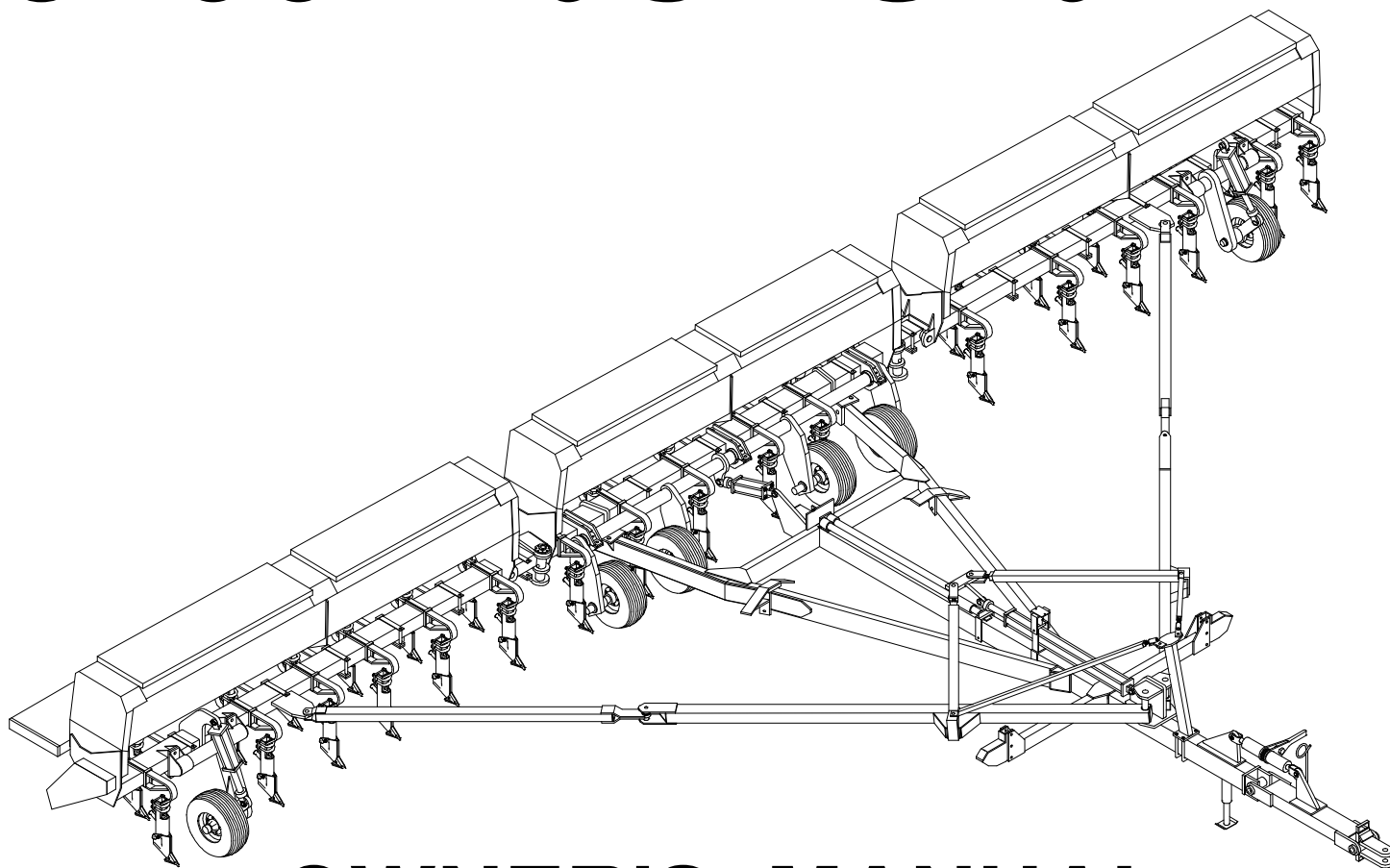




3200 Trash Shank



OWNER'S MANUAL

OPERATION • MAINTENANCE • REPAIR PARTS

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.

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 1438
Dodge City, KS 67801

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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.

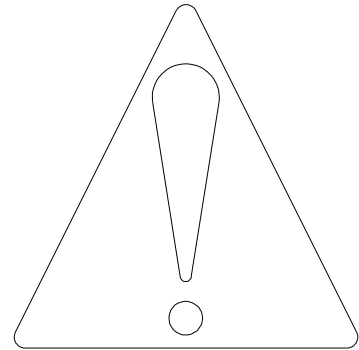
TAKE TIME FOR SAFETY

Safety

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

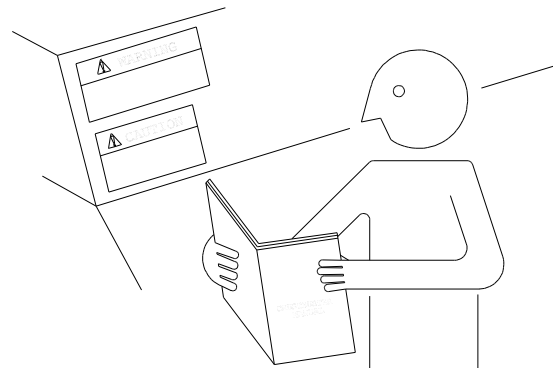
FOLLOW SAFETY INSTRUCTIONS

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 THAN 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-OVER 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.

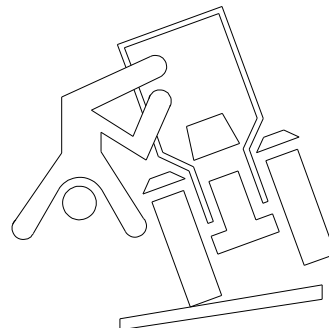
AVOID TIP-OVERS

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 GULCH OR STEEP EMBANKMENT—IT MIGHT CAVE IN.

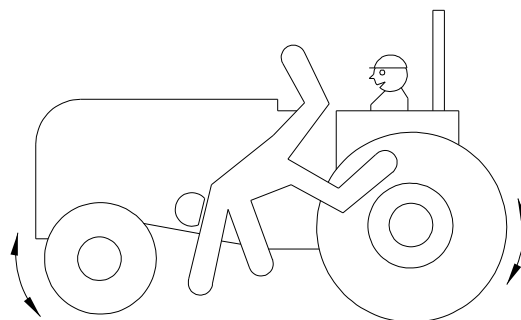
SLOW DOWN FOR HILLSIDES, ROUGH GROUND, AND SHARP TURNS.



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.



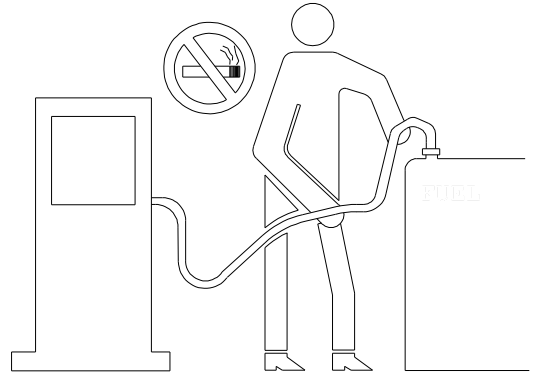
Safety

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.

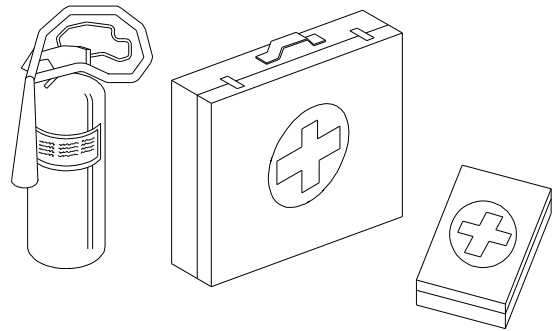


PREPARE FOR EMERGENCIES

BE PREPARED IF A FIRE STARTS.

KEEP A FIRST AID KIT AND FIRE EXTINGUISHER
HANDY.

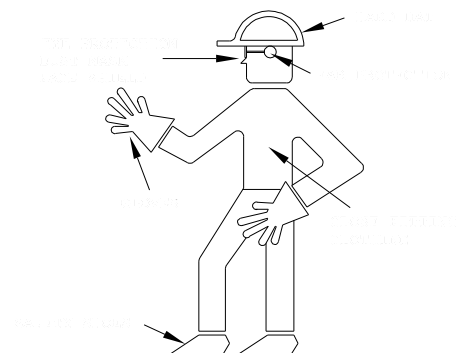
KEEP EMERGENCY NUMBERS FOR DOCTORS,
AMBULANCE SERVICE, HOSPITAL, AND FIRE
DEPARTMENT NEAR YOUR TELEPHONE.



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.

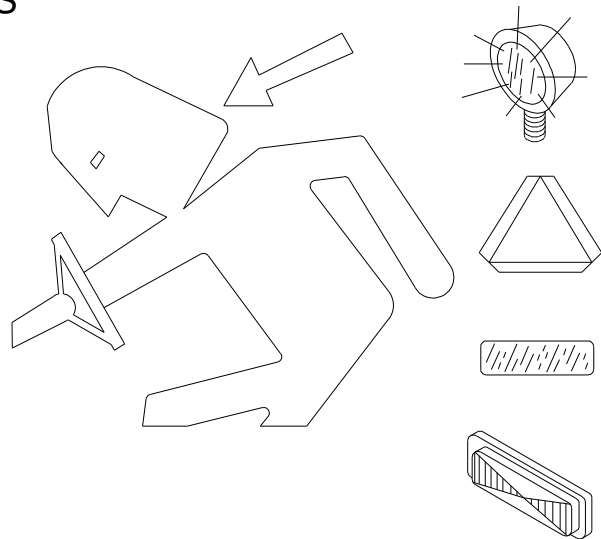


Safety

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 LIGHTS AND MARKING THAT HAS BEEN DAMAGED OR LOST. AN IMPLEMENT SAFETY LIGHTING KIT IS AVAILABLE FROM YOUR CRUISTUSTER DEALER.



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 OR CYLINDERS TO PREVENT OPENERS FROM LOWERING. SECURE WITH PIN.

EXTEND HITCH CYLINDER OUTWARD AND PLACE LOCK-UP BRACKET ON CYLINDER AND SECURE WITH PIN. THIS WILL PREVENT THE HITCH FROM LOWERING.

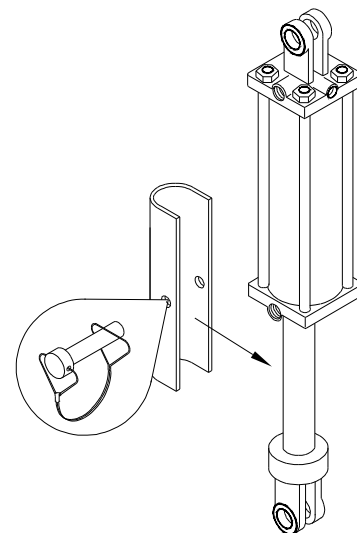
SHIFT THE TRACTOR INTO A LOWER GEAR WHEN TRANSPORTING DOWN STEEP SLOPES OR HILLS.

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

NEVER TRANSPORT THE GRAIN DRILL FASTER THAN 32 KM/H (20 MPH). REDUCE SPEED WHEN TRAVELLING OVER ROUGH GROUND OR WITH THE BOX FULL.

DO NOT TRANSPORT DRILL WITH GRAIN IN BOX.

ALWAYS FOLLOW TIRE MANUFACTURER'S RECOMMENDED CAPACITY (60psi)



Safety

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 32 KM/H (20 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 ONE 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.

ALWAYS FOLLOW TIRE MANUFACTURER'S RECOMMENDED CAPACITY (60psi)

PRACTICE SAFE MAINTENANCE

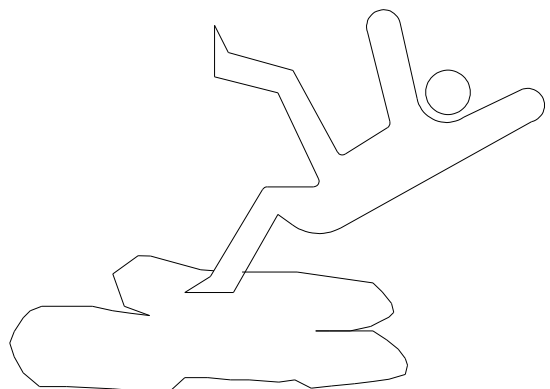
UNDERSTAND SERVICE PROCEDURE BEFORE DOING WORK.
KEEP AREA CLEAN AND DRY.

NEVER LUBRICATE, SERVICE, OR ADJUST MACHINERY 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.



Safety

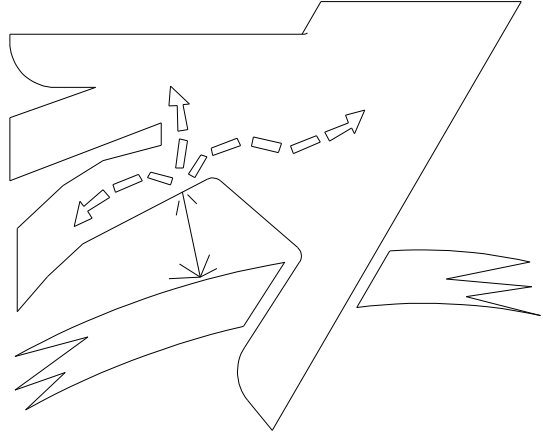
AVOID HIGH-PRESSURE FLUIDS

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.

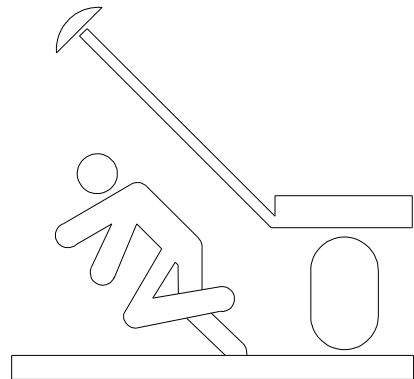
IF AN ACCIDENT OCCURS, SEE A DOCTOR IMMEDIATELY. ANY FLUID INJECTED IN THE SKIN MUST BE SURGICALLY REMOVED WITHIN A FEW HOURS OR GANGRENE MAY RESULT. DOCTORS UNFAMILIAR WITH THIS TYPE OF INJURY SHOULD REFERENCE A KNOWLEDGEABLE MEDICAL SOURCE.



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.



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.

When folding and unfolding, be sure no one is standing near or on the drill.



CAUTION!

During the unfolding sequence, drill becomes tail heavy. Do Not stand over tongue during or after unfolding.

Field Operating Checklist

- ☐ Tires at recommended air pressure (32 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.
- ☐ Drill adjusted for level field operation.
- ☐ Lower drill while moving forward to avoid plugging.
- ☐ Check seed depth and adjust accordingly.
- ☐ Allow no riders.

The CrustBuster 3200 Trash Shank Drill . . .

. . . *is built for the aggressive farmer who needs big drill economy, small drill portability and in-field unfolding.*

. . . *is built in 32' and 40' three section widths with the extra strong trash shanks on 10" and 12" spacing.*

. . . *boxes feature a one-point adjustable seed cup that is recognized as the most accurate and trouble free available for a wide variety of agricultural seeds.*

. . . *along with all CrustBuster Grain Drills represent years of designing, testing, and manufacturing drills that are affordable and portable as is our entire line of farm implements.*

Assembly Instructions

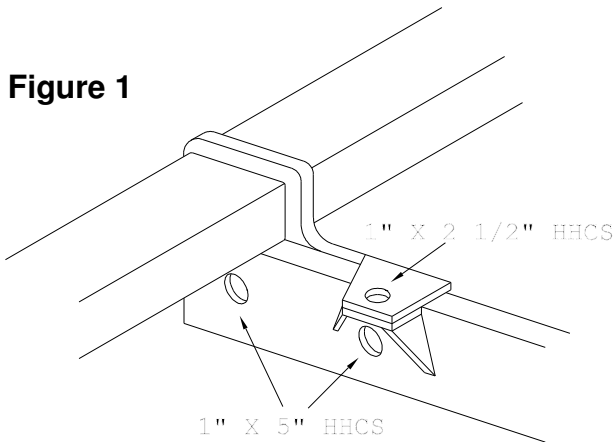
32' Drill

The main and wing sections are pre-assembled at the factory to simplify final assembly. Extreme caution should be taken during assembly for safety. Use sturdy stands in the proper places and use dependable lifting devices for heavy parts. Lay out parts in an area which allows enough room for crane, winch truck, or other safe lifting device to assemble drill.

STEP 1 (Refer to Figure 1)

Place main center section in an upright position standing on hoe points and suitable stands. Lift rear of A-frame to align bolt holes in A-frame with holes in L-shaped plates on front of main center frame. Secure with four (4) 1" x 5" HHCS and lock nuts. Install 1" x 2 1/2" HHCS up through A-frame plate and center frame plate on each side of A-frame and secure with lock nut. Pin jack to jack spool to hold front of A-frame up.

Figure 1

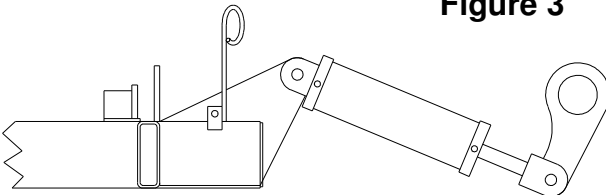


STEP 2 Spindles and hubs are factory installed in center rockershaft to lessen field assembly. Rotate center rockershaft up and install four (4) 6 bolt rim and tire assemblies to hubs.

STEP 3 (Refer to Figure 3)

Rotate rockershaft down and install 4" x 8" hydraulic cylinder base end to A-frame lug (ram end to rockershaft lug) and ports to left side of drill.

Figure 3



STEP 4 Install one hose carrier to tab on back center stub of A-frame with 1/2" x 1 1/2" HHCS, lock washer, and hex nut.

STEP 5 Position wing carrier assembly approximately two inches (2") behind fold lug on A-frame. Insert 3/4" x 6" HHCS with lock washer and hex nut in bottom clamp of wing carrier. DO NOT tighten now - wing carrier may need to be adjusted when wings are folded.

STEP 6 (Refer to Figure 6)

Slide fold slide onto slide bars with cylinder hole toward U-clamp on slide bars. Put slide bars into the two tubes located on back end of A-frame and secure U-clamp with 1/2" x 5 1/2" HHCS, lock washer, and hex nut.

With cylinder pins provided, attach base end of 3" x 30" hydraulic cylinder to fold cylinder lug. (Ports of cylinder to right side of drill.) Lift ram end of cylinder and slip fold cylinder hold-down over A-frame approximately twenty inches (20") from base of cylinder. Lower cylinder into hold-down, move fold slide to align with ram end of fold cylinder, and attach with cylinder pin. Bolt cylinder hold-down to A-frame with 1/2" x 5 1/2" HHCS, lock washer, and hex nut. **If a selector valve is used**, its mounting bracket is installed on top of cylinder hold-down with a 1/2" x 5 1/2" HHCS. **If no selector valve is used**, install a 1/2" x 4 1/2" HHCS, lock washer, and hex nut in top of cylinder hold-down.

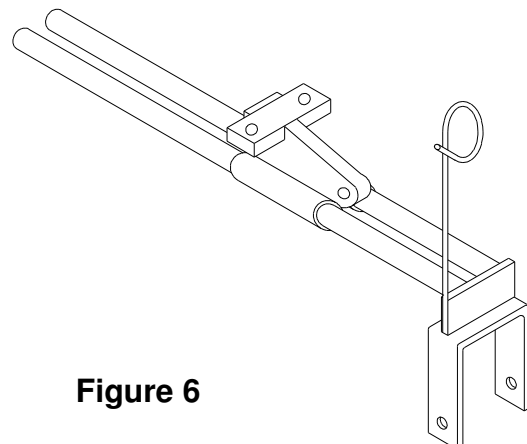


Figure 6

Assembly Instructions

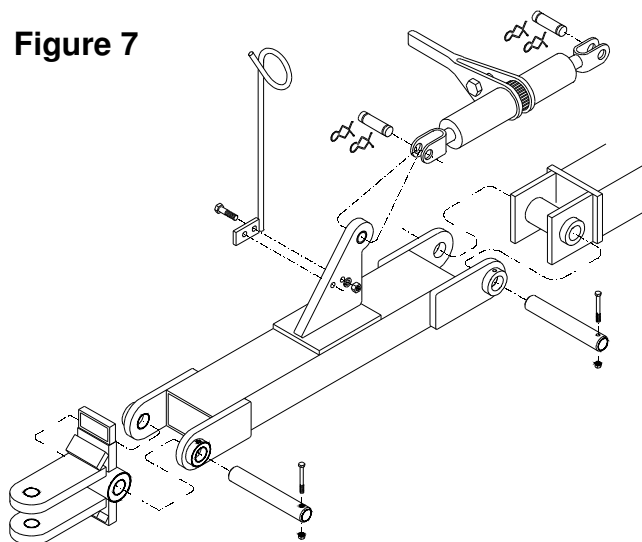
32' Drill

STEP 7 (Refer to Figure 7)

Install hitch on front of A-frame (lug on hitch goes on top, pointing to back of drill) with 1 1/2" x 9 1/2" pin. Clevis is attached to front of hitch with 1 1/2" x 9 1/2" pin. These pins are secured with 5/16" x 3" HHCS and lock nuts. Install ratchet turnbuckle between lug on A-frame and lug on hitch with pins provided with turnbuckle.

Install hose carrier on side of hitch lug with two (2) 1/2" x 2" HHCS, lock washers, and hex nuts.

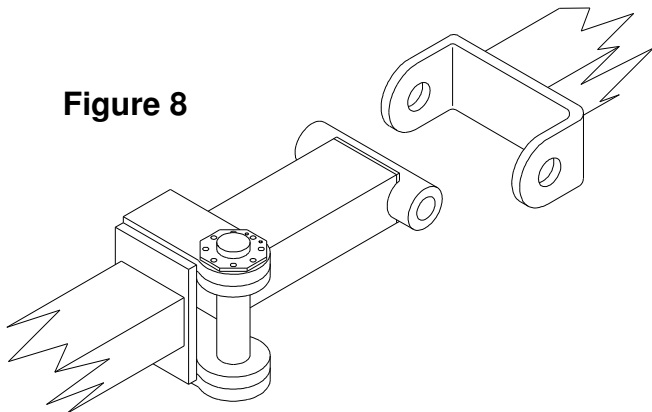
Figure 7



STEP 8 (Refer to Figure 8)

Lift wing frame assembly at point of balance and align U-shaped part on wing frame with spool on center frame hinge. Insert 1 1/2" x 11 3/8" hinge pin (pin with square head) from front so small stop on wing frame keeps pin from turning. Secure with 1 1/2" hex nut. Tighten set screw in nut. Lower wing to ground. Attach plastic tube on inside cup of drill box to shank feed tube located on hinge. Secure with hose clamp. Use the same procedure to assemble opposite wing.

Figure 8



STEP 9 (Refer to Figure 9)

Front pull bars are installed between plates of fold lug located on front of A-frame. The front pull bars are right and left. They are installed with fold arm clevis up and to outside of A-frame. They are attached with 1 1/2" x 11 3/8" pins. (round washer head) and 3/8" x 3 1/2" cotter pins.

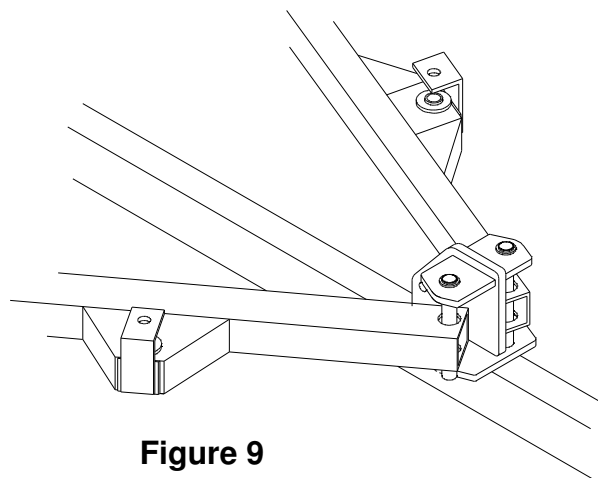


Figure 9

STEP 10 (Refer to Figure 10)

Swivel ball end of rear pull bar mounts between plates on rear of front pull bars. Secure with 1" x 6 1/2" HHCS installed **with head down** and lock nuts.

Attach clevis end of rear pull bar to swivel ball plate on front of wings with 1" x 4" HHCS and lock nuts.

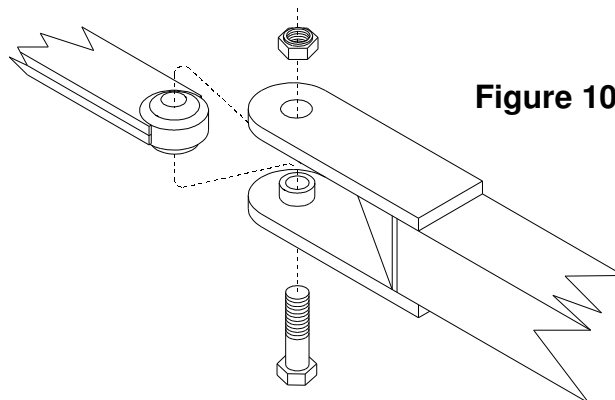


Figure 10

Assembly Instructions

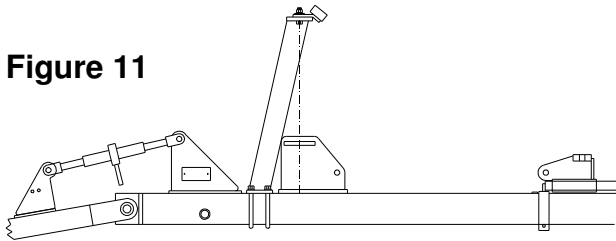
32' Drill

STEP 11 (Refer to Figure 11)

Attach pull bar truss stand to A-frame in front of fold lug with two (2) $\frac{3}{4}$ " x 4 " x $7\frac{1}{2}$ " U-bolts, lock washers, and hex nuts. Holes in top of stand should be straight above the front pull bar pivot pins.

Install truss swivel to the top of each hole in truss stand. These swivels pivot around a $1\frac{1}{4}$ " O.D. x $\frac{13}{16}$ " I.D. x $\frac{9}{16}$ " long spool secured with $\frac{3}{4}$ " x $2\frac{1}{2}$ " HHCS, flat washer, and lock nut.

Figure 11



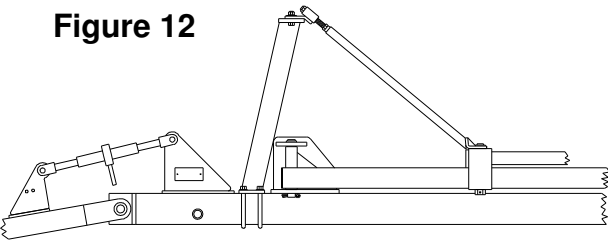
STEP 12 (Refer to Figure 12)

Slide tube end of fold arm assembly into clevis of front pull bar, align holes, insert $1\frac{1}{4}$ " x $9\frac{1}{2}$ " pin through truss tube down through front pull bar clevis and fold arm.

Insert $\frac{7}{8}$ " truss adjusting bolt through swivel. Install $\frac{7}{8}$ " hex nut and thread into truss tube. Install $1\frac{1}{4}$ " hex nut on fold arm pin, tighten and secure set screw. Follow the same procedure on other side of drill.

Tighten truss rod bolts so when drill is folded, pull bars will not catch on A-frame. Jam $\frac{7}{8}$ " hex nut to keep truss rod adjustment secure.

Figure 12



STEP 13 Adjust both fold arms to $48\frac{3}{4}$ ". These may need minor adjustment when drill is folded. The adjustable screw ends attach to the fold slide with 1 " x $3\frac{1}{2}$ " HHCS and lock nuts.

STEP 14 Install a 2 " x 8 " hydraulic cylinder (base end to frame -- ram end to wheel lug -- ports to inside of drill) to wing wheel rockershaft. Install 5-bolt rim and tire assembly to hub. Follow the same procedure on opposite wing rockershaft.

STEP 15 Mount selector valve plate to selector valve bracket with two (2) $\frac{3}{8}$ " x 1 " HHCS, nuts, and lock washers. Attach valve to plate with two (2) $\frac{5}{16}$ " x 1 " HHCS and lock washers. Valve is mounted with handle up and two port side forward. Install fittings and hoses per Figure 15 on page 4.

Use hose clamps to attach hoses along front of frames. These are attached to walkboard and tooth clamp bolts. Cable wrap and hose carriers hold hoses which are routed down top of A-frame. Slack in hoses going to wing cylinders is needed at the hinge. Attach a hose clamp on front bolt of inside wing box standoff to hold hoses up over hinge area.

STEP 16 WING LEVEL ADJUSTMENTS. Activate hydraulics to wing and center frame cylinders to raise drill. Level top of 4 " x 6 " center frame tube using hitch jack. (Refer to Figure 16.) Check each wing about midway out on 4 " x 6 " tube to make sure it is level. If wings require leveling, remove two (2) $\frac{3}{8}$ " bolts which hold large hex plate on top of hinge. Loosen set screw in side of $1\frac{1}{2}$ " hex nut and loosen nut. Hinges are set at factory at zero degrees. **This is indicated by two small holes in hex plate pointing outward toward wing.** To tip wing FORWARD, turn indicator holes to front of drill. To tip wing BACKWARDS, turn indicator holes to back of drill. Level both wings and re-secure $\frac{3}{8}$ " bolts, $1\frac{1}{2}$ " nut, and set screws.

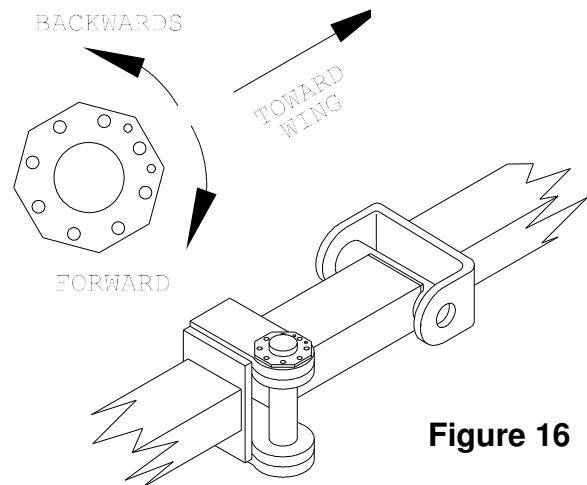
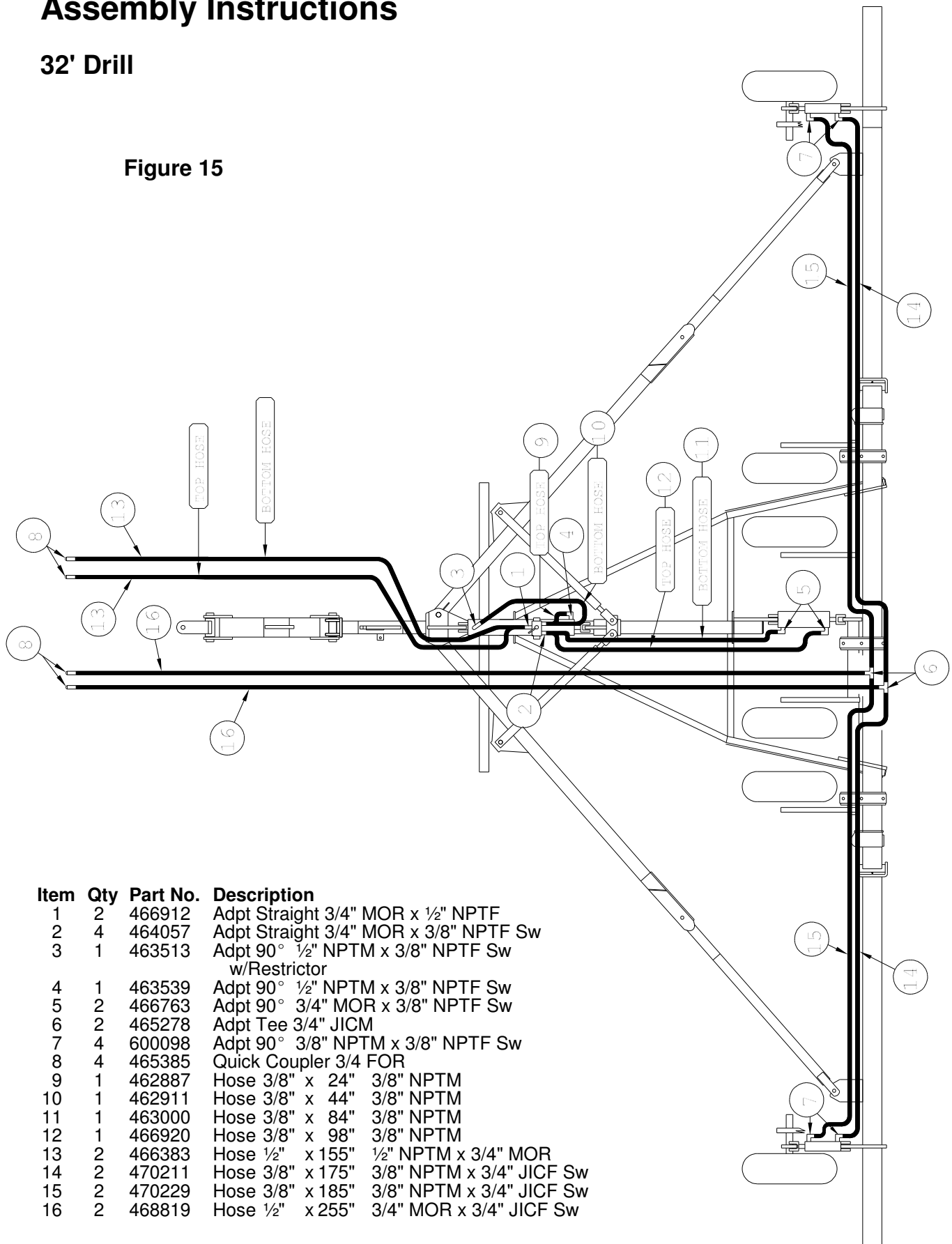


Figure 16

Assembly Instructions

32' Drill

Figure 15



Item	Qty	Part No.	Description
1	2	466912	Adpt Straight 3/4" MOR x 1/2" NPTF
2	4	464057	Adpt Straight 3/4" MOR x 3/8" NPTF Sw
3	1	463513	Adpt 90° 1/2" NPTM x 3/8" NPTF Sw w/Restrictor
4	1	463539	Adpt 90° 1/2" NPTM x 3/8" NPTF Sw
5	2	466763	Adpt 90° 3/4" MOR x 3/8" NPTF Sw
6	2	465278	Adpt Tee 3/4" JICM
7	4	600098	Adpt 90° 3/8" NPTM x 3/8" NPTF Sw
8	4	465385	Quick Coupler 3/4 FOR
9	1	462887	Hose 3/8" x 24" 3/8" NPTM
10	1	462911	Hose 3/8" x 44" 3/8" NPTM
11	1	463000	Hose 3/8" x 84" 3/8" NPTM
12	1	466920	Hose 3/8" x 98" 3/8" NPTM
13	2	466383	Hose 1/2" x 155" 1/2" NPTM x 3/4" MOR
14	2	470211	Hose 3/8" x 175" 3/8" NPTM x 3/4" JICF Sw
15	2	470229	Hose 3/8" x 185" 3/8" NPTM x 3/4" JICF Sw
16	2	468819	Hose 1/2" x 255" 3/4" MOR x 3/4" JICF Sw

Assembly Instructions

32' Drill

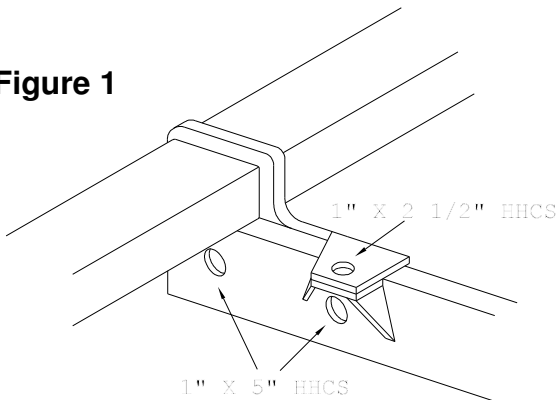
STEP 17 FOLD ADJUSTMENTS. Install cylinder lockout in center frame cylinder and secure with 5/16" x 2 3/4" pin. Switch selector valve to fold cylinder. Slowly fold drill checking for clearances and binding. Move wing carrier so stands contact wing frames at a clear location. Tighten 3/4" x 6" HHCS to hold wing carrier. If wings do not fold fully, adjust clevis screw in end of fold arms. Screw in to fold further, and out so wing does not fold in as far.

Raise latches on wing carrier and secure with 3/4" pins. Raise wing wheels and drill is ready for transport.

40' Drill

STEP 1 (Refer to Figure 1) Place main center section in an upright position standing on hoe points and suitable stands. Lift rear of A-frame to align bolt holes in A-frame with holes in L-shaped plates on front of main center frame. Secure with four (4) 1" x 5" HHCS and lock nuts. Install 1" x 2 1/2" HHCS up through A-frame plate and center frame plate on each side of A-frame and secure with lock nut. Pin jack to jack spool to hold front of A-frame up.

Figure 1



STEP 2 Spindles and hubs are factory installed in center rockershaft to lessen field assembly. Rotate center rockershaft up and install four (4) 6 bolt rim and tire assemblies to hubs.

STEP 3 (Refer to Figure 3) Rotate rockershaft down and install 4" x 8" hydraulic cylinder base end to A-frame lug (ram end to rockershaft lug) and ports to left side of drill.

STEP 4 Install one hose carrier to tab on back center stub of A-frame with 1/2" x 1 1/2" HHCS, lock washer, and hex nut.

STEP 5 Position wing carrier assembly on A-frame mounting plates. Secure with 5/8" x 2" HHCS, lock washers, and hex nuts.

STEP 6 (Refer to Figure 6) Place fold slide onto center of A-frame with cylinder hole toward front. Bolt bottom slide assembly on with eight (8) 1/2" x 1 1/2" HHCS, flat washer, lock washers, and hex nuts.

With cylinder pins provided, attach base end of 3" x 40" hydraulic cylinder to fold cylinder lug. (Ports of cylinder to right side of drill.) Lift ram end of cylinder and slip fold cylinder hold-down over A-frame approximately twenty inches (20") from base of cylinder. Lower cylinder into hold-down, move fold slide to align with ram end of fold cylinder, and attach with cylinder pin. Bolt cylinder hold-down to A-frame with 1/2" x 5 1/2" HHCS, lock washer, and hex nut. **If a selector valve is used**, its mounting bracket is installed on top of cylinder hold-down with a 1/2" x 5 1/2" HHCS. **If no selector valve is used**, install a 1/2" x 4 1/2" HHCS, lock washer, and hex nut in top of cylinder hold-down.

Figure 6

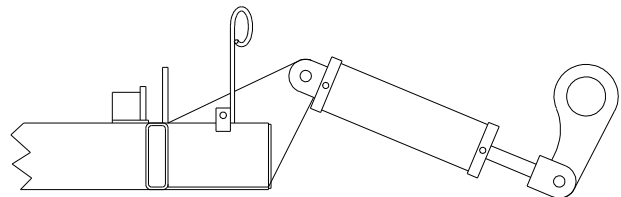
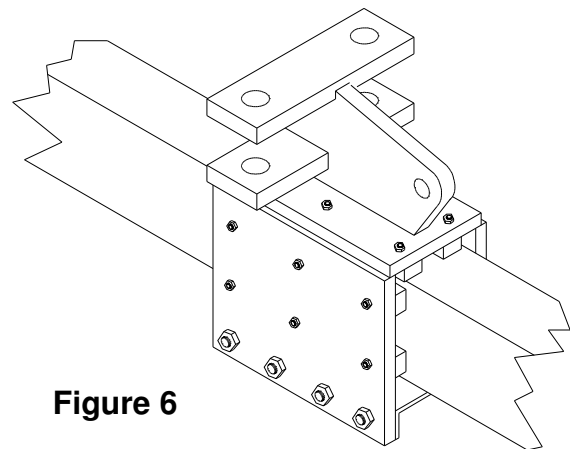


Figure 3

Assembly Instructions

40' Drill

STEP 7 (Refer to Figure 7)

Install hitch on front of A-frame (lug on hitch goes on top, pointing to back of drill) with 1 1/2" x 9 1/2" pin. Clevis is attached to front of hitch with 1 1/2" x 9 1/2" pin. These pins are secured with 5/16" x 3" HHCS and lock nuts. Install ratchet turnbuckle between lug on A-frame and lug on hitch with pins provided with turnbuckle.

Install hose carrier on side of hitch lug with two (2) 1/2" x 2" HHCS, lock washers, and hex nuts.

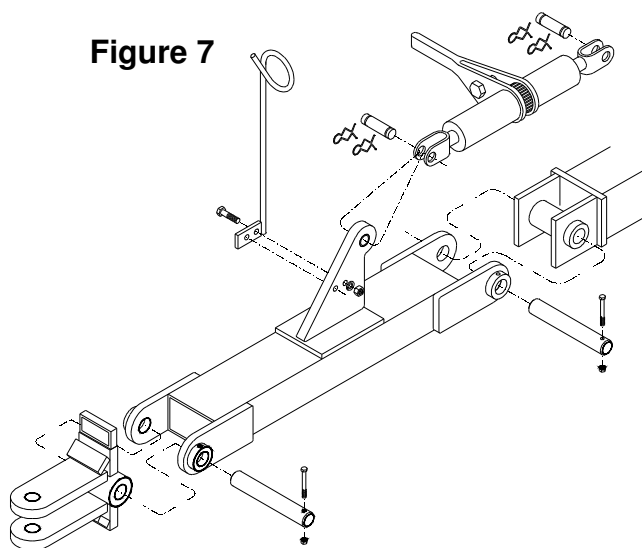


Figure 7

STEP 8 (Refer to Figure 8)

Lift wing frame assembly at point of balance and align U-shaped part on wing frame with spool on center frame hinge. Insert 1 1/2" x 11 3/8" hinge pin (pin with square head) from front so small stop on wing frame keeps pin from turning. Secure with 1 1/2" hex nut. Tighten set screw in nut. Lower wing to ground. Attach plastic tube on inside cup of drill box to shank feed tube located on hinge. Secure with hose clamp. Use the same procedure to assemble opposite wing.

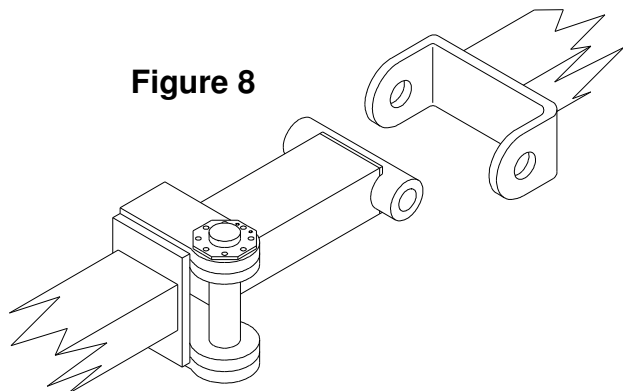


Figure 8

STEP 9 (Refer to Figure 9)

Install front pull bar swivels into holes in front of A-frame. Secure with 1" x 4 1/2" HHCS, 1/4" thick flat washers (1/4" x 2 1/2" OD x 1 1/32" ID), and lock nuts. The front pull bars are installed with fold arm holes to outside of A-frame. They are attached to swivels with 1" x 9" HHCS and lock nuts. **Be sure head of bolt is in toward A-frame.**

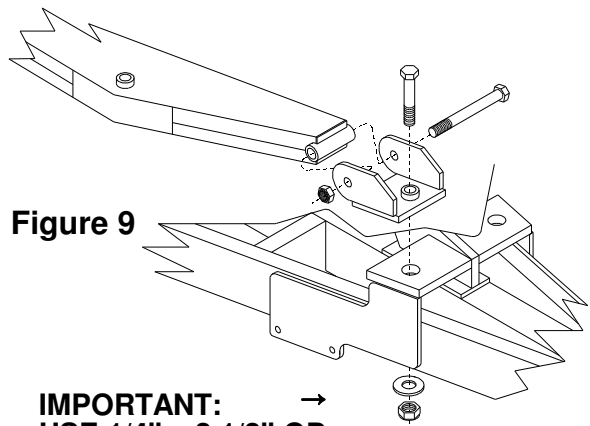


Figure 9

IMPORTANT:
USE 1/4" x 2 1/2" OD x 1 1/32" ID WASHER FOUND IN BOLT BOX.

STEP 10 (Refer to Figure 10)

With long end of spool on rear pull bar up, attach clevis end to swivel ball plate on front of wings with 1" x 4" HHCS and lock nut. Connect front and rear pull bars with 1 1/2" x 9 3/4" square head pin and 1 1/2" hex nut with set screw. **Head of pin is down.**

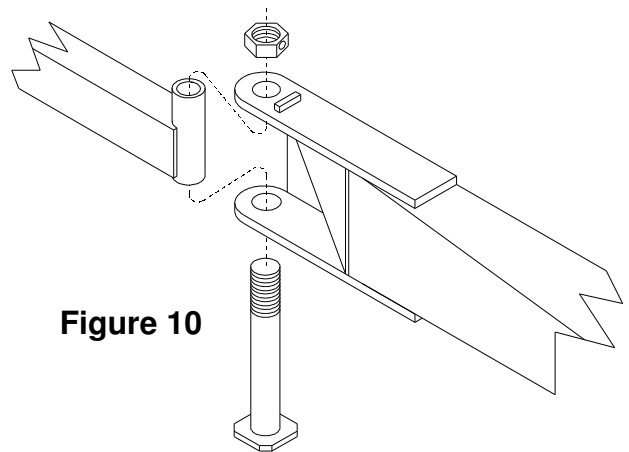


Figure 10

Install a fold arm on top and bottom of each front pull bar with other end attached to top and bottom of slide plate with 1" x 10 1/2" HHCS and lock nuts.

Assembly Instructions

40' Drill

STEP 11 Attach pull bar slides to each side of A-frame in front of cross tube with 1/2" x 4 1/2" HHCS, lock washer, and hex nut.

STEP 12 Install a 3" x 8" hydraulic cylinder (base end to frame -- ram end to wheel lug -- ports to top of drill) to wing wheel rockershaft. Install 5-bolt rim and tire assemblies to hubs. Follow the same procedure on opposite wing rockershaft.

STEP 13 Mount selector valve plate to selector valve bracket with two (2) 3/8" x 1" HHCS, nuts, and lock washers. Attach valve to plate with two (2) 5/16" x 1" HHCS and lock washers. Valve is mounted with handle up and two port side forward. Intall fittings and hoses *per Figure 13 on page 4*.

Use hose clamps to attach hoses along front of frames. These are attached to walkboard and tooth clamp bolts. Cable wrap and hose carriers hold hoses which are routed down top of A-frame. Slack in hoses going to wing cylinders is needed at the hinge. Attach a hose clamp on front bolt of inside wing box standoff to hold hoses up over hinge area.

STEP 14 WING LEVEL ADJUSTMENTS. Activate hydraulics to wing and center frame cylinders to raise drill. Level top of 4" x 6" center frame tube using hitch jack. (*Refer to Figure 14.*) Check each wing about midway out on 4" x 6" tube to make sure it is level. If wings require leveling, remove two (2) 3/8" bolts which hold large hex plate on top of hinge. Loosen set screw in side of 1 1/2" hex nut and loosen nut. Hinges are set at factory at zero degrees. **This is indicated by two small holes in hex plate pointing outward toward wing.** To tip wing FORWARD, turn indicator holes to front of drill. To tip wing BACKWARDS, turn indicator holes to back of drill. Level both wings and re-secure 3/8" bolts, 1 1/2" nut, and set screws.

STEP 15 FOLD ADJUSTMENTS. Install cylinder lockout in center frame cylinder and secure with 5/16" x 2 3/4" pin. Switch selector valve to fold cylinder. Slowly fold drill checking for clearances and binding. If wings do not fold fully, adjust clevis on end of fold cylinder. Screw out to fold further, and in so wing does not fold in as far.

Raise latches on wing carrier and secure with 3/4" pins. Raise wing wheels and drill is ready for transport.

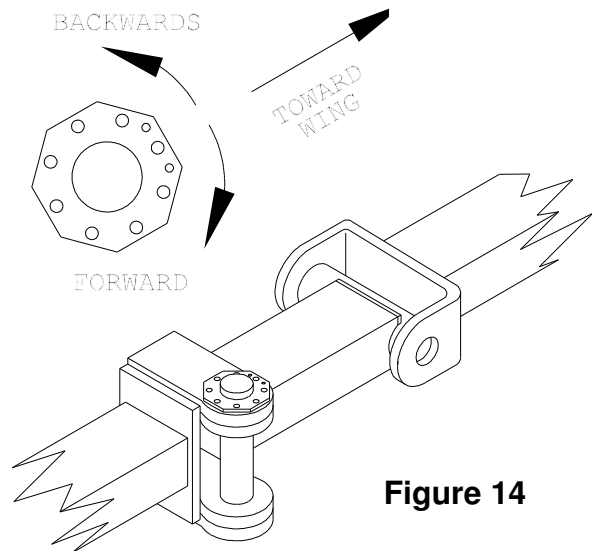
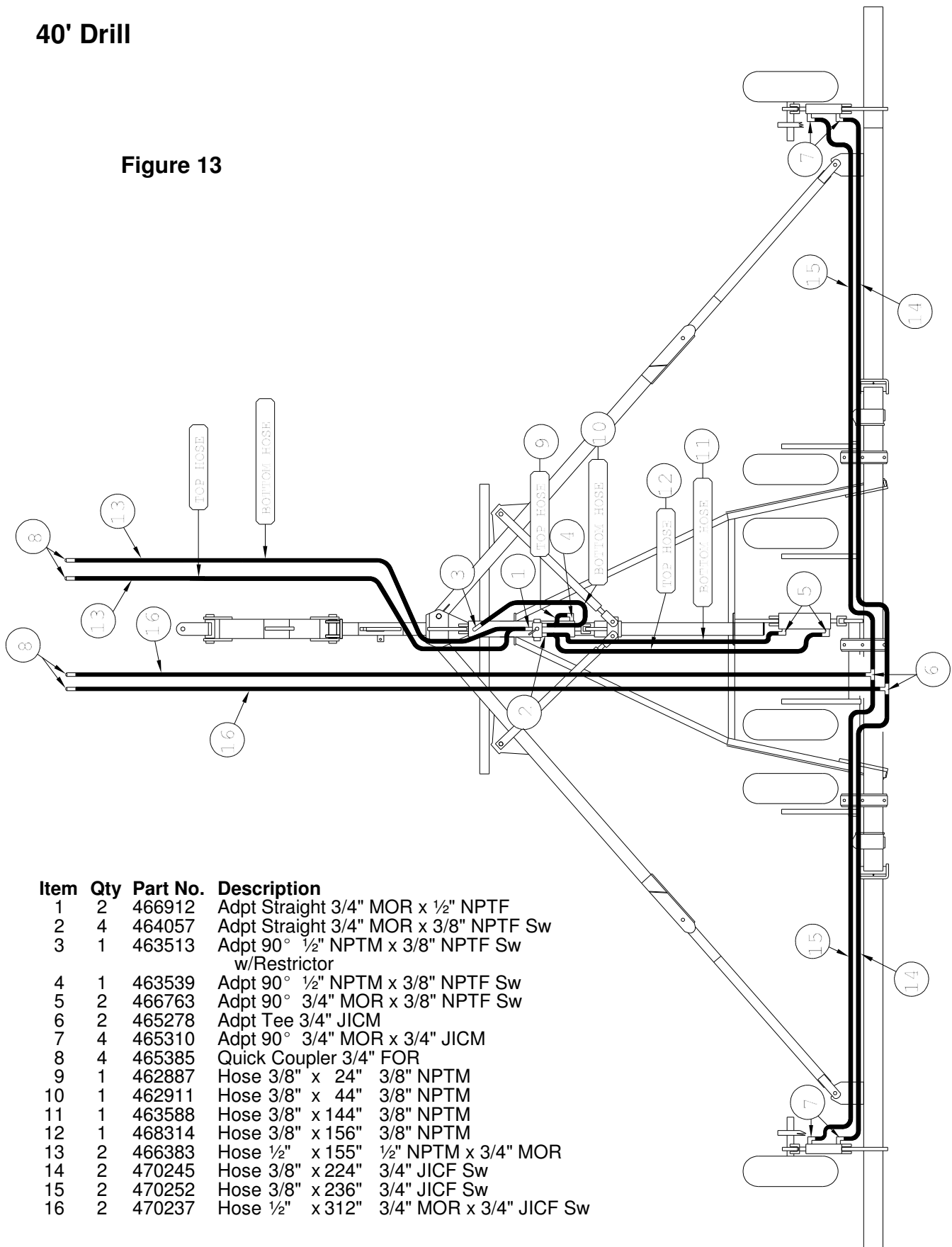


Figure 14

Assembly Instructions

40' Drill

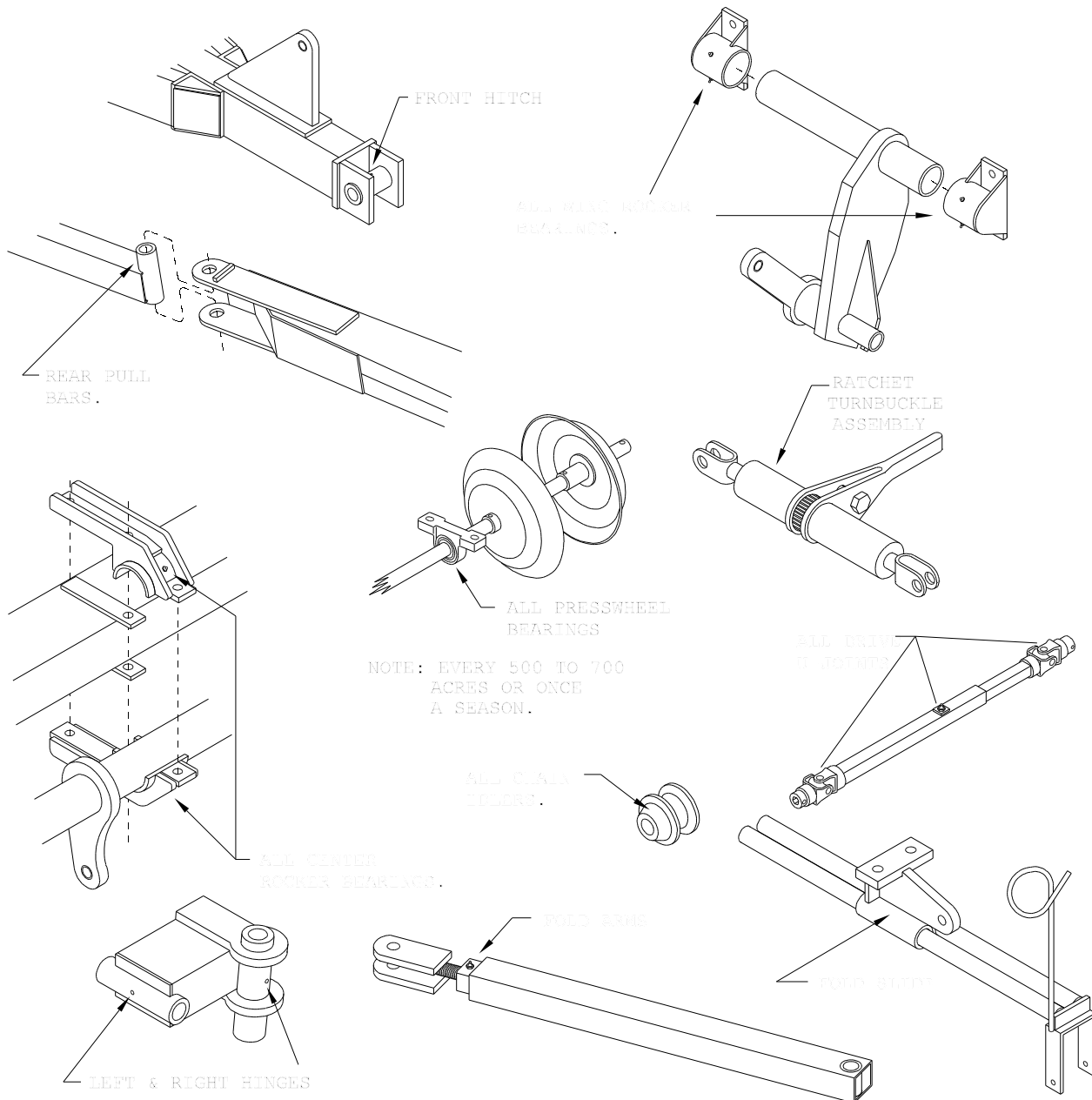
Figure 13



Item	Qty	Part No.	Description
1	2	466912	Adpt Straight 3/4" MOR x 1/2" NPTF
2	4	464057	Adpt Straight 3/4" MOR x 3/8" NPTF Sw
3	1	463513	Adpt 90° 1/2" NPTM x 3/8" NPTF Sw w/Restrictor
4	1	463539	Adpt 90° 1/2" NPTM x 3/8" NPTF Sw
5	2	466763	Adpt 90° 3/4" MOR x 3/8" NPTF Sw
6	2	465278	Adpt Tee 3/4" JICM
7	4	465310	Adpt 90° 3/4" MOR x 3/4" JICM
8	4	465385	Quick Coupler 3/4" FOR
9	1	462887	Hose 3/8" x 24" 3/8" NPTM
10	1	462911	Hose 3/8" x 44" 3/8" NPTM
11	1	463588	Hose 3/8" x 144" 3/8" NPTM
12	1	468314	Hose 3/8" x 156" 3/8" NPTM
13	2	466383	Hose 1/2" x 155" 1/2" NPTM x 3/4" MOR
14	2	470245	Hose 3/8" x 224" 3/4" JICF Sw
15	2	470252	Hose 3/8" x 236" 3/4" JICF Sw
16	2	470237	Hose 1/2" x 312" 3/4" MOR x 3/4" JICF Sw

Maintenance

1. Preventative maintenance is the key to the long life of any farm implement. With careful and systematic inspection of your grain drill, you can avoid costly maintenance time and repairs.
2. Grease the following daily: all zerks, chain idlers, wing frame hinge, wheel arm pivots, rocker bearings, fold slide rods.
3. After using your implement for several hours, check all bolts to be sure they are tight.
4. At the end of each season, clean the feed slot with diesel fuel. This will provide a protective coating against rust and corrosion. Be careful when cleaning with diesel fuel so that it does not ignite. Use only in a well ventilated area and away from sparks or flames.
5. Clean and repack all wheel bearings at the beginning of each season. Also, check during the season and take up if necessary.
6. When the points of the hoe teeth wear down, reverse the point and use the other end.



Transporting Instructions

To hook clevis to tractor, adjust hitch up or down using hitch jack. Insert the hitch pin or large bolt (Grade 8 or more) with locking nut. Use the ratchet turnbuckle to set front and rear shanks at the same depth. This will be the only time the turnbuckle is adjusted unless you change tractor drawbar height or you change planting depth. Secure jack before moving drill.

Folding and Unfolding Drill

Folding procedure should be done on nearly level ground with tractor in neutral. When drill is plumbed with manual hydraulic selector valves, adjust valve handle to change hydraulic flow to the fold cylinder. Make sure wing carrier brackets are adjusted to just clear wing frames with drill raised completely up.

To Fold. . . Make sure drill is raised completely up. Hold hydraulic pressure on fold cylinder until wings are in position. Push the latch plates up and wings are contained. Insert pins into wing carrier stands to secure the wings. When wings are secure, raise the wing wheels so wing frame weight rests on carrier stands.

To Unfold. . . Pull carrier stand pins to release latch plates. Push latch plates down to clear wing frames. Lower wing wheels completely down. Hold hydraulic pressure on fold cylinder until wings frames are out into position. Move hydraulic selector valve back to center to raise and lower drill for field operation.

Operating Instructions

Safe operation and field operation in addition to the previous steps concerning assembly are essential to the proper operation of your drill. Follow these steps carefully and your implement will give you the optimum in performance.

Safe Operation. . .

1. NEVER ride the drill when in operation! Particular care should be exercised at all times when drill is hooked to tractor and there is a chance of activating the hydraulics.
2. When transporting the drill, make certain the wings are resting on the wing carrier and wing safety latch plate are secure.
3. Safety shields must be in place and secured when machine is in operational mode.
4. When transporting, watch both sides carefully. Remember, you have about three feet of imple-

ment on both sides extending beyond the end of the center box when unit is folded. A large part of this is the wing press wheels which are hidden from your line of view from tractor.

5. When transporting, be particularly careful when crossing sharp dips or ridges in road, or if you have to hang press wheels over shoulder of the road. Press wheels could drag and cause damage to the implement.
6. Reduce speed when transporting over uneven or rough terrain.
7. Never allow anyone other than yourself on the tractor when operating or transporting the grain drill.
8. Shift the tractor into a lower gear when transporting down hills or steep slopes.
9. Never allow anyone around the grain drill when you are performing operating functions of the grain drill.
10. If your tractor is equipped with a seat belt be sure to keep your seat belt fastened when operating or transporting the grain drill.
11. Always lower the grain drill and stop the tractor engine before lubricating.
12. Before filling grain boxes, properly hitch drill to tractor to prevent possibility of drill tipping over backward.
13. Be careful when cleaning with diesel fuel so that it does not ignite. Use only in a well ventilated area and away from sparks and flames.
14. Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes, and hoses are not damaged.
15. Hydraulic fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.
16. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

Field Operation. . . Check drill carefully before starting to seed. A small amount of time spent before field operation could save a lot of down time in the field plus the aggravation and loss of a seeding job poorly done.

1. Secure drill hitch to tractor drawbar with proper pin and lock in place. Pin drawbar on tractor as not to swing. Connect hydraulic line (or lines) to tractor hydraulic outlets. (See hydraulic plumbing.) Raise hitch jack, unlock pin, swing base of jack backward to lock position. Activate tractor hydraulic control valve to lower all wheels to maximum.

Operating Instructions

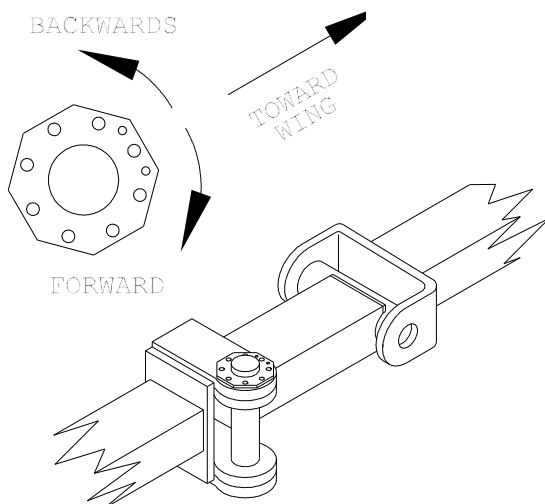
Field Operation. . . (cont'd)

Disconnect all wing carrier latch plates. (Failure to do so will cause damage to frame and folding mechanism.) Activate tractor control valve to folding cylinder. This unfolds drill. (See folding and unfolding instructions.) Folding or unfolding should be done slowly. (Make sure folding cylinder is equipped with restrictor valve as shown in the plumbing layout. Level, firm soil conditions reduce strain on hydraulic fold pieces while folding and unfolding and definitely add to life of implement.

2. Lower implement into field position and make sure center frame section is level. If unit is not level, adjustment can be made by using ratchet screw on hitch. A double check can be made by checking the relative working depth of front and back row shanks after a test run of operating the implement at normal working speed.

LEVELING ADJUSTMENTS:

Activate hydraulics to wing and center frame cylinders to raise drill. Level top of 4" x 6" center frame tube using hitch jack. Check each wing about midway out on 4" x 6" tube to make sure it is level. If wings require leveling, remove two (2) 3/8" bolts which hold large hex plate on top of hinge. Loosen set screw in side of 1 1/2" hex nut and loosen nut. Hinges are set at factory at zero degrees. **This is indicated by two small holes in hex plate pointing outward toward wing.** To tip wing FORWARD, turn indicator holes to front of drill. To tip wing BACKWARDS, turn indicator holes to back of drill. Level both wings and re-secure 3/8" bolts, 1 1/2" nut, and set screws. (Refer to Figure below.)



CAUTION: Before filling grain boxes, properly hitch the drill to tractor to prevent possibility of drill tipping over backward.

3. Before filling box with seed, rotate seed shaft. The elements of weather, dirt, etc. may cause corrosion and freeze seed shaft from time of previous seeding. Remove undesirable material from inside of box. A small amount of penetrating oil (or similar light lubricant) in each wobble slot feed cup would be helpful.

Seed Stoppage. . .

1. Stoppage in the boot area occurs in wet conditions. Never drop implement in ground from a stand still. Turning too short and backing one wing will cause stoppage.
2. Bridging in drill box may occur in oats and corn. An agitator may need to be installed. Powdered inoculant on soybeans may cause bridging and stoppage of the feed cup. It can cause the shaft to turn hard causing excessive wear. Liquid inoculant is recommended. Addition of powdered graphite with each filling may be helpful when using inoculated seed.
3. Spider webs in feed spout and tube will restrict seed passage and are hard to detect. Before starting to drill - with the drill out of the ground, rotate the seed shaft, making certain seed passes through each spout and tube.
4. Check drill often making certain unit is functioning and seeding properly. If not, take corrective action.

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.

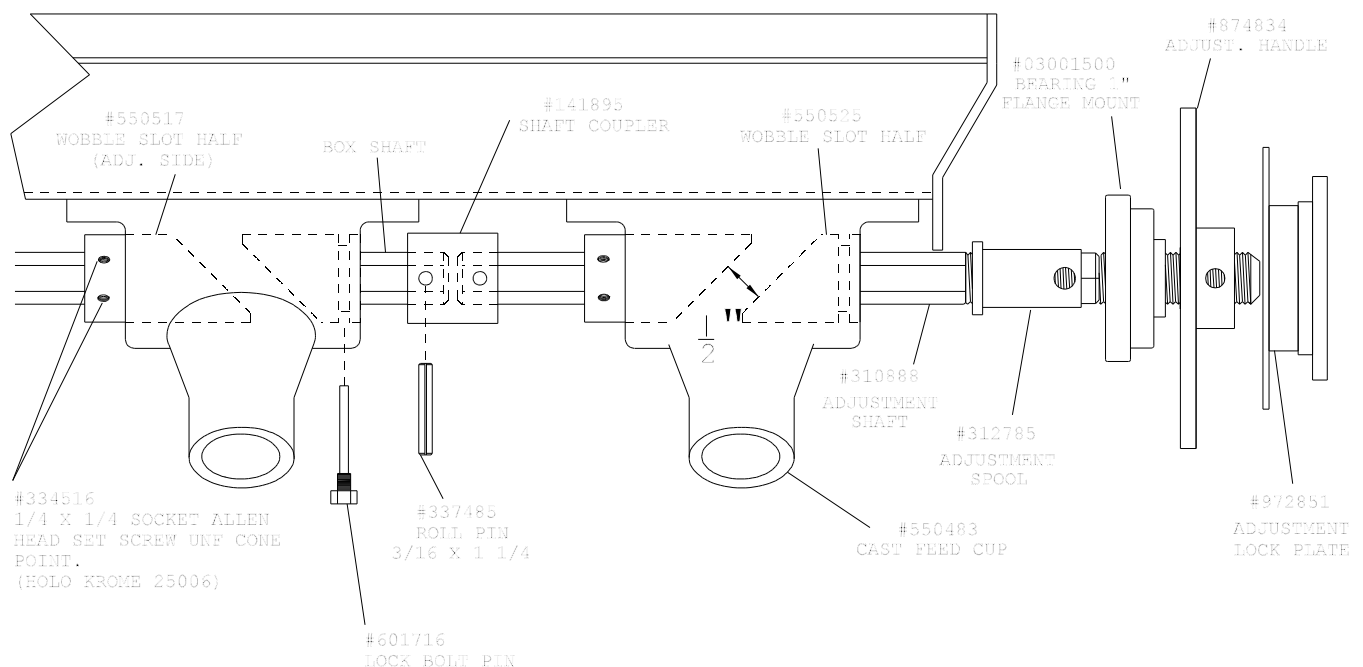
To verify that all seed cups are set the same on the shaft, start with all cups fully closed. A slight crack between the cup halves would be considered normal tolerance. If any individual cup is not "zeroed out," open the slot width using the adjusting handle, loosen allen set screws and adjust to equal 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 1/2" keystone or other measuring device com

fortably 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 keystone 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.**

Wobble Slot Seed Cup Adjustments and Service

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 ($1\frac{1}{2}$) times the average seed size, but less than two (2) times the average size.

Ideal Slot Width = Greater than ($>$) $1\frac{1}{2}$ 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 $1\frac{1}{2}$ 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 = $\frac{1}{2}$ "

Refer to seed chart $\frac{1}{2}$ " column as a starting point for setting final seed rate.

Checking Drilled Quantities. . .

Capacity of each box: **1.75 bushels per foot of box.**

The general method for checking quantities drilled is as follows:

1. Make all adjustments as explained previously.
2. Fill the box level full in the field, then pull the drill a short distance to settle the seed. Refill the box so it is exactly level full.
3. Drill a calculated one acre.
4. Carefully weigh the seed required to refill the box level full.
5. Compare the weight of the seed required to fill the box at the pre-determined rate.
6. Adjust seeding rate accordingly to compensate for any variation between the rate desired and the amount actually drilled.

If a more accurate check is required, raise the drill out of the ground and check in the following manner:

1. Place seed in the drill box and a container under each feed cup.
2. Set the seeding rate on drill for desired quantity per acre as shown on the rate chart.

3. Place a mark on the press wheel and lower the drill into the ground. Pull the drill through the field and count the number of revolutions the press wheel is turning. Use the following chart to determine how many revolutions it takes for one acre or a fraction of an acre.

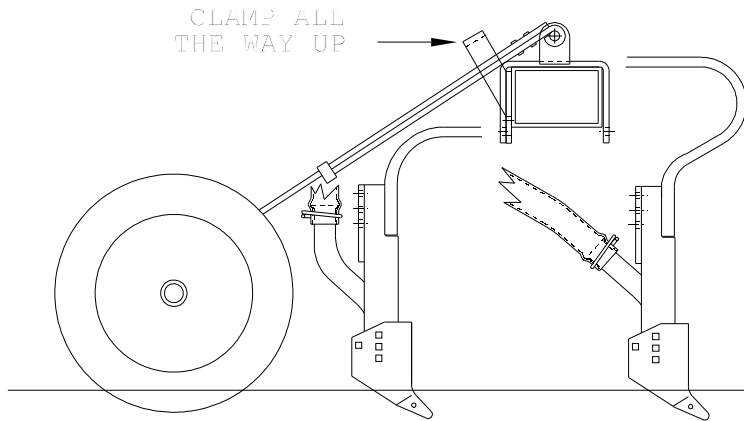
Press Wheel Revolutions		
Plant (Acre)	10" Spacing	12" Spacing
1	11746 $\frac{1}{2}$	9788 $\frac{3}{4}$
$\frac{3}{4}$	8810	7341 $\frac{1}{2}$
$\frac{1}{2}$	5873 $\frac{1}{4}$	4894 $\frac{1}{2}$
$\frac{1}{4}$	2936 $\frac{1}{2}$	2447
$\frac{1}{10}$	1174 $\frac{1}{2}$	979

4. Carefully weigh the seed in each individual container and compare that to the weight shown on the rate charts.
5. Adjust the seeding rate to compensate for any variation and repeat the test until the desired quantity is obtained.
6. The press wheel brackets are adjustable so you can put more or less pressure on the press wheels by loosening the $\frac{1}{2}$ " bolt in the press wheel support clamp and sliding slotted portion of clamp down for greater pressure and up for less pressure.
7. Be cautious of any backward or side movement of drill while in field position. It is very easy to back or pivot the outside openers on wing unit while turning. This can plug feed tubes. It is strongly advised to raise implement to out-of-ground position before stopping or while making sharp turns. Also, implement should be moving forward before lowering into field position.

NOTE: Be sure to tighten bolt securely after proper pressure has been selected. If implement is not seeding deep enough, taking pressure off press wheels will allow deeper penetration. When drilling shallow with good moisture, taking off pressure will generally allow for more even penetration. Be certain enough pressure remains on press wheels to run feed shaft at proper speed.

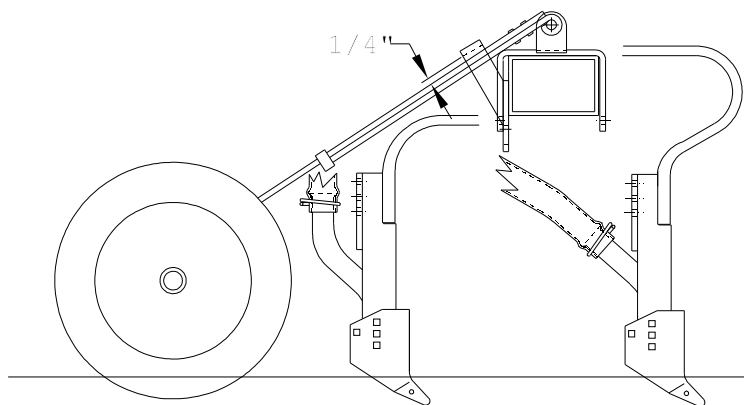
REFER TO DRAWINGS ON FACING PAGE.

Standard Presswheel Setting



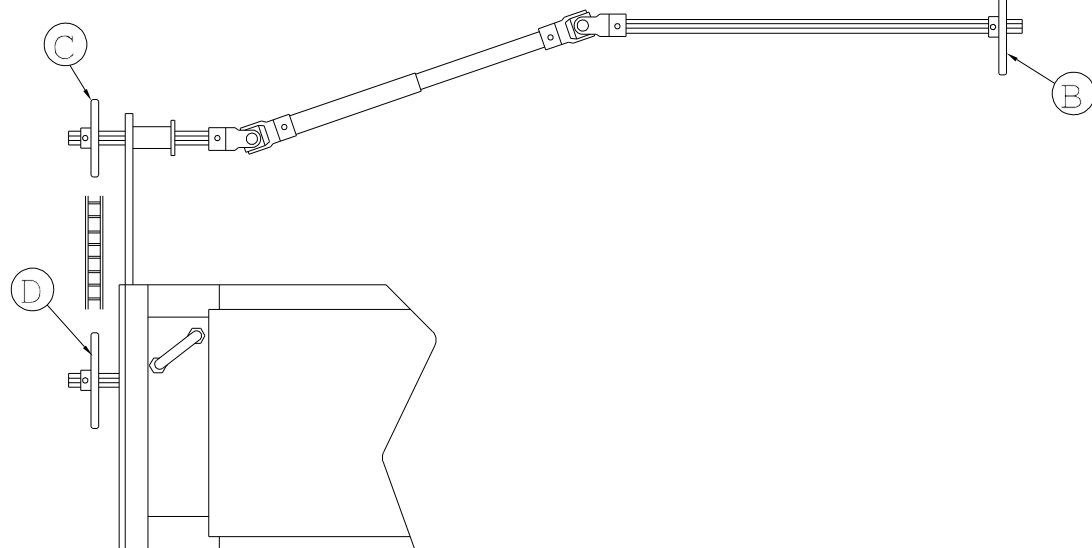
CAUTION: More down pressure will raise drill out of ground as box empties.

With adjustment clamp all the way up, set your planting depth.



Move clamp down to within 1/4" of presswheel spring after depth is set.

Sprocket Locations



Seed Rate Charts

ALFALFA Seeding Rate				SEEDING RATES (POUNDS PER ACRE)					
SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	1/8" Slot	1/4" Slot	Slot	1/8" Slot	1/4" Slot	Slot
6	34	5	20	2½	5		2½	4	
6	34	5	16	4	6		3	5	
6	34	5	14	4½	7½		4	6	
6	34	5	11	5	9		4½	7½	
6	16	5	20	6	10		5	9	
6	14	5	20	7	11		6	10	
6	11	5	20	9	15		7½	12½	
6	11	5	16	11	19		9	15	
6	16	11	20	12½	20		10	17½	
6	14	11	20	14	24		11	20	
6	16	14	20	15	26		12½	22½	
6	14	11	16	17½	30		15	25	
6	14	16	20	20	35		17½	29	
6	11	14	20	22½	39		19	32½	
6	11	16	20	26	45		22½	37½	
6	11	14	16	29	49		24	40	
6	14	20	16	31	55		26	45	
6	11	16	14	37½	65		31	54	
6	11	20	16	41	70		34	57½	
6	11	20	14	47½	80		39	67½	

NOTE: 34 tooth sprocket is a special order sprocket. Rates are based on 60 pound test weight alfalfa.

BARLEY Seeding Rate				SEEDING RATES (POUNDS PER ACRE)					
SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	1/2" Slot	5/8" Slot	3/4" Slot	1/2" Slot	5/8" Slot	3/4" Slot
6	16	5	20	14	16	21	12½	14	16
6	14	5	20	15	20	24	14	16	20
6	11	5	20	20	24	30	16	21	25
6	11	5	16	25	31	37½	21	25	31
6	16	11	20	30	37½	45	25	31	37½
6	14	11	20	35	44	51	29	36	44
6	16	14	20	39	47½	57½	31	39	47½
6	14	11	16	44	54	65	36	45	54
6	14	16	20	50	61	75	42½	52½	62½
6	11	14	20	55	69	82½	46	57½	69
6	11	16	20	62½	80	95	52½	66	80
6	11	14	16	69	87½	104	59	72½	87½
6	14	20	16	77½	97½	117	65	81	97½
6	11	16	14	91	112½	136	75	95	112½
6	11	20	16	99	122½	149	82½	104	125
6	11	20	14	114	141	169	95	119	141
6	20	16	5	140	174	209	117½	145	174

NOTE: Rates are based on 48 pound test weight barley.

Seed Rate Charts

CANOLA Seeding Rate				SEEDING RATES (POUNDS PER ACRE) (8-22-13)					
SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	$\frac{3}{16}$ " Slot	$\frac{1}{4}$ " Slot	$\frac{3}{8}$ " Slot	$\frac{3}{16}$ " Slot	$\frac{1}{4}$ " Slot	$\frac{3}{8}$ " Slot
6	34	5	20	2.9	3.8	5.8	2.4	3.2	4.8
6	34	5	16	3.6	4.8	7.2	3.0	4.0	6.0
6	34	5	14	4.1	5.5	8.2	3.4	4.6	7
6	34	5	11	5.2	7	10	4.4	5.8	9
6	16	5	20	6	8	12	5.1	7	10
6	14	5	20	7	9	14	5.8	8	12
6	11	5	20	9	12	18	7	10	15
6	11	5	16	11	15	22	9	12	19
6	16	11	20	13	18	27	11	15	22
6	14	11	20	15	20	31	13	17	26
6	16	14	20	17	23	34	14	19	29
6	14	16	20	22	30	45	19	25	37
6	11	14	20	25	33	50	21	28	41
6	11	16	20	29	38	57	24	32	47
6	11	14	16	31	41	62	26	35	52
6	14	20	16	35	47	70	29	39	58
6	11	16	14	41	54	81	34	45	68

CORN Seeding Rate				SEEDING RATES (POUNDS PER ACRE)					
SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	$\frac{1}{2}$ " Slot	$\frac{5}{8}$ " Slot	$\frac{3}{4}$ " Slot	$\frac{1}{2}$ " Slot	$\frac{5}{8}$ " Slot	$\frac{3}{4}$ " Slot
6	16	5	20	7½	10	12½	6	9	10
6	14	5	20	9	12½	14	7½	10	12½
6	11	5	20	11	15	19	9	12½	15
6	11	5	16	14	19	22½	11	16	19
6	16	11	20	16	22½	27½	14	19	22½
6	14	11	20	19	26	31	15	21	26
6	16	14	20	20	29	35	17½	24	29
6	14	11	16	22½	32½	40	19	27½	32½
6	14	16	20	26	37½	46	22½	31	39
6	11	14	20	30	42½	51	25	35	42½
6	11	16	20	34	49	59	29	40	49
6	11	14	16	37½	52½	64	31	44	54
6	14	20	16	41	60	71	35	50	60
6	11	16	14	49	69	84	40	57½	70
6	11	20	16	54	75	91	44	62½	76
6	11	20	14	61	86	104	51	72½	87½
6	20	16	5	75	106	129	62½	89	107½
6	16	16	5	94	132½	160	77½	111	134
6	14	16	5	107½	152½	184	89	126	152½
6	11	16	5	136	194	234	114	161	195

NOTE: Rates are based on 56 pound test weight corn.

Seed Rate Charts

COTTON Seeding Rate

SEEDING RATES (POUNDS PER ACRE)

SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	½" Slot	⅝" Slot	¾" Slot	½" Slot	⅝" Slot	¾" Slot
6	16	5	20	10	12½	15	9	10	12½
6	14	5	20	11	14	17½	10	11	15
6	11	5	20	15	17½	22½	12½	15	19
6	11	5	16	19	22½	27½	15	19	22½
6	16	11	20	22½	26	34	19	22½	27½
6	14	11	20	25	31	39	21	25	31
6	16	14	20	29	34	42½	24	29	35
6	14	11	16	32½	39	47½	26	32½	40
6	14	16	20	37½	45	55	31	37½	46
6	11	14	20	41	50	62½	35	41	51
6	11	16	20	47½	56	71	40	47½	59
6	11	14	16	51	62½	77½	42½	51	65
6	14	20	16	57½	70	87½	49	57½	72½
6	11	16	14	67½	81	101	56	67½	84
6	11	20	16	74	89	110	61	74	92½
6	11	20	14	85	101	126	70	85	105
6	20	16	5	104	125	156	86	104	130
6	16	16	5	130	156	195	109	130	162½
6	14	16	5	149	179	222½	124	149	185
6	11	16	5	189	227½	282½	157½	189	235

NOTE: Rates are based on 48 pound test weight cotton seed.

FESCUE Seeding Rate

SEEDING RATES (POUNDS PER ACRE)

SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	⅝" Slot	½" Slot	⅝" Slot	⅝" Slot	½" Slot	⅝" Slot
6	34	5	20	2½	4	5	2	2½	4
6	34	5	16	4	5	6	2½	4	5
6	34	5	14	4½	6	7	3	4½	6
6	34	5	11	5	6½	9	4	5	7½
6	16	5	20	6	7½	10	5	6	9
6	14	5	20	6½	9	11	6	7½	9½
6	11	5	20	7½	11	14	6½	9	11
6	11	5	16	10	14	17½	9	11	15
6	16	11	20	12½	16	21	10	14	17½
6	14	11	20	14	19	25	11	16	20
6	16	14	20	15	21	27½	12½	17½	22½
6	14	11	16	17½	24	31	15	20	25
6	14	16	20	20	27½	36	16	24	30
6	11	14	20	22½	31	40	19	26	32½
6	11	16	20	26	35	45	21	30	37½
6	11	14	16	29	39	50	24	32½	41
6	14	20	16	31	44	56	26	36	46
6	11	16	14	36	51	65	31	42½	54
6	11	20	16	40	55	71	34	46	59
6	11	20	14	46	64	81	39	52½	67½

NOTE: 34 tooth sprocket is a special order sprocket. Rates are based on 22 pound test weight fescue.

Seed Rate Charts

MILLET Seeding Rate				SEEDING RATES (POUNDS PER ACRE)					
SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	⅛" Slot	¼" Slot	Slot	⅛" Slot	¼" Slot	Slot
6	34	5	20	2½	5		1	4	
6	34	5	16	3	6		2½	5	
6	34	5	14	4	7		3	6	
6	34	5	11	4½	9		4	7½	
6	16	5	20	5	10		4½	8	
6	14	5	20	6	11		5	9	
6	11	5	20	7½	14		6	11	
6	11	5	16	9	17½		7½	15	
6	16	11	20	10	21		9	17½	
6	14	11	20	12½	25		10	20	
6	16	14	20	14	27½		11	22½	
6	14	11	16	15	30		12½	25	
6	14	16	20	17½	35		15	30	
6	11	14	20	19	40		16	32½	
6	11	16	20	22½	45		19	37½	
6	11	14	16	24	50		20	41	
6	14	20	16	27½	56		22½	46	
6	11	16	14	31	65		26	54	
6	11	20	16	35	71		29	59	
6	11	20	14	40	81		32½	67½	

NOTE: 34 tooth sprocket is a special order sprocket. Rates are based on 50 pound test weight millet.

MILO Seeding Rate				SEEDING RATES (POUNDS PER ACRE)					
SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	¼" Slot	⅜" Slot	½" Slot	¼" Slot	⅜" Slot	½" Slot
6	34	5	20	4	6	9	2½	5	7½
6	34	5	16	5	9	10	4	6	9
6	34	5	14	6	9½	12½	4½	7½	10
6	34	5	11	6½	11	15	5	10	12½
6	16	5	20	7½	14	17½	6	11	15
6	14	5	20	9	16	20	7½	14	17½
6	11	5	20	11	20	26	9	16	21
6	11	5	16	14	25	32½	11	21	27½
6	16	11	20	16	30	40	14	25	32½
6	14	11	20	19	35	45	16	29	37½
6	16	14	20	21	39	50	17½	32½	42½
6	14	11	16	24	44	56	20	36	47½
6	14	16	20	27½	51	66	22½	42½	55
6	11	14	20	30	56	74	25	47½	61
6	11	16	20	35	65	84	29	54	70
6	11	14	16	39	71	91	31	59	76
6	14	20	16	42½	79	102½	36	66	85
6	11	16	14	50	92½	120	41	77½	100
6	11	20	16	55	101	130	45	84	109
6	11	20	14	62½	115	149	52½	96	125

NOTE: 34 tooth sprocket is a special order sprocket. Rates are based on 56 pound test weight

Seed Rate Charts

OATS Seeding Rate

SEEDING RATES (POUNDS PER ACRE)

SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	½" Slot	⅝" Slot	¾" Slot	½" Slot	⅝" Slot	¾" Slot
6	16	5	20	9	11	12½	7½	9	11
6	14	5	20	10	12½	15	9	11	12½
6	11	5	20	12½	16	19	10	14	15
6	11	5	16	16	20	24	14	17½	19
6	16	11	20	19	25	27½	16	20	24
6	14	11	20	22½	29	32½	19	24	26
6	16	14	20	36	31	36	20	26	30
6	14	11	16	27½	35	40	22½	30	34
6	14	16	20	31	41	46	26	34	39
6	11	14	20	35	46	52½	30	39	44
6	11	16	20	40	52½	60	34	44	50
6	11	14	16	44	57½	65	37½	47½	54
6	14	20	16	50	64	72½	41	54	61
6	11	16	14	57½	75	85	49	62½	71
6	11	20	16	64	81	92½	52½	69	77½
6	11	20	14	72½	94	106	60	77½	89
6	20	16	5	89	115	131	74	96	109
6	16	16	5	111	144	164	92½	120	136
6	14	16	5	127½	165	186	106	137½	155
6	11	16	5	162½	210	237½	135	175	197½

NOTE: Rates are based on 32 pound test weight oats.

PINTO BEANS

Seeding Rate

SEEDING RATES (POUNDS PER ACRE)

SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	½" Slot	⅝" Slot	¾" Slot	½" Slot	⅝" Slot	¾" Slot
6	16	5	20	9	11	14	7½	10	11
6	14	5	20	10	14	16	9	11	14
6	11	5	20	12½	17½	21	11	14	17½
6	11	5	16	16	21	26	14	17½	21
6	16	11	20	20	26	31	16	21	26
6	14	11	20	22½	30	36	19	25	30
6	16	14	20	25	32½	40	21	27½	34
6	14	11	16	27½	37½	45	24	31	37½
6	14	16	20	32½	42½	52½	27½	36	44
6	11	14	20	36	47½	57½	30	40	49
6	11	16	20	41	55	66	35	46	55
6	11	14	16	45	60	72½	37½	50	60
6	14	20	16	51	67½	81	42½	56	67½
6	11	16	14	59	79	95	49	65	79
6	11	20	16	65	85	104	54	71	86
6	11	20	14	74	97½	119	61	81	99
6	20	16	5	91	120	146	76	100	121
6	16	16	5	114	151	182½	95	125	151
6	14	16	5	130	172½	209	109	144	174
6	11	16	5	165	219	265	137½	182½	221

NOTE: Rates based on 56 pound test weight pinto beans.

Seed Rate Charts

RICE Seeding Rate				SEEDING RATES (POUNDS PER ACRE)					
SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	½" Slot	⅝" Slot	¾" Slot	½" Slot	⅝" Slot	¾" Slot
6	16	5	20	12½	15	17½	10	12½	15
6	14	5	20	14	17½	20	11	15	17½
6	11	5	20	17½	22½	26	15	19	21
6	11	5	16	22½	27½	32½	19	24	27½
6	16	11	20	27½	34	39	22½	27½	32½
6	14	11	20	31	39	45	26	32½	37½
6	16	14	20	34	42½	50	29	35	41
6	14	11	16	39	47½	56	32½	40	46
6	14	16	20	45	56	65	37½	46	54
6	11	14	20	50	62½	72½	41	51	60
6	11	16	20	57½	71	82½	47½	59	69
6	11	14	16	62½	77½	91	52½	65	75
6	14	20	16	70	87½	101	59	72½	85
6	11	16	14	81	101	119	67½	85	99
6	11	20	16	89	111	130	74	92½	107½
6	11	20	14	101	126	147½	85	106	124
6	20	16	5	125	156	182½	105	130	152½
6	16	16	5	156	195	227½	130	162½	190
6	14	16	5	179	224	261	149	186	217½
6	11	16	5	227½	284	331	190	236	276

NOTE: Rates are based on 45 pound test weight rice.

RYE Seeding Rate				SEEDING RATES (POUNDS PER ACRE)					
SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	½" Slot	⅝" Slot	¾" Slot	½" Slot	⅝" Slot	¾" Slot
6	16	5	20	17½	22½	29	14	19	24
6	14	5	20	20	25	32½	16	21	27½
6	11	5	20	25	32½	41	21	27½	35
6	11	5	16	31	41	52½	26	34	44
6	16	11	20	37½	49	62½	31	41	52½
6	14	11	20	44	56	72½	36	47½	60
6	16	14	20	49	62½	80	40	52½	67½
6	14	11	16	54	70	90	45	59	75
6	14	16	20	62½	81	105	52½	69	87½
6	11	14	20	70	91	116	59	76	97½
6	11	16	20	80	104	134	67½	86	111
6	11	14	16	87½	114	146	74	95	121
6	14	20	16	99	127½	164	82½	106	136
6	11	16	14	115	149	191	95	124	159
6	11	20	16	125	162½	209	105	136	174
6	11	20	14	144	186	239	120	155	199
6	20	16	5	176	229	294	147½	191	245
6	16	16	5	221	286	367½	184	239	306
6	14	16	5	252½	327½	420	210	272½	350
6	11	16	5	321	416	534	267½	347½	445

NOTE: Rates based on 56 pound test weight rye.

Seed Rate Charts

SOYBEANS

SEEDING RATES (POUNDS PER ACRE)

SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	½" Slot	⅝" Slot	¾" Slot	½" Slot	⅝" Slot	¾" Slot
6	16	5	20	12½	14	16	10	12½	14
6	14	5	20	14	16	19	11	14	16
6	11	5	20	17½	21	25	15	17½	20
6	11	5	16	21	26	30	17½	21	25
6	16	11	20	26	31	37½	22½	26	31
6	14	11	20	30	36	42½	25	30	35
6	16	14	20	34	40	47½	27½	34	39
6	14	11	16	37½	45	52½	31	37½	44
6	14	16	20	44	52½	61	36	44	51
6	11	14	20	49	59	69	40	49	57½
6	11	16	20	56	66	79	46	56	65
6	11	14	16	61	72½	86	51	61	71
6	14	20	16	69	82½	96	57½	69	80
6	11	16	14	80	95	111	66	80	94
6	11	20	16	87½	105	122½	72½	87½	102½
6	11	20	14	100	119	140	82½	100	116
6	20	16	5	122½	147½	172½	102½	122½	144
6	16	16	5	152½	184	215	127½	154	180
6	14	16	5	175	210	246	146	175	205
6	11	16	5	222½	267½	314	185	222½	261

NOTE: Rates are based on 60 pound test weight soybeans. If planting at rates in excess of 70 pounds per acre and traveling at speeds over 4 miles per hour, one must use the ¾" slot to attain the proper seeding rate as shown. If seeding below 70 pounds per acre, the ½" slot is recommended for seed placement accuracy.

SUNFLOWER

SEEDING RATES (POUNDS PER ACRE)

Seeding Rate

SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	½" Slot	⅝" Slot	¾" Slot	½" Slot	⅝" Slot	¾" Slot
6	34	5	20	2½	4	5	2½	4	4½
6	34	5	16	4	5	6	4	4½	5
6	34	5	14	5	6	7½	4½	5	6
6	34	5	11	6	7½	9	5	6	7½
6	16	5	20	7	9	10	6	7½	9
6	14	5	20	7½	10	12½	6½	9	10
6	11	5	20	10	12½	15	7½	10	12½
6	11	5	16	12½	16	19	10	14	16
6	16	11	20	15	19	24	12½	16	19
6	14	11	20	16	21	26	14	19	22½
6	16	14	20	19	24	30	15	20	25
6	14	11	16	21	27½	32½	17½	22½	27½
6	14	16	20	24	31	39	20	26	32½
6	11	14	20	27½	35	42½	22½	30	36
6	11	16	20	31	40	49	26	34	41
6	11	14	16	34	44	54	29	37½	45
6	14	20	16	37½	50	60	31	41	50
6	11	16	14	44	57½	70	36	49	59
6	11	20	16	49	64	76	40	52½	64
6	11	20	14	55	72	87½	46	60	72½

NOTE: 34 tooth sprocket is a special order sprocket. Rates based on 34 pound test weight sunflowers.

Seed Rate Charts

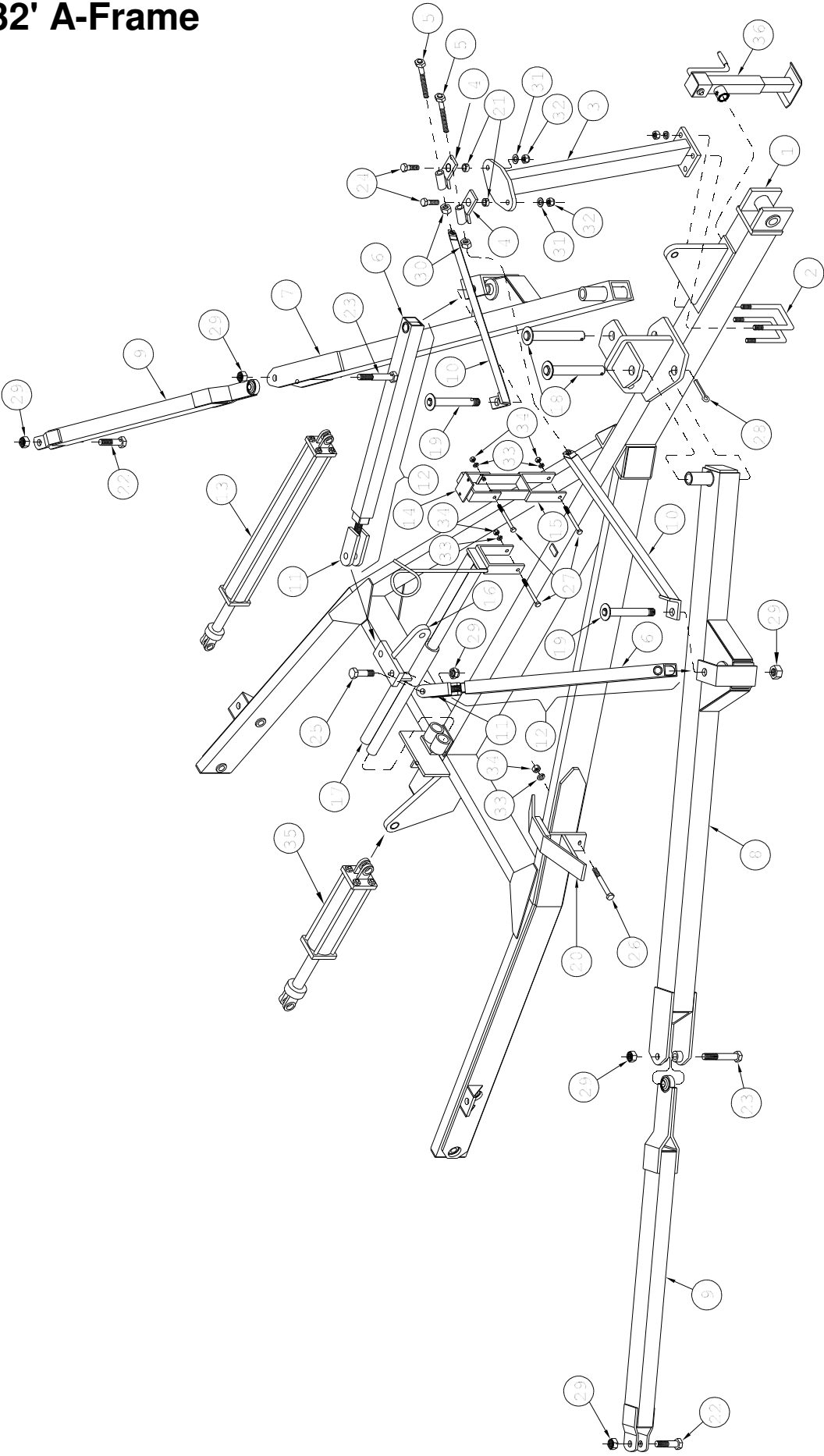
WHEAT Seeding Rate				SEEDING RATES (POUNDS PER ACRE)					
SPROCKETS				10" Spacing			12" Spacing		
A	B	C	D	½" Slot	⅝" Slot	¾" Slot	½" Slot	⅝" Slot	¾" Slot
6	16	5	20	19	24	27½	15	20	24
6	14	5	20	21	27½	32½	17½	22½	26
6	11	5	20	26	35	41	22½	29	34
6	11	5	16	34	44	51	27½	36	42½
6	16	11	20	40	52½	61	34	44	51
6	14	11	20	46	60	71	39	50	59
6	16	14	20	51	66	79	42½	56	65
6	14	11	16	57½	75	89	47½	62½	74
6	14	16	20	67½	87½	102½	56	72½	86
6	11	14	20	75	97½	115	62½	81	95
6	11	16	20	85	111	131	71	92½	109
6	11	14	16	94	121	144	77½	101	119
6	14	20	16	105	136	161	87½	114	134
6	11	16	14	122½	159	187½	101	132½	156
6	11	20	16	134	174	205	111	145	170
6	11	20	14	152½	199	234	127½	165	195
6	20	16	5	187½	245	287½	156	204	240
6	16	16	5	235	306	360	196	255	300
6	14	16	5	269	349	411	224	291	342½
6	11	16	5	341	445	524	285	370	436

NOTE: Rates are based on 60 pound test weight wheat.

Plant Populations Per Acre at Various Row Spacings

Plants Per Foot		Spacing Between Rows						
Of Row	7.5 in.	8 in.	10 in.	14 in.	18 in.	20 in.	40 in.	
20	1,792,180	1,306,800	1,045,440	746,740	580,800	522,700	261,360	
18	1,612,962	1,176,120	940,896	672,066	522,720	470,530	235,244	
15	1,344,128	980,100	784,080	560,055	435,600	392,025	196,020	
12	1,075,308	784,080	627,264	448,044	348,044	313,620	156,816	
10	896,090	653,400	522,720	373,370	290,400	261,350	130,680	
9	806,480	588,060	470,448	336,033	261,360	235,315	117,612	
8	716,864	522,720	418,176	298,320	209,080	209,080	104,544	
7	627,264	457,380	265,904	261,359	203,280	182,945	91,476	
6	537,654	392,040	313,632	224,622	174,240	156,816	78,408	
5	448,044	326,700	261,360	186,685	145,200	130,675	65,340	
4	358,432	261,360	209,088	149,358	116,160	104,540	52,272	
3	268,826	196,020	156,816	112,011	87,120	78,405	39,204	
2	179,216	130,080	104,544	74,674	58,080	52,272	26,136	
1	89,610	65,340	52,272	37,337	29,040	26,136	13,068	

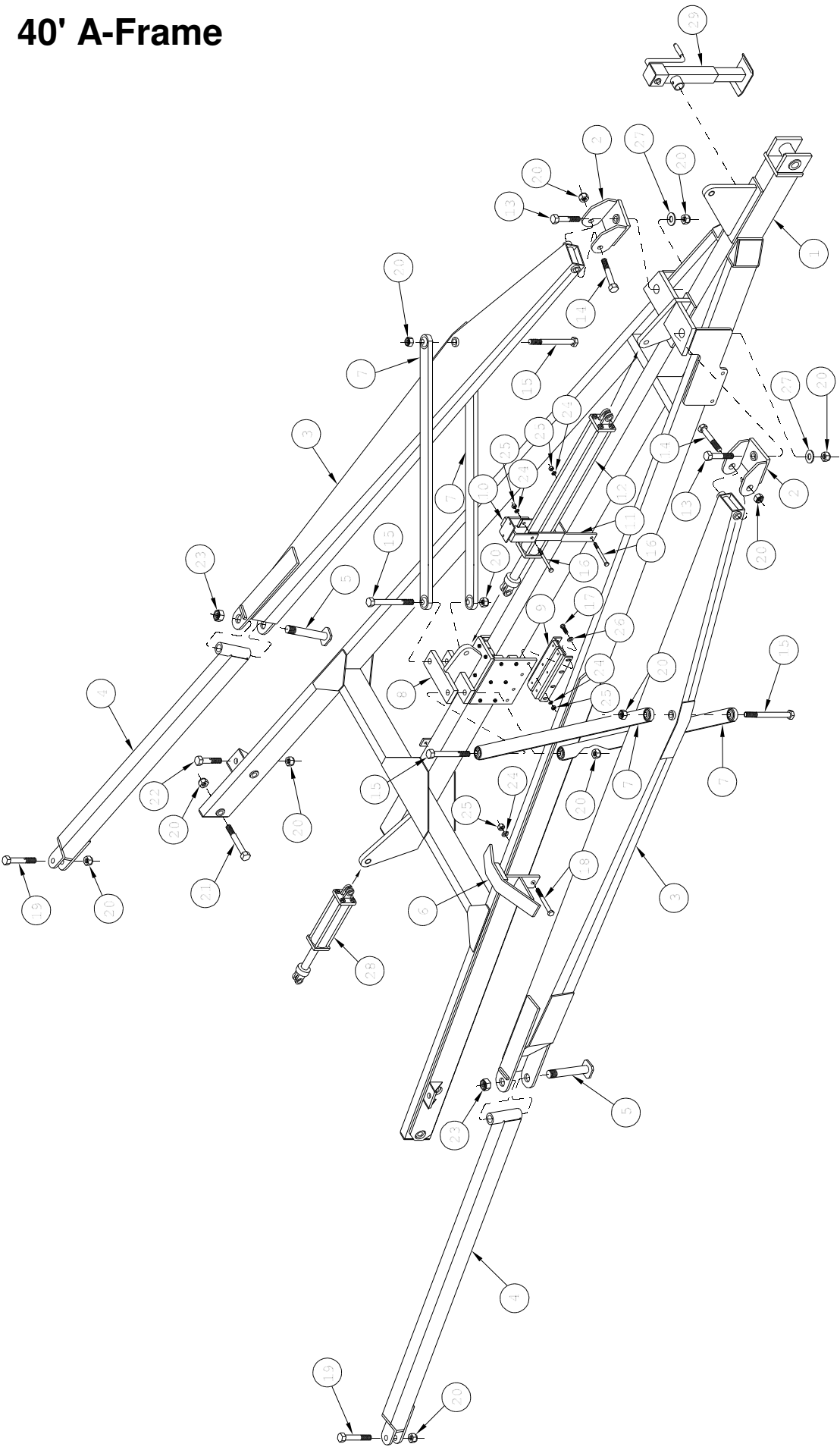
32' A-Frame



32' A-Frame

Item	Part No.	Description	Item	Part No.	Description
1	958868	32' A-Frame	18	953026	Pull Bar Pin
2	331405	U-bolt 3/4" x 4" x 7 1/2"	19	959072	Fold Arm Pin
3	959445	Pull Bar Truss Stand	20	959692	Pull Bar Slide
4	959486	Pull Bar Truss Swivel	21	151118	Bushing
5	959452	Pull Bar Truss Adjustment Bolt	22	334870	HHCS 1" x 4"
6	959064	Fold Arm	23	333732	HHCS 1" x 6 1/2"
7	959015	Pull Bar Left Front	24	335174	HHCS 3/4" x 2 1/2"
8	959007	Pull Bar Right Front	25	334789	HHCS 1" x 3 1/2"
9	959023	Pull Bar Rear	26	330100	HHCS 1/2" x 4 1/2"
10	959460	Pull Bar Truss Tube	27	330126	HHCS 1/2" x 5 1/2"
11	959080	Fold Arm Adjustment Screw	28	331272	Cotter Pin 3/8" x 3 1/2"
12	866657	Fold Arm Assembly INCLUDES Items 6 & 11	29	330597	Hex Nylock Nut 1"
13	460147	Hydraulic Cylinder 3 x 30 w/1 1/4" Ram / 1/2" NPTF	30	331157	Hex Nut 7/8"
14	910539	Double Selector Valve Mount Bracket	31	330332	Lock Washer 3/4"
15	935916	Hydraulic Cylinder Hold Down	32	330290	Hex Nut 3/4"
16	959098	Fold Slide Weldment	33	330142	Lock Washer 1/2"
17	959106	Slide Bar Weldment	34	330134	Hex Nut 1/2"
			35	473215	Hydraulic Cylinder 4 x 8 w/depth control 3000 PSI
			36	530808	Jack Side Crank #10,000

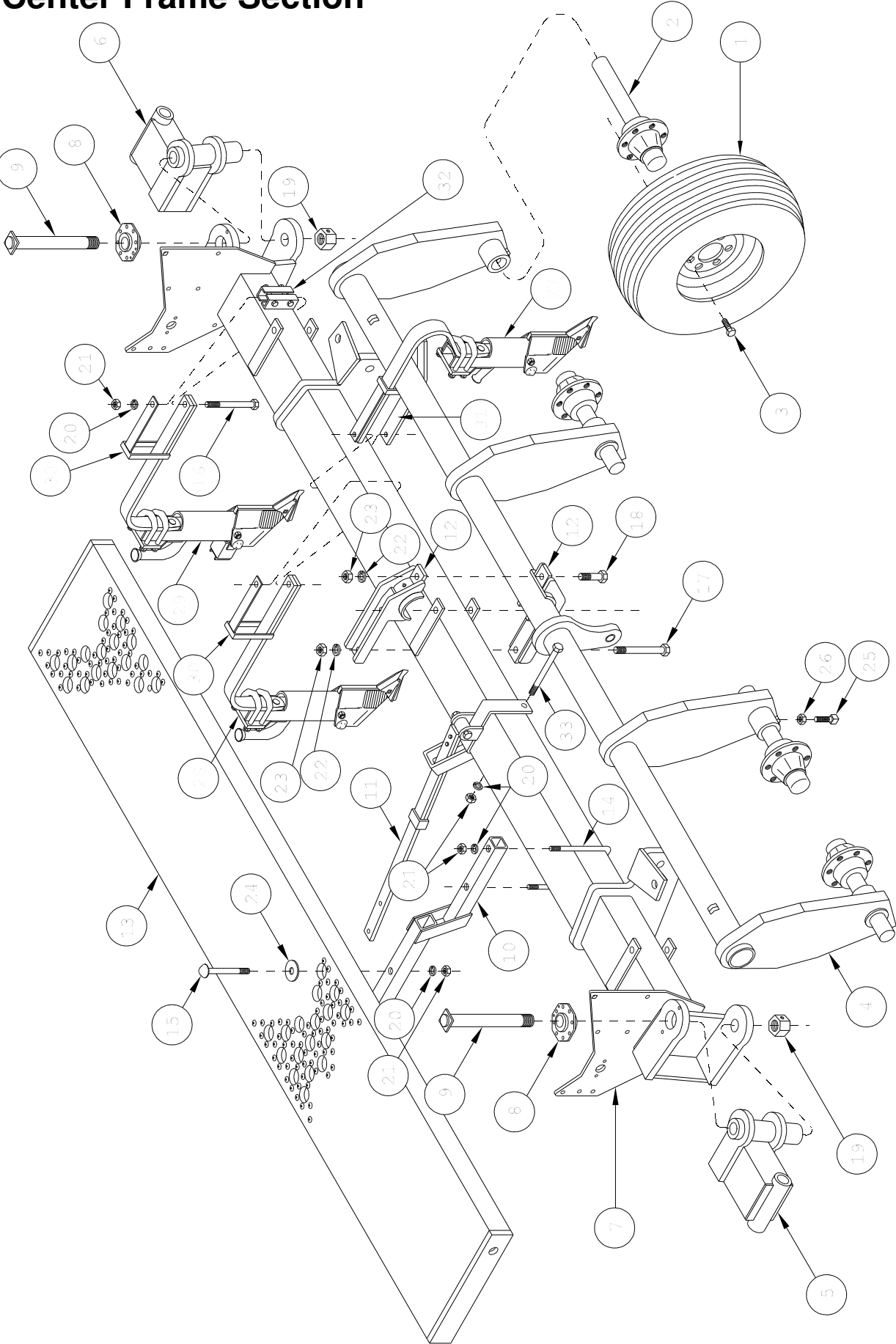
40' A-Frame



40' A-Frame

Item	Part No.	Description	Item	Part No.	Description
1	958777	40' A-Frame	17	01147800	HHCS 1/2" x 1 1/2"
2	959585	Pull Bar Swivel	18	330100	HHCS 1/2" x 4 1/2"
3	959577	Pull Bar Front	19	334870	HHCS 1" x 4"
4	959593	Pull Bar Rear	20	330597	Hex Nylock 1"
5	959601	Pull Bar Pin	21	332809	HHCS 1" x 5"
6	959692	Pull Bar Slide	22	01172600	HHCS 1" x 2 1/2"
7	959684	Fold Arm	23	333575	Hex Nut 1 1/2" w/5/16" Set Screw
8	866947	Top Slide Assembly	24	330142	Lock Washer 1/2"
9	866954	Bottom Slide Assembly	25	330134	Hex Nut 1/2"
10	910539	Double Selector Valve Bracket	26	330159	Flat Washer 1/2"
11	959767	Cylinder Hold Down	27	19109800	Washer 1/4" x 2" w/1 1/32" ID
12	460600	Hydraulic Cylinder 3 x 40	28	473215	Hydraulic Cylinder 4 x 8 w/depth control 3000 PSI
13	332106	HHCS 1" x 4 1/2"	29	530808	Jack Side Crank 10,000#
14	330373	HHCS 1" x 9"			
15	331744	HHCS 1" x 10 1/2"			
16	330126	HHCS 1/2" x 5 1/2"			

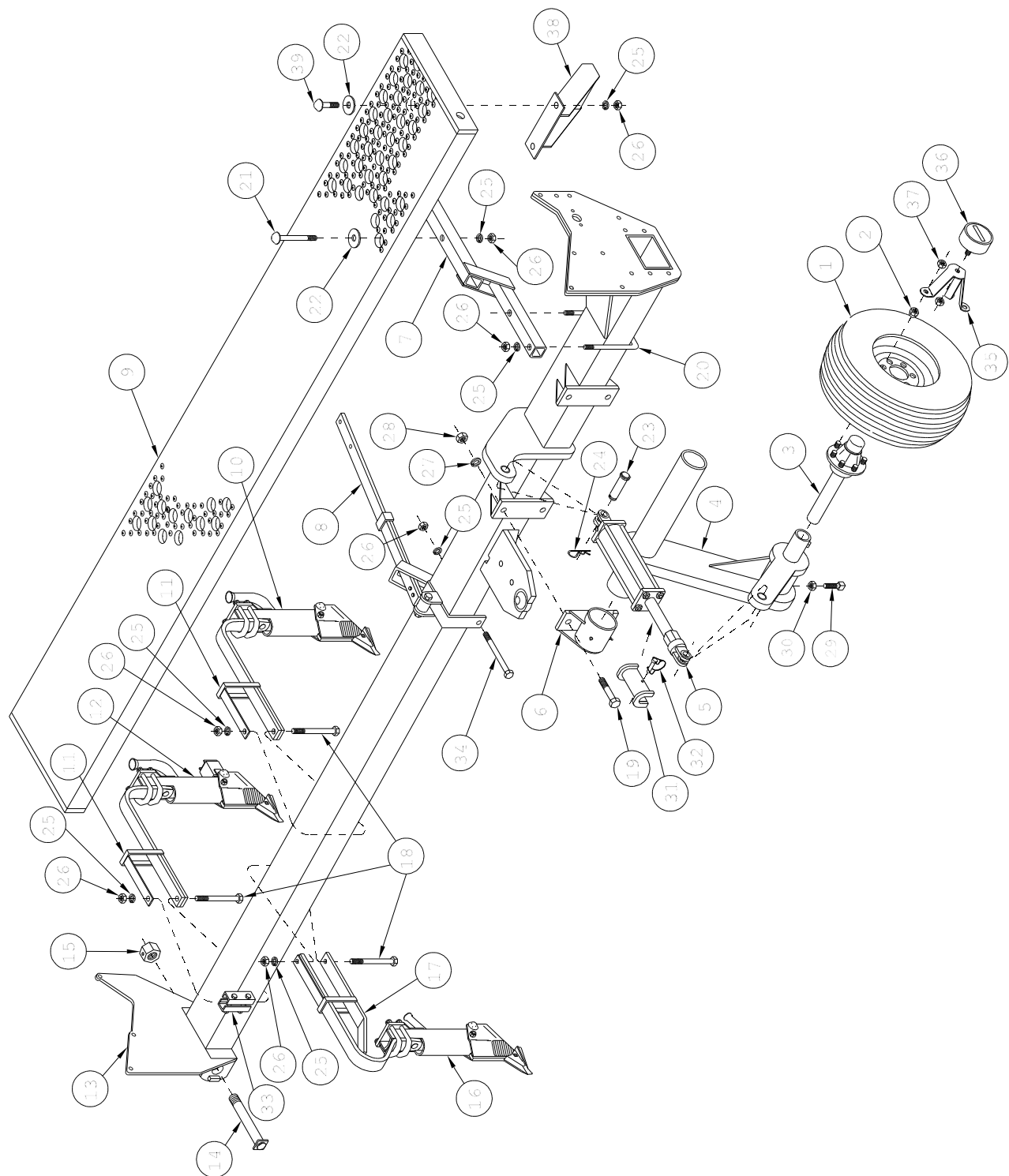
Center Frame Section



Center Frame Section

Item	Part No.	Description	Item	Part No.	Description
1	802736	Mounted Tire Assembly	17	330282	HHCS 3/4" x 7"
	INCLUDES:		18	335125	HHCS 3/4" x 2"
	530154	Tire 9.5L x 15	19	333575	Hex Nut 1 1/2"
	530162	Wheel 6 Bolt 15 x 8			w/ 5/16" Set Screw
	530287	Valve Stem	20	330142	Lock Washer 1/2"
	02990000	Decal -Check Wheel Lugs	21	330134	Hex Nut 1/2"
2	843235	Hub & Spindle Assembly	22	330332	Lock Washer 3/4"
3	330464	Lug Bolt 1/2" x 1 3/4" SAE	23	330290	Hex Nut 3/4"
4		Center Rockershaft	24	330183	Flat Washer 5/8"
	958926	10" Spacing	25	331223	Square Head Set Screw
	958934	12" Spacing			5/8" x 1 3/4"
5	958876	Right Hinge	26	331538	Hex Jam Nut 5/8"
6	958884	Left Hinge	27	843193	Front Row Tooth Assembly
7	958785	Center Frame			w/ Hard Surfaced Shoe
8	959619	Hinge Cam Bracket	28	866632	Long Back Row Tooth Assy
9	958900	Vertical Hinge Pin			w/ Hard Surfaced Shoe
10	959700	Walkboard Mount Bracket	29	866962	Long Back Row Tooth Assy
11	866665	Presswheel Spring Assembly			w/ Hard Surfaced Shoe
		4 x 6			& Bumper
12	958991	Center Rocker Bearing	30	959312	Back Row Tooth Clamp 4 x 6
13	956854	Walkboard	31	959304	Front Row Tooth Clamp 4 x 6
14	337634	U-bolt 1/2" x 6 x 7	32	842864	Trash Shank Tooth Stabilizer
15	337642	Carriage Bolt 1/2" x 5"			Assembly
16	334458	HHCS 1/2" x 6"	33	337386	HHCS 1/2" x 8"

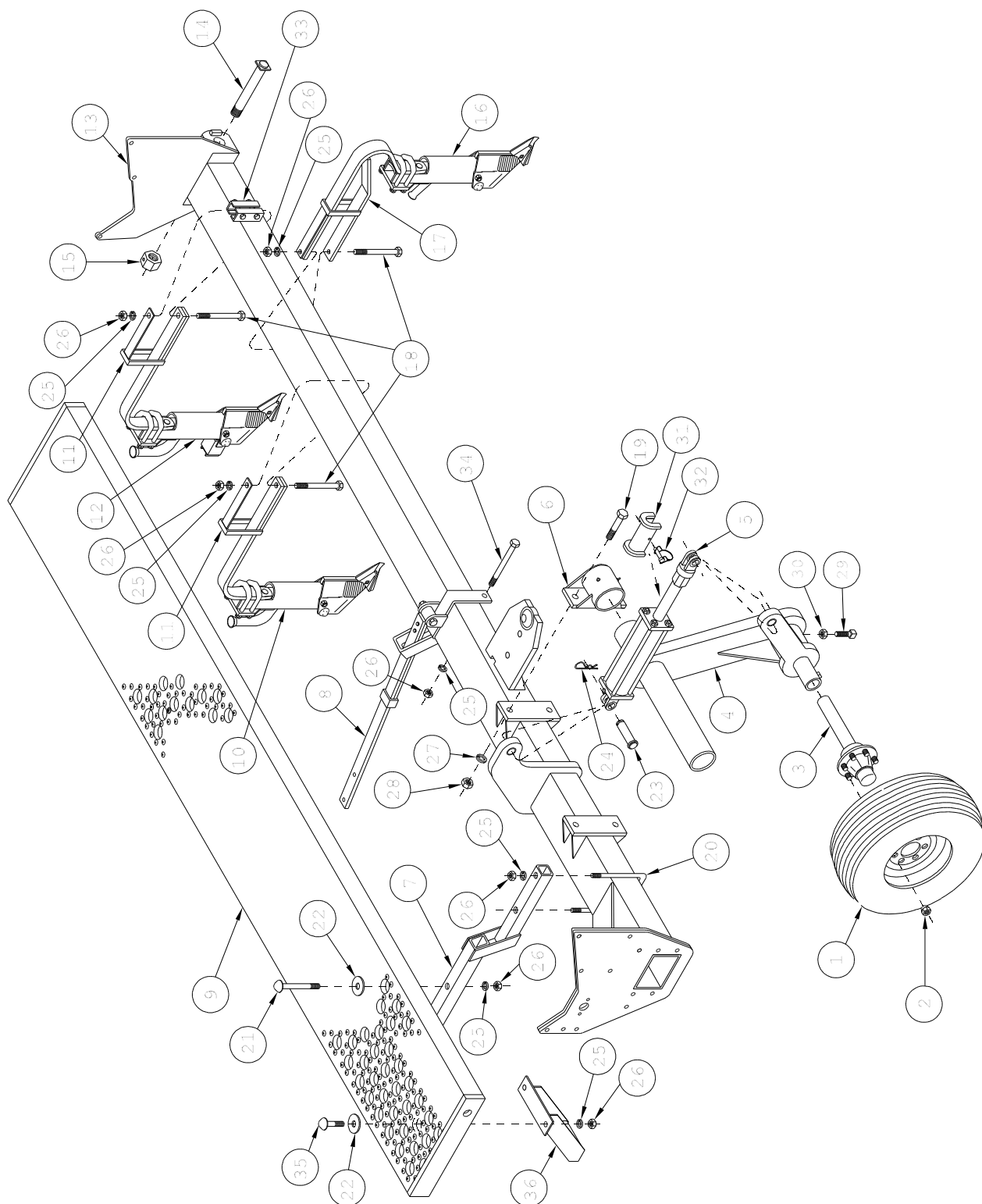
32' Left Wing Section



32' Left Wing Section

Item	Part No.	Description	Item	Part No.	Description
1	807313	Mounted Tire Assembly	16	843193	Front Row Tooth Assembly
	INCLUDES:				w/Point/Hard Surfaced Shoe
	530154	Tire 9.5L x 15	17	959304	Front Row Tooth Clamp 4 x 6
	530238	Wheel 5 Bolt 15 x 6	18	334458	HHCS 1/2" x 6"
	530287	Valve Stem	19	335125	HHCS 3/4" x 2"
	02990000	Decal -Check Wheel Lugs	20	337634	U-bolt 1/2" x 6 x 7
2	331314	Lug Nut	21	337642	Carriage Bolt 1/2" x 5"
3	831677	Hub & Spindle Assembly	22	330183	Flat Washer 5/8"
4		Left Wing Rockershaft	23	460451	Clevis Pin
	958959	32' x 10"	24	460469	Clip Pin
	963645	32' x 12"	25	330142	Lock Washer 1/2"
5	460006	Hydraulic Cylinder 2 x 8	26	330134	Hex Nut 1/2"
		w/Depth Control	27	330332	Lock Washer 3/4"
6	958983	Wing Rocker Bearing	28	330290	Hex Nut 3/4"
7	959700	Walkboard Mount	29	331223	Square Head Set Screw
8	866665	Presswheel Spring Assembly			5/8" x 1 3/4"
		4 x 6	30	331538	Hex Jam Nut 5/8"
9	956854	Walkboard	31	964742	Cylinder Lockout Bracket
10	866632	Long Back Row Tooth Assy	32	00233700	Wire Lock Pin
		w/ Hard Surfaced Shoe	33	842864	Trash Shank Tooth
11	959312	Back Row Tooth Clamp 4 x 6			Stabilizer Assembly
12	866962	Long Back Row Tooth Assy	34	337386	HHCS 1/2" x 8"
		w/ Hard Surfaced Shoe	35	259549	Counter Mounting Bracket
		& Bumper	36	609453	Counter 185 to 1
13	958801	Left Wing Frame	37	337725	Hex Jam Nylock 1/2" SAE
14	958918	Hinge Pin	38	960021	Walkboard Step
15	333575	Hex Jam Nut 1 1/2"	39	01212000	Carriage Bolt 1/2" x 1 1/2"
		w/ 5/16" Set Screw			

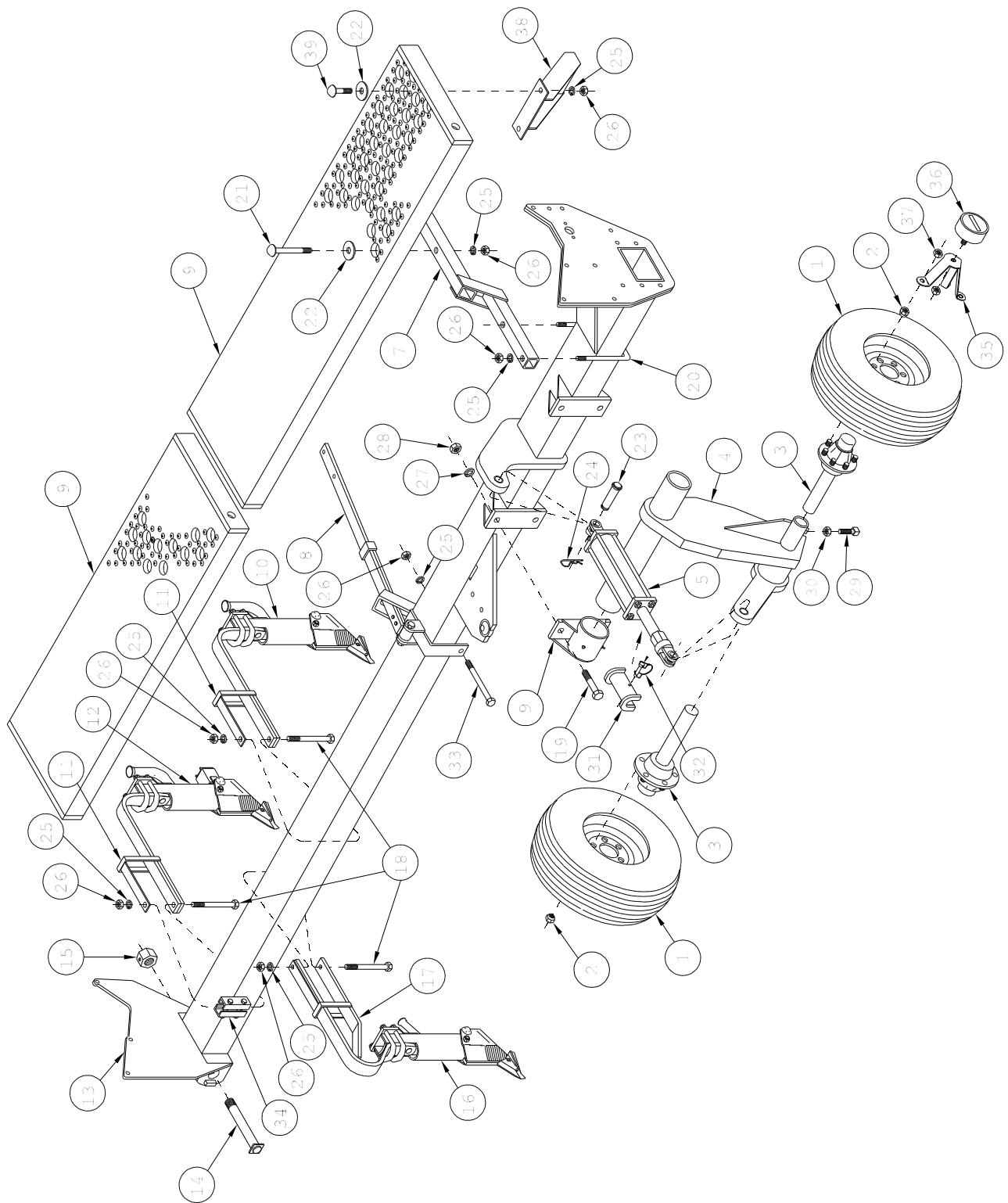
32' Right Wing Section



32' Right Wing Section

Item	Part No.	Description	Item	Part No.	Description
1	807313	Mounted Tire Assembly	15	333575	Hex Jam Nut 1 1/2"
	INCLUDES:				w/ 5/16" Set Screw
	530154	Tire 9.5L x 15	16	843193	Front Row Tooth Assembly
	530238	Wheel 5 Bolt 15 x 6			w/Point/Hard Surfaced Shoe
	530287	Valve Stem	17	959304	Front Row Tooth Clamp 4 x 6
	02990000	Decal -Check Wheel Lugs	18	334458	HHCS 1/2" x 6"
2	331314	Lug Nut	19	335125	HHCS 3/4" x 2"
3	831677	Hub & Spindle Assembly	20	337634	U-bolt 1/2" x 6 x 7
4		Right Wing Rockershaft	21	337642	Carriage Bolt 1/2" x 5"
	958942	32' x 10"	22	330183	Flat Washer 5/8"
	963652	32' x 12"	23	460451	Clevis Pin
5	460006	Hydraulic Cylinder 2 x 8	24	460469	Clip Pin
		w/Depth Control	25	330142	Lock Washer 1/2"
6	958983	Wing Rocker Bearing	26	330134	Hex Nut 1/2"
7	959700	Walkboard Mount	27	330332	Lock Washer 3/4"
8	866665	Presswheel Spring Assembly	28	330290	Hex Nut 3/4"
		4 x 6	29	331223	Square Head Set Screw
9	956854	Walkboard			5/8" x 1 3/4"
10	866632	Long Back Row Tooth Assy	30	331538	Hex Jam Nut 5/8"
		w/ Hard Surfaced Shoe	31	964742	Cylinder Lockout Bracket
11	959312	Back Row Tooth Clamp 4 x 6	32	00233700	Wire Lock Pin
12	866962	Long Back Row Tooth Assy	33	842864	Trash Shank Tooth
		w/ Hard Surfaced Shoe			Stabilizer Assembly
		& Bumper	34	337386	HHCS 1/2" x 8"
13	958793	Right Wing Frame	35	01212000	Carriage Bolt 1/2" x 1 1/2"
14	958918	Hinge Pin	36	960021	Walkboard Step

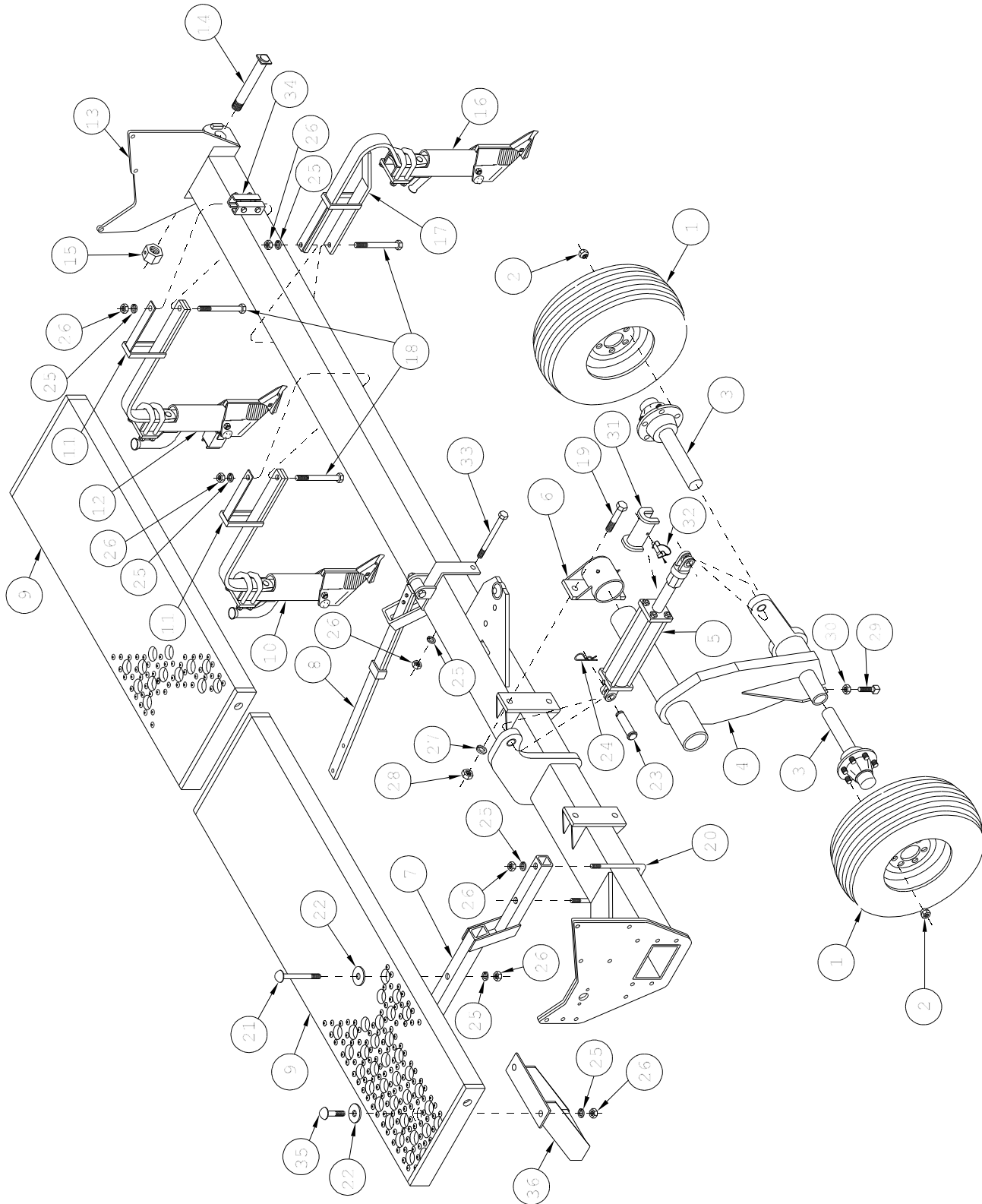
40' Left Wing Section



40' Left Wing Section

Item	Part No.	Description	Item	Part No.	Description
1	807313	Mounted Tire Assembly	16	843193	Front Row Tooth Assembly
		INCLUDES:			w/Point/Hard Surfaced Shoe
	530154	Tire 9.5L x 15	17	959304	Front Row Tooth Clamp 4 x 6
	530238	Wheel 5 Bolt 15 x 6	18	334458	HHCS 1/2" x 6"
	530287	Valve Stem	19	335125	HHCS 3/4" x 2"
	02990000	Decal -Check Wheel Lugs	20	337634	U-bolt 1/2" x 6 x 7
2	331314	Lug Nut	21	337642	Carriage Bolt 1/2" x 5"
3	831685	Hub & Spindle Assembly	22	330183	Flat Washer 5/8"
4		Left Wing Rockershaft	23	460451	Clevis Pin
	960070	40' x 10"	24	460469	Clip Pin
	960096	40' x 12"	25	330142	Lock Washer 1/2"
5	469924	Hydraulic Cylinder 3 x 8	26	330134	Hex Nut 1/2"
		w/Depth Control	27	330332	Lock Washer 3/4"
6	958983	Wing Rocker Bearing	28	330290	Hex Nut 3/4"
7	959700	Walkboard Mount	29	331223	Square Head Set Screw
8	866665	Presswheel Spring Assembly			5/8" x 1 3/4"
		4 x 6	30	331538	Hex Jam Nut 5/8"
9	956425	Walkboard	31	964742	Cylinder Lockout Bracket
10	866632	Long Back Row Tooth Assy	32	00233700	Wire Lock Pin
		w/ Hard Surfaced Shoe	33	337386	HHCS 1/2" x 8"
11	959312	Back Row Tooth Clamp 4 x 6	34	842864	Trash Shank Tooth
12	866962	Long Back Row Tooth Assy			Stabilizer Assembly
		w/ Hard Surfaced Shoe	35	259549	Counter Mounting Bracket
		& Bumper	36	609453	Counter 150 to 1
13	958827	Left Wing Frame	37	337725	Hex Jam Nylock 1/2" SAE
14	958918	Hinge Pin	38	960021	Walkboard Step
15	333575	Hex Jam Nut 1 1/2"	39	01212000	Carriage Bolt 1/2" x 1 1/2"
		w/ 5/16" Set Screw			

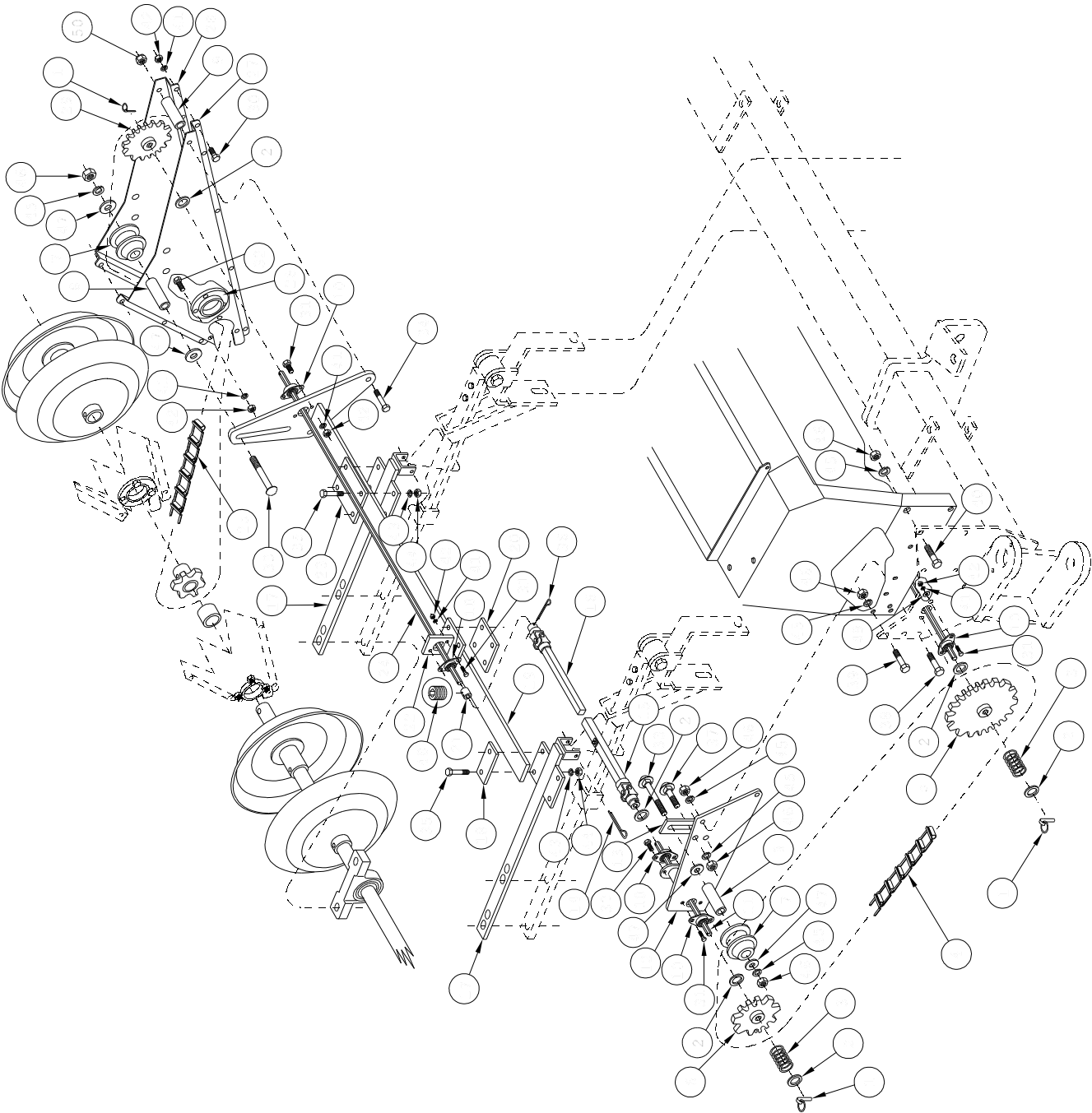
40' Right Wing Section



40' Right Wing Section

Item	Part No.	Description	Item	Part No.	Description
1	807313	Mounted Tire Assembly	15	333575	Hex Jam Nut 1 1/2"
	INCLUDES:				w/ 5/16" Set Screw
	530154	Tire 9.5L x 15	16	843193	Front Row Tooth Assembly
	530238	Wheel 5 Bolt 15 x 6			w/Point/Hard Surfaced Shoe
	530287	Valve Stem	17	959304	Front Row Tooth Clamp 4 x 6
	02990000	Decal -Check Wheel Lugs	18	334458	HHCS 1/2" x 6"
2	331314	Lug Nut	19	335125	HHCS 3/4" x 2"
3	831685	Hub & Spindle Assembly	20	337634	U-bolt 1/2" x 6 x 7
4		Right Wing Rockershaft	21	337642	Carriage Bolt 1/2" x 5"
	960062	40' x 10"	22	330183	Flat Washer 5/8"
	960088	40' x 12"	23	460451	Clevis Pin
5	469924	Hydraulic Cylinder 3 x 8	24	460469	Clip Pin
		w/Depth Control	25	330142	Lock Washer 1/2"
6	958983	Wing Rocker Bearing	26	330134	Hex Nut 1/2"
7	959700	Walkboard Mount	27	330332	Lock Washer 3/4"
8	866665	Presswheel Spring Assembly	28	330290	Hex Nut 3/4"
		4 x 6	29	331223	Square Head Set Screw
9	956425	Walkboard			5/8" x 1 3/4"
10	866632	Long Back Row Tooth Assy	30	331538	Hex Jam Nut 5/8"
		w/ Hard Surfaced Shoe	31	964742	Cylinder Lockout Bracket
11	959312	Back Row Tooth Clamp 4 x 6	32	00233700	Wire Lock Pin
12	866962	Long Back Row Tooth Assy	33	337386	HHCS 1/2" x 8"
		w/ Hard Surfaced Shoe	34	842864	Trash Shank Tooth
		& Bumper			Stabilizer Assembly
13	958819	Right Wing Frame	35	01212000	Carriage Bolt 1/2" x 1 1/2"
14	958918	Hinge Pin	36	960021	Walkboard Step

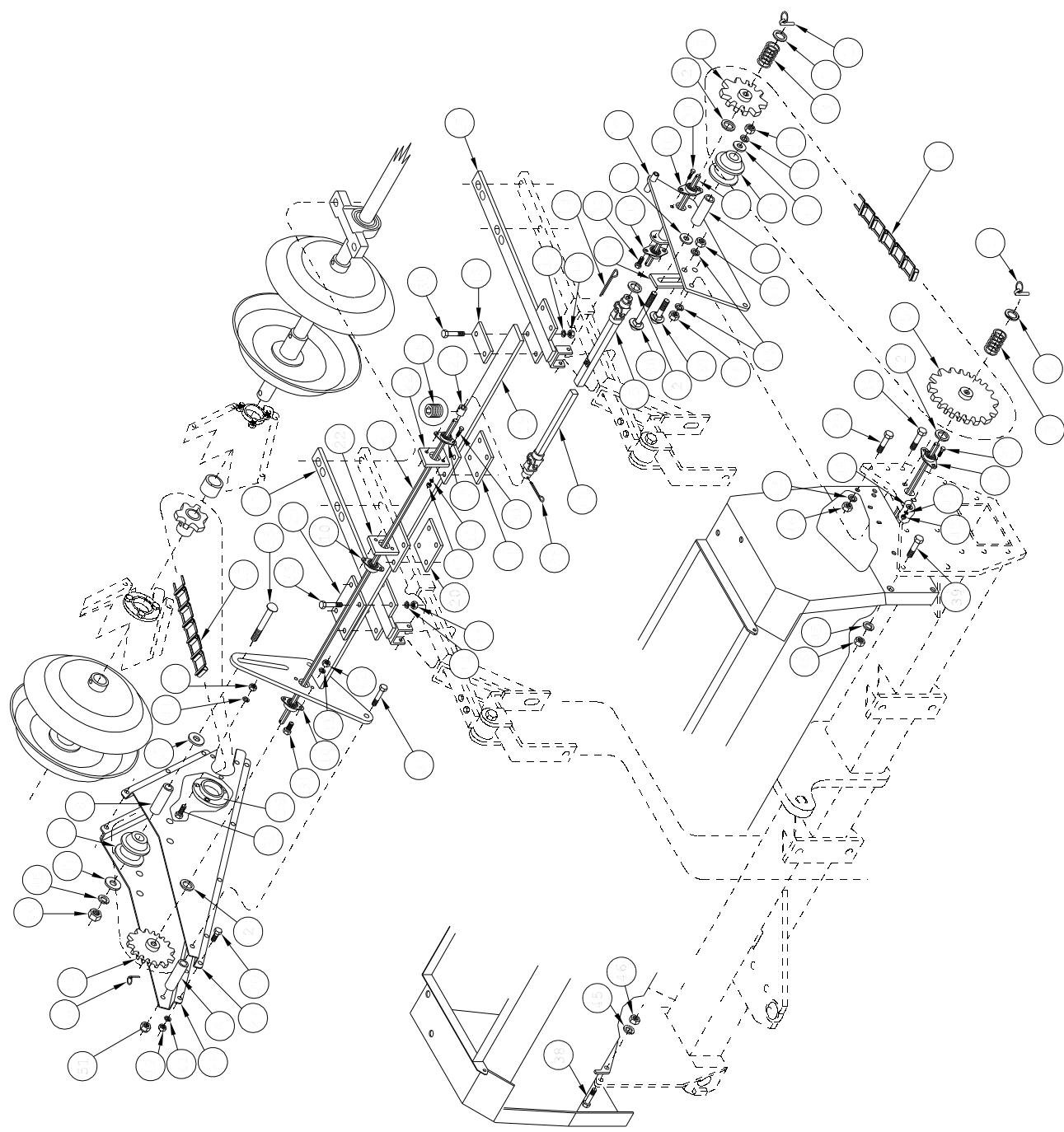
Center Drive Assembly



Center Drive Assembly

Item	Part No.	Description	Item	Part No.	Description
1	330928	Klik Pin 3/16"	25	432930	Chain #32 x 37 Links
2	331694	Machine Bushing 1 1/4" x 3/4" x 10 ga	26	918714	Chain Guard Flange
3	500330	Spring	27	250860	Right Chain Guard Plate
4	431429	Chain #32 x 38 links	28	250829	Left Chain Guard Plate
5	430207	Sprocket 20T / 5/8" Hex Bore	29	430199	Sprocket 16T w/ 5/8" Hex Bore
6	430173	Sprocket 11T / 5/8" Hex Bore	30	01150200	HHCS 1/4" x 1/2"
7	430686	Sprocket Idler	31	331835	HHCS 1/4" x 1"
8	142521	Sprocket Idler Bushing	32	01057900	HHCS 1/4" x 3/4"
9	142513	Chain Guard Spacer Bushing	33	333690	Carriage Bolt 1/2" x 4"
10	400804	Bearing 2B FI 5/8" Hex Bore	34	330886	HHCS 3/8" x 3"
11	306183	Hex Shaft 5/8" x 8 1/2"	35	334243	HHCS 3/8" x 2"
12	959775	Center Gear Plate Weldment	36	332403	Cotter Pin 3/16" x 2 1/4"
13	935783	Idler Arm Plate	37	01212000	Carriage Bolt 1/2" x 1 1/2"
14	331371	Cotter Pin 5/16" x 3"	38	01147800	HHCS 1/2" x 1 1/2"
15	935387	Hex U-Joint 5/8" Female	39	01180900	HHCS 1/2" x 1 1/4"
16	935395	Hex U-Joint 5/8" Male	40	01136100	Carriage Bolt 1/2" x 1 1/4"
17	959718	Drive Mount Bracket	41	330050	Lock Washer 1/4"
18	936179	Bolt Plate	42	332205	Hex Nut 1/4"
19	959742	Drive Plate Right - 50"	43	330043	Lock Washer 3/8"
20	936039	Bolt Plate	44	330035	Hex Nut 3/8"
21	140665	Lock Collar	45	330142	Lock Washer 1/2"
22	936047	Bearing Mount Hanger	46	330134	Hex Nut 1/2"
23	194639	Bolt Plate	47	330159	Flat Washer 1/2"
24	302802	Hex Shaft 5/8" x 31 1/8"	48	331348	Set Screw 1/2"-20 x 5/16"
			49	02016400	Flat Washer 1/4"
			50	330837	Nylock 3/8"

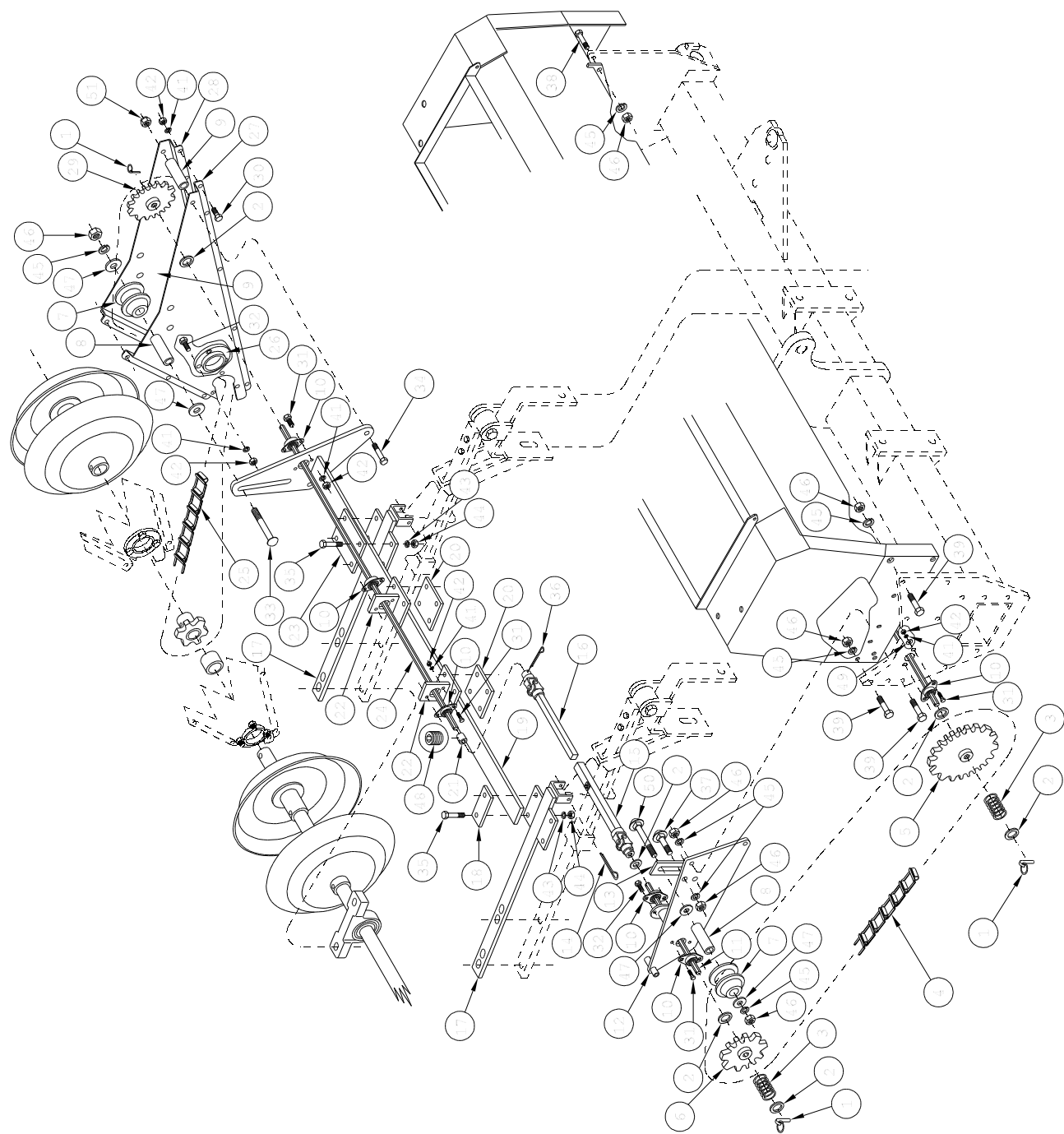
Left Drive Assembly



Left Drive Assembly

Item	Part No.	Description	Item	Part No.	Description
1	330928	Klik Pin 3/16"	25	432930	Chain #32 x 37 Links
2	331694	Machine Bushing 1 1/4" x 3/4" x 10 ga	26	918714	Chain Guard Flange
3	500330	Spring	27	250860	Right Chain Guard Plate
4	431429	Chain #32 x 38 links	28	250829	Left Chain Guard Plate
5	430207	Sprocket 20T / 5/8" Hex Bore	29	430199	Sprocket 16T w/ 5/8" Hex Bore
6	430173	Sprocket 11T / 5/8" Hex Bore	30	01150200	HHCS 1/4" x 1/2"
7	430686	Sprocket Idler	31	331835	HHCS 1/4" x 1"
8	142521	Sprocket Idler Bushing	32	01057900	HHCS 1/4" x 3/4"
9	142513	Chain Guard Spacer Bushing	33	333690	Carriage Bolt 1/2" x 4"
10	400804	Bearing 2B FI 5/8" Hex Bore	34	330886	HHCS 3/8" x 3"
11	306183	Hex Shaft 5/8" x 8 1/2"	35	334243	HHCS 3/8" x 2"
12	959635	Left Gear Plate Weldment	36	332403	Cotter Pin 3/16" x 2 1/4"
13	935783	Idler Arm Plate	37	01212000	Carriage Bolt 1/2" x 1 1/2"
14	331371	Cotter Pin 5/16" x 3"	38	01180900	HHCS 1/2" x 1 1/4"
15	935387	Hex U-Joint 5/8" Female	39	335240	HHCS 1/2" x 1 3/4"
16	935395	Hex U-Joint 5/8" Male	41	330050	Lock Washer 1/4"
17	959718	Drive Mount Bracket	42	332205	Hex Nut 1/4"
18	936179	Bolt Plate	43	330043	Lock Washer 3/8"
19	959759	Drive Plate Left - 50"	44	330035	Hex Nut 3/8"
	959734	Drive Plate Left - 38"	45	330142	Lock Washer 1/2"
20	936039	Bolt Plate	46	330134	Hex Nut 1/2"
21	140665	Lock Collar	47	330159	Flat Washer 1/2"
22	936047	Bearing Mount Hanger	48	331348	Set Screw 1/2"-20 x 5/16"
23	194639	Bolt Plate	49	02016400	Flat Washer 1/4"
24	302802	Hex Shaft 5/8" x 31 1/8"	50	333377	Carriage Bolt 1/2" x 4 1/2"
			51	330837	Nylock 3/8"

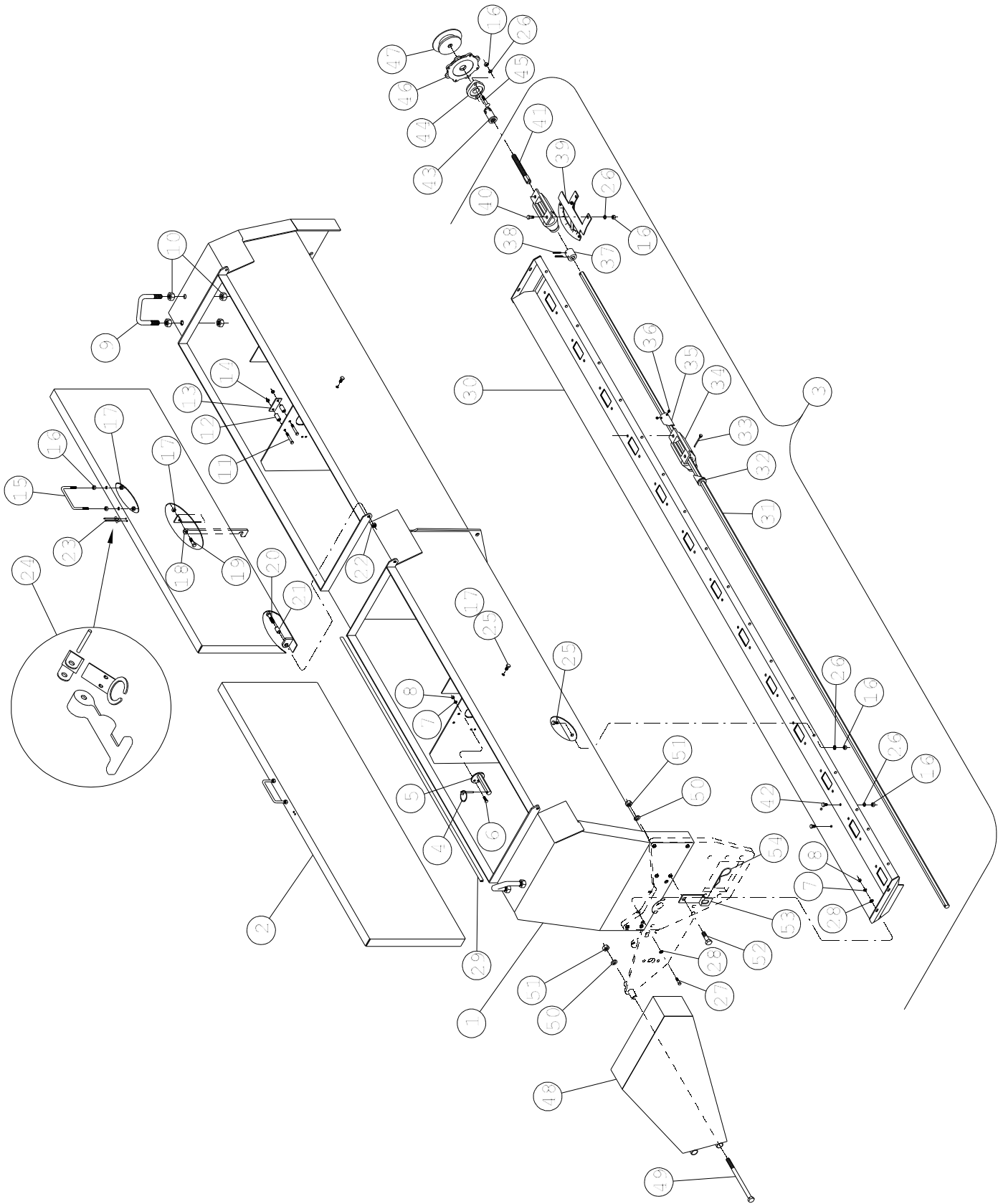
Right Drive Assembly



Right Drive Assembly

Item	Part No.	Description	Item	Part No.	Description
1	330928	Klik Pin 3/16"	24	302802	Hex Shaft 5/8" x 31 1/8"
2	331694	Machine Bushing 1 1/4" x 3/4" x 10 ga	25	432930	Chain #32 x 37 Links
3	500330	Spring	26	918714	Chain Guard Flange
4	431429	Chain #32 x 38 links	27	250860	Right Chain Guard Plate
5	430207	Sprocket 20T / 5/8" Hex Bore	28	250829	Left Chain Guard Plate
6	430173	Sprocket 11T / 5/8" Hex Bore	29	430199	Sprocket 16T w/ 5/8" Hex Bore
7	430686	Sprocket Idler	30	01150200	HHCS 1/4" x 1/2"
8	142521	Sprocket Idler Bushing	31	335133	HHCS 1/4" x 1 3/4"
9	142513	Chain Guard Spacer Bushing	32	01057900	HHCS 1/4" x 3/4"
10	400804	Bearing 2B FI 5/8" Hex Bore	33	333690	Carriage Bolt 1/2" x 4"
11	306183	Hex Shaft 5/8" x 8 1/2"	34	330886	HHCS 3/8" x 3"
12	959627	Right Gear Plate Weldment	35	334243	HHCS 3/8" x 2"
13	935783	Idler Arm Plate	36	332403	Cotter Pin 3/16" x 2 1/4"
14	331371	Cotter Pin 5/16" x 3"	37	01212000	Carriage Bolt 1/2" x 1 1/2"
15	935387	Hex U-Joint 5/8" Female	38	01180900	HHCS 1/2" x 1 1/4"
16	935395	Hex U-Joint 5/8" Male	39	335240	HHCS 1/2" x 1 3/4"
17	959718	Drive Mount Bracket	41	330050	Lock Washer 1/4"
18	936179	Bolt Plate	42	332205	Hex Nut 1/4"
19	959742	Drive Plate Right - 50"	43	330043	Lock Washer 3/8"
	959726	Drive Plate Right - 38"	44	330035	Hex Nut 3/8"
20	936039	Bolt Plate	45	330142	Lock Washer 1/2"
21	140665	Lock Collar	46	330134	Hex Nut 1/2"
22	936047	Bearing Mount Hanger	47	330159	Flat Washer 1/2"
23	194639	Bolt Plate	48	331348	Set Screw 1/2"-20 x 5/16"
			49	02016400	Flat Washer 1/4"
			50	333377	Carriage Bolt 1/2" x 4 1/2"
			51	330837	Nylock 3/8"

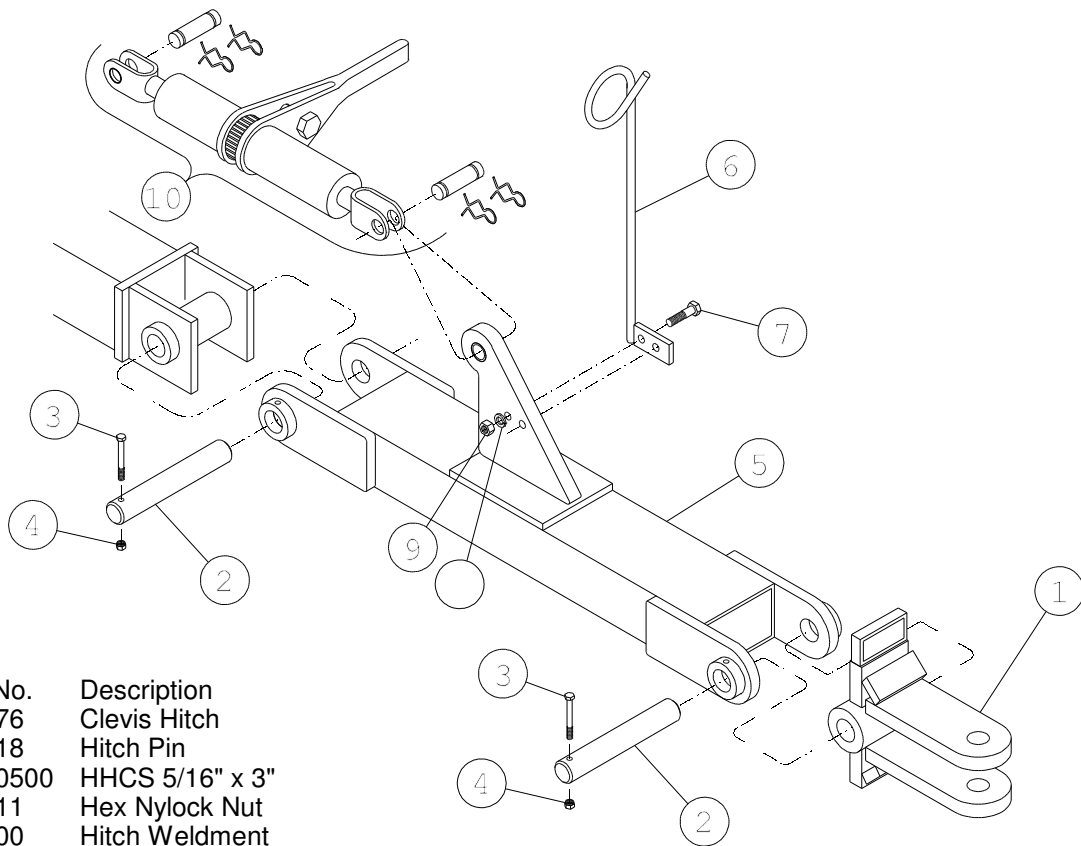
Box Assembly



Box Assembly

Item	Part No.	Description	Item	Part No.	Description
		Box Assemblies	18	221317	Latch Handle
	876433	126" x 10" Center	19	01011600	HHCS 5/16" x 1 1/4"
	876474	126" x 10" Left Wing	20	335703	HHCS 3/8" x 1 1/2"
	876458	126" x 10" Right Wing	21	149385	Box Lid Bushing
	876441	126" x 12" Center	22	330837	Hex Nylock Nut 3/8"
	876482	126" x 12" Left Wing	23	601989	Pop Rivet 3/16" x 1/4"
	876466	126" x 12" Right Wing	24	570341	Drill Lid Latch w/Hook
	876516	174" x 10" Left Wing	25	333542	HHCS 5/16" x 5/8"
	876490	174" x 10" Right Wing	26	330845	Lock Washer 5/16"
	876524	174" x 12" Left Wing	27	331835	HHCS 1/4" x 1"
	876508	174" x 12" Right Wing	28	02016400	Flat Washer 1/4"
1		Welded Grain Box	29	00671800	Trim Lock
	959155	126" Center	30		Box Bottom Weldment
	959171	126" Left Wing		958587	126" x 10"
	959163	126" Right Wing		958595	126" x 12"
	959197	174" Left Wing		958629	174" x 10"
	959189	174" Right Wing		958637	174" x 12"
2		Box Lid	31	312413	Hex Shaft 127 7/8"
	958579	126"		312439	Hex Shaft 176"
	958611	174"	32	550517	Wobble Slot Adj. Slide Long
3		Box Bottom Assemblies	33	601716	Wobble Slot Lock Bolt Pin
	876250	126" x 10" Left	34	550483	Cast Seed Cup
	876268	126" x 10" Right	35	550525	Wobble Slot Half w/Groove
	876276	126" x 12" Left	36	334516	Set Screw 1/4-28 x 1/4 Cone
	876284	126" x 12" Right	37	141895	Hex Shaft Coupler
	876292	174" x 10" Left	38	337485	Roll Pin 3/16" x 1 1/4"
	876300	174" x 10" Right	39	874552	Seed Gauge Rear Mount
	876318	174" x 12" Left	40	01144500	HHCS 5/16" x 3/4"
	876326	174" x 12" Right	41	311878	Adjustment Shaft 5/8" x 5 1/2"
4	330928	Klik Pin 3/16"	42	331546	HHCS 5/16" x 1/2"
5	960120	Sprocket Carrier	43	312785	Adjustment Spool
6	01057900	HHCS 1/4" x 3/4"	44	03001500	Bearing 1" Flange
7	330050	Lock Washer 1/4"	45	01047000	Carriage Bolt 5/16" x 1"
8	332205	Hex Nut 1/4"	46	874834	Adjustment Handle
9	335737	U-Bolt 5/8" x 4" x 3 1/4"	47	972851	Adjustment Lock Plate
10	330571	Hex Nut 5/8"	48	936377	Chain Guard Right
11	335133	HHCS 1/4" x 1 3/4"		936385	Chain Guard Left
12	145144	Lid Latch Spool	49	337386	HHCS 1/2" x 8"
13	190942	Lid Latch Plate	50	330142	Lock Washer 1/2"
14	330522	Nylock 1/4"	51	330134	Hex Nut 1/2"
15	308122	Box Lid Handle	52	335240	HHCS 1/2" x 1 3/4"
16	330811	Hex Nut 5/16"	53	259010	Chain Guard Latch Plate
17	331611	Nylock 5/16"	54	332403	Cotter Pin 3/16"

Hitch



Item	Part No.	Description
1	936476	Clevis Hitch
2	306118	Hitch Pin
3	02450500	HHCS 5/16" x 3"
4	331611	Hex Nylock Nut
5	935700	Hitch Weldment
6	935924	Hose Carrier
7	331926	HHCS 1/2" x 2"
8	330142	Lock Washer 1/2"
9	330134	Hex Nut 1/2"
10	605899	Ratchet Turnbuckle Assembly