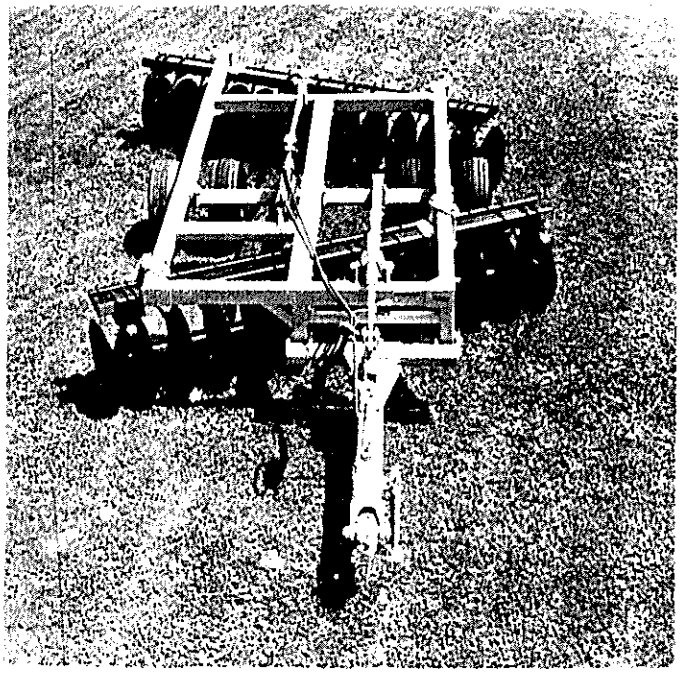
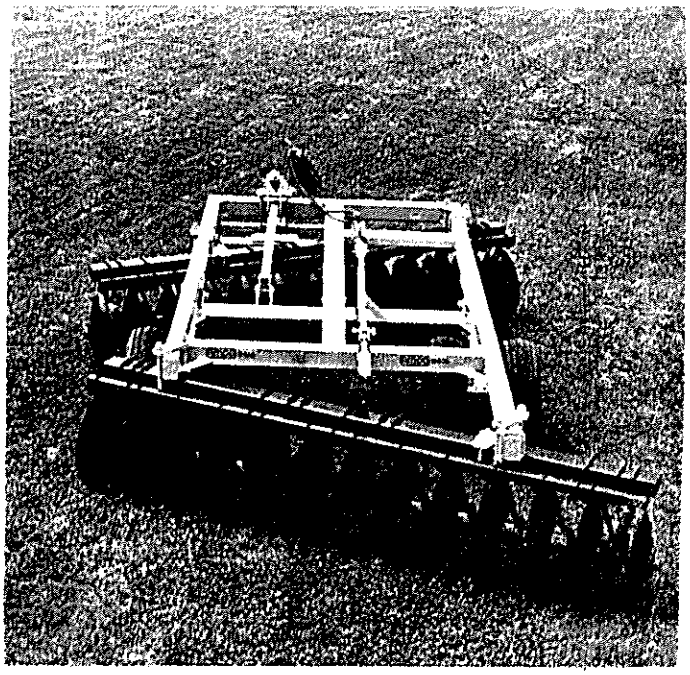
MODEL R400

WHEEL TYPE OFFSET DISK HARROWS PARTS CATALOG

OPERATION — MAINTENANCE — SET-UP INSTRUCTIONS





AMCO MANUFACTURING, INC.
Highway 3 Bypass — P. O. Box 1107 — (601) 746-4464
Yazoo City, Mississippi 39194 U.S.A.

PRINTED IN U.S.A

TO THE PURCHASER

The care you give your new AMCO Offset Disk Harrow will greatly determine the satisfaction and service you will obtain from it. By observing the instructions and suggestions in this manual, your AMCO Offset Harrow will serve you well for many years.

As an Authorized Dealer, we stock Genuine AMCO Parts, which are manufactured with the same precision and skill as the original equipment. For 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 Harrow 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 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. AMCO always strives to make improvements on equipment. AMCO is not responsible for changes or additions to equipment previously sold.

MODEL NUMBER _____ SERIAL NUMBER _____

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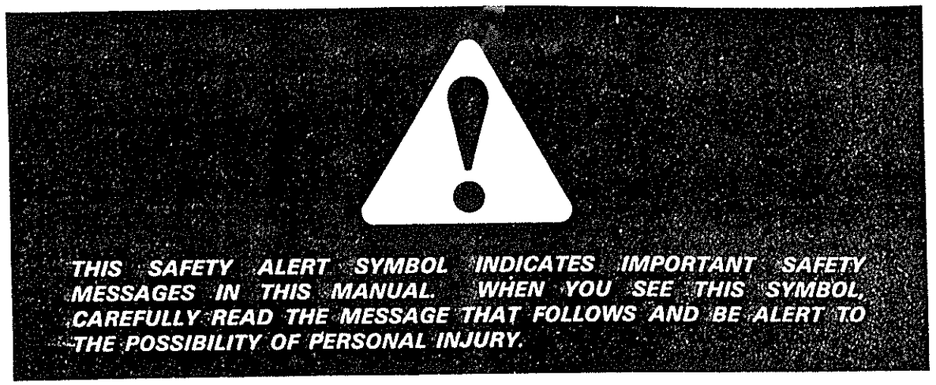


THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY.

CAUTION *Never stand between tractor and disk harrow when hitching unless all controls are in neutral and the brakes are locked.*

CAUTION *Park or block the disk harrow so it will not roll when disconnected from the tractor drawbar.*

CAUTION *When working on disk harrows, care should be exercised in handling or tightening bolts near disk blades to avoid injury.*

CAUTION *Always secure for transport by using the lock pin and wing lock pins.*

CAUTION *Never clean, adjust or lubricate a disk harrow that is in motion.*

CAUTION *Stay out from underneath wing gangs, when folding or unfolding.*

CAUTION *When transporting machinery over public roads, comply with your local and state laws regarding length, width and lighting.*

CAUTION *When trailing the harrow over public roads, the SMV Emblem must be used, for protection of tractor and motor vehicle operators.*

CAUTION *When transporting farm implements on public roads after dusk it is the responsibility of the operator to provide lighting and reflectors on the rear of the implement in accordance with your state law.*

CAUTION *All hydraulically or mechanically elevated operating components must be blocked to prevent accidental lowering or must be lowered to the ground when making adjustments or when the equipment is idle.*

WHEEL OFFSET HARROWS

MODEL "R400" (EXTRA HEAVY DUTY)

11-1/2" Spacing — *Primary Tillage*

STANDARD SPECIFICATIONS

AXLES: 1-1/2" square, high carbon cold rolled steel
BLADES: 28" x 1/4" Plain with diminishing leveling blades. Back up disc behind every blade.
SCRAPERS: Heavy duty high carbon steel blades on 3/8" x 2-1/2" spring steel shanks, mounted on scraper bars of 2-1/2" x 2-1/2" x 1/4" structural steel.
TONGUE: Adjustable, 88-1/2" long with tongue jack and reversible ductile iron clevis
GANG ANGLE: 17° to 25° front and rear
BEARING RISER: Fabricated steel
BEARINGS: Protect-O-Shield, extra heavy duty 2-11/16" bore greasable ball type, toggle mounted
SPACING: 11-1/2"
WHEELS: Dual 15 x 8 with 6 bolt hubs
WRENCHES: 2 for gang bolts
WEIGHT: 220 to 265 lbs. per blade
505 to 570 lbs. per foot
TRANSPORT WIDTH: Cutting width plus 12" plus additional 12" with feathering blades.
HYDRAULIC CYLINDERS: 4" x 8" x 1-1/2" with stroke control on 50" main frame, 4" x 16" x 2" on 86" main frame

MODEL NO.	Cutting Width	No. of Discs	No. of Bearings	Approximate Drawbar HP Required h.p. (kw)	Approximate Weight lbs. (kg.)
		50" (1.27m) MAIN FRAME			
R400-1828	8'6" (2.59m)	18	6	85-105 (63-79)	4410 (2000)
R400-2228	10'3" (3.02m)	22	8	95-120 (71-90)	5177 (2348)
		86" (2.18m) MAIN FRAME			
R400-2628	12'0" (3.66m)	26	10	120-145 (90-108)	6832 (3099)
R400-3028	13'9" (4.19m)	30	12	130-155 (97-116)	7456 (3382)
R400-3428*	15'6" (4.72m)	34	12	145-170 (108-127)	8299 (3765)
R400-3828*	17'3" (5.25m)	38	14	165-195 (123-145)	9042 (4101)

*Equipped with auxiliary frames and clamps

OPTIONAL EQUIPMENT

A-01-0014	Safety chain 5/16"	
G-20-0010	Hose set with one 1/2" x 15' and one 1/2" x 16' hose	Add 17 (7.7)
F-01-0001	Feathering blade with scraper for rear gang	Add 42 (19)
N-20-0001	15" x 10" wheels in lieu of 15" x 8" wheels	Add 6 (2.7) ea.
	Shock absorber gang risers in lieu of standard gang risers, per bearing	Add 39¾ (18) ea.
	26" x 1/4" cutout blades in lieu of standard 28"	Ded 9¼ (4.2) ea.
	26" x 1/4" plain blades in lieu of standard 28"	Ded 7¼ (3.3) ea.
	28" x 1/4" cutout blades in lieu of standard 28"	Ded 2¼ (1) ea.
	26" x 5/16" cutout blades in lieu of standard 28"	Priced and Ordered Upon Request
	26" x 5/16" plain blades in lieu of standard 28"	

RECOMMENDED TIRE SIZE
9.5L x 15 Tires, 8 Ply, on 15 x 8 Wheels
11L x 15 Tires, 8 Ply, on 15 x 10 Wheels
Note: 6 Ply Tires permissible on 13'9" and smaller

CO PL Effective August 1, 1989 — F.O.B. Yazoo City, Mississippi

SPECIFICATIONS AND PRICES SUBJECT TO CHANGE WITHOUT NOTICE

AMCO MANUFACTURING, INC.
Hwy 3 Bypass, Yazoo City, Mississippi 39194 / (601)746-4464

RM NO. 1000-8189 — PRINTED IN USA

assembly instructions

The harrow is shipped from the factory with maximum pre-assembly in the following bundles:

A. Main Frame and Rockshaft
B. Pull Tongue
C. Two gang and frame bundles with scrapers and scraper bars attached.
D. Four 15 x 8 six bolt wheels
E. Auxiliary frames on models 15'6" and larger

1. Place all bundles where they will be convenient. Arrange loose parts so they may be readily seen when needed. To insure good alignment of the units and parts, always insert all bolts leaving the nuts loose. Tighten the nuts evenly to prevent misalignment, distortion, or binding. Be sure all bolts are tight, all cotter pins properly spread and all pins properly inserted.

2. Select clean level area for assembly. Place main frame on sturdy stands at least 30" high. Place on front and rear to clear gang frames.

⚠ CAUTION *Use sturdy stands to prevent frame from falling.*

3. Attach pull tongue using holes in the main frame. Tighten bolts.

4. Attach stabilizer to the control bracket on the main frame and to the pull tongue.

5. Attach hose holder to pull tongue.

6. Attach tongue jack to pull tongue.

7. Mount the spindles and hubs on the rockshaft legs. Insert proper bolts and tighten. Refer to page 7 for proper torque.

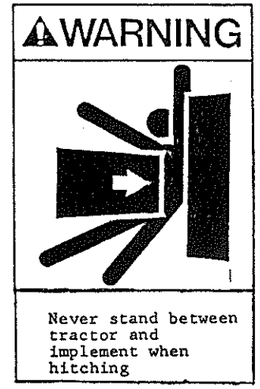
8. Mount tires and tubes on 15 x 8 wheels. Inflate tires. 9.5L x 15 or 11L x 15 six ply tires are recommended. Bolt the wheels to the hubs. Tighten hub bolts evenly to assure wheel alignment.

9. Install a 4 x 8 or 4 x 16 hydraulic cylinder to the harrow. Connect hydraulic hoses from the cylinder to the tractor. Attach the clevis to the drawbar.

10. Raise the harrow up on the wheels by activating the hydraulic cylinder.

11. Remove gang clamp plates and gang frame clamps from the main frame. Attach the gang assemblies to the main frame. Secure them with clamp plates and gang frame clamps. The convex end of the gang frame clamps should be placed behind the rod of the clamp plates on the right hand side of the harrow. Some of the larger models will also have gang frame clamps attached to the gang frame. The convex end should face the main frame. One should be placed on the right front gang frame against the outside of the main frame. The other on the right rear gang on the inside of the main frame. Refer to the drawing on page for correct placement of all gang clamps.

12. Tighten bolts snug but not tight. For proper placement of the gang frame on the main frame, refer to the charts and drawings beginning with page 6 .

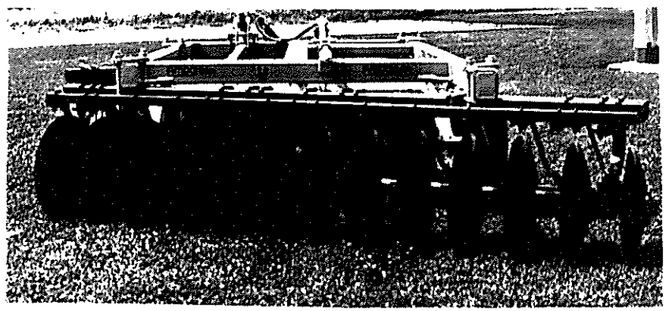


13. On models 15'6" and up, attach the two auxiliary frames to the gang frames.

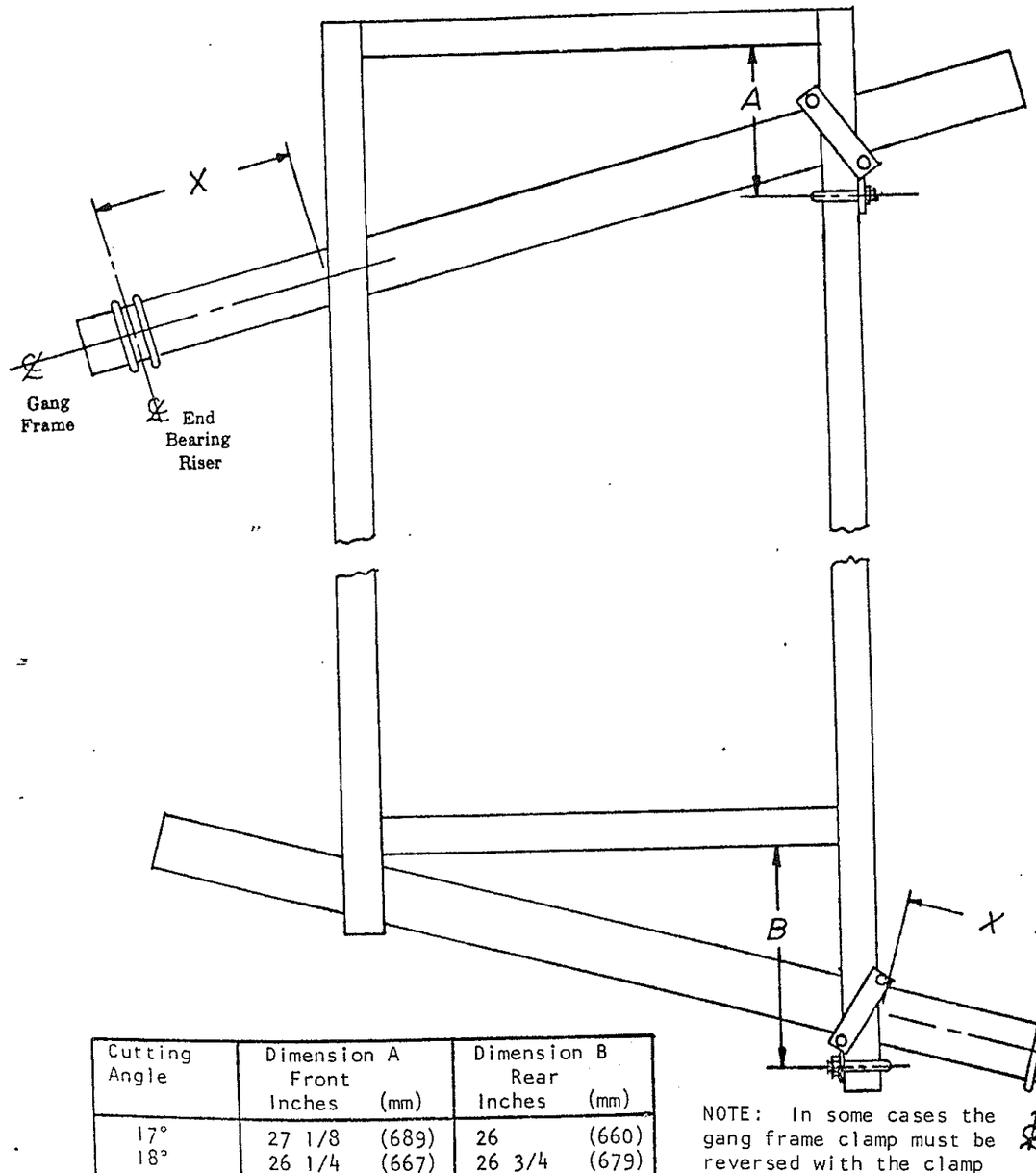
14. Check and tighten all bolts. Be sure all cotter pins are properly spread and all pins in place. Check the gangs to see that they rotate freely.

15. Be sure that the harrow is properly lubricated.

16. Adjust the harrow for front to rear leveling.



50" MAIN FRAME

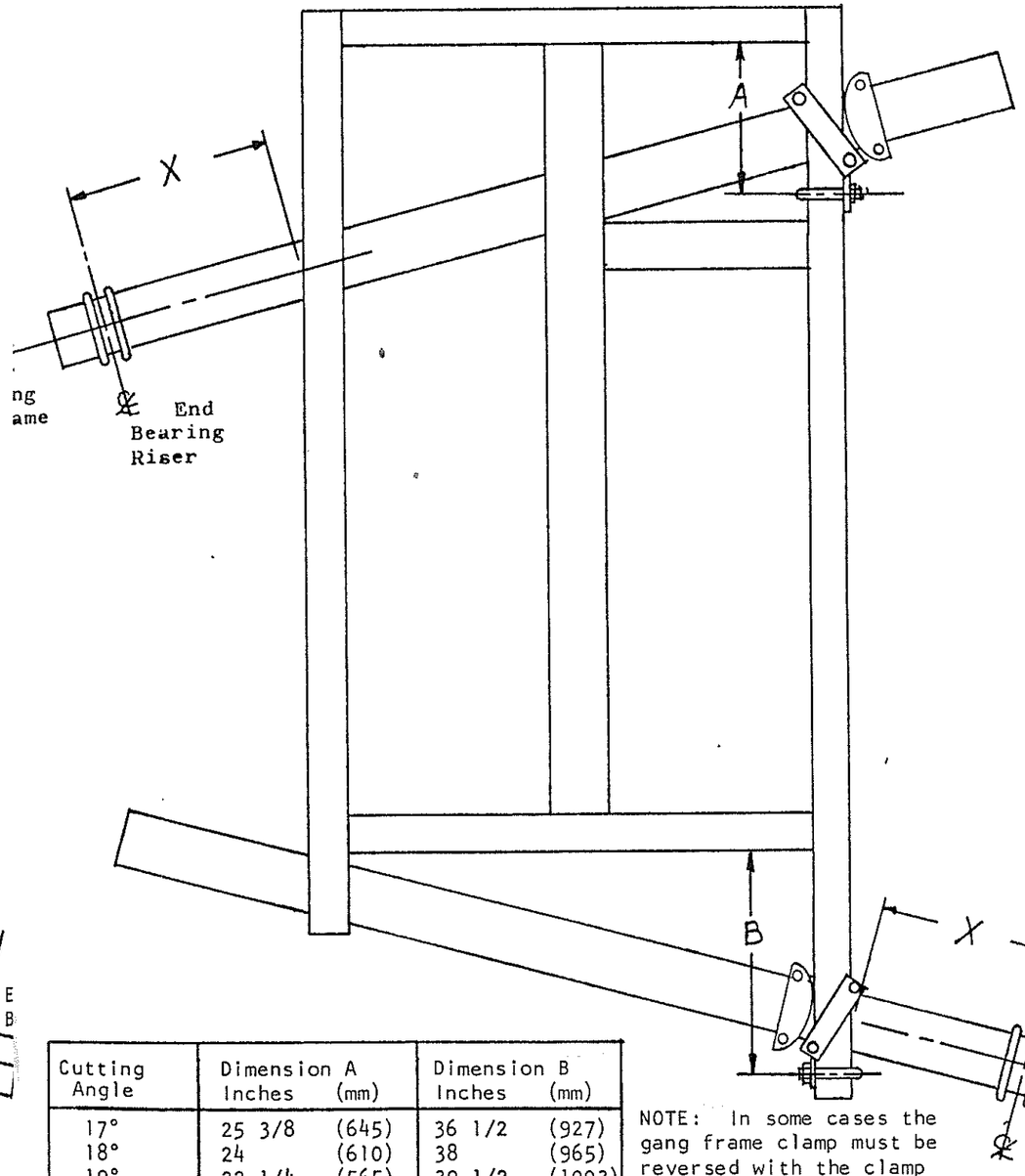


Cutting Angle	Dimension A Front Inches	(mm)	Dimension B Rear Inches	(mm)
17°	27 1/8	(689)	26	(660)
18°	26 1/4	(667)	26 3/4	(679)
19°	25 3/8	(645)	27 1/2	(699)
20°	24 1/2	(622)	28 1/4	(718)
21°	23 1/2	(597)	29 1/4	(743)
22°	22 5/8	(575)	30	(762)
23°	21 3/4	(552)	31	(787)
24°	20 3/4	(527)	32	(813)
25°	19 7/8	(505)	33	(838)

NOTE: In some cases the gang frame clamp must be reversed with the clamp pressed against the gang frame on the outside of the main frame.

Note: Cutting angle dimensions are approximately only

86" MAIN FRAME



Cutting Angle	Dimension A Inches	(mm)	Dimension B Inches	(mm)
17°	25 3/8	(645)	36 1/2	(927)
18°	24	(610)	38	(965)
19°	22 1/4	(565)	39 1/2	(1003)
20°	20 3/4	(527)	41	(1041)
21°	19	(483)	42 1/2	(1080)
22°	17 1/2	(445)	44	(1118)
23°	15 3/4	(400)	45 3/4	(1162)
24°	14	(356)	47	(1194)
25°	12 5/8	(314)	48 3/4	(1238)

NOTE: In some cases the gang frame clamp must be reversed with the clamp pressed against the gang frame on the outside of the main frame.

Note: Cutting angle dimensions are approximate only.

GANG PLACEMENT CHART

MODEL	DIMENSION (X) INCHES	(mm)
R400 - 18 Blade	21 3/16	(538)
R400 - 22 Blade	32 7/8	(835)
R400 - 26 Blade	26 9/16	(674)
R400 - 30 Blade	38 1/4	(971)
R400 - 34 Blade	49 15/16	(1268)
R400 - 38 Blade	61 5/8	(1565)

Dimension "X" is measured from the outside of the Main Frame along the Center Line of the Gang Frame to the Center of the End Bearing Riser.

lubrication

Careful and regular attention to lubrication will greatly increase the life of the harrow. For economical and efficient operation, the proper lubrication of frame fittings, gang bearings, and wheel bearings is essential.

Be sure fittings are free of dirt before greasing. If a fitting is lost or damaged, replace it immediately. Lubricate all parts thoroughly with a good grade No. 2 gun grease (Lithuim base).

Miscellaneous working parts not provided with lubrication fittings should be oiled occasionally with a good grade of lubrication oil.

Rockshaft Pivot Pins: High carbon steel pins with a grease fitting in each, join each rockshaft to the main frame. These pins (2) should be greased each week or fifty (50) hours of operation. Pivot pins should also be greased at the beginning and end of each disking season. Bushings should be checked each season and replaced when worn.

Turnbuckle and Stabilizer Rod: The tongue turnbuckle and the swivel on the stabilizer rod should be greased every 50 hours of operation and at the beginning and end of each disking season.

Gang Bearings: The AMCO R300 Disk Harrow gangs are equipped with regreasable Protect-O-Shield ball bearings. The grease fitting is located on the rear of each bearing housing. During operation they should be greased daily with a good grade of lithuim soap base grease. Never use greases which contain metallic additives. Always make sure that grease is clean and not comtaminated with dirt or other foreign matter. Apply grease until old or dirty grease is purged from the bearings. Protect-O-Shield bearings should be greased until grease "pops" out around the bearing. All bearings should be greased at the beginning and end of each disking season. To protect the seals from the elements raise the harrow on its wheels and slowly spin the gangs so the grease wraps around the seals.

Dial-A-Depth: The dial-a-depth located on the end of the depth gauge rod should be greased every 50 hours of operation. Also, at the beginning and end of each disking season.

Wheel Hub Bearing: The wheel hubs are equipped with tapered roller bearings. These hubs are packed with grease and adjusted at the factory. They should be repacked and the spindle nut properly adjusted each disking season or every 300 hours of operation. Under extreme conditions, they should be serviced more frequently. Check occasionally for excessive end play. Adjust as required to eliminate excessive end play.

operating instructions

Your new AMCO offset disk harrow has been set-up, inspected, and adjusted by your dealer before delivery. However, before using your new harrow, or one that has been stored, check to make certain that all nuts and bolts are tight, all cotter pins spread and that the harrow has been lubricated.

This instruction manual should be carefully and thoroughly read to enable the operator to care for and operate the harrow.

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.

Refer to your tractor operator's manual for complete tractor operating instructions.

ADJUSTMENT FOR LEVEL DISKING: It is recommended that the tractor be operated at a speed best suited for soil conditions. High-speed disking may require different adjustment than disking at normal speeds. Under some conditions high speeds may cause "ridging" or "furrowing."

When disking in a cover crop or where the land is to be reworked, an uneven surface is not objectionable. If the land is to be bare through the winter, furrows and ridges will reduce soil washing, and will help catch and hold moisture, resulting in more water being absorbed by the soil.

FEATHERING BLADES: The use of feathering blades with smaller disks will move the excess soil back which is thrown out by the front gangs at high speeds. By using the feathering blades, the outside furrows are partially filled, giving a more uniform job of disking.

GROUND SPEED AND ADJUSTMENTS. Where it is necessary to have a level job of disking, the following factors must be taken into consideration: (1) Tractor Speed (2) Hitch Adjustment (3) Disk Gang Angle Adjustment.

TRACTOR DRAWBAR: It is suggested that the tractor drawbar be set so it is free to swing when disking. This will prevent side draft, making operation of the harrow easier. The tractor drawbar will pull somewhat to the left side during operation.

HARROW HITCH: The harrow pull tongue can be offset to the right or left by using the set of holes in the cross tongue plates to obtain the desired offset.

TRANSPORT PIN

When transporting the disk harrow, always lock it in transport position with the transport pin. If the hydraulic cylinder is to be removed from the disk harrow, the transport pin should be installed before attempting to remove the cylinder.

SPRING LOADED STABILIZER

Penetration of front and rear gangs may vary. The Spring loaded stabilizer may be adjusted to level the harrow front to rear. In extremely hard ground it may be necessary to shorten the stabilizer to force the front or penetrating gang into the ground. In normal conditions, the stabilizer should be adjusted so that the disk harrow is level front to rear while disking. The stabilizer may also be adjusted to level the unit for transport.

The type of work to be done by the harrow will determine the type of adjustments to be made.

Observe the harrow while it is working and check if the dead furrow is being filled and the ground left level. If not, an adjustment will have to be made.

If the blade of the rear gang is being "starved" for soil, move the gang slightly to the left or decrease the rear gang cutting angle.

Changing the angle between the gangs will affect the penetration of the harrow. The wider the angle, the deeper the harrow will cut.

There are many factors which affect the way in which the soil will flow. Some factors are: moisture content of the soil, type of soil, speed of the tractor, depth of penetration, and working angle between the gangs. If any one of the conditions change, there will be a change in the resulting disking job.

To check the quality of disking being done, make one complete round and pass the points where the observation was made.

DISK GANG ANGLE

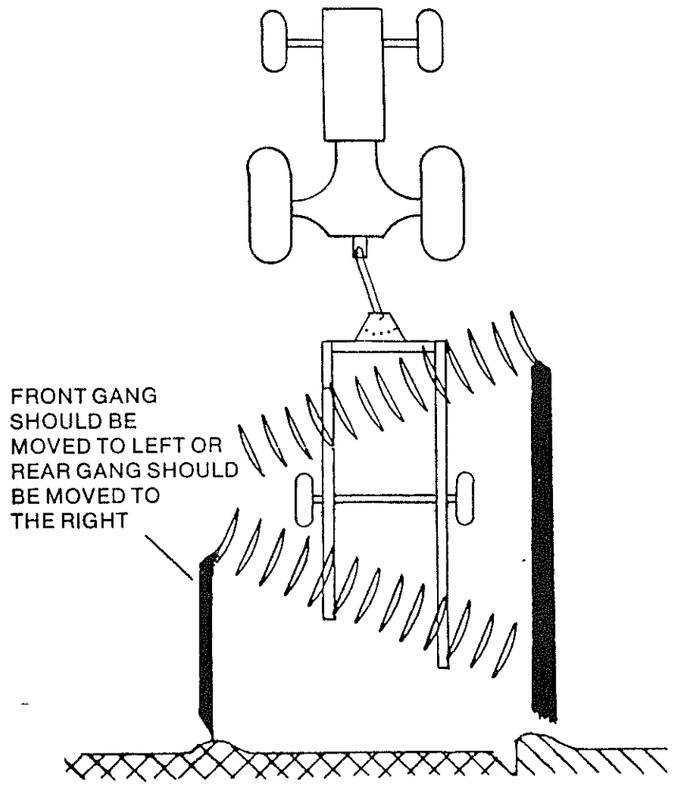
The gangs may be set at cutting angles from 17 degrees to 25 degrees depending on soil conditions and job to be done. When conditions are near normal, a setting some where between the two extremes is advisable for best operation. The front gang angle can be increased by moving the gang forward. Moving the gang rearward will decrease the gang angle. Moving the rear gang forward will decrease the rear gang angle. Moving the rear gang to the rear will increase the rear gang cutting angle. See tables on pages 6, 7, & 8 for setting a desired gang angle. Be sure to reposition gang frame clamps when making an angle change.

OFFSETTING THE HARROW

The harrow drawbar may be adjusted so the left tractor wheel can be run in the furrow if that is desirable. Or the left hand tractor wheel may be operated to the right of this furrow, on uncut ground, by making a compensating adjustment on the harrow drawbar. The fields may be laid out so right turns are made by lifting the harrow out of the ground before making the turn.

When the harrow is adjusted so it disks in an extreme left offset position, the front gang will assume a much greater angle (with respect to forward travel) than the rear gang. The rear gang will have a relatively small angle with respec to forward travel.

The small angle of the rear gang makes it more difficult to fill the dead furrow, but the condition can be corrected by using a rear gang adjustment. Usually, the rear gang will have to be shifted to the left.



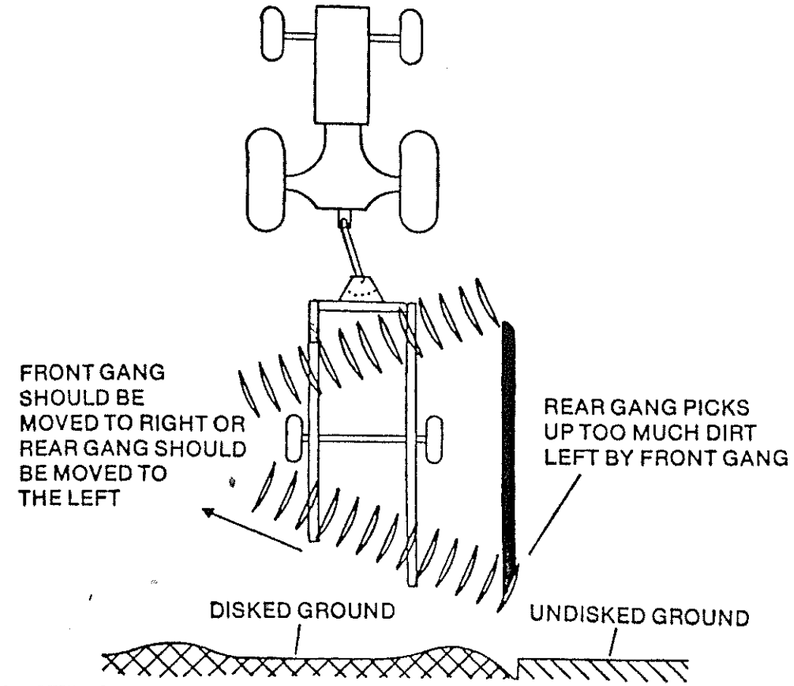
THIS SETTING LEAVES GROUND UNLEVEL.
TO CORRECT - MOVE FRONT GANG TO
LEFT OR MOVE REAR GANG TO THE RIGHT

In general when making a left offset, attempt to keep the amount of offset as small as possible.

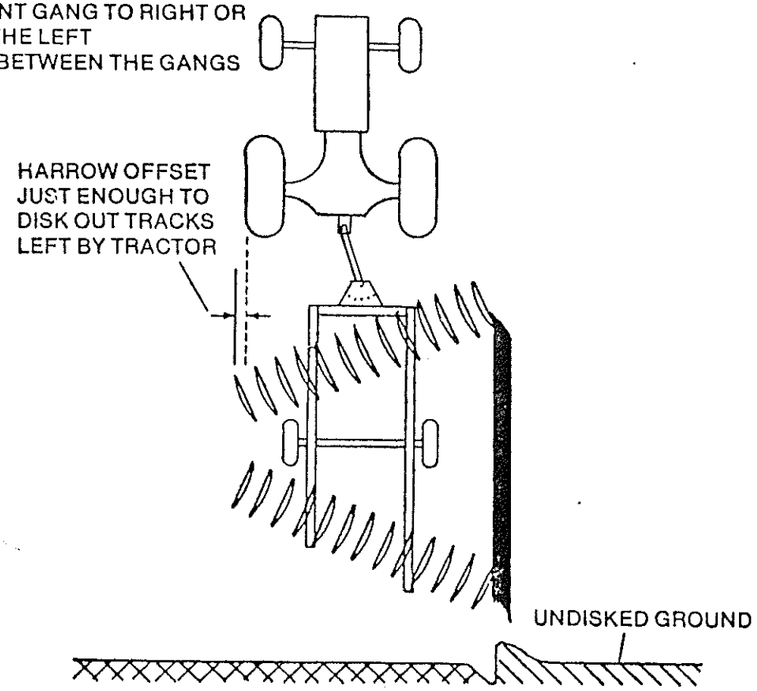
The following points are important to remember when offsetting the harrow:

Offsetting to the left increases the angle of the front gang and decreases the angle of the rear gang.

Offsetting to the right decreases the angle of the front gang and increases the angle of the rear gang.



THIS SETTING LEAVES GROUND UNLEVEL.
TO CORRECT - MOVE FRONT GANG TO RIGHT OR
MOVE REAR GANG TO THE LEFT
INCREASE THE ANGLE BETWEEN THE GANGS



THIS IS CORRECT SETTING FOR LEVEL DISKING

HYDRAULIC CYLINDER

Attach the rod end of the cylinder to the rockshaft lift arm and the butt end of the cylinder to the main frame. A heavy duty ASAE 4 x 8 hydraulic cylinder is recommended for raising and lowering the disk harrow. On larger harrows weighing over 6500 pounds, a heavy duty ASAE 4 x 16 hydraulic cylinder is recommended. A separate set of holes is located on the rockshaft lift arm and the 86" frame for installing this 4 x 16 cylinder.

STORAGE

Proper storage will add to the life of your disk harrow, and assure its being in good condition for the next season. The following procedure is recommended:

Clean off all foreign matter and lubricate the harrow.
Repaint the harrow where the original paint has worn off.
Coat the disk blades with a rust preventive.
Tighten all loose bolts and replace any damaged or missing parts.
All hydraulic cylinder rods should be fully retracted or coated with rust preventive to prevent rusting in storage.

WARNING REFLECTORS

AMCO harrows are equipped with reflective tape on the front and rear of your harrow. Regularly wipe these reflectors clean. Replacement reflectors can be purchased from your authorized AMCO dealer.

SMV EMBLEM

The SMV (Slow Moving Vehicle) Emblem is recommended attachment that should be added to your harrow. Check your state and local laws regarding placement of the SMV Emblem. The SMV Emblem and warning reflectors can be purchased from your authorized dealer.

WARNING LAMP

A warning lamp to be mounted on the extreme left hand rear of the harrow is available at your local AMCO dealer.

CAUTION *When trailing the harrow over public roads, the SMV Emblem must be used, for protection of tractor and motor vehicle operators.*

CAUTION *When transporting farm implements on public roads after dusk it is the responsibility of the operator to provide lighting and reflectors on the rear of the implement in accordance with your state law.*

SAFETY CHAIN

A transport safety chain must be attached between the disk harrow pull tongue and the tractor to prevent separation in case of accidental loss or failure of the drawbar pin. The chain must be of adequate strength, be attached securely at each end and pass through a shackle located within 6 inches of the drawbar pin. Mounting brackets are standard equipment on the pull tongue. AMCO chain which meets ASAE standards for towed implements can be purchased as optional equipment from your authorized AMCO Dealer.

operating tips

OPERATING TIPS FOR LONG LIFE AND SATISFACTORY PERFORMANCE

1. Match the harrow with the proper size tractor. Too much horsepower and speed will result in excessive maintenance cost.
2. Lubricate with clean grease at the recommended intervals.
3. Use good quality tires, hoses, and hydraulic cylinders.
4. Use the tongue adjusting rod, proper cutting depth, and travel speed to get level disking and smooth fields.
5. Wash corrosive materials such as fertilizer and herbicides from the disk when it is not in use.
6. Insist on genuine AMCO replacement parts. Items such as bearings and blades look alike but are not as reliable as original equipment.
7. Never allow unsafe conditions or operating practices. Your safety is of prime importance.
8. Raise the disk harrow on its transport wheels when turning. Failure to do so will result in broken blades, bent axles, and excessive strain on the tongue and main frame.
9. Reduce operating speed in areas containing stumps or rocks to reduce blade breakage.

CAUTION *Hydraulic systems are highly pressurized. Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues causing serious injury. Use a piece of wood or cardboard when looking for leaks—never use the hands or other parts of the body.*

Relieve hydraulic pressure before disconnecting circuits. When reassembling, make absolutely certain that all connections are tight.

If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious infection or reaction may occur if medical attention is not given at once.

maintenance

1. Keep all bolts tight.

   A. Check before placing in service.

   B. Visually inspect all bolts daily.

   C. Check after first 50 hours or one week's operation.

   D. Check each season.

2. Do not run with loose disk blades. Keep gang bolts tight! Tighten gang bolts to 1200 ft./lbs. of torque.

3. Grease gang bearings and rockshaft retainer pins every week or 50 hours, at the start of each season, and at the end of each season. Apply with low pressure, low volume hand grease gun. Use a good No. 2 gun grease (Lithium Base). Rotate gangs while greasing for best results.

CAUTION! Use care to prevent damage to seals.

4. Disk Blade, Bearing, and Spool Replacement

   A. Remove the nuts that hold the gang bearing housing trunnion clamps.

   B. Remove clamps.

   C. Raise the harrow and roll the gang away from the frame.

   D. Remove the gang nut lock plate.

   E. Remove the gang hex nut from the end of the shaft.

   F. Slide off the bearing spools, spacers, and blades.

   G. Avoid thread damage.

   H. Tear the entire gang down and clean all parts. Check disk axle for straightness. Bowed, bent or worn axles must be replaced.

   I. Check spacer spools for damage caused by running disk with loose gangs or hitting underground obstructions. Replace spool if it is damaged.

   J. Carefully check all end bells. The large end must contact the disk blade around the entire circumference of the end bell. The small end must be smooth and perpendicular to the axle. The end bells must be replaced if they are cracked or worn on the surface adjacent to the bearing.

   K. Check all the bearings on the gang. Running a harrow for one hour or more after bearing failure will seriously damage other bearings on the gang. This damaged bearing will then fail within a few hours after the failed bearing has been replaced. Continued operation with this failed bearing will damage the new bearing thus it will fail after a few hours of use. In most cases it will be best to replace all bearings on a gan when it is torn down for repairs. A triple lip sealed bearing should always be used for bearing replacement. Also, a regreasable type beari

   L. To replace the bearing, the snap ring must be removed. The old bearing should be pressed out of the housing. Clean and wash out old grease and carefully check the housing. Replace the housing if it is damaged. Press the new bearing straight into the housing. Always press against the outer race of the bearing. NEVER press against the seal or inner race of the bearing. Check location of the grease hole in the outer race of the bearing. This hole must align with the grease groove in the bearing housing. Rotate the bearing in the housing after it is pressed in to be sure it turns freely. Install the snap ring in the housing.

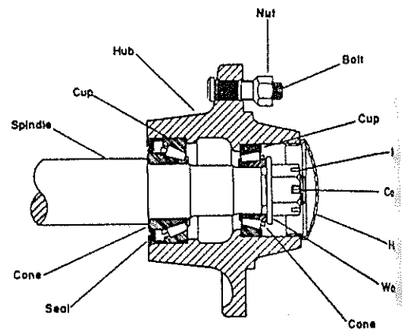
   M. After cleaning, checking and replacing all damaged parts, the gang should be assembled. Be sure the grease fittings in the bearing housings face to the rear. Be sure the snap ring in the bearing housing is turned toward the convex (back) side of the disk blade. The 1 1/2" square gang bolt nut should be torqued to 1200 FT./LBS.. The axle nut should be locked in place with the lock strap.

   N. After the gang is assembled it should be attached to the harrow. The bearing risers should be carefully spaced to match the bearing housings. Poorly spaced bearing risers will overload the bearings and cause premature failure. The gang should be rotated 4 or 5 complete revolutions to be sure that all parts are aligned and the gang turns freely.

   O. The bearings should be greased each week or every 50 hours of use with a good grade of clean, number 2, lithium soap base grease. Use of dirty grease or a grease with metal additives will reduce bearing life. Protect-O-Shield bearings should be greased until grease "pops" out around the bearings. The bearing will thus be purged of any dirt or foreign matter. The Protect-O-Shield prevents any possibility of blown seals.

It is essential that gang bolts be kept tight to prevent axle bending, blade breakage, spacer spool breakage and damage to other gang parts. Gang parts tend to wear on a bevel when the harrow is operated with a loose gang bolt. This reduces the area of contact between mating gang parts. Therefore, it is often difficult to keep a gang bolt tight if it has been operated in a loose condition. After such a gang bolt has been properly torqued it should be retorqued after about 30 minutes of operation, again after 4 or 5 hours of operation and again after 8 to 10 hours of use. This will assure that proper gang bolt tension is maintained while the mating components are re-seating. If the gang bolt will not stay tight, the gang should be completely disassembled and all parts carefully inspected. All damaged parts should be replaced before reassembling the gang.

5. WHEEL BEARINGS
The wheel hubs are equipped with tapered roller bearings. These hubs are packed with grease adjusted at the factory. They should be repacked and the spindle nut properly adjusted each season or every 300 hours of operation. Use a good grade No. 2 grease (Lithium Base).



Wheel bearings should be repacked with grease and adjusted annually. Under extreme conditions, they should be serviced more frequently. Check occasio for excessive end play. Adjust as required to eliminate excessive end play

To disassemble the hub, remove the wheel, then remove the dust cap by pryin around it. Remove the cotter pin, slotted nut and flat washer. Carefully remove the hub and bearings from the spindle. Thoroughly clean and careful inspect all parts for wear. All parts that appear to be worn or damaged mu be replaced.

Use the following procedure when repairing or servicing wheel hubs:

A. Clean all parts that are to be re-used.

B. Carefully inspect the metal case on the grease seal. Discard the seal if the case is bent or damaged. Check seal lips for cuts, tears or excessive wear. Seal must fit snugly on extended inner race of bearing

C. Carefully inspect both sets of bearing cones. Bearing bore and rollers must be smooth and free of nicks and scratches. Replace cones if damaged.

D. Inspect hub to make sure that the bolt holes have a full thread. Bearing cones must be smooth and free of surface blemishes. Cups must be removed from the hub and replaced if damaged. Cups should be fully pressed into the hub and rest squarely against the shoulder inside the hub. Hub cap and grease seal should fit snugly inside the hub. Severely damaged hub should be replaced.

E. Threads on spindle must be in good condition. Bearing cone seats must smooth and free of blemishes. Bearing cones must fit squarely on the s

F. Flat washer, slotted nut, cotter pin and hub cap must be in good condit Replace if worn or damaged.

G. To reassemble the hub, repack each bearing cone with grease and fill th cavity 1/3 full of grease. Place inner bearing assembly in hub, press seal into hub and carefully re-install the hub on the spindle. Install outer bearing assembly into the hub and replace the flat washer and slo nut. Tighten the slotted nut to seat the bearings, until the hub binds rotated.

H. Back the slotted nut off to the nearest slot. Rotate the hub five or six revolutions in each direction to seat all parts. Re-tighten the slotted nut while rotating the hub. When hub binds, back the nut off to the nearest slot and install the cotter pin. Install the hub cap and re-mount the wheel on the hub.

6. SCRAPER BAR: Bent scraper bars or shanks should be replaced or straightened if possible. The blades can be replaced when they wear to the extent they are not performing properly. Keep the blades adjusted from 1/16" to 1/8" from the disk blades. The scrapers can be adjusted by loosening the mount bolt and sliding the scraper to the proper position then tightening the mount bolt. Additional adjustment can be obtained by loosening the scraper bar mount bolts and shifting the entire scraper bar. Do no allow the scraper blades to run on the spools as immediate damage to spool will occur.

7. ROCKSHAFT PIVOT PIN REPAIR: The rockshafts are equipped with replaceable, regreasable bronze bushings. If properly lubricated they should last for several seasons. The bushings should be checked each disking season. Damaged parts will damage other parts.

8. HYDRAULIC CYLINDER REPAIR:

A. Remove hoses and fittings from cylinder.

B. Remove cylinder from harrow and clean outside of cylinder.

C. Dis-assemble cylinder by removing the rods and nut from end of cylinder rod. Slip piston and gland off cylinder rod.

D. Carefully clean and inspect all parts for wear or damage. Small nicks, scratches or blemishes on rod and inside of barrel should be smoothed with fine steel wool or emory cloth. Replace parts that cannot be repaired.

E. Remove all "O" Rings from piston and gland. Replace all seals with new parts.

F. Assemble cylinder using care to prevent damage to "O" Rings and Seals.

G. Replace cylinder on harrow and attach hoses. Check cylinder for leaks.

GENERAL TORQUE SPECIFICATION TABLE

ALL BOLTS SHOULD BE TIGHTENED TO THE
RECOMMENDED TORQUES SHOWN IN THE
"GENERAL TORQUE SPECIFICATION TABLE"

GENERAL TORQUE SPECIFICATION TABLE

USE THE FOLLOWING TORQUES WHEN SPECIAL TORQUES ARE NOT GIVEN

Note: These values apply to fasteners as received from supplier, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly-disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads.

SAE Grade No	2		5		8 *	
Bolt head identification marks as per grade NOTE: Manufacturing Marks Will Vary						
Bolt Size	Torque Foot Pounds		Torque Foot Pounds		Torque Foot Pounds	
Inches	Millimeters	Min	Max	Min	Max	Min	Max
1/4	6.35	5	6	9	11	12	15
5/16	7.94	10	12	17	20.5	24	29
3/8	9.53	20	23	35	42	45	54
7/16	11.11	30	35	54	64	70	84
1/2	12.70	45	52	80	96	110	132
9/16	14.29	65	75	110	132	160	192
5/8	15.88	95	105	150	180	220	264
3/4	19.05	150	185	270	324	380	456
7/8	22.23	160	200	400	480	600	720
1	25.40	250	300	580	696	900	1080
1-1/8	25.58			800	880	1280	1440
1-1/4	31.75			1120	1240	1820	2000
1-3/8	34.93			1460	1680	2380	2720
1-1/2	38.10			1940	2200	3160	3560

* Thick nuts must be used with Grade 8 bolts

MOST OFTEN ENCOUNTERED DISK BLADE FAILURES

Most disk blade failures can be prevented by selecting the correct blade size and thickness for individual conditions when buying a disk. Reduction of speed in areas containing rocks and stumps will greatly lengthen the blade life. Keeping gang bolts properly torqued and raising the harrow while turning will also reduce disk blade breakage.

FIGURE 1 — Laminated Disc—defective steel. Eligible for warranty consideration.

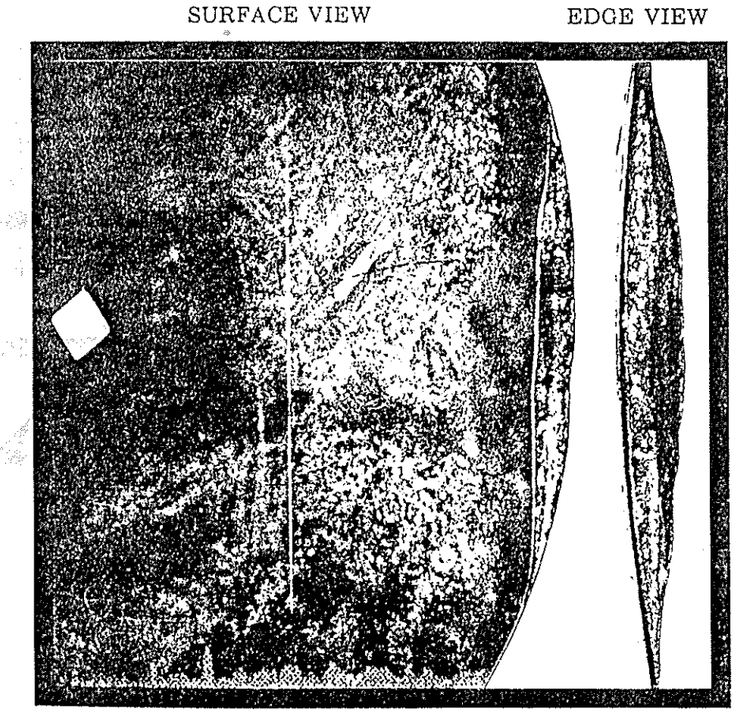
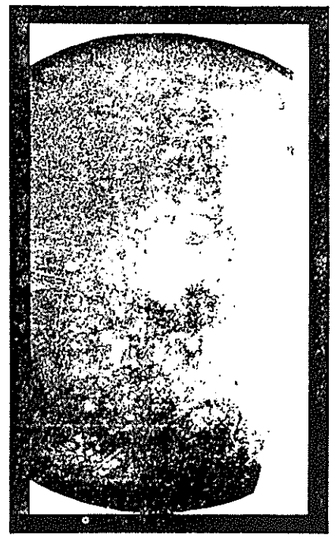


FIGURE 2 — Straight directional break caused by defective steel. Eligible for warranty consideration.



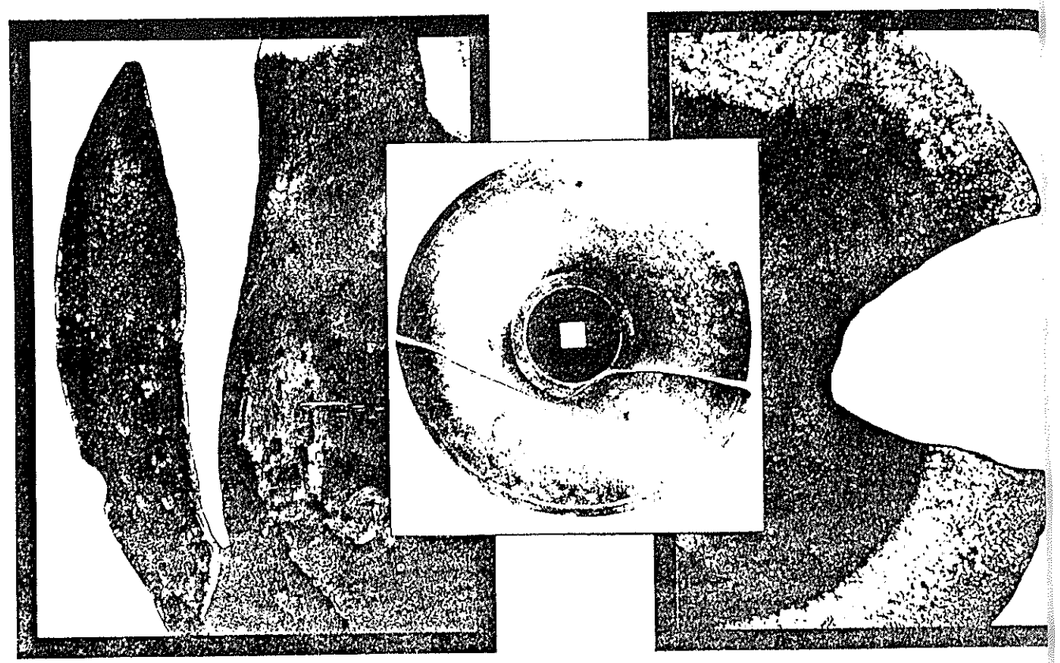


FIGURE 3, 4, 5 — Irregular breaks caused by contact against rocks or stumps. Not covered by warrant

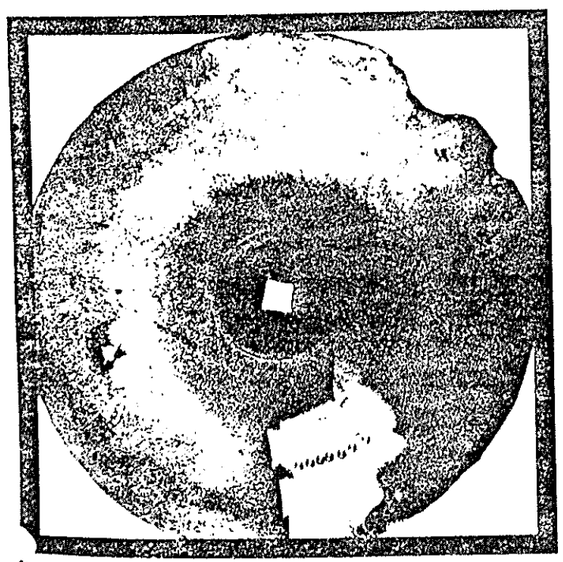
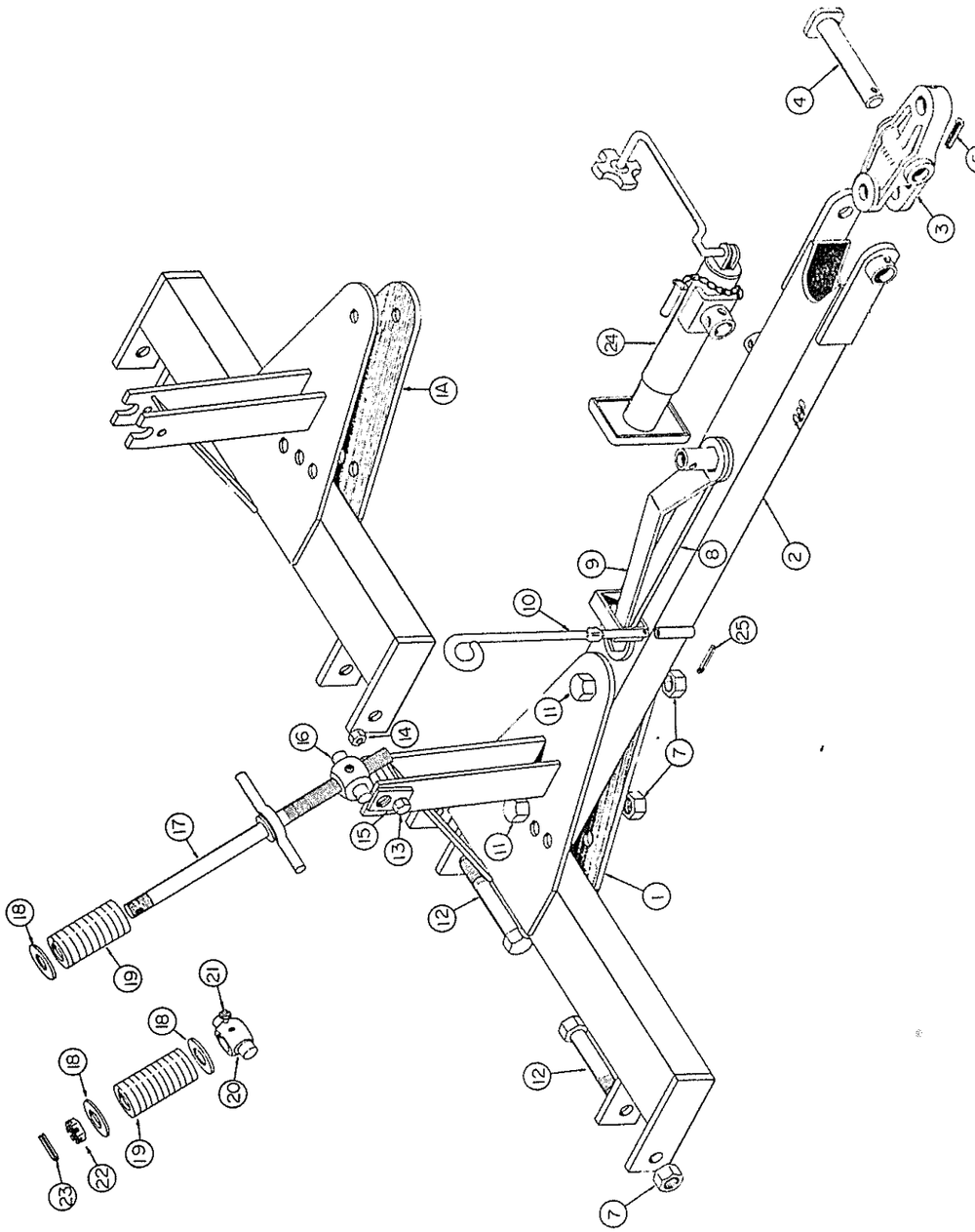


FIGURE 6 — Chipped or dented edges resulting from use in areas containing rocks or stumps. Not covered by warranty.

FIGURE 7 — Center broken out—Experience has s that this is usually caused by loose bolts, excessive fle or by contact with rocks and stumps. Not covere warranty.

PARTS LISTS

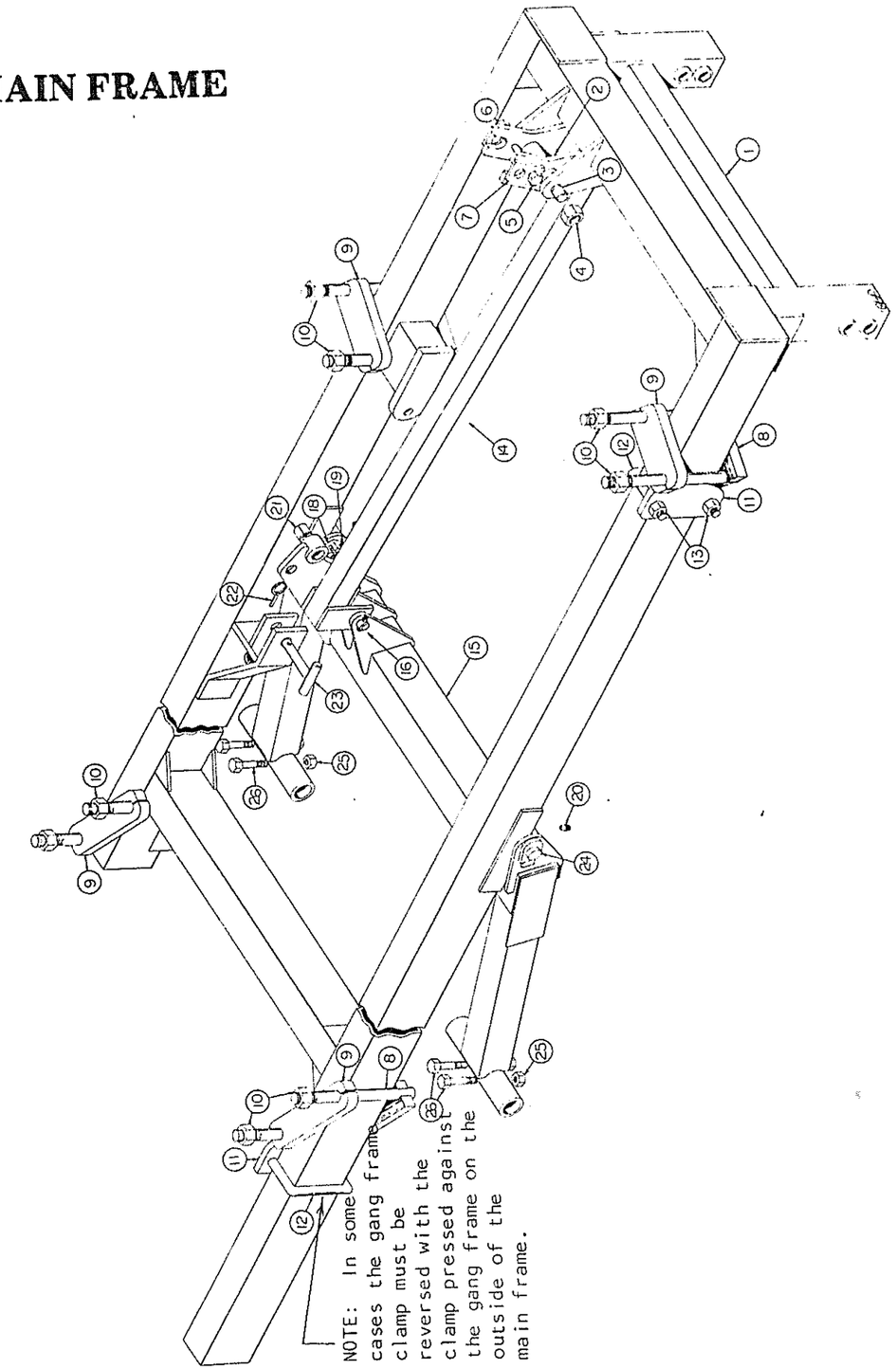
PULL TONGUE



AMCO R400
DISK HARROW
PULL TONGUE

REF. NO.	PART NO.	DESCRIPTION	NO. REQ'D.
1	20038	Assy. Cross Tongue (for 50" Main Frames)	1
1A	20031	Assy. Cross Tongue (for 86" Main Frames)	1
2	20034A	Assy. Pull Tongue	1
3	16001	Clevis - Ductile Iron	1
4	20245	Assy. Clevis Pin	1
5	11360	Roll Pin 1/2 x 3	1
7	10397	Lock Nut 1 1/4 NC, PL	4
8	100136	Nut Wrench (fits Hex Nut 1 3/8" & 1 1/2")	1
9	100134	Nut Wrench (fits Hex Nut 1 1/2")	1
10	100061	Hose Holder	1
11	10867	Hex Bolt 1 1/4 x 6 1/2 NC, PL	2
12	11037	Hex Bolt 1 1/4 x 8 NC, PL	2
13	10067	Hex Bolt 5/8 x 5 1/2 NC, PL	1
14	10299	Lock Nut 5/8 NC, PL	1
15	9628	Clamp Trunnion	2
16	9919A	Stabilizer Swivel	1
17	20108	Assy. Stabilizer Rod	1
18	10872	Cut Washer 1 3/8" PL	3
19	10460	Spring	2
20	9892	Swivel	1
21	10606	Grease Fitting 1/8 NPT Threaded	2
22	11279	Hex Nut 1 3/8 NC Slotted	1
23	10910	Roll Pin	1
24	11261	Parking Jack	1
25	10075	Cotter Pin	1

50" MAIN FRAME

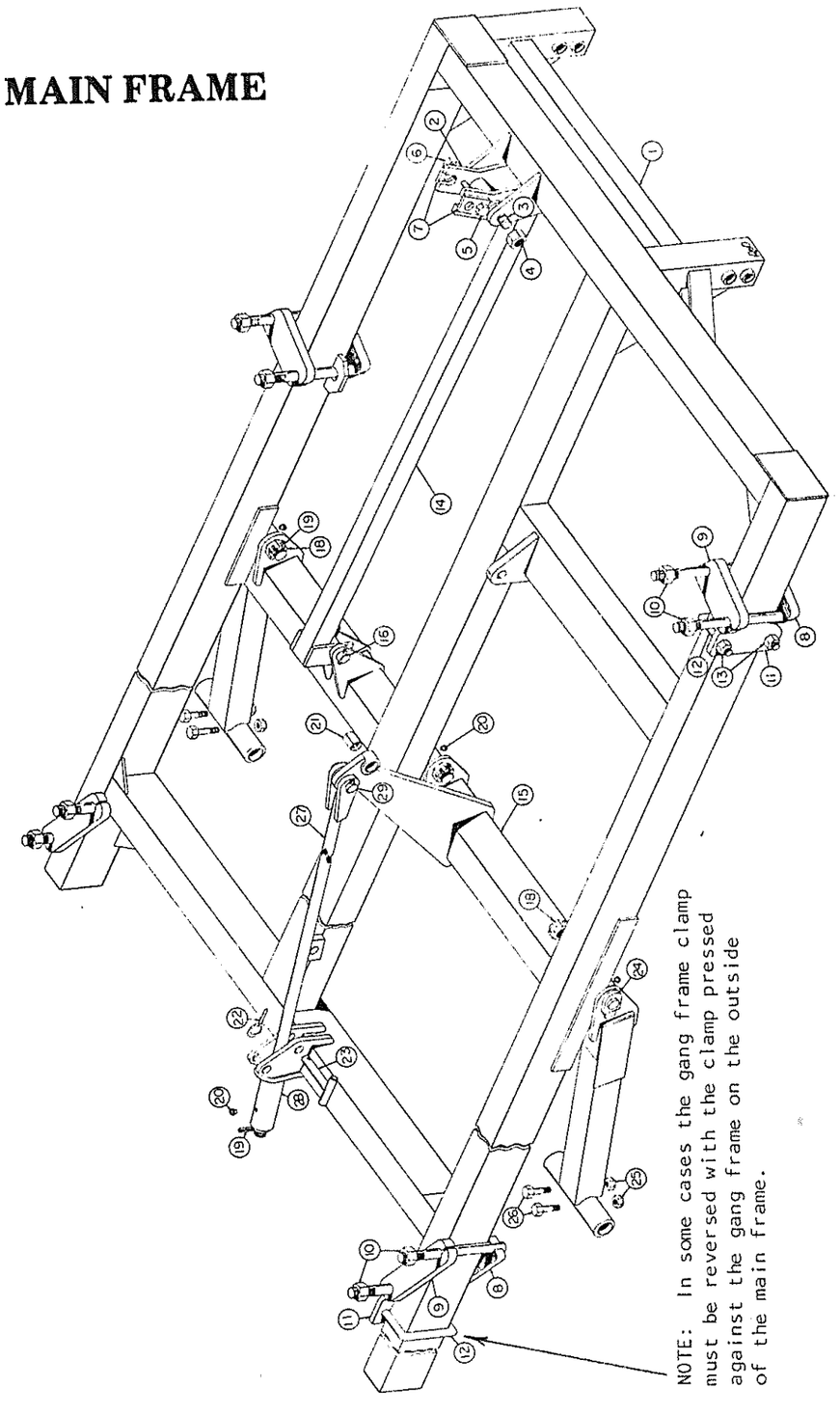


NOTE: In some cases the gang frame clamp must be reversed with the clamp pressed against the gang frame on the outside of the main frame.

AMCO R400
50" MAIN FRAME & ROCKSHAFT

NO.	PART NO.	DESCRIPTION	NO. REQ'D.
	20039	Assy. Main Frame	1
	20032	Assy. Pivot Bracket	1
	20136	Assy. Pin 10 1/4 Long 1 1/4 Dia	1
	10397	Lock Nut 1 1/4" NC, PL	1
	10043	Hex Bolt 5/8 x 6 1/2	1
	10299	Lock Nut 5/8 NC, PL	1
	9628	Clamp Trunion	2
	20040	Assy. Clamp	4
	100979	Clamp Cap 1 1/4 HRMS PL 3 1/2 x 11	4
	10873	Hex Nut 1 3/8 NC, PL	8
	100748	Gang Frame Clamp 3/4 C1045 PL	2
	9752	"U" Bolt 7/8 Dia	2
	10396	Lock Nut 7/8 NC, PL	4
	20075	Assy. Connector	1
	20025	Rockshaft	1
	101270	Pin 1" x 5 7/8" Long	2
	10232	Hex Nut 1 1/2 NC, Slotted	2
	10910	Roll Pin 5/16 x 2 1/4	6
	11081	Grease Fitting 5/16 Drive-In	2
	11501	Bushing 1 1/2" Long	1
	10317	Klik Pin 1/4"	1
	0871	Assy. Transport Pin	1
	0866	Assy. Rockshaft Pivot Pin 7 5/8 Long	2
	10509	Lock Nut 3/8 NC, PL	4
	10773	Machine Bolt 3/8 x 3 1/2 NC, PL, GR5	4
	9270	Bronze Bushing included in Rockshaft Assy. for pivot pins	4

86" MAIN FRAME



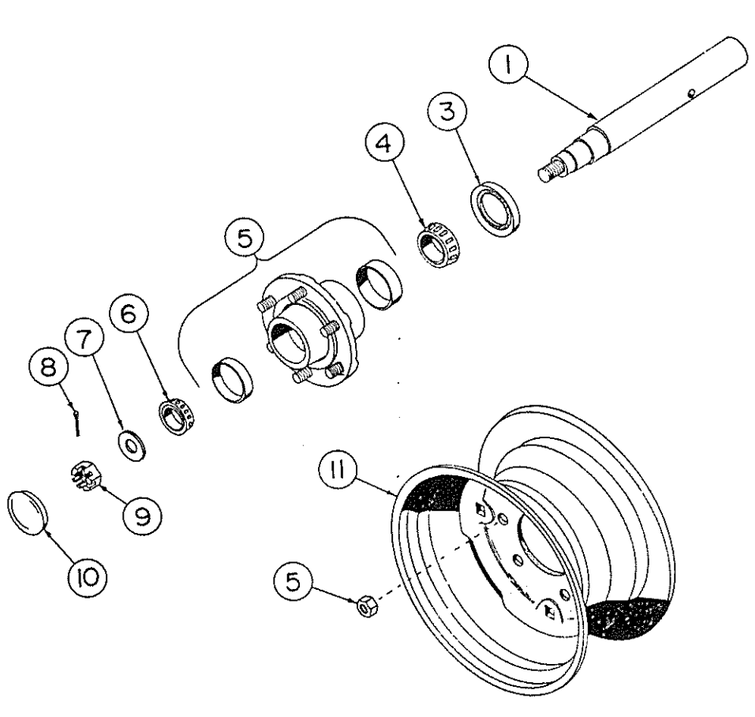
NOTE: In some cases the gang frame clamp must be reversed with the clamp pressed against the gang frame on the outside of the main frame.

AMCO R400
86" MAIN FRAME & ROCKSHAFT

F. NO.	PART. NO.	DESCRIPTION	NO. REQ'D.
	20030	Assy. Main Frame	1
	20032	Assy. Pivot Bracket	1
	20137	Assy. Pin 12" x 1 1/4" Long	1
	10397	Lock Nut 1 1/4" NC, PL	1
	10043	Hex Bolt 5/8 x 6 1/2	1
	10299	Lock Nut	1
	9628	Clamp Trunion	2
	20040	Assy. Clamp	4
	100979	Clamp Cap	4
	10873	Hex Nut 1 3/8 NC, PL	8
	100748	Gang Frame Clamp	2
	9752	"U" Bolt 7/8" Dia	2
	10396	Lock Nut 7/8" NC, PL	4
	20033	Assy. Connector	1
	20029	Assy. Rockshaft	1
	101270	Pin 1" x 5 7/8"Long	2
	10232	Hex Nut 1 1/2" NC, Slotted	3
	10910	Roll Pin 5/16 x 2 1/4	10
	11081	Grease Fitting 5/16 Drive-In	4
	11501	Bushing	1
	10317	Klik Pin 1/4"	1
	0871	Assy. Transport Pin	1
	0866	Assy. Rockshaft Pivot Pin 7 5/8" Long	3
	10509	Lock Nut 3/8 NC, PL	4
	10773	Machine Bolt 3/8 x 3 1/2 NC, PL, GR5	4
	20035	Assy. Depth Bar	1
	20264	Depth Gauge Stop	1
	100963	Pin 1 1/4" Dia. x 3 3/4" Long	1
	9270	Bronze Bushing included in Rockshaft Assy. Pivot Pin	6

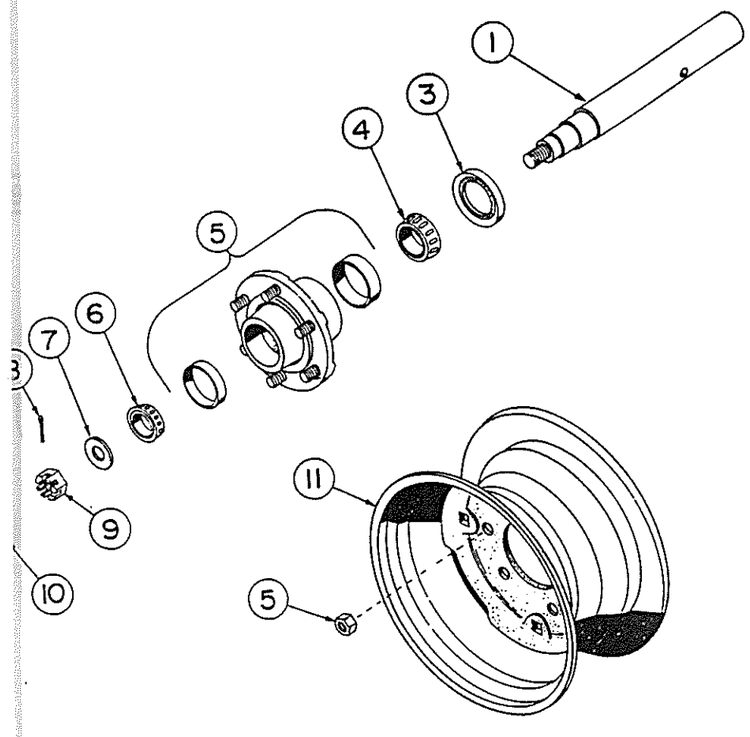
SPINDLE & HUB

Ref. No.	Part No.	Description	No. Req'd
1	10880	Spindle 1 15/16 Dia. x 13 Long	4
3	10256	Seal (C/R22870)	4
4	10258	Cone-Inner (Timken 342A)	4
5	11297	Hub w/2 cups, 6 hub bolts and 6 hub nuts	4
5	11298	Hub - 6 Bolt F and H (pressed in)	4
5	11299	Bolt - Hub 1/2 x 1 7/8 NF	24
5	11046	Nut - Hub 1/2 NF	24
5	10257	Cup - Inner (Timken 332)	4
5	10261	Cup - Outer (Timken 14276)	4
6	10262	Cone - Outer (Timken 14137A)	4
7	10263	Washer - Spindle 7/8	4
8	10291	Nut - Spindle 7/8 NF Slotted	4
9	10264	Cotter Pin 5/32 x 1 1/4	4
10	10242	Hub Cap	4
11	10936	Wheel 15 x 8 - 6 Bolt	4
11	11236	Wheel 15 x 10 - 6 Bolt (Optional)	4



SPINDLE & HUB

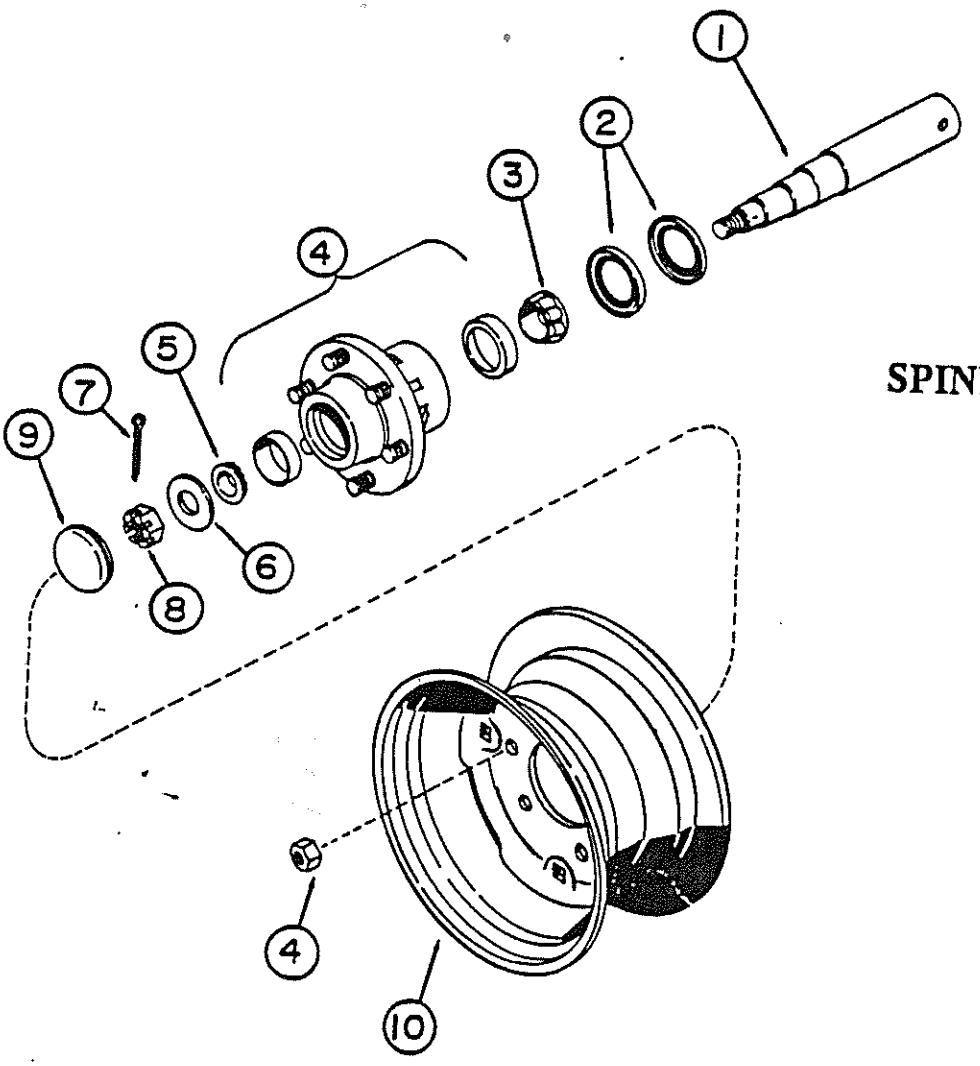
Ref. No.	Part No.	Description	No. Req'd
1	10880	Spindle 1-15/16 dis. x 13 Long	4
3	10256	Seal (C/R22870)	4
4	10258	Cone-Inner (Timken 342A)	4
5	11297	Hub w/2 cups, 6 hub bolts & 6 hub nuts	4
5	11298	Hub--6 Bolt F & H (pressed in)	4
5	11299	Bolt--Hub 1/2 x 1-7/8 NF	24
5	11046	Nut--Hub 1/2 NF	24
5	10257	Cup--Inner (Timken 332)	4
5	10261	Cup--Outer (Timken 14276)	4
6	10262	Cone--Outer (Timken 14137A)	4
7	10263	Washer--Spindle 7/8	4
8	10291	Nut--Spindle 7/8 NF Slotted	4
9	10264	Cotter Pin 5/32 x 1-1/4	4
10	10242	Hub Cap	4
11	10936	Wheel 15 x 8 - 6 Bolt	4
11	11236	Wheel 15 x 10 - 6 Bolt (Optional)	4



NOTE: Use on R400 50" & 86"
Main Frame before Serial #95060238--
(Spindle & Hub Assy.--remain same
for 50" Frames.)

SPINDLE & HUB

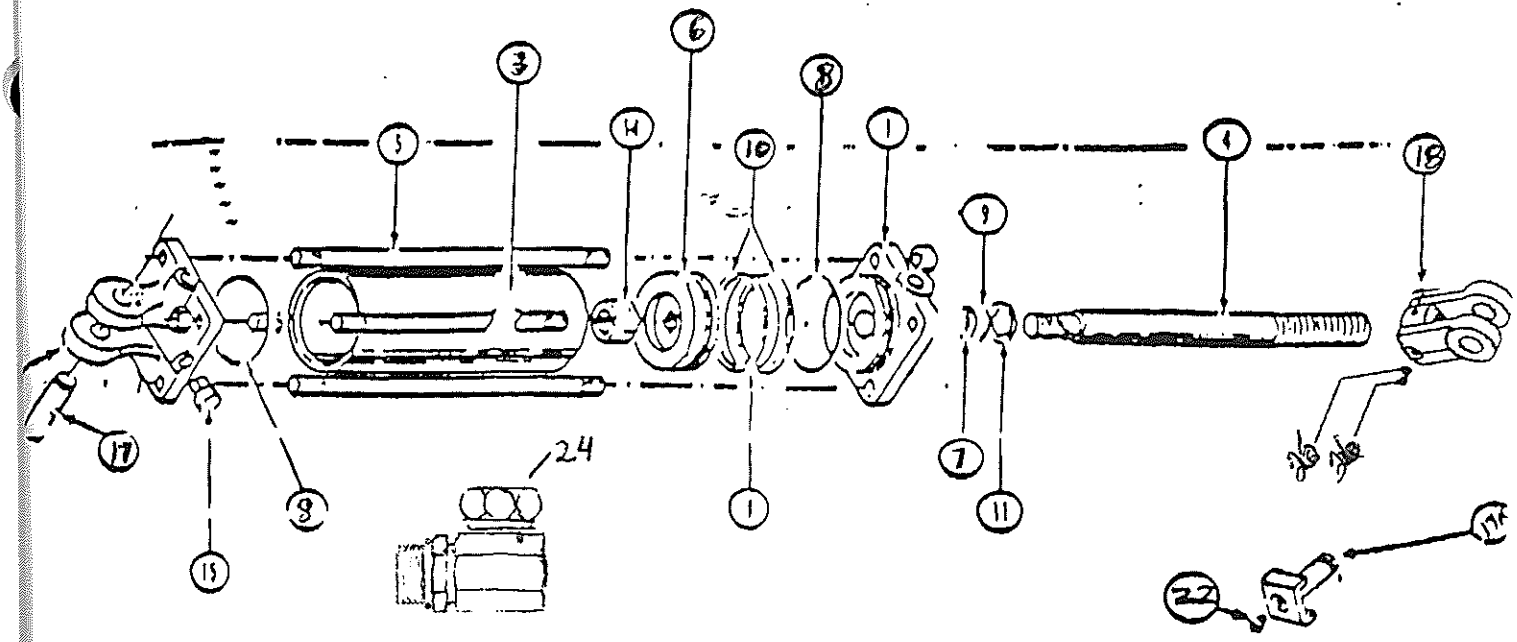
Ref. No.	Part No.	Description	No. Req'd
1	10922	Spindle 2-7/32 dia. x 14-1/2 Long	4
2	10467	Seal (C/R52430)	4
3	10469	Cone-Inner (Timken #25590)	4
4	10463-1	Hub w/2 Cups, 6 Hub Bolts & Nuts	4
4	10468	Cup-Inner (Timken #25520)	4
4	10472	Cup-Outer (Timken #25821)	4
4	10470	Hub Bolt 9/16 x 2-1/4-NF	24
4	10471	Hub Nut 9/16 NF	24
5	10473	Cone-Outer (Timken #25877)	4
6	10263	Washer 7/8	4
7	10291	Cotter Pin 5/32 x 1-1/4	4
8	10264	Nut 7/8-NF Slotted	4
9	10474	Hub Cap	4
10	11236	Wheel 15 x 10-6 Bolt	4
	JA-05-0024	Sub Bundle Spindle & Hub Complete	4



SPINDLE & HUB

NOTE: Use on R400 86" Main Frame
Only after Serial #95060238.

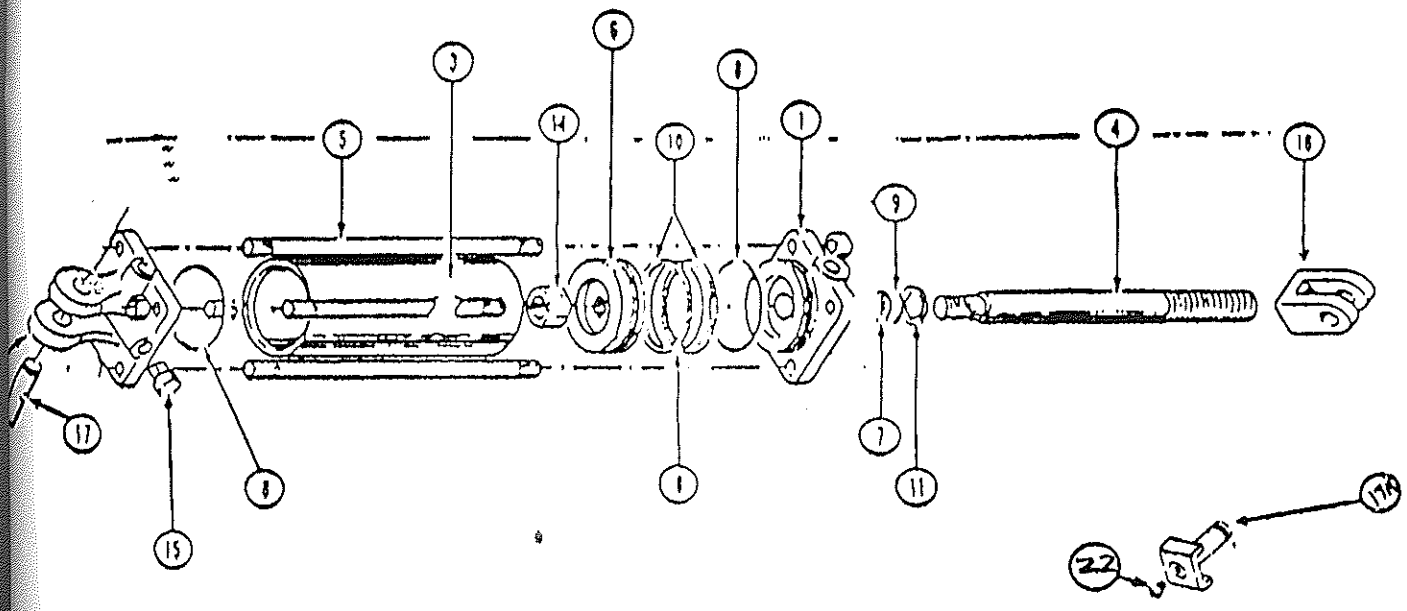
4 x 16 HYDRAULIC CYLINDER (LION) 3000 PSI



Ref. No.	Part No.	Description	No. Req'd
	12204	Cylinder Complete	1
1	12249	Head - Piston	1
2	12234	Butt	1
3	12250	Tube	1
4	12251	Piston Rod	1
5	12252	Tie Rod	4
6	12253	Piston	1
	12237	Seal Repair Kit	1
7		O-Ring	1
8		O-Ring	3
9		Washer	1
10		Washer	2
11		Rod Wiper	1
14	12246	Lock Nut 1-1/8" - 12 UNF, GR-C	1
15	12277	Plug 3/4" - 16 UNF, ORB	1
17	100171	Cylinder Pin	1
17A	20570	Pin 1-1/4" (w/Lube Fitting & 5/16 x 2-1/4 Roll Pin)	1
18	11502	Clevis	1
21	10910	Roll Pin 5/16" x 2-1/4" (not shown)	3
22	11081	Grease Fitting	1
23	10077	1-1/4" Cut Washer PLT (Not Shown)	2
24	12180	Adapter 1/2" to 1/2" ORB ASAE Thread	2
25	12302	Nylon Thread Lock	1
26	12288	Socket Set Screw 3/8" UNC x 1/2" KNUR	1

NOTE: Items 7, 8, 9, 10. & 11 sold in repair kit only.
Use this cylinder **beginning** with Serial #**95060243**.

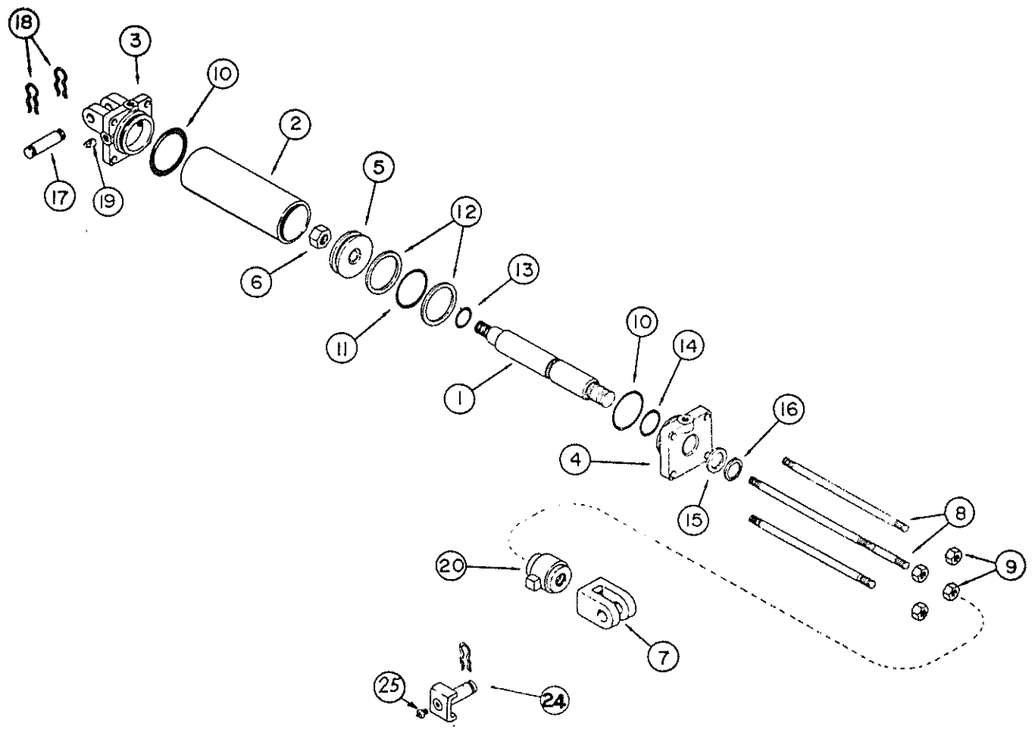
AMCO
4 x 16 HYDRAULIC CYLINDER



Ref. No.	Part Number	Description	No. Req'd
	12087	Cylinder Complete	1
1	12133	Head-Piston	1
2	12134	Butt	1
3	12135	Tube	1
4	12136	Piston Rod	1
5	12137	Tie Rod	4
6	12138	Piston	1
	12139	Seal Repair Kit	1
*7		O Ring	1
*8		O Ring	3
*9		Washer	1
*10		Washer	2
*11		Rod Wiper	1
14	12140	Lock Nut C-302-16	1
15	12127	Plug	1
17	100171	Cylinder Pin	1
17A	12141	Pin 1-1/4" (W/lube Fitting & 5/16 X 2-1/4 Roll Pin)	1
18	11502	Clevis	1
21	10910	Roll Pins 5/16 X 2-1/4 (Not Shown)	3
22	11081	Grease Fitting	1

NOTE: Item 7, 8, 9, 10 and 11 sold in repair kit only.
After Serial #92030088.

4 X 8 HYDRAULIC CYLINDER

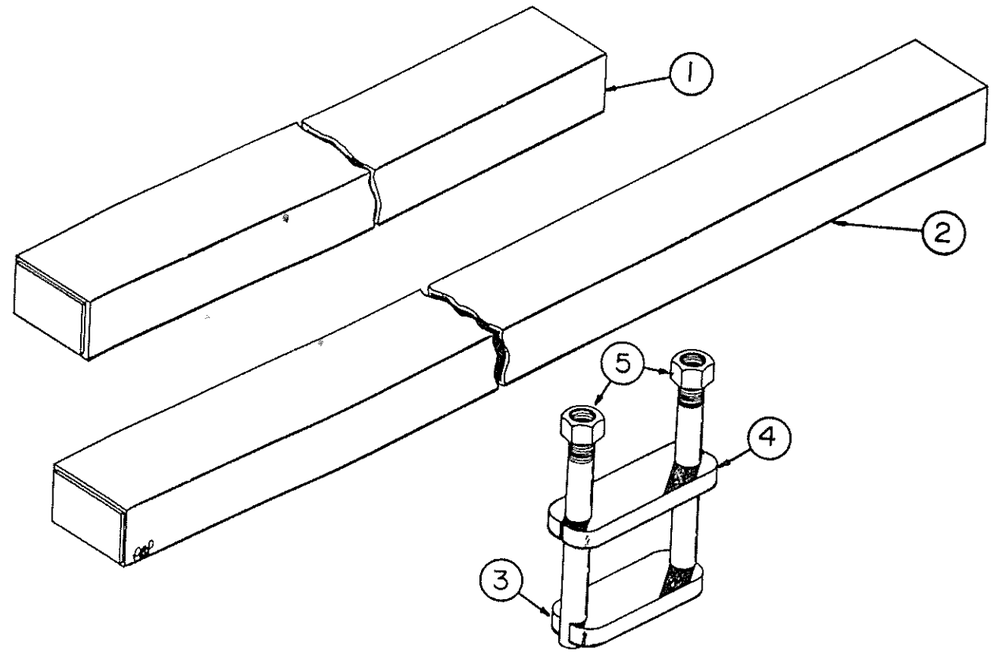


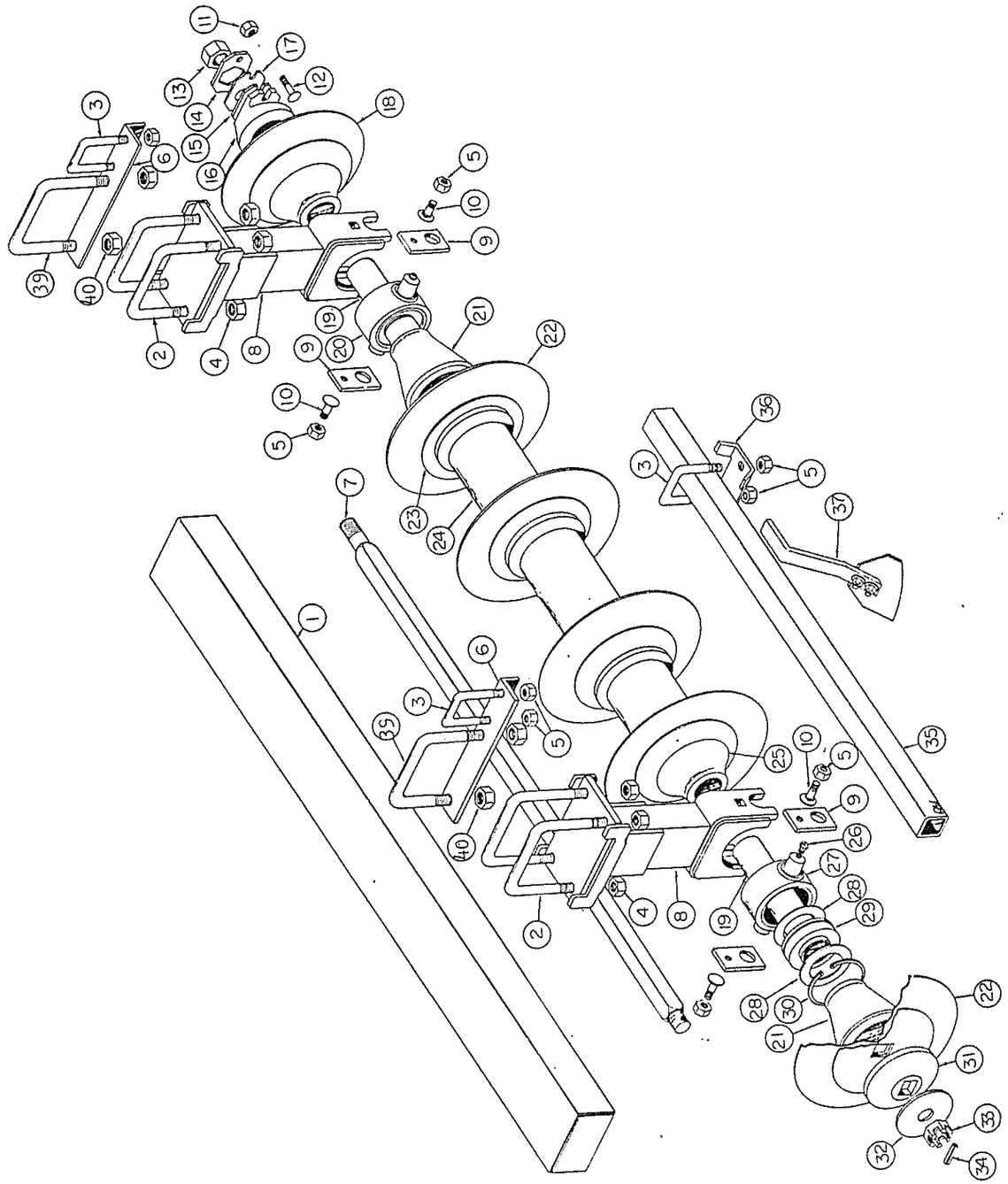
Ref. No.	Part No.	Description	No. Req'd.
1	10965	Rod - Piston	1
2	10966	Tube	1
3	10952	Butt	1
4	10967	Head - Piston	1
5	10968	Piston	1
6	10980	Nut - Lock 1" - 14 NF	1
7	11502	Clevis for 1 1/4 Dia. Pin	4
8	10970	Rod - Tie	4
9	10139	Nut - Hex 5/8 NC,PL	1
17	10956	Pin - Clevis 1" x 4"	3
18	11541	Clip	1
19	10978	Plug - Pipe 1/2 NPT	1
20	10937	Control - Stroke	1
24	20053	Pin - 1 1/4 Dia. (with lube fitting)	1
25	10606	Fitting - Grease	1
21	10976	Kit - Seal Repair (prince #8600)	2
10	10958	"O" Ring	1
11	10959	"O" Ring	2
12	10960	Washer	1
13	10971	"O" Ring	1
14	10972	"O" Ring	1
15	10973	Washer	1
16	10974	Wiper	1
	BB-20-0004	4 X 8 Cylinder Complete (prince #S-971)	

AUXILIARY FRAME

Ref. No.	Part No.	Description	No. Req'd
1	20090	Assy. Short Rail	1
2	20091	Assy. Long Rail	1
3	20040	Assy. Clamp	4
4	100979	Clamp Cap	4
5	10873	Hex Nut 1 3/8 NC,PL	8

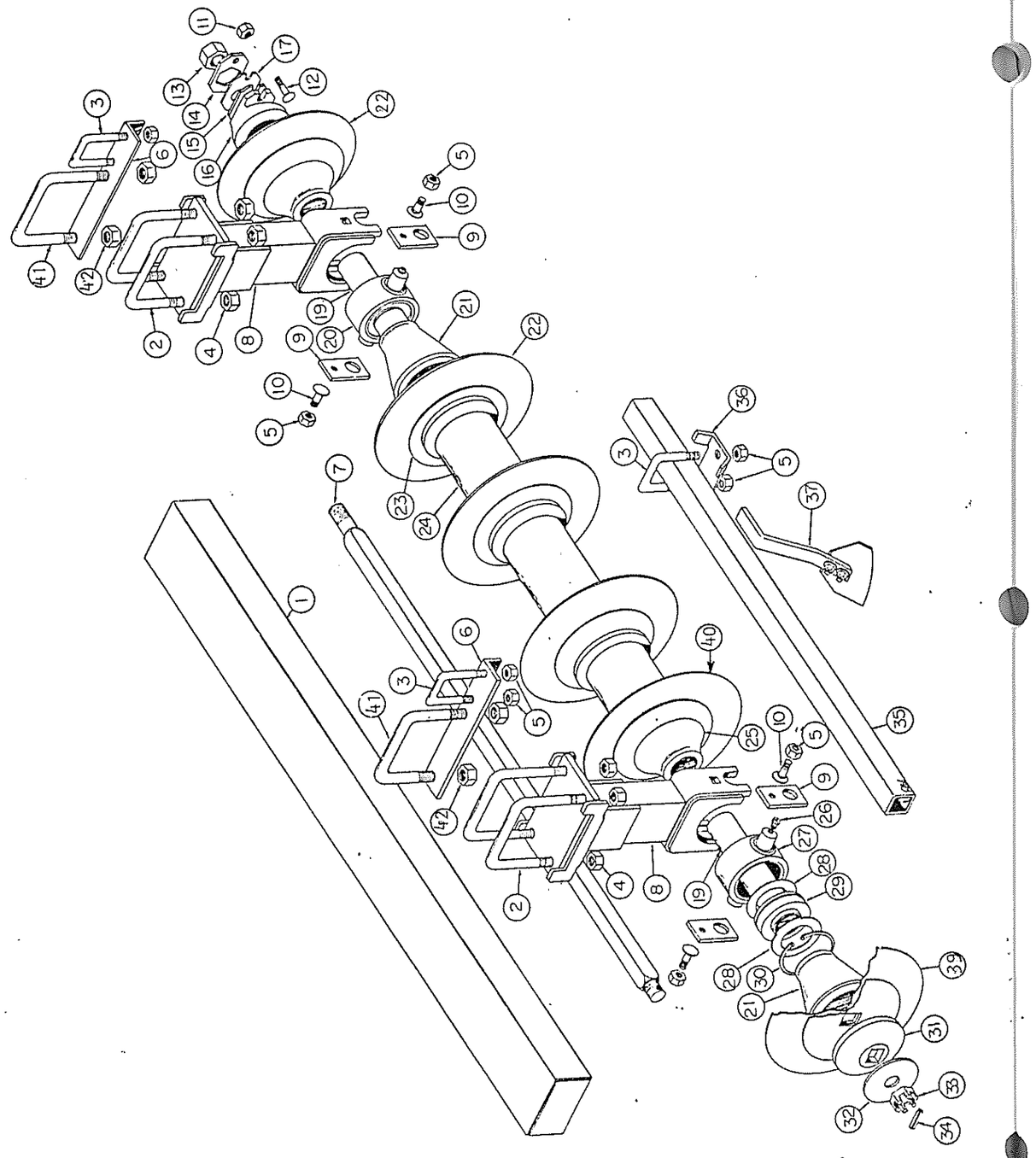
Note: Auxiliary Frames are used on 15'6" (34 Blade) and up.





AMCO R400
GANG FRAME FRONT

REF. NO.	PART NO.	DESCRIPTION	NO. REQ'D BLADES 18	22	26	30	34	38
1	0503	Assy. Gang Frame - 102" Long	1	-	-	-	-	-
1	0506	Assy. Gang Frame - 126" Long	-	1	-	-	-	-
1	0508	Assy. Gang Frame - 144" Long	-	-	1	-	-	-
1	0487	Assy. Gang Frame - 165" Long	-	-	-	1	-	-
1	0519	Assy. Gang Frame - 187" Long	-	-	-	-	1	-
1	0493	Assy. Gang Frame - 209" Long	-	-	-	-	-	1
2	9752	"U" Bolt 7/8" Dia	6	8	10	12	12	14
3	100002A	"U" Bolt 5/8" Dia	11	14	16	19	21	24
4	10396	Lock Nut 7/8" NC, PL, FRB	12	16	20	24	24	28
5	10299	Lock Nut 5/8" NC, PL, GRB	28	32	42	50	54	62
6	100722	Scraper Bar Support	3	4	4	5	5	6
7	101891	Gang Bolt 1 1/2" Sq. - 9 Blade	1	-	-	-	1	1
7	101919	Gang Bolt 1 1/2" Sq. - 5 Blade	-	1	-	-	-	2
7	101888	Gang Bolt 1 1/2" Sq. - 6 Blade	-	1	1	-	-	-
7	101889	Gang Bolt 1 1/2" Sq. - 7 Blade	-	-	1	1	-	-
7	101890	Gang Bolt 1 1/2" Sq. - 8 Blade	-	-	-	1	1	-
8	20355	Assy. Bearing Riser	3	4	5	6	6	7
9	9981	Clamp Trunion	6	8	10	12	12	14
10	10135	Carriage Screw 5/8"x1 3/4" NC, PL, GR5	6	8	10	12	12	14
11	10395	Lock Nut 1/2" NC, PL	1	2	2	2	2	3
12	10710	Carriage Bolt 1/2" NC, PL, GR5	1	2	2	2	2	3
13	10489	Nut Gang Bolt	1	2	2	2	2	3
14	5622A	Lock Plate	1	2	2	2	2	3
15	100099	Spacer Plate	1	2	2	2	2	3
16	1222A	End Gang Washer	1	2	2	2	2	3
17	100098	Bearing Plate	1	2	2	2	2	3
18	3255	Blade 24" x 1/4" Plain	1	2	2	2	2	3
18	3250	Blade 24" x 1/4" C.O	2	2	2	2	2	2
18	3263	Blade 26" x 1/4" Plain	2	2	2	2	2	2
18	2456	Blade 26" x 1/4" C.O	2	2	2	2	2	2
19	101899	Sleeve	2	2	2	2	2	2
20	FB-09-0016	Sub Assy. Bearing & Housing(Complete)	3	4	5	6	6	7
21	17005	End Bell - Large	3	4	5	6	6	7
22	3263	Blade 26" x 1/4" Plain	3	4	5	6	6	7
22	2456	Blade 26" x 1/4" C. O	7	9	11	13	15	17
22	11576	Blade 26" x 5/16" Plain	7	9	11	13	15	17
22	11575	Blade 26" x 5/16" C.O	7	9	11	13	15	17
22	11563	Blade 28" x 1/4" Plain	7	9	11	13	15	17
22	11564	Blade 28" x 1/4" C.O	7	9	11	13	15	17
23	3278	Blade 10" x 11" Ga. Plain Back-Up	9	11	13	15	17	19
24	20343	Spacer Spool	5	5	6	7	9	9
25	17019	End Bell - Small	3	4	5	6	6	7
	FB-09-0016	Sub Assy. Bearing & Housing	3	4	5	6	6	7
26	10606	Grease Fitting 1/8" NPT Straight	1	1	1	1	1	1
27	16014	Bearing Housing - 125mm	1	1	1	1	1	1
28	100105	Washer 125mm	2	2	2	2	2	2
29	11504	Bearing 125mm DC214TTR3	1	1	1	1	1	1
30	11072	Retainer Ring	1	1	1	1	1	1
31	100738	Bumper Washer	1	2	2	2	2	3
32	10872	Cut Washer 1 3/8" PL	1	2	2	2	2	3
33	10226	Nut Gang Bolt 1 1/2" NF Slotted	1	2	2	2	2	3
34	10910	Roll Pin 5/16" x 2 1/4"	1	2	2	2	2	3
35	100010	Scraper Bar 2 1/2" Sq. - 102" Long	1	-	-	-	-	-
35	100013	Scraper Bar 2 1/2" sq. - 126" Long	-	1	-	-	-	-
35	100015	Scraper Bar 2 1/2" sq. - 144" Long	-	-	1	-	-	-
35	100016	Scraper Bar 2 1/2" sq. - 165" Long	-	-	-	1	-	-
35	100018	Scraper Bar 2 1/2" sq. - 187" Long	-	-	-	-	1	-
35	100020	Scraper Bar 2 1/2" sq. - 209" Long	-	-	-	-	-	1
36	101055	Clamp Bracket	8	10	12	14	16	18
37	20072	Assy. Scraper R. H. - Shown	8	10	12	14	16	18
38	20073	Assy. Scraper L. H. - Not Shown	8	10	12	14	16	18
	100987	Scraper Shank	1	1	1	1	1	1
	101019	Scraper Blade	1	1	1	1	1	1
	10832	Cut Washer 1/2" PL	2	2	2	2	2	2
	10395	Lock Nut 1/2" NC, PL	2	2	2	2	2	2
	11652	Machine Bolt (Black) 1/2"x1 1/4"NC	2	2	2	2	2	2
39	9212	"U" Bolt 3/4" Dia	3	4	4	5	5	6
40	10300	Lock Nut 3/4" NC, PL	6	8	8	10	10	12

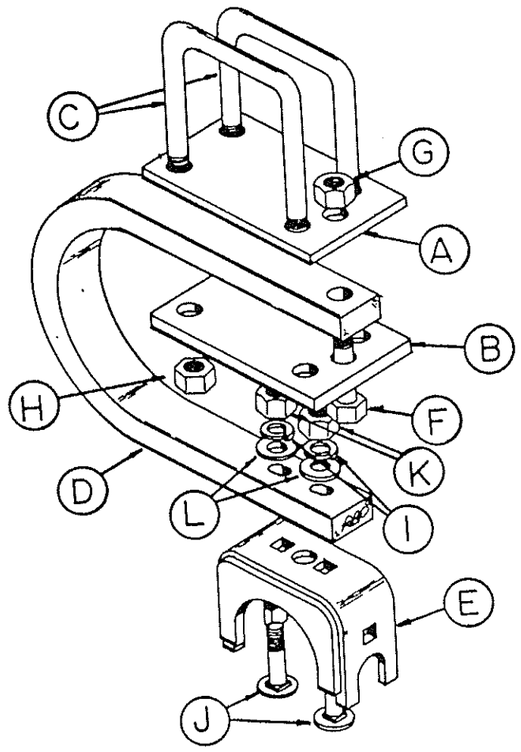


AMCO R400
GANG FRAME REAR

REF. NO.	PART NO.	DESCRIPTION	NO. REQ'D BLADES 18	22	26	30	34	38
1	0503	Assy. Gang Frame - 102" Long	1	-	-	-	-	-
1	0506	Assy. Gang Frame - 126" Long	-	1	-	-	-	-
1	0508	Assy. Gang Frame - 144" Long	-	-	1	-	-	-
1	0487	Assy. Gang Frame - 165" Long	-	-	-	1	-	-
1	0519	Assy. Gang Frame - 187" Long	-	-	-	-	1	-
1	0493	Assy. Gang Frame - 209" Long	-	-	-	-	-	1
2	9752	"U" Bolt 7/8" Dia	6	8	10	12	12	14
3	100002A	"U" Bolt 5/8" Dia	11	14	16	19	21	24
4	10396	Lock Nut 7/8" NC, PL, GRB	12	16	20	24	24	28
5	10299	Lock Nut 5/8" NC, PL, GRB	22	28	42	50	54	62
6	100722	Scraper Bar Support	3	4	4	5	5	6
7	101891	Gang Bolt 1 1/2" Sq. - 9 Blade	1	-	-	-	1	1
7	101919	Gang Bolt 1 1/2" Sq. - 5 Blade	-	1	-	-	-	2
7	101888	Gang Bolt 1 1/2" Sq. - 6 Blade	-	1	1	-	-	-
7	101889	Gang Bolt 1 1/2" Sq. - 7 Blade	-	-	1	1	-	-
7	101890	Gang Bolt 1 1/2" Sq. - 8 Blade	-	-	-	1	1	-
8	20355	Assy. Bearing Riser	3	4	5	6	6	7
9	9981	Clamp Trunion	6	8	10	12	12	14
10	10135	Carriage Screw 5/8"x1 3/4" NC,PL,GR5	6	8	10	12	12	14
11	10395	Lock Nut 1/2" NC, PL	1	2	2	2	2	3
12	10710	Carriage Bolt 1/2" x 2 NC, PL, GR5	1	2	2	2	2	3
13	10489	Nut Gang Bolt	1	2	2	2	2	3
14	5622A	Lock Plate	1	2	2	2	2	3
15	100099	Spacer Plate	1	2	2	2	2	3
16	1222A	End Gang Washer	1	2	2	2	2	3
17	100098	Bearing Plate	1	2	2	2	2	3
19	101899	Sleeve	3	4	5	6	6	7
20	FB-09-0016	Sub. Assy. Bearing & Housing (Complete)	3	4	5	6	6	7
21	17005	End Bell - Large	3	4	5	6	6	7
22	3263	Blade 26" x 1/4" Plain	7	9	11	13	15	17
22	2456	Blade 26" x 1/4" C.O.	7	9	11	13	15	17
22	11576	Blade 26" x 5/16" Plain	7	9	11	13	15	17
22	11575	Blade 26" x 5/16" C.O.	7	9	11	13	15	17
22	11563	Blade 28" x 1/4" Plain	7	9	11	13	15	17
22	11564	Blade 28" x 1/4" C.O.	7	9	11	13	15	17
23	3278	Blade 10" x 11" Ga. Plain Back-Up	9	11	13	15	17	19
24	20343	Spacer Spool	5	5	6	7	9	9
25	17019	End Bell - Small	3	4	5	6	6	7
	FB-09-0016	Sub Assy. Bearing & Housing	3	4	5	6	6	7
26	10606	Grease Fitting 1/8" NPT Straight	1	1	1	1	1	1
27	16014	Bearing Housing - 125mm	1	1	1	1	1	1
28	100105	Washer 125mm	2	2	2	2	2	2
29	11504	Bearing 125mm DC214TTR3	1	1	1	1	1	1
30	11072	Retainer Ring	1	1	1	1	1	1
31	100738	Bumper Washer	-	1	1	1	1	2
31A	100738A	Bumper Washer (Drilled & Tapped)	1	1	1	1	1	1
32	10872	Cut Washer 1 3/8" PL	1	2	2	2	2	3
33	10226	Nut Gang Bolt 1 1/2" NF, Slotted	1	2	2	2	2	2
34	10910	Roll Pin 5/16" x 2 1/4"	1	2	2	2	2	3
35	100010	Scraper Bar 2 1/2" Sq. - 102" Long	1	-	-	-	-	-
35	100013	Scraper Bar 2 1/2" Sq. - 126" Long	-	1	-	-	-	-
35	100015	Scraper Bar 2 1/2" Sq. - 144" Long	-	-	1	-	-	-
35	100016	Scraper Bar 2 1/2" Sq. - 165" Long	-	-	-	1	-	-
35	100018	Scraper Bar 2 1/2" Sq. - 187" Long	-	-	-	-	1	-
35	100020	Scraper Bar 2 1/2" Sq. - 209" Long	-	-	-	-	-	1
36	101055	Clamp Bracket	8	10	12	14	16	18
37	20072	Assy. Scraper R. H. - Shown	8	10	12	14	16	18
38	20073	Assy. Scraper L. H. - Not Shown	8	10	12	14	16	18
	100987	Scraper Shank	1	1	1	1	1	1
	101019	Scraper Blade	1	1	1	1	1	1
	10832	Cut Washer 1/2" PL	2	2	2	2	2	2
	10395	Lock Nut 1/2" NC, PL	2	2	2	2	2	2
	11652	Machine Bolt 1/2" x 1 1/4" NC	2	2	2	2	2	2
39	3276	Blade 22" x 1/4" Plain	1	1	1	1	1	1
39	3275	Blade 22" x 1/4" C.O.	1	1	1	1	1	1
39	3255	Blade 24" x 1/4" Plain	1	1	1	1	1	1
39	3250	Blade 24" x 1/4" C.O.	1	1	1	1	1	1
40	3255	Blade 24" x 1/4" Plain	1	1	1	1	1	1
40	3250	Blade 24" x 1/4" Plain	1	1	1	1	1	1
40	3263	Blade 26" x 1/4" Plain	1	1	1	1	1	1
40	2456	Blade 26" x 1/4" Plain	1	1	1	1	1	1
41	9212	"U" Bolt 3/4" Dia	3	4	4	5	5	6
42	10300	Lock Nut 3/4" NC, PL	6	8	8	10	10	12

R400 SHOCK ABSORBER BEARING RISER

Ref. No.	Part No.	Description	No. Req'd
A	101058	Clamp Plate	1
B	101056	Bottom Plate	1
C	101054	"U" Bolt 7/8" Dia	2
D	11522	Flex Gang Shank	1
E	20312	Trunion Mount Assy	1
F	10320	Hex Bolt 3/4" x 3 1/2" NC, PL, GR5	1
G	10300	Lock Nut 3/4" NC,PL	1
H	10396	Lock Nut 7/8" NC,PL	2
I	10061	Lock Washer 3/4" PL	2
J	10579	Carriage Bolt 3/4"x 3" NF,GR5	2
K	10585	Hex Nut 3/4" NF	2
L	10866	Cut Washer 3/4" P	2
M	100722	Scraper Bar Support(not shown)	1



(1)

(3)

MAINTENANCE INSTRUCTIONS

1 Keep all bolts tight. Check after first 50 hours or one week's operation. Visually inspect all bolts daily.

2 Keep wheel bearings properly adjusted. Clean and repack each season or every 300 hours. Replace all worn or damaged parts when repairing.

3 Keep gang bolts tight! Tighten after first day's operation. Do not run with loose disk blades. If gang bolts have been operated in a loose condition, retighten, then tighten again after 30 minutes use, again after 4 to 5 hours, and again after 8 to 10 hours.

4 Grease gang bearings daily with a hand grease gun and a good grade of clean, number 2, lithium soap base grease. Always wipe fittings clean before greasing. Apply grease until old or dirty grease is purged from bearings. Avoid high-pressure greasing.

5 Inspect for damaged or misaligned parts if gangs do not turn smoothly by hand. Bearings will fail prematurely if operated with misaligned or damaged gang parts. If a gang is operated for one or more hours following a bearing failure, replace all bearings on the gang.

Refer to the operator's manual for other important maintenance instructions.

11716

(4)

⚠ WARNING

1. BEFORE OPERATING - STUDY OPERATOR'S 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.

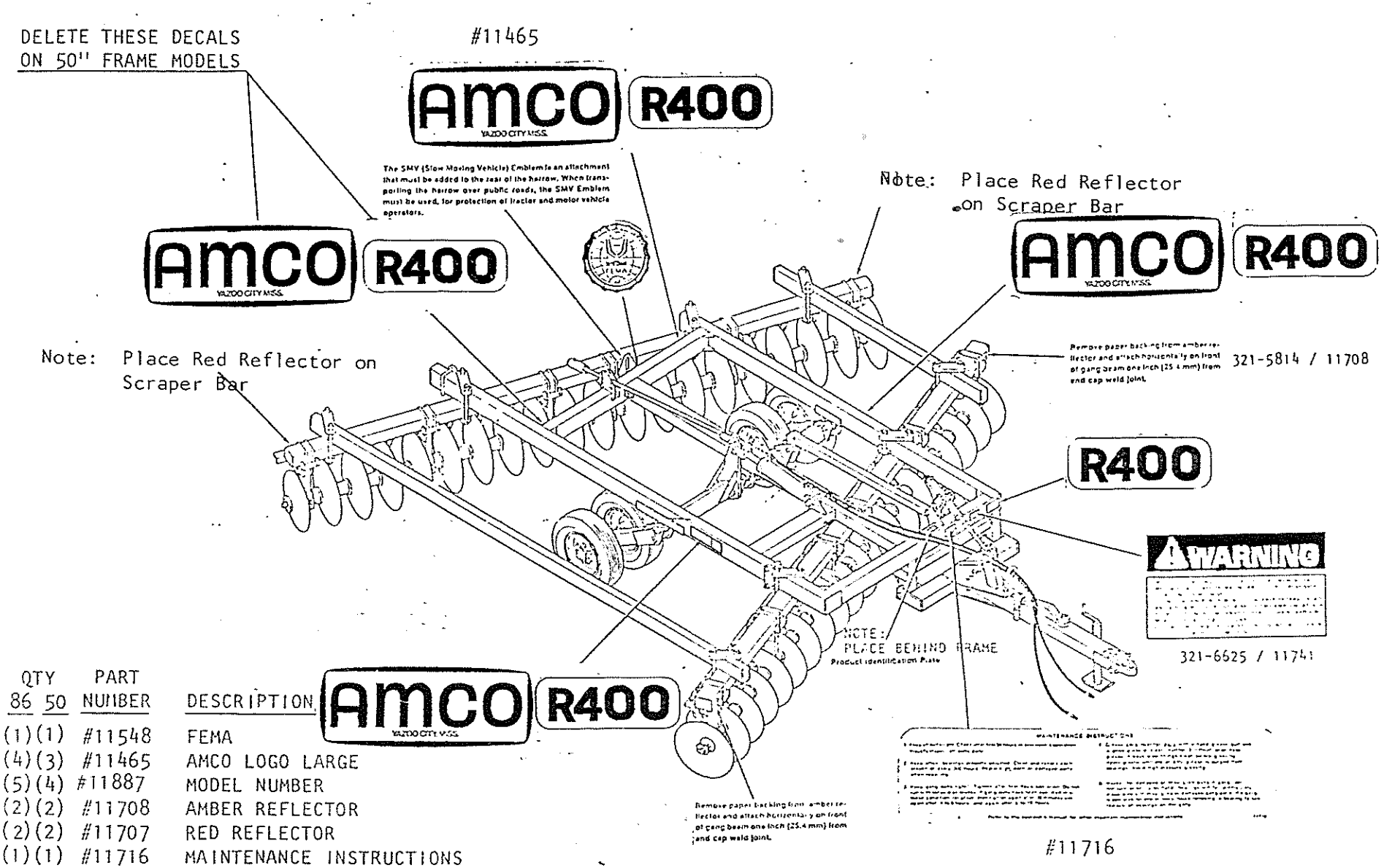
(7)

SEAL OF QUALITY
FEMA
FARM EQUIPMENT MANUFACTURERS ASSOCIATION

Ref. No.	Part No.	Description	No. Req'd 50"	No. Req'd 86"
1	11465	Amco Logo Large	3	4
2	11887	Model Number	4	5
3	11716	Maintenance Instructions	1	1
4	11741	Warning Before Operating	1	1
5	11708	Amber Reflector	2	2
6	11707	Red Reflector	2	2
7	11548	FEMA	1	1

DELETE THESE DECALS
ON 50" FRAME MODELS

#11465



QTY 86	QTY 50	PART NUMBER	DESCRIPTION
(1)	(1)	#11548	FEMA
(4)	(3)	#11465	AMCO LOGO LARGE
(5)	(4)	#11887	MODEL NUMBER
(2)	(2)	#11708	AMBER REFLECTOR
(2)	(2)	#11707	RED REFLECTOR
(1)	(1)	#11716	MAINTENANCE INSTRUCTIONS
(1)	(1)	#11741	WARNING BEFORE OPERATING