Clutch for BCE2 942020 bonded drive belt 940020 impeller pulley 21 with dotch models 942015

## Operator's Manual Parts and Service Information

## Goossen BALE CHOPPER

**MODELS** 

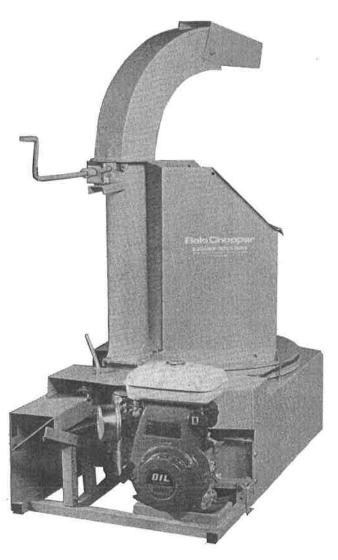
BCG2

(Self-powered Model)

and

BC3

(PTO Model)



## Self-powered Model BCG2

## **GENERAL INFORMATION**

POWERED BY: 10 HP 4 Cyl. Honda Engine

WIDTH: 31" HEIGHT: 51" LENGTH: 55" WEIGHT: 400 lbs.

ROTOR: 15" x 9" NUMBER OF KNIVES: 22

BLOWER DIA.: 16" NUMBER OF BLOWER PADDLES: 6

STANDARD GRATE: 15" x 1114" STANDARD GRATE SPACING: 212"

OPTIONAL GRATE SPACING: 114" or 334"

**RISER & SPOUT SPECIFICATIONS** 

STANDARD RISER & SPOUT HEIGHT: 48"

SPOUT ROTATION: 180 Degrees

OPTIONAL HOSE SPOUT ADAPTOR HEIGHT: 30"

HOSE SPECIFICATIONS

FLEX HOSE: 6" ID STANDARD LENGTH: 30 Feet

OPTIONAL LENGTHS: 20 or 60 Feet

**CUTTING TIME PER BALE** 

\*STANDARD RISER & SPOUT: 35 to 45 Seconds

\*6" x 30" FLEX HOSE: 45 to 60 Seconds

## PTO Model BC3

## GENERAL INFORMATION

POWERED BY: 540 PTO

WIDTH: 31" HEIGHT: 55" LENGTH: 60" WEIGHT: 525 lbs.

ROTOR: 27" x 9" NUMBER OF KNIVES: 40

BLOWER DIA.: 16" NUMBER OF BLOWER PADDLES: 6

STANDARD GRATE: 27" x 12" STANDARD GRATE SPACING: 21/2"

OPTIONAL GRATE SPACING: 114" or 3%"

RISER & SPOUT SPECIFICATIONS

STANDARD RISER & SPOUT HEIGHT: 48"

SPOUT ROTATION: 180 Degrees

OPTIONAL HOSE SPOUT ADAPTOR HEIGHT: 30"

HOSE SPECIFICATIONS

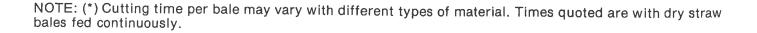
FLEX HOSE: 6" ID STANDARD LENGTH: 30 Feet

OPTIONAL LENGTHS: 20 or 60 Feet

**CUTTING TIME PER BALE** 

\*STANDARD RISER & SPOUT: 35 to 45 Seconds

\*6" x 30" FLEX HOSE: 45 to 60 Seconds



## Introduction

This manual gives you assembly, operating, and service information for Model BC3 and Model BCG2 Goossen Bale Choppers. The Table of Contents directs you to the specific information you need.

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

Read and understand all instructional material included with the Bale Chopper or its components before assembling and operating the equipment.



SAFETY WARNING. Never force material onto the cutting knives.



SAFETY WARNING. Do not feed bales tied with wire into the Chopper.



SAFETY WARNING. Wear approved eye protection while operating the Bale Chopper.



SAFETY WARNING. Keep hands and feet out of the tub. Never operate Bale Chopper with tub removed.

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## Using the hardware supplied:

- Attach the lower spout to the bale chopper. See Figure 1.
- Mount the upper spout on the lower spout.
   Be sure to install the roller bearings as shown.
   See Figures 1 & 2.
- 3. Install the crank assembly. See Figure 2. If the sprocket teeth do not fully engage the ring on the upper spout, shim the crank assembly with washers. Lightly lubricate the sprocket teeth, the areas of contact between the upper spout and the lower spout, and the areas where the crank contacts its brackets.
- 4. Attach the spout extension to the upper spout. See Figure 1.

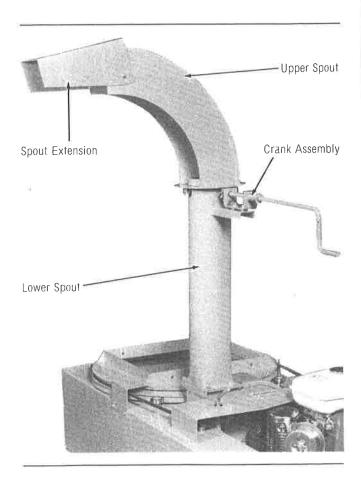


Figure 1 Spout Attachment

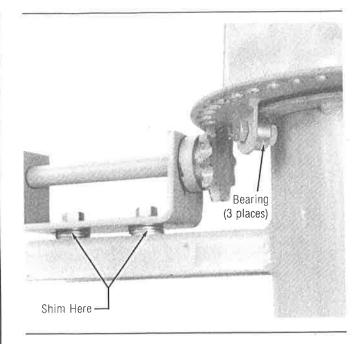


Figure 2 Crank Assembly

## PTO Model

1. Install the pins provided and connect your three-point hitch to the bale chopper.

## Do Not connect the PTO drive shaft at this time.

- 2. Raise the bale chopper to the height where the PTO drive shaft would be level, if installed.
- 3. Connect the drive shaft to the bale chopper.
- 4. Hold the drive shaft level, with the 540 yoke aligned beside the PTO shaft on the tractor.
- 5. Allow for 3/4" clearance between the outer shield and the bell housing at the bale chopper end of the drive shaft. See Figure 3.

Decide how much must be cut off the drive shaft to leave the 3/4" when it is connected.

6. If the drive shaft is too long, separate the halves and cut the full amount of excess length from both the male half and the female half.

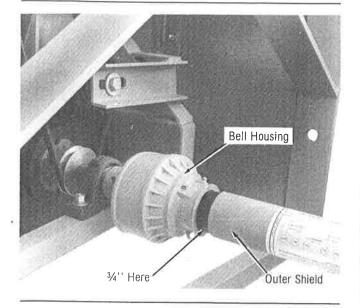


Figure 3 P.T.O. Drive Shaft Installation

Note: If you cut only one end of the drive shaft, the other end will bottom out during operation. Cut the inner and outer shields as necessary to compensate for the shaft length adjustment.

- 7. Connect the 540 yoke to the PTO shaft on the tractor.
- 8. Remove the quick pin from its shipping location at the upper rear of the unit, and insert it into the hole in the lower rear of the unit to secure the bale carrier.

## Control Identification

## PTO Model



SAFETY WARNING. Blade rotation is started and stopped by means of the tractor PTO, and all control levers are on the tractor.

## **Tub Rotation Lever**

Figure 4 shows the location and action of the lever which controls tub rotation.

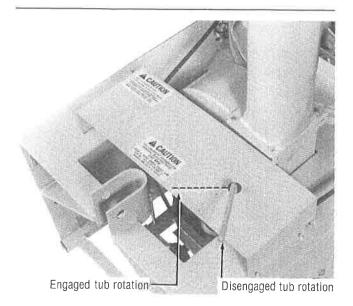


Figure 4 Tub Rotation Lever (P.T.O. Model)

## Self-powered Model

## **Blade Rotation Lever**

Figure 5 shows the location and action of the lever which causes the cutting blades to move. This lever has a pin on it which locks it into position in the holes shown. The pin must be released and the lever held to the right as it is moved up or down.

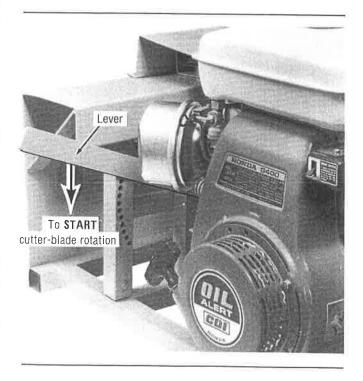


Figure 5 Rotary-blade Engagement Lever

## **Tub Rotation Lever**

Figure 6 shows the location of the lever which engages the tub assembly.

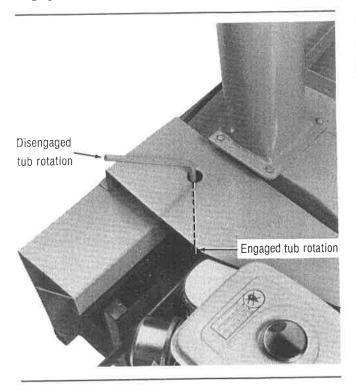


Figure 6 Tub Rotation Lever (Self-powered Model)

## Operation



SAFETY WARNING. Wear approved eye protection while operating the machine.



SAFETY WARNING. Keep all guards in place during operation. Never operate the Bale Chopper with tub removed.



SAFETY WARNING. Never push material onto the cutters with your hands or feet.

Note: The bale chopper is gravity-fed, and it is natural for the rate of chopping to slow as the bale becomes lighter, until another bale is added.



SAFETY WARNING. Periodically clean chopped material away from engines to lessen the possibility of fire.

Always keep a fire extinguisher near the Bale Chopper during operation.

Before operating the bale chopper, check the tension on the belts.

Note: On initial operation of the bale chopper, the belts will become stretched and need readjustment after the first 10 - 15 bales.

Note: If bales are bound by wire instead of string or plastic, remove the wire before putting the bales into the tub.



SAFETY WARNING. Before operating the machine, check to ensure that all belt guides and snubbers are in place, to prevent belts from slipping off the pulleys or systems from being accidentally engaged.

## ■ PTO Model:

A set of belts between the PTO shaft and the cutter shaft assembly drives the cutting blades whenever the PTO driveshaft is turning.



SAFETY WARNING. Cutting blade rotation cannot be controlled from the Bale Chopper.

The shaft which drives the cutting blades also drives a gear box, through a second belt.

A lever forces an idler pulley against a belt between the gear box and the tub, causing the bale to turn.

## To begin operation:

- Make sure the tub rotation lever is disengaged.
- 2. Engage the PTO, to start blade rotation.
- 3. Set the first bale into the tub.
- 4. Engage the tub rotation lever.

Note: Remove the strings from the bale, as soon as they have been cut.

5. Add another bale when there is about 1/3 bale left in the tub.

## To stop operation:

- 1. Move the lever to stop the tub.
- Disengage the tractor PTO, to stop blade rotation.

## Self-powered Model

Belts run between the shaft assembly, which contains the cutting blades, and the engine; and between the shaft assembly and a gear box.

Moving a lever to force an idler pulley against the belts between the engine and the shaft assembly drives the shaft (and the cutting blades). This action also drives the gear box.

Moving a second lever forces an idler against a belt running between the gear box and the tub, to turn the bale. The bale will not turn unless the cutting blades are moving.



SAFETY WARNING. Make sure that the belt guides (shown in Fig. 7) are in place on the engine, and that the lower guide is positioned so the belt bulges away from the pulley when it is slack. This helps prevent accidental engagement of the cutting blades.

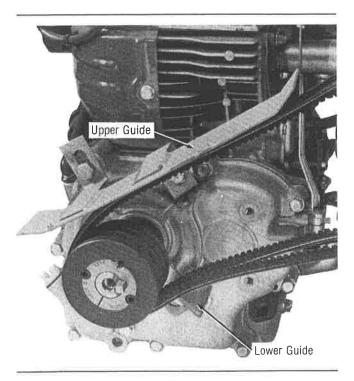


Figure 7 Engine-mounted Belt Guides (engine removed from chassis for photo)

## To begin operation:

- Make sure the tub rotation lever is in the disengaged position. See Figure 6.
- 2. Start the engine, following the manufacturer's instructions.
- Engage the Rotary Blade Lever to start blade rotation.
- 4. Place the first bale into the tub.

Note: Remove the strings from the bale, as soon as they have been cut.

- Use the tub rotation lever to start the bale turning.
- 6. Add another bale when there is about 1/3 bale left in the tub.

## To stop operation:

- 1. Stop tub rotation.
- 2. Lift the blade rotation lever fully upward to stop cutter blade rotation.
- 3. Shut off the engine.

## Adjustments

## Belt Tension Adjustment

Note: Use only industrial v-belts, 3 - 3V x 315 or equivalent. Do not use automotive v-belts.

## **PTO Model**

The belts which turn the cutter shaft on the PTO Model BC3 are adjusted by means of two 7/16" threaded rods located beside the PTO shaft (See Fig. 8).

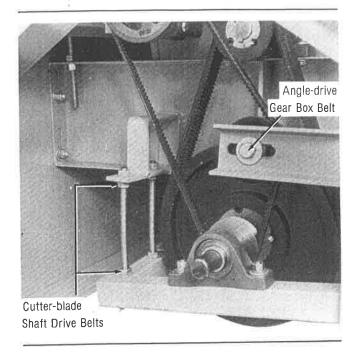


Figure 8 Belt Tension Adjustment Points (P.T.O. Model)

These rods adjust the position of the bearing bracket, to change belt tension.

The belt which transmits power to the gear box to rotate the tub is adjusted by means of a pulley mounted in a slotted bracket (see Fig. 8).

The belt which turns the tub is adjusted by moving an adjustable idler. See Fig. 9.

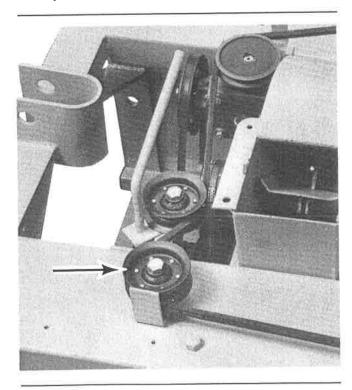


Figure 9 Tub-belt Tension Adjustment (shown with cover removed) (P.T.O. Models)

## Self-powered Model

The belts which turn the cutter shaft on the BCG2 are adjusted by relocating the engine in its mounting slots.

The belt which transmits power to the gear box is adjusted by means of an idler pulley mounted in a slotted bracket beside the gear box. See Fig. 10.

The belt which turns the tub is adjusted by moving an adjustable idler. See Fig. 10.

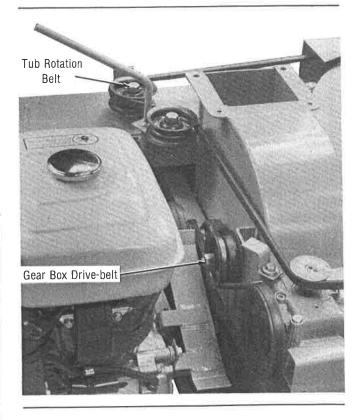


Figure 10 Belt Tension Adjusting Points (Self-powered Models)

## ■ Knife Height Adjustment (Depth of Cut)

Depth of cut can be adjusted from 1" to 1-7/8". Maximum depth (1-7/8") is recommended for chopping most materials.

If the material being chopped is especially difficult (frozen, wet, etc.), or if a finer- than-normal cut is desired, the blades (depth of cut) can be changed by repositioning the rotary assembly.

## To adjust depth of cut:

 Loosen the eight bolts that secure the rotaryblade/carriage assembly to the sides of the chopper housing (PTO model) or housing/ frame (self-powered model). Figures 11 and 12 show rear adjusting points. Front adjusting points are similar in both models. 2. Adjust the height of the blade tips by turning the adjusting nuts on the 4-1/2" leveling bolts the same number of revolutions.

Note: Rear leveling bolts not used on self-powered models.

- 3. Tighten the eight mounting bolts.
- 4. Tighten the locking nuts on the leveling bolts.
- 5. Check belt tension and adjust as needed.

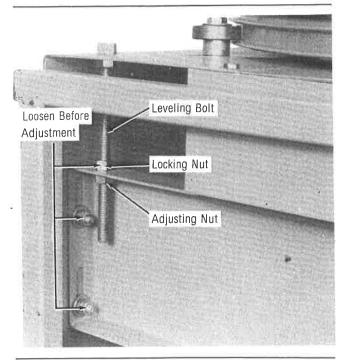


Figure 11 Blade Height Adjustment (P.T.O. Models)

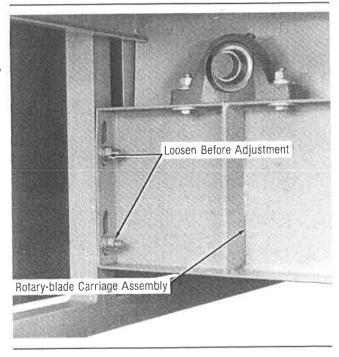


Figure 12 Blade Height Adjustment (Self-Powered Models)

## Blower Paddle Adjustment

Blower paddles must be adjusted so there is approximately 1/8" between the ends of the paddles and the wall of the blower housing where indicated in Figure 13. To adjust:

- Loosen the bolts which mount the shaft assembly bearing at the front of the machine, so the entire paddle wheel and shaft can be slid over.
- 2. Insert a 1/8" rod or bar between the end of the paddle and the housing wall, as shown in Fig. 13.
- 3. Rotate the shaft assembly to ensure that all paddles are set properly.
- 4. Tighten the bearing mounting bolts securely, to maintain the setting.

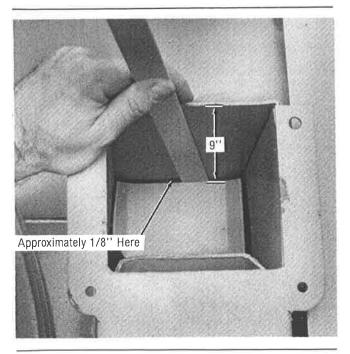


Figure 13 Proper Blower Paddle Clearance

## Special-order equipment

## Fine-Chop Grate

A finer grate is available to help in getting a finer chop for feeds or special applications.

## Slow-rotation Tub Pulley

Bale tub rotation can be slowed to 12 RPM rather than the standard 18 RPM, by replacing the standard 4" pulley with a smaller diameter pulley. This will help produce a finer cut, but it will reduce the cutting speed.

Note: Additional knives added to the rotary assembly will give a finer chop.

## Material Distribution

A spout adapter and a 30' by 6' hose are available, to enable efficient distribution of mulching materials just where they are needed. These can be mounted on either model Bale Chopper.

## Service

## Break-in service

## After the first 10 - 15 bales:

- 1. Check belts. Retension if needed.
- 2. Tighten set screws on bearings.
- 3. Check drum carrier bearings for adjustment. See Fig. 14.

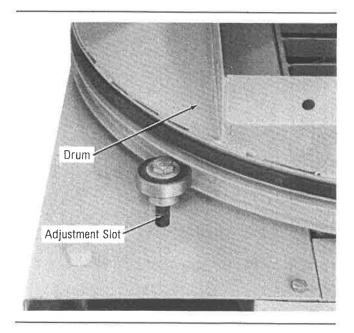


Figure 14 **Drum Carrier Bearing Position** 

Periodically check belt tension and carrier bearing adjustment.

## Lubrication

## Chute

## As needed:

Lightly lubricate the sprocket teeth, the areas of contact between the upper spout and the lower spout, and the areas where the crank contacts its mounting brackets.

## **Bearings**

The bearings are sealed and require no lubrication.

## Gear Box

## PTO Model

## At 15 - 60 degrees F.:

Use AGMA No. 2 oil, viscosity 284-347 SSU

## At 50 - 125 degrees F.:

Use AGMA No. 4 oil, viscosity 626-765 SSU

## At 100 HRS:

- 1. Drain the reducer while warm.
- 2. Thoroughly flush the housing with a light flushing oil.
- 3. Refill the reducer with 4 oz. of fresh lubricant.

## Every 6 months:

Repeat steps #1 - #3 above to change lubricant.

## Self-powered Model

No oil change or addition is necessary unless unit leaks.

Use Mobil SHC 634 wormgear lubricant, or equivalent.

## Gasoline Engine

Follow manufacturer's instructions.

## Knife Replacement



SAFETY WARNING. Wear protective gloves whenever handling blades or working near them.

Note: If the serrations are worn down but the tip of the knife is still intact, the knife may be turned around and remounted.

The rotary shaft assembly has been factory balanced. Whenever knives are replaced, or additional knives are attached to the assembly, this balance must be maintained.













## To maintain balance:

- A. Mount replacement knives only in the places from which the worn knives were removed.
- **B.** Mount additional knives only as opposing pairs on each plate and in the spiral pattern of the original knives. See Figure 15.

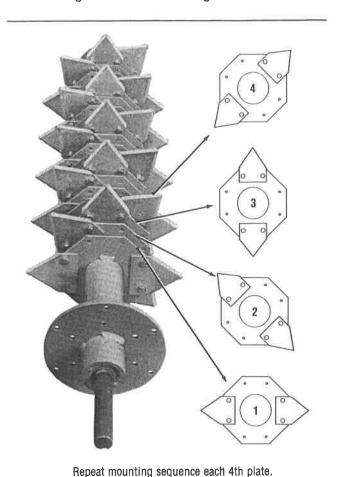


Figure 15 Correct Cutter-blade Installation Pattern

C. Do not remove nuts and bolts installed as weights, unless you are mounting knives in those holes.



SAFETY WARNING. Knives and their retaining hardware rotate at high speed. It is essential that they be mounted securely to prevent accidents from flying metal. Mount the knives only with Grade 8 1/4"-20 x 1/2" bolts and locknuts, treated with Loc-tite® (or equivalent). Tighten lock nuts to 18 in. lbs.

## To replace knives:

- 1. Remove the belt from around the tub.
- 2. Loosen the bolts mounting the rear drum carrier bearings. See Figure 14.
- 3. Slide the loosened bearings toward the rear, and remove the tub from the bale chopper.
- 4. Remove the two bolts holding the grate above the rotary assembly and lift out the grate.
- 5. Remove and replace knives as necessary, using only Grade 8 1/4"-20 x 1/2" bolts and lock nuts secured with loc-tite® (or equivalent) and tightened to 18 in. lbs.
- 6. Reinstall the grate.
- 7. Adjust the height of the cutters above the grate, if necessary. (See "Knife Height Adjustment," Pg. 6)
- 8. Reinstall the tub.

## Troubleshooting

## Engine

What to Check
Engine may be low on fuel.
Engine may be low on oil. (The Honda Engine is equipped with an ''Oil Alert'' automatic shut- off)
Air breather may be clogged.

## Belts

Problem	What to Check
Belts slip	Tension adjustment.
	Load may be excessive.
	Knives may be too dull.
	Knives may be set too high (cutting too deeply).
	Foreign material may be lodged in chopper (on knives or blower paddles).
	Bearings may have seized.

## ■ Discharge Components

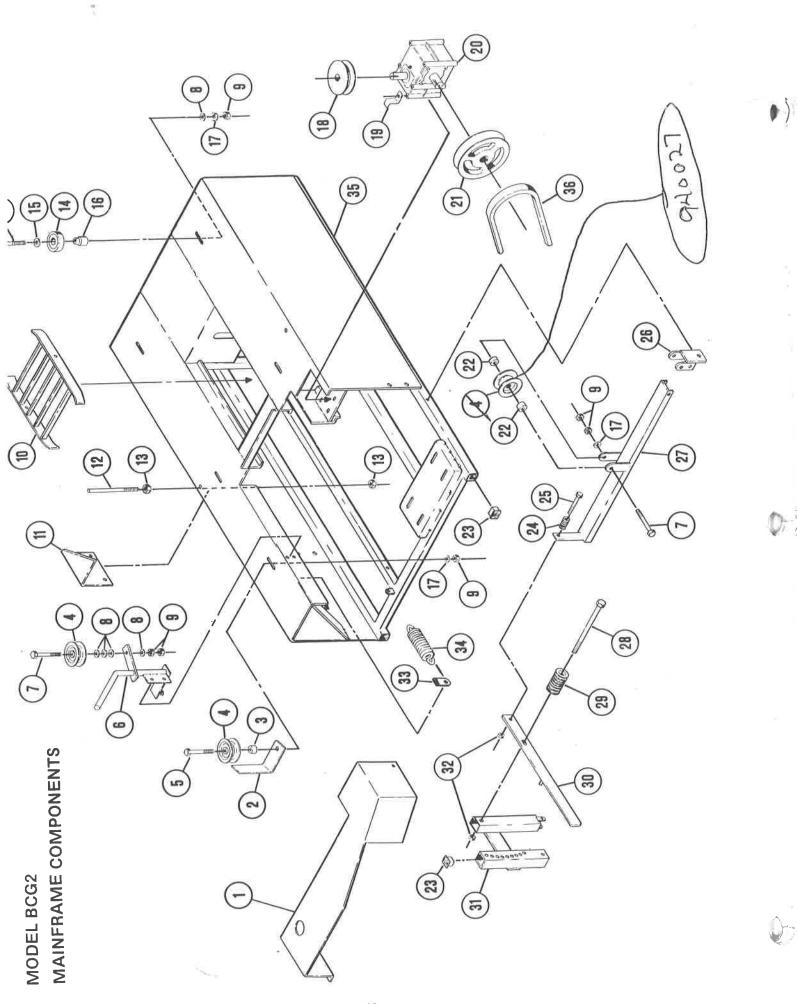
Problem	What to Check
Hose plugs	Blower paddles may need adjustment. See Fig. 13.
	Material being chopped may have too much moisture in it.
	RPM may not be high enough. (540 RPM is recommended for most applications.)
	Foreign material may be lodged in the hose.

## **■** Gear Box

Problem	What to Check
Oil leaks	Housing bolts may be loose.
	Oil seals may need replacement.
Gear box overheats	Oil level may be low.
	Dirt or grease may have accumulated around the gear box.
Gear box vibrates,	Oil level may be low.
is very noisy	Components may be worn or damaged.
	Load may be excessive.

## Illustrated Parts Lists

Mainframe Components	
#BCG2#BC3	12 & 13 16 & 17
#BCG2#BC3	14 & 15 18 & 19
Tub & Spout Assemblies	20

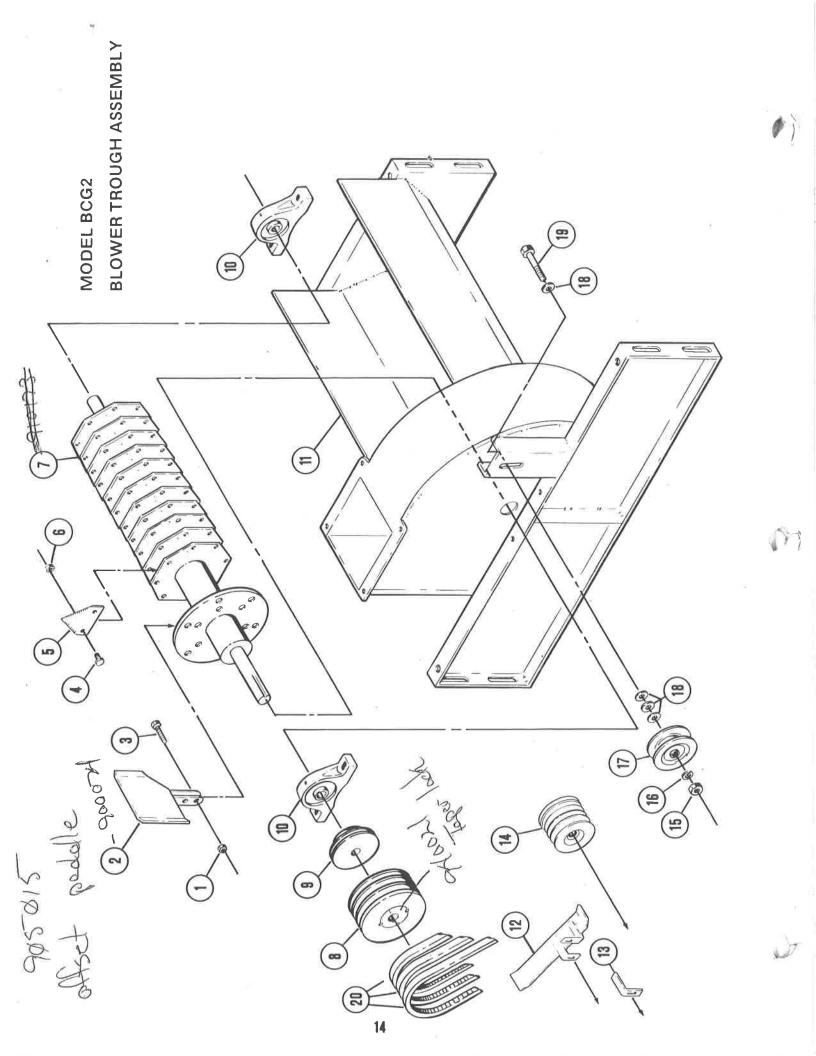


## MODEL BCG2 MAINFRAME COMPONENTS

1

			I thom	trog		
Item #	Part Number	Description Otty.	##	# Number	Description Qty.	ity.
-	1	Front Belt Shield	19	GF215	Belt Guide	-
2	PF212	Belt Guide1	20	GF214	Gear Box (Xe-to 1 Ratio)	-
က		Spacer	71	PF205	Sheave 2001/2	
4 -		Idler Pulley 3	52	GF213	Spacer	2
2		Bolt, 1/2 x 31/2", hex. hd.	23	PF215	Cap Plug, 11/2"	۰ م
9		Shift Assembly1	24	GF210	Spring	-
7		Bolt, 1/2" x 21/2", hex. hd.	52	GF211	Bolt, 5/16" x 21/2" hex. hd.	<del>, -</del> -
00		Flat Washer, ½"9	26	GF212	Swivel Assembly	
6		Nut, 1/2"	27	GF203	Engaging Channel	, ,
10		Standard Grate 1	78	GF208	·Bolt, 5/16" x 4" hex. hd	<u>,                                    </u>
+		Fine Chop Grate1	හ	GF206	Spring	_ ,
=		Tub Belt Shield 1	8	GF205	Engaging Handle	· 1
12		Belt Guide 2	<u>ب</u>	GF204	Handle Assembly	- (
13		Nut, 5/16" hex 4	35	PB107	Locknut, 5/16" hex	2
14		Tub Bearing 4	33	GF209	Spring Tab	-
15		Flat Washer, 7/16"	34	PF211	Spring, Shift Assembly	,
16		Tub Bearing Spacer 4	8	GF200	Main Frame	- ·
17		Lockwasher, ½" 6	98	GF220	Belt, Gear Box Drive	
9		Sheave, 21/4".				

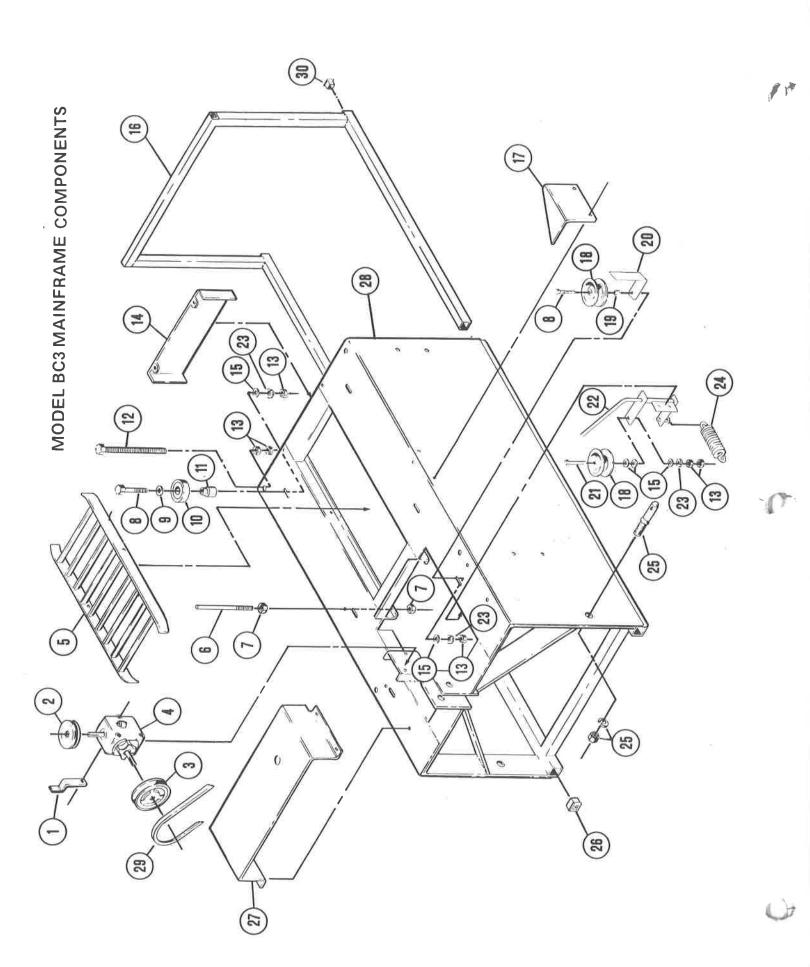
Not Illustrated, order by description only.



PB-110 was the taper-lock used on the impeller shaft of the PTO units. was the bolt used for the knife. In the newer manuals (NA5000, etc.), In the older Goossen Bale Chopper manuals (BCG-2 / BC-3), PB-110 This crosses to our taper-lock  $940007 (1210 \times 1^{\circ})$ .

# MODEL BCG2 BLOWER TROUGH ASSEMBLY

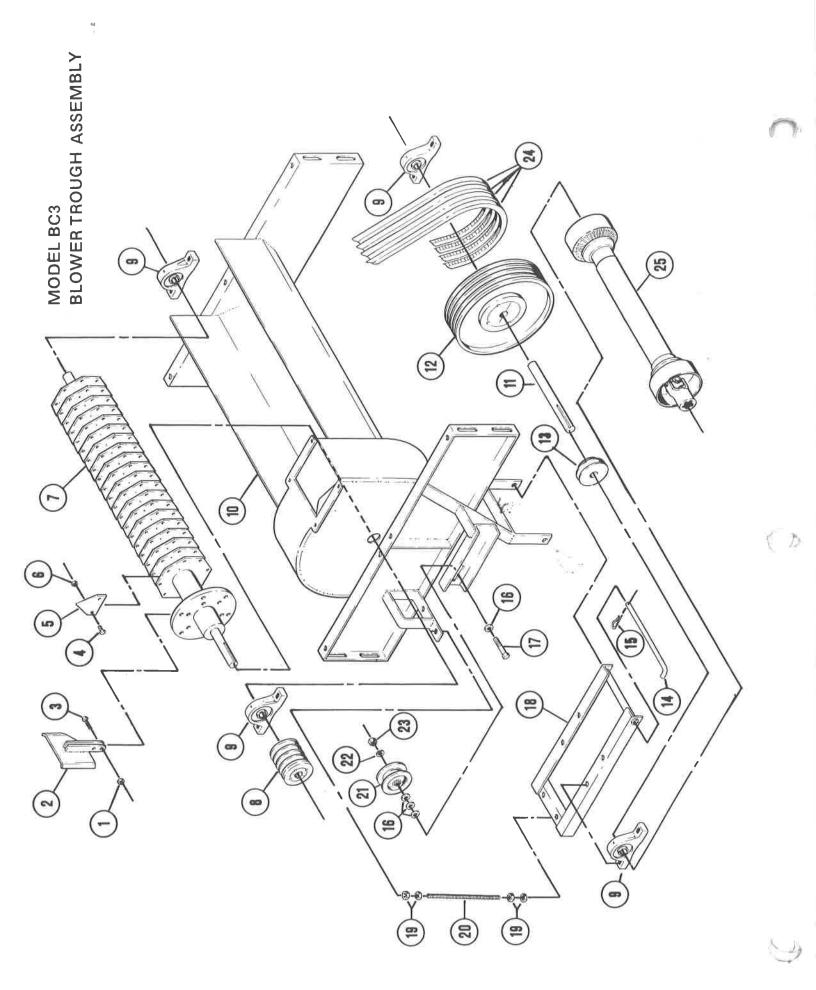
		41.000 /Y
LINIDE I	Part Number Description Qty.	Blower Trough Assembly Upper Belt Guide Lower Belt Guide Drive Sheave Nut, ½' hex. Lockwasher, ½'' Idler Pulley Flat Washer, ½'' Bolt, ½'' x 2½'' hex hd.
ST LID	Part Number	GB100 GB105 GB106 GB104 PB121 PB117 PB117 PB118 GB123
	Item Part # Num	11 11 11 11 11 11 11 11 11 11 11 11
MODEL BOOK BLOWEN INCOME ASSEMBLE	Description Oty.	Locknut, 5/16" hex.  Blower Paddle Blower Paddle Bolt, 5/16" x 1½" hex. hd Bolt, 1½" x ½" Grade 8 hex. hd Cutting Knife Locknut, ½" hex. Main Rotor Rotor Sheave Sheave, 2½" Sealed Bearing
	Part Number	PB107 GB102 PB108 PB110 PB111 GB101 GB103 PB113
	Item Part # Num	T 2 8 4 5 9 7 8 6 0 1
		705020 -8301 942095



## MODEL BC3 MAINFRAME COMPONENTS

Item #	Part Number	Description Oty.	item #	Part Number	Description Qty.
1 2 8 4 5 4 9 6 1 1 2 1 2 1 2 1	PF207 PF206 PF205 PF204 PF203 PF223 PF216 PF217 PF219 PF220 PF221 PF221 PF221 PF221	Belt Guard	91 10 10 10 10 10 10 10 10 10 10 10 10 10	PF201 PF209 PB117 PF213 PF214 PF210 PF211 PF212 PF202 PF202 PF202	Bale Carrier Belt Guard Idler Pulley Spacer Belt Guide Belt Guide Bolt, ½" x 2½" hex. hd Shift Assembly Lockwasher, ½" Spring (Shift Assembly) 3 Point Pin w/Hardware Cap Plug, 1½" Belt Guard Main Frame Cap Plug, 1½"  Relt, Gear Box Drive  Cap Plug, 1¼"

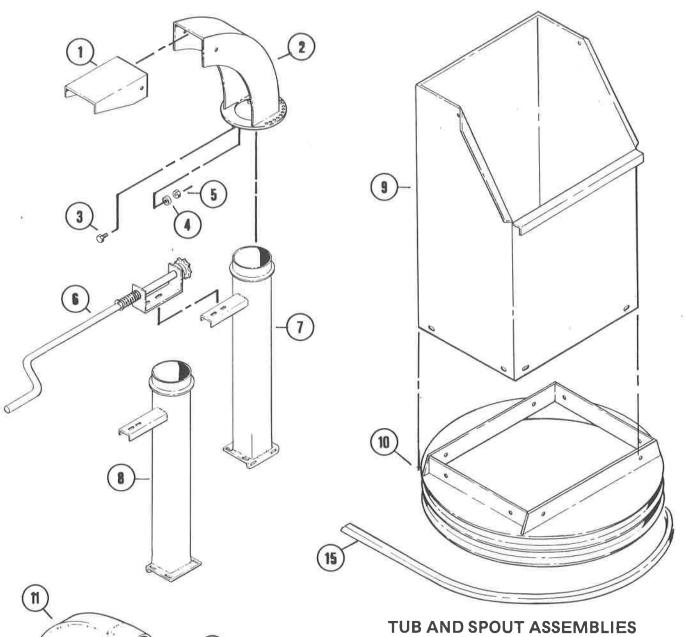
Not Illustrated, order by description only.



MODEL BC3 BLOWER TROUGH ASSEMBLY

##	Part Number	Description Oty.	item #	Part Number	Description Oty.
- 2 c 4 c 9 c 8 c 6 t 5 c 5 c	PB107 PB106 PB108 PB110 PB111 PB101 PB105 PB102 PB113	Locknut, 5/16"  Blower Paddle  Bolt, 5/16" x 1½" hex. hd.  Bolt, 5/16" x 1½" hex. hd.  Cutting Knife  Locknut, ¼"  Main Rotor  Rotor Sheave  Sealed Bearing  Blower Trough Assembly  Idler Shaft.  Drive Sheave  Sheave, 3½"	14 15 17 18 19 20 22 23 23 24	PB114 PB115 PB116 PB118 PB103 PB120 PB120 PB121 PB122 PB121	Tightener Pin.  Retainer Clip.  Retainer Clip.  Flat Washer, ½.  Bolt, ½.' x 2½.' hex. hd.  Tightener Frame.  Nut, 7/16'' hex.  Adjustment Bolt.  Lockwasher, ½.  Lockwasher, ½.  Nut, ½.' hex.  Belt, Drive.  P.T.O. Shaft.

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Item #	Part Number	Description (	lty.
1	PT304	Deflector Spout	1
2	PT303	Upper Spout	1
	PT306	Bolt, 5/16'' x 1/2'' hex. hd	3
4	PT305	Roller Bearing	3
5	PB107	Locking Nut, 5/16" hex	3
6	PT307	Crank Assembly	1
7	PT302	Lower Spout (P.T.O.)	1
8	GT300	Lower Spout (Gas)	1
9	PT300	Bale Tub (2 Wire)	1
_	PT308	Bale Tub (3 Wire)	1
10	PT301	Tub Base Assembly (2 Wire)	1
	PT309	Tub Base Assembly (3 Wire)	1
11	NA6000	Spout Adapter, 6''	1
12	NA6010	Hose, 30'	1
13	NA6020	Hose Clamps	3
14	NA6030	Hose Handle	1
*	PT310	Bolt, Truss hd., 5/16'' x 3/4'' (3 Wire Tub to	
		Base Assembly Only)	8
15	PT311	Tub, drive belt	. 1

<sup>\*</sup> Not Illustrated, order by description only.

is smaller in sig. than newer sprut needs a plate to

## LIMITED WARRANTY

The GOOSSEN INDUSTRIES BALE CHOPPER is warranted against defects in workmanship and materials for a period of ONE YEAR from purchase date.

GOOSSEN INDUSTRIES will repair or replace, at our option, any part which our examination shows to be defective. Warranty is limited to PARTS ONLY. Labor and transportation charges for parts submitted under this warranty will be paid by the user.

NO PRODUCT OR PARTS MAY BE RETURNED FOR WARRANTY CONSIDERATION WITHOUT PRIOR WRITTEN APPROVAL FROM GOOSSEN INDUSTRIES.

This warranty DOES NOT APPLY to parts subjected to misuse, abuse, alteration, improper or inadequate maintenance, or normal wear (including belts or knives).

Gasoline engines and electric motors are not covered under this warranty. Refer to the manufacturers warranty included for specific warranty information.

GOOSSEN INDUSTRIES, its agents or representatives make or imply no other warranties.

## Goossen

**INDUSTRIES** 

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Printed In U.S.A.