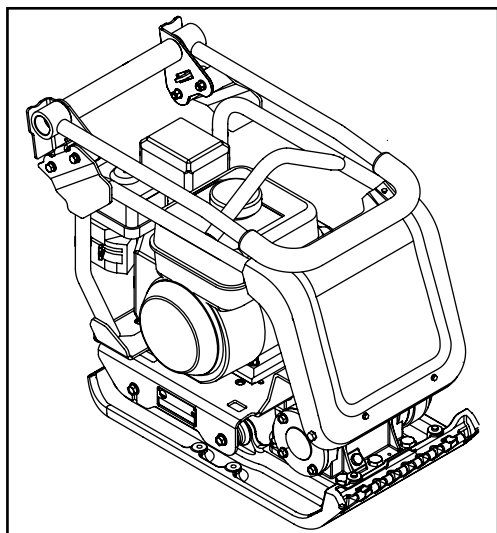




PCX

12/36 & 13/40



- Spare Parts Book
- Pièces détachées
- Libro Despiece
- Lista de Peças
- Onderdelen Boekje
- Reservedele Skrift
- Ersatzteilhandbuch
- Manuale dei ricambi
- Bruksanvisning
- Bruksanvisning
- Varaosaluettelo
- Lista Części Zamiennych
- Запасные части Книга
- Varuosade nimekiri
- Rezerves daļu saraksts
- Atsarginiu dāliu sarašas
- Част Списък
- αντικατάσταση κομμάτια βιβλίο
- Část Bavevní pruh
- Lista Pieselor de Schimb
- Részek Oldalra dől
- Rezervni djelovi Knjiga

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How To Use This Manual


This manual has been written to help you operate and service the PCX Plate Compactor safely. This manual is intended for dealers and operators of the PCX Plate Compactor.

Foreword

The **'Environment'** section gives instructions on how to handle the recycling of discarded apparatus in an environmentally friendly way. The **'Machine Description'** section helps you to familiarise yourself with the machine's layout and controls. The **'General Safety'** and **'Health and Safety'** sections explain how to use the machine to ensure your safety and the safety of the general public. The **'Start and Stop Procedure'** helps you with starting and stopping the machine. The **'Trouble Shooting'** guide helps you if you have a problem with your machine. The **'Servicing'** section is to help you with the general maintenance and servicing of your machine. The **'Warranty'** Section details the nature of the warranty cover and the claims procedure. The **'CE certificate'** section shows the standards that the machine has been built to.


Directives with regard to the notations.

Text in this manual to which special attention must be paid are shown in the following way:

 **CAUTION** *The product can be at risk. The machine or yourself can be damaged or injured if procedures are not carried out in the correct way.*

 **WARNING** *The life of the operator can be at risk.*

WARNING

 **WARNING** *Before you operate or carry out any maintenance on this machine **YOU MUST READ** and **STUDY** this manual.*

KNOW how to safely use the unit's controls and what you must do for safe maintenance. (NB Be sure that you know how to switch the machine off before you switch on, in case you get into difficulty.)

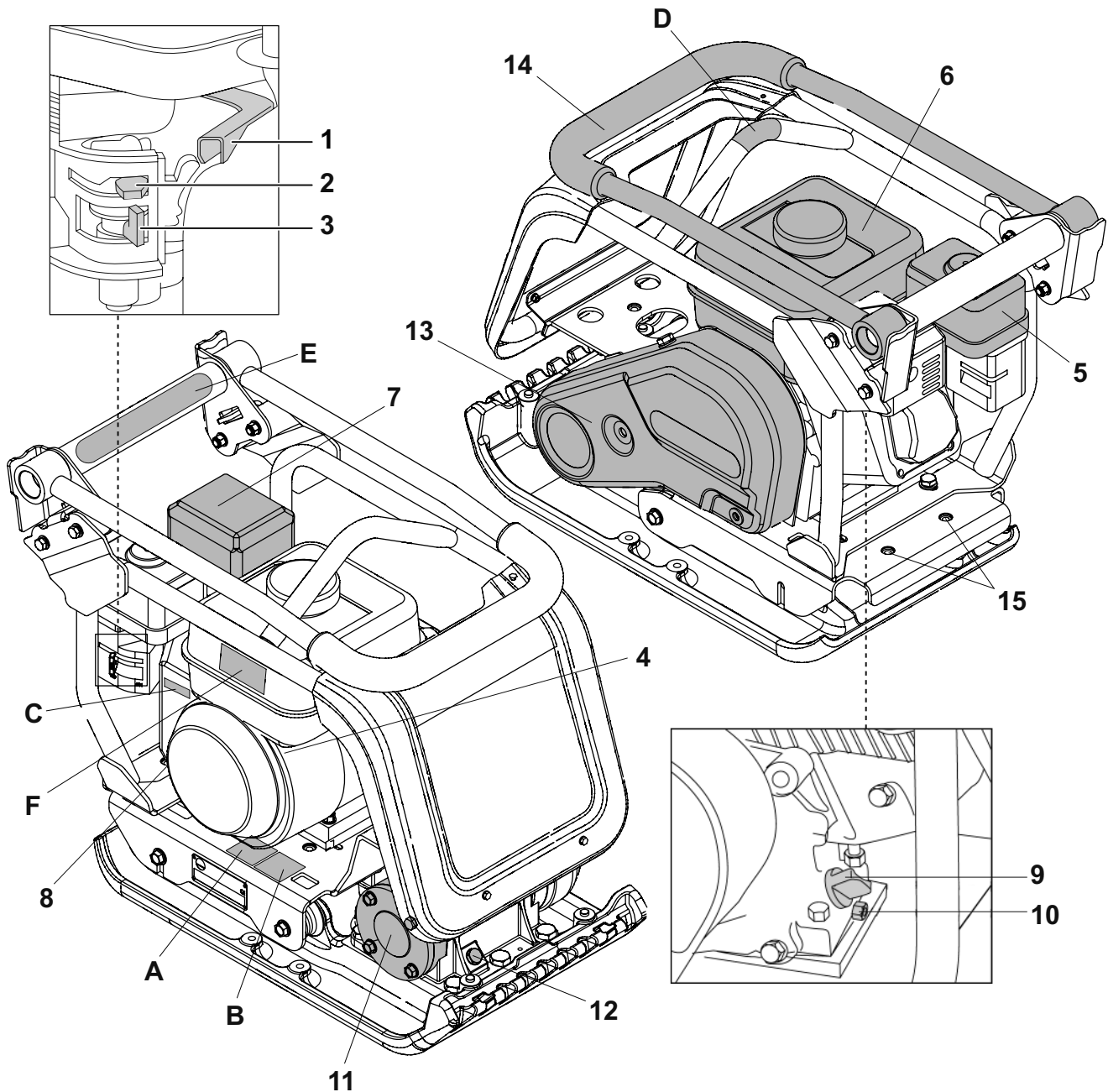
ALWAYS wear or use the proper safety items required for your personal protection. If you have **ANY QUESTIONS** about the safe use or maintenance of this unit, ASK YOUR SUPERVISOR OR CONTACT: **BELLE GROUP (UK): +44 (0) 1298 84606**



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Belle Group reserves the right to change machine specification without prior notice or obligation.



Machine Description

1. Throttle lever.
2. Choke lever.
3. Fuel ON / OFF lever.
4. Engine ON / OFF switch.
5. Air Filter Housing.
6. Fuel Tank.
7. Exhaust.
8. Recoil Starter Handle.
9. Engine oil filler / dipstick.
10. Engine oil drain plug.
11. Vibrator.
12. Vibrator oil check plug.
13. Belt guard.
14. Control Handle.
15. Attachment points for Transporter Options.

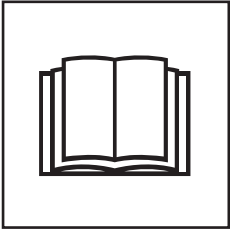
Decals

- A. Safety Decal
- B. Noise Decals
- C. Engine RPM Decal
- D. Lifting Point Decal
- E. Low HAV Decal
- F. Engine Warning Decal

Note:- Drawing based a Honda GX160 Engine. Please refer to the manufacturer's literature for Robin Engine details.

Decals

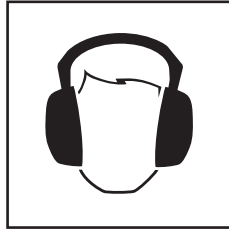
A - Safety Decal (Part No. 19.0.373)



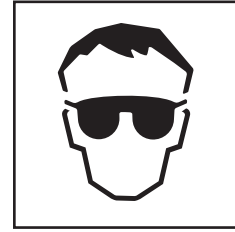
**Please Read
Operators Manual**



**Wear Protective
Footwear**



**Wear Ear
Protection**



**Wear Eye
Protection**

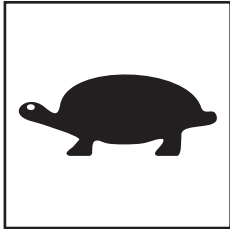
B - Noise Decal (800-99942)

The Noise Level of the machine during operation is 105 dB(A)

C - Engine RPM Decal

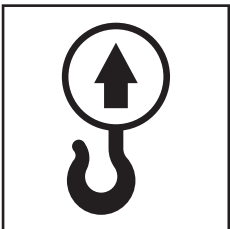


**Fast Engine Speed
Position**



**Slow Engine Speed
Position**

D - Lifting Point Decal



Lifting Point

E - Low HAV Decal (800-99965)

The machine has a UK Patented Design which reduces HAV levels allowing a greater Usage Time.

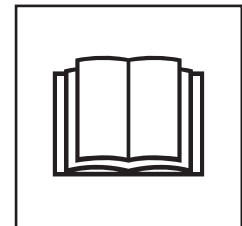
F - Engine Warning Decal



**Petrol is highly flammable. Turn off the
Engine and allow time to cool before
refuelling.**



**The Engine emits toxic Carbon
Monoxide. Do not run the Engine in an
enclosed area.**



**Please Read
Engine Manual**

Environment



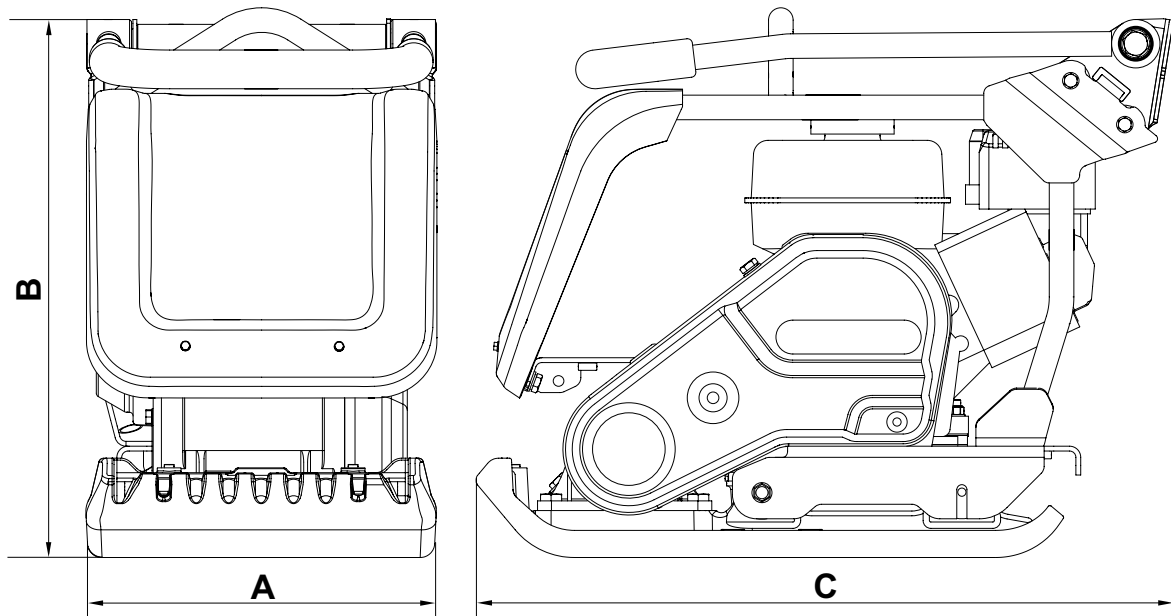
Safe Disposal.



Instructions for the protection of the environment.
The machine contains valuable materials. Take the discarded apparatus and accessories to the relevant recycling facilities.

Component	Material.
Handle	Steel
Front cover	HDPE
Main frame	Steel
Baseplate	Steel
Hand Grips	Rubber
Engine	Aluminium
Flexible Mounts	Steel and Rubber
Various Parts	Steel and Aluminium
Water Bottle (if fitted)	Plastic

Technical Data



Model	PCX 12/36	PCX 13/40
A - Width (mm)	360	400
B - Height (mm)	556	556
C - Length (mm)	720	720
Weight Honda GX120 4.0hp/3kW (Kg)	81.5	83.5
Weight Honda GX160 5.5hp/4kW (Kg)	-	85.5
Weight Robin EX 13 4.5hp (Kg)	81.5	83.5
Weight Robin EX 17 6hp (Kg)	-	85.5
Engine RPM - Honda / Robin	3850	3850
Vibrator Force (kN)	12	13
Frequency (Hz)	101	101
Max. Travel Speed (m/min)	20	20
Static Pressure (kg/m ²)	586	519
Sound Power Level - GX120 & EX13	105 dB(A)	105 dB(A)
Sound Power Level - GX160 & EX17	107 dB(A)	107 dB(A)

For your own personal protection and for the safety of those around you, please read and ensure you fully understand the following safety information. It is the responsibility of the operator to ensure that he/she fully understands how to operate this equipment safely. If you are unsure about the safe and correct use of the PCX Plate Compactor, consult your supervisor or Belle Group.



CAUTION

Improper maintenance or use can be hazardous. Read and Understand this section before you perform any maintenance, service or repairs.

- This equipment is heavy and must not be lifted single-handedly, either GET HELP or use suitable lifting equipment. A special transport assembly is available for the compactor (see options).
- Cordon off the work area and keep members of the public and unauthorised personnel at a safe distance.
- Personal Protective Equipment (PPE) must be worn by the operator whenever this equipment is being used (see Health & Safety).
- Make sure you know how to safely switch this machine OFF before you switch it ON in case you get into difficulty.
- Always switch OFF the engine before transporting, moving it around the site or servicing it.
- During use the engine becomes very hot, allow the engine to cool before touching it. Never leave the engine running and unattended.
- Never remove or tamper with any guards fitted, they are there for your protection. Always check guards for condition and security, if any are damaged or missing, DO NOT USE THE COMPACTOR until the guard has been replaced or repaired.
- Do not operate the Compactor when you are ill, feeling tired, or when under the influence of alcohol or drugs.

Fuel Safety



CAUTION

Fuel is flammable. It may cause injury and property damage. Shut down the engine, extinguish all open flames and do not smoke while filling the fuel tank. Always wipe up any spilled fuel.

- Before refuelling, switch off the engine and allow it to cool.
- When refuelling, DO NOT smoke or allow naked flames in the area.
- Spilt fuel must be made safe immediately, using sand. If fuel is spilt on your clothes, change them.
- Store fuel in an approved, purpose made container away from heat and ignition sources.

Vibration

Some vibration from the compaction operation is transmitted through the handle to the operator's hands. The Belle Group Plate Compactor range has been specifically designed to reduce hand/arm vibration levels. Refer to specifications & technical data for vibration levels and usage times (recommended maximum daily exposure time). DO NOT exceed the maximum usage times.

PPE (Personal Protective Equipment).

Suitable PPE must be worn when using this equipment i.e. Safety Goggles, Gloves, Ear Defenders, Dust Mask and Steel Toe capped footwear. Wear clothing suitable for the work you are doing. Tie back long hair and remove any jewellery which may catch in the equipment's moving parts.

Dust.

The compacting process will occasionally produce dust, which may be hazardous to your health. Always wear a mask that is suited to the type of dust being produced.

Fuel.

Do not ingest fuel or inhale fuel vapours and avoid contact with your skin. Wash fuel splashes immediately. If you get fuel in your eyes, irrigate with copious amounts of water and seek medical attention as soon as possible.

Exhaust Fumes

Do not operate the compactor indoors or in a confined space, make sure the work area is adequately ventilated.



CAUTION

The exhaust fumes produced by this equipment are highly toxic and can kill!

Pre-Start Checks



Pre start-up inspection

The following Pre-start-up inspection must be performed before the start of each work session or after every four hours of use, whichever is first. Please refer to the service section for detailed guidance. If any fault is discovered, the compactor must not be used until the fault is rectified.

1. Thoroughly inspect the compactor for signs of damage. Check components are present and secure. Pay special attention to the belt drive safety guard fitted between the engine and the vibrator unit.
2. Check the engine oil level and top up as necessary.
3. Check the engine fuel level and top up as necessary.
4. Check for fuel and oil leaks.

Reasons For Compaction



Soil, which has been disturbed or new infill, subbase and blacktop, will have small voids or air pockets which, if not compacted, will lead to one or more problems occurring.

1. As traffic crosses the surface of an uncompacted area, the material is compressed. This leads to subsidence of the top surface as the material fills the voids.
 2. A similar situation occurs with static loads on uncompacted ground. The load (e.g. a building) will sink.
 3. Materials with voids are more susceptible to water seepage, leading to erosion. Water ingress may also cause the soil to expand during freezing temperatures and contract during dry spells. Expansion and contraction is a major cause of damage to building foundations and normally leads to the structure requiring underpinning.
- Compaction increases the density of the material and therefore increases its load bearing capacity. Reduces air voids and therefore reduces the risk of subsidence, expansion and contraction, due to ingress of water.

Applications



Applications/materials fall into three categories:

1. Cohesive materials (less than 20% granular) e.g clay, silt & heavy soils.
2. Granular materials (more than 20% granular) e.g hard core, sand & light soils.
3. Bituminous materials e.g asphalt (tarmac), cold lay (bitumin emulsion products).

The chart shows the HAUC specifications for layer depth and number of passes for Dual Force' plates. If standard machines are used, optimum compaction can not be guaranteed, however, if layer depths are reduced and number of passes increased, results can be improved.

Moisture content of cohesive & granular materials is critical to effective compaction. If granular material is too dry it will flow around the plate instead of compacting. If the moisture content is too high the material may dry out after compaction and shrinkage will occur.

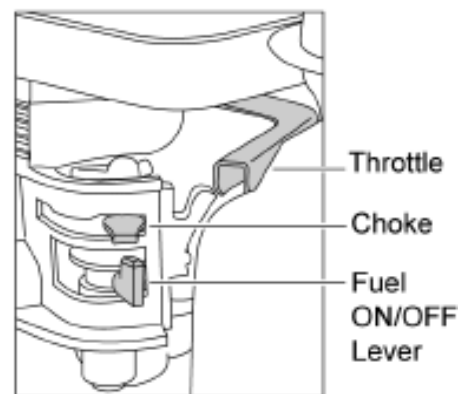
1400 -1800 kg/m ²	COMPACTION PASSES REQUIRED PER LAYER OF COMPACTED THICKNESS UP TO.				
	40MM	60MM	80MM	100MM	150MM
Cohesive Materials**	2**	4**	5**	6**	Reduce Layer Thickness
Granular Materials	2*	3*	4*	5	9
Bituminous	6	10	12		Reduce Layer Thickness

* Usually placed in 100mm minimum layer so not specified by HAUC.

** The nature of cohesive materials makes plate compaction difficult. Optimum compaction is not guaranteed and not recommended by HAUC.

Honda GX120 & GX160

1. Open the fuel tap by moving the fuel ON / OFF lever fully to the right.
2. If starting the engine from cold, set the choke ON by moving the choke lever fully to the left. If restarting a warm engine, the choke is usually not required, however, if the engine has cooled to a degree, partial choke may be required.
3. Turn the engine ON / OFF switch clockwise to the 'I' position.
4. Set the throttle to the idle position by moving the throttle lever fully to the right. Do not start the engine on full throttle, as the compactor will vibrate as soon as the engine starts.
5. Taking a firm hold of the control handle with one hand, grasp the recoil starter handle with the other. Pull the recoil starter until engine resistance is felt, then let starter return.
6. Taking care not to pull the starter's rope fully out, pull the starter handle briskly.
7. Repeat until the engine fires.
8. Once the engine fires gradually set the choke lever to the OFF position by moving it to the right.
9. If the engine fails to fire after several attempts, follow the trouble-shooting guide on page 8.
10. To stop the engine, set the throttle to idle and turn the engine ON / OFF switch anticlockwise to the '0' position.
11. Turn the fuel off.



Robin EX13 & EX17 Petrol Engine

1. Open the fuel cock.
2. Turn the STOP SWITCH to the position 'I' (ON)
3. Set the speed control lever 1/3 of the way towards the high speed position.
4. Close the choke lever.
 - If the engine is cold or the ambient temperature is low, close the choke lever fully.
 - If the engine is warm or the ambient temperature is high, open the choke lever half way, or keep it fully open.
5. Pull the starter handle slowly until resistance is felt. This is the '*compression*' point. return the handle to its original position and pull swiftly. Do not pull out the rope all the way. After starting the engine, allow the starter handle to return to its original position while still holding the handle.
6. After starting the engine, gradually open the choke by turning the choke lever and finally keep it fully opened. Do not fully open the choke lever immediately when the engine is cold or the ambient temperature is low, because the engine may stop.
7. To stop the engine, Set the speed control lever at the low speed position and allow the engine to run at low speed for 1 to 2 minutes before stopping.
8. Turn the STOP SWITCH counter-clockwise to the position '0' (OFF)
9. Close the fuel cock.
10. Pull the starter handle slowly and return the handle to its original position when resistance is felt. This operation is necessary to prevent outside moist air from intruding into the combustion chamber.

Operating The Compactor



- Take the compactor to where it is required.**
 If using the 'Detachable' transport attachment to wheel the unit, tilt the compactor forward to raise the transport wheels off the ground. Swing the transporter frame back, then across to disconnect it from the rear of the compactor. Place the transporter frame somewhere safe until next required. For machines with the 'Fixed' transporter tilt the machine forward, pull the transporter rearwards and upwards, lower the machine to the floor and latch the transporter into the 'up' position. Where it is necessary to use lifting equipment to position the compactor, make sure the lifting equipment has a WLL (Working Load Limit) suitable for the compactors weight (see specification chart on page 4 or the machine numberplate). Attach suitable chains or slings ONLY to the lifting point on the top of the compactor.
- If the compactor is fitted with the water spray system and the application requires its use, check that the water outlet valve is closed, then fill the water bottle with clean water.
- Having carried out the checks listed in the 'pre start' section, you may start the engine.**
 The Belle Group 'PCx' range of compactors are fitted with a centrifugal clutch, this allows the engine to run at idle without driving the vibrator.
 As the engine speed is increased the clutch will engage and will drive the vibrator.
 For correct operation, the engine speed should be set to maximum.
- Set the throttle to maximum and use the control handle to steer or turn the compactor.**
 The vibrator will not only cause the baseplate to vibrate but will also cause it to travel forward. During normal operation you should not have to push the compactor but allow it to travel at its own pace. The speed of travel will be determined by the condition of the surface being compacted.
 If the surface to be compacted is on a slope, great care must be taken when controlling the compactor's direction of travel. If necessary, use a suitable rope attached to the compactor at a low point on the chassis, to allow a helper to take part of the compactor's weight. Work up and down a slope not across.
- Work the compactor over the surface in an organised pattern until the required compaction has been achieved.**
 Where there are a number of different layers to be compacted on top of each other, compact each layer individually.
- To stop the compactor vibrating, set the throttle to idle.

Troubleshooting Guide



Problem	Cause	Remedy
Engine will not start.	No fuel.	Open fuel tap. Fill fuel tank.
	Engine switched off.	Switch engine on.
	Spark plug fouled.	Clean and reset plug gap.
	Engine cold.	Close choke.
	Engine flooded.	Honda, open choke, fully open throttle, pull recoil starter until engine fires.
Engine still will not start.	Major Fault	Contact Agent or Belle Group.
Unit will not vibrate.	Engine speed too slow.	Set engine speed control to fast.
	Drive belt tension loose.	Adjust belt tension.
	Air filter blocked.	Clean or renew air filter.
	Drive failure.	Contact Agent or Belle Group.
	Vibrator failure.	Contact Agent or Belle Group.
Asphalt adhering to plate.	Lack of lubrication.	Use a water spray system.
Paving blocks damaged.	Plate in direct contact with material.	Use a paving pad.
Bituminous surface flaking (laminating).	Over compaction.	Remove and relay.
Low travel speed (plate sinking).	Layer thickness too deep.	Remove some of the material.
	Moisture content too high or too low.	Remove material and adjust.

Maintenance

The Belle Group PCX Plate Compactors are designed to give many years of trouble free operation. It is, however, important that the simple regular maintenance listed in this section is carried out.

It is recommended that an approved Belle Group dealer carries out all major maintenance and repairs. Always use genuine Belle Group replacement parts, the use of spurious parts may void your warranty.

Before any maintenance is carried out on the machine, switch off the engine. If working on a petrol engine machine, disconnect the HT lead from the sparkplug. If working on a diesel engine, make sure that the stop switch is in the stop position. Always set the compactor on level ground to ensure any fluid levels will be correctly read. Only use recommended oils (see chart below).

Running In Period

When the compactor is first used from new, the engine oil must be changed after the initial running in period (see engine manual for full detail). The vibrator shaft case oil must be replaced after the first 100 hours use, then after every 500 working hours. For detail on vibrator shaft case oil replacement, see 'Vibrator unit'. The belt tension should be checked after 4 hours use.

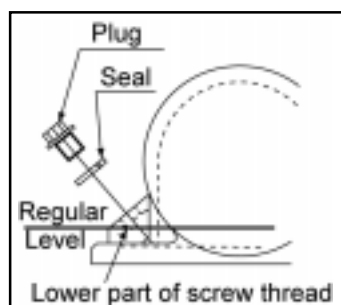
Drive Belt

Remove the belt guard then check the belt tension by placing light finger pressure on the top of the belt, as near central between the engine drive and vibrator pulley. The belt should deflect by between 5mm and 10mm. If the belt tension requires adjustment, loosen the four engine mount bolts enough to allow the engine to be moved. Once set, retighten the engine mount bolts and check the belt tension a second time. If the Belt remains loose, replace the Belt. Finally, replace the belt guard ensuring it is correctly and securely fitted.

Routine Maintenance		First 4 hours	First month / 20Hours	3 Months 50 Hours	6 months 100 Hours
Engine Oil	Check Level	✓			
	Change		✓		✓
Air Filter	Check Condition/Clean		✓		✓
	Replace when necessary / Every 12 months				
Spark Plug	Change				✓
Drive Belt	Tension	✓	✓	✓	

Oil / Fuel Type & Quantity - Spark Plug Type

	Oil type	Quantity (Litre)	Fuel Type	Capacity (Litre)	Spark Plug Type	Electrode Gap (mm)
Petrol Honda GX120	S.A.E. 10W 30	0.6	Unleaded	2.5	BM6ES or BPR6ES	0.7 - 0.8
Petrol Honda GX160	S.A.E. 10W 30	0.6	Unleaded	3.6	BM6ES or BPR6ES	0.6 - 0.7
Petrol Robin EX13	S.A.E. 10W 30	0.6	Unleaded	2.7	NGK BR-6HS	
Petrol Robin EX17	S.A.E. 10W 30	1.1	Unleaded	3.6	NGK BR-6HS	
Vibrator	Turbine Oil 32	0.4	N/A	N/A	N/A	N/A



Vibrator Unit.

Remove the plug complete with seal, check that the oil level reaches the bottom thread on the oil plug hole. Top up as necessary with the correct oil (see chart).



No.1 for Light Construction Equipment

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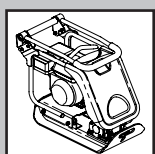
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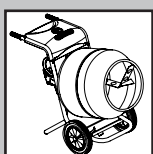
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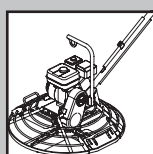
No.1 for Light Construction Equipment



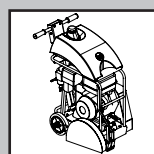
COMPACTING...



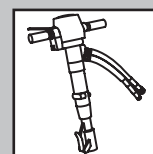
MIXING...



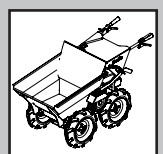
CONCRETING...



CUTTING...



BREAKING...



MOVING