

# TARCO®

## HIGHLANDER JR Sand & salt spreader Operation, Maintenance, and Parts Manual



# TABLE OF CONTENTS

SECTION ONE.....	<b>1</b>
Limited Warranty.....	2
Warranty Registration.....	3
Model Codes.....	4
Machine Serial Tag Locations.....	5
SECTION TWO.....	<b>6</b>
Safety.....	7
Engine Safety.....	10
SECTION THREE.....	<b>12</b>
Machine Installation.....	13
Machine Start Up.....	15
Available Machine Options.....	17
Off Season Storage .....	18
SECTION FOUR.....	<b>19</b>
Machine Operation.....	20
Controlling the Spread Pattern.....	21
Application Rate Tables.....	23
SECTION FIVE.....	<b>26</b>
General Maintenance.....	27
Hydraulic Information.....	27
Lubrication Information.....	28
Conveyor Chain Information.....	29
Engine Information.....	31
SECTION SIX.....	<b>32</b>
Parts Information.....	33

# **SECTION ONE**

## WARRANTY INFORMATION

## LIMITED WARRANTY

---

Loughberry Manufacturing Corporation warrants all products manufactured by the company, to be free from defects in the material and manufacturing at the time of shipment, and for twelve (12) months from date of delivery to customer.

The obligation under this warranty is expressly limited to the replacement or repair at our Saratoga Springs New York factory, or at a facility designated by us, upon inspection at such facility to have been defective in material and workmanship.

All warranties **VOID** in the case of negligence, faulty/improper installation, misuse, abuse, abnormal usage, accidents, modification (including but not limited to the use of unauthorized parts or attachments), misapplication, or failure to properly maintain the product according to our specifications.

Engines, motors, and any accessories furnished with Loughberry Manufacturing Corporation products, but which are not manufactured by Loughberry Manufacturing Corporation are not warranted by Loughberry Manufacturing Corporation, but are sold only with the express warranty, if any, of the manufacturers thereof. These would include hydraulic pumps, hydraulic motors, gasoline or diesel engines, ignition components, starters, alternators, battery's, carburetor, or other power accessories or their components as these items are warranted by their manufacturer. The foregoing is in lieu of all other warranties, whether express or implied (including those of merchantability, and fitness of any product for a particular purpose), and of any other obligation of liability on the part of Loughberry Manufacturing Corporation.

### Limitation of Liability

It is expressly understood that Loughberry Manufacturing Corporation's liability for its products, whether due to breach of warranty, negligence, strict liability, or otherwise, is limited to the furnishing of such replacement parts, and Loughberry Manufacturing Corporation will not be liable for any other injury, loss, damage, or expense, whether direct or consequential, including but not limited to loss of use, income, profit, production, increased cost of operation, or spoilage of or damage to material, arising in connection with the sale, installation, use, or inability to use, or the repair or replacement of Loughberry Manufacturing Corporation's products.

# WARRANTY REGISTRATION

Before beginning to mount your spreader, unpack all loose parts that might be inside the hopper and check for damage. Report any damage at once to the shipping company and your local TARCO® distributor. You should also immediately register your spreader with LOUGHBERRY MFG. CORP. by filling out the warranty certificate and registration card and returning them to the LOUGHBERRY MFG. CORP. The warranty period becomes effective upon the date of delivery of your machine unless other arrangements have been made with your TARCO® distributor or LOUGHBERRY MFG. CORP. The information required to register your spreader will be found on the serial number tag secured to your machine and will look like this.

POSTAGE  
REQUIRED

LOUGHBERRY MFG. CORP.  
249 EXCELSIOR AVENUE  
SARATOGA SPRINGS, NY 12866

---

COMPLETE AND RETURN IMMEDIATELY UPON RECEIPT OF MACHINE

**REGISTRATION CARD**  
(PLEASE PRINT IN INK)

MACHINE SERIAL# \_\_\_\_\_ (SEE METAL PLATE)

WHAT IS MACHINE USED  
FOR: \_\_\_\_\_

IF EQUIPPED WITH ENGINE OR MOTOR GIVE:  
NAME: \_\_\_\_\_ MODEL: \_\_\_\_\_  
TYPE: \_\_\_\_\_ SERIAL# \_\_\_\_\_

DEALER PURCHASED FROM: \_\_\_\_\_

OWNER'S NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

SAVE THIS CARD

FOR YOUR RECORDS FILL IN:

MACHINE MODEL NO: \_\_\_\_\_

MACHINE SERIAL NO: \_\_\_\_\_

TYPE OF MACHINE: \_\_\_\_\_

PURCHASED FROM: \_\_\_\_\_

DATE PURCHASED: \_\_\_\_\_

BE SURE TO ALWAYS GIVE MACHINE NAME, MODEL,  
AND SERIAL NUMBER WHEN ORDERING PARTS

**\*\*KEEP THIS PORTION FOR YOUR RECORDS\*\***

Limited Warranty

Loughberry Mfg. Corp. warrants all products manufactured by it to be free from defects in material and manufactured at the time of shipment and for twelve (12) months from date of delivery to customer.

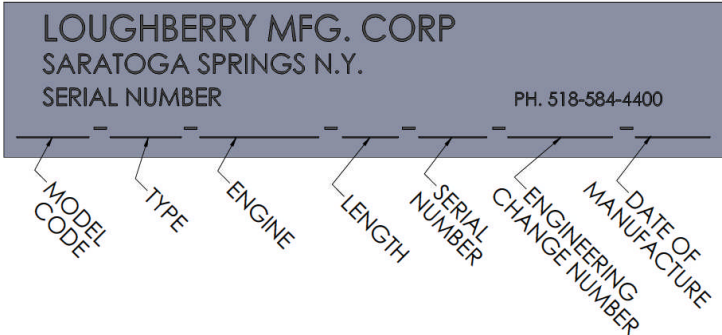
The obligation under this warranty is expressly limited to the replacement or repair at our Saratoga Springs factory, or at a facility designated by us, of such parts as shall appear to us, upon inspection at such facility, to have been defective in material and workmanship.

All warranties VOID in the case of negligence, faulty installation, abuse, abnormal usage, misuse, accidents, or failure to maintain the product according to the manufacturer's specifications.

This warranty shall not apply to any product that has been subjected to misuse, misapplication, neglect (including but not limited to improper maintenance), accident, improper installation, modification (including buy not limited to use of unauthorized parts or attachments), adjustment, or repair. Engines, motors, and any accessories furnished with LOUGHBERRY products, but which are not manufactured by LOUGHBERRY are not warranted by LOUGHBERRY but are sold only with the express warranty, if any, of the manufacturers thereof. THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED (INCLUDING THOSE OF MERCHANTABILITY AND FITNESS OF ANY PRODUCT FOR A PARTICULAR PURPOSE), AND OF ANY OTHER OBLIGATION OF LIABILITY ON THE PART OF LOUGHBERRY.

Limitation of Liability

It is expressly understood that LOUGHBERRY'S liability for its products, whether due to breach of warranty, negligence, strict liability, or otherwise, is limited to the furnishing of such replacement parts, and LOUGHBERRY will not be liable for any other injury, loss, damage, or expense, whether direct or consequential, including but not limited to loss of use, income, profit, or production, or increased cost of operation, or spoilage or damage to material, arising in connection with the sale, installation, use, or inability to use, or the repair or replacement of, LOUGHBERRY products.



For your convenience record this information on the warranty card half, which you keep and be sure to give all this information when ordering parts or seeking service information.

## MODEL CODES

---

Every HIGHLANDER JR. has an associated model code, which identifies the machine drive type and length. A typical model code is as follows:

### "MODEL HL-HY-JR-7"

Where the first and third groups identify the HIGHLANDER JR. Spreader group. All HIGHLANDER® JUNIORS have a "HL-\_\_-JR" for the first and third groups. The second group identifies the drive type. The fourth group identifies the machine length (7,8,9, & 10 foot long. PLEASE NOTE THAT THE HOPPER LENGTH ON A "7" FOOT MACHINE IS 80", THE HOPPER LENGTH ON AN "8" FOOT MACHINE IS 92", THE HOPPER LENGTH ON A "9" FOOT MACHINE IS 108", AND THE HOPPER LENGTH ON A "10" FOOT MACHINE IS 120").

The various drive types are as follows:

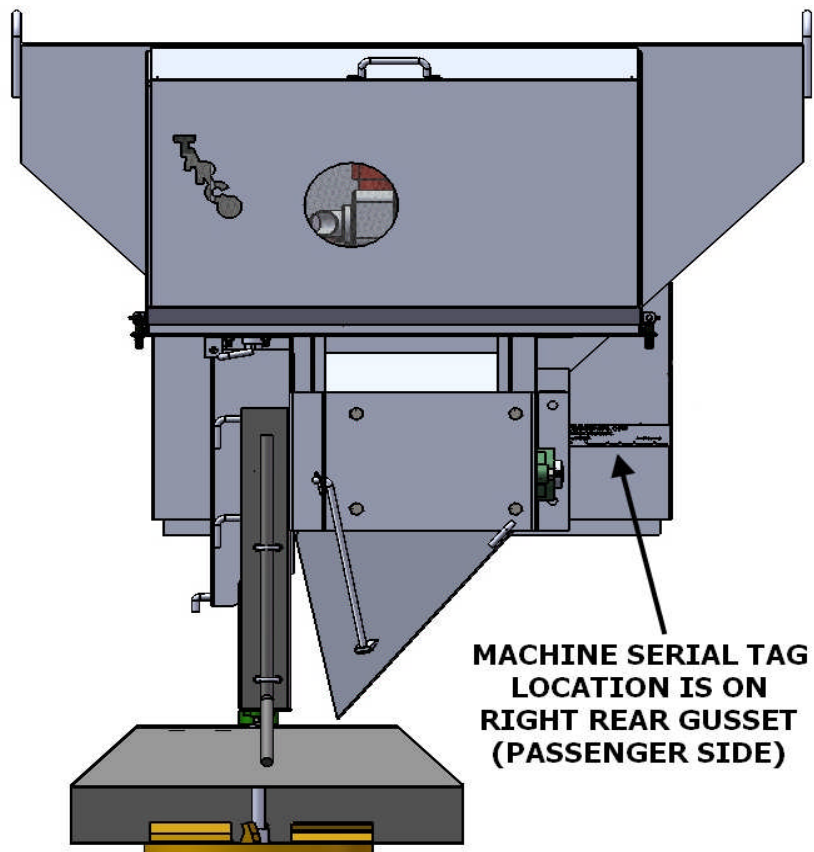
- HL-GECEL-JR:** Gas engine with an electric magnetic actuated clutch to run the conveyor through a 20:1 gearbox. Spinner disc is powered off high-speed shaft of the gearbox. Engine throttle is electrically actuated from in-cab toggle control.
- HL-HY-JR:** Hydraulic motor close coupled to a 20:1 gearbox to run the conveyor. Spinner disc is powered off the high-speed shaft of the gearbox.
- HL-HY2-JR:** One hydraulic motor close coupled to a 20:1 gearbox to run the conveyor. A separate hydraulic motor drives the spinner disc.
- HL-EL-JR:** Electric motor close coupled to a 20:1 gearbox to run the conveyor. Spinner disc is powered off the high-speed shaft of the gearbox.
- HL-EL2-JR:** One electric motor close coupled to a 20:1 gearbox to run the conveyor. A separate electric motor drives the spinner disc.

These five options are readily available to power your TARCO® HIGHLANDER JR. Spreader. Each drive type has specific advantages to help meet your specialized needs. Consult your local TARCO® distributor or LOUGHBERRY MFG. CORP., to determine the proper drive option to meet your needs.

## MACHINE SERIAL TAG LOCATIONS

---

The following illustration is provided to assist you in locating the machine serial number tag. Having your total and correct serial number is very beneficial when ordering parts or obtaining service information.



# **SECTION TWO**

## SAFETY

## SAFETY

---

Before operating your TARCO<sup>®</sup> spreader, be sure to carefully read this manual in its entirety to ensure you understand the operation and maintenance of the machine. Be sure to follow all safety precautions outlined in this manual to ensure a safe work environment for you and others working with you.

### **DANGER**

- ◆ Inspect and keep all shields and guards in place when operating this equipment.
- ◆ Adjust and lubricate machine only when the power source is off and locked out.
- ◆ When any mechanism becomes clogged, shut off the power source and lock it out before attempting to clear the blockage.
- ◆ Keep hands, feet, and clothing away from all moving parts.
- ◆ Always use a funnel for filling fuel tank and do not fill the tank to overflowing. Always be sure the engine is off when re-fueling.
- ◆ Proper Lock Out/Tag Out procedures must be followed prior to performing any maintenance, inspections, or operator adjustments.
- ◆ Do not climb on or in the machine to perform maintenance, inspections, or adjustments without utilizing proper Lock Out/Tag Out procedures. Only access the machine from a proper safety platform equipped with proper fall protection equipment. Failure to do this could result in serious injury or death to you or others.
- ◆ All safety guards and shields must be reinstalled prior to use. Failure to do so may result in serious injury or death.

### **WARNING**

- ◆ Observe and obey all warning and safety decals displayed on the machine. Replace missing or damaged decals.
- ◆ Failure to observe and obey the safety warnings in this manual and displayed on this machine could result in serious injury or death.
- ◆ Persons who install, mount, operate, or service this equipment must be properly trained.
- ◆ Use care when mounting and dismounting the sander from the truck.
- ◆ Keep the sander and components in proper working condition.
- ◆ Keep the sander and surrounding area clear of personnel and property while in operation.
- ◆ When traveling, especially loaded, the sander may have a high center of gravity and caution should be exercised, especially when turning or driving on banked surfaces.
- ◆ Completely disengage all power to the sander, turn off the ignition, and remove the key before leaving the truck.
- ◆ UNAUTHORIZED modifications to the sander and components may impair the function and safety of the machine.

**CAUTION:** Before any adjustments or lubrication work is performed on the spreader, be sure to follow all safety rules set forth by your organization, OSHA, and the safety guidelines layed out in this manual.

- Keep all shields and guards in place when operating this equipment.
- Adjust and lubricate machine only when the power source is off and locked out.
- When any mechanism becomes clogged, shut off the power source and lock it out before attempting to clear the blockage.
- Keep hands, feet and clothing away from all moving parts.
- Always use a funnel for filling fuel tanks and be sure the engine is off and cooled down. Do not fill the tank to overflowing.
- Periodically inspect all hydraulic hoses and fittings for wear and tightness. Rupturing hoses may produce a high-pressure stream of oil. Failure to do so may cause personal injury.



## WARNING



***Fuel and its vapors are extremely flammable and explosive.***



***Fire or explosions can cause severe burns or death.***

### **When Adding Fuel**

- Turn engine off and let engine cool at least two (2) minutes before removing the fuel cap.
- Fill fuel tank outdoors or in a well-ventilated area.
- Do not overfill fuel tank. To allow for expansion of the fuel, do not fill above the bottom of the fuel tank neck.
- Keep fuel away from sparks, open flames, pilot lights, heat, and other ignition sources.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.
- If fuel spills, wait until it evaporates before starting engine.

### **When Starting Engine**

- Ensure that spark plug, muffler, fuel cap and air cleaner are in place and secure.
- Do not crank engine with spark plug removed.
- If engine floods, set choke (if equipped) to **OPEN/RUN** position, move throttle to **FAST** position and crank until engine starts.

### **When Operating Equipment**

- Do not tip engine or equipment at angle which causes the fuel to spill.
- Do not choke the carburetor to stop engine.
- Never start or run the engine with the air cleaner assembly, or air filter removed.

### **When Changing Oil**

- If you change oil from the top oil fill tube, the fuel tank must be empty or fuel can leak out and result in a fire or explosion.

### **When Transporting Equipment**

- Transport with fuel tank **EMPTY** or with fuel shut-off valve **OFF**.

### **When Storing Fuel or Equipment With Fuel In Tank**

- Store away from furnaces, stoves, water heaters or other appliances that have pilot lights or other ignition sources because they can ignite vapors.

## ENGINE SAFETY SYMBOLS

---



- Starting engine creates sparking.
- Sparking can ignite nearby flammable gasses
- Explosion and fire could result.
- If there is a natural gas or LP gas leak in area, do not start engine.
- Do not use pressurized starting fluids because vapors are flammable.



- Engine gives off carbon monoxide, an odorless, colorless, poison gas.
- Breathing carbon monoxide can cause nausea, fainting or death.
- Start and run engine outdoors, **ONLY**.
- Do not start or run engine in enclosed area, even if doors or windows are open.



- Engines equipped with starter cord, rapid retraction of start cord (kickback) will pull hand and arm toward engine faster than you can let go.
- Broken bones, fractures, bruises or sprains could result.
- Note: When starting engine, pull the starter cord slowly until resistance is felt and then pull rapidly to avoid kickback.



- Unintentional sparking can result in fire or electric shock.
- Unintentional start-up can result in entanglement, traumatic amputation, or laceration.



- Disconnect spark plug wire and keep it away from spark plug.
- Disconnect battery at negative terminal.
- Use only correct tools
- Do not tamper with governor spring, links or other parts to increase engine speed.
- Replacement parts must be of the same design and installed in the same position as the original parts. Other parts may not perform as well, may damage the unit, and may result in injury.

- Do not strike the flywheel with a hammer or hard object because the flywheel may later shatter during operation.
- Always read manual for proper installation guidelines.

**When testing for spark:**

- Use approved spark plug tester.
- **DO NOT** test for spark with spark plug removed.



**WARNING**

***Running engines produce heat. Engine parts, especially muffler can become extremely hot.***

***Severe thermal burns can occur on contact.***

***Combustible debris, such as leaves, grass, brush, etc. can catch fire.***

- Allow muffler, engine cylinder and fins cool before touching.
- Remove accumulated combustibles from muffler area and cylinder area.



**WARNING**

***Rotating parts can contact or entangle hands, feet, hair, clothing, or accessories.***

***Traumatic amputation or severe lacerations can result.***

- Operate equipment with guards in place.
- Keep hands and feet away from rotating parts.
- Tie up long hair and remove jewelry.
- Do not wear loose-fitting clothing, dangling drawstrings or items that could become caught.
- Always wear the appropriate P.P.E. (personal protective equipment) such as; ear, eye, hand and head protection.

**HAZARD SYMBOLS AND MEANINGS**



**WARNING** indicates a hazard which, if not avoided, could result in death or serious injury.



**FIRE**



**EXPLOSION**



**TOXIC FUMES**



**KICKBACK**



**SHOCK**



**MOVING PARTS**



**HOT SURFACE**

**REMEMBER. SAFETY FIRST!!**

# **SECTION THREE**

## INSTALLATION

## MACHINE INSTALLATION

To mount the spreader in the bed of a pick-up truck, begin by unpacking any loose parts that may have been shipped inside the hopper. Then lift the spreader by the four (4) lifting eyes located on each front and rear outside corner of the spreader. **NOTE:** SOME MODELS ARE EQUIPPED WITH A SINGLE CENTER POINT LIFT EYE MOUNTED ON A LONGITUDINAL I-BEAM. PLEASE BE SURE THAT THE HOPPER BODY IS EMPTY OF ALL MATERIAL AND THE DISCHARGE CHUTE & SPINNER ASSEMBLY ARE FULLY INSTALLED BEFORE LIFTING THE SPREADER UTILIZING THE CENTER POINT LIFT EYE. OTHERWISE, UTILIZE THE FOUR (4) LIFTING EYES DESCRIBED BELOW TO LIFT THE SPREADER.

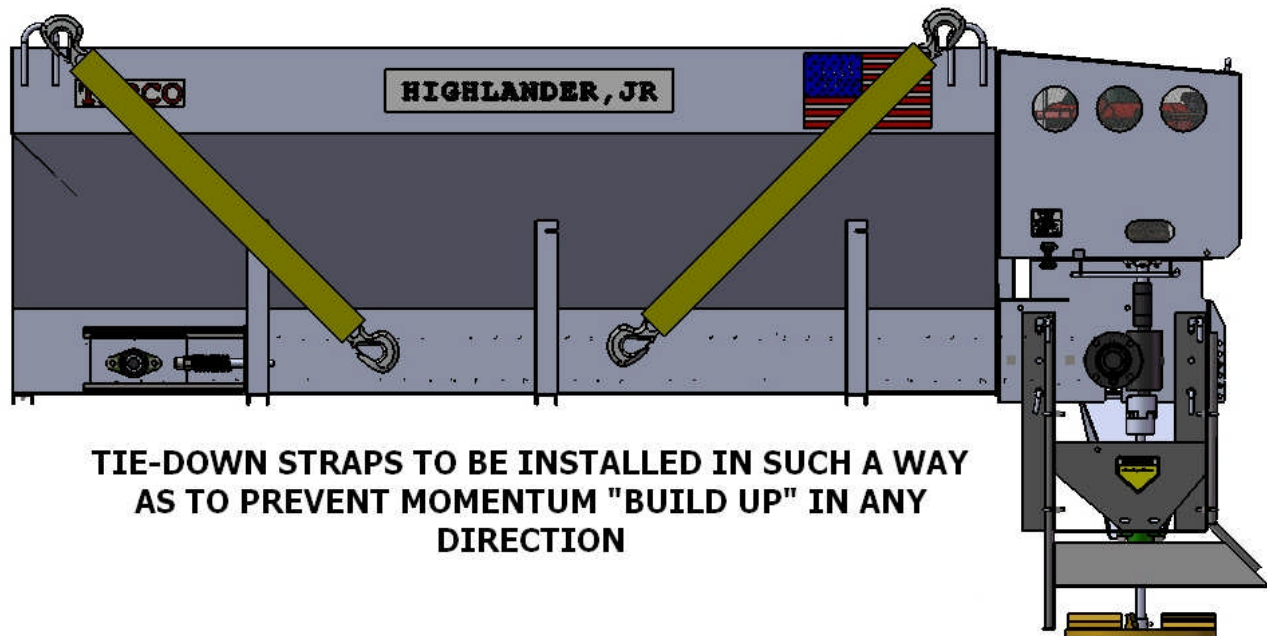
*FIGURE 1:  
LOCATION HOPPER LIFTING EYES (TOP VIEW)*



Next guide the spreader into the pick-up truck box being careful not to damage any parts. The spreader is in place when it is equally spaced from the sides of the truck and the spinner assembly is clear of the rear bumper. (Note: The tailgate on the truck should be removed when the spreader is in the truck. In some cases the rear bumper must be removed so the spreader's rear support cross channel rests on the truck bed.) It is recommended that you place two (nominal) 2" or 4" wood sleepers lengthwise under the hopper. These sleepers will reduce the tendency of the hopper to slide inside the truck box and also allow you to completely flush out the space under the hopper after each use.

Now secure the hopper in the truck body by using the ratchet style hold down binders. Use two on each side and be sure one binder pulls the hopper forward and one binder pulls the hopper toward the rear (see Figure 2.)

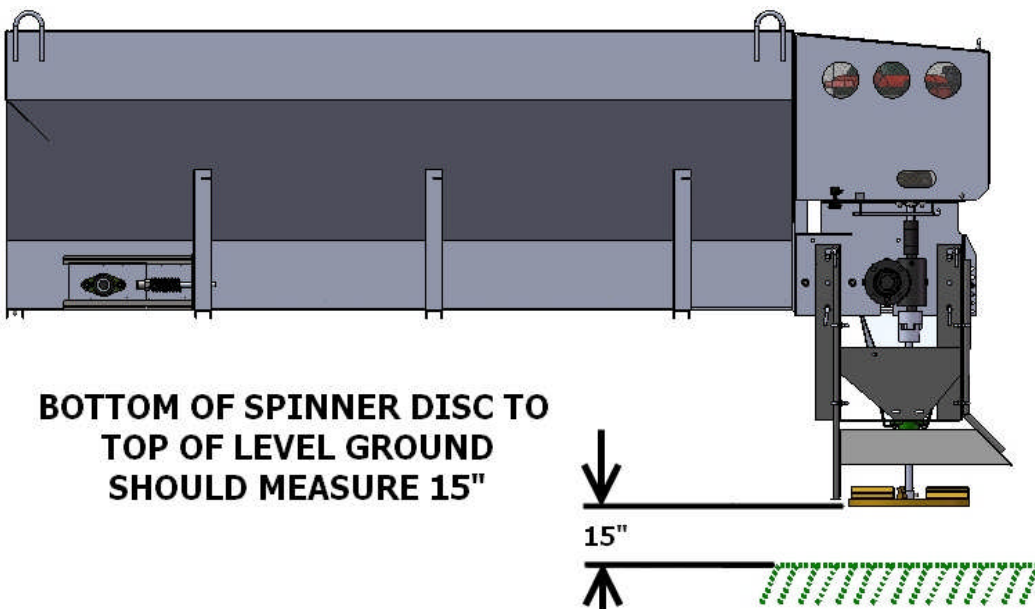
**FIGURE 2:**  
**ILLUSTRATION OF HOPPER HOLD DOWN EQUIPMENT**



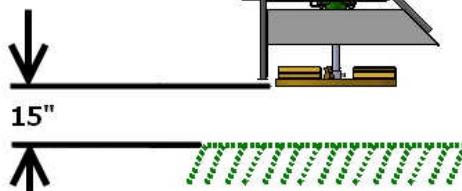
**TIE-DOWN STRAPS TO BE INSTALLED IN SUCH A WAY  
AS TO PREVENT MOMENTUM "BUILD UP" IN ANY  
DIRECTION**

Once the hopper has been secured in the truck box, the spinner, deflector frame and discharge chute may be installed. Begin by placing the spinner support frame (A) onto the pins provided on the tailpiece as shown in Figure 3. Secure the support frame with the four tee bolts provided (B). Make sure the spinner shaft coupling half and the rubber coupling inserts are properly coupled to the matched coupling half located at the lower end of the gearbox input shaft (C). Next, place the deflector frame (D) on the spinner support frame (A) and secure with the bolts provided (E). Next place the discharge chute (F) into the tailpiece and lock it in place with the locking rod (G).

**FIGURE 3:**  
**ILLUSTRATION OF MOUNTING LOCATIONS FOR SPINNER & DEFLECTOR FRAME PARTS.**



**BOTTOM OF SPINNER DISC TO  
TOP OF LEVEL GROUND  
SHOULD MEASURE 15"**



**NOTE:** *The spinner disc is installed at a fixed height from the factory. Certain applications require the spinner disc to be relocated on the spinner shaft (must re-drill and re-bolt the spinner disc to the shaft) to accomplish the minimum required spinner height.*

With these steps complete, you may adjust the spinner height, deflector frame height, deflectors and chute location to meet your specific spreading needs. Spread charts and spread patterns are shown and further explained in section labeled "Controlling the Spread Pattern".

## MACHINE START UP

---

**(NOTE:** Before applying power to the spreader, be sure all persons are clear of all moving parts and follow all safety rules.)

Now that the spreader has been properly mounted and the spinner assembly properly installed, the next step is to apply power to the spreader. (NOTE: All fluid levels on the spreader engine, gearbox or hydraulic system has been set at the factory. However, it is a good idea to double check all fluid levels before operating the spreader.) The procedure for applying power to each of the spreader drive types as follows:

### **GAS ENGINE DRIVE (HL-GECEL-JR)**

This type of spreader is powered by a 11.5 H.P. Briggs & Stratton I/C air cooled engine. (NOTE: An optional 11 H.P. Honda air cooled gasoline engine is available - please consult your TARCO® distributor for information). A cab control box is provided with the following functions; Throttle, slow-fast and choke, electric clutch engagement – on/off, engine start/stop. The engine speed and choke functions are controlled by an electric toggle switch mounted on the cab control box. Holding the toggle switch all the way to the right (choke position) the engine choke is activated for starting purposes. By “bumping” the toggle switch to the left, the choke will become deactivated and the throttle position will be at the high throttle RPM setting. “Bumping” the throttle to the left will decrease the engine RPM settings through the throttle range to the idle setting. (Note: Machines equipped with the optional 11 H.P. Honda air cooled gasoline engine, if the toggle switch is bumped past the idle throttle setting, the Honda engine will completely shut off. The Honda engine is equipped with a secondary engine kill switch). Conversely, “bumping” the throttle toggle switch to the right will increase the engine RPM through the RPM range and can activate the engine choke if continuously bumped.

Once the engine has been started, warmed up at an idle, spreading may begin. **IMPORTANT:** Be sure to follow the proper engine "warm up" and "break in" procedures outlined in the engine manual supplied with your spreader.

**NOTE:** On spreaders equipped with an electric clutch, engage the toggle switch labeled “CLUTCH” on the in-cab control box activates the electric clutch. Always start the spreader engine with the electric clutch in the off position. Electric clutch engagement should occur at engine idle speed *only*. The toggle switch for the electric clutch is an illuminated switch. This switch is illuminated when the electric clutch is

engaged. Be sure to disengage the electric clutch prior to shutting the machine down. High speed engagement of the electric clutch may cause premature clutch wear and damage. High speed engagement may also damage internal engine base components and should be avoided.

The procedure for powering up this spreader drive type is to start and warm up the engine, engage the clutch at idle and advance the engine throttle to the desired conveyor speed and start spreading the material.

### **SINGLE MOTOR HYDRAULIC DRIVE (HL-HY-JR)**

This type of spreader runs off the truck's hydraulic system and is powered through a single hydraulic motor coupled to the input shaft of the conveyor gearbox. Once the spreader has been mounted in the truck box, hook up the two hydraulic lines to the hydraulic system on the truck. (Generally the spreader will require 5 to 8 GPM of hydraulic oil at 1500 PSI.) Then start the truck's engine to provide the hydraulic flow and pressure. By engaging/disengaging the truck's hydraulic system will start and stop the spreader operation. By operating the truck's engine at different RPM's, the hydraulic motor on the spreader will operate at different speeds; this in turn affects the spread density and pattern. Please refer to the truck equipment house that installed the hydraulic system for specifics on the use, operation and required maintenance of the hydraulic system.

### **TWO MOTOR HYDRAULIC DRIVE (HL-HY2-JR) (OPTIONAL)**

This type of spreader runs off the truck's hydraulic system and has one hydraulic motor to power the conveyor and one hydraulic motor to power the spinner. Once the spreader has been mounted in the truck box, hook up the spreader quick couplers to the mating quick couplers at the rear of the truck. (Generally the spreader will require 10 to 15 GPM of hydraulic oil at 1500 PSI.) Then start the truck's engine to provide the hydraulic flow and pressure. By engaging/disengaging the truck's hydraulic system will start and stop the spreader operation. Two motor hydraulic drive requires hydraulic valving (mechanically or electric actuated) to independently regulate the hydraulic flow to both the conveyor and spinner drive. By operating the truck's engine at different RPM's, the hydraulic motors on the spreader *may* operate at different speeds; this in turn affects the spread density and pattern. Please refer to the truck equipment house that installed the hydraulic system for specifics on the use, operation and required maintenance of the hydraulic system.

### **SINGLE MOTOR ELECTRIC DRIVE (HL-EL-JR)**

This type of spreader runs off the truck's electrical system and is powered through a single electric motor coupled to the input shaft of the conveyor gearbox. Once the spreader has been mounted in the truck box, and the electrical system properly installed (refer to installation guidelines and procedures) tested and inspected, hook up the two electrical cables to the properly installed electrical system on the truck. (Generally the spreader will require up to 60 AMPS to operate.) Then start the truck's engine to provide the electrical current. By engaging/disengaging the cab mounted on/off switch, truck's electrical system will start and stop the spreader operation. The

spreader will operate at one speed only. To alter the spread pattern, this is accomplished by increasing/decreasing the vehicle speed, flow gate height, chute and deflector frame position.

**Optional Variable Speed Controller:** This cab mounted control box assembly includes an on/off switch and an infinite adjustable speed control knob, which regulates the speed of the electric motor. This in turn regulates the speed of the conveyor, only.

### **DUAL MOTOR ELECTRIC DRIVE (HL-EL2-JR)**

This type of spreader runs off the truck's electrical system and is powered through a single electric motor to power the conveyor and one electric motor to power the spinner. Once the spreader has been mounted in the truck box, and the electrical system properly installed (refer to installation guidelines and procedures) tested and inspected, hook up the two electrical cables to the properly installed electrical system on the truck. (Generally the spreader will require up to 80 AMPS to operate.) Then start the truck's engine to provide the electrical current.

**Variable Speed Controller:** This cab mounted control box assembly includes an on/off switch and two, infinite adjustable speed control knobs. One for the conveyor electric motor and one for the spinner electric motor, which regulates the speed of both electric motors.

## **AVAILABLE MACHINE OPTIONS**

---

In addition to the many standard features on the HIGHLANDER<sup>®</sup> JR. spreader, there are also many options available. The following is a list of most of the regularly available options for any HIGHLANDER<sup>®</sup> JR. spreaders. LOUGHBERRY MFG. CORP., will, upon request, design and build other options for your HIGHLANDER<sup>®</sup> JR. spreader, contact your local TARCO<sup>®</sup> distributor for details.

### **INVERTED "V"**

This inverted vee (i.e. conveyor bridge) assembly fastens to the existing longitudinal member of your spreader or is welded on the interior sloped walls on the hopper body over the conveyor chain. It serves to relieve the weight of material pressing down on the conveyor chain assembly and thus reduces the horsepower requirements, conveyor chain wear, and improves equipment life. This inverted vee is recommended only where free flowing materials are used such as coarse salt, dry sand, or gravel.

### **6" HOPPER EXTENSIONS**

This extension is bolted to the hopper corner braces and rests inside the channel formed top edge of the hopper. The extension supplies an additional 1/2 cubic yard capacity; will accept a Hopper Top Screen and is stackable. An inverted "V" is recommended for use with a hopper extension. Some extensions are "built-in" to the hopper side walls and ends when the hopper body is built at the factory.

### **RATCHET TYPE HOPPER HOLD DOWN**

These hopper hold down devices consist of (4) ratchet type hold down binders which securely hold the spreader in the truck body.

### **STORAGE DOLLY**

A sturdy three or four wheel storage dolly is available with hard rubber wheels. The dolly has a convenient hand towing bar and provides a convenient means of storing your spreader when it is removed from the truck. It also provides an ideal workbench to set your machine on when service work is required.

### **TWO WHEEL HOPPER TRAILER FOR 7 FT AND 8 FT MACHINES**

A rugged two wheel trailer having full size automotive type tires and wheels and heavy duty elliptical springs with tubular tow bar and parking jack is available on which these spreaders can be mounted. If pickup trucks are in short supply, the spreader can be trailer mounted and drawn by a towing vehicle. Ball or Pintle type hitches are available.

### **HEAVY DUTY TARP**

A water and mildew resistant tarpaulin having a series of brass grommets along its edge and fitted with a tie down cord can be furnished to cover top of hopper. Tarpaulins help to keep loads of material dry and reduce caking of material within hopper.

### **HOPPER TOP SCREEN**

A one piece welded screen on 7 and 8-foot long hoppers and a two piece screen on 9 and 10 foot long hoppers helps to eliminate rocks, lumps, and foreign material from clogging, jamming, or damaging the spreading system. The hopper top screens are easily installed or removed.

## **OFF SEASON STORAGE**

---

At the end of each spreading season good preventative maintenance procedures will help prolong the life of our spreader. All drive chains should be thoroughly lubricated and exposed shafts smeared with grease to retard corrosion. At the end of each use, the entire hopper should be thoroughly flushed with water and a liberal amount of motor oil applied to the conveyor chain. This will help prevent the conveyor chain from "freezing" due to corrosion. To store the HIGHLANDER® JR. the optional three or four wheel dolly is available.

# **SECTION FOUR**

## **OPERATION**

**MACHINE OPERATION**

---

Your TARCO® HIGHLANDER JR. spreader has been designed to handle a wide range of your spreading needs at the lowest possible cost. Some materials commonly used in the spreader include:

- Sand and salt for snow & ice control
- Absorbent Chips for oil spill control
- Lime dust for field preparation

In addition to the above, almost any spreadable material may be used. The HIGHLANDER JR. is available in different lengths and with different capacities. The standard machine sizes and capacities are shown in Table 1.

**TABLE 1:  
CAPACITIES OF HIGHLANDER JR.**

APPROX. HOPPER LENGTH	LEVEL CAPACITY (CU.YD)	WIDTH	HEIGHT	HOPPER LENGTH	OVERALL LENGTH	CAPACITY WITH BOLT ON 6" EXT. (CU.YD)
7 FT.	1.50	48"	35"	80"	104"	2.0
8 FT.	1.86	48"	35"	92"	116"	2.46
9 FT.	2.35	48"	35"	108"	132"	3.0
10 FT.	2.70	48"	35"	120"	144"	3.45

Section three and four will guide you from mounting the spreader through off season storage and maintenance. We suggest that you read these entire sections before using your spreader as it contains many helpful hints. In section six there is a complete parts breakdown identifying all spare or replacement parts that you might need. There are also instructions on how to order parts.

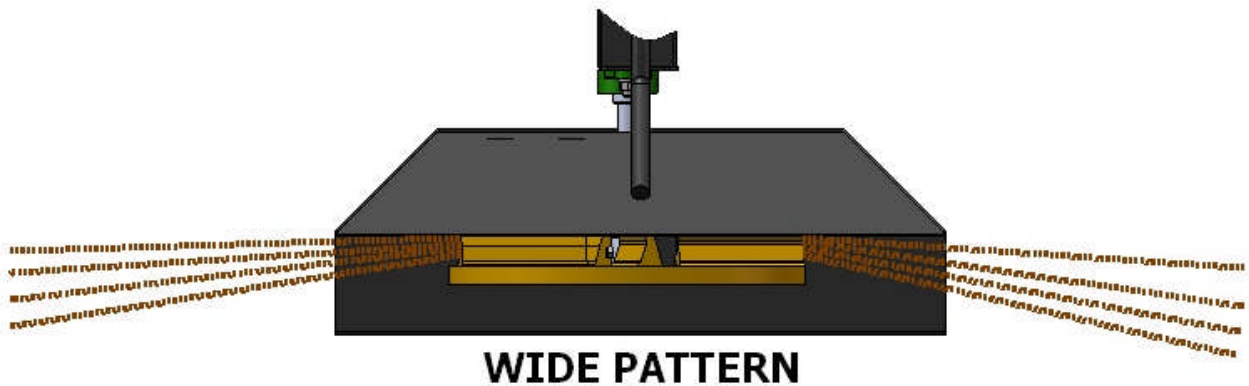
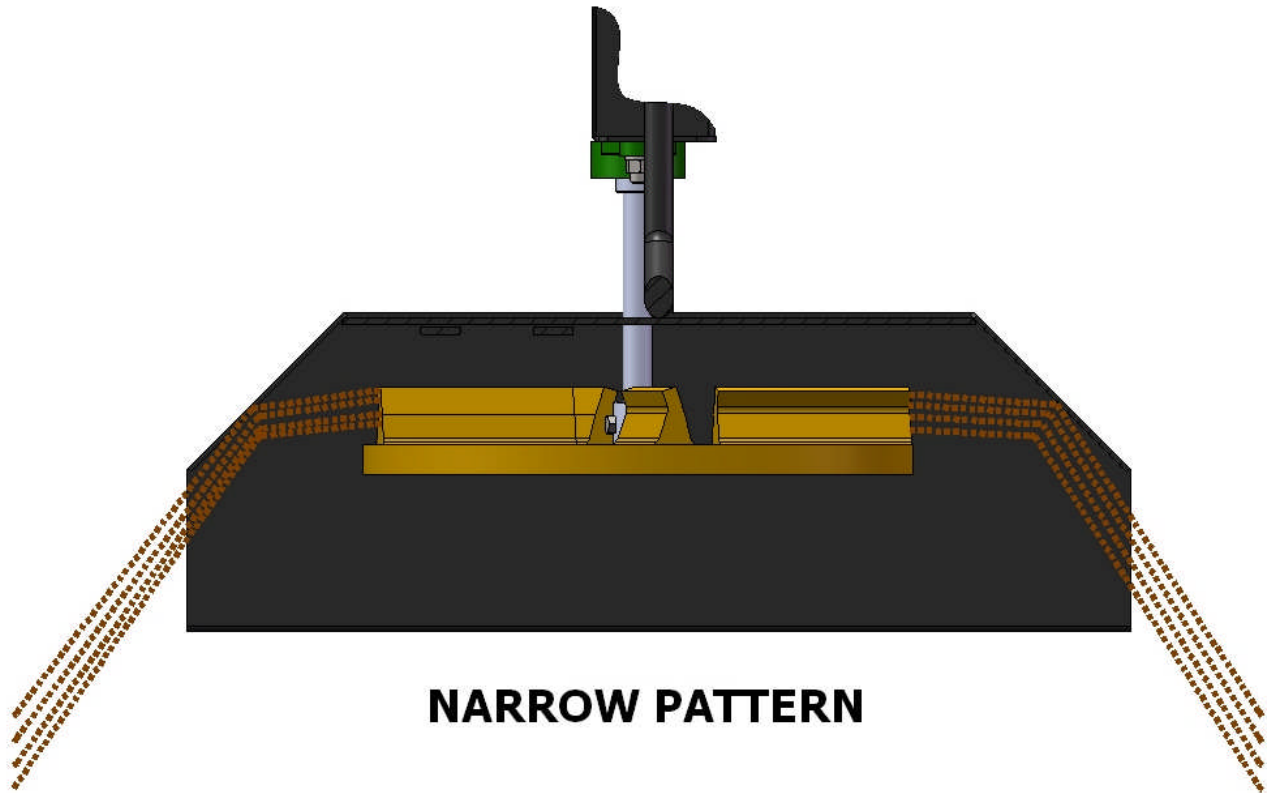
As always, you should follow all safety rules outlined in section 2 in this manual. The spreader has been engineered and designed in such a manner as to be as safe as possible yet still perform its task.

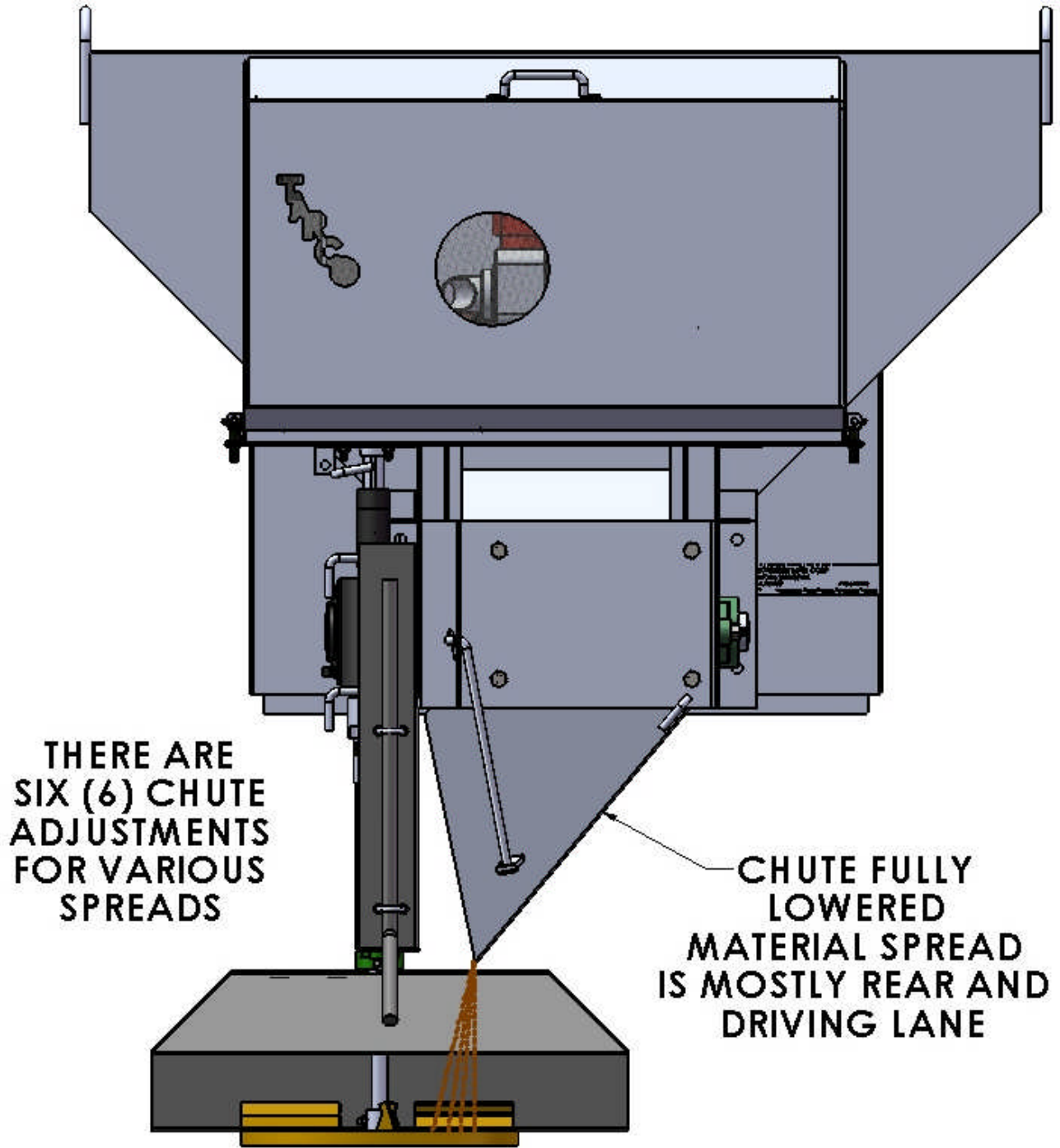
**PLEASE NOTE:** Only properly trained personnel should attempt to operate or perform maintenance on this machine.

## **CONTROLLING THE SPREAD PATTERN**

Proper adjustment of the material deflector assembly and discharge chute is important for obtaining the proper spread pattern. Every HIGHLANDER® JR. is supplied with a deflector assembly, which may be raised or lowered to control the spread width. By raising the deflectors all the way up, a wide spread pattern will result. Lowering them all the way down will result in a narrow spread pattern.

The discharge chute is adjustable with a short linkage at the rear of the machine to cause the material to fall on the center of the spinner disc or on the outside. Adjust the angle of the chute by selecting different pin mounting holes to obtain the desired spread pattern. It should take only a short time to get the spread pattern to meet your needs.





## APPLICATION RATE TABLES

The following three tables illustrate how much material is being spread for the various flowgate opening truck speed, hydraulic valve position or spreader engine throttle setting. These figures are approximate and should only be used as a guide.

### **HL-GECEL-JR APPLICATION RATE TABLE**

The gate at the rear of the hopper is adjustable to between 1" and 4". The tables below show pounds per mile spread.

**TABLE 2:**

*Application rates for HL-GECEL-JR. All values are in pounds of material spread per mile. All values are approximate and should be only used as a guide.*

SALT (LB/MILE)						SAND (LB/MILE)					
ENGINE RPM	TRUCK MPH	GATE OPENING				ENGINE RPM	TRUCK MPH	GATE OPENING			
		1"	1 ½"	2"	3"			1"	1 ½"	2"	3"
2000	5	1224	1607	1991	2758	2000	5	1590	2586	3582	4582
2000	10	612	805	997	1186	2000	10	795	1923	1791	2293
2000	15	408	536	664	919	2000	15	530	862	1194	1527
2000	20	305	401	497	689	2000	20	397	646	895	1145
2000	25	245	321	398	551	2000	25	318	517	716	916
2000	30	204	567	331	460	2000	30	265	431	597	764
2800	5	1714	2250	2786	3858	2800	5	2226	3618	5010	5492
2800	10	857	1124	1393	2467	2800	10	1113	1809	2505	3204
2800	15	574	750	928	1645	2800	15	742	1206	1670	2136
2800	20	427	562	696	964	2800	20	555	904	1252	1602
2800	25	342	450	557	771	2800	25	445	724	1002	1281
2800	30	285	375	464	643	2800	30	371	603	835	1068
3600	5	2203	2895	3585	4961	3600	5	2862	4656	6444	8240
3600	10	1508	1710	2209	2458	3600	10	1975	3132	4237	5876
3600	15	734	965	1195	1654	3600	15	854	1552	2148	2742
3600	15	734	965	1195	1654	3600	15	954	1552	2145	2742
3600	20	550	723	896	1240	3600	25	572	931	1289	1648
3600	30	367	492	597	827	3600	30	477	770	1063	1356

**TABLE 3:**

*Application rates for HL-HY-JR with conventional valving. All values are in pounds of material spread per mile. These values are approximate and should be only used as a guide.*

TRUCK TRANS. TYPE	TRUCK TRANS. TYPE	SALT				SAND			
		GATE OPENING				GATE OPENING			
		1"	1½"	2"	3"	1"	2"	3"	4"
4 - SPEED	FIRST	697	915	1133	1611	930	1511	2092	2674
	SECOND	495	687	879	1143	660	1072	1485	1897
	THIRD	337	443	548	780	450	731	1013	1293
	FOURTH	225	296	366	520	300	488	675	863
3 - SPEED	FIRST	697	915	1133	1611	930	1511	2092	2674
	SECOND	405	533	660	936	540	878	1215	1553
	THIRD	225	296	366	520	300	488	675	863
AUTOMATIC	LO	567	746	922	1310	756	1230	1701	2175
	SECOND	337	443	548	780	450	731	1013	1293
	DRIVE	225	296	366	520	300	488	675	863

**TABLE 4:**

*Application rates for HL-HY-JR with superior hydraulic valving. All values are in pounds of material (sand) spread per mile. These values are approximate and should be used as a guide.*

VEHICLE SPEED (MPH)	VALVE POSITION DETENT	GATE OPENING			
		1"	2"	3"	4"
5	2	660	1140	1560	1980
	4	1200	1920	2640	3360
	6	1620	2640	3660	4680
	8	1980	3240	4440	5700
	10	2940	3960	5460	6960
	12	2940	4740	6540	8400
10	2	330	570	780	990
	4	600	960	1320	1680
	6	810	1320	1830	2340
	8	990	1620	2220	2850
	10	1200	1980	2730	3480
	12	1470	2370	3270	4200
15	2	220	380	520	660
	4	400	640	880	1120
	6	540	880	1220	1560
	8	660	1080	1480	1900
	10	800	1320	1820	2320
	12	980	1580	2180	2800
20	2	165	285	390	495
	4	300	480	660	840
	6	405	660	915	1170
	8	495	810	1110	1425
	10	615	998	1373	1762
	12	735	1185	1635	2100

# **SECTION FIVE**

## MAINTENANCE

## GENERAL MAINTENANCE

---

The following sections will help guide you through the proper maintenance procedures for your HIGHLANDER JR. spreader. It is important that all applicable maintenance procedures be followed to get the maximum amount of use and life from the spreader. This section should be read thoroughly as it contains useful information and some important tips to prolong spreader life. The end of this section also contains storage tips to help protect the spreader during the off season.

## HYDRAULIC INFORMATION

---

If your TARCO® HIGHLANDER JR. spreader is powered by a hydraulic motor, there are a few items of importance that need particular attention. By following the guidelines and maintenance procedures detailed here, your spreader will provide years of valuable service.

**(NOTE:** Please refer any specific questions to the truck equipment house that installed the central hydraulic system on the truck.)

**NOTE:** It is highly recommended that the beginning of each season the hydraulic oil filter is replaced and the hydraulic system is flushed and replenished with new hydraulic oil.

## LUBRICATION INFORMATION

---

The lubrication of your TARCO® HIGHLANDER JR. Spreader is an important part of obtaining a prolonged service life. While all bearings and gearboxes have been lubricated at the factory, further periodic lubrications will be required. The following items require periodic maintenance.

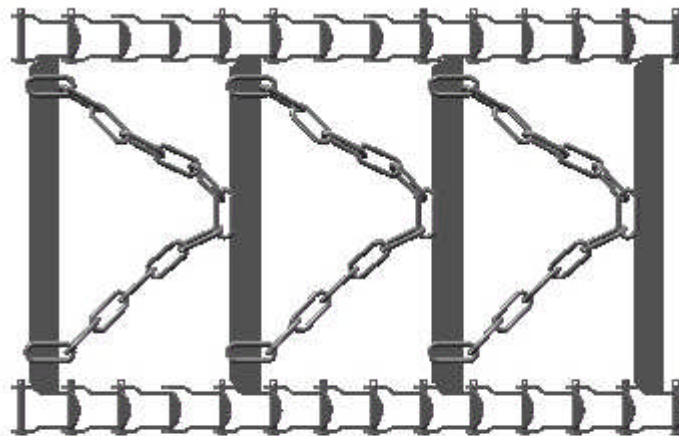
- (1) **ENGINE CRANKCASE: IMPORTANT - SEE ENGINE MANUFACTURER'S INSTRUCTION BOOK FOR DETAILS.** Keep the crankcase filled at all times to the full level in the oil sight hole. The motor oil should be drained and refilled periodically according to the engine instruction book. Careless or infrequent engine crankcase oil attention will result in rapid and excessive engine wear.
- (2) **ENGINE AIR CLEANER: IMPORTANT: SEE ENGINE MANUFACTURER'S INSTRUCTION BOOK FOR DETAILS.** Proper air filter maintenance will prolong the engine life. Be sure to clean out and re-oil the foam element as the engine manual instructs.
- (3) **BEARINGS:** All the bearings on your spreader are sealed and self aligning. The bearings are designed to operate at high speed under continuous operation. Since the bearings on your spreader operate as low as 20 RPM, more harm will be done to them by over greasing than by under greasing. When lubrication is required, use a hand operated grease gun and light bearing grease. It is a good idea to keep the bearing race and any shafts protruding through the bearing heavily coated with grease. This coating will retard corrosion on the shaft and allow for easier shaft removal should it become necessary.
- (4) **DRIVE CHAINS:** One of the most common areas of corrosion is the drive chain that powers the gearbox. Since the spreader sits idle much more time that it is used, the chain will tend to rust and become stiff. Apply a coat of heavy weight motor oil, or use a spray on motorcycle chain lubricant to the drive chain after each use. Then operate the spreader for a few minutes to let the oil/lube work in.
- (5) **RIGHT ANGLE 20:1 WORM GEARBOX:** The worm gear reducer (20:1 L.H.) has been properly filled from the factory and should be checked periodically during the season. At the end of each season, fill the gearbox to the top for off-season storage. At the beginning of the next season completely drain the gearbox and refill with fresh lube to the oil level plug. Lightly grease the fittings. Utilize SAE 85W-140 Gear Lubricant only in the 20:1 reduction gearbox. Use of other types of oil will VOID WARRANTY.
- (6) **HYDRAULIC SYSTEM:** The truck mounted hydraulic pump and reservoir (HL-HY-JR and HL-HY2-JR ONLY) should be checked once each week and refilled as needed with Hydraulic oil.
- (7) **CONVEYOR CHAIN:** It is of the utmost importance to keep the conveyor chain lubricated after each use. After the unit is thoroughly cleaned, apply a heavy coat of non-detergent oil to the side links of the chain. Non-detergent oil or used oil works well for this application.

## CONVEYOR CHAIN INFORMATION

---

The conveyor chain in your HIGHLANDER® JR. is a very important part of the spreader. It is ruggedly constructed and with proper maintenance, will deliver years of service. An important part of good conveyor chain life is to install the optional top screen. Top screens will help prevent large chunks of frozen sand, salt, and foreign material from blocking and damaging the conveyor system.

Located in the parts section is all the required ordering information on conveyor chain, repair links, repair pins, and replacement conveyor drive sprockets. All these items are available from stock for fast delivery. The cotter pin, which holds the chain link together at the breakaway point, is stainless steel. If this cotter pin ever needs to be replaced, it should be replaced with a new stainless steel cotter. This will prevent later chain separation due to a rusted away cotter.

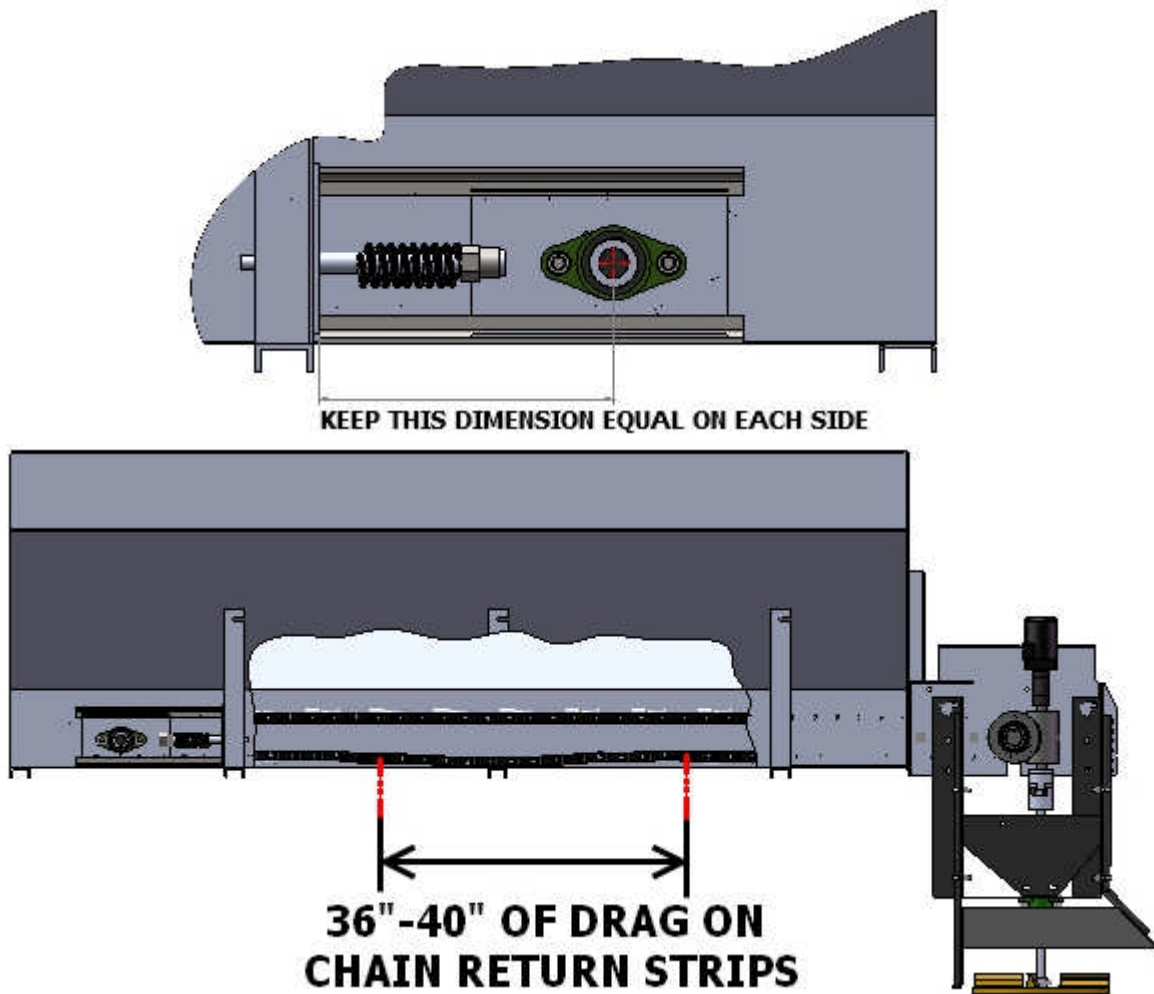


**DIRECTION OF TRAVEL**

The importance of proper chain tension cannot be overstated. A chain, which is too loose, may be damaged and a chain, which is too tight, will consume too much power. A properly adjusted chain should rest on the bottom return rails for an approximate distance of 36 to 40 inches. Be sure to keep the chain adjusted evenly on each side of the hopper. A recommended conveyor maintenance procedure is to thoroughly flush the hopper and under the chain return path after each use. This flushes out all the sand and salt, which may accumulate at this location and will help prolong the spreader's life. **(NOTE:** Be sure to keep all hands and feet clear of all moving parts at all times and always follow all safety rules.) A thorough lubrication of the entire conveyor chain with used motor oil at the end of each use will also help prolong conveyor chain life.

## CONVEYOR CHAIN TENSION DIAGRAMS

---

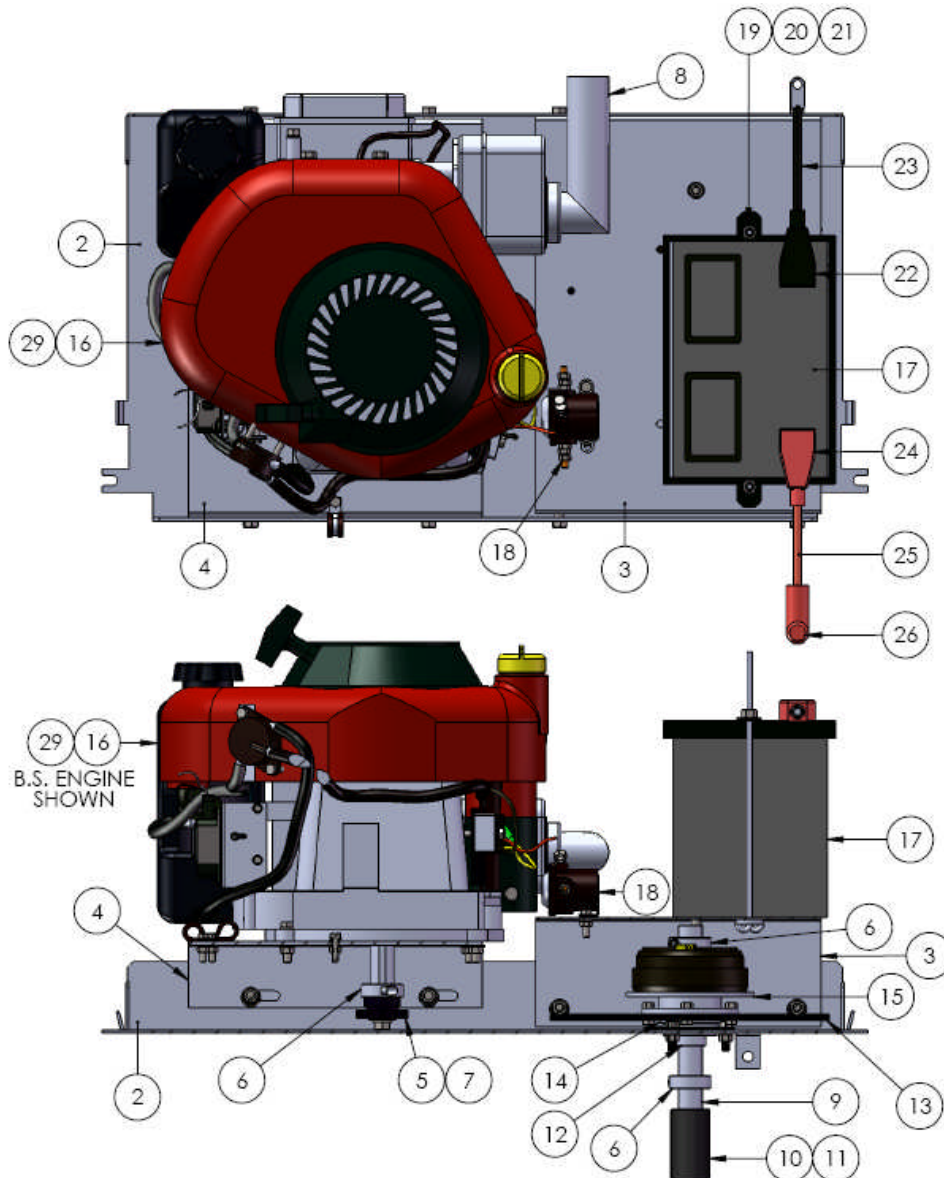


## ENGINE INFORMATION

If your TARCO® HIGHLANDER JR. spreader is equipped with its own engine, be sure to carefully read the engine manufacturer's instruction manual supplied with the spreader.

**BEFORE STARTING THE ENGINE BE SURE THE ENGINE CRANKCASE AND RIGHT ANGLE GEARBOX ARE FULL TO THEIR PROPER LEVELS OF OIL AND THE ENGINE AIR CLEANER IS CLEAN.** Also be sure to keep all cooling fins on the engine and air circulation holes in the engine enclosure clean at all times. Engine overheating can cause many problems such as sticky valves, loss of power, and eventual engine damage of a more serious nature. The engine has been test run at the factory but has not been "Broken in". The engine is also equipped with a 12 V/DC starting system. Following these few simple maintenance procedures, your spreader will deliver years of satisfactory performance.

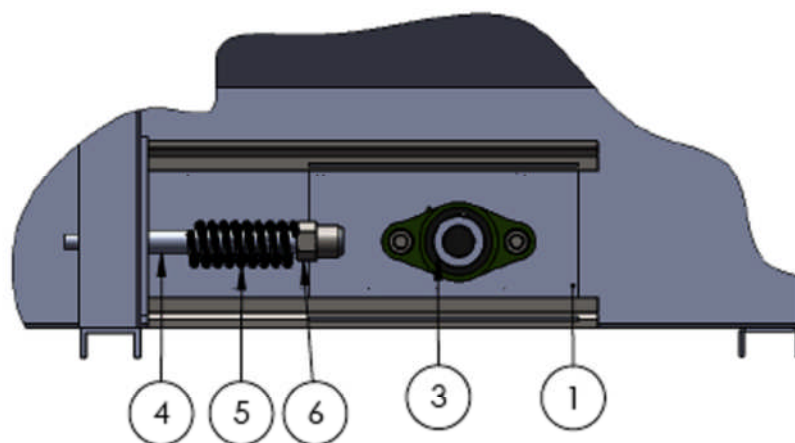
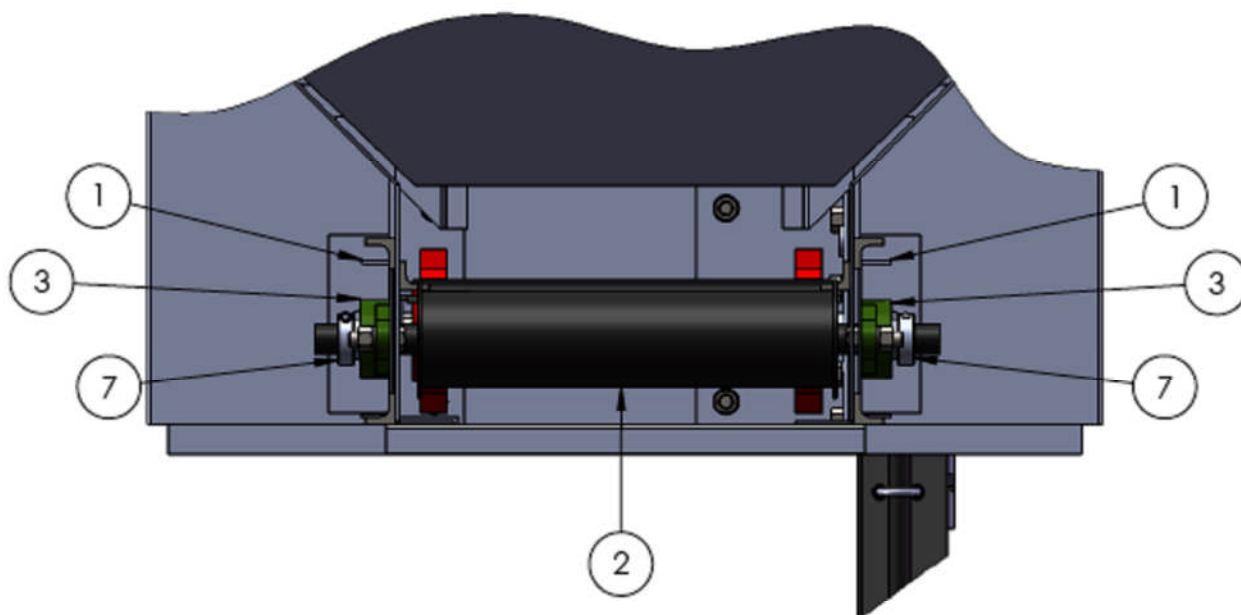
**PLEASE NOTE: The engine manufacturer requires the fuel tank to be EMPTY or for the fuel shut off valve to be in the "OFF" position when transporting unit.**



# **SECTION SIX**

## PARTS INFORMATION

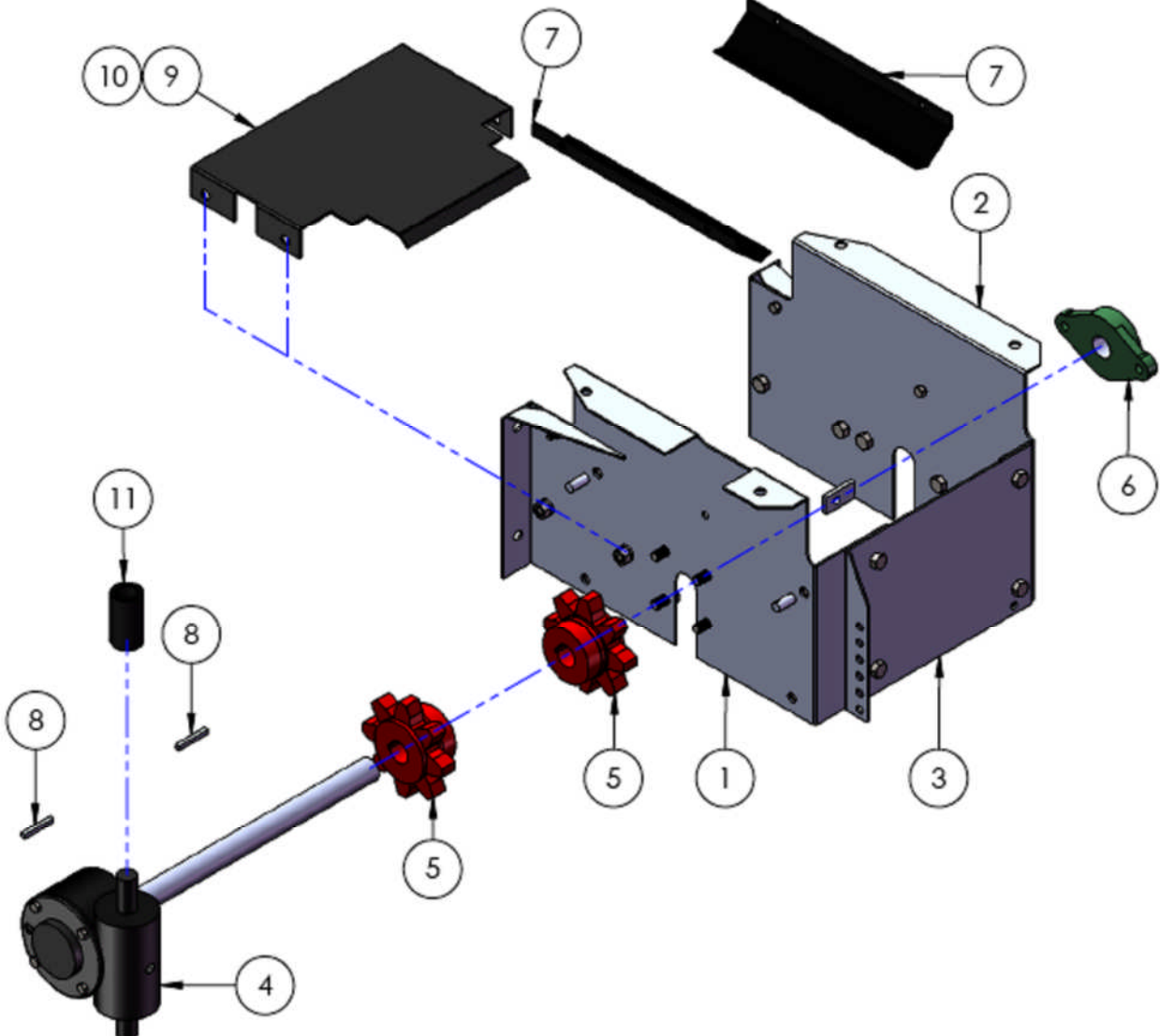
## IDLER TAKE-UP END HIGHLANDER JR



ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	12408-1	12408-1B	BEARING MOUNTING PLATE (W/O BEARING)
2		22539-1	IDLER ROLLER
3		21670-1	FLANGE BEARING
4	12744-1	12744-2	TAKE-UP ADJUSTING ROD
5		21275-4	TAKE-UP COMPRESSION SPRING
6	28998	26857	TAKE-UP NUT
7		30356-12	SAFETY COLLAR
8	14742-1	14742-1A	BEARING MOUNTING PLATE (W/ BEARING)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

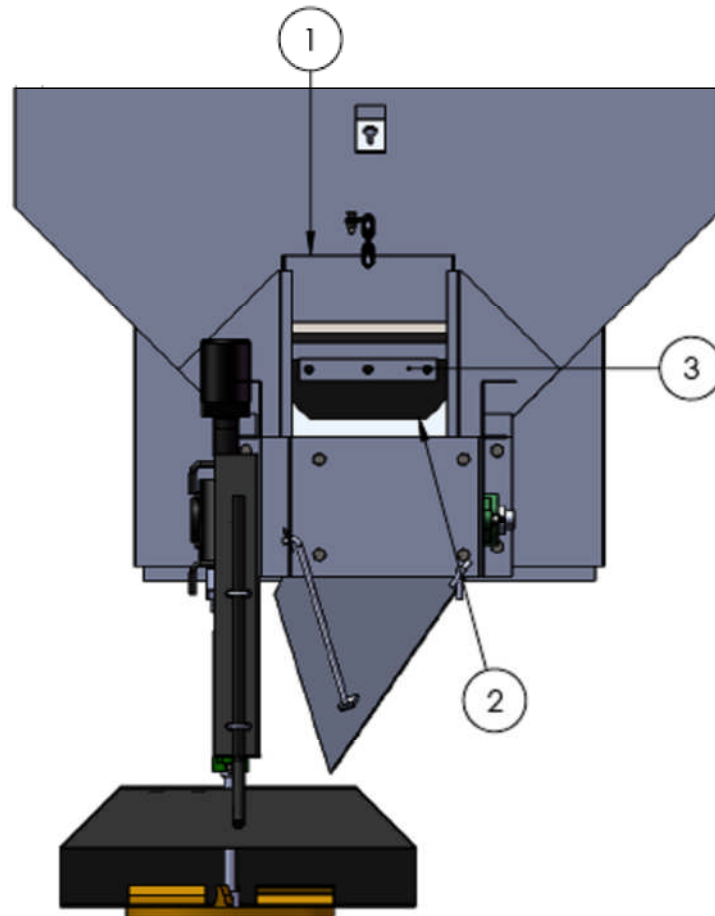
## DISCHARGE TAILPLATE END ASSEMBLY HIGHLANDER JR.



ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	25189-1	25189-7	DRIVER SIDE TAILPLATE
2	25190-1	25190-2	PASSENGER SIDE TAIL PLATE
3	13975-1	13975-2	TAILPIECE END PLATE
4	40353-18		GEARBOX
5	11939-1		CONVEYOR CHAIN SPROCKET
6	21670-2		FLANGE BEARING
7	22686-1	22686-2	CHAIN SHIELD EXTENSION
8	60019-5		SPROCKET KEY
9	22669-1	22669-2	STD WEARPLATE EXTENSION
10	22669-1A	22669-2A	ELEC. WEARPLATE EXTENSION
11	9063-5		SHAFT COUPLER
12	31919-1	31919-21	COMPLETE STD TAILPIECE ASSEMBLY (AS SHOWN)
13	31919-1A	31919-21A	COMPLETE ELEC. TAILPIECE ASSEMBLY (AS SHOWN)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

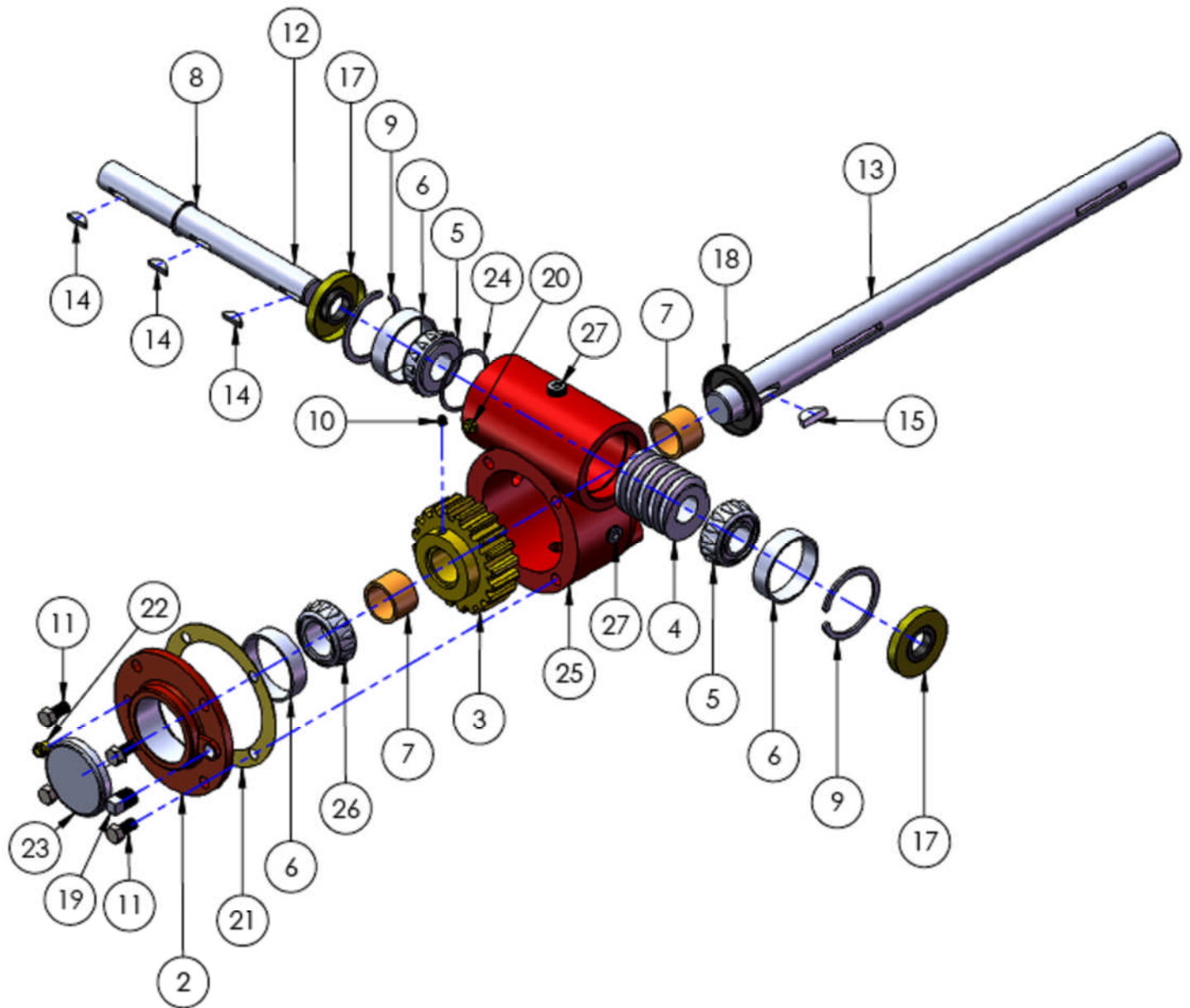
## FLOWGATE COMPONENTS HIGHLANDER JR.



ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	23654-1	23654-9	FLOWGATE WITH CHAIN (INCLUDES ITEMS 2 & 3)
2	14401-1	14401-1	RUBBER WIPER
3	14103-1	14103-2	RUBBER WIPER KEEPER

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

# HIGHLANDER JR GEARBOX PARTS LIST



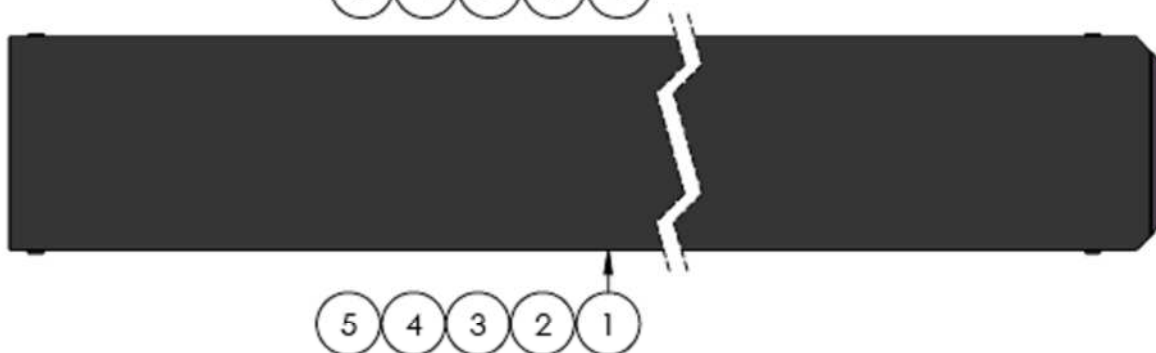
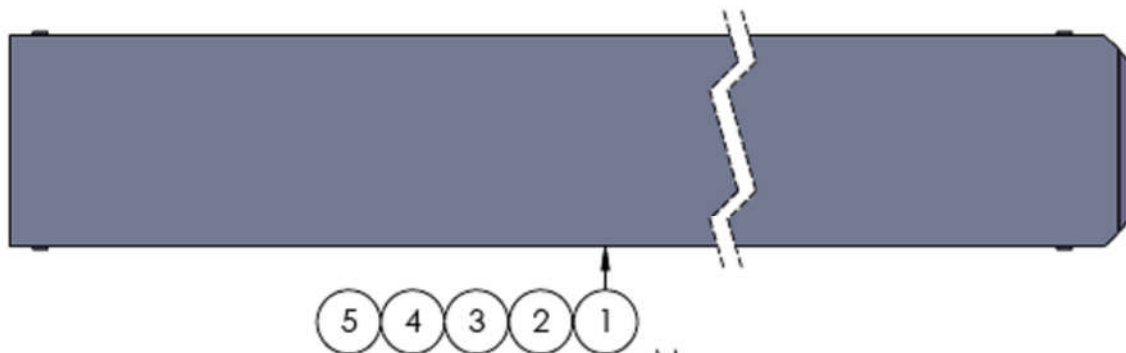
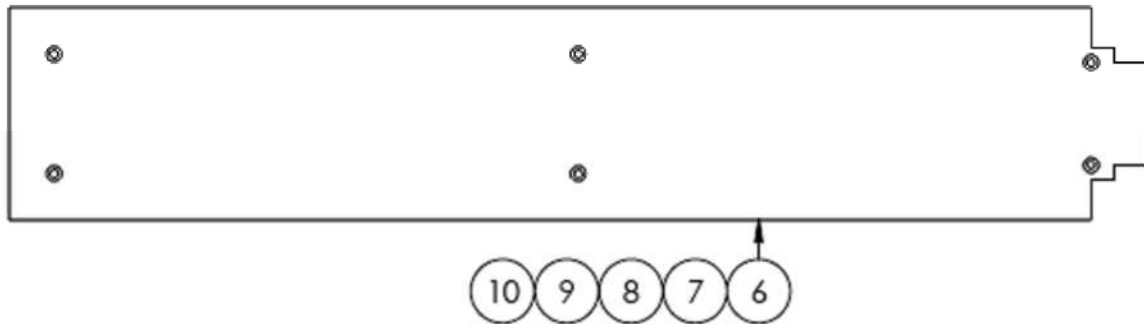
"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

## HIGHLANDER JR GEARBOX PARTS LIST

ITEM	PART NUMBER	DESCRIPTION
1	40353-18	COMPLETE ASSEMBLY
2	22690-2	GEARBOX COVER
3	22690-3	BRONZE WORM GEAR
4	22690-4	WORM
5	12228-5	Ø 1" I.D. BEARING CONE
6	22690-6	BEARING CUP (FOR Ø 1" I.D. & Ø 1 1/4" I.D. BEARING CONE)
7	22690-7	BUSHING
8	22690-8	Ø 1" I.D. SNAP RING
9	12228-9	Ø 1 1/4" I.D. SNAP RING
10	22690-10	WORM GEAR SET SCREW
11	22690-11	GEARBOX COVER CAP SCREW
12	25148-1	INPUT SHAFT
13	25616-1	OUT PUT SHAFT
14	12457-2	INPUT SHAFT WOODRUFF KEY
15	22690-15	OUTPUT SHAFT WOODRUFF KEY
16	N/A	N/A
17	12228-17	INPUT SHAFT SEAL
18	22690-18	OUTPUT SHAFT SEAL
19	22690-19	LEVEL PLUG
20	22690-20	ZERK GREASE FITTING
21	22690-21	GEARBOX COVER GASKET
22	22690-22	VENT PLUG
23	29268	GEARBOX COVER CAP
24	12228-25	SHIM (QTY. AS REQUIRED)
25	22690-25	GEARBOX HOUSING
26	22690-26	Ø 1 1/4" I.D. BEARING CONE
27	8005-25	PLUG-FILL

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

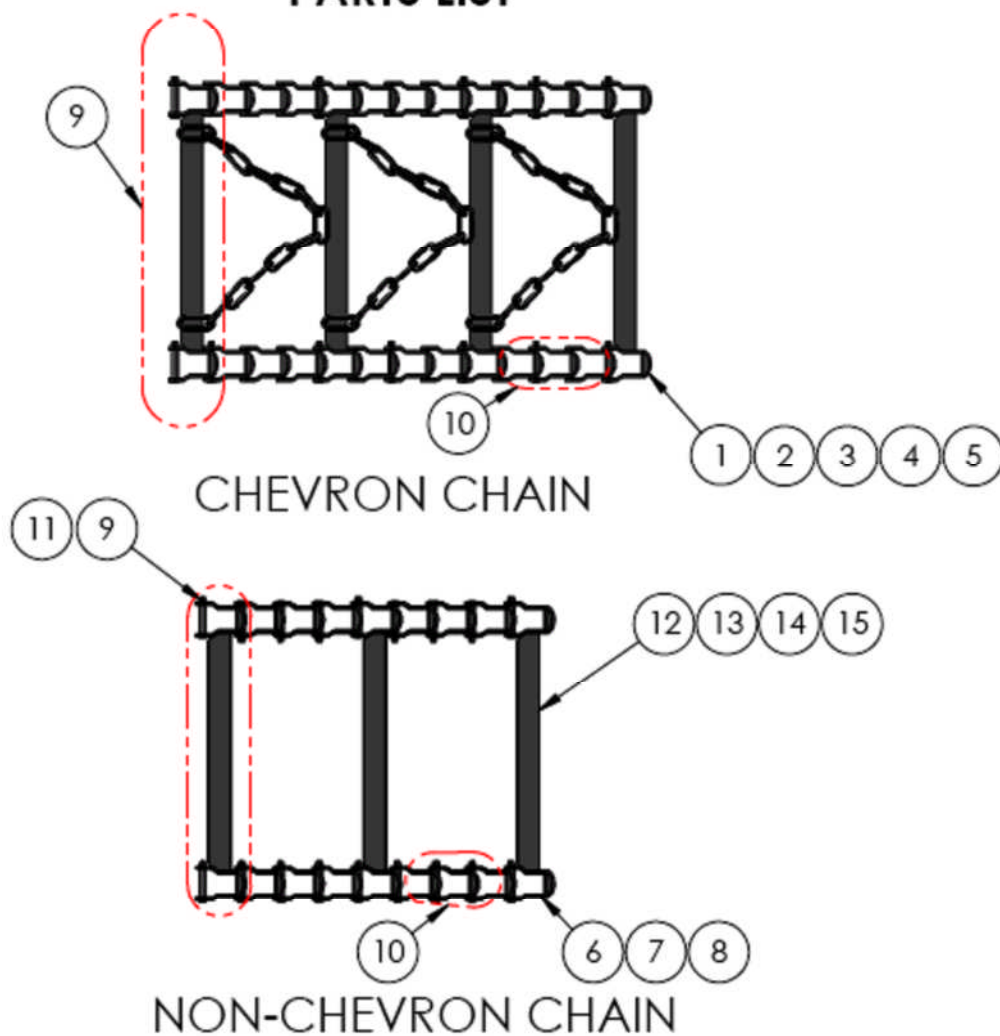
## HIGHLANDER JR WEAR PLATE PARTS LIST



ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	31187-1B	31187-6B	6' WEAR PLATE
2	31187-1A	31187-6A	7' WEAR PLATE
3	31187-1	31187-5	8' WEAR PLATE
4	31187-1D	31187-6D	9' WEAR PLATE
5	31187-1E	31187-6E	10' WEAR PLATE
6		25228-5	6' POLY WEAR PLATE COVER (ELECTRIC JR. ONLY)
7		25228-1	7' POLY WEAR PLATE COVER (ELECTRIC JR. ONLY)
8		25228-2	8' POLY WEAR PLATE COVER (ELECTRIC JR. ONLY)
9		25228-3	9' POLY WEAR PLATE COVER (ELECTRIC JR. ONLY)
10		25228-4	10' POLY WEAR PLATE COVER (ELECTRIC JR. ONLY)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

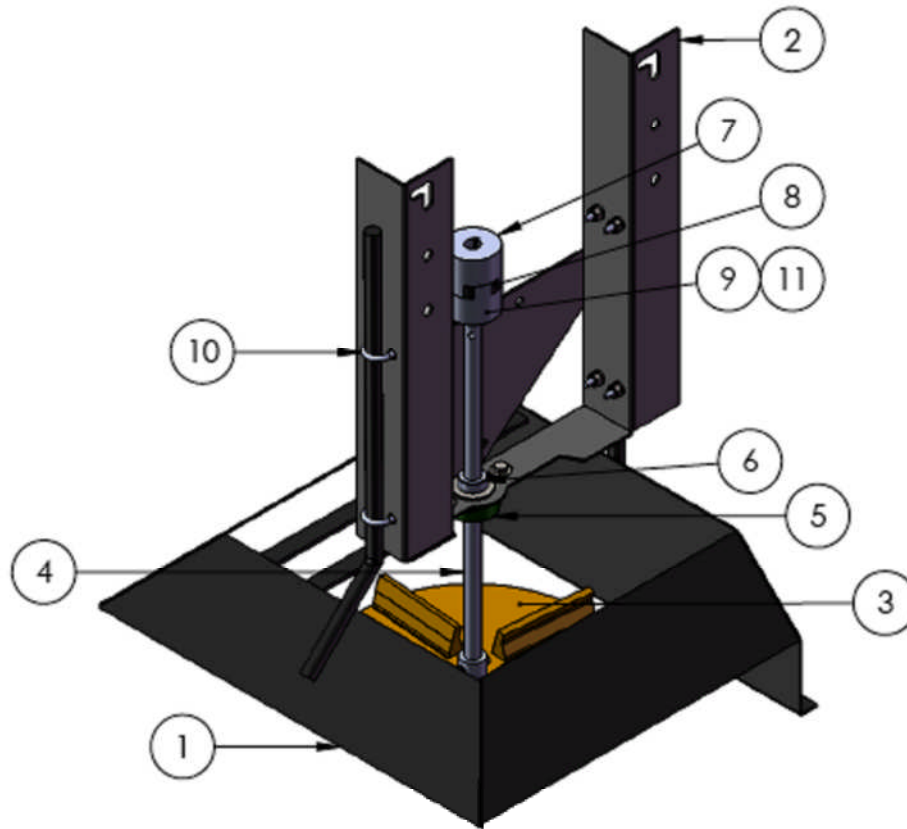
## HIGHLANDER JR CONVEYOR CHAIN PARTS LIST



ITEM	PART NUMBER	DESCRIPTION
1	22525-1A	6' CHEVRON CONVEYOR CHAIN (GAS & HYD. MACHINES ONLY)
2	22525-1	7' CHEVRON CONVEYOR CHAIN (GAS & HYD. MACHINES ONLY)
3	22525-1B	8' CHEVRON CONVEYOR CHAIN (GAS & HYD. MACHINES ONLY)
4	22525-1C	9' CHEVRON CONVEYOR CHAIN (GAS & HYD. MACHINES ONLY)
5	22525-1D	10' CHEVRON CONVEYOR CHAIN (GAS & HYD. MACHINES ONLY)
6	25229-1	7' CONVEYOR CHAIN (ELECTRIC MACHINES ONLY)
7	25230-1	8' CONVEYOR CHAIN (ELECTRIC MACHINES ONLY)
8	25780-1	9' CONVEYOR CHAIN (ELECTRIC MACHINES ONLY)
9	22525-4	CONVEYOR CHAIN REPAIR FLITE (GAS & HYD. MACHINES ONLY)
10	9092-5	CONVEYOR CHAIN REPAIR LINK (INCLUDES PINS & COTTERS)
11	25230-4	CONVEYOR CHAIN REPAIR FLITE (ELECTRIC MACHINES ONLY)
12	23651-1	7' NON-CHEVRON CONVEYOR CHAIN
13	23652-1	8' NON-CHEVRON CONVEYOR CHAIN
14	23651-9	9' NON-CHEVRON CONVEYOR CHAIN
15	23652-10	10' NON-CHEVRON CONVEYOR CHAIN

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

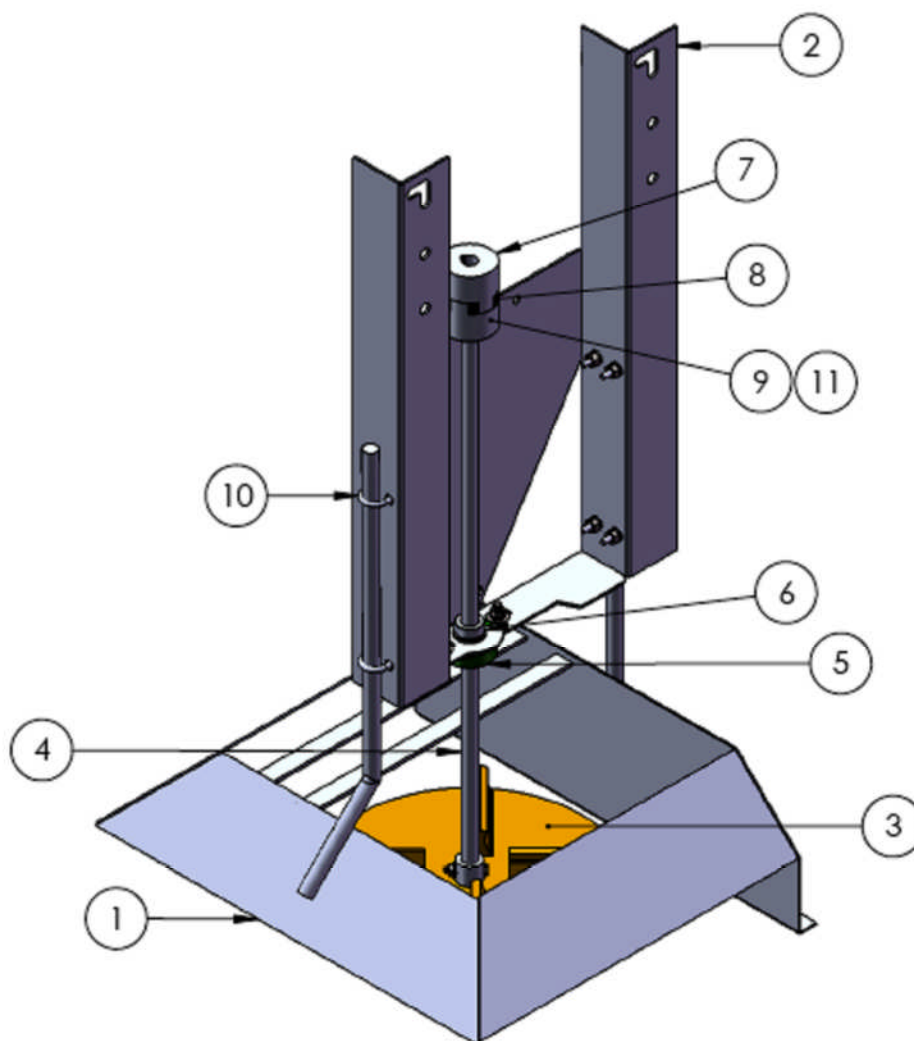
## STANDARD SPINNER ASSEMBLY HIGHLANDER JR.



ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	23648-1	23648-1A	DEFLECTOR FRAME
2	25641-1		SPINNER SUPPORT FRAME
3	60033-72		POLY SPINNER DISC W/ HUB
4	13268-1	13268-2	SPINNER SHAFT
5	60018-13		FLANGE BEARING
6	22501-7		LOCKING COLLAR
7	60011-14		COUPLING HALF-GEARBOX
8	60011-15		COUPLING INSERT
9	60011-13		COUPLING HALF-SPINNER SHAFT
10	13271-1		U-BOLT (W/O NUTS)
11	60019-6		KEY-SPINNER SHAFT TO COUPLING HALF
12	25779-20A		COMPLETE SPINNER ASSEMBLY (AS SHOWN)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

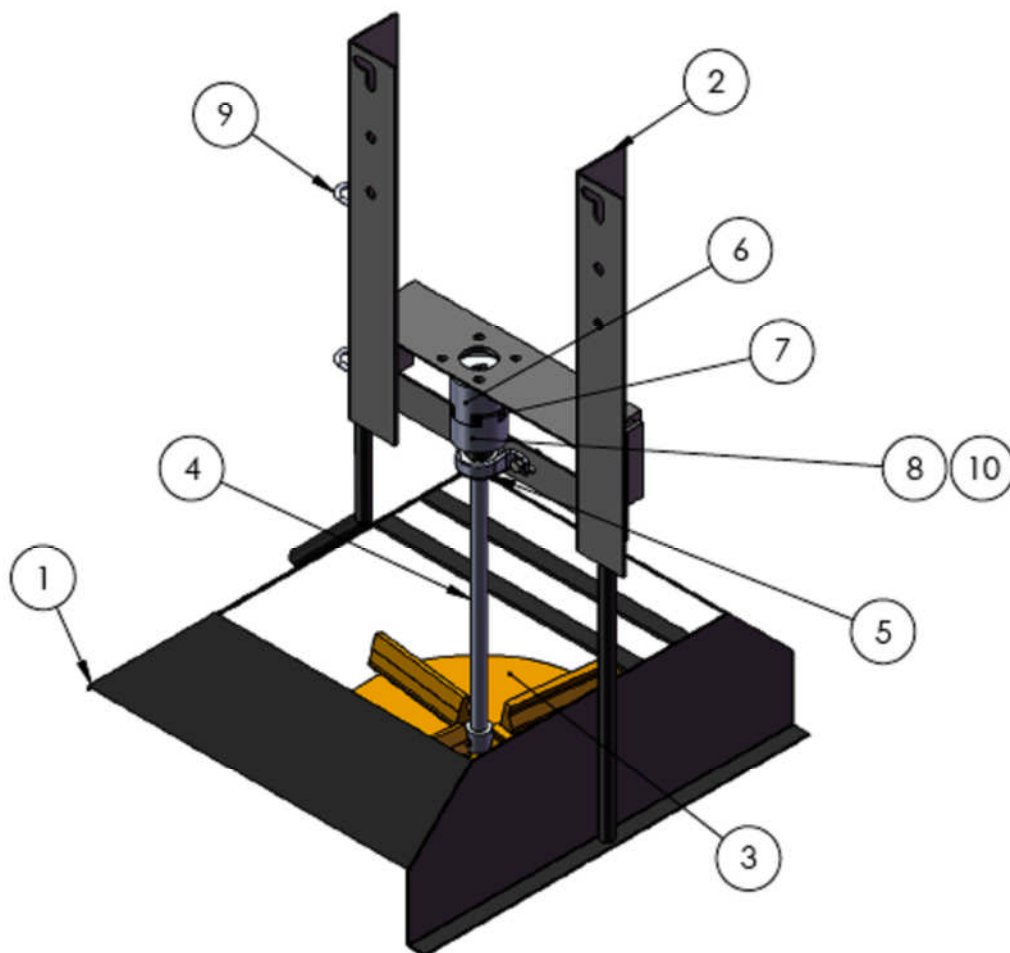
## EXTENDED SPINNER ASSEMBLY HIGHLANDER JR.



ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	23648-1	23648-1A	DEFLECTOR FRAME
2		25641-1A	SPINNER SUPPORT FRAME
3		60033-72	POLY SPINNER DISC W/ HUB
4	13268-1A	13268-2A	SPINNER SHAFT
5		60018-13	FLANGE BEARING
6		22501-7	LOCKING COLLAR
7		60011-14	COUPLING HALF-GEARBOX
8		60011-15	COUPLING INSERT
9		60011-13	COUPLING HALF-SPINNER SHAFT
10		13271-1	U-BOLT (W/O NUTS) (QTY. OF 4 REQUIRED)
11		60019-6	KEY-SHAFT TO COUPLING HALF
12		25779-20	COMPLETE SPINNER ASSEMBLY (AS SHOWN)

\*ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS\*

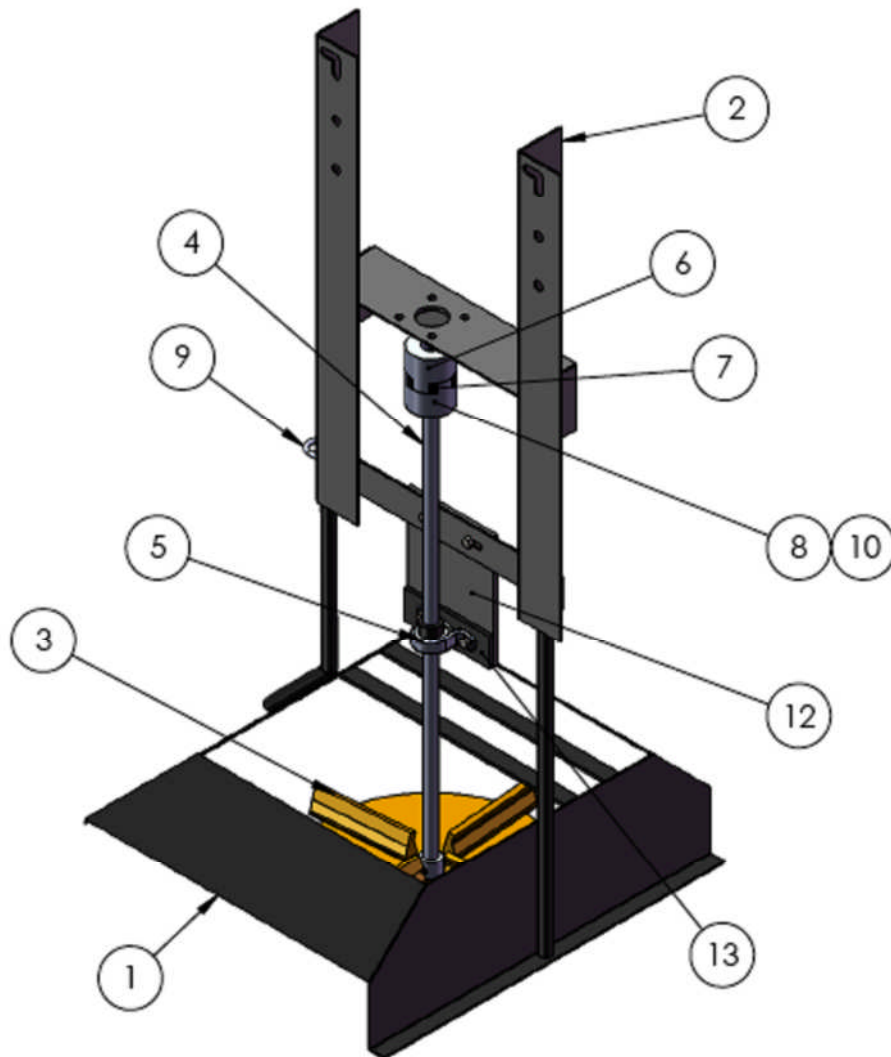
## DUAL MOTOR SPINNER ASSEMBLY HIGHLANDER JR.



ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	23648-1	23648-1A	DEFLECTOR FRAME
2		23644-1C	SPINNER SUPPORT FRAME
3		60033-72	POLY SPINNER DISC W/ HUB
4	13268-1	13268-2	SPINNER SHAFT
5		21680-13	FLANGE BEARING
6		60011-14	COUPLING HALF-GEARBOX
7		60011-15	COUPLING INSERT
8		60011-13	COUPLING HALF-SPINNER SHAFT
9		13271-1	U-BOLT (W/O NUTS)
10		60019-6	KEY-SHAFT TO COUPLING HALF
11		25779-1B	COMPLETE SPINNER ASSEMBLY (AS SHOWN)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

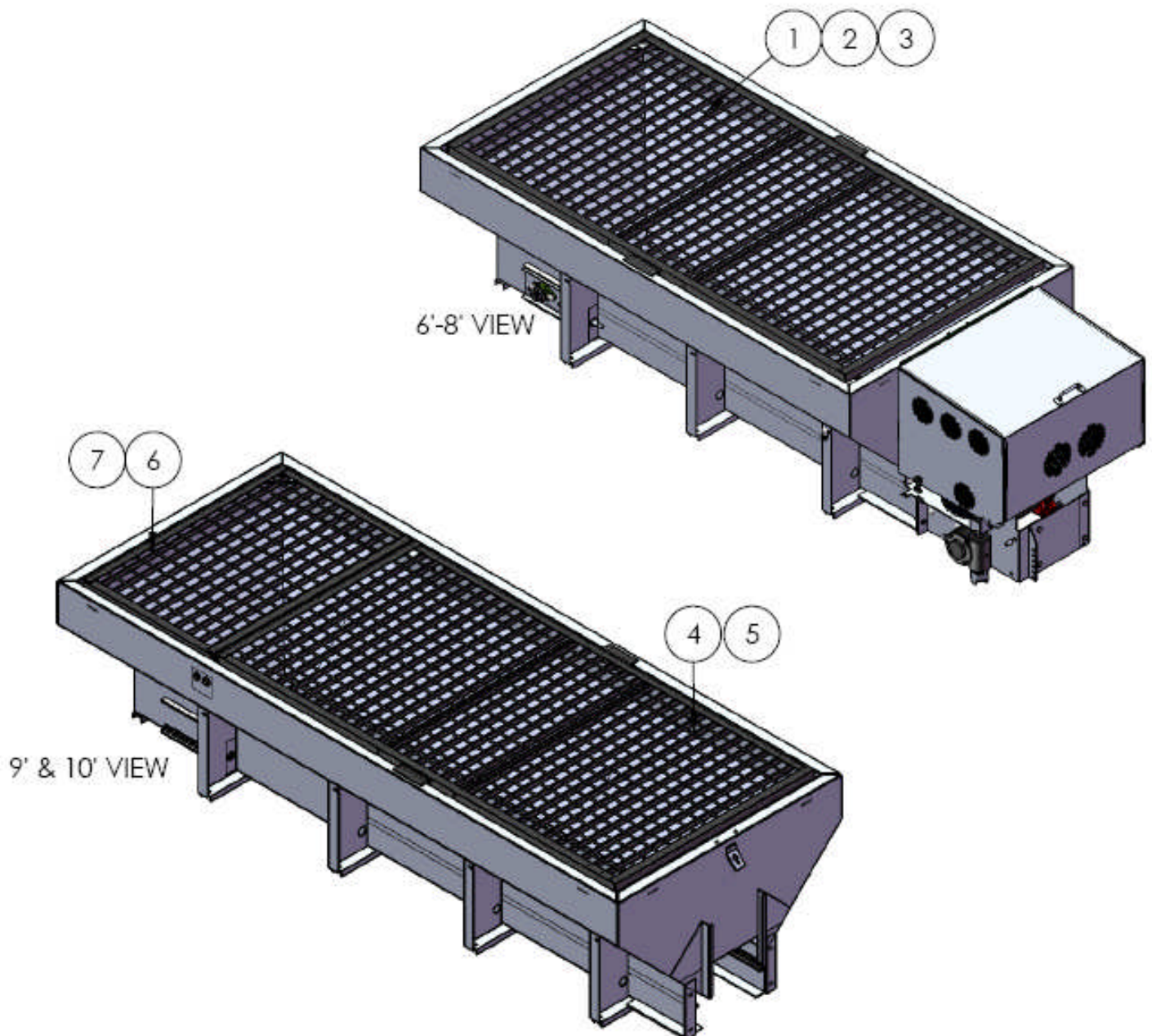
## DUAL MOTOR EXTENDED SPINNER ASSEMBLY HIGHLANDER JR.



ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	23648-1	23648-1A	DEFLECTOR FRAME
2		23644-1B	SPINNER SUPPORT FRAME
3		60033-72	POLY SPINNER DISC W/ HUB
4	13268-1A	13268-2A	SPINNER SHAFT
5		21680-13	FLANGE BEARING
6		60011-14	COUPLING HALF-GEARBOX
7		60011-15	COUPLING INSERT
8		60011-13	COUPLING HALF-SPINNER SHAFT
9		13271-1	U-BOLT (W/O NUTS)
10		60019-6	KEY-SHAFT TO COUPLING HALF
11		25779-20C	COMPLETE SPINNER ASSEMBLY (AS SHOWN)
12		14738-1	BEARING EXTENDER PLATE
13		14738-2	BEARING EXTENDER SPACER

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

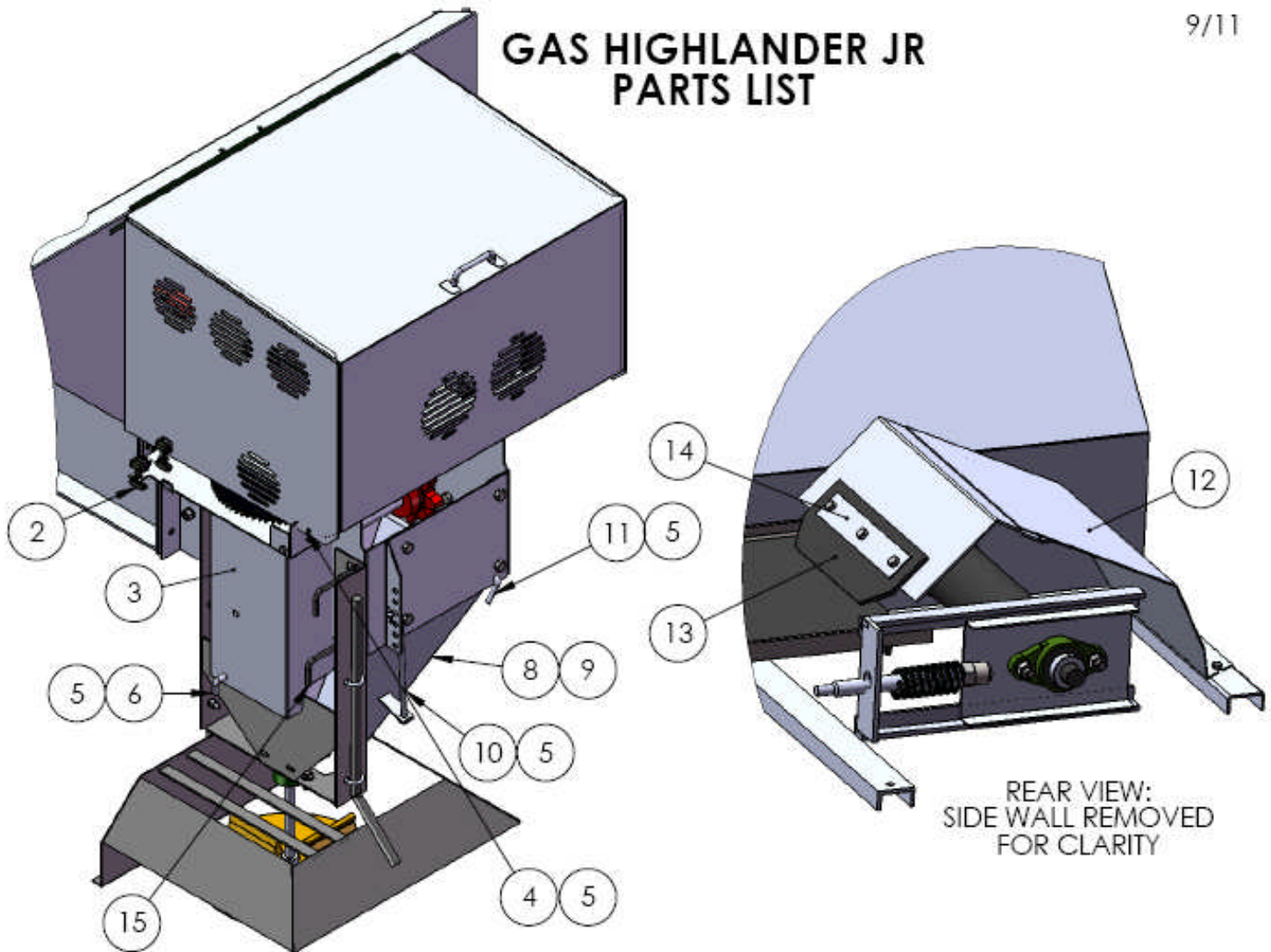
## HIGHLANDER JR TOP SCREEN PARTS LIST



ITEM	PART NUMBER	DESCRIPTION
1	22519-1E	6' H.D. TOP SCREEN
2	22519-1A	7' H.D. TOP SCREEN
3	22519-1	8' H.D. TOP SCREEN
4	22519-1A	9' H.D. TOP SCREEN (INCLUDES ITEM 6)
5	22519-1	10' H.D. TOP SCREEN (INCLUDES ITEM 6)
6	25208-1	9' & 10' TOP SCREEN EXTENSION
7	14406-1	TOP SCREEN EXTENSION SUPPORT (2 PER MACHINE)
8	60033-53	TOP SCREEN HOLD DOWN U-BOLT (2 REQUIRED FOR 6'-8' MACHINES & 3 REQUIRED FOR 9' & 10' MACHINES)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

## GAS HIGHLANDER JR PARTS LIST

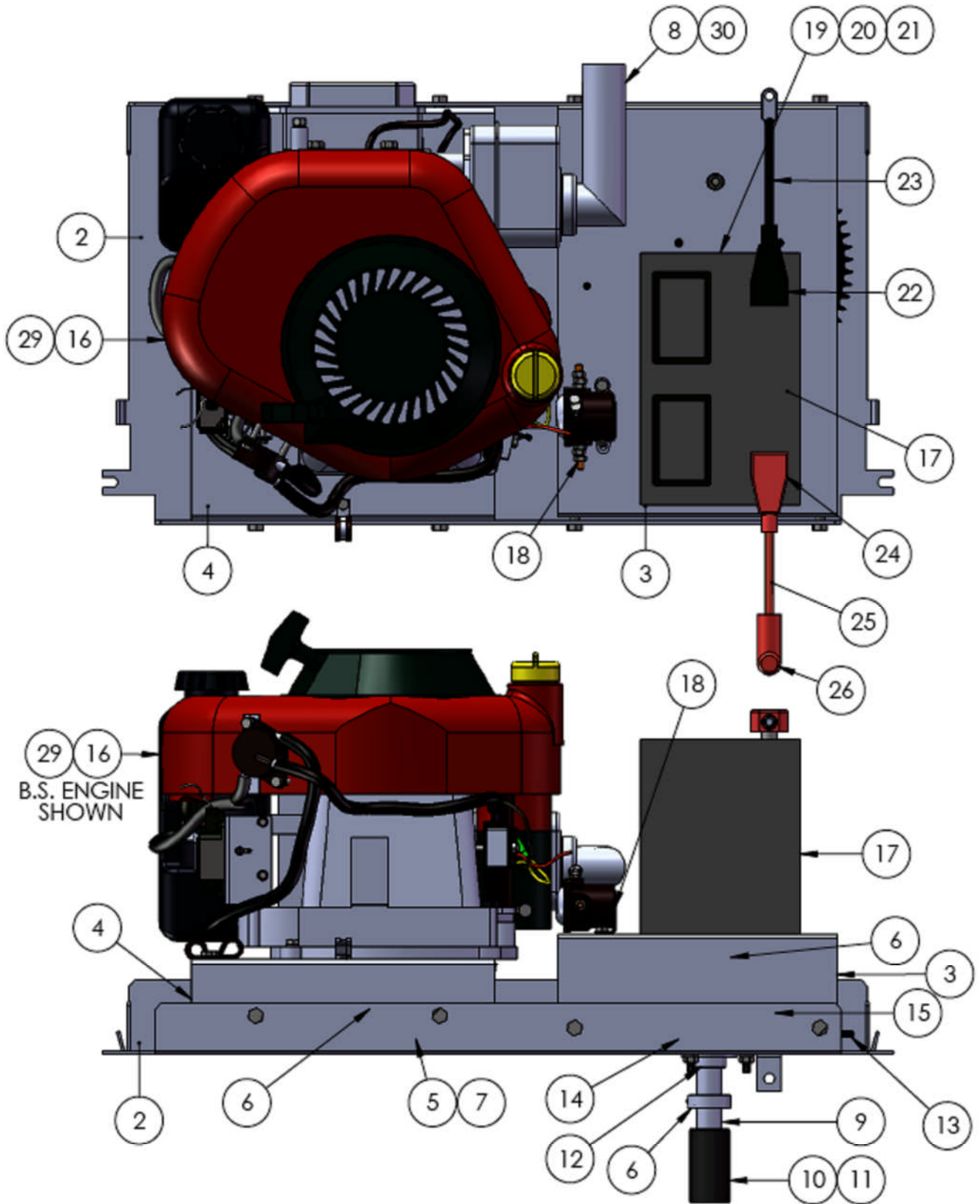


REAR VIEW:  
SIDE WALL REMOVED  
FOR CLARITY

ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	31916-1	31916-11	ENGINE HOOD (INCLUDES ITEM 2)
2		60033-50	ENGINE HOOD JEEP CATCH
3		14413-1	GEARBOX COVER (INCLUDES ITEMS 4, 5 & 6)
4		14417-1	GEARBOX COVER PIN
5		9001-1	CLIP PIN
6		11649-1	PIN
7	22669-1	22669-2	WEARPLATE EXTENSION (NOT SHOWN)
8	23675-1	23676-1	STD DISCHARGE CHUTE (INCLUDES ITEMS 12, 13 & 5)
9	23675-1A	23676-1A	EXT'D DISCHARGE CHUTE (INCLUDES ITEMS 12, 13 & 5)
10		13269-1	CHUTE ADJUSTING ROD
11		13270-1	CHUTE MOUNTING PIVOT ROD
12	14399-1	14399-4	CONVEYOR CHAIN GUARD
13		14401-1	CAB END RUBBER WIPER
14	14103-1	14103-2	CAB END RUBBER WIPER KEEPER
15		13267-1	"L" BOLT (QTY. 4 REQUIRED)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

# HIGHLANDER JR ENGINE BASE ASSEMBLY PARTS LIST



29 16  
B.S. ENGINE  
SHOWN

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

## HIGHLANDER JR ENGINE BASE ASSEMBLY PARTS LIST

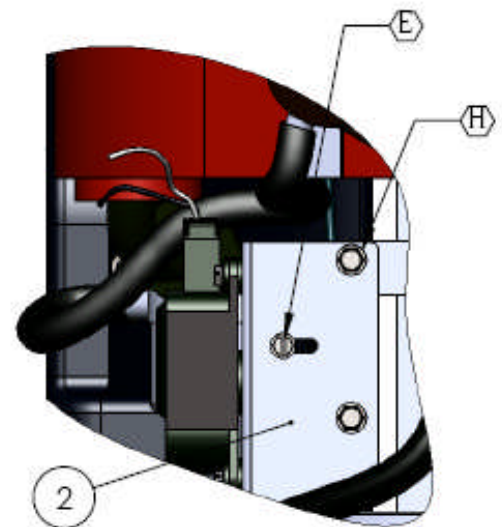
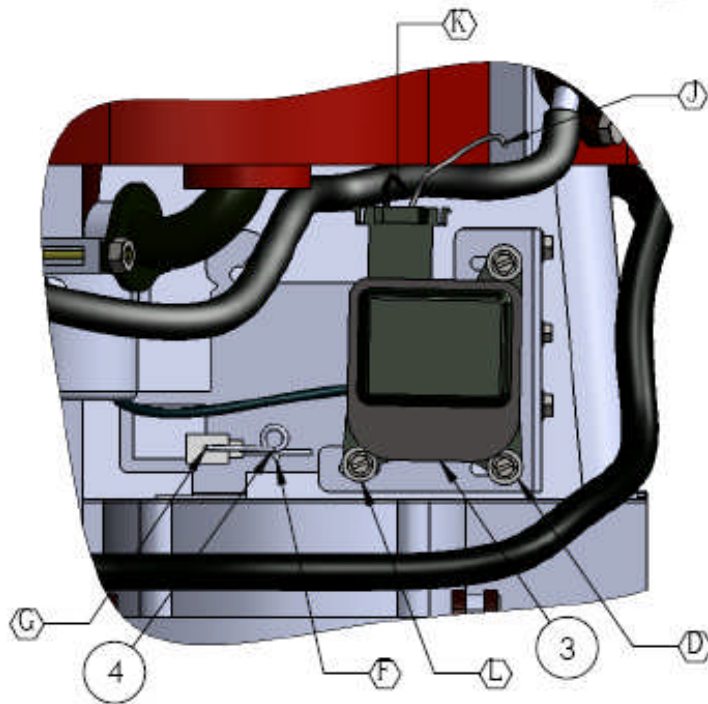
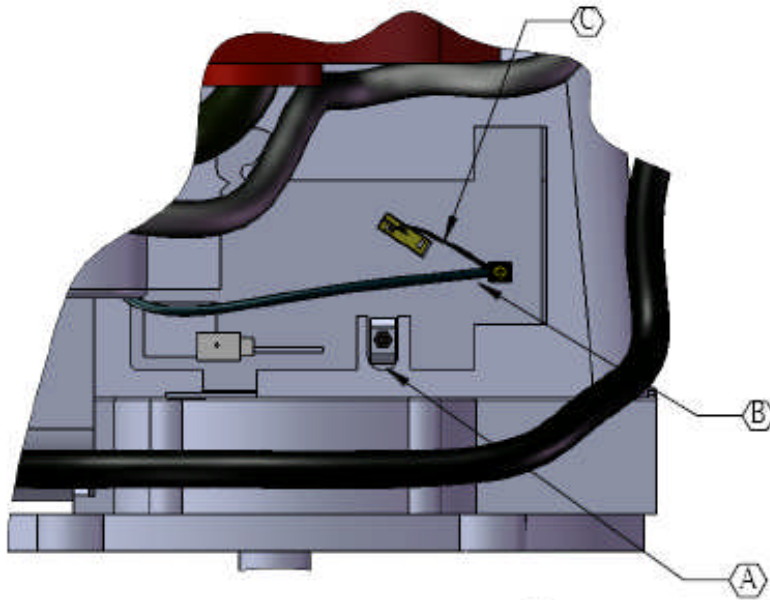
ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	31917-1	31917-81	COMPLETE ASSEMBLY
2	25206-1	25206-6	ENGINE BASE BOTTOM TRAY (INCLUDES ITEM 12)
3	25540-1	25540-2	BATTERY TRAY
4	25193-1	25193-2	ENGINE TRAY
5	9026-4		ENGINE SPROCKET
6	30356-12		SAFETY COLLAR
7	60019-2		KEY-ENGINE SPROCKET
8	14408-1		B. & S. 11.5 HP ENGINE EXHAUST EXTENSION
9	12251-1		CLUTCH SHAFT
10	9063-5		COUPLER
11	60019-3		KEY-COUPLER TO CLUTCH SHAFT
12	40353-28		FLANGE BEARING
13	13343-1		CLUTCH SPROCKET
14	13347-1		CLUTCH SPACER
15	60015-3		ELECTRIC CLUTCH
16	60027-11		B. & S. ENGINE (11.5 HP I/C)
17	9017-1A		BATTERY
18	9012-8		STARTER SOLENOID
19	35435		BATTERY TRAY
20	9017-5		BATTERY CROSS BAR
21	32058		"J" HOOK BATTERY BOLT (QTY 2)
22	60013-86		BLACK BATTERY TERMINAL INSULATOR
23	9043-2		BLACK BATTERY CABLE
24	60013-73		RED BATTERY TERMINAL INSULATOR
25	9043-15		RED BATTERY CABLE
26	60013-128		RED INSULATOR BOOT
27	40676-8		DRIVE CHAIN W/ MASTER LINK (NOT SHOWN)
28	9027-2		MASTER LINK FOR DRIVE CHAIN (NOT SHOWN)
29	60027-10		HONDA ENGINE (11.0 HP I/C)
30	SK-3424		HONDA 11.0 HP ENGINE EXHAUST EXTENSION

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

# HIGHLANDER JR ELECTRIC THROTTLE ACTUATOR INSTALLATION PROCEDURE B&S ENGINE

## PROCEDURE:

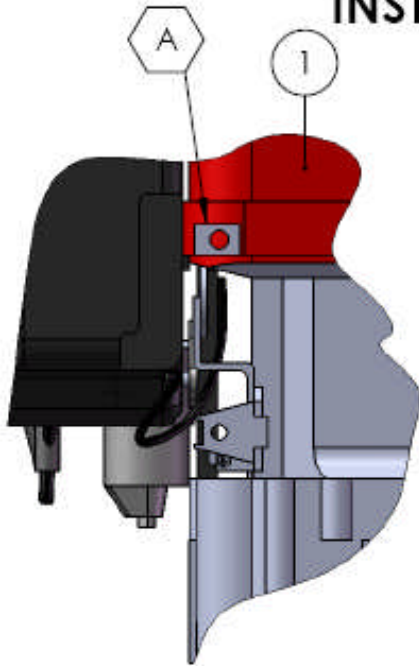
- A. BREAK TAB OFF.
- B. CUT BLK WIRE & SPLICE TO WHT WIRE FROM CONTROL BOX.
- C. REMOVE BLK WIRE AND BOTH CLIPS.
- D. BOLT ACTUATOR TO THROTTLE BRACKET.
- E. ATTACH STOP SCREW TO THROTTLE BRACKET IN EXISTING HOLE.
- F. ATTACH THROTTLE WIRE TO ACTUATOR USING MUSHROOM CAP.
- G. ATTACH THROTTLE WIRE TO PLASTIC SLIDER.
- H. ATTACH THROTTLE BRACKET TO EXISTING ENGINE BRACKET.
- J. SPLICE WHT WIRE FROM ACTUATOR TO RED WIRE FROM CONTROL BOX.
- K. SPLICE BLK WIRE FROM ACTUATOR TO BRN WIRE FROM CONTROL BOX.
- L. CYCLE THROTTLE ACTION - ADJUST THROTTLE ACTUATOR OR BRACKET TO GAIN "FULL CHOKE" POSITION. RETIGHTEN THE (3) MOUNTING SCREWS.



ITEM	PART NUMBER	DESCRIPTION
1	60027-11	BRIGGS & STRATTON 11 H.P. GAS ENGINE
2	SK-2876	B&S THROTTLE BRACKET
3	60026-9	THROTTLE ACTUATOR
4	14397-1	THROTTLE WIRE
5	60033-67	MUSHROOM CAP (NOT SHOWN)
6	SK-2882-1	COMPLETE ASSEMBLY KIT - (ENGINE NOT INCLUDED) (INCLUDES ITEMS # 2 - 5)

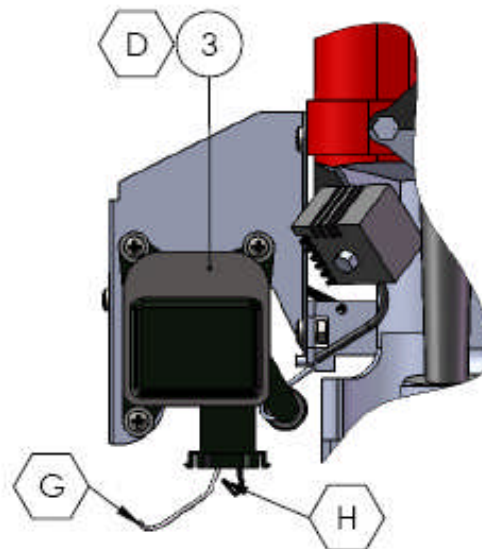
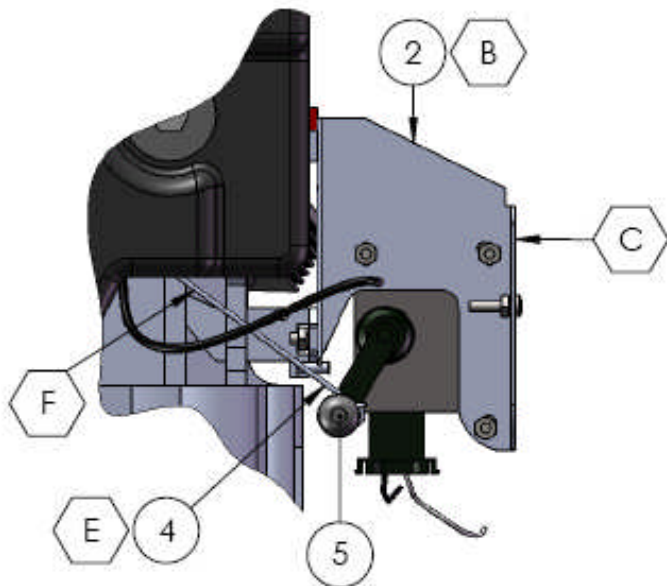
"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

# HIGHLANDER JR ELECTRIC THROTTLE ACTUATOR INSTALLATION PROCEDURE HONDA ENGINE



## PROCEDURE:

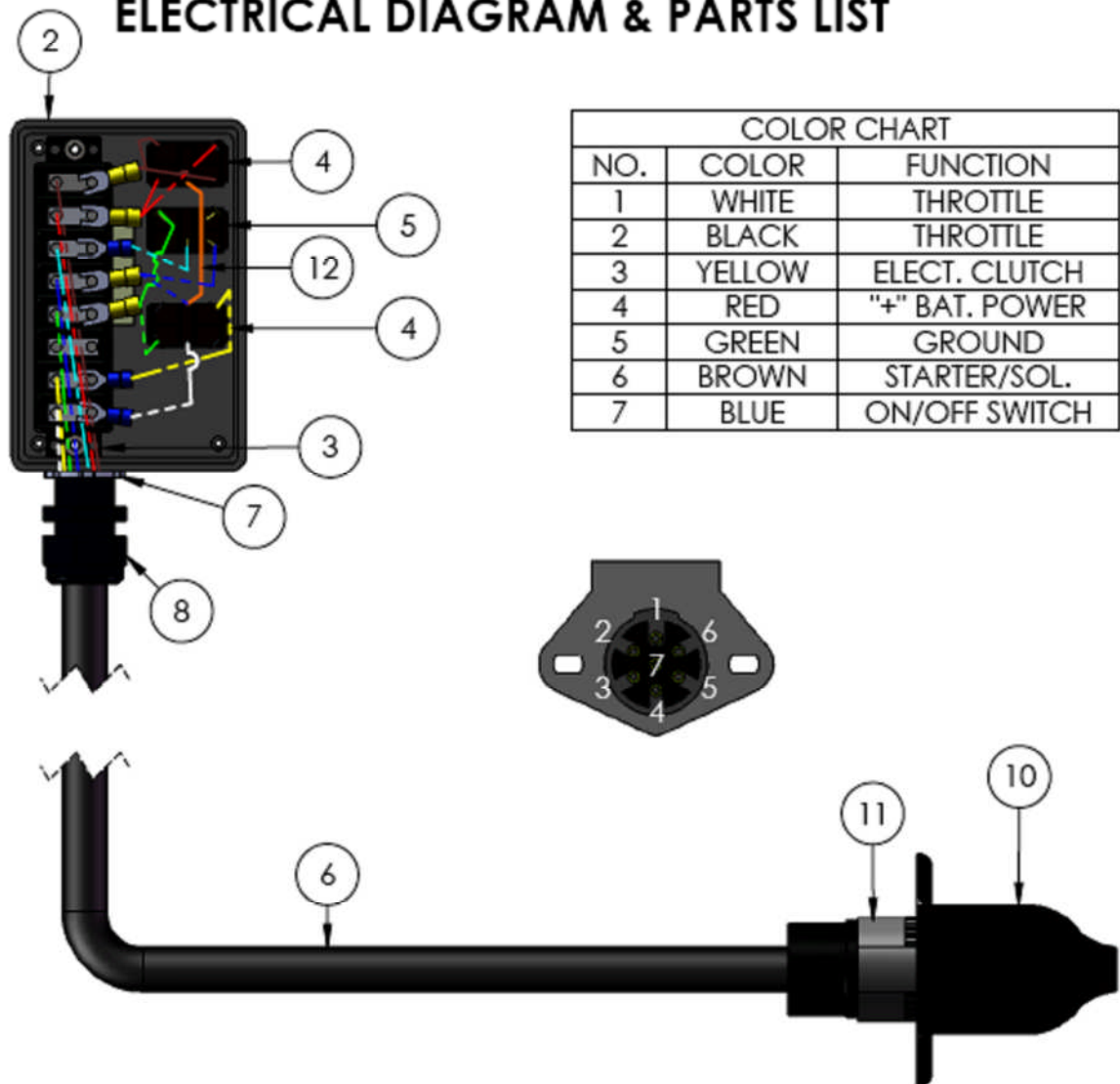
- A. REMOVE TAB.
- B. SPLICE BLK WIRE TO WHT WIRE FROM CONTROL BOX.
- C. ATTACH ITEM 2 TO EXISTING ENGINE BRACKET.
- D. ATTACH ITEM 3 TO BRACKET.
- E. ATTACH THROTTLE WIRE TO ACTUATOR USING ITEM 5.
- F. ATTACH THROTTLE WIRE TO SLIDER.
- G. SPLICE WHT WIRE FROM ACTUATOR TO RED WIRE FROM CONTROL BOX.
- H. SPLICE BLK WIRE FROM ACTUATOR TO BRN WIRE FROM CONTROL BOX.



ITEM	PART NUMBER	DESCRIPTION
1	60027-10	11 H.P. HONDA ENGINE
2	25333-1	THROTTLE BRACKET
3	60026-9	THROTTLE ACTUATOR
4	14398-1	THROTTLE WIRE
5	60033-67	MUSHROOM CAP
6	SK-2882-2	COMPLETE ASSEMBLY KIT (ENGINE NOT INCLUDED)

\*ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS\*

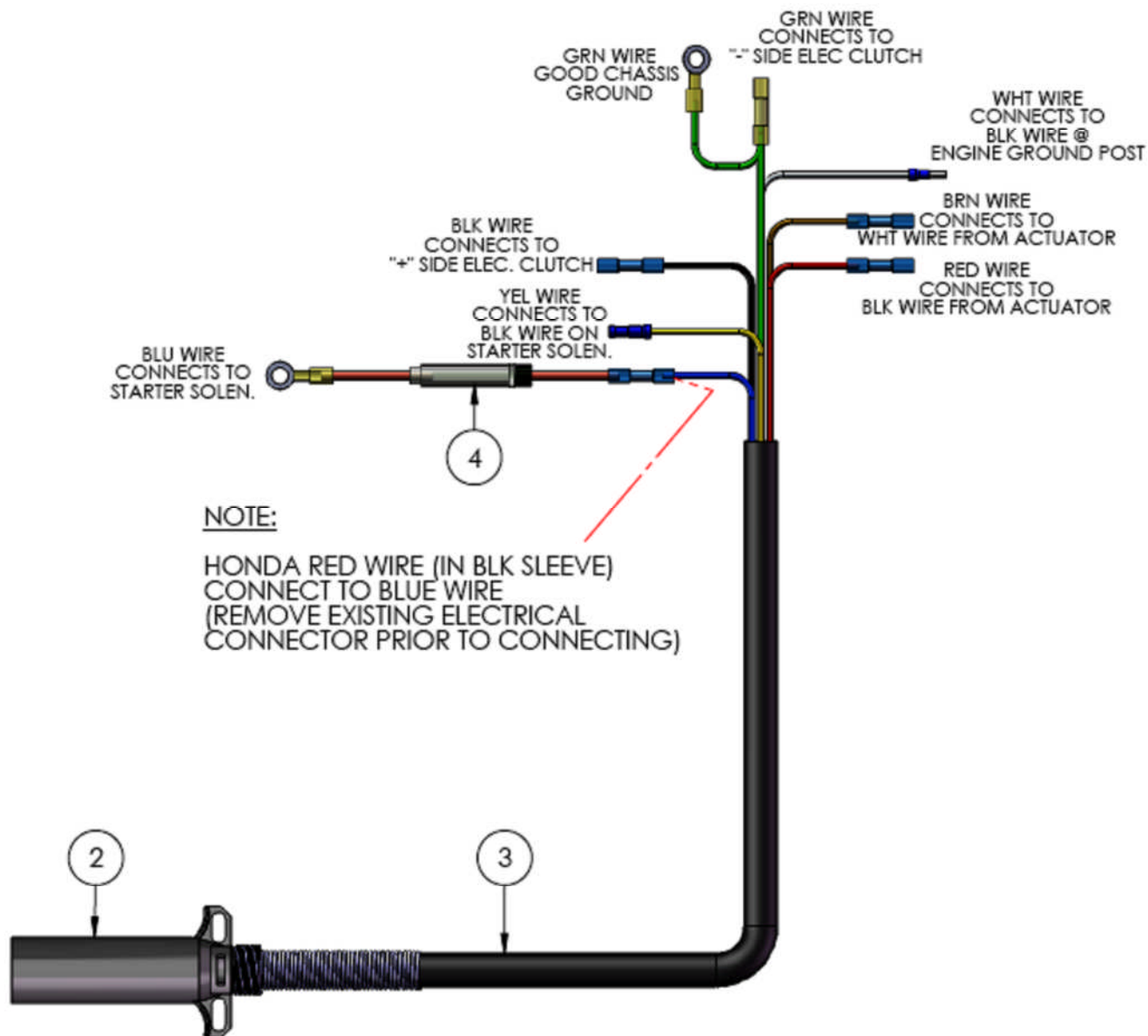
## CAB CONTROL BOX ELECTRICAL DIAGRAM & PARTS LIST



ITEM	PART NUMBER	DESCRIPTION
1	25232-1	CONTROL BOX COMPLETE ASSEMBLY
2	60013-88	PLASTIC BOX
3	60013-89	TERMINAL STRIP
4	60013-90	TOGGLE SWITCH MOMENTARY ON/OFF/ON
5	60013-91	TOGGLE SWITCH W/ LIGHT CLUTCH
6	9013-4	7 WIRE CABLE
7	9042-2	CONDUIT NUT
8	60033-39	STRAIN RELIEF
9	60033-29	RESISTOR
10	9014-3F	FEMALE CONNECTOR
11	9014-4	RUBBER BOOT
12	9056-37	10WATT/40HM RESISTOR
13	7500-104	CONTROL BOX LABEL (NOT SHOWN)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

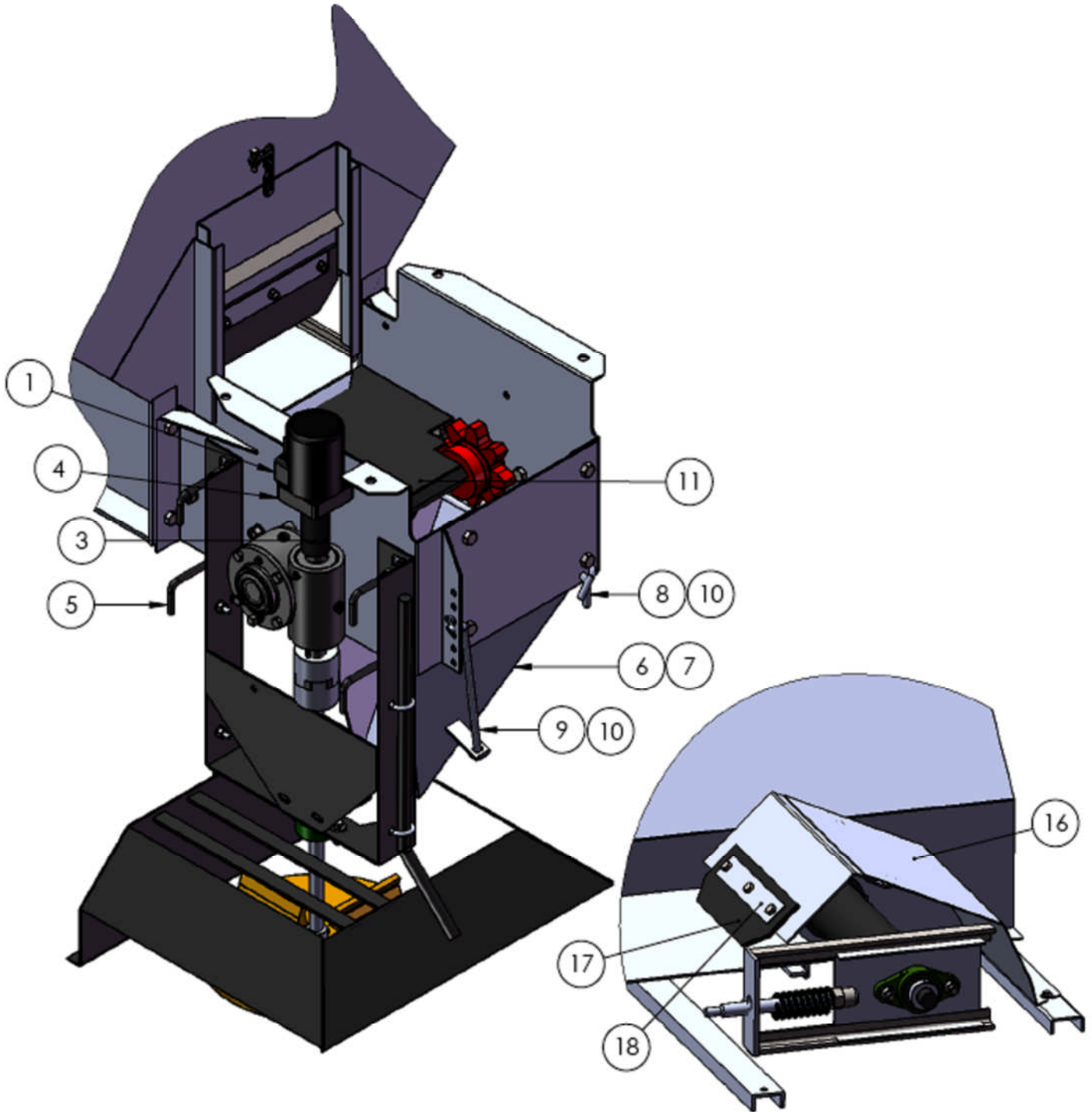
## HONDA ENGINE SIDE ELECTRICAL DIAGRAM & PARTS LIST



ITEM	PART NUMBER	DESCRIPTION
1	24096-10	ENGINE SIDE ELECTRICAL COMPONENTS (AS SHOWN ABOVE)
2	9014-3M	MALE CONNECTOR (CABLE PROTECTOR SPRING INCLUDED)
3	9013-4	7 WIRE CABLE
4	9090-1	20 AMP IN-LINE FUSE

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

# HYDRAULIC HIGHLANDER JR PARTS LIST



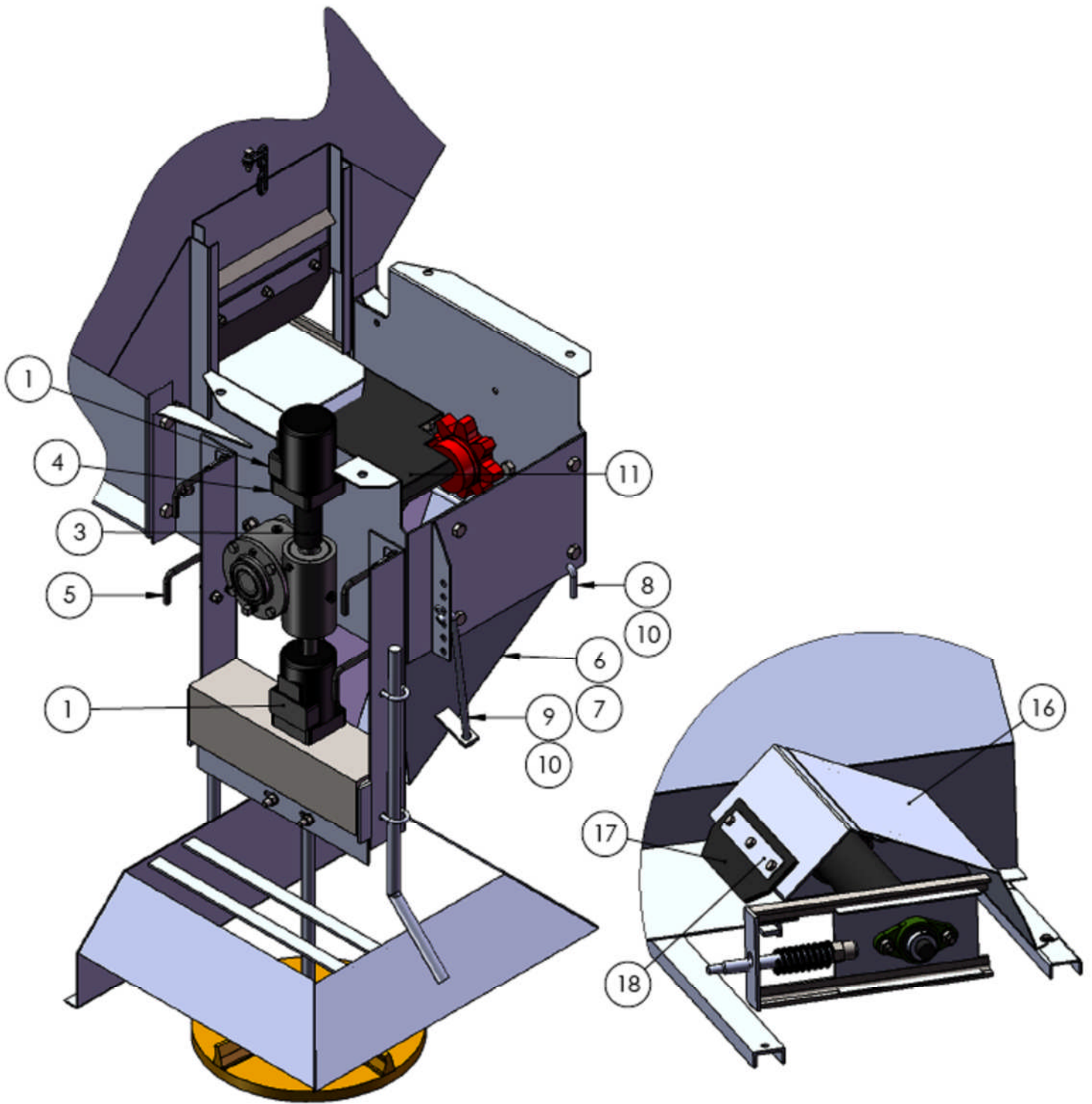
"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

## HYDRAULIC HIGHLANDER JR PARTS LIST

ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1		60005-2	HYDRAULIC MOTOR
2		12457-2	KEY-GEARBOX TO COUPLING HALF
3		9063-5	SHAFT COUPLING
4		13992-1	MOTOR MOUNTING BRACKET
5		13267-1	"L" BOLT (QTY. 4 REQUIRED)
6	23675-1	23676-1	ST'D DISCHARGE CHUTE (INCLUDES ITEMS 8, 9 & 10)
7	23675-1A	23676-1A	EXT'D DISCHARGE CHUTE (INCLUDES ITEMS 8, 9 & 10)
8		13270-1	CHUTE MOUNTING PIVOT ROD
9		13269-1	CHUTE ADJUSTING ROD
10		9001-1	PIN CLIP
11	22669-1	22669-2	WEARPLATE EXTENSION
12		22949-1	3/4" L.P. HOSE KIT W/ ENDS & CLAMPS (NOT SHOWN)
13		9029-1	3/4" L.P. HOSE W/O ENDS & CLAMPS (NOT SHOWN)
14		60010-6	1/2" H.P. HOSE KIT WITH ENDS (NOT SHOWN)
15		21886-24	1/2" QUICK COUPLER KIT - M, F, PLUG & CAP (NOT SHOWN)
16	14399-1	14399-4	CONVEYOR CHAIN GUARD
17		14401-1	CAB END RUBBER WIPER
18	14103-1	14103-2	CAB END RUBBER WIPER KEEPER
19		11434-1A	HYDRAULIC MOTOR SEAL KIT (NOT SHOWN)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

# DUAL HYDRAULIC HIGHLANDER JR PARTS LIST



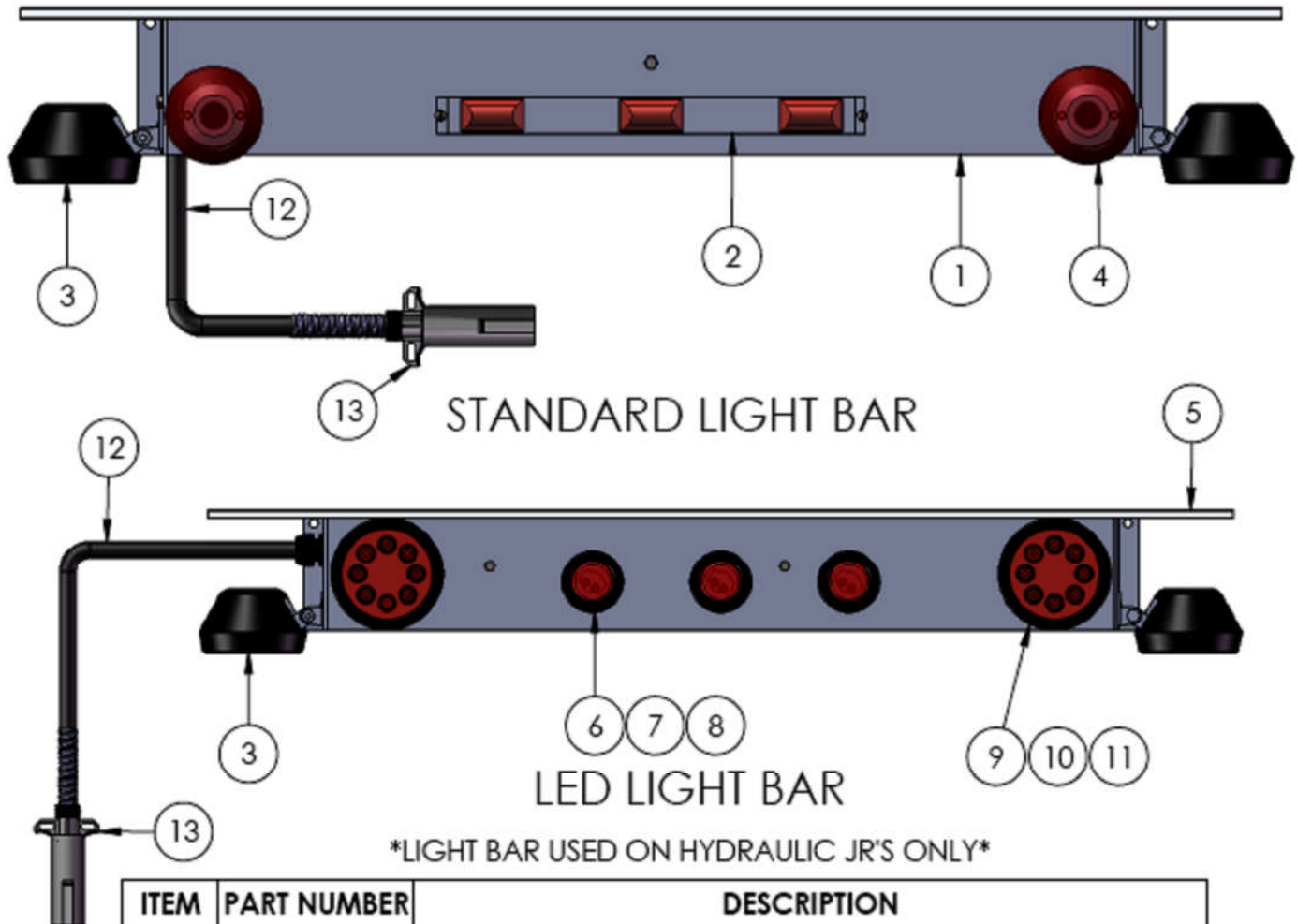
"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

## DUAL HYDRAULIC HIGHLANDER JR PARTS LIST

ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	60005-2		HYDRAULIC MOTOR
2			
3	9063-5		SHAFT COUPLING
4	13992-1		MOTOR MOUNTING BRACKET
5	13267-1		"L" BOLT (QTY. REQUIRED)
6	23675-1	23676-1	ST'D DISCHARGE CHUTE (INCLUDES ITEMS 8, 9 & 10)
7	23675-1A	23676-1A	EXT'D DISCHARGE CHUTE (INCLUDES ITEMS 8, 9 & 10)
8	13270-1		CHUTE MOUNTING PIVOT ROD
9	13269-1		CHUTE ADJUSTING ROD
10	9001-1		PIN CLIP
11	22669-1	22669-2	WEARPLATE EXTENSION
12	22949-1		3/4" L.P. HOSE KIT W/ ENDS & CLAMPS (NOT SHOWN)
13	9029-1		3/4" L.P. HOSE W/O ENDS & CLAMPS (NOT SHOWN)
14	60010-6		1/2" H.P. HOSE KIT WITH ENDS (NOT SHOWN)
15	21886-24		1/2" QUICK COUPLER KIT - M, F, PLUG & CAP (NOT SHOWN)
16	14399-1	14399-4	CONVEYOR CHAIN GUARD
17	14401-1		CAB END RUBBER WIPER
18	14103-1	14103-2	CAB END RUBBER WIPER KEEPER
19	11434-1A		HYDRAULIC MOTOR SEAL KIT (NOT SHOWN)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

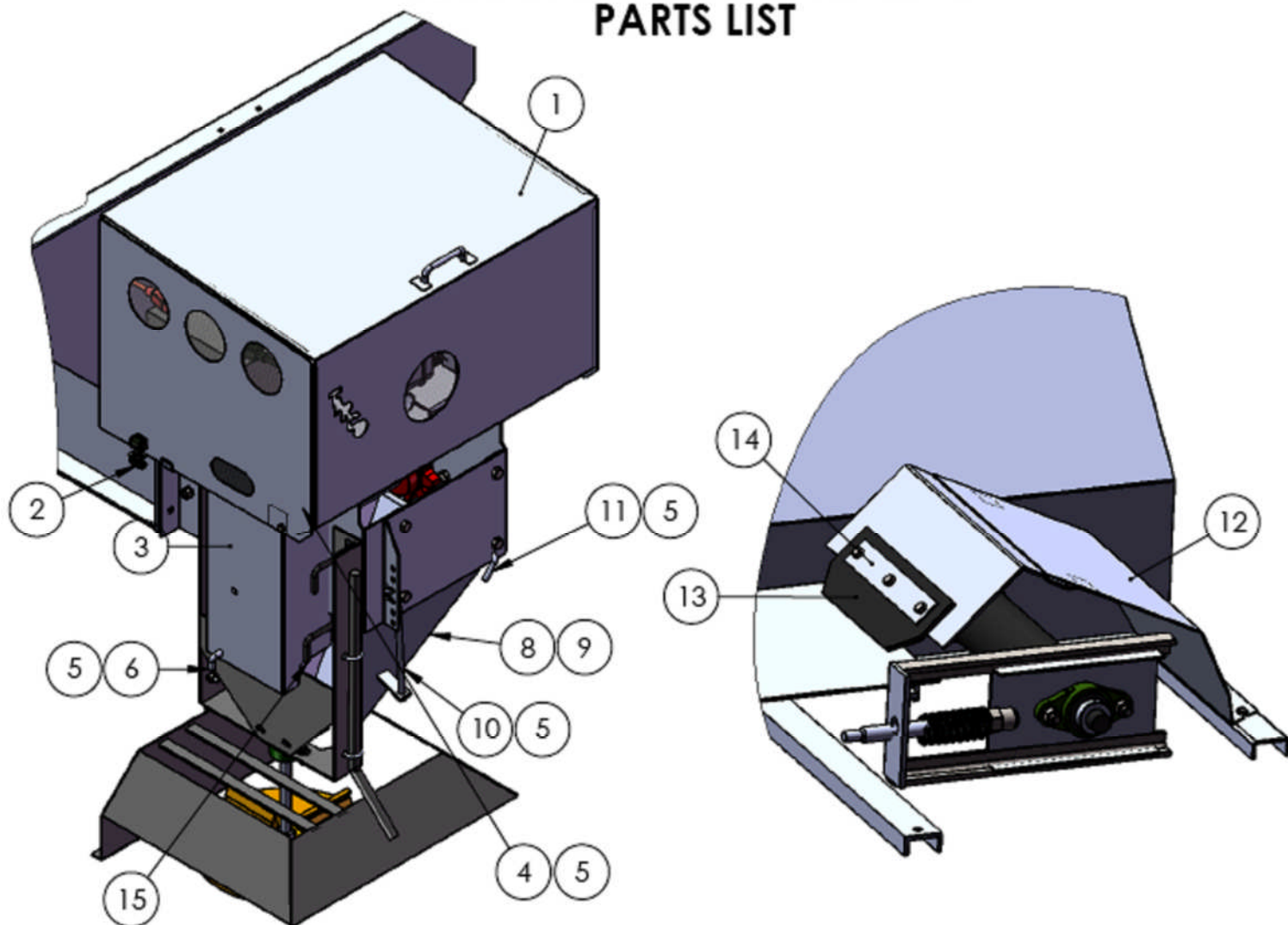
## HIGHLANDER JR LIGHT BAR OPTION COMPONENTS



ITEM	PART NUMBER	DESCRIPTION
1	25183-1	LIGHT BAR BRACKET
2	12007-2	3 LIGHT CLUSTER
3	11819-1	SPOT LIGHT
4	21845-5	TAIL LIGHT
5	25183-1A	LED LIGHT BAR BRACKET
6	60013-92	2" LED RED LIGHT
7	60013-93	2" GROMMET W/ PIGTAIL
8	60013-120	2" LED LIGHT PIGTAIL
9	60013-123	4" LED RED LIGHT
10	60013-115	4" GROMMET
11	33359	4" LED LIGHT PIGTAIL
12	9013-4	7 COND. CABLE (CUSTOMER TO VERIFY LENGTH)
13	9014-3M	MALE CONNECTOR (CABLE PROTECTOR SPRING INCL.)
14	60033-39	STRAIN RELIEF (NOT SHOWN)
15	32114-30	STD LIGHT BAR WIRING HARNESS
16	32114-30A	LED LIGHT BAR WIRING HARNESS

"ALWAYS GIVE PART NAME, NUMBER & MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

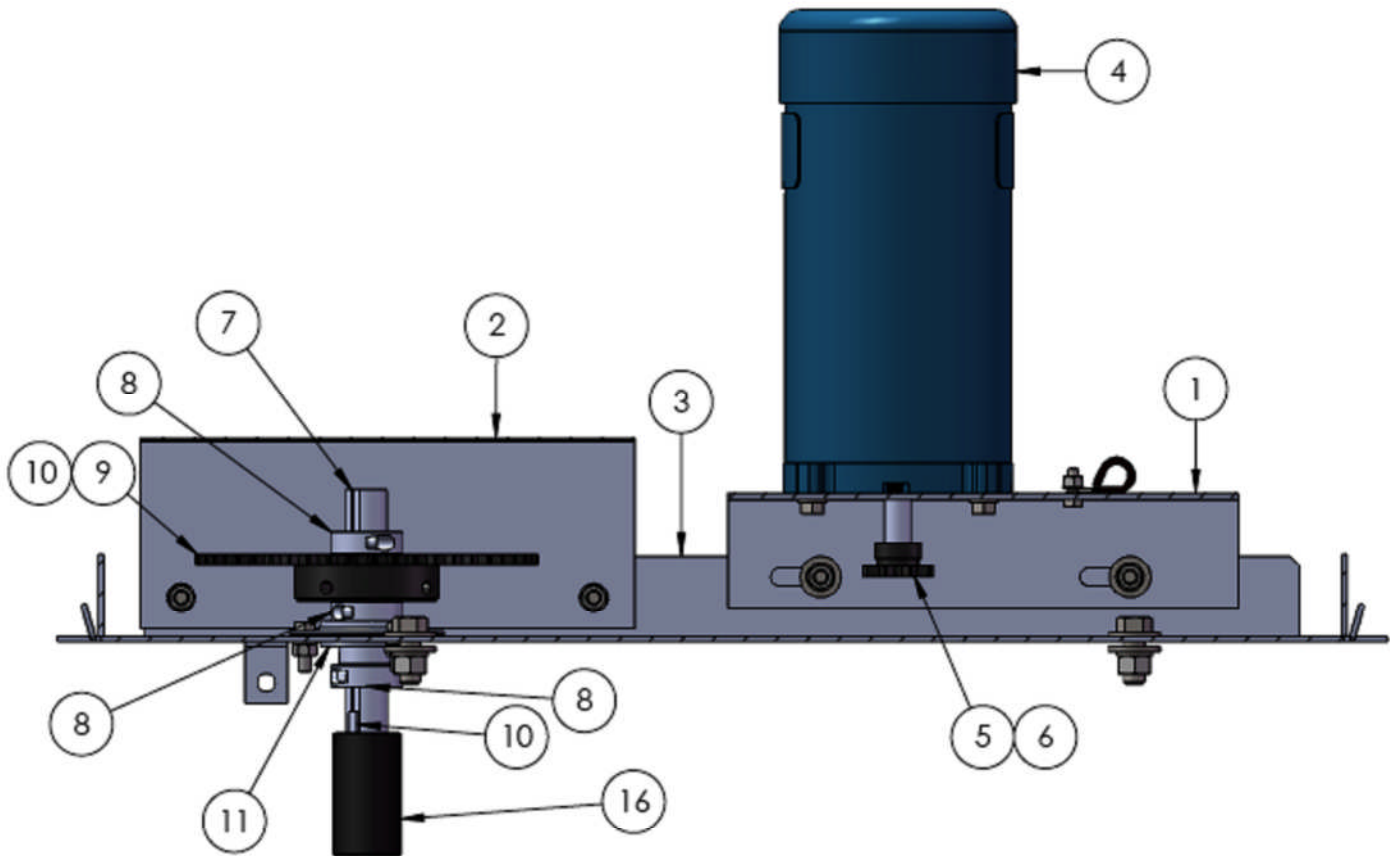
## ELECTRICAL HIGHLANDER JR PARTS LIST



ITEM	PART NUMBER (HR)	PART NUMBER (STAINLESS)	DESCRIPTION
1	31916-1	31916-11	ENGINE HOOD (INCLUDES ITEM 2)
2	60033-50		ENGINE HOOD JEEP CATCH
3	14413-1		GEARBOX COVER (INCLUDES ITEMS 4, 5 & 6)
4	14417-1		GEARBOX COVER PIN
5	9001-1		CLIP PIN
6	11649-1		PIN
7	22669-1A	22669-2A	WEARPLATE EXTENSION (NOT SHOWN)
8	23675-1	23676-1	STD DISCHARGE CHUTE(INCLUDES ITEMS 10, 11 & 5)
9	23675-1A	23676-1A	EXT'D DISCHARGE CHUTE(INCLUDES ITEMS 10, 11 & 5)
10	13269-1		CHUTE ADJUSTING ROD
11	13270-1		CHUTE MOUNTING PIVOT ROD
12	14399-1	14399-4	CONVEYOR CHAIN GUARD
13	14401-1		CAB END RUBBER WIPER
14	14103-1	14103-2	CAB END RUBBER WIPER KEEPER
15	13267-1		"L" BOLT (QTY. 4 REQUIRED)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

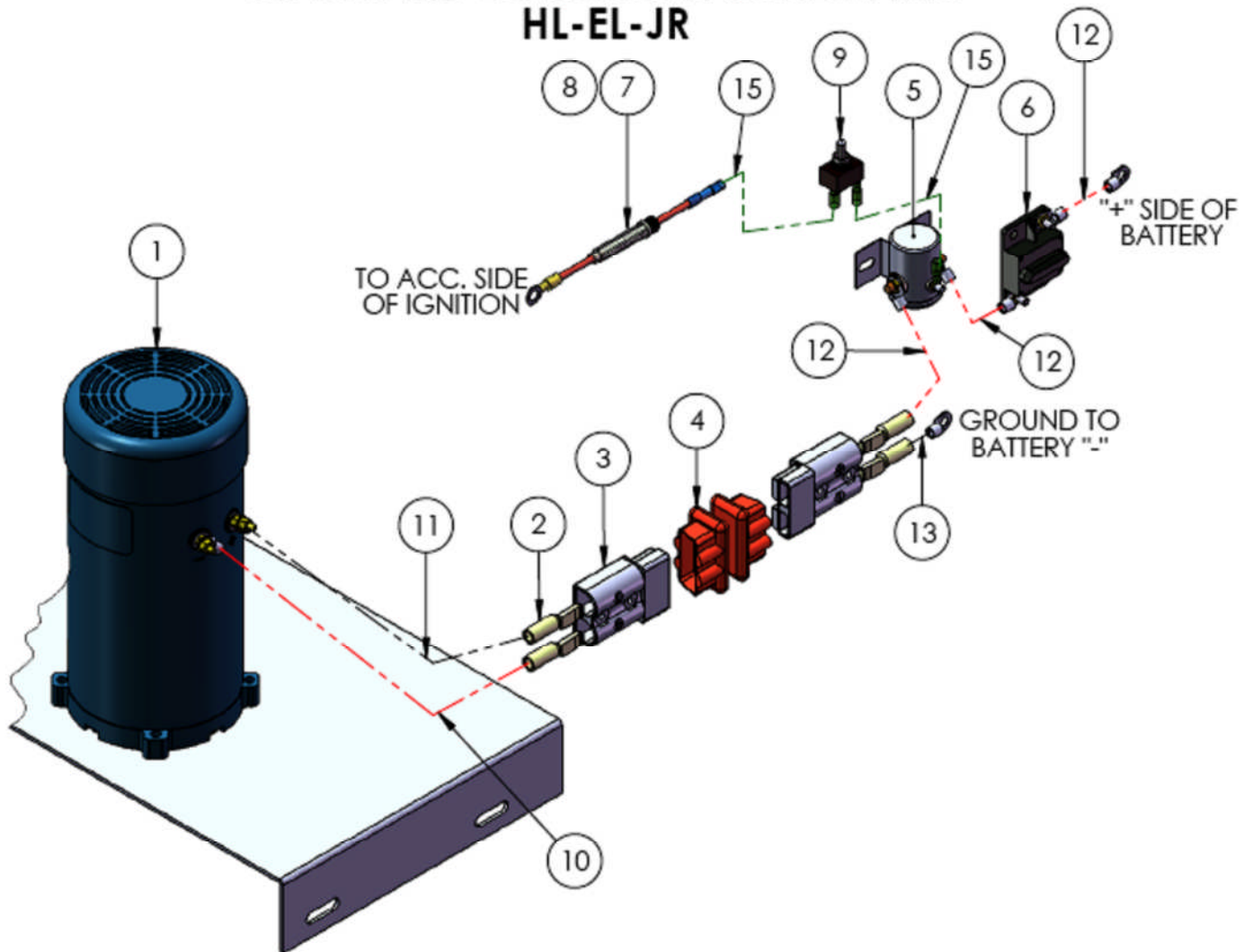
## HIGHLANDER JR ELECTRIC MOTOR BASE ASSEMBLY PARTS LIST



ITEM	PART NUMBER (HR)	PART NUMBER (SS)	DESCRIPTION
1	25227-1	25227-2	MOTOR BASE TRAY
2	25540-1A	25540-2A	CHAIN GUARD
3	25206-1	25206-6	MOTOR BOTTOM TRAY (INCLUDES ITEM 11)
4	60013-102		3/4 H.P. ELECTRIC MOTOR
5	60028-9		SPROCKET-ELECTRIC MOTOR
6	60019-6		MOTOR SPROCKET KEY
7	12251-1		OUTPUT SHAFT
8	30356-12		SAFETY COLLAR
9	60028-8		OUTPUT SPROCKET
10	60019-2		KEY
11	40353-28		FLANGE BEARING
12	9027-2		CONNECTOR LINK (NOT SHOWN)
13	40676-8E		ELEC. JR ROLLER CHAIN KIT (INCLUDES ITEM 12)
14	26975		1/2 H.P. ELECTRIC MOTOR (OPTIONAL)
15	9063-5		OUTPUT SHAFT COUPLER

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

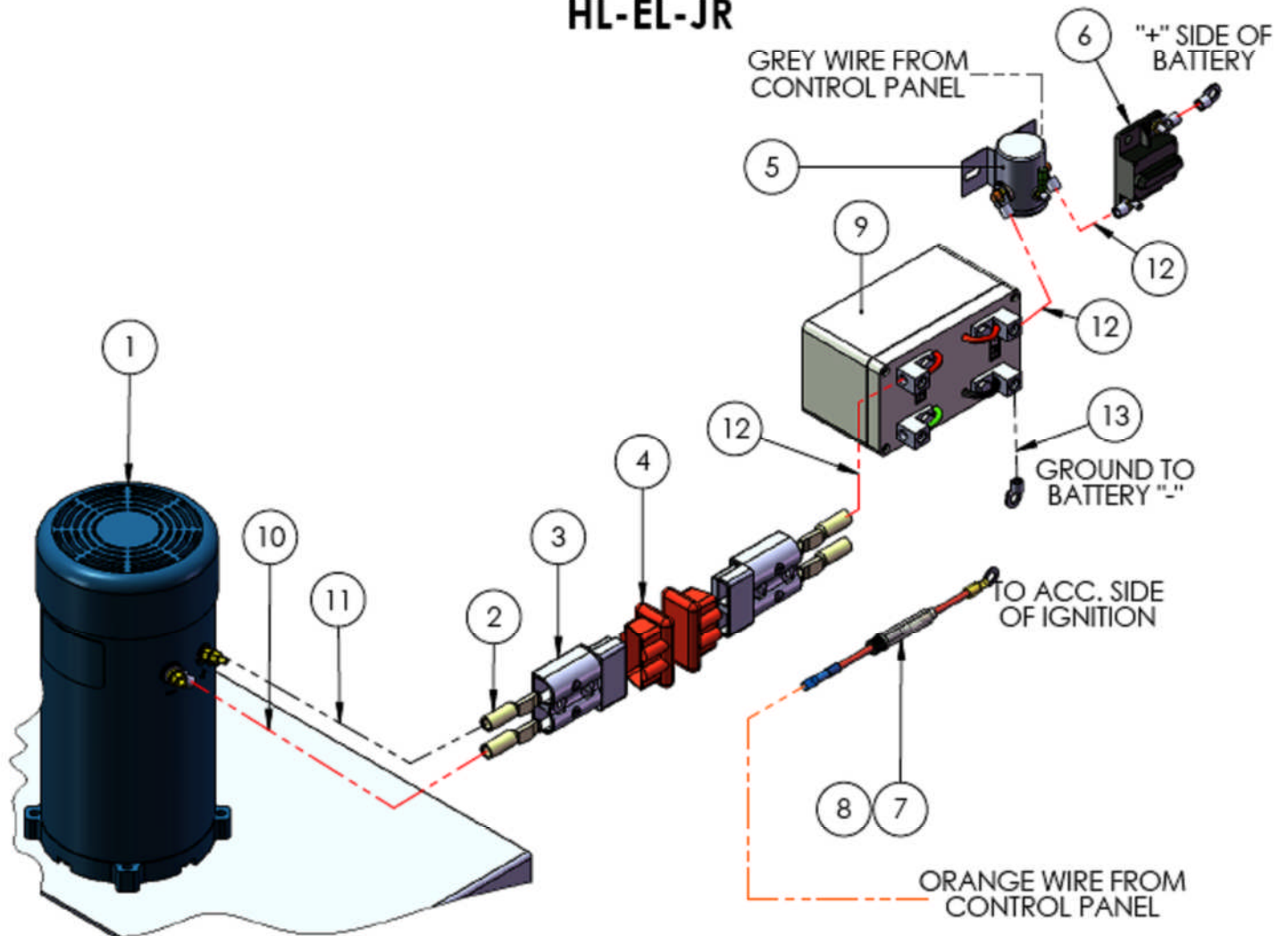
## STANDARD ELECTRICAL SCHEMATIC HL-EL-JR



ITEM	PART NUMBER	DESCRIPTION
1	60013-102	3/4 H.P. ELECTRIC MOTOR
2	60013-98	4GA CONTACTS (QTY. 4 REQUIRED)
3	60013-85	CONNECTOR HOUSING (QTY. 2 REQUIRED)
4	60013-99	COVER PLUG (QTY. 2 REQUIRED)
5	60013-63	SOLENOID
6	29400	CIRCUIT BREAKER
7	9090-1	IN-LINE FUSE HOLDER
8	9090-2	FUSE
9	9012-11	TOGGLE SWITCH
10	9013-12	4GA RED BATTERY CABLE X 72" LG
11	32535	4GA BLACK BATTERY CABLE X 72" LG
12	9013-12	4GA RED BATTERY CABLE. (CUSTOMER TO VERIFY LENGTH)
13	32535	4GA BLACK BATTERY CABLE. (CUSTOMER TO VERIFY LENGTH)
14	26975	1/2 H.P. ELECTRIC MOTOR (OPTIONAL)
15	9013-2R	16GA RED WIRE (CUSTOMER TO VERIFY LENGTH)
16	9054-5	CONVOLUTED LOOM (CUSTOMER TO VERIFY LENGTH)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

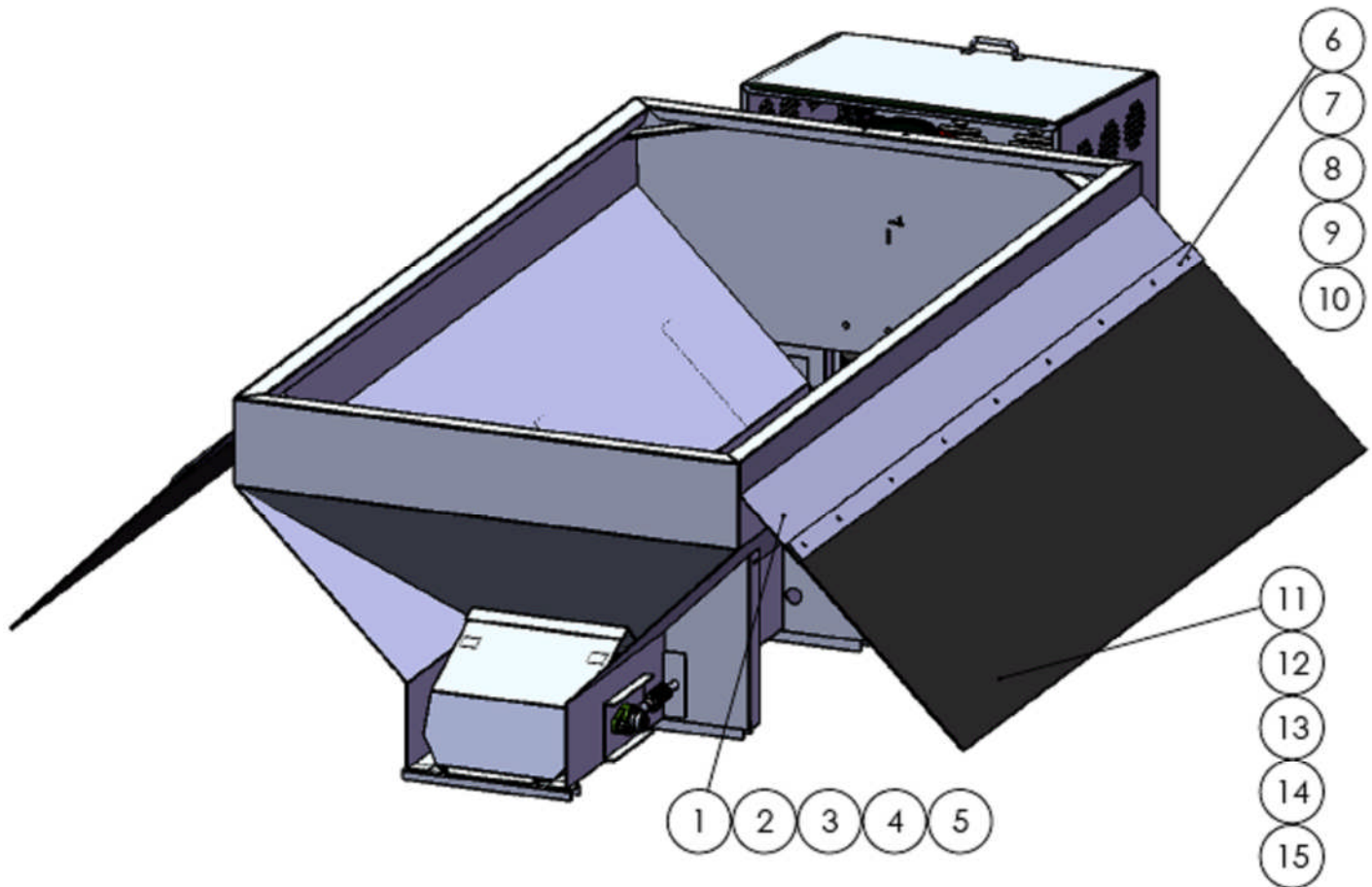
# VARIABLE SPEED CONTROL ELECTRICAL SCHEMATIC HL-EL-JR



ITEM	PART NUMBER	DESCRIPTION
1	60013-102	3/4 H.P. ELECTRIC MOTOR
2	60013-98	4GA CONTACTS (QTY. 4 REQUIRED)
3	60013-85	CONNECTOR HOUSING(QTY 2 REQUIRED)
4	60013-99	COVER PLUG (QTY 2 REQUIRED)
5	60013-63	SOLENOID
6	29400	80 amp CIRCUIT BREAKER
7	9090-1	IN-LINE FUSE HOLDER
8	9090-2	20 amp FUSE
9	32295	VARIABLE SPEED CONTROL (CONTROL PANEL NOT SHOWN)
10	9013-12	4GA RED BATTERY CABLE X 72" LG
11	32535	4GA BLACK BATTERY CABLE X 72" LG
12	9013-12	4GA RED BATTERY CABLE. (CUSTOMER TO VERIFY LENGTH)
13	32535	4GA BLACK BATTERY CABLE. (CUSTOMER TO VERIFY LENGTH)
14	26975	1/2" H.P. ELECTRIC MOTOR (OPTIONAL)
15	9054-5	CONVOLUTED LOOM (CUSTOMER TO VERIFY LENGTH)

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

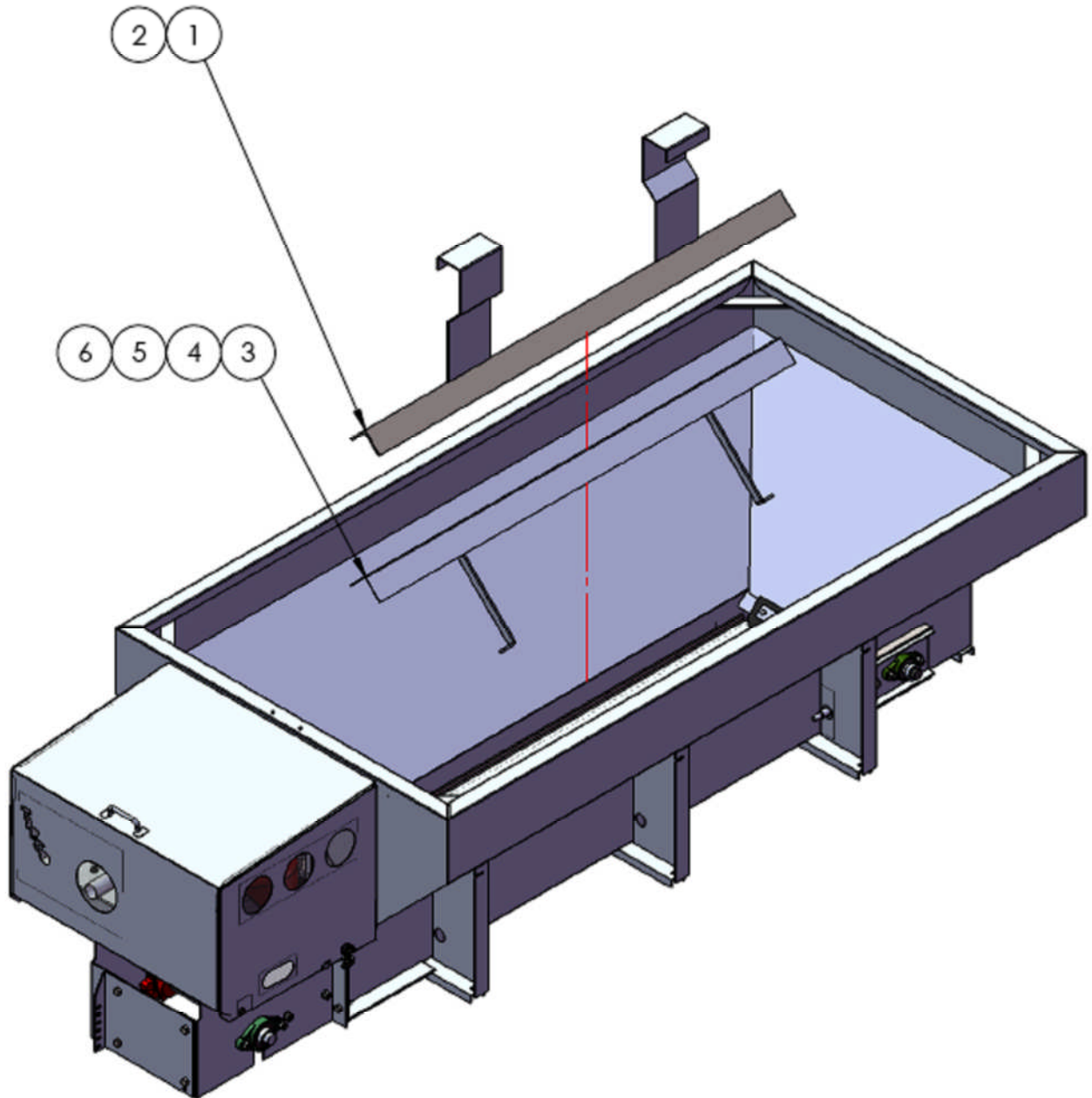
# HIGHLANDER JR. RUBBER SIDE SPILL APRON



PT.	DWG NO. (HR)	DWG NO. (STAINLESS)	DESCRIPTION
1	26100-1	26099-1	6' SPILL APRON EXTENSION
2	26100-1A	26099-1A	7' SPILL APRON EXTENSION
3	26100-1B	26099-1B	8' SPILL APRON EXTENSION
4	26100-1C	26099-1C	9' SPILL APRON EXTENSION
5	26100-1D	26099-1D	10' SPILL APRON EXTENSION
6	26100-2	26099-2	6' SPILL APRON KEEPER PLATE
7	26100-2A	26099-2A	7' SPILL APRON KEEPER PLATE
8	26100-2B	26099-2B	8' SPILL APRON KEEPER PLATE
9	26100-2C	26099-2C	9' SPILL APRON KEEPER PLATE
10	26100-2D	26099-2D	10' SPILL APRON KEEPER PLATE
11	26100-3	26099-3	6' RUBBER BELTING
12	26100-3A	26099-3A	7' RUBBER BELTING
13	26100-3B	26099-3B	8' RUBBER BELTING
14	26100-3C	26099-3C	9' RUBBER BELTING
15	26100-3D	26099-3D	10' RUBBER BELTING

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

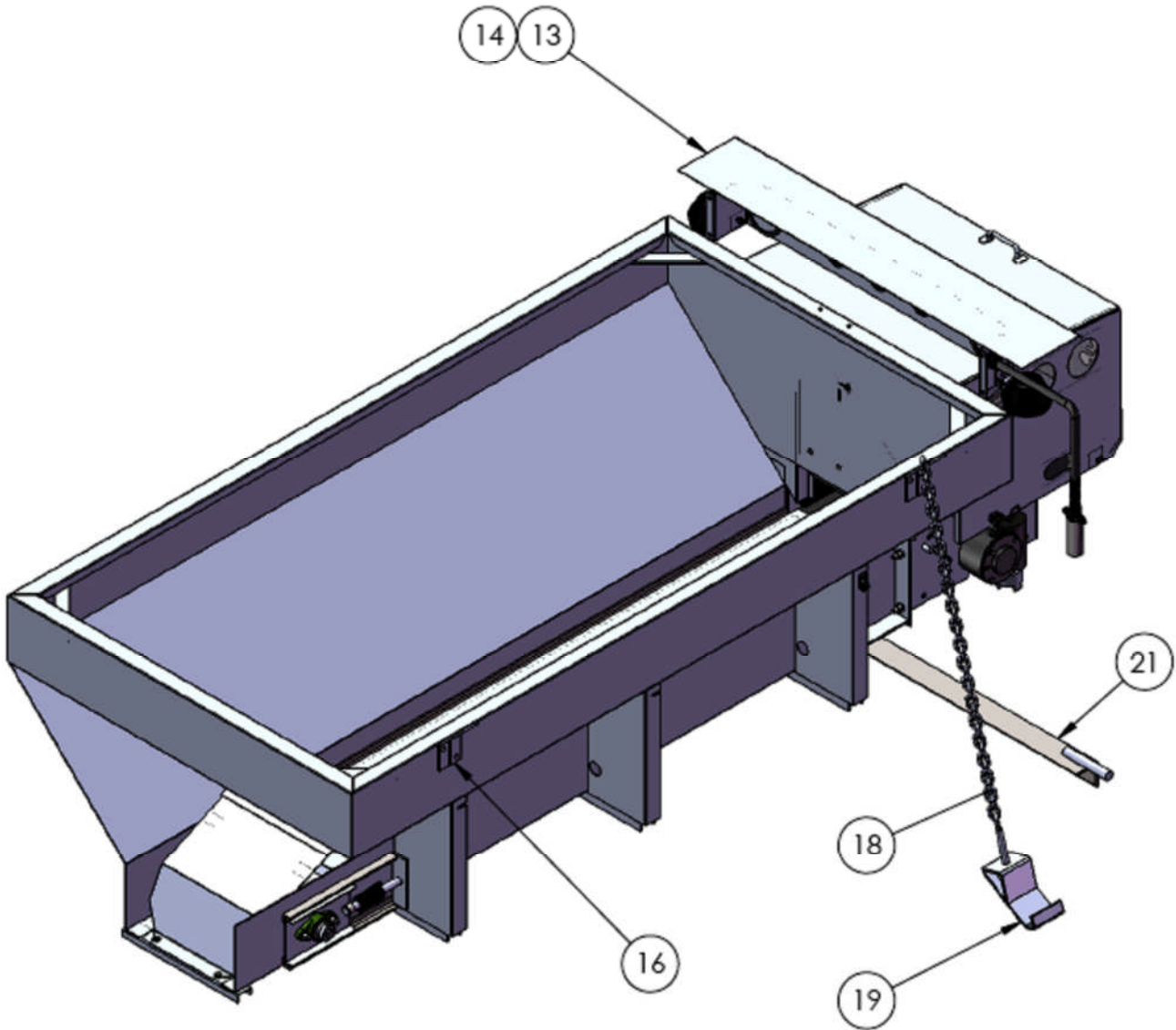
# HIGHLANDER JR OPTIONS



"ALWAYS GIVE PART NAME, NUMBER & MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

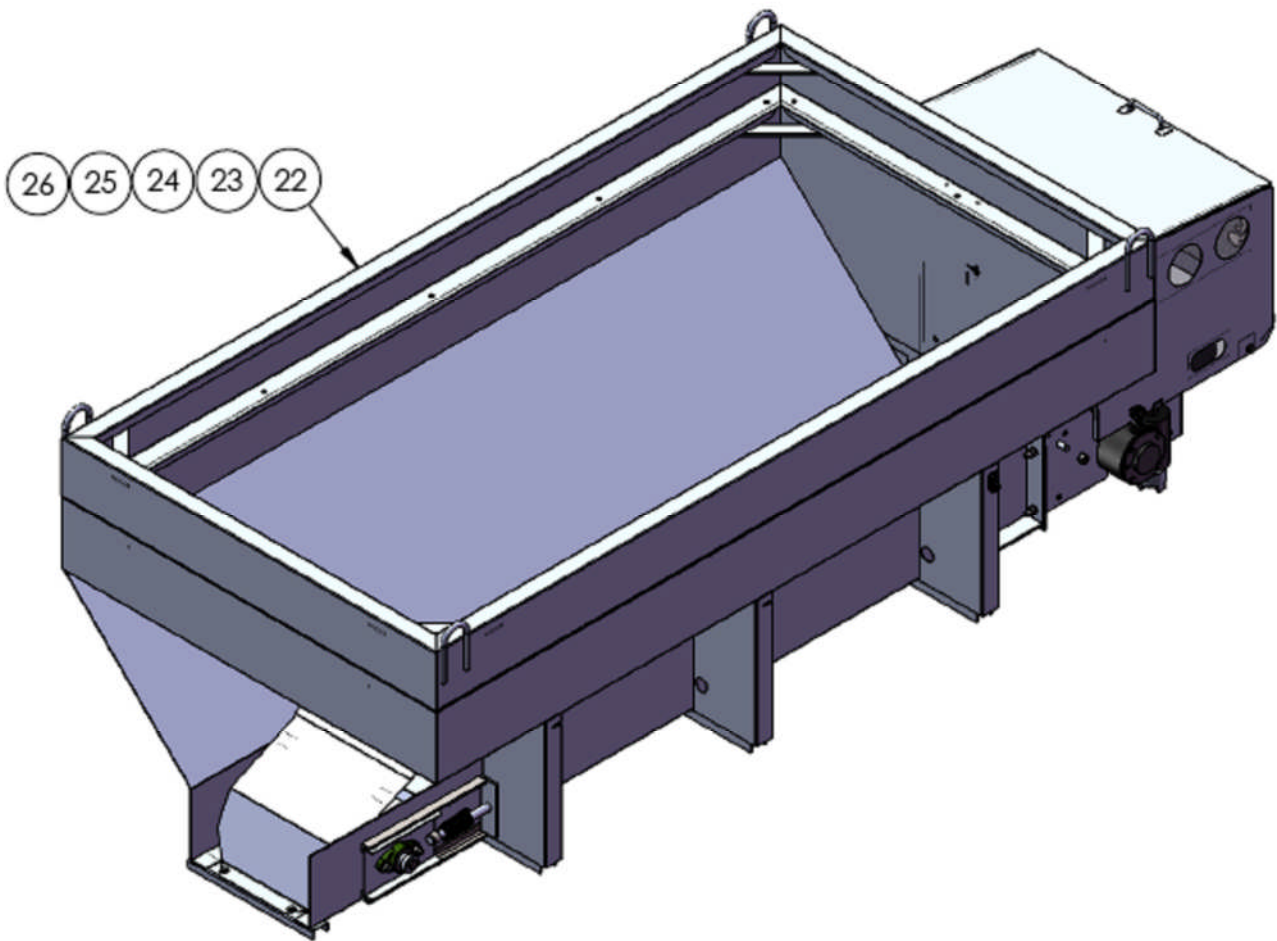


# HIGHLANDER JR OPTIONS



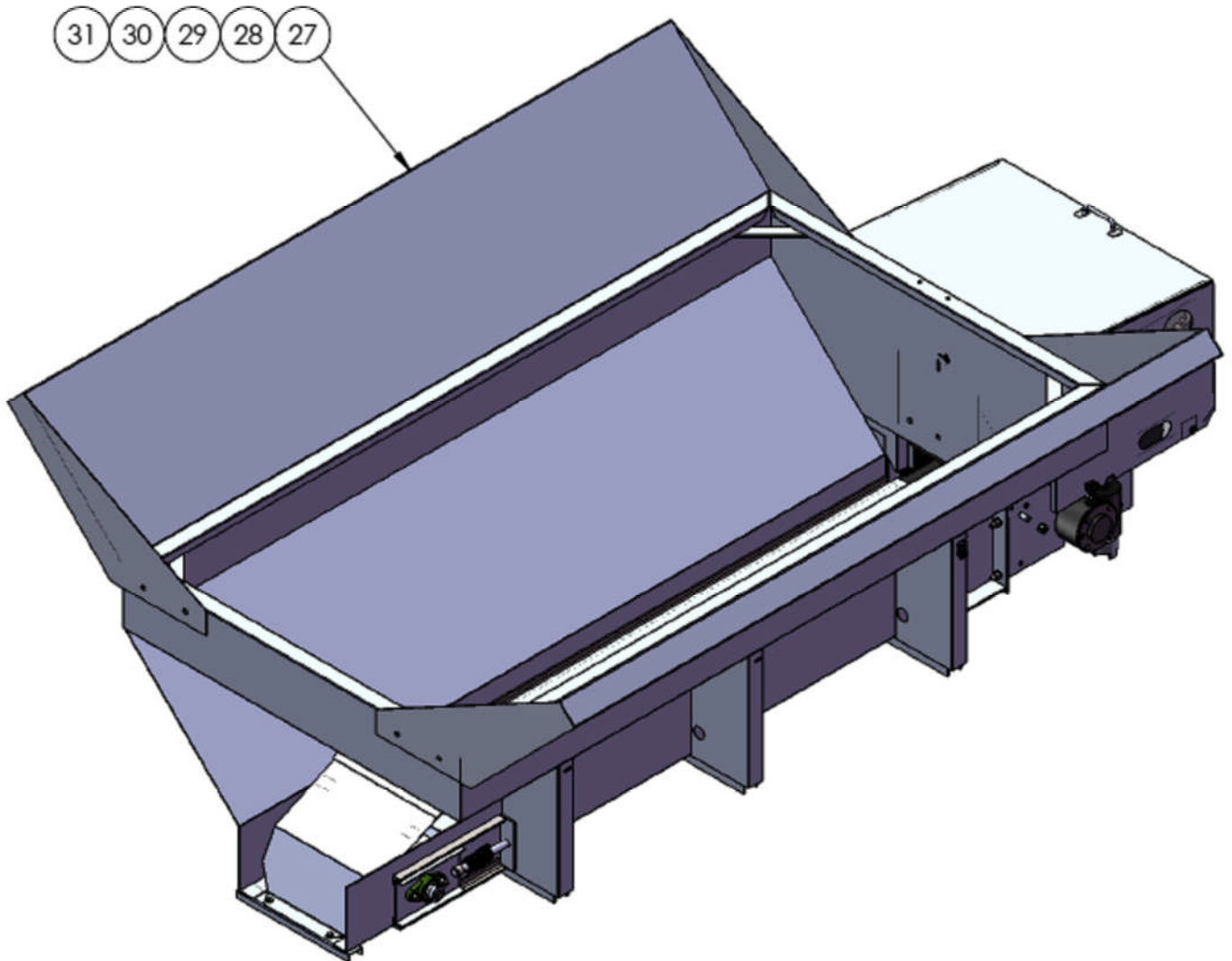
"ALWAYS GIVE PART NAME, NUMBER & MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

# HIGHLANDER JR OPTIONS



"ALWAYS GIVE PART NAME, NUMBER & MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

# HIGHLANDER JR OPTIONS



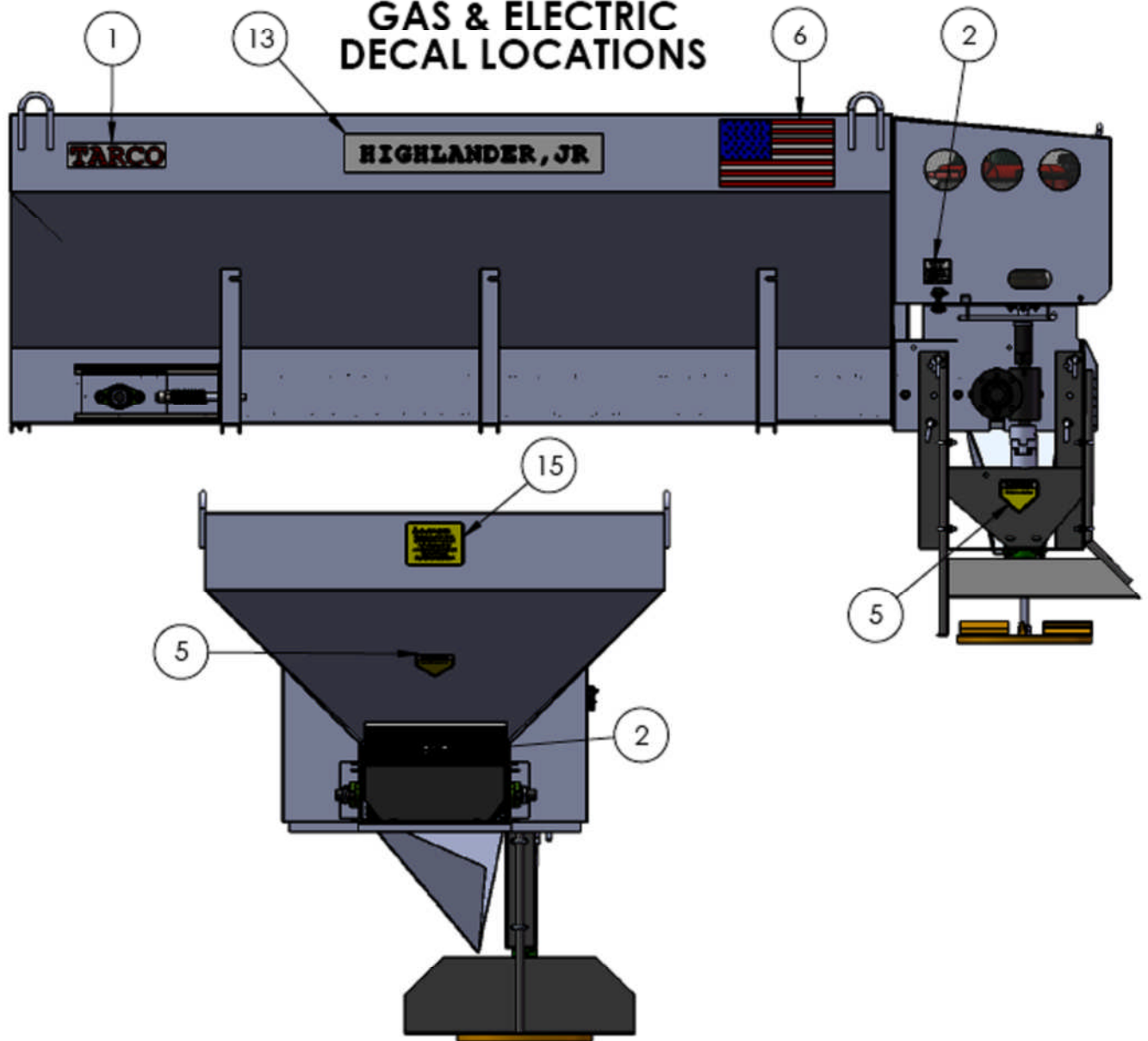
"ALWAYS GIVE PART NAME, NUMBER & MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

## HIGHLANDER JR OPTIONS

ITEM	PART NUMBER (HR)	PART NUMBER (SS)	DESCRIPTION
1	25172-1	25172-5	6', 7' & 8' INVERTED VEE (W/ CENTER LIFT)
2	25172-1A	25172-5A	9' & 10' INVERTED VEE (W/ CENTER LIFT)
3	23822-1	23822-4	6', 7' & 8' WELD-IN INVERTED VEE
4	23822-1B	23822-4B	9' & 10' WELD-IN INVERTED VEE
5	23822-1A	23822-4A	6', 7' & 8' BOLT-IN INVERTED VEE
6	23822-1C	23822-4C	9' & 10' BOLT-IN INVERTED VEE
7	25235-1	25235-2	ECONOMY DEFLECTOR (FRONT OR BACK)
8		35636-5	6' CENTER LIFTING BAR
9		25636-1	7' CENTER LIFTING BAR
10		25636-2	8' CENTER LIFTING BAR
11		25636-3	9' CENTER LIFTING BAR
12		25636-4	10' CENTER LIFTING BAR
13		32114-1	LIGHT BAR (HYD MACHINES ONLY)
14		32114-1A	LED LIGHT BAR (HYD MACHINES ONLY)
15		28001	H.D. RACHET STRAPS (4 PER MACHINE)
16	12335-1B	12335-2B	BOLT-ON HOLD DOWN BRACKETS (4 PER MACHINE)
17		20620-1	HOLD-DOWNS (4 PER MACHINE, ITEM 17 & 21 NOT INCL.)
18		20620-2	HOLD DOWN CHAIN AND ROD
19		20620-3	HOLD DOWN POCKET BRACKET
20		20620-4	HOLD DOWN TENSIONER (NOT SHOWN)
21	23550-1	23550-1A	TAILGATE LOCKING BAR
22	31803-1A	31803-5A	6' BOLT-ON 6" EXTENSION (GAS & HYD ONLY)
23	31803-1	31803-5	7' BOLT-ON 6" EXTENSION (GAS & HYD ONLY)
24	31802-1	31802-5	8' BOLT-ON 6" EXTENSION (GAS & HYD ONLY)
25	31802-1A	31802-5A	9' BOLT-ON 6" EXTENSION (GAS & HYD ONLY)
26	31802-1B	31802-5B	10' BOLT-ON 6" EXTENSION (GAS & HYD ONLY)
27	31655-6	31655-6A	6' SIDE SPILL SHIELD
28	31655-7	31655-7A	7' SIDE SPILL SHIELD
29	31655-8	31655-8A	8' SIDE SPILL SHIELD
30	31655-9	31655-9A	9' SIDE SPILL SHIELD
31	31655-10	31655-10A	10" SIDE SPILL SHIELD
32		60033-35	STD. NYLON RATCHET STRAPS (4 PER MACHINE)
33		26035-1	5 GALLON HYDRAULIC TANK (NOT SHOWN)
34		30773-6	6' BOLT ON EXT (NOT SHOWN)
35		30773-7	7' BOLT ON EXTENSION (NOT SHOWN)
36		30773-8	8' BOLT ON EXTENSION (NOT SHOWN)
37		30773-9	9' BOLT ON EXTENSION (NOT SHOWN)
38		30773-10	10' BOLT ON EXTENSION (NOT SHOWN)
39		38899	6' - 8' JR CART (NOT SHOWN)
40		39446	9' - 10' JR CART (NOT SHOWN)
41		35088	WIRELESS CAB CONTROL (B+S & HONDA GAS ONLY)

"ALWAYS GIVE PART NAME, NUMBER & MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

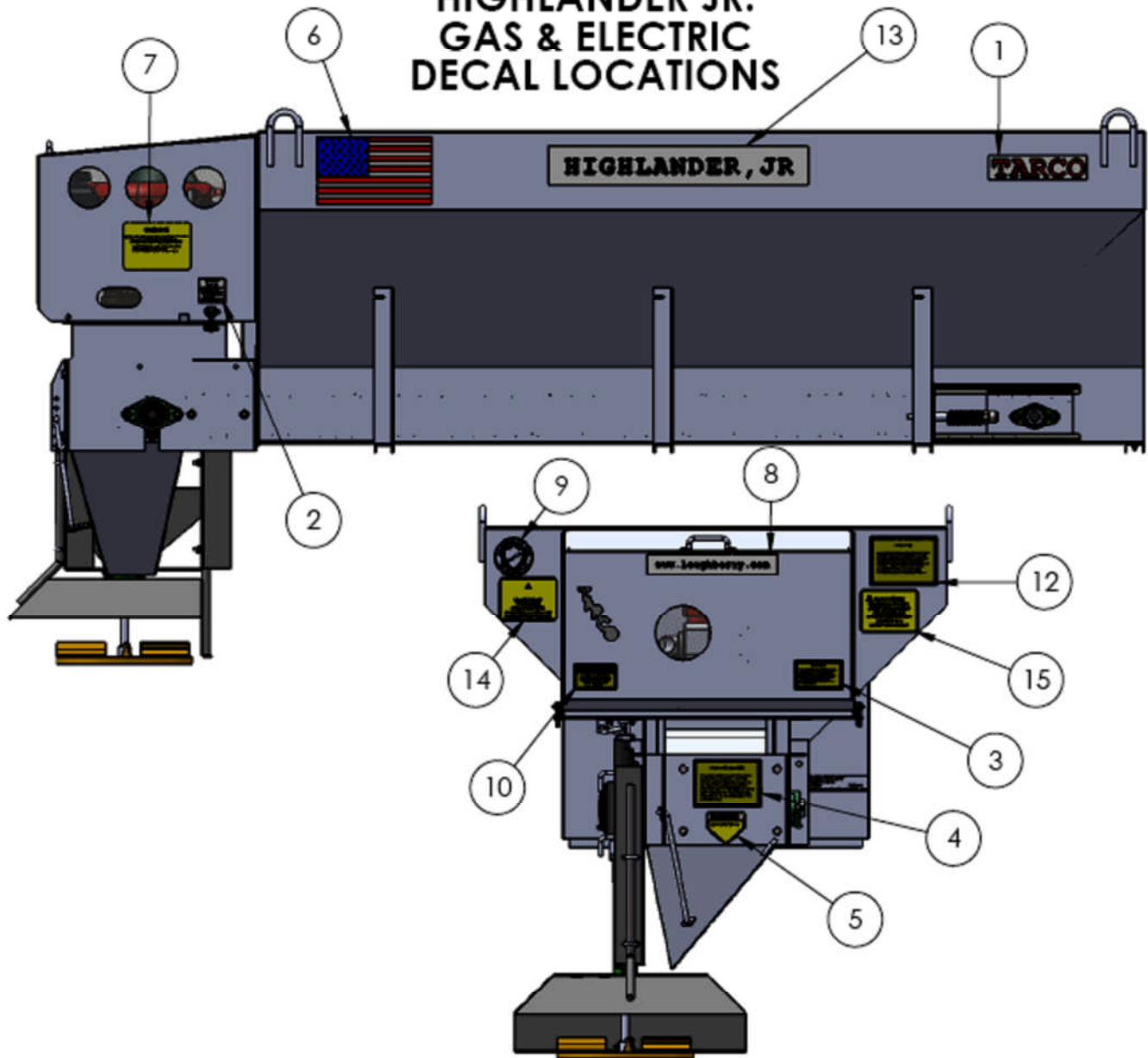
## HIGHLANDER JR. GAS & ELECTRIC DECAL LOCATIONS



PT.	DWG NO. (HR)	DWG NO. (STAINLESS)	DESCRIPTION
1	7500-14	7500-14R	TARCO DECAL
2		7500-36	SAFETY FIRST DECAL
3		7500-43	DANGER-BEFORE. . . DECAL
4		7500-45	WARNING DANGER STAY. . . DECAL
5		7500-87	DANGER-KEEP HANDS. . . DECAL
6		7500-90	AMERICAN FLAG DECAL
7		7500-100	GASOLINE DECAL
8		7500-101	WWW.LOUGHBERRY.COM DECAL

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

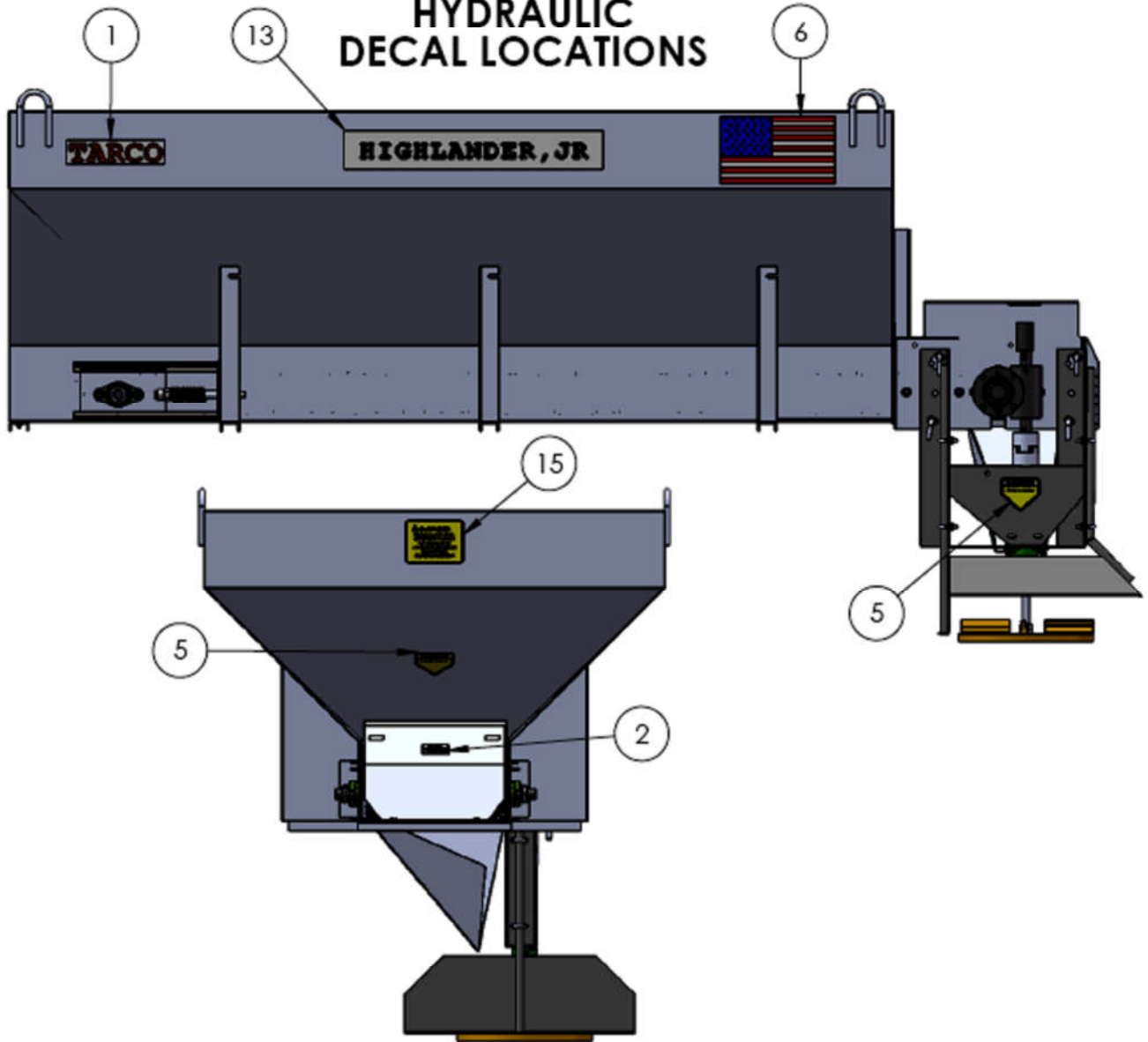
## HIGHLANDER JR. GAS & ELECTRIC DECAL LOCATIONS



PT.	DWG NO. (HR)	DWG NO. (STAINLESS)	DESCRIPTION
9	7500-2		TARCO DECAL
10	7500-89		WARNING DECAL
11	7500-44		DO NOT ENTER HOPPER DECAL
12	7500-97		DO NOT CLIMB DECAL
13	7500-8		HIGHLANDER JR DECAL
14	7500-98		DO NOT OPERATE DECAL
15	7500-99		DO NOT CLIMB DECAL
16	31610-1H		HIGHLANDER JR. DECAL KIT

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

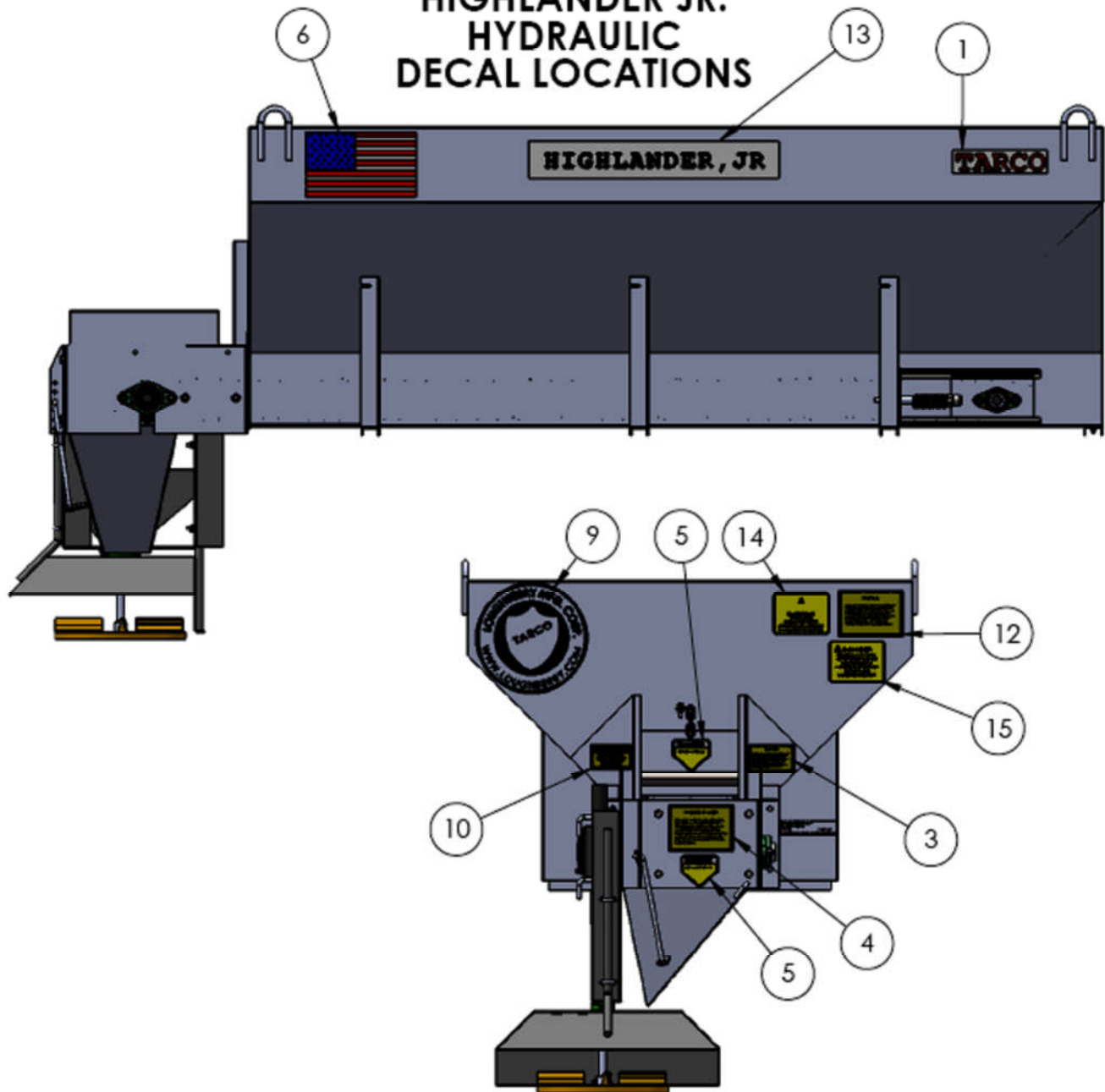
## HIGHLANDER JR. HYDRAULIC DECAL LOCATIONS



PT.	DWG NO. (HR)	DWG NO. (STAINLESS)	DESCRIPTION
1	7500-14	7500-14R	TARCO DECAL
2		7500-36	SAFETY FIRST DECAL
3		7500-43	DANGER-BEFORE. . . DECAL
4		7500-45	WARNING DANGER STAY. . . DECAL
5		7500-87	DANGER-KEEP HANDS. . . DECAL
6		7500-90	AMERICAN FLAG DECAL
7		7500-100	GASOLINE DECAL
8		7500-101	WWW.LOUGHBERRY.COM DECAL

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"

## HIGHLANDER JR. HYDRAULIC DECAL LOCATIONS



PT.	DWG NO. (HR)	DWG NO. (STAINLESS)	DESCRIPTION
9	7500-1		TARCO DECAL
10	7500-89		WARNING DECAL
11	7500-44		DO NOT ENTER HOPPER DECAL
12	7500-97		DO NOT CLIMB DECAL
13	7500-8		HIGHLANDER JR DECAL
14	7500-98		DO NOT OPERATE DECAL
15	7500-99		DO NOT CLIMB DECAL
16	31610-1H		HIGHLANDER JR. DECAL KIT

"ALWAYS GIVE PART NAME, NUMBER AND MACHINE SERIAL NUMBER WHEN ORDERING PARTS"