

7200 Flex-Fold MaxEmerge[®] 2 Drawn Conservation Planter 8-Row Wide and 12-Row Narrow



JOHN DEERE

OPERATORS MANUAL

7200 Flex-Fold MaxEmerge[®] 2 Drawn Conservation
Planter 8-Row Wide and 12-Row Narrow

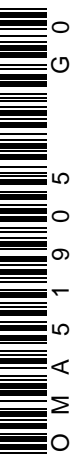
OMA51905 Issue G0 English

John Deere Harvester Works

OMA51905 Issue G0

(This manual replaces OMH139534-F9)

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ENGLISH



Introduction

READ THIS MANUAL carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or equipment damage.

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your machine and should remain with the machine when you sell it.

RIGHT-HAND AND LEFT-HAND sides are determined by facing in the direction the implement will travel when going forward.



THIS MACHINE is of metric design. Measurements in this manual are metric with the customary U.S. measurement following. Use only metric hardware and tools as specified.

WRITE PRODUCT IDENTIFICATION NUMBERS in the space provided in the Specifications section. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer also needs these numbers when you order parts. If this

manual is kept on the machine, also file the identification numbers in a secure place off the machine.

WARRANTY is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate which you should have received from your dealer.

This warranty provides you the assurance that John Deere will back its products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied. Selling fuel delivery above specifications or otherwise overpowering machines will result in such action.

THE TIRE MANUFACTURER'S warranty supplied with your machine may not apply outside the U.S.



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7200 Flex-Fold 12-Row Narrow Draw Max-Emerge Planter with Vacuum Seed Metering System

82171A 19-25JUN90



140600

41400019

7200 Flex-Fold 12-Row Narrow Draw Max-Emerge Planter with Vacuum Seed Metering System and Liquid Fertilizer Attachment

82171B 19-25JUN90

A MESSAGE TO OUR CUSTOMERS

We appreciate the confidence placed in us by your purchase of this machine. Before this machine was brought to market, countless hours were spent designing and testing to ensure that its performance would be at the highest level. To achieve maximum performance, it is imperative this machine be operated in accordance with the procedures outlined in this manual.

Refer to your John Deere dealer's Predelivery Instruction for attachment assembly information.

Information in this manual is divided into sections. These sections are identified at the top of each page. Two-part page numbers identify both the section and page of that section.

Specific information within each section is organized into modules. These modules are encased in boxes with principle modules identified with a heading at the top left side of the box.

By reviewing this manual often, one will quickly learn which section to go to for specific information. For instance, planter adjustments would be found in the Operating the Planter section, lubrication intervals in the Lubrication section, opener maintenance in the Service section, etc. A detailed Table of Contents is found immediately behind this page, and an Index is provided at the back of the manual.

Thanks again for purchasing this machine.

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All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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A John Deere ILLUSTRATION Manual
Previous Editions

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Safety

RECOGNIZE SAFETY INFORMATION

This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



EX-ALERT -19-04-JUNE93

181389
-18-01-0348

UNDERSTAND SIGNAL WORDS

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

 DANGER

 WARNING

 CAUTION

EX-SIGNAL -15-04-JUNE93

181389
-15-01-0348

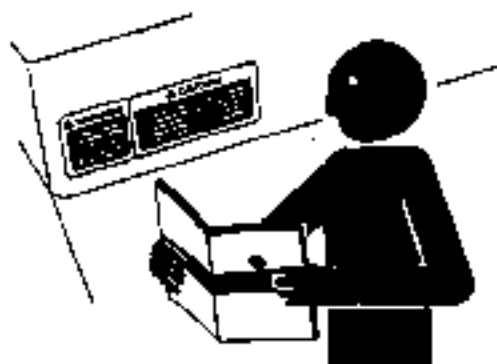
FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.



EX-READ -19-04-JUNE93

181389
-19-01-0348



DISPOSE OF SPRAY CANS SAFELY

If spray can paint is used for protecting the machine to be put in storage, be careful when discarding empty cans. Do not incinerate or puncture can.

B21.35A.6 -19 12MAY90

OPERATE THE PLANTER SAFELY

Be careful when operating planter to avoid injury.

If the planter must be in a raised position while working on or near it, be certain service locks are installed.

Serious injury or death can result from contact with electric lines. Use care when moving or operating this machine near electric lines to avoid contact.

Stand clear of machine when wings are being folded or unfolded. Mechanical or hydraulic failure can allow wings to move rapidly.

Be sure cylinder and attaching hoses are fully charged with oil before operating system.

Be careful when operating system on hillsides; tractor can tip sideways if it strikes a hole, ditch or other irregularity.

Permit only one person, the operator, on tractor platform while tractor and planter are in operation.

Lower planter completely to the ground before unhitching from the tractor. Be sure planter is on a level and firm surface.



B21.35A.6 -19 28 JUN90



KEEP RIDERS OFF MACHINE

Only allow the operator on the machine. Keep riders off.

Riders on machine are subject to injury, such as being struck by foreign objects and being thrown off of the machine. Riders also obstruct the operator's view, resulting in the machine being operated in an unsafe manner.



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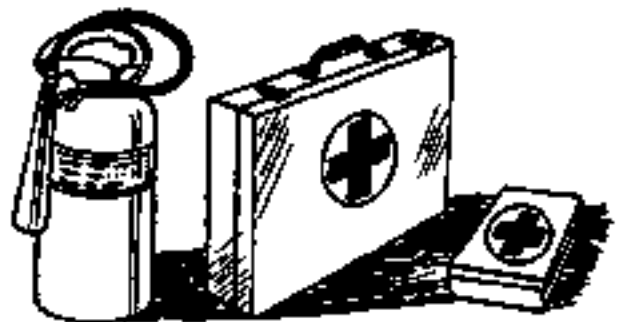
UN-1300786
A34832

PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



001-1547 17-28JUN90

UN-1300786
T5201

WEAR PROTECTIVE CLOTHING

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



001-1547 17-28JUN90

UN-254034E
T5206



HANDLE CHEMICALS PROPERLY

Agricultural chemicals can be dangerous. Improper selection or use can injure persons and animals. **BE SAFE:** handle and apply with care. Follow instructions of the chemical manufacturer.



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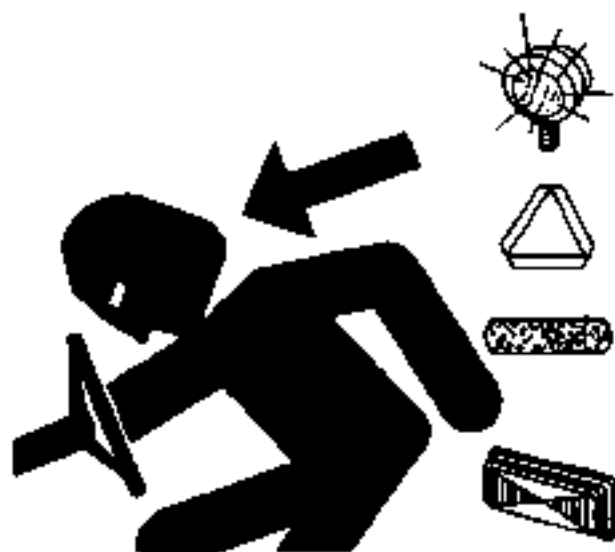
UN-11CCTE
A34471

USE SAFETY LIGHTS AND DEVICES

Slow moving tractors, self-propelled equipment and towed implements or attachments can create a hazard when driven on public roads. They are difficult to see, especially at night. Avoid personal injury or death resulting from collision with a vehicle.

Flashing warning lights and turn signals are recommended whenever driving on public roads. To increase visibility, use the lights and devices provided with your machine. For some equipment, install extra flashing warning lights.

Keep safety items in good condition. Replace missing or damaged items. An implement safety lighting kit is available from your John Deere dealer.



0X.FLASH 15 04.01180

UN-12VPR30
T6201

USE A SAFETY CHAIN

A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.



0X.CHAIN 15 04.01180

UN-22AUC08
T6201



TRANSPORT SAFELY

Install marker lockup straps to prevent injury from lowered marker.

The maximum transport speed for this planter is 20 mph (32 km/h). **DO NOT EXCEED.** Never travel at any speed which does not permit adequate control of steering and stopping.

Reduce speed over rough ground.

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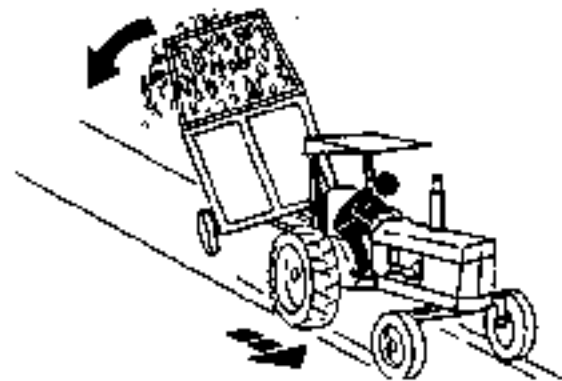
604033 04/03/08

REDUCE SPEED WHEN TOWING LOADS

Braking to stop towed loads from transport speeds can cause the towed load to swerve and upset. Reduce speed if towed load weighs more than the tractor and is not equipped with brakes.

Follow recommended speed-weight ratio guidelines:

- Maximum speed is 20 mph (32 km/h) when towing load equal to or less in weight than the tractor.
- Reduce speed to 10 mph (16 km/h) when towing load up to double the tractor weight.
- Do not tow loads exceeding double the tractor weight.
- Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.



JK106 10/04/JR990

604033 04/03/08



PRACTICE SAFE MAINTENANCE

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate or service machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.



OK.SERV 19-04JUN90

15218 JH42040006

REMOVE PAINT BEFORE WELDING OR HEATING

Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



OK.PAINT 19-07.JUN90

15220 JH42040006



AVOID HEATING NEAR PRESSURIZED FLUID LINES

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials.

Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area. Install fire resisting guards to protect hoses or other materials.



UP-2414190
T5950

Dr. TORCH 19-0411920

AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury may call the Deere & Company Medical Department in Moline, Illinois, or other knowledgeable medical source.



LN-2041000
R0911

Dr. FLUIDRA 19-1411930



RELEASING FERTILIZER AUGERS SAFELY

Do not use welding torch to remove build-up of dry fertilizer from auger shaft.

Fertilizers trapped inside augers can cause gas to form and, when heated, can cause augers to explode.

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STORE ATTACHMENTS SAFELY

Stored attachments such as dual wheels, cage wheels, and loaders can fall and cause serious injury or death.

Securely store attachments and implements to prevent falling. Keep playing children and bystanders away from storage area.



TS210 474 021 AUG 04

01 31000 100-01000

PREVENT MACHINE RUNAWAY

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.



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Do not connect auxiliary equipment to starter terminals. Doing so can cause tractor to start in gear and move.

Connect directly to tractor battery only.

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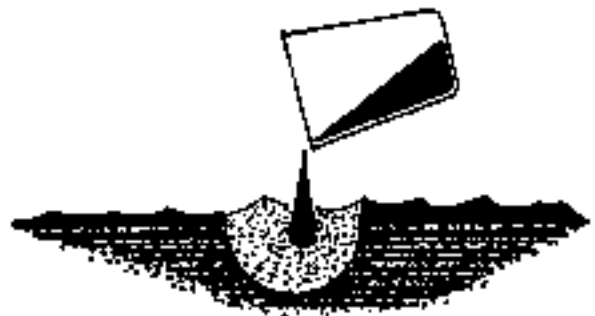


OBSERVE ENVIRONMENTAL PROTECTION REGULATIONS

Be mindful of the environment and ecology.

Before draining any fluids, find out the correct way of disposing of them.

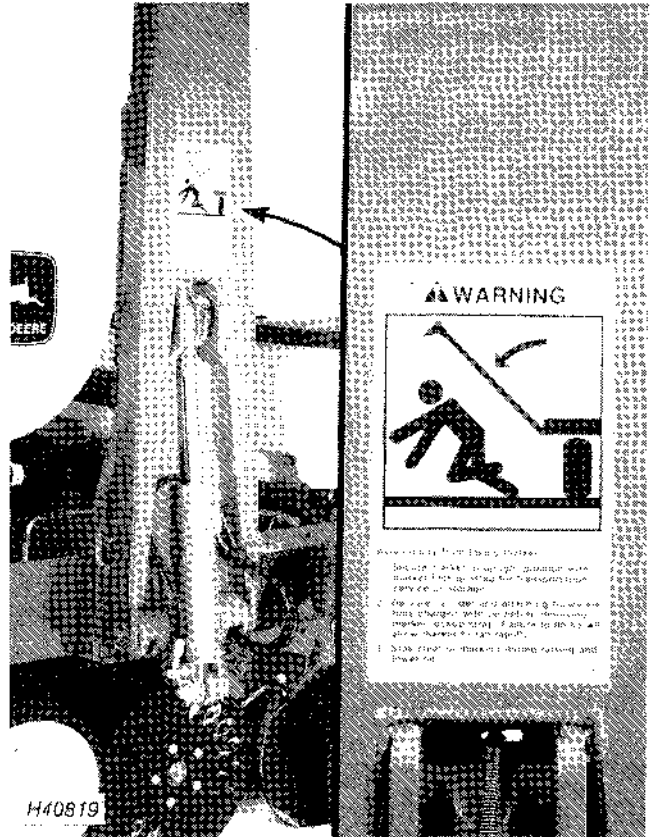
Observe the relevant environmental protection regulations when disposing of oil, fuel, coolant, brake fluid, filters and batteries.



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Safety Signs

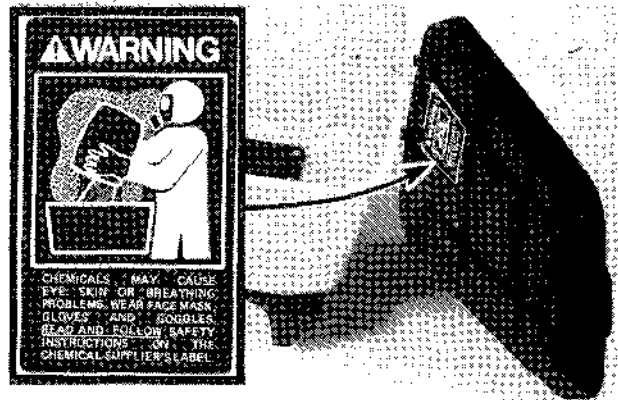


Markers

H40819

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-19-24APR89



Insecticide and/or Herbicide Hoppers

A29868

B21.7SS.D -19-28JUN90

-19-30JAN89

Safety Signs



Dry Fertilizer Hoppers

621.35A

19-300486

41124

621.35A 19-300486



Control Console

621.35A 19-29/11690

19-29/11690



Hydraulic Manifold Cover

H40820

B21,755, B 18-2041P/B



Liquid Fertilizer Bracket

CAUTION

Apply only fertilizer to the intended plants. Do not apply to other plants, animals or people.

BE CAREFUL:

1. Read the operator's manual for use.
2. Do not use fertilizer if you are not trained.
3. Do not use fertilizer if you are not wearing the proper protective clothing.
4. Do not use fertilizer if you are not wearing the proper eye protection.

B21,755, E 18-2041P/B

Preparing the Tractor

HYDRAULIC PRESSURE

IMPORTANT: The maximum operating pressure for the planter hydraulic system is 18 961 kPa (189.6 bar) (2750 psi). Exceeding this pressure is not recommended.

For complete tractor operating instructions, refer to your tractor operator's manual.

321 771 A 18-25JUN90

CHECK TRACTOR HYDRAULIC SYSTEM

The vacuum meter pump hydraulic system is designed to be operated with closed center tractor hydraulic systems (tractors with load sensing or pressure on demand hydraulics are classified as closed center systems.) Open center tractor hydraulics are NOT compatible with system.

Minimum tractor standby pressure required to operate the vacuum meter pump hydraulic system is

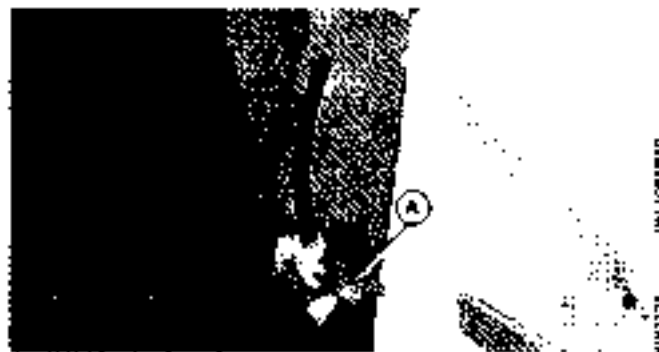
approximately 12 411 kPa (142 bar) (1800 psi) depending on frame configuration, planting speed and number of rows on planter.

IMPORTANT: Do not use open center tractor hydraulic system to operate vacuum meter pump. Permanent damage to tractor pump may result.

322 891 S 18-25JUN90

ROCKSHAFT SELECTOR LEVER

Set the rockshaft lever (A) in the "MIN" position to prevent unexpected hitch movement.



805 13 FT. 1 18-25JUN90

LINK LENGTHS

Set the lift links (A) as short as possible to provide maximum transport clearance.

Adjust the center link (B) until the quick-coupler (C) is vertical when in planing position.

IMPORTANT: For added safety, always use a quick-coupler to make attaching and detaching a one-man operation.



A 4516

BOS. 1361 H 15-25, UN100

UN-130CT98

4289E

SWAY BLOCKS

Set the sway blocks (A) in the down position to prevent side sway.



BOS. 1361 G 15-25, UN140

UN-130CT98

4289E

TIRE SIZE

20.8-34 x 8 ply-rated rear tractor tires minimum, or duals, are required for use with 12-row narrow flex-fold planters not equipped with fertilizer attachment or ballast.

Dual rear tractor tires are required for use with 12-row narrow flex-fold planters equipped with fertilizer attachment or ballast.

20.8-38 x 8 ply-rated rear tractor tires (singlos) minimum are required for use with the 8-row wide flex-fold equipped with fertilizer attachment or ballast. 18.4-38 8 ply-rated rear tractor tires minimum are required for use with the 8-row wide flex-fold not equipped with fertilizer attachment or ballast.

303,2PT,2 -16-28,11,11,11,11,11

CHECK TIRE INFLATION

Inflate front and rear tires to proper pressure as recommended in the tractor operator's manual.

303,2PT,2 -16-28,11,11,11,11,11

REAR WHEEL WEIGHTING

Do not use liquid or wheel weights on the rear tractor tires. This decreases the tire load carrying capacity which is needed to carry the planter when it is folded for transporting.

303,2PT,2 -16-28,11,11,11,11,11

SETTING WHEEL TREAD

(Two-Wheel Drive Tractors) Set tires (center-to-center of tread) at twice the row spacing.

(Two-Wheel Drive Tractors with Dual Wheels) Set outer wheels as close as possible to four times the row spacing.

(Four-Wheel Drive Tractors) Set tractor tires (center-to-center of tread) as close as possible to twice the row spacing.

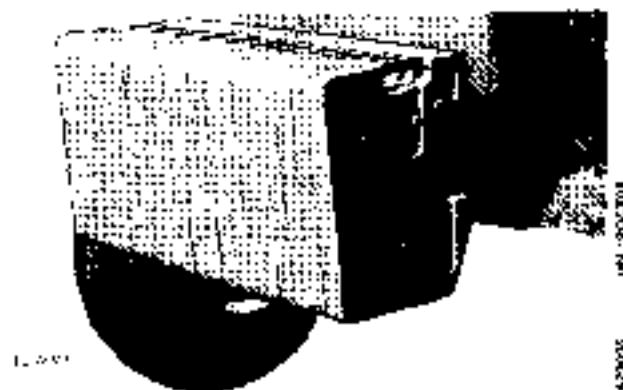
NOTE: Certain tire combinations may require Category 3N quick-coupler to obtain 1524 mm (60 in.) wheel tread setting.

E15.15PT.C 19-28AUM40

FRONT END WEIGHTING

Install the proper amount of weight on the front of the tractor as recommended in your tractor operator's manual. For proper front end weighting, see the following implement code table.

Planter	Implement Code
8-Row Wide w/o Fertilizer or Ballast Attachment	193
8-Row Wide w/Fertilizer or Ballast Attachment	245
12-Row Narrow w/c Fertilizer or Ballast Attachment	233
17-Row Narrow w/Fertilizer or Ballast Attachment	305



L-2001
ADMOS
W1-30CT01

E21.7PT.C 19-28AUM40

SET TRACTOR SELECTIVE CONTROL VALVE LEVER

Position tractor SCV control lever (A) which is to be used to operate pump motor (recommend using right-hand SCV Lever [II or III]), in the last (RABBIT) setting.

NOTE: For tractors with pressure-on-demand hydraulic systems, the tractor variable flow control valve should be used to control flow to the pump motor. The flow control valve on the planter should be fully open.



ADMOS
LW-07-MPR25

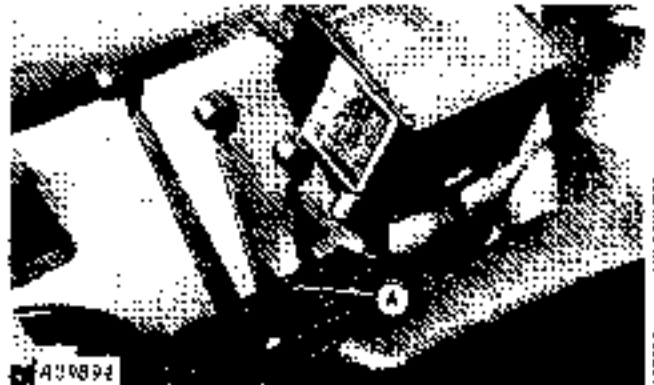
E22.7PT.C 19-28AUM40

SELECTIVE CONTROL VALVE LEVER STOP

Operation of the vacuum meter hydraulic system requires continuous hydraulic system flow. A selective control valve lever stop must be used to avoid damaging the pump motor seals when shutting off hydraulic oil flow. The stop will prevent the selective control valve lever from returning to the neutral position.

IMPORTANT: Damage to the vacuum pump motor may occur if operated before installation of tractor SCV lever stop (A). Install SCV lever stop in tractor SCV console before operating vacuum meter system.

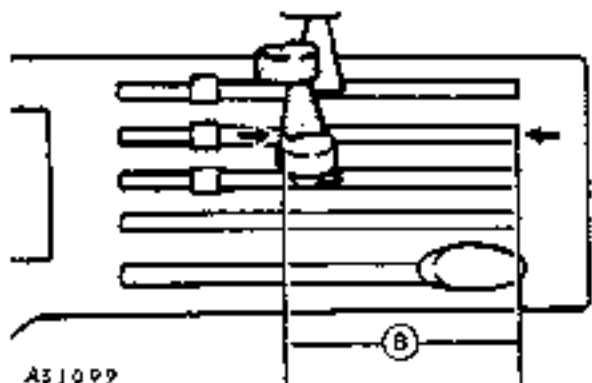
The pump motor will operate when SCV lever is in forward detent position (shown in photo). To shut off pump motor, move lever forward into FLOAT position



Rev 1 SP1 D 10-26-06.00

To install the selective control valve lever stop, proceed as follows:

1. With the selective control valve lever (A) in the neutral position, tightly hold the lever forward to remove any play in the linkage. Then, measure the distance (B) from the front edge of the control lever to the rear end of the lever guide slot

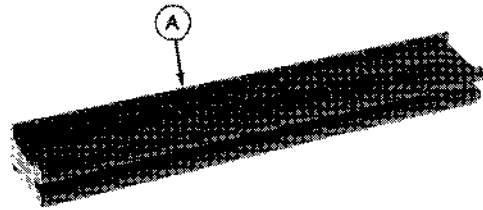


Rev 1 SP1 E 10-26-06.00

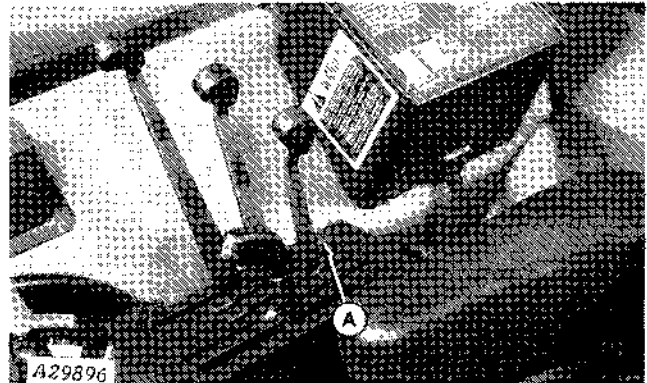
Preparing the Tractor

2. Cut the 150 mm (6 in.) length of rubber stop material to this measured length plus 6 mm (1/4 in.).

3. Insert rubber stop (A) in slot with "V" groove side down behind the selective control lever.



A29670



A29896

B21,7PT,F -19-28JUN90

AUXILIARY RETURN LINE COUPLER ATTACHMENT

If planter is equipped with vacuum meters, the Auxiliary Return Line Coupler Attachment (A) must be installed on John Deere 50, 55, and 60 Series Row Crop Tractors or any John Deere Utility Tractors to eliminate possible damage to the pump motor seals from SCV flow checking and improper operation of the SCV lever.

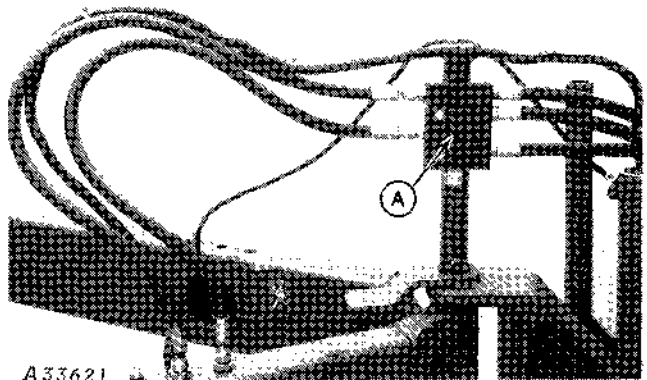


H40621

B21,5PT,A -19-28JUN90

DIRECTIONAL VALVE

A directional valve (A) is available for 30 and 40 Series Tractors to eliminate tractor system back pressure and can also reduce planter lowering time.



A33621

B21,7PT,G -19-28JUN90

Preparing the Planter

TIGHTENING HARDWARE

Make sure cap screws and nuts are tight. (See Bolt Torque Chart in Service section.)

800 1371 8 19 25 JUN 90

TIRE INFLATION

Inflate 7.60-15 SPR planter tires to 359 kPa (3.6 bar) (52 psi) of air pressure.

821 771 4 19 26 JUN 90

ROW WIDTHS

Your planter is available in the following row widths:

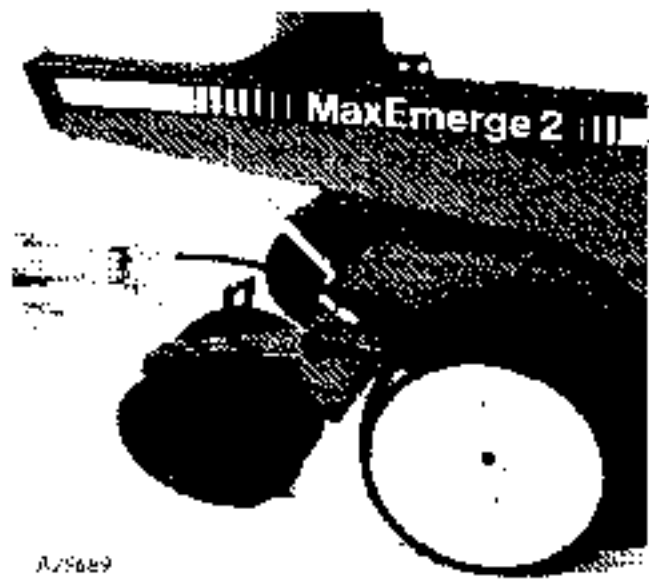
8-Row - 36 in. and 38 in. row widths.

12-Row Narrow - 30 in. row width.

821 771 0 10 22 JUN 90

LUBRICATION

Be sure your planter and planting units have been properly lubricated. (See Lubrication section.)



A25689

101 210489

622-PC, B 19-2504750

SELECTING SEED PLATES (PLATE SEED METERS ONLY)

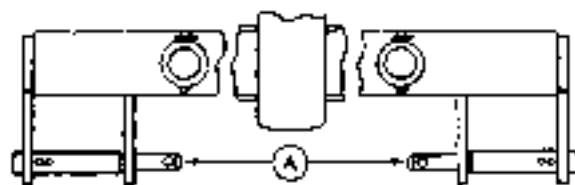
Consult your copy of the "Plate Metering Units" Operator's Manual for information on selecting the desired seed plate.

621-1P, I 19-2504750

Attaching and Detaching

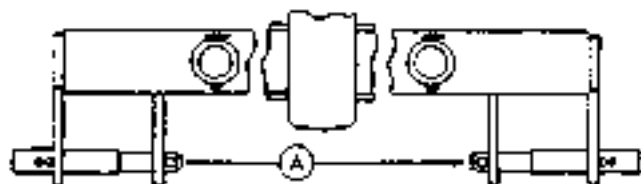
ATTACHING PLANTER TO TRACTOR

Position hitch pins (A) for your model tractor.



A30099

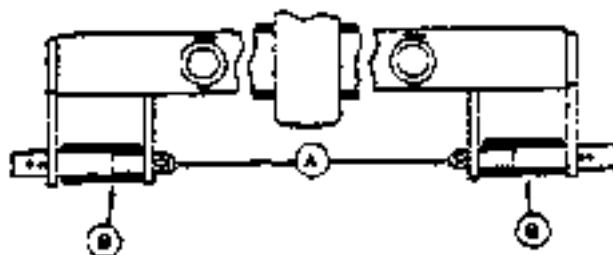
Hitch Pins (Category 2 w/Quick-Coupler)



A20094

Hitch Pins (Category 3A w/Quick-Coupler)

Bushings (B) (A30302) are required when attaching planter to 8850 Tractor. For parts, see your John Deere dealer.



A28092

Hitch Pins/Bushings (Cat. 4) w/Quick-Coupler

EDS134E-4 11-23-06-00



CAUTION: Do not stand between tractor and the planter unless the tractor transmission is in **PARK**.

Raise both latch control levers.

Lower the rockshaft until the quick-coupler hooks are lower than the planter hitch pins and slowly back the tractor up to the planter.

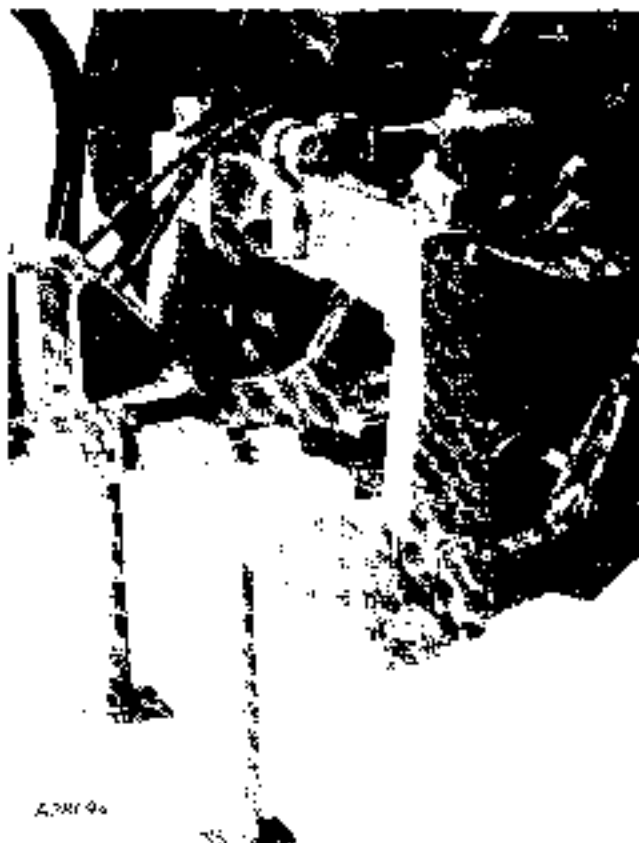


A28092

EDS134E-4 11-23-06-00

Raise the rockshaft enough to engage the planter hitch pins in the quick-coupler hooks. Push both latch control levers down to lock the planter to the quick-coupler.

CAUTION: When latches are properly locked, handles will be horizontal and against coupler frame.



855.11AD C 18 25 JUN 90

41N-100716A
A28194

CAUTION: To avoid injury from escaping hydraulic oil under pressure, relieve the pressure in the system by shutting off tractor and moving remote cylinder operating levers in both directions before attaching hoses to or detaching hoses from the breakaway couplers.

NOTE: Not necessary to turn off tractor if attaching planter to John Deere 50 Series Tractor.

Connect hydraulic hoses (A) to breakaway coupler number 1.

If planter is equipped with independent markers, connect marker hoses (B) to breakaway coupler number 2.

IMPORTANT: Set the flow control valve (C) on the tractor to full open.



855.11AD C 18 25 JUN 90

41N-100716B
A280V..
A28016

VACUUM METERING SYSTEM

If planter is equipped with vacuum metering system and automatic alternating markers, insert planter hydraulic hoses (A) into breakaway coupler number 1.

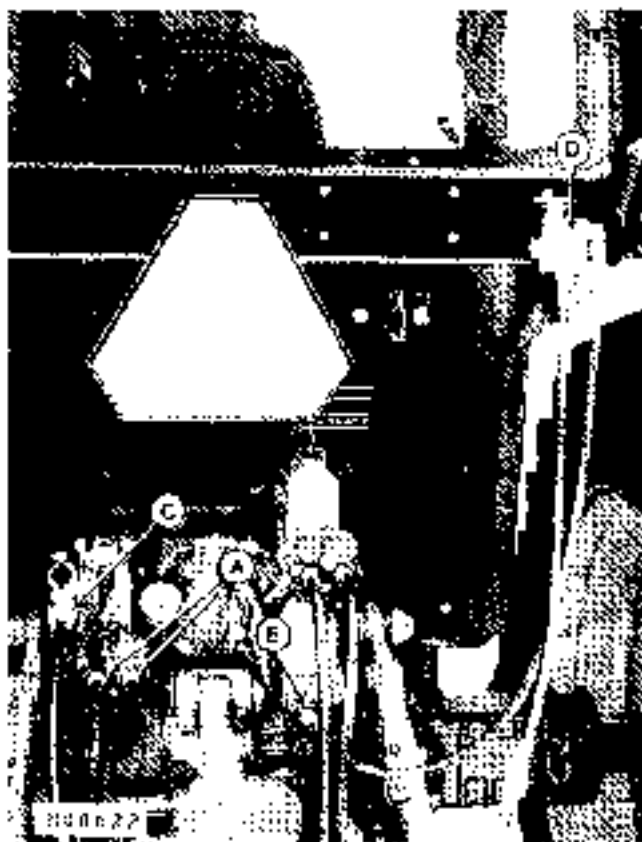
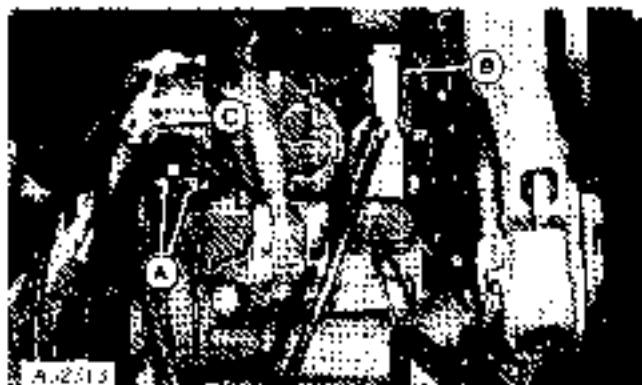
Insert flow control valve (or cab mounted valve pressure hose) into pressure side of breakaway coupler as illustrated at (B).

If John Deere 50, 55 or 60 Series Row Crop Tractors or John Deere Utility Tractor is being used, install hydraulic motor return hose into auxiliary return coupler (C).

NOTE: The auxiliary return line coupler kit must be ordered when using the Vacuum Metering System with John Deere 50, 55 or 60 Series Row Crop Tractors and all John Deere Utility Tractors.

If using any other John Deere Tractor, install hydraulic motor return hose into left-hand side of tractor.

Attach cab mounted flow control valve to bracket outside of tractor cab at (D).



Cab Mounted

8215M2J -12-2511962

If planter is equipped with vacuum metering system and independent markers, insert planter hydraulic hoses (A) into breakaway coupler number 1.

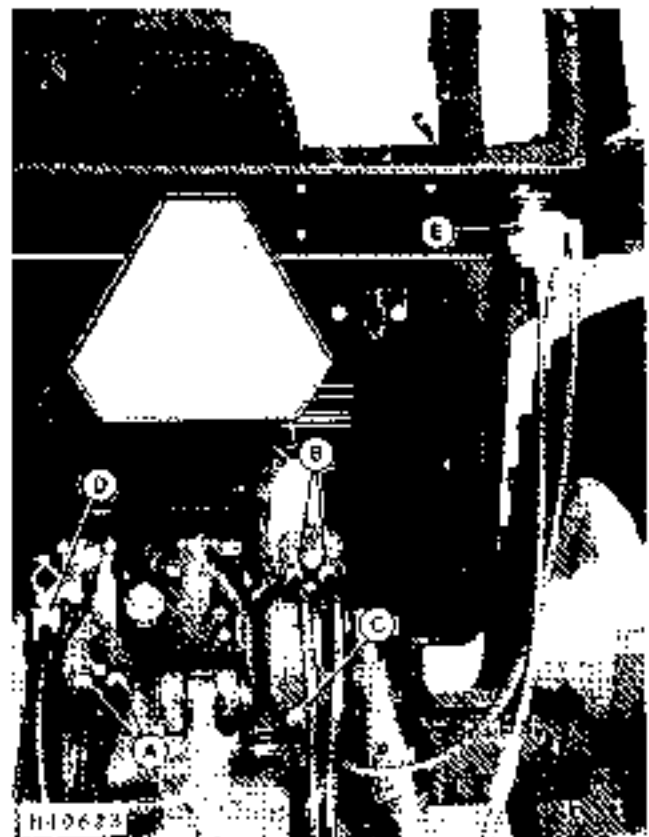
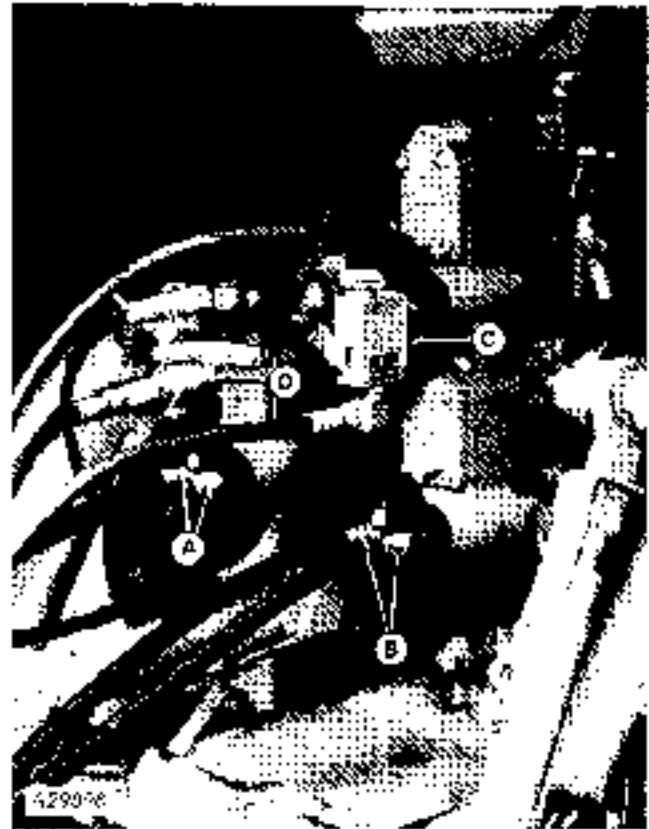
Insert planter lift hoses (B) into breakaway coupler number 2 or 3.

Insert flow control valve (or cab mounted valve pressure hose) into pressure side of breakaway coupler as illustrated at (C). Attach cab mounted flow control valve to bracket outside of tractor cab at (E).

If John Deere 50, 55 or 60 Series Row Crop Tractors or John Deere Utility Tractor is being used, install hydraulic motor return hose into auxiliary return coupler (D).

NOTE: The auxiliary return line coupler kit must be ordered when using the Vacuum Metering System with John Deere 50, 55 or 60 Series Row Crop Tractors or John Deere Utility Tractors.

If using any other John Deere tractor, install hydraulic motor return hose into left-hand side of coupler.



Cab Mounted

B21 5A0 E (1928A/M9)

CAUTION: Avoid possible injury or death from machine runaway. Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

Never start engine while standing on ground. Start engine only from operator's seat with transmission in neutral or park.

Do not connect auxiliary equipment to starter terminals. Doing so can cause tractor to start in gear and move. Connect directly to tractor battery only.



Connect the planter warning lamp harness to the seven-pin connector and 20-pin connector (A).

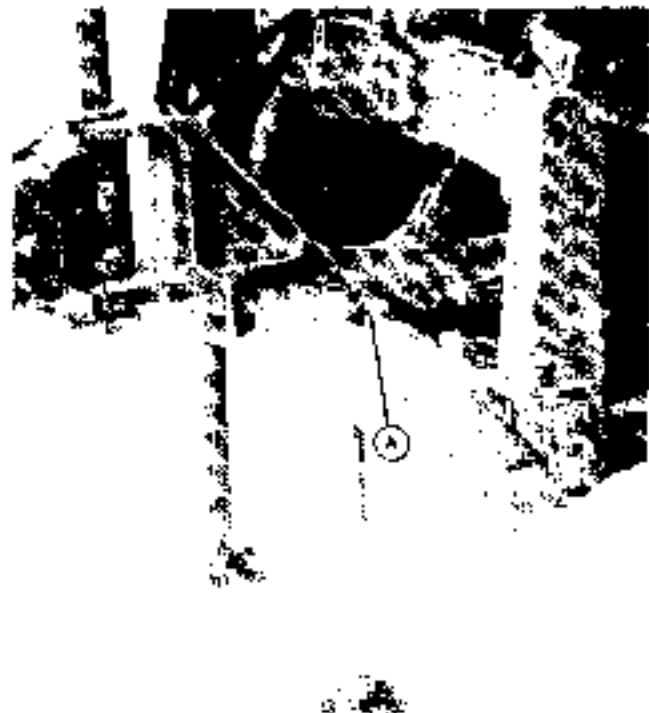
Connect monitor wiring harness (B) to rear of console power lead.

Line up grooves and tabs between connectors. Push monitor harness connector into console power lead connector and turn collar clockwise.



R9-063.G 14-28, 31, 34

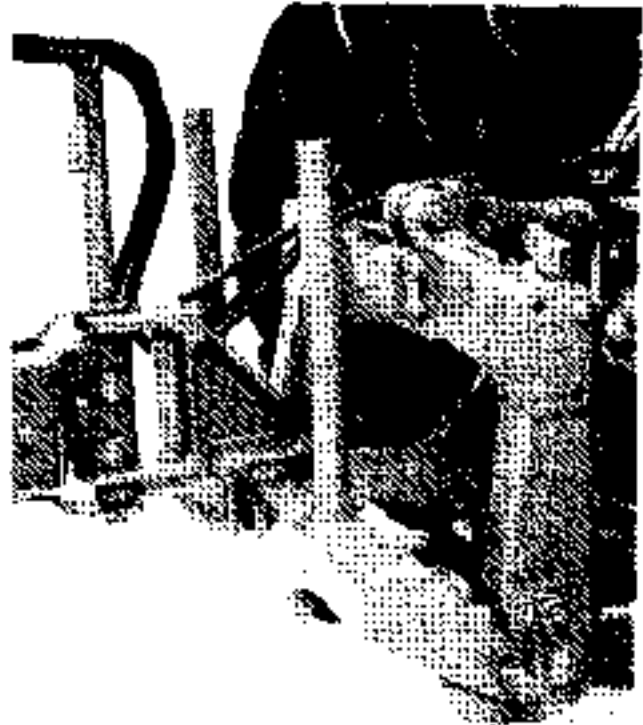
Raise 3-point hitch. Remove spring locking pin and drilled pin (A) securing stands to hitch crossbar.



A18097

R9-104.E 14-28, 31, 34

Raise and secure stands to hitch crossbar with drilled pin and spring locking pin.



A33563

805.15ADJ -10-26JUN76

CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.



After applying pressure to the system, check all hydraulic connections and hoses for leaks.

IMPORTANT: Be certain to check tractor hydraulic oil level after filling cylinders with oil for the first time.

805.15ADJ -10-26JUN76

Attaching and Detaching

The planter and the markers should raise and lower smoothly. If necessary, bleed air from hydraulic cylinders and hoses. (See Troubleshooting section.)

Before servicing hoses or marker valve, relieve trapped high pressure od by slowly loosening marker hose end fittings.

B21 IAC,C -10-25JUN99

If planter is equipped with liquid herbicide attachment, connect planter system feeder hoses to tractor mounted liquid herbicide pressure supply system (customer supplied).

B21 IAC,C -10-25JUN99

ATTACHING MONITOR TO TRACTOR

CAUTION: Avoid possible injury or death from machine runaway. Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

Never start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.

Do not connect auxiliary equipment to starter terminals. Doing so can cause tractor to start in gear and move. Connect directly to tractor battery only.

Remove dust covers.

Line up grooves and tabs between connectors. Carefully push planter harness connector onto monitor console connector and turn collar clockwise.



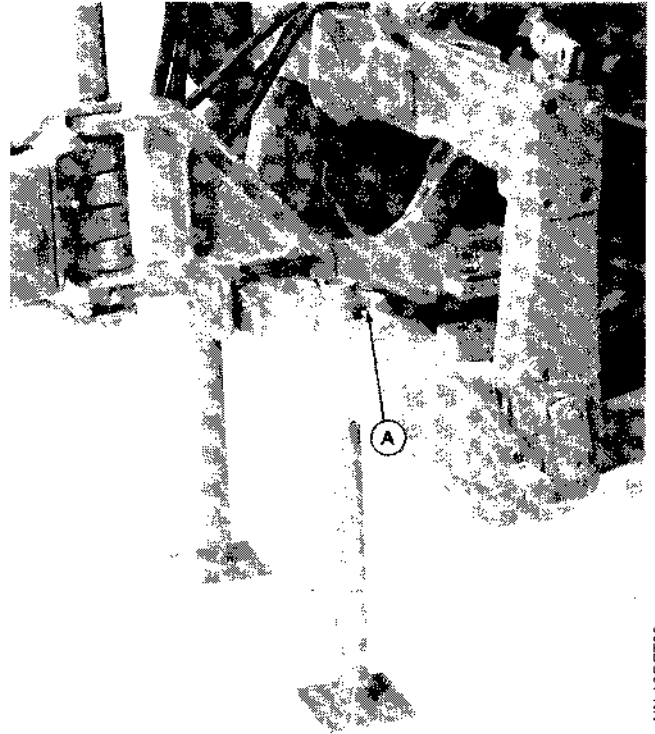
BUS 154DA -13-08JUN02

DETACHING PLANTER FROM TRACTOR

Remove spring locking pins and drilled pins (A) and lower hitch stands.

Secure stands with drilled pins and spring locking pins.

Lower planter to the ground.



A28097

-UN-13OCT88
A28097

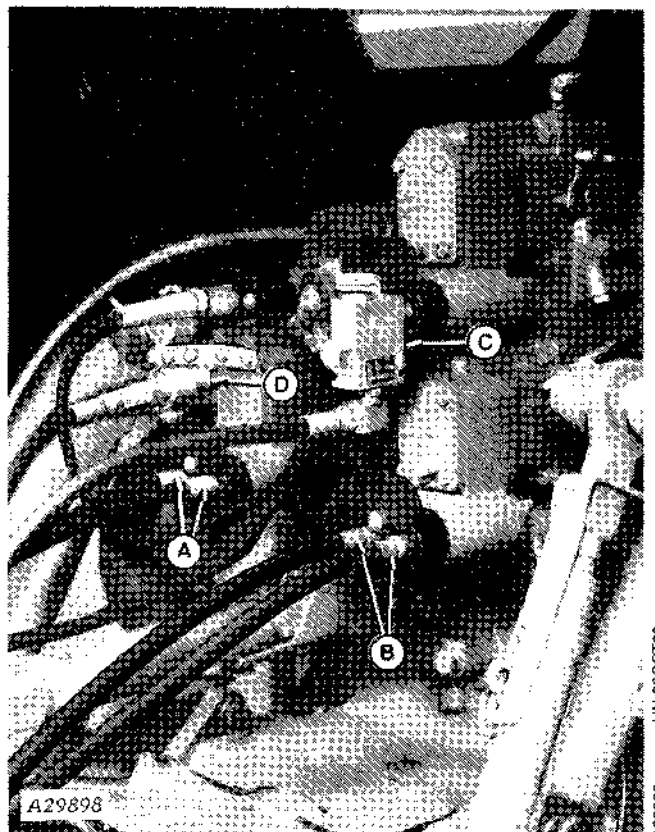
B05,13AD,F -19-26JUN90

⚠ CAUTION: To avoid injury from escaping hydraulic oil under pressure, relieve the pressure in the system by shutting off tractor engine and moving remote cylinder operating levers in both directions before removing hoses from breakaway couplers.

NOTE: Not necessary to turn off tractor if planter is attached to John Deere 50 Series Tractor.

Disconnect planter hydraulic hoses (A).

Disconnect marker hoses (B) and vacuum meter hoses (C) and (D) (if so equipped).



A29898

-UN-06OCT88
A29898

B21,7AD,E -19-28JUN90

Disconnect liquid herbicide hoses (if so equipped).

Raise handles on tractor quick-coupler and lower the tractor rockshaft until the quick-coupler is below the planter hitch pins. Drive tractor away slowly.

6217ADLT -15-05JUN90

DETACHING MONITOR FROM TRACTOR

(Not Illustrated) Turn collar clockwise. Pull connector straight back.

Secure dust cover onto monitor console connector.



Secure dust cover onto planter harness connector.



806154DB -15-06JUN91

Transporting

TRANSPORT SAFELY

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

Do not transport the planter faster than 20 mph (32 km/h) on a smooth surface road.

Reduce speed when traveling over rough ground.

Be certain everyone is clear of planter.

Serious injury or death can result from contact with electric lines. Use care when moving or operating this machine near electric lines to avoid contact.

B2-7TRD -19-29 JUN95

FOLDING THE PLANTER

IMPORTANT: Be certain hitch stands are in the raised position. (See Attaching and Detaching section of this manual.)

CAUTION: Be certain everyone is clear of planter.

CAUTION: Serious injury or death can result from contact with electric lines. Use care when moving or operating this machine near electric lines to avoid contact.



Use firm, LEVEL ground when possible to make folding easier. Tractor must be in neutral to allow the tractor to roll slightly when folding planter.

Raise the tractor rockshaft to approximately 1/2 raised position.

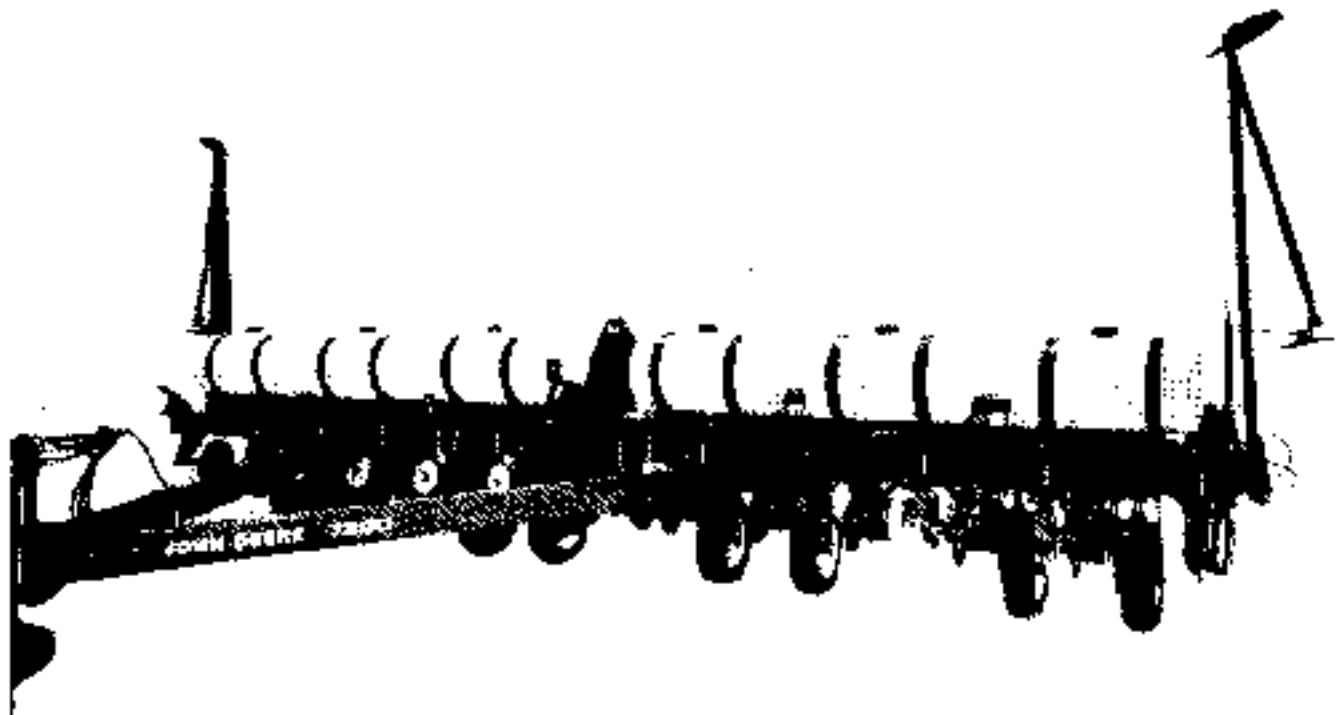
IMPORTANT: Do not fully raise rockshaft for folding or structural damage to planter may result.

B2-7TRa -19-26 JUN95

Transporting



Pull back on the number one remote cylinder operating lever and fully raise the planter.



H40909

H40909 01-2009R0

321,7TRB 19-26,JK90

Transporting

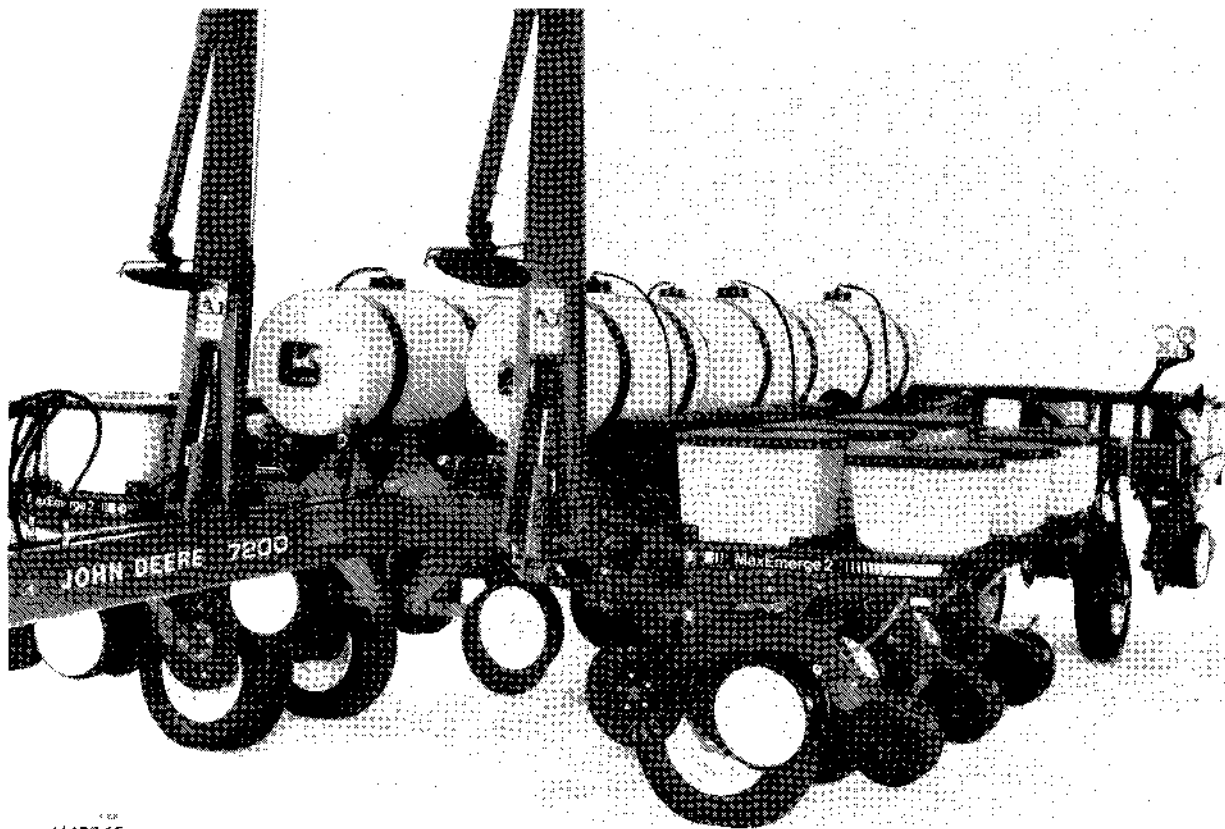


Press the FOLD switch and hold.

When planter is completely folded, release fold switch and remote cylinder operating lever.

Fold the planter by pulling the number one remote cylinder operating lever rearward.

NOTE: The rockshaft should be low enough to allow the planter wing supports to rest on the top of the hitch tubes.



H42245

-UN-29JUN90

H42245

B21,7TR,C -19-26JUN90

Transporting

Lower the planter to the ground completely by pushing the number 1 remote cylinder operating lever and rockshaft control lever forward simultaneously.



826.13TR.0 -19-25JUN90

Remove quick-lock pin and drilled pin (A).



821.7TRE -13-23JUN90

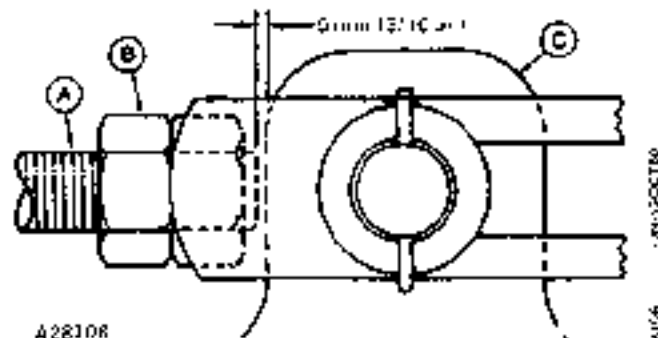
Be certain both hitch tubes are touching. Secure wing frames with wing lock, drilled pin and quick-lock pin.



824.7AF -13-23JUN90

Properly set the latch length so the planter wings are supported in transport position and that clearance is provided for easy removal and installation.

Loosen nut (B) and turn cap screw (A) until there is approximately 5 mm (3/16 in.) clearance between end of cap screw and latch plate (C). Tighten nut.



821.7TR.3 -9-28JUN90

Transporting

Lock the wing wheels for transport by pushing down on the wing wheel locks and make certain they engage the hooks on the cylinder supports.

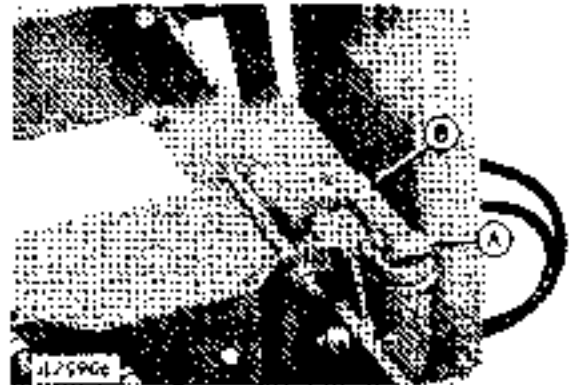


A211604

41/1/00C/T18

B217TRJ 18-24JUN90

Remove clip (A) from pin and remove marker lock (B) from storage position.



A225906

41/1/00C/T18

B217TRJ 18-24JUN90

Lock markers for transport with marker lock and clip



A29907

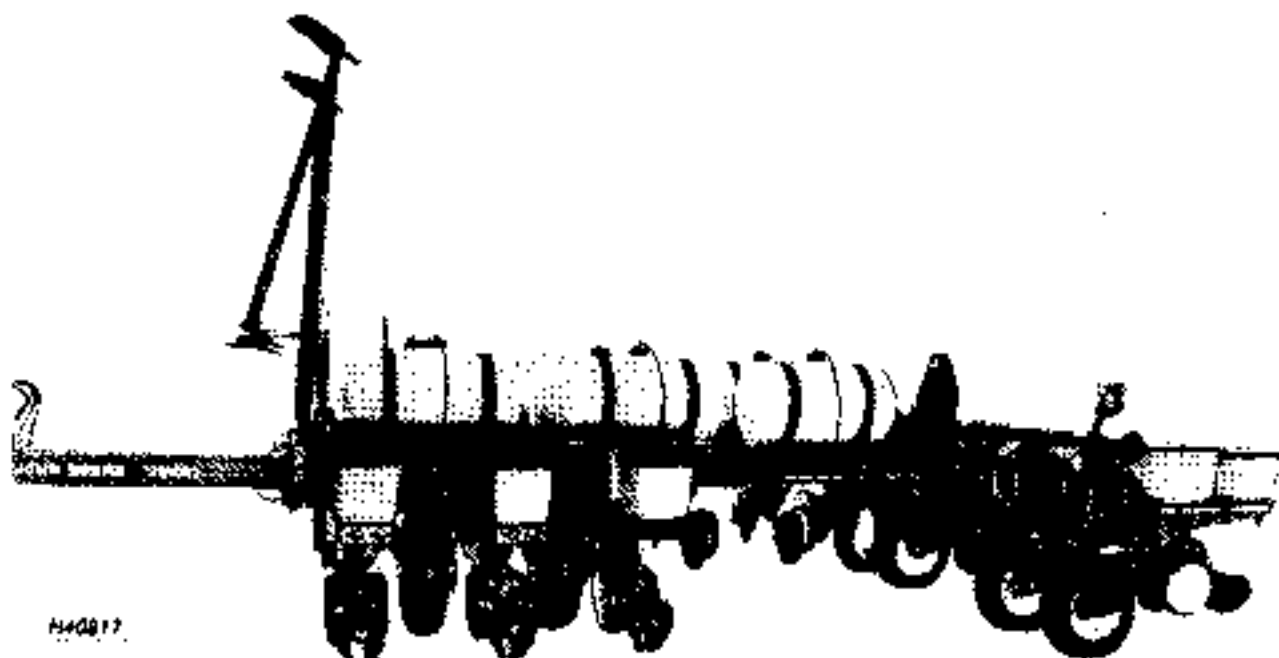
41/1/00C/T18

B217TRJ 18-24JUN90



Raise the planter by pulling the number 1 remote cylinder operating lever and rockshaft control lever rearward simultaneously.

The planter is now ready for transport.



CAUTION: Serious injury or death can result from contact with electric lines. Use care when moving or operating this machine near electric lines to avoid contact.

CAUTION: Fertilizer tanks, seed and pesticide hoppers should be half full or less when transporting the planter with fertilizer. For two-wheel drive tractors, exceeding this weight will mean poor front end stability and possible front end raising. For four-wheel drive tractors, this will prevent excessive frame loading. When transporting the 12-row planters with fertilizer or ballast, do not exceed 16.1 km/h (10 mph).

The planter is towed like a two-wheel cart in the folded transport position. Use caution in learning the tracking path of the planter behind the tractor when turning corners. The long wheelbase of the planter will make rear planter wheels "cut the corner".

CAUTION: When transporting the planter on a smooth surface road, do not exceed 32 km/h (20 mph) tractor speed. Reduce speed considerably when traveling over rough ground.

UNFOLDING THE PLANTER

⚠ CAUTION: Be certain everyone is clear of the planter.

⚠ CAUTION: Serious injury or death can result from contact with electric lines. Use care when moving or operating this machine near electric lines to avoid contact.

Use firm level ground, when possible, to make unfolding easier. Tractor must be in neutral to allow the tractor to roll slightly when unfolding the planter.

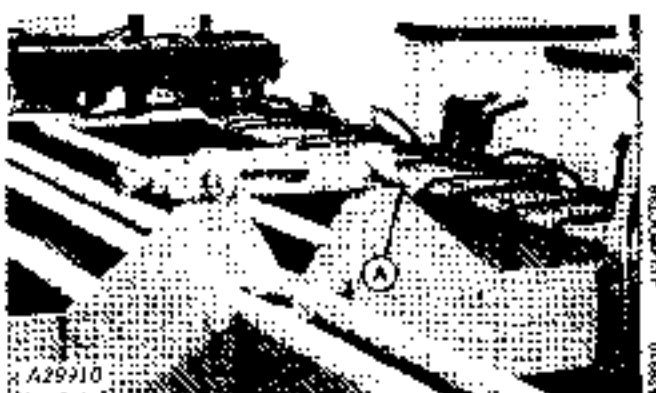
80513TRN 18-25JUN90

Lower the planter to the ground by pushing the number 1 remote cylinder operating lever and rockshaft control lever forward simultaneously.



80513TRN 18-25JUN90

Unlatch wings by removing quick-lock pin and drilled pin (A).



8213TRM 19-23JUN90

Slide wing lock rearward on drilled pin until connection end of lock can be positioned as shown. Replace drilled pin and quick-lock pin in storage position.



8213TRN 19-23JUN90

Transporting

Unlock the wing wheels by pushing in and down on the wheel locks until the locks disengage from the cylinder support hooks.



A29915

821.7TRD -19-25JUN90

A29915 -UNCLASS

Remove clip (A) and marker lock (B) from pin.

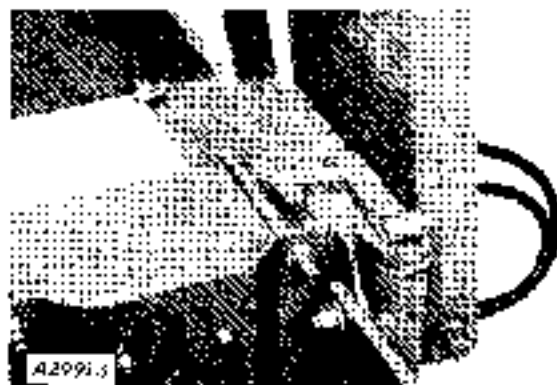


A29915

821.7TRD 10 25JUN90

A29915 -UNCLASS

Place marker lock in storage position on pins. Secure marker lock with clip.



A29915

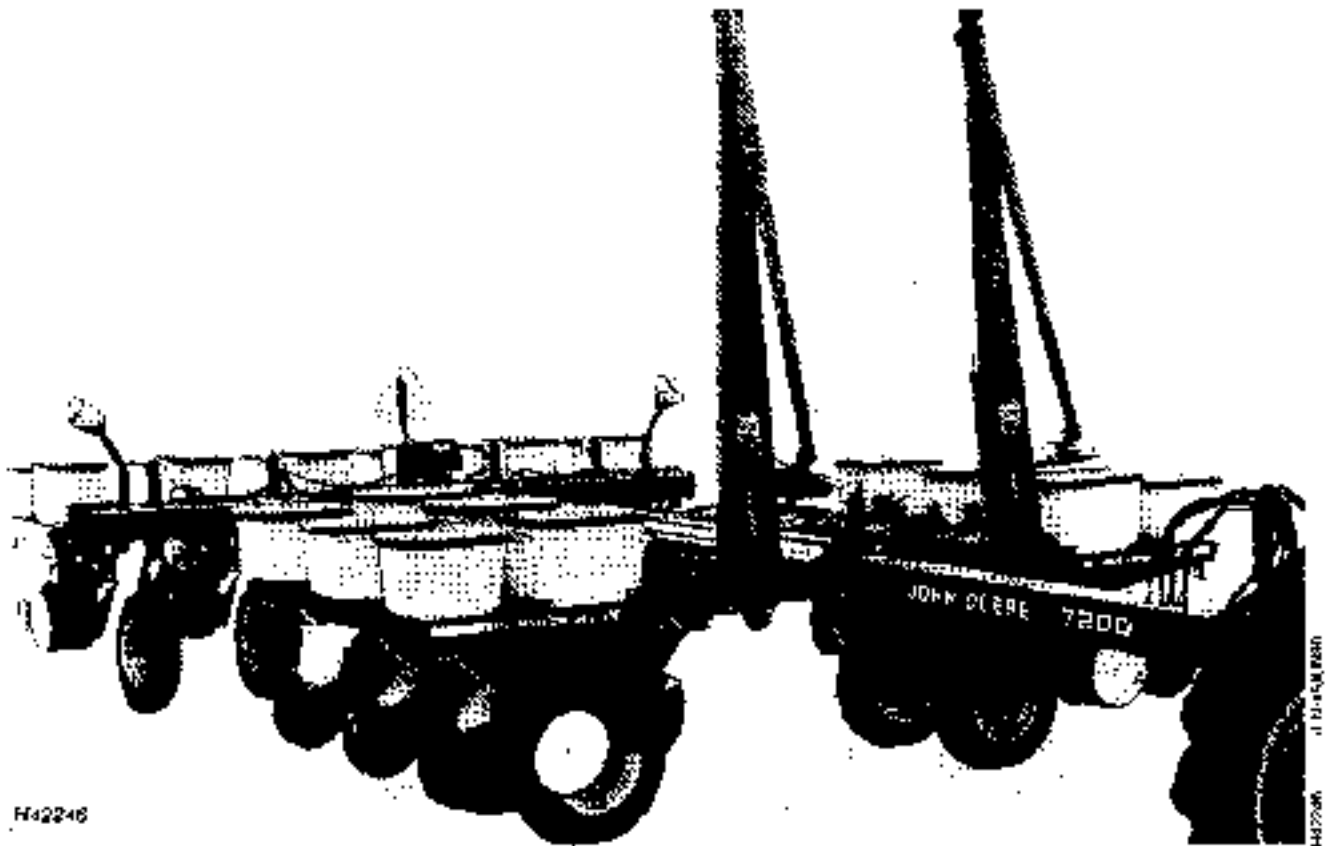
821.7TRD -19-25JUN90

A29915 -UNCLASS



Pull back on the number 1 remote cylinder operating lever and raise tractor rockshaft simultaneously to

fully raise the planter. Lower rockshaft until wing supports are not resting on hitch tubes.



H42246

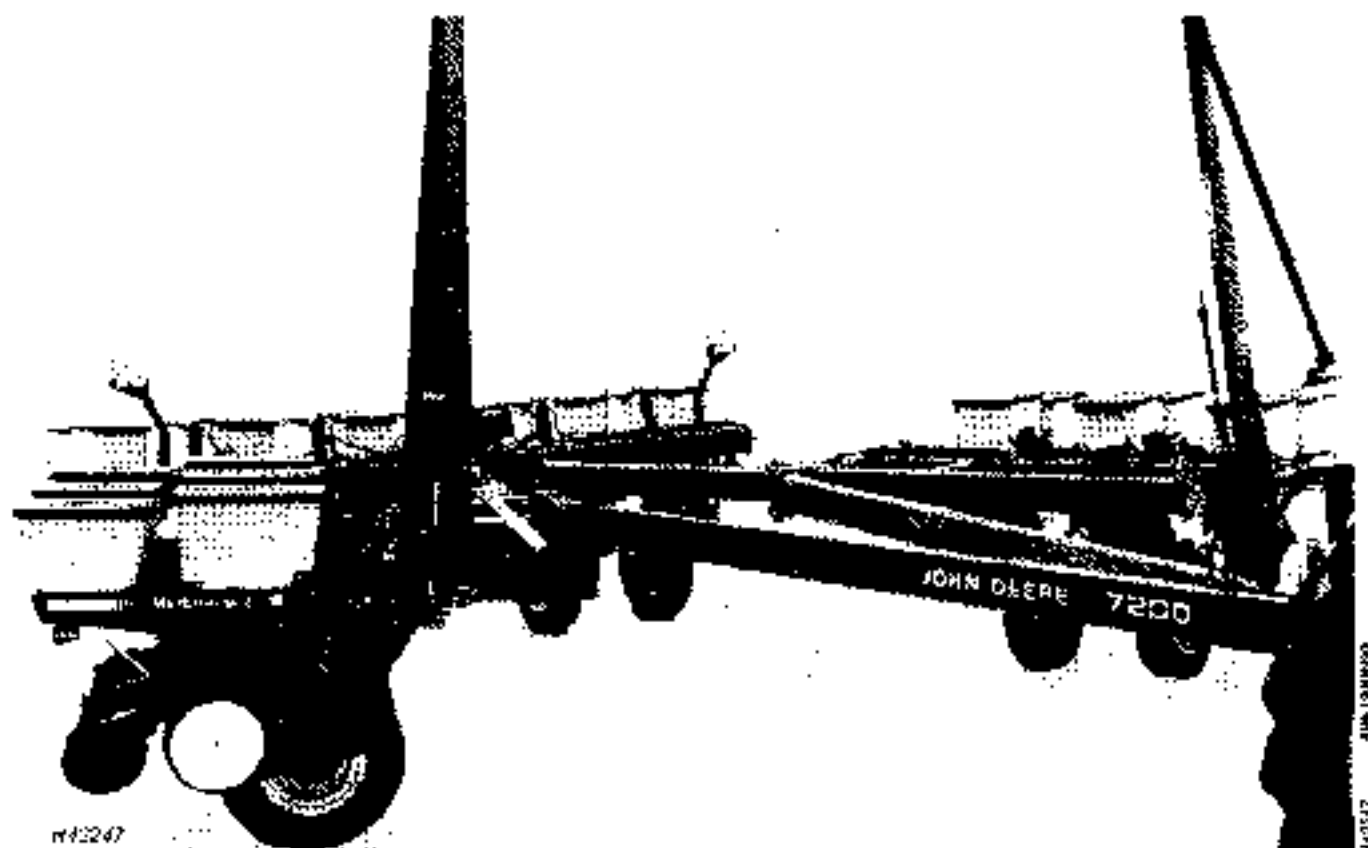
H42246

52 7111 10-28-81

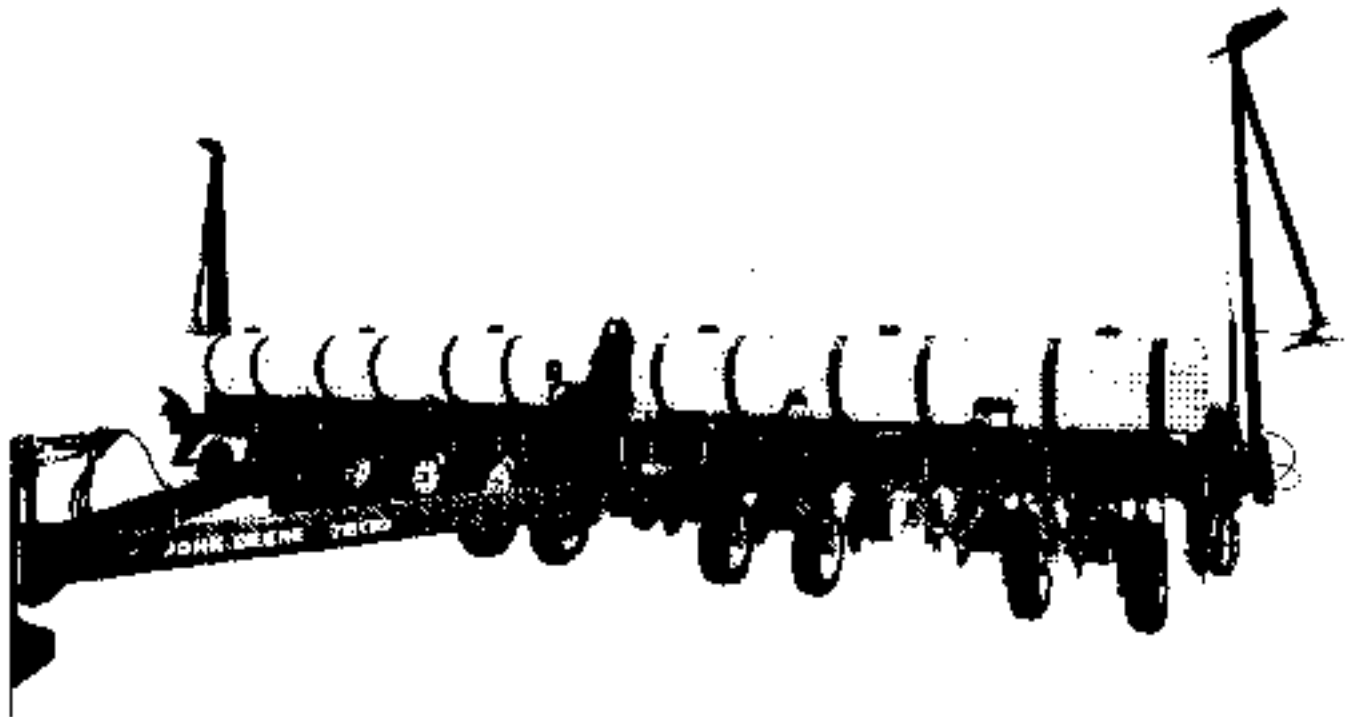


Press the FOLD switch and hold.

Unfold the planter by pushing the number one remote cylinder operating lever forward.



62-7TRU 19-28U490



H40809

When planter is completely unfolded, release FOLD switch and remote cylinder operating lever.

B21 7T0.V 19-28 JUN 90

NOTE: Before lowering the planter, be certain planter is moving forward to avoid plugging the seed openers and fertilizer openers.

Lower the planter to the ground by pushing the number one remote cylinder operating lever and rockshaft control lever forward simultaneously.



B21 7T0.V 19-28 JUN 90

Raise planter with tractor hydraulic system

If equipped with single-disk fertilizer openers, check to be sure there is adequate ground clearance between the blade and the ground.

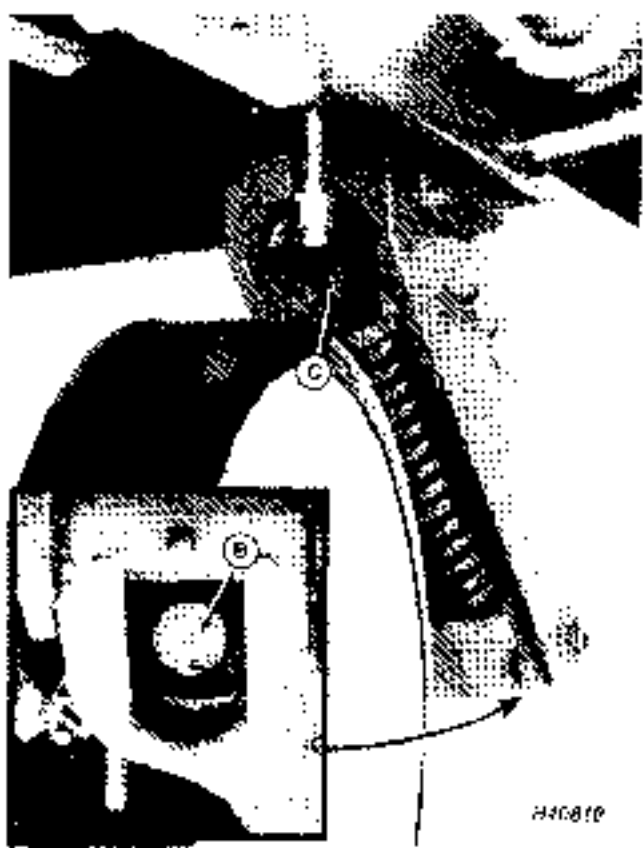
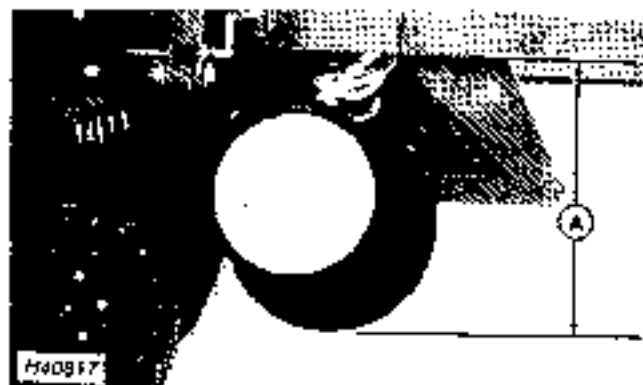
If necessary, loosen jam nut (C) and tighten spring adjusting bolt (B) until adequate ground clearance is achieved. Retighten jam nut.

NOTE: Do not lighten spring bolt so dimension (A) is less than 635 mm (25 in.). Opener may not achieve full depth if dimension is less than 635 mm (25 in.).

CAUTION: When transporting, never travel at any speed which would not permit adequate control of steering and stopping.

Check local governmental regulations for maximum permissible transport widths and use appropriate accessory lamps and devices for adequate warning to operators of other vehicles.

See your John Deere dealer for the various safety lamps and devices available for your planter.



41N-254P889

41N-254P889

B-1,378 © -19-25,41N80

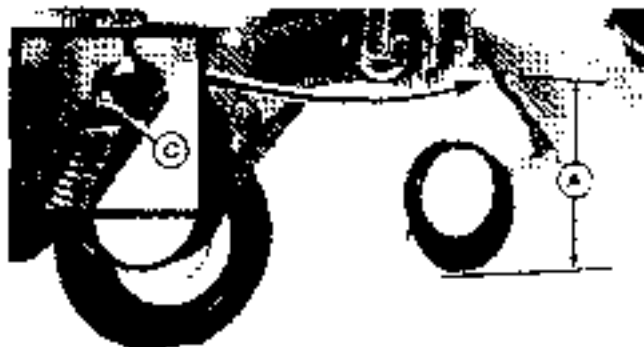
PLANTERS EQUIPPED WITH SINGLE-DISK FERTILIZER OPENER

Raise planter with tractor hydraulic system.

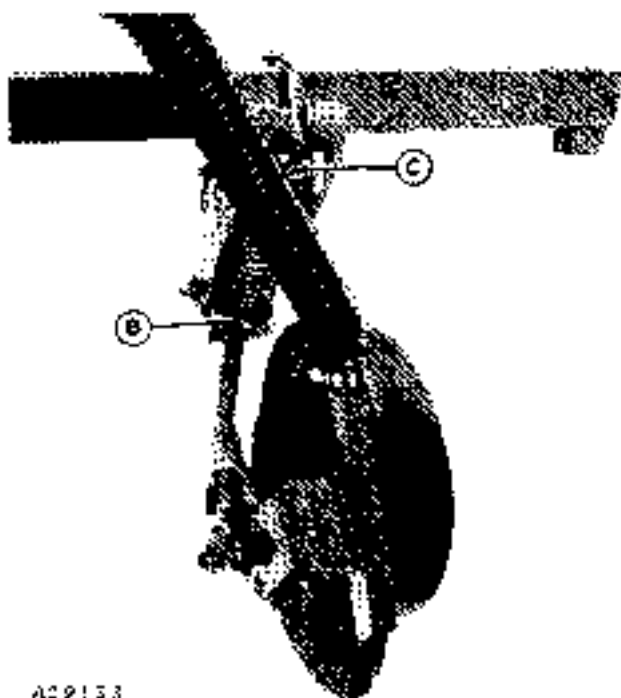
If equipped with single-disk fertilizer openers, check to be sure there is adequate ground clearance between the blade and the ground.

If necessary, loosen jam nut (C) and tighten spring adjusting bolt (B) until adequate ground clearance is achieved. Retighten jam nut.

NOTE: Do not tighten spring bolt so dimension (A) is less than 635 mm (25 in.). Opener may not achieve full depth if dimension is less than 635 mm (25 in.).



A 22637



A 29153

Revised 11/2004

Preparing the Vacuum Meter Unit

CHOOSING SEED DISKS

The vacuum seed meter will accurately plant most sizes of corn, acid-delinted cotton, sorghum, soybeans, edible beans, sugar beets, sunflowers, and popcorn.

Use the following guidelines to select the seed disk and the seed size that will optimize vacuum meter performance.

CORN

A - STANDARD CORN SEED DISK - Part No. A50617

B - SMALL CORN SEED DISK - Part No. A43215

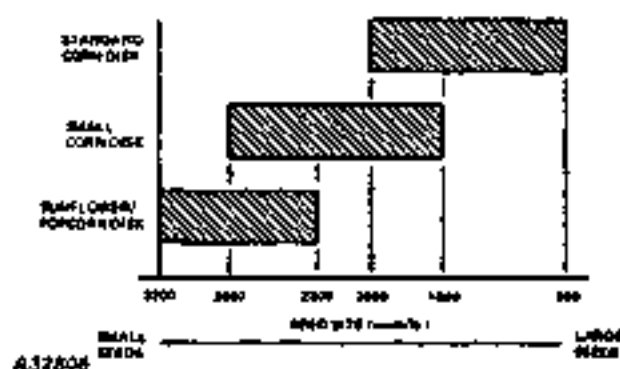
C - SUNFLOWER/POPCORN DISK - Part No. H136478

Corn seed size and shape varies widely. The vacuum seed meter corn disks can individually handle a large portion of the full size range.

The chart illustrates the range of seed sizes best suited for use with the respective seed disks.

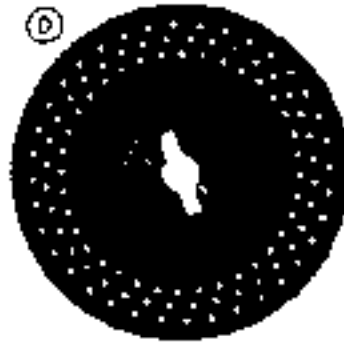
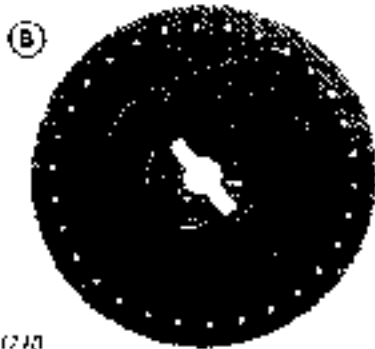
The chart represents the seed size range where optimum performance can be expected with each seed disk. Select the disk which best handles the seed to be planted or best represents the majority of seed sizes to be planted.

If several seed sizes are to be planted and their seed size falls within the overlapping areas of the two seed disks, it is recommended that BOTH seed disks be ordered to optimize performance to the individual seed shape.



R22-9817,6 - 18,24,11180

SELECTING SEED DISKS



Ha (710)

HA8710 -471-018A190

822 2PLU3 .19.18MA190

IMPORTANT: If hopper box treatments are used, be sure to follow the chemical manufacturer's recommendations carefully. Dry powder or fast drying liquid treatments are generally recommended. **HIGH OIL CONTENT TREATMENTS ARE NOT RECOMMENDED.**

Chemical reactions between hopper box treatments and treatments commercially applied to seed can cause the additive to become sticky. Certain temperature and humidity levels can further complicate material compatibility. Check with your chemical and seed supplier for treatment compatibility. Treatments adhering to vacuum meter components can cause reduced population and spacing control.

SUNFLOWER

A - Part No. H136478. Recommended for oil sunflower seed sizes 4 (small), 3 (medium) and 2 (large). Size 1 (extra large) and size 5 (extra small) and confectionary sunflower seeds are not recommended for the disk.

ACID-DELINTED COTTON

B - Part No. A44026. All sizes.

SOYBEAN

E - Part No. A42586. All sizes.

SORGHUM

C - Part No. A43066. Recommended for dry land and irrigated planting of sorghum seed ranging in size from 10,000 to 16,000 seeds per pound.

Use of smaller seeds may result in some over-population.

COTTON HILLDROP

F - Part No. H136587. Recommended for acid-delinted cotton seed. Groups four cotton seeds per hill. The distance between hills can be selected within a range of 8 to 18 in. centers.

SUGAR BEETS

G - Mono-germ. Part No. H136445. Recommended for seed in small to medium size, 6.5/64 to 9/64 inches.

Mono-germ. Part No. A51713. Recommended for seeds in large size, from 8 5/64 to 10/64 inches.

Pelleted. Part No. H136445. Recommended for pellets ranging in size from 8/64 to 10/64 inches.

Pelleted. Part No. A51713. Recommended for pellets ranging in size from 9/64 to 11.5/64 inches.

Pelleted. Part No. A43066. Recommended for pellets ranging in size from 9/64 to 11.5/64 inches.

POPCORN

A - Part No. H136478. Recommended for seed sizes from 2500 to 4500 seeds per pound.

C - Part No. A43066. Recommended for seed sizes with more than 4500 seeds per pound.

SELECTING SEED DISKS



#41907

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IMPORTANT: If hopper box treatments are used, be sure to follow the chemical manufacturer's recommendations carefully. Dry powder or fast drying liquid treatments are generally recommended. **HIGH OIL CONTENT TREATMENTS ARE NOT RECOMMENDED.**

Chemical reactions between hopper box treatments and treatments commercially applied to seed can cause the additive to become sticky. Certain temperature and humidity levels can further complicate material compatibility. Check with your chemical and seed supplier for treatment compatibility. Treatments adhering to vacuum meter components can cause reduced population and spacing control.

SMALL EDIBLE BEAN

A - Part No. H136468. Seed size recommendations are as follows:

Seed	Size Range Seeds Per Pound
Black Turtle	1800 to 2600
Navy	1800 to 2500
Pink Vava	1700 to 1850
Small White	2400 to 3000
Smooth Pea	2800 to 3200

MEDIUM EDIBLE BEAN

C - Part No. A51688. Seed size recommendations are as follows:

Seed	Size Range Seeds Per Pound
Blackeye Pea	1600 to 2000
Green Beans (Garden)	1000 to 2200
Kidney (Small)	1150 to 1400
Pinto	800 to 1400
Red Mexican (Small)	1200 to 1500
Wrinkle Pea	1800 to 2300

LARGE EDIBLE BEAN

D - Part No. H136092. Seed size recommendations are as follows:

Seed	Size Range Seeds Per Pound
Cranberry Bean	800-1200
Kidney (Medium)	950-1150
Great Northern	900-1300
Garbanzo	750-900
Peanuts (Runner)	650-800
Peanuts (Spanish)	1000-1250

VIRGINIA PEANUT

B - Part No. H138722. Recommended for seed sizes from 500 to 800 seeds per pound.

ADJUSTING VACUUM METER BAFFLE

Move tab (A).

Lower position (B) is recommended for sugar beets, sorghum, sunflowers and popcorn.

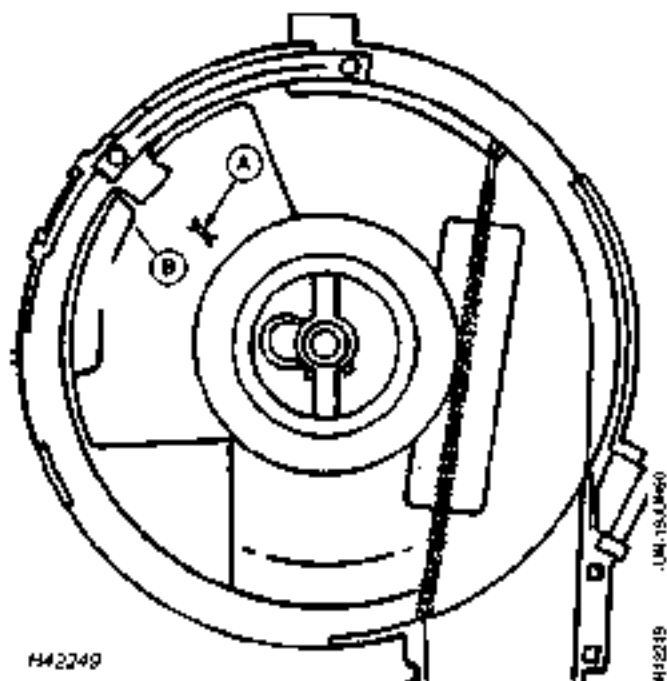
Upper position (C) is recommended for corn, soybeans, cotton, edible beans and peanuts.

Seed bridging at the meter inlet can result in long skips when planting. If this condition should occur, adjust baffle to the upper position (C) and add talc generously.

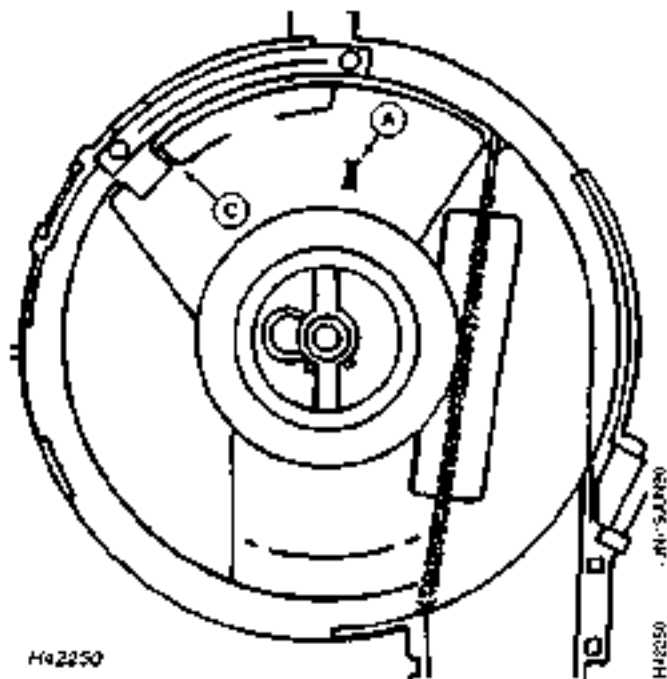
Overfilling of the meter may occur if planting on hillsides. This may cause seed disk fins to carry seed over the brush into the seed tube and result in high population. If these conditions should occur, adjust baffle to the lower position (B).

NOTE: Overfilling of the vacuum meter caused by extremely rough field conditions **CANNOT** be eliminated by lowering the baffle.

Increase down force on the row unit and reduce planting speed.



Lower Baffle Position



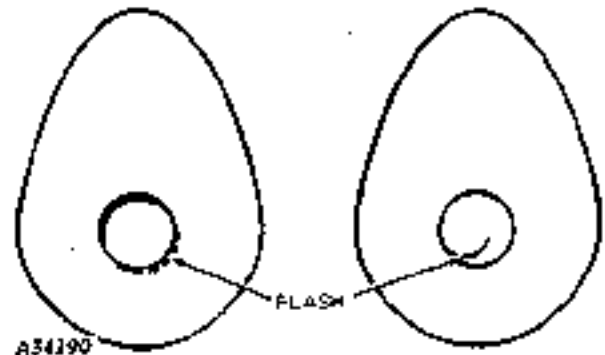
Upper Baffle Position

H42245-00M AD - 1-23JLR86

Preparing the Vacuum Meter Unit

Check the seed cell and hole for flash (particles of material left behind in the molding process). Remove any flash before installing seed disk. If flash cannot be easily removed, the disk should be replaced.

NOTE: Make a field check to determine seed meter accuracy. It is not necessary to replace any seed disk if metering performance is satisfactory.



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-12-25J1191
A34190

8228PUU -12-25J1191

INSTALLING SEED DISK

To install seed disk in vacuum metering unit:

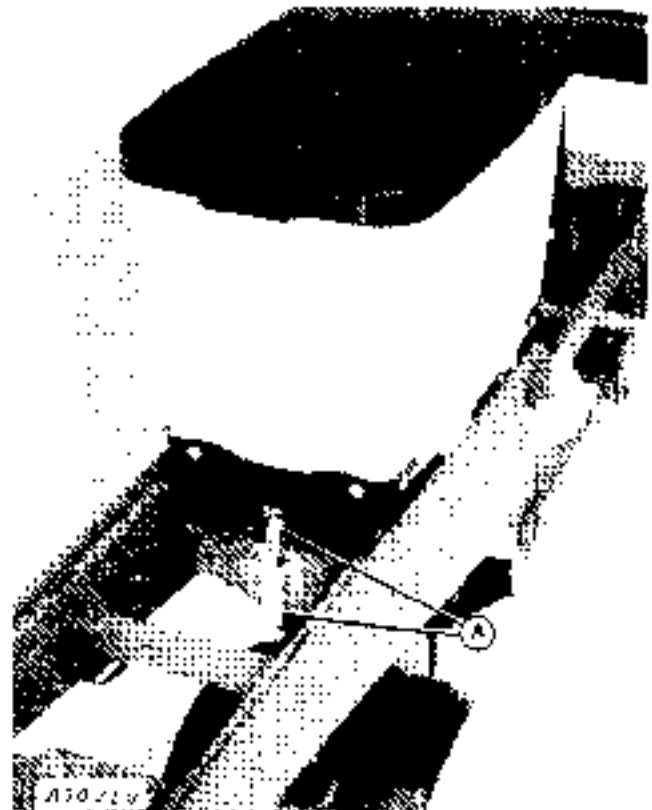
1. Remove vacuum hose (A) from metering unit.



4280196
-12-25J1190
A35214

0218PUC -12-25J1190

2. Remove seed hopper from planting unit by disengaging hopper latch (A) and lifting hopper upward and rearward.

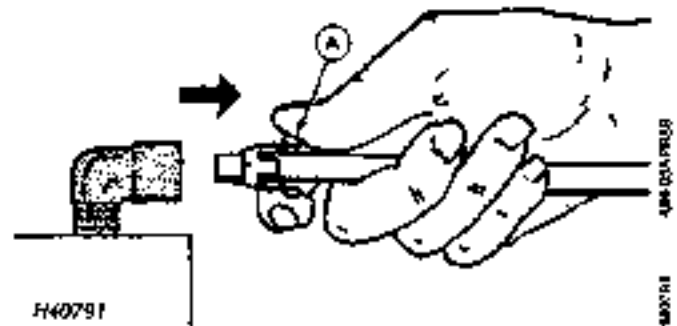


4280196
-12-25J1190
A30210

4280196 -12-25J1190

Preparing the Vacuum Meter Unit

3. Squeeze retainer (A) and pull hose out of connector on units equipped with vacuum monitoring hose.



B22.9P.U.V -19-26.A.1490

4. Disengage handle (A) and swing vacuum chamber open.



B22.9P.U.E -19-26.A.1490

5. Fit seed disk (A) into housing and secure with hub handle (B) by holding seed disk stationary and rotating hub handle.

6. Inspect gap between seed disk and housing, then spin disk in housing.

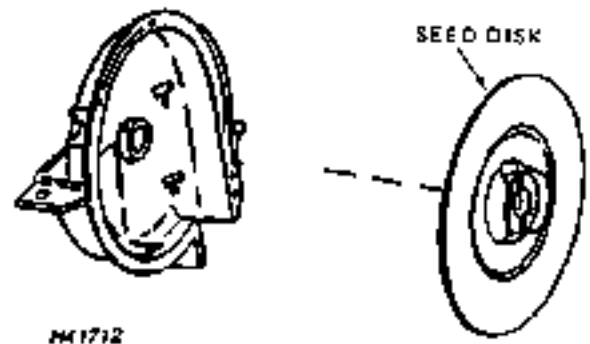
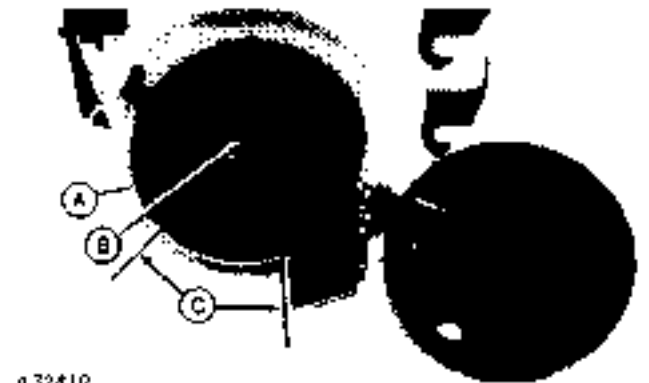
NOTE: Seed disk should turn smoothly with light contact or a small gap between seed disk (A) and meter housing. Turn seed disk by hand and check gap between seed disk and meter housing in section (C). Seed should not leak around circumference of meter. When planting small seed, such as sorghum or sugar beets, seed disk must lightly contact housing to prevent seed leakage.

If disk turns too hard, or if seed leaks through gap, readjust hub position. (See ADJUSTING METER HUB in Preparing for Use section.)

7. Close vacuum chamber and secure with handle (see step 3.)

8. Replace hopper on unit and secure with latch (see step 2).

9. Reposition vacuum hose on vacuum meter (see step 1).



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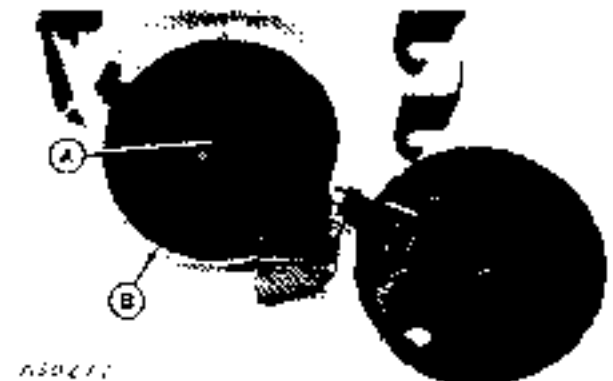
M117

B229PLG 19-10MA-150

ADJUSTING METER HUB

If gap too large or disk turns too hard, adjust meter hub as follows:

1. Unlock hub handle (A) by turning counterclockwise. Remove seed disk (B) from housing.



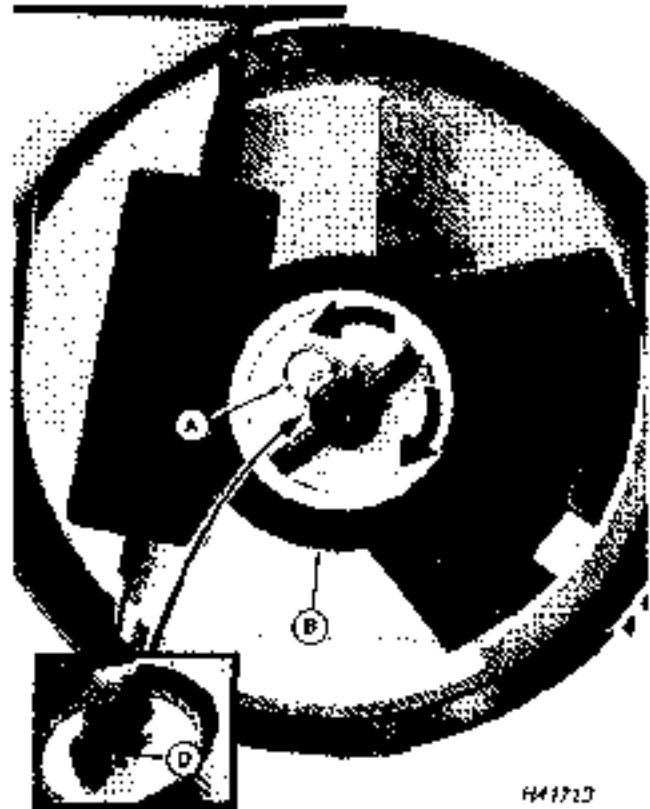
B229PLG 19-10MA-150

04-1100CT88

A32810

Preparing the Vacuum Meter Unit

2. Remove spring locking pin (A).
3. Adjust hub (B) as follows:
 - a. Hold meter flex-drive (C).
 - b. Turn hub clockwise to move seed disk closer to meter housing.
 - c. Turn hub counterclockwise to move seed disk further from meter housing.
4. Turn hub until slot (D) aligns with hole in shaft. Replace spring locking pin.



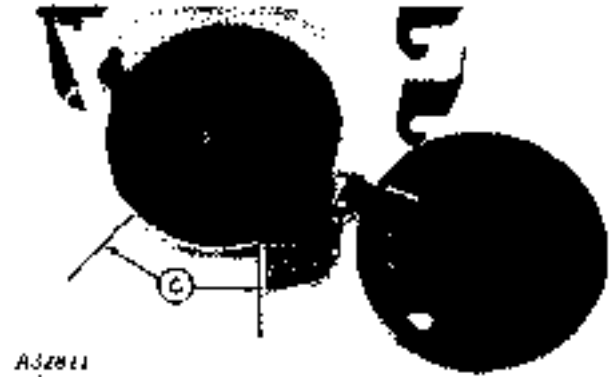
B22.VPU.H .49.18P4V50

5. Replace seed disk and secure with hub handle.
6. Inspect gap between seed disk and meter housing at (C); then spin disk in housing.

NOTE: The seed disk should turn smoothly with light contact or a small gap between the seed disk and the meter housing. Turn seed disk by hand and check gap between seed disk and housing. Seed should not leak around circumference of meter.

When planting small seed such as sorghum or sugar beets, the seed disk must lightly contact housing to prevent seed leakage.

7. Readjust hub, if necessary.



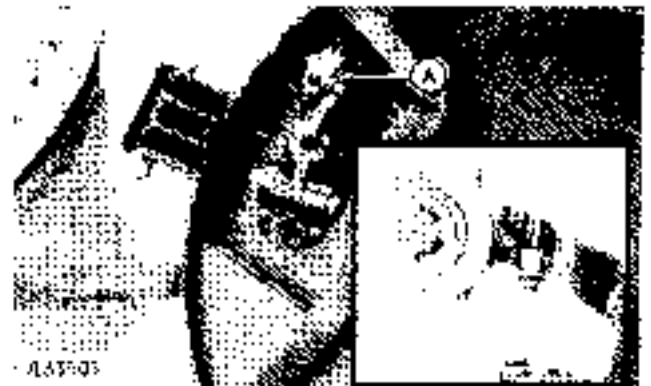
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A32811

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SUGAR BEET AND SORGHUM SEED KNOCKOUT WHEEL

The seed knockout wheel (A) is used to insure that certain seed types are fully released from the seed cell. The wheel projections engage the seed cell holes, forcing all seeds and foreign material to be ejected.

The seed knockout wheel is required when planting sorghum and mono-germ sugar beet seed. Sugar beet seed can have sharp edges and is typically irregular in shape, creating the potential for the seeds to become lodged in the seed cell. Some sorghum seed contains large amounts of foreign material which can also become trapped in the cell or cell holes.

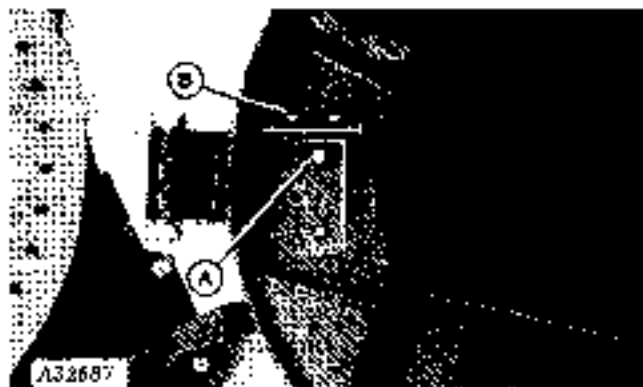


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A32905

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INSTALLING KNOCKOUT ASSEMBLY (SUGAR BEETS AND SORGHUM)

1. Loosen screw (A) and remove wiper assembly (B).



2. Install knockout assembly (C) with hardware (A) used in Step 1, as shown.



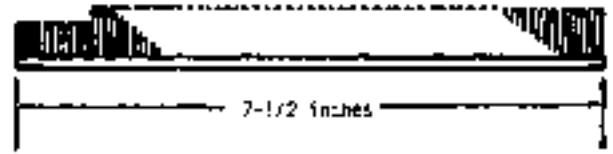
SELECTING CORRECT VACUUM METER BRUSH

Incorrect vacuum meter brush causes underpopulation of edible beans, peanuts and hilldrop cotton.

Two vacuum meter brushes are available.

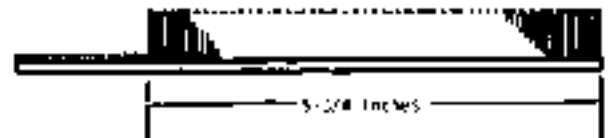
Use the regular (long) brush for all crops except medium and large edible beans, peanuts and hilldrop cotton.

Use the short brush with the seed disk for medium and large edible beans, peanuts and hilldrop cotton.



M34704

Regular (Long) Brush



H41715

Short Brush

H41535 19-18MA790

HOW TO CHANGE BRUSH

Remove existing long brush with notch (A).



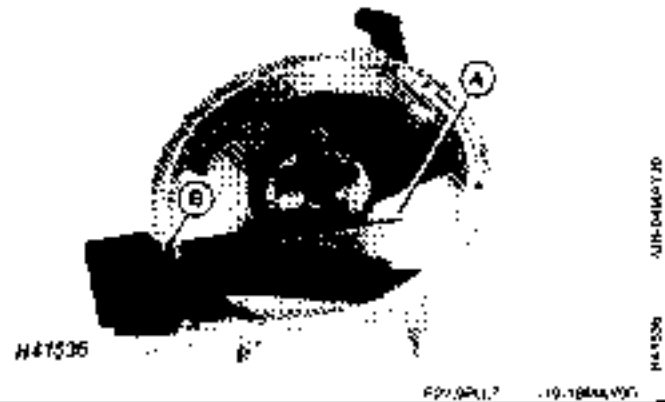
H41535

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INSTALLING BRUSH

Install short brush (A).

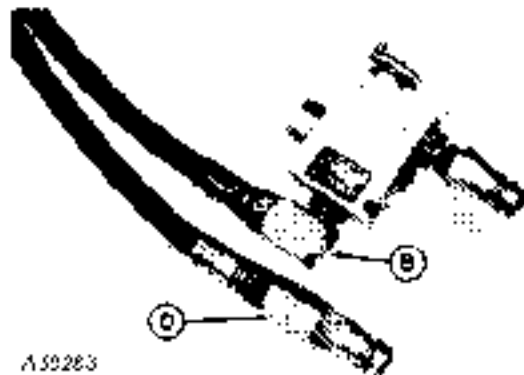
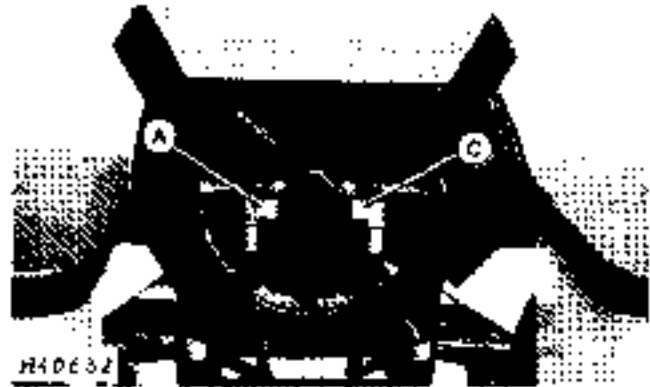
Snap brush into slot until it contacts side of meter housing (B).



CHECK HYDRAULIC CONNECTIONS

IMPORTANT: Damage to the pump motor may occur if hydraulic hoses are assembled incorrectly. Check the following hydraulic connections before operating the vacuum motor.

1. Be sure hose (A) connected to left-hand (inlet) side of motor is connected to elbow fitting (B) in control valve.
2. Be sure hose (C) connected to right-hand outlet side of motor is connected to check valve (D).



H40E32

Cap Mounted

Preparing the Plateless Meter Unit

PLATELESS SEED HOPPERS

Plateless seed hoppers are for drill planting only.

The metering unit is attached directly to the bottom of the fiber glass seed hopper by two wing nuts (A).

IMPORTANT: Always keep lids on seed hoppers when planting. If lids are left off, dust and dirt can accumulate in the seed metering mechanism, causing excessive wear.



Finger Pickup Seed Metering Unit



Feed Cup Seed Metering Unit

B20,004, A 12, 28, 3, 4, 100

Preparing the Plateless Meter Unit

Equip your planter with finger pickup metering units to plant all sizes (or mixed sizes) of corn and sunflower seeds.



A30214

Finger Pickup Seed Metering Unit



UM1900T88

A30214

Equip your planter with feed cup metering units to plant soybeans, edible beans or sorghum or acid delinted cotton.



A30215

Feed Cup Seed Metering Unit

UM1900T88

A30215

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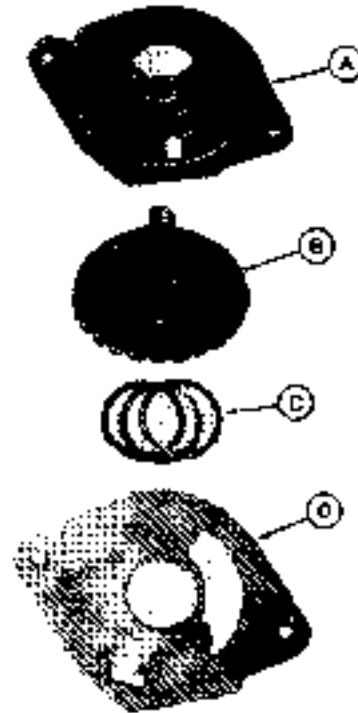
FEED CUP METERING UNIT

The feed cup metering unit consists of a feed cup housing (A), feed cup (B), washer shims (C) (used with low-rate sorghum metering units only) and corresponding seed guide (D).

Use feed cup metering units to plant the following types of feed:

- Soybeans
- Sorghum, Regular Rate
- Sorghum, Low-Rate
- Edible Beans
- Acid Delinted Cotton
- Small Soybeans

- A—Feed Cup Housing
- B—Feed Cup
- C—Washer Shims
- D—Seed Guide



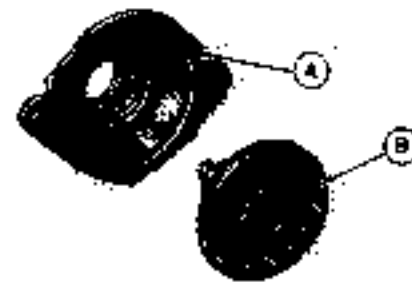
A32823

622,604,C -15-28,UN50

UN 1100786

SOYBEANS, EDIBLE BEANS AND REGULAR-RATE SORGHUM/MILO FEED CUP

Assemble the feed cup housing (A) with the desired feed cup (B).



A12517

605,130,C,C -15-28,UN10

UN 1100786

Install seed guide (A) on feed cup adapter so it seats properly on the mounting studs (B). Align notch (C) in seed guide with projection on adapter.



A30215

622,604,C -15-28,UN50

UN 1100786

Secure feed cup and housing to adapter with wing nuts (A). Be certain aligning notch is located so feed cup housing seats properly.

Wipe off feed cup bushings periodically to help reduce wear.

IMPORTANT: Store the feed cup metering assemblies in a clean, dry place while they are not in use.



A30219

B00,60N,JE 19-26,Jul90

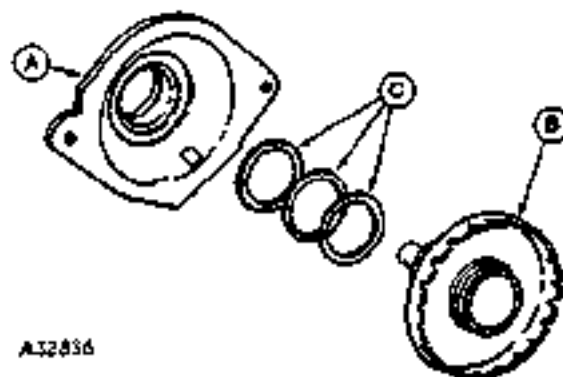
A30219 UN-1-00CT88

LOW-RATE SORGHUM*

Before assembling the low-rate sorghum metering unit, you must determine the size of the seed. You can accomplish this by using a seed sizing kit, available from your John Deere dealer.

NOTE: The three washer shims must be used with the low-rate feed cup. Do not operate without all three shims.

If the seed being planted will pass through the 3 mm (9/64 in.) screen by shaking vigorously, use three washer shims (C) between feed cup (B) and housing (A) only.



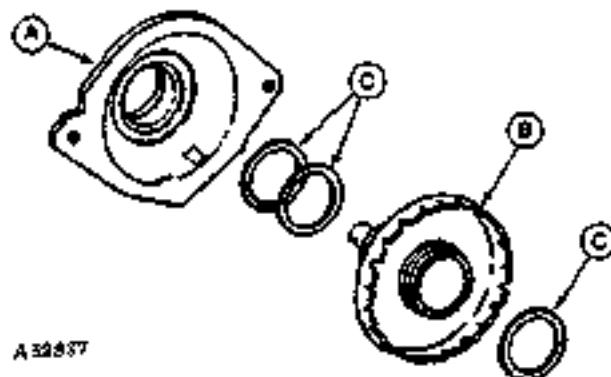
A32836

A32836 UN-1-00CT88

Available through service parts unit

B05,130,AF 19-26,Jul90

If the seed being planted will pass through the 4 mm (10/64 in.) screen and not the 3 mm (9/64 in.) screen, use two washer shims (C) between feed cup (B) and housing (A) and one washer shim (C) between feed cup and seed guide.



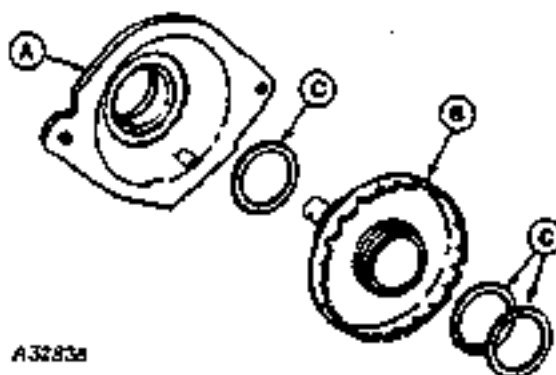
A32837

B06,130,AG 19-26,Jul90

A32837 UN-1-00CT88

Preparing the Plateless Meter Unit

If the seed being planted will pass through the 5 mm (11/64 in.) screen and not the 4 mm (10/64 in.) screen, use one washer shim (C) between feed cup (B) and housing (A) and two washer shims (C) between feed cup and seed guide.

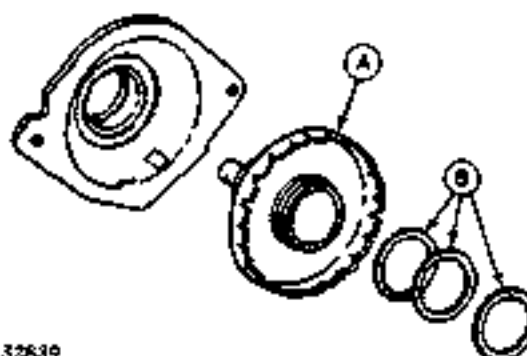


A3283a

826 1306 04 19-26.1 0001

49158 01 19 20180

If the seed being planted will not pass through the 5 mm (11/64 in.) screen, use the three washer shims (B) between feed cup (A) and seed guide.



A3283b

805 20141 19 26.1 0001

49158 01 19 20180

Assemble the feed cup housing with the low-rate sorghum feed cup and correct number of washer shims. Install seed guide on feed cup adapter so it seats properly on the mounting studs (A). Align notch (B) in seed guide with projection on adapter.



A33019

826 1306 04 19-26.1 0001

49158 01 19 20180

Secure feed cup and housing to adapter with wing nuts (A). Be certain aligning notch is located so feed cup housing seals properly.

Wipe off feed cup bushings periodically to help reduce wear.

IMPORTANT: Store the feed cup metering assemblies in a clean, dry place while they are not in use.



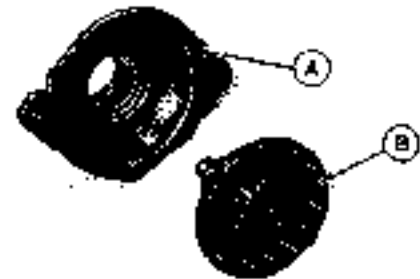
A33019

826 1306 04 19-26.1 0001

49158 01 19 20180

ACID DELINTED COTTON AND SMALL SOYBEANS

Assemble feed cup housing (A) with desired feed cup (B).



B22.80M H -14-28JUN91

A3333a -JUN-19 OCT 88

Install the seed guide (A) on feed cup adapter so it seats properly on the mounting studs (B). Align notch (C) in seed guide with projection on adapter.



B22.80M I -14-28JUN90

A3332b -JUN-13 OCT 88

Secure feed cup and housing to adapter with wing nut (A). Be certain aligning notch is located so feed cup housing seats properly.

Wipe off feed cup bushings periodically to help reduce wear.

IMPORTANT: Store the feed cup metering assemblies in a clean, dry place while they are not in use.



B22.80M E -14-28JUN90

A3331a -JUN-13 OCT 88

REPLACE FEED CUP WITH FINGER PICKUP

The cup seed meter assembly can easily be interchanged with finger pickup seed meter.

To replace feed cup with finger pickup:

1. Turn the hopper upside down and remove two wing nuts (A).
2. Pull feed cup assembly straight up.
3. Position finger pickup on hopper and secure with wing nuts removed in step 1.



852 BOW,BA 19-28,AM90

Operating the Planter

GENERAL

IMPORTANT: For proper planter operation, it is important that the planter frame be fully lowered into the correct planting position. Achieving this position can be difficult with some attachment combinations, especially when planting in hard to penetrate soil conditions. If this situation is encountered, the following action may be warranted:

Reduce attachment down force levels. Avoid using more attachment down force than is required.

Add frame ballast when conditions warrant. This may be particularly important if the frame mounted couter is being used.

If using fertilizer, it may be necessary to NOT completely empty the fertilizer hoppers to maintain sufficient frame weight to achieve the proper frame planting height.

IMPORTANT: DO NOT put SCV lever into FLOAT when raising and lowering the planter. The correct procedure for raising and lowering the planter is to POWER completely UP or DOWN.

B2170A 18 JUN 90

RAISING AND LOWERING THE PLANTER

NOTE: Due to the high hydraulic pressure requirements of large planters, the remote cylinder operating lever used to raise and lower the planter will not function in the automatic retract or automatic extend position.

After raising or lowering the planter, hold the remote cylinder operating lever for approximately five seconds to be certain the planter raises and lowers completely.

Be certain the planter is moving forward when raising or lowering the planter in the unfolded position to avoid plugging the seed openers and fertilizer openers.

When raising or lowering the planter in the folded position, push or pull the remote cylinder operating lever and rockshaft control lever simultaneously. This allows the planter to raise or lower evenly, preventing damage to the seed openers and fertilizer openers.

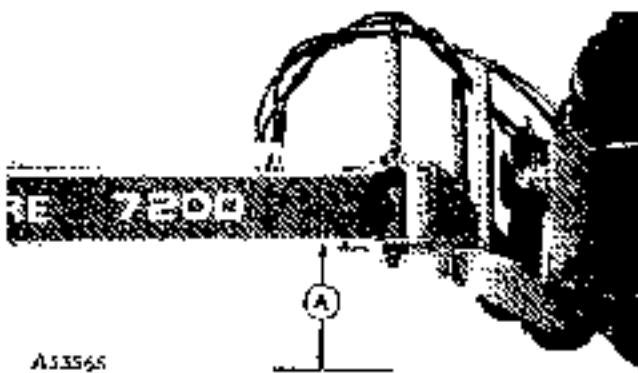


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LEVELING THE PLANTER

Periodically check the planter to be certain the planting units are running level.

Lower the planter on level ground until the planter frame and hitch (A) are approximately parallel to the ground when in planting position.



PS 724 6 -19-2011060

Set the rockshaft adjustable depth stop (A) to control or limit proper rockshaft operating height.

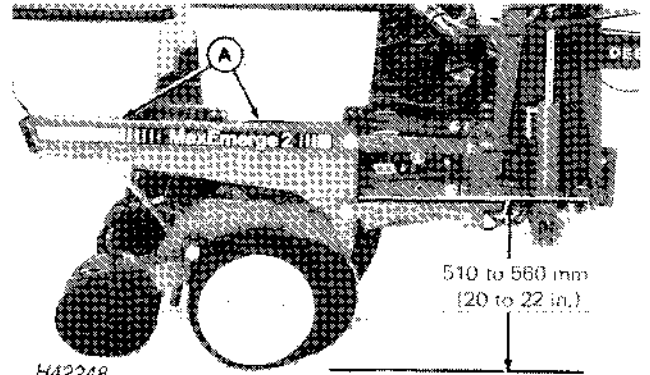


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Operating the Planter

Lower planter to planting position with the bottom of main frame tube approximately 510 to 560 mm (20 to 22 in.) above the ground.

When planting, the top of hopper support (A) should be parallel to the ground.



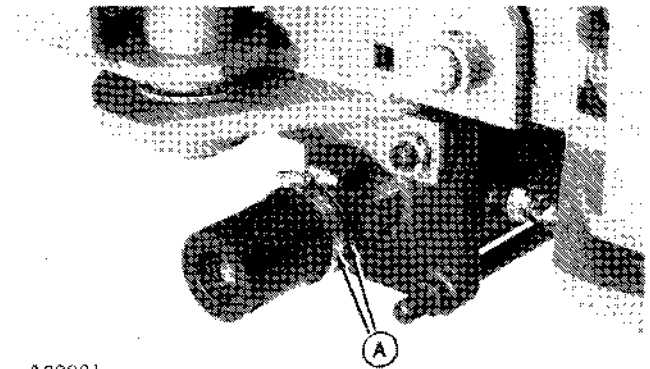
B21.701AA -19-28JUN90

H42248 -UN-19JUN90

If the center of the planter is too high or low, it may be necessary to rephase the hydraulic wheel lift system.

To rephase your planter wheel system, proceed as follows:

Lower the planter on level ground and remove clamps and collars (A) from front of master cylinder rod.

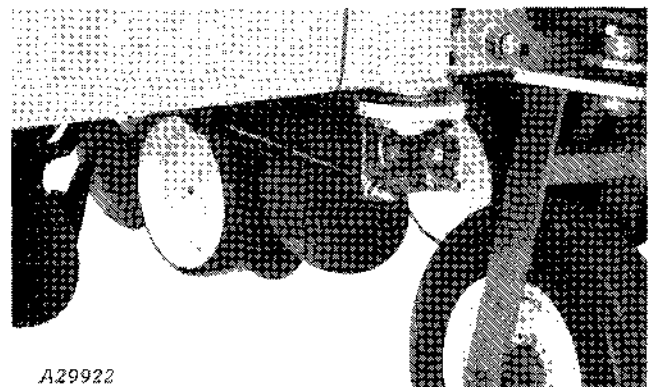


B21.701.D -19-28JUN90

A29921 -UN-06OCT88

Fully raise planter. (Hold the remote cylinder operating lever rearward approximately five seconds.) The stop on the front of the master cylinder rod should come in contact with the cylinder end cap. If the stop is not in contact with the end cap, bleed sufficient oil from the wheel module cylinders to achieve contact.

To bleed the wheel module cylinders, proceed as follows:



B21.701.E -19-28JUN90

A29922 -UN-06OCT88

Operating the Planter

With planter in raised position and tractor engine shut off, place remote cylinder operating lever in neutral, install bleeder hose (A) on bleeder valve. Bleed trapped air from each wheel module cylinder (alternating sides of planter), allowing planter to lower and oil to flow until it is free of air foam. Repeat as required.

IMPORTANT: Be certain to alternate sides of planter when bleeding wheel module cylinders to prevent row units from dragging sideways on the ground.

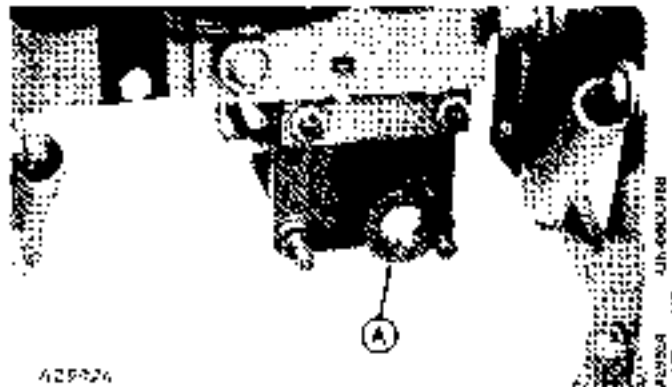
The wheel modules on each end of the planter have a large plug fitting (B). Do not loosen this fitting. Loosen only the bleeder valve.

When all the trapped air has been removed from the wheel module cylinders, fully raise the planter and hold the remote cylinder operating lever rearward approximately five seconds. Master cylinder front stop must contact cylinder body. Lower the planter and replace the collars.



E21.701F -19-25JUN90

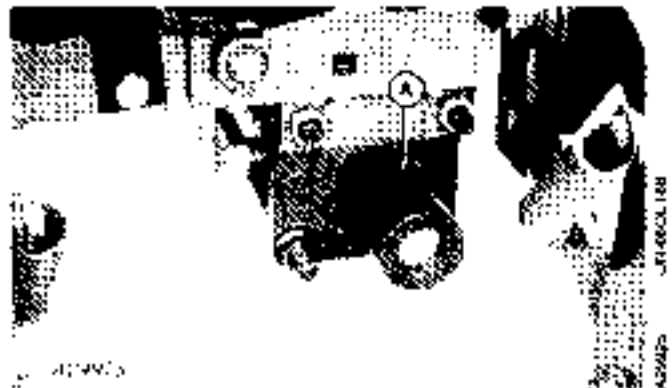
If the planting unit parallel arms still are not uniform across the length of the planter after rephasing the planter wheel hydraulic system, it may be necessary to turn the adjusting collar (A) on the rear of the master cylinder to raise or lower the center frame.



E21.701G -19-25JUN90

To turn the adjusting collar, raise the planter part way to take the pressure off the adjusting collar.

Loosen set screw (A) and turn adjusting collar one quarter turn (turning the collar clockwise will raise the main frame and turning the collar counterclockwise will lower the main frame). Tighten set screw. Repeat if necessary.



E21.701H -19-25JUN90

MARKER LENGTH

Loosen jam nuts and set screws (A) on marker and adjust to length shown below with the marker in the down position. Dimension (B) is measured from the center line of the planting unit to the marker disk. This is an approximate dimension and should be checked in the field.

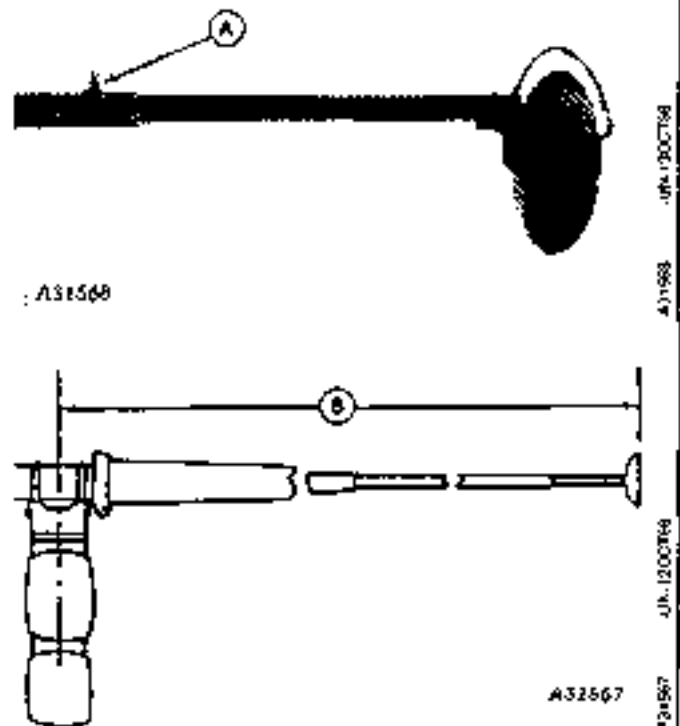
For 8-Row Planter:

- 914 mm (36 in.) rows, B = 3200 mm (126 in.)
- 965 mm (38 in.) rows, B = 3378 mm (133 in.)
- 1016 mm (40 in.) rows, B = 4572 mm (180 in.)

For 12-Row Planter:

- 762 mm (30 in.) rows, B = 4953 mm (195 in.)

Tighten cap screws and jam nuts



B21 101 R - 9-26-00M90

RAISING AND LOWERING MARKERS

IMPORTANT: DO NOT put SCV lever into **FLOAT** when raising and lowering the planter. The correct procedure for raising and lowering the planter is to **POWER** completely **UP** or **DOWN**.

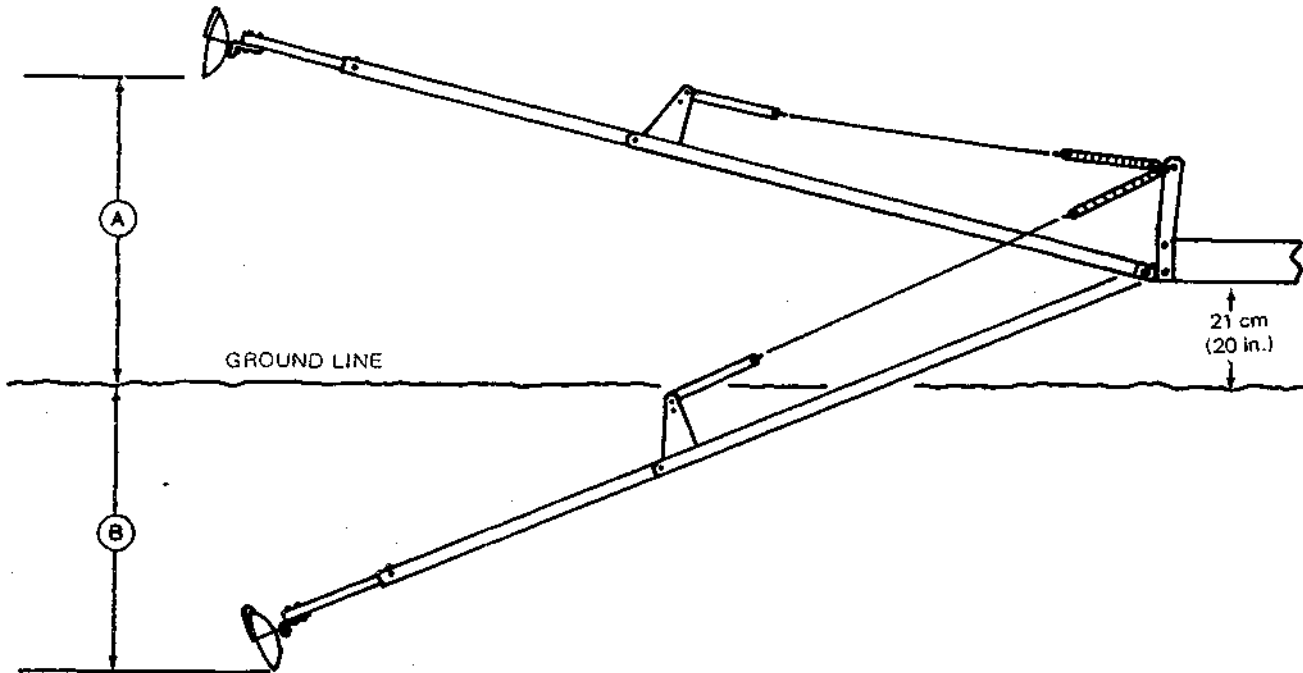
The markers will raise and lower alternately each time the planter is raised and lowered.

This procedure will allow the opposite marker to lower. Both markers will raise when the planter is raised.

To lower both markers with independent marker control, see **INDEPENDENT MARKER CONTROL** in this section.

B21 101 J - 9-26-00M91

MARKER FLOAT RANGE



A31040

A31040 -19-01M/AFB9

The marker has an approximate float range (see chart below) which should not be exceeded (e.g., when planting near drainage ditches or hillsides).

If this range must be exceeded, raise the marker by operating the marker remote cylinder operating lever.

Exceeding this float range can result in damage to the marker inner arm.

Planter	Row Spacing	Dimension "A"	Dimension "B"
8-Row Wide	91 cm (36")	480 mm (19")	1190 mm (47")
	97 cm (38")	560 mm (22")	1345 mm (53")
12-Row Narrow	76 cm (30")	760 mm (30")	1725 mm (68")

B21,701,K -19-28JUN90

MARKER LENGTH

Loosen jam nuts and set screws (A) on marker and adjust to length shown below with the marker in the down position. Dimension (B) is measured from the center line of the planting unit to the marker disk. This is an approximate dimension and should be checked in the field.

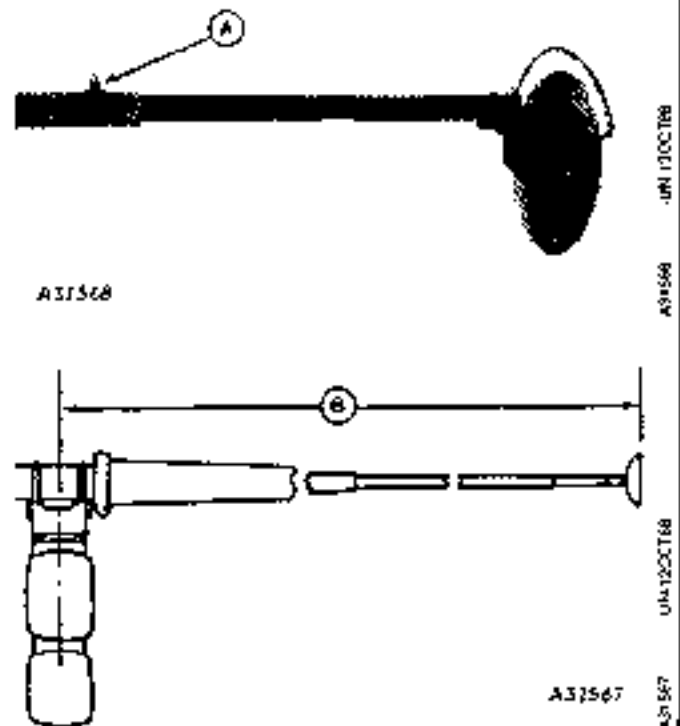
For 8-Row Planter:

- 914 mm (36 in.) rows, B = 3200 mm (126 in.)
- 965 mm (38 in.) rows, B = 3378 mm (133 in.)
- 1016 mm (40 in.) rows, B = 4572 mm (180 in.)

For 12-Row Planter:

- 762 mm (30 in.) rows, B = 4953 mm (195 in.)

Tighten cap screws and jam nuts.



829721A 19-75JUN80

RAISING AND LOWERING MARKERS

IMPORTANT: DO NOT put SCV lever into **FLOAT** when raising and lowering the planter. The correct procedure for raising and lowering the planter is to **POWER** completely **UP** or **DOWN**.

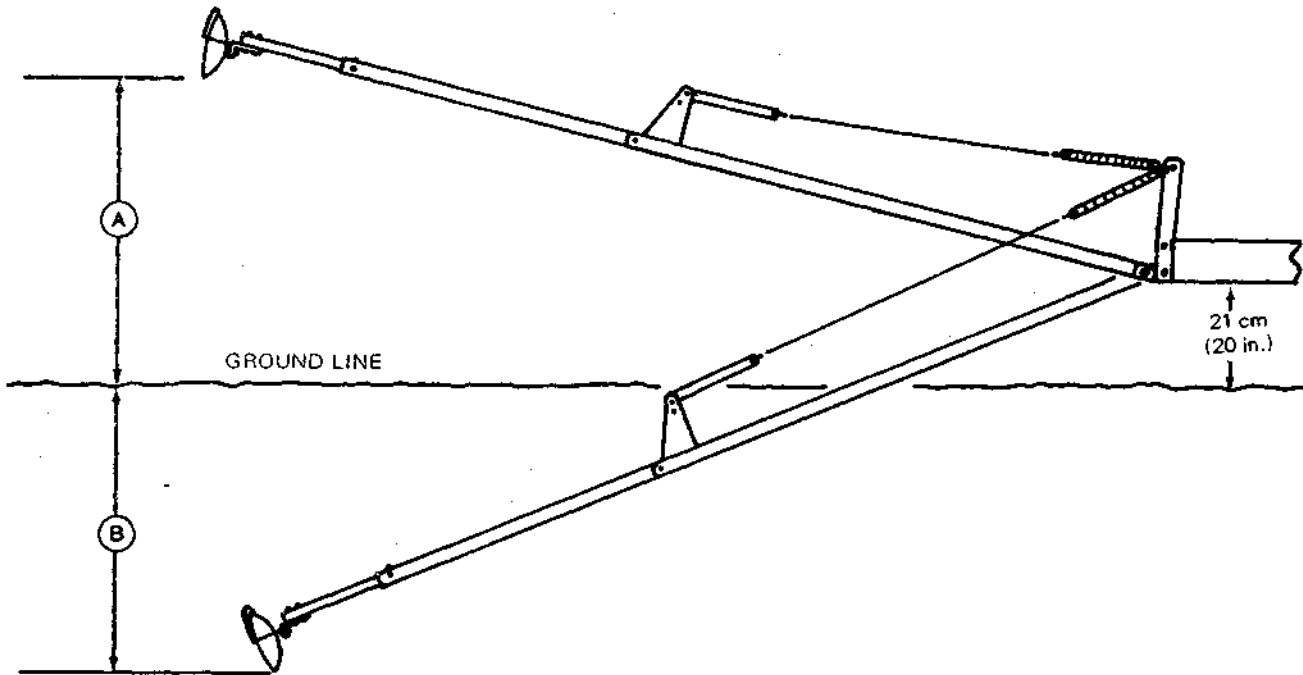
The markers will raise and lower alternately each time the planter is raised and lowered.

This procedure will allow the opposite marker to lower. Both markers will raise when the planter is raised.

To lower both markers with independent marker control, see **INDEPENDENT MARKER CONTROL** in this section.

829721J 19-75JUN80

MARKER FLOAT RANGE



A31040

A31040 -19-01MAR89

The marker has an approximate float range (see chart below) which should not be exceeded (e.g., when planting near drainage ditches or hillsides).

If this range must be exceeded, raise the marker by operating the marker remote cylinder operating lever.

Exceeding this float range can result in damage to the marker inner arm.

Planter	Row Spacing	Dimension "A"	Dimension "B"
8-Row Wide	91 cm (36")	480 mm (19")	1190 mm (47")
	97 cm (38")	560 mm (22")	1345 mm (53")
12-Row Narrow	76 cm (30")	760 mm (30")	1725 mm (68")

B21.70I,K -19-28JUN90

MARKER OFF SWITCH

The **MARKER OFF** switch allows you to turn off the markers in any position. This allows you to:

Raise the planter frame, but not the markers, when approaching a waterway or an obstacle.

Plant with both markers raised without the need to manually lock the markers up.

To turn off the markers, press the **MARKER OFF** switch. The markers will stay off until the switch is pressed back to the **NORMAL** position.



B0549CLJ -19 26JUN90

INDEPENDENT MARKER CONTROL (OPTIONAL)

Allows you to operate the marker independent of the planter lift system. The Independent marker control requires an additional SCV (A) on the tractor.

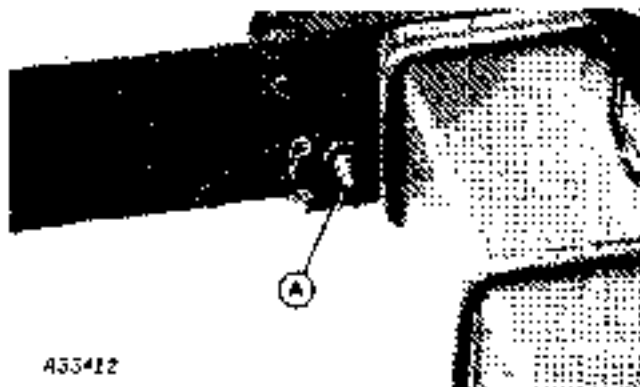


B05490.K -10 26JUN90

MARKER BREAKAWAY BOLT

The marker breakaway bolt (A) provides breakaway protection when the marker hits an obstacle.

To replace breakaway bolt, see "Replacing Breakaway Bolt" in Service section.



B21701J -19 26JUN90

HALF-WIDTH PLANTING DRIVE DISCONNECT (OPTIONAL)

Allows you to turn off either half of the planter while on-the-go to plant point, end, or fence rows.

To disengage the left-hand side of the planter drive, press the "L" side of the DRIVE DISCONNECT switch.

To disengage the right-hand side of the planter drive, press the "R" side of the DRIVE DISCONNECT switch.

To resume planting with both sides of the planter, push DRIVE DISCONNECT switch to neutral position.



E24 701,N -19-28AUF90

CLUTCH ACTUATOR

1. The clutch actuator strap has slot for adjustment. Bolt (A) must not be free to move in slot. It must be held tight to a specific position so the clutch will disengage and reengage at the desired planter height. Moving the bolt rearward in the slot will make the drive engage sooner.



12-Row Planter (Illustrated)

B21 701,N -19-28JLN90

VACUUM METER PUMP

Operate the vacuum meter pump with the SCV lever lock (A) installed. This prevents the SCV lever from returning to the neutral position, which could cause damage to the pump motor.



B21 701,N -19-28JLN90

Stop the vacuum meter pump by putting the SCV lever in the "float" position.

IMPORTANT: Do not return lever to "Neutral" position to shut off the pump.



B21,7C4P -19-26,0080

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82824

VACUUM METER PUMP PRESSURE

For operation and service, see Vacuum Meter section of this operator's manual.

B21,10, X -19-21,0080

CHANGING PLANTING DEPTH

Planting depth is controlled by the planting unit gauge wheels (B). Adjust planting depth as follows.

Raise planter to remove weight from unit gauge wheels. Lift depth adjusting handle (A) and move it forward to decrease planting depth. Move the handle rearward to increase planting depth.

If small increments are desired, "walk" the handle from side to side. Adjust all rows to the same setting as a starting point.

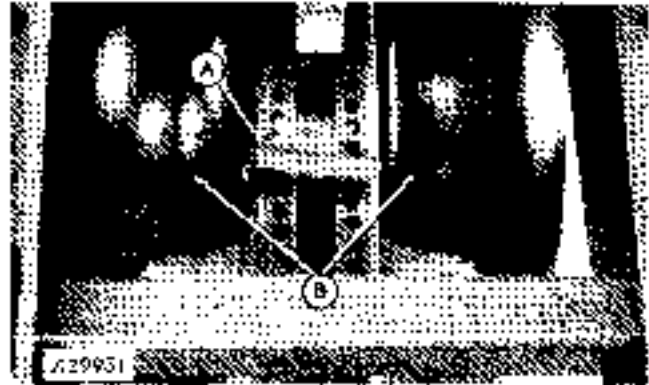
NOTE: When operating in the field, lower the planter only when the tractor is moving forward. This will prevent the planter openers and seed tubes from clogging in moist soil conditions.

Lower planter and drive at normal planting speed. Check the planting depth of all rows.

Manufacturing variations in the planting units may require that the depth adjusting handles be positioned differently from row to row to achieve the same planting depth.

NOTE: Closing wheel down force can affect seed placement and depth. Do not use more force than is necessary to close the seed furrow, especially in light soils.

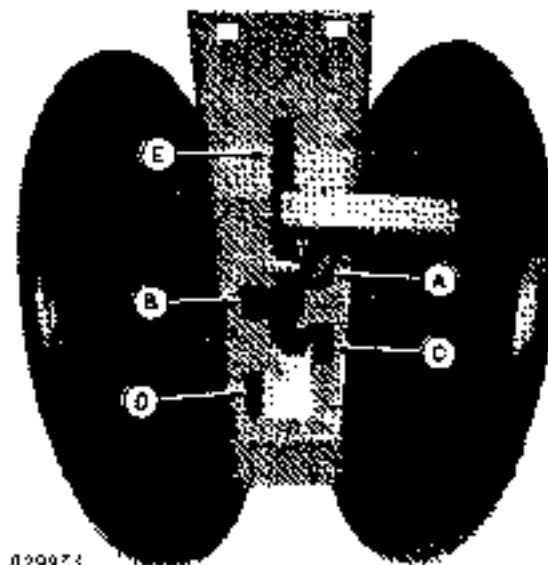
Do not consider the entire center ridge left by the closing wheels as part of the seed depth. The loose soil in this ridge serves as mulch.



ADJUSTING CLOSING WHEEL DOWN FORCE

Angled closing wheels (A) trail behind the seed opener and close the seed trench left by the opener. Adjustable spring force permits proper closing of the seed trench by firming soil on each side of the seed, not directly over the seed.

The closing wheel down force can be adjusted by placing the handle in slots (A), (B), (C) and (D) for varying ground conditions. Placing the handle in the middle slot (E) will allow the closing wheels to "FLOAT" with only the weight of the closing wheel system on the soil surface.



A29973

B21204J -1P-2JLN2D

CENTERING (ALIGN) CLOSING WHEELS

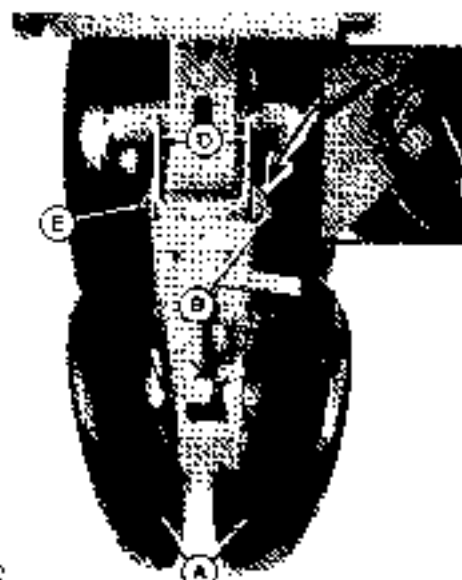
If closing wheels (A) are not centered (aligned) over the seed trench or furrow, proceed as follows:

Raise the planter.

Loosen cap screw (B). Turn adjusting cam (C) clockwise to move the closing wheels to the right or counterclockwise to move the closing wheels to the left. Visually center as required.

NOTE: After centering closing wheels, make sure top front edge of closing wheel frame (D) contacts top of casting all the way across top surface so both wheels contact soil at the same time and apply same amount of force. The casting is slotted so cam (C) and bolt (B) can slide vertically. If frame (D) does not contact evenly, slide cam (C) and bolt (B) in this slot. Loosen bolt (E) for additional adjustment.

Tighten bolts.



A29972

B21204J -1P-2JLN2D

B21204JA -1P-2EJLN2D

FILLING SEED HOPPERS

If using 58L (1.6 bu.) hoppers, remove lid and snap on front of hopper with latch.

If using 106L (3 bu.) hoppers, remove lid and snap on side of hopper with latch.

If using seed treatment, remove any build-up that may occur on bottom of hopper or meter before filling seed hoppers.

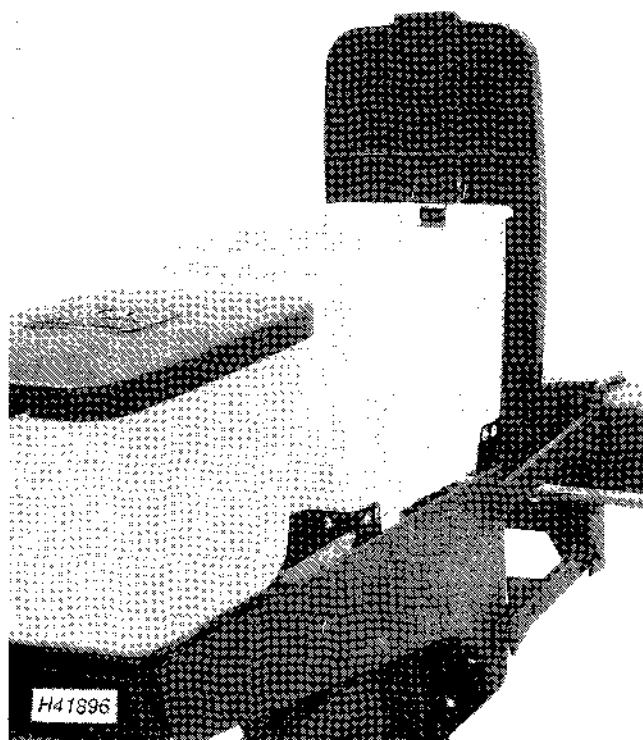
Seed treatments can cause a deterioration in seed singling, spacing accuracy and seed flow into the vacuum seed meter. To minimize the effect seed treatments may have on vacuum meter performance, A51237 Talc Lubricant should be used whenever treated seed is being planted.

Spread 1/2 cup of talc over the top of each hopper full of seeds to be planted. Adjust the rate as necessary so all seeds become coated with talc, while avoiding an accumulation of talc settling in the bottom of the seed hopper.

For small seed sizes, seed types with excessive treatment, or for humid planting environments (all commonly associated with cotton or sorghum planting), increasing the rate to one cup per hopper full of seed and mixing thoroughly may be required.

NOTE: Using liquid hopper applied seed treatments which leave a wet coating on the seed is not recommended.

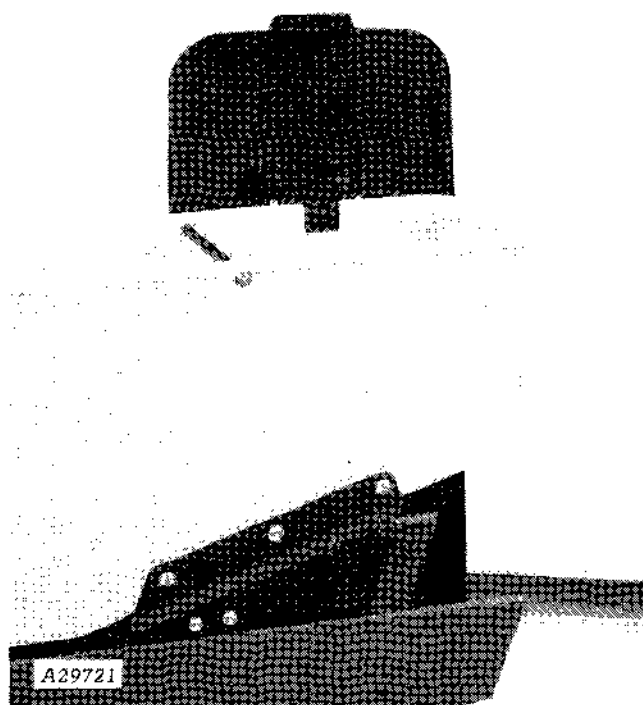
IMPORTANT: Replace hopper lids after hoppers have been filled. If lids are left off, dust and dirt can accumulate in the seed metering mechanism, causing excessive wear.



58L (1.6 bu.) Seed Hopper

-JUN-03MAY90

H41896



106L (3 Bu.) Seed Hopper

B22.9OM,T

-19-28JUN90

-UN-13OCT88

A29721

Operating the Planter

Empty feed cup metering units by inverting hopper.

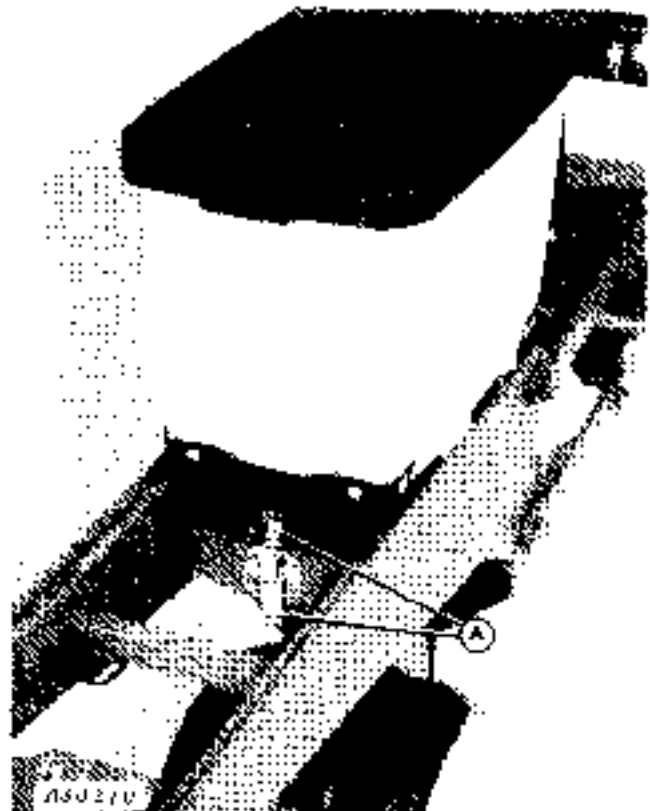
Wipe off feed cup bushings periodically to help reduce wear. To inspect bushings, remove wing nuts (A) and remove feed cup housing and feed cup.



INSPECTION AND CLEANOUT OF SEED HOPPERS AND METERING UNITS

For best operation, empty hoppers thoroughly after each day's use to remove chaff, dust and other foreign material.

To remove seed hopper from planting unit, disengage hopper latch (A) and lift hopper upward and rearward.



58L (1.6 Bu.) Seed Hopper



166L (3 Bu.) Seed Hopper

822-9443 113-2510490

How To Use Planting Rate Charts

HOW TO USE PLANTING RATE CHARTS

1. Select the desired row spacing or seed population under the proper column.

2. Choose the proper input sprocket:

A higher population will require you to use the high range input sprocket and "HIGH RANGE" chart for that particular seed.

A lower population will require you to use the low range input sprocket and "LOW RANGE" chart for that particular seed.

3. Determine the correct seed drive transmission sprocket combination

4. Determine the recommended planting speed range. The faster speed in the speed range is for optimum field conditions. Reduce speed and increase unit down force if planting in rough conditions.

NOTE: All rates in the following charts are based on typical drive wheel slippage. Drive wheel slippage is affected by crop residue, unit down force, tire pressure and/or soil conditions

IMPORTANT: You must check the actual planting rate in the field. See CHECKING SEED POPULATION in this section.

U.S. UNITS OF MEASURE

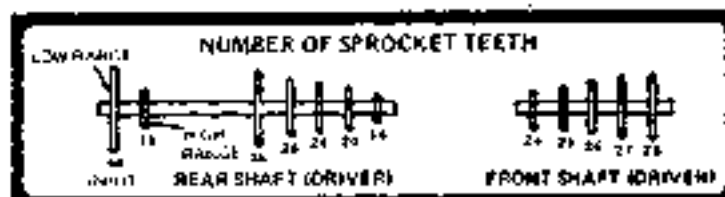
SUGAR BEETS HIGH RANGE INPUT SPROCKET

AVERAGE SEED SPACING, AVERAGE SEEDS PER FT., AND/OR APPROXIMATE SEED POPULATION PER ACRE OF SUGAR BEETS PLANTED WITH VACUUM METER MODEL OPERATING PLANTER WITH HIGH RANGE INPUT SPROCKET

NOTE: For information on using planting rate charts, see "HOW TO USE PLANTING RATE CHARTS" in the beginning of this section.

Sprocket Combination (Number of Teeth) Driver / Drive	Average Seed Spacing in in.	Approximate Seed Population Per Acre			Recommended Speed Range in mph
		22 in. Rows	30 in. Rows	36 in. Rows	
24 / 28	1 1/2	114,557	83,977	68,293	2 - 6.5
20 / 24	1 1/2	131,375	81,616	64,460	2 - 6.5
30 / 25	2 - 9/16	108,920	78,370	61,824	2 - 6.5 - 1-2
20 / 26	2 - 3/4	102,828	75,493	59,592	2 - 6.5 - 1-2
20 / 27	2 - 7/8	39,000	72,630	57,216	2 - 6.5
20 / 28	3	55,464	69,924	56,207	2 - 6.5
16 / 24	3 - 3/16	88,300	65,340	51,584	3 - 10.5 - 1-2
16 / 25	3 - 1/16	55,538	62,784	49,570	3 - 10.5 - 1-2
16 / 26	3 - 1/2	82,248	60,236	47,570	3 - 10.5
16 / 27	3 - 5/8	79,700	58,080	45,853	3 - 10.5 - 1-2
16 / 28	3 - 3/4	74,272	56,056	44,255	3 - 10.5 - 1-2

IMPORTANT: To prevent planter malfunctioning, make field checks to be sure you are planting at the desired rate.



A33616

A33616-1

CHANGING INPUT SPROCKET COMBINATIONS

Consult appropriate planting rate chart to determine desired sprocket combinations.

1. Remove spring (A) from chain tightener (B).



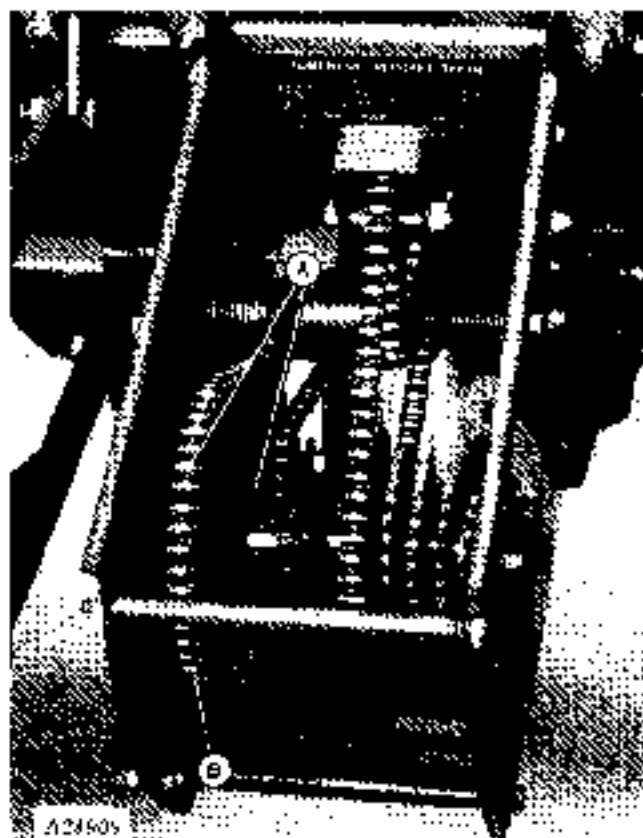
A22907

B22.908A1 (13-18MAY91)

42890A
9m-14-0018

2. Remove required number of rubber sprocket spacers (A).

3. Remove chain from input sprocket (B).



A24505

B22.908A1 (13-18MAY91)

42890A
9m-14-0018

4. Locate input sprocket until desired sprocket is aligned with chain tightener sprockets (A).

5. Replace chain on sprocket. Replace rubber sprocket spacers (B).



A25906

B22.904.9K (13-18MAY91)

42890A
9m-14-0018

6. If chain is aligned on high-range input sprocket, locate spring in hole (A) of chain tightener. Arm (B) must point rearward as shown.

7. If chain is installed on low-range input sprocket, locate spring in hole (C) of chain tightener. Arm (D) must point forward.



H41901

B22 90M 61 1P 85MAY91

CHANGING PLANTING RATE SPROCKET COMBINATIONS

Consult appropriate planting rate chart to determine desired sprocket combinations.

1. Remove retaining hook (A) from storage position.



A28702

B24 90M 40 1P 12MAY91

2. Pull chain tightener (A) downward and secure hook (B) on tightener.

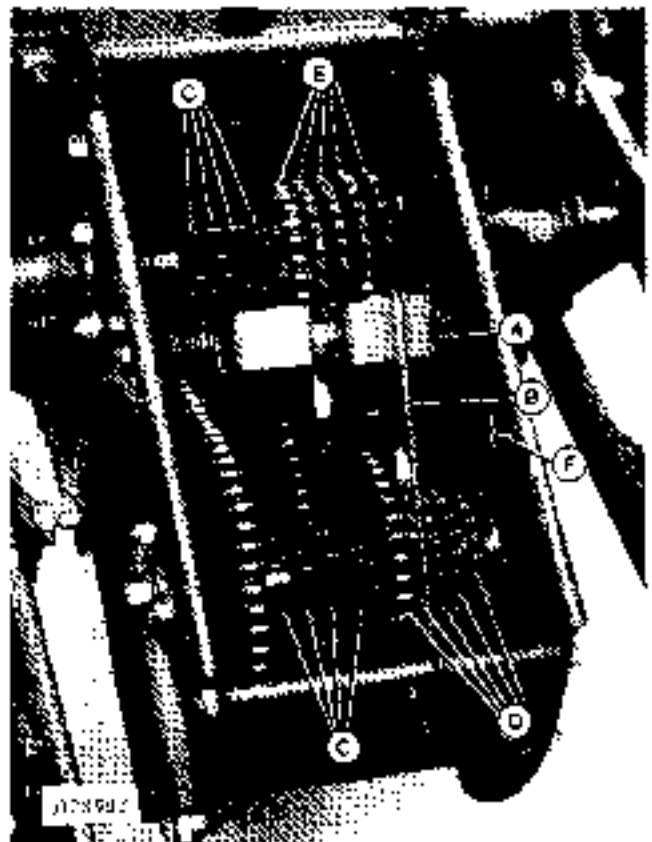
3. Remove required number of rubber sprocket spacers (C)

4. Remove chain from sprockets. Slide desired driver and driven sprockets (D) and (E) into alignment with chain tightener and replace chain.

5. Remove hook from chain tightener. Reposition hook in storage position by pressing it into clip (F).

6. Replace rubber sprocket spacers on upper and lower shafts.

- | | |
|---------------------------|--------------------|
| A—Chain Tightener | D—Driver Sprockets |
| B—Retaining Hook | E—Driven Sprockets |
| C—Rubber Sprocket Spacers | F—Clip |



J108903

B22 70M 10 1P 23JUN90

Operating the Vacuum Meter

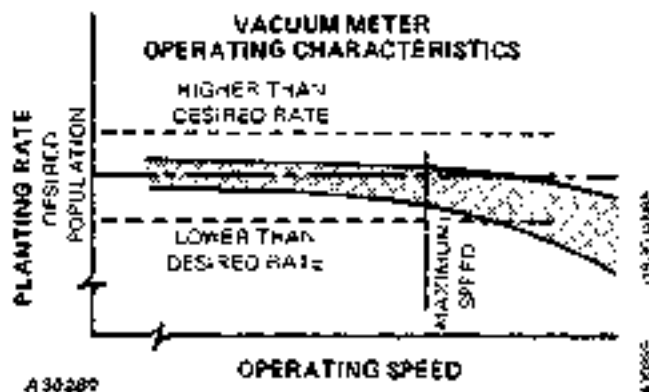
VACUUM METER OPERATING CHARACTERISTICS

The operating band (gray area) illustrates how the vacuum meter performs in relation to the desired population (indicated by horizontal line).

The width of the band is due to:

- Various sizes and shapes of seeds.
- Planting rate variations.

In most cases, the planting accuracy of the vacuum meter does not decline unless you exceed maximum planting speed.



B22,808A 19-17,0486

USE OF TALC LUBRICANT

Seed treatments can cause a deterioration in seed singling, spacing accuracy, and seed flow into the vacuum seed meter. To minimize the effect seed treatments may have on vacuum meter performance, A51237 Talc Lubricant should be used whenever treated seed is being planted.

Spread 1/2 cup of talc over the top of each hopper full of seeds to be planted. Adjust this rate as

necessary so all seeds become coated with talc, while avoiding an accumulation of talc settling in the bottom of the seed hopper.

For small seed sizes, seed types with excessive treatment, or for humid planting environments (all commonly associated with cotton or sorghum planting), increasing the rate to one cup per hopper full of seed and mixing thoroughly may be required.

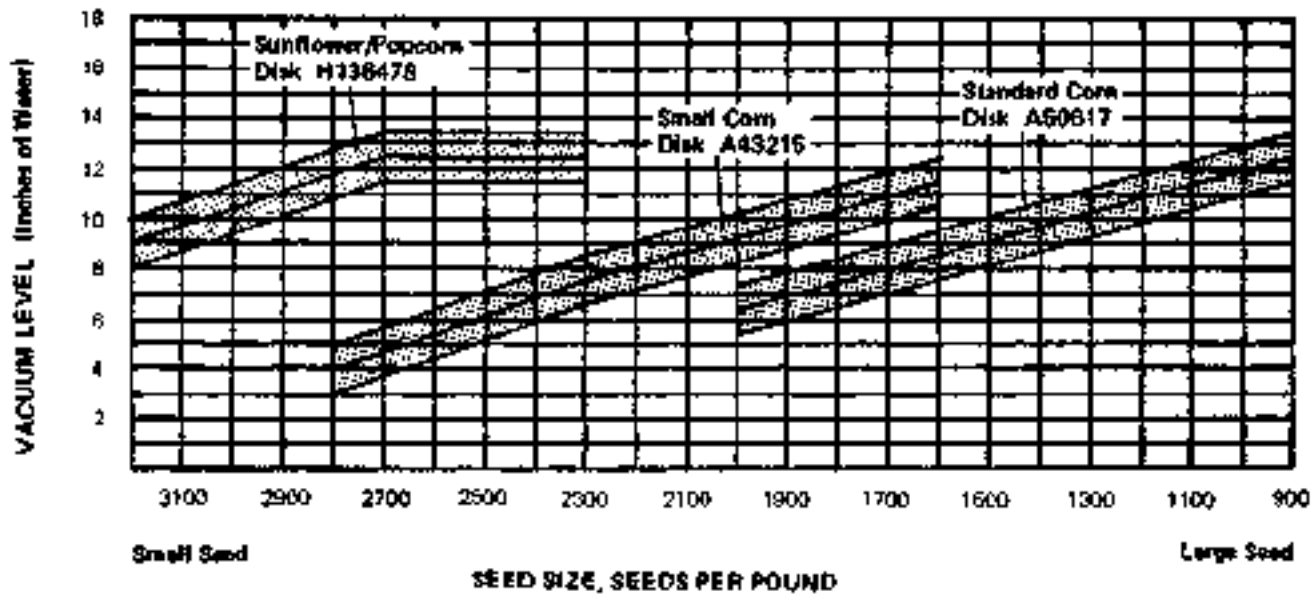
B22,808AR 19-18,0490

IMPORTANT: If hopper box treatments are used, be sure to follow the chemical manufacturer's recommendations carefully. Dry powder or fast drying liquid treatments are generally recommended. **HIGH OIL CONTENT TREATMENTS ARE NOT RECOMMENDED.**

Chemical reactions between hopper box treatments and treatments commercially applied to seed can cause the additive to become sticky. Certain temperature and humidity levels can further complicate material compatibility. Check with your chemical and seed supplier for treatment compatibility. Treatments adhering to vacuum meter components can cause reduced population and spacing control.

HC 877 BOM 1-12-1364130

VACUUM LEVEL FOR CORN



A33568

A33568 1330MAG18

Use the seed corn supplier's information to calculate the seed size in seeds per pound.

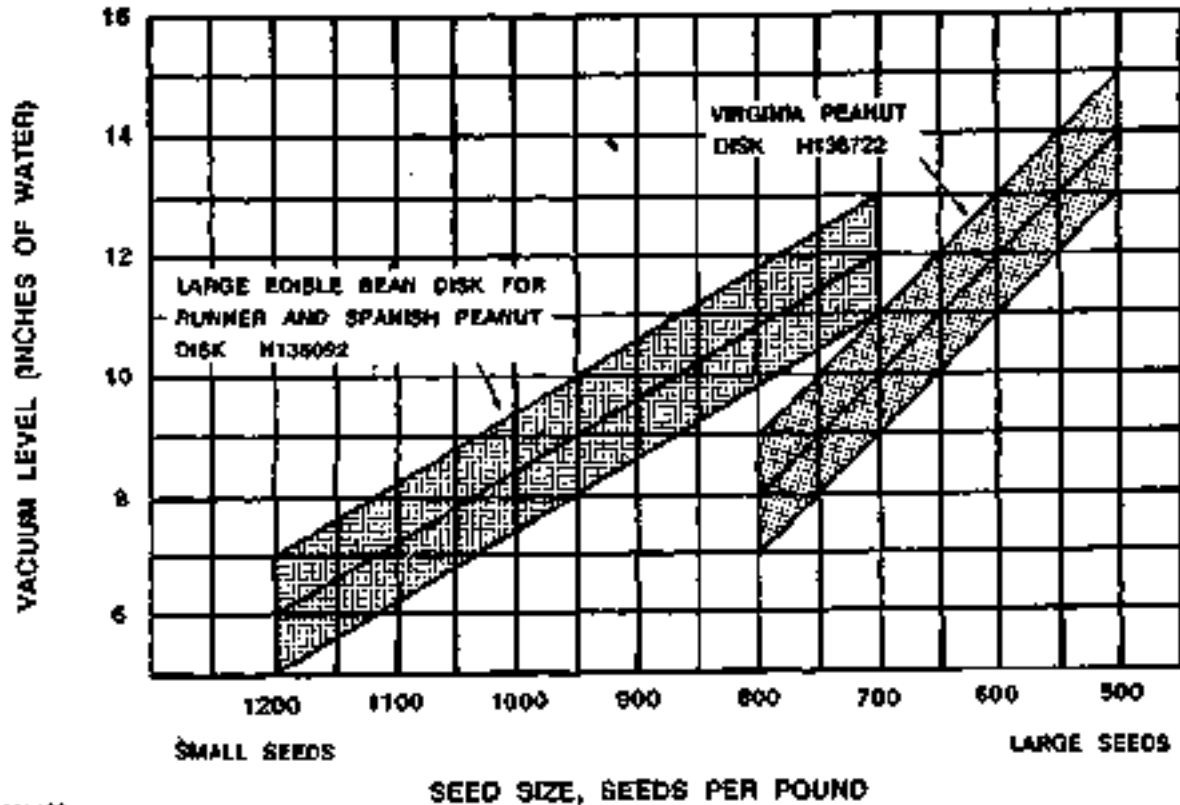
EXAMPLE: If the bag label indicates that there are 85,000 kernels in the bag and bag weight is 45 lbs., the seed size is 1889 seeds per pound (85,000 divided by 45). Referring to the chart, the vacuum level should be set at 7 in. when using the Standard

Corn Disk or 10 in. when using the Small Corn Disk for a seed size of 1889 seeds per pound.

IMPORTANT: The 7 in. or 10 in. vacuum level above is an example on how to use the chart. You must calculate the proper vacuum level for each corn variety.

62180445 1330MAG20

VACUUM LEVEL FOR PEANUTS



H41469

H41468 19-4484724

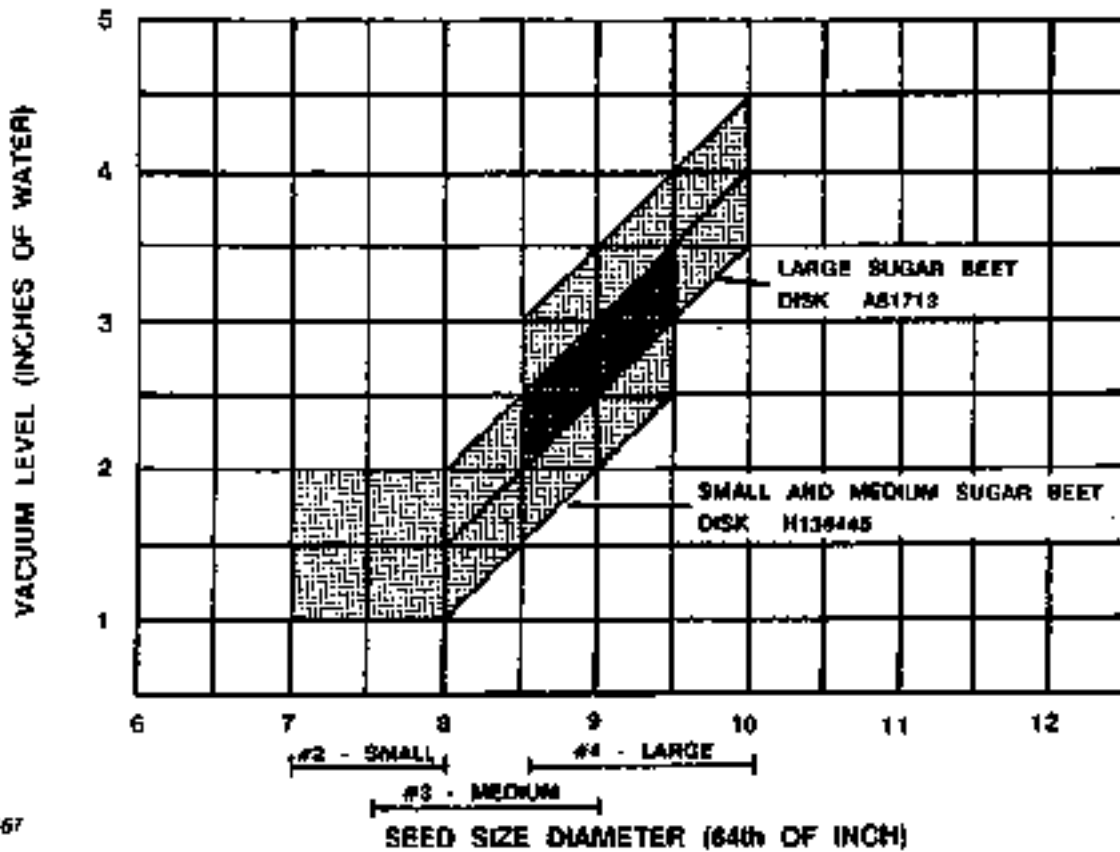
EXAMPLE: If seeds per pound is 800. Referring to the chart, the vacuum level should be set at 11 in. when using the Large Edible Bean Disk for Runner Peanuts or 8 in. when using the Virginia Peanut Disk.

the chart. Obtain size in seeds per pound. You must calculate the proper vacuum level for each peanut variety.

IMPORTANT: The 11 in. or 8 in. vacuum level above is an example on how to use

For 0000 414 10 4484724

VACUUM LEVEL FOR SUGAR BEET SEED



H41457

044800-01
441157

EXAMPLE If the bag label indicates medium seed (size 7-1/2 to 9/64 in. diameter). The vacuum level should be a range of between 1-1/2 to 2-1/2 in. when using Sugar Beet Disk.

the chart. Obtain size in seeds per pound. You must calculate the proper vacuum level for each sugar beet seed size.

IMPORTANT: The 1-1/2 to 2-1/2 in. vacuum level above is an example on how to use

P27-004A2 -19 28,4,1990

Vacuum Meter Seed Charts

DECAL SEED CHARTS

Seed Charts can be ordered through the Distribution Service Center. The order number is listed in the top left-hand corner of each seed chart. To order see "Service Literature Section" in the back of this manual.

B22,9OM,AT -19-26JUN90

Vacuum Meter Seed Charts

{Decal No. 081003}

CORN AND SUNFLOWER

AVERAGE SEED SPACING AND/OR APPROXIMATE SEED POPULATION PER ACRE OF CORN AND SUNFLOWER SEED PLANTED WITH VACUUM METER

NOTE: For information on using planting rate charts, see HOW TO USE PLANTING RATE CHARTS.

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver - Driven		Average Seed Spacing in In.	Approximate Seed Population Per Acre				Recommended Speed Range in MPH
			30 In. Rows	36 In. Rows	40 In. Rows	48 In. Rows	
35	34	2-3/16	95,288	79,456	72,227	71,466	2 to 3
35	25	2-5/16	91,474	76,230	72,214	68,407	2 to 3
35	26	2-3/8	87,658	73,278	69,440	65,600	2 to 3
35	27	2-1/2	84,700	70,383	66,668	63,525	2 to 3-1/2
35	28	2-9/16	81,474	68,643	64,480	61,256	2 to 3-1/2
29	24	2-5/8	76,892	65,774	62,711	59,214	2 to 3-1/2
28	26	2-3/4	75,794	63,142	60,303	56,618	2 to 3-1/2
28	24	2-7/8	72,879	60,733	57,826	54,689	2 to 4
29	27	2-1/2	70,188	58,481	55,403	52,688	2 to 4
29	28	1-1/8	67,474	56,395	53,427	50,755	2 to 4
24	24	1-2/4	65,340	54,480	51,500	48,005	2 to 4-1/2
24	23	1-5/16	62,724	52,272	49,521	47,049	2 to 4-1/2
24	24	3-1/2	60,514	50,242	47,616	45,235	2 to 4-1/2
24	27	1-3/4	56,680	48,480	45,853	43,340	2 to 5
24	28	2-3/4	56,004	48,471	44,218	42,004	2 to 5
20	24	3-15/16	54,446	45,576	42,487	40,829	2 to 5-1/2
20	25	4	52,272	43,640	41,267	39,204	2 to 5-1/2
20	26	4-3/16	50,262	41,885	39,400	37,499	2 to 6
20	27	4-5/16	48,400	40,333	38,213	36,500	2 to 6
20	28	4-1/2	46,671	38,892	36,844	35,004	2 to 6-1/2
16	24	4-7/8	43,568	36,300	34,589	32,674	2 to 6-1/2
16	26	5	41,818	34,484	32,914	31,363	2 to 7
16	28	5-3/16	40,209	33,009	31,744	30,147	2 to 7
16	27	5-3/8	38,720	32,247	30,568	29,048	2 to 7-1/2
16	28	5-7/8	37,127	31,114	29,477	28,001	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver - Driven		Average Seed Spacing in In.	Approximate Seed Population Per Acre				Recommended Speed Range in MPH
			30 In. Rows	36 In. Rows	40 In. Rows	48 In. Rows	
25	24	5-15/16	38,733	29,777	28,210	26,400	3 to 4
25	25	6-1/8	34,204	26,506	27,082	25,720	3 to 4
25	26	6-3/8	32,884	27,487	26,040	24,730	3 to 4
25	27	6-9/16	31,763	26,449	25,074	23,822	3 to 4
25	28	6-15/16	30,628	25,523	24,100	22,971	3 to 4
20	24	7-1/16	29,407	24,672	23,374	22,205	4 to 4
20	25	7-3/8	28,421	23,686	22,429	21,317	4 to 4
20	26	7-5/8	27,530	22,774	21,576	20,497	4 to 4
20	27	7-15/16	26,314	21,891	20,777	19,738	4 to 4
20	28	8-1/4	25,374	21,140	20,036	19,013	4 to 4
24	24	8-9/16	24,803	20,419	19,244	18,277	4 to 4
24	25	8-7/8	23,827	19,402	18,170	17,243	4 to 4
24	26	9-1/4	22,814	18,840	17,854	16,968	4 to 4
24	27	9-5/8	21,780	18,170	17,175	16,333	4 to 4
24	28	9-15/16	21,002	17,502	16,582	15,782	4 to 4
20	24	10-1/4	20,428	17,010	16,120	15,314	4 to 4
20	25	10-11/16	19,602	16,335	15,475	14,702	4 to 4
20	26	11-1/16	18,848	15,707	14,840	14,136	4 to 4
20	27	11-1/2	18,126	15,129	14,289	13,613	4 to 4
20	28	11-15/16	17,502	14,588	13,817	13,186	4 to 4
16	24	12-13/16	16,955	14,017	13,294	12,691	4 to 4
16	25	12-3/8	16,488	13,480	12,800	12,261	4 to 4
16	26	13-7/8	16,078	12,965	12,304	11,789	4 to 4
16	27	14-3/8	14,520	12,200	11,463	10,960	4 to 4
16	28	14-15/16	14,001	11,668	11,054	10,501	4 to 4

IMPORTANT: To prevent planting malfunctions, make field checks to be sure you are planting at desired rate. H4177

8229CW/E - 9-23JUN90

8229CW/E - 9-23JUN90

VACUUM LEVEL, BAFFLE POSITION AND VACUUM METER BRUSH FOR CORN AND SUNFLOWER SEED

For Corn, use the seed corn supplier's information to calculate the seed size in seeds per pound.

EXAMPLE: If the bag label indicates that there are 85,000 kernels in the bag and bag weight is 45 lbs., the seed size is 1889 seeds per pound (85,000 divided by 45). Referring to the chart, the vacuum level should be set at 7 in. when using the Standard Corn Disk or 10 in. when using the Small Corn Disk for a seed size of 1889 seeds per pound.

IMPORTANT: The 7 in. or 10 in. vacuum level above is an example on how to use the chart. You must calculate the proper vacuum level for each corn variety.

Vacuum level for Sunflower is set at 8 in.

VACUUM METER BAFFLE

Move tab (A).

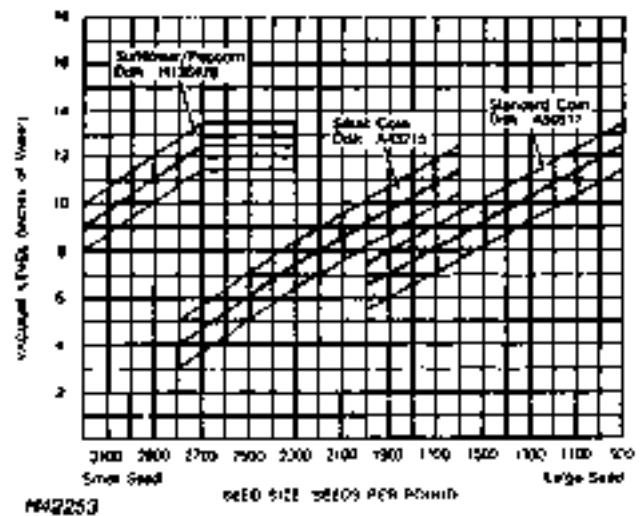
Sunflower, lower position (B).

Corn, upper position (C).

VACUUM METER BRUSH

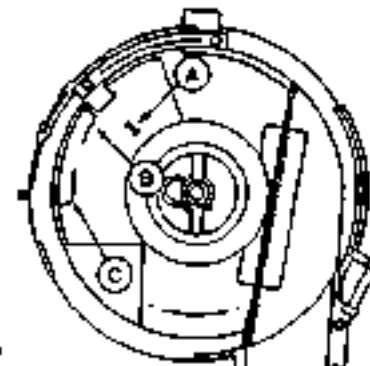
Use the regular (long) brush.

Talc lubricant, 1/2 cup.



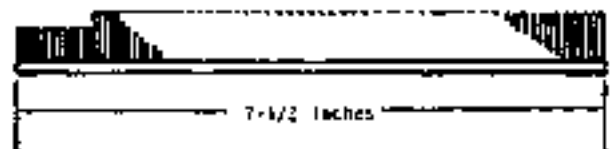
H42253

SEED SIZE SEEDS PER POUND



H42259

Upper and Lower Baffle Position



H34704

Regular (long) Brush

Vacuum Meter Seed Charts

(Decal No. DB1084)

COTTON

AVERAGE SEED SPACING AND/OR APPROXIMATE SEED POPULATION PER ACRE OF COTTON PLANTED WITH VACUUM METER

NOTE: For information on using seeding rate charts, see HOW TO USE PLANTING RATE CHARTS

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		Average Seed Spacing in In.	Approximate Seed Population Per Acre				Recommended Speed Range In MPH
			30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
35	24	3	203,280	169,800	169,804	152,400	2 to 5-1/2
35	25	3-1/16	193,149	162,624	154,843	146,262	2 to 5-1/2
35	26	3-1/8	187,443	156,369	148,119	140,732	2 to 6
35	27	3-1/4	180,492	150,578	142,633	134,620	2 to 6
35	28	3-2/16	174,240	145,200	137,938	130,480	2 to 6-1/2
29	24	2-1/4	168,432	140,360	132,973	126,324	2 to 6-1/2
29	25	2-5/16	161,695	134,746	127,654	121,271	2 to 7
29	26	2-3/8	155,474	129,561	123,714	116,807	2 to 7
29	27	2-7/16	149,717	124,764	119,198	112,204	2 to 7-1/2
29	28	2-7/16	144,270	120,304	115,977	108,276	2 to 7-1/2
24	24	3-1/2	137,292	116,160	110,048	104,544	2 to 8
24	25	3-9/16	133,814	113,914	108,444	103,362	2 to 8
24	26	3-5/8	128,470	109,226	104,501	99,502	2 to 8
24	27	3-11/16	123,904	105,251	99,819	95,328	2 to 8
24	28	2-3/4	119,470	99,568	94,323	89,909	2 to 8
20	24	3-13/16	115,160	96,800	91,705	87,120	2 to 8
20	25	3-7/8	111,314	92,926	88,017	83,635	2 to 8
20	26	3-15/16	107,274	89,394	84,451	80,418	2 to 8
20	27	3	103,253	86,044	81,516	77,440	2 to 8
20	28	2-1/8	99,566	82,971	78,603	74,674	2 to 8
16	24	2-1/4	92,320	77,440	73,368	69,480	3 to 8
16	25	2-5/16	88,213	74,341	70,430	66,506	3 to 8
16	26	2-7/16	85,389	71,483	67,721	64,135	3 to 8
16	27	2-1/2	82,403	68,836	65,213	61,782	3 to 8
16	28	2-5/8	79,453	66,377	62,884	59,708	3 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		Average Seed Spacing in In.	Approximate Seed Population Per Acre				Recommended Speed Range In MPH
			30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
38	24	2-3/8	76,220	63,525	60,182	57,173	3 to 8
35	25	2-7/8	73,383	60,884	57,774	54,884	3 to 8
35	26	3-13/16	70,244	58,436	55,592	52,775	3 to 8
35	27	3-1/16	67,760	56,467	53,495	50,820	3 to 8
35	28	3-2/16	65,310	54,450	51,594	49,009	3 to 8
29	24	3-5/16	63,142	52,533	49,845	47,372	3 to 8
29	25	3-7/16	60,634	50,530	47,870	45,477	4 to 8
29	26	3-9/16	58,342	48,504	46,029	43,718	4 to 8
29	27	3-1/4	56,184	46,707	44,324	42,108	4 to 8
29	28	3-7/8	54,139	45,114	42,741	40,484	4 to 8
24	24	4	52,272	43,560	41,267	39,204	4 to 8
24	25	4-3/16	50,391	41,810	39,617	37,618	4 to 8
24	26	4-5/16	48,751	40,203	38,097	36,168	4 to 8
24	27	4-1/2	46,444	38,720	36,682	34,848	4 to 8
24	28	4-11/16	44,685	37,337	35,373	33,483	4 to 8
20	24	4-13/16	43,560	36,300	34,387	32,570	4 to 8
20	25	4	41,810	34,640	32,914	31,363	4 to 8
20	26	4-3/16	40,299	32,880	31,781	30,157	4 to 8
20	27	4-7/16	38,720	32,287	30,368	28,940	4 to 8
20	28	4-5/8	37,337	31,114	29,477	28,003	4 to 8
16	24	4	34,848	29,040	27,532	26,136	4 to 8
16	25	4-1/4	33,424	27,678	26,421	25,091	4 to 8
16	26	4-1/2	32,187	26,406	25,355	24,126	4 to 8
16	27	4-3/4	30,976	25,313	24,433	23,232	4 to 8
16	28	5	29,870	24,351	23,501	22,402	4 to 8

IMPORTANT: To prevent slowing misoperations, make seed checks to be sure you are planting at desired rate. 144774

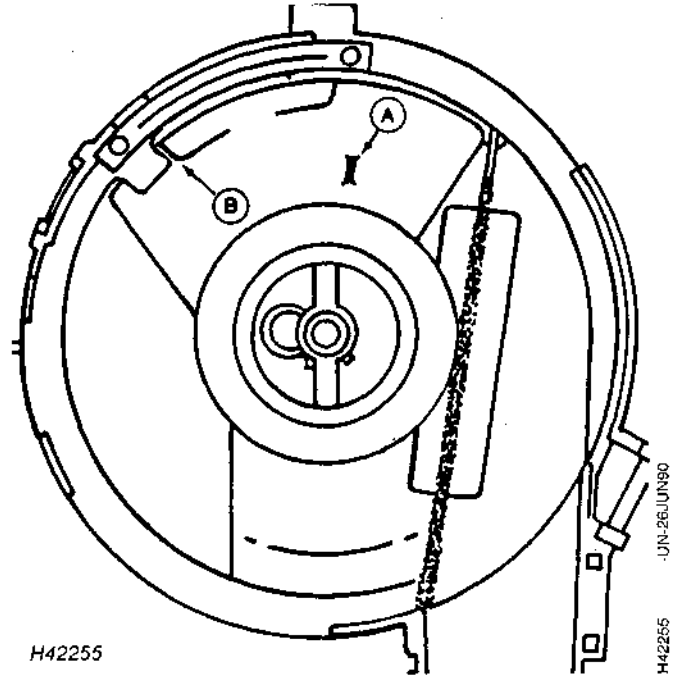
**VACUUM LEVEL, BAFFLE POSITION AND
VACUUM METER BRUSH FOR COTTON**

Vacuum level for cotton is set at 8 in.

VACUUM METER BAFFLE

Move tab (A).

Cotton, upper position (B).

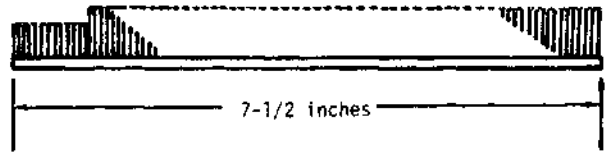


Upper Baffle Position

VACUUM METER BRUSH

Use the (regular) long brush.

Talc lubricant, 1 cup.



Regular (Long) Brush

HX,B22,90M,J -19-28JUN90

Vacuum Meter Seed Charts

(Disc # DB1085)

COTTON HILLDROP

HILL SPACING IN IN. AND/OR APPROXIMATE SEED POPULATION PER ACRE OF COTTON HILLDROP PLANTED WITH VACUUM METER

NOTE: For information on using planting rate charts, see HOW TO USE PLANTING RATE CHARTS

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Hill Spacing in In.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
Driver	Driven		30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
24	24	6.00	104,544	87,120	82,536	78,408	4 to 5
24	25	6.31	100,362	83,430	79,230	75,272	4 to 5
24	26	6.67	94,542	80,418	76,188	72,372	4 to 5
24	27	7.00	92,928	77,440	73,364	69,596	4-1/2 to 5-1/2
24	28	7.31	89,688	74,676	70,764	67,207	4-1/2 to 5-1/2
20	24	9.60	87,120	72,600	68,772	65,340	5 to 6
20	25	10.00	85,625	69,825	66,028	62,726	5 to 6
20	26	10.40	80,418	67,015	63,480	60,314	5 to 6-1/2
20	27	10.80	77,440	64,533	61,127	58,080	5 to 6-1/2
20	28	11.20	74,676	62,229	58,953	56,066	5 to 6-1/2
18	24	12.00	69,696	58,080	55,023	52,272	5 to 6-1/2
18	25	12.50	64,908	55,757	52,827	50,181	5 to 6-1/2
18	26	13.00	64,338	53,612	50,791	48,261	5 to 6-1/2
18	27	13.50	61,052	51,827	48,909	46,464	5 to 6-1/2
18	28	14.00	57,738	49,783	47,163	44,808	5 to 6-1/2

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Hill Spacing in In.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
Driver	Driven		30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
35	24	11.43	57,173	47,444	45,134	42,878	5 to 6-1/2
35	25	12.24	54,084	45,738	43,331	41,166	5 to 6-1/2
35	26	13.05	52,778	43,979	41,684	39,581	5 to 6-1/2
35	27	14.46	50,820	42,350	40,184	38,115	5 to 6-1/2
35	28	15.07	49,005	40,838	38,688	36,754	5 to 6-1/2
29	24	15.64	47,392	39,474	37,388	35,538	5 to 6-1/2
29	25	16.29	45,877	37,897	35,903	34,107	5 to 6-1/2
29	26	17.13	43,728	36,480	34,582	32,796	5 to 6-1/2
29	27	18.06	42,108	35,080	33,243	31,581	5 to 6-1/2
29	28	19.00	40,604	33,637	32,056	30,483	5 to 6-1/2
24	24	21.33	39,204	32,470	30,881	29,403	5 to 6-1/2
24	25	22.22	37,616	31,163	29,713	28,227	5 to 6-1/2

IMPORTANT: To prevent planting miscalculations, make field check to be sure you are planting at desired rate.

#41773

15-256-7900
441773

821,504/F (1-108549)

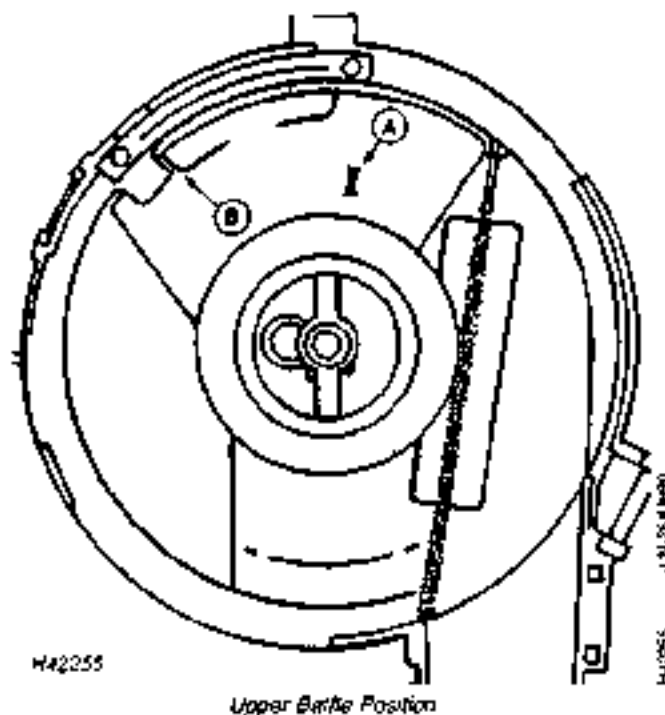
**VACUUM LEVEL, BAFFLE POSITION AND
VACUUM METER BRUSH FOR COTTON
HILLDROP**

Vacuum level for cotton hilldrop is set at 8 in.

VACUUM METER BAFFLE

Move tab (A).

Cotton hilldrop, upper position (B).



VACUUM METER BRUSH

Use the short brush.

Take lubricant, 1 cup.



Vacuum Meter Seed Charts

{Decal No. DB1086}

SORGHUM

AVERAGE SEED SPACING, AVERAGE SEEDS PER FT. AND/OR APPROXIMATE SEED POPULATION PER ACRE OF SORGHUM PLANTED WITH VACUUM METER

NOTE: For information on using planting rate charts, see 'HOW TO USE PLANTING RATE CHARTS'.

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Average Seed Spacing in In.	Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
Driver	Driven			30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
35	24	1-1/2	8.2	142,931	119,109	112,840	107,198	2 to 5-1/2
35	25	1-1/2	7.9	137,214	114,345	108,327	102,911	2 to 5-1/2
35	26	1-9/16	7.6	131,937	109,947	104,160	98,952	2 to 6
35	27	1-11/16	7.2	127,050	105,875	100,303	95,288	2 to 6
35	28	1-3/4	7.0	122,512	102,094	96,720	91,884	2 to 6-1/2
29	24	1-3/4	6.8	118,429	98,691	93,496	88,822	2 to 6-1/2
29	25	1-13/16	6.5	113,692	94,743	89,757	85,269	2 to 7
29	26	1-7/8	6.3	109,319	91,099	86,304	81,989	2 to 7
29	27	2	6.0	105,270	87,725	83,108	78,953	2 to 7-1/2
29	28	2	5.8	101,510	84,592	80,140	76,133	2 to 7-1/2
24	24	2-1/8	5.6	98,010	81,675	77,376	73,508	2 to 8
24	25	2-1/4	5.4	94,090	78,408	74,281	70,567	2 to 8
24	26	2-3/8	5.2	90,471	75,392	71,424	67,853	2 to 8
24	27	2-7/16	5.0	87,120	72,600	68,779	65,340	2 to 8
24	28	2-1/2	4.8	84,009	70,007	66,323	63,006	2 to 8
20	24	2-1/2	4.7	81,675	68,063	64,480	61,256	2 to 8
20	25	2-9/16	4.5	78,408	65,340	61,901	58,806	2 to 8
20	26	2-3/4	4.3	75,392	62,827	59,520	56,544	2 to 8
20	27	2-7/8	4.2	72,600	60,500	57,316	54,450	2 to 8
20	28	3	4.0	70,007	58,339	55,269	52,505	2 to 8
16	24	3-3/16	3.8	65,340	54,450	51,584	49,005	3 to 8
16	25	3-5/16	3.6	62,726	52,272	49,521	47,045	3 to 8
16	26	3-1/2	3.5	60,314	50,262	47,616	45,235	3 to 8
16	27	3-5/8	3.3	58,080	48,400	45,853	43,560	3 to 8
16	28	3-3/4	3.2	56,006	46,671	44,215	42,004	3 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Average Seed Spacing in In.	Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
Driver	Driven			30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
35	24	3-15/16	3.1	53,599	44,666	42,315	40,199	3 to 8
35	25	4-1/16	3.0	51,455	42,879	40,623	38,591	3 to 8
35	26	4-1/4	2.8	49,476	41,230	39,060	37,107	3 to 8
35	27	4-3/8	2.7	47,644	39,703	37,613	35,733	3 to 8
35	28	4-9/16	2.6	45,942	38,285	36,270	34,457	3 to 8
29	24	4-3/4	2.5	44,411	37,009	35,061	33,308	4 to 8
29	25	4-15/16	2.4	42,634	35,529	33,659	31,976	4 to 8
29	26	5-1/8	2.3	40,995	34,162	32,364	30,746	4 to 8
29	27	5-5/16	2.3	39,476	32,897	31,165	29,607	4 to 8
29	28	5-1/2	2.2	38,066	31,722	30,052	28,550	4 to 8
24	24	5-11/16	2.1	36,754	30,628	29,016	27,565	4 to 8
24	25	5-15/16	2.0	35,284	29,403	27,855	26,463	4 to 8
24	26	6-3/16	1.9	33,927	28,272	26,784	25,445	4 to 8
24	27	6-3/8	1.9	32,670	27,225	25,792	24,503	4 to 8
24	28	6-5/8	1.8	31,503	26,253	24,871	23,627	4 to 8
20	24	6-13/16	1.8	30,628	25,523	24,180	22,971	4 to 8
20	25	7-1/8	1.7	29,403	24,503	23,213	22,052	4 to 8
20	26	7-3/8	1.6	28,272	23,560	22,320	21,204	4 to 8
20	27	7-11/16	1.6	27,225	22,688	21,493	20,419	4 to 8
20	28	8-15/16	1.5	26,253	21,877	20,726	19,690	4 to 8
16	24	8-9/16	1.4	24,503	20,419	19,344	18,377	4 to 8
16	25	8-7/8	1.3	23,522	19,602	18,570	17,642	4 to 8
16	26	9-1/4	1.3	22,618	18,848	17,856	16,963	4 to 8
16	27	9-5/8	1.2	21,780	18,150	17,195	16,335	4 to 8
16	28	10	1.2	21,002	17,502	16,581	15,752	4 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate. H41776

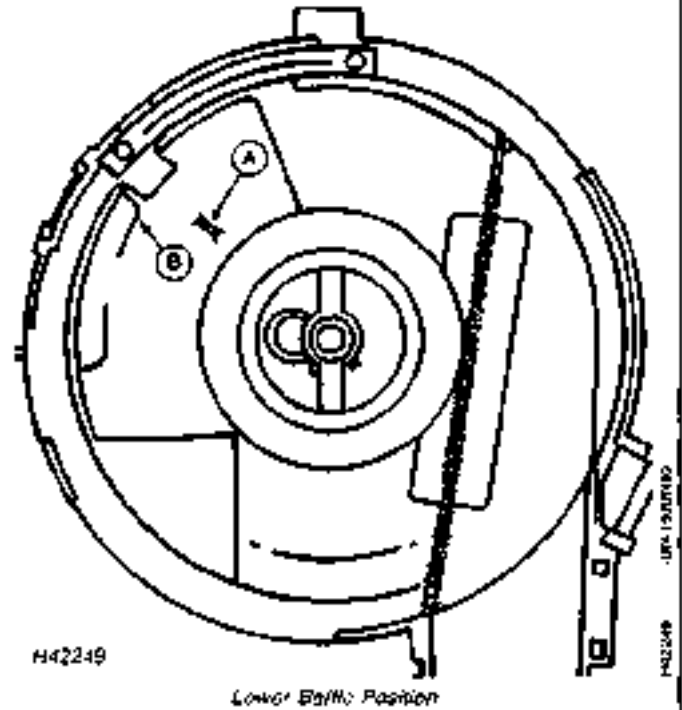
**VACUUM LEVEL, BAFFLE POSITION AND
VACUUM METER BRUSH FOR SORGHUM**

Vacuum level for sorghum is set at 8 in.

VACUUM METER BAFFLE

Move tab (A).

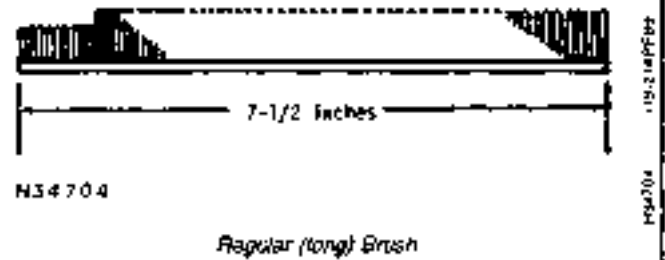
Sorghum, lower position (B).



VACUUM METER BRUSH

Use the (regular) long brush

Take lubricant, 1 cup.



Vacuum Meter Seed Charts

(Decal No. DB1067)

SOYBEANS

AVERAGE SEEDS PER FT. AND/OR APPROXIMATE SEED POPULATION PER ACRE OF SOYBEANS PLANTED WITH VACUUM METER

NOTE: For information on using planting rate charts, see "HOW TO USE PLANTING RATE CHARTS"

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver / Driven		Average Seeds Per Ft.	Approximate seed Population Per Acre				Recommended Speed Range in mph
			15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	19.4	694,070	571,722	541,624	514,552	2 to 4
35	25	19.0	658,827	548,898	519,789	493,978	2 to 4
35	26	18.2	637,295	527,744	499,476	474,472	2 to 4
35	27	17.4	609,840	508,200	481,453	457,380	2 to 4
35	28	16.9	586,040	490,050	464,288	441,045	2 to 4
29	24	16.2	564,438	473,715	448,763	424,344	2 to 4
29	25	15.4	545,720	454,744	430,832	409,390	2 to 4
29	26	15.0	524,730	437,775	414,261	393,540	2 to 4
29	27	14.5	505,296	421,800	398,919	378,972	2 to 4
29	28	14.0	487,290	406,844	384,471	365,437	2 to 4
24	24	13.5	470,448	392,840	371,406	352,036	2 to 4
24	25	12.9	451,430	378,354	356,550	338,722	2 to 4
24	26	12.5	424,260	361,803	342,037	325,695	2 to 4
24	27	12.0	418,374	348,480	330,138	313,432	2 to 4
24	28	11.5	403,244	336,474	318,748	302,431	2 to 4
20	24	11.2	392,040	326,700	309,504	294,030	2 to 4
20	25	10.8	374,358	313,632	297,126	282,269	2 to 4
20	26	10.4	361,881	301,569	285,697	271,417	2 to 4
20	27	10.0	348,480	290,400	275,144	261,300	2 to 4
20	28	9.7	338,034	280,029	265,790	252,026	2 to 4
14	24	9.0	312,432	263,260	247,404	235,224	3 to 8
14	25	8.6	301,087	250,906	237,700	225,015	3 to 8
14	26	8.3	288,904	241,794	228,558	217,130	3 to 8
14	27	8.0	278,784	232,784	220,092	209,088	3 to 8
14	28	7.7	268,627	224,027	212,737	201,421	3 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver / Driven		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
			15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
38	24	7.4	287,276	214,397	203,113	192,057	3 to 8
38	25	7.1	246,905	205,321	194,900	185,239	3 to 8
35	24	6.8	237,486	197,945	187,489	178,114	3 to 8
35	27	6.4	228,480	190,375	180,545	171,510	3 to 8
35	28	6.3	220,523	183,769	174,097	165,392	4 to 8
29	24	6.1	213,177	177,643	168,293	159,670	4 to 8
29	25	5.9	204,545	170,337	161,567	153,484	4 to 8
28	24	5.4	194,774	163,970	155,348	147,500	4 to 8
28	27	5.4	189,486	157,904	149,504	142,115	4 to 8
28	28	5.2	182,719	152,264	144,252	137,039	4 to 8
24	24	5.1	174,418	147,015	139,377	132,314	4 to 8
24	25	4.9	149,361	141,134	133,708	127,021	4 to 8
24	26	4.7	143,847	135,700	128,144	122,130	4 to 8
24	27	4.5	136,016	130,480	123,602	117,412	4 to 8
24	28	4.3	131,215	126,013	119,781	113,412	4 to 8
20	24	4.7	147,019	122,513	118,044	110,261	4 to 8
20	25	4.1	141,134	117,412	111,422	105,821	4 to 8
20	26	3.9	135,704	113,048	107,134	101,789	4 to 8
20	27	3.8	130,686	108,900	103,160	98,039	4 to 8
20	28	3.6	124,013	105,011	99,484	94,510	4 to 8
16	24	3.4	117,432	98,010	92,852	88,209	4 to 8
16	25	3.2	112,908	94,090	89,134	84,481	4 to 8
16	26	3.1	108,585	90,473	85,705	81,424	4 to 8
16	27	3.0	104,344	87,130	82,533	78,408	4 to 8
14	28	2.7	100,010	84,004	79,587	75,600	4 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate H41777

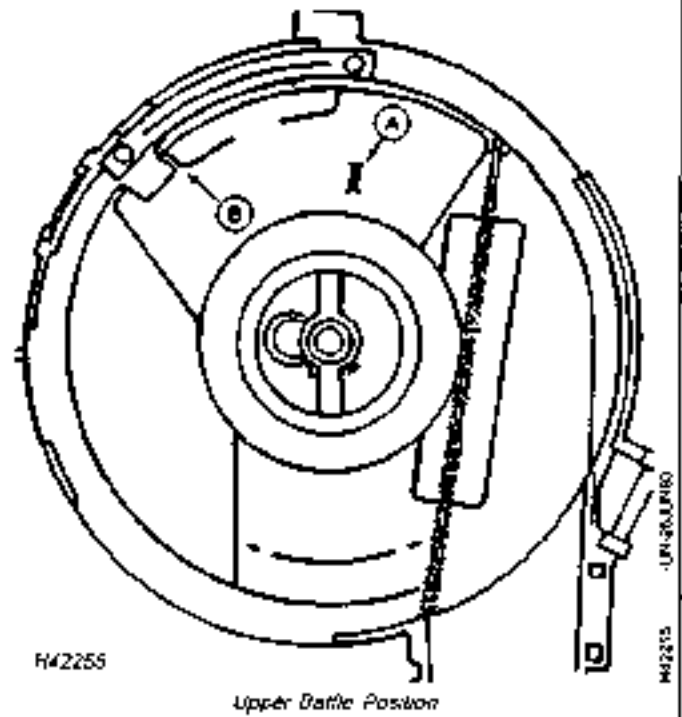
**VACUUM LEVEL, BAFFLE POSITION AND
VACUUM METER BRUSH FOR SOYBEANS**

Vacuum level for soybeans is set at 8 in.

VACUUM METER BAFFLE

Move tab (A).

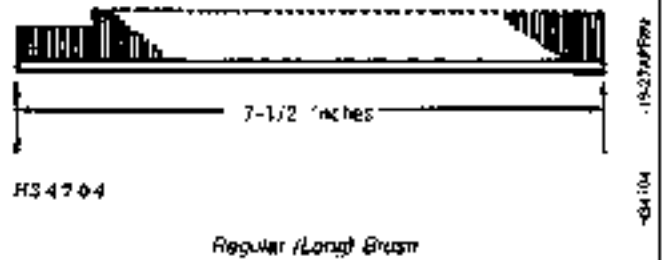
Soybeans, upper position (B).



VACUUM METER BRUSH

Use the (regular) long brush.

Talc lubricant, 1/2 cup, if treated.



Vacuum Meter Seed Charts

{Decal No. DB1088}

SOYBEANS

AVERAGE SEEDS PER FT. AND/OR APPROXIMATE SEED POPULATION PER ACRE OF SOYBEANS PLANTED WITH VACUUM METER

NOTE For information on using planting rate charts, see HOW TO USE PLANTING RATE CHARTS.

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in MPH
			30 In. Rows	36 In. Rows	39 In. Rows	40 In. Rows	
35	24	39.6	341,025	285,843	270,817	257,274	2 to 8
35	25	39.0	329,314	274,428	259,484	244,885	2 to 8
35	26	38.2	316,440	261,873	249,985	237,486	2 to 8
35	27	37.4	304,420	254,100	240,726	229,690	2 to 8
35	28	36.9	294,420	246,025	232,129	220,323	2 to 8
29	24	35.2	284,220	234,438	224,301	213,272	2 to 8
29	25	34.6	272,460	227,303	216,416	204,645	2 to 8
29	26	33.9	262,188	219,630	207,120	194,774	2 to 8
29	27	33.3	252,440	210,840	199,180	184,406	2 to 8
29	28	32.8	243,425	203,021	192,335	182,739	2 to 8
24	24	33.5	235,224	194,020	185,703	176,410	2 to 8
24	25	32.9	225,423	189,279	178,475	169,241	2 to 8
24	26	32.3	217,120	180,902	171,438	162,847	2 to 8
24	27	31.8	209,088	174,240	165,969	156,814	2 to 8
24	28	31.3	201,421	168,017	159,174	151,215	2 to 8
20	24	31.2	196,020	163,350	154,753	147,015	2 to 8
20	25	30.6	188,179	156,816	149,862	141,116	2 to 8
20	26	30.0	180,842	150,783	142,847	133,706	2 to 8
20	27	29.4	174,240	145,200	137,168	129,460	2 to 8
20	28	28.9	168,017	140,014	132,645	124,013	2 to 8
15	24	29.0	156,016	128,680	122,803	117,512	2 to 8
15	25	28.4	150,343	123,453	118,058	112,988	2 to 8
15	26	27.8	144,752	119,428	114,274	109,565	2 to 8
15	27	27.3	139,392	114,180	110,044	104,544	2 to 8
15	28	26.7	134,414	112,011	106,116	100,810	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in MPH
			30 In. Rows	36 In. Rows	39 In. Rows	40 In. Rows	
35	24	7.4	128,430	107,180	101,556	96,479	2 to 8
35	25	7.1	122,192	102,911	97,494	92,619	2 to 8
35	26	6.8	116,742	98,382	93,744	89,057	2 to 8
35	27	6.5	111,181	93,288	89,272	84,784	2 to 8
35	28	6.3	110,261	91,484	87,848	82,496	2 to 8
29	24	6.1	106,346	88,822	84,147	79,959	2 to 8
29	25	5.9	102,122	85,249	80,782	76,747	2 to 8
29	26	5.6	98,387	81,909	77,474	73,790	2 to 8
29	27	5.4	94,742	78,983	74,797	71,057	2 to 8
29	28	5.2	91,359	76,133	72,126	68,519	2 to 8
24	24	5.1	88,109	73,500	69,429	66,157	2 to 8
24	25	4.9	84,481	70,587	66,833	63,810	2 to 8
24	26	4.7	81,424	67,833	64,282	61,544	2 to 8
24	27	4.5	78,408	65,340	61,901	59,096	2 to 8
24	28	4.3	75,408	63,004	59,690	56,704	2 to 8
20	24	4.2	72,908	61,284	58,032	55,131	2 to 8
20	25	4.1	70,387	58,800	55,711	52,921	2 to 8
20	26	3.9	67,852	56,544	53,518	50,896	2 to 8
20	27	3.8	65,340	54,450	51,388	49,096	2 to 8
20	28	3.6	62,804	52,308	49,762	47,289	2 to 8
15	24	3.4	59,804	49,884	48,424	44,103	2 to 8
15	25	3.2	56,854	47,845	44,569	42,340	2 to 8
15	26	3.1	54,282	45,235	42,853	40,717	2 to 8
15	27	3.0	52,272	43,540	41,267	39,204	2 to 8
15	28	2.8	50,408	42,004	39,794	37,804	2 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate.

H61776

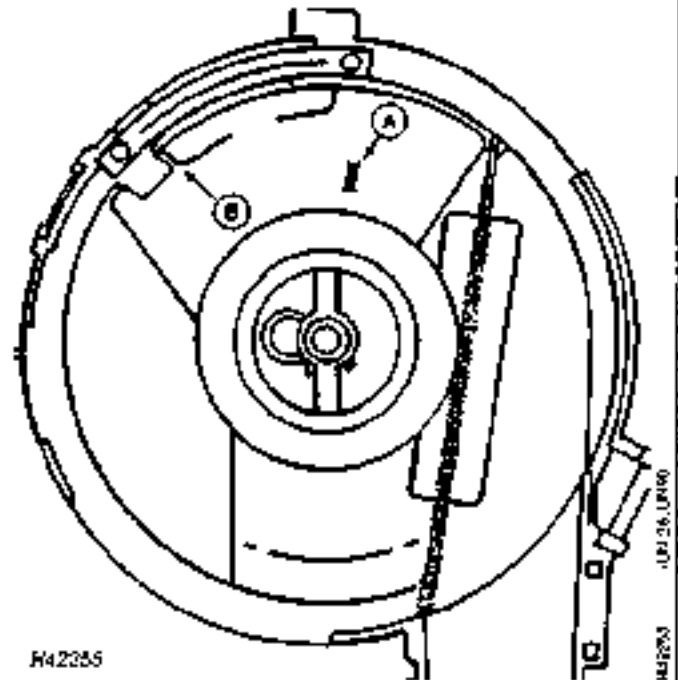
**VACUUM LEVEL, BAFFLE POSITION AND
VACUUM METER BRUSH FOR SOYBEANS**

Vacuum level for soybeans is set at 8 in.

VACUUM METER BAFFLE

Move tab (A).

Soybeans, upper position (B).

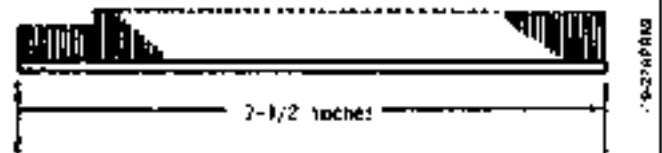


Upper Baffle Position

VACUUM METER BRUSH

Use the (regular) long brush.

Talc lubricant, 1/2 cup, if treated.



Regular (Long) Brush

HXER2904F 15-24JUN90

Vacuum Meter Seed Charts

{Decal No. DE1069}

SUGAR BEETS

AVERAGE SEED SPACING, AND/OR APPROXIMATE SEED POPULATION PER ACRE OF SUGAR BEETS PLANTED WITH VACUUM METER

NOTE: For information on using planting rate charts, see HOW TO USE PLANTING RATE CHARTS

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Average Seed Spacing in In.	Approximate Seed Population Per Acre			Recommended Speed Range in mph
Driver	Driven		22 In. Rows	30 In. Rows	36 In. Rows	
24	24	2-1/2	114,957	83,671	66,293	2 to 3
24	24	2-1/2	111,375	81,678	64,400	2 to 3
20	25	2-5/16	104,920	78,310	61,874	2 to 3-1/2
20	25	2-3/8	102,800	76,403	59,592	2 to 3-1/2
20	27	2-7/8	91,000	72,600	57,319	2 to 4
20	28	3	85,444	69,928	55,267	2 to 4
14	24	3-3/16	87,290	65,300	51,584	3 to 4-1/2
16	25	3-5/16	85,836	63,788	49,570	3 to 4-1/2
14	24	3-1/2	82,244	60,256	47,370	3 to 5
14	27	3-5/8	79,200	58,000	45,653	3 to 5-1/2
14	28	3-3/4	74,272	56,056	44,288	3 to 5-1/2

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Average Seed Spacing in In.	Approximate Seed Population Per Acre			Recommended Speed Range in mph
Driver	Driven		22 In. Rows	30 In. Rows	36 In. Rows	
35	24	2-15/16	73,090	52,612	42,124	2 to 3
35	25	4-3/16	70,254	51,900	40,450	2 to 3
35	26	4-1/4	67,450	49,470	38,024	2 to 3
35	27	4-5/8	64,989	47,628	37,401	2 to 3
35	28	4-9/16	62,665	45,993	36,179	2 to 3
24	24	4-3/8	60,350	44,392	35,047	2-1/2 to 3
24	25	4-13/16	59,130	42,671	33,688	2-1/2 to 3
24	26	5-1/8	55,002	40,888	32,267	2-1/2 to 3
24	27	5-5/16	53,831	39,451	31,145	2-1/2 to 3
24	28	5-1/2	51,995	38,005	30,047	2-1/2 to 3
24	24	5-11/16	50,119	36,747	29,010	2-1/2 to 3
24	25	6-1/16	48,114	35,259	27,924	2-3/4 to 3
24	26	6-5/16	46,264	33,943	26,797	4 to 3
24	27	6-3/8	44,350	32,570	25,792	4 to 3
24	28	6-5/8	42,959	31,400	24,840	4 to 3
20	24	6-13/16	41,766	30,613	24,168	4-1/2 to 3
20	25	7-1/8	40,005	29,408	23,217	4-1/2 to 3
20	26	7-3/8	38,562	28,255	22,207	4-1/2 to 3
20	27	7-11/16	37,325	27,223	21,455	5 to 3
20	28	7-15/16	36,798	26,287	20,717	5 to 3
14	24	8-7/10	33,417	24,812	19,752	5-1/2 to 3
14	26	8-7/8	32,074	23,810	18,648	5-1/2 to 3
14	26	9-1/4	30,842	22,629	17,665	6 to 3
14	27	9-5/8	29,700	21,780	17,193	6 to 3
14	28	10	28,629	20,992	16,572	6 to 3

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate.

M4179

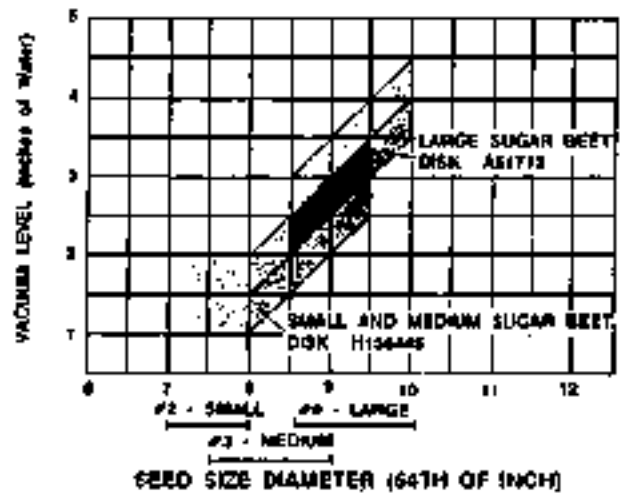
M4179

522 30M AL -19- 88M 96

**VACUUM LEVEL, BAFFLE POSITION
AND VACUUM METER BRUSH
FOR SUGAR BEET SEED**

EXAMPLE: If the bag label indicates medium seed (size 7-1/2 to 9/64 in. diameter). The vacuum level should be a range of between 1-1/2 to 2-1/2 in. when using Sugar Beet Disk.

IMPORTANT: The 1-1/2 to 2-1/2 in. vacuum level above is an example on how to use the chart. Obtain size in seeds per pound. You must calculate the proper vacuum level for each sugar beet seed size.



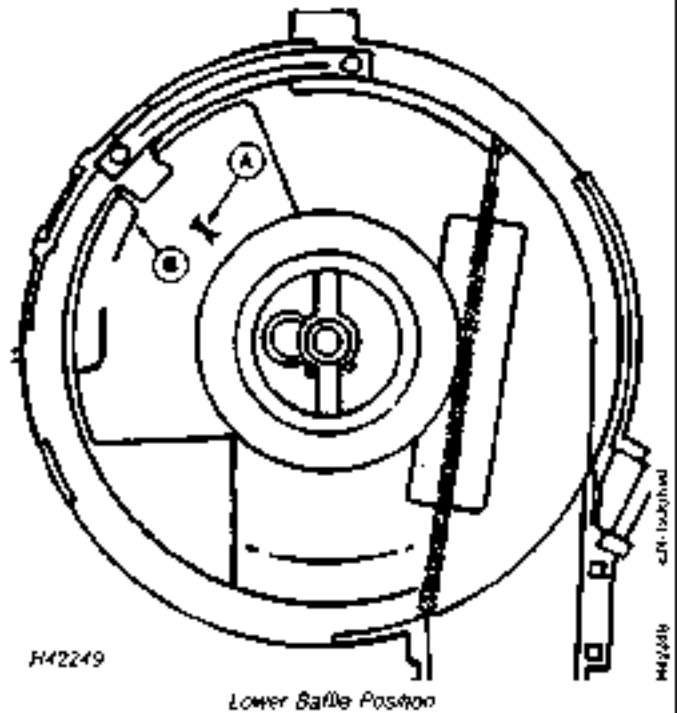
H42258

VACUUM METER BAFFLE

Move tab (A).

Sugar beets, lower position (B).

Talc lubricant, 1/2 cup.



H42249

Vacuum Meter Seed Charts

(Decimal No. 081000)

SMALL EDIBLE BEANS - 100 CELLS

AVERAGE SEEDS PER FT. AND/OR APPROXIMATE SEED POPULATION PER ACRE OF SMALL EDIBLE BEANS PLANTED WITH VACUUM METER

NOTE For information on using planting rate charts, see HOW TO USE PLANTING RATE CHARTS

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver / Driven		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
			10 In. Rows	14 In. Rows	16 In. Rows	40 In. Rows	
35	24	19.6	143,875	205,863	270,413	287,276	2 to 4
35	21	19.0	179,314	274,428	350,484	246,001	2 to 4
35	24	18.2	116,888	203,873	245,983	227,485	2 to 4
35	17	17.4	204,320	281,100	340,724	220,490	2 to 4
35	20	14.9	294,030	245,025	292,125	020,523	2 to 4
25	24	18.2	184,228	238,858	314,291	215,178	2 to 4-1/2
25	25	18.4	272,880	227,383	215,415	244,445	2 to 4-1/2
25	26	15.8	242,165	228,628	207,130	194,774	2 to 5
25	27	14.3	232,448	210,540	199,489	189,486	2 to 5
25	28	14.8	243,425	001,021	192,335	182,719	2 to 5-1/2
24	24	13.5	218,224	296,020	383,703	174,418	2 to 5-1/2
24	21	12.9	218,813	288,179	378,275	169,251	3 to 6
24	24	12.5	217,130	289,942	371,428	162,847	3 to 6
24	17	12.0	209,008	174,240	165,040	154,814	3 to 6
24	20	11.5	202,621	168,817	159,174	151,223	3 to 6-1/2
20	24	11.2	194,820	143,350	164,753	147,035	3 to 6-1/2
20	23	10.8	208,175	156,816	148,463	141,128	4 to 7
20	24	10.4	200,742	150,785	142,843	139,704	4 to 7
20	27	10.0	174,244	145,000	137,588	130,480	4 to 7-1/2
20	28	9.7	149,817	140,814	131,643	124,019	4 to 7-1/2
14	24	8.0	156,814	130,488	123,802	127,622	4 to 8
14	21	8.6	150,540	125,453	118,950	122,908	4 to 8
14	24	8.3	144,753	120,628	114,271	108,543	4 to 8
14	27	8.0	119,192	115,160	110,044	104,544	4 to 8
14	28	7.7	114,414	112,811	104,114	100,810	4 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver / Driven		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
			10 In. Rows	14 In. Rows	16 In. Rows	40 In. Rows	
35	24	7.4	128,638	107,128	101,854	94,179	4 to 8
35	25	7.1	122,497	102,811	87,494	92,619	4 to 8
35	26	6.8	118,743	98,552	92,744	88,057	4 to 8
35	27	6.4	114,748	95,288	89,272	85,759	4 to 8
35	28	6.1	110,261	91,884	87,048	82,696	4 to 8
25	24	4.1	104,584	88,872	81,387	78,920	4 to 8
25	25	3.9	102,322	85,269	80,781	76,742	4 to 8
25	26	3.8	98,987	81,989	77,474	72,790	4 to 8
25	27	3.4	94,748	78,463	74,787	71,837	4 to 8
25	28	3.2	91,359	76,133	72,126	68,531	4 to 8
24	24	5.1	88,209	73,308	69,439	66,157	4 to 8
24	21	4.9	84,581	70,567	65,653	63,818	4 to 8
24	24	4.7	81,424	67,863	64,282	61,046	4 to 8
24	27	4.3	78,408	65,340	61,701	58,806	4 to 8
24	28	4.1	75,688	63,006	59,620	56,704	4 to 8
20	24	4.2	73,404	61,256	58,832	55,131	4 to 8
20	25	4.1	70,587	58,804	55,723	52,925	4 to 8
20	26	3.9	67,453	54,544	53,568	50,890	4 to 8
20	27	3.8	65,349	54,430	51,584	49,885	4 to 8
20	28	3.4	63,005	52,503	49,742	47,255	4 to 8
14	24	3.4	58,805	49,805	46,426	44,183	4 to 8
14	21	3.2	54,458	47,018	44,369	42,340	4 to 8
14	24	3.1	54,282	45,335	42,833	40,712	4 to 8
14	27	3.0	52,272	42,840	41,247	39,204	4 to 8
14	28	2.9	50,465	42,004	39,794	37,884	4 to 8

IMPORTANT: To prevent planting misalignments, make seed checks to be sure you are seeding at desired rate. H41780

19-20-1180
H41780

**VACUUM LEVEL, BAFFLE POSITION AND
VACUUM METER BRUSH FOR SMALL
EDIBLE BEANS**

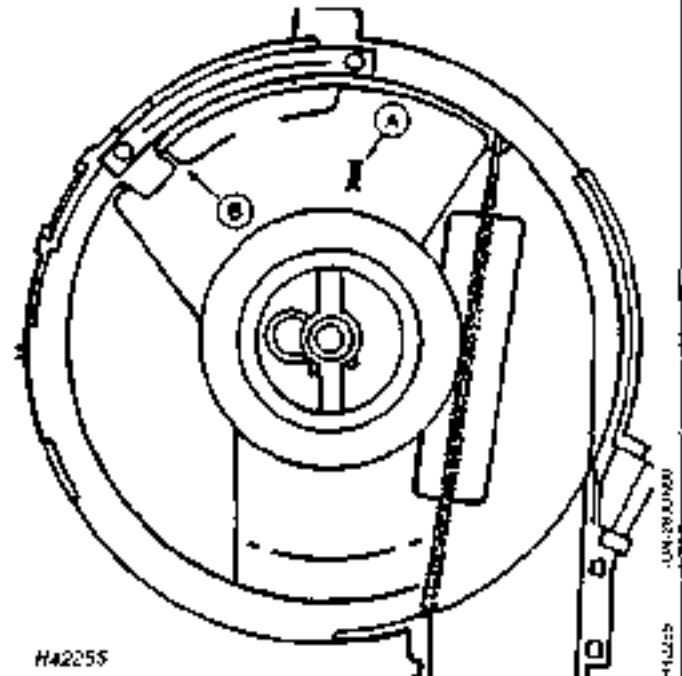
Vacuum level for small edible beans 8 in.

*NOTE: Small edible beans, for seeds that have 2800 or
more seeds per pound, set vacuum level at 6 in.*

VACUUM METER BAFFLE

Move tab (A).

Small edible beans, upper position (B).

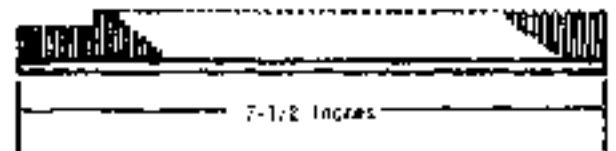


Upper Baffle Position

VACUUM METER BRUSH

Use the (regular) long brush.

Talc lubricant, 1/2 cup, if treated.



Regular Long Brush

Vacuum Meter Seed Charts

(Decal No. DB1091)

MEDIUM EDIBLE BEANS - 56 CELLS

AVERAGE SEEDS PER FT. AND/OR APPROXIMATE SEED POPULATION PER ACRE OF MEDIUM EDIBLE BEANS PLANTED WITH VACUUM METER AND USING AM-2222 BRUSH

NOTE: For information on using planting rate charts, see 'HOW TO USE PLANTING RATE CHARTS'

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range In mph
Driver	Driven		30 In. Rows	34 In. Rows	38 In. Rows	40 In. Rows	
38	24	10.23	177,870	140,123	140,424	133,403	4 to 4.5
38	25	9.80	170,733	142,296	124,807	128,066	4 to 4.5
38	26	9.42	164,188	134,823	129,422	123,141	4 to 5
38	27	9.07	160,387	131,754	124,821	116,580	4 to 5
38	28	8.75	152,460	127,056	120,263	114,348	4 to 5
29	24	8.44	147,978	122,815	114,381	110,634	4 to 5
29	25	8.12	141,403	117,902	111,697	106,113	4 to 5.5
29	26	7.83	136,043	113,366	107,401	102,033	4 to 5.5
29	27	7.52	131,003	109,144	103,433	98,252	4 to 6
29	28	7.25	126,324	105,278	99,729	94,743	4 to 6
24	24	7.00	121,760	101,640	96,291	91,476	4 to 6.5
24	25	6.72	117,088	97,574	92,439	87,817	4 to 6.5
24	26	6.46	112,506	93,822	88,886	84,439	4 to 7
24	27	6.22	108,416	90,347	85,592	81,313	4 to 7
24	28	6.00	104,544	87,126	82,535	78,498	4 to 7.5
20	24	5.83	101,640	84,708	80,242	76,230	4 to 8
20	25	5.60	97,874	81,312	77,033	72,881	4 to 8
20	26	5.38	93,423	78,105	74,070	70,364	4 to 8
20	27	5.18	90,347	75,200	71,324	67,740	4 to 8
20	28	5.00	87,120	72,000	68,778	64,340	4 to 8
16	24	4.47	81,312	67,760	64,294	60,984	4 to 8
16	25	4.40	78,060	65,050	61,626	58,545	4 to 8
16	26	4.31	75,057	62,548	59,256	56,293	4 to 8
16	27	4.15	72,277	60,233	57,041	54,208	4 to 8
16	28	4.00	69,696	58,000	55,027	52,272	4 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range In mph
Driver	Driven		30 In. Rows	34 In. Rows	38 In. Rows	40 In. Rows	
18	24	3.83	66,701	55,584	52,659	50,026	4 to 8
33	25	3.60	64,033	53,301	50,823	48,035	4 to 8
38	26	3.53	61,970	51,309	48,688	46,379	4 to 8
38	27	3.40	59,290	49,400	46,888	44,688	4 to 8
38	28	3.28	57,373	47,644	45,124	42,879	4 to 8
20	24	3.17	55,265	46,056	43,632	41,439	4 to 8
20	25	3.06	53,056	44,233	41,886	39,797	4 to 8
29	26	2.92	51,035	42,513	40,175	38,282	4 to 8
29	27	2.82	49,126	40,918	38,784	36,845	4 to 8
29	28	2.72	47,372	39,474	37,396	35,329	4 to 8
24	24	2.62	45,738	38,115	36,109	34,384	4 to 8
24	25	2.52	43,988	36,890	34,645	32,931	4 to 8
24	26	2.42	42,220	35,803	33,331	31,663	4 to 8
24	27	2.35	40,456	34,880	32,097	30,492	4 to 8
24	28	2.25	38,204	32,870	30,951	29,407	4 to 8
20	24	2.19	38,115	31,743	30,091	28,584	4 to 8
20	25	2.10	36,590	30,692	28,887	27,443	4 to 8
20	26	2.02	35,103	29,333	27,776	26,387	4 to 8
20	27	1.94	33,800	28,213	26,747	25,430	4 to 8
20	28	1.88	32,670	27,215	25,792	24,503	4 to 8
16	24	1.75	30,492	25,410	24,072	22,868	4 to 8
16	25	1.68	29,272	24,394	23,120	21,954	4 to 8
16	26	1.62	28,146	23,453	22,223	21,110	4 to 8
16	27	1.56	27,104	22,587	21,398	20,328	4 to 8
16	28	1.50	26,136	21,780	20,634	19,602	4 to 8

IMPORTANT: To prevent planting misplacements, make this check to be sure you are planting at desired rate.

DB1781

**VACUUM LEVEL, BAFFLE POSITION AND
VACUUM METER BRUSH FOR MEDIUM
EDIBLE BEANS**

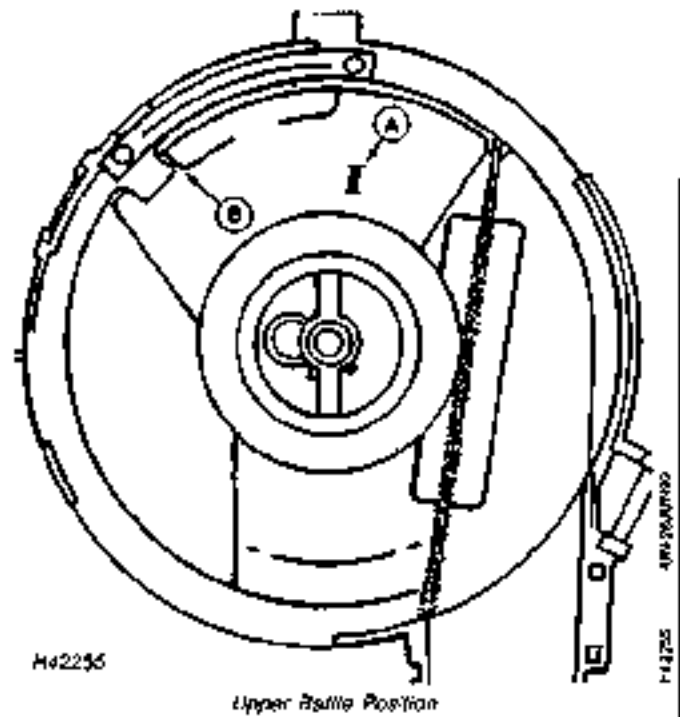
Vacuum level for medium edible beans is set at 8 in.

*NOTE: Medium edible beans, for garden beans that have
1800 or more seeds per pound, set vacuum level
at 6 in.*

VACUUM METER BAFFLE

Move tab (A).

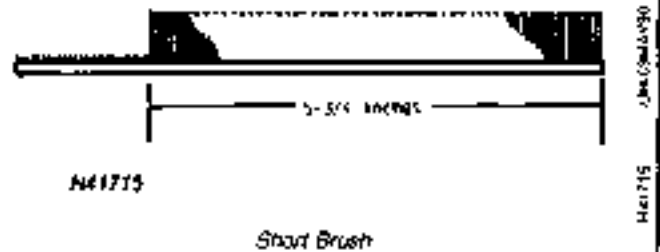
Medium edible beans, upper position (B).



VACUUM METER BRUSH

Use the short brush.

Talc lubricant, 1/2 cup, if treated



Vacuum Meter Seed Charts

{Decal No. DB1092}

LARGE EDIBLE BEANS - 50 CELLS

AVERAGE SEEDS PER FT. AND/OR APPROXIMATE SEED POPULATION PER ACRE OF LARGE EDIBLE BEANS PLANTED WITH VACUUM METER AND USING AH132233 BRUSH

NOTE: For information on using planting rate charts, see 'HOW TO USE PLANTING RATE CHARTS'.

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
Driver	Driven		30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
35	24	9.11	158,813	132,344	125,378	119,109	4 to 4.5
35	25	8.75	152,460	127,050	120,363	114,345	4 to 4.5
35	26	8.41	146,596	122,163	115,734	109,947	4 to 4.5
35	27	8.10	141,167	117,639	111,447	105,875	4 to 4.5
35	28	7.81	136,125	113,438	107,467	102,094	4 to 4.5
29	24	7.55	131,588	109,656	103,885	98,691	4 to 5
29	25	7.25	126,324	105,270	99,729	94,743	4 to 5.5
29	26	6.97	121,465	101,221	95,894	91,099	4 to 5.5
29	27	6.71	116,967	97,472	92,342	87,725	4 to 5.5
29	28	6.47	112,789	93,991	89,044	84,592	4 to 6
24	24	6.25	108,900	90,750	85,974	81,675	4 to 6
24	25	6.00	104,544	87,120	82,535	78,408	4 to 6.5
24	26	5.77	100,523	83,769	79,360	75,392	4 to 6.5
24	27	5.56	96,800	80,667	76,421	72,600	4 to 7
24	28	5.36	93,343	77,786	73,692	70,007	4 to 7
20	24	5.21	90,750	75,625	71,645	68,063	4 to 7.5
20	25	5.00	87,120	72,600	68,779	65,340	4 to 7.5
20	26	4.81	83,769	69,808	66,134	62,827	4 to 8
20	27	4.63	80,667	67,222	63,684	60,500	4 to 8
20	28	4.46	77,786	64,821	61,410	58,339	4 to 8
16	24	4.17	72,600	60,500	57,316	54,450	4 to 8
16	25	4.00	69,696	58,080	55,023	52,272	4 to 8
16	26	3.85	67,015	55,846	52,907	50,262	4 to 8
16	27	3.70	64,533	53,778	50,947	48,400	4 to 8
16	28	3.57	62,229	51,857	49,128	46,671	4 to 8

Sprocket Combinations (Number of Teeth)		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
Driver	Driven		30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
35	24	3.42	59,555	49,629	47,017	44,666	4 to 8
35	25	3.28	57,173	47,644	45,136	42,879	4 to 8
35	26	3.16	54,974	45,811	43,400	41,230	4 to 8
35	27	3.04	52,938	44,115	41,793	39,703	4 to 8
35	28	2.93	51,047	42,539	40,300	38,285	4 to 8
29	24	2.83	49,345	41,121	38,957	37,009	4 to 8
29	25	2.72	47,372	39,476	37,399	35,529	4 to 8
29	26	2.61	45,550	37,958	35,960	34,162	4 to 8
29	27	2.52	43,863	36,552	34,638	32,897	4 to 8
29	28	2.43	42,296	35,247	33,392	31,722	4 to 8
24	24	2.34	40,838	34,031	32,240	30,628	4 to 8
24	25	2.25	39,204	32,670	30,951	29,403	4 to 8
24	26	2.16	37,696	31,413	29,760	28,272	4 to 8
24	27	2.08	36,300	30,250	28,658	27,225	4 to 8
24	28	2.01	35,004	29,170	27,634	26,253	4 to 8
20	24	1.95	34,031	28,359	26,867	25,523	4 to 8
20	25	1.88	32,670	27,225	25,792	24,503	4 to 8
20	26	1.80	31,413	26,178	24,800	23,560	4 to 8
20	27	1.74	30,250	25,208	23,882	22,688	4 to 8
20	28	1.67	29,170	24,308	23,029	21,877	4 to 8
16	24	1.56	27,225	22,688	21,493	20,419	4 to 8
16	25	1.50	26,136	21,780	20,634	19,602	4 to 8
16	26	1.44	25,131	20,942	19,840	18,848	4 to 8
16	27	1.39	24,200	20,167	19,105	18,150	4 to 8
16	28	1.34	23,336	19,446	18,423	17,502	4 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate. H41782

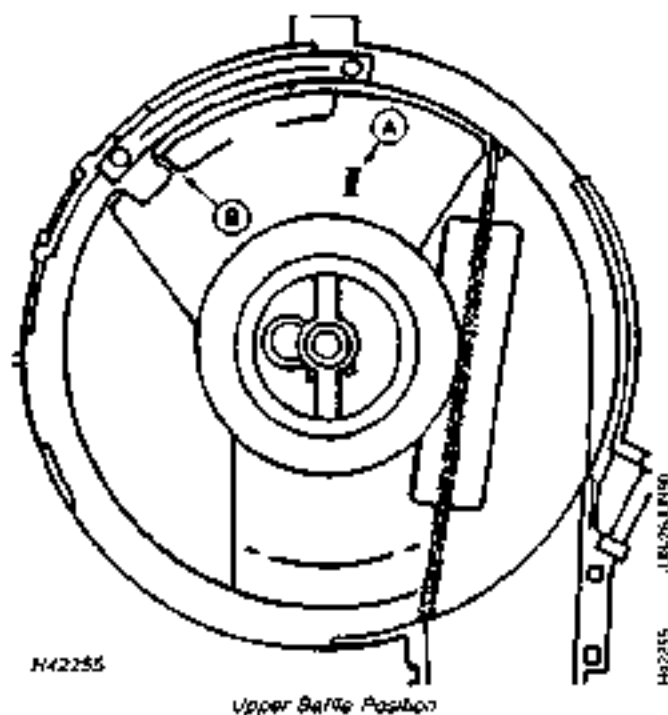
**VACUUM LEVEL, BAFFLE POSITION AND
VACUUM METER BRUSH FOR LARGE
EDIBLE BEANS**

Vacuum level for large edible beans is set at 8 in.

VACUUM METER BAFFLE

Move tab (A).

Large edible beans, upper position (B).



VACUUM METER BRUSH

Use the short brush.

Talc lubricant, 1/2 cup, if treated.



Vacuum Meter Seed Charts

RUNNER AND SPANISH PEANUTS
 {Decal No. DB1093} **LARGE EDIBLE BEAM SEED DISK, PART NUMBER H136092**
 AVERAGE SEEDS PER FT. AND/OR APPROXIMATE SEED POPULATION PER ACRE OF RUNNER PEANUTS
 PLANTED WITH VACUUM METER AND USNO 2232704 BRUSH

NOTE: For information on using planting rate charts, see HOW TO USE PLANTING RATE CHARTS

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver / Driven		Average Seeds Per Ft.	Approximate Seed Population per Acre				Recommended Speed Range in MPH
			30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
35	24	9.11	198,017	132,344	128,378	119,109	3-1/2
35	25	8.75	192,040	127,050	120,383	114,345	3-1/2
35	26	8.41	186,494	122,143	115,734	109,447	3-1/2
35	27	8.10	181,147	117,439	111,447	105,815	3-1/2 to 4
35	28	7.81	176,123	113,438	107,447	102,094	3-1/2 to 4
29	24	7.55	171,580	109,856	103,005	98,491	3-1/2 to 4
29	25	7.25	166,324	105,270	99,729	94,742	3-1/2 to 4-1/2
29	26	6.97	161,465	101,221	95,094	91,099	3-1/2 to 4-1/2
29	27	6.71	156,967	97,472	92,362	87,725	3-1/2 to 4-1/2
29	28	6.47	152,789	93,991	89,044	84,542	3-1/2 to 5
24	24	6.25	148,909	90,750	85,874	81,475	3-1/2 to 5
24	25	6.00	144,344	87,120	82,533	78,408	3-1/2 to 5-1/2
24	26	5.77	140,023	83,769	79,340	75,392	3-1/2 to 5-1/2
24	27	5.56	136,008	80,667	76,421	72,600	3-1/2 to 5-1/2
24	28	5.36	132,343	77,786	73,692	70,007	3-1/2 to 6
20	24	5.21	128,750	75,425	71,645	68,063	3-1/2 to 6
20	25	5.00	124,320	72,400	68,799	64,940	3-1/2 to 6-1/2
20	26	4.81	120,749	69,808	66,134	62,927	3-1/2 to 6-1/2
20	27	4.63	116,687	67,222	63,684	60,500	3-1/2 to 7
20	28	4.46	112,789	64,821	61,419	58,319	3-1/2 to 7
16	24	4.17	102,600	60,500	57,316	54,430	4 to 7-1/2
16	25	4.00	98,400	58,000	55,023	52,272	4 to 8
16	26	3.85	94,015	55,846	52,907	50,242	4 to 8
16	27	3.70	89,523	53,778	50,947	48,430	4 to 8
16	28	3.57	85,224	51,857	49,128	46,671	4 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver / Driven		Average Seeds Per Ft.	Approximate Seed Population per Acre				Recommended Speed Range in MPH
			30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
35	24	3.43	59,335	49,428	47,617	44,664	4 to 8
35	25	3.28	57,173	47,644	45,124	42,879	4 to 8
35	26	3.16	54,974	45,811	43,400	41,230	4 to 8
35	27	3.04	52,928	44,113	41,793	39,701	4 to 8
35	28	2.93	51,047	42,519	40,300	38,288	4 to 8
29	24	2.83	49,345	41,121	38,937	37,009	4 to 8
29	25	2.72	47,572	39,478	37,388	35,524	4 to 8
29	26	2.62	45,950	37,868	35,980	34,162	4 to 8
29	27	2.52	43,863	36,352	34,634	32,897	4 to 8
29	28	2.43	42,298	34,947	33,392	31,722	4 to 8
24	24	2.28	40,828	34,011	32,240	30,624	4 to 8
24	25	2.15	39,104	32,470	30,952	29,401	4 to 8
24	26	2.16	37,696	31,413	29,768	28,272	4 to 8
24	27	2.08	36,308	30,250	28,688	27,224	4 to 8
24	28	2.01	34,908	29,170	27,434	26,251	4 to 8
20	24	1.85	34,031	28,359	26,847	25,523	4 to 8
20	25	1.88	32,478	27,238	25,792	24,503	4 to 8
20	26	1.80	31,433	26,378	24,800	23,549	4 to 8
20	27	1.74	30,290	25,208	23,882	22,688	4 to 8
20	28	1.67	29,170	24,308	23,024	21,877	4 to 8
16	24	1.86	27,225	22,400	21,493	20,419	4 to 8
16	25	1.50	26,136	21,780	20,134	19,402	4 to 8
16	26	1.44	25,131	20,942	19,940	18,848	4 to 8
16	27	1.39	24,200	20,147	19,105	18,130	4 to 8
16	28	1.34	23,336	19,444	18,423	17,502	4 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate.

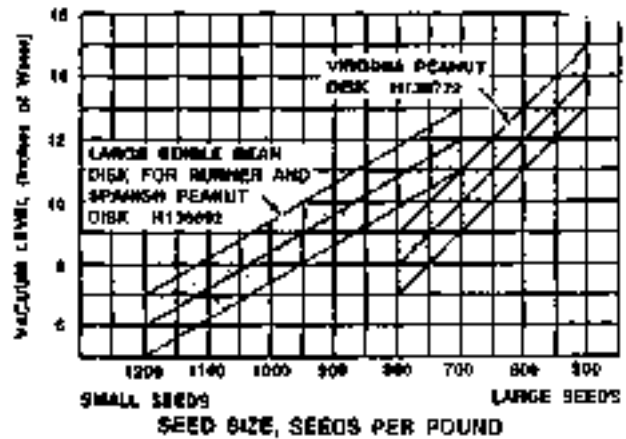
H41783

110-222-EDM-D - 10-19MAY90

VACUUM LEVEL, BAFFLE POSITION AND VACUUM METER BRUSH FOR PEANUTS

EXAMPLE: If seeds per pound is 800. Referring to the chart, the vacuum level should be set at 11 in., when using the Large Edible Bean Disk for Runner and Spanish Peanuts or 8 in. when using the Virginia Peanut Disk.

IMPORTANT: The 11 in. or 8 in. vacuum level above is an example on how to use the chart. Obtain size in seeds per pound. You must calculate the proper vacuum level for each peanut variety.

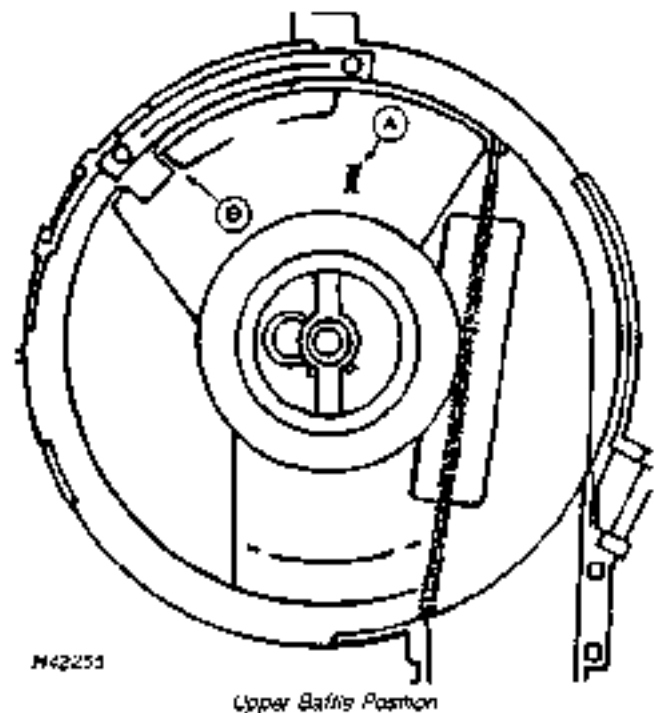


H42254

VACUUM METER BAFFLE

Move tab (A).

Peanuts, upper position (B).



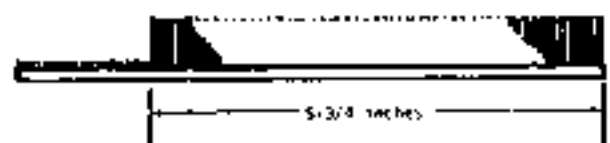
H42251

Upper Baffle Position

VACUUM METER BRUSH

Use the short brush.

Talc lubricant, 2 cups.



H41715

Short brush

Vacuum Meter Seed Charts

VIRGINIA PEANUTS
 (Decal No. DB1094) **VIRGINIA PEANUT SEED DISK, PART NUMBER H138722**
 AVERAGE SEEDS PER FT. AND/OR APPROXIMATE SEED POPULATION PER ACRE OF VIRGINIA PEANUTS
 PLANTED WITH VACUUM METER AND USING GASZON BRUSH

NOTE: For information on using planting rate charts, see "HOW TO USE PLANTING RATE CHARTS"

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver - Driven		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
			30 In. Rows	36 In. Rows	36 In. Rows	40 In. Rows	
25	24	8.4	144,300	131,736	115,344	109,381	2
15	25	8.1	140,253	116,086	110,734	105,197	3
15	26	7.7	134,850	112,290	104,475	101,151	3
25	27	7.5	129,873	108,228	102,122	97,495	3
15	28	7.2	125,235	104,343	98,870	93,924	3
29	24	6.9	121,081	100,884	95,574	90,795	3
29	25	6.7	114,218	94,848	91,751	87,144	3 to 3-1/2
29	26	6.4	111,748	93,323	88,222	83,811	3 to 3-1/2
29	27	6.2	107,589	89,474	84,938	80,707	3 to 4
29	28	6.0	103,714	86,472	81,921	77,825	3 to 4
24	24	5.8	104,180	85,490	79,094	75,141	3 to 4
24	25	5.5	94,180	80,158	74,032	70,155	3 to 4
24	26	5.3	92,481	77,888	71,031	67,361	3 to 4-1/2
24	27	5.1	89,034	74,213	70,307	66,792	3 to 4-1/2
24	28	4.9	85,875	71,553	67,794	64,407	3 to 4-1/2
20	24	4.6	87,440	69,574	65,913	62,518	3 to 4
20	25	4.4	80,130	66,792	63,277	60,113	3 to 5
20	26	4.4	77,046	64,223	60,843	57,801	3 to 5
20	27	4.2	74,213	62,094	58,589	55,559	3 to 5-1/2
20	28	4.1	71,540	59,436	56,497	53,671	3 to 4
16	24	3.8	64,792	55,660	52,731	50,091	3 to 6
16	25	3.7	64,320	53,434	50,421	48,090	3 to 6-1/2
16	26	3.5	61,654	51,378	48,474	46,241	3 to 6-1/2
16	27	3.4	59,373	49,474	46,472	44,528	3 to 7
16	28	3.3	57,250	47,769	45,128	42,934	3 to 7-1/2

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver - Driven		Average Seeds Per Ft.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
			30 In. Rows	36 In. Rows	36 In. Rows	40 In. Rows	
35	24	3.1	54,798	48,459	43,254	41,093	3 to 7-1/2
35	25	3.0	52,599	47,032	41,825	39,449	3 to 8
35	26	2.9	50,570	42,144	39,928	37,912	3 to 8
35	27	2.8	48,703	40,588	38,449	36,527	3 to 8
35	28	2.7	46,883	38,134	37,074	35,222	3 to 8
29	24	2.6	45,398	37,831	35,848	34,048	4 to 8
29	25	2.5	43,592	36,314	34,407	32,488	4 to 8
29	26	2.4	41,904	34,931	32,069	31,429	4 to 8
29	27	2.3	40,354	33,428	31,850	30,245	4 to 8
29	28	2.2	38,912	32,427	30,720	29,184	4 to 8
24	24	2.2	37,571	31,309	29,661	28,178	4 to 8
24	25	2.1	36,068	30,054	28,474	27,081	4 to 8
24	26	2.0	34,480	28,908	27,379	26,010	4 to 8
24	27	1.9	33,364	27,830	26,365	25,047	4 to 8
24	28	1.8	32,263	26,836	25,424	24,152	4 to 8
20	24	1.8	31,309	26,491	24,717	23,482	4 to 8
20	25	1.7	29,894	25,047	23,729	22,542	4 to 8
20	26	1.7	28,900	24,084	22,816	21,475	4 to 8
20	27	1.6	27,670	23,192	22,971	20,875	4 to 8
20	28	1.5	26,816	22,353	21,184	20,127	4 to 8
16	24	1.4	25,047	20,875	19,774	18,785	4 to 8
16	25	1.4	24,043	20,038	18,883	18,024	4 to 8
16	26	1.3	23,130	19,247	18,252	17,340	4 to 8
16	27	1.3	22,263	18,533	17,877	16,698	4 to 8
16	28	1.2	21,469	17,891	16,949	16,102	4 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate.

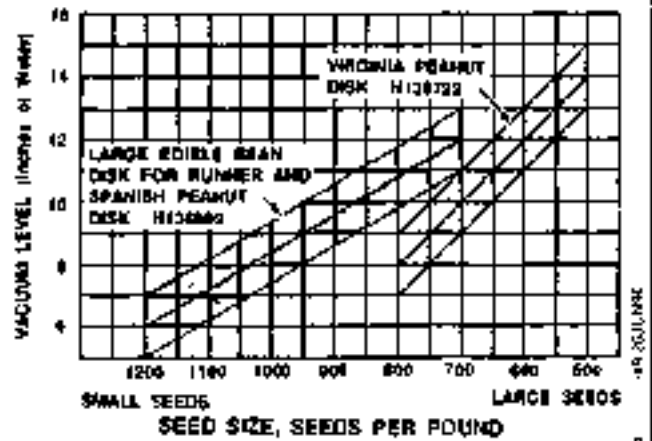
H44784

HS 822 60W/C 25 18MAY90

VACUUM LEVEL, BAFFLE POSITION AND VACUUM METER BRUSH FOR PEANUTS

EXAMPLE: If seeds per pound is 800. Referring to the chart, the vacuum level should be set at 11 in., when using the Large Edible Bean Disk for Runner Peanuts or 8 in. when using the Virginia Peanut Disk.

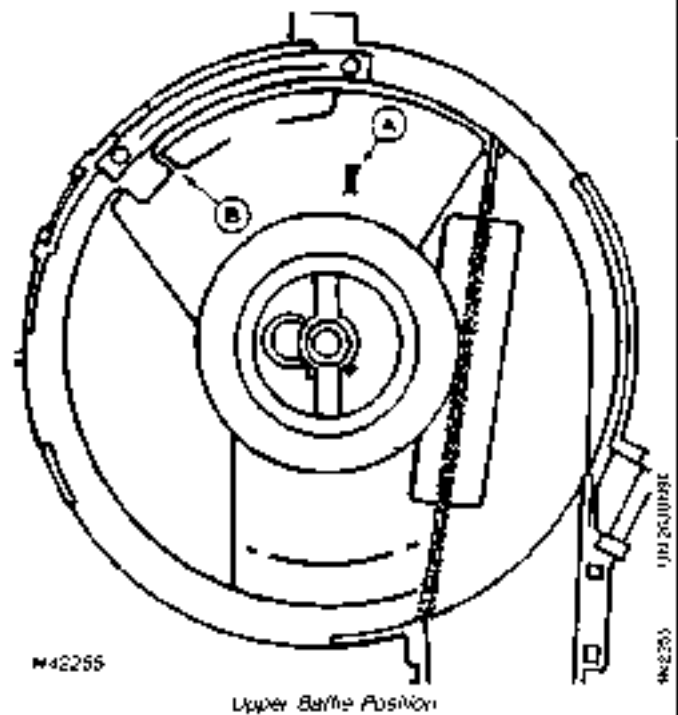
IMPORTANT: The 11 in. or 8 in. vacuum level above is an example on how to use the chart. Obtain size in seeds per pound. You must calculate the proper vacuum level for each peanut variety.



VACUUM METER BAFFLE

Move tab (A).

Peanuts, upper position (B).



VACUUM METER BRUSH

Use the short brush.

Talc lubricant, 2 cups.



Operating the Plateless Meter

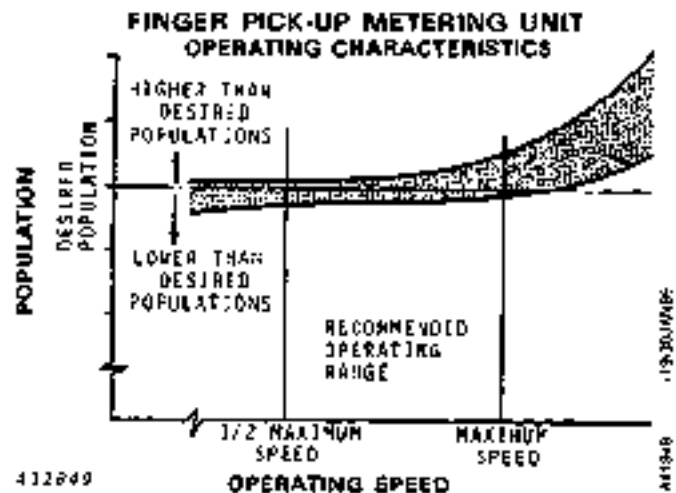
FINGER PICKUP METERING UNIT OPERATING CHARACTERISTICS

IMPORTANT: The graph shows the performance characteristics of the Finger Pickup Metering Unit relative to operating speed. An increase in operating speed above the maximum speed will cause an increase in the population. The population is shown as a band on the graph since slight variations in population may result from differences in seed size and shape.

The most accurate population will be obtained when the planter is operated between one-half the maximum speed and full maximum speed. Planting too fast may result in doubles and triples and planting too slow may result in skips.

The maximum speeds shown in the planting rate charts are for optimum conditions. Slower speeds should always be used when planting in rough seedbeds to insure satisfactory planter performance. Poor depth control and erratic seed spacing may result from planting too fast for conditions.

See **CHANGING PLANTING RATE SPROCKET COMBINATIONS** in this section for instructions on setting sprockets for the desired planting rate.



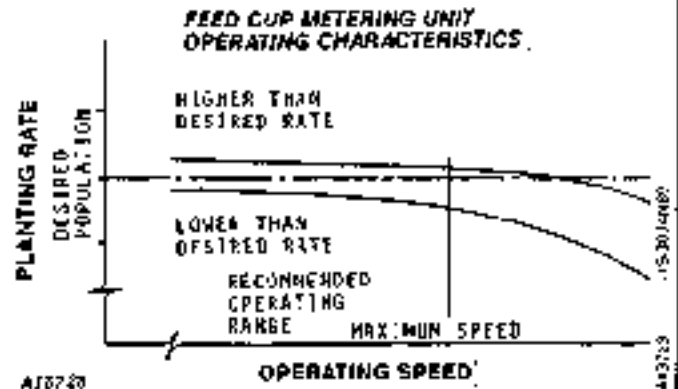
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FEED CUP OPERATING CHARACTERISTICS

IMPORTANT: The graph shows the operating characteristics of the feed cup metering unit.

The operating band illustrates how the feed cup metering unit performs with regard to the desired population (indicated by the horizontal line). The width of the band is due to various sizes and shapes of seeds.

Best results are obtained when the planter is operated below the full maximum speed.



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IMPORTANT: Soybeans vary in size from about 815 seeds/kg to about 1800 seeds/kg (from about 1800 seeds per lb. to about 3500 seeds per lb.). Consequently, the planting rates can vary widely. The following charts were developed using uniform soybeans sized to 1800 seeds/kg (2600 seeds per lb.) and should be used only as a guide for initial planter settings.

Large beans will generally result in lower rates than those in the chart and small beans will give somewhat higher rates. Actual rates **MUST** be checked in the field at planting speed and planter settings changed accordingly.

If the desired rate cannot be obtained when planting large soybeans, the edible bean cup may be used.

Refer to the Edible Bean Feed Cup chart. The Medium Size Beans section of the chart should be used as a guide for initial planter settings.

Sprocket combinations directly affect the number of revolutions per minute (rpm) of the feed cup. If the feed cup rpm is increased by changing the sprocket combination, your planting speed may have to be reduced accordingly to keep feed cup rpm within a satisfactory range.

After determining the correct sprocket combination for your desired planting rate, be certain to plant at a speed no greater than the maximum speed shown for your sprocket combination. This will help insure accurate planting rates.

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at the desired rate.

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Plateless Meter Seed Charts

{Decal No. DB1095}

FINGER PICK-UP

AVERAGE SEED POPULATION PER ACRE AND AVERAGE SEED SPACING
PLANTED WITH FINGER PICK-UP METERING UNIT

NOTE: For information on using planting rate charts, see "HOW TO USE PLANTING RATE CHARTS"

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		Average Seed Spacing in in.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
			20 in. Rows	24 in. Rows	30 in. Rows	40 in. Rows	
24	24	3-1/4	54,169	44,888	44,344	42,127	2 to 3
24	25	3-7/8	53,423	44,834	42,571	40,442	2 to 3
24	26	4	51,849	43,287	40,933	38,887	2 to 3
25	27	4-1/4	49,328	41,507	39,417	37,444	2 to 4
25	28	4-3/8	48,345	40,121	39,009	36,109	2 to 4
27	24	4-1/2	45,340	38,784	38,742	34,905	3 to 4
27	25	4-5/8	44,479	37,132	35,273	33,309	3 to 4
27	26	4-7/8	42,760	35,888	35,014	32,328	3 to 4
27	27	5	41,344	34,474	32,688	31,027	3 to 4
27	28	5-1/4	39,892	33,243	31,444	29,919	3 to 4
28	24	5-1/2	38,316	32,097	30,408	28,887	3 to 5
28	25	5-5/8	36,874	30,811	29,191	27,732	3 to 5
28	26	5-7/8	35,553	29,528	28,068	26,465	3 to 5
28	27	6-1/8	34,357	28,131	27,029	25,477	3 to 5
28	28	6-3/8	33,024	27,132	26,044	24,740	3 to 5
29	24	6-1/2	32,077	26,747	25,340	24,073	4 to 6
29	25	6-5/8	30,413	25,477	24,374	23,110	4 to 6
29	26	7	29,424	24,490	23,390	22,221	4 to 6
29	27	7-3/8	28,531	23,775	22,324	21,398	4 to 7
29	28	7-5/8	27,532	22,924	21,720	20,624	4 to 7
30	24	8-1/8	25,977	21,798	20,272	19,258	4 to 7
30	25	8-1/2	24,430	20,744	19,441	18,488	5 to 8
30	26	8-7/8	23,702	19,752	18,712	17,777	5 to 8
30	27	9-1/8	22,824	18,820	18,019	17,118	5 to 8
30	28	9-1/2	22,009	18,141	17,374	16,507	5 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		Average Seed Spacing in in.	Approximate Seed Population Per Acre				Recommended Speed Range in mph
			20 in. Rows	24 in. Rows	30 in. Rows	40 in. Rows	
35	24	9-7/8	21,064	17,551	16,639	15,794	5 to 8
35	25	10-1/8	20,323	16,851	15,944	15,144	5 to 8
35	26	10-3/4	19,463	16,203	15,350	14,582	5 to 8
35	27	11-1/8	18,723	15,403	14,781	14,042	6 to 8
35	28	11-5/8	18,034	14,643	14,254	13,541	6 to 8
29	24	12	17,433	14,344	13,778	13,089	6 to 8
29	25	12-1/2	16,785	13,642	13,219	12,581	6 to 8
29	26	13	16,110	13,423	12,719	12,083	6 to 8
29	27	13-1/2	15,523	12,938	12,447	11,878	7 to 8
29	28	14	14,984	12,444	11,910	11,320	7 to 8
24	24	14-1/2	14,444	12,034	11,402	10,823	7 to 8
24	25	15	13,864	11,585	10,947	10,359	7 to 8
24	26	15-5/8	13,323	11,110	10,524	9,949	8
24	27	16-1/4	12,859	10,699	10,138	9,423	8
24	28	16-7/8	12,380	10,317	9,774	9,288	8
29	24	17-3/8	12,026	10,070	9,502	9,027	8

IMPORTANT: To prevent plowing inaccuracies, make final checks to be sure you are plowing at desired rate.

H41785

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H41785

Plateless Meter Seed Charts

{Decal No. DB1096}

SOYBEAN FEED CUP (SOYBEANS)

APPROXIMATE LB. PER ACRE OF SOYBEANS PLANTED WITH FINGER PICKUP WHEN USING SOYBEAN FEED CUP

NOTE: For information on rowy planting use checks, see "HOW TO USE PLANTING RATE CHARTS"

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		Approximate Seed Population Per Acre				Recommended Speed Range in mph
15 In. Rows	16 In. Rows	17 In. Rows	20 In. Rows			
35	24	256	224	204	193	2 to 4
35	25	258	214	204	194	2 to 4
35	26	249	204	199	186	2 to 4
35	27	238	200	188	178	2 to 4
35	28	234	192	182	172	2 to 4
29	24	222	184	176	168	2 to 5
29	25	214	178	168	160	2 to 5
29	26	204	172	162	154	2 to 5
29	27	194	164	156	148	2 to 5
29	28	190	160	150	142	2 to 5
24	24	184	154	144	136	2 to 6
24	25	176	148	140	132	2 to 6
24	26	170	142	134	128	2 to 6
24	27	164	138	130	122	2 to 6
24	28	158	132	124	116	2 to 7
20	24	154	128	122	116	2 to 7
20	25	148	122	114	111	2 to 7
20	26	142	118	112	106	2 to 8
20	27	136	114	108	102	2 to 8
20	28	132	110	104	99	2 to 8
16	24	122	102	94	92	2 to 8
16	25	118	98	94	88	2 to 8
16	26	114	94	90	84	2 to 8
16	27	110	90	86	82	2 to 8
16	28	106	86	84	80	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		Approximate Seed Population Per Acre				Recommended Speed Range in mph
15 In. Rows	16 In. Rows	17 In. Rows	20 In. Rows			
35	24	100	84	80	72	2 to 8
35	25	96	80	76	72	2 to 8
35	26	84	78	74	70	2 to 8
35	27	80	74	70	68	2 to 8
35	28	86	72	68	64	2 to 8
29	24	84	70	66	61	2 to 8
29	25	80	66	64	60	2 to 8
29	26	74	64	60	58	2 to 8
29	27	74	62	58	54	2 to 8
29	28	72	60	56	54	2 to 8
24	24	70	58	54	52	2 to 8
24	25	66	56	52	50	2 to 8
24	26	64	54	50	48	2 to 8
24	27	61	52	48	44	2 to 8
24	28	60	50	46	43	2 to 8
20	24	54	48	44	44	2 to 8
20	25	51	46	44	42	2 to 8
20	26	54	44	42	40	2 to 8
20	27	52	42	40	38	2 to 8
20	28	50	42	38	38	2 to 8
16	24	46	48	46	44	2 to 8
16	25	44	46	44	43	2 to 8
16	26	42	46	44	42	2 to 8
16	27	40	44	42	40	2 to 8
16	28	40	42	42	40	2 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate.

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Plateless Meter Seed Charts

(Decal No. DB1097)

SOYBEAN FEED CUP (SOYBEANS)

APPROXIMATE LB. PER ACRE OF SOYBEANS PLANTED WITH FINGER PICKUP WHEN USING SOYBEAN FEED CUP

NOTE: For information on using planting rate charts, see HOW TO USE PLANTING RATE CHARTS.

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Approximate Seed Population Per Acre				Recommended Speed Range in mph
Driver	Driven	30 In. Rows	16 In. Rows	18 In. Rows	40 In. Rows	
35	24	134	112	104	101	2 to 4
35	25	128	107	102	97	2 to 4
35	26	124	103	98	97	2 to 4
35	27	118	100	94	89	2 to 4
35	28	115	98	91	86	2 to 4
29	24	111	93	88	83	2 to 5
29	25	107	89	84	80	2 to 5
29	26	103	84	81	77	2 to 5
29	27	99	82	78	74	2 to 5
29	28	95	80	75	71	2 to 5
24	24	92	77	71	68	2 to 6
24	25	88	74	70	66	2 to 6
24	26	85	71	67	64	2 to 6
24	27	82	68	65	62	2 to 6
24	28	79	64	62	59	2 to 6
20	24	77	64	61	58	2 to 7
20	25	74	61	58	56	2 to 7
20	26	71	59	56	53	2 to 7
20	27	68	57	54	51	2 to 7
20	28	65	55	52	50	2 to 7
16	24	61	51	48	46	2 to 8
16	25	59	49	47	44	2 to 8
16	26	57	47	45	43	2 to 8
16	27	54	45	43	41	2 to 8
16	28	53	44	42	40	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Approximate Seed Population Per Acre				Recommended Speed Range in mph
Driver	Driven	16 In. Rows	18 In. Rows	20 In. Rows	40 In. Rows	
35	24	58	42	40	38	2 to 8
35	25	48	40	38	36	2 to 8
35	26	47	39	37	35	2 to 8
35	27	45	37	36	34	2 to 8
35	28	43	36	34	32	2 to 8
29	24	42	35	33	32	2 to 8
29	25	40	33	32	30	2 to 8
29	26	39	32	30	29	2 to 8
29	27	37	31	29	28	2 to 8
29	28	36	30	28	27	2 to 8
24	24	35	30	27	24	2 to 8
24	25	33	28	24	23	2 to 8
24	26	32	27	23	21	2 to 8
24	27	31	26	24	21	2 to 8
24	28	30	25	23	21	2 to 8
20	24	28	24	23	22	2 to 8
20	25	28	23	22	21	2 to 8
20	26	27	22	21	20	2 to 8
20	27	26	21	20	19	2 to 8
20	28	25	21	19	18	2 to 8
16	24	23	19	18	17	2 to 8
16	25	22	18	17	17	2 to 8
16	26	21	18	17	16	2 to 8
16	27	20	17	16	15	2 to 8
16	28	20	16	14	15	2 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate.
M41787

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H1178

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BEANS PER FT.—LB. PER ACRE

APPROXIMATE NUMBER OF LB. PER ACRE FOR VARIOUS SOYBEAN SEED SIZES												
Seeds per Ft.	15 in. Rows			18 in. Rows			19 in. Rows			20 in. Rows		
	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
	Approx. 3200 per Lb.	Approx. 2600 per Lb.	Approx. 2200 per Lb.	Approx. 3200 per Lb.	Approx. 2600 per Lb.	Approx. 2200 per Lb.	Approx. 3200 per Lb.	Approx. 2600 per Lb.	Approx. 2200 per Lb.	Approx. 3200 per Lb.	Approx. 2600 per Lb.	Approx. 2200 per Lb.
5	54	68	80	46	56	66	42	52	62	40	51	60
6	66	80	96	54	66	80	52	64	74	50	60	72
7	78	94	110	64	78	92	60	74	88	57	70	82
8	88	108	126	72	90	108	64	84	100	66	81	94
9	98	120	144	82	100	118	78	96	112	74	90	108
10	108	134	158	90	112	132	86	106	126	81	100	118
11	120	148	174	100	122	146	94	116	138	90	111	130
12	130	160	190	108	134	158	104	126	150	98	120	142
13	142	174	206	118	146	172	112	138	162	106	130	154
14	152	188	222	128	156	184	120	148	176	114	141	166
15	164	202	238	136	168	198	126	158	188	123	152	178
16	174	214	254	146	178	212	138	170	200	130	160	190
17	186	228	270	154	180	224	146	180	212	140	171	202
18	196	242	286	164	202	238	154	190	226	147	182	214
19	206	254	300	172	212	250	164	202	238	154	190	225
20	218	268	316	182	224	264	172	212	250	164	201	237

A32845

A32845

To determine the approximate lb. per acre for a given number of beans per ft., refer to the chart.

Example:

Suppose you wish to plant an average of approximately 11 beans per ft. on 19 in. rows. Your soybean seed is determined to be about 2600 seeds per lb. (medium size).

Checking the chart, under 19 in. rows and medium size soybeans, 11 beans per ft. will require a rate of approximately 116 lb. per acre.

Refer to SOYBEAN FEED CUP (EDIBLE BEANS)—HIGH RANGE chart. For 19 in. rows, a 16-tooth driver and 25-tooth driven sprocket will give you approximately 116 lb. per acre.

The rates in the chart are based on a uniform seed size sample of approximately 2600 seeds per lb. and should only be used as a starting point for determining the actual planting rate. The actual rate must be checked in the field at the desired planting speed. (See CHECKING SEED POPULATION in this section.)

BEANS PER FT.—LB. PER ACRE

APPROXIMATE NUMBER OF LB. PER ACRE FOR VARIOUS SOYBEAN SEED SIZES												
Seeds per Ft.	30 In. Rows			36 In. Rows			38 In. Rows			40 In. Rows		
	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
	Approx. 3200 per Lb.	Approx. 2600 per Lb.	Approx. 2200 per Lb.	Approx. 3200 per Lb.	Approx. 2600 per Lb.	Approx. 2200 per Lb.	Approx. 3200 per Lb.	Approx. 2600 per Lb.	Approx. 2200 per Lb.	Approx. 3200 per Lb.	Approx. 2600 per Lb.	Approx. 2200 per Lb.
5	27	34	40	23	28	33	21	26	31	20	26	30
6	33	40	48	27	34	40	26	32	38	25	30	36
7	38	47	56	32	39	46	30	37	44	29	35	41
8	44	54	63	36	45	53	34	42	50	33	41	47
9	49	60	72	41	50	59	39	48	56	37	45	54
10	54	67	79	45	56	66	43	53	63	40	50	59
11	60	74	87	50	61	73	47	58	69	45	56	66
12	65	80	95	54	67	79	52	63	75	49	60	71
13	71	87	103	59	73	86	56	68	81	53	65	77
14	76	94	111	64	78	92	60	74	88	57	71	83
15	82	101	119	68	84	99	64	79	94	62	76	89
16	87	107	127	73	89	106	69	85	100	65	80	96
17	93	114	135	77	95	112	73	90	106	70	86	101
18	98	121	143	82	101	119	77	95	113	74	91	107
19	103	127	150	86	106	125	82	101	119	77	95	113
20	109	134	158	91	112	132	86	106	125	82	100	118

A2852:

A2857: -19-21,00008

To determine the approximate lb. per acre for a given number of beans per ft., refer to the chart.

Example:

Suppose you wish to plant an average of approximately 11 beans per ft. on 38 in. rows. Your soybean seed is determined to be about 2600 seeds per lb. (medium size).

Checking the chart, under 38 in. rows and medium size soybeans, 11 beans per ft. will require a rate of approximately 58 lb. per acre.

Refer to SOYBEAN FEED CUP (EDIBLE BEANS)—HIGH RANGE chart. For 38 in. rows, a 18-tooth driver and 25-tooth driven sprocket will give you approximately 58 lb. per acre.

The rates in the chart are based on a uniform seed size sample of approximately 2600 seeds per lb. and should only be used as a starting point for determining the actual planting rate. The actual rate must be checked in the field at the desired planting speed. (See CHECKING SEED POPULATION in this section).

Plateless Meter Seed Charts

{Decal No. DB1098}

SOYBEAN FEED CUP (EDIBLE BEANS)

APPROXIMATE LB. PER ACRE OF EDIBLE BEANS PLANTED WITH FINGER PICKUP WHEN USING SOYBEAN FEED CUP

NOTE: For information on using planting rate charts, see "HOW TO USE PLANTING RATE CHARTS".

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Lb. of Small Beans* Per Acre				Lb. of Medium Beans** Per Acre				Recommended Speed Range in mph
Driver	Driven	15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	428	356	338	321	336	280	264	252	2 to 4
35	25	410	342	324	308	322	268	254	242	2 to 4
35	26	394	330	312	296	310	258	244	232	2 to 4
35	27	380	316	300	285	298	248	236	224	2 to 4
35	28	366	306	290	274	288	240	226	216	2 to 4
29	24	354	296	280	266	278	232	220	208	2 to 5
29	25	340	284	268	255	266	222	210	200	2 to 5
29	26	328	272	258	246	256	214	202	192	2 to 5
29	27	316	262	248	237	246	206	194	184	2 to 5
29	28	304	254	240	228	238	198	188	178	2 to 5
24	24	297	244	232	223	230	192	182	172	2 to 6
24	25	282	234	222	212	220	184	174	165	2 to 6
24	26	270	226	214	202	212	176	168	159	2 to 6
24	27	260	218	206	195	204	170	162	153	2 to 6
24	28	252	210	198	189	196	164	156	147	2 to 7
20	24	244	204	194	183	192	160	152	144	2 to 7
20	25	234	196	186	176	184	154	146	138	2 to 7
20	26	226	188	178	170	176	148	140	132	2 to 8
20	27	219	182	172	164	170	142	134	128	2 to 8
20	28	210	174	166	158	164	136	130	123	2 to 8
16	24	196	162	154	147	154	128	120	116	2 to 8
16	25	188	156	148	141	148	122	116	111	2 to 8
16	26	180	150	142	135	142	118	112	106	2 to 8
16	27	174	144	138	130	136	114	108	102	2 to 8
16	28	168	140	132	126	132	110	104	99	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		Lb. of Small Beans* Per Acre				Lb. of Medium Beans** Per Acre				Recommended Speed Range in mph
Driver	Driven	15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	160	134	126	120	126	104	100	94	2 to 8
35	25	154	128	122	116	120	100	96	90	2 to 8
35	26	148	124	116	111	116	96	92	87	2 to 8
35	27	142	118	112	106	112	94	88	84	2 to 8
35	28	138	114	108	104	108	90	86	81	2 to 8
29	24	132	110	104	99	104	86	82	78	2 to 8
29	25	128	106	100	96	100	84	78	75	2 to 8
29	26	122	102	96	92	96	80	76	72	2 to 8
29	27	118	98	94	88	92	78	74	69	2 to 8
29	28	114	94	90	86	90	74	70	68	2 to 8
24	24	110	92	86	82	86	72	68	64	2 to 8
24	25	106	88	84	80	82	68	66	62	2 to 8
24	26	102	84	80	76	80	66	62	60	2 to 8
24	27	98	82	78	74	76	64	60	57	2 to 8
24	28	94	78	74	70	74	62	58	56	2 to 8
20	24	92	76	72	69	72	60	56	54	2 to 8
20	25	88	74	70	66	68	58	54	51	2 to 8
20	26	84	70	66	63	66	56	52	50	2 to 8
20	27	82	68	64	62	64	54	50	48	2 to 8
20	28	78	66	62	58	62	52	48	46	2 to 8
16	24	74	62	58	56	58	48	46	44	2 to 8
16	25	70	58	56	52	56	46	44	42	2 to 8
16	26	68	56	54	51	54	44	42	40	2 to 8
16	27	66	54	52	50	52	42	40	39	2 to 8
16	28	62	52	50	46	50	42	38	38	2 to 8

* Small beans include varieties which run approximately 2500 seeds/lb., such as navy beans.
 ** Medium beans include kidney beans at approximately 1000 seeds/lb., pinto beans at approximately 1100 seeds/lb., pink beans at approximately 1400 seeds/lb., or other beans of similar size and shape.

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate.

H41788

Plateless Meter Seed Charts

(Decal No. DB1009)

SOYBEAN FRED CUP (EDIBLE BEANS)

APPROXIMATE LB. PER ACRE OF EDIBLE BEANS PLANTED WITH FRED PICKUP WHEN USING SOYBEAN FRED CUP

NOTE: For information on using decal and charts, see HOW TO USE PLANTING RATE CHARTS

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		Lb. of Small Beans* Per Acre				Lb. of Medium Beans** Per Acre				Recommended Speed Range in MPH
		30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
35	24	218	178	149	141	165	140	132	126	1 to 4
35	25	205	171	142	134	161	138	127	121	2 to 4
35	26	192	165	136	128	155	129	122	116	2 to 4
35	27	180	158	130	123	149	124	116	111	2 to 4
35	28	167	152	125	117	144	120	113	108	2 to 4
29	24	177	148	120	113	139	116	110	104	2 to 4
29	25	170	142	114	108	133	111	105	100	2 to 4
29	26	164	136	109	103	128	107	101	96	2 to 5
29	27	158	131	104	98	123	102	97	92	2 to 5
29	28	152	127	100	94	119	99	94	89	2 to 5
24	24	147	122	114	110	115	94	91	88	2 to 4
24	25	141	117	111	106	110	92	87	83	2 to 6
24	26	135	113	107	101	106	88	84	80	2 to 4
24	27	130	108	103	98	102	85	81	77	2 to 4
24	28	124	105	99	93	98	82	78	74	2 to 7
20	24	122	102	97	92	94	80	74	72	2 to 7
20	25	117	98	93	88	92	77	72	69	2 to 7
20	26	113	94	89	85	88	74	70	66	2 to 8
20	27	109	91	86	82	85	71	67	64	2 to 8
20	28	105	87	82	79	82	68	65	62	2 to 8
16	24	98	81	77	74	77	64	60	58	2 to 8
16	25	94	78	74	70	74	61	58	56	2 to 8
16	26	90	75	71	68	71	59	56	53	2 to 8
16	27	87	72	68	65	68	57	54	51	2 to 8
16	28	84	70	66	63	66	55	52	50	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		Lb. of Small Beans* Per Acre				Lb. of Medium Beans** Per Acre				Recommended Speed Range in MPH
		30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	30 In. Rows	36 In. Rows	38 In. Rows	40 In. Rows	
35	24	80	67	63	60	63	52	50	47	2 to 6
35	25	77	64	61	58	60	50	48	45	2 to 6
35	26	74	62	58	54	58	48	46	44	2 to 6
35	27	71	59	56	53	56	47	44	42	2 to 6
35	28	69	57	54	52	54	45	43	40	2 to 6
29	24	66	55	52	50	52	43	41	38	2 to 6
29	25	64	53	50	48	50	42	39	38	2 to 6
29	26	61	51	48	46	48	40	38	36	2 to 6
29	27	59	49	47	44	46	39	37	35	2 to 6
29	28	57	47	45	43	45	37	34	34	2 to 6
24	24	65	46	43	41	43	35	34	32	2 to 6
24	25	63	44	42	40	41	34	32	31	2 to 6
24	26	61	42	40	38	40	33	31	30	2 to 6
24	27	59	41	39	37	38	32	30	28	2 to 6
24	28	57	39	37	35	37	31	29	28	2 to 6
20	24	46	38	36	35	34	30	28	27	2 to 6
20	25	44	37	35	33	34	29	27	26	2 to 6
20	26	42	35	33	32	33	28	26	25	2 to 6
20	27	41	34	32	31	32	27	25	24	2 to 6
20	28	39	33	31	29	31	26	24	23	2 to 6
16	24	37	31	29	28	29	24	23	22	2 to 6
16	25	35	29	28	26	28	23	22	21	2 to 6
16	26	34	28	27	26	27	22	21	20	2 to 6
16	27	33	27	26	25	26	21	20	20	2 to 6
16	28	31	26	25	23	25	21	19	19	2 to 6

* Small beans include varieties which are approximately 2500 seeds/lb., such as navy beans.
 ** Medium beans include kidney beans at approximately 1000 seeds/lb., lima beans at approximately 1400 seeds/lb., pinto beans at approximately 1400 seeds/lb., or other beans of similar size and shape.

IMPORTANT: To prevent plugging checkrollers, make field checks to be sure you are planting at desired rate

H41769

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17-12-1969

Plateless Meter Seed Charts

SOYBEAN FEED CUP EQUIPPED WITH SEED GUIDE A48006 (SMALL SOYBEANS)

APPROXIMATE LB. PER ACRE OF SMALL SOYBEANS PLANTED WITH FEEDER PICKUP
WHEN USING SOYBEAN FEED CUP EQUIPPED WITH SEED GUIDE A48006
{Decal No. 091100}

NOTE: For information on using planting rate charts, see HOW TO USE PLANTING RATE CHARTS

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		(Based on 4,200 Seeds Per Lb.) Lb. Per Acre				Recommended Speed Range in mph
Driver	Driven	15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	172	140	138	129	3 to 5
35	25	166	136	133	124	3 to 5
35	26	158	127	128	116	3 to 5
33	17	154	124	122	114	3 to 5
35	18	148	124	119	111	3 to 5
29	24	142	116	114	106	3 to 5
29	25	134	114	110	102	3 to 5-1/2
29	26	132	110	104	99	3 to 6
28	17	126	108	102	94	3 to 6
29	20	122	102	100	92	3 to 6
24	24	118	98	94	88	4 to 6-1/2
24	25	114	94	90	84	4 to 7
24	26	110	88	84	82	4 to 7-1/2
24	27	104	88	84	78	4 to 8
24	28	102	84	82	74	4 to 8
20	24	88	82	78	74	4 to 8
20	25	84	78	74	70	4 to 8
20	26	80	74	72	68	4 to 8
20	27	88	72	70	64	4 to 8
20	28	84	70	68	62	4 to 8
16	24	78	66	64	58	4 to 8
16	25	76	64	60	57	4 to 8
16	26	72	60	58	54	4 to 8
16	27	70	58	54	52	4 to 8
16	28	68	54	54	51	4 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		(Based on 4,200 Seeds Per Lb.) Lb. Per Acre				Recommended Speed Range in mph
Driver	Driven	15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	64	54	52	48	2 to 3
35	25	62	52	50	46	2 to 3
35	26	60	50	48	48	2 to 3
35	27	58	48	46	44	2 to 3
35	28	54	44	44	42	2 to 3
29	24	54	44	42	40	2 to 3
30	25	52	42	42	38	2 to 5-1/2
24	24	50	42	40	38	2 to 6
29	27	48	40	38	36	2 to 6
29	28	48	38	36	34	2 to 6
24	24	44	36	34	32	4 to 8-1/2
24	25	42	34	34	32	4 to 7
24	26	40	34	32	30	4 to 7-1/2
24	27	40	32	32	30	4 to 8
24	28	38	32	30	28	4 to 8
20	24	38	30	30	27	4 to 8
20	25	36	28	28	27	4 to 8
24	24	34	28	28	24	4 to 8
24	27	32	28	28	24	4 to 8
20	28	30	26	26	22	4 to 8
16	24	30	24	24	24	4 to 8
16	25	28	24	22	21	4 to 8
16	26	28	22	22	21	4 to 8
16	27	24	22	22	24	4 to 8
16	28	24	22	20	20	4 to 8

IMPORTANT: To prevent planting inaccuracies, make field checks to be sure you are planting at desired rate **H41730**

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Plateless Meter Seed Charts

SOYBEAN FEED CUP EQUIPPED WITH SEED GUIDE A49005 (SMALL SOYBEANS)

(Decal No. DB1101) APPROXIMATE LB. PER ACRE OF SMALL SOYBEANS PLANTED WITH FINGER PICKUP WHEN USING SOYBEAN FEED CUP EQUIPPED WITH SEED GUIDE A49005

NOTE: For information on using planting rate charts, see HOW TO USE PLANTING RATE CHARTS.

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		(Based on 4,200 Seeds Per Lb.) Lb. Per Acre				Recommended Speed Range in MPH
		30 In. Rows	34 In. Rows	38 In. Rows	40 In. Rows	
33	24	68	70	69	65	3 to 5
35	25	63	64	66	62	3 to 5
35	26	79	66	64	59	3 to 5
35	27	77	64	61	58	3 to 5
35	28	74	62	59	56	3 to 5
29	24	73	59	57	53	3 to 5
29	25	68	57	55	51	3 to 5-1/2
29	26	68	55	53	50	3 to 6
29	27	63	52	51	47	3 to 6
29	28	61	51	50	46	3 to 6
24	24	59	49	47	44	4 to 6-1/2
24	25	57	47	45	43	4 to 7
24	26	55	45	44	41	4 to 7-1/2
24	27	52	44	42	39	4 to 8
24	28	51	42	41	38	4 to 8
20	24	49	41	39	37	4 to 8
20	25	47	39	38	35	4 to 8
20	26	45	38	36	34	4 to 8
20	27	44	36	35	32	4 to 8
20	28	42	35	34	32	4 to 8
14	24	39	32	32	29	4 to 8
14	25	38	32	30	28	4 to 8
14	26	36	30	29	27	4 to 8
14	27	35	29	28	26	4 to 8
14	28	34	29	27	25	4 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		(Based on 4,200 Seeds Per Lb.) Lb. per Acre				Recommended Speed Range in MPH
		30 In. Rows	34 In. Rows	38 In. Rows	40 In. Rows	
35	24	39	27	26	24	3 to 5
35	25	31	26	25	23	3 to 5
35	26	36	25	24	22	3 to 5
35	27	29	24	23	22	3 to 5
35	28	28	22	22	21	3 to 5
29	24	27	22	21	20	3 to 5
29	25	26	21	21	20	3 to 5-1/2
29	26	25	21	20	19	3 to 6
29	27	24	20	19	18	3 to 6
29	28	23	19	19	17	3 to 6
24	24	22	18	18	17	4 to 6-1/2
24	25	21	18	17	16	4 to 7
24	26	20	17	16	15	4 to 7-1/2
24	27	20	16	16	15	4 to 8
24	28	19	16	15	14	4 to 8
20	24	18	15	15	14	4 to 8
20	25	18	15	14	14	4 to 8
20	26	17	14	14	13	4 to 8
20	27	16	14	13	12	4 to 8
20	28	16	13	13	12	4 to 8
14	24	13	12	12	11	4 to 8
14	25	14	12	11	10	4 to 8
14	26	14	11	11	10	4 to 8
14	27	13	11	11	10	4 to 8
14	28	13	11	10	10	4 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are getting at desired rate. H41791

PLANTING SMALL SOYBEANS WITH SOYBEAN FEED CUP

IMPORTANT: Extra small soybeans vary in size from about 9000 to 12 000 seeds/kg (4100 to 5400 seeds per lb.). Consequently, planting rates may vary widely.

The following charts were developed using uniform soybeans sized to 9300 seeds/kg (4200 seeds per lb.). Use the charts as a guide for initial planter settings only.

Large beans will generally result in lower rates than those in the charts.

Actual rates **MUST** be checked in the field at planting speed. See **CHECKING SEED POPULATION** in this section.

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SMALL SOYBEANS—BEANS PER FT.—LB. PER ACRE**APPROXIMATE NUMBER OF LB. PER ACRE FOR EXTRA SMALL SOYBEAN SEEDS**

Seeds per Ft.	15 In. Rows	16 In. Rows	18 In. Rows	20 In. Rows
	Approximately 4200 Seeds per Lb.	Approximately 4200 Seeds per Lb.	Approximately 4200 Seeds per Lb.	Approximately 4200 Seeds per Lb.
6	42	34	32	31
6	50	42	40	38
7	58	48	46	44
8	66	56	52	50
9	74	62	58	56
10	82	70	66	62
11	92	76	72	69
12	100	82	78	75
13	108	90	86	81
14	116	96	92	87
15	124	104	98	93
16	132	110	104	99
17	142	118	112	106
18	150	124	118	112
19	158	132	124	118
20	166	138	132	124

A32855

A32855

To determine the approximate lb. per acre for a given number of beans per ft., refer to the chart.

Example:

Suppose you wish to plant an average of approximately 10 beans per ft. on 19 in. rows. Your soybean seed is determined to be about 4200 seeds per lb.

Checking the chart under 19 in. rows, 10 beans per ft. will require a rate of approximately 66 lb. per acre.

Refer to the SMALL SOYBEANS—HIGH RANGE chart. For 19 in. rows, a 20-tooth driver and 28-tooth driven sprocket will give you approximately 66 lb. per acre.

Remember that the rates in the chart are based on a uniform seed size sample of approximately 4200 seeds per lb. and should only be used as a starting point for determining the actual planting rate.

The actual rate **MUST** be checked in the field at the desired planting speed. (See CHECKING SEED POPULATION in this section.)

SMALL SOYBEANS—BEANS PER FT.—LB. PER ACRE**APPROXIMATE NUMBER OF LB. PER ACRE FOR EXTRA SMALL SOYBEAN SEEDS**

Seeds per Ft.	30 in. Rows	36 in. Rows	38 in. Rows	40 in. Rows
	Approximately 4200 Seeds per Lb.	Approximately 4200 Seeds per Lb.	Approximately 4200 Seeds per Lb.	Approximately 4200 Seeds per Lb.
5	21	17	16	15
6	25	21	20	18
7	29	24	23	22
8	33	28	26	25
9	37	31	29	28
10	41	35	33	31
11	46	38	36	34
12	50	41	39	38
13	54	45	43	40
14	58	49	46	44
15	62	52	49	46
16	66	55	52	50
17	71	59	56	53
18	75	62	59	56
19	79	66	62	59
20	83	69	66	62

A30239

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102064

To determine the approximate lb. per acre rate for a given number of beans per ft., refer to the chart.

Example:

Suppose you wish to plant an average of approximately 10 beans per ft. on 38 in. rows. Your soybean seed is determined to be about 4200 seeds per lb.

Checking the chart under 38 in. rows, 10 beans per ft. will require a rate of approximately 33 lb. per acre.

Refer to the **SMALL SOYBEANS—HIGH RANGE** chart. For 38 in. rows, a 20-tooth driver and 28-tooth driven sprocket will give you approximately 34 lb. per acre.

Remember that the rates in the chart are based on a uniform seed size sample of approximately 4200 seeds per lb. and should be used only as a starting point for determining the actual planting rate.

The actual rate **MUST** be checked in the field at the desired planting speed. (See **CHECKING SEED POPULATION** in this section.)

Plateless Meter Seed Charts

SOYBEAN FEED CUP EQUIPPED WITH SEED GUIDE A48005 (ACID DELINTED COTTON)

APPROXIMATE LB. PER ACRE OF ACID DELINTED COTTON PLANTED WITH FINGER PICKUP
{Decal No. DB1102} WHEN USING SOYBEAN FEED CUP EQUIPPED WITH SEED GUIDE A48005

NOTE: For information on using planting rate charts, see 'HOW TO USE PLANTING RATE CHARTS'.

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		(Based on 4,500 Seeds Per Lb.) Lb. Per Acre				Recommended Speed Range in mph
		15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	126	108	98	94	3 to 5
35	25	120	104	96	90	3 to 5
35	26	116	100	92	87	3 to 5
35	27	112	96	88	84	3 to 5
35	28	108	94	84	81	3 to 5
29	24	104	90	82	78	3 to 5
29	25	100	86	78	75	3 to 5-1/2
29	26	96	84	76	72	3 to 6
29	27	92	80	72	69	3 to 6
29	28	90	78	70	68	3 to 6
24	24	86	76	68	64	4 to 6-1/2
24	25	82	72	66	62	4 to 7
24	26	80	68	62	60	4 to 7-1/2
24	27	76	66	60	57	4 to 8
24	28	74	64	58	56	4 to 8
20	24	72	62	56	54	4 to 8
20	25	68	60	54	51	4 to 8
20	26	66	58	52	50	4 to 8
20	27	64	54	50	48	4 to 8
20	28	62	54	48	46	4 to 8
16	24	58	50	46	44	4 to 8
16	25	56	48	44	42	4 to 8
16	26	54	46	42	40	4 to 8
16	27	52	44	40	39	4 to 8
16	28	50	42	38	38	4 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		(Based on 4,500 Seeds Per Lb.) Lb. Per Acre				Recommended Speed Range in mph
		15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	46	38	36	34	3 to 5
35	25	46	38	36	34	3 to 5
35	26	44	36	34	33	3 to 5
35	27	42	34	34	32	3 to 5
35	28	40	34	32	30	3 to 5
29	24	40	32	30	30	3 to 5
29	25	38	32	30	28	3 to 5-1/2
29	26	36	30	28	27	3 to 6
29	27	34	28	28	26	3 to 6
29	28	34	28	26	26	3 to 6
24	24	32	26	26	24	4 to 6-1/2
24	25	32	26	24	24	4 to 7
24	26	30	24	24	22	4 to 7-1/2
24	27	28	24	22	21	4 to 8
24	28	28	24	22	21	4 to 8
20	24	26	22	22	20	4 to 8
20	25	26	22	20	20	4 to 8
20	26	24	20	20	18	4 to 8
20	27	24	20	18	18	4 to 8
20	28	24	20	18	18	4 to 8
16	24	22	18	18	16	4 to 8
16	25	20	18	16	15	4 to 8
16	26	20	16	16	15	4 to 8
16	27	20	16	16	15	4 to 8
16	28	18	16	14	14	4 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate. H41792

Plateless Meter Seed Charts

SOYBEAN FEED CUP EQUIPPED WITH SEED GUIDE A40006 (ACID DELINTED COTTON)

APPROXIMATE LB. PER ACRE OF ACID DELINTED COTTON PLANTED WITH FINGER PICKUP
(Decal No. DB1703) WHEN USING SOYBEAN FEED CUP EQUIPPED WITH SEED GUIDE A40006

NOTE: For information on using during the charts, see "HOW TO USE PLANTING RATE CHARTS".

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		(Based on 4,000 seeds per lb.) Lb. Per Acre				Recommended Speed Range in mph
Driver	Driven	30 In. Rows	34 In. Rows	38 In. Rows	42 In. Rows	
15	24	43	34	29	27	3 to 5
15	25	48	32	28	26	3 to 5
15	26	50	30	26	24	3 to 5
15	27	54	28	24	22	3 to 5
15	28	54	27	23	20	3 to 5
20	24	32	28	24	20	3 to 5
20	25	30	26	22	18	3 to 5-1/2
20	26	28	24	20	16	3 to 5
20	27	26	22	18	14	3 to 5
20	28	24	20	16	12	3 to 5
24	24	43	30	24	22	4 to 6-1/2
24	25	41	28	22	21	4 to 7
24	26	40	26	21	18	4 to 7-1/2
24	27	38	24	20	16	4 to 8
24	28	37	22	19	14	4 to 8
20	24	36	21	18	17	4 to 8
20	25	34	20	17	16	4 to 8
20	26	32	19	16	15	4 to 8
20	27	30	18	15	14	4 to 8
20	28	28	17	14	13	4 to 8
16	24	29	25	22	22	4 to 8
16	25	28	24	22	21	4 to 8
16	26	27	23	21	20	4 to 8
16	27	26	22	20	19	4 to 8
16	28	25	21	19	18	4 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		(Based on 4,000 seeds per lb.) Lb. Per Acre				Recommended Speed Range in mph
Driver	Driven	30 In. Rows	34 In. Rows	38 In. Rows	42 In. Rows	
33	24	23	19	16	17	3 to 5
33	25	22	18	15	17	3 to 5
33	26	22	18	17	16	3 to 5
33	27	21	17	17	14	3 to 5
33	28	20	17	16	15	3 to 5
29	24	20	14	15	14	3 to 5
29	25	19	16	15	14	3 to 5-1/2
29	26	18	15	14	14	3 to 5
29	27	17	14	14	13	3 to 5
29	28	17	14	13	13	3 to 5
24	24	14	12	12	12	4 to 6-1/2
24	25	16	12	12	12	4 to 7
24	26	15	12	12	11	4 to 7-1/2
24	27	14	12	11	10	4 to 8
24	28	14	12	11	10	4 to 8
20	24	13	11	11	10	4 to 8
20	25	13	11	10	10	4 to 8
20	26	12	10	10	9	4 to 8
20	27	12	10	9	9	4 to 8
20	28	11	10	9	9	4 to 8
14	24	11	9	9	8	4 to 8
16	24	10	9	9	8	4 to 8
16	25	10	9	9	8	4 to 8
16	26	10	9	9	8	4 to 8
16	27	10	9	9	8	4 to 8
16	28	9	9	7	7	4 to 8

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are getting at desired rate. H41793

PLANTING ACID-DELINTED COTTON WITH SOYBEAN FEED CUP

IMPORTANT: Acid delinted cotton seeds vary in size from about 9000 to 12 000 seeds/kg (4100 to 5400 seeds per lb). Consequently, planting rates can vary widely.

The above chart was developed using uniform cotton seed sized to 10 000 seeds/kg (4500 seeds per lb.). Use the chart as a guide for initial planter settings only.

Large cotton seed will generally result in lower rates than those in the chart. Small cotton seed will give somewhat higher rates than those in the chart.

Actual rates **MUST** be checked in the field at planting speed. See **CHECKING SEED POPULATION** in this section.

Plateless Meter Seed Charts

(Decal No. DB1104)

LOW-RATE SORGHUM FEED CUP (SORGHUM)

APPROXIMATE LB. PER ACRE OF SORGHUM PLANTED WITH FINGER PICKUP WHEN USING SORGHUM FEED CUP

NOTE: For information on using opening rate charts, see TOW TO USE PLANTING RATE CHARTS

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		(Based on 10,000 Seeds Per Pound)				Recommended Speed Range in MPH
Driver	Driven	15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	12.2	10.7	9.4	8.2	2 to 4
35	25	11.4	9.8	8.2	7.7	2 to 4
35	26	11.2	9.4	8.0	7.4	2 to 4
35	27	10.6	9.0	7.4	6.5	2 to 4
35	28	10.4	8.6	8.2	7.0	2 to 4
24	24	10.0	8.4	8.0	7.8	2 to 5
29	28	9.4	8.0	7.6	7.2	2 to 5
29	26	9.4	7.8	7.4	7.0	2 to 5
29	27	9.0	7.4	7.0	6.8	2 to 5
29	28	8.4	7.2	6.8	6.4	2 to 5
24	24	8.4	7.0	6.6	6.3	2 to 6
24	25	8.0	6.6	6.4	6.0	2 to 6
24	26	7.8	6.4	6.0	5.8	2 to 6
24	27	7.4	6.2	5.8	5.6	2 to 6
24	28	7.2	6.0	5.6	5.4	2 to 7
20	24	7.0	5.8	5.4	5.2	2 to 7
20	25	6.4	5.4	5.2	5.0	2 to 7
20	26	6.4	5.4	5.0	4.8	2 to 8
20	27	6.2	5.2	4.8	4.6	2 to 8
20	28	6.0	5.0	4.6	4.5	2 to 8
14	24	5.4	4.6	4.4	4.2	2 to 8
14	25	5.4	4.4	4.2	4.0	2 to 8
14	26	5.2	4.2	4.0	3.9	2 to 8
14	27	5.0	4.2	4.0	3.8	2 to 8
14	28	4.8	4.0	3.8	3.6	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		(Based on 10,000 Seeds Per Pound)				Recommended Speed Range in MPH
Driver	Driven	15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	4.8	3.8	3.6	3.4	2 to 8
35	25	4.4	3.6	3.4	3.2	2 to 8
35	26	4.2	3.6	3.4	3.2	2 to 8
35	27	4.0	3.4	3.2	3.0	2 to 8
35	28	4.0	3.2	3.0	3.0	2 to 8
29	24	3.8	3.2	3.0	2.8	2 to 8
29	25	3.4	3.0	2.8	2.7	2 to 8
29	26	3.4	3.0	2.8	2.6	2 to 8
29	27	3.4	2.8	2.6	2.4	2 to 8
29	28	3.2	2.8	2.6	2.4	2 to 8
24	24	3.2	2.6	2.4	2.4	2 to 8
24	25	3.0	2.6	2.4	2.2	2 to 8
24	26	2.8	2.4	2.2	2.1	2 to 8
24	27	2.8	2.4	2.2	2.1	2 to 8
24	28	2.6	2.2	2.2	2.0	2 to 8
20	24	2.4	2.2	2.0	2.0	2 to 8
20	25	2.4	2.0	2.0	2.0	2 to 8
20	26	2.4	2.0	2.0	1.8	2 to 8
20	27	2.4	2.0	1.8	1.8	2 to 8
20	28	2.2	2.0	1.8	1.4	2 to 8
16	24	2.0	2.0	1.8	1.5	2 to 8
16	25	2.0	1.4	1.4	1.5	2 to 8
16	26	2.0	1.4	1.4	1.5	2 to 8
16	27	1.8	1.6	1.4	1.4	2 to 8
16	28	1.8	1.4	1.4	1.4	2 to 8

IMPORTANT: To prevent planting misadjustments, make field checks to be sure you are planting at desired rate. M41794

Plateless Meter Seed Charts

(Decal No. DB1105)

LOW-RATE SORGHUM FEED CUP (SORGHUM)

APPROXIMATE LB. PER ACRE OF SORGHUM PLANTED WITH FINGER PICKUP WHEN USING SORGHUM FEED CUP

NOTE: For information on using planting rate charts, see "HOW TO USE PLANTING RATE CHARTS"

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		(Based on 18,000 Seeds Per Pound) Lb. Per Acre				Recommended Speed Range in MPH
Driver	Driven	30 In. Rows	36 In. Rows	38 In. Rows	48 In. Rows	
35	24	6.1	5.1	4.8	4.6	2 to 4
38	25	5.8	4.9	4.6	4.4	2 to 4
35	26	5.4	4.7	4.4	4.2	2 to 4
38	27	5.4	4.5	4.3	4.1	2 to 4
35	28	5.2	4.3	4.1	3.9	2 to 4
29	24	5.0	4.2	4.0	3.8	2 to 5
28	25	4.8	4.0	3.8	3.6	2 to 5
29	26	4.7	3.9	3.7	3.5	2 to 5
29	27	4.5	3.7	3.5	3.4	2 to 5
29	28	4.3	3.6	3.4	3.2	2 to 5
24	24	4.2	3.3	3.2	3.2	2 to 6
24	25	4.0	3.3	3.2	3.0	2 to 6
24	26	3.9	3.2	3.0	2.9	2 to 6
24	27	3.7	3.1	2.9	2.8	2 to 6
24	28	3.6	3.0	2.8	2.7	2 to 7
20	24	3.5	2.9	2.7	2.6	2 to 7
20	25	3.3	2.8	2.6	2.5	2 to 7
20	26	3.2	2.7	2.5	2.4	2 to 8
20	27	3.1	2.6	2.4	2.3	2 to 8
20	28	3.0	2.5	2.4	2.2	2 to 8
14	24	2.8	2.3	2.2	2.1	2 to 8
14	25	2.7	2.2	2.1	2.0	2 to 8
14	26	2.6	2.1	2.0	2.0	2 to 8
14	27	2.5	2.1	2.0	1.9	2 to 8
14	28	2.4	2.0	1.9	1.8	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		(Based on 18,000 Seeds Per Pound) Lb. Per Acre				Recommended Speed Range in MPH
Driver	Driven	30 In. Rows	36 In. Rows	38 In. Rows	48 In. Rows	
35	24	2.3	1.9	1.8	1.7	2 to 8
38	25	2.2	1.8	1.7	1.6	2 to 8
35	26	2.1	1.8	1.7	1.6	2 to 8
38	27	2.0	1.7	1.6	1.5	2 to 8
35	28	2.0	1.6	1.5	1.5	2 to 8
29	24	1.9	1.6	1.5	1.4	2 to 8
29	25	1.8	1.5	1.4	1.4	2 to 8
29	26	1.7	1.5	1.4	1.3	2 to 8
29	27	1.7	1.4	1.3	1.3	2 to 8
29	28	1.6	1.4	1.3	1.2	2 to 8
24	24	1.6	1.3	1.3	1.3	2 to 8
24	25	1.5	1.3	1.2	1.2	2 to 8
24	26	1.4	1.2	1.1	1.1	2 to 8
24	27	1.4	1.2	1.1	1.1	2 to 8
24	28	1.3	1.1	1.1	1.0	2 to 8
20	24	1.3	1.1	1.0	1.0	2 to 8
20	25	1.2	1.0	1.0	1.0	2 to 8
20	26	1.2	1.0	1.0	.9	2 to 8
20	27	1.2	1.0	.9	.9	2 to 8
20	28	1.1	.9	.9	.8	2 to 8
16	24	1.0	.9	.8	.8	2 to 8
16	25	1.0	.8	.8	.8	2 to 8
16	26	1.0	.8	.8	.8	2 to 8
16	27	.9	.8	.7	.7	2 to 8
16	28	.9	.7	.7	.7	2 to 8

IMPORTANT: To prevent planting inaccuracies, make sure streaks to be sure you are planting at desired rate. H41793

Plateless Meter Seed Charts

{Decal No. DB1105}

REGULAR-RATE SORGHUM FEED CUP (SORGHUM)

APPROXIMATE LB. PER ACRE OF SORGHUM PLANTED WITH FINGER PICKUP WHEN USING SORGHUM FEED CUP

NOTE For information on using planting rate charts, see HOW TO USE PLANTING RATE CHARTS*

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		(Based on 15,000 Seeds Per Pound)				Recommended Speed Range in MPH
Driver	Driven	15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	45.0	54.2	61.2	68.8	2 to 4
35	18	42.4	52.0	59.2	66.8	2 to 4
35	26	60.8	70.0	77.4	85.0	2 to 4
35	27	57.8	68.2	75.6	83.4	2 to 4
35	28	55.6	66.4	74.0	81.7	2 to 4
29	24	33.8	40.8	45.4	50.4	2 to 5
29	25	31.6	38.0	42.0	46.7	2 to 5
29	26	49.4	58.4	65.2	72.3	2 to 5
29	27	47.8	56.8	63.0	69.8	2 to 5
29	28	46.2	55.4	61.4	68.4	2 to 5
24	24	44.3	52.2	58.2	65.2	2 to 6
24	25	42.8	50.4	55.8	62.1	2 to 6
24	26	61.2	71.2	78.4	86.9	2 to 6
24	27	59.6	69.0	75.2	83.7	2 to 6
24	28	58.2	67.8	74.2	82.6	2 to 7
20	24	37.2	44.8	49.4	54.9	2 to 7
20	25	35.6	43.0	47.2	52.7	2 to 7
20	26	54.2	63.4	70.0	78.4	2 to 8
20	27	53.0	62.6	69.0	76.8	2 to 8
20	28	51.8	61.4	67.2	75.6	2 to 8
16	24	29.8	36.0	39.4	43.4	2 to 8
16	25	28.6	34.8	37.8	41.4	2 to 8
16	26	47.4	56.8	62.4	70.4	2 to 8
16	27	46.4	55.8	60.8	69.8	2 to 8
16	28	45.4	54.2	59.0	68.0	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth)		(Based on 15,000 Seeds Per Pound)				Recommended Speed Range in MPH
Driver	Driven	15 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	
35	24	24.4	29.4	33.2	38.2	2 to 8
35	25	23.4	28.4	32.4	37.4	2 to 8
35	26	35.4	42.0	47.0	53.8	2 to 8
35	27	34.4	41.0	46.0	52.7	2 to 8
35	28	33.8	40.4	45.4	51.4	2 to 8
29	24	16.2	19.4	21.4	24.7	2 to 8
29	25	15.4	18.2	20.2	23.6	2 to 8
29	26	23.4	28.4	31.4	36.0	2 to 8
29	27	22.8	27.8	30.8	35.2	2 to 8
29	28	22.2	27.2	30.2	34.6	2 to 8
24	24	16.8	19.8	21.8	25.6	2 to 8
24	25	16.0	19.0	21.0	24.8	2 to 8
24	26	24.4	29.4	32.4	37.4	2 to 8
24	27	23.8	28.8	31.8	36.6	2 to 8
24	28	23.2	28.2	31.2	36.0	2 to 8
20	24	11.0	13.4	14.8	17.2	2 to 8
20	25	10.4	12.8	14.2	16.6	2 to 8
20	26	15.4	18.8	20.8	24.0	2 to 8
20	27	14.8	18.2	20.2	23.4	2 to 8
20	28	14.2	17.6	19.6	22.8	2 to 8
16	24	7.2	8.8	9.8	11.4	2 to 8
16	25	6.8	8.4	9.4	11.0	2 to 8
16	26	10.2	12.4	13.8	16.0	2 to 8
16	27	10.0	12.2	13.6	15.8	2 to 8
16	28	9.8	12.0	13.4	15.6	2 to 8

IMPORTANT: To prevent planting miscalculations, make seed checks to be sure you are planting at desired rate H41798

Plateless Meter Seed Charts

(Decal No. DB1107)

REGULAR-RATE SORGHUM FEED CUP (SORGHUM)

APPROXIMATE LB. PER ACRE OF SORGHUM PLANTED WITH FINGER PICKUP WHEN USING SORGHUM FEED CUP

NOTE: For information on using planting rate charts see "HOW TO USE PLANTING RATE CHARTS"

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		(Based on 15,000 Seeds Per Pound) Lb. Per Acre				Recommended Speed Range in mph
		20 In. Rows	24 In. Rows	30 In. Rows	40 In. Rows	
35	24	45.4	54.2	61.2	48.4	2 to 4
35	25	42.4	52.0	59.2	46.8	2 to 4
35	26	40.0	50.0	47.4	46.0	2 to 4
35	27	37.8	48.2	45.8	43.4	2 to 4
35	28	35.8	46.4	44.8	42.7	2 to 4
29	24	53.8	44.8	42.4	40.4	2 to 5
29	25	51.6	42.0	40.8	38.7	2 to 5
29	26	49.6	41.4	38.2	37.2	2 to 5
29	27	47.8	39.8	37.8	35.8	2 to 5
29	28	46.2	38.4	36.4	34.8	2 to 5
24	24	44.2	37.2	35.2	33.2	2 to 6
24	25	42.8	35.6	33.8	32.2	2 to 6
24	26	41.2	34.2	32.4	30.9	2 to 6
24	27	39.4	33.8	31.2	29.7	2 to 6
24	28	38.2	31.8	30.2	28.6	2 to 7
20	28	37.2	31.8	29.4	27.9	2 to 7
20	25	35.4	29.8	28.2	26.7	2 to 7
20	26	34.2	28.6	27.8	25.4	2 to 8
20	27	33.0	27.6	26.0	24.8	2 to 8
20	28	31.8	26.6	25.2	23.8	2 to 8
16	24	29.8	24.8	23.4	22.4	2 to 8
16	25	28.4	23.8	22.6	21.4	2 to 8
16	26	27.4	22.8	21.6	20.4	2 to 8
16	27	26.4	22.0	20.8	19.8	2 to 9
16	28	25.4	21.2	20.0	18.8	2 to 9

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver Driven		(Based on 15,000 Seeds Per Pound) Lb. Per Acre				Recommended Speed Range in mph
		30 In. Rows	24 In. Rows	20 In. Rows	40 In. Rows	
35	24	12.2	10.2	9.4	9.3	2 to 8
35	25	11.7	9.7	9.2	8.9	2 to 8
35	26	11.2	9.4	8.9	8.4	2 to 8
35	27	10.8	9.0	8.5	8.1	2 to 8
35	28	10.4	8.7	8.3	7.8	2 to 8
29	24	14.1	8.4	8.0	7.4	2 to 8
29	25	13.7	8.1	7.8	7.1	2 to 8
29	26	13.3	7.8	7.4	6.8	2 to 8
29	27	13.0	7.5	7.1	6.6	2 to 8
29	28	12.7	7.2	6.8	6.5	2 to 8
24	24	8.4	7.0	6.4	6.3	2 to 8
24	25	8.0	6.7	6.3	6.0	2 to 8
24	26	7.7	6.4	6.1	5.8	2 to 8
24	27	7.4	6.2	5.9	5.6	2 to 8
24	28	7.2	6.0	5.7	5.4	2 to 8
20	24	7.0	6.8	6.5	6.2	2 to 8
20	25	6.7	6.6	6.3	6.0	2 to 8
20	26	6.4	6.4	6.1	5.8	2 to 8
20	27	6.2	6.2	5.9	5.6	2 to 8
20	28	6.0	6.0	5.7	5.5	2 to 8
16	24	5.6	4.6	4.4	4.2	2 to 8
16	25	5.2	4.3	4.2	4.0	2 to 8
16	26	5.2	4.2	4.1	3.8	2 to 8
16	27	5.0	4.1	3.9	3.8	2 to 8
16	28	4.8	4.0	3.8	3.6	2 to 8

IMPORTANT: To prevent planting miscalculations, make final checks to be sure you are planting at desired rate. H41797

Plateless Meter Seed Charts

{Decal No. DB1108} EDIBLE BEAN FEED CUP (EDIBLE BEANS OR LARGE SOYBEANS)

APPROXIMATE LB. PER ACRE OF EDIBLE BEANS OR LARGE SOYBEANS PLANTED WITH FINGER PICKUP WHEN USING EDIBLE BEAN FEED CUP

NOTE: For information on using planting rate charts, see "HOW TO USE PLANTING RATE CHARTS"

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver		Lb. of Medium Beans Per Acre				Lb. of Large Beans Per Acre				Recommended Speed Range (in mph)
Driven		15 In. Rows	16 In. Rows	17 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	21 In. Rows		
15	24	700	690	550	511	540	470	421	411	2 to 4
15	25	440	360	510	310	520	430	410	190	2 to 4
19	26	690	540	370	491	300	421	400	340	2 to 4
19	27	430	520	490	470	400	401	300	340	2 to 4
15	28	600	500	470	450	470	191	390	390	2 to 4
29	24	580	400	402	410	400	170	350	141	2 to 5
29	25	360	470	440	412	430	300	340	327	2 to 5
29	26	141	452	410	407	410	150	300	110	2 to 5
29	27	322	430	412	392	400	330	310	303	2 to 5
29	28	502	410	390	377	300	320	300	291	2 to 5
24	24	400	400	300	345	370	312	290	202	2 to 6
24	26	440	300	300	310	300	300	301	170	2 to 6
24	26	440	370	350	310	340	200	271	240	2 to 6
24	27	432	340	340	320	350	270	260	251	2 to 6
24	28	410	340	320	312	321	290	250	242	2 to 7
20	24	400	330	320	303	312	240	240	230	2 to 7
20	25	300	320	300	291	300	250	230	220	2 to 7
20	26	370	312	290	201	200	240	220	210	2 to 8
20	27	340	300	200	170	270	232	220	200	2 to 8
20	28	340	280	270	260	260	230	210	201	2 to 8
16	24	370	270	250	251	260	200	190	180	2 to 8
16	25	110	280	240	232	240	200	180	180	2 to 8
16	26	270	240	210	210	232	191	180	171	2 to 8
16	27	200	240	210	210	232	180	170	167	2 to 8
16	28	270	232	210	200	231	170	170	161	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver		Lb. of Medium Beans Per Acre				Lb. of Large Beans Per Acre				Recommended Speed Range (in mph)
Driven		15 In. Rows	16 In. Rows	17 In. Rows	18 In. Rows	19 In. Rows	20 In. Rows	21 In. Rows		
15	24	240	322	210	240	100	170	141	150	2 to 4
15	25	250	212	202	191	190	160	180	140	2 to 4
15	26	240	200	190	180	190	150	180	137	2 to 4
15	27	230	190	180	177	182	150	180	137	2 to 4
15	28	220	180	180	171	170	140	150	137	2 to 4
29	24	250	100	170	165	170	140	130	120	2 to 5
29	25	232	170	160	159	160	130	120	120	2 to 5
29	26	202	170	160	152	150	130	121	110	2 to 5
29	27	190	162	150	147	152	120	120	110	2 to 5
29	28	190	150	140	141	140	122	110	110	2 to 5
24	24	192	150	140	137	140	110	112	105	2 to 6
24	25	170	140	130	131	130	112	101	102	2 to 6
24	26	160	140	132	120	130	100	101	90	2 to 6
24	27	152	130	120	117	120	100	90	90	2 to 6
24	28	150	130	120	117	120	100	90	90	2 to 7
20	24	152	130	120	110	110	90	91	89	2 to 7
20	25	140	122	110	110	112	90	80	80	2 to 7
20	26	140	110	111	100	100	90	80	81	2 to 8
20	27	130	112	100	101	100	81	82	70	2 to 8
20	28	130	100	102	90	100	81	80	75	2 to 8
16	24	122	100	90	90	90	70	70	71	2 to 8
16	25	120	90	92	87	90	70	72	60	2 to 8
16	26	112	90	80	80	80	70	60	60	2 to 8
16	27	100	80	80	81	80	70	60	61	2 to 8
16	28	100	80	82	70	80	60	60	60	2 to 8

* Medium beans include kidney beans at approximately 100 seeds/lb. and beans at approximately 100 seeds/lb. and beans at approximately 140 seeds/lb. of other beans of similar size and shape

** Large beans include varieties which run approximately 600 seeds per lb. such as lima beans

IMPORTANT: To prevent planting miscalculations, make sure charts to be sure you are planting at method use.

N41798

Flatless Meter Seed Charts

{Decal No. DB1109} EDIBLE BEAN FEED CUP (EDIBLE BEANS OR LARGE SOYBEANS)

APPROXIMATE LB. PER ACRE OF EDIBLE BEANS OR LARGE SOYBEANS PLANTED WITH FINGER PICKUP WHEN USING EDIBLE BEAN FEED CUP

NOTE For information on using planting rate charts, see "HOW TO USE PLANTING RATE CHARTS"

HIGH RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver - Driven		Lb. of Medium Beans* Per Acre				Lb. of Large Beans** Per Acre				Recommended Speed Range in MPH
		10 In. Rows	16 In. Rows	20 In. Rows	40 In. Rows	20 In. Rows	16 In. Rows	20 In. Rows	40 In. Rows	
35	24	384	299	279	266	274	228	216	206	2 to 4
35	25	348	280	268	255	261	219	208	197	2 to 4
35	26	327	272	256	245	253	211	200	190	2 to 4
35	27	315	262	248	234	243	203	192	182	2 to 4
35	28	301	253	239	227	235	194	185	176	2 to 4
29	24	289	204	231	220	227	189	179	170	2 to 5
29	25	281	209	232	211	218	182	172	164	2 to 5
29	26	273	204	214	203	209	175	165	157	2 to 5
29	27	261	217	206	194	202	168	159	152	2 to 5
29	28	251	209	198	188	194	162	154	146	2 to 5
24	24	243	202	192	182	188	156	148	141	2 to 4
24	25	235	194	181	175	180	150	142	135	2 to 4
24	26	234	187	177	168	173	144	137	130	2 to 4
24	27	218	188	170	161	167	138	132	125	2 to 4
24	28	208	171	164	155	161	134	127	121	2 to 4
20	24	202	149	140	132	134	110	104	100	2 to 7
20	25	194	142	133	124	126	102	97	93	2 to 7
20	26	187	134	127	118	120	96	91	87	2 to 7
20	27	180	130	122	113	115	92	87	83	2 to 7
20	28	173	122	115	106	108	88	83	79	2 to 7
16	24	152	135	128	122	125	104	99	94	2 to 8
16	25	154	128	123	114	116	98	93	89	2 to 8
16	26	148	124	118	112	114	94	89	85	2 to 8
16	27	144	120	114	108	111	90	85	81	2 to 8
16	28	138	116	109	104	107	86	81	77	2 to 8

LOW RANGE INPUT SPROCKET

Sprocket Combinations (Number of Teeth) Driver - Driven		Lb. of Medium Beans* Per Acre				Lb. of Large Beans** Per Acre				Recommended Speed Range in MPH
		10 In. Rows	16 In. Rows	20 In. Rows	40 In. Rows	20 In. Rows	16 In. Rows	20 In. Rows	40 In. Rows	
35	24	193	131	105	100	103	84	81	77	2 to 4
35	25	187	126	101	95	99	82	78	74	2 to 4
35	26	182	122	97	92	95	79	75	71	2 to 4
35	27	178	118	93	89	91	74	73	68	2 to 4
35	28	174	114	90	84	88	73	69	66	2 to 4
29	24	110	92	87	81	83	71	67	64	2 to 5
29	25	106	88	83	77	80	68	64	62	2 to 5
29	26	102	85	80	74	77	65	62	59	2 to 5
29	27	98	81	77	71	74	63	60	57	2 to 5
29	28	94	79	74	70	72	61	58	55	2 to 5
24	24	91	74	72	68	70	58	54	52	2 to 4
24	25	87	72	69	65	68	56	53	51	2 to 4
24	26	84	70	66	63	65	54	51	49	2 to 4
24	27	81	67	64	61	63	52	49	47	2 to 4
24	28	78	65	62	58	60	50	48	45	2 to 4
20	24	74	63	60	57	59	49	46	44	2 to 7
20	25	71	61	57	54	56	47	44	42	2 to 7
20	26	70	58	55	52	54	45	43	40	2 to 6
20	27	67	55	52	50	52	43	41	39	2 to 6
20	28	65	54	51	48	50	42	40	38	2 to 6
16	24	61	51	48	44	47	39	37	34	2 to 8
16	25	58	49	46	44	45	38	36	34	2 to 8
16	26	56	47	44	42	43	36	34	32	2 to 8
16	27	54	45	43	41	42	35	33	32	2 to 8
16	28	52	43	41	39	40	34	32	30	2 to 8

* Medium beans include kidney beans at approximately 1000 seeds/lb., pink beans at approximately 1000 seeds/lb., pink beans at approximately 1400 seeds/lb., or other beans of similar size and shape

** Large beans include varieties which are approximately 400 seeds per lb., such as lima beans

IMPORTANT: To prevent planting miscalculations, make field checks to be sure you are planting at desired rate.

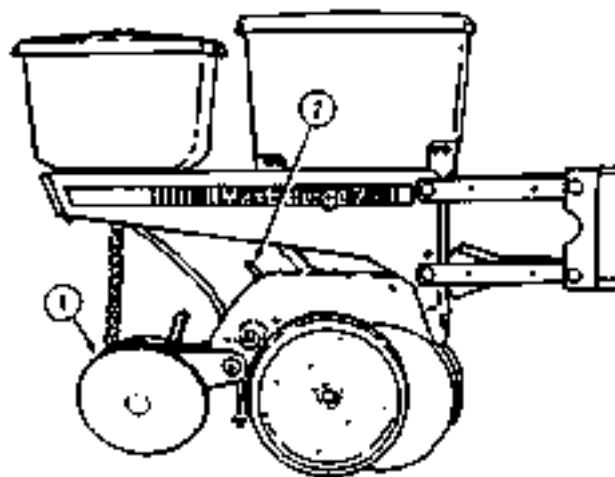
H41799

62210W AX -10 81MAY90

Checking Seed Population

CHECKING SEED POPULATION

1. Chain up one or more sets of closing wheels so they will allow the seed trench to remain open.
2. Set the depth adjusting handle two settings from the minimum setting as shown.
3. Plant a short distance and check to see if seeds are visible in the trench. Readjust depth adjusting handle if necessary.
4. Plant approximately 90 m (100 yd).



H41000

B22.POM.4L -19-22JUN90

LENGTH OF ROW IN FT.

Fraction of Acre	Row Width								
	15"	18"	19"	20"	22"	30"	36"	38"	40"
1/100	348	240	276	261	238	114	145	139	131
1/200	174	145	138	131	119	87	72-1/2	69	66

A32803

LENGTH OF ROW IN M

Fraction of Hectare	Row Width								
	38 cm	46 cm	49 cm	51 cm	56 cm	76 cm	91 cm	97 cm	102 cm
1/1000	26.24	21.68	20.72	19.68	17.90	13.12	10.94	10.36	9.84

A32804

5. Consult charts and determine what distance equals 1/1000 of a hectare, 1/100 of an acre, or 1/200 of an acre as it relates to the row width you are planting.

B22.POM.4L -19-22JUN90

Checking Seed Population

6. Mark distance selected with flags.
 7. Count the seeds between flags.
 8. If you marked off 1/100 of an acre, multiply the number of seeds counted by 100.
- If you marked off 1/200 of an acre, multiply the number of seeds counted by 200.

NOTE: When planting at a shallow depth with the closing wheels raised, seeds may tend to roll or bounce. This will affect seed spacing accuracy.



822-7044-02 12-28-UM60

If in-field checks indicate that the planter is planting at a rate significantly different than the seed transmission rate chart indicates, investigate the following in the order listed:

- Ensure that ALL transmission sprockets are set according to the rate chart.
- Excessive unit bounce can cause low population and reduced spacing control. Reduce excessive unit bounce by increasing unit down force, or drive slower.
- Ensure that the planter drive wheel slippage is close to normal. Variations in drive wheel slippage can be caused by crop residue, tire inflation pressure, soil conditions and unit down force. The amount of tire slippage can be checked by measuring the rolling circumference of the drive tire as follows:

Attach a marker, such as a chain or rubber strap, to the tire. Measure the distance between the marks left by the tire when operating at planting speed. The

average of five measurements should be within the following ranges:

Drive Tire Size	Rolling Circumference	Tire Inflation Pressure
7.60-15	93 - 99 in	52 psi

If your average measured rolling circumference does not fall within these ranges and the tire pressure is adjusted correctly, the seed transmission can be adjusted to compensate for the slippage. Use a transmission setting that results in the desired population.

FOR CORN SEED PLANTING ONLY (VACUUM METER)

- If all other settings are correct and if the population is too high, the vacuum level can be reduced in one inch increments until the correct population is achieved. If the actual population is too low, the vacuum level can be increased in one inch increments until the correct population is achieved.

822-7044-02 12-28-UM60

DRIVE WHEEL SLIPPAGE

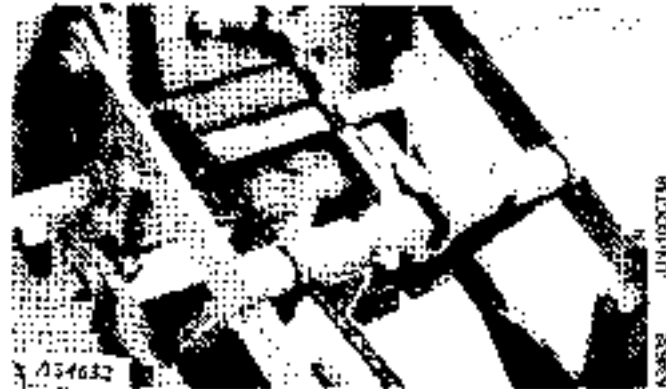
Another item that may cause the actual rates of seed or fertilizer to differ from the delivery rates shown in the operator's manual is the amount of drive wheel slippage.

While a certain amount of wheel slippage is normal, excessive drive wheel slippage may cause undesirable changes in the actual rates.

The rates shown in the operator's manual are based on approximately 15 per cent drive wheel slippage. Excessive drive wheel slippage may be caused by binding or poorly lubricated parts, misaligned bearings or caked material in the pesticide or fertilizer hoppers.

In addition, down pressure springs, coulters, tine tooth attachments, or any other attachment that removed frame weight from the drive wheels, may contribute to drive wheel slippage and lower than expected rates.

The effective circumference of the drive wheels is 96 inches. This means the drive wheels make one revolution for approximately each 96 inches of forward travel.



820.SOW.B -11-18MAY96

Checking Seed Population

The amount of excessive drive wheel slippage can be determined by marking a length of field that would normally represent 30 drive wheel revolutions. This would be:

$$30 \times 96 \text{ in.} = 2880 \text{ in. or } 240 \text{ ft.}$$

Next, mark the drive wheel by attaching rubber hold down strap, reflective tape or duct tape. This will make the wheel revolutions easier to count.

With all rows planting under normal field conditions, have the customer drive through the 240 ft. course at normal planting speed while you count the drive wheel revolutions.

Subtract the number of revolutions observed over the 240 ft. length from 30. Then divide this difference by 30. For example, if 28 wheel revolutions are observed, then:

$$30 - 28 = 2 \quad 2 \div 30 = .066,$$

or 6.6 per cent excessive drive wheel slippage. This excessive slippage will cause a 6.6 per cent lower than expected seeding rate.



AGRES - 1 MINIFCT18

622-5066L - 12-1984/V39

General Attachments

WHEEL CHAIN TRASH DEFLECTOR

The wheel chain trash deflector protects the chain and spring loaded idlers from damage caused by trash, stones and clods.

For assembly instructions, see Attachment Assembly section in your John Deere dealer's Predelivery Instruction.



A33509

321 *AT.06 10-20-01/02

10-1800188

DRIVE WHEEL ROCK GUARD

The drive wheel rock guard reduces possibility of larger rocks and clods from wedging between Tru-Vee Gauge Wheel and carrying wheels and flipping onto the chain and idler.

For assembly instructions, see Attachment Assembly section in your John Deere dealer's Predelivery Instruction.



A33510

321 *AT.02 10-20-01/00

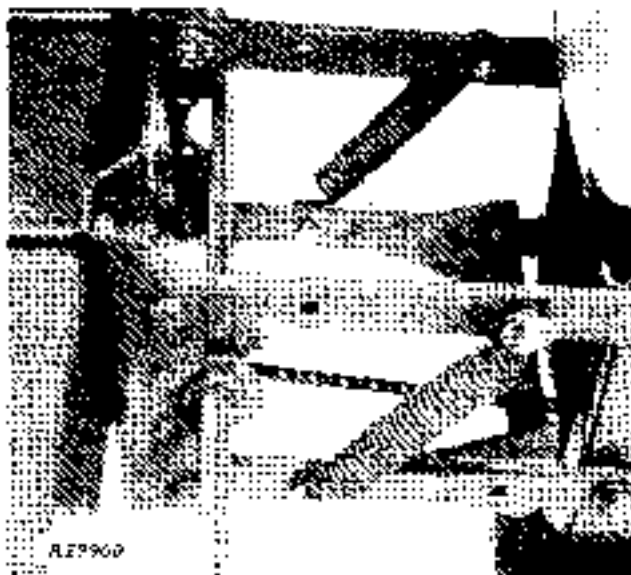
10-1800188

UNIT DOWN FORCE SPRINGS

The unit down force springs transfer weight from the main frame to planting unit to increase opener penetration and help to minimize bounce in rough soil surface conditions.

The springs are non-adjustable with 400 N (90 lbs.) of down force when the parallel arms are in the horizontal position. Two sets per row may be used for 800 N (180 lbs.) of down force.

See Attachment Assembly section in the Predelivery Instructions for assembly instructions.



A33900

321 *AT.05 10-20-01/00

10-1800188

HEAVY-DUTY DOWN FORCE SPRINGS

The heavy duty adjustable down force spring system is recommended when planting in rough field conditions and when the soil or soil residue is difficult to penetrate. The spring system will transfer main frame weight to the planting unit to minimize bounce and to assist the opener to penetrate heavy soil conditions. The amount of force transfer is adjustable from 0 to 1335 N (0 to 300 lbs.) of down force. Never use more down force than is necessary to prevent excessive drive wheel slip.

To adjust the down force springs, proceed as follows:

Raise the planter.

Lift the spring support (A) off the strap (B).

Place the spring support in front slot (A) for MINIMUM down force.

Place the spring support in the rear slot (B) for MAXIMUM down force.

See Attachment Assembly section in the Predelivery Instructions for assembly instructions.



UNIT MOUNTED COULTER

The unit mounted coulters can be used to assist the Tru-Vee opener to penetrate in tough soil conditions and to cut or displace residue commonly found in reduced tillage conditions.

This penetration depth of the coulters blade is controlled by the opener gauge wheels and weight adjustment.

Planting unit down force springs are recommended with this attachment.

IMPORTANT: The bottom edge of the coulters blade should be approximately 10 mm (3/8 in.) above the bottom edge of the seed openers. (Check this dimension with planter in planting position on any level surface.) This dimension will minimize the force required for penetration and help maintain a constant seed depth. In heavy straw, penetration and cutting action may be improved by running the bottom edge of the coulters blade slightly below the bottom edge of the seed openers.

As blade wears occurs, loosen nut (A) and lower arm to the next notch and tighten nut.

NOTE: Do not operate coulters deeper than the seed opener when soil penetration is the limiting factor.



General Attachments

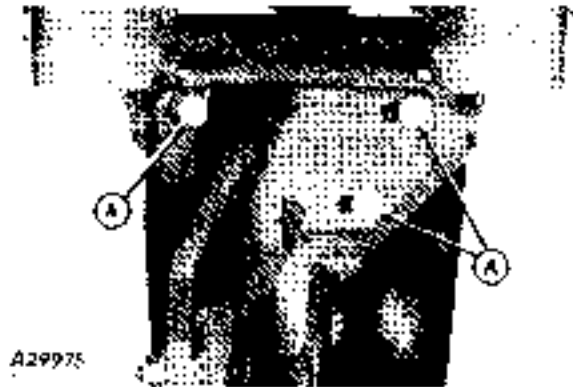
The couller blade should be adjusted to align with the Tru-Vee opener.

Adjust the couller blade so it is directly in front of the Tru-Vee opener and is not running at an angle to the direction of travel.

To align side-to-side, loosen bolts (A) and slide couller.

If couller blade is running at an angle relative to direction of travel, remove bolts (A) and add washers as required between back surface of couller casting and front of planting unit.

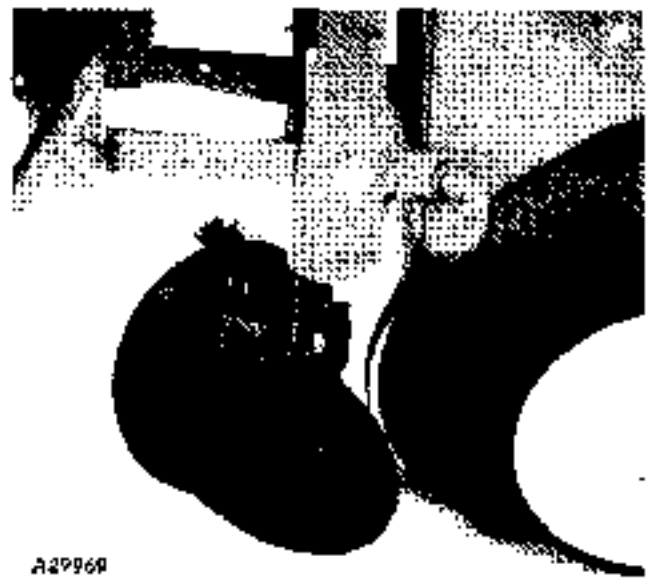
See Attachment Assembly section in the Predelivery Instructions for assembly instructions.



B21.747.Bv -#0-28.JUN90

CONSERVATION FURROWERS

The furrower can be equipped with smooth or cut-out edges. The smooth edged blades are recommended in dry soil or clod conditions. The cut-out blades are recommended in reduced tillage conditions with surface residue.

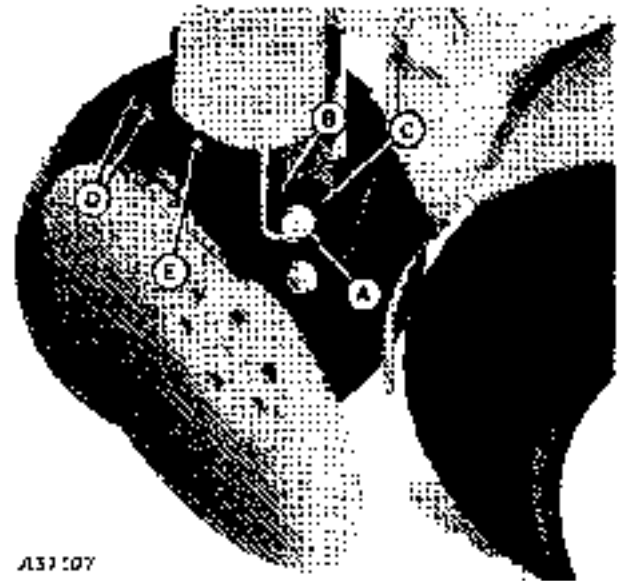


B2.7AT.CO -19-25.JUN90

General Attachments

Adjust scrapers with cap screws (D) and (E) so they lightly contact the furrower blades.

Blade pitch affects lateral displacement, width of area cleared and soil profile. To obtain a sharper V-shaped soil profile, install cap screw (A) in hole (B). To obtain a flatter soil profile, place cap screw in hole (C).



A31507

6217AT,CD 19-28JUN80

Height affects width and depth of area cleared. To adjust the height of the furrower blades, raise and turn the adjustment knob on the tillage support bracket.

The tillage support bracket has a scale and pointer to help you adjust all the furrowers evenly.

For most conditions, adjust furrower to lightly contact soil surface when planting unit is in the planting position.

When adjustment is complete, back handle up and push down to lock in position.

See Attachment Assembly section in the Pre-delivery Instructions for assembly instructions.



A29971

6217AT,CD 19-28JUN80

TINE-TOOTH TILLAGE ATTACHMENT

The Tine-Tooth Tillage Attachment is recommended for soil conditions with light clods or to break light crust. It smooths an area ahead of the unit and breaks up and moves clods out of the path of the seed opener. It is not recommended for trashy soil conditions or heavy tillage.



A29972

B21 JAT/CE 19-28JUN90

To adjust the height of the tine-teeth, raise and turn the adjustment knob on the tillage support bracket. The tillage support bracket has a scale and pointer to help you adjust the line teeth evenly.

Adjust the teeth to lightly contact soil surface when planting unit is in the planting position.

When adjustment is complete, back handle up and push down to lock in position.

See Attachment Assembly section in the Pre-delivery Instructions for assembly instructions.



A29971

B21 JAT/CE 19-28JUN90

HEAVY-DUTY CLOSING WHEELS

In hard to penetrate soils or seed beds with considerable residue, it may be difficult to completely close the seed furrow with the regular closing wheels. Heavy-duty closing wheels are made of heavy cast material and have an aggressive edge to more effectively close the seed furrow in more severe soil conditions.

NOTE: The heavy-duty closing wheels are not recommended for conventional planting conditions.

Adjustable spring force permits proper closing of the seed trench by firming soil on each side of the seed, not directly over the seed. The closing wheel down force can be adjusted by placing the handle in slots (C), (D), (E) or (F) for varying soil conditions. Placing the handle in the middle slot (G) will allow the closing wheels to FLOAT with only the weight of the closing wheel system on the soil surface. Closing wheel down force increases as the handle is moved rearward.

If closing wheels are not centered over the seed trench or furrow, proceed as follows:

Raise the planter.

Loosen cap screw (A). Turn adjusting cam (B) clockwise to move the closing wheels to the right or counterclockwise to move the closing wheels to the left. Visually center as required.

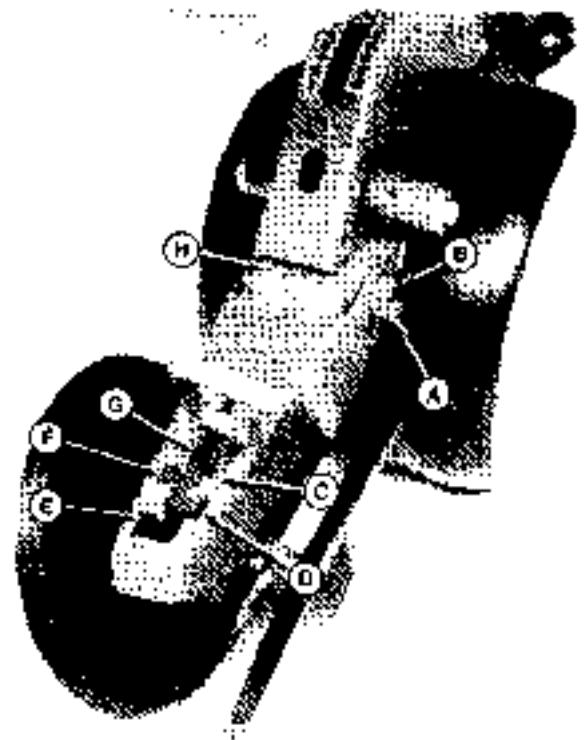
NOTE: After centering closing wheels, make sure top front edge of closing wheel frame (H) contacts top of casting all the way across top surface so both wheels contact soil at the same time and apply same amount of force.

The casting is slotted so cam (B) and bolt (A) can slide vertically.

If closing wheel frame does NOT contact top of casting properly, slide adjusting cam and bolt up or down until contact is made.

Tighten screws.

See Attachment Assembly section in the Predelivery Instructions for assembly instructions.



A29973

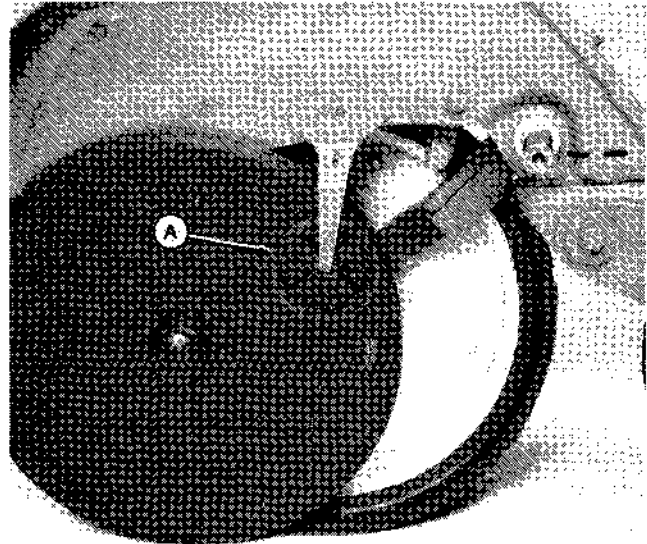
ROTARY SCRAPER

The spring-loaded rotary scraper (A) is recommended for moist, sticky soils to assist the depth gauging wheels in keeping the Tru-Vee opener blades clean.

NOTE: The scraper is not recommended in dry abrasive soil conditions.

At the start of the season and periodically during the season, inspect the scraper insert for wear.

See Attachment Assembly section in the Predelivery Instructions for assembly instructions.



A29974

Gauge Wheel Removed for Clarity

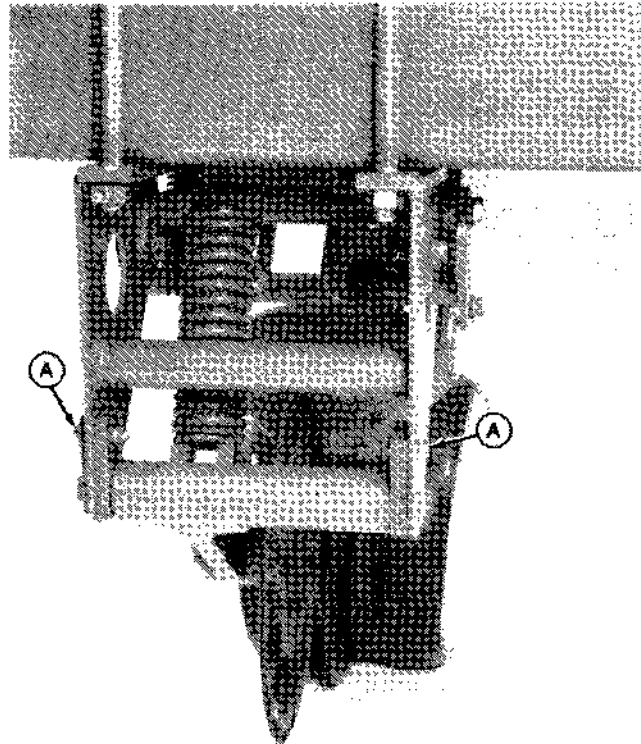
B21,7AT,CH -19-28JUN90

A29974 -UN-12OCT88

FRAME MOUNTED COULTER

The frame mounted coulters can be used to assist the Tru-Vee opener in penetrating tough soil conditions and to cut or displace residue commonly found in severe "double-cropping" or light to moderate "no-till" planting conditions. The frame mounted coulters are not compatible with rocky field conditions.

The frame mounted coulters blade should be directly in front of the seed opener. To adjust the coulters blade laterally, remove cap screws (A), add or remove spacers to either side as required. Secure spacers with cap screws.



A29963

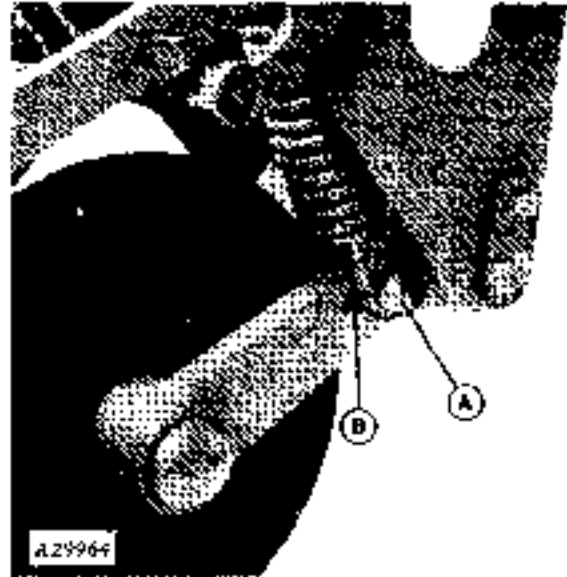
B21,7AT,BW -19-28JUN90

A29963 -UN-06OCT88

General Attachments

In light field conditions, use the lightest setting to avoid over penetration and disturbing the seed bed in lighter soils.

In heavier field conditions found in severe "double-cropping" or light to moderate "no-till" install pin (A) in down force setting (B) for increased penetrating force.



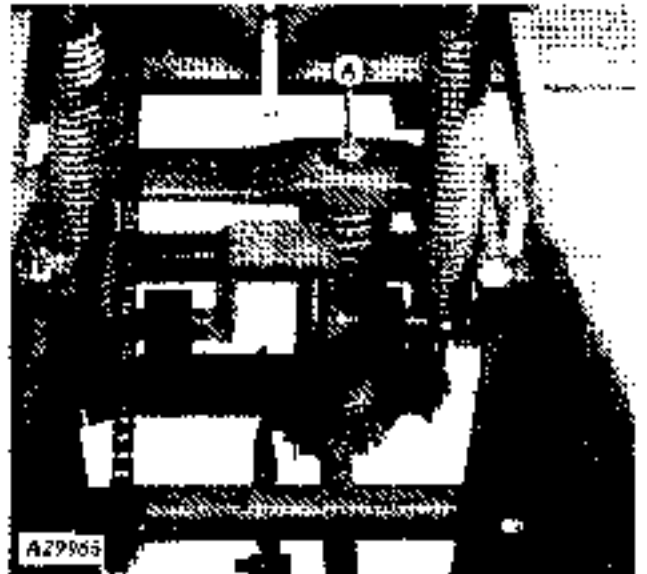
A29964

B21741.BX 19-25JUN90

IMPORTANT: For best results, the coultar blade should not penetrate deeper than the opener blades. Adjust the coultar force and height to optimize the operation.

To adjust the depth of the coultar blade, turn cap screw (A) clockwise to raise the blade or counterclockwise to lower the blade.

See Attachment Assembly section of Predelivery Instructions.



A29965

B21747.BV 19-25JUN90

To adjust the down force springs, proceed as follows:

Raise the planter.

Lift the spring support (A) off the strap (B).



A29966

B21741.B2 19-25JUN90

General Attachments

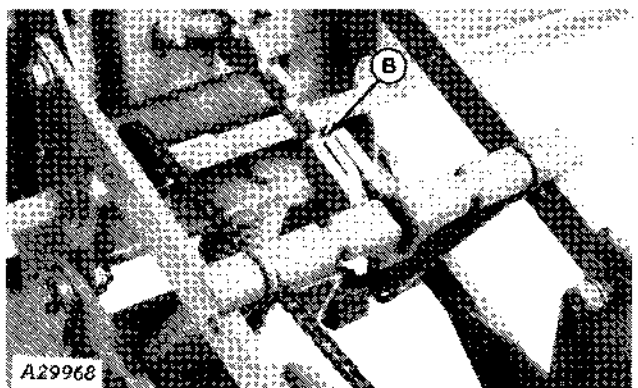
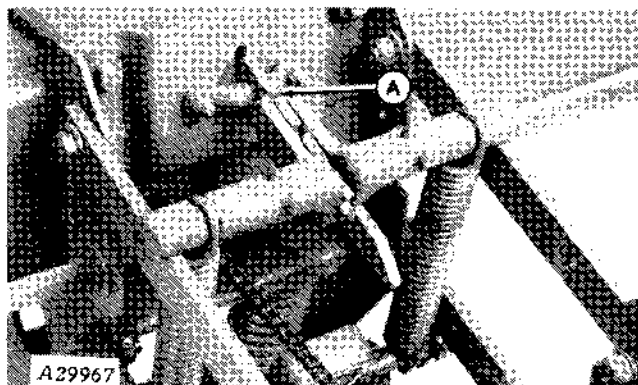
Place the spring support in front slot (A) for minimum down force.

Replace the spring support in the rear slot (B) for maximum down force.

Adjust down force as required for proper blade penetration. Try to leave some fertilizer in hoppers or tanks for ballast.

NOTE: When using frame mounted coulters, to reduce drive wheel slippage, only a single set of springs are used on each row.

See Attachment Assembly in the Predelivery Instructions for assembly instructions.



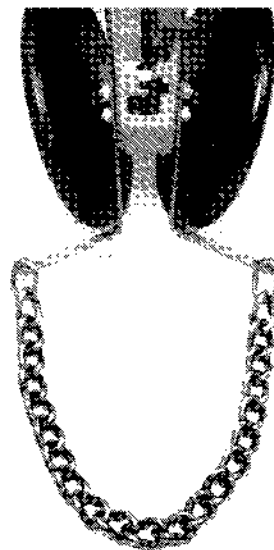
B21.7AT,CA -19-28JUN90

ROW LEVELER CHAIN

The row leveler chain smooths the slight "W" effect left by the firming wheels and reduces the tendency of some soils to crust.

If is not recommended for use with granular herbicide, rear mounted insecticide spreader, and liquid herbicide attachments.

See Attachment Assembly section in the Predelivery Instructions for assembly instructions.



A29959

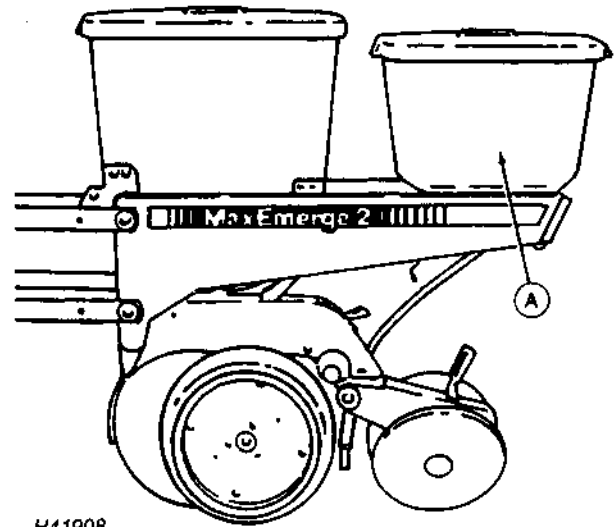
B21.7AT,BH -19-28JUN90

Granular Chemical Attachment

GRANULAR CHEMICAL ATTACHMENT

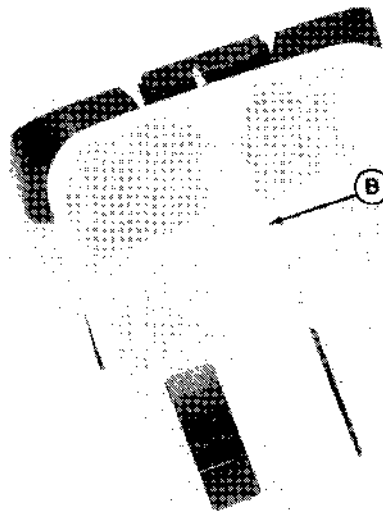
The granular chemical attachment can be used to deliver one or two different granular chemicals.

The granular hopper (A) holds 32 kg (70 lb) of one type of chemical or 16 kg (35 lb) each of both insecticide and herbicide by using the special hopper divider (B).



H41908

H41908 -JUN-04/MAY90



A29948

A29948 -JUN-06/OCT88

B21,7AT,AN -19-28/JUN90

The application rate is determined by:

1. The size of the opening of the meter housing assembly.
2. The travel speed.

The size of the opening is adjustable by turning the knobs on the rear of the granular hoppers. There are 80 increments which indicate the relative application rate. The delivery rate will increase from 1 through 79. Setting 00 closes the opening completely. A fluted roller delivers the granular chemical to the adjustable opening.

The granular chemical flows through a given opening size at a nearly uniform rate regardless of rotor rpm. Therefore, SPEED has the greatest impact on application rate and resulting chemical concentration in the row.

For example, if planting speed is reduced from 9.7 to 4.8 km/h (6 to 3 mph), chemical concentration will nearly double since the delivery rate through the orifice remains nearly the same while the distance traveled in a given period of time has been cut in half. Therefore, twice as much chemical is placed on the ground due to the decrease in ground speed.

Rotor rpm will not change the chemical meter delivery rate unless the seed population is changed significantly (i.e. = 25 per cent or more from the original setting.)

The rate charts in this section are approximate, and are based on a planting speed of 8 km/h (5 mph). They are to be used only as a guide to determine a starting point for the meter dial setting.

Always check your rate of application as outlined in this section to be sure you are getting the desired rate.



A29940
A29940

Granular Chemical Attachment

To engage the insecticide and/or herbicide drive, push handle (A) upward until handle is resting in the slot as shown.



021347 AD 10-25AUG90

CAUTION: Agricultural chemicals can be dangerous. Improper selection or use can injure persons, animals, plants, soils, or other property. **BE SAFE:** Select the right chemical for the job. Use rubber gloves and respirator and apply the chemical with care. Follow instructions of the chemical manufacturer.

Most insecticides and herbicides readily accumulate moisture and may damage the granular attachment if

allowed to remain in the hopper when the planter is not in use. Even during periods of operation, deposits of insecticide may build up in the hopper and interfere with working parts. Therefore, the hoppers should be checked every day for any material buildup and thoroughly cleaned if the planter is not to be used for a period greater than two days.

See Service section for cleaning instructions.

805, SAT, AM 10-21JUN90

Use the application rate and meter setting recommended by the chemical manufacturer as a starting point for the meter dial setting.

If the meter setting is not available from the chemical manufacturer, use the charts in this section as a starting point for the meter dial setting.

IMPORTANT: Because the available chemical materials vary widely in consistency

and composition, their "flow-ability" is affected by temperature and humidity conditions. It is important to calibrate each individual meter to the particular chemical being used.

To determine the application rate and starting meter setting, proceed as follows:

82174T AU 10-24M 890

U.S. MEASUREMENT

The chemical manufacturer may recommend the rate of application for granular chemicals in the following ways:

1. Ounces per 1000 linear row feet.
2. Pounds per acre for a given band width and row spacing.
3. Pounds per acre for complete (broadcast) coverage.

When the chemical manufacturer recommends ounces per 1000 linear row feet or pounds per acre for a given band width and row spacing, proceed to the chemical manufacturer's recommended meter setting or to the meter setting recommended in the rate charts in this section.

When the chemical manufacturer recommends pounds per acre for complete (broadcast) coverage only, it is necessary to reduce the pounds per acre to apply for your band width and row spacing. This will give you the same chemical concentration in the band area as the chemical manufacturer recommends for complete (broadcast) coverage.

Use the following formula to find the pounds per acre for your band width and row spacing.

NOTE: We recommend you actually measure the band width applied in your conditions and use this width in your application rate calculations.

$A \times B =$ Delivery rate per acre for a given band width and row spacing.
C

A—Chemical manufacturer's recommended rate in pounds per acre for complete (broadcast) coverage.

B—Band width in inches.

C—Row spacing in inches.

Example: The chemical manufacturer recommends 20 lb/acre for complete broadcast coverage. The band width is 14 in. The row spacing is 30 in.

$$20 \times 14 = 9.3 \text{ lb. per acre.} \\ 30$$

The required delivery rate for 14 in. bands and 30 in. row spacing would be 9.3 lb/acre. Set meter setting recommended for 9.3 lb/acre broadcast coverage.

Delivery of 9.3 lb/acre of chemical in a 14 in. band will provide the same chemical concentration on the soil surface as delivery of 20 lb/acre broadcast coverage.

Proceed to chemical manufacturer's recommended meter setting or to the meter setting recommended in the rate charts in this section which will deliver 9.3 lb/acre.

To check the exact number of lb./acre of chemical that will be delivered, attach a plastic bag to each chemical diffuser, lower the planter, and proceed as follows:

Drive 500 feet at planting speed. Weigh the chemical in oz. that was caught in one bag. Multiply that amount by the factor shown to determine lb. per acre.

Check the chemical caught in each bag in the same manner.

Lb. Per Acre Factor for Given Row Width

Row Width	Factor
38 in.	1.7
36 in.	1.8
30 in.	2.2

Example: Assume you are planting 38 in. rows and you caught 5.6 oz. in one bag (one row). 5.6 oz. times 1.7 (factor for 38 in. rows) equals 9.5 lb. per acre.

If the desired amount is not obtained for each unit with the first setting, turn the metering knob and repeat the check until desired amount is delivered.

NOTE: If a significant difference in rate is observed between rows, the meter dial mechanism may require recalibration. See your John Deere dealer.

**U.S. UNITS OF MEASURE -- METER SETTING
INSECTICIDE APPLICATION RATES (Clay Granules)**

Approximate Rate in Lbs/Acre

METER SETTING	30 INCH ROWS MPH			36 INCH ROWS MPH			38 INCH ROWS MPH			OUNCES PER 1000 ROW FT. MPH		
	4	6	8	4	6	8	4	6	8	4	6	8
10	2.5	1.7	1.3	2.1	1.4	1.0	2.0	1.3	1.0	2.3	1.6	1.1
11	3.0	2.0	1.5	2.5	1.7	1.3	2.4	1.6	1.2	2.8	1.8	1.4
12	3.6	2.4	1.8	3.0	2.0	1.5	2.9	1.9	1.4	3.3	2.2	1.7
13	4.4	2.9	2.2	3.8	2.4	1.8	3.5	2.3	1.7	4.0	2.7	2.0
14	5.3	3.5	2.6	4.4	2.9	2.2	4.1	2.8	2.1	4.8	3.2	2.4
15	6.0	4.0	3.0	5.0	3.3	2.5	4.7	3.2	2.4	5.5	3.7	2.8
16	6.8	4.5	3.4	5.7	3.8	2.8	5.4	3.6	2.7	6.3	4.2	3.1
17	7.6	5.1	3.8	6.3	4.2	3.2	6.0	4.0	3.0	7.0	4.7	3.5
18	8.2	5.5	4.1	6.8	4.6	3.4	6.5	4.3	3.2	7.5	5.0	3.8
19	8.7	5.8	4.4	7.3	4.8	3.6	6.9	4.6	3.4	8.0	5.3	4.0
20	9.3	6.2	4.7	7.8	5.2	3.8	7.4	4.9	3.7	8.6	5.7	4.3
21	9.8	6.5	4.9	8.2	5.4	4.1	7.7	5.2	3.8	9.0	6.0	4.5
22	10.3	6.8	5.1	8.6	5.7	4.3	8.1	5.4	4.1	9.4	6.3	4.7
23	10.7	7.1	5.4	8.9	6.0	4.5	8.5	5.6	4.2	9.8	6.6	4.9
24	11.2	7.5	5.6	9.3	6.2	4.7	8.8	5.8	4.4	10.3	6.8	5.1
25	11.6	7.7	5.8	9.6	6.4	4.8	9.1	6.1	4.6	10.6	7.1	5.3
26	11.9	7.9	6.0	9.9	6.6	5.0	9.4	6.3	4.7	10.9	7.3	5.5
27	12.4	8.3	6.2	10.3	6.9	5.2	9.8	6.5	4.9	11.4	7.6	5.7
28	12.7	8.6	6.4	10.6	7.1	5.3	10.1	6.7	5.0	11.7	7.8	5.8
29	13.2	8.9	6.6	11.0	7.3	5.5	10.4	6.9	5.2	12.1	8.1	6.1
30	13.5	9.0	6.8	11.3	7.5	5.6	10.7	7.1	5.3	12.4	8.3	6.2
31	13.8	9.2	6.9	11.6	7.6	5.7	10.9	7.2	5.4	12.6	8.4	6.3
32	14.2	9.5	7.1	11.9	7.8	5.9	11.2	7.5	5.6	13.1	8.7	6.5
33	14.6	9.7	7.3	12.2	8.1	6.1	11.5	7.7	5.8	13.4	8.9	6.7
34	15.1	10.1	7.6	12.6	8.4	6.3	11.9	7.9	6.0	13.9	9.2	6.9
35	15.6	10.4	7.8	13.0	8.7	6.5	12.3	8.2	6.2	14.3	9.5	7.2
36	16.1	10.7	8.0	13.4	8.9	6.7	12.7	8.5	6.3	14.8	9.8	7.4
37	16.5	11.0	8.2	13.7	9.2	6.9	13.0	8.7	6.5	15.1	10.1	7.6
38	17.0	11.3	8.5	14.2	9.4	7.1	13.4	9.0	6.7	15.6	10.4	7.8
39	17.6	11.7	8.7	14.6	9.7	7.3	13.8	9.2	6.9	16.1	10.7	8.0
40	18.0	12.0	9.0	15.0	10.0	7.5	14.2	9.5	7.1	16.5	11.0	8.2
41	18.4	12.3	9.2	15.3	10.2	7.7	14.5	9.7	7.3	16.8	11.3	8.4
42	19.1	12.7	9.6	15.9	10.6	8.0	15.1	10.1	7.5	17.6	11.7	8.8
43	20.0	13.3	10.0	16.7	11.1	8.3	15.8	10.5	7.9	18.4	12.2	9.2
44	21.0	14.0	10.5	17.5	11.7	8.8	16.6	11.1	8.3	19.3	12.9	9.6
45	22.1	14.8	11.1	18.4	12.3	9.2	17.5	11.6	8.7	20.3	13.5	10.2
46	23.4	15.6	11.7	19.5	13.0	9.7	18.5	12.3	9.2	21.5	14.3	10.7
47	24.5	16.3	12.3	20.4	13.6	10.2	19.3	12.9	9.7	22.6	15.0	11.2
48	25.6	17.1	12.9	21.4	14.2	10.7	20.2	13.5	10.1	23.5	15.7	11.8
49	26.8	17.8	13.4	22.3	14.8	11.1	21.1	14.1	10.6	24.8	16.4	12.3
50	27.9	18.6	13.9	23.2	15.5	11.6	22.0	14.7	11.0	25.6	17.1	12.8
51	29.0	19.3	14.5	24.2	16.1	12.1	22.9	15.3	11.4	26.6	17.8	13.3
52	30.3	20.2	15.1	25.2	16.8	12.6	23.9	15.9	11.8	27.8	18.5	13.9
53	31.6	21.1	15.8	26.4	17.6	13.2	25.0	16.6	12.5	29.0	19.4	14.5
54	33.0	22.0	16.5	27.5	18.3	13.8	26.1	17.4	13.0	30.3	20.2	15.2
55	34.5	23.0	17.3	28.8	19.2	14.4	27.2	18.2	13.6	31.7	21.1	15.8
56	36.0	24.0	18.0	30.0	20.0	15.0	28.4	18.9	14.2	33.1	22.0	16.5
57	37.4	24.9	18.7	31.1	20.8	15.6	29.5	19.7	14.8	34.3	22.9	17.2
58	38.9	25.9	19.4	32.4	21.6	16.2	30.7	20.5	15.3	35.7	23.8	17.8
59	40.4	26.9	20.2	33.6	22.4	16.8	31.9	21.2	15.9	37.1	24.7	18.5
60	41.6	27.8	20.8	34.7	23.1	17.3	32.9	21.9	16.4	38.2	25.5	19.1

A31101

19-21, 1948B

A31101

621, 7AT, 8A 19-21, 1948B

**U.S. UNITS OF MEASURE -- METER SETTING
INSECTICIDE APPLICATION RATES (Sand Granules)**

Approximate Rate in Lbs/Acre

METER SETTING	30 INCH ROWS MPH			36 INCH ROWS MPH			36 INCH ROWS MPH			OUNCES PER 1000 ROW FT. MPH		
	4	6	8	4	6	8	4	6	8	4	6	8
6	1.6	1.1	0.8	1.3	0.9	0.7	1.3	0.8	0.6	1.6	1.0	0.7
7	2.3	1.5	1.2	1.9	1.3	1.0	1.8	1.2	0.9	2.1	1.4	1.1
8	3.1	2.1	1.6	2.6	1.7	1.3	2.4	1.6	1.2	2.8	1.9	1.4
9	3.9	2.6	2.0	3.3	2.2	1.6	3.1	2.1	1.5	3.6	2.4	1.8
10	4.8	3.2	2.4	4.0	2.7	2.0	3.8	2.5	1.8	4.4	2.9	2.2
11	5.7	3.8	2.9	4.8	3.2	2.4	4.5	3.0	2.3	5.2	3.5	2.6
12	6.7	4.6	3.4	5.6	3.7	2.8	5.3	3.5	2.6	6.2	4.1	3.1
13	7.7	5.1	3.9	6.4	4.3	3.2	6.1	4.1	3.0	7.1	4.7	3.5
14	8.8	5.8	4.4	7.3	4.9	3.7	6.9	4.6	3.5	8.1	5.4	4.0
15	9.8	6.5	4.9	8.2	5.4	4.1	7.7	5.2	3.9	9.0	6.0	4.5
16	10.7	7.1	5.4	8.9	5.9	4.5	8.4	5.6	4.2	9.8	6.6	4.9
17	11.6	7.7	5.8	9.7	6.4	4.8	9.2	6.1	4.6	10.7	7.1	5.3
18	12.5	8.3	6.3	10.4	6.9	5.2	9.9	6.6	4.9	11.5	7.7	5.7
19	13.3	8.9	6.7	11.1	7.4	5.5	10.5	7.0	5.3	12.2	8.1	6.1
20	14.2	9.5	7.1	11.8	7.9	5.9	11.2	7.5	5.6	13.0	8.7	6.5
21	15.1	10.1	7.6	12.6	8.4	6.3	11.9	7.9	6.0	13.9	9.2	6.9
22	16.0	10.7	8.0	13.3	8.9	6.7	12.6	8.4	6.3	14.7	9.8	7.3
23	16.9	11.3	8.5	14.1	9.4	7.0	13.3	8.9	6.7	15.5	10.3	7.8
24	17.8	11.9	8.9	14.8	9.9	7.4	14.1	9.4	7.0	16.3	10.9	8.2
25	18.7	12.5	9.4	15.6	10.4	7.8	14.8	9.8	7.4	17.2	11.4	8.6
26	19.7	13.1	9.9	16.4	10.9	8.2	15.6	10.4	7.8	18.1	12.1	9.0
27	20.6	13.7	10.3	17.2	11.4	8.6	16.3	10.8	8.1	18.9	12.6	9.5
28	21.6	14.4	10.8	18.0	12.0	9.0	17.1	11.4	8.5	19.8	13.2	9.9
29	22.6	15.1	11.3	18.8	12.6	9.4	17.8	11.9	8.9	20.6	13.8	10.4
30	23.6	15.7	11.8	19.7	13.1	9.8	18.6	12.4	9.3	21.7	14.4	10.8
31	24.7	16.5	12.4	20.6	13.7	10.3	19.5	13.0	9.8	22.7	15.1	11.3
32	25.7	17.1	12.9	21.4	14.3	10.7	20.3	13.6	10.1	23.6	15.7	11.8
33	26.8	17.8	13.4	22.3	14.9	11.2	21.2	14.1	10.6	24.6	16.4	12.3
34	27.9	18.6	14.0	23.3	15.6	11.6	22.0	14.7	11.0	25.6	17.1	12.8
35	29.0	19.3	14.5	24.2	16.1	12.1	22.9	15.3	11.4	26.6	17.8	13.3
36	30.2	20.1	15.1	25.2	16.8	12.6	23.8	15.9	11.9	27.7	18.5	13.9
37	31.4	20.9	15.7	26.2	17.4	13.1	24.8	16.6	12.4	28.8	19.2	14.4
38	32.6	21.7	16.3	27.2	18.1	13.6	25.7	17.2	12.9	29.9	20.0	15.0
39	33.8	22.5	16.9	28.2	18.8	14.1	26.7	17.8	13.3	31.0	20.7	15.5
40	35.0	23.3	17.5	29.2	19.4	14.6	27.6	18.4	13.8	32.1	21.4	16.1
41	36.3	24.2	18.2	30.3	20.2	15.1	28.7	19.1	14.3	33.3	22.2	16.7
42	37.6	25.1	18.8	31.3	20.9	15.7	29.7	19.8	14.8	34.5	23.0	17.3
43	38.9	26.0	19.5	32.4	21.6	16.2	30.7	20.5	15.4	35.7	23.8	17.9
44	40.2	26.9	20.1	33.5	22.3	16.8	31.7	21.2	15.9	36.9	24.6	18.5
45	41.6	27.7	20.8	34.7	23.1	17.3	32.8	21.9	16.4	38.2	25.5	19.1
46	43.0	28.7	21.5	35.8	23.9	17.9	33.9	22.6	17.0	39.5	26.3	19.7
47	44.4	29.6	22.2	37.0	24.7	18.5	35.1	23.4	17.5	40.8	27.2	20.4
48	45.9	30.6	23.0	38.3	25.5	19.1	36.2	24.2	18.1	42.1	28.1	21.1
49	47.3	31.6	23.7	39.4	26.3	19.7	37.3	24.9	18.7	43.4	29.0	21.7
50	48.9	32.6	24.5	40.8	27.2	20.4	38.6	25.7	19.3	44.9	29.9	22.5

A31103

A31103

B21.PAT.PC

1-8-89 MMW

**U.S. UNITS OF MEASURE – METER SETTING
HERBICIDE APPLICATION RATES (Clay Granules)**

Approximate Rate in Lbs/Acre

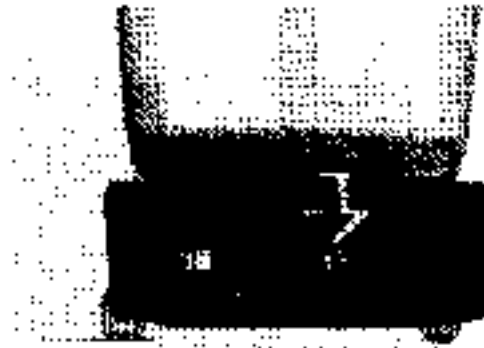
METER SETTING	30 INCH ROWS MPH			36 INCH ROWS MPH			38 INCH ROWS MPH		
	4	6	8	4	6	8	4	6	8
10	2.1	1.4	1.1	1.7	1.2	0.9	1.7	1.1	0.9
11	2.5	1.6	1.2	2.1	1.4	1.0	2.0	1.3	1.0
12	3.0	1.8	1.4	2.6	1.6	1.2	2.3	1.5	1.1
13	3.6	2.3	1.7	2.9	1.9	1.4	2.8	1.8	1.3
14	4.0	2.6	2.0	3.3	2.2	1.6	3.2	2.1	1.5
15	4.8	3.1	2.3	4.0	2.6	1.8	3.8	2.4	1.8
16	5.5	3.6	2.6	4.6	3.0	2.2	4.4	2.8	2.1
17	6.2	4.0	2.9	5.1	3.3	2.4	4.9	3.2	2.3
18	6.7	4.4	3.2	5.6	3.6	2.7	5.3	3.4	2.5
19	7.2	4.7	3.4	6.0	3.9	2.8	5.7	3.7	2.7
20	7.9	5.1	3.7	6.6	4.2	3.1	6.2	4.0	2.9
21	8.4	5.4	4.0	7.0	4.5	3.3	6.6	4.3	3.1
22	9.0	5.8	4.2	7.5	4.8	3.5	7.1	4.5	3.4
23	9.6	6.1	4.5	7.9	5.1	3.7	7.5	4.8	3.5
24	10.1	6.5	4.7	8.4	5.4	3.9	8.0	5.1	3.7
25	10.6	6.7	4.9	8.8	5.6	4.1	8.4	5.3	3.9
26	11.1	7.1	5.2	9.2	5.9	4.3	8.7	5.6	4.1
27	11.7	7.4	5.4	9.8	6.2	4.5	9.2	5.9	4.3
28	12.3	8.1	5.8	10.7	6.7	4.8	10.1	6.4	4.6
29	12.8	8.4	6.1	11.0	7.0	5.1	10.4	6.6	4.8
30	13.2	8.4	6.1	11.3	7.2	5.2	10.7	6.8	4.9
31	13.5	8.8	6.3	11.7	7.6	5.4	11.1	7.1	5.1
32	14.1	8.9	6.5	12.1	7.7	5.6	11.6	7.3	5.3
33	14.6	9.2	6.7	12.6	8.0	5.8	11.9	7.6	5.5
34	15.1	9.6	6.9	13.1	8.3	6.0	12.4	7.8	5.6
35	15.7	9.9	7.1	13.5	8.5	6.2	12.8	8.1	5.8
36	16.2	10.2	7.4	13.9	8.7	6.4	13.1	8.3	6.0
37	16.6	10.5	7.7	14.4	9.0	6.6	13.7	8.6	6.2
38	17.3	10.9	7.9	14.7	9.2	6.7	13.9	8.7	6.3
39	17.6	11.1	8.0	15.0	9.5	6.9	14.2	9.0	6.5
40	18.0	11.4	8.2	15.4	9.8	7.0	14.5	9.1	6.6
41	18.4	11.5	8.4	15.8	9.9	7.2	15.0	9.4	6.8
42	19.0	11.9	8.7	16.5	10.4	7.5	15.6	9.8	7.1
43	19.8	12.4	9.0	16.9	10.6	7.7	16.0	10.1	7.3
44	20.3	12.8	9.3	17.9	11.2	8.1	16.9	10.7	7.7
45	21.5	13.5	9.7	18.7	11.8	8.6	17.7	11.2	8.2
46	22.4	14.2	10.3	19.9	12.7	9.2	18.9	12.0	8.7
47	23.9	15.2	11.0	20.9	13.3	9.7	19.8	12.6	9.2
48	25.1	16.0	11.7	22.1	14.2	10.3	20.8	13.5	9.7
49	26.5	17.0	12.3	23.5	15.3	11.2	22.2	14.4	10.6
50	28.1	18.3	13.4	24.7	16.3	12.0	23.4	15.4	11.3
51	29.7	19.5	14.4	26.2	17.3	12.8	24.8	16.4	12.2
52	31.4	20.8	15.4	27.5	18.4	13.7	26.0	17.4	13.0
53	33.0	22.0	16.6	29.1	19.5	14.7	27.6	18.5	13.9
54	34.9	23.4	17.8	30.7	20.7	15.9	29.1	19.6	15.0
55	36.8	24.8	19.0	31.7	21.6	16.8	30.0	20.5	15.9
56	38.0	25.9	20.2	33.4	22.8	17.8	31.6	21.6	17.0
57	40.0	27.4	21.6	34.7	24.0	18.7	32.9	22.7	17.7
58	41.7	28.7	22.5	35.8	24.8	19.6	33.9	23.4	18.6
59	43.0	29.7	23.6	37.1	25.9	20.6	35.2	24.5	19.5
60	44.6	31.0	24.7						

A31105

CALIBRATING INSECTICIDE/HERBICIDE METER

If it should ever become necessary to recalibrate the granular meter on the insecticide/herbicide hopper, proceed as follows:

1. Turn the knob on the rear of the hopper to a setting of "10".



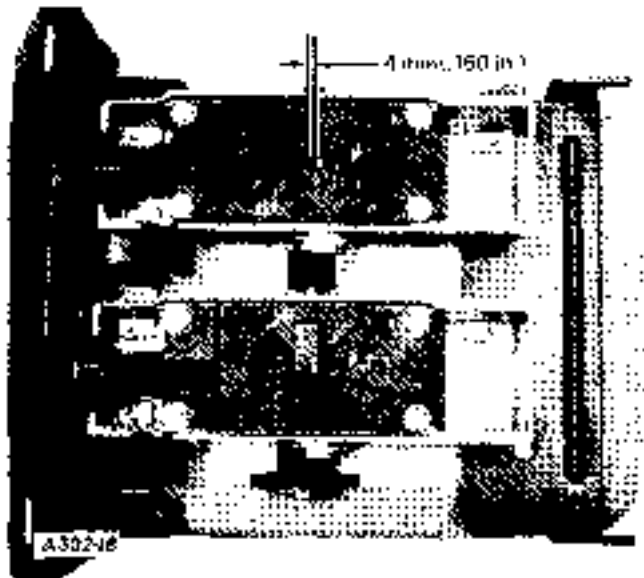
A34165

40N 120CT83
A34165

823.29020.C 17-25-A1-99

2. Remove the hopper and turn it upside down on a flat surface.

3. Check the opening of the "V" notch on the meter gate. The opening should be .160 in. (4 mm). If it is, the meter is calibrated correctly. If it is not, adjustment must be made.



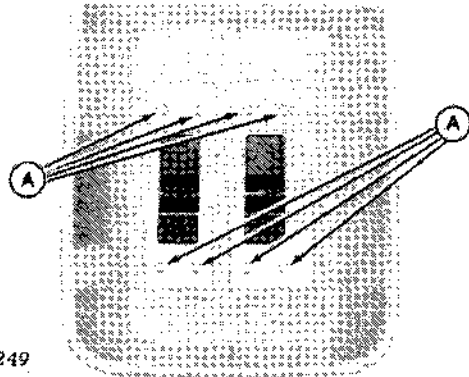
A30246

40N 120CT83
A30246

823.29020.C 17-25-A1-99

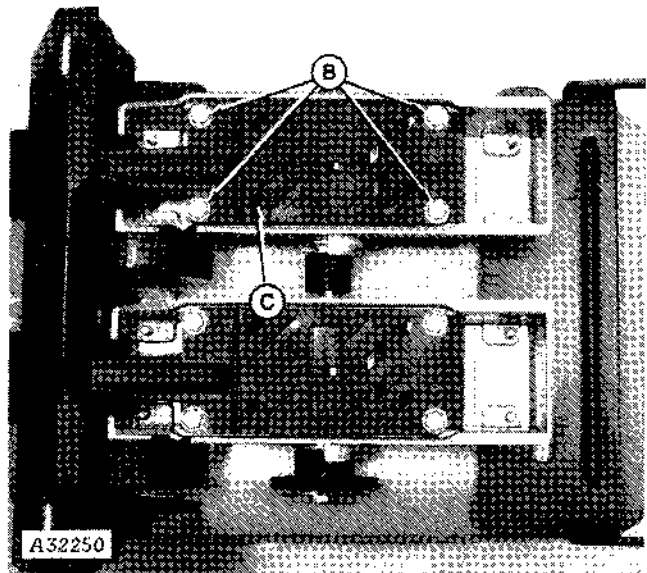
Granular Chemical Attachment

4. Remove four M6 x 20 cap screws (A) securing the meter to the hopper (eight cap screws if two meters are used) and remove the meter(s) from the hopper bottom.



A32249

5. Remove four M6 x 16 cap screws (B) from the gate cover and remove the cover (C).



A32250

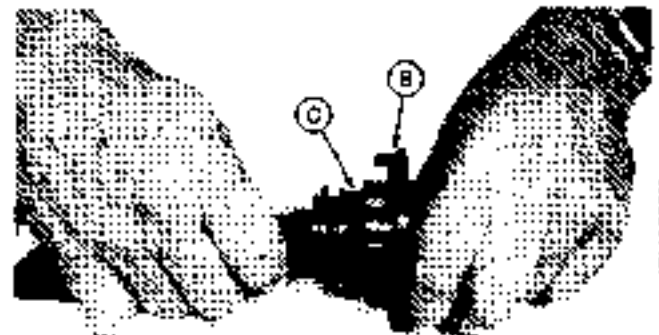
B23.C5020.D -19-28JUN90

6. Remove the entire plastic gate assembly (A) from the aluminum housing.



A32251

7. Remove the knob (B) from the splined nut (C) by working the knob back and forth while pulling apart.



A32252

8. Turn the nut (C) until the opening in the "V" on the gate is .160 in. (4 mm).



A32253

B23.C5020.E - 12-08-01-00

9. Replace the knob on the nut so the number "0" lines up with the number "1" on the cam follower. The meter should have a setting of "10".

Seat knob to the flange on the nut.

10. Replace gate cover and secure with cap screws removed in step 5.

11. Replace meter on hopper bottom and secure with cap screws removed in step 4.



A32254

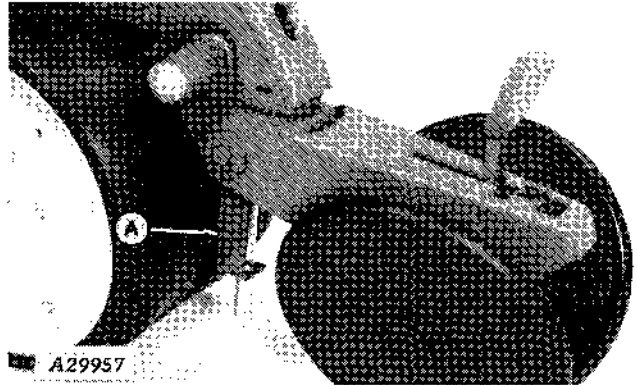
B23.C5020.F - 12-08-01-00

SEED FURROW INSECTICIDE PLACEMENT BRACKET

The seed furrow insecticide placement bracket (A) places granular insecticide in the seed furrow.

IMPORTANT: Some insecticides are toxic if it comes into direct contact with the seed. Consult your chemical supplier for the proper location to apply your chemical.

See Attachment Assembly section in the Predelivery Instructions for assembly instructions.



A29957 -UN-06OCT88

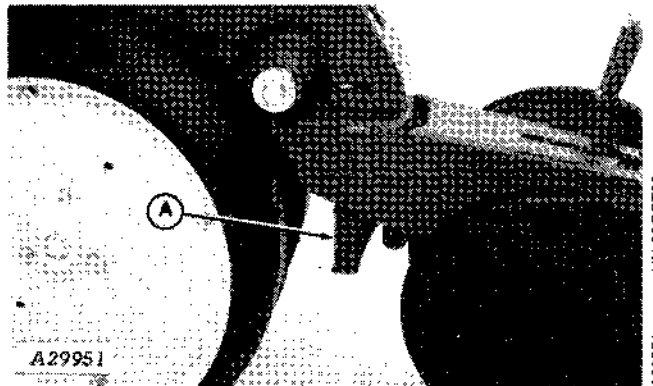
B21,7AT,AQ -19-28JUN90

175 MM (7 IN.) INSECTICIDE BAND SPREADER (FRONT MOUNTED)

The 175 mm (7 in.) insecticide band spreader (A) is designed to apply a band of granular insecticide approximately 175 mm (7 in.) wide on top of the ground when planting.

See Attachment Assembly section in Predelivery Instructions for assembly instructions.

IMPORTANT: Some insecticides are toxic if it comes into direct contact with the seed. Consult your chemical supplier for the proper location to apply your chemical.



A29951 -UN-06OCT88

B21,7AT,AR -19-28JUN90

REAR MOUNT INSECTICIDE SPREADER

The 175 mm (7 in.) rear mount insecticide band spreader (A) is designed to apply a band of granular insecticide approximately 175 mm (7 in.) wide behind the closing wheels.

See Attachment Assembly section in the Predelivery instructions for assembly instructions.



A20952

01-05/01/08

6217ATAT 19-28/RN80

HERBICIDE DIFFUSER

The 355 mm (14 in.) herbicide diffuser is designed to, under normal conditions, apply a band of granular herbicide approximately 355 mm (14 in.) wide behind the closing wheels.

NOTE: We recommend you actually measure the band width applied in your conditions and use this width in your application rate calculations.

See Attachment Assembly section in the Predelivery instructions for assembly instructions.



A20953

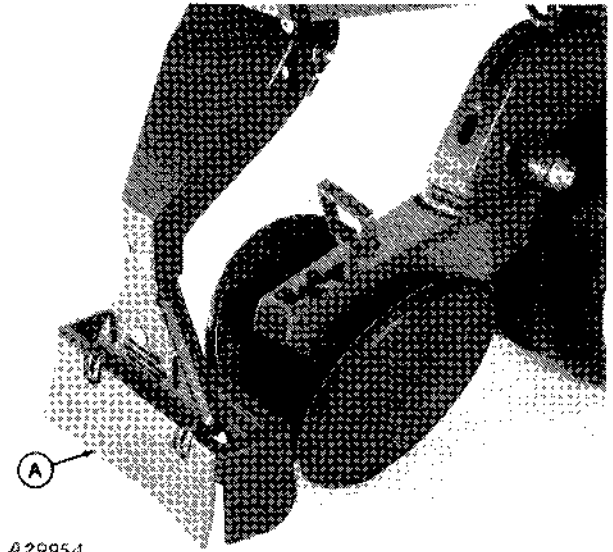
01-05/01/08

6217ATAT 19-28/RN80

WINDSHIELD

The windshield (A) helps, in windy conditions, maintain the distribution pattern of the herbicide diffuser and/or the rear mount insecticide spreader.

See Attachment Assembly section in the Predelivery Instructions for assembly instructions.



A29954

-JUN-06OCT88
A29954

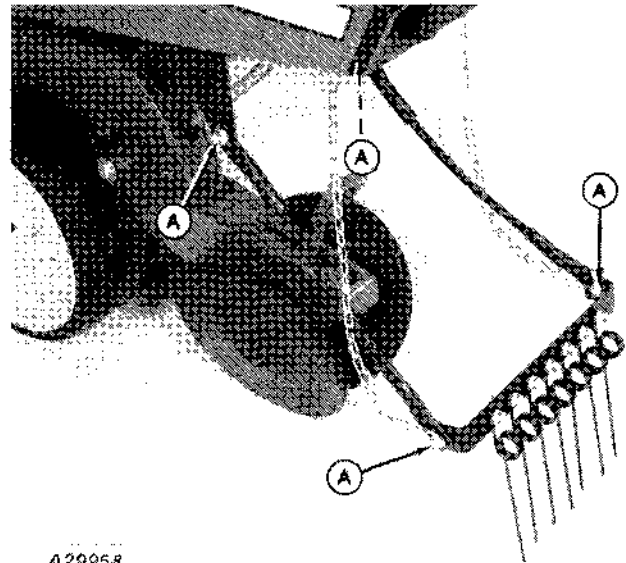
B21.7AT,BF -19-28JUN90

SPRING-TOOTH INCORPORATOR

The spring-tooth incorporator attachment provides an efficient means of mixing insecticide and/or herbicide into the soil and leaves a smooth ground surface behind the planting unit.

The spring pressure can be adjusted by loosening nuts (A) and raising or lowering cable supports. Tighten nuts.

See Attachment Assembly section in the Predelivery Instructions for assembly instructions.



A29958

-JUN-06OCT88
A29958

B21.7AT,BG -19-28JUN90

Liquid Chemical Attachment

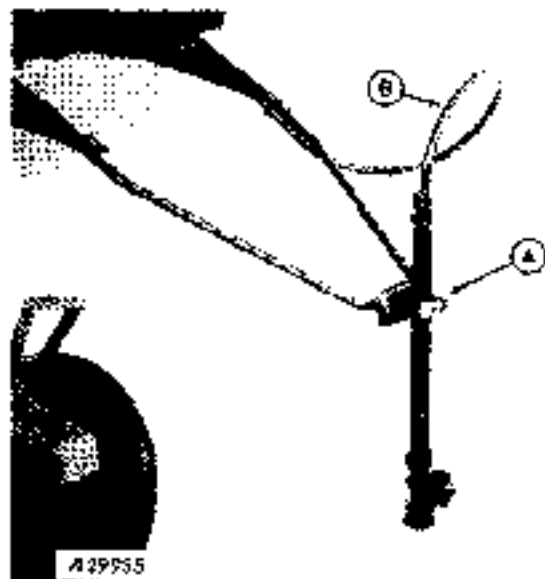
LIQUID HERBICIDE PRE-EMERGE SPRAY ATTACHMENT

The planter sprayer attachment provides the necessary equipment to mount and position the spray nozzles (not provided) behind the planter unit and the hoses and manifolds to connect to a tractor mounted sprayer system. The planter sprayer system may be used with the John Deere 220 Tractor-Mounted Sprayer or similar sprayers.

Adjust plastic tubing (B) to provide tension on the nozzle holder. Tension will aid in keeping nozzle in operating position when it is hit by an obstruction.

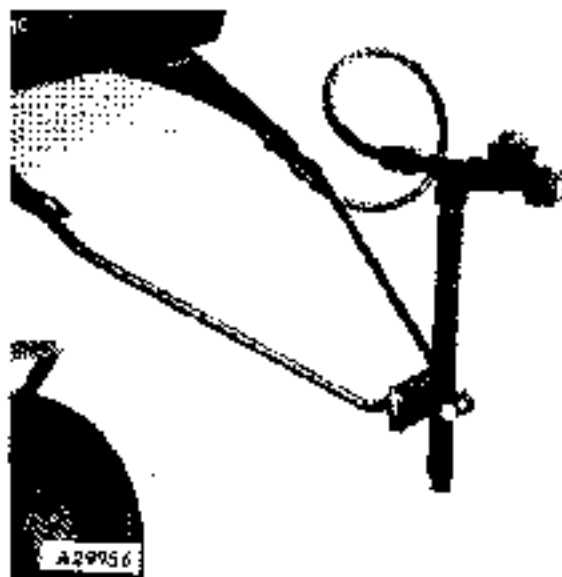
To adjust the height of the nozzle, loosen wing nut (A).

"Even" type spray tips are recommended for spraying in bands from 180 to 430 mm (7 to 17 in.) with the nozzle in the lower position as shown at right.



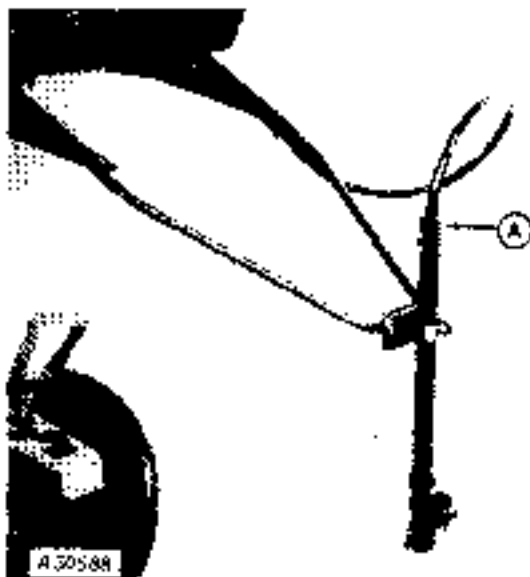
921 ZAT, B1 10 25 JUN 90

The support tube may be inverted, placing the nozzle in the "up" position. Coverage in this position is from 1270 to 2285 mm (50 to 90 in.) wide when using flood type spray tips. This type of coverage is not recommended for less than 1/2 gallon per minute flow. To invert the spray assembly for flood spray, proceed as follows:



921 ZAT, B1 10 25 JUN 90

1. Unscrew delivery hose (A) from union fitting.

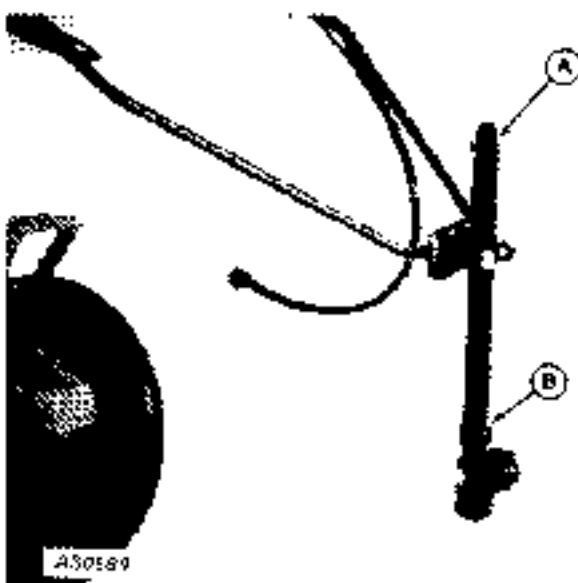


B21.7A.F.6C 19-28 JUN 90

A30588 UN-260CT68

2. Unscrew union fitting (A) from tube.

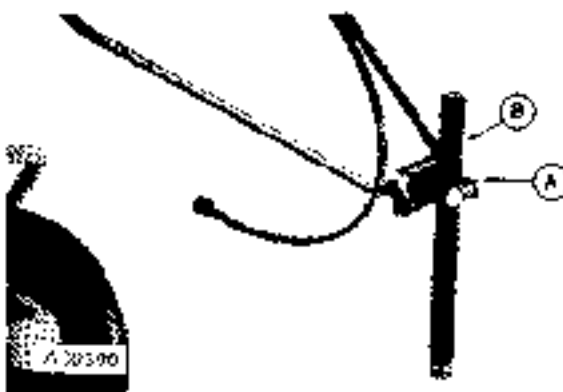
3. Unscrew nozzle assembly (B) from tube.



B21.7A.F.6L 19-28 JUN 90

A30589 UN-260CT68

4. Loosen wing nut (A) and remove invert tube (B).

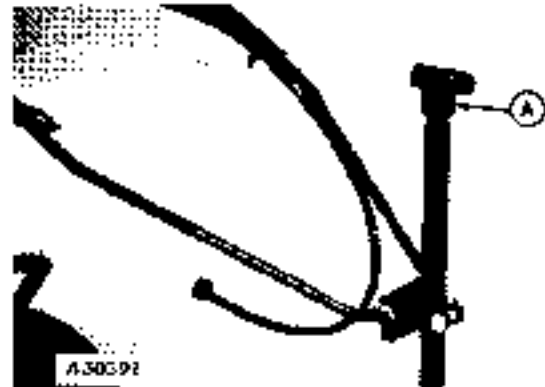


B21.7A.F.6M 19-28 JUN 90

A30590 UN-260CT68

Liquid Chemical Attachment

5. Screw fitting (A) onto tube. (Hand tighten tube plus one-half turn only.)

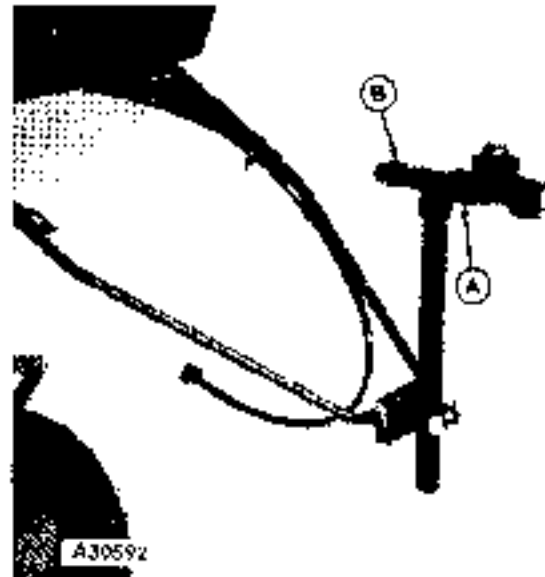


B21.7AT Bv -19-28JUN80

A30591 JUN-90C188

6. Screw nozzle assembly (A) onto tee fitting.

7. Screw union fitting (B) onto fitting. (Hand tighten fitting plus one-half turn only.)



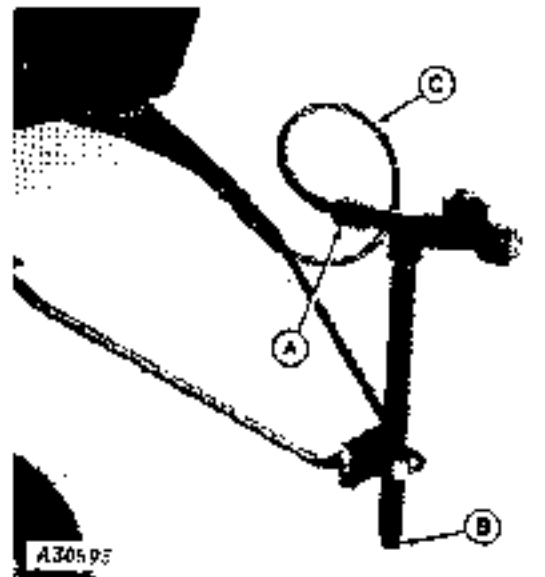
B21.7AT Bv -19-28JUN80

A30592 JUN-90C188

8. Screw delivery hose (A) onto union fitting. (Hand tighten fitting plus one-half turn only.)

9. Screw plug (B) into bottom of tube

Adjust plastic tubing (C) to provide spring tension on the nozzle holder. Tension will aid in keeping nozzle in operating position when it is hit by an obstruction.



B21.7AT Bv -19-28JUN80

A30593 JUN-120C196

To help you select the correct nozzle, proceed as follows.

1. Refer to the chemical label for recommended application rate.
2. Select the speed you wish to plant.
3. Select the spray band width you desire.

Use the formula below for obtaining the gallons per minute per nozzle.

IMPORTANT: Gallons per acre refers to gallons per acre of band width, not acres of ground planted.

$$\frac{\text{Gallons per acre} \times \text{miles per hour} \times \text{spray band width}}{5940} = \text{gal. per min. per nozzle.}$$

Example. Suppose the chemical manufacturer recommended application rate is 10 gal. per acre and you wish to plant at 6 miles per hour using a spray band width of 10 in.

$$\frac{(10 \times 6 \times 10)}{5940} = \frac{600}{5940} = .10 \text{ gal./min./nozzle.}$$

See your John Deere dealer for the desired nozzle

Because delivery rate (gallons per minute) is a function of pressure, it is recommended the following application rate check be used.

Liquid Chemical Attachment

Check application rate at the beginning of the season and periodically during the season because nozzle tips wear and change their flow rate.

Partially fill spray tanks with water.

Place a quart container under a nozzle.

Turn the spray pump on and time how long it takes to fill the quart container. See the chart below for the rate of flow.

It may be necessary to adjust pump pressure to compensate for small variations between calculated and actual flow.

Seconds to Collect One Quart	Gallons Per Minute	Seconds to Collect One Quart	Gallons Per Minute
300	.25	75	.20
250	.30	67	.225
214	.35	60	.25
188	.40	50	.30
167	.45	43	.35
150	.50	38	.40
136	.55	30	.50
125	.60	25	.60
115	.65	21	.70
107	.70	18	.80
100	.75	17	.90
88	.85	15	1.0

B21.JAT.B9 -15-29.MNF.O

Dry Fertilizer Attachment

DRY FERTILIZER



Each fertilizer hopper holds approximately 249 kg (550 lb.).

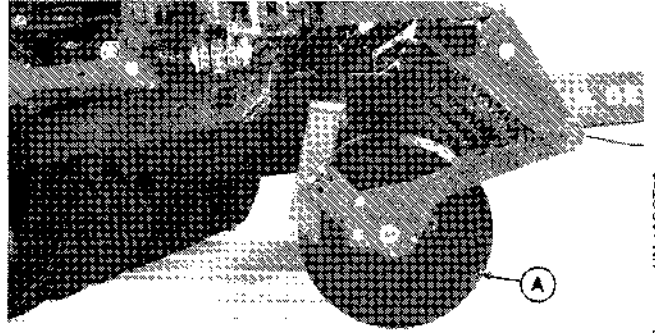
The fertilizer is distributed by an auger (A) in the bottom of each hopper.



821,127,4 10-20,11,12,13

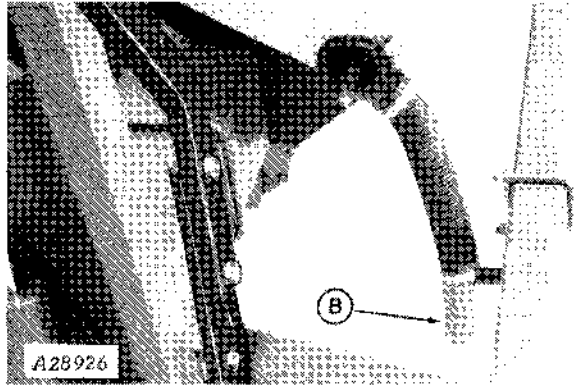
Dry Fertilizer Attachment

The fertilizer is applied to the ground by a fertilizer opener (A) or a surface applicator (B).



A32222

Single-Disk Fertilizer Opener

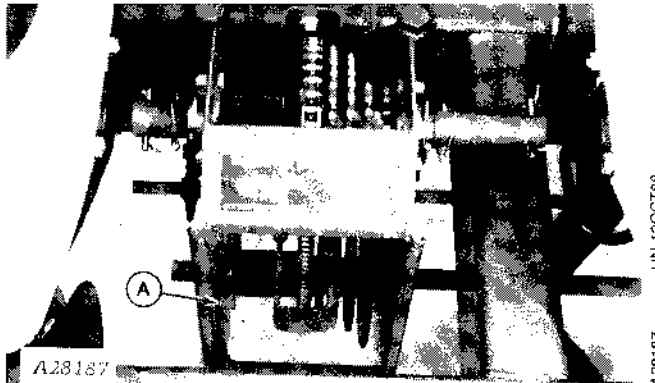


A28926

B21.5AT,L -19-28JUN90

The rate of fertilizer is determined by the type of augers (low-rate, regular-rate or high-rate) installed in the hoppers, and the driver and driven sprocket combinations.

To change the sprocket combinations, remove retaining hook (A) from storage position.



A28187

B05.13AT,B -19-28JUN90

Dry Fertilizer Attachment

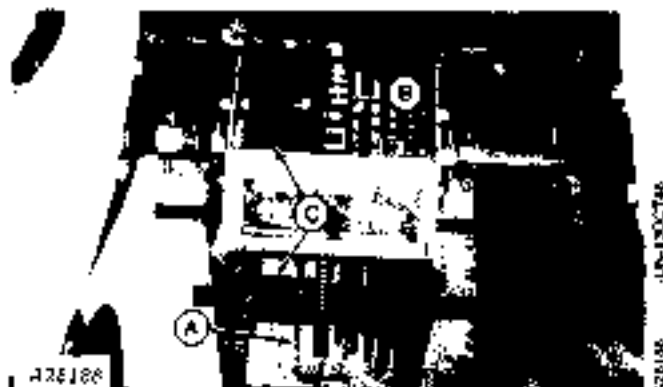
Pull down on chain tightener (A) and secure with retaining hook.

Remove chain (B) from driver and driven sprockets.

Remove rubber sprocket spacers (C).

Slide desired driver and driven sprockets into alignment with chain tightener and replace chain.

Replace rubber sprocket spacers between sprockets as required.



IMPORTANT: Be certain sprockets are aligned properly with chain tightener and secured with rubber spacers. Check to be sure chain runs freely on selected sprockets; improper alignment can cause drive failures.

Repeat the procedure for the fertilizer drive on the opposite side of the planter.

B21,747.C -19-25,4,N50

Because the dry fertilizer attachment meters volume and not weight, and because of the differences between the many brands, analysis of fertilizer, temperature and humidity, the weight metered out can vary as much as 100 per cent from the weight calculated in the fertilizer rate chart.

B21,747.C -19-25,4,N50

CHECKING DRY FERTILIZER RATES

(U.S. MEASUREMENTS)

To check the exact number of lb. of fertilizer that will actually be delivered for 30 in. row spacing, proceed as follows:

Remove one hose from either fertilizer hopper and attach a plastic bag, or other suitable container, under the opening in the hopper. Engage the fertilizer attachment and drive forward for 174 ft. Weigh the amount of fertilizer caught in the container (in lb.) and multiply that amount by 100. The result will be the lb. of fertilizer delivered per acre when planting in 30 in. rows.

NOTE: For 36 in. rows, drive 145 ft. For 38 in. rows, drive 138 ft.

Dry Fertilizer Attachment

DRY FERTILIZER APPROXIMATE DELIVERY RATES IN LB./ACRE

(RATES BASED ON DRY FERTILIZER WITH A BULK DENSITY OF 65 LB./FT³) (U.S. MEASURE)

Low	30 in. Rows		Low	36 in. Rows		Low	38 in. Rows		Sprocket Combination (No. of Teeth)	
	Regular	High		Regular	High		Regular	High	Driver Sprocket	Driven Sprocket
253	505	758	211	421	632	199	399	598	36	18
225	499	674	187	374	512	177	355	532	36	18
197	393	590	164	328	491	155	310	465	28	16
182	365	547	152	304	456	144	288	432	26	16
175	349	524	146	291	437	138	276	414	28	18
162	324	487	135	270	406	128	256	384	26	18
147	295	442	123	246	368	116	233	349	21	16
135	270	404	112	225	337	106	213	319	36	30
131	262	393	109	218	328	103	207	213	21	18
123	245	368	102	204	306	97	193	290	36	33
112	225	337	94	187	281	89	177	266	36	36
112	225	337	94	187	281	89	177	266	16	16
105	210	314	87	175	262	83	165	248	28	30
100	200	299	83	166	250	79	158	236	16	18
97	195	292	81	162	243	77	154	231	26	30
95	191	286	79	159	238	75	150	226	28	33
88	177	265	74	147	221	70	140	210	26	33
87	175	262	73	146	218	69	138	207	28	36
81	162	243	68	135	203	64	128	192	26	36
79	157	236	66	131	197	62	124	186	21	30
71	143	214	60	119	179	56	113	169	21	33
66	131	197	55	109	164	52	103	155	21	36
60	120	180	50	100	150	47	95	142	16	30
54	109	163	45	91	136	43	86	129	16	33
50	100	150	42	83	125	39	79	118	16	36

B21.7AT,G -19-28JUN90

STORING DRY FERTILIZER

Keep fertilizer dry. Do not store in a damp place.

Most fertilizers readily accumulate moisture and cause metal to corrode. The corrosion not only shortens metal life, but leads to unnecessary expense for parts broken because of binding or "freezing". Deposits of fertilizer will build up in the hopper and interfere with working parts. Therefore, the hoppers should be cleaned every day of use.

⚠ CAUTION: Agricultural chemicals can be dangerous. Improper selection or use can injure persons, animals, soils, or other property. TO AVOID INJURY, select the right chemicals for the job. Handle and apply it with care. Follow instructions of the chemical manufacturer.

B21,7AT,H -19-28JUN90

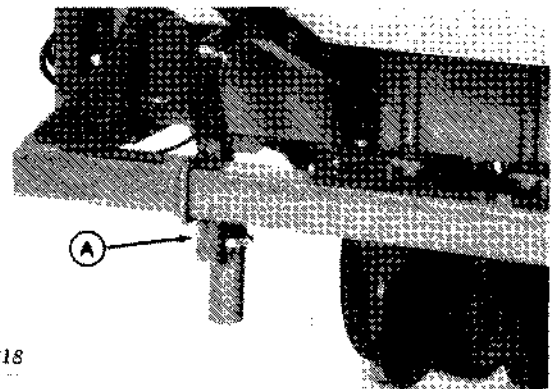
SURFACE APPLICATOR BRACKET

The Surface Applicator Bracket (A) is for granular fertilizer only and is used to apply fertilizer on the soil surface in fields which do not permit adequate fertilizer opener penetration, or which have a significant number of large rocks.

Position bracket so fertilizer will be distributed from 50 mm to 125 mm (2 in. to 5 in.) off row center.

NOTE: Fertilizer hopper spouts are positioned forward for this application.

A32318



-UN-07OCT88

A32318

B21,3AT,AG -19-28JUN90

Liquid Fertilizer Attachment

QUIK-FILL™ LIQUID FERTILIZER SYSTEM



411-0810-100
254100

A29892

The Quik-Fill Liquid Fertilizer System allows one-point filling instead of filling individual tanks.

The fertilizer tanks each hold approximately 264L (70 U.S. gal.) per tank. The fertilizer is distributed to the fertilizer openers by metering pumps, one on each side of the planter.

CAUTION: Agricultural chemicals can be dangerous. Improper selection or use can injure persons, animals, plants, soil or other property. **BE SAFE.** Select the right chemical for the job. Handle and apply it

with care. Follow instructions of the chemical manufacturer. Check all valves, fittings, hose clamps, plugs, and caps for tightness and soundness before admitting liquid fertilizer to the system. Check again at regular intervals and replace pipe and hoses when worn, cracked, or leaking.

When using liquid fertilizer, excessive pressure can cause tank rupture. Shut off nurse tank pump as soon as attachment tanks are full.

B217ATJ -19-26-UNRC

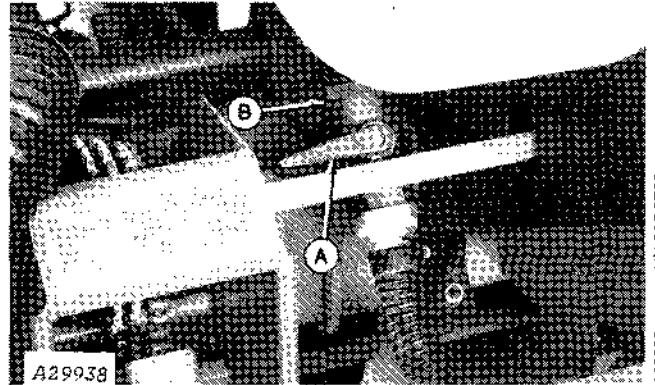
Liquid Fertilizer Attachment

To fill liquid fertilizer tanks, proceed as follows:

Close shut-off valves (A) to metering pumps when filling tanks.

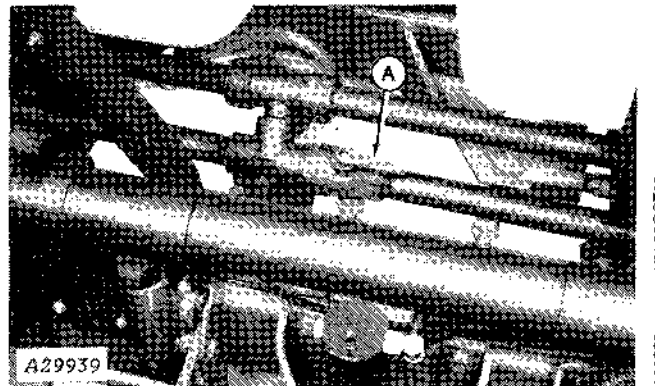
NOTE: If shut-off valve lever is hard to operate, proceed as follows:

Internal: O-rings located in the valve prevent valve leakage. The "preload" on these O-rings can be adjusted to allow both leak-free operation and easy operation of valve lever. Turn large nut (B) until lever moves smoothly without overtighten, which can cause damage to the O-rings.



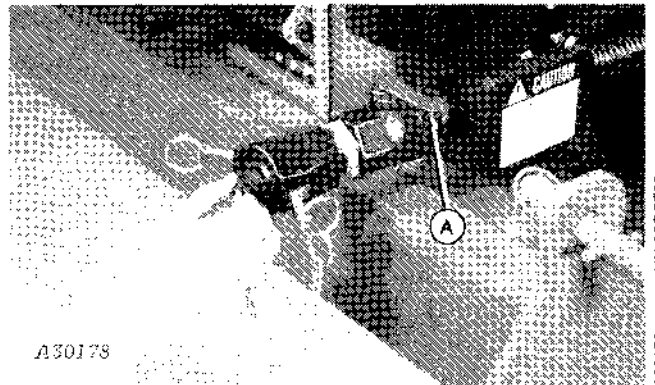
B21.7AT.J -19-28JUN90

Open shut-off valve (A) on fill pipe.



B21.7AT.K -19-28JUN90

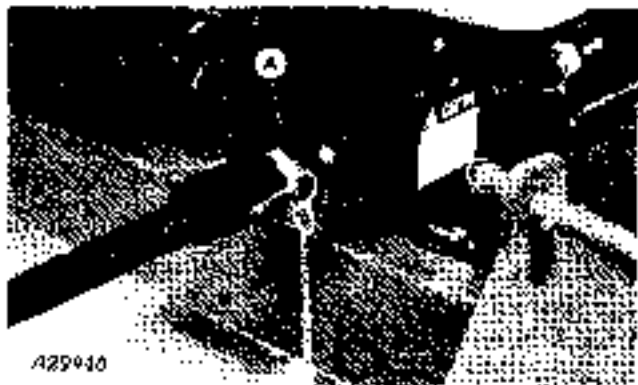
Close valve (A) and remove dust cover from quick-attaching coupler.



B21.7AT.L -19-28JUN90

Secure nurse tank to quick-attaching coupler.

Open shut-off valve (A).



429940

821,5ATM 1928JUN90

IMPORTANT: It is recommended that the nurse tank pump be no larger than a 40 mm (1-1/2 in.) centrifugal pump with a 2.2 kW (3 to 5 hp) gasoline engine. If a 50 mm (2 in.) centrifugal pump is used with a 3.7 to 5.5 kW (5 to 7-1/2 hp) gasoline engine, it is recommended that the engine be run at half throttle. It is not recommended that a 75 mm (3 in.) centrifugal pump be used. These larger pumps may exceed the liquid fertilizer attachment pressure limit, resulting in damage to liquid tanks. Signs of excessive pressure will be leakage through the seals of the tank caps and bottom fittings. Another sign would be swelling of the tanks, which could cause possible cracking or bursting of tanks.

821,5ATM 1928JUN90

The rate of liquid fertilizer application is determined by:

Regular or low-rate metering pump hoses (A).

Position of the driver and driven gears (B).

Fertilizer transmission sprocket combination (C).



B0513AT.M -19-25.FJMB0

CHANGING FERTILIZER TRANSMISSION SPROCKET COMBINATIONS

To change fertilizer transmission sprocket combination, proceed as follows.

Raise retainer hook (A) from storage position.



B0513AT.N -19-25.U400

Pull down on chain tightener (A) and secure with retaining hook.

Remove rubber spacers (B).

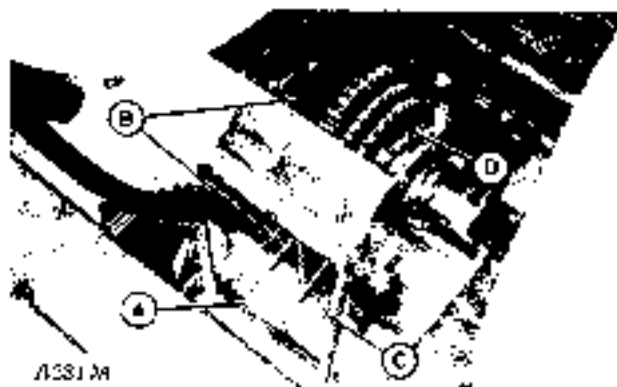
Remove chain from sprockets and slide desired driver and driven sprockets (C) and (D) into alignment with chain tightener and replace chain.

Replace rubber sprocket spacers between sprockets as required.

IMPORTANT: Be certain sprockets are aligned properly with chain tightener and secure with rubber spacers. Check to be sure chain runs freely on selected sprockets. Improper alignment can cause drive failures.

Press down on chain tightener and place retaining hook in storage position.

Repeat procedure on fertilizer transmission on opposite side of planter.



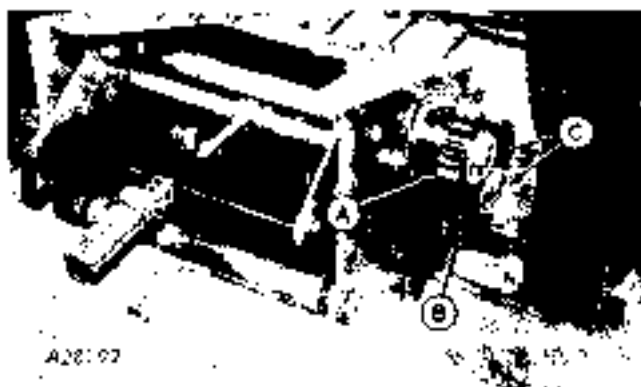
A—Chain Tightener
B—Rubber Spacers
C—Driver Sprockets
D—Driven Sprockets

E05.13AT O -19-28UJ130

CHANGING DRIVER AND DRIVEN GEAR COMBINATIONS

The 14-tooth gear (A) and the 28-tooth gear (B) are interchangeable, depending on your desired rate.

Remove quick-lock pins (C) and remove gears.



E05.13AT P -19-28UJ130

Install the desired driven gear on the upper front shaft (A) and the desired driven gear on the lower rear shaft (B). Secure gears with quick-lock pins.



E21.4T O -19-28UJ140

OPERATING THE METERING PUMP

To operate the metering pump, turn the handle (A) all the way in until handle tab contacts the cross tab, restricting further handle rotation.

When not in use, turn the handle out until there is approximately 25 mm (1 in.) between the handle and groove.



A28231

821,7AT R 10 28 JUN 10

If planting without applying liquid fertilizer is desired, close shut-off valves (A) to metering pumps and disengage pump drive as follows:



A29221

821,7AT R 10 28 JUN 10

Remove the quick-lock pin (A), remove and reverse the lower gear to prevent wear on the gears and metering pump. Secure lower gear with quick-lock pin.



A37606



A29407

821,7AT R 10 20 JUN 10

Liquid Fertilizer Attachment

When planting on hillsides, close shut-off valve (A) on fill pipe to prevent liquid fertilizer from flowing to downhill tanks.



If planter is to sit overnight with liquid fertilizer in the tanks, close shut-off valves (A) to metering pumps to eliminate possible fertilizer flow through pump due to siphoning.



CHECKING FERTILIZER RATES

To check fertilizer rates:

Tie a one gallon container to the planter frame next to a fertilizer opener. Remove the delivery hose from the opener and insert hose into the gallon container.

To obtain gal/acre that will actually be delivered for 30 in. row spacing, drive forward at planting speed 300 ft. Measure fluid oz. caught in the container and multiply that amount by 0.454.

For 36 in. row spacing, multiply by 0.378.

For 38 in. row spacing, multiply by 0.358.

HOW TO USE LIQUID FERTILIZER RATE CHARTS

1. Select the chart with the desired row spacing, hose size and rate range.

The REGULAR RATE hoses are standard on the metering pump. LOW RATE hoses may be purchased through your John Deere dealer.

A LOWER RATE will require you to use the LOW RANGE CHART. The driver gear must be the 14-tooth gear and the driven gear must be the 28-tooth gear.

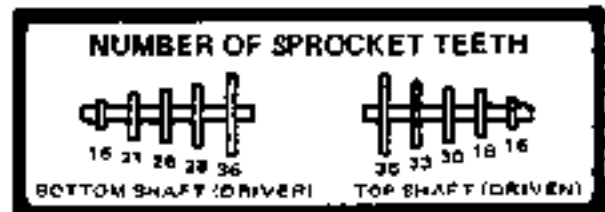
A HIGHER RATE will require you to use the HIGH RANGE CHART. The driver gear must be the 28-tooth gear and the driven gear must be the 14-tooth gear.

Refer to CHANGING FERTILIZER DRIVER AND DRIVEN GEAR COMBINATIONS for location of these gears.

2. Locate the desired rate under the TRAVEL SPEED column at the expected planting speed.

Determine the correct fertilizer transmission sprocket combination. Refer to CHANGING FERTILIZER SPROCKET COMBINATION.

NOTE: The rate charts are affected by many factors. Drive wheel slippage, the material that is being used and it's temperature, travel speed and pump hose tension are a few of the many factors which can affect this rate and, therefore, these charts should only be used as a guide. To be certain you are getting the desired rate, you must do a field check. Refer to CHECKING FERTILIZER RATES for instructions on how to check fertilizer rates.



A33626

A33626 11-07-EB98

**30 IN. ROWS · REGULAR RATE HOSES (STANDARD)
LOW RANGE**

NOTE: The following delivery rates are approximate and will vary with changes in temperature and the specific fertilizer being used.

Approximate Delivery Rates Using a 74-Tooth Driver Gear and 28-Tooth Driven Gear
with Regular Rate Pump Hoses
30 In. Row Spacing

Transmission Combination		Travel Speed in mph Gallons per Acre					
Driver	Driven	3.0	4.0	5.0	6.0	7.0	8.0
36	16	20.9	20.4	19.9	19.4	18.9	18.4
36	18	18.7	18.3	17.9	17.6	17.2	16.8
28	16	16.6	16.2	15.9	15.6	15.3	15.0
26	16	15.4	15.1	14.9	14.6	14.4	14.1
28	18	14.8	14.5	14.3	14.1	13.8	13.6
26	18	13.8	13.6	13.4	13.1	12.9	12.7
21	16	12.6	12.4	12.2	12.0	11.9	11.7
36	30	11.8	11.4	11.2	11.1	11.0	10.8
21	18	11.2	11.1	10.9	10.8	10.7	10.6
36	33	10.5	10.4	10.3	10.2	10.0	9.9
36	36	9.7	9.6	9.5	9.4	9.3	9.2
16	16	9.7	9.6	9.5	9.4	9.3	9.2
28	30	9.0	8.9	8.9	8.8	8.7	8.6
16	18	8.6	8.5	8.5	8.4	8.3	8.2
26	30	8.4	8.3	8.3	8.2	8.1	8.0
28	33	8.2	8.2	8.1	8.0	7.9	7.8
26	33	7.7	7.6	7.5	7.5	7.4	7.4
28	36	7.6	7.5	7.4	7.4	7.3	7.3
26	36	7.0	7.0	6.9	6.8	6.8	6.8
21	30	6.8	6.8	6.7	6.7	6.6	6.6
21	33	6.2	6.2	6.1	6.1	6.1	6.0
21	36	5.7	5.7	5.6	5.6	5.6	5.5
16	30	5.2	5.2	5.2	5.1	5.1	5.1
16	33	4.8	4.7	4.7	4.7	4.7	4.6
16	36	4.4	4.3	4.3	4.3	4.3	4.3

A30816

488515 19-0-01188

30 IN. ROWS - REGULAR RATE HOSES HIGH RANGE

NOTE: The following delivery rates are approximate and will vary with changes in temperature and the specific fertilizer being used.

Approximate Delivery Rates Using a 28-Tooth Driver Gear and 14-Tooth Driven Gear
with Regular Rate Pump Hoses
30 In. Row Spacing

Transmission Combination		Travel Speed in mph Gallons per Acre					
Driver	Driven	3.0	4.0	5.0	6.0	7.0	8.0
38	16	65.8	67.9	60.0	42.0	34.1	26.2
38	18	60.8	54.6	48.3	42.1	35.8	29.5
28	18	55.3	60.5	45.7	40.9	38.1	31.3
28	16	52.3	48.2	44.0	39.9	35.8	31.6
28	18	60.6	46.8	43.0	39.2	38.4	31.6
26	18	47.7	44.4	41.2	37.9	34.6	31.4
21	16	44.2	41.5	38.8	36.1	33.4	30.7
36	30	41.0	38.7	35.5	34.2	32.0	29.7
21	18	40.0	37.9	35.8	33.7	31.5	29.4
36	33	37.8	36.0	34.1	32.2	30.4	28.5
38	36	35.1	33.5	32.0	30.4	28.8	27.3
16	16	35.1	33.5	32.0	30.4	28.8	27.3
28	30	33.1	31.7	30.3	29.0	27.6	26.2
16	18	31.7	30.4	29.2	28.0	26.7	25.5
26	30	31.0	29.8	28.6	27.4	26.3	25.1
28	33	30.4	29.3	28.1	27.0	25.9	24.8
26	33	28.4	27.5	26.5	25.5	24.6	23.6
28	36	28.1	27.2	26.2	25.3	24.3	23.4
26	36	26.3	25.6	24.7	23.8	23.0	22.2
21	30	25.6	24.8	24.0	23.3	22.5	21.7
21	33	23.4	22.9	22.2	21.5	20.9	20.3
21	36	21.6	21.1	20.6	20.0	19.5	19.0
16	30	19.9	19.4	19.0	18.8	18.1	17.7
18	33	18.2	17.8	17.5	17.1	16.7	16.4
18	36	16.8	16.5	16.1	15.8	15.5	15.2

A30821

A30821 - 10/21-11/89

R21 28T AF - 14 28U EN20

Liquid Fertilizer Attachment

**30 IN. ROWS - LOW RATE HOSES
LOW RANGE**

NOTE: The following delivery rates are approximate and will vary with changes in temperature and the specific fertilizer being used.

**Approximate Delivery Rates Using a 14-Tooth Driver Gear and 28-Tooth Driven Gear
with Low Rate Pump Hoses
30 In. Row Spacing**

Transmission Combination		Travel Speed in mph Gallons per Acre					
Driver	Driven	3.0	4.0	5.0	6.0	7.0	8.0
36	16	12.0	11.8	11.7	11.5	11.3	11.2
36	18	10.7	10.6	10.5	10.3	10.2	10.1
28	16	9.4	9.3	9.2	9.1	9.0	8.9
26	16	8.8	8.7	8.6	8.5	8.4	8.3
28	18	8.4	8.3	8.3	8.2	8.1	8.0
26	18	7.8	7.8	7.7	7.6	7.6	7.5
21	16	7.1	7.1	7.0	7.0	6.9	6.8
36	30	6.5	6.5	6.4	6.4	6.3	6.3
21	18	6.4	6.3	6.3	6.2	6.2	6.1
36	33	6.0	5.9	5.9	5.8	5.8	5.8
36	36	5.5	5.4	5.4	5.4	5.3	5.3
16	16	5.5	5.4	5.4	5.4	5.3	5.3
28	30	5.1	5.1	5.1	5.0	5.0	5.0
16	18	4.9	4.8	4.8	4.8	4.8	4.7
26	30	4.8	4.7	4.7	4.7	4.6	4.6
28	33	4.7	4.6	4.6	4.6	4.6	4.5
26	33	4.3	4.3	4.3	4.3	4.2	4.2
28	36	4.3	4.2	4.2	4.2	4.2	4.2
26	36	4.0	4.0	3.9	3.9	3.9	3.9
21	30	3.8	3.8	3.8	3.8	3.8	3.8
21	33	3.5	3.5	3.5	3.5	3.4	3.4
21	36	3.2	3.2	3.2	3.2	3.2	3.2
16	30	2.9	2.9	2.9	2.9	2.9	2.9
16	33	2.7	2.7	2.7	2.7	2.6	2.6
16	36	2.5	2.4	2.4	2.4	2.4	2.4

A30812

A30812 -19-31JAN89

B21.7AT.V -19-28JUN90

Liquid Fertilizer Attachment

**30 IN. ROWS - LOW RATE HOSES
HIGH RANGE**

NOTE: The following delivery rates are approximate and will vary with changes in temperature and the specific fertilizer being used.

**Approximate Delivery Rates Using a 28-Tooth Driver Gear and 14-Tooth Driven Gear
with Low Rate Pump Hoses
30 In. Row Spacing**

Transmission Combination		Travel Speed in mph Gallons per Acre					
Driver	Driven	3.0	4.0	5.0	6.0	7.0	8.0
36	16	41.9	39.2	36.4	33.7	31.0	28.2
36	18	38.1	35.9	33.7	31.6	29.4	27.3
28	16	34.0	32.4	30.7	29.0	27.4	25.7
26	16	31.9	30.5	29.1	27.6	26.2	24.9
28	18	30.7	29.4	28.1	26.8	25.5	24.2
26	18	28.6	27.7	26.5	25.4	24.3	23.2
21	18	26.4	25.6	24.6	23.6	22.7	21.8
36	30	24.4	23.6	22.8	22.1	21.3	20.5
21	18	23.8	23.0	22.3	21.6	20.8	20.1
36	33	22.4	21.7	21.1	20.4	19.8	19.2
36	36	20.7	20.1	19.6	19.0	18.5	18.0
16	16	20.7	20.1	19.6	19.0	18.5	18.0
28	30	19.4	18.9	18.4	18.0	17.5	17.0
16	18	18.5	18.1	17.7	17.2	16.9	16.4
26	30	18.1	17.7	17.3	16.9	16.5	16.1
28	33	17.7	17.3	17.0	16.6	16.2	15.8
26	33	16.5	16.2	15.9	15.6	15.2	14.9
28	36	16.3	16.0	15.7	15.4	15.0	14.7
26	36	15.2	15.0	14.7	14.4	14.1	13.8
21	30	14.8	14.5	14.3	14.0	13.7	13.5
21	33	13.5	13.3	13.1	12.9	12.6	12.4
21	36	12.4	12.3	12.1	11.9	11.7	11.5
16	30	11.4	11.3	11.1	11.0	10.8	10.7
16	33	10.4	10.3	10.2	10.0	9.9	9.8
16	36	9.6	9.5	9.4	9.3	9.2	9.0

A20818

A20818 10-30APR88

B217AL48 13-25JUN89

**36 IN. ROWS - REGULAR RATE HOSES
LOW RANGE**

NOTE: The following delivery rates are approximate and will vary with changes in temperature and the specific fertilizers being used.

**Approximate Delivery Rates Using a 14-Tooth Driver Gear and 28-Tooth Driven Gear
with Regular Rate Pump Hoses
36 In. Row Spacing**

Transmission Combination		Travel Speed in mph Gallons per Acre						
Driver	Driven	3.0	4.0	5.0	6.0	7.0	8.0	
26	18	17.4	17.0	16.6	16.2	15.8	15.4	
36	18	15.6	15.3	15.0	14.6	14.3	14.0	
28	16	13.8	13.5	13.3	13.0	12.6	12.5	
26	16	12.8	12.6	12.4	12.2	12.0	11.8	
28	18	12.3	12.1	11.9	11.7	11.5	11.3	
26	18	11.5	11.3	11.1	11.0	10.8	10.6	
21	16	10.5	10.3	10.2	10.0	9.9	9.8	
36	30	9.6	9.5	9.4	9.2	9.1	9.0	
21	18	9.3	9.2	9.1	9.0	8.9	8.8	
36	33	8.8	8.7	8.6	8.5	8.4	8.3	
36	36	8.0	8.0	7.9	7.8	7.7	7.6	
16	16	8.0	8.0	7.9	7.8	7.7	7.6	
28	30	7.5	7.5	7.4	7.3	7.2	7.2	
16	18	7.2	7.1	7.0	7.0	6.9	6.9	
26	30	7.0	6.9	6.9	6.8	6.8	6.7	
28	33	6.9	6.8	6.7	6.7	6.6	6.6	
26	33	6.4	6.3	6.3	6.2	6.2	6.1	
26	36	6.3	6.3	6.2	6.2	6.1	6.1	
26	36	5.9	5.8	5.6	5.7	5.7	5.6	
21	30	5.7	5.6	5.6	5.6	5.5	5.5	
21	33	5.2	5.1	5.1	5.1	5.0	5.0	
21	36	4.8	4.7	4.7	4.7	4.6	4.6	
18	30	4.4	4.3	4.3	4.3	4.3	4.2	
18	33	4.0	3.9	3.9	3.9	3.8	3.9	
16	36	3.6	3.6	3.6	3.6	3.6	3.6	

A30816

A30816 16 in. Jaws