



TIMBERWOLF®
Lead the pack

**TW 280TFTR WOOD CHIPPER
UK INSTRUCTION MANUAL
(ORIGINAL INSTRUCTIONS)**



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 280TFTR and optional Timberwolf Safety Plus Kit. 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.



CAUTION or WARNING

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

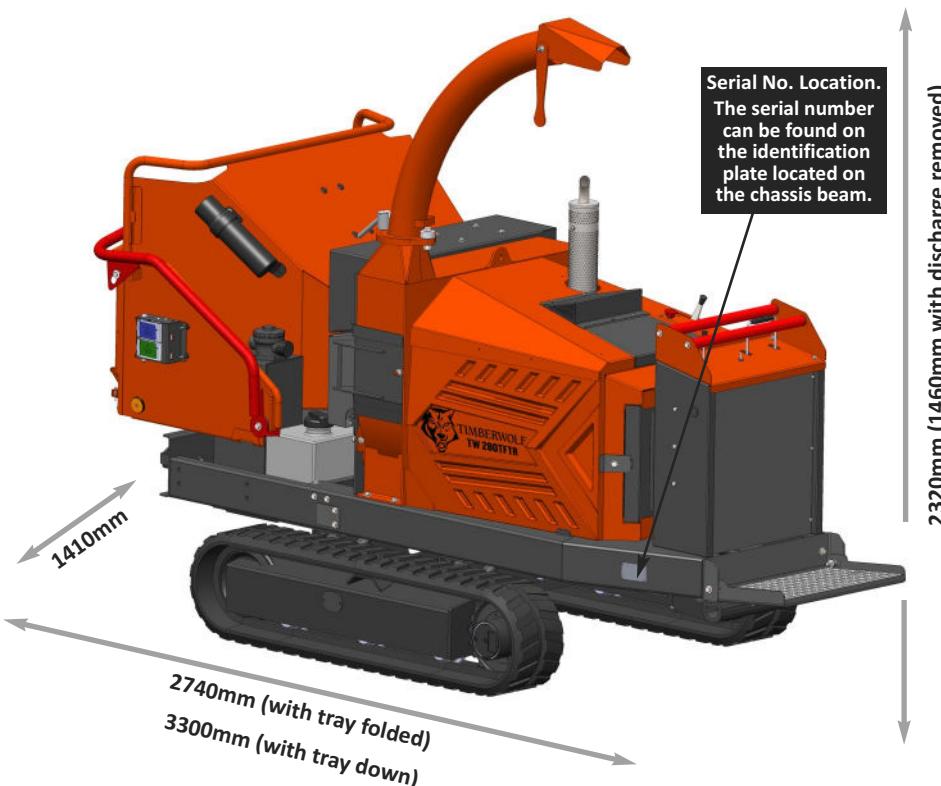
**THIS SYMBOL INDICATES
IMPORTANT SAFETY
MESSAGES IN THIS MANUAL.
WHEN YOU SEE THIS
SYMBOL, BE ALERT TO THE
POSSIBILITY OF INJURY TO
YOURSELF OR OTHERS AND
CAREFULLY READ THE
MESSAGE THAT FOLLOWS.**

**ALWAYS FOLLOW SAFE
OPERATING AND
MAINTENANCE PRACTICES**

PURPOSE

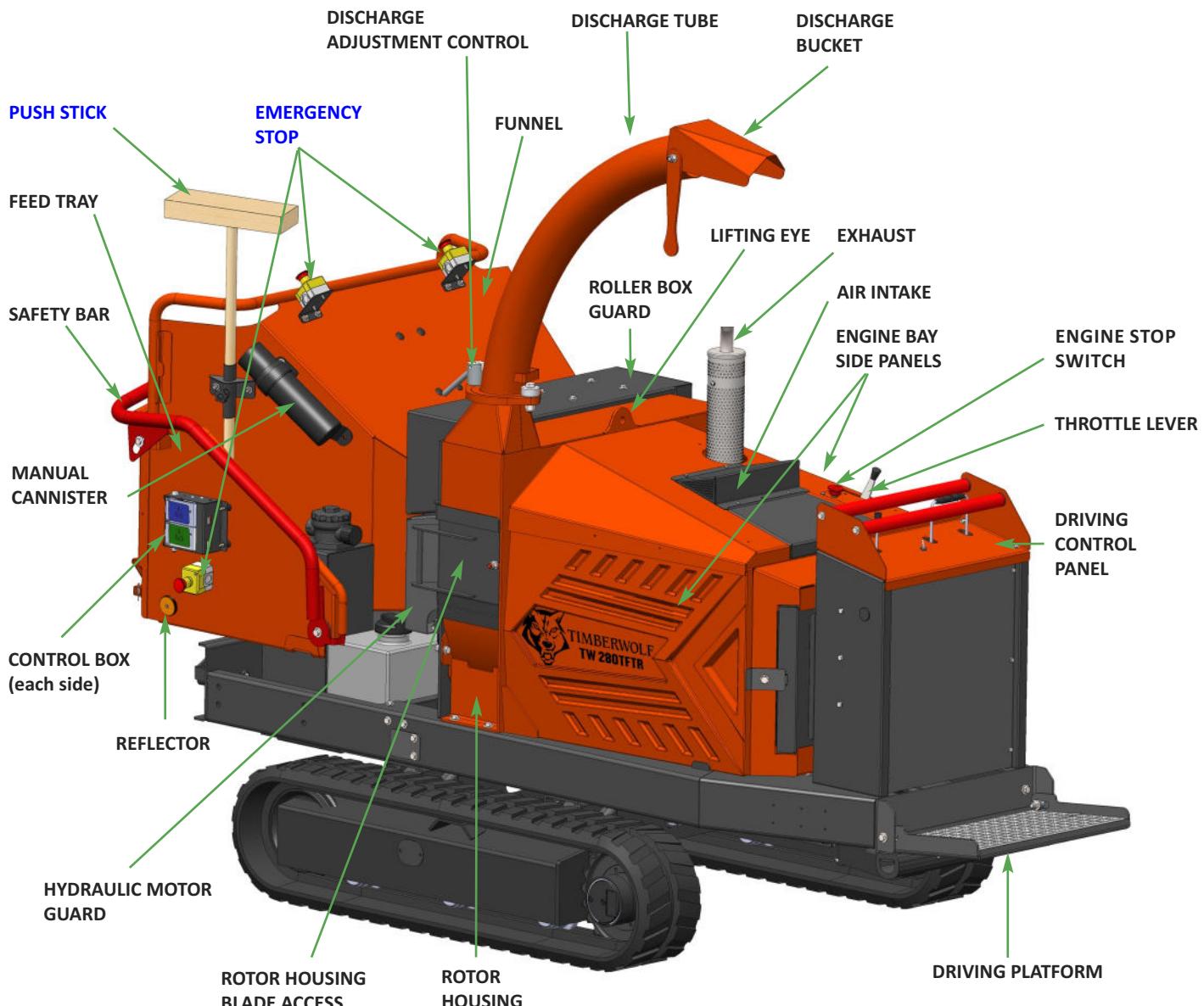
The Timberwolf TW 280TFTR is designed to chip solid wood material up to 210mm in diameter and capable of chipping over 6.5 tonnes of brushwood per hour.

DIMENSIONS



SPECIFICATION

| | |
|--------------------------------------|--------------------------------|
| Engine type: | Kubota 4-cylinder turbo diesel |
| Maximum power: | 33kW (45hp) |
| Cooling method: | Water cooled |
| Overall weight: | 1620kg |
| Starting method: | Electric |
| Roller feed: | Twin series hydraulic motors |
| Maximum diameter material: | 210mm (8 1/4") |
| Fuel capacity: | 36 litres |
| Hydraulic oil capacity: | 50 litres |
| Material processing capacity: | Up to 6.5 tonnes/hr |
| Fuel type: | Diesel |



THE TW 280TFTR HAS THE FOLLOWING FIXED GUARDS FOR PROTECTION OF THE OPERATOR, CHIPPER AND ENVIRONMENT:

- Roller Box Guard:** Protects rotor housing from damage or foreign matter. Protects the user from injuries from moving rollers and ejected material during operation.
- Hydraulic Motor Guard:** Protects hydraulic motors from damage. Protects the user from injuries from heat and movement of motor.
- Rotor Housing Blade Access:** Protects user from rotational parts e.g. cutting blades. The interlocking switch disengages the engine when the hatch is opened to stop the chipper running.
- Engine Bay Side Panels:** Protects the user from rotational parts e.g. belts and pulleys, hot surfaces, and engine fluids. Protects machine from ingress of environmental debris.

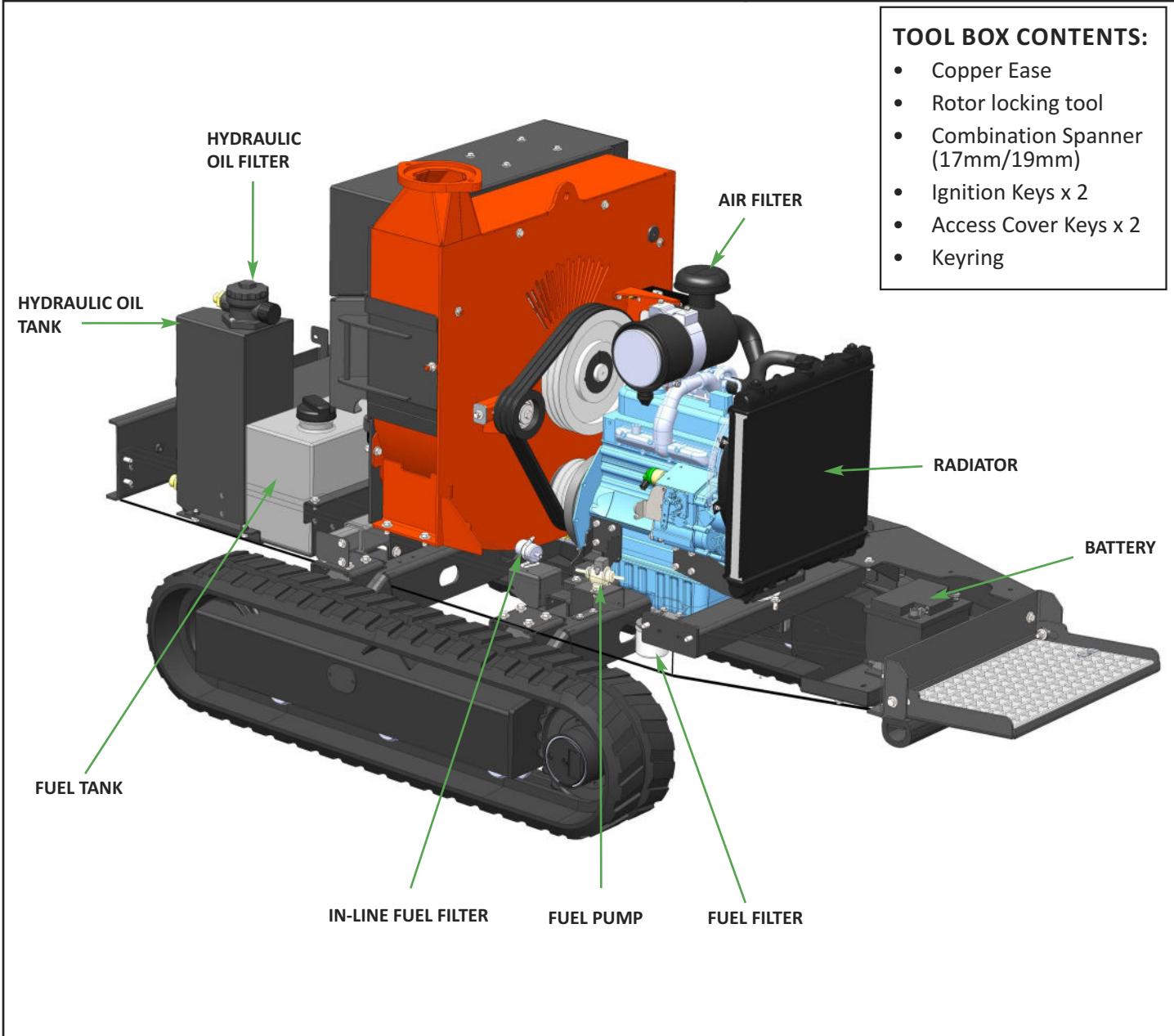
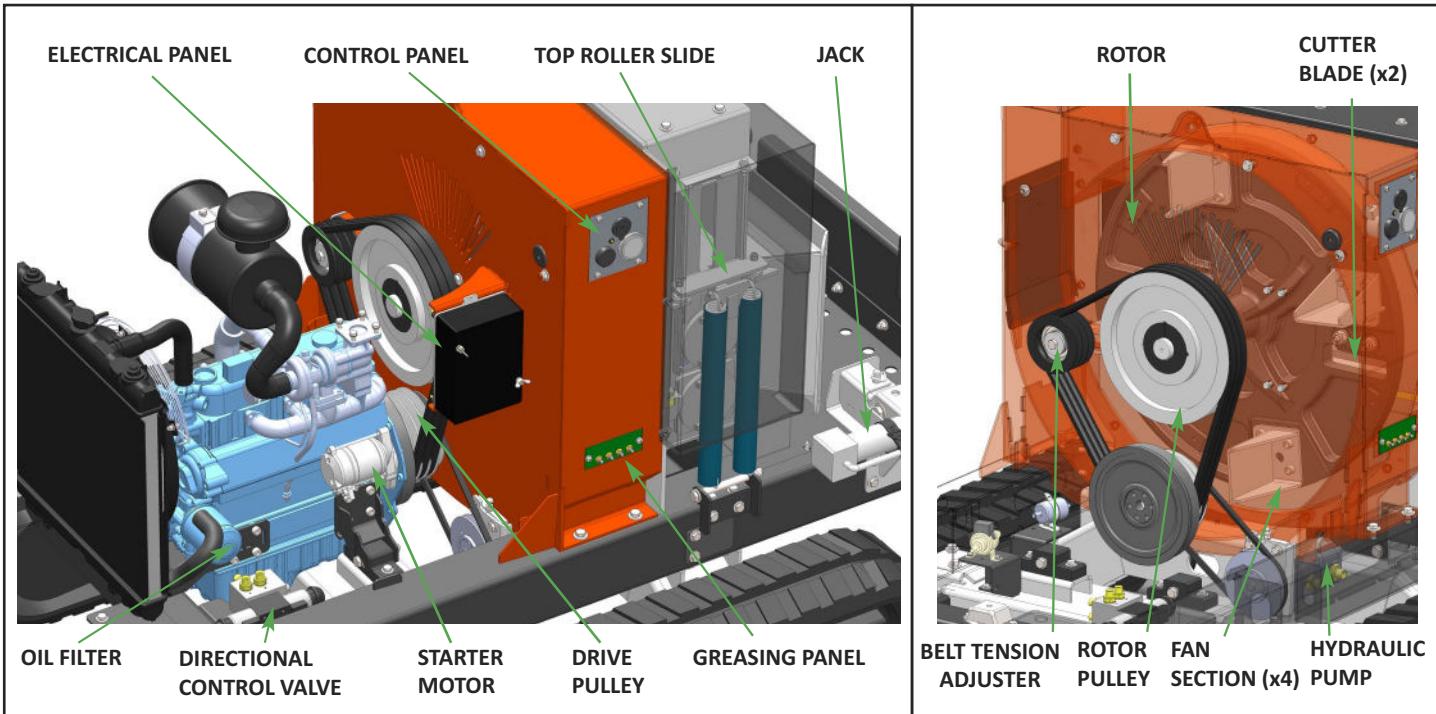
Guards may be removed for maintenance only, as described in the Service Instruction pages of this manual. **Ensure guards remain in place throughout operation.**

THE OPTIONAL TIMBERWOLF SAFETY PLUS KIT ("‐FR" MODELS) INCLUDE THE FOLLOWING ADDITIONAL FEATURES:

- Emergency Stop Devices (ESD) fitted to the top and either side of the funnel (indicated above in blue text).
- New electrical wiring looms for functionality of ESDs.
- Security fasteners on safety bar.
- Push Stick tool (indicated above in blue text).
- Additional safety decals.

NOTES: Instructions for this kit are given in blue text throughout this manual. These do not apply to standard models.

The push stick does not contain metal parts, so the chipper will not be damaged if the tool accidentally enters the machine. Designed to be mounted on the side of the tunnel when not in use.



OPERATOR'S PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Chainsaw safety helmet (EN 397) fitted with mesh visor (EN 1731) and ear defenders (EN 352).
- Work gloves with elasticated wrist.
- Steel toe cap safety boots (EN 345-1).
- Close fitting heavy-duty non-snag clothing. High-visibility clothing (EN 471) if risk assessment identifies the need.
- Face mask if appropriate.
- DO NOT wear rings, bracelets, watches, jewellery or any other items that could be caught in the material and draw you into the chipper.



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.

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.
- Never leave the chipper unattended when running. Machines must be supervised at all times when in use.
- In the event of an accident, stop the machine, remove the key and call the emergency services immediately.

GENERAL SAFETY MATTERS

- Always stop the chipper engine before making any adjustments, refuelling or cleaning.
- Always check the rotor has stopped rotating and remove the chipper ignition key before maintenance of any kind, or whenever the machine is to be left unattended. If in doubt, look through the in-feed funnel to see if rotor is still moving.
- Always check the machine is well supported and cannot move. If working on an incline, position on solid ground, across the slope.
- Always operate the chipper with the engine set to maximum speed when chipping.
- Always check (visually) for fluid leaks. If found, resolve the leak before operating the chipper.
- 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 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.
- Ensure a fire extinguisher is available on site.
- Ensure a personal first aid kit and hand cleaning materials are available (e.g. waterless skin cleanser).



GENERAL SAFETY MATTERS

- 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 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 the machine is running.
- Do not use the chipper inside buildings.
- Do not use the feed funnel to transport any items.



DO NOT ALLOW THE FOLLOWING TO ENTER THE MACHINE, AS DAMAGE IS LIKELY



CLOTH

PLASTIC



STONES



METAL



GLASS



RUBBER



BRICKS



STRING



ROOTS



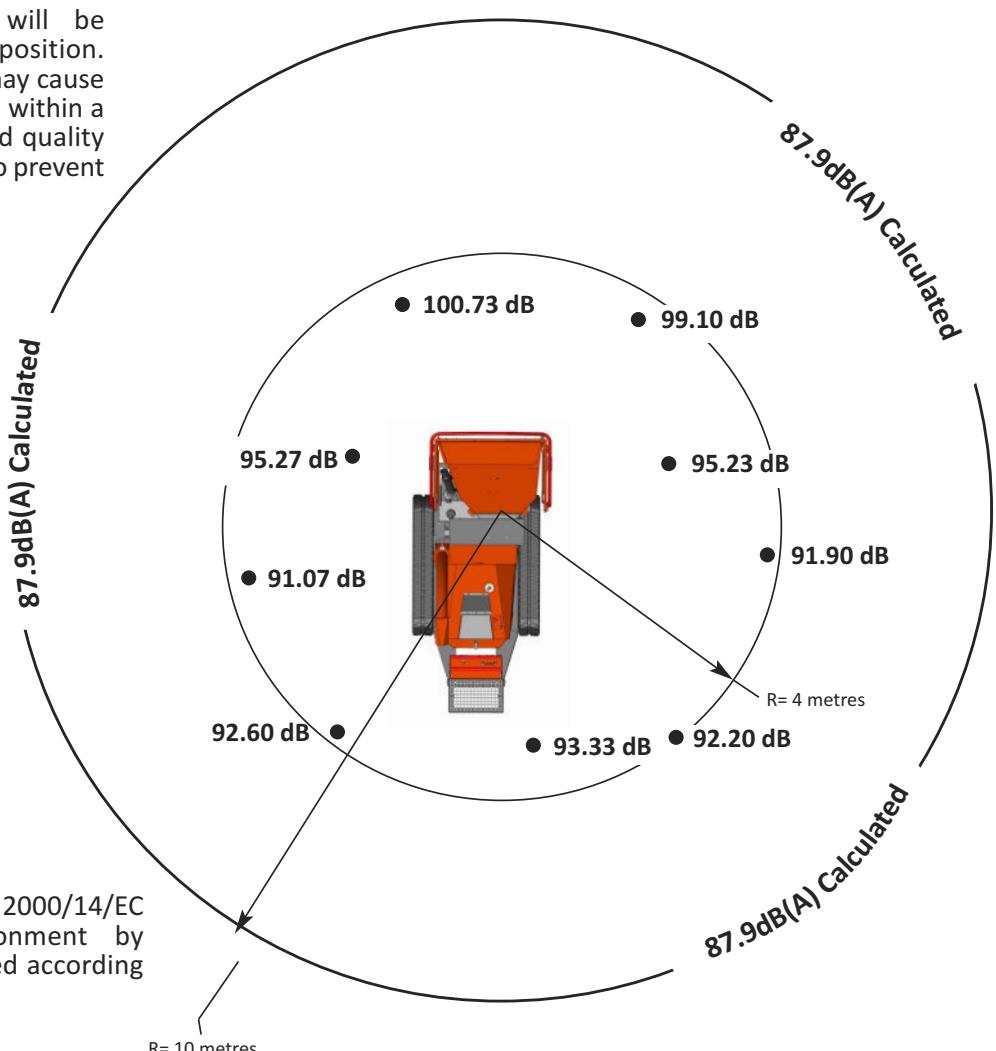
BEDDING PLANTS

NOISE TEST

Machine: TW 280TDHB

Notes: Tested chipping 200mm x 200mm corsican pine 1.5m in length

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.



As required by Annex III of Directive 2000/14/EC "Noise Emission in the environment by equipment for use outdoors". Tested according to BS EN ISO 3744:2010.

STORING THE CHIPPER

Perform the following tasks at the storage intervals indicated, following procedures described within this manual.

| Maintenance Tasks | Storage time | | | |
|---|---------------------|-------------------|--------------------|----------------------|
| | <1 month | 1-6 months | 6-12 months | >12 months |
| Allow the engine to cool down. | ✓ | ✓ | ✓ | ✓ |
| Clean the chipper, removing all woodchips. | ✓ | ✓ | ✓ | ✓ |
| Perform routine maintenance. | ✓ | ✓ | ✓ | ✓ |
| Check all fasteners and retighten. | ✓ | ✓ | ✓ | ✓ |
| Remove all fuel from the tank. NOTE: Either allow the machine to run until all fuel has been used, or drain from the plug provided. If necessary, siphon the fuel into an approved storage container (refer to re-fuelling section). Drain prior to moving machinery, to prevent spillage. | ✓ | ✓ | ✓ | ✓ |
| Disassemble the spark plug (petrol machines) or remove battery cables (diesel machines). | ✓ | ✓ | ✓ | ✓ |
| Where paint is damaged, touch up paint or treat with a lubricant. NOTE: Original paint colours are available from Timberwolf dealers. | ✓ | ✓ | ✓ | ✓ |
| Store the chipper in a dry place at +5°C to +40°C. NOTE: Timberwolf strongly recommends the machine is stored in a sheltered location, protected from rain. If the machine is stored outside, it must be well protected with tarpaulin. | X | ✓ | ✓ | ✓ |
| If relative humidity of the storage environment is > 60%, the shaft of the engine must be rotated by hand 1-2 revolutions bi-weekly. Prior to rotating the shaft, 20 to 30 ml of engine oil should be poured onto the bearing liner. | X | ✓ | ✓ | ✓ |
| Every 3 months, inspect the machine as per <1 month column. | X | X | ✓ | ✓ |
| Clean out and drain all lubrication lines, including grease pipes, coolant reservoirs, fuel lines, oil reservoirs. Replace with new lubricants. NOTE: This should be performed at 6 month intervals (months 6 & 12) until recommissioned. Drain prior to moving machinery, to prevent spillage. | X | X | ✓ | ✓ |
| Keep machine in original container/packaging or equivalent protection and store in a location free from extremes in temperature, at a min. temp. of +5°C and max. +40°C, humidity and corrosive environments. NOTE: If the storage location is cold, damp or severe humidity changes exist, adequate action should be taken to safeguard machinery. | X | X | X | ✓ |
| If machine is exposed to environmental conditions such as humidity during storage, inspect bearing lubrication system for presence of water. If water is detected in the lubricant, flush out the bearing housing and re-lubricate immediately. | X | X | X | ✓ |
| All breathers and drains are to be operable while in storage and/or the moisture drain plugs removed. The machinery must be stored so the drain(s) are at the lowest point, while the machine is in its stable position. | X | X | X | ✓ |
| Follow the recommissioning process before operation. | X | ✓ | ✓ | ✓ |

NOTE:

Regardless of storage time, all Timberwolf machines must be in a stable, level position with the discharge tube pointing away from the driver's platform.

RECOMMISSIONING AFTER STORAGE

- Ensure machine is stable.
- Remove all guards and check all fasteners. If necessary, retighten as described within this manual.
- Ensure discharge tube is correctly fastened, free of objects or blockages and rotates around its pivot without being directed to face the point of operation (danger zone).
- Ensure feed funnel is free from foreign objects e.g. tools and clothing.
- Lower and raise feed funnel into its open and closed positions to confirm functionality.
- Check fuel and hydraulic fluid levels within engine and reservoir and top up accordingly. *
- Inspect all internal parts e.g. drive belts, taper locks and shaft keyways.
- Check belt tension as described within this manual.

- Inspect cutting blades to confirm they are sharp and suitable for use.
- Re-connect the battery to its positive and negative terminals.
- Undertake electrical diagnostic continuity check, to confirm circuit is complete.
- Re-lubricate all grease pipes. Remove pipes and bleed the system prior to use, if necessary. *
- Follow daily checks before starting, as described within this manual.
- Start the machine.
- Run for 15 minutes at half throttle, prior to any cutting activity, to clear the combustion engine. Once complete, bring the machine onto full throttle for a further 5 minutes.

*Storage fluids should be replaced, DO NOT USE old stagnate fluids.

VIBRATION DATA

This data is provided to enable assessment of vibration exposure, when the machine is operated in the modes described. Please refer to local Health & Safety Regulations to determine the daily exposure action and limit values.

| TW 280TFTR, Tracked Hydraulic Fed Chipper, 45hp 1498cc Diesel Engine | | | | |
|--|--|-----------------|--|-----------------|
| Declared vibration emission value in accordance with BS EN 12096:1997 | | | | |
| | Whole Body Vibrations (m/s²) | | Hand Arm Vibrations (m/s²) | |
| | Speed 1 (2.5 kph) | Speed 2 (5 kph) | Speed 1 (2.5 kph) | Speed 2 (5 kph) |
| Measured vibration emission value a | 1.11 | 1.47 | 2.89 | 4.10 |
| Uncertainty K^* | 0.44 | 0.59 | 1.44 | 2.05 |
| Values determined when standing on driver's platform tracking over soft grassy ground. | | | | |
| Measured vibration emission value a | 1.86 | 2.27 | 3.39 | 5.40 |
| Uncertainty K^* | 0.75 | 0.91 | 1.70 | 2.16 |
| Values determined when standing on driver's platform tracking over hard paved ground. | | | | |
| *K value calculated according to provisions in BS EN 12096:1997 | | | | |

DELIVERY

All Timberwolf TW 280TFTR 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 5-6 which contain important health and safety information and advice.

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** controls.

Red Safety Bar Test

To ensure the safety bar is always operational it must be activated once before each work session.

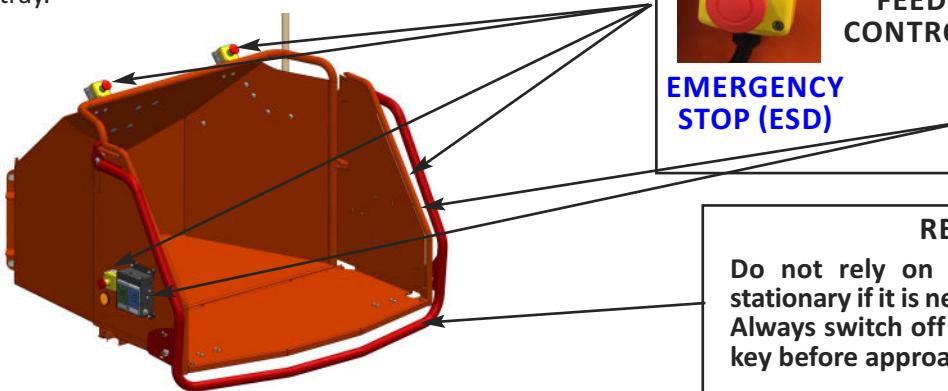
GREEN FEED CONTROL: forward feed - push the feed control once - this activates the rollers and **will** allow you to start chipping (if the rotor speed is high enough).

BLUE FEED CONTROL: 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 feed control.



Control Box Diagram

There are two control boxes, located on either side of the feed tray.



Note: Emergency Stops shown are only included on the Timberwolf Safety Plus Kit model.

RED SAFETY BAR
Do not rely on the red bar to keep the roller stationary if it is necessary to clear or touch the roller. Always switch off the machine and remove ignition key before approaching the roller.

AUTO CONTROLS

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

EMERGENCY STOPPING

There are two ways of stopping the TW 280TFTR chipper in the event of an emergency.

Stopping the Rollers

Activating the **red safety bar** will stop the rollers immediately. The rotor will still be turning, the engine must be powered down to stop the rotor. Turn off the engine ignition key. To restart the rollers, just push the **green forward** or **blue reverse** feed control.

Stopping the Engine

Should the engine need to be stopped in an emergency, the **engine stop switch** located on top of the engine bay should be pushed. This will shut down the engine in the shortest possible time. The engine cannot be restarted until the engine stop switch is pulled out and the main ignition switch is turned off to reset the machine.

Stopping the rollers and the engine: Should the entire machine need to be stopped in an emergency, activate one of the **red emergency stop** buttons positioned on top of the funnel or on either sides of the feed tray. This function kills all power to both the engine and the rollers, bringing the machine to a complete stop. The engine cannot be restarted until the button is restored to its original position and the main ignition switch is turned off to reset the machine. Before disengaging the emergency stop button, inspect the machinery to determine the reason for activation.



ENGINE CONTROLS

The engine controls are in two locations. The engine ignition is on the control panel in the centre of the machine, and the throttle lever is on the bonnet next to the engine stop switch (see parts locator on page 3).

CRAWLER TRACK CONTROLS

The chipper is designed to operate in either chipper or crawler mode, but not both at the same time.

Chipping Mode

Power is available to the feed rollers. The cutting disc is rotating but the unit is stationary.

Crawler Track Mode

Power is available to the crawler tracks. The cutting disc is rotating but the feed rollers are stationary.

To switch between modes, a lever is operated (see diagram below). This is located on the driving control panel (see parts locator on page 3). It is clearly marked.

When Track mode is selected the two track control valves may be operated. These have direct control over the track relevant to each side of the machine. They are proportional valves, so increased movement will result in increased track speed.



WARNING

NEVER LEAVE THE CHIPPER ON A SLOPE UNATTENDED. WHEN TRACKING, MACHINES ARE FOR SINGLE OPERATOR USE ONLY. NEVER TRANSPORT PASSENGERS ON THE DRIVER'S PLATFORM.



NOTE: ENSURE TRAY IS ROTATED INTO THE UP/CLOSED POSITION PRIOR TO TRACKING TO AVOID DAMAGE.

There are two tracking speeds which can be selected via the speed selection switch on the control panel (5 kph or 2.5 kph). Speed can be further controlled with the throttle. It is recommended that manoeuvring in tight spaces, loading, unloading and tracking up gradients should be performed in speed one. Speed two should only be selected for tracking on level ground. The chipper can operate continuously at a 20° incline and up to 10 minutes at 30° incline.

DAILY CHECKS BEFORE STARTING

- Locate the machine on firm level ground.
- Check the machine is well supported and cannot move.
- Check all guards are fitted and secure.
- Check the discharge unit is in place and fastened securely.
- Check the discharge tube is pointing in a safe direction.

- Check the feed funnel to ensure no objects are inside.
- Check the feed tray is in up position - to prevent people reaching rollers.
- Check the controls as described on page 11.
- 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.

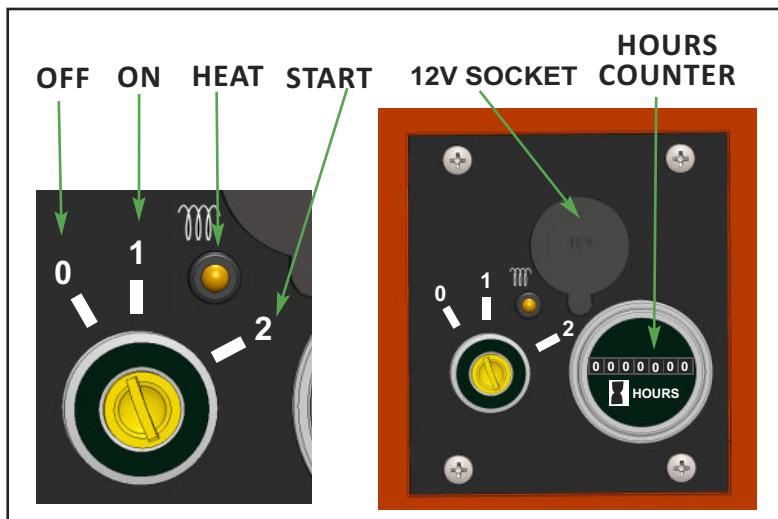


STARTING THE ENGINE

- Ensure throttle lever is in the slow (tortoise) position.
- Insert key. Turn to heat.
- Heater LED comes on.
- Wait for heater LED to go out.
- Turn key to engage starter motor.
- Release key once engine starts.

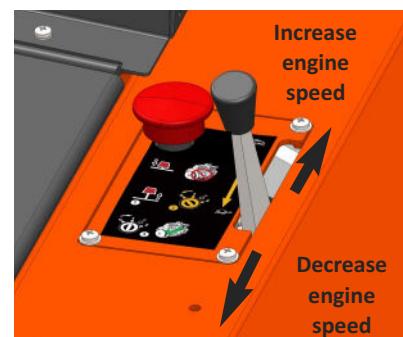
Do not engage starter motor for more than 20 seconds - allow one minute before attempting to start. Investigate reasons for failure to start. Refer to Troubleshooting.

When the engine stop button (or ESD) is pressed it must be pulled out again and the ignition switch turned off to reset the machine before attempting to restart.



CONTROLLING ENGINE SPEED

The engine has variable throttle settings, idle to fast. These are controlled by the throttle lever on the bonnet. Moving the lever towards the 'Hare' on the pictogram will increase engine speed while moving it towards the 'Tortoise' will decrease the engine speed.



STOPPING THE ENGINE

- Move the throttle lever to the 'Tortoise' to reduce the engine speed to idle.
- Leave the engine running for 1 minute.
- Turn the power switch to position 0. The engine should stop after a few seconds.
- Remove the ignition key.

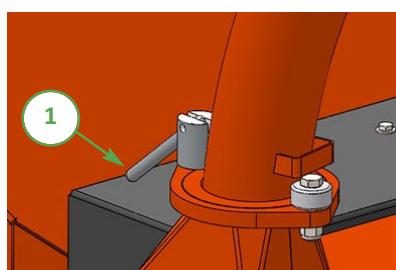
For more detailed information refer to the Engine Owner's Manual.

DISCHARGE CONTROLS

Controlling the discharge is an essential part of safe working.

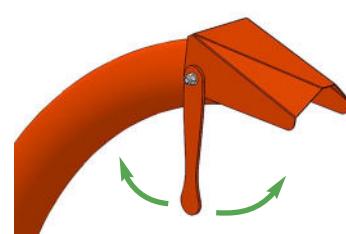
ROTATION

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



BUCKET ANGLE

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



STARTING TO CHIP

- Check that the machine is level and running smoothly.
- Release the catches on the feed tray and lower into the working position. Pull to release the red stop button.
- Perform the “before using the chipper” checks (see page 11). This will take you through the starting procedure and get the machine up to the point of use.
- Press the **green forward** feed control. The rollers will begin to turn in the forward feed direction.
- Immediately check the function of the **red safety bar** and also the **blue reverse** feed controls on both sides of the feed tray.
- Stand to one side of the feed tray.
- Repress the **green forward** feed control.
- Commence feeding material.

CHIPPING

Chipping must be performed at maximum engine speed. 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** feed control 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** feed control and hold for 2 seconds - then repress **green forward** feed control. 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', 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.
- Replace the discharge tube.
- Restart the engine and increase to full speed.

In the event of heavy blockages the rotor housing access hatch can be removed (see parts locator on page 3).

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.



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 280TFTR is fitted with 2 blades 158mm (6") 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 AND TEMPERATURE INDICATOR

The oil level is visible through the tank wall. It should be within the upper and lower level marks. Refer to filling and draining instructions on page 22.

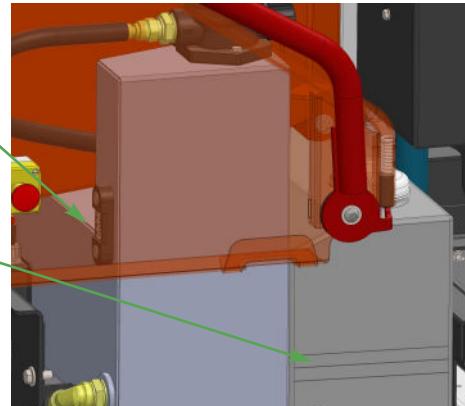
FUEL LEVEL INDICATOR

The fuel level can be seen through the wall of the plastic tank.

REFUELLING

When refuelling, follow standard Health & Safety practices:

- Stop the engine and allow to cool before refuelling.
- Never smoke or allow naked flames nearby while refuelling.
- Store fuel away from vapour ignition sources such as fires and people smoking.
- Never refuel at operating location, keep a distance of > 10 m to avoid creating fire hazards.
- Fuel storage containers must be approved for appropriate fuel storage and clearly labelled with securely fitting caps.
- Clean area around fuel cap and use a funnel for refuelling. Replace the fuel cap securely. Do not fill the tank beyond the max. fill indicator.
- Avoid skin contact with fuel. If it gets into eyes wash out with sterile water immediately and seek medical advice as soon as possible.
- Always clean spillages quickly and change clothes before re-entering the work area if fuel is spilled onto garments.



WINCH OPERATION

Where a winch is factory fitted, it is for **recovery purposes only**. Always follow the winch manufacturer's instruction manual provided with the machine. Never winch while an operator is on the driver's platform.

TROUBLESHOOTING

This table is a troubleshooting guide to common problems.

If your problem is not listed below, or is unresolved after following the guide, please contact your Timberwolf service agent, whose Timberwolf trained engineers can perform further fault finding. Before you call, please have this operating manual and the machine serial number ready.

| Problem | Cause | Solution | Caution - Always ensure appropriate PPE is worn. | |
|--------------------------------------|-----------------------|---|--|---|
| Wood chip ejection stopped / limited | Obstructed discharge | Clear debris from discharge chute. | | Ensure machine is off and keys removed. |
| | Loose drive belts | Refer to manual & tension belts guidelines. | | Ensure machine is off and keys removed. |
| | Broken rotor paddles | Inspect paddles, replace broken / missing paddle. | | Ensure machine is off and keys removed. Call engineer for repair. |
| Rotor does not turn | Obstructed discharge | Clear debris from discharge chute. | | Ensure machine is off and keys removed. |
| | Rotor jammed | Inspect & clear infeed funnel, roller box and rotor housing. | | Ensure machine is off and keys removed. |
| | Drive belt issue | Inspect drive belts, replace if required. Refer to manual & tension belts guidelines. | | Ensure machine is off and keys removed. |
| Slow or not feeding | Low engine speed | Check & inspect throttle and cable. Check throttle is set to specified speed. | | Ensure machine is off and keys removed. |
| | Infeed rollers jammed | Inspect & clear infeed funnel, roller box and rotor housing. | | Ensure machine is off and keys removed. |
| | Hydraulic oil | Check hydraulic oil level, top up if necessary. | | Ensure machine is off, cool & pressure isn't present within the system. |
| | Blades dull | Rotate, sharpen or replace blades. | | Ensure machine is off and keys removed. |
| | Anvils dull | Check anvil has sharp edge, rotate, sharpen or replace if necessary. | | Ensure machine is off and keys removed. |
| | Obstructed discharge | Clear debris from discharge chute. | | Ensure machine is off and keys removed. |



**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 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 coolant. | ✓ | | | | |
| Check radiator is clear. | ✓ | | | | |
| Check hydraulic oil level | ✓ | | | | |
| 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. | ✓ | | | | |
| Clean air filter element. | DEPENDING ON WORKING ENVIRONMENT | | | | |
| Check safety bar mechanism. | ✓ | | | | |
| 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). | | ✓ | | | |
| Grease the roller box slides. | ✓ | OR AS REQUIRED - SEE PAGE 21 | | | |
| Grease the roller spline and bearing. | ✓ | OR AS REQUIRED - SEE PAGE 21 | | | |
| 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 SUPPLIER'S MANUAL | | | | |
| Check coolant condition. | REFER TO YOUR ENGINE SUPPLIER'S MANUAL | | | | |
| Change engine oil. | REFER TO YOUR ENGINE SUPPLIER'S MANUAL | | | | |
| Replace engine oil filter cartridge. | REFER TO YOUR ENGINE SUPPLIER'S MANUAL | | | | |
| Check valve clearance. | REFER TO DEALER FOR ANVIL CHANGE | | | | |
| Replace anvils when worn. | REFER TO DEALER FOR ANVIL CHANGE | | | | |

SAFE MAINTENANCE

- 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 hazardous materials.



WARNING

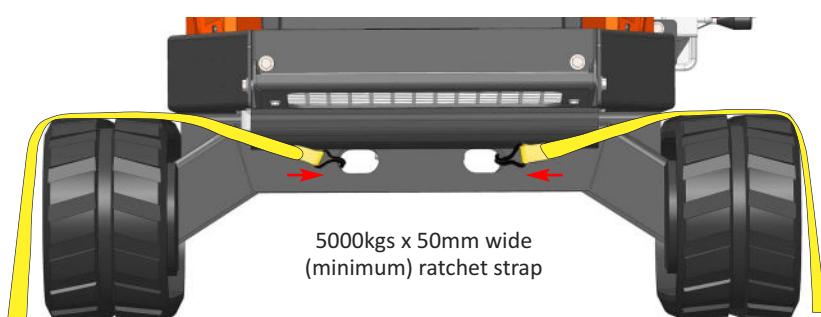
**ALWAYS IMMOBILISE THE ENGINE BEFORE
UNDERTAKING ANY MAINTENANCE WORK
ON THE CHIPPER BY REMOVING THE KEY
AND DISCONNECTING THE BATTERY.
ENSURE THE CHIPPER IS STABLE BEFORE
PERFORMING ANY MAINTENANCE.**

SAFE LIFTING & SECURING DOWN 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. Maximum lift weight is 2500kg, as indicated on the machine.

The method of securing the chipper can vary depending on the type of carrier and position of tie down points available on the carrier. Timberwolf recommend where possible to secure machine to carrier using correctly rated ratchet straps directly lashing from 4 points chassis bridge slots as shown.

Securing a Timberwolf chipper ready for transport must be carried out by competent qualified personnel. Failure to observe this procedure could result in chassis and/or undercarriage damage.



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

Battery Removal

- The battery is located within the control tower.
- Remove the seven M6 bolts securing the driving controls front guard.
- Remove the two M10 bolts securing the battery clamp.
- Remove the negative battery lead.
- Remove the positive battery lead.

Battery Maintenance

- Remove the seven M6 bolts securing the driving controls front guard.
- The battery can be serviced in this position.



WARNING
**REFER TO THE BATTERY SAFETY
SECTION ON PAGES 18.**

CHECK FITTINGS

The Timberwolf TW 280TFTR 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 lb ft | Torque Nm |
|-------------------------|----------|----------|-----------|--------------|-----------|
| Blade Bolts | M16 | Standard | 24mm Hex | 125 | 170 |
| Track Frame Bolts | M16 | Standard | 24mm Hex | 80 | 108 |
| Anvil Bolts | M12 | Standard | M12 Cap | 65 | 88 |
| General | M8 | Standard | 13 mm Hex | 20 | 27 |
| General | M10 | Standard | 17 mm Hex | 45 | 61 |
| General | M12 | Standard | 19 mm Hex | 65 | 88 |
| Drain Bung in Fuel Tank | 3/8" BSP | - | 22 mm Hex | 15 | 20 |

HAZARDOUS MATERIALS & END OF MACHINE LIFE

During Machine Life

The following hazardous materials are supplied within Timberwolf machines:

- Engine oil
- Coolant
- Battery acid
- Hydraulic oil
- Diesel/Petrol
- Copper Ease

MATERIAL SAFETY DATA SHEETS FOR HAZARDOUS MATERIALS SUPPLIED WITHIN TIMBERWOLF MACHINES ARE AVAILABLE ON REQUEST. REFER TO THESE FOR FIRST AID AND FIRE PROTECTION MEASURES.

Always follow recommended procedures for safe handling, removal and disposal of hazardous materials. Safety precautions should be taken when handling hazardous materials (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. Ensure hazardous spillages do not flow into the ground or drainage system and ensure potential environmental damage is controlled safely, according to local laws.

End of Machine Life

Follow these guidelines using approved local waste and disposal agencies for recycled materials, according to applicable Health, Safety and Environmental laws.

- Position the machine within reach of all necessary lifting equipment.
- Use tools and PPE detailed within maintenance instructions.
- Remove all hazardous materials and battery and store safely before disposal.
- Disassemble the machine structure, referring to the maintenance instructions. Pay attention to parts with mechanical pressure or tension applied, including springs.
- Separate items that continue to have a service life.
- Separate worn items into material groups and where possible, recycle using available agencies for recycled materials. Common types are:

| | |
|--------------------|---|
| Steel | Plastic materials |
| Non-ferrous metals | Rubber |
| Aluminium | Electrical and Electronic Components |
| Brass | Other materials that can be recycled |
| Copper | Other materials that cannot be recycled |

- If a part is not easily separated into different material groups, it must be added to "general discarded materials".
- Do not burn discarded materials.
- Change the machinery records to show that the machine is out of service and discarded. Supply this serial number to Timberwolf to close their records.

BATTERY SAFETY INFORMATION**WARNING NOTES AND SAFETY REGULATIONS FOR FILLED LEAD-ACID BATTERIES**

- For safety reasons, wear eye protection when handling a battery.
- Keep out of reach of children.
- 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.



- Symbol:**

**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! Remove contact lenses if worn and continue rinsing. 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.

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.

- 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.

2. Initial operation

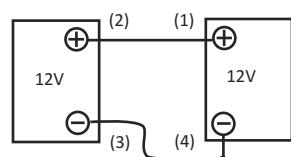
- The batteries are filled with acid at a density of 1.28g/ml during the manufacturing process and are ready for use.
 - Recharge in case of insufficient starting power (see no. 4).
- 3. Installation in the vehicle and removal from the vehicle**
- Switch off the engine and all electrical equipment.
 - 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.

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 (see no. 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).

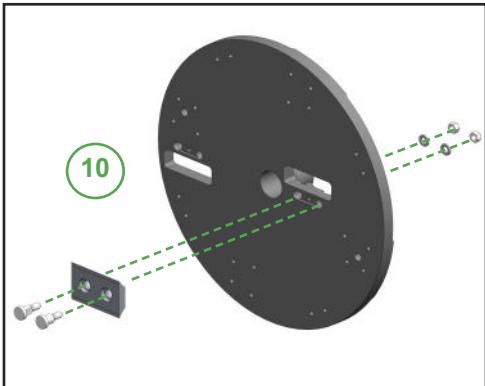
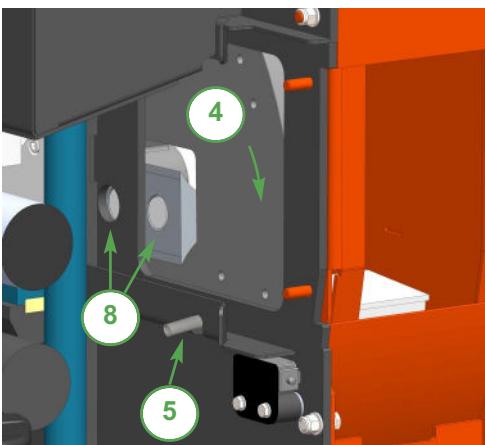
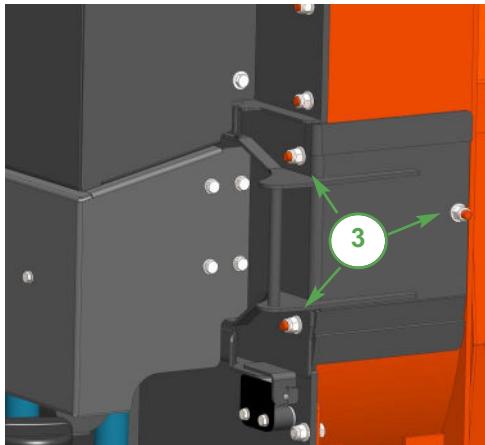
**4. Charging**

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

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 (see no. 4).

CHANGE BLADES

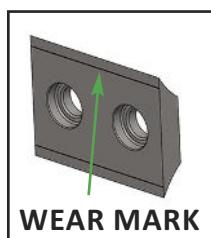


WARNING
**WEAR RIGGERS GLOVES FOR THE BLADE
 CHANGING OPERATION.**

- 1 Turn the chipper off and remove the ignition keys.
- 2 Remove battery leads.
- 3 Remove the 3 nuts retaining the access hatch, slide hatch clear of rotor housing.
- 4 Turn rotor to blade change position.
- 5 Insert locking bar into rotor housing and rotor.
- 6 Brush away all dirt and debris from the rotor and blades.
- 7 With a 24mm spanner/socket undo the 2 nyloc nuts and washers that are holding the blade in place.
- 8 Remove blade bolts while holding blade in position. The inner bolt on the inner blade passes through the hole in the roller box. If necessary tap the bolts to loosen.
- 9 Grasp the blade by the flat edges while wearing heavy duty gloves.
- 10 Withdraw the blade from the rotor.
- 11 Rotate blade to use 2nd edge or replace with a new or sharpened blade.
- 12 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.**
- 13 Reassemble the blades, bolts, washers and nuts in the order shown in the diagram. 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.
- 14 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.
- 15 **A calibrated torque wrench must be used to tighten the bolts to a torque setting of 125 lbs ft (170 Nm).**
- 16 Remove lock pin, rotate rotor to next blade then replace lock pin and repeat steps 6 - 14.
- 17 Refit access hatch.
- 18 Refit the nuts and tighten to 40 lbs ft (54 Nm).
- 19 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.

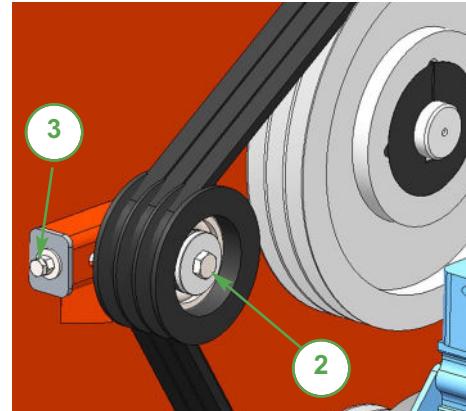


TENSION DRIVE BELTS

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.

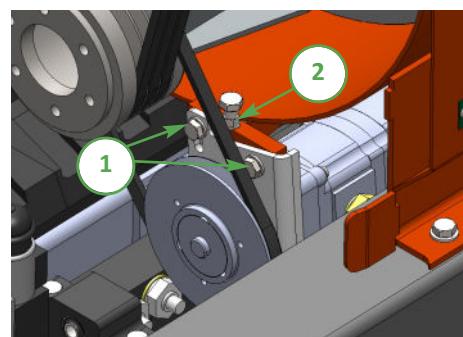
- 1 Remove engine bay side panel.
- 2 Loosen bolt in centre of tensioner pulley with a 19 mm spanner so that pulley is able to slide with minimal wobble.
- 3 Turn nut in end of tensioner pulley slider until correct belt tension is achieved. For instructions on checking belt tension & correct belt tension values, please refer to the Timberwolf V-Belt Tensioning Data Table (page 36).
- 4 Re-tighten bolt in centre of tensioner pulley.
- 5 Run machine and test, recheck belt tension.

NOTE: Slack drive belts will cause poor performance and excess belt and pulley wear.



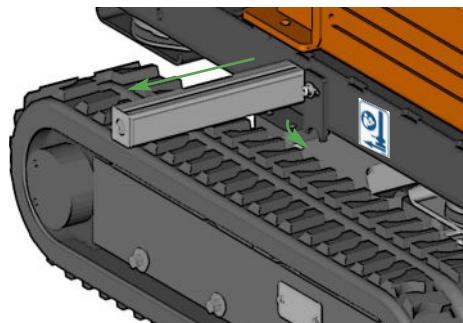
TENSION HYDRAULIC PUMP BELT

- 1 Loosen the 2 M10 bolts on the mounting pad.
- 2 Loosen the M8 lock nut.
- 3 Adjust M8 bolt to tension/slacken drive belt. For instructions on checking belt tension & correct belt tension values, please refer to the Timberwolf V-Belt Tensioning Data Table (page 36).
- 4 Re-tighten lock nut and M10 bolts.



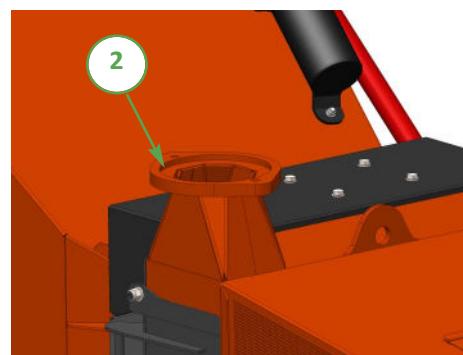
CHASSIS JACKING POINT

- 1 Loosen the cover plate bolt on the appropriate side of the chipper.
- 2 Rotate cover plate, allowing it to remain attached to the chassis.
- 3 Pull the jacking beam from the access hole to its fullest extent (approx 300 mm).
- 4 After use, push beam back into access hole and secure cover plate.



GREASE THE DISCHARGE FLANGE

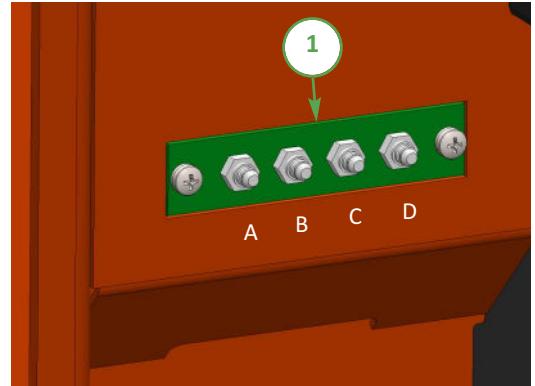
- 1 Remove the discharge tube.
- 2 Apply multipurpose grease to surface shown.
- 3 Refit discharge tube.



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.

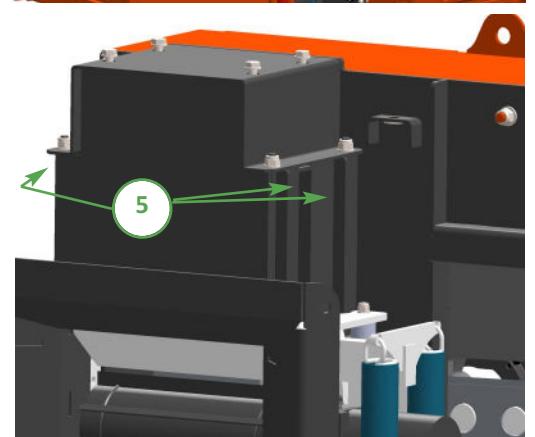
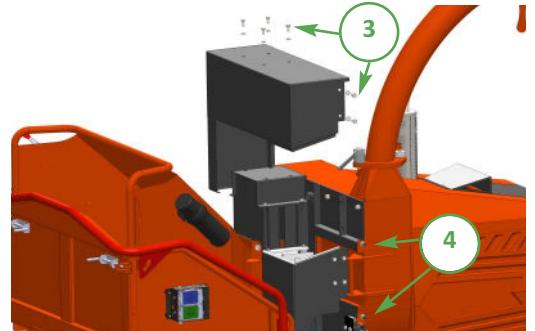
- 1 Locate the greasing panel.
- 2 Apply 4+ pumps of grease to each nipple.
- 3 It is recommended to grease all the nipples whilst the engine is running and rollers are turning to distribute the grease evenly. DO NOT USE GRAPHITE BASED GREASE.
- 4 Both front and rear bearings are greased by nipples A 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 6 nuts and washers retaining the roller box guard and remove guard.
- 4 Remove the rotor housing blade access hatch as per blade change procedure.
- 5 Apply thin grease with a brush directly to the slide surfaces indicated, including inner cheeks of slider. DO NOT USE GRAPHITE BASED GREASE.
- 6 Replace rotor housing blade access hatch then top guard. Refit nuts and washers.
- 7 Refit battery leads.



ENGINE SERVICING

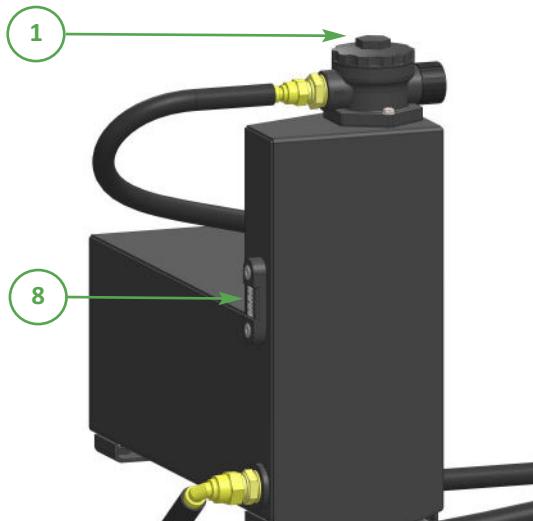
All engine servicing must be performed in accordance with the Engine Manufacturer's Handbook provided with the machine. **Failure to adhere to this may invalidate warranty and/or shorten engine life.**

CHECK HOSES

All the hydraulic hoses should be regularly inspected for chafing and leaks. The hydraulic system is pressurized to 150 Bar (2175 PSI) 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.

CHANGE HYDRAULIC OIL AND FILTER



NOTE: This is a non-adjustable air breather filter.

- 1 Remove the black screw cap from the filter housing.
- 2 Partially remove the filter element from the inner cup. Leave the filter to drain for 15 minutes.
- 3 Remove the filter element from the cup when it's clear of hydraulic oil.
- 4 Remove the drain plug and drain the oil into a suitable container.
- 5 Replace the drain plug.
- 6 Refill with VG 32 hydraulic oil until the level is between the min and the max lines marked on the tank (about 48 litres)
- 7 Refit the filter cup, install a new filter element and refit the black screw cap to the filter housing ensuring the o-ring remains in place.

TRACK BASE MAINTENANCE

Safe Maintenance

- Solidly support the under carriage if it needs to be lifted up for maintenance (see Chassis Jacking Point section on page 20).
- Hydraulic systems may get very hot after working.
- Keep all components in good condition as they are exposed to high pressures.
- Immediately repair damage and replace worn or broken items.

- Keep the tracks clean, removing excess oil, grease and dirt.
- Check for oil leaks and damaged hoses.
- Only use recommended lubricants. Do not mix different brands.
- Keep track stretcher grease nipples clean.

Maintenance intervals are only guidelines. The amount of times maintenance is conducted should be increased beyond recommended guidelines if severe conditions are encountered.



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.

CHECKING THE RUBBER TRACKS

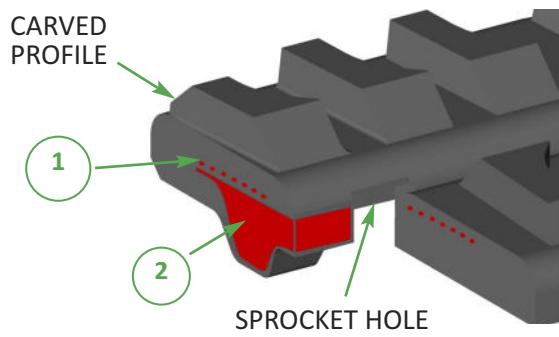
The structure of the rubber track is shown in this diagram. The steel cables (1) and metal core (2) are embedded in the rubber.

There are many ways in which rubber tracks may be damaged. Some of these are terminal for the tracks, others are only cosmetic.

Breakages of steel cables and metal cores

Excess track tension can cause steel cables to break. This may be caused by:

- Stones or foreign matter accumulating between the track and the undercarriage frame.
- The track slipping off its guide system.
- Extreme friction such as rapid changes in direction.
- Improper contact between track and sprocket.
- Operation on sandy terrain.



Fatigue cracks and abrasion

Cracks at the base of the carved profiles are caused by rubber fatigue due to bending.

Cracks and bends on the edge of the rubber are caused by manoeuvring the track on concrete edges and curbs.

Cracks and abrasions in the rubber on the guide roller paths are caused by compression fatigue of the rubber due to the weight of the wheel combined with operation on sandy terrain or repeated sudden changes in direction.

Abrasions of the carved profile may be caused, in particular, by rotation on concrete or gravel surfaces or hard surfaces.

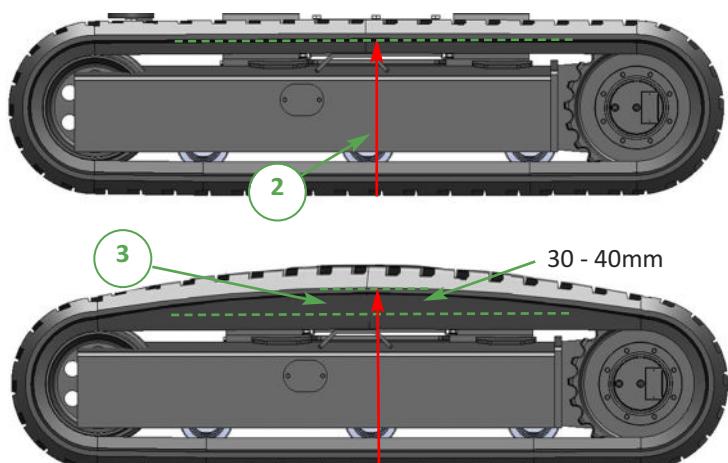
Cracks on the outside surface of the track are often due to contact with gravel, sharp stones and sharp materials such as sheet metal, nails and glass.

Cracks on the inside surface of the circumference and on the edge of the rubber are caused by contact between track and the undercarriage structure or with sharp concrete edges.

These methods of damage are progressive. The track can continue to be used until wear exposes the metal cores. If this exposure extends for more than half of the circumference of the track then it is time to replace the track, even though it can still be used.

CHECKING TRACK TENSION

- 1 Stop your machine on a flat and solid surface.
- 2 Measure from the ground to the inside edge of the track at the top central location.
- 3 Pull the top of the track upwards and measure the deflection.
- 4 The track tension is normal if the deflection is between 30 - 40mm.



TRACK LOOSENING/TIGHTENING PROCEDURES

Track tension is maintained by grease in the adjuster unit. Adding more grease will increase track tension, removing grease will decrease it.

The grease contained in the hydraulic track tensioner ram is pressurised. Never release grease nipple (No. 1, Fig. 1) for more than necessary to slowly release grease to a maximum of five turns. If the valve is loosened too much you risk expelling grease under pressure and possible injury to the machine operator. Remove gravel or mud when they are jammed between the sprocket and the track link before loosening the track.

- 1 Locate grease nipple under coverplate in side frame (Fig. 1) to access the adjustment system.
- 2 To loosen the track turn the grease nipple counter-clockwise slowly, the grease should begin to be expelled after approximately two turns.
- 3 If grease does not start to drain out then slowly rotate the track forward and reverse to free adjuster mechanism - grease may then be expelled under pressure as track tension is relieved.
- 4 When you have obtained correct track tension then turn valve clockwise and tighten it. Clean all traces of extruded grease.
- 5 To stretch the track connect a grease gun to grease nipple and add grease until track tension falls within specified values.



WARNING

IT IS NOT NORMAL FOR THE TRACK TO REMAIN TOO TIGHT AFTER TURNING THE GREASE NIPPLE COUNTER-CLOCKWISE OR FOR IT TO REMAIN LOOSE AFTER INTRODUCING GREASE INTO THE GREASE NIPPLE. NEVER TRY TO REMOVE THE TRACKS OR DISASSEMBLE THE TRACK-STRETCHING CYLINDER SINCE PRESSURE OF THE GREASE INSIDE THE TRACK IS DANGEROUS.

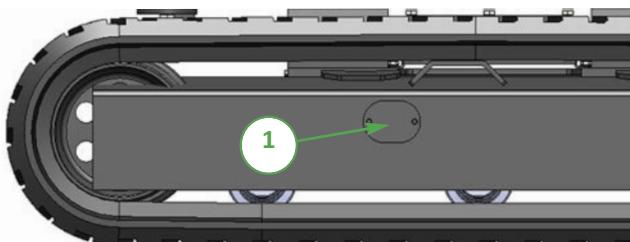


Fig. 1

REMOVING THE RUBBER TRACKS

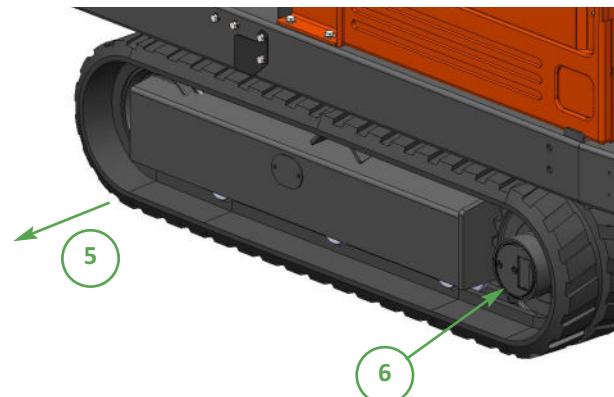
Remove gravel or mud when they are jammed between the sprocket and the track link before loosening the track.

- 1 Stop your machine on a solid and level surface. Lift it up and support it in safe conditions.
- 2 Locate grease nipple under coverplate in side frame to access to the adjustment system (No. 1, Fig. 1).
- 3 To loosen a track turn the grease nipple counter-clockwise slowly then the grease should begin to be expelled after approximately 2 turns.
- 4 If grease does not start to drain out then slowly rotate the track forward and reverse to free adjuster mechanism.
- 5 Using levers exercise force sideways to slide the track off the track-stretching wheel.



WARNING

THE GREASE CONTAINED IN THE HYDRAULIC TENSIONER IS UNDER PRESSURE. NEVER LOOSEN THE GREASE NIPPLE FOR MORE THAN 5 TURNS. IF THE GREASE NIPPLE IS LOOSENED TOO MUCH THEN PRESSURISED GREASE MAY EXIT AND CAUSE INJURY TO THE MACHINE OPERATOR.



INSTALLING THE RUBBER TRACKS

- 1 Check that the grease contained in the hydraulic cylinder has been removed.
- 2 Mesh the track links in the sprocket and place the other end of the track on the track-stretching wheel.
- 3 Locate the track on the stretching wheel using levers if required.
- 4 Make sure track links mesh correctly in the sprocket and in the track stretching wheel.
- 5 Adjust track tension (see track loosening procedures on page 24).
- 6 Set the tracked undercarriage on the ground.



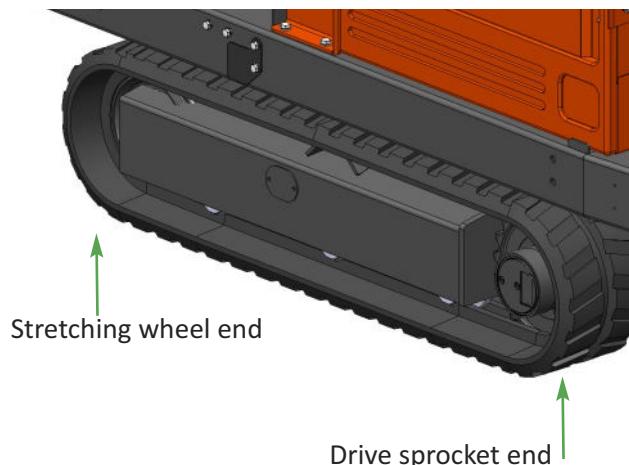
WARNING

MAKE SURE THAT YOU ARE ALWAYS IN
SAFE CONDITIONS WITH THE MACHINE
LIFTED TO PERFORM THE OPERATION
FOR TRACK INSTALLING.

CHECKING SPROCKET WEAR

Measuring wear on sprocket and driving gear teeth is one of the most difficult measurements to be done. You must always consider the point where wear is greatest.

There should always be enough tooth left on the sprocket to engage fully with the rubber track. When the sprocket meshing distance is reduced significantly the sprocket should be changed.



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.



Entec House, Tomo Industrial Estate, Stowmarket IP14 5AY.
 Telephone: 01449 765800 Fax: 01449 765801
 Email: sales@timberwolf-uk.com Web site: timberwolf-uk.com



EC Declaration of Conformity



We
 Environmental Manufacturing LLP.

Of
 Entec House,
 Tomo Industrial Estate,
 Stowmarket,
 IP14 5AY
 United Kingdom
 Tel: 01449 762800, Fax: 01449 765801
 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 280 Road Tow and Tracked Diesel 8" Woodchippers

Model(s): TW 280TDHB, TW 280TFTR

Type(s): TW 280TDHB, TW 280TDHB-FR, TW 280TDHB(a), TW 280TDHB(a)-FR,
 TW 280TFTR, TW 280TFTR-FR, TW 280TFTRWW, TW 280TFTRWB.

Serial No(s).: TW 280TDHB: 45A1JS216037 onwards
 TW 280TDHB(a): 45A1JS229032 onwards
 TW 280TFTR: 45A1JS221021 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: 118 dB (A); Measured Sound Power Level: 96 dB (A))

The following harmonised standards have been applied:

Machinery Directive: BS EN ISO 13525:2005+A2:2009: 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 Environmental Manufacturing LLP by:

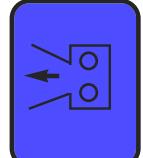
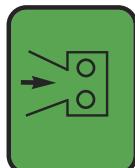
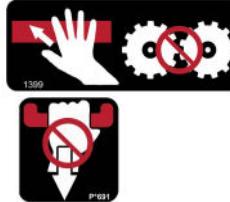
Mr Chris Perry (Managing Director):

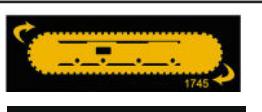
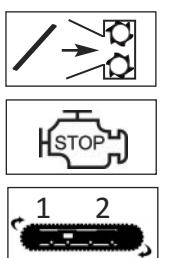
Dated: 12th June 2018

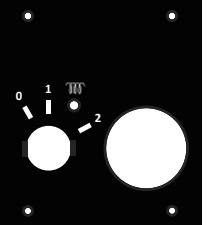
Timberwolf is the trading name of Environmental Manufacturing LLP, an LLP registered in England under No.0C326713 and Timberwolf Ltd registered in England under No. 03477258. Registered Office as above. A list of members is open to inspection at the registered office.

Types with Timberwolf Safety Plus Kit (-FR) also comply with Technical Instruction SG/SAFSL/SDTPS/2016-700 of 31 August 2016 of the French Ministry of Agriculture.

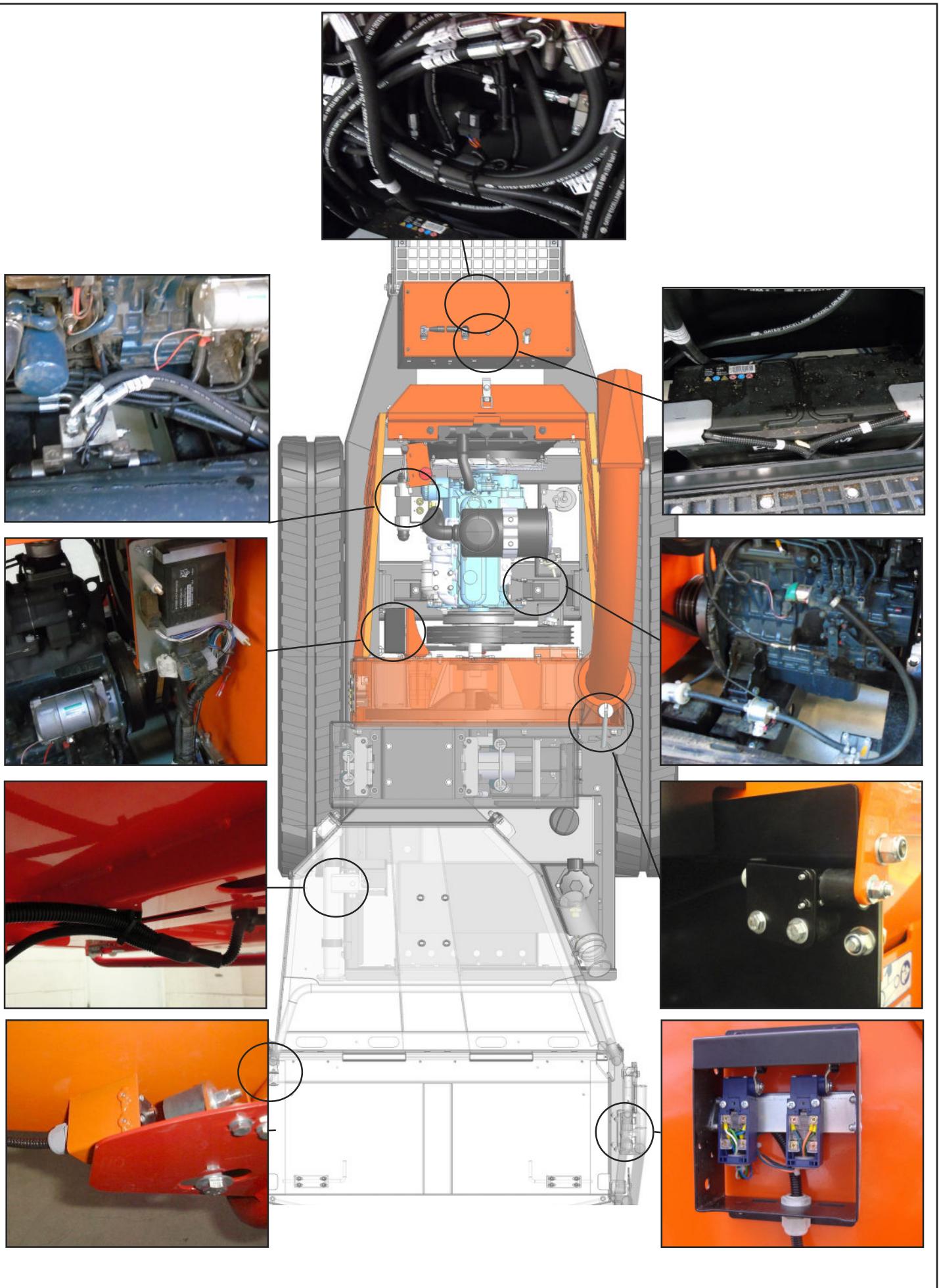


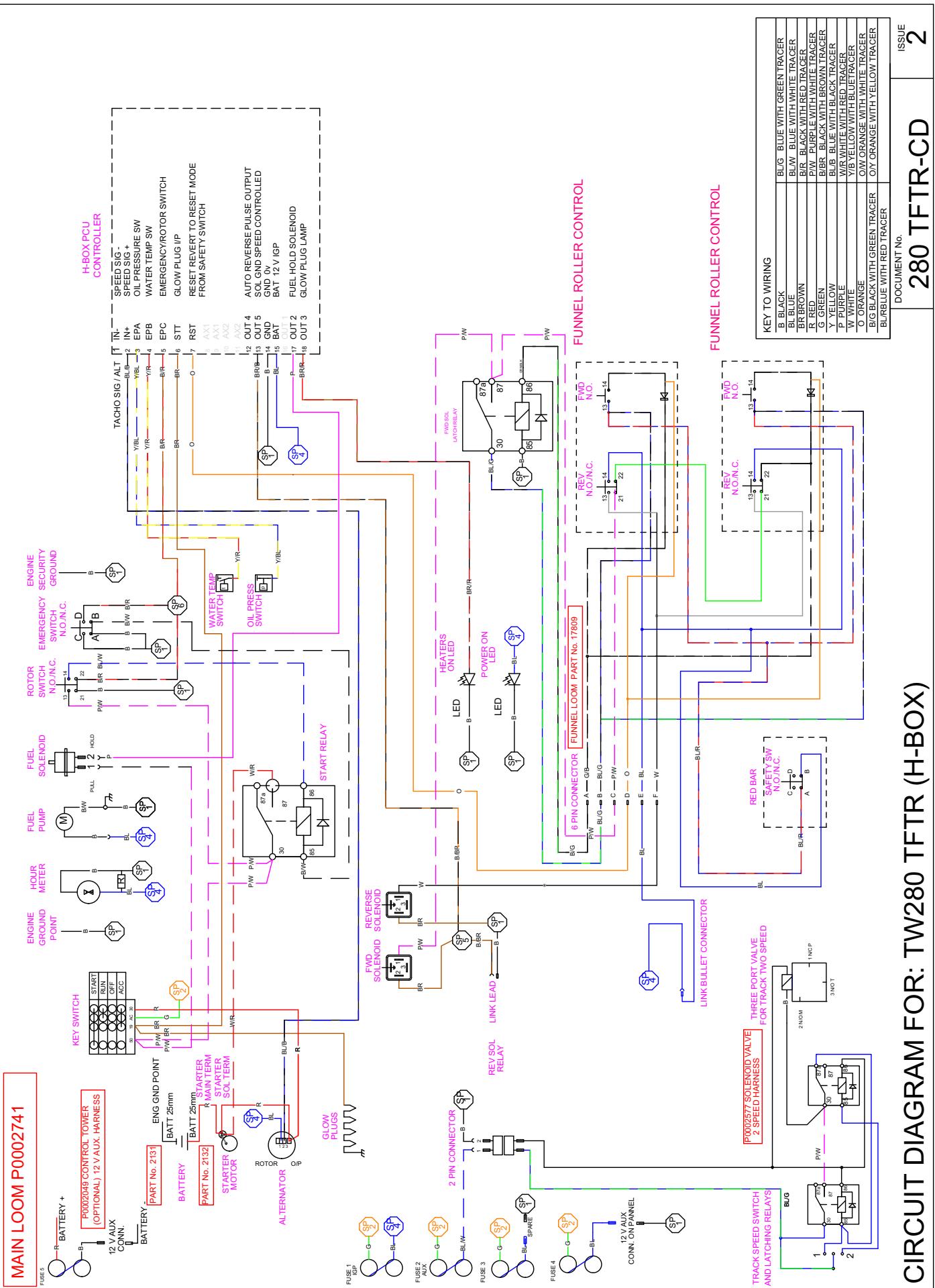
| DECAL | DESCRIPTION | DECAL | DESCRIPTION |
|--|--|--|--|
|  | 616 Warning. Hot exhaust |  | 4099 Danger. Rotating blades. Keep hands and feet out. |
|  | 617 Warning. High velocity discharge - keep clear |  | 2800 Reverse feed |
|  | 670 Personal Protective Equipment required. See page 5. |  | 2801 Forward feed |
|  | 1661 Read the instruction manual for greasing and maintenance information. |  | 19517 Warning. Do not engage starter motor for more than 20 seconds. Allow one minute before attempting to start. Investigate reasons for failure to start. Excessive cranking will result in starter motor failure. This will not be covered under 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 hook directly 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. |
|   | 1399 Push safety bar to stop. P691 Do not pull here. |  | 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. |
|  | C192-0112 Fuel Here. Risk of fire. Allow engine to cool for 1 minute before refuelling. Use diesel fuel only. |  | 18393 New drive belts need re-tensioning. When new belts are fitted check tension every 2-3 hours & adjust until tension remains constant. |
|  | C192-0105 When the engine stop button is pressed it must be pulled out again and the ignition switch turned off to reset the machine before attempting to restart. |  | P1812 Torque blade bolts to 125 lbs ft (170 Nm). |
|  | P3611 Danger. Rotating blades. Keep hands and feet out. |  | C192-0102 Danger. Do not climb into the feed funnel. |

| 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. |
|  | 1745 Track |  | 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. |
|  | 1747 Chipping mode |  | 1810 To go on relays. Forward Latch P1811 Engine Safety P2157 Tracking Speed |
|  | 3059 Jacking point. See manual for instructions. | | |
|  | 18653 Close bucket and point discharge away from driving position. Protective equipment must be worn when driving machine. | | |

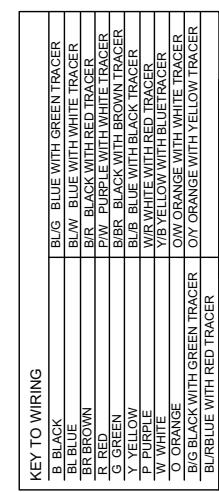
| | | | | | |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| C192-0101 | C192-0100 | 18008 | 1363 | P2281 | 1746 |

| | | | |
|---|---|--|---|
|  |  |  |  |
| C192-0145 | 2689 | 3503 | 3504 |



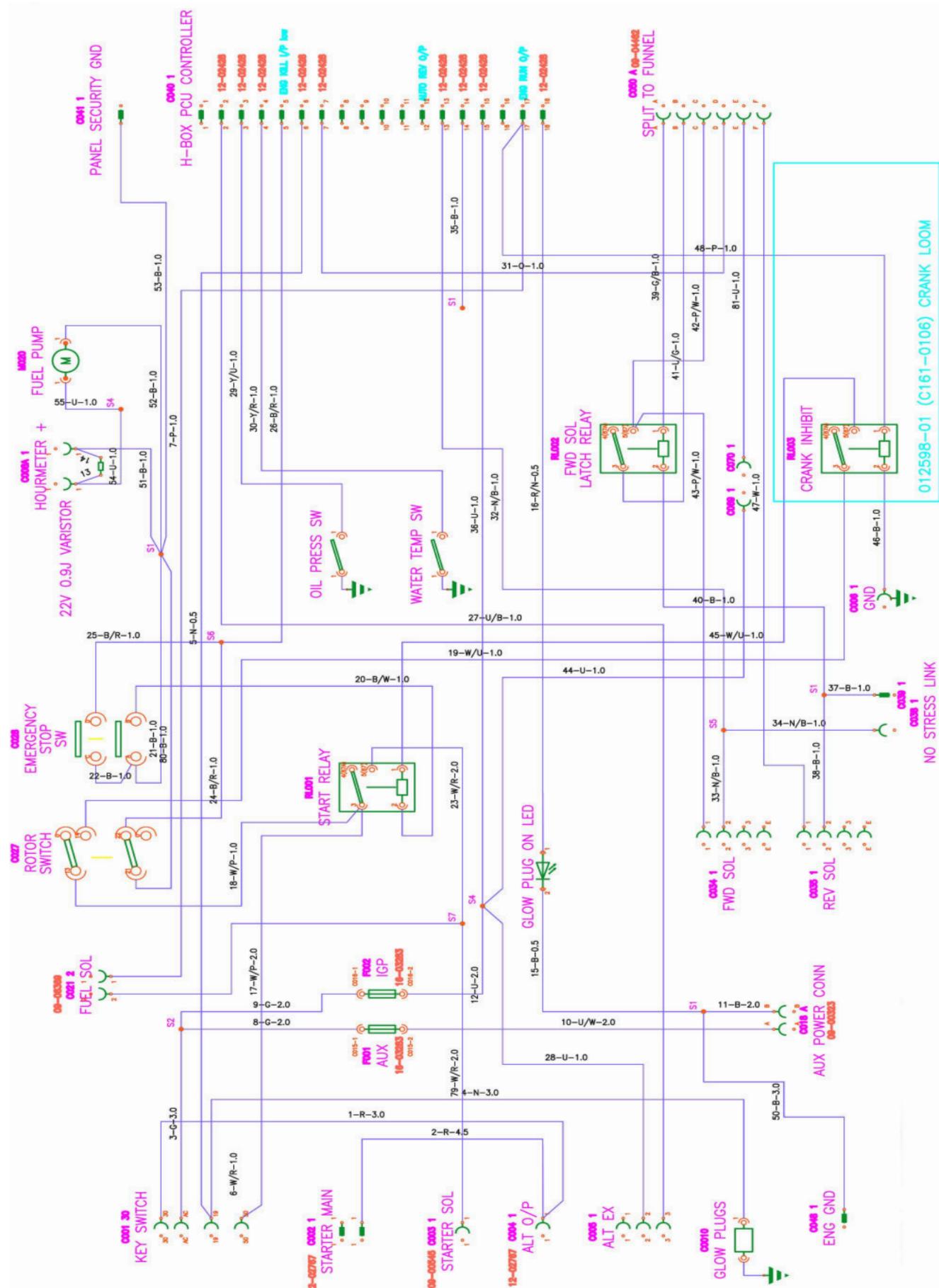


CIRCUIT DIAGRAM FOR: TW280 TFTR (H-BOX)

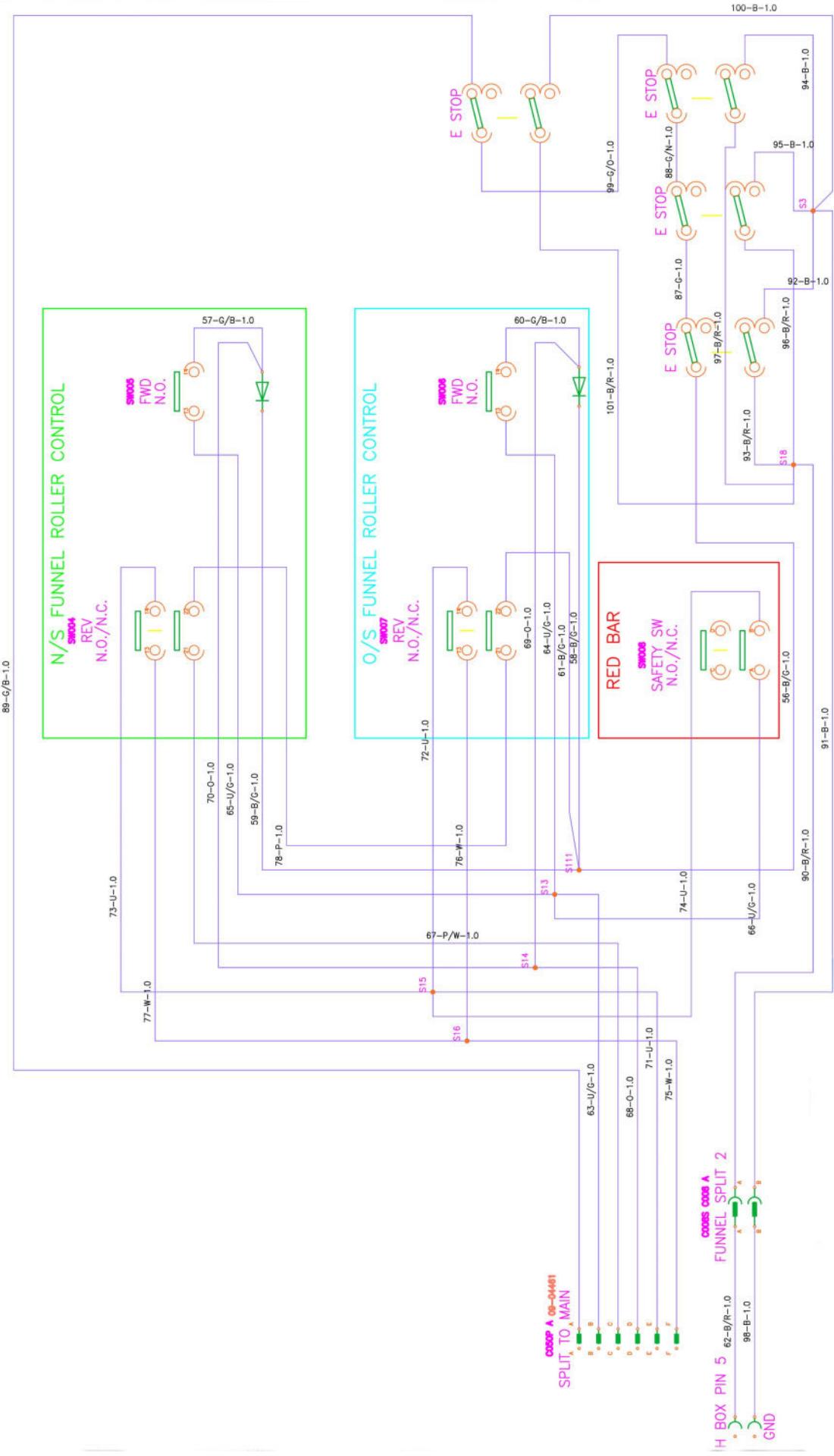


280 TFTR-CD
DOCUMENT No. 2
ISSUE 2

P*2741 plus C161-0106 Crank Loom



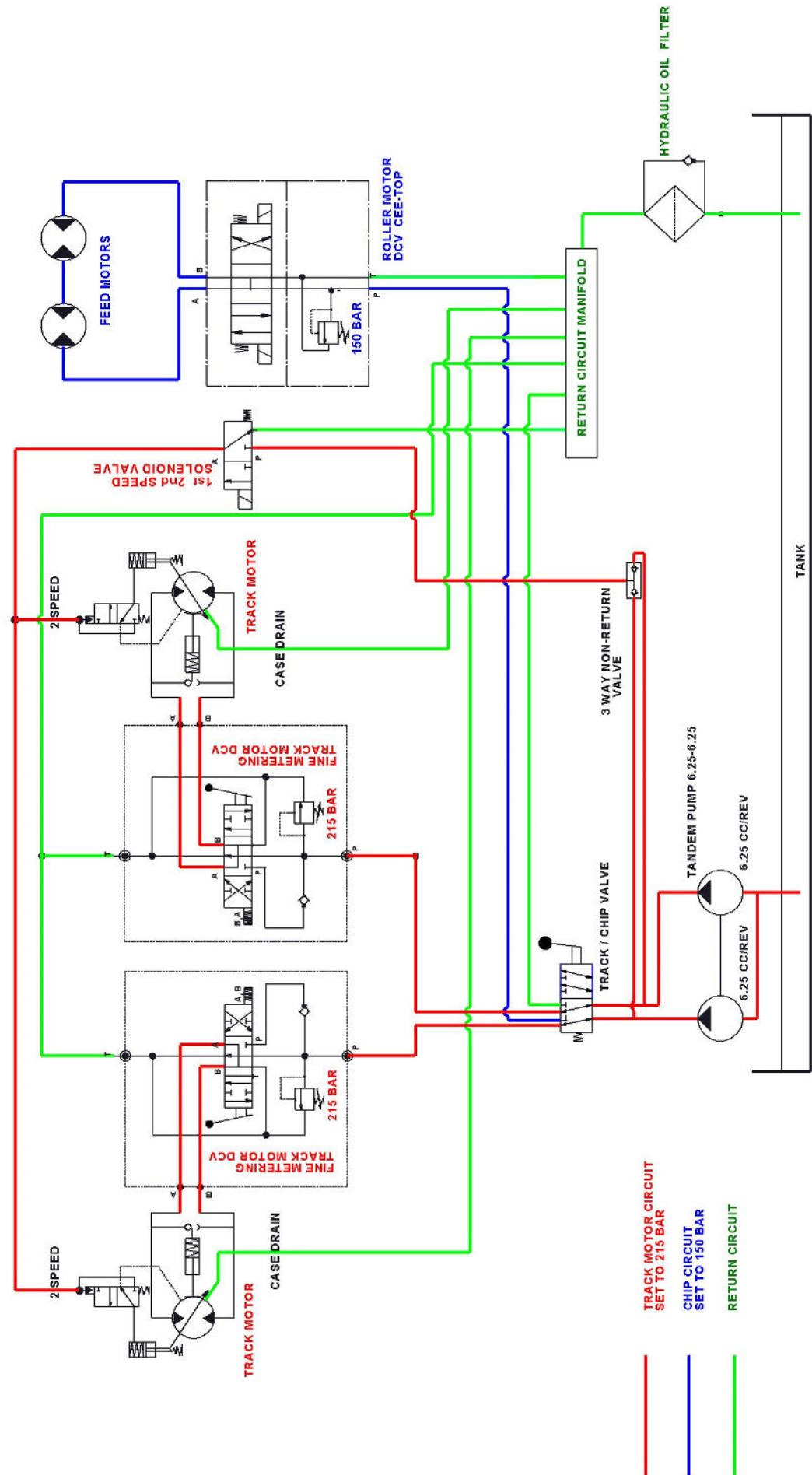
C161-0119



IW 280 TETR HYDRAULIC CIRCUIT
HOSE KIT PART No. P0002759

HOSE KIT PART NO. P00002759

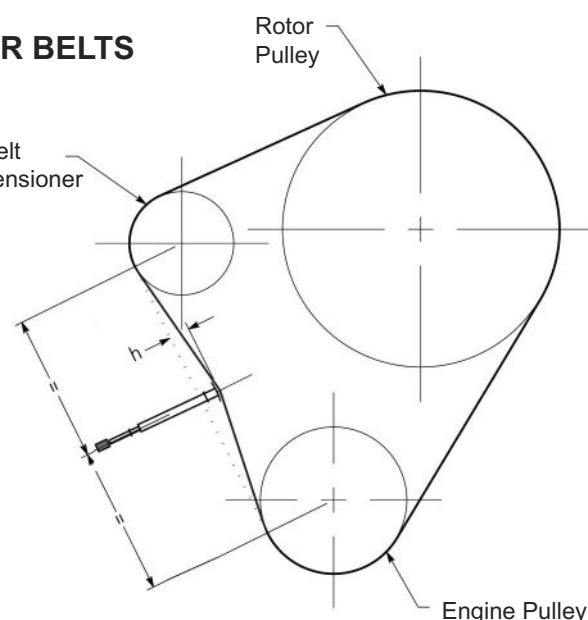
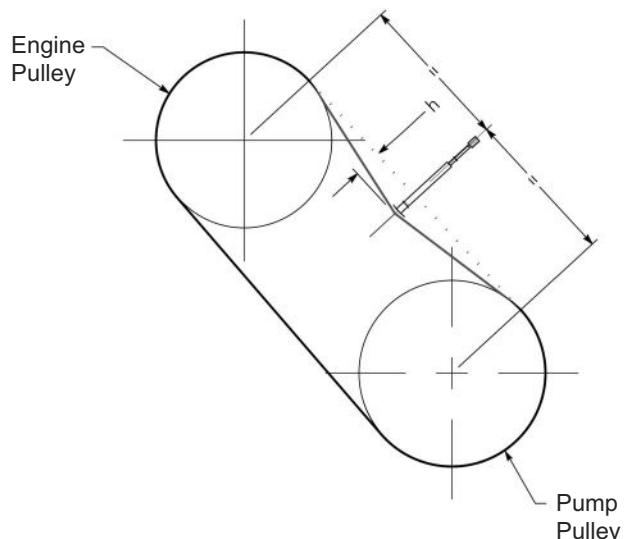
**12 V DC CONTROL
ENGINE REV'S 3200 RPM
PUMP 21 LITRES / MINUTE EACH SECTION**



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**

| 280TFTR | | Rotor Belts | Pump Belts |
|------------------------|-----------|-------------------|----------------|
| Belt Mfr / Type | | Gates Super HC-MN | Quad Power III |
| Belt Pitch Designation | | SPB | XPA |
| Belt Length in mm | | 1600 | 982 |
| Belt Deflection in mm | = h | 3.8 | 2.6 |
| Force Reading (Kg) | New belt | 2.3 - 2.4 | 1.1 - 1.2 |
| | Used Belt | 2.0 - 2.1 | 0.9 - 1.0 |

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: | |
| 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

PARTS LISTS

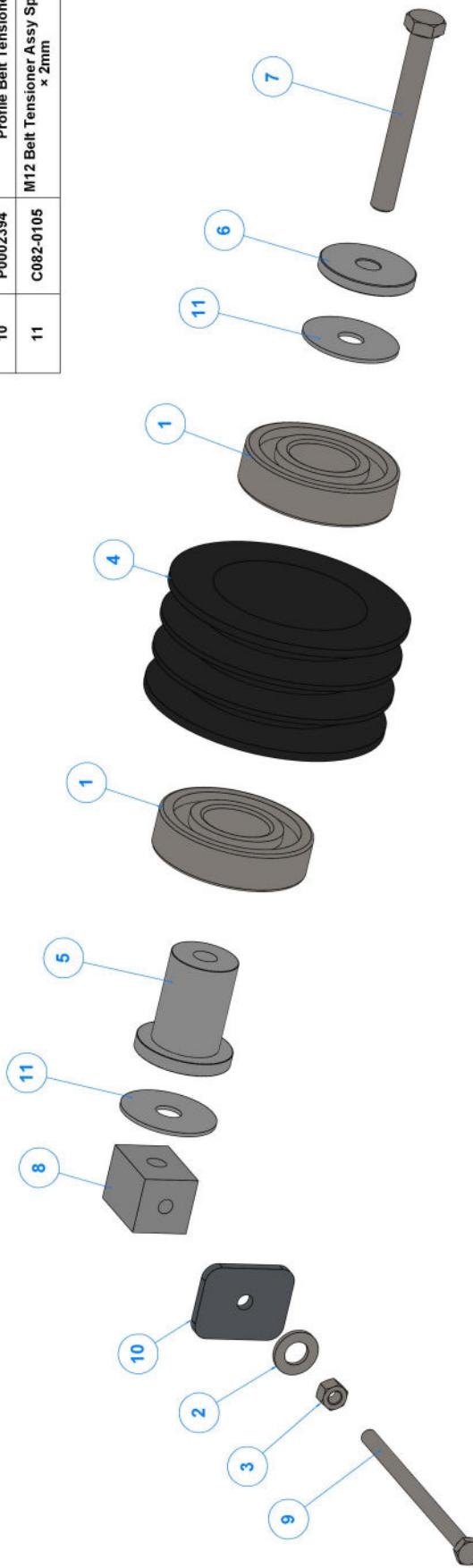
THE FOLLOWING ILLUSTRATIONS ARE FOR PARTS IDENTIFICATION ONLY. THE REMOVAL OR FITTING OF THESE PARTS MAY CAUSE A HAZARD AND SHOULD ONLY BE CARRIED OUT BY TRAINED PERSONNEL.

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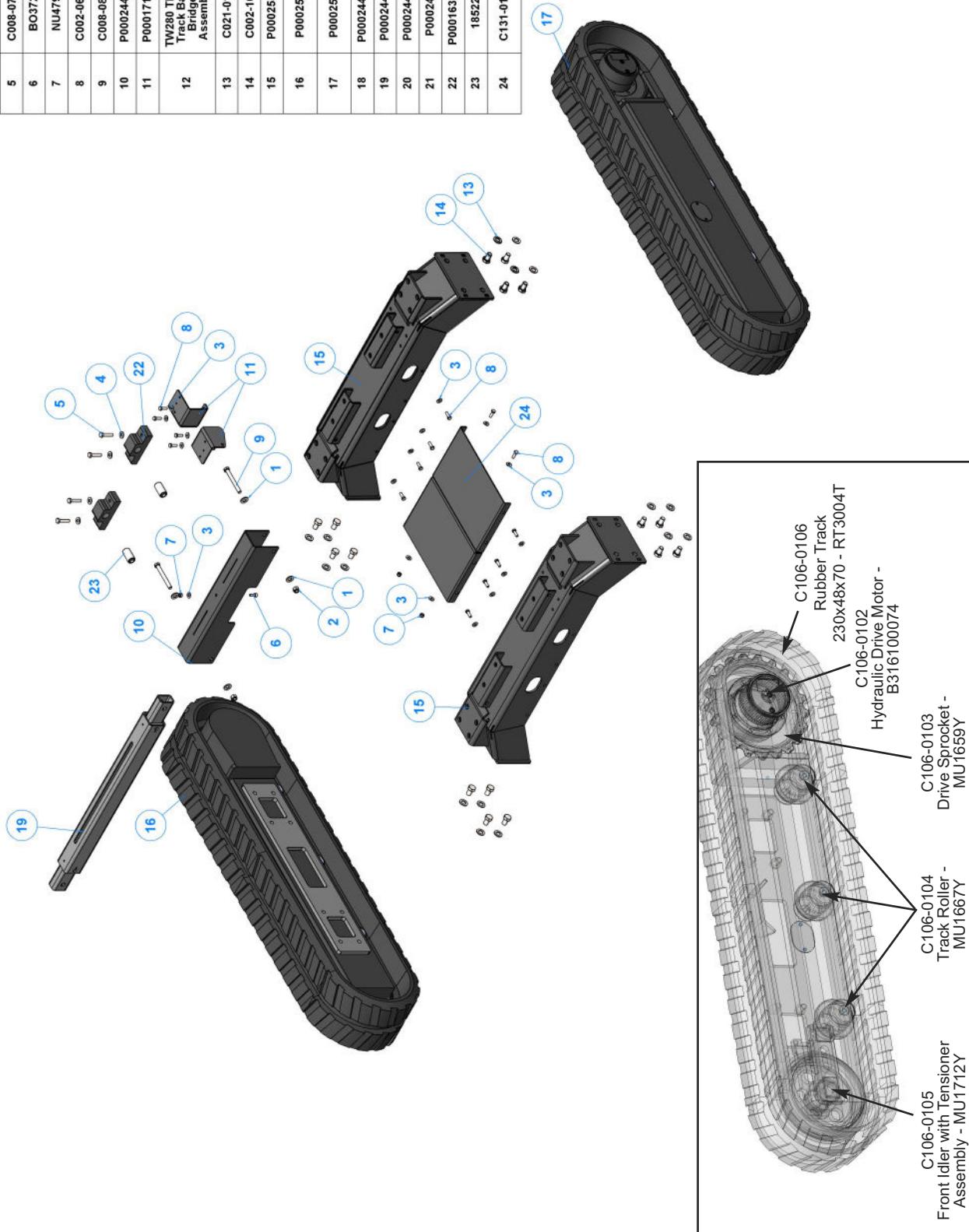
TW 280TFTR OPTIONAL ACCESSORIES:

| ITEM | PART NUMBER |
|--|-------------|
| Extra 12V sockets | P0002041 |
| 12v Recovery Winch with synthetic rope | P0002030 |
| Winch Bracket | P0001340 |
| Large Battery | C166-0100 |
| Feed Funnel Curtains | P0003444 |

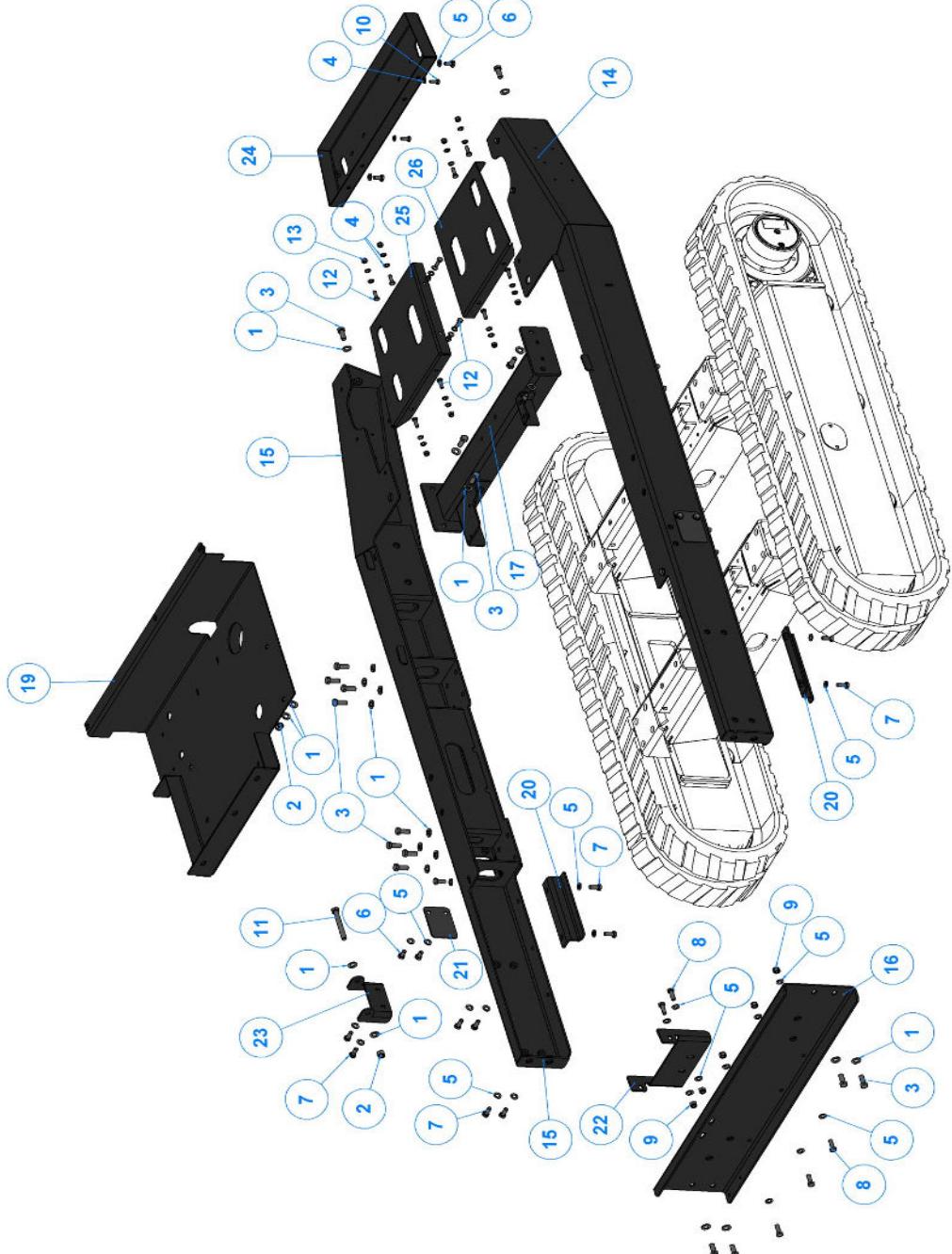
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--|------|
| 1 | C128-0109 | Bearing 6307 | 2 |
| 2 | WA702 | Washer M12 A BZP | 1 |
| 3 | C030-0123 | M8 HEX NUT - ZP - GRADE 10 | 1 |
| 4 | P0002690M | Pulley SPB - 3 - 118 Tensioner | 1 |
| 5 | P0002691M | Belt Tensioner Shaft | 1 |
| 6 | P0002692M | Belt Tensioner Washer | 1 |
| 7 | C008-0824 | M12x100 Hex Bolt ZP Grade 8.8 | 1 |
| 8 | 0469MS | Block Pulley Tension Adjuster | 1 |
| 9 | C002-0627 | M8x130 Hex Set Z/P Grade 8.8 | 1 |
| 10 | P0002394 | Profile Belt Tensioner | 1 |
| 11 | C082-0105 | M12 Belt Tensioner Assy Spacer Ø50 x 2mm | 2 |



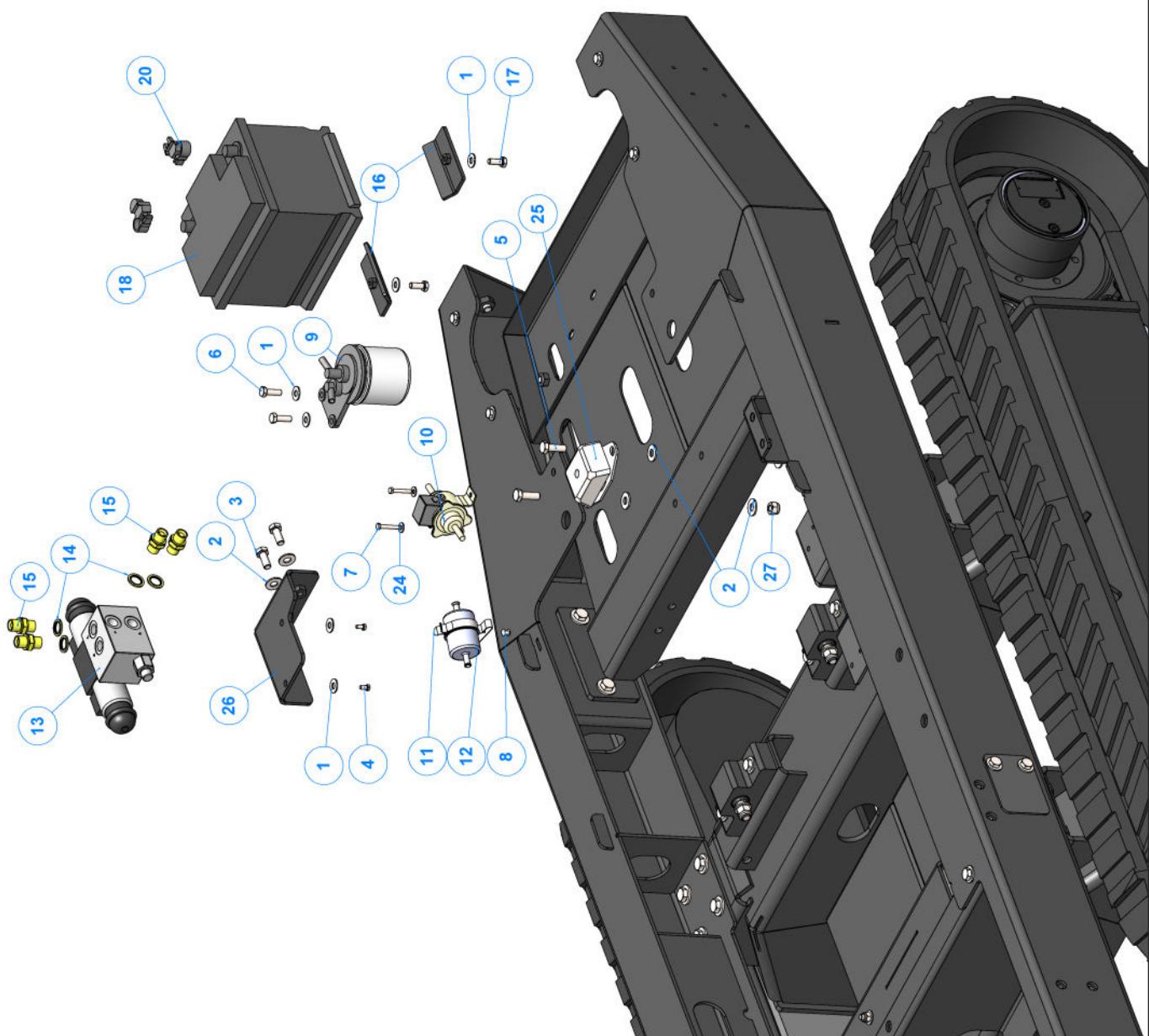
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|--------------------------------------|--|------|
| 1 | WA704 | Washer M12 C BZP | 4 |
| 2 | C031-0165 | M12 TYPE P NYLOC NUT Z/P | 2 |
| 3 | WA712 | Washer M8 C BZP | 29 |
| 4 | WA839 | Washer M10 C BZP | 4 |
| 5 | C008-0713 | M10 x 45 HEX BOLT Z/P 8.8 | 4 |
| 6 | B0372 | Socket Head Cap M8 1.25 20 | 1 |
| 7 | NU479 | Nut M8 1.25 Nyloc P | 15 |
| 8 | C002-0609 | M8 x 25 HEX SET Z/P 8.8 | 14 |
| 9 | C008-0825 | M12 x 110 HEX BOLT Z/P 8.8 | 2 |
| 10 | P002445F | Bracket Jacking Beam | 1 |
| 11 | P001719F | Bracket Fuel Pump | 2 |
| 12 | TW280 TFR Track Base Bridge Assembly | TW280 TFR Track Base Bridge Assembly | 1 |
| 13 | C021-0109 | M16 FORM A WASHER Z/P | 16 |
| 14 | C002-1009 | M16 x 25 HEX SET Z/P 8.8 | 16 |
| 15 | P0002538F | Chassis Bridge | 2 |
| 16 | P0002543 | Sampierana Track Frame 2 Speed Left Bolt On | 1 |
| 17 | P0002544 | Sampierana Track Frame 2 Speed Right Bolt On | 1 |
| 18 | P002446F | Jacking Beam | 1 |
| 19 | P002447M | Jacking Beam Box Section | 1 |
| 20 | P002448M | Jacking Beam Stub | 2 |
| 21 | P002449 | Jacking Beam Spacer | 4 |
| 22 | P001635M | Square Boss Av Mount Engine | 2 |
| 23 | 18522 | AV Bush Engine Mount M12 | 2 |
| 24 | C131-0133 | Plate Hoses-Pump Protection 280 Track | 2 |



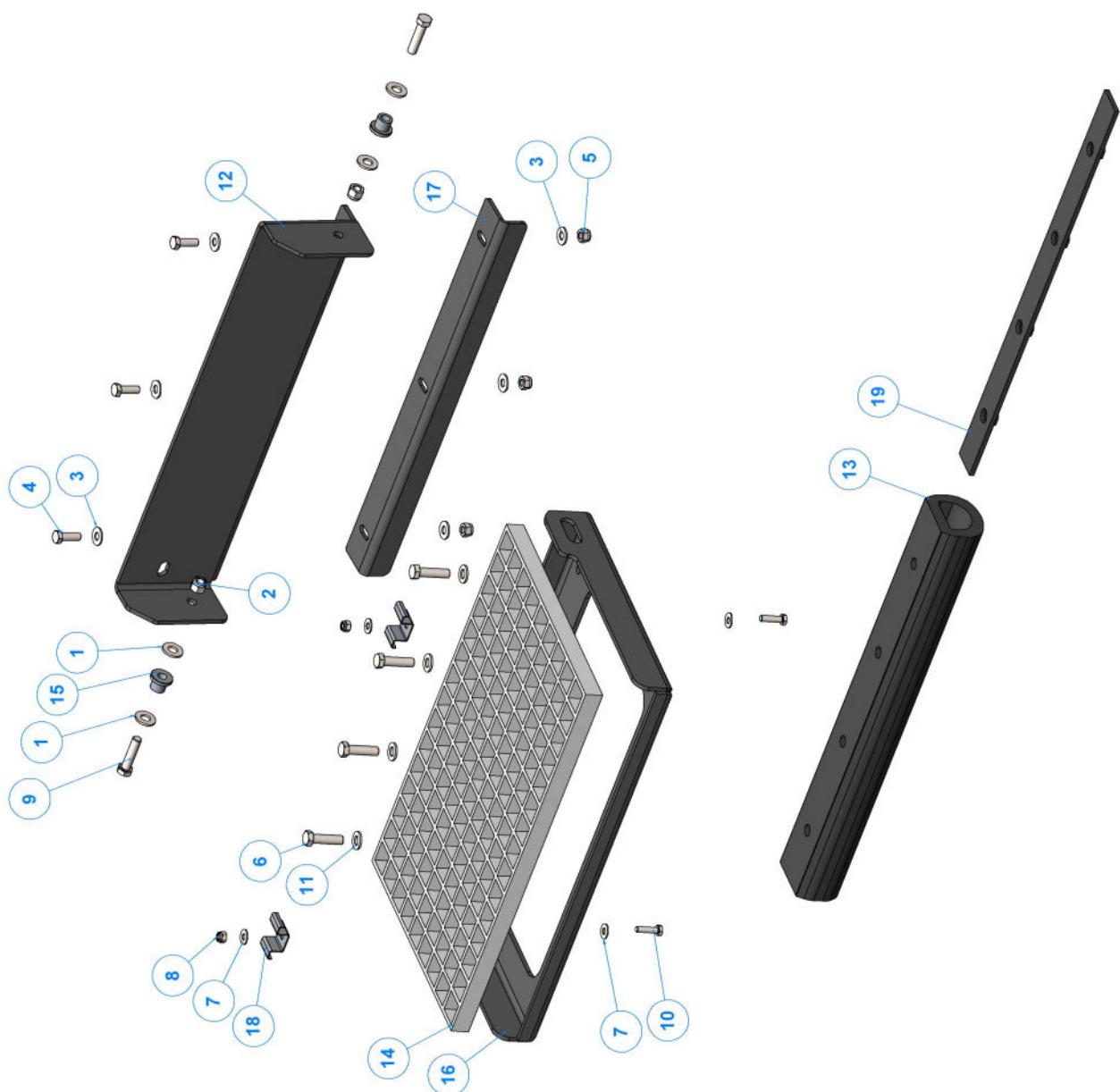
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--|------|
| 1 | C021-0127 | M12 FORM C WASHER Z/P | 30 |
| 2 | C031-0165 | M12 TYPE P NYLOC NUT Z/P | 2 |
| 3 | C002-0810 | M12 x 30 HEX SET Z/P 8.8 | 26 |
| 4 | C021-0125 | M8 FORM C WASHER Z/P | 29 |
| 5 | C021-0126 | M10 FORM C WASHER Z/P | 30 |
| 6 | C002-0707 | M10 x 20 HEX SET Z/P 8.8 | 6 |
| 7 | C002-0709 | M10 x 25 HEX SET Z/P 8.8 | 12 |
| 8 | C002-0710 | M10 x 30 HEX SET Z/P 8.8 | 5 |
| 9 | C031-0164 | M10 TYPE P NYLOC NUT Z/P | 5 |
| 10 | C002-0607 | M8 x 20 HEX SET Z/P 8.8 | 2 |
| 11 | C007-0824 | M12 x 100 HEX BOLT SIC 8.8 | 1 |
| 12 | C002-0609 | M8 x 25 HEX SET Z/P 8.8 | 13 |
| 13 | C031-0163 | M8 TYPE P NYLOC NUT Z/P | 13 |
| 14 | P0002438F | Chassis Beam Opp To P0002437F | 1 |
| 15 | P0002437F | Chassis Beam Opp To P0002438F | 1 |
| 16 | P0002444F | Bracket Chassis Winch Assembly | 1 |
| 17 | P0002451F | Engine Support Beam | 1 |
| 18 | P0002231F | Bracket Cee Top Valve | 1 |
| 19 | C137-0111 | Plate Tank Support Guard Assembly | 1 |
| 20 | P0002634F | Bracket Tank Support Assembly | 2 |
| 21 | P0002535 | Cover Plate Jacking Beam | 2 |
| 22 | P0002450F | Bracket Funnel Support | 1 |
| 23 | P0002698F | Spring Hanger | 1 |
| 24 | P0002615F | Battery Tray | 1 |
| 25 | C131-0131 | Plate Hose Protection 280 Track Front OS (Opp Hand of C131-0132) | 1 |
| 26 | C131-0132 | Plate Hose Protection 280 Track Front OS (Opp Hand of C131-0132) | 1 |



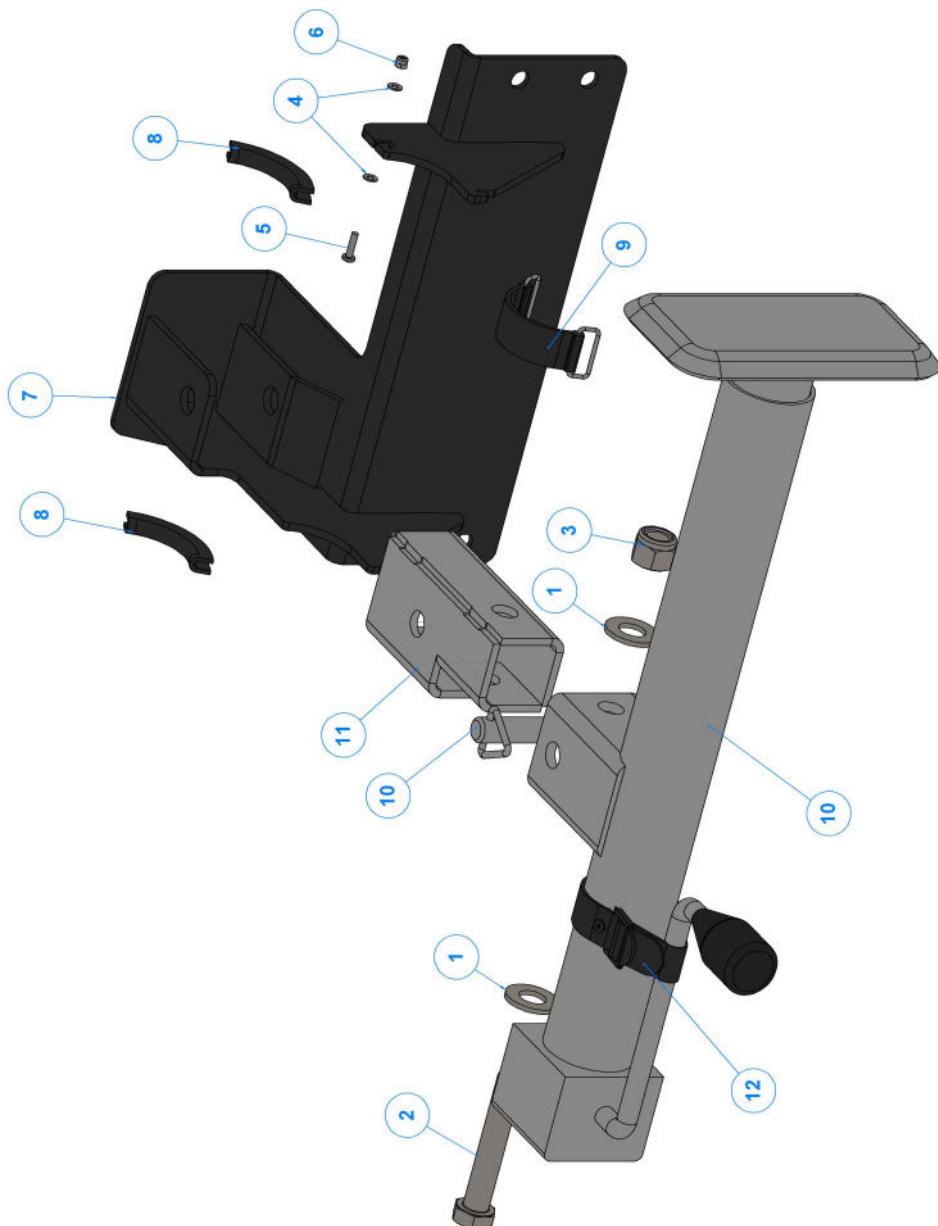
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--|------|
| 1 | WA712 | Washer M8 C BZP | 54 |
| 2 | WA839 | Washer M10 C BZP | 6 |
| 3 | C002-0709 | M10 x 25 HEX SET Z/P 8.8 | 2 |
| 4 | C002-0302 | M5 x 10 HEX SET Z/P 8.8 | 2 |
| 5 | C002-0710 | M10 x 30 HEX SET Z/P 8.8 | 2 |
| 6 | C002-0609 | M8 x 25 HEX SET Z/P 8.8 | 26 |
| 7 | C002-0310 | M5 x 30 HEX SET Z/P 8.8 | 2 |
| 8 | CO45-0107 | 4.8 x 12 St/St Rivet | 1 |
| 9 | 0085 | Fuel Filter | 1 |
| 10 | 0807 | Fuel Pump | 1 |
| 11 | 18197 | Spring Clip | 1 |
| 12 | 4315 | Pre-Fuel Filter | 1 |
| 13 | 19369 | Directional Control Valve No Filter | 1 |
| 14 | HY396 | Washer Dowty 3/8" | 4 |
| 15 | HY161 | Adaptor Mm 3/8 - 3/8 | 4 |
| 16 | P0002617F | Battery Clamp | 2 |
| 17 | C002-0607 | M8 x 20 HEX SET Z/P 8.8 | 2 |
| 18 | 4210 | Battery 12V | 1 |
| 19 | 4074 | Battery Terminals Kit | 1 |
| 20 | 4074 | Battery Terminal Kit + | 1 |
| 21 | 4074 Bolt | Battery Terminals Kit Bolt | 2 |
| 22 | 4074 Nut | Battery Terminals Kit Nut | 2 |
| 23 | 4074 | Battery Terminal Kit - | 1 |
| 24 | WA709 | Washer M6 C BZP | 2 |
| 25 | P0002458 | Engine AV Mount 70 | 1 |
| 26 | P0002231F | Bracket CeeTop Valve | 1 |
| 27 | C031-0164 | M10 TYPE P NYLOC NUT Z/P | 2 |
| 28 | NU479 | Nut M8 1.25 Nyloc P | 24 |
| 29 | C131-0133 | Plate Hoses-Pump Protection 280 Track | 2 |
| 30 | C131-0131 | Plate Hose Protection 280 Track Front OS (Opp Hand of C131-0132) | 1 |
| 31 | C131-0132 | Plate Hose Protection 280 Track Front OS (Opp Hand of C131-0132) | 1 |



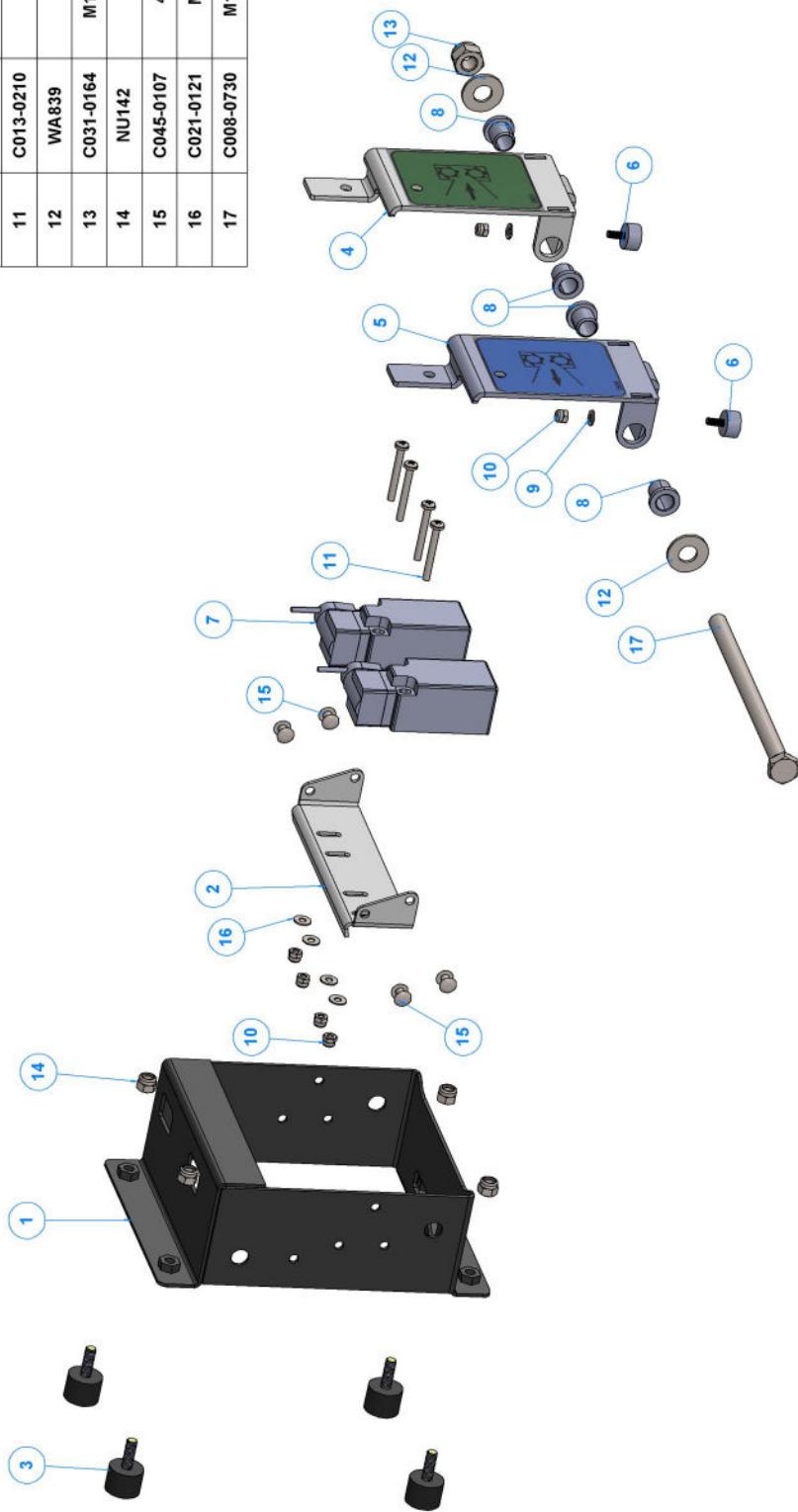
| ITEM NO. | DESCRIPTION | PART NUMBER | QTY. |
|----------|----------------------------|-------------|------|
| 1 | Washer M12 C BZP | WA704 | 4 |
| 2 | M12 TYPE P NYLOC NUT Z/P | C031-0165 | 2 |
| 3 | Washer M10 C BZP | WA839 | 6 |
| 4 | M10 x 30 HEX SET Z/P 8.8 | C002-0710 | 3 |
| 5 | M10 TYPE P NYLOC NUT Z/P | C031-0164 | 3 |
| 6 | M12 x 45 HEX SET Z/P 8.8 | C002-0813 | 4 |
| 7 | Washer M8 C BZP | WA712 | 4 |
| 8 | Nut M8 1.25 Nyloc P | NU479 | 2 |
| 9 | M12 x 50 HEX SET Z/P 8.8 | C002-0814 | 2 |
| 10 | M8 x 30 HEX SET Z/P 8.8 | C002-0610 | 2 |
| 11 | Washer M12 A BZP | WA702 | 4 |
| 12 | Bracket Step | P0001855F | 1 |
| 13 | Rubber Buffer | P0001814 | 1 |
| 14 | Step Grating | P0001857 | 1 |
| 15 | Step Pivot Boss | P0001859M | 2 |
| 16 | Step | P0001856F | 1 |
| 17 | Bracket Step Stop | P0001856F | 1 |
| 18 | Bracket Step Grating Clamp | P0001865F | 2 |
| 19 | Bracket Step Buffer | P0001864F | 1 |



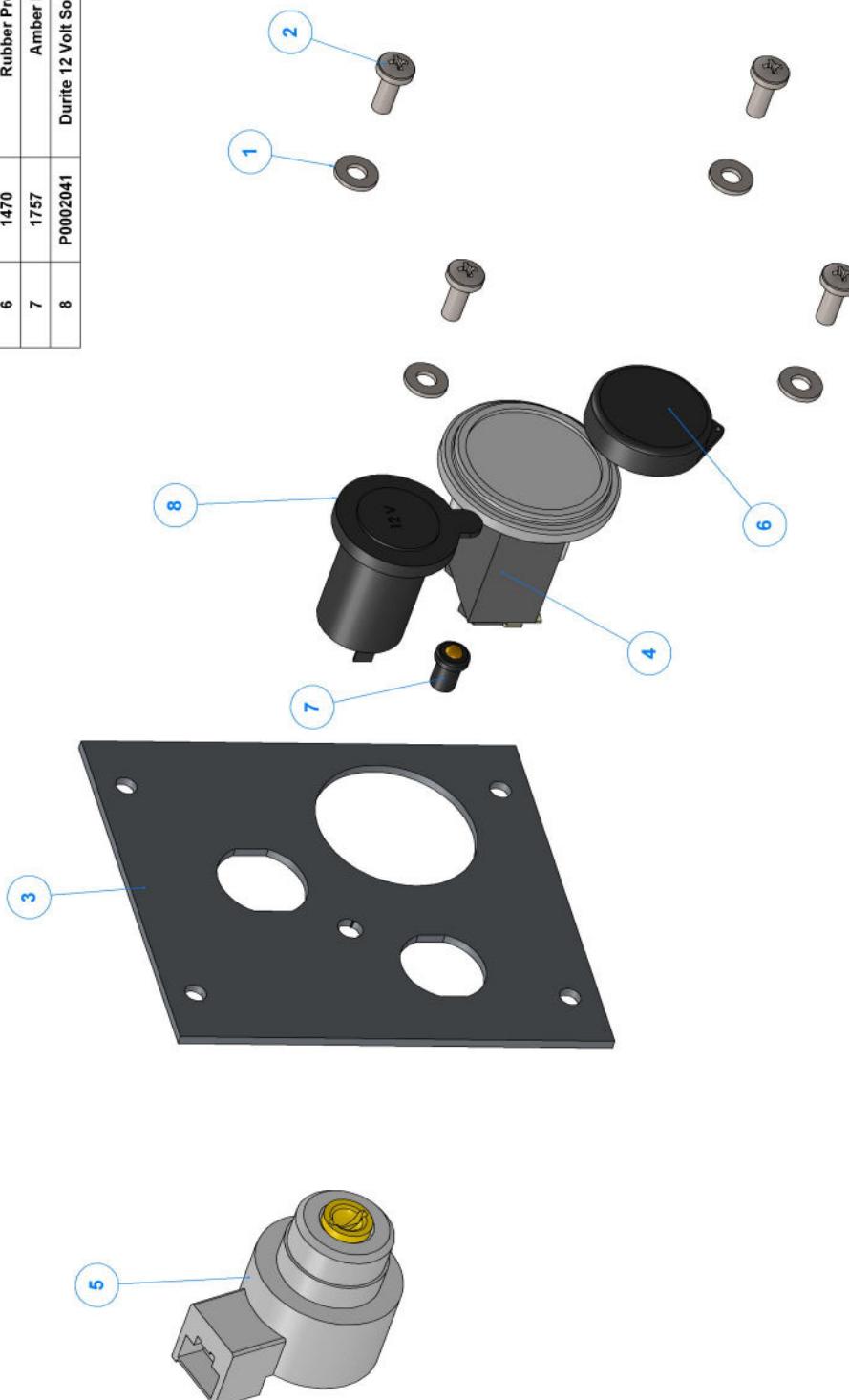
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|--------------|---------------------------------|------|
| 1 | C021-0129 | M16 FORM C WASHER Z/P | 2 |
| 2 | C008-1022 | M16 x 90 HEX BOLT Z/P 8.8 | 1 |
| 3 | C031-0167 | M16 TYPE P NYLOC NUT Z/P | 1 |
| 4 | C021-0101 | M4 FORM A WASHER Z/P | 2 |
| 5 | C013-0205 | M4 x 16 PAN POZI Z/P | 1 |
| 6 | C035-0102 | M4 TYPE P NYLOC NUT Z/P | 1 |
| 7 | P0001888F | Bracket Bulldog Jack Assembly | 1 |
| 8 | Edging Strip | | 2 |
| 9 | P0002046 | Butser Rubber 125mm Strap | 1 |
| 10 | P0001882 | Bulldog 5000 LBS Jack S20312 | 1 |
| 11 | P0001804F | Jack Adapter TW230VTR | 1 |
| 12 | P0002160 | Rubber Tree Strap 24 x 380 long | 1 |



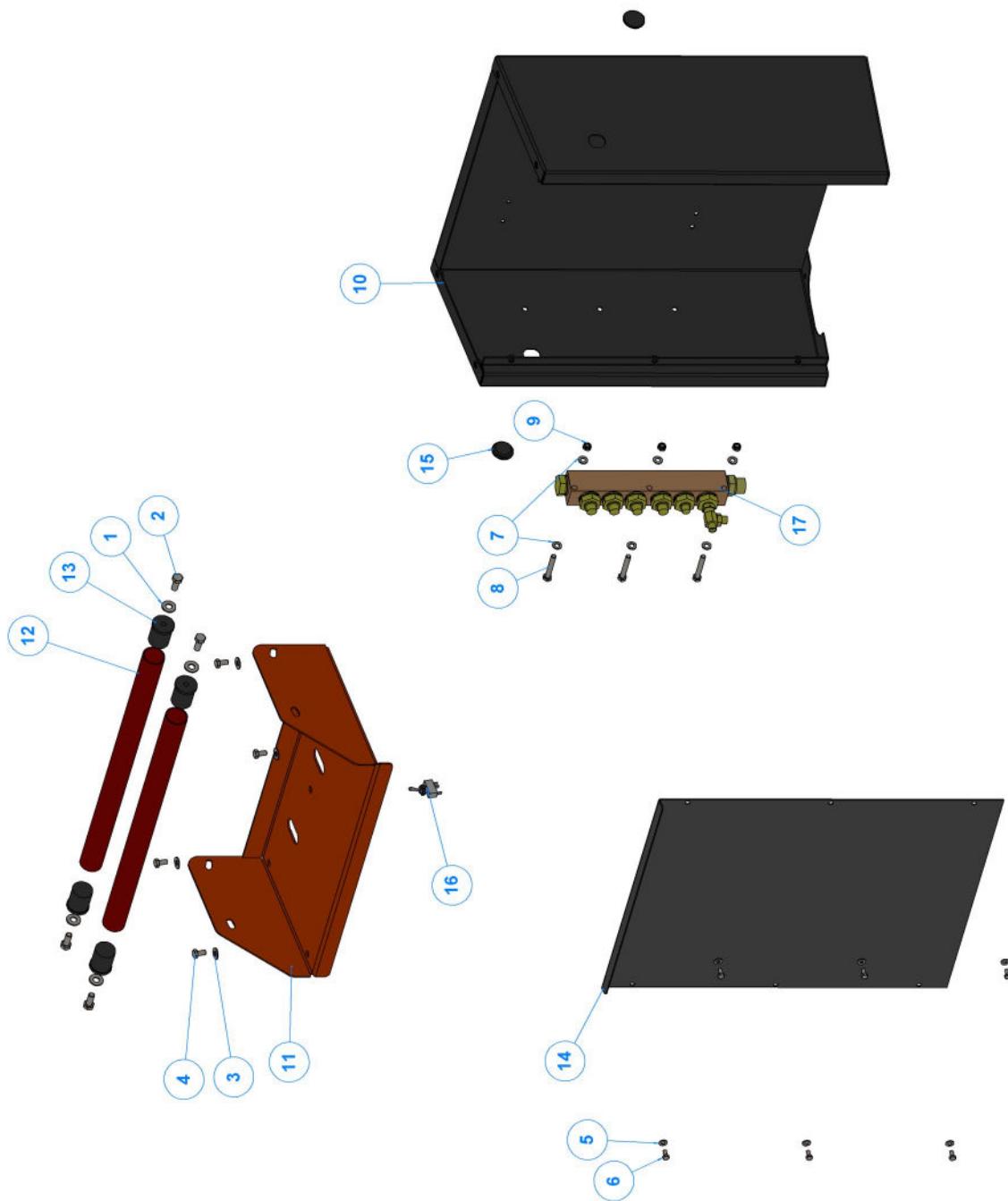
| ITEM NO. | PART NUMBER | DESCRIPTION | Manual Page |
|----------|-------------|-----------------------------------|-------------|
| 1 | 17802F | Control Box Cover | 1 |
| 2 | 17805F | Switch Mounting Plate Control Box | 1 |
| 3 | 18000 | AV Mount M6 MF 20 14.5 | 4 |
| 4 | 17803F | Finger Plate | 1 |
| 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 | C021-0101 | M4 FORM A WASHER Z/P | 2 |
| 10 | C035-0102 | M4 TYPE P NYLOC NUT Z/P | 6 |
| 11 | C013-0210 | M4 x 35 PAN POZI Z/P | 4 |
| 12 | WA839 | Washer M10 C BZP | 2 |
| 13 | C031-0164 | M10 TYPE P NYLOC NUT Z/P | 1 |
| 14 | NU142 | Nut M6 P Nyloc | 4 |
| 15 | C045-0107 | 4.8 x 12 Stl/Stl Rivet | 4 |
| 16 | C021-0121 | M4 FORM C WASHER Z/P | 4 |
| 17 | C008-0730 | M10 x 160 HEX BOLT Z/P 8.8 | 1 |



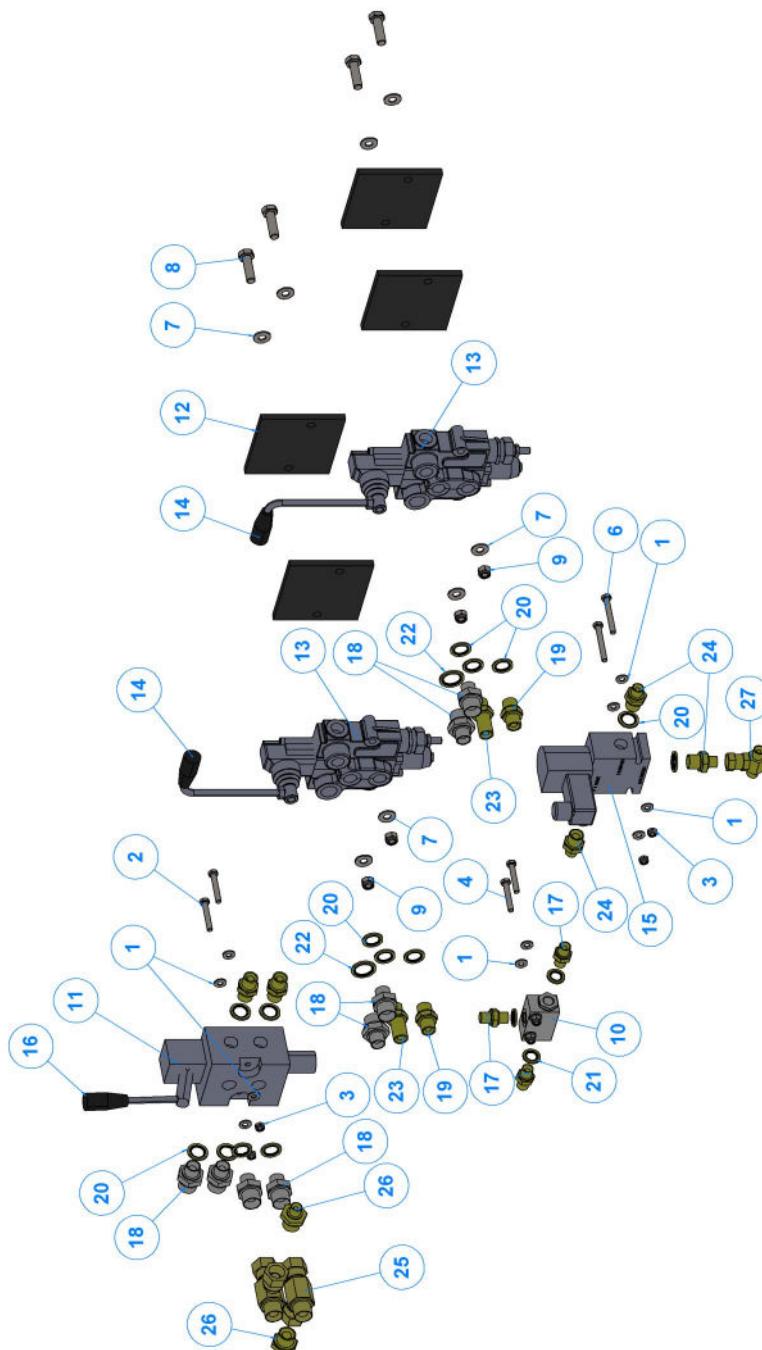
| ITEM NO. | PART NUMBER | DESCRIPTION | Manual Page/QTY. |
|----------|------------------------|--|------------------|
| 1 | WA709 | Washer M6 C BZP | 4 |
| 2 | C013-0405 | M6 x 16 PAN POZI Z/P | 4 |
| 3 | P0001892 | Profile Control Panel with 12 Volt Cut Out | 1 |
| 4 | 0327 | Hours Counter | 1 |
| 5 | Kubota Ignition Switch | Supp'd with engine | 1 |
| 6 | 1470 | Rubber Protector | 1 |
| 7 | 1757 | Amber LED | 1 |
| 8 | P0002041 | Durite 12 Volt Socket 0-601-07 | 1 |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---|------|
| 1 | WA839 | Washer M10 C BZP | 4 |
| 2 | C002-0709 | M10 x 25 HEX SET Z/P 8.8 | 4 |
| 3 | WA712 | Washer M8 C BZP | 4 |
| 4 | C002-0605 | M8 x 16 HEX SET Z/P 8.8 | 4 |
| 5 | WA709 | Washer M6 C BZP | 6 |
| 6 | C002-0403 | M6 x 12 HEX SET Z/P 8.8 | 6 |
| 7 | WA711 | Washer M8 A BZP | 6 |
| 8 | C002-0615 | M8 x 55 HEX SET Z/P 8.8 | 3 |
| 9 | NU481 | Nut M8 Nyloc T | 3 |
| 10 | P0002606F | Control Tower Main Assembly | 1 |
| 11 | P0002602F | Control Tower Top | 1 |
| 12 | 1802FR | Handle Driving Main Tower | 2 |
| 13 | 1803P | Threaded Insert M10 | 4 |
| 14 | P0002603 | Control Tower Front Plate | 1 |
| 15 | P0002159 | 28mm Dia Rubber Blanking Grommet | 2 |
| 16 | | Toggle Switch Non Latching Part Or P0002577 | 1 |
| 17 | | TW 230 VTR Hydraulic Manifold Assembly | 1 |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---|------|
| 1 | WA709 | Washer M6 C BZP | 12 |
| 2 | C002-0412 | M6 x 40 HEX SET Z/P 8.8 | 2 |
| 3 | C031-0121 | M6 TYPE T NYLOC NUT Z/P | 4 |
| 4 | BO993 | Set Screw M6 40 BZP | 2 |
| 5 | NU142 | Nut M6 P Nyloc | 2 |
| 6 | C002-0414 | M6 x 50 HEX SET Z/P 8.8 | 2 |
| 7 | WA712 | Washer M8 C BZP | 8 |
| 8 | C002-0711 | M10 x 35 HEX SET Z/P 8.8 | 4 |
| 9 | NU479 | Nut M8 1.25 Nyloc P | 4 |
| 10 | P0001896 | Valve Check 3way 2F&M 1/4" | 1 |
| 11 | 1738 | Six Way Diverter Valve | 1 |
| 12 | P0002284M | Sampierana Proportional Control Valve Shim | 4 |
| 13 | P0002283-B | Sampierana Proportional Control Valve | 2 |
| 14 | 18850F | L-Shaped Track Handle | 2 |
| 15 | P0001895 | Solenoid Valve with Ports Marked | 1 |
| 16 | 1860 | M8 Lever | 1 |
| 17 | 18833 | 1/4"-1/4" Adapter | 3 |
| 18 | HY0226 | Adapter 3/8 - 1/2 | 8 |
| 19 | HY161 | Adaptor Mm 3/8 - 3/8 | 4 |
| 20 | HY396 | Washer Dowty 3/8" | 15 |
| 21 | HY395 | 1/4" Dowty Washer | 3 |
| 22 | HY398 | Washer Dowty 1/2" | 2 |
| 23 | HY828 | Fitting 3/8 to 3/8 Bulkhead | 2 |
| 24 | HY033 | Fitting 3/8 to 1/4 | 3 |
| 25 | P0002612 | 1/2" BSP Tee, Male - Centre Female - Female | 2 |
| 26 | P0001950 | Fitting 1/2" to 1/4" | 2 |
| 27 | P0002610 | 1/4" Male - Centre Female - Male Tee | 1 |

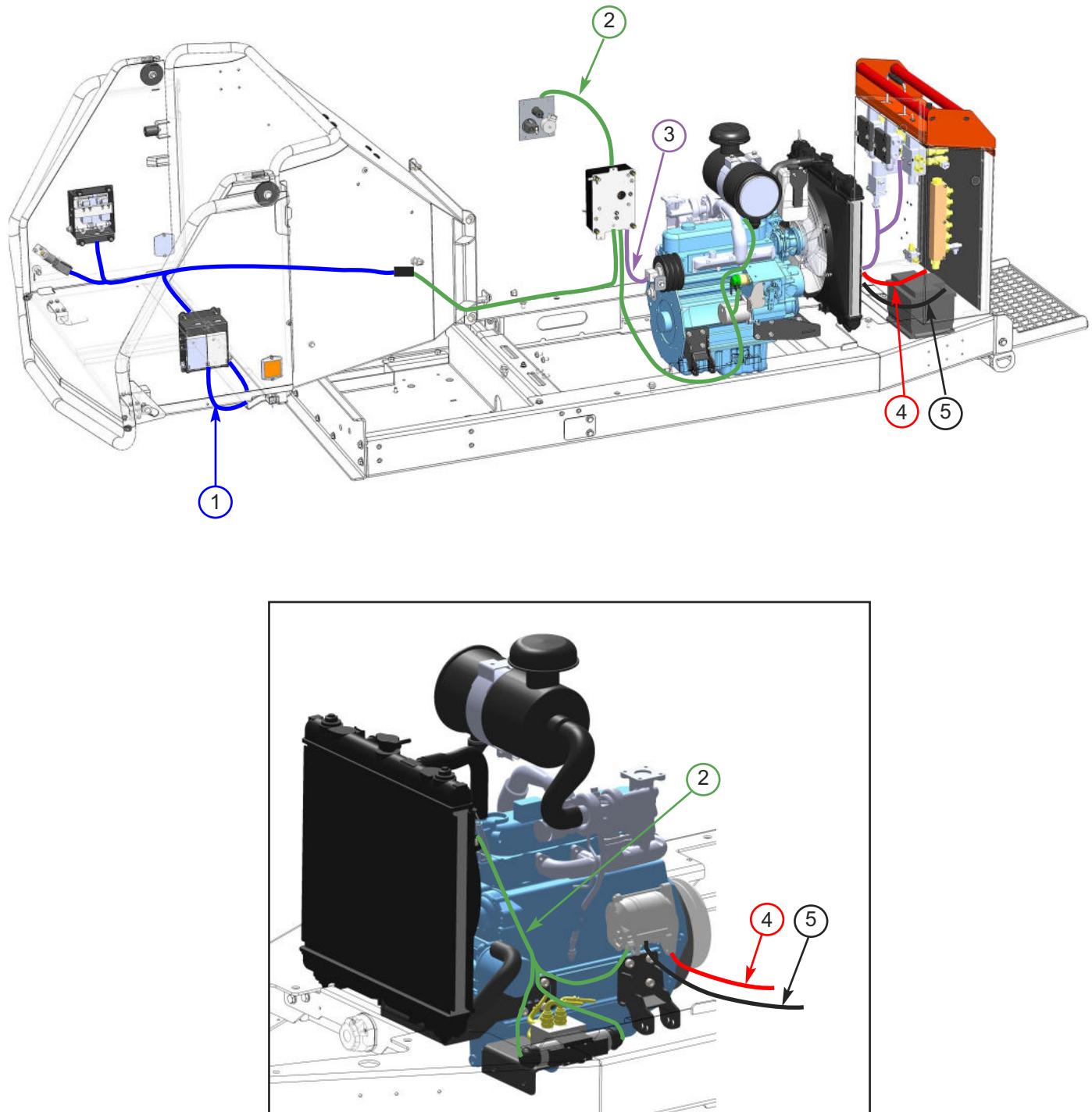


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|-------------------------------------|------|
| 1 | WA702 | Washer M12 A Bzp | 2 |
| 2 | C031-0165 | M12 TYPE P NYLOC NUT Z/P | 2 |
| 3 | C002-1018 | M16 x 70 HEX SET Z/P 8.8 | 1 |
| 4 | C031-0127 | M16 TYPE T NYLOC NUT Z/P | 2 |
| 5 | C079-0101 | M10 x 36 Roll Pin | 1 |
| 6 | C021-0129 | M16 FORM C WASHER Z/P | 1 |
| 7 | C085-0718 | M12 x 50 SKT Set Grub screw S/C 45H | 1 |
| 8 | C021-0113 | M24 FORM A WASHER Z/P | 1 |
| 9 | P0001147 | Discharge Tube Assy | 1 |
| 10 | P0001411 | Bucket Discharge Tube Assy | 1 |
| 11 | 1649M | Tommy Bar | 1 |
| 12 | 4109M | M16 Clamp Nut | 1 |
| 13 | 2837M | Clamp Discharge | 1 |
| 14 | BO430 | Bolt M12/35 Cup Square Bzp | 1 |
| 15 | 19282 | M12/30 Cup Square | 1 |

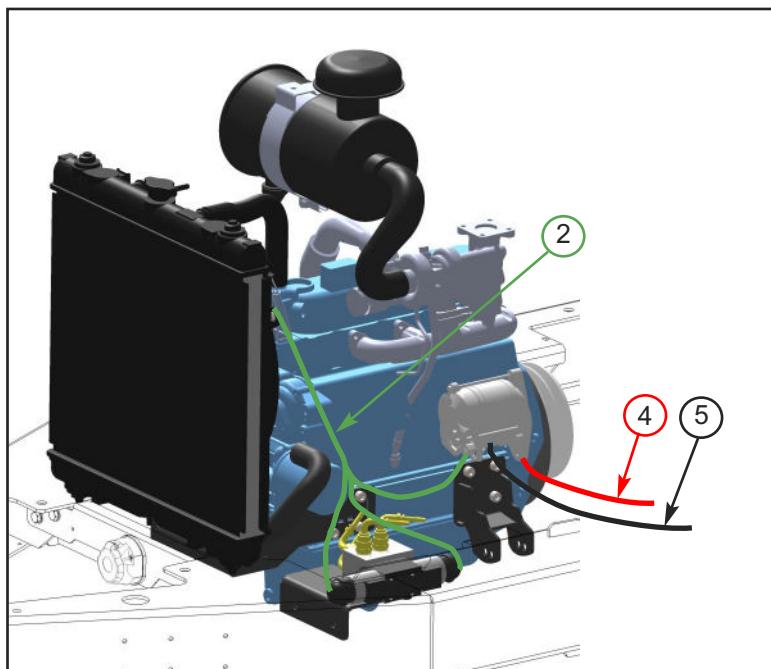
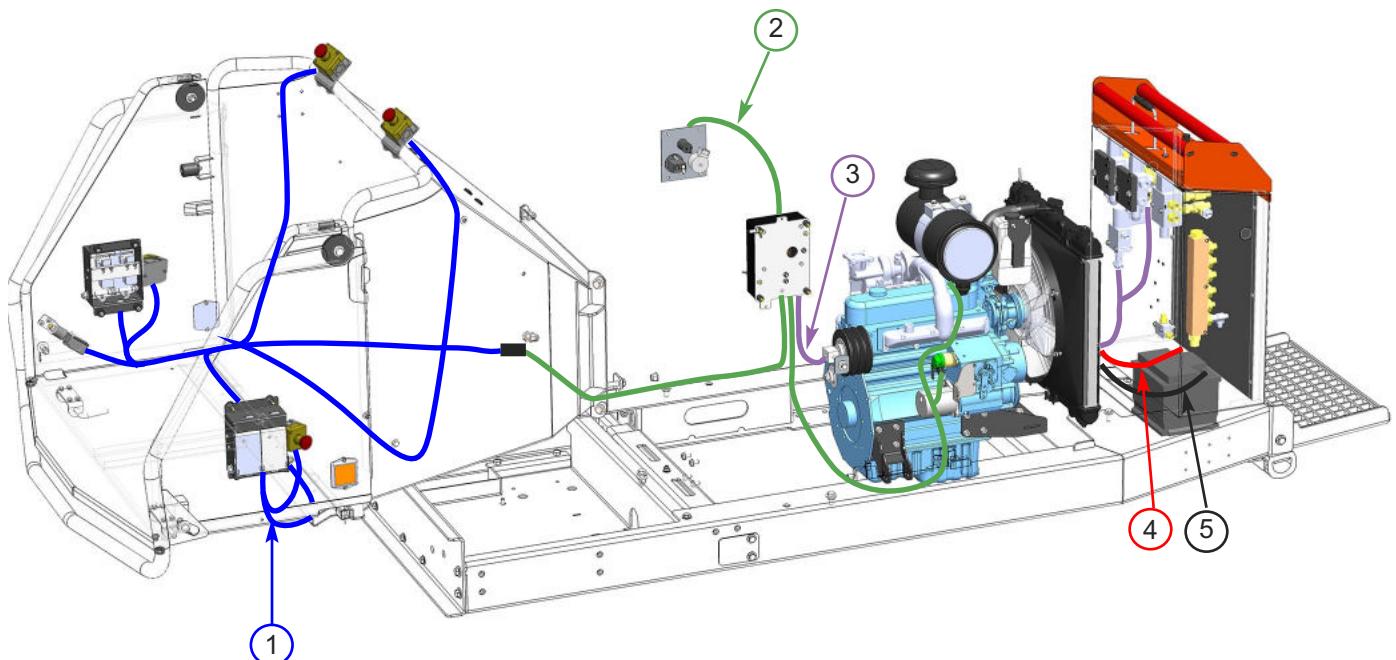


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|-----------------------------------|------|
| 1 | P0001655 | Pulley SPB 3 315 | 1 |
| 2 | P0001826 | Taperlock Bush 3020 45 | 1 |
| 3 | P0002215 | Belt SPB 1600 | 3 |
| 4 | P0002546M | SPB 3 175 + SPA 150 | 1 |
| 5 | P0002809 | Gates Quad Power 111 Belt XPA 982 | 1 |
| 6 | 0949M | PULLEY 140 X 1 SPA MACHINED | 1 |
| 7 | 2975 | Taper Lock Bush 16/10 18mm | 1 |
| 8 | P0002690M | Pulley SPB - 3 - 118 Tensioner | 1 |
| 9 | P0002216 | Key 14x9x50 | 1 |



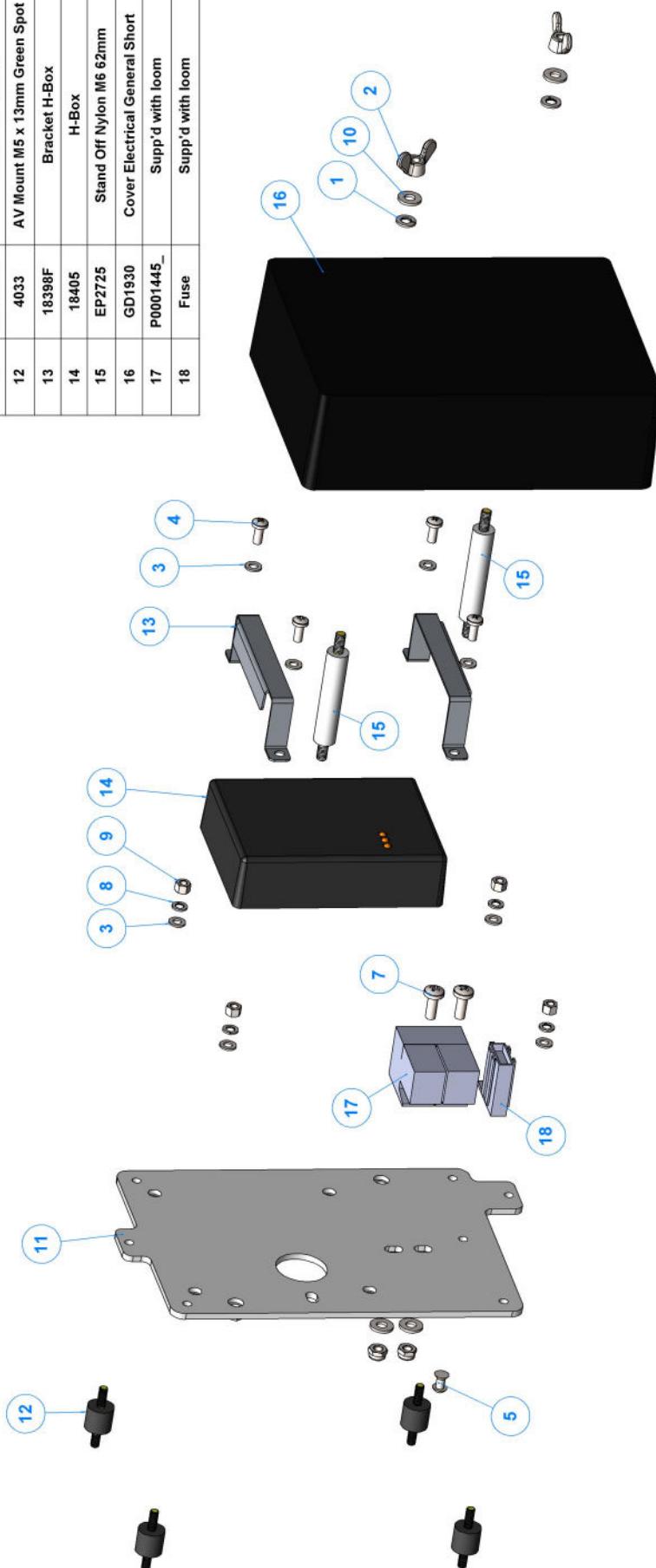


| ITEM | PART NO | DESCRIPTION | QTY | ITEM | PART NO | DESCRIPTION | QTY |
|------|---------|------------------|-----|------|---------|------------------|-----|
| 1 | 17809 | Funnel Loom | 1 | 4 | P2131 | +VEBattery Cable | 1 |
| 2 | P2741 | Main Engine Loom | 1 | 5 | P2132 | -VEBattery Cable | 1 |
| 3 | P2577 | 2 Speed Loom | 1 | | | | |

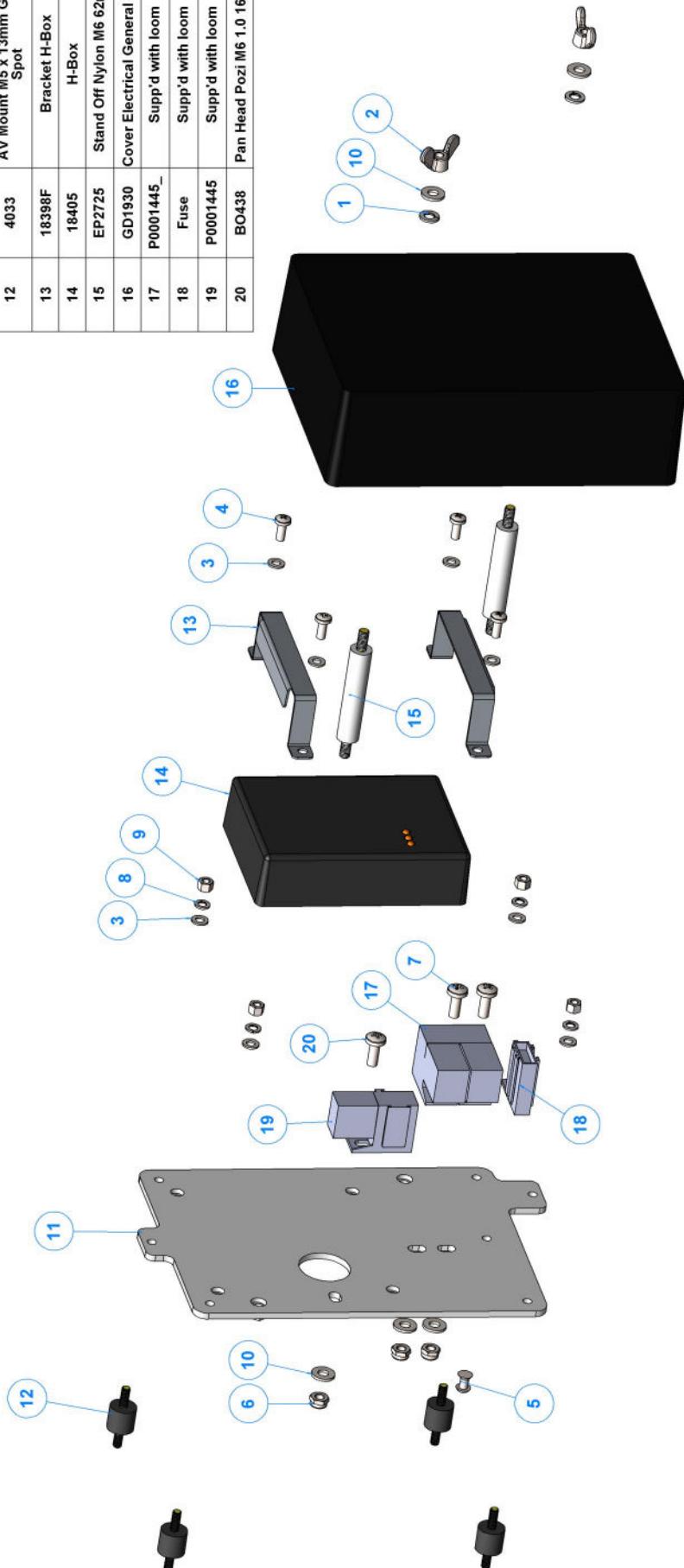


| ITEM | PART NO | DESCRIPTION | QTY | ITEM | PART NO | DESCRIPTION | QTY |
|------|-----------|------------------|-----|------|---------|------------------|-----|
| 1 | C161-0119 | Funnel Loom | 1 | 4 | P2131 | +VEBattery Cable | 1 |
| 2 | P2741 | Main Engine Loom | 1 | 5 | P2132 | -VEBattery Cable | 1 |
| 3 | P2577 | 2 Speed Loom | 1 | | | | |

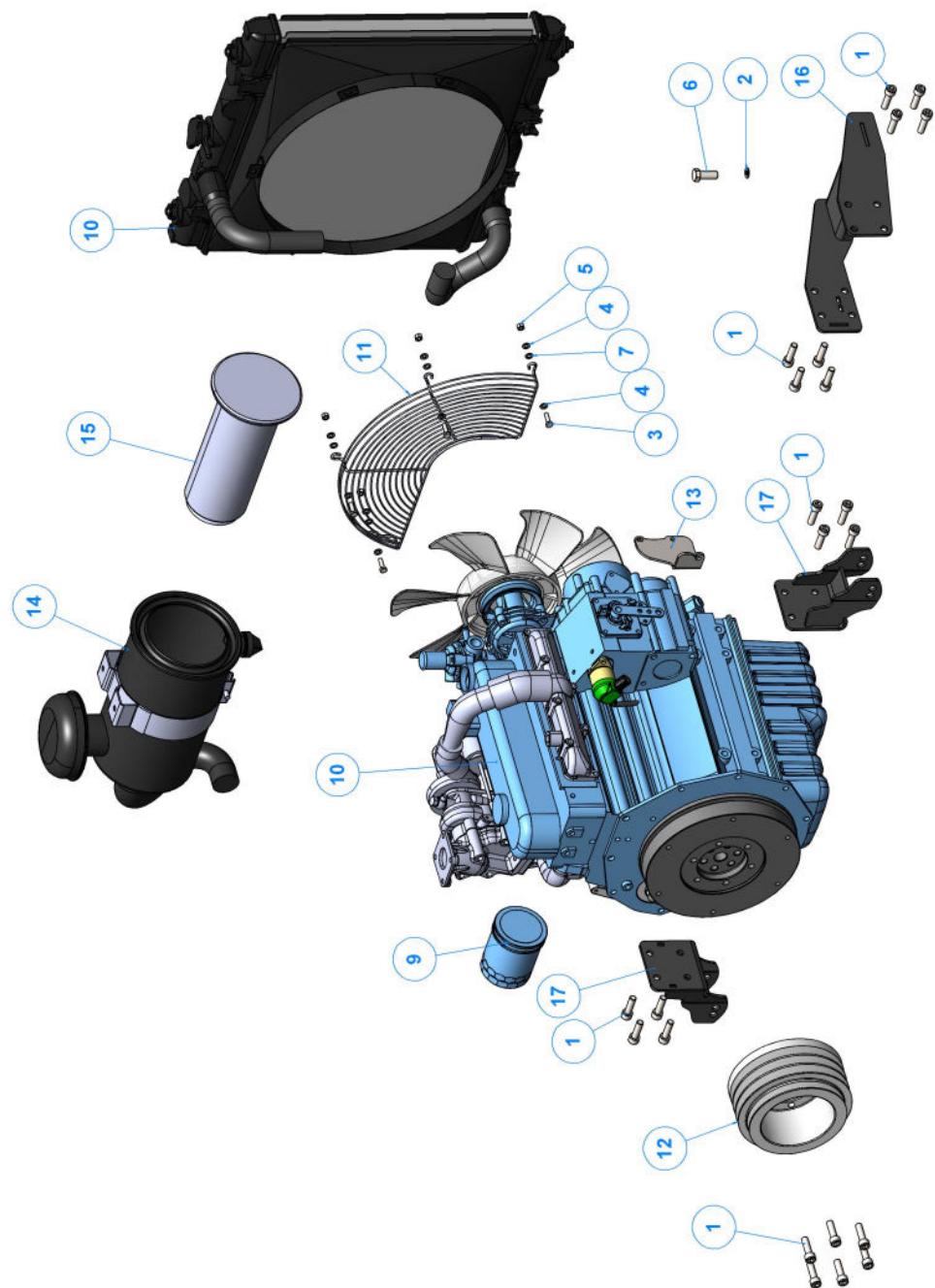
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--------------------------------|------|
| 1 | C023-0103 | M6 SPRING WASHER - ZP | 2 |
| 2 | C032-0114 | M6 WING NUT ZP | 2 |
| 3 | C021-0102 | M5 FORM A WASHER ZP | 8 |
| 4 | C013-0303 | M5 x 12 PAN POZI Z/P | 4 |
| 5 | 1151 | Countersunk Pop Rivet | 1 |
| 6 | C031-0121 | M6 TYPE T NYLOC NUT Z/P | 2 |
| 7 | C013-0405 | M6 x 16 PAN POZI Z/P | 2 |
| 8 | C023-0102 | M5 SPRING WASHER - ZP | 4 |
| 9 | C030-0120 | M5 HEX NUT - ZP - GRADE 10 | 4 |
| 10 | WA709 | Washer M6 C BZP | 4 |
| 11 | P0000856F | Plate H-Box Assy | 1 |
| 12 | 4033 | AV Mount M5 x 13mm Green Spot | 4 |
| 13 | 18398F | Bracket H-Box | 2 |
| 14 | 18405 | H-Box | 1 |
| 15 | EP2725 | Stand Off Nylon M6 62mm | 2 |
| 16 | GD1930 | Cover Electrical General Short | 1 |
| 17 | P001445_ | Supp'd with loom | 1 |
| 18 | Fuse | Supp'd with loom | 1 |



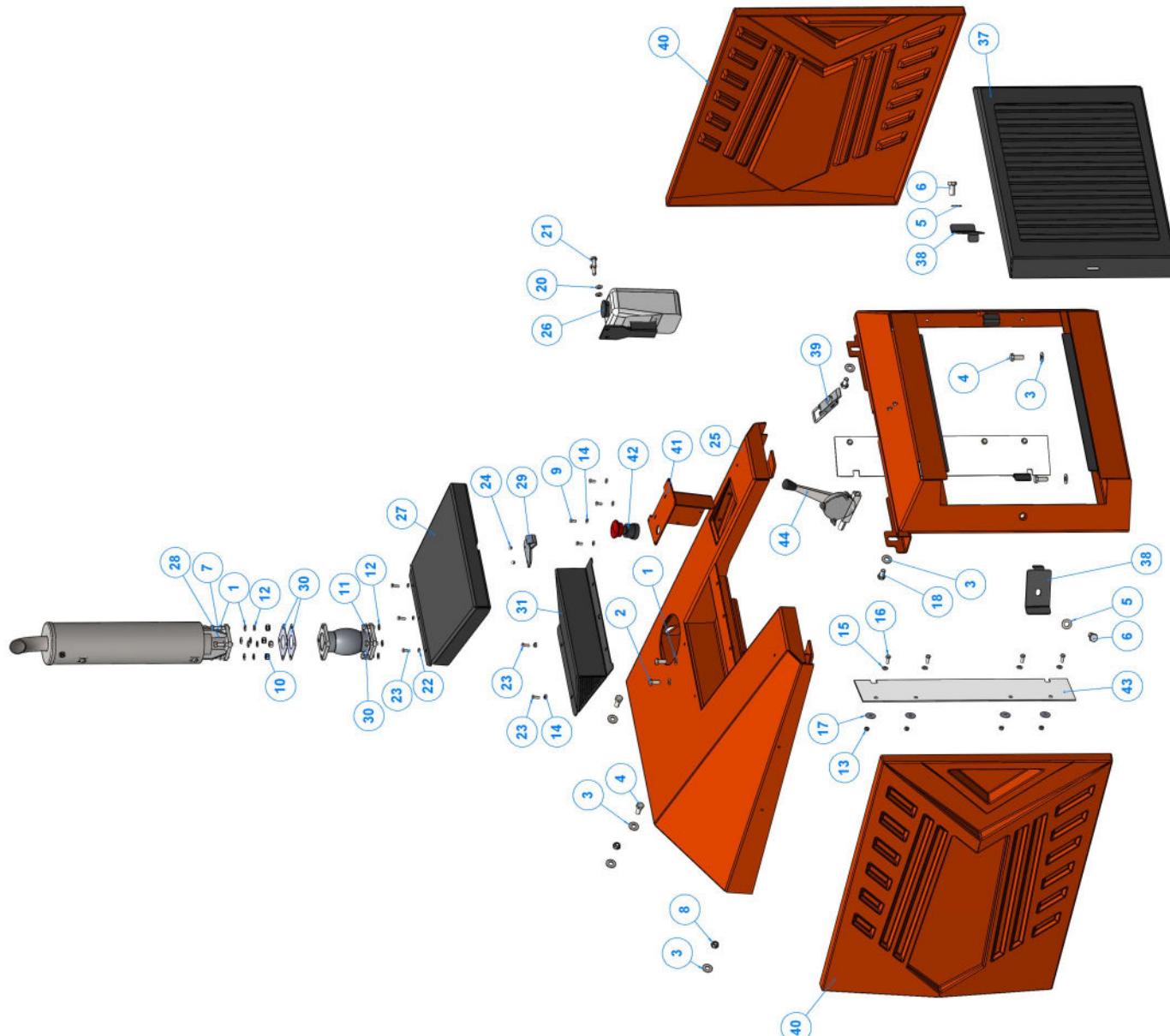
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--------------------------------|------|
| 1 | C023-0103 | M6 SPRING WASHER - ZP | 2 |
| 2 | C032-0114 | M6 WING NUT ZP | 2 |
| 3 | C021-0102 | M5 FORM A WASHER ZP | 8 |
| 4 | C013-0303 | M5 x 12 PAN POZI ZP | 4 |
| 5 | 1151 | Countersunk Pop Rivet | 1 |
| 6 | C031-0121 | M6 TYPE T NYLOC NUT ZP | 3 |
| 7 | C013-0405 | M6 x 16 PAN POZI ZP | 2 |
| 8 | C023-0102 | M5 SPRING WASHER - ZP | 4 |
| 9 | C030-0120 | M5 HEX NUT - ZP - GRADE 10 | 4 |
| 10 | WA709 | Washer M6 C BZP | 5 |
| 11 | F0000856F | Plate H-Box Assy | 1 |
| 12 | 4033 | AV Mount M5 x 13mm Green Spot | 4 |
| 13 | 18398F | Bracket H-Box | 2 |
| 14 | 18405 | H-Box | 1 |
| 15 | EP2725 | Stand Off Nylon M6 62mm | 2 |
| 16 | GD1930 | Cover Electrical General Short | 1 |
| 17 | F0001445_ | Supp'd with loom | 1 |
| 18 | Fuse | Supp'd with loom | 1 |
| 19 | P0001445 | Supp'd with loom | 1 |
| 20 | BO438 | Pan Head Pozi M6 1.0 16 BZP | 1 |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---|------|
| 1 | C018-0711 | M10 x 1.25 x 35 SKT CAP SET SIC 12.9 | 22 |
| 2 | C021-0105 | M8 FORM A WASHER Z/P | 1 |
| 3 | C002-0407 | M6 x 20 HEX SET Z/P 8.8 | 4 |
| 4 | C021-0123 | M6 FORM C WASHER Z/P | 8 |
| 5 | C030-0121 | M6 HEX NUT - ZP - GRADE 10 | 4 |
| 6 | C002-0810 | M12 x 30 HEX SET Z/P 8.8 | 1 |
| 7 | C023-0103 | M6 SPRING WASHER - ZP | 4 |
| 8 | 4313 | Kubota 1505 Turbo Engine | 1 |
| 9 | 0095 | Oil Filter 1505 | 1 |
| 10 | 4319 | Radiator Kit (1G666-72001) | 1 |
| 11 | 4335 | Radiator Fan Guard | 1 |
| 12 | P0002546M | SPB 3 175 + SPA 150 | 1 |
| 13 | P0000756 | Bracket Throttle Cable | 1 |
| 14 | 4316 | | 1 |
| 15 | 18345 | Air Filter | 1 |
| 16 | P0001662F | Bracket Engine Front Upper | 1 |
| 17 | P0001636F | Bracket Engine Rear Upper | 2 |

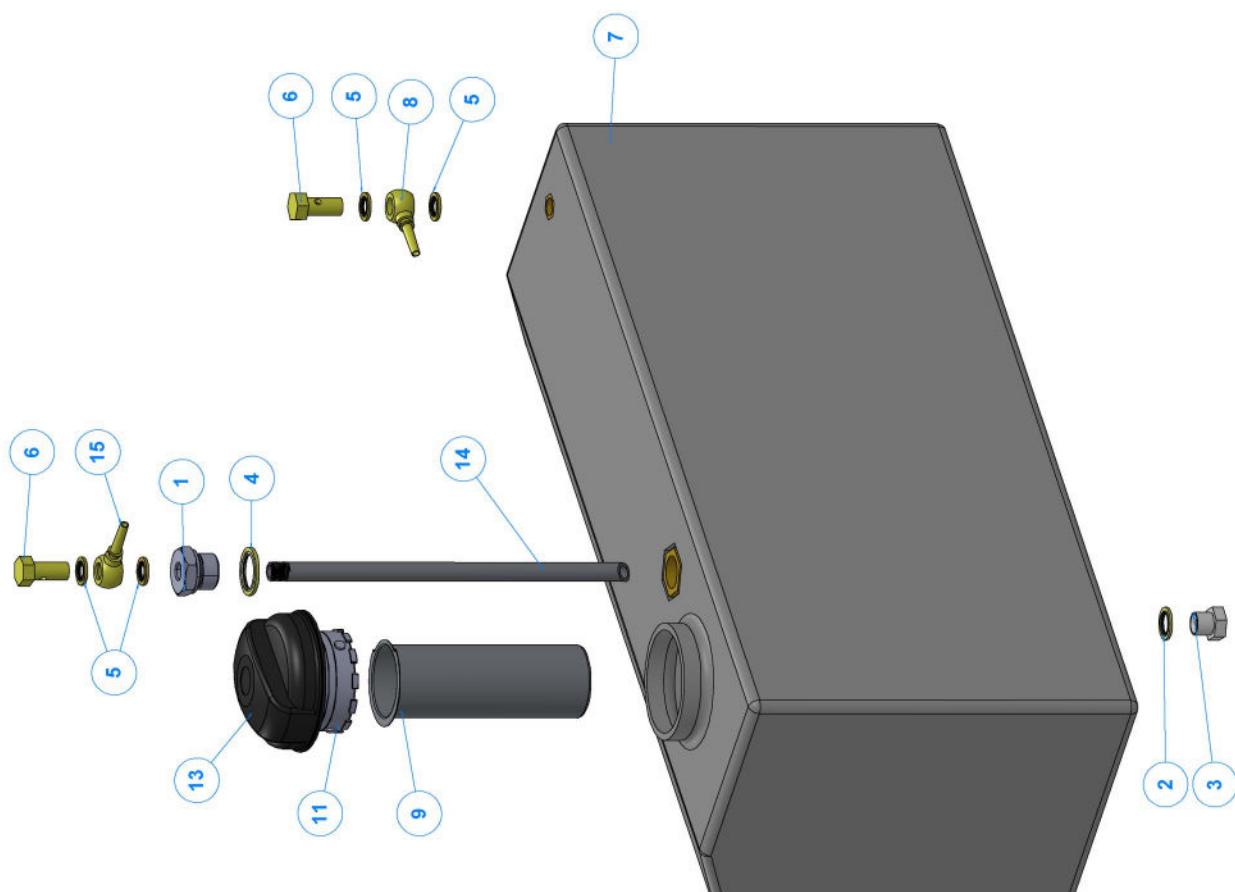


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|----------------------|---------------------------------------|------|
| 1 | WA711 | Washer M8 A BZP | 10 |
| 2 | C002-0607 | M8 x 20 HEX SET Z/P 8.8 | 2 |
| 3 | WA339 | Washer M10 C BZP | 8 |
| 4 | C002-0709 | M10 x 25 HEX SET Z/P 8.8 | 4 |
| 5 | WA702 | Washer M12 A BZP | 2 |
| 6 | C002-0809 | M12 x 25 HEX SET Z/P 8.8 | 2 |
| 7 | C002-0612 | M8 x 40 HEX SET Z/P 8.8 | 4 |
| 8 | C031-0124 | M10 TYPE T NYLOC NUT Z/P | 2 |
| 9 | C013-0303 | M5 x 12 PAN POZI Z/P | 4 |
| 10 | C030-0123 | M8 HEX NUT - ZP - GRADE 10 | 4 |
| 11 | C002-0609 | M8 x 25 HEX SET Z/P 8.8 | 4 |
| 12 | C023-0105 | M8 SPRING WASHER - ZP | 8 |
| 13 | C031-0121 | M6 TYPE T NYLOC NUT Z/P | 8 |
| 14 | C021-0122 | M5 FORM C WASHER Z/P | 6 |
| 15 | WA709 | Washer M6 C BZP | 8 |
| 16 | C002-0405 | M6 x 16 HEX SET Z/P 8.8 | 8 |
| 17 | 4343 | M6 x 24 Mudguard Washer | 8 |
| 18 | B0878 | Bolt M10 20 BZP | 2 |
| 19 | TW280 TFR Top Bonnet | | 1 |
| 20 | WA711 | Washer M8 A BZP | 2 |
| 21 | C002-0607 | M8 x 20 HEX SET Z/P 8.8 | 2 |
| 22 | C021-0102 | M5 FORM A WASHER Z/P | 5 |
| 23 | C013-0305 | M5 x 16 PAN POZI Z/P | 5 |
| 24 | R1066 | Pop Rivit 5 x 6 | 2 |
| 25 | P0002365F | Top Bonnet Angular 9° | 1 |
| 26 | 4320 | Reserve Tank Radiator | 1 |
| 27 | P0002525F | Access Cover Tapered Assy | 1 |
| 28 | 18327FB | S/S/T Exhaust Muffler, (Road Tow) | 1 |
| 29 | C137-0102 | Access Cover Tapered Catch | 1 |
| 30 | 17988 | Gasket Muffler | 3 |
| 31 | P0002933F | Guard Air Intake | 1 |
| 32 | 18456F | Flexible Exhaust Adapter | 1 |
| 33 | C005-0305 | M5 x 16 SKT CAP SET Z/P 12.9 | 2 |
| 34 | C021-0102 | M5 FORM A WASHER Z/P | 2 |
| 35 | NU236 | Nut M5 P Nyloc | 2 |
| 36 | P0002517F | Guard Front Angular Assy | 1 |
| 37 | P0002380F | Bracket Front Grill Assy | 1 |
| 38 | P0002521F | Bracket Side Panel & Front Guard Stop | 2 |
| 39 | 0235 | Catch Assy | 1 |
| 40 | P0001740 | Panel Side Plastic Sharp Design | 2 |
| 41 | P0002550F | Throttle Bracket | 1 |
| 42 | 2627 | Emergency Stop Switch | 1 |
| 43 | P0002796 | Plastic Strip Radiator | 2 |
| 44 | 2946 | Throttle Cable | 1 |
| 45 | C021-0102 | M5 FORM A WASHER Z/P | 6 |
| 46 | C013-0307 | M5 x 20 PAN POZI Z/P | 3 |
| 47 | NU236 | Nut M5 P Nyloc | 3 |

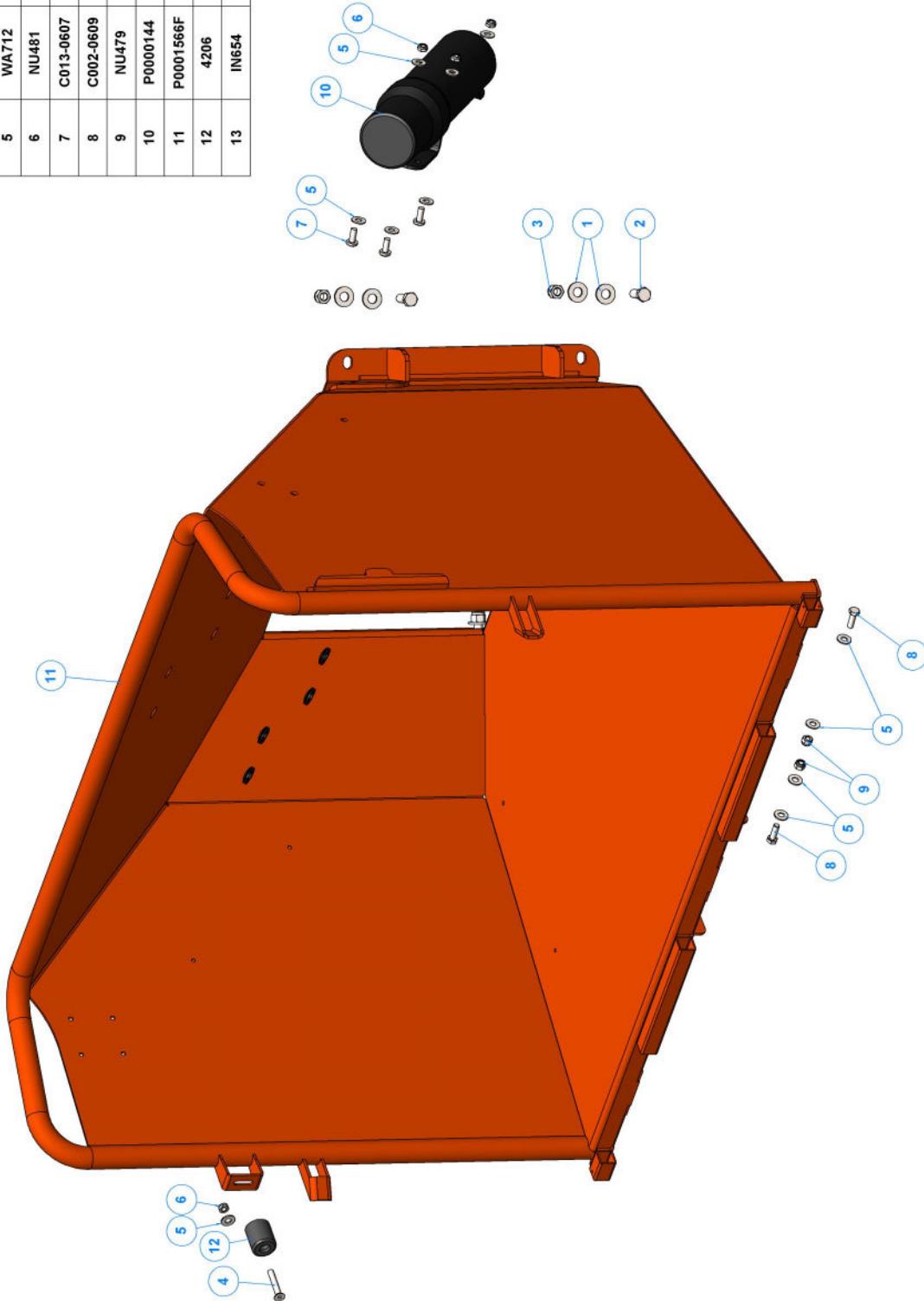


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---|------|
| 1 | 18568 | 18568 Reducer Bush (Dowty) 3-4M x 1-4F | 1 |
| 2 | HY396 | Washer Dowty 3/8" | 1 |
| 3 | HY211 | 3/8" Drain Plug | 1 |
| 4 | HY152 | Washer Dowty 3/4" | 1 |
| 5 | HY395 | 1/4" Dowty Washer | 4 |
| 6 | 4059 | Quarter Inch Banjo Bolt | 2 |
| 7 | P0001710 | Tank Fuel 38 Litre | 1 |
| 8 | 17998 | 1/4" BSPP Banjo Insert x 1/4" hose tail | 1 |
| 9 | P0001816 | Tank Filler Strainer | 1 |
| 10 | P0001815 | Threaded Filler Neck OD65 | 1 |
| 11 | P0001817 | P0001817 Fuel Tank Cap | 1 |
| 12 | C172-0101 | Threaded Fuel Pick Up 280mm | 1 |
| 13 | C070-0104 | Quarter Inch Banjo Fitting | 1 |
| 14 | | | 1 |
| 15 | | | 1 |

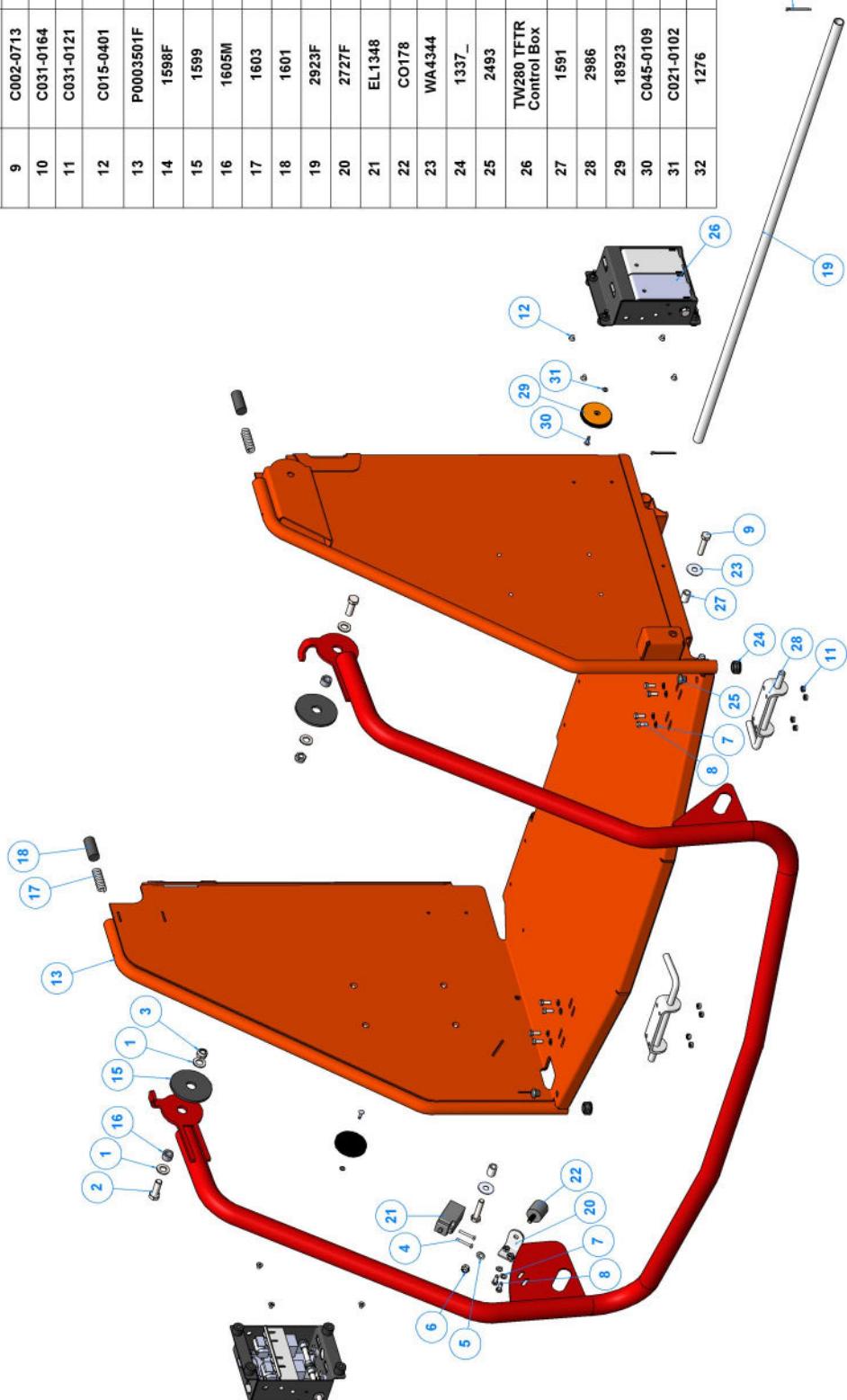
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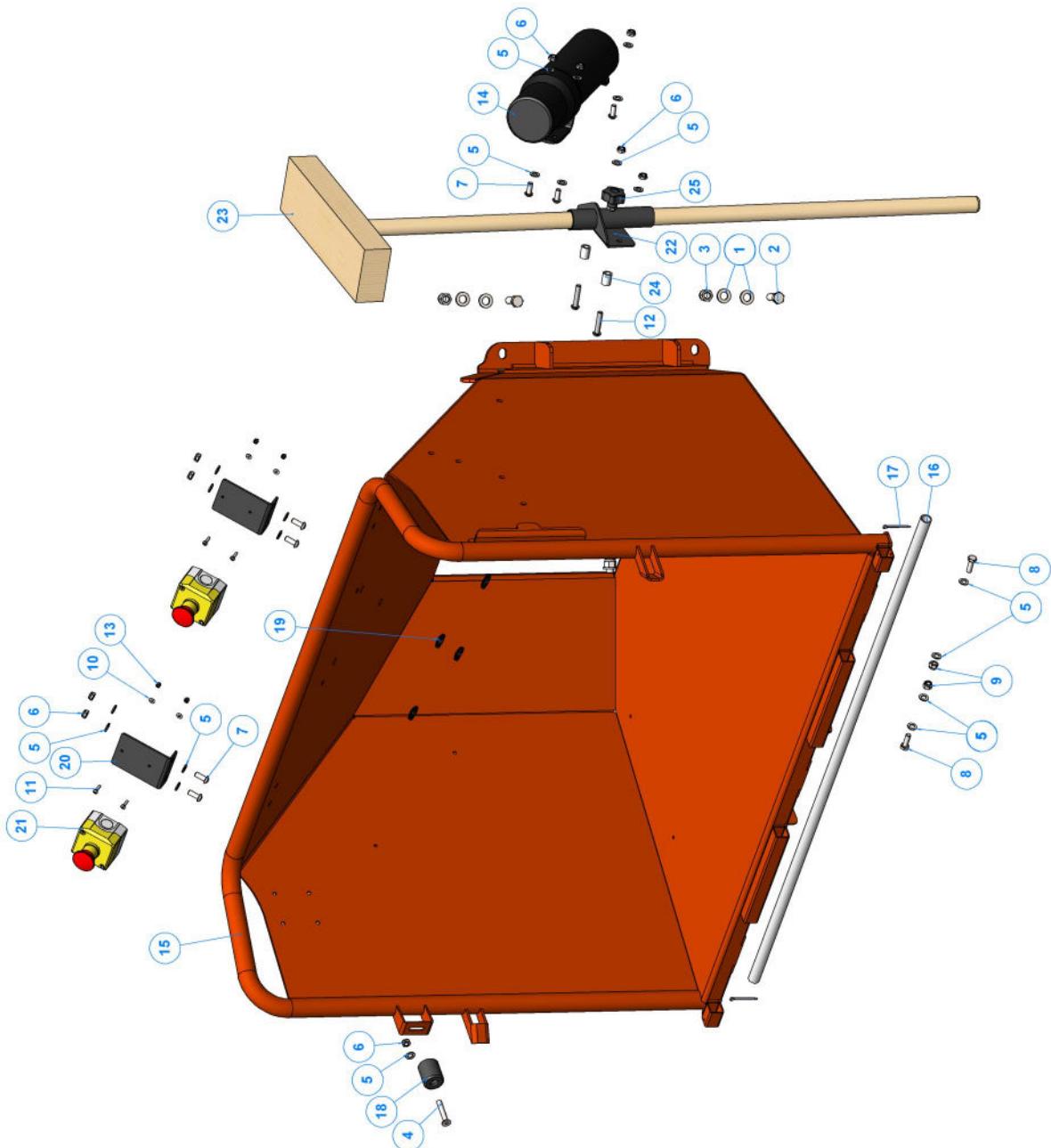
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|------------------------------|------|
| 1 | WA704 | Washer M12 C BZP | 8 |
| 2 | BO429 | Set Screw M12 35 BZP | 4 |
| 3 | C031-0165 | M12 TYPE P NYLOC NUT Z/P | 4 |
| 4 | C015-0614 | M8 x 50 SKT CSK SET Z/P 10.9 | 1 |
| 5 | WA712 | Washer M8 C BZP | 11 |
| 6 | NU481 | Nut M8 Nyloc T | 4 |
| 7 | C013-0607 | M8 x 20 PAN POZI Z/P | 3 |
| 8 | C002-0609 | M8 x 25 HEX SET Z/P 8.8 | 2 |
| 9 | NU479 | Nut M8 1.25 Nyloc P | 2 |
| 10 | P0000144 | Operator's Manual Canister | 1 |
| 11 | P0001566F | Funnel 280 x 203 | 1 |
| 12 | 4206 | Nylon Bush | 1 |
| 13 | IN654 | Grommet Hole OD19.05mm | 4 |



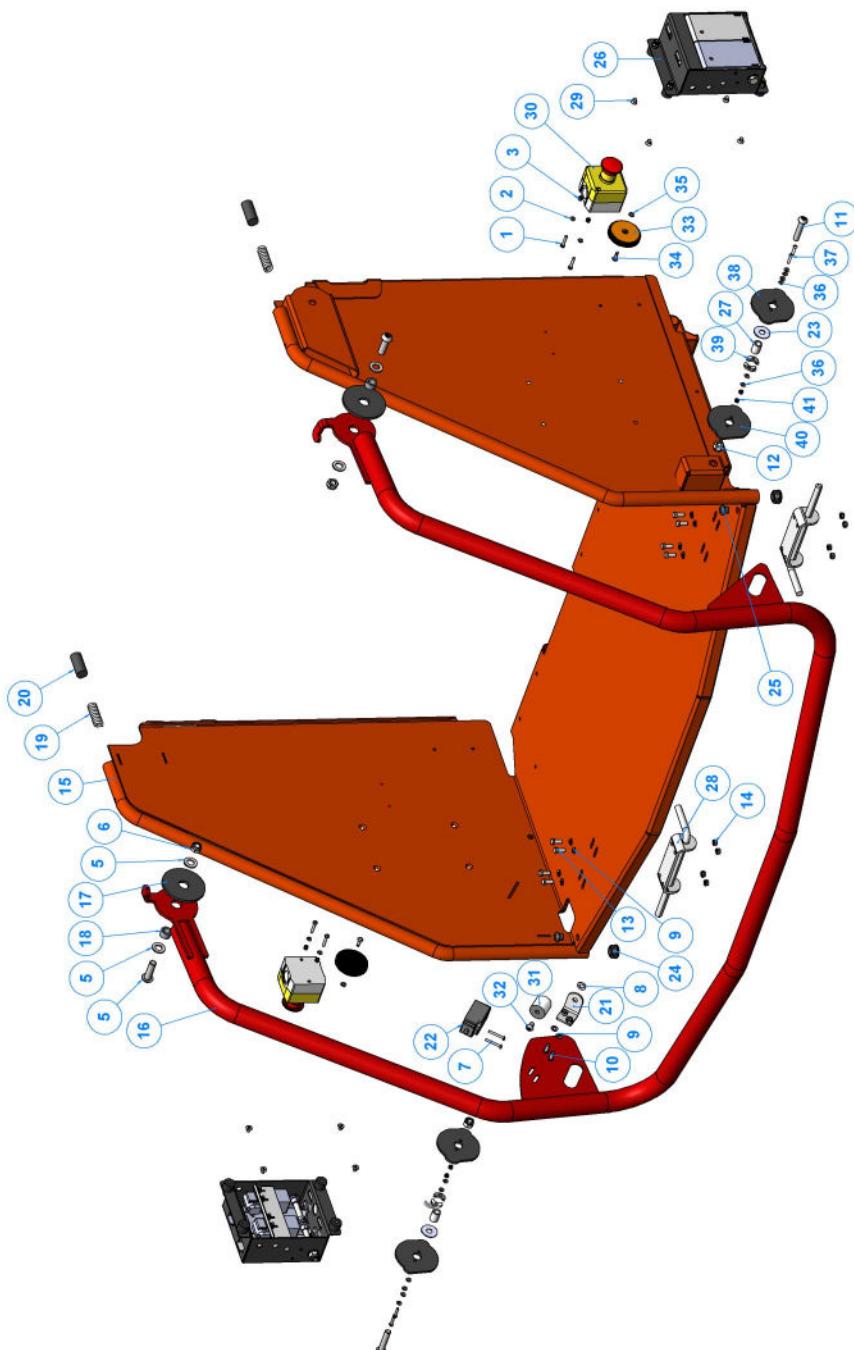
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|------------------------|-----------------------------------|------|
| 1 | C021-0127 | M12 FORM C WASHER Z/P | 4 |
| 2 | C002-0811 | M12 x 35 HEX SET Z/P 8.8 | 2 |
| 3 | C031-0125 | M12 TYPE T NYLOC NUT Z/P | 2 |
| 4 | C013-0209 | M4 x 30 PAN POZI Z/P | 2 |
| 5 | C021-0125 | M8 FORM C WASHER Z/P | 1 |
| 6 | C031-0163 | M8 TYPE P NYLOC NUT Z/P | 1 |
| 7 | C021-0123 | M6 FORM C WASHER Z/P | 10 |
| 8 | C002-0405 | M6 x 16 HEX SET Z/P 8.8 | 10 |
| 9 | C002-0713 | M10 x 45 HEX SET Z/P 8.8 | 2 |
| 10 | C031-0164 | M10 TYPE P NYLOC NUT Z/P | 2 |
| 11 | C031-0121 | M6 TYPE T NYLOC NUT Z/P | 8 |
| 12 | C015-0401 | C'SUNK SCREW M6x8 ZP GRADE 10.9 | 8 |
| 13 | P0003501F | Feed Tray | 1 |
| 14 | 1598F | Control Bar Assy High Funnel | 1 |
| 15 | 1599 | Bearing Washer | 2 |
| 16 | 1605M | Stainless Spacer | 2 |
| 17 | 1603 | Spring Die (Stop Bar) | 2 |
| 18 | 1601 | Nylon Piston OD20 -45mm | 2 |
| 19 | 2923F | Hinge Pin | 1 |
| 20 | 2727F | Bracket Actuator Control Bar Assy | 1 |
| 21 | EL1348 | Switch Limit (Metal Plunger) | 1 |
| 22 | CO178 | Buffer Rubber | 1 |
| 23 | WA4344 | Washer M10 29.75 Penny B2P | 2 |
| 24 | 1337_- | Rubber Cap | 2 |
| 25 | 2493 | Rubber Cap | 2 |
| 26 | TW280 TFTR Control Box | | 2 |
| 27 | 1591 | Spacer 10x15x20 | 2 |
| 28 | 2986 | Spring Bolt | 2 |
| 29 | 18923 | REFLECTOR AMBER ROUND SIDE | 2 |
| 30 | C045-0109 | 4.8 x 18 ALU/STEEL RIVET | 2 |
| 31 | C021-0102 | M5 FORM A WASHER Z/P | 2 |
| 32 | 1276 | Split Pin | 2 |



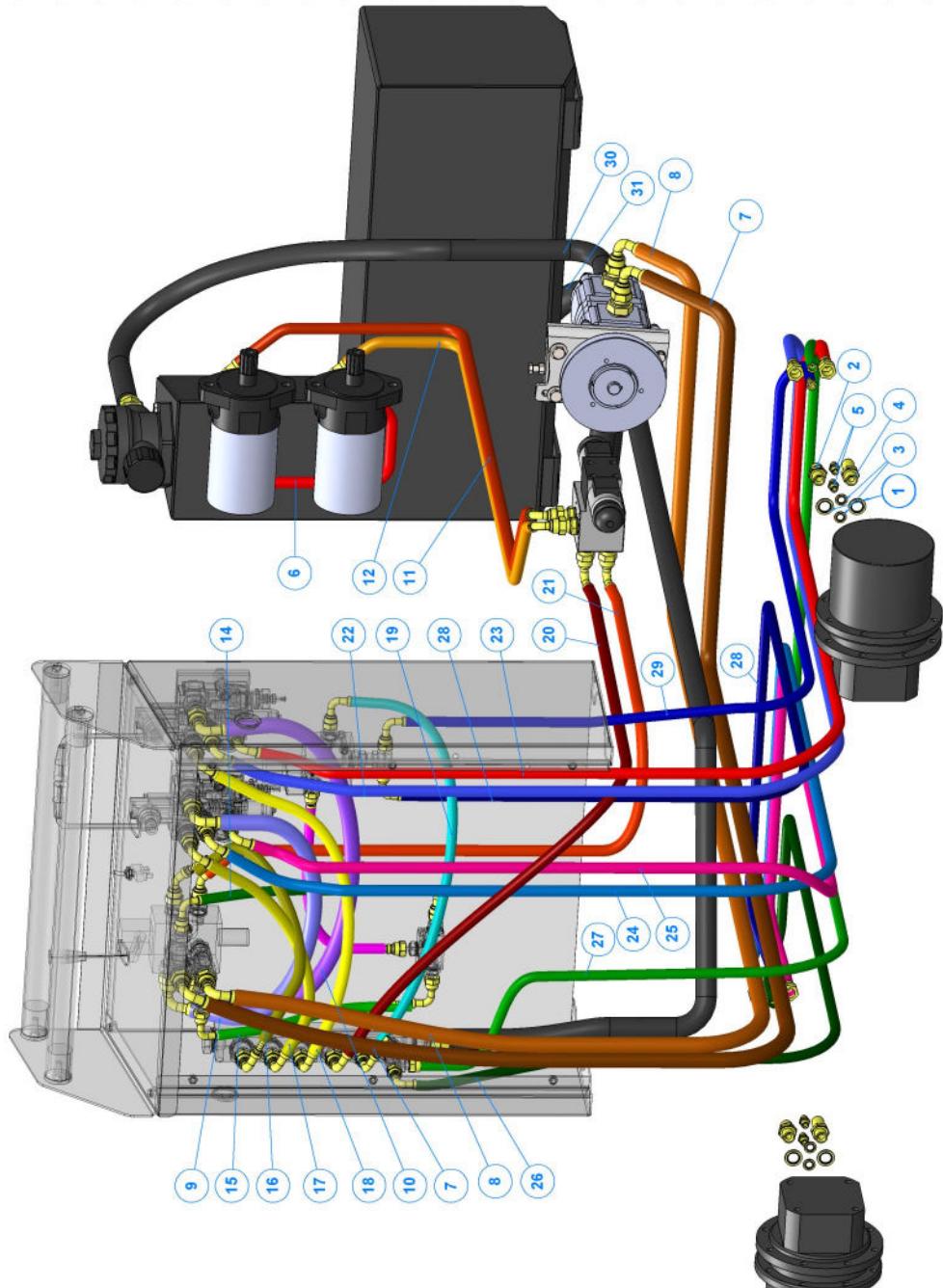
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---|------|
| 1 | C021-0127 | M12 FORM C WASHER Z/P | 8 |
| 2 | BO429 | Set Screw M12 35 BZP | 4 |
| 3 | C031-0165 | M12 TYPE P NYLOC NUT Z/P | 4 |
| 4 | 0353 | M8/50 Csk Soc | 1 |
| 5 | C021-0125 | M8 FORM C WASHER Z/P | 23 |
| 6 | C031-0123 | M8 TYPE T NYLOC NUT Z/P | 10 |
| 7 | C011-0607 | M8 x 20 SKT Button Set Z/P 10.9 | 7 |
| 8 | BO350 | Set Screw M8 25 BZP | 2 |
| 9 | C031-0163 | M8 TYPE P NYLOC NUT Z/P | 2 |
| 10 | C021-0121 | M4 FORM C WASHER Z/P | 4 |
| 11 | P0002075 | Pan Head Pozi M4 0.7 16 BZP | 4 |
| 12 | C010-0612 | M8 x 40 SKT BUTTON SET SIC 10.9 | 2 |
| 13 | C035-0102 | M4 TYPE P NYLOC NUT Z/P | 4 |
| 14 | P0000144 | Operator's Manual Canister | 1 |
| 15 | C138-0143 | TW280 FRENCH FUNNEL ASSEMBLY 280 x 203 | 1 |
| 16 | 2923F | Hinge Pin | 1 |
| 17 | 1276 | Split Pin | 2 |
| 18 | 4206 | Nylon Bush | 1 |
| 19 | IN654 | Grommet Hole OD19.05mm | 4 |
| 20 | P000351F | Emergency Stop Bracket | 2 |
| 21 | C162-0100 | ESD - Schneider XALK178F 2NC, 1NO | 2 |
| 22 | P0003647F | Infeed Aid Tool Assy | 1 |
| 23 | C200-XXXX | Infeed Aid Tool | 1 |
| 24 | 1591 | Spacer 10x15x20 | 2 |
| 25 | C053-0100 | M8 x 16 Black Knob | 1 |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|---------------------------|--|------|
| 1 | C013-0208 | M4 x 25 PAN POZI Z/P | 4 |
| 2 | C021-0101 | M4 FORM A WASHER Z/P | 4 |
| 3 | C035-0102 | M4 TYPE P NYLOC NUT Z/P | 4 |
| 5 | C021-0127 | M12 FORM C WASHER Z/P | 4 |
| 5 | C086-0812 | M12 x 40 Button Head Pin Hexagon Machine Screw | 2 |
| 6 | C031-0125 | M12 x 30 Button Head Pin Hexagon Machine Screw | 2 |
| 7 | C086-0210 | M4 x 30 Button Head Pin Hexagon Machine Screw | 2 |
| 8 | C021-0125 | M8 FORM C WASHER Z/P | 1 |
| 9 | C021-0123 | M6 FORM C WASHER Z/P | 10 |
| 10 | C086-0405 | M6 x 16 Button Head Pin Hexagon Machine Screw | 2 |
| 11 | C086-0714 | M10 x 50 Button Head Pin Hexagon Machine Screw | 2 |
| 12 | C031-0164 | M10 TYPE P NYLOC NUT Z/P | 2 |
| 13 | C002-0405 | M6 x 16 HEX SET Z/P 8.8 | 8 |
| 14 | C031-0121 | M6 TYPE T NYLOC NUT Z/P | 8 |
| 15 | C138-0145 | Feed Tray | 1 |
| 16 | 1598F | Control Bar Assy High Funnel | 1 |
| 17 | 1599 | Bearing Washer | 2 |
| 18 | 1605M | Stainless Spacer | 2 |
| 19 | 1603 | Spring Die (Stop Bar) | 2 |
| 20 | 1601 | Nylon Piston OD20 - 45mm | 2 |
| 21 | 2727F | Bracket Actuator Control Bar Assy | 1 |
| 22 | EL1348 | Switch Limit (Metal Plunger) | 1 |
| 23 | WA4344 | Washer M10 29.75 Penny BZP | 2 |
| 24 | 1337_- | Rubber Cap | 2 |
| 25 | 2493 | Rubber Cap | 2 |
| 26 | TW280 TDHB Control Box | | 2 |
| 27 | 1581 | Spacer 10x15x20 | 2 |
| 28 | 2986 | Spring Bolt | 2 |
| 29 | C015-0401 | C/SUNK SCREW M6x8 2P GRADE 10.9 | 8 |
| 30 | C162-0100 | ESD - Schneider XALK178F 2NC, 1NO | 2 |
| 31 | C076-0100 | M8 Female Cylindrical Buffer (30 x 30) 70 Shore | 1 |
| 32 | C086-0603 | M8 x 12 Button Head Pin Hexagon Machine Screw | 1 |
| 33 | 18923 | REFLECTOR AMBER ROUND SIDE | 2 |
| 34 | C045-0109 | 4.8 x 18 ALU/STEEL RIVET | 2 |
| 35 | C021-0102 | M5 FORM A WASHER Z/P | 2 |
| 36 | C021-0101 | M4 FORM A WASHER Z/P | 6 |
| 37 | C086-0207 | M4 x 30 Button Head Pin Hexagon Machine Screw | 2 |
| 38 | C200-0107 | Safety Bar Activation Slot Guard OS | 1 |
| 39 | C200-0109 | Safety Bar Activation Slot Spacer | 2 |
| 40 | C200-0108 | Safety Bar Activation Slot Guard IS | 1 |
| 41 | C035-0101 | M4 TYPE T NYLOC NUT Z/P | 2 |

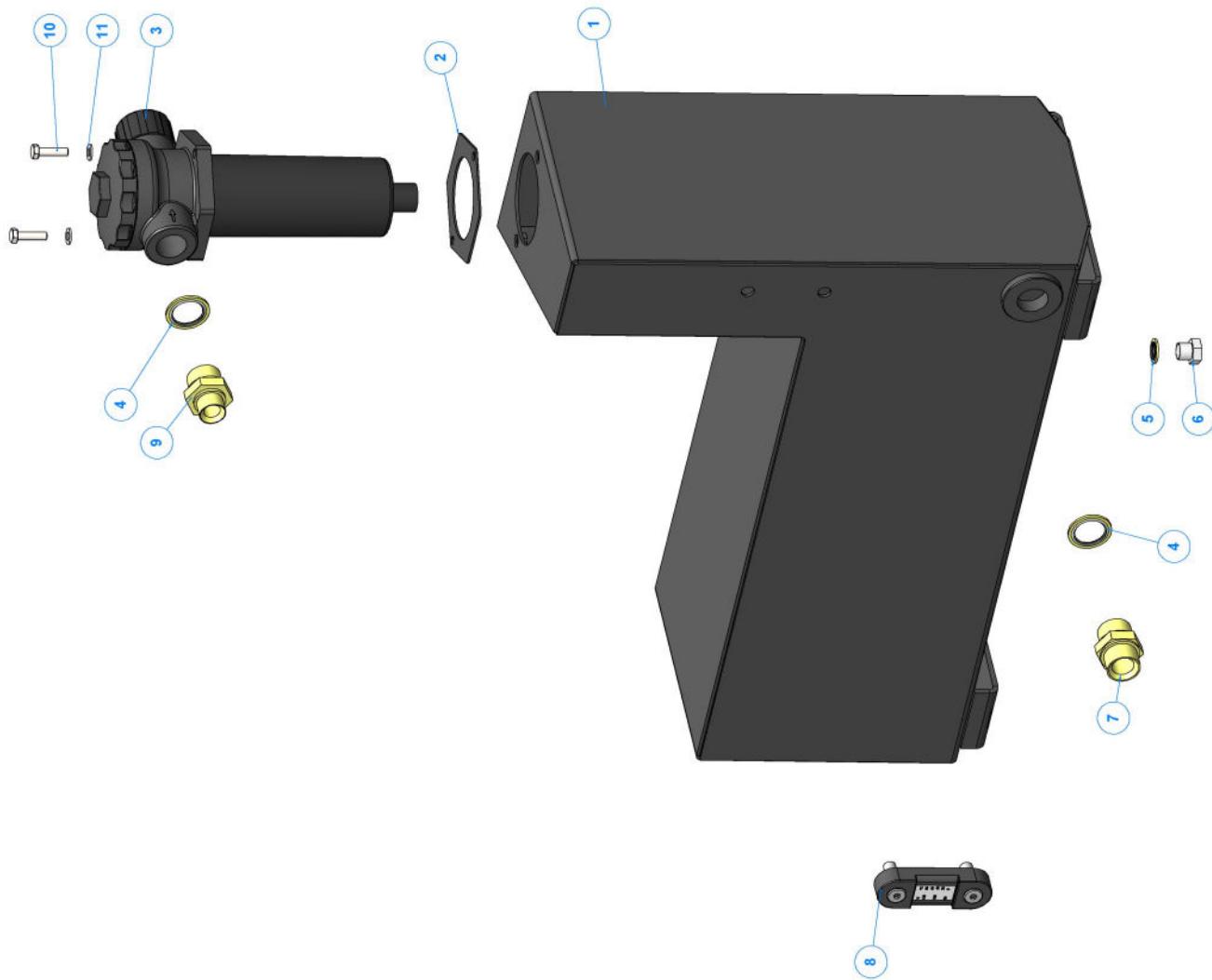


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--|------|
| 1 | HY396 | Washer Dowy 3/8" | 8 |
| 2 | HY161 | Adaptor Mm 3/8 - 3/8 | 6 |
| 3 | P0001945 | 1/8" Dowy Washer | 4 |
| 4 | HY828 | Fitting 3/8 to 3/8 Bulkhead | 2 |
| 5 | P0001944 | 1/8" Male Nipple | 4 |
| 6 | P0002784 | HOSE 3/8" 950MM 3/8" 90° SWEPT/FEMALE 3/8" COMPACT FEMALE NO ROTATION | 1 |
| 7 | P0002772 | HOSE 1/2" 1900MM 1/2" 90° SWEPT/FEMALE 30° ROTATION | 1 |
| 8 | P0002773 | HOSE 1/2" 2040MM 1/2" 90° SWEPT/FEMALE 45° ROTATION | 1 |
| 9 | P0002760 | HOSE 1/2" 800MM 1/2" 90° SWEPT/FEMALE 45° ROTATION | 1 |
| 10 | P0002761 | HOSE 1/2" 860MM 1/2" 90° SWEPT/FEMALE 45° ROTATION | 1 |
| 11 | P0002782 | HOSE 3/8" 2040MM 3/8" 90° SWEPT/FEMALE 3/8" 90° COMPACT FEMALE 270° ROTATION | 1 |
| 12 | P0002783 | HOSE 3/8" 1370MM 3/8" 90° SWEPT/FEMALE 3/8" 90° SWEPT/FEMALE 225° ROTATION | 1 |
| 13 | P0002777 | HOSE 1/4" 370MM 1/4" STRAIGHT/FEMALE 270° ROTATION | 1 |
| 14 | P0002770 | HOSE 1/4" 385MM 1/4" 90° SWEPT/FEMALE 0° ROTATION | 1 |
| 15 | P0002771 | HOSE 1/4" 350MM 1/4" 90° SWEPT/FEMALE 0° ROTATION | 1 |
| 16 | P0002768 | HOSE 3/8" 510MM 3/8" 90° SWEPT/FEMALE 30° ROTATION | 1 |
| 17 | P0002767 | HOSE 3/8" 380MM 3/8" 90° SWEPT/FEMALE 0° ROTATION | 1 |
| 18 | P0002766 | HOSE 3/8" 675MM 3/8" 90° SWEPT/FEMALE 20° ROTATION | 1 |
| 19 | P0002775 | HOSE 1/4" 670MM 1/4" 90° SWEPT/FEMALE 30° ROTATION | 1 |
| 20 | P0002774 | HOSE 3/8" 1137MM 3/8" 90° SWEPT/FEMALE 270° ROTATION | 1 |
| 21 | P0002769 | HOSE 3/8" 1240MM 3/8" 90° SWEPT/FEMALE 135° ROTATION | 1 |
| 22 | P0002762 | HOSE 3/8" STRAIGHT/FEMALE 0° SWEPT/FEMALE 0° ROTATION | 1 |
| 23 | P0002764 | HOSE 3/8" STRAIGHT/FEMALE 0° SWEPT/FEMALE 0° ROTATION | 1 |
| 24 | P0002765 | HOSE 3/8" STRAIGHT/FEMALE 0° SWEPT/FEMALE 0° ROTATION | 1 |
| 25 | P0002763 | HOSE 3/8" 1957MM 3/8" 90° SWEPT/FEMALE 0° ROTATION | 1 |
| 26 | P0002778 | HOSE 1/4" 1530MM 1/4" SWEPT/FEMALE 0° ROTATION | 1 |
| 27 | P0002779 | HOSE 1/4" 1960MM 1/4" STRAIGHT/FEMALE 0° ROTATION | 1 |
| 28 | P0002781 | HOSE 1/4" 1702MM 1/4" 90° SWEPT/FEMALE 0° ROTATION | 1 |
| 29 | P0002780 | HOSE 1/4" 1640MM 1/4" 90° SWEPT/FEMALE 0° ROTATION | 1 |
| 30 | P0002776 | HOSE 3/4" 3700MM 3/4" STRAIGHT/FEMALE 0° ROTATION | 1 |
| 31 | P0002785 | HOSE 1" 1330MM 1" STRAIGHT/FEMALE 0° ROTATION | 1 |

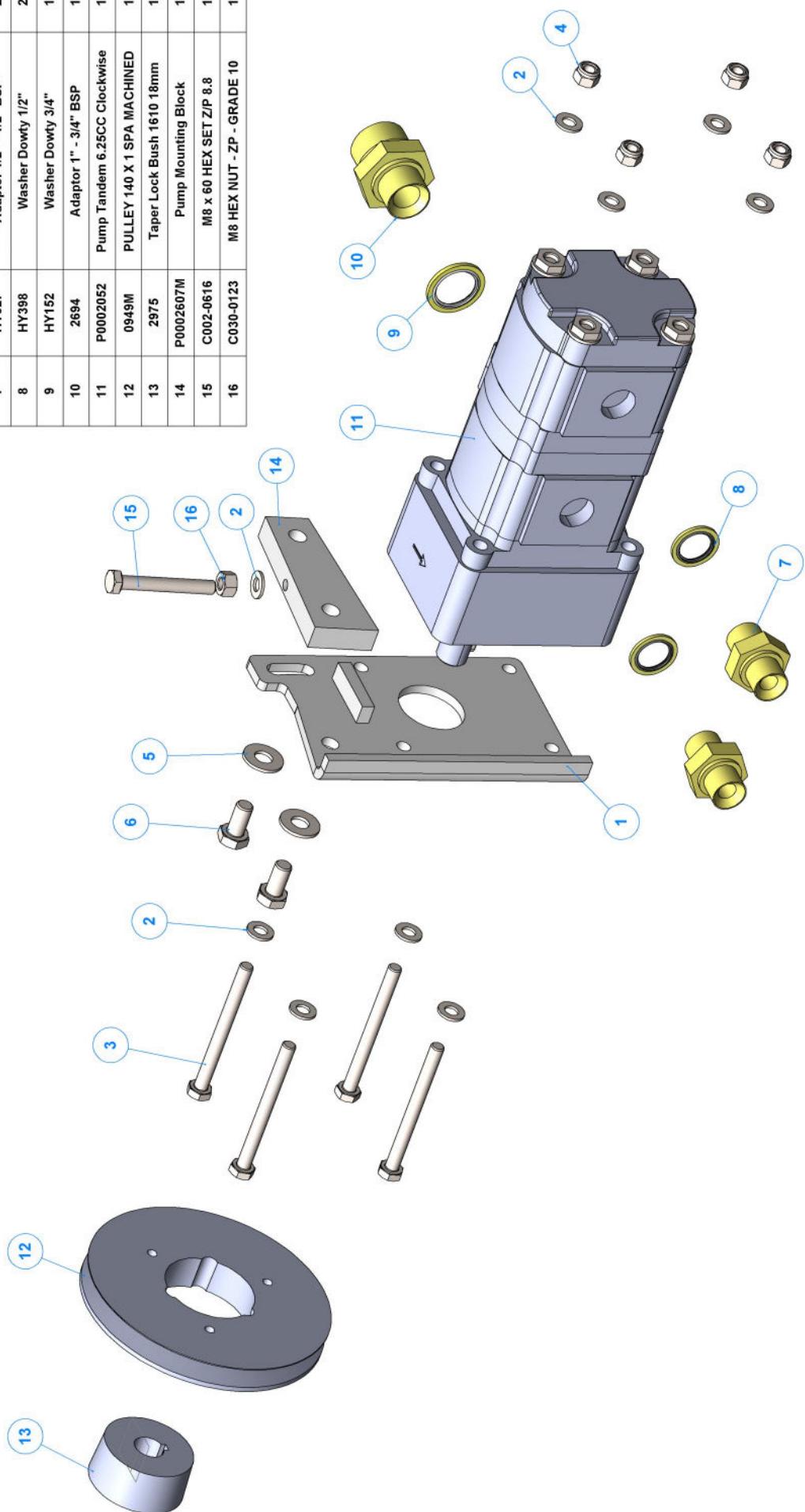


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---------------------------|------|
| 1 | P0002936F | Hydraulic Tank 50 litre | 1 |
| 2 | HY1434F | Tank Top Filter Gasket | 1 |
| 3 | 1954 | Tank Top Filter | 1 |
| 4 | HY2693 | Washer Dowty 1" | 2 |
| 5 | HY396 | Washer Dowty 3/8" | 1 |
| 6 | HY211 | 3/8" Drain Plug | 1 |
| 7 | HY18557 | Adaptor 1" - 1" BSP | 1 |
| 8 | 1163 | Hydraulic Oil Level Gauge | 1 |
| 9 | 2694 | Adaptor 1" - 3/4" BSP | 1 |
| 10 | C002-0610 | M8 x 30 HEX SET Z/P 8.8 | 2 |
| 11 | WA711 | Washer M8 A BZP | 2 |

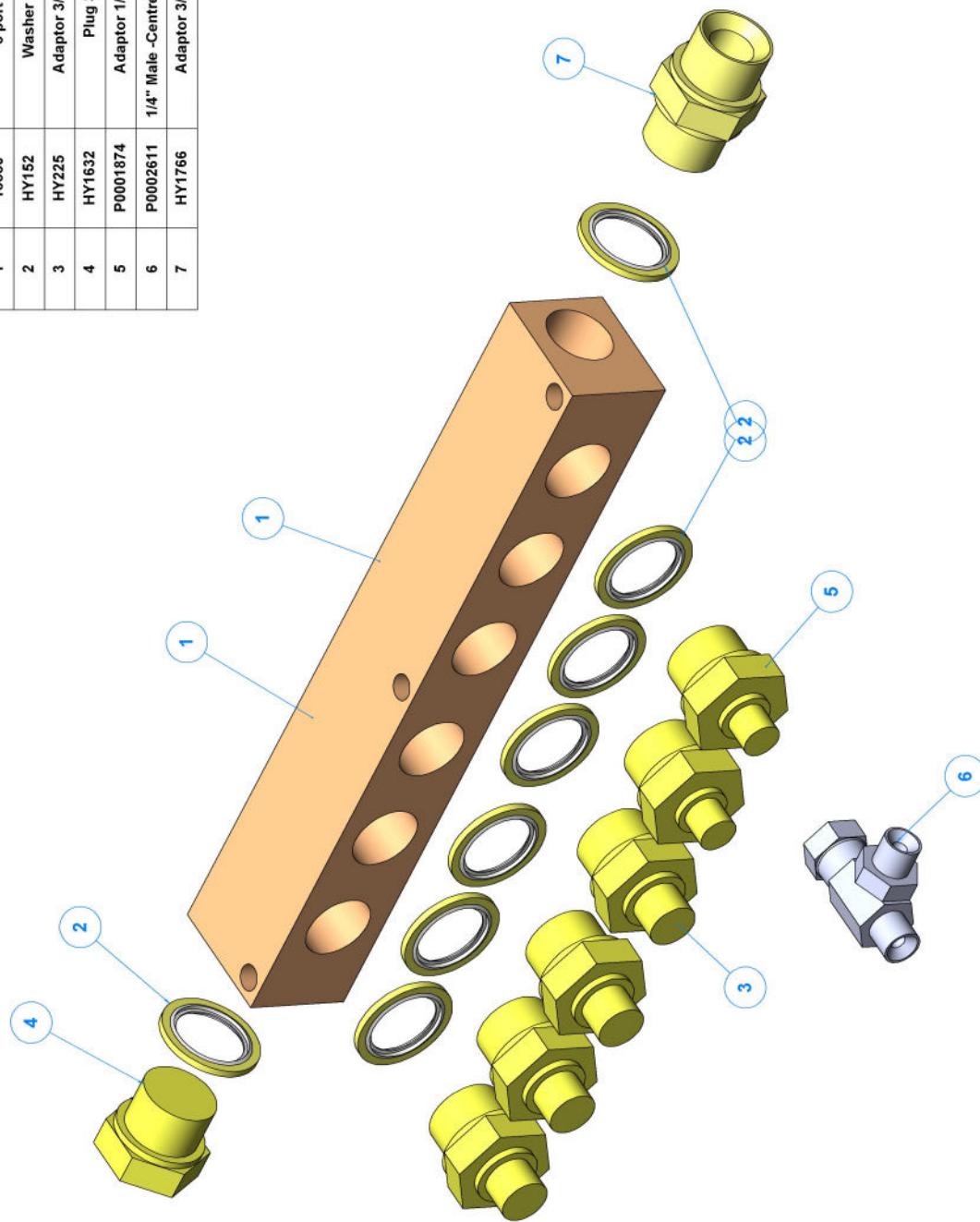
Hydraulic oil filter: 2893



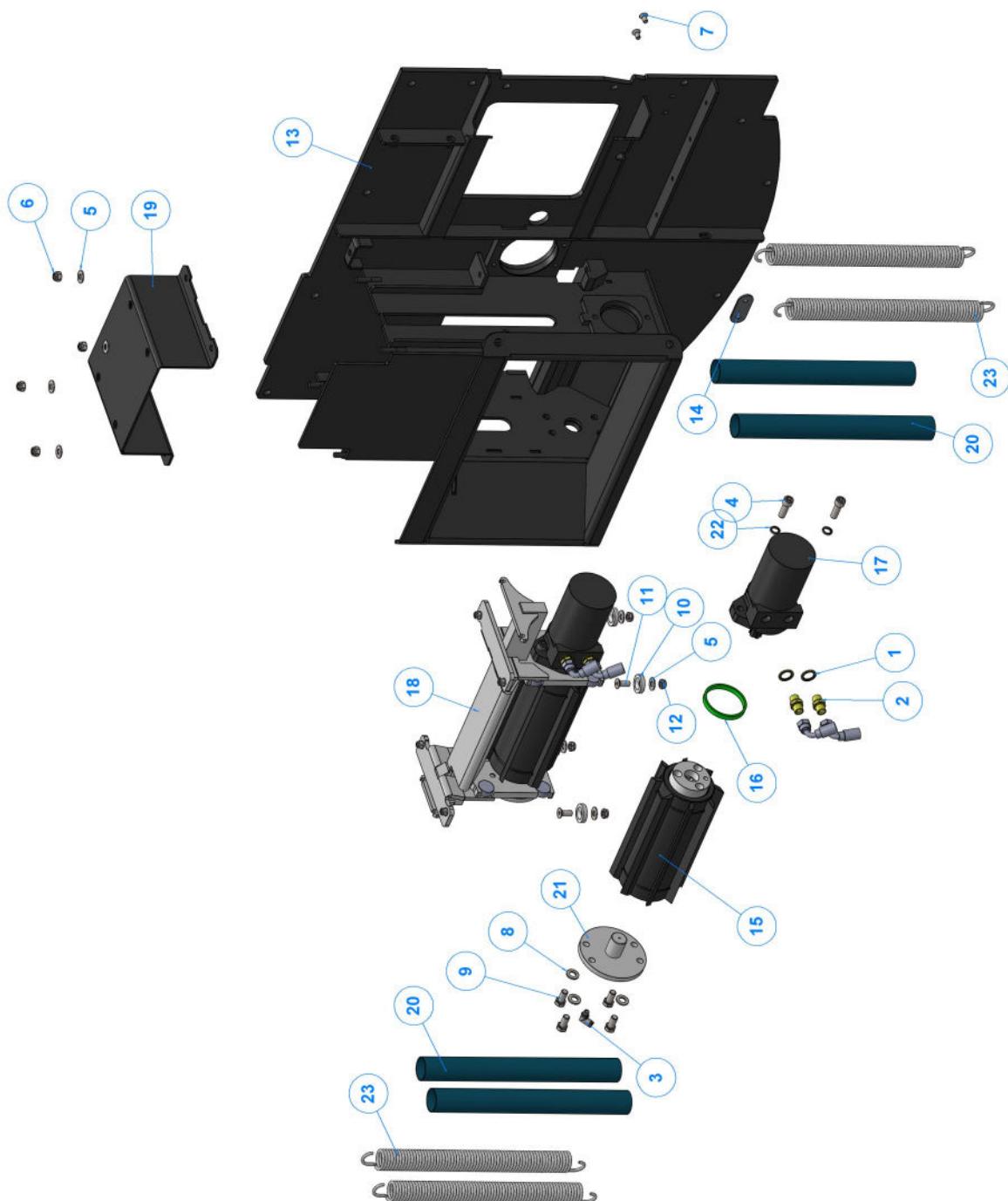
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---------------------------------|------|
| 1 | P0001682F | Hydraulic Pump Mounting Bracket | 1 |
| 2 | WA711 | Washer M8 A BZP | 9 |
| 3 | C002-0622 | M8 x 90 HEX SET ZP 8.8 | 4 |
| 4 | NU479 | Nut M8 1.25 Nyloc P | 4 |
| 5 | WA839 | Washer M10 C BZP | 2 |
| 6 | BO878 | Bolt M10 20 BZP | 2 |
| 7 | HY027 | Adaptor 1/2" - 1/2" BSP | 2 |
| 8 | HY398 | Washer Dowty 1/2" | 2 |
| 9 | HY152 | Washer Dowty 3/4" | 1 |
| 10 | 2694 | Adaptor 1" - 3/4" BSP | 1 |
| 11 | P0002052 | Pump Tandem 6.25CC Clockwise | 1 |
| 12 | 0949M | PULLEY 140 X 1 SPA MACHINED | 1 |
| 13 | 2975 | Taper Lock Bush 1610 18mm | 1 |
| 14 | P0002607M | Pump Mounting Block | 1 |
| 15 | C002-0616 | M8 x 60 HEX SET ZP 8.8 | 1 |
| 16 | C030-0123 | M8 HEX NUT - ZP - GRADE 10 | 1 |



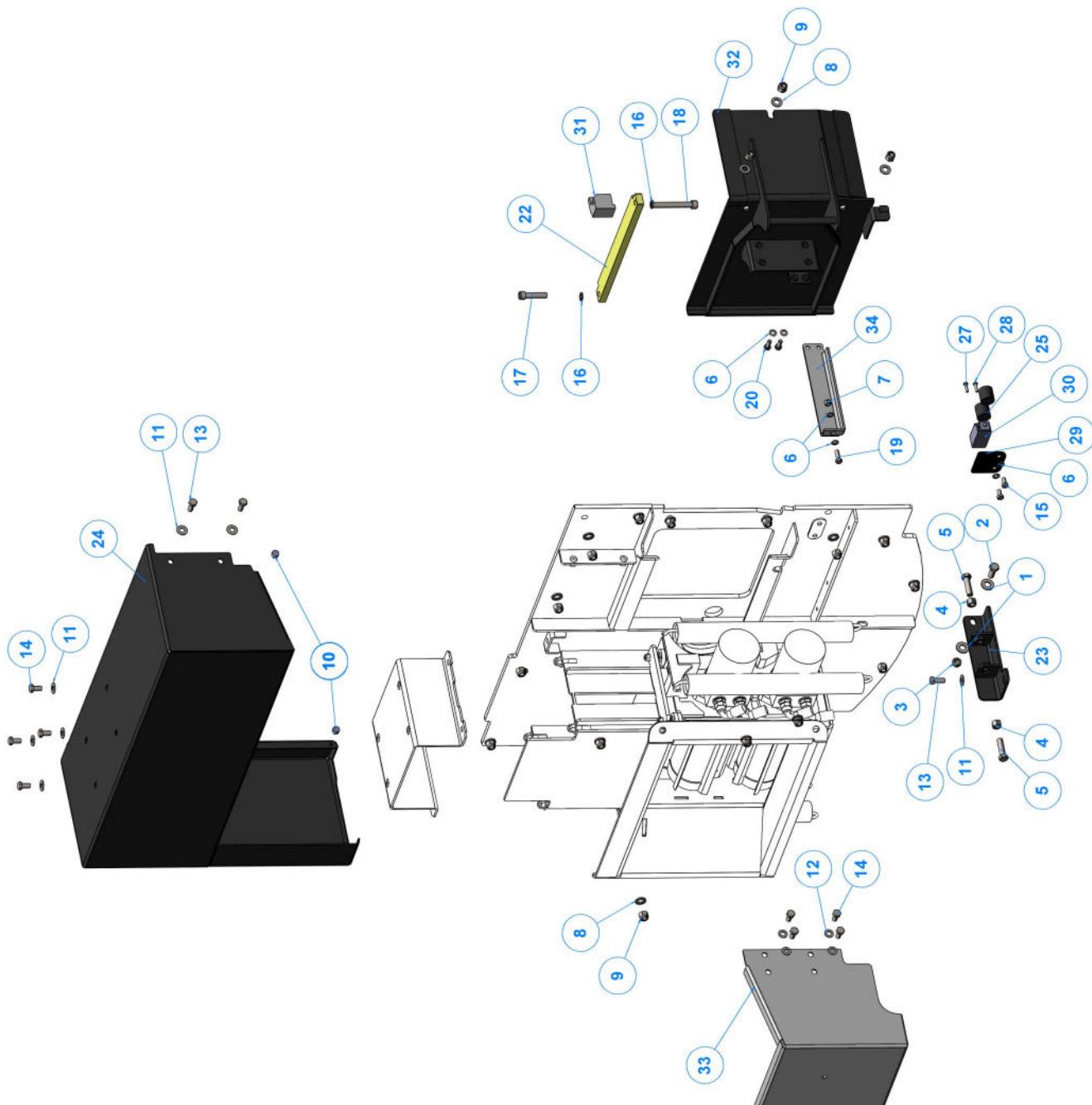
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|------------------------------------|------|
| 1 | 18880 | 8 port manifold | 1 |
| 2 | HY152 | Washer Dowy 3/4" | 8 |
| 3 | HY225 | Adaptor 3/8" - 3/4" BSP | 4 |
| 4 | HY632 | Plug 3/4" BSP | 1 |
| 5 | P0001874 | Adaptor 1/4" - 3/4" BSP | 2 |
| 6 | P0002611 | 1/4" Male -Centre Male -Female Tee | 1 |
| 7 | HY1766 | Adaptor 3/4" - 3/4" BSP | 1 |

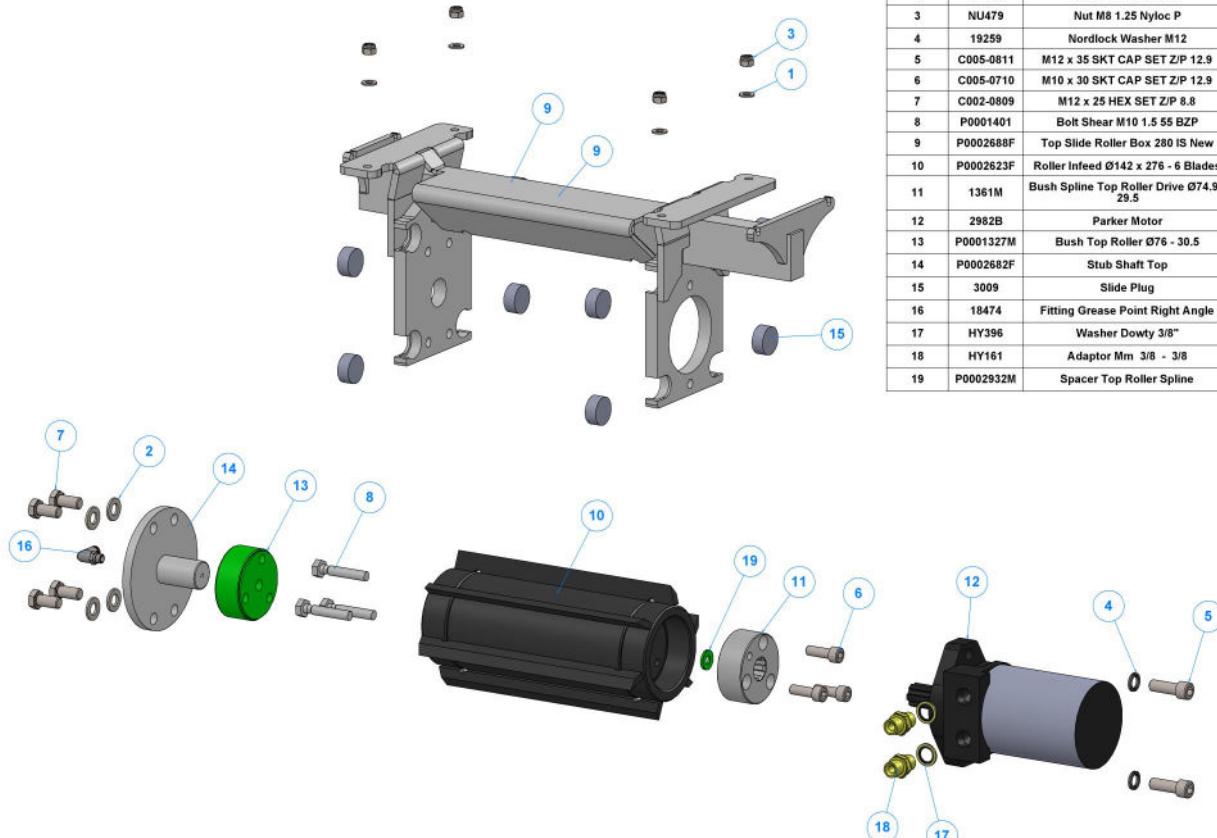


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------------------------|--|------|
| 1 | HY398 | Washer Dowty 1/2" | 4 |
| 2 | HY161 | Adaptor Mm 3/8 - 3/8 | 4 |
| 3 | 18474 | Fitting Grease Point Right Angle | 1 |
| 4 | C005-0811 | M12 x 35 SKT CAP SET Z/P 12.9 | 2 |
| 5 | WA839 | Washer M10 C BZP | 8 |
| 6 | C031-0164 | M10 TYPE P NYLOC NUT Z/P | 4 |
| 7 | C015-0605 | M8 x 16 SKT CSK SET Z/P 10.9 | 2 |
| 8 | WA702 | Washer M12 A BZP | 4 |
| 9 | C002-0809 | M12 x 25 HEX SET Z/P 8.8 | 4 |
| 10 | C024-0107 | M12 CSK HEAVY WASHER ACCEPTS M12/30CSK | 4 |
| 11 | C015-0709 | M10 x 25 SKT CSK SET Z/P 10.9 | 4 |
| 12 | C031-0124 | M10 TYPE T NYLOC NUT Z/P | 4 |
| 13 | P0002698F | Roller Box 280x210 | 1 |
| 14 | P0000993 | Profile Roller Box Hatch Switch | 1 |
| 15 | TW280 TFTR Roller Bottom | | 1 |
| 16 | P0002931M | Bottom Bearing Bush | 1 |
| 17 | 2982B | Parker Motor | 1 |
| 18 | TW280 TFTR Top Slide Assembly | | 1 |
| 19 | P0001582F | Bracket Roller Box Guard Mount 156x232 | 1 |
| 20 | 2888 | Layflat 2 inches Spring | 4 |
| 21 | P0002678F | Stub Shaft Bottom | 1 |
| 22 | 19259 | Nordlock Washer M12 | 2 |
| 23 | 2116 | Spring 387 Free Length | 4 |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|--------------------------------------|---------------------------------------|------|
| 1 | WA704 | Washer M12 C BZP | 2 |
| 2 | C002-0810 | M12 x 30 HEX SET Z/P 8.8 | 1 |
| 3 | C031-0125 | M12 TYPE T NYLOC NUT Z/P | 1 |
| 4 | C030-0125 | M12 HEX NUT - ZP - GRADE 10 | 2 |
| 5 | C002-0813 | M12 x 45 HEX SET Z/P 8.8 | 2 |
| 6 | WA711 | Washer M8 A BZP | 6 |
| 7 | NU479 | Nut M8 x 1.25 Nyloc P | 1 |
| 8 | WA702 | Washer M12 A BZP | 18 |
| 9 | C031-0165 | M12 TYPE P NYLOC NUT Z/P | 18 |
| 10 | 2834 | Av Mount VE Type | 2 |
| 11 | WA839 | Washer M10 C BZP | 7 |
| 12 | WA701 | Washer M10 A BZP | 4 |
| 13 | C002-0709 | M10 x 25 HEX SET Z/P 8.8 | 3 |
| 14 | BO878 | Bolt M10 20 BZP | 8 |
| 15 | C002-0605 | M8 x 16 HEX SET Z/P 8.8 | 2 |
| 16 | 19259 | Nordlock Washer M12 | 2 |
| 17 | C005-0814 | M12 x 50 SKT CAP SET Z/P 12.9 | 1 |
| 18 | C005-0822 | M12 x 90 SKT CAP SET Z/P 12.9 | 1 |
| 19 | C002-0609 | M8 x 25 HEX SET Z/P 8.8 | 1 |
| 20 | C002-0607 | M8 x 20 HEX SET Z/P 8.8 | 2 |
| 21 | TW280 TFR Roller Box | | 1 |
| 22 | P0002676M | Hardox Anvil Insert | 1 |
| 23 | P0001650F | Bracket Spring Carrier OS | 1 |
| 24 | P0001773F | Guard Roller Box 824x279 | 1 |
| 25 | P0001375 | AV Mount M8 FF 30x30 60 (3030DD08-60) | 2 |
| 26 | TW280 TFR Switch Mounting Roller Box | | 1 |
| 27 | C013-0307 | M5 x 20 PAN POZI Z/P | 1 |
| 28 | BO856 | Screw M5/20 Pan Pozi Bzp | 1 |
| 29 | P0001080F | Bracket Access Hatch Switch | 1 |
| 30 | EL1348 | Switch Limit (Metal Plunger) | 1 |
| 31 | P0002677M | Vertical Anvil | 1 |
| 32 | P0002914F | Access Hatch Assembly | 1 |
| 33 | P0001770F | Guard Roller Box Moving 255.5x329 | 1 |
| 34 | P0002930F | Access Hatch Guard Stay | 1 |

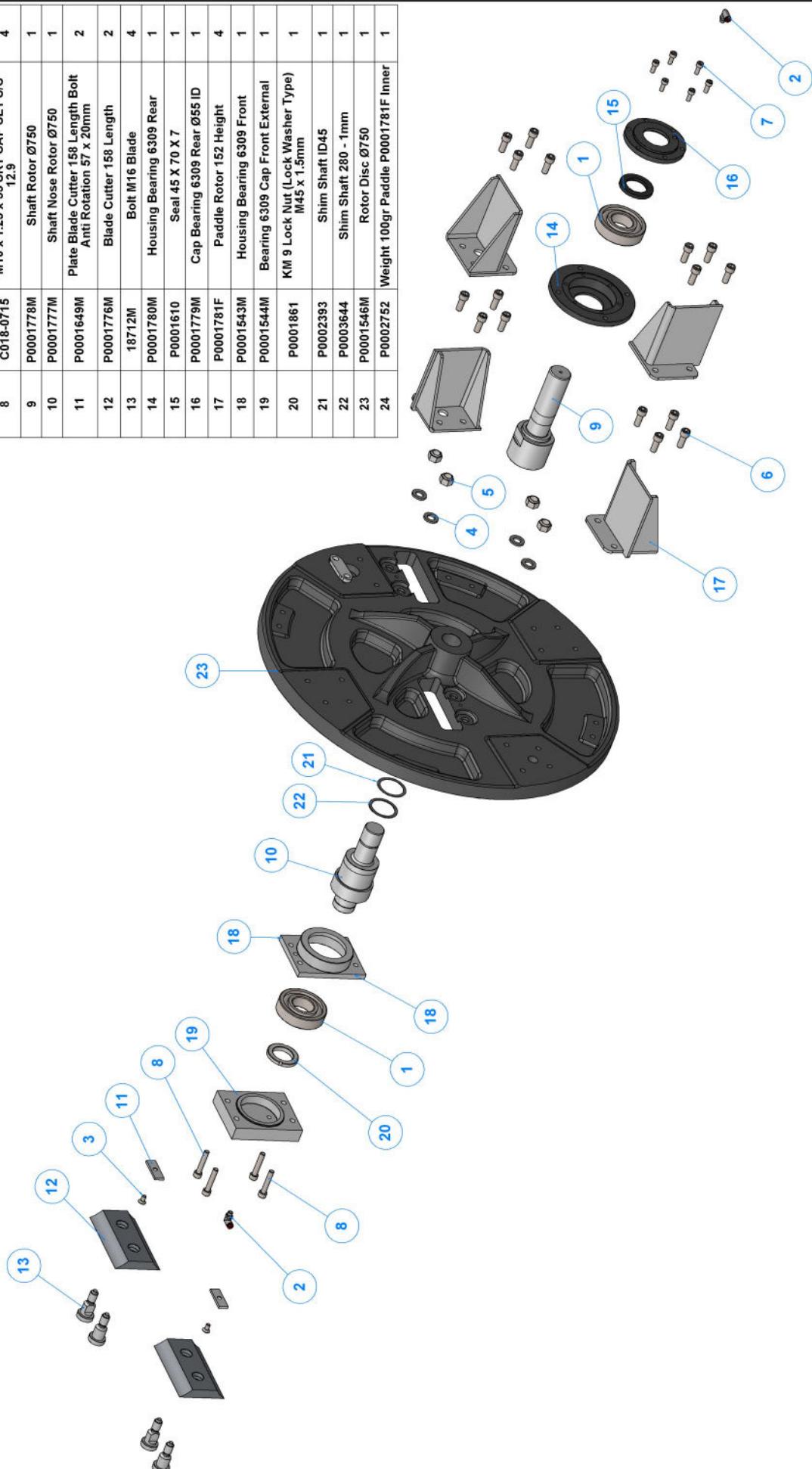




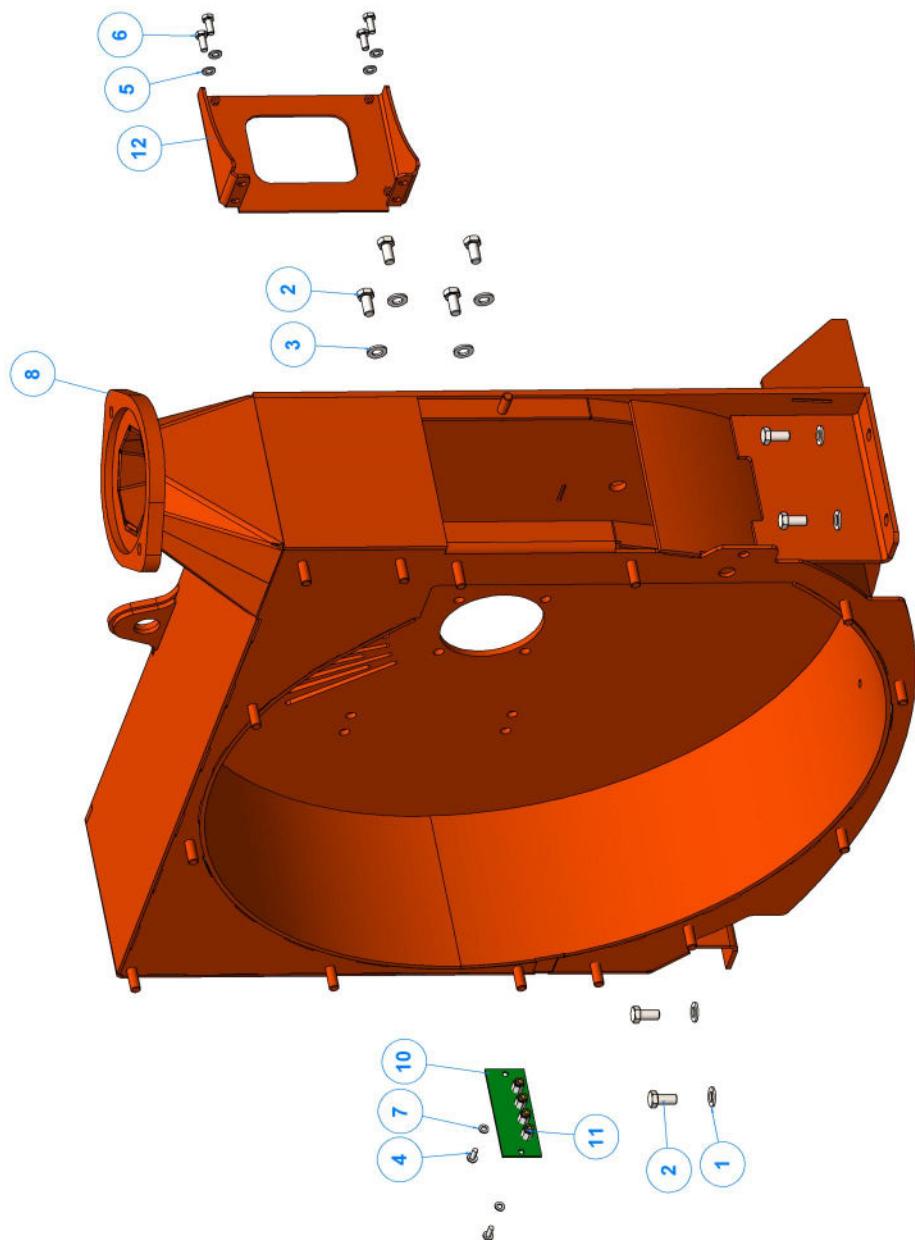
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|-------------------------------------|------|
| 1 | C005-0712 | M10 x 40 SKT CAP SET Z/P 12.9 | 3 |
| 2 | P0001401 | Bolt Shear M10 1.5 55 BZP | 3 |
| 3 | P0001553F | Roller Infeed Ø142 x 276 - 8 Blades | 1 |
| 4 | 4100M | Bush Spline Roller Drive | 1 |
| 5 | P0001327M | Bush Top Roller Ø76 - 30.5 | 1 |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--|------|
| 1 | C128-0108 | Bearing 6309 C3 | 2 |
| 2 | 18474 | Fitting Grease Point Right Angle | 2 |
| 3 | C015-0605 | M8 x 16 SKT CSK SET Z/P 10.9 | 2 |
| 4 | WA1218 | Washer M16 30 Hard SLDPR | 4 |
| 5 | NU1284 | Nut M16 Nyloc 1.50 Fine Bsp | 4 |
| 6 | C005-0810 | M12 x 30 SKT CAP SET Z/P 12.9 | 16 |
| 7 | BO372 | Socket Head Cap M8 1.25 20 | 6 |
| 8 | C018-0715 | M10 x 1.25 x 55 SKT CAP SET SIC 12.9 | 4 |
| 9 | P0001778M | Shaft Rotor Ø750 | 1 |
| 10 | P0001777M | Shaft Nose Rotor Ø750 | 1 |
| 11 | P0001645M | Plate Blade Cutter 158 Length Bolt Anti Rotation 57 x 20mm | 2 |
| 12 | P0001776M | Blade Cutter 158 Length | 2 |
| 13 | 18712M | Bolt M16 Blade | 4 |
| 14 | P00017780M | Housing Bearing 6309 Rear | 1 |
| 15 | P0001610 | Seal 45 X 70 X 7 | 1 |
| 16 | P0001779M | Cap Bearing 6309 Rear Ø55 ID | 1 |
| 17 | P0001781F | Paddle Rotor 152 Height | 4 |
| 18 | P0001543M | Housing Bearing 6309 Front | 1 |
| 19 | P0001544M | Bearing 6309 Cap Front External | 1 |
| 20 | P0001861 | KM 9 Lock Nut (Lock Washer Type) M45 x 1.5mm | 1 |
| 21 | P0002393 | Shim Shaft ID45 | 1 |
| 22 | P0003644 | Shim Shaft 280 - 1mm | 1 |
| 23 | P0001546M | Rotor Disc Ø750 | 1 |
| 24 | P0002752 | Weight 100gr Paddle P0001781F Inner | 1 |

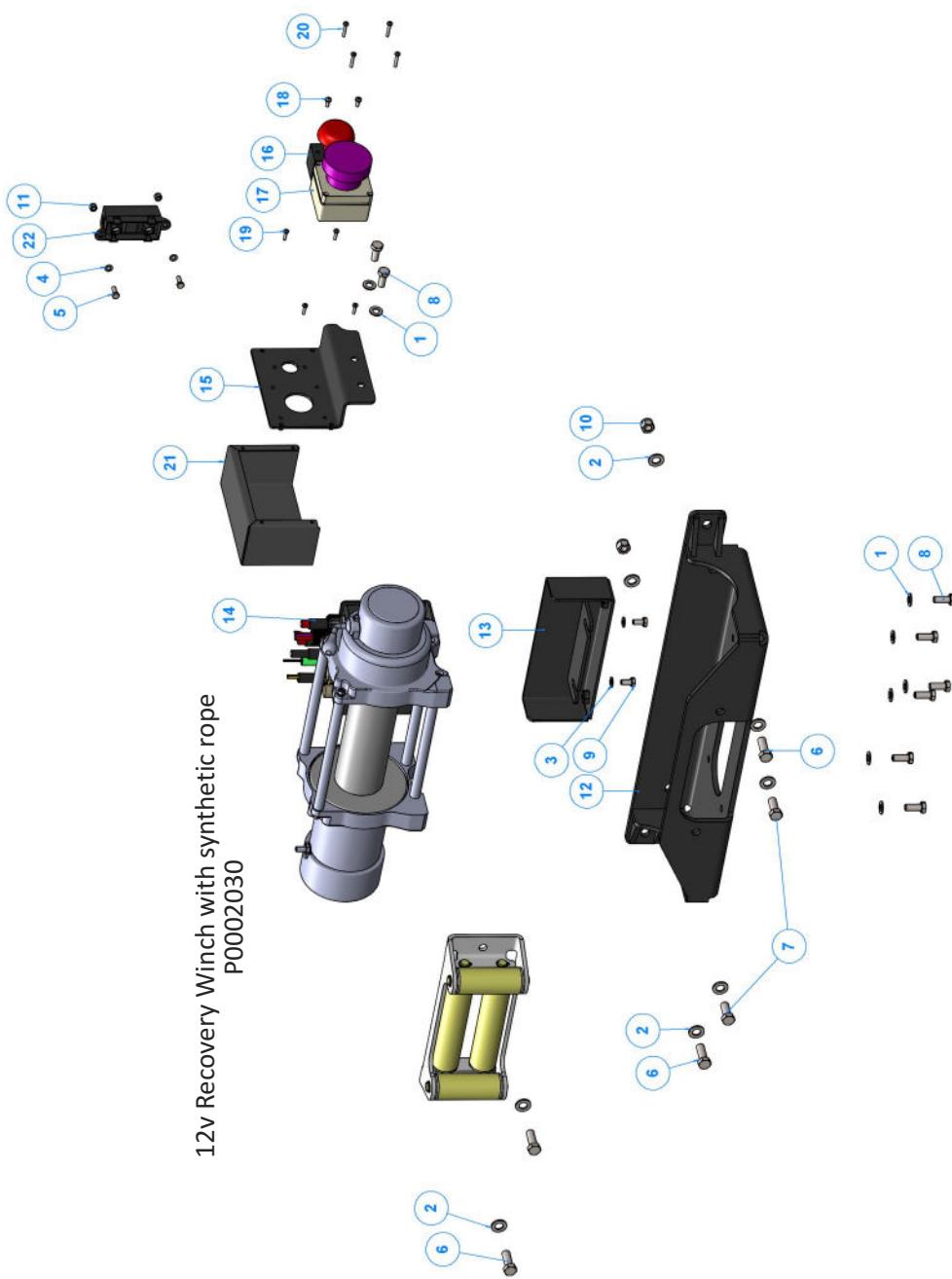


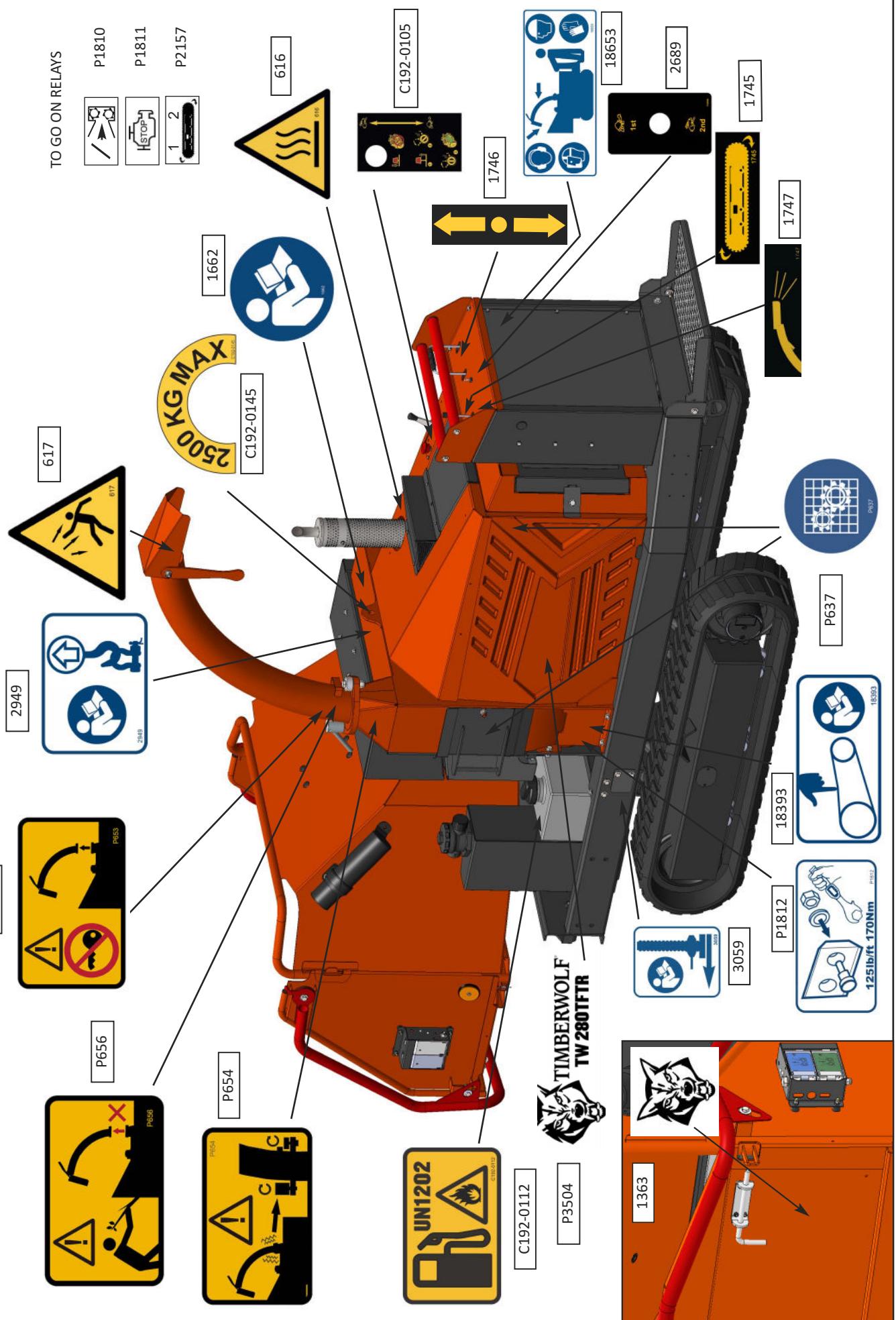
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---|------|
| 1 | C021-0127 | M12 FORM C WASHER Z/P | 4 |
| 2 | C002-0809 | M12 x 25 HEX SET Z/P 8.8 | 8 |
| 3 | C021-0107 | M12 FORM A WASHER Z/P | 4 |
| 4 | C013-0405 | M6 x 16 PAN POZI Z/P | 2 |
| 5 | C021-0105 | M8 FORM A WASHER Z/P | 4 |
| 6 | C002-0607 | M8 x 20 HEX SET Z/P 8.8 | 4 |
| 7 | C021-0123 | M6 FORM C WASHER Z/P | 2 |
| 8 | P0001721F | Rotor Housing Ø750 - 221 | 1 |
| 9 | TW280 TFR | Grease Point 128.5x49x3 Assy | 1 |
| 10 | P0001737 | Profile 128.5x49x3 Grease Point | 1 |
| 11 | C072-0101 | 45° Grease Nipple 1-8" BSP Kit | 4 |
| 12 | P002316F | Bracket Rotor Housing Electrical Panel Assy | 1 |

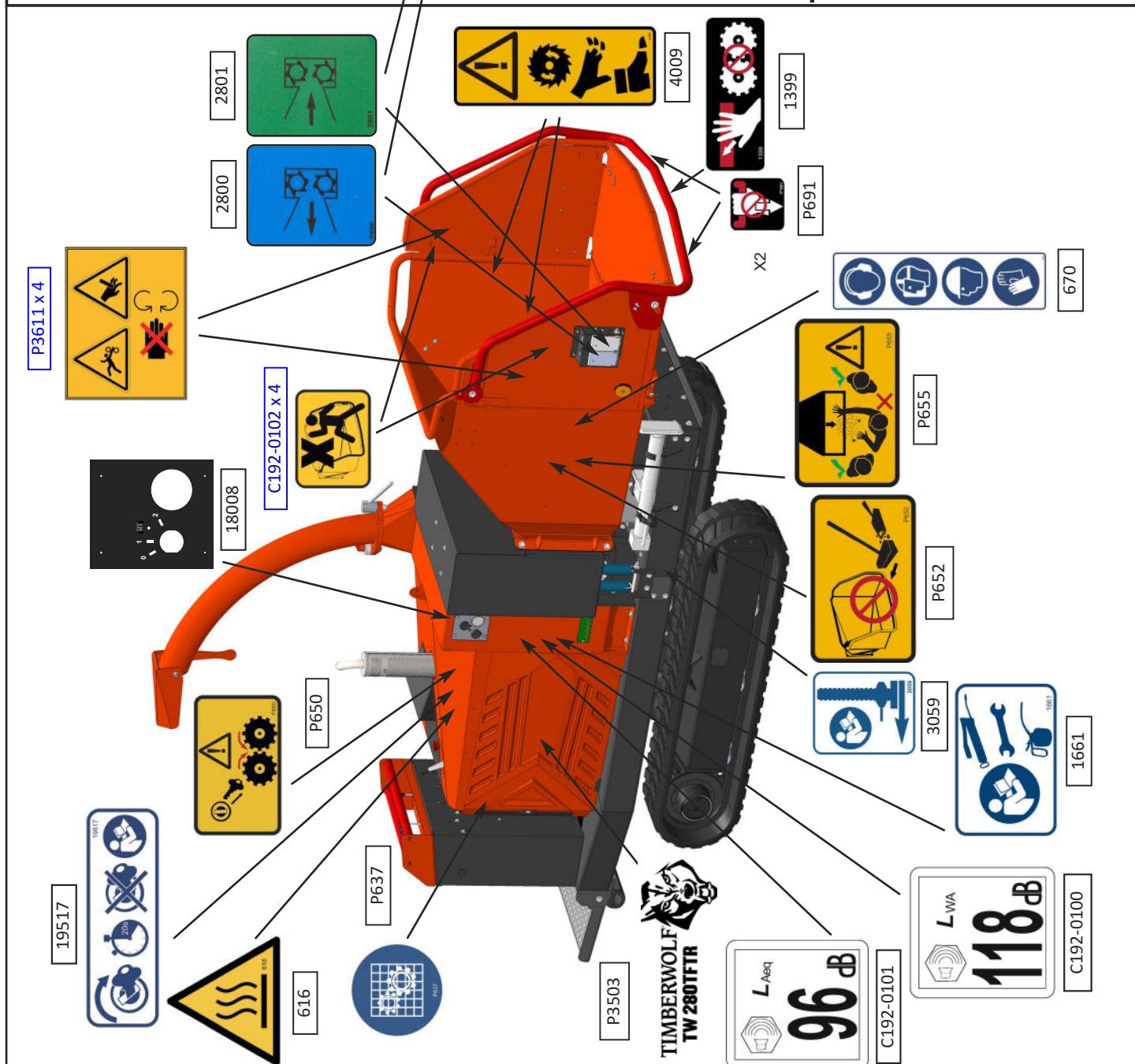
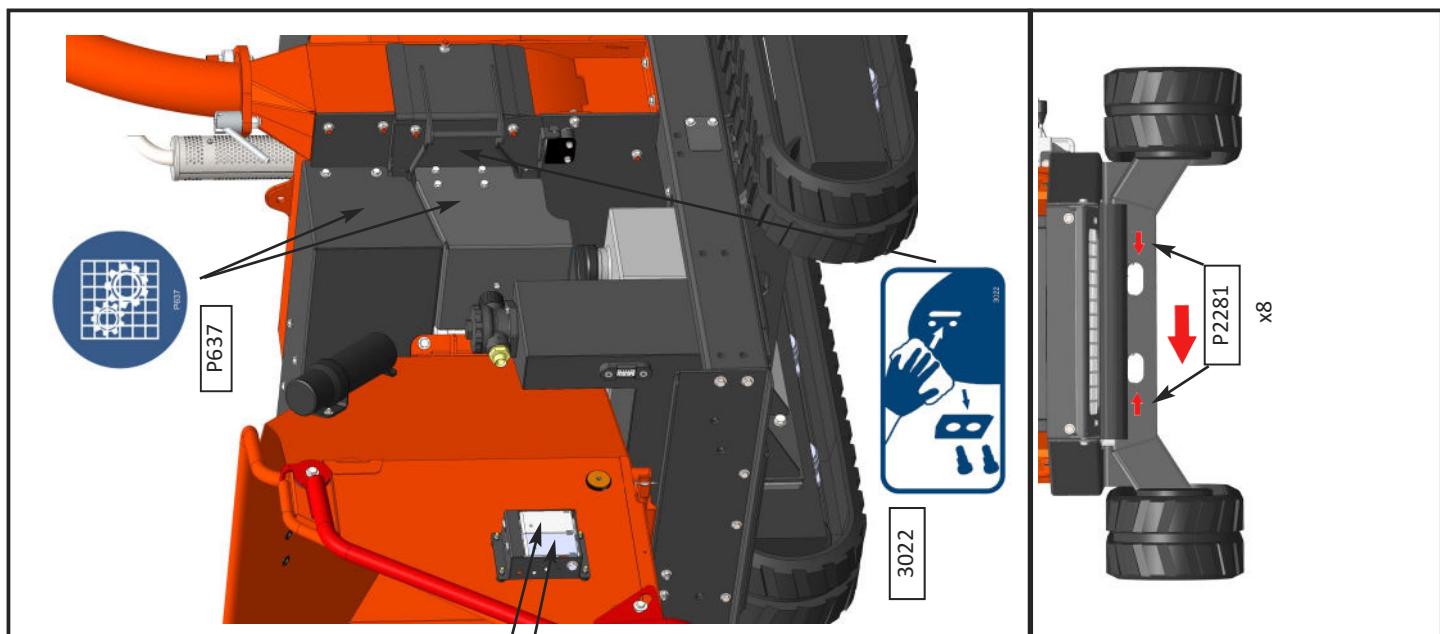


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------------------|---------------------------------------|------|
| 1 | C021-0126 | M10 FORM C WASHER Z/P | 8 |
| 2 | C021-0127 | M12 FORM C WASHER Z/P | 8 |
| 3 | C021-0125 | M8 FORM C WASHER Z/P | 2 |
| 4 | C021-0123 | M6 FORM C WASHER Z/P | 2 |
| 5 | C002-0405 | M6 x 16 HEX SET Z/P 8.8 | 2 |
| 6 | C002-0811 | M12 x 35 HEX SET Z/P 8.8 | 4 |
| 7 | C002-0810 | M12 x 30 HEX SET Z/P 8.8 | 2 |
| 8 | C002-0709 | M10 x 25 HEX SET Z/P 8.8 | 8 |
| 9 | C002-0605 | M8 x 16 HEX SET Z/P 8.8 | 2 |
| 10 | C031-0165 | M12 TYPE P NYLOC NUT Z/P | 2 |
| 11 | C031-0161 | M6 TYPE P NYLOC NUT Z/P | 2 |
| 12 | P0001340F | Bracket Winch | 1 |
| 13 | C131-0166 | Winch Solenoid Mount Plate | 1 |
| 14 | BHW Winch Solenoid Pack | BHW Winch Solenoid Pack | 1 |
| 15 | P0001785F | Bracket Winch Socket | 1 |
| 16 | P0002035 | Main Isolator Switch for P0002030 Kit | 1 |
| 17 | P0002037 | Socket Pendant for P0002030 Kit | 1 |
| 18 | C013-0303 | M5 x 12 PAN POZI Z/P | 2 |
| 19 | C013-0205 | M4 x 16 PAN POZI Z/P | 4 |
| 20 | C013-0208 | M4 x 25 PAN POZI Z/P | 4 |
| 21 | P0001708F | Cover Winch Socket | 1 |
| 22 | BHW Fuse Holder | BHW Fuse Holder | 1 |

12v Recovery Winch with synthetic rope
P0002030









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