

Protech Machinery P10 & P18 Mini Digger Post Driver

Operator and Parts Manual



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EC DECLARATION OF CONFORMITY
Conforming to EEC Directive 98/37/EC

We Protech Machinery Ltd

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Hereby declare that the product: **POSTDRIVER**
Product Code **P18**
Serial Number series 2027 onwards

Manufactured by the above Company complies with the required provisions of the Directive 98/37/EC

To effect the correct application of the safety requirements stated in the EEC Directives, the following standards and/or technical specification have been used:

BS EN 292-1: 1991 Safety of Machinery – Basic concepts, general principals for design – Basic terminology, methodology.

BS EN 292-2: 1991 Safety of Machinery – Basic concepts, general principals for design – Technical principals and specifications.

BS EN 294: 1992 Safety of Machinery – Safety distances to prevent danger zones being reached by the upper limbs.

BS 5401: 1990 Guide to information content and presentation of operator’s manuals provided for tractors and machinery for agriculture and forestry.

Signed.....
On behalf of Protech Machinery

Status.....

Date.....

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IMPORTANT NOTICE

This manual must be read and fully understood before fitting or operating this machine. Whenever any doubt exists please contact Protech Machinery for assistance. If the machine is resold the Manual must be given to the new owner.

Introduction

Dear customer,

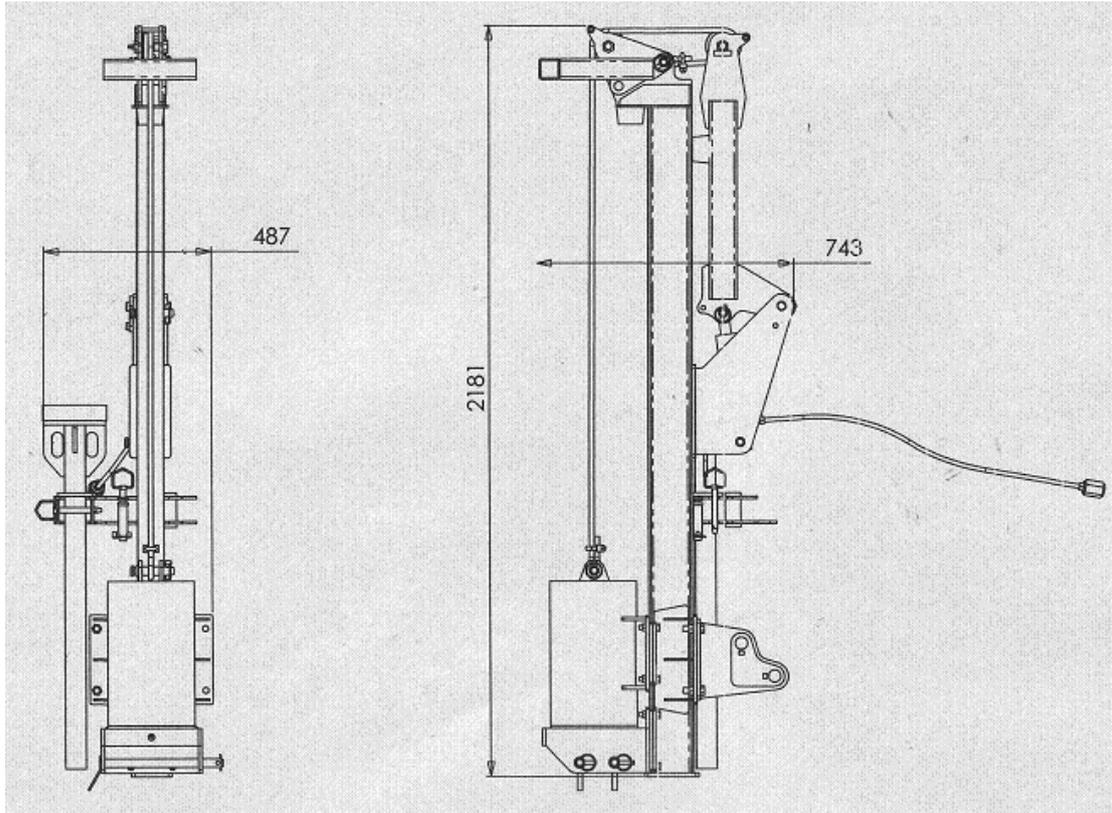
Thank you for purchasing a Protech P18+ Mini Digger Post Driver. Protech machinery Ltd has produced this User Guide to assist and help you get the most from your post driver.

This manual is line with the relevant Health and Safety regulations to assist you with operating this machine without harm to yourself.

You should be aware that any person operating this machine with your permission must be given adequate guidance and information to allow him or her to use the machine safely.

Where as every effort has been made to ensure the Post Driver conforms to Protech policy of quality, the machine cannot be expected to withstand abuse caused by misuse and negligence by the operator.

P18 Product Specification



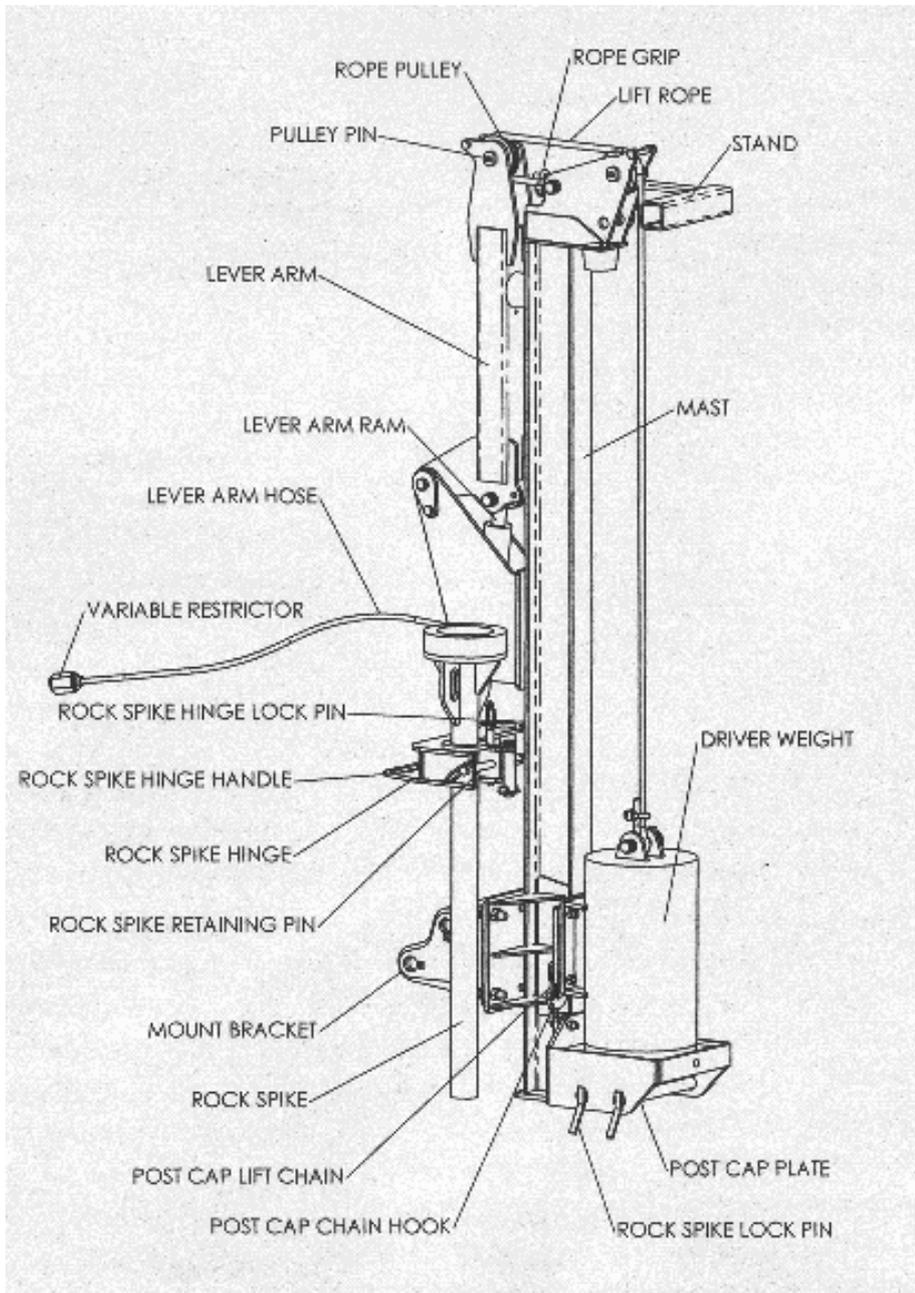
All dimensions are in millimetres.

Weight (including rock spike)	370kg with 180kg
Driver weight	120,150,180, 210kg
Mini digger size (minimum)	2 tons
Auxiliary oil flow (minimum)	30L/MIN
Auxiliary oil pressure (minimum)	150 bar

Please note: the total machine weight and depth dimension may vary depending upon the model of attachment brackets.

P18 Part References

The diagram below displays all the P18 parts referred to in this manual.





Safety Recommendations

Beware of the following Potential dangers associated with the use of this machine:

There is a danger of injuring feet, so no person must be in this area when the Post Driver is raised or lowered by the Digger.

There is a danger from crushing under the falling weight. No person must be near the post when the weight is falling. Never put a hand on top of the post or rock spike under any circumstances.

There is a danger of the mast tilting and creating a trapping zone, no person must be in this area.

Be aware of overhead cables

There is a danger of being hit by flying debris such as splinters from wooden posts. All personnel working near to the post driver must wear protective clothing, i.e. Eye and Ear defenders, strong safety boots and gloves.

There is a danger of injection of high pressure oil from damaged couplings or hydraulic hoses.

Safety checks and Recommendations

Before the Post Driver is used, ensure that every single person who works with or works close to the post driver reads and fully understands this manual.

Follow the manufacturer's instructions for attachment and removal of machine from the digger

The post cap plate must be used to hold posts at all times. Under no circumstances should the post be held manually while operating the Post Driver.

Only the operator must control the Post Driver, Spectators must be kept away from the machine at all times.

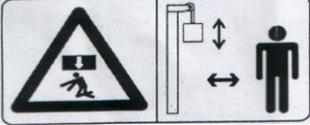
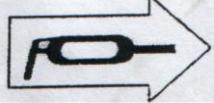
Before fitting the Post Driver to the Digger, it is the operator's responsibility to ensure the stability of the Digger and Post Driver in all anticipated conditions, and that the Digger is suitable for the Post Driver.

Before using the Digger, check that it is in correct working condition, with correct fluid levels

Always check all safety guards are fitted and in good condition.

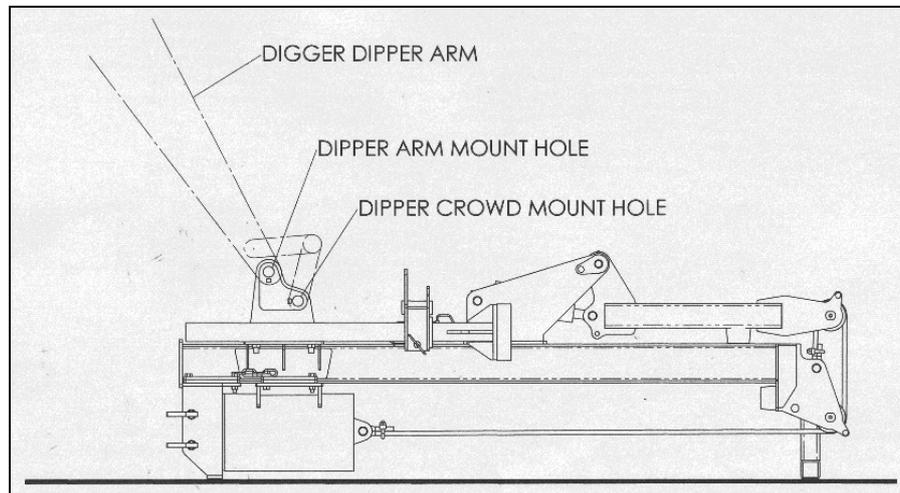
Check that machine fittings and couplings are in good condition.

Machine Safety Stickers

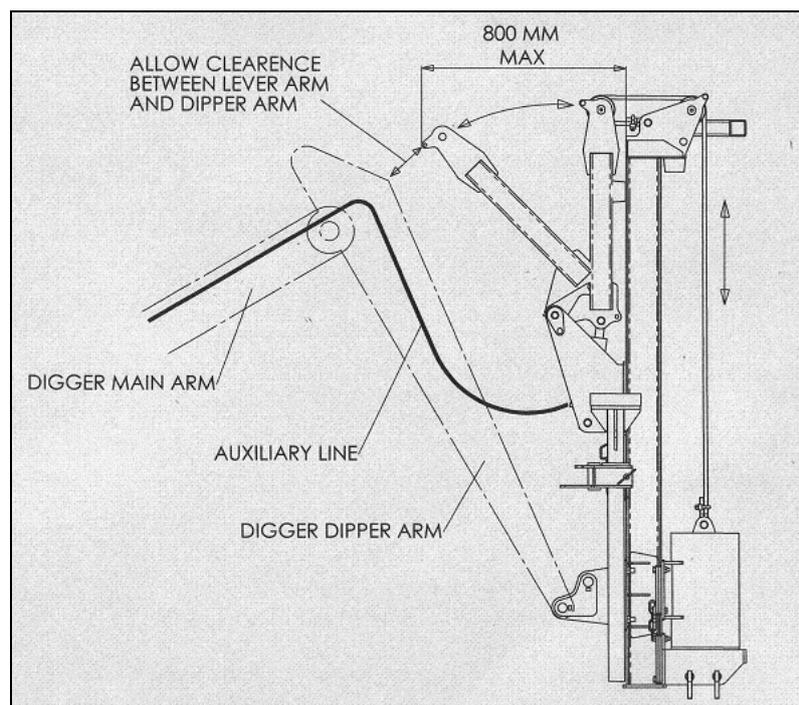
	<p>Standard Triangle to indicate Alert/Warning</p>
	<p>Warning read Product Manual</p>
	<p>Warning danger area from tilting mast</p>
	<p>Warning danger of feet being crushed.</p>
	<p>Warning eye protection must be worn</p>
	<p>Warning ear protection must be worn</p>
	<p>Warning Danger of falling weight</p>
	<p>Warning Danger of overhead cables</p>
	<p>Lubrication Point</p>
	<p>Lifting point</p>
	<p>Warning danger of fingers and hands being crushed</p>

Delivery and Installation of the Post Driver

1. The Post driver is normally delivered on a pallet. Position the pallet onto level ground using a suitable loader with pallet forks.
2. Remove all strapping between post driver and pallet. Drive the mini digger up to the post driver and then carefully position the dipper arm into the mount bracket. Fit the diggers own attachment pins making sure a bolt or linch pin is used to retain the pins.



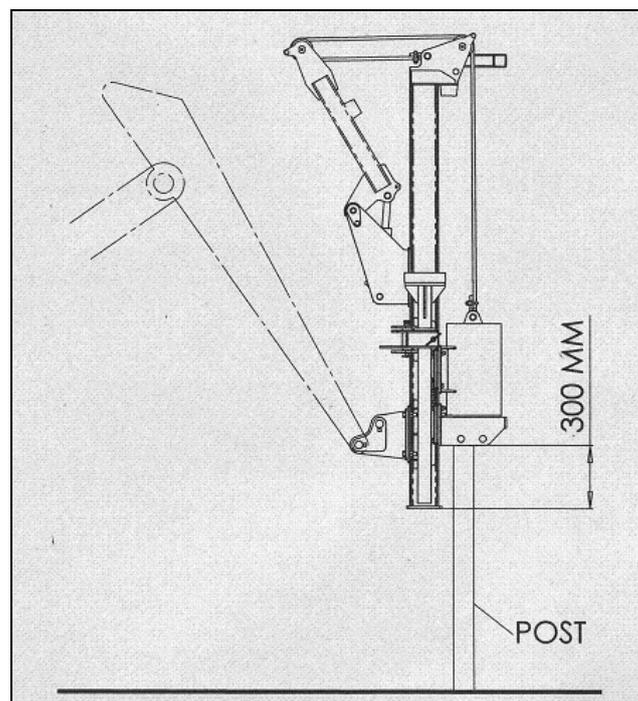
3. Connect the lever arm hydraulic hose to the auxiliary service of the digger. Operate the digger controls to raise the post driver off the ground and crowd back the dipper arm to position the mast vertically. Operation of the auxiliary service pivots the lever arm back towards the digger which pulls the rope back to lift the weight. Before this service is operated always ensure the dipper arm is sufficiently distanced forward to prevent colliding between the lever arm and dipper arm.



4. For the first use of the post driver, operate the auxiliary service to carefully raise and lower the weight several times to clear any air that might be trapped in the hydraulic system. The variable restrictor in the lever arm ram hose line can be adjusted to suit the flow from the auxiliary service. Too little restriction will cause the lift rope to snatch and strain. The recommended weight lift time should take approximately 1 to 2 seconds. Adjust the variable restrictor accordingly. The machine is now ready for use.

Safe use of the Post Driver.

1. Manually start a post in the desired location so it becomes self supported.
2. With the driver weight fully down ensure the post cap lift chain is released from post cap chain hook (the chain is only locked when using the rock spike). Also ensure the rock spike lock pins are removed.
3. Drive the Digger and Post Driver up to the post with the mast and cap plate raised a small distance above the top of the post.
4. Carefully lower the machine so the cap plate rests on top of the post and off the stop of the mast. We recommend a distance of 300 mm between the bottom of the cap plate and its stop.



5. Depending on the desired post angle and ground undulations, adjust the mast crowd angle.
6. Operate the auxiliary service to fully raise the weight to get maximum impact then move then release the service, allowing the weight to fall and hit the post.

7. Gradually lower the machine between hits to prevent the cap plate being driven onto the mast stop.

8. Once at the driven position then raise the machine until the cap plate is lifted off from the top of the post.

NEVER PUT HANDS ON TOP OF THE POST UNDER ANY CIRCUMSTANCES.

Safe Use of the Rock Spike.

The rock spike is recommended for use on stony or hard ground and creates a pilot hole for the post.

1. With the driver weight fully down lock the post cap lift chain onto the post cap chain hook.

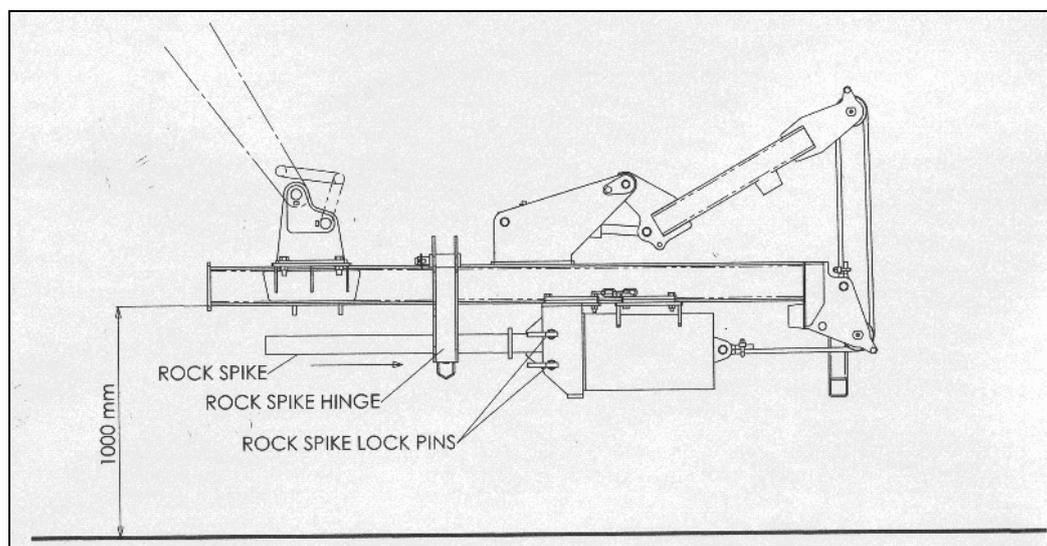
2. Crowd the mast forward to position horizontally and approximately 1 metre off the ground.

3. Operate the auxiliary service to fully raise the driver weight, post cap plate and safety guard up the mast. Turn off the digger and remove the ignition key.

4. Manually support the rock spike and remove the rock spike hinge lock pin, then carefully swing the rock spike under the mast. Work along the side of the mast and not underneath. Never attempt to fit the rock spike with the mast positioned vertically.

5. Slide the rock spike up the rock spike hinge until it stops against the underside of the post cap plate.

6. Fit the rock spike lock pins through the post cap plate and rock spike and retain with linch pins provided.



7. Remove the rock spike retaining pin, hinge back the rock spike hinge and lock with the rock spike hinge lock pin. Care must be taken while releasing the hinge as the end of the rock spike may drop slightly. Ensure no-one is below the rock spike during this operation.
8. Position the mast vertically and carefully lower the driver weight fully.
9. Release the post cap lift chain from the post cap chain hook.
10. Move the rock spike into the desired location and lower the mast until the post cap plate is raised 30 cm above its stop. Fully raise the driver weight and release onto post cap plate.
11. Gradually lower the machine between hits to prevent the cap plate being driven onto the mast stop.
12. Once at the driven position then raise the machine which will pull out the rock spike from the ground.
13. With the driver weight fully down lock the post cap lift chain onto the post cap chain hook.
14. Crowd the mast forward to position horizontally and approximately 1 metre off the ground.
15. Operate the auxiliary service to fully raise the driver weight, post cap plate, safety guard and rock spike up the mast. Turn off the digger and remove the ignition key.
16. Release the rock spike hinge and pivot down onto the rock spike and retain with the rock spike retaining pin. Never attempt to remove the rock spike with the mast positioned vertically.
17. Remove the rock spike lock pins and push the rock spike away from the post cap until it stops against the rock spike hinge.
18. Pivot up the rock spike and hinge and lock in position with the rock spike hinge lock pin.
19. The rock spike is now locked out of use.

Transportation of the Post Driver.

Always lower the weight and release any hydraulic pressure.

Always have the rock spike in the out of work position.

Always carry the Post Driver crowded back on the Digger as low as possible but without hitting the ground

Storage of the Post Driver

Where possible, store the Post Driver away from areas that have public access

Lower the weight and release any residual hydraulic pressure.

Store the Post Driver horizontally on level, stable ground.

Store the hydraulic hose in a clean, secure place.

The Post Driver must be stored in a position to be easily reconnected to the Digger.

Maintenance of the Post Driver

Daily

Check the lift rope for any signs of wear. If in doubt, change the rope.

Check hydraulic hoses for any signs of wear. If in doubt change the hose.

Grease rope pulleys.

Grease the mast where the driver weight runs.

Grease all arm pivots

Check all nuts and bolts are tight.

Weekly

Check the hydraulics for leaks

Check the rope pulleys turn freely

Check all pivots for wear

P18 MINI DIGGER PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	P18MD 001	MAST	1
2	P18MD 002	DRIVER WEIGHT	1
3	P180 0006	LEVER ARM	1
4	HFR2300150	RAM	1
5	P18MD 003	WEIGHT SPACER PLATE	4
6	P18MD 004	WEIGHT RETAINER PLATE	4
7	P18MD 005	ROCK SPIKE	1
8	P18MD 006	ROCK SPIKE HINGE BRACKET	1
9	P18MD 007	GRIPPER PLATE (REVERSIBLE)	1
10	DEPENDENT ON DIGGER	DIGGER MOUNT BRACKET	1
11	P18MD 008	PEAR PIN	1
12	P120 0014	PULLEY PIN	2
13	P120 0013	ROPE PULLEY	2
14	15DX16SF2	PULLEY BEARING	2
15	M20NN	NYLOCK NUT	2
16	M12NN	NYLOCK NUT	9
17	M16NN	NYLOCK NUT	4
18	M1650HB	BOLT	4
19	M1250HB	BOLT	8
20	M1065HB	BOLT	2
21	M10NN	NYLOCK NUT	2
22	P120 0019	RUBBER CUSHION	2
23	F163	PIN	4
24	F166	PIN	1
25	S16738	PIN WITH HANDLE	2
26	P18MD 009	STRIKER PLATE	1
27	F442	LINCH PIN	7
28	P18MD 010	PIN	2
29	P120 0019	SPIKE SCREW	3
30	38BS	BONDED SEAL	1
31	38MMA	ADAPTOR	1
32	RPASEP060000	BREATHER	1
33	M6SGNIP	GREASE NIPPLE	3
34	P18MD 011	CHAIN HOOK	1
35	P18MD 012	CHAIN BOLT	1
36	RMP 149	ROPE PULLEY	1
37	SUG035	ROPE GRIP	2
38	M10FN	FULL NUT	4
39		HOSE	1
40		VARIABLE RESTRICTOR	1
42		STAND	1
43		ROCK SPIKE CAP	1

