



**AD5-18\*\*AD10-18\*\*AD20-18**  
**AMCO DITCHER**

**OPERATIONS\*\*MAINTENANCE\*\* SET-UP**  
**INSTRUCTIONS**



**AMCO MANUFACTURING COMPANY**

800 South Industrial Parkway P.O. Box 1107  
Yazoo City, Mississippi (MS) 39194 USA  
(662) 746-4464 Toll free 800-748-9022 Fax (662) 746-6825  
[www.amcomfg.com](http://www.amcomfg.com)

## TO THE PURCHASER

The care you give your new AMCO AD5-18, AD10-18, AD20-18 Ditcher will greatly determine the satisfaction and service you will obtain from it. By observing the instructions and suggestions in this manual, your AMCO Ditcher will serve you well for many years.

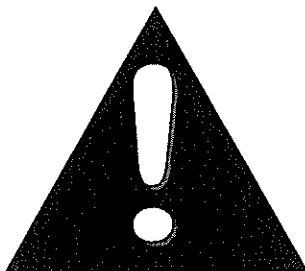
As an Authorized AMCO Dealer, we stock Genuine AMCO Parts, which are manufactured with the same precision and skill as the original equipment. For the best performance and longer life, use only genuine AMCO replacement parts. Our factory-trained staff is kept fully informed of the most efficient methods of servicing AMCO equipment and is ready and able to assist you.

When you sell your AMCO Ditcher, you should pass this manual to the new owner.

If you should require additional aid or information, contact us.

YOUR AUTHORIZED AMCO DEALER

OSHA requires that, as a farm employer, you meet certain safety requirements. Become familiar with and comply with those requirements. Be sure anyone who operates this equipment understands all safety related items. If this harrow is repainted, be certain new decals are ordered. Decals pertaining to personal safety must be replaced.



Look for this symbol to point out important safety precautions. It means: ATTENTION! Become Alert! Your safety is involved.

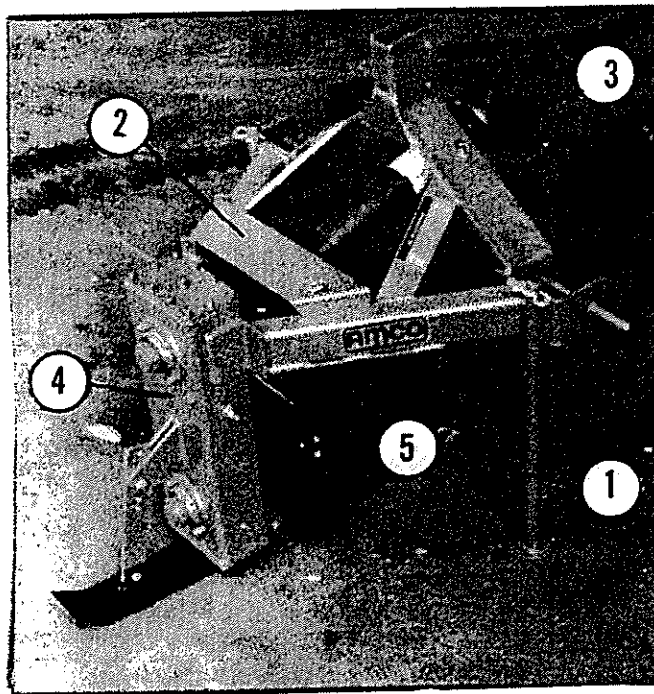
To insure efficient and prompt service, please provide the model number and serial number of your AMCO F15 Double Offset Tandem Disk Harrow in all correspondence or contacts. Remember, the right- and left-hand sides of the harrow are determined by standing at the rear of the harrow and facing the direction of travel.

MODEL NUMBER

SERIAL NUMBER

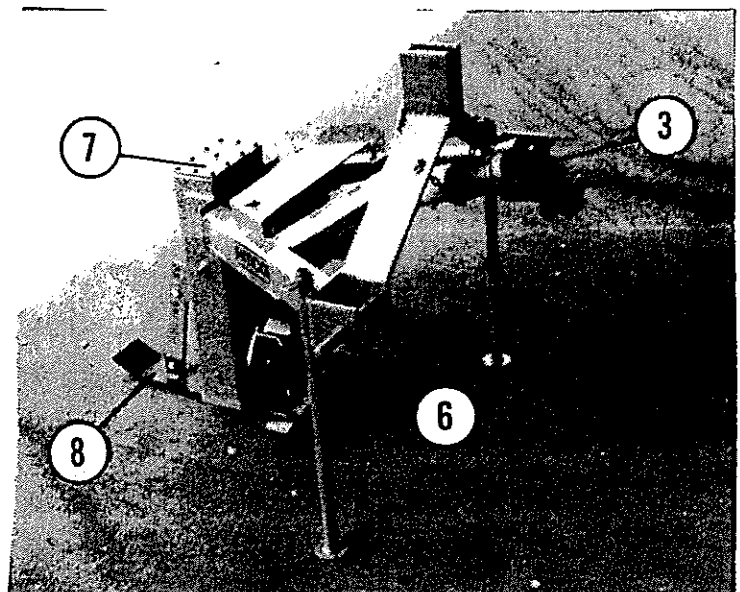
## Examine the features of your AD5-18, AD10-18, or AD20-18 AMCO Ditcher--

You will find a machine designed by engineers with imagination as well as knowledge of today's field requirements and conditions. You will find features on the AMCO Ditcher not found on other ditching machines. You will find the AMCO quality that you have come to trust. Examine the features of the AD5-18, AD10-18, and AD20-18 AMCO Ditchers below that will give you reliable service and dependability in the field.

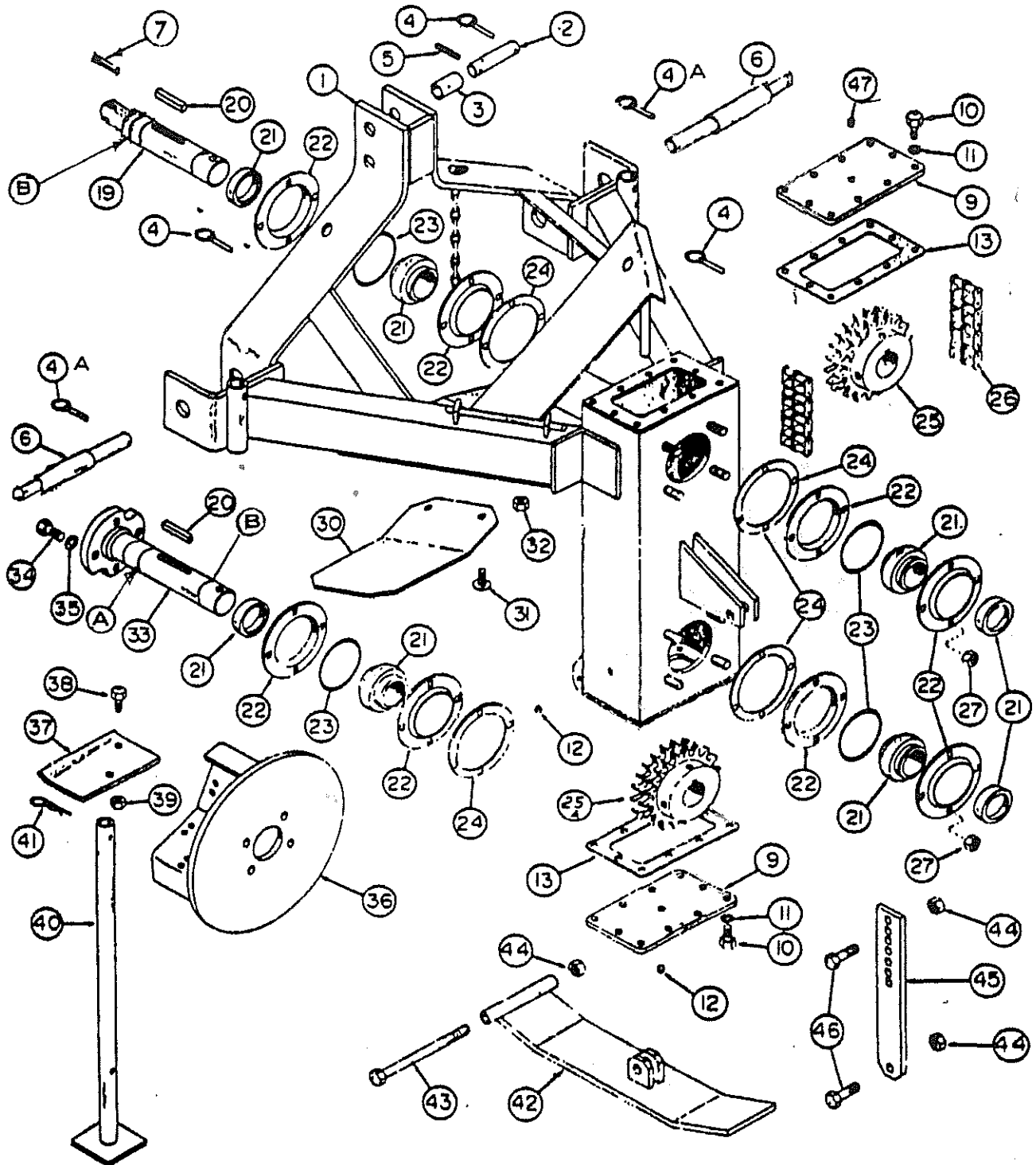


1. Parking Stand
2. Safety Shield
3. Shielded Drive Shaft
4. All Welded Main Frame and Chain Case
5. Adjustable Hardened High Carbon Steel Blades

6. Cat. II or III Standard or Quick Coupler Hitch
7. Removable End Plates for Ease of Service
8. Adjustable Skid for Depth Control



# AMCO AD5-18, AD10-18, and AD20-18 DITCHER



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>No. Req'd.</u>
A	11988	Retainer Ring .....	2
B	11979	O-Ring .....	4

**AMCO AD5-18, AD10-18 & AD20-18**  
**AMCO DITCHER**

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>No. Req'd.</u>
1	0908	Main Frame	1
2	7397	Pin 1" Dia. C1045 4-3/8" Long	1
3	6570	Bushing 1-1/4 O.D. x .109" Tubing 2" Long	1
4	10317	Klik Pin - 1/4"	3
4A	11697	Klik Pin - 7/16"	2
5	10910	Roll Pin - 5/16" x 2-1/4"	1
6	101739	Hitch Pin - Lower	2
7	12097	Key - 1/2" Sq. x 1-1/2" Long	1
9	102445	End Plate - 1/4" x 6" -- 10" Long	2
9A	102446	Mount Plate - 1/4" x 6" -- 10" Long (not shown)	2
10	10944	Hex Bolt - 3/8" x 3/4" NF, PL, Gr. 5	20
11	11110	Lock Washer - 3/8" PL	20
12	AI-115	Pipe Plug - 3/8" NPT Socket HD	2
13	11359	Frame Gasket	2
19	102443	Input Shaft	1
20	11295	Key - 1/2" x 1/2" x 2-3/4" Long	2
21	11381	Bearing & Collar	4
22	10905	Flangette 100 MSB	8
23	11329	O-Ring	4
24	11328	Flangette Gasket	4
25	11375	Top Sprocket - 16 Tooth - AD10-18, AD20-18	1
		(Includes Set Screws)	
	11376	Top Sprocket - 22 Tooth - AD5-18	1
		(Includes Set Screws)	
25A	11375	Bottom Sprocket - 16 Tooth - AD5-18	1
		(Includes Set Screws)	
	11376	Bottom Sprocket - 22 Tooth - AD10-18, AD20-18	1
		(Includes Set Screws)	
25B	11931	Set Screw -- 1/2" x 1/2" Set Screw Cup Point (Not Shown)	4
26	12115	Chain #80-2 - 57 Pitches	1
	11481	80-2 Connector Link Kit - Slip Fit (Not Shown)	1
27	10395	Lock Nut - 1/2" NC, PL	16
	10747	Rib Neck Carriage Bolt 1/2" x 1-1/4" NC, Gr. 5 (Not Shown)	16
	12017	Gasket ( Not Shown) Used with 10747	16
30	100699	Deflector	1
31	10870	Carriage Bolt - 1/2" x 1-1/2" NC, PLT, Gr.5	2
32	10395	Lock Nut - 1/2" NC, PL	2
33	20364	Output Shaft	1
34	10818	Hex Bolt - 5/8" x 1-1/2" NC, PL, Gr.5	4
35	11002	Lock Washer - 5/8" PL	4
36	0938	Cutter Head	1



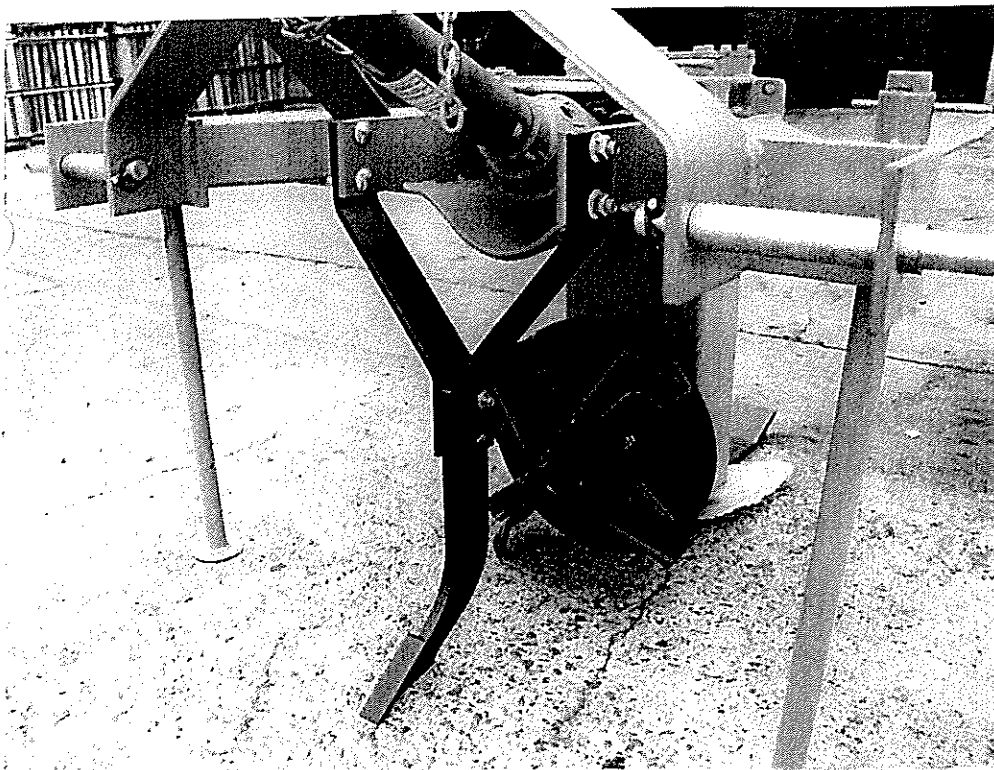
**AMCO AD5-18, AD10-18 & AD20-18  
AMCO DITCHER (continued)**

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>No. Req'd.</u>
37	100662	Blade - 3/8" x 5" - C1080 8-5/16" Long	4
38	10705	Hex Bolt - 1/2" x 1-1/4" NF, Gr. 5	8
39	10498	Lock Nut - 1/2" NF, PL	8
40	0939	Parking Stand	2
41	10803	Hair Pin - #19 Western Wire	2
42	0937	Skid	1
43	11392	Hex Bolt - 5/8" x 9" NC, PL	1
44	10299	Lock Nut - 5/8" NC, PL	4
45	100648	Adjusting Bar	1
46	10663	Hex Bolt - 5/8" x 2" NC, PL, Gr.5	2
47	11293	Breather	1
	*12114	Idler Sprocket (Not Shown)	1
	*12094	Needle Bearing (Not Shown)	1
	*20567	Idler Bracket (Not Shown)	1
	*102482	Bushing (Not Shown)	1
	*102483	Idler Pin (Not Shown)	1
	*12142	Cotter Pin - 3/16" x 1-3/4" (Not Shown)	1
	10295	Hex Bolt - 5/8" x 8" NC, PL, Gr. B (Not Shown)	1
	10299	Lock Nut - 5/8" NC, PL, Gr. B (Not Shown)	1
	10059	Cut Washer - 5/8" PL (Not Shown)	2
	12096	Set Screw - 1/2" x 2-1/2" NC (Not Shown)	1
	12116	Gasket -- Use w/ 5/8" x 8" HB Idler Bracket (Not Shown)	2
	10787	Hex Nut - 1/2" NC, PL (Not Shown)	1
<b>*NOTE:</b> These items can be ordered as assembly <u>EA-05-0017</u>			

# AMCO AD5-18, AD10-18 & AD20-18

## DITCHER BUSTER SHANK

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>No. Req'd.</u>
1	102676	Hanger Bracket	2
2	10135	5/8" x 1-3/4" Carriage Bolt, NC, PLT, Gr. 5	4
3	11647	5/8" NC, PLT, Flange Lock Nut	4
4	10201	5/8" x 3" Hex Bolt, NC, PLT, Gr. 5	2
5	10299	5/8" Lock Nut, NC, PLT, Gr. B	2
6	102698	Shank	1
7	12443	Point	1
8	10856	Roll Pin	1



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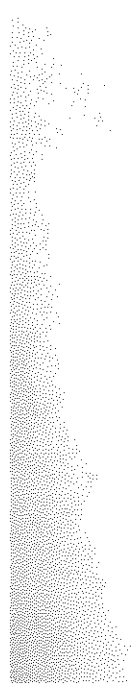
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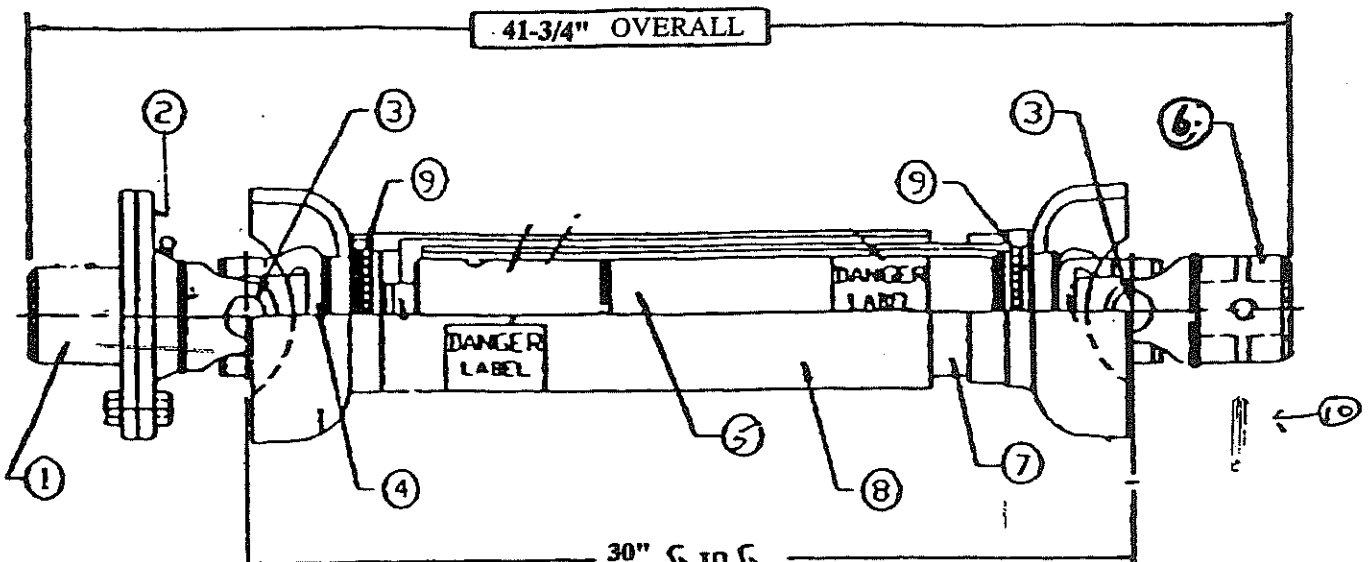


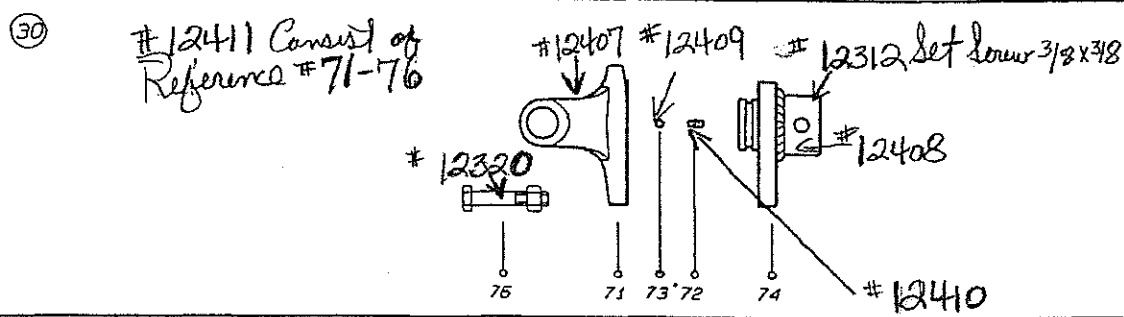
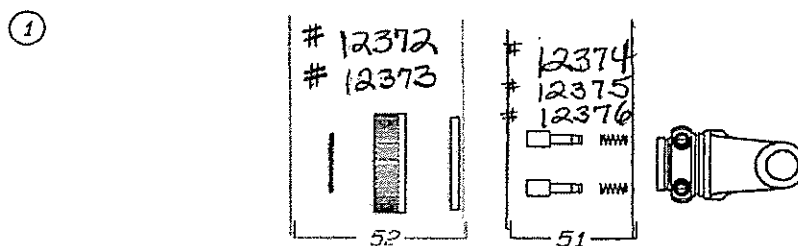
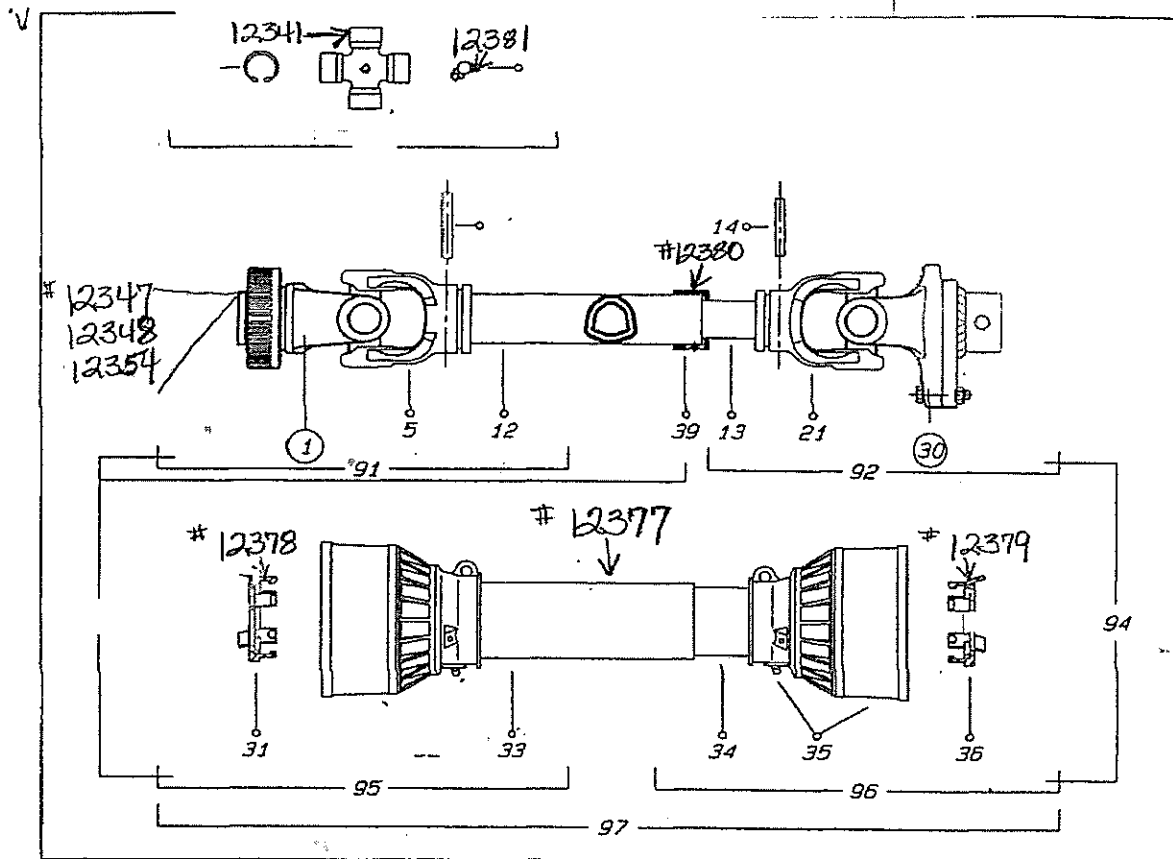
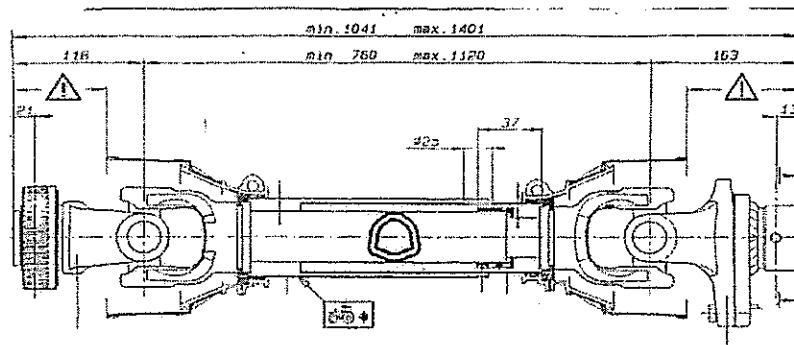


**AD5-18 \*\*AD10-18\*\*AD20-18  
DRIVE LINE**

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>No. Req'd.</u>
1	12099	Flange Ball Lock & Yoke Complete (AD10-18)	1
1A	12145	Flange Ball Lock 1-3/8" x 21" Sprine (AD10-18)	1
1B	12151	Flange Ball Lock 1-3/8" x 6" Spline (AD5-18)	1
1C	12159	Flange Ball Lock 1-3/4" x 20" Spline (AD20-18)	1
2	12162	Flange Yoke (AD10-18 & AD5-18)	1
2A	12209	Flange Yoke (AD20-18) (Not Shown)	1
3	12101	PTO Repair Kit (Complete)	2
4	12102	Welded Yoke and 1-5/16" Square Shaft	1
5	12103	Welded Yoke & Tube Assembly	1
6	12104	Implement Yoke with 1/2" -- 13 Set Screw	1
7	12105	3-1/2" Inner Plastic Shield - Male End	1
8	12106	4" Outer Plastic Shield - Female End	1
9	12107	Bearing Shield Kit (Nylon Bearing, Snap Ring & Thrush Washer)	1
10	12117	Roll Pin - 1/2" x 3-1/2"	1
11	12152	7/16" X 1-1/4" Gr.5 Shear Bolt with Nut	1
12	12222	7/16" x 1-3/8" Gr. 5 Shear Bolt with Nut (AD20-18)	1
13	12211	Ball Set (23 Pcs.) for Shear Flange (Not Shown)	1
14	12112	Flange Ball Lock & Yoke Complete (AD5-18) (6 Spline)	1
15	12228	Flange Ball Lock & Yoke Complete (AD20-18)	1
	12098	Complete PTO Drive Line - 1-3/8" x 21" Spline (AD10-18)	1
	12108	Complete PTO Drive Line - 1-3/8" x 6 Spline (AD10-18)	1
	12146	Complete PTO Drive Line - 1-3/4" x 20" Spline (AD20-18)	1
	12109	Tractor - Male End Drive Line Complete 1-3/8" x 21" Spline	1
	12110	Tractor - Male End Drive Line Complete 1-3/8" x 6" Spline	1
	12210	Tractor - Male End Drive Line Complete 1-3/4" x 20" Spline	1
	12111	Implement - Female Drive Line Complete (AD5-18, AD10-18, and AD20-18)	1

**NOTE:** Part #12159 Flange Ball Lock 1-3/4" x 20" Spline will not interchange with part #12162 Flange Yoke 1-3/8" x 21" Spline.





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<b>INSERT</b>		
<b>AD5-18 **AD10-18**AD20-18</b>		
<b>DRIVE LINE</b>		
<b>BONDIOLI &amp; PRAVESI DRIVE LINE</b>		
<b>Used after Serial # 98100388</b>		
<b>Part No.</b>	<b>Description</b>	<b>No. Req'd.</b>
12205	Complete PTO Drive Line 1-3/8" x 21" Spline (AD10)	1
12306	Complete PTO Drive Line 1-3/8" x 6" Spline (AD5)	1
12307	Complete PTO Drive Line 1-3/4" x 20" Spline (AD20)	1
12308	Tractor Female End Drive Line - 1-3/8" x 6" Spline (AD5)	1
12309	Tractor Female End Drive Line - 1-3/8" x 21" Spline (AD10)	1
12310	Tractor Female End Drive Line - 1-3/4" x 20" Spline (AD20)	1
12311	Implement - Male Drive Line Complete (AD5, AD10, AD20)	1
12312	3/8" x 3/8" Set Screw - Implement End	1
12320	Shear Bolt - M10mm x 60mm 8.8 Gr.5	1
12341	Cross Kit (Size 7 metric)	1
12347	Flange Ball Lock & Yoke 1-3/8" x 21" Spline	1
12348	Flange Ball Lock & Yoke 1-3/4" x 20" Spline	1
12354	Flange Ball Lock & Yoke 1-3/8" x 6" Spline	1
12372	Twist Collar Kit - For 1-3/8" - 6 & 1-3/8" - 21 Spline	1
12373	Twist Collar Kit - 1-3/8" x 20" Spline	1
12374	Twist Disconnect Pin Kit for 1-3/8" x 6" Spline	1
12375	Twist Disconnect Pin Kit for 1-3/8" x 21" Spline	1
12376	Twist Disconnect Pin Kit for 1-3/4" x 20" Spline	1
12377	Safety Shield Assy. 1-3/8" - 6, 1-3/8" - 21, 1-3/4" - 20 (Consist of Both halves & Shield Brg. Kit)	1
12378	Shield Brg. Kit - Tractor End	1
12379	Shield Brg. Kit - Implement End	1
12380	Plastic Grease Collar	1
12381	Grease Fitting	1
12407	Yoke - Implement end- (AD5, AD10, AD20) (Not Available)	1
12408	Hub- Implement End -(AD5, AD10, AD20) (Not Available)	1
12409	Ball Set (24 Pcs.) 5-16" Dia. (AD5, AD10, AD20)	1
12410	Grease Nipple - (AD5, AD10, AD20) (Not Available)	1
12411	Yoke & Hub Assy. Complete (Implement End) (Not Available)	1
<b>NOTE: Part #12411 available only in Implement End Complete Part # 12311</b>		

## DECALS



### ! WARNING

1. BEFORE OPERATING - STUDY OPERATORS MANUAL SAFETY MESSAGES AND SAFE OPERATING PROCEDURES, READ SAFETY SIGNS ON THIS MACHINE.
2. TRANSPORT ON PUBLIC ROADS - OBSERVE FEDERAL, STATE AND LOCAL REGULATIONS; DISPLAY SMV EMBLEM; ATTACH PROPER STRENGTH SAFETY CHAIN TO TOWED IMPLEMENT; AND LIMIT MAXIMUM SPEED TO 20mph (32 km/h).
3. LOWER OR BLOCK ALL ELEVATED COMPONENTS BEFORE SERVICING OR LEAVING THIS MACHINE.

11741 321-6625

### ! WARNING

1. ALLOW NO RIDERS ON IMPLEMENT OR TRACTOR.
2. OPERATE AT SAFE DISTANCE FROM BYSTANDERS.
3. KEEP ALL SHIELDS IN PLACE.
4. BE SURE POWER TAKE OFF IS DISENGAGED AND HAS STOPPED ROTATING BEFORE DISMOUNTING FROM TRACTOR.

10949

### ! CAUTION

The Ditcher should be lowered just above the ground before engaging the PTO. When backing or turning, the ditcher should be raised to clear the ground.

THE DITCHER SHOULD NEVER BE RAISED TO MAXIMUM HEIGHT WITH PTO ENGAGED.

**SEE MANUAL  
BEFORE ADJUSTING  
IDLER SCREW**

Ref. No.	Part No.	Description	No. Req'd.
1	11465	Decal - AMCO	1
2	11741	Decal - Warning	1
3	10949	Decal - Warning - PTO	1
4	12141	Decal - Caution - PTO	1
5	12212	Decal - Idler Screw	1

## GENERAL SPECIFICATIONS

The AD5-18, AD10-18, and the AD20-18 AMCO Ditchers are connected to the tractor PTO shaft by means of a shielded Double U-Joint. The 2-3/16" diameter alloy steel in-put and out-put shafts are connected by a #80-2 Double Roller Chain with a continuous oil bath lubrication. The drive system rotates on four Tri-Ply seal ball bearings. The AD5-18 has a 22-tooth in-put sprocket and a 16-tooth out-put sprocket. Both the AD10-18 and the AD20-18 have a 16-tooth in-put sprocket and a 22-tooth out-put sprocket. This combination gives a cutter head speed of 740 RPM on all three models. The entire drive system is housed inside a 6" x 10" steel case, easily accessible by two removable end plates. The cutter head has four (4) heat treated high carbon steel blades with a cutting diameter adjustable from 18" to 20".

The AD5-18 is designed for use on tractors with 65-110 PTO HP and 540 RPM PTO. The AD10-18 and the AD20-18 are designed for use on tractors with 80-150 PTO HP and 1000 RPM PTO. Use on tractors with more horsepower could cause high maintenance cost or personal injury.



## SAFETY SUGGESTIONS

- \*\*\* Never ride or permit others to ride on the tractor or on the AMCO DITCHER.
- \*\*\* Only one person--the operator--should be permitted on the tractor platform while tractor and AMCO DITCHER are in operation.
- \*\*\* Never clean, adjust, or lubricate an AMCO Ditcher that is in motion.
- \*\*\* All hydraulically elevated components must be blocked or lowered to prevent accidents when adjusting or lubricating the AMCO DITCHER. Always lower the AMCO DITCHER when it is to stand idle.
- \*\*\* Bystanders should stand clear of discharge when AMCO DITCHER is in operation.
- \*\*\* When working on AMCO DITCHERS, care should be exercised in handling or tightening bolts near blades to avoid injury.
- \*\*\* Always place the AMCO DITCHER on a level area when disconnecting the AMCO DITCHER from the tractor. Always use the two parking stands.
- \*\*\* Never stand between a tractor and machine when hitching unless all the controls are in neutral and the brakes are locked.
- \*\*\* Always keep all shields in place.
- \*\*\* Remember, a careful operator is always the best insurance against an accident.
  
- \*\*\* OSHA requires that, as a farm employer, you meet certain safety requirements. Become familiar with and comply with those requirements. Be certain anyone who operates this machine understands all safety related items. If this machine is repainted, be certain new decals are ordered. Decals pertaining to personal safety must be replaced.

## ASSEMBLY

The AD5-18, AD10-18, and AD20-18 AMCO Ditchers come from the factory completely assembled except for the parking stands. Remove the parking stands from the main frame and insert them into

the parking stand guides which are located on the sides of the main frame. Insert the hairpin clips through the parking stands. Remove the wire holding the universal drive shaft to the main frame and rest the drive shaft on the support chain. The AMCO Ditcher is now fully assembled and ready for attachment to the tractor.

## LUBRICATION

Check the oil level when the AMCO Ditcher is in an upright position. This is done by removing the check plug on the side of chain case. The oil should be level with this hole. The AMCO Ditcher was filled with three (3) quarts of SAE 90 WT. Oil at the factory. An equivalent oil should be used for replacement. This is added through the plug in the top end plant.

The universal drive shaft should be lubricated with a good grade of Lithium Soap Base Grease every 25 to 50 hours of operation. There are four (4) grease fittings to grease as shown in Figure 1.

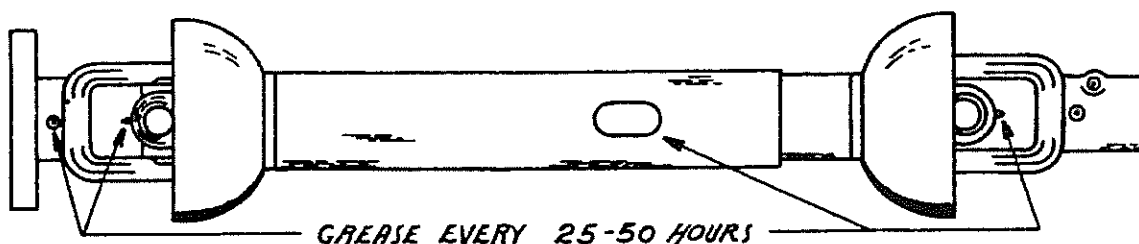


FIG. 1

## ATTACHMENT

The AD5-18, AD10-18, and AD20-18 AMCO Ditchers are designed for use on a category II or III three-point linkage or a category II or III quick coupler. A category II three-point linkage attaches to the upper top hole with 1" diameter top pin. The lower links fit the 1-1/8" diameter portion of the lower hitch pins. A category II quick coupler is attached to the lower top hole using the 1" diameter top pin and 1-1/4" O.D. bushing. The lower hitch attaches to the lower hitch pins. A category III three-point linkage and quick coupler attaches in the upper top hole with the 1" diameter top pin and



the 1-1/4" O.D. bushing. The lower links fit the 1-7/16" diameter portion of the lower hitch pins. All pins should then be secured with the klik pins.

The yoke of the drive line is then attached to the PTO shaft of the tractor with the slip pin in the yoke. The tractor's top lift link should be extended or retracted until the chain case is vertical when lowered to the normal operating position. The drive line must have an equal offset in each joint.

See Figure 2. As an example, if the front joint is offset 4 degrees or 8 degrees, the cutter head will not run at a constant speed and will vibrate excessively. Operating the Ditcher in this condition will cause drive line, shear bolt, and chain failures.

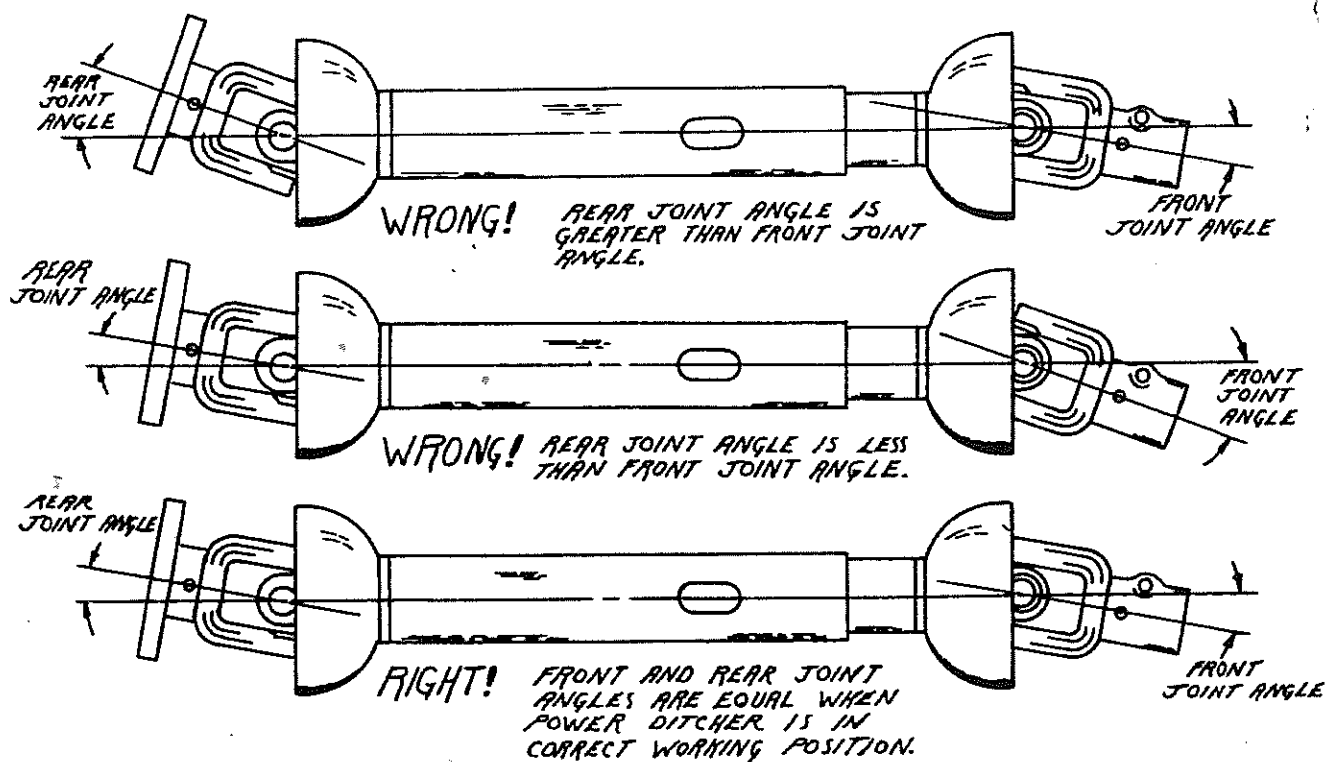


FIG. 2



Stop the tractor and disengage the PTO before making any adjustments. Keep all shields in place.

## OPERATION

The AMCO Ditcher should be lifted from the ground and the parking stands raised and secured with the hairpin clips. If the tractor is equipped with a float position on the three (3) point lift, this should be used. This will allow the skid to control the depth of cut. To get a deeper ditch, raise the skid by means of the adjusting bar at the rear of the chain case. To get a shallower ditch, lower the skid by means of the adjusting bar.

The cutting diameter may be adjusted by moving the location of the blades on the cutter head. Location in the inside set of holes will give an 18" diameter cut. Locating the blades in the outside set of holes will give a 20" diameter cut.

Raise and lower the ditcher slowly to check engagement of the drive line. At least 6" of the square shaft should be engaged in the tubular portion of the drive line. Also check to be sure the drive line will not hit the tractor drawbar and is not binding when rotated. Be sure the safety shield is secured over the shear flange.

The Ditcher should be lowered just above the ground and the PTO engaged. The PTO should be engaged with the blades resting on the ground. This sudden shock could result in broken shear bolts, chain, or drive line. After the cutter head has started rotating, set the engine speed for 540 or 1000 RPM PTO speed. Start the forward motion of the tractor and lower the Ditcher into the ground. Forward speed and depth of cut should be matched to soil conditions.

When backing or turning, the Ditcher should be raised to clear the ground. The Ditcher should never be raised to maximum height with the PTO engaged.

## MAINTENANCE INSTRUCTIONS

### **I. Daily or Every Ten (10) Hours of Operation:**

1. Visually check chain case for oil leaks.
2. Visually inspect for loose or missing bolts.
3. Inspect for loose or damaged blades.
4. Visually inspect entire AMCO DITCHER for worn, loose, damaged, or missing parts

### **II. Weekly or Every Fifty (50) Hours of Operation:**

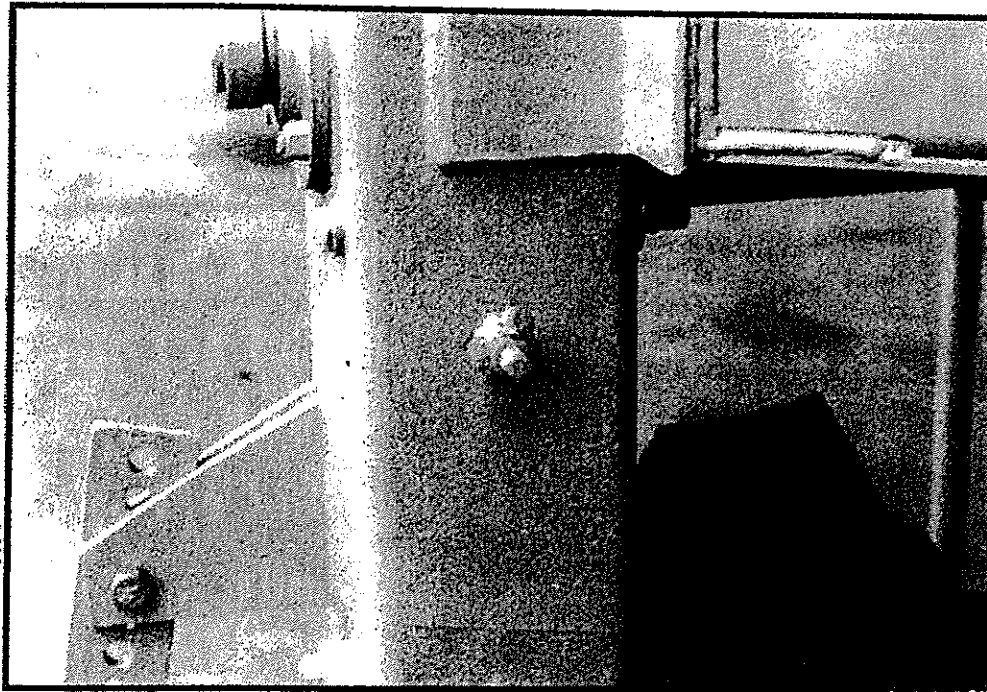
1. Check chain case oil level. Use a good grade of clean 90 weight oil when adding oil.
2. Grease universal drive line. Use a good grade of clean No. 2 lithium soap base grease.

### **III. Every Season or Every 250 Hours of Operation:**

1. Inspect for worn or damaged parts. Replace all worn or damaged parts.
2. Remove oil from chain case and flush case with kerosene or diesel fuel to remove contamination. Replace oil with a good grade of clean 90 weight oil.
3. Inspect chain, sprockets, and bearings for wear. Replace worn or damaged parts.
4. Inspect universal drive line for worn or damaged parts. Replace worn or damaged parts.
5. Inspect blades for wear. Replace blades if worn or damaged.
6. Thoroughly inspect entire AMCO Ditcher for missing, worn, or damaged parts. Repair or replace these parts during the "off-season" to assure dependable, trouble-free performance during the season of use.

## SERVICE CHECKPOINTS

If it should become necessary to perform service work on your ditcher, here are some points to check. Remove the bearing eccentric lock collars by loosening against the direction of rotation of the shaft. (Clockwise on the front, counter clockwise on the rear.) These lock collars and the sprockets are held in place with set screws. The sprockets should be located with the shoulder portion flush against the inner race of both rear bearings for proper chain alignment. Locktite applied to the outside and the bore of the bearings will help prevent leaks. A drop of locktite on all set screws will prevent them from vibrating loose during operation. A gasket sealant such as Permatex on all gaskets will also help prevent leaks.



**NOTE:** To adjust idler sprocket, loosen jam nut on set screw. Turn set screw 1/8 turn clockwise (**CAUTION:** Adjustment is very sensitive. Over-tightening can cause damage to chain), hold set screw with wrench, and re-tighten jam nut.