



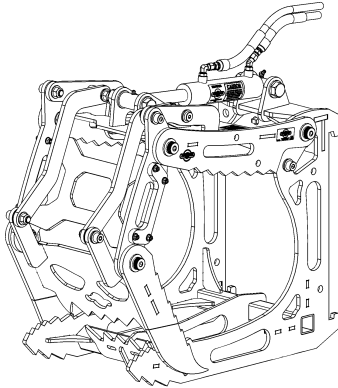
IRON FIST MODULAR GRAPPLE SYSTEM

****PATENT PENDING****

P/N: GRP-GP30-GR (GRAPPLE MODULE)

P/N: GRP-GP30-RK (RAKE MODULE)

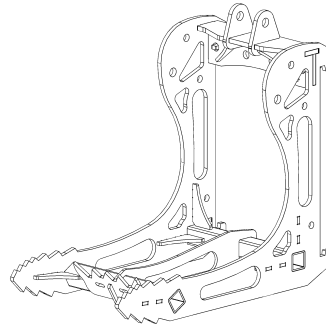
IRON FIST GRAPPLE MODULE



INCLUDES:

- GRAPPLE ASSEMBLY
- (2) LOCK KEYS
- HYDRAULIC HOSES
- ELASTIC HOSE RESTRAINT

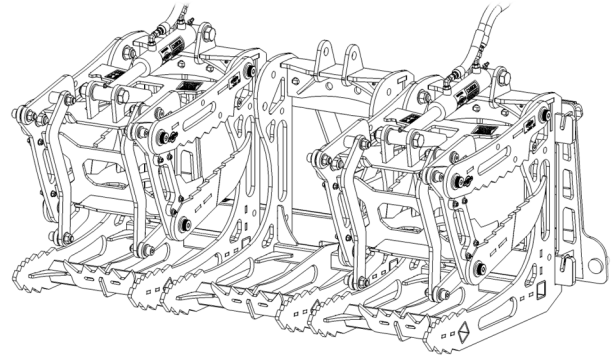
IRON FIST RAKE MODULE



INCLUDES:

- RAKE ASSEMBLY
- (2) LOCK KEYS
- CYLINDER MOUNTS TO ADD UPPER JAW LATER, IF DESIRED

The **Artillian Iron Fist Grapple** is like no other grapple on the market! The patented mechanical linkages continuously vary the angles of the upper jaw segments as the cylinder is extended or retracted. This allows the clamping assembly to be wide open when the cylinder is retracted and closed like a human fist when the cylinder is fully extended.



The **Artillian Iron Fist Modular Grapple System** for **Artillian Pallet Fork Frames** offers a configurable platform, providing the ability to mix and match modules, as desired by the user. Shown in the illustration to the right is a Grapple - Rake - Grapple configuration. Many variations are readily achievable and can be configured accordingly, depending on the task at hand.

Approximate Installation Time

Experienced Dealer Technician – 30 Minutes
Average Dealer Technician – 45 Minutes
Do-It-Yourself – 60 Minutes

Approximate Product Specifications

Dimensions: 15" Wide X 24" Deep X 23" High
Weight: Grapple 120 lbs. Rake 45 lbs.
Jaw Opening: 48" Jaw Closing: 4"



CAUTION

Never push or pull with the upper jaw assembly. Doing so may result in damage to the Iron Fist Grapple and will void the warranty.

Register your new product quickly online at Artillian.com/product-registration/



Artillian encourages all customers to register their Artillian products. However, failure to do so will not diminish right to warranty. Curtis Industries does not sell or share your information with anyone else.

Download a digital copy of your installation instructions online at Artillian.com/literature/



Artillian strives to continuously improve our products, technical documentation, etc. Therefore, the installation manual for this product may have been updated after your product was packaged. The latest revision of the installation manual can always be found at the website above.

The contents of this envelope are the property of the owner. Leave with the owner when installation is complete.

ASSEMBLY TIPS & MAINTENANCE

Assembly Tools Required

- Open-end wrenches, Inch & Metric
- Adjustable wrenches
- Torque wrench (160 Ft.-lb. +)
- Grease gun
- Socket Set, 3/8" or 1/2" drive

Important Notes

1. Shear bolts are designed into this product and are meant to be sacrificial to prevent damage to more important components. An extra set of shear bolts have been supplied with the initial product purchase. More are available if needed (see Mechanical Stop Shear Bolts p/n: GRP-GP30-MSSB on page 8).
2. Once installation is complete, start your tractor and carefully actuate the ***Iron Fist Grapple*** and the loader through all ranges of movement. Check for leaks and tighten any loose connections. Be sure the hoses from the hydraulic cylinder do not bind, kink, or become stretched at any point throughout the ranges of motion. If this situation appears, adjust the hose routing, as required, or contact Artillian.
3. **DO NOT USE THE UPPER GRAPPLE JAW FOR DIGGING OR PUSHING / PULLING FOREIGN OBJECTS OUTSIDE OF THE GRAPPLE BED.** Damage to the hydraulic cylinder, linkages, hinges, hoses, etc. may occur. For example, simply holding a log in the grapple jaws and backing that log into a tree can result in extreme system back pressure of 6,000 PSI or greater. Obviously, that scenario could do serious damage to a system rated for 3,000 PSI max.
4. Hydraulic performance (clamping speed and power) depends on the output of the tractor. A tractor with higher flow rates and system pressure will yield higher grapple performance than a tractor with lower flow rates and system pressure.
5. Maximum hydraulic pressure is 3,000 PSI.
6. When disconnecting the grapple / pallet fork frame from your loader, **REMEMBER TO DISCONNECT THE HYDRAULIC LINES!**

Mechanical Stops & Shear Bolts

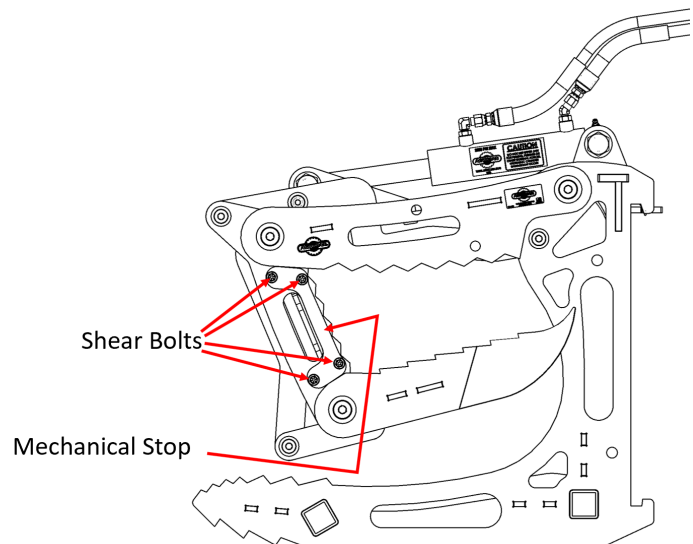
In order to prevent over-rotation of the upper jaw assembly, two mechanical stops are attached to the medial segment of the upper jaw. These mechanical stops are fastened to the assembly using 1/4" shear bolts.

Much like on a snow blower, the mechanical stops and shear bolts act as sacrificial components to prevent damage to the hinges and linkages in the upper jaw.

Opening and closing the jaws without an object in them will result in the shear bolts breaking. (8) Extra shear bolts are supplied in the kit.

Note:

When replacing the shear bolts, it is recommended to open the jaw slightly, then install the shear bolts finger tight. Close the jaw fully and then tighten the shear bolts until snug.



Important Notes (cont'd on the next page)

IMPORTANT NOTES (cont'd. from previous page)

Using the Iron Fist Grapple with “True” 3rd Function Kits

Artillian **Hydraulic Diverter Kits** divert the fluid from the loader’s dump/curl circuit to the grapple open/close circuit. Therefore, the operator is able to meter the hydraulic fluid flow to the grapple by restricting the movement of the loader joystick.

However, with most “True” 3rd function kits, the electrical switch acts as an On/Off switch to the fluid flow in either direction. Therefore, the grapple cylinder will immediately see full fluid flow and pressure from the tractor when the switch is depressed. On larger tractors with high pressure and flow, this results in rapid opening and closing of the jaws, which may result in premature shear bolt breakage, due to the difficulty in controlling the jaw movement.

When using 3rd function hydraulic kits not supplied by Artillian, we recommend incorporating a hydraulic flow control needle valve into the circuit. This flow control valve should be placed between the tractor 3rd function hydraulics and the grapple splitter manifold. It should have female 1/4” NPT fittings and flow control in both directions. The flow should then be metered until controlled opening and closing of the grapple jaws is possible.

Maintenance

Hydraulic Hoses

After a short amount of use of the **Iron Fist Grapple Module**, check all hydraulic fittings for leaks. If necessary, tighten slightly further. Check hoses occasionally for signs of abrasion, binding, or other damage. Most fittings in the kit do not need to be extremely tight to obtain a seal. Use care not to overtighten, as damage to the fittings can result.

Hinge Hardware

The primary hinge hardware requires no maintenance aside from being maintained at 160 Ft.-lb. of torque, which is set at the factory. Check occasionally to ensure that the fasteners have not loosened. If excessive play is observed in the upper clamping assembly, the hinge bushings may need to be replaced.

The secondary (linkage) hardware also requires no maintenance. These fasteners should simply be tightened until snug. Do not overtighten, as this may result in binding of the grapple. If excessive play is observed in the upper clamping assembly, the linkage bushings may also need to be replaced.

Cylinder Mounting Hardware

The cylinder mounting hardware requires regular greasing of the fore and aft mounting points using a grease gun. These points are greased at the factory with long life synthetic grease. We recommend keeping these joints lubricated at approximately every four hours of use, depending on harshness of the environment.

Only tighten the cylinder mounting hardware until it remains securely in place. It should not bear upon the cylinder cross tube mounts. The cylinder mounting hardware should not need to be changed unless it becomes necessary to change the hydraulic cylinder.

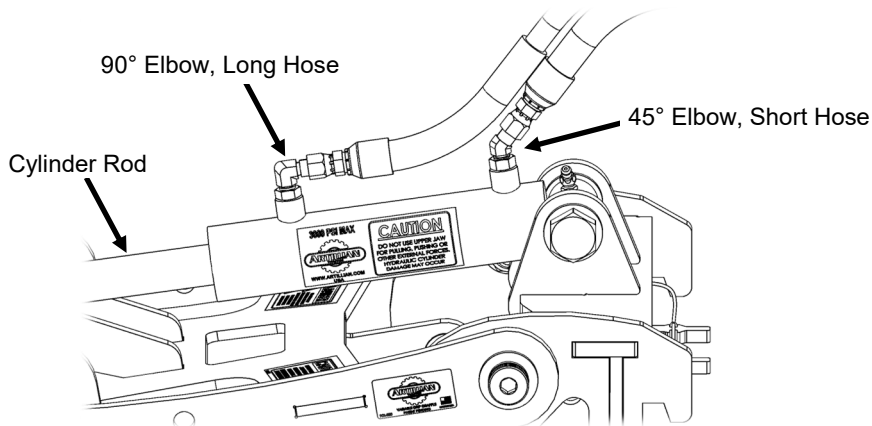
Thank you for choosing Artillian!

INSTALLATION

Hydraulic Hose Assembly

The **Artillian Iron Fist Grapple** ships with some hydraulic fluid in the cylinder to maintain lubrication. It is recommended that the installer place a bucket and/or rag under the cylinder while installing the hoses to catch any fluid that escapes.

1. Remove the plugs from the cylinder ports.
2. Remove the 90° elbow from the longer hose and install it in the forward most (rod end) cylinder port. The fitting should be facing rearward, inline with the cylinder, as shown below.
3. Remove the 45° elbow from the shorter hose and install it in the rearward most cylinder port. The fitting should be facing rearward, inline with the cylinder, as shown below.
4. Install the respective hoses back onto the fittings. Ensure that the opposite end quick disconnect fittings are parallel and then tighten the swivel connectors onto the elbow fittings on the cylinder.

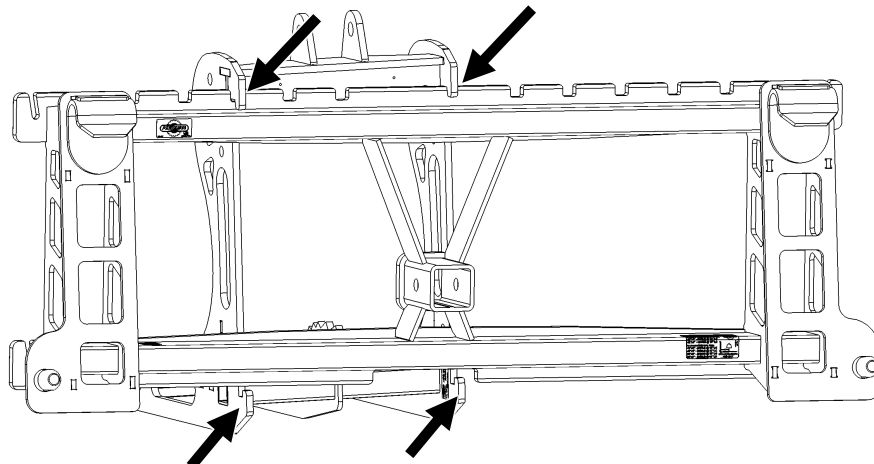


Mounting Modules onto Pallet Fork Frame

The illustrations in this manual assume that an **Artillian Pallet Fork Frame** is installed on the tractor front end loader (not shown) and any forks or other attachments have been removed from the fork frame. Note: This system **IS NOT COMPATIBLE** with other brands of pallet fork frames.

Modules can be installed either by lifting and installing each module one at a time onto the frame or you can use your tractor to pick and lift the modules from the ground. To do this, approach the module with the pallet fork frame, carefully catching the upper hooks, as shown below, and lifting each module up one at a time, then shift into place. Note: The intended **CENTER MODULE** should be hung first.

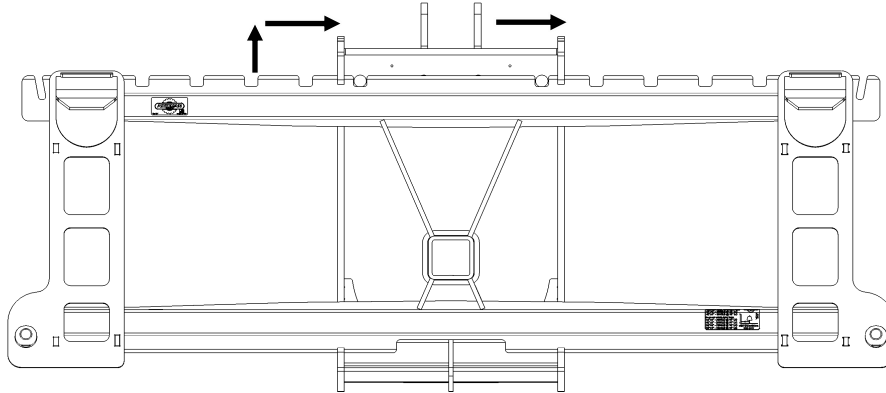
1. Hang a module by the upper hooks onto the fork rail. Hang one hook near the center of the fork rail and the other hook into one of the fork detent slots. Allow the module to rest flat against the pallet fork frame so that both lower hooks pass under the bottom rail. **Make sure to loop the key locks over the module prior to installation.**



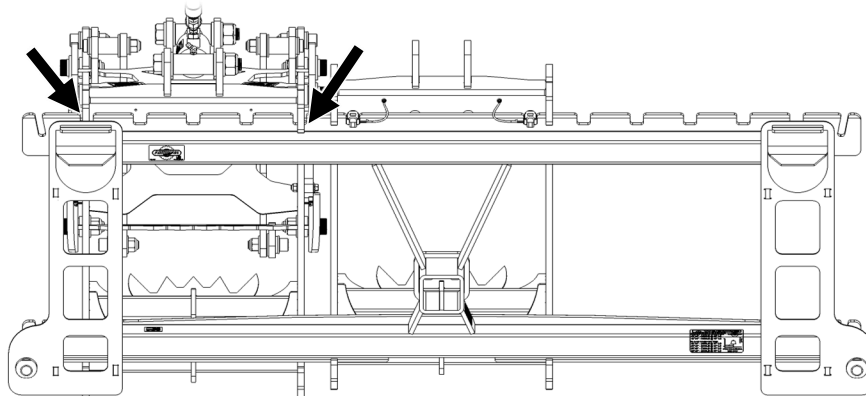
INSTALLATION

Mounting Modules onto Pallet Fork Frame Continued...

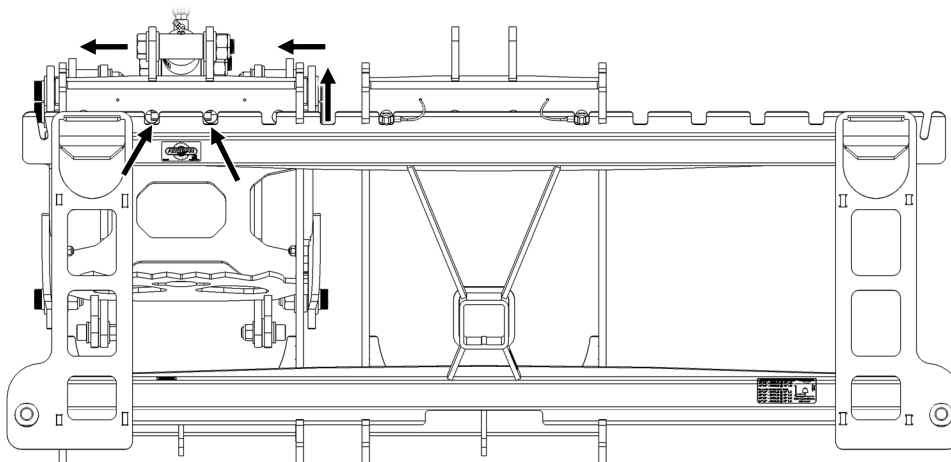
2. Lift the module straight up by its lifting handles and slide the module along the fork rail into its desired position. Use caution not to disengage the lower hooks from the bottom rail while sliding the module. Align the round holes in the modules with the fork detents in the fork rail.



3. To install the outer modules, hang the upper hooks of the module into the fork detent slots, as shown below. The lower hooks should pass under the lower rail. **Again, make sure to loop the key locks over the module prior to installation.**



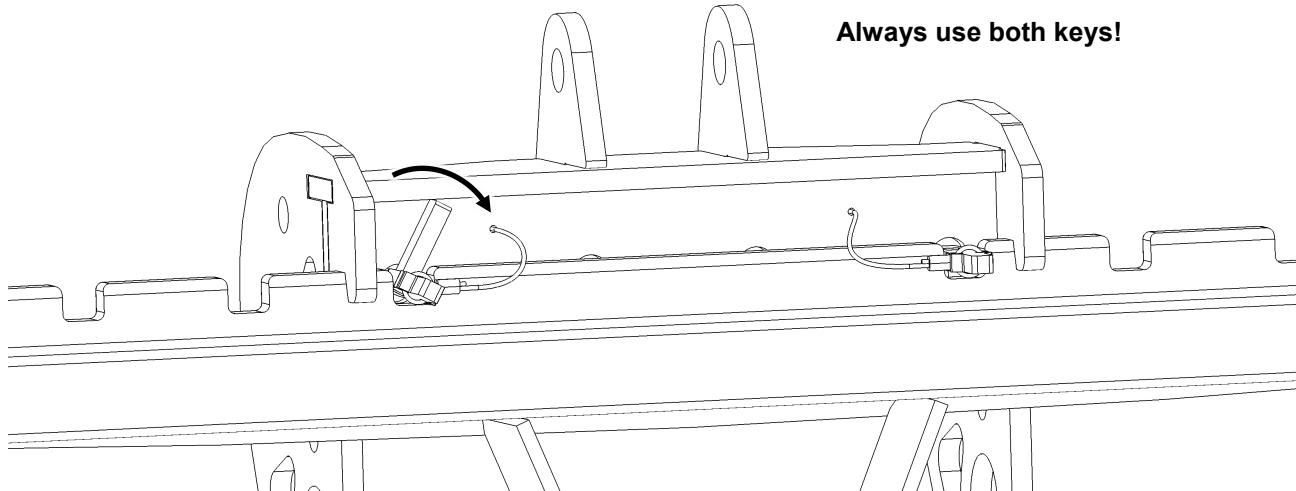
4. Lift the module straight up by its lifting handles and slide the module along the fork rail into position. Use caution not to disengage the lower hooks from the bottom rail while sliding the module. Align the round holes in the modules with the fork detents in the fork rail.



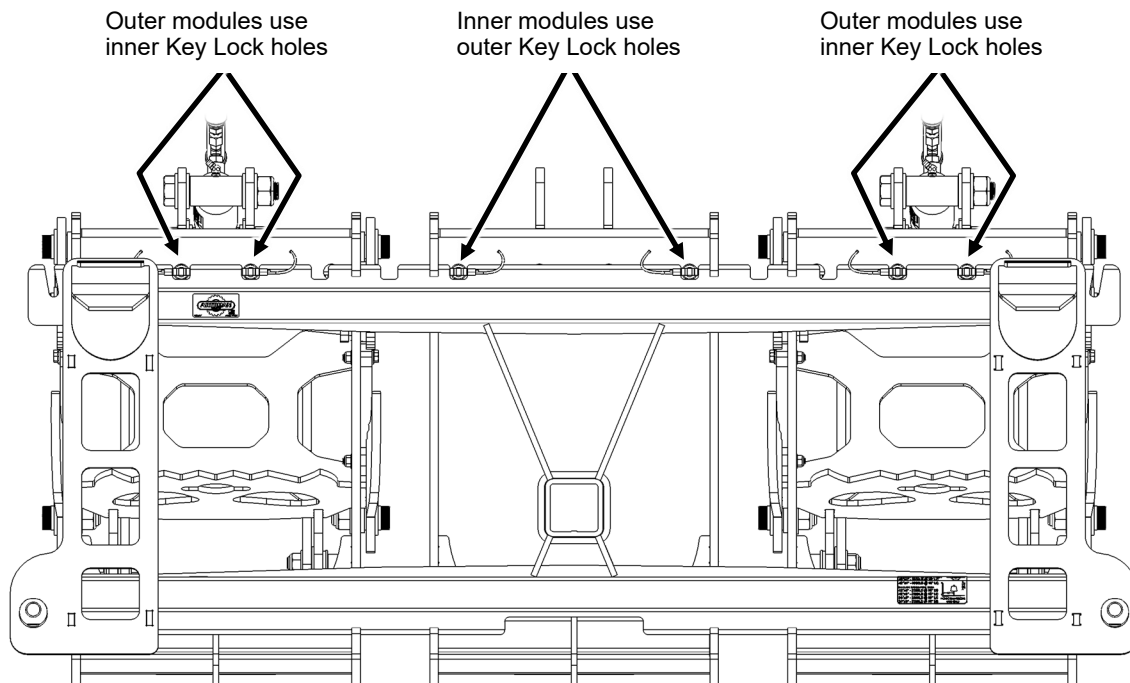
INSTALLATION

Secure Modules in place using proprietary Key Locks

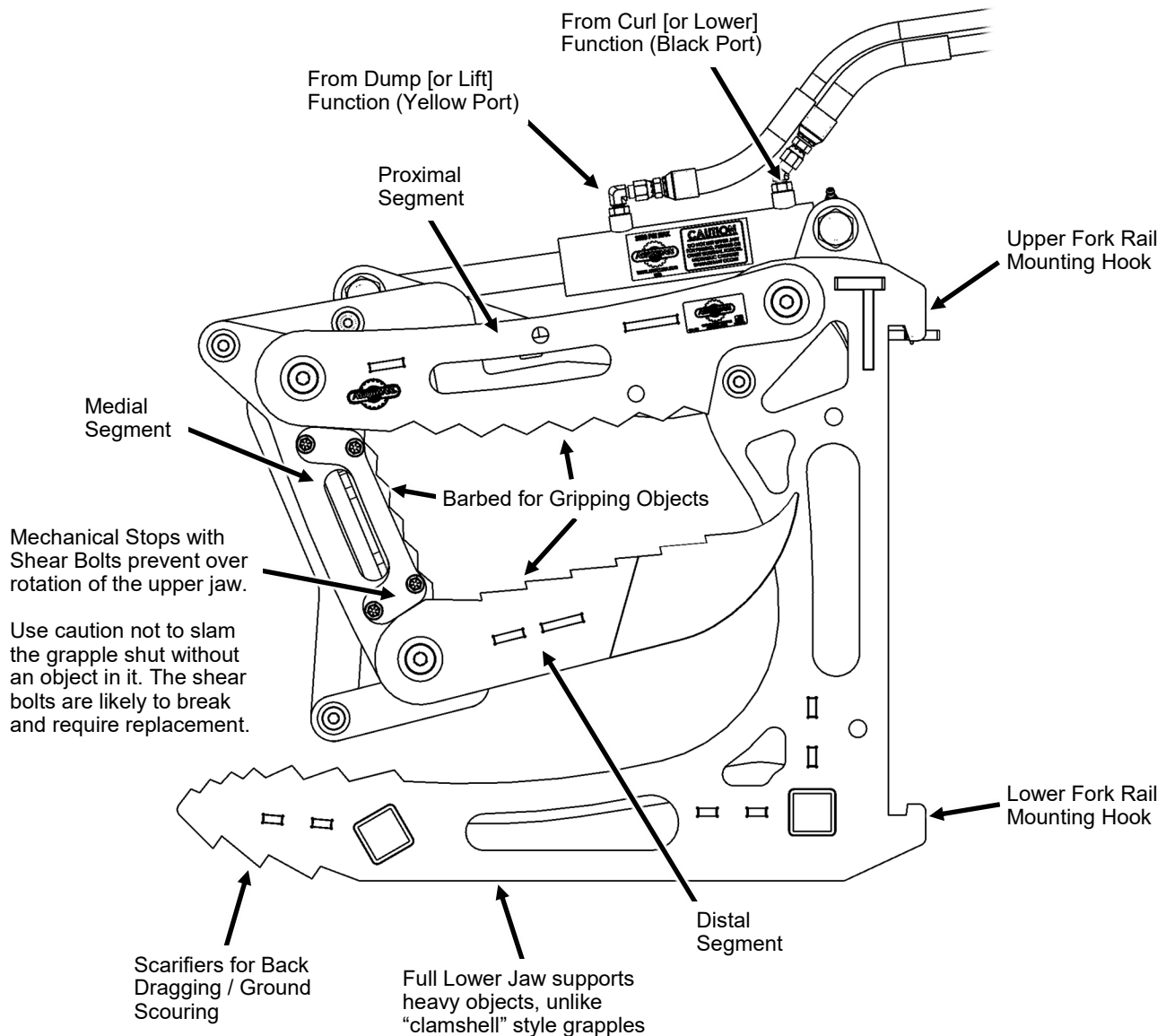
1. Locate module along the fork rail so the round holes in the module align with the fork detents in the fork rail. Insert Key Lock as shown. Rotate the Key Lock so that the counterweight hangs down between the fork rail and the module.



2. As shown below, center modules use the outer Key Lock holes. Outer modules use the inner Key Lock holes.



FEATURES & OPERATION

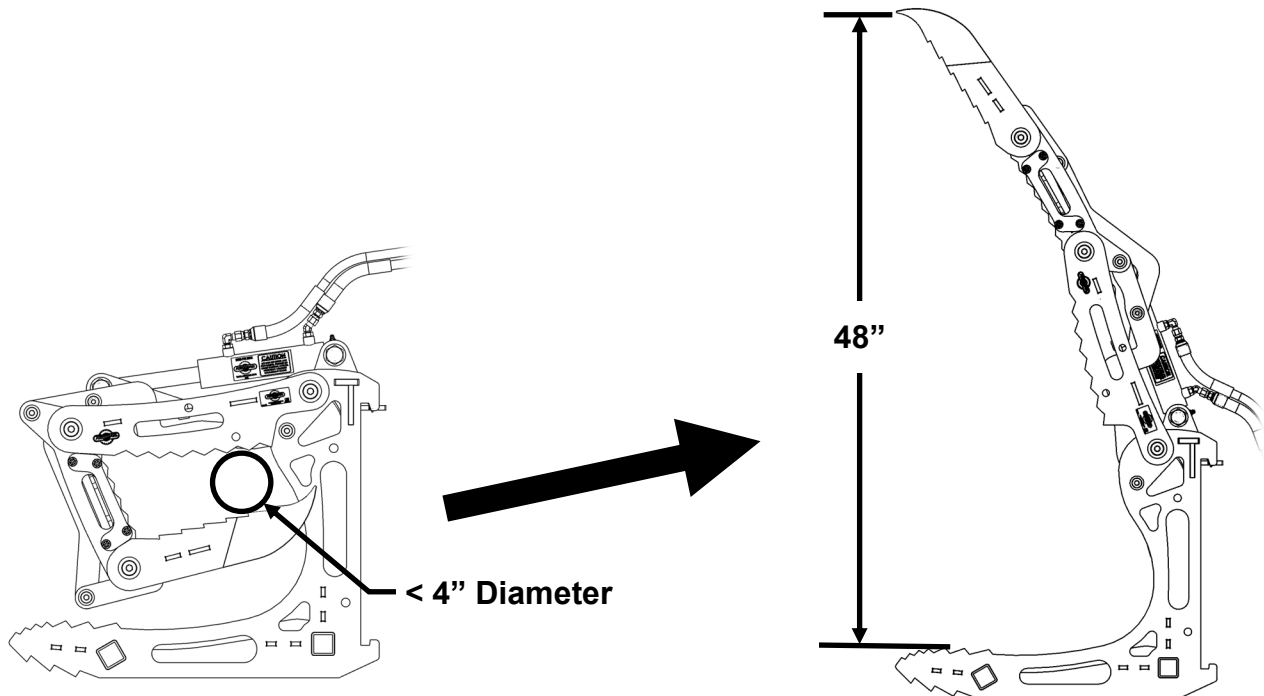


Utilizing an **Artillian Hydraulic Diverter Kit**, the **Iron Fist Grapple** is opened by depressing the HDK switch and moving the loader joystick to either the Dump or Lift function, depending on how the HDK is plumbed. It is closed by moving the joystick to the Curl or Lower function.

As the cylinder is extended or retracted, the clamping assembly segments rotate with respect to each other, simulating the grasping motion of a human hand.

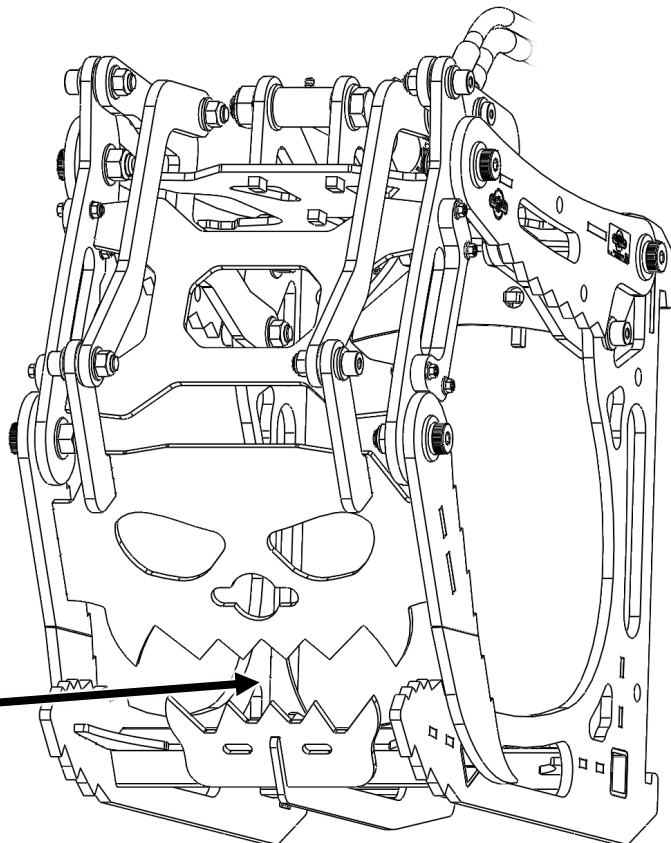
The result is a wide open grapple capable of engaging large brush piles, while maintaining the ability to firmly grip small objects in a compact **Iron Fist**.

FEATURES & OPERATION CONTINUED...

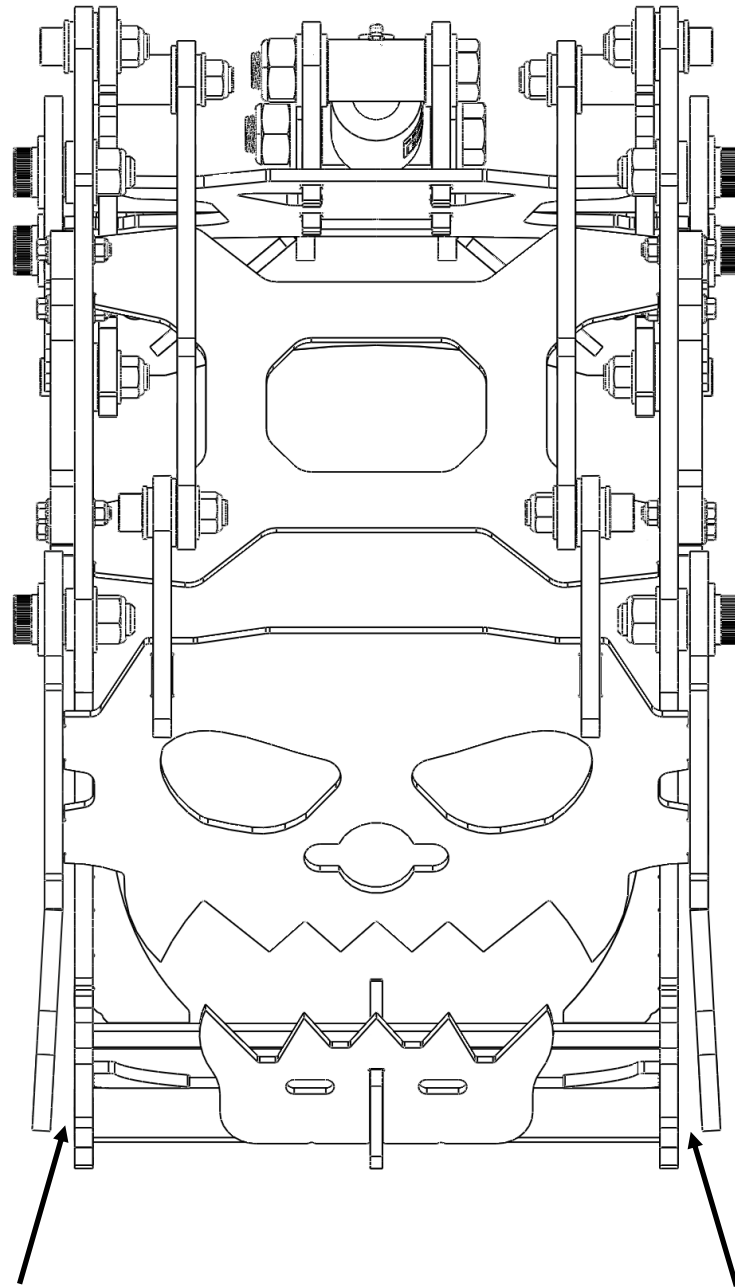


Upper and lower jaws of skull pass within ~2-1/4" of each other.

These teeth can be used to bite into small shrubs and rip them out of the ground, using the curl function of the loader.



UPPER JAW TO LOWER JAW CLEARANCE

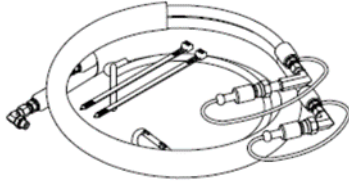


NOTICE:

Due to manufacturing tolerances, when passing by the lower jaw tips, the upper jaw may be skewed to one side or the other. This is expected, acceptable, and will not affect the functionality of the grapple.

IRON FIST GRAPPLE SERVICE PARTS

HYDRAULIC HOSE ASSEMBLY,
GRAPPLE CYLINDER
P/N: 8SV-HHA-GRP-CYL

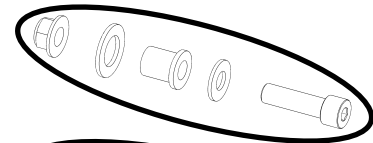


IRON FIST GRAPPLE PRIMARY HINGE
SERVICE PACK (FULL SET)
P/N: GRP-GP30-PHSP

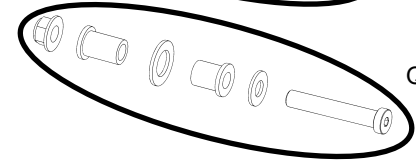


QTY: 6 OF EACH

IRON FIST GRAPPLE LINKAGE HINGE
SERVICE PACK (FULL SET)
P/N: GRP-GP30-LHSP

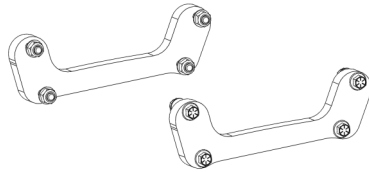


QTY: 6

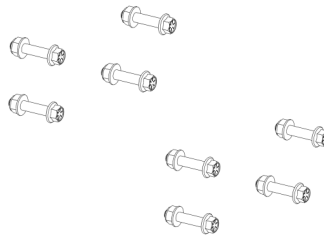


QTY: 2

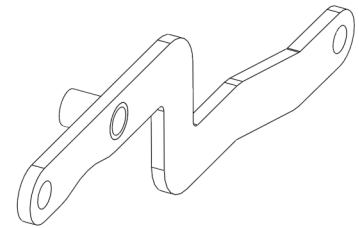
MECHANICAL STOPS (SET OF 2)
W/ FASTENERS
P/N: 8SV-SM-02047-TB



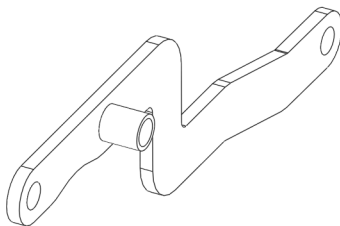
MECHANICAL STOP SHEAR BOLTS (QTY 8)
P/N: GRP-GP30-MSSB



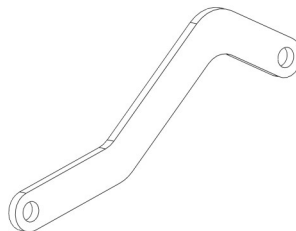
LINKAGE PROXIMAL, LEFT
P/N: 8SV-WA00527L-TB



LINKAGE PROXIMAL, RIGHT
P/N: 8SV-WA00527R-TB



LINKAGE DISTAL
P/N: 8SV-SM-01845-TB



GRAPPLE HYDRAULIC CYLINDER
P/N: 8SV-HYA-00001

