

John Deere KBA Disk Harrow



JOHN DEERE

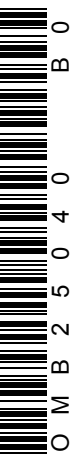
OPERATORS MANUAL

John Deere KBA
Disk Harrow

OMB25040 Issue B0 English

OMB25040 Issue B0

LITHO IN U.S.A.
ENGLISH



TO THE PURCHASER

Your new disk harrow is sturdy and dependable. It will give long and efficient service if given proper care and operation.

This operator's manual is provided to furnish information on the proper operation, adjustment, maintenance, and lubrication of your new disk harrow.

When in need of parts, see your John Deere dealer. He will furnish genuine John Deere Parts and prompt and efficient service in the field or in the shop.

Right-hand and left-hand reference is determined by standing at the rear of the disk harrow and facing the direction of travel.

The warranty on this disk harrow appears on your copy of the purchase order which you should have received from your dealer when you purchased the disk harrow.

Study this manual carefully. Keep it handy, in a safe place, for future reference.



This safety alert symbol identifies important safety messages in this manual.

When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

PARTS ORDERING INFORMATION

Record below the size of your disk harrow and disk blades, the date purchased, and serial number.

The serial number plate is located on the front main frame. Referring to the model and serial number when ordering parts will assist your John Deere dealer in giving you prompt, efficient service.

DISK HARROW SIZE

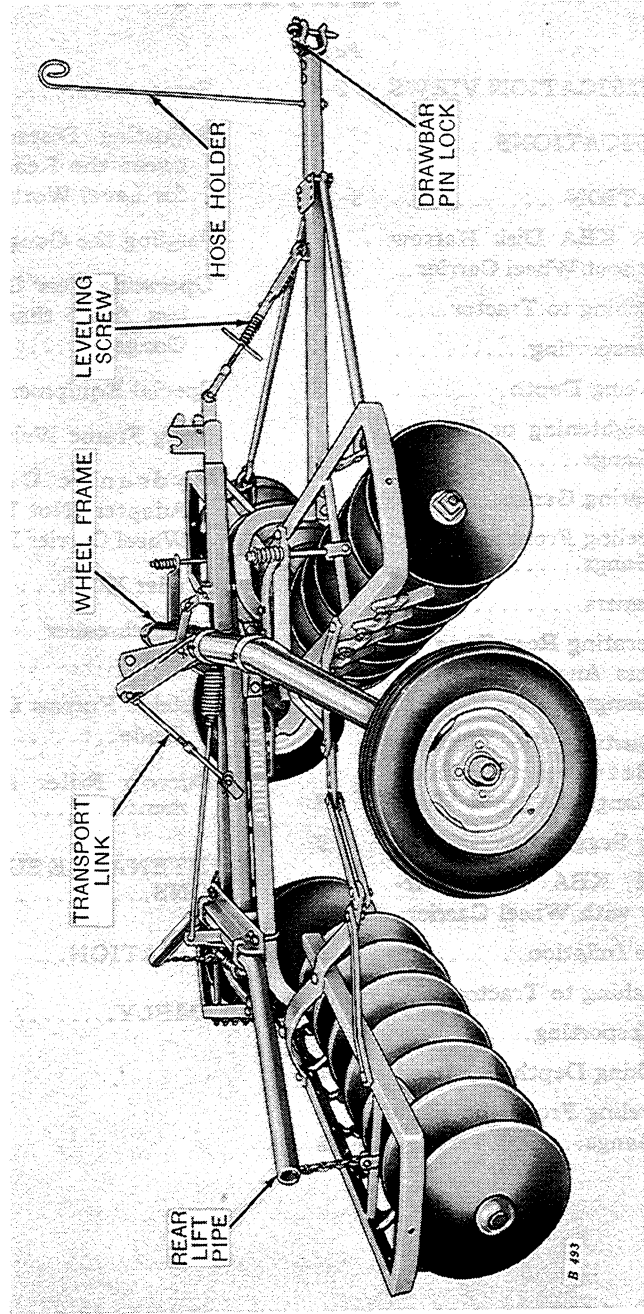
7-Ft. 6-In.
8-Ft. 8-In.
9-Ft. 10-In.
11-Ft.
12-Ft. 2-In.

Serial No. _____

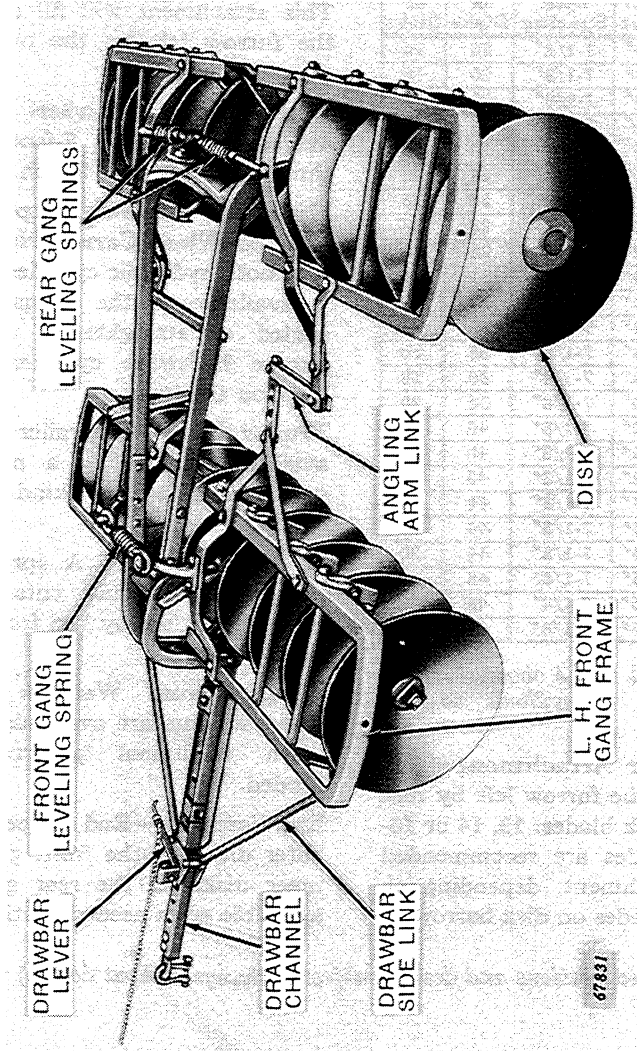
Date Purchased _____

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*John Deere KBA 8' 8" Disk Harrow with Wheel Carrier
(Disk Harrow in Transport Position)*



*John Deere KBA 6'4" Disk Harrow
(Disk Harrow in Transport Position)*

SPECIFICATIONS

Disk Harrow Model	Actual Width of Cut	Disk Spacing	No. of Disks	Size of Disks
KBA 2016	6' 4"	7-1/8"	20	16
KBA 2018	6' 4"	7-1/8"	20	18
KBA 2020	6' 4"	7-1/8"	20	20
KBA 2416	7' 6"	7-1/8"	24	16
KBA 2418	7' 6"	7-1/8"	24	18
KBA 2420	7' 6"	7-1/8"	24	20
KBA 2816	8' 8"	7-1/8"	28	16
KBA 2818	8' 8"	7-1/8"	28	18
KBA 2820	8' 8"	7-1/8"	28	20
KBA 3216	9' 10"	7-1/8"	32	16
KBA 3218	9' 10"	7-1/8"	32	18
KBA 3220	9' 10"	7-1/8"	32	20
KBA 3616	11' 0"	7-1/8"	36	16
KBA 3618	11' 0"	7-1/8"	36	18
KBA 3620	11' 0"	7-1/8"	36	20
KBA 4016	12' 2"	7-1/8"	40	16
KBA 4018	12' 2"	7-1/8"	40	18
KBA 4020	12' 2"	7-1/8"	40	20
KBA 4416	13' 4"	7-1/8"	44	16
KBA 4418	13' 4"	7-1/8"	44	18
KBA 4420	13' 4"	7-1/8"	44	20
KBA 4816	14' 6"	7-1/8"	48	16
KBA 4818	14' 6"	7-1/8"	48	18
KBA 4820	14' 6"	7-1/8"	48	20

NOTE: All of the above sizes are available with or without straight scrapers.

Furrow Filler Attachment—Will fill and level the furrow left by rear gang outer disk blades. 12, 14 or 16-inch disk blades are recommended for this attachment, depending on size of disk blades on disk harrow.

Outside Furrow Leveling Blade—This attachment will fill and level the furrow left by the outer rear gang disk blades.

Wheel Carrier—A wheel carrier is available for the 7-foot 6-inch through the 12-foot 2-inch.

Hydraulic Control Adapter (Not Used on Wheel Carrier Harrow)—A remote hydraulic cylinder adapter is available so the gangs can be angled or straightened with the remote hydraulic cylinder control lever on the tractor.

Trailer Hitch—A trailer hitch is available for pulling a packer or spike-tooth harrow behind the disk harrow.

Middlebreaker — A spring-tooth middlebreaker which cuts out the center strip left by the front gangs is available.

Gang Frame Weights — Gang frame weights are available in pairs when additional penetration is needed.

End Scrapers—End scrapers for the outer disks on the front gangs and inner disks on the rear gangs are available when needed in sticky soils.

(Specifications and design subject to change without notice.)

OPERATION

MODEL "KBA" DISK HARROW WITHOUT WHEEL CARRIER

HITCHING TO TRACTOR.

When using a John Deere Tractor with the Model "KBA" Disk Harrow, place the tractor drawbar in the long, low position, and leave drawbar free to swing except when transporting the disk harrow.

When using other tractors with the John Deere Model "KBA" Disk Harrow, position the tractor drawbar so the disk harrow drawbar is parallel with the ground.

TRANSPORTING.

Lock the tractor drawbar in a fixed position when transporting disk harrow.

Straighten the gangs when transporting the disk harrow on the road, or to and from the field.

! CAUTION: When transporting the disk harrow on a road or highway at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. In this regard check local governmental regulations. Various safety lights and devices are available from your John Deere dealer.

Do not transport the disk harrow over 12 miles per hour.

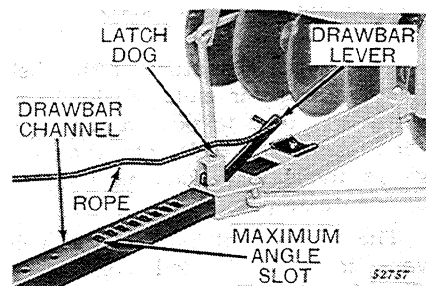
DISKING DEPTH.

The angle of the gangs will determine the disking depth. For maximum penetration set the gangs at the full cutting angle.

STRAIGHTENING OR ANGLING THE GANGS.

The gangs can be straightened for transporting disk harrow, crossing grass waterways, or to prevent clogging in extremely trashy conditions.

The gangs can be angled in any one of several positions depending on amount of penetration desired.



To straighten gangs pull drawbar lever rope while moving forward or back tractor until gangs are straight then pull rope, and drive forward.

The gangs will be straight when latch dog is engaged in rear slot of drawbar channel and disk harrow is moved forward.

To angle gangs from a straight position, pull drawbar lever rope while backing tractor and engage latch dog in one of the slots in the drawbar channel. (The gangs will be in full cutting angle when latch dog is engaged in front slot of drawbar channel.) Release rope and drive forward.

To reduce the angle of the gangs from a full cutting angle, pull drawbar lever rope, move tractor forward until disk gangs are in desired angle and release rope so latch dog can engage nearest slot in drawbar channel.

CLEARING GANGS.

If the gangs clog up in extremely trashy conditions, they can be cleared quickly by merely backing tractor without pulling the rope. This straightens the gangs and clears the trash. Gangs can also be straightened enough to relieve load when in danger of stalling tractor by pulling trip rope while moving forward.

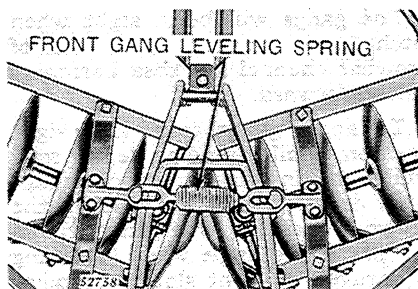
In certain disking conditions it may be necessary to reduce the angle of the gangs to prevent clogging of the gangs.

LEVELING FRONT AND REAR GANGS.

Due to the curvature of the disk blades the outer ends of the front gangs will tend to penetrate deeper than the inner ends. On the rear gangs the inner ends will tend to penetrate deeper.

The amount of penetration will vary in different soil conditions. Therefore, the gangs can be adjusted to cut level regardless of soil conditions.

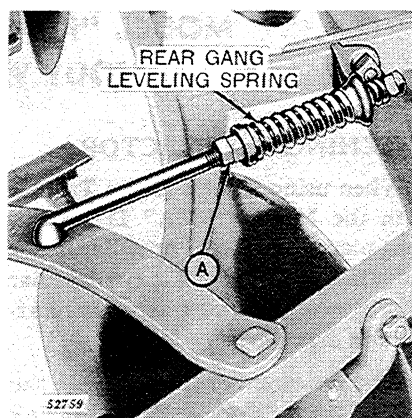
Leveling Front Gangs.



Leveling Front Gangs

If the outside ends of the front gangs cut too deep, increase the tension on the front gang leveling spring. If the inside ends cut too deep, decrease the tension on the front gang leveling spring.

Leveling Rear Gangs.



Leveling Rear Gangs

Each rear gang has a leveling spring adjustment. If the inside end of either rear gang cuts too deep, increase the tension on the rear gang leveling spring by tightening nuts at "A" (left-hand rear gang illustrated). If the outside end cuts too deep, decrease the tension on the leveling spring.

Tighten lock nut securely after adjusting leveling spring.

SCRAPERS.

If disk harrow is equipped with scrapers, adjust each blade so the scraping edge of blade is flush against disk and makes good contact its entire width.

If scrapers are set too tight against disk blades they will prevent gangs from revolving freely.

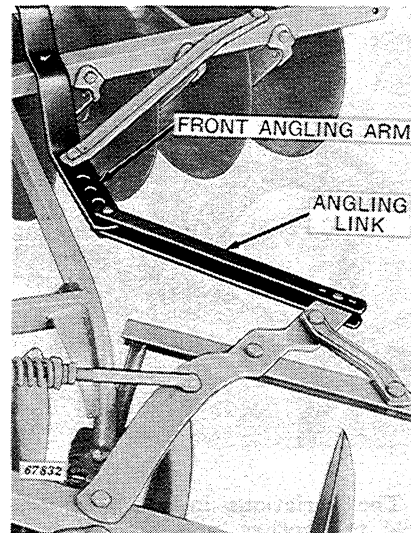
OPERATING REAR GANGS AT LESS ANGLE THAN FRONT GANGS

7-Foot 6-Inch, 8-Foot 8-Inch, 9-Foot 10-Inch, and 11-Foot Sizes Only.

In soft soil or trashy conditions it is sometimes desirable to change the angle of the rear gangs in order to do a better job of leveling.

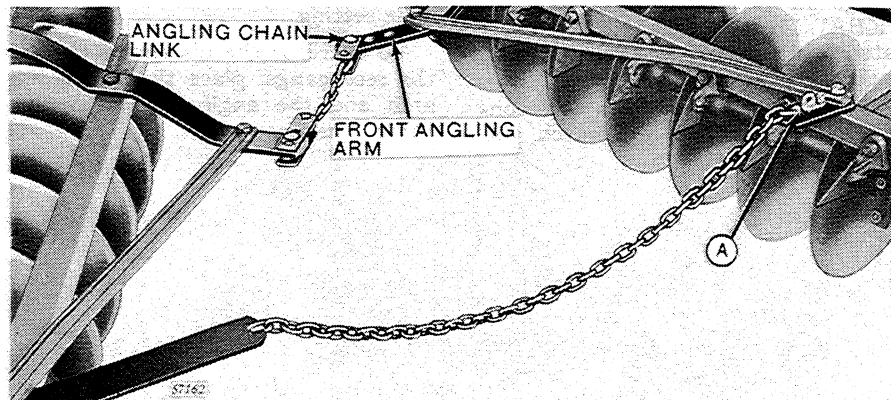
When inside end of angling links are pinned to rear holes in front angling arms (right-hand side illustrated) the rear gangs will assume the same cutting angle as the front gangs.

To reduce penetration of the rear gangs, and not affect the front gangs, pin the angling link to one of the three forward holes in the front angling arms.



Angling Rear Gangs

12-Foot 2-Inch Size Only.



Angling Rear Gangs

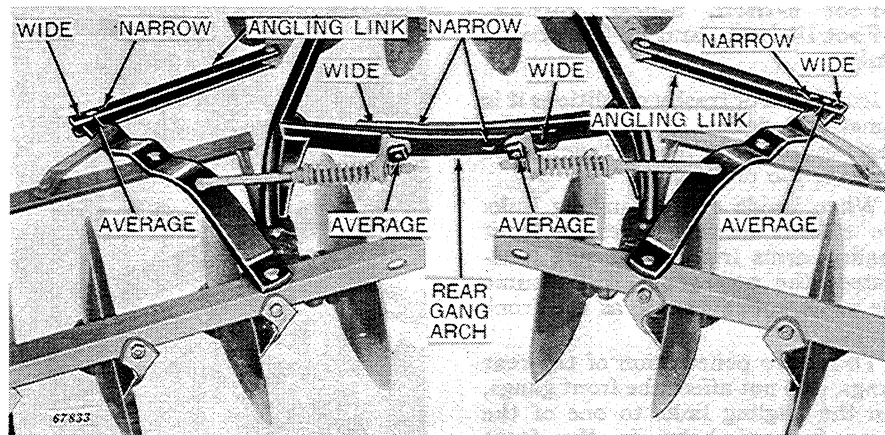
In soft soil or trashy conditions it is sometimes desirable to change the angle of the rear gangs in order to do a better job of leveling.

When the inside end of the angling chain links are attached to the rear holes in front angling arms (right-hand side illustrated) the rear gangs will assume the same cutting angle as the front gangs.

To reduce penetration of the rear gangs, and not affect the front gangs, pin the angling chain links to one of the three forward holes in the front angling arms.

Adjust the long chain at "A," so there is a little slack in the chain when disk gangs are set at the desired cutting angle.

ADJUSTING THE DISTANCE BETWEEN THE REAR GANGS FOR LEVEL WORK.



Rear Gang Arch and Angling Links

The variations in soil from one field to another, and sometimes in the same field, can have an effect on the way the rear gangs level the dirt.

The distance between the rear gangs on the John Deere Model "KBA" Disk Harrow can be regulated to insure level work at different speeds, and in various soil conditions.

For average speed and soil conditions set the rear gang arch and

the angling links in the average setting, as illustrated.

To increase the distance between the rear gangs, place the rear gang arch and the angling links in the wide setting.

To decrease the distance between the rear gangs, place the rear gang arch and the angling links in the narrow setting.

SAFETY SUGGESTIONS



Be careful when operating the disk harrow, to avoid injury to yourself and anyone helping you.

Only one person—the operator—should be permitted on the tractor platform while tractor and disk harrow are in operation.

Never exceed field speed of 5 mph. Reduce speed where rocks or stumps are present.

Never clean, lubricate, or adjust a machine that is in motion.

Refuel the tractor only when the engine has been shut off. Do not smoke or use an oil lantern when working around inflammable fuel, especially when refueling the tractor.

Never ride or permit others to ride, on the drawbar of the tractor or on the disk harrow.

When hitching tractor to disk harrow, back the tractor past the clevis. Then move forward, so that, in making the connection, the tractor will be moving away from you.

When transporting the disk harrow on a road or highway at night or during the day, use accessory lights

and devices for adequate warning to operators of other vehicles. In this regard check local governmental regulations. Various safety lights and devices are available from your John Deere dealer.

Be careful when operating on hill-sides because the tractor may tip sideways if it strikes a hole, ditch, or other irregularity.

Park or block a wheel carried disk harrow so disk harrow will not roll when disconnected from tractor drawbar.

When leaving the tractor and wheel carried disk harrow, connect transport link or lower the disk harrow to the ground.

Connect transport link when transporting wheel carried disk harrow long distances.

Finally, remember this: An accident is usually caused by someone's carelessness, neglect, or oversight.

MODEL "KBA" DISK HARROW WITH WHEEL CARRIER

The KBA Disk Harrow with Wheel Carrier (7-foot 6-inch through 12 foot 2-inch) can be used with John Deere Tractors equipped with a hydraulic remote cylinder or any other tractor using a remote cylinder that conforms with ASAE-SAE standards.

TIRE INFLATION

Any size tire, from 7:00 to 8:50 - 14-inch, can be used on the wheel carrier.

Inflate tires to 28 psi.

HITCHING TO TRACTOR.

When using a John Deere Tractor with the Model "KBA" Disk Harrow with the Wheel Carrier, place the tractor drawbar in the long, low position.

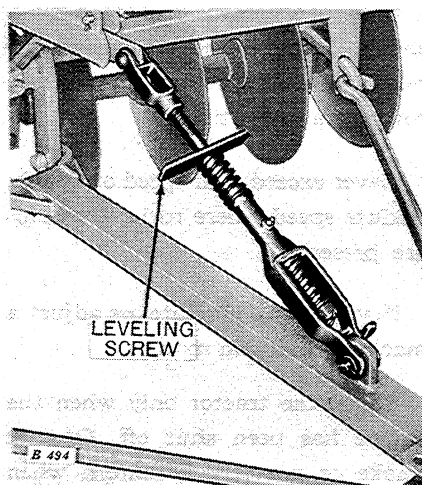
When using any other tractor with the John Deere Model "KBA" Disk Harrow with Wheel Carrier, position the tractor drawbar so the disk harrow drawbar will be parallel with the ground.

Leave the tractor drawbar free to swing except when transporting the disk harrow.

Back the tractor up to the disk harrow and bolt disk harrow drawbar to tractor drawbar.

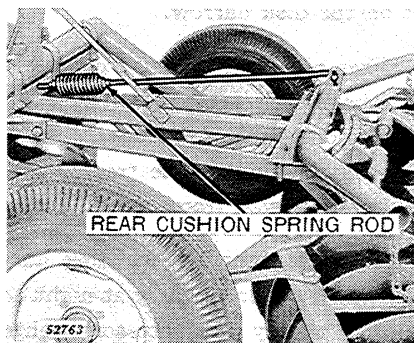
Attach the hydraulic remote cylinder to the disk harrow. Remove the transport link before using the remote cylinder.

Fully extend the hydraulic remote cylinder so disk harrow is in transport position.



Leveling Main Frame

Adjust the leveling screw so disk harrow main frame is level.



Leveling Rear Gangs

Adjust the rear cushion spring rod so disk harrow rear gangs are level in transport position.

TRANSPORTING.

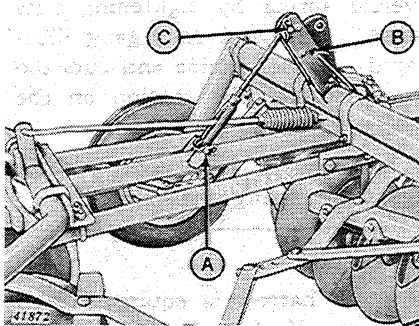
Lock the tractor drawbar in a fixed position when transporting disk harrow.

! CAUTION: When transporting the disk harrow on a road or highway at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. In this regard check local governmental regulations. Various safety lights and devices are available from your John Deere dealer.

Do not transport the disk harrow over 12 miles per hour.

Transport Link.

The wheel carrier harrow has a transport link which can be used to hold the disk harrow in a lifted position so the hydraulic remote cylinder can be removed.



Transport Link in Position

To place the transport link in transport position, as illustrated, proceed as follows: Fully extend remote cylinder. Remove pin and place the fork end of link over the rear cushion spring rod. Replace pin "A." Now remove pin from hole "B." Adjust length of transport link so pin will hold link at location "C." Cylinder can now be removed.

! CAUTION: Do not attempt to operate the hydraulic remote cylinder if transport link is holding disk harrow in transport position.

DISKING DEPTH.

The depth of disking is controlled by the remote cylinder control lever of the tractor and the angle of the disk gangs. The transport wheels will act as gauge wheels to regulate the working depth of the disk harrow.

For maximum penetration, set the gangs at a full cutting angle and raise transport wheels completely off the ground.

For less than maximum penetration lower the transport wheels to raise the gangs or reduce the cutting angle of the gangs.

LEVELING FRONT AND REAR GANGS.

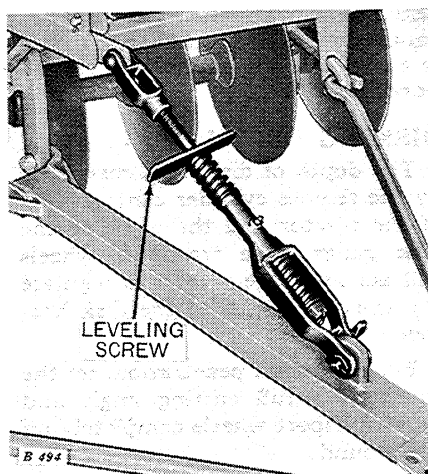
The main frame and rear gangs of the John Deere Model "KBA" Disk Harrow with Wheel Carrier are adjustable so the rear gangs can be set shallower, deeper, or level with, the front gangs.

In addition each individual front and rear gang has an adjustable leveling spring. Due to the curvature of the disk blades, the outer ends of the front gangs will tend to penetrate deeper than the inner ends. On the rear gangs the inner ends will tend to penetrate deeper. The amount of penetration will vary in different soil conditions. Therefore, each gang can be adjusted to cut level regardless of soil conditions.

Leveling Main Frame.

Even though the main frame has been leveled at the time the disk harrow is attached to the tractor, it may be desirable, in actual field operation, to raise or lower the rear section of the main frame.

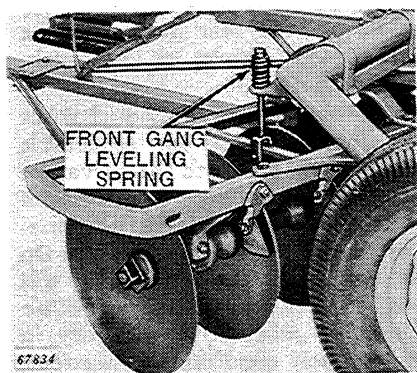
Leveling Main Frame— Continued



Leveling Main Frame

Increasing the tension on the leveling screw spring will raise the rear section. Decreasing the tension will lower the rear section.

Leveling Front Gangs.

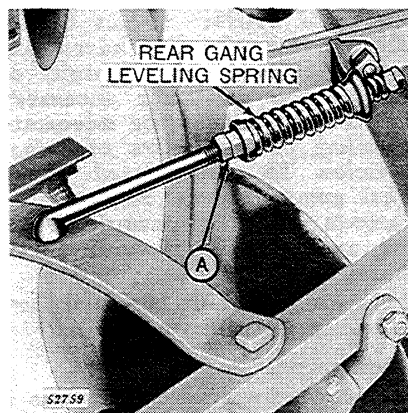


Leveling Front Gangs

Each front gang has a leveling spring adjustment. If the outside end of either front gang cuts too deep, increase the tension on the front gang leveling spring. (Left-

hand front gang illustrated.) If the inside end cuts too deep, decrease the tension on the leveling spring.

Leveling Rear Gangs.



Leveling Rear Gangs

Each rear gang has a leveling spring adjustment. If the inside end of either rear gang cuts too deep, increase the tension on the rear gang leveling spring by tightening nuts at "A" (left-hand rear gang illustrated). If the outside end cuts too deep, decrease the tension on the leveling spring.

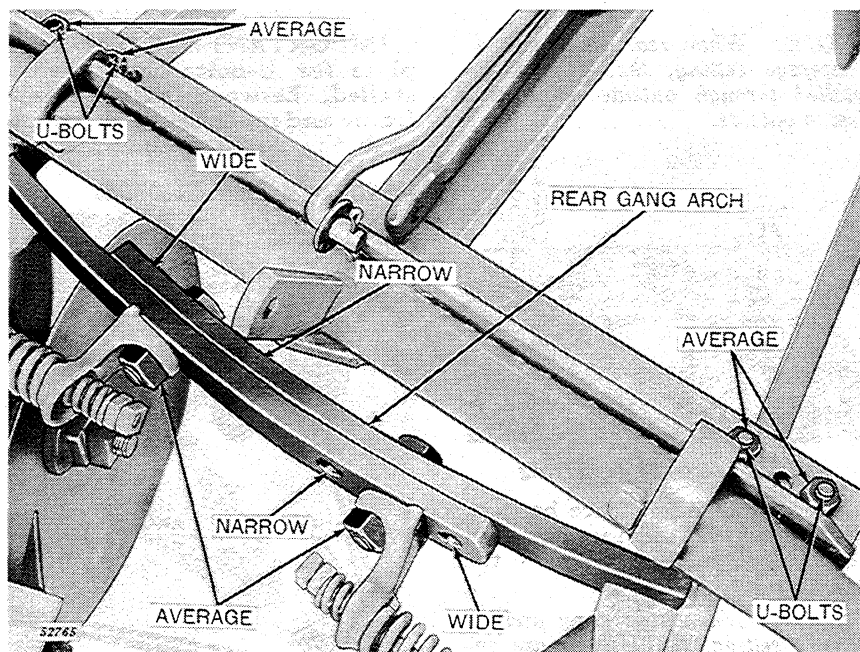
Tighten lock nut securely after adjusting leveling spring.

SCRAPERS.

If disk harrow is equipped with scrapers, adjust each blade so the scraping edge of blade is flush against disk and makes good contact its entire width.

If scrapers are set too tight against disk blades they will prevent gangs from revolving freely.

ADJUSTING THE DISTANCE BETWEEN THE REAR GANGS FOR LEVEL WORK.

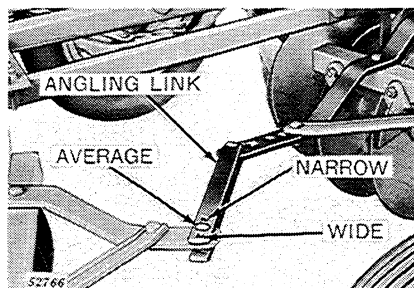


Rear Gang Arch in Average Setting

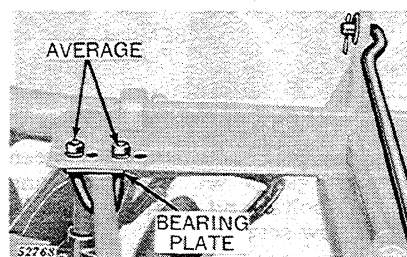
The variations in soil from one field to another, and sometimes in the same field can have an effect on the way the rear gangs level the dirt.

The distance between the rear gangs on the John Deere Model "KBA" Disk Harrow can be regulated to insure level work at different speeds, and in various soil conditions.

The rear gang arch, U-bolts, and angling links control the setting of the distance between the rear gangs and can be positioned in an average, wide or narrow setting. They must all be in the same relative setting at the same time.



R.H. Angling Link in Average Setting

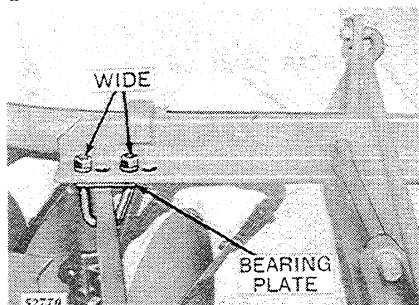


R.H. U-Bolt in Average Setting

For average speed and soil conditions set the rear gang arch, U-bolts, and angling links in the average setting, as illustrated.

ADJUSTING THE DISTANCE BETWEEN THE REAR GANGS FOR LEVEL WORK—Continued

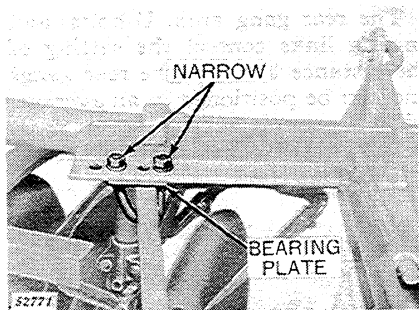
NOTE: When rear gang arch is in average setting, the U-bolts are installed through outside holes with offset to outside.



R.H. U-Bolt in Wide Setting

To increase the distance between the rear gangs set the rear gang arch, U-bolts, and angling links in the wide setting.

NOTE: When rear gang arch is in wide setting, the U-bolts are installed through outside holes with offset to inside.



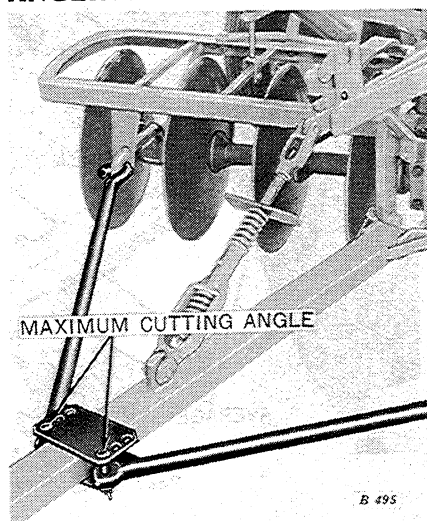
R.H. U-Bolt in Narrow Setting

To decrease the distance between the rear gangs set the rear gang arch, U-bolts, and angling links in the narrow setting.

NOTE: When rear gang arch is in narrow setting the U-bolts are installed through inside holes with offset to outside.

IMPORTANT: The bearing plate for U-bolts must be installed, between wheel carrier frame and main frame of harrow, with the notched ends forward.

ANGLING THE GANGS.



Angling the Gangs

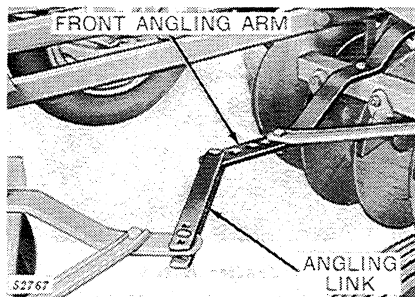
The gangs can be angled in any one of three positions depending on amount of penetration desired.

The gangs are in maximum cutting angle when side links are attached to the front holes in the drawbar, as illustrated.

For less cutting angle move side links back to center or rear holes.

**OPERATING REAR GANGS
AT LESS ANGLE THAN
FRONT GANGS.**

In soft soil or trashy conditions, it is sometimes desirable to change the angle of the rear gangs in order to do a better job of leveling.



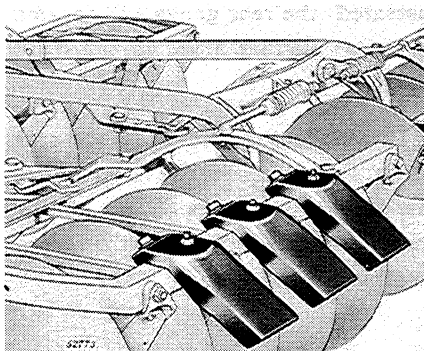
Angling Rear Gangs

When inside end of angling links are pinned to rear holes in front angling arms (right-hand side illustrated) the rear gangs will assume the same cutting angle as the front gangs.

To reduce penetration of the rear gangs, and not affect the front gangs, pin the angling links to one of the three forward holes in the front angling arms.

SPECIAL EQUIPMENT

GANG FRAME WEIGHTS.



Gang Frame Weights

If desired disking depth cannot be obtained when gangs are set at a full cutting angle, additional weights can be attached to either, or both, the front and rear gangs.

Refer to page 35 for assembly instructions.

HYDRAULIC CONTROL ADAPTER. (Not used on Wheel Carrier Harrow.)

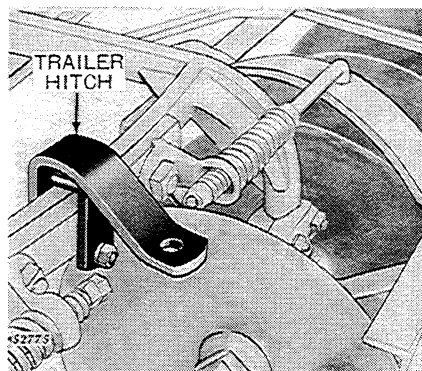
A hydraulic control adapter is available for use with the remote cylinder on John Deere Tractors and any other tractor equipped with a hydraulic system and remote cylinder that conforms with ASAE-SAE standards.

The hydraulic control adapter will permit the operator to angle the gangs with the remote cylinder control lever on the tractor.

For hydraulic remote cylinder operating instructions, refer to the tractor Operator's Manual.

Refer to page 32 for assembly instructions.

TRAILER HITCH.

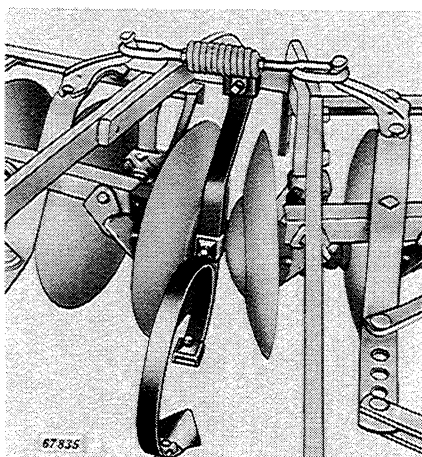


Trailer Hitch

A trailer hitch is available to use when a harrow or a packer is to be pulled behind the disk harrow.

Refer to page 31 for assembly instructions.

MIDDLEBREAKER ATTACHMENT.



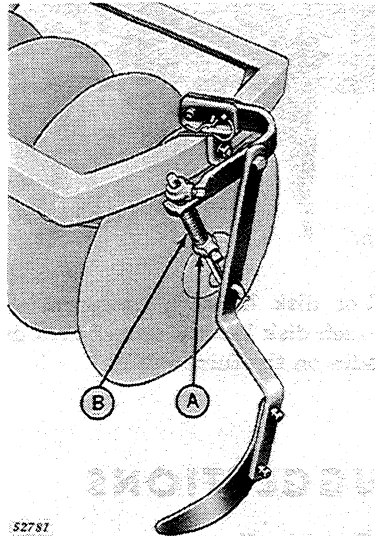
Middlebreaker Attachment

A spring-tooth middlebreaker that cuts out the center strip left by the front disk gangs is available.

Refer to pages 34 and 35 for assembly instructions.

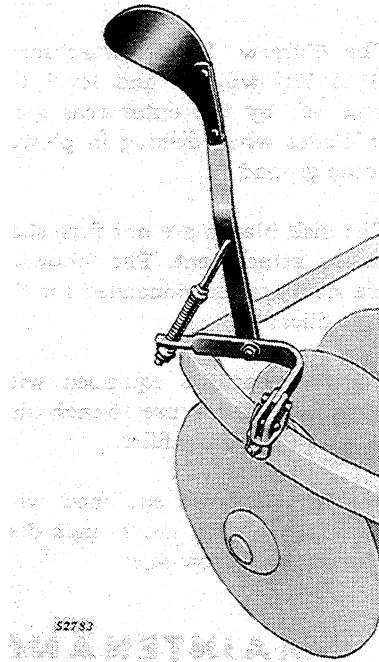
OUTSIDE FURROW LEVELING BLADE.

This attachment will fill and level the furrow left by the outer rear gang disk blades when disking in plowed or loose ground.



Outside Furrow Leveling Blade

Adjust collar "A" against spring "B," after disk harrow is in the field, so that the shovel is pulling enough dirt to fill in the furrows left by the outside disks.



Outside Furrow Leveling Blade

The attachment can be raised up over the gang frame for transporting, passing through gates, or disking close to fences, etc.

Refer to page 35 for assembly instructions.

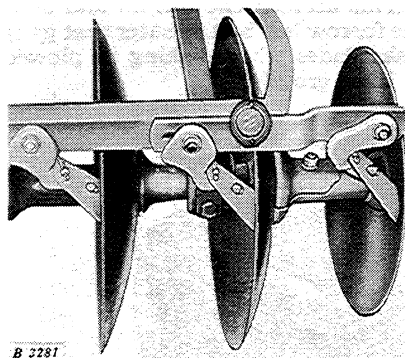
FURROW FILLER ATTACHMENT

The Furrow Filler Attachment (BB11545B) will fill and level the furrow left by the outer rear gang disk blades when disking in plowed or loose ground.

The disk blades are not furnished with the attachment. The following blade sizes are recommended for the furrow filler:

For disk harrows equipped with 20-inch disk blades, use 16-inch disk blades on the furrow filler.

For disk harrows equipped with 18-inch disk blades, use 14-inch disk blades on the furrow filler.



For disk harrows equipped with 16-inch disk blades, use 12-inch disk blades on the furrow filler.

MAINTENANCE SUGGESTIONS

Inspect your disk after the disking season and note excessively worn or broken parts, so that repairs and replacements can be made during the off season. Replace worn or broken parts promptly so that your disk harrow will be ready for use when needed.

To insure maximum penetration and satisfactory performance, keep the cutting edge of the disks sharp. Dull disks will not cut properly, making it impossible to secure sufficient penetration and will not do a good job of mixing the trash in the soil. Be sure disks are free from rust before operating disk harrow in the field.

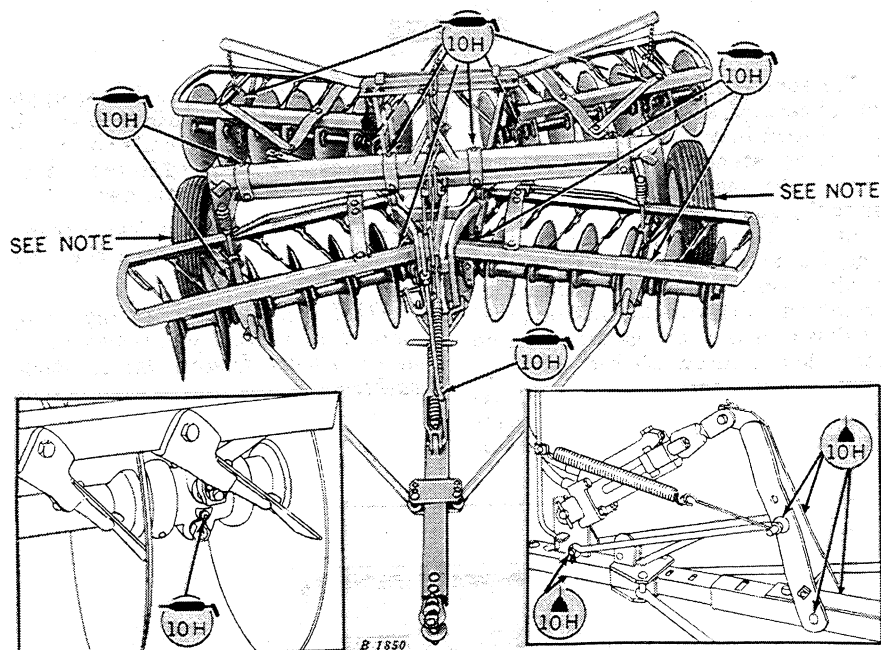
Repaint all parts necessary and protect all unpainted surfaces with a good rust-preventive grease or oil.

Keep all bolts tightened securely.

Remember—Practically all trouble with new machines is due to improper setting-up and lack of lubrication.

NOTE: After any replacement of disk or bearing parts be sure to draw up nut on end of gang bolt very tight. Failure to do this will result in breakage or loss of parts. When attaching gang frame standards to bearing, be sure to draw up bolts as tightly as possible.

LUBRICATION



SYMBOLS



Grease every 10 hours of operation with SAE Multipurpose grease.



Oil every 10 hours of operation.

The initial lubrication is of utmost importance to assure long life and satisfactory performance of the disk harrow.

Wipe dirt from fittings before greasing. If a grease fitting is lost, replace it immediately. Lubricate all parts thoroughly with a SAE Multipurpose type grease, but avoid excessive lubrication. Excess lubricant gathers dust.

NOTE: On disk harrows equipped with anti-friction bearings, the bearings are packed with grease and sealed at the factory.

Oil all sliding members of the drawbar. Also oil all pivot points of remote cylinder adapter.



CAUTION: Do not oil or grease a machine while it is in motion.

ASSEMBLY GANGS

The four gang frames with gang bolts, bearings, spools, and hardware, are shipped in one bundle. The gang frames are stenciled right front, left front, right rear, and left rear. Arrange the gang frames on the floor or ground in this order, and place each gang frame on its side. Remember, the disks on the front gangs must be assembled to throw the dirt out and the disks on the rear gangs must be assembled to throw the dirt in.

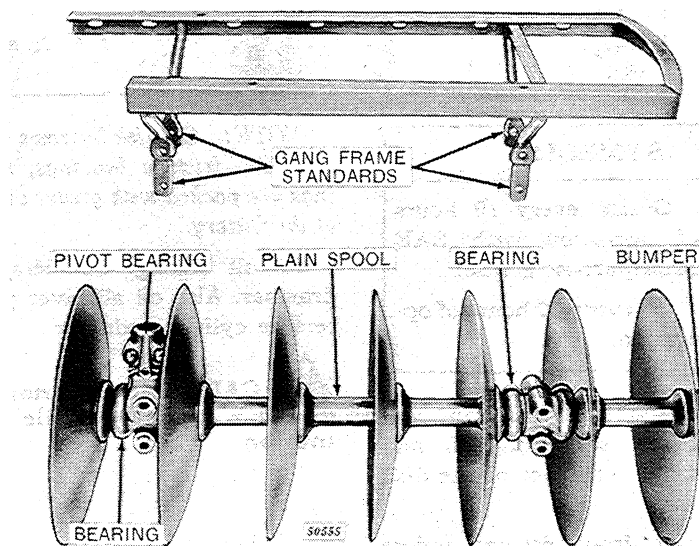
When assembling the gangs, always place the small spool or bearing ends next to the concave side of the disk blades.

On disk harrows to be equipped with anti-friction bearings, place the bearings on the gang bolts so the cap screws can be installed in the bottom holes in the bearing standards.

Always use the gang frame standards as a guide for placing the bearings on the gangs.

NOTE: Remove the bearings, cardboard washers, and plain spools from the gang bolts. Discard the cardboard washers.

REAR GANGS.

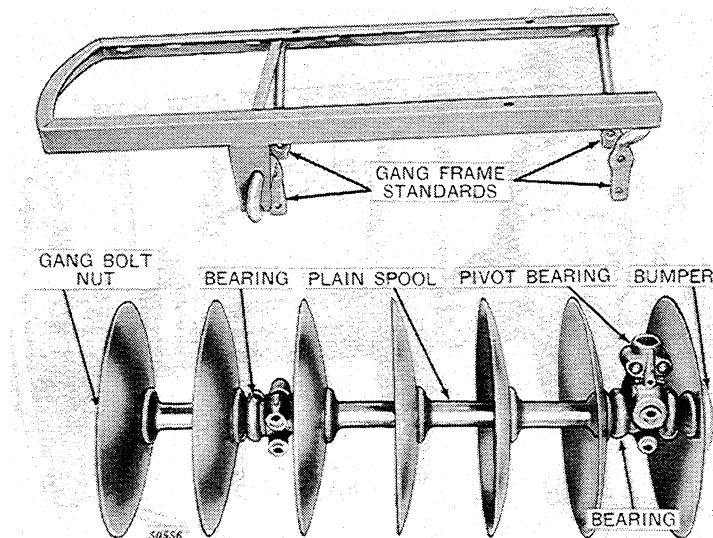


Left Rear Gang—8-Foot Size

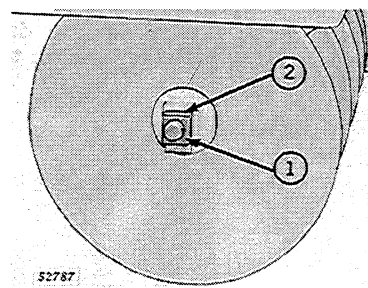
Install a disk blade next to the bumper on each gang bolt. Next, install a bearing on all sizes except the 8-foot 8-inch size. On the 8-foot 8-inch size install a plain spool. Then install a disk blade and then a bearing on the 8-foot 8-inch size, or a plain spool on all other sizes. Pro-

ceed in this manner, making sure that a bearing is installed in the proper place to line up with the bearing standard on the gang frame.

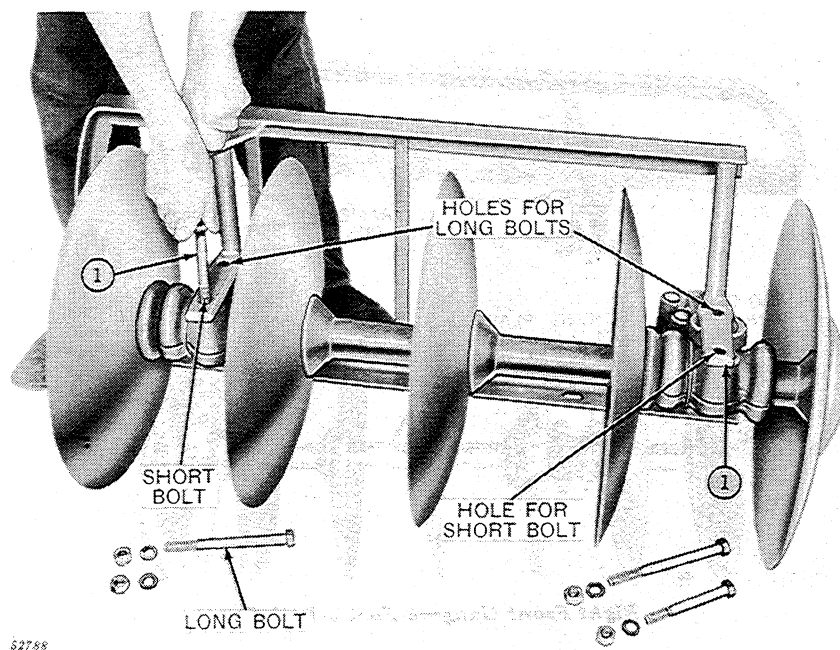
NOTE: The bearing on which the pivot bearing is installed is the last bearing put on the gang.

FRONT GANGS.**Right Front Gang—8-Foot 8-Inch Size**

Install a disk blade next to the bumper on the gang bolt. Next, install the bearing which has the pivot bearing attached to it. Then install another disk blade and then a plain spool. Proceed in this manner, making sure that a bearing is installed in the proper place to line up with the bearing standard on the gang frame.

GANG BOLT NUTS.**Gang Bolt Nut**

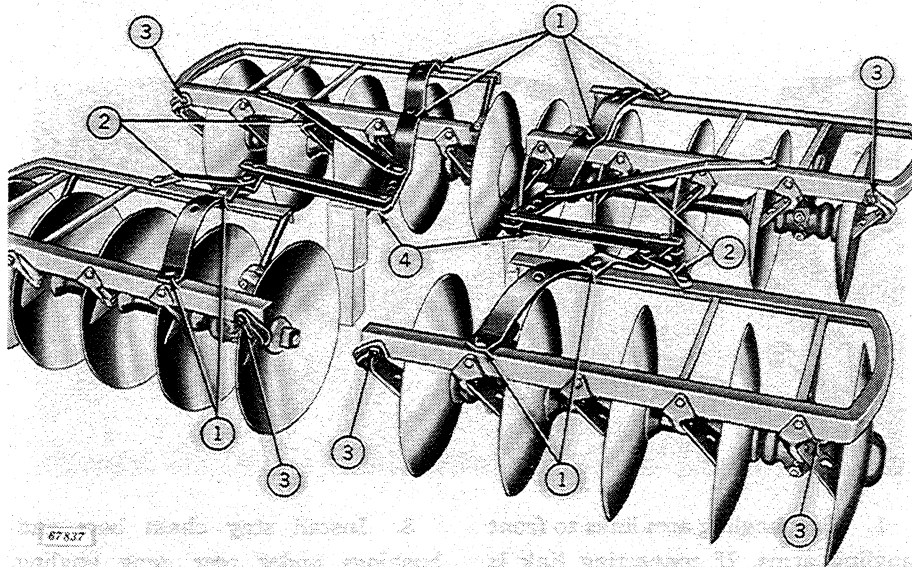
1. Tighten the gang bolt nut very tight with the flat side of the nut to the outside. After the nut is tightened, tap the bumper end of the gang bolt with a hammer, and then re-tighten gang bolt nut.
2. Bend the nut lock down over gang bolt nut.

GANG FRAMES AND GANGS.***Attaching Disk Gang to Gang Frame***

After assembling the disk blades on all four gangs, roll each disk gang in place so the holes in the disk bearings line up with the holes in the gang frame standards.

1. Bolt disk gangs to gang frame standards.

FRONT AND REAR ANGLING ARMS, BRACES, AND SCRAPERS



1. Place the four gangs in position shown and attach front and rear angling arms to gang frames.

2. Install front and rear angling arm braces.

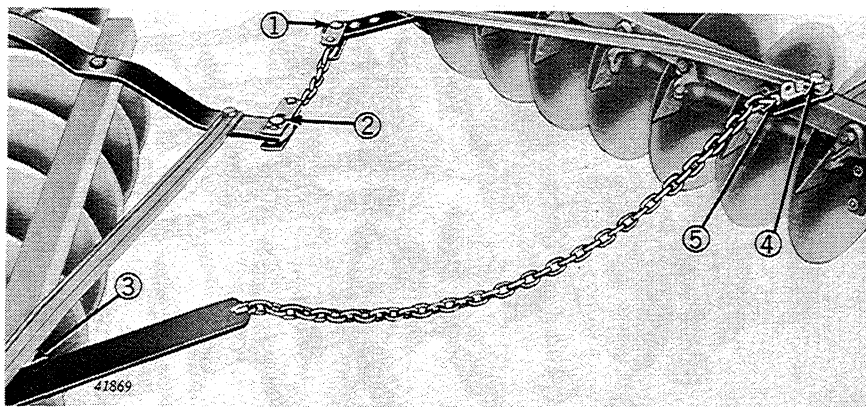
3. If disk harrow is to be equipped with scrapers, install the scrapers as illustrated. Adjust scraper blades so the scraping edge of blade is flush against disk and makes good contact its entire width. Do not set scrapers tight enough against disk blades to interfere with revolving action of disk gangs.

ANGLING ARM LINKS (NOT USED ON 12-FOOT 2-INCH DISK HARROW WITHOUT WHEEL CARRIER).

4. Attach angling arm links between front and rear angling arms. When links are attached at rear holes in angling arms, the rear gangs assume the same amount of angle as the front gangs. If it is desirable to operate the harrow with rear gangs at less angle than front gangs, attach links in middle or front hole in angling arms.

Use middle hole when attaching outside end of links to rear angling arms. The other two holes are used only when rear gangs are set closer together or farther apart.

ANGLING ARM LINKS AND STAY CHAINS FOR 12-FOOT 2-INCH DISK HARROW WITHOUT WHEEL CARRIER.



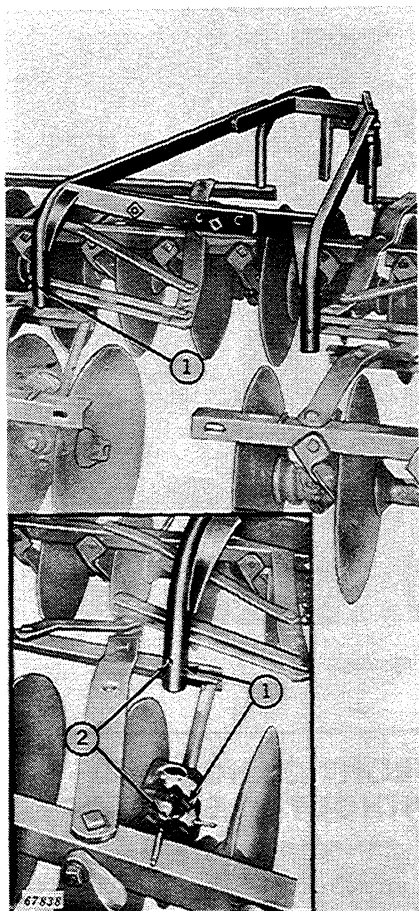
1. Bolt angling arm links to front angling arms. If connecting link is attached in rear hole (as shown) of front angling arm, the rear gang will operate at maximum cutting angle. Moving the connecting links to any of the forward holes in the front angling arm will reduce the angle assumed by the rear gangs independently of the front gangs.

2. Bolt angling arm links to rear angling arms. Use the middle hole in connecting link (as shown) except when rear gangs are set closer together or farther apart.

3. Install stay chain bars and bushings under rear gang angling arm braces. Use the 5/8 x 2-inch cap screws.

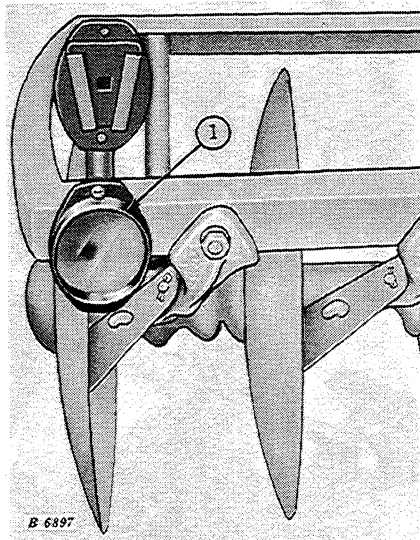
4. Install chain connector plates under front gang angling arm braces. Use the 5/8 x 2-inch cap screws.

5. Insert stay chains in chain connector plates and hold in place with chain retainers. The stay chains should have a little slack when gangs are in desired cutting angle.

MAIN FRAME

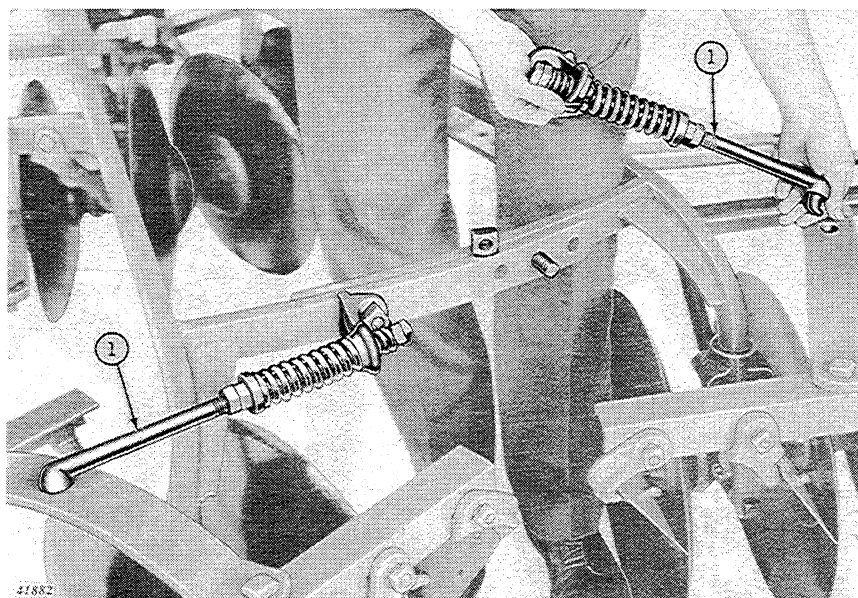
1. Lower main frame into position. It is not necessary to loosen bolts in the pivot bearings to do this.

2. Install tapered pins into pivot bearings and through holes in main frame after main frame is lowered into position. Place cotter pin in pivot bearing.

WARNING LAMP BRACKET SOCKET AND REFLECTORS

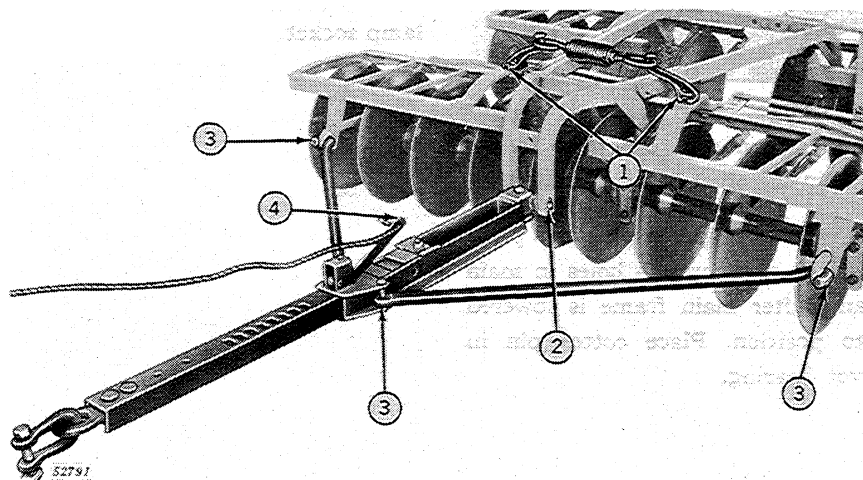
1. On the 8-foot 8-inch size and larger, install the reflector brackets on the rear main frame with the two outer bolts. Red reflectors at both sides of the harrow must face the rear. The amber reflector must face the front and must be mounted on the left-hand side with the warning lamp socket.

LEVELING SPRINGS FOR REAR GANGS



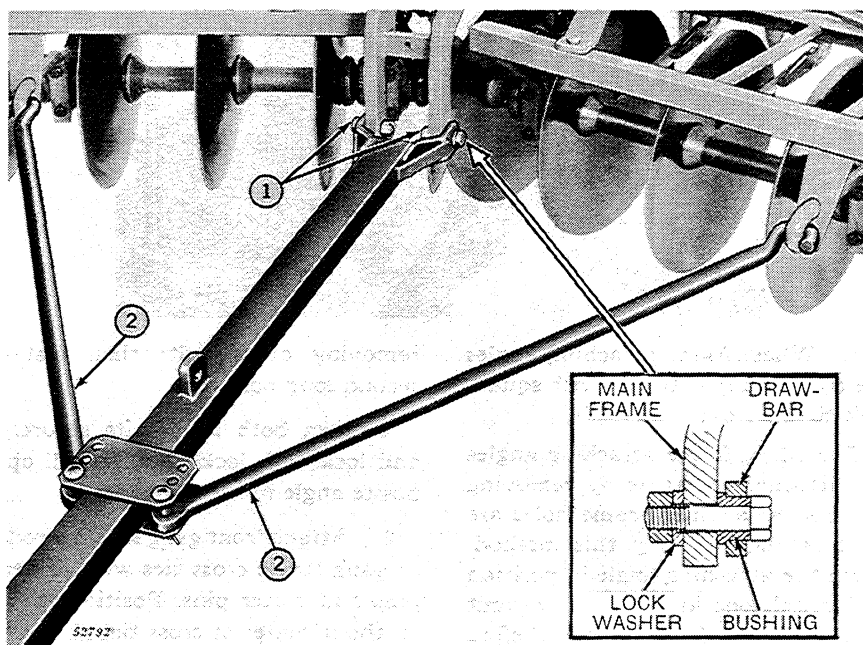
1. Install the rear leveling rods and springs.

LEVELING SPRING FOR FRONT GANGS AND DRAWBAR FOR HARROWS WITHOUT WHEEL CARRIER



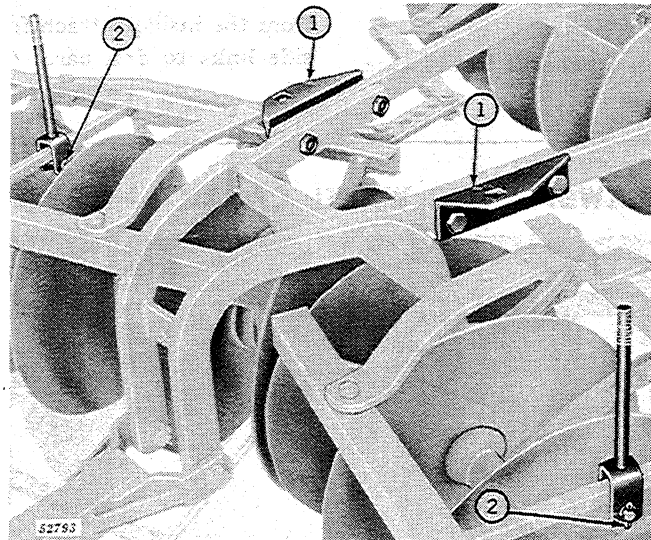
1. Attach front leveling brackets to front spring and then bolt brackets to the angling arms.
2. Attach drawbar to front frame, with pivot pin.
3. Attach end of side links to outer end of each front gang frame by inserting hook through the loop from the inside. Attach front end of side links to drawbar.
4. Attach rope to angling lever.

DRAWBAR FOR WHEEL CARRIER HARROW



1. Place drawbar in place with flat surface up and attach to harrow frame with bolts, bushings, and plain washers in position as shown in inset.
2. Connect side links to drawbar in whichever hole corresponds to amount of gang angle desired. When side links are connected in front hole, gangs are in maximum angle.

FRAME ATTACHING ANGLES FOR WHEEL CARRIER HARROW



1. Wheel frame attaching angles are right and left. Install with square hole to the front.

The wheel frame attaching angles are attached to frame by removing one bolt at a time. Frame holes are kept in alignment by this method. Place the attaching angle in position and install one longer bolt, without lock washer under bolt head, before

removing other bolt; then install second long bolt.

Tighten both long bolts securely and lock with lock nuts. Install opposite angle in same manner.

2. Attach front gang leveling rods to gang frame cross ties with drilled pins and cotter pins. Position these at about center of cross tie.

FRAME AND REAR GANG LIFT PIPE FOR WHEEL CARRIER HARROW

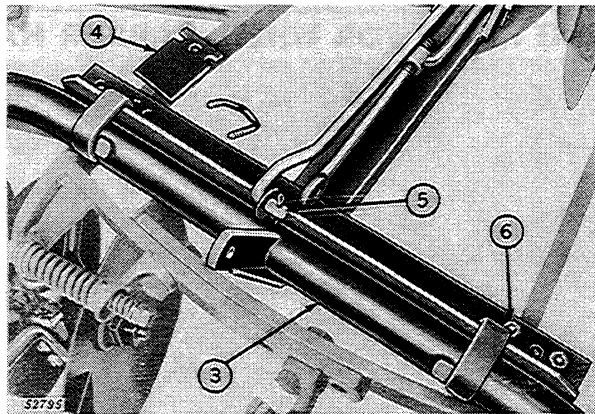
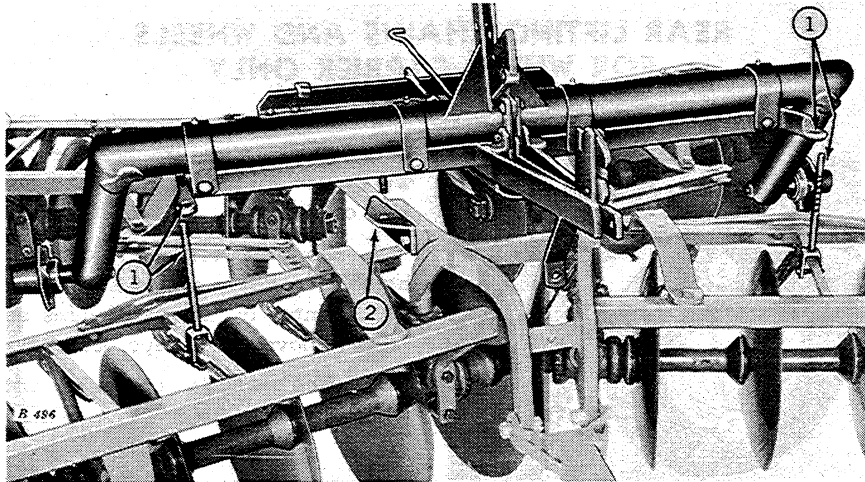
Remove rear gang lifting pipe from shipping bundle. This pipe must be reversed from position shipped when reinstalling. The clips holding pipe bearings in shipping are used on rear gang lifting chains.

The frame has to be raised directly above the disk harrow and then lowered into position. Use an over-

head hoist to raise the frame and then lower it into position, as illustrated.

1. Place frame and wheel axle onto harrow and guide front gang leveling rods, through arms.

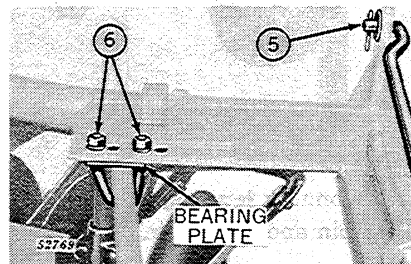
2. Guide bolts through attaching angle square holes. Do not install lock washers and nuts at this time.



3. Raise rear of wheel carrier frame slightly and place rear gang lifting pipe under hold-down brackets with lugs on pipe inside brackets and with connecting lever pointing up.

4. After wheel carrier frame has been lowered to harrow main frame, slide bearing plate between carrier frame and harrow main frame with bearing portion under pipe and notched ends forward.

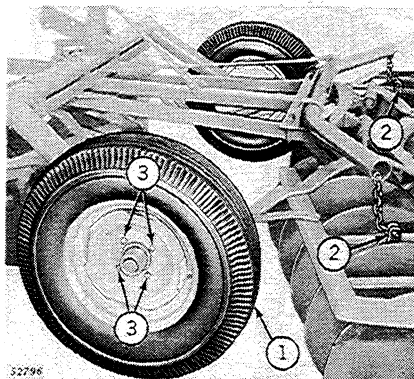
5. Connect rear cushion spring rod to lever on rear lifting pipe with washer on outside.



6. Align holes in bearing and frame to allow installation of U-bolts.

NOTE: If rear gangs are to be positioned in a narrow or wide lateral setting, refer to pages 13 and 14.

REAR LIFTING CHAINS AND WHEELS FOR WHEEL CARRIER ONLY

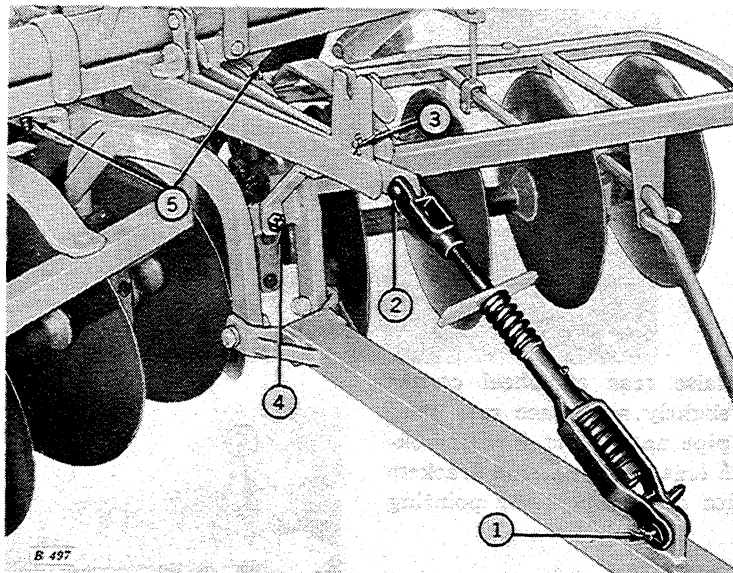


1. Mount tires on wheels. Tire sizes which may be installed on wheels are 7.00 x 14, 7.50 x 14, 8.00 x 14 or 8.50 x 14.

2. Connect rear lifting chains to harrow rear frame ties at approximate center by means of clips and bolts removed from pipe bearings.

3. Bolt wheels to hubs with wheel bolts.

LEVELING SCREW FOR WHEEL CARRIER HARROW



1. Connect leveling device with drilled pin and cotter pin.

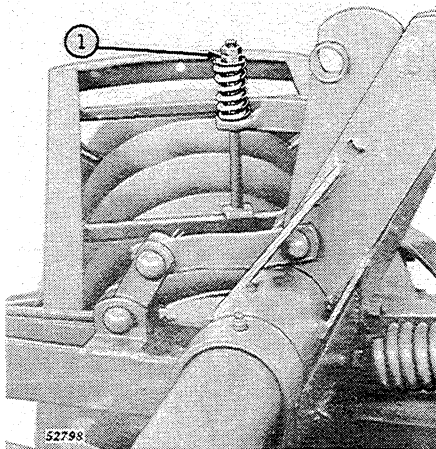
2. Connect rear end of leveling device to connecting link with drilled pin and cotter pin.

3. Connect link hold-down bearing with drilled pin and cotter pin.

4. Attach front of carrier frame to harrow with bolt, lock washer, and nut.

5. Install lock washers and nuts on bolts holding front of carrier frame to attaching angles. **IMPORTANT: Be sure to tighten all nuts securely.**

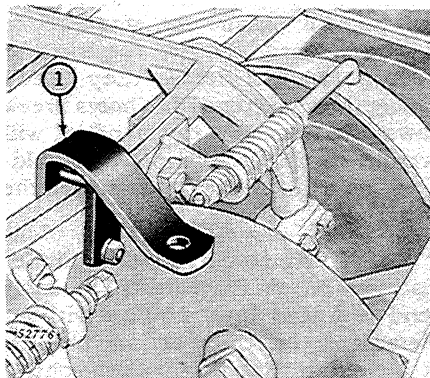
FRONT GANG LEVELING SPRINGS FOR WHEEL CARRIER HARROW



1. Assemble front gang leveling spring, flat washer, nut, and lock nut on front leveling spring rods.

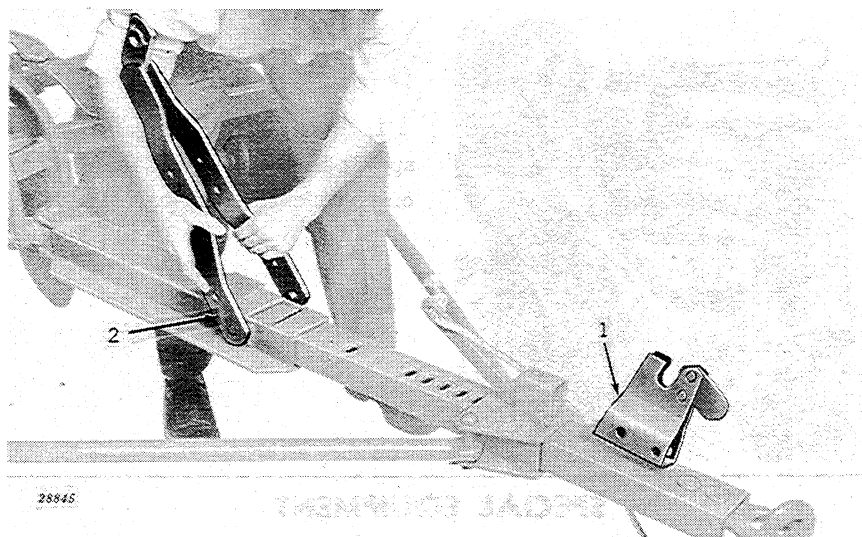
SPECIAL EQUIPMENT

TRAILER HITCH.



1. Attach trailer hitch to rear frame arch with two bolts. Be sure to position hitch on inside of arch as illustrated. With hitch installed in this manner the pull is exerted on hitch and not on the bolts.

HYDRAULIC CONTROL ADAPTER. (NOT USED ON WHEEL CARRIER HARROW.)



1. Attach front pivot to drawbar with two carriage bolts.

2. Remove bolt in order to spread drawbar control lever. Spread drawbar control lever and slip in place on drawbar so welded pins slip into holes in drawbar.

3. Install the front and the rear link pins. Place the rear link pin through the upper hole for the 7-foot 6-inch, 8-foot 8-inch, 9-foot 10-inch, and 11-foot sizes. There is only one hole in the drawbar control lever for the 12-foot 2-inch size.

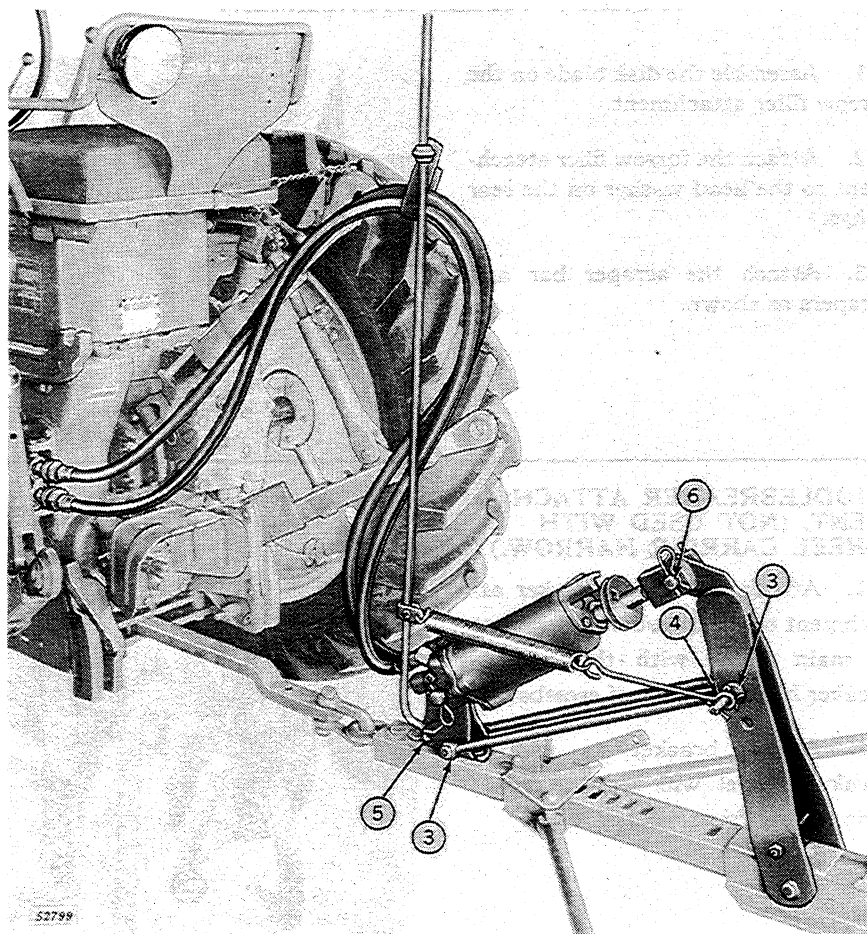
4. Install hose holder spring link over rear link pin on left side.

5. Install hose holder standard from left side of front pivot and secure with cotter pin on right side. The hose holder holds the excess length of both hoses off the ground by means of the hose support standard which is held vertical by the

spring as shown. Should the harrow break away from the tractor, the spring will permit the standard to swing forward, allowing the hoses to straighten out before they break away from tractor. After hoses break away from tractor, the standard will return to the vertical position holding the ends of the hoses out of the dirt.

6. The remote hydraulic cylinder is installed as illustrated. The front end is placed into position without removing pin, the rear pin must be removed to attach cylinder to control lever. Harrow can now be angled or straightened at any time by operating the control lever on the tractor.

CAUTION: Before operating disk harrow, be sure to oil all sliding members of drawbar as well as pivot points of cylinder adapter parts. Also be sure to set the latch dog in the forward slot in channel drawbar before hydraulic cylinder is used to angle and straighten the gangs.

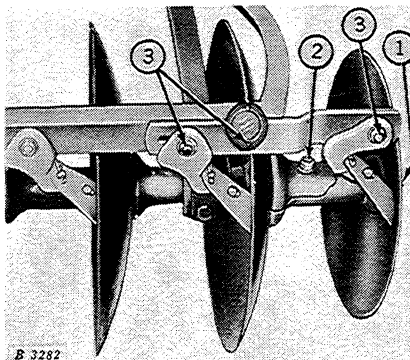


If the disk harrow is used at any time with a tractor not having a remote control cylinder, it can be controlled by a rope as explained on page 5.

It is not necessary to remove remote cylinder operating parts when using rope control.

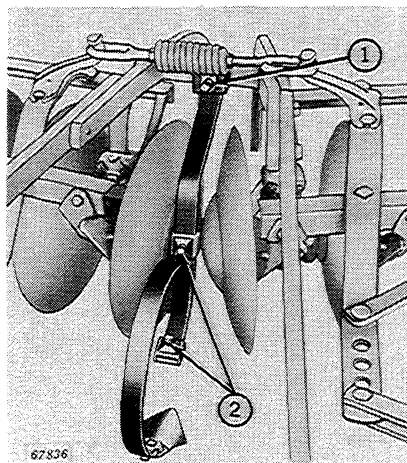
FURROW FILLER ATTACHMENT

1. Assemble the disk blade on the furrow filler attachment.
2. Attach the furrow filler attachment to the head washer on the rear gangs.
3. Attach the scraper bar and scrapers as shown.

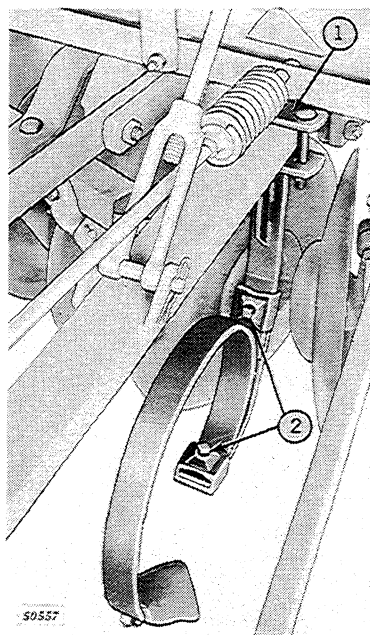


MIDDLEBREAKER ATTACHMENT. (NOT USED WITH WHEEL CARRIER HARROW.)

1. Attach the middlebreaker attachment to the crossbar of the front of main frame with the middlebreaker beam in front of crossbar.
2. Adjust bracket so middlebreaker shovel will remove center strip left by front gangs.



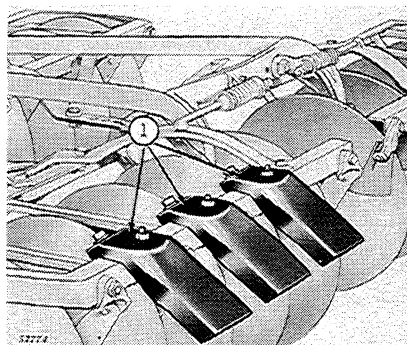
MIDDLEBREAKER ATTACHMENT. (FOR WHEEL CARRIER HARROW ONLY.)



1. Attach the middlebreaker to the center channel of the wheel frame.

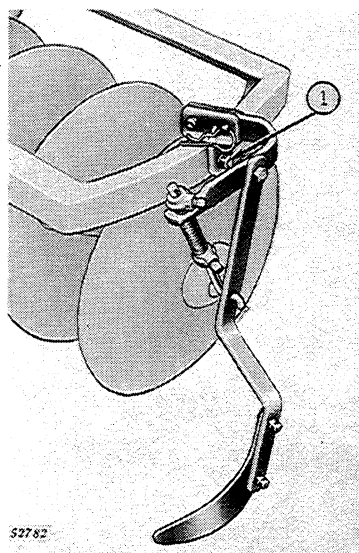
2. Adjust bracket so middlebreaker shovel will remove center strip left by front gangs.

WEIGHTS.



1. Attach the weights to the rear gang frame with the V-bolts as illustrated. Place the long side of each V-bolt toward the front. These weights come in pairs. They may also be attached to front gangs if desired.

OUTSIDE FURROW LEVELING BLADE.



1. Install the leveling attachment on the outside end of the rear gangs.

MEMORANDA



nobody can fill them like you can!

That's what the owner of this pair of work shoes is finding out—the hard way. Through a careless action, he has become the victim of an accident. It's a mighty tough way to find out that nobody else can wear your shoes or practice safety for you. And a needless, costly lesson to learn that safety is an everyday need.

Put safety into each of your workdays; read the operator's manual thoroughly; know how to operate each machine properly and safely; take the safety precautions specified; think before you act.

Make sure you wear your "shoes" everyday. Outfit yourself with a safety program now.

