John Deere
BWF
Disk Harrow

JOHN DEERE

OPERATORS MANUAL

John Deere BWF
Disk Harrow

OMB25475 F2 English

John Deere Harvester Works
OMB25475 F2

LITHO IN U.S.A. (REVISED)
ENGLISH

To the Purchaser

This new disk harrow was carefully designed and manufactured to give years of dependable service. To keep it running efficiently, read the instructions in this operator's manual. Each section is clearly identified so you can easily find the information you need—whether it is operation, lubrication, or adjustments and service. Read the Table of Contents to learn where each section is located. Use the alphabetical index for fast reference.

In addition to the equipment furnished with your harrow, attachments are available to help you do a better job in special conditions. These are described in the special equipment section of this manual and can be purchased from your John Deere dealer.

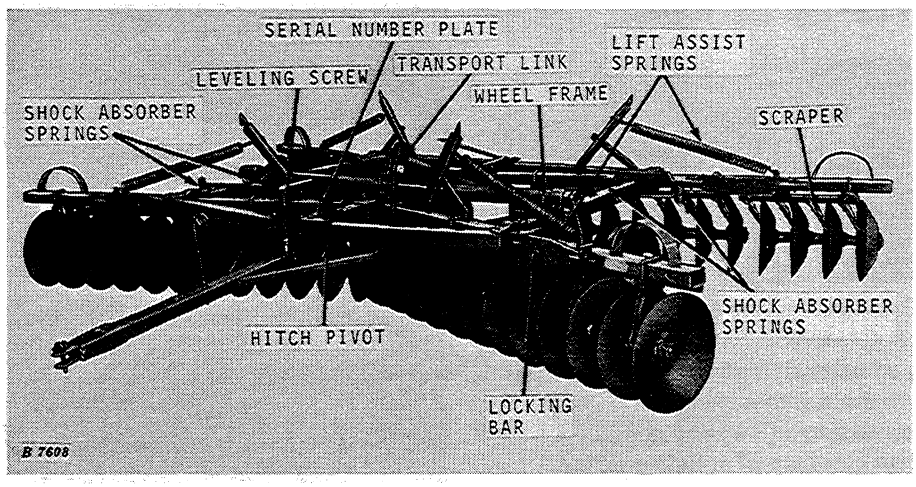
"Right-hand" and "left-hand" sides are determined by facing in the direction the harrow will travel when in use.

Record your harrow serial number in the space provided on page 31. Your dealer needs this information to give you prompt, efficient service when you order parts or attachments. If your harrow requires replacement parts, go to your John Deere dealer where you can obtain genuine John Deere parts—accept no substitutes.

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

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.

Contents



John Deere 16-Foot, 6-Inch BWF Disk Harrow

Operation

PREPARING DISK HARROW

Attaching Remote Hydraulic Cylinder

The BWF Disk Harrow can be used with any tractor equipped with an 8-inch stroke remote hydraulic cylinder that conforms to ASAE-SAE standards.

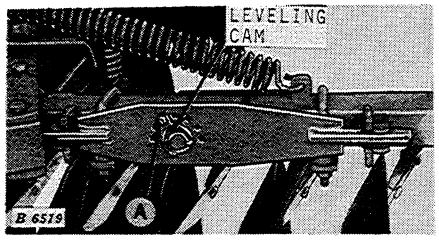
Install the remote hydraulic cylinder on the disk harrow and disconnect the transport link, see page 5.

Tires

Inflate the tires to 30 psi of air pressure.

Extension Gangs

Fold the extension down and lock in working position on the 16-foot 6-inch, 17-foot 10-inch, 19-foot 2-inch, or 20-foot 6-inch BWF Disk Harrow.



CAUTION: Extension gangs in lowered position are under spring tension.

1. Before working on extension gangs in lowered position, always secure them with locking bar.
2. Stand clear when raising or lowering gangs.
3. Always lock gangs in transport or field position.

The extension gangs may be adjusted up or down. To adjust each gang, remove the locking bar and bolt "A." Rotate the leveling cam clockwise to lower left-hand extension gangs or counterclockwise to raise the left-hand extension gangs. Rotate the leveling cam clockwise to raise the right-hand extension gangs or counterclockwise to lower the right-hand extension gangs. Replace bolt "A," and the locking bar.

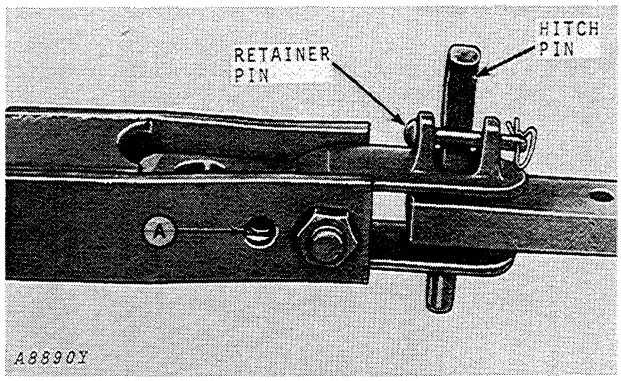
Check the gang bolt nuts occasionally, to be sure they are tight.

PREPARING TRACTOR

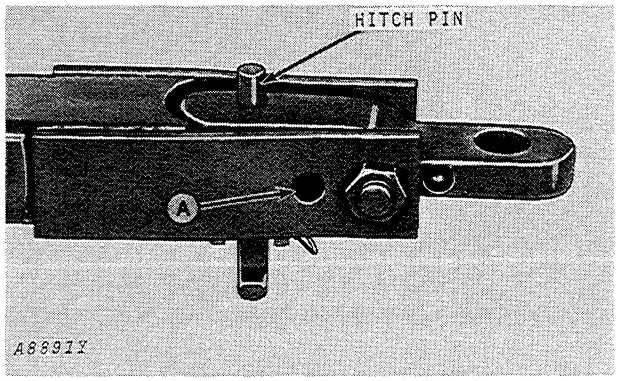
Refer to your tractor operator's manual for wheel weighting instructions and tire inflation pressures.

It is recommended that a minimum of eight front weights be used with the power weight-transfer hitch. On tractors equipped with rear rockshaft, set the rockshaft selector lever in the "D" position.

ATTACHING TO AND DETACHING FROM THE TRACTOR



Position of Disk Harrow Hitch when Tractor is Equipped with a Straight Drawbar



Position of Disk Harrow Hitch when Tractor Drawbar is Equipped with Hammerstrap

Recommended tractor drawbar height with any BWF Disk Harrow is 15 inches.

The BWF Disk Harrow hitch can be positioned for tractors with straight drawbars or for tractor drawbars equipped with hammerstraps. Remove the hitch pin from the hitch clevis and place it in hole at "A" to hold the hitch straight out.

The disk harrow must be in the raised position before attaching to, or detaching from, the tractor drawbar. Back the tractor up to the disk harrow, install the remote hydraulic cylinder on the disk harrow, and place the hoses in the hose holder. If the disk harrow is not in the transport position, raise it with the cylinder and attach the disk harrow hitch to the tractor drawbar.

When detaching the disk harrow from the tractor, be sure the disk harrow is in the raised position and the remote hydraulic cylinder hoses are disconnected before pulling the hitch pin and driving the tractor away from the disk harrow.

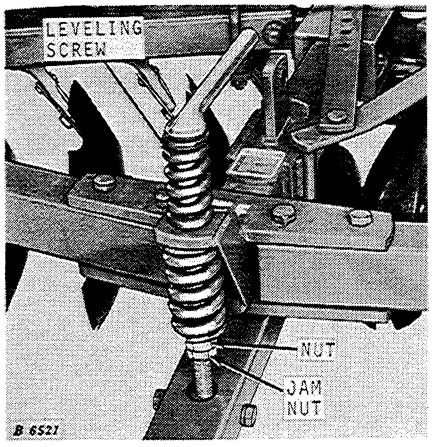
If power weight-transfer hitch is used, disconnect at point "A." Refer to pages 14 and 15.

TRACTOR DRAWBAR

For best results when disking, the tractor drawbar should be free to swing.

OPERATING ADJUSTMENTS

Leveling The Disk Harrow



Adjust the leveling screw on the drawbar to level the disk harrow and to obtain uniform penetration of the front and rear gangs.

Shortening the leveling screw (turning clockwise) will raise the rear section. Lengthening the leveling screw (turning counterclockwise) will lower the rear section.

NOTE: Be sure nut and jam nut on leveling screw are both snug against the bottom of the spring to prevent play in the spring.

Adjusting Disking Depth

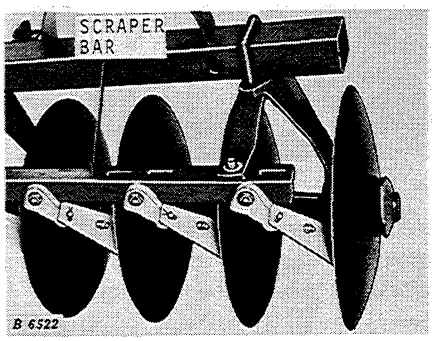
The depth of disking is controlled by the remote hydraulic cylinder control lever of the tractor and the angle of the disking gangs. The carrying wheels will act as gauge wheels to regulate the working depth of the disk harrow. After determining the correct disking depth as regulated by the carrying wheels, position stop on remote hydraulic cylinder so carrying wheels raise to same position each time. See tractor operator's manual.

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

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

Adjusting Scrapers

Two-piece, spring-loaded scrapers are regular equipment. All other scrapers are optional and the adjusting story for them may be found under "Special Equipment."



The holes in the top of each scraper bar are slotted so that by adjusting the scraper bar you can move all the scrapers on the bar in or out at one time. Also, each scraper blade can be adjusted individually.

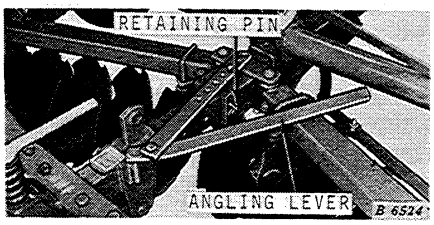
When scrapers are required, adjust blades so the scraping edge of each scraper blade is flush against the disk blade but not tight enough to prevent the gang from revolving freely.

When scrapers are not required, adjust the scraper bars to move scrapers away from the disk blades.

Angling Gangs

Front Gangs

The disk harrow must be in the raised position to angle the gangs.

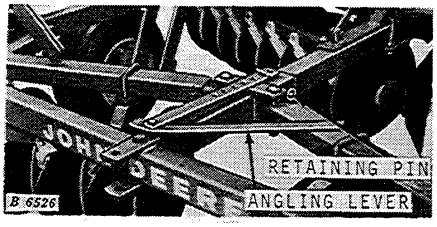


To change the angle of the front gangs, remove the retaining pin and pull the angling lever forward to decrease the angle, and push the angling lever to the rear to increase the angle.

When the desired angle has been obtained, replace the retaining pin.

Rear Gangs

To angle the rear gangs, remove the angling device from the front gangs and attach it to the rear gangs.



Remove the retaining pin and pull the angling lever to the rear to decrease the angle, and push the angling lever forward to increase the angle.

When the desired angle has been obtained, replace the retaining pin.

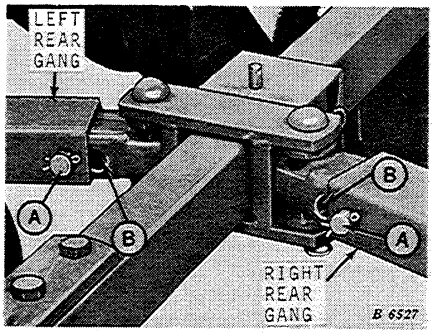
Adjusting Rear Gangs Laterally

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 soil.

The rear gangs can be set in a wide or narrow lateral position.

Certain field conditions, blade sizes, or tractor speeds may make it necessary to change this lateral position to eliminate a ridge or furrow between the rear gangs.

For 18-inch blades, holes "B" will usually be most satisfactory. For 20- and 22-inch blades it may be necessary to use holes "A" if the disk harrow is run full angle.



Rear Gangs in Wide Lateral Position

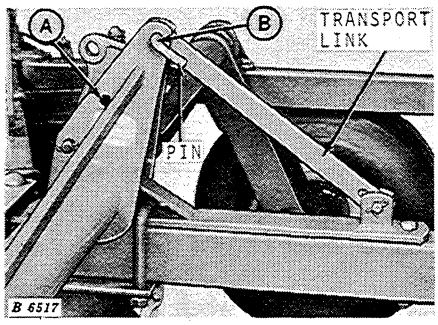
To place the rear gangs in the narrow position, pull pins "A," move the gangs inward to hole "B." Replace the pin.

OPERATING SPEED

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

TRANSPORTING

Use the transport link to hold disk harrow in a raised position for transporting or storage.



To connect the transport link: (1) Fully extend the remote hydraulic cylinder. (2) Remove the pin from hole "A." Line up the hole in the end of the transport link with hole "B," and install the pin.

NOTE: If desired, the remote hydraulic cylinder can now be removed and the disk harrow will stay in the raised position.

Lock the tractor swinging drawbar in a fixed position.

CAUTION: When transporting the disk harrow on a smooth surface road, do not exceed 12 mph. Reduce speed considerably when traveling over rough ground.

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.

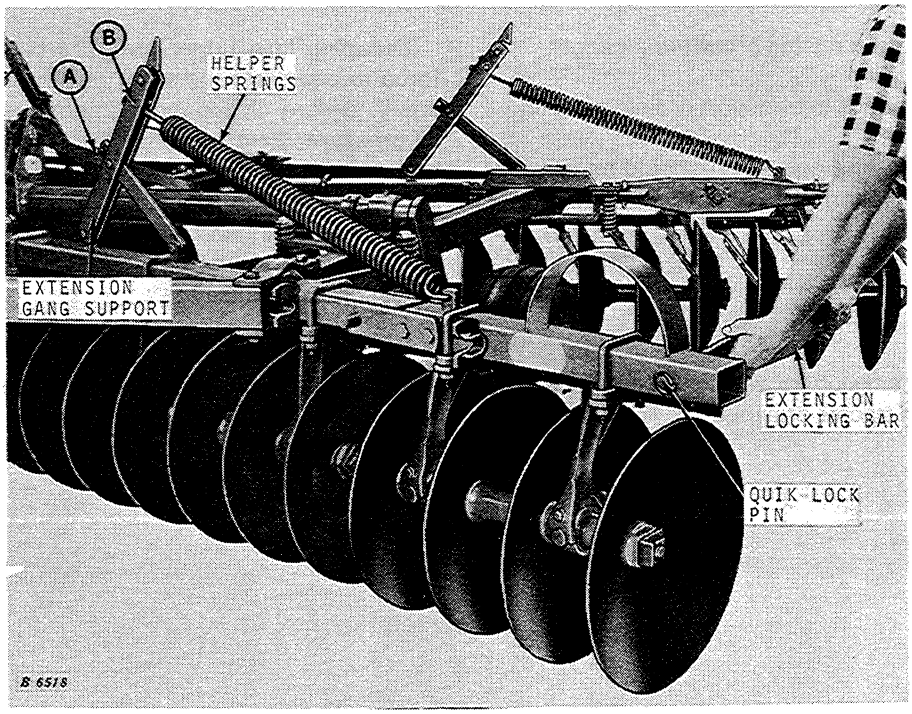
Extension Gangs

CAUTION: Extension gangs in lowered position are under spring tension.

1. **Before working on extension gangs in lowered position, always secure them with locking bar.**
2. **Stand clear when raising or lowering gangs.**
3. **Always lock gangs in transport or field position.**

Install the extension gang locking bar in the hole in the end of the extension gang, and secure it in place with a Quik-Lock pin. Raise the extension gang and fold it over against the extension gang support.

Remove drilled rivet from extension gang support at "A" and install at "B."



Safety Suggestions

The safety of the operator was one of the prime considerations in the minds of John Deere engineers when this planter was designed. Shielding, simple adjustments, and other safety features were built into the planter wherever possible.

However, investigation of thousands of farm accidents show that careless use of farm machinery causes nearly one-third of all farm accidents. You can make your farm a safer place to live and work if you observe the safety suggestions given. Study these suggestions carefully and insist that they be followed by those working with you and for you.

Extension gangs in lowered position are under spring tension.

1. Before working on extension gangs in lowered position always secure them with locking bar.

2. Stand clear when raising or lowering gangs.

3. Always lock gangs in transport or field position.

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

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

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

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

Connect transport link when transporting disk harrow long distances.

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

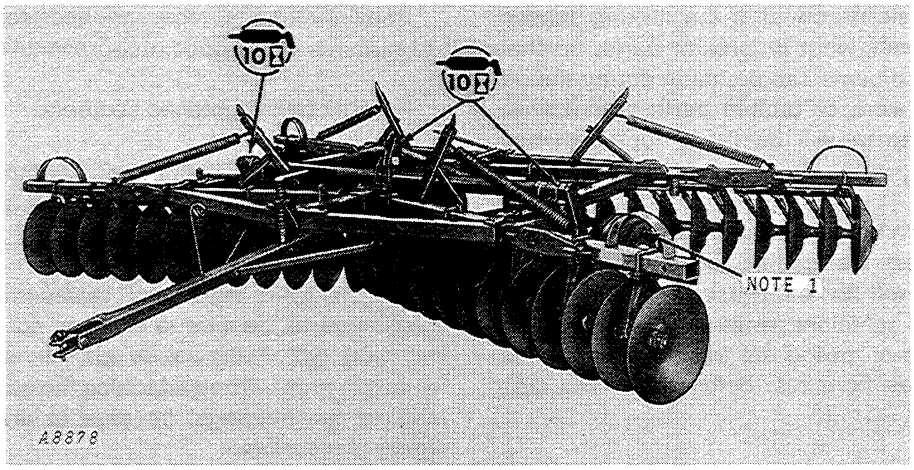
When transporting disk harrow on a road or highway at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. In this regard check local governmental regulations. Lights and devices may be obtained from your John Deere dealer.

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

Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

Lubrication



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

The initial lubrication is of the 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, but avoid excessive lubrication. Excessive lubricant gathers dust.

SYMBOL	
10	Lubricate with John Deere Multi-Purpose Lubricant or an equivalent SAE multipurpose-type grease at hourly intervals indicated on the symbol.

NOTE: Repack wheel bearings once each year with wheel bearing grease.

Oil all pivot points of remote hydraulic cylinder control parts and drawbar.

ANTIFRICTION BEARINGS

NOTE: The antifriction gang bearings are packed and sealed at the factory. Grease these bearings only once or twice a season depending on the amount the disk harrow is used.

Fill bearing with hand gun until grease emerges from seal lips.

IMPORTANT: Excessive pressure will blow out the seals.

Service

Inspect your disk harrow 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 they 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.

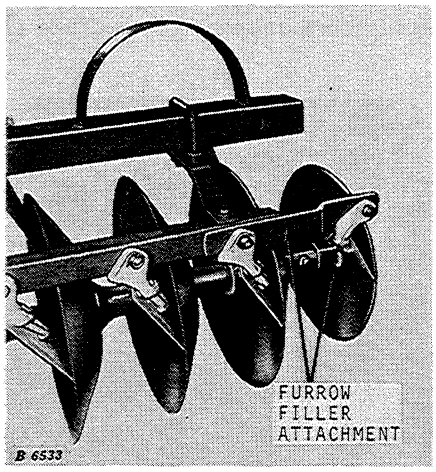
Keep all bolts tightened securely.

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

IMPORTANT: 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 the gang frame standards to the bearings, be sure to draw up bolts as tightly as possible.

Special Equipment

FURROW FILLER ATTACHMENT
(Spring-Loaded Scraper)

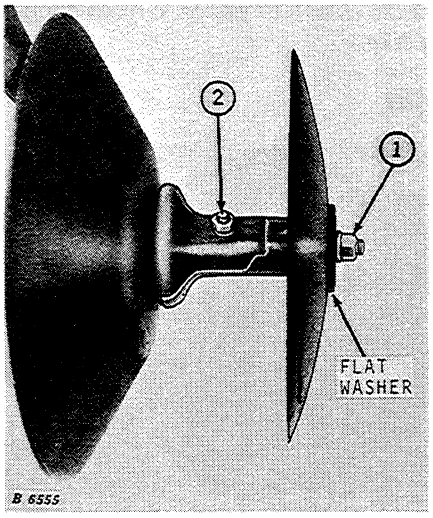


The furrow filler attachment, when mounted at the outer end of rear gang, will fill and level the furrow left by the rear gang outer disk blades.

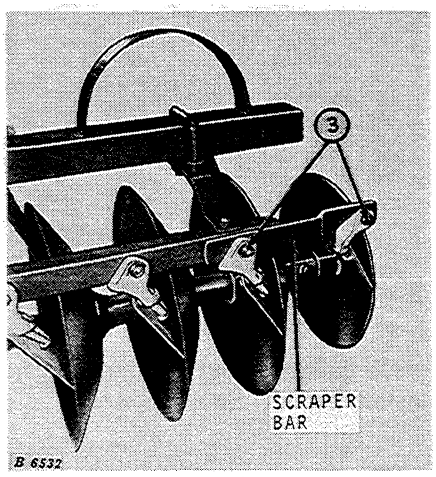
Disk blades are not furnished with this attachment but the following sizes are recommended:

When Disk Harrow is Equipped With This Size Disk Blades	Use This Size Disk Blades on Furrow Filler
22-inch	18-inch
20-inch	16-inch
18-inch	14-inch

Assembly

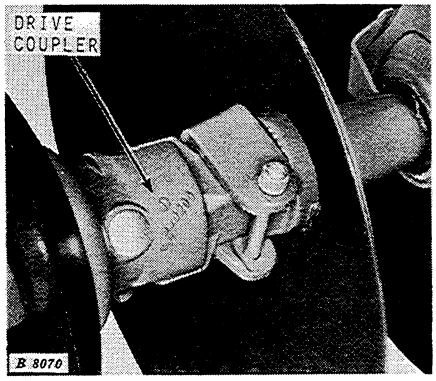


1. Assemble a disk blade on each disk attaching spool.
2. Assemble a disk attaching spool and clamp to the head washer on each rear gang.



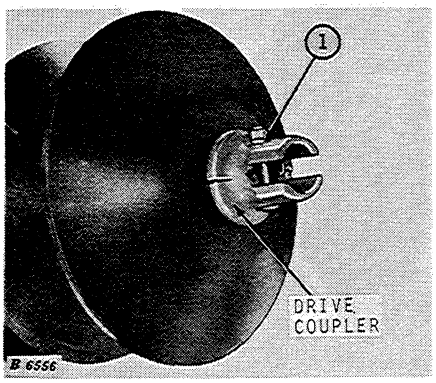
3. Mount a scraper attaching bar and scrapers on each rear gang. (See page 23 for adjusting scrapers.)

DRIVE COUPLER FOR EXTENSION GANGS

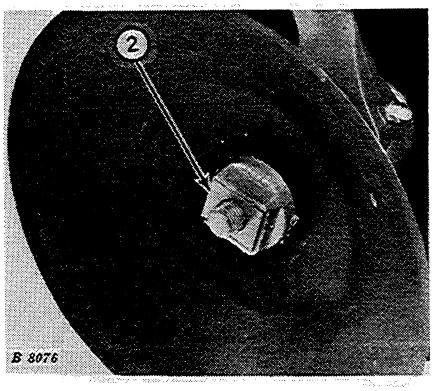


The drive coupler is available as special equipment and connects extension gangs to main gangs for positive gang drive.

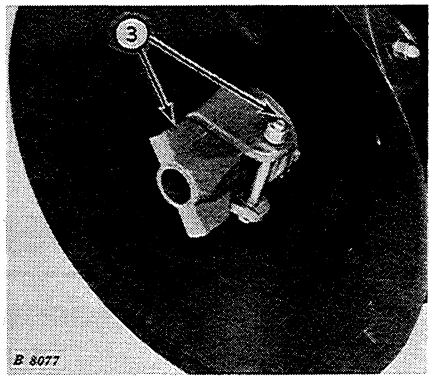
Assembly



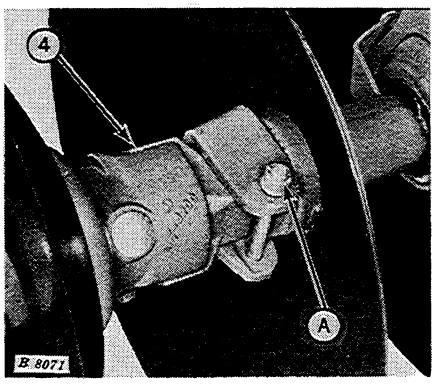
1. Bolt drive coupler halves to head washer of extension as shown above.



2. Remove gang bolt nut and nut lock from gang bolt and install new nut lock as shown.



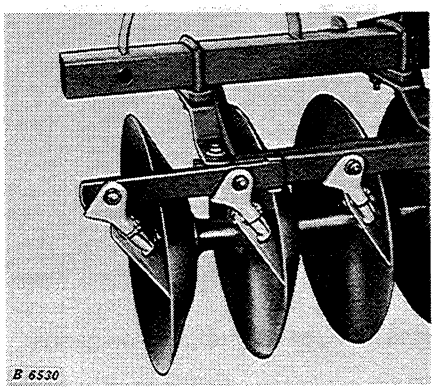
3. Install drive coupler nut and nut clamp as shown.



4. Swing extension gang down into working position. Align drive coupler and drive coupler nut so they are in position shown above. Tighten nut clamp at "A."

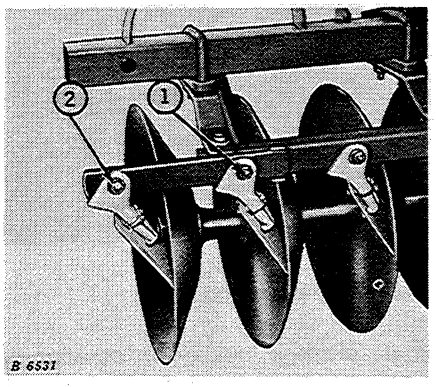
NOTE: The extension gangs can be placed into transport position without removing the drive coupler from the head washer.

END DISK SCRAPER ATTACHMENT (Spring-Loaded Scrapers)



The end scraper attachment is available as special equipment. The end scrapers will clean the two inside rear disk blades and the two outside front disk blades.

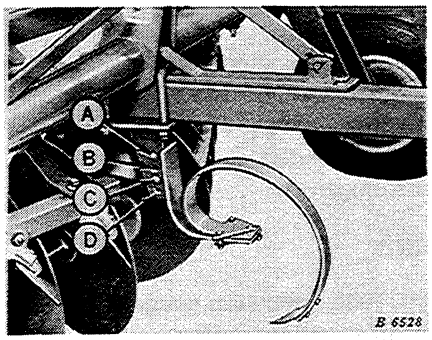
Assembly



1. Install end scraper brace to scraper bars with longer bolt.

2. Install end scraper on end scraper brace and adjust the scraper so the scraping edge is flush against the disk but not tight enough to prevent the disk gangs from revolving freely.

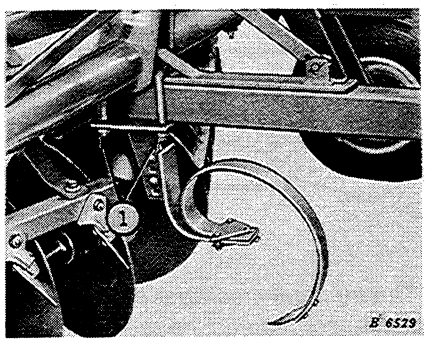
MIDDLEBREAKER ATTACHMENT



The middlebreaker attachment is available as special equipment to remove the center strip left by the front gangs.

If the disk harrow is equipped with 18 or 20-inch disk blades use holes "A" and "C." If the disk harrow is equipped with 22-inch disk blades use holes "B" and "D."

Assembly



1. Install middlebreaker on the center section of the disk harrow with two U-bolts.

HIGH-CLEARANCE SPRING-LOADED SCRAPERS

Keep scrapers adjusted tightly against disk blades. Reduce tightness only if there is not enough ground thrust to keep the gangs rotating.

It is recommended that drive couplers be used with extension gangs.

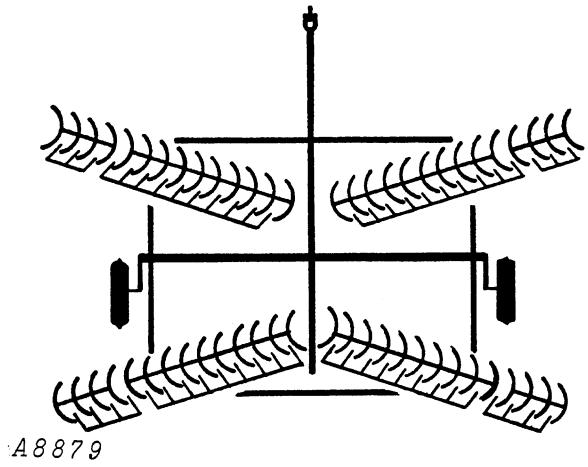
Assembly

CAUTION: Extension gangs in lowered position are under spring tension.

Before working on extension gangs in lowered position, always secure them with locking bar.

Stand clear when raising or lowering gangs.

Always lock gang in transport or field position.



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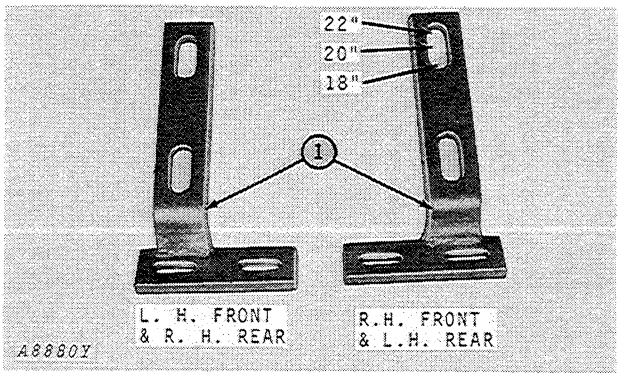
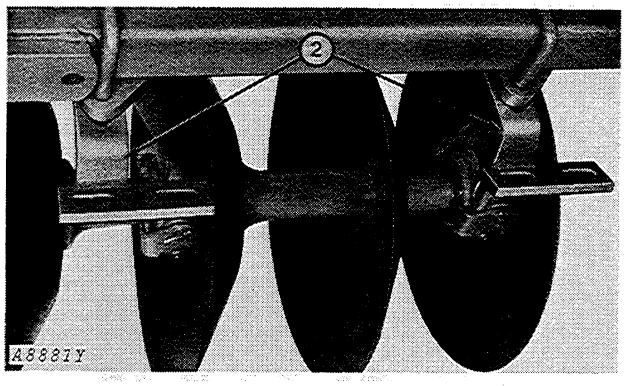
NOTE: The front gang scraper bars have a different number of scrapers than do the rear. The same is true with the extension gang scraper bars. The same total number of scrapers is required for both the front and the back, but the pattern must be followed as shown in the above sketch.

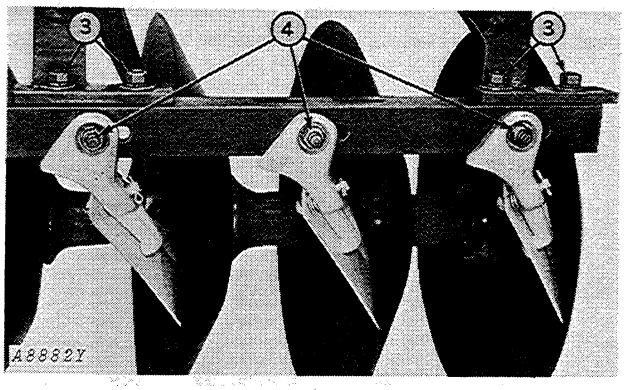


1. Lay the scraper bar supports on the floor and determine right and left-hand application as shown. When mounting the supports they should be positioned on the U-bolts as shown for 18, 20, or 22-inch blades respectively.



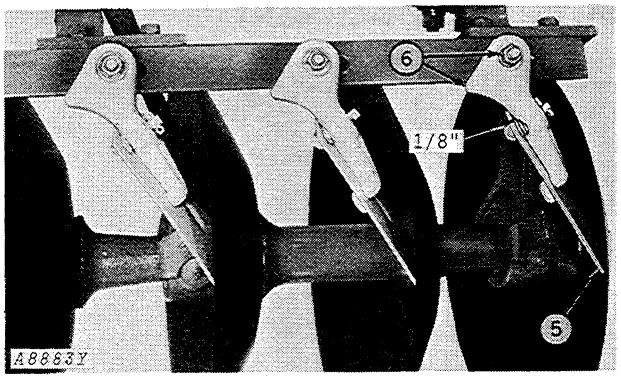
2. Install scraper bar supports on gangs.

NOTE: Be certain supports are mounted parallel to gang frame.



3. Install scraper bar loosely.

4. Install scrapers loosely on scraper bar. Move scrapers to end of slot away from disk blade to provide maximum adjustment. Adjust scraper bar until scrapers fit tightly against disk blades; then tighten scraper bar brackets.

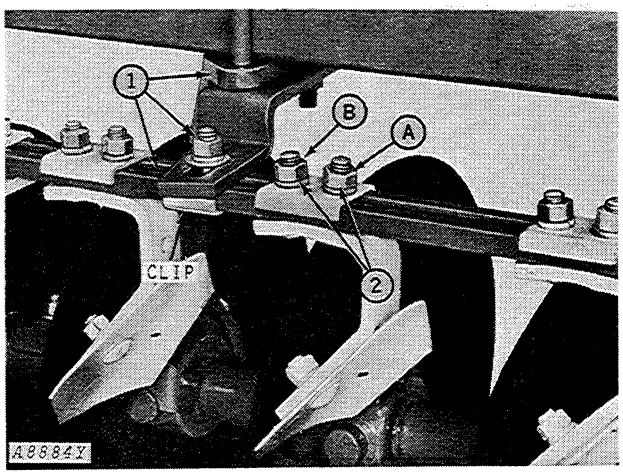


5. Tighten scraper blade to compress spring until 1/8-inch gap remains at the top of the scraper.

6. Adjust bracket in slot until disk blade holds scraper blade in position indicated above, then tighten bolt.

NOTE: Be certain bottom of scraper bracket fits flush against scraper bar.

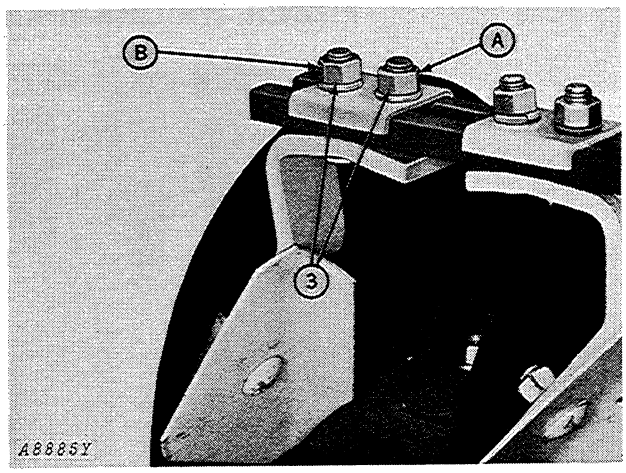
MOLDBOARD SCRAPERS



1. Install scraper bar supports and scraper bars. Attach scraper bars with clips.

NOTE: If disk harrow has extensions be certain to provide clearance between main gang scraper bars and extension gang scraper bars when in operating position.

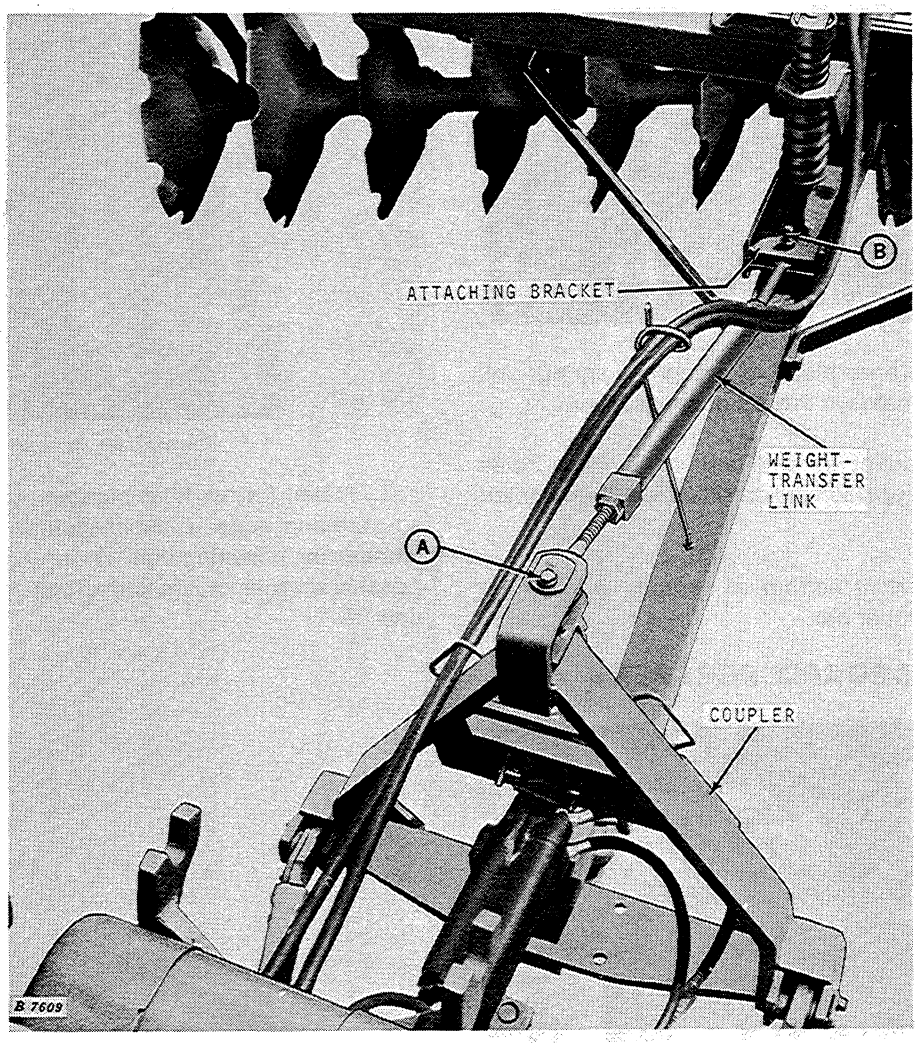
2. Install scraper assemblies. Adjust each scraper so scraping edge is flush against the disk but not tight enough to prevent the disk gangs from revolving freely. Tighten scraper by loosening bolt "A" and tightening bolt "B." Loosen the scrapers by loosening bolt "B" and tightening bolt "A."



Furrow Filler Scraper

3. Install furrow filler scraper. Adjust the scraper so scraping edge is flush against the disk. Tighten scraper by loosening bolt "A" and tightening bolt "B." Loosen scraper by loosening bolt "B" and tightening bolt "A."

POWER WEIGHT-TRANSFER HITCH ATTACHMENT



Place rockshaft selector lever in "D" position.

Turn the power weight-transfer hitch control valve to the rockshaft position (lever to left side of tractor).

Raise the coupler with the rockshaft control lever until the coupler drawbar is as high as the regular tractor drawbar (draft links should be nearly level).

Connect the disk harrow to the coupler.

⚠ CAUTION: Always place the drawbar pin retainer over the drawbar pin to prevent accidental implement disconnection during operation.

Connect the upper adjustable eyebolt of the weight-transfer link to the top pin of the coupler at point "A" and the lower sliding eyebolt to the disk harrow at point "B." Tighten the coupler draft link and weight-transfer link attaching pin retaining screws securely.

Move the control valve operating lever to the weight-transfer position (to right side of tractor).

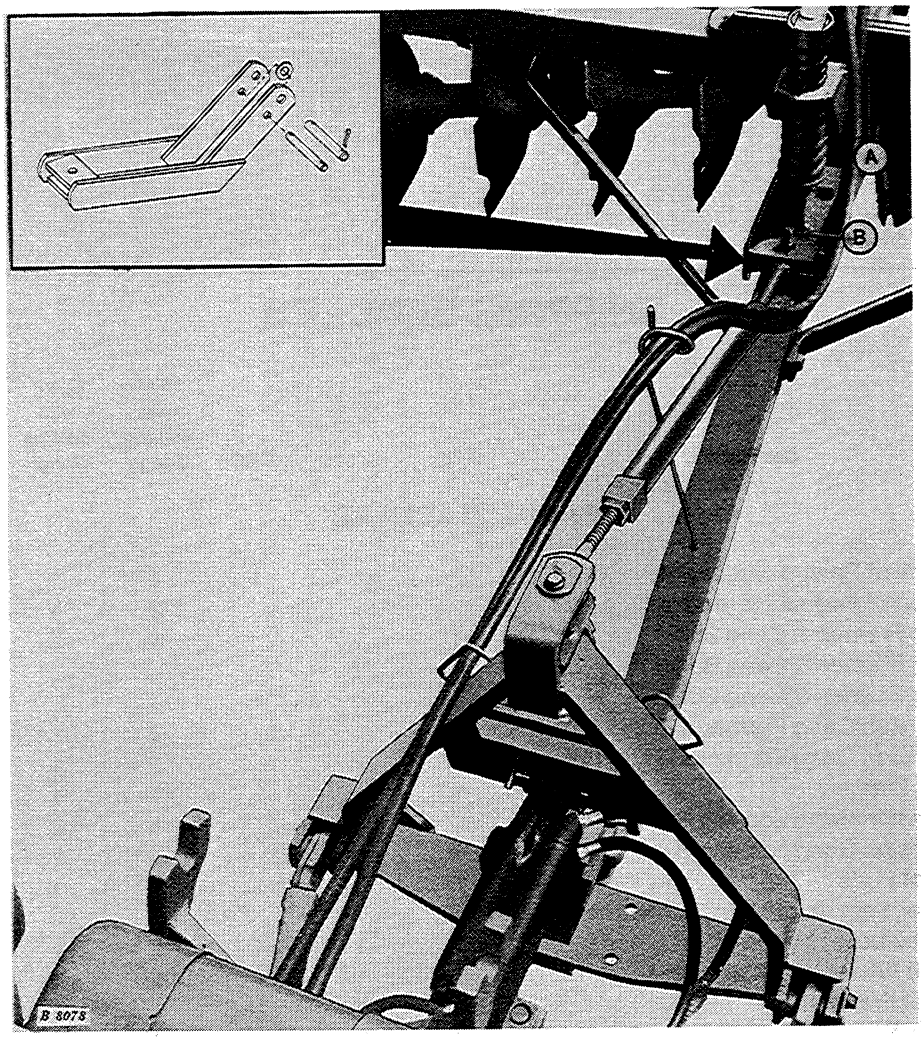
Move the rockshaft selector lever to the "L" position.

With the disk harrow at working depth, loosen the upper eyebolt lock nut and adjust the weight-transfer link until the coupler frame is nearly vertical. The remote cylinder will be at mid-stroke to allow movement when passing over hills and swales. The link is adjustable between 47 and 62 inches. Do not adjust link beyond 62 inches.

⚠ CAUTION: Shut off tractor engine when making adjustments on the weight-transfer hitch.

Refer to the power weight-transfer hitch instructions in the tractor operator's manual for detailed information on operation of the hitch.

Assembly



Install bracket on hitch at point "A."

Install weight-transfer link at point "B."

Assembly

SHIPPING BUNDLES

Bundle Number	Description	11′2″	12′6″	13′10″	16′6″ with Folding Gangs	17′10″ with Folding Gangs	19′2″ with Folding Gangs	20′6″ with Folding Gangs
	BASIC MACHINE							
BA20046	Carton of Parts & Hardware	1	1	1	1	1	1	1
BA20047	Carton of Parts & Hardware	..	..	..	2	1	1	1
BA20113	Gang Frames & Gang Bolts	1	..	..	1	1	..	..
BA20114	Gang Frames & Gang Bolts	..	1	..	..	..	..	..
BA20115	Gang Frames & Gang Bolts	..	..	1	..	..	1	1
BA20123	Extension Gang Frames & Gang Bolts	..	..	..	2	..	1	..
BA20124	Extension Gang Frames & Gang Bolts	..	..	..	..	1	..	1
BB12651	Main Frame	1	1	1	1	1	1	1
BB12657	Extension Gang Locking Bar	..	..	..	1	1	..	..
BB12658	Extension Gang Locking Bar	..	..	..	..	..	1	1
BB12901	Box of Parts	1	1	1	1	1	1	1
BB13117	Center Section of Main Frame and Drawbar	1	1	1	1	1	1	1
BB13611	6-Bolt Wheel Hub & Spindle*	1	1	1	1	1	1	1
BB13613	Wheel Frame	1	1	1	1	1	1	1
JD 1102	Wheel*	2	2	2	2	2	2	2

* *Dual Wheel Attachment Requires Twice the Quantities Shown.*

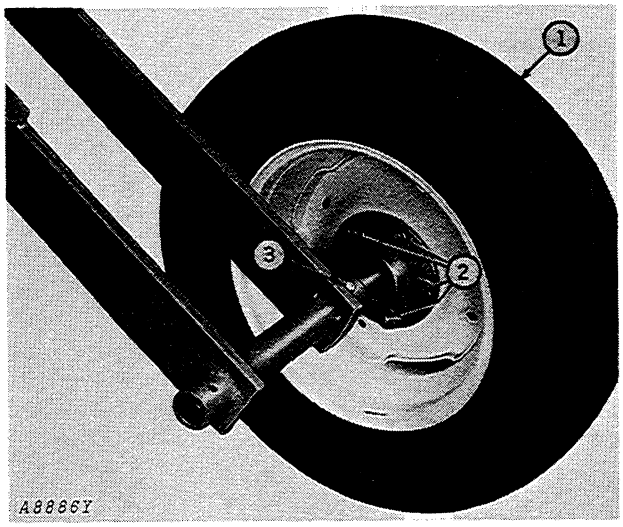
STANDARD CLEARANCE SCRAPERS

BB11400	Spring-Loaded Scrapers (Spherical)	7	8	9	11	12	13	14
BB11401	One-Piece Scrapers (Spherical)	7	8	9	11	12	13	14
BB13393	Heavy-Duty Spring-Loaded Scraper (Spherical)	7	8	9	11	12	13	14
BB13394	Heavy-Duty Spring-Loaded Scraper (Cone)	7	8	9	11	12	13	14
BB11402	Scraper Hardware (12)	1	..	..	1	..	..	..
BB11403	Scraper Hardware (16)	1	2	1	2	3	2	1
BB11404	Scraper Hardware (20)	..	..	1	..	..	1	2
BB13446	Scraper Bars	..	1	..	..	..	..	..
BB13449	Scraper Bars	1	..	..	1	1	..	..
BB13450	Scraper Bars	..	..	1	..	..	1	1
BB13451	Scraper Bars	..	..	..	1	..	1	..
BB13452	Scraper Bars	..	..	..	..	1	..	1
BB13494	Scraper Bar Supports	3	3	3	5	5	5	5
BB13496	Scraper Bar Hardware	1	1	1	..	..	..	..
BB13497	Scraper Bar Hardware	..	..	..	1	1	1	1

Bundle Number	Description	11′2″	12′6″	13′10″	16′6″ with Folding Gangs	17′10″ with Folding Gangs	19′2″ with Folding Gangs	20′6″ with Folding Gangs
	HIGH CLEARANCE SCRAPERS							
BB13393	Heavy-Duty Straight-Shank Spring-Loaded (Spherical)	7	8	9	11	12	13	14
BB13394	Heavy-Duty Straight-Shank Spring-Loaded (Cone)	7	8	9	11	12	13	14
BB13395	Scraper Hardware (12)	1	..	..	2	1	1	..
BB13396	Scraper Hardware (16)	..	1	..	..	1	..	1
BB13397	Scraper Hardware (20)	2	2	3	3	3	4	4
BB13446	Scraper Bars	..	1	..	..	..	..	..
BB13449	Scraper Bars	1	..	..	1	1	..	..
BB13450	Scraper Bars	..	..	1	..	..	1	1
BB13451	Scraper Bars	..	..	..	1	..	1	..
BB13452	Scraper Bars	..	..	..	..	1	..	1
BB13454	Scraper Bar Supports	3	3	3	5	5	5	5
	MOLDBOARD SCRAPERS							
BB13251	Moldboard Scrapers	8	9	10	12	13	14	15
BB13252	Scraper Hardware (6)	2	1	..	3	2	1	..
BB13253	Scraper Hardware (10)	2	3	4	3	4	5	6
BB13254	Scraper Bars	..	..	..	1	..	1	..
BB13255	Scraper Bars	..	..	..	..	1	..	1
BB13256	Scraper Bars	1	..	..	1	1	..	..
BB13257	Scraper Bars	..	1	..	..	..	..	..
BB13258	Scraper Bars	..	..	1	..	..	1	1
BB13261	Scraper Bar Supports	3	3	3	5	5	5	5
	FURROW FILLER ATTACHMENT							
BB12168	2 - 14-Inch Solid Disk Blades	1	1	1	1	1	1	1
BB12655	Furrow Filler Attachment	1	1	1	1	1	1	1
BB13516	Furrow Filler Attachment (for Moldboard Scrapers)	1	1	1	1	1	1	1
BB13517	Furrow Filler Attachment (for Spring-Loaded Scrapers)	1	1	1	1	1	1	1
	END DISK SCRAPER ATTACHMENT							
BB11400	Straight-Shank Spring-Loaded Scrapers (Spherical)	1	1	1	1	1	1	1
BB12653	Attaching Brackets	1	1	1	1	1	1	1
BB13393	Heavy-Duty Straight-Shank Spring-Loaded Scrapers (Spherical)	1	1	1	1	1	1	1
BB13394	Heavy-Duty Straight-Shank Spring-Loaded Scrapers (Cone)	1	1	1	1	1	1	1

Bundle Number	Description	11'2"	12'6"	13'10"	16'6" with Folding Gangs	17'10" with Folding Gangs	19'2" with Folding Gangs	20'6" with Folding Gangs
	OPTIONAL EQUIPMENT							
BB12654	Middle Breaker Attachment	1	1	1	1	1	1	1
BB12931	Bearing and Standard	..	..	..	..	..	1	1
BB13172	Power Weight Transfer Hitch Attachment	1	1	1	1	1	1	1
BB13214	Drive Coupler	..	..	..	2	2	2	2
BB13215	Drive Coupler Clamp	..	..	..	2	2	2	2
BB13639	Tire & Wheel (may be ordered in lieu of JD1102)	2	2	2	2	2	2	2

DRAWBAR AND WHEEL CARRIER

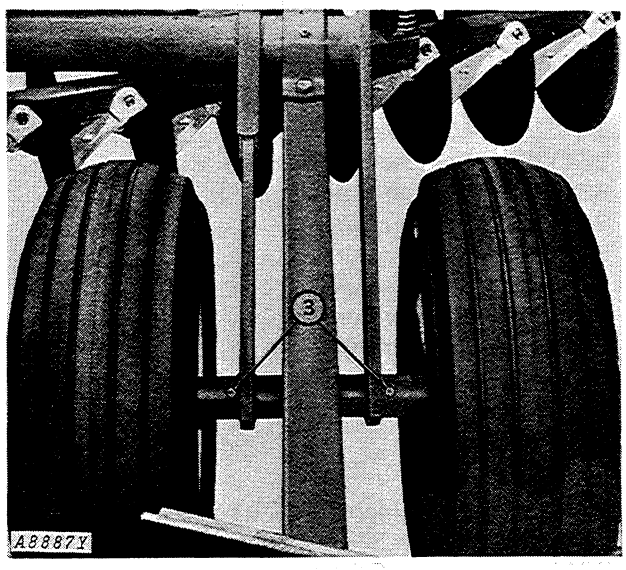


1. Mount the tires on the wheels. Use 11.00L-15 tires and inflate to 30 psi of air pressure.

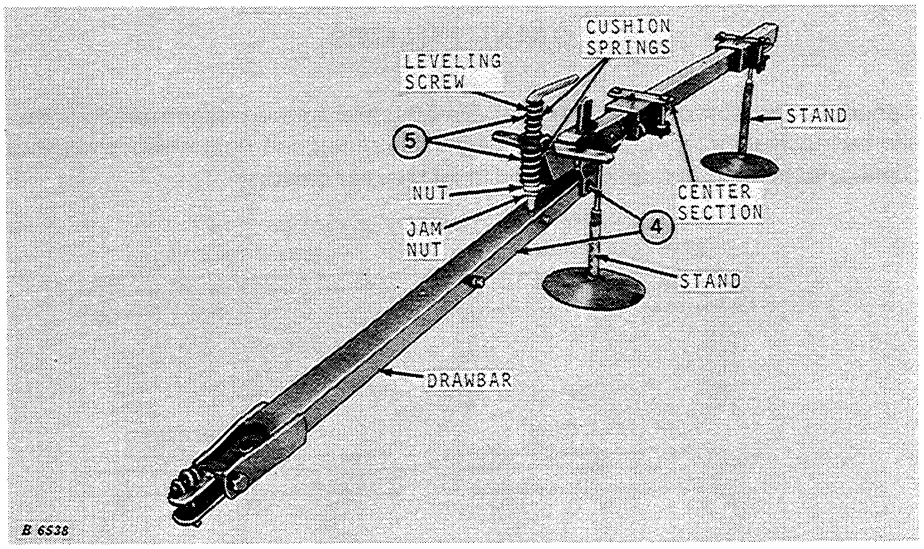
2. Attach the wheels and tires to the wheel hub.

3. Attach each wheel and axle assembly to the wheel frame.

NOTE: When the wheels are mounted on the inside of the wheel frame, the wheel tread is 80 inches. When the wheels are mounted on the outside of the wheel frame, the wheel tread is 120 inches.



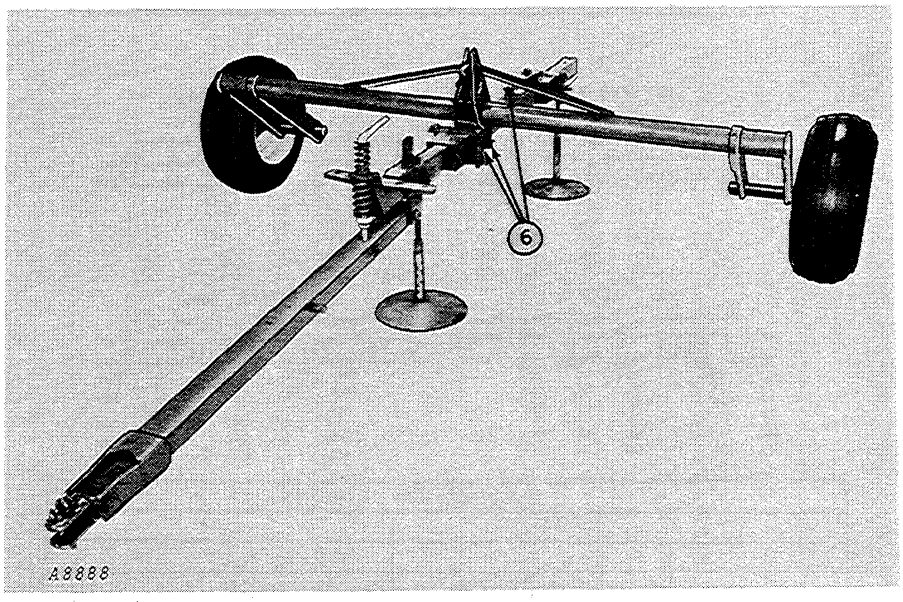
Dual Wheel Attachment



4. Unfold drawbar into position shown and set center section on stands.

5. Install leveling screw on center section and drawbar as shown.

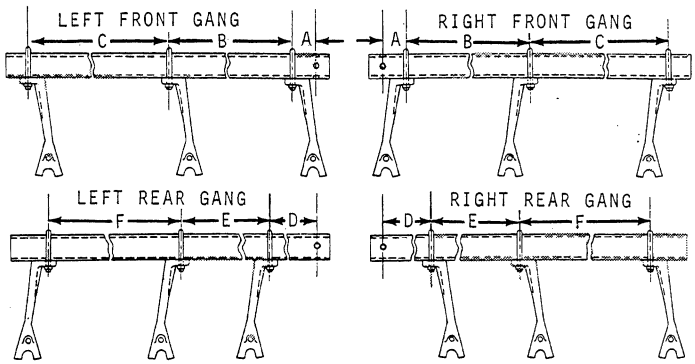
NOTE: Be sure nut and jam nut on leveling screw are both snug against the bottom of the spring to prevent play in the spring.



6. Attach the wheel frame to the center section of the main frame with U-bolts and 5/8 x 5-1/2-inch cap screws.

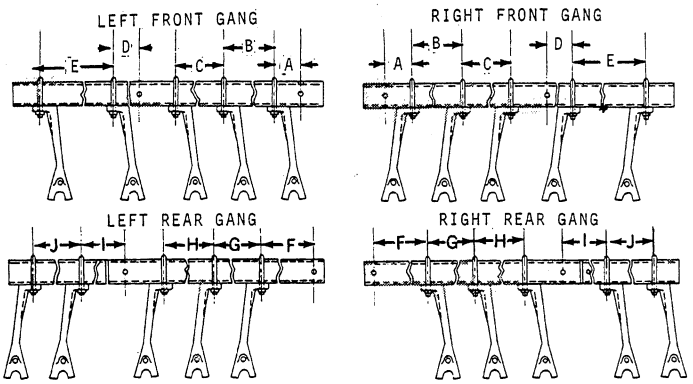
GANG FRAMES

The bearing standards and scraper bar brackets are attached to the gang frames at the factory. If for any reason they should be incorrectly located, the following illustrations and charts show their correct location. **The scraper bar brackets point out on the front gangs and in on the rear gangs.**



SIZE	DIMENSION IN INCHES					
	FRONT			REAR		
	A	B	C	D	E	F
11'2"	3	25-1/2	25-1/2	10-3/4	25-1/2	25-1/2
12'6"	3	25-1/2	34	10-3/4	25-1/2	34
13'10"	3	34	34	10-3/4	25-1/2	42-1/2

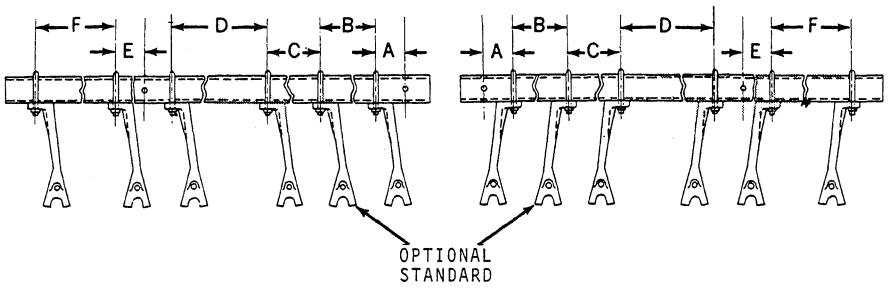
B 6540



B 7133

SIZE	DIMENSIONS IN INCHES									
	FRONT					REAR				
	A	B	C	D	E	F	G	H	I	J
16'6"	3	25 1/2	25 1/2	10 1/2	17	10 3/4	25 1/2	25 1/2	10 1/2	17
17'10"	3	25 1/2	25 1/2	10 1/2	25 1/2	10 3/4	25 1/2	25 1/2	10 1/2	25 1/2
19'2"	3	34	34	10 1/2	17	10 3/4	25 1/2	42 1/2	10 1/2	17
20'6"	3	34	34	10 1/2	25 1/2	10 3/4	25 1/2	42 1/2	10 1/2	25 1/2

OPTIONAL BEARINGS AND STANDARDS ON 19'2" AND 20'6" BWF DISK HARROWS



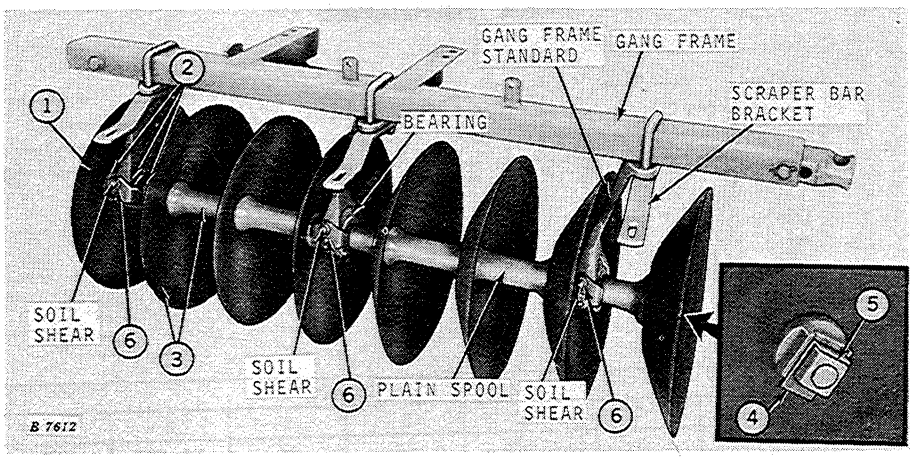
DIMENSIONS IN INCHES						
SIZE	A	B	C	D	E	F
19'2"	3	17	17	34	10-1/2	17
20'6"	3	17	17	34	10-1/2	25-1/2

B 6806

Install the optional bearings and standards as shown above. The bearing, standard, and spool ends replace the second plain spool from the inside end of each front gang.

The optional standard does not include a scraper bar bracket.

GANGS



Left Rear Gang - 16-Foot 6-Inch BWF Disk Harrow

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

The extension gangs on the 16-foot 6-inch or 19-foot 2-inch BWF Disk Harrows are four disk, two bearing gangs. The extension gangs on the 17-foot 10-inch or 20-foot 6-inch BWF Disk Harrows are five disk, two bearing gangs. They should be assembled in the same manner as the main gangs.

Remember, disks on front gangs must be assembled to throw the soil out and rear gangs must be assembled to throw the soil in.

Remove the bearings and plain spools from the gang bolts.

Remove the bearings, cardboard washers (when antifriction bearings are used), and plain spools from the gang bolts. Discard the cardboard washers.

1. Install a disk blade next to the bumper on the gang bolt.

2. Install a spool end, a bearing, and another spool end.

3. 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.

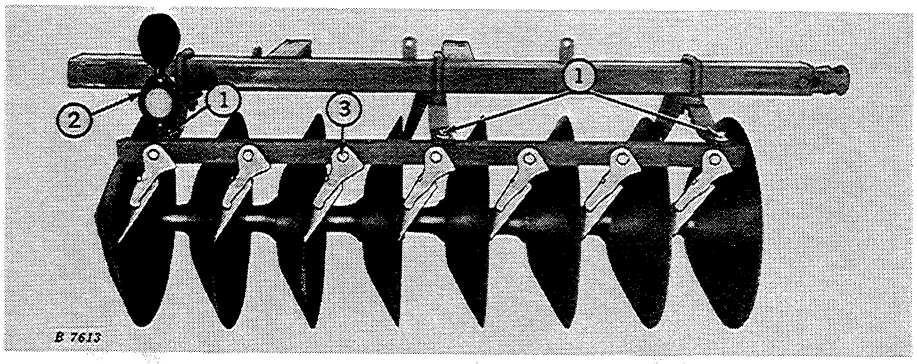
4. Install a nut lock and nut on the gang bolt, with the flat side of the nut to the outside. Tighten the gang bolt nut very tight. After the nut is tightened, tap the bumper end of the gang bolt with a hammer, and then again tighten the gang bolt nut to 800 ft-lbs of torque. Approximately 800 ft-lbs is obtained when a 175-pound man uses a 4-1/2-foot pipe extension on the wrench handle.

5. Bend the nut lock down over the gang bolt nut.

6. Place the gang frames in position on the bearings and attach them to the bearings with the bolts.

NOTE: Be certain soil shears are placed on rear of standards as shown.

SCRAPER BARS AND SCRAPERS



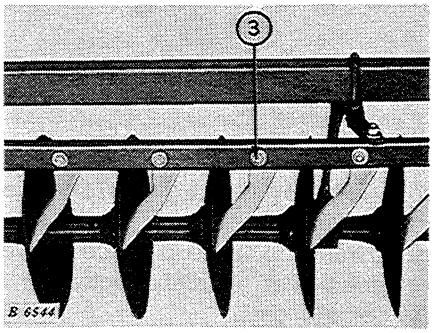
Two-Piece Spring-Loaded Scrapers Used with Cone Disk Blades

NOTE: Two-piece, spring-loaded scrapers are regular equipment. One-piece scrapers and two-piece, heavy-duty, spring-loaded scrapers are optional. Either style scraper attaches to the scraper bar in the same holes, but one-piece scrapers attach on the inside of the scraper bar and two-piece scrapers attach on the outside of the scraper bar. High clearance and moldboard scrapers are also optional. See SPECIAL EQUIPMENT for assembly of these scrapers.

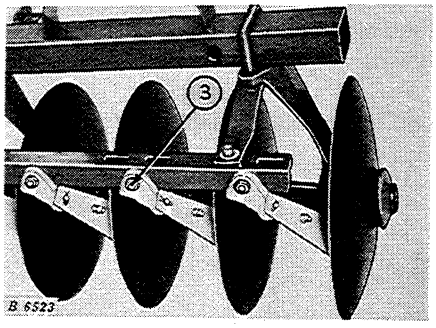
1. Bolt each scraper bar to the scraper bar brackets. Center the bolts in the slotted holes so there will be room for adjustment.

2. Attach the reflector bracket and the reflector to the outer end of the left-hand rear gang frame. (Attach a reflector bracket and reflector to the outer end of the right-hand rear gang frame.) Red reflectors face rear and amber reflectors face forward.

3. Attach the scrapers to the scraper bar. Adjust each scraper so the scraping edge is flush against the disk but not tight enough to prevent the disk gangs from revolving freely.

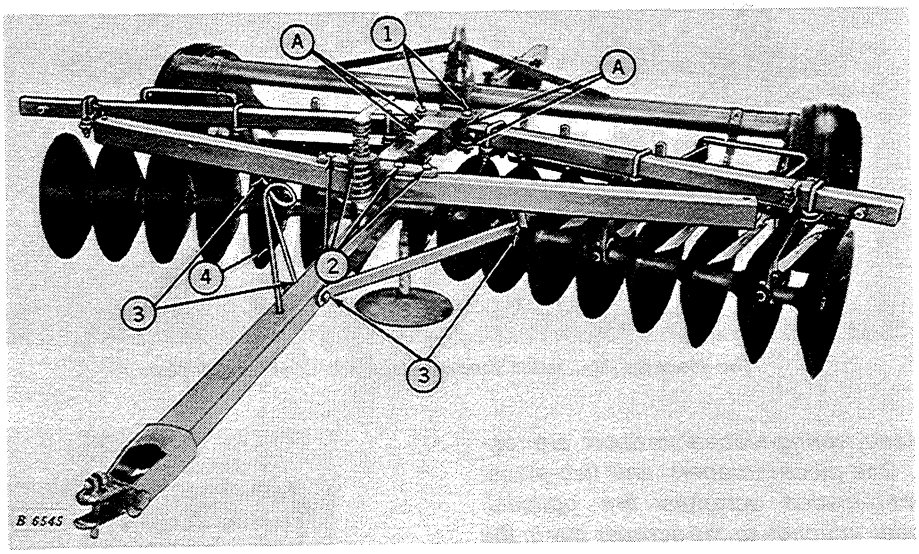


One-Piece Scrapers
Used with Spherical Disk Blades



Two-Piece Spring-Loaded Scrapers
Used with Spherical Disk Blades

INSTALLING GANGS ON THE MAIN FRAME

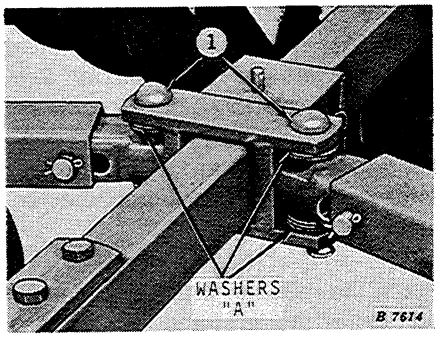


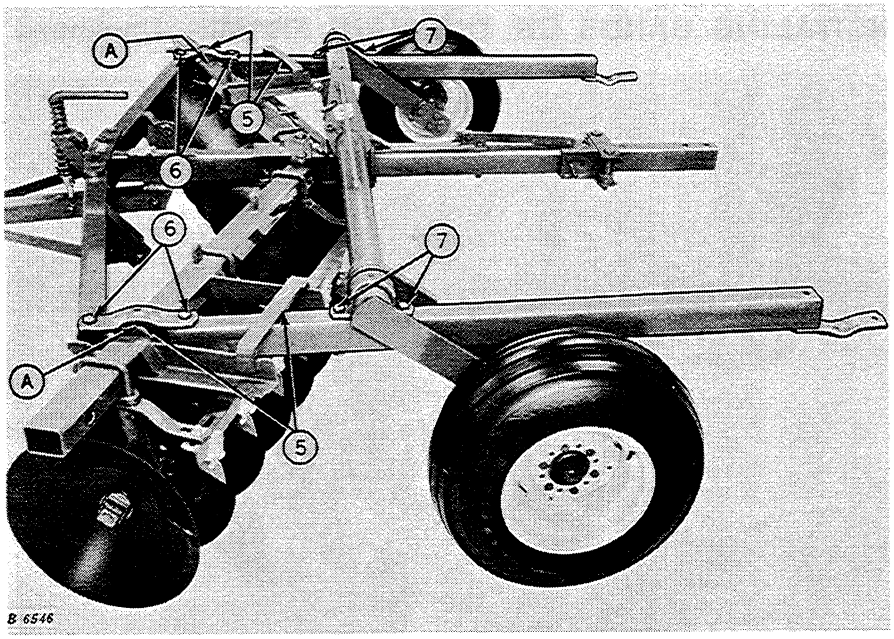
1. Insert four 1-1/16-inch flat washers on top of gang frame and two 1-1/16-inch flat washers on bottom of gang frame to take up space between gang frame and latch box at "A" and attach the front gangs to the latch box with pins.

2. Bolt the front main frame sections to the center section of the main frame.

3. Attach side links to front main section and drawbar as shown.

4. Install hose holder on drawbar.



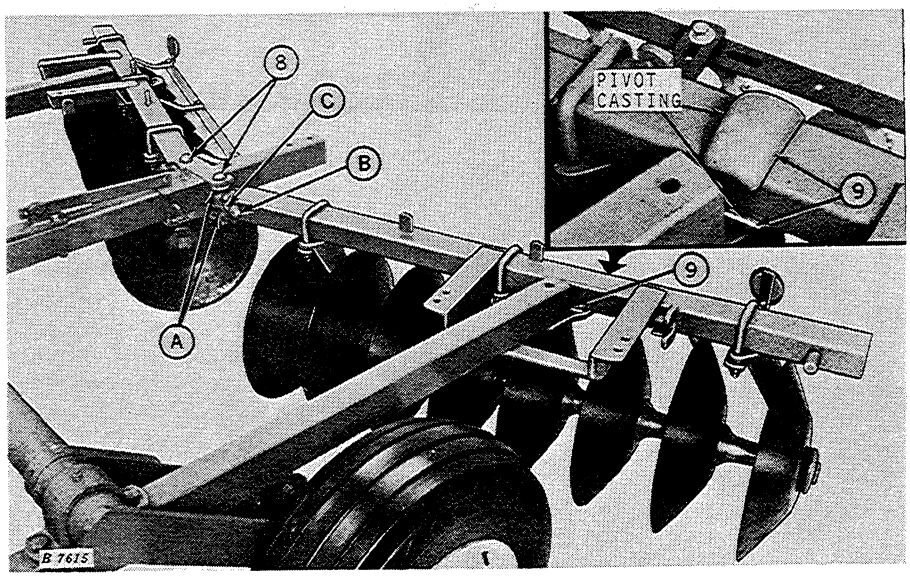


5. Slide the side main frame sections through the wheel frame and insert pivot castings on top and bottom of gang frame at "A."

6. Bolt side frames to front main frame.

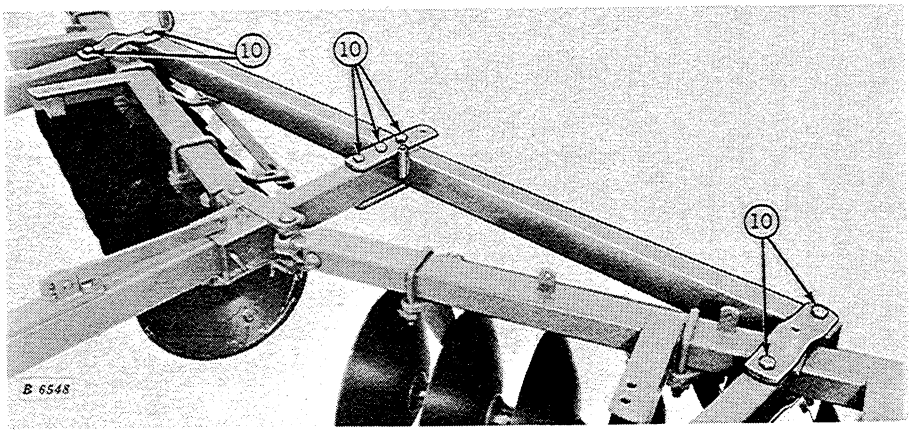
7. Place the wheel frame bearings over the wheel frame and bolt them to the side main frame sections.

INSTALLING GANGS ON THE MAIN FRAME—Continued



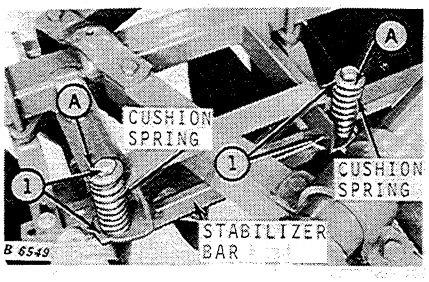
8. Place the rear gangs over the side section of the main frame. Insert two 1-1/16-inch flat washers on top of the rear gang frame and four 1-1/16-inch flat washers below rear gang frame at "A" and pin the rear gang frames to the rear latch box. Holes "C" are normally used for 18-inch blades. It may be necessary to use holes "B" for 20- and 22-inch blades to prevent ridging when the harrow is in full angle.

9. Insert pivot castings on top and bottom of rear gang frame as shown.

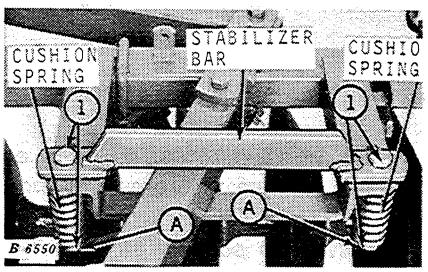


10. Bolt the rear section of the main frame to the side and center sections of the main frame as shown above.

STABILIZER BRACKETS



Front Gang Frame Stabilizer Brackets

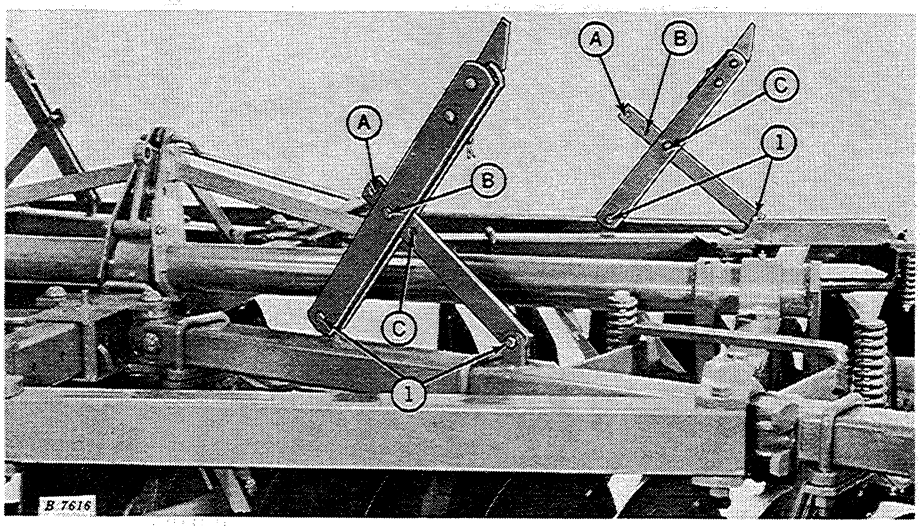


Rear Gang Frame Stabilizer Brackets

1. Install stabilizer bar and cushion springs on the front and rear gang frame with 3/4 x 7-1/4-inch cap screw. Tighten lock nut until spring is slightly compressed. Use holes nearest frames for severe conditions.

NOTE: Be sure to install cup washers at "A."

EXTENSION GANGS
(16-Foot 6-Inch BWF, 17-Foot 10-Inch BWF, 19-Foot 2-Inch BWF, and 20-Foot 6-Inch BWF)



1. Install the extending gang support on the front and rear gang frames. The extension gang support on the 16-foot 6-inch BWF is positioned at "C." The 17-foot 10-inch BWF extension gang support is positioned at "B." The extension gang support on the 19-foot 2-inch BWF is positioned at "B" on the front gang and at "C" on the rear gang. The 20-foot 6-inch BWF gang support is positioned at "A" on the front gang and at "B" on the rear gang.

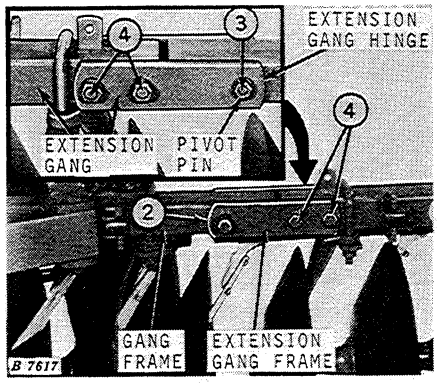
EXTENSION GANGS—Continued

2. Install extension gang hinges in gang frames as shown.

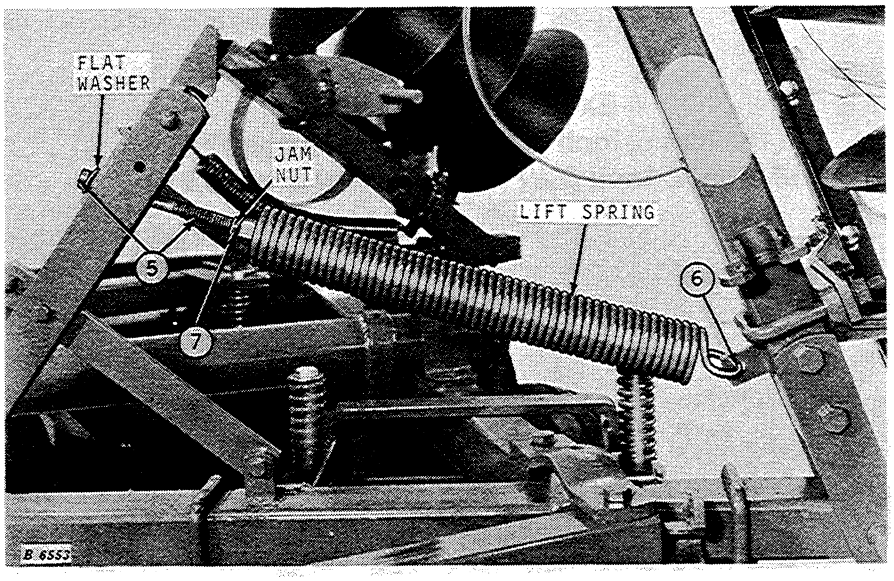
3. Install extension gangs on pivot bolt.

4. Bolt extension gang hinges to each extension gang with two 3/4 x 6-inch cap screws as shown.

NOTE: Be certain to position elongated two-hole spacer between gang frame and extension frame.



Front Left Gang Frame



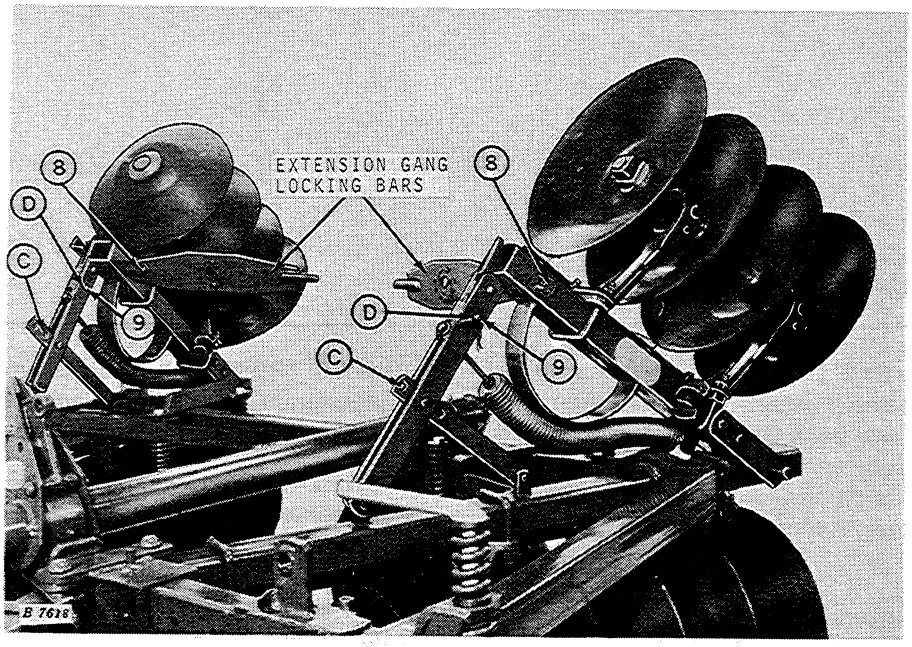
CAUTION: Extension gangs are under spring tension. To avoid accidental folding of gangs, never install springs until standards and blades are attached to gang frames.

5. Install 5/8 x 10-1/2-inch cap screw, flat washer, and jam nut in extension gang support as shown above.

6. Attach lift spring to spring attaching bracket on extension gang.

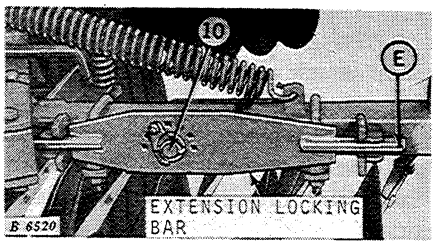
7. Install 5/8 x 10-1/2-inch cap screw in lift spring as shown. Tighten jam nut.

NOTE: Adjust tension on lift spring so that extension gang can be easily raised and lowered.



8. Install an extension gang locking bar in the end of each extension gang and install a spring locking pin in the extension gang locking bar. Swing the extension gangs up and over against the extension gang supports.

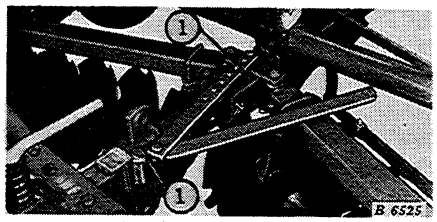
9. Remove 1/2 x 2-1/2-inch drilled rivet from extension support at "C" and install at "D."



10. To lock extension gang in operating position, return rivet to hole "C," swing the extension gang back down and install the extension gang locking bar. Insert spring locking pin as shown.

NOTE: Be sure that hole "E" on the end of the extension locking bar is to the outside of the disk harrow gang.

ANGLING DEVICE



1. Install the angling device. (See page 4 to set the angle of the gangs.)

HYDRAULIC HOSE EXTENSIONS

The following lengths of hydraulic hose, couplings, and O-rings are needed in addition to the regular hoses on 3-inch diameter 8-inch stroke hydraulic cylinders:

2 - 24-inch lengths of hose

4 - O-rings

2 - couplings

These requirements must be doubled when using a power weight-transfer hitch.

The additional lengths of hose, couplings, and O-rings must be obtained from your John Deere dealer and added to the regular hydraulic hoses on the disk harrow remote hydraulic cylinders.

Specifications

The John Deere BWF Disk Harrows are double action, heavy-duty, flexible, wheel-carried disk harrows. They can be used with John Deere Tractors equipped with an 8-inch stroke remote hydraulic cylinder, or any other tractor using an 8-inch stroke remote hydraulic cylinder that conforms to ASAE-SAE standards.

On BWF Disk Harrows the disk spacing is 8-1/2 inches. All disk gangs have 1-1/4-inch square gang bolts and double tapered roller bearings.

The angle of the gangs can be changed quickly and easily, and the front and rear gangs can be angled independently of each other.

Upper and lower cushion springs on the hitch absorb shocks encountered when disking and transporting. The lower spring also acts as a leveling spring, which compresses when working, and extends when the harrow is raised, keeping harrow gangs level and giving a parallel lift for more transport clearance.

A hitch is provided on the rear of the harrow for pulling such equipment as a spike-tooth harrow.

DISKING DEPTH - Controlled by raising or lowering the carrying wheels with the hydraulic cylinder, and the angle of the disk gangs.

LEVELING - Adjusting hand screw on harrow levels the harrow for various tractor drawbar heights.

CARRYING WHEELS - 15 x 8LB wheels with automotive type, adjustable, tapered roller bearings.

WHEEL TREAD - 80 inches when wheels are mounted on inside of wheel frame, 120 inches when wheels are mounted on outside of wheel frame.

DISK BLADES - 18-inch spherical solid and 20- or 22-inch spherical or cone, solid or cut-out disk blades are available.

FURROW FILLER ATTACHMENT - Will fill and level the furrow left by rear gang outer disk blades; 14-, 16-, or 18-inch disk blades are recommended for this attachment, depending on size of disk blades on disk harrow.

END SCRAPER ATTACHMENT - To clean outside front and inside rear disks.

DRIVE COUPLER FOR EXTENSION GANGS - Will connect the extension to the main gangs for positive gang drive.

MIDDLEBREAKER ATTACHMENT - A spring-tooth middlebreaker which cuts out the center strip left by the front disk gangs.

SCRAPERS - Two-piece, spring-loaded scrapers are regular. One-piece scrapers, moldboard scrapers, and heavy-duty two-piece, spring-loaded scrapers are optional.

OPERATE SPEED - Never exceed field speed of 5 mph. Reduce speed where rocks or stumps are a factor.

EXTENSION GANGS - The 16-foot 6-inch, 17-foot 10-inch, 19-foot 2-inch, and 20-foot 6-inch BWF Disk Harrow is equipped with extension gangs. The following chart gives the transport width and the width of cut when harrow is used with extension gangs folded:

Size of BWF Disk Harrow	Transport Width with Extension Gangs Folded	Width of Cut with Extension Gangs Folded	Number of Blades	
			Each Main Gang	Each Extension Gang
16-Ft. 6-In.	12-Ft. 6-In.	11-Ft. 2-In.	8	4
17-Ft. 10-In.	12-Ft. 6-In.	11-Ft. 2-In.	8	5
19-Ft. 2-In.	15-Ft. 10-In.	13-Ft. 10-In.	10	4
20-Ft. 6-In.	15-Ft. 10-In.	13-Ft. 10-In.	10	5

SERIAL NUMBER AND PARTS ORDERING INFORMATION

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

When ordering parts, refer to the model and serial number. The serial number plate is located on the front main frame tie plate.

Disk Harrow Size

BWF 11-Ft. 2-In. . . . . .

BWF 12-Ft. 6-In. . . . . .

BWF 13-Ft. 10-In. . . . . .

BWF 16-Ft. 6-In. . . . . .

BWF 17-Ft. 10-In. . . . . .

BWF 19-Ft. 2-In. . . . . .

BWF 20-Ft. 6-In. . . . . .

Blade Size

18-Inch . . . . . .

20-Inch . . . . . .

22-Inch . . . . . .

Serial No. _____

Date Purchased _____

Index

WORLDWIDE SYMBOLS FOR OPERATOR CONTROLS

Symbols instead of words; that's what John Deere is using to promote worldwide identification of operator controls. Once standardized, they give a quick, positive message anywhere in the world — without translation. Study the symbols below and learn to recognize them at a glance.

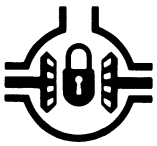
TRANSMISSION OIL PRESSURE

TRANSMISSION OIL TEMPERATURE

TRANSMISSION OIL FILTER

ENGINE OIL PRESSURE

ENGINE R P M



DIFFERENTIAL LOCK

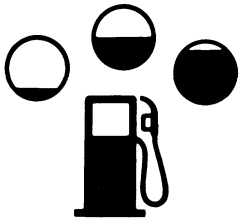
WATER TEMPERATURE

PRESSURIZED–OPEN SLOWLY

AIR FILTER

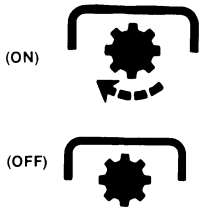
CHOKE

AMMETER OR GENERATOR LIGHT

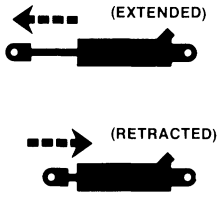


FUEL

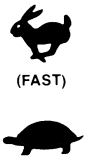
FUEL SHUTOFF



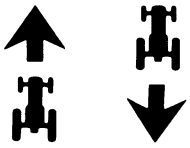
POWER TAKE-OFF



REMOTE CYLINDER



SPEED RANGE

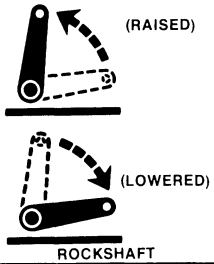


VEHICLE FORWARD

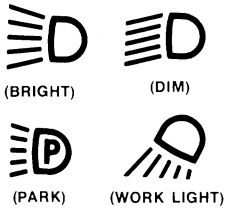
VEHICLE REVERSE

NEUTRAL

PARK



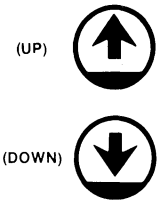
ROCKSHAFT



LIGHTS

WINDSHIELD WIPER

WINDSHIELD DEFROSTER

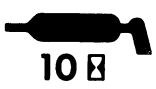


IMPLEMENT MOVEMENT

CIGAR LIGHTER

HORN

ROCKSHAFT LOAD AND DEPTH CONTROL



GREASE FREQUENCY

OIL TYPE AND FREQUENCY

X-2175