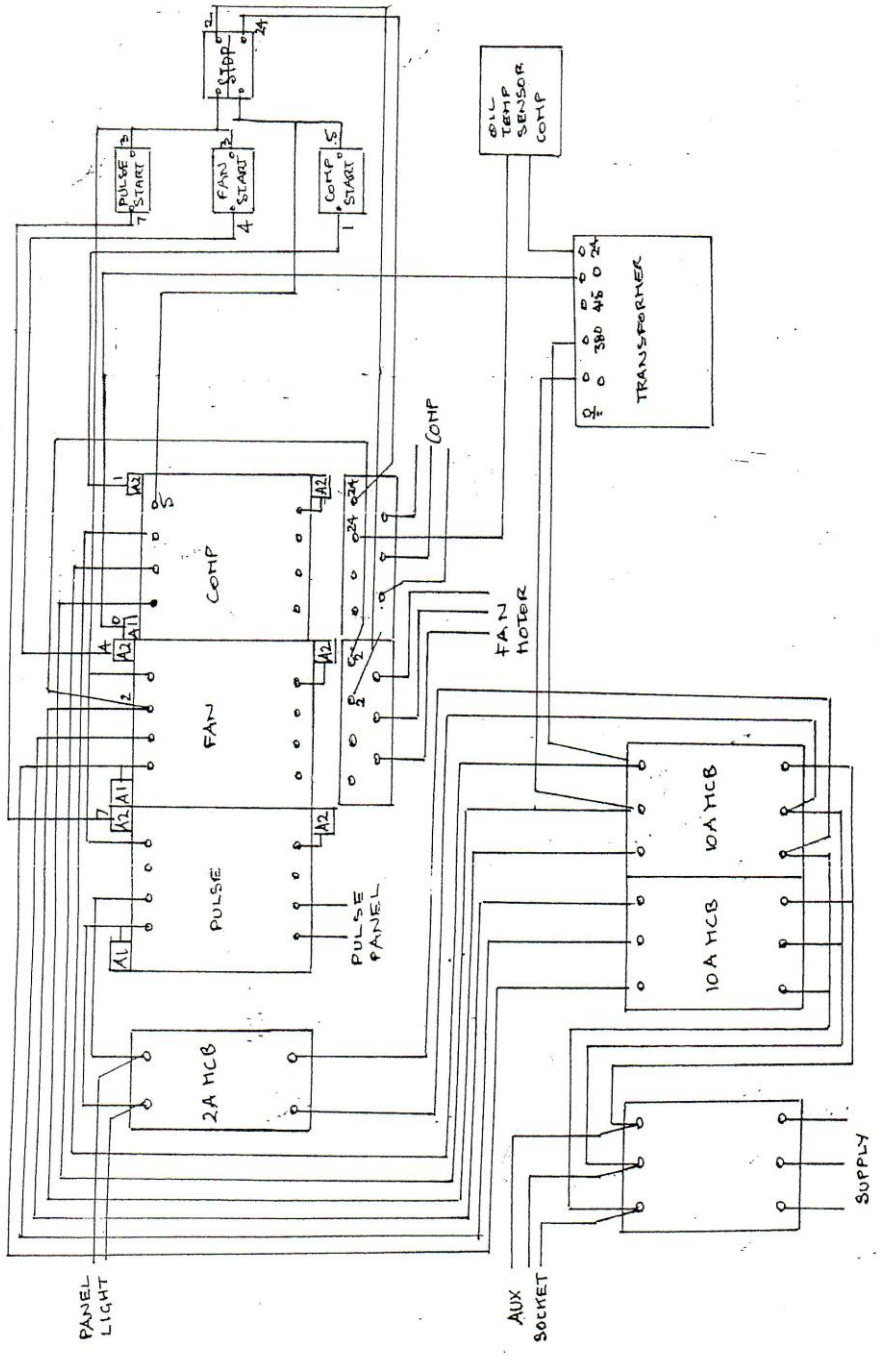


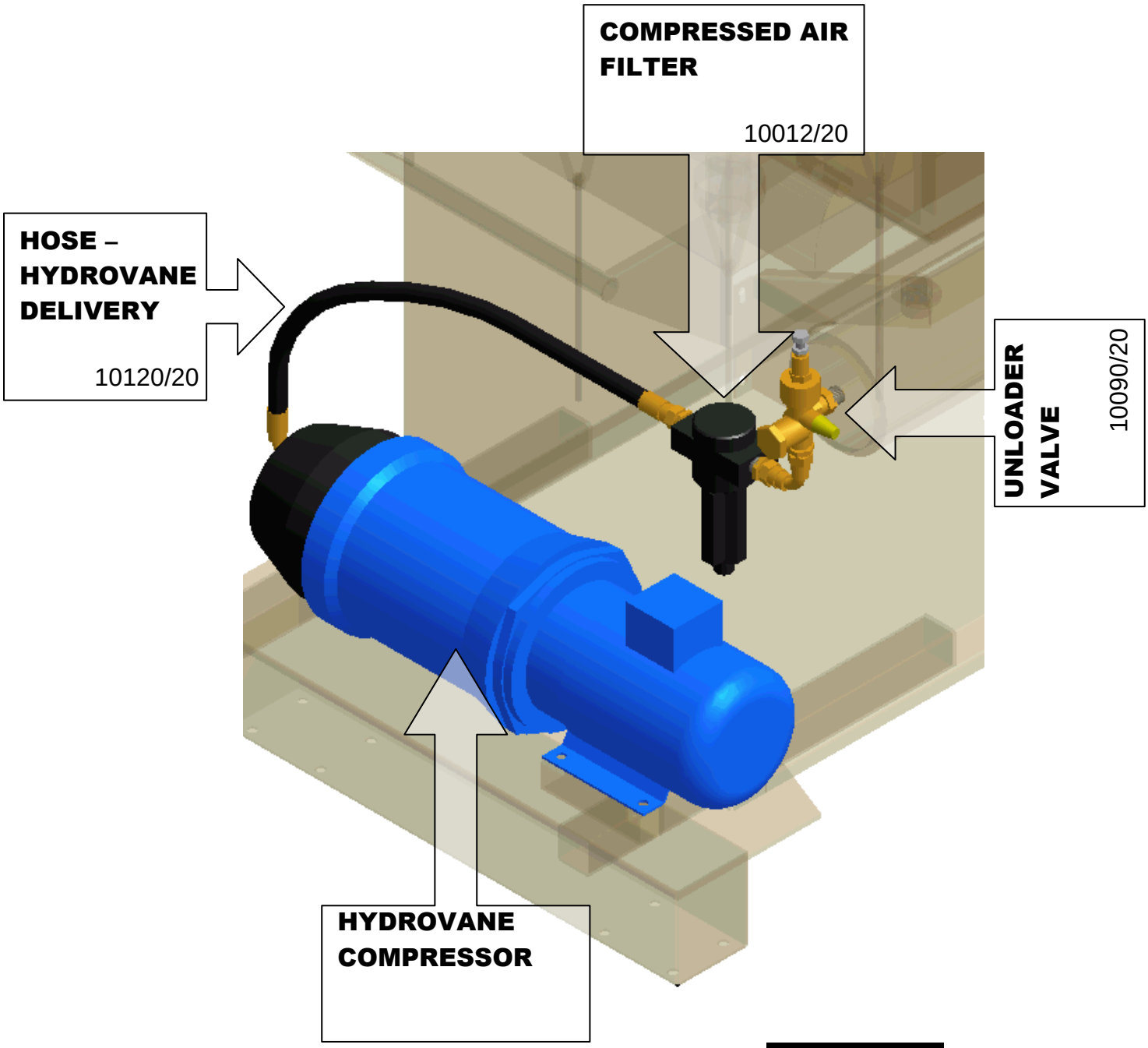

DETAIL SHOWING
MOTOR MOUNTING
DETAIL SHOWING
AIR VALVE ASSEMBLY

20DCCS

Fig no	Part no	Description	Fig no	Part no	Description
1	10059	Fan motor	45	10088	Fitting (pipe to tank)
2	01031	Fan casing top plate	46	10054	Pulse panel
3	10058	Impellor	47	10093	Push-in connector (4)
4	10057	Fan casing	48	10055	Electric control panel
5	10065	Silencer	49	10094	Electric socket
6	10100	Lid	50	10112	Handle (2)
7	10102	Guard	51	10096	Pin and clip assy (2)
8	10068	Air receiver	52	10097	Pressure gauge
9	10103	Main body	53	10013	Pressure relief valve
10	10104	Dust tray (2)	54	10098	Tee piece
11	10050	Castor wheel (2)	55	10064	Over centre clips (4)
12	10051	Fixed wheel (2)	56	10113	Internal baffle plate
13	10052	Castor wheel (2)			
14	06006	Fixed wheel (2)			
15	10056	Filter element (12)			
16	10070	Threaded rod (12)			
17	10071	Wing nut (12)			
18	10072	Flat washer (12)			
19	10073	Hex nut (24)			
20	10036	Diaphragm valve (4)			
21	10037	Valve repair kit			
22	10074	Connector (4)			
23	10075	Clip (8)			
24	10076	Hose connector (4)			
25	10077	Hose (4)			
26	10078	Push-in connector (4)			
27	10079	Semi rigid piping			
28	10105	Compressor pump			
29	10080	Air filter assy			
30	10081	Filter element			
31	10106	Flywheel			
32	10107	Drive belt			
33	10108	Pulley			
34	10109	Compressor motor			
35	10110	Guard upper			
36	10111	Guard lower			
37	10012	Compressed air filter			
38	10086	Elbow			
39	10087	Copper pipe			
40	10088	Fitting (pipe to filter)			
41	10089	Fitting (pipe to tank)			
42	10090	Unloader valve			
43	10091	Copper pipe			
44	10092	Fitting (pipe to valve)			

20DC


STOP
PULSE START
FAN START
COMP START
OIL TEMP SENSOR COMP
TRANSFORMER
380
415
COMP
FAN MOTOR
FAN
COMP
PULSE
PULSE PANEL
10A MCB
10A MCB
2A MCB
SUPPLY
PANEL LIGHT
AUX SOCKET



SPE 20 DCCs
Hydrovane Adaptation

SPE20ES
Operating Manual

SPECIFICATION SHEET

Applications:
- Removal of old coatings
- Exposing aggregates.
- Providing non-slip surfaces.
- Removing rubber deposits.
- Steel preparation to SA3 standard
- Laitence removal on new concrete floors
- Multi-storey car parks.
- Shopping precincts.
- Food processing plants.
- Storage tanks roofs and floors.
- Ships decks
- Steel plates
- Offshore platforms, walkways and helidecks
- Ro-Ro bridges
- Ferries
- Foot bridges

The SPE 20E Super is a large Autoblast machine for the serious contractor, ideal for high productivity. Electrically powered. Mainly used for the preparation of concrete floors but equally effective on steel surfaces.

This equipment can have electrical certification for petrochemical refinery use. Self propelled and infinitely variable in all operations. Can be dismantled to pass through 600mm access holes in storage tanks. The seal system feature as with all other machines can be varied to blast clean from 2" up to 20" wide for inspection of weld seams or line removal. Recognised in industry as the modern fast versatile environmental dust free means to dry abrasive cleaning and texturing of horizontal or slightly inclined surfaces. This eliminates mess normally associated with hand blasting. Leaves an ideal surface for coatings and overlays to be applied. Abrasive and debris is contained to prevent hazardous working and environmental pollution.

Features:
- Blast unit constructed of manganese steel.
- Dust collector fitted with integral compressor and reverse air jet pulsation system to allow continuous working.
- Drive wheels are within the width of the blast cabinet.
- Blasting width can be reduced for line removal and weld inspection.
- Self propelled variable speed drive allows complete operator control.
- Grill fitted into lower separator hopper unit assembly to eliminate foreign objects being allowed into the blastwheel causing damage.
- Capable of using up to S780 abrasive.
- Blastwheel can be rotated in both directions (Optional extra)
- Can be dismantled to pass through a 600mm access hole in storage tanks.

SPECIFICATION SHEET

Specification 20ES Blast Machine	
Type	Electric 3 Phase
Part No.	SPE 20ES
Standard Blast Motor hp	30
Voltage	380/415
Cycles	60
Cleaning Width (mm)	520
Machine Dimensions (mm) Width Height Length Weight (kg)	 597 1448 1511 662

Specification 20ES Dust Collector	
Type	Electric 3 Phase
Part No.	SPE 20 D/C
Voltage	380/415
Cycles	60
Machine Dimensions (mm) Width Height Length Weight (kg)	 1030 1600 1730 400

SPE20ES
Operating Manual

RECORD OF NOISE AND VIBRATION ASSESSMENT

Manufacturer:
Type: Blast machine
Model No. SPE20E
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	1.12	0.72	1.14	1.75

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	
62.5	76.6	90.9	92.6	94.8	90.5	84.3	75.4	**98.8**

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		
41.7	58.7	74.7	83	79.4	74.3	67.7	58.7	**84.5**	**97.8**

SPE20ES
Operating Manual

RECORD OF NOISE ASSESSMENT

Manufacturer:	SPE
Type:	Collector
Model No.	SPE20 DCCS
Operation :	Free Running

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**	
59.3	72.0	85.8	101.8	93.6	87.9	89.4	90.4	**103.2**

WARRANTY

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

Warranty start date:	**As dispatch date**
Model:	**SPE20ES**
Serial no:	
Customer name:	
Customer Address:	

Manufacturer:	**SPE International Ltd**
	Honeyholes Lane
	Dunholme
	Lincoln
	LN2 3SU
	England
telephone:	**+44 (0) 1673 860709**
fax:	**+44 (0) 1673 861119**
Email:	**sales@spe-int.com**
Web site:	**www.spe-int.com**

WARRANTY

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

Warranty start date:	**As dispatch date**
Model:	**SPE20DC**
Serial no:	
Customer name:	
Customer Address:	

Manufacturer:	**SPE International Ltd**
	Honeyholes Lane
	Dunholme
	Lincoln
	LN2 3SU
	England
telephone:	**+44 (0) 1673 860709**
fax:	**+44 (0) 1673 861119**
Email:	**sales@spe-int.com**
Web site:	**www.spe-int.com**

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) **SPE20ES Autoblast Machine**

(Model/type) **SPE20ES**

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 INTERNATIONAL LTD

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) **SPE20DC Dust Collector**

(Model/type) **SPE20DC**

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 INTERNATIONAL LTD

CONDITIONS OF SALE

The quotation overleaf and any order placed following such quotation are subject to the following conditions of sale in which SPE International Limited is referred to as the "Company".

1. **Validity of quotation**
   No order received from a customer by the Company shall constitute a contract until accepted in writing by the Company.
2. **Prices**
   Prices quoted by the Company are firm for 30 days only or until previously withdrawn. Unless otherwise stated all prices are exclusive of any applicable Value Added Tax for which the customer shall be additionally liable to the Company.
3. **Delivery**
   Delivery periods and dates are given in good faith but are not the subject of any warranty or condition and time shall not be of the essence of the contract in these respects. No liability will attach to the Company if delivery periods or dates are not met for any reason whatsoever.
4. **Payment**
   Save as may otherwise be agreed in writing the customer shall pay the price in full on or before the estimated delivery date whereupon the Company shall raise a receipted invoice. Each invoice includes an Overdue Account Levy of 5% of the total invoice value inclusive of VAT. Subject to payment in full being made on or before the due date a sum equal to the Overdue Account Levy shall be credited to the customers account with the Company. Until such time as payment in full has been made the Company shall be under no obligation to allow or effect of any goods to the customer.
5. **Warranty**
   The Company warrants that all goods supplied by it will correspond to their specifications and will be free from defects in materials or workmanship for a period of 12 months from the date of delivery. The Company's obligation in the event of a breach of this warranty is limited to the repair or replacement of any defective goods which shall be returned at the cost and expense of the customer to the Company. This warranty is given in lieu of all the other warranty or conditions expressed or implied (whether by statute or otherwise) and is subject to the following conditions:-
   5.1 Claims must be notified in writing to the Company within seven days from the date of delivery or (where the defect is not apparent on reasonable inspection) as soon as practicable after discovery of the defect.
   5.2 The Company shall be under no liability in respect of any defect in the goods arising from any drawing, design or specification supplied by the customer.
   5.3 The Company shall be under no liability if the defect or failure in the reasonable opinion of the Company arises from wilful damage or misuse, negligence by the customer or any third party. Failure to follow the Company instructions, usage of non-recommended parts and materials, alteration or repair of the goods without the prior approval of the Company or non-recommended maintenance.
   5.4 The Company shall be under no liability if the price for the goods has not been paid by the due date for payment.
   5.5 The above warranty does not extend to:-
   5.5.1 Parts, materials or equipment not manufactured by the company in respect of which the customer shall be entitled only to the benefit of any such warranty or guarantee as is given by the manufacturer to the Company.
   5.5.2 Any component part of the goods or associated parts coming into contact with abrasive elements or dust within surface Preparation equipment.
   5.5.3 Fair wear and tear of moving parts within the goods.
   5.6 Except in the case of death or personal injury caused by the Company negligence, the Company shall not be liable for any consequential loss or damage (whether for loss of profit or otherwise) or other claims for consequential compensation.
6. **Carriage**
   Packing, carriage and insurance charges in respect of delivery of the goods to the customer will be charged to the customer at cost to the company.
7. **Damage in Transit**
   The company does not accept any liability for loss or damage to the goods while in transit to the customer.
8. **Risk**
   The risk in the goods shall pass to the customer on delivery to the customer or (if earlier) when possession of the goods is taken by a carrier for delivery to the customer.
9. **Force Majeure**
   The Company shall not be liable to the customer or be deemed to be in breach of any contract with the customer by reason of any delay in performing or any failure to perform any obligation of the Company obligation in relation to the goods if the delay or failure was due to force majeure or to any other cause beyond the Company's reasonable control.
10. **Reservation of Title**
    The goods sold under these conditions shall remain the absolute property of the Company and legal title in the goods shall remain vested in the Company until payment in full of all amounts invoiced or due to the Company in respect of the goods. If the customer shall enter into liquidation have a winding up order made against it or have a Liquidator, receiver, administrator or administrator receiver shall be appointed over its assets, income or any part there of before the property in the goods has passed in accordance with this condition the Company shall be entitled immediately after giving notice of its intention to repossess any goods to enter upon the premises of the customer with such transport as may be necessary and to repossess any goods to which it has title under this condition. No liquidator, receiver, administrator or administrative receiver of the customer shall have authority to sell goods to which the Company has title without the prior written consent of the Company.
11. **Insolvency of Customer**
    If the customer being a body corporate, shall pass a resolution or suffer an order of the Court to be made for winding – up, or if a Receiver, Administrator or Administrative Receiver shall be appointed or, being an individual or partnership, shall suspend payment , propose or enter into any composition or arrangement with his or their creditors, or have a bankruptcy order made against him or them, then the Company shall have the right, without prejudice to any other contract with the customer, not to proceed further with the contract and shall be entitled to charge for work already carried out (whether completed or not) and for goods and materials already purchased for the customer such charge to be an immediate debt due from the customer.
12. **Patent Rights, etc**
    The acceptance of a quotation includes the recognition by the customer of the Company under any patents, trademarks, registered designs or other intellectual property rights relating to the goods and the customer undertakes that patent numbers, trademarks or other trade markings on goods supplied shall not be obliterated, altered or defaced.
13. **Applicable Law**
    These conditions shall be governed by and construed in accordance with English law and parties acknowledge and accept the exclusive jurisdiction of the English Courts.