



TIMBERWOLF[®]
Lead the pack

TW 160PH WOOD CHIPPER



INSTRUCTION MANUAL

timberwolf-uk.com

© Copyright Entec Industries Ltd 2015

The content of this publication may not be copied, reproduced, republished, posted, broadcast, transmitted or used in any way in any medium without the written permission of Entec Industries Ltd.



<i>Section</i>	<i>Page No.</i>
INTRODUCTION	1
PURPOSE OF MACHINE	2
MACHINE DIMENSIONS & SPECIFICATIONS	2
PARTS LOCATION DIAGRAMS	3
SAFE WORKING	5
Operator's Personal Protective Equipment Required	5
Basic Woodchipping Safety	5
General Safety Matters - Do's and Dont's	6
Noise Test	7
OPERATING INSTRUCTIONS	8
Safe Transportation	8
Hitching onto the Tow Ball	8
Unhitching the Chipper	8
Stabilising the Chipper	8
Delivery	9
Operator's Personal Protective Equipment Required	9
Manual Controls	9
Auto Controls	10
Emergency Stopping	10
Engine Controls	10
Blade Wear	10
Hydraulic Oil Lever Indicator	10
Petrol Tank Indicator	10
Daily Checks Before Starting	11
Before Using the Chipper	11
Starting the Engine	11
Stopping the Engine	11
Starting to Chip	12
Chipping	12
Blockages	12
Discharge Controls	12
SERVICE INSTRUCTIONS	13
Service Schedule	14
Safe Maintenance	15
Safe Lifting of the Chipper	15
Spares	15
Battery Removal and Maintenance	15
Check Fittings	15
Copper Ease Safety Information	16
Battery Safety Information	16
Change Blades	18
Tension Belts	19
Change Hydraulic Oil and Filter	19
Grease the Roller Spline and Rotor Bearings	20
Grease the Roller Box Slides	20
Grease the Discharge Flange	20
Engine Servicing	20
Check Hoses	20
WARRANTY STATEMENT	21
EC DECLARATION OF CONFORMITY CERTIFICATE	22
IDENTIFICATION PLATES	23
DECALS	24
ELECTRICAL DETAIL	26
CIRCUIT DIAGRAM	27
HYDRAULIC LAYOUT	29
V- BELT TENSIONING TABLE	30
PARTS LISTS	32
WARRANTY SERVICE CHECK RECORD	49
SERVICE RECORD	50



INTRODUCTION

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 160PH. 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 2 to 7. Ensure that all operators are **properly trained** for operating this machine, especially **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.

ALWAYS FOLLOW SAFE OPERATING AND MAINTENANCE PRACTICES



CAUTION or WARNING

BE AWARE OF THIS SYMBOL AND WHERE SHOWN, CAREFULLY FOLLOW THE INSTRUCTIONS.

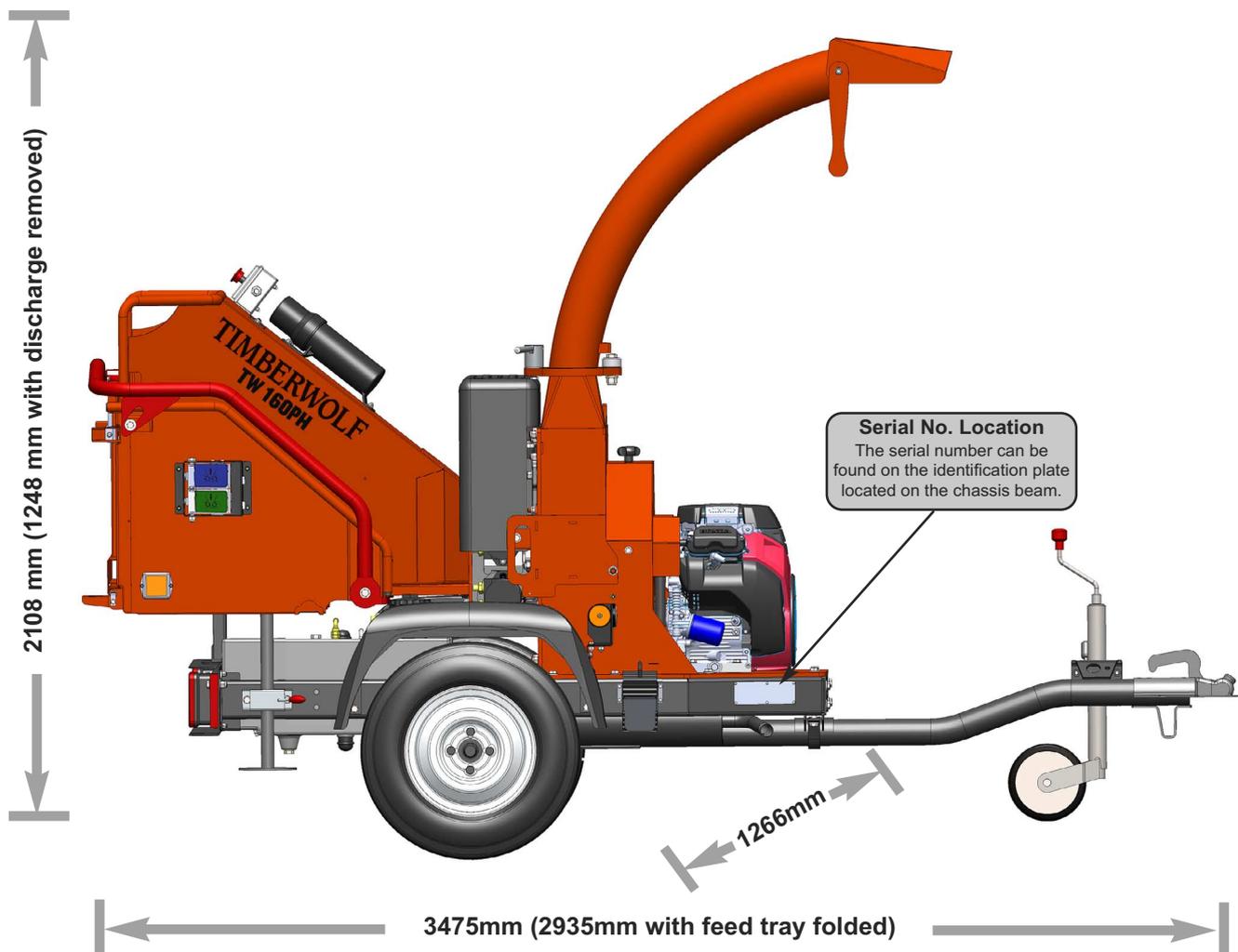
This caution symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of injury to yourself or others and carefully read the message that follows.



The Timberwolf TW 160PH

Designed to chip solid wood material up to 150mm in diameter and capable of chipping up to 3.5 tonnes of brushwood per hour.

DIMENSIONS

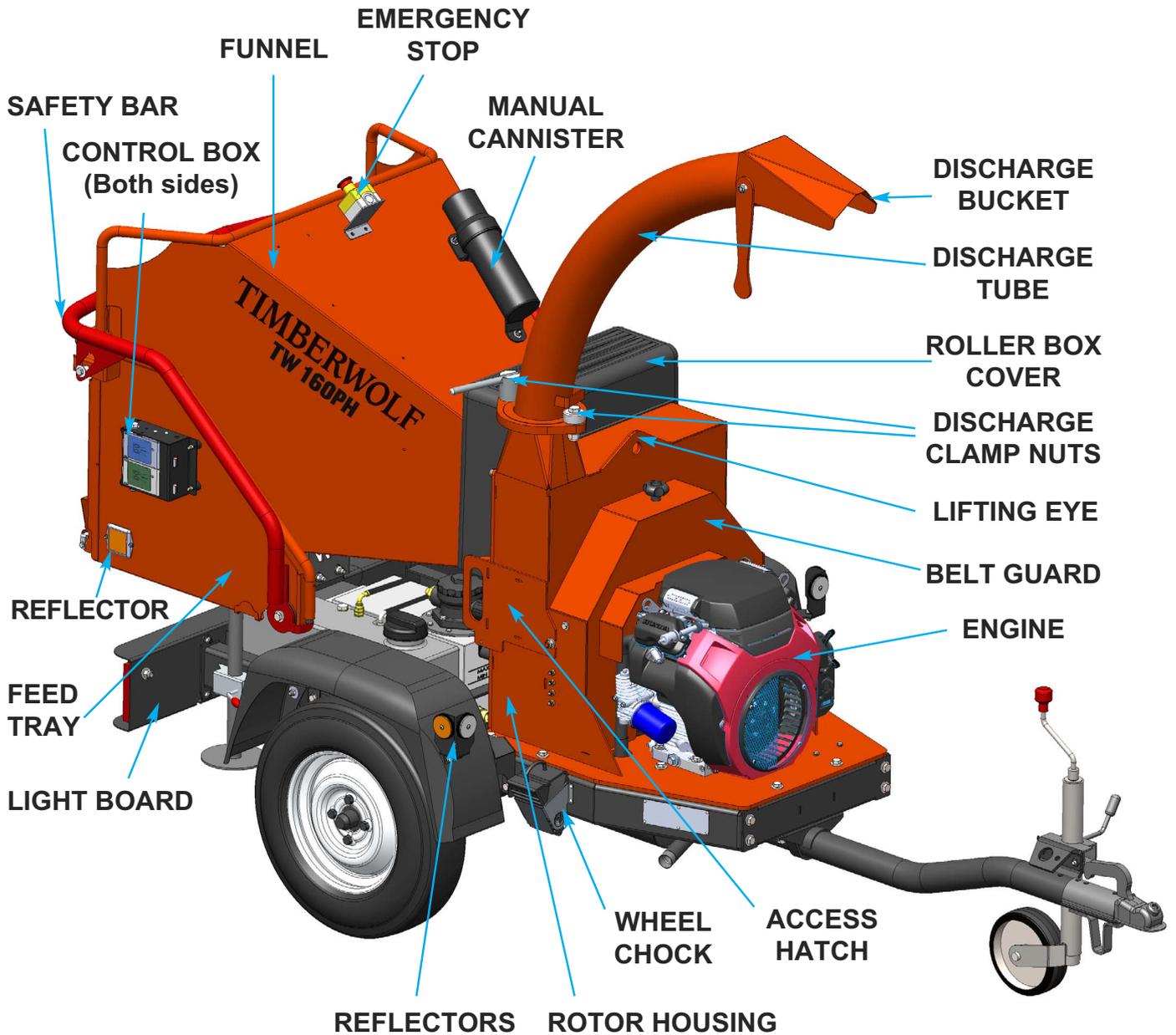


TIMBERWOLF TW 160PH SPECIFICATION

Engine type:	<i>Honda v-twin petrol</i>	Max. diameter material:	<i>152mm (6")</i>
Maximum power:	<i>16.4kW (22hp)</i>	Fuel capacity:	<i>18 litres</i>
Cooling method:	<i>Air cooled</i>	Hydraulic oil capacity:	<i>15 litres</i>
Overall weight:	<i>608kg</i>	Material processing capacity:	<i>3.5 tonnes/hr</i>
Starting method:	<i>Electric</i>	Fuel type:	<i>Unleaded petrol</i>
Roller feed:	<i>Twin hydraulic motor</i>		

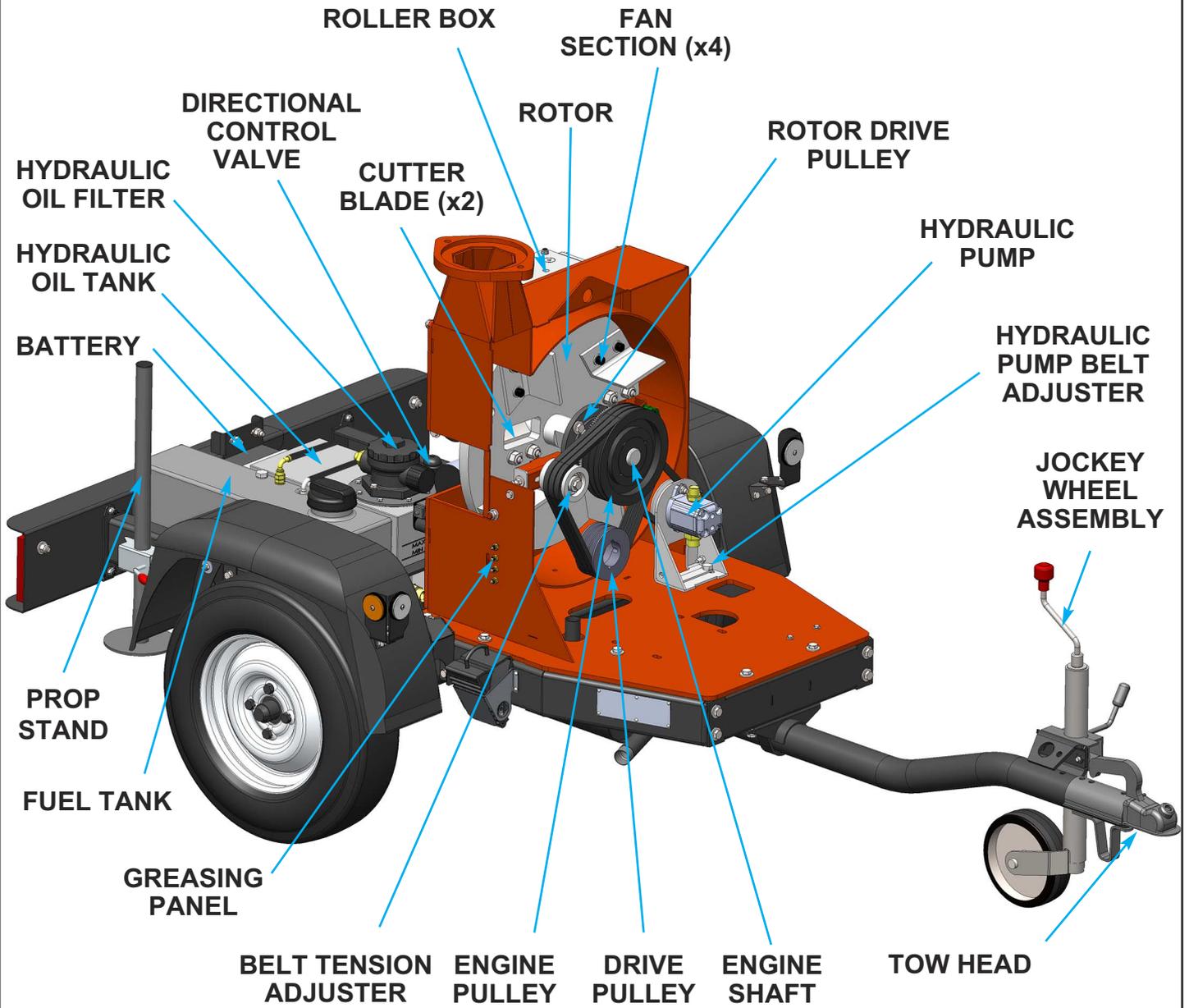


PARTS LOCATOR





PARTS LOCATOR





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.



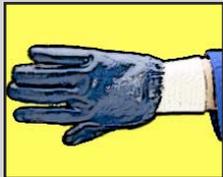
OPERATOR'S PERSONAL PROTECTIVE EQUIPMENT REQUIRED



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 facemask 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 brush may push you to one side causing danger. Badly twisted brush 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.



GENERAL SAFETY MATTERS



DO'S AND DON'TS



ALWAYS stop the chipper engine before making any adjustments, refuelling or cleaning.

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

ALWAYS check the machine is well supported and cannot move.

ALWAYS operate the chipper with the engine set to maximum speed when chipping.

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 use or attempt to start the chipper without the feed funnel, 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.

DO NOT allow -



BRICKS STRING CLOTH PLASTIC STONES



METAL GLASS RUBBER ROOTS BEDDING PLANTS

- to enter the machine, as damage is likely.

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.

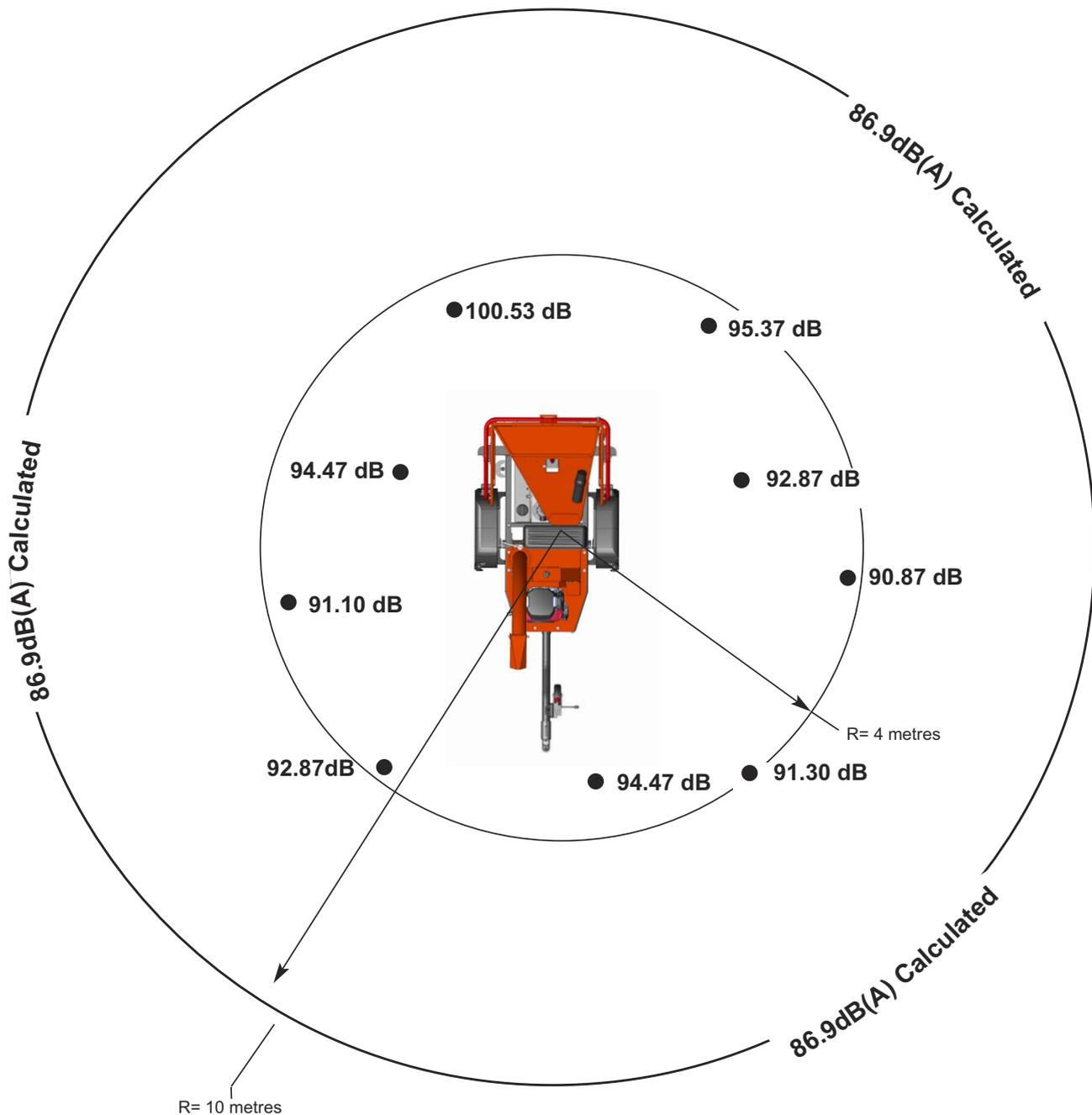


NOISE TEST

MACHINE: TW 160PH

NOTES: Tested chipping 120mm corsican pine
1.5m in length

Noise levels above 80dB (A) will be experienced at the working position. Wear ear protection at all times to prevent possible damage to hearing. All persons within a 4 metre radius must also wear good quality ear protection.



Guaranteed Sound Power: 117dB (A)

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



SAFE TRANSPORTATION

- WHEN towing a chipper the maximum speed limit is 60 mph.
- ON rough or bumpy road surfaces reduce speed accordingly to protect your machine from unnecessary vibration.
- WHEN towing off road be aware of objects that may catch the chipper undergear.
- WHEN towing off road ensure inclination is not excessive.
- AVOID excessively pot holed ground.

WARNING

DO NOT RIDE ON THE CHIPPER WHEN IT IS BEING TOWED.



- WHEN reversing the chipper the short wheel base will react quickly to steering.
- ALWAYS check the discharge is tight before moving.
- KEEP tyre pressures inflated to 2.2 bar or 32 psi.
- CHECK wheel nuts are tightened to 90Nm or 65 lbs ft.
- CLEAR loose chippings and debris from the machine before departing.
- ENSURE feed funnel is closed and the catch is properly engaged before departing.

HITCHING ONTO THE TOW BALL

- CHECK ball head is well greased.
- WIND jockey wheel assembly anticlockwise until the tow head is above the height of the ball hitch on the vehicle.
- REVERSE vehicle so the ball hitch is directly below the tow head.
- ATTACH breakaway cable to a strong point on the vehicle, not the ball hitch.
- GRASP handle on tow head and push back catch with thumb.
- WIND jockey wheel assembly clockwise, to lower the tow head onto the ball hitch.
- RELEASE handle and continue to wind jockey

wheel clockwise. The tow head should snap into place on the ball hitch. If it doesn't, repeat previous 2 steps.

- WIND jockey wheel up until fully retracted and the jockey wheel frame is seated in its notch on the stem. The chipper weight should be fully on the vehicle.
- RELEASE jockey wheel clamp and slide the jockey wheel assembly fully up.
- TIGHTEN clamp on jockey wheel assembly.
- CONNECT electrical plug to socket on rear of towing vehicle and check operation of all the trailer and vehicle lights.
- THE chipper is now properly attached to the vehicle.

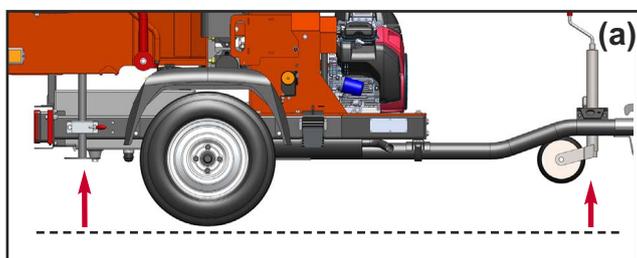
UNHITCHING THE CHIPPER

- ENSURE the chipper will not roll away after being disconnected from the vehicle. Use the chocks provided if in doubt.
- DISCONNECT the electrical cable from the vehicle socket.
- RELEASE breakaway cable.
- RELEASE the jockey wheel assembly clamp.
- LOWER the jockey wheel assembly fully.
- RETIGHTEN the jockey wheel assembly clamp.

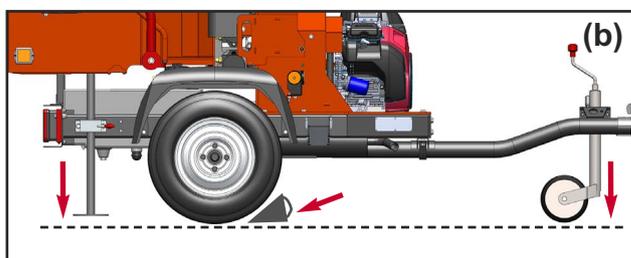
- WIND the jockey wheel assembly anticlockwise until it starts to take the weight of the chipper.
- GRASP the handle and release the catch with your thumb.
- CONTINUE to wind the jockey wheel anticlockwise. This should lift the tow head clear of the ball hitch.
- DRIVE the vehicle clear of the chipper.
- WIND the jockey wheel assembly to a suitable point where the chipper is level.
- THE chipper is now fully detached from the vehicle.

STABILISING THE CHIPPER

When hitched to a vehicle the prop stand and jockey wheel should be stored in the towing position (a).



When the chipper is unhitched it should be secured before starting work by using the wheel chocks and lowering the prop stand and jockey wheel (b).





DELIVERY

All Timberwolf TW 160 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.

MANUAL CONTROLS

Roller control boxes- a control box is located on either side of the feed funnel. Their function is to control the feed roller whilst processing material. **They do 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.

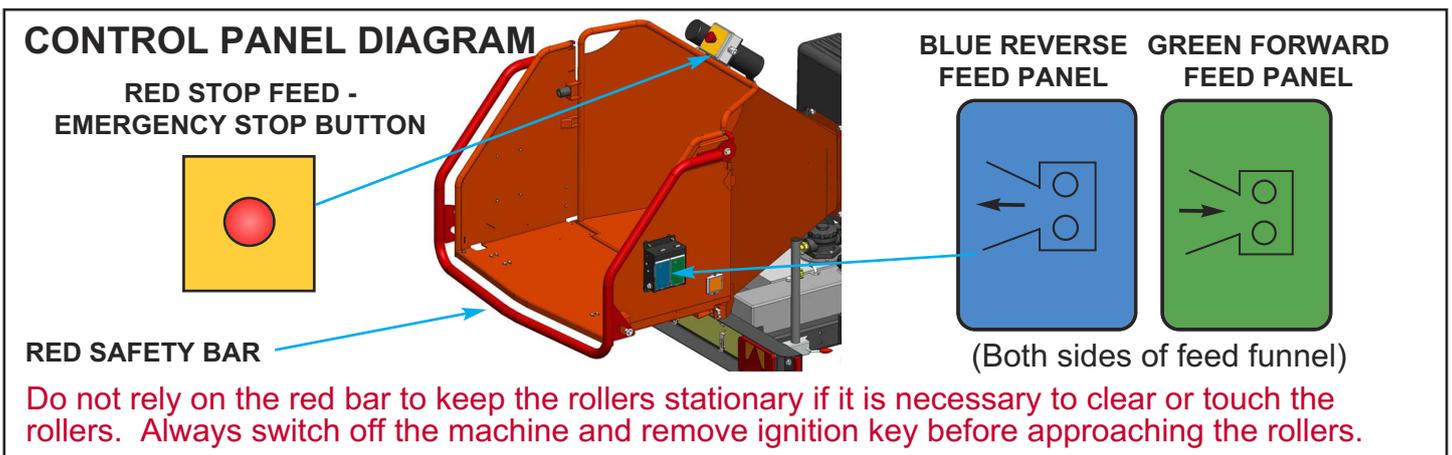
WARNING

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).

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.





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 either forward or reverse, until the rotor speed rises above the predetermined level. At this point, the feed rollers will start turning without warning.

EMERGENCY STOPPING

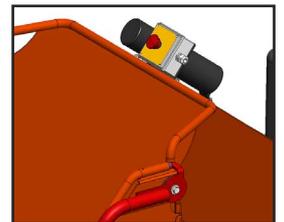
There are two methods of stopping the TW 160PH chipper in the event of an emergency.

STOPPING THE ROLLERS

-Activating the red safety bar will stop the rollers immediately. To restart the rollers, just push the green forward button or blue reverse button.

STOPPING THE ROLLERS & ENGINE

Pushing the red Emergency stop button positioned on top of the funnel kills all power to both the engine and the rollers, bringing the machine to a complete stop. It overrides all buttons and bars and will not allow the chipper to function until it has been reset. To reset, pull out button until it returns to its original position, turn the ignition key back to the off position, before restarting the machine.



ENGINE CONTROLS

This label indicates the speed setting of the chipper. With the throttle lever in the fast position (hare) the machine is ready to chip.

When the machine is not in use for short periods of time move the lever to the idle position (tortoise) or turn off completely.



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 160PH is fitted with 2 blades 109mm long. They are 100mm 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 indicates the safe limit of blade wear. Replace when this line is exceeded.

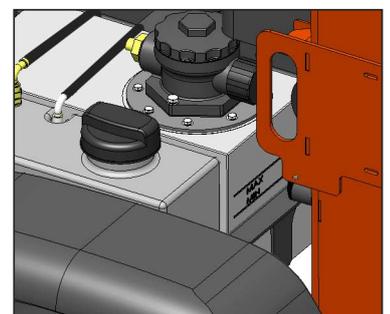
The machine is also fitted with a static blade (anvil). It is important that the anvil is in good condition to allow the cutting blades to function efficiently. Performance will be poor even with sharp cutter blades if the anvil is worn.

HYDRAULIC OIL LEVEL INDICATOR

The oil level will be visible through the tank wall. It should be within the upper and lower level marks.

PETROL TANK INDICATOR

The fuel level may be inspected by removing the fuel filler cap and looking into the tank.



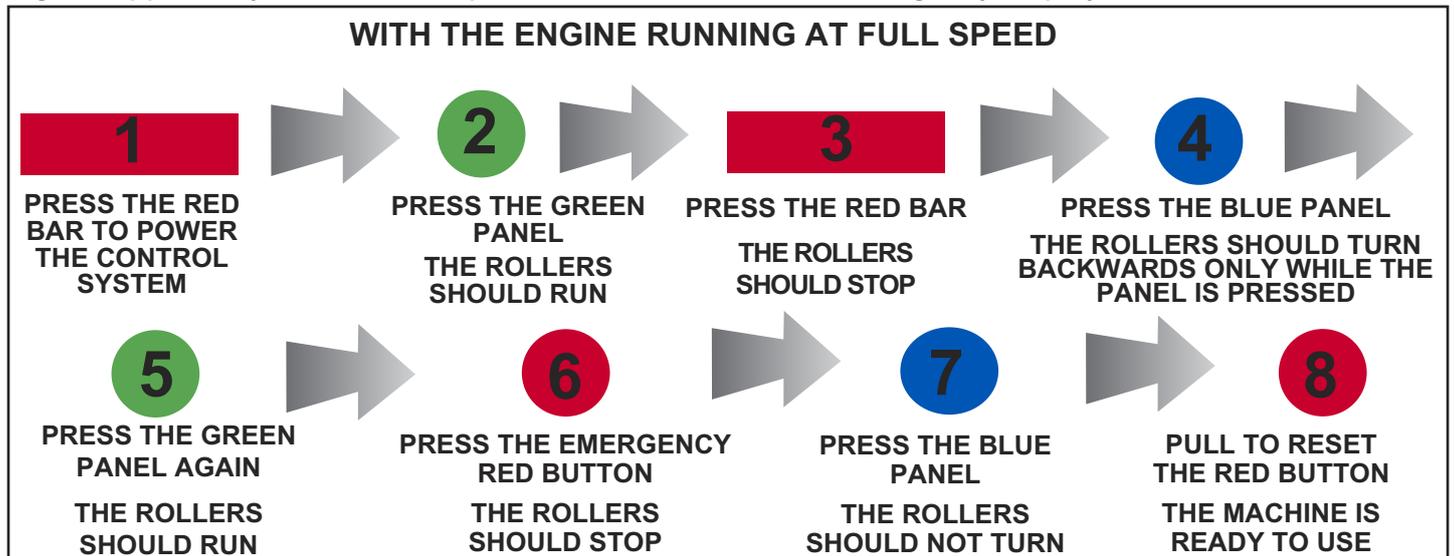


DAILY CHECKS BEFORE STARTING

- LOCATE the machine on firm level ground.
 - CHECK machine is well supported and cannot move.
 - CHECK jack stand is lowered and secure.
 - CHECK all guards are fitted and secure.
 - CHECK the discharge unit is in place and fastened 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.
 - CHECK (visually) for fluid leaks.
 - CHECK fuel and hydraulic oil levels.
- For parts location see diagrams on pages 3 & 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.



STARTING THE ENGINE



- **FOR A COLD ENGINE:**
Place the throttle control at 1/3 throttle and pull the choke out. Insert ignition key into starter switch. Turn the key to start the engine. Release the key as soon as the engine starts. Gradually return the choke to the off position as the engine starts and warms up. Allow the engine to warm up for at least one minute before chipping.
- **FOR A WARM ENGINE:**
Follow the instructions for a 'cold engine' but return the choke to the off position as soon as the engine starts.

If engine fails to start after 10 seconds leave for 1 minute and try again.

STOPPING THE ENGINE

- SET engine to idle position.
- ALLOW to run for at least one full minute.
- SWITCH off and remove ignition key.

For more detailed information refer to the Engine Owner's Manual



STARTING TO CHIP

WARNING

Do not use or attempt to start the chipper without the protective guarding and discharge unit securely in place. Failure to do so may result in personal injury or loss of life.



- CHECK that the chipper is running smoothly.
- RELEASE the catches on the feed tray and lower. Pull to release the red stop button.
- PERFORM the "before using the chipper" tests (see page 11).
- PRESS the green control panel. 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 the recommended diameter can be fed into the feed funnel. Put the butt end in first and engage it with the feed rollers. The hydraulic feed rollers will pull the branch into the machine quite quickly. Large diameter material will have its feed rate automatically controlled by the no stress unit.

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** panel 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** panel and hold for 2 seconds - then repress **GREEN FEED** panel. This should enable the rollers to free the offending piece of material and continue rotating at the correct speed. If the rollers continue to stall in the 'forward feed' or 'reverse feed' position push the **RED STOP BUTTON**, turn the engine off, remove the ignition key and investigate.

BLOCKAGES

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 engine and remove the ignition keys.
- 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 engine and increase to full speed.
- 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.

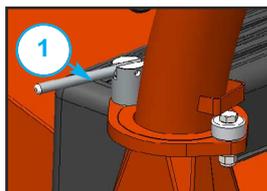
NOTE: Continuing to feed the chipper with brushwood once it has become blocked will cause the chipper to compact the chips in the rotor housing and it will be difficult and time consuming to clear.

AVOID THIS SITUATION - WATCH THE DISCHARGE TUBE AT ALL TIMES.

DISCHARGE CONTROLS

ROTATION

1. Slacken nut using integral handle.
2. Rotate tube.
3. Retighten nut.



Controlling the discharge is an essential part of safe working.

BUCKET ANGLE

4. Adjust the bucket to the desired angle using the handle provided.





**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 WOODCHIPPERS. 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, MAY INVALIDATE
WARRANTY 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 engine, removing the ignition key and disconnecting the battery before undertaking any maintenance work.



SERVICE SCHEDULE	Daily Check	50 Hours	100 Hours	500 Hours	1 Year
Check engine oil - top up if necessary (10W-30).	✓				
Check for engine oil / hydraulic oil leaks.	✓				
Check fuel level.	✓				
Check feed funnel, feed roller cover, access covers, engine covers and discharge unit are securely fitted.	✓				
Check blades	✓				
Ensure engine air intake is free from leaf build up.	✓				
Check tyre pressure is 2.2 Bar (32 psi).	✓				
Check safety bar mechanism.	✓				
Grease the roller box slides.	✓	OR AS REQUIRED - SEE PAGE 20			
Grease the roller spline and bearing.	✓	OR AS REQUIRED - SEE PAGE 20			
Clean air filter element.	DEPENDING ON WORKING ENVIRONMENT				
Check for tightness all nuts, bolts and fastenings making sure nothing has worked loose.		✓			
Grease discharge flange.		✓			
Check tension of main drive belts (and tension if necessary).		✓			
Check anvils for wear.		✓			
Check fuel pipes and clamp bands.			✓		
Check battery electrolyte level.			✓		
Check for loose electrical wiring.			✓		
Replace hydraulic oil filter - every year or 100 hours after service or repair work to the hydraulic system.			✓	OR	✓
Replace hydraulic oil.			✓	OR	✓
Replace fuel pipes and clamp bands.	REFER TO YOUR ENGINE SUPPLIERS MANUAL				
Check spark plugs.					
Change engine oil.					
Replace engine oil filter cartridge.					
Check valve clearance.					
Replace anvils when worn.	RETURN TO DEALER FOR ANVIL CHANGE				
Axle maintenance.	REFER TO SUPPLIERS INSTRUCTION SHEET				
Tow head maintenance.					

NOTE: Your Timberwolf woodchipper 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.



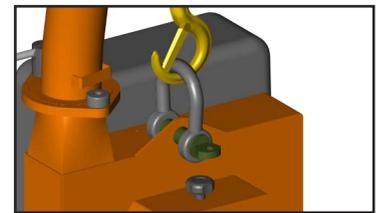
SAFE MAINTENANCE

ALWAYS IMMOBILISE THE ENGINE BEFORE UNDERTAKING ANY MAINTENANCE WORK ON THE CHIPPER BY REMOVING THE KEY AND DISCONNECTING THE BATTERY.

- HANDLE blades with extreme caution to avoid injury. Gloves should always be worn when handling the cutter blades.
- THE drive belts 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.
- AVOID contact with hydraulic oil.

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 LIFTING EYE 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.

BATTERY REMOVAL AND MAINTENANCE

WARNING

Refer to the battery safety section on pages 16-17.



1. Remove the negative lead first and then the positive lead.
2. Clean, charge and/or top up the battery as required.
3. Refitting is the reverse of removal. Apply a smear of petroleum jelly to the terminals to prevent corrosion.

CHECK FITTINGS

The Timberwolf TW 160PH 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 required torque (see 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 lbft
Blade Bolts	M16	Standard	24mm Hex	125
Anvil Bolts	M10	Standard	8 mm Allen Key	65
General	M8	Standard	13 mm Hex	20
General	M10	Standard	17 mm Hex	45
General	M12	Standard	19 mm Hex	65



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.

BATTERY SAFETY INFORMATION

WARNING NOTES AND SAFETY REGULATIONS FOR FILLED LEAD-ACID BATTERIES



For safety reasons, wear eye protection when handling a battery.



Keep children away from acid and batteries.



Fires, sparks, naked flames and smoking are prohibited.
-Avoid causing sparks when dealing with cables and electrical equipment, and beware of electrostatic discharges.
-Avoid short circuits.



Explosion hazard:
-A highly explosive oxyhydrogen gas mixture is produced when batteries are charged.



Corrosive hazard:
-Battery acid is highly corrosive, therefore:
-Wear protective gloves and eye protection.
-Do not tilt the battery, acid may escape from the vent openings.



First aid:
-Rinse off acid splashed in the eyes immediately for several minutes with clear water! Then consult a doctor immediately.
-Neutralise acid splashes on the skin or clothes immediately with acid neutraliser (soda) or soap suds, and rinse with plenty of water.
-If acid is swallowed, consult a doctor immediately.

Warning notes: The battery case can become brittle, to avoid this:



-Do not store batteries in direct sunlight.
-Discharged batteries may freeze up, therefore store in an area free from frost.



Disposal:
-Dispose of old batteries at an authorised collection point.



-The notes listed under item 1 are to be followed for transport.
-Never dispose of old batteries in household waste.



BATTERY SAFETY INFORMATION...cont.

1. Storage and transport

- Batteries are filled with acid.
- Always store and transport batteries upright and prevent from tilting so that no acid can escape.
- Store in a cool and dry place.
- Do not remove the protective cap from the positive terminal.
- Run a FIFO (first in-first out) warehouse management system.

2. Initial operation

- The batteries are filled with acid at a density of 1.28g/ml during the manufacturing process and are ready for use.
- Recharge in case of insufficient starting power (cf. section 4).

3. Installation in the vehicle and removal from the vehicle

- Switch off the engine and all electrical equipment.
- When removing, disconnect the negative terminal first.
- Avoid short circuits caused by tools, for example.
- Remove any foreign body from the battery tray, and clamp battery tightly after installation.
- Clean the terminals and clamps, and lubricate slightly with battery grease.
- When installing, first connect the positive terminal, and check the terminal clamps for tight fit.
- After having fitted the battery in the vehicle, remove the protective cap from the positive terminal, and place it on the terminal of the replaced battery in order to prevent short circuits and possible sparks.
- Use parts from the replaced battery, such as the terminal covers, elbows, vent pipe connection and terminal holders (where applicable); use available or supplied filler caps.
- Leave at least one vent open, otherwise there is a danger of explosion. This also applies when old batteries are returned.

4. Charging

- Remove the battery from the vehicle; disconnect the lead of the negative terminal first.
- Ensure good ventilation.
- Use suitable direct current chargers only.
- Connect the positive terminal of the battery to

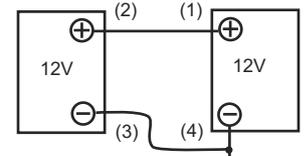
- the positive output of the charger. Connect the negative terminal accordingly.
- Switch on the charger only after the battery has been connected, and switch off the charger first after charging has been completed.
- Charging current-recommendation: 1/10 ampere of the battery capacity Ah.
- Use a charger with a constant charging voltage of 14.4V for re-charging.
- If the acid temperature rises above 55° Celsius, stop charging.
- The battery is fully charged when the charging voltage has stopped rising for two hours.

5. Maintenance

- Keep the battery clean and dry.
- Use a moist anti-static cloth only to wipe the battery, otherwise there is a danger of explosion.
- Do not open the battery.
- Recharge in case of insufficient starting power (cf. section 4).

6. Jump Starting

- Use the standardised jumper cable in compliance with DIN 72553 only, and follow the operating instructions.
- Use batteries of the same nominal voltage only.
- Switch off the engines of both vehicles.
- First connect the two positive terminals (1) and (2), then connect the negative terminal of the charged battery (3) to a metal part (4) of the vehicle requiring assistance away from the battery.
- Start the engine of the vehicle providing assistance, then start the engine of the vehicle requiring assistance for a maximum of 15 seconds.
- Disconnect the cables in reverse sequence (4-3-2-1).



7. Taking the battery out of service

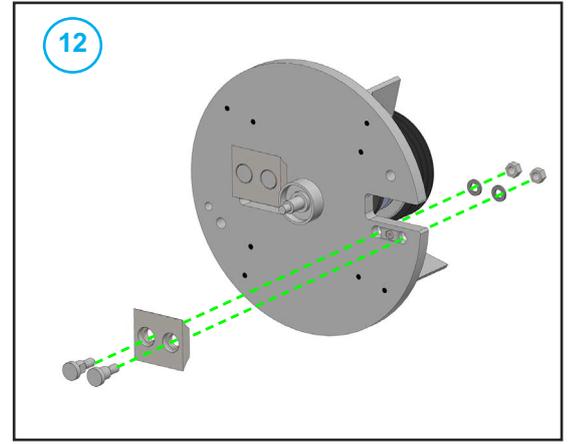
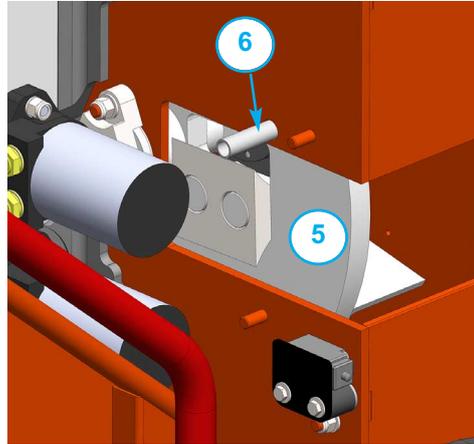
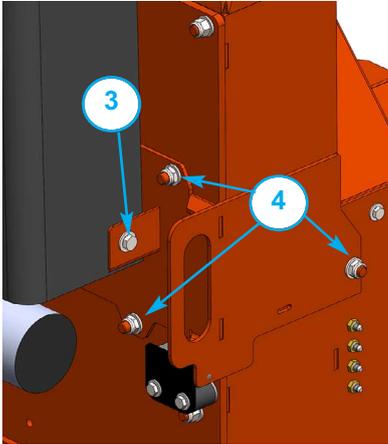
- Charge the battery; store in a cool place or in the vehicle with the negative terminal disconnected.
- Check the battery state of charge at regular intervals, and correct by recharging when necessary (cf. section 4).



CHANGE BLADES

WARNING

Wear riggers gloves for the blade changing operation.



1. Turn the chipper off and remove the ignition keys.
2. Remove battery leads.
3. Remove the M10 bolt retaining the guard, allowing the guard to be opened.
4. Remove the 3 nuts retaining the access hatch, pull hatch open clear of the rotor housing.
5. Turn rotor to blade change position.
6. Insert locking bar into rotor housing and rotor.
7. Brush away all dirt and debris from the rotor and blades.
8. With a 24mm spanner/socket undo the two nyloc nuts and washers that are holding the blade in place. Remove both blade bolts from the blade.
9. Grasp the blade by the flat edges while wearing heavy duty gloves.
10. Withdraw the blade from the rotor.
11. Clean the back surface of the blade, blade bolts and blade area of the rotor before reseating blades. **The blades must not have any material underneath them when tightened. If they are not flat and tight they will become loose very quickly.**
12. Reassemble the blades, bolts, washers and nuts in the order shown in the diagram above. Use only genuine Timberwolf nuts and washers, as they are of a higher grade than normally stocked at fastener factories. Failure to use the appropriate grade nuts or washers may result in damage, injury or death. The use of genuine Timberwolf blades and bolts is recommended.
13. Apply a smear of anti seize compound (copper ease) to the bolt threads and back face of the nuts. Do not apply copper grease onto the counter bore faces of the blades or bolts.
14. **A calibrated torque wrench must be used to tighten the bolts to a torque setting of 125 lbs ft (170 Nm).**
15. Remove lock pin, rotate rotor to next blade then replace lock pin and repeat steps 7 - 14.
16. Refit access hatch.
17. Refit the nuts and tighten to 45lb/ft.
18. Refit battery leads.

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.





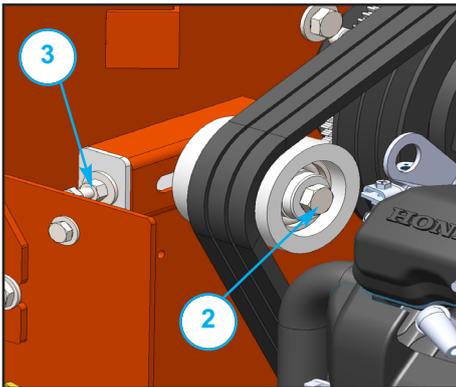
TENSION BELTS

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

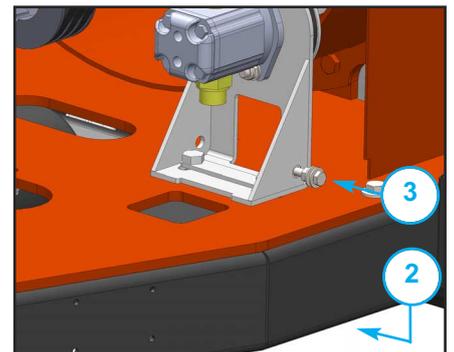
1. Remove belt guard.
2. Loosen bolt in centre of tensioner pulley with a 19mm spanner so that pulley is able to slide with minimal wobble.



3. Turn nut in end of tensioner pulley slider until correct belt tension is achieved. For instructions on checking belt tension & correct belt tension values, please refer to the Timberwolf V-Belt Tensioning Data Table (page 30).
4. Retighten bolt in centre of tensioner pulley.
5. Refit belt guard.
6. Run machine and test, recheck belt tension.
7. NOTE: Slack drive belts will cause poor performance and excess belt and pulley wear.

TENSION HYDRAULIC PUMP BELT

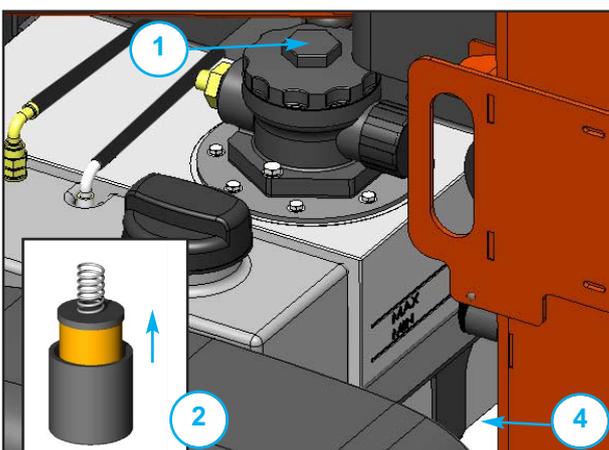
1. Remove belt guard.
2. Access the two nuts on the under side of the chassis and slacken using a 19 mm socket spanner.
3. Adjust the M8 bolt on the outside plate until the desired tension is achieved. For instructions on checking belt tension & correct belt tension values, please refer to the Timberwolf V-Belt Tensioning Data Table (pg. 30).
4. Retighten the two nuts to (88 Nm) 65 lbs/ft.
5. Refit belt guard.



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.



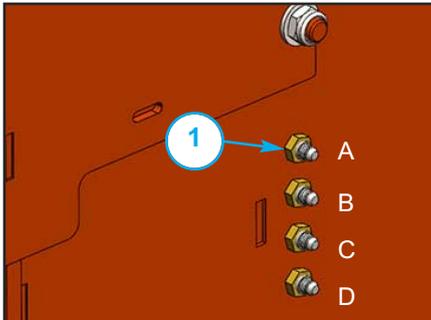
1. Remove the black screw cap from the top of the filter housing.
2. Partially remove filter element from inner cup. Leave filter to drain for 15 minutes.
3. Remove filter element from cup when clear of hydraulic oil.
4. Remove drain plug and drain oil into a suitable container.
5. Replace drain plug.
6. Refill with VG 32 hydraulic oil until the level is between the min and max lines on the tank (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 breather filter.



GREASE THE ROLLER SPLINE AND ROTOR BEARINGS

NOTE: This should be done regularly. In dirty and dusty conditions or during periods of hard work it should be daily. 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.

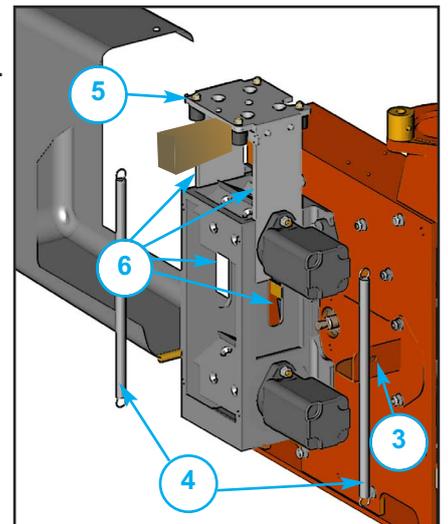


1. Locate the greasing panel.
 2. Apply 4+ pumps of grease to each nipple.
 3. It is recommended to grease all the nipples whilst the engine is running and rollers are turning to distribute the grease evenly.
- DO NOT USE GRAPHITE BASED GREASE.**
4. Both front and rear bearings are greased by nipples A and B. The top and bottom roller splines are greased by nipples C and D.

GREASE THE ROLLER BOX SLIDES

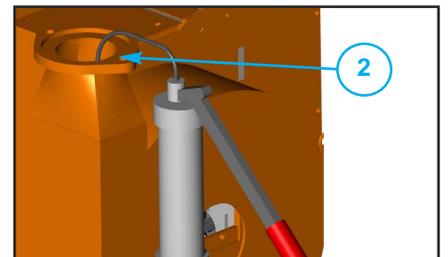
NOTE: This should be done regularly. In dirty or dusty conditions or during periods of hard work it should be done weekly. If the slides become dry the top roller will tend to hang up and the pulling-in power of the rollers will be much reduced. Excessive wear will ensue.

1. Turn the chipper off and remove the ignition keys.
2. Ensure machine has come to a complete stop - remove battery leads.
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 battery leads.



GREASE THE DISCHARGE FLANGE

1. Remove the discharge tube.
2. Apply multipurpose grease to surface shown.
3. Refit discharge tube.



ENGINE SERVICING

All engine servicing must be performed in accordance with the Engine Manufacturer's handbook provided with the machine. **FAILURE TO ADHERE TO THIS MAY INVALIDATE WARRANTY AND/OR SHORTEN THE LIFE OF THE ENGINE.**

CHECK HOSES

All the hydraulic hoses should be regularly inspected for chafing and leaks. The hydraulic system is pressurized 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.



TIMBERWOLF LTD 36 MONTH WARRANTY

WARRANTY

The warranty period for your Timberwolf Ltd machine commences on the date of sale to the first end user and continues for a period of 36 months. This guarantee is to the first end user only and is not transferable except when an Authorised Timberwolf Dealer has a machine registered with Timberwolf Ltd as a hire chipper or long term demonstrator. In these situations, they are duly authorised to transfer any remaining warranty period to their first end user. Any warranty offered by the Timberwolf Dealer beyond the original 36 month period will be wholly covered by said Dealer.

LIABILITY

No liability will be accepted for special, indirect, incidental, or consequential loss or damages of any kind. Our obligation under this warranty is limited to repair at Authorised Timberwolf Dealers or at Timberwolf Ltd premises.

WARRANTY STATEMENT

- Your machine shall be designed, built and equipped, at the point of sale, to meet all current applicable regulations.
- Your machine shall be free from manufacturing defects both in materials and workmanship in normal service for the period mentioned above.

Normal wear & tear on consumable items and their routine maintenance or replacement are not warrantable items. Engine units are covered independently by their respective manufacturer warranties.

OWNERS WARRANTY RESPONSIBILITIES

As the owner of a Timberwolf Ltd machine you are responsible for the following:

- Operation of the machine in accordance with the Timberwolf Ltd instruction manual.
- Ensuring all maintenance services are performed and the 11 and 23 month warranty service check records are stamped by an Authorised Timberwolf Dealer.
- In the event of a failure the Authorised Timberwolf Dealer is to be notified within 10 days of failure and the equipment is to be made available for inspection by the dealer technician.

Note: To qualify for Timberwolf's Limited Warranty Programme the machine shall have a validation service at 50 hours, 11 months and 23 months. The 11 and 23 month services shall be carried out by an Authorised Timberwolf Dealer and the service record stamped. Our Authorised Timberwolf Dealers have fully trained engineers and will carry out a multi-point service check list which is specific to each machine in the Timberwolf range. Validation services are chargeable to the machine owner. It is the machine owner's sole responsibility to book the machine in with a local Timberwolf Dealer in a timely manner. It is not the responsibility of Timberwolf or their Authorised Dealer to provide a replacement machine during the service check.

WARRANTY RESTRICTIONS

The Timberwolf Ltd warranty may be invalidated if any of the following apply:

- The failed parts or assembly is interfered with in any way.
- Normal maintenance has not been performed.
- Incorrect reassembly of components.
- The machine has undergone modifications not approved in writing by Timberwolf Ltd.
- In the case of tractor driven equipment, use has been on an unapproved tractor.
- Conditions of use can be deemed abnormal.
- The machine has been used to perform tasks contrary to those stated in the Timberwolf Ltd instruction manual.

WARRANTY SERVICE

To obtain warranty service please contact your nearest approved Timberwolf dealer. To obtain details of the nearest facility please contact Timberwolf Ltd at the address on the back of this manual. These warranty terms are in addition to and not in substitution for and do not affect any right and remedies which an owner might have under statute or at common law against the seller of the goods under the contract by which the owner acquired the goods.



CERTIFICATE OF CONFORMITY

Entec Industries Ltd

Entec House,
Tomo Industrial Estate,
Stowmarket,
Suffolk IP14 5AY

Tel: 01449 765800 Fax: 01449 765801

EC Declaration of Conformity



Entec Industries Ltd as the designer and manufacturer, certifies that the machine stipulated below complies with all the relevant provisions of the:

Machinery Directive; 2006/42/EC (& other relevant directives)

and the National Laws and Regulations adopting these directives.

Designer/Manufacturer : Entec Industries
Description of Machinery : Self-powered portable machine intended to chip up tree waste prior to disposal.
Model : TW 160PH
Serial No. : Serial Manufacture

BSI Transposed Harmonised Standards applied: (including parts/clauses of):

BS EN: 13683:2003+A2:2011
BS EN ISO: 12100:2010
BS EN ISO: 14120:2015
BS EN ISO: 13849-1:2015
BS EN ISO: 60204-1:2006+A1:2009

"Responsible" Person empowered to sign: _____ Mr. Chris Perry
Position in Company: Managing Director

Date: 28/10/2016



IDENTIFICATION PLATE

		TIMBERWOLF ENVIRONMENTAL MANUFACTURING LLP Entec House, Tomo Industrial Estate, Stowmarket, Suffolk IP14 5AY - UK	
MODEL			
SERIAL NO.			
CARR. TYP/SN.		GROSS WEIGHT	
NOM. PWR		DATE	
			ENVIRONMENTAL MANUFACTURING LLP
			KG
			0 - KG
			1 - KG
			2 - KG

EXAMPLE



Decal	Description	Decal	Description
<p>616</p>	Hot exhaust	<p>4099 x 2</p>	Danger. Rotating blades. Keep hands and feet out.
<p>617</p>	High velocity discharge - keep clear	<p>2800</p> <p>2801</p>	Reverse feed Forward feed
<p>670</p>	Personal Protective Equipment required	<p>18393</p>	New drive belts need re-tensioning. When new belts are fitted check tension every 2-3 hours & adjust until tension remains constant.
<p>1661</p>	Read the instruction manual for greasing and maintenance information	<p>1399</p> <p>P691 x 2</p>	Push to stop. Do not pull here.
<p>1662</p>	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.	<p>2949</p>	Lifting eye is designed to lift the machine's weight only. Do not use hoist hook on lifting eye. Use correctly rated safety 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.
<p>18438</p>	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.	<p>3022</p>	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.

25 DECALS



**TIMBERWOLF
TW 160PH**

Decal	Description	Decal	Description
<p>P637 x 4</p>	<p>Danger. Do not operate without this cover in place.</p>	<p>P653</p>	<p>Danger. Rotating blades inside. Stop engine and remove key before removing discharge unit.</p>
<p>P652</p>	<p>Caution. Do not put road sweepings in machine as grit will damage blades.</p>	<p>P654</p>	<p>Caution. When transporting, discharge clamps may work loose. Check frequently.</p>
<p>P655</p>	<p>Caution. Avoid standing directly in front of feed funnel to reduce exposure to noise, dust and risk from ejected particles.</p>	<p>P656</p>	<p>Danger. Do not use this machine without the discharge unit fitted. Failure to comply may result in serious injury or damage.</p>
<p>P650</p>	<p>Danger. Autofeed system fitted. Rollers may turn without warning! When the engine is switched off the rollers will turn during the run down period.</p>	<p>P651</p>	<p>Fuel Here. Risk of fire. Allow engine to cool for 1 minute before refuelling. Use unleaded petrol.</p>



3013



C192-0103



1363



1849

**TIMBERWOLF
TW 160PH**

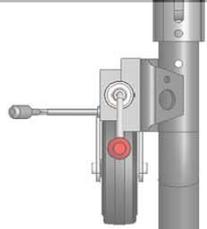
P*2837 X 2

**TIMBERWOLF
TW 160PH(a)**

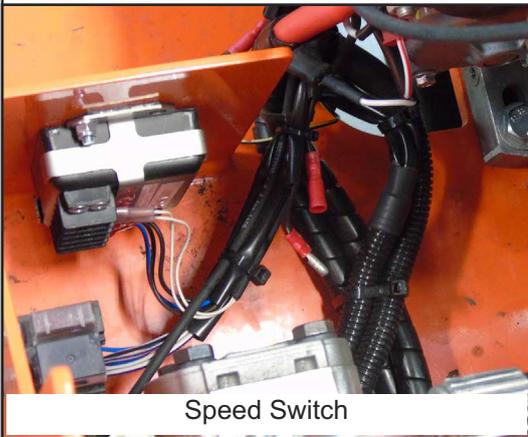
C192-0116



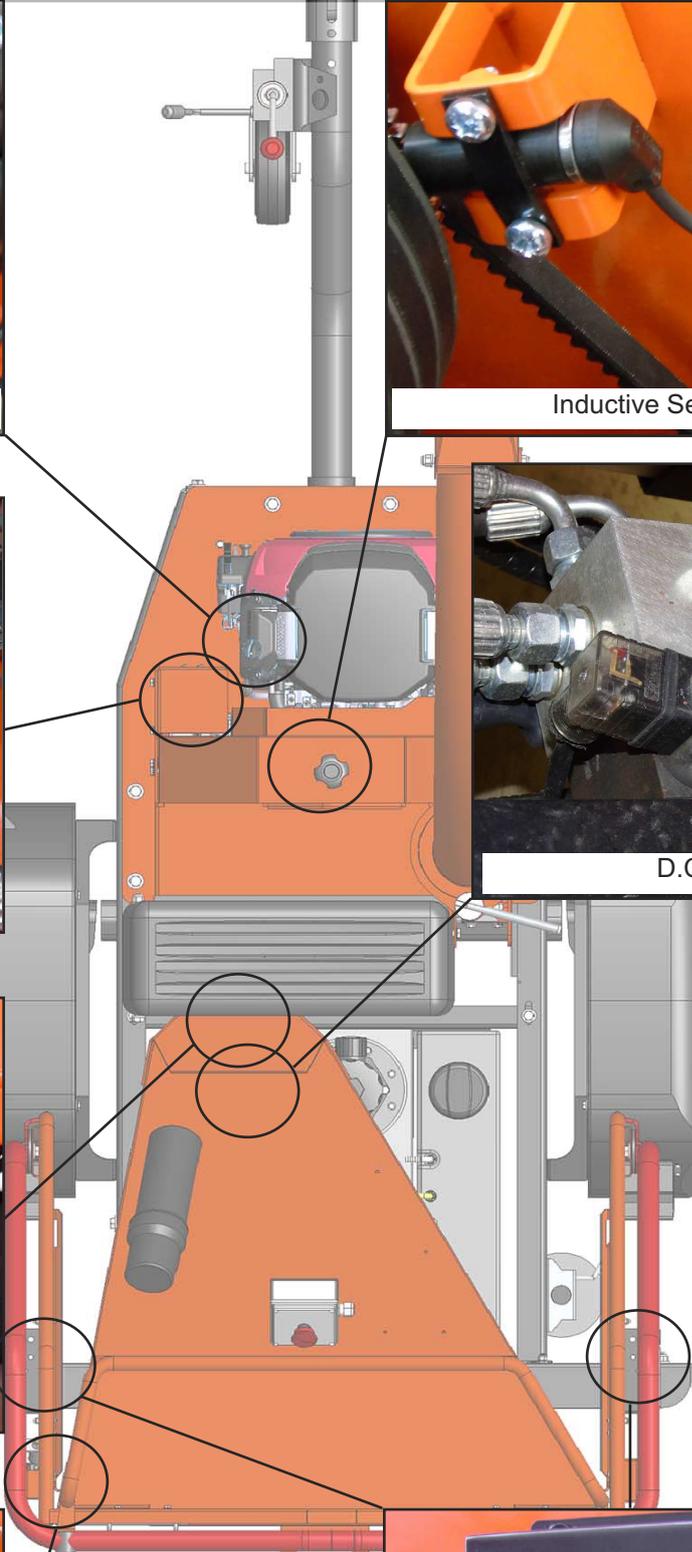
Spark Plug



Inductive Sensor



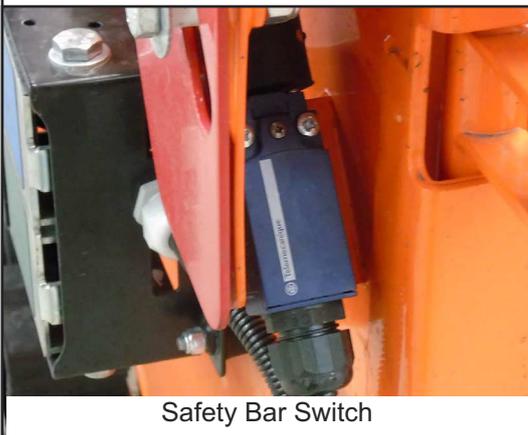
Speed Switch



D.C.V.



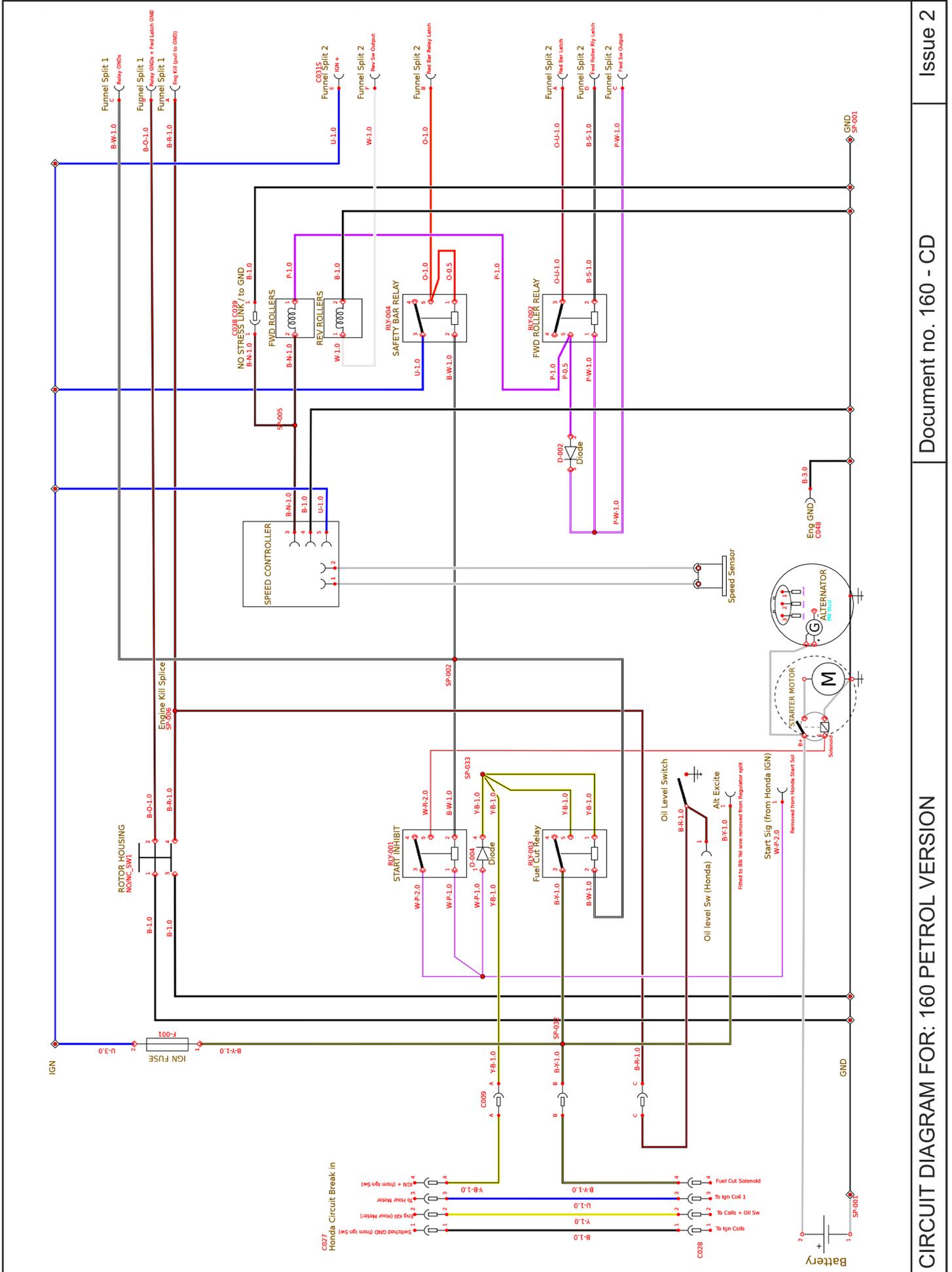
Funnel Loom Connector

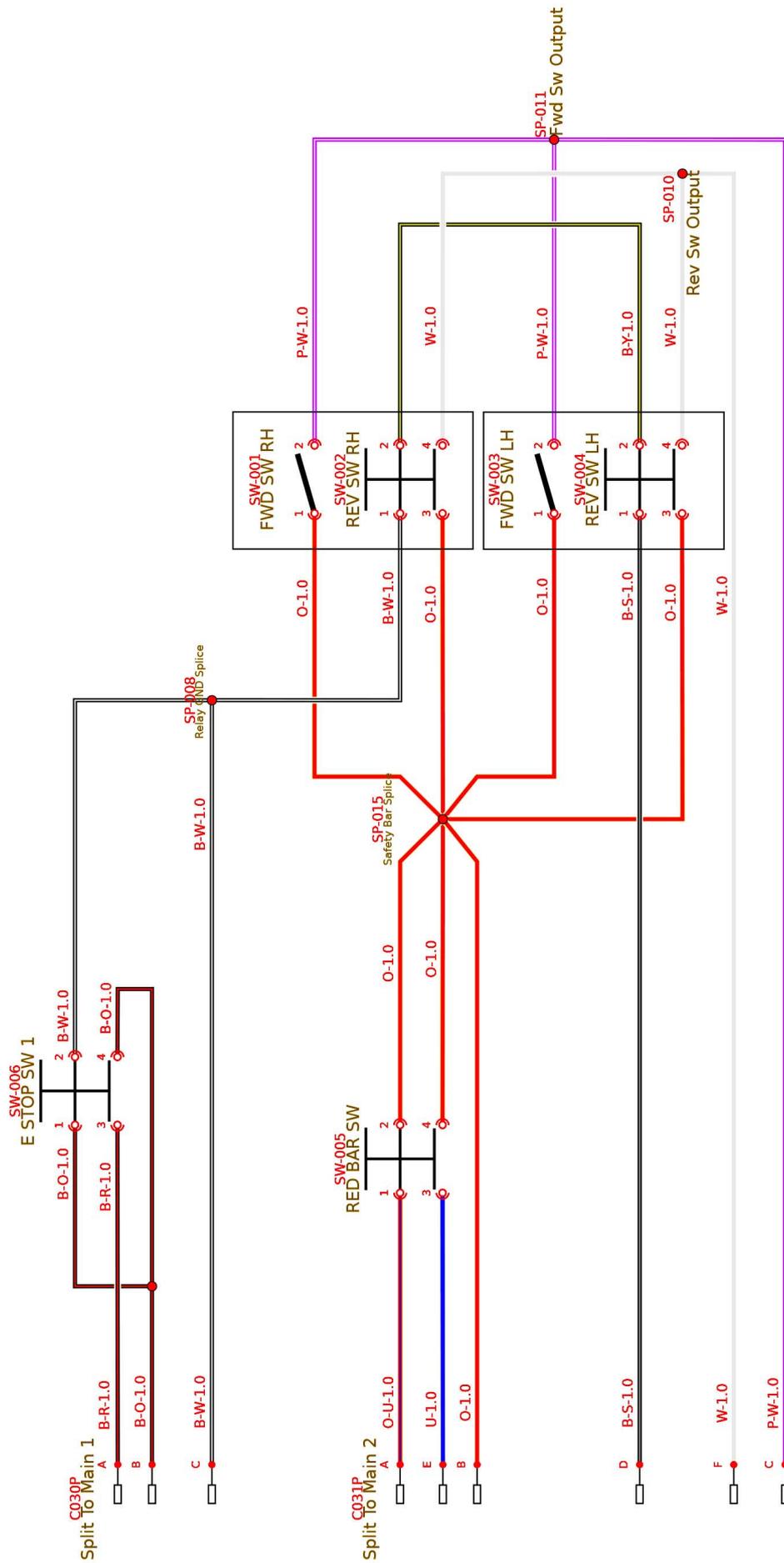


Safety Bar Switch



Control Box Switches x 2



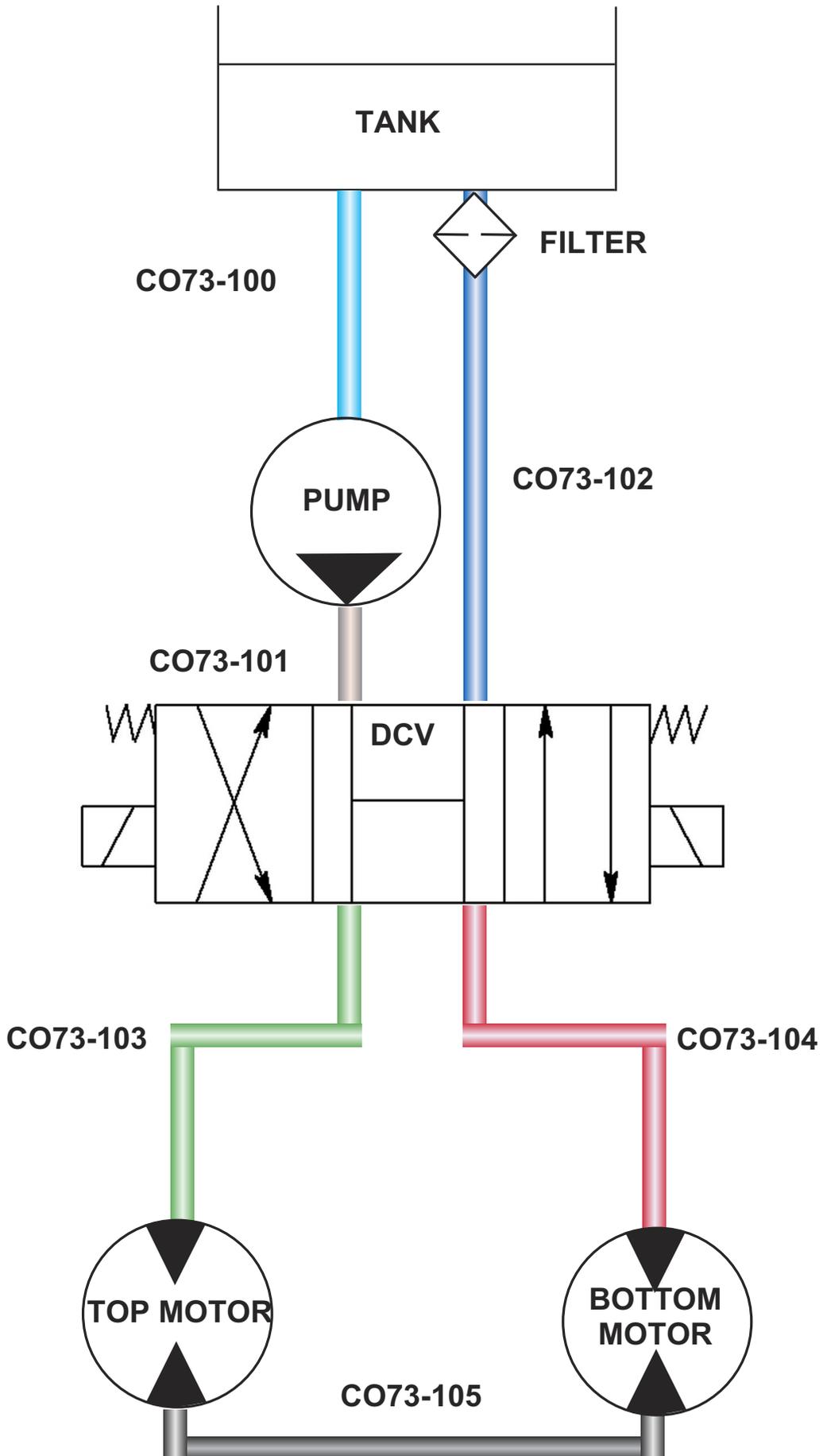


29 HYDRAULIC LAYOUT



TIMBERWOLF
TW 160PH

Hose kit No. CO73-106



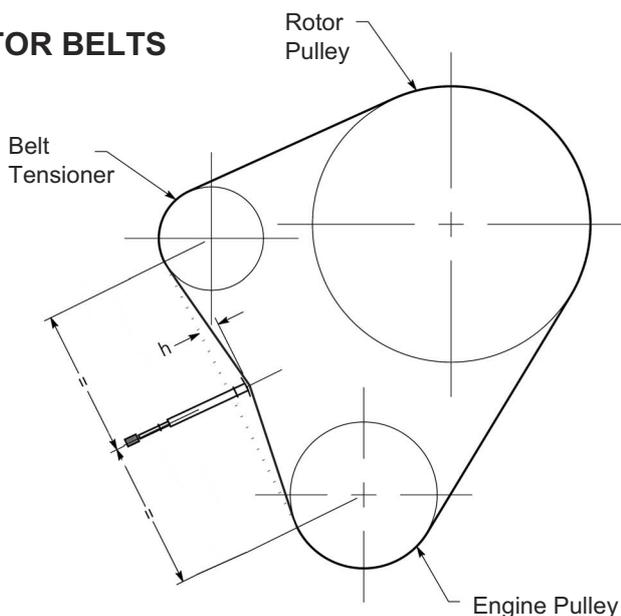


METHOD:

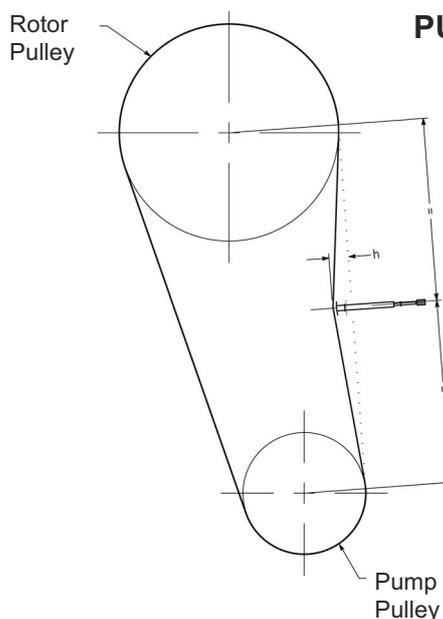
1. Set the deflection distance on the lower scale of the tension gauge so that the underside of the 'o'-ring equals the 'h' value given in the table.
2. Ensure that the deflection force scale is zero'd by pushing the upper 'o'-ring all the way down.
3. Place the tension gauge in the centre of the belt 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



PUMP BELTS



160PH		Rotor Belts	Pump Belts
Belt Mfr / Type		Gates Super HC-MN	Gates Super HC-MN
Belt Pitch Designation		SPA	SPA
Belt Length in mm		1030	900
Belt Deflection	= h	2	2
Force Reading	New belt	3.75 - 4.01	3.94 - 4.22
	Used Belt	3.21 - 3.47	3.38 - 3.66

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!

(Blank page)



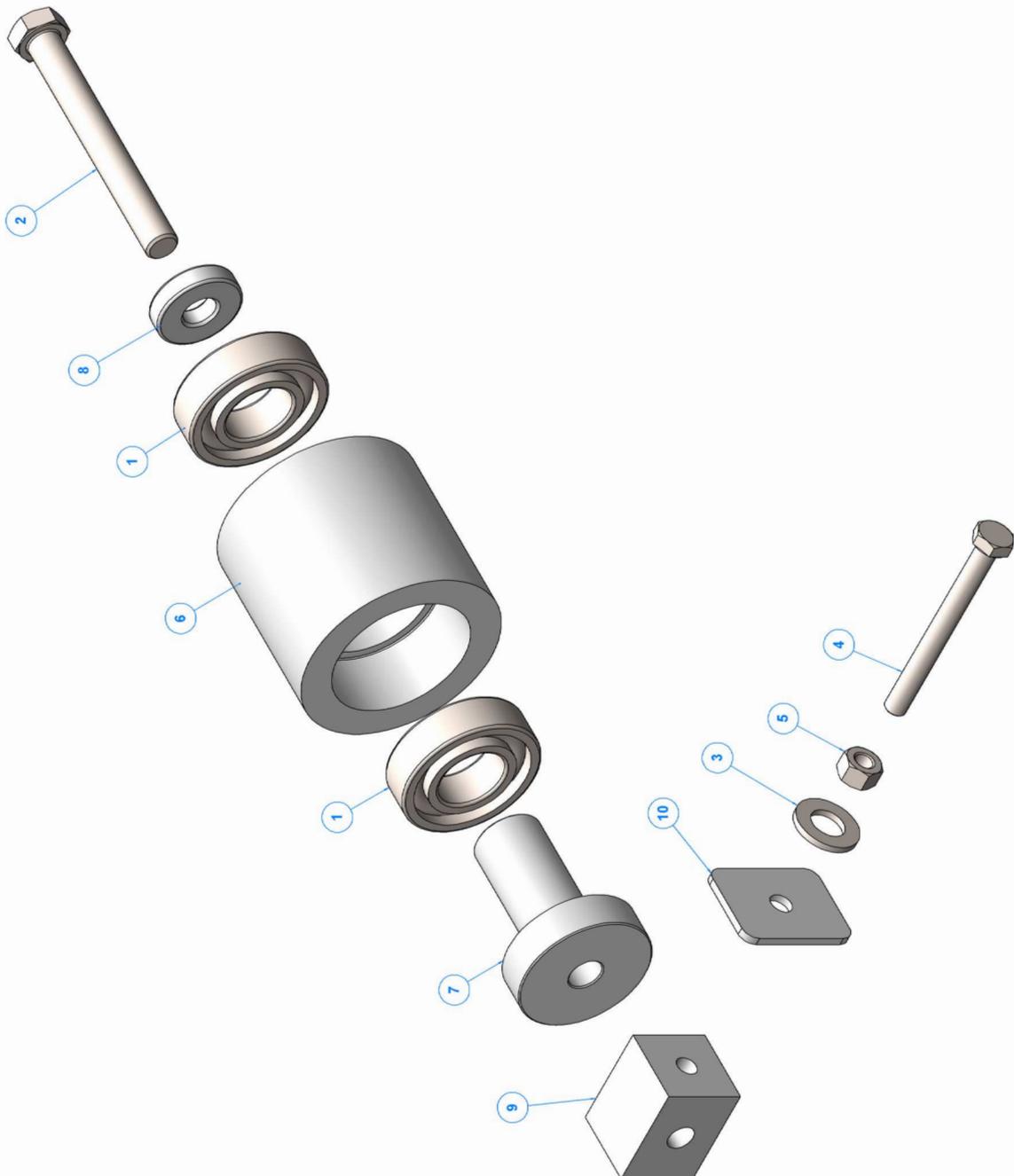
PARTS LISTS

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.

	<i>Page No.</i>
BELT TENSIONER	33
CHASSIS (1)	34
CHASSIS (2)	35
CONTROL BOX	36
DECALS	See pages 24 - 25
DISCHARGE	37
DRIVE TRAIN	38
ELECTRICAL LAYOUT	39
ENGINE	40
FUNNEL	41
FUEL TANK	42
HYDRAULIC TANK	43
HYDRAULICS	44
ROLLER BOX	45
ROLLER SLIDES	46
ROTOR	47
ROTOR HOUSING	48

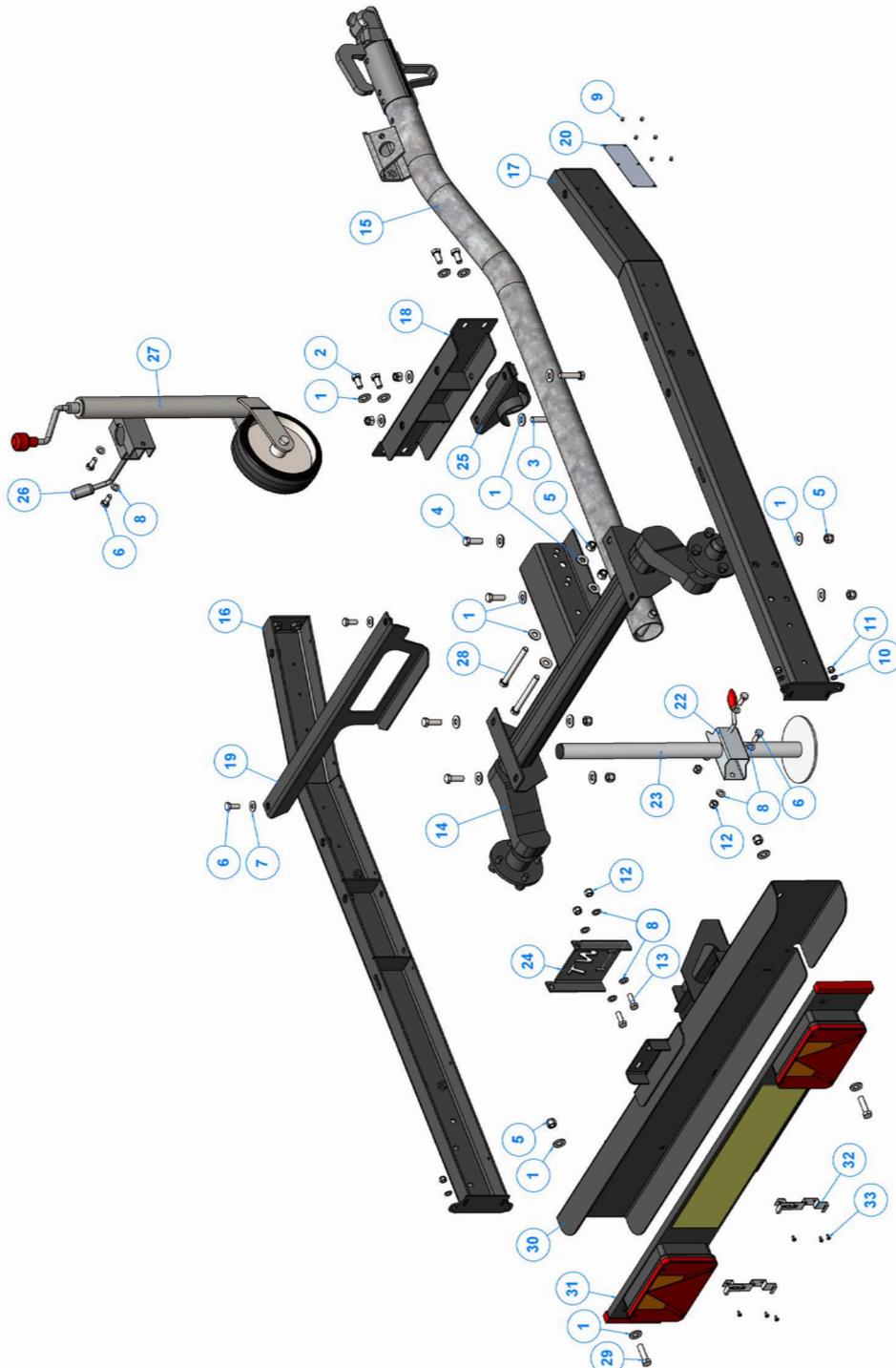


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	BE491	Bearing 6205 2Rs C3	2
2	BO313	Bolt M12 1.75 100 BZP	1
3	WA702	Washer M12 A BZP	1
4	P0001442	Bolt M8/80 BZP	1
5	NU476	Nut M8 1.75 BZP	1
6	0411M	Pulley Tension Outer	1
7	0472M	Pulley Tension Boss	1
8	C024-0105	M12 HEAVY WASHER BLACK	1
9	0469MS	Block Pulley Tension Adjuster	1
10	P0001329	Profile Tensioner Plate	1





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	WA704	Washer M12 C BZP	24
2	C002-0809	M12 x 25 HEX SET Z/P 8.8	4
3	C002-0814	M12 x 50 HEX SET Z/P 8.8	2
4	BO429	Set Screw M12 35 BZP	4
5	C031-0165	M12 TYPE P NYLOC NUT ZIP	10
6	C002-0709	M10 x 25 HEX SET Z/P 8.8	6
7	WA839	Washer M10 C BZP	2
8	WA701	Washer M10 A BZP	10
9	C045-0100	4 x 10 Alu/Steel Rivet	6
10	WA711	Washer M8 A BZP	4
11	NU479	Nut M8 1.25 Nyloc P	4
12	C031-0164	M10 TYPE P NYLOC NUT ZIP	4
13	C002-0710	M10 x 30 HEX SET Z/P 8.8	2
14	17516	Axle	1
15	17518	Swan Neck Fixed	1
16	P0002575F	Assy Chassis Beam NS (Opposite Hand Of P0002578F)	1
17	P0002578F	Assy Chassis Beam NS (Opposite Hand Of P0002575F)	1
18	P0002566F	Assy Chassis Front Bridge	1
19	P0002563F	Assy Bracket Tank Support	1
20	19600	Plate Machine Identification	1
21	TW160 PH Prop Stand		1
22	P0002192	Clamp Jack Stand	1
23	P0002798F	Prop Stand OD150mm	1
24	P0002663F	Bracket Funnel Support	1
25	19797	Saddle Bracket	1
26	17515	Jockey Wheel Clamp	1
27	17478	Jockey Wheel	1
28	C008-0826	M12 x 120 HEX BOLT Z/P 8.8	2
29	C002-0813	M12 x 45 HEX SET Z/P 8.8	2
30	P0002562F	Bracket Lightboard Assembly	1
31	19792	Lightboard	1
32	17895	Clip Number Plate	2
33	C019-0105	4.2mm x 13mm Pan Head Pozidriv® Self Tapping Screw Form C	6



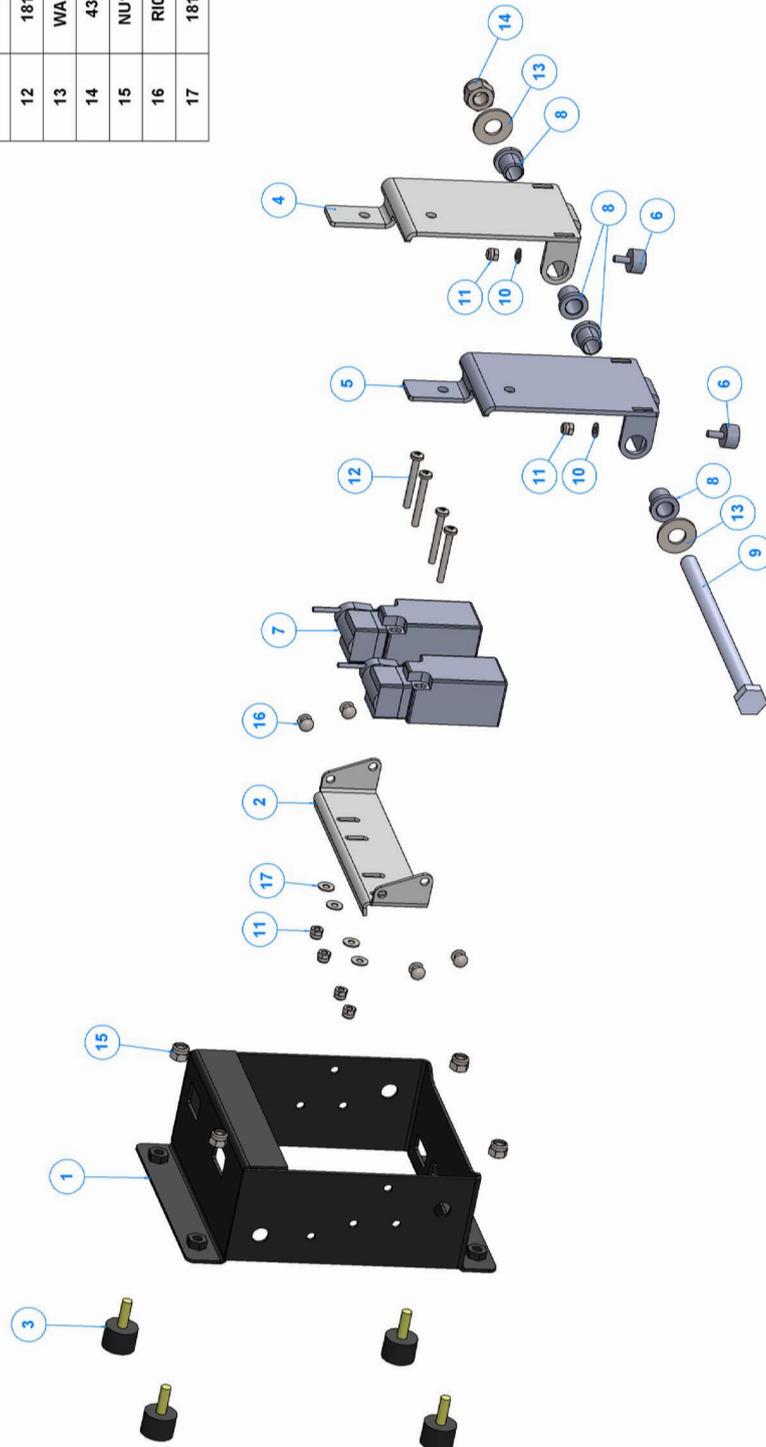


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	WA704	Washer M12 C BZP	2
2	NU644	Nut M12 P Nyloc	4
3	NUJ479	Nut M8 1.25 Nyloc P	18
4	WA712	Washer M8 C BZP	10
5	19663	13 Inch Wheel Assy	2
6	17776F	Battery Strap	1
7	BO856	Screw M5/20 Pan Pozi Bzp	4
8	WA857	Washer M5 5.3 A BZP	4
9	NU236	Nut M5 P Nyloc	4
10	BO0346	Set Screw M8 1.25 20 BZP	16
11	WA711	Washer M8 A BZP	16
12	WA714	M8x30 Mudguard washer Bzp.	8
13	4345	Nut M10 P Nyloc	2
14	C008-0826	M12 x 120 Hex Bolt Z/P 8.8	2
15	P0002291	Mudguard	2
16	18922	Reflector clear round front	2
17	18923	Reflector amber round side	2
18	P0002559F	Assy Mudguard Bracket	2
19	P0001251F	Bracket Reflector Mudguard OS Opposite of P0001250F	1
20	BO360	Set Screw M10 25 BZP	8
21	WA701	Washer M10 A BZP	8
22	4210	Battery 12V	1
23	4074	Battery Terminals Kit	1
24	RI067	Rivet M5 12 All Pop	8
25	WA710	M6 x 24 Washer BZP	8
26	1391F	Wheel Chock Holster	2
27	1390	Wheel Chock	2
28	P0001250F	Bracket Reflector Mudguard NS Opposite of P0001251F	1
29	18919	Support for Light Reflector	2



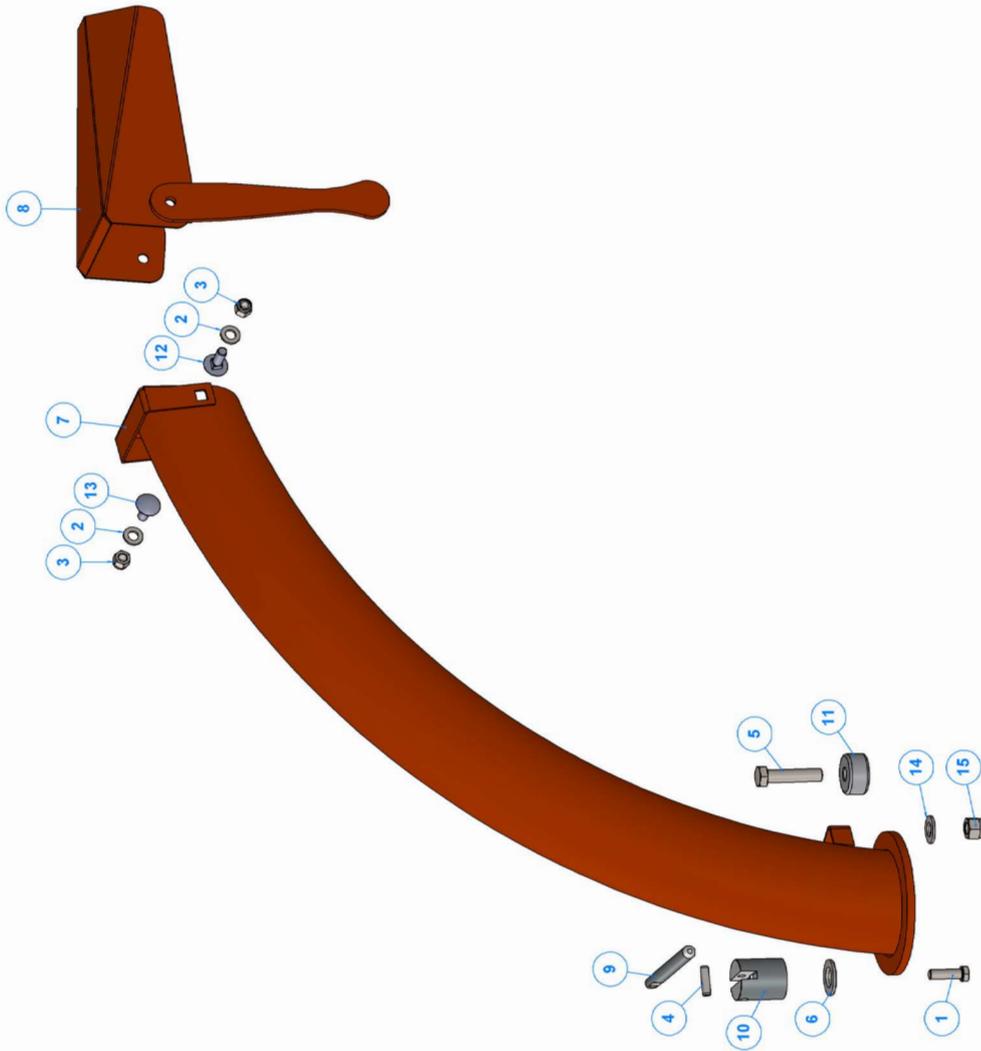


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	17802F	Control Box Cover	1
2	17805F	Switch Mounting Plate Control Box	1
3	18000	AV Mount M6 MF 20 14.5	4
4	17803F	Finger Plate	1
5	17803F	Finger Plate	1
6	2834	Av Mount VE Type	2
7	17927	Limit Switch	2
8	2804	Bush M10 Top Hat	4
9	17963	Bolt M10/160	1
10	18100	Washer M4 4.3 A BZP	2
11	18235	Nut M4 0.7 Nyloc P	6
12	18168	Pan Head Pozi M4/35 BZP	4
13	WA839	Washer M10 C BZP	2
14	4345	Nut M10 P Nyloc	1
15	NU142	Nut M6 P Nyloc	4
16	RI067	Rivet M5 12 All Pop	4
17	18100	Washer M4 C BZP	4



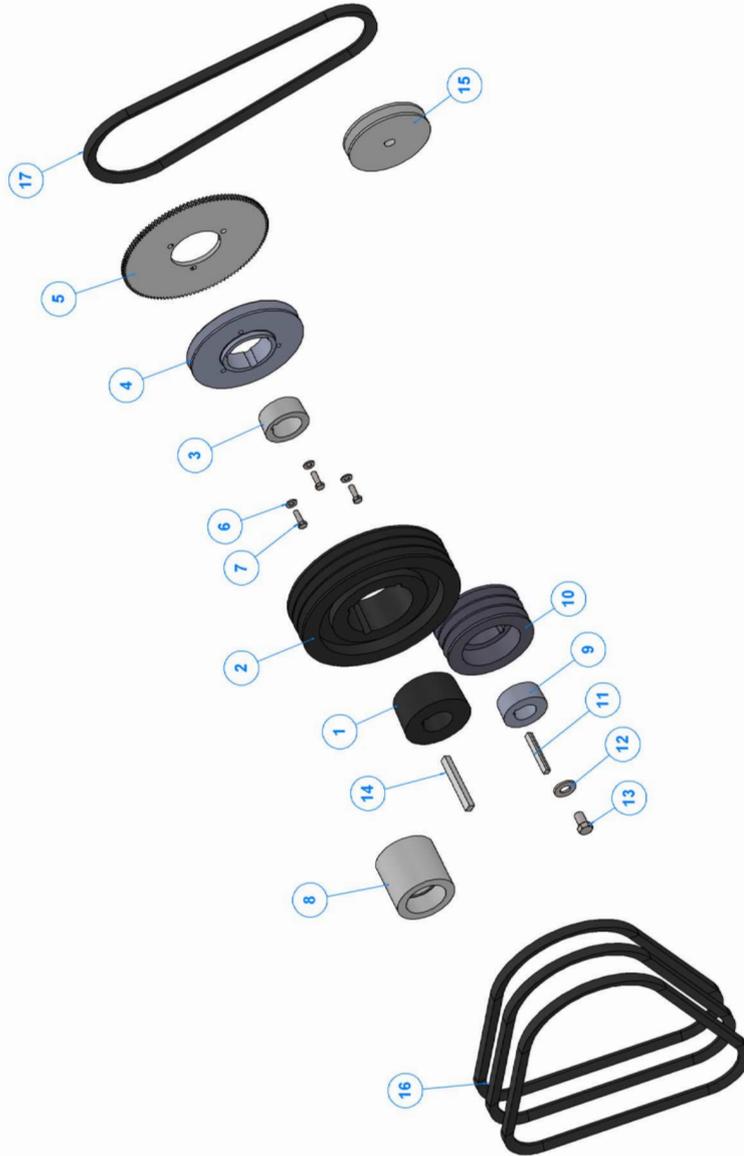


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	BO 431	Set Screw M12 40 BZP	1
2	WA702	Washer M12 A BZP	2
3	NU644	Nut M12 P Nyloc	2
4	4131	Roll Pin	1
5	BO434	Bolt M16/70	1
6	18190	Washer M24 B BZP	1
7	P0001147	Discharge Tube Assy	1
8	P0001411	Bucket Discharge Tube Assy	1
9	1649M	Tommy Bar	1
10	4109M	M16 Clamp Nut	1
11	2837M	Clamp Discharge	1
12	BO430	Bolt M12/35 Cup Square Bzp	1
13	19282	M12/30 Cup Square	1
14	WA1354	Washer M16 C BZP	1
15	NU1511	Nut M16 P Nyloc	1





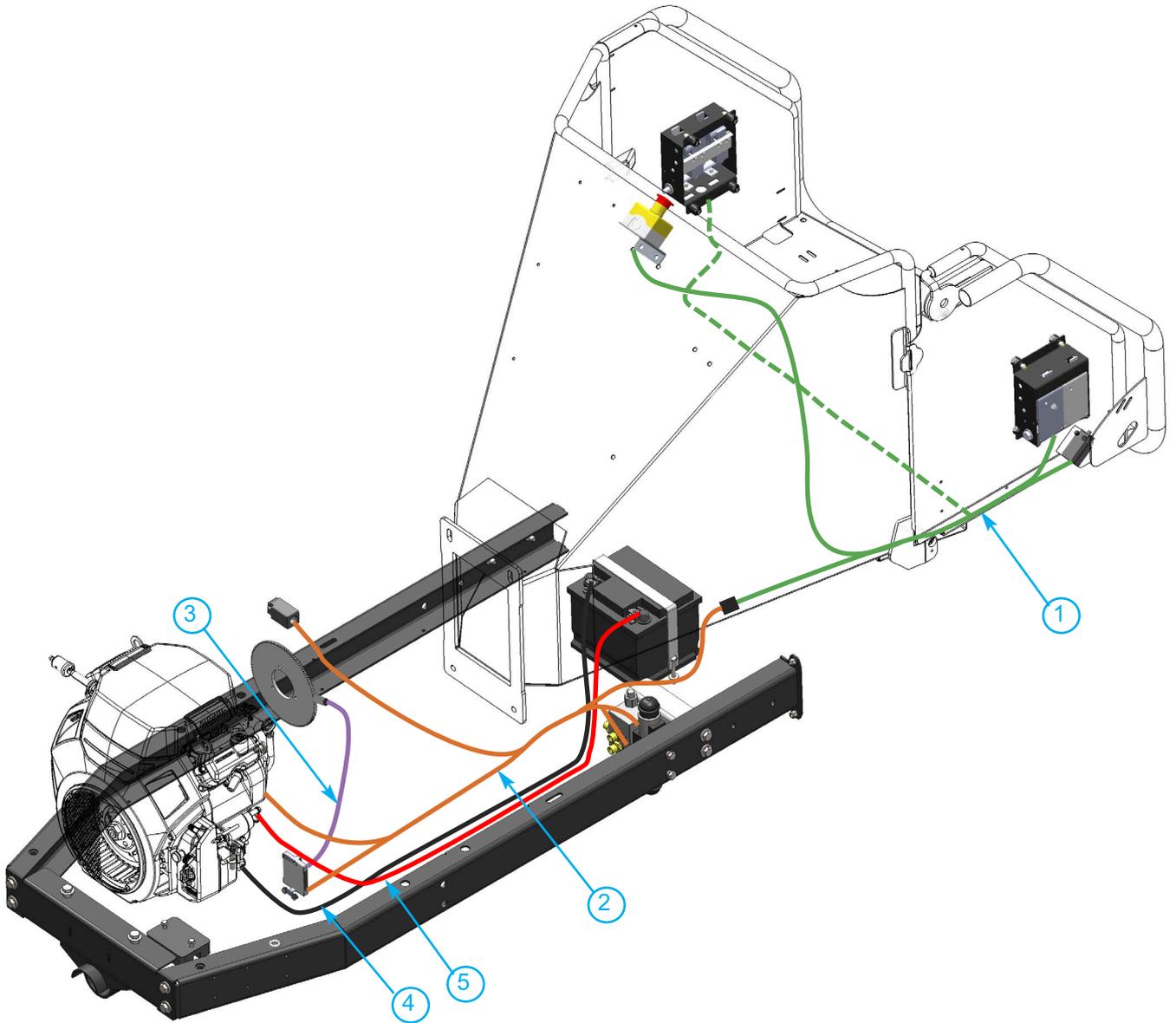
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	C122-0717	TLock Bush 2517-38	1
2	1351	Pulley 200x3 SPA	1
3	C122-0417	TLock Bush 1610-38	1
4	0949	Pulley 140 x 1 SPA	1
5	1028P	Trigger Wheel	1
6	WA709	Washer M6 C BZP	3
7	BO1236	Set Screw M6 20 BZP	3
8	0411M	Pulley Tension Outer	1
9	C123-0406	TLock Bush 1610 - 1.125"	1
10	P0002819	106 SPA X3 - 1610	1
11	C125-3001	1/4" x 8mm x 60mm Stepped Keyway Shaft to Suit Honda GX690	1
12	WA704	Washer M12 C BZP	1
13	C019-0103	7/16" x 3/4" Bolt Hex Screw BZP	1
14	18961	10 x 8 x 80mm Keyway	1
15	P0002660M	Pump Pulley SPA 1 x 100	1
16	C124-A119	Wedge Belt SPA 1030	3
17	C124-A109	Wedge Belt SPA 900	1



39 ELECTRICAL LAYOUT



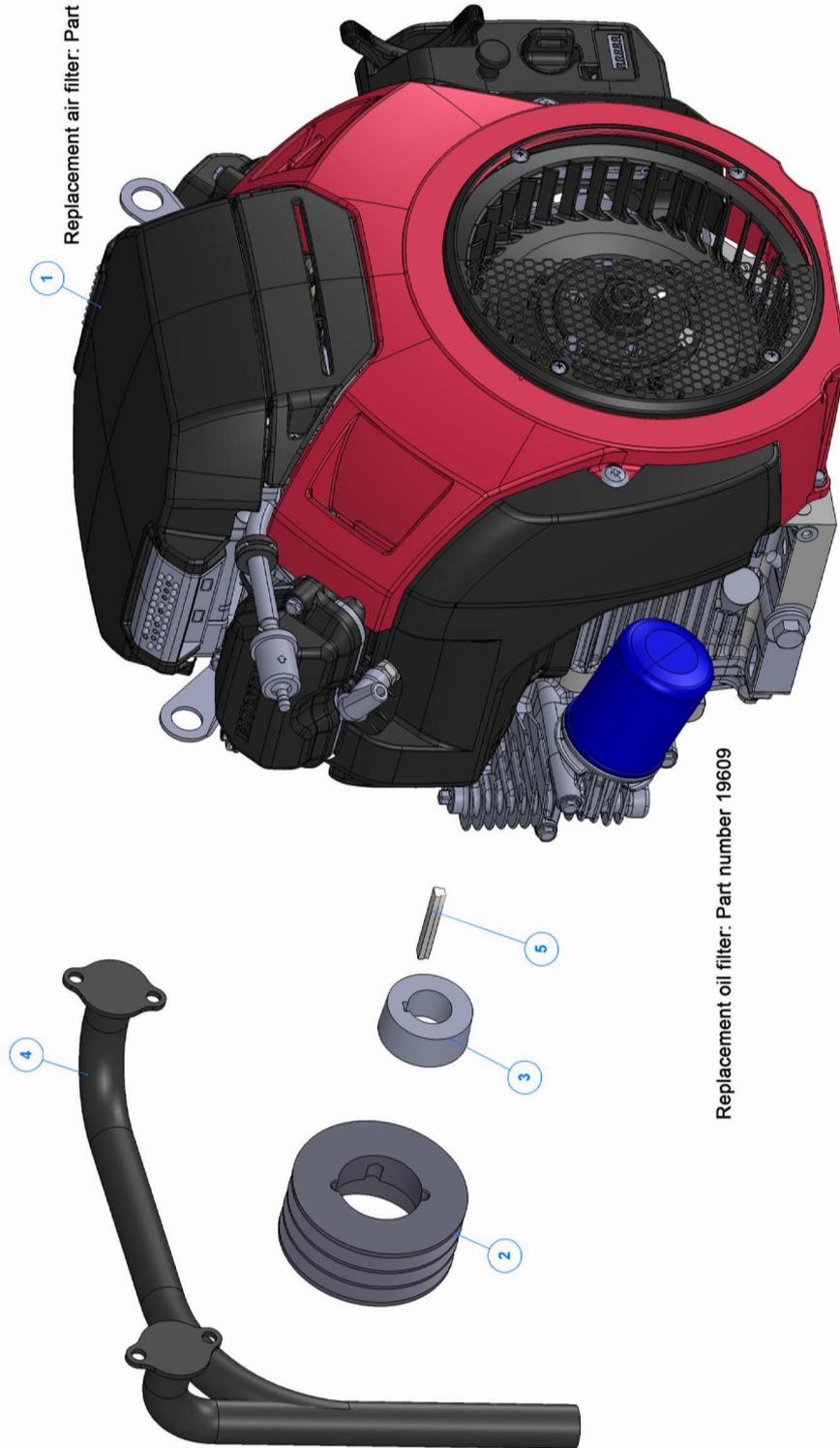
**TIMBERWOLF
TW 160PH**



Item	Part No	Part Name	Q'ty	Item	Part No	Part Name	Q'ty
1	P2818	Funnel Loom	1	4	P2513	-VE Battery Cable	1
2	P2817	Engine Loom	1	5	P2512	+VE Battery Cable	1
3	1638	No Stress Sensor	1				



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	P0002230	Honda GX690RH-TXF4	1
2	P0002819	106 SPA X3 - 1610	1
3	C123-0406	TLock Bush 1610 - 1.125"	1
4	P0002626F	2 Into 1 Downpipes For Honda Engine	1
5	C125-3001	1/4" x 8mm x 60mm Stepped Keyway Shaft to Suit Honda GX690	1



Replacement air filter: Part number 19611

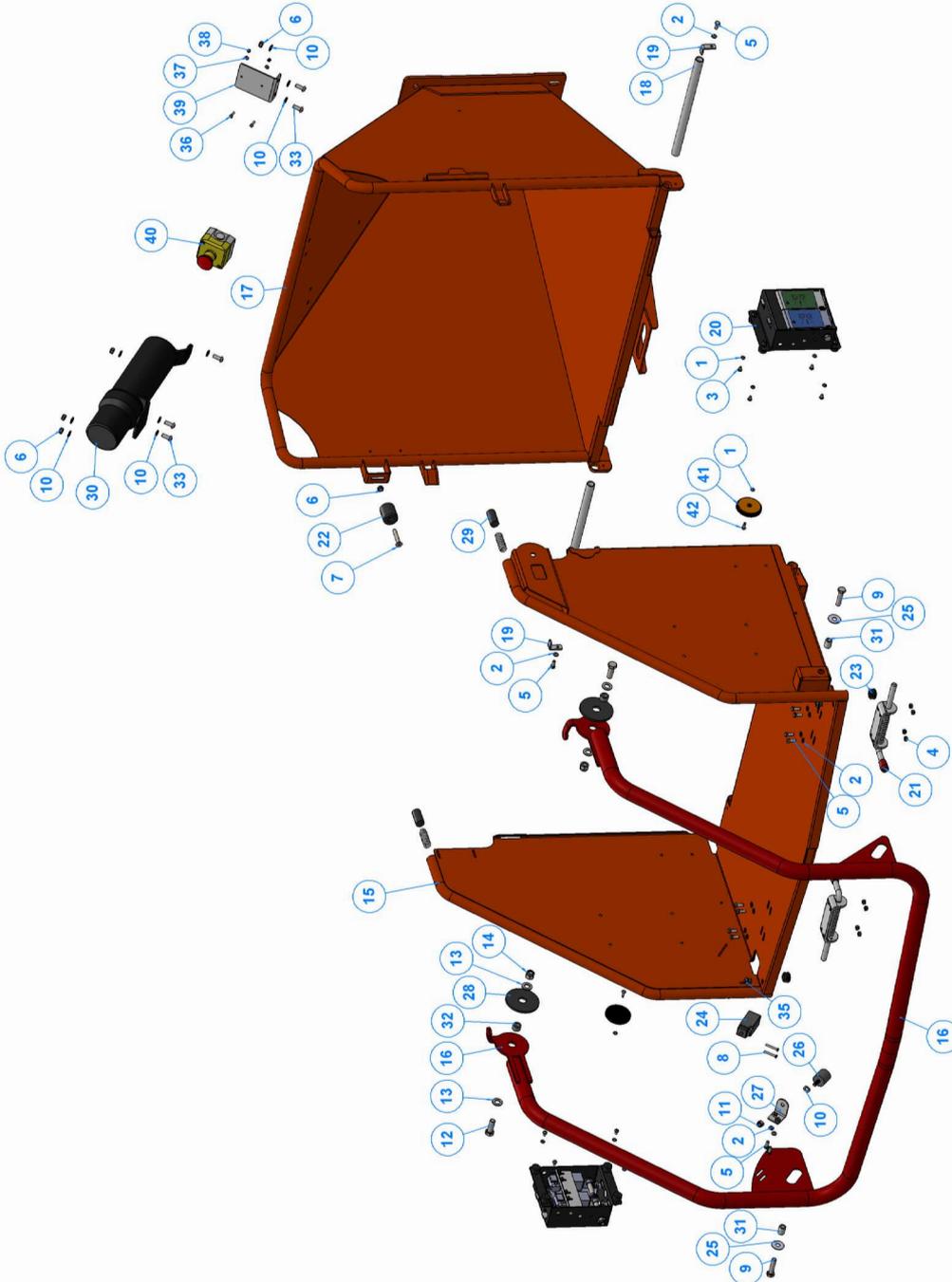
Replacement oil filter: Part number 19609

41 FUNNEL



TIMBERWOLF
TW 160PH

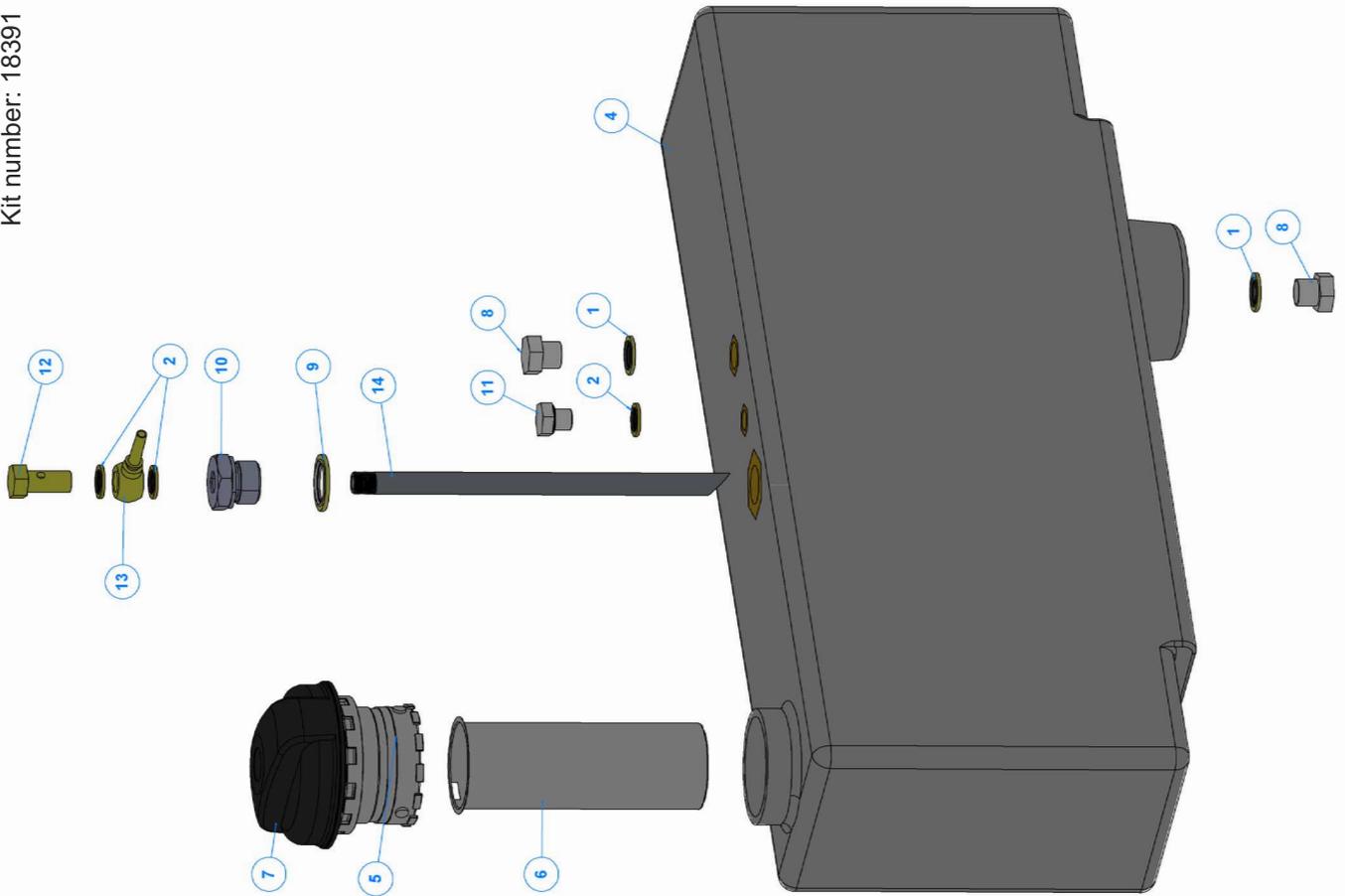
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	C021-0102	M5 FORM A WASHER ZIP	10
2	C021-0123	M6 FORM C WASHER ZIP	12
3	C013-0301	M5 x 8 Pan Pozi ZIP 4.8	8
4	C031-0121	M6 TYPE T NYLOC NUT ZIP	8
5	C002-0405	M6 x 16 HEX SET ZIP 8.8	12
6	C031-0123	M8 TYPE T NYLOC NUT ZIP	6
7	C015-0614	M8 x 50 SKT CSK SET ZIP 10.9	1
8	C013-0209	M4 x 30 PAN POZI ZIP	2
9	C002-0713	M10 x 45 HEX SET ZIP 8.8	2
10	C021-0125	M8 FORM C WASHER ZIP	11
11	C031-0163	M8 TYPE P NYLOC NUT ZIP	1
12	C002-0811	M12 x 35 HEX SET ZIP 8.8	2
13	C021-0127	M12 FORM C WASHER ZIP	4
14	C031-0165	M12 TYPE P NYLOC NUT ZIP	2
15	2919FO	Feed Tray Assembly	1
16	1570FR	Control Bar Assembly	1
17	P000273F	Funnel Assembly With Relief	1
18	2922F	Hinge Pin	2
19	4018F	Hinge Pin Securing Bracket	2
20	TW160 PH Control Box Assy		2
21	2986	Spring bolt	2
22	4206	Nylon Bush	1
23	1337_	Rubber Cap	2
24	1692	Limit Switch	1
25	WA4344	Washer M10 29.75 Penny BZP	2
26	C0178	Buffer Rubber	1
27	2727F	Bracket Actuator Control Bar Assy	1
28	1599	Bearing Washer	2
29	1600	Safety Piston	2
30	P0000144	Operator's Manual Canister	1
31	1591	Spacer 10x15x20	2
32	1605M	Stainless Spacer	2
33	C011-0607	M8 x 20 SKT Button Set ZIP 10.9	5
34	1603	Spring Die (Stop Bar)	2
35	2493	Rubber Cap	2
36	C013-0205	M4 x 16 PAN POZI ZIP	2
37	C021-0121	M4 FORM C WASHER ZIP	2
38	C035-0101	M4 TYPE T NYLOC NUT ZIP	2
39	P0003651F	Emergency Stop Bracket	1
40	C-162-0100	ESD - Schneider XALK178F 2NC, 1NO	1
41	18923	REFLECTOR AMBER ROUND SIDE	2
42	C045-0109	4.8 x 18 ALU/STEEL RIVET	2





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	HY396	Washer Dowty 3/8"	2
2	HY395	1/4" Dowty Washer	3
3	1566F	18 Litre Fuel Tank With Brass Fittings	1
4	1566	TANK FUEL	1
5	P0001815	Threaded Filler Neck OD65	1
6	P0001816	SS Strain for Tanks with Reinforcement Ring	1
7	P0001817	P0001817 Fuel Tank Cap	1
8	HY211	3/8" Drain Plug	2
9	HY152	Washer Dowty 3/4"	1
10	18568	18568 Reducer Bush (Dowty) 3-4M x 1-4F	1
11	HY296	1/4 Blanking Plug	1
12	4059	Quarter Inch Banjo Bolt	1
13	17998	1/4" BSPP Banjo Insert x 1/4" hosetail	1
14	C172-0100	Threaded Fuel Pick Up 230mm	1

Kit number: 18391

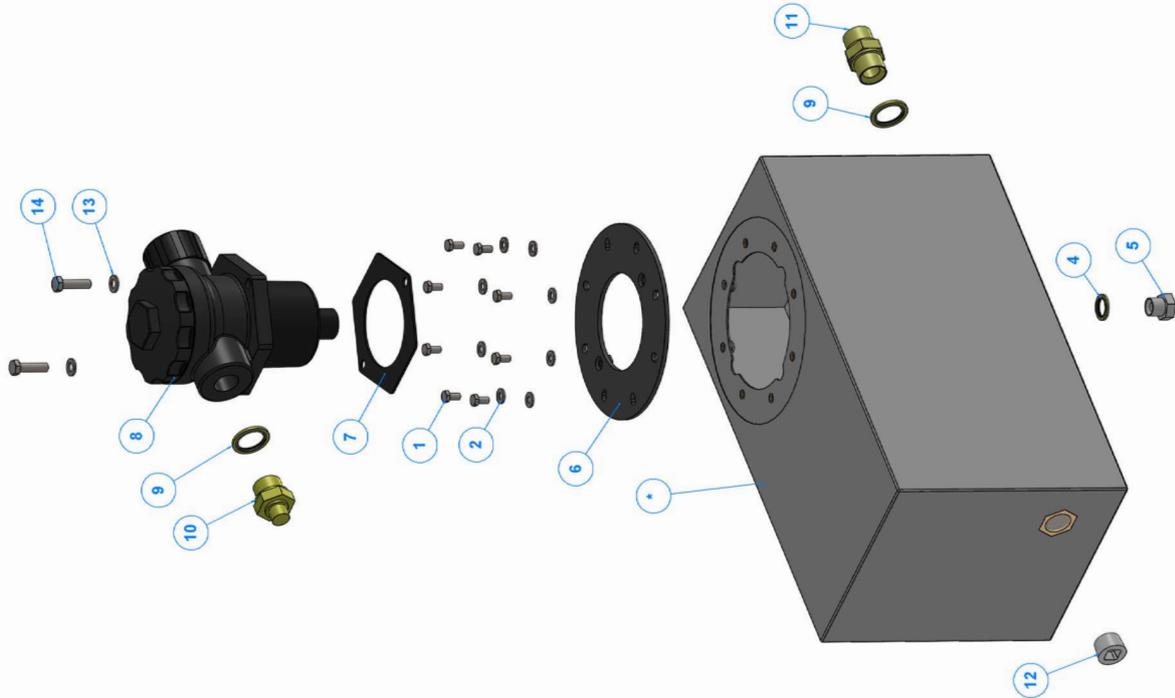


43 HYDRAULIC TANK



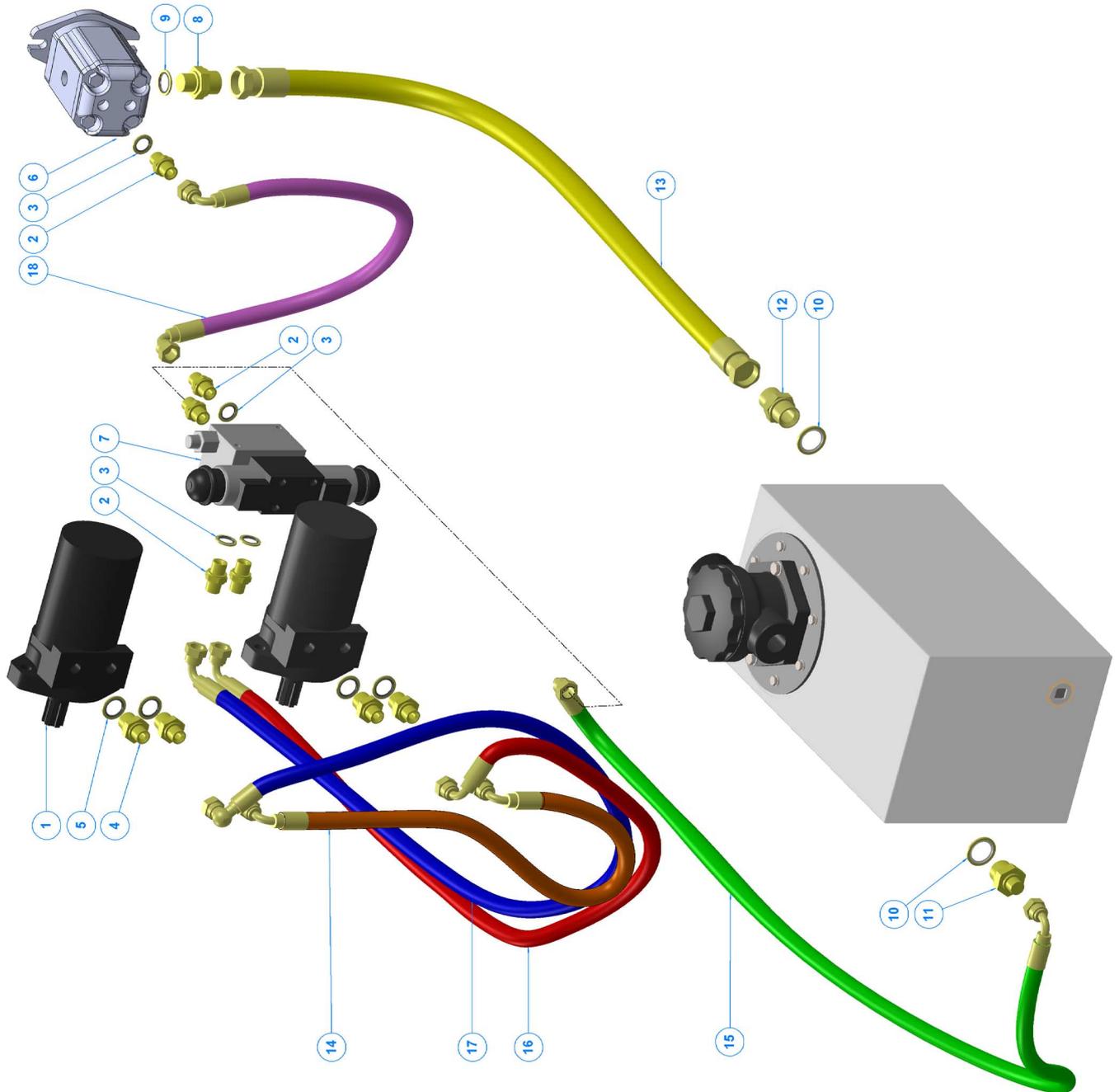
**TIMBERWOLF
TW 160PH**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	BO1658	Set Screw M6 12 BZP	8
2	WA709	Washer M6 C BZP	8
3	1703	Hydraulic Oil Tank	1
4	HY396	Washer Dowty 38	1
5	HY211	3/8" Drain Plug	1
6	1702F	Tank Top Adapter Plate	1
7	HY1434F Gasket	Tank Top Filter Gasket	1
8	HY1434	In Tank Filter	1
9	HY152	Washer Dowty 3/4"	2
10	HY225	Adaptor 3/8" - 3/4" BSP	1
11	HY1766	Adaptor 3/4" - 3/4" BSP	1
12	4219	3/4" Tapered Blanking Plug	1
13	WA711	Washer M8 A BZP	2
14	BO351	Set Screw M8 30 BZP	2





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	2982B	Parker Motor	2
2	HY161	Adaptor Mm 3/8 - 3/8	5
3	HY396	Washer Dowty 38	6
4	HY026	Adapter 3/8 - 1/2	4
5	HY398	Washer Dowty 12	4
6	MO1622	Pump Hydraulic Engine Driven 6.3cc	1
7	19369	19369 Directional Control Valve No Filter	1
8	1583	Adaptor 1/2" - 3/4" BSP	1
9	HY398	Washer Dowty 12	1
10	HY162	Washer Dowty 3/4"	2
11	HY225	Adaptor 3/8" - 3/4" BSP	1
12	HY1766	Adaptor 3/4" - 3/4" BSP	1
13	CO73-100	Hose 3/4" 675mm	1
14	CO73-105	Hose 3/8" 1110mm	1
15	CO73-102	Hose 3/8" 530mm	1
16	CO73-104	Hose 3/8" 895mm	1
17	CO73-103	Hose 3/8" 1225mm	1
18	CO73-101	Hose 3/8" 1110mm	1

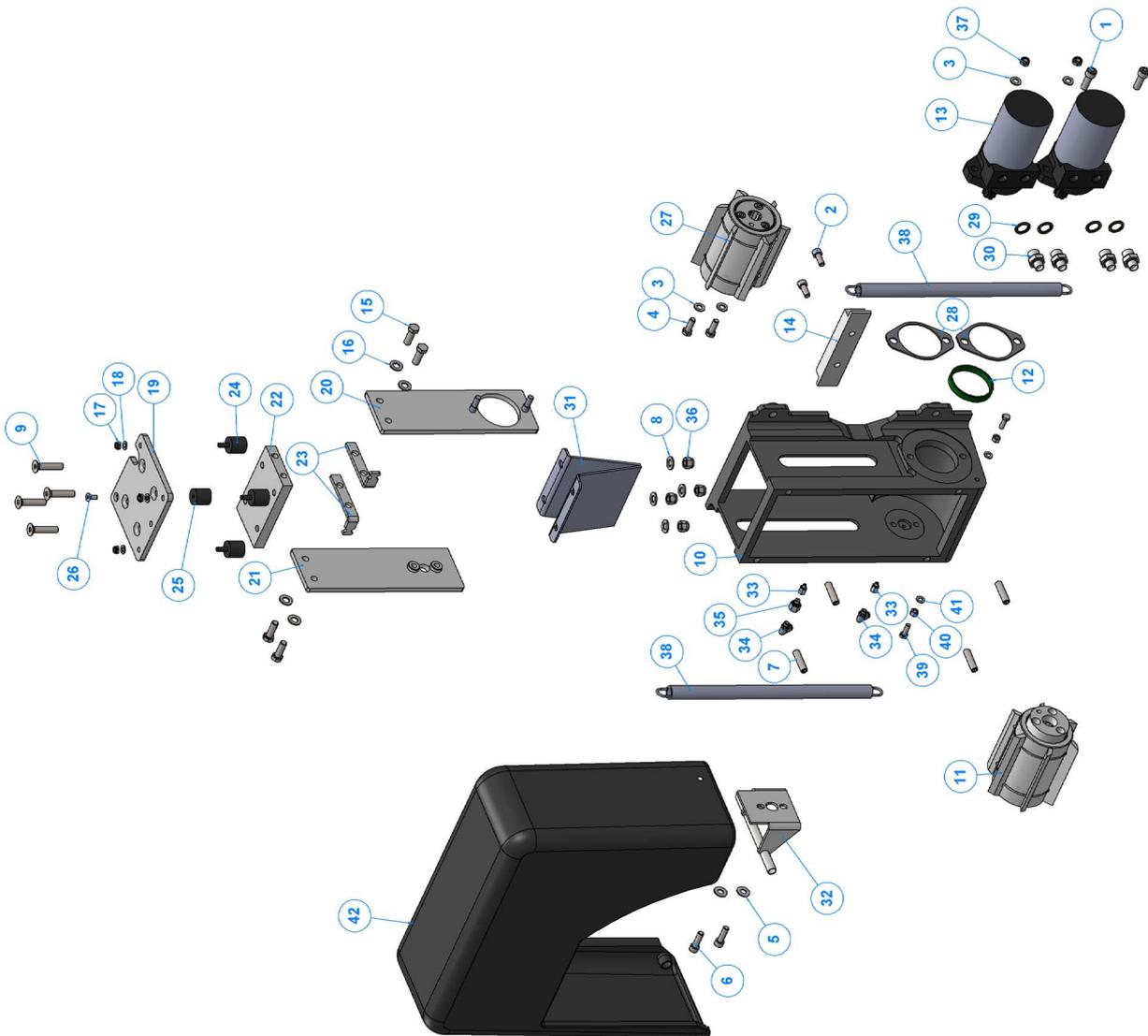


45 ROLLER BOX



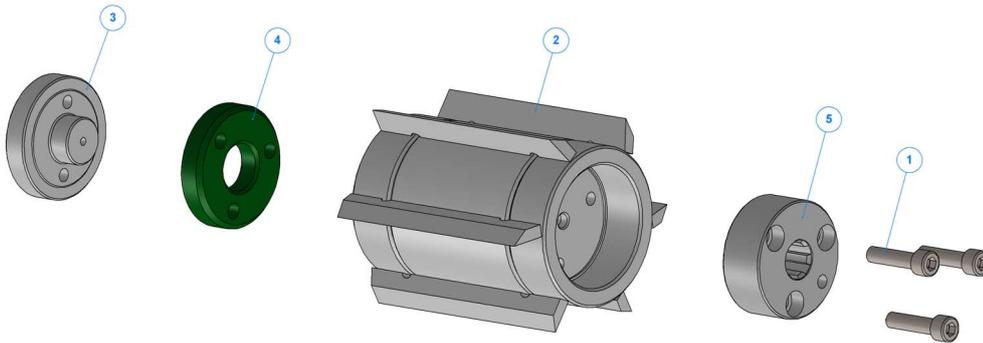
TIMBERWOLF
TW 160PH

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	C005-0811	M12 x 35 SKT CAP SET ZIP 12.9	2
2	C005-0709	M10 x 25 SKT CAP SET ZIP 12.9	2
3	WA701	Washer M10 A BZP	4
4	C002-0710	M10 x 30 HEX SET ZIP 8.8	2
5	WA839	Washer M10 C BZP	2
6	C005-0711	M10 x 35 SKT CAP SET ZIP 12.9	2
7	C085-0718	M12 x 50 SKT Set Grubscrew S/C 45H	4
8	WA702	Washer M12 A BZP	4
9	C015-0815	M12 x 55 SKT CSK SET ZIP 10.9	4
10	0228M	Twin Roller Box	1
11	TW160 PH Roller Bottom Sub Assy		1
12	2757M	Bush Bearing Spline	1
13	2982B	Parker Motor	2
14	0103M	Anvil	1
15	BO429	Set Screw M12 35 BZP	4
16	WA702	Washer M12 A BZP	4
17	NU481	Nut M8 Nyloc T	3
18	WA711	Washer M8 A BZP	3
19	18027	Top Plate Damper Mount	1
20	18024	Slide Plate Drive Side	1
21	P0002497F	Assy Slide Non Drive Side	1
22	1962M	Dampened Top Block	1
23	18028FS	Bracket Spring Hanger	2
24	1768	M8 AV 30 x 30	3
25	1644	AV Rubber Mount	1
26	C015-0606	M8 x 18 SKT CSK SET ZIP 10.9	1
27	TW160 PH Roller Top Sub Assy		1
28	C140-0101	3mm Rollerbox Shim	2
29	HY398	Washer Dowty 1/2"	4
30	HY026	Adapter 3/8 - 1/2	4
31	4013F	Rotor Guard	1
32	P0003513F	Roller Box Bracket Guard Assy	1
33	C070-0101	M6 To 1/8th BSP In-Line Adaptor	2
34	18474	Fitting Grease Point Right Angle	2
35	C072-0100	ADAPTOR 1/8" BSPP MALE 1/8" BSPP FEMALE	1
36	C031-0165	M12 TYPE P NYLOC NUT ZIP	4
37	C031-0124	M10 TYPE T NYLOC NUT ZIP	2
38	18070 Roller Box Spring	ROLLER BOX SPRING	2
39	C030-0609	M8 x 25 HEX SET ZIP 8.8	2
40	C030-0123	M8 HEX NUT - ZIP - GRADE 10	2
41	WA711	Washer M8 A BZP	2
42	0672	Rollerbox Guard	1

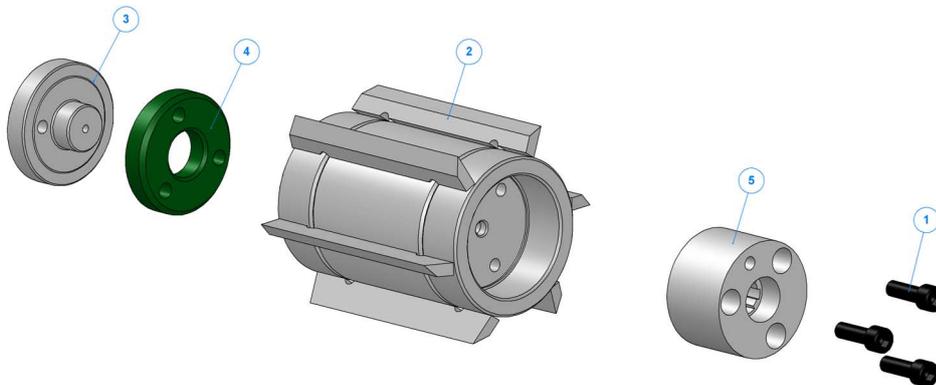




ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	BO299	Socket Head Cap M10 1.5 40 BZP	3
2	P0002466F	6 BLADE ROLLER	1
3	P0002464M	Stub Shaft	1
4	P0002465M	Nylon Roller Bush	1
5	1361M	Bush Spline Top Roller Drive Ø74.9 - 29.5	1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	BO386	Screw M10 1.5 30 Socket Cap	3
2	P0002466F	6 BLADE ROLLER	1
3	P0002464M	Stub Shaft	1
4	P0002465M	Nylon Roller Bush	1
5	4100M	Bush Spline Roller Drive	1

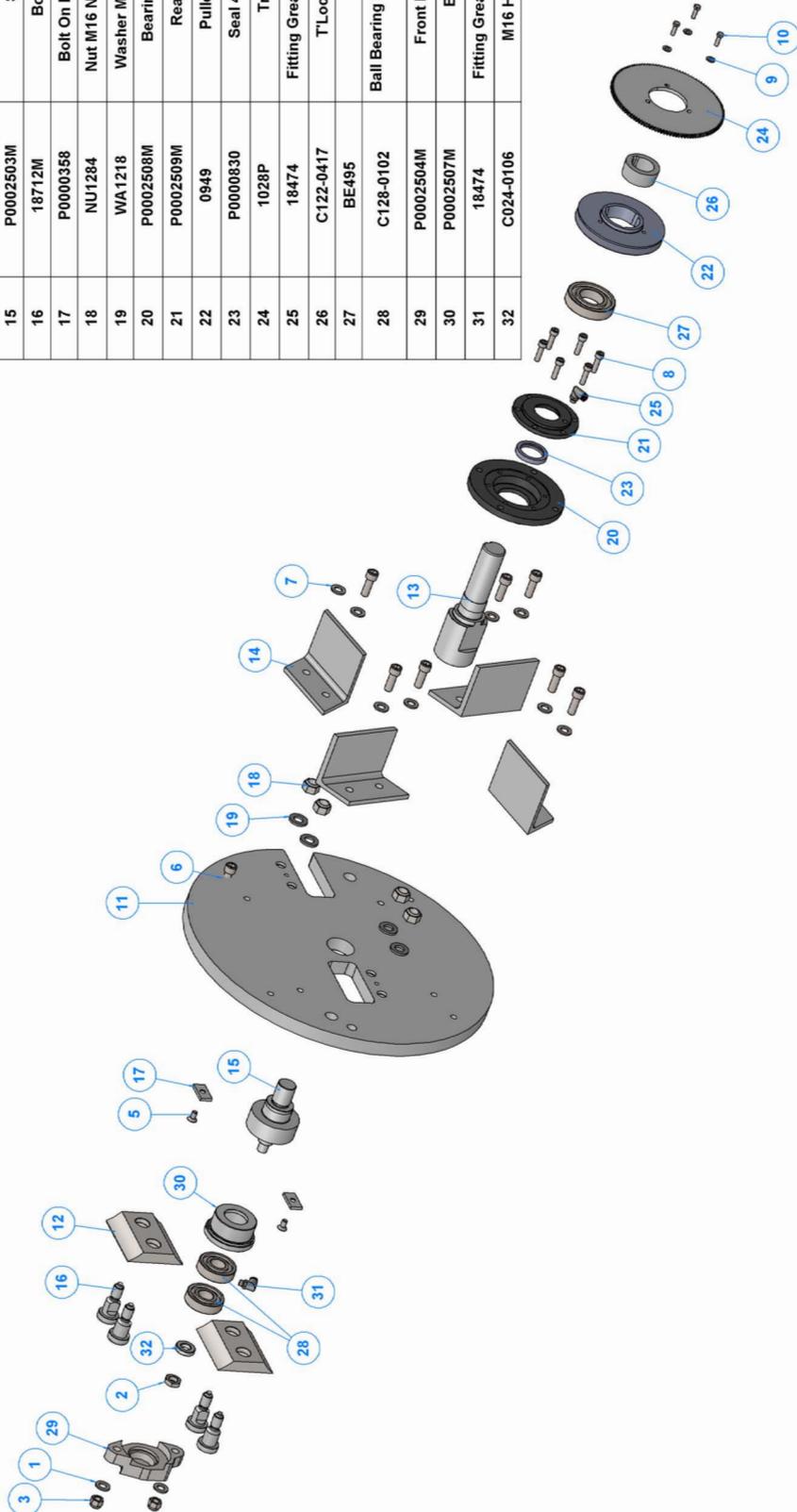


47 ROTOR



TIMBERWOLF
TW 160PH

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	WA702	Washer M12 A BZP	2
2	C035-0103	M16 x 1.5 Lock Nut Half (Rotor Nose)	1
3	NU644	Nut M12 P Nyloc	2
4	TW160 PH Rotor Assy		1
5	BO355	Csk Socket M8 16	2
6	C005-0811	M12x35 SKT CAP ZIP 12.9	8
7	WA702	Washer M12 A BZP	8
8	P0002059	Socket Head Cap M8 x 30	6
9	WA709	Washer M6 C BZP	3
10	BO1236	Set Screw M6 20 BZP	3
11	P0002498M	Rotor Ø515	1
12	P0000217	Blade Cutter 109mm	2
13	P0002500M	Shaft Rotor	1
14	P0002502M	Steel Paddle 100 x 65 x 8	4
15	P0002503M	Shaft Nose	1
16	18712M	Bolt M16 Blade	4
17	P0000358	Bolt On Plate For 240 Blade	2
18	NU1284	Nut M16 Nyloc T 1.50 Fine Bzp	4
19	WA1218	Washer M16 30 Hard.SLDPRT	4
20	P0002508M	Bearing Housing Rear	1
21	P0002509M	Rear Bearing Cap	1
22	0949	Pulley 140 x 1 SPA	1
23	P0000830	Seal 40 52 8 Twin Lip	1
24	1028P	Trigger Wheel	1
25	18474	Fitting Grease Point Right Angle	1
26	C122-0417	T Lock Bush 1610-38	1
27	BE495	6208 C3	1
28	C128-0102	Ball Bearing Deep Groove - 6305 No Shields	2
29	P0002504M	Front Bearing Housing	1
30	P0002507M	Bearing Cup	1
31	18474	Fitting Grease Point Right Angle	1
32	C024-0106	M16 HEAVY WASHER	1



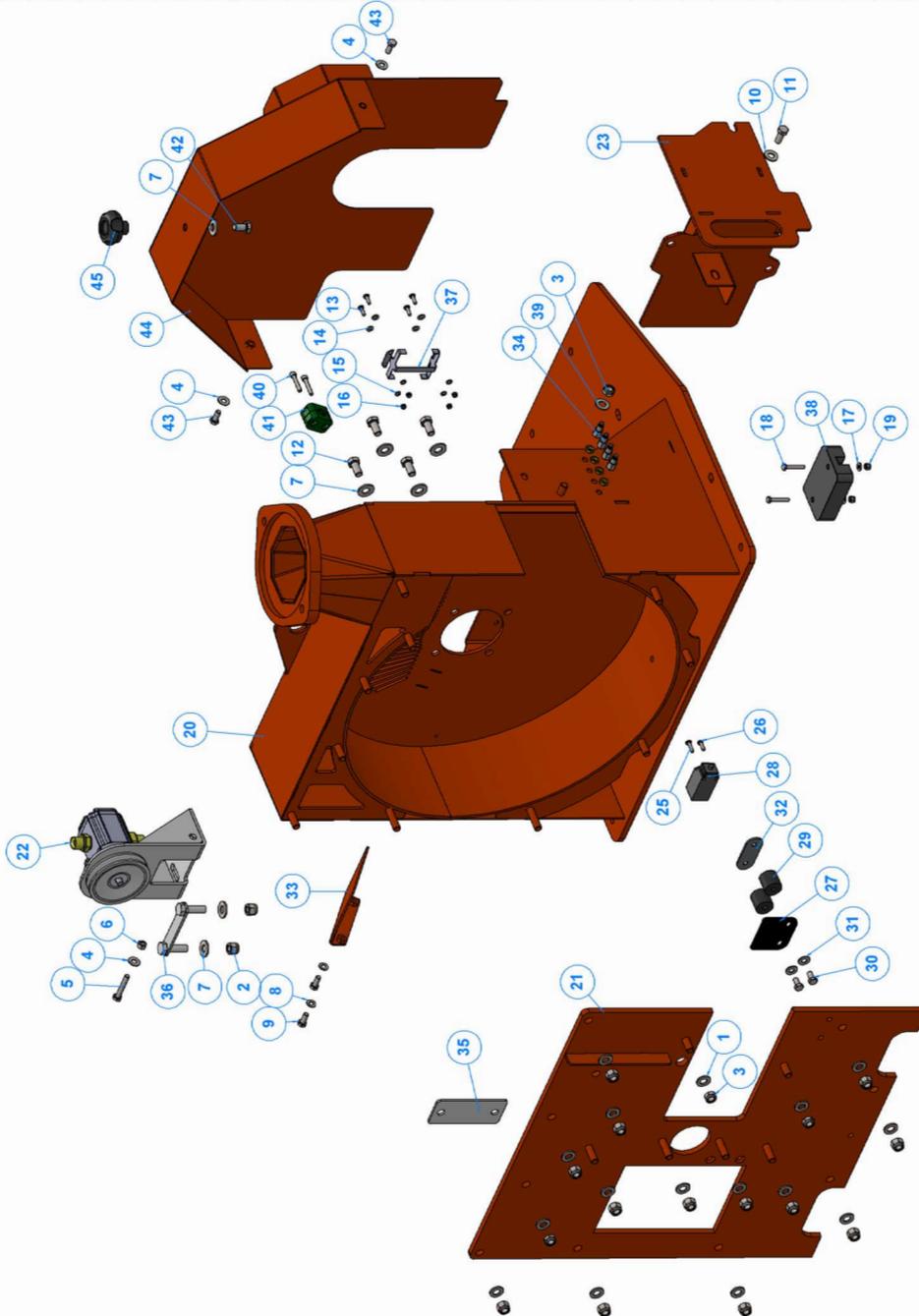
ROTOR HOUSING



TIMBERWOLF
TW 160PH

48

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	WA702	Washer M12 A BZP	16
2	NU644	Nut M12 P Nyloc	15
3	NU045	Nut M12 1.75 Nyloc T	4
4	WA712	Washer M8 C BZP	4
5	BO1319	Set Screw M8 50 BZP	1
6	NU476	Nut M8 1.75 BZP	1
7	WA704	Washer M12 C BZP	7
8	WA711	Washer M8 A BZP	2
9	BO0346	Set Screw M8 1.25 20 BZP	2
10	WA839	Washer M10 C BZP	1
11	BO360	Set Screw M10 25 BZP	1
12	BO277	Set Screw M12 1.75 25 BZP	4
13	BO435	Pan Head Pozi M5 0.8 16 BZP	4
14	WA708	Washer M5 C BZP	4
15	WA857	Washer M5 5.3 A BZP	4
16	18102	Nut M5 0.8 Nyloc T	4
17	WA709	Washer M6 C BZP	4
18	P0000210	Bolt M6 35 BZP	2
19	NU142	Nut M6 P Nyloc	2
20	P0002473F	Rotor Housing	1
21	P0002491F	Front Plate Assy	1
22	TW160 PH Hydraulic Pump Assy		1
23	P0002570F	Access Hatch Assembly	1
24	TW160 PH Switch Mounting Roller Box Assembly		1
25	BO856	Screw M5/20 Pan Pozi Bzp	1
26	BO435	Pan Head Pozi M5 0.8 16 BZP	1
27	P0001080F	Bracket Access Hatch Switch	1
28	EL1348	Switch Limit (Metal Plunger)	1
29	P0001375	AV Mount M8 FF 30x30 60 (3030DD08-60)	2
30	BO344	Set Screw M8 16 BZP	2
31	WA712	Washer M8 C BZP	2
32	P0000993	Profile Roller Box Hatch Switch Mount	1
33	P0002581F	Bracket Pump Guard Assembly	1
34	18192	Rg06 Do-It Remote Grease Kit	4
35	18023PS	Guard Stand-Off Plate	1
36	1027F	Bolt Support Plate	1
37	17338F	Bracket Speed Switch	1
38	Honda 20 Amp Rectifier unit	Honda 20 Amp Rectifier unit	1
39	WA702	Washer M12 A BZP	1
40	C005-0411	M6 x 35 SKT CAP ZIP Grade 12.9	2
41	P0003516	16mm Pipe Clamp	1
42	BO318	Set Screw M12 1.75 20 BZP	1
43	BO346	Set Screw M8 1.25 20 BZP	2
44	19376FO	Belt Guard	1
45	0361	Thumbscrew	1





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

50 HOUR WARRANTY SERVICE CHECK

Authorised dealer stamp

Date:

Hours:

Invoice number:

Signature:

Next service due:

11 MONTH WARRANTY SERVICE CHECK

Authorised dealer stamp

Date:

Hours:

Invoice number:

Signature:

Next service due:

23 MONTH WARRANTY SERVICE CHECK

Authorised dealer stamp

Date:

Hours:

Invoice number:

Signature:

Next service due:

SERVICE RECORD



TIMBERWOLF 50
TW 160PH

Date:

Hours:

Invoice number:

Signature:

Next service due:

Authorised dealer stamp

Date:

Hours:

Invoice number:

Signature:

Next service due:

Authorised dealer stamp

Date:

Hours:

Invoice number:

Signature:

Next service due:

Authorised dealer stamp

Date:

Hours:

Invoice number:

Signature:

Next service due:

Authorised dealer stamp



Timberwolf Wood Chippers & Shredders

Tomo Industrial Estate, Stowmarket, Suffolk IP14 5AY, United Kingdom

T: +44 1449 765809 E: info@timberwolf-uk.com W: timberwolf-uk.com



timberwolf-uk.com