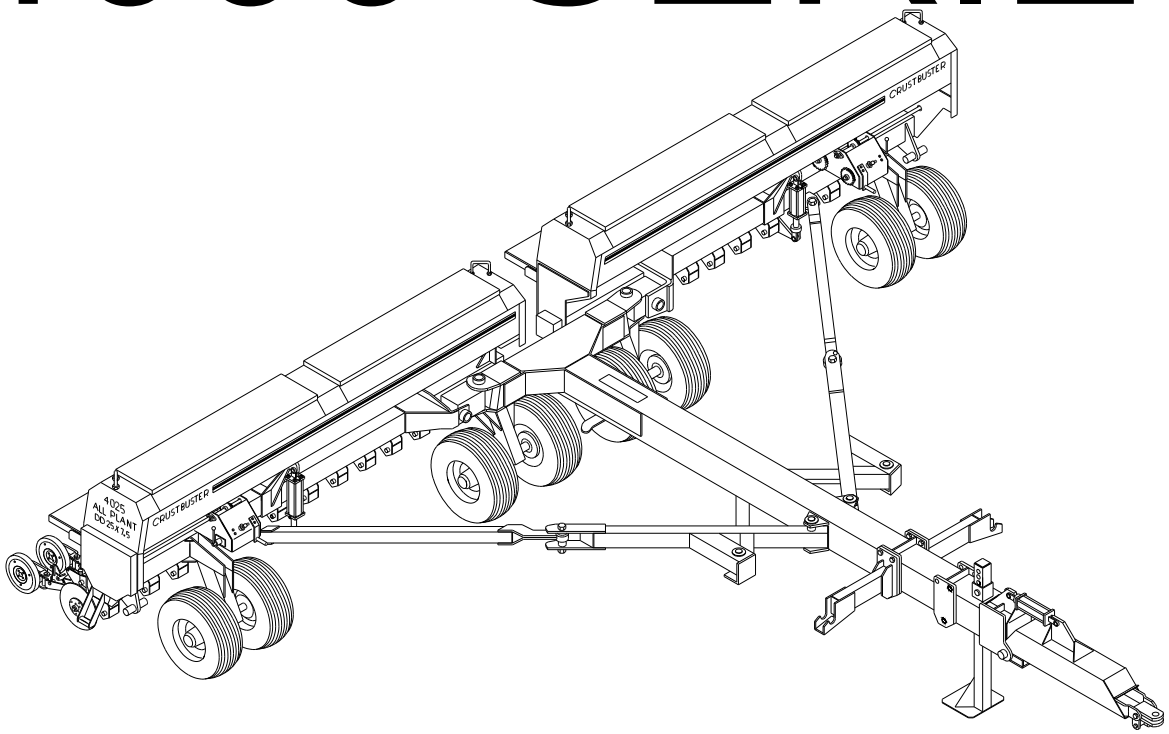
CrustBuster
SPEED KING INC.

P.O. Box 526 - Spearville, Kansas 67876 - (620) 227-7106
crustbuster.com

4000 SERIES



ALL PLANT & MIN-TILL DRILL

OWNER'S MANUAL

OPERATION • MAINTENANCE • REPAIR PARTS

(9-05) #604694

Identification

Your CrustBuster® drill is identified by a Serial Number and Model Number. Record these numbers in the spaces provided in this manual and refer to them when ordering parts or requesting service.

Serial Number	Model Number

Warranty

WARRANTY: In addition to the implied warranties of fitness and of merchantability, CrustBuster®/Speed King, Inc. warrants new products sold by it to be free from defects in workmanship and material for a period of 12 months, from the date of delivery to the first user customer. Warranty on purchased parts (cylinder, blades, bearings, shanks, etc.) will be the same as that offered by the appropriate manufacturer of these parts.

EXCLUSIONS: No warranty of any kind is made by CrustBuster®/Speed King, Inc. with regard to new products which have been subject to operation in excess of recommended capacities, misuse, abuse, negligence, or accident, or have been altered or repaired in any manner not authorized by CrustBuster®/Speed King, Inc. CrustBuster®/Speed King, Inc. is constantly striving to improve its products. Changes in design and improvement will be made whenever CrustBuster®/Speed King, Inc. believes the efficiency of its products will be improved thereby, but without incurring any obligation to incorporate such improvements in any products which have been shipped or are in service. No obligation exists for compensation of unauthorized repairs or modifications without prior approval. And in no event will CrustBuster®/Speed King, Inc. be liable for consequential damages, such as but not limited to: downtime, delayed or late tillage or planting, etc.

WARRANTY REGISTRATION: This warranty is not valid unless registered with CrustBuster®/Speed King, Inc. within 10 days from the date of purchase. It is the sole responsibility of the selling retail dealer to fill out the registration forms and see that they are properly filed with CrustBuster®/Speed King, Inc. This can be done at crustbuster.com.

WARRANTY PROCEDURE: Should any part fail to conform with this warranty, CrustBuster®/Speed King, Inc. will repair or replace the part or parts which do not conform. If a part is defective, take it to your authorized CrustBuster® Farm Equipment Dealer immediately, along with your warranty registration, and complete the proper forms requesting a warranty adjustment. Our representative will pick up the part to be returned to the factory for examination. If the customer (first user) requests that a new part be substituted for the old part, a new part will be charged to the dealer who will in turn charge the customer. If the part is found by us to be defective, a credit for the part will be given to the dealer to be passed on to the customer. If the dealer or customer wishes to repair the part, this will be done only if authorized by CrustBuster®/Speed King, Inc. This warranty procedure is in addition to all remedies authorized by law.

CRUSTBUSTER®/SPEED KING, INC.
Box 526
Spearville, KS 67876

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BE A SAFE OPERATOR
BY THINKING BEFORE ACTING
AND
BY READING
YOUR OWNER'S MANUAL

Avoid Accidents

Most accidents, whether they occur in industry, on the farm, at home, or on the highway, are caused by the failure of some individual to follow simple and fundamental safety rules or precautions. For this reason most accidents can be prevented by recognizing the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

A CAREFUL OPERATOR
is the Best Insurance Against an Accident.
The complete observance of one simple rule
would prevent many thousands
of serious injuries each year.

That rule is:

Never Attempt to
Clean, Oil, or Adjust
A Machine While It Is In Motion.

To Our Customers

The following pages and illustrations are printed to help supply you with the knowledge to better operate and service your new CrustBuster equipment.

We are proud to have you as a customer and feel you will be proud to be a CrustBuster owner.

Any piece of equipment needs, and must have, a certain amount of service and maintenance to keep it in top running condition. We have attempted to cover all the adjustments required to fit most conditions; however, there may be times when special care must be taken to fit a condition.

Study this owner's manual carefully and become acquainted with all the adjustments and operating procedures before attempting to operate your new equipment. Remember, it is a machine and has been designed and tested to do an efficient job in most operating conditions and will perform in relation to the services it receives.

If special attention is required for some condition, ask your CrustBuster dealer; he will be glad to help and answer any questions on operations and service of your new machine.

TAKE TIME FOR SAFETY

Safety

Before Operating This Equipment

Read and understand this owner's manual.

Secure implement to tractor drawbar with as large a hitch pin as allowed. A large bolt with locking nut or castle nut is recommended. Do not use a hairpin or wire to secure hitch pin. Residue may catch and remove these devices.

CAUTION!

During the unfolding sequence, drill becomes tail heavy.
Do Not stand over tongue during or after unfolding.
Remove tongue cylinder transport lock strap before attempting to operate.

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.

UNDERSTAND SIGNAL WORDS

A SIGNAL WORD-DANGER, WARNING, OR CAUTION-IS USED WITH THE SAFETY-ALERT SYMBOL. DANGER IDENTIFIES THE MOST SERIOUS HAZARDS.

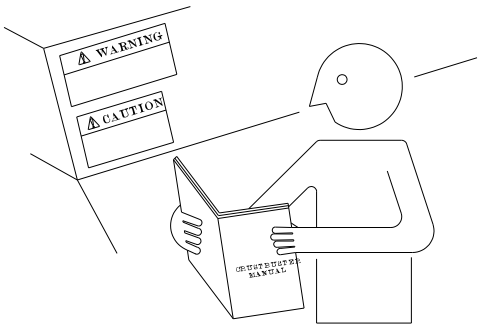
DANGER OR WARNING SAFETY SIGNS ARE LOCATED NEAR SPECIFIC HAZARDS. GENERAL PRECAUTIONS ARE LISTED ON CAUTION SAFETY SIGNS. CAUTION ALSO CALLS ATTENTION TO SAFETY MESSAGES IN THIS MANUAL.

DANGER

WARNING

CAUTION

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 CRUSTBUSTER 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 CRUSTBUSTER DEALER.

Safety

OPERATE SAFELY

DO NOT OPERATE DRILL WITH MORE THEN ONE PERSON ON THE TRACTOR.

DO NOT ALLOW ANYONE TO RIDE ON THE DRILL.

DO NOT OPERATE CLOSE TO A DITCH OR CREEK.

DRIVE SLOWLY OVER ROUGH GROUND.

SHIFT THE TRACTOR INTO A LOWER GEAR WHEN OPERATING ON STEEP SLOPES.

IF YOUR TRACTOR IS EQUIPPED WITH A ROLL-GUARD SAFETY CANOPY AND A SEAT BELT, BE SURE TO KEEP YOUR SEAT BELT FASTENED WHEN OPERATING OR TRANSPORTING THE DRILL.

HANDLE AND APPLY CHEMICALLY TREATED SEEDS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. PROPERLY DISPOSE OF UNUSED TREATED SEEDS AND THEIR CONTAINERS.

ALWAYS SHUT OFF TRACTOR ENGINE AND SHIFT TO PARK WHEN LEAVING TRACTOR. REMOVE KEY WHEN LEAVING TRACTOR UNATTENDED.

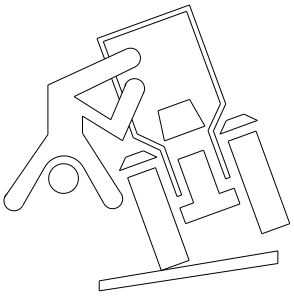
AVOID TIP-OVERS

USE A SEAT BELT UNDER ALMOST ALL OPERATING CONDITIONS.

AVOID HOLES, DITCHES, AND OBSTRUCTIONS WHICH MAY CAUSE THE MACHINE TO TIP, ESPECIALLY ON HILLSIDES.

NEVER DRIVE NEAR THE EDGE OF A GULLY OR STEEP EMBANKMENT-IT MIGHT CAVE IN.

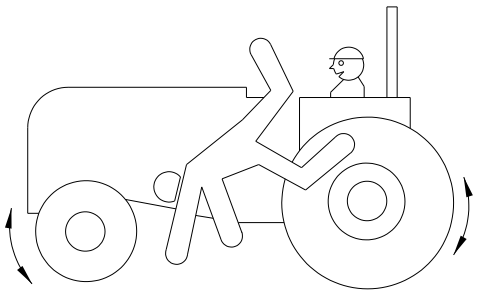
SLOW DOWN FOR HILLSIDES, ROUGH GROUND, AND SHARP TURNS.



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.



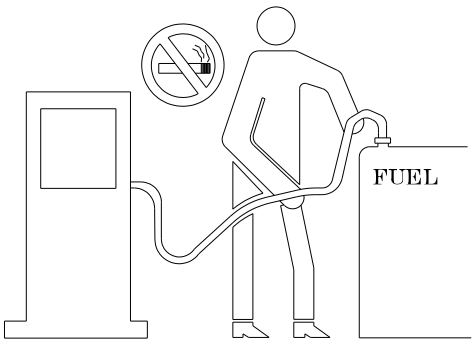
HANDLE FUEL SAFELY - AVOID FIRES

HANDLE FUEL WITH CARE: IT IS HIGHLY FLAMMABLE.

DO NOT REFUEL THE MACHINE WHILE SMOKING OR WHEN NEAR OPEN FLAME OR SPARKS.

ALWAYS STOP ENGINE BEFORE REFUELING MACHINE. FILL FUEL TANK OUTDOORS.

PREVENT FIRES BY KEEPING MACHINE CLEAN OF ACCUMULATED TRASH, GREASE, AND DEBRIS. ALWAYS CLEAN UP SPILLED FUEL.



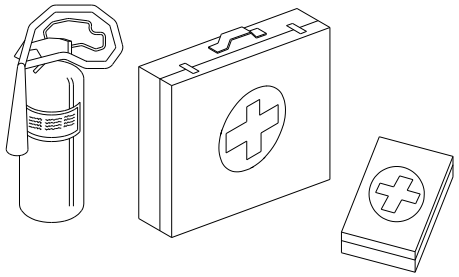
Safety

PREPARE FOR EMERGENCIES

BE PREPARED IF A FIRE STARTS.

KEEP A FIRST AID KIT AND FIRE EXTINGUISHER HANDY.

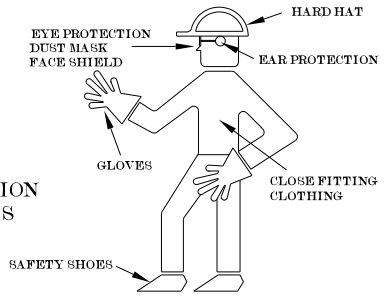
KEEP EMERGENCY NUMBERS FOR DOCTORS, AMBULANCE SERVICE, HOSPITAL, AND FIRE DEPARTMENT NEAR YOUR TELEPHONE.



WEAR PROTECTIVE CLOTHING

WEAR CLOSE FITTING CLOTHING AND SAFETY EQUIPMENT APPROPRIATE TO THE JOB.

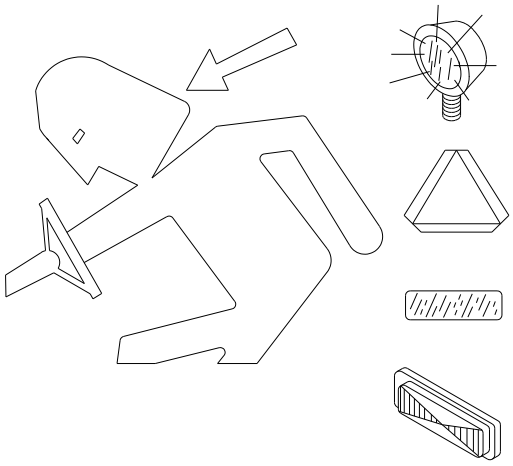
OPERATING EQUIPMENT SAFELY REQUIRES THE FULL ATTENTION OF THE OPERATOR. DO NOT WEAR RADIO OR MUSIC HEADPHONES WHILE OPERATING MACHINE.



USE SAFETY LIGHTS AND DEVICES

PREVENT COLLISIONS BETWEEN OTHER ROAD USERS, SLOW MOVING TRACTORS WITH ATTACHMENT OR TOWED EQUIPMENT, AND SELF-PROPELLED MACHINES ON PUBLIC ROADS. FREQUENTLY CHECK FOR TRAFFIC FROM THE REAR, ESPECIALLY IN TURNS, AND USE HAND SIGNALS OR TURN SIGNAL LIGHTS.

USE HEADLIGHTS, FLASHING WARNING LIGHTS, AND TURN SIGNALS DAY AND NIGHT. FOLLOW LOCAL REGULATIONS FOR EQUIPMENT LIGHTING AND MARKING. KEEP LIGHTING AND MARKING VISIBLE AND IN GOOD WORKING ORDER. REPLACE OR REPAIR LIGHTING AND MARKING THAT HAS BEEN DAMAGED OR LOST. AN IMPLEMENT SAFETY LIGHTING KIT IS AVAILABLE FROM YOUR CRUSTBUSTER DEALER.

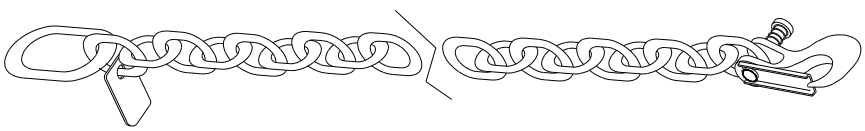


USE A SAFETY CHAIN

A SAFETY CHAIN WILL HELP CONTROL DRAWN EQUIPMENT SHOULD IT ACCIDENTLLY SEPERATE FROM THE DRAWBAR.

ATTACH THE SAFETY CHAIN TO THE TRACTOR DRAWBAR SUPPORT OR OTHER SPECIFIED ANCHOR LOCATION. PROVIDE ONLY ENOUGH SLACK IN THE CHAIN TO PERMIT TURNING.

SEE YOUR CRUSTBUSTER DEALER FOR A CHAIN WITH A STRENGTH RATING EQUAL TO OR GREATER THEN THE GROSS WEIGHT OF THE TOWED MACHINE. DO NOT USE SAFETY CHAIN FOR TOWING.



Safety

TRANSPORT SAFELY

IF EQUIPPED WITH ROW MARKERS, KNOW THE TRANSPORT HEIGHT OF YOUR MARKER ARM AND OVERHEAD WIRES. STOP SLOWLY.

ALWAYS RAISE THE FRONT JACK STAND BEFORE TRANSPORTING.

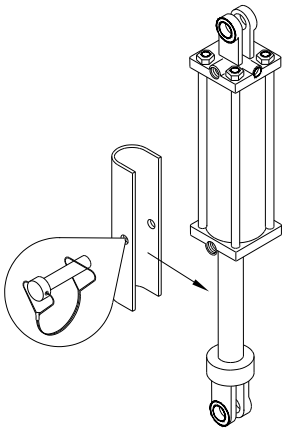
RAISE OPENERS FULLY AND PLACE OPENER LOCK-UP BRACKETS ON CYLINDERS TO PREVENT OPENERS FROM LOWERING. SECURE WITH PIN.

SHIFT THE TRACTOR INTO A LOWER GEAR WHEN TRANSPORTING DOWN STEEP SLOPES OR HILLS.

DO NOT TRANSPORT UNLESS THE GRAIN DRILL REFLECTORS, LIGHTS AND SMV EMBLEM ARE EASILY VISIBLE FROM THE REAR.

NEVER TRANSPORT THE GRAIN DRILL FASTER THAN 24 KM/H (15 MPH). REDUCE SPEED WHEN TRAVELING OVER ROUGH GROUND.

DO NOT TRANSPORT DRILL WITH GRAIN IN BOX.



TOW LOADS SAFELY

STOPPING DISTANCE INCREASES WITH SPEED AND WEIGHT OF TOWED LOADS, AND ON SLOPES. TOWED LOADS WITH OR WITHOUT BRAKES THAT ARE TOO HEAVY FOR THE TRACTOR OR ARE TOWED TOO FAST CAN CAUSE LOSS OF CONTROL. CONSIDER THE TOTAL WEIGHT OF THE EQUIPMENT AND ITS LOAD.

OBSERVE RECOMMENDED MAXIMUM ROAD SPEEDS, OR LOCAL SPEED LIMITS WHICH MAY BE LOWER.

IF TOWED EQUIPMENT DOES NOT HAVE BRAKES, DO NOT TRAVEL MORE THAN 24 KM/H (15 MPH) AND DO NOT TOW LOADS MORE THAN 1.5 TIMES THE TRACTOR WEIGHT.

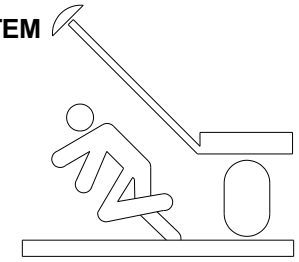
IF TOWED EQUIPMENT HAS BRAKES, DO NOT TRAVEL MORE THAN 40 KM/H (25 MPH) AND DO NOT TOW LOADS MORE THAN 4.5 TIMES THE TRACTOR WEIGHT.

ENSURE THE LOAD DOES NOT EXCEED THE RECOMMENDED WEIGHT RATIO. ADD BALLAST TO RECOMMENDED MAXIMUM FOR TRACTOR, LIGHTEN THE LOAD, OR GET A HEAVIER TOWING UNIT. THE TRACTOR MUST BE HEAVY AND POWERFUL ENOUGH WITH ADEQUATE BRAKING POWER FOR THE TOWED LOAD. USE ADDITIONAL CAUTION WHEN TOWING LOADS UNDER ADVERSE SURFACE CONDITIONS, WHEN TURNING, AND ON INCLINES.

CHARGE ROW MARKER HYDRAULIC SYSTEM

FALLING ROW MARKERS CAN CAUSE PERSONAL INJURY. BE SURE CYLINDERS AND ATTACHING HOSES ARE FULLY CHARGED WITH OIL BEFORE OPERATING. FAILURE TO DO SO WILL ALLOW MARKERS TO FALL RAPIDLY.

ALWAYS STAY CLEAR OF MARKERS WHEN RAISING OR LOWERING.

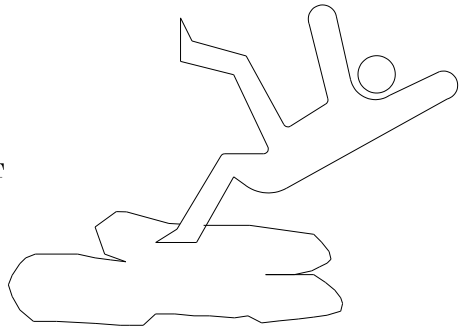


Safety

PRACTICE SAFE MAINTENANCE

UNDERSTAND SERVICE PROCEDURE BEFORE DOING WORK. KEEP AREA CLEAN AND DRY.

NEVER LUBRICATE, SERVICE, OR ADJUST 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.

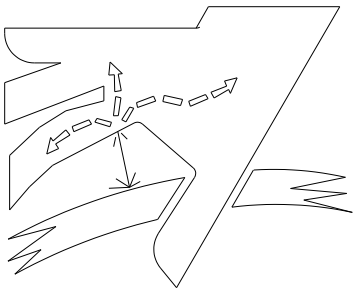
AVOID HIGH-PRESSURE FLUIDS

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 IN THE SKIN MUST BE SURGICALLY REMOVED WITHIN A FEW HOURS OR GANGRENE MAY RESULT. DOCTORS UNFAMILIAR WITH THIS TYPE OF INJURY SHOULD REFERENCE A KNOWLEDGEABLE MEDICAL SOURCE.



Field Operating Checklist

- ☐ ALWAYS follow tire manufacturer's recommendations regarding inflation. Tire manufacturer stated capacity is 60 PSI.
- ☐ Lubrication as required.
- ☐ Seed shafts turned manually to check for obstructions and improper chain alignment on drive sprockets.
- ☐ Correct sprocket selection and slot width for seed type and size.
- ☐ Calibration as required for accuracy.
- ☐ Drill adjusted for level field operation.
- ☐ Down pressure set for soil conditions.
- ☐ Record starting number on acre meter.
- ☐ Lower drill while moving forward to avoid plugging openers.
- ☐ Drill opener rockershaft fully raised before folding.
- ☐ Check seed depth and adjust accordingly.
- ☐ Allow no riders.

Safety Decals

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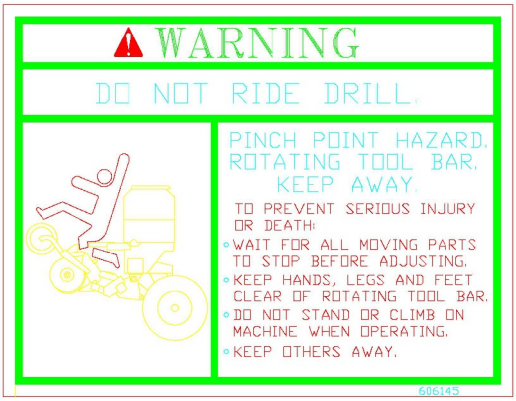

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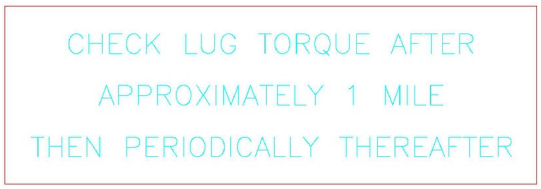

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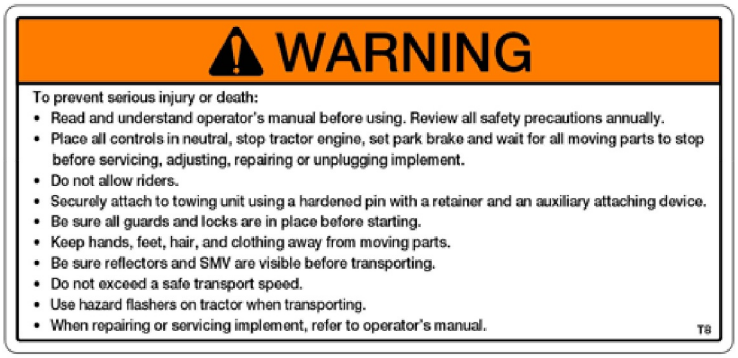

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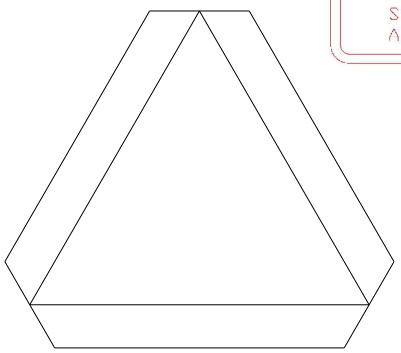


DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. DANGER

WARNING: Indicates a hazardous situation which, if not avoided, could result in death or serious injury. WARNING

CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. CAUTION

NOTICE: Used to address practices not related to physical injury.

NOTICE

Lubrication, Maintenance, and Service

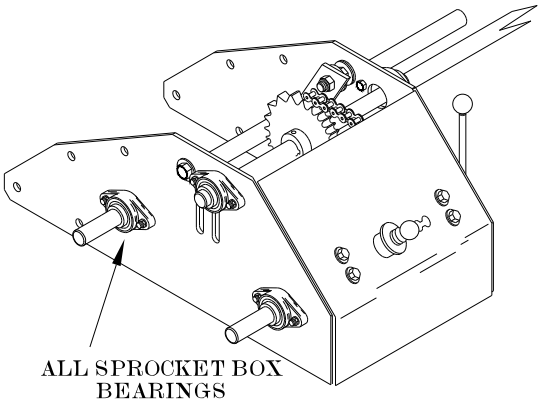
Lubrication and Maintenance

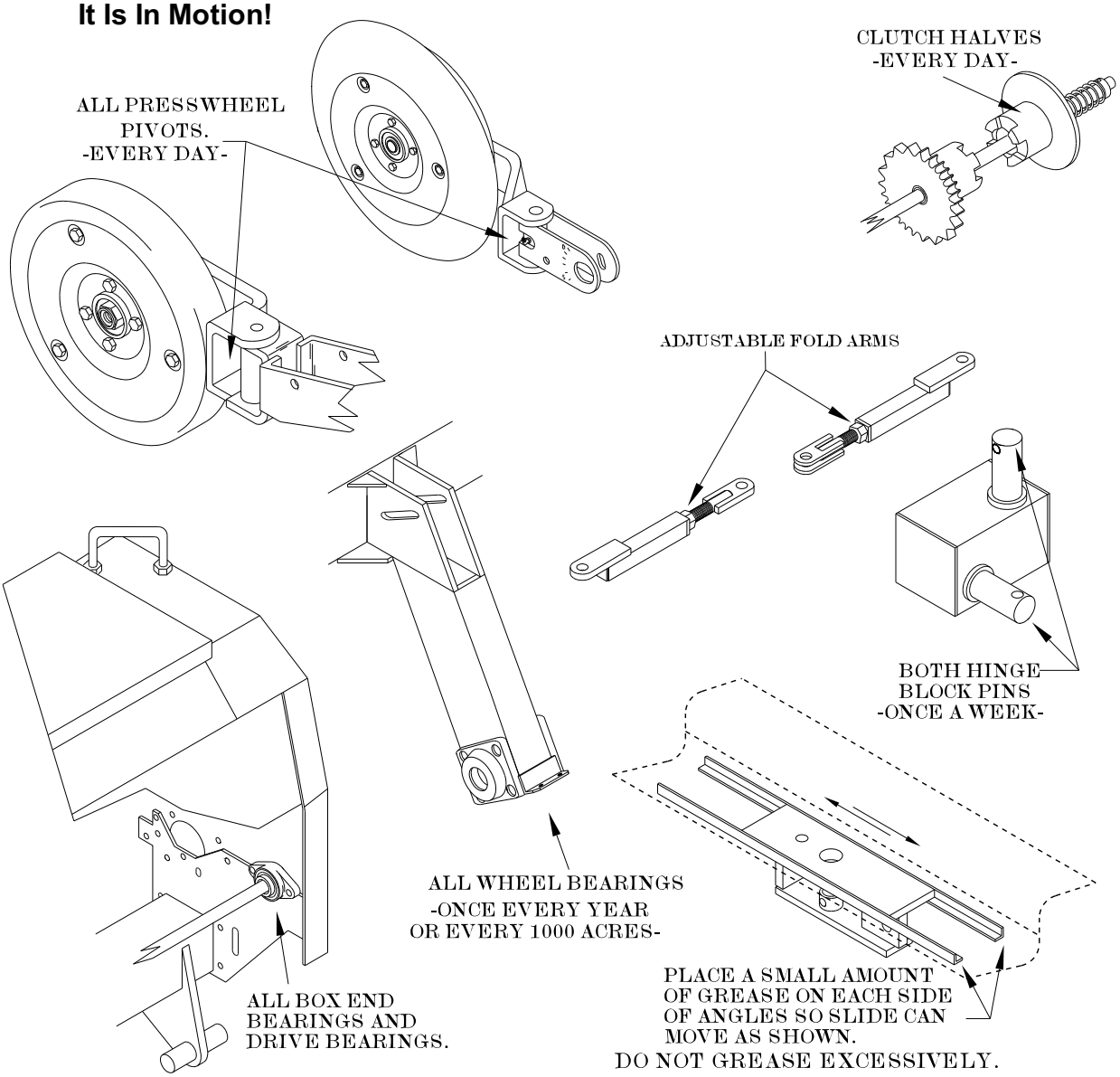
Proper maintenance will extend the life of your drill and give you years of excellent performance. Refer to the illustrations below for lubrication requirements. Use a high quality grease in pivot points and bearings.

On greaseable sealed bearings, be careful not to over-grease and destroy the dirt seal.

Pay attention to recommended intervals. Oil chains with a light chain lube. A light penetrating oil should be used on seed cups initially and at the end of each season. Clean cups with air pressure or vacuum before applying penetrating oil.

Do Not Attempt To Service Your Drill While It Is In Motion!



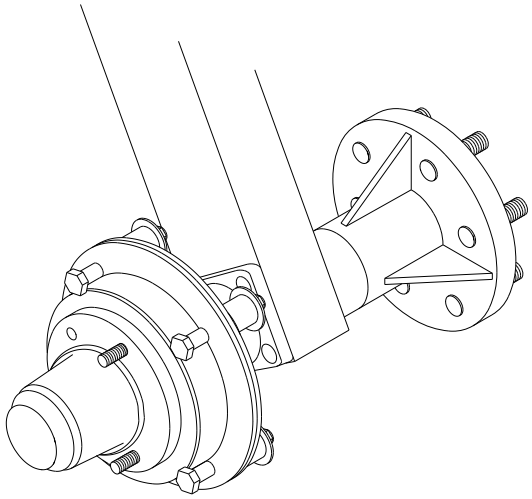


Clutch Maintenance

CAUTION!

At the start of a new drilling season, or anytime the drill is going to be used, especially if the drill has been stored out in the weather all winter long, make sure the clutch drive is not frozen up. Failure to do this will result in damage to the clutch assembly.

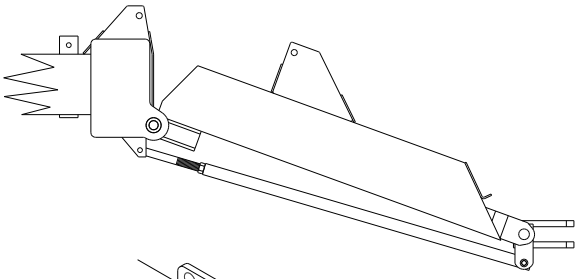
To make sure the clutch is not frozen up, loosen the clutch bolts. This should free the disc torque limiter. If not, use a knife to free the torque limiter from one or the other. Reset clutch back to where it was. **Do Not** use any oil or penetrating oil of any kind.



Transport Instructions

Before Attempting to Operate Tongue Cylinder,
Remove Transport Lock Strap.

The clevis or mono hitch will stay level on the 4000 Drill, making it very easy to hook to the tractor. Attach the hoses to the hydraulic ports on your tractor and operate the tongue up or down to align with the tractor drawbar. Once the hitch pin or large bolt is in place, extend the tongue cylinder fully to raise the front of the drill. Raise the support stand before moving the drill.



Folding and Unfolding Drill

Always Raise Openers Completely Before Folding Drill!

Fold Procedure Should Be Done On Nearly Level Ground With The Tractor Transmission In Neutral.

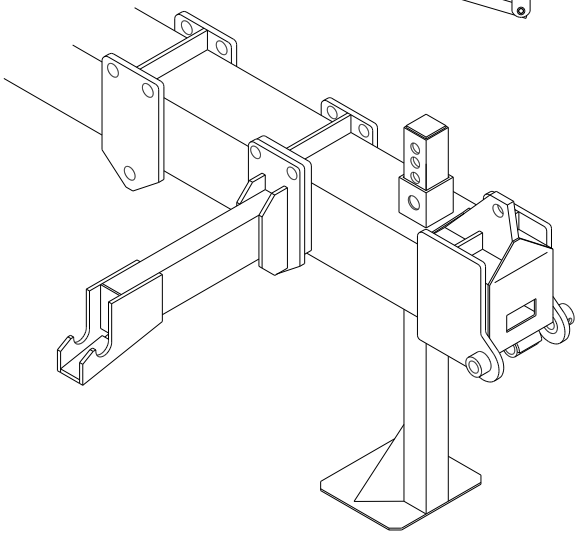
When drill is plumbed with manual hydraulic selector valves, change valve handle to change hydraulic flow to the fold cylinders.

To Unfold:

1. Lower front of drill tongue with tongue cylinder fully retracted and be sure the wing carrier arms will release from the wing carrier brackets.
2. Hold hydraulic pressure on fold cylinder until wings are in position.

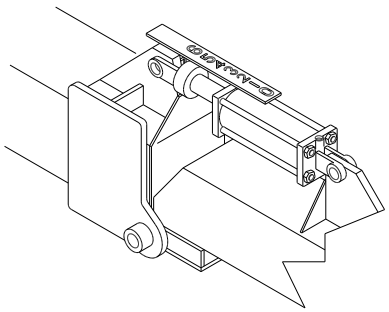
To Fold:

1. Raise openers completely out of ground to full up position.
2. Lower front of drill tongue to allow wing carrier arms to clear the wing carrier brackets.
3. Hold hydraulic pressure on fold cylinder until wings are in position.
4. Extend tongue cylinder fully for maximum road clearance.



Leveling

It is important that your drill be set level **front to back** during field operation. Seeding rate and opener travel will be affected if it is not. The tongue cylinder is equipped with a number scale for your convenience. When you are sure the drill is level, remember the number that is relative to the tongue cylinder position. After transporting to and from the farmstead or field, it will be easy to return to level. You should re-check the drill especially if field conditions are different.



Wobble Slot Seed Cup Adjustments and Service

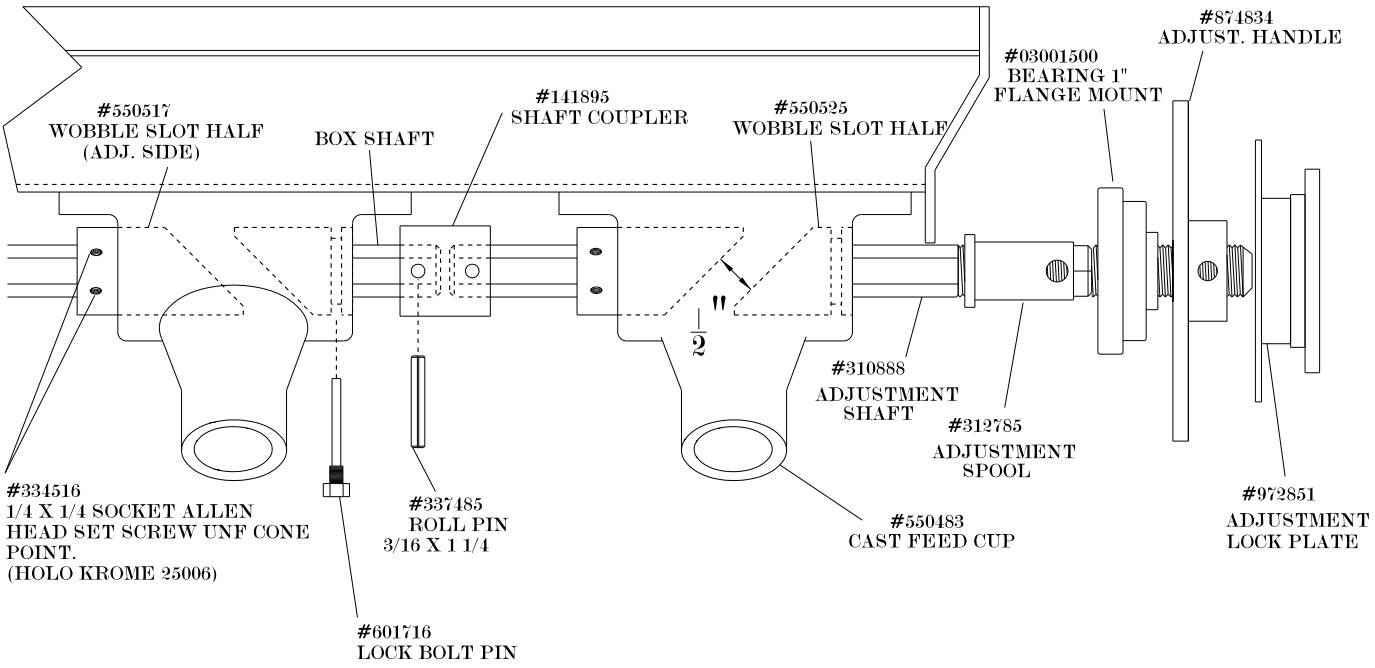
The wobble slot seed cups should be checked against the slot gauge initially and anytime service has been performed on the seed shaft or individual seed cups. Refer to the drawing below for proper adjustment if repairs have been made.

To verify that all seed cups are set the same on the shaft, start with all cups fully closed. A slight crack between the cup halves would be considered normal tolerance. If any individual cup is not "zeroed out," open the slot width using the adjusting handle, loosen allen set screws and adjust to equal others on shaft.

To determine if the gauge is reflecting the correct seed cup slot width, open the seed cups using the adjusting handle. Notice that wobble slot halves are positioned differently on the hex shaft. Identify a cup that will accept a piece of ½" keystock or other measuring device comfortably and give solid contact against each half. It may be necessary to turn the hex shaft slightly to position the particular seed cup correctly. Close the slot width firmly against the measuring device. At the cup next to the wobble slot adjusting handle, position the gauge to equal the slot width you have just measured with the keystock by loosening with a screwdriver and sliding in or out.

Small changes in rate can be made by opening or closing slot width. To close the slot width with grain in the box, close the slot down a maximum of 1/8" and then rotate the shaft one turn to clear the slot. Repeat this process until the desired slot width is selected.

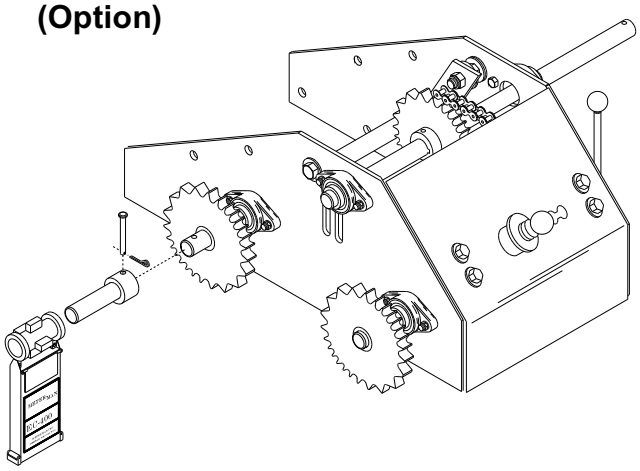
Seeding rate is affected by seed size, seed treatments, foreign material, and test weight. Refer to seed rate charts as guidelines for desired seeding rates.



Chain Tension on Drive Shaft

When making sprocket changes to the seed shaft, tighten chain to leave approximately 1/2" of flex. The final sprocket must allow the hex shaft to slide within the sprocket when the adjusting lever is moved. If the chain is too tight, bowing and binding of box end will occur making seed cup adjustment difficult. Lightly lubricate the shaft where the sprocket will slide. **DO NOT OVERTIGHTEN CHAIN.**

Meter Man Acreage Counter (Option)



Calibration

Use the formulas below to determine your implement calibration factor or refer to the predetermined factors listed when using CrustBuster drills.

DT = Distance traveled with one counter shaft rotation (when using two magnets, divide DT by 2).

WW = Working Width of implement (in inches).

$$\frac{WW \times DT/2}{6272640} = \text{Calibration factor}$$

NOTE: Whenever a gear change is made on the shaft being monitored, you will need to enter a new calibration factor.

Entering Calibration Factor

1. Depress ON/C
2. Round off factor to 5 digits
3. Enter factor (remember decimal point)
4. Depress **+** key
5. Depress **=** key
6. Depress decimal point (screen display 0)

Sprocket Box Adjustment

The sprocket box design will enable the operator to set a wobble slot width once for a given seed size and change rates by changing the speed of the seed shaft. Choose a range of seeding rates that you wish to operate in, set the slot width as indicated by the chart and simply change knob position with the slide handle to select seed rate.

A narrow slot width will produce more even distribution and spacing in the row. For round seeds, the ideal slot width can be determined by measuring seed size. To attain singular file flow of seeds from the wobble slot seed cup, the slot width should be greater than one and one half (1 ½) times the average seed size, but less than two (2) times the average size.

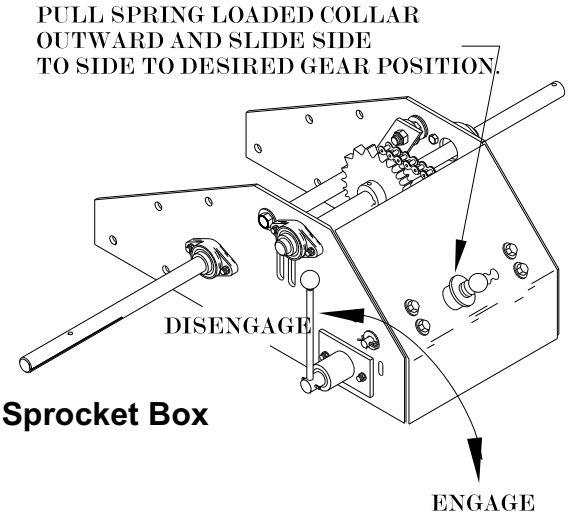
Ideal Slot Width = Greater than (>) 1½ times seed size
Less than (<) 2 times seed size

To determine average seed size, lay out 20-30 seeds in single file, each seed touching each other. A short piece of angle iron can help align the seeds evenly. Measure distance from end to end with a ruler. Divide that measurement by the number of seeds to equal the average seed size. Multiply average seed size times 1½ to find the minimum width. Multiply average seed size times 2 to find the maximum width. The slot width should be ideal when set between these values.

Example: 30 seeds measure 9 inches.
9 " divided by 30 seeds = .30"
.30" times 1.5 = .45" .30 times 2 = .60"
Ideal slot width is greater than .45", less than .60"
Ideal slot width = ½"

Refer to seed chart ½" column as a starting point for setting final seed rate.

To change position, move throw-out lever toward the rear to disengage the chain from the lower sprocket. Pull the spring loaded collar outward with two fingers and slide side to side to the desired gear position. Pull throw-out lever forward to re-engage the chain.



Sprocket Box

CrustBuster Drill Meter Man Factors by Model

4000 Drills

Spacing	20'	25'	30'
6"		.00307	.00369
7 ½" & 15"	.00212	.00246	.00294
8"	.00191	.00224	.00271
10"	.00152	.00177	.00212

Field Operation

Recommended Operating Speed

Operating speeds of **4-7** mph will provide optimum results from your Min-Till and All Plant drill. Conventional field conditions can warrant speeds in the upper end of the range. High levels of "tough" residue due to morning dew or recent moisture, rough field conditions, rocky fields, or hard ground may require lower speeds for adequate performance.

Recommended Adjustment Procedure

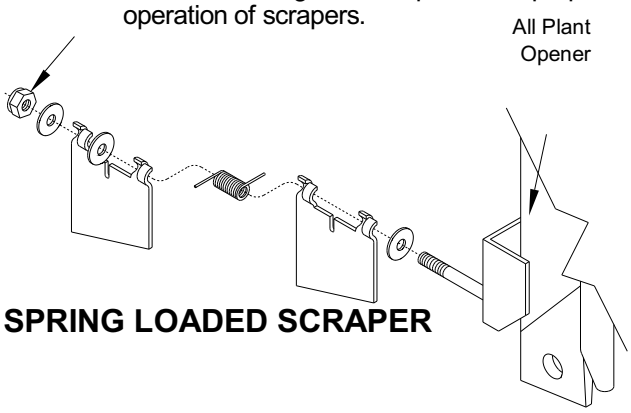
Setting your drill requires adjustments be made in a particular order to ensure the opener will work properly. You will find it much easier to set the drill if adjustments are made in the following order:

1. **Level the drill**
2. **Set toolbar rotation**
3. **Set down pressure**
4. **Set seed depth**

Scraper Adjustment

Opener blade inside scrapers are spring loaded and require no adjustment. To replace the scraper blades, remove the rear lock nut and slide both blades from the stem. Assemble with new blades and replace onto stem being careful not to over tighten lock nut.

NOTE: **Do not over tighten lock nut.** Be sure scrapers move freely. Failure to do so will result in damage to scrapers and proper operation of scrapers.



SPRING LOADED SCRAPER

Blade Gap Adjustment

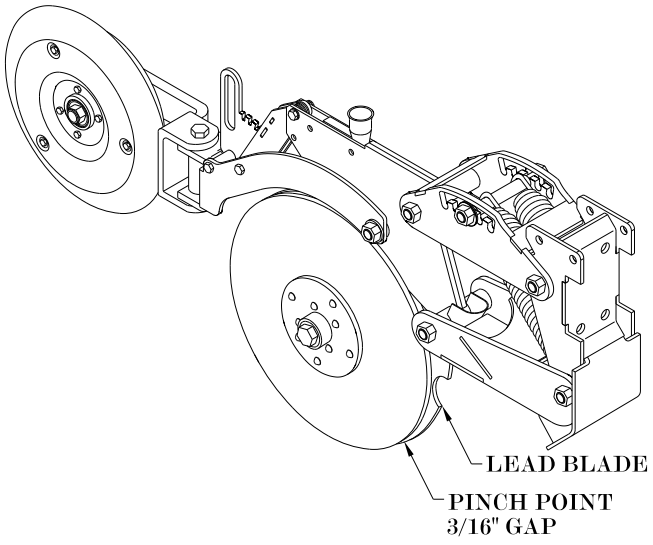
Offset blade designs form better seed furrows and penetrate and cut in tougher planting conditions. If using the **ALL PLANT** opener, as the blades wear

Blade Gap Adjustment - *(cont'd.)*

the gap between blades will increase. Removing each blade from the opener bracket allows the operator to take shim washers from behind the bearing and re-adjust the blade gap for better performance. Shim washers that are removed **must** then be placed on outside of blade to maintain length of bolt. Maintain a **3/16"** clearance between blades, measuring at the pinch point. Inadequate clearance will increase wear on the inside of the lead blade and mean quicker replacement. The lead blade changes sides on the opener on each half of the drill. The right blade on **ALL PLANT** openers is installed with a right hand threaded bolt. The left blade is installed with a left hand threaded bolt.

If the **MIN-TILL** opener is used, the offset design is achieved by using a 15" leading blade and a 13" trailing blade. One bolt and lock nut secures both blades in the proper angle by tightening the bearing races against the opener bracket. Be sure to hold the bolt as the nut is removed or replaced. The bolt is bent to the proper angle for the blades to meet at the front pinch point. Since it is mounted with one bolt, the **MIN-TILL** opener blades require **no gap** at the pinch point. Shim washers may be needed to achieve this. When tightening blades, rotate the bent bolt until bearing races are flat and flush against beveled surface of opener blade bracket.

ALL PLANT opener shown



If you have purchased a Min-Till Drill, the operation procedures continue on page 18.

All Plant Drill

Opener / Tool Bar Adjustments

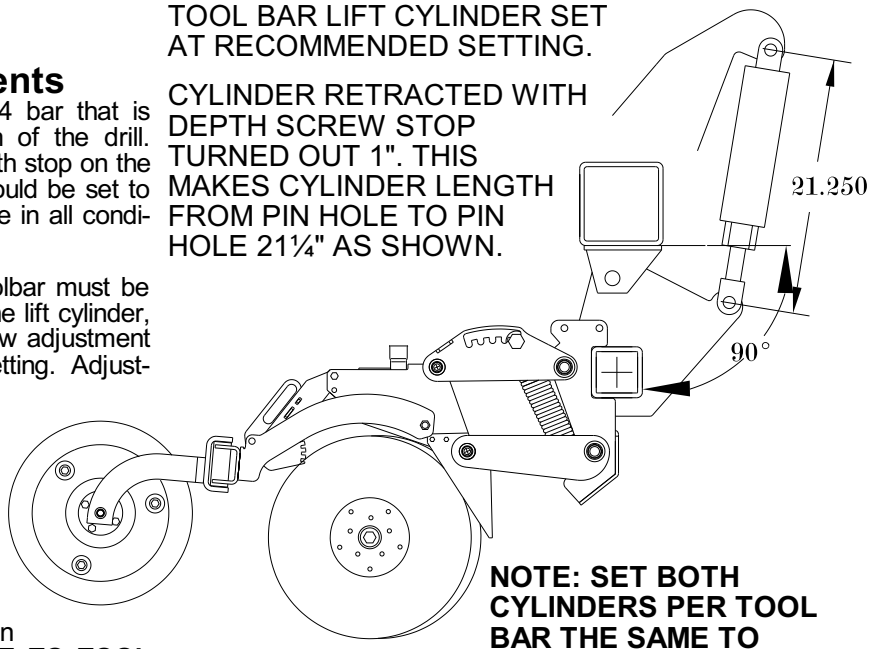
The All Plant units are attached to a 4x4 bar that is rotated by two cylinders on each section of the drill. Each cylinder uses a screw adjustable depth stop on the cylinder rod. The adjustable depth stop should be set to rotate the 4x4 bar **square** to the 7x7 frame in all conditions.

After the drill is leveled, rotation of the toolbar must be set. Using the screw adjustable stop on the lift cylinder, adjust rotation of the toolbar with the screw adjustment turned out **1"** for an initial recommended setting. Adjustment range of the presswheel depth quadrant will be affected if the toolbar does not rotate far enough or goes beyond perpendicular. If the toolbar is not set correctly, the opener travel range will not allow for penetration into low areas or provide clearance when meeting obstructions.

Check that both tool bar lift cylinders on each section are set the same. **DAMAGE TO TOOL BAR WILL RESULT IF THEY ARE NOT SET THE SAME.**

TOOL BAR LIFT CYLINDER SET AT RECOMMENDED SETTING.

CYLINDER RETRACTED WITH DEPTH SCREW STOP TURNED OUT 1". THIS MAKES CYLINDER LENGTH FROM PIN HOLE TO PIN HOLE 21¼" AS SHOWN.



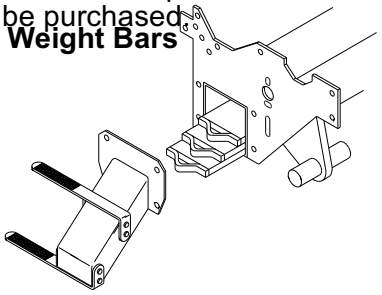
NOTE: SET BOTH CYLINDERS PER TOOL BAR THE SAME TO PREVENT TWISTING OF TOOL BAR.

Additional Weighting / Weight Brackets

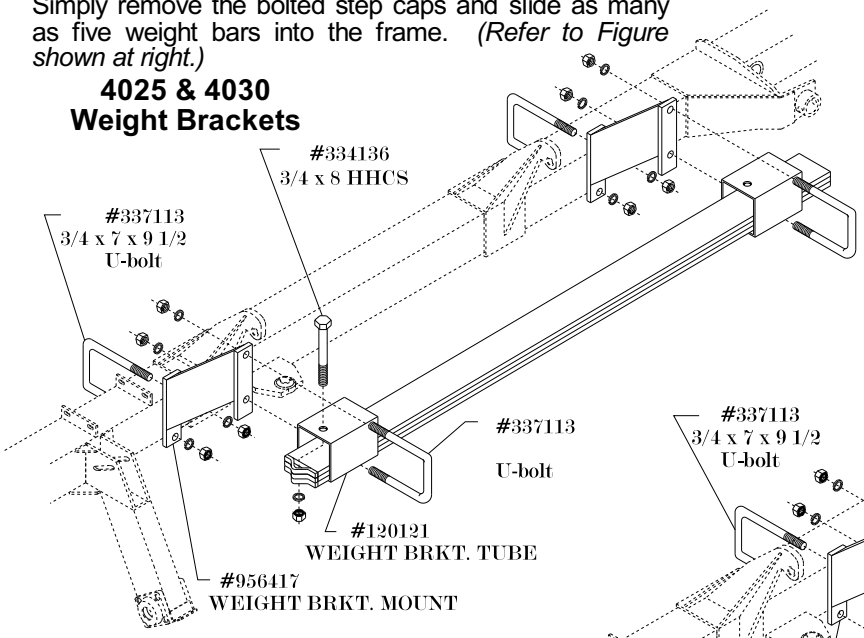
When operating the All Plant drill in hard ground conditions, it may be necessary to add weight to the frame. This can be achieved two different ways. Optional weight bars are available to place into the 7 x 7 main frame. Simply remove the bolted step caps and slide as many as five weight bars into the frame. *(Refer to Figure shown at right.)*

If more weight is needed, optional bolt-on weight brackets may be purchased.

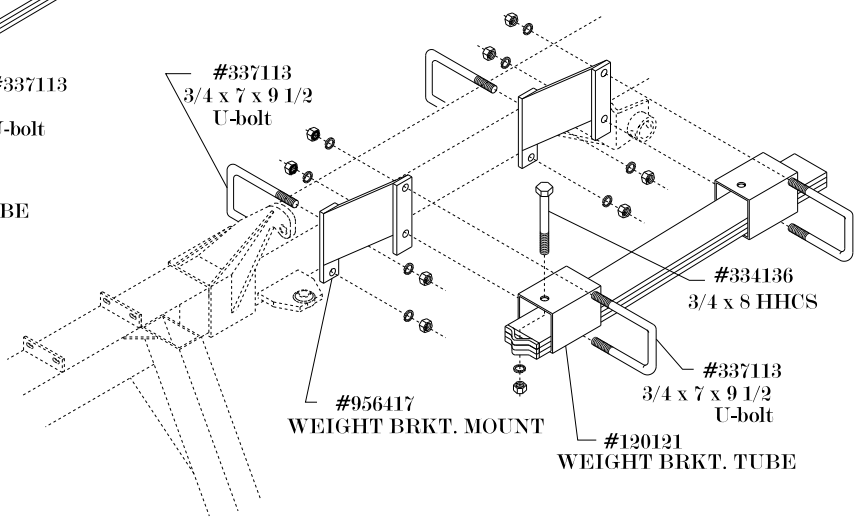
Weight Bars



4025 & 4030 Weight Brackets



4020 Weight Brackets



All Plant Drill

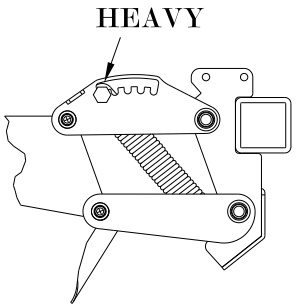
Setting Down Pressure

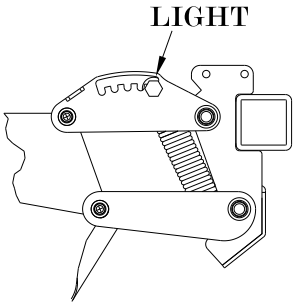
The parallel linkage opener design assures the operator the opener blades and presswheel operate on the same level throughout the range of up and down travel. Due to the location of the down pressure spring, the pressure applied to the opener remains relatively constant in the entire range of travel. Changing the spring position from the first (top) notch to the last (bottom) notch provides 5 different levels of force. Each notch represents approximately these amounts of down pressure:

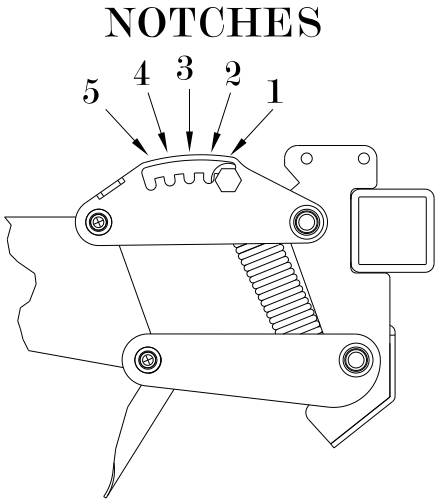
	1 Spring	2 Springs
Notch 1 (top)	120#	200#
Notch 2	160#	260#
Notch 3	200#	330#
Notch 4	240#	400#
Notch 5	260#	500#

It may be necessary to add ballast to the drill in the third or fourth notch. In order that all the opener springs are able to achieve the down pressure selected, the total weight of the drill must equal that amount of pressure times the number of row units on the drill. The parallel linkage arms should have a "live working action" during field operation. Setting the drill for too much down pressure without adequate weight will reduce the ability of the opener to flex and give good performance.

To determine the correct amount of down pressure, begin with the unit set in the lightest setting and the presswheel adjusted all the way up (or deepest setting). Put the openers in the ground and pull forward 50-100 feet. Stop and check opener penetration. If the opener is not penetrating to the depth you wish to plant, rotate toolbar upwards until clear of the ground, and add one more notch of down pressure. Repeat the process until the opener will penetrate to at least the depth you wish to plant.

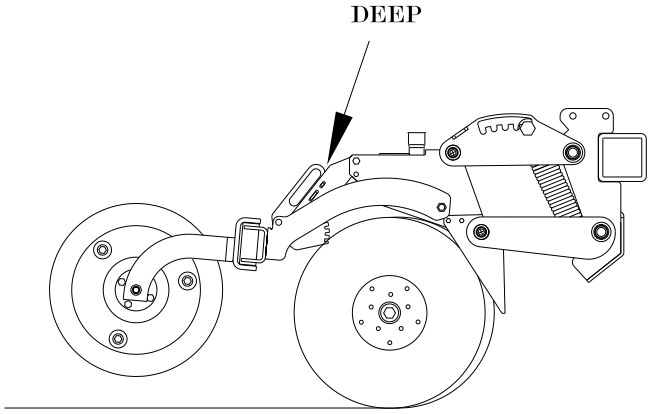


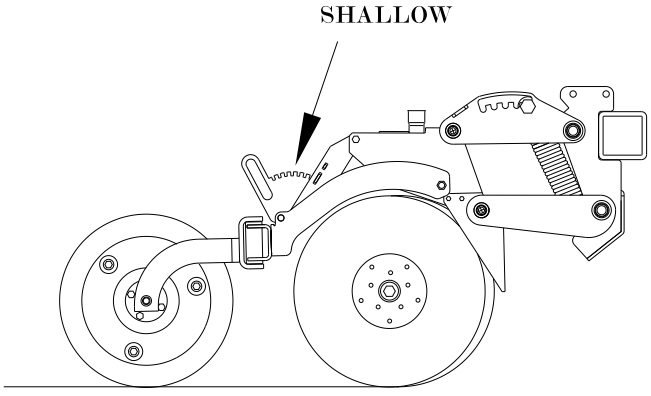




Setting Seed Depth

Depth settings are achieved by moving the depth quadrant to affect the presswheel relationship to the opener. Changes are made by releasing the spring-loaded lock handle and moving the quadrant up or down with the hand slot. **LOWERING** the quadrant will set seed depth **shallow** --**RAISING** the quadrant will set seed depth **deeper**. Irregular seed placement can be caused by excessive field speed, residue hairpinning, rocky conditions, and cloddy or wet soil conditions.





All Plant Drill

Minimum Tillage Conditions

The most challenging condition is often presented when a high level of residue is present in a "loose" soil environment. The opener blades will not cut residue cleanly and can often have a tendency to push or "bulldoze" residue ahead of the opener discs.

For minimum tillage operations, the lightest spring (top notch) is recommended. Firming the ground using a culti-packer or similar tool can aid in packing the residue for better cutting and blade penetration with less hairpinning.

The All Plant drill will work well in minimum tillage conditions if a "stale seedbed" is created. Soil worked at an earlier date, and allowed to firm and crust over can give the opener more resistance, allow for better cutting action, and create a firmer seed furrow. The first or second notch will usually provide enough down pressure to penetrate the soil.

Conventional Field Conditions

For tilled field conditions, the lightest spring setting (top notch) is recommended. More weight will be transferred to the carrying wheels of the drill when the toolbar is rotated. Behind tractor and drill tires it may be necessary to adjust individual row units for extra down pressure or different depth setting. **Setting the drill in conventional tillage will be easier if the tillage trips are kept shallow (2" - 4").**

If the first notch presents too much down pressure, the down pressure spring assembly can be removed. With the spring assembly removed, the effective down pressure of the opener is approximately 60#.

To remove spring, rotate tool bar until openers are clear of ground. This will release tension on spring allowing the removal of ½" x 6" bolt at the top of the spring. Unhook spring from rod at bottom of opener mount. When replacing spring, make sure the long hook end of spring is down.

No-Till Conditions

No-till presents many different conditions. Residue level and condition, previous tillage strips (ridges, plow dead furrows), soil type, soil moisture and rocky conditions all increase the demands on the no-till drill. Many variables and conditions not removed by tillage trips require greater attention to settings and speed. In some circumstances, it may be desirable to drill at a slight angle to existing rows. This will also randomize the opener disc wear and extend the maintenance interval for new blades.

As a general rule, less than ideal conditions will require slower speeds, to reduce hairpinning, improve opener penetration and residue cutting, reduce rock damage, and maintain good furrow formation and seed placement.

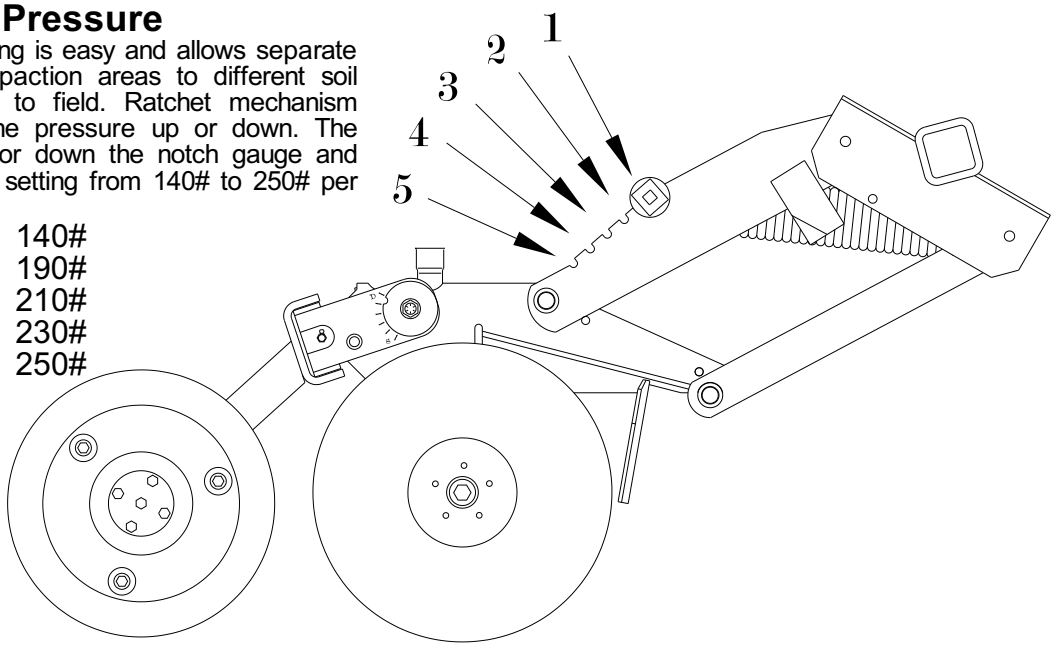
It is recommended you set the drill beginning with light down pressures and work your way up to heavier settings. If the presswheel presses firmly on the seed slot and control depth evenly, it is unnecessary to add more pressure. When increased down pressure does not improve penetration, or carrying wheels lose ground contact (and seed drive shaft stops), begin adding ballast with weight bars.

Min-Till Drill

Setting Down Pressure

Opener pressure setting is easy and allows separate settings for tire compaction areas to different soil conditions from field to field. Ratchet mechanism allows you to turn the pressure up or down. The locking key rolls up or down the notch gauge and locks to your desired setting from 140# to 250# per opener.

Notch 1 . . 140#
Notch 2 . . . 190#
Notch 3 . . 210#
Notch 4 . . 230#
Notch 5 . . 250#



Down Pressure Spring Adjustment

Row units that run in wheel tracks can be set with heavier down pressure to assure solid presswheel action. The following will help in changing spring pressure.

1. Rotate the tool bar to raise the opener. Fold up the walkboard to give good access to the front of the opener.
2. Using ratchet type wrench, roll locking key up or down notch gauge to desired setting.

Setting Seed Depth

Understanding the tool bar operation and parallel linkage design will make setting the drill much easier. Refer to the drawing on the next page.

Rotating the rockershaft **DOWN**
sets seed depth more **SHALLOW.**

Each tool bar is controlled by a hydraulic cylinder within each wheel arm. An adjustable depth stop sets the travel of the cylinder which in turn determines how much the tool bar rotates.

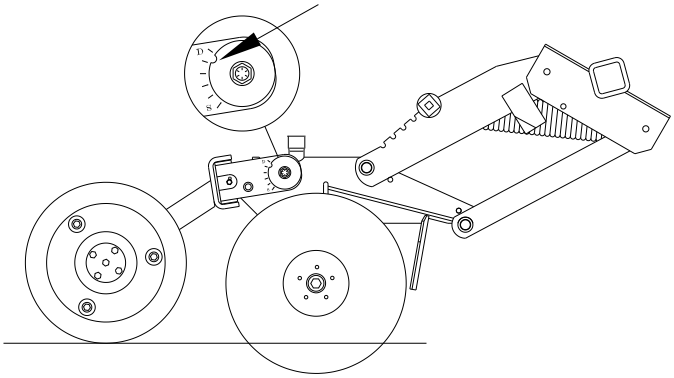
Set depth stop in middle position as a starting point. To set deeper seed depth, screw the depth stop out and lengthen the cylinder travel. The opener and presswheel relationship controls the depth of seed.

When lowering the openers, be sure the tool bar is in the full down position and the cylinder is retracted against the depth stop. The parallel linkage must be "set" to achieve the desired down pressure and depth control.

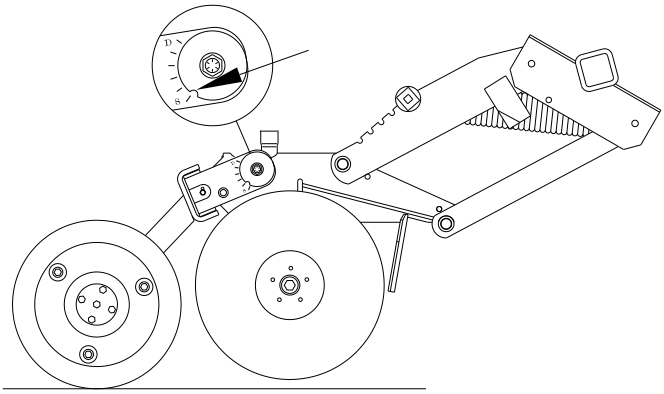
Individual presswheels may be set to correct for wheel track compaction. Usually, these will only need to be adjusted once if the same tractor is pulling the drill the entire season. At the rear of the opener, a cam rotation bracket holds the single presswheel arm. Turn the cam toward the **"D"** or **"S"** to achieve the desired depth control.

LOWERING the presswheel
will set seed depth more **SHALLOW.**

DEEP



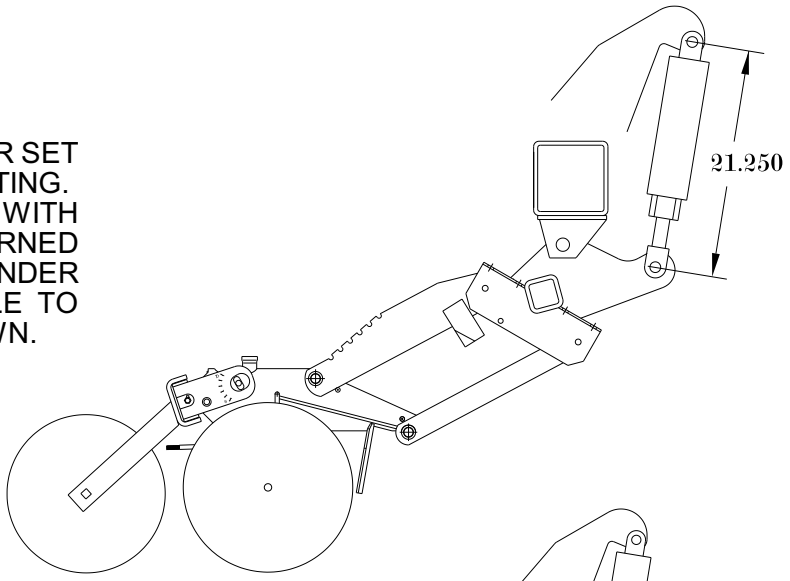
SHALLOW



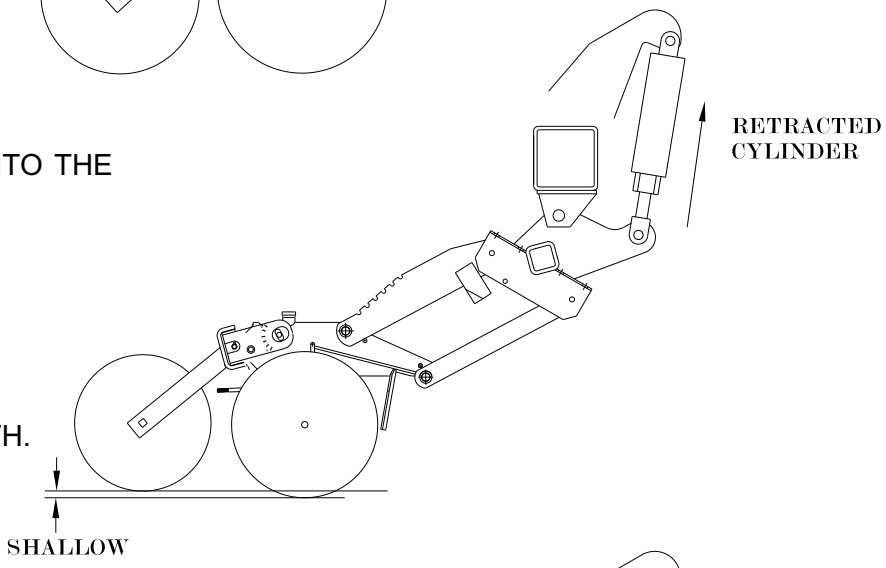
Min-Till Opener

Presswheel Adjustment with Tool Bar Rotation

- TOOL BAR LIFT CYLINDER SET AT RECOMMENDED SETTING. CYLINDER RETRACTED WITH DEPTH SCREW STOP TURNED OUT 1". THIS MAKES CYLINDER LENGTH FROM PIN HOLE TO PIN HOLE 21¼" AS SHOWN.

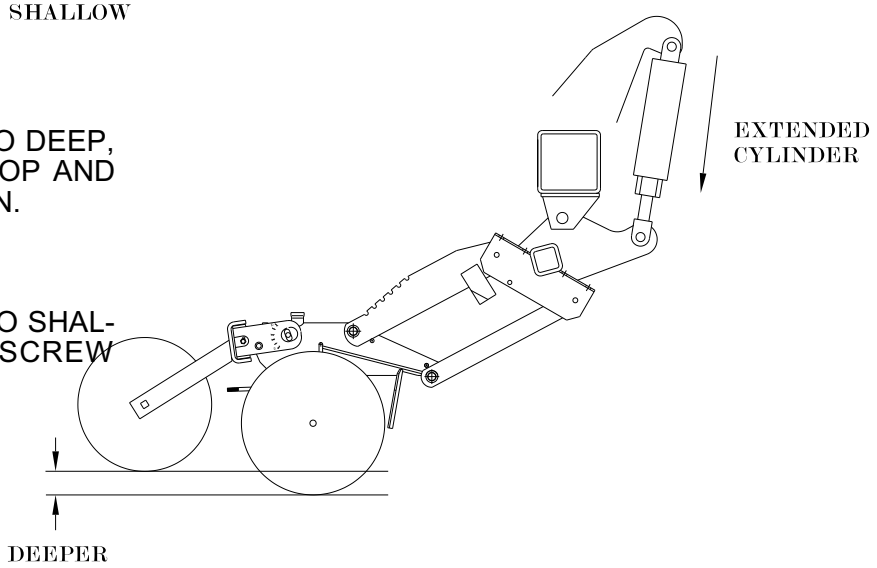


- ROTATE TOOL BAR INTO THE GROUND.



- CHECK OPENER DEPTH.

- IF OPENER IS SET TOO DEEP, SHORTEN SCREW STOP AND RETRACT CYLINDER IN.



- IF OPENER IS SET TOO SHALLOW, LENGTHEN SCREW STOP.

NOTE: Set both cylinders per tool bar the same to prevent twisting of tool bar.

NOTE: ⅛" of depth stop travel changes presswheel depth ±¼.

Calibration, Seed Rates and Sprocket Box

Calibration/Drilling Rates

Planting the right rate can be frustrating. Sometimes the end result is not what the rate chart indicates. Seeding rate is affected by seed size, seed treatments, foreign material, test weight, and tire air pressure.

1. Always plant clean seed.
2. Check tire air pressure.
3. Seed treatments vary by type and time of application.

Some seeds are treated at the processor. Drill box treatments are common methods of application. Each of these can "gum" up the wobble slot cup halves and reduce final seeding rate. Treated seed often flows differently than non-treated seed.

A general method for checking quantities drilled is as follows:

1. Set drill for desired seeding rate.
2. Fill the box level; then pull drill for a short distance to settle seed. Refill box exactly level full.
3. Drill a calculated one acre.
4. Carefully weigh the seed required to refill the box level full. Box capacities:

4020	**23½**	**bushels per box**
4025	**29**	**bushels per box**
4030	**33¾**	**bushels per box**

5. Compare the amount used versus that stated on the rate chart.
6. Adjust seeding rate by changing the sprocket combination or wobble slot width.

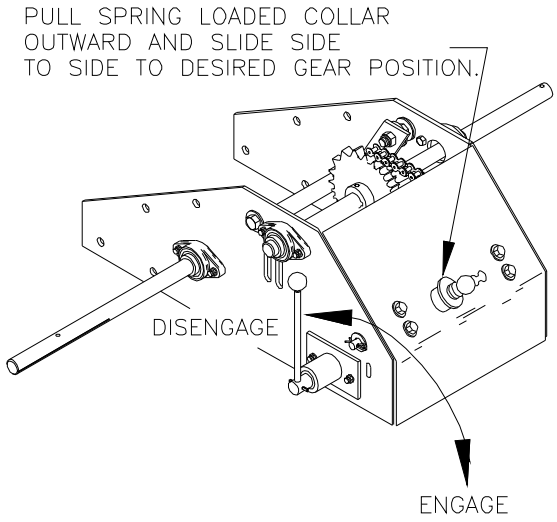
One method involves catching seed from one or more seed cups and utilizing a density scale to determine actual rates. These scales are commercially available, inexpensive and very easy to use. Information can be obtained from CrustBuster®/Speed King, Inc.

Sprocket Box Operation

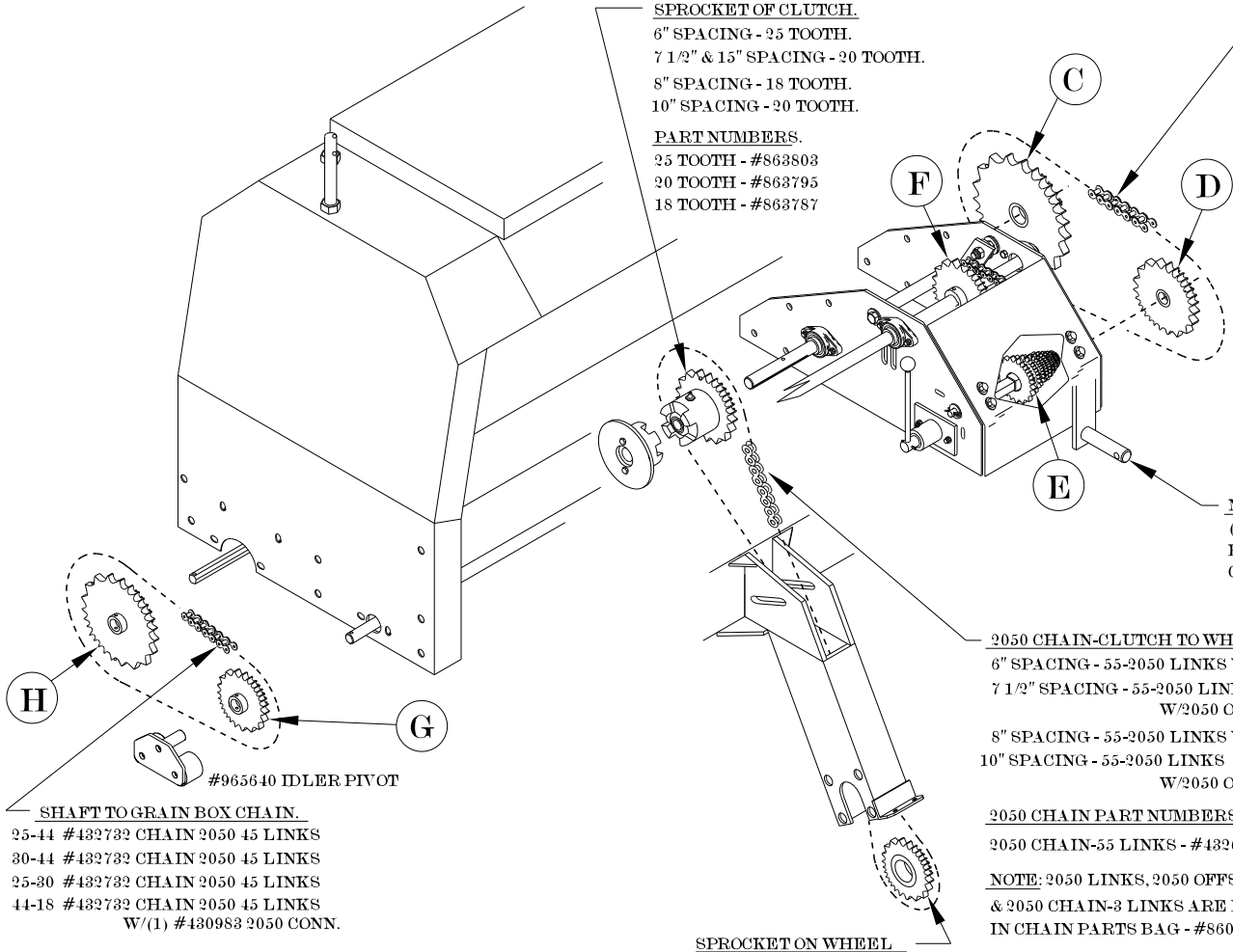
The sprocket box design will enable the operator to set a wobble slot width once for a given seed size and change rates by changing the speed of the seed shaft. Choose a range of seeding rates that you wish to operate in, set the slot width as indicated by the chart and simply change knob position with the slide handle to effect seed rate. A narrow slot width will produce more even distribution and spacing in the row.

When changing derailleur, be sure openers are rotated out of ground.

To change position, move throw-out lever toward the rear to disengage the chain from the lower sprocket. Pull the spring loaded collar outward with two fingers and slide side to side to the desired gear position. Pull throw-out lever forward to re-engage the chain.



4000 Sprocket Locations



SPROCKET OF CLUTCH.
6" SPACING - 25 TOOTH.
7 1/2" & 15" SPACING - 20 TOOTH.
8" SPACING - 18 TOOTH.
10" SPACING - 20 TOOTH.

PART NUMBERS.
25 TOOTH - #863803
20 TOOTH - #863795
18 TOOTH - #863787

GEARBOX CHAIN.

30-25 27 LINKS 2050 CHAIN W/
(1) 2050 OFFSET & (1) 2050 CONN.

18-44 27 LINKS 2050 CHAIN W/
(1) 2050 3 LINK CHAIN & (2) 2050 CONN.

25-44 27 LINKS 2050 CHAIN W/
(1) 2050 3 LINK CHAIN,
(1) 2050 OFFSET & (2) 2050 CONN.

30-44 27 LINKS 2050 CHAIN W/
(1) 2050 3 LINK CHAIN,
(2) 2050 OFFSET & (2) 2050 CONN.

PART NUMBERS.
2050 CHAIN - 27 LINKS #431239

NOTE: 2050 LINKS, 2050 OFFSETS,2050 CONNECTORS & 2050 CHAIN-3 LINKS ARE FOUND IN CHAIN PARTS BAG - #860841

NOTE: EXTRA SPROCKETS (DEPENDING ON SET-UP) RIDE ON SPROCKET CARRIER.

C,D,G,&H

2050 SPROCKETS W/1" HUB

18T - #954131
25T - #935098
30T - #935106
44T - #954362

#965640 IDLER PIVOT

SHAFT TO GRAIN BOX CHAIN.
25-44 #432732 CHAIN 2050 45 LINKS
30-44 #432732 CHAIN 2050 45 LINKS
25-30 #432732 CHAIN 2050 45 LINKS
44-18 #432732 CHAIN 2050 45 LINKS
W/(1) #430983 2050 CONN.

NOTE: USE IDLER PIVOT #965640 TO ADJUST CHAIN FOR DIFFERENT SPROCKETS.

2050 CHAIN-CLUTCH TO WHEEL.
6" SPACING - 55-2050 LINKS W/2050 CONN.
7 1/2" SPACING - 55-2050 LINKS W/2050 OFFSET &2050 CONN.
8" SPACING - 55-2050 LINKS W/2050 CONN.
10" SPACING - 55-2050 LINKS W/2050 OFFSET & 2050 CONN.

2050 CHAIN PART NUMBERS.
2050 CHAIN-55 LINKS - #432666

NOTE: 2050 LINKS, 2050 OFFSET LINKS, 2050 CONN., & 2050 CHAIN-3 LINKS ARE FOUND IN CHAIN PARTS BAG - #860841

SPROCKET ON WHEEL
6" SPACING - 18 TOOTH
7 1/2" & 15" SPACING - 18 TOOTH
8" SPACING - 18 TOOTH
10" SPACING - 25 TOOTH

PART NUMBERS
18 TOOTH - #954370
25 TOOTH - #953216

Seed Rate Charts

ALFALFA

Sprockets						Slot Width	
		Derailleur		Box End		Pounds/Acre	
C	D	E	F	G	H	1/8"	1/4"
18	44	16	30	25	44	5	8
18	44	17	30	25	44	5	9
18	44	18	30	25	44	5	9
18	44	19	30	25	44	6	10
18	44	20	30	25	44	6	11
18	44	21	30	25	44	6	11
18	44	22	30	25	44	7	12
18	44	23	30	25	44	7	12
25	44	16	30	25	44	7	12
25	44	17	30	25	44	7	12
25	44	18	30	25	44	8	13
25	44	19	30	25	44	8	14
25	44	20	30	25	44	8	15
25	44	21	30	25	44	9	15
25	44	22	30	25	44	9	16
25	44	23	30	25	44	10	17
30	44	16	30	30	44	10	17
30	44	17	30	30	44	10	18
30	44	18	30	30	44	11	19
30	44	19	30	30	44	12	20
30	44	20	30	30	44	12	21
30	44	21	30	30	44	13	22
30	44	22	30	30	44	13	23
30	44	23	30	30	44	14	24
30	25	16	30	25	44	14	25
30	25	17	30	25	44	15	26
30	25	18	30	25	44	16	28
30	25	19	30	25	44	17	29
30	25	20	30	25	44	18	31
30	25	21	30	25	44	19	32
30	25	22	30	25	44	20	34
30	25	23	30	25	44	21	35
30	25	16	30	25	30	21	36
30	25	17	30	25	30	22	38
30	25	18	30	25	30	24	41
30	25	19	30	25	30	25	43
30	25	20	30	25	30	26	45
30	25	21	30	25	30	28	48
30	25	22	30	25	30	29	50
30	25	23	30	25	30	30	52

BARLEY

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	1/2"	5/8"	3/4"
30	25	16	30	25	44	31	38	45
30	25	17	30	25	44	33	40	48
30	25	18	30	25	44	34	43	51
30	25	19	30	25	44	36	45	54
30	25	20	30	25	44	38	47	57
30	25	21	30	25	44	40	50	60
30	25	22	30	25	44	42	52	63
30	25	23	30	25	44	44	54	65
30	25	16	30	25	30	45	56	67
30	25	17	30	25	30	48	59	71
30	25	18	30	25	30	51	63	75
30	25	19	30	25	30	53	66	79
30	25	20	30	25	30	56	69	83
30	25	21	30	25	30	59	73	88
30	25	22	30	25	30	62	76	92
30	25	23	30	25	30	65	80	96
30	25	16	30	30	25	65	80	96
30	25	17	30	30	25	69	85	102
30	25	18	30	30	25	73	90	108
30	25	19	30	30	25	77	95	114
30	25	20	30	30	25	81	100	120
30	25	21	30	30	25	85	105	126
30	25	22	30	30	25	89	110	132
30	25	23	30	30	25	93	115	138
25	30	16	30	44	18	92	113	136
25	30	17	30	44	18	97	120	144
25	30	18	30	44	18	103	127	153
25	30	19	30	44	18	109	134	161
25	30	20	30	44	18	114	141	170
25	30	21	30	44	18	120	149	178
25	30	22	30	44	18	126	156	187
25	30	23	30	44	18	132	163	195

Seed Rate Charts

CANOLA

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	3/16"	1/4"	3/8"
18	44	16	30	* 12	44	2.7	3.6	5.4
18	44	17	30	12	44	2.8	3.7	5.6
18	44	18	30	12	44	3.0	4.0	6.0
18	44	19	30	12	44	3.2	4.3	6.4
18	44	20	30	12	44	3.3	4.4	6.6
18	44	21	30	12	44	3.5	4.7	7.0
18	44	22	30	12	44	3.7	4.9	7.4
12	44	23	30	12	44	3.9	5.2	7.8
* Optional 12 Tooth Sprocket (Part # 935072)								
18	44	16	30	25	44	5	7	10
18	44	17	30	25	44	5	8	11
18	44	18	30	25	44	5	8	11
18	44	19	30	25	44	6	8	12
18	44	20	30	25	44	6	9	13
18	44	21	30	25	44	6	9	13
18	44	22	30	25	44	7	10	14
18	44	23	30	25	44	7	10	14
25	44	16	30	25	44	7	10	14
25	44	17	30	25	44	7	10	15
25	44	18	30	25	44	8	11	16
25	44	19	30	25	44	8	12	17
25	44	20	30	25	44	8	12	17
25	44	21	30	25	44	9	13	18
25	44	22	30	25	44	9	13	19
25	44	23	30	25	44	10	14	20
30	44	16	30	30	44	10	14	20
30	44	17	30	30	44	10	15	21
30	44	18	30	30	44	11	16	23
30	44	19	30	30	44	12	17	24
30	44	20	30	30	44	12	18	25
30	44	21	30	30	44	13	19	26
30	44	22	30	30	44	13	19	28
30	44	23	30	30	44	14	20	29
30	25	16	30	25	44	14	21	29
30	25	17	30	25	44	15	22	31
30	25	18	30	25	44	16	23	33
30	25	19	30	25	44	17	25	35
30	25	20	30	25	44	18	26	37
30	25	21	30	25	44	19	27	39
30	25	22	30	25	44	20	28	41
30	25	23	30	25	44	21	30	42
30	25	16	30	25	30	21	30	43
30	25	17	30	25	30	22	32	46
30	25	18	30	25	30	24	34	49
30	25	19	30	25	30	25	36	51
30	25	20	30	25	30	26	38	54
30	25	21	30	25	30	28	40	57
30	25	22	30	25	30	29	42	59
30	25	23	30	25	30	30	44	62

CORN

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	1/2"	5/8"	3/4"
18	44	16	30	25	44	6	8	10
18	44	17	30	25	44	6	8	10
18	44	18	30	25	44	6	9	11
18	44	19	30	25	44	7	9	11
18	44	20	30	25	44	7	10	12
18	44	21	30	25	44	7	10	13
18	44	22	30	25	44	8	11	13
18	44	23	30	25	44	8	11	14
25	44	16	30	25	44	8	11	13
25	44	17	30	25	44	8	12	14
25	44	18	30	25	44	9	12	15
25	44	19	30	25	44	9	13	16
25	44	20	30	25	44	10	14	17
25	44	21	30	25	44	10	14	18
25	44	22	30	25	44	11	15	18
25	44	23	30	25	44	11	16	19
30	44	16	30	30	44	11	16	19
30	44	17	30	30	44	12	17	20
30	44	18	30	30	44	13	18	22
30	44	19	30	30	44	13	19	23
30	44	20	30	30	44	14	20	24
30	44	21	30	30	44	15	21	25
30	44	22	30	30	44	15	22	26
30	44	23	30	30	44	16	23	28
30	25	16	30	25	44	17	23	28
30	25	17	30	25	44	18	25	30
30	25	18	30	25	44	19	26	32
30	25	19	30	25	44	20	27	34
30	25	20	30	25	44	21	29	35
30	25	21	30	25	44	22	30	37
30	25	22	30	25	44	23	32	39
30	25	23	30	25	44	24	33	41
30	25	16	30	25	30	26	34	42
30	25	17	30	25	30	27	36	44
30	25	18	30	25	30	28	38	47
30	25	19	30	25	30	29	40	50
30	25	20	30	25	30	31	42	52
30	25	21	30	25	30	32	44	55
30	25	22	30	25	30	34	46	58
30	25	23	30	25	30	35	48	60
30	25	16	30	30	25	35	48	60
30	25	17	30	30	25	37	52	64
30	25	18	30	30	25	40	55	68
30	25	19	30	30	25	42	58	72
30	25	20	30	30	25	44	61	75
30	25	21	30	30	25	46	64	79
30	25	22	30	30	25	48	67	83
30	25	23	30	30	25	51	70	87

Seed Rate Charts

COTTON

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	1/2"	5/8"	3/4"
18	44	16	30	25	44	8	9	12
18	44	17	30	25	44	8	10	12
18	44	18	30	25	44	9	10	13
18	44	19	30	25	44	9	11	14
18	44	20	30	25	44	10	12	14
18	44	21	30	25	44	10	12	15
18	44	22	30	25	44	11	13	16
18	44	23	30	25	44	11	13	17
25	44	16	30	25	44	11	13	16
25	44	17	30	25	44	11	14	17
25	44	18	30	25	44	12	14	18
25	44	19	30	25	44	13	15	19
25	44	20	30	25	44	13	16	20
25	44	21	30	25	44	14	17	21
25	44	22	30	25	44	15	18	22
25	44	23	30	25	44	15	19	23
30	44	16	30	30	44	15	19	23
30	44	17	30	30	44	16	20	24
30	44	18	30	30	44	17	21	26
30	44	19	30	30	44	18	22	27
30	44	20	30	30	44	19	23	29
30	44	21	30	30	44	20	24	30
30	44	22	30	30	44	21	26	32
30	44	23	30	30	44	22	27	33
30	25	16	30	25	44	23	27	34
30	25	17	30	25	44	24	29	36
30	25	18	30	25	44	26	31	38
30	25	19	30	25	44	27	32	40
30	25	20	30	25	44	28	34	42
30	25	21	30	25	44	30	36	44
30	25	22	30	25	44	31	37	46
30	25	23	30	25	44	33	39	49

FESCUE

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	3/8"	1/2"	5/8"
18	44	16	30	25	44	4	6	7
18	44	17	30	25	44	5	6	8
18	44	18	30	25	44	5	6	8
18	44	19	30	25	44	5	7	9
18	44	20	30	25	44	5	7	9
18	44	21	30	25	44	6	7	10
18	44	22	30	25	44	6	8	10
18	44	23	30	25	44	6	8	11
25	44	16	30	25	44	6	8	10
25	44	17	30	25	44	6	8	11
25	44	18	30	25	44	7	9	11
25	44	19	30	25	44	7	9	12
25	44	20	30	25	44	8	10	13
25	44	21	30	25	44	8	10	13
25	44	22	30	25	44	8	11	14
25	44	23	30	25	44	9	11	15
30	44	16	30	30	44	9	11	15
30	44	17	30	30	44	9	12	16
30	44	18	30	30	44	10	13	16
30	44	19	30	30	44	10	14	17
30	44	20	30	30	44	11	14	18
30	44	21	30	30	44	11	15	19
30	44	22	30	30	44	12	16	20
30	44	23	30	30	44	12	16	21
30	25	16	30	25	44	13	17	22
30	25	17	30	25	44	14	18	23
30	25	18	30	25	44	14	19	24
30	25	19	30	25	44	15	20	26
30	25	20	30	25	44	16	21	27
30	25	21	30	25	44	17	22	28
30	25	22	30	25	44	18	23	30
30	25	23	30	25	44	18	24	31
30	25	16	30	25	30	19	25	32
30	25	17	30	25	30	20	26	34
30	25	18	30	25	30	21	28	35
30	25	19	30	25	30	22	29	37
30	25	20	30	25	30	23	31	39
30	25	21	30	25	30	25	32	41
30	25	22	30	25	30	26	34	43
30	25	23	30	25	30	27	35	45
30	25	16	30	30	25	27	35	45
30	25	17	30	30	25	29	38	48
30	25	18	30	30	25	30	40	51
30	25	19	30	30	25	32	42	54
30	25	20	30	30	25	34	44	57
30	25	21	30	30	25	35	46	60
30	25	22	30	30	25	37	49	62
30	25	23	30	30	25	39	51	65

Seed Rate Charts

MILLET

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	3/16"	1/4"	3/8"
18	44	16	30	25	44	4	6	8
18	44	17	30	25	44	4	6	8
18	44	18	30	25	44	4	7	9
18	44	19	30	25	44	4	7	9
18	44	20	30	25	44	5	7	10
18	44	21	30	25	44	5	8	10
18	44	22	30	25	44	5	8	11
18	44	23	30	25	44	5	8	11
25	44	16	30	25	44	5	8	11
25	44	17	30	25	44	5	9	12
25	44	18	30	25	44	6	9	12
25	44	19	30	25	44	6	10	13
25	44	20	30	25	44	6	10	14
25	44	21	30	25	44	7	11	15
25	44	22	30	25	44	7	11	15
25	44	23	30	25	44	7	12	16
30	44	16	30	30	44	7	12	16
30	44	17	30	30	44	8	12	17
30	44	18	30	30	44	8	13	18
30	44	19	30	30	44	9	14	19
30	44	20	30	30	44	9	14	20
30	44	21	30	30	44	10	15	21
30	44	22	30	30	44	10	16	22
30	44	23	30	30	44	11	17	23
30	25	16	30	25	44	11	17	23
30	25	17	30	25	44	11	18	25
30	25	18	30	25	44	12	19	26
30	25	19	30	25	44	13	20	28
30	25	20	30	25	44	13	21	29
30	25	21	30	25	44	14	22	31
30	25	22	30	25	44	15	23	32
30	25	23	30	25	44	15	24	34
30	25	16	30	25	30	16	25	34
30	25	17	30	25	30	17	26	36
30	25	18	30	25	30	18	28	39
30	25	19	30	25	30	19	30	41
30	25	20	30	25	30	20	31	43
30	25	21	30	25	30	21	33	45
30	25	22	30	25	30	22	34	47
30	25	23	30	25	30	23	36	49
30	25	16	30	30	25	23	36	49
30	25	17	30	30	25	24	38	53
30	25	18	30	30	25	26	40	56
30	25	19	30	30	25	27	43	59
30	25	20	30	30	25	28	45	62
30	25	21	30	30	25	30	47	65
30	25	22	30	30	25	31	49	68
30	25	23	30	30	25	33	52	71

MILO

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	3/16"	1/4"	3/8"
18	44	16	30	25	44	4	6	11
18	44	17	30	25	44	5	6	12
18	44	18	30	25	44	5	7	13
18	44	19	30	25	44	5	7	14
18	44	20	30	25	44	5	8	14
18	44	21	30	25	44	6	8	15
18	44	22	30	25	44	6	8	16
18	44	23	30	25	44	6	9	16
25	44	16	30	25	44	6	8	16
25	44	17	30	25	44	6	9	17
25	44	18	30	25	44	7	10	18
25	44	19	30	25	44	7	10	19
25	44	20	30	25	44	8	11	20
25	44	21	30	25	44	8	11	21
25	44	22	30	25	44	8	12	22
25	44	23	30	25	44	9	12	23
30	44	16	30	30	44	9	12	23
30	44	17	30	30	44	9	13	24
30	44	18	30	30	44	10	14	26
30	44	19	30	30	44	10	14	27
30	44	20	30	30	44	11	15	29
30	44	21	30	30	44	11	16	30
30	44	22	30	30	44	12	17	32
30	44	23	30	30	44	12	18	33
30	25	16	30	25	44	13	18	34
30	25	17	30	25	44	13	19	36
30	25	18	30	25	44	14	20	38
30	25	19	30	25	44	15	21	40
30	25	20	30	25	44	16	22	42
30	25	21	30	25	44	17	23	44
30	25	22	30	25	44	17	25	46
30	25	23	30	25	44	18	26	48

Seed Rate Charts

OATS

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	1/2"	5/8"	3/4"
30	25	16	30	25	44	15	20	27
30	25	17	30	25	44	16	21	28
30	25	18	30	25	44	17	23	30
30	25	19	30	25	44	18	24	32
30	25	20	30	25	44	19	25	33
30	25	21	30	25	44	20	26	35
30	25	22	30	25	44	21	28	37
30	25	23	30	25	44	22	29	38
30	25	16	30	25	30	22	29	39
30	25	17	30	25	30	23	31	42
30	25	18	30	25	30	25	33	44
30	25	19	30	25	30	26	35	47
30	25	20	30	25	30	28	37	49
30	25	21	30	25	30	29	39	51
30	25	22	30	25	30	30	40	54
30	25	23	30	25	30	32	42	56
30	25	16	30	30	25	32	42	56
30	25	17	30	30	25	34	45	60
30	25	18	30	30	25	36	48	64
30	25	19	30	30	25	38	50	67
30	25	20	30	30	25	40	53	71
30	25	21	30	30	25	42	56	74
30	25	22	30	30	25	44	58	78
30	25	23	30	30	25	46	61	81
25	30	16	30	44	18	45	60	80
25	30	17	30	44	18	48	64	85
25	30	18	30	44	18	51	67	90
25	30	19	30	44	18	53	71	95
25	30	20	30	44	18	56	75	100
25	30	21	30	44	18	59	79	105
25	30	22	30	44	18	62	82	110
25	30	23	30	44	18	65	86	115
30	25	16	30	44	18	65	86	115
30	25	17	30	44	18	69	92	122
30	25	18	30	44	18	73	97	129
30	25	19	30	44	18	77	102	137
30	25	20	30	44	18	81	108	144
30	25	21	30	44	18	85	113	151
30	25	22	30	44	18	89	119	158
30	25	23	30	44	18	93	124	165

PINTO BEANS

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	1/2"	5/8"	3/4"
30	25	16	30	25	44	20	27	32
30	25	17	30	25	44	21	28	34
30	25	18	30	25	44	22	30	36
30	25	19	30	25	44	24	31	38
30	25	20	30	25	44	25	33	40
30	25	21	30	25	44	26	35	42
30	25	22	30	25	44	27	36	44
30	25	23	30	25	44	29	38	46
30	25	16	30	25	30	29	39	46
30	25	17	30	25	30	31	41	49
30	25	18	30	25	30	33	44	52
30	25	19	30	25	30	35	46	55
30	25	20	30	25	30	37	49	58
30	25	21	30	25	30	38	51	61
30	25	22	30	25	30	40	53	64
30	25	23	30	25	30	42	56	67
30	25	16	30	30	25	42	56	67
30	25	17	30	30	25	45	60	71
30	25	18	30	30	25	47	63	75
30	25	19	30	30	25	50	67	79
30	25	20	30	30	25	53	70	84
30	25	21	30	30	25	55	74	88
30	25	22	30	30	25	58	77	92
30	25	23	30	30	25	61	81	96
25	30	16	30	44	18	60	79	95
25	30	17	30	44	18	63	84	101
25	30	18	30	44	18	67	89	107
25	30	19	30	44	18	71	94	112
25	30	20	30	44	18	75	99	118
25	30	21	30	44	18	78	104	124
25	30	22	30	44	18	82	109	130
25	30	23	30	44	18	86	114	136
30	25	16	30	44	18	86	114	136
30	25	17	30	44	18	91	121	145
30	25	18	30	44	18	97	128	153
30	25	19	30	44	18	102	135	162
30	25	20	30	44	18	107	143	170
30	25	21	30	44	18	113	150	179
30	25	22	30	44	18	118	157	187
30	25	23	30	44	18	124	164	196
44	25	16	30	44	18	126	167	200
44	25	17	30	44	18	134	178	212
44	25	18	30	44	18	142	188	225
44	25	19	30	44	18	150	199	237
44	25	20	30	44	18	158	209	250
44	25	21	30	44	18	165	220	262
44	25	22	30	44	18	173	230	275
44	25	23	30	44	18	181	241	287

Seed Rate Charts

RICE

Revised 05-07-13

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	1/2"	5/8"	3/4"
25	44	16	30	25	44	13	16	19
25	44	17	30	25	44	14	17	20
25	44	18	30	25	44	14	18	21
25	44	19	30	25	44	15	19	23
25	44	20	30	25	44	16	20	24
25	44	21	30	25	44	17	21	25
25	44	22	30	25	44	17	22	26
25	44	23	30	25	44	18	23	27
30	44	16	30	30	44	18	23	27
30	44	17	30	30	44	20	25	29
30	44	18	30	30	44	21	26	31
30	44	19	30	30	44	22	28	32
30	44	20	30	30	44	23	29	34
30	44	21	30	30	44	24	30	36
30	44	22	30	30	44	25	32	38
30	44	23	30	30	44	26	33	39
30	25	16	30	17	30	27	34	40
30	25	17	30	17	30	29	36	42
30	25	18	30	17	30	31	38	45
30	25	19	30	17	30	32	40	47
30	25	20	30	17	30	34	43	50
30	25	21	30	17	30	36	45	52
30	25	22	30	17	30	37	47	54
30	25	23	30	17	30	39	49	57
30	25	16	30	25	30	40	50	58
30	25	17	30	25	30	42	53	62
30	25	18	30	25	30	45	56	65
30	25	19	30	25	30	47	59	69
30	25	20	30	25	30	50	63	73
30	25	21	30	25	30	52	66	76
30	25	22	30	25	30	55	69	80
30	25	23	30	25	30	57	72	84
30	25	16	30	30	25	57	72	84
30	25	17	30	30	25	61	77	89
30	25	18	30	30	25	65	81	94
30	25	19	30	30	25	68	86	99
30	25	20	30	30	25	72	90	105
30	25	21	30	30	25	75	95	110
30	25	22	30	30	25	79	99	115
30	25	23	30	30	25	83	104	120

RYE

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	1/2"	5/8"	3/4"
30	44	16	30	30	44	27	34	44
30	44	17	30	30	44	28	36	46
30	44	18	30	30	44	30	38	49
30	44	19	30	30	44	32	40	52
30	44	20	30	30	44	33	43	55
30	44	21	30	30	44	35	45	57
30	44	22	30	30	44	36	47	60
30	44	23	30	30	44	38	49	63
30	25	16	30	25	44	39	50	64
30	25	17	30	25	44	41	53	68
30	25	18	30	25	44	44	56	72
30	25	19	30	25	44	46	59	76
30	25	20	30	25	44	49	62	80
30	25	21	30	25	44	51	66	84
30	25	22	30	25	44	54	69	88
30	25	23	30	25	44	56	72	92
30	25	16	30	25	30	57	73	94
30	25	17	30	25	30	61	78	100
30	25	18	30	25	30	64	82	106
30	25	19	30	25	30	68	87	112
30	25	20	30	25	30	71	92	117
30	25	21	30	25	30	75	96	123
30	25	22	30	25	30	78	101	129
30	25	23	30	25	30	82	105	135
30	30	16	30	30	25	82	105	135
30	30	17	30	30	25	87	112	144
30	30	18	30	30	25	92	119	152
30	30	19	30	30	25	98	125	161
30	30	20	30	30	25	103	132	169
30	30	21	30	30	25	108	138	178
30	30	22	30	30	25	113	145	186
30	30	23	30	30	25	118	152	195

Seed Rate Charts

SOYBEANS

Sprockets						Slot Width			
		Derailleur		Box End		Pounds/Acre			
C	D	E	F	G	H	3/8"	1/2"	5/8"	3/4"
30	25	16	30	25	44	18	26	34	43
30	25	17	30	25	44	19	27	37	45
30	25	18	30	25	44	20	29	39	48
30	25	19	30	25	44	21	31	41	51
30	25	20	30	25	44	22	32	43	53
30	25	21	30	25	44	23	34	45	56
30	25	22	30	25	44	24	36	47	59
30	25	23	30	25	44	25	37	50	61
30	25	16	30	25	30	26	38	51	63
30	25	17	30	25	30	27	40	54	67
30	25	18	30	25	30	29	43	57	71
30	25	19	30	25	30	31	45	60	75
30	25	20	30	25	30	32	47	63	78
30	25	21	30	25	30	34	50	66	82
30	25	22	30	25	30	35	52	70	86
30	25	23	30	25	30	37	55	73	90
30	25	16	30	30	25	37	55	73	90
30	25	17	30	30	25	39	58	77	96
30	25	18	30	30	25	42	61	82	102
30	25	19	30	30	25	44	65	87	107
30	25	20	30	30	25	46	68	91	113
30	25	21	30	30	25	49	72	96	119
30	25	22	30	30	25	51	75	100	124
30	25	23	30	30	25	53	79	105	130
25	30	16	30	44	18	52	77	103	128
25	30	17	30	44	18	56	82	109	136
25	30	18	30	44	18	59	87	116	144
25	30	19	30	44	18	62	92	122	152
25	30	20	30	44	18	65	97	129	160
25	30	21	30	44	18	69	101	135	168
25	30	22	30	44	18	72	106	142	176
25	30	23	30	44	18	75	111	148	184
30	25	16	30	44	18	75	111	148	184
30	25	17	30	44	18	80	118	158	196
30	25	18	30	44	18	84	124	166	206
30	25	19	30	44	18	89	132	176	219
30	25	20	30	44	18	94	139	185	230
30	25	21	30	44	18	99	146	195	242
30	25	22	30	44	18	103	153	204	253
30	25	23	30	44	18	108	160	213	265
44	25	16	30	44	18	110	163	217	270
44	25	17	30	44	18	117	174	231	288
44	25	18	30	44	18	124	184	245	304
44	25	19	30	44	18	131	194	258	321
44	25	20	30	44	18	138	204	272	338
44	25	21	30	44	18	145	214	285	355
44	25	22	30	44	18	152	224	299	372
44	25	23	30	44	18	158	235	312	389

SUNFLOWERS

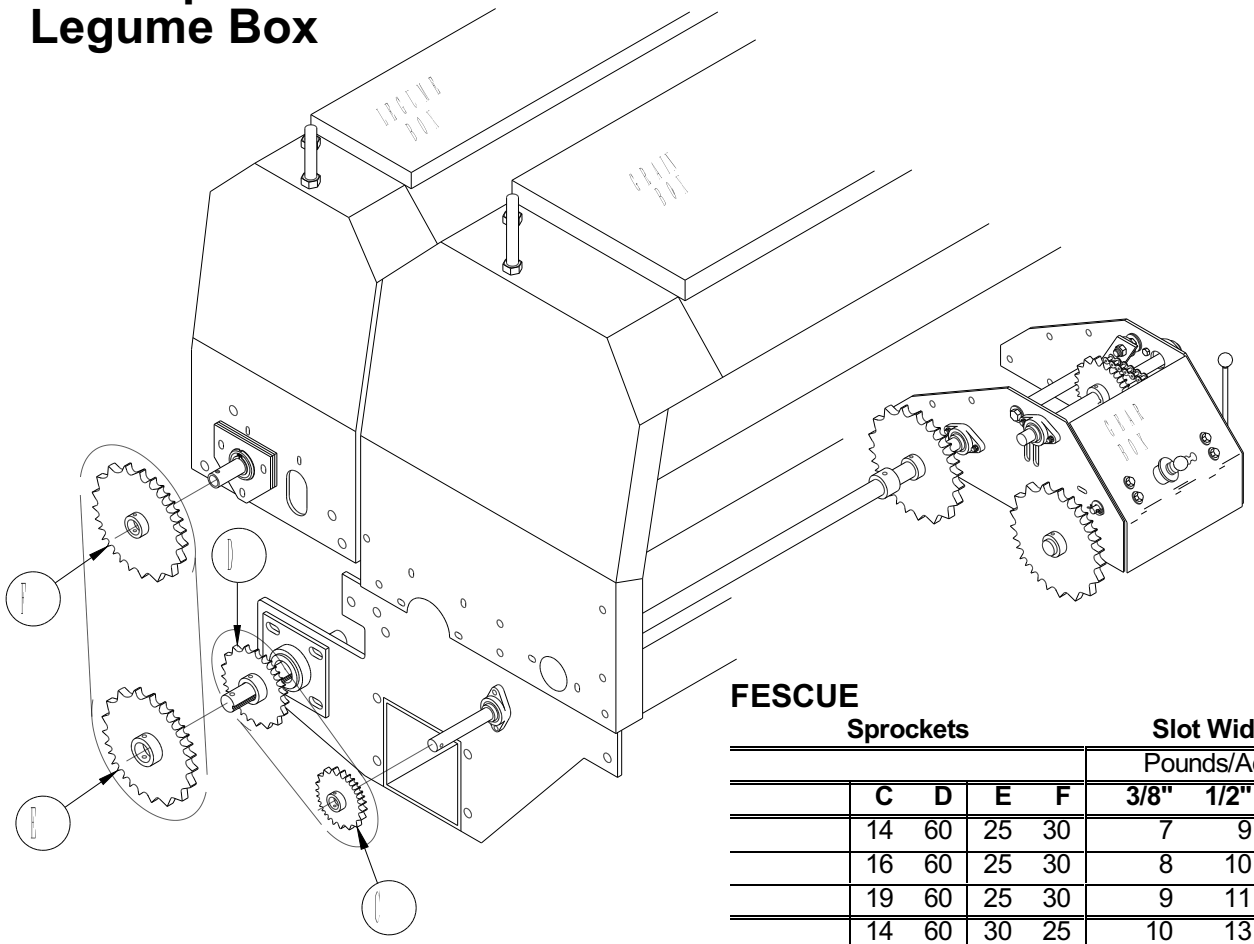
Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	1/2"	5/8"	3/4"
18	44	16	30	25	44	5	7	8
18	44	17	30	25	44	5	7	9
18	44	18	30	25	44	6	8	9
18	44	19	30	25	44	6	8	10
18	44	20	30	25	44	6	8	10
18	44	21	30	25	44	7	9	11
18	44	22	30	25	44	7	9	11
18	44	23	30	25	44	7	10	12
25	44	16	30	25	44	7	9	11
25	44	17	30	25	44	8	10	12
25	44	18	30	25	44	8	11	13
25	44	19	30	25	44	9	11	13
25	44	20	30	25	44	9	12	14
25	44	21	30	25	44	9	12	15
25	44	22	30	25	44	10	13	16
25	44	23	30	25	44	10	14	16
30	44	16	30	30	44	10	14	16
30	44	17	30	30	44	11	14	17
30	44	18	30	30	44	12	15	18
30	44	19	30	30	44	12	16	19
30	44	20	30	30	44	13	17	20
30	44	21	30	30	44	14	18	21
30	44	22	30	30	44	14	19	22
30	44	23	30	30	44	15	20	23
30	25	16	30	25	44	15	20	24
30	25	17	30	25	44	16	21	25
30	25	18	30	25	44	17	22	27
30	25	19	30	25	44	18	24	28
30	25	20	30	25	44	19	25	30
30	25	21	30	25	44	20	26	31
30	25	22	30	25	44	21	27	33
30	25	23	30	25	44	22	29	34
30	25	16	30	25	30	22	29	35
30	25	17	30	25	30	24	31	37
30	25	18	30	25	30	25	33	39
30	25	19	30	25	30	26	35	42
30	25	20	30	25	30	28	37	44
30	25	21	30	25	30	29	38	46
30	25	22	30	25	30	31	40	48
30	25	23	30	25	30	32	42	50

Seed Rate Charts

WHEAT

Sprockets						Slot Width		
		Derailleur		Box End		Pounds/Acre		
C	D	E	F	G	H	1/2"	5/8"	3/4"
25	44	16	30	25	44	21	26	31
25	44	17	30	25	44	22	27	33
25	44	18	30	25	44	23	29	35
25	44	19	30	25	44	25	31	37
25	44	20	30	25	44	26	32	39
25	44	21	30	25	44	27	34	41
25	44	22	30	25	44	28	36	43
25	44	23	30	25	44	30	37	45
30	44	16	30	30	44	30	37	45
30	44	17	30	30	44	32	40	47
30	44	18	30	30	44	33	42	50
30	44	19	30	30	44	35	44	53
30	44	20	30	30	44	37	47	56
30	44	21	30	30	44	39	49	59
30	44	22	30	30	44	41	51	61
30	44	23	30	30	44	43	53	64
30	25	16	30	25	44	44	55	65
30	25	17	30	25	44	46	58	70
30	25	18	30	25	44	49	61	74
30	25	19	30	25	44	52	65	78
30	25	20	30	25	44	55	68	82
30	25	21	30	25	44	57	72	86
30	25	22	30	25	44	60	75	90
30	25	23	30	25	44	63	78	94
30	25	16	30	25	30	64	80	96
30	25	17	30	25	30	68	85	102
30	25	18	30	25	30	72	90	108
30	25	19	30	25	30	76	95	114
30	25	20	30	25	30	80	100	120
30	25	21	30	25	30	84	105	126
30	25	22	30	25	30	88	110	132
30	25	23	30	25	30	92	115	138
30	25	16	30	30	25	92	115	138
30	25	17	30	30	25	98	122	147
30	25	18	30	30	25	104	130	156
30	25	19	30	30	25	109	137	164
30	25	20	30	30	25	115	144	173
30	25	21	30	30	25	121	151	182
30	25	22	30	30	25	127	158	190
30	25	23	30	30	25	133	166	199

4020 Sprocket Locations
Legume Box



4020 Legume Box Charts

ALFALFA

Sprockets				Slot Width	
				Pounds/Acre	
C	D	E	F	1/8"	1/4"
14	60	25	30	7	13
16	60	25	30	8	15
19	60	25	30	9	17
14	60	30	25	11	19
16	60	30	25	13	21
19	60	30	25	14	24

CANOLA

Sprockets				Slot Width		
				Pounds/Acre		
C	D	E	F	3/16"	1/4"	3/8"
14	60	25	30	7	11	15
16	60	25	30	8	13	18
19	60	25	30	10	14	19
14	60	30	25	11	16	22
16	60	30	25	12	18	25
19	60	30	25	14	20	28

FESCUE

Sprockets				Slot Width		
				Pounds/Acre		
C	D	E	F	3/8"	1/2"	5/8"
14	60	25	30	7	9	12
16	60	25	30	8	10	13
19	60	25	30	9	11	15
14	60	30	25	10	13	17
16	60	30	25	11	14	18
19	60	30	25	13	16	21

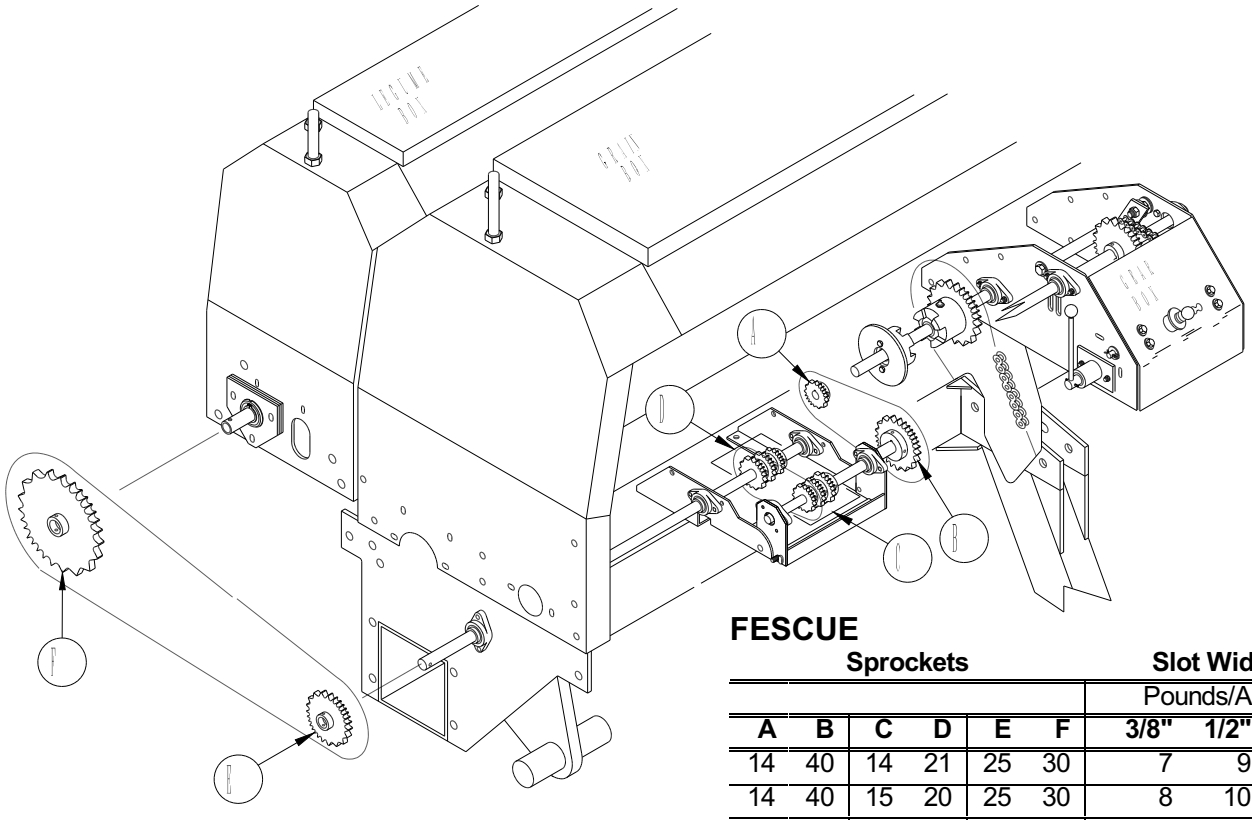
MILLET

Sprockets				Slot Width		
				Pounds/Acre		
C	D	E	F	3/16"	1/4"	3/8"
14	60	25	30	5	9	12
16	60	25	30	7	10	14
19	60	25	30	8	11	16
14	60	30	25	9	13	18
16	60	30	25	10	14	20
19	60	30	25	11	16	22

MILO

Sprockets				Slot Width		
				Pounds/Acre		
C	D	E	F	3/16"	1/4"	3/8"
14	60	18	44	3	5	9
16	60	18	44	4	5	10
19	60	18	44	4	6	11
14	60	18	30	5	7	13
16	60	18	30	6	8	14
19	60	18	30	7	9	16

4025 & 4030 Sprocket Locations
Legume Box



4025 & 4030 Legume Box Charts

ALFALFA

Sprockets						Slot Width	
						Pounds/Acre	
A	B	C	D	E	F	1/8"	1/4"
14	40	14	21	25	30	7	13
14	40	15	20	25	30	8	15
14	40	16	19	25	30	9	17
14	40	14	21	30	25	11	19
14	40	15	20	30	25	13	21
14	40	16	19	30	25	14	24

CANOLA

Sprockets						Slot Width		
						Pounds/Acre		
A	B	C	D	E	F	3/16"	1/4"	3/8"
14	40	14	21	25	30	7	11	15
14	40	15	20	25	30	8	13	18
14	40	16	19	25	30	10	14	19
14	40	14	21	30	25	11	16	22
14	40	15	20	30	25	12	18	25
14	40	16	19	30	25	14	20	28

FESCUE

Sprockets						Slot Width		
						Pounds/Acre		
A	B	C	D	E	F	3/8"	1/2"	5/8"
14	40	14	21	25	30	7	9	12
14	40	15	20	25	30	8	10	13
14	40	16	19	25	30	9	11	15
14	40	14	21	30	25	10	13	17
14	40	15	20	30	25	11	14	18
14	40	16	19	30	25	13	16	21

MILLET

Sprockets						Slot Width		
						Pounds/Acre		
A	B	C	D	E	F	3/16"	1/4"	3/8"
14	40	14	21	25	30	5	9	12
14	40	15	20	25	30	7	10	14
14	40	16	19	25	30	8	11	16
14	40	14	21	30	25	9	13	18
14	40	15	20	30	25	10	14	20
14	40	16	19	30	25	11	16	22

MILO

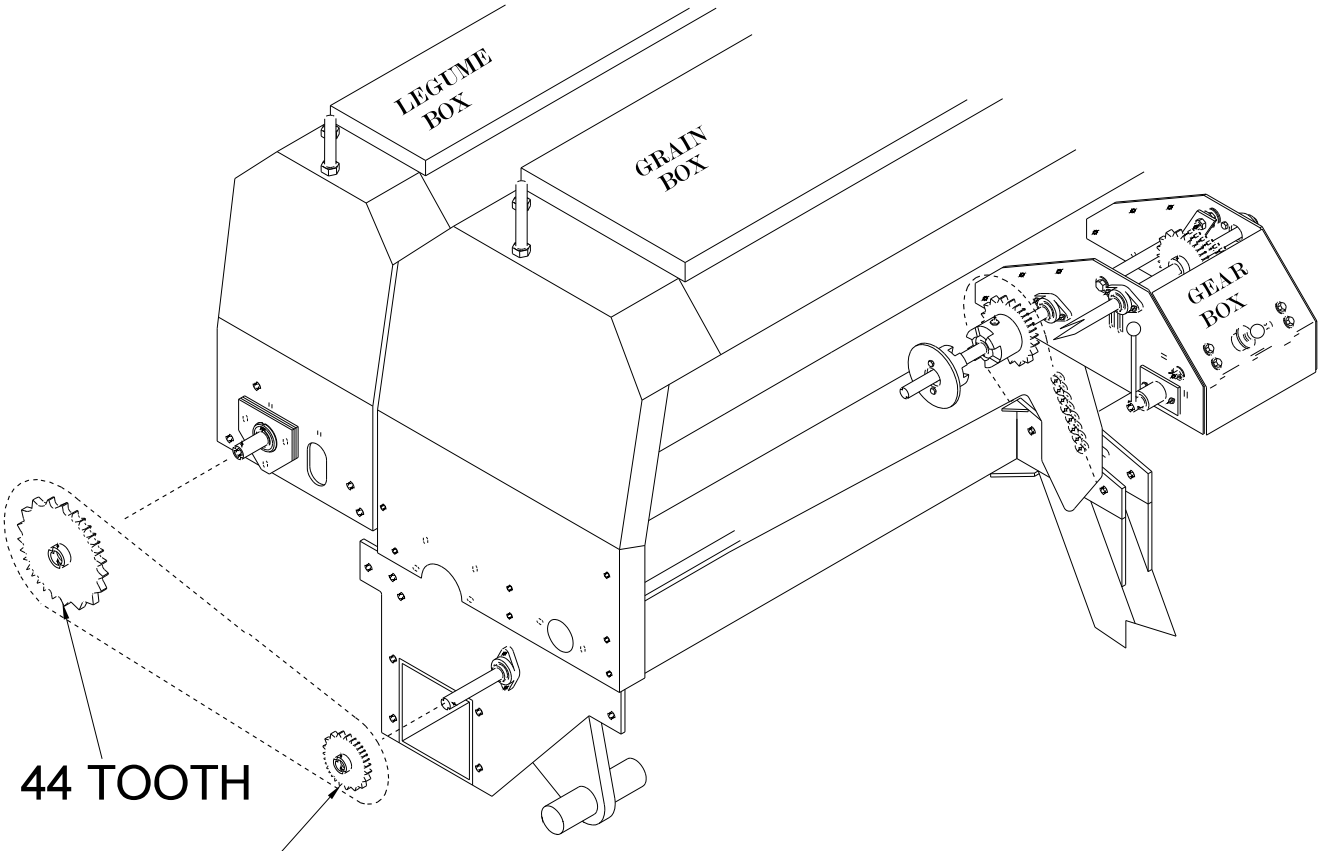
Sprockets						Slot Width		
						Pounds/Acre		
A	B	C	D	E	F	3/16"	1/4"	3/8"
14	40	14	21	18	44	3	5	9
14	40	15	20	18	44	4	5	10
14	40	16	19	18	44	4	6	11
14	40	14	21	18	30	5	7	13
14	40	15	20	18	30	6	8	14
14	40	16	19	18	30	7	9	16

Seed Rate Charts for Small Seed Hopper
Row Spacing 7½" & 10"

Rate Chart for reference only. Use calibration for exact seed rate.

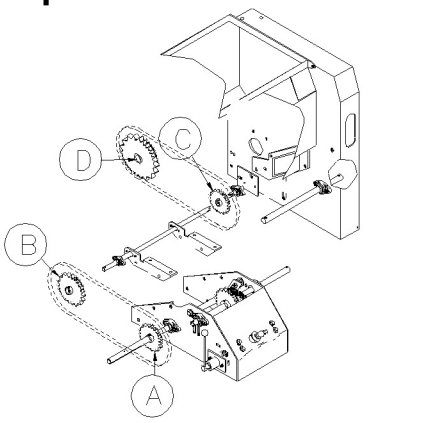
Seed Type	Seed Rate	C Sprocket Teeth #	Turns of Adjusting Handle / Meter Opening																
			5/8	1 1/4	2	2 1/2	3 1/8	3 3/4	4 3/8	5	5 3/8	6 1/4	7	7 1/2	8 1/8	8 3/4	9 3/8	10
			1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"
Alfalfa	Low	12		2	3	5	6	8	9	11	12	14	15	17	19	21	23	24
	High	20		3	5	8	11	13	16	19	21	24	27	29	33	37	40	43
Alfalfa Coated	Low	12		2	4	6	8	9	11	12	14	17	17	18	20	23	24	26
	High	20		3	7	11	13	16	19	21	25	29	31	32	36	40	43	45
Bahia Grass	Low	12	1	2	2	3	5	6	8	9	10	11	12	14	14	15	17	18
	High	20	1	3	4	5	8	11	13	16	17	19	21	24	25	27	29	32
Bentgrass	Low	12	1	1	2	2	3	4	4	5	5	6	6	7	7	8	8	9
	High	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15
Bermuda Grass	Low	12		2	4	6	8	9	11	12	14	15	17	20	21	23	24	26
	High	20		3	7	11	13	16	19	21	24	27	31	35	37	40	43	45
Canola	Low	12		1	3	4	6	7	9	10	11	13	14	16	17	18	20	21
	High	20		2	5	8	10	13	15	18	20	22	25	28	30	32	35	37
Centipede	Low	12		2	3	5	7	9	11	12	14	15	17	18	20	21	23	24
	High	20		3	5	8	12	16	19	21	24	27	29	32	35	37	40	43
Clover Alsike	Low	12	1	2	4	5	7	8	10	11	13	15	16	18	19	21	22	24
	High	20	1	4	6	9	12	15	17	20	23	26	29	32	34	37	39	42
Clover Red	Low	12	1	2	4	6	7	9	11	13	15	17	18	20	22	24	25	27
	High	20	1	4	7	10	13	16	19	23	26	29	32	36	39	42	45	48
Kentucky Bluegrass	Low	12		1	1	2	2	3	4	4	5	6	6	7	8	8	9	10
	High	20		1	2	3	4	5	6	7	9	10	11	12	13	15	16	17
KY31 Fescue	Low	12				2	2	3	3	4	4	5	5	5	6	6	7	7
	High	20				3	4	5	6	7	7	8	9	9	10	11	12	13
Love Grass	Low	12	2	3	5	6	8	9	11	12	14	15	16	17	18	20	20	21
	High	20	3	5	8	11	13	16	19	21	24	27	28	29	32	35	36	37
Lespedeza	Low	12	1	2	2	3	4	5	5	6	7	8	8	9	10	11	11	12
	High	20	1	3	4	5	7	8	9	11	12	13	15	16	17	19	20	21
Lespedeza Unhulled	Low	12		2	4	6	8	9	11	14	16	18	20	23	25	27	29	32
	High	20		3	7	11	13	16	20	24	28	32	36	40	44	48	52	56
Millet	Low	12		2	3	5	5	6	8	9	11	12	13	14	15	17	17	18
	High	20		3	5	8	9	11	13	16	19	21	23	24	27	29	31	32
Rape Seed	Low	12		3	5	6	7	8	9	11	12	14	15	17	19	21	23	26
	High	20		5	8	11	12	14	17	19	21	24	27	30	33	37	41	46
Ryegrass Annual	Low	12		1	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	High	20		1	2	4	5	7	9	11	12	14	16	18	19	21	23	24
Ryegrass Perenial	Low	12		1	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	High	20		1	2	4	6	7	9	11	13	15	16	18	20	21	23	24
Sudan Grass	Low	12	1	3	4	6	8	10	12	14	15	17	19	20	22	24	26	28
	High	20	1	5	8	11	14	17	21	24	27	31	33	36	39	43	46	49
Switchgrass	Low	12		2	3	4	5	6	8	11	12	14	15	16	18	20	22	24
	High	20		3	5	7	9	11	15	19	21	24	26	28	31	35	39	43
Wheatgrass Tall	Low	12						1	1	2	2	2	2	2	3	3	4	5
	High	20						1	2	3	3	4	4	4	5	6	7	9

4000 LEGUME BRILLION CUP SPROCKET LOCATIONS

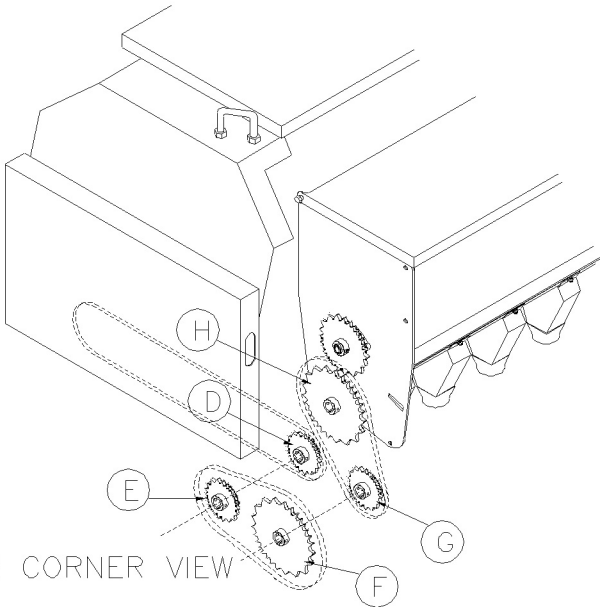


#C SPROCKET IS A 12T OR 20T.
THESE ARE THE ONLY
ONLY SPROCKETS CHANGED.
12 TOOTH FOR LOW SIDE.
20 TOOTH FOR HIGH SIDE.

Sprocket Locations for Native Grass



FRONT LEFT CORNER VIEW

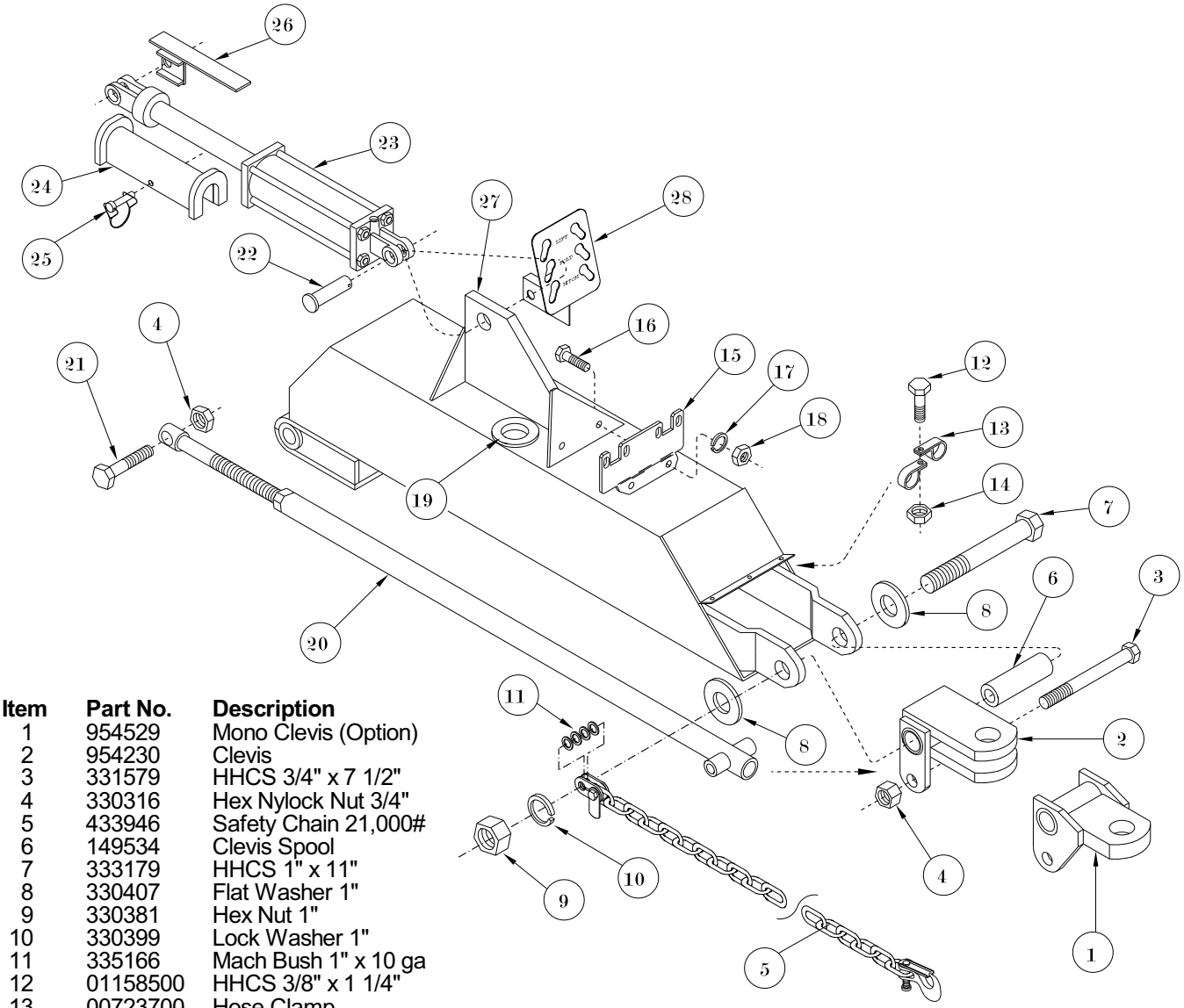


LEFT REAR CORNER VIEW

A	B	C	D	E	F	G	H			
20	30	20	20	12	44	16	44	.07	SLOWEST RATIO	
20	30	20	20	12	30	16	44	.10	1.43	x FASTER
20	30	20	20	20	44	16	44	.111	1.58	x FASTER
20	30	20	20	20	30	16	44	.161	2.3	x FASTER
20	30	20	20	20	30	16	30	.237	3.39	x FASTER
20	30	20	20	20	30	16	20	.356	5.09	x FASTER
20	30	20	20	20	20	16	20	.533	7.61	x FAST ER
20	30	20	20	30	20	16	20	.799	11.4	x FAST ER

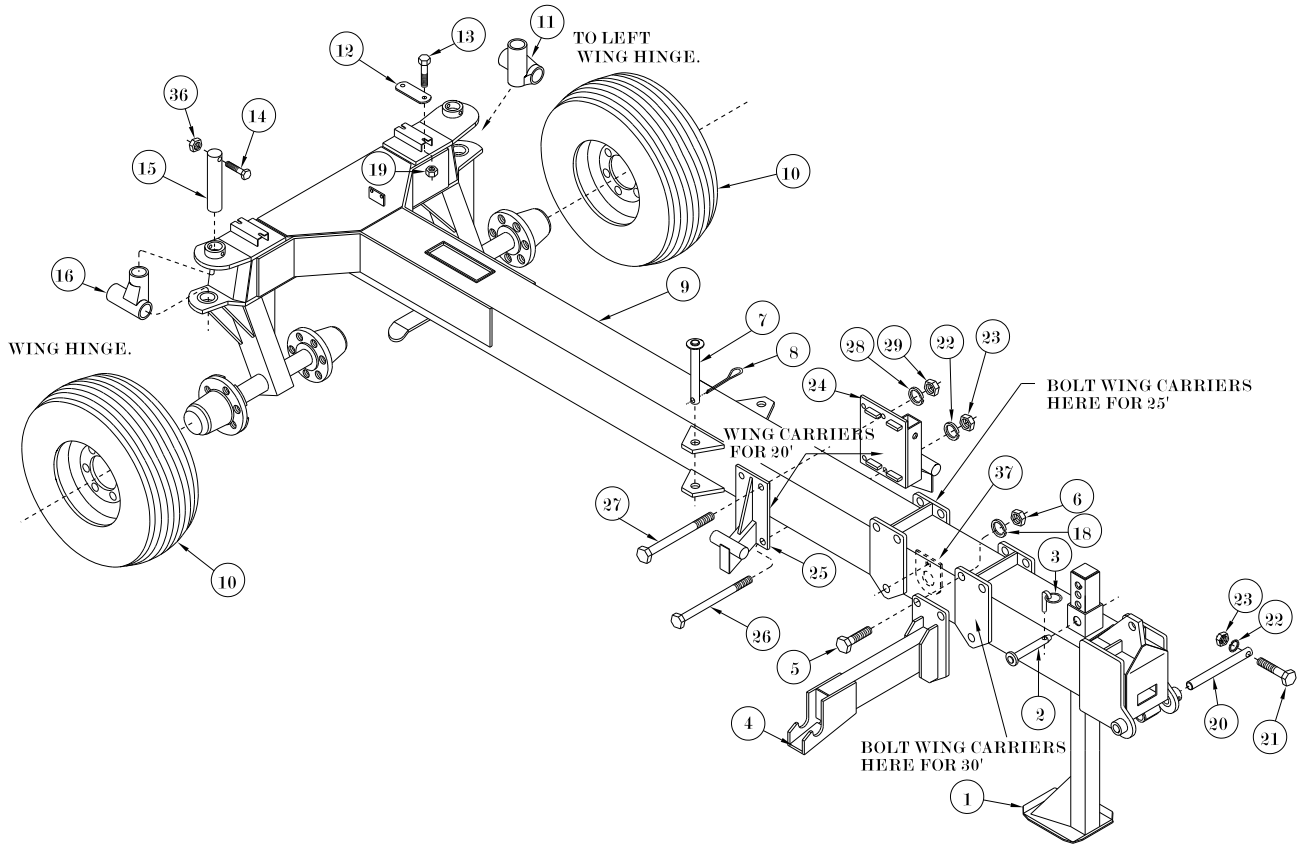
A	B	C	D	E	F	G	H			
20	30	12	20	12	44	16	44	.04	SLOWEST RATIO	
20	30	12	20	12	30	16	44	.06	1.50	x FASTER
20	30	12	20	20	44	16	44	.07	1.75	x FASTER
20	30	12	20	20	30	16	44	.10	2.50	x FASTER
20	30	12	20	20	30	16	30	.14	3.50	x FASTER
20	30	12	20	20	30	16	20	.21	5.25	x FASTER
20	30	12	20	20	20	16	20	.32	8.00	x FASTER
20	30	12	20	30	20	16	20	.48	12.00	x FAST ER

4000 Hitch



Item	Part No.	Description
1	954529	Mono Clevis (Option)
2	954230	Clevis
3	331579	HHCS 3/4" x 7 1/2"
4	330316	Hex Nylock Nut 3/4"
5	433946	Safety Chain 21,000#
6	149534	Clevis Spool
7	333179	HHCS 1" x 11"
8	330407	Flat Washer 1"
9	330381	Hex Nut 1"
10	330399	Lock Washer 1"
11	335166	Mach Bush 1" x 10 ga
12	01158500	HHCS 3/8" x 1 1/4"
13	00723700	Hose Clamp
14	330837	Hex Nylock Nut 3/8"
15	219816	Double Selector Valve Mount Bracket
16	01010800	HHCS 5/16" x 1"
17	330845	Lock Washer 5/16"
18	330811	Hex Nut 5/16"
19	604587	Rubber Grommet 2"
20	865865	Tongue Control Assembly
	Includes:	
	952945	Adjustment Rod
	958330	Tongue Control Bar
21	01110600	HHCS 3/4" x 4"
22	463133	Clevis Pin
23	468421	Cylinder 4" x 10" 1 1/2" Ram
24	964759	Cylinder Lockout Bracket
25	00233700	Wire Lock Pin
26	952218	Front Hitch Cylinder Gauge
27	958322	Tongue Weldment
28	268086	Hose Bracket

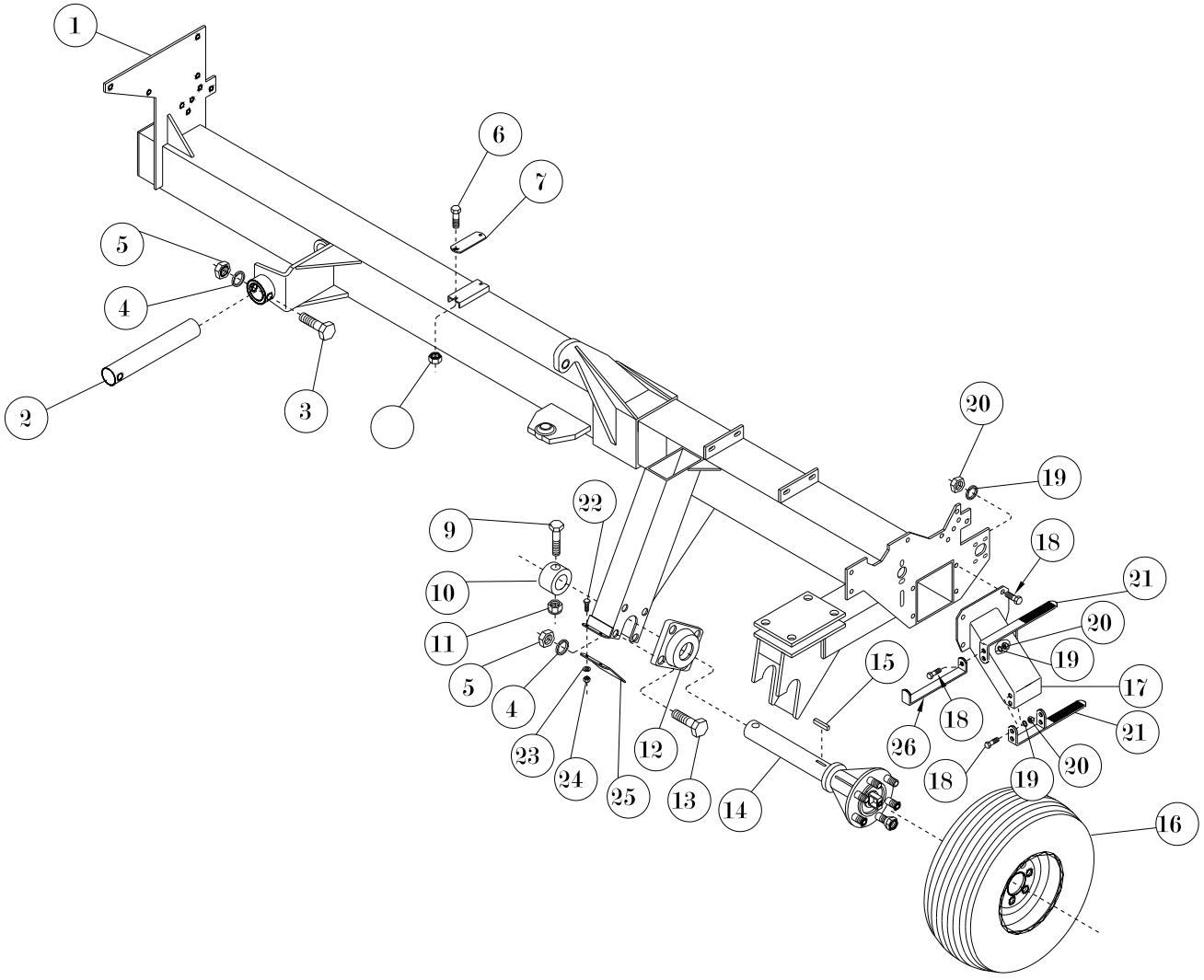
4000 Tongue



Item	Part No.	Description
1	954305	Jack Stand
2	330449	Clevis Pin
3	330456	Klick Pin 7/16"
4	965905	Wing Carrier Weldment
5	334987	HHCS 1" x 3"
6	330381	Hex Nut 1"
7	953026	Swing Arm Mount Pin
8	331272	Cotter Pin 3/8" x 3½"
9	960666	Tongue Frame 2 1/8" Spindles
	978361	Tongue Frame -11.5' **4020**
10	858944	Mounted Tire 11L x 15"
	Includes:	
	02990000	Decal "Check Wheel Lugs"
	530584	Rim 15 x 10 8 Bolt
	530287	Valve Stem
	530329	Tire 11L x 15 8 Ply
11	551341	Left U-Joint Tube
12	217729	Hose Carrier Bolt Plate
13	334243	HHCS 3/8" x 2"
14	335182	HHCS 5/8" x 4½"
15	311324	Hinge Pin
16	551333	Right U-Joint Tube

Item	Part No.	Description
17		
18	330407	Lock Washer 1"
19	330837	Hex Nylock Nut 3/8"
20	308791	Tongue Pin
21	01116300	HHCS 5/8" x 3½"
22	330878	Lock Washer 5/8"
23	330571	Hex Nut 5/8"
24	954834	Wing Carrier Lt **(4020 Only**)
25	954842	Wing Carrier Rt **(4020 Only)**
26	337014	HHCS 5/8" x 12"
27	337170	HHCS 3/4" x 12"
28	330332	Lock Washer 3/4"
29	330290	Hex Nut 3/4"
30		
31		
32		
33		
34		
35	330845	Lock Washer 5/16"
36	01572700	Hex Nylock Nut 5/8"
37	231175	Tongue Tie Down

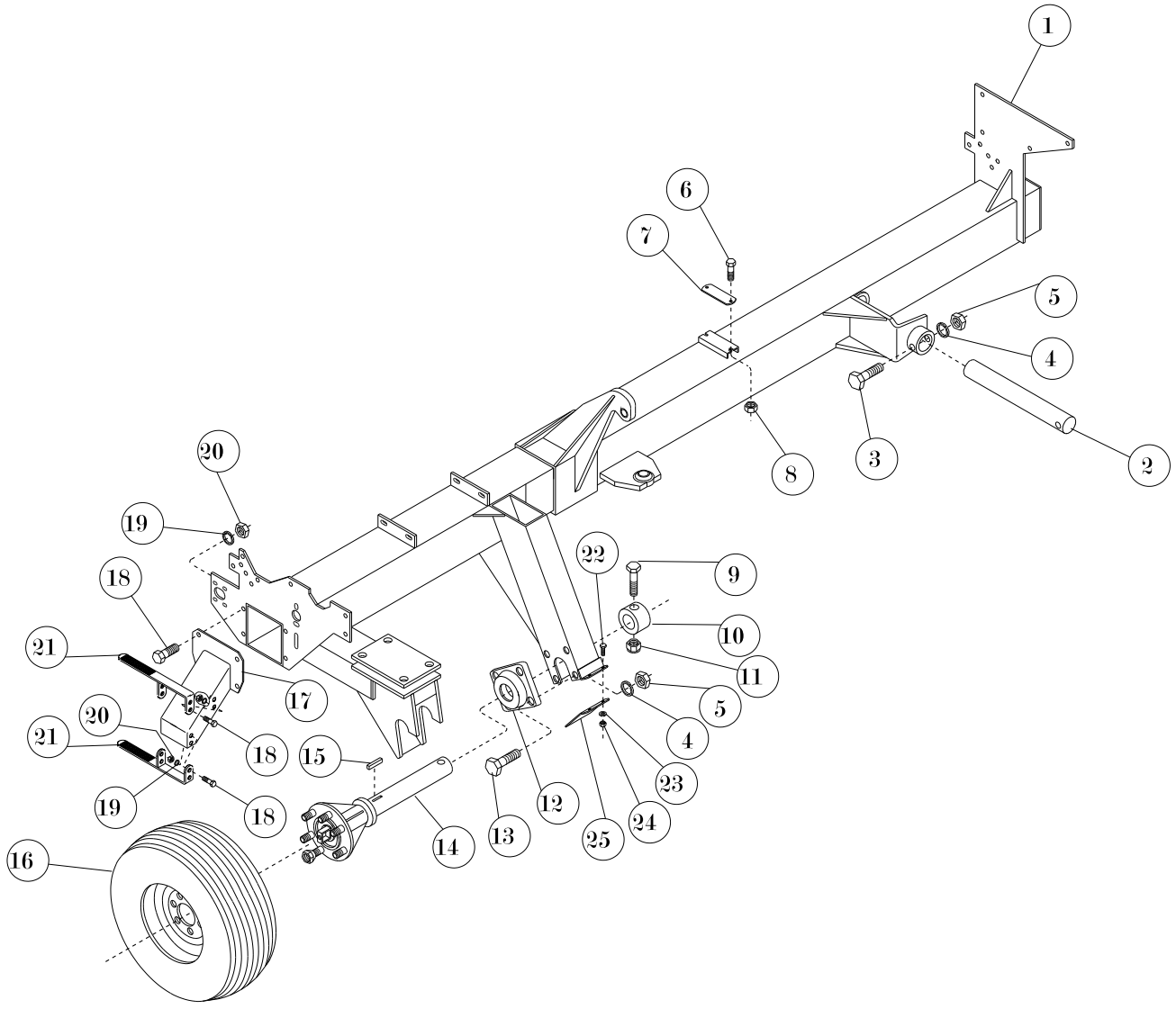
4020 Left Wing Section



Item	Part No.	Description
1	961821	**4020** Left Wing Frame
2	311316	Hinge Pin
3	335182	HHCS 5/8" x 4 ½"
4	330878	Lock Washer 5/8"
5	330571	Hex Nut 5/8"
6	335877	HHCS 3/8" x 1 3/4"
7	217729	Hose Carrier Bolt Plate
8	330837	Hex Nylock Nut 3/8"
9	330092	HHCS ½" x 4"
10	145623	Spindle Bushing
11	331363	Hex Nylock Nut ½"
12	403279	Bearing 2" 4B Flange
	403287	Bearing Insert
13	01071000	HHCS 5/8" x 2"
14	961870	Wing Wheel Spindle
15	310656	Key 3/16" x 1½"

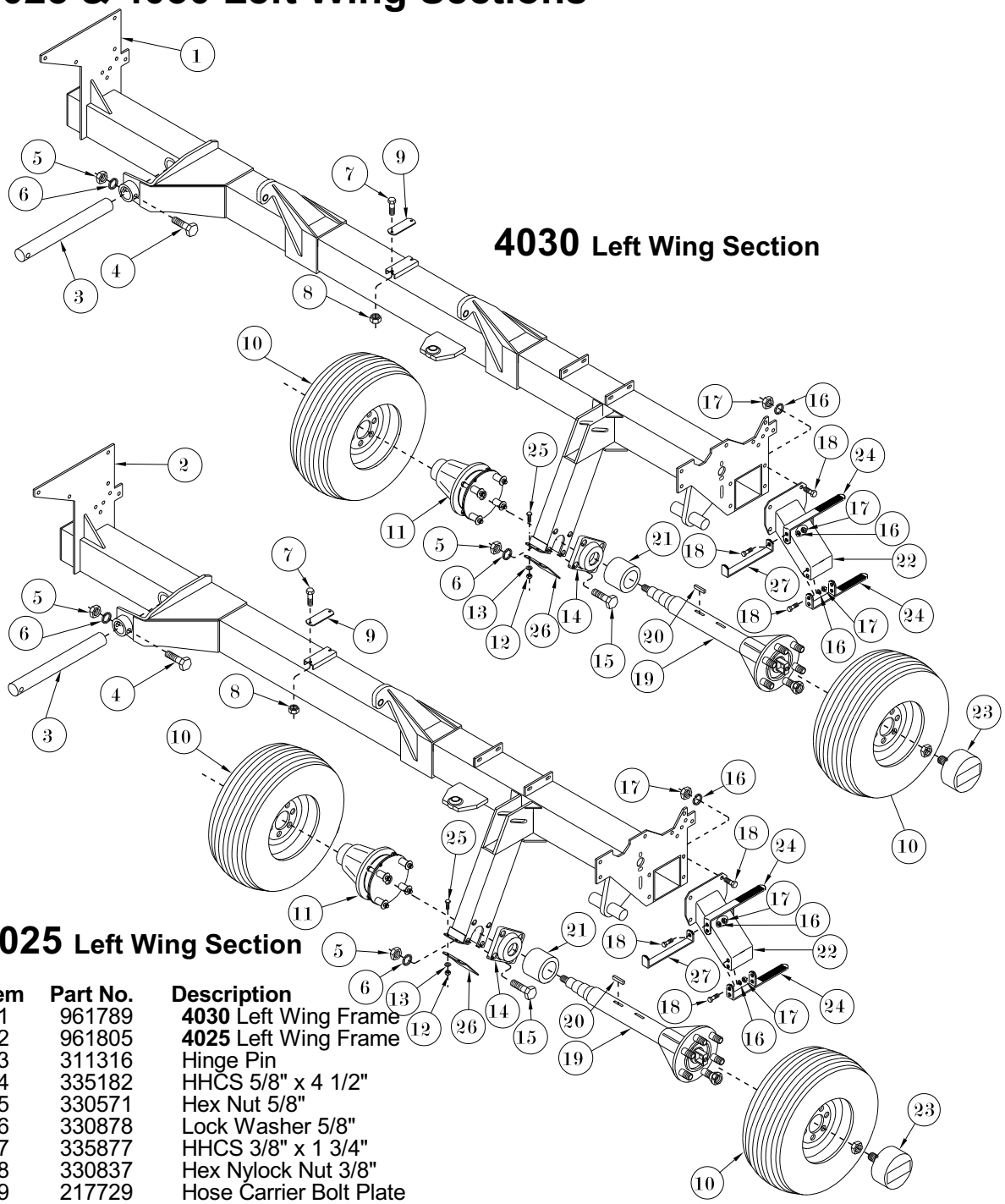
Item	Part No.	Description
16	815175	Mounted Tire 11L 8Ply 6B
	Includes:	
	02990000	Decal "Check Wheel Lugs"
	530287	Valve Stem
	530329	Tire 11L x 15 8Ply
	530147	Wheel 6 Bolt 15 x 10
17	961953	Frame End Cap w/Step
18	01147800	HHCS ½" x 1½"
19	330142	Lock Washer ½"
20	330134	Hex Nut ½"
21	963058	Bolt on Step
22	01057900	HHCS 1/4" x 3/4"
23	330050	Lock Washer 1/4"
24	332205	Hex Nut 1/4"
25	221374	Wheel Arm Chain Guard
26	230433	Lock Out Storage Bracket

4020 Right Wing Section



Item	Part No.	Description
1	961839	4020 Right Wing Frame
2	311316	Hinge Pin
3	335182	HHCS 5/8" x 4 ½"
4	330878	Lock Washer 5/8"
5	330571	Hex Nut 5/8"
6	335877	HHCS 3/8" x 1 3/4"
7	217729	Hose Carrier Bolt Plate
8	330837	Hex Nylock Nut 3/8"
9	330092	HHCS ½" x 4"
10	145623	Spindle Bushing
11	331363	Hex Nylock Nut ½"
12	403279	Bearing 2" 4B Flange
	403287	Bearing Insert
13	01071000	HHCS 5/8" x 2"
14	961870	Wing Wheel Spindle
15	310656	Key 3/16" x 1½"
Item	**Part No.**	**Description**
16	815175	Mounted Tire 11L 8Ply 6B
	Includes:	
	02990000	Decal "Check Wheel Lugs"
	530287	Valve Stem
	530329	Tire 11L x 15 8Ply
	530147	Wheel 6 Bolt 15 x 10
17	961953	Frame End Cap w/Step
18	01147800	HHCS ½" x 1½"
19	330142	Lock Washer ½"
20	330134	Hex Nut ½"
21	963058	Bolt on Step
22	01057900	HHCS 1/4" x 3/4"
23	330050	Lock Washer 1/4"
24	332205	Hex Nut 1/4"
25	221374	Wheel Arm Chain Guard
26	230433	Lock Out Storage Bracket

4025 & 4030 Left Wing Sections



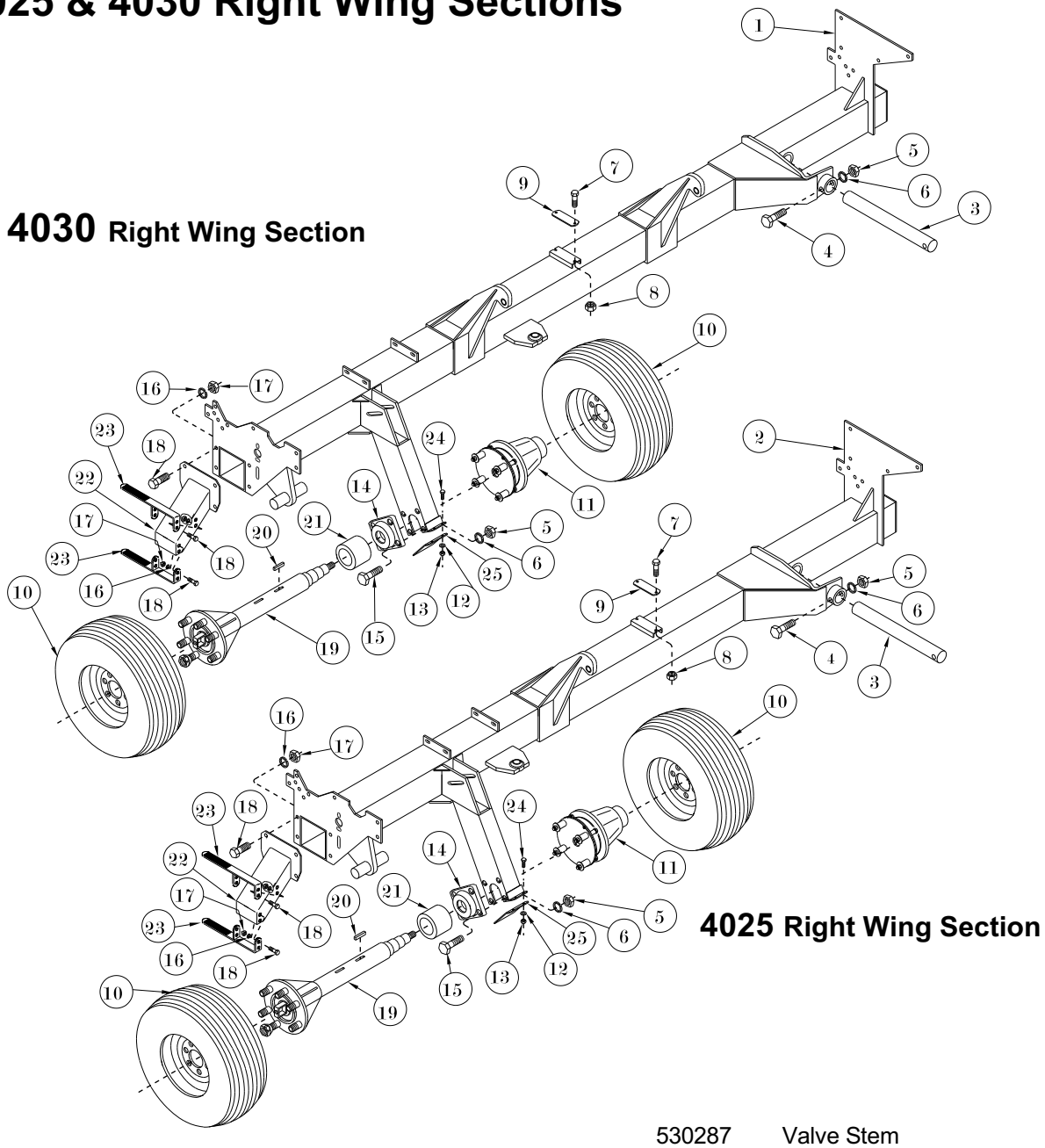
4030 Left Wing Section

4025 Left Wing Section

Item	Part No.	Description
1	961789	**4030** Left Wing Frame
2	961805	**4025** Left Wing Frame
3	311316	Hinge Pin
4	335182	HHCS 5/8" x 4 1/2"
5	330571	Hex Nut 5/8"
6	330878	Lock Washer 5/8"
7	335877	HHCS 3/8" x 1 3/4"
8	330837	Hex Nylock Nut 3/8"
9	217729	Hose Carrier Bolt Plate
10	815175	Mounted Tire 11L 8Ply 6B
	Includes:	
	02990000	Decal "Check Wheel Lugs"
	530287	Valve Stem
	530329	Tire 11L x 15 8Ply
	530147	Wheel 6 Bolt 15 x 10
11	870196	Clutch Assy w/Hub /No Bolts
12	332205	Hex Nut 1/4"
13	330050	Lock Washer 1/4"
14	403279	Bearing 2" 4B Flange
	403287	Bearing Insert
15	01071000	HHCS 5/8" x 2"
16	330142	Lock Washer ½"
17	330134	Hex Nut ½"

Item	Part No.	Description
18	01147800	HHCS 1/2" x 1½"
19	958264	Wing Wheel Spindle
20	310656	Key 3/16" x 1½"
21	151787	Spindle Bushing
22	961953	Frame End Cap w/Step
23	609453	Acre Counter
24	963058	Bolt on Step
25	01057900	HHCS 1/4" x 3/4"
26	221374	Wheel Arm Chain Guard
27	230433	Lock Out Storage Bracket

4025 & 4030 Right Wing Sections



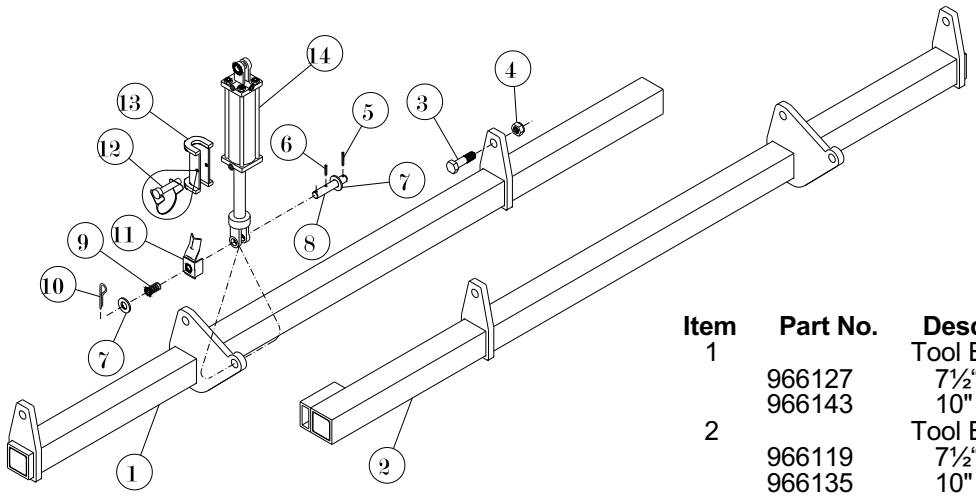
4030 Right Wing Section

4025 Right Wing Section

Item	Part No.	Description
1	961797	**4030** Right Wing Frame
2	961813	**4025** Right Wing Frame
3	311316	Hinge Pin
4	335182	HHCS 5/8" x 4 1/2"
5	330571	Hex Nut 5/8"
6	330878	Lock Washer 5/8"
7	335877	HHCS 3/8" x 1 3/4"
8	330837	Hex Nylock Nut 3/8"
9	217729	Hose Carrier Bolt Plate
10	815175	Mounted Tire 11L 8Ply 6B
	Includes:	
	02990000	Decal "Check Wheel Lugs"
	530287	Valve Stem
	530329	Tire 11L x 15 8Ply
	530147	Wheel 6 Bolt 15 x 10
11	870196	Clutch Assy w/Hub/No Bolts
12	330050	Lock Washer 1/4"
13	332205	Hex Nut 1/4"
14	403279	Bearing 2" 4B Flange
	403287	Bearing Insert
15	01071000	HHCS 5/8" x 2"
16	330142	Lock Washer 1/2"
17	330134	Hex Nut 1/2"
18	01147800	HHCS 1/2" x 1 1/2"
19	958264	Wing Wheel Spindle
20	310656	Key 3/16" x 1 1/2"
21	151787	Spindle Bushing
22	961953	Frame End Cap w/Step
23	963058	Bolt on Step
24	01057900	HHCS 1/4" x 3/4"
25	221374	Wheel Arm Chain Guard

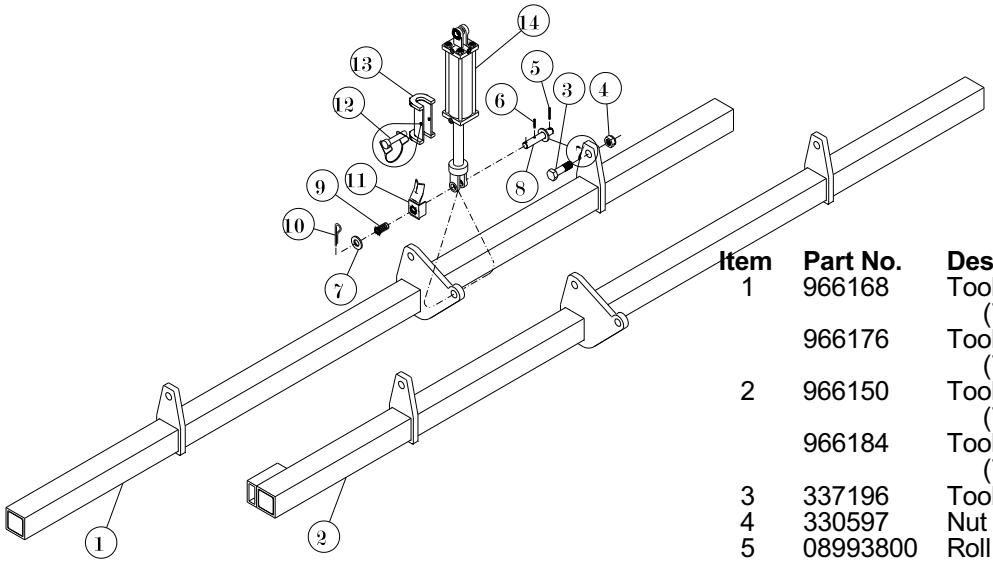
Item Part No. Description

4020 All Plant Tool Bar



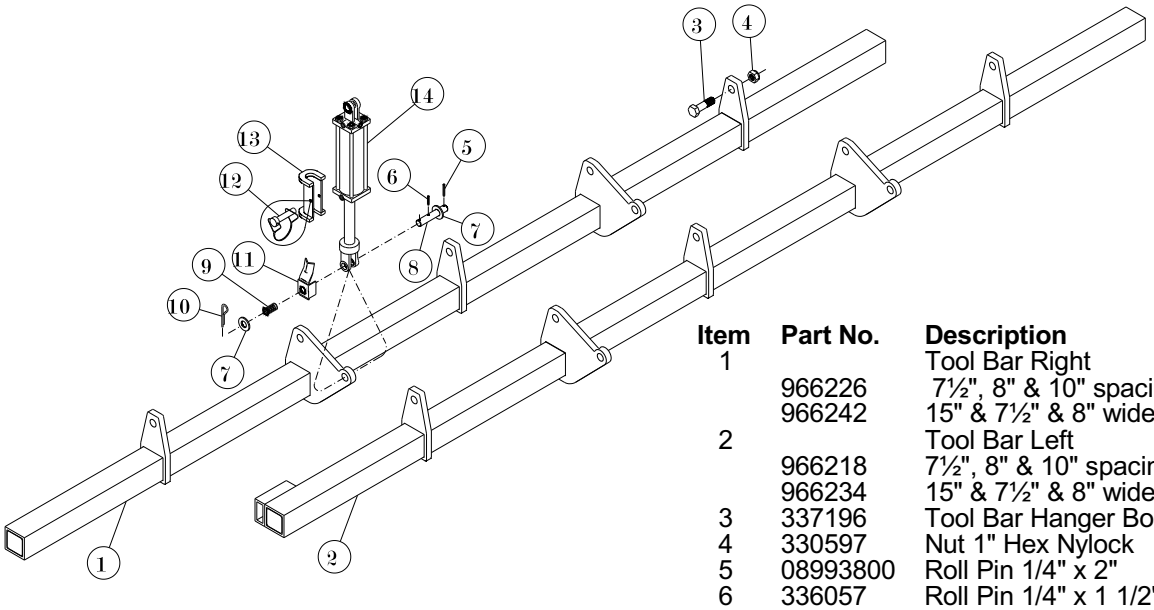
Item	Part No.	Description
1		Tool Bar Right
	966127	7½“ & 8" spacing
	966143	10" & 7½" & 8" wide spacing
2		Tool Bar Left
	966119	7½“ & 8" spacing
	966135	10" & 7½" & 8" wide spacing
3	337196	Tool Bar Hanger Bolt
4	330597	Nut 1" Hex Nylock
5	08993800	Roll Pin 1/4" x 2"
6	336057	Roll Pin 1/4" x 1 1/2"
7	330407	Flat Washer 1"
8	309633	Cylinder Screw Holder Pin
9	501031	Spring
10	02288900	Cotter Pin 3/16" x 2"
11	959569	Cylinder Screw Lock
12	00233700	Pin Wire Lock 5/16 x 2 3/4
13	964742	Cylinder Lockout
14	473215	Cylinder 4" x 8" 3000 PSI

4025 All Plant Tool Bar



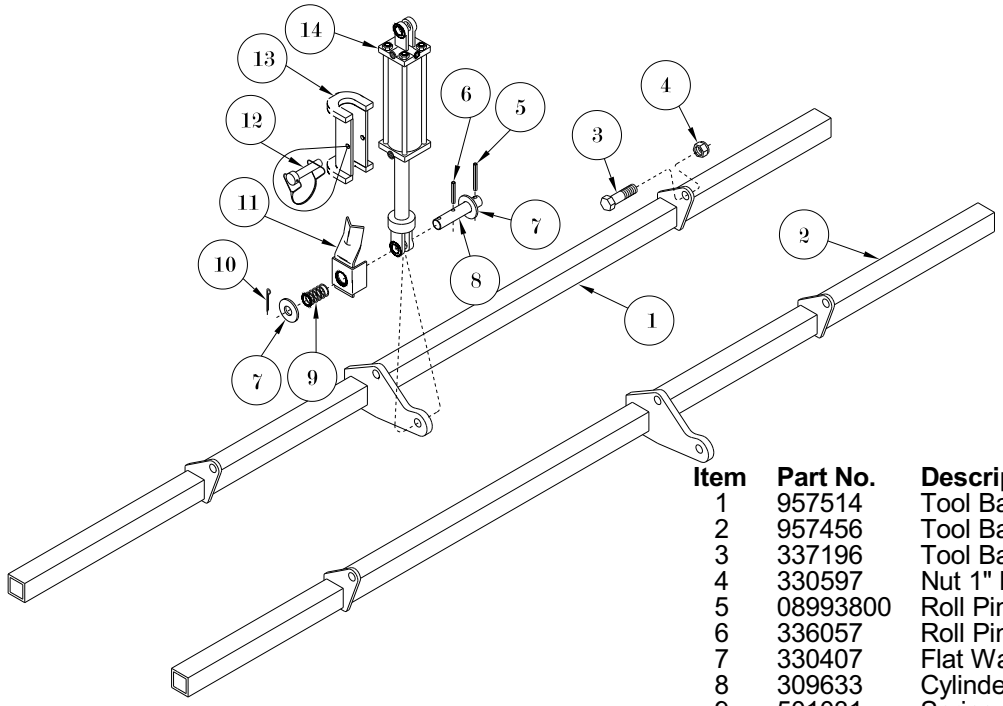
Item	Part No.	Description
1	966168	Tool Bar Right (7½", 8", 10" & 15")
	966176	Tool Bar Right (7½"& 8" wide spacing)
2	966150	Tool Bar Left (7½", 8", 10" & 15")
	966184	Tool Bar Left (7½"& 8" wide spacing)
3	337196	Tool Bar Hanger Bolt
4	330597	Nut 1" Hex Nylock
5	08993800	Roll Pin 1/4" x 2"
6	336057	Roll Pin 1/4" x 1 1/2"
7	330407	Flat Washer 1"
8	309633	Cylinder Screw Holder Pin
9	501031	Spring
10	02288900	Cotter Pin 3/16" x 2"
11	959569	Cylinder Screw Lock (For 3 1/2" x 8" Cyl)
12	00233700	Pin Wire Lock 5/16" x 2 3/4"
13	964742	Cylinder Lockout
14	473215	Cylinder 4" x 8" 3000 PSI

4030 All Plant Tool Bar



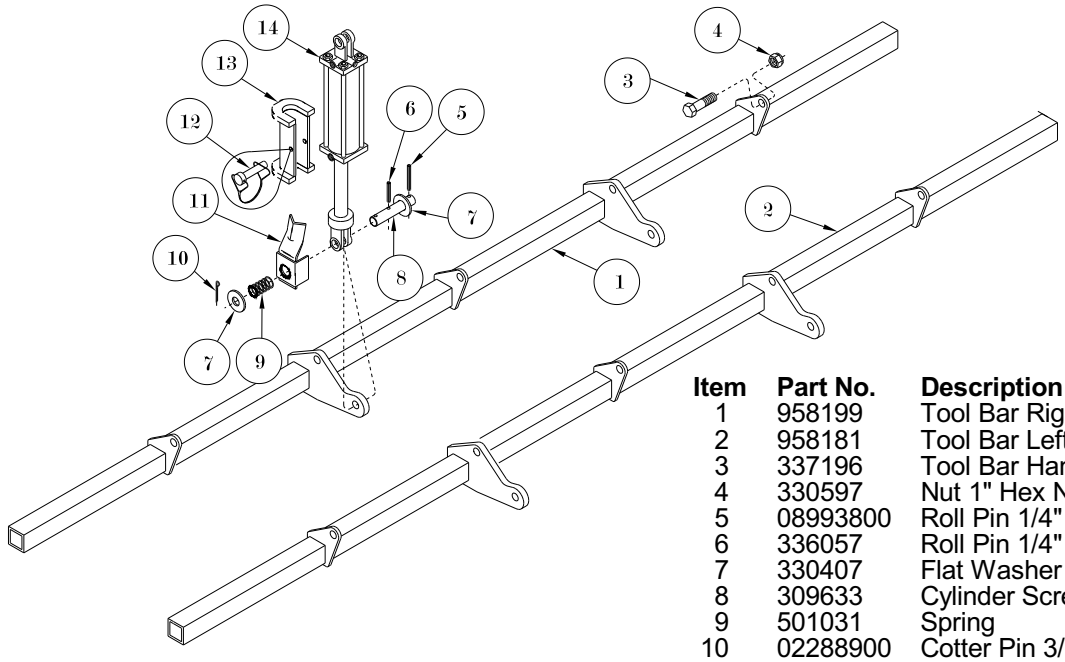
Item	Part No.	Description
1		Tool Bar Right
	966226	7½", 8" & 10" spacing
	966242	15" & 7½" & 8" wide spacing
2		Tool Bar Left
	966218	7½", 8" & 10" spacing
	966234	15" & 7½" & 8" wide spacing
3	337196	Tool Bar Hanger Bolt
4	330597	Nut 1" Hex Nylock
5	08993800	Roll Pin 1/4" x 2"
6	336057	Roll Pin 1/4" x 1 1/2"
7	330407	Flat Washer 1"
8	309633	Cylinder Screw Holder Pin
9	501031	Spring
10	02288900	Cotter Pin 3/16" x 2"
11	956569	Cylinder Screw Lock
12	00233700	Pin Wire Lock 5/16 x 2 3/4
13	964742	Cylinder Lockout
14	473215	Cylinder 4" x 8" 3000 PSI

4025 Min-Till Tool Bar



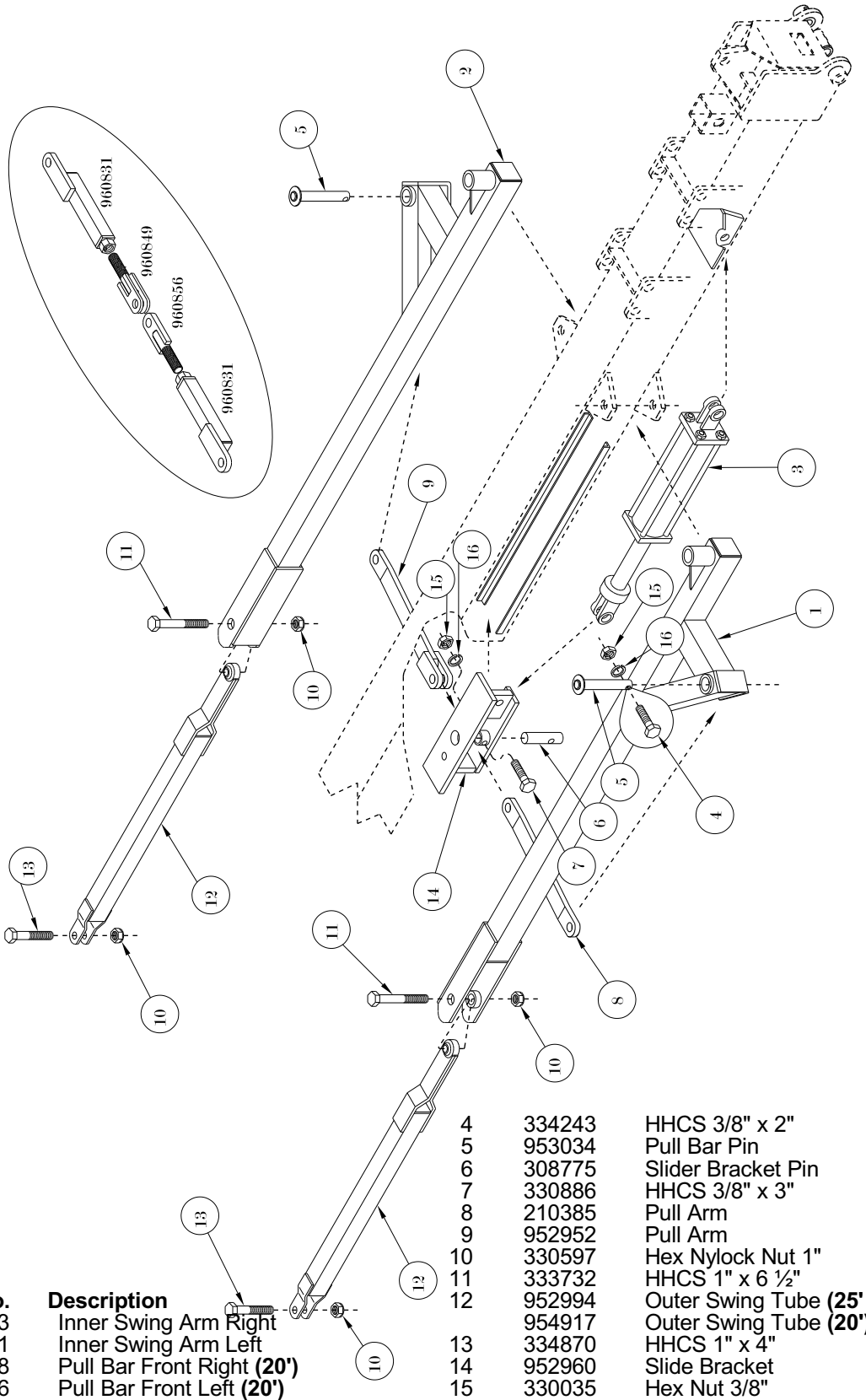
Item	Part No.	Description
1	957514	Tool Bar Right
2	957456	Tool Bar Left
3	337196	Tool Bar Hanger Bolt
4	330597	Nut 1" Hex Nylock
5	08993800	Roll Pin 1/4" x 2"
6	336057	Roll Pin 1/4" x 1 1/2"
7	330407	Flat Washer 1"
8	309633	Cylinder Screw Holder Pin
9	501031	Spring
10	02288900	Cotter Pin 3/16" x 2"
11	956569	Cylinder Screw Lock
12	00233700	Pin Wire Lock 5/16 x 2 3/4
13	964742	Cylinder Lockout
14	473215	Cylinder 4" x 8" 3000 PSI

4030 Min-Till Tool Bar



Item	Part No.	Description
1	958199	Tool Bar Right
2	958181	Tool Bar Left
3	337196	Tool Bar Hanger Bolt
4	330597	Nut 1" Hex Nylock
5	08993800	Roll Pin 1/4" x 2"
6	336057	Roll Pin 1/4" x 1 1/2"
7	330407	Flat Washer 1"
8	309633	Cylinder Screw Holder Pin
9	501031	Spring
10	02288900	Cotter Pin 3/16" x 2"
11	956569	Cylinder Screw Lock
12	00233700	Pin Wire Lock 5/16 x 2 3/4
13	964742	Cylinder Lockout
14	473215	Cylinder 4" x 8" 3000 PSI

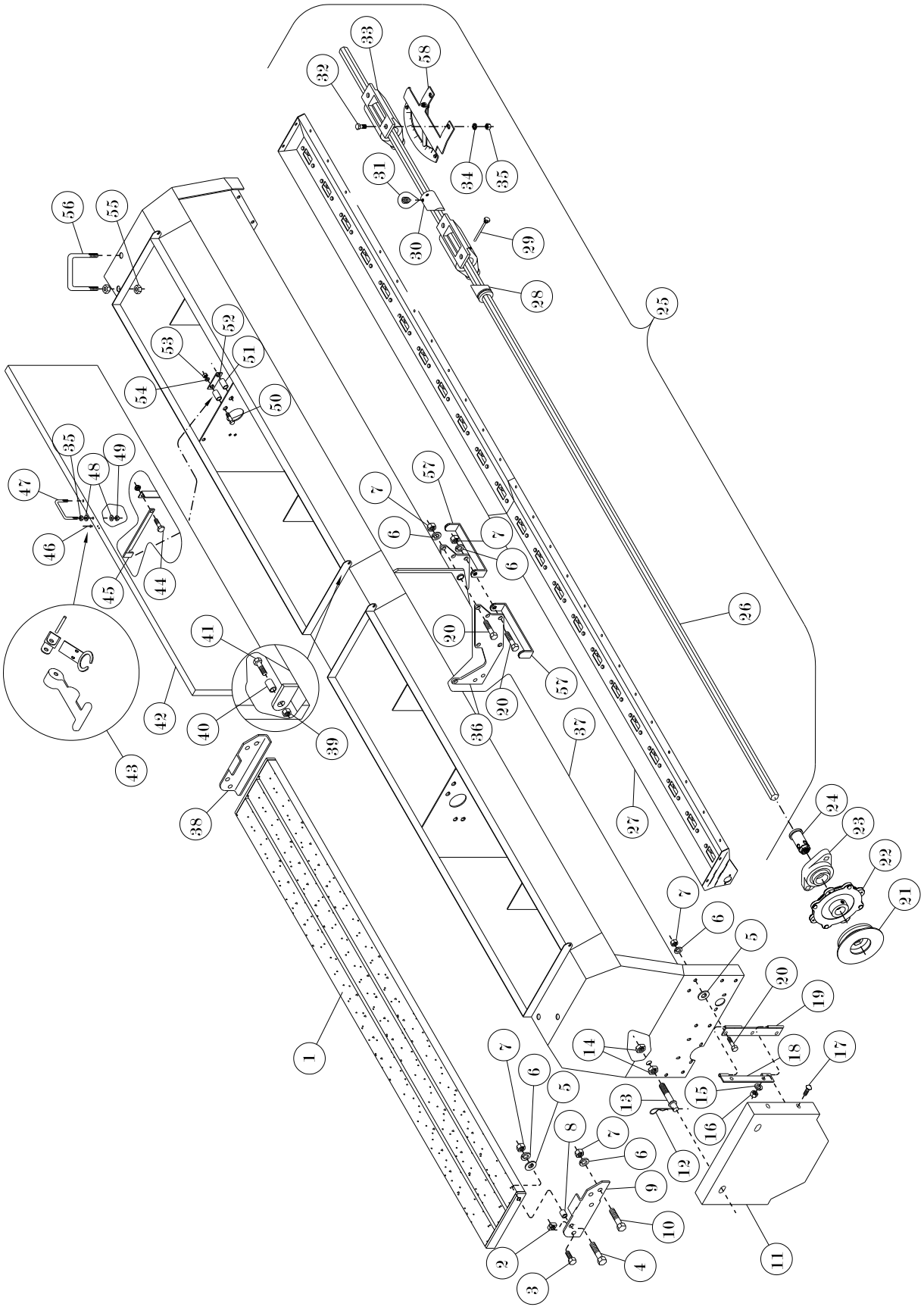
4020, 4025 & 4030
Slide Fold & Pull Bar



Item	Part No.	Description
1	954263	Inner Swing Arm Right
2	954271	Inner Swing Arm Left
	954818	Pull Bar Front Right **(20')**
	954826	Pull Bar Front Left **(20')**
3	465286	Cylinder 5 x 20
	464412	Seal Kit for 5 x 20 Cylinder
4	334243	HHCS 3/8" x 2"
5	953034	Pull Bar Pin
6	308775	Slider Bracket Pin
7	330886	HHCS 3/8" x 3"
8	210385	Pull Arm
9	952952	Pull Arm
10	330597	Hex Nylock Nut 1"
11	333732	HHCS 1" x 6 ½"
12	952994	Outer Swing Tube **(25' & 30')**
	954917	Outer Swing Tube **(20')**
13	334870	HHCS 1" x 4"
14	952960	Slide Bracket
15	330035	Hex Nut 3/8"
16	330043	Lock Washer 3/8"

Item **Part No.** **Description**

4020, 4025 & 4030 Grain Box
(2.5 Bu/Ft)

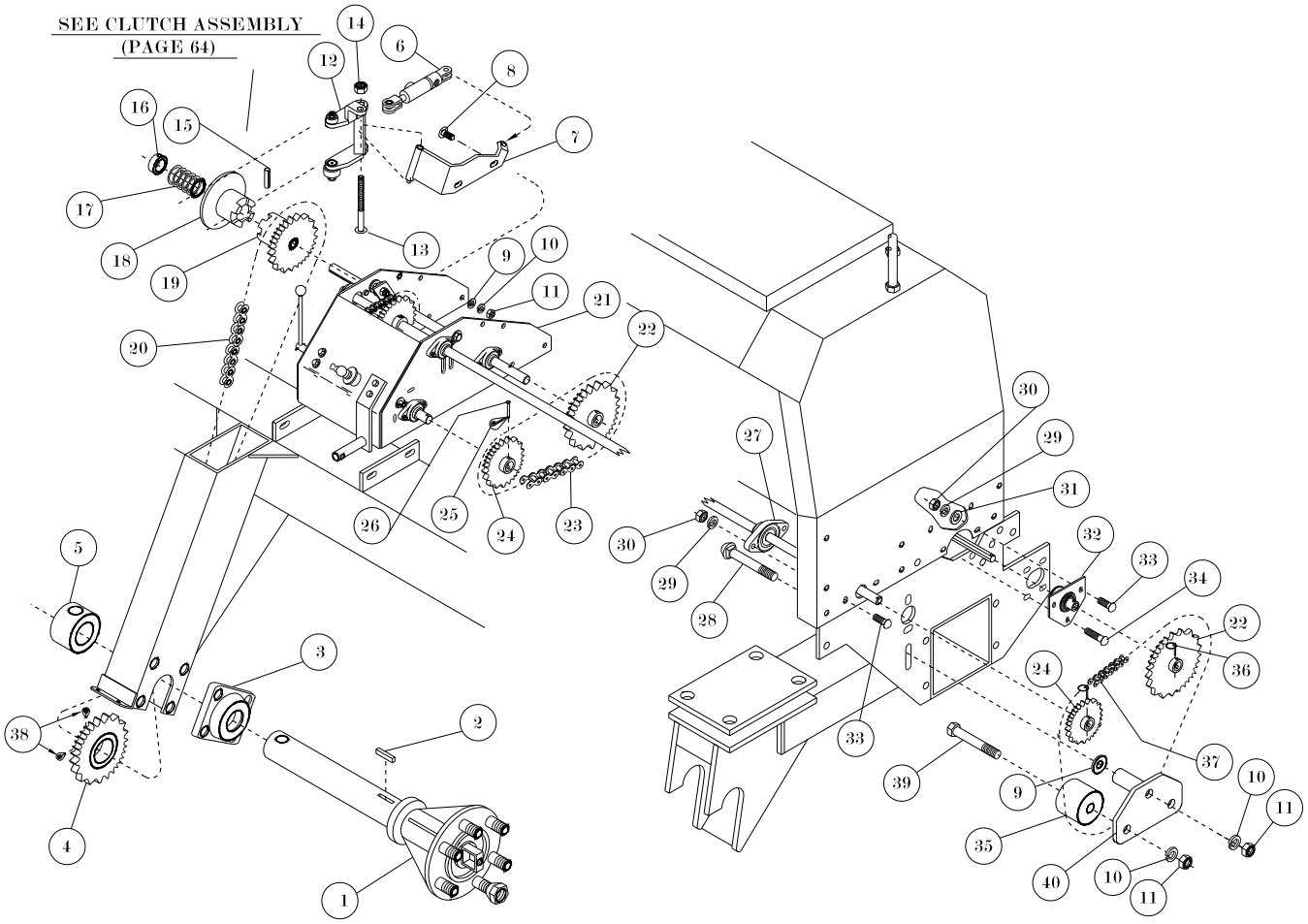


4020, 4025 & 4030 Grain Box

Item	Part No.	Description
1	972760	Walkboard **4020**
	972968	Walkboard **4025**
	972679	Walkboard **4030**
	Prior 2010	
	956854	Walkboard **4020**
	958397	Walkboard **4025**
	957290	Walkboard **4030**
2	332197	Square Nut ½"
3	01029800	HHCS ½" x 1"
4	335240	HHCS 1/2" x 1 3/4"
5	330159	Flat Washer ½"
6	330142	Lock Washer ½"
7	330134	Hex Nut ½"
8	150086	Walkboard Bushing
9	216192	Box End Walkboard Bracket Rt (Shown)
	216226	Box End Walkboard Bracket Lt
10	01180900	HHCS 1/2" x 1 1/4"
11	958371	Chain Guard
12	330860	Hair Pin 5/32"
13	958363	Shield Latch Pin
14	330985	Hex Jam Nut 3/4"
15	330043	Lock Washer 3/8"
16	330811	Hex Nut 5/16"
17	01047000	Carriage Bolt 5/16" x 1"
18	958355	Shield Hinge Bracket
19	958348	Box Shield Hinge Bracket
20	01147800	HHCS ½" x 1½"
21	972851	Adjustment Lock Plate
22	874834	Adjustment Handle
23	03001500	Bearing 1" Flange
24	312785	Adjustment Spool
25		Box Bottom Assemblies (Includes items #26-#35)
	872598	**4020** Left 7½" Spacing
	872606	**4020** Right 7½" Spacing
	872614	**4020** Left 8" Spacing
	872622	**4020** Right 8" Spacing
	872630	**4020** Left 10" Spacing
	872648	**4020** Right 10" Spacing
	866848	**4025** Left 6" Spacing
	866814	**4025** Right 6" Spacing
	872671	**4025** Left 7½" Spacing
	872689	**4025** Right 7½" Spacing
	872697	**4025** Left 8" Spacing
	872705	**4025** Right 8" Spacing
	872713	**4025** Left 10" Spacing
	872721	**4025** Right 10" Spacing
	872739	**4030** Left 7½" Spacing
	872747	**4030** Right 7½" Spacing
	872754	**4030** Left 8" Spacing
	872762	**4030** Right 8" Spacing
	872770	**4030** Left 10" Spacing
	872788	**4030** Right 10" Spacing
	872796	**4030** Left 15" Spacing
	872804	**4030** Right 15" Spacing
26	311399	**4020** Hex Shaft 113 13/16"
	311407	**4025** Hex Shaft 138 17/64"
	311415	**4030** Hex Shaft 162 5/16"

Item	Part No.	Description
27		Box Bottoms
	966374	**4020** 7½" Spacing
	966366	**4020** 8" Spacing
	966358	**4020** 10" Spacing
	959650	**4025** 6" Spacing
	966333	**4025** 7½" Spacing
	966325	**4025** 8" Spacing
	966317	**4025** 10" Spacing
	966309	**4030** 7½" Spacing
	966291	**4030** 8" Spacing
	966283	**4030** 10" Spacing
	966382	**4030** 15" Spacing
28	550525	Wobble Slot Half w/Groove
29	601716	Wobble Slot Lock Pin
30	550517	Wobble Slot Adjustable Side
31	334516	Set Screw 1/4-28 x 1/4 Cone Pt
32	01144500	HHCS 5/16" x 3/4"
33	550483	Seed Cup Cast
34	330845	Lock Washer 5/16"
35	330811	Hex Nut 5/16"
36	215848	Center Box Bracket Plate **4025 & 4030**
37	961417	Grain Box Rt / Rt **4020**
	961409	Grain Box Lt / Lt **4020**
	958298	Grain Box Rt / Rt **4025**
	958280	Grain Box Lt / Lt **4025**
	958066	Grain Box Rt / Rt **4030**
	958108	Grain Box Lt / Lt **4030**
38	213892	Walkboard Bracket Center Rt (Shown)
	214221	Walkboard Bracket Center Lt
39	330837	Hex Nylock Nut 3/8"
40	149385	Lid Bushing
41	335703	HHCS 3/8" x 1½"
42	961250	Box Lid **4020**
	958314	Box Lid **4025**
	958124	Box Lid **4030**
43	570341	Drill Lid Latch w/hook
44	01011600	HHCS 5/16" x 1 1/4"
45	221317	Lid Latch Bracket
46	601989	Pop Rivet 3/16" x 1/4"
47	308122	Handle
48	330852	Flat Washer 5/16"
49	3331611	Hex Nylock 5/16"
50	335133	HHCS 1/4" x 1 3/4"
51	145144	Lid Latch Spool
52	190942	Lid Latch
53	332205	Hex Nut 1/4"
54	330050	Lock Washer 1/4"
55	330571	Hex Nut 5/8"
56	335737	U-Bolt 5/8" x 4" x 3"
57	230441	Lock Out Storage Bracket
58	874552	Seed Gauge (Rear Mount)
	875518	Seed Gauge (Front Mount)
59	330332	Lock Washer 3/4"

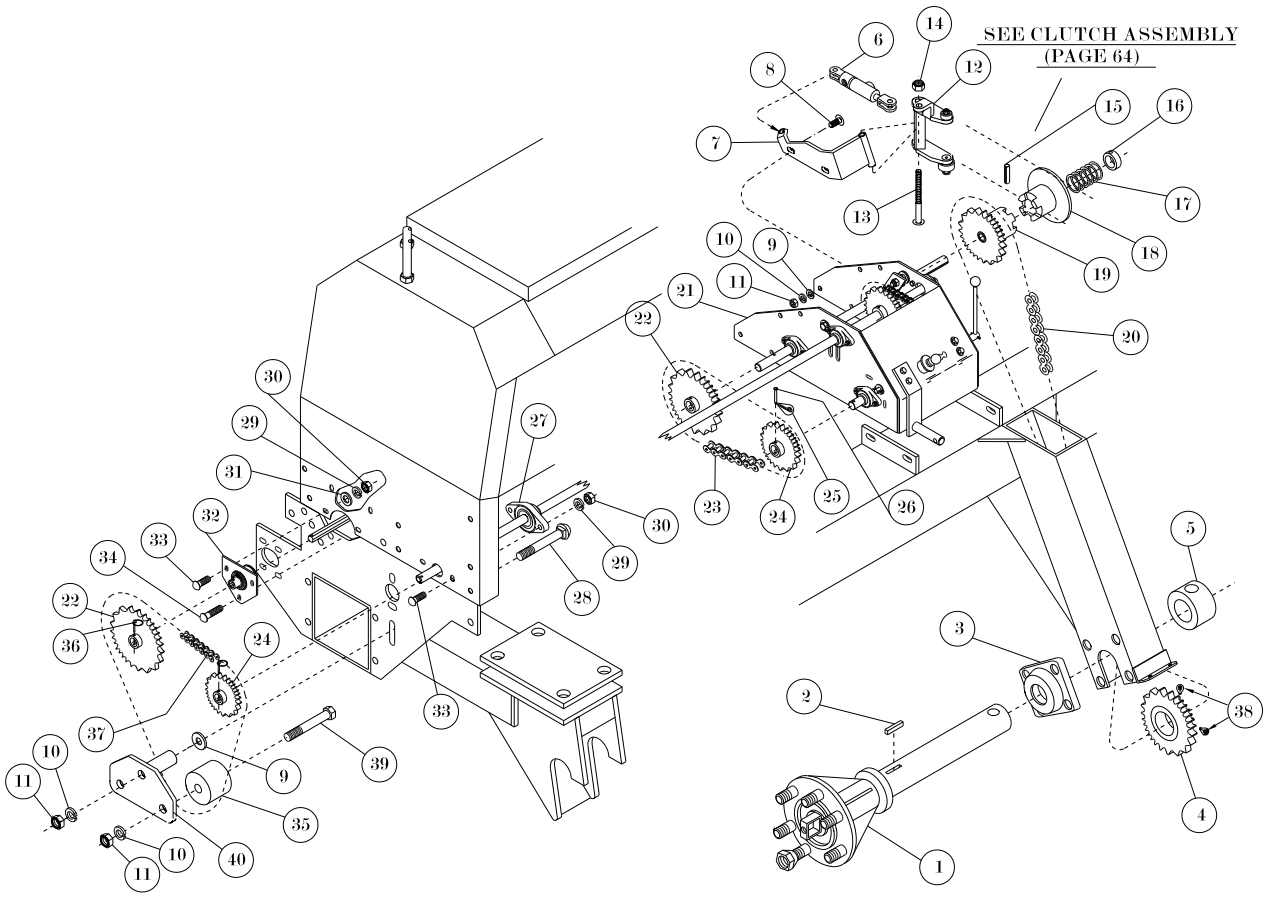
4020 Left Drive



Item	Part No.	Description
1	961870	Wing Wheel Spindle
2	310656	Key 3/16 x 1 1/2"
3	403279	Bearing 2" 4B Flange
	403287	Bearing Insert for #403279
4	954370	Hub Drive Sprocket 2050 18T (For 7½", & 8" Spacing)
	953216	Hub Drive Sprocket 2050 25T (For 10" Spacing)
5	145623	Spindle Bushing
6	471854	Cylinder 1" x 2"
7	963603	Clutch Bracket Mount
8	333484	Carriage Bolt ½" x 1 3/4"
9	330159	Flat Washer 1/2"
10	330142	Lock Washer 1/2"
11	330134	Hex Nut 1/2"
12	870121	Clutch Lever
13	335364	Carriage Bolt ½" x 6"
14	331363	Hex Nylock Nut ½"
15	334813	Roll Pin 5/16" x 1½"
16	06409700	Set Collar 1"
17	501031	Spring
18	860825	Throw-out Clutch Half Assy
19		Drive Clutch Sprocket Assy
	863795	20T (7½" & 10" Spacing)
	863787	18T (8" Spacing)

Item	Part No.	Description
20	432666	Chain 2050 x 55 Links
	432674	Chain 2050 x 57 Links
21	868265	Gear Box Assembly - Left
22	935106	Sprocket 2050 30T 1" Bore
23	431239	Chain 2050 x 27 Links
24	935098	Sprocket 2050 25T 1" Bore
25	337071	Cotter Pin 3/32" x ½"
26	335349	Clevis Pin 1/4" x 1 5/8"
27	03001500	Bearing 2B Flange w/LC
28	333310	Carriage Bolt 1/2" x 3 1/2"
29	330845	Lock Washer 5/16"
30	330811	Hex Nut 5/16"
31	330852	Flat Washer 5/16"
32	865758	Bearing Bracket Assembly
33	01047000	Carriage Bolt 5/16" x 1"
34	01261700	Carriage Bolt 5/16" x 1 1/2"
35	571273	Nylon Idler
36	338392	Klik Pin 1/4" w/ 1 3/4" Ring
37	432732	Chain 2050 x 45 Links
38	334516	Set Screw 1/4-28 x 1/4 Cone Pt
39	335422	HHCS ½" x 2 ½"
40	965640	Idler Pivot

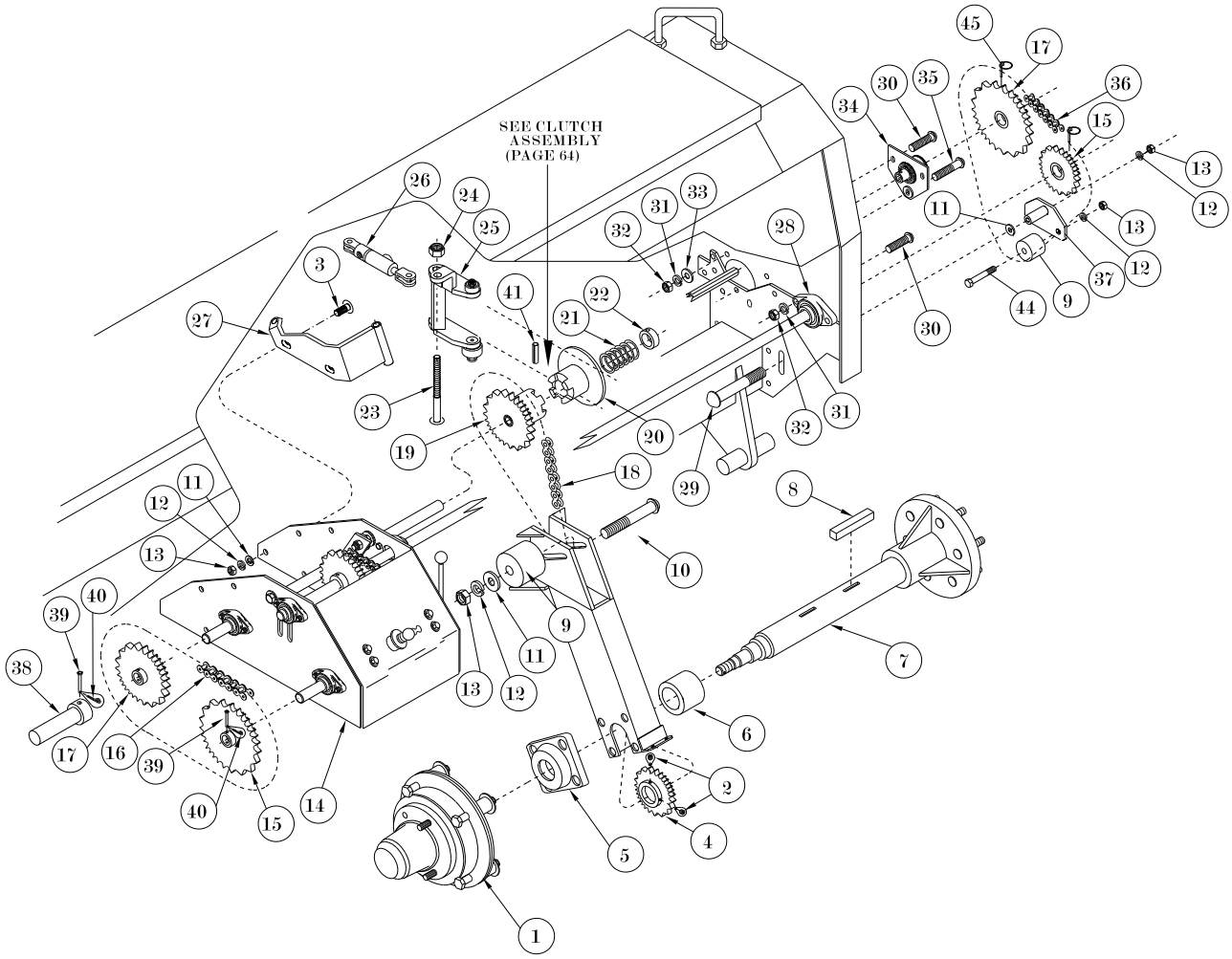
4020 Right Drive



Item	Part No.	Description
1	961870	Wing Wheel Spindle
2	310656	Key 3/16 x 1 1/2"
3	403279	Bearing 2" 4B Flange
	403287	Bearing Insert for #403279
4	954370	Hub Drive Sprocket 2050 18T (For 7½", & 8" Spacing)
	953216	Hub Drive Sprocket 2050 25T (For 10" Spacing)
5	145623	Spindle Bushing
6	471854	Cylinder 1" x 2"
7	963611	Clutch Bracket Mount
8	333484	Carriage Bolt ½" x 1 3/4"
9	330159	Flat Washer 1/2"
10	330142	Lock Washer 1/2"
11	330134	Hex Nut 1/2"
12	870139	Clutch Lever
13	335364	Carriage Bolt ½" x 6"
14	331363	Hex Nylock Nut ½"
15	334813	Roll Pin 5/16" x 1½"
16	06409700	Set Collar 1"
17	501031	Spring
18	860825	Throw-out Clutch Half Assy
19		Drive Clutch Sprocket Assy
	863795	20T (7½" & 10" Spacing)
	863787	18T (8" Spacing)

Item	Part No.	Description
20	432666	Chain 2050 x 55 Links
	432674	Chain 2050 x 57 Links
21	868273	Gear Box Assembly - Left
22	935106	Sprocket 2050 30T 1" Bore
23	431239	Chain 2050 x 27 Links
24	935098	Sprocket 2050 25T 1" Bore
25	337071	Cotter Pin 3/32" x ½"
26	335349	Clevis Pin 1/4" x 1 5/8"
27	03001500	Bearing 2B Flange w/LC
28	333310	Carriage Bolt 1/2" x 3 1/2"
29	330845	Lock Washer 5/16"
30	330811	Hex Nut 5/16"
31	330852	Flat Washer 5/16"
32	865758	Bearing Bracket Assembly
33	01047000	Carriage Bolt 5/16" x 1"
34	01261700	Carriage Bolt 5/16" x 1 1/2"
35	571273	Nylon Idler
36	338392	Klik Pin 1/4" w/ 1 3/4" Ring
37	432732	Chain 2050 x 45 Links
38	334516	Set Screw 1/4-28 x 1/4 Cone Pt
39	335422	HHCS ½" x 2 ½"
40	965640	Idler Pivot

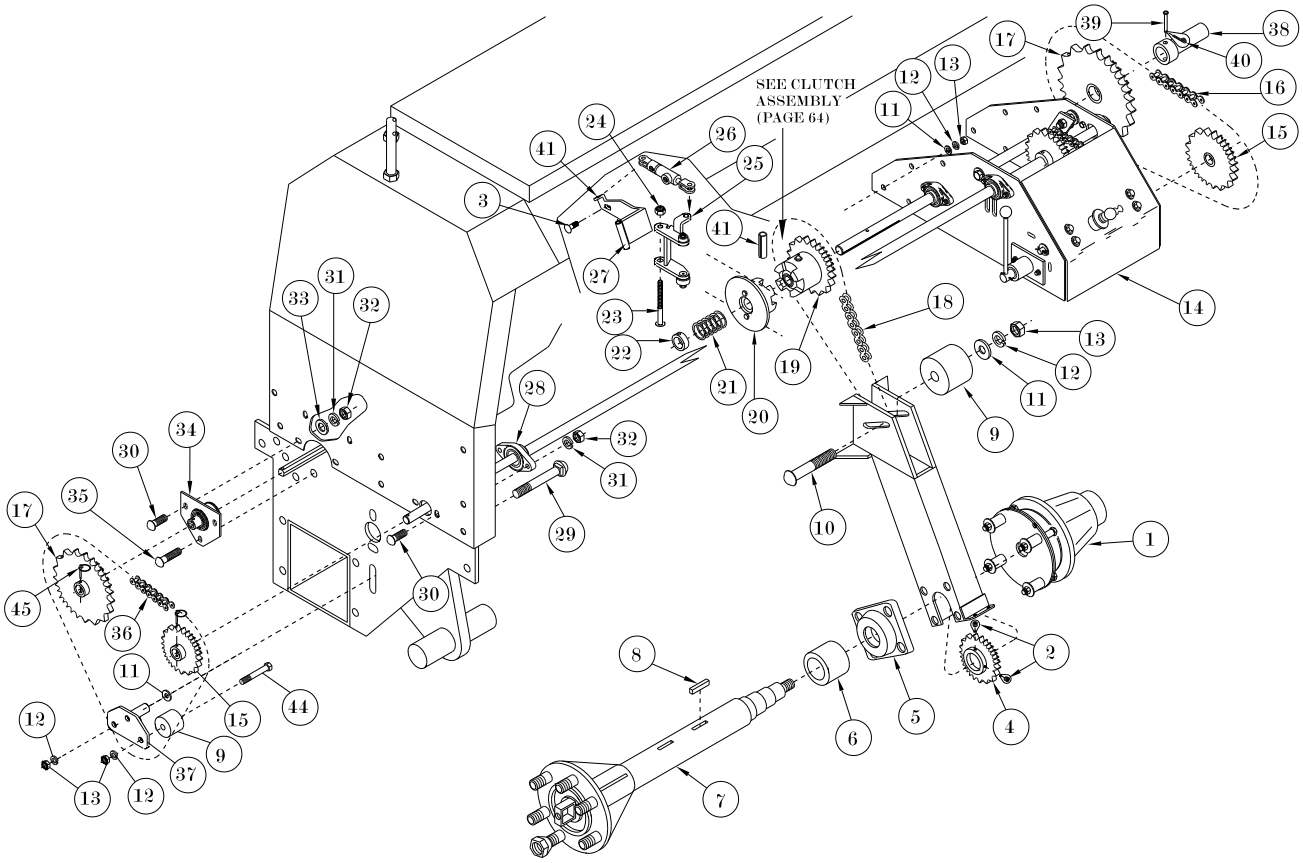
4025 & 4030 Left Drive



Item	Part No.	Description
1	870196	Clutch Assembly w/Hub
2	334516	Set Screw 1/4-28 x 1/4 Cone Pt
3	333484	Carriage Bolt ½" x 1 3/4"
4	954370	Hub Drive Sprocket 2050 18T (For 6", 7½", & 8" Spacing)
	953216	Hub Drive Sprocket 2050 25T (For 10" Spacing)
5	403279	Bearing 2" 4B Flange
	403287	Bearing Insert for #403279
6	151787	Spindle Bushing
7	958264	Wing Wheel Spindle
8	310656	Key 3/16 x 1½"
9	571273	Nylon Idler
10	335323	Carriage Bolt ½" x 3"
11	330159	Flat Washer ½"
12	330142	Lock Washer ½"
13	330134	Hex Nut ½"
14	865774	Gear Box Assembly - Left
15	935098	Sprocket 2050 25T 1" Bore
16	431239	Chain 2050 x 55 Links
17	935106	Sprocket 2050 30T 1" Bore
18	432666	Chain 2050 x 55 Links
19		Drive Clutch Sprocket Assy
	863795	20T (7½" & 10" Spacing)
	863787	18T (8" Spacing)
	863803	25T (6" Spacing)
20	860825	Throw-out Clutch Half Assy
21	501031	Spring
22	06409700	Set Collar 1"
23	335364	Carriage Bolt ½" x 6"
24	331363	Hex Nylock Nut ½"
25	870139	Clutch Lever
26	471854	Cylinder 1" x 2"
27	963611	Clutch Bracket Mount
28	03001500	Bearing 2B Flange w/LC
29	333310	Carriage Bolt ½" x 3½"
30	01047000	Carriage Bolt 5/16" x 1"
31	330845	Lock Washer 5/16"
32	330811	Hex Nut 5/16"
33	330852	Flat Washer 5/16"
34	865758	Bearing Bracket Assembly
35	01261700	Carriage Bolt 5/16" x 1½"
36	432732	Chain 2050 x 45 Links
37	965640	Idler Pivot
38	954412	Meter Man Shaft Adaptor
39	335349	Clevis Pin 1/4" x 1 5/8"
40	337071	Cotter Pin 3/32" x ½"
41	220632	Adjustment Plate Left
42	334813	Roll Pin 5/16" x 1½"
43	334516	Set Screw 1/4-28 x 1/4" ConePt
44	334522	HHCS ½" x 2½"
45	338392	Klik Pin 1/4" w/ 1 3/4" Ring

Item	Part No.	Description

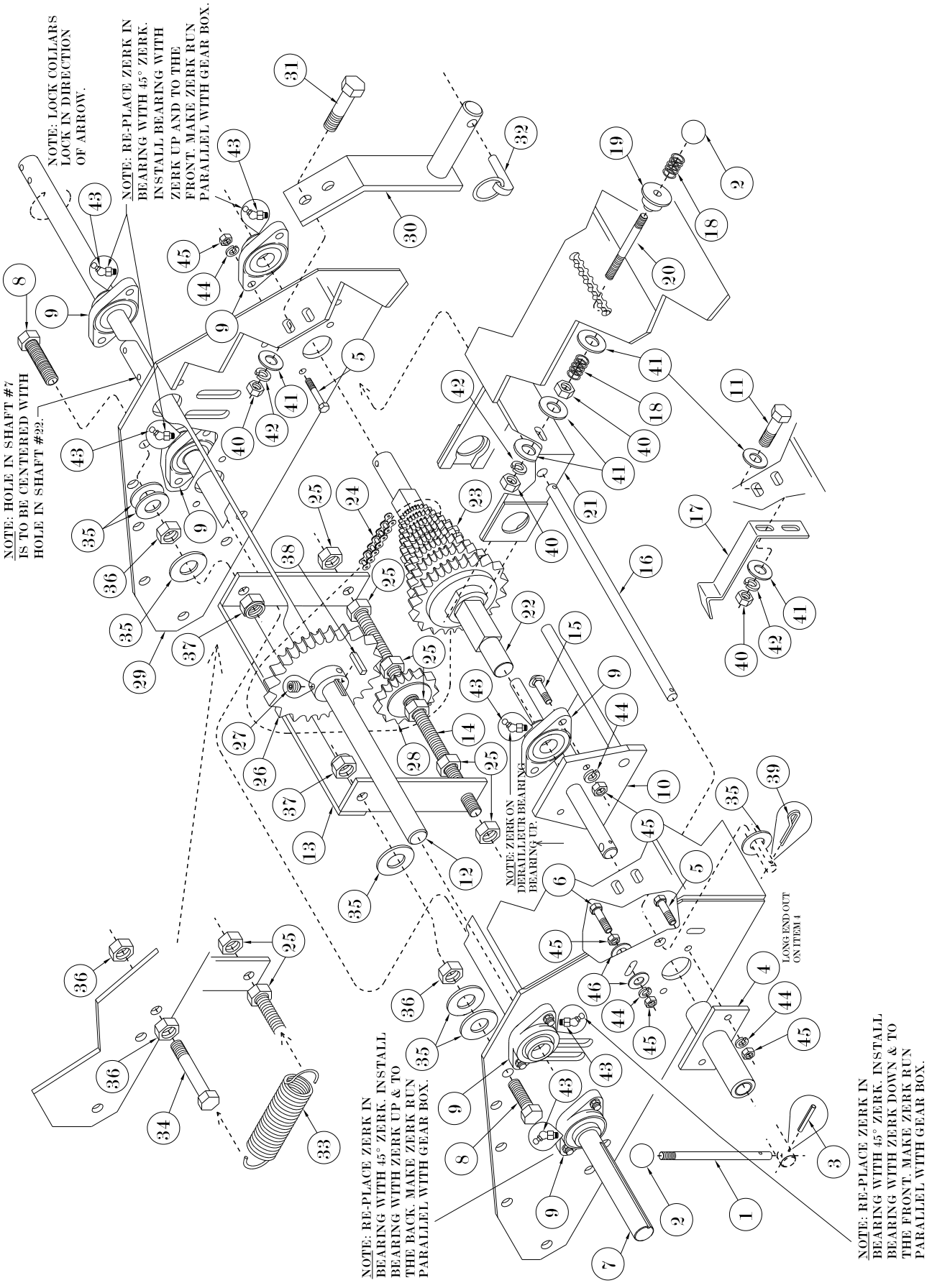
4025 & 4030 Right Drive



Item	Part No.	Description
1	870196	Clutch Assembly w/Hub
2	334516	Set Screw 1/4-28 x 1/4 Cone Pt
3	333484	Carriage Bolt ½" x 1 3/4"
4	954370	Hub Drive Sprocket 2050 18T (For 6", 7½", & 8" Spacing)
	953216	Hube Drive Sprocket 2050 25T (For 10" Spacing)
5	403279	Bearing 2" 4B Flange
	403287	Bearing Insert for #403279
6	151787	Spindle Bushing
7	958264	Wing Wheel Spindle
8	310656	Key 3/16 x 1½"
9	571273	Nylon Idler
10	335323	Carriage Bolt ½" x 3"
11	330159	Flat Washer ½"
12	330142	Lock Washer ½"
13	330134	Hex Nut ½"
14	865782	Gear Box Assembly - Right
15	935098	Sprocket 2050 25T 1" Bore
16	431239	Chain 2050 x 55 Links
17	935106	Sprocket 2050 30T 1" Bore
18	432666	Chain 2050 x 55 Links
19		Drive Clutch Sprocket Assy
	863795	20T (7½" & 10" Spacing)
	863787	18T (8" Spacing)
	863803	25T (6" Spacing)
20	860825	Throw-out Clutch Half Assy
21	501031	Spring
22	06409700	Set Collar 1"
23	335364	Carriage Bolt ½" x 6"
24	331363	Hex Nylock Nut ½"
25	870121	Clutch Lever
26	471854	Cylinder 1" x 2"
27	963603	Clutch Bracket Mount
28	03001500	Bearing 2B Flange w/LC
29	333310	Carriage Bolt ½" x 3½"
30	01047000	Carriage Bolt 5/16" x 1"
31	330845	Lock Washer 5/16"
32	330811	Hex Nut 5/16"
33	330852	Flat Washer 5/16"
34	865758	Bearing Bracket Assembly
35	01261700	Carriage Bolt 5/16" x 1½"
36	432732	Chain 2050 x 45 Links
37	965640	Idler Pivot
38	954412	Meter Man Shaft Adaptor
39	335349	Clevis Pin 1/4" x 1 5/8"
40	337071	Cotter Pin 3/32" x ½"
41	220582	Adjustment Plate Right
42	334813	Roll Pin 5/16" x 1½"
43	334516	Set Screw 1/4-28 x 1/4" ConePt
44	334522	HHCS ½" x 2½"
45	338392	Klik Pin 1/4" w/ 1 3/4" Ring

Item **Part No.** **Description**

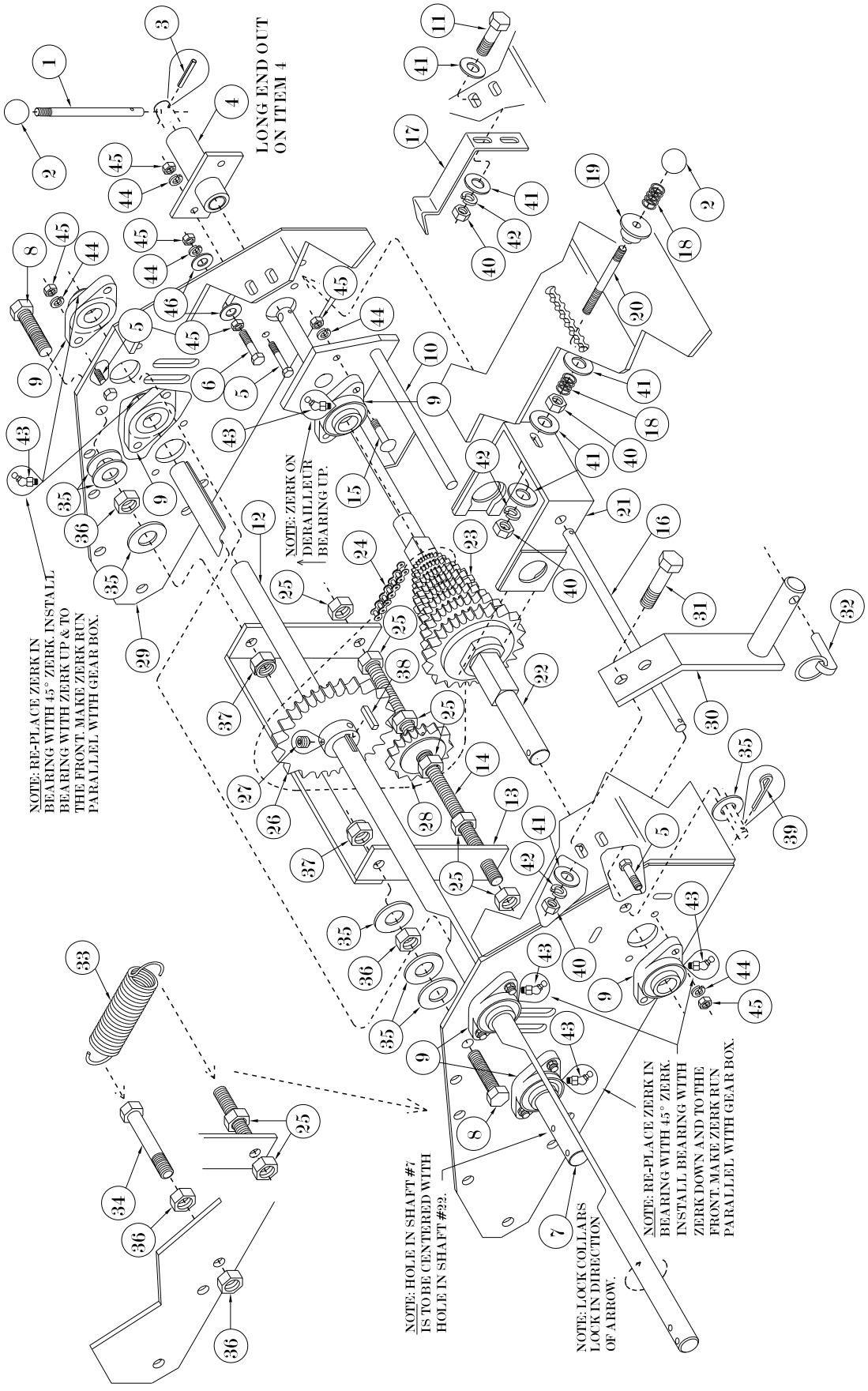
4020 Gear Box Left



4020 Gear Box Left

Item	Part No.	Description
1	309088	Handle Shaft
2	604611	Knob Black Plastic Ball
3	334581	Roll Pin 5/32" x 7/8"
4	860908	Derailleur Clutch Mount Assy
5	01010800	HHCS 5/16" x 1" Gr 5
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
6	02300200	HHCS 5/16" x 2" Gr 5
	330852	Flat washer 5/16"
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
7	309047	Clutch Shaft
8	337212	Tap Bolt 1/2" x 2" Gr 5
	330159	Flat washer 1/2"
	330134	Hex nut 1/2"
	331363	Hex nylock 1/2"
9	03001500	Bearing 1" Flange Mount
10	954339	Derailleur Bracket
11	01017300	HHCS 3/8" x 1" Gr 5
	330043	Lock washer 3/8"
	330894	Flat washer 3/8"
	330035	Hex nut 3/8"
12	310698	Box End Drive Shaft
13	954941	Idler Arm
14	309112	Idler Arm All Thread Shaft
15	01261700	Carriage Bolt 5/16" x 1 1/2"
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
16	309070	Gearbox Shaft
17	211896	Derailleur Spring Catch Plate
18	502161	Knob Spring
19	309138	Shift Lock
20	309104	Adjustment Handle Shaft
21	954347	Sprocket Cluster Bracket
22	309054	Cluster Shaft
23	432708	Sprocket Cluster
24	432542	Chain #40 x 64 Pitches Comp
25	330571	Hex Nut 5/8"
26	954149	Sprocket #40 30T w/1" Bore
27	334516	Set Screw 1/4-28" x 1/4" Cone Pt
28	430603	Idler Sprocket 17T
29	957092	Gearbox Weldment
30	954388	Sprocket Carrier
31	01158500	HHCS 3/8" x 1 1/4"
32	330456	Klik Pin 7/16"
33	500173	Idler Spring
34	335422	HHCS 1/2" x 2 1/2" Gr 5
35	330159	Flat washer 1/2"
36	330134	Hex nut 1/2"
37	331363	Hex nylock 1/2"
38	10490100	Key 1/4" x 1 1/4"
39	330936	Cotter Pin 1/8" x 1"
40	330035	Hex nut 3/8"
41	330894	Flat washer 3/8"
42	330043	Lock washer 3/8"
43	01162700	Zerk 1/4-28" 45°
44	330845	Lock washer 5/16"
45	330811	Hex nut 5/16"
46	330852	Flat washer 5/16"

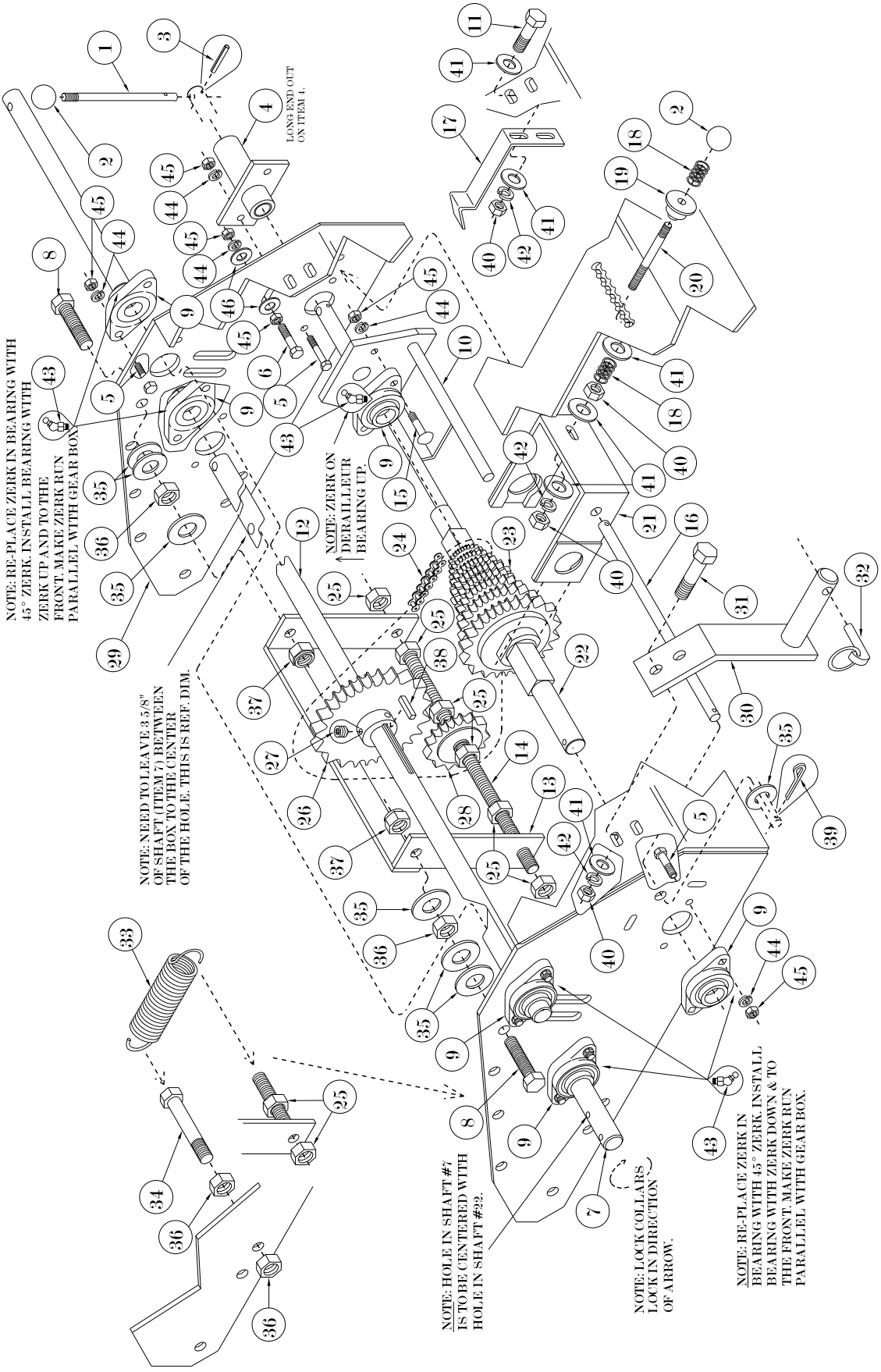
4020 Gear Box Right



4020 Gear Box Right

Item	Part No.	Description
1	309088	Handle Shaft
2	604611	Knob Black Plastic Ball
3	334581	Roll Pin 5/32" x 7/8"
4	860908	Derailleur Clutch Mount Assy
5	01010800	HHCS 5/16" x 1" Gr 5
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
6	02300200	HHCS 5/16" x 2" Gr 5
	330852	Flat washer 5/16"
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
7	309047	Clutch Shaft
8	337212	Tap Bolt 1/2" x 2" Gr 5
	330159	Flat washer 1/2"
	330134	Hex nut 1/2"
	331363	Hex nylock 1/2"
9	03001500	Bearing 1" Flange Mount
10	954339	Derailleur Bracket
11	01017300	HHCS 3/8" x 1" Gr 5
	330043	Lock washer 3/8"
	330894	Flat washer 3/8"
	330035	Hex nut 3/8"
12	310698	Box End Drive Shaft
13	954941	Idler Arm
14	309112	Idler Arm All Thread Shaft
15	01261700	Carriage Bolt 5/16" x 1 1/2"
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
16	309070	Gearbox Shaft
17	211896	Derailleur Spring Catch Plate
18	502161	Knob Spring
19	309138	Shift Lock
20	309104	Adjustment Handle Shaft
21	954347	Sprocket Cluster Bracket
22	309054	Cluster Shaft
23	432708	Sprocket Cluster
24	432542	Chain #40 x 64 Pitches Comp
25	330571	Hex Nut 5/8"
26	954149	Sprocket #40 30T w/1" Bore
27	334516	Set Screw 1/4-28" x 1/4" Cone Pt
28	430603	Idler Sprocket 17T
29	957092	Gearbox Weldment
30	954388	Sprocket Carrier
31	01158500	HHCS 3/8" x 1 1/4"
32	330456	Klik Pin 7/16"
33	500173	Idler Spring
34	335422	HHCS 1/2" x 2 1/2" Gr 5
35	330159	Flat washer 1/2"
36	330134	Hex nut 1/2"
37	331363	Hex nylock 1/2"
38	10490100	Key 1/4" x 1 1/4"
39	330936	Cotter Pin 1/8" x 1"
40	330035	Hex nut 3/8"
41	330894	Flat washer 3/8"
42	330043	Lock washer 3/8"
43	01162700	Zerk 1/4-28" 45°
44	330845	Lock washer 5/16"
45	330811	Hex nut 5/16"
46	330852	Flat washer 5/16"

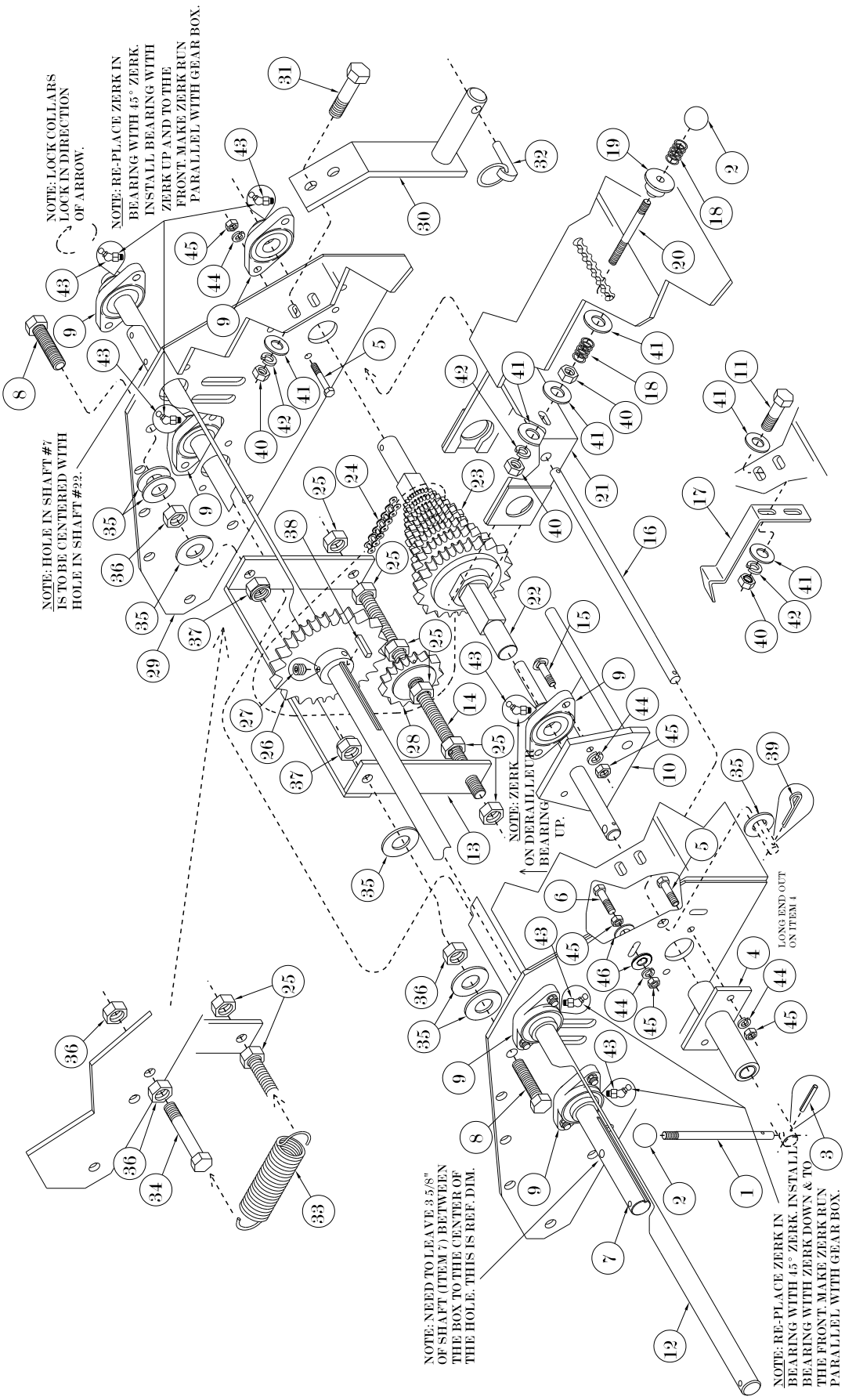
4025 & 4030 Gear Box Left



4025 & 4030 Gear Box Left

Item	Part No.	Description
1	309088	Handle Shaft
2	604611	Knob Black Plastic Ball
3	332452	Roll Pin 5/32" x 1 1/4"
4	860908	Derailleur Clutch Mount Assy
5	01010800	HHCS 5/16" x 1" Gr 5
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
6	02300200	HHCS 5/16" x 2" Gr 5
	330852	Flat washer 5/16"
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
7	309047	Clutch Shaft
8	337212	Tap Bolt 1/2" x 2" Gr 5
	330159	Flat washer 1/2"
	330134	Hex nut 1/2"
	331363	Hex nylock 1/2"
9	03001500	Bearing 1" Flange Mount
10	954339	Derailleur Bracket
11	01017300	HHCS 3/8" x 1" Gr 5
	330043	Lock washer 3/8"
	330894	Flat washer 3/8"
	330035	Hex nut 3/8"
12	310128	Box End Drive Shaft
13	954941	Idler Arm
14	309112	Idler Arm All Thread Shaft
15	01261700	Carriage Bolt 5/16" x 1 1/2"
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
16	309070	Gearbox Shaft
17	211896	Derailleur Spring Catch Plate
18	502161	Knob Spring
19	309138	Shift Lock
20	309104	Adjustment Handle Shaft
21	954347	Sprocket Cluster Bracket
22	309054	Cluster Shaft
23	432708	Sprocket Cluster
24	432542	Chain #40 x 64 Pitches Comp
25	330571	Hex Nut 5/8"
26	954149	Sprocket #40 30T w/1" Bore
27	334516	Set Screw 1/4-28" x 1/4" Cone Pt
28	430603	Idler Sprocket 17T
29	957092	Gearbox Weldment
30	954388	Sprocket Carrier
31	01158500	HHCS 3/8" x 1 1/4"
32	330456	Klik Pin 7/16"
33	500173	Idler Spring
34	335422	HHCS 1/2" x 2 1/2" Gr 5
35	330159	Flat washer 1/2"
36	330134	Hex nut 1/2"
37	331363	Hex nylock 1/2"
38	10490100	Key 1/4" x 1 1/4"
39	330936	Cotter Pin 1/8" x 1"
40	330035	Hex nut 3/8"
41	330894	Flat washer 3/8"
42	330043	Lock washer 3/8"
43	01162700	Zerk 1/4-28" 45°
44	330845	Lock washer 5/16"
45	330811	Hex nut 5/16"
46	330852	Flat washer 5/16"

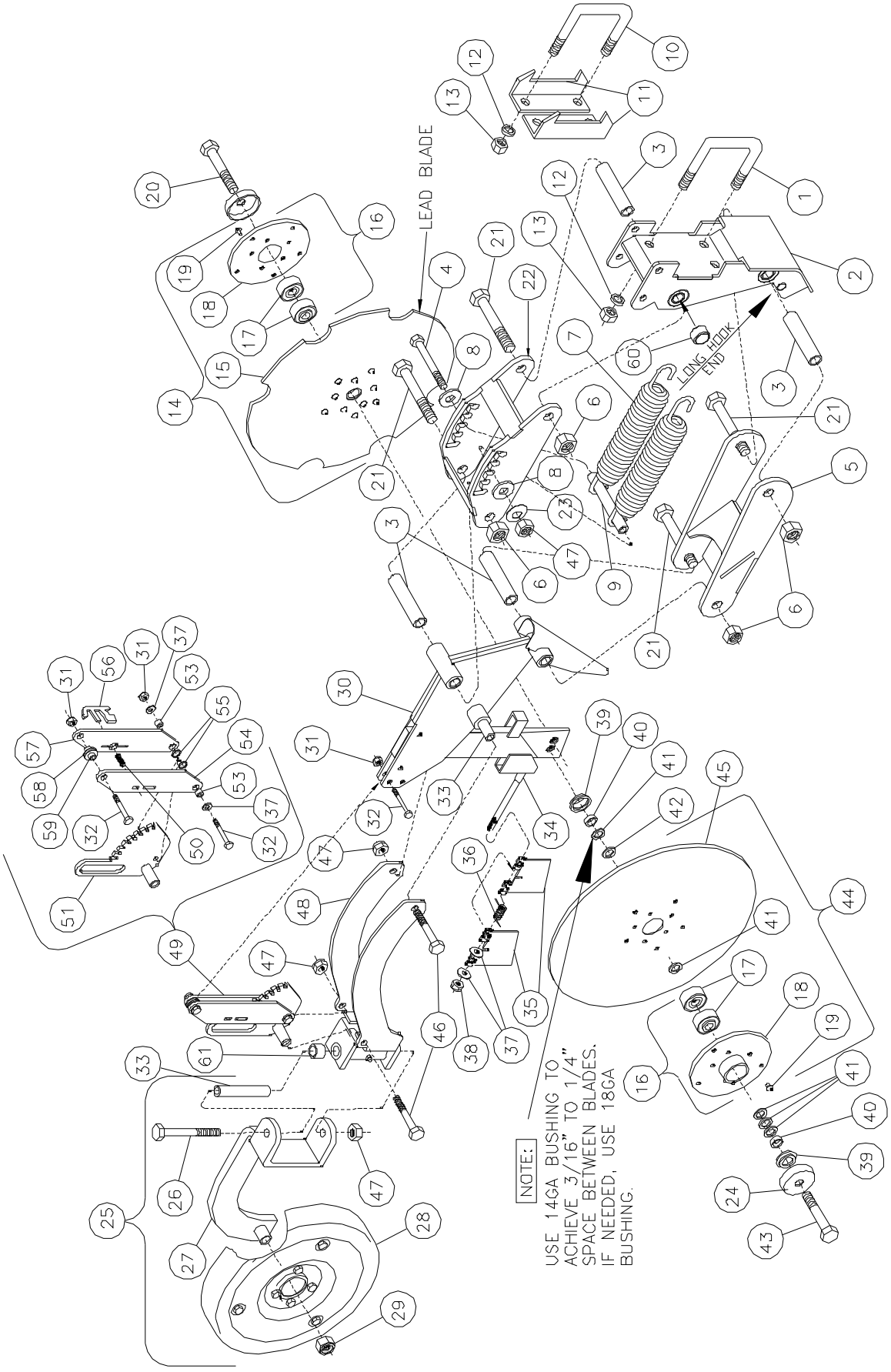
4025 & 4030 Gear Box Right



4025 & 4030 Gear Box Right

Item	Part No.	Description
1	309088	Handle Shaft
2	604611	Knob Black Plastic Ball
3	332452	Roll Pin 5/32" x 1 1/4"
4	860908	Derailleur Clutch Mount Assy
5	01010800	HHCS 5/16" x 1" Gr 5
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
6	02300200	HHCS 5/16" x 2" Gr 5
	330852	Flat washer 5/16"
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
7	309047	Clutch Shaft
8	337212	Tap Bolt 1/2" x 2" Gr 5
	330159	Flat washer 1/2"
	330134	Hex nut 1/2"
	331363	Hex nylock 1/2"
9	03001500	Bearing 1" Flange Mount
10	954339	Derailleur Bracket
11	01017300	HHCS 3/8" x 1" Gr 5
	330043	Lock washer 3/8"
	330894	Flat washer 3/8"
	330035	Hex nut 3/8"
12	310128	Box End Drive Shaft
13	954941	Idler Arm
14	309112	Idler Arm All Thread Shaft
15	01261700	Carriage Bolt 5/16" x 1 1/2"
	330845	Lock washer 5/16"
	330811	Hex nut 5/16"
16	309070	Gearbox Shaft
17	211896	Derailleur Spring Catch Plate
18	502161	Knob Spring
19	309138	Shift Lock
20	309104	Adjustment Handle Shaft
21	954347	Sprocket Cluster Bracket
22	309054	Cluster Shaft
23	432708	Sprocket Cluster
24	432542	Chain #40 x 64 Pitches Comp
25	330571	Hex Nut 5/8"
26	954149	Sprocket #40 30T w/1" Bore
27	334516	Set Screw 1/4-28" x 1/4" Cone Pt
28	430603	Idler Sprocket 17T
29	957092	Gearbox Weldment
30	954388	Sprocket Carrier
31	01158500	HHCS 3/8" x 1 1/4"
32	330456	Klik Pin 7/16"
33	500173	Idler Spring
34	335422	HHCS 1/2" x 2 1/2" Gr 5
35	330159	Flat washer 1/2"
36	330134	Hex nut 1/2"
37	331363	Hex nylock 1/2"
38	10490100	Key 1/4" x 1 1/4"
39	330936	Cotter Pin 1/8" x 1"
40	330035	Hex nut 3/8"
41	330894	Flat washer 3/8"
42	330043	Lock washer 3/8"
43	01162700	Zerk 1/4-28" 45°
44	330845	Lock washer 5/16"
45	330811	Hex nut 5/16"
46	330852	Flat washer 5/16"

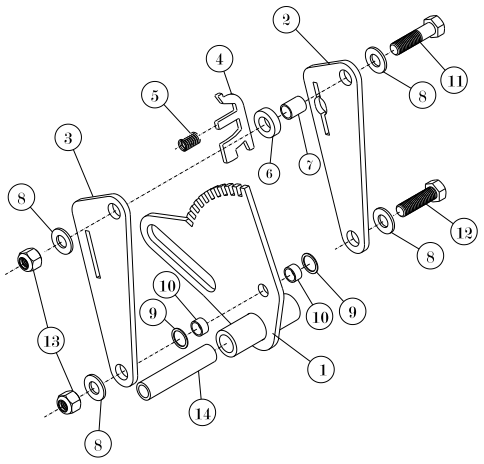
All Plant Opener Assembly



All Plant Opener Assembly

Item	Part No.	Description
	871004	Right Short Opener Assembly 2006
	871012	Left Short Opener Assembly 2006
	871020	Right Long Opener Assembly 2006
	871038	Left Long Opener Assembly 2006
	883348	Right Short Opener Assembly 2018
	883355	Left Short Opener Assembly 2018
	883363	Right Long Opener Assembly 2018
	883371	Left Long Opener Assembly 2018 Items #10,11,13,24-29 & 61-65 are NOT included in assembly
1		U-Bolt w/Lock washer & Hex nut
	335737	U-Bolt 5/8" x 4" x 3" (2x4 Tube)
	339820	U-Bolt 3/4" x 4" x 5" (4x4 Tube)
2	964692	Opener Mounting Bracket Short 2006
	981589	Opener Mounting Bracket Short 2018
	981571	Opener Mounting Bracket Long 2018
3	152561	Opener Arm Bushing
4	337972	HHCS ½" x 6"
5	964726	Lower Arm
6	01015700	Center Lock Nut 3/4"
7	502294	Opener Extension Spring
8	330159	Flat Washer ½"
9	152611	Spring Bushing
10	337469	U-Bolt 5/8" x 4" x 6½"
11	243857	Offset Mounting Plate
12	330332	Lock Washer 3/4"
13	330290	Hex Nut 3/4"
14	845925	Double Disc Blade Assy- 6 notch Includes #15,16, & 19
15	502633	Blade 16" x 4mm Notched
16	636761	Bearing & Flange Sub-Assembly Includes #17 & 18
17	401042	Bearing
18	551200	Bearing Flange
19	601351	Rivet 5/16" x ½" Button Head
20	335596	HHCS 5/8" x 3" Gr 8 Left Hand
21	334466	HHCS 3/4" x 6"
22	964718	Upper Arm
23	502302	Curved Spring Washer
24	278317	Dust Seal Cap
25		Presswheel Arm Assembly Includes #26-29, 33,47
	859967	Single 3x14 V-Type
	874362	Single 3x13 Center Rib
	874354	Single 3x13 Dual Rib
	859991	Single 2x13 Peaked
	860007	Single 2x13 (Shown)
26	338053	HHCS ½" x 5" Gr 8
27	954636	Presswheel Arm

#881631 Quadrant 2018



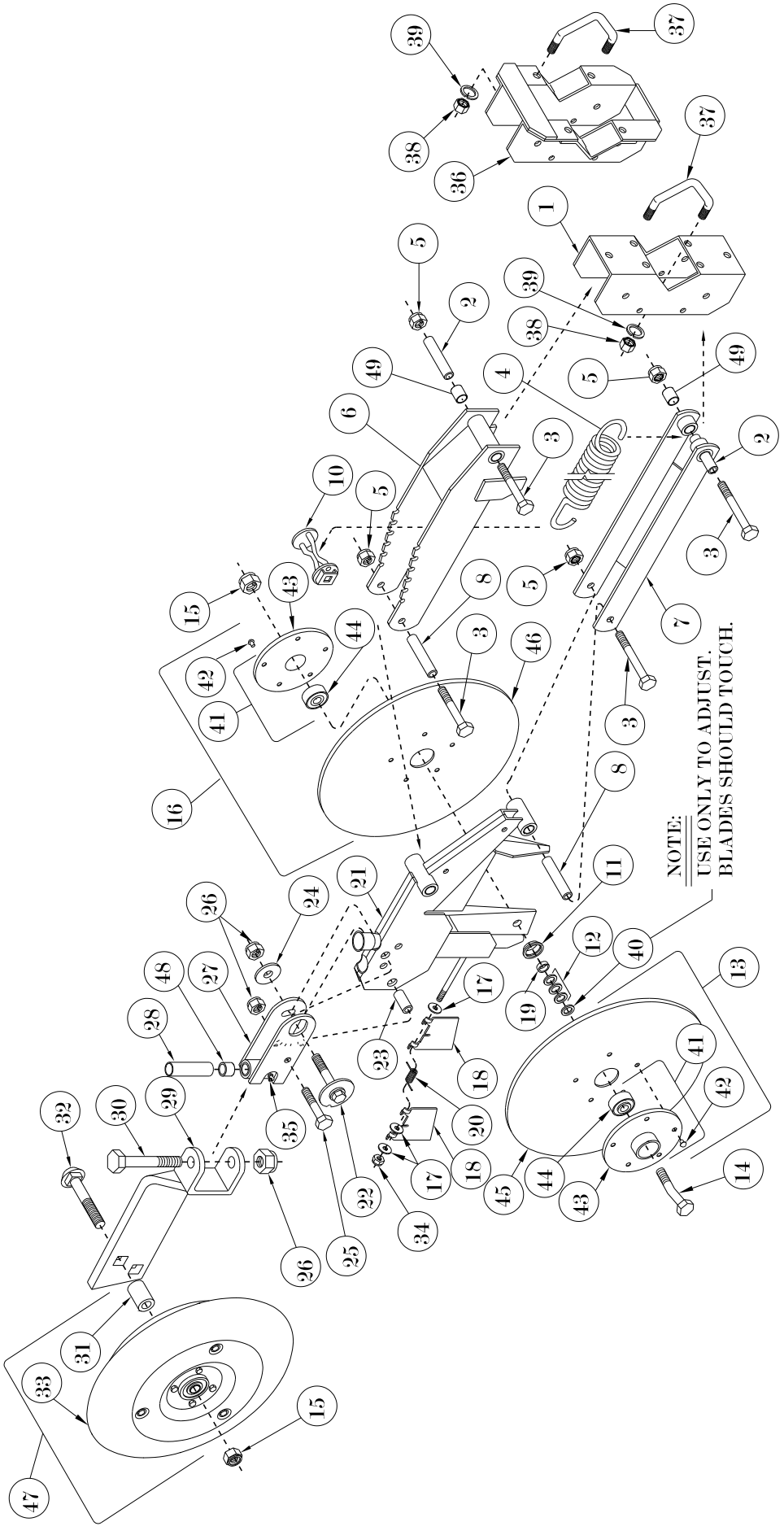
Item	Part No.	Description
28		Presswheels
	531095	2" x 13" w/Smooth Sides (shown)
	530667	2" x 13" Peaked w/Smooth Sides
	531111	3" x 13" Center Rib Assembly
	531483	3" x 15" V-Type
	531541	3" x 13" w/Smooth Sides
29	01572700	Hex Nylock Nut 5/8"
30	964817	Long Opener -- Left (shown) 2006
	964809	Long Opener -- Right 2006
	964791	Short Opener -- Left 2006
	964783	Short Opener -- Right 2006
	981530	Long Opener -- Left 2018
	981548	Long Opener -- Right 2018
	981555	Short Opener -- Left 2018
	981563	Short Opener -- Right 2018
31	330837	Hex Nylock Nut 3/8"
32	338624	HHCS 3/8" x 1 3/4" Gr 8 W/Hex Nylock Nut
33	148999	Bushing 3 19/32"
34	150045	Scraper Bushing 1 3/8"
35	257048	Scraper Plate
36	502146	Scraper Spring - Left (shown)
	502153	Scraper Spring - Right
37	330852	Flat Washer 5/16"
38	336909	Hex Nylock Jam Nut 3/8"
39	400747	Neoprene Dust Seal
40	606558	Bushing 1" OD
41	330720	Machine Bush 1 1/8 x 5/8 x 14ga
42	333351	Machine Bush 1 1/8 x 5/8 x 18ga
43	335620	HHCS 5/8" x 3" Gr 5
44	874081	Double Disc Blade Assy -- Plain Includes 16,19, & 45
45	502625	Blade 16" #9 Plain
46	337865	HHCS ½" x 4½" Gr 8 w/Hex Nylock Nut
47	03223500	Reversible Lock Nut ½" Gr 8
48	964908	Presswheel Swivel Bracket
49	871061	Quadrant Sub-Assembly 2006
	881631	Quadrant Sub-Assembly 2018 (See Drawing Below)

--------- ---------- **Prior to 2006** ----------

50	502310	Quadrant Spring 1 1/4
51	964874	Quadrant Handle
52		
53	149393	Bushing 5/16"
54	224014	Quadrant Strap Right
55	337063	Nylon Washer 11/16"OD x ½"ID
56	224030	Quadrant Lock Latch
57	224022	Quadrant Strap Left
58	604504	Rubber Grommet 1/2" ID x 1" OD
59	149385	Quadrant Bushing 3/4"
60	606699	Spring Bushing 1" ID Included in #964692
61	605907	Spring Bushing 3/4" ID Included in #964908

Item	Part No.	Description
1	979450	Quadrant Handle
2	249201	Quadrant Strap Right
3	249219	Quadrant Strap Left
4	224030	Quadrant Lock Latch
5	502310	Quadrant Spring
6	615740	Rubber Grommet 5/8" IDx5/16
7	615724	Bushing 1/2"ID x 25/32"
8	330159	Flat Washer 1/2"
9	572503	Nylon Bushing
10	615732	Bushing 1/2"ID x .33
11	331926	HHCS ½" x 2"
12	335240	HHCS ½" x 1 3/4"
13	331363	Nylock ½"
14	148999	Bushing 1/2"ID x 3 19/32

Min-Till Opener Assembly32



Min-Till Opener Assembly

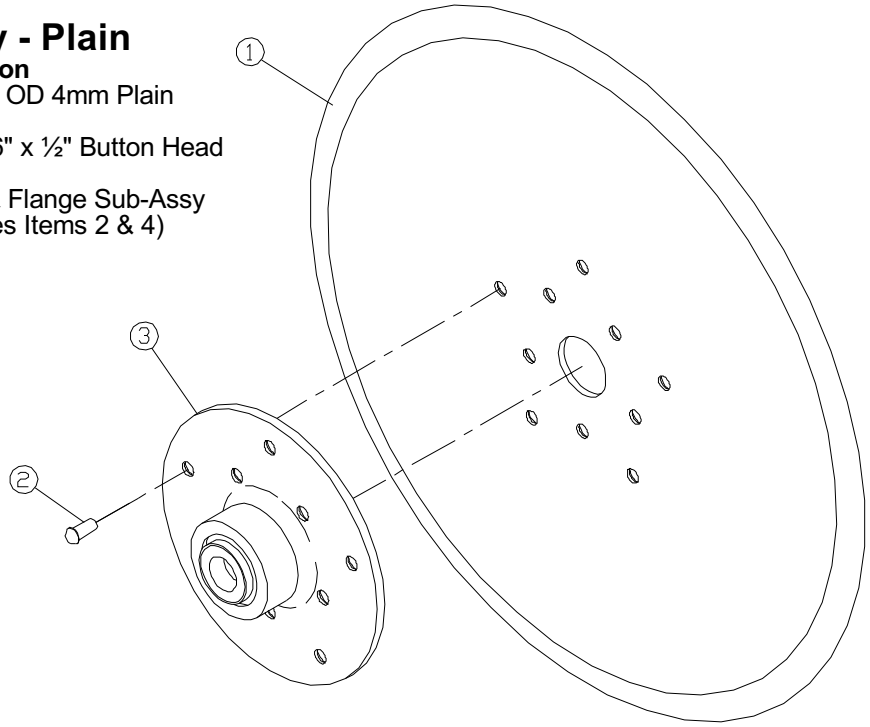
Item	Part No.	Description
	864942	Right Short Opener Assembly
	864967	Right Long Opener Assembly
	864959	Left Short Opener Assembly
	864975	Left Long Opener Assembly
	865394	Right Short Offset Opener Assy
	865402	Right Long Offset Opener Assy
	865410	Left Short Offset Opener Assy
	865428	Left Long Offset Opener Assy
		Items #37,38,39,&47 are NOT included in Assemblies
1	952788	Opener Mount Bracket
2	148999	Bushing 3 19/32"
3	337865	HHCS ½" x 4½" Grade 8
4	501965	Spring 39 coils
5	334110	Jam Nylock Nut ½"
6	957415	Opener Upper Arm Assembly
7	952770	Opener Lower Arm Assembly
8	149286	Bushing 3 3/32"
9		
10	957407	Opener Spring Adjustment Wa.
11	400747	Neoprene Dust Seal
12	330720	Machine Bushing 1 1/8" x 14ga x 5/8"
13	859090	15" Blade Assembly Includes Items #41, 42, & 45
14	336925	HHCS 5/8" x 3 3/4 Gr 5 w/ 8°bend
15	01572700	Hex Nylock Nut 5/8"
16	863597	13½" Blade Assembly Includes Items #41, 42, & 46
17	330852	Flat washer 5/16"
18	257048	Scraper Plate
19	606558	Blade Bushing 1" OD
20	502153	Scraper Spring Right
	502146	Scraper Spring Left (Shown)
21	957506	Long Opener w/ Liners (Shown)
	957498	Short Opener w/Liners
22	957464	Cam Rotation Bracket
23	150508	Spacer Spool 1 27/64"
24	216747	Cam Washer Plate

Item	Part No.	Description
25	335422	HHCS ½" x 2½" Gr 5
26	331363	Hex Nylock Nut ½"
27	960245	Presswheel Swivel Bracket-1998
28	148999	Presswheel Arm Bush 3 19/32"
29	960229	Presswheel Arm w/1/2" Pivot Double Hole
30	338053	HHCS ½" x 5" Gr 8
31	150466	Presswheel Bushing (3 x 14)
	144253	Presswheel Bushing (2 x 13) and (3 x 13)
32	337428	Carriage Bolt 5/8" x 4½" Gr 5
33	530741	Presswheel 3 x 14 V-Type
	530667	Presswheel 2 x 13 Peaked w/Smooth Sides
	530717	Presswheel 2 x 13 w/Smooth Sides
34	336909	Hex Jam Nylock Nut 3/8"
35	600072	Zerk 1/4"-28 90°
36	957886	Offset Mounting Bracket (For 8" Spacing Only)
37	308726	Opener Mount Clamp
38	330134	Hex Nut 1/2"
39	330142	Lock Washer 1/2"
40	333351	Machine Bush 1 1/8 x 5/8 x 18ga
41	636860	Bearing Flange Assembly Includes items #43 & #44
42	603084	Rivet 5/16 x 5/8 Button Head
43	551234	Bearing Flange
44	401042	Bearing
45	501973	Blade 15" x 3MM
46	501189	Blade 13½" x 3MM
47		Presswheel Assemblies Includes Items #31 & #33
	864900	3 x 14 Swivel Mount
	864876	2 x 13 Peaked Swivel
	864868	2 x 13 Smooth Swivel
	874370	3 x 13 Dual Rib
	874388	3 x 13 Center Rib
48	605907	Spring Bushing 3/4" ID Included in #960245
49	602953	Nylon Bushing 3/4" ID Included in #957415 & 952770)

All Plant
Opener Blade Assemblies

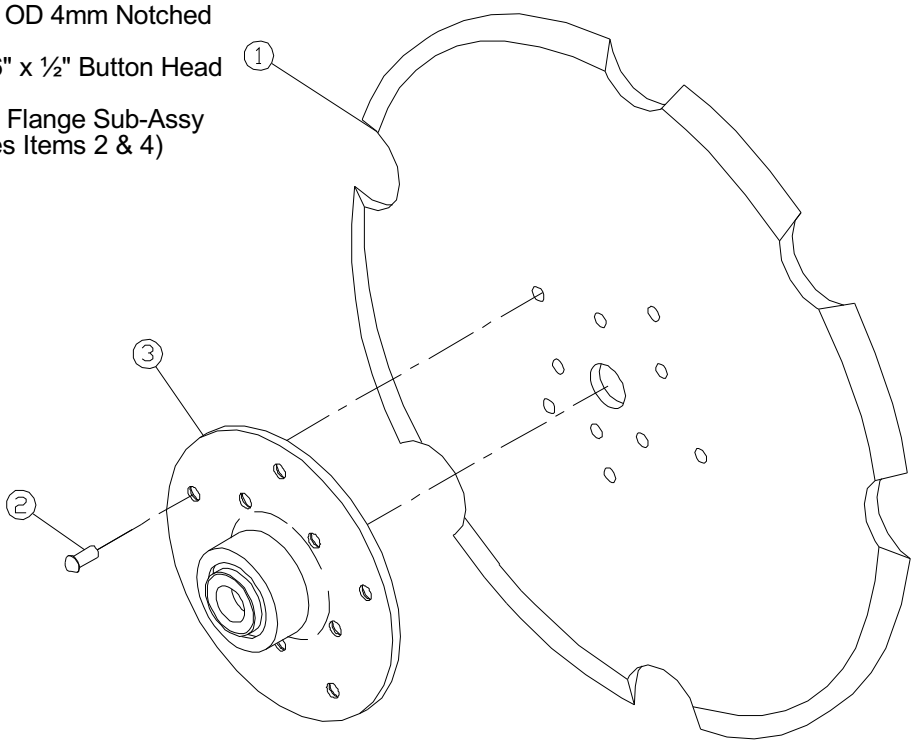
#845917
16" Blade Assembly - Plain

Item	Part No.	Description
1	502641	Blade 16" OD 4mm Plain
2	980037	Flange
3	601351	Rivet 5/16" x ½" Button Head
4	401042	Bearing
5	636761	Bearing & Flange Sub-Assy (Includes Items 2 & 4)



#845925
16" Blade Assembly - Notched

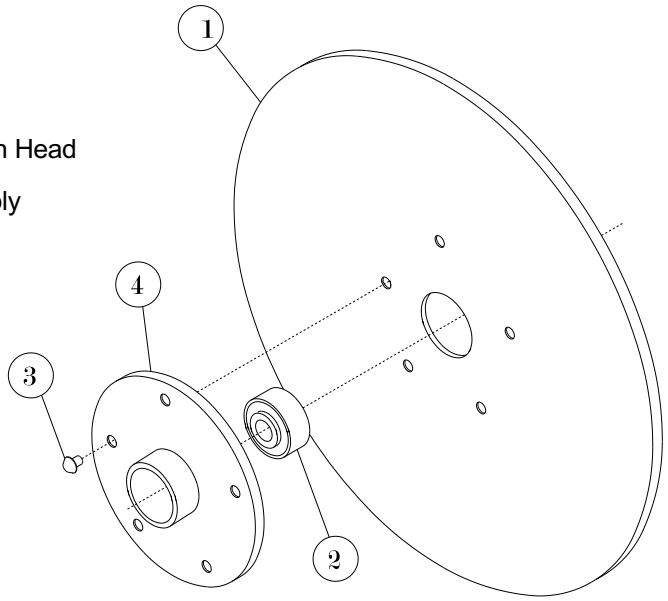
Item	Part No.	Description
1	502633	Blade 16" OD 4mm Notched
2	980037	Flange
3	601351	Rivet 5/16" x ½" Button Head
4	401042	Bearing
5	636761	Bearing & Flange Sub-Assy (Includes Items 2 & 4)



Min-Till
Opener Blade Assemblies

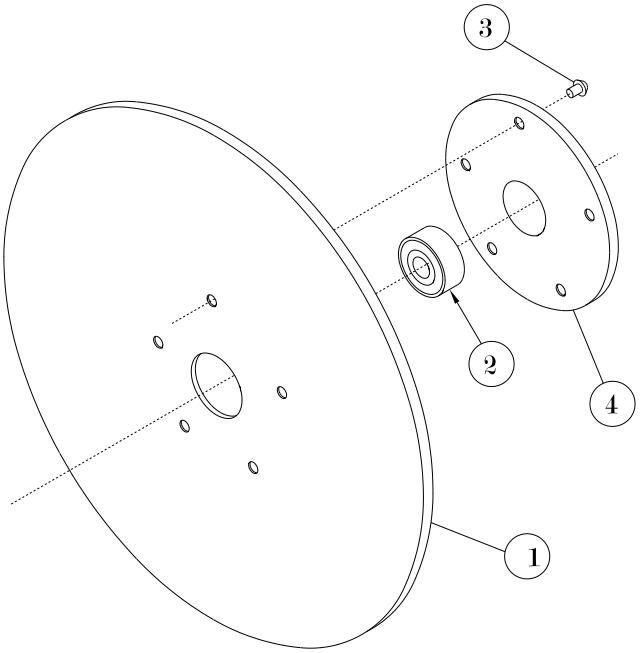
#859090
15" Blade Assembly

Item	Part No.	Description
1	501973	Blade 15" OD x 3MM
2	401042	Bearing
3	603084	Rivet 5/16" x 5/8" Button Head
4	551234	Bearing Flange
	636860	Bearing Flange Assembly (Includes Items 2 & 4)



#863597
13½" Blade Assembly

Item	Part No.	Description
1	501189	Blade 13½" OD x 3MM
2	401042	Bearing
3	603084	Rivet 5/16" x 5/8" Button Head
4	551234	Bearing Flange
	636860	Bearing Flange Assembly (Includes Items 2 & 4)

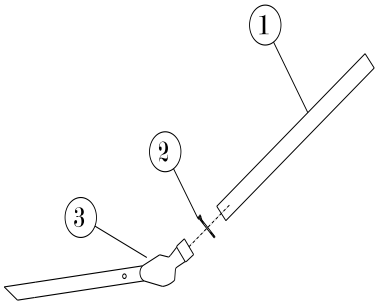


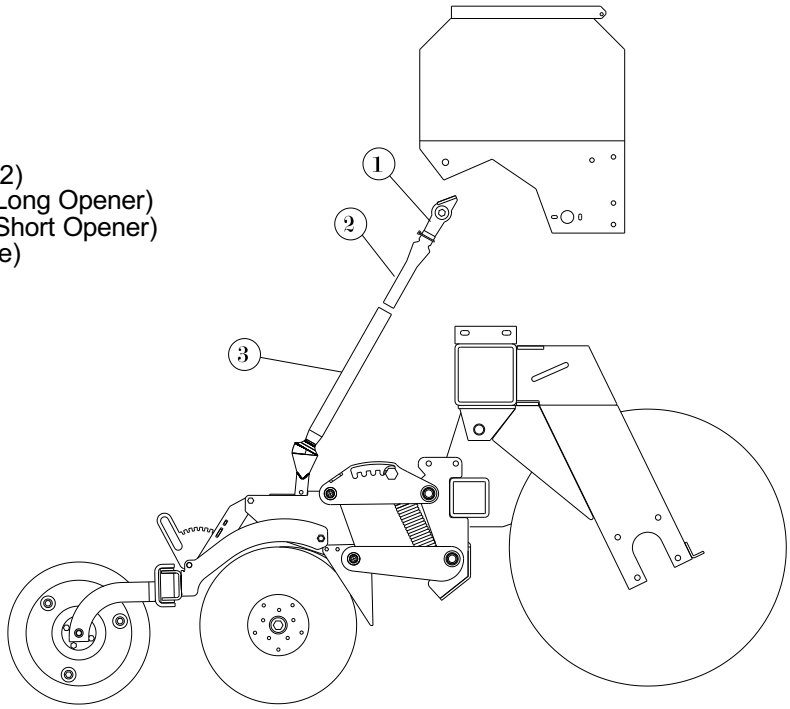
*May replace #603084 with
#337600 - Button Head Socket Screw 5/16" x 5/8" Grade I and
#337618 - Top Lock Nut 5/16" Grade C

Feed Tubes

4000 All Plant

Item	Part No.	Description
1	604777	Clamp 1.375 x .162 (A-22)
2	571331	Upper Seed Tube- 20" (Long Opener)
	571208	Upper Seed Tube- 19" (Short Opener)
3	571984	Bottom Tube 33" (1 piece)



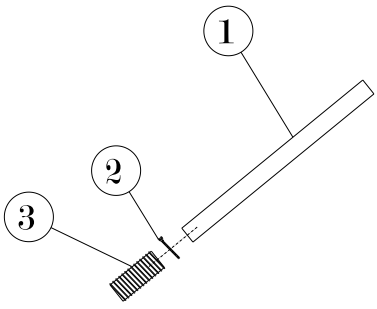


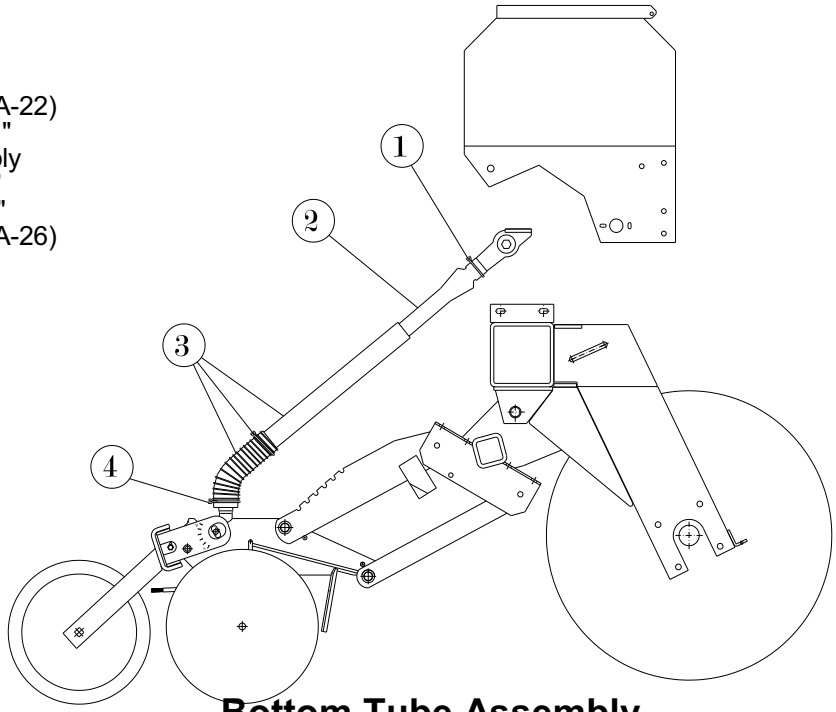
Bottom Tube Assembly - Prior 2010 #872036

Item	Part No.	Description
1	571323	Tube- 16"
2	603027	Clamp 1.625 x .172 (A-26)
3	571364	Feed Tube 14 5/8”

4025 & 4030 Min Till

Item	Part No.	Description
1	604777	Clamp 1.375 x .162 (A-22)
2	571000	Upper Seed Tube- 21"
3		Bottom Tube Assembly
	865709	Long Opener- 25 1/4"
	865386	Short Opener- 23 1/4"
4	603027	Clamp 1.625 x .172 (A-26)





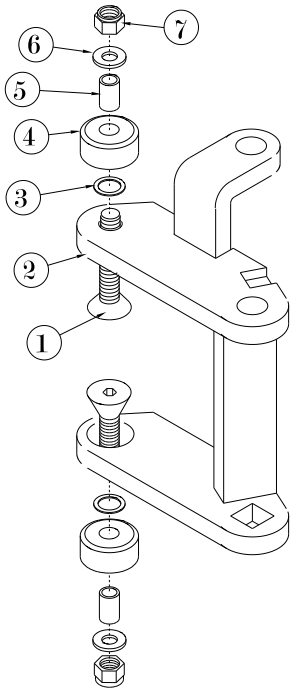
Bottom Tube Assembly #865709 - (Long Opener)

Item	Part No.	Description
1	571125	Tube- 19 3/4"
2	610501	Clamp 1.688 x .126 (DW-27)
3	571190	Suction Hose 6½”

Bottom Tube Assembly #865386 - (Short Opener)

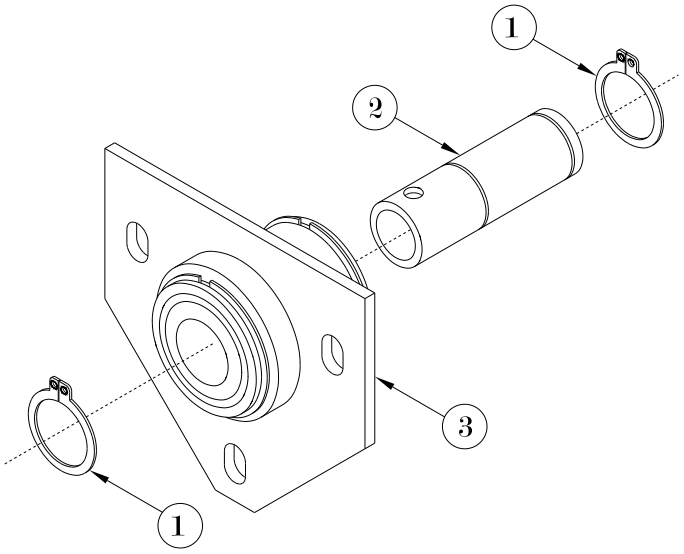
Item	Part No.	Description
1	571125	Tube- 19 3/4"
2	610501	Clamp 1.688 x .126 (DW-27)
3	570960	Suction Hose 4½”

Clutch Lever Assemblies 4020, 4025 & 4030



#870139 - (Shown)
#870121

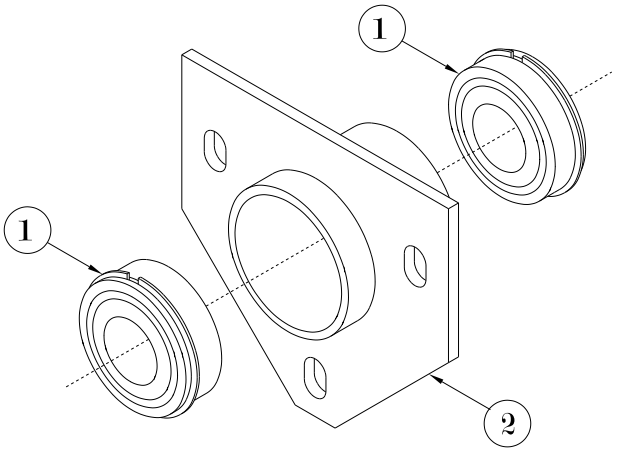
Item	Part No.	Description
1	337311	Screw 3/8" x 1 3/4" Flat Head Socket
2	963627	Clever Lever - Shown
	963611	Clever Lever
3	337063	Nylon Washer .030" ½" ID x 11/16" OD
4	309641	Clutch Lever Bushing
5	149385	Bushing
6	330894	Flat Washer 3/8"
7	330837	Hex Nylock Nut



Drive End Bracket & Bearing

#865758

Item	Part No.	Description
1	605766	External Snap Ring
2	310029	Seed Shaft Drive Adaptor
3	865741	Drive End Bracket & Bearing Assembly

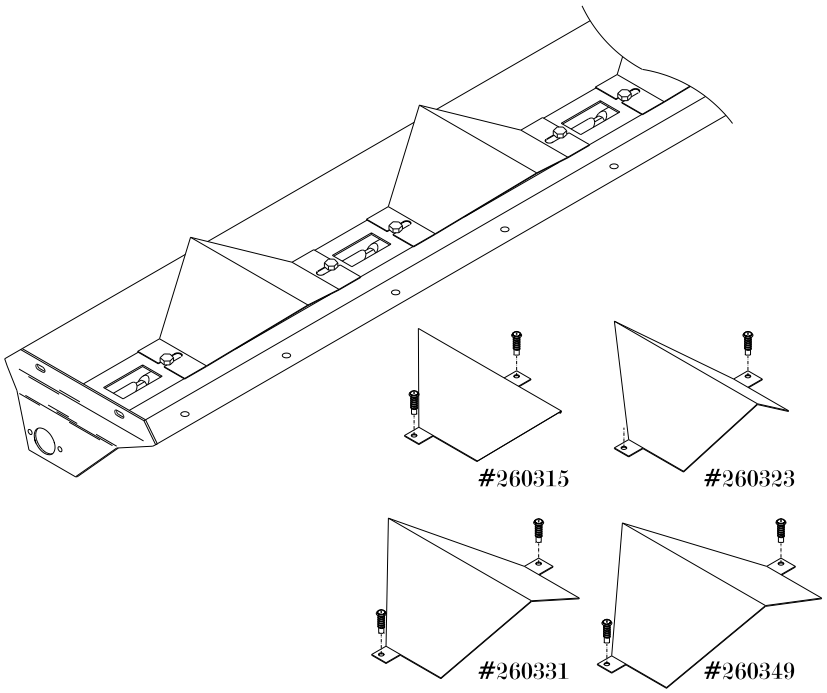


Drive End Bracket

#865741

Item	Part No.	Description
1	03003100	Bearing 1" w/Snap Ring
2	957993	Drive End Bracket

Grain Box Seed Diverters

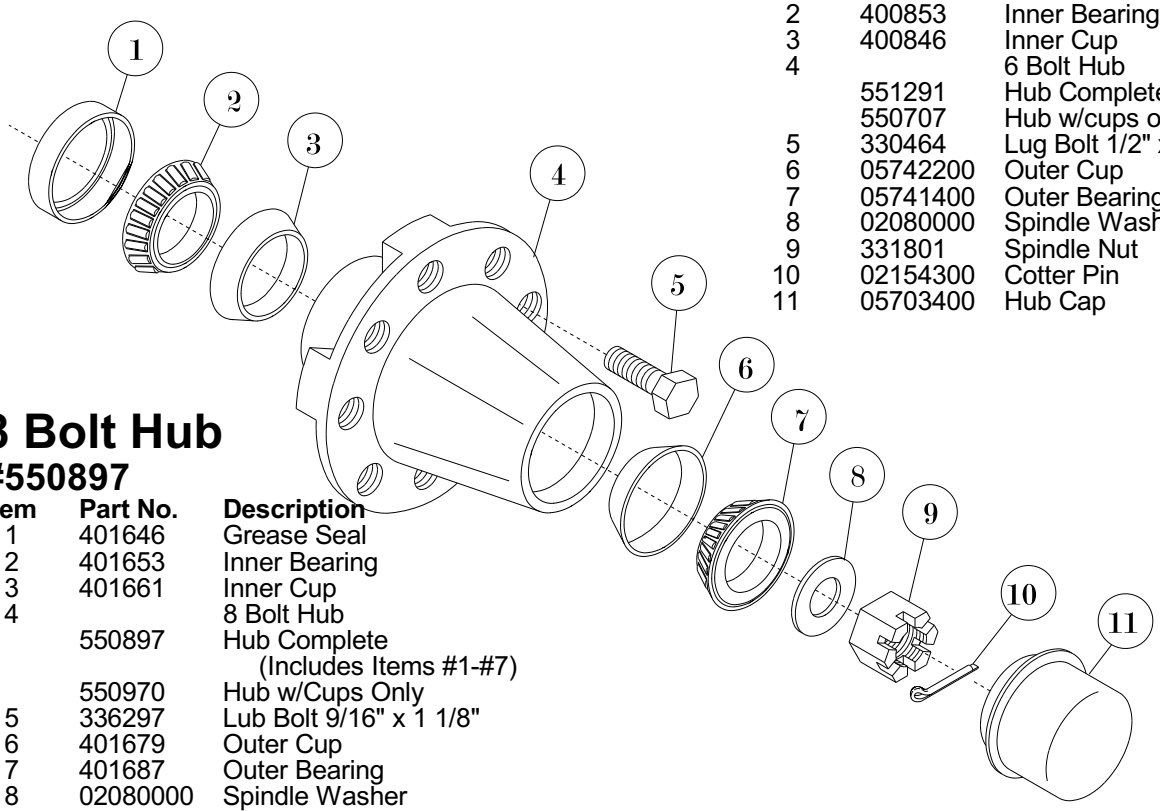


If diverters were purchased as an option, attach diverters to box bottoms using #337881 - pan head self-tapping screw ½" w/#10 drill point. Silicone around edges.

Seed Diverter Chart

4020 x 7½"	30	- #260323
4020 x 8"	28	- #260323
4020 x 10"	22	- #260349
4025 x 7½"	38	- #260315
4025 x 8"	36	- #260323
4025 x 10"	28	- #260331
4025 x 15"	18	- #260307
4030 x 7½"	46	- #260315
4030 x 8"	42	- #260323
4030 x 10"	34	- #260331
4030 x 15"	22	- #260307
4030 x 20"	16	- #260471
	2	- #260489

Hub Assemblies



6 Bolt Hub
#551291

Item	Part No.	Description
1	400861	Grease Seal
2	400853	Inner Bearing
3	400846	Inner Cup
4		6 Bolt Hub
	551291	Hub Complete less bolts
	550707	Hub w/cups only
5	330464	Lug Bolt 1/2" x 1 3/4" SAE
6	05742200	Outer Cup
7	05741400	Outer Bearing
8	02080000	Spindle Washer
9	331801	Spindle Nut
10	02154300	Cotter Pin
11	05703400	Hub Cap

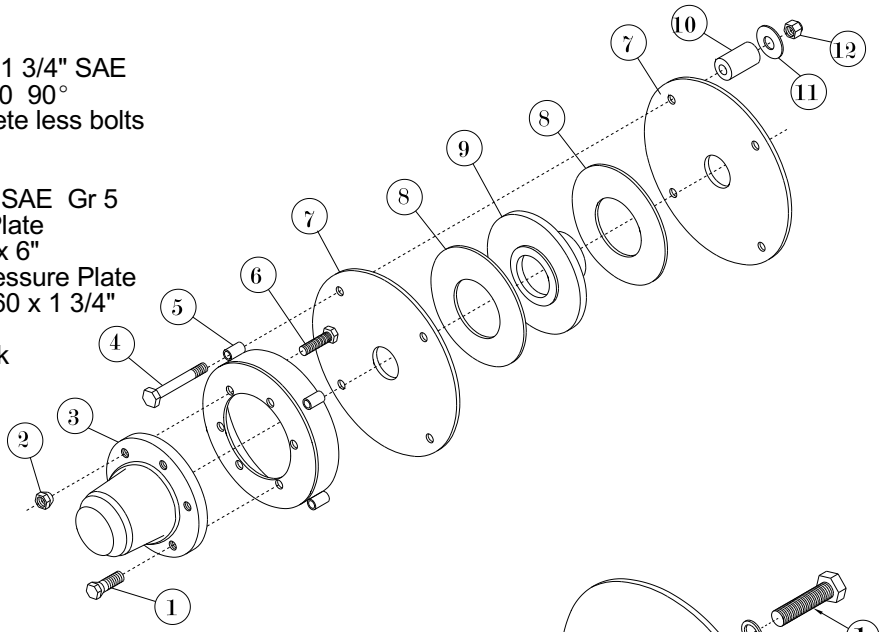
8 Bolt Hub
#550897

Item	Part No.	Description
1	401646	Grease Seal
2	401653	Inner Bearing
3	401661	Inner Cup
4		8 Bolt Hub
	550897	Hub Complete (Includes Items #1-#7)
	550970	Hub w/Cups Only
5	336297	Lub Bolt 9/16" x 1 1/8"
6	401679	Outer Cup
7	401687	Outer Bearing
8	02080000	Spindle Washer
9	331801	Spindle Nut
10	02154300	Cotter Pin
11	603613	Hub Cap

Clutch Assembly
#870196

Item	Part No.	Description
*1	330464	Wheel Bolt 1/2" x 1 3/4" SAE
*2	331314	Wheel Nut 1/2"-20 90°
3	551291	Q783 Hub Complete less bolts
4	01225200	HHCS ½" x 5"
5	963835	Clutch Drive Plate
6	337139	Tap Bolt 1/2" x 2" SAE Gr 5
7	222612	Clutch Pressure Plate
8	08476400	Friction Disc 3½" x 6"
9	963827	Clutch Drive & Pressure Plate
10	502286	Spring 1 1/4" x .560 x 1 3/4"
11	330159	Flat Washer ½"
12	331363	Nut ½" Hex Nylock
11	330159	Flat washer 1/2"

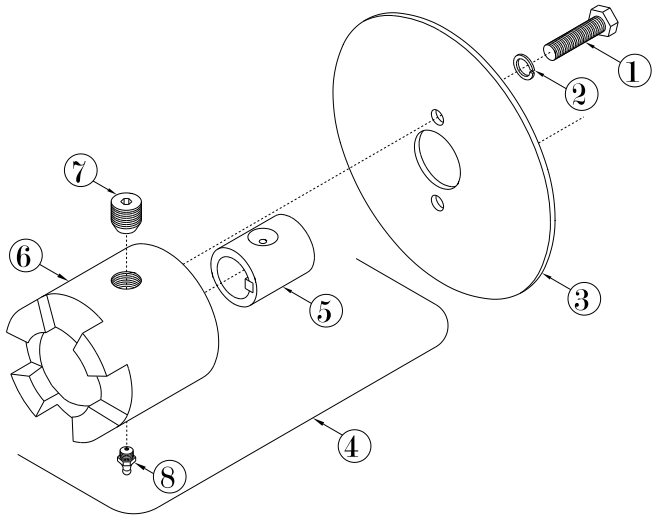
* (Not included in assembly)



Throw-Out Clutch Half
#860825

Item	Part No.	Description
1	01057900	HHCS 1/4" x 3/4"
2	330050	Lock Washer 1/4"
3	211532	Clutch Throw-out Butt Plate
* 4	860833	Clutch Half Insert Assembly
5	954040	Clutch Half Bushing Insert
6	551226	Clutch Half
7	334805	Set Screw 1/2" x 7 1/2" Socket Head / Cup Point
8	600346	Zerk 1/4"-28 x 17/32"

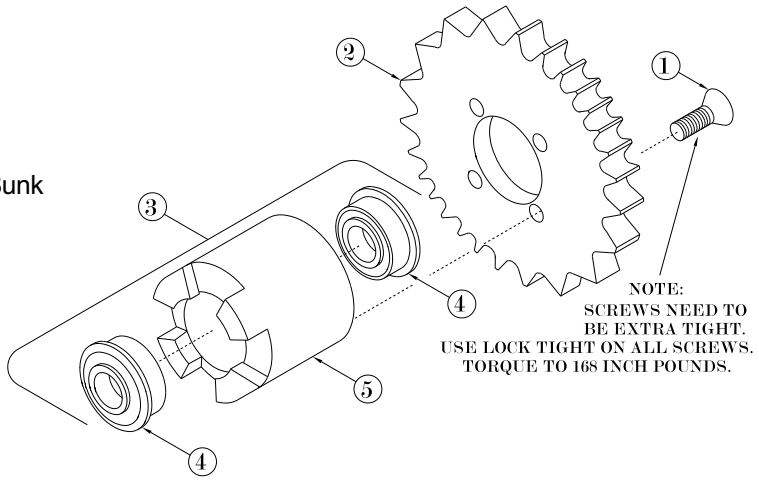
* Includes Items #5-#8



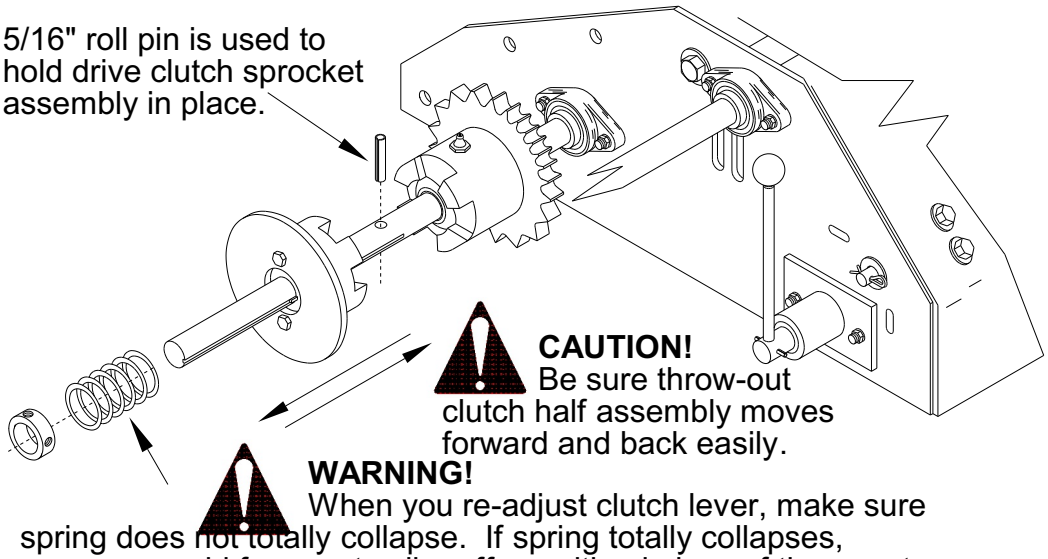
Drive Clutch Sprocket
#863787 18 Tooth
#863795 20 Tooth
#863803 25 Tooth

Item	Part No.	Description
1	337733	Screw 1/4" x 3/4" Counter Sunk
2		Drive Sprocket 2050
	432450	18 Tooth Sprocket
	431700	20 Tooth Sprocket
	432500	25 Tooth Sprocket
* 3	863779	Drive Clutch Assembly
4	401000	Bearing 1"
5	551218	Clutch Drive

* Includes Items #4 & #5.



Clutch Half & Drive Clutch Assembly to Gear Box



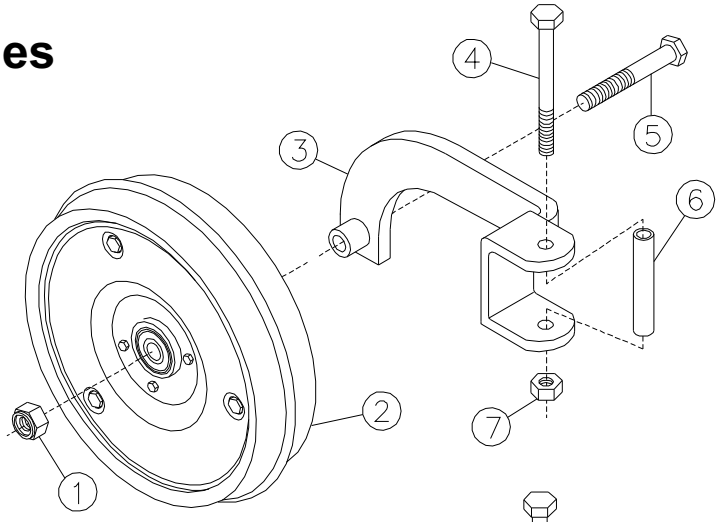
CAUTION!
Be sure throw-out clutch half assembly moves forward and back easily.

WARNING!
When you re-adjust clutch lever, make sure spring does not totally collapse. If spring totally collapses, pressure could force set collar off, resulting in loss of throw-out clutch half causing drill to stop seeding.

All Plant Presswheel Arm Assemblies

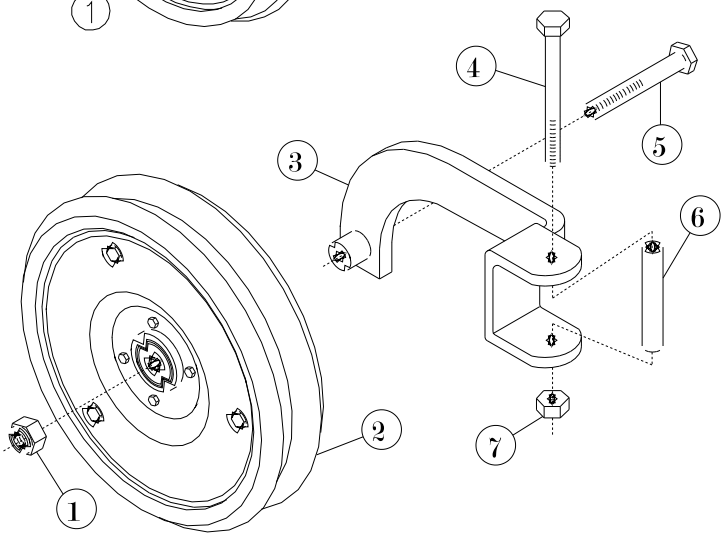
#874362 (Hammer) 3" x 13" Center Rib

Item	Part No.	Description
1	01572700	Hex Nylock Nut 5/8"
2	531111	Presswheel 3 x 13 Center Rib
3	954636	Presswheel Arm
4	338053	HHCS ½" x 5" Gr8
5	331983	HHCS 5/8" x 4"
6	148999	Bushing .747 x .532 x 3.594
7	03223500	Reversible Lock Nut ½" Gr 8



#877852 (Carlisle) 3" x 13" Dual Rib

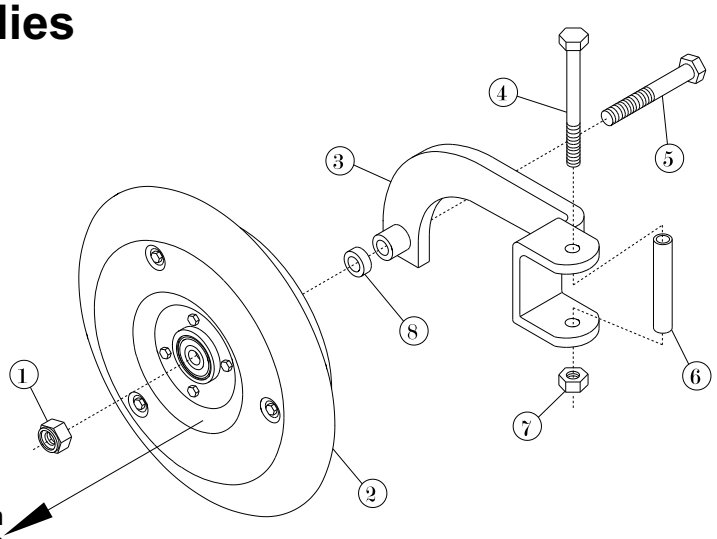
Item	Part No.	Description
1	01572700	Hex Nylock Nut 5/8"
2	531541	Presswheel 3 x 13 Dual Rib
3	954636	Presswheel Arm
4	338053	HHCS ½" x 5" Gr8
5	335182	HHCS 5/8" x 4½"
6	148999	Bushing .747 x .532 x 3.594
7	03223500	Reversible Lock Nut ½" Gr 8



All Plant
Presswheel Arm Assemblies

#859991 (Hammer)
2" x 13" Peaked w/Smooth Sides

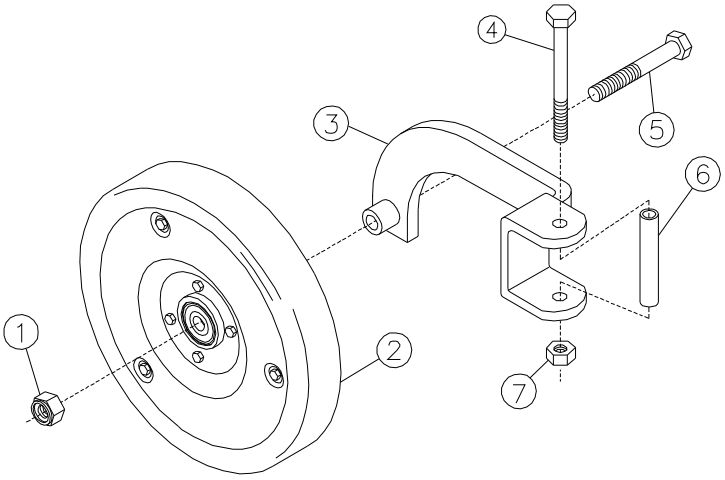
Item	Part No.	Description
1	01572700	Hex Nylock Nut 5/8"
2	530667	Presswheel 2 x 13 Peaked w/Smooth Sides
3	954636	Presswheel Arm
4	338053	HHCS ½" x 5" Gr8
5	331983	HHCS 5/8" x 4"
6	148999	Bushing .747 x .532 x 3.594
7	03223500	Reversible Lock Nut ½" Gr 8
8	151472	Presswheel Shim



Assemble wheel with extended race of bearing in direction of arrow.

#860007 (Carlisle)
2" x 13" w/Smooth Sides

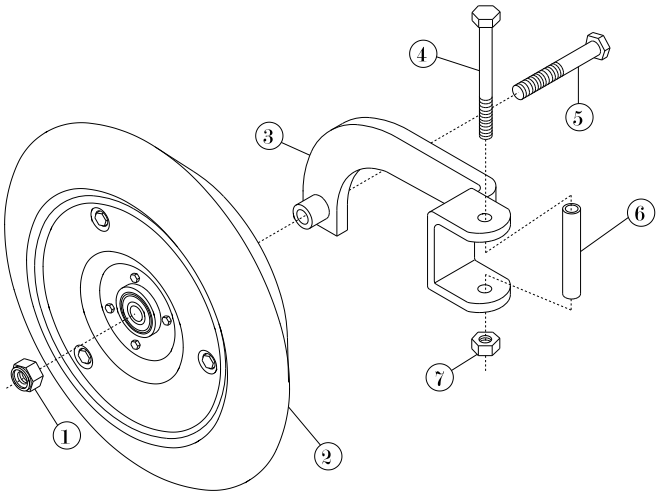
Item	Part No.	Description
1	01572700	Hex Nylock Nut 5/8"
2	531095	Presswheel 2 x 13 w/Smooth Sides
3	954636	Presswheel Arm
4	338053	HHCS ½" x 5" Gr8
5	331983	HHCS 5/8" x 4"
6	148999	Bushing .747 x .532 x 3.594
7	03223500	Reversible Lock Nut ½" Gr 8"



Assemble wheel with extended race of bearing in direction of arrow.

#878199 (Carlisle)
3" x 15" V-Type

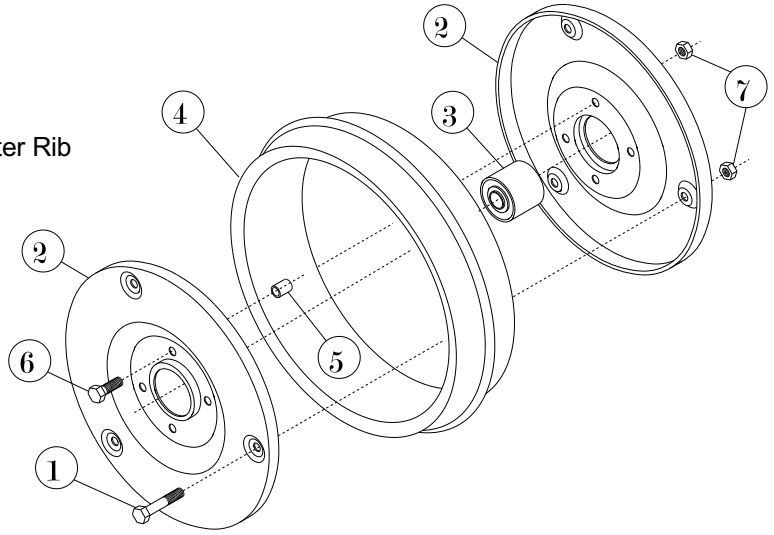
Item	Part No.	Description
1	01572700	Hex Nylock Nut 5/8"
2	531483	Presswheel 3 x 15 V-Type
3	954636	Presswheel Arm
4	338053	HHCS ½" x 5" Gr8
5	335182	HHCS 5/8" x 4 1/2"
6	148999	Bushing .747 x .532 x 3.594
7	03223500	Reversible Lock Nut ½" Gr 8



Presswheel Assemblies

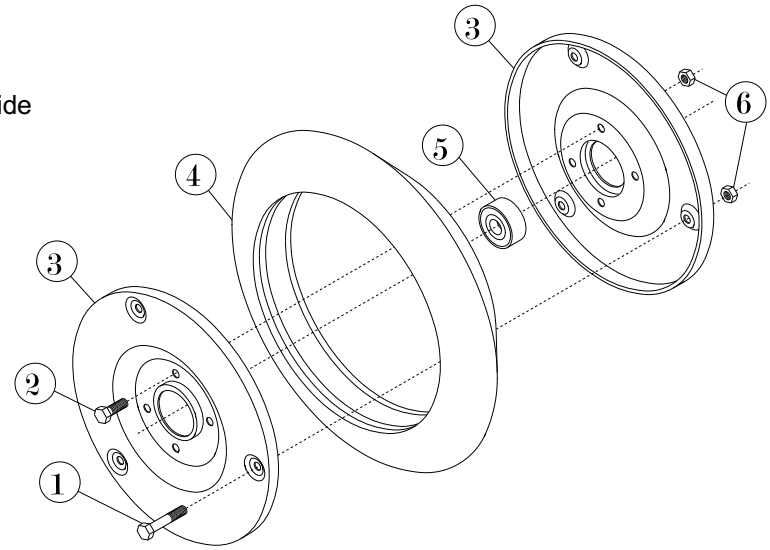
#531111 (Hammer)
3" x 13" Center Rib

Item	Part No.	Description
1		HHCS 3/8" x 2½" Gr 5
2	531145	3x13 Presswheel Side
3	403188	Bearing
4	531152	Presswheel 3" x 13" Center Rib
5	606152	Bushing
6	337857	HHCS 3/8" x 1 3/8" Gr 5
7		Hex Lock nut 3/8"



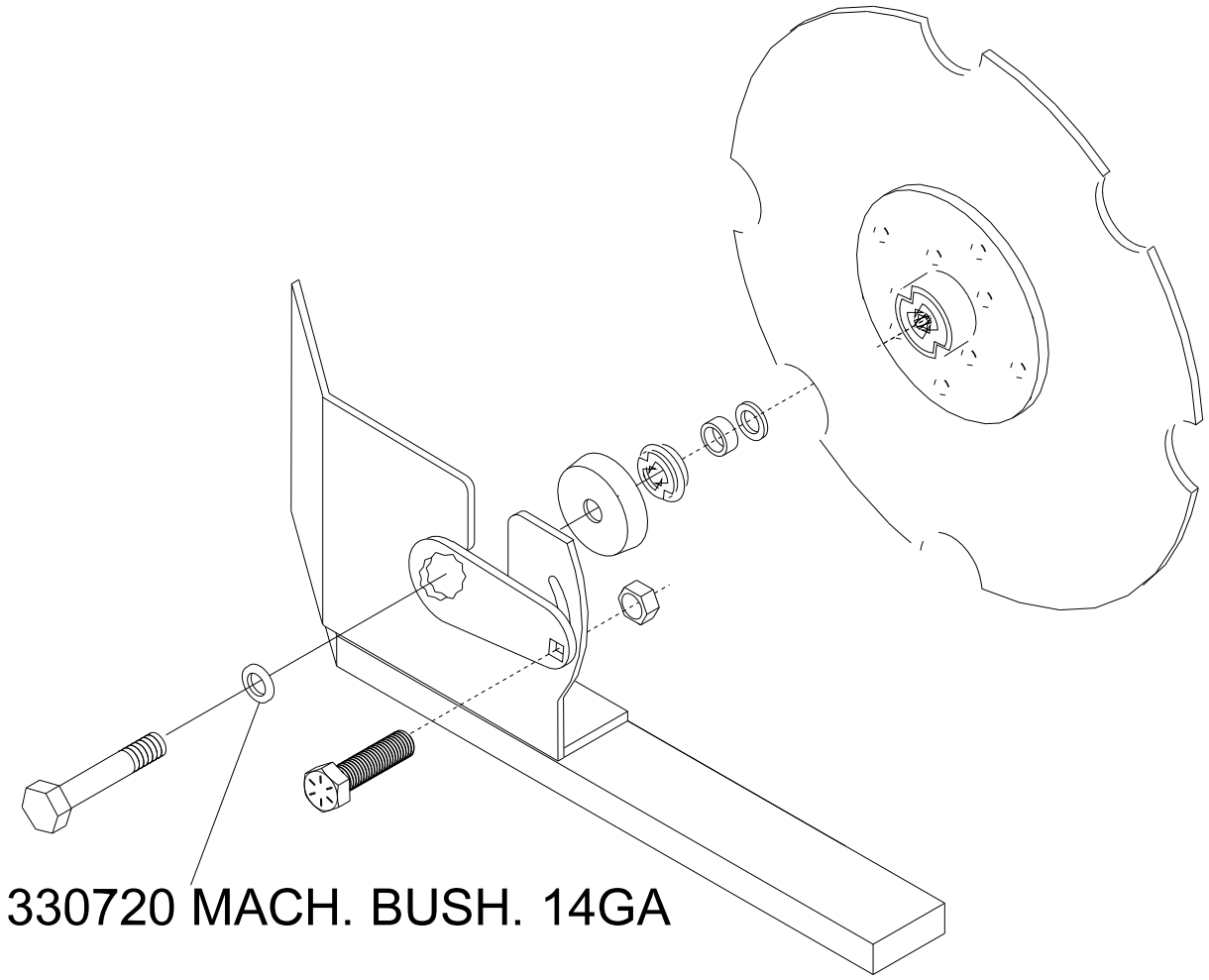
#530667 (Hammer)
2" x 13" Peaked w/Smooth Sides

Item	Part No.	Description
1		HHCS 3/8" x 1 5/8" Gr 5
2		HHCS 3/8" x 5/8" Gr5
3	530758	2x13 Smooth Presswheel Side
4	530766	2x13 Peaked Presswheel
5	401042	Bearing
6		Hex Locknut 3/8"

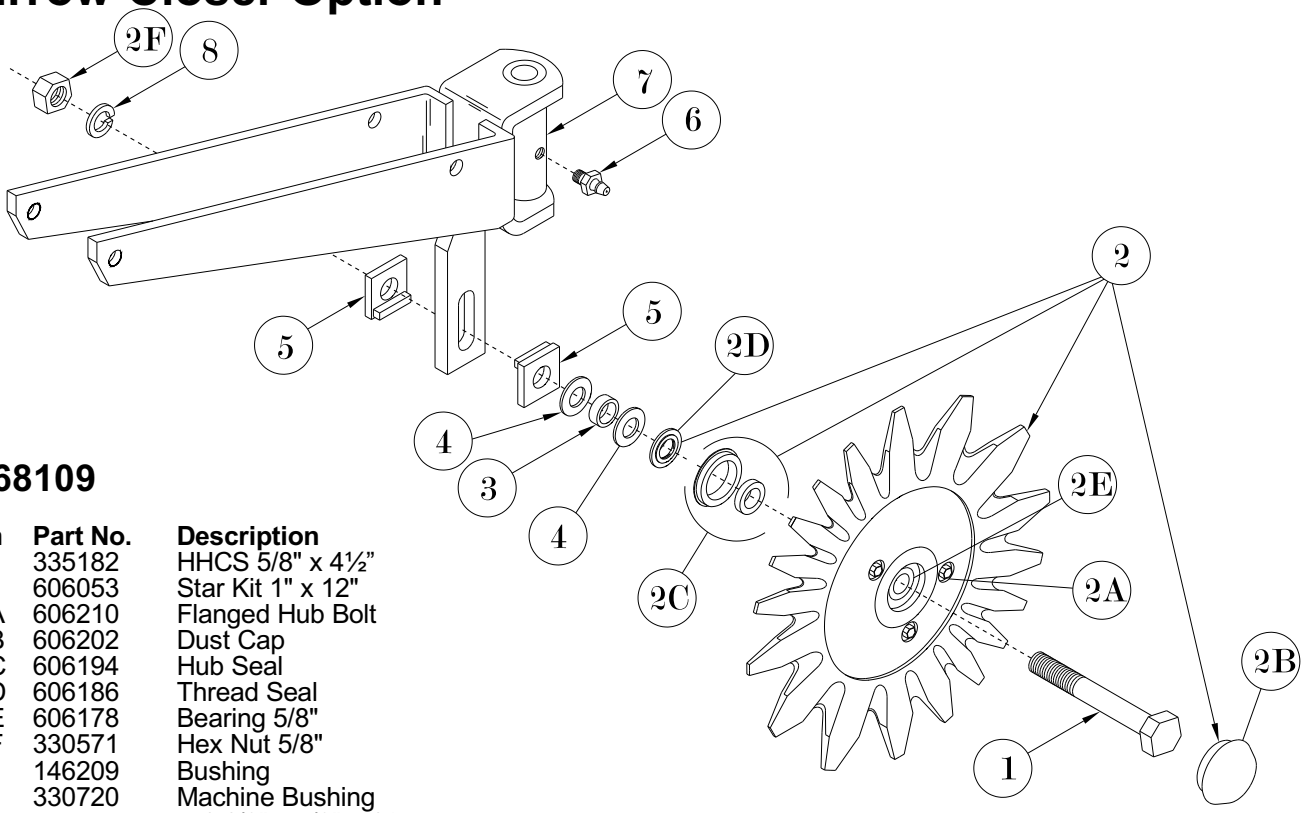


#531095	2 x 13 Carlisle
#531483	3 x 15 V-TypeCarlisle
#531707	Presswheel Half
#531723	Presswheel Tire
#531541	3 x 13 Dual RibCarlisle
#531764	Presswheel Rim

Outside Scraper Assy
883694 & 883686



All Plant
Furrow Closer Option



#868109

Item	Part No.	Description
1	335182	HHCS 5/8" x 4½"
2	606053	Star Kit 1" x 12"
2A	606210	Flanged Hub Bolt
2B	606202	Dust Cap
2C	606194	Hub Seal
2D	606186	Thread Seal
2E	606178	Bearing 5/8"
2F	330571	Hex Nut 5/8"
3	146209	Bushing
4	330720	Machine Bushing 1 1/8" x 5/8" x 14ga
5	961011	Star Wheel Offset Plate
6	604660	Zerk 1/4-28 Self-Tapping
7	961003	Furrow Closer Arm
8	330878	Lock Washer 5/8"

Hydraulic Cylinders

4" x 10" Hyd. Cylinder
1½" Ram w/3/4-16 SAE Ports

CBI No. - 468421

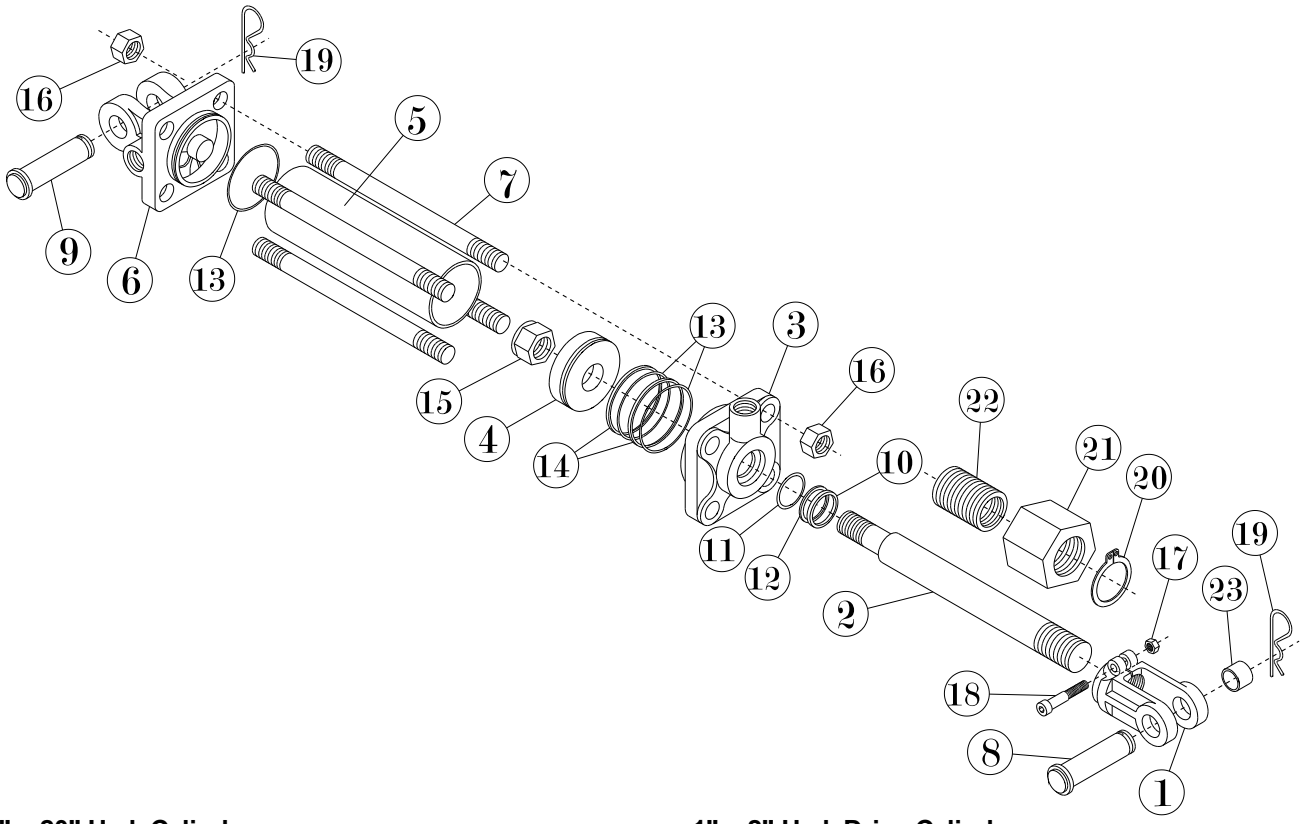
Item	CBI No.	Description
1	461483	Clevis
2	475021	Rod
3	470104	Head
4	461269	Piston
6	467134	Base
8	463133	Clevis Pin
9	463133	Clevis Pin
10	460907	Rod Wiper
11	460915	Rod O-Ring
12	463067	Rod Back-up
13	461186	Piston O-Ring
14	461277	Piston Back-up
15	461285	Piston Nut
16	461442	Tie Rod Nut
17	460691	Clevis Nut
18	460477	Capscrew
19	460469	Cotter Pin
	463372	Seal Kit

4" x 8" Hyd. Cylinder
1 1/4" Ram w/3/4-16 SAE Ports 3000 PSI

CBI No. - 473215

Item	CBI No.	Description
1	473306	Clevis
2	473256	Rod
3	473322	Head
4	473314	Piston
5	461293	Tube
7	473330	Tie Rod
8	463133	Clevis Pin
9	463133	Clevis Pin
16	461442	Tie Rod Nut
17	460691	Clevis Nut
18	460477	Capscrew
	473348	Seal Kit

Hydraulic Cylinders



5" x 20" Hyd. Cylinder
2" Ram w/3/4-16 SAE Ports

CBI No. - 465286

Item	CBI No.	Description
1	464875	Clevis Assembly **C**
	463315	Clevis **M**
2	466201	Rod
3	466110	Head
4	461582	Piston
5	461624	Tube
6	466177	Base
7	461681	Tie Rod
8	463265	Clevis Pin
9	468447	Clevis Pin
10	466185	Rod Wiper
11	461178	Rod O-Ring
12	463067	Rod Back-up
13	461533	Piston O-Ring
14	461590	Piston Back-up
15	461608	Piston Nut
16	461459	Tie Rod Nut
17	460691	Clevis Nut
18	460477	Capscrew
19	460469	Cotter Pin
23	461822	Bushing
	464412	Seal Kit

1" x 2" Hyd. Drive Cylinder
(Not Shown)

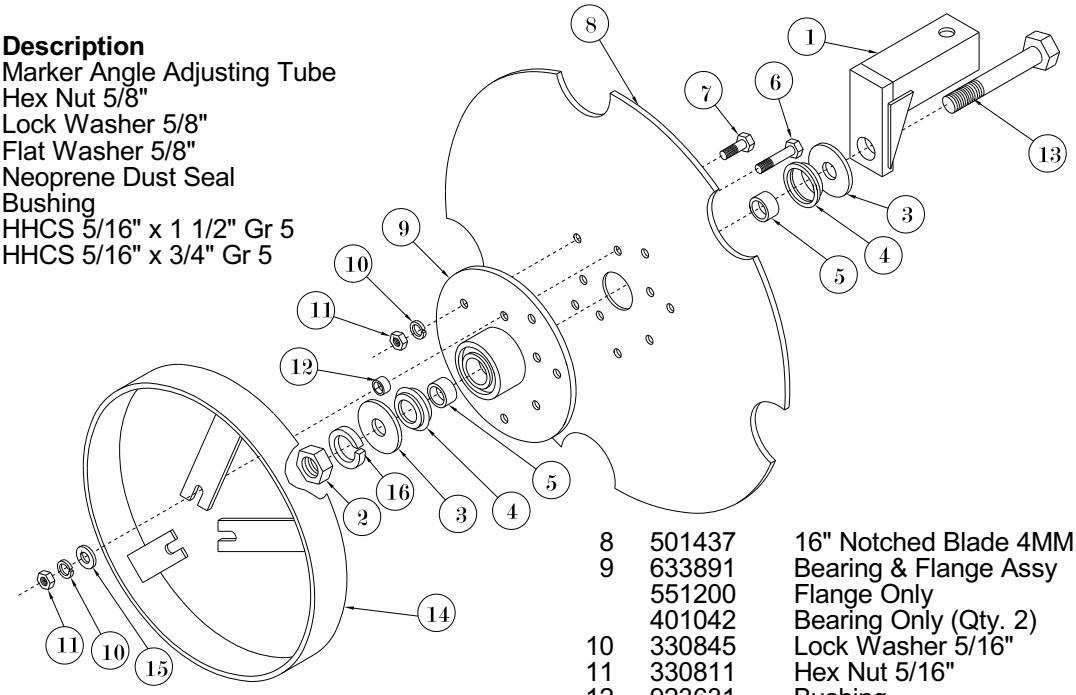
CBI No. - 471854

472043	Seal Kit

Marker Blade Assembly

861450

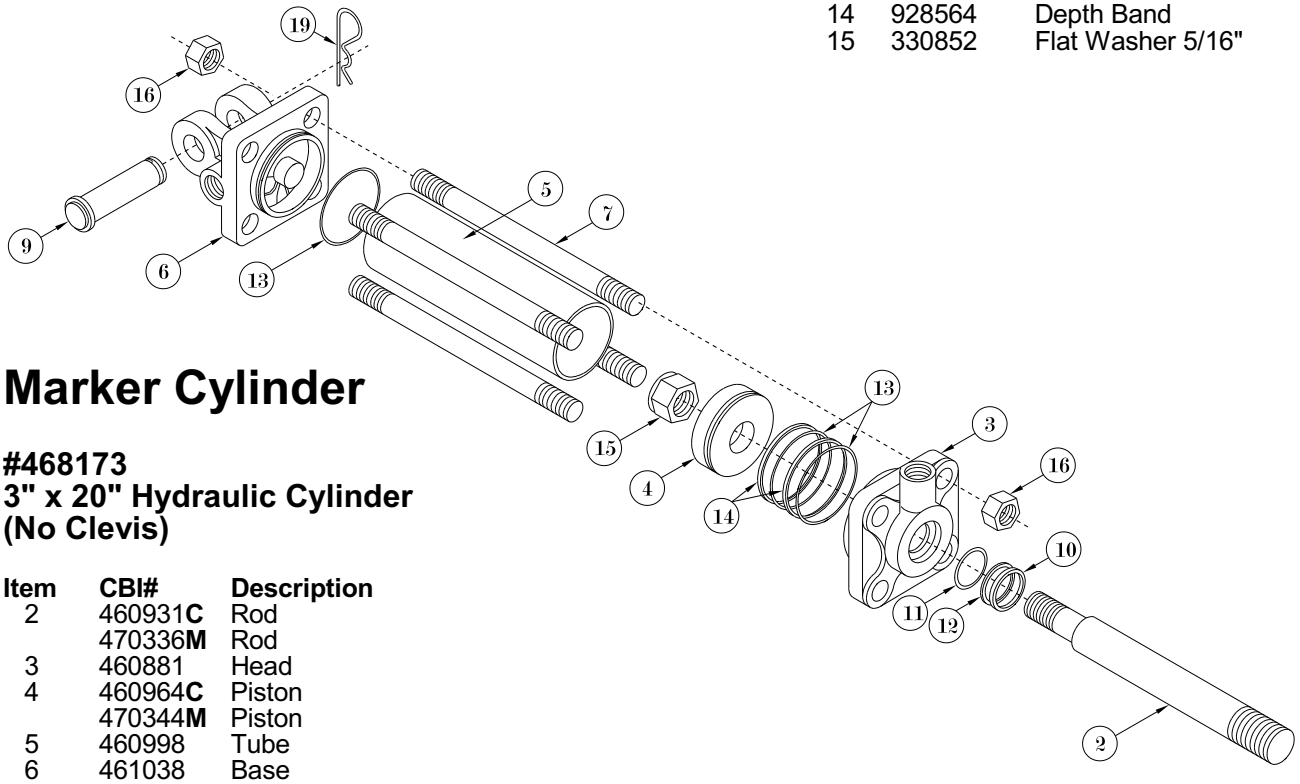
Item	Part No.	Description
1	956086	Marker Angle Adjusting Tube
2	330571	Hex Nut 5/8"
	330878	Lock Washer 5/8"
3	330183	Flat Washer 5/8"
4	400747	Neoprene Dust Seal
5	144865	Bushing
6	335448	HHCS 5/16" x 1 1/2" Gr 5
7	01144500	HHCS 5/16" x 3/4" Gr 5



8	501437	16" Notched Blade 4MM
9	633891	Bearing & Flange Assy
	551200	Flange Only
	401042	Bearing Only (Qty. 2)
10	330845	Lock Washer 5/16"
11	330811	Hex Nut 5/16"
12	923631	Bushing
13	02274900	HHCS 5/8" x 5" Gr 5
14	928564	Depth Band
15	330852	Flat Washer 5/16"

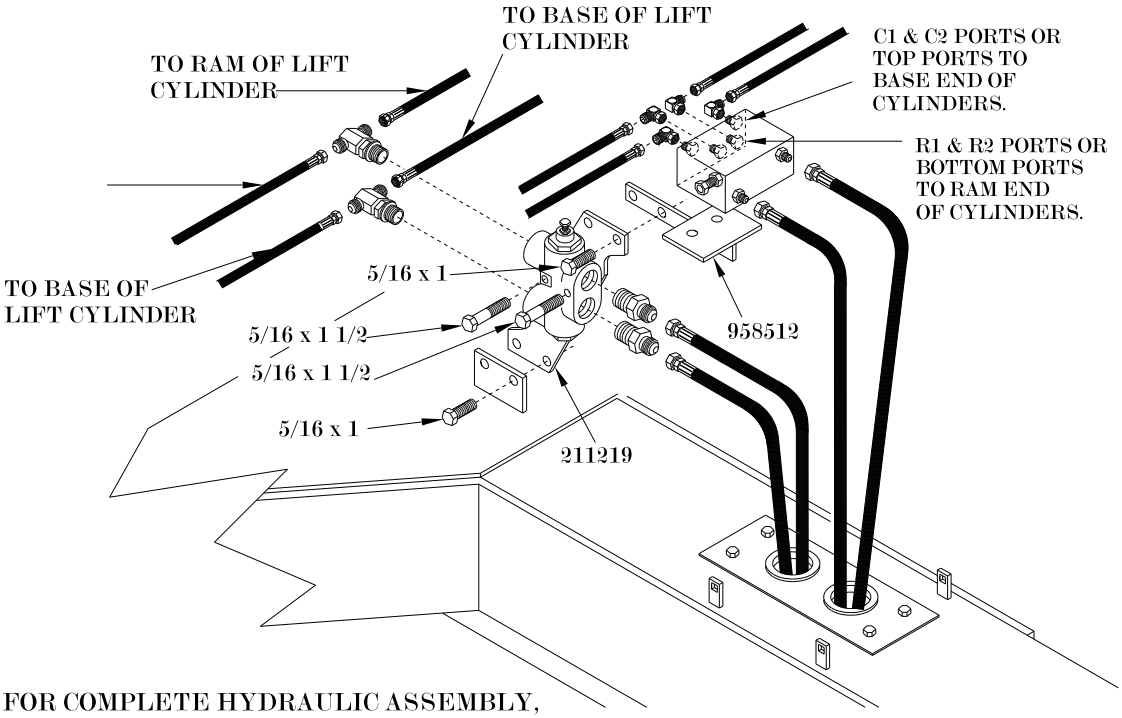
Marker Cylinder

#468173
3" x 20" Hydraulic Cylinder
(No Clevis)



Item	CBI#	Description
2	460931**C**	Rod
	470336**M**	Rod
3	460881	Head
4	460964**C**	Piston
	470344**M**	Piston
5	460998	Tube
6	461038	Base
7	461046	Tie Rod
10	460329	Wiper Seal
11	463109	O-Ring
12	463042	Back-Up
13	460923	O-Ring
14	460980	Back-Up
15	460394**C**	Piston Nut
	461285**M**	Piston Nut
16	460972	Tie Rod Nut
	461079	Seal Kit

4000 Valve Bracket

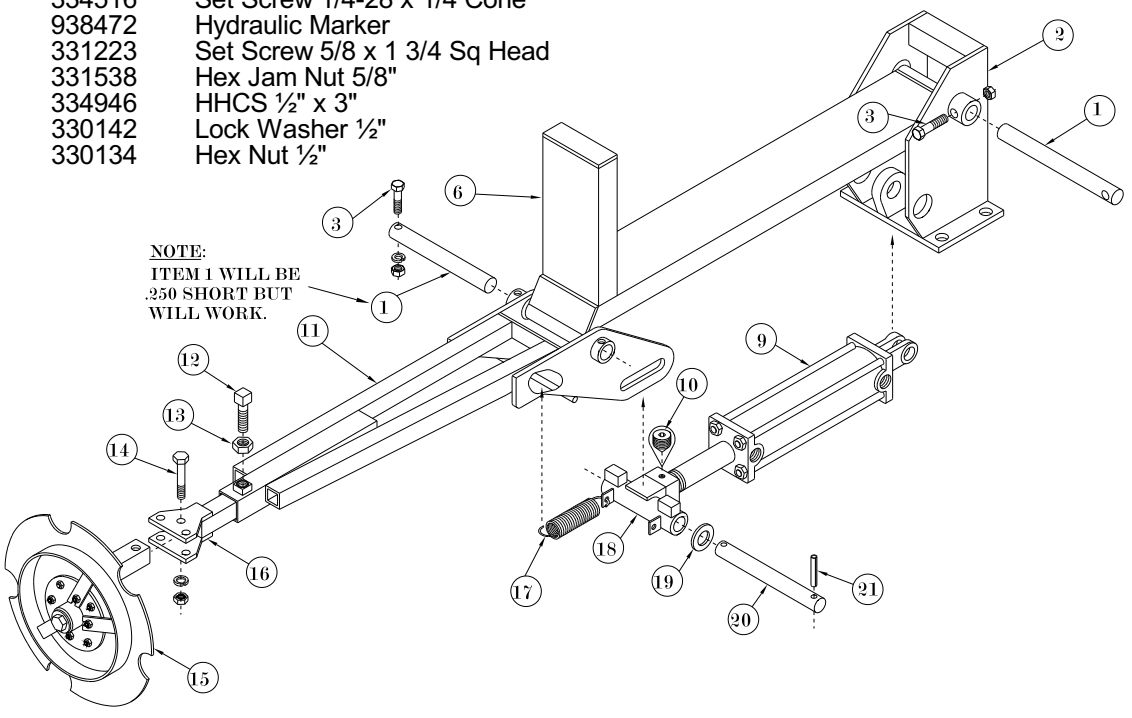


FOR COMPLETE HYDRAULIC ASSEMBLY, SEE HYDRAULIC DIAGRAMS.

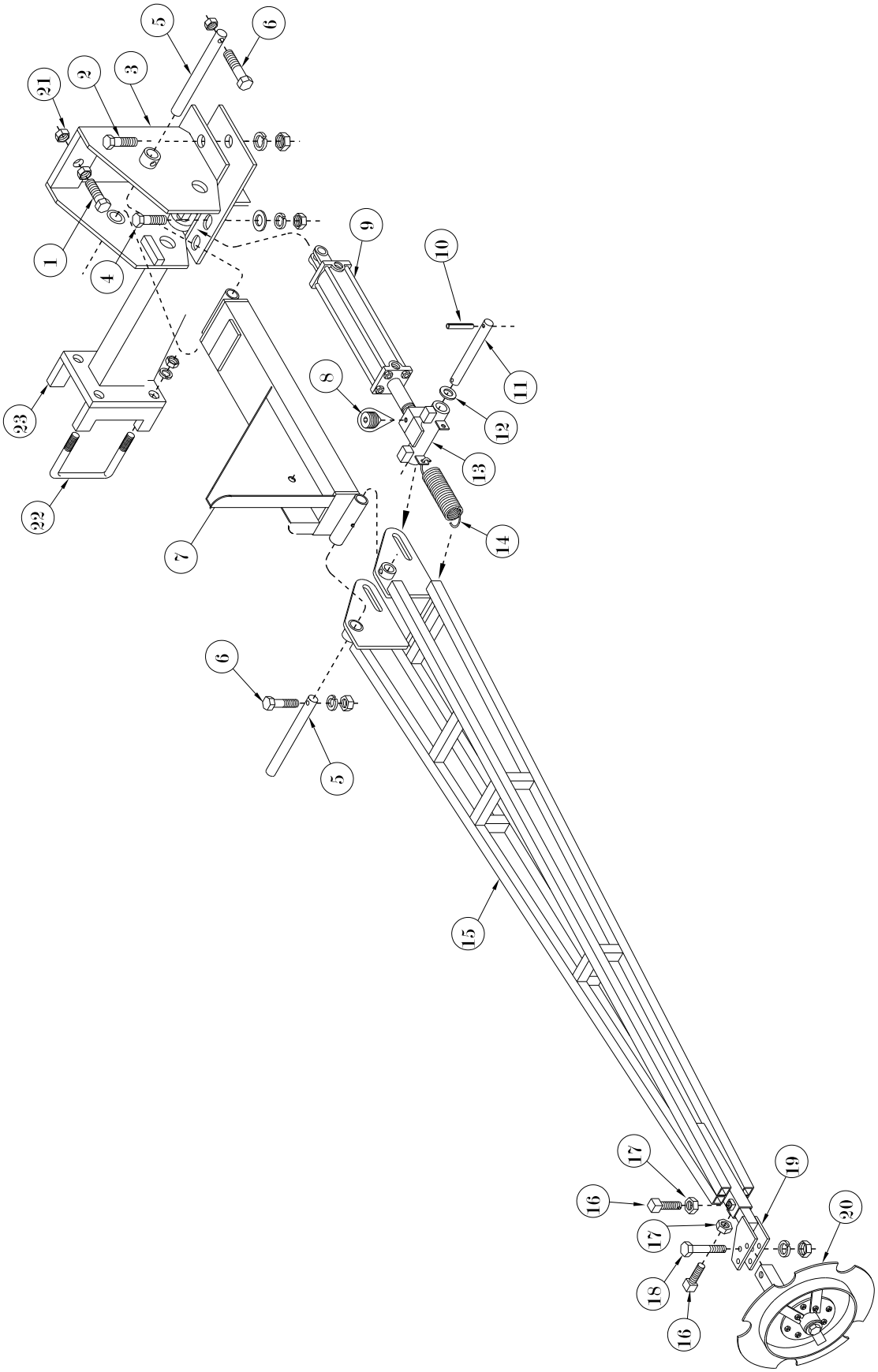
4020 Drill Hydraulic Marker

Item	Part No.	Description
1	306670	Base Mount Bracket Pin
2	938480	Marker Base Mount Bracket
3	334243	HHCS 3/8" x 2"
	330043	Lock Washer 3/8"
	330035	Hex Nut 3/8"
	330837	Hex Nylock Nut 3/8"
6	938498	Marker Base Arm
9	468173	Cylinder 3 x 20
10	334516	Set Screw 1/4-28 x 1/4 Cone
11	938472	Hydraulic Marker
12	331223	Set Screw 5/8 x 1 3/4 Sq Head
13	331538	Hex Jam Nut 5/8"
14	334946	HHCS ½" x 3"
	330142	Lock Washer ½"
	330134	Hex Nut ½"

Item	Part No.	Description
15	861450	Marker Blade Assembly
16	954966	Adjustable Marker Arm
17	500173	Spring
18	938514	Cylinder Bracket
19	330407	Flat Washer 1"
20	306688	Cylinder Bracket Pin
21	330662	Roll Pin 5/16" x 1 3/4"



4025
Hydraulic Marker



4025
Hydraulic Marker

Item	Part No.	Description
1	334987	HHCS 1" x 3"
	330407	Flat Washer 1"
	330399	Lock Washer 1"
	330381	Hex Nut 1"
2	01172600	HHCS 1" x 2½"
	330381	Hex Nut 1"
3	938399	Marker Base Mt Bracket Right
	938407	Marker Base Mt Bracket Left
4	335174	HHCS 3/4" x 2½"
	330480	Lock Washer 3/4"
	330290	Hex Nut 3/4"
5	306282	Base Arm Lower Pivot Pin
6	335422	HHCS ½" x 2½"
	330142	Lock Washer ½"
	330134	Hex Nut ½"
7	966275	Marker Base Arm Right
	966267	Marker Base Arm Left
8	334516	Set Screw 1/4 x 1/4 Cone
9	468173	Cylinder Only 3x20 less clevis
10	330662	Roll Pin 5/16" x 1 3/4"
11	306621	Marker Pin
12	330407	Flat Washer 1"
13	938332	Cylinder Bracket
14	500173	Spring
15	952606	Marker Ladder
16	331223	Set Screw 5/8 x 1 3/4 Sq Head
17	331538	Hex Jam Nut 5/8"
18	334946	HHCS ½" x 3"
	330134	Hex Nut ½"
	330142	Lock Washer ½"
19	954685	Adjustable Marker Arm
20	861450	Marker Blade Assembly
21	332288	Jam Nut 1"
22	337162	U-bolt 3/4" x 7" x 11"
23	953356	Marker Mount

4025 Marker
Mounting & Assembly Instructions

Remove contents of hardware box and sort according to packing sheet for parts identification. *Refer to drawing lay-out.* Using the 3/4" x 7" x 11" U-bolts, 3/4" lock washers and hex nuts, install mounting brackets to the 7x7 frame tube at the end of each wing frames.

Bolt marker base mount bracket —right on the right side of the drill, and left on the left side of the drill —using four (4) 1" x 3" HHCS and one (1) 3/4" x 2½" HHCS with flat washers, lock washers, and hex nuts. To determine left and right, stand behind drill looking to the tractor. To your right is the right side of drill, and to your left, the left side of drill.

Mount left marker base arm and right marker base arm to marker base mount brackets using base arm pivot pins (1½" x 11"). *Refer to drawing.* Secure pins with ½" x 2½" bolts and hex nylock nuts. (Check part numbers to insure correct side.)

Attach the 3 x 20 hydraulic cylinder to the marker base mounts using the pin provided with cylinders.

Install 1" x 3" stop bolts with two (2) hex jam nuts in the top holes of the marker base. Using two (2) other pivot pins, mount ladder sections to the marker base arms and secure with ½" x 2½" bolts, lock washers, and hex nuts.

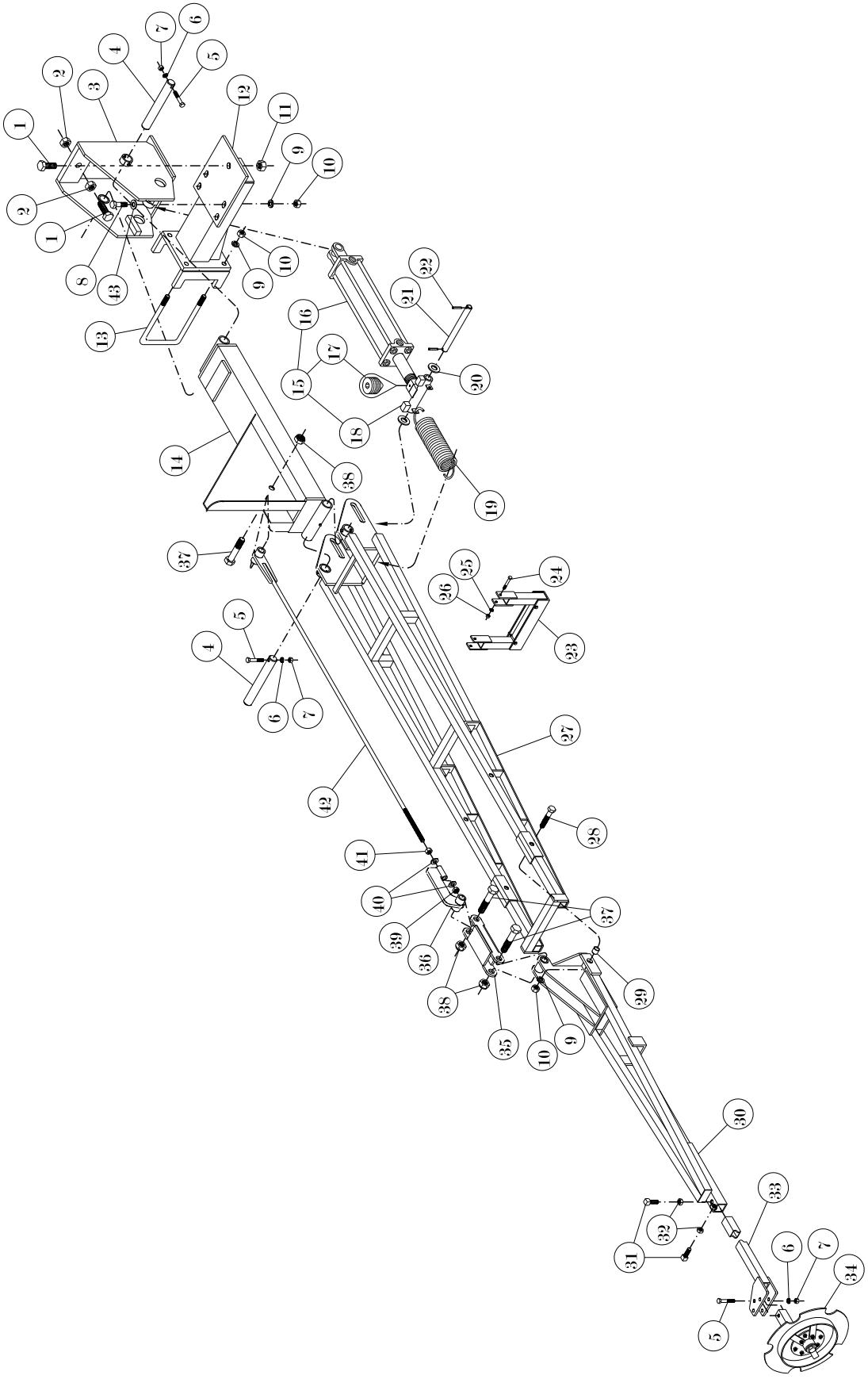
Remove the cylinder port plugs and extend hydraulic cylinder rams out to align cylinder brackets with slotted holes in ladder sections and connect with cylinder bracket pins (1" x 10 3/4"). Use a 1" flat washer on the outside of slotted area when installing pins. *Refer to drawing.*

Attach two (2) springs from cylinder brackets to the cross rods located by the slotted holes on the ladder sections. These must be installed for markers to work properly.

Slide the adjustable marker arms into the end of the ladder sections and tighten with 5/8" x 1½" set screw and jam nut. Finally, bolt the marker blade assemblies to the adjustable marker arms using a ½" x 3" bolt with lock washer and hex nut. TIGHTEN AT THIS TIME. Angle settings will be dependent of field conditions and the amount of furrow desired. Measure distance as required, and set adjustable marker arms to proper positions.

For assembly of hydraulics, refer to hydraulic sections in this owner's manual. After hydraulics are complete, raise markers slowly to fill with oil. Sequence several times to eliminate air in the system. Be sure to check for leaks in the system.

4030
Tri-Fold Marker



4030 Tri-Fold Marker

Item	Qty	Part No.	Description
1	4	01172600	HHCS 1" x 2½"
2	4	332288	Jam Nut 1"
3	1	938407	Marker Base Mt Bracket Lt
	1	938399	Marker Base Mt Bracket Rt
4	4	306282	Pivot Pin 1½' x 11"
5	6	334946	HHCS ½" x 3"
6	6	330142	Lock Washer ½"
7	6	330134	Hex Nut ½"
8	8	335174	HHCS 3/4" x 2½'
9	20	330332	Lock Washer 3/4"
10	20	330290	Hex Nut 3/4"
11	2	330381	Hex Nut 1"
12	2	953356	Marker Mount
13	4	337162	U-bolt 3/4" x 7" x 11"
14	1	966267	Base Arm Left
	1	966275	Base Arm Right
15	2	859165	Cylinder Assembly (Includes #16-#18)
16	2	468173	Cylinder 3 x 20
17	2	334516	Set Screw 1/4-28 x 1/4
18	2	938332	Cylinder Bracket
19	2	500173	Spring .148 x 3"
20	4	330407	Flat Washer 1"
21	2	306621	Cylinder Pin 1" x 10 3/4"
22	4	330662	Roll Pin 5/16" x 1 3/4"
23	2	867804	Marker Arm Rest
24	4	331884	HHCS 3/8" x 2½"
25	4	330043	Lock Washer 3/8"
26	4	330035	Hex Nut 3/8"
27	1	938282	Ladder
28	4	01110600	HHCS 3/4" x 4"
29	4	142646	Marker Arm Spacer
30	1	966036	Marker Arm
31	4	331223	Set Screw 5/8" x 1 3/4" Square Head
32	4	331538	Jam Nut 5/8"
33	1	954685	Adjustable Marker Arm
34	2	861450	Marker Blade Assembly
35	1	966077	Marker Pivot
36	1	966044	Turnbuckle Adjustment
37	6	332809	HHCS 1" x 5"
38	6	330597	Nylock Nut 1"
39	2	01572700	Nylock Nut 5/8"
40	4	330183	Flat Washer 5/8"
41	2	330571	Hex Nut 5/8"
42	2	966051	Turnbuckle Rod
43	8	330340	Flat Washer 3/4"

Tri-Fold Marker Mounting & Assembly Instructions

Remove contents of hardware box and sort parts for identification. *Refer to drawing lay-out.* Using the 3/4" x 7" x 11" U-bolts, 3/4" lock washers and hex nuts, install mounting brackets to the 7 x 7 frame tube at the end of each wing frames.

Bolt marker base mount bracket ---right on the right side of the drill, and left on the left side of the drill--- using one (1) 1" x 2½" HHCS with hex nut and four (4) 3/4" x 2½" HHCS with flat washers, lock washers, and hex nuts. To determine left and right, stand behind drill looking to the tractor. To your right is the right side of drill, and to your left, the left side of drill.

Mount left marker base arm and right marker base arm to marker base mount brackets using base arm pivot pins (1½" x 11") *Refer to drawing.* Secure pins with ½" x 3" bolts and hex nylock nuts. (Check part numbers to insure correct side).

Attach the 3 x 20 hydraulic cylinder to the marker base mounts using the pin provided with the cylinders.

Install 1" x 2½" stop bolts with two (2) hex jam nuts in the top holes of the marker base. Using the other 1½" x 11" pivot pins, mount ladder sections to the marker base arms and secure with ½" x 3" bolts, lock washers, and hex nuts. Remove the cylinder port plugs and extend hydraulic cylinder rams out to align cylinder brackets with slotted holes in ladder sections and connect with cylinder bracket pins (1" x 10 3/4"), Use a 1" flat washer on the outside of slotted area when installing pins. *Refer to drawing.*

Attach spring from cylinder bracket to the cross rods located by the slotted holes on the ladder sections. This must be installed for markers to work properly.

Install the marker arms in the first hole on the ladder sections using 3/4" x 4" bolts, marker arm spacer bushings *(Refer to drawing)*, lock washer, and hex nuts.

Attach marker pivot to arm using 1" x 5" bolts and nylock nuts. Bolt the turnbuckle end adjustment to pivot with 1" x 5" bolts and nylock nuts.

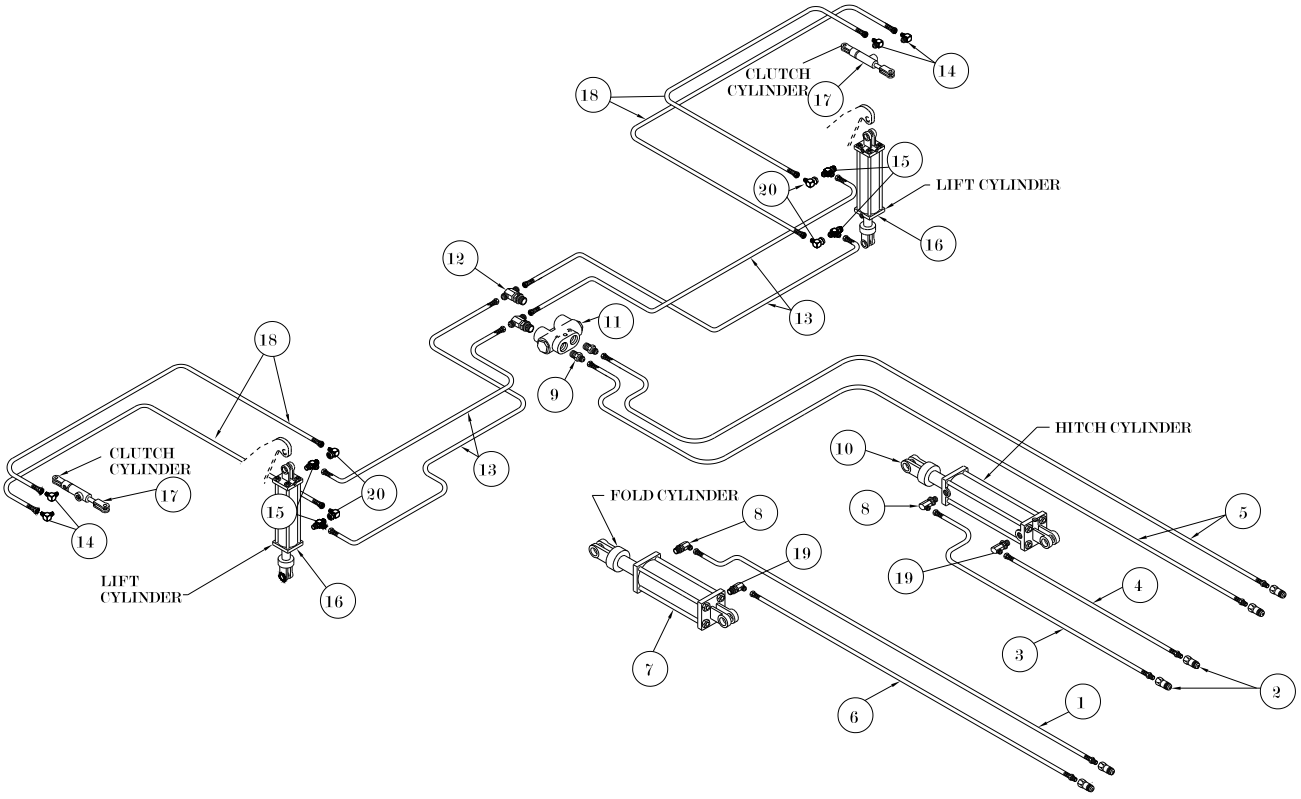
On the marker base arms --right and left, install marker adjustment rod using 1 x 5" bolt and nylock nut. Attach rod to the turnbuckle end adjustment using one (1) 5/8" hex nylock nut and one (1) 5/8" flat washer on outside and one (1) ½" hex nut and 5/8" flat washer on the inside. Fold marker up and back down to make sure marker blade does not hit the ground. The marker should be adjusted at this point, but if the marker arm does not start out when the ladder starts down, adjustment will have to be made on the turnbuckle end.

Attach adjustable marker stop assemblies to bottom of ladder sections using 3/8" x 2½" bolt with lock washers, and hex nuts. DO NOT TIGHTEN COMPLETELY AT THIS TIME. Marker stops will need to be adjusted later to keep marker blades from hitting ladders. *Refer to drawing.*

Slide the adjustable marker arms into the end of the ladder sections and secure with 5/8" x 1 3/4" set screws and hex jam nuts. Finally, bolt the marker blade assemblies to the adjustable marker arms using ½" x 3" bolts with lock washers, and hex nuts. TIGHTEN BOLTS AT THIS STEP. Angle settings will be dependent on field conditions and the amount of furrow desired. Measure distance as required, and set adjustable marker arms to proper positions.

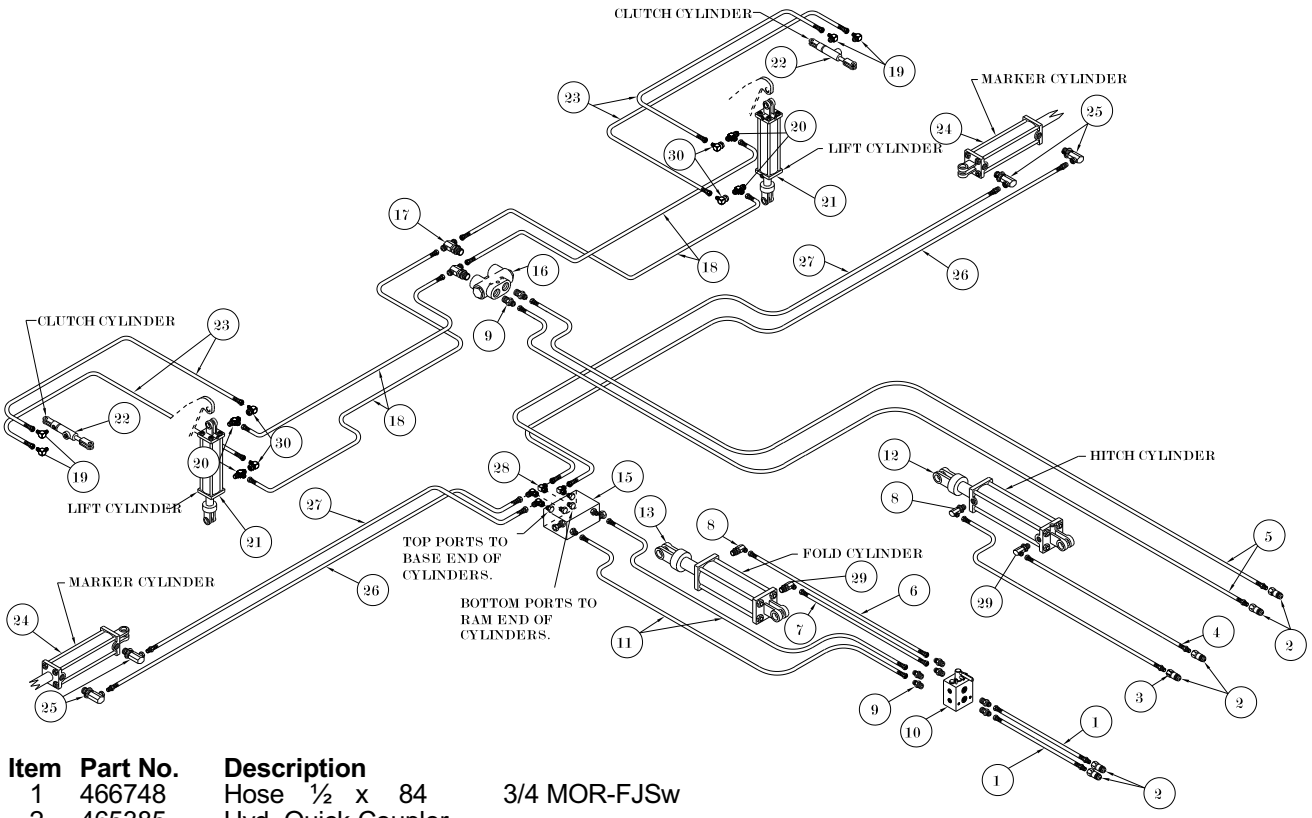
For assembly of hydraulics, refer to hydraulic sections in this owner's manual. After hydraulics are complete, raise markers slowly to fill with oil. Sequence several times to eliminate air in the system. Be sure to check for leaks in the system. Adjust marker stops so blades do not hit ladders and tighten.

4020 Drill
Triple Hydraulics



Item	Part No.	Description	
1	470401	Hose 1/2 x 199 3/4 MOR-3/4FJSw	
	470385	Hose ½ x 174 3/4 MOR-3/4FJSw	(4020 with 11½' Tongue)
2	465385	Hyd. Quick Coupler	
3	468199	Hose 1/2 x 118 3/4MOR-3/4FJSw	
4	465666	Hose 1/2 x 108 3/4MOR-3/4FJSw	
5	468819	Hose 1/2 x 255 3/4MOR-3/4 FJSw	
	474718	Hose ½ x 229 3/4 MOR-3/4FJSw	(4020 with 11½' Tongue)
6	470385	Hose 1/2 x 174 3/4MOR-3/4 FJSw	
	474726	Hose ½ x 148 3/4 MOR-3/4FJSw	(4020 with 11½' Tongue)
7	465286	Cylinder 5 x 20	
8	465310	Adapter 90° 3/4 MOR -3/4 JICM	
9	465294	Adapter Str 3/4 MOR -3/4 JICM	
10	468421	Cylinder 4 x 10 3/4-16 SAE	
11	465104	Pilot Lock Hydraulic Valve	
12	465260	Adapter Tee 3/4MOR - 3/4JICM	
13	465229	Hose ½ x 100 3/4-16FJSw	
14	471888	Adapter 90° 9/16JICM - 7/16 MOR	
15	471904	Adapter Run Tee 3/4 JICM - 3/4 MOR	
16	473215	Cylinder 4 x 8 3000 PSI	
17	471854	Cylinder 1 x 2	
18	471912	Hose 1/4 x 28 9/16 FJSw	
19	466862	Adapter 90° Rest. 3/4MOR - 3/4JICM	
20	471896	Adapter 90° 9/16 JICM - 3/4 FJSw	

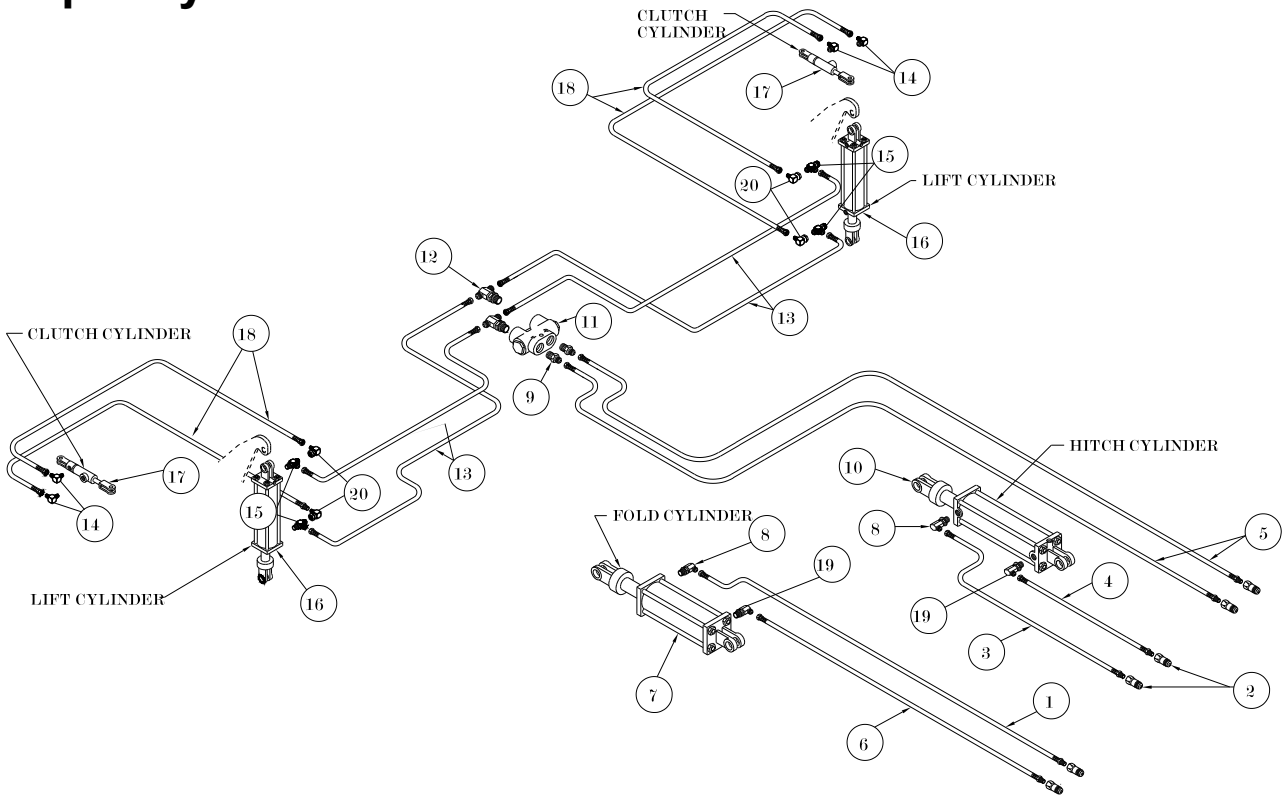
4020 Drill
Triple Hydraulics w/ Markers



Item	Part No.	Description	
1	466748	Hose ½ x 84	3/4 MOR-FJSw
2	465385	Hyd. Quick Coupler	
3	468199	Hose ½ x 118	3/4MOR-3/4 FJSw
4	465666	Hose ½ x 108	3/4MOR-3/4FJSw
5	470393	Hose ½ x 274	3/4MOR-3/4 FJSw
	475764	Hose ½ x 248	3/4MOR-3/4 FJSw
6	469874	Hose ½ x 216	3/4 FJSw
7	468843	Hose ½ x 182	3/4-16 Fsw
8	465310	Adapter 90°	3/4 MOR -3/4 JICM
9	465294	Adapter Str	3/4 MOR -3/4 JICM
10	470278	Selector Valve	3/4 JIC
11	469544	Hose 3/8 x 210	3/4-16-9/16 FJSw
12	468421	Cylinder 4 x 10	3/4-16 SAE
13	465286	Cylinder 5 x 20	
15	469072	Shoemaker Sequence Hyd Valve	
16	465104	Pilot Lock Hyd Valve	
17	465260	Adapter Tee	3/4MOR-3/4 JICM
18	465229	Hose 1/2 x 100	3/4-16 FJSw
19	471888	Adapter 90°	9/16JICM -3/4FJSw
20	471904	Adapter Run Tee	3/4JICM - 3/4MOR
21	473215	Cylinder 4 x 8 3000 PSI	
22	471854	Cylinder 1 x 2	
23	471912	Hose 1/4 x 28	9/16 FJSw
24	468173	Cylinder 3 x 20	
25	463539	Adapter 90°	1/2NPM-3/8NPFSw
26	469551	Hose 3/8 x 198	3/8 MP-9/16FJSw
27	469593	Hose 3/8 x 180	3/8MP-9/16FJSw
28	469049	Adapter 90°	9/16 JICM - 9/16 JICFSw
29	466862	Adapter 90° Rest.	3/4MOR - 3/4JICM
30	471896	Adapter 90°	9/16 JICM - 3/4 JICFSw

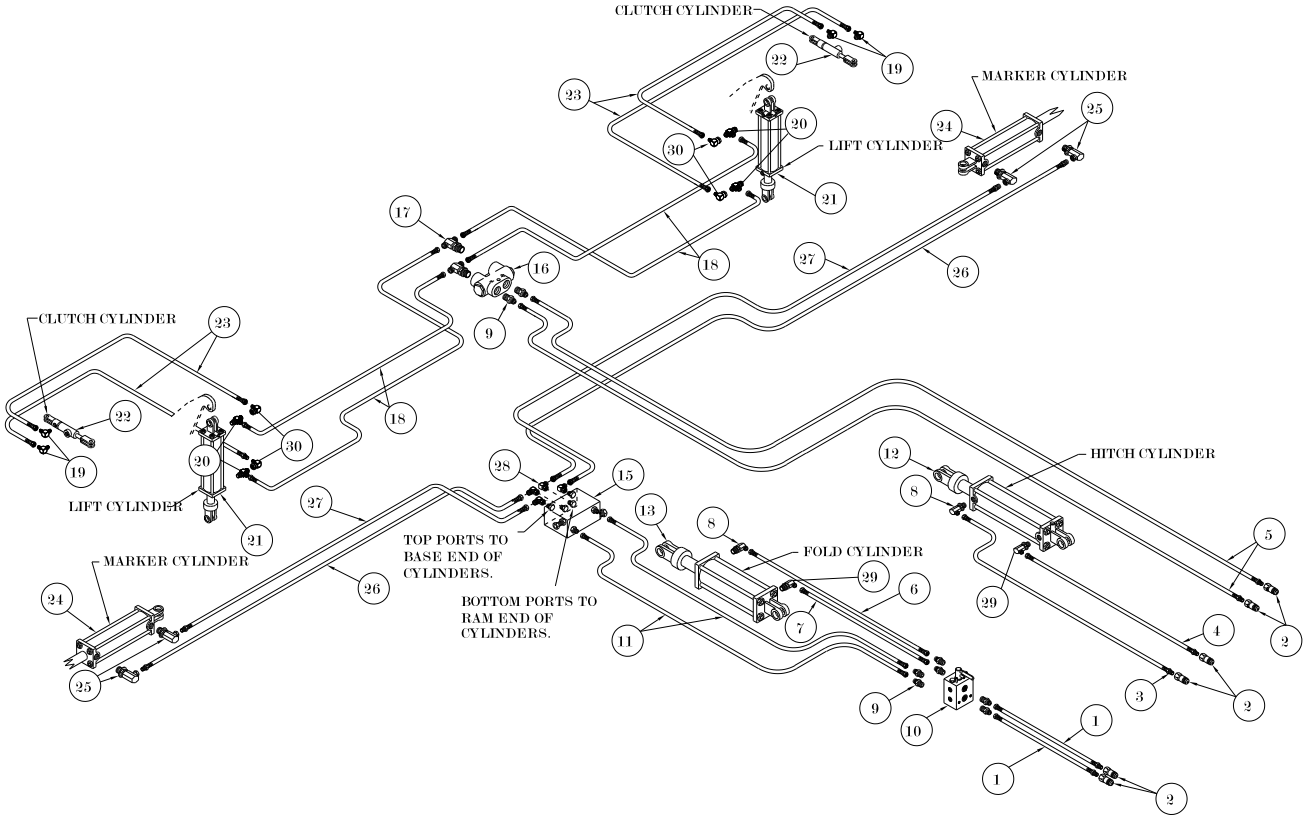
(4020 with 11½" Tongue)

4025 Drill
Triple Hydraulics



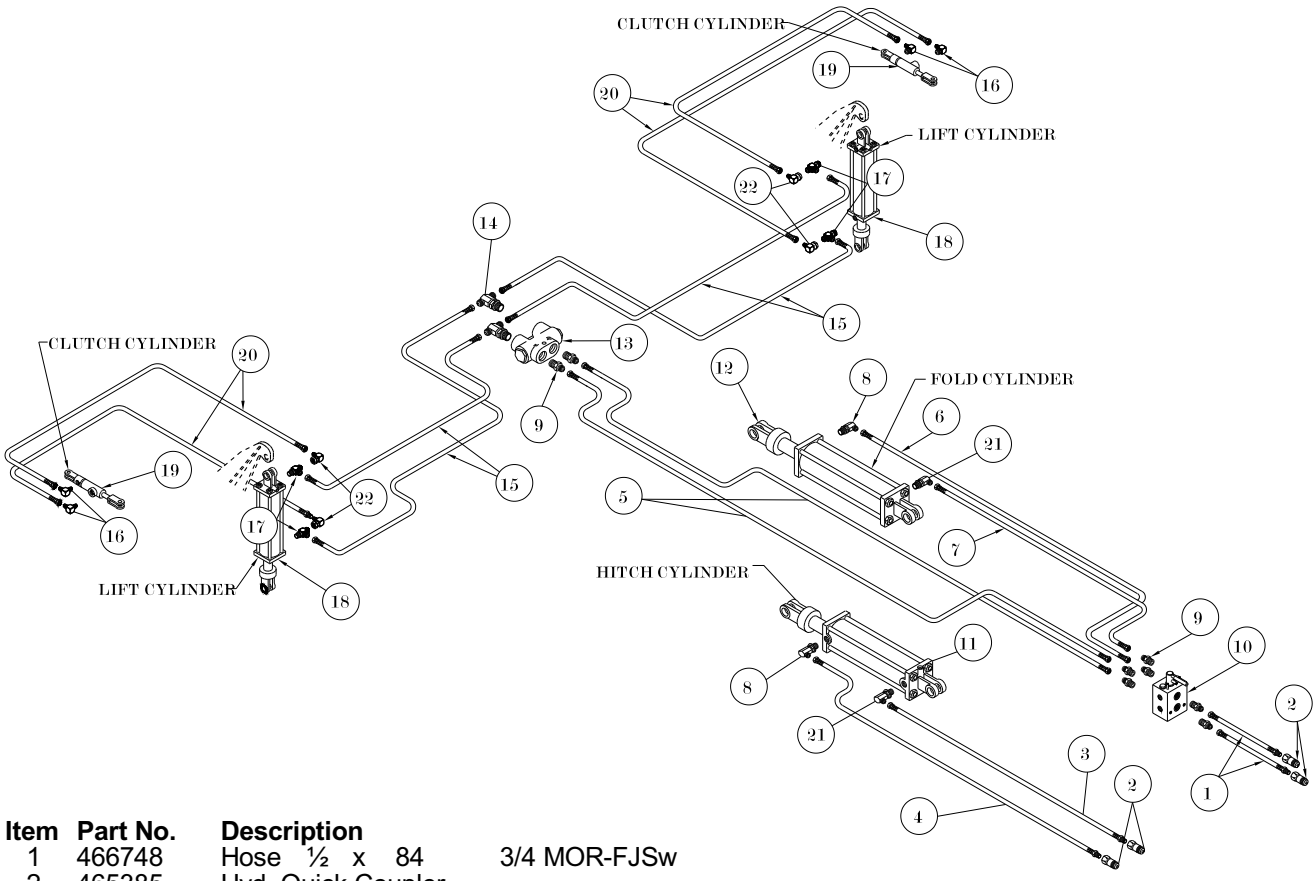
Item	Part No.	Description
1	470401	Hose ½ x 199 3/4 MOR-FJSw
2	465385	Hyd. Quick Coupler
3	468199	Hose ½ x 118 3/4MOR-3/4 FJSw
4	465666	Hose ½ x 108 3/4MOR-3/4FJSw
5	470393	Hose ½ x 274 3/4MOR-3/4 FJSw
6	470385	Hose ½ x 174 3/4MOR-3/4 FJSw
7	465286	Cylinder 5 x 20
8	465310	Adapter 90° 3/4 MOR -3/4 JICM
9	465294	Adapter Str 3/4 MOR -3/4 JICM
10	468421	Cylinder 4 x 10 3/4-16 SAE
11	465104	Pilot Lock Hydraulic Valve
12	465260	Adapter Tee 3/4MOR - 3/4JICM
13	465229	Hose 1/2 x 100 3/4-16FJSw
14	471888	Adapter 90° 9/16 JICM -7/16MOR
15	471904	Adapter Run Tee 3/4 JICM - 3/4 MOR
16	473215	Cylinder 4 x 8 3000 PSI
17	471854	Cylinder 1 x 2
18	471920	Hose 1/4 x 54 9/16 FJSw
19	466862	Adapter 90° Rest. 3/4MOR -3/4JICM
20	471896	Adapter 90° 9/16 JICM -3/4FJSw

4025 Drill
Triple Hydraulics w/ Markers



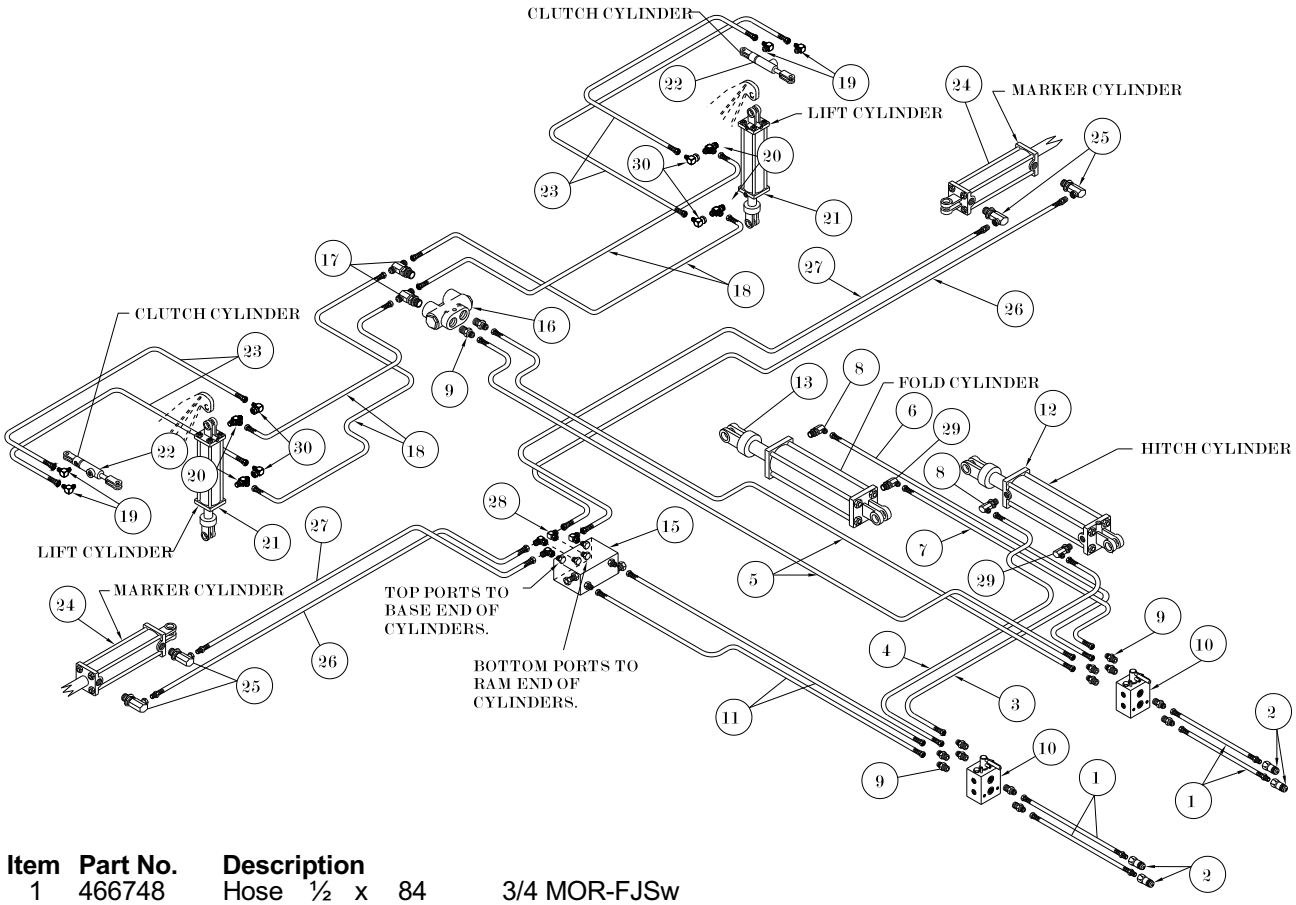
Item	Part No.	Description
1	466748	Hose ½ x 84 3/4 MOR-FJSw
2	465385	Hyd. Quick Coupler
3	468199	Hose ½ x 118 3/4MOR-3/4 FJSw
4	465666	Hose ½ x 108 3/4MOR-3/4 FJSw
5	470393	Hose ½ x 274 3/4MOR-3/4 FJSw
6	469874	Hose ½ x 216 3/4 FJSw
7	468843	Hose ½ x 182 3/4-16 Fsw
8	465310	Adapter 90° 3/4 MOR -3/4 JICM
9	465294	Adapter Str 3/4 MOR -3/4 JICM
10	470278	Selector Valve 3/4 JIC
11	469544	Hose 3/8 x 210 3/4-16-9/16 FJSw
12	468421	Cylinder 4 x 10 3/4-16 SAE
13	465286	Cylinder 5 x 20
15	469072	Shoemaker Sequence Hyd Valve
16	465104	Pilot Lock Hyd Valve
17	465260	Adapter Tee 3/4MOR-3/4 JICM
18	465229	Hose ½ x 100 3/4-16 FJSw
19	471888	Adapter 90° 9/16 JICM -7/16MOR
20	471904	Adapter Run Tee 3/4 JICM - 3/4 MOR
21	473215	Cylinder 4 x 8 3000 PSI
22	471854	Cylinder 1 x 2
23	471920	Hose 1/4 x 54 9/16 JICFSw
24	468173	Cylinder 3 x 20
25	463539	Adapter 90° 1/2NPM-3/8NPFSw
26	469510	Hose 3/8 x 223 3/8MP-9/16FJSw
27	469601	Hose 3/8 x 218 3/8MP-9/16FJSw
28	469049	Adapter 90° 9/16 JICM - 9/16 JICFS
29	466862	Adapter 90° Rest. 3/4MOR -3/4JICM
30	471896	Adapter 90° 9/16 JICM - 3/4 JICFSw

4020 & 4025 Drill
Double Hydraulics



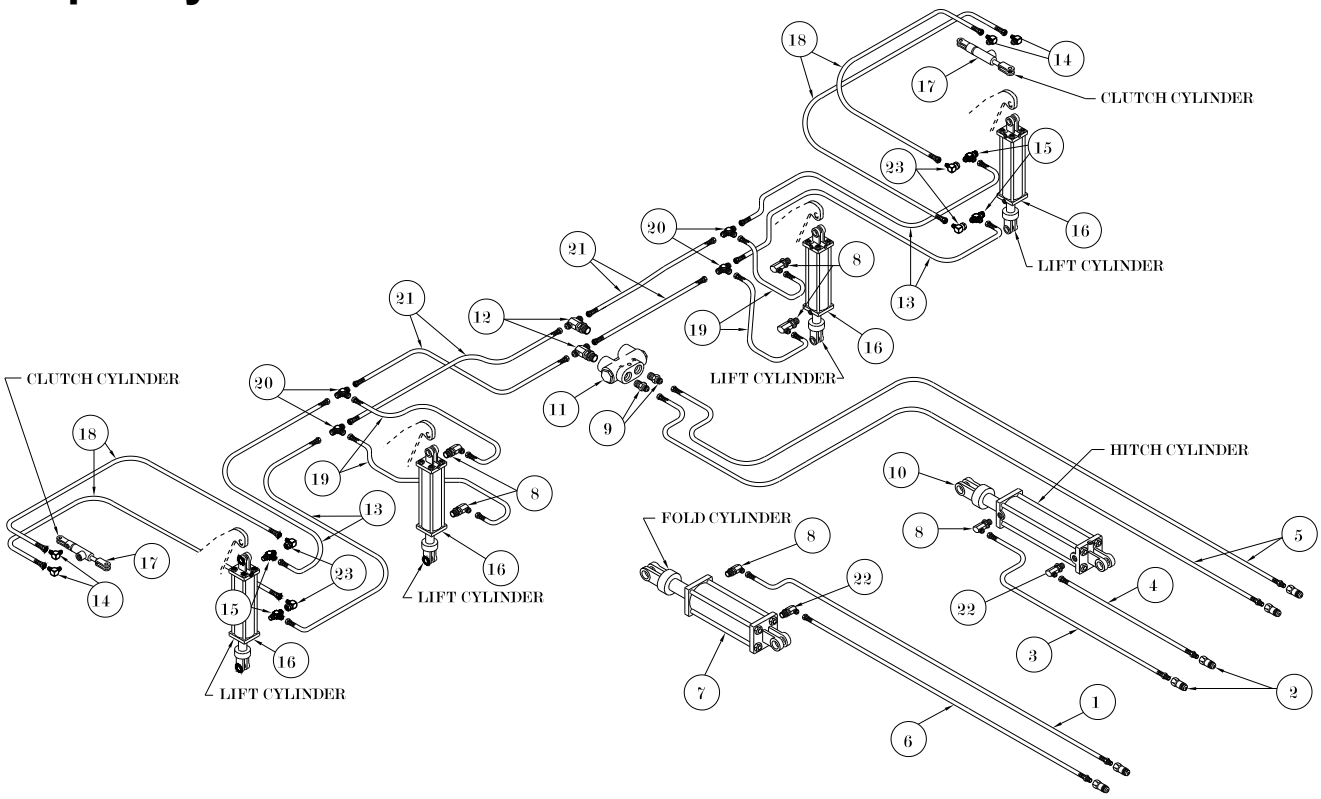
Item	Part No.	Description		
1	466748	Hose ½ x 84	3/4 MOR-FJSw	
2	465385	Hyd. Quick Coupler		
3	470385	Hose ½ x 174	3/4 MOR-FJSw	
4	470401	Hose ½ x 199	3/4 MOR-FJSw	
5	469858	Hose ½ x 220	3/4 FJSw	
6	469874	Hose ½ x 216	3/4 FJSw	
7	468843	Hose 1/2 x 182	3/4-16 FSw	
8	465310	Adapter 90°	3/4 MOR -3/4 JICM	
9	465294	Adapter Str	3/4 MOR -3/4 JICM	
10	470278	Selector Valve	3/4 JIC	
11	468421	Cylinder 4 x 10	3/4-16 SAE	
12	465286	Cylinder 5 x 20		
13	465104	Pilot Lock Hyd Valve		
14	465260	Adapter Tee	3/4MOR-3/4 JICM	
15	465229	Hose ½ x 100	3/4-16 FJSw	
16	471888	Adapter 90°	9/16 JICM -7/16 MOR	
17	471904	Adapter Run Tee	3/4 JICM - 3/4 MOR	
18	473215	Cylinder 4 x 8 3000 PSI		
19	471854	Cylinder 1 x 2		
20	471912	Hose 1/4 x 28	9/16 JICFSw	**4020**
	471920	Hose 1/4 x 54	9/16 JICFSw	**4025**
21	466862	Adapter 90° Rest.	3/4MOR -3/4JICM	
22	471896	Adapter 90°	9/16 JICM - 3/4 JICFSw	

4020 & 4025 Drill
Double Hydraulics w/Markers



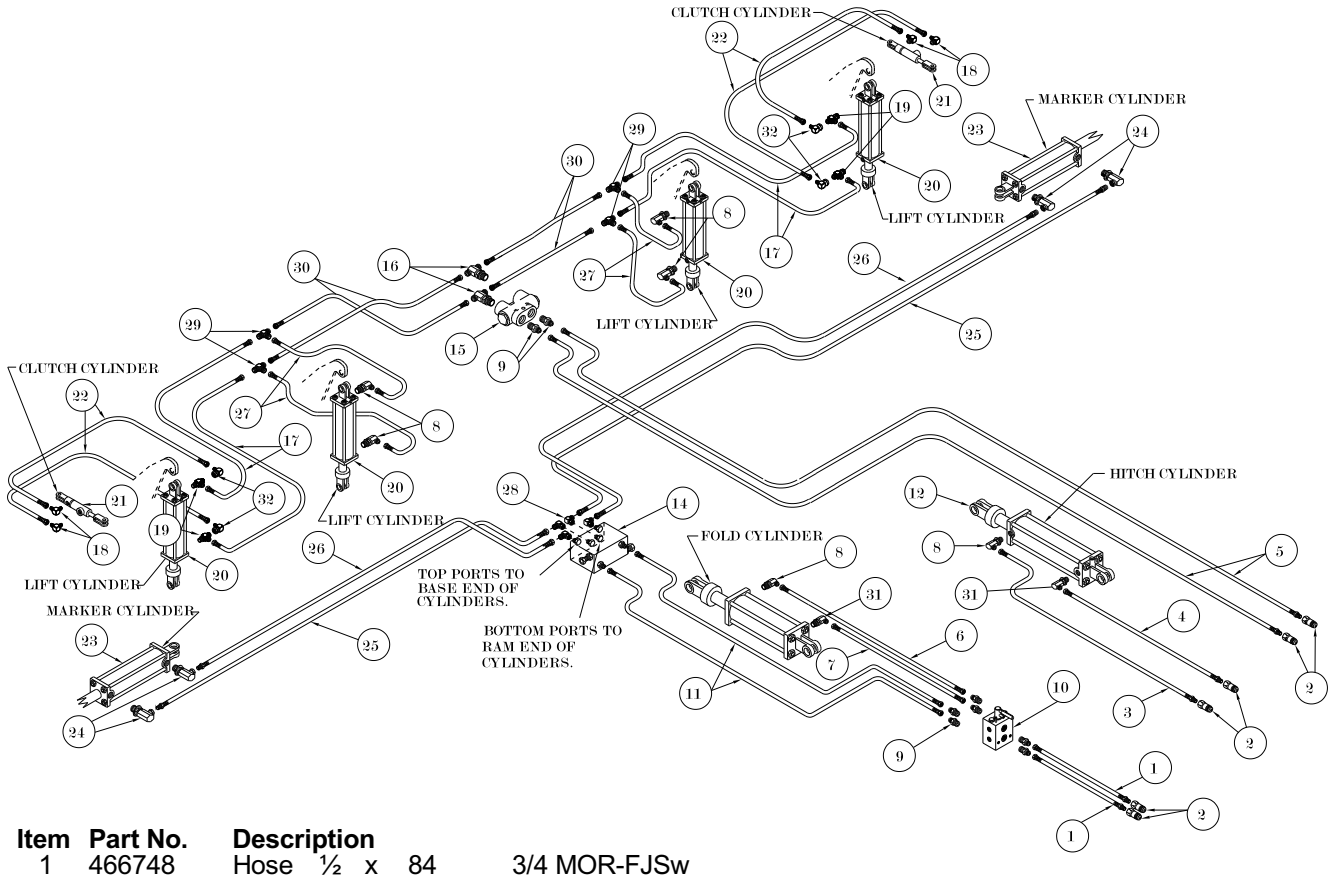
Item	Part No.	Description	
1	466748	Hose ½ x 84 3/4 MOR-FJSw	
2	465385	Hyd. Quick Coupler	
3	465450	Hose ½ x 18 3/4 FJSw	
4	465146	Hose ½ x 30 3/4 FJSw	
5	469858	Hose ½ x 220 3/4 FJSw	
6	469874	Hose ½ x 216 3/4 FJSw	
7	468843	Hose ½ x 182 3/4-16 FSw	
8	465310	Adapter 90° 3/4 MOR -3/4 JICM	
9	465294	Adapter Str 3/4 MOR -3/4 JICM	
10	470278	Selector Valve 3/4 JIC	
11	469544	Hose 3/8 x 210 3/4-16-9/16 FJSw	
12	468421	Cylinder 4 x 10 3/4-16 SAE	
13	465286	Cylinder 5 x 20	
15	469072	Shoemaker Sequence Hyd Valve	
16	465104	Pilot Lock Hyd Valve	
17	465260	Adapter Tee 3/4MOR-3/4 JICM	
18	465229	Hose ½ x 100 3/4-16 FJSw	
19	471888	Adapter 90° 9/16 JICM - 7/16 MOR	
20	471904	Adapter Run Tee 3/4 JICM - 3/4 MOR	
21	473215	Cylinder 4 x 8 3000 PSI	
22	471854	Cylinder 1 x 2	
23	471912	Hose 1/4 x 28 9/16 FJSw	**4020**
	471920	Hose 1/4 x 54 9/16 FJSw	**4025**
24	468173	Cylinder 3 x 20	
25	463539	Adapter 90° 1/2NPM-3/8NPFSw	
26	469551	Hose 3/8 x 198 3/8 MP-9/16FJSw	**4020**
	469510	Hose 3/8 x 223 3/8MP-9/16FJSw	**4025**
27	469593	Hose 3/8 x 180 3/8MP-9/16FJSw	**4020**
	469601	Hose 3/8 x 218 3/8MP-9/16FJSw	**4025**
28	469049	Adapter 90° 9/16 JICM - 9/16 JICFSw	
29	466862	Adapter 90° Rest. 3/4MOR -3/4JICM	
30	471896	Adapter 90° 9/16 JICM - 3/4 JICFSw	

4030 Drill
Triple Hydraulics



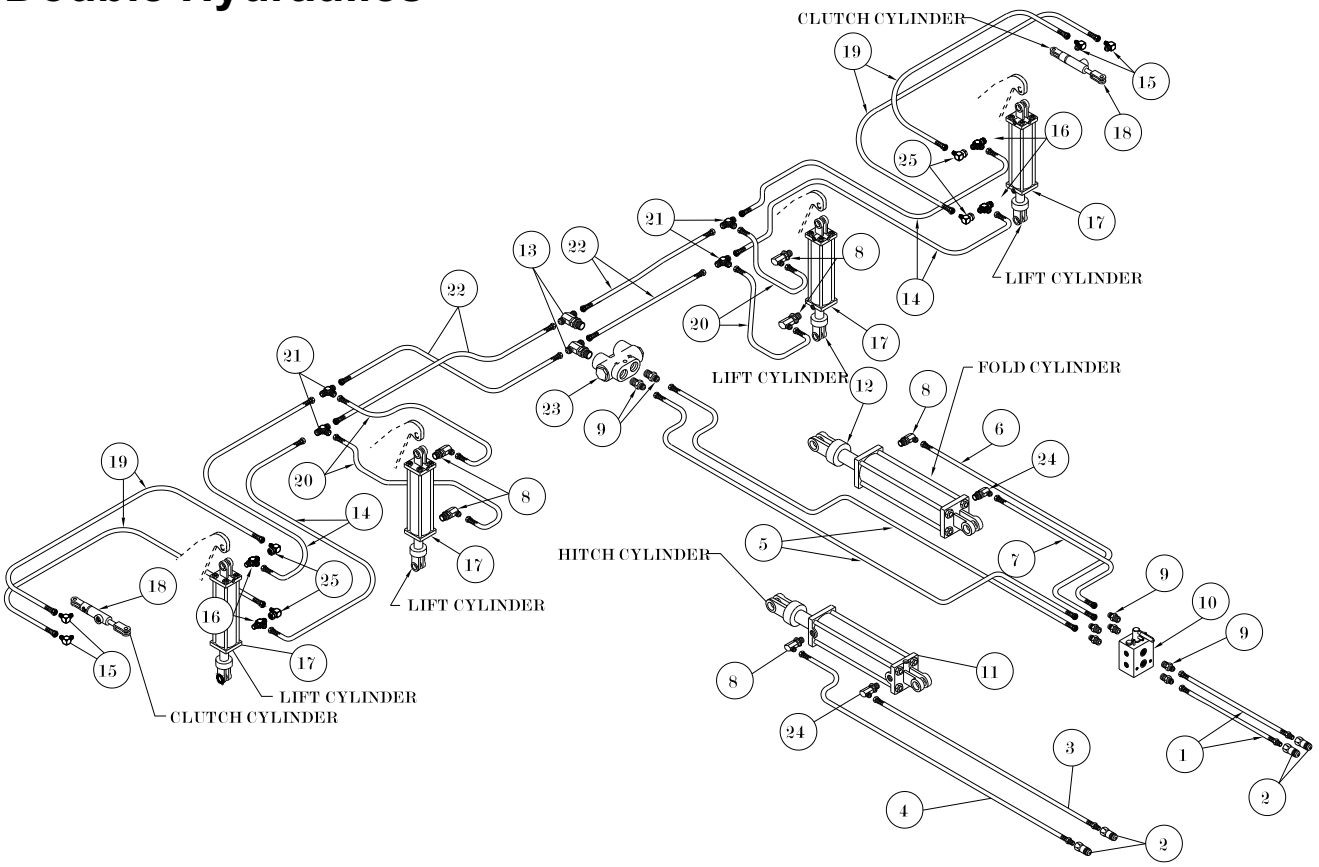
Item	Part No.	Description
1	470401	Hose ½ x 199 3/4 MOR-FJSw
2	465385	Hyd. Quick Coupler
3	468199	Hose ½ x 118 3/4MOR-3/4 FJSw
4	465666	Hose ½ x 108 3/4MOR-3/4FJSw
5	470393	Hose ½ x 274 3/4MOR-3/4 FJSw
6	470385	Hose ½ x 174 3/4MOR-3/4 FJSw
7	465286	Cylinder 5 x 20
8	465310	Adapter 90° 3/4 MOR -3/4 JICM
9	465294	Adapter Str 3/4 MOR -3/4 JICM
10	468421	Cylinder 4 x 10 3/4-16 SAE
11	465104	Pilot Lock Hydraulic Valve
12	465260	Adapter Tee 3/4MOR - 3/4JICM
13	466847	Hose ½ x 72 3/4 FJSw
14	471888	Adapter 90° 9/16JICM -7/16 MOR
15	471904	Adapter Run Tee 3/4 JICM-3/4 MOR
16	473215	Cylinder 4 x 8 3000 PSI
17	471854	Cylinder 1 x 2
18	471920	Hose 1/4 x 54 9/16 FJSw
19	469841	Hose ½ x 20 3/4FJSw
20	465278	Adapter Tee 3/4 JICM
21	469817	Hose ½ x 58 3/4 FJSw
22	466862	Adapter 90° Rest. 3/4MOR -3/4JICM
23	471896	Adapter 90° 9/16 JICM - 3/4 JICFSw

4030 Drill
Triple Hydraulics w/ Markers



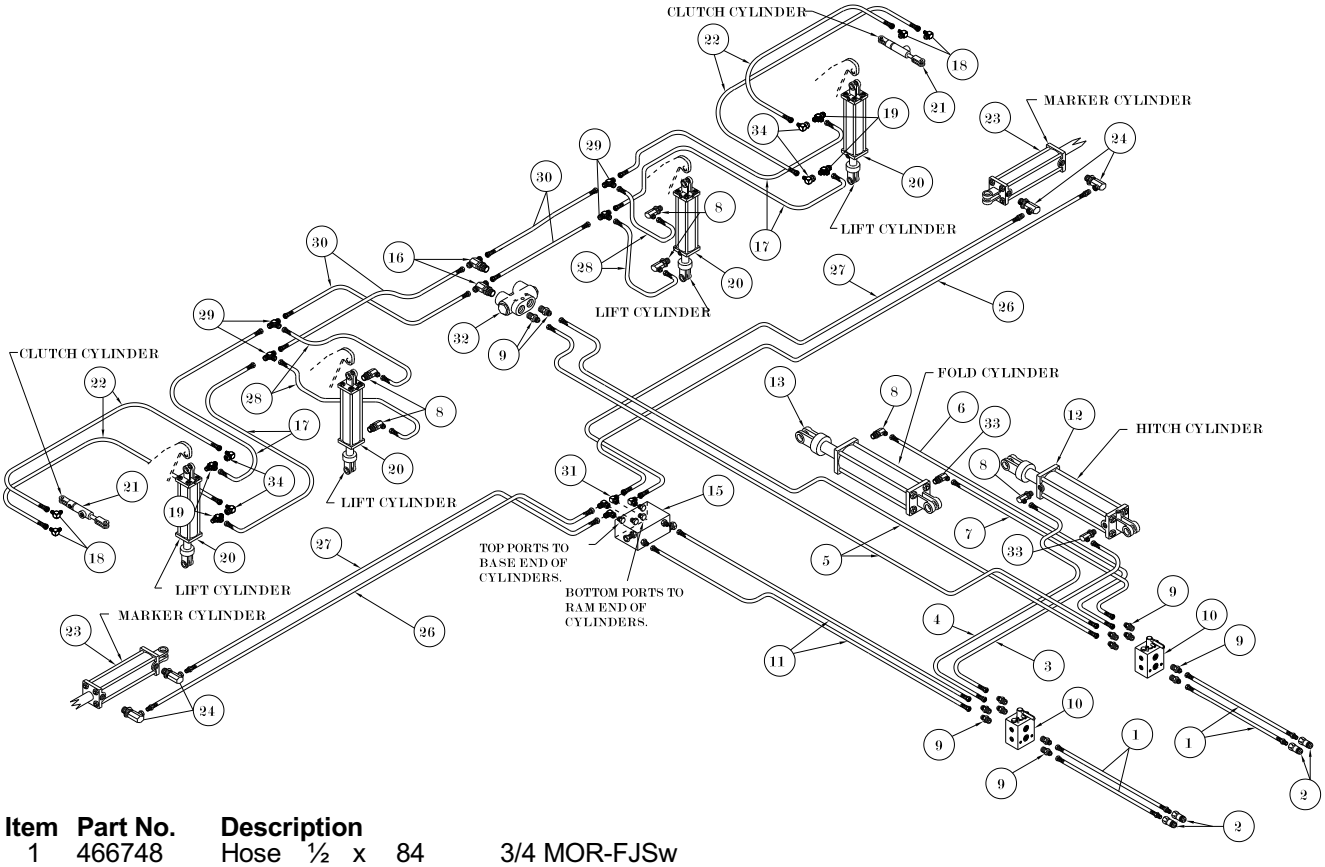
Item	Part No.	Description
1	466748	Hose ½ x 84 3/4 MOR-FJSw
2	465385	Hyd. Quick Coupler
3	468199	Hose ½ x 118 3/4MOR-3/4 FJSw
4	465666	Hose ½ x 108 3/4MOR-3/4 FJSw
5	470393	Hose ½ x 274 3/4MOR-3/4 FJSw
6	469874	Hose ½ x 216 3/4 FJSw
7	468843	Hose ½ x 182 3/4-16 FJSw
8	465310	Adapter 90° 3/4 MOR -3/4 JICM
9	465294	Adapter Str 3/4 MOR -3/4 JICM
10	470278	Selector Valve 3/4 JIC
11	469544	Hose 3/8 x 210 3/4-16-9/16FJSw
12	468421	Cylinder 4 x 10 3/4-16 SAE
13	465286	Cylinder 5 x 20
14	469072	Shoemaker Sequence Hyd Valve
15	465104	Pilot Lock Hyd Valve
16	465260	Adapter Tee 3/4MOR-3/4JICM
17	466847	Hose ½ x 72 3/4-16FJSw
18	471888	Adapter 90° 9/16 JICM - 7/16 MOR
19	471904	Adapter Run Tee 3/4 JICM - 3/4 MOR
20	473215	Cylinder 4 x 8 3000 PSI
21	471854	Cylinder 1 x 2
22	471920	Hose 1/4 x 54 9/16 FJSw
23	468173	Cylinder 3 x 20
24	463539	Adapter 90° 1/2NPM-3/8NPFSw
25	470153	Hose 3/8 x 252 3/8MP-9/16FJSw
26	470161	Hose 3/8 x 246 3/8MP-9/16FJSw
27	469841	Hose ½ x 20 3/4 FJSw
28	469049	Adapter 90° 9/16 JICM - 9/16 JICFSw
29	465278	Adapter Tee 3/4 JICM
30	469817	Hose ½ x 58 3/4FJSw
31	466862	Adapter 90° Rest. 3/4MOR -3/4JICM
32	471896	Adapter 90° 9/16 JICM - 3/4 JICFSw

4030 Drill
Double Hydraulics



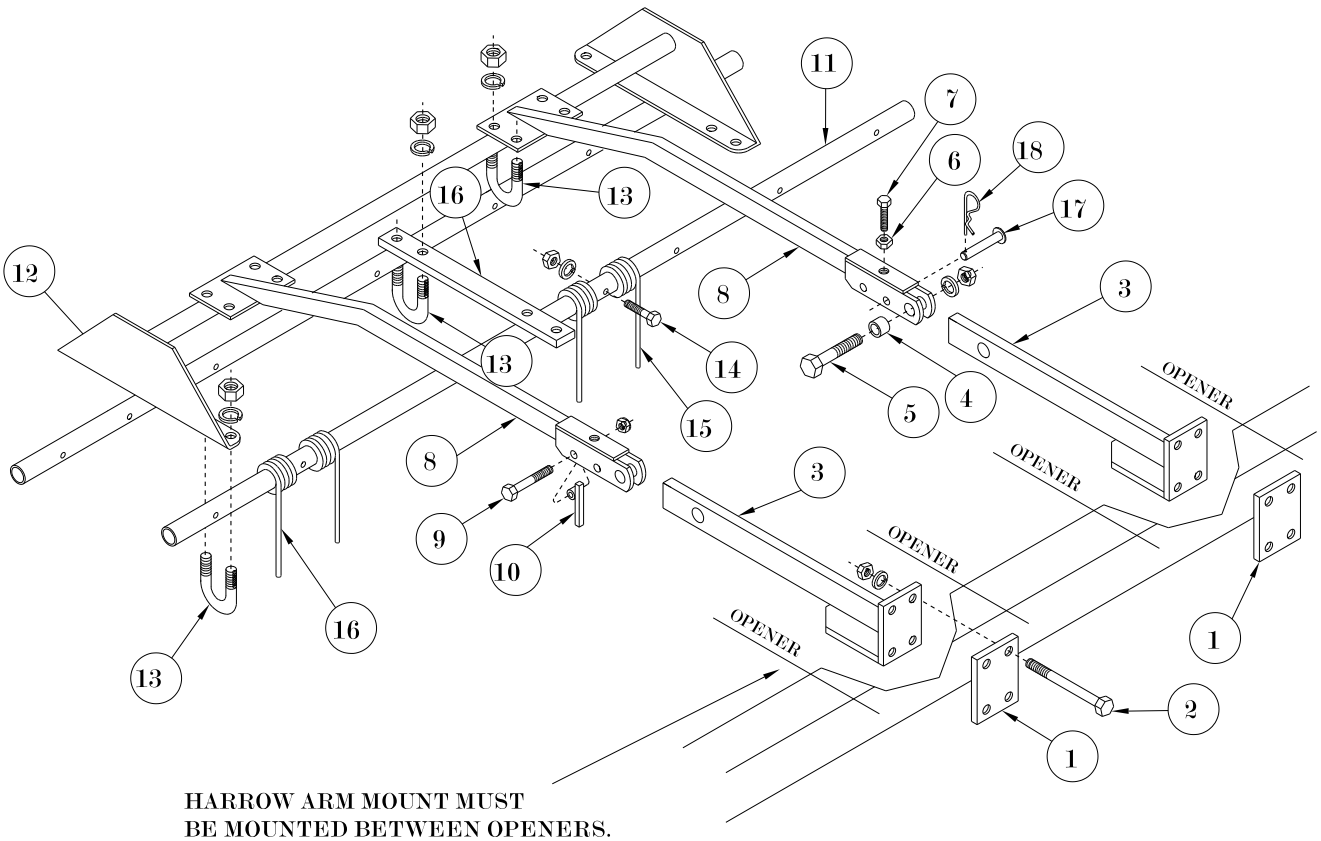
Item	Part No.	Description
1	466748	Hose ½ x 84 3/4 MOR-FJSw
2	465385	Hyd. Quick Coupler
3	470385	Hose ½ x 174 3/4 MOR-FJSw
4	470401	Hose ½ x 199 3/4 MOR-FJSw
5	469858	Hose ½ x 220 3/4 FJSw
6	469874	Hose ½ x 216 3/4 FJSw
7	468843	Hose ½ x 182 3/4-16 FSw
8	465310	Adapter 90° 3/4 MOR -3/4 JICM
9	465294	Adapter Str 3/4 MOR -3/4 JICM
10	470278	Selector Valve 3/4JIC
11	468421	Cylinder 4 x 10 3/4-16 SAE
12	465286	Cylinder 5 x 20
13	465260	Adapter Tee 3/4MOR-3/4 JICM
14	466847	Hose ½ x 72 3/4-16FJSw
15	471888	Adapter 90° 9/16 JICM - 7/16 MOR
16	471904	Adapter Run Tee 3/4 JICM - 3/4 MOR
17	473215	Cylinder 4 x 8 3000 PSI
18	471854	Cylinder 1 x 2
19	471920	Hose 1/4 x 54 9/16 FJSw
20	469841	Hose ½ x 20 3/4 FJSw
21	465278	Adapter Tee 3/4 JICM
22	469817	Hose ½ x 58 3/4 FJSw
23	465104	Pilot Lock Hydraulic Valve
24	466862	Adapter 90° Rest. 3/4MOR-3/4JICM
25	471896	Adapter 90° 9/16 JICM - 3/4 JICFSw

4030 Drill
Double Hydraulics w/Markers



Item	Part No.	Description
1	466748	Hose ½ x 84 3/4 MOR-FJSw
2	465385	Hyd. Quick Coupler
3	465450	Hose ½ x 18 3/4 FJSw
4	465146	Hose ½ x 30 3/4 FJSw
5	469858	Hose ½ x 220 3/4 FJSw
6	469874	Hose ½ x 216 3/4 FJSw
7	468843	Hose ½ x 182 3/4-16 FSw
8	465310	Adapter 90° 3/4 MOR -3/4 JICM
9	465294	Adapter Str 3/4 MOR -3/4 JICM
10	470278	Selector Valve 3/4JIC
11	469544	Hose 3/8 x 210 3/4-16-9/16 FJSw
12	468421	Cylinder 4 x 10 3/4-16 SAE
13	465286	Cylinder 5 x 20
15	469072	Shoemaker Sequence Hyd Valve
16	465260	Adapter Tee 3/4MOR-3/4 JICM
17	466847	Hose ½ x 72 3/4-16FJSw
18	471888	Adapter 90° 9/16 JICM - 7/16 MOR
19	471904	Adapter Run Tee 3/4 JICM - 3/4MOR
20	473215	Cylinder 4 x 8 3000 PSI
21	471854	Cylinder 1 x 2
22	471920	Hose 1/4 x 54 9/16 FJSw
23	468173	Cylinder 3 x 20
24	463539	Adapter 90° 1/2NPM-3/8NPFSw
26	470153	Hose 3/8 x 252 3/8MP-9/16FJSw
27	470161	Hose 3/8 x 246 3/8 MP-9/16FJSw
28	469841	Hose ½ x 20 3/4 FJSw
29	465278	Adapter Tee 3/4 JICM
30	469817	Hose ½ x 58 3/4 FJSw
31	469049	Adapter 90° 9/16 JICM - 9/16 JICFSw
32	465104	Pilot Lock Hydraulic Valve
33	466862	Adapter 90° Rest. 3/4MOR-3/4JICM
34	471896	Adapter 90° 9/16 JICM - 3/4 JICFSw

4000 Spring Tine Harrow

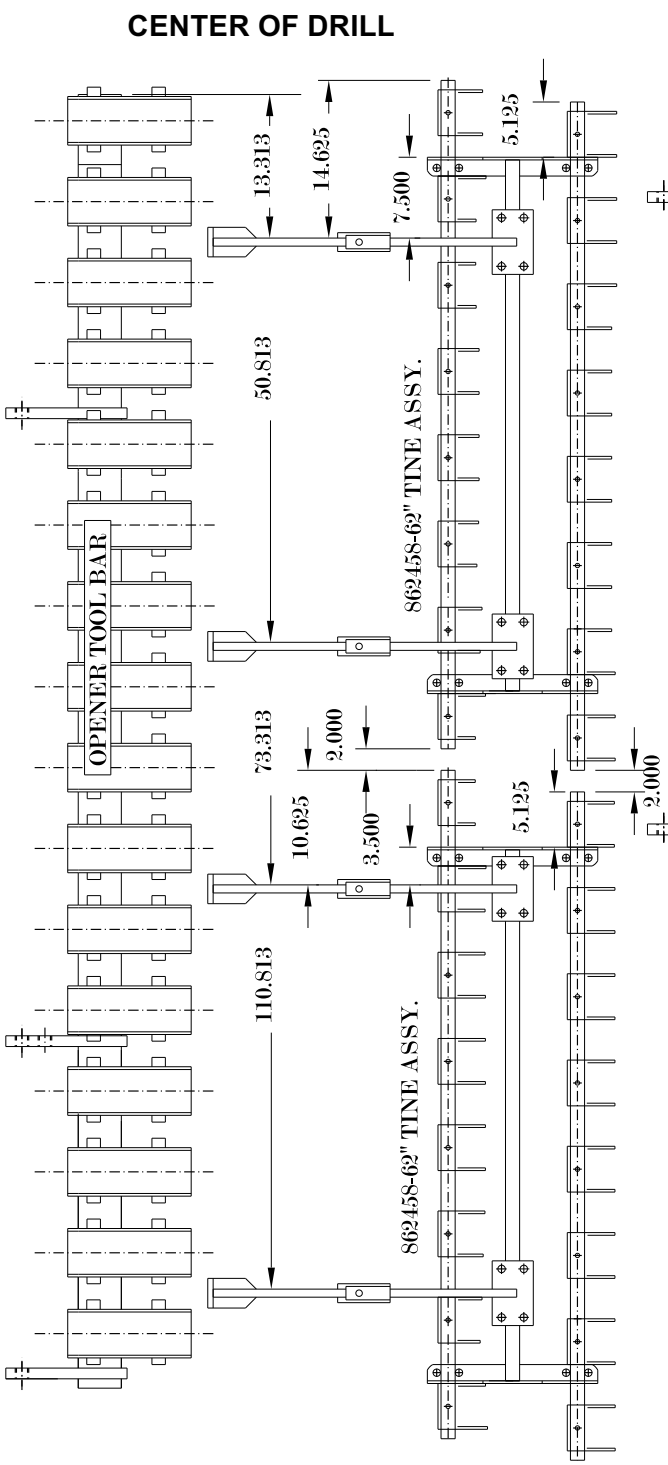


Item	Part No.	Description
1	959288	Bolt Plate
2	334458	HHCS 1/2" x 6" Gr 5
	330142	Lock washer ½"
	330134	Hex nut ½"
3	976910	Harrow Arm Mount
	959254	**(Prior 2006)**
4	151050	Bushing
5	336321	HHCS 5/8" x 2 1/4" Gr 5
	330878	Lock washer 5/8"
	330571	Hex nut 5/8"
6	331538	Jam nut 5/8"
7	337584	Harrow Adj Bolt 5/8" x 2" Gr 8
8	959262	Harrow Arm Weldment
9	334243	HHCS 3/8" x 2" Gr 5
	330837	Hex Nylock 3/8"
10	959270	Harrow Lock Weldment

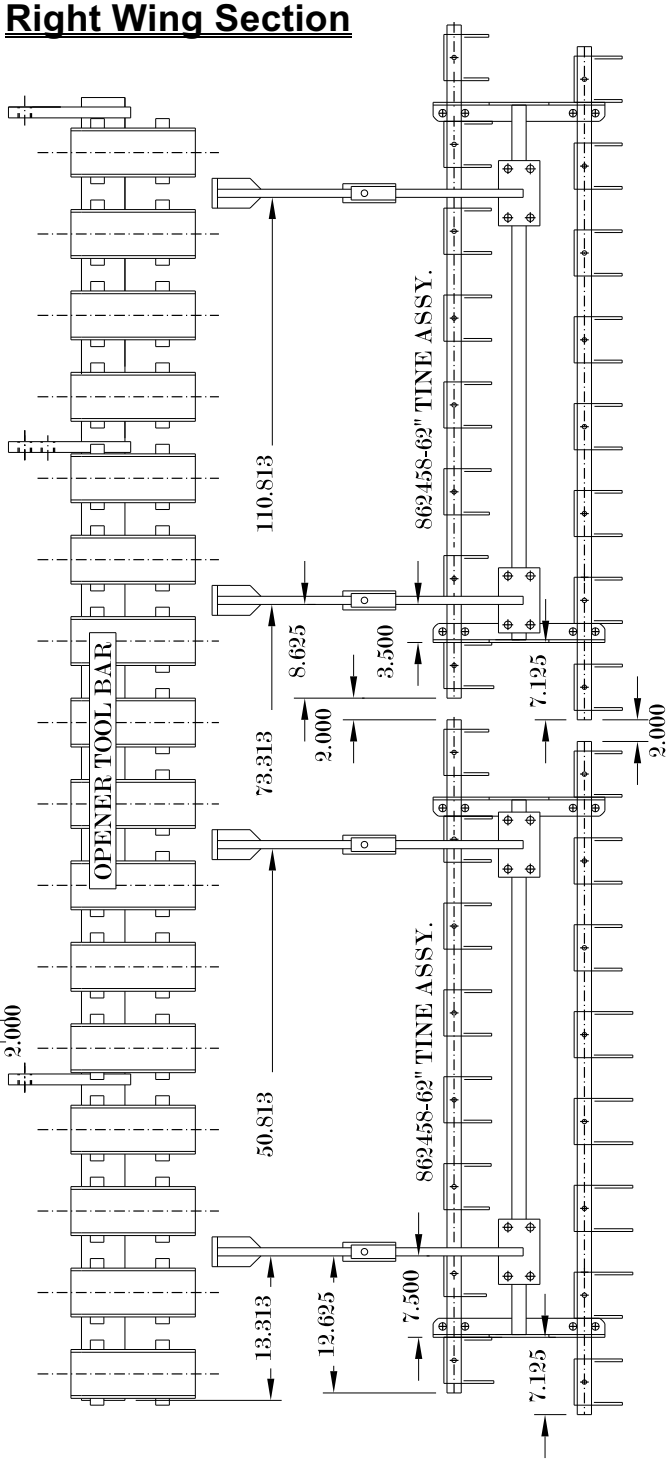
Item	Part No.	Description
11	149849	Harrow Pipe 94" (Center & Outside Wings)
	149476	Harrow Pipe 78" (Inside Wings Only)
12	956987	Tine Gang Bar-Long
	955245	Tine Gang Bar-Short
13	336032	U-bolt 5/8" x 1 3/8" x 2 9/16"
	330878	Lock washer 5/8"
	330571	Hex nut 5/8"
14	334243	HHCS 3/8" x 2" Gr 5
	330043	Lock washer 3/8"
	330035	Hex nut 3/8"
15	501544	Harrow Tine 11"
16	202226	Adjustment Plate
17	954024	Transport Pin
18	330860	Hairpin 5/32"

Harrow Layouts - 4020 x 7½" Spacing

Left Wing Section



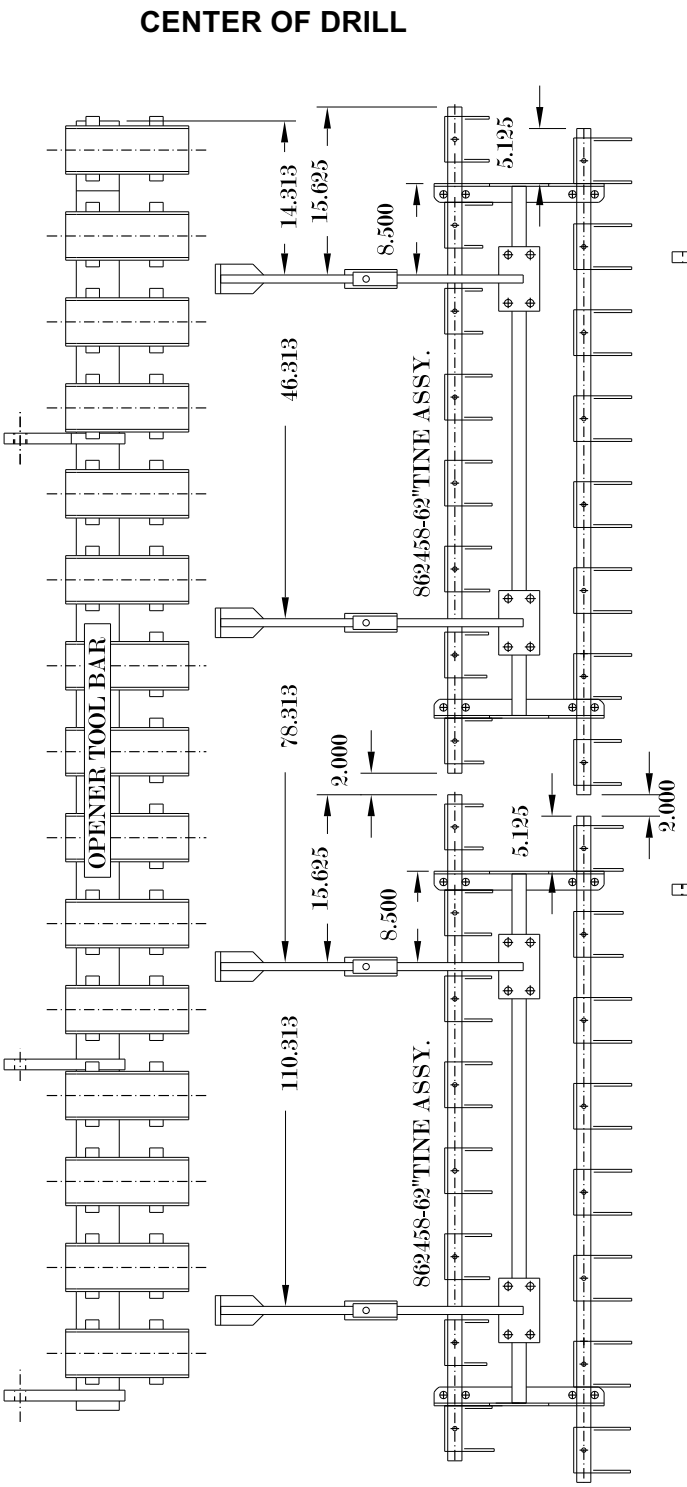
Right Wing Section



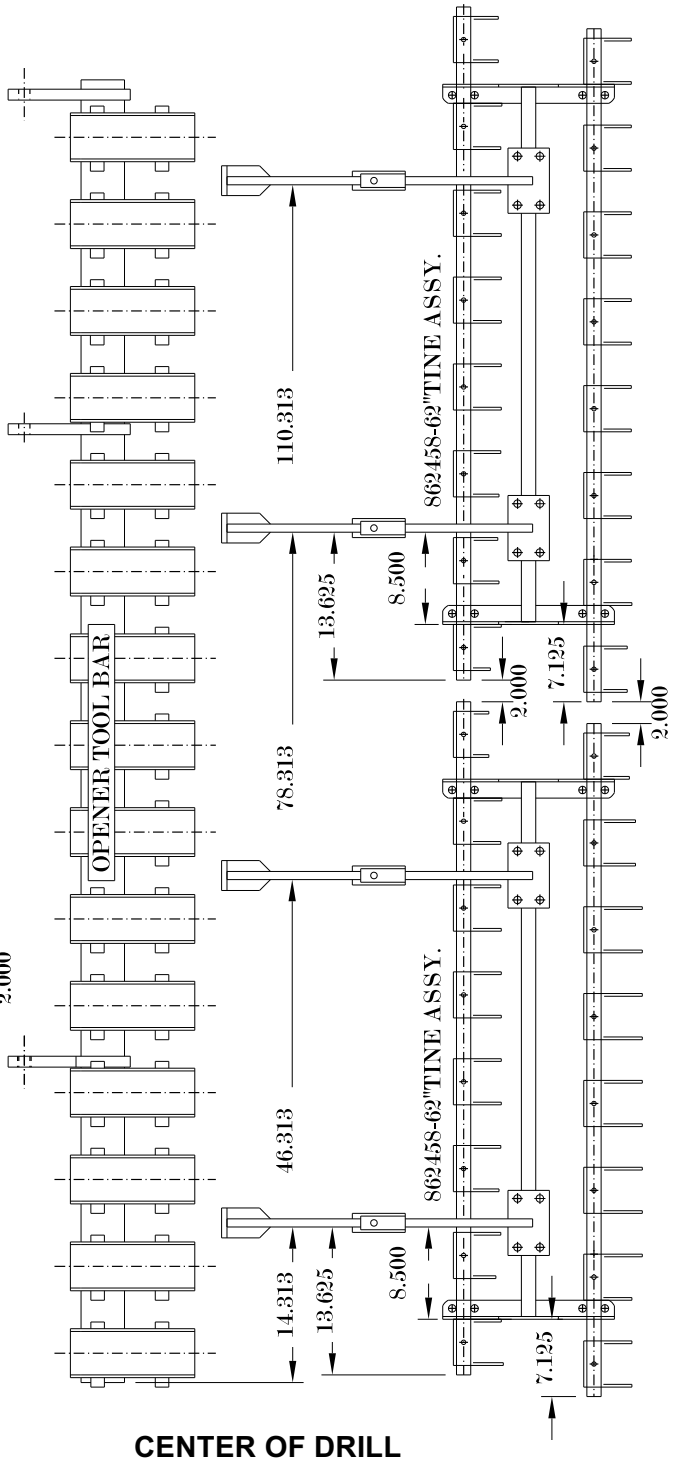
All Dimension Tolerances are ±⅛"
View is Looking from Back of Drill

Harrow Layouts - 4020 x 8" Spacing

Left Wing Section



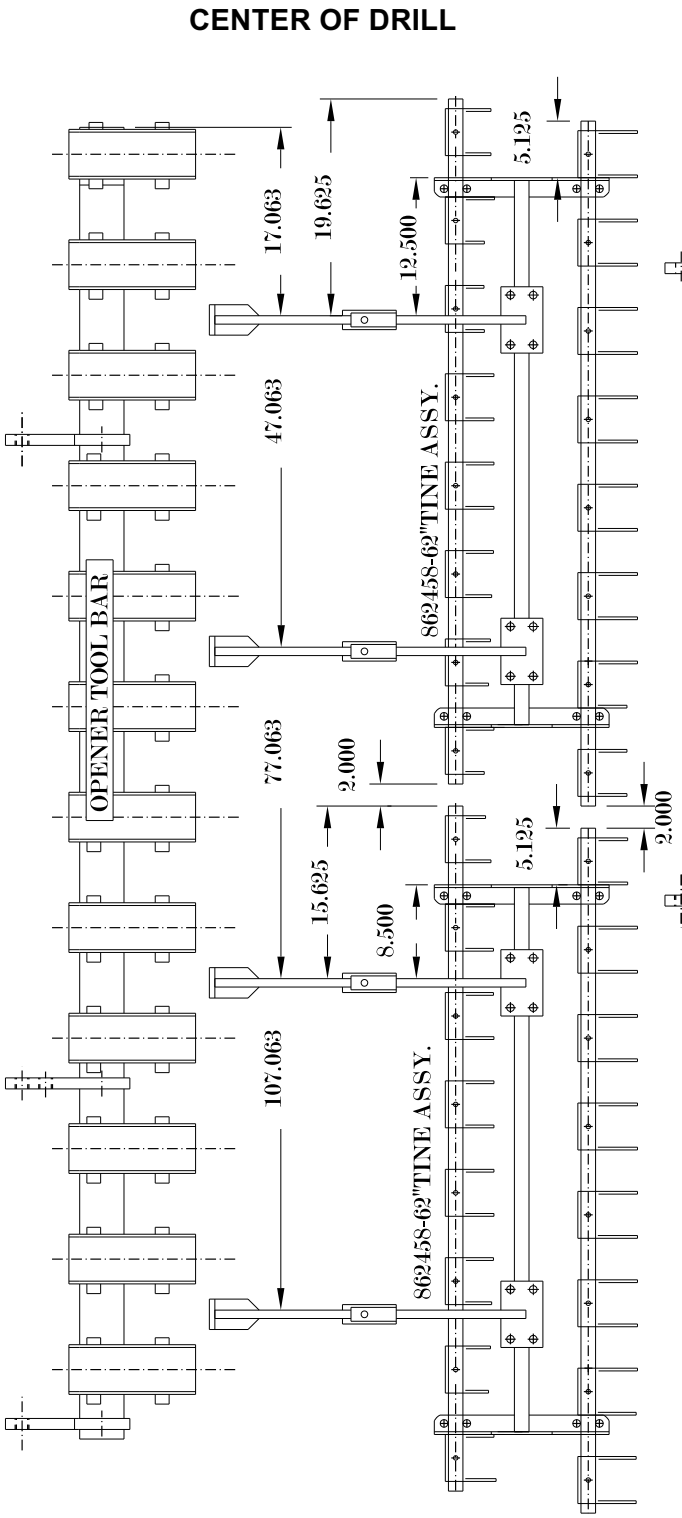
Right Wing Section



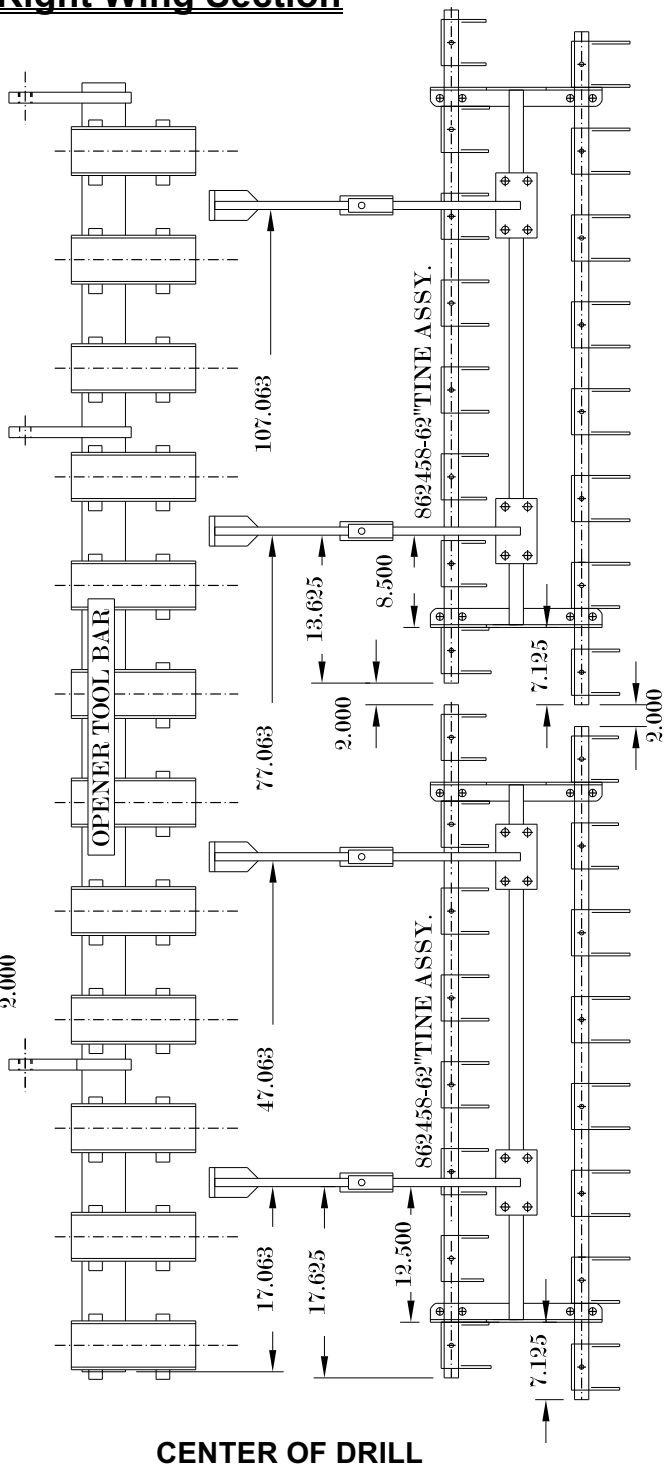
All Dimension Tolerances are ±⅛"
View is Looking from Back of Drill

Harrow Layouts - 4020 x 10" Spacing

Left Wing Section



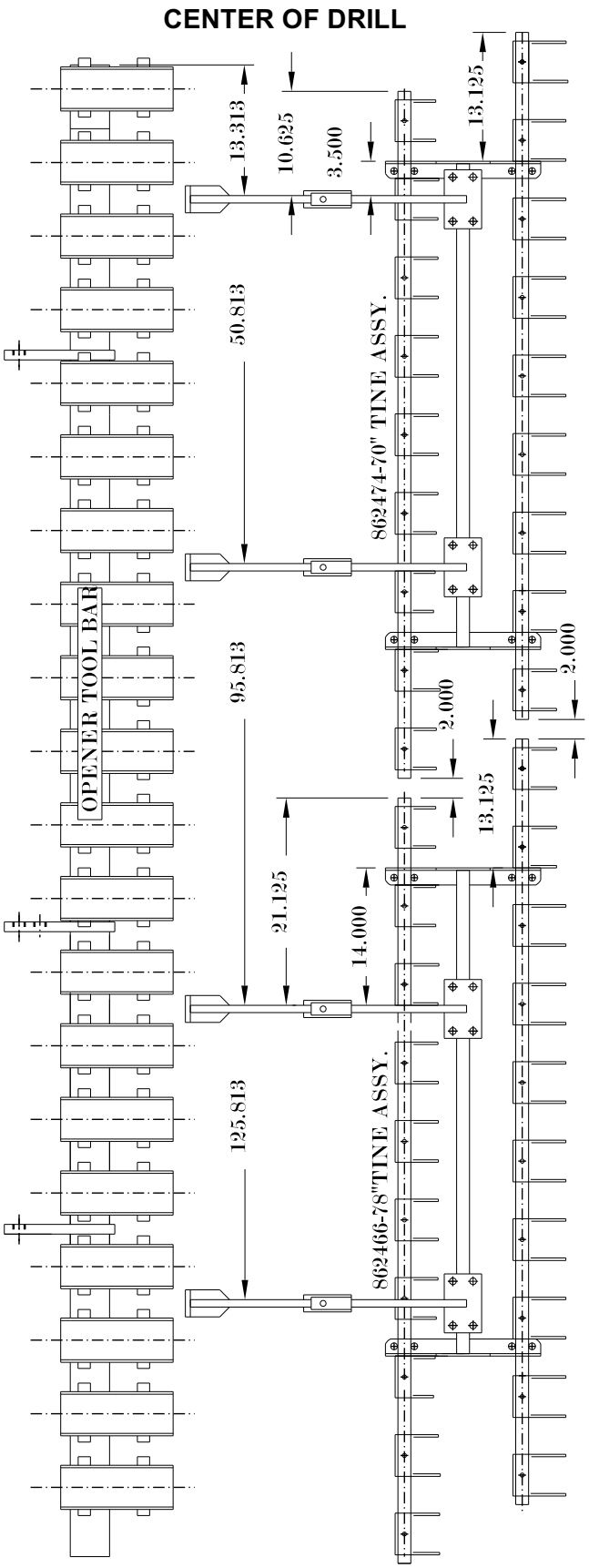
Right Wing Section



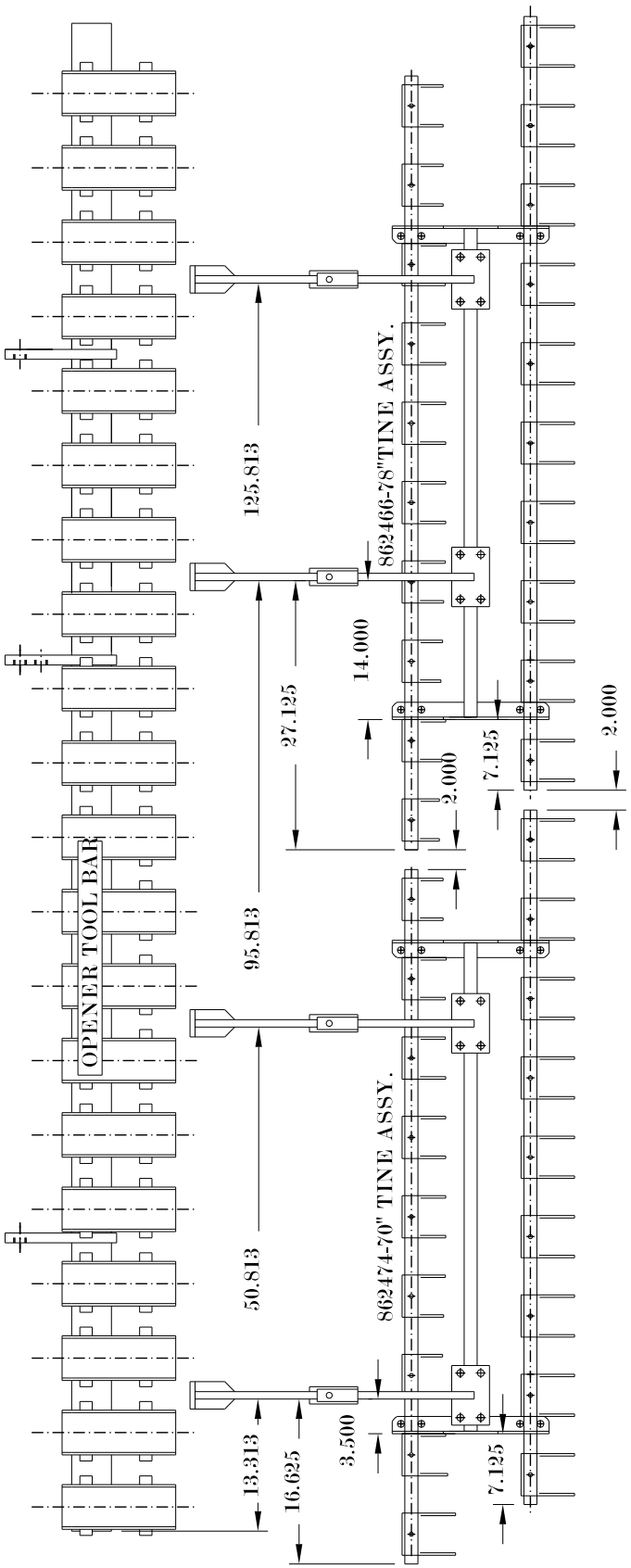
All Dimension Tolerances are ±⅛"
View is Looking from Back of Drill

Harrow Layouts - 4025 x 7½" Spacing

Left Wing Section



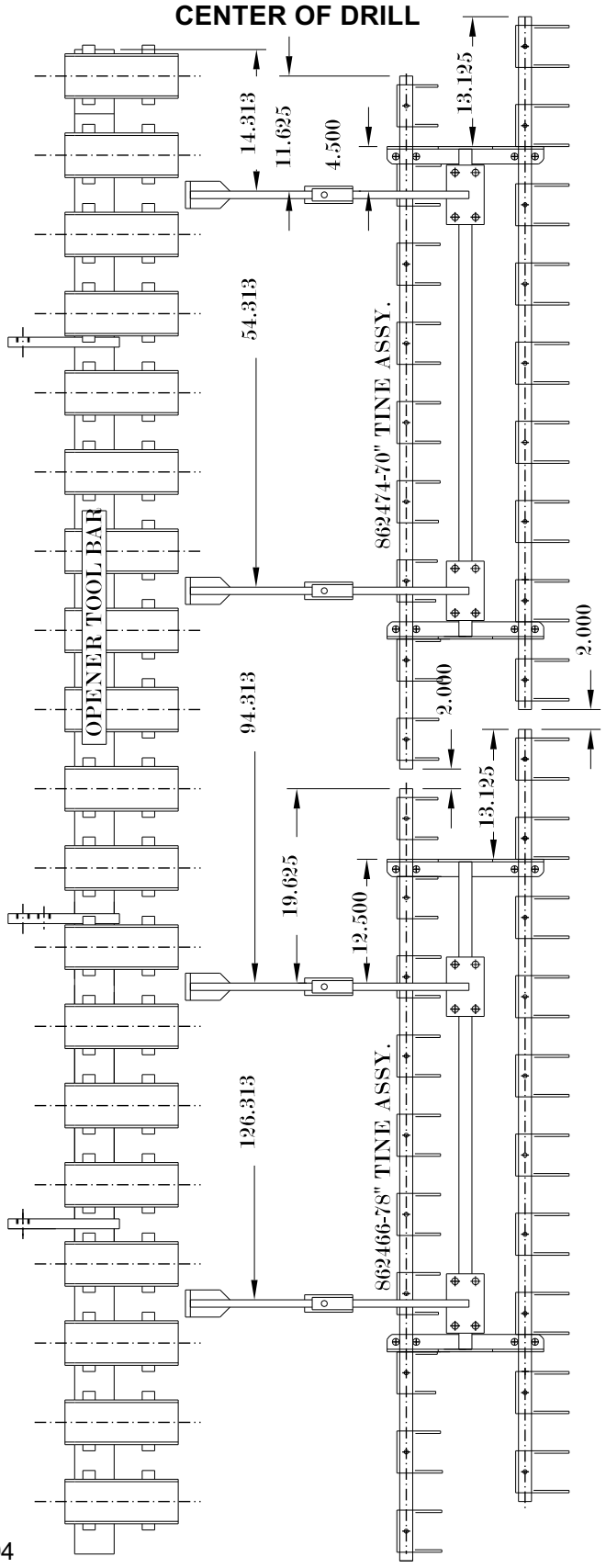
Right Wing Section



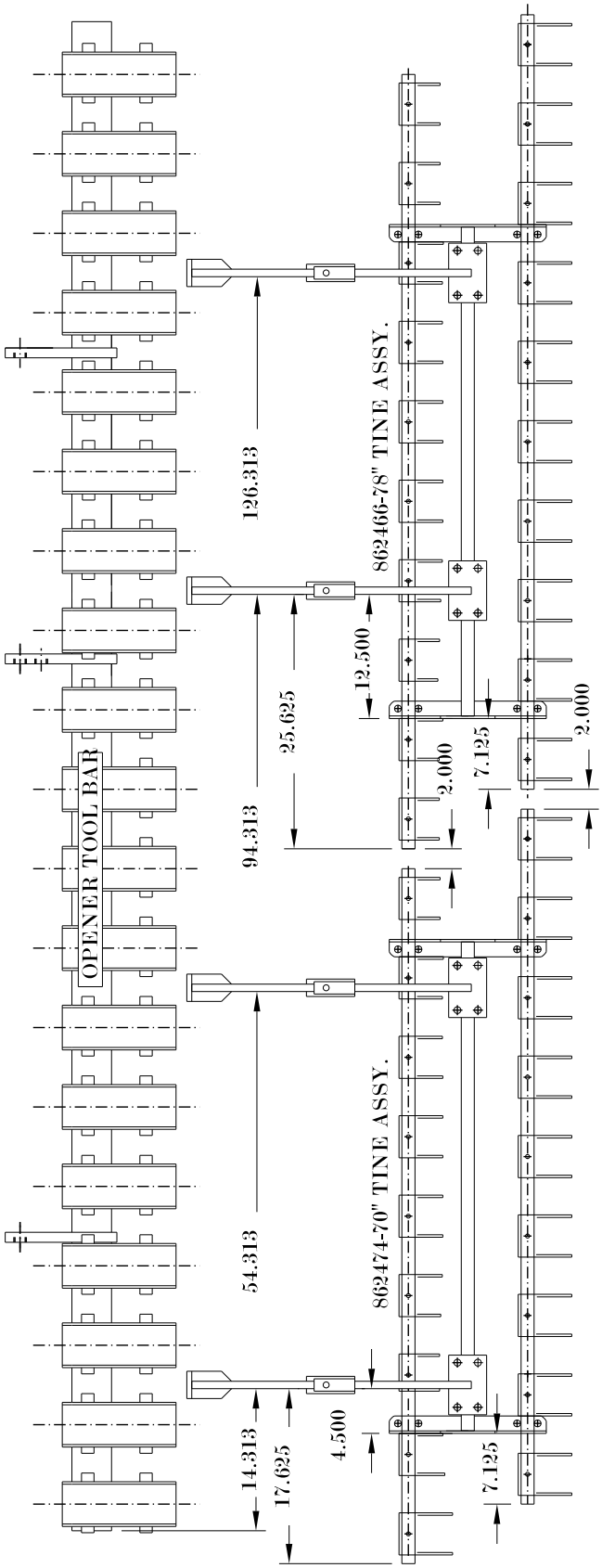
All Dimension Tolerances are ±⅛"
View is Looking from Back of Drill

Harrow Layouts - 4025 x 8" Spacing

Left Wing Section



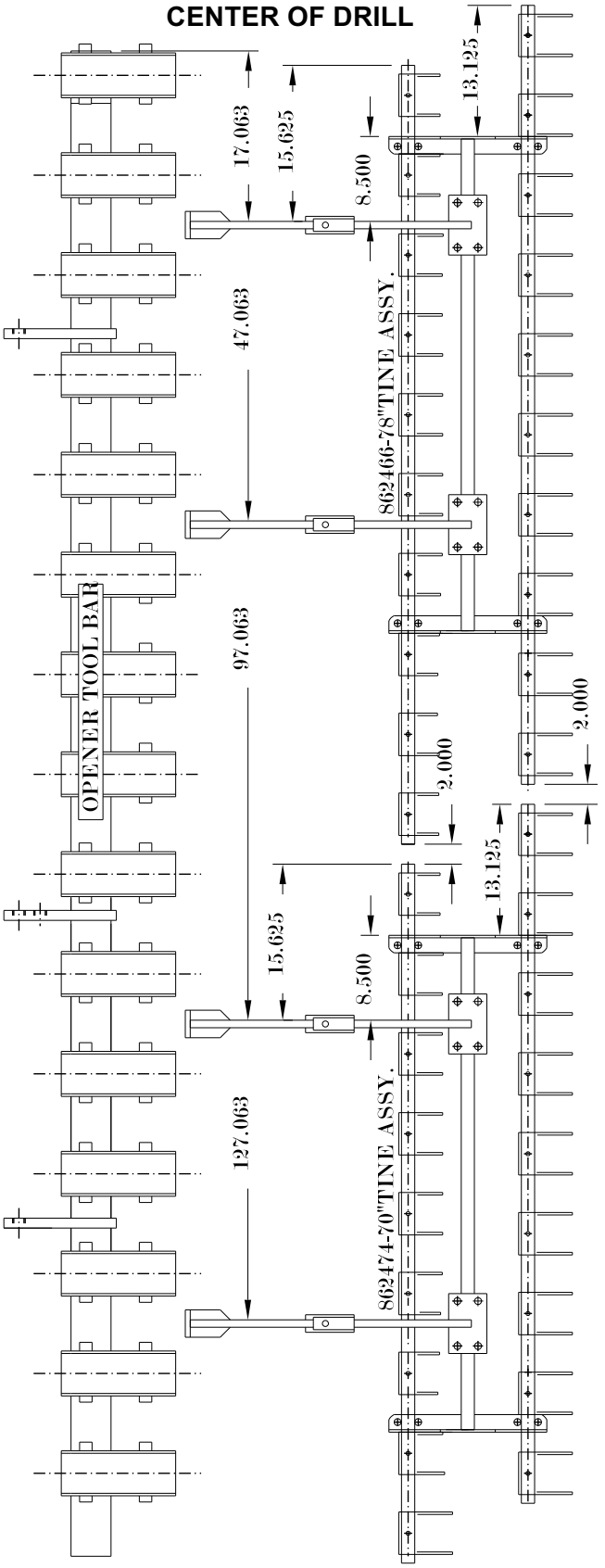
Right Wing Section



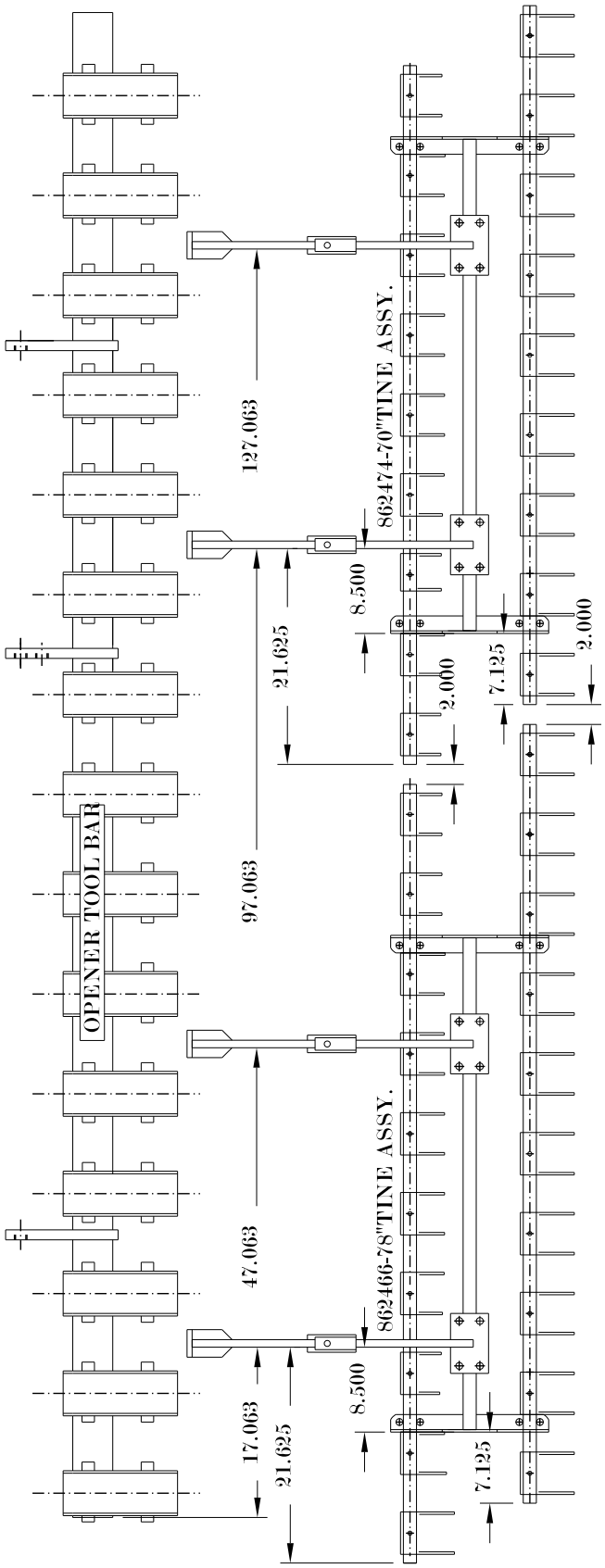
All Dimension Tolerances are ±⅛"
View is Looking from Back of Drill

Harrow Layouts - 4025 x 10" Spacing

Left Wing Section



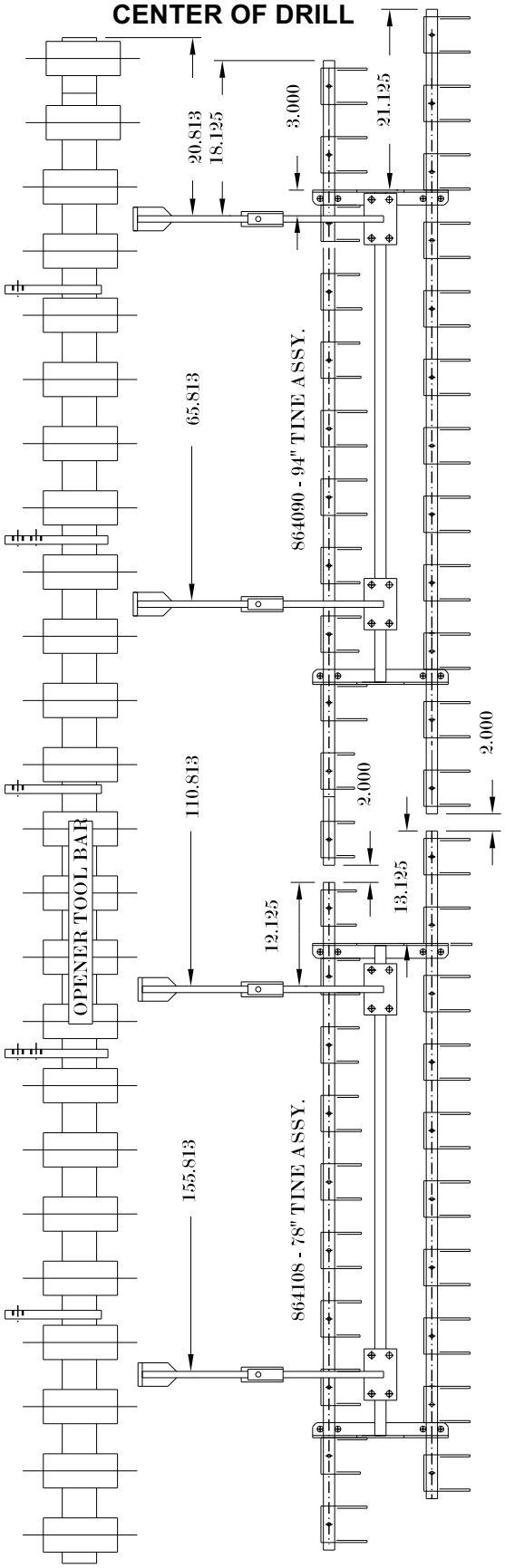
Right Wing Section



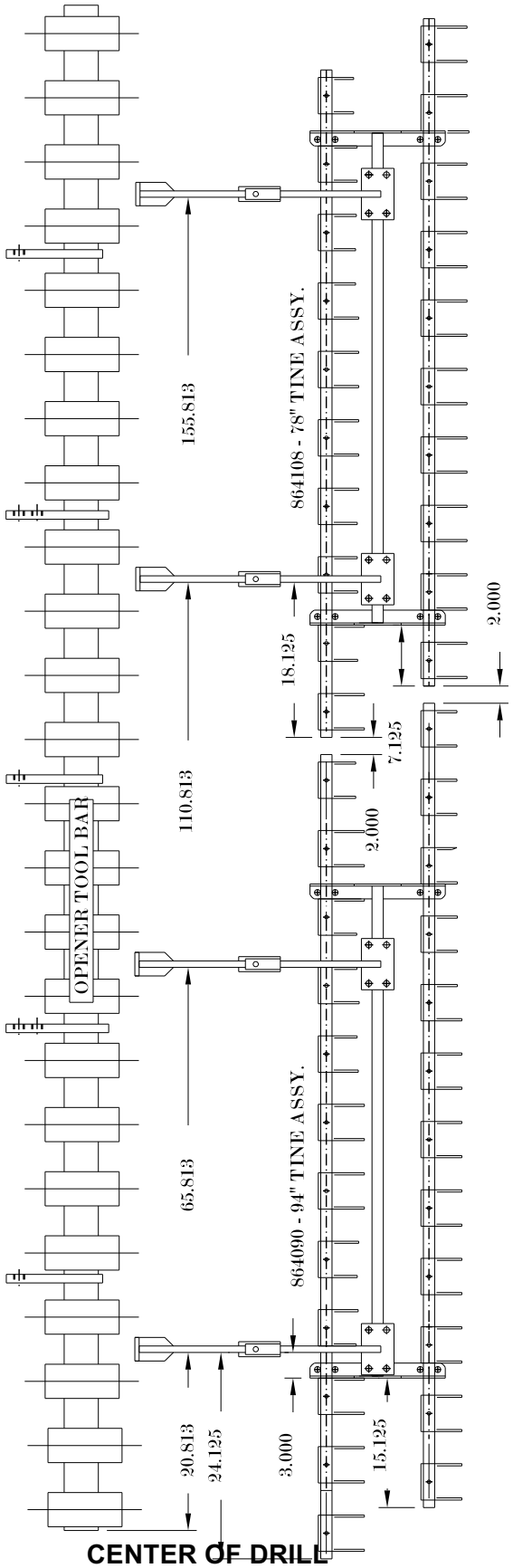
All Dimension Tolerances are ±⅛"
View is Looking from Back of Drill

Harrow Layouts - 4030 x 7½" Spacing

Left Wing Section



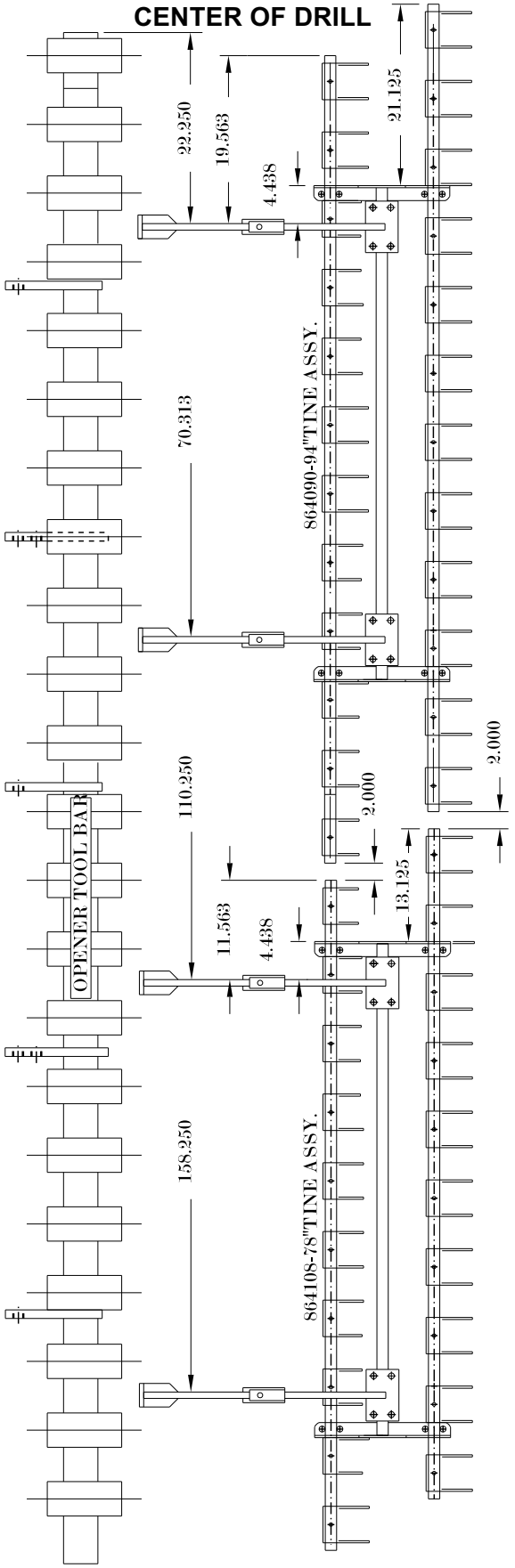
Right Wing Section



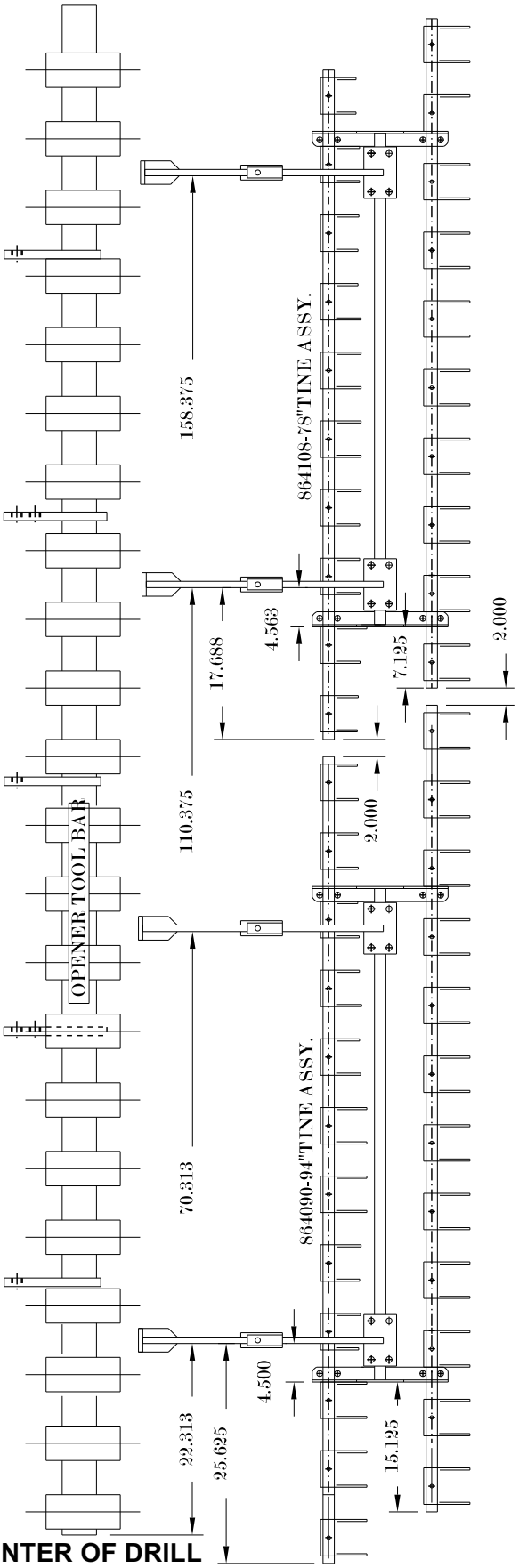
All Dimension Tolerances are ±⅛"
View is Looking from Back of Drill

Harrow Layouts - 4030 x 8" Spacing

Left Wing Section



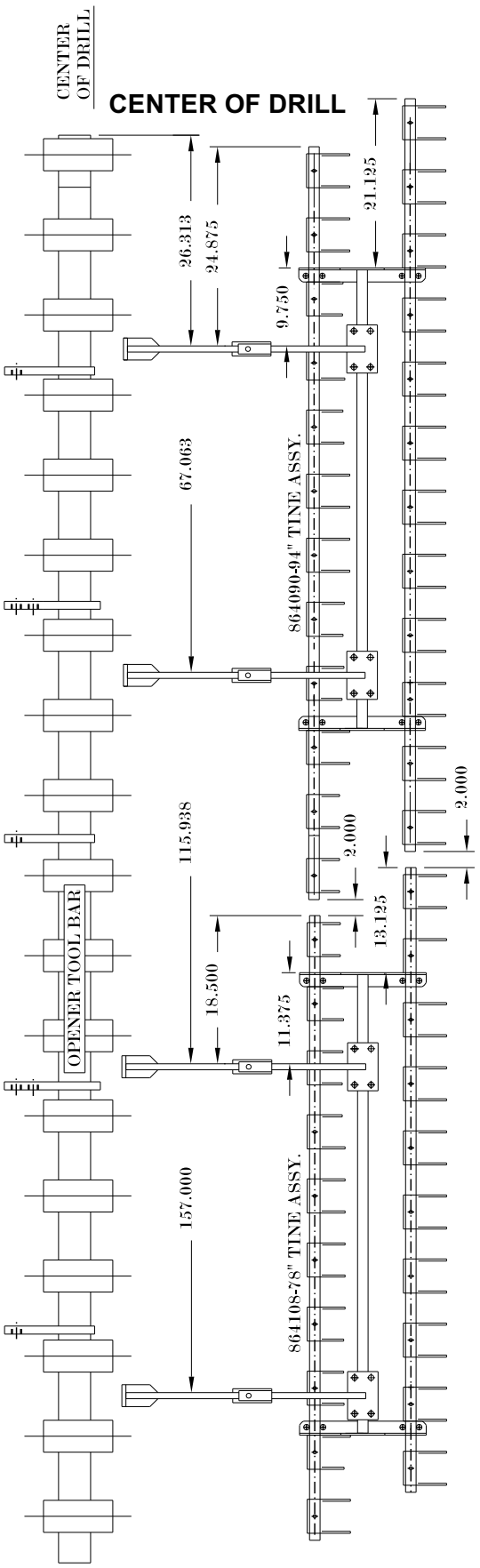
Right Wing Section



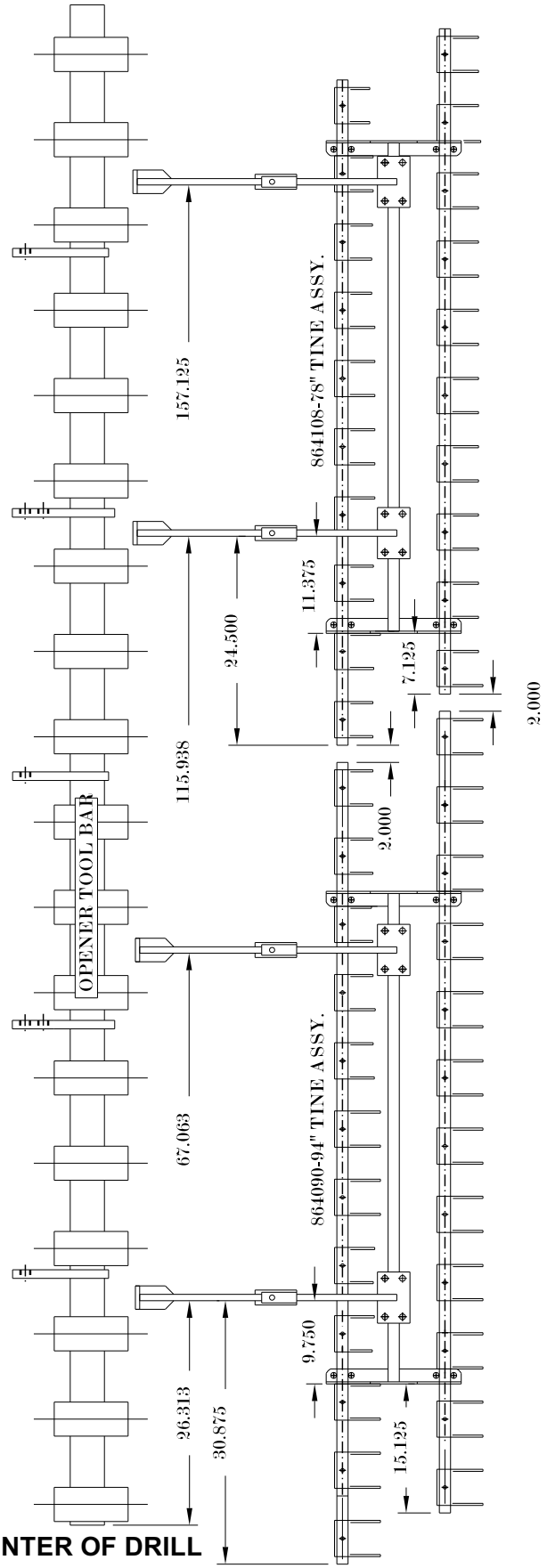
All Dimension Tolerances are ±⅛"
View is Looking from Back of Drill

Harrow Layouts - 4030 x 10" Spacing

Left Wing Section

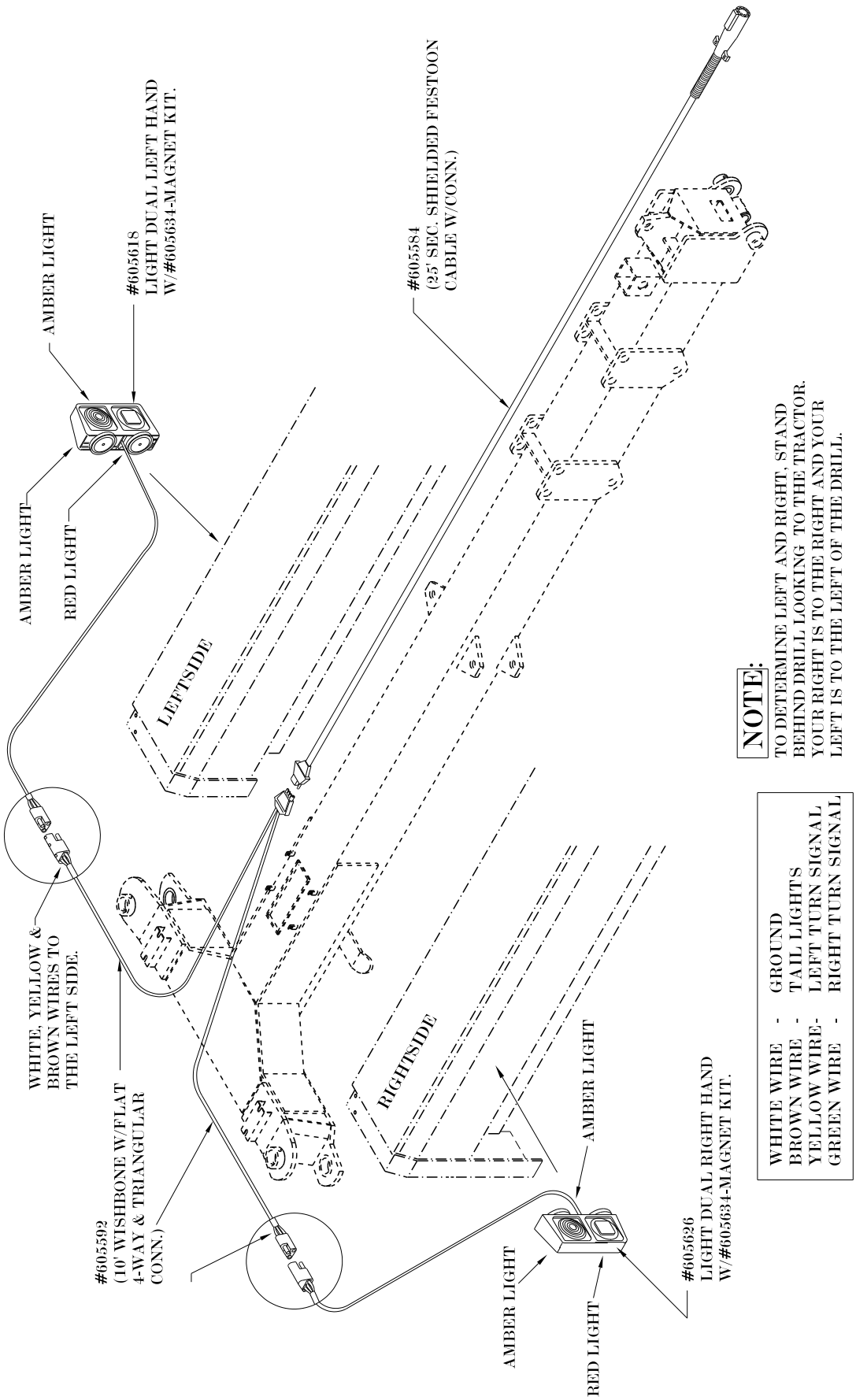


Right Wing Section



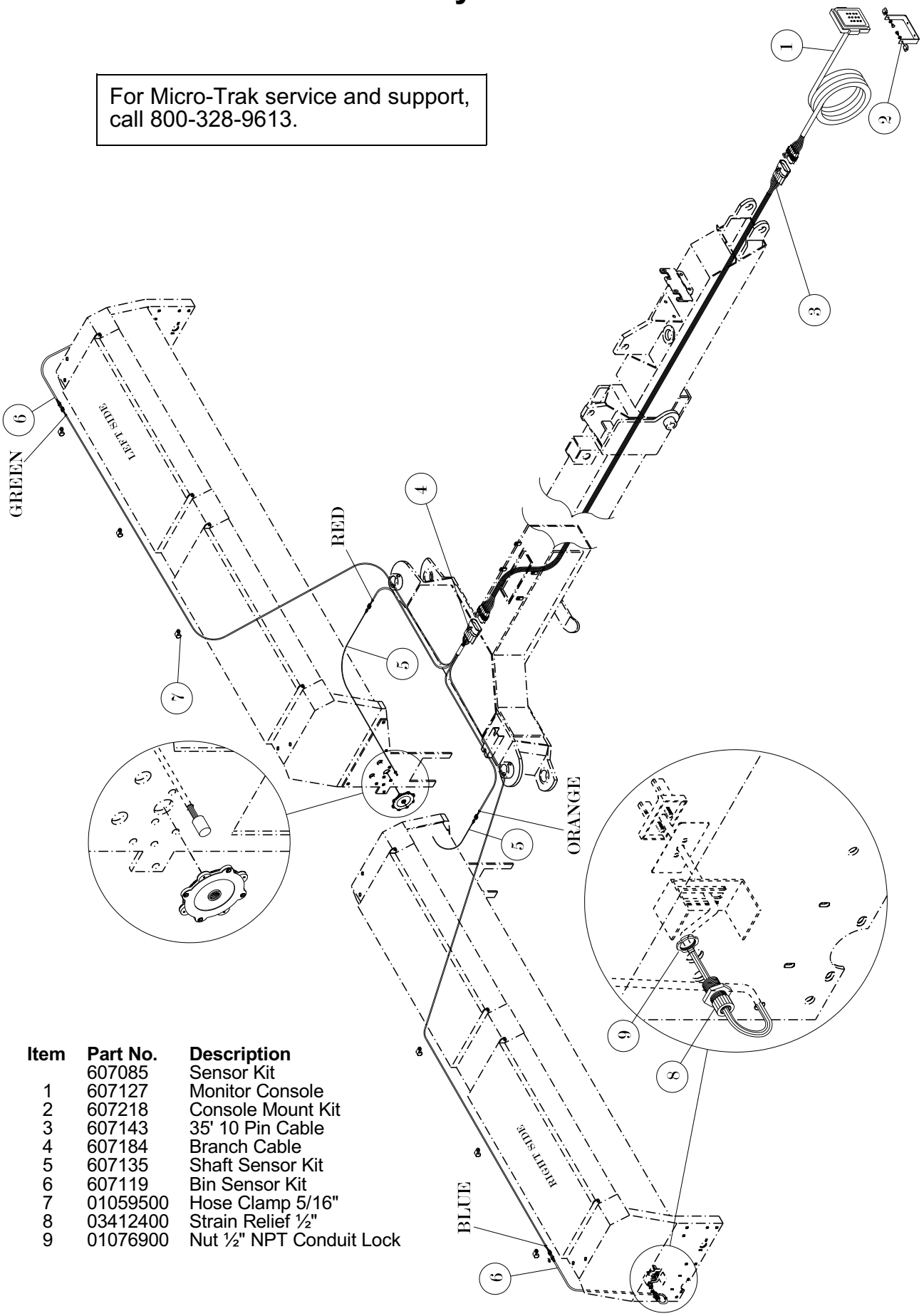
All Dimension Tolerances are ±⅛"
View is Looking from Back of Drill

4000 Lighting System



4000 Shaft & Bin Monitor System

For Micro-Trak service and support, call 800-328-9613.



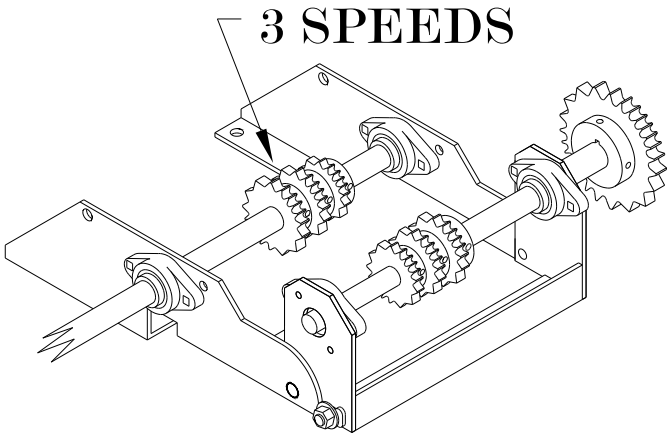
Item	Part No.	Description
	607085	Sensor Kit
1	607127	Monitor Console
2	607218	Console Mount Kit
3	607143	35' 10 Pin Cable
4	607184	Branch Cable
5	607135	Shaft Sensor Kit
6	607119	Bin Sensor Kit
7	01059500	Hose Clamp 5/16"
8	03412400	Strain Relief ½"
9	01076900	Nut ½" NPT Conduit Lock

Fertilizer Unit

Fertilizer Feed Shaft Speed

Speed is determined by sprocket combinations. There are three (3) different speeds available in the fertilizer gear box along with six (6) speeds on the drive ends of the drill. See pages 109 and 110.

- Use a slow speed combination whenever possible for maximum efficiency and to minimize wear.
- Use a fast speed combination for drilling larger quantities.



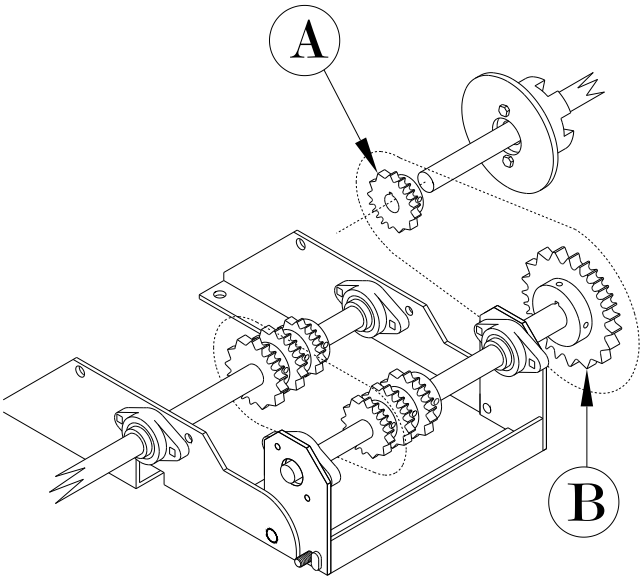
Fertilizer Drive Settings

The different types of fertilizer you apply will all have different delivery rates. Samples need to be caught to determine your particular material's delivery rate per rotor revolution in ounces per revolution.

To determine your rate, see page 109 and use example with your delivered ounces per 10 revolutions to find your rate column.

Determine how many pounds per acre you wish to apply and then find it on the chart page. Move over to the sprockets **A** through **F** on the same line to find the sprockets you need to apply the poundage you have selected. Locations of these sprockets can be found on page 108.

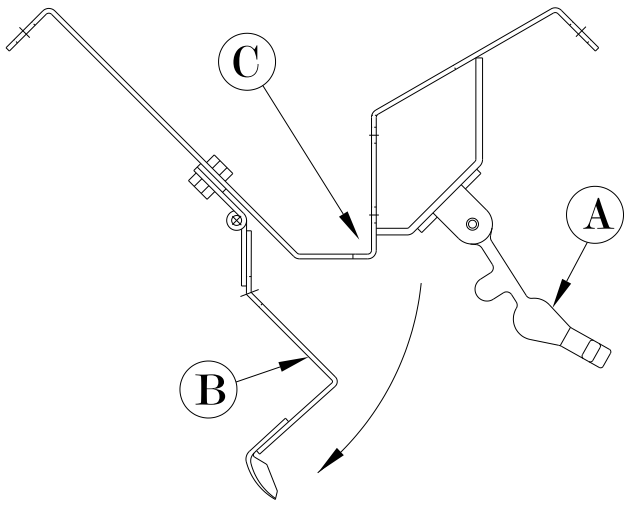
NOTE: When you are not distributing fertilizer, remove the chain between the 14 tooth sprocket **A** and the 40 tooth sprocket **B**.



Cleaning Fertilizer Box

- Release all door latches **A** to drop both bottom doors **B** as shown.
- Clean out fertilizer through clean out holes **C**.
- Relatch fertilizer doors.

IMPORTANT:
If drill is not used for several days, empty and clean out thoroughly. Fertilizer can corrode. Coat the box with diesel fuel but do not allow fuel to come in contact with the rubber seed tubes.



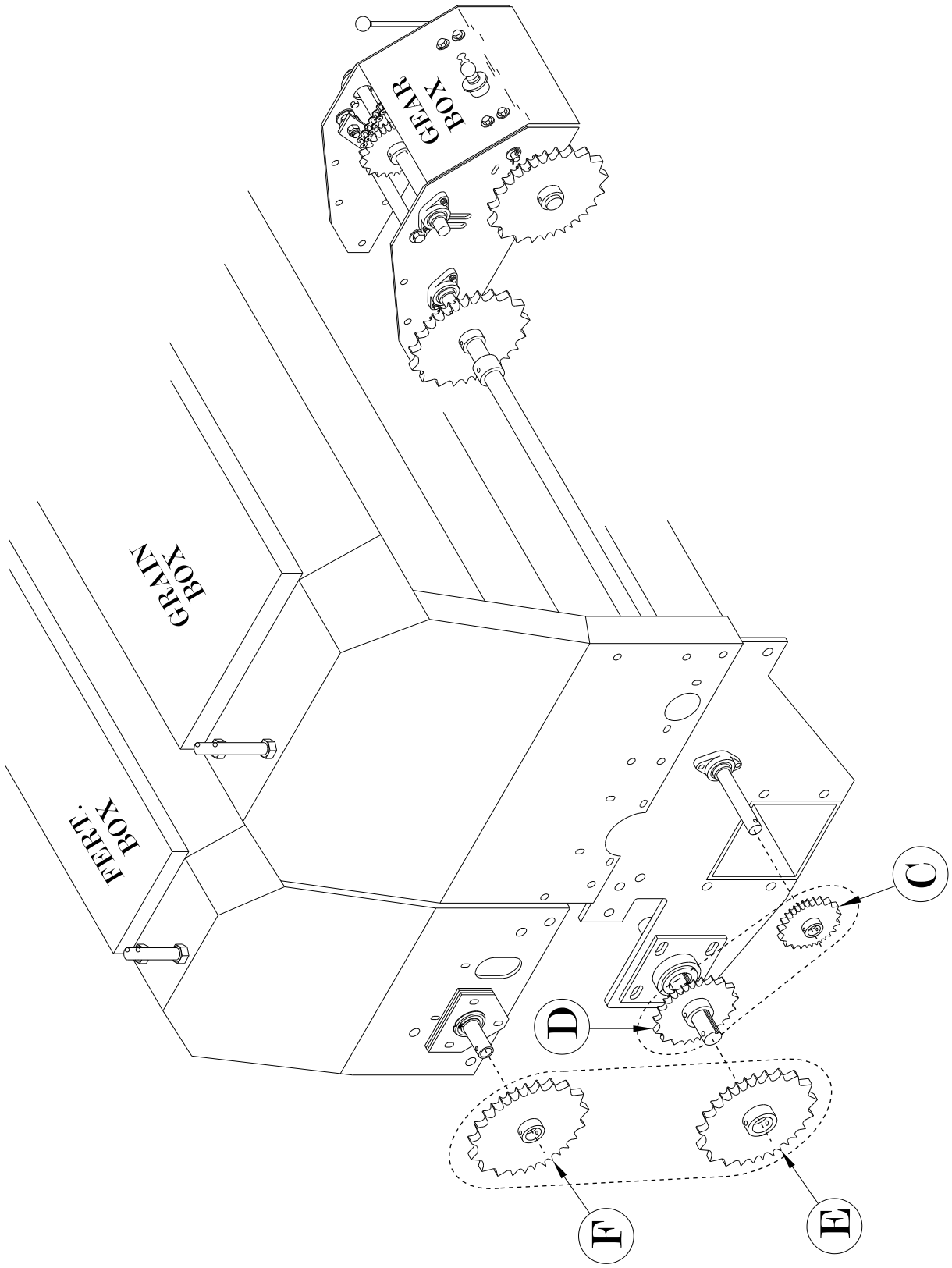
Fertilizer Unit Storage

CAUTION:
Be careful when using diesel fuel so that it does not ignite. Serious injury or death to you or others can result. Use only in well ventilated areas away from any sparks or flames.

IMPORTANT:
DO NOT allow diesel fuel (or any other petroleum product) to come in contact with the rubber tubes as it will cause deterioration.

1. Locate a flat level surface to store drill, then follow safe detaching procedures.
2. Store in transport position with lift cylinder lockouts in place.
3. If setting drill on ground, place a wood board under openers so that openers do not penetrate the ground. Lower openers and remove pressure from hydraulic system.
4. Coat opener disks with oil or grease. Then lower on to board for storage.
5. Open the feed cups to their largest or wide open setting. Jack the drill up and rotate the drive wheel to remove any material left in the cup rotors.
6. Paint all bare metal and rust spots. Matching paint can be ordered from your local CrustBuster dealer.
7. Spray all moving parts with diesel fuel or lubricating oil. Move adjuster lever back and forth while spraying. Spray each feed cup, inside and outside. Work the adjustment levers back and forth while spraying. The cost of the fuel or oil is insignificant, when the alternative is considered.
8. For drills that have used fertilizer and/or treated seed (both highly corrosive materials), coat the entire box, inside and outside, with diesel fuel. DO NOT allow fuel to contact rubber seed tubes.
9. Lubricate the drill. See lubrication, maintenance, and service page.
10. Clean chains with diesel fuel. Apply new oil before storing the drill.
11. For row markers, if drill is stored with the cylinder rod extended, apply light coat of grease to exposed area of rod.

4020 Sprocket Locations
Fertilizer Unit



4020

Fertilizer Box Capacity 1.42 cu ft/ft of box

REFER TO NOTE BELOW TO DETERMINE RATE, THEN REFER TO THIS CHART.
Fertilizer delivery rate per revolution determined from sample of material you will apply of:

Sprockets						.55 oz of fertilizer per rotor revolution will yield application rate in lb/acre of:	.6 oz of fertilizer per rotor revolution will yield application rate in lb/acre of:	.65 oz of fertilizer per rotor revolution will yield pplication rate in lb/acre of:	.7 oz of fertilizer per rotor revolution will yield application rate in lb/acre of:	.75 oz of fertilizer per rotor revolution will yield application rate in lb/acre of:
A	B	C	D	E	F					
		14	60	18	44	28	30	33	35	38
		16	60	18	44	32	35	37	40	43
		19	60	18	44	38	41	44	48	51
		14	60	18	30	41	44	48	52	55
		16	60	18	30	46	51	55	59	63
		19	60	18	30	55	60	65	70	75
		14	60	25	30	56	62	67	72	77
		16	60	25	30	65	70	76	82	88
		19	60	25	30	77	84	91	98	105
		14	60	30	25	81	89	96	104	111
		16	60	30	25	93	101	110	118	127
		19	60	30	25	110	120	130	141	151
		14	60	30	18	113	123	134	144	154
		16	60	30	18	129	141	153	164	176
		19	60	30	18	153	167	181	195	209
		14	60	44	18	166	181	196	211	226
		16	60	44	18	189	207	224	241	258
		19	60	44	18	225	245	266	286	307

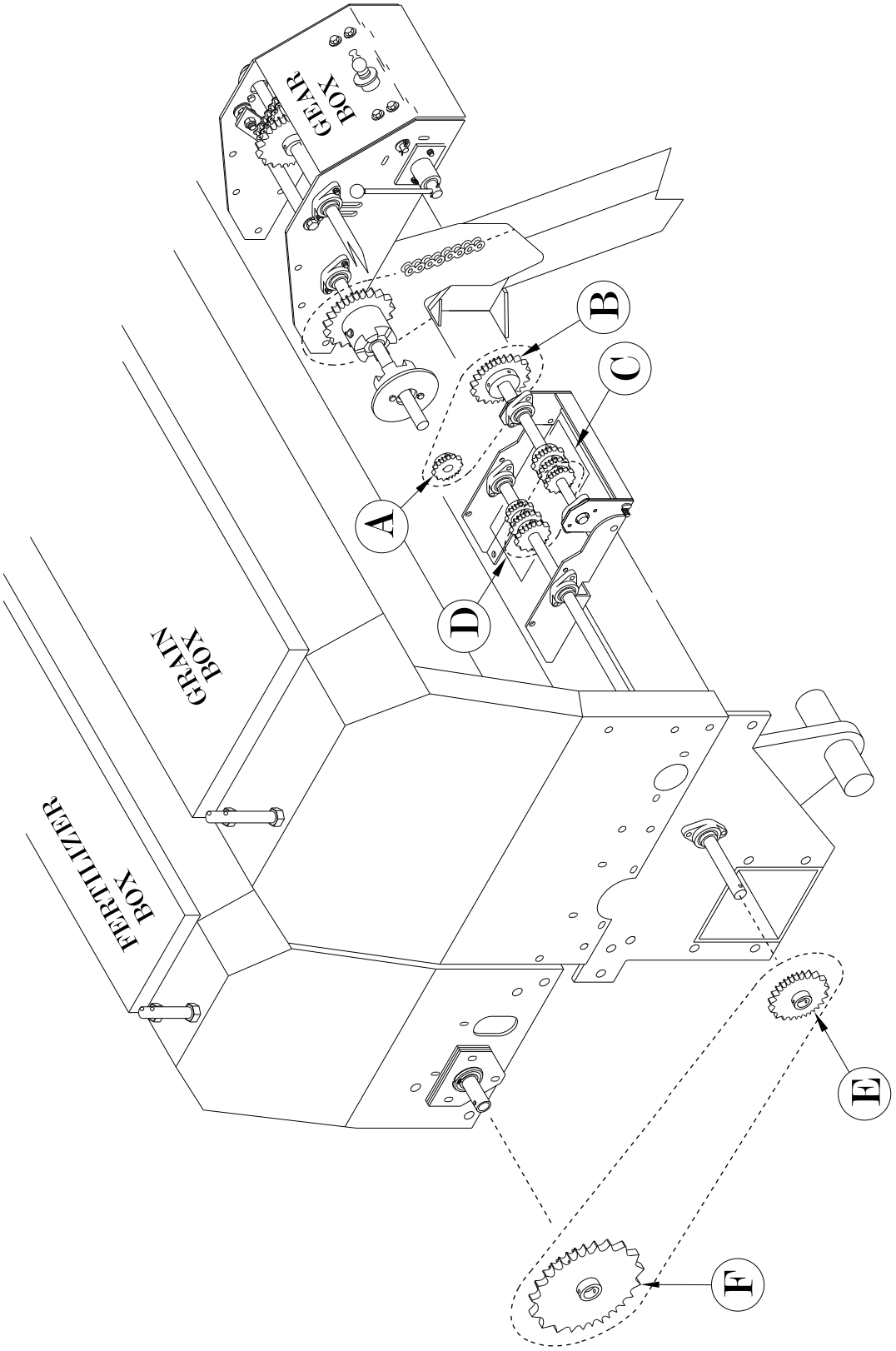
NOTE: The different types of fertilizer you apply will all have different delivery rates. Samples need to be caught to determine your particular material's delivery rate per rotor revolution in ounces per revolution. A minimum of 10 turns is recommended because of the small amounts involved.

Example: If 10 revolutions from one cup delivers 6.5 ounces, divide 6.5 by 10 to find ounces per revolution.

6.5 ÷ 10 = .65

Refer to chart using the column for .65 ounces.

4025 & 4030 Sprocket Locations
Fertilizer Unit



4025 & 4030

Fertilizer Box Capacity
1.42 cu ft/ft of box

REFER TO NOTE BELOW TO DETERMINE RATE, THEN REFER TO THIS CHART.
Fertilizer delivery rate per revolution determined from sample of material you will apply of:

Sprockets						.55 oz of fertilizer per rotor revolution will yield application rate in lb/acre of:	.6 oz of fertilizer per rotor revolution will yield application rate in lb/acre of:	.65 oz of fertilizer per rotor revolution will yield pplication rate in lb/acre of:	.7 oz of fertilizer per rotor revolution will yield application rate in lb/acre of:	.75 oz of fertilizer per rotor revolution will yield application rate in lb/acre of:
A	B	C	D	E	F					
14	40	14	21	18	44	28	30	33	35	38
14	40	15	20	18	44	31	34	37	40	43
14	40	16	19	18	44	35	38	41	45	48
14	40	14	21	18	30	41	44	48	52	55
14	40	15	20	18	30	46	50	54	58	62
14	40	16	19	18	30	51	56	61	65	70
14	40	14	21	25	30	56	62	67	72	77
14	40	15	20	25	30	64	69	75	81	87
14	40	16	19	25	30	71	78	84	91	97
14	40	14	21	30	25	81	89	96	104	111
14	40	15	20	30	25	92	100	108	116	125
14	40	16	19	30	25	103	112	121	131	140
14	40	14	21	30	18	113	123	134	144	154
14	40	15	20	30	18	127	139	150	162	173
14	40	16	19	30	18	143	156	169	182	195
14	40	14	21	44	18	166	181	196	211	226
14	40	15	20	44	18	186	203	220	237	254
14	40	16	19	44	18	209	228	247	266	285

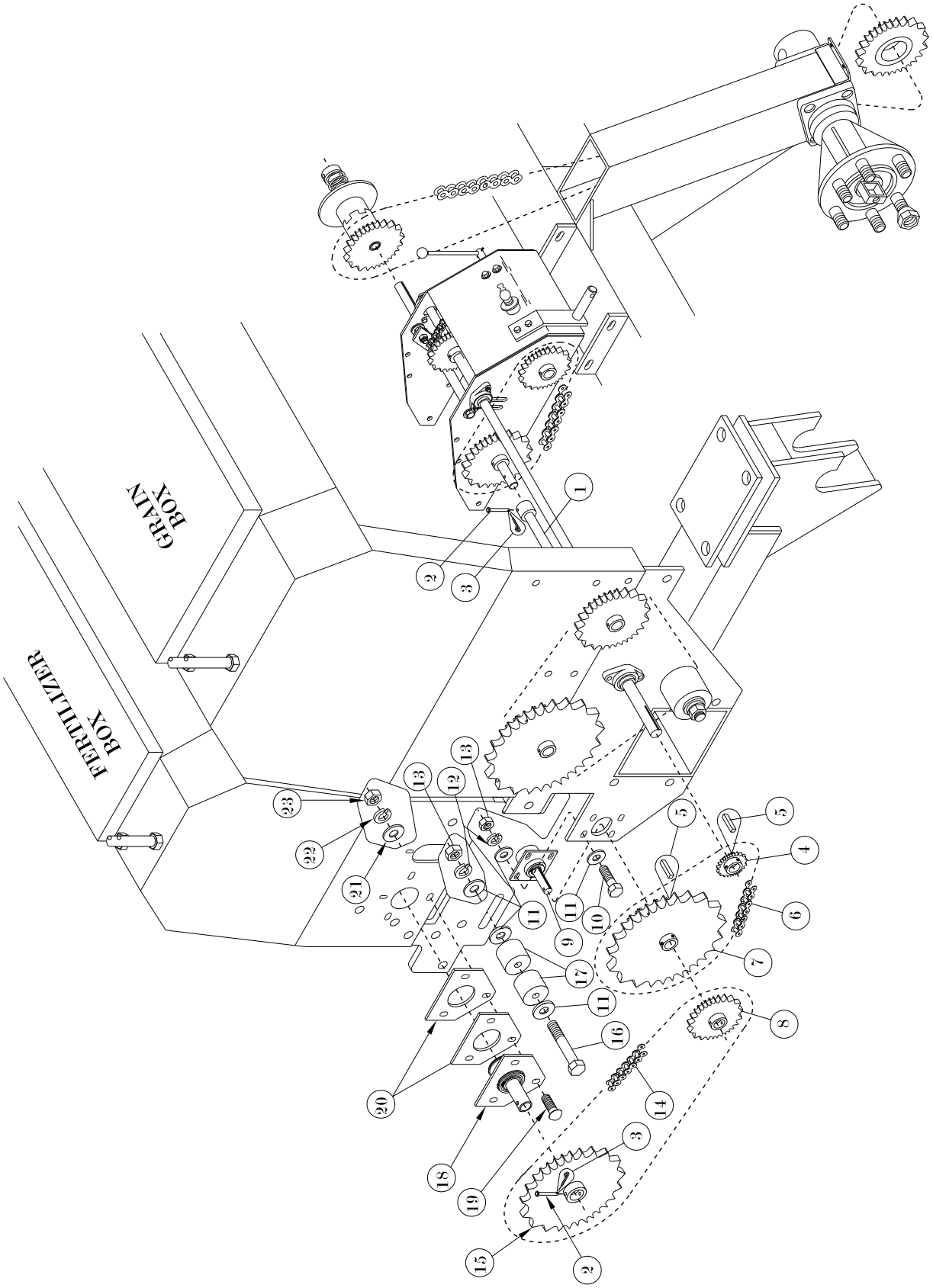
NOTE: The different types of fertilizer you apply will all have different delivery rates. Samples need to be caught to determine your particular material's delivery rate per rotor revolution in ounces per revolution. A minimum of 10 turns is recommended because of the small amounts involved.

Example: If 10 revolutions from one cup delivers 6.5 ounces, divide 6.5 by 10 to find ounces per revolution.

6.5 ÷ 10 = .65

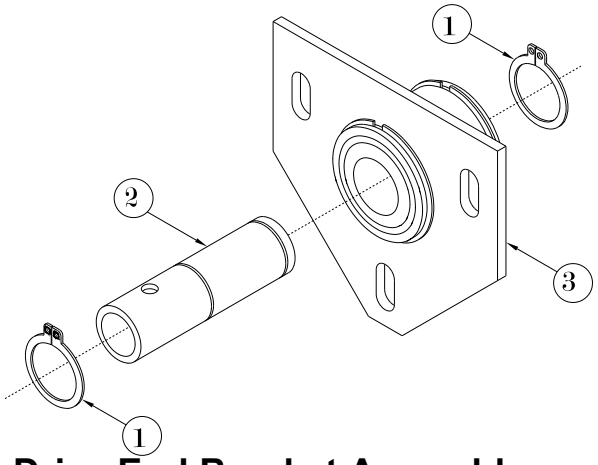
Refer to chart using the column for .65 ounces.

4020 Drive Assembly
Fertilizer Unit



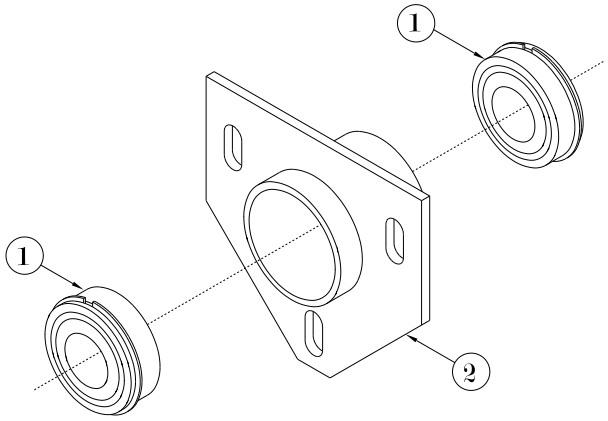
4020 Drive Assembly
Fertilizer Unit

Item	Part No.	Description
1	961607	Drive Shaft Adaptor
2	335349	Clevis Pin 1/4" x 1 5/8"
3	337071	Cotter Pin 3/32" x ½"
4	432948	Sprocket #40-14 Tooth
5	10490100	Key 1/4" x 1 1/4"
6	433227	Chain Assy #40 x 105 Pitches Complete
7	433219	Sprocket #40-60 Tooth
8	935098	Sprocket 2050 25T 1" Bore
9	868455	Drive End Bracket Assembly
10	01147800	HHCS ½" x 1½"
11	330159	Flat Washer ½"
12	330142	Lock Washer ½"
13	330134	Hex Nut ½"
14	431825	Chain 2050 x 47 Links
15	935106	Sprocket 2050 30T 1" Bore
16	330100	HHCS ½" x 4½"
17	571273	Nylon Idler
18	866442	Drive End Bearing Bracket Assy
19	01261700	Carriage Bolt 5/16" x 1 1/2"
20	220467	Spacer Plate
21	330852	Flat Washer 5/16"
22	330845	Lock Washer 5/16"
23	330811	Hex Nut 5/16"



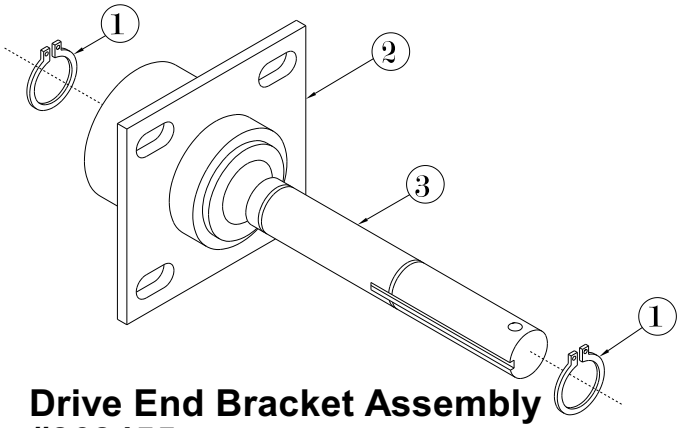
Drive End Bracket Assembly #866442

Item	Part No.	Description
1	605766	External Snap Ring
2	310235	Seed Shaft Drive Adaptor
3	866434	Drive End Bracket/Brg Assy



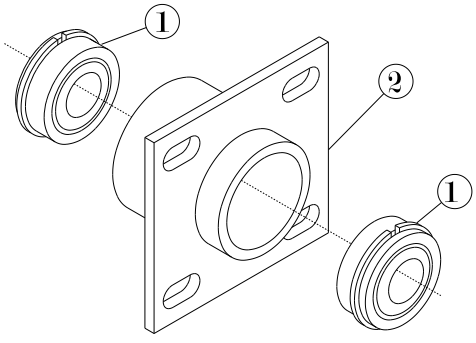
Drive End Bracket #866434

Item	Part No.	Description
1	03003100	Bearing 1" w/Spring
2	959130	Drive End Bracket



Drive End Bracket Assembly #868455

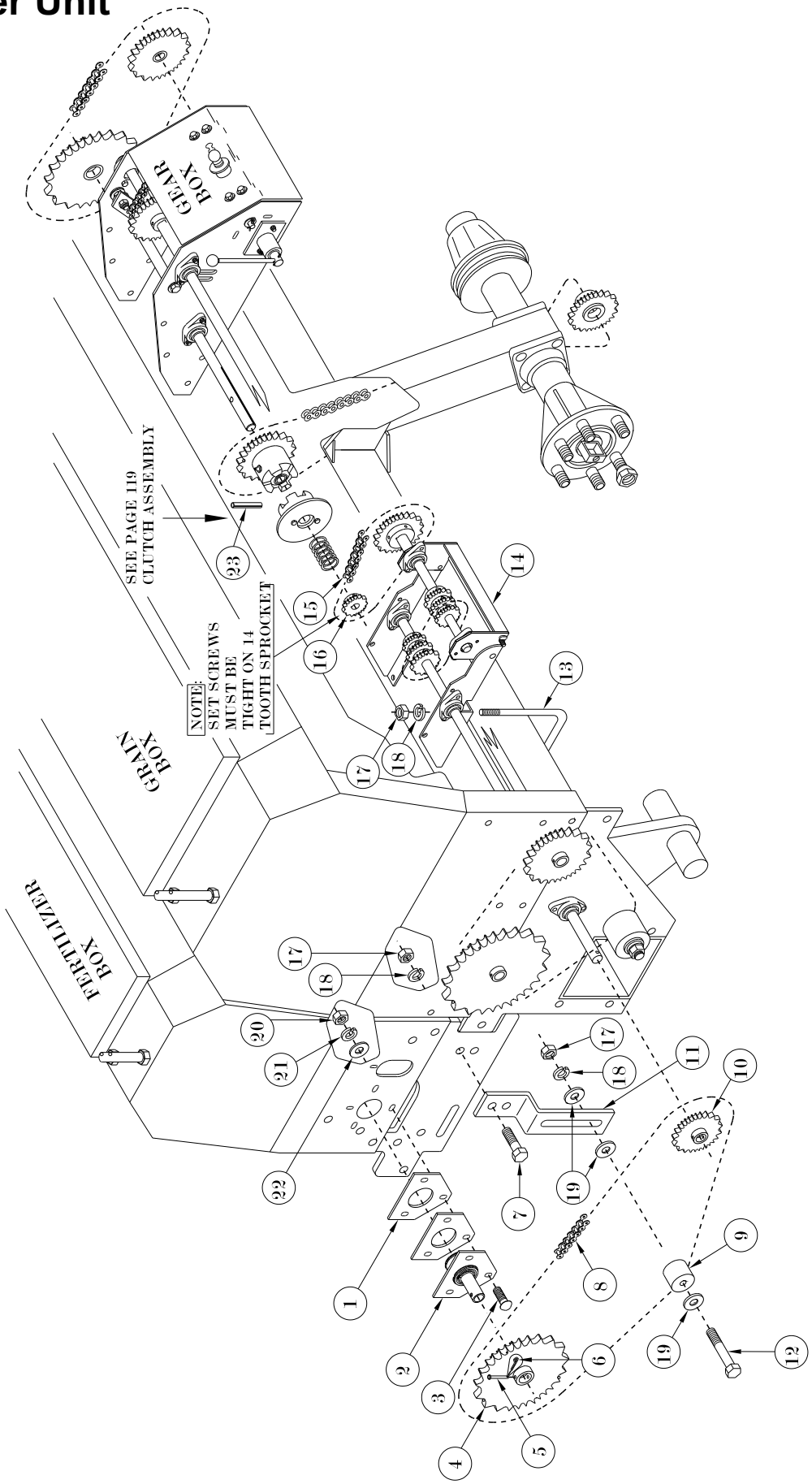
Item	Part No.	Description
1	605766	External Snap Ring
2	310672	Seed Shaft Drive Adaptor
3	865733	Drive End Bracket/Brg Assy



Drive End Bracket & Bearing #865733

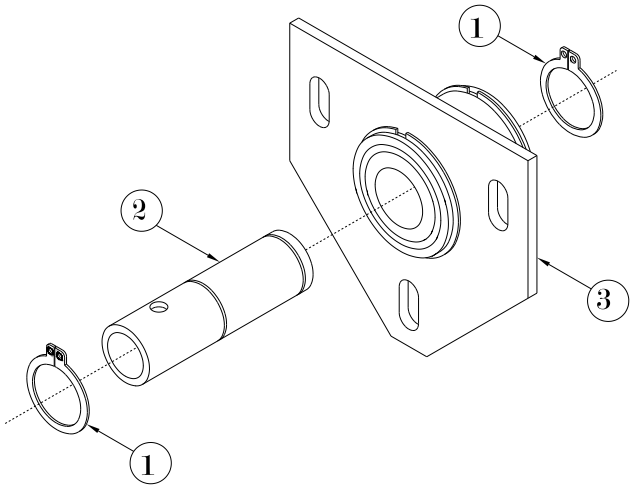
Item	Part No.	Description
1	03003100	Bearing 1" w/Snap Ring
2	957795	Drive End Bearing Bracket

4025 & 4030 Drive Assembly
Fertilizer Unit



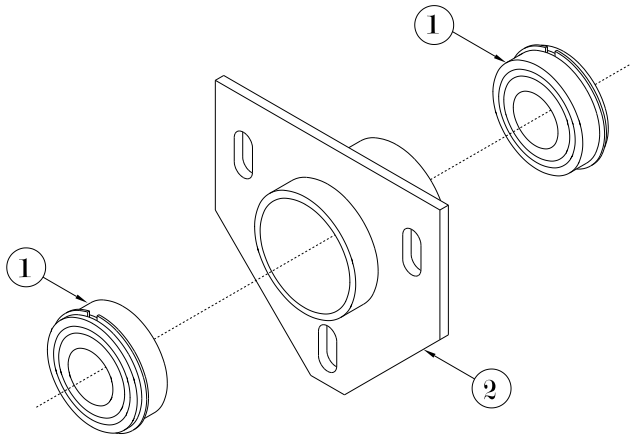
4025 & 4030 Drive Assembly
Fertilizer Unit

Item	Part No.	Description
1	220467	Spacer Plate
2	866442	Drive End Bearing Bracket Assy
3	01261700	Carriage Bolt 5/16" x 1 1/2"
4	954362	Sprocket 2050 44T 1" Bore
5	335349	Clevis Pin 1/4" x 1 5/8"
6	337071	Cotter Pin 3/32" x 1/2"
7	331926	HHCS 1/2" x 2"
8	431825	Chain 2050 x 47 Links
9	571273	Nylon Idler
10	954131	Sprocket 2050 18T 1" Bore
11	220624	Idler Plate
12	334946	HHCS ½" x 3"
13	336982	U-bolt ½" x 7" x 9 1/2"
14	867630	Fertilizer Gear Box Right (shown)
	867648	Fertilizer Gear Box Left
15	433029	Chain Assy #40 x 57 Pitches Complete
16	433037	Sprocket #40 14T 1/2" Pitch w/Cone Point Set Screw
17	330134	Hex Nut 1/2"
18	330142	Lock Washer 1/2"
19	330159	Flat Washer 1/2"
20	330811	Hex Nut 5/16"
21	330845	Lock Washer 5/16"
22	330852	Flat Washer 5/16"
23	334813	Roll Pin 5/16" x 1 1/2"



Drive End Bracket & Bearing
#866442

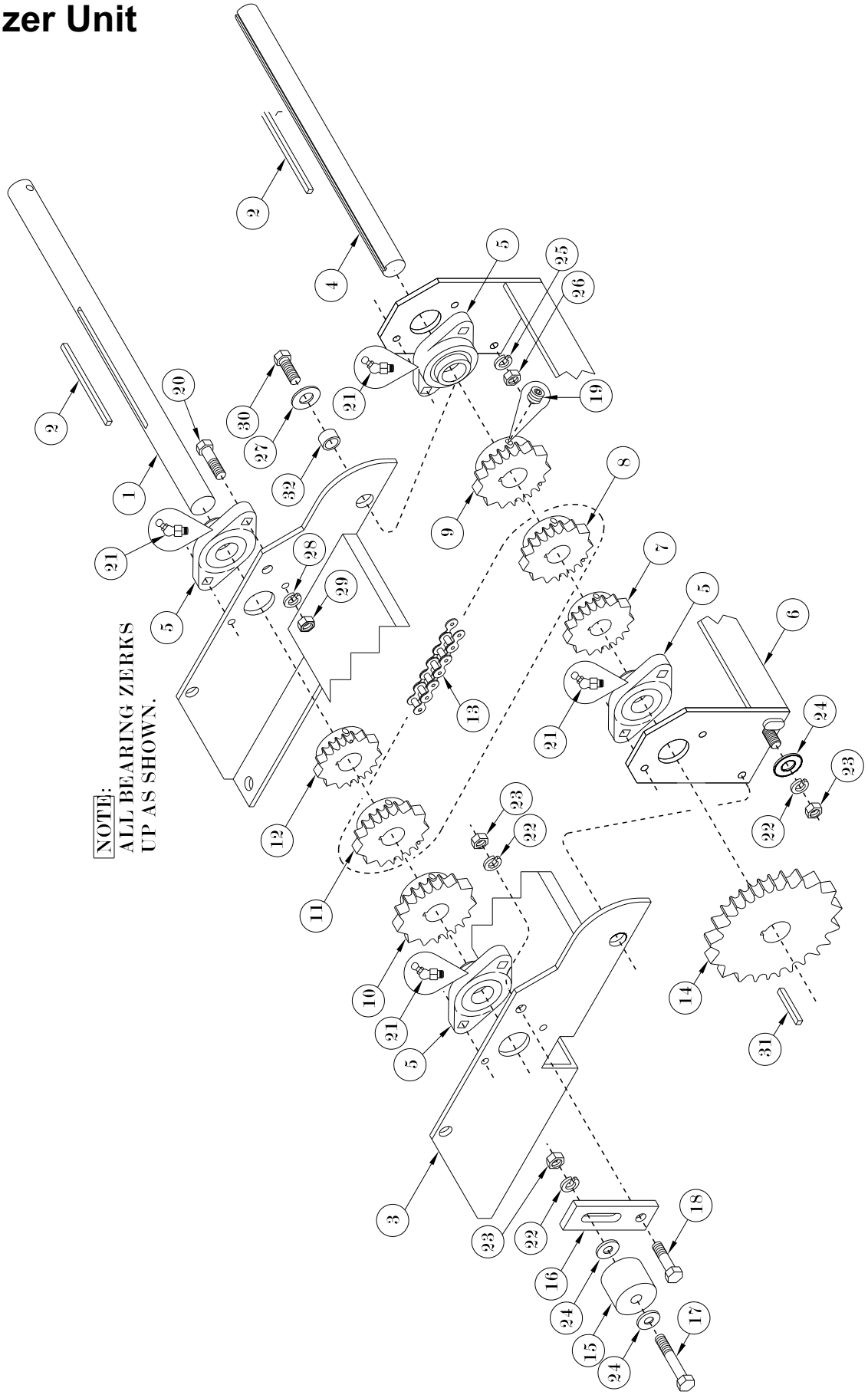
Item	Part No.	Description
1	605766	External Snap Ring
2	310235	Seed Shaft Drive Adaptor
3	866434	Drive End Bracket/Brg Assy



Drive End Bracket
#866434

Item	Part No.	Description
1	03003100	Bearing 1" w/Spring
2	959130	Drive End Bracket

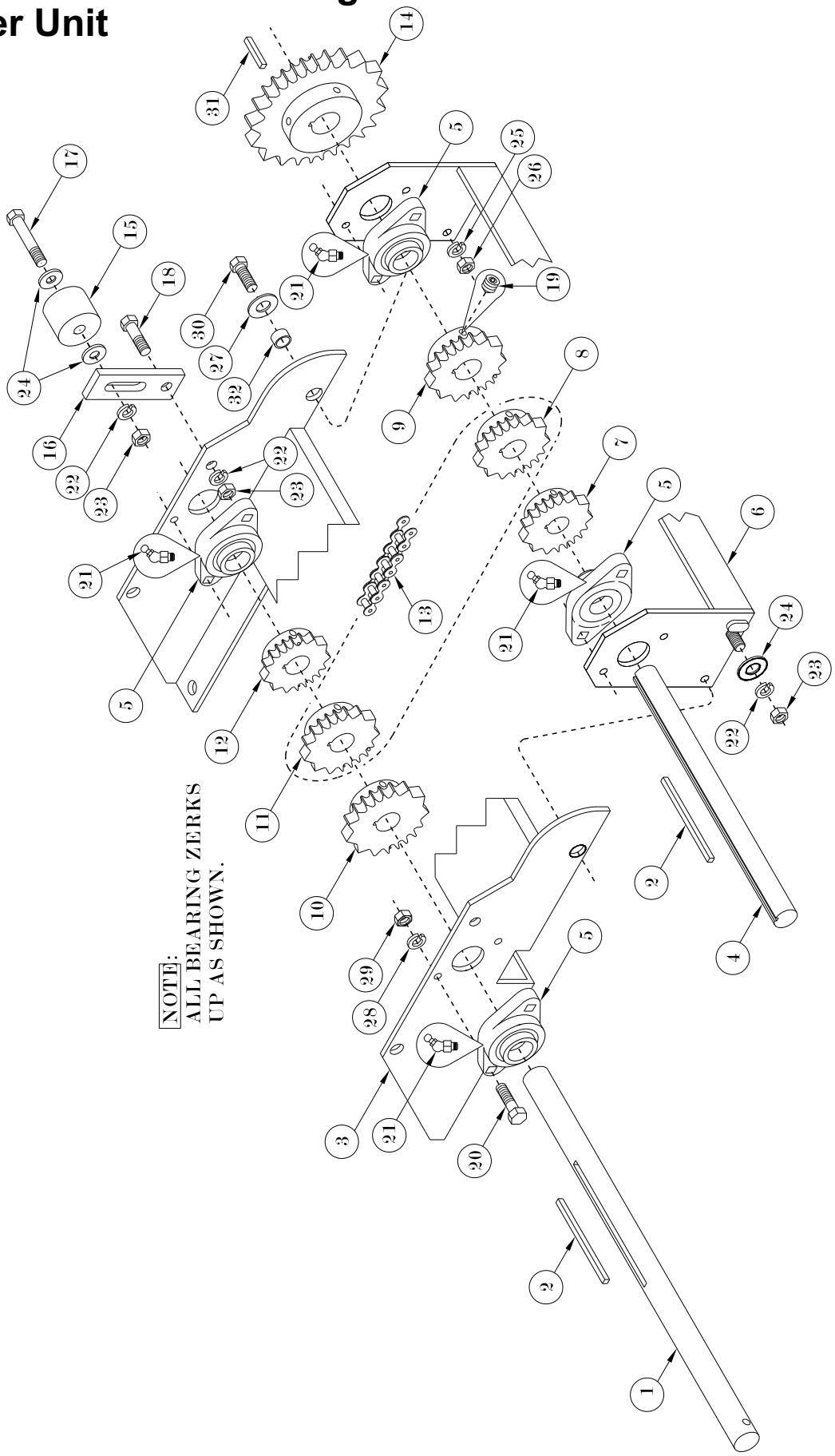
4025 & 4030 Gear Box - Left
Fertilizer Unit



4025 & 4030 Gear Box - Left Fertilizer Unit

Item	Part No.	Description
1	309203	Box End Drive Shaft
2	220616	Key 1/4" x 1/4" x 3 1/2"
3	960674	Fertilizer Gear Box
4	310524	Fertilizer Drive Shaft
5	03001500	Bearing 1" Flange Mount
6	960682	Fertilizer Gear Box Front Bracket
7	432948	Sprocket 14T RC Non-Stock 1/2" Pitch
8	432955	Sprocket 15T RC Non-Stock 1/2" Pitch
9	05237300	Sprocket 16T RC Non-Stock 1/2" Pitch
10	432997	Sprocket 21T RC Non-Stock 1/2" Pitch
11	432989	Sprocket 20T RC Non-Stock 1/2" Pitch
12	432971	Sprocket 19T RC Non-Stock 1/2" Pitch
13	433011	Chain Assy #40 x 47 Pitches Complete
14	433003	Sprocket 40T RC Non-Stock 1/2" Pitch
15	571273	Nylon Idler
16	192989	Idler Plate
17	334300	HHCS 1/2" x 3 1/2"
18	01147800	HHCS 1/2" x 1 1/2"
19	01100700	Set Screw 5/16" x 5/16"
20	01011600	HHCS 5/16" x 1 1/4"
21	01162700	Zerk 1/4-28" x 45°
22	330142	Lock Washer 1/2"
23	330134	Hex Nut 1/2"
24	330159	Flat Washer 1/2"
25	330043	Lock Washer 3/8"
26	330035	Hex Nut 3/8"
27	330852	Flat Washer 5/16"
28	330845	Lock Washer 5/16"
29	330811	Hex Nut 5/16"
30	01158500	HHCS 3/8" x 1 1/4"
31	10490100	Key 1/4" x 1 1/4"
32	149393	Spacer

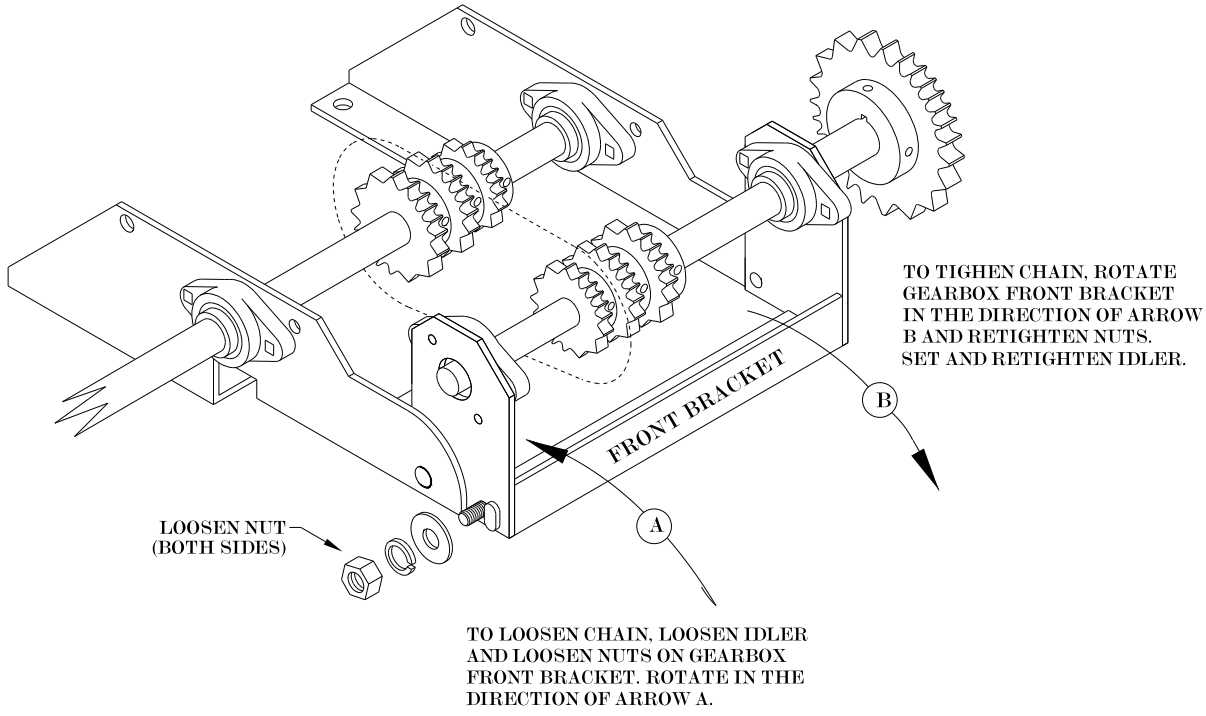
4025 & 4030 Gear Box - Right
Fertilizer Unit



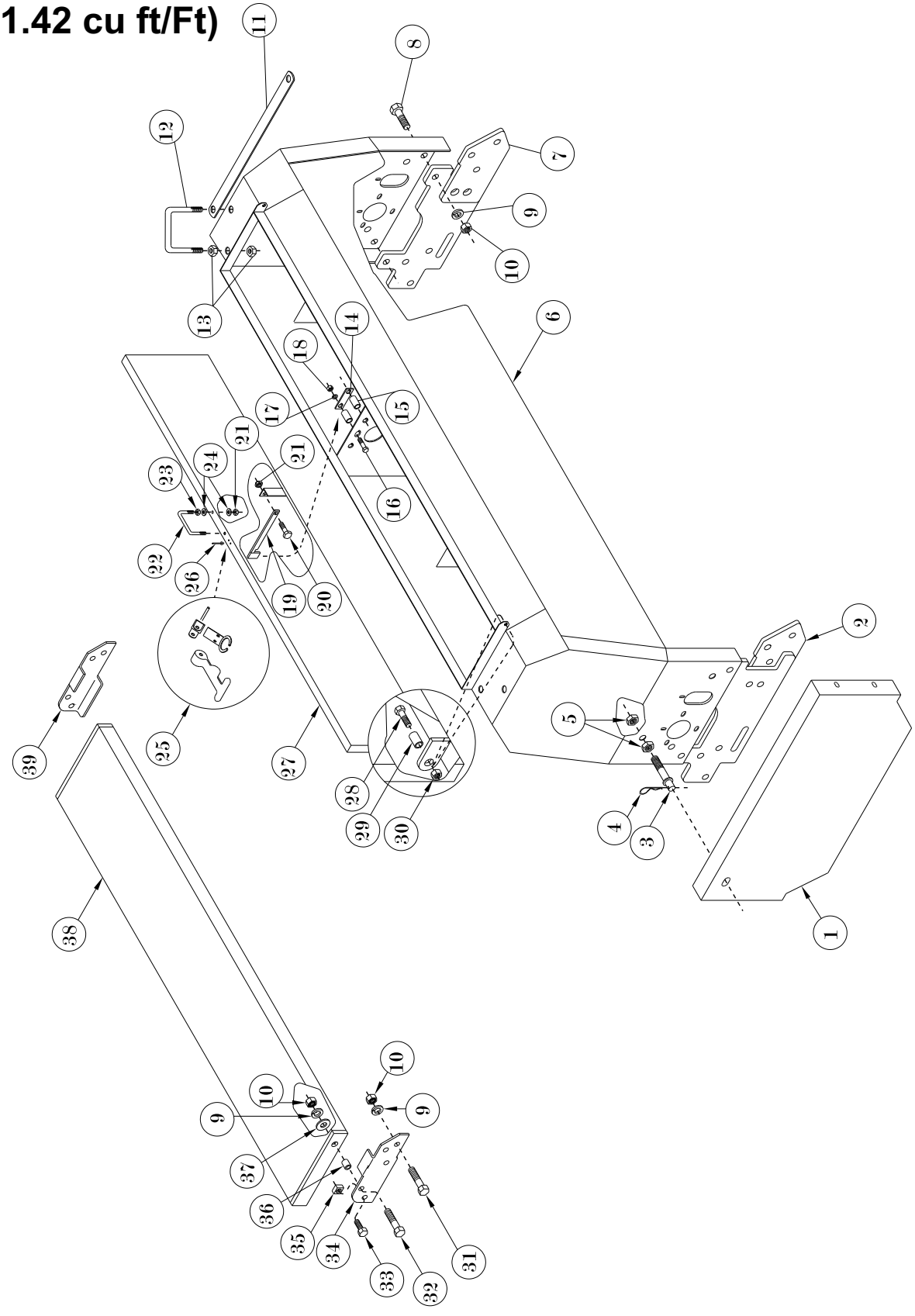
4025 & 4030 Gear Box - Right Fertilizer Unit

Item	Part No.	Description
1	309203	Box End Drive Shaft
2	220616	Key 1/4" x 1/4" x 3 1/2"
3	960674	Fertilizer Gear Box
4	310524	Fertilizer Drive Shaft
5	03001500	Bearing 1" Flange Mount
6	960682	Fertilizer Gear Box Front Bracket
7	432948	Sprocket 14T RC Non-Stock 1/2" Pitch
8	432955	Sprocket 15T RC Non-Stock 1/2" Pitch
9	05237300	Sprocket 16T RC Non-Stock 1/2" Pitch
10	432997	Sprocket 21T RC Non-Stock 1/2" Pitch
11	432989	Sprocket 20T RC Non-Stock 1/2" Pitch
12	432971	Sprocket 19T RC Non-Stock 1/2" Pitch
13	433011	Chain Assy #40 x 47 Pitches Complete
14	433003	Sprocket 40T RC Non-Stock 1/2" Pitch
15	571273	Nylon Idler
16	192989	Idler Plate
17	334300	HHCS 1/2" x 3 1/2"
18	01147800	HHCS 1/2" x 1 1/2"
19	01100700	Set Screw 5/16" x 5/16"
20	01011600	HHCS 5/16" x 1 1/4"
21	01162700	Zerk 1/4-28" x 45°
22	330142	Lock Washer 1/2"
23	330134	Hex Nut 1/2"
24	330159	Flat Washer 1/2"
25	330043	Lock Washer 3/8"
26	330035	Hex Nut 3/8"
27	330852	Flat Washer 5/16"
28	330845	Lock Washer 5/16"
29	330811	Hex Nut 5/16"
30	01158500	HHCS 3/8" x 1 1/4"
31	10490100	Key 1/4" x 1 1/4"
32	149393	Spacer

Fertilizer Gear Box Chain Tightening Instructions



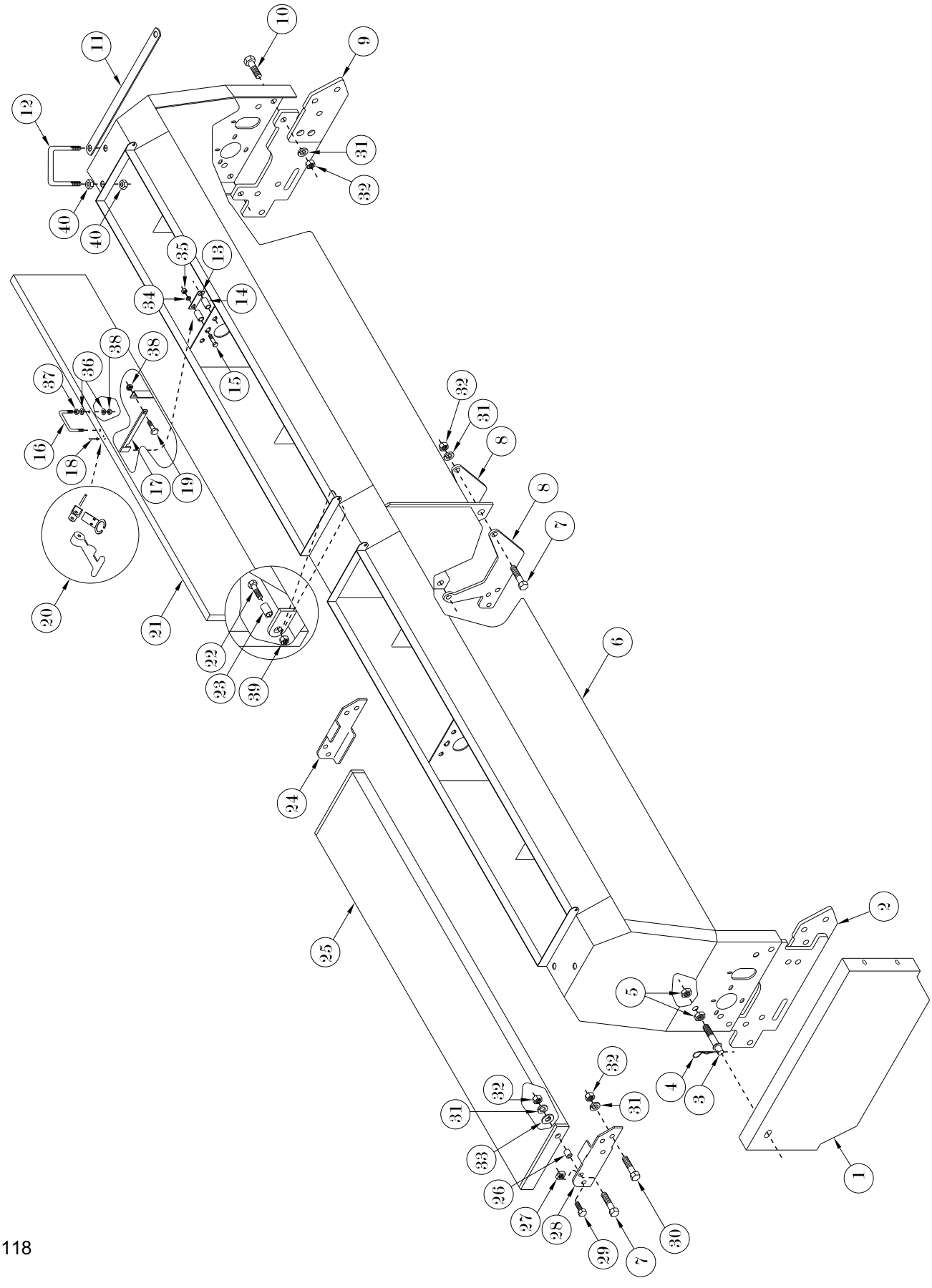
4020 Box Assembly
Fertilizer Unit
(1.42 cu ft/Ft)



4020 Box Assembly
Fertilizer Unit

Item	Part No.	Description
1	958389	Chain Shield Right (shown)
	960716	Chain Shield Left
2	958850	Box Mount Bracket Right
3	958363	Shield Latch Pin
4	330860	Hair Pin 5/32"
5	330985	Hex Jam Nut 3/4"
6	961151	Welded Fertilizer Box - **20'**
7	958835	Box Mount Bracket Left
8	01147800	HHCS 1/2" x 1 1/2"
	335240	HHCS 1/2" x 1 3/4"
8	218313	Box Center Brace Plate
9	330142	Lock Washer 1/2"
10	330134	Hex Nut 1/2"
11	259713	Box Strap
12	335737	U-bolt 5/8" x 4" x 3"
13	330571	Hex Nut 5/8"
14	190942	Lid Latch
15	145144	Lid Latch Spool
16	335133	HHCS 1/4" x 1 3/4"
17	330050	Lock Washer 1/4"
18	332205	Hex Nut 1/4"
19	956557	Lid Latch Bracket
20	01011600	HHCS 5/16" x 1 1/4"
21	331611	Hex Nylock Nut 5/16"
22	308122	Box Lid Handle
23	330811	Hex Nut 5/16"
24	330852	Flat Washer 5/16"
25	570341	Lid Latch w/Hook
26	601989	Pop Rivet 3/16" x 1/4"
27	961169	Box Lid - **20'**
28	335703	HHCS 3/8" x 1 1/2"
29	149385	Lid Bushing
30	330837	Hex Nylock Nut 3/8"
31	01180900	HHCS 1/2" x 1 1/4"
32	335240	HHCS ½" x 1 3/4"
33	01029800	HHCS 1/2" x 1"
34	216192	Box End Walkboard Bracket Right
35	332197	Square Nut 1/2"
36	150086	Walkboard Bushing
37	330159	Flat Washer 1/2"
38	956854	Walkboard
39	216226	Box End Walkboard Bracket Left

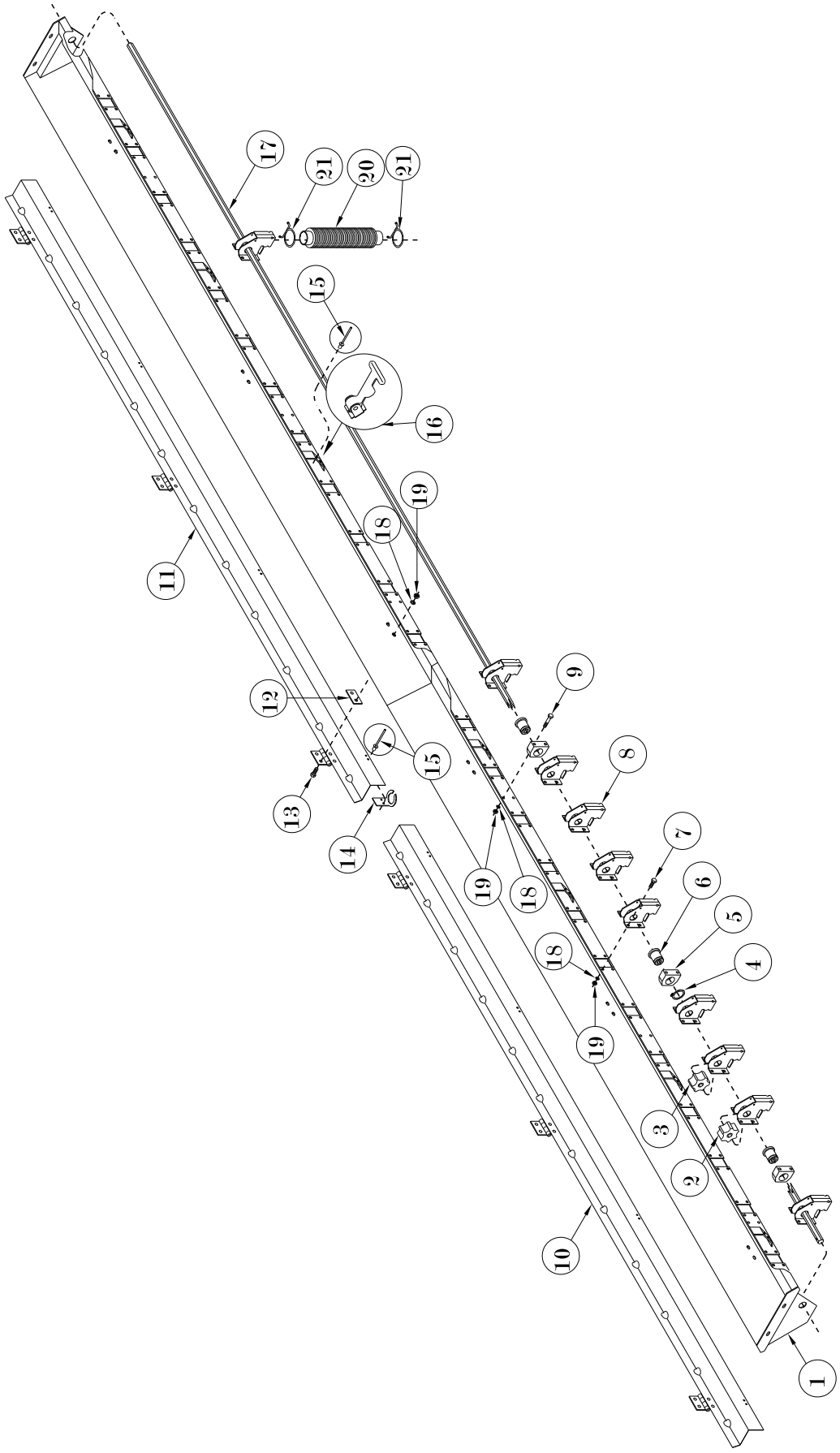
4025 & 4030 Box Assembly
Fertilizer Unit
(1.42 cu ft/Ft)



4025 & 4030 Box Assembly
Fertilizer Unit

Item	Part No.	Description
1	958389	Chain Shield Right (shown)
	960716	Chain Shield Left
2	958850	Box Mount Bracket Right
3	958363	Shield Latch Pin
4	330860	Hair Pin 5/32"
5	330985	Hex Jam Nut 3/4"
6	960930	Welded Fertilizer Box - **25**'
	959213	Welded Fertilizer Box - **30'**
7	335240	HHCS 1/2" x 1 3/4"
8	218313	Box Center Brace Plate
9	958835	Box Mount Bracket Left
10	01147800	HHCS 1/2" x 1 1/2"
11	259713	Box Strap
12	335737	U-bolt 5/8" x 4" x 3"
13	190942	Lid Latch
14	145144	Lid Latch Spool
15	335133	HHCS 1/4" x 1 3/4"
16	308122	Box Lid Handle
17	956557	Lid Latch Bracket
18	601989	Pop Rivet 3/16" x 1/4"
19	01011600	HHCS 5/16" x 1 1/4"
20	570341	Lid Latch w/Hook
21	960948	Box Lid - **25'**
	957928	Box Lid - **30'**
22	335703	HHCS 3/8" x 1 1/2"
23	149385	Lid Bushing
24	216226	Box End Walkboard Bracket Left
25	957290	Walkboard
26	150086	Walkboard Bushing
27	332197	Square Nut 1/2"
28	216192	Box End Walkboard Bracket Right
29	01029800	HHCS 1/2" x 1"
30	01180900	HHCS 1/2" x 1 1/4"
31	330142	Lock Washer 1/2"
32	330134	Hex Nut 1/2"
33	330159	Flat Washer 1/2"
34	330050	Lock Washer 1/4"
35	332205	Hex Nut 1/4"
36	330852	Flat Washer 5/16"
37	330811	Hex Nut 5/16"
38	331611	Hex Nylock Nut 5/16"
39	330837	Hex Nylock Nut 3/8"
40	330571	Hex Nut 5/8"

4000 Box Bottom Assembly
Fertilizer Unit

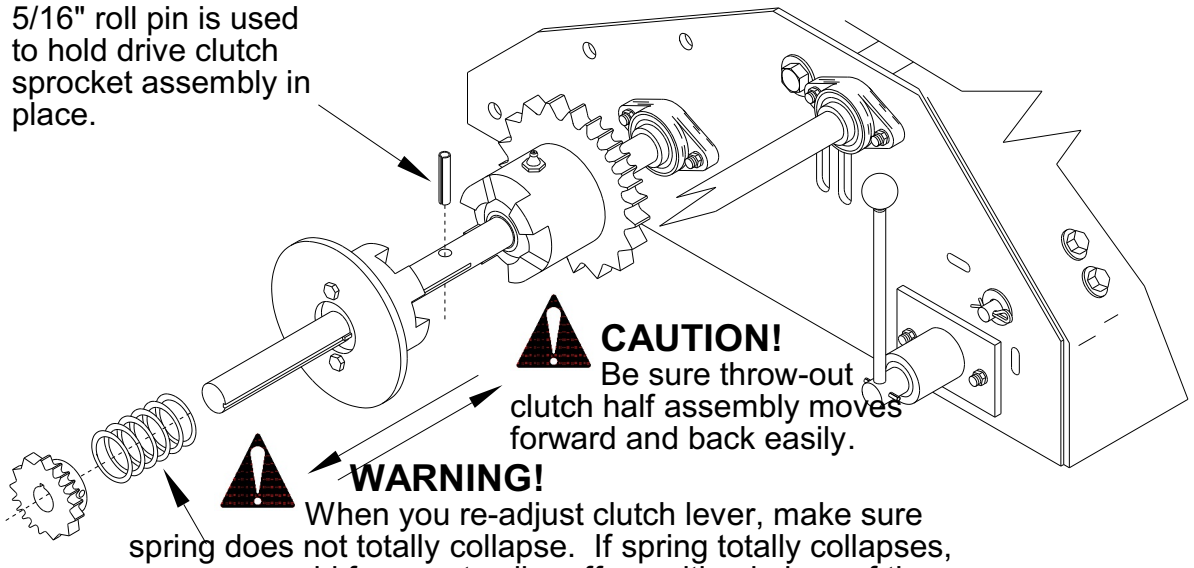


4000 Box Bottom Assembly
Fertilizer Unit

Item	Part No.	Description	
		Box Bottom Assemblies	
	868281	20' x 7½"	
	868299	20' x 8"	
	868307	20' x 10"	
	867960	25' x 7½"	
	868026	25' x 8"	Right
	868018	25' x 8"	Left
	868000	25' x 10"	Right
	867994	25' x 10"	Left
	867598	30' x 7½"	Right
	867580	30' x 7½"	Left
	867614	30' x 8"	Right
	867606	30' x 8"	Left
	867697	30' x 10"	Right
	867689	30' x 10"	Left
1		Box Bottom Weldment	
	961219	20' x 7½"	
	961227	20' x 8"	
	961235	20' x 10"	
	960955	25' x 7½"	
	960971	25' x 8"	Right
	960963	25' x 8"	Left
	960641	25' x10"	Right
	960658	25' x 10"	Left
	960633	30' x 7½"	
	960641	30' x 8"	
	960658	30' x 10"	
2	571240	Nylon Fertilizer Rotor	

Item	Part No.	Description
3	571257	Nylon Fertilizer Rotor 30° Hex Rotation
4	605766	External Snap Ring
5	571232	Fertilizer Bearing
6	310508	Fertilizer Hex Bearing Shaft
7	01245000	HHCS 1/4" x 1/2" SS
8	960625	Fertilizer Cup Weldment
9	337741	HHCS 1/4" x 2" SS
10	961276	Fertilizer Door Left - **20' x7½ / 10"**
	961284	Fertilizer Door - **20' x 8"**
	960906	Fertilizer Door Left - **25'**
	960690	Fertilizer Door Left - **30'**
11	961268	Fertilizer Door Right - **20' x7½/ 10"**
	960914	Fertilizer Door Right - **25'**
	960708	Fertilizer Door Right - **30'**
12	259523	Door Hinge Spacer Plate
13	02226900	HHCS 1/4" x 3/4" SS
14	570341	Lid Latch (Includes hook #16)
15	601989	Pop Rivet 3/16" x 1/4" Aluminum
16	570341	Lid Latch Hook (Includes latch #14)
17	310532	Hex Shaft 5/8" x 171"
18	337550	Lock Washer 1/4" SS
19	01507300	Hex Nut 1/4" SS
20	571091	Feed Tube 59 Convolutions
21	603027	Hose Clamp 1 5/8" x 11/64"

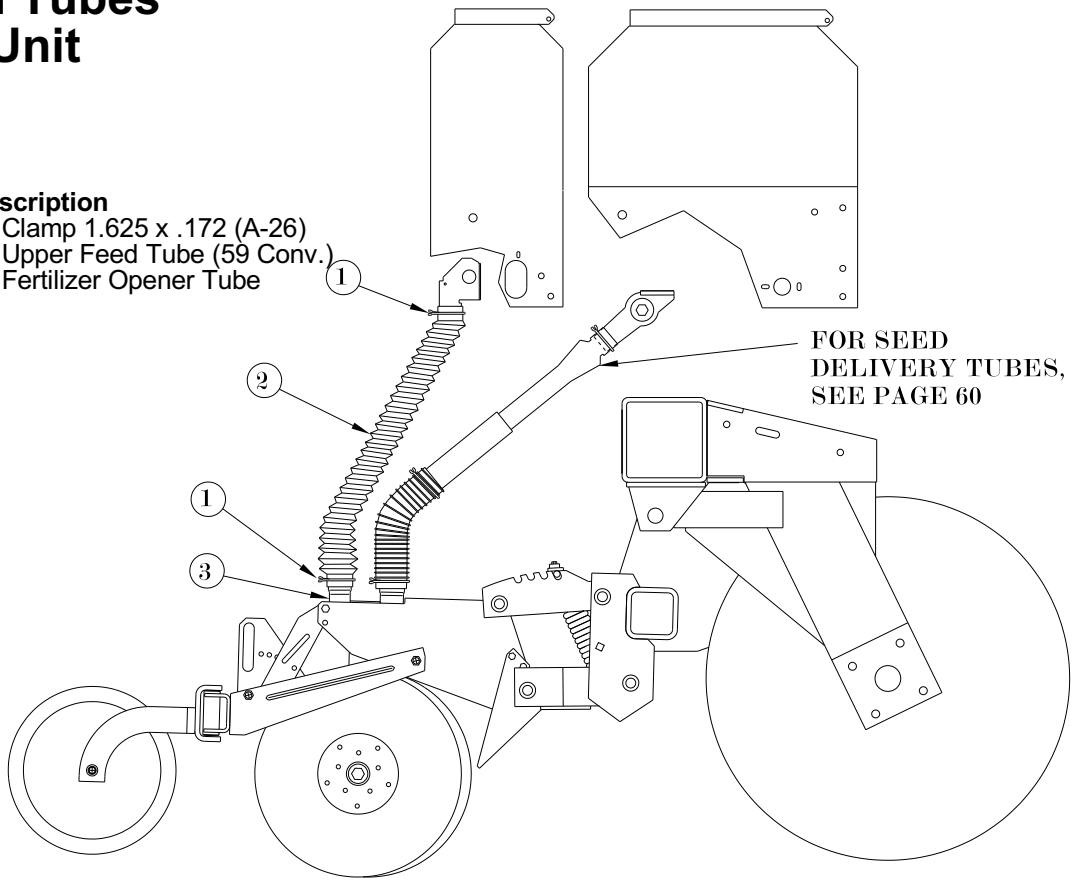
Clutch Half & Drive Clutch Assembly to Gear Box for Fertilizer



4000 Feed Tubes
Fertilizer Unit

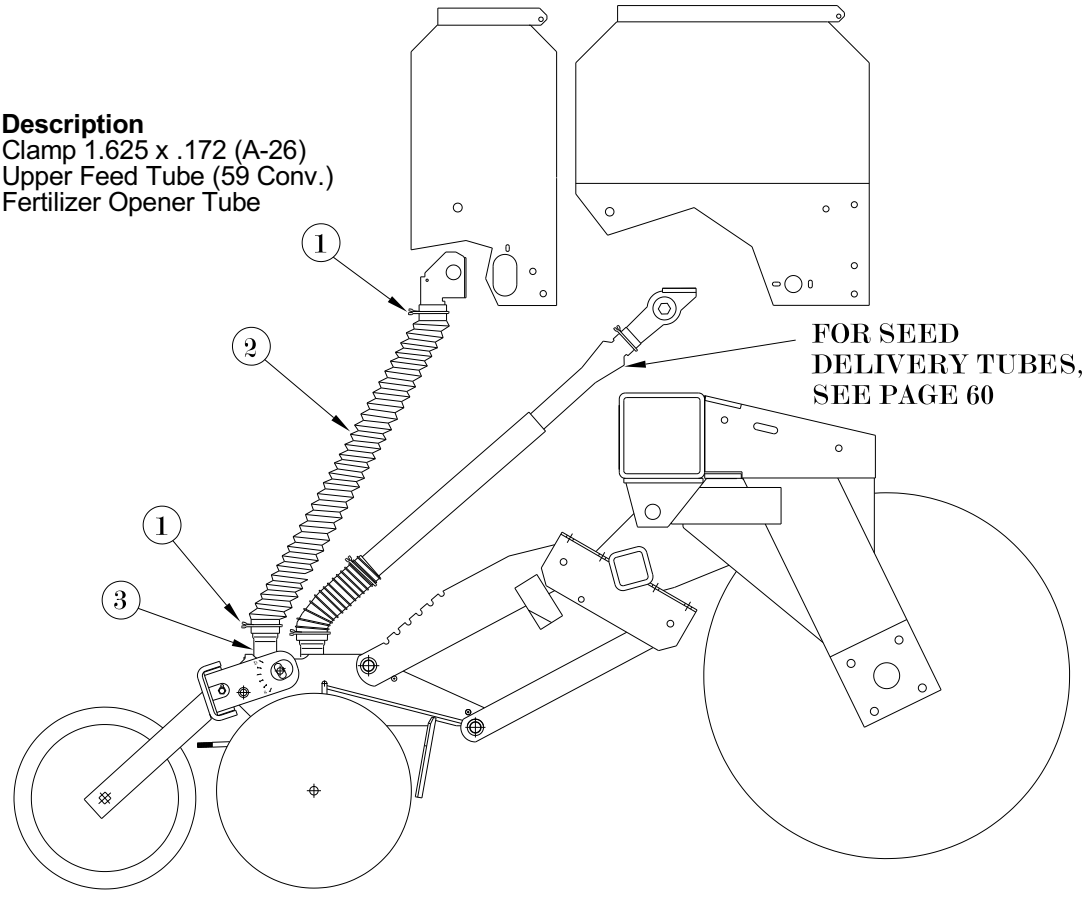
All Plant

Item	Part No.	Description
1	603027	Clamp 1.625 x .172 (A-26)
2	571091	Upper Feed Tube (59 Conv.)
3	954123	Fertilizer Opener Tube



Min-Till

Item	Part No.	Description
1	603027	Clamp 1.625 x .172 (A-26)
2	571091	Upper Feed Tube (59 Conv.)
3	150748	Fertilizer Opener Tube



Troubleshooting

Problem	Solution
Reached limits on depth quadrant	Reposition top bolt in depth quadrant to remaining hole (up or down). Level drill front to back.
Unable to penetrate hard ground	Increase down pressure. Add weight to frame or suitcase weights to the weight bracket.
Press wheels ineffective	Add weight to frame or suitcase weights to the weight bracket. Level drill front to back with adjustable screw or hydraulic tongue cylinder.
Hairpinning residue	Residue tough due to wet soil or damp air. Wait for better conditions. Reduce speed (recommended speed 4-6 m.p.h.)
Opener pitching excessive dirt from seed zone.	Soil too damp. Wait for better conditions. Reduce speed.
Trash plugging ahead of openers	Remove nosepieces to avoid catching long pieces of residue.
Openers pushing and plugging in minimum tillage or conventional	Loose residue in loose soil may require less down pressure. Reduce pressure. Remove spring. Till at shallower depth. Firm soil with packer or roller.
Unable to hold depth in worked soil	Till at shallower depth. Use wider press wheels for more surface contact.

CrustBuster
SPEED KING INC.

P.O.Box 526 Spearville, Kansas 67876 (620) 227-7106

All Grain Drills Final Assembly Check List

Drill Model # _____

Drill Serial # _____

SR. NO.	DESCRIPTION	CHECKED		INITIALS
		Yes	No	
1	Check console, Light kit, Chain bag			
2	No missing nuts & bolts and that all nuts & bolts are tight.			
3	Center lug bolts torque to 120 ft. lbs.			
4	All bearing zerks are greased.			
5	No hydraulic leaks			
6	All decals on and in proper place.			
7	Paint touched up and good overall appearance.			
8	Sprockets aligned properly & chains adjusted visually or with the laser check tool.			
9	Chains are not very tight and have some slack.			
10	Wobble slot open to ¾" and then close at ⅜".			
11	Gauge in store position.			
12	Test shaft trak. Box monitor and shaft.			
13	Final check on opener assembly.			
14	All lock out brackets in place			
15	Manual in box.			
16	No hardware left in box assemblies. (Bolts, Nuts, Tools)			
17	Walk boards aligned and evenly spaced.			
18	Lower seed tubes good and not smashed.			
19	If opener bars off, then seed tubes and extra parts in drill.			
20	Center drive properly aligned (For 4700 drills only).			
21	Center drive in road position (For 4700 drills only).			

Remarks: _____

Signature: _____ Date: _____