



Chipper/Shredder

3175

Homier Distributing Company

84 Commercial Road • Huntington, IN 46750 • (800) 348-5004 • Fax: 260-358-4159
www.homier.com or www.farmprotractors.com

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Introduction

CONGRATULATIONS! You have just purchased the best, safest, and most compact chipper available. If you have too much material to run through the small shredders, but not enough for the larger chippers, this chipper is the right machine for the job.

Safety features include a feed roll that makes it very difficult to get fingers or hands into the blades of the chipper, and a low chute profile that makes feeding easy because you don't have to lift the limbs so high to feed them into the feed roll on the chipper.

We have compiled this owner's manual to help you understand and appreciate your chipper. By taking a few minutes to read this manual and understand the maintenance instructions, it will give you better performance and extend the life of your chipper. Read the manual before operating the chipper.

SET-UP INSTRUCTIONS

Your chipper does need to be setup prior to installation. It arrives in a metal cage that can be dismantled in minutes.

The "In Feed" chute and stand are shipped with the unit and are located in the bottom of the metal cage. Put the stand together. Place the chipper on the stand and bolt on the two mount brackets. See drawings near the back of the manual (check the table of contents for actual pages).

A small box containing the two (2) chipper hitch assemblies and mounting bolts is located in the bottom. The chute can be installed on the chipper housing with the four bolts enclosed (see retrofit instructions regarding use of shorter bolts with lock and flat washers).

Always turn the head over by hand before applying power, to ensure that nothing is in the chipper head. If the chip deflector or any of the guards have been removed for shipping, be sure to replace them properly before use.

The PTO drive line is also shipped with the unit and is also located in the bottom of the metal cage.

Keep the chipper as close to the tractor as possible, when mounting. The PTO shaft needs to be sized for your tractor. See the specific section in the manual for this procedure.

Make sure that the P.T.O. shaft will not bottom out in the shortest position. Keep that PTO shaft straight and within 15 degrees of level when operating the unit.

Do not allow the chipper to be operated without the chip deflector properly in place, because the flywheel and blades will be exposed and the flow of chips cannot be controlled.

DRIVE-LINE SAFETY TIPS

Agriculture is recognized as one of the most hazardous of occupations.

Today's farmer spends long hours in close proximity to increasingly complex and powerful machinery.

To avoid accidents, everyone from the component supplier and the company who manufactures and assembles the machinery, to the dealers and ultimately the actual user, must keep safety in mind. The checklist below relates to the drive-line of agricultural implements. Also refer to our catalogs, general safety literature, and the standards published by the American Society of Agricultural Engineers.

DRIVE-LINE SAFETY CHECKLIST

DRIVE-LINE SPECIFICATIONS - The first step towards safe applications is to specify and test the drive-line so that it operates properly under expected field conditions.

1. Specify and test the proper size joints and telescoping members based upon the power required by the implement, speed of rotation, joints angles, shock loads, and expected life. More information may be found in all drive-line manufacturers' catalogs.

2. Design and test the hitch geometry to prevent the drive-line from:
 - Extending beyond the recommended maximum length.
 - Bottoming out.
 - Reaching a position that allows CV joints to lock.
 - Exceeding the maximum allowable angle for constant velocity of the CV joints.

Information concerning these parameters may be found in all drive-line manufactures' catalogs.

3. Specify and test telescoping members to allow the lowest possible thrust loads, considering the expected working conditions.
4. Specify and test torque limiters to control excessive shock loads.
5. Where necessary, specify and test overrunning clutches to prevent inertial loads from overpowering the tractor.

HAZARD REDUCTION – The second step in specifying a safe drive-line application is to strive to eliminate as many hazards as possible.

1. On drive-line with torque limiting or overrunning devices, specify that the device be positioned on the end of the drive-line by the implement.
2. For implement connections which require bolts or set screws, select and/or supply hardware which minimizes protrusions.
3. For tractors P.T.O. shaft connections, specify a safety type yoke (twist or slide collar) to minimize protrusions.
4. Provide a proper clearance zone for the operation of the drive-line, to avoid damaging the shielding components.

Some common areas of interference are:

- Three point linkage.
- Extended or eye loop hitch pins.
- Hydraulic hoses.

GUARDING – For hazards which cannot be eliminated effectively, guarding must be provided whenever feasible.

The P.T.O. master shield, integral drive-line shield, and implement input connection shield should provide an interactive guarding system.

1. Provide instructions by labels or manuals. The implement should be used only with the tractor's P.T.O. master shield in place.
2. Specify and test an integral drive-line shield with end cones which overlap, but not interfere with the P.T.O. master shield or implement input connection shield.
3. Provide an implement input connection shield to interact with the integral drive-line shield to provide guarding of the shaft coupling and any torque limiting devices installed on the drive-line.
4. Check that all routine maintenance of the drive-line can be done without removal of the shields.

WARNINGS AND INSTRUCTIONS – Provide warnings and instructions for hazards associated with the machine. Provide instructions for proper maintenance and repair.

1. Provide labels on the unit to advise the user of proper hitch dimensions and maximum safe operating speed.
2. Check that proper danger labels are supplied with the drive-line (replacements are available from your drive-line supplier)
3. Provide easy-to-understand instructions for proper drive-line operation, maintenance, and repair in the operator's manual.
4. Advise against the use of P.T.O. adapters which may defeat the purpose of the tractor's master shield and adversely affect the performance of the drive-line.
5. Advise the user of locations of genuine original equipment spare parts.

Further information about drive-line specifications and safety may be obtained from your drive-line supplier and the following ASME standards and engineering practices:

S203 Rear power take-off for agricultural tractors

S205 Power take-off definitions and terminology for agricultural tractor.

S207 Operating requirements for tractors and power take-off driven equipment implements

S318 Safety for agricultural equipment.

S331 Implement power take-off drive-line specifications

S333 Agricultural tractor auxiliary power take-off drives

S350 Safety alert symbol for agricultural equipment

S441 Safety signs

S493 Guarding for agricultural equipment

EP363 Technical publications for agricultural equipment

Other standards may apply for particular types of implements.

All drive-line manufactures strive to produce a safe product. Drive-lines, like most other components, must be used properly, including the use of proper tractor master shields and implement input connection shields.

Please contact us if you have any questions about your drive-line applications.

SAFETY INSTRUCTIONS

Do not attempt to operate the chipper until you have read and understood the owner's manual.

If you need another manual, contact the factory or the dealer where you purchased the unit. We will furnish an extra manual at no charge.

Always keep the guards and chip deflector installed properly while operating the chipper.

Keep the decals in place and in good repair. The factory or your dealer will furnish new decals upon request.

Never leave the chipper running unattended.

Do not attempt alterations, repairs, or adjustments while the chipper head is turning. Always disconnect the P.T.O. and stop the tractors motor, and put the keys in your pocket.

Keep hand, feet and other extremities out of and away from the hopper.
Point the discharge chute away from doorways, sidewalks, or any area where your view is obstructed. The chute should be pointed downwind when possible, this will keep the fines from blowing back in operator's direction.
Keep everyone especially children, away from the area of operation.
Anyone who has not read this manual and received instructions from a qualified person should not be in the area of operation.

WEAR PROTECTIVE GEAR:

EYES – wrap around safety glasses

EARS – ear plugs

HANDS – leather gloves

FEET – steel toed boots

LEGS – heavy pants

ARMS – long sleeved shirt

No loose clothing should be worn around the chipper. Personal injury can occur, if someone or something turns the flywheel over when the blades are being checked or the cutter bar is being adjusted. The flywheel has enough residual energy to easily remove fingers.

MACHINE CHECKLIST

CAUTION: Turn the chipper head over by hand before applying power to make sure that the head is clear, all the bolts are clear, and the knives clear the case and the cutter bar.

Make sure that:

1. The feed roll drive-shaft and pivots are properly lubricated
2. The feed roll clutch is properly lubricated and the clutch releases when the handle is pushed toward the chute
3. The P.T.O. shaft does not come apart or bottom out during the normal lifting range.

Check the chip pile to see if the blades need to be serviced. Long slivers in the chip pile are one of the best indications of dull blades.

MACHINE OPERATION

The chipper is a flywheel-and-knife type of chipper, not a shredder. The blades actually chip the limbs as they are fed into the head. The blades must be sharp to operate properly. Dirt, rocks, nails, or other foreign material will shorten blade life.

Before operating the chipper, review the machine checklist. After turning the chipper by hand and making sure there are no obstructions in the head start the tractor and raise the chipper until the P.T.O. shaft is 15 degrees above straight.

Start the chipper slowly with the P.T.O. engaged, and then slowly release the P.T.O. clutch. Gradually increase engine R.P.M. until the tractor P.T.O. speed is 540 R.P.M.

The material will feed into the head more easily if you start the pieces with the large end first.

The feed roll will fold branches as they are pulled into the hopper.

Occasionally, a limb fork may have to be cut to feed properly.

If the material stops feeding, sometimes a little push on the long end of the limb will help.

If the material stops the feed roll, release the feed roll hand clutch by pushing it toward the chute. Hold the clutch in the disengaged mode, and pull the material out of the hopper. Release the feed roll clutch and the feed roll will turn again.

Remember to cut only clean material, or blade life will be shortened.

Do not move the unit while the flywheel is turning.

Block the tractor wheels and set the parking brake while running the head.

Watch the discharge chute while operating the unit and if the chips stop flowing, stop feeding material into the unit by moving the feed roll clutch handle toward the chute and pulling the material from the hopper.

Most of the time this will be enough to clear the chips out of the unit. If the unit slows down noticeably, first shut off the P.T.O. power, then the tractor.

Unplug the head by turning it backwards by hand with the discharge chute and the top section of the wrapper off.

Remove the chips from the top of the head. If this fails, remove the clean-out door, located on the lower part of the front side-plate of the chipper below the main shaft, and then work the chips out of the case.

Replace the clean-out door after all the chips are removed, being sure to use both the lock washers and flat washers.

Do not operate the unit without the deflector in place.

Before stopping the chipper, be sure that all of the material is out of the head and out of the feed roll.

All of the material in the chute must be gone or the unit could jamb on a small piece of material. This can usually be cleared by turning the unit backwards by hand.

To replace the blades, take the P.T.O. shaft out of gear. Shut off the tractor and keep the keys in your pocket. The blades on most models are replaced or turned by removing the inspection plate on the side opposite the chute. Unhook the feed roll springs, block the feed roll to maximum position and with an allen wrench on the chute side and a socket on the other, and remove the bolts.

Be careful not to drop any parts inside.

Remove the blade, clean the blade pocket, and turn or sharpen the blade.

Then replace the blades.

Torque the bolts to 50 foot-pounds in all holes so the bolts are straight through the flywheel.

A small screwdriver or scratch awl works well to clean pockets for the allen wrench.

Replace the inspection plate and reattach the springs.

Turn over by hand before applying power.

The cutter bar should be adjusted to 0.010 to 0.030" from the blades by the bottom of the slotted holes and moving the bar on the slots.

Bolts are to be torque to 35 foot-pounds.

The cutter bar can be reversed and/or sharpened.

Dull blades cause many problems, such as:

Seeming lack of power, plugging of the discharge chute, rough cutting with more vibration than usual, feed roll shaft broken, main bearing housing broken, main bearing working loose and the flywheel or blades hitting the case or bed knife, feed roll kicking out of gear, and not feeding.

When sharpening the blades, be careful to keep angle A at a 35 degree angle.

This will match the angle of a new set of blades.

Area B cannot be rounded, or the blades will not pull the material into the head.

The best way to tell if the blades need sharpening is to watch the chips coming out of the chip discharge.

If they are long and straight, the blades are in need of service. Sometimes the blades feel sharp to the fingers, but may be worn or rounded in area B. They will need to be sharpened.

LUBRICATION FREQUENCIES AND LOCATIONS

P.T.O. shaft – grease the two grease zerks on the universals once daily with multi-purpose grease.

Slip Joint – Lubricate with multi-purpose grease.

Feed roll pivot – two zerks on underside of chute end.

Grease every four to eight hours of operation. If dust or fine particles make pivot bind, unhook feed roll springs, use cleaning solvent on pivot while moving up and down, wipe off, lubricate slides, and replace springs.

Feed roll drive-shaft – Zerk on feed roll drive-shaft lubricates both the sides and both universal joints. Add multi-purpose grease until grease shows at both universals every four to eight hours of operation, particularly before each use. Occasionally remove and thoroughly clean this assembly.

Feed roll clutch – while feed roll shaft is off, lubricate the feed roll clutch inside and out with multi-purpose grease.

Gear box – Gear box lubrication on separate sheet.

PREVENTIVE MAINTENANCE

Check all bolts, set-screws and fasteners after running four hours, and once per day thereafter.

Check for loose belts and broken pulleys, loose springs, dry slides, and proper lubrication of both feed roll drive-line and feed roll clutch.

The main drive belts on the chipper need to be tight. To tighten these belts, first loosen the four bottom nuts hold the jack-shaft bearing. Loosen them about three turns, and then move the nuts on the top of the bearings down an

equal amount. Keep the jack-shaft parallel with the main shaft. Torque the bottom nuts to 80 foot-pounds.

The belt of the main drive on the P.T.O. chipper should be checked every eight hours of operation.

Look for cracks, loosen, or other signs of deterioration. For best performance, replace with a matched set of eight belts.

The feed roll drive belt can be adjusted by first loosening the four bolts that hold the worm gear box to the base, then moving the gear box away from the chute and re-torque the bolts to 40 foot-pounds.

All decals and safety instruction should be kept clean and legible. It is operator's responsibility to replace the decals as needed; they will be mailed at no charge.

TROUBLESHOOTING

PROBLEM: Head slows but tractor does not

<u>Possible Causes</u>	<u>Solution</u>
Main drive belts are slipping	Tighten
Blades dull	Sharpen/reverse

PROBLEM: Feed roll clutch kicking in and out of gear excessively.

<u>Possible Causes</u>	<u>Solution</u>
Blades dull	Sharpen/reverse
Material jammed in chute	Release feed roll clutch and remove material by pulling out of chute, trim forks, and feed into chute.

PROBLEM: Not chipping clean or chip deflector plugging.

<u>Possible Causes</u>	<u>Solution</u>
1. Blades dull	Sharpen/reverse
2. Cutter bar rounded	Sharpen/reverse
3. Cutter bar not adjusted properly	Adjust to tolerance level
4. Chipper head turning too slowly	Check P.T.O. speed at 540RPM

PROBLEM: Unit won't feed

<u>Possible Causes</u>	<u>Solution</u>
Feed Roll slides dirty or dry	Clean & lubricate
Fork in material too wide	Remove and trim
Feed roll gear box belt loose	Tighten
Feed roll tension springs stretched	Replace

SPECIFICATIONS

Care in design and manufacturing was taken so that off-the-self bearings, belts, and pulleys could be used. We have manufactured a few items that were not readily available. The off-the-shelf items are listed on the parts list by manufacture's number. The balances of the parts are available from the dealer, distributor, or factory.

We have used grade eight bolts on the models for the flywheel, blades, and cutter bars. All other bolts are grade two or five as needed.

DRIVE-LINE FITTING ADJUSTMENTS

P.T.O. DRIVE-LINE DATA ON MODELS FOUR AND SIX TOOL BARN
P.T.O. DRIVEN CHIPPERS AND CHIPPER MULCHERS WITH SPEED-
UP OPTIONS.

THIS DATA IS FOR DRIVE-LINE FITTING ADJUSTMENT, WHICH IS
REQUIRED TO INITIAL STARTUP AND INSTALLATION OF
CHIPPERS.

PRIOR TO STARTUP, THE P.T.O. THAT IS SUPPLIED WITH YOUR
CHIPPER MUST BE PROPERLY SIZED TO INSURE PROPER
OPERATION. IF THIS IS NOT DONE, DAMAGE TO THE CHIPPER,
P.T.O., AND TRACTOR P.T.O. DRIVE-LINE WILL OCCUR.

THESE CALCULATIONS ARE BASED ON THE FOLLOWING
ASSUMPTIONS:

1. THE P.T.O. DRIVE-LINE USED IS THE ONE SUPPLIED WITH
YOUR CHIPPER, WITH A SIZE TWO P.T.O. SHAFT SPLINE FOR
A TYPE ONE SPLINE ON THE TRACTOR P.T.O.
2. THE DRIVE-LINE HAS AN ACTIVE LENGTH RANGE OF 24.5"
TO 21.5" AND THAT 2-1/4" OF CONTACT AREA ON THE

TRACTOR P.T.O. SPLINE AND 1-3/8" OF CONTACT AREA ON THE CHIPPER SPLINE SHAFT ARE UTILIZED.

3. THE TWO SHAFT ENDS ARE HORIZONTAL WITH ONE ANOTHER.

THE FOLLOWING STEPS SHOULD BE TAKEN TO INSURE THE PROPER FITTING OF THE P.T.O. DRIVE-LINE (PROVIDED WITH YOUR CHIPPER) WITH YOUR TRACTOR P.T.O. DRIVE.

1. ATTACH THE CHIPPER TO YOUR TRACTORS THREE POINT CONNECTIONS.
2. RAISE THE CHIPPER TO A POSITION WHERE ITS DRIVE-SHAFT IS LEVEL WITH THE TRACTOR P.T.O. DRIVE-SHAFT. THIS HORIZONTAL POSITION IS RECOMMENDED FOR OPERATION OF THE CHIPPER.

A MAXIMUM OF 15 DEGREES OF OFFSET FROM THE HORIZONTAL POSITION BETWEEN THE TWO SHAFT ENDS IS ALLOWABLE FOR PROPER OPERATION OF THE UNIT BY THE P.T.O. DRIVE-LINE MANUFACTURER. HOWEVER, DRIVE-LINE CALCULATIONS ARE BASED A LEVEL, HORIZONTAL POSITION.

3. WITH THE TWO DRIVE SHAFTS LEVEL WITH ONE ANOTHER, MEASURE THE DISTANCE BETWEEN THE ENDS OF THE TWO SHAFTS. (THE CHIPPER AND THE TRACTOR P.T.O. SHAFT ENDS).

THIS DISTANCE BETWEEN THE TOW SHAFT ENDS IS THE MEASURED SHAFT END DISTANCE, OR "MSED".

THE P.T.O. DRIVE-LINE IS CAPABLE OF HANDLING A MSED BETWEEN 18.76" TO 21.76", ALLOWING FOR AT LEAST 1/3 OF SHAFT OVERLAP AS RECOMMENDED BY THE DRIVE-LINE MANUFACTURER.

4. IF THE MSED IS LONGER THAN 21.76", A LONGER DRIVE-LINE IS NEEDED AND SHOULD BE ORDERED.
5. IF THE MSED IS SHORTER THAN 18.76", A SHORTER DRIVE-LINE IS NEEDED AND SHOULD BE ORDERED.
6. MOST DRIVE-LINES SHOULD BE ADJUSTED TO FIT BY CUTTING OFF EQUAL AMOUNTS OF THE ENDS OF THE SHAFT AND THE GUARD TUBE OF THE P.T.O. DRIVE-LINE.
7. CONSULT THE DRIVE-LINE MANUFACTURER DATA ENCLOSED WITH YOUR DRIVE-LINE FOR PROPER ASSEMBLY, DISASSEMBLY, LUBRICATION AND OPERATION PRIOR TO STARTUP, AND DURING OPERATION.

REMEMBER: CONTACT WITH THE DRIVE-LINE WHILE IN USE CAN RESULT IN SERIOUS INJURY OR DEATH.

ANY PORTION OF THE DRIVE-LINE NOT SHIELDED MUST BE GUARDED BY AN INTERACTIVE GUARDING SYSTEM.

THE MANUFACTURER OF THE EQUIPMENT IS RESPONSIBLE FOR PROVIDING GUARDS. ANY REPLACEMENT GUARD MUST BE ONE WHICH IS SPECIFIED BY THAT MANUFACTURE. IN SHORT, DO NOT REMOVE ANY OF THE PLASTIC SAFETY COVERS ON THE DRIVE-LINE, AND INSURE THAT CAUTION IS USED AROUND THIS DRIVE-LINE. NO ONE SHOULD BE IN THE DRIVE-LINE AREA WHEN IT IS OPERATING.

ANOTHER DRIVE-LINE DATA BASE IS AS FOLLOWS. THESE CALCULATIONS ARE BASED ON THE FOLLOWING ASSUMPTIONS:

1. THE P.T.O. DRIVE-LINE IS THE BONDIOLT MODEL 7102043 NNT07607 WITH A SIZE TWO P.T.O. SHAFT SPLINE FOR A TYPE ONE SPLINE ON THE TRACTOR P.T.O.

2. THE DRIVE-LINE HAS AN ACTIVE LENGTH RANGE OF 31.06” TO 25.13”
3. THE 2-1/4” OF CONTACT AREA ON THE TRACTOR P.T.O. SPLINE AND 1-3/8” OF CONTACT AREA ON THE CHIPPER SPLINE SHAFT ARE UTILIZED.
4. THE TWO SHAFT ENDS ARE HORIZONTAL WITH ONE ANOTHER.

THE FOLLOWING STEPS SHOULD BE TAKEN TO INSURE THE PROPER FITTING OF THE P.T.O. DRIVE-LINE PROVIDED WITH YOUR CHIPPER TO YOUR TRACTORS P.T.O. DRIVE.

1. ATTACH THE CHIPPER TO YOUR TRACTORS THREE-POINT CONNECTIONS. RAISE THE CHIPPER TO A POSITION WHERE ITS DRIVE-SHAFT IS LEVEL WITH THE TRACTORS P.T.O. DRIVE SHAFT.

THE RECOMMENDED POSITION OF THE CHIPPER DURING OPERATION IS HORIZONTAL.

A MAXIMUM OF 15 DEGREES OF OFFSET FROM THE HORIZONTAL POSITION BETWEEN THE TWO SHAFT ENDS IS ALLOWABLE FOR PROPER OPERATION OF THE UNIT BY BONDILT AND CHIPPER.

DRIVE-LINE CALCULATIONSHAVE BEEN BASED ON A LEVEL OR HORIZONTAL POSITION.

2. WITH THE TWO DRIVE-SHAFTS LEVEL WITH ONE ANOTHER, MEASURE THE DISTANCE BETWEEN THE ENDS OF THE TWO SHAFTS. (THE CHIPPER AND THE TRACTOR P.T.O. SHAFT ENDS).

THIS DISTANCE BETWEEN THE TWO SHAFT ENDS IS THE MEASURED SHAFT END DISTANCE OF “MSED”.

3. THE P.T.O. DRIVE-LINE IS CAPABLE OF HANDLING A MSED BETWEEN 27.24" TO 20.31", ALLOWING FOR AT LEAST 1/3 OF SHAFT OVERLAP AS RECOMMENDED BY THE DRIVE-LINE MANUFACTURER.
4. IF THE MSED IS LONGER THAN 27.24", A LONGER DRIVE-LINE IS NEEDED AND SHOULD BE ORDERED.
5. IF THE MSED IS SHORTER THAN 20.31" BUT LONGER THAN 17.31", THE P.T.O. DRIVE-SHAFT MUST BE FITTED. FIT THE DRIVE-SHAFT BY CUTTING OFF EQUAL AMOUNTS OF EACH END OF THE SHAFT TUBE AND THE GUARD TUBE OF THE P.T.O. DRIVE-LINE.

THE AMOUNT TO BE CUT OFF EACH END OF THE SHAFT TUBE AND THE GUARD TUBE IS THE DIFFERENCE BETWEEN 20.3" AND THE MSED FOR YOUR UNIT.

IN NO CASE CAN MORE THAN 3" OF SHAFT AND GUARD TUBE REMOVED, OR THE CONTACT AREA IS NOT SUFFICIENT FOR PROPER AND SAFE OPERATION OF THE DRIVE- SHAFT.

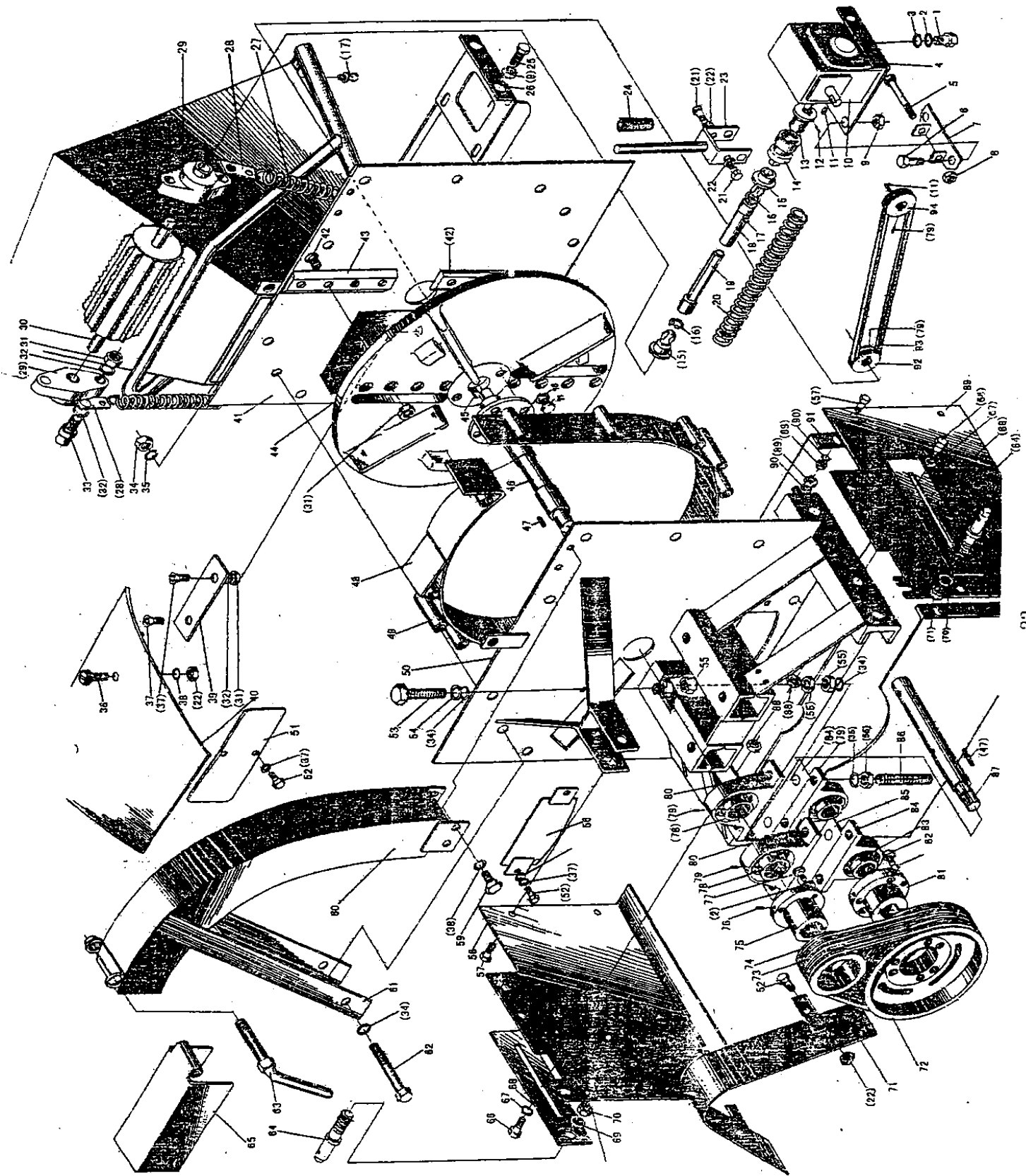
EXAMPLE: IF THE MSED IS 17.31", CUT OFF FROM THE ENDS OF THE SHAFT TUBE AND THE GUARD TUBE OF THE DRIVE-LINE (20.31"-3" OF CUT OFF DISTANCE).

CUT OFF THE SAME AMOUNT FROM THE SHAFT TUBE PLASTIC COVER AND THE GUARD TUBE SAFETY COVER TO INSURE PROPER ASSEMBLY AND FIT OF THE DRIVE-LINE.

6. IF THE MSED IS SHORTER THAN 17.31", A SHORTER DRIVE-LINE IS NEEDED AND SHOULD BE ORDERED.
7. CONSULT THE BONDIOLI DATA ENCLOSED WITH YOUR DRIVE-LINE ASSEMBLY, DISASSEMBLY, LUBRICATION AND OPERATION PRIOR TO STARTUP AND DURING OPERATION.

REMEMBER: CONTACT WITH THE DRIVE-LINE NOT SHIELDED MUST BE GUARDED BY AN INTERACTIVE GUARDING SYSTEM. THE MANUFACTURER OF THE EQUIPMENT IS RESPONSIBLE FOR PROVIDING GUARDS. ANY REPLACEMENT GUARD MUST BE ONE WHICH IS SPECIFIED BY MANUFACTURER.

IN SHORT, DON'T REMOVE ANY OF THE PLASTIC SAFETY COVERS ON THE DRIVE-LINE, AND INSURE THAT CAUTION IS USED AROUND THIS DRIVE-LINE, NO PERSON SHOULD BE IN THE DRIVE-LINE AREA WHEN IT IS IN OPERATION.



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Serial #	Part #	Description	Qty.
1	GB/T5783-1986	8 x 18 Bolt	4
2	GB/T93-1987	8 Washer	4
3	GB/T97.1-1985	8 Washer	4
4		Gear Box Mounting Plate	1
5	GB/T5780-1986	6 x 90 Bolt	1
6	GB/T5780-1986	8 x 25 Bolt	4
7	18PMF.034-0	Release Handle Seat	1
8	GB/T889-1986	6 Nut	1
9	GB/T6170-1986	8 Nut	4
10	Q/IAKY01-91	Worm Reduction Gear WPR40:30:1 II	1
11	GB/T 1096-1979	4 X 20 Key	1
12	GB/T 12-1988	M6 x 20 Screw	2
13	18PMF.202-1	Clutch Inner Claw	1
14	18PMF.203-1	Clutch Outer Claw	1
15	18(24)PMF.217	Spring for Drive Knob	1
16	GB/T 895.1-1986	25 Circlip	2
17	GB/T 1152-1989	M6 Oil Cup	3
18	24PMF.034	Outer Drive Shaft	1
19	24PMF.033	Inner Drive Shaft	1
20	18PMF.204-1	Spring for Drive Shaft	1
21	GB/T5780-1986	6 x 90 Bolt	2
22	GB/T6170-1986	6 Nut	2
23	18PMF.035	Release Handle	1
24	18PMF.141-2	Main Clutch Handle	1
25	GB/T5783-1986	8 x 20 Bolt	4
26	18PMF.307	Gear Box Support Plate	1
27	18PMF.109	Tension Spring	2
28	18PMF.107	Spring Lug	2
29	UCFL	Feed Roll Bearing 204	2
30	24PMF.021	Feed Roll	1
31	GB/T889-1986	M10 Nut	20
32	GB/T97.1-1985	10 Washer	8
33	GB/T5780-1986	10 x 35 Bolt	4
34	GB/T 6170-1986	14 x 1.5 Nut	13
35	GB/T 96-1985	14 Fender Washer	2

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Serial #	Part #	Description	Qty.
36	GB/T 12-1988	M6 x 30 Screw	2
37		M10 x 27 Screw	8
38	GB/T93-1987	M6 Washer	8
39	29PMF.104	Chipper Bed Blade	1
40		Plastic Plate	1
41	24PMF.015-1	Strickle Assembly	1
42		M10 x 27 Screw	8
43	24PMF.131	Chipper Blade	2
44	29PMF.130	Fly Wheel	1
45	GB/T 1096-1979	C6*20 Key	1
46	24PMF.023	Main Shaft Assembly	1
47	GB/T 1096-1979	C10*50 Key	2
48	24PMF.013	Little Round Plate	1
49	24PMF.016	Outer Protective Cover Assembly	1
50	24PMF.017	Front Supporting Plate	1
51	24PMF.101	Rear Cover	1
52	GB/T5780-1986	6 x 12 Bolt	2
53	GB/T5785-1987	M14 x 1.5 x 50 Bolt	4
54	GB/T93-1987	M14 Washer	10
55	GB/T6171-1986	M14 x 1.5 Nut	8
56	24PMF.011	Lower Cover	1
57	GB/T5783-1986	M10 x 25 Bolt	8
58	18PMF.101	Side Plate	1
59	GB/T5781-1986	M6 x 12 Bolt	4
60	18PMF.006	Discharge Pipe	1
61	24PMF.010	Support Shelf, Discharge Pipe	1
62	GB/T5780-1986	M10 x 140 Bolt	13
63	18PMF.013	Tightening Handle	1
64	18PMF.113	Connecting Pin	2
65	18PMF.012	Protective Cover	1
66	GB/T 5785-1986 8.8	M12 x 1.5 x 45 Bolt	4
67	GB/T93-1987	M12 Washer	4
68	18PMF.103-1	Front Connecting Plate	2
69	GB/T 93-1987	M22 Washer	2
70	GB/T6170-1986	M22 Nut	2

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Serial #	Part #	Description	Qty.
71	24PMF.020	Protective Cover for Pulley	1
72	24PMF.127-1	Big Belt Pulley	1
73	24PMF.109-1	Small Belt Pulley	1
74		Belt	5
75	18PMF.114	Small Pulley Hub	1
76	GB/T80-1985	M6*16 Screw	2
77	GB/T5783-1986	M8 x 10 Bolt	3
78	GB/T7810-1995	Feed Roll Bearing 209	2
79	GB/T80-1985	M6*20 Screw	6
80	GB/T809-1995	Stand Base	2
81	24PMF.106	Big Pulley Hub	1
82	GB/T5783-1980	M10 x 50 Bolt	3
83	GB/T7810-1995	Feed Roll bearing 207	2
84	GB/T7809-1995	Stand Base P207	2
85	24PMF.102	Bearing Seat Shim	2
86	18PMF.106	Bearing Seat Adjustment Screw	4
87	24PMF.108	Drive Shaft	1
88	GB/T6170-1986	M10 Nut	1
89	18PMF.120	Side Plate	1
90	GB/T97.1-1985	M12 Washer	4
91	24PMF.111	Rear Plate	1
92		Drive Pulley of W.R.G.	1
93		Belt	1
94		Drive Pulley of W.R.G.	1