

# UNITOR

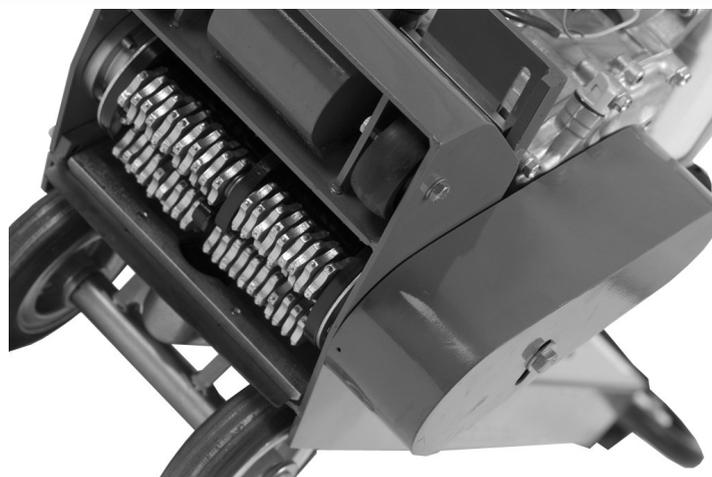
 Wilhelmsen  
Ships Service



## DP-PRO 200 DECK SCALER



## OPERATION & MAINTENANCE



# OPERATION

## Foreword

Thank you for your purchase of the DP-PRO 200 Deck Scaler.

This manual contains the necessary maintenance information for you to ensure proper operation and care for this machine.

See also the manual that is supplied by the engine manufacturer.

It is essential for you to read through these manuals thoroughly.

In the unlikely event that you experience problems with your DP-PRO 200, please do not hesitate to contact your local Unitor dealer or agent. We always welcome feedback and comments from our valued customers.

## General Information

Before operating, performing maintenance or repairing the DP-PRO 200 Deck Scaler this manual must be read and understood by the operator, if in any doubt, ask your supervisor before using this equipment.

Local safety regulations must be followed at all times. Failure to follow these instructions could result in damage to the DP-PRO 200 and/or personal injury.

Unitor disclaims all responsibility for damage to persons or objects arising as a consequence of incorrect handling of the machine, failure to inspect the machine for damage or other faults that may influence the operation prior to starting work, or failure to follow the safety regulations listed or applicable to the job site.

This machine is primarily designed for the removal of paint, heavy rust, scale and for the removal of laitance from concrete from steel areas. It can be used both indoors and out. Electric and compressed air models are more suitable for indoor use because of the toxic gases that are produced by petrol engines.

## Air Supply

### (Air Motor Versions)

The compressed air must be free from water and dirt. The installation of a filter/regulator/lubricator air preparation set (with moisture trap) adjacent to the tool is **strongly recommended**.

Always clear the air hose before connecting to the tool. Ensure that no moisture (condensation) is present in the air hose.

Ensure that a minimum 19mm (3/4") bore air hose is used and that all couplings are secure, leak free and in good condition.

Limit the length of air hose to 30M (100ft). Where extra length is necessary, for each additional 15M (50ft) of air hose used, the pressure drop is approximately 0.21bar (3psi).

**For safe and efficient operation the correct operating pressure is 6.2bar (90 psi).**

Do not let the operating pressure fall below 5.5bar (80p.s.i.) or rise above 6.9bar (100 psi). Preferably, the compressor should be able to supply a minimum of 95 L/s (200 cfm) free air.

In particularly cold weather it is recommended that a proprietary anti-freeze lubricating oil is used.

## Safety

WEAR SAFETY BOOTS, FACE MASK, SHATTERPROOF GLASSES, HELMET, GLOVES and any other personal protective equipment required for the working conditions. Avoid loose clothing; this may become trapped in moving parts and cause serious injury.

TO AVOID NUISANCE DUST, connect an industrial vacuum cleaner (minimum 3000watts or equivalent) to the 50mm (2") vacuum port situated at the rear of the machine.

ENSURE THAT THE WORK PLACE IS WELL VENTILATED. Avoid operating engine-powered machines in an enclosed area, since engine exhaust gases are poisonous.

BE VERY CAREFUL WITH HOT COMPONENTS. Exhausts and other parts of the engine are hot during operation and can remain hot for some time after shutdown.

**DO NOT REFUEL THE ENGINE WHILE THE ENGINE IS HOT OR RUNNING**, there is a very real danger from explosion – always refuel when the engine is cold, and in the open air.

During transportation fasten fuel cap tightly and close fuel cock.

**DO NOT** carry out any work on this machine without disconnecting it from its air or electrical power supply.

CAUTION THIS MACHINE IS HEAVY. It weighs around (Wt 73 kg (161 lbs)) dependent on power unit. Do not lift this machine manually.

### IMPORTANT:

When fitted with a petrol engine, AVOID TIPPING THE DP-PRO 200 BACKWARDS, especially when hot; the engine oil can run past the piston and into the combustion chamber causing the piston to "hydraulic lock" when next attempting to start the engine. **Never** attempt to forcibly turn the engine over if this has taken place, severe damage to the engine can be caused, resulting in a costly major strip down and possible injury to the operator.

To remove any oil from the cylinder, first remove the spark plug and place a lint free cloth over the plughole to capture the jettisoned oil. Turn the engine over with the ignition switch and fuel cock in the off position and expel as much of the oil as possible. Clean the spark plug to remove oil from the electrodes and replace. The plug may have to be removed and cleaned several times before the engine will start. Upon starting, the engine may produce smoke for a while from the exhaust, but this should soon clear.

Finally stop the engine and recheck the engine oil level. (Ensure that the engine is level prior to carrying out this check). If the engine oil level is low, refill with the recommended motor oil - see engine manufacturers operating instructions.

## Risk of Hand-arm Vibration injury

These tools may cause Hand-arm Vibration Syndrome injury if their use is not adequately managed.

We advise you to carry out a risk assessment and to implement measures such as; limiting exposure time [i.e. actual trigger time, not total time at work], job rotation, ensuring the tools are used correctly, ensuring the tools are maintained according to our recommendations, and ensuring that the operators wear personal protective equipment [PPE] particularly gloves and clothing to keep them warm and dry.

Employers should consider setting up a programme of health surveillance to establish a benchmark for each operator and to detect early symptoms of vibration injury.

We are not aware of any PPE that provides protection against vibration injury by attenuating vibration emissions.

See 'Specifications' section for vibration emission data.

Further advice is available from our Technical Department.

We strongly advise you to visit the Health & Safety Executive website <http://www.hse.gov.uk/vibration> This site provides excellent advice and information on HAV and currently, includes a Hand-arm Vibration Exposure Calculator that is easy to use to work out the daily vibration exposure for each of your operators.

## Cutter types & Applications

### T.C.T

Hardened steel cutter with tungsten carbide inserts. For all general cleaning applications, including concrete texturing, Scabbling, the grooving of concrete, removal of embedded roof chippings, brittle coatings from steel work. Use TCT Cutters on heavy applications, for longer life and higher output. *Produces "tramlines" on concrete and small indentations on steelwork.*

### STAR

Heat-treated steel cutters used for the aggressive removal of paint and coatings from deck areas, but with a shorter life span than Beam Cutters. Can be used for the general removal of dirt and ice deposits and to produce a texture on concrete surfaces. *Produces roughened surface on concrete and light marking on steelwork.*

### BEAM

Heat-treated steel cutters used for the removal of paint and coatings from deck areas, but with a shorter life span than TCT Cutters, not as aggressive as Star Cutters. Can be used for the general removal of dirt and ice deposits. *Produces a fine texture on concrete surfaces and slight marking on steelwork.*

### MILLING

Flat tungsten carbide cutters for the removal of thermo-plastic road and runway markings. Very efficient and cost effective with none of the problems associated with burning off. These can also be used for the removal of bituminous and rubber deposits.

Very effective for the removal of two part epoxy deck paint, may require finishing with beam cutters or the Unitor deck grinder to achieve the required finish.

Note: Care must be taken with milling cutters to ensure that the Drum and its Cutters are fitted the correct way round, the tungsten carbide tips must face towards the vacuum port at the bottom as the drum rotates, otherwise the tips will be damaged in use. *Produces a "strip" on concrete and tarmac, is not recommended on steelwork unless for "braking up" coatings.*

NB: Increasing or decreasing the number of spacers used can alter the performance and finish characteristics of each cutter type. Ensure that the same type and quantity of spacers and cutters are fitted to the opposite cutter shaft to maintain the drums balance. An out of balance drum can be very dangerous and will also dramatically increase the vibration emissions.

## Changing Cutter Drums

Turn off and stop the machine, making sure the cutter drum has come to a complete standstill.

**If electric or air powered, disconnect the machine from the power source.**

Adjust the height adjustment hand wheel so that the cutters are clear of the ground.

Remove the four Side Plate retaining bolts and remove the Side Plate. If the Side Plate is stuck in it's opening or on the dowel pins, use two of the Side Plate retaining bolts inserted into the threaded holes on each side of the Side Plate. Screw in both of these bolts equally until the Side Plate is free.

# MAINTENANCE

With the Plate removed the Cutter Drum will simply slide off the Drive Shaft. The fitting of the drum is basically the reverse of the removal procedure.

When changing cutter drums always check that the flail shafts are not excessively worn with pronounced grooves, also that the centres of the cutters and spacers and check that the drum flail shaft location holes are not elongated. The screws which hold the drum end plates in position must be tight and in good condition.

**Note:** In general use it is expected that normally two sets of flail shafts will be used to one set of TCT cutters. While changing the drum the condition of the drive shaft, the drum's hexagon drive, the drive shaft bearings and side plate bearing should be checked. If any roughness, side play or leakage of grease is detected then 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 later. While the Drum is removed, check that the vacuum port is free from blockages and that the wear strip, which also retains the dust skirt are both in good condition. Replace any damaged, worn or suspect parts. Ensure that all the bolts are tight at all times, recheck at regular intervals.

## Cutter Replacement & Configurations

Replacing cutters/spacers/flail shafts

Remove Drum; see **Changing Cutter Drums**.

Unscrew the four countersunk screws and locknuts from either end of the Cutter Drum.

Using a suitable drift, push out each of the flail shafts. Check each of the flail shafts for wear and replace as required. Check also the Drum, Cutters and Spacers for elongation and hole enlargement, replace as necessary.

See the table below for the examples of the sequence of spacers /cutters for each style of drum.

Before loading any cutters, establish which is "Position 1". (See next)

Position the two shorter rows to the left and at the top as you look at the drum; identify the short row on the left furthest away from you (at the "back" of the drum), this is "Position 1"

For ease of assembly, mark the end of the drum to help identify each flail shaft, rotate the drum away from you marking each position in order. 1,2,3,4.

**The drum's web plate thickness and positions can vary slightly; because of this, the quantity of cutter and/or spacers may need to be adjusted, ensure that the same amount of cutters and spacers are fitted to opposite shaft to keep the drum balanced. These examples are for illustrative purposes only.**

**Method as per Single Web Drum;**

Insert a flail shaft into the drum from the left side, in position 1, so that its end is in the middle of the short row, start to load with a single spacer first, fit the 9 cutters alternating with a spacer until the last cutter, pushing the flail shaft further through as the shaft fills, in this case end the short row with 1 single spacer.

Continue with the long row on the same shaft, but no spacer is fitted before or after the last cutter (See example below)

Rotate the drum away from you to complete shaft 2,3 and 4.

Finally secure the end plates with the four countersunk screws and four new locknuts.

**Example** for Position 1: - (Short Row) 1 x spacer, followed by 9 x cutters and with a single spacer after each cutter, but ending with a single spacer after the last cutter. Continue with the long row, no spacer, followed with 12 x cutters with a single spacer after each cutter, ending with no spacer after the last cutter.

WIRE BRUSH QUANTITIES FITTED TO BRUSH HOLDER		
	Wire Brush	Spacers
Crimped Wire Brush	16	16
Twisted Wire Brush	23	23

TCT CUTTERS FITTED TO SINGLE WEB DRUM				
Position	Short Row	Left Centre Web	Long Row	
1	1sp-9c-1sp		0sp-12c-0sp	1sp-11c-2sp
2	2sp-9c-0sp			
	Long Row	Right Centre Web	Short Row	
3	0sp-12c-0sp		1sp-9c-1sp	0sp-9c-2sp
4	2sp-11c-1sp			

TCT CUTTERS FITTED TO DOUBLE WEB DRUM					
Position	Left Row	Left Web	Middle Row	Right Web	Long Right Row
1	0sp-6c-0sp		0sp-6c-0sp		1sp-5c-2sp
2	2sp-5c-1sp				
	Long Left Row	Left Web	Middle Row	Right Web	Right Row
3	1sp-8c-0sp		0sp-6c-0sp		2sp-5c-1sp
4	0sp-8c-1sp				

### Milling Cutter Single Web Drum (Economy load)

Example for Position 1: - (Short Row) 4 x spacers, followed by 1 x cutter, then 6 x spacers, followed by 1 x cutter, ending with 5 x spacers, continue with the long row, 4 x spacers followed with 1 x cutter, then 8 x spacers followed by 1 x cutter ending with 9 x spacers.

Position	Short Row	Left Centre Web	Long Row	
1	4sp-1c-6sp-1c-5sp		4sp-1c-8sp-1c-9sp	1c-6sp-1c-15sp
2	1c-15sp-1c			
	Long Row	Right Centre Web	Short Row	
3	9sp-1c-8sp-1c-4sp		5sp-1c-6sp-1c-4sp	1c-15sp-1c
4	15sp-1c-6sp-1c			

### Milling Cutter Single Web Drum (Standard load)

Example for Position 1: - (Short Row) 1 x spacers, followed by 1 x cutter, then 1 x spacers, 1 x cutter, 2 x spacers, 1 x cutter, ending with 1 x spacer. Continue with the long row, 1 x spacers, 1 x cutter, then 3 x spacers, 1 x cutter, 3 x spacers, 1 x cutter, ending with 6 x spacers.

MILLING CUTTERS FITTED TO SINGLE WEB DRUM (Standard load)				
Position	Short Row	Left Centre Web	Long Row	
1	1sp-1c-1sp-1c-2sp-1c-1sp		1sp-1c-3sp-1c-3sp-1c-6sp	6sp-1c-3sp-1c-3sp-1c-1sp
2	1sp-1c-2sp-1c-1sp-1c-1sp			
	Long Row	Right Centre Web	Short Row	
3	6sp-1c-3sp-1c-3sp-1c-1sp		1sp-1c-2sp-1c-1sp-1c-1sp	1sp-1c-1sp-1c-2sp-1c-1sp
4	1sp-1c-3sp-1c-3sp-1c-6sp			

### Milling Cutter Single Web Drum (Full load)

Example for Position 1: - (Short Row) 3 x full milling cutters, followed by 1 x ½ size milling cutter, continue with the long row, 4 x full milling cutters, followed by 1 x ½ size milling cutter.

MILLING CUTTERS FITTED TO SINGLE WEB DRUM (Full load)				
Position	Short Row	Left Centre Web	Long Row	
1	0sp-3c-½c-0sp		0sp-4c-½c-0sp	0sp-½c-4c-0sp
2	0sp-½c-3c-0sp			
	Long Row	Right Centre Web	Short Row	
3	0sp-½c-c4-0sp		0sp-½c-3c-0sp	0sp-3c-½c-0sp
4	0sp-4c-½c-0sp			

### Milling Cutter Double Web Drum

Example for Position 1: - (Left Row) 6 x spacers, followed by 1 x full cutter, ending with 6 x spacers, continue with the (Middle Row), no x spacer, followed by 1 x full cutter, then 3 x spacers, then 1 x full cutter ending with no spacers, continue with the (Long Right Row), 3 x spacers, followed by 1 x full cutter, then 1 x half cutter, followed by 1 x full cutter, finishing with no spacer.

MILLING CUTTERS FITTED TO DOUBLE WEB DRUM					
Position	Left Row	Left Web	Middle Row	Right Web	Long Right Row
1	6sp-1c-6sp		0sp-1c-3sp-1c-0sp		1sp-1c-1sp-1c-1sp
2	0sp-1c-3sp-1c-0sp				
	Long Left Row	Left Web	Middle Row	Right Web	Right Row
3	0sp-1c-½c-1c-3sp		0sp-1c-3sp-1c-0sp		1sp-1c-1sp-1c-1sp
4	3sp-1c-½c-1c-0sp				

**The drum's web plate positions may vary slightly; because of this the quantity of cutter and spacers may need to be adjusted, these examples are for illustrative purposes only.**

CUTTERS & SPACER QUANTITIES FITTED TO SINGLE WEB DRUM			
CUTTER TYPE	PART No	CUTTERS	SPACERS
TCT	320.5500	82	88
Beam	320.5120	272	0
Star	320.3658	208	0
Milling (Economy)	320.5600	16	144
Milling (Standard)	320.5600	24	76
Milling (Full load)	320.5600 / 320.5650	28 full / 8 half	0
Spacer	320.4140		

CUTTERS & SPACER QUANTITIES FITTED TO DOUBLE WEB DRUM			
CUTTER TYPE	PART No	CUTTERS	SPACERS
TCT	320.5500	76	80
Beam	320.5120	268	0
Star	320.3658	204	0
Milling (Full load)	320.5600	22 full / 4 half	54

# SERVICING

## Pre-Start Check (Daily)

Check all bolts and screws for tightness. Ensure that all fittings are secure.

Check the drive belt for correct tightness. There should be approximately 13mm (1/2") of free play when the belt is depressed in the middle position between the two pulleys. To check and set the belt tension, refer to the *Belt Installation & Adjustment* section.

Check condition of Cutter Drum Assembly and replace components as required.

Check engine oil level. (Ensure that the engine is level prior to carrying out this check). If the engine oil level is low, refill with the relevant motor oil recommended in the engine manufacturers operating and maintenance manual.

Check that there is sufficient petrol in the fuel tank. (Only refill when the engine is cold).

**Air Models;** The air pressure regulator is preset at the factory to 90psi with a blanking bleed plug fitted, the air pressure regulators gauge will only show approximately 40psi (2.75bar) when the machine is in use, this is correct. Always clear the air hose before connection to the machine. Ensure that no moisture (condensation) is present in the air hose. Check the security of all hoses clamps and fittings, and that the air pressure is correct at 90psi (6.3bar). Check that there is sufficient air tool oil in the lubricator's reservoir. The air motor requires a minimum of 180cfm of free air supply (not displaced, as given by some compressor manufactures). In particularly cold weather it is recommended that a proprietary anti-freeze lubricating oil is used.

### Electric Models;

The DP-PRO 200 is supplied with a specially commissioned electric motors and starter switch assembly. Each unit is fully tested and the overload relays have been calibrated and set according to the manufactures specifications. In the event of malfunction on a new machine, the owner should first check that the power supply on site is suitable and adequate. All cables should be fully uncoiled and never left wrapped around cable reels or tied in loops. The starter box is fitted with a safety feature to protect the motor and relays from damage. The starter boxes are preset and under no circumstances should they be tampered with, stripped down or adjusted, otherwise it will invalidate the warranty. The starter control box lid must be unscrewed to gain access to the Black reset button, **ensure that the supply is disconnected prior to opening the lid.**

### 110v Motor

Use a centre tap transformer with a continuous rated output of **5.0KVA** and must be a 230v **20amp** supply.

**Do not** add an extension lead to the transformer input.

**Do not** use a 230v 13amp domestic supply.

The motor requires the minimum of a 32amp, 110v power supply.

To avoid voltage drop the machines extension cable must also be 4.0mm<sup>2</sup> cross-section with a maximum length of 30 meters.

### 240v and 415v Motors

Take particular care when using 240v or 415v Machines, ensure that the electrical supply is earthed and that breakers and fuses are correct for the loading. The 240v motor requires the minimum of a 13amp, 220v power supply. The 415v motor requires the minimum of a 10amp, 380v power supply. Always use the shortest possible length of extension cable. To avoid voltage drop the cable must be a minimum of 2.5mm. Maximum length of cable 30 meters.

## Starting Petrol Engines

1. Adjust the Handle Bar to a comfortable working height.

2. Before starting work be sure that the Cutter Drum is clear of the ground by turning the Hand Wheel anti-clockwise to its full height. In this position the machine's wheels are locked in position, acting as a hand brake; the machine cannot then accidentally roll away if left unattended.

3. Check that there is sufficient fuel in the fuel tank. (See manufactures hand book for type)

4. Check that the engine oil level is correct. (See pre-start check)

5. Open the engine fuel cock.

6. Set the throttle lever on the engine to quarter open position.

7. For cold engine starting, move the carburettor's choke lever to the choke "full on" position. (5.5hp engine)

8. Check that the engine stop switch is in the "on" position.

9. Pull the 'Deadmans' handle towards the handle bar and hold in position. (The motor will stop immediately if this lever is released)

### IMPORTANT

Do not pull the recoil starter cord to the end of its travel as it may cause damage to the engine or injury to the operator.

When the engine starts, recoil the cord slowly. Do not allow the cord to snap back to its start position.

10. Pull the recoil starter cord handle.

11. On the 5.5hp engine, after the engine starts, open the choke approximately halfway, or until the engine runs smoothly. Warm the engine up for at least 3-4 minutes at the quarter open throttle setting. Fully open the choke once the engine is sufficiently warm, this will take longer during particularly cold weather.

## Starting Electric Motors

Inspect the supply cable; Check that no damage has been caused to the outer casing and that there are no exposed or loose wires. Obtain the assistance of an electrician if a fault is found. Do not use the machine until it has been rectified.

Check that the cable is not running across sharp or jagged edges and that it is not in contact with any liquid.

1. Adjust the Handle Bar to a comfortable working height.

2. Before starting work be sure that the Cutter Drum is clear of the ground by turning the Hand Wheel anti-clockwise to its full height. In this position the machine's wheels are locked in position, acting as a hand brake; the machine cannot then accidentally roll away if left unattended.

3. Pull the 'Deadmans' handle towards the handle bar and hold in position. (The motor will stop immediately if this lever is released)

4. Press the green start button on the starter control box and the motor will start.

## Starting Air Motors

Check the security of all hoses clamps and fittings, and that the supply air pressure is correct at (90psi (6.2bar)). Check that there is sufficient air tool oil in the lubricator's reservoir.

**Important:** See pre-start check before altering the machine's pressure regulator.

1. Adjust the Handle Bar to a comfortable working height.

2. Before starting work be sure that the Cutter Drum is clear of the Ground.

by turning the Hand Wheel anti-clockwise to its full height, the machine's wheels are automatically locked in position, acting as a hand brake; the machine cannot then accidentally roll away if left unattended.

3. Turn the tap on the air lubricator so that it is inline with the lubricator, the air motor will then start to rotate the drum.

4. Check in the sight glass that the lubricator is supplying approximately one drop of oil every 30 seconds, this is **most important** to prevent the air motor from seizing. This has been set high during manufacture and will need adjusting on site. Check that there is sufficient oil in the reservoir at regular intervals. Be aware, the warranty does not cover a seized or damaged motor due to lack of oil supply.

See separate lubricator sheet for instruction on filling the air lubricator reservoir and for oil supply adjustment.

## Machine Operation

### ENGINE VERSIONS CAUTION

Beware of **POISONOUS FUMES**. Start and operate only in well-ventilated areas. Be careful with **HOT COMPONENTS**. Exhausts and other engine parts are hot during and for some time after operation. Do not touch them.

1. After starting the engine or motor, rotate the Hand Wheel clockwise until the "Handbrake effect" is off and the machine can move. Reduce the height until the cutters make contact with the surface. It is essential that the cutters are not lowered too far and too hard onto the surface as damage could be caused to the machine and cutter drum assembly. Allow the cutters to "float" on the cutter shafts without heavy downward pressure. As a guide between half and one full clockwise turn on the hand wheel should be sufficient. This floating action will allow the cutters to perform as intended.

2. Complete a small area observing the performance; reduce the throttle to tick over and on both electric motor and engine powered machines, release the Deadmans handle, inspect the finish produced.

See **Cutter types & Applications** for advice on cutter configurations.

3. Remember two light passes are quicker and more cost effective than one slow heavy pass. Tests have proved conclusively that heavy downward pressure reduces cutter and drum life by over 50%.

4. Nuisance dust should be removed by connecting an industrial vacuum cleaner (3000watts) to the 50mm port at the rear of the machine.

5. Alternatively on engine-powered machines, it is acceptable to spray water on the surface being worked or introduced via the vacuum port. The Cutter Drum assembly life is increased by around 10% when operating the machine in this method.

**Do not use the above method when using electric machines due to the inherent danger of the trailing cable becoming immersed in water.**

**NOTE:** Electrical motors and switches are not totally waterproof; but are protected to IP44; take special care to protect them from water to ensure safety.

6. The DP-PRO 200 is normally used in a forward motion; the rotation of the drum also helps with the natural drive produced during its operation. The operator can vary the speed of travel to determine the final finish having already set the depth control.

# SERVICING continued

It is permissible to operate the machine with a backward and forwards action, each pass should be overlapped to produce a uniform finish.

7. In emergency, when the cutter drum must be lifted quickly from the work surface, it is not necessary to turn the hand wheel, simply pull backwards and downwards on the handlebar to lift the front wheels and Cutter Drum off the deck, and then release the Deadmans handle.

## Shut Down

1. Turn the Hand Wheel clockwise to its full height, until the machine's wheels are locked and act as a brake.

**Air Motors versions**, turn the tap on the lubricator anti-clockwise until at right angles to the lubricator.

**Electric versions**, release the Deadmans handle, and disconnect from the supply.

2. **Petrol versions**, still holding the Deadmans handle, move the engine's throttle lever to the slow speed position and run the engine for 10 seconds. (This avoids the engine from becoming washed internally by neat fuel if switched off from high engine revolutions.)

3. Release the Deadmans handle or switch off main engine switch the engine will then stop.

4. Switch off the main engine switch.

5. Close the engine fuel cock.

### :EMERGENCY SHUTDOWN:

Petrol and Electric Models: Release Deadmans handle.  
Air Motor: Turn off lubricator stop tap.

## Belt Installation & Adjustment

1. **Ensure that all power or air to the machine is switched off and disconnected.**

2. Remove the belt guard by unscrewing the bolt in the centre of the belt Guard.

3. Loosen the engine mounting plate bolts to allow the engine to move along the chassis's engine mounting bolt slots and on electric motors loosen also the motor to slide mounting fixing bolts.

4. Slide the toothed belt off the engine pulley and then remove the belt from the drive pulley. It may be necessary to lift the left hand end (viewed from the front of machine) of the engine/motor slightly to facilitate removal and also during installation.

5. Place the new belt partially onto the drive pulley first; locate the belt's teeth in the drive pulley's tooth grooves.

6. Then slide the belt over the engine drive pulley, slide the belt fully into position, and ensure that both pulleys have the belt's teeth engaged in the grooves and that the engine/motor pulley is positioned directly above the drive pulley.

7. Adjust the tension of the belt by moving the engine towards the front of the machine.

When the engine is in the correct position, (Normal slack should be approximately 13mm (1/2")) lightly tighten the engine retaining bolts and recheck the belt tension.

The engine must also be parallel to the front of the engine mounting plate otherwise the belt will not run true.

Please bear in mind that the belt will also tighten further as the engine mounting bolts are tightened. Adjust the engine position until the correct belt tension is achieved. Carefully rotate the drive pulley by hand to ensure that the belt is running true.

8. Finally tighten all engine bolts, refit the belt guard and tighten the belt guard-retaining bolt.

### IMPORTANT

Normal slack should be approximately 10-15mm (1/2") when the belt is depressed on one side in the middle position between the engine pulley and drive pulley.

## Maintenance & Machine Storage

After use, clean the machine to remove all build up of dust and surface residues. If using a hosepipe or pressure washer take care not to direct water at electrical components and switches.

**Note: Motors and switches are not waterproof.**

Ensure that the height adjustment thread is cleaned and then lightly greased. Periodically it should be completely removed and the female thread section cleaned and greased. At the same time the self-aligning bearing at the top of the shaft should be greased using a grease gun.

The clevis pin should be lubricated regularly with oil to maintain a light, smooth height adjustment.

The toothed Drive Belt will give a long and trouble free life if basic procedures are followed.

Daily check the drive pulleys for build up of deposits and any trapped debris etc.

Check the belt and teeth for surface cuts and cracks, as once the surface of the belt is damaged it will soon fail.

Build up of dirt can cause two problems:

The belt can become over tightened through the build up of dirt underneath the teeth and therefore may no longer mesh correctly, all of the power is then transmitted by the tip of the teeth with obvious negative results.

Serious damage could result to the 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 or whistle.

**Warning:** Never operate the DP-PRO 200 without a belt guard.

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

Check the individual motor or engine manufactures instructions for details on their service recommendations.

### Short period storage: up to 3months.

Clean outside of machine, inspect the Drum, flail shafts and cutters for wear; replace any worn parts as required.

Remove any build up of material from inside of the Cutter Drum area.

Cover the machine to protect it: Store the machine in a dry place.

Be sure to check security of all fastenings after any lay up period.

See also engine manufactures operation and maintenance instruction book.

### Long period storage: over 3months

Clean outside of machine, inspect the Drum, flail shafts and cutters for wear; replace any worn parts as required.

Remove any build up of material from inside of Cutter Drum area.

When engine is cold, remove the fuel from the fuel tank and carburettor float chamber; see engine manufactures operation and maintenance instruction book for method.

Cover the machine to protect it: Store the machine in a dry place.

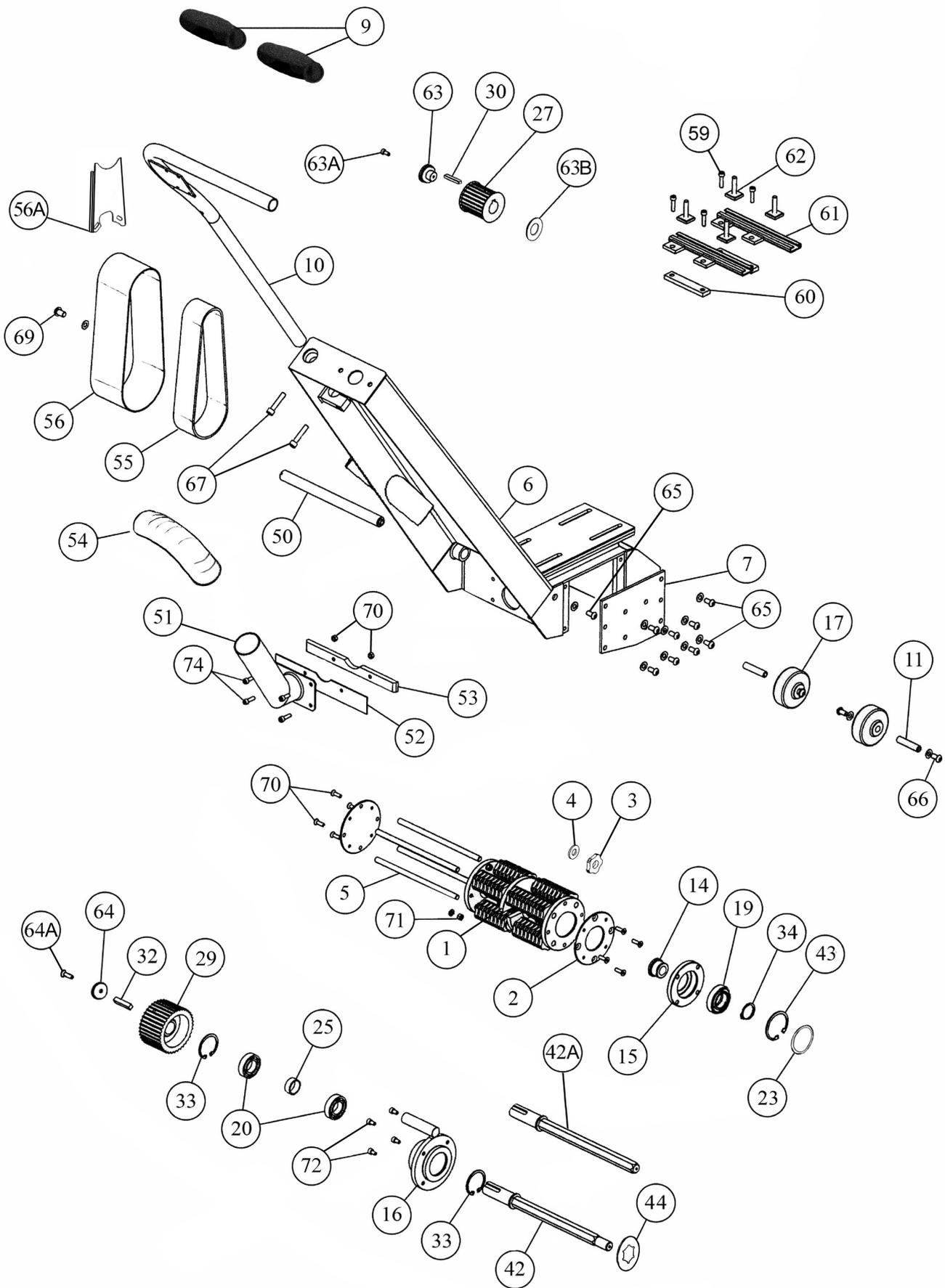
After any long lay up period be sure to check security of all fastenings, change engine oil as per engine manufactures instructions and refill the tank with fresh petrol.

See also engine manufactures operation and maintenance instruction book.

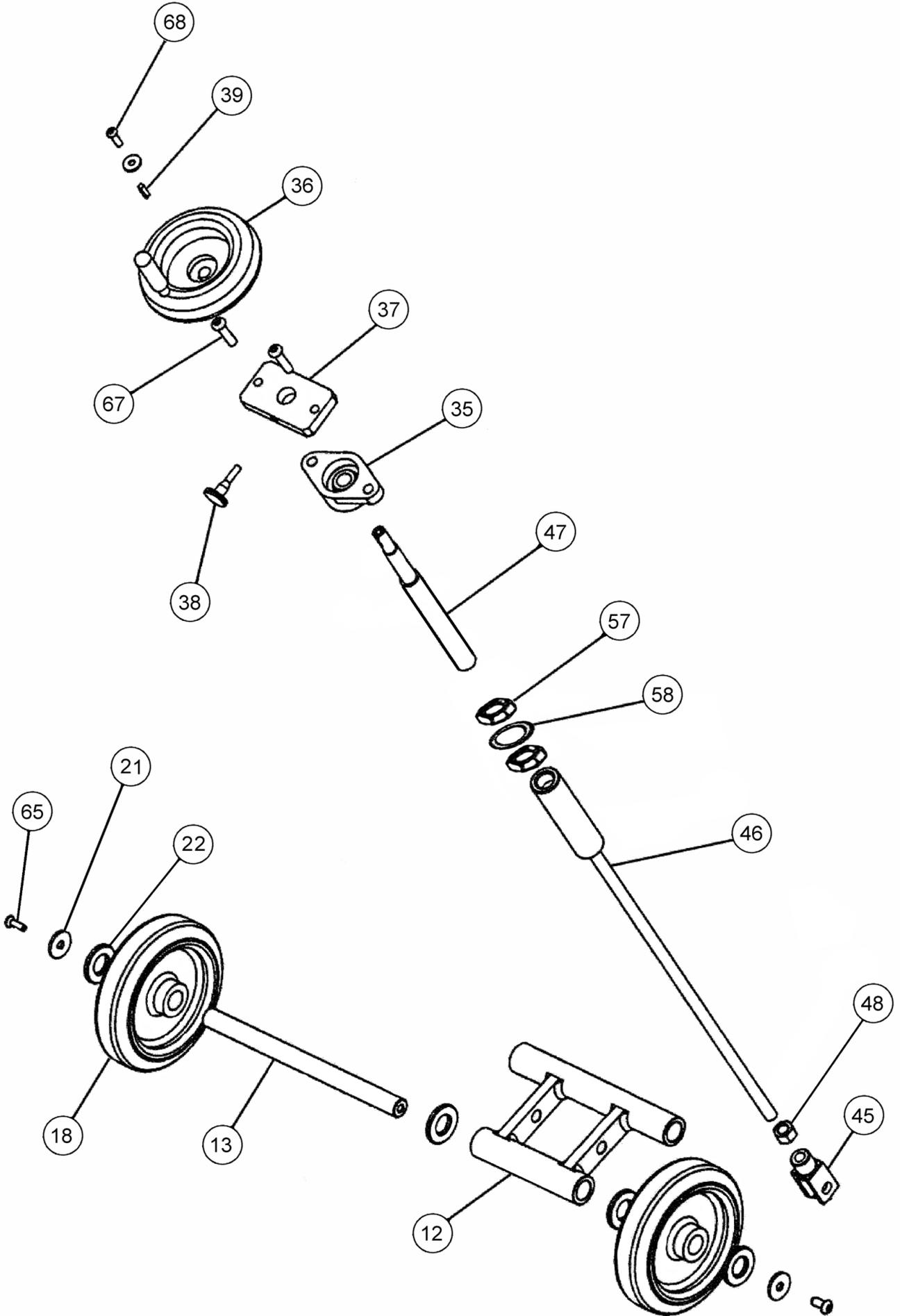
Note: Always follow local regulations on the storage of petrol and for the disposal of used engine oil.

FAULT	CAUSE	ACTION
Engine stops suddenly or does not run correctly	No fuel in the fuel tank.	Refuel fuel tank. (See safety section.)
	Spark plug faulty.	Replace spark plug.
	Fuel blockage.	Check fuel line and strainer.
	Air cleaner blocked.	Replace air cleaner element.
Electric motor stops suddenly	Low oil level. (A low oil cut out is fitted)	Rectify leaks and replenish oil.
	Blown electrical supply fuse.	Replace fuse.
Electric motor will not start	Motor overload protection activated	Disconnect electricity supply at mains and reset button inside starter box.
	Deadmans handle not engaged	Pull Deadmans lever against handle bar and press start button.
Planer is slow or erratic	Drive Belt slack or failed.	Replace Belts or adjust tension.
	Worn Drum Cutters	Replace Cutters.
	Loose or a failed drive belt.	Replace Belts and adjust tension.
	Surface too rough.	Use the Unitor Larger surface Planer to increase production.
Engine will not start	Low air supply or air pressure	Requires a minimum of 160cfm @ 90psi
	No fuel in the fuel tank.	Refuel fuel tank, see safety precautions.
	Low oil level.	Rectify leaks, replenish oil.
	Water in fuel/wrong fuel type	Drain fuel tank, float chamber, and refuel with correct fuel type.
Engine will not turn over	Spark plug faulty.	Replace spark plug.
	Oil in Cylinder.	See section. 1 - Safety Precautions.
Use above information in conjunction with the engine manufacturers Operation and Maintenance Manual.		
If problem has not been cured by above actions, contact your local Unitor agent or engine manufacturer for advice or rectification.		

# EXPLODED VIEW



# EXPLODED VIEW



# PARTS LIST

ITEM	Part Number	DESCRIPTION	ITEM	Part Number	DESCRIPTION
1	320.002H	12mm Cutter Drum inc Cutter Shafts	34	320.9133	Circlip (small - side plate side - prior 11/2011)
	320.002S	12mm Double Web Drum inc Cutter Shafts	35	320.9134	Flange Bearing
	320.002G	12mm Grooving Drum inc Cutter Shafts	36	320.9135	Handwheel
	320.000H	10mm Cutter Drum inc Cutter Shafts	37	320.9155	Locking Plate
	320.000S	10mm Double Web Drum inc Cutter Shafts	38	320.9158	Locking Screw
	320.000G	10mm Grooving Drum inc Cutter Shafts	39	855.4414	Key (handwheel)
2	320.00EP	End Plate	40-41		<i>Not Assigned</i>
3	320.5500	TCT Cutter	42	320.9140	Drive Shaft (round side plate end - prior 11/2011)
	320.5120	Beam Cutter	42a	320.9140A	Drive Shaft (full length hexagon)
	320.3658	Star Cutter	43	320.9132A	Circlip (Large - Side Plate Side - prior 11/2011)
	320.5600	Milling Cutter	44	320.9151	Spinner Plate
	320.5650	1/2 Milling Cutter	45	325.9143	M12 Clevis and Pin
4	320.4140	Spacer	46	320.9112	Height Rod
5	320.0020	12mm Cutter Shafts (see also item 1)	47	320.9113	Height Screw
	320.0010	10mm Cutter Shafts (see also item 1)	48	824.0020	Lock Nut
6	320.2021	Main Chassis inc item (7)	49		<i>Not Assigned</i>
7		Side Plate (part of 320.2021)	50	320.9110D	Swinging Arm Spindle
8		<i>Not Assigned</i>	51	320.9109	Vacuum Take-off
9	822.2000	Handle Bar Grips	52	320.9106	Skirt
10	320.9103	Handle Bar	53	320.9105	Wear Strip
11	320.9107	Front Axle	54	320.9154	Vacuum hose
12	320.9110	Swinging Arm	55	320.9137	Belt
13	320.9111	Rear Axle	56	320.9138	Belt Guard
14	320.9114	Drive Bush (round end drive shaft - prior 11/2011)	56A	320.9138A	Rear Guard
	320.9114A	Drive bush (hexagon end drive shaft - after 10/2011)	57	320.9113A	Tab Washer (height screw - after 11/2011)
15	320.9115	Bearing Housing (side plate side - prior 11/2011)	58	824.0020	Locking nut
	320.9115A	Bearing Housing (side plate side - after 10/2011)	59	831.0840	M8 x 25 Hexagon head bolt
16	320.9116	Bearing Housing (drive side)	60	320.9159	Engine Clamp Plate
17	320.9120	Front Wheel	61	320.9148F	Mounting Rail (Front)
18	320.9121	Rear Wheels		320.9148R	Mounting Rail (Rear)
19	320.9123	Bearing (side plate side - round end prior 11/2011)	62	320.9149	M8 T-Bolt
	320.9123A	Bearing (side plate side - after 10/2011)	63	320.9126A	Engine Pulley Retaining Washer
20	320.9124	Bearing (drive side)		320.9127A	Motor Pulley Retaining Washer
21	812.1080	M8 Washer (rear wheels)	63A	806.5610	5/16" UNF x 1"Lg Cap Head Bolt
22	320.9157	Spacer Washer (rear wheels)	63B	320.9126B	Engine pulley spacer (5.5hp)
23	320.9102A	Bearing spacer (side plate side - after 10/2011)	64	325.9124	Drive Shaft Pulley Retaining Washer
24		<i>Not Assigned</i>	64A	853.1020	M10x20 Countersunk Socket
25	320.9125	Spacer (drive side bearings)	65	831.0820	M8 x 20 Hexagon Head Bolt
26		<i>Not Assigned</i>	66	831.0815	M8 x 15 Hexagon Head Bolt
27	320.9126	Engine Pulley	67	831.0840	M8 x 40 Hexagon Head Bolt
	320.9126A	Engine pulley retaining washer (5.5hp)	68	806.0620	M6 x 20 Button Head Socket Head Screw
	320.9126B	Engine pulley spacer	69	508.D220	M10 x 20 Hex Head Bolt
	320.9127	Motor Pulley	70	320.00SC	M6 x 25 Countersunk Screw
28		<i>Not Assigned</i>		320.01SC	M5 x 20 Countersunk Screw
29	320.9128	Drive Pulley	71	320.00NY	M6 Nyloc Nut
30	320.9129	Engine Key		320.9305	M5 Nyloc Nut
	320.9130	Motor Key	72	806.0612	M6 x 12 Cap head screw
32	320.9131	Drive Key	73		<i>Not Assigned</i>
33	320.9132	Circlip (drive side)	74	831.0620	M6 x 20 Hex Head Bolt



# TECHNICAL SPECIFICATIONS

Height (Working Position)	900mm	35.5"
Width	360mm	14"
Length (Working Position)	900mm	35.5"
Cutting width (Dependent on Cutters)	200mm	8inch
Cutter head speed	1833 rpm	
Working distance from wall	45mm	1.5"
Weight (Dependent on power unit)	75kg	161lbs
Air consumption - Air Power version	78lps	165cfm
Petrol Power unit	5.5hp Honda	4.1 kilowatt
Approximate Fuel Consumption	1.32 litre per hour	0.3 gallon per hour

<b>HONDA 5.5HP ENGINE</b>	
Noise $L_{pA}$ SPL $L_{wA}$ SWL	95.06dB (A) 109.5dB (A)
Declared Noise emissions in accordance with EN ISO 15744: 1999	

Vibration (AEQ) at the Handle Bar	10 m/s <sup>2</sup> (K= +40% -0%)
-----------------------------------	-----------------------------------

(k) \*\* Equals the factor of uncertainty, which allows for variations in measurement and production. Vibration Data figures are tri-axial, which gives the total vibration emission. Because of various factors, the range of vibration from these tools may vary between 10m/s<sup>2</sup> & 14m/s<sup>2</sup>. The vibration is dependent on the task, the operators grip and feed force employed etc.

NOTE: The above vibration levels were obtained from tri-axial measurements to comply with the requirements of "The Control of Vibration at Work Regulations 2005\*" and the revisions to the (8662) now EN ISO 28927 and EN ISO 20643 series of standards. These values are at least 1.4 times larger than the values obtained from single axis measurements.

\*Based on European Union Council Directive 2002/44/EC (Physical Agents (Vibration) Directive)

## Machinery Directive Information

This tool has been designed and produced in accordance with the following directives:

2006/42/EC Machinery Directive

If your company has any problem with our products or would like to discuss the possibility of an improvement being made to them, then please do not hesitate to contact us. Your comments are both important and appreciated.

All rights reserved. Any unauthorised use or copying of the contents or part thereof is prohibited.

This applies to trademarks, model denominations, part numbers and drawings.

Use only genuine Unitor spares.

**The use of non-Unitor spare parts invalidates the warranty.**

