

Thank you for purchasing a Harper/Goossen Debris Blower.

As with all Harper/Goossen products, the Debris Blower has been developed through tough design and testing procedures to provide a machine you can rely on. This manual gives assembly, operating, and service information for Model DB2700 and DB3600 Debris Blowers. Please read and understand all instructional materials included with the Debris Blower 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. Harper Industries is not responsible for accidents or injuries that result from the misuse or lack of maintenance of the Debris Blower.

SYMBOL:



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.



ALL SHIELDS AND GUARDS MUST BE IN PLACE FOR PROPER AND SAFE OPERATION OF 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.

Copyright © 2003 Harper Industries, Inc.

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

Harper Industries will repair or replace, at our option, any part that 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 knives).

RECORD

Date of Purchase//
Dealer's Name
Dealer's Phone
Serial Number-Machine

Table of Contents

Debris Blower Specifications	4
Safety Section	5
Control Identification	7
Assembly	8
Operation	8
Adjustments	10
Service and Maintenance	10
Troubleshooting	11
Standard Torque Chart	11
DB3600:	
Components	12
Diverter Kit	14
Fasteners	16
PTO Shaft (Serial No.s 02A01 – 03A50)	18
PTO Shaft (Serial No.s 03A51 and above)	19
DB2700:	
Components	20
Diverter Kit	22
Fasteners	24
PTO Shaft	26
Safety Decals	27

Debris Blower Specifications

Air Flow:	3600 2700	7100 CFM (approx. 225 miles per hour) 4000 CFM (approx. 220 miles per hour)
Noise:	3600 2700	94 decibels (At operator in tractor seat.) 81 decibels
Blower Housing:	3600 2700	40" (Split design for easy fan replacement.) 31"
Fan:	3600 2700	36" diameter 27" diameter
Drive:		540 RPM PTO belt drive
Belt Drive:		4 – 5VX530 V-belts with automatic tensioner 1 – 4/3VX425
Tractor Mounting:		3 Point Hitch - Category #1
Casters:	3600 2700	Heavy-duty 10" adjustable caster wheels Heavy-duty 8" adjustable caster wheels
Anti-Scalp:		Tough 3" diameter rollers
Dimensions:	3600 2700	Length 48", Width 64", Height 45" Length 43", Width 48", Height 36"
Air-Flow Control:		Bi-directional discharge (left or right) controlled from operator seat.
Approximate Weight:	3600 2700	825 lbs. 425 lbs.
Power Requirement:	3600 2700	30 hp at PTO (minimum) 20 – 30 hp at PTO

Superior construction in every model:

Every Harper/Goossen 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 Section

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 Goossen Dealer.



A 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.

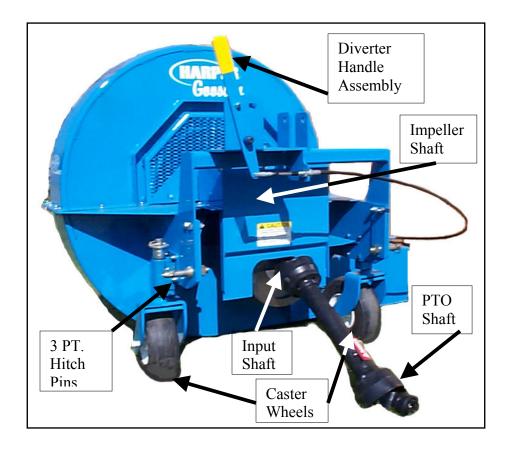
- Never allow hands, clothing or any part of the body to enter the discharge chute or near moving parts.
- Avoid wearing loose-fitting clothing.
- Wear approved eye and ear protection while operating the machine.
- The machine should be operated on level surfaces only.
- Before starting the machine, 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.

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.
- 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.
- 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.
- 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 driveshaft 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.

A

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:

- Mount Debris Blower to 3-point of tractor and connect PTO shaft to tractor output shaft.
- 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.
- 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.

To stop operation:

- 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.



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.

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.



SAFETY WARNING!

 Never operate Debris Blower without ALL GUARDS in place.

Service & Maintenance



SAFETY WARNING!

- 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

- 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:

Problem:	What to Check:
Belts Slip	Tension adjustment.Load may be excessive.Bearings may have seized.
Problem:	What to Check:
Belts wear rapidly, jump, catch or twist.	 Pulleys may not be properly aligned. Check with straightedge across faces of pulleys.

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
½ in.		126-150	90-100

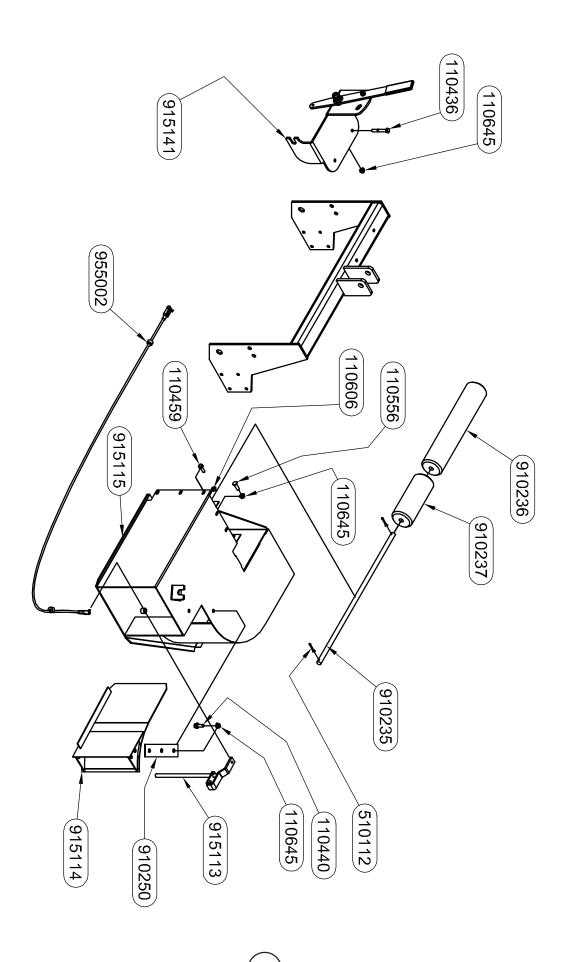
Note:

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.

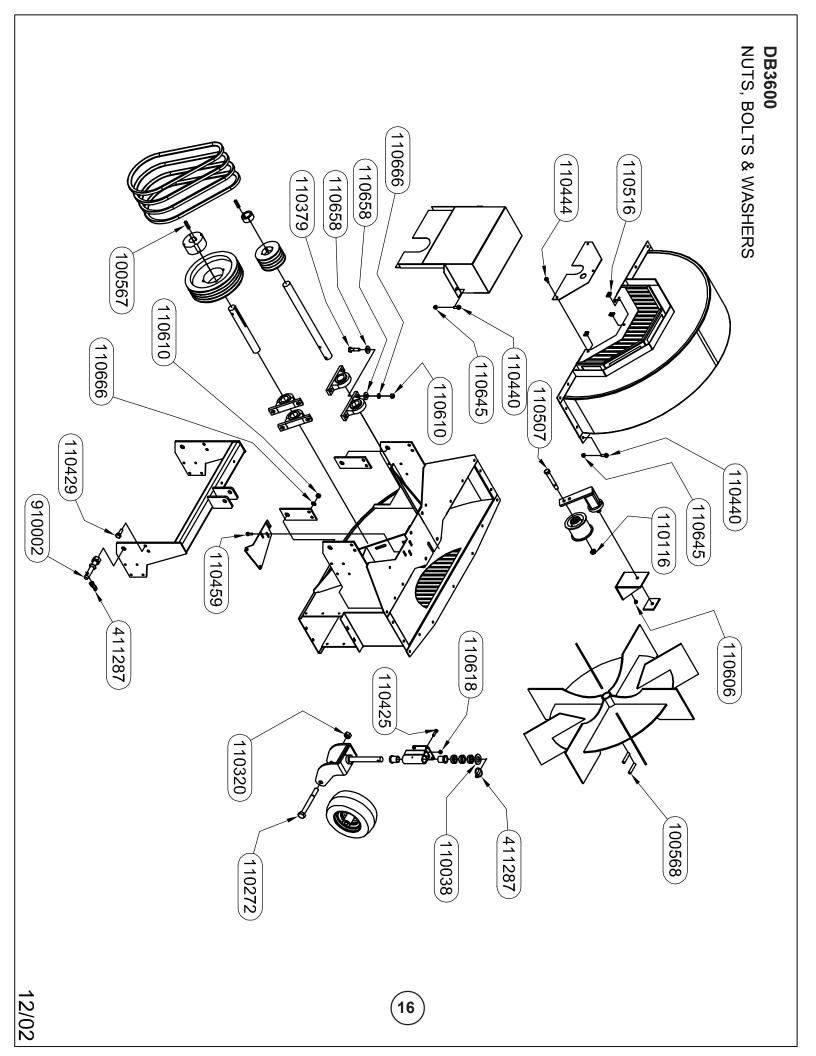
(915105) 940110 **DB3600** COMPONENTS 940112 910283 915107 (940106) (940100) (940103) (940111) (940107) 910204 (940101) 915100 (940102) (915102) (910213) (910210) 915108 (940108) 915101 (800093) (800124) 915104 (950001) 915103 12/02 12

SPACER	6	950001
TAPER-LOCK HUB (1610 1-1/2)	_	940112
TAPER-LOCK HUB (3020 1-1/2)	_	940111
DRIVE BELT, (5V X 530)	4	940110
DRIVE IDLER	_	940108
PULLEY, TAPER-LOCK 4/5V 11.3-3020	_	940107
PULLEY, TAPER-LOCK (4/5V 5.2-1610)	_	940106
PILLOW BLOCK BEARING, (1.5")	4	940103
BELT IDLER TENSIONER	_	940102
INPUT SHAFT	_	940101
IMPELLER SHAFT	_	940100
MAIN FRAME WELDMENT	_	915108
HOOD WELDMENT	_	915107
BELT SHIELD WELDMENT	_	915105
CASTER YOKE WELD ASSY	2	915104
CASTER MOUNTING WELDMENT	2	915103
IDLER MOUNT WELDMENT	1	915102
IMPELLER WELDMENT	1	915101
HITCH WELDMENT	_	915100
ACCESS DOOR	1	910283
TENSION MOUNT WASHER	1	910213
IDLER MOUNT STIFFENER	1	910210
HITCH STIFFENER	2	910204
BUSHING, IGUS, MFI 1620-24	4	800124
CASTER WHEEL ASSY	2	800093
NAME	QTY	PART#
COMPONENTS		

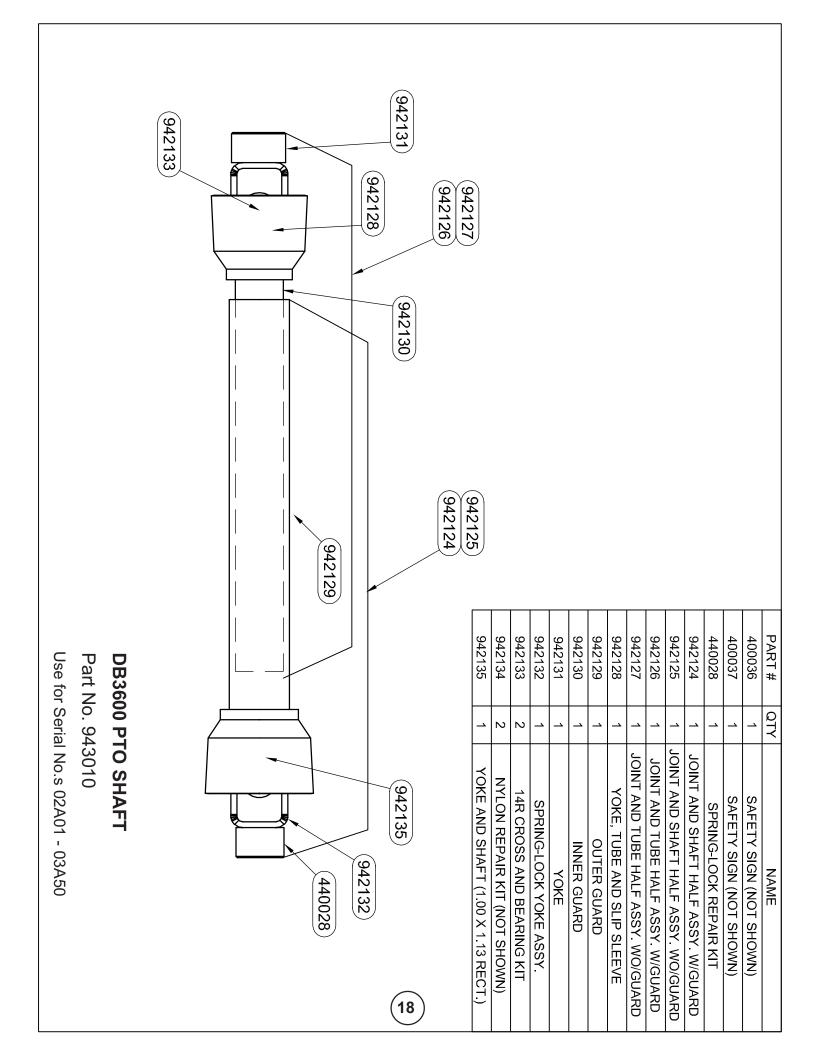
DB3600 DIVERTER KIT

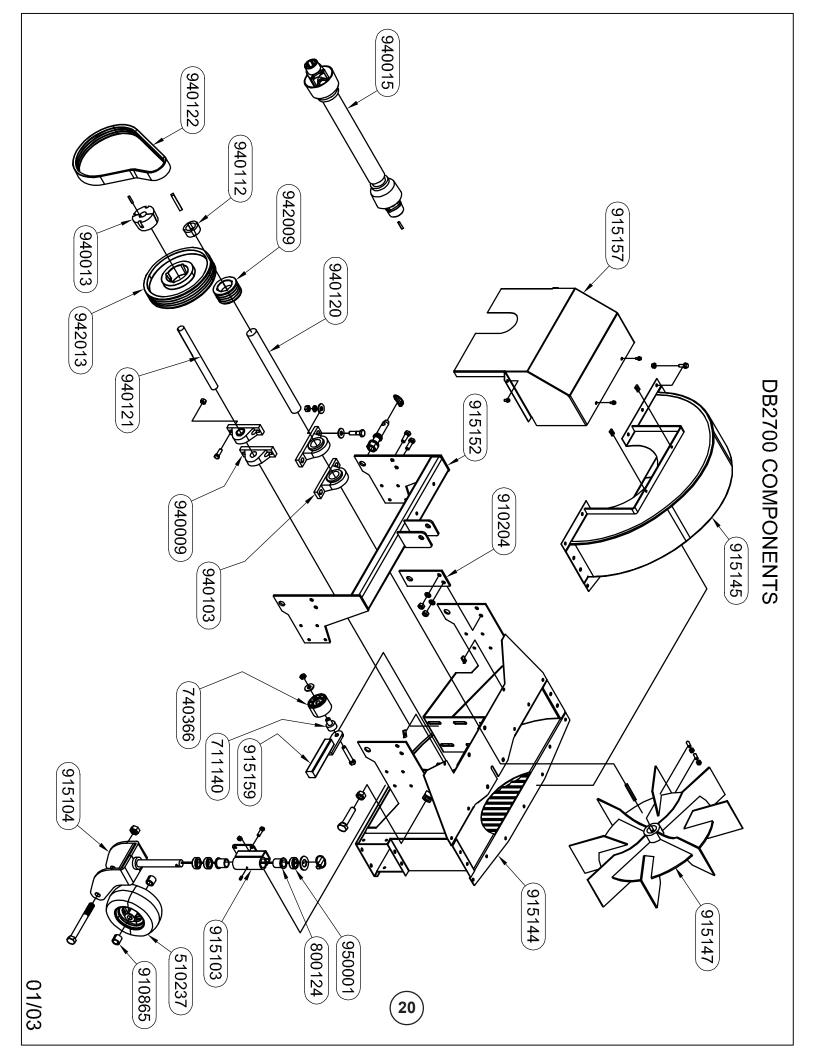


DIVERTER CABLE ASSY	_	955002
DIVERTER HANDLE ASSY	1	915141
DISCHARGE WELDMENT	1	915115
DIVERTER GATE WELDMENT	_	915114
DIVERTER PIVOT WELDMENT	1	915113
DIVERTER BRACKET	_	910250
TURF ROLLER (8")	_	910237
TURF ROLLER (16")	_	910236
ROLLER AXLE	_	910235
COTTER PIN, 1/8 X 1 1/4	2	510112
NUT, 3/8-16 WIZ FLANGE	5	110645
NUT, 5/16-18 WIZ FLANGE	10	110606
BOLT, 3/8-16 X 1 CARRIAGE	_	110556
BOLT, 5/16-18 X 1 WIZ FLANGE	10	110459
BOLT, 3/8-16 X 1 WIZ FLANGE	2	110440
BOLT, 3/8-16 X 2.50	2	110436
NAME	QTY	PART#
DIVERTER		



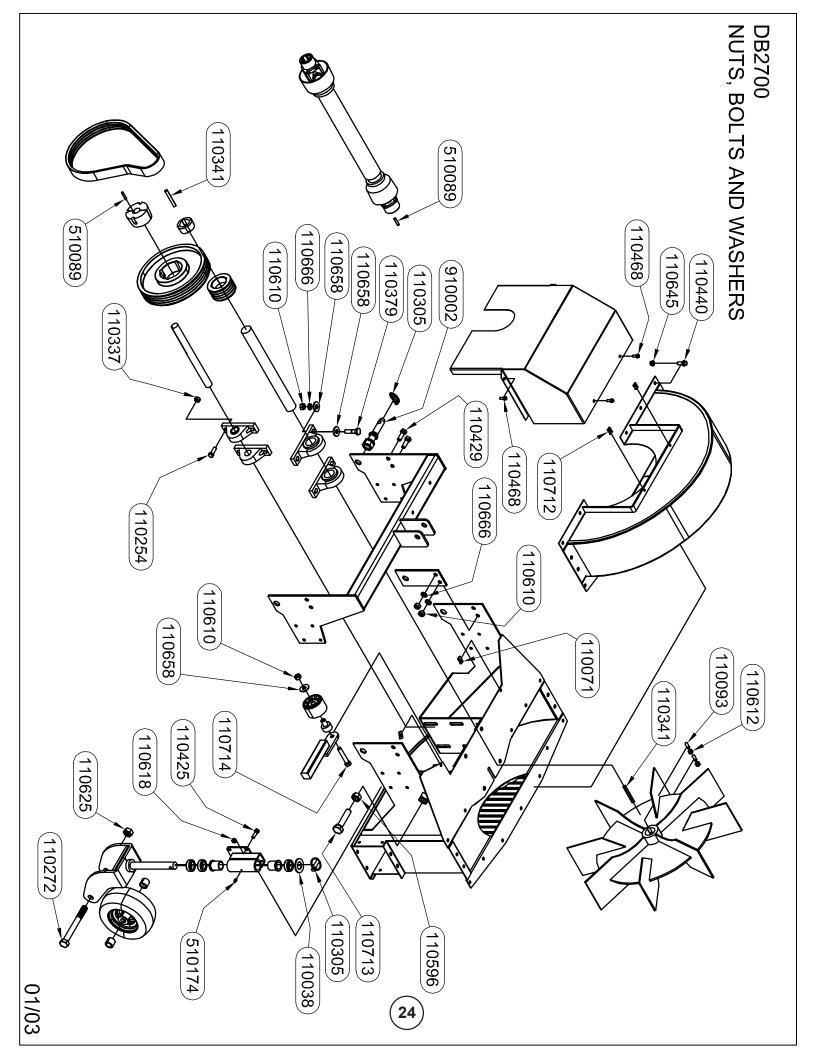
3-POINT PIN W/ HARDWARE	2	910002
PIN, LYNCH 7/16-14QP	4	411287
WASHER, 1/2 LOCK	12	110666
WASHER, 1/2 FLAT	16	110658
NUT, 3/8-16 WIZ FLANGE	19	110645
NUT, 3/8-16 LOCK NYLON	œ	110618
NUT, 1/2-13	12	110610
NUT, 5/16-18 WIZ FLANGE	3	110606
NUT, 5/16-18 J-TYPE CAGE	3	110516
BOLT 5/8-18 X 4.5		110507
BOLT, 5/16-18 X 1 WIZ FLANGE	3	110459
BOLT, 5/16-18 X .75 WIZ FLANGE	ω	110444
BOLT, 3/8-16 X 1 WIZ FLANGE	19	110440
BOLT, 1/2-13 X 1 1/2	4	110429
BOLT, 3/8-16 X 1 1/4	8	110425
BOLT, 1/2-13 X 2	8	110379
NUT, 3/4-10 LOCK	2	110320
BOLT, 3\4-10 X 6.75	2	110272
NUT, 5/8-18 JAM	_	110116
WASHER, FLAT 1.0 STANDARD	2	110038
ROLL PIN	2	100568
KEY, 3/8 X 1.75	2	100567
NAME	YTO	PART#
NUTS, BOLTS, AND WASHERS	TUN	



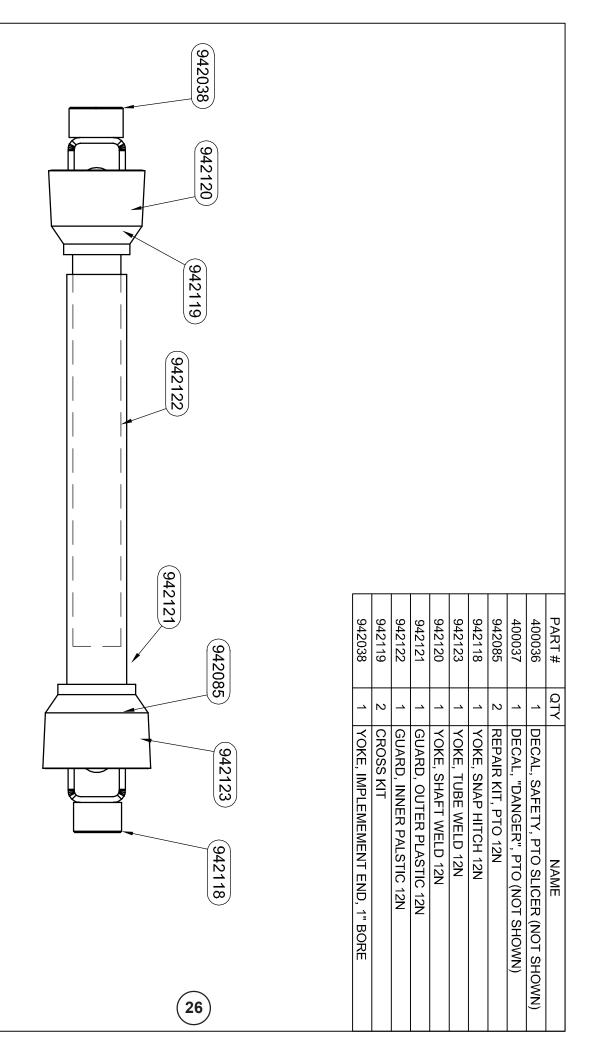


		DB2700 COMPONENTS
PART#	QTY	NAME
510237	2	WHEEL ASSY / CASTER
711140	1	BUSHING / IDLER
740366	1	IDLER, 2.9 OD X 1.82 W
800124	4	BUSHING, IGUS, MFI 1620-24
910204	2	HITCH STIFFENER
910865	4	SPACER, 1.125 X .812 X .9375
915103	2	CASTER MOUNTING WELDMENT
915104	2	CASTER YOKE WELD ASSY
915144	1	MAIN FRAME WELDMENT
915145	_	HOOD
915147	1	IMPELLER WELDMENT
915152	1	SMALL HITCH WELDMENT
915157	1	SHIELD WELDMENT
915159	_	TENSIONER WELDMENT
940009	2	PILLOW BLOCK BEARING
940013	_	BUSHING, TAPER-LOCK 2517 X 1
940015	_	PTO SHAFT
940103	2	PILLOW BLOCK BEARING, (1.5")
940112	_	BUSHING, TAPERLOCK (1610 1-1/2)
940120	_	SMALL DB FAN SHAFT
940121	_	SMALL DB INPUT SHAFT
940122	_	DRIVE BELT, 4/3VX425
942009	_	SHEAVE, 4/3V 3.65 - 1610
942013	_	SHEAVE, 4/3V 10.6 - 2517
950001	6	SPACER

1 DIVERTER CABLE ASSY	955002
1 SMALL DIVERTER PIVOT WELDMENT	915149
1 DIVERTER GATE WELDMENT	915148
1 DISCHARGE	915146
1 DIVERTER HANDLE ASSY	915141
1 ROLLER AXLE, SMALL DB	910856
1 DIVERTER BRACKET	910250
2 TURF ROLLER (8")	910237
2 ROLL PIN, 3/16 X 1.50	500233
4 NUT, 3/8-16 WIZ FLANGE	110645
9 NUT, 5/16-18 WIZ FLANGE	110606
1 NUT, 5/16-18 LOCK (NYLON)	110603
9 BOLT, 5/16-18 X .75 WIZ FLANGE	110444
2 BOLT, 3/8-16 X 1 WIZ FLANGE	110440
1 BOLT, 5/16-18 X .75	110422
2 BOLT, 3/8-16 X 3.00	110015
QTY NAME	PART# C
DB2700 DIVERTER	

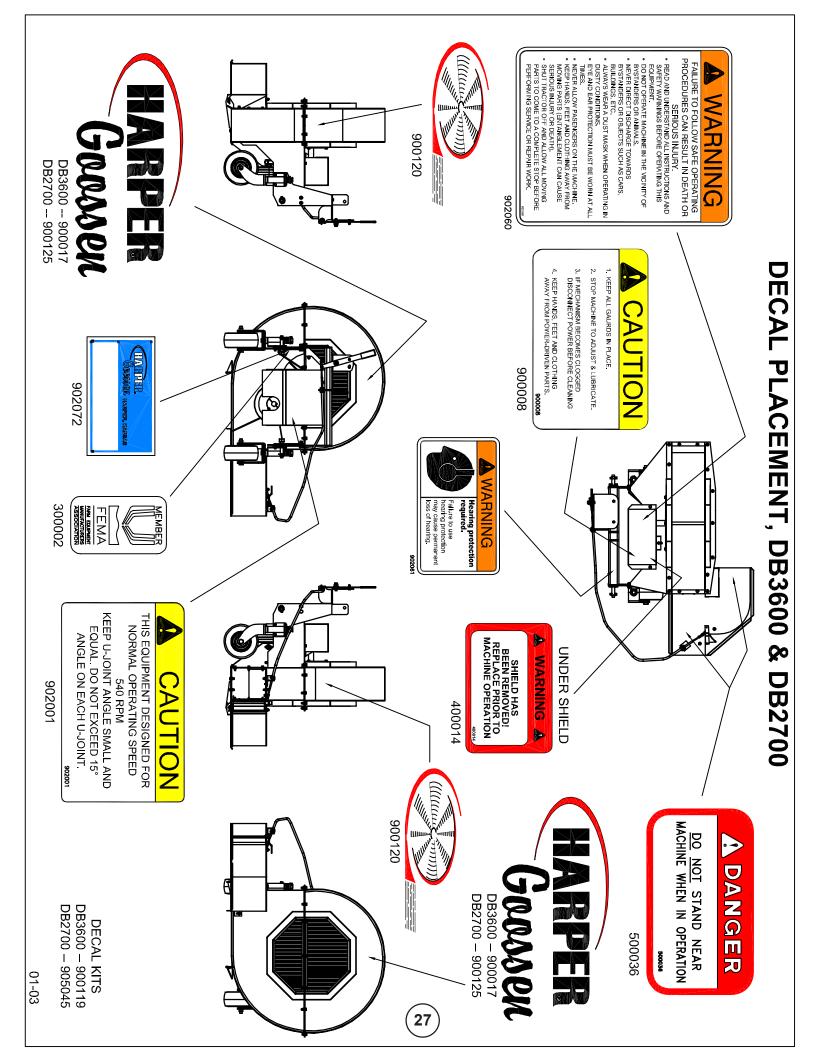


3-POINT PIN W/ HARDWARE	2	910002
GREASE ZERK, 1/4-28	2	510174
KEY, 1/4 X 1/4 X 1.25	2	510089
BOLT, 1/2-13 X 3.0 FULL THREAD	_	110714
BOLT, 3/4-10 X 3.5 FULL THREAD	_	110713
NUT, 1/4-20 U-TYPE, .1819 X .375	2	110712
WASHER, 1/2 LOCK	œ	110666
WASHER, 1/2 FLAT	9	110658
NUT, 3/8-16 WIZ FLANGE	16	110645
NUT, 3/4-10 LOCK	2	110625
NUT, 3/8-16 LOCK	8	110618
NUT, 3/8-16	4	110612
NUT, 1/2-13	9	110610
NUT, 3/4-10	_	110596
BOLT, 1/4-20 X .75, WIZ FLANGE	4	110468
BOLT, 3/8-16 X 1 WIZ FLANGE	16	110440
BOLT, 1/2-13 X 1.5	4	110429
BOLT, 3/8-16 X 1.25	8	110425
BOLT, 1/2-13 X 2.0	4	110379
KEY, 3/8 X 3/8 X 3.0	2	110341
NUT, 7/16-14, WIZ FLANGE	4	110337
PIN, LYNCH 7/16 X 1-3/4	4	110305
BOLT, 3/4-10 X 6.75	2	110272
BOLT, 7/16-14 X 1.25, WIZ	4	110254
SET SCREW, 3/8-16 X 1.25	4	110093
NUT, 1/4-20 U-TYPE	2	110071
WASHER, FLAT 1.0 STANDARD	2	110038
NAME	QTY	PART#
DB2700 FASTENERS		



DB2700 PTO SHAFT

Part No. 940015



NOTES