Art's-Way Manufacturing Co., Inc.

Models PRM20 AND PRM30

20" AND 30" PORTABLE ROLLERMILLS

Illustrated Parts and Operator's Manual

For 577380 & 578350

Issued 10-2009

This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about your safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.

IF THIS MACHINE IS USED BY AN EMPLOYEE, IS LOANED, OR IS RENTED, MAKE SURE THAT THE OPERATOR UNDERSTANDS THE TWO INSTRUCTIONS BELOW.

BEFORE THE OPERATOR STARTS THE ENGINE:

1. GIVE INSTRUCTIONS TO THE OPERATOR ABOUT SAFE AND CORRECT USE OF THE MACHINE.
2. MAKE SURE THE OPERATOR READS AND UNDERSTANDS THE OPERATOR'S MANUAL FOR THIS MACHINE.

WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH.

BEFORE STARTING THE ENGINE, DO THE FOLLOWING:

1. READ THE OPERATOR'S MANUAL.
2. READ ALL SAFETY DECALS ON THE MACHINE.
3. CLEAR THE AREA OF OTHER PERSONS.

LEARN AND PRACTICE SAFE USE OF MACHINE CONTROLS IN A SAFE AND CLEAR AREA BEFORE YOU OPERATE THIS MACHINE ON A JOB SITE.

It is your responsibility to observe pertinent laws and regulations and to follow manufacturer's instructions on machine operation and maintenance.

See your Authorized Art's-Way Manufacturing Co., Inc. dealer or Art's-Way Manufacturing Co., Inc. for additional operator's manuals, illustrated parts catalogs, and service manuals.

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TO THE OWNER

Congratulations on the purchase of your new Art's-Way PRM20 or PRM30. You have selected a top quality machine that is designed and built with pride to ensure you have many years of efficient and reliable service.

Many people have worked on the design, production, and delivery of this PRM20 or PRM30. The information in this Manual is based on the knowledge, study, and experience through years of specializing in the manufacturing of farm machinery. This Manual is designed to provide you with important information regarding safety, maintenance, and machine operation so you can and will get the best possible performance from your PRM20 or PRM30.

Even if you are an experienced operator of this or similar equipment, we ask that you ***read this manual before operating the PRM20 or PRM30.*** The way you operate, adjust, and maintain this unit will have much to do with its successful performance. Any further questions you may have about this product of Art's-Way equipment should be directed to your local Art's-Way dealer or to Art's-Way Manufacturing Co., Inc., Armstrong, Iowa, 50514, (712) 864-3131.

Specifications And Design Are Subject To Change Without Notice

Art's-Way Manufacturing Co., Inc. is continually making product improvements. In doing so, we reserve the right to make changes and/or add improvements to our products without obligation for the equipment previously sold.

Modifications to this PRM20 or PRM30 may affect the performance, function, and safety of its operation. Therefore, no modifications are to be made without the written permission of Art's-Way Manufacturing Co., Inc. Any modification made without the written permission of Art's-Way Mfg. Co. shall void the warranty of this product.

In the interest of continued safe operation of this PRM20 or PRM30, pay particular attention to the safety alert symbol(s) throughout this Manual.

Art's-Way Manufacturing Co., Inc. Statement Of Product Liability

Art's-Way Manufacturing Co., Inc. recognizes its responsibility to provide customers with a safe and efficient product. Art's-Way Manufacturing Co., attempts to design and manufacture its products in accordance with all accepted engineering practices effective at the date of design. This statement should not be interpreted to mean that our products will protect against the user's own carelessness or failure to follow common safety practices nor will Art's-Way Manufacturing Co., be liable for any such act. In addition, Art's-Way Manufacturing Co. assumes no liability for any altered product or any modified product by users or anyone other than an authorized dealer.

Important Warranty Information

The warranty for this PRM20 or PRM30 appears on page 4 of this Manual. In order to establish proper warranty registration, the Warranty Registration must be completed and returned to the factory. Failure to comply with this requirement may result in reduced warranty allowances.

Limitations Of This Manual

This Manual contains operating instructions for your PRM20 or PRM30 only. Any mention of other machinery in this manual other than the PRM20 or PRM30 is for reference only. This manual does not replace nor is it to be used for any machinery that may be attached to or used in conjunction with the PRM20 or PRM30.

PARTS & SERVICE

As the purchaser of your new PRM20 or PRM30, it is very important to consider the following factors:

A. Original Quality

B. Availability of Service Parts

C. Availability of Adequate Service Facilities

Art's-Way Manufacturing Co., Inc. has an excellent dealership network ready to answer any questions you may have about your PRM20 OR PRM30. Parts for your machine may be ordered through our dealers. When placing a parts order, please have the ***model*** and ***serial number*** ready. This will allow the dealer to fill your order as quickly as possible.

For your convenience, we have provided this space for you to record your model number, serial number, and the date of purchase, as well as your dealer's name and address.

Owner's Name: _____

Owner's Address: _____

Purchase Date: _____

Dealership Name: _____

Dealership Address: _____

Dealership Phone No.: _____

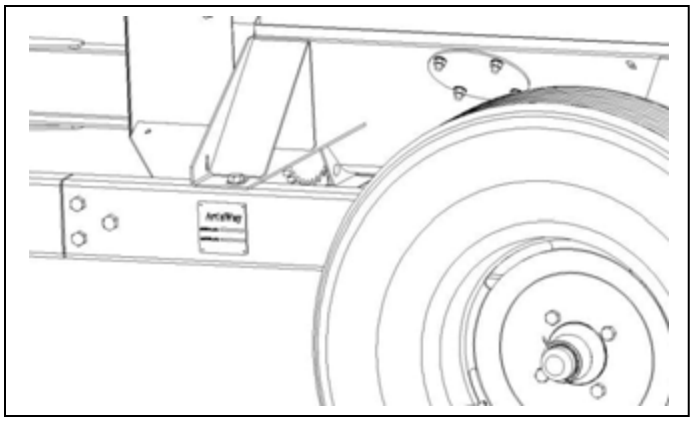


Figure 1 – Location of Serial and Model Placard on the PRM20 or PRM30

Machine Serial Number Location

The placard containing the serial and model number is located as shown in Figure 1.

Enter the serial number and model of your PRM20 OR PRM30 within the space provided.

Figure 2 – Serial Model Number Placard

LIMITED WARRANTY

Art's-Way Manufacturing Co., Inc. warrants the products it sells to be free from defects in material and workmanship for a period of one (1) year after the date of delivery to the first (original) purchaser, subject to the following conditions:

- Art's-Way Manufacturing Co., Inc. obligation and liability under this warranty is to repair or replace (at the company's option) any parts that upon manufacture were defective in material or workmanship.
- All parts and repairs under this warranty shall be supplied at Art's-Way Manufacturing Co., Inc. or an authorized Art's-Way Manufacturing Co., Inc. dealer, at the option of Art's-Way Manufacturing Co., Inc.
- Art's-Way Manufacturing Co., Inc. warranty does not extend to parts and elements not manufactured by Art's-Way Manufacturing Co., Inc. and which carry the warranty of other manufacturers.
- Transportation or shipping to an authorized dealer for necessary repairs is at the expense of the purchaser.
- Art's-Way Manufacturing Co., Inc. makes no other warranty expressed or implied and makes no warranty of merchantability or fitness for any particular purpose beyond that expressly stated in this warranty. Art's-Way Manufacturing Co., Inc. liability is limited to the terms set forth in this warranty and does not include any liability for direct, indirect, incidental or consequential damages or expenses of delay and the Company's liability is limited to repair or replacement of defective parts as set forth herein.
- Any improper use and/or maintenance, including operation after discovery of defective or worn parts, operation beyond the rated capacity, substitution of parts not approved by Art's-Way Manufacturing Co., Inc., or any alternation or repair by other than an authorized Art's-Way Manufacturing Co., Inc. dealer which affects the product materially and adversely, shall void the warranty.
- No dealer, employee or representative is authorized to change this warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of Art's-Way Manufacturing Co., Inc.
- Some states do not allow limitations on how long an implied warranty lasts or exclusions of, or limitations on relief such as incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you the specific legal rights and you may have other rights that vary from state to state.

SAFETY FIRST

"A careful operator is the best insurance against an accident"

(National Safety Council)

Most accidents can be prevented if the operator:

- Fully understands how the machine functions
- Can anticipate situations which may produce problems
- Can make necessary corrections before problems develop

THIS SYMBOL MEANS ATTENTION!

BECOME ALERT!

YOUR SAFETY IS INVOLVED!

Figure 3 - Universal Safety Alert Symbol.

The American Society of Agricultural Engineers has adopted the Universal Safety Alert Symbol as a way to identify areas of potential danger if the equipment is not operated correctly (See Figure 3). Please be alert whenever you see this symbol in the manuals or on your PRM20 or PRM30.

Art's-Way Manufacturing Co., Inc. strives to make our equipment as safe as possible. The Art's-Way PRM20 or PRM30 conforms to applicable safety standards at the time of manufacturing. A safety conscious equipment operator makes an effective accident-prevention program complete.

Safety features and instructions for the PRM20 or PRM30 are detailed in the section of this Operator's Manual. It is the responsibility of the owner to ensure that all operators read and understand the manual before they are allowed to operate the PRM20 or PRM30. (Occupational Safety and Health Administration (OSHA) regulations 1928.57.)

Notices Of Danger, Warning, And Caution

Signal Words: Note the use of signal words **DANGER**, **WARNING**, and **CAUTION** on the PRM20 or PRM30 and in this manual. The appropriate signal word for each has been selected using the following guidelines:

DANGER: IMMEDIATE AND SPECIFIC HAZARD WHICH *WILL* RESULT IN SEVERE PERSONAL INJURY OR DEATH IF PROPER PRECAUTIONS ARE NOT TAKEN.

WARNING: SPECIFIC HAZARD OR UNSAFE PRACTICE *COULD* RESULT IN SEVERE PERSONAL INJURY OR DEATH IF PROPER PRECAUTIONS ARE NOT TAKEN.

CAUTION: A REMINDER OF GOOD SAFETY PRACTICES. PERSONAL INJURY *COULD* RESULT IF PROPER PROCEDURES ARE NOT FOLLOWED.

SAFETY GUIDELINES

Remember:

"The Best Operator is a Safe Operator"

CAUTION: READ AND UNDERSTAND THE OPERATOR'S MANUAL AND ALL THE SAFETY DECALS BEFORE OPERATING THE PRM20 or PRM30. REVIEW ALL SAFETY INSTRUCTIONS WITH ALL OPERATORS ANNUALLY.

BEFORE OPERATING

- Do not wear loose fitting clothing as it may catch in moving parts.
- Make sure to install and/or secure all guards, doors and shields, including the tractor power take-off (PTO) master shield, before starting or operating the PRM20 or PRM30.
- Be sure that the correct implement driveline parts are used and that they are properly secured.
- Install the safety chain when attaching the PRM20 or PRM30 to the tractor.
- Clear the area of bystanders, especially children, when making repairs, adjustments or performing maintenance on the PRM20 or PRM30.
- Do not allow riders.
- Put all tractor and machine controls in "neutral" and disengage the PTO before starting. Follow the starting instructions according to your tractor Manual.
- Operate the PRM20 or PRM30 only while seated on the tractor seat.
- Make sure the unit is adequately supported with safety blocks or safety stands when changing tires or performing maintenance.

CAUTION: KEEP WELL CLEAR OF MOVING PARTS. BE SURE TO SHUT OFF THE TRACTOR AND SET THE PARKING BRAKE. REMOVE THE TRACTOR KEY WHILE MAKING ANY ADJUSTMENTS. WAIT FOR ALL MOVEMENT TO STOP BEFORE APPROACHING THE MACHINE.

DURING OPERATION

- Keep hands, feet, hair, and clothing away from moving parts.
- Keep all guards, doors and shields in place and in good working condition.
- Keep all bystanders, especially children, away from the PRM20 or PRM30 while in operation.
- Do not allow riders while the PRM20 or PRM30 is in operation.
- Do not attempt to unclog, clean, or adjust the PRM20 or PRM30 while it is running.
- Stay away from overhead power lines. Electrocution can occur even without direct contact.
- Use caution when ascending or descending on the PRM20 or PRM30. Wet shoes or boots are slippery.

MAINTENANCE SAFETY

- Follow all operating, maintenance and safety instructions found in this Manual.
- Before servicing, adjusting, repairing or unclogging the machine, always make sure the tractor engine is stopped, the parking brake is set, and all the moving parts have stopped.
- Use sufficient tools, jacks, and hoists that have the capacity for the job.
- Use support blocks or safety stands when changing tires or performing maintenance.
- Follow good shop practices of keeping the service area clean and dry and use adequate light for the job at hand.
- Before applying pressure to the hydraulic system, make sure all lines, fittings and couplers are tightly secured and in good condition.
- Make sure all guards, doors and shields are in place and properly secured when performing maintenance.

TRANSPORTATION SAFETY

- Make sure the PRM20 or PRM30 complies with all local regulations regarding the transportation of equipment on public roads and highways.
- Make sure the Slow Moving Vehicle (SMV) emblem and all lights and reflectors required by local highway and transportation authorities are properly in place, clean, and clearly visible to traffic.
- Do not allow riders on any machinery during transport.
- Make sure the PRM20 or PRM30 is securely attached to the tractor and install a safety chain to the PRM20 or PRM30.
- Make sure the tractor brake pedals are latched together.
- Do not exceed 20 mph (32 km/h) when transporting the PRM20 or PRM30. Always reduce speed on rough roads and surfaces, or when going down inclines.
- Use caution when turning and always use the turn signals on the tractor to indicate your turning intentions to the other traffic.
- The weight of the trailed machine should NEVER exceed the weight of the towing vehicle.
- Check all clearances carefully whenever the machine is towed.
- Lower the elevator into the transport position before transporting the PRM20 or PRM30 on the highway.
- Stay away from overhead obstructions and power lines during transport. Electrocution can occur even without direct contact.

STORAGE SAFETY

- Store the PRM20 or PRM30 in an area away from human activity.
- Do not permit children to play on or around the stored machine at any time.
- Make sure that the PRM20 or PRM30 is stored in an area with a firm and level base to prevent the machine from tipping or sinking into the ground.
- Block the wheels to prevent the machine from rolling.

TIRE SAFETY

- Have only a qualified tire dealer or tire repair service perform tire repairs.
- Do not attempt to install a tire on a wheel or rim unless you have the proper equipment and experience to do the job.
- Follow proper procedures when installing a tire on a wheel or rim to prevent an explosion that could result in serious injury.
- Do not substitute tires with a lesser road rating and/or capacity for the original equipment tires.

CAUTION: FAILURE TO FOLLOW PROPER PROCEDURES WHEN INSTALLING A TIRE ON A WHEEL OR RIM CAN PRODUCE AN EXPLOSION THAT MAY RESULT IN SERIOUS INJURY OR DEATH. DO NOT ATTEMPT TO INSTALL A TIRE UNLESS YOU HAVE THE PROPER EQUIPMENT AND EXPERIENCE TO PERFORM THE JOB. REPLACEMENT, REPAIR, AND/OR MAINTENANCE SHOULD BE DONE BY A QUALIFIED TIRE DEALER OR QUALIFIED REPAIR SERVICE.

ASSEMBLY SAFETY

- Use adequate manpower to perform assembly procedures safely.
- Assemble the PRM20 or PRM30 in an area with sufficient space to maneuver the largest components and allow easy access to all sides of the machine.
- Use only forklifts, lift cranes, jacks and tools with sufficient capacity for the loads.
- Do not allow spectators, especially children, in the working area.

Remember:

"The Best Operator is a Safe Operator"

20" PORTABLE ROLLERMILL MAIN ASSEMBLY

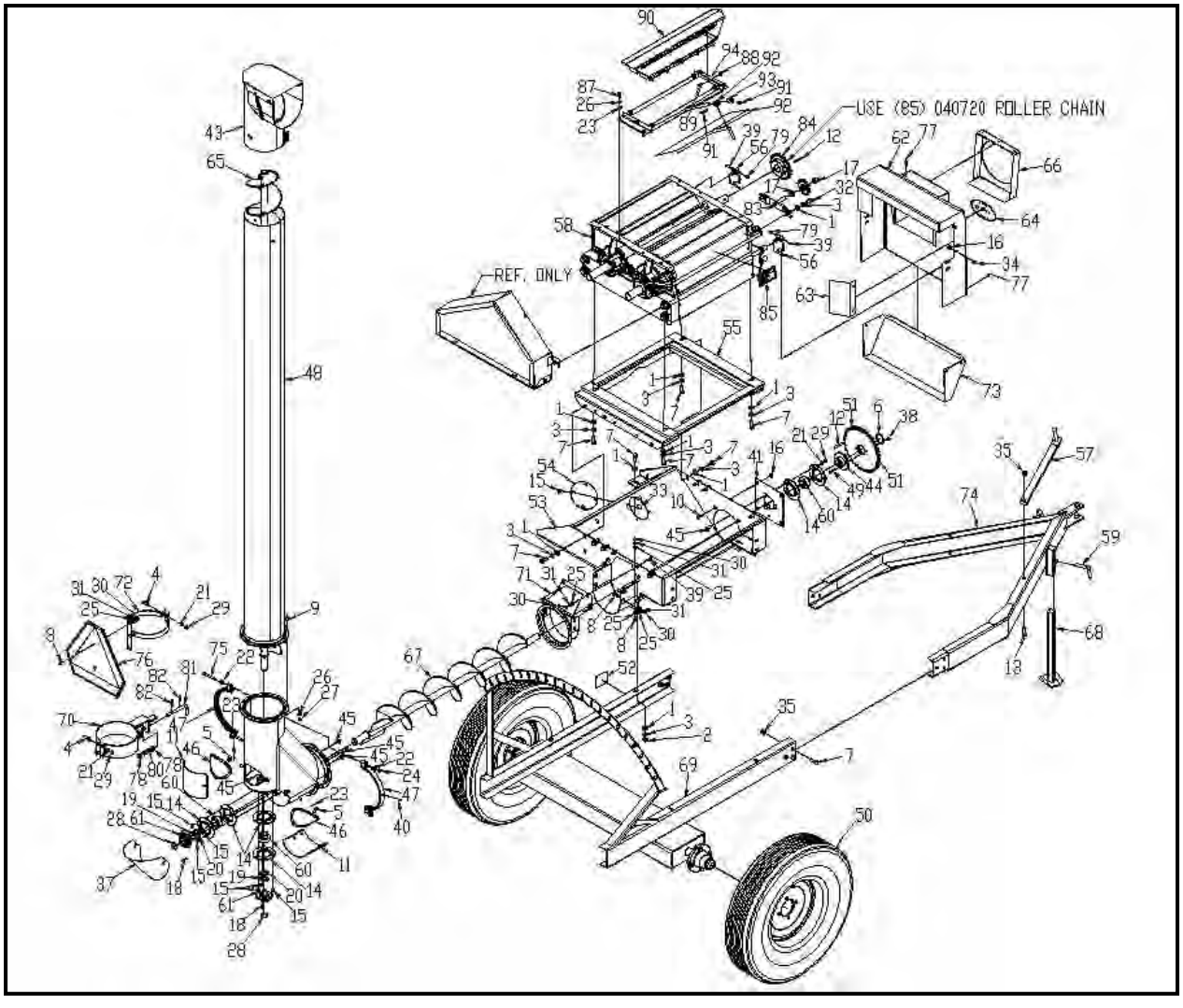
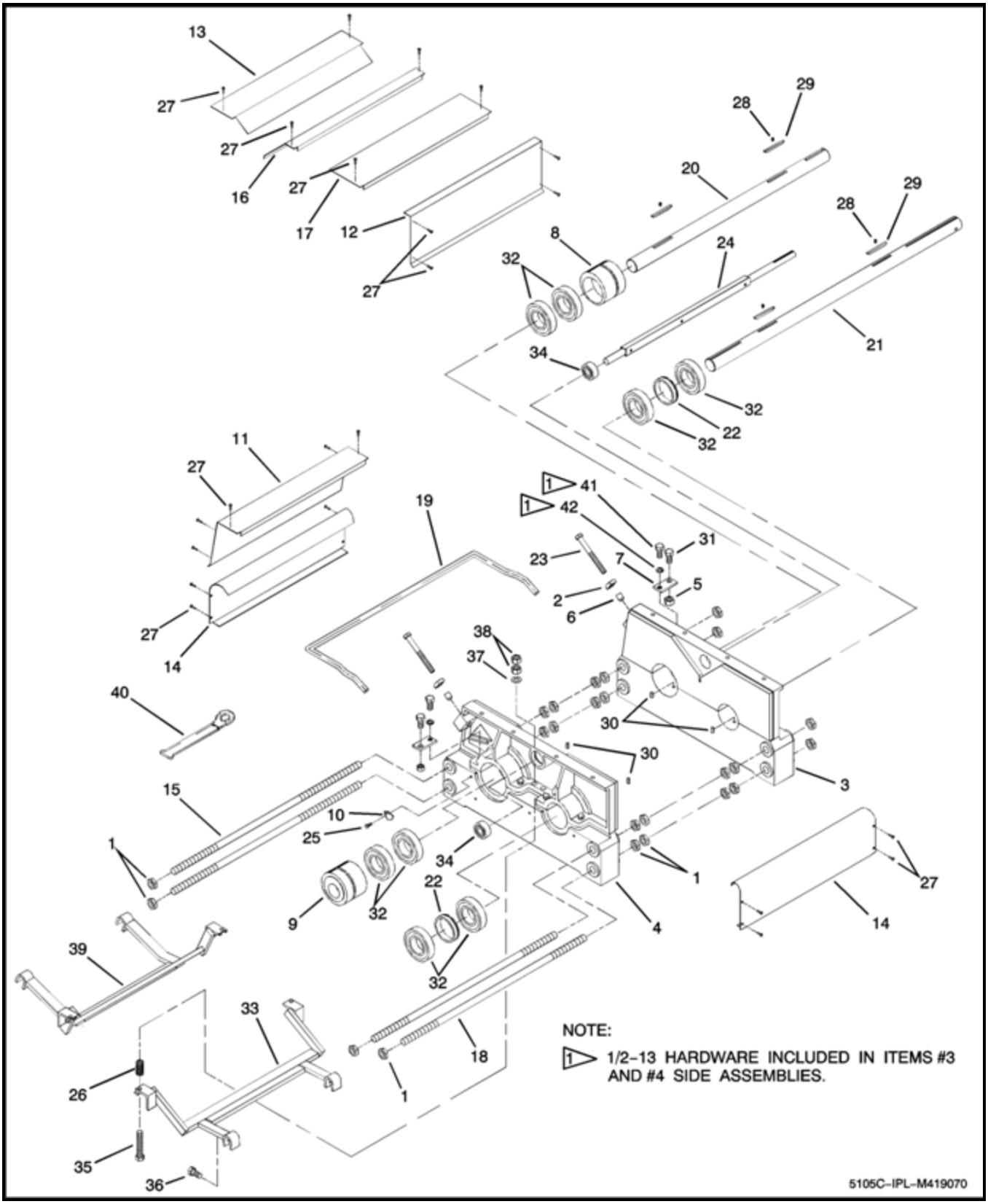


FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY
	577380	20" PORTABLE ROLLERMILL MAIN ASSEMBLY	RF
1	005200	WASHER, FLAT 1/2 STD	22
2	005360	NUT, HEX, 1/2-13	4
3	005370	WASHER, LOCK 1/2 ZN	18
4	006690	HBOLT, 0.3750-16 X 1.25 X 1.25-N	3
5	009790	NUT, WING 5/16-18 TYPE A ZN	6
6	010380	RING, SNAP	1
7	010730	HBOLT, 1/2-13 X 1.25 GR5 ZN	22
8	012051	BOLT, HHCS 1/4-20 X 3/4	10
9	012140	BOLT, HHCS 5/16-18 X 3/4 GR5 ZN	10
10	012410	BOLT, CRG 5/16-18 X 3/4 SSN ZN	4
11	012520	DOOR	2
12	014630	KEY, SQ. 1/4 X 2	2
13	014770	BOLT, HHCS 1/2-13 X 1-1/2 GR5 ZN	1
14	019150	FLG, 1-1/8 BRG.	6
15	020180	NUT, LOCK 3/8-16 GR5 ZN HEX FLG	10
16	020190	NUT, LOCK 5/16-18 GR5 ZN HEX FLG	6
17	020450	NUT, HEX 5/8-11	2
18	020760	KEY, PARALLEL	2
19	020880	WASHER, FLAT	AR
20	020910	WASHER, FLAT	AR
21	021180	WASHER, LOCK 3/8 ZN	6
22	021190	WASHER, FLAT 3/8 STD 7/16 X 5/64 ZN	4
23	022920	WASHER, FLAT 5/16 STD	10
24	023060	NUT, LOCK 3/8-16 2 WAY	2
25	023260	FW 1/4 STD	18
26	023620	WASHER, LOCK .31 ZN	16
27	023630	NUT, HEX 5/16-18 GR5 ZN	12
28	025710	RING, SNAP	2
29	027260	NUT, HEX 3/8-16 GR5 ZN	6

20" PORTABLE ROLLERMILL MAIN ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY
	577380	20" PORTABLE ROLLERMILL MAIN ASSEMBLY (CONT)	RF
30	027660	HNUT, 0.2500-20-D-N	12
31	029440	LW 0.25	12
32	031080	HBOLT, 1/2-13 X 1.00 GR5 ZN	2
33	032840	BOLT, CRG 3/8-16 X 3/4 SSN GR5 ZN	4
34	035290	BOLT, CRG 5/16-18 X 5/84 SSN ZN GR2	2
35	037540	NUT, LOCK 1/2-13 GR5 ZN NYLON	7
36	040720	CHAIN. ROLLER RC60 76 PITCH	1
37	040870	SHIELD, BEVEL GEAR	1
38	042370	NYLON INSERT LOCKNUT, 1/4-20 UNC	2
39	042960	HBOLT, 0.2500-20 X 1 X 1-N	6
40	115590	FITTING, GREASE	2
41	128040	PLATE, HOLE COVER	1
42	132871	ELBOW WLDT	1
43	152100	HOOD ASSEMBLY	1
44	163740	HUB WLDT, SHEAR	1
45	170530	BOLT, CRG 3/8-16 X 1 SSN GR5 ZN	9
46	185900	STRIP, SEAL	2
47	188340	SWIVEL CLAMP	2
48	205990	TUBE WLDT	1
49	206070	BOLT, HHCS 1/4-20 X 1-1/4	2
50	236300	TIRE & RIM ASSY, 6.70 X 15 4PLY	2
51	252180	SPROCKET, PLATE	1
52	355500	TAG, SERIAL NUMBER FINISHED	1
53	365330	PAN WLDT, LOWER	1
54	365390	COVER, LOWER PAN	1
55	365560	PLATE WLDT, ADAPTER	1
56	379380	BRACKET, SHIELD	2
57	379470	HOLDER, PTO	1
58	419070	20" ROLLERMILL	1
59	454010	HANDLE, ADJUSTING	1
60	461780	BEARING ASSY	3
61	461790	GEAR, BEVEL 14T	2
62	483380	SHIELD WLDT, MAIN	1
63	494040	SHIELD, FILLER	1
64	519500	DECAL, ARTSWAY	1
65	528670	AUGER WLDT, TILTED	1
66	577070	SHIELD, EYEBROW	1
67	577150	AUGER WLDT, PORTABLE ROLLERMILL	1
68	577240	TUBE WELD, JACK STAND	1
69	577300	FRAME WLDT, PORTABLE ROLLERMILL	1
70	577330	MOUNT WLDT, LATCH	1
71	577690	ANGLE WLDT, COVER	1
72	577970	BRACKET WLDT, SMV	1
73	579210	SHIELD, LOWER	1
74	579350	HITCH WLDT, 20"	1
75	990820	BOLT, HHCS 3/8-16 X 3 GR5 ZN	2
76	E224138	EMBLEM, CAUTION SMV	1
77	G146805	RIVET, 3/16	12
78	I120396	WASHER, FLAT .53 X 1.06 X .074	2
79	I404766R1	NUT, LOCK 1/4-20 HEX NYLON INSERT	4
80	MP07.17764	SPRING	1
81	MP17.00750	PIN, CAM LEVER	1
82	MP904246	PIN,SPRING,5/32,1-1/4	2
83	P10530	TIGHTENER WLDT	1
84	P99637	SPROCKET, 60B22	1
85	P99846	DECAL, ADJUSTING FEED FLOW	1
86	E366013	IDLER, SPROCKET 13T	1
87	005900	BOLT, HHCS 5/16-18 X 1.00 GR5 ZN	4
88	020190	NUT, LOCK 5/16-18 GR5 ZN HEX FLG	6
89	028230	SCREW, THRD 5/16-18 X .75	6
90	P20280	MAGNET ASSEMBLY	1
91	P10148	SCREW WLDT, SET	1
92	P20286	GATE WLDT, GRAIN CONTROL	1
93	P10284	TUBE WLDT, HANDLE	1
94	P20142	FRAME WLDT, HOPPER	1

20" ROLLERMILL ASSEMBLY



20" ROLLERMILL ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY
	419070	20" ROLLERMILL ASSEMBLY	RF
1	073310	NUT, HEX JAM 7/8-9 GR5 ZN	24
2	E552090	NUT, SQ. 5/8-11	2
3	P10010	FRAME ASSY, LH SIDE R/MILL	1
4	P10011	FRAME ASSY, RH SIDE R/MILL	1
5	114380	NUT, HEX JAM 1/2-13 GR5 ZN	2
6	P10182	PLUG, CLAMP SCREW	2
7	P10191	STOP, HANDLE	2
8	374600	HOUSING, LH ECCENTRIC BRG.	1
9	374610	HOUSING, RH ECCENTRIC BRG.	1
10	P10580	POINTER	1
11	P20124	PANEL, ECCENTRIC END	1
12	P20126	PANEL, DRIVE ROLL END COVER	1
13	P20127	PLATE, INSPECTION COVER	1
14	P20128	PANEL, BASE COVER	2
15	395230	ROD, SPACER 7/8 X 29.50	2
16	P20130	PLATE, FEED CONTROL BOX	1
17	P20134	PANEL, TOP COVER	1
18	P96213	ROD, SPACER 7/8 X 28.75	2
19	P20170	HANDLE, ECCENTRIC ADJUSTING	1
20	415030	SHAFT, ECCENTRIC ROLL	1
21	415020	SHAFT, DRIVE ROLL	1
22	P20215	SPACER, ROLL BEARING	2
23	201660	BOLT, HHCS 5/8-11 X 6.0 GR5 ZN	2
24	P20270	AGITATOR ASSY, 20 INCH ROLLER M.	1
25	029450	BOLT, HHCS 1/4-20 X 0.50 GR5 ZN	1
26	P96936	SPRING, COMPRESSION	4
27	P98341	SCREW, SLOT MACH. #10 X 0.50	24
28	P98300	SCREW, AHSS 3/8 X 1.0	4
29	P98408	KEY, FEATHER 0.25 X 0.25 X 3.0	4
30	P98417	PIN, GROOVE 0.25 X 0.50	4
31	031080	BOLT, HHCS 1/2-13 X 1.0 GR5 ZN	2
32	P99000	BEARING, ROLL SHAFT	8
33	P73631	SCRAPER WLDT., 20 INCH DRIVE ROLL	1
34	P99040	BEARING, AGITATOR 0.75 BORE SL12	2
35	P99467	BOLT, HHCS 3/8 X 3.0 FULL THD.	4
36	1070046	SCREW, HH TAP. 5/16-18 X 3/4 SHEET METAL	4
37	022920	WASHER, 5/16 FLAT	4
38	027260	NUT, HEX 3/8-16	8
39	P73612	SCRAPER WLDT., 20 INCH ECC. ROLL	1
40	416850	WRENCH, 20 INCH ROLLERMILL	1
41	014770	BOLT, HHCS 1/2-13 X 1-1/2 GR5 ZN ** NOTE **	8
42	005370	WASHER, LOCK 1/2 ZN ** NOTE **	8
	NOTE:	FIG ITEM #41 AND #42 ARE INCLUDED IN FIG ITEM #3 AND #4	

20" ROLLERMILL BELT DRIVE

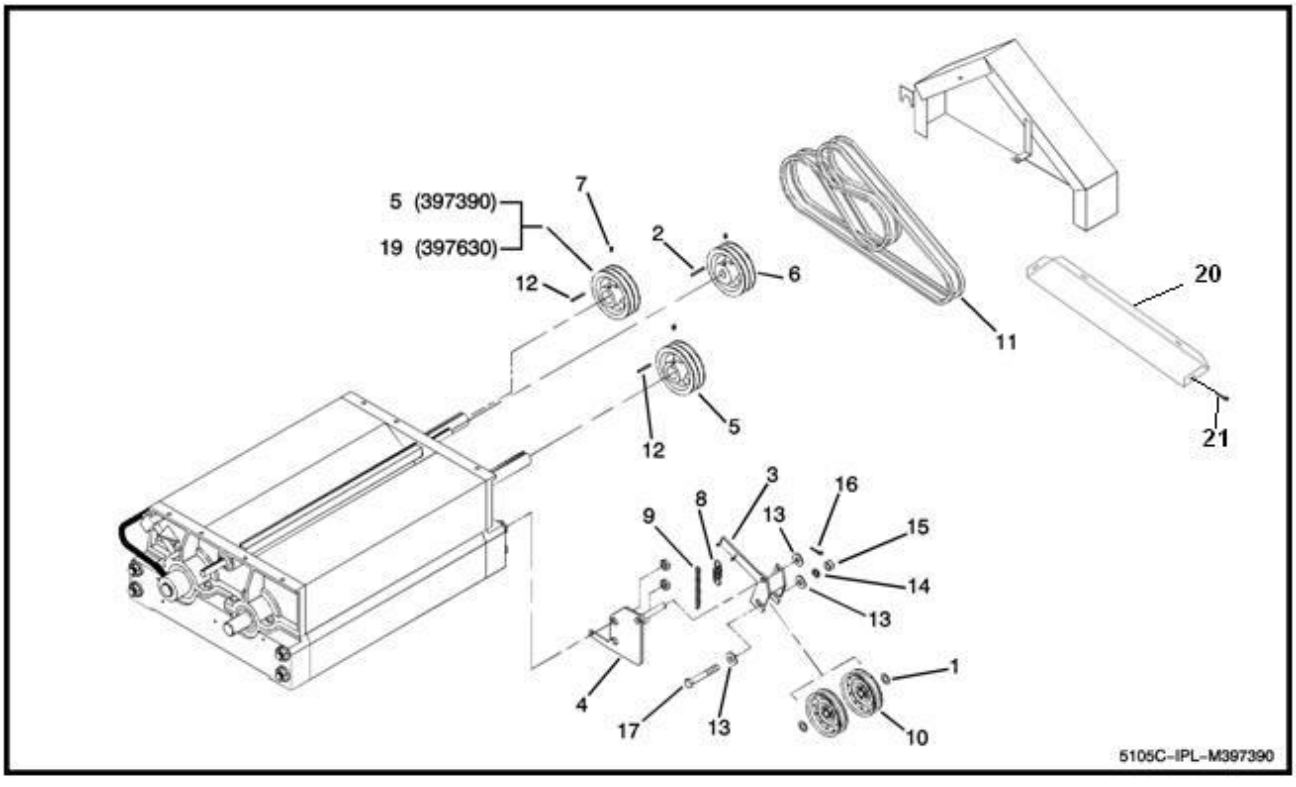


FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY (397390)	UNITS PER ASSY (397630)
		20" ROLERMILL BELT DRIVE		
	397390	1:1 STANDARD DRIVE	RF	
	397630	1:1.12 DIFFERENTIAL DRIVE		RF
1	E126120	BUSHING, MACH 0.75 X 1.25 X 18 GA	3	3
2	P10027	KEY SQ. 0.19 X 2.0	1	1
3	P10481	BRACKET WLDT., TIGHTENER	1	1
4	P10486	PIVOT WLDT., TIGHTENER	1	1
5	P20220	PULLEY, ROLL DRIVE	2	1
6	P20320	PULLEY, AGITATOR	1	1
7	P98298	SCREW, AHSS 3/8-16 X 0.50	5	5
8	P98375	SPRING, EXTENSION	1	1
9	P98522	CHAIN, #1 X 8.0 LINKS STRGHT. CL.	1	1
10	P99025	PULLEY, IDLER 0.634B 4.37 OD	2	2
11	P99712	BELT, ROLL DRIVE BB-81	2	2
12	014630	KEY SQ. 0.25 X 2.0	2	2
13	020430	WASHER, FLAT 0.688 X 1.75 X 0.134 ZN	7	7
14	020440	WASHER, LOCK 5/8 INCH ZN	1	1
15	020450	NUT, HEX 5/8-11 GR2 ZN	1	1
16	035850	PIN, COTTER 5/21 X 1.25 ZN	1	1
17	990670	BOLT, HHCS 5/8-11 X 3.75 GR5 ZN	1	1
18	P10730	BELT GUARD, ROLLER MILL	1	1
19	P30881	PULLEY, ROLL SPD. DIFF.	N/A	1
20	386030	PANEL, BOTTOM COVER	1	1
21	P98346	SCREW, HHTS 5/16 X 5/8 PLATED	4	4

30" PORTABLE ROLLERMILL MAIN ASSEMBLY

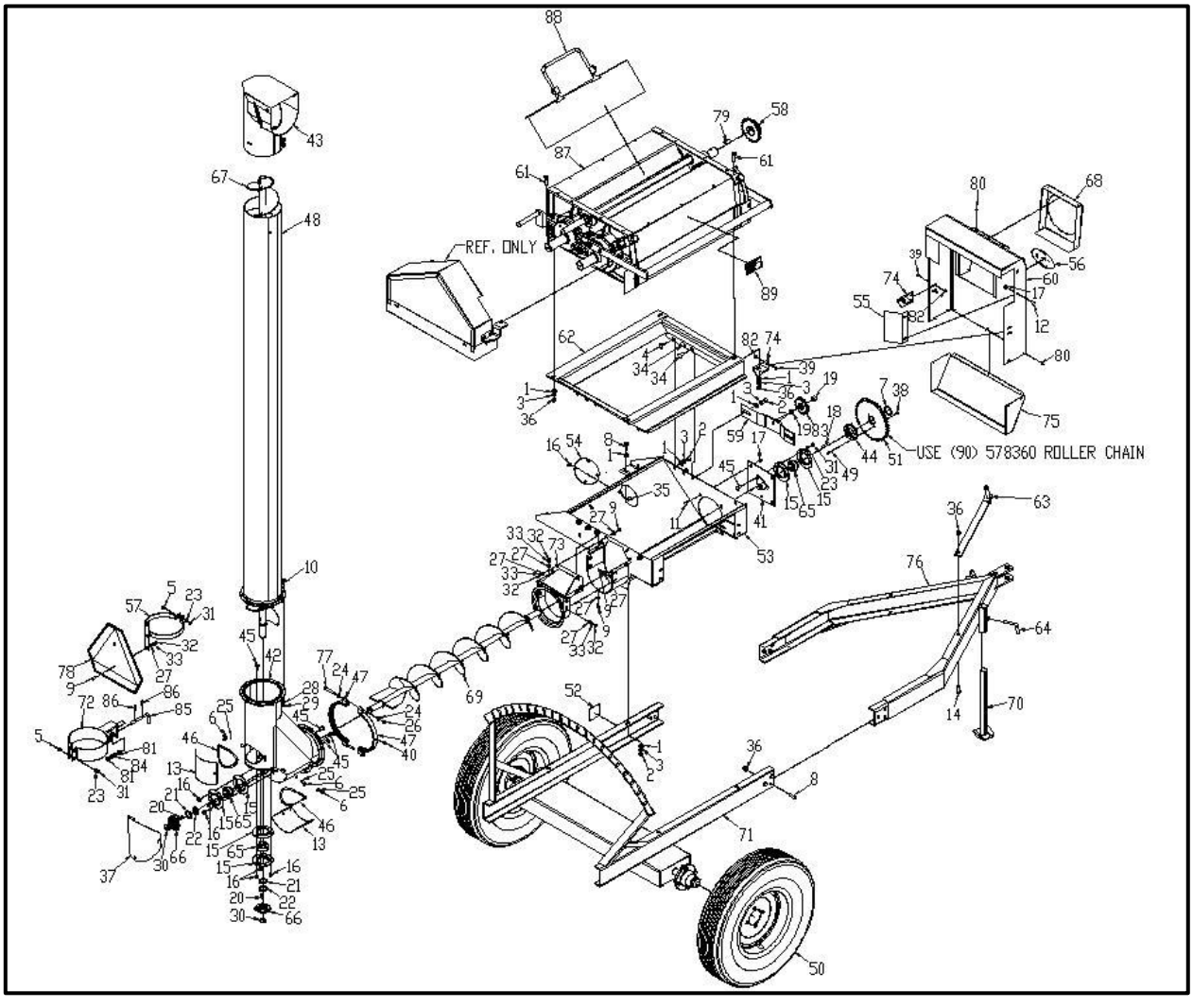
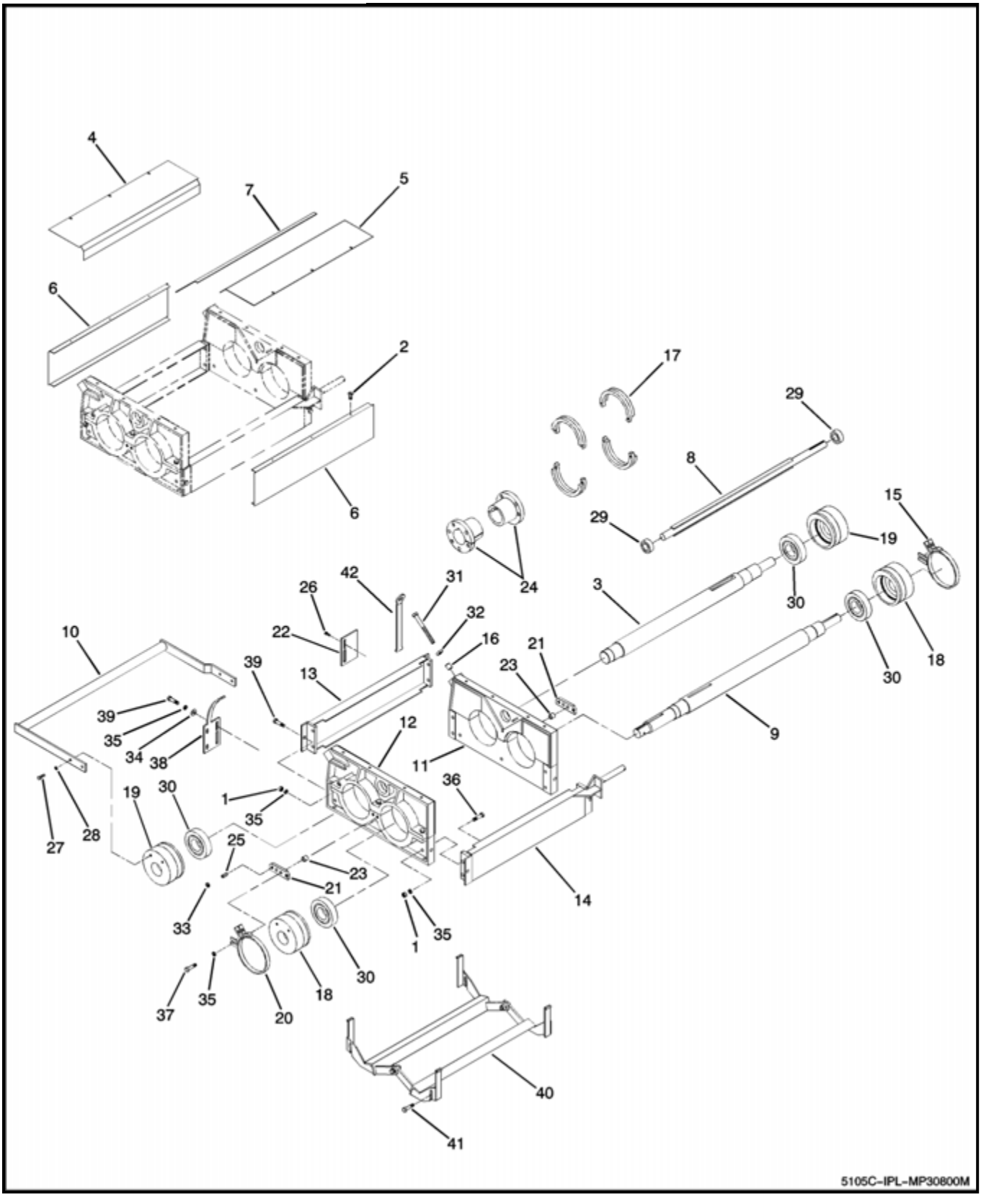


FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY
	578350	30" PORTABLE ROLLERMILL MAIN ASSEMBLY	RF
1	005200	WASHER, FLAT 1/2 STD	20
2	005360	NUT, HEX 1/2-13	12
3	005370	WASHER, LOCK 1/2 ZN	16
4	005390	BOLT, CRG 1/2-13 X 1 SSN GR5 ZN	5
5	006690	HBOLT, 0.3750-16 X 1.25 X 1.25-N	3
6	009790	NUT, WING 5/16-18 TYPE A ZN	6
7	010380	RING, SNAP	1
8	010730	HBOLT, 1/2-13 X 1.25 GR5 ZN	10
9	012051	BOLT, HHCS 1/4-20 X 3/4	12
10	012140	BOLT, HHCS 5/16-18 X 3/4 GR5 ZN	10
11	012410	BOLT, CRG 5/16-18 X 3/4 SSN ZN	4
12	035290	BOLT, CRG 5/16-18 X 5/84 SSN ZN GR2	2
13	012520	DOOR	2
14	014770	BOLT, HHCS 1/2-13 X 1-1/2 GR5 ZN	1
15	019150	FLG, 1-1/8 BRG	6
16	020180	NUT, LOCK 3/8-16 GR5 ZN HEX FLG	10
17	020190	NUT, LOCK 5/16-18 GR5 ZN HEX FLG	6
18	020400	KEY, SQUARE 5/16 X 2	1
19	020450	NUT, HEX 5/8-11	2
20	020760	KEY, PARALLEL	2
21	020880	WASHER, FLAT	AR
22	020910	WASHER, FLAT	AR
23	021180	WASHER, LOCK 3/8 ZN	6
24	021190	WASHER, FLAT 3/8 STD 7/16 X 5/64 ZN	4
25	022920	WASHER, FLAT 5/16 STD	6
26	023060	NUT, LOCK 3/8-16 2 WAY	2
27	023260	FW 1/4 STD	22
28	023620	WASHER, LOCK .31 ZN	10
29	023630	NUT, HEX 5/16-18 GR5 ZN	10

30" PORTABLE ROLLERMILL MAIN ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY
	578350	30" PORTABLE ROLLERMILL MAIN ASSEMBLY (CONT)	RF
30	025710	RING, SNAP	2
31	027260	NUT, HEX 3/8-16 GR5 ZN	6
32	027660	HNUT, 0.2500-20-D-N	12
33	029440	LW 0.25	12
34	030470	BOLT, CRG 1/2-13 X 1-1/2 SSN GR5 ZN	3
35	032840	BOLT, CRG 3/8-16 X 3/4 SSN GR5 ZN	4
36	037540	NUT, LOCK 1/2-13 GR5 ZN NYLON	11
37	040870	SHIELD, BEVEL GEAR	1
38	042370	NYLON INSERT LOCKNUT, 1/4-20 UNC	2
39	042960	HBOLT, 0.2500-20 X 1 X 1-N	4
40	115590	FITTING, GREASE	2
41	128040	PLATE, HOLE COVER	1
42	132871	ELBOW WLDT	1
43	152100	HOOD ASSEMBLY	1
44	163740	HUB WLDT, SHEAR	1
45	170530	BOLT, CRG 3/8-16 X 1 SSN GR5 ZN	9
46	185900	STRIP, SEAL	2
47	188340	SWIVEL CLAMP	2
48	205990	TUBE WLDT	1
49	206070	BOLT, HHCS 1/4-20 X 1-1/4	2
50	236300	TIRE & RIM ASSY, 6.70 X 15 4PLY	2
51	252180	SPROCKET, PLATE	1
52	355500	TAG, SERIAL NUMBER FINISHED	1
53	365330	PAN WLDT, LOWER	1
54	365390	COVER, LOWER PAN	1
55	494040	SHIELD, FILLER	1
56	519500	DECAL, ARTSWAY	1
57	577970	BRACKET WLDT, SMV	1
58	578060	SPROCKET, 2.25	1
59	578670	TIGHTENER WLDT	1
60	579630	SHIELD WLDT	1
61	1770500	BOLT, 1/2-13 X 1-3/4 GR5 ZN	4
62	371170	BASE WLDT	1
63	379470	HOLDER, PTO	1
64	454010	HANDLE, ADJUSTING	1
65	461780	BEARING ASSEMBLY	3
66	461790	GEAR, BEVEL 14T	2
67	528670	AUGER WLDT, TILTED	1
68	577070	SHIELD, EYEBROW	1
69	577150	AUGER WLDT	1
70	577240	TUBE WELD, JACK STAND	1
71	577300	FRAME WLDT	1
72	577330	MOUNT WLDT, LATCH	1
73	577690	ANGLE WLDT, COVER	1
74	578840	BRACKET, MOUNTING	2
75	579210	SHIELD, LOWER	1
76	579350	HITCH WLDT	1
77	990820	BOLT, HHCS 3/8-16 X 3 GR5 ZN	2
78	E224138	EMBLEM. CAUTION SMV	1
79	E388073	KEY, SQ. 1/2 X 1-1/2	1
80	G146805	RIVET. 3/16	12
81	I120396	WASHER, FLAT .53 X 1.06 X .074	2
82	I404766R1	NUT. LOCK 1/4-20 HEX NYLON INSERT	4
83	JAN31211	SPROCKET ASSY, IDLER	1
84	MP07.17764	SPRING	1
85	MP17.00750	PIN, CAM LEVER	1
86	MP904246	PIN.SPRING.5/32.1-1/4	2
87	P30800M	30" ROLLERMILL, BASIC	1
88	P30829	GATE WLDT, CONTROL	1
89	P99846	DECAL, ADJUSTING FEED FLOW	1
90	578360	CHAIN. ROLLER RC60 83P	1

30" ROLLERMILL ASSEMBLY



30" ROLLERMILL ASSEMBLY

FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY
	MP30800M	30" ROLLERMILL ASSEMBLY	RF
1	005360	NUT, HEX 1/2-13	12
2	P98341	SCREW, SPHMS #10-24 X 1/2	22
3	403250	SHAFT, ROLL ECCENTRIC 30 INCH	1
4	P30813	COVER, TOP FRONT CASTING	1
5	P30814	COVER, REAR TOP	1
6	P30815	COVER, FRONT AND REAR CASTING	2
7	P30816	PLATE, FEED CONTROL	1
8	P30820	SHAFT WLDT., AGITATOR	1
9	423940	SHAFT, 30 INCH PTO DRIVE	1
10	P30835	HANDLE WLDT., ECC ADJUSTING	1
11	P36810	SIDE ASSY., LH	1
12	P36811	SIDE ASSY., RH	1
13	400080	CHANNEL WLDT., RH	1
14	400100	CHANNEL WLDT., LH	1
15	386470	BRAKE WLDT., ADJUSTABLE RH	1
16	P36182	PLUG, CLAMP SCREW BRASS	2
17	P36196	WEIGHT WLDT., ROLL	4
18	P36824	HOUSING, DRIVE SIDE ECC.	2
19	P36825	HOUSING, ECCENTRIC	2
20	P36835	BRAKE WLDT., ADJUSTABLE LH	1
21	P36838	PLATE, ROLL ADJUSTER	2
22	P36852	STOP, CORN ROLL	1
23	P74358	BUSHING, SUPPORT SWIVEL	4
24	P97946	BUSHING, R2 X 3.0 SPLIT TAPER	4
25	P98307	SCREW, DOG POINT SS 1/2-13 X 1.0	4
26	P98346	SCREW, HH SELF TAP 5/16 X 5/8	2
27	012260	BOLT, HHCS 3/8-16 X 1.0	4
28	021180	WASHER, LOCK 3/8 INCH	4
29	P99036	BEARING, 1.25 AGITATOR RB20	2
30	P99050	BEARING, SHAFT 6313-2RS	4
31	P99420	BOLT, HHCS 7/8-9 X 6.50 GR5 ZN	2
32	P99530	NUT, SQ. 7/8-9 HEAVY	2
33	114380	NUT, JAM 1/2-13 GR5 ZN	4
34	005200	WASHER, FLAT 0.562 X 1.38 X 0.109 ZN	4
35	005370	WASHER, LOCK 1/2 INCH ZN	18
36	1770500	BOLT, HHCS 1/2-13 X 1.75	8
37	013790	BOLT, 1/2-13 X 2.25 GR5 ZN	4
38	388150	STOP, ECCENTRIC ROLL GAUGE	1
39	014770	BOLT, HHCS 1/2-13 X 1.50 GR5 ZN	8
40	P30940	SCRAPER, 30 INCH ROLL	1
41	991200	BOLT, HHCS 1/2-13 X 2.0 GR5 ZN	4
42	416860	WRENCH, ROLLERMILL	4

30" ROLLERMILL BELT DRIVE

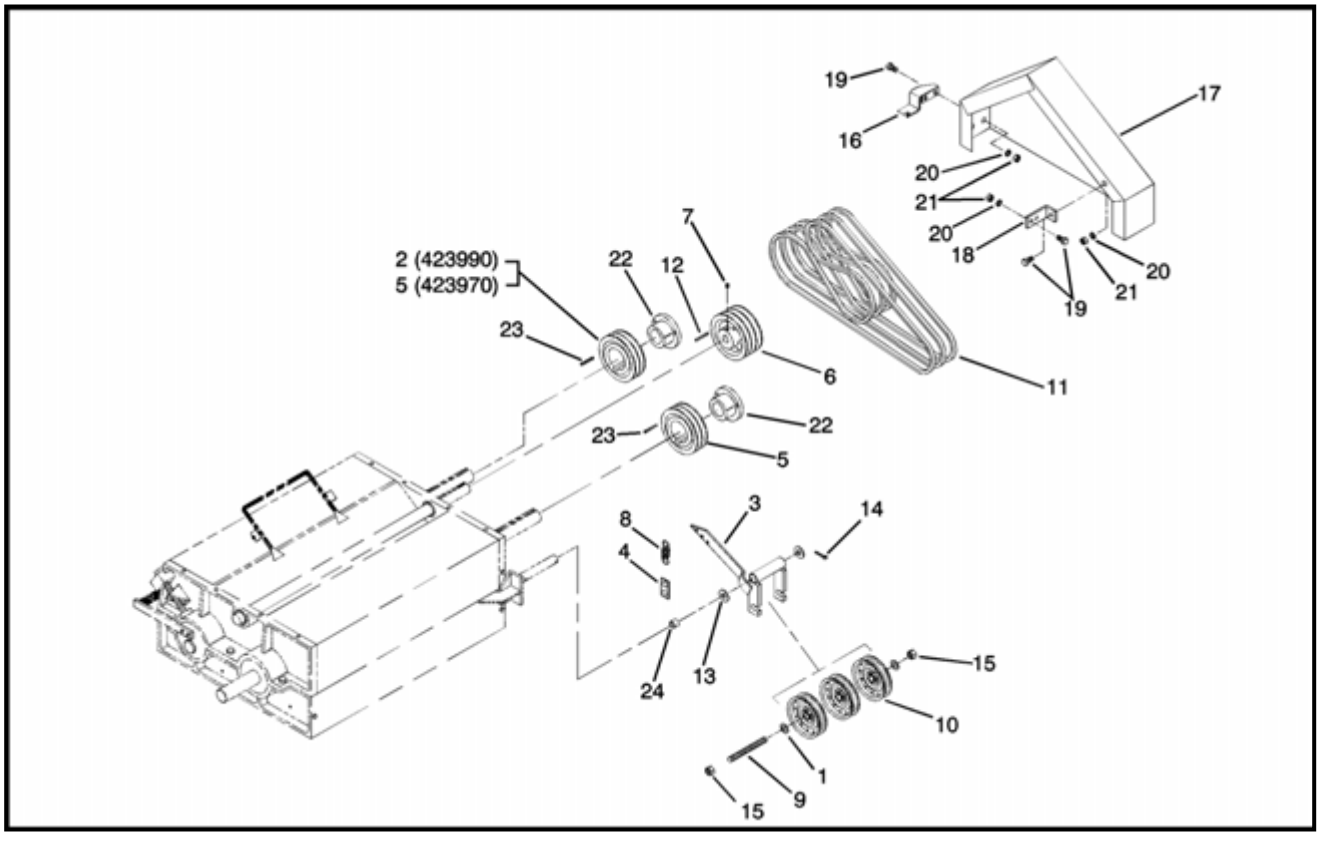


FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY (423970)	UNITS PER ASSY (423990)
	423990	30" ROLLERMILL BELT DRIVE		
	423970	1:1 STANDARD DRIVE	RF	
	423990	1:1.12 DIFFERENTIAL DRIVE		RF
1	E126120	BUSHING, MACH 0.75 X 1.25 X 18 GA.	4	4
2	423950	PULLEY, ROLL SPD. DIFF.	N/A	1
3	P30953	TIGHTENER BRACKET	1	1
4	P30957	SPRING, BRACKET	1	1
5	423960	PULLEY, ROLL DRIVE	2	1
6	P30882	PULLY, AGITATOR	1	1
7	P98298	SCREW, AHSS 3/8-16 X 0.50	1	1
8	P98379	SPRING (V198-6)	1	1
9	P36153	SHAFT, FULL THD.	1	1
10	P99025	PULLEY, IDLER 0.634B 4.37 OD.	3	3
11	P99712	BELT, ROLL DRIVE BB-81	3	3
12	014630	KEY SQ. 0.25X 2.0	1	3
13	020430	WASHER, FLAT 0.688 X 1.75 X 0.134 ZN	9	12
14	124340	PIN, COTTER 3/16 X 1-1/2	1	1
15	020450	NUT, HEX 5/8-11 GR2 ZN	2	2
16	388080	MOUNT WLDT., SHIELD	1	1
17	P36731	GUARD WLDT., BELT	1	1
18	P36735	BRACKET, REAR	1	1
19	012140	BOLT, HHCS 5/16-18 X 0.75	5	5
20	023620	WASHER, LOCK 5/16 ZN	5	5
21	023630	NUT, HEX 5/16-18	5	5
22	E126080	BUSHING, SPLIT TAPER Q1 2.0 X 1/4 X 1/2	2	2
23	401320	KEY SQ. 1/2 X 2-1/2	2	2
24	395260	SPACER, IDLER	1	N/A

HUB/SPINDLE ASSY 4-BOLT

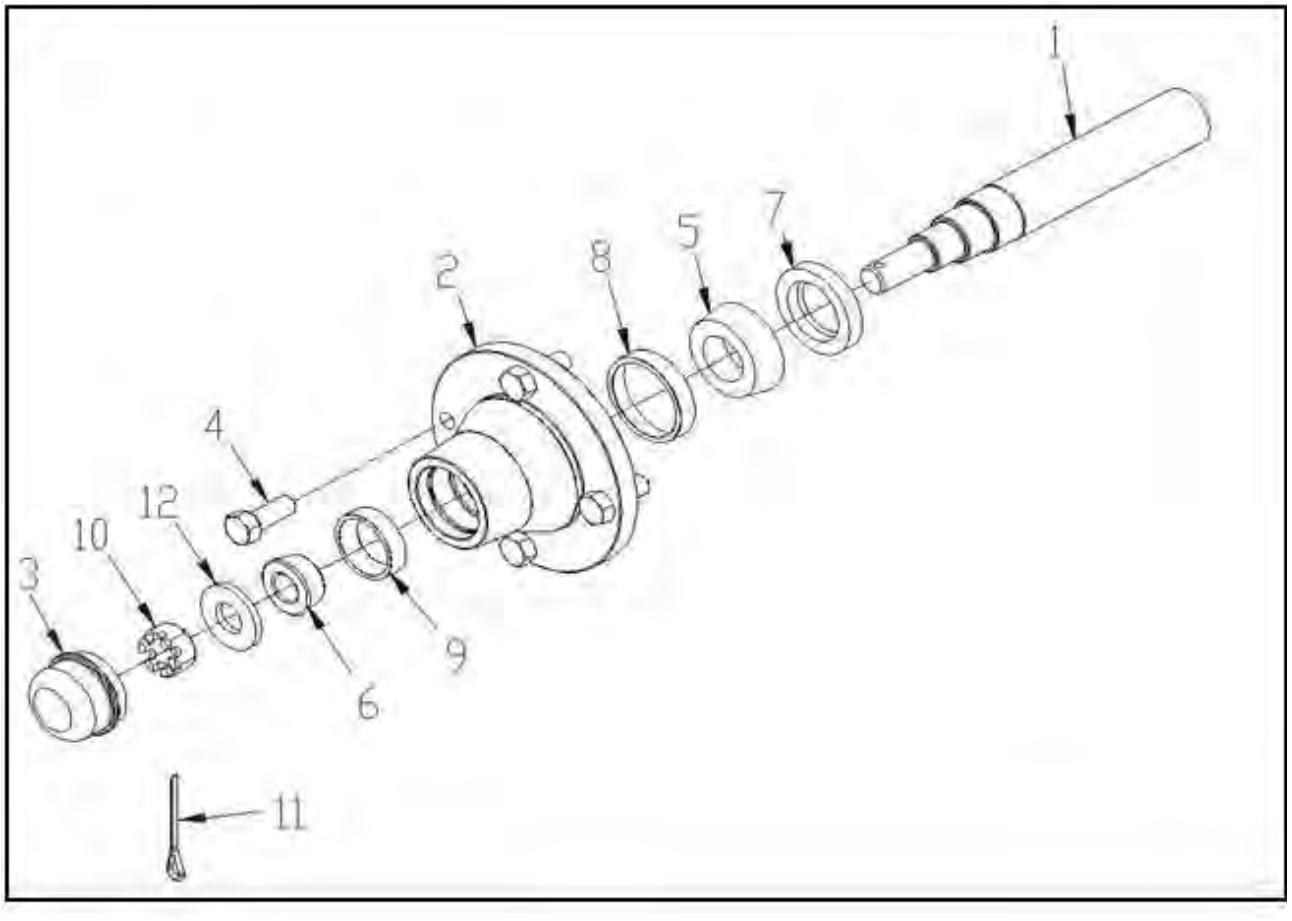


FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY
	SD205129	HUB/SPINDLE ASSY 4-BOLT	RF
1	SD205129	SPINDLE	1
2	SD205129	HUB ASSY	1
3	SD205129	PLATE, FACE	1
4	V007000	HBOLT, 0.5000-13 X 2.5 X 1.25-N	4
5	012630	BREARING, CONE	1
6	1758209	BEARING, CONE .75 ID	1
7	012620	SEAL, 1.62 X 2.33 X .40	1
8	018860	BEARING, CUP 2.33 OD	1
9	1748009	BEARING, CUP 1.78 OD	1
10	020710	HSNUT, .750-16 GR5	1
11	026630	1/4 X 2 COTTER PIN	1
12	020720	WASHER, FLAT 13/16 X 1-3/4 X 3/16	2

Driveline Assembly

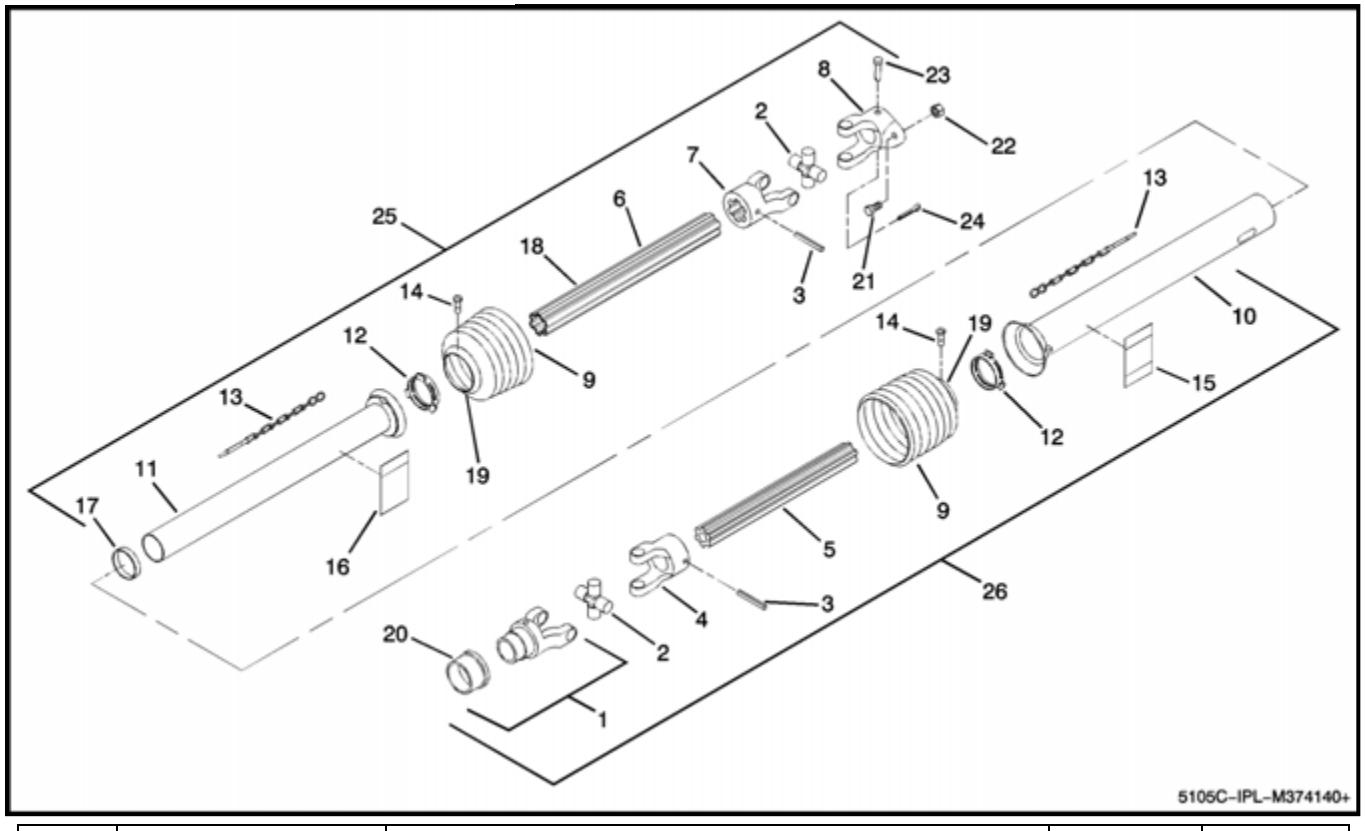


FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY (374140)	UNITS PER ASSY (380690)
		DRIVELINE ASSEMBLY		
	374140	USED ON 20 INCH ROLLERMILL	RF	
	380690	USED ON 30 INCH ROLLERMILL		RF
1	340130	YOKE, 1-3/8 INCH 6 SPLINE A S	1	1
2	182230	KIT, CROSS AND BEARING	2	2
3	196740	PIN, SPRING 10 X 90	2	2
4	196730	YOKE, INBOARD	1	1
5	355700	SHAFT, INNER PROFILE S4	1	1
6	355710	PROFILE AND SLEEVE W.A.	1	1
7	196770	YOKE, INBOARD	1	1
8	379800	SHEARBOLT, CLUTCH	1	N/A
8	379840	SHEARBOLT, CLUTCH	N/A	1
9	340140	SHIELD, CONE 7 RIB	2	2
10	379830	TUBE, OUTER SHIELD OVL	1	N/A
10	383190	TUBE, OUTER SHIELD OVL	N/A	1
11	355730	TUBE, INNER SHIELD RND	1	1
12	182900	RING, SC 25 BEARING	2	2
13	182890	CHAIN, SAFETY	2	2
14	345980	SCREW, SHIELD (IN FIG ITEM 9)	2	2
15	268860	DECAL, DANGER ROTATING DRIVE LINE	1	1
16	340180	DECAL	1	1
17	340190	BEARING, SUPPORT	2	2
18	196890	ZERK, 3/16 DRIVE GREASE (IN FIG ITEM 6)	1	1
19	349250	COLLAR, REINFORCED	2	2
20	340210	ASSEMBLY, COLLAR KIT (IN FIG ITEM 1)	1	1
21	299930	BOLT, HHCS 3/8-16 X 2-1/4	1	1
22	E552044	NUT, LOCK 3/8-16	1	1
23	036480	PIN, CLEVIS	1	1
24	020700	PIN, COTTER	1	1
25	379790	IMPLEMENT DRIVELINE, IMPLEMENT HALF	1	N/A
25	383180	IMPLEMENT DRIVELINE, IMPLEMENT HALF	N/A	1
26	379780	IMPLEMENT DRIVELINE, TRACTOR HALF	1	N/A
26	383170	IMPLEMENT DRIVELINE, TRACTOR HALF	N/A	1

20" HOPPER ASSEMBLY (OPTION)

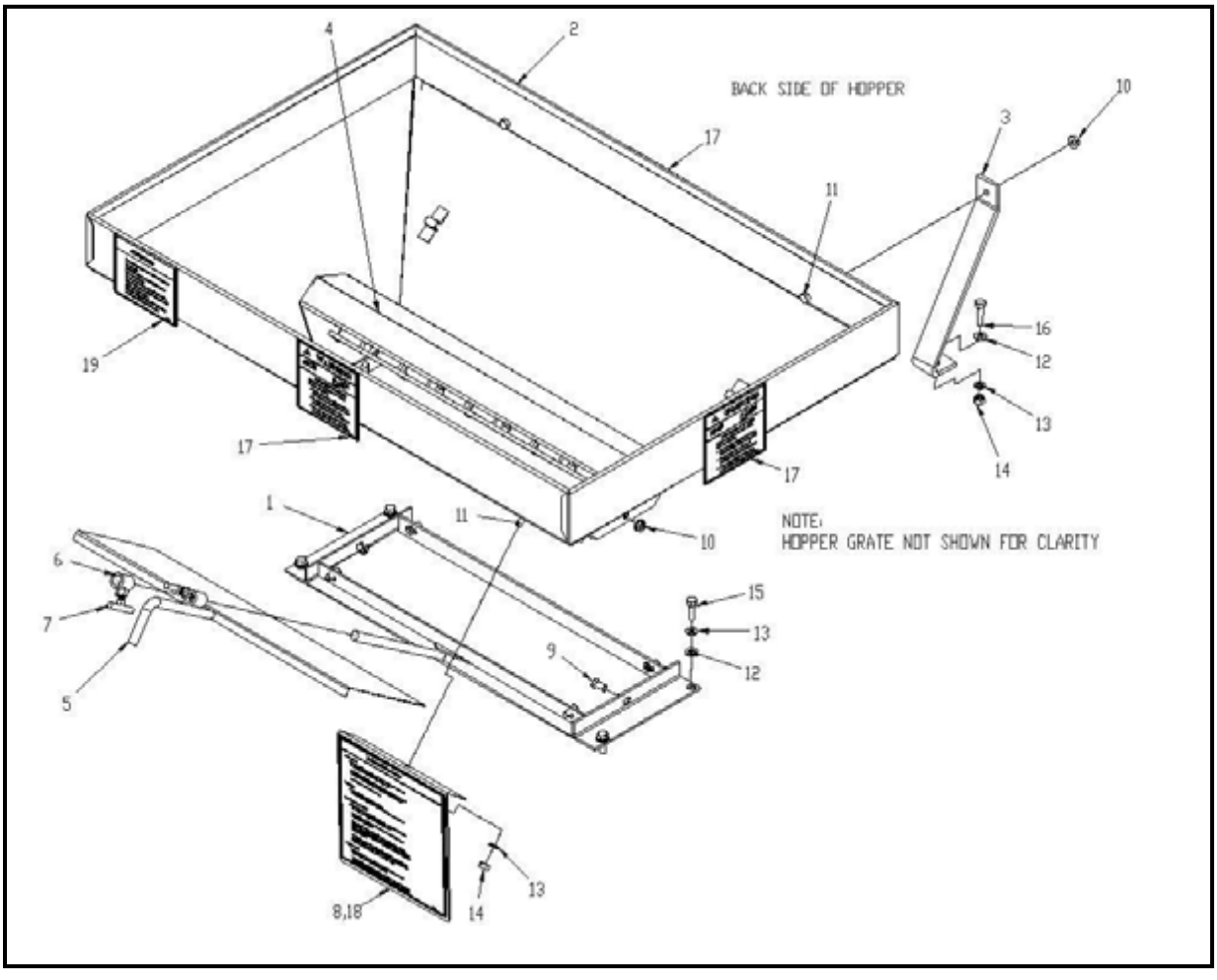


FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY
	577730	20" HOPPER ASSEMBLY (OPTION)	RF
1	P20142	FRAME WLDT, HOPPER	1
2	P20490	HOPPER WLDT	1
3	P79715	BRACE, HOPPER	2
4	P20280	MAGNET ASSEMBLY	1
5	P20286	GATE WLDT, GRAIN CONTROL	1
6	P10284	TUBE WLDT, HANDLE	1
7	P10148	SCREW WLDT, SET	2
8	418770	PANEL, DECAL FLARE HOPPER	1
9	028230	SCREW, THRD 5/16-18 X .75	6
10	020190	NUT, LOCK 5/16-18 GR5 ZN HEX FLG	8
11	012140	BOLT, HHCS 5/16-18 X 3/4 GR5 ZN	3
12	022920	WASHER, FLAT 5/16 STD	7
13	023620	WASHER, LOCK .31 ZN	7
14	023630	NUT, HEX 5/16-18 GR5 ZN	3
15	005900	BOLT, HHCS 5/16-18 X 1.00 GR5 ZN	4
16	030030	BOLT, HHCS 5/16-18 X 1-1/4 GR5 ZN	2
17	467450	DECAL, WARNING MOVING PART	3
18	417250	DECAL, ROLLERMILL OPERATION	1
19	383320	DECAL, ATTENTION REMOVE FOREIGN	1

30" HOPPER ASSEMBLY

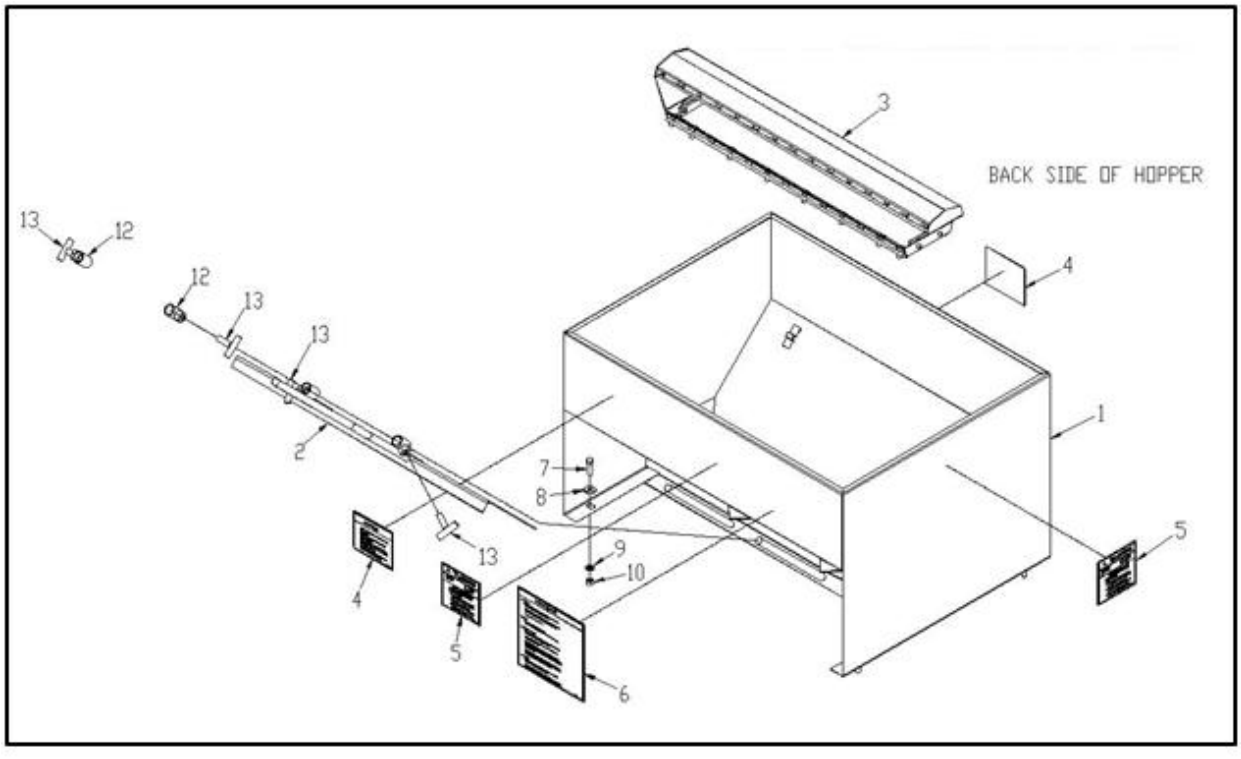


FIG ITEM	PART NUMBER	NOMENCLATURE	UNITS PER ASSY
	574770	30" HOPPER ASSEMBLY	RF
1	P30870	HOPPER WLDT, 30"	1
2	P30829	GATE WLDT, CONTROL	1
3	P30860	MAGNET ASSY, 30"	1
4	383320	DECAL, ATTENTION REMOVE FOREIGN	2
5	467450	DECAL, WARNING MOVING PART	2
6	417250	DECAL, ROLLERMILL OPERATION	1
7	006690	HBOLT, 0.3750-16 X 1.25 X 1.25-N	4
8	021190	WASHER, FLAT 3/8 STD 7/16 X 5/64 ZN	4
9	021180	WASHER, LOCK 3/8 ZN	4
10	027260	NUT, HEX 3/8-16 GR5 ZN	4
11	P30876	TRASH GUARD WLDT	1
12	P36270	SLEEVE WLDT	2
13	P83320	CATCH TEE WLDT	4

OPERATION OF PRM20 & PRM30

CAUTION: KEEP WELL CLEAR OF MOVING PARTS. BEFORE RUNNING THE PRM20 & PRM30, KEEP ALL CHILDREN AND BYSTANDERS AWAY FROM THE MACHINE.

TRACTOR PTO ENGAGEMENT

The PRM20 or PRM30 may be operated by engaging the PTO. Always engage the tractor PTO with the tractor engine at idle speed. After the PTO is engaged, increase the engine speed gradually until the desired operating speed is obtained. Reverse the PTO engagement steps to disengage the PTO.

Before processing, position the tractor straight with the frame of PRM20 or PRM30. This will allow smoother PTO operation and prolong PTO driveline life.

PROCESSING

A PRM20 or PRM30 processor is designed to process grains without the fines and deviations in particle size experienced with a hammermill. However, a PRM20 or PRM30 is limited in capacity compared to a hammermill in that the rate of feed processing is restricted by the roll gap and roll selection, and more horsepower will not increase capacity of the mill. It is important that you become familiar with the PRM20 or PRM30 before operating it at full capacity.

All projected particle sizes will vary depending on the quality and moisture content of the grain, roll gap, power input, roll speed differential drive, and the general operation of the mill.

Always operate the PRM20 or PRM30 at full speed (540 RPM) when processing. Slower speeds will increase power requirements and may cause damage or excessive wear to mill components.

ROLLERMILL

The PRM20 or PRM30 drive is a direct drive without a drive clutch, so the rolls will turn at all times. The drive consists of a direct driven drive roll, which drives the eccentric (Adjustable) roll and hopper agitator shaft through a rear belt drive. Always start and stop the PRM20 or PRM30 at low speeds so as not to damage any drive components.

To operate the PRM20 or PRM30, engage the tractor PTO at a low RPM and increase speed to the full rated 540 RPM. Start to fill the hopper with grain, allowing the full width of the hopper to fill to just above the magnet before operating the grain control gate. Open the grain control gate to the desired opening and lock the knob. When processing is complete, allow the hopper to empty completely and close the grain control gate fully, locking the knob to keep the gate closed. Stop the PRM20 or PRM30 and disengage the PTO at a low RPM only after the grain control gate has been closed and all grain in the PRM20 or PRM30 has been processed.

IMPORTANT: Never stop the PRM20 or PRM30 with grain in the rolls. The PRM20 or PRM30 will not start if any grain is wedged in the apex of the rolls. If material does get into the rolls without the PTO engaged, the roll gap must be opened or the material cleaned from the rolls before the rolls can be turned.

Driveline Protection

The PRM20 or PRM30 driveline is protected from overloading by a shear clutch located at the end of the PTO driveline on the drive roll (See Figure 4). Always replace the shear clutch bolt with a metric M10-1.5 x 60 bolt. Use of any other type or size of shear bolt will compromise the driveline protection of the machine.

Figure 4 - PTO Driveline Shear Clutch

Grain Control Gate

The grain control gate is used to regulate the flow of grain into the PRM20 or PRM30. Open the grain control gate after the rollermill has been started and the hopper as about half full. Open the control gate enough to allow a smooth grain flow into the PRM20 or PRM30. Recommended control gate opening is 0.5 inch to 1.0 inch. A high grain flow rate will cause grain to boil on top of the rolls and decrease capacity of the PRM20 or PRM30.

IMPORTANT: The grain control gate should be opened only enough to provide the rate of processing required, with a maximum gate opening of 1.0 inch.

Opening the grain control gate more then 1.0 inch will overload the mill and cause mill vibrations, and also result in lower capacity, larger grain particle size, undo drive stress, shortened roll life, and excessive power requirements. Always ensure that the grain control gate is closed during transport or when not in use. This will prevent material from falling into the apex of the rolls and preventing the PRM20 or PRM30 from starting.

ROLL GAP

Roll gap is the space between the rollermill rolls, which is used to control the particle size of the rolled feed. A roll gap of 0.010 inch is set at the factory and should never be set less than 0.008 inch. This setting is determined by the adjustment of the eccentric roll handle stops. Use this minimum setting for fine processing and open the roll gap for coarser processing. Use the pointer on the front bearing housing of the eccentric roll for wider roll gap setting reference.

The minimum roll gap on the PRM20 or PRM30 must be maintained to ensure a consistent particle size. This should be monitored as the rolls wear and will also need to be adjusted for any replacement or regrooved rolls.

Roll gap should be set for each type of grain. It is not recommended to process mixed grains as greater particle size deviation will occur. You are encouraged to experiment with the roll gap setting to meet the requirements of rolling different grains in your operation.

Be careful not to over roll grains with too small of a roll gap setting on the PRM20 or PRM30. Over rolling takes more power, reduces capacity, and causes unnecessary roll wear.

Be careful when adjusting the roll gap to always pull on the eccentric roll handle evenly, either from both ends or from the center. Do not pull up on the eccentric roll handle from only one end, as twisting or bending the handle will move one of the eccentric roll more than the other and cause the rolls to become out of parallel with each other. Parallel rolls must be maintained to achieve uniformity in the feed particle size.

CAUTION: NEVER ADJUST THE ROLL GAP WHILE THE PRM20 OR PRM30 IS RUNNING.

The PRM20 or PRM30 is equipped with a positive pressure eccentric roll release to automatically open the gap between the rolls. This is to minimize damage to the rolls and drive train from the induction of tramp metal or other foreign objects into the rolls. Opening the grain control gate too far and overloading the rolls can also cause the eccentric roll release to trip. Indications that the eccentric roll release has been tripped are a sudden higher particle size in the processed feed and the eccentric roll handle has moved up. The eccentric roll release must be reset if this occurs.

The eccentric roll release is set by tightening the eccentric lock bolts after the eccentric roll handle has been positioned for desired roll gap. The lock bolts tighten down on a brass plug, which pushes against a knurled surface on the eccentric roll bearing housing. Excessive pressure between the roll will shear the brass plug and open the roll gap.

Do not over-tighten the eccentric lock bolts, as this will render the eccentric roll release ineffective. tighten the eccentric lock bolts only until they are snug. Use only the wrench provided to tighten the eccentric lock bolts so as not to over torque the bolts.

ROLLERMILL ROLLS

The rollermill rolls in the PRM20 or PRM30 are made of heat treated cast iron. The rate of wear on the roll is dependent upon the hardness or abrasiveness of the grain, the amount of overloading done, and damage resulting from foreign objects such as tramp metal, stones, etc. Increase in particle size and horsepower requirements are signs of increased roll wear. The +rolls should be replaced when they become worn down and the surface is slick and shiny.

Worn rolls can be regrooved and re-heat treated by Art's-Way. Refer to the "Service" section of this manual for information on replacement rolls.

ROLL SCRAPERS

The PRM20 or PRM30 is equipped with roll scrapers to help prevent material from packing onto the rolls. With course or dry material, the spiral design of the roll groove cut keeps the rolls clean and roll scraper setting is not as critical. For fine or high moisture material, a higher tolerance roll scraper setting should be maintained. Allowing material to build up on the rolls will cause a loss of capacity and excess load on the drive components. The roll scraper setting needs to be monitored as the rolls wear and should be adjusted after changes in a minimum roll gap setting or when replacing rolls. The main drive roll scraper should be set at 0.006 inch clearance and the eccentric roll scraper should be set at 0.050 inch clearance.

ROLL GAP

The minimum roll gap on the mill must be maintained to ensure a consistent fine particle size. This should be monitored as the rolls wear and also need to be adjusted for any replacement or regrooved rolls.

DANGER: DO NOT MAKE ANY ADJUSTMENTS WHILE THE PRM20 OR PRM30 ARE IN OPERATION.

To open the roll gap, loosen the eccentric lock bolts (See Figure 6) with the wrench provided and pull up on the eccentric roll handle. A pointer gage (See Figure 6) on the eccentric roll bearing housing can be used as a reference for wider roll gaps. Each mark on the gage is approximately 0.015 inch of additional roll gap. Always re-tighten the eccentric lock bolts when processing, otherwise the roll gap will open and feed particle size will increase.

To check the roll gap, remove the 20 inch magnet from the hopper throat. Using a feeler gage, check the current roll gap with the eccentric roll handle down on the stops and the eccentric lock bolts snugged down. Be sure to check the roll gap at the front and back of the rolls. Also rotate the rolls to check several different places on the roll diameter, as there may be 0.001 to 0.002 inch difference in the concentricity of the rolls.

To change the minimum roll gap, loosen the eccentric lock bolts and pull the eccentric roll handle up and out of the way. Loosen the jam nuts on the 1/2 inch stop bolts (See Figure 6) and turn both the front and rear stop bolts evenly, up for a wider roll gap and down for a smaller roll gap. Lower the eccentric roll handle to the stop bolts and re-tighten the eccentric lock bolts. Re-check the roll gap and repeat as necessary until the desired roll gap is attained. Be sure to re-tighten the jam nuts on the stop bolts when finished.

NOTE: Rolls must not be set closer than 0.008 inch gap. Never adjust the minimum roll gap setting with the tractor PTO engaged. The rollermill rolls will be severely damaged if they ever touch while the PTO is engaged.

ROLL PARALLELISM

If the roll gap is different from front to back on the rolls, the rolls are out of parallel and need to be adjusted. This can occur from the eccentric roll handle getting bent or twisted, or uneven roll wear from not keeping the hopper full across the whole width while processing. To adjust roll parallelism, reset one stop bolt up or down. Be certain to push down on each corner of the eccentric roll handle when tightening the eccentric lock bolts to ensure both sides of the handle are in contact with the stops. The eccentric roll handle may have to be twisted to accommodate an excessive stop bolt adjustment.

Roll Scrapers

Roll scraper clearance needs to be monitored as the rolls wear and should be adjusted after changes in a minimum roll gap setting or when replacing rolls. The main drive roll scraper should be set at 0.006 inch clearance and the eccentric roll should be set at 0.050 inch clearance. Be sure the minimum roll gap is set and the rolls locked in place before setting the scrapers.

Unloading Auger Hood

When the unloading auger tube becomes overloaded, a spring loaded door opens on the end to prevent damage to the drive. (See Figure 5.)

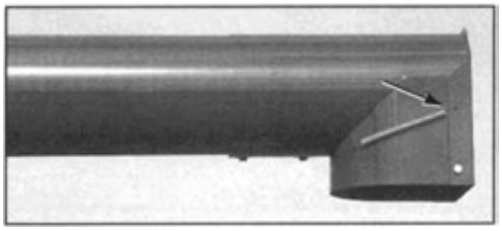


Figure 5 - Unloading Auger Hood.

CAUTION: DO NOT MAKE ANY ADJUSTMENTS WHILE THE MACHINE IS IN OPERATION. BE SURE TO SHUT OFF THE TACTOR AND PLACE KEY IN POCKET WHILE MAKING ADJUSTMENTS. WAIT FOR ALL MOVEMENT TO STOP BEFORE APPROACHING MACHINE

MAIN DRIVE CHAIN

Adjust the tension of the main drive chain by loosening the idler roller and bolt, and then sliding the idler sprocket toward the chain. Re-tighten the idler roller bolt and make sure the chain deflection is 1/2 inch total at the longest span.

NOTE: Chain should be checked and oiled daily.

ROLL SPEED DIFFERENTIAL

Your PRM20 or PRM30 may be equipped with a belt driven roll speed differential that increases the speed of the eccentric roll. Be certain to maintain proper belt tension with stretch loaded idler as the belts will stretch during their break-in period (See Figure 8). Improper tensioning or overloading the mill will cause the belts to slip causing premature wear and reduced belt life.

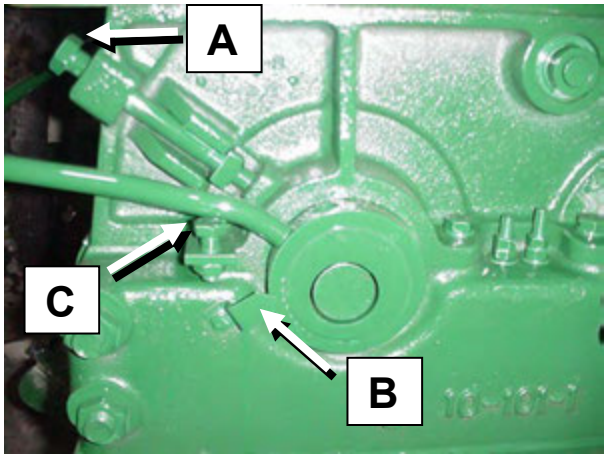


Figure 6 - Rollermill Housing Eccentric Bearing. A - Eccentric Lock Bolts, B - Pointer Gauge, C - Stop Bolts.

To adjust the roll scrapers, loosen the jam nuts on the scraper adjustment bolts (See Figures 6 & 7). Turn the adjustment nut clockwise to bring the scraper closer to the roll. Turn the roll by hand while adjusting the scraper. When the scraper contacts the roll, back the adjusting nut off slightly until no scraper to roll contract can be heard. On the opposite side of the mill (front to back) turn the adjustment nut on the same scraper until the scraper contacts the roll. Back the adjustment nut off slightly until no scraper to roll contract can be heard. Recheck the side of the mill you started on and repeat the procedure if further adjustment is needed.

Figure 7 - Roll Scraper Adjustment Bolts

Repeat this procedure for the opposite roll. To check for actual scraper clearance, remove the side panels of the mill and measure the clearance with a feeler gage.

NOTE: Do not adjust rolls scrapers with the tractor PTO engaged. Roll to scraper contact with the PTO engaged will severely damage the rolls and scrapers.

Figure 8 - Belt Adjustment (Shields Removed For Clarity).

CAUTION: BEFORE LUBRICATING THE MACHINE, MAKE SURE THE ENGINE IS SHUT OFF, PLACE THE KEY IN YOUR POCKET AND DISCONNECT THE IMPLEMENT INPUT DRIVELINE

The PRM20 or PRM30 is designed to require a minimum amount of lubrication. The points that are to be lubricated should be serviced regularly at the specified intervals listed in this manual. Keep your supply of lubricating oil and grease in clean containers and covered to protect them from dust and dirt. Keep the lubricating gun nozzle clean and free from dirt at all times. Wipe all of the dirt from the grease fittings before lubricating them.

PTO Driveline

Grease the bearing crosses, telescoping, and plastic shield rotation every 20 hours. The zerk is located on the sliding shaft (See Figures 9 & 10).

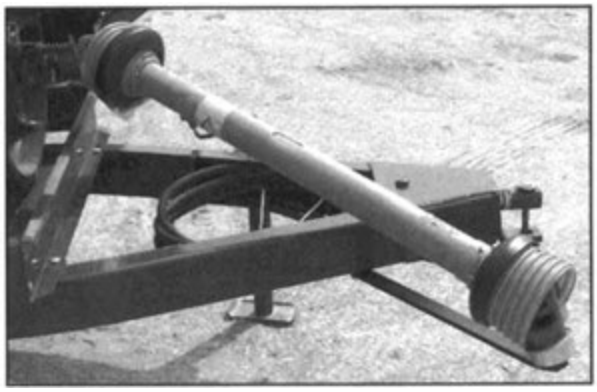


Figure 9 - PTO Driveline (Shield Removed For Clarity).

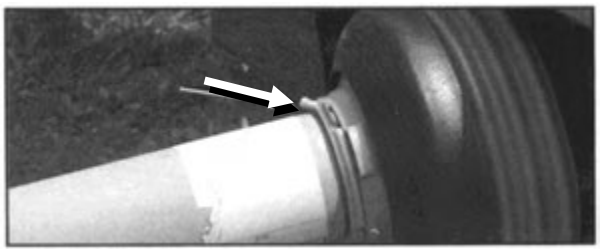


Figure 10 - Plastic Shaft Bearings (See Arrow).

Grain Control Gate

Grease the pivot points and slide on the grain control gate once a year or every 100 hours of operation (See Figure 11).

Figure 11 - Grain Control Gate Lubrication (2 Zerks And Slide Guides).

Roll Bearings

The rollermill roll shaft bearings are a sealed bearing and require no additional lubrication. Monitor the condition of these bearings and replace if overheating of the shaft or rollermill housing occur. New bearings are supplied with replacement rolls.

Eccentric Bearing Housings

The bearing housings on the eccentric roll shaft are greased at the factory and should not require additional lubrication under normal operating conditions. These housings should be cleaned and re-lubricated if the eccentric roll becomes hard to move or whenever the mill is torn down for service (See Figure 12).

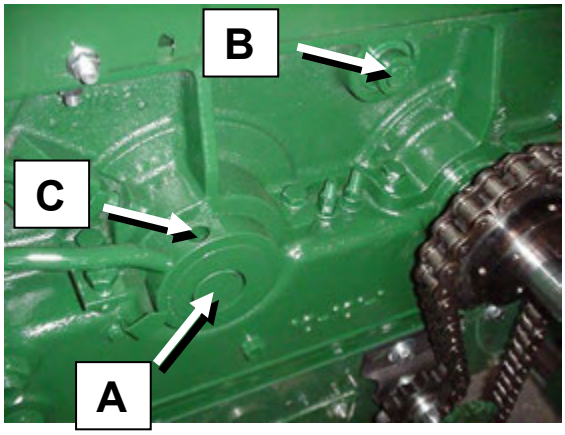


Figure 12 - A - Rollermill Bearings, B - Agitator Shaft Bearings, C - Eccentric Housing

Agitator Shaft Bearings

The agitator shaft bearings are a sealed bearing and require no additional lubrication. Monitor the condition of these bearings and replace if overheating of the shaft or rollermill housing occur.

ROLLERMILL BELT DRIVE

Be certain to maintain the proper belt tension on the rollermill eccentric drive, as belts will stretch during their break in period. Keep the spring-loaded idler properly tensioned and lubricated to pivot freely (See Figure 13). Improper tensioning or overloading will cause the belts to slip and causing premature wear and reduced belt life.

The idler pulley bearings on the rollermill belt drive are a sealed bearing and require no additional lubrication. Monitor the condition of these bearings and replace as necessary.

Figure 13 – Rollermill Belt Drive

HOPPER MAGNET

Periodically check the hopper magnet for tramp metal and debris and clean as necessary.

CHAINS

Chains should be lubricated at frequent intervals. Apply a light engine oil to the chain. Oil the chain on the inside located in the upper side of lower the strand (See Figure 14).

The chains should also be cleaned regularly. Remove the chains and dip or soak them in kerosene. Once the chains have been cleaned, dry and oil them thoroughly.

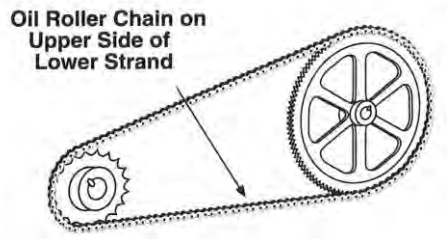


Figure 14 - Oiling Roller Chains.

The split end of the chain clip must face the direction opposite of the chain travel. Make sure the clip is properly seated in the groove on the ends of the pin (See Figure 15).

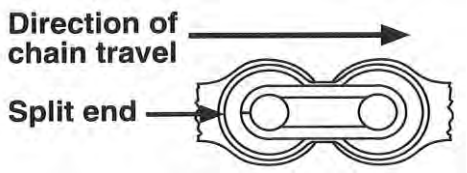


Figure 15 - Chain Spring Clip.

WHEELS

Remove, clean, and repack the wheel bearings once a year or every 100 hours of operation using SAE multi-purpose type grease (See Figure 16).

Figure 16 - Wheel Bearing Lubrication.

TORQUE SPECIFICATIONS

CAUTION: DISENGAGE ALL DRIVES AND MAKE SURE THE TRACTOR ENGINE IS SHUT OFF. PLACE THE KEY IN YOUR POCKET AND DISCONNECT THE PTO DRIVELINE PRIOR TO SERVICING THE PRM20 OR PRM30.

When performing service on the PRM20 or PRM30 and its components, take time to use and comply with the torque specification guide. (Refer to Table 1.)

Size	Clamp Load	Plain GR 5	Plated GR 5
1/4 – 20 (.250)	2,025	8 ft. lbs.	76 in. lbs.
5/16 – 18 (.3125)	3,338	17 ft. lbs	13 ft. lbs.
3/8 – 16 (.375)	4,950	31 ft. lbs.	23 ft. lbs.
7/16 – 14 (.4375)	6,788	50 ft. lbs.	37 ft. lbs.
1/2 – 13 (.500)	9,075	76 ft. lbs.	57 ft. lbs.
9/16 – 12 (.5625)	11,625	109 ft. lbs.	82 ft. lbs.
5/8 – 11 (.625)	14,400	150 ft. lbs.	112 ft. lbs.
3/4 - 10 (.750)	21,300	266 ft. lbs.	200 ft. lbs.
7/8 – 9 (.875)	29,475	430 ft. lbs.	322 ft. lbs.
1 – 8 (1.00)	38,625	644 ft. lbs.	483 ft. lbs.
1-1/8 – 7 (1.125)	42,375	794 ft. lbs.	596 ft. lbs.

Table 1 - Torque Specification Guide For Grade 5 Bolts.

SPROCKET AND CHAIN ALIGNMENT

Make sure the sprockets are in line with each other. If the sprockets are not aligned a sideways pull will develop and will concentrate the load on sides of the sprocket teeth and on the side of the chain. This faulty alignment will result on excessive wear on both the chain and sprockets.

REPLACEMENT ROLLS

Worn rolls can be replaced with either new rolls or regrooved rolls. A deposit must be made on the purchase of regrooved rolls. This deposit is refundable upon the return of the worn rolls and inspection by Art's-Way deeming that the returned rolls can be regrooved. Rejection of used rolls will be for such things as excessive wear (minimum roll diameter) or cracked/broken rolls.

ROLL REPLACEMENT

Replacement 20 inch rolls are supplied with shafts and bearings. Replacement 30 inch rolls are shipped without the bearings and shafts as they attach to the shafts with taper lock hubs. To replace the rolls, perform the following:

1. Remove the PTO, front and rear guards, rear belts drive, and front drove chain.
2. If the PRM20 or PRM30 is equipped with an auger feeder, remove the pivot pin at the top of the hopper and support the auger feeder off to the side.
3. Remove the 4 bolts on the front and rear rollermill castings that hold the top and bottom halves of the mill together. Lift the top half off in one assembly. Pick up and save the two brass plugs that were in the upper castings beneath the eccentric tightener bolts.
4. Lift out the rolls and remove any pulleys, sprockets, and bearing housings. For 20 inch rolls leave the old shaft and bearings with the worn rolls. For 30 inch rolls remove shaft and taper lock hubs. The roll handle is a press fit into the bearing housings. Use care when removing the bearing housings as they can be easily damaged by hammer blows.
5. Thoroughly clean the machined surfaces of the top and bottom castings. Press the bearing housing onto the new roll assemblies. Replace the adjusting handle on the eccentric roll.
6. Grease the outside of the bearing housings and place the roll assemblies in the bottom half of the mill. The dowel spacers in the bottom casting will position the rolls front to back.
7. Replace the top half of the mill and securely bolt into place. Check that the rolls will turn without interference and the eccentric handle will move freely.
8. Replace all pulleys, sprockets, belts, and chains as well as the two brass plugs below the eccentric lock bolts. Replace the front and rear guards.
9. Replace the auger feeder to the hopper lid if applicable.
10. Set the roll gap as described in the "adjustment" section of this manual. Set the rolls for proper minimum gap and parallelism.
11. Set the roll scrapers for the new rolls as described in the "Adjustments" section of this manual.

TROUBLESHOOTING GUIDE

The majority of difficulties are caused by improper adjustments. When you encounter trouble, perform a systematic check of all possible adjustments using the chart that follows. If difficulties cannot be corrected by making the adjustments that follow, consult your local Art's-Way authorized dealer for further assistance.

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
PTO driveline is hard to telescope and hard to connect	Shafts are twisted due to overloading of the mill	Replace PTO driveline if necessary. Check for proper shear bolt in PTO shear clutch.
	Lack of grease on the sliding halves	Lubricate as necessary
	Tractor drawbar improperly adjusted.	Adjust tractor drawbar.
Tractor engine RPM falls below the rated PTO speed while grinding	Overloading mill	Close grain control gate.
	Drive belts too loose	Tighten belts
	Drive belts wore	Replace drive belts.
	Material packing on rolls	Adjust scrapers Open roll gap Install roll speed differential.
Shear pins break	Foreign objects and debris (nuts, bolts, etc.) in mill, mixers, or augers	Remove foreign objects.
	Grain in mill on start-up	Open eccentric roll to let grain flow through. Clean material from rolls.
	High RPM starts and stops	Lower RPM PTO engage and disengage. Gradually speed up and slow down.
Mill vibrates excessively while in operation	PTO driveline is not properly aligned	Front of CattleMaxx main shield must be parallel to tractor axle
	PTO driveline is bent	Replace the PTO driveline
	Overloading mill (low rumbling)	Close down grain control gate/open roll gap.
	Tractor drawbar is not adjusted properly	Adjust the tractor drawbar.
Rollermill loses capacity	Grain gate open too far	Close grain control gate
	Material packing on rolls – high moisture material	Adjust roll scrapers
	Rolls are worn, gouged, and smooth	Replace with new or regrooved rolls.

TROUBLESHOOTING GUIDE (CONT)

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
Rolls making load or unusual noises	Rolls are touching	Check roll gap and adjust as needed.
	Roll scrapers touching rolls	Adjust roll scrapers
	Overloading mill (low rumbling)	Close down control gate/open roll gap.
Rollermill suddenly chokes	Material packed on the rolls – high moisture material	Clean rolls. Adjust roll scrapers Install roll speed differential.
Mill will not maintain roll gap setting	Eccentric lock bolts loose	Tighten lock bolts
	Brass shear plug worn or missing	Inspect and/or replace shear plug. Clean knurled surface of eccentric bearing housing.
Drive belt squeals when the mill is engaged	PTO drive may not be fast enough	Speed up tractor to 540 RPM
	Drive belts are too loose	Tighten the drive belts
	Drive belts worn	Replace drive belts
	Material packed on rolls	Open roll gap Clean rolls Adjust roll scrapers
	Overloading mill	Close down grain control gate
Drive belts show excessive wear	Belts are out of alignment	Align the pulleys
	Belts are slipping	Tighten belts.
Whole grain kernels in feed	Large roll gap	Adjust belts.
	Rolls out of parallel	Check roll parallelism and adjust as needed.
	Eccentric roll moving/increased roll gap	Tighten eccentric lock bolts Check and replace brass shear plug as needed Clean knurled surface of eccentric bearing housing.
	Rolls worn	Inspect rolls and replace as needed.
Mill runs but unloading auger and mixing auger do not run	Pin(s) sheared in drive	Correct cause of sheared pin and replace.

ART'S-WAY MANUFACTURING CO., INC. TECHNICAL MANUALS

Manuals are available from your local dealer or Art's-Way Manufacturing Co., Inc. for the operation, service, and repair of your machine. For prompt convenient service, contact your local dealer for assistance in obtaining the manuals for your machine.

Your local dealer can expedite your order for operator manuals, illustrated parts catalogs, service manuals, and maintenance records.

Always give the Machine Name, Model, and Serial Number so your local dealer can provide the correct manuals for your machine.

Art's-Way Manufacturing Co., Inc. reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

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