



TIMBERWOLF®
Lead the Pack

**TW PTO/150H WOOD CHIPPER
UK INSTRUCTION MANUAL**



timberwolf-uk.com

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Thank you for choosing Timberwolf. Timberwolf chippers are designed to give safe and dependable service if operated according to the instructions.

IMPORTANT HEALTH AND SAFETY INFORMATION

Before using your new chipper, please take time to read this manual. Failure to do so could result in:

- personal injury
- equipment damage
- damage to property
- 3rd party injuries

This manual covers the operation and maintenance of the Timberwolf TW PTO/150H. All information in this manual is based on the latest product information available at the time of purchase.

All the information you need to operate the machine safely and effectively is contained within pages 3 to 12. Ensure that all operators are **properly trained** for operating this machine, especially in **safe working practices**.

Timberwolf's policy of regularly reviewing and improving their products may involve major or minor changes to the chippers or their accessories. Timberwolf reserves the right to make changes at any time without notice and without incurring any obligation.

Due to improvements in design and performance during production there may be, in some cases, minor discrepancies between the actual chipper and the text in this manual.

The manual should be considered an important part of the machine and should remain with it if the machine is resold.

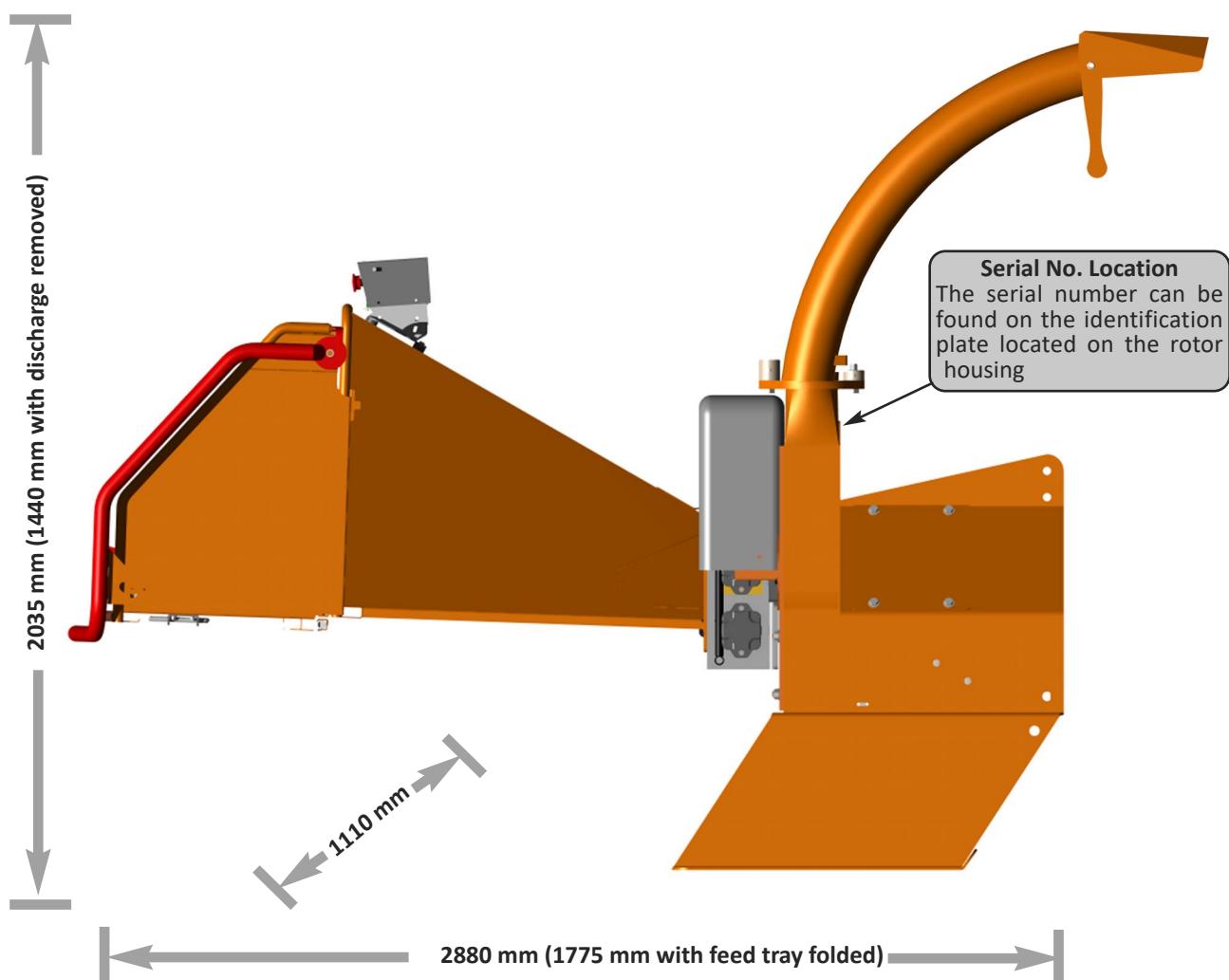


THE TIMBERWOLF TW PTO/150H

The Timberwolf PTO/150H brushwood chipper, is designed to chip solid wood material including timber branches, saplings and brushwood up to a maximum of 150mm in diameter. It is capable of chipping over 3 tonnes of brushwood per hour.

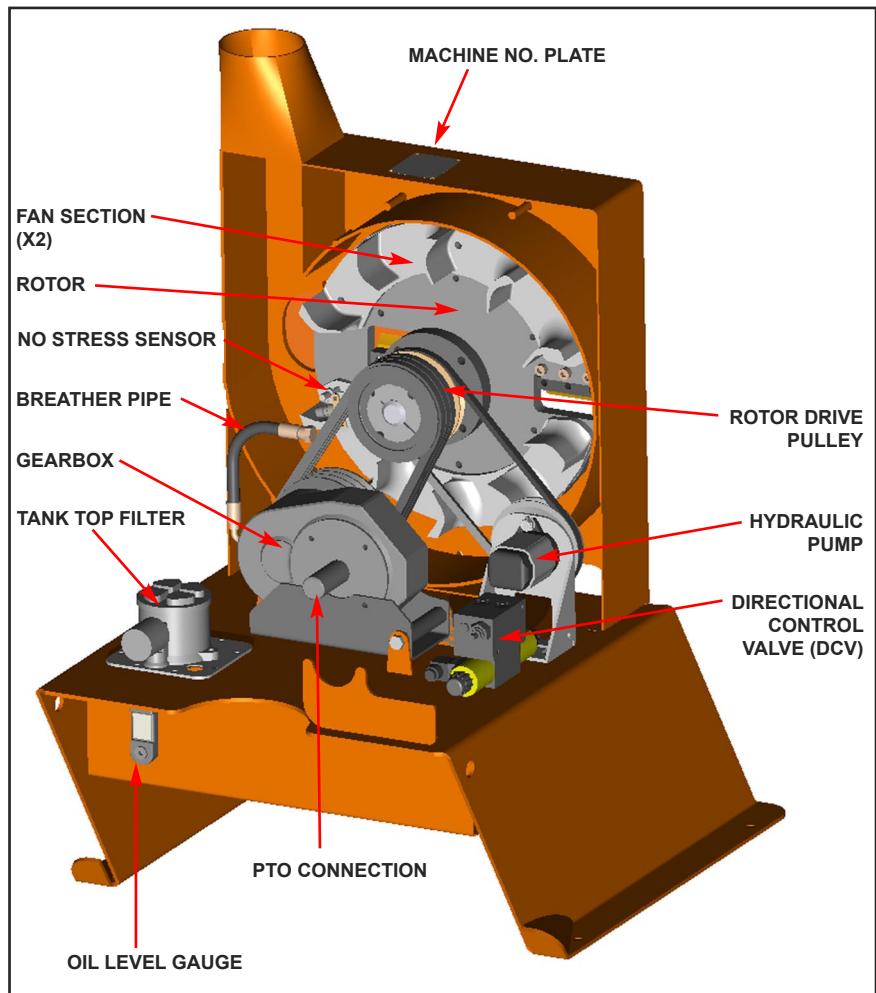
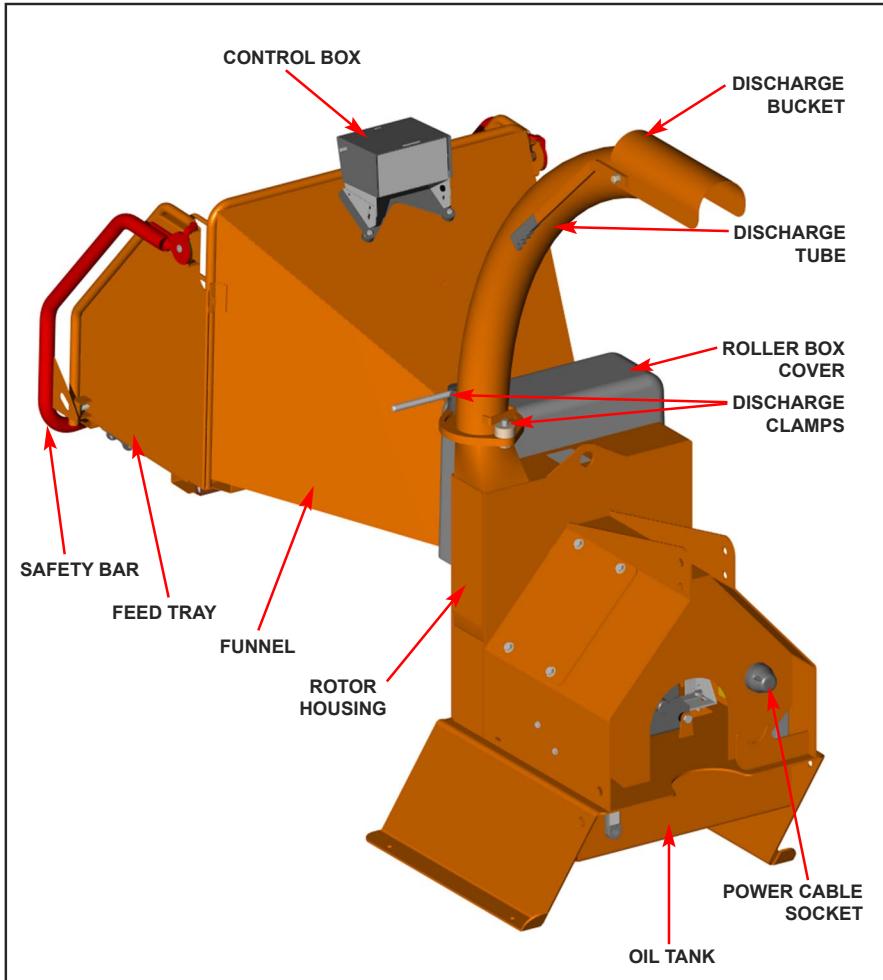
The Timberwolf PTO/150H brushwood chipper is required to be securely 3 - point coupled with a 25-60hp tractor unit with 540rpm PTO when in use. Power from the attached tractor unit is to be supplied to the chipper via PTO drive shaft.

DIMENSIONS



TIMBERWOLF TW PTO/150H SPECIFICATION

Power source:	Tractor PTO Drive	Overall weight:	400kg
PTO speed:	540rpm	Type of feed:	Hydraulic
PTO Shaft Connection:	1 $\frac{3}{8}$ " x 6 Spline	Maximum diameter material:	150 mm (6")
Required engine power:	25 - 60hp	Material processing capacity:	3 tonnes/hr
3 - Point Mounting	Cat. 1 / 2		



WARNING

The chipper will feed material through on its own. To do this, it relies on sharp blades both on the feed rollers and the chipper rotor. To keep the blades sharp, only feed the machine with clean brushwood. DO NOT put muddy/dirty wood, roots, potted plants, bricks, stones or metal into the chipper.



OPERATOR'S PERSONAL PROTECTIVE EQUIPMENT REQUIRED



**CHAINSAW SAFETY HELMET
FITTED WITH MESH VISOR AND
RECOMMENDED EAR
DEFENDERS TO THE
APPROPRIATE SPECIFICATIONS.**



**CLOSE FITTING HEAVY-DUTY
NON-SNAG CLOTHING.**



**WORK GLOVES WITH
ELASTICATED WRIST.**



**FACE MASK IF
APPROPRIATE.**



STEEL TOE CAP SAFETY BOOTS.



**DO NOT
WEAR RINGS, BRACELETS,
WATCHES, JEWELLERY OR ANY
OTHER ITEMS THAT COULD BE
CAUGHT IN THE MATERIAL
AND DRAW YOU INTO THE
CHIPPER.**

BASIC WOODCHIPPING SAFETY

THE OPERATOR SHOULD BE AWARE OF THE FOLLOWING POINTS:

- Maintain a safety exclusion zone around the chipper of at least 10 metres for the general public or employees without adequate protection. Use hazard tape to identify this working area and keep it clear from debris build up. Chips should be ejected away from any area the general public have access to.
- Hazardous material - Some species of trees and bushes are poisonous. The chipping action can produce vapour, spray and dust that can irritate the skin. This may lead to respiratory problems or even cause serious poisoning. Check the material to be chipped before you start. Avoid confined spaces and use a face mask if necessary.
- Be aware when the chipper is processing material that is an awkward shape. The material can move from side to side in the funnel with great force. If the material extends beyond the funnel, the brash may push you to one side causing danger. Badly twisted brash should be trimmed before being chipped to avoid thrashing in the feed funnel.
- Be aware that the chipper can eject chips out of the feed funnel with considerable force. Always wear full head and face protection.
- Always work on the side of the machine furthest from any local danger, e.g. not road side.
- In the event of an accident, stop the machine and call the emergency services immediately.

GENERAL SAFETY MATTERS



DO'S AND DON'TS



Always stop the tractor engine, remove ignition key and disconnect the PTO shaft before making any adjustments.

Always check machine has stopped rotating and remove tractor ignition key before maintenance of any kind, or whenever the machine is to be left unattended.

Always check machine is securely coupled to tractor pin hitch and on firm level ground.

Always run tractor engine at required speed to achieve correct PTO speed.

Always check (visually) for fluid leaks.

Always take regular breaks. Wearing personal protective equipment for long periods can be tiring and hot.

Always keep hands, feet and clothing out of feed opening, discharge and moving parts.

Always use the next piece of material or a push stick to push in short pieces. Under no circumstances should you reach into the funnel.



Always keep the operating area clear of people, animals and children.

Always keep the operating area clear from debris build up.

Always keep clear of the chip discharge tube. Foreign objects may be ejected with great force.

Always ensure protective guarding is in place before commencing work. Failure to do so may result in personal injury or loss of life.

Always operate the chipper in a well ventilated area - exhaust fumes are dangerous.

Do not operate chipper unless available light is sufficient to see clearly.

Do not attempt to engage PTO without the feed funnel, belt guard, guards and discharge unit securely in place.

Do not stand directly in front of the feed funnel when using the chipper. Stand to one side.



STONES



METAL



GLASS



RUBBER



BRICKS



STRING



ROOTS



BEDDING PLANTS

Do not smoke when refuelling.



Do not let anyone who has not received instruction operate the machine.

Do not climb on the machine at any time.

Do not handle material that is partially engaged in the machine.

Do not touch any exposed wiring while machine is running.

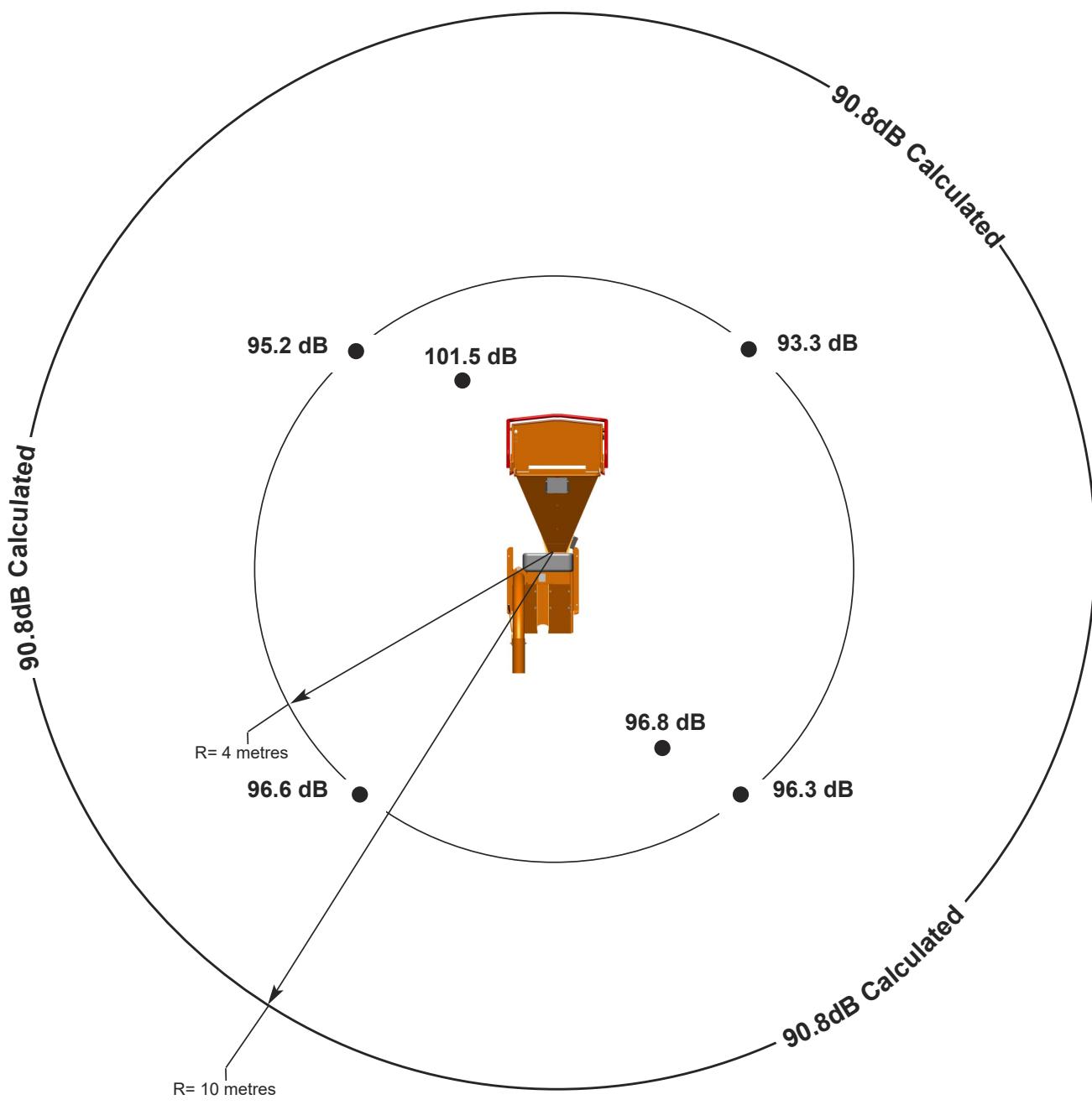
Do not use the chipper inside buildings.

NOISE TEST

Machine: TW PTO/150H

NOTES: Attached to a 40hp tractor, tested chipping 4 inch round poles. All readings represent tractor with chipper chipping.

Noise levels above 80dB (A) will be experienced at the working position. Prolonged exposure to loud noise may cause permanent hearing loss. All persons within a 4 metre radius must also wear good quality ear protection (EN 352) at all times to prevent possible damage to hearing.



Guaranteed Sound Power: 120dB (A)

As required by Annex III of Directive 2000/14/EC "Noise Emission in the environment by equipment for use outdoors".

DELIVERY

All Timberwolf TW PTO/150H machines have a full pre - delivery inspection before leaving the factory and are ready to use. Read and understand this instruction manual before attempting to operate the chipper. In particular, read pages 5-7 which contain important health and safety information and advice.

OPERATOR'S PERSONAL PROTECTIVE EQUIPMENT REQUIRED

- Chainsaw safety helmet fitted with visor and recommended ear defenders to an appropriate specification.
- Heavy-duty gloves with elasticated wrist area.
- Close - fitting heavy-duty non-snag clothing.
- Safety footwear.
- Face mask (if appropriate).

See page 5 for more detailed information.

CONNECTING TO TRACTOR

- Ensure tractor horsepower and lift capacity meets the chippers requirements and has the correct PTO speed.
- Ensure tractor and chipper are on firm level ground
- Check tractor drop arms are equal length, adjust if necessary.
- Attach chipper securely to tractor 3 - point linkage.
- Stop engine and apply handbrake,
- Set tractor top link to ensure chipper is level and top link is lower at tractor end.
- Ensure tractor engine is turned off and the ignition key has been removed.
- Connect PTO drive shaft - female half shaft to be fitted to tractor unit.
- Connect power cable from tractor to chipper.
- Ensure all PTO guards on tractor, drive shaft and chipper are re-fitted and drive shaft guard chain is attached to prevent rotation.

CONNECTING PTO SHAFT

- Check the angle of the drive shaft between tractor and chipper will not exceed 16° whilst in work and rotating.
- Check when lifted for transport the angle of the drive shaft between tractor and chipper will not exceed 40°.
- Ensure two sliding halves of the drive shaft have at least 150mm of engagement and be of a suitable length to prevent 'butting up' when chipper is lifted.

MOVING THE CHIPPER

- Do not move the chipper with the rotor running.
- Always ensure the retaining nuts and clamp are tight when transporting with a discharge tube in place.
- Never pull the machine by the red safety bar as linkages will be damaged.

DAILY CHECKS BEFORE STARTING THE TRACTOR

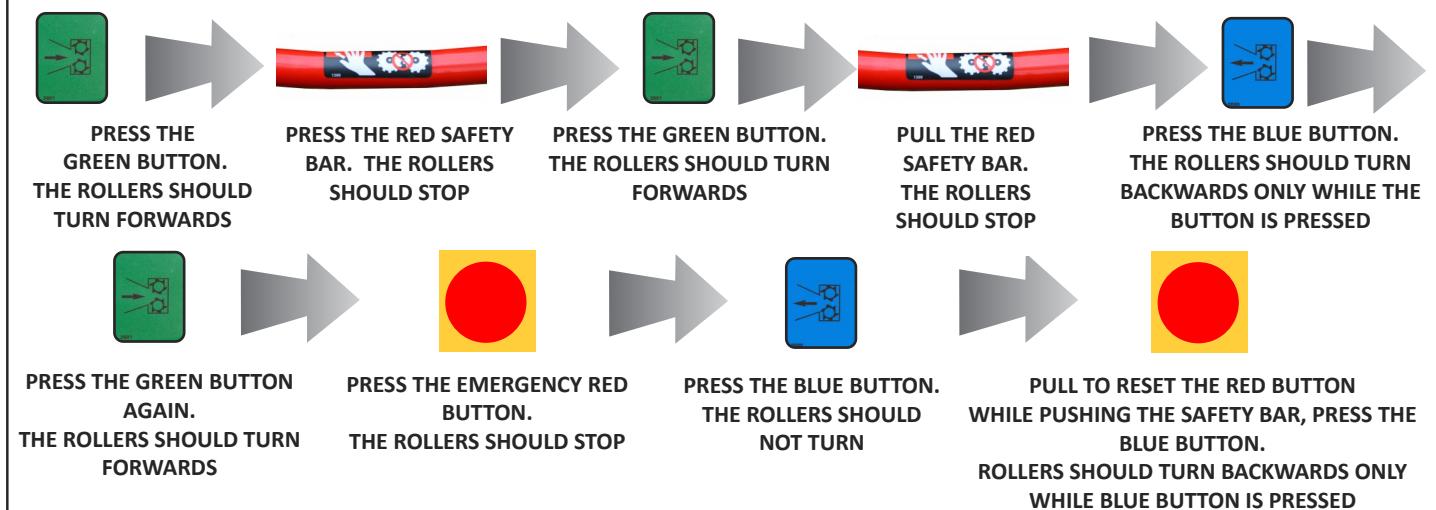
- Check chipper is securely and correctly mounted to 3 - point linkage.
- Check chipper linkage for signs of damage or fatigue.
- Ensure drive shaft ends are securely fitted to PTO shaft and chipper input shaft.
- Check for properly guarded PTO shaft, chipper input shaft and drive shaft.
- Check that guard chains are securely attached to stationary frame to prevent rotation of guard.
- Connect power cable from tractor to chipper.
- Locate the machine on firm level ground.
- Check chipper hydraulic oil level.
- Check the discharge unit is in place and tightened securely.
- Check discharge tube is pointing in a safe direction.
- Check the feed funnel to ensure no objects are inside.
- Check feed tray is in up position to prevent people reaching rollers.
- Check controls as described below.

For parts location
see diagrams on
page 4

BEFORE USING THE CHIPPER

It is essential to carry out the following tests to check safety equipment - this sequence of tests will only take a few seconds to carry out. We recommend that these tests are carried out daily. Observing the function as described will confirm that the safety circuits are working correctly. This is also a good opportunity to remind all operators of the control and emergency stop systems.

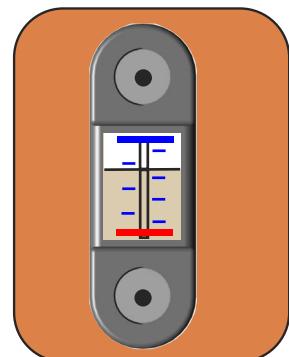
WITH THE ROTOR RUNNING AT 540 RPM



HYDRAULIC OIL THERMOMETER / OIL LEVEL INDICATOR

This is situated on the side of the hydraulic oil tank. When the chipper is running the oil temperature should not exceed 65°C. If it does, stop the machine immediately. Failure to do so may result in damage. Overheating can result from the chipper being worked extremely hard in hot conditions, as the oil is not getting a chance to cool down. Stop the chipper and allow oil to cool before continuing. If the temperature goes above 65°C and the machine is not being worked hard or the air temperature is not particularly high this indicates low oil, a jammed hydraulic motor or valve. Stop immediately and investigate.

When the chipper is on level ground the oil level should sit between the red line at the bottom of the gauge and the blue line at the top. If this level drops significantly it indicates an oil leak. Stop immediately and investigate.



MANUAL CONTROLS

ROLLER CONTROL BOX - this is the control box above the feed opening of the chipper funnel. Its function is to control the feed rollers. The feed rollers draw material into the machine. It does not control the main rotor.

RED SAFETY BAR: This is the large red bar that surrounds the feed tray and side of the feed funnel. The bar is spring loaded and connected to a switch that will interrupt the power to the rollers. The switch is designed so that it only activates if the bar is pushed to the limit of its travel. The rollers stop instantly, but can be made to turn again by pressing either the **GREEN FEED** or **BLUE REVERSE** control buttons.

RED SAFETY BAR TEST

To ensure the safety bar is always operational it must be activated once before each work session. The rollers will not function until the bar is activated. This procedure must be repeated each time the ignition is switched off.

WARNING

DO NOT REMOVE, JAM, DISABLE, BYPASS, OVERRIDE OR OTHERWISE IMPEDE THE EFFECTIVENESS OF THE RED SAFETY BAR.

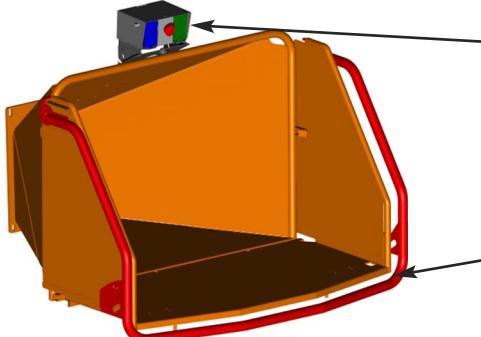


GREEN BUTTON: forward feed - Push the button once - this activates the rollers and will allow you to start chipping (if the rotor speed is high enough and no overspeed condition exists).

RED BUTTON: emergency stop - This button stops the rollers from feeding. It overrides all other buttons or bars and will not allow the other buttons to function until it has been reset. To reset, pull out until it returns to its original position. The forward and reverse buttons will now function.

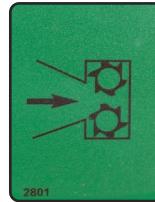
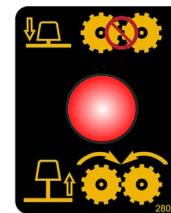
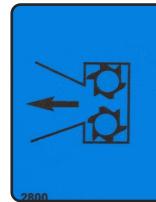
BLUE BUTTON: reverse feed - allows you to back material out of the rollers. The rollers will only turn in reverse as long as you keep pressing the button. You do not have to press the STOP button before pressing the GREEN FEED button to recommence feeding.

CONTROL PANEL DIAGRAM



RED STOP FEED - EMERGENCY STOP BUTTON

BLUE
REVERSE
FEED
PANEL



GREEN
FORWARD
FEED
PANEL

RED SAFETY BAR

Do not rely on the red bar to keep the rollers stationary if it is necessary to clear or touch the rollers. Always turn off tractor engine, remove ignition key and disconnect PTO shaft before approaching the rollers.

AUTO CONTROLS

The no stress unit controls the feed rate of the material going into the chipping chamber. If the rotor speed is below the predetermined level the no stress unit will not allow the feed rollers to work in the forward direction until the rotor speed rises above the predetermined level, at which point the feed rollers will start turning without warning. The reverse function will operate at any speed.

The same sensor unit will also detect if an overspeed condition exists ie. PTO speed too high. When an overspeed condition is detected the power supply to the forward feed rollers is disengaged. To re-establish power to the rollers once an overspeed has occurred; lower tractor revs to idle, disengage PTO and turn off engine. The control system must be reset by removing, then re-connecting the power cable between chipper and tractor, the feed rollers will then operate via the green button as detailed above.

BLADE WEAR

The most important part of using a wood chipper is keeping the cutter blades sharp. Timberwolf chipper blades are hollow ground to an angle of 40 degrees. When performing daily blade checks ensure blade edge is sharp and free from chips, if there is any evidence of damage, or the edge is "dull" change the blade(s). The TW PTO 150H is fitted with 2 blades 101mm (4") long. They are 44 mm wide when new. A new blade should chip for up to 25 hours before it requires sharpening. This figure will be drastically reduced by feeding the machine with stony, sandy or muddy material.

As the blade becomes blunt, performance is reduced. With increased stress and load on the machine the chips will become more irregular and stringy. At this point the blade should be sent to a reputable blade sharpening company. The blade can be sharpened several times in its life. A wear mark on the reverse side indicates the safe limit of blade wear. Replace when this line is exceeded.

The machine is also fitted with a static blade (anvil). It is important that the anvil is in good condition to allow the cutting blades to function efficiently. Performance will be poor, even with sharp cutter blades, if the anvil is worn.

EMERGENCY STOPPING

Push the RED STOP button or push the RED SAFETY BAR (whichever is the quickest for you to reach). Turn off tractor ignition key or operate tractor stop lever.

The emergency stop will prevent any more material being fed into the chipper. The rotor will still be turning. The tractor must be disengaged or powered down to stop the rotor.

STARTING TO CHIP

WARNING

ENSURE FEED FUNNEL, FEED TRAY, FEED ROLLER GUARD,
PROP SHAFT GUARDS AND ACCESS COVERS ARE FITTED AND
SECURE, AND THAT THE DISCHARGE UNIT IS FITTED AND
POINTING IN A SAFE DIRECTION.



- Start tractor.
- Gently engage PTO clutch.
- Increase tractor revs until tractor PTO speed = 540 rpm. DO NOT RUN ON ANY OTHER PTO SPEED SETTING.
- Check that chipper is running smoothly.
- Release the catch on the feed tray and lower.
- Pull to release the red stop button, perform safety bar tests (as shown on page 9).
- Press the green control button. The rollers will commence turning.
- Stand to one side of the feed funnel.
- Proceed to feed material into the feed funnel.

CHIPPING

Wood up to 150 mm diameter can be fed into the feed funnel. Put the butt end in first and engage it with the feed roller. The hydraulic feed rollers will pull the branch into the machine quite quickly. Large diameter material will have its feed rate automatically controlled depending on the tractor power available.

Sometimes a piece of wood that is a particularly awkward shape is too strong for the feed rollers to break. This will cause the top roller to either bounce up and down on the wood or both rollers to stall. If this occurs, press the BLUE REVERSE button until the material has been released. Pull the material out of the feed funnel and trim it so the chipper can handle it.

Both feed rollers should always turn at the same speed. If one or both rollers stop or suddenly slow down it may be that a piece of wood has become stuck behind one of the rollers. If this occurs press the BLUE REVERSE button and hold for 2 seconds - then repress GREEN FEED button. This should enable the rollers to free the offending piece of material and continue rotation at the correct speed. If the rollers continue to stall in the 'forward feed' or 'reverse feed' position push the RED STOP BUTTON, turn tractor engine off, remove ignition key and investigate.

STOPPING THE CHIPPER

- Push the RED STOP button (see control panel diagram, page 10).
- Shut feed funnel.
- Keeping PTO engaged set tractor speed to idle.
- When idle speed steady stop tractor engine.
- When engine stationary disengage PTO clutch.
- **WARNING!** DO NOT disengage the PTO clutch while engine is running as the chipper cutting disc may continue to free wheel for a long time.

DISCONNECTION FROM TRACTOR

- Ensure tractor and chipper are stationary on firm level ground.
- Ensure tractor PTO clutch is disengaged and handbrake applied.
- Lower the chipper to the ground and adjust top link until machine is seated in a stable safe condition.
- Ensure tractor engine is switched off and the ignition key is removed.
- Disconnect PTO drive shaft and stow on support bracket provided.
- Disconnect power cable from tractor and stow lead safely.
- Uncouple chipper from tractor 3 - point linkage leaving pins and retainers in place.

BLOCKAGES

WARNING

DO NOT REV ENGINE AND INCREASE PTO SPEED ABOVE 540RPM IN AN ATTEMPT TO CLEAR BLOCKAGES. ALWAYS FOLLOW PROCEDURE AS OUTLINED BELOW TO PROTECT OPERATOR AND BYSTANDERS FROM EJECTED MATERIAL.



Always be aware that what you are putting into the chipper must come out. If the chips stop coming out of the discharge tube but the chipper is taking material in - STOP IMMEDIATELY. Continuing to feed material into a blocked machine may cause damage and will make it difficult to clear.

If the chipper becomes blocked proceed as follows:

- Stop the tractor engine and remove the ignition keys.
- Ensure tractor engine has come to a complete stop.
- Remove the discharge tube. Check that it is clear.
- Wearing gloves, reach into the rotor housing and scoop out the majority of the debris causing the blockage.

WARNING

DO NOT REACH INTO THE ROTOR HOUSING WITH UNPROTECTED HANDS. THERE ARE SHARP BLADES AND ANY SMALL MOVEMENT OF THE ROTOR MAY CAUSE SERIOUS INJURY.



- Replace the discharge tube.
- Restart the tractor engine and increase revs to achieve PTO speed of 540 rpm.
- Allow machine time to clear excess chips still remaining in rotor housing before you continue feeding brushwood. Feed in a small piece of wood while watching to make sure that it comes out of the discharge. If this does not clear it, repeat the process and carefully inspect the discharge tube to find any obstruction.

NOTE

Continuing to feed the chipper with brushwood once it has become blocked will cause the chipper to compact the chips in the rotor housing and it will be difficult and time consuming to clear. AVOID THIS SITUATION - WATCH THE DISCHARGE TUBE AT ALL TIMES.



**THE FOLLOWING PAGES DETAIL ONLY BASIC
MAINTENANCE GUIDELINES SPECIFIC TO YOUR CHIPPER.**



THIS IS NOT A WORKSHOP MANUAL.

The following guidelines are not exhaustive and do not extend to generally accepted standards of engineering/mechanical maintenance that should be applied to any piece of mechanical equipment and the chassis to which it is mounted.

Authorised Timberwolf service agents are fully trained in all aspects of total service and maintenance of Timberwolf wood chippers. You are strongly advised to take your chipper to an authorised agent for all but the most routine maintenance and checks.

Timberwolf accepts no responsibility for the failure of the owner/user of Timberwolf chippers to recognise generally accepted standards of engineering/mechanical maintenance and apply them throughout the machine.

The failure to apply generally accepted standards of maintenance, or the performance of inappropriate maintenance or modifications, may invalidate warranty and/or regulatory compliance, in whole or in part.

Please refer to your authorised Timberwolf service agent for service and maintenance.

SERVICE SCHEDULE**WARNING**

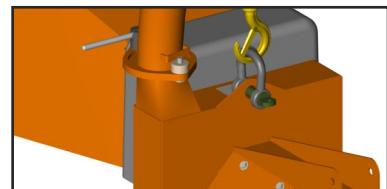
ALWAYS IMMOBILISE THE MACHINE BY STOPPING THE TRACTOR AND REMOVING THE IGNITION KEY BEFORE UNDERTAKING ANY MAINTENANCE WORK. WHEN THE TRACTOR IS STOPPED IT WILL BE NECESSARY TO DISENGAGE THE PTO SO THAT THE ROTOR CAN BE TURNED.

SERVICE SCHEDULE	Daily	25 Hours	50 Hours (once a month)	400 Hours (once a year)
Check linkage points for damage or signs of fatigue.	✓			
Check feed funnel, feed roller cover, rotor access cover, discharge tube and PTO guards are securely fitted	✓			
Check safety bar mechanism	✓			
Lubricate PTO shaft coupling grease nipples.	✓			
Inspect blades and change if necessary.	✓			
Check hoses for signs of chafing or leakage.	✓			
Check for loose electrical wiring		✓		
Check for tightness all visible nuts bolts and other fasteners.		✓		
Check (and adjust if necessary) tension of rotor belts.	✓ 1st time	✓ then		
Check (and adjust if necessary) pump belt tension.			✓	
Grease the roller box slides			✓	
Grease the roller spline and bearing.			✓	
Grease hydraulic motor spline drives.			✓	
Check anvil for wear.			✓	
Change hydraulic oil and filter.				✓
Replace anvil	RETURN TO DEALER FOR ANVIL CHANGE			

NOTE: Your Timberwolf wood chipper is covered by a full 12 months parts and labour warranty. Subject to correct maintenance and proper machine usage, the bearings are guaranteed for 12 months regardless of hours worked by the machine. In conditions of 'heavy usage' - i.e. in excess of 500 hours per year - it is recommended that the bearings are changed annually to ensure that the machine retains optimum working performance.

SAFE LIFTING OF THE CHIPPER

The lifting eye is designed to lift the machine's weight only. Do not use hoist hook directly on the lifting eye, use a correctly rated safety shackle. Inspect the lifting eye prior to each use - DO NOT USE IF DAMAGED.

**SPARES**

Only fit genuine Timberwolf replacement blades, screws and chipper spares. Failure to do so will result in the invalidation of the warranty and may result in damage to the chipper, personal injury or even loss of life.

CHECK HOSES

All the hydraulic hoses should be regularly inspected for chafing and leaks. The hydraulic system is pressurized up to 150 Bar and thus the equipment containing it must be kept in good condition.

Identify the hoses that run to the top motor. These have the highest chance of damage as they are constantly moving. If any hydraulic components are changed, new seals should be installed during reassembly. Fittings should then be retightened.

SAFE MAINTENANCE

ALWAYS IMMOBILISE THE TRACTOR BEFORE UNDERTAKING ANY MAINTENANCE WORK ON THE CHIPPER.

- Always stop the tractor engine before installing or removing the prop shaft.
- Handle blades with extreme caution to avoid injury. Gloves should always be worn when handling the cutter blades.
- Avoid contact with hydraulic oil.
- Whenever possible the pump belt should be connected while changing blades, as this will restrict sudden movement of the rotor.
- The major components of this machine are heavy. Lifting equipment must be used for disassembly.
- CLEAN machines are safer and easier to service.

COPPER EASE SAFETY INFORMATION

Product name: Copper Ease.

Copper Ease contains no hazardous ingredients at or above regulatory disclosure limits, however, safety precautions should be taken when handling (use of oil-resistant gloves and safety glasses are recommended - respiratory protection is not required). Avoid direct contact with the substance and store in a cool, well ventilated area avoiding sources of ignition, strong oxidising agents and strong acids. Dispose of as normal industrial waste (be aware of the possible existence of regional or national regulations regarding disposal), do not discharge into drains or rivers.

In case of fire: in combustion the product emits toxic fumes, extinguish with alcohol or polymer foam, carbon dioxide or dry chemical powder. Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

First Aid

Skin contact: there may be mild irritation at the site of contact, wash immediately with plenty of soap and water.

Eye contact: there may be irritation and redness, bathe the eye with running water for 15 minutes.

Ingestion: there may be irritation of the throat, do not induce vomiting, wash out mouth with water.

A safety data sheet for this product can be obtained by writing to the manufacturer at the following address: Comma Oil and Chemicals Ltd., Deering Way, Gravesend, Kent DA12 2QX. Tel: 01474 564311, Fax: 01474 333000.

CHECK FITTINGS

The Timberwolf PTO/150H is subject to large vibrations during the normal course of operation. Consequently there is always a possibility that nuts and bolts will work themselves loose. It is important that periodic checks are made to ensure the security of all fasteners. Fasteners should be tightened using a torque wrench to the settings listed below.

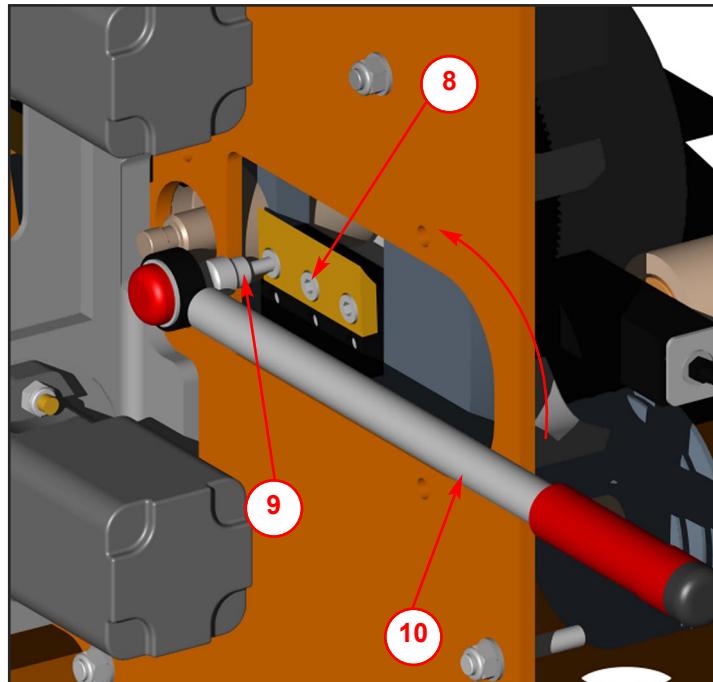
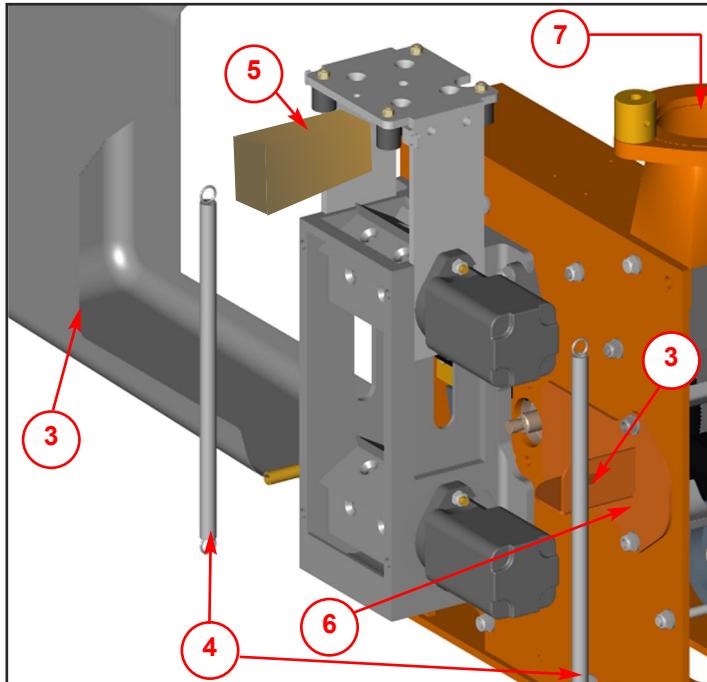
Uncalibrated torque wrenches can be inaccurate by as much as 25%. It is therefore essential that a calibrated torque wrench is used to achieve the tightening torques listed below.

	Size	Pitch	Head	Torque lb ft	Torque Nm
Blade Bolts	M10	Standard	T50 Torx	45	61
Hyd Motor Retaining Bolts	M10	Standard	17mm Hex	34	46
Funnel Retaining Nuts	M12	Standard	17mm Hex	38	51
General	M8	Standard	13 mm Hex	20	27
General	M10	Standard	17 mm Hex	45	61
General	M12	Standard	19 mm Hex	65	88

CHANGE BLADES

WARNING

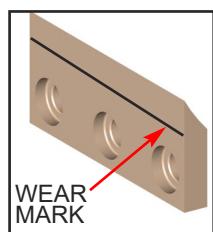
WEAR RIGGERS GLOVES FOR THE BLADE CHANGING OPERATION.



- 1 Turn the tractor off and remove the ignition keys.
- 2 Remove PTO shaft.
- 3 Remove screw retaining roller box cover and lift guard.
- 4 Remove the two springs on the roller box slide.
- 5 **NOTE: Rollerbox weighs in excess of 20kg.** Lift the roller box slide and wedge a suitably sized piece of wood to hold in place.
- 6 Remove blade access cover.
- 7 Remove discharge tube. Turn the rotor by hand by grasping fan section on rear of rotor disc until blade is visible through aperture.
- 8 Use a small screwdriver to remove sap and debris from Torx socket in screw - be particularly careful to ensure every last piece has been removed.
- 9 Undo blade screws using Torx socket drive provided. Rotor will turn until socket has located on machine.
- 10 Before fitting replacement blades carefully clean blade recess in rotor so that no debris is trapped between blade and rotor.
- 11 When fitting blades replace any damaged screws with new and coat each screw with copperslip over the whole of the thread.
- 12 Retighten each screw to 60Nm (45lbs ft). Note: This torque setting is vitally important to ensure your bolts come out at a later date and Timberwolf recommend you use a calibrated torque wrench for this and other jobs on the chipper.
- 13 Grease all surfaces of the roller box sliding mechanism (see diagram on page 17).
- 14 **NOTE: Rollerbox weighs in excess of 20kg.** Remove wedge, lower roller and replace springs (take care when lowering the slide as it weighs in excess of 20kg).
- 15 Replace blade access cover.
- 16 Close roller box guard making sure that it is located over the retaining bracket, and ensure bolt and washer (as note 3) are tightened.

WARNING

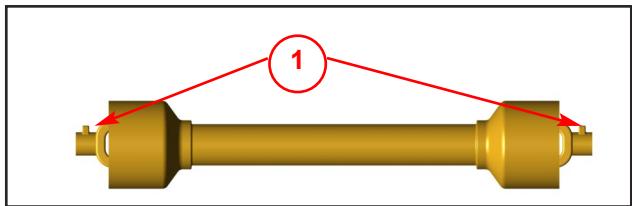
ALWAYS SHARPEN BLADES ON A REGULAR BASIS. FAILURE TO DO SO WILL CAUSE THE MACHINE TO UNDER PERFORM AND WILL OVERLOAD ENGINE AND BEARINGS CAUSING MACHINE BREAKDOWN. BLADES MUST NOT BE SHARPENED BEYOND THE WEAR MARK (SEE DIAGRAM). FAILURE TO COMPLY WITH THIS COULD RESULT IN MACHINE DAMAGE, INJURY OR LOSS OF LIFE.



PTO DRIVE SHAFT MAINTENANCE

Lubricate regularly, at least every 16 hours on coupling grease nipples (1) and 8 hours on all other lubricated points.

Replace prop shaft shear bolts only with correct grade of bolt available from the shaft supplier.

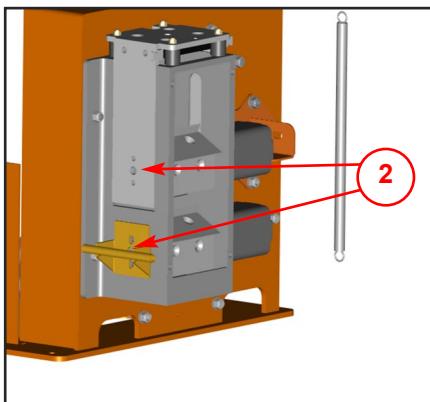


SEE SEPARATE PROP SHAFT INSTRUCTION SHEET FOR FULL DETAILS.

FURTHER INFORMATION ON THE SAFE USE OF PTO SHAFTS CAN BE FOUND IN HSE LEAFLET AS 24

GREASE THE ROLLER SPLINE AND BEARING

NOTE: This should be done regularly. In dirty and dusty conditions or during periods of hard work it should be weekly. If the bearings and splines are allowed to run dry premature wear will occur resulting in a breakdown and the need for replacement parts. This failure is not warranty. Early signs of insufficient grease includes squeaking or knocking rollers.

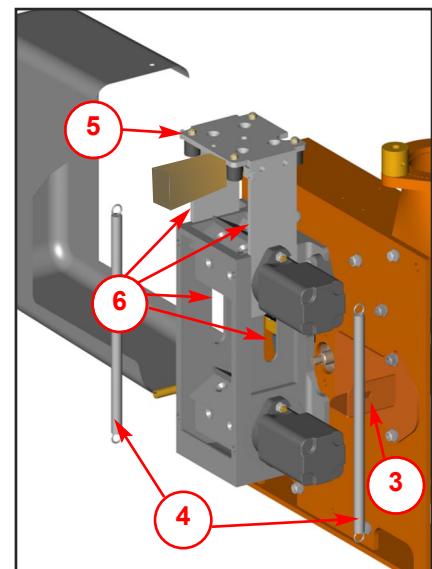


- 1 Remove bolt and washer retaining roller box guard and lift guard (see diagram on page 16).
- 2 Locate two grease nipples; one in the centre of each roller shaft.
- 3 Use a pump action grease gun to apply a generous amount of grease to each roller drive. DO NOT USE GRAPHITE BASED GREASE.
- 4 After applying grease, to penetrate all the bearing surfaces thoroughly, start the machine and operate the rollers for 20 seconds. Switch off the machine. Repeat this greasing/running procedure a further 3 times.
- 5 Close roller box guard making sure that it is located over the retaining bracket, and ensure bolt and washer are tightened.

GREASE THE ROLLER BOX SLIDES

NOTE: This should be done regularly. In dirty or dusty conditions or during periods of hard work it should be done weekly. If the slides become dry the top roller will tend to hang up and the pulling-in power of the rollers will be much reduced. Excessive wear will ensue.

- 1 Turn the tractor off and remove the ignition keys.
- 2 Ensure machine has come to a complete stop - remove power cable.
- 3 Remove the bolt and washer retaining roller box guard and lift guard.
- 4 Remove the two springs on the roller box slide.
- 5 NOTE: Rollerbox slide weighs in excess of 20kg. Lift the top roller and wedge a suitably sized piece of wood to hold in place.
- 6 Apply thin grease with a brush to each slide on roller box and on inner cheeks of slider. DO NOT USE GRAPHITE BASED GREASE.
- 7 NOTE: Rollerbox slide weighs in excess of 20kg. Remove wedge, lower roller box slide and replace springs.
- 8 Close roller box guard making sure that it is located over the retaining bracket, and ensure bolt and washer (as note 3) are tightened.
- 9 Refit power cable.



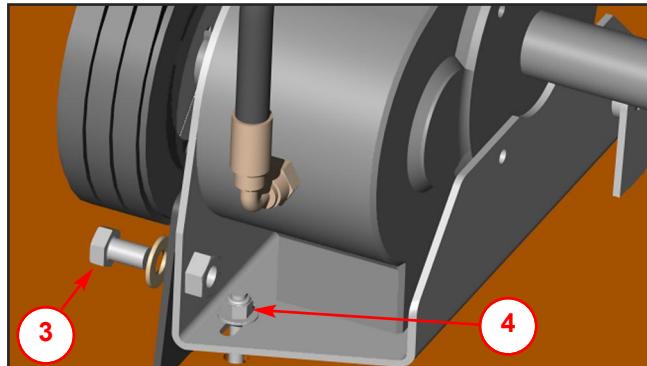
TENSION BELTS

NOTE: There will normally be a rapid drop in tension during run-in period for new belts. When new belts are fitted, check the tension every 2 - 3 hours and adjust until the tension remains constant.

Belt failures due to lack of correct tensioning will not be covered under your Timberwolf warranty.

TENSION DRIVE BELTS

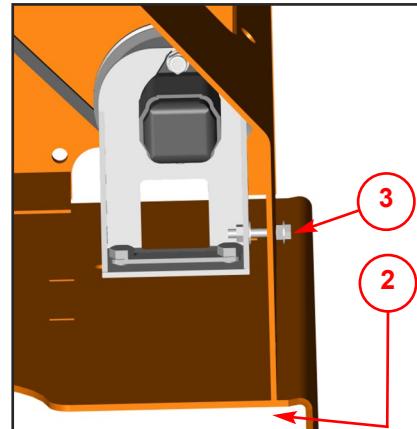
- 1 Remove the belt guard.
- 2 Check the belt tension. For instructions on checking belt tension & correct belt tension values, please refer to the Timberwolf V-Belt Tensioning Data Table (pg 27).
- 3 Loosen the M12 Bolt.
- 4 Adjust the belt tension by tightening the nut clamping the bracket to the base.
- 5 Re-tighten the M12 Bolt.
- 6 Refit belt guard.



N.B. Early models were fitted with a gearbox on a slider. The belt tensioner for these models is located on the slide plate.

TENSION HYDRAULIC PUMP BELT

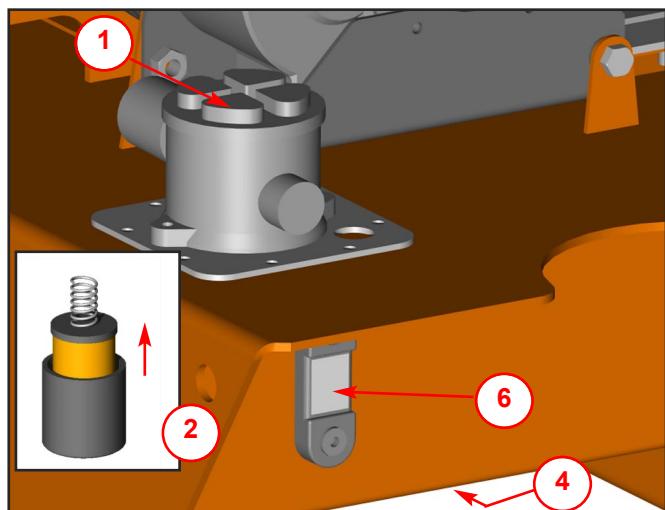
- 1 Remove side panel.
- 2 Access the two nuts on the under side of the chassis beneath pump bracket and slacken using a 19 mm socket spanner.
- 3 Adjust the M8 bolt on the outside plate until the desired tension is achieved. For instructions on checking belt tension & correct belt tension values, please refer to the Timberwolf V-Belt Tensioning Data Table (pg 27).
- 4 Ensure pulleys are aligned then retighten the two nuts to (80 Nm) 59lbs/ft.
- 5 Re-fit side panel.
- 6 NOTE: Slack drive belts will cause poor performance and belt/pulley wear.



CHANGE HYDRAULIC OIL AND FILTER

WARNING

Use plastic gloves to keep oil off skin and dispose of the used oil and filter in an ecologically sound way. The oil and filter should be changed once a year or at any time it becomes contaminated. Before starting check that the chipper is standing level and brush away loose chips.



- 1 Remove the black screw cap from the top of the filter housing.
- 2 Partially remove filter element from inner cup. Leave filter to drain for 15 minutes.
- 3 Remove filter element from cup when clear of hydraulic oil.
- 4 Remove drain plug and drain oil into a suitable container.
- 5 Replace drain plug.
- 6 Refill with VG 32 hydraulic oil until the level is half way up the sight glass (about 15 litres).
- 7 Refit the filter cup. Install a new filter element and refit the black screw cap to the filter housing, ensuring o-ring remains in place.

NOTE: THIS IS A NON-ADJUSTABLE AIR BREATHING FILTER.

TIMBERWOLF NO-NONSENSE WARRANTY

All new Timberwolf machines come with peace of mind built in. Our no-nonsense warranty is your guarantee of your Timberwolf wood chipper not letting you down.

Your warranty statement is included in your manual pack. Please ensure you register your machine with your dealer to ensure you are eligible for the full Timberwolf warranty period.



TIMBERWOLF LTD
Entec House, Tomo Industrial Estate, Stowmarket IP14 5AY
Telephone: 01449 765800
Email: sales@timberwolf-uk.com Web site: timberwolf-uk.com



EC Declaration of Conformity



We
Timberwolf Ltd.
Of
Entec House,
Tomo Industrial Estate,
Stowmarket,
IP14 5AY
United Kingdom
Tel: 0044 (0) 1449 765800
Email: sales@timberwolf-uk.com

Hereby declare that this Declaration of Conformity is issued under our sole responsibility and that the following objects of the declaration:

Product Range: Timberwolf TW PTO 150H, Unpowered portable Woodchipper, designed to be incorporated into a suitable PTO power source and chip up tree waste prior to disposal.

Model(s): TW PTO 150H

Type(s): TW PTO 150H

Serial No(s): TW PTO 150H: C60A4MS121014, onwards

Comply with all applicable essential health and safety requirements-and are in conformity with the following EU Directives and Union harmonised legislation:

2006/42/EC Machinery Directive

2014/30/EU Electromagnetic Compatibility Directive

2000/14/EC Noise Emission in the Environment by Equipment for Use Outdoors

(Guaranteed Sound Power: 119dB(A); Measured Sound Power Level: 92dB(A))

The following harmonised standards, including part/clauses of, have been applied:

Machinery Directive: BS EN 13525:2020: Forestry machinery —Wood chippers —Safety, BS EN ISO 12100:2010: Safety of Machinery — General principles for design — Risk assessment and risk reduction.

EMC Directive: BS EN ISO 14982:2009: Agricultural and forestry machinery — Electromagnetic Compatibility — Test methods and acceptance criteria.

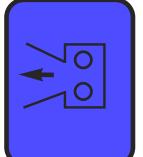
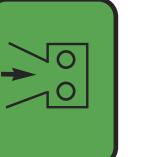
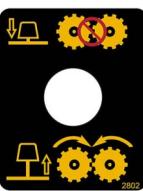
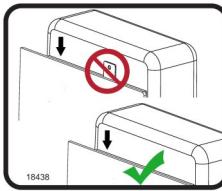
Noise Directive: BS EN ISO 3744:2010: Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane.

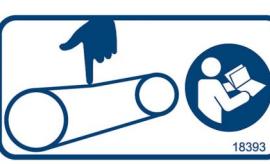
Signed at Entec House, Stowmarket for and on behalf of Timberwolf Ltd by:

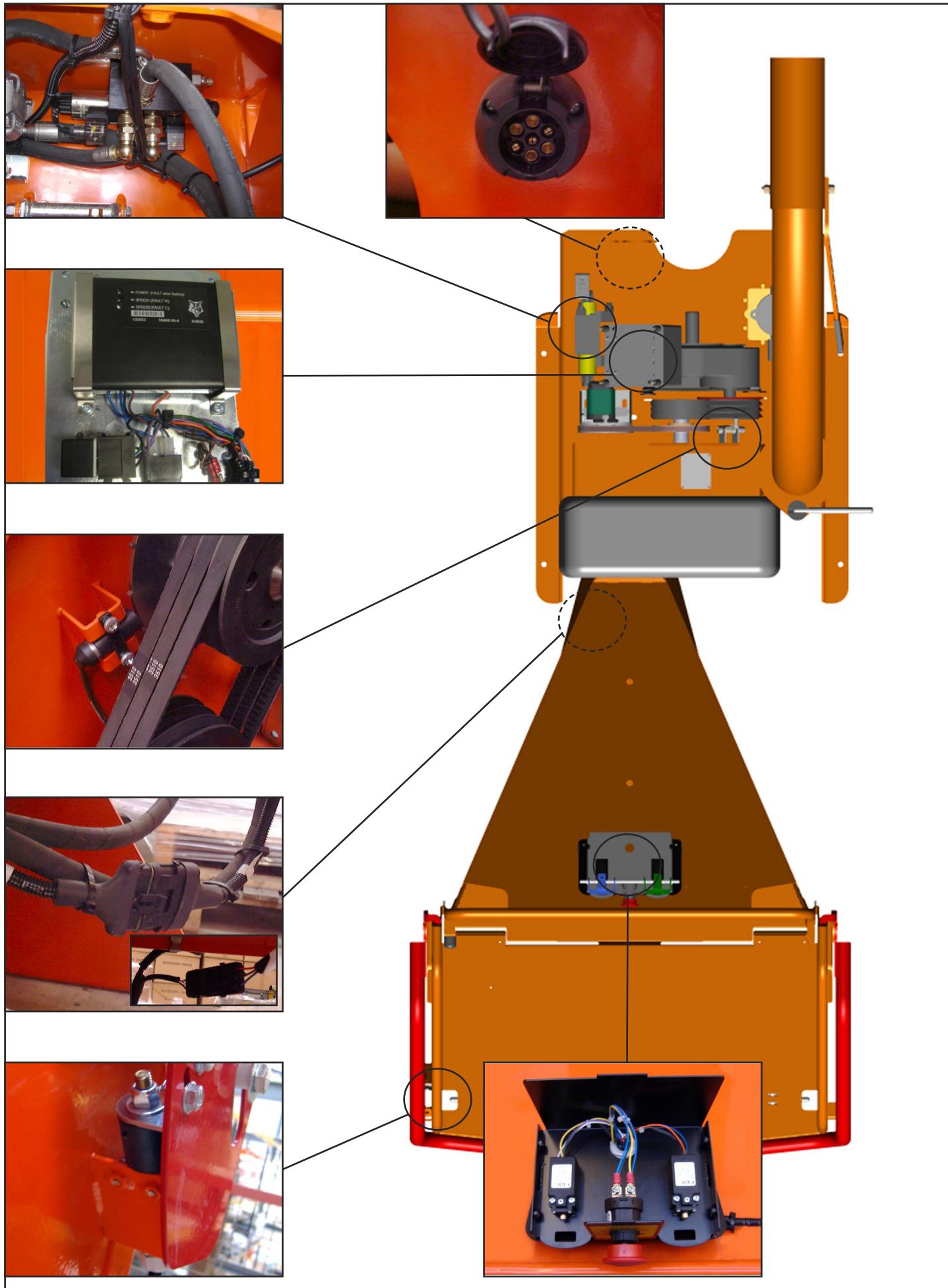
Mr Chris Perry (Managing Director):

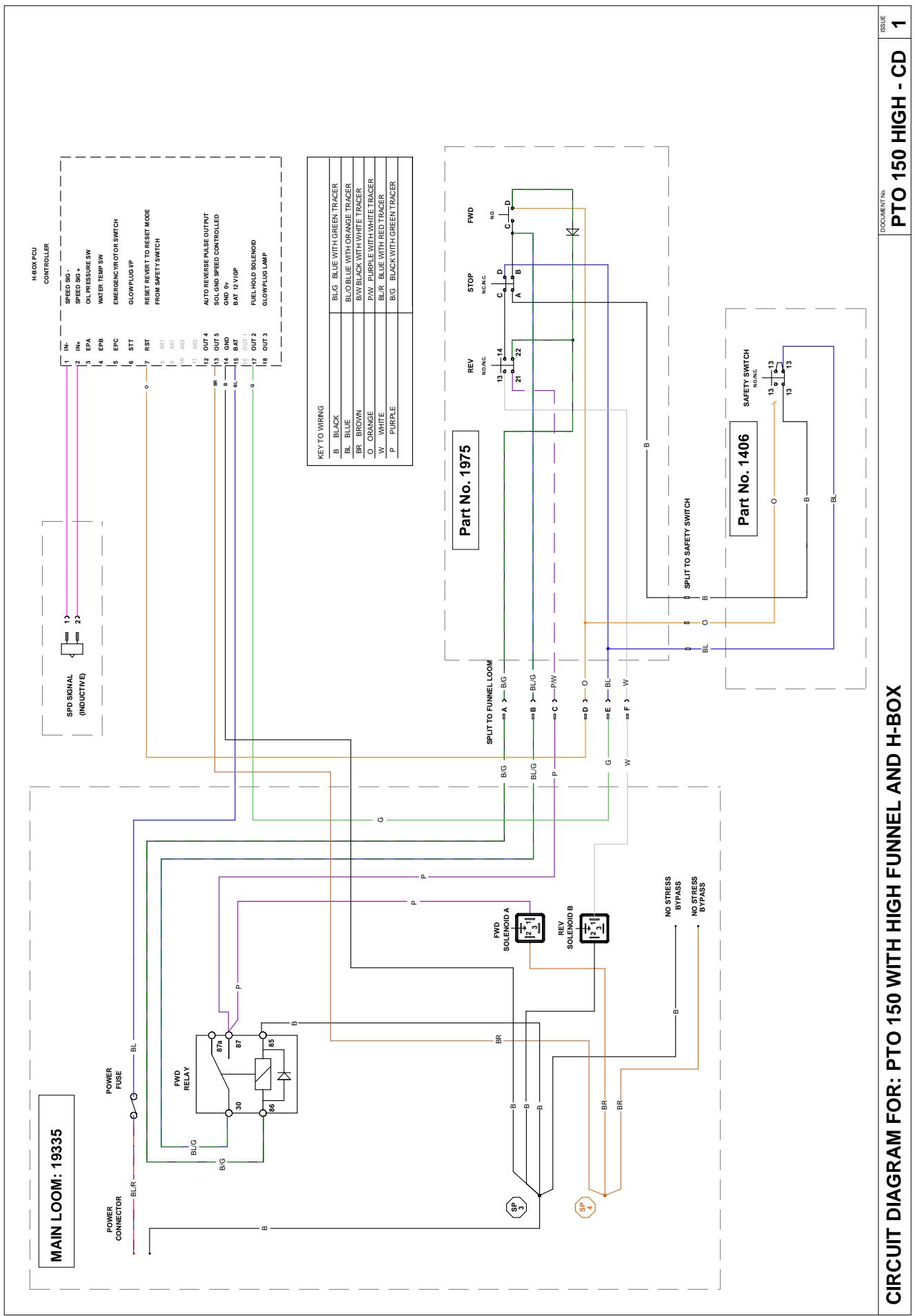
Dated: 11th June 2021



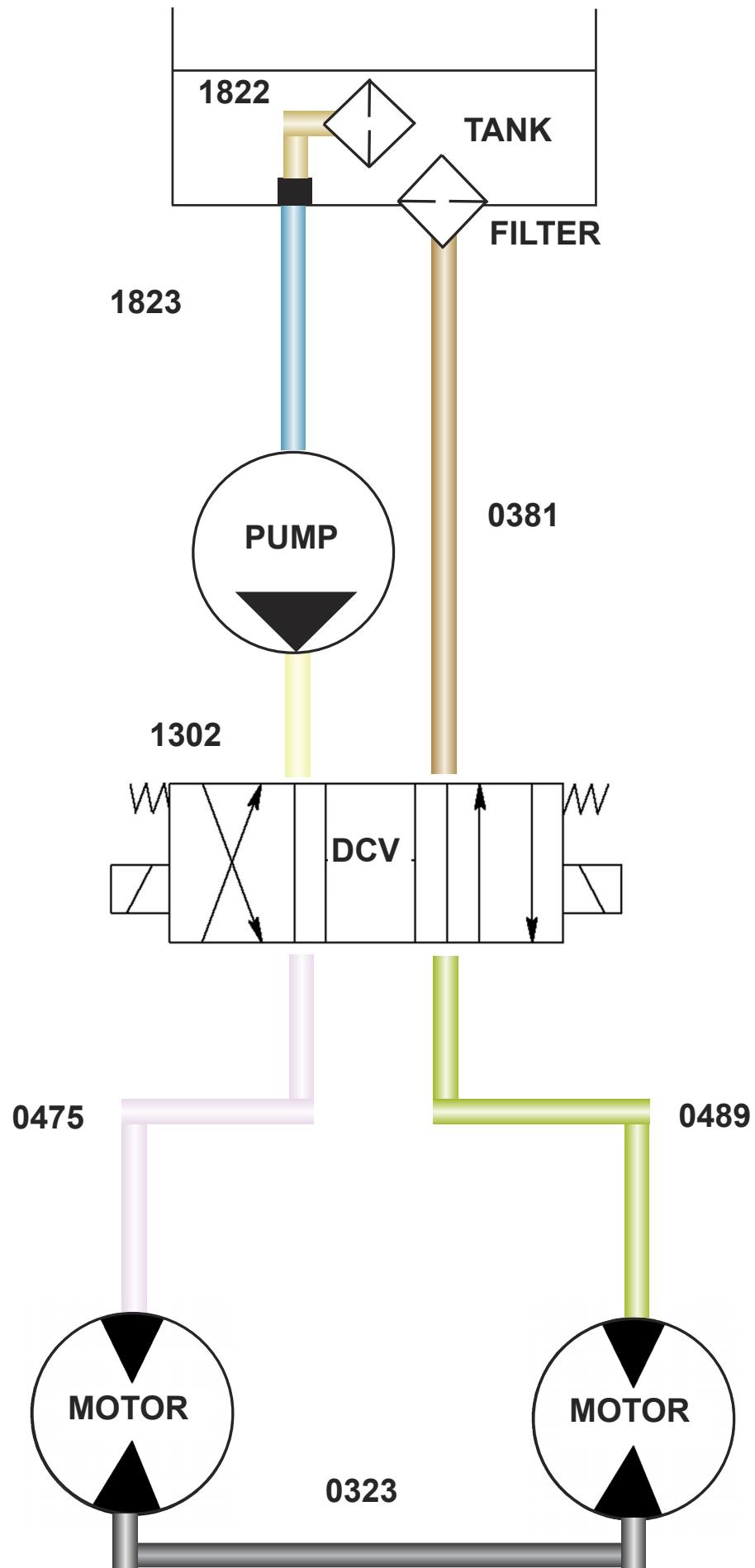
DECAL	DESCRIPTION	DECAL	DESCRIPTION
	3022 Clean under blades before refitting or turning. Failure to do so may result in blade(s) coming loose and damage being caused to the rotor housing.		4099 Danger. Rotating blades. Keep hands and feet out.
	617 High velocity discharge - keep clear	2800  2801 	2800 Reverse feed 2801 Forward feed
	670 Personal Protective Equipment required		2802 Push to stop, Pull to reset. (rollers)
	1661 Read the instruction manual for greasing and maintenance information		18438 When re-fitting this guard ensure that steel retaining bracket is on the inside. Damaged guards due to incorrect assembly will not be covered by your Timberwolf warranty.
	1662 The instruction manual with this machine contains important operating, maintenance and health and safety information. Failure to follow the information contained in the instruction manual may lead to death or serious injury.		2949 Lifting eye is designed to lift the machine's weight only. Do not use hoist directly on lifting eye. Use correctly rated shackle only through lifting eye. Lifting eye to be inspected every 6 months or before each use. Always visually inspect lifting eye prior to each use. Do not use lifting eye if damaged.
	1399 Push to stop.		P691 Do not pull here.

DECAL	DESCRIPTION	DECAL	DESCRIPTION	
	P637 Danger. Do not operate without this cover in place.		P653 Danger. Rotating blades inside. Stop engine and remove key before removing discharge unit.	
	P652 Caution. Do not put road sweepings in machine as grit will damage blades.		P654 Caution. When transporting, discharge clamps may work loose. Check frequently.	
	P655 Caution. Avoid standing directly in front of feed funnel to reduce exposure to noise, dust and risk from ejected particles.		P656 Danger. Do not use this machine without the discharge unit fitted. Failure to comply may result in serious injury or damage.	
	19330 Exceeding the nominal rotational speed of the machine will place both operator and bystanders in danger from ejected material.		P650 Danger. Autofeed system fitted. Rollers may turn without warning! When the engine is switched off the rollers will turn during the run down period.	
	18393 New drive belts need re-tensioning. When new belts are fitted check tension every 2-3 hours & adjust until tension remains constant.		19332 Danger. Ensure machine is secure to 3-point linkage of the tractor before operation.	
	19343 Danger. Ensure machine is on level surface before detaching from the tractor PTO shaft and 3-point linkage.		19331 Disconnect the pto drive shaft before servicing and maintenance. Stop tractor and remove ignition key before making any adjustments.	
	3004		2998	
	1363		1849	
			TIMBERWOLF TW PTO/150H	
				P160





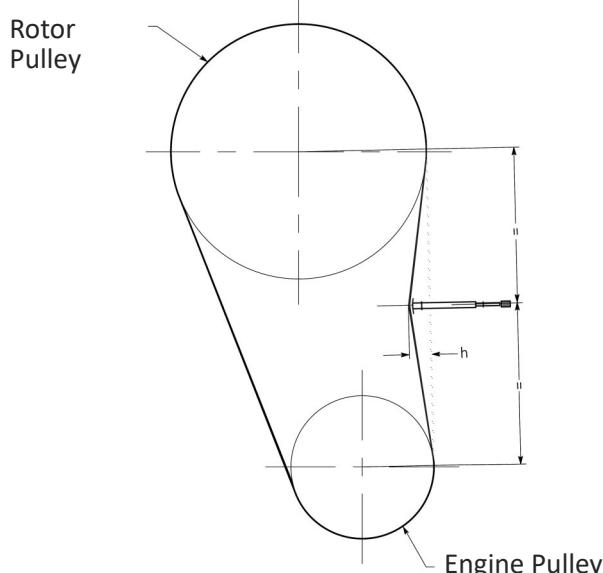
Kit No. 1856



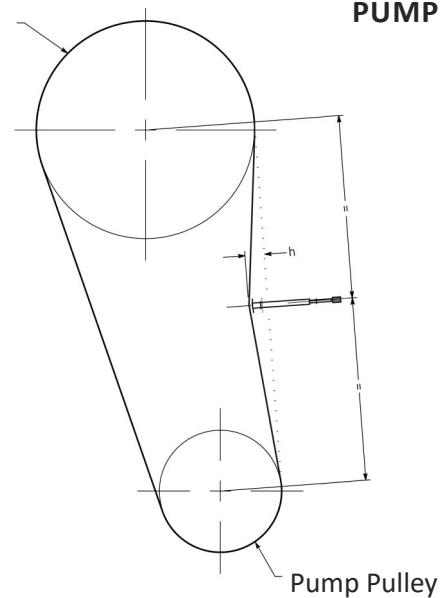
METHOD:

- 1 Set the deflection distance on the lower scale of the tension gauge so that the underside of the 'o'-ring equals the 'h' value given in the table.
- 2 Ensure that the deflection force scale is zero'd by pushing the upper 'o'-ring all the way down.
- 3 Place the tension gauge in the centre of the belt span as shown in the diagram.
- 4 Press downwards on the rubber buffer, deflecting the belt until the underside of the lower 'o'-ring is level with the belt behind (use a straight edge if there is only 1 belt).
- 5 Take the reading from the deflection scale of the tension meter (read at the lower edge of the 'o'-ring) & compare this value with that given in the table.
- 6 Tighten or loosen belts as required following procedure given in this operator's manual.

Tension gauges are available from Timberwolf spares, quoting part no. 18091

ROTOR BELTS

Rotor Pulley

PUMP BELTS

Pump Pulley

TW PTO/150H		Rotor Belts	Pump Belts
Belt Mfr / Type		Gates Super HC-MN	Gates Super HC-MN
Belt Pitch Designation		SPA	SPA
Belt Length in mm		900	925
Belt Deflection in mm	= h	2	2.59
Force Reading (Kg)	New belt	4.36 - 4.67	2.89 - 3.09
	Used Belt	3.74 - 4.04	2.47 - 2.68

TIPS ON BELT TIGHTENING:

- There will normally be a rapid drop in tension during the run-in period for new belts. When new belts are fitted, check the tension every 2-3 hours & adjust until the tension remains constant.
- The best tension for V-belt drives is the lowest tension at which the belts do not slip or ratchet under the highest load condition.
- Too much tension shortens belt & bearing life.
- Too little tension will affect the performance of your machine especially in respect of no-stress devices.
- Ensure that belt drives are kept free of any foreign materials.
- If a belt slips - tighten it!

Model number:		Serial number:	
Date of delivery/ handover:		Options/extras:	
Dealer pre delivery check:			
Inspected by:			

50 HOUR WARRANTY SERVICE CHECK

Date:

Hours:

Invoice number:

Signature:

Next service due:

Authorised dealer stamp

11 MONTH WARRANTY SERVICE CHECK

Date:

Hours:

Invoice number:

Signature:

Next service due:

Authorised dealer stamp

23 MONTH WARRANTY SERVICE CHECK

Date:

Hours:

Invoice number:

Signature:

Next service due:

Authorised dealer stamp

Date:

Authorised dealer stamp

Hours:

Invoice number:

Signature:

Next service due:

Date:

Authorised dealer stamp

Hours:

Invoice number:

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Next service due:

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Authorised dealer stamp

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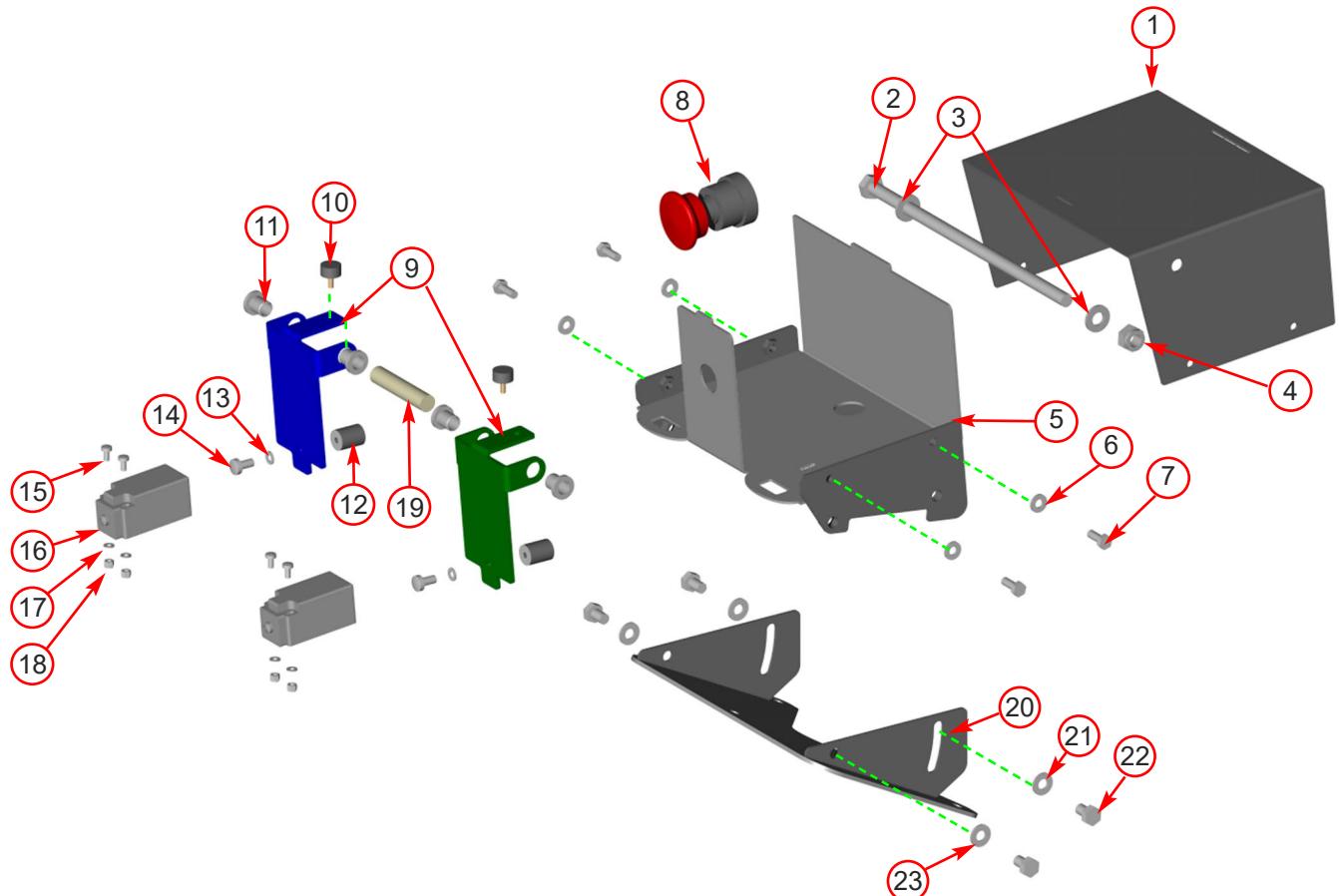
Signature:

Next service due:

PARTS LISTS

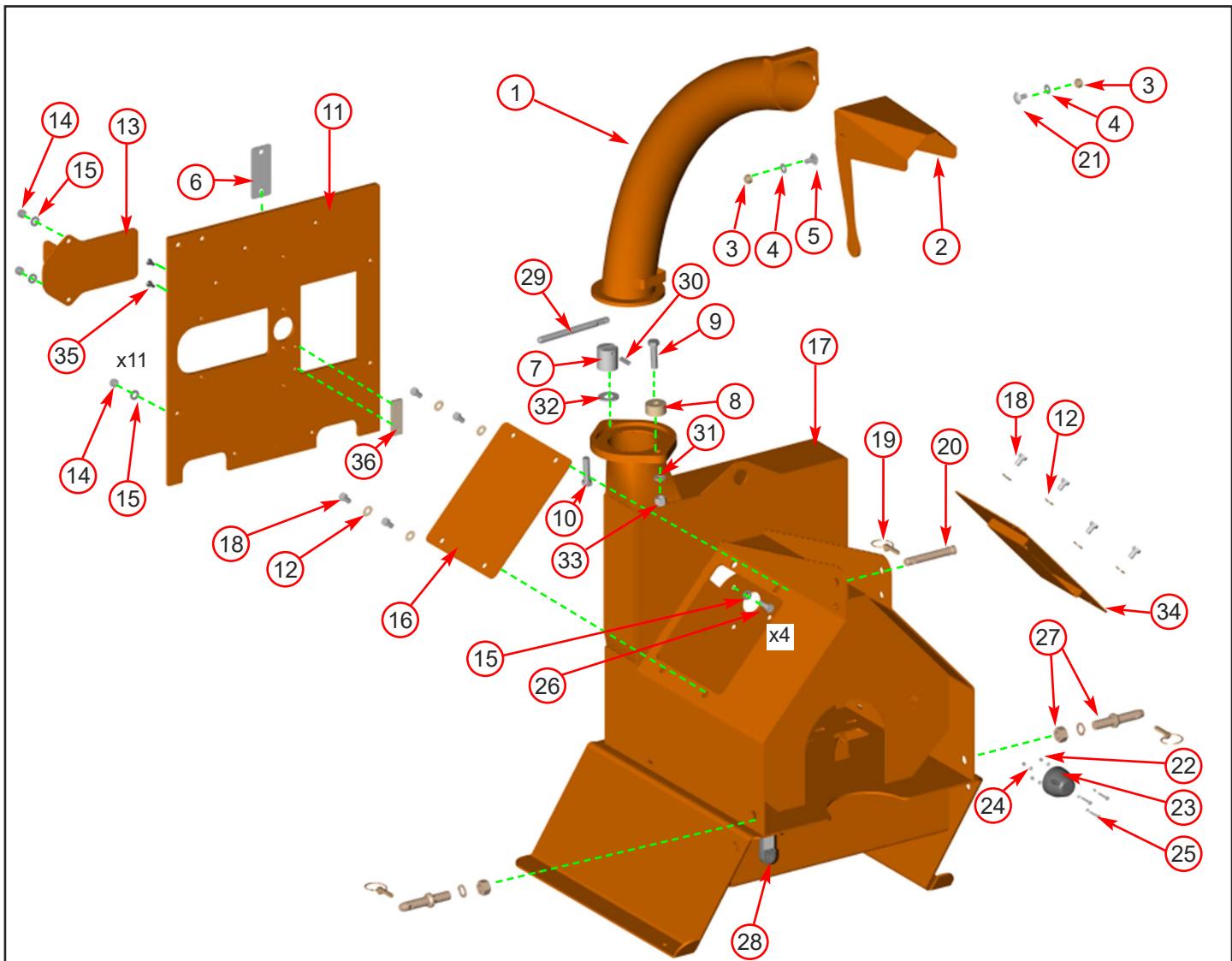
THE FOLLOWING ILLUSTRATIONS ARE FOR PARTS IDENTIFICATION ONLY. THE REMOVAL OR FITTING OF THESE PARTS MAY CAUSE A HAZARD AND SHOULD ONLY BE CARRIED OUT BY TRAINED PERSONNEL.

	Page No.
CONTROL BOX	31
DISCHARGE / FRAME	32
DRIVE TRAIN	33
ELECTRICAL CONTROL PANEL	34
ELECTRICAL LAYOUT	35
FUNNEL	36
HYDRAULICS	37
ROLLER BOX	38
ROTOR	39
DECALS	40

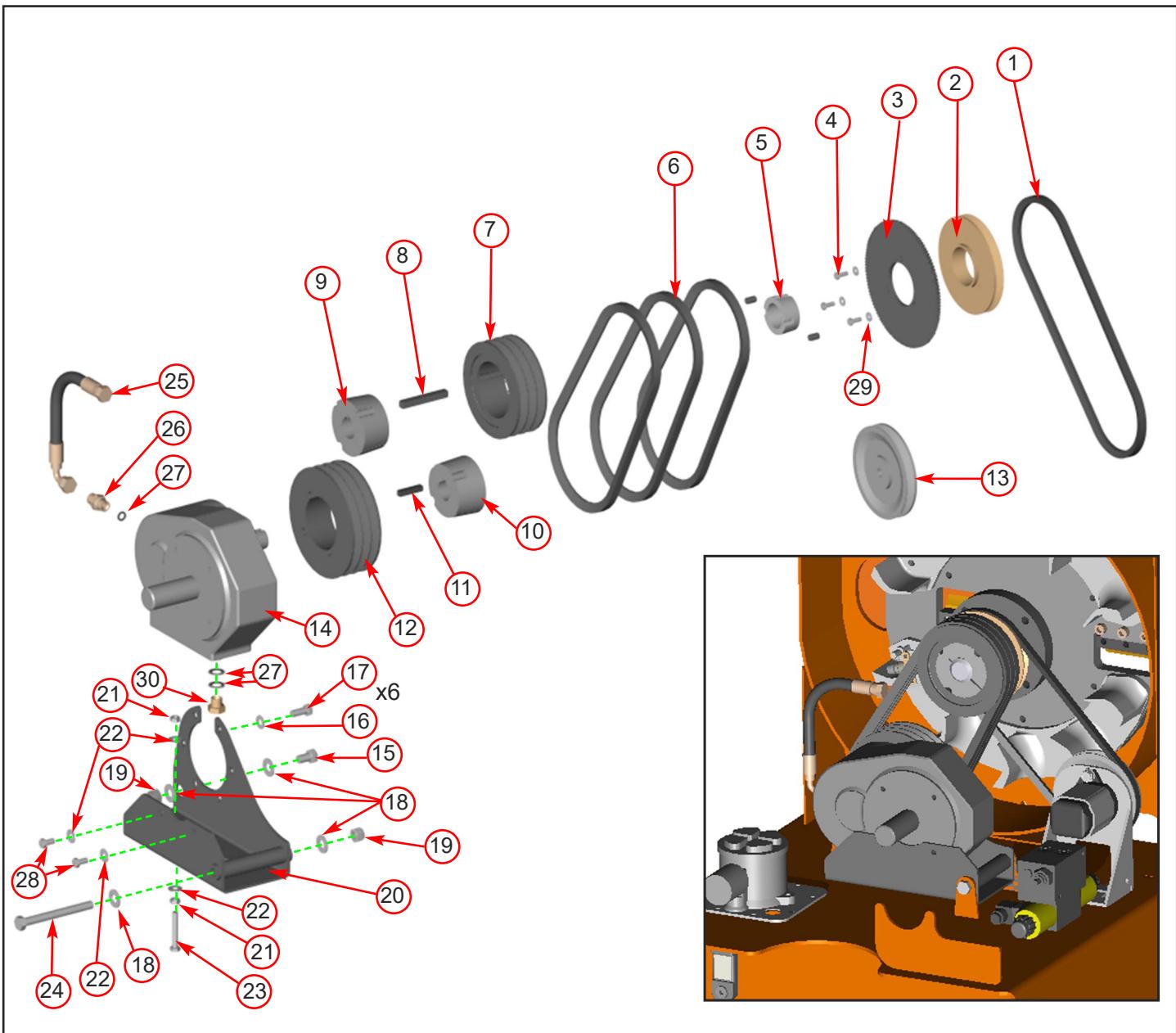


Item	Part No	Part Name	Q'ty
1	2794FB	Control Box Cover	1
2	2803	M10/240 Bolt	1
3	0839	M10 C Washer	2
4	4345	M10 P Nyloc Nut	1
5	2795FB	Control Box Base	1
6	0709	M6 C Washer	4
7	1658	M6/12 Bolt	4
8	2853	Stop Switch	1
9	2796FS	Finger Plate	2
10	2834	AV Mount	2
11	2804	Bush M10 Top Hat	4
12	2807	AV Mount 20 x 16	2

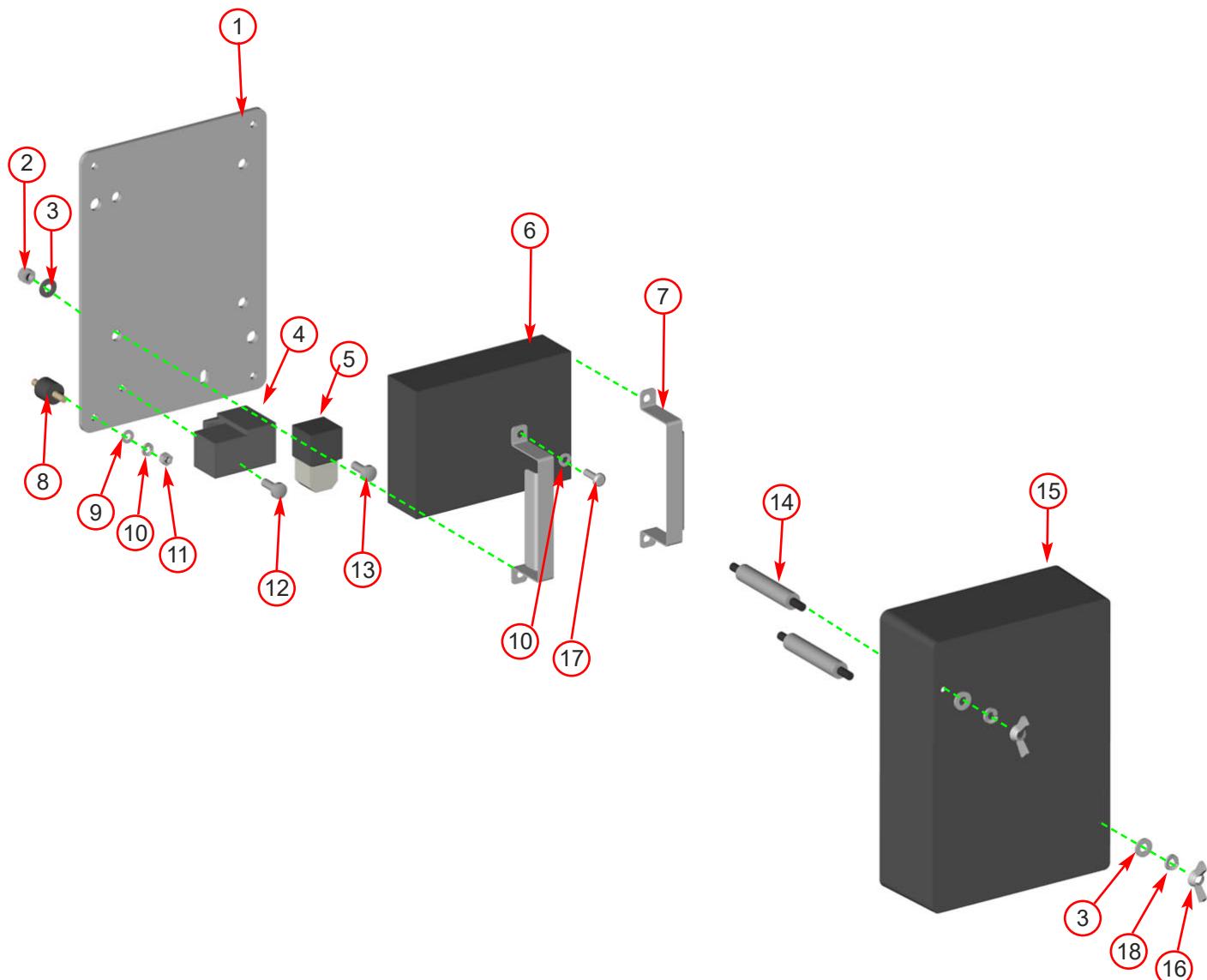
Item	Part No	Part Name	Q'ty
13	0857	M5 A Washer	2
14	18103	M5/8 Pan Pozi	2
15	18168	M4/35 Pan Pozi	4
16	1348	Limit Switch	2
17	18100	M4 Washer	6
18	18235	M4 P Nyloc Nut	6
19	made in production	65mm Spacer	1
20	2793FB	Bracket Mounting Control Box	1
21	0712	M8 C Washer	2
22	0344	M8/16 Bolt	4
23	0711	M8 A Washer	2



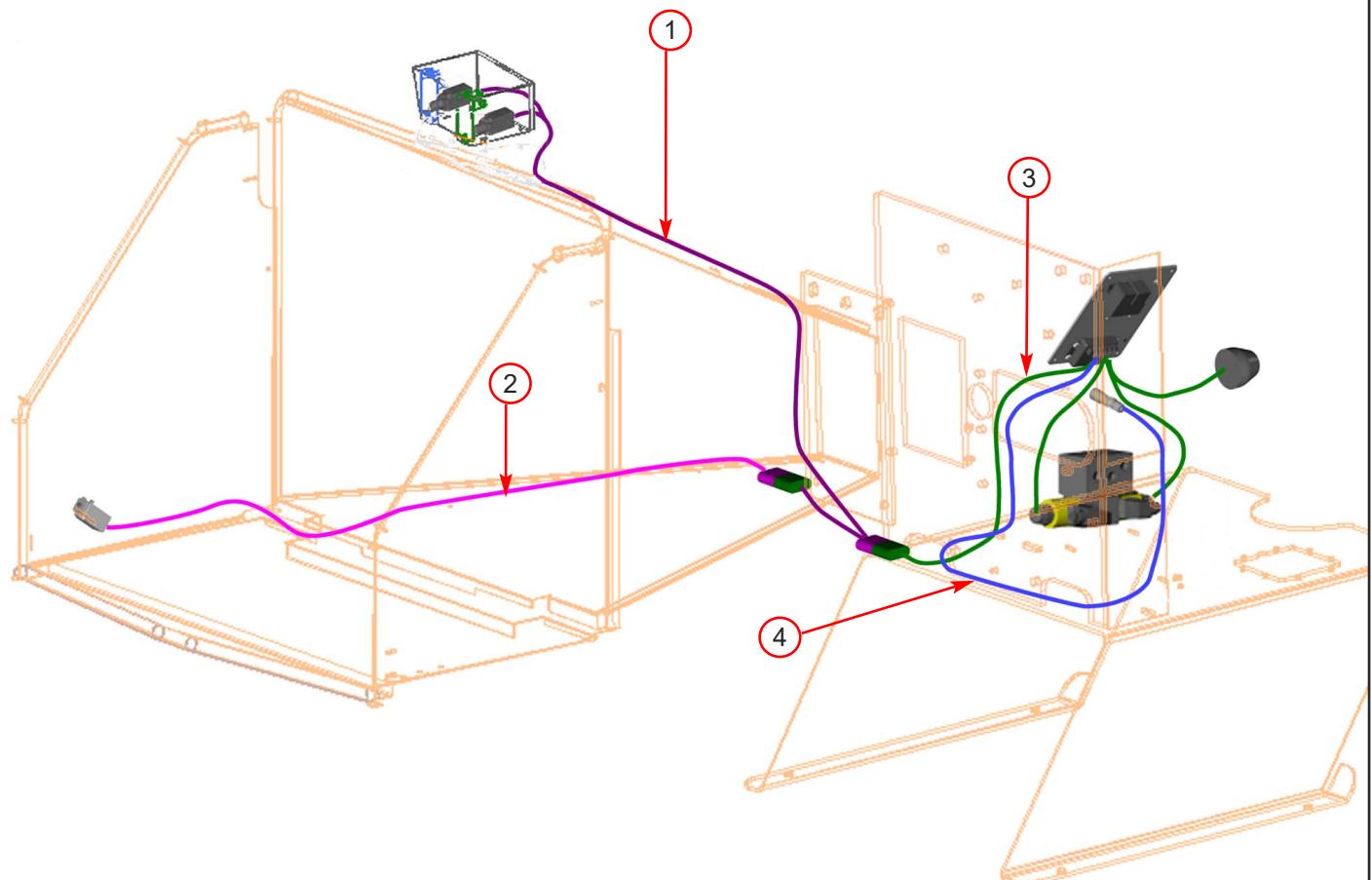
Item	Part No	Part Name	Q'ty	Item	Part No	Part Name	Q'ty
1	P*1147	Discharge Tube	1	20	0943	Top Pin	1
2	P*1411	Discharge Bucket	1	21	19282	M12/30 Cup Square	1
3	0644	M12 P Nyloc Nut	2	22	0236	M5 P Nyloc Nut	3
4	0702	M12 A Washer	2	23	0483	Trailer Socket	1
5	0430	M12/35 Cup Square	1	24	0708	M5 C Washer	3
6	18023PS	Guard Stand-Off Plate	1	25	1589	M5/35 Pan Pozi	3
7	4109M	Large Clamp Nut	1	26	0321	M12/30 Bolt	4
8	2837MS	Small Clamp Nut	1	27	0941	Side Pin	2
9	0434	M16/70 Hex Bolt	1	28	1163	Oil Level Gauge	1
10	0333	M16/60 Hex Bolt	1	29	1649MS	Discharge Clamp Handle	1
11	1267FO	Front Plate	1	30	4131	Roll Pin	1
12	0704	M12 C Washer	8	31	1354	M16 C Washer	1
13	1268FO	Access Cover	1	32	18190	M24 Washer	1
14	0045	M12 T Nyloc Nut	7	33	1511	M16 P Nyloc Nut	1
15	0702	M12 A Washer	11	34	4143FO	Access Cover	1
16	0588O	Access Cover	1	35	0355	M8/16 C/Sunk Bolt	2
17	18451FO	Rotor Housing	1	36	0101MH	Anvil Vertical	1
18	0277	M12/25 Bolt	8				
19	0942	Linch Pin	3				



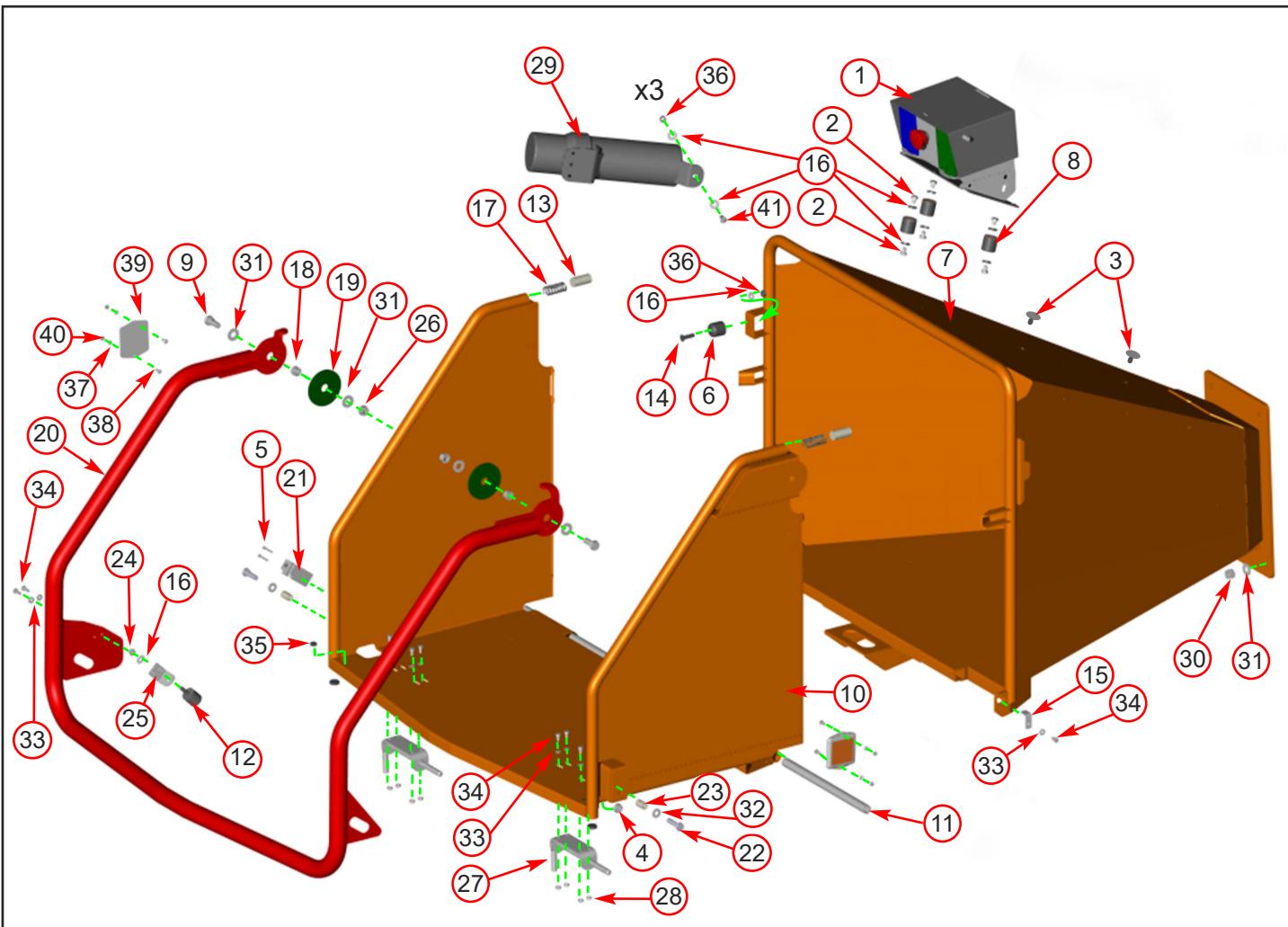
Item	Part No	Part Name	Q'ty	Item	Part No	Part Name	Q'ty
1	17373	Belt 925 XPA	1	16	0701	M10 A Washer	6
2	0949M	Pulley 140 x 1 SPA	1	17	0878	M10/20 Bolt	6
3	1028S	Trigger	1	18	0704	M12 C Washer	4
4	0437	M6/16 Bolt	3	19	0644	M12 P Nyloc Nut	1
5	0412	Bush 1610 38 mm	1	20	1531FS	Gear Box Bracket	1
6	1533	Belt 900 SPA	3	21	0476	M8 Plain Nut	1
7	1471	Pulley 140 x 3 SPA	1	22	0712	M8 C Washer	4
8	18961M	Key	1	23	0354	M8/60 Bolt	1
9	0410	Bush 2517 38 mm	1	24	18175	M12/160 Bolt	1
10	1616	Bush 2517 30 mm	1	25	4239	3/8" Breather Hose	1
11	0073	Key	1	26	0161	3/8" M/M Adapter	1
12	1175	Pulley 160 x 3 SPA	1	27	0396	3/8" Dowty Washer	3
13	0983MS	Pulley 139 x 1 SPA	1	28	0344	M8/16 Bolt	2
14	1617	Gear Box	1	29	0709	M6 C Washer	3
15	0321	M12/30 Bolt	1	30	0211	3/8" Blanking Plug	1



Item	Part No	Part Name	Q'ty	Item	Part No	Part Name	Q'ty
1	19336	Electrical Plate	1	10	0857	M5 A Washer	8
2	0391	M6 T Nyloc Nut	2	11	18291	M5 Plain Nut	4
3	0709	M6 C Washer	3	12	0438	M6/16 Pan Pozi	1
4	supp'd with loom 4140	Relay	1	13	1151	Countersunk Pop Rivet	1
5	supp'd with loom	Fuse	1	14	2725	M6 Stand Off	2
6	18405	H Box	1	15	1930	Electrical Cover	1
7	18398	Mounting Bracket	2	16	18107	M6 Wing Nut	2
8	4033	M5 AV Mount	4	17	18104	M5/12 Pan Pozi	4
9	3024	M5 Spring Washer	4	18	18106	Spring Washer	2

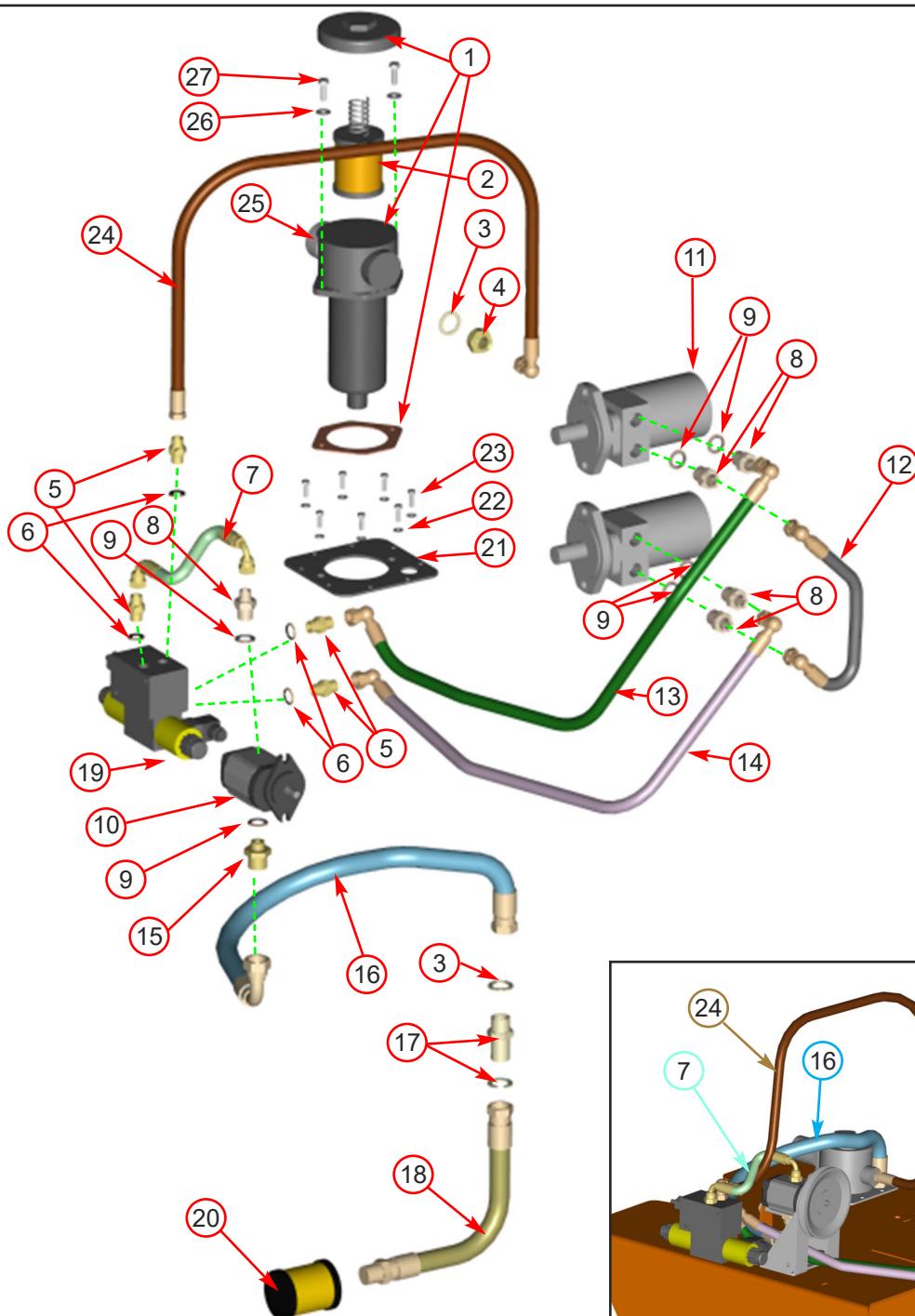


Item	Part No	Part Name	Q'ty	Item	Part No	Part Name	Q'ty
1	1975	Control Box Loom	1	3	19335	Main Loom - H Box	1
2	1406	Limit Switch Loom	1	4	1902	No Stress Sensor	1



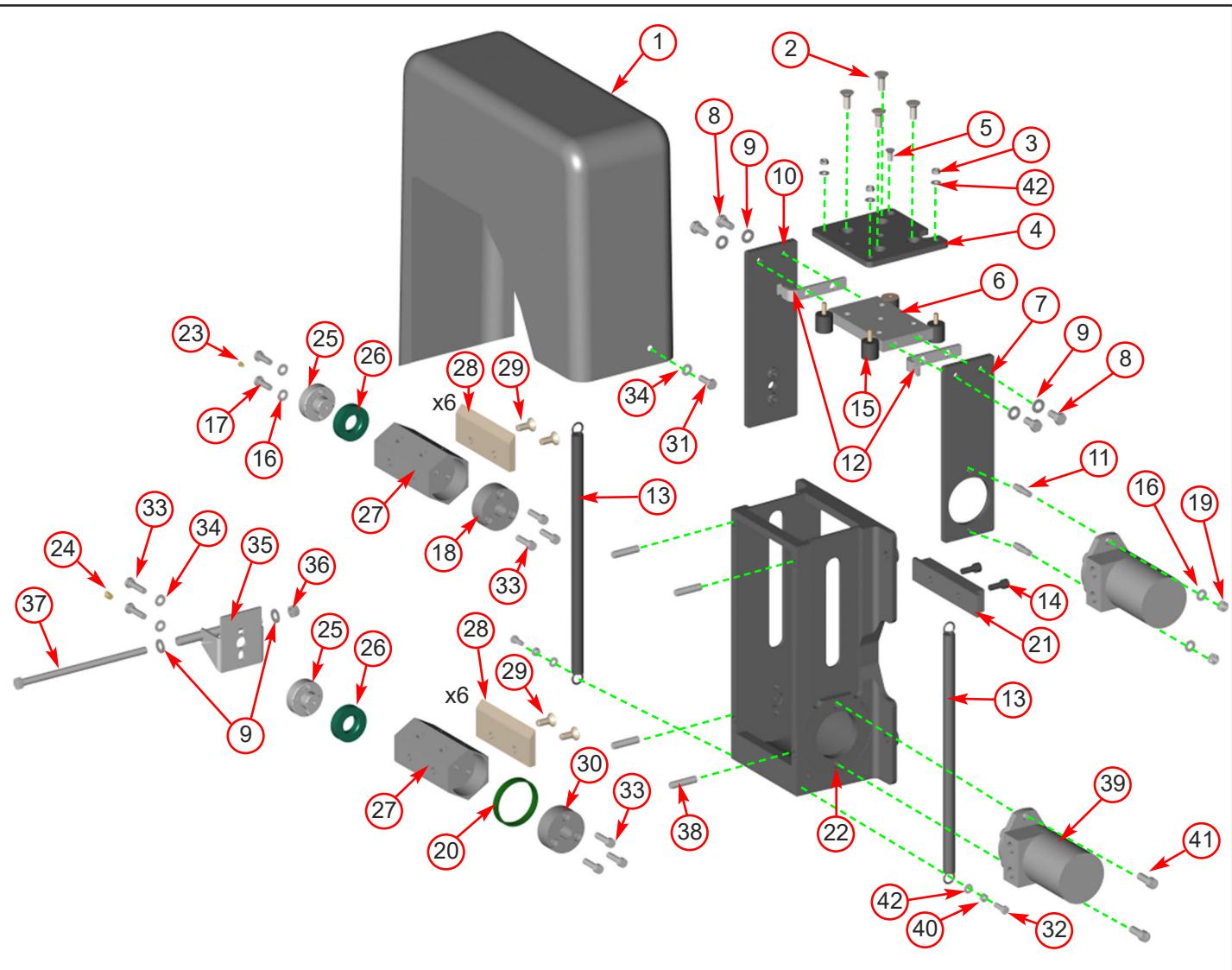
Item	Part No	Part Name	Q'ty
1	2809F	Control Box (see pg. 27)	1
2	1721	M8/10 Bolt	6
3	0654	Blank Grommet	2
4	4345	M10 P Nyloc Nut	2
5	1006	M4/30 Pan Pozi	2
6	4206	Nylon Bush	1
7	4238FO	Funnel	1
8	1644	M8 Anti-Vibration Mount	3
9	0321	M12/30 Bolt	2
10	2919FO	Feed Tray	1
11	2922FS	Hinge Pin	2
12	0178	Rubber End Stop	1
13	1600	Nylon Pistons	2
14	4342	M8/30 Csk Soc.	1
15	4018S	Pin Bracket	2
16	0712	M8 C Washer	8
17	1603	Die Springs	2
18	1605M	Stainless Spacer	2
19	1599	Bearing Washer	2
20	1570FR	Safety Bar	1
21	1348	Limit Switch	1

Item	Part No	Part Name	Q'ty
22	1812	M10/35 Bolt	2
23	1591	Nylon Spacer	2
24	0479	M8 P Nyloc Nut	1
25	2727FS	Bracket Actuator	1
26	0045	M12 T Nyloc Nut	2
27	2986	1/2" Spring Bolt	2
28	0391	M6 T Nyloc Nut	8
29	P*144	Operator's Manual Cannister	1
30	0046	M12 Plain Nut	4
31	0704	M12 C Washer	8
32	4344	M10 Repair Washer	2
33	0709	M6 C Washer	12
34	0437	M6/16 Bolt	12
35	2493	Rubber Cap	2
36	0481	M8 T Nyloc Nut	4
37	18104	M5/12 Pan Pozi	4
38	0857	M5 A Washer	4
39	18924	Square Reflector	2
40	18102	M5 T Nyloc Nut	2
41	0347	M8/20 Button Head	3



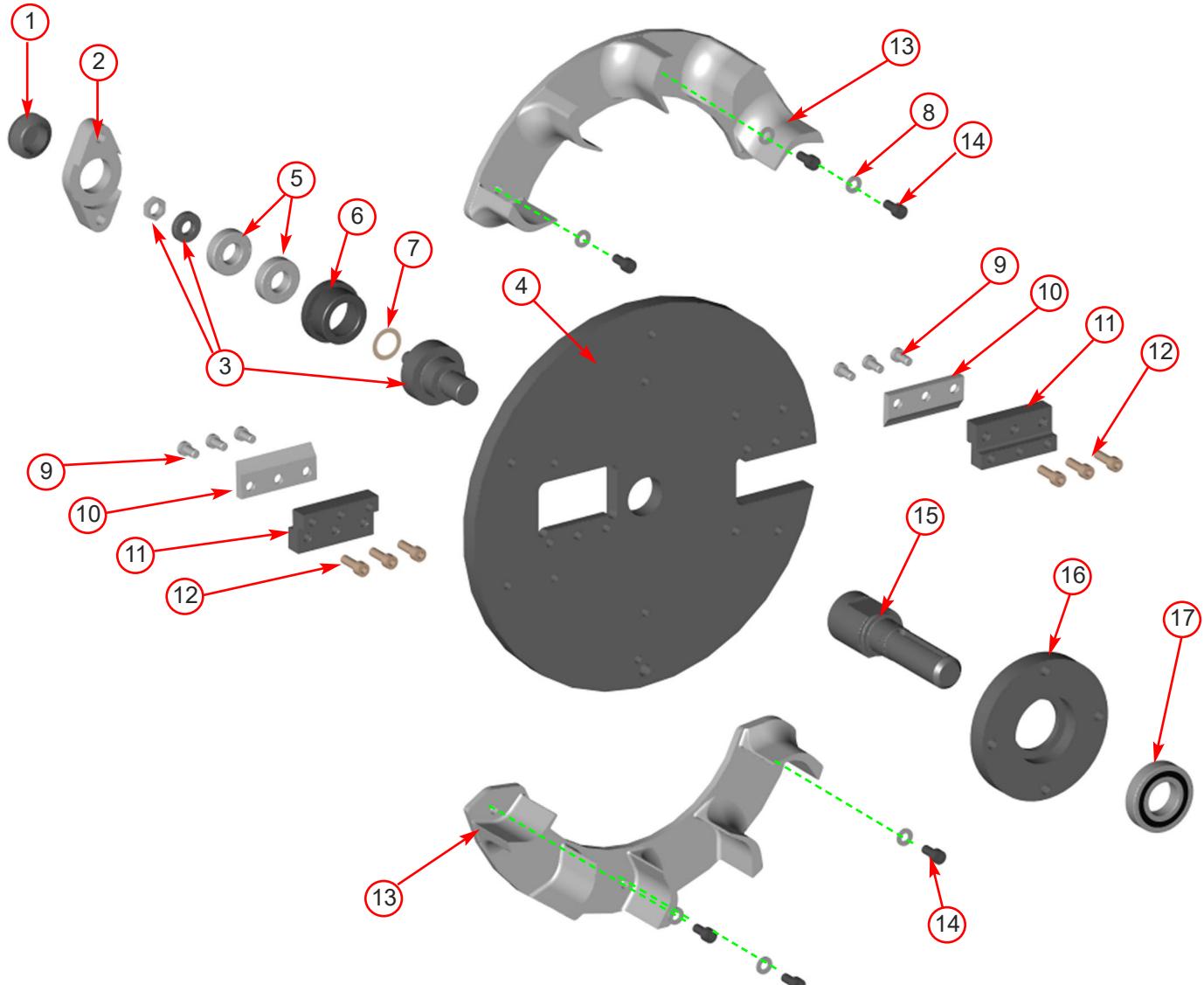
Item	Part No	Part Name	Q'ty
1	1434	Tank Top Filter Housing	1
2	0100	Filter	1
3	0152	Washer Dowty 3/4"	2
4	0225	Adapter mm 3/4"- 3/8" BSP	1
5	0161	Adapter mm 3/8"- 3/8" BSP	4
6	0396	Washer Dowty 3/8"	4
7	1302	Hose 3/8" DCV to Pump	1
8	0026	Adapter mm 3/8"- 1/2" BSP	5
9	0398	Washer Dowty 1/2"	5
10	0980	Hydraulic Pump	1
11	2982B	Hydraulic Motor	2
12	0323	Hose 3/8" Top to Bottom Motor	1
13	0489	Hose 3/8" Top Motor to DCV	1
14	0475	Hose 3/8" Bottom Motor to DCV	1

Item	Part No	Part Name	Q'ty
15	1583	Adapter mm 1/2"- 3/4" BSP	1
16	1823	Hose 3/4" Pump to Tank	1
17	0827	Adapter 3/4" Bulkhead	1
18	1822	Hose 3/4" Tank to Filter	1
19	4252	Directional Control Valve (DCV)	1
20	0734	Strainer	1
21	1690FS	Tank Top Plate	1
22	0709	M6 C Washer	8
23	1236	M6/20 Bolt	8
24	0381	Hose 3/8" Tank Return	1
25	1067	Breather Filter	1
26	0711	M8 A Washer	2
27	P2659	M8/30 Buttonhead Bolt	2



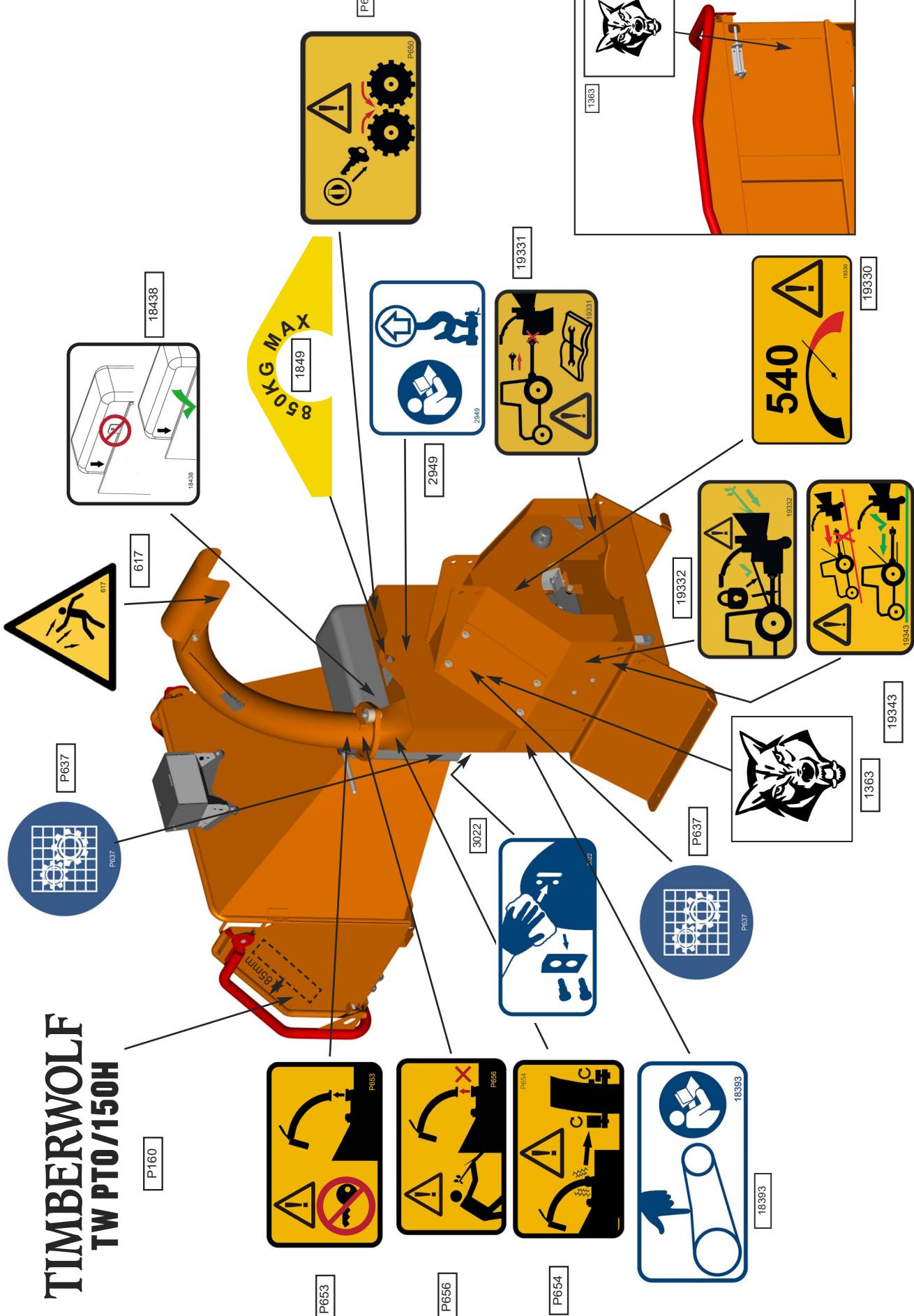
Item	Part No	Part Name	Q'ty
1	0672	Rollerbox Cover	1
2	4340	M12/50 Caphead	4
3	0481	M8 T Nyloc Nut	3
4	18027M	Plate Top Damper Carrier	1
5	P0000146	M8/18 Csk Screw	1
6	1962MS	Block Top Damped	1
7	18024M	Drive Side Plate	1
8	0429	M12/35 Bolt	4
9	0702	M12 A Washer	6
10	18025M	Non Drive Side Plate	1
11	1162S	Motor Studs	2
12	18028FS	Bracket Spring Hanger	2
13	18070	Roller Box Spring	2
14	0305	M10/25 Caphead	2
15	1768	AV Mount 30x30	4
16	0701	M10 A Washer	2
17	0382	M10/30 Bolt	4
18	1361M	Drive Spline	1
19	4345	M10 P Nyloc Nut	2
20	2757	Bush Bearing Spline	1
21	0103MH	Anvil	1

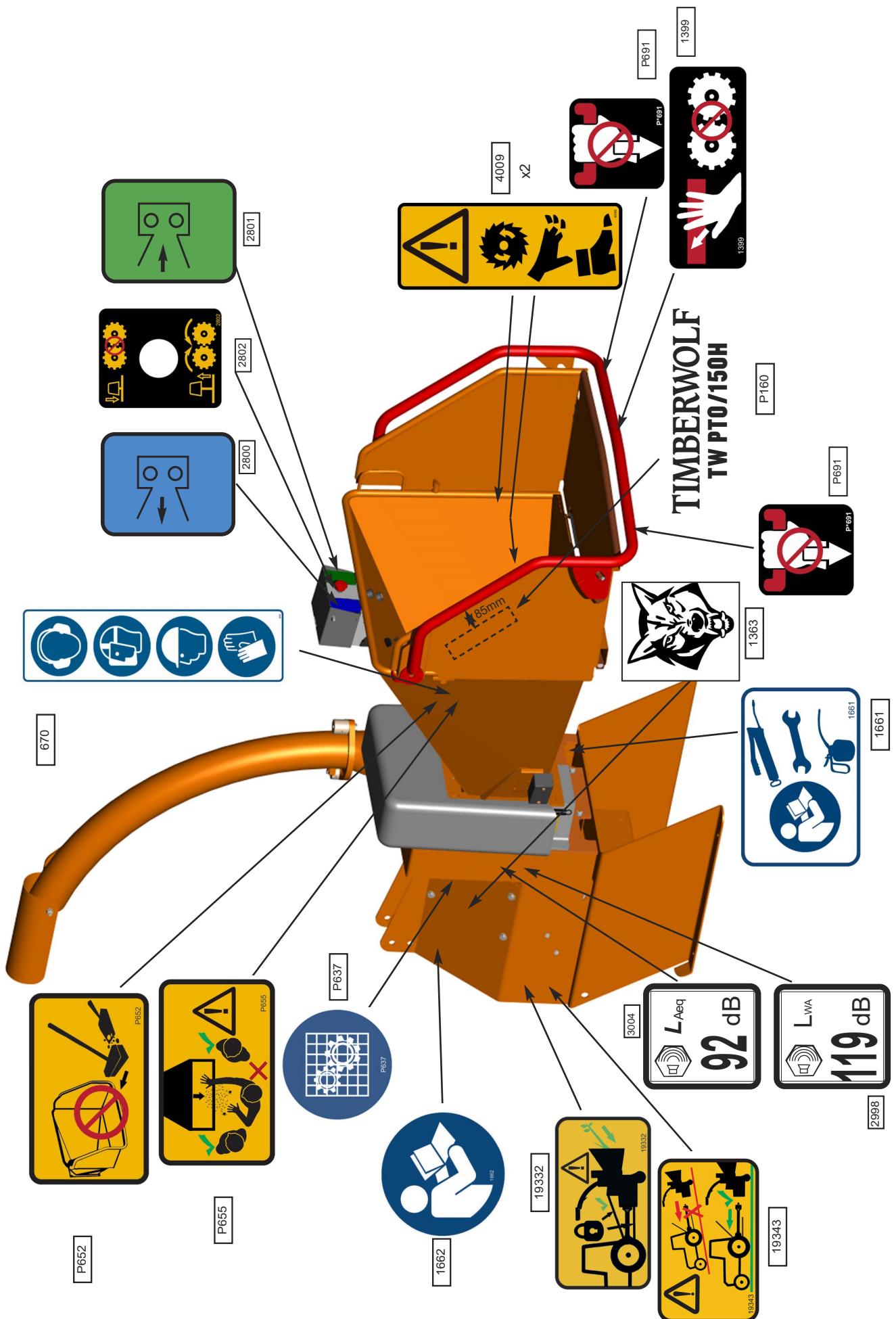
Item	Part No	Part Name	Q'ty
22	0228MS	Roller Box	1
23	0985	Straight Grease Nipple	1
24	0986	45° Grease Nipple	1
25	0055	Bearing Boss	2
26	0788	Plastic Bush	2
27	1362M	Roller Body	2
28	0325M	Roller Blade	12
29	0428	M12/30 Csk Soc.	24
30	4100M	Spline 6B Retro Bottom	1
31	0360	M10/25 Bolt	1
32	0350	M8/25 Bolt	2
33	4068	M10/40 Cap Head Bolt	8
34	0839	M10 C Washer	3
35	0534FS	Cover Bracket	1
36	0045	M12 T Nyloc Nut	1
37	0319	M12/220 Bolt	1
38	0356	Funnel Studs M12/50	4
39	2982B	Motor	2
40	0476	M8 Plain Nut	2
41	1985	M12/30 Caphead	2
42	0711	M8 A Washer	5



Item	Part No	Part Name	Q'ty
1	0959	Plastic Cap	1
2	0884MS	Bearing Housing Front	1
3	18479K	Rotor Nose Shaft Kit	1
4	0880M	Rotor	1
5	0491	Bearing 6205	2
6	0883MCB	Bearing Cup	1
7	0796	20 Thou Shim	As Req'd
8	0701	M10 A Washer	6
9	0900	M10/20 Star Cap Screw	6

Item	Part No	Part Name	Q'ty
10	083MH	Cutter Blade 4"	2
11	18275M	Blade Pocket	2
12	0386	M10/30 Cap Screw	6
13	1571	Fan Section	2
14	0386	M10/30 Caphead	6
15	18912M	Rear Shaft	1
16	4063MCB	Bearing Housing Rear	1
17	0495	Bearing 6208	1







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