



**EX-30 - EX-30M
Sidewinder
OPERATORS MANUAL**

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INTRODUCTION

Eterra thanks you for purchasing a new Eterra product. This operating manual has been prepared to enable you to operate your equipment in a safe manner and provide proper care & maintenance.

NOTE:

This operating manual should be used in conjunction with the parent machine's operating instructions.

Instruction books should be regarded as part of the machine. They should always be kept safe with the machine for easy and quick reference.

New or extra copies can be obtained from your Eterra dealer or directly from Eterra.

Eterra continually strives to improve and increase their range of products and therefore reserves the right to alter their specifications at any time without notice or obligation. The company accepts no responsibility for discrepancies which may occur between specifications of their machines and descriptions thereof contained in their publications.

Purpose

This Eterra product is intended to be used with skid steer loaders or mini skid steer loaders or excavators in the appropriate weight class. It is intended to be used by operators of all experience levels. To accomplish this feat, a very simple design has been used which is unlike anything else found in the industry.

You must read and understand the theory of operation so that you can operate this attachment safely and so you can maintain the safety of the operators and bystanders.

This product was designed to be sold online and out of the box ready to operate with a minimal amount of assembly.

This Document:

The sole purpose of this manual is to help you train yourself to be a responsible operator and troubleshooter of the operation of the attachment so that you can identify safety issues before anything serious can happen. Failure to follow the directives noted in this document may lead to serious injury or death.

SAFETY NOTES

Protect Yourself

Make sure you wear protective clothing and personal safety items. **DO NOT** wear items of loose clothing, jewellery or other items and tie up any long hair which could entangle in the controls or other parts of the machine.

You May Need

- A Hard Hat
- Safety Goggles
- Hearing Protection
- Foul Weather Clothing
- Reflective Clothing
- Protective Gloves
- Safety Boots

Know Your Equipment

Get to know all you how to operate all controls on the machine and the attachments
IF THERE IS SOMETHING IN THE MANUAL WHICH YOU DO NOT UNDERSTAND, CONTACT THE MACHINE AGENT OR MANUFACTURER AND ASK THEM TO EXPLAIN IT TO YOU.

Danger, Warning And Caution

This symbol below has 3 important meanings when used with the following captions.



DANGER: An IMMEDIATELY HAZARDOUS situation that WILL result in DEATH or VERY SERIOUS INJURY

WARNING: A POTENTIALLY HAZARDOUS situation that COULD result in DEATH or VERY SERIOUS INJURY

CAUTION: A POTENTIALLY HAZARDOUS situation that MAY result in MINOR INJURY

Protective And Safety Devices

Keep all protective devices in place and securely fastened. Make sure all guards, shields and safety signs are properly installed and are in good condition.

Check The Equipment

Before you operate the equipment, take time to check your machine and ensure that all systems are in good operational order.

- Never operate the equipment with worn, damaged or missing parts. Use only genuine replacement parts.
- Always ensure that the parent machine is secure and stable with its engine switched off and hydraulic lines disconnected before carrying out any maintenance work.
- Check for loose, broken, missing or damaged parts. Ensure all items are in good repair and make sure all safety devices are in place.
- Perform all maintenance procedures outlined for the equipment.
- Always protect hands. Select appropriate gloves when handling the equipment during fitting, removing or adjusting
- Always protect feet with safety boots.

Safety Precautions



WARNING: Hydraulic fluid under pressure can penetrate the skin or eyes and cause serious PERSONAL INJURY, BLINDNESS OR DEATH.

Fluid leaks under pressure may not be visible. Use a piece of wood or thick cardboard to find leaks. DO NOT USE YOUR BARE HANDS.

Wear safety goggles for eye protection.

If any fluid is injected into the skin, it MUST be surgically removed.

SEE A DOCTOR IMMEDIATELY

Make sure all hydraulic lines are correctly installed

Before applying pressure to the hydraulic system be sure all connections are tight and that lines, pipes and hoses are not damaged. Before disconnecting hydraulic lines, be sure to relieve all pressure.

ETERRA recommends you receive dealer or factory instruction before operating the unit.

NEVER operate or assemble the equipment without **fully** understanding the operating instructions of both the equipment unit and the parent machine.

NEVER operate the equipment unless you are in good physical condition and mental health.

NEVER operate the equipment under the influence of any substance (including drugs & alcohol) which might impair vision.

NEVER proceed with works before completing a site risks assessment immediately before commencing work. Nominating the safe work exclusion zone radius for persons and animals as part of identifying risks and implementing controls.

NEVER allow minors to operate the equipment.

ALWAYS survey the work area before commencing operations. Check for potential hazards. E.G. Electricity or communication cables etc.

ALWAYS ensure that the parent machine is secure and stable with it's engine switched off before carrying out any maintenance work.

ALWAYS ensure the hydraulic oil supply to the attachment is disconnected by uncoupling the hydraulic hose connectors before fitting, removing or adjusting the equipment

ALWAYS wear head protection and eye protection when working on the unit.

ALWAYS protect hands. Select appropriate when handling the equipment during fitting, removing or adjusting the unit.

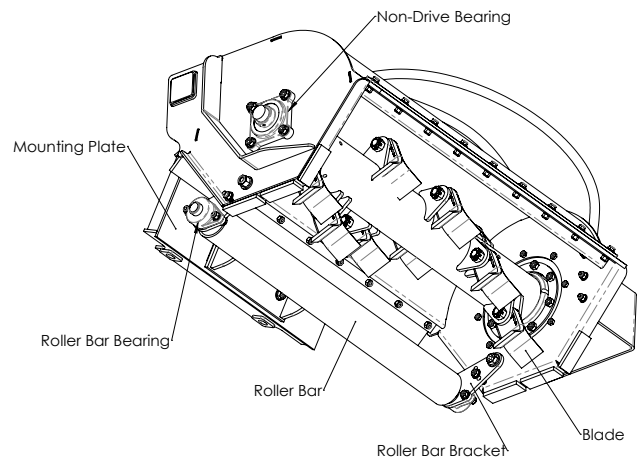
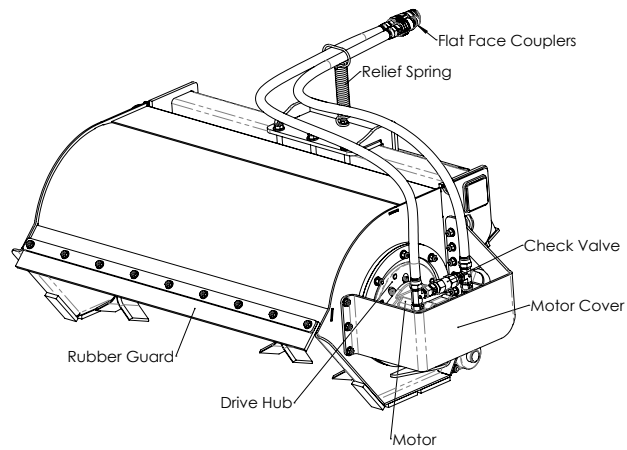
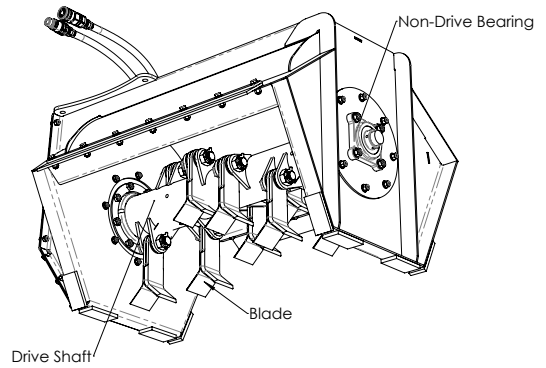
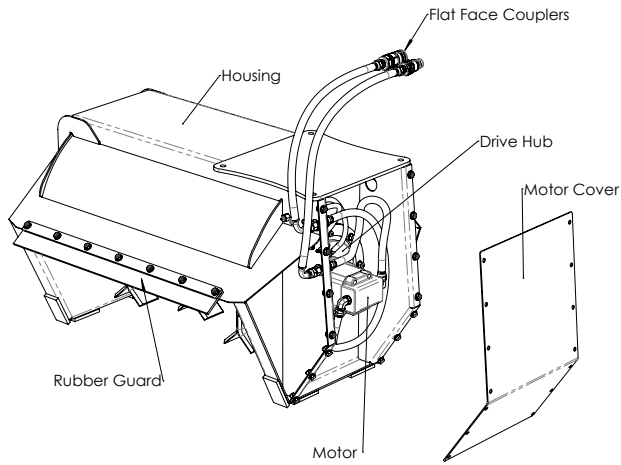
ALWAYS protect feet. Wear approved safety boots.

ALWAYS follow the parent machine instructions regarding noise protection.

STAY ALERT. Should something break, come loose or fail to operate on your equipment, STOP WORK, lower equipment to the ground, shut off the engine and lock out hydraulic supply, inspect the machine and have repairs or adjustments made before resuming operation.

COMPONENT IDENTIFICATION

EX-30 & Sidewinder



MOUNTING

SAFETY FIRST



ALWAYS Always check the weight of the attachment and ensure you have the correct equipment for handling it.

ALWAYS check parent machine:

- Is in correct working order
- Is parked correctly on flat ground
- Has its hand brake **ON**, its hydraulic circuit locked out and its engine switched **OFF**.



Attaching to Excavator (EX-30M & EX-30)

Check that the mounting frame is of the correct model and type to fit the parent machine. Ensure mounting frame and attachment points are clean before fitting. Use suitably rated lifting equipment if required.

If you purchased an Eterra coupler along with your EX-30M or EX-30 then please ensure that you received the correct coupler. Contact us if your fitment is not correct, or if you have issues hooking up to it.

If you have fabricated your own coupler, please take care in ensuring the fitment is correct before operating the mower to prevent dangerous work conditions.

Always make sure the excavator coupler is properly fastened with all four mounting bolts to the mower. Check bolts and re-tighten if necessary.

Attaching to Mini Skid Steer (Sidewinder)

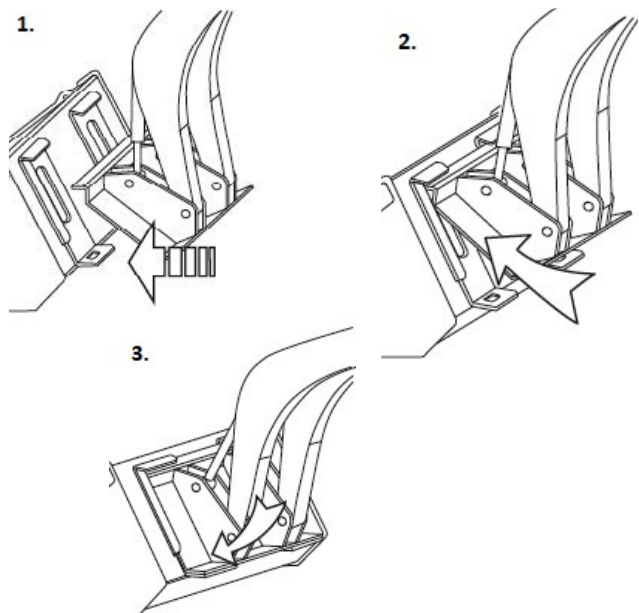
Check that the skid steer mounting plate fits properly and allows the locking pins to be engaged. You **MUST** engage your locking pins before operation to prevent the mower from coming off. If your locking pins do not stay locked down they may need to be adjusted or repaired before continuing.

1. Slowly position your skid steer loader towards the rear of the mounting plate.

2. Slowly insert the top edge of your quick attach into the top rail of the backhoe from underneath.

3. As the top of the quick attach aligns into the mounting plate, slowly roll your quick attach back towards the machine until the entire quick attach locks into the mount.

4. Using either your power attach or manual levers, lock the mounting plate in place and check for proper pin engagement.



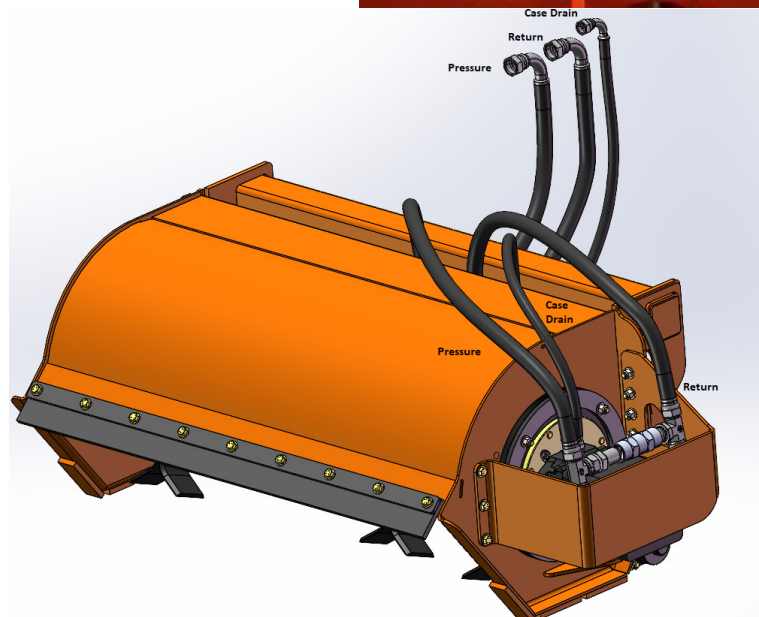
Attaching to Raptor (Sidewinder)

Using your boom controls, position your Raptor Boom Arm's clamp coupler upper half onto the mower heads 3" bar/attachment beam. Connect the lower clamp plate with the five 1/2"-13 x 2-1/4" bolts supplied with the boom arm. Torque all five bolts down evenly by moving between them as you tighten them all down. Final torque them to 75 ft/lbs. Re-tighten as needed after each use as paint/powdercoat wear can cause the clamp to loosen up during break in.

Once the mower head is connected securely, route and attach the hydraulic lines from the mower to the boom arm. Hoses should be routed underneath the attachment bar and then back up to the boom arm connection block.

When standing facing the motor on the Sidewinder, the left most line will be the pressure line, this attaches to the lowest/outer most connection on the boom arm. The right side line is the return line, it will attach to the next swivel fitting up in the middle of the connection block. The case drain line will attach to the upper/inner most fitting on the boom arm. It is also a smaller diameter 1/2" line and fitting as well.

Use straps/hose protection as necessary to protect hoses during operation. Operate the boom functions and check for snag and contact points. Adjust as needed for safe operation.



HYDRAULIC CONNECTIONS

WARNING:



Hydraulic fluid under pressure can penetrate the skin or eyes and cause serious personal injury, blindness or death. Fluid leaks under pressure may not be visible. Use a piece of card or wood to find leaks. **DO NOT** use your bare hands. Wear safety goggles to protect your eyes. If any fluid is injected into the skin, it **MUST** be surgically removed. Seek immediate medical attention.

Standard Flat Face Couplers required for connection to the parent machine, are included for all mowers except Sidewinder's built to operate on Raptor Boom Arms. Non-standard couplers are not supplied with the unit. These should be sourced locally and should be compatible with the auxiliary hydraulic Quick Release Couplers on the parent machine. The parent machine auxiliary hydraulic connections are normally located near the end of the loader arms, excavator dipper or truck crane booms.

Hose Routing

You should check the best hose routing for your machine prior to use and adjust accordingly. Damage to hydraulic hoses due to improper length or routing is not covered under warranty.

Excavator One-Way Flow/Breaker Circuit

For EX-30M & EX-30 mowers on excavators:



You must run the mower on a one-way flow circuit/breaker circuit. On some machines this requires physically turning a valve on your excavator hydraulics, on others it is done electronically. This allows the return flow to go directly back to the hydraulic tank and bypass the valve block.

This is a very important setting that reduces the back pressure on the hydraulic motor. High back pressure will damage and cause the hydraulic motor seal to fail pre-maturely. This failure is not covered under warranty.

Flat Face Coupler Connections

Attach all lines supplied from the mower by pushing the flat face couplers on the lines to the ones on your machine. If connection is difficult, you may need to release pressure from the couplers on your machine side. See your machine user manual for how to do this.

When the flat face couplers are attached, spin the collar away from the ball detent in order to "lock" the coupler in place. This will prevent a line from accidentally getting pulled off by brush/debris. If a line becomes detached during operation, you will damage the hydraulic motor, so take care to ensure your hydraulic connections are secure before operating.

The mowers operate in only one direction. If pressure/flow is applied to the opposite direction, then the mower will not operate. If your mower does not spin when flow/pressure is applied to it, then the connections may be backwards. Simply swap the Male and Female couplers on the hose ends, and try again.

Most manufacturers use the male connector on their machine as the output. This means on the attachment, the female coupler will correspond to the pressure/input line. If you have a Bobcat brand machine, they are the opposite, and they use the female on the machine as the output.

OPERATION

Pre-Operation Checklist

- Give the machine a “once-over” for any loose bolts, worn parts, cracked welds, hydraulic leaks, frayed hoses etc. and make necessary repairs. **DOUBLE CHECK** the EX/EXM & Sidewinder Mower pins and mounts to insure nothing has come loose as you risk the mower head falling off if not properly inspected.
- Check for excessive blade & bolt wear as well as cracks in the rear of the blades. Replace as needed. Generally when the blades are worn out, so are the bolts so you should be replacing as a set. If you only replace the blades, the bolts may fail and allow the blades to fly away uncontrollably. This is not a situation you want to find yourself in and you should do everything to make sure this will never happen.
- If you feel any kind of vibration from the mower head, it is likely one of the mower blades has been broken. Stop using the mower and do not use until the blade has been changed.
- Lubricate the main bearings daily or after each 8 hours of use. There is a greasing Zerk located on the rear of the drive housing and near the input of the hoses to the front of the housing. Sidewinders have additional grease Zerks at each end of the rear roller. We recommend Sta-Plex Extreme Pressure Red Grease.
- Make sure all hoses are clear of cuts, abrasions, worn spots and pinch points before operating. Check that hoses do not get caught in the pinch areas of your Machine boom.
- Connect to machine and check mechanical machine connection point for wear that could cause EX/EXM & Sidewinder Mower to fall off. Repair any damage as needed.
- Check that your mower is properly connected to your machine by **lightly** pushing the nose down into the ground to see if it will become dislodged. If there is any excessive movement in the connection point – **STOP!** Try to figure out why it is not mating properly and/or contact us 24/7 prior to operation. You do not want the mower to fall off while in use so you must establish a positive connection to your Machine.
- For EX-30 users with the optional thumb saddle. Ensure that your thumb pressure is turned down to less than 1800psi on the thumb circuit. The thumb saddle is simply meant for picking up brush/debris for clearing. Excessive pressure on the thumb saddle will cause damage to the mount/frame/coupler and is not covered under warranty.
- The EX/EXM & Sidewinder Mowers have rubber deflection shields provided. These shields are provided to allow escaping material to be deflected downward while absorbing a lot of the potential energy. The deflection shield is not a stop all solution but it definitely helps. If you remove the deflectors, a lot more material will be projected forward out of the mower making it very dangerous. Do not operate without the deflection shields in place.
- It is imperative that your loader be equipped with penetration proof protection for excavators and full size skid steers. For sidewinder operation on a mini loader, the user must wear appropriate protective clothing and face shield.

First Time Use Guide

Step One:

Connect the mower to your machine and connect hydraulic connections. Follow the pre-operation checklist to check for potential problems before continuing. Once this is complete, you are ready to spin-up the mower.

Step Two:

Start your machine. Move the mower around while turned off to become familiar with how it moves on your machine and how you will be cutting with it. Ensure you are in a clear area and with the mower head off the ground 12 inches, and clear of anything it may contact when spinning up.

Step Three:

Turn on your auxiliary flow (using the one way flow circuit on excavators) and lock it on (usually via a trigger switch) to keep the mower running continuously. Make sure you can see the mower running, and that it is not making any odd vibrations/noises. Turn off the flow to the mower and wait for it to spin down to a stopped position. Exit your cab and inspect the hoses/couplers for any leaks. Tighten any fittings as needed and check again before continuing.

Step Four:

Now that you are ready to cut, go back to your machine and turn the mower on again. This time increase your machine's throttle/RPM to max in order to get maximum cutting power. This will increase the RPM of the mower as well. When sold, the mower's hydraulic motor is sized to match the flow of your machine and will operate at max efficiency only at 3/4 to full throttle.

Perform a few test cuts so that you feel confident with what the mower is capable of cutting, and the direction the material will exit the mower. Because of the side mounted nature of the EX/EXM & SIDEWINDER, the material cut will not act like it would with other mowers. There is a high degree of certainty that material will exit the rear of the mower and rebound back beside the operator. It is imperative that your loader be equipped with penetration proof protection.

Step Five:

Progress towards larger material a try all angles so that you can see where your blind spots may occur. It is important to maintain visibility with the cutter portion of the mower so that you do not inadvertently strike a fixed object and possibly damage your mower. Always wait until the blades stop before inspecting the mower as material can become dislodged and thrown back at you when the blades are spinning down.

General Use Guide

These mowers are designed to take advantage of the existing controls already furnished on your machine as well as use your auxiliary hydraulic circuit to provide additional functions and power for your mower head.

Your machine will provide the lift and swing function for the mower for cutting as well as the forward movement. Many excavators use a shared pump system so forward movement will be inhibited while the mower is operational. Alternatively sometimes this means that the mower will lose power/RPM when driving forward. Some newer machines like Yanmar and Kubota's have a third pump which allows forward crawling while the mower is running.

Minimum hydraulic pressure is 2200 PSI. Less pressure means less power. The mowers cutting capacity is rated at 3000 psi so under 3000 psi, performance may be reduced. You may be able to increase the pressure on your machine if you are experiencing reduced performance due to low pressure. This will be machine dependent and you will have to work with your machine's dealer/mechanic on this if needed. Less flow means slower operation. Low flow will cause the mower to be bogged down easily and not cut at maximum efficiency. Be sure to maintain proper system filtration.

Excavator mowing is accomplished by positioning your machine in a firm location and extending your boom outward. Lower the boom to the upper position for mowing and engage the mower so it begins to rotate. Swing your boom back and forth. It is better to start higher and work your way lower so that you have better visibility as to what you are mowing so that you do not accidentally contact a fixed item.

Trees: Try to reach as high as you can and mower the tree from the top. Once you have topped the tree, you can lower the mower on top of it slowly and mulch the tree right to the ground. If the tree is too hard or too thick, you will know it as the mower will slow down and stall. Once the mower stalls, do not push down any longer. Lift the mower up until it starts to spin again.

Sidewinder on mini skid steer: Find the float operation of your machine and understand it's operation. The Sidewinder is supplied with a rear roller. This roller allows you to place the mower all of the way down and apply float to it. The mower will then follow the contour of your ground and not lift off the ground when you encounter rough terrain. By tilting the mower back a little, you can roll over very uneven terrain and not contact it with the blades. This provides the best cut.

Operational Positions

Shown below are different positions of operation for the mowers, and when they are used.

EX-30M & EX-30



Standard Mowing Position



Low Bank Mowing Position



High Brush Mowing Position



Tree Top Mowing Position

Sidewinder



Front Mowing / Blade Service Position



Walk Behind Mowing



Do not operate like this



Raptor High Mowing Position



Raptor Low Bank Mowing Position



Raptor Front Mowing/Blade Service Position

TRANSPORTATION & STORAGE

Transportation Within The Job Site

The EX-30M/EX-30 & Sidewinder boom arm mounted should be rotated to directly in front of the operator and the mower head rotated so the blades are facing down, and the mower turned off.

For Sidewinder on a mini skid steer, raise slightly off the ground and rotate back to clear obstacles.

This position will give you the most compact footprint for travelling or for accessing narrow areas. You should never store the mower in this position for long periods.

Many machines have a small amount of bleed through which will allow the mower arm to drop when stored for longer periods.



Storage

The best position for storage is for the attachment to be removed from the loader in the parked position with the blades facing down.

If it is necessary to store for a short term while still attached to the machine, then use the following guidelines.

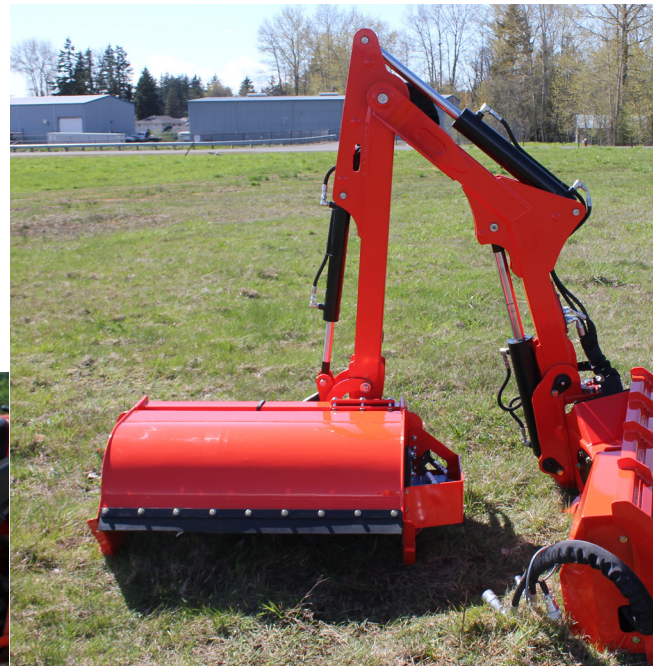
For EX-30M & EX-30 on an excavator, rotate the boom to the forward position, curled in as close as possible with the blades facing downwards and the EX-30 sitting flat on the ground with both sides touching flat. Lower the blade to support the weight of the machine in case of any leakdown of the arm hydraulics.

For a Sidewinder on Raptor boom arm, the position will be similar to above, just on the raptor boom arm instead.

For a Sidewinder on a mini skid steer loader, simply place the arms all the way down with the Sidwinder sitting flat on the ground, so that even if the hydraulics leak down, the mower will not move.



Storage/Blade Service Position



MAINTENANCE & LUBRICATION

Safety at all times



Ensure environmentally safe disposal of waste oil:

Do not pour down the drain!



Avoid Fire or Explosion:



Do not smoke near, or expose lubricants to, any possible sources of ignition (e.g. fire, electrical sparks or heat sources.)



All lubricants are toxic and potentially carcinogenic (cancer causing).

Avoid contact with skin and eyes:



Wear suitable protective clothing and gloves.



Always use a suitable barrier cream in case of skin contact.

Always wear eye protection:



In the event of skin contact wash with soap and water.



In the event of eye contact wash with water and seek medical advice.

Do not ingest:

If swallowed seek medical advice immediately.

Lubrication

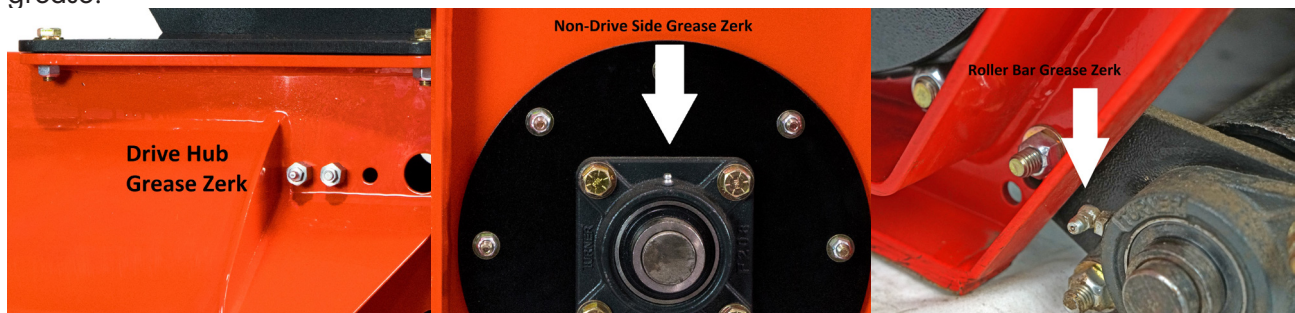
Lubrication of the EX-30M, EX-30, & Sidewinder Mowers must be done ~every 8 hours of operation, and should be done in the morning before use. We recommend Sta-Plex Extreme Pressure Red Grease or equivalent.

The main drive hub should be lubricated through the grease zerk fitting near the motor and hoses. Near this fitting is a vent fitting for the grease to escape from as well. Typically 2-3 pumps is all it will need to top it off.

It is typical to see some grease come out of this vent during operation. If over-greased, you may see a lot come out of the vent. This is OK, it just makes a bit of a mess. If you do not see any grease coming out of this vent, then you should be adding more to it.

The non-drive end of the mower has a bearing that should be greased with 1-2 pumps of grease at the same time.

For sidewinders, the roller bar bearings will need to be greased at each end with 1-2 pumps of grease.



Maintenance

Blade Replacement

Blade replacement should always be done with new hardware. Eterra recommends new blade bolts, nuts, roll pins, and washers with every blade replacement. The blades and hardware may be rotated once to utilize the opposite side of the blade before replacement as long as the mower remains balanced.

To replace the blades, simply park the mower in its applicable service position. Take a small punch and hammer and drive out the roll pin from the castle nut.

With the roll pin removed, use a wrench to remove the castle nut. The bolt head is captured so you will not need a wrench on the opposite side, but you may need to keep it from sliding out as you loosen the nut. With the nut removed, remove the bolt while holding onto the blades.

Replace the blades and washers with the new hardware, and re-attach with a new bolt and castle nut. Tighten the new castle nut down until it is snug, and continue to tighten until the next slot aligns with the roll pin hole. When the slot is aligned, check to make sure the blades can still swing freely. If they do not swing freely, then you will have to loosen it to the next slot on the castle nut. Once the slot is aligned and the blades swing freely, drive the roll pin in with a hammer until it sits evenly between both sides of the castle nut. Repeat for each set of blades.

Blade Sharpening

For blades that still have usable life, but have been damaged by a rock strike or similar, you may sharpen the blades with a grinder to smooth out the damage. Be careful not to remove too much material, as this will unbalance the blade carrier assembly and cause vibration. If this is happening the blade will need to be replaced.

When using a grinder be sure to use appropriate safety equipment. A flap sanding disk is recommended to remove material smoothly, and prevent gouging. If a blade is gouged it must be replaced, as this can create a weak spot where the blade can break.

Motor Replacement

If a motor needs to be removed/replaced, simply remove and cap the hydraulic hoses going into the motor. If replacing the motor, remove the 90 degree fittings to install into the new motor. Remove the two 1/2" bolts holding down the motor. Remove and save the bolts and nord-lock washers used.

Pull the motor out, and use a rubber mallet to wiggle motor back and forth while pulling if needed.

To install, align motor splines up with drive shaft splines, slide in and rotate until bolt holes line up. Apply red loc-tite to the 1/2" bolts for the motor, and install the nord-lock washers on the bolts as well. Thread bolts in to drive hub and tighten down evenly so that the motor goes in evenly. Final torque the bolts to 100 ft-lbs. Re-install hoses & fittings.

TROUBLESHOOTING

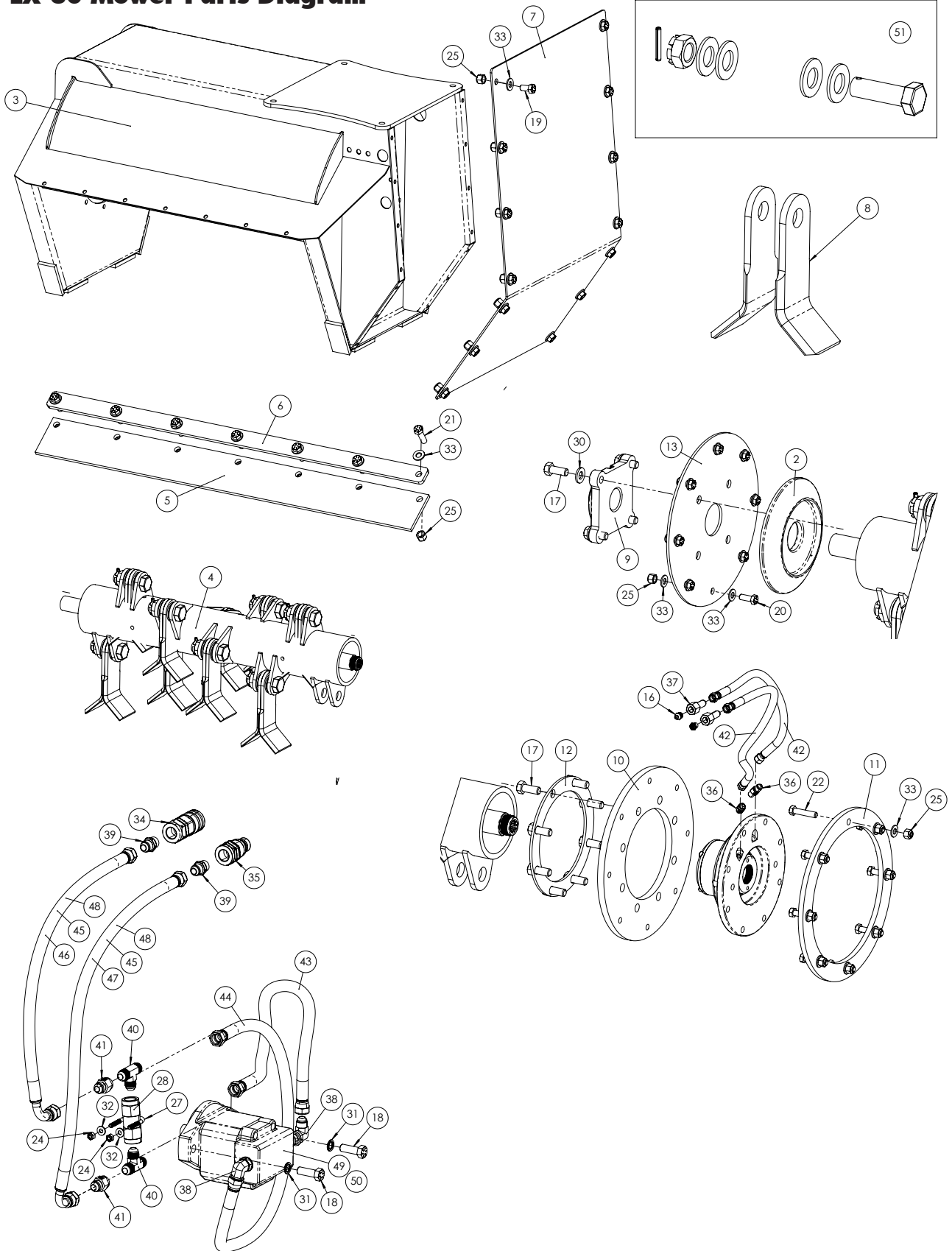
IF IN DOUBT ASK! - Seek Eterra / parent machine dealer for advice & repair.

BE SAFE - only use genuine Eterra / parent machine spare parts.

Poor or Uneven Cutting		Mower Lacks Power	
POSSIBLE CAUSE	ACTION	POSSIBLE CAUSE	ACTION
Dull Blades	Sharpen blades, rotate blades to new edge, or replace blades	Low pressure/flow from parent machine	Check pressure/flow output of machine. Low flow = Slow RPM Low Pressure = Poor power
Shaking/Vibration		Oil Leaking from Grease Vent	
POSSIBLE CAUSE	ACTION	POSSIBLE CAUSE	ACTION
Unbalanced Blade rotational assembly	Check for missing/broken blades or material stuck in the drum and repair as needed.	Blown motor shaft seal	Order motor seal kit and replace.
Grinding Noise		Oil Leaking from Motor Cover	
POSSIBLE CAUSE	ACTION	POSSIBLE CAUSE	ACTION
-Material in blades -Bearing Failure -Motor failure	Check for material stuck in mower. Check for bearing noise, replace if necessary. Inspect hydraulic motor for internal damage & replace if necessary.	Loose hose/fitting connection	Remove motor cover down and inspect for leak. Wipe down all surfaces and operate without cover. Tighten fitting where leak is found.
Excessive Heat			
POSSIBLE CAUSE	ACTION		
-Clogged hydraulic filter -Restriction in hydraulic lines -Extreme ambient temperature	Check machines hydraulic filters and maintain as required. Inspect hydraulic lines & connections for debris/restrictions. Install auxiliary hydraulic oil cooler on machine.		

PARTS DIAGRAMS

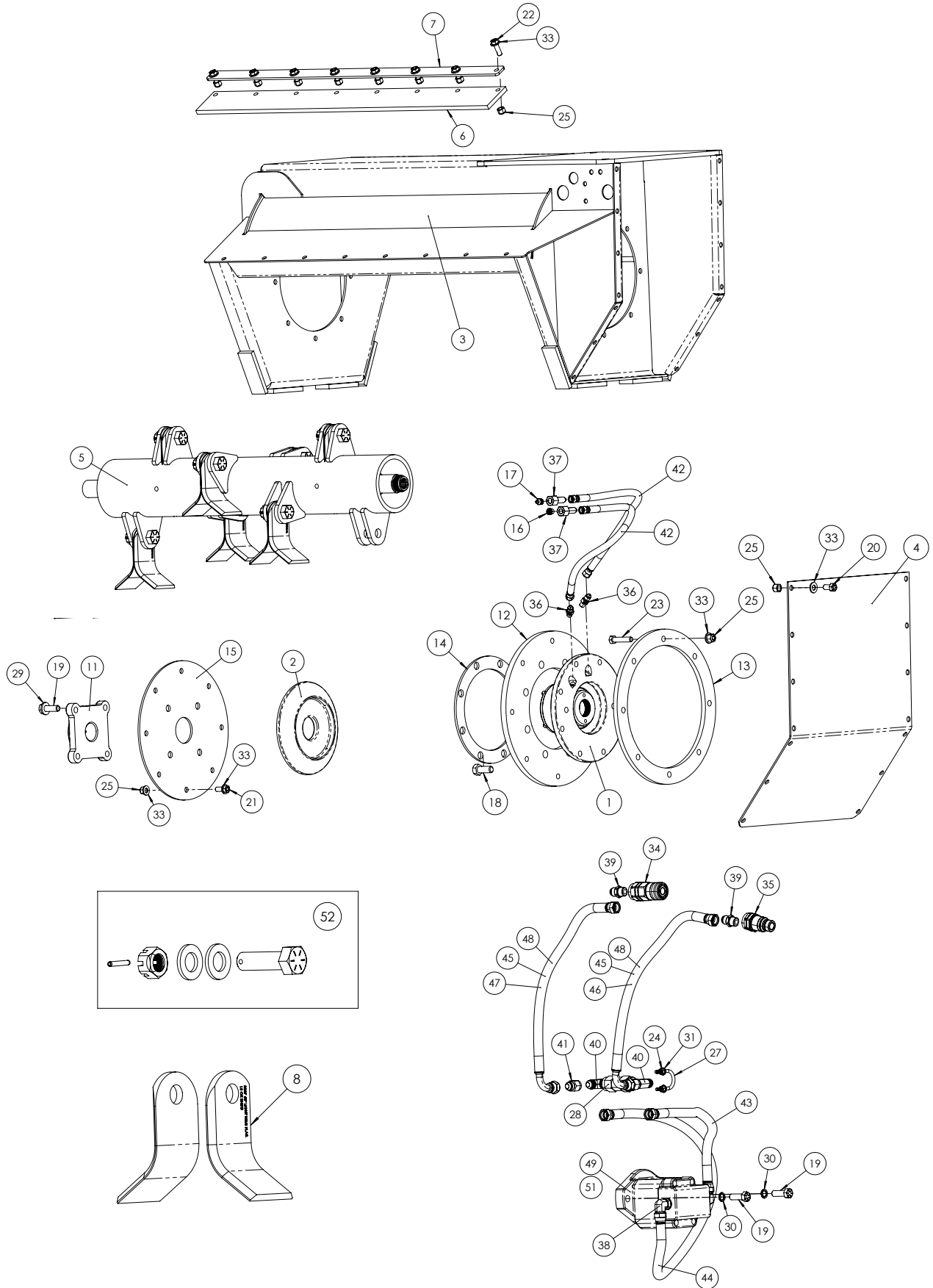
EX-30 Mower Parts Diagram



EX-30 Mower Parts List

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	ET-09C001-A001-10	Eterra - Part - Compact Flail Drive Hub Assembly - Complete	1
2	ET-09C001-P006-02	Eterra - Part - Compact Flail Drive - Non-drive end wear cone	1
3	ET-11E030-P002-63	Eterra - Part - EX-30 Flail Completed Housing Weldment Only - Powdercoated Orange	1
4	ET-11E030-P003-00	Eterra - Part - EX-30 Main Drive Shaft Complete with Blades	1
5	ET-11E030-P004-21	Eterra - Part - EX-30 Rubber Guard - Black	2
6	ET-11E030-P005-61	Eterra - Part - EX-30 Rubber Guard Clamp Plate - Powdercoated Black	2
7	ET-11E030-P006-61	Eterra - Part - EX-30 Flail - Motor Cover Plate - Powdercoated Black	1
8	ET-11Z001-P002-10	Eterra - Part - Flail Mower Blade for EX-30, EX-40, EX-50 - 2.25 lb Blade	20
9	ET-11Z001-P007-10	Eterra - Part - Bearing - Sidewinder - EX30M - EX-30 - non-drive end bearing.	1
10	ET-11Z001-P008-21	Eterra - Part - Flail Drive Hub Rubber Damper Ring - Black	1
11	ET-11Z001-P009-61	Eterra - Part - Flail Drive Outer Clamp Ring - Powdercoated Black	1
12	ET-11Z001-P010-61	Eterra - Part - Compact Flail Drive Inner Clamp Ring - Powdercoated Black	1
13	ET-11Z001-P011-61	Eterra - Part - 30" Flail Mower non drive side flange plate - fits EX-30M & EX-30 - Powdercoated Black	1
15	ET-98G108-P001-01	Eterra - Part - 1/8"-27 NPT Grease Vent Check Valve 5 PSI	1
16	ET-98G108-P027-01	Eterra - Part - 1/8"-27 Straight Steel Zinc Grease fitting With Ball Check - 21/32" Long	1
17	ET-98H102-P125-02	Eterra - Part - 1/2"-13 x 1.25" Hex Bolt Grade 8 Yellow Zinc Finish	12
18	ET-98H102-P150-02	Eterra - Part - 1/2"-13 x 1.50" Hex Bolt Grade 8 Yellow Zinc Finish	2
19	ET-98H308-P075-02	Eterra - Part - 3/8"-16 x 0.75" Hex Bolt Grade 8 Yellow Zinc Finish	14
20	ET-98H308-P100-02	Eterra - Part - 3/8"-16 x 1.00" Hex Bolt Grade 8 Yellow Zinc Finish	8
21	ET-98H308-P125-02	Eterra - Part - 3/8"-16 x 1.25" Hex Bolt Grade 8 Yellow Zinc Finish	14
22	ET-98H308-P175-02	Eterra - Part - 3/8"-16 x 1.75" Hex Bolt Grade 8 Yellow Zinc Finish	8
24	ET-98N104-P002-10	Eterra - Part - 1/4"-20 UNC Top Lock Nut	2
25	ET-98N308-P002-01	Eterra - Part - 3/8"-16 Top Lock Nut	44
27	ET-98U104-P125-01	Eterra - Part - U-Bolt 1/4"-20 Thread x 1.25" Long	1
28	ET-98V102-P001-04	Eterra - Part - 1/2" Check Valve - Black Oxide	1
30	ET-98W102-P001-02	Eterra - Part - 1/2" Flat Washer - Gold Zinc Coated	4
31	ET-98W102-P004-10	Eterra - Part - 1/2" Nord-Lock Washer - Standard OD	2
32	ET-98W104-P001-10	Eterra - Part - 1/4" SAE Flat Washer - Yellow Zinc	2
33	ET-98W308-P001-02	Eterra - Part - 3/8" SAE Flat Washer - Yellow Zinc	52
34	ET-FFF-8-8-SAE	Female Flat Face Coupler 1/2" Body -8 Female ORB Threads	1
35	ET-FFM-8-8-SAE	Male Flat Face Coupler 1/2" Body -8 Female ORB Threads	1
36	ET-FIT-0103-0204-00	-2 Male NPT to -4 Male JIC Straight Fitting	2
37	ET-FIT-0203-0204-BLK	-2 Female NPT to -4 Male JIC Bulkhead Fitting	2
38	ET-FIT-0503-0808-90	-8 Male ORB to -8 Male JIC 90 Degree fitting	2
39	ET-FIT-0503-0808-00	-8 Male ORB to -8 Male JIC Straight Fitting	2
40	ET-FIT-0503-0808-BRT	-8 Male ORB to -8 Male JIC Branch Tee	2
41	ET-FIT-0603-0808-00	-8 Female JIC to -8 Male JIC Straight Fitting	2
42	HOSE-0606-0404-04-16	EX-30/M Int - 1/4" Diameter x 16" Long, -4 FJIC Straight Both Ends.	2
43	HOSE-0606-0808-08-21	EX-30/M (Int) - 1/2" Diameter x 21" Long, -8 FJIC Straight Both Ends.	1
44	HOSE-0606-0808-08-34	EX-30/M (Int) - 1/2" Diameter x 34" Long, -8 FJIC Straight Both Ends.	1
45	HOSE-0639-0808-08-125	EX-30/M to Bobcat/John Deere Ext - 1/2" Diameter x 125" Long, -8 FJIC Straight x -8 FJIC 90°.	-
46	HOSE-0639-0808-08-48	EX-30/M to Kubota Ext - 1/2" Diameter x 48" Long, -8 FJIC Straight x -8 FJIC 90°.	-
47	HOSE-0639-0808-08-60	EX-30/M to Kubota Ext - 1/2" Diameter x 60" Long, -8 FJIC Straight x -8 FJIC 90°.	-
48	HOSE-0639-0808-08-85	EX-30/M Standard Ext - 1/2" Diameter x 85" Long, -8 FJIC Straight x -8 FJIC 90°.	2
49	PC-M124A885UPDA20-54	P/N based on size - Find part number on your current motor for direct replacement or call for other sizing	1
50	PC-M124-S	Perenco - Part - Complete Seal Kit for M124 Series Motor.	
51	ET-11E000-K900-10	Eterra - Kit - EX-30/40 Flail Mower Blade Bolt Kit - Includes 4x washers, 1x Bolt, Nut, & Roll Pin	10

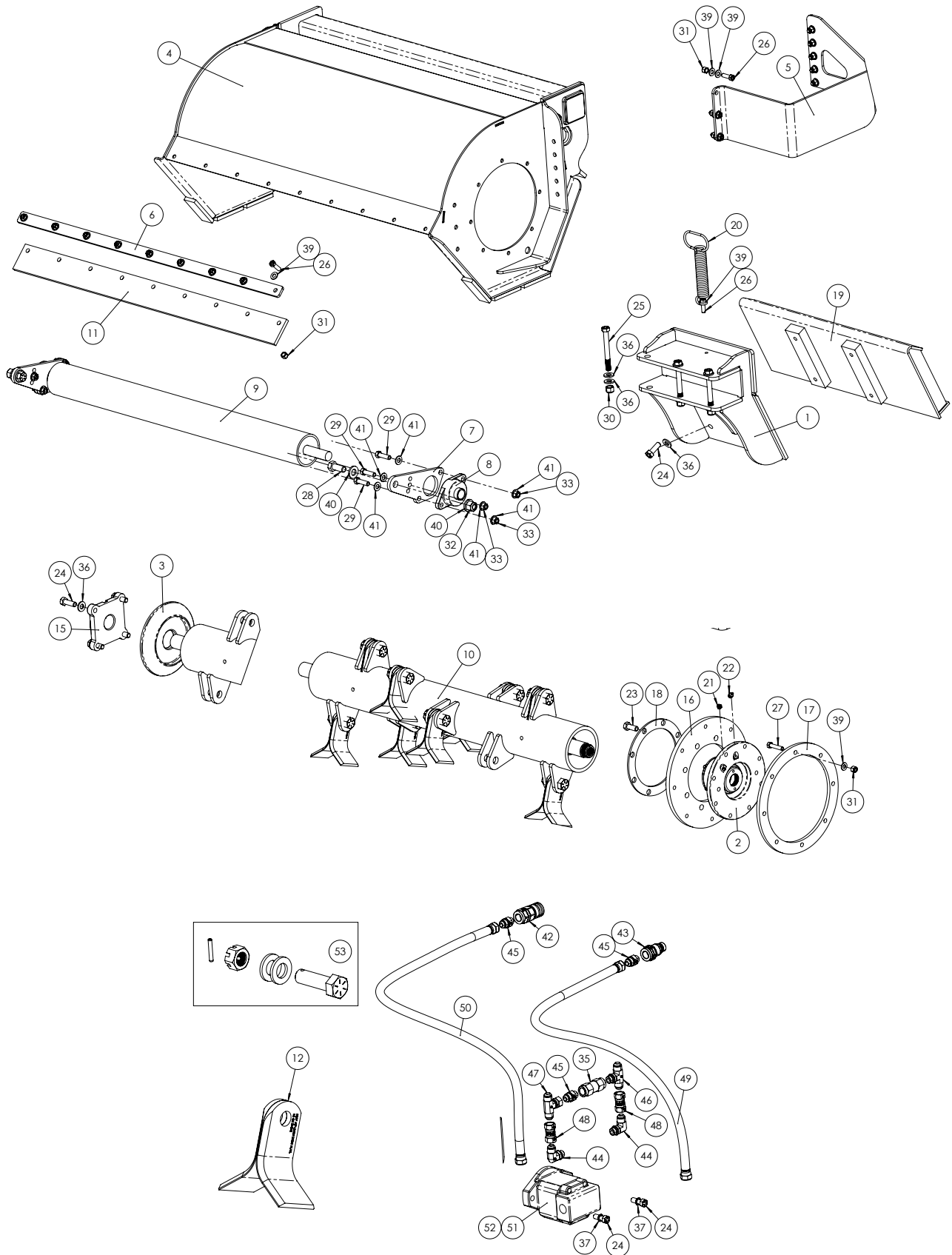
EX-30M Mower Parts Diagram



EX-30M Mower Parts List

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	ET-09C001-A001-10	Eterra - Part - Compact Flail Drive Hub Assembly - Complete	1
2	ET-09C001-P006-02	Eterra - Part - Compact Flail Drive - Non-drive end wear cone	1
3	ET-11M030-P001-63	Eterra - Part - EX-30M Micro Flail Completed Housing Weldment Only - Powdercoated Orange	1
4	ET-11M030-P002-61	Eterra - Part - EX-30M Micro Flail - Motor Cover Plate - Powdercoated Black	1
5	ET-11M030-P003-00	Eterra - Part - EX-30M Main Drive Shaft Complete - With blades	1
6	ET-11M030-P004-21	Eterra - Part - EX-30M Rubber Guard - Black	2
7	ET-11M030-P005-61	Eterra - Part - EX-30M Rubber Guard Clamp Plate - Black	2
8	ET-11Z001-P001-10	Eterra - Part - Flail Mower Blade for Sidewinder and EX-30M - 1 lb Blade	16
11	ET-11Z001-P007-10	Eterra - Part - Bearing - Sidewinder - EX30M - EX-30 - non-drive end bearing.	1
12	ET-11Z001-P008-21	Eterra - Part - Flail Drive Hub Rubber Damper Ring - Black	1
13	ET-11Z001-P009-61	Eterra - Part - Flail Drive Outer Clamp Ring - Powdercoated Black	1
14	ET-11Z001-P010-61	Eterra - Part - Compact Flail Drive Inner Clamp Ring - Powdercoated Black	1
15	ET-11Z001-P011-61	Eterra - Part - 30" Flail Mower non drive side flange plate - fits EX-30M & EX-30 - Powdercoated Black	1
16	ET-98G108-P001-01	Eterra - Part - 1/8"-27 NPT Grease Vent Check Valve 5 PSI	1
17	ET-98G108-P027-01	Eterra - Part - 1/8"-27 Straight Steel Zinc Grease fitting With Ball Check - 21/32" Long	1
18	ET-98H102-P125-02	Eterra - Part - 1/2"-13 x 1.25" Hex Bolt Grade 8 Yellow Zinc Finish	8
19	ET-98H102-P150-02	Eterra - Part - 1/2"-13 x 1.50" Hex Bolt Grade 8 Yellow Zinc Finish	6
20	ET-98H308-P075-02	Eterra - Part - 3/8"-16 x 0.75" Hex Bolt Grade 8 Yellow Zinc Finish	14
21	ET-98H308-P100-02	Eterra - Part - 3/8"-16 x 1.00" Hex Bolt Grade 8 Yellow Zinc Finish	8
22	ET-98H308-P125-02	Eterra - Part - 3/8"-16 x 1.25" Hex Bolt Grade 8 Yellow Zinc Finish	16
23	ET-98H308-P175-02	Eterra - Part - 3/8"-16 x 1.75" Hex Bolt Grade 8 Yellow Zinc Finish	8
24	ET-98N104-P002-10	Eterra - Part 1/4"-20 UNC Top Lock Nut	2
25	ET-98N308-P002-01	Eterra - Part - 3/8"-16 Top Lock Nut	46
27	ET-98U104-P125-01	Eterra - Part - U-Bolt 1/4"-20 Thread x 1.25" Long	1
28	ET-98V102-P001-04	Eterra - Part - 1/2" Check Valve - Black Oxide	1
29	ET-98W102-P001-02	Eterra - Part - 1/2" Flat Washer - Gold Zinc Coated	4
30	ET-98W102-P004-10	Eterra - Part - 1/2" Nord-Lock Washer - Standard OD	2
31	ET-98W104-P001-10	Eterra - Part - 1/4" SAE Flat Washer - Yellow Zinc	2
33	ET-98W308-P001-02	Eterra - Part - 3/8" SAE Flat Washer - Yellow Zinc	62
34	ET-FFF-8-8-SAE	Female Flat Face Coupler 1/2" Body -8 Female ORB Threads	1
35	ET-FFM-8-8-SAE	Male Flat Face Coupler 1/2" Body -8 Female ORB Threads	1
36	ET-FIT-0103-0204-00	-2 Male NPT to -4 Male JIC Straight Fitting	2
37	ET-FIT-0203-0204-BLK	-2 Female NPT to -4 Male JIC Bulkhead Fitting	2
38	ET-FIT-0503-0808-90	-8 Male ORB to -8 Male JIC 90 Degree fitting	2
39	ET-FIT-0503-0808-00	-8 Male ORB to -8 Male JIC Straight Fitting	2
40	ET-FIT-0503-0808-BRT	-8 Male ORB to -8 Male JIC Branch Tee	2
41	ET-FIT-0603-0808-00	-8 Female JIC to -8 Male JIC Straight Fitting	2
42	HOSE-0606-0404-04-16	EX-30/M Int - 1/4" Diameter x 16" Long, -4 FJIC Straight Both Ends.	2
43	HOSE-0606-0808-08-21	EX-30/M (Int) - 1/2" Diameter x 21" Long, -8 FJIC Straight Both Ends.	1
44	HOSE-0606-0808-08-34	EX-30/M (Int) - 1/2" Diameter x 34" Long, -8 FJIC Straight Both Ends.	1
45	HOSE-0639-0808-08-125	EX-30/M to Bobcat Ext - 1/2" Diameter x 125" Long, -8 FJIC Straight x -8 FJIC 90°.	-
46	HOSE-0639-0808-08-48	EX-30/M to Kubota Ext - 1/2" Diameter x 48" Long, -8 FJIC Straight x -8 FJIC 90°.	-
47	HOSE-0639-0808-08-60	EX-30/M to Kubota Ext - 1/2" Diameter x 60" Long, -8 FJIC Straight x -8 FJIC 90°.	-
48	HOSE-0639-0808-08-85	EX-30/M Standard Ext - 1/2" Diameter x 85" Long, -8 FJIC Straight x -8 FJIC 90°.	2
49	PC-M124A885UPDA20-54	P/N based on size - Find part number on your current motor for direct replacement or call for other sizing	1
50	ET-11Z001-K001-10	Eterra - Kit - Light duty flail blade bolt kit - Used on EX-30M & Sidewinder	
51	PC-M124-S	Permco - Part - Complete Seal Kit for M124 Series Motor.	
52	ET-11Z001-K900-10	Eterra - Kit - Sidewinder & EX-30M Flail Mower Blade Bolt Kit - Includes 2x Washers, 1x Bolt, Nut, & Roll Pin	8

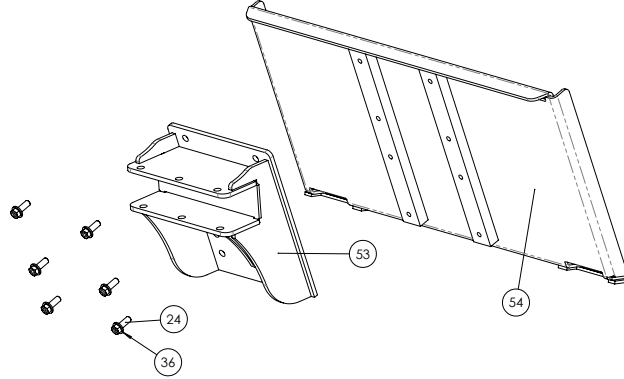
Sidewinder Mower Parts Diagram



Sidewinder Mower Parts Diagram/List

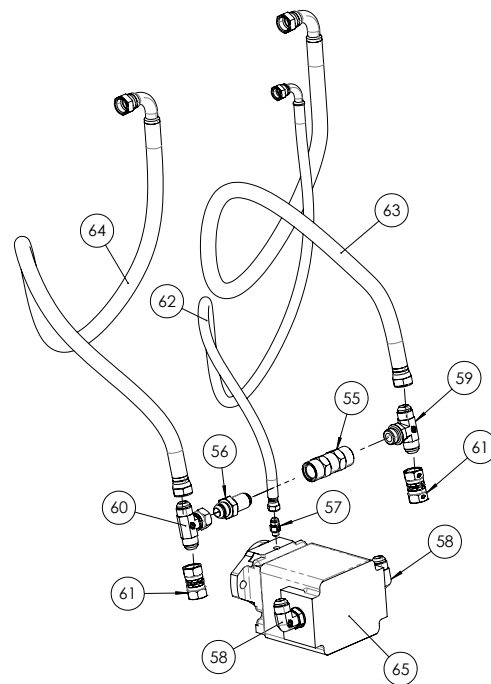
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	ET-01D001-P001-61	Eterra - Part - 3" Rail Adaptor - 4 Hole Mount Pattern - For Mini Universal Twin Roll Plate	1
2	ET-09C001-A001-10	Eterra - Part - Compact Flail Drive Hub Assembly - Complete	1
3	ET-09C001-P006-02	Eterra - Part - Compact Flail Drive - Non-drive end wear cone	1
4	ET-11S036-P001-63	Eterra - Part - Sidewinder Welded Housing - Powdercoated Orange	1
5	ET-11S036-P002-63	Eterra - Part - Sidewinder HF Motor Cover	1
6	ET-11S036-P003-61	Eterra - Part - Sidewinder Rubber Guard Mounting Strip.	2
7	ET-11S036-P004-61	Eterra - Part - Sidewinder - Roller Bar Bracket - Powdercoated Black	2
8	ET-11S036-P005-10	Eterra - Part - Sidewinder - Roller Bar Bearing	2
9	ET-11S036-P006-61	Eterra - Part - Sidewinder Roller Bar Complete - Powdercoated Black	1
10	ET-11S036-P007-61	Eterra - Part - Sidewinder Main Drive Shaft Complete with Blades	1
11	ET-11S036-P008-21	Eterra - Part - Sidewinder Rubber Guard - Fiber Reinforced - Black	2
12	ET-11Z001-P001-10	Eterra - Part - Flail Mower Blade for Sidewinder and EX-30M - 1 lb Blade	20
15	ET-11Z001-P007-10	Eterra - Part - Bearing - Sidewinder - EX30M - EX-30 - non-drive end bearing.	1
16	ET-11Z001-P008-21	Eterra - Part - Flail Drive Hub Rubber Damper Ring - Black	1
17	ET-11Z001-P009-61	Eterra - Part - Flail Drive Outer Clamp Ring - Powdercoated Black	1
18	ET-11Z001-P010-61	Eterra - Part - Compact Flail Drive Inner Clamp Ring - Powdercoated Black	1
19	ET-16H001-P002-61	Eterra - Mini Steer Universal Mount Plate - Twin Rail 2 Bolt - Powdercoated Black	1
20	ET-20Z001-P003-02	Strain Relief Spring	1
21	ET-98G108-P001-01	Eterra - Part - 1/8"-27 NPT Grease Vent Check Valve 5 PSI	1
22	ET-98G108-P027-01	Eterra - Part - 1/8"-27 Straight Steel Zinc Grease fitting With Ball Check - 21/32" Long	1
23	ET-98H102-P125-02	Eterra - Part - 1/2"-13 x 1.25" Hex Bolt Grade 8 Yellow Zinc Finish	8
24	ET-98H102-P150-02	Eterra - Part - 1/2"-13 x 1.50" Hex Bolt Grade 8 Yellow Zinc Finish	10
25	ET-98H102-P450-02	Eterra - Part - 1/2"-13 x 4.50" Hex Bolt	3
26	ET-98H308-P125-02	Eterra - Part - 3/8"-16 x 1.25" Hex Bolt Grade 8 Yellow Zinc Finish	27
27	ET-98H308-P175-02	Eterra - Part - 3/8"-16 x 1.75" Hex Bolt Grade 8 Yellow Zinc Finish	8
28	ET-98H508-P150-02	Eterra - Part - 5/8"-11 x 1.50" Hex Bolt Grade 8 Yellow Zinc Finish	2
29	ET-98H716-P150-02	Eterra - Part - 7/16"-14 x 1.50" Hex Bolt - Grade 8 Yellow Zinc Coated	6
30	ET-98N102-P002-02	Eterra - Part - 1/2"-13 Top Lock Nut	3
31	ET-98N308-P002-01	Eterra - Part - 3/8"-16 Top Lock Nut	34
32	ET-98N508-P002-02	Eterra - Part - 5/8"-11 Hex Lock Nut	2
33	ET-98N716-P002-01	Eterra - Part - 7/16"-14 Lock Nut	6
35	ET-98V102-P001-04	Eterra - Part - 1/2" Check Valve - Black Oxide	1
36	ET-98W102-P001-02	Eterra - Part - 1/2" Flat Washer - Gold Zinc Coated	14
37	ET-98W102-P004-10	Eterra - Part - 1/2" Ward-Lock Washer - Standard OD	2
39	ET-98W308-P001-02	Eterra - Part - 3/8" SAE Flat Washer - Yellow Zinc	43
40	ET-98W508-P001-02	Eterra - Part - 5/8" SAE Plain Flat Washer - Yellow Zinc	4
41	ET-98W716-P001-02	Eterra - Part - 7/16" SAE Plain Washer - Yellow Zinc	12
42	ET-FFF-8-8-SAE	Female Flat Face Coupler 1/2" Body - 8 Female ORB Threads	1
43	ET-FFM-8-8-SAE	Male Flat Face Coupler 1/2" Body - 8 Female ORB Threads	1
44	ET-FIT-0503-0810-90	Eterra - 90 deg hydraulic fitting with -8 MORB on one end and -10 MJIC on the other.	2
45	ET-FIT-0503-0810-00	Eterra - Straight hydraulic fitting with -8 MORB on one end and -10 MJIC on the other.	3
46	ET-FIT-0503-0810-BRT	Eterra - Branch Tee hydraulic fitting with a -8 MORB branch and -10 MJIC ends.	1
47	ET-FIT-0603-1010-BRT	Eterra - Branch Tee hydraulic fitting with a -10 FJIC branch and -10 MJIC ends.	1
48	ET-FIT-0606-1010-00	Eterra - Straight hydraulic fitting with -10 FJIC on one end and -10 FJIC on the other.	2
49	HOSE-0606-1010-10-78	Sidewinder - 5/8" Diameter x 78" Long, -10 FJIC Straight Both Ends.	1
50	HOSE-0606-1010-10-84	Sidewinder - 5/8" Diameter x 84" Long, -10 FJIC Straight Both Ends.	1
51	PC-M124A885UPDA20-54	P/N based on size - Find part number on your current motor for direct replacement or call for other sizing	1
52	PC-M124-S	Permco - Part - Complete Seal Kit for M124 Series Motor.	
53	ET-11Z001-K900-10	Eterra - Kit - Sidewinder & EX-30M Flail Mower Blade Kit - Includes 2x Washers, 1x Bolt, Nut, & Roll Pin	10

Sidewinder w/MT Mount Plate



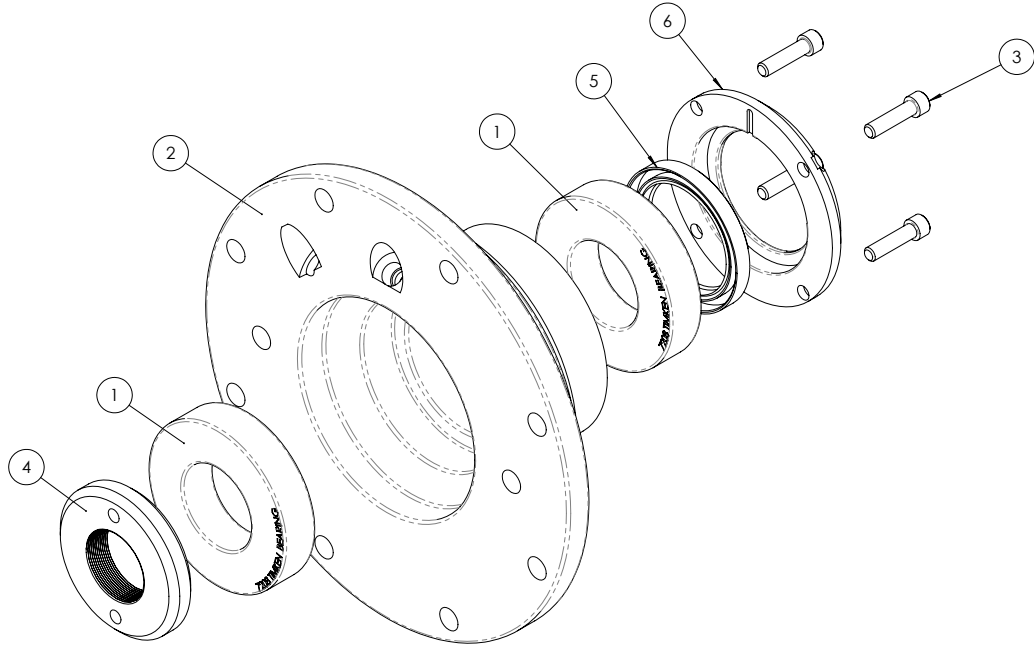
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
53	ET-01D001-P002-61	Eterra - Part - 3" Rail Adaptor - 6/8 Hole Mount Pattern - For Bobcat MT Mini Twin Roll Plate	1
54	ET-16J001-P002-61	Eterra - MT Mini Steer Twin Rail Mount Plate - Bobcat MT Mount Plate - 4 Bolt Twin Rail - Powdercoated Black	1

Sidewinder on Raptor Boom Arm Motor



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
55	ET-98V304-P001-01	Check Valve 3/4" SAE Threads - VU34 SAE 5 PSI	1
56	ET-FIT-0303-1212-BLK	-12 Male JIC to -12 Male JIC Bulkhead Fitting	1
57	ET-FIT-0503-0406-00	-4 Male ORB to -6 Male JIC Straight Fitting	1
58	ET-FIT-0503-1212-90	-12 Male ORB to -12 Male JIC 90 Degree Fitting	2
59	ET-FIT-0503-1212-BRT	-12 Male ORB to -12 Male JIC Branch Tee Fitting	1
60	ET-FIT-0603-1212-BRT	-12 Female JIC to -12 Male JIC Branch Tee Fitting	1
61	ET-FIT-0606-1212-00	-12 Female JIC to -12 Female JIC Straight Fitting	2
62	HOSE-0639-0608-06-88	Sidewinder HF - 3/8" Diameter x 88" Long, -6 FJIC Straight x -8 FJIC 90°	1
63	HOSE-0639-1212-12-78	Sidewinder/HF - 3/4" Diameter x 78" Long, -12 FJIC Straight x -12 FJIC 90°	1
64	HOSE-0639-1212-12-84	Sidewinder/HF - 3/4" Diameter x 84" Long, -12 FJIC Straight x -12 FJIC 90°	1
65	PC-M197A786QQDA20-14	Permco M197 Motor - P/N depends on flow range - See motor tag for direct replacement or call for sizing	1

Compact Flail Drive Parts Diagram (ET-09C001-A001-10 Internals)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	ET-09C001-P002-10	Eterra - Part - Compact Flail Drive Bearing	2
2	ET-09C001-P001-02	Eterra - Part - Compact Flail Drive Hub Only - Incomplete - Gold Zinc Coated	1
3	ET-98S104-P100-01	Eterra - Part - 1/4"-20 x 1.00" Socket Head Bolt	4
4	ET-09C001-P004-10	Eterra - Part - Compact Flail Drive Retaining Nut	1
5	ET-09C001-P005-10	Eterra - Part - Compact Flail Drive Seal	1
6	ET-09C001-P003-10	Eterra - Part - Compact Flail Drive Seal Carrier	1

ETERRA WARRANTY STATEMENT

LIMITED PRODUCT WARRANTY

If you find physical defects in the materials or the workmanship used in making the product described in this document; Eterra will repair, or at its option, replace, the product at no charge to you, provided it is returned (freight prepaid, with proof of your purchase from the original reseller) within 1 year of the date of original purchase. Some Eterra products may have longer, partial, or more specific additional warranties, please contact your dealer for more information.

RMA REPLACEMENT PRODUCT WARRANTY

If you find physical defects in the materials or the workmanship used in the refurbishment of an RMA (Return Merchandise Authorization) product replacement; Eterra will repair, or at our option replace the product at no charge to you for a period of 90-days from the date the RMA was created, or until the end of your original warranty period (whichever is greater).

REFURBISHED PRODUCT WARRANTY

If you find physical defects in the materials or the workmanship used in a product sold as a refurbished unit; Eterra will repair, or at our option replace, the product at no charge to you for a period of 90-days from the original date of purchase.

LEGAL TERMS

Eterra warrants that the equipment delivered by seller will be of the kind and quality described in the order or contract and will be free from defects in workmanship or material. Should any failure to conform with this warranty occur, and the buyer having given written notice to seller within 180 days from the date of purchase, the manufacturer shall correct such nonconformity at its option by either repairing the defective part(s) or making available F.O.B. at sellers locations.

This warranty is in lieu of all warranties of merchantability, fitness for particular purpose or any other warranties, express or implied. Correction and nonconformities in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of seller to buyer, whether based on contract, negligence or otherwise respect to or arising out of such goods.

Neither party shall be liable for special, indirect, or consequential damages. The remedy set forth in this instrument are exclusive, and the liability of seller with respect to any contract or sale of anything done in connection with the same, whether in contract, in tort, under warranty, or otherwise, shall not exceed the price of the goods or part upon which such liability is allegedly based.

All exclusions and limitations of this warranty are made only to the extent permitted by applicable law and shall be of no effect to the extent of conflict with the express requirements of applicable Washington State law.



YOUR DEALER IS

Eterra
2316 East Bakerview Rd.
Bellingham,
Washington 98226
USA

Tel: 360-203-7730
sales@eterraattachments.com

www.eterra-usa.com