

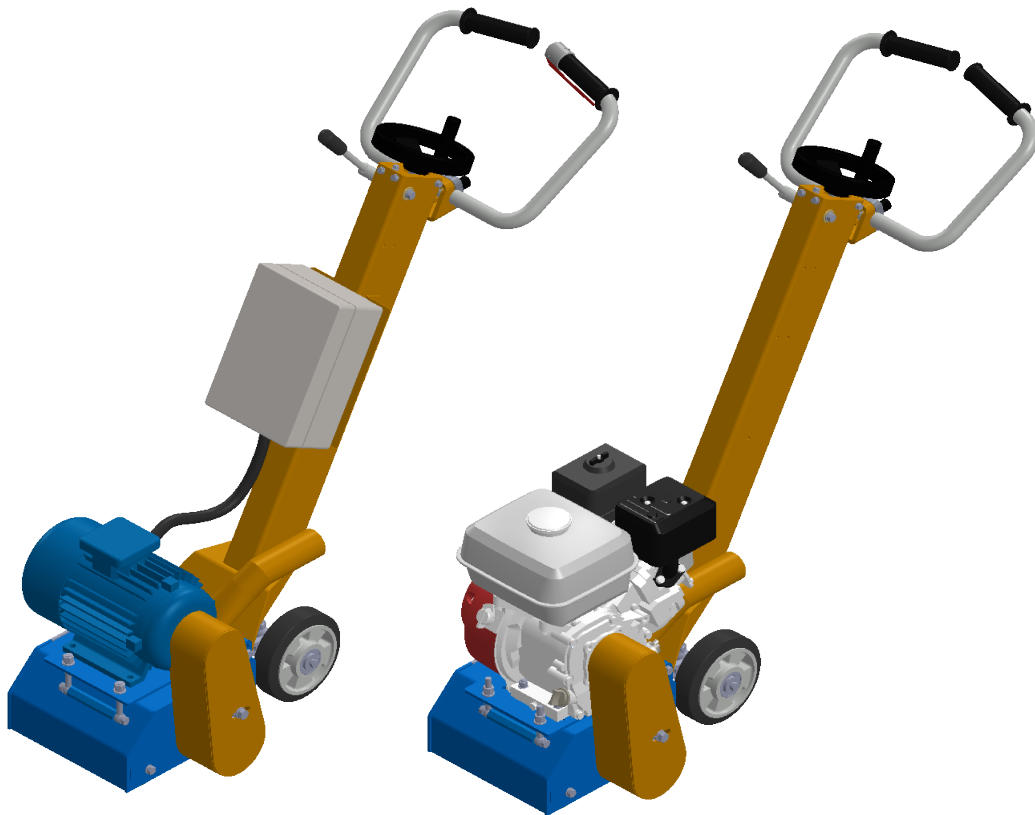


**OWNER'S
MANUAL**

**PARTS
BOOK**

SCARIFIER

BEF200N



Doc. #OIPB-S18001-NA
Orig. Rel. – 08/2020
Curr Rev. 05

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**ORIGINAL LANGUAGE OPERATING MANUAL FOR
BARTELL RIDE-ON TROWELS**

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00	09/20	Initial Release	AN
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03	01/22	Added accessories	AN
04	07/22	Description Updates	AN
05	03/24	Logos Update, Part number corrections	AN





SAFETY PRECAUTIONS	
	<p style="text-align: center;">DANGER EXPLOSION HAZARD</p> <p>Never operate the machine in an explosive atmosphere, near combustible materials, or where ventilation does not clear exhaust fumes.</p>
	<p style="text-align: center;">WARNING BURN HAZARD</p> <p>Never come into contact with the engine or muffler when engine is operating or shortly after it is turned off. Serious burns may occur.</p>
	<p style="text-align: center;">CAUTION MOVING PARTS</p> <p>Before starting the machine, ensure that all guards and safety devices are in place and functioning properly.</p>
	<p style="text-align: center;">ATTENTION READ OWNER'S MANUAL</p> <p>Read and understand owner's manual before using this machine. Failure to follow operating instructions could result in serious injury or death.</p>

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ABOUT THIS MANUAL

To the best of our knowledge, this manual covers the operation and maintenance of the BEF200N Scarifier. Before operation of the equipment this manual should be read and understood by the operator. The safety regulations must be followed at all times, and service of electrical components should be carried out by authorised personnel.

SAFETY INSTRUCTIONS

Failure to follow these instructions may result in serious personal injury or death. SPE disclaims all responsibility for damage to persons or objects arising as a consequence of incorrect handling of the machine and failure to inspect the machine for damage or other faults that may influence the operation prior to starting work.

- Only trained operatives should be allowed to work the BEF200N.
- All operatives should wear all PPE including ear protection, goggles, an effective dust mask and boots.
- Never leave the BEF200N unattended while in use.
- An SPE dust vacuum unit is recommended to control dust.
- Never leave the engine/motor running when machine is not in use.
- Always ensure that all power leads are disconnected before attempting to service the machine. The service of electrical components should be carried out by authorised personnel.
- Never remove the side plate or belt guard until the cutter drum has come to a complete standstill.
- Never tip the machine backwards until the cutters have come to rest.
- Never operate the machine outdoors in wet conditions as the electrical components are not waterproof.

Noise and vibration will occur at various levels dependent on the attachments and work being completed. SPE have assessments conducted under test conditions detailed in the operating manual. (See Noise and Vibration Assessments). However, it is recommended that additional tests are taken on site to provide the operator with accurate information on using the equipment within the guidelines laid down by the Health & Safety Executive.

START-UP OPERATION

Check the following prior to starting equipment:

- Condition of the cutter drum assembly.
 - All bolts for proper tightness.
 - Drive belt condition and tension.
 - All plugs and cables for damage.
1. Before starting the machine ensure that the cutter drum assembly is clear of the ground by raising the quick lift lever so that the cutters are clear of the ground. Adjust the handlebar to a comfortable height and position.
 2. Connect the power supply or IF gas version then check for fuel.
 3. Connect the vacuum hose to the dust port at the rear of the machine if a dust control vacuum is being used.

STEP 4 -ELECTRIC VERSIONS, STEP 5 GAS VERSIONS

4. BEF200N-1 – 110V 50Hz Single Phase

Start the motor by turning the switch on the panel to the start position. Hold for 2-3 seconds for the motor to start and release. The switch will return to its run position. To stop the machine, turn the switch anti-clockwise.

BEF200N-2 – 230V 50Hz Single Phase

Start the motor by pressing the green start button on the panel. To stop the machine, press the red stop button.

BEF200N-3 – 400V 50Hz 3 Phase

Start the motor by pressing the green start button on the panel. To stop the machine, press the red stop button.

BEF200N-2A – 230V 60Hz Single Phase (N.A)

Start the motor by pressing the black button on the electrical box. To stop the machine, press the red stop button.

5. BEF200N-4 – GAS

Start engine by following the instructions in the engine manual. Once engine is on and running then close the choke and throttle to full speed.

6. To start cutting gently lower the quick lift lever to return the cutting drum to the operating position. Turn the handwheel of the fine height adjustment until the desired depth of cut is achieved.

GENERAL OPERATION

- Excessive downward pressure on the cutters may marginally improve the work rate/finish but the definite increase in wear rates on the cutter drum assembly, machine components and overloading the motor is the negative result.
- Two light passes are quicker and more cost effective than one slow heavy pass. Tests have proven conclusively that heavy downward pressure reduces cutter and drum life by over 50%.
- Cutter depth should not exceed ¼". Often shallower depth provides better results.
- To remove dust, connect an industrial dust collector or vacuum to the 50mm port at the rear of the machine. We recommend SPE Dust Control units for near-100% dust control. In the absence of a dust control unit, it is acceptable to spray water onto the surface or to feed water down the vacuum port. Cutter drum assembly life is increased by around 10% when operating the machine in this way.
- Electrical motors and switches are not waterproof, take care to protect them from splashes.
- The BEF200N is normally operated in a forward direction. The operator varies the speed of travel to determine the final finish, having already pre-set the depth control. It is permissible to operate the machine with a backwards and forward action. Each pass should be overlapped to produce a uniform finish.

ELECTRICAL REQUIREMENTS

The BEF200N machine is supplied with a specially commissioned electric motor and starter switch assembly. Each unit is fully tested, and the safety overload relays have been calibrated and set according to the manufacturer's specifications. In the event of the malfunction on a new machine the owner should first check that the power supply on-site is suitable and adequate.

BEF200N-1 – 110V 50Hz Single Phase

- Motor requires a 110v, 15 Amp supply – 4 mm 3 core wire.

BEF200N-2 – 230V 50Hz Single Phase

- Motor requires a 230v, 16 Amp supply - 7.5 mm 3 core wire.

BEF200N-2A – 230V 60HZ Single Phase (North America)

- Motor requires a 230v, 20 Amp supply – 12 awg 3 core wire.

BEF200N-3 – 400V 50Hz 3 Phase

- Motor requires a 400v, 16 Amp supply - 7.5 mm 4 core wire.

*See Electrical Specifications for more information.

CUTTER DRUM REMOVAL

1. Isolate the power supply and ensure the cutter drum has stopped rotating.
2. Raise the Quick-Lift lever so that the cutters are clear from the ground.
3. Loosen the four 8mm set screws and remove the side plate. This cover can stick when brand new, so it may be necessary to lever off the plate with a screwdriver.
4. With the side plate removed the cutter drum will simply slide off the drive shaft.
5. Fitting a new cutter head is simply a reversal of the steps 1-4. Ensure that the four 8mm set screws are always tight.

CUTTER DRUM MAINTENANCE

When changing a cutter drum always check that the flail shafts are not excessively worn with pronounced grooves and that the centres of cutters and spacers are not elongated or beginning to mushroom. The screws which hold the drum end plates in position must be tight and in good condition.

It is expensive and false economy to run the cutter drum components until they break. Try to establish a routine for replacing wear parts before they cause problems. Remember that the drum assembly is hitting concrete with great force 1,800 times every minute, therefore expenditure on consumables must be expected and built into all job costing.

While changing the drum the condition of the drive shaft and side plate bearings should be checked. If there is any roughness, side-play, or leakage of grease is detected, new bearings should be fitted. Lightly oiling the drive shaft will prevent a build-up of rust which could cause difficulty when changing the drum.

The drive shaft is manufactured from high quality steel and then heat treated to produce the special properties required. The shaft is extremely strong and virtually unbreakable when used as intended. If, however, sideways pressure is exerted on the shaft while it is not supported by the side plate bearing, then it can be bent.

With the drum removed check that the vacuum port is free from blockages and that the dust skirt is in good condition.

GENERAL MAINTENANCE

Prior to any maintenance or adjustment, you must isolate the power supply.

AFTER USE:

Clean the machine to remove all the build-up of dust and surface residue. If using a hose pipe or pressure washer take care that water is not directed onto electrical components and switches.

(Note: Motors and switches are not waterproof)

Ensure the height adjustment thread is cleaned and then lightly oiled. Periodically it should be removed and the female, threaded section cleaned out and oiled regularly to maintain a light, smooth height adjustment.

The HTD drive belt will give a long and trouble-free operating life if basic procedures are followed.

Daily, check the drive pulleys for build-up of deposits and trapped stones. Check the belt and teeth for surface cuts and cracks once the surface of the belt is damaged it will soon fail. Build-up of dirt in the pulley teeth causes two problems: The belt becomes tight and as the teeth can no longer fully mesh properly, all the power is transmitted through the tip of the teeth with obvious negative results.

The drive belt is tensioned by two eye bolts at the front of the motor. It is important that the drive belt is not over tensioned. It should be tight enough for all teeth to make full contact but should allow a little movement to allow for "self-alignment".

Serious damage could be caused to the drive shaft, drive shaft bearings and drive motor if the belt is excessively tight. Generally, when the motor is started and run, a tight belt can be detected by a low hum/whistle.

Note: Never operate the BEF200N without a belt guard.

All components should be checked daily for tightness and the drive belt for tension.

ROUTINE SERVICE SCHEDULE

Routine Service Intervals		Each Use	First months or 10 hrs	Every 3 months or 25 hrs	Every 6 months or 50 hrs	Every year or 100 hrs	Every 2 years or 300 hrs
General Inspection							
Warning Stickers	Check	○	○	○	○	○	○
Test run:	Operation		○	○	○	○	○
Engine							
Engine Oil	Check level	○					
	Change		○		○		
Spark Plug	Check-adjust					○	
	Replace						○
Timing Belt	Check	After every 300 hrs (2) (3)					
Cooling Fins	Check				○		
Air Cleaner (2)	Check-clean	○ (1)		○			
	Replace					○	
Air Intake Line	Check				○		
	Replace						2 yrs
Nuts, bolts, fasteners	Check	○					
Idle Speed	Check-adjust					○ (2)	
Valve Clearance	Check-adjust				○ (2)		○
Combustion Chamber	Clean	After every 300 hrs (2)					
Fuel Filter	Clean					○ (2)	
Fuel Tank	Clean					○ (2)	
Fuel Tubes	Check	Every 2 years (Replace if necessary) (2)					
Oil Tube	Check	Every 2 years (Replace if necessary) (2)					
Drum/Cage							
Drum	Check						
Cutters	Check/Replace when worn out						
Flail Shafts							
Machine Frame/Body							
Nuts and Bolts							
Belt							
Height adjust mechanism							
Bearings							
Drive Shaft							
Wheels							

- (1) Service more frequently in dusty areas
- (2) Refer to engine owner's manual for servicing instructions and a detailed maintenance schedule. Some items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to the Honda shop manual for service procedures
- (3) Check that there is no crack and abnormal wear-out in the belt, and replace if it is abnormal

MAINTENANCE CHECKLIST

DAILY: (or every 8hrs to 10hrs)

- Check the cutters.
- Check the flail shafts.
- Check all nuts and bolts for tightness.
- Check the belt tension.
- Check the plugs and cables.
- Check engine oil.
- Check Air Filter.
- Check for any recommendations in Honda Service Manual.

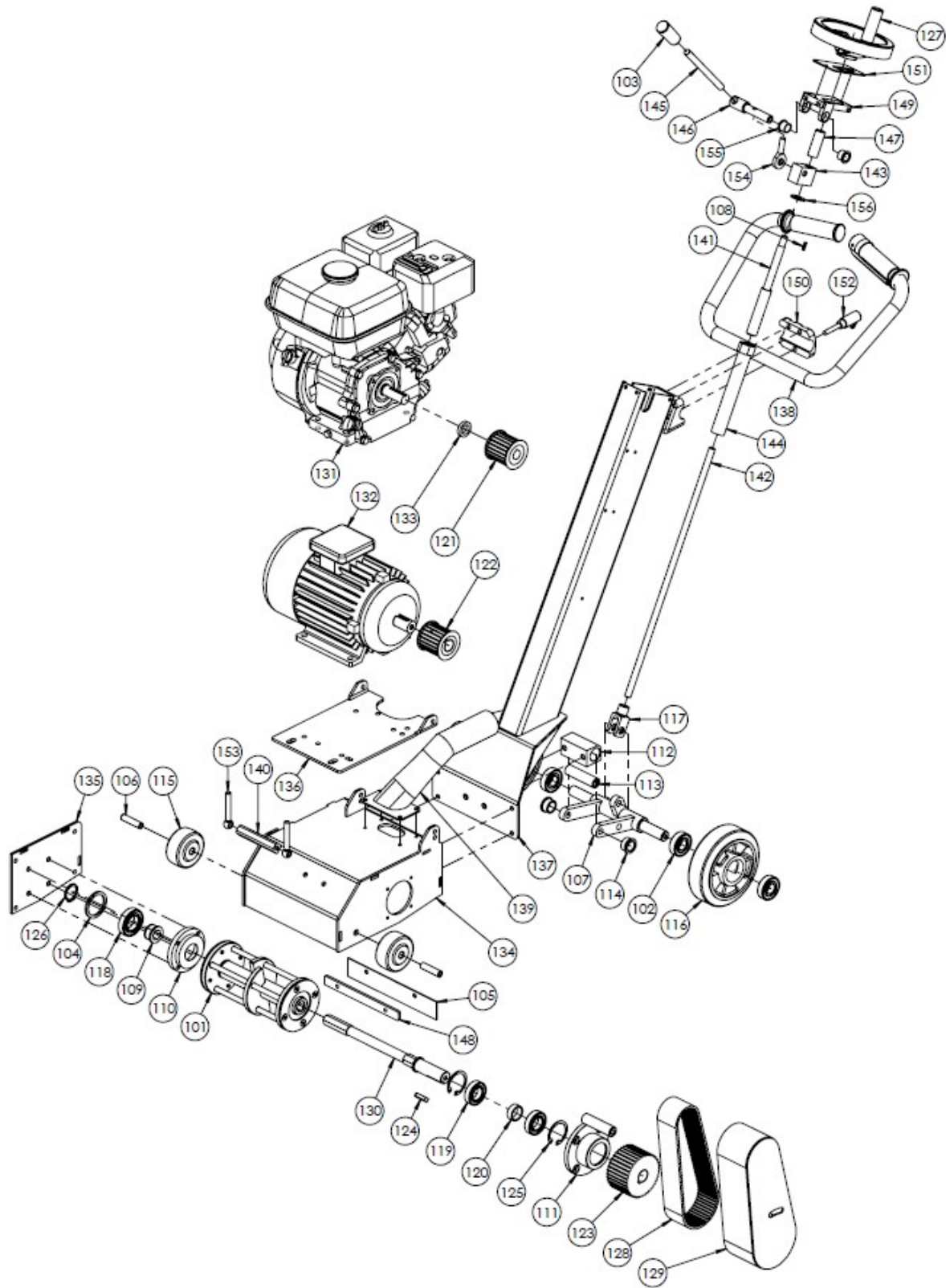
WEEKLY:

- Grease all moving parts on the height adjustment mechanism.
- Remove the side plate.
- Check the drum.
- Check the drive shaft bearings.
- Check the drive bush.
- Check the drive shaft.
- Check the support wheels and grease.

MONTHLY:

- Strip down fully the winding mechanism.
- Clean all threads and re grease.

PARTS LIST 1 - SCARIFIER
GENERAL ASSEMBLY DIAGRAM: BEF200N

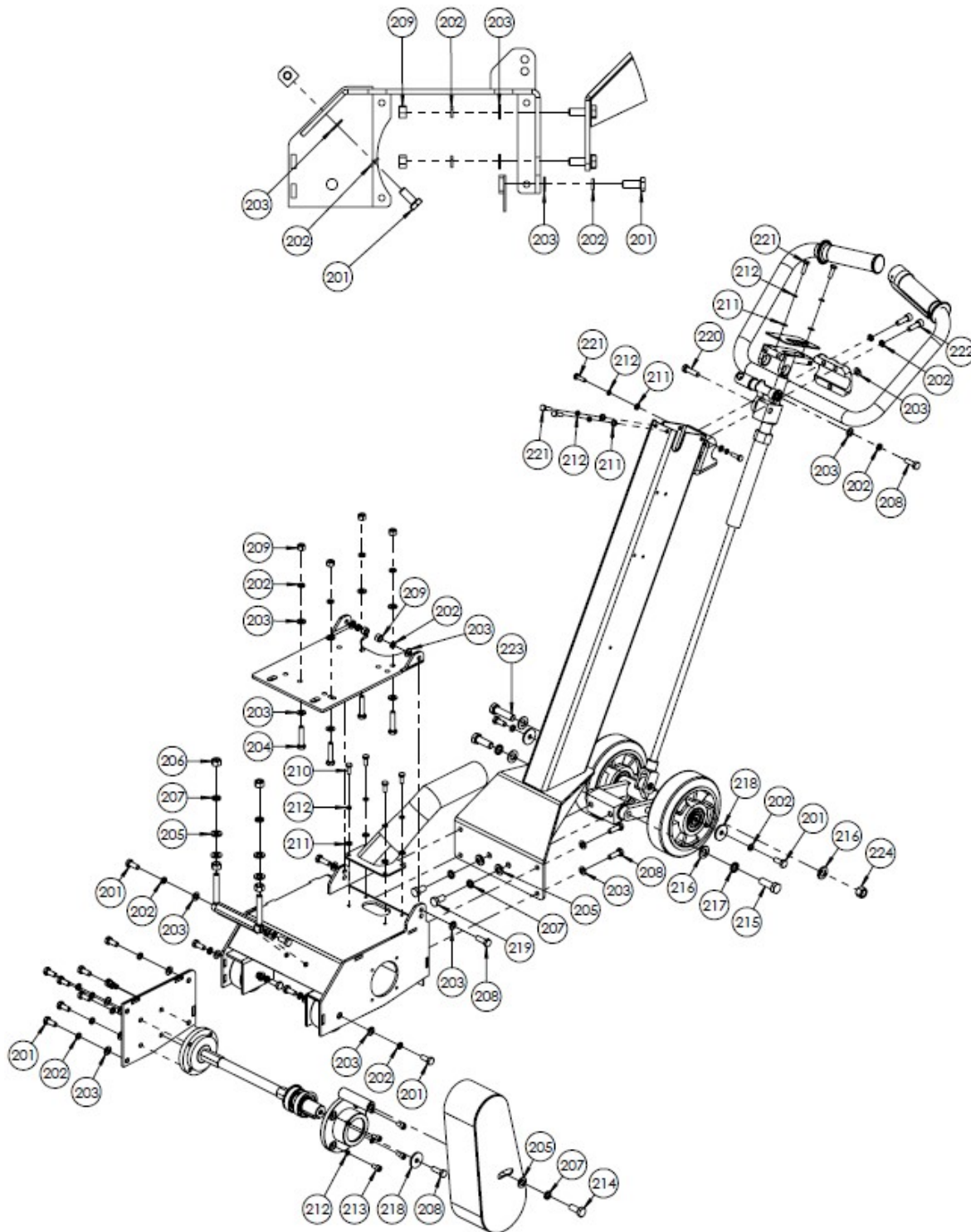


GENERAL ASSEMBLY DIAGRAM: BEF200N – PARTS LIST 1

Item #	Part #	Description	QTY	Remarks
101	20025	BEF200N DRUM	1	
102	9011321	BEARING, 47MM X 20MM	4	
103	7034	KNOB GRIP	1	
104	9102	SIDE PLATE SPACER	1	
105	9106	DUST SKIRT	1	
106	9107	FRONT AXLE	2	
107	9110N	REAR AXLE ASSEMBLY	1	
108	9113A	KEY, 16MM X 4MM	1	
109	9114	HEX DRIVER BUSH	1	
110	9115	SIDE PLATE BEARING HOUSING	1	
111	9116	BEARING HOUSING ASSEMBLY	2	
112	9117	SWING ARM BOSS	2	
113	9118	SWING ARM PIN	2	
114	9119	BUSHING, 26MM X 20MM	1	
115	9120	WHEEL, 75MM	1	
116	9121	WHEEL, 128MM	2	
117	9122	YOKE, M12	1	
118	9123	BEARING, 55MM X 30MM	1	
119	9124	BEARING, 47MM X 25MM	1	
120	9125	DRIVE SHAFT SPACER	1	
121	9126	PULLEY (GAS)	1	
122	9127	PULLEY (EU)	2	
123	9128	DRIVE PULLEY	1	
124	9131	KEY, 30MM X 8MM	1	
125	9132	CIRCLIP, 50MM	1	
126	9133	CIRCLIP, 28MM	1	
127	9135	HAND WHEEL WITH KNOB	1	
128	9137	BELT (ELECTRIC & GAS)	1	
129	9138	BELT GUARD	1	
130	9140	DRIVE SHAFT	1	
131	21333-1	HONDA GX160 ENGINE	1	
132	50559	ELECTRIC MOTOR	1	
133	9158	SPACER (GAS PULLEY)	1	
134	9200	CHASSIS	1	
135	9201	RIGHT SIDE PLATE	1	
136	9202	MOTOR PLATE	1	
138	9203	HANDLE ASSM (ELECTRIC VERSIONS)	1	
138	9205	HANDLE ASSM W/SWITCH (GAS VERSIONS)	1	
-	11929	SAFETY SWITCH ONLY	1	
139	9206	VACUUM PORT	1	
140	9301	HEIGHT ADJUST BLOCK	1	
141	9302	HEIGHT SCREW	1	
142	9303	MAIN ROD	1	
143	9304	PITCH BLOCK	1	
144	9305	ADJUSTABLE HEIGHT TUBE	1	
145	9308	PITCH HANDLE	1	
146	9309	PITCH HANDLE ROD	1	
147	9310	HANDLE SLEEVE	1	
148	9311	WEAR PLATE	1	
149	9312	HANDLE CAP	1	
150	9313	HANDLE PLATE	1	
151	9314	HANDLE TOP PLATE	1	
152	9315	M8 LOCK HANDLE	1	
153	9316	M8 SWING BOLT	2	
154	9317	ROD END	1	
155	9318	BUSHING	2	
156	9321	SPACER	1	

USE PREFIX 90 WHEN ORDERING IN NORTH AMERICA







PARTS LIST 2 - SCARIFIER **FASTENERS: BEF200N**








FASTENERS: BEF200N – PARTS LIST 2

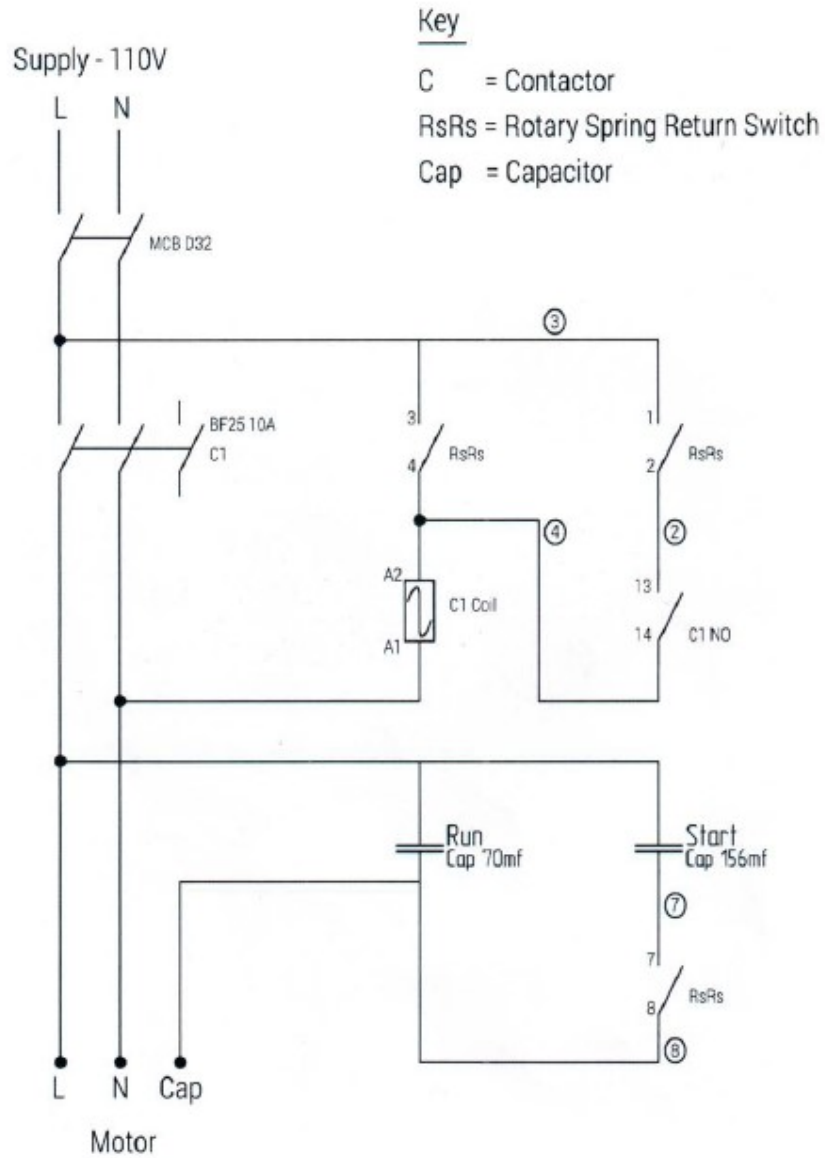
Item No.	Part Number	Description	Qty.
201	10999	HHCS, M8-1.25 x 20mm	21
202	11614	Lock Washer, M8	33
203	11667	Flat Washer, M8	40
204	10452	HHCS, M8-1.25 x 40mm	4
205	41516	Flat Washer, M10	7
206	11622	Hex Nut, M10	4
207	11621	Lock Washer, M10	5
208	11619	HHCS, M8-1.25 x 25mm	8
209	10193	Hex Nut, M8	10
210	11746	HHCS, M6-1.0 x 16mm	4
211	14447	Flat Washer, M6	10
212	11620	Lock Washer, M6	14
213	11618	SHCS, M6-1.0 x 12mm	4
214	13348	HHCS, M10-1.5 x 25mm	1
215	10881	HHCS, M12-1.75 x 35mm	2
216	10993	Flat Washer, M12	4
217	10735	Lock Washer, M12	2
218	64003	Repair Washer, M8	3
219	31176	HHCS, M10-1.5 x 20mm	2
220	11731	HHCS, M8-1.25 x 30mm	1
221	51058	HHCS, M6-1.0 x 20mm	6
222	11772	SHCS, M8-1.25 x 25mm	2
223	60134	HHCS, M12-1.75 x 45mm	1
224	10730	Hex Nut, M12	1

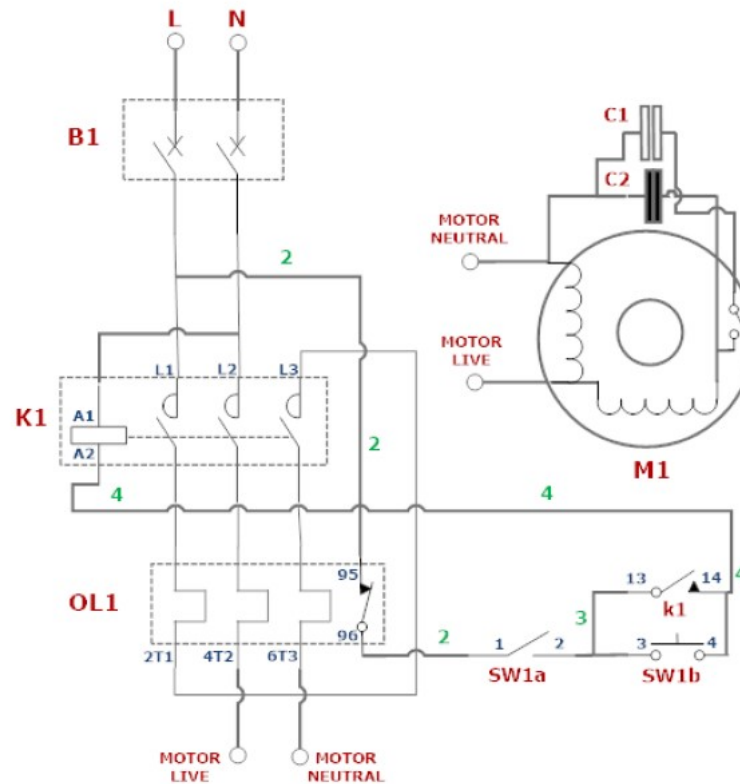
PARTS LIST 3 - SCARIFIER
ACCESSORIES: BEF200N

	Part No	Description	Application
	20001	Heavy duty drum complete with T.C.T. cutters and spacers.	For all concrete texturing, scabbling, planing and grooving applications. Also for the removal of road markings, roof chippings and brittle coatings. Use on heavy applications for longer cutter life and higher output.
	20002	Heavy duty drum complete with beam flails.	For the removal of paint, laitance and coatings from floors. De-rusting and de-scaling ship decks. Also used removing build up of grease, dirt and ice deposits. Keying of concrete when a fine textured surface is required.
	20003	Heavy duty drum complete with milling cutters and spacers.	For the removal of thermoplastic road/runway markings. Very efficient and cost effective with none of the problems associated with burning off thermoplastics. Also for removal of bituminous and rubber deposits.
	45500	T.C.T. Cutter: 5 point hardened steel cutter with tungsten carbide insert.	For all concrete texturing, scabbling, planing and grooving applications. Also for the removal of road markings, roof chippings and brittle coatings. Use on heavy applications for longer cutter life and higher output.
	45120	Beam Cutter: Heat treated steel cutter.	For the removal of paint, laitance and coatings from floors. De-rusting and de-scaling ship decks. Also used for removing build-up of grease, dirt and ice deposits. Keying of concrete when a fine textured surface is required.
	45600	Milling Cutter: Tipped with tungsten carbide.	For the removal of thermoplastic road/runway markings, rubber based deposits, cold plastic coatings from asphalt and concrete.

	<p>20020</p>	<p>Wire brush crimped.</p>	<p>Removal of light deposits, rust. Cleaning and polishing steel.</p>
	<p>20021</p>	<p>Wire brush twist knot.</p>	<p>Removal of laitance, grease, oil, rubber deposits, rust and flaky paint.</p>
	<p>20000</p>	<p>Heavy Duty drum complete with flail shafts.</p>	<p>For use with various cutter configurations.</p>
	<p>20010</p>	<p>Heavy duty flail shaft.</p>	<p>Hardened cutter shaft.</p>
	<p>24140</p>	<p>Spacing washer.</p>	<p>Hardened spacing washer</p>

ELECTICAL DIAGRAM
BEF200N-1





TITLE: BEF200N-2 230V Single Phase Control Circuit with Overload



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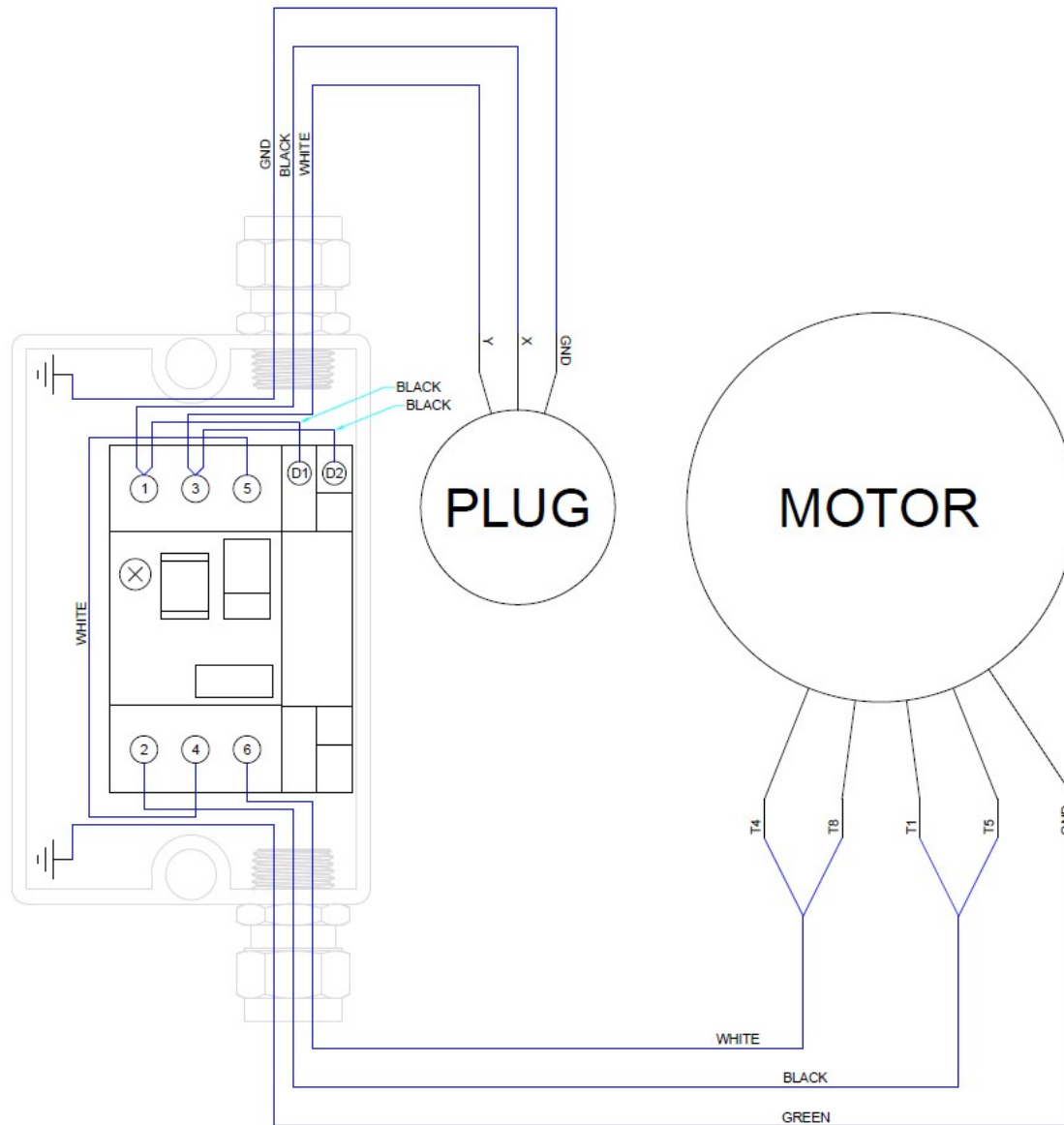
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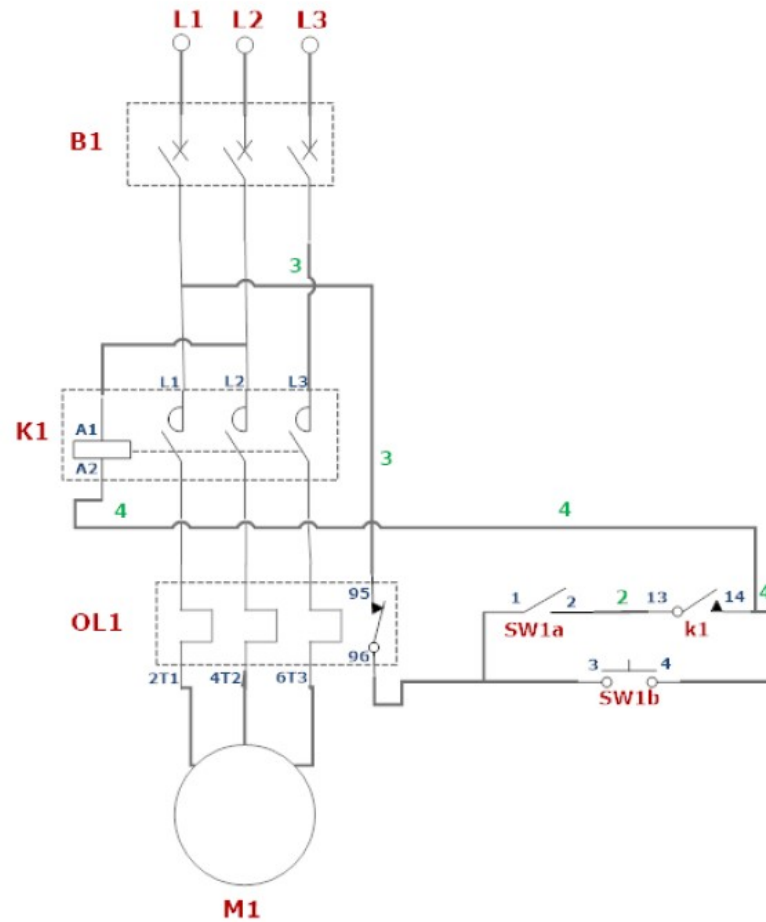
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TITLE: BEF200N-3 400V 3 Phase Control Circuit with Overload



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Machine: BEF200N

Revision: 1 .20

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Electrical Components

BEF200N-1

SPE PART NO	DESCRIPTION	QTY
SP2518-11	Panel box	1
SP190005	Hinge kit	1
SP630-304	Surface Mount Plug	1
9245	Rubber Mount	4
9249	Panel Box Back Plate	1
9250	Plug Retaining Plate	1
9254	Rotary Switch	1
9255	Contactora 110V	1
9256	Contact Breaker	1
9258	Conduit Gland	1
9259	Conduit	1
156MF@240V	Start Capacitor	1
70MF@450V	Run Capacitor	1

BEF200N-2

Item #	SPE PART NO	DESCRIPTION	QTY
M1	9146	230V 2.2kW Electric Motor	1
SW1	9254	Rotary Switch	1
	SP2518-11	Panel box	1
	SP190005	Hinge kit	1
K1	SPBF181023	Contactora 220V	1
B1	SP60HD216	Trip 2 Pole 16 Amp	1
OL1	SPRF3814	Overload 9-14A	1
	SP7302	220V 16A Schuko T/Plug	1
	7562	2.5mm Cable (Black)	6
	9245	Rubber Mount	4
	9249	Panel Box Back plate	1
	9258	Conduit gland	1
	9259	Conduit	1
C1		40uF@400V	1
C2		160uF@250V	1

BEF200N-2A

PART NO	DESCRIPTION	QTY
50559	Motor	1
50760	Motor Starter	1
50085	Strain Relief	1
50101	Strain Relief Nut	1
50761	Enclosure/Electrical Box	1
50769	Enclosure Sealing Kit	1
50770	Undervoltage Trip	1
50771	Electrical Box Mount	1
50592	220V Plug, 20A Twist Lock	1
00426	14/3 Cable	2ft, 4.5ft
51559	Start Cap, 237 MFD, 250V	1
50810	Run Cap, 25 MFD, 250V	1

BEF200N-3

Item #	SPE PART NO	DESCRIPTION	QTY
M1	9144	400V 2.2kW Electric Motor	1
	SP2518-11	Panel box	1
	SP190005	Hinge kit	1
K1	SPBF181040	Contactora 400V	1
SW1	9254	On/Off Push Button	1
B1	SP60HD310	Trip 3 Pole 10 Amp	1
OL1	SPRF3806	Overload 4-6.5A	1
	SP610PH	5 Pin 16A Ph/Rev Surface Plug	1
	9242	Surface Plug Ret Plate 230/415V	1
	9245	Rubber Mount	4
	9249	Panel Box Back plate	1
	9250	Plug retaining plate	1
	9258	Conduit gland	1
	9259	Conduit	1

Specification Sheet

Type				
Part Number	BEF200N-1	BEF200N-2A	BEF200N-2	BEF200N-3
Power Output	3hp (2.2kW)	3hp (2.2kW)	3hp (2.2kW)	3hp (2.2kW)
Voltage	110V	230V	220V	400V
Amps	28	13	13	
Phase	1	1	1	3
Plug Size	32 Amp 3 Pin	20 Amp 3 Prong Twist Lock	16 Amp 3 Pin	16 Amp 5 Pin
Cable Size	4.0 – 3 Core	12 AWG – 3 Core	2.5 – 3 Core	2.5 – 4 Core
Max Cable Length	30 Metres	100 FT	30 Metres	100 Metres
Cycles	50HZ	60Hz	50Hz	50Hz
Transformer	5 kva	5 kva	5 kva	-
Generator	8 kva	8 kva	8 kva	8 kva
Cutter Head Speed (rpm)	1753	1753	1753	1753
Motor speed (rpm)	2870	3450	2870	2870
Machine Length	940	940	940	940
Machine Width	340	340	340	340
Machine Height	905	905	905	905
Weight (kg)	54	54	54	54
Working width (mm)	200	200	200	200
Distance from wall (mm)	45	45	45	45
Distance with edger (mm)	5-8	5-8	5-8	5-8

Type	Gas
Part Number	BEF200N-4A
Engine	Honda GX160
Power Output	5.5hp
Cutter Head Speed (rpm)	1833
Motor speed (rpm)	3000
Machine Length	940
Machine Width	340
Machine Height	905
Weight (kg)	49
Working width (mm)	200
Distance from wall (mm)	45
Distance with edger (mm)	5-8

Noise & Vibration Assessments

BEF200N Electric – TCT Cutters

RECORD OF NOISE AND VIBRATION ASSESSMENT

Model No.	BEF200N Electric
Operation:	Concrete floor surface
Inserted Tool:	TCT cutters
Running Conditions:	2870 rpm

HAND-ARM VIBRATION

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

Measurement Position	Acceleration (m/s^2)
	Vector Sum
Handle	4.4

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	
46.7	61.0	81.9	86.9	90.3	91.7	91.3	84.0	96.8

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		
32.1	44.1	67	75.6	79.4	77.5	75.6	67.5	84.2	99.8

BEF200N Electric – Beam Cutters

RECORD OF NOISE AND VIBRATION ASSESSMENT

Model No. BEF200N Electric
 Operation: Concrete floor surface
 Inserted Tool: Beam cutters
 Running Conditions: 2870 rpm

HAND-ARM VIBRATION

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

Measurement Position	Acceleration (m/s^2)
	Vector Sum
Handle	3.9

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	
46.7	61.0	81.9	86.9	90.3	91.7	91.3	84.0	96.8

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		
32.1	44.1	67	75.6	79.4	77.5	75.6	67.5	84.2	99.8

BEF200N Gas – TCT Cutters

RECORD OF NOISE AND VIBRATION ASSESSMENT

Manufacturer:	SPE International Ltd.
Type:	Scarifier
Model No.	BEF200N-4 Gas
Operation:	Concrete floor surface
Inserted Tool:	TCT cutters
Running Conditions:	2870 rpm

HAND-ARM VIBRATION

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

Measurement Position	Acceleration (m/s^2)
	Vector Sum
Handle	4.4

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	
46.7	61.0	81.9	86.9	90.3	91.7	91.3	84.0	96.8

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		
32.1	44.1	67	75.6	79.4	77.5	75.6	67.5	84.2	99.8

BEF200N gas – Beam Cutters**RECORD OF NOISE AND VIBRATION ASSESSMENT**

Manufacturer:	SPE International Ltd.
Type:	Scarifier
Model No.	BEF200N-4 Gas
Operation:	Concrete floor surface
Inserted Tool:	Beam cutters
Running Conditions:	2870 rpm

HAND-ARM VIBRATION**Frequency Weighted Energy Equivalent Accelerations ($a_{h,w}$)**

Measurement Position	Acceleration (m/s^2)
	Vector Sum
Handle	3.9

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	
46.7	61.0	81.9	86.9	90.3	91.7	91.3	84.0	96.8

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		
32.1	44.1	67	75.6	79.4	77.5	75.6	67.5	84.2	99.8

Warranty

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

Bartell agrees to furnish without charge, F.O.B. our plant, a replacement for any part or portion thereof, comprising the main unit of the BEF200N, consisting of the exciter housing assembly, save and except drive belts, and power units, prove upon our examination, to be defective in either material or workmanship within a period of twelve (12) months from date of purchase, provided that notice of such defective part or portion thereof is given to Bartell Ltd. within the twelve month warranty period. No further or other guarantee or warranty expressed or implied in connection with the sale of the machine is given and our sole liability consists in replacing defective parts or portions thereof. We shall not be responsible for any special, indirect or consequential damages arising in any manner whatsoever.

This guarantee is for the sole benefit of the original purchaser as end user. Our responsibility under this guarantee ends in the case the original purchaser transfers ownership of the BEF200N, makes any changes or adds any parts or devices not of our manufacture to the machine.

<i>Warranty start date:</i>	PURCHASE DATE
<i>Model:</i>	BEF200N
<i>Serial no:</i>	
<i>Customer name:</i>	
<i>Customer Address:</i>	

<i>Manufacturer</i>	SPE International Ltd	Bartell Global
<i>:</i>		
	Honeyholes Lane	170 Traders Blvd E
	Dunholme	Mississauga
	Lincoln	Ontario
	LN2 3SU	L4Z 1W7
	England	Canada
<i>Telephone:</i>	+44 (0) 1673 860709	+1-647-953-4100
<i>Fax:</i>	+44 (0) 1673 861119	+1-647-953-4101
<i>Email:</i>	<u>sales@spe-int.com</u>	
<i>Web site:</i>	www.bartellglobal.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) **BEF200N**

(Model/type) **BEF200N**

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 willful 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 which come 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 thereof 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.

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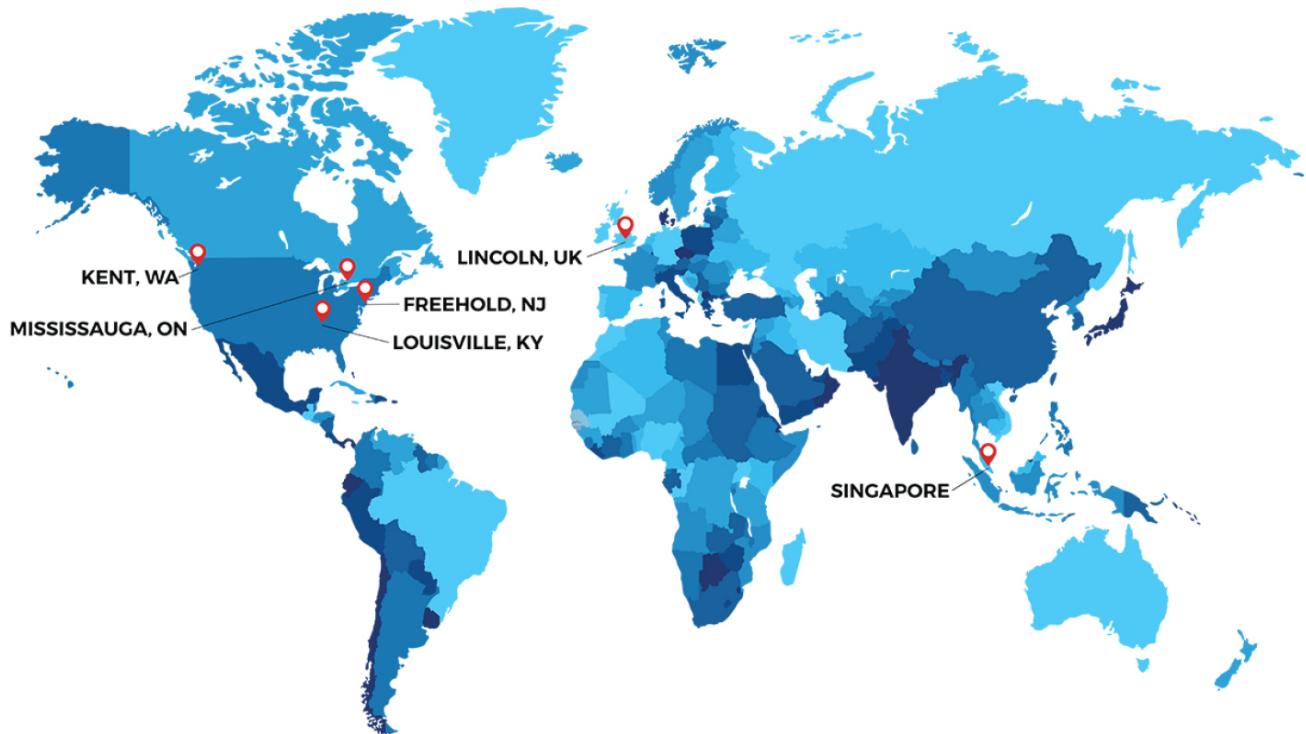


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