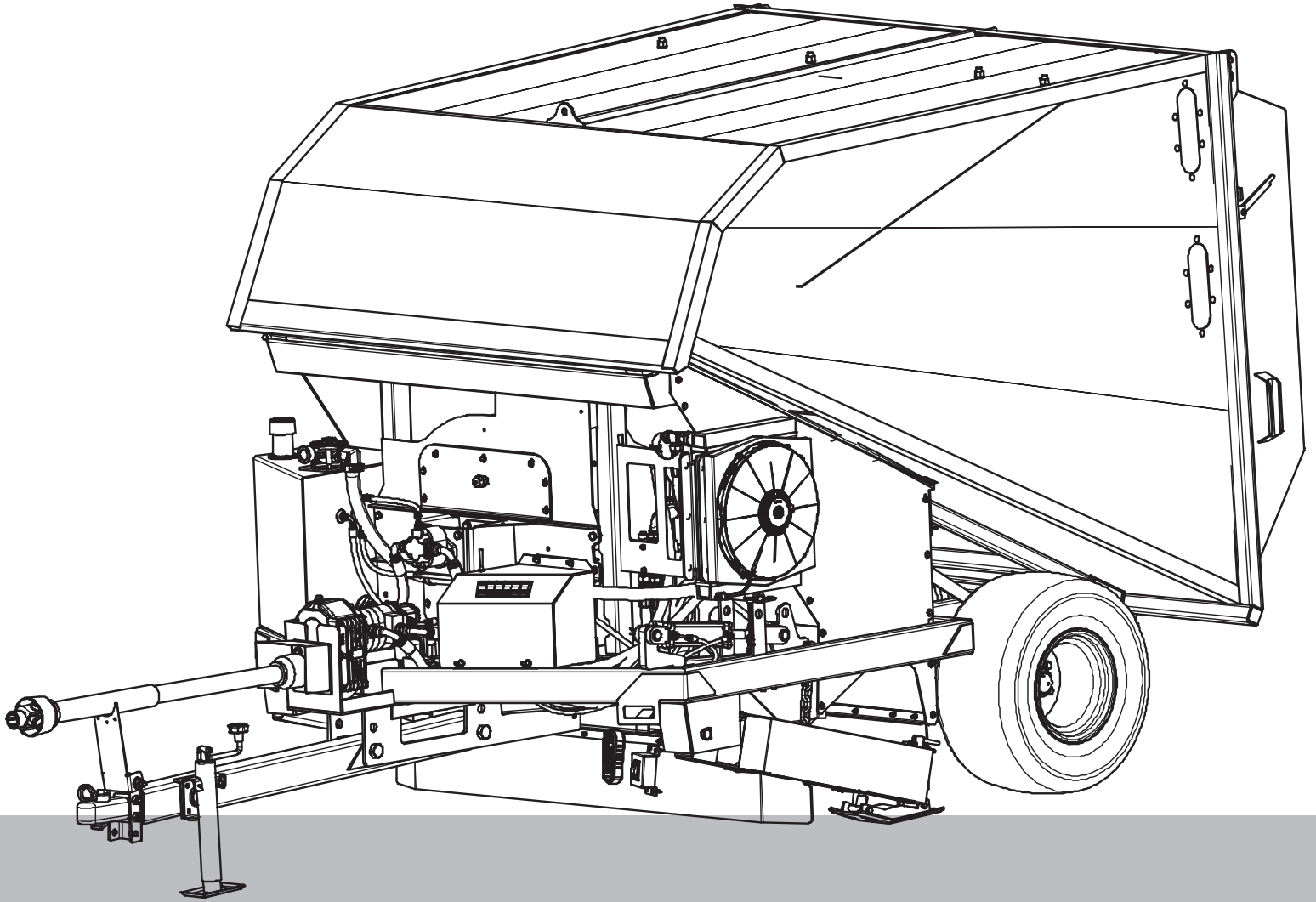


TURBO VAC 60R-HD



OPERATOR'S & PARTS MANUAL

Thank you for purchasing a Harper Turbo Vac.

TO THE OWNER OR OPERATOR:

As with all Harper products, the Harper Turbo Vac has been developed through tough design and testing procedures to produce a machine that can be relied on. This manual gives assembly, operating, and service information for models **TV60R-HD**. Please read and understand all instructional material included with the Turbo Vac and its components before assembling and operating the equipment.

A Turbo Vac can present hazards to an operator who follows unsafe procedures in either the operation or maintenance of the unit. Therefore, **SAFETY WARNINGS** are presented at certain locations in the text.

SYMBOL:



SAFETY WARNING!



MEANING: Failure to understand and obey this warning may result in injury to you or others. Whenever this symbol is used, please pay very close attention to the information presented, and make sure you fully understand. If you do not, contact your dealer or Harper Industries for clarification.



SAFETY WARNING!



All shields and guards must be in place for proper and safe operation of this equipment. Where they are shown removed in this manual, it is for purposes of illustration and instruction only. Do not operate this equipment unless all shields and guards are in place.

Harper Industries, Inc. is continually striving to improve the design and performance of its products. We reserve the right to make changes in specifications and design without thereby incurring any obligation relative to previously manufactured products.

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The Harper and Goossen names are registered trademarks of Harper Industries, Inc. All other brand and product names are trademarks or registered trademarks of their respective companies.

LIMITED WARRANTY

The Harper Turbo Vac is warranted against defects in workmanship and materials for a period of one (1) year from the original date of retail purchase to the original purchaser.

Harper Industries will repair or replace, at its own option, any part that evaluation shows to be defective. Warranty is limited to parts, labor and ground freight delivery of replacement parts. The user will pay freight charges for expedited orders of replacement parts and/or parts submitted for warranty evaluation. No product or part may be returned for warranty evaluation without prior approval.

This warranty does not apply to parts subjected to misuse, abuse, alteration, improper or inadequate maintenance, or normal wear (including belts and broom).

Gasoline engines are not covered under this warranty. Refer to manufacturer's warranty for specific warranty information. Harper Industries, its agents or representatives make or imply no other warranties.

RECORDS

Date of Purchase _____ / _____ / _____

Dealer's Name _____

Dealer's Phone _____

Serial Number Machine _____

Serial Number Engine _____

Record this information for future reference.

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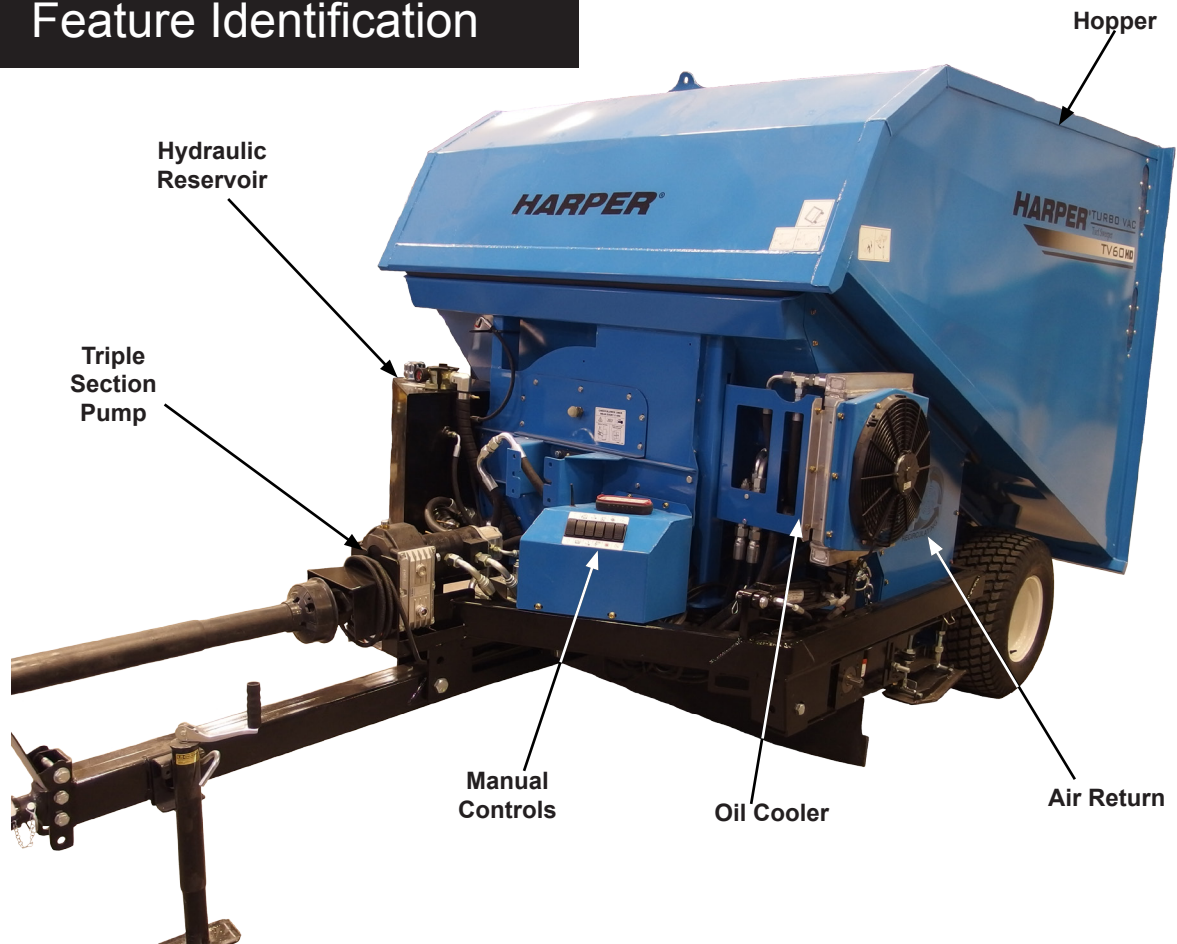
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Specifications

Safety Features	Locking safety latches on all cylinders for service functions
Power	Tractor PTO - 540 RPM
Hydraulic System	PTO driven triple-section pump powers fan, deck rotor, and cylinders
Hydraulic Reservoir	20 gallons - Crown AW46
Blower Drive	Hydraulic motor powered by gear pump
Blower Fan & Housing Liner	<ul style="list-style-type: none"> • 25" diameter fan of abrasion-resistant steel • 1½" shaft with self-aligned bearings supporting both ends • Easy access to housing liner* for inspection and replacement <p>*UHMW poly-liner - Ultra High Molecular Weight Polyethylene</p>
Deck Drive	Hydraulic motor - chain drive
Broom Option	12" diameter X 60" wide pick-up broom with heavy-duty polyethylene bristles
Rubber Finger Option	12" diameter X 60" wide rubber finger pick-up rake
Verticutter Option	12" diameter blades X 56" cutting width * 28 - 10 Gauge blades on 2" spacing * adjustable skids for height adjustment
Bearings	Greasable bearings and sealed bearings
Hopper	7 yard capacity
Wheels/Tires	6-bolt steel wheels <ul style="list-style-type: none"> • Turf tires – 26 x 12 (standard) • Radial tires – 225 X 60R15 steel belted (available as an option)
Controls	Wireless RF (radio frequency) remote controls
Discharge	Hydraulic dump with hydraulic powered latches
Hitch	Adjustable height tongue with ball hitch
Paint	Durable 2-part polyurethane
Dimensions	164" long X 85" wide X 85" high
Weight	2250 lbs – 1023 kg

NOTE: Following publication of this manual certain changes in standard equipment and/or options may have occurred that would not be included in these pages. Your Harper/Goosen dealer is the best source for up-to-date information.

Feature Identification



Triple Section Pump – The triple section pump powers the deck, fan, and implement parts of the machine.

Deck Motor – The broom motor turns the broom clock-wise, throwing material forward and upward into the air stream.

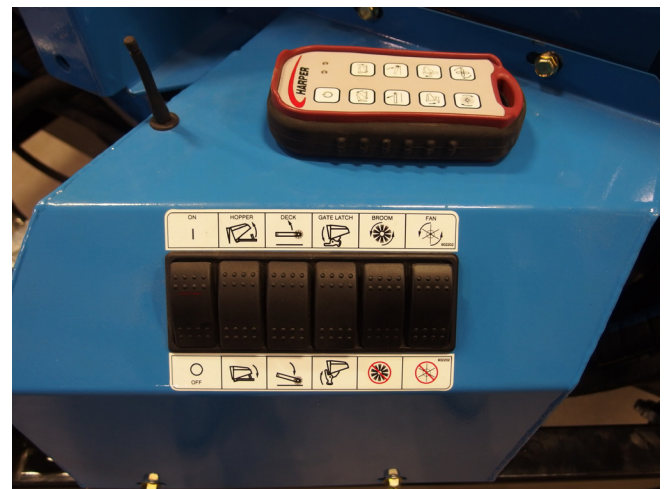
Oil Cooler – The oil cooler prevents the hydraulic oil from over-heating. Always keep the fins free of debris.

Hydraulic Reservoir – The hydraulic reservoir on a **TV60R-HD** has a 20 gallon capacity.

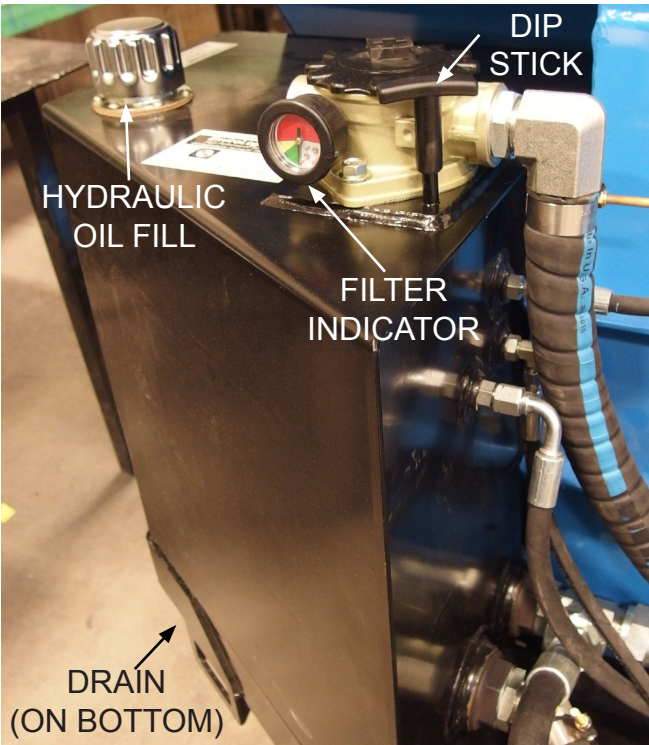
Air Return – The air return allows air to be recirculated, significantly reducing dust.

Hopper – The hopper stores up to seven yards of collected material.

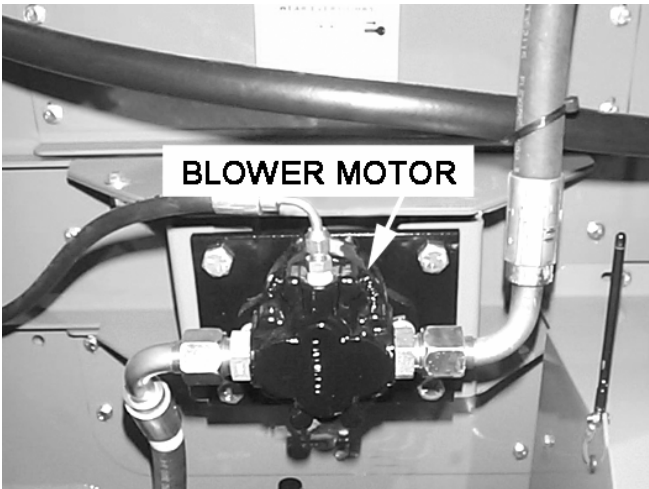
Manual Controls – All of the functions on the Turbo Vac can be operated with the manual controls or the remote controls.



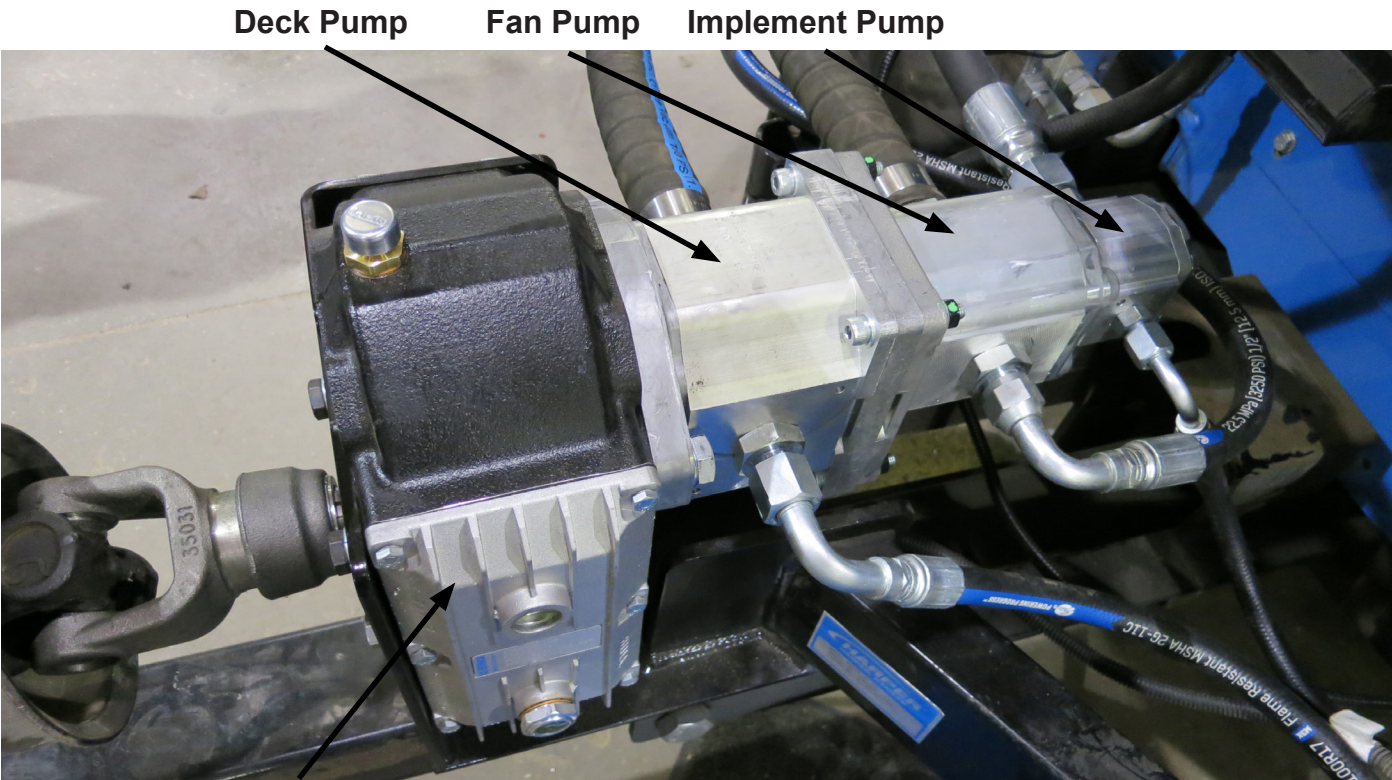
TV60R-HD - Hydraulic System



Hydraulic Reservoir Assembly



Blower Motor



Triple Gear Pump

General Safety Guidelines

Equipment & Controls

- Before operating this equipment, read and understand the Owner's Manual.
- Altering the unit in any way that adversely affects its safe operation, performance or durability will void the warranty and may cause hazardous conditions.
- Know the location and function of all controls and how to stop the equipment quickly in an emergency before you operate the Turbo Vac.
- Keep all nuts, bolts and screws tight to ensure safe operation of equipment.

Guards & Shields

- Keep all safety devices in place and in good operating condition.
- Replace all worn, damaged, unusable, missing or lost safety shields and guard before operating unit.


Before Operation

- Do not allow children near this machine.
- Make sure bolts in tongue are secure and jack is in the transport position.
- Tire pressure should be 30-32 psi and equal in both tires.
- Engine governor settings are preset and should not be changed; any change can damage moving parts and void warranty.
- Before starting the machine, visually inspect all nuts, bolts and other fasteners to see that they are properly secured.
- Nuts, bolts and other fasteners should be checked after the first hour of operation and every 8 to 10 hours thereafter for proper alignment and tightness.
- Make sure that all belts are in good condition, and replace if necessary.

During Operation

- While operating the equipment, make sure that no foreign objects such as rocks, bottles or other hard materials are in the path of the Turbo Vac.
- If an object should strike the broom or blower mechanism causing an unusual noise or vibration, shut the engine off immediately and allow it to come to a complete stop. Disconnect the spark plug wire from the spark plug of the power unit, and do the following:
 1. Inspect for damage.
 2. Repair or replace damaged parts.
 3. Check for and tighten any loose bolts, nuts, fasteners or parts.
- Keep the engine area clean and free of debris and other accumulations.
- If the Turbo Vac should become clogged, shut off the engine and allow it to come to a complete stop. Disconnect the spark plug wire from the spark plug of the power unit before attempting to remove the clog.

 **SAFETY WARNING!** 
Always keep a fire extinguisher near the Turbo Vac during operation and service.

 **SAFETY WARNING!** 
To prevent possible eye injury, always wear SAFETY GLASSES while operating or servicing the equipment.

During Service & Maintenance



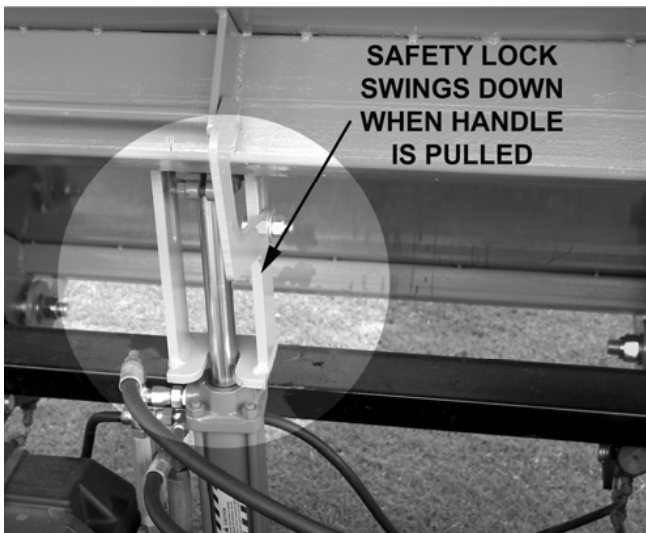
SAFETY WARNING!



When working under the hopper the cylinder safety lock should be engaged to prevent the hopper from falling.



- To engage the cylinder safety lock, take the pin out of the bracket on the hopper and pull the handle down.



- The cylinder safety lock prevents the hopper from being lowered so that maintenance can be performed safely.
- When finished working under the hopper, disengage the safety lock, put the handle back into the bracket on the hopper and replace the pin.



SAFETY WARNING!



Attempting to lower the hopper while the cylinder safety lock is engaged may cause damage to the cylinder and/or the safety lock mechanism.



SAFETY WARNING!



If it is necessary to get between the hopper and the hopper door, set the door prop to avoid being pinched.

- To set the door prop, pull the door open and insert prop into pre-cut hole in door.



Safety Decals

- If safety related or instructional decals become illegible or are removed, replace them immediately.
- If parts are replaced, make sure all safety related or instructional decals are present before the equipment is operated again.
- New decals may be obtained from your local Harper Dealer.

Replacement Parts



SAFETY WARNING!



Use genuine factory parts or parts with equivalent characteristics including: type, strength and material. Failure to do so may result in voidance of warranty, product malfunction or possible injury to operator and others.

- Replace locknuts and locking screws if they can be tightened without considerable resistance for several turns before they are completely tight.
- If hardware is not secure, or if some of the fasteners are over-tightened, equipment failure may result, posing possible safety hazards.
- Use proper torque specifications for all fasteners when they are replaced.

Hydraulics



SAFETY WARNING!



HIGH-PRESSURE FLUID HAZARD!

Escaping fluid under pressure can penetrate skin and cause serious injury or death.

To prevent serious injury or death:

- Relieve pressure on system before repairing, adjusting or disconnecting.
- Wear proper hand and eye protection when searching for leaks.
- Use wood or cardboard instead of hands when looking for leaks.
- Keep all hoses, fittings and components in good repair.
- Do not use any type of heat or flame (welding, soldering, cutting torch, etc.) near pressurized hydraulic lines.

Specific Safety Guidelines

TV60R-HD

- Avoid wearing loose clothing to prevent it from getting caught in the PTO drive.
- Keep clothing and all body parts away from rotating parts.
- The pump stop bar must be properly positioned to keep the hydraulic pump from spinning with the PTO.
- The Turbo Vac hydraulic system operates under high pressure. Be sure the hydraulic system is disabled prior to service.



SAFETY WARNING!



Engage the tractor PTO at low engine RPM when operating the TV60 RHD to prevent premature failure of hydraulic system components.



SAFETY WARNING!



HIGH-PRESSURE FLUID HAZARD!

Escaping fluid under pressure can penetrate skin and cause serious injury or death.

Set-Up and Operation

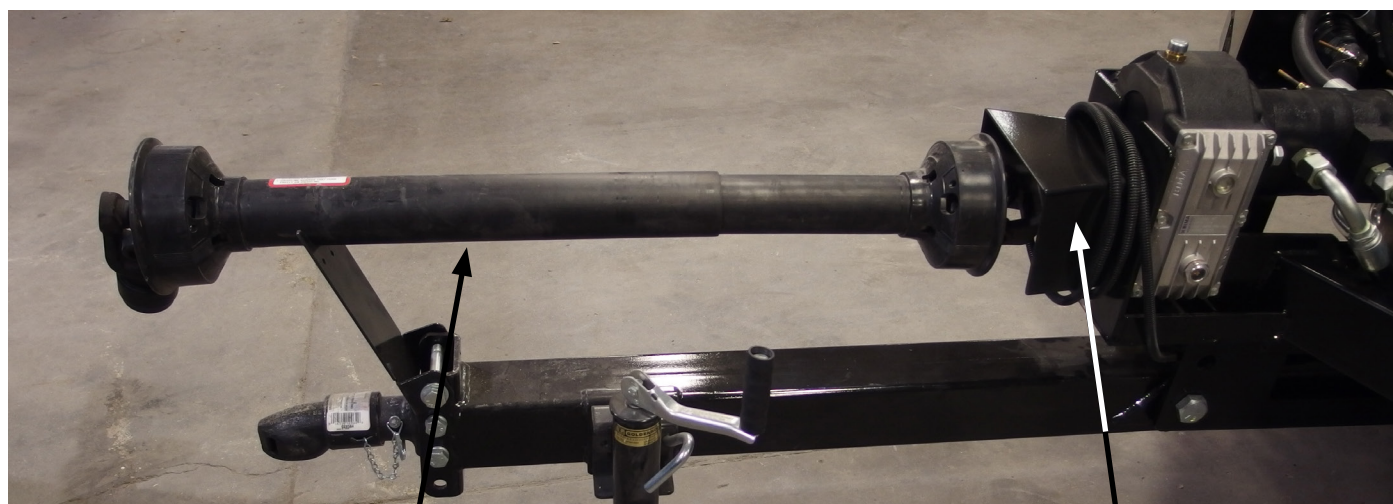


SAFETY WARNING!

Periodically clean material away from engine to lessen the possibility of fire.

TV60 RHD

1. Before using the **TV60R-HD** for the first time, install the battery cable onto the tractor battery to supply power to the unit's valve and RF receiver. Connect the black wire of the cable to the negative terminal and the red wire (with fuse) to the positive terminal of the battery. When using more than one tractor, other power cords may be ordered (p/n 935071).
2. Attach the unit to a tractor with a PTO. Be sure that the Turbo Vac is level with the ground. (Refer to Adjustments section.)
3. Attach the PTO shaft to the tractor's PTO.
4. Make certain that the case drain hose is on top of the pump and in a vertical position when attached to the tractor.
5. Plug quick connector on battery cable to the quick connector located on the tongue of the **TV60R-HD**.
6. Engage tractor PTO and set to 540 RPM.



540 RPM PTO Shaft

1:4 Ratio Gearbox

Starting Operation



SAFETY WARNING!

Before operating the Turbo Vac, perform the daily inspection as described in the Service & Maintenance section.

Before operating the Turbo Vac, the operator should be familiar with the area to be swept, and make sure it is clear of large debris.

1. Push the switches on the remote control or move the manual switches to activate the functions on the Turbo Vac. The tractor PTO must be engaged for the blower to function on the **TV60 RHD**.
2. Engage the tow vehicle and advance slowly at first to test environmental conditions and machine performance.
3. Proceed with caution, steering clear of obstacles that could damage broom.



SAFETY WARNING!

Wear approved eye and ear protection while operating the Turbo Vac.

Keep all guards in place during operation. Never operate the Turbo Vac with safety shields removed.

Always keep a fire extinguisher near the Turbo Vac during operation.

Stopping Operation

TV60R-HD

1. Push the BROOM switch only on the remote control to turn off the broom.

Note: The BLOWER switch is not used on the **TV60R-HD** remote control.

2. Move the throttle on the tractor to the "SLOW" position and disengage the PTO lever to turn off the blower.
3. Shut off the tractor engine and allow the unit to come to a complete stop.



SAFETY WARNING!

Do not leave the Turbo Vac unattended, or attempt any service or inspection unless the machine has come to a complete stop, the engine has been shut off, and the spark plug has been disconnected.

Unloading Hopper

1. Check the overhead clearance. 8' 6" is required for dumping.
2. To unload, press the OPEN LATCH and LIFT HOPPER buttons on the remote.
3. When unload is complete, press the LOWER HOPPER button. Once the hopper has lowered completely, press the CLOSE LATCH button.



SAFETY WARNING!

Do not stand near the back of the Turbo Vac while unloading.

If there is grass stuck in the hopper, do not go in between the hopper and the door without setting the safety lock.

Check overhead clearance during use.
Clearance is: 7' 6" for sweeping
 8' 6" for dumping

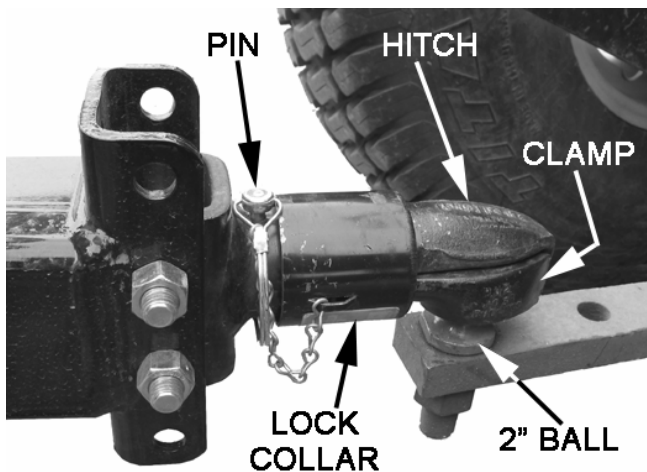
Towing



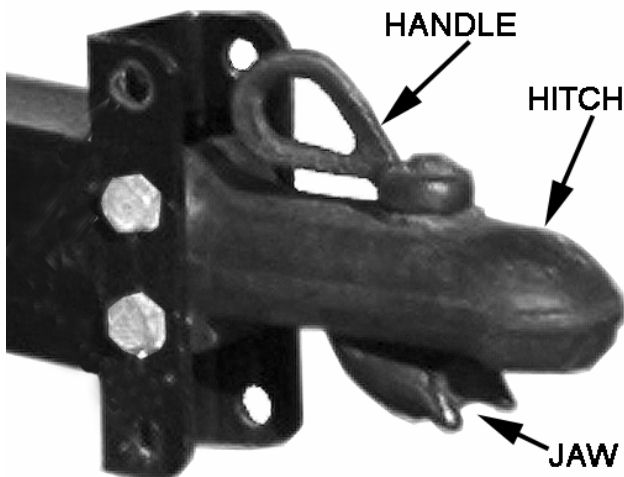
SAFETY WARNING!

The Turbo Vac does not meet highway safety codes. Tail lights, turn signals and safety chains must be attached before towing on public roadways.

- Two types of ball hitches have been used on the Turbo Vacs: clamp and jaw.
- For the clamp-type displayed in the following photograph, close the clamp around the ball and secure with the lock collar. Insert the pin to keep the lock collar in place.



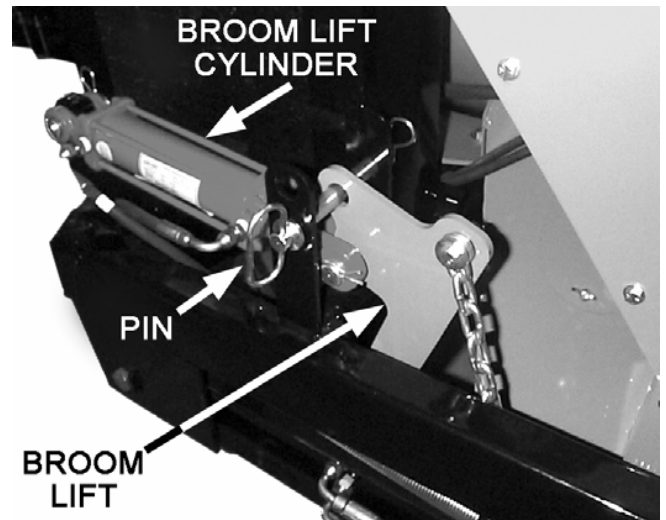
- For the jaw-type displayed in the following photograph, turn the handle until the jaw closes completely around the ball.



- The jack stand should be up whenever the Turbo Vac is connected to a tow vehicle.



- Always use the safety pin to lock the broom lift when towing the unit.

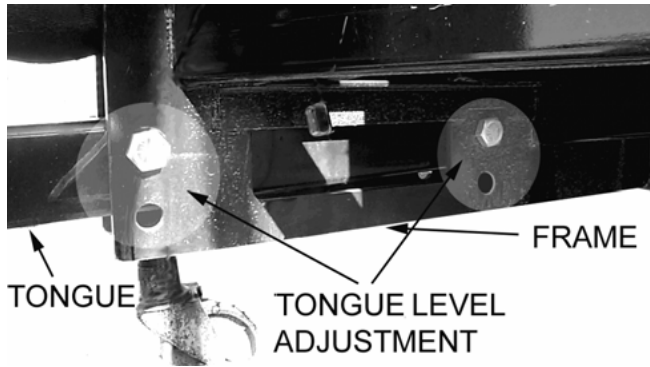


- Tire pressure should be 30-32 psi and equal in both tires.
- Make sure the wheel lug nuts are tight.

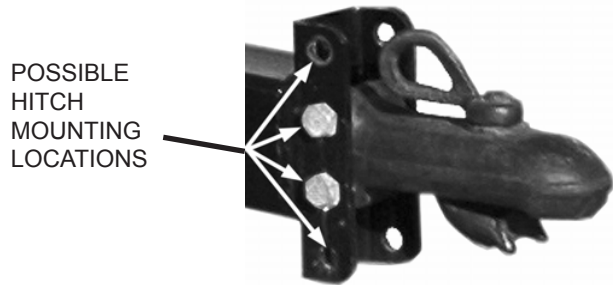
Adjustments

Level Hook-Up

- For the Turbo Vac to work properly, the frame needs to be level with the ground.
- The tongue can be moved up or down depending on which set of holes on the frame are used.

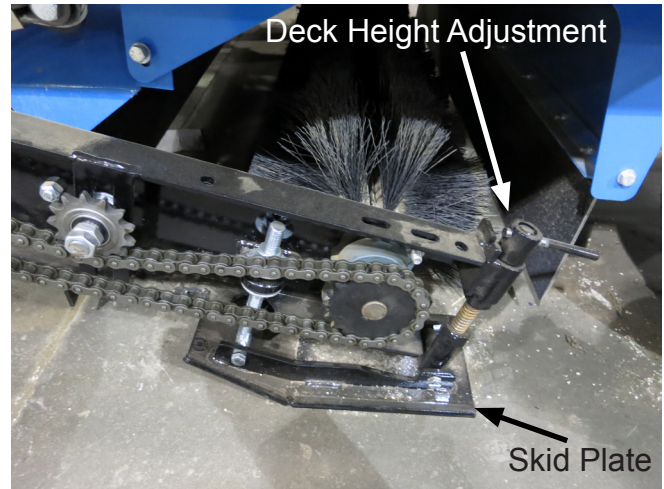


- The hitches on different tow vehicles vary in height, so there are adjustments on the hitch and the tongue to keep the Turbo Vac level.



Deck Height

- The deck height should be adjusted so that the deck barely touches the grass.



- Deck height is easily adjusted tightening or loosening the deck height adjustment tool that is attached.
- Make sure that both skid plates (one per side of unit) are adjusted the same so the deck stays level.

Remote and Receiver

System Operation

Press and hold the power button the transmitter until both LEDs turn on, then release. The green LED will flash rapidly when communication has been established. When the receiver is off, the red LED will flash slowly indicating this. With the receiver on, press the corresponding buttons on the transmitter keypad to turn on and off each of the outputs.

Cloning

1. On transmitter A (the teacher), press the POWER button, LOWER HOP, and BROOM ON/OFF simultaneously. At this point, both LEDs will flash on the first transmitter.
2. On transmitter B (the learner), press the POWER button to turn it on, then press LIFT HOP, LOWER BROOM, RAISE BROOM, and BROOM ON/OFF simultaneously. Both green and red LEDs will begin flashing.
3. Release buttons and wait for 1 second or until the green and red LEDs stop flashing on both units. Both transmitters will have the same ID at this point.

Sleep Time

The transmitter is factory set to turn off (sleep) after 15 minutes. To change the time, the transmitter waits before going to sleep, use the following procedure:

1. On the transmitter, press and hold POWER and buttons 3, 4, and 8.
2. Release the buttons. At this point, both lights will blink once per second.
3. On the transmitter, press one of the following buttons to adjust the sleep time:
 - a. 1=15 min.
 - b. 2=30 min.
 - c. 3=1 hr.
 - d. 4=2 hrs.
 - e. 8=sleep disabled

4. Sleep time programming complete.

Indicator Lights

The transmitter has two LED indicators, the red BATTERY/DIAGNOSTIC indicator and the green TRANSMIT indicator.

The green TRANSMITTER indicator flashes rapidly whenever there is communication between the transmitter and the receiver.

The red BATTERY/DIAGNOSTIC indicator starts blinking once every second when the battery voltage is low and requires replacement. It also blinks when there is a problem with the system in the form of an error code. Refer to the ERROR CODE CHART tables for more information.

Note: To check for low battery, turn the receiver off and leave the transmitter on. If the transmitter red LED continues to blink, the battery is low and requires replacement. If the red LED blinks only when the receiver is on, count the number of blinks and refer to ERROR CODE CHART tables for additional information.

Teach ID Code

To synchronize a new transmitter and receiver together, refer to Fig. 1 and use the following procedure:

1. Remove receiver cover
2. Apply power to receiver
3. Place a jumper across the TEACH ID jumper inside the receiver, green LED will go steady inside the receiver. Remove the jumper and store it on one pin.
4. To get the transmitter into TEACH ID mode, press and hold the POWER button, LOWER HOP and BROOM ON/OFF.
5. Release the POWER button and wait for 1 second or until the green LED goes from steady to blinking in the receiver. Release the other buttons.
6. Teach complete

7. Replace the cover on the receiver.

Vibration: 3G to 200 Hz

Outputs: 5A max each (20A system max)

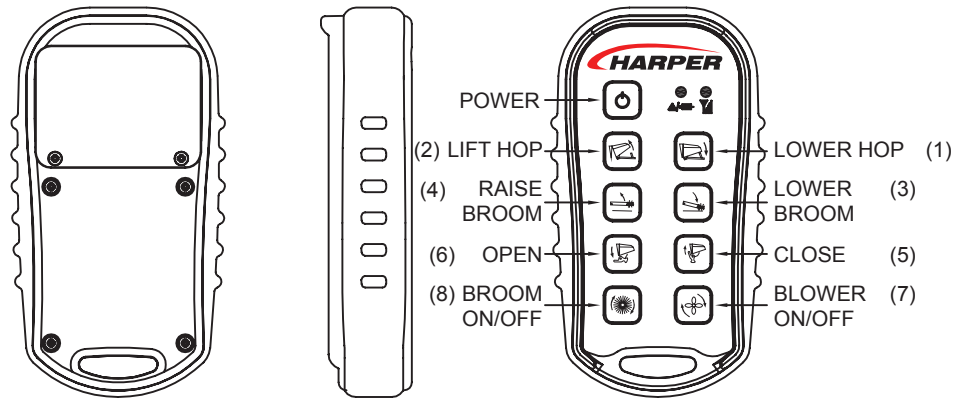
Specifications

RF Transmit power (EIRP): 10 mW

RF Frequency: 902-928 MHz

Operating temperature - Radio: -40C to +85C

Battery life (min): 30 hours continuous



TRANSMITTER (P/N: 3A1518C) Uses 2 AA Alkaline batteries.

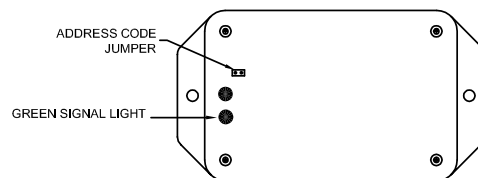
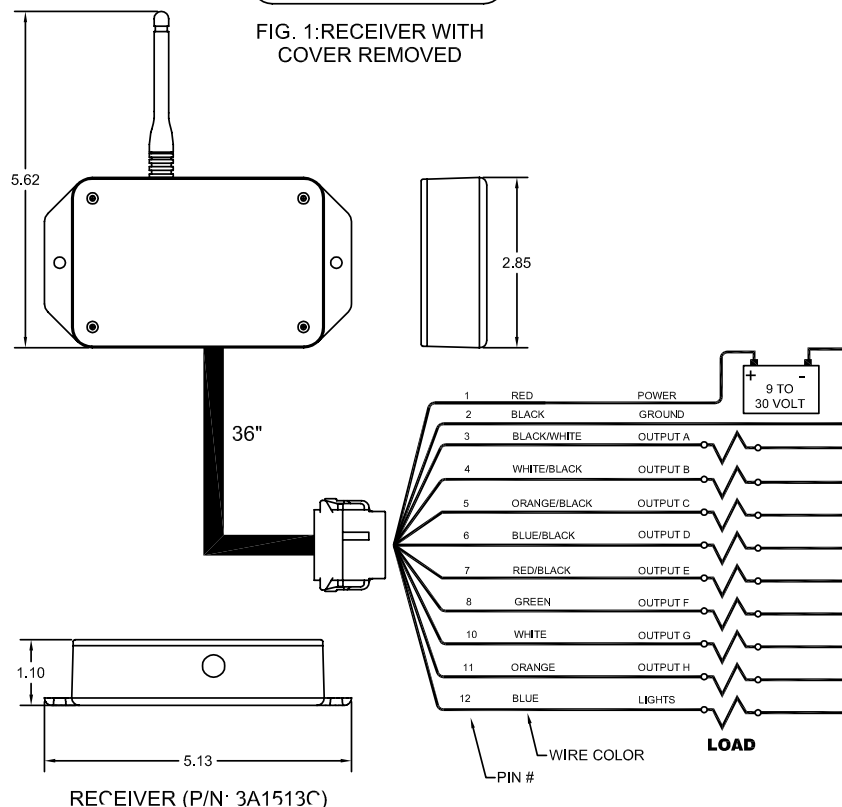


FIG. 1: RECEIVER WITH COVER REMOVED

ERROR CODE	PROBABLE CAUSE
1	LOW BATTERY
2	FAULTY CIRCUIT TO OUTPUT A
3	FAULTY CIRCUIT TO OUTPUT B
4	FAULTY CIRCUIT TO OUTPUT C
5	FAULTY CIRCUIT TO OUTPUT D
6	FAULTY CIRCUIT TO OUTPUT E
7	FAULTY CIRCUIT TO OUTPUT F
8	FAULTY CIRCUIT TO OUTPUT G
9	FAULTY CIRCUIT TO OUTPUT H

ERROR CODES NUMBERS THE NUMBER OF RED LIGHT BLINKS BETWEEN EVERY PAUSE.



Service & Maintenance



SAFETY WARNING!

Before servicing or inspecting the Turbo Vac, make sure the power source is shut off and all moving parts have stopped.



SAFETY WARNING!

Disconnect the spark plug wire or the negative battery cable to prevent the engine from being turned on.



SAFETY WARNING!

Always wear safety glasses and protective gloves when servicing the Turbo Vac.

Break-in Service

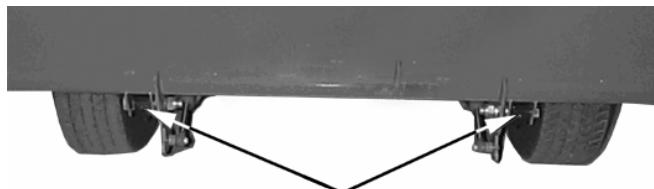
After the first hour of use:

- Check belts. Tighten if needed.
- Tighten set screws on bearings.
- Check nuts, bolts, and fasteners to see that they are secure. Tighten if needed.
- Check hydraulic hoses and fittings for leaks using the method described in the General Safety Guidelines. Tighten or replace if needed.

Lubrication

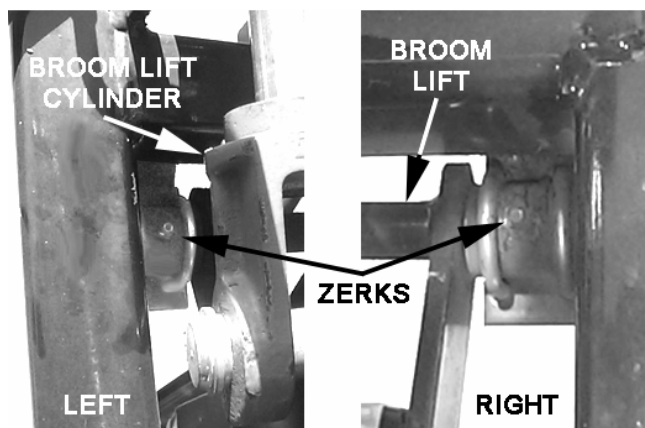
Ten grease zerks in the following locations should be greased daily to reduce wear:

- Hopper door latches (2)

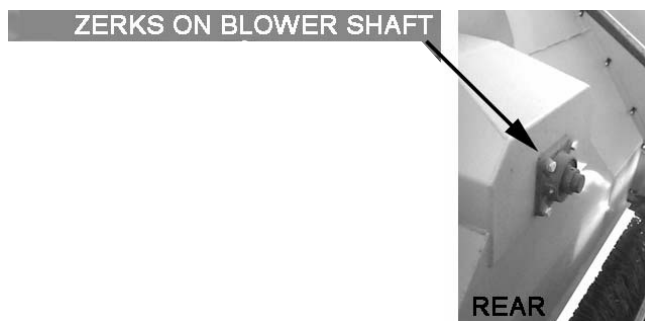


HOPPER DOOR LATCH ZERKS

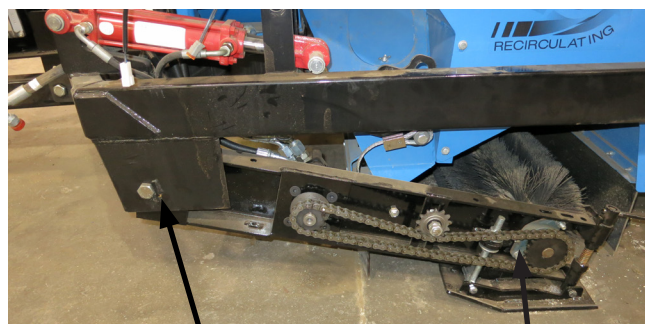
- Broom lift (2)



- Blower shaft (2)



- Rotor shaft (2) - one on each side
- Deck Hinge Shaft (2) - one on each side



Deck Hinge Shaft

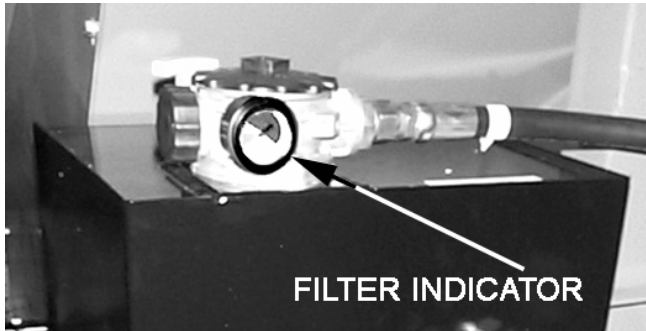
* Located behind frame and must be turned until its visible.

Rotor Shaft

- Replace the safety shields before operating the Turbo Vac.

TV60R-HD Hydraulic Oil Reservoir

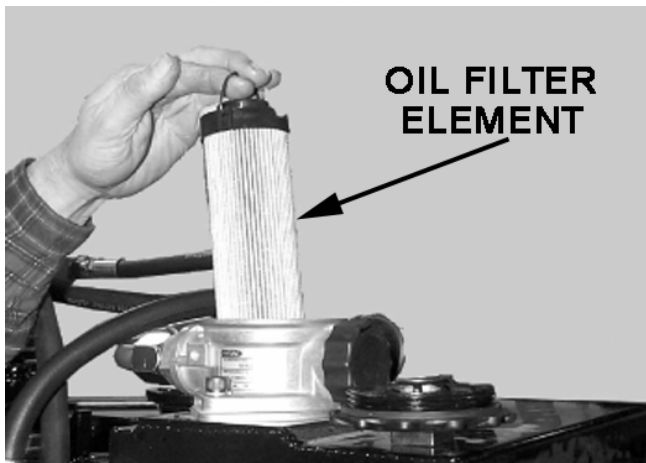
- The **TV60R-HD** is equipped with a HY-DAC hydraulic oil filter assembly that is designed for a long service life.
- Monitor the needle in the filter indicator daily. The element (Part no. 822002) does not need replaced until the needle is in the red portion of the gauge.



- To replace the element, unscrew the cover, remove the old element and insert the new one.

To add hydraulic oil to a **TV60R-HD** reservoir:

- For small quantities, simply remove cover and add oil. The oil will seep past the filter element slowly.
- For larger quantities, remove the cover and the filter element. Take extra care that no impurities enter the reservoir.
- Maintain the oil level in the reservoir between the FILL and ADD marks on the dipstick at all times.



Note: The Turbo Vac is filled at the factory with biodegradable hydraulic oil. Mixing with regular oil will reduce biodegradability.



SAFETY WARNING!



Escaping hydraulic fluid under pressure can penetrate skin and cause serious injury or death.

Hydraulic System

- The hydraulic system of the **TV60R-HD** is filled at the factory with Crown AW46 hydraulic oil that has an ISO of 46.
- The **TV60R-HD** has a 10 micron, beta rated hydraulic oil filter designed for long life.

The following list of hydraulic fluids are compatible and can be mixed with Crown hydraulic fluid. **MIXING OTHER OILS THAT ARE NOT INCLUDED ON THIS LIST COULD CAUSE GELLING AND DAMAGE TO THE HYDRAULIC COMPONENTS.** If another type of oil is desired, then the system must be completely drained and flushed first.

Appropriate replacements:

ISO 46: Recommend for running in ambient air temperatures of 32°F-110°F, and it contains a kinematic viscosity rating around 46 cSt at 40°C. (1cSt = 1mm²/s)

- Mobil DTE 25
- Mobil DTE 15M
- Amoco Rykon Premium Oil ISO 46
- Chevron Rykon Premium Oil ISO 46
- Conoco Hydroclear AW MV 46
- Exxon Unis N 46
- Pennzoil AWX MV 46
- Shell Tellus T 46
- Texaco Rando HDZ 46

TV60R-HD Hydraulic Oil Cooler

- Make sure that the oil cooler assembly is kept free of debris. Clean as necessary.



Remote Control

- If the remote control transmitter or receiver should ever be replaced, the dip switches must be set so that the two components match.

TRANSMITTER



RECEIVER

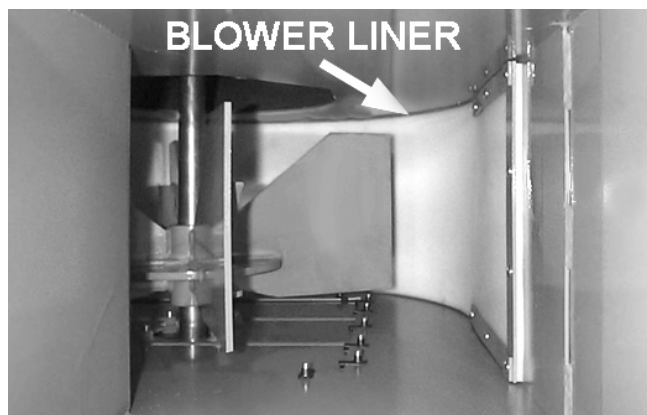


Blower Liner

- Regularly inspect the blower liner in the blower housing for wear.
- If the blower liner wears excessively, damage may result to the blower housing.
- The blower liner is a wear item and is not covered under warranty.
- Sandy conditions will shorten the life of the blower liner.

To check the blower liner:

- Raise hopper and set the safety lock as shown in the General Safety Guide lines.
- Check the blower liner located around the inside of the blower housing.



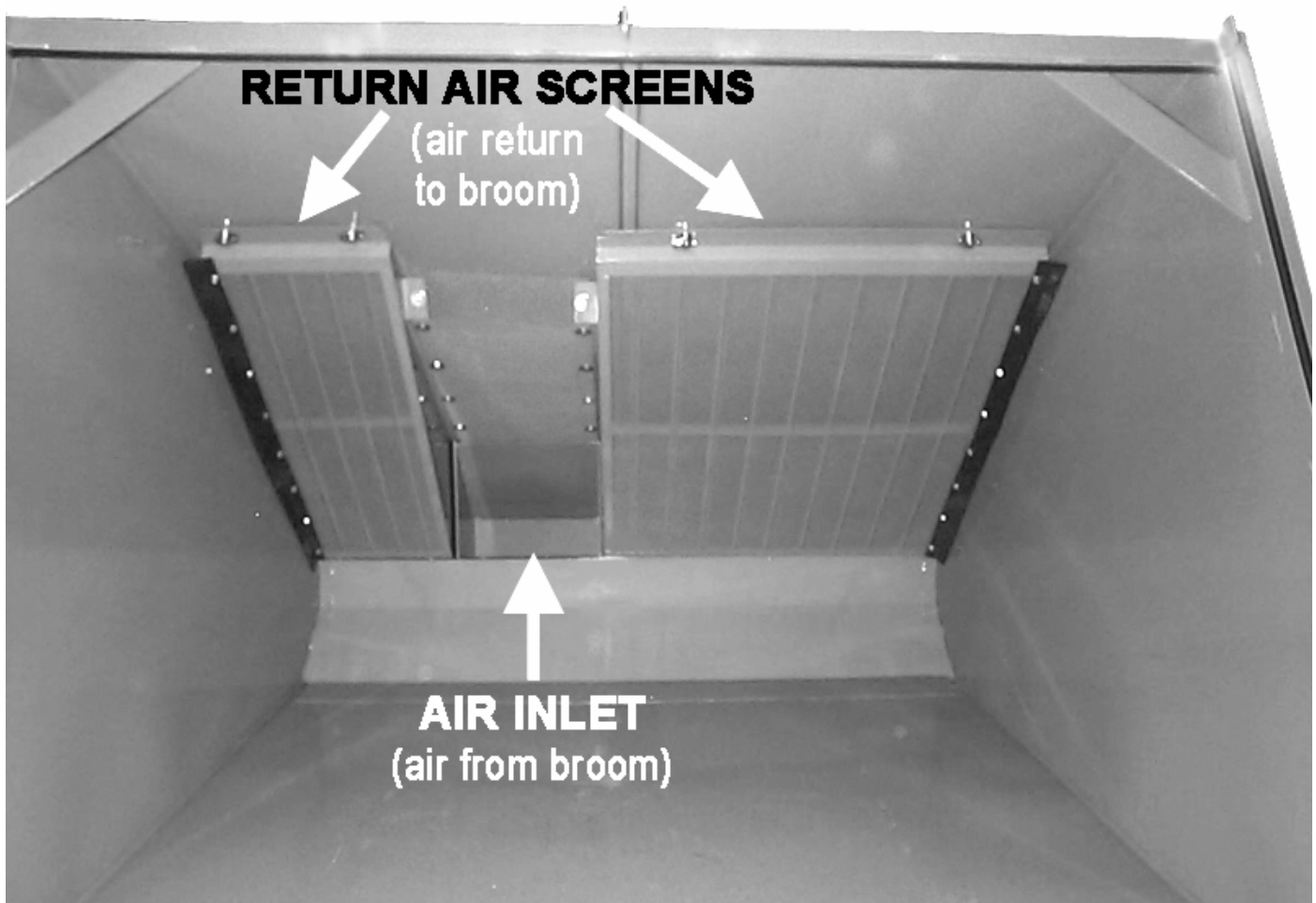
- If the blower liner is damaged or worn through, replace it before damage is done to the blower housing.



Before attempting to inspect the liner, make sure the power unit is turned off, the unit has come to a complete stop, and the spark plug wire has been removed.

When working under the hopper the cylinder safety lock should be engaged to prevent the hopper from falling.

Return Air Screens



- The return air screens do not require cleaning on a regular basis.
- Material that sticks to the screens during operation will fall off when the blower is stopped. However, if debris is extremely wet or muddy, plugging may occur.
- If there is a noticeable decline in ability to pick up debris, visually inspect screens for clogging and clean, if necessary.
- The return air screens may be cleaned with a broom or water hose, and may be removed, if necessary.

- To set door prop, pull the door open and insert prop into the pre-cut hole in door.



! SAFETY WARNING! !

When it is necessary to get between the hopper and the hopper door, set the door prop to avoid being pinched.

TV60R-HD Service Schedule

Daily

Check hydraulic oil level.....	Crown AW46 or equivalent Use only biodegradable oil;
Check hydraulic oil filter indicator.....	Change filter element when needle is in red portion of gauge.*
Check hydraulic oil cooler.....	Clean as necessary.
Visually inspect belts, bolts, fittings, and hoses	Tighten or replace if necessary.
Grease.....	See Service & Maintenance Section.
Check tire pressure.....	Inflate to 30-32 psi.

Annually or 500 Hours

Change hydraulic oil.....	20 gallons
---------------------------	------------

• The TV60R-HD is equipped with a Hydac, 10 micron, beta rated, hydraulic filter and is designed for a long service life. When the hydraulic oil is warm and the indicator needle is in the red portion of the gauge, the filter needs to be changed.

Standard Torque Chart



SAFETY WARNING!



Refer to the Standard Torque Chart whenever bolts, nuts or screws are tightened.

Size	In-Lbs	Ft-Lbs	N-m
No. 10-24	25-35	5-7	2.8-4.0
¼ in.	60-80	18-20	7-9
5/16 in.	120-140	28-30	14-16
3/8 in.	340-360	64-74	24-27
½ in.		126-150	90-100

Note: When tightening two or more fasteners on the same part, DO NOT tighten the fasteners completely one at a time. To avoid distortion, first tighten all fasteners in sequence to one-third of torque value, then tighten to two-thirds of torque value, then tighten to full value.

Troubleshooting

Hydraulic System:

Problem:	What to Check:
Hydraulic function will not respond or hold its position.	<ul style="list-style-type: none">• The RF receiver or transmitter may be malfunctioning.• Hydraulic cylinder seals may be worn and in need of replacement.

HARPER[®] **TURBO VAC**

Turf Sweeper

Parts

TV60R-HD



TV60R

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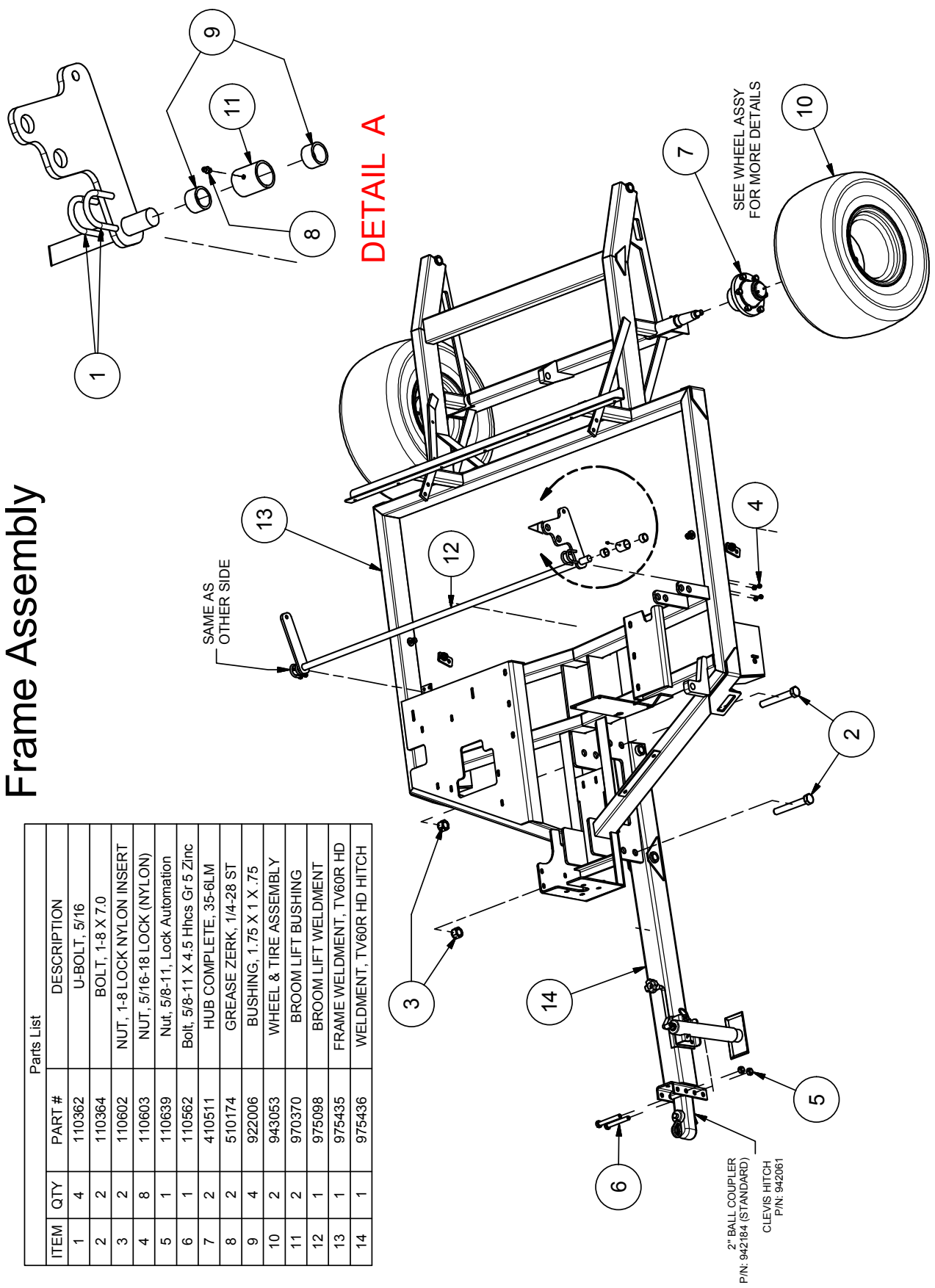
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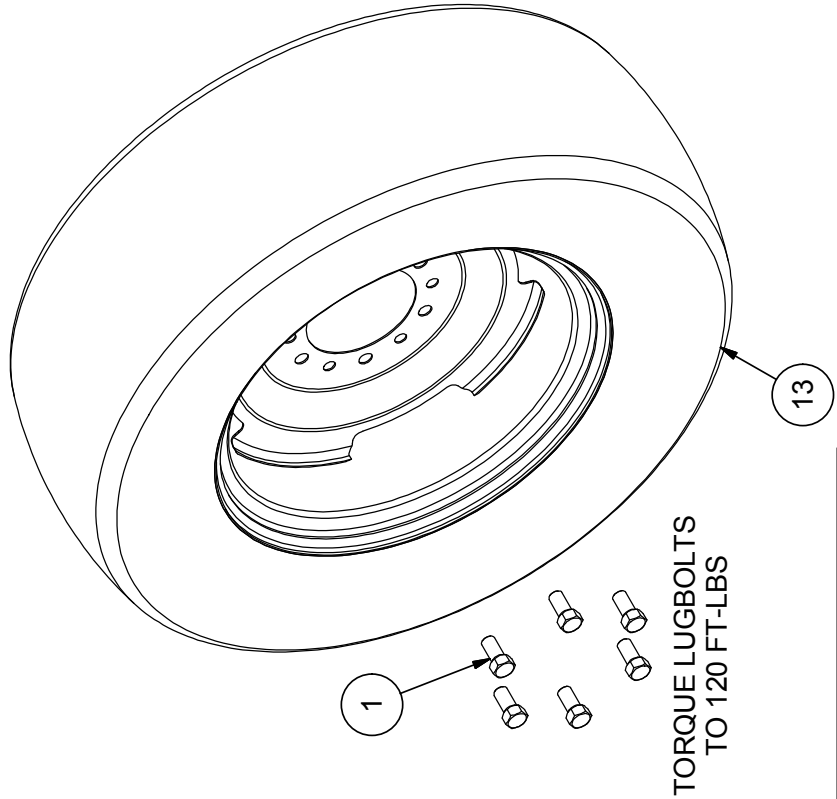
Frame Assembly

Parts List		
ITEM	QTY	PART # DESCRIPTION
1	4	110362 U-BOLT, 5/16
2	2	110364 BOLT, 1-8 X 7.0
3	2	110602 NUT, 1-8 LOCK NYLON INSERT
4	8	110603 NUT, 5/16-18 LOCK (NYLON)
5	1	110639 Nut, 5/8-11, Lock Automation
6	1	110562 Bolt, 5/8-11 X 4.5 Hhcs Gr 5 Zinc
7	2	410511 HUB COMPLETE, 35-6LM
8	2	510174 GREASE ZERK, 1/4-28 ST
9	4	922006 BUSHING, 1.75 X 1 X .75
10	2	943053 WHEEL & TIRE ASSEMBLY
11	2	970370 BROOM LIFT BUSHING
12	1	975098 BROOM LIFT WELDMENT
13	1	975435 FRAME WELDMENT, TV60R HD
14	1	975436 WELDMENT, TV60R HD HITCH



WHEEL & HUB ASSEMBLY

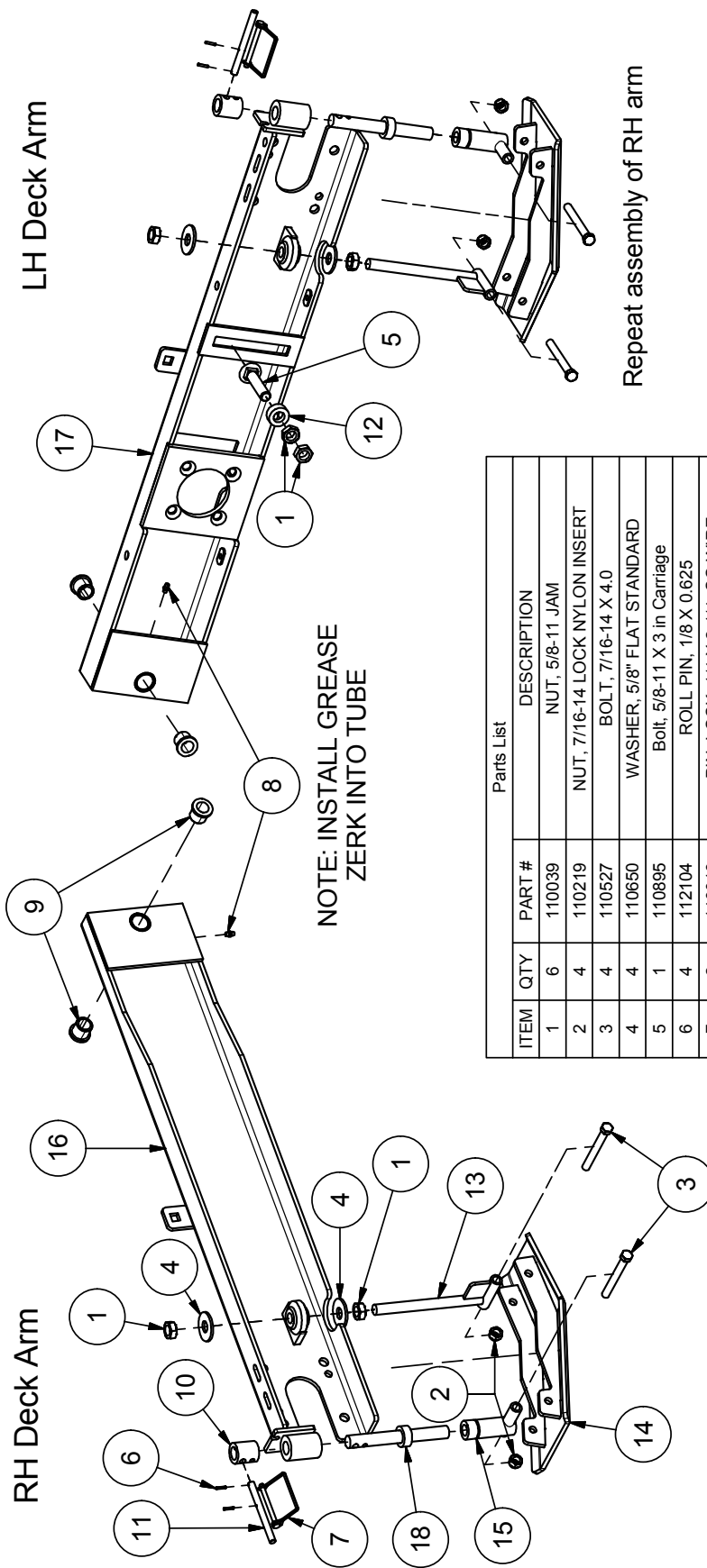
Parts List			
ITEM	QTY	PART #	DESCRIPTION
1	6	110394	BOLT, LUG 9/16-18 X 1-1/8
2	1	110613	NUT, 3/4-16, CASTLE
3	1	110854	SPINDLE WASHER
4	1	410511	HUB ASSY
5	1	410103	OUTER RACE
6	1	410115	OUTER BEARING
7	1	410104	INNER RACE
8	1	410114	INNER BEARING
9	1	410105	SEAL
10	1	410111	HUB
11	1	410112	DUST CAP
12	1	510175	COTTER PIN, 3/16 X 2
13	1	943053	TURF WHEEL AND TIRE ASSEMBLY
		942072	Wheel, 12 X 10.5; 6 On 6, White w/-2.0
		342020	Tire, 26 X 12 X 12/16 Titan



TORQUE LUGBOLTS
TO 120 FT-LBS

RADIAL TIRE ASSEMBLY
OPTION AVAILABLE
ASSEMBLY: P/N 943013
WHEEL: P/N 410107
TIRE: P/N 942090

Deck Arms Assembly



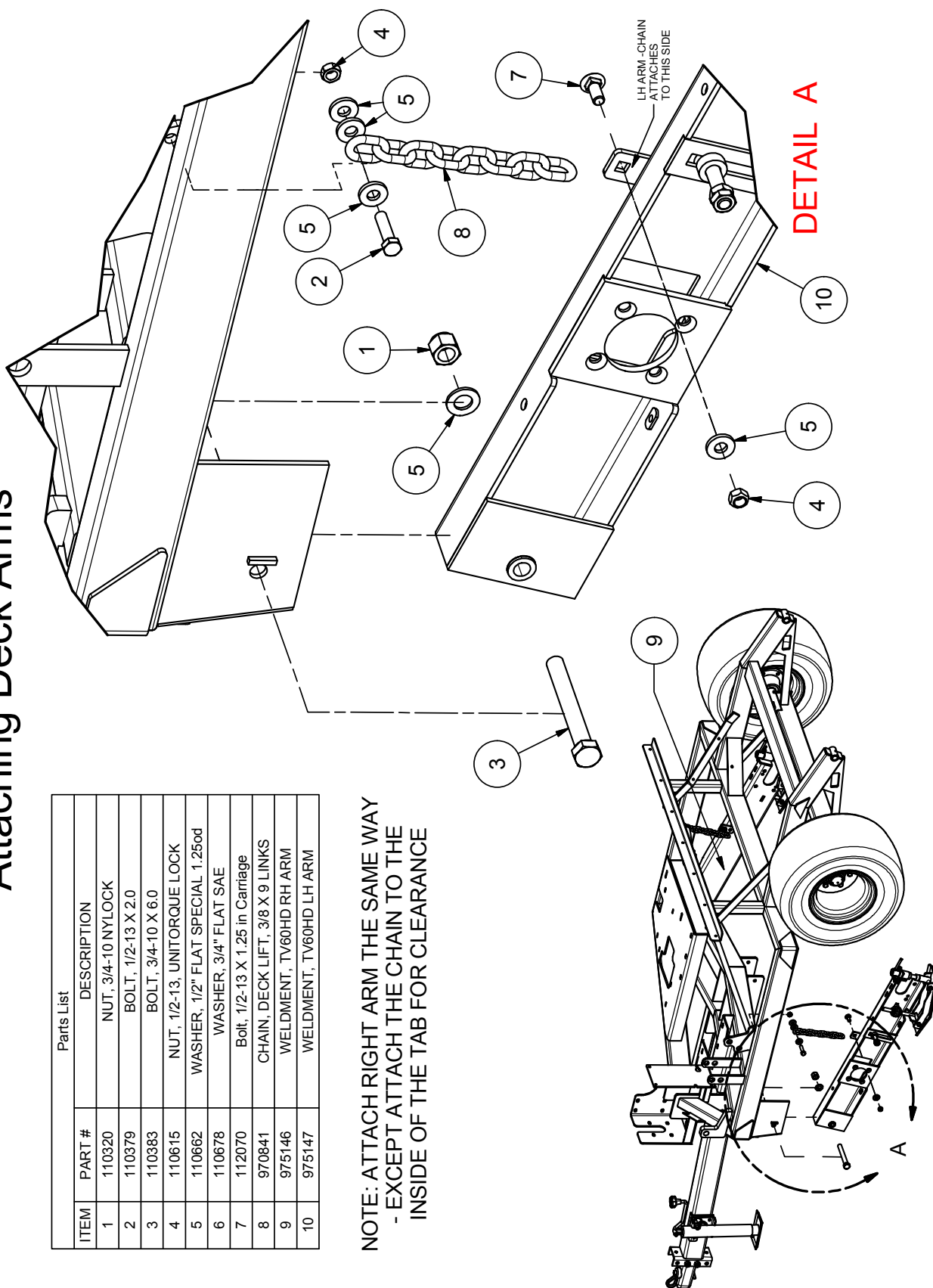
Parts List			
ITEM	QTY	PART #	DESCRIPTION
1	6	110039	NUT, 5/8-11 JAM
2	4	110219	NUT, 7/16-14 LOCK NYLON INSERT
3	4	110527	BOLT, 7/16-14 X 4.0
4	4	110650	WASHER, 5/8" FLAT STANDARD
5	1	110895	Bolt, 5/8-11 X 3 in Carriage
6	4	112104	ROLL PIN, 1/8 X 0.625
7	2	140016	PIN, LOCK, 1/4 X 2-1/4, SQ WIRE
8	6	510174	GREASE ZERK, 1/4-28 ST
9	4	800128	BUSHING, IGUS, FOOT PEDAL
10	2	970855	BUSHING, ADJUSTABLE SKID
11	2	970857	HANDLE, .375 X 4.25
12	1	970862	SPACER, IDLER SPROCKET
13	2	975015	WELDMENT, HEIGHT ADJUSTMENT
14	2	975144	WELDMENT, TV60 VERTICUT SKID
15	2	975145	MOUNT, ADJUSTABLE SKID
16	1	975146	WELDMENT, TV60HD RH ARM
17	1	975147	WELDMENT, TV60HD LH ARM
18	2	975148	WELDMENT, ADJUSTABLE SCREW

11/4/2015

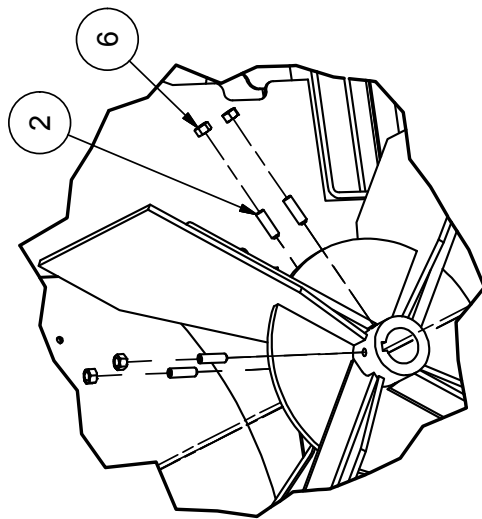
Attaching Deck Arms

Parts List	
ITEM	PART # DESCRIPTION
1	110320 NUT, 3/4-10 NYLOCK
2	110379 BOLT, 1/2-13 X 2.0
3	110383 BOLT, 3/4-10 X 6.0
4	110615 NUT, 1/2-13, UNITORQUE LOCK
5	110662 WASHER, 1/2" FLAT SPECIAL 1.250d
6	110678 WASHER, 3/4" FLAT SAE
7	112070 Bolt, 1/2-13 X 1.25 in Carriage
8	970841 CHAIN, DECK LIFT, 3/8 X 9 LINKS
9	975146 WELDMENT, TV60HD RH ARM
10	975147 WELDMENT, TV60HD LH ARM

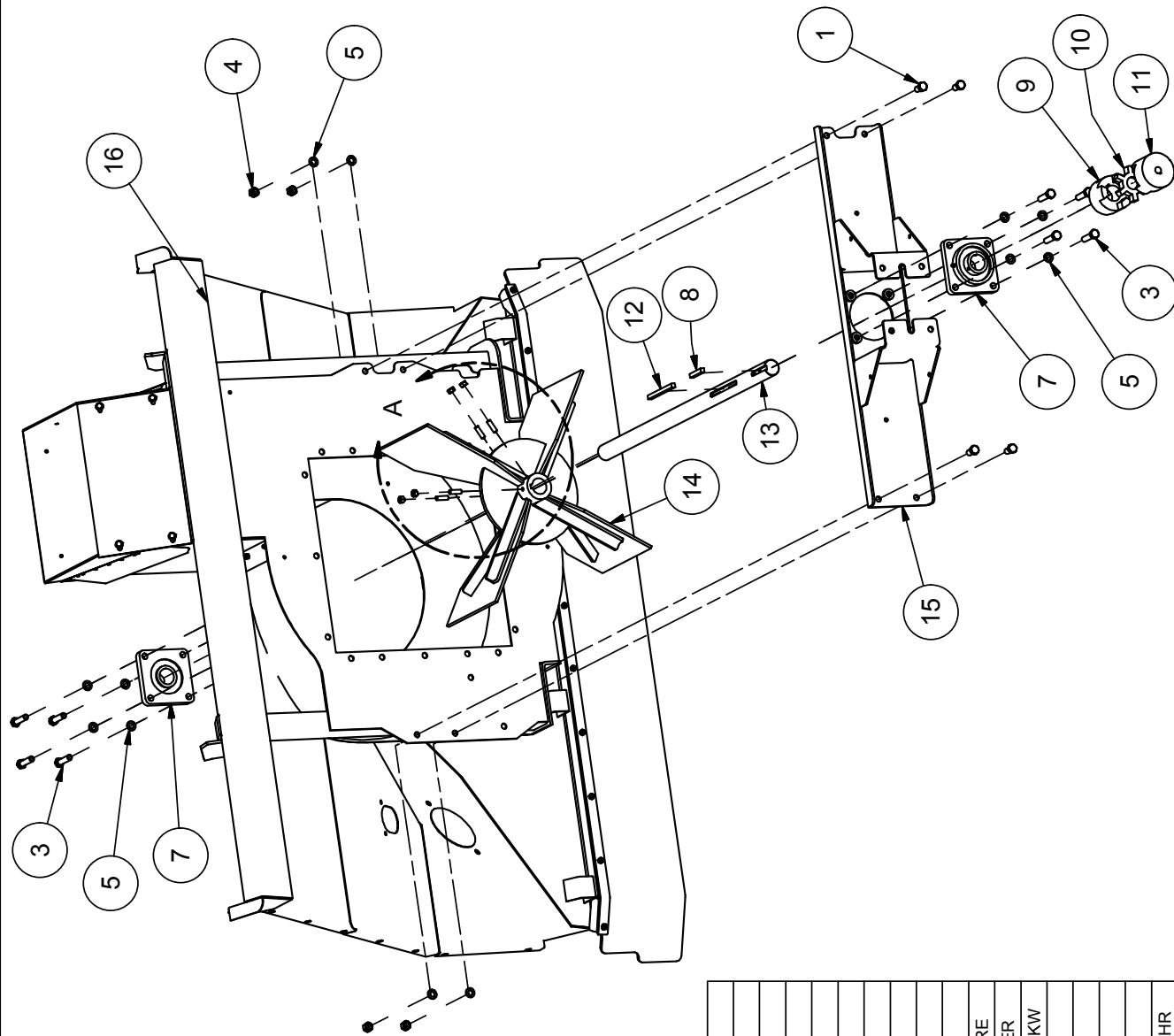
NOTE: ATTACH RIGHT ARM THE SAME WAY
- EXCEPT ATTACH THE CHAIN TO THE
INSIDE OF THE TAB FOR CLEARANCE



Fan Housing Assembly



DETAIL A

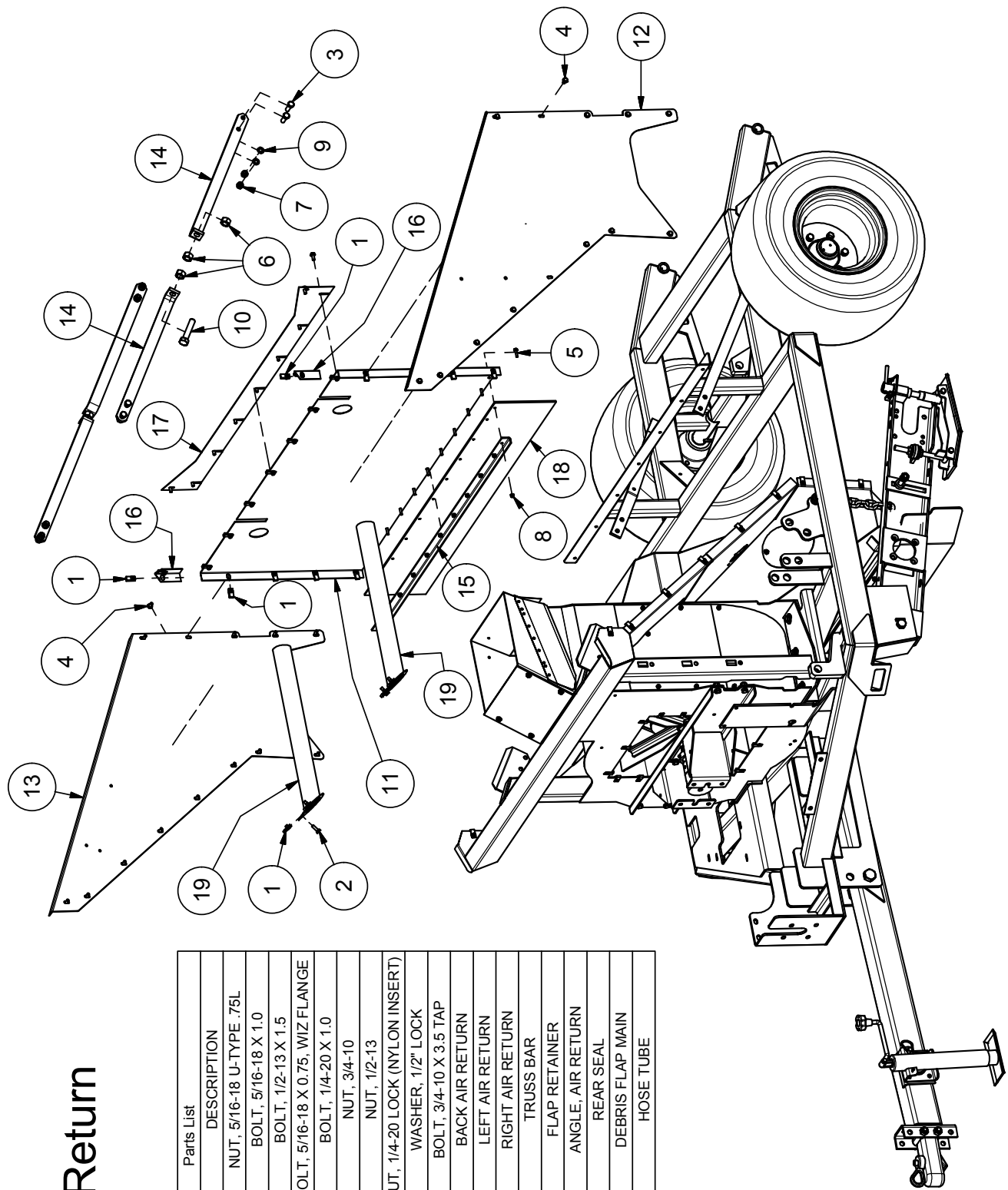


Parts List		
ITEM	QTY	PART # DESCRIPTION
1	4	110086 BOLT, 1/2-13 X 1.0
2	4	110093 SetScrew, 3/8-16 X 1.25
3	8	110379 BOLT, 1/2-13 X 2.0
4	4	110610 NUT, 1/2-13
5	12	110666 WASHER, 1/2" LOCK
6	4	110826 NUT, 3/8-16 GR 5
7	2	410851 BEARING, 4FNG 1 1/2"
8	1	411120 KEY, 3/8 X 3/8 X 2.25
9	1	922068 HUB, COUPLING 1-1/2" BORE
10	1	922069 LOVEJOY COUPLER SPIDER
11	1	922098 COUPLING, 5/8" BORE, 5/32 KW
12	1	940113 KEY, 3/8 X 5
13	1	970287 BLOWER SHAFT
14	1	975195 FAN ASSY WLDMNT
15	1	975101 BEARING CHANNEL
16	1	975119 BLOWER WELDMENT, TV60HR

10/5/2016

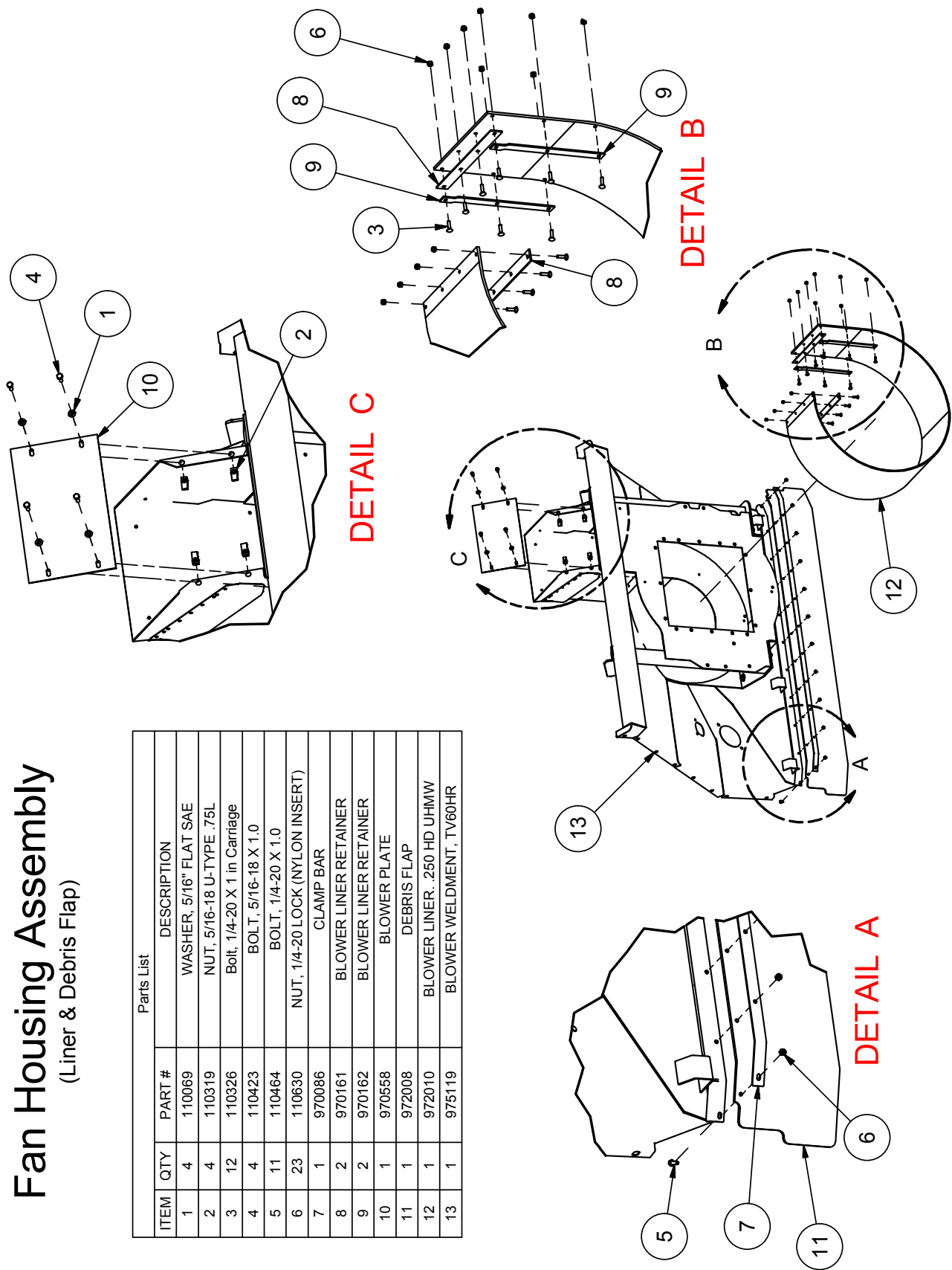
Air Return

Parts List	
ITEM	PART # DESCRIPTION
1	110319 NUT, 5/16-18 U-TYPE .75L
2	110423 BOLT, 5/16-18 X 1.0
3	110429 BOLT, 1/2-13 X 1.5
4	110444 BOLT, 5/16-18 X 0.75, WIZ FLANGE
5	110464 BOLT, 1/4-20 X 1.0
6	110596 NUT, 3/4-10
7	110610 NUT, 1/2-13
8	110630 NUT, 1/4-20 LOCK (NYLON INSERT)
9	110666 WASHER, 1/2" LOCK
10	110713 BOLT, 3/4-10 X 3.5 TAP
11	970390 BACK AIR RETURN
12	970391 LEFT AIR RETURN
13	970392 RIGHT AIR RETURN
14	970393 TRUSS BAR
15	970394 FLAP RETAINER
16	970542 ANGLE, AIR RETURN
17	970545 REAR SEAL
18	970685 DEBRIS FLAP MAIN
19	975111 HOSE TUBE



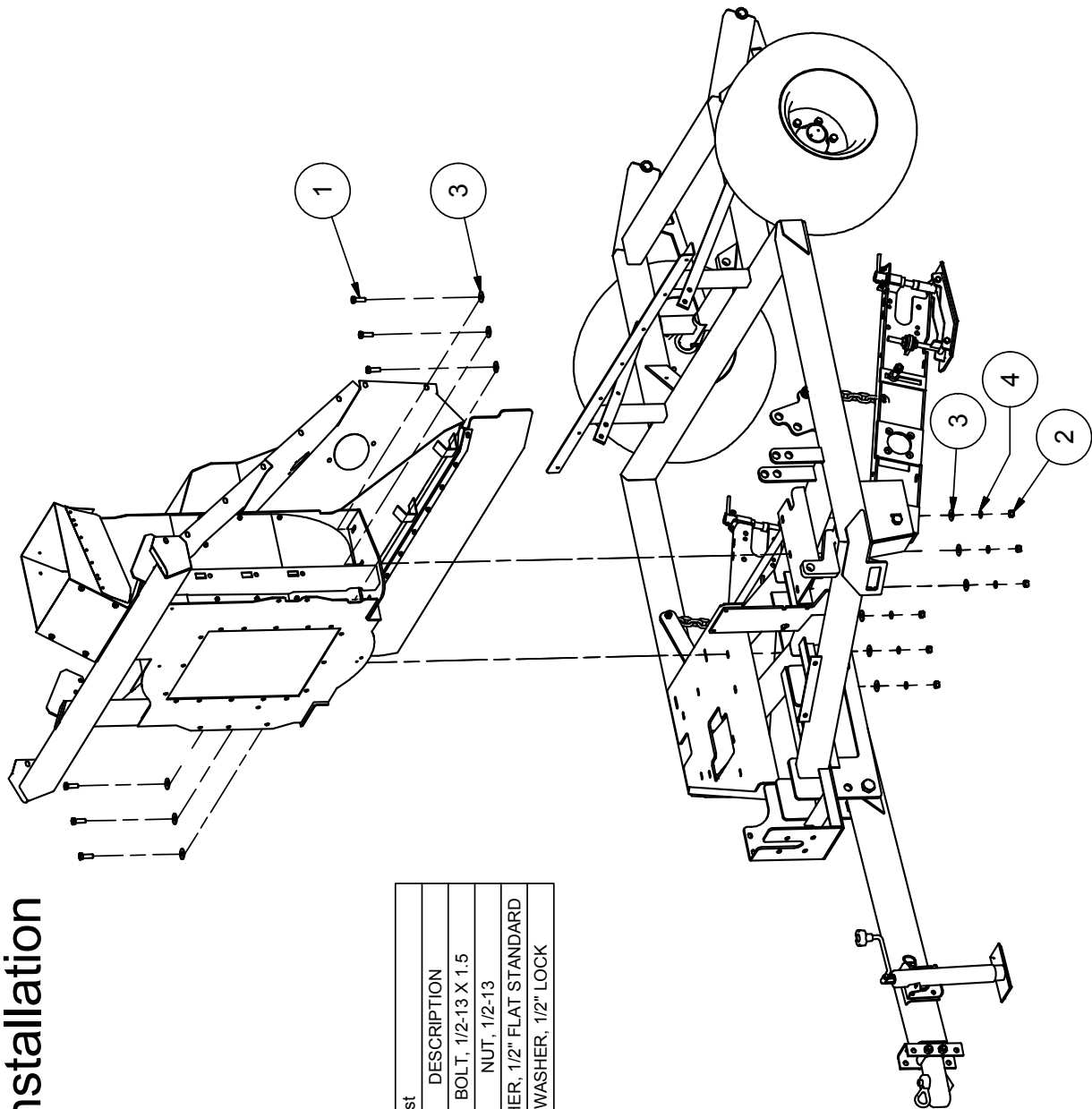
Fan Housing Assembly (Liner & Debris Flap)

Parts List		
ITEM	QTY	PART # DESCRIPTION
1	4	110069 WASHER, 5/16" FLAT SAE
2	4	110319 NUT, 5/16-18 U-TYPE .75L
3	12	110326 Bolt, 1/4-20 X 1 in Carriage
4	4	110423 BOLT, 5/16-18 X 1.0
5	11	110464 BOLT, 1/4-20 X 1.0
6	23	110630 NUT, 1/4-20 LOCK (NYLON INSERT)
7	1	970086 CLAMP BAR
8	2	970161 BLOWER LINER RETAINER
9	2	970162 BLOWER LINER RETAINER
10	1	970558 BLOWER PLATE
11	1	972008 DEBRIS FLAP
12	1	972010 BLOWER LINER, .250 HD UHMW
13	1	975119 BLOWER WELDMENT, TV60HR



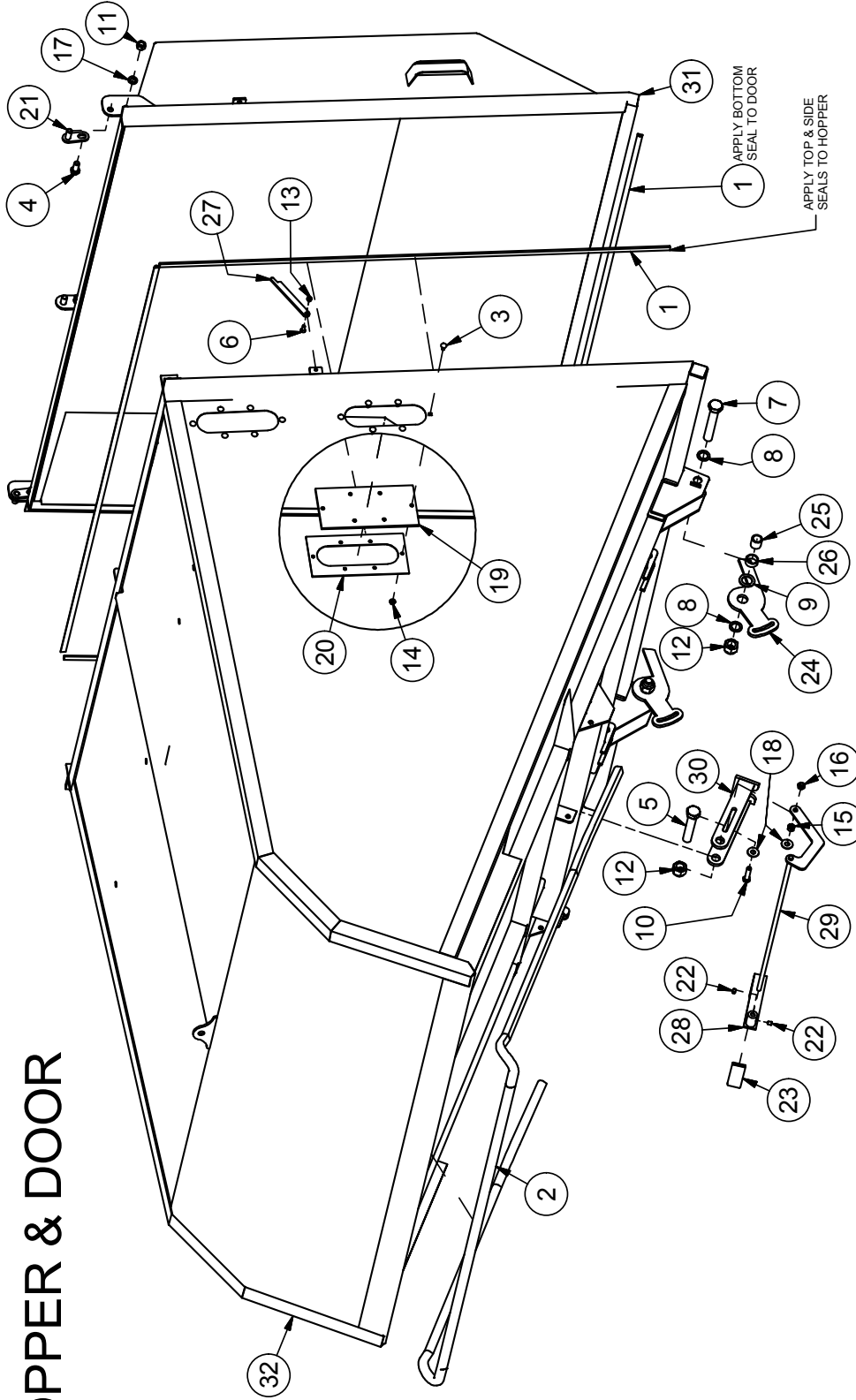
11/4/2015

Fan Housing Installation



Parts List			
ITEM	QTY	PART #	DESCRIPTION
1	6	110429	BOLT, 1/2-13 X 1.5
2	6	110610	NUT, 1/2-13
3	12	110658	WASHER, 1/2" FLAT STANDARD
4	6	110666	WASHER, 1/2" LOCK

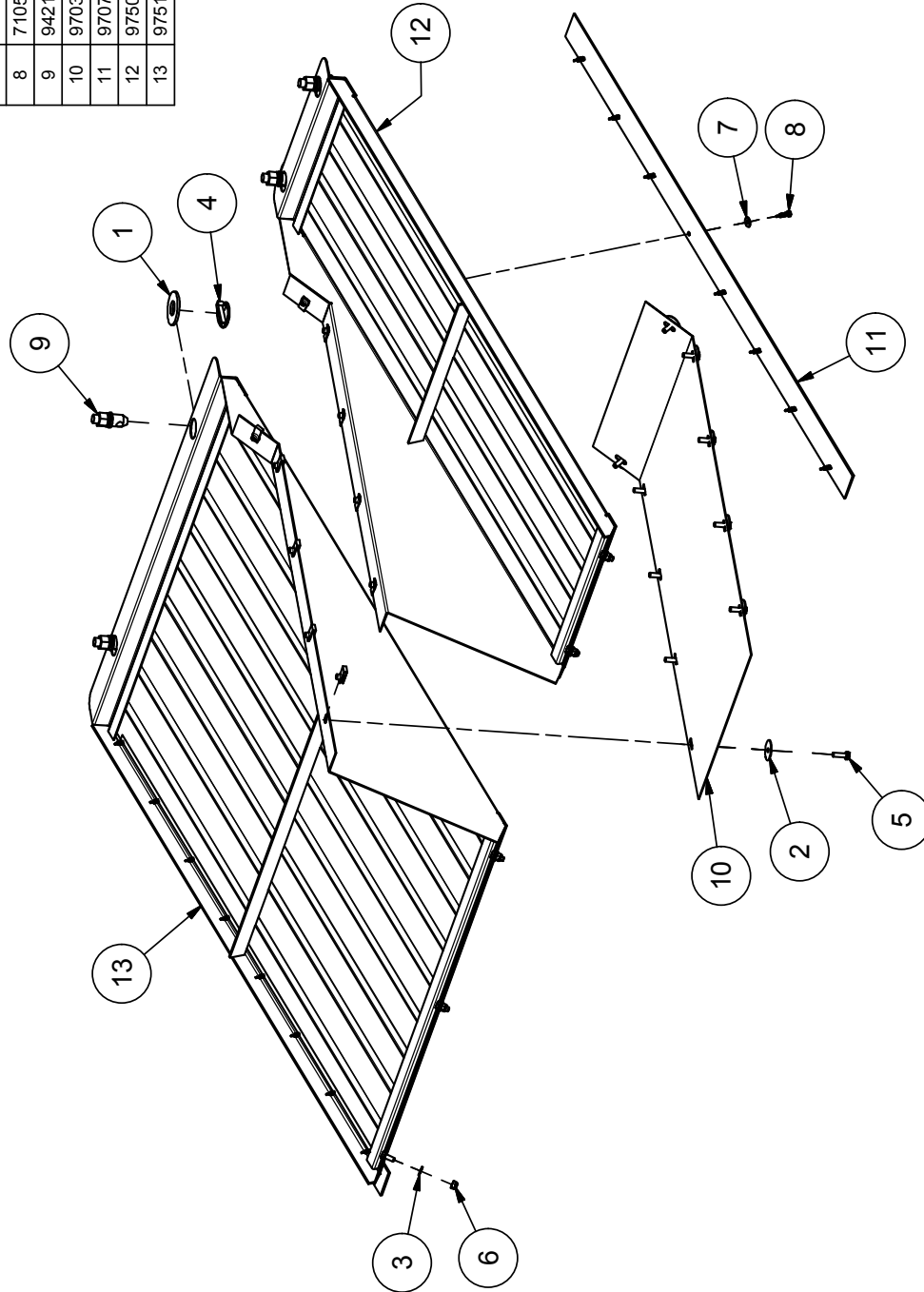
HOPPER & DOOR



Parts List		Parts List		Parts List	
ITEM	PART #	DESCRIPTION	ITEM	PART #	DESCRIPTION
1	100623	D SEAL, .375 X .625	12	110602	NUT, 1-8 LOCK NYLON INSERT
2	102004	D SEAL, 1.00 X 1.00	13	110603	NUT, 5/16-18 LOCK (NYLON)
3	110020	Bolt, 5/16-18 X 0.75 in Carriage	14	110606	NUT, 5/16-18 WIZ FLANGE
4	110026	BOLT, 5/8-11 X 1.25	15	110610	NUT, 1/2-13
5	110208	BOLT, 1-8 X 5.0	16	110615	NUT, 1/2-13, UNITORQUE LOCK
6	110328	BOLT, 5/16-18 X 1 SHFHCS	17	110655	WASHER, 5/8" LOCK
7	110334	BOLT, 1-8 X 6.0	18	110658	WASHER, 1/2" FLAT STANDARD
8	110335	WASHER, 1" FLAT MACHINE	19	311691	SIGHT GLASS, HOPPER
9	110336	WASHER, 1-1/4 FLAT MACHINE 10GA	20	311692	Backing Plate, Sight Glass
10	110379	BOLT, 1/2-13 X 2.0	21	315257	PIN WELDMNT, HOPPER DOOR
11	110597	NUT, 5/8-11 HEX	22	510161	SetScrew, 3/8-16 X 0.5
			23	910044	COVER, VINYL .25 X 1.5 X 4 GRIP
			24	970148	HOPPER DOOR LATCH
			25	970149	LATCH PIVOT BUSHING
			26	970151	LATCH PIVOT SPACER
			27	970211	BAR, PROP
			28	975055	HANDLE WELDMNT, DUMP CYL LOCK
			29	975056	SHAFT WELDMNT, DUMP CYL LOCK
			30	975057	STOP WELDMNT, CYLINDER LOCK
			31	975090	DOOR WELDMNT
			32	975091	HOPPER WELDMNT

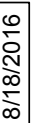
11/30/2015

AIR RETURN SCREENS



Parts List	
ITEM	PART # DESCRIPTION
1	110038 WASHER, 1" FLAT STANDARD
2	110049 WASHER, 5/16 X 1.50 FENDER
3	110069 WASHER, 5/16" FLAT SAE
4	110305 Pin, Lyndh 7/16 x 1 3/4
5	110423 BOLT, 5/16-18 X 1.0
6	110603 NUT, 5/16-18 LOCK (NYLON)
7	110673 WASHER, 1/4" FLAT STANDARD
8	710586 SCREW, 1/4 X 1 TEK SELF-TAP
9	942161 PIN, STABILIZER
10	970366 MIDDLE SCREEN
11	970729 DEBRIS FLAP-RETURN SCREEN
12	975099 LEFT RETURN SCREEN
13	975100 RIGHT RETURN SCREEN

Parts List			Parts List		
ITEM	PART #	DESCRIPTION	ITEM	PART #	DESCRIPTION
1	100613	SEAL, 50 X .187	9	302060	SWIVEL, GARDEN HOSE-TO-PIPE
2	102015	HITCH PIN, 3/4 X 6 W/KEEPER	10	302061	LOCKNUT, 3/4 NPT
3	110407	BOLT, 5/8-11 X 5.0	11	302062	PLUG, GARDEN HOSE
4	110437	BOLT, 3/8-16 X 0.75, WIZ FLANGE	12	970506	COVER PANEL
5	110444	BOLT, 5/16-18 X 0.75, WIZ FLANGE	13	970508	FAN MOTOR SHIELD
6	110606	NUT, 5/16-18 WIZ FLANGE	14	970833	PANEL, FAN ACCESS
7	110639	NUT, 5/8-11, UNITORQUE LOCK	15	970858	SHIELD, TV60HD CHAIN
8	110663	WASHER, 5/8" FLAT SAE	16	970863	BRKT, PTO SHAFT HOLDER



TV60R HD DECAL LAYOUT

HARPER® TURBO VAC
Turf Sweeper 902084
TV60HD
902193



902095

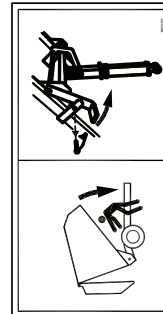
HARPER®
902195



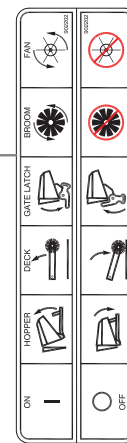
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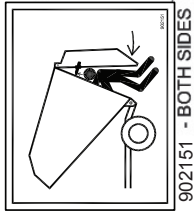
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902152 - BOTH SIDES



902202

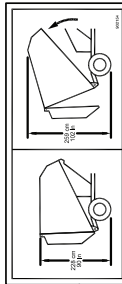


902151 - BOTH SIDES

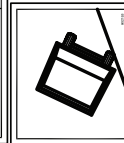
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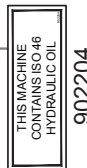
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902153



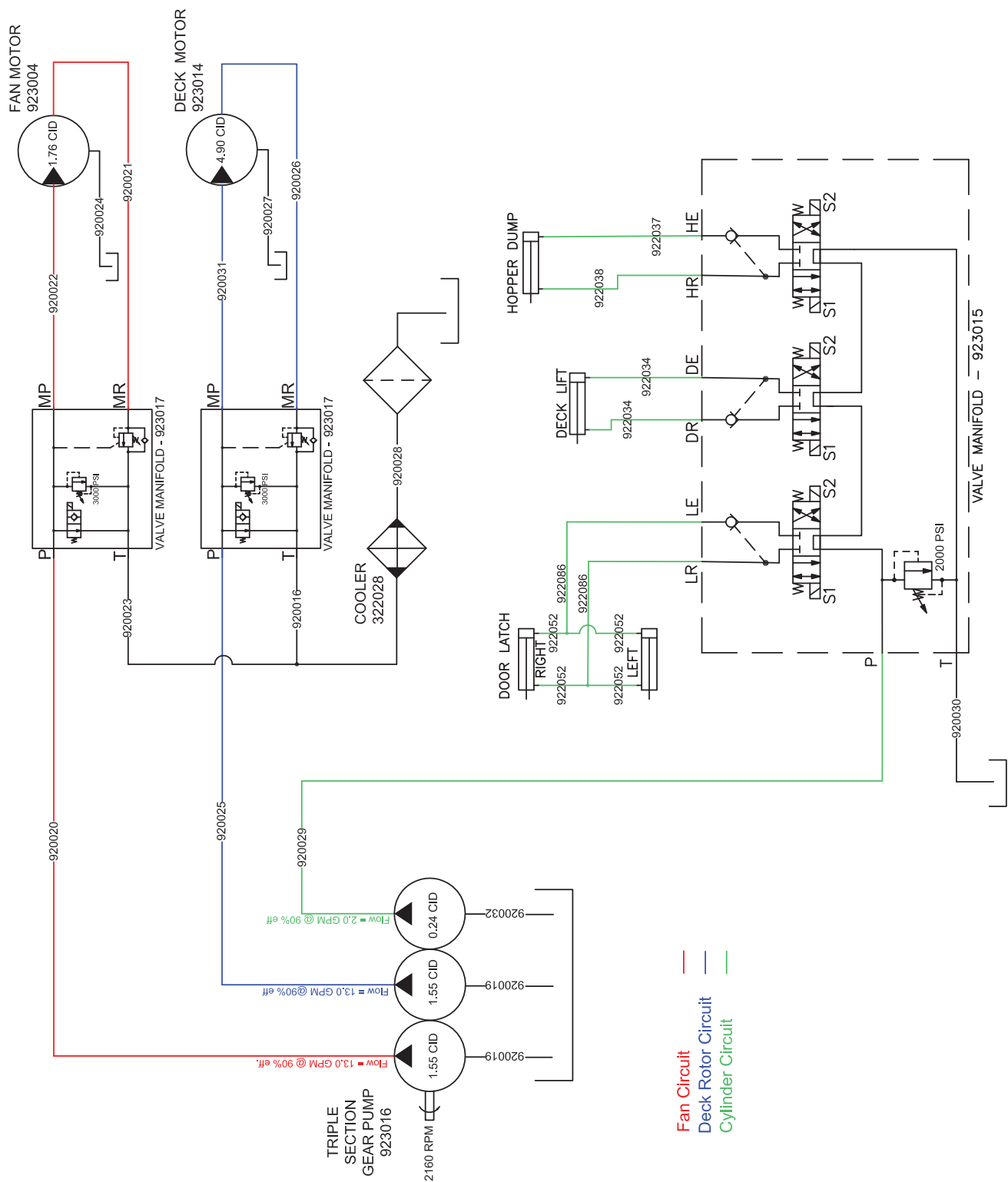
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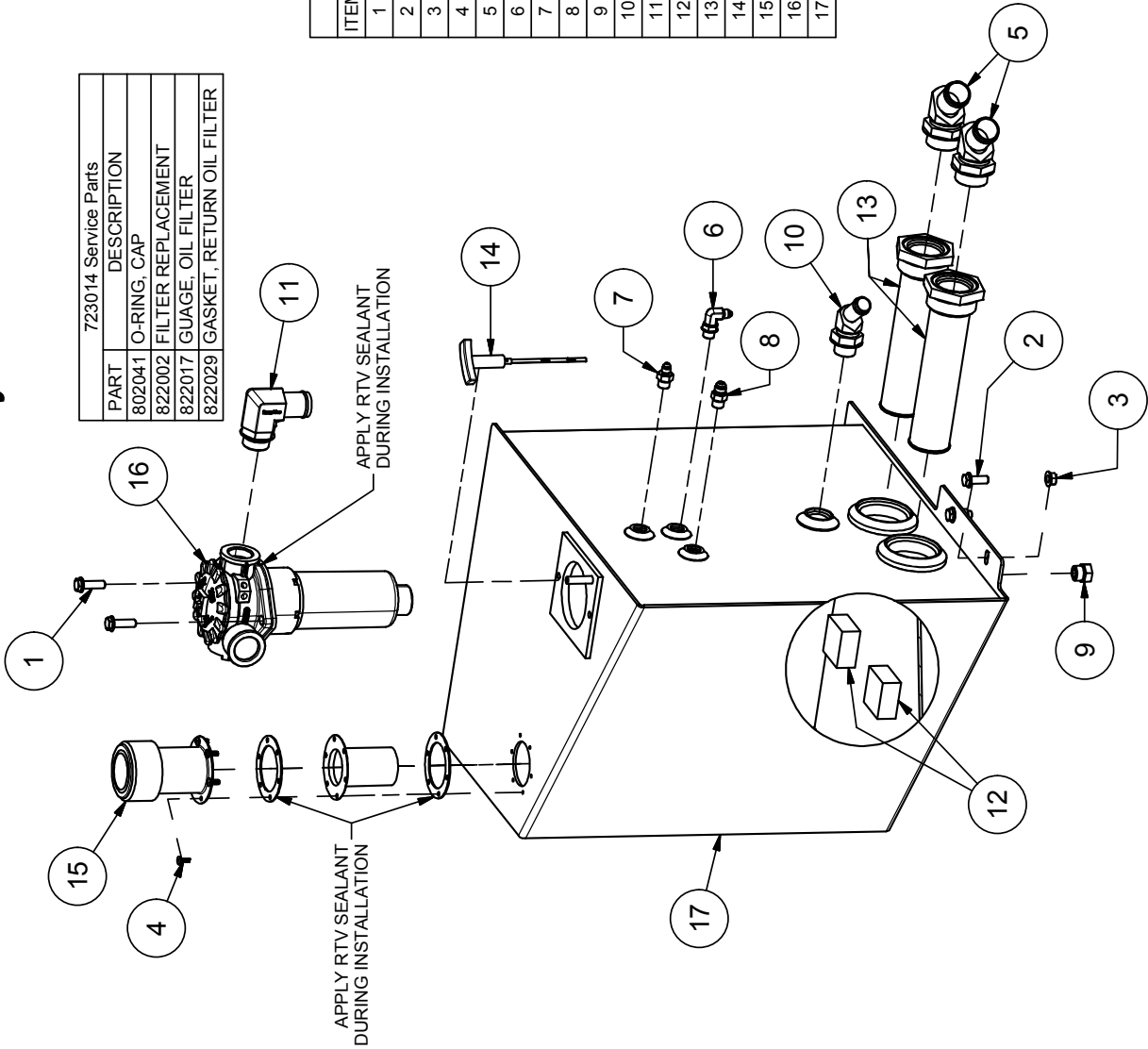
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HARPER® TURBO VAC
Turf Sweeper 902084
TV60HD
902194

HARPER®
TURF EQUIPMENT

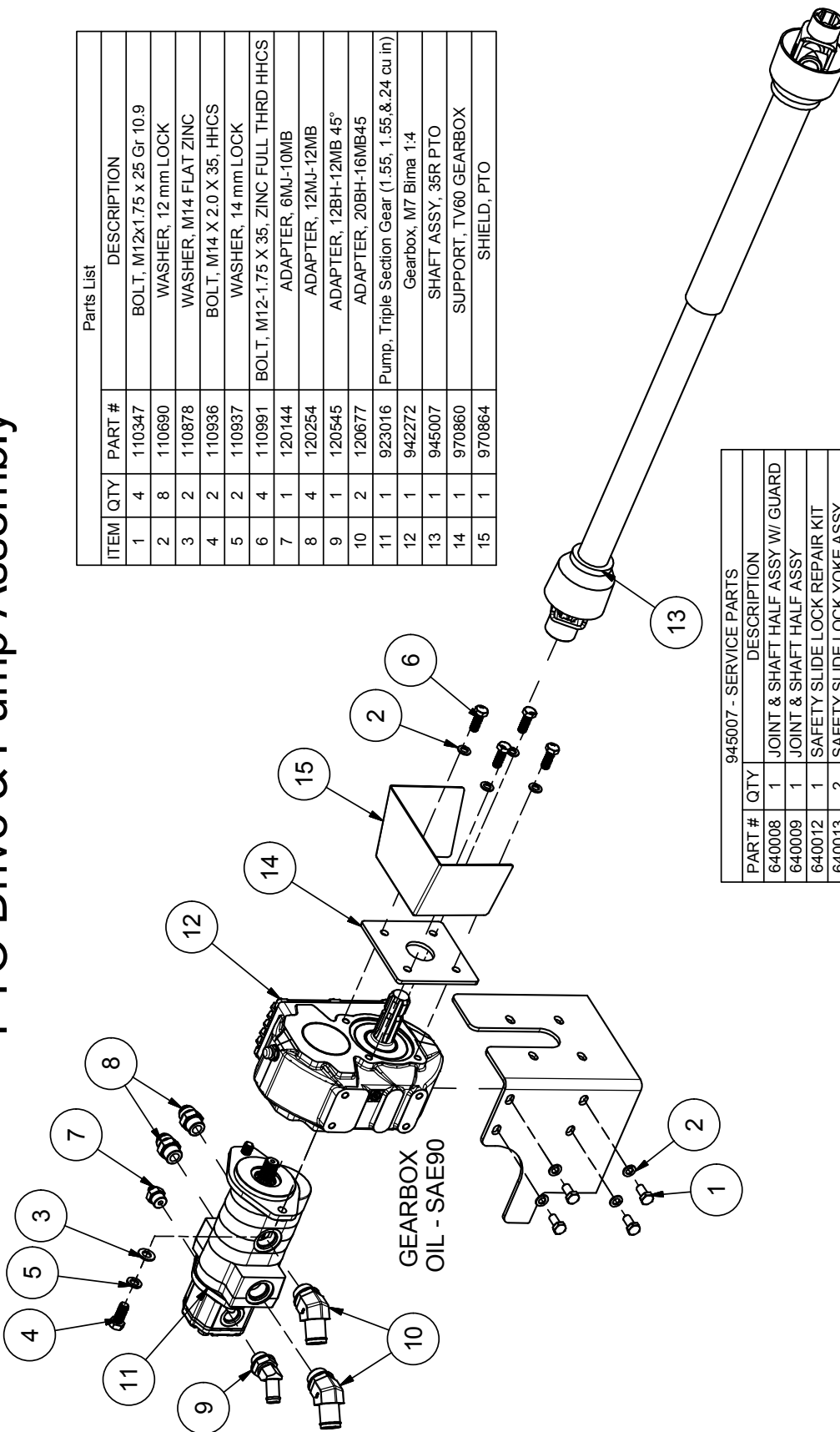


Hydraulic Reservoir



Parts List		
ITEM	QTY	DESCRIPTION
1	2	BOLT, 3/8-16 X 1.25, WIZ FLANGE
2	4	BOLT, 3/8-16 X 1, WIZ FLANGE
3	4	NUT, 3/8-16 WIZ FLANGE
4	6	SCREW, 10-32 X 1/2 MACH SEAL
5	2	ADAPTER, 20BH-20MB 45°
6	1	ADAPTER, 4MJ-6MB90
7	2	ADAPTER, 4MJ-6MB
8	12	ADAPTER, 6MJ-6MB
9	1	PLUG, O-RING -8, EXTERNAL HEX
10	1	ADAPTER, 12BH-12MB 45°
11	2	ADAPTER, 20BH-16MB90
12	2	MAGNET, 2"x2"x1" RECT 15LB
13	2	STRAINER, SUCTION, SAE-20/-16, 25 GPM
14	1	DIP STICK - TV30, HYDRAULIC TANK
15	1	FILL NECK ASSY, BREATHER CAP
16	1	FILTER ASSY
17	1	TANK WELDMENT, TV60R HD HYD

PTO Drive & Pump Assembly



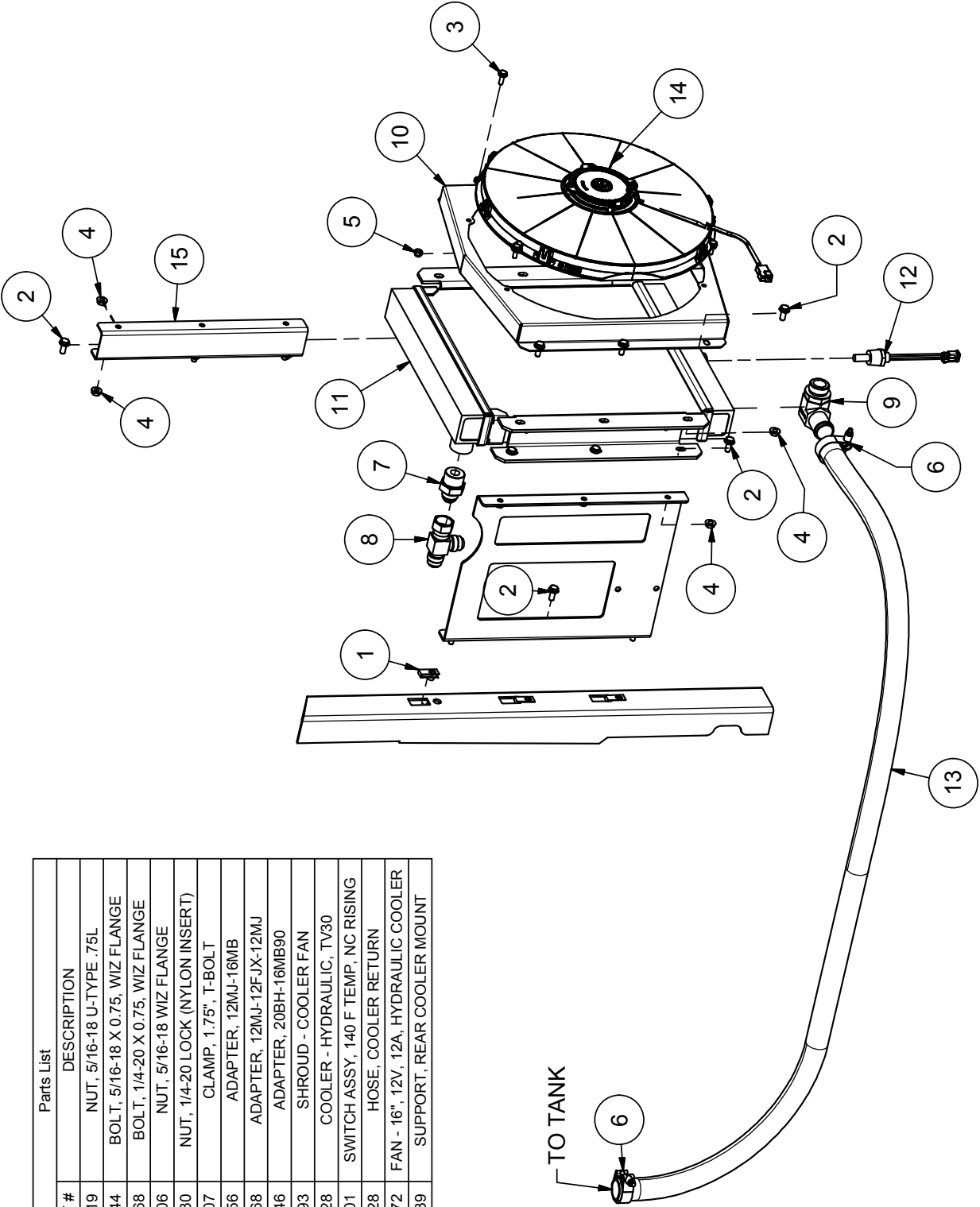
Parts List		
ITEM	QTY	DESCRIPTION
1	4	BOLT, M12x1.75 x 25 Gr 10.9
2	8	WASHER, 12 mm LOCK
3	2	WASHER, M14 FLAT ZINC
4	2	BOLT, M14 X 2.0 X 35, HHCS
5	2	WASHER, 14 mm LOCK
6	4	BOLT, M12-1.75 X 35, ZINC FULL THRD HHCS
7	1	ADAPTER, 6MJ-10MB
8	4	ADAPTER, 12MJ-12MB
9	1	ADAPTER, 12BH-12MB 45°
10	2	ADAPTER, 20BH-16MB45
11	1	Pump, Triple Section Gear (1.55, 1.55, & 24 cu in)
12	1	Gearbox, M7 Bima 1:4
13	1	SHAFT ASSY, 35R PTO
14	1	SUPPORT, TV60 GEARBOX
15	1	SHIELD, PTO

945007 - SERVICE PARTS		
PART #	QTY	DESCRIPTION
640008	1	JOINT & SHAFT HALF ASSY W/ GUARD
640009	1	JOINT & SHAFT HALF ASSY
640012	1	SAFETY SLIDE LOCK REPAIR KIT
640013	2	SAFETY SLIDE LOCK YOKE ASSY
640014	2	BEARING KIT, 35R CROSS
640015	1	YOKE & SHAFT
942134	2	INNER GUARD NYLON REPAIR KIT
640017	1	SAFETY SIGN
640018	1	OUTER GUARD
640019	1	INNER GUARD
640021	1	YOKE TUBE & SLIP SLEEVE

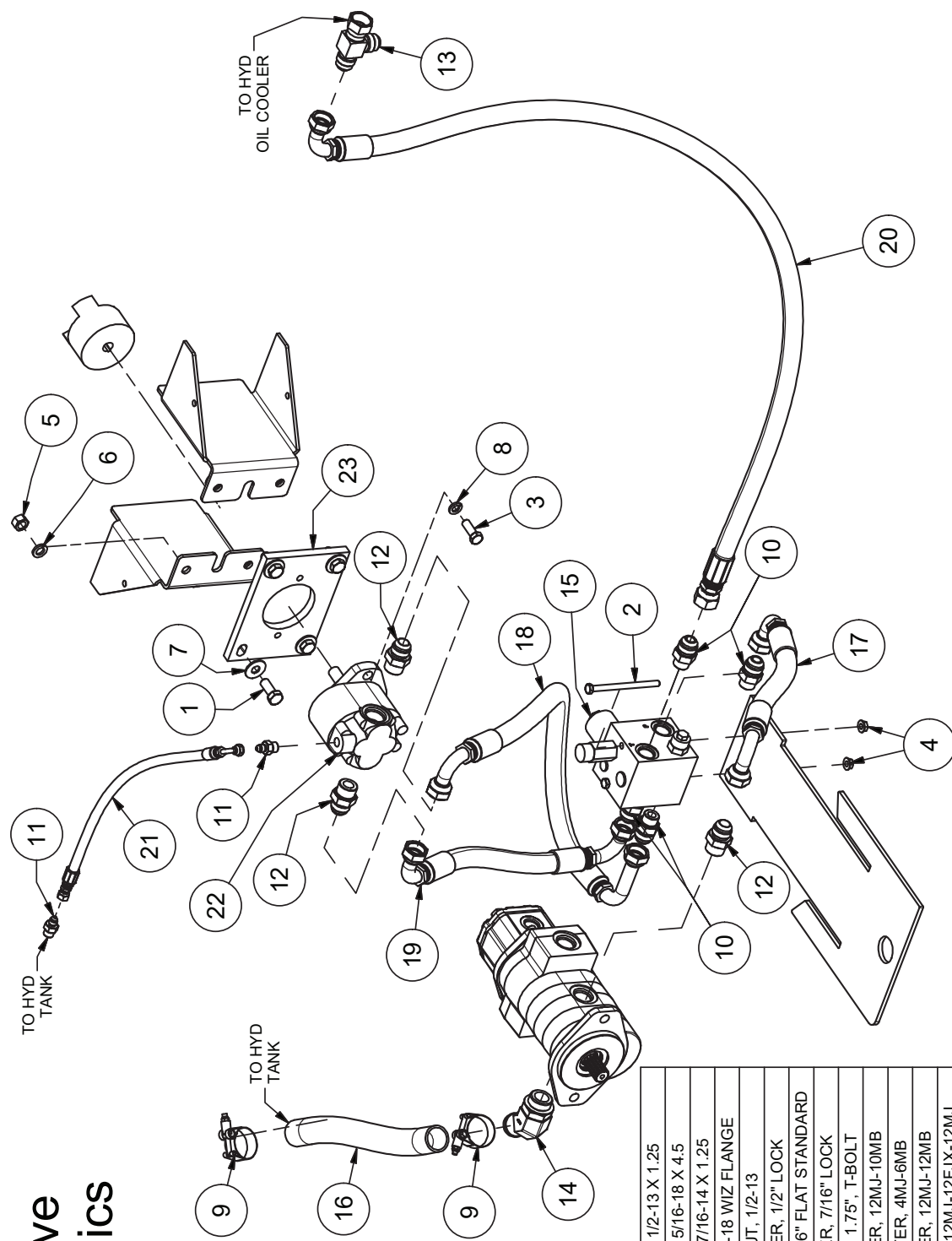
12/10/2015

Oil Cooler Installation

Parts List	
ITEM	PART # DESCRIPTION
1	110319 NUT, 5/16-18 U-TYPE .75L
2	110444 BOLT, 5/16-18 X 0.75, WIZ FLANGE
3	110468 BOLT, 1/4-20 X 0.75, WIZ FLANGE
4	110606 NUT, 5/16-18 WIZ FLANGE
5	110630 NUT, 1/4-20 LOCK (NYLON INSERT)
6	112007 CLAMP, 1.75", T-BOLT
7	120256 ADAPTER, 12MJ-16MB
8	120268 ADAPTER, 12MJ-12FJX-12MJ
9	120546 ADAPTER, 20BH-16MB90
10	311493 SHROUD - COOLER FAN
11	322028 COOLER - HYDRAULIC, TV30
12	335001 SWITCH ASSY, 140 F TEMP, NC RISING
13	920028 HOSE, COOLER RETURN
14	932072 FAN - 16", 12V, 12A, HYDRAULIC COOLER
15	970839 SUPPORT, REAR COOLER MOUNT



Fan Drive Hydraulics



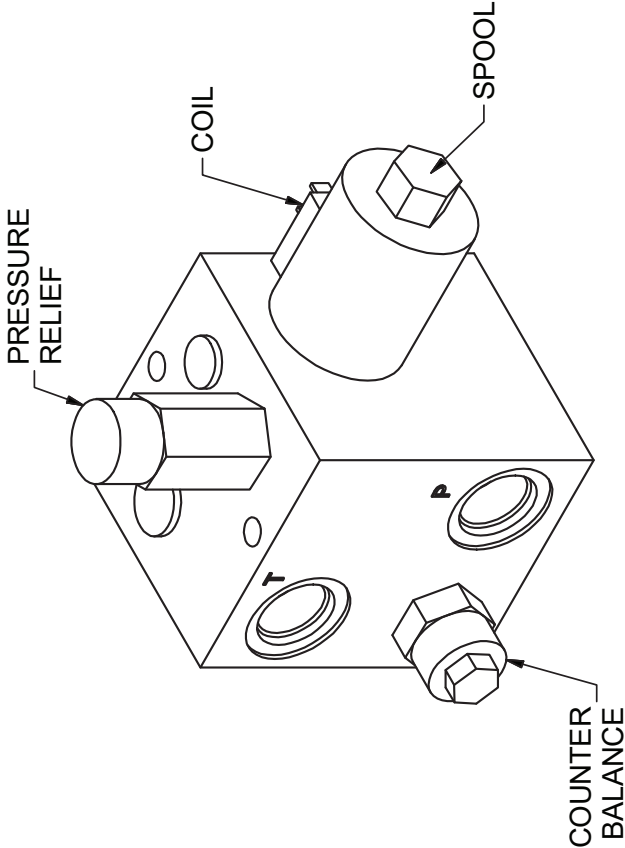
Parts List	
ITEM	DESCRIPTION
1	110442 BOLT, 1/2-13 X 1.25
2	110529 BOLT, 5/16-18 X 4.5
3	110539 BOLT, 7/16-14 X 1.25
4	110606 NUT, 5/16-18 WIZ FLANGE
5	110610 NUT, 1/2-13
6	110666 WASHER, 1/2" LOCK
7	110670 WASHER, 7/16" FLAT STANDARD
8	110671 WASHER, 7/16" LOCK
9	112007 CLAMP, 1.75", T-BOLT
10	120143 ADAPTER, 12MJ-10MB
11	120249 ADAPTER, 4MJ-6MB
12	120254 ADAPTER, 12MJ-12MB
13	120268 ADAPTER, 12MJ-12FJX-12MJ
14	120677 ADAPTER, 20BH-16MB45
15	923017 DECK VALVE
16	920019 HOSE, FAN/DECK SUCTION
17	920020 HOSE ASSY, FAN VALVE PRESSURE
18	920021 HOSE ASSY, FAN MTR PRESSURE
19	920022 HOSE ASSY, FAN MTR RETURN
20	920023 HOSE ASSY, FAN VALVE RETURN
21	920024 HOSE ASSY, FAN MTR CD
22	923004 MOTOR, 1.76 CI, FAN DRIVE
23	970291 ADAPTER PLATE
ITEM	PART #
DESCRIPTION	

10/5/2016

15	920016	HOSE ASSY, DECK VALVE TO COOLER
16	920019	HOSE, FAN/DECK SUCTION
17	920025	HOSE ASSY, DECK VALVE PRESS
18	920026	HOSE ASSY, DECK MTR RET
19	920027	HOSE ASSY, DECK MTR CD
20	920031	HOSE ASSY, DECK MTR PRESS
21	923014	MOTOR, 4.9 CID
22	970840	SUPPORT, FRONT COOLER MOUNT
ITEM	PART #	DESCRIPTION
Parts List		

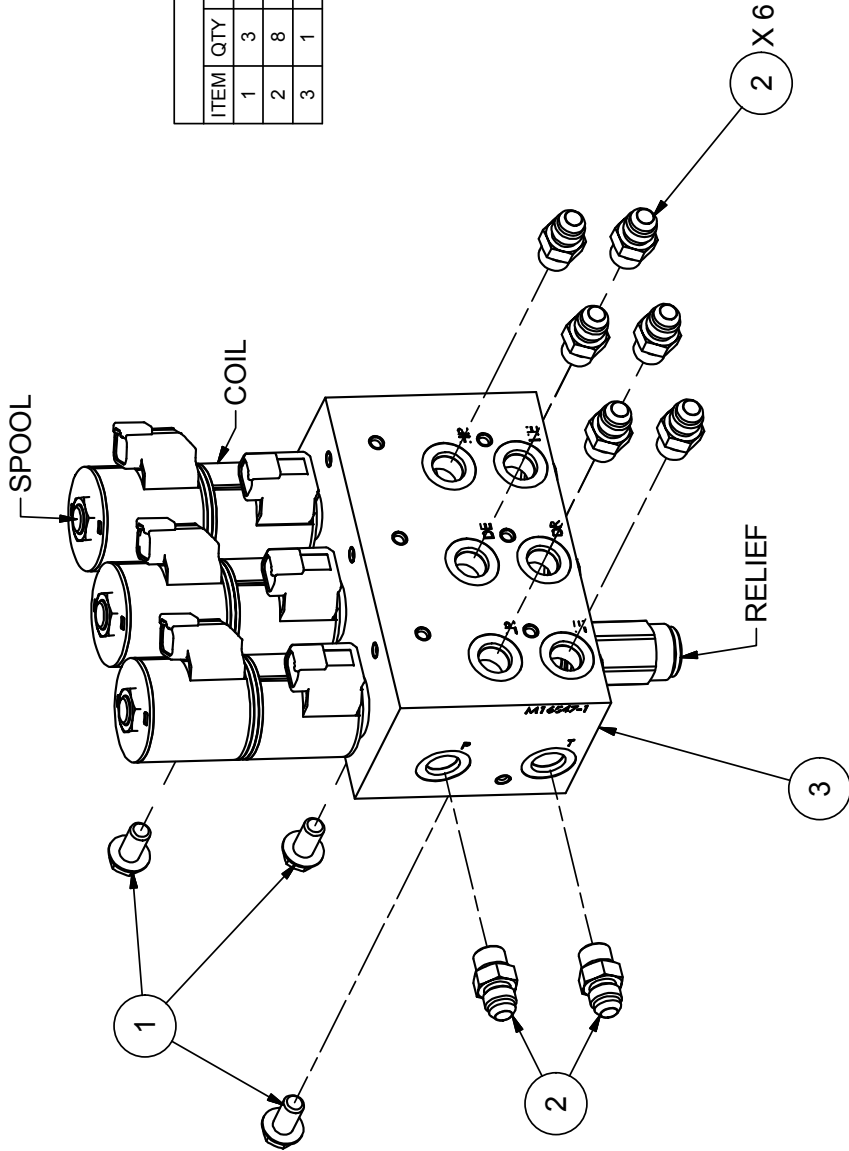
Fan & Deck Valve

VALVE ASSY P/N: 923017



820158 - SERVICE PARTS	
PART #	DESCRIPTION
820229	COIL
820230	COUNTER BALANCE
922130	PRESSURE RELIEF (2900 PSI)
820232	SPOOL

Implement Valve

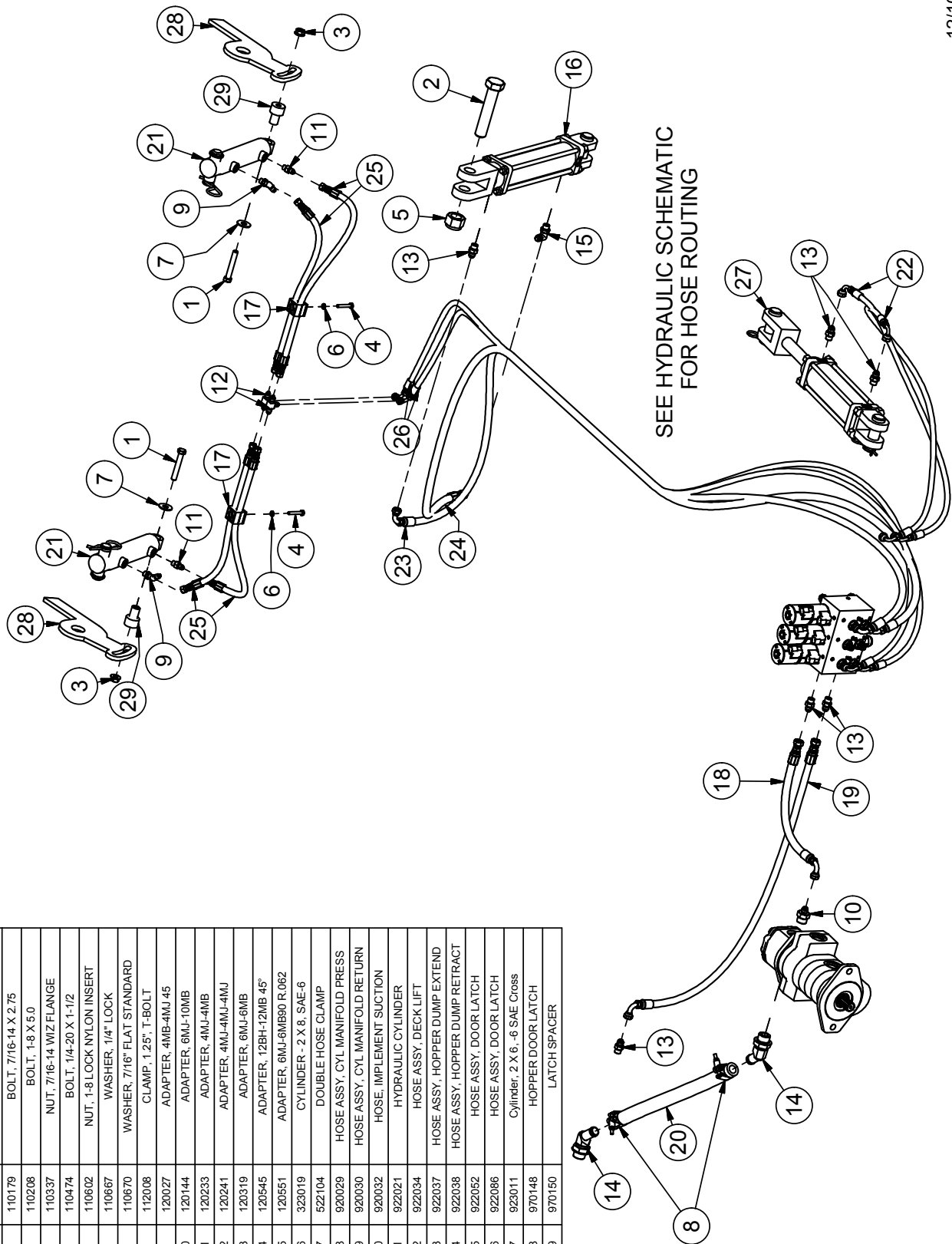


Parts List			
ITEM	QTY	PART #	DESCRIPTION
1	3	110437	BOLT, 3/8-16 X 0.75, WIZ FLANGE
2	8	120319	ADAPTER, 6MJ-6MB
3	1	923015	MANIFOLD, TV60R HD CYLINDER

923015 Valve - Service Parts	
PART #	DESCRIPTION
210871	SPOOL, #10, 4W3P TANDEM CENTER
322074	CHECK, #8, PILOT TO OPEN, 25 PSI
922055	RELIEF, #8 DIRECT ACTING POPPET, 2000 PSI
922119	COIL, #10, DEUTSCH DT04-2P

Implement Drive Components

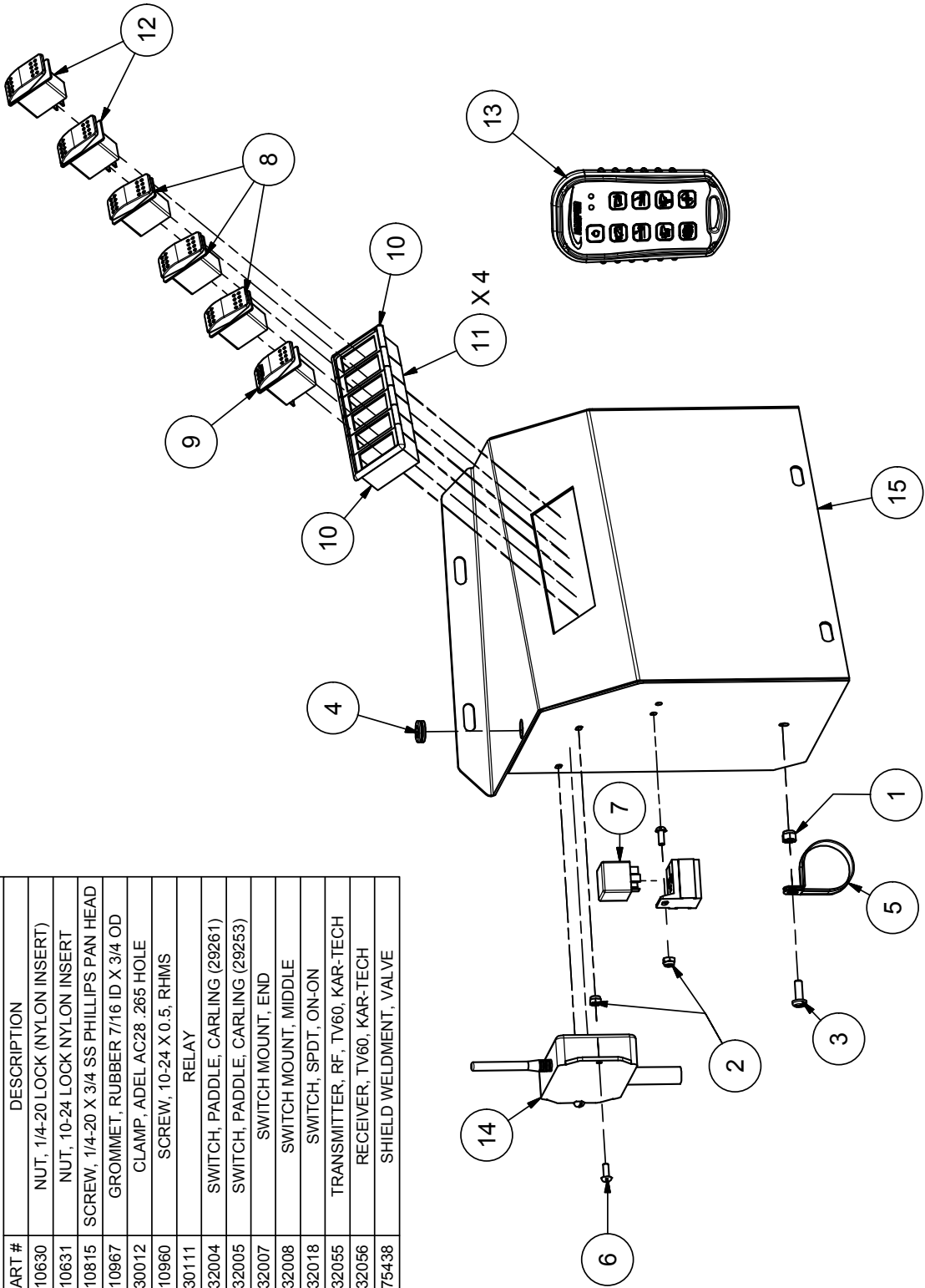
Parts List	
ITEM	DESCRIPTION
1	BOLT, 7/16-14 X 2.75
2	BOLT, 1-8 X 5.0
3	NUT, 7/16-14 W/ Z FLANGE
4	BOLT, 1/4-20 X 1-1/2
5	NUT, 1-8 LOCK NYLON INSERT
6	WASHER, 1/4" LOCK
7	WASHER, 7/16" FLAT STANDARD
8	CLAMP, 1.25" T-BOLT
9	ADAPTER, 4MB-4MJ 45
10	ADAPTER, 6MJ-10MB
11	ADAPTER, 4MJ-4MB
12	ADAPTER, 4MJ-4MJ-4MJ
13	ADAPTER, 6MJ-6MB
14	ADAPTER, 12BH-12MB 45°
15	ADAPTER, 6MJ-6MB90 R.062
16	CYLINDER - 2 X 8, SAE-6
17	DOUBLE HOSE CLAMP
18	HOSE ASSY, CYL MANIFOLD PRESS
19	HOSE ASSY, CYL MANIFOLD RETURN
20	HOSE, IMPLEMENT SUCTION
21	HYDRAULIC CYLINDER
22	HOSE ASSY, DECK LIFT
23	HOSE ASSY, HOPPER DUMP EXTEND
24	HOSE ASSY, HOPPER DUMP RETRACT
25	HOSE ASSY, DOOR LATCH
26	HOSE ASSY, DOOR LATCH
27	Cylinder, 2 X 6, -6 SAE Cross
28	HOPPER DOOR LATCH
29	LATCH SPACER



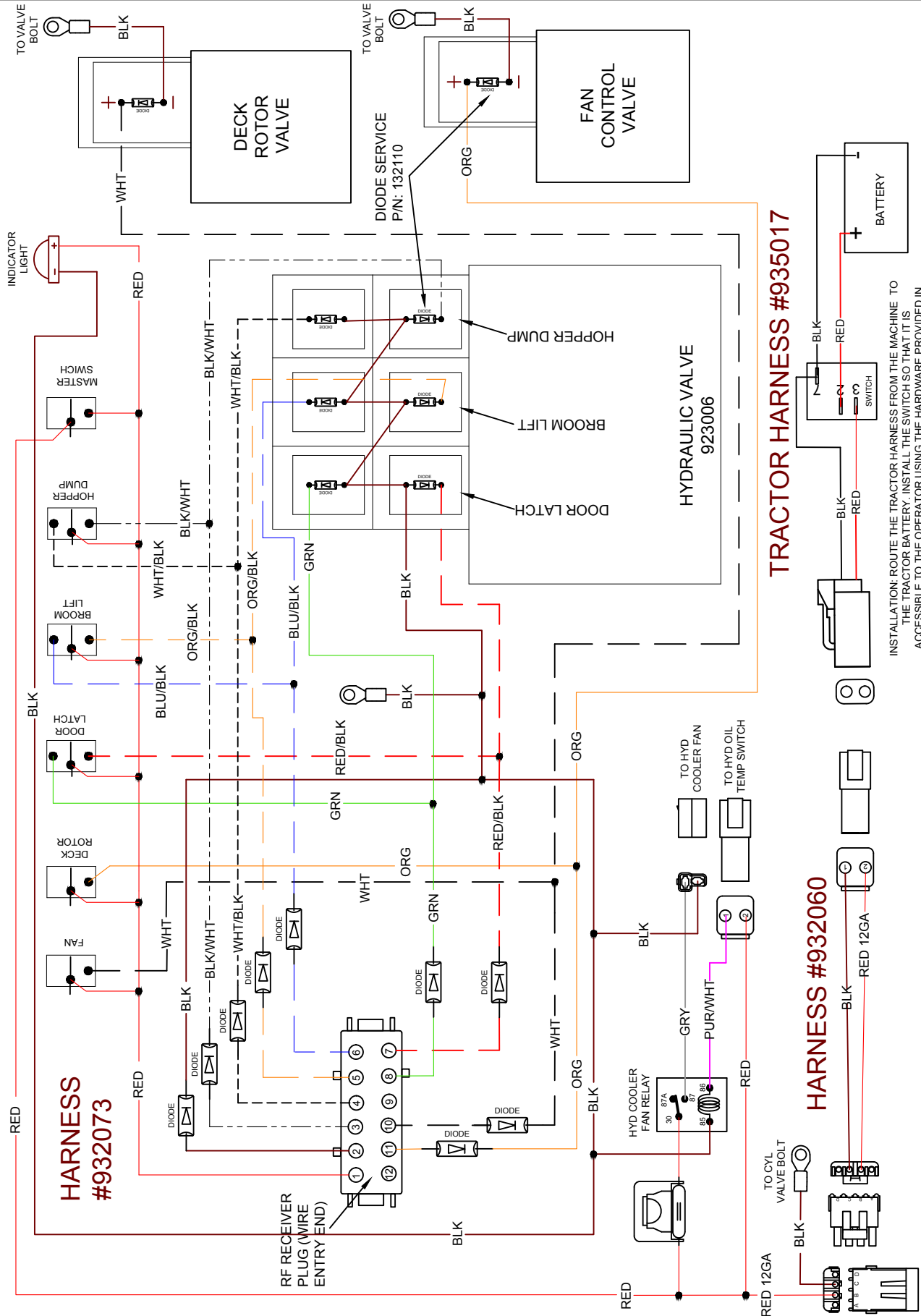
12/10/2015

Remote & Receiver Assembly

Parts List	
ITEM	PART # DESCRIPTION
1	110630 NUT, 1/4-20 LOCK (NYLON INSERT)
2	110631 NUT, 10-24 LOCK NYLON INSERT
3	110815 SCREW, 1/4-20 X 3/4 SS PHILLIPS PAN HEAD
4	110967 GROMMET, RUBBER 7/16 ID X 3/4 OD
5	130012 CLAMP, ADEL AC28 .265 HOLE
6	510960 SCREW, 10-24 X 0.5, RHMS
7	530111 RELAY
8	832004 SWITCH, PADDLE, CARLING (29261)
9	832005 SWITCH, PADDLE, CARLING (29253)
10	832007 SWITCH MOUNT, END
11	832008 SWITCH MOUNT, MIDDLE
12	832018 SWITCH, SPDT, ON-ON
13	932055 TRANSMITTER, RF, TV60, KAR-TECH
14	932056 RECEIVER, TV60, KAR-TECH
15	975438 SHIELD WELDMENT, VALVE



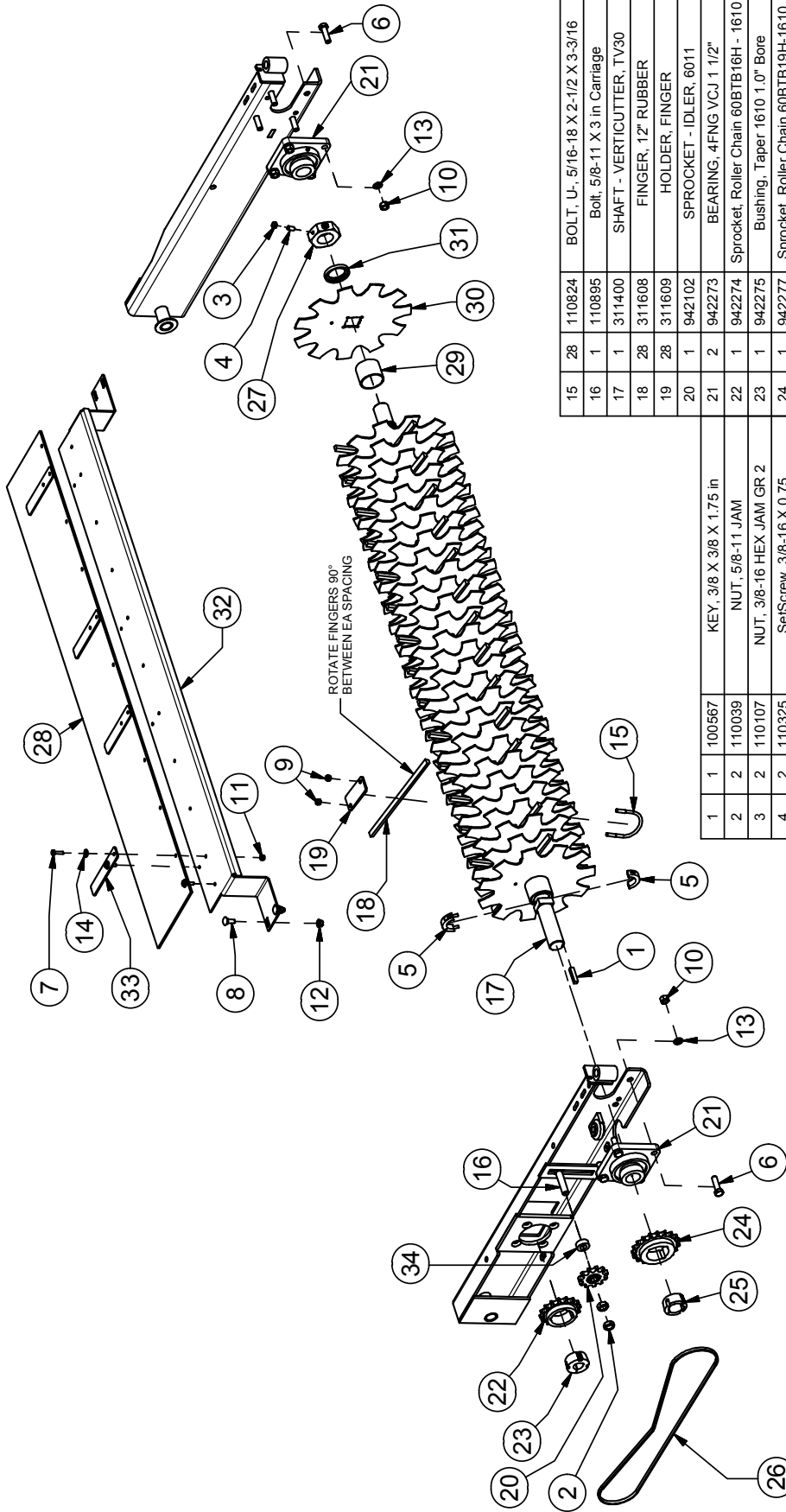
WIRING SCHEMATIC TV60HD WITH KAR-TECH REMOTE



INSTALLATION: ROUTE THE TRACTOR HARNESS FROM THE MACHINE TO THE TRACTOR BATTERY. INSTALL THE SWITCH SO THAT IT IS ACCESSIBLE TO THE OPERATOR USING THE HARDWARE PROVIDED IN THE KIT. SEE SWITCH DIAGRAM FOR WIRE LOCATIONS.

Kit, TV60HD Verticutter

HARPER PART No. 900240



942282 - Service Parts	
PART #	DESCRIPTION
140002	ROLLER CHAIN, #60 (Length=55.75" or 70 Pins)
410441	CONNECTING LINK, HALF-OFFSET #60
410442	CONNECTING LINK, #60 CHAIN

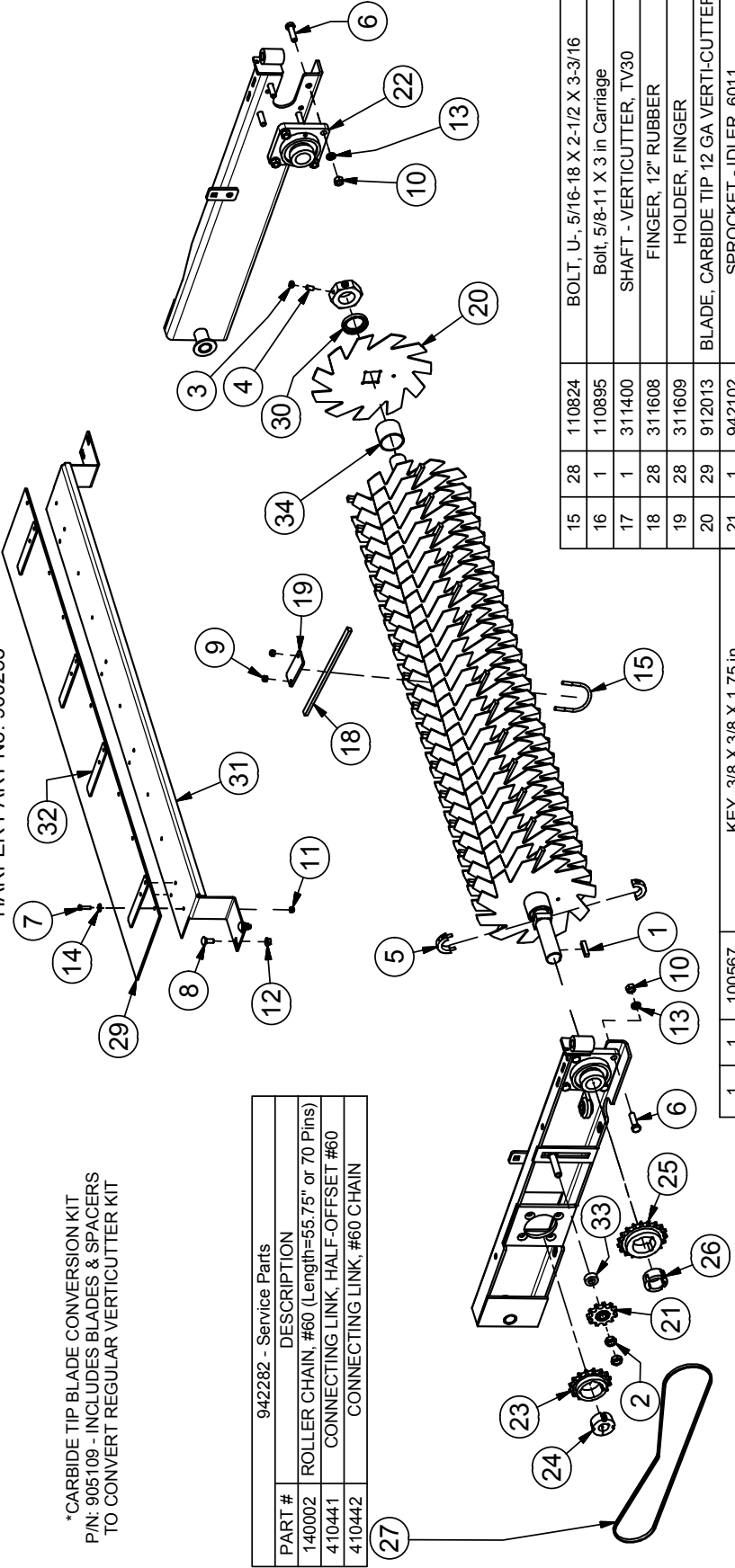
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION
1	1	100567	KEY, 3/8 X 3/8 X 1.75 in	15	28	110824	BOLT, U, 5/16-18 X 2-1/2 X 3-3/16
2	2	110039	NUT, 5/8-11 JAM	16	1	110895	Bolt, 5/8-11 X 3 in Carriage
3	2	110107	NUT, 3/8-16 HEX JAM GR 2	17	1	311400	SHAFT - VERTICUTTER, TV30
4	2	110325	SetScrew, 3/8-16 X 0.75	18	28	311608	FINGER, 12" RUBBER
5	1	110332	COLLAR - 1-1/2" SPLIT	19	28	311609	HOLDER, FINGER
6	8	110419	BOLT, 1/2-13 X 1.75	20	1	942102	SPROCKET - IDLER, 6011
7	15	110464	BOLT, 1/4-20 X 1.0	21	2	942273	BEARING, 4FNG VCJ 1 1/2"
8	4	110556	Bolt, 3/8-16 X 1 in Carriage	22	1	942274	Sprocket, Roller Chain 60BTB16H - 1610
9	56	110603	NUT, 5/16-18 LOCK (NYLON)	23	1	942275	Bushing, Taper 1610 1.0" Bore
10	8	110610	NUT, 1/2-13	24	1	942277	Sprocket, Roller Chain 60BTB19H-1610
11	15	110630	NUT, 1/4-20 LOCK (NYLON INSERT)	25	1	942278	Bushing, Taper 1610 1.5" Bore
12	4	110645	NUT, 3/8-16 WIZ FLANGE	26	1	942282	CHAIN, TV60HD Verticut #60 ROLLER
13	8	110666	WASHER, 1/2" LOCK	27	1	970475	NUT - HEX, JAM, 1-3/4 - 5 UNC
14	15	110673	WASHER, 1/4" FLAT STANDARD	28	1	970685	DEBRIS FLAP MAIN
				29	29	970803	SPACER - VERTI CUTTER, 2 IN
				30	29	970804	DISC - DETHATCH, 10 Ga, 11 POINT
				31	1	970805	WASHER - CUP, ROTOR
				32	1	970851	SHIELD, ROTOR DEBRIS
				33	4	970853	SUPPORT, DEBRIS FLAP
				34	1	970862	SPACER, IDLER SPROCKET
Parts List				Parts List			
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION

9/17/2014

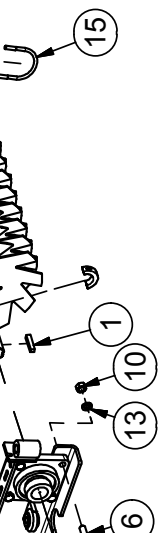
Kit, TV60HD Carbide Tip Verticutter

HARPER PART No: 900255

*CARBIDE TIP BLADE CONVERSION KIT
P/N: 905109 - INCLUDES BLADES & SPACERS
TO CONVERT REGULAR VERTICUTTER KIT



942282 - Service Parts	
PART #	DESCRIPTION
140002	ROLLER CHAIN, #60 (Length=55.75" or 70 Pins)
410441	CONNECTING LINK, HALF-OFFSET #60
410442	CONNECTING LINK, #60 CHAIN

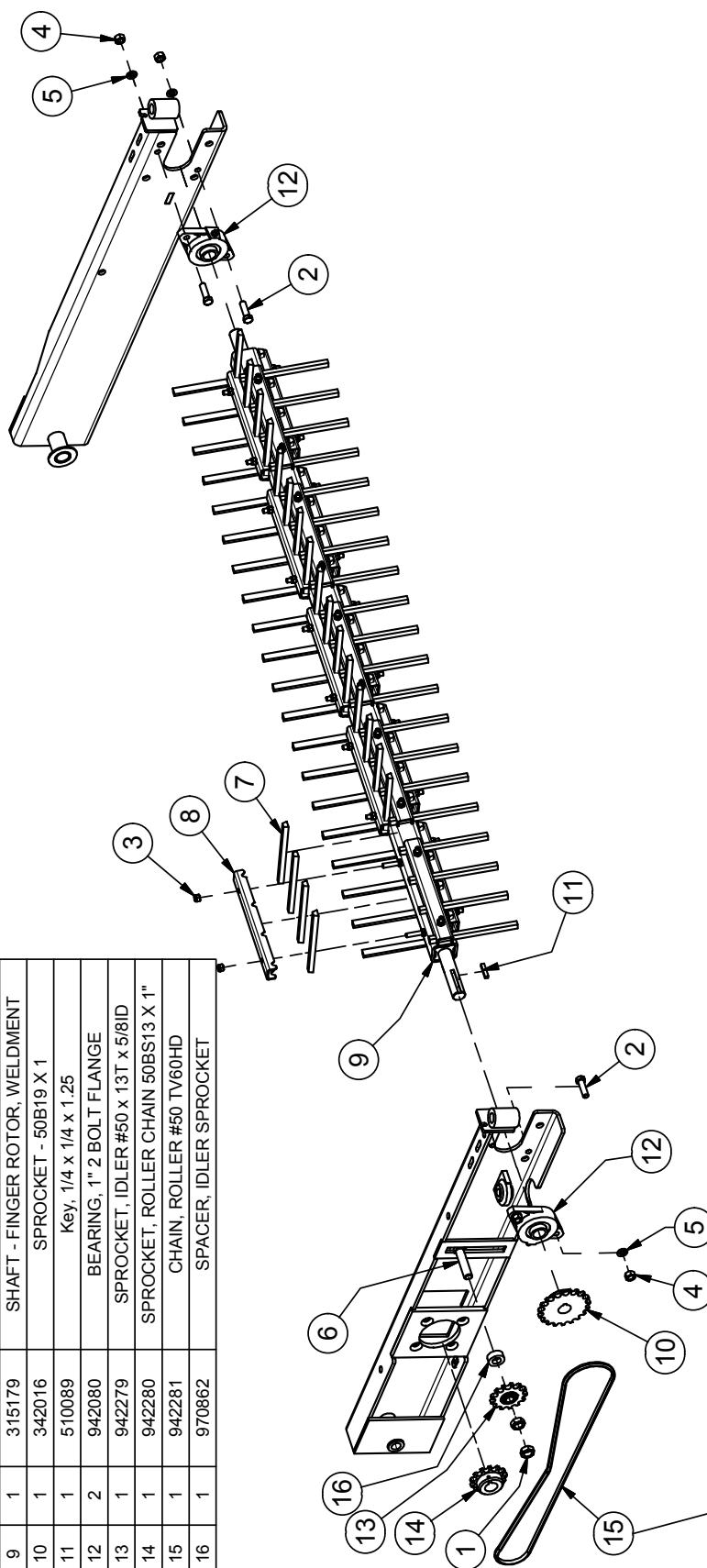
				15	28	110824	BOLT, U-, 5/16-18 X 2-1/2 X 3-3/16
				16	1	110895	Bolt, 5/8-11 X 3 in Carriage
				17	1	311400	SHAFT - VERTICUTTER, TV30
				18	28	311608	FINGER, 12" RUBBER
				19	28	311609	HOLDER, FINGER
1	1	100567	KEY, 3/8 X 3/8 X 1.75 in	21	1	942102	SPROCKET - IDLER, 6011
2	2	110039	NUT, 5/8-11 JAM	22	2	942273	BEARING, 4FNG VCJ 1 1/2"
3	2	110107	NUT, 3/8-16 HEX JAM GR 2	23	1	942274	Sprocket, Roller Chain 60BTB16H - 1610
4	2	110325	SetScrew, 3/8-16 X 0.75	24	1	942275	Bushing, Taper 1610 1.0" Bore
5	1	110332	LOCK COLLAR, 1.5" - 2 SCREW	25	1	942277	Sprocket, Roller Chain 60BTB19H-1610
6	8	110419	BOLT, 1/2-13 X 1.75	26	1	942278	Bushing, Taper 1610 1.5" Bore
7	15	110464	BOLT, 1/4-20 X 1.0	27	1	942282	CHAIN, TV60HD Verticut #60 ROLLER
8	4	110556	Bolt, 3/8-16 X 1 in Carriage	28	1	970475	NUT - HEX, JAM, 1-3/4 - 5 UNC
9	56	110603	NUT, 5/16-18 LOCK (NYLON)	29	1	970685	DEBRIS FLAP MAIN
10	8	110610	NUT, 1/2-13	30	1	970805	WASHER - CUP, ROTOR
11	15	110630	NUT, 1/4-20 LOCK (NYLON INSERT)	31	1	970851	SHIELD, ROTOR DEBRIS
12	4	110645	NUT, 3/8-16 WIZ FLANGE	32	4	970853	SUPPORT, DEBRIS FLAP
13	8	110666	WASHER, 1/2" LOCK	33	1	970862	SPACER, IDLER SPROCKET
14	15	110673	WASHER, 1/4" FLAT STANDARD	34	29	970874	SPACER, VERTI-CUTTER, 2 IN 12Ga BLADE
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION
Parts List				Parts List			

10/3/2016

Parts List		
ITEM	QTY	PART # DESCRIPTION
1	2	110039 NUT, 5/8-11 JAM
2	4	110535 BOLT, 7/16-14 X 1.5
3	40	110603 NUT, 5/16-18 LOCK (NYLON)
4	4	110641 NUT, 7/16-14
5	4	110671 WASHER, 7/16" LOCK
6	1	110895 Bolt, 5/8-11 X 3 in Carriage
7	80	302042 FINGER - RUBBER
8	20	311403 CLAMP - RUBBER FINGER
9	1	315179 SHAFT - FINGER ROTOR, WELDMENT
10	1	342016 SPROCKET - 50B19 X 1
11	1	510089 Key, 1/4 x 1/4 x 1.25
12	2	942080 BEARING, 1" 2 BOLT FLANGE
13	1	942279 SPROCKET, IDLER #50 x 13T x 5/8ID
14	1	942280 SPROCKET, ROLLER CHAIN 50BS13 X 1"
15	1	942281 CHAIN, ROLLER #50 TV60HD
16	1	970862 SPACER, IDLER SPROCKET

Kit, TV60HD Rubber Finger Rotor

HARPER PART No. 900242



942281 - Service Parts	
PART #	DESCRIPTION
142006	ROLLER CHAIN, #50 (Length-53.125" or 80 Pins)
140011	CONNECTING LINK, #50 CHAIN

HARPER PART No. 900241

This technical drawing illustrates a mechanical assembly, likely a component of a vehicle's interior or exterior trim. The assembly consists of several interconnected parts, including a main housing (1), a sliding mechanism (2), and a control lever (14). The drawing includes 16 numbered callouts identifying specific components:

- 1: Main housing or frame.
- 2: Sliding mechanism or track.
- 3: Small pin or fastener.
- 4: Small pin or fastener.
- 5: Small pin or fastener.
- 6: Small pin or fastener.
- 7: Small pin or fastener.
- 8: Long, thin component, possibly a trim piece or lever arm.
- 9: Gear or pulley.
- 10: Gear or pulley.
- 11: Gear or pulley.
- 12: Gear or pulley.
- 13: Gear or pulley.
- 14: Control lever or handle.
- 15: Small pin or fastener.
- 16: Small pin or fastener.

	942281 - Service Parts
PART #	DESCRIPTION
142006	ROLLER CHAIN, #50 (Length=53.125" or 80 Pins)
140011	CONNECTING LINK #50 CHAIN

NOTES

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Harper, KS 67058

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Turbo Vac TV60R

HARPER
TURF EQUIPMENT