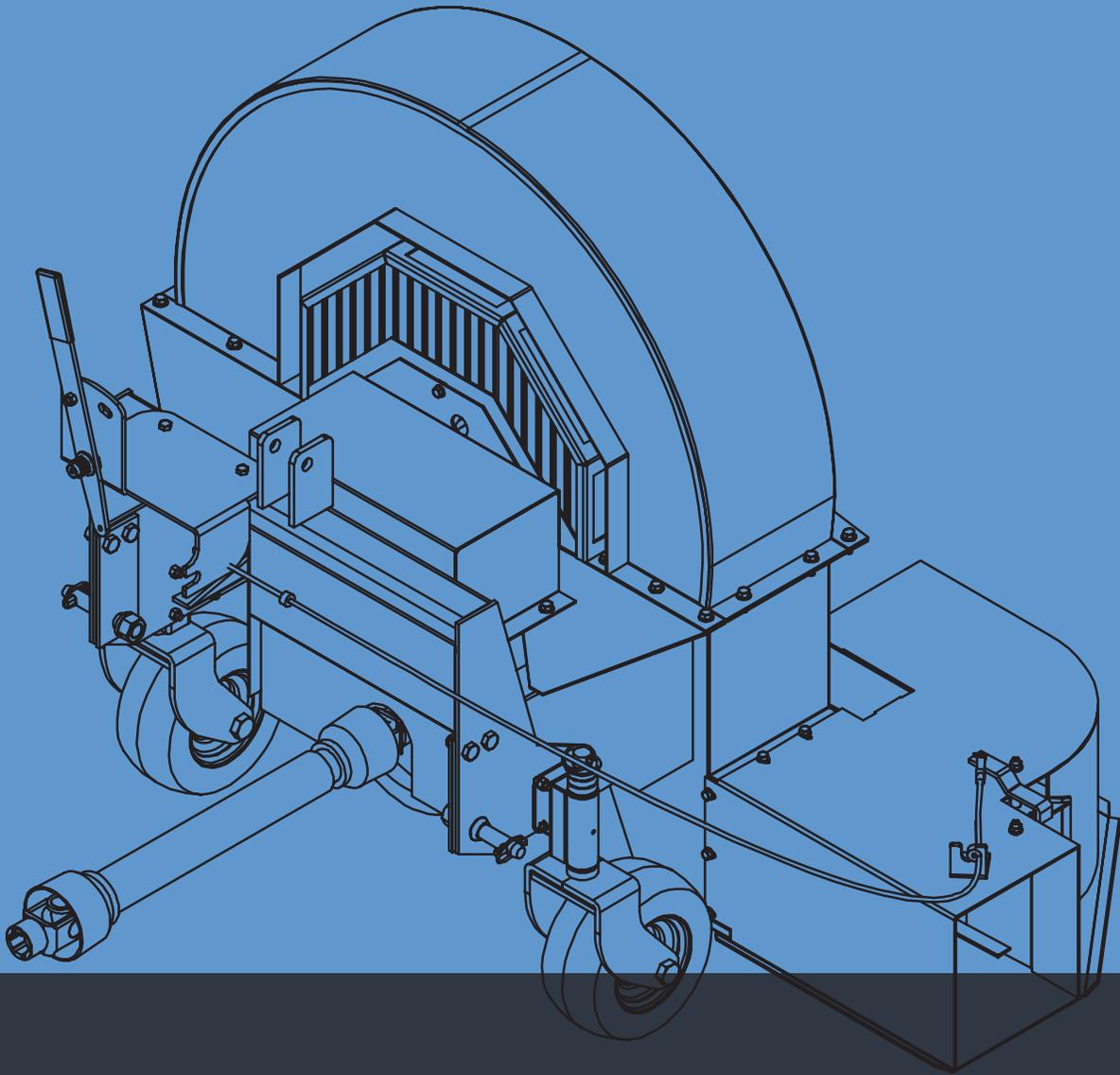


# DEBRIS BLOWER 3600

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## *OPERATOR'S MANUAL*





## Thank you for purchasing a Harper Debris Blower.

As with all Harper products, the Debris Blower has been developed through tough design and testing procedures to produce a top quality machine. This manual gives assembly, operating, and service information for the models DB3600. Please read and understand all instructional material included with the Debris Blower or its components before assembling and operating the equipment.

A Debris Blower 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.

THIS 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, Inc. 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 name is a registered trademark of Harper Industries, Inc. All other brand and product names are trademarks or registered trademarks of their respective companies.

## LIMITED WARRANTY

The Harper Debris Blower is warranted against defects in workmanship and materials for a period of TWELVE MONTHS from the original date of retail purchase to the original purchaser.

Harper Industries will repair or replace, at our option, any part which our examination shows to be defective. Warranty is limited to parts, labor and ground freight delivery of replacement parts. The user will pay freight charges for parts submitted under this warranty.

No product or part may be returned for warranty consideration without prior approval from Harper Industries.

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

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 \_\_\_\_\_

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# Specifications

Air Flow	7100 CFM (approx. 225 mph)
Noise	94 decibels (at operator in tractor seat)
Blower Housing	40" (split design for east fan replacement)
Fan	36" diameter
Drive	540 RPM PTO belt drive
Belt Drive	4 - 5VX530 V-belts with automatic tensioner 1 - 4/3CX425
Tractor Mounting	3 Point Hitch - Category #1
Casters	Heavy-duty 10" adjustable caster wheels
Anti-Scalp	Tough 3" diameter rollers
Dimensions	Length 48", Width 64", Height 45"
Air-Flow Control	Bi-directional discharge (left or right) controlled from operator seat
Approx. Weight	825 lbs.
Power Requirement	30 hp at PTO (minimum)

## ***Superior Construction in every model:***

*Every Harper Debris Blower has a durable polyester baked paint finish, with epoxy primer applied to cover completely and keep moisture out. This finish is extremely strong, and resists chipping and cracking.*

# Safety Information

## Equipment & Controls

- Altering this equipment in any manner which adversely affects its operation, performance, durability, or use will void the warranty and may cause hazardous conditions.
- Know the location and function of all controls and how to stop this equipment quickly in an emergency before you operate the equipment.  
**READ AND UNDERSTAND THE OWNER'S MANUAL.**
- Keep all nuts, bolts and screws tight to help ensure safe operation of this equipment.
- Use genuine factory parts or parts with equivalent characteristics, including type, strength and material. Failure to do so may result in product malfunction and possible injury to the operator and/or others.
- Replace locknuts and locking screws if you can tighten them without feeling considerable resistance for several turns before they are completely tight. Replace them with factory authorized parts or their equivalent.
- If hardware is not secure, or if some of the hardware is over-tightened, equipment failure may result, posing possible safety hazards.

## Guards & Shields

- Keep the equipment and attachments in good operating condition, and keep all safety devices in place. Replace all worn, damaged, unusable, missing or lost safety shields and guards before operating the equipment.

## Safety Decals

- If safety related or instructional decals become illegible or are removed, replace them immediately.
- If you replace parts that have such decals attached to them, make sure the decals are replaced with current versions, and that the decals are on the replacement parts before the machine is operated again.
- New decals may be obtained from your local Harper Dealer.



### **SAFETY WARNING!**



- **To prevent possible eye injury, always wear SAFETY GLASSES while servicing the equipment.**

## Before Operation

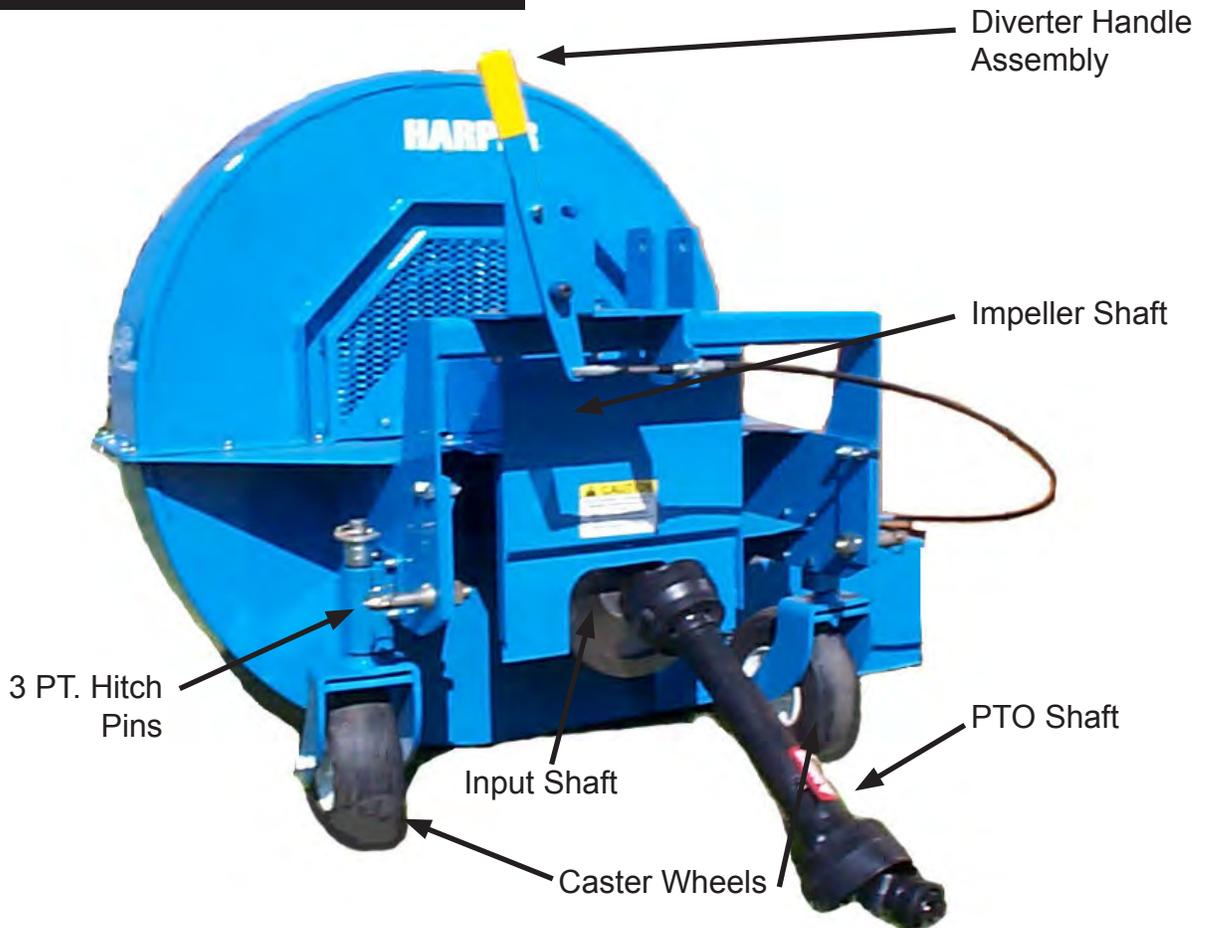
- Before operating this equipment, read and understand the Owner's Manual.
- Do not allow children to operate this machine.
- Never operate this machine in the vicinity of bystanders.
- Before servicing or inspecting the machine, make certain that the power source is shut down, make certain all moving parts have stopped and disconnect the PTO shaft.

- Never allow hands, clothing or any part of the body to enter the discharge chute or near moving parts.
- Avoid wearing loose-fitting clothing.
- Wear approved eye and ear protection while operating the machine.
- The machine should be operated on level surfaces only.
- 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 every 8 to 10 hours of operation for proper alignment and tightness.
- Keep your face and all body parts away from inlet and discharge openings.
- Stay away from the discharge area when machine is in operation.
- If the Debris Blower should become clogged, shut off the engine or PTO and allow it to come to a complete stop. Disconnect the spark plug wire from the spark plug or PTO shaft before clearing debris.
- Do not allow hands, clothing or any part of the body to enter the discharge chute, impeller inlet or near any moving parts.

### Operation

- Make certain the impeller chamber is empty before starting the machine.
- If a foreign object should strike the impeller mechanism of the machine and cause an unusual noise or vibration, shut the engine or PTO off immediately and allow it to come to a complete stop. Disconnect the spark PTO shaft from the power unit, and then do the following:
  1. Inspect for damage.
  2. Repair or replace any damaged parts.
  3. Check for and tighten any loose bolts, nuts, fasteners or parts.
- Keep debris material from building up in the discharge and inlet area, as this may prohibit proper discharge of airflow and can cause poor performance.
- Keep the impeller inlet area clean from debris and other accumulations.
- Keep all safety shields and guards in place and in good working condition.
- Replace damaged or missing safety decals.
- Keep hands, feet and clothing away from PTO driven parts.
- Keep all guards and shields in place during operation. Disengage PTO and shut off the engine before removing guards or shields.
- Never attempt to adjust, clean or lubricate the machine while it is in operation.
- Operator should never wear loose clothing when working around PTO.
- Before starting tractor, make sure that the transmission and PTO are disengaged.
- Make sure the tractor's engine is at idle speed before engaging the PTO.
- Be sure the tractor's engine is at idle before changing the airflow of the Debris Blower Diverter.

# Control Identification



1. PTO Shaft – Transfers power from the tractor to the Debris Blower. Make sure up or down angle of PTO shaft does not exceed 15 degrees. (2 grease fittings)
2. 3-Point Hitch Pins – Mount the Debris Blower to the 3-point hitch pins.
3. Input Shaft – Driven by the PTO shaft. Always disconnect the PTO from the tractor when performing maintenance. (2 grease fittings)
4. Diverter Handle Assembly – Changes direction of discharge air flow. Make sure handle is locked into place before operating.
5. Belt Tensioner – Spring loaded and keeps the belts within proper tensioning.
6. Impeller Shaft – Belt driven by input shaft. (2 grease fittings)
7. Caster Wheels – Carry weight of machine during operation when 3-point hitch is in float position. (1 grease fitting per wheel)

**⚠ SAFETY WARNING! ⚠**  
Keep all safety shields in place during operation.

## Assembly

1. Remove from crate.
2. Mount Diverter Handle Assembly to the frame of the machine with the two 3/8" bolts already in the frame.
3. Connect PTO shaft to input shaft of machine, tighten set screws on shaft.
4. Mount 3-point pins on Debris Blower.
5. Mount Debris Blower to 3-point of tractor and connect PTO shaft.

### Note:

*A set of belts between the PTO shaft and the impeller shaft assembly drive the fan blades whenever the PTO drive-shaft is turning.*

*On initial operation of the Debris Blower, the **belts may shrink** and need readjustment after the first hour of use. When readjusting belt tension, use a straightedge across the faces of pulleys to make sure they are properly aligned and the belts will run true.*

### **SAFETY WARNING!**

- Keep pants and loose clothing away from PTO drive and shaft and all drive pulleys, belts and shafts.
- Never operate the Debris Blower beyond the suggested 540 PTO speed.
- Do not attempt to service machine while it is in operation.

## Operation

### **SAFETY WARNING!**

- Wear approved eye and ear protection while operating the Debris Blower.
- Keep all guards in place during operation. Never operate the Debris Blower with safety shields removed.
- Before operating the machine, check to ensure that all belt guides and tensioner are in place to prevent belts from slipping off the pulleys and systems from being accidentally engaged.
- Check inlet and discharge housings for children, pets and foreign objects before operating.
- Keep clothing and all body parts away from rotating parts. Do not wear loose fitting clothing.
- Periodically clean debris material away from the machine to lessen the possibility of fire. Always keep a fire extinguisher near the Debris Blower during operation.
- Impeller blade rotation cannot be controlled from the Debris Blower.
- Obtain and wear safety glasses when operating this machine.

### Note:

*A safe operator is one who practices safety and uses good common sense to protect himself from flying material.*

### To begin operation:

1. Mount Debris Blower to 3-point of tractor and connect PTO shaft to tractor output shaft.
  - Ensure that the PTO shaft is the correct length and angle. Contact your local dealer if you have any questions.
2. Adjust center link on tractor so that the Debris Blower is setting level at the ground surface while 3-point hitch is in FLOAT position.
3. Move Diverter Handle to the desired output direction.
4. Engage PTO lever on the tractor AT IDLE SPEED of the tractor and begin operation of the Debris Blower.
5. If the operator needs to change direction of airflow of the diverter, make sure the tractor is at idle speed.
6. If it is necessary to inspect or work on the Debris Blower, always disengage the PTO shaft and shut off the tractor engine before doing so.

### **SAFETY WARNING!**

- Belts may become severely damaged by engaging PTO shaft at high RPM.
- To avoid personal injury, always keep face and body parts away from inlet and discharge openings.
- Never leave this machine unattended.
- Make sure the tractor engine has been shut off and the PTO shaft has been disconnected before attempting any service or inspection.

- Operating with the incorrect PTO length or angle may cause harm or damage to the tractor or debris blower.

### To stop operation:

1. Move throttle on tractor to the slow position and disengage the PTO lever on the tractor.
2. Shut off the tractor engine and allow the machine to come to a complete stop.

### **SAFETY WARNING!**

- The Impeller is heavy and will continue to turn even though the operator has shut off the power source.
- Do not attempt to service or inspect the machine until you see that the shafts have stopped turning and that there is no noise coming from the machine.

## Adjustments

### Belt Tension Adjustment

- Check the condition of drive belts before each use or after every 25 hours of operation.

#### Note:

*Use only industrial V-belts. Do not use automotive belts.*

*Do not over-tighten belts. Excessive tension can cause premature bearing and belt failure.*

*Use a straightedge to check alignment across the faces of pulleys after adjusting belt tension to ensure that the belts will run true.*

### Cable Adjustment

- Check the condition of the diverter cable before each use or after every 25 hours of operation.



- **Never operate Debris Blower with out ALL GUARDS in place.**

## Service & Maintenance



- **Before servicing or inspecting the Debris Blower, make sure the power source is shut off and all moving parts have stopped.**
- **Disconnect the PTO shaft from the tractor.**
- **Always wear safety glasses and protective gloves when servicing the Debris Blower.**

### Break-in Service

After the first hour of use:

1. Check belts. Re-tension if needed.
2. Tighten set screws on bearings.
3. Check nuts, bolts and fasteners to see that they are secure.

### Lubrication

1. Lubricate grease fittings on unit after **every 15 hours** of use.
2. There are **8 grease fittings** on the unit:
  - 2 on the PTO Shaft
  - 2 on the Input Shaft
  - 2 on the Impeller Shaft
  - 1 on each Caster Wheel (2)

## Troubleshooting

### Belts:

<b>Problem:</b>	<b>What to Check:</b>
Belts Slip	<ul style="list-style-type: none"> <li>• Tension adjustment</li> <li>• Load may be excessive</li> <li>• Bearings may have seized.</li> </ul>
<b>Problem:</b>	<b>What to Check:</b>
Belts wear rapidly, jump, catch, or twist.	<ul style="list-style-type: none"> <li>• Pulleys may not be properly aligned</li> <li>• Check with straightedge across face of pulleys</li> </ul>

## Standard Torque Chart

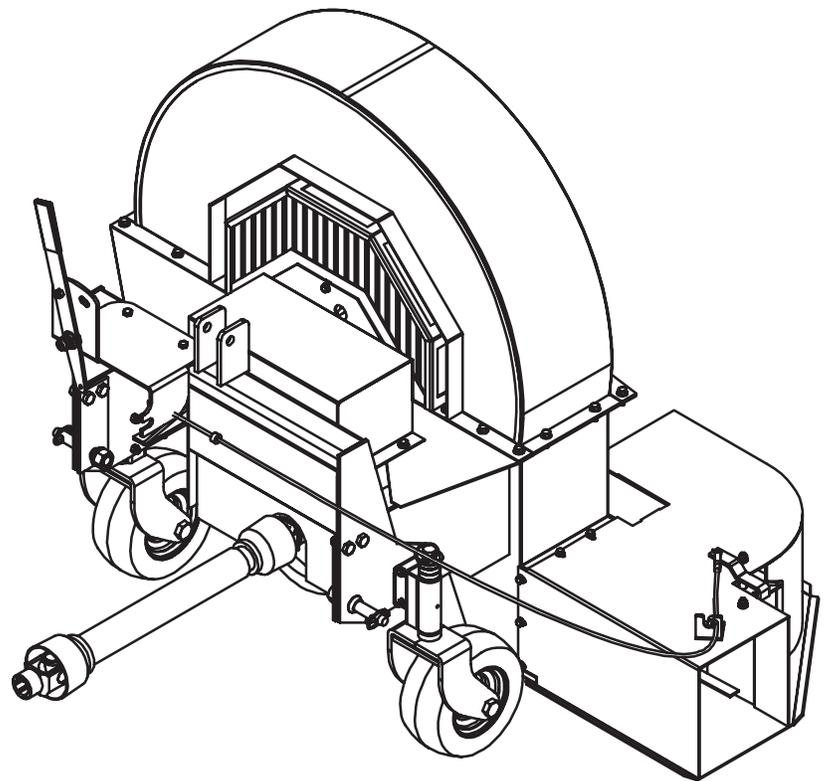
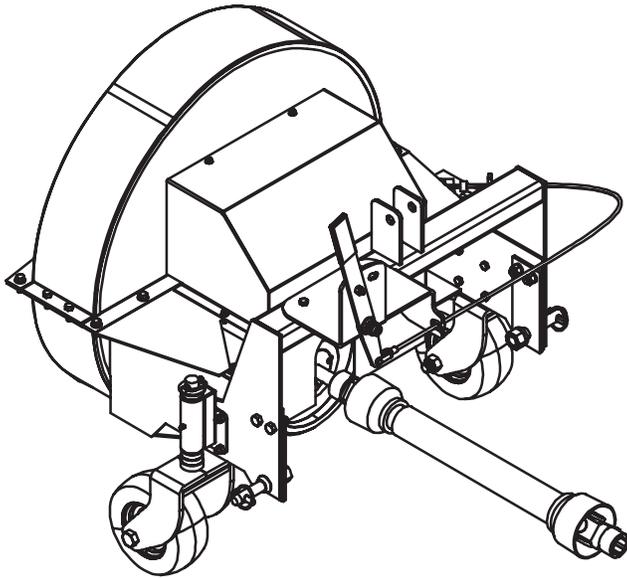
Size	In-lbs	Ft-lbs	N-M
No. 10-24	25-35	5-7	2.8-4.0
1/4 in.	60-80	18-20	7-9
5/16 in.	120-140	28-30	14-16
3/8 in.	340-360	64-74	24-27
1/2 in.		126-150	90-100

### Note:

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



# ***Parts Section***





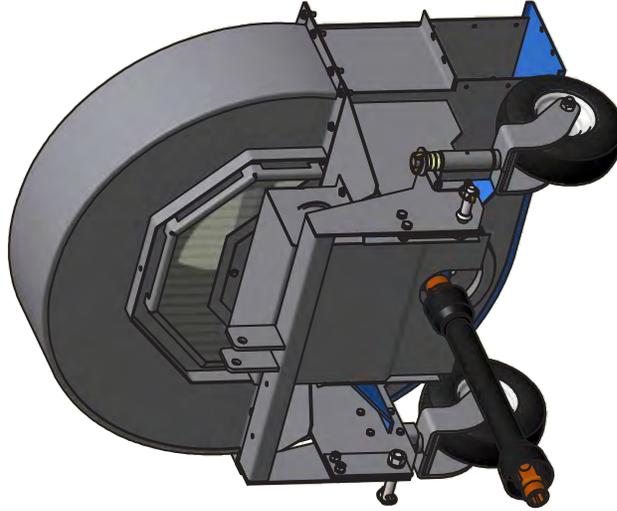
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DB3600

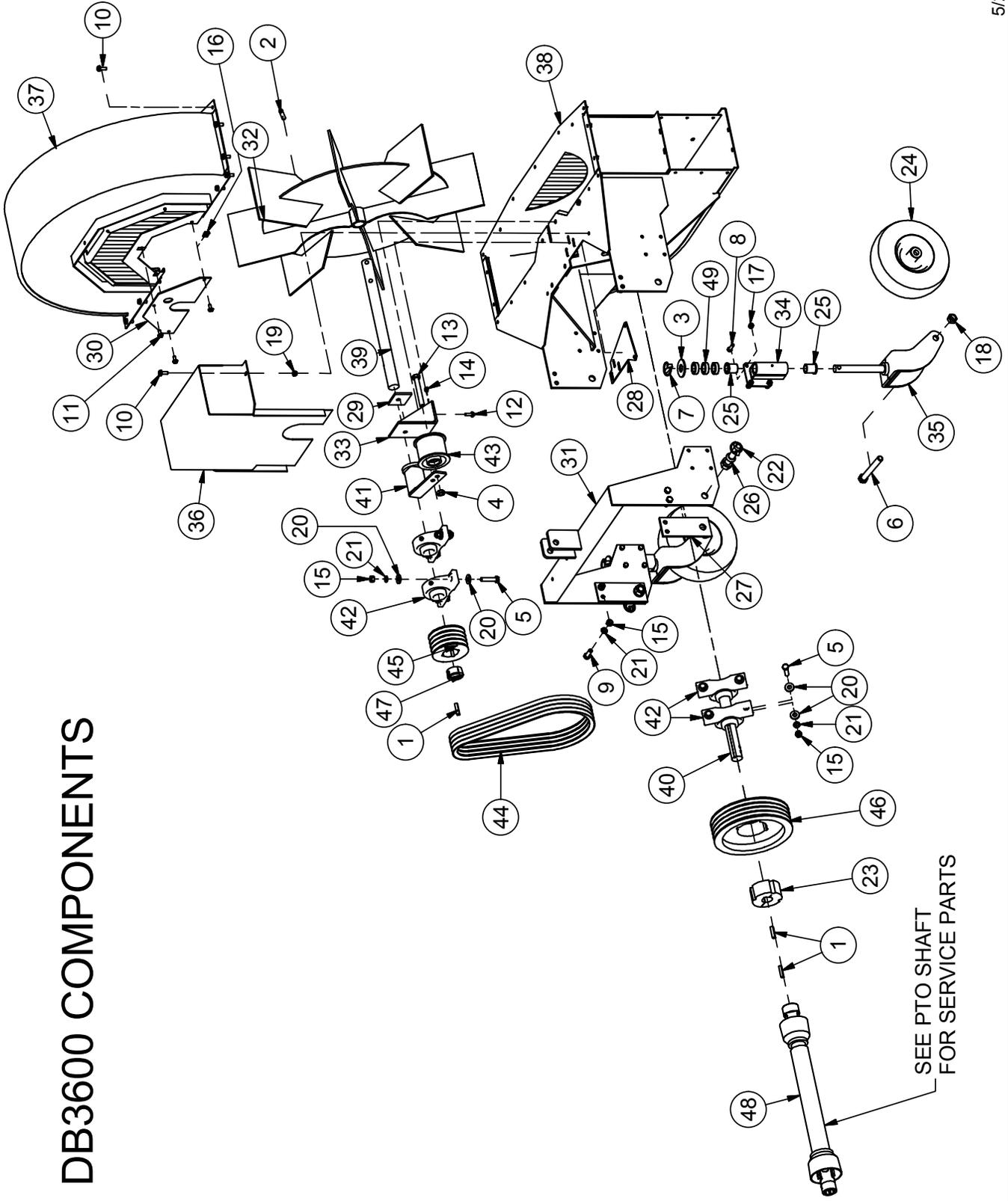
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# DB3600 COMPONENTS



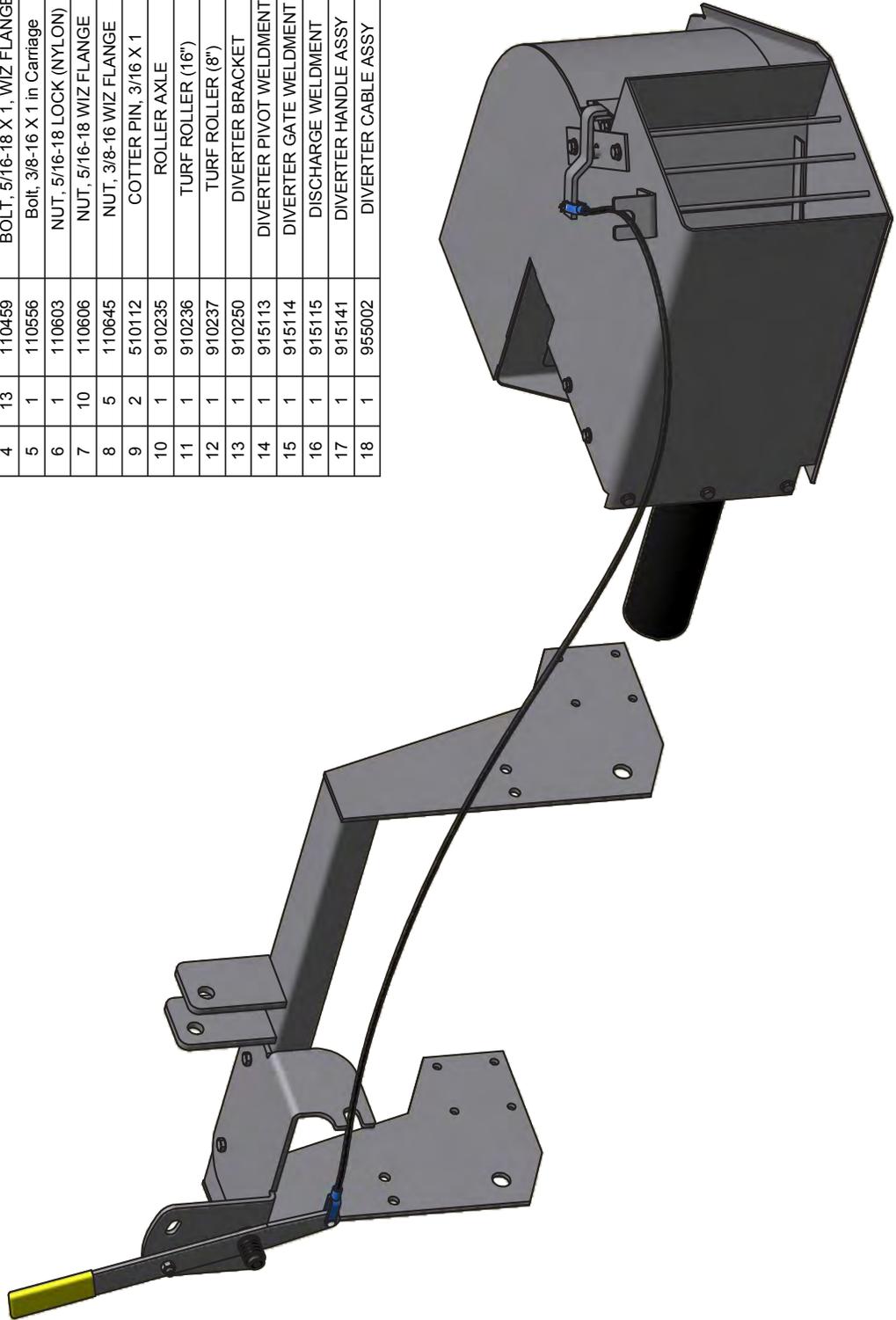
Parts List			DESCRIPTION
ITEM	QTY	PART #	DESCRIPTION
1	2	100567	KEY, 3/8 X 3/8 X 1.75 in
2	2	100568	ROLL PIN, 1/2 X 2.5
3	2	110038	WASHER, 1" FLAT STANDARD
4	1	110116	NUT, 5/8-18 JAM
5	8	110125	BOLT, 1/2-13 X 2.25 GR 5 ZINC PLATE
6	2	110272	BOLT, 3/4-10 X 6.75, HEX HEAD CAP SCREW
7	2	110305	Pin, Lynch 7/16 x 1 3/4
8	8	110425	BOLT, 3/8-16 X 1.25
9	4	110429	BOLT, 1/2-13 X 1.5
10	19	110440	BOLT, 3/8-16 X 1, WIZ FLANGE
11	3	110444	BOLT, 5/16-18 X 0.75, WIZ FLANGE
12	3	110459	BOLT, 5/16-18 X 1, WIZ FLANGE
13	1	110507	BOLT, 5/8-18 X 4.5
14	3	110606	NUT, 5/16-18 WIZ FLANGE
15	12	110610	NUT, 1/2-13
16	3	110616	NUT, 5/16", J-TYPE, CAGE, .5C
17	8	110618	NUT, 3/8-16 LOCK NYLON INSERT
18	2	110625	NUT, 3/4-10, UNITORQUE LOCK
19	19	110645	NUT, 3/8-16 WIZ FLANGE
20	16	110662	WASHER, 1/2" FLAT SPECIAL 1.25od
21	12	110666	WASHER, 1/2" LOCK
22	2	411287	Pin, Lynch 7/16-14P
23	1	440009	BUSHING, QD 1.5" E
24	2	800093	CASTER WHEEL ASSY
25	4	800124	BUSHING, MFI-1620-24
26	2	910002	3-POINT PIN W/ HARDWARE
27	2	910204	HITCH STIFFENER
28	1	910210	IDLER MOUNT STIFFENER
29	1	910213	TENSION MOUNT WASHER
30	1	910283	ACCESS DOOR
31	1	915100	HITCH WELDMENT
32	1	915101	IMPELLER WELDMENT
33	1	915102	IDLER MOUNT WELDMENT
34	2	915103	CASTER MOUNTING WELDMENT
35	2	915104	CASTER YOKE WELD ASSY
36	1	915105	BELT SHIELD WELDMENT
37	1	915107	HOOD WELDMENT
38	1	915108	MAIN FRAME WELDMENT
39	1	940100	IMPELLER SHAFT
40	1	940101	INPUT SHAFT
41	1	940102	BELT IDLER TENSIONER
42	4	940103	PILLOW BLOCK BEARING, (1.5)
43	1	940108	DRIVE IDLER
44	4	940110	DRIVE BELT, (5V X 530)
45	1	942177	SHEAVE, 4/5V 5.20 SD-QD
46	1	942178	SHEAVE, 4/5V 11.30 E-QD
47	1	942183	BUSHING, QD 1-1/2" SD
48	1	943046	PTO SHAFT ASSY
49	6	950001	SPACER

# DB3600 COMPONENTS



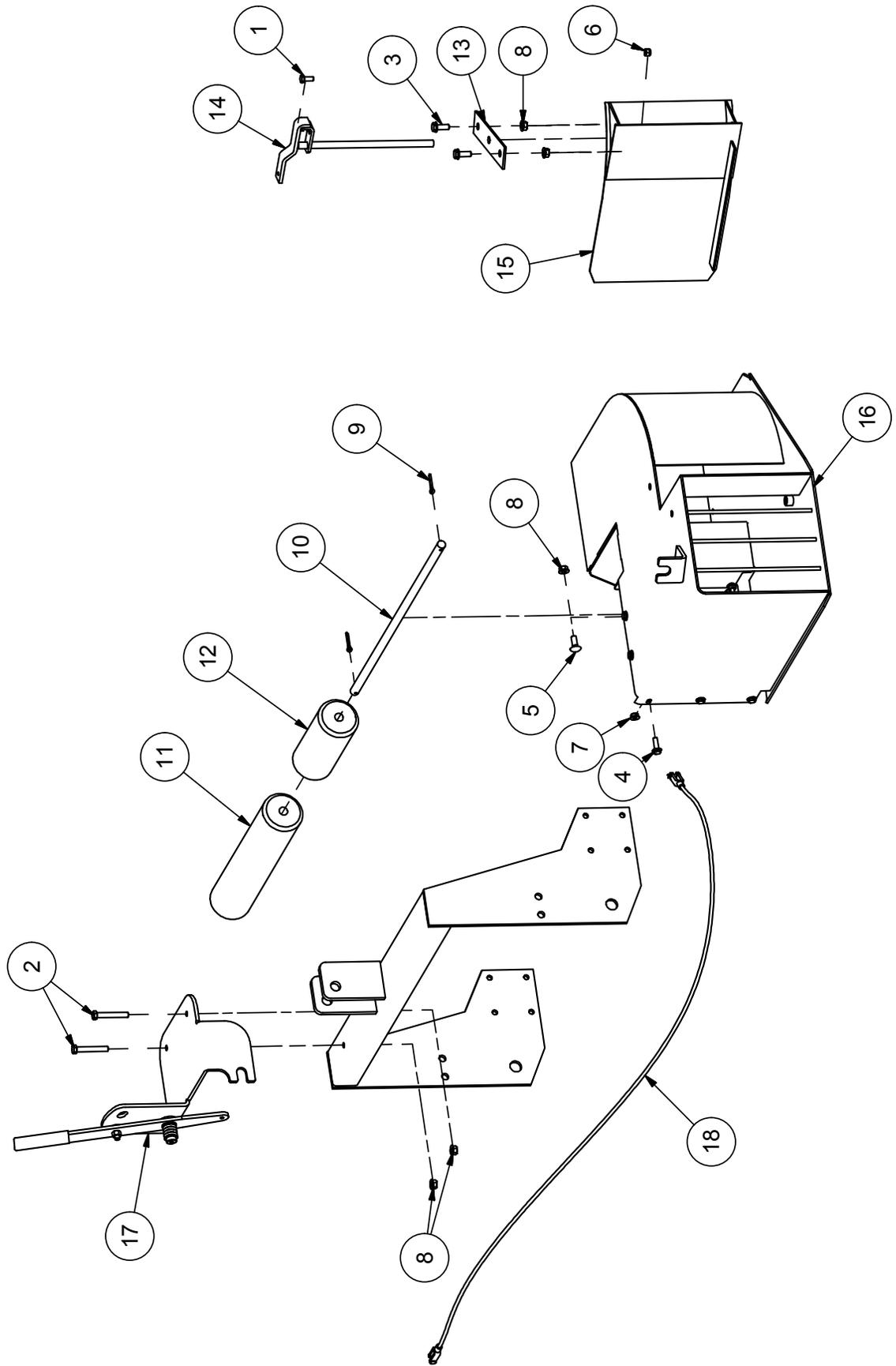
# DB3600 DIVERTER

Parts List		
ITEM	QTY	DESCRIPTION
1	1	BOLT, 5/16-18 X .75
2	2	BOLT, 3/8-16 X 2.5
3	2	BOLT, 3/8-16 X 1, WIZ FLANGE
4	13	BOLT, 5/16-18 X 1, WIZ FLANGE
5	1	Bolt, 3/8-16 X 1 in Carriage
6	1	NUT, 5/16-18 LOCK (NYLON)
7	10	NUT, 5/16-18 WIZ FLANGE
8	5	NUT, 3/8-16 WIZ FLANGE
9	2	COTTER PIN, 3/16 X 1
10	1	ROLLER AXLE
11	1	TURF ROLLER (16")
12	1	TURF ROLLER (8")
13	1	DIVERTER BRACKET
14	1	DIVERTER PIVOT WELDMENT
15	1	DIVERTER GATE WELDMENT
16	1	DISCHARGE WELDMENT
17	1	DIVERTER HANDLE ASSY
18	1	DIVERTER CABLE ASSY



4/18/2012

# DB3600 DIVERTER

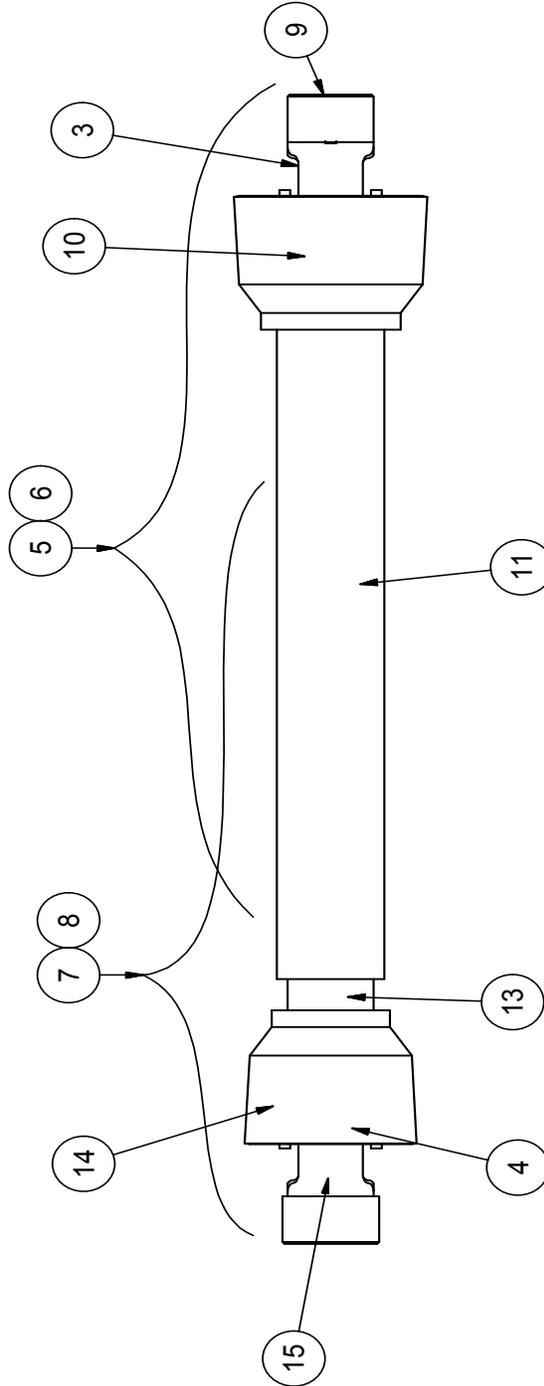


4/18/2012

**DB3600 PTO SHAFT - 35R**  
**PART NO. 943046**  
**USED ON S/N: 13A16 - CURRENT**

Service Parts List

ITEM	QTY	PART #	DESCRIPTION
1	1	640017	DECAL, SAFETY(NOT SHOWN)
2	1	942229	DECAL,SAFETY (NOT SHOWN)
3	1	640013	SAFETY SLIDE LOCK YOKE ASM.
4	2	640014	35R CROSS KIT
5	1	942244	JOINT AND SHAFT HALF ASSY W/ GUARD
6	1	942245	JOINT AND SHAFT HALF ASSY W/O GUARD
7	1	942246	JOINT AND TUBE HALF ASSY W/ GUARD
8	1	942247	JOINT AND TUBE HALF ASSY W/O GUARD
9	1	942237	SSL/AUTO-LOK REPAIR KIT
10	1	942248	YOKE AND SHAFT (1.19 SQUARE)
11	1	942249	OUTER GUARD
12	2	942240	GUARD REPAIR KIT (NOT SHOWN)
13	1	942250	INNER GUARD
14	1	942251	YOKE, TUBE & SLIP SLEEVE
15	1	942243	YOKE

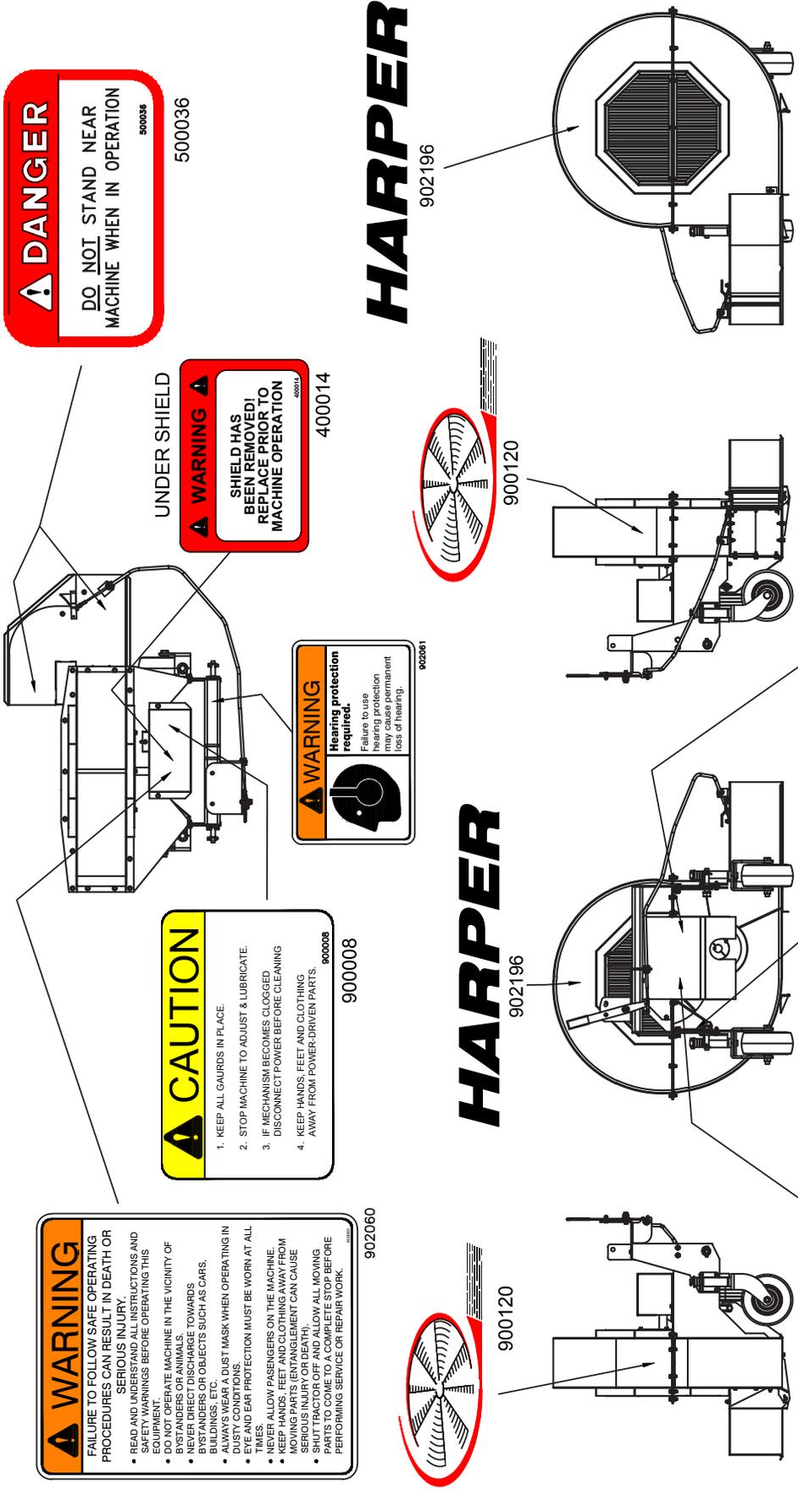


**PTO SHAFT "SQUARE" PROFILE**



5/2/2013

**DB3600 - DECAL PLACEMENT**



**! DANGER**  
DO NOT STAND NEAR MACHINE WHEN IN OPERATION  
500035

**! WARNING**  
SHIELD HAS BEEN REMOVED! REPLACE PRIOR TO MACHINE OPERATION  
400014

**! WARNING**  
Hearing protection required.  
Failure to use hearing protection may result in permanent loss of hearing.  
902061

**! CAUTION**  
1. KEEP ALL GAUARDS IN PLACE.  
2. STOP MACHINE TO ADJUST & LUBRICATE.  
3. IF MECHANISM BECOMES CLOGGED, DISCONNECT POWER BEFORE CLEANING.  
4. KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER-DRIVEN PARTS.  
900008

**! WARNING**  
FAILURE TO FOLLOW SAFE OPERATING PROCEDURES CAN RESULT IN DEATH OR SERIOUS INJURY.  
• READ AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS BEFORE OPERATING THIS EQUIPMENT.  
• DO NOT OPERATE MACHINE IN THE VICINITY OF BYSTANDERS OR ANIMALS.  
• NEVER DIRECT DISCHARGE TOWARDS BYSTANDERS OR OBJECTS SUCH AS CARS.  
• ALWAYS WEAR A DUST MASK WHEN OPERATING IN DUSTY CONDITIONS.  
• EYE AND EAR PROTECTION MUST BE WORN AT ALL TIMES.  
• NEVER ALLOW PASSENGERS ON THE MACHINE.  
• KEEP HANDS, FEET AND CLOTHING AWAY FROM ALL MOVING PARTS. MOVING PARTS CAN CAUSE SERIOUS INJURY OR DEATH.  
• SHUT TRACTOR OFF AND ALLOW ALL MOVING PARTS TO COME TO A COMPLETE STOP BEFORE PERFORMING SERVICE OR REPAIR WORK.  
902060

**HARPER**  
902196



900120



902120

**HARPER**  
902196

**! CAUTION**  
TRACTOR PTO HEIGHT AND ANGLE TO DEBRIS BLOWER MUST BE WITHIN SPECIFICATIONS. EXCEEDING THESE SPECIFICATIONS WILL SIGNIFICANTLY SHORTEN PTO SHAFT LIFE.

32.25" MAX  
20.97" MIN  
15° MAX

902150

**! CAUTION**  
THIS EQUIPMENT DESIGNED FOR NORMAL OPERATING SPEED 540 RPM  
KEEP U-JOINT ANGLE SMALL AND EQUAL. DO NOT EXCEED 15° ANGLE ON EACH U-JOINT.  
902001

902001

**HARPER**  
HARPER, KANSAS  
902168

**DECAL KIT**  
900119

## NOTES

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**Debris Blower**

**HARPER**  
TURF EQUIPMENT