

OPERATOR'S MANUAL & PARTS LIST



MULTI-drill MODEL ND-96

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ND-96 SER. 1001 thru ____
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INTRODUCTION

Thank you for purchasing a First Products Multi-Drill. This piece of equipment has been carefully engineered and manufactured to provide years of reliable service.

The Multi-Drill is one of the most unique and versatile pieces of equipment on the market today. It is designed for primary seeding in various soil conditions.

We recommend that you carefully read the operators manual prior to operation. Also ensure that all future operators read this manual and become fully trained before allowing them to use or maintain this equipment. Time spent becoming acquainted with the safe operation, performance, and maintenance of the Multi-Drill will add longer life and greater satisfaction to your new purchase.

This machine is designed with safety in mind. However, if the machine is handled carelessly and not as instructed, it can be a dangerous piece of equipment. Observe all safety information in this manual and decals on the equipment.

The illustrations and data used in the manual were current at the time of printing. The manufacturer reserves the right to make changes or add improvements to its products at any time without incurring any obligation to make such changes to products manufactured previously.

For service, your authorized First Products dealer has trained mechanics, genuine First Products parts, and the necessary tools/equipment to handle all your needs.

Use only genuine First Products parts. Substituting parts will void warranty and may not meet standards required for safe and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided below:

MODEL: _____

SERIAL NUMBER: _____

DATE OF PURCHASE: _____

REMEMBER SAFETY IS ALWAYS FIRST!

- **Read and understand the instructions and warnings carefully before using this machine.**
- **Read the warranty located on page 18. Fill in the required information on the warranty registration provided and return to the address on the front of this manual. The warranty registration must be returned to validate warranty.**

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GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your Multi-Drill. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance. These instructions have been compiled from extensive field experience and engineering data. Some information may be general in nature due to unknown and varying operating conditions. However, through experience and these instructions, you should be able to develop procedures suitable to your particular situation.

The illustrations and data used in this manual were current at the time of printing, but due to possible inline production changes, your machine may vary slightly in detail. We reserve the right to redesign and change the machines as may be necessary without notification.



Warning

Multi-Drill should never be operated with any safety shielding removed.

Throughout this manual, references are made to right and left locations. These are determined by standing behind the equipment facing the direction of forward travel.

SPECIFICATIONS for ND-96

Working Width	90"
Overall Width	116"
Disc Diameter	Coulter disc: 16" / Seed disc: 15"
Disc Spacing	9"
Hitch Category	CAT II
Quick Hitch Compatible	Yes
Hydraulic Lift Compatible	Yes
Towing Hitch Compatible	Yes
Guage Tires	26 X 6.6 X 14 (Implement Tire – 20 mph max)
Weight w/o options	2800 Lbs
Primary Seedbox Capacity	12 Bushels
Small Seedbox Capacity	5 Bushels
Primary Seed Distribution Method	Gravity metered into rows
Seed Depth Gauge Method	Guage Tires – hydraulic or turnbuckle

SAFETY SYMBOLS



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

This is a standard safety alert symbol meaning



CAUTION

Indicates hazardous situation, injury may occur, used to alert against carelessness.



WARNING

Indicates potentially hazardous situation. Death or serious injury may occur if proper procedures are not followed.



DANGER

Indicates most hazardous situation. Death or serious injury will occur if proper procedures are not followed.

SAFETY RULES

Safety is a primary concern in the design and manufacturing of our products. However, our efforts to provide safe equipment can be avoided by an operator's careless act. Accident prevention ultimately is dependent upon the awareness, concern, judgement, and proper training of the personnel involved in the operation, transport, maintenance, and storage of the equipment. It is incumbent upon every operator to practice proper safety protocol to avoid life-threatening situations.

Training

Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. Failure to follow instructions or safety rules can result in serious injury or death.

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

Know your controls and how to stop engine and attachment quickly in an emergency.

Operators must be instructed in and be capable of the safe operation of the equipment, its attachments, and all controls. Do not allow anyone to operate this equipment without proper instructions.

Never allow children or untrained persons to operate equipment.

Preparation

Check that all hardware is properly installed. Always tighten to torque chart specifications unless instructed otherwise in this manual.

Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear proper personal protective equipment for eyes, hair, hands, hearing, and head.

Make sure all safety decals are installed. Replace if damaged. See Safety Decals

section for location and part numbers for ordering replacements.

A minimum 20% of tractor and equipment weight must be on the tractor's front wheels when attachments are in transport position. Without this weight, front tractor wheels could raise up and result in loss of steering.

Operation

Keep bystanders away from equipment.

Do not operate or transport equipment while under the influence of alcohol or drugs.

Operate only in daylight or good artificial light.

Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.

Always comply with all state and local lighting and marking requirements.

Never allow riders on power unit or attachment.

Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in "locked up" position at all times.

Always sit in power unit seat when operating controls or starting engine.

Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting power unit engine.

Look down and to the rear and make sure area is clear before traveling in reverse.

Do not operate seeder in reverse.

Use extreme care when working close to fences, ditches, other obstructions, or on hillsides.

Do not operate or transport on steep slopes.

Do not start, stop, or change directions suddenly on slopes.

Use extreme care and reduce ground speed on slopes and rough terrain.

Watch for hidden hazards on the terrain during operation.

Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation.

Transportation

Use additional caution and reduce speed when under adverse surface conditions, turning, or on inclines.

A minimum 20% of tractor and equipment weight must be on the tractor's front wheels when attachments are in transport position. Without this weight, front tractor wheels could raise up and result in loss of steering. The weight may be attained with front wheel weights, ballast in tires, front tractor weights, or front loader. Weigh the tractor and equipment. Do not estimate.

Do not operate or transport on steep slopes.

Always raise unit and install transport lock before transporting. Leak down or failure of mechanical or hydraulic systems can cause equipment to drop.

Always attach safety chain to tractor drawbar when transporting unit.

Never exceed 25 mph (40.2 km/h) during transport.

Maintenance

Before dismounting power unit or performing any service or maintenance, follow these steps: 1) disengage power to equipment 2) lower unit to ground 3) operate valve levers to release any hydraulic pressure 4) set parking brake 5) stop engine 6) remove key 7) unfasten seat belt.

NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly resulting in severe injury or death. (Service work does not require going underneath).

Read Operator's Manual for service instructions or have service performed by qualified dealer.

Make sure attachment is properly secured, adjusted, and in good operating condition.

Keep all persons away from operator control area while performing adjustment, service, or maintenance.

Tighten all bolts, nuts, and screws to torque chart specifications. Check that all cotter pins are installed securely to ensure

equipment is in a safe condition before putting unit into service.

Make sure all safety decals are installed. Replace if damaged. See Safety Decals section for location and corresponding part numbers.

Storage

Block equipment securely for storage.

Cover with tarp included with seeder.

Keep children and bystanders away from storage area.

SAFETY DECALS

Your implement comes equipped with all safety labels in place. They were designed to help you safely operate your implement.

1. Read and follow decal directions.
2. Keep all safety decals clean and legible.
3. Replace all damaged or missing decals.
4. Refer to this section for proper decal placement.

Avoid spraying too close to decals when using a pressure washer; high pressure water can enter through very small scratches or under edges of decals causing them to peel or come off.

To install new decals:

Clean the area the decal is to be placed. Peel backing from decal. Press firmly on surface being careful not to cause air bubbles under label.

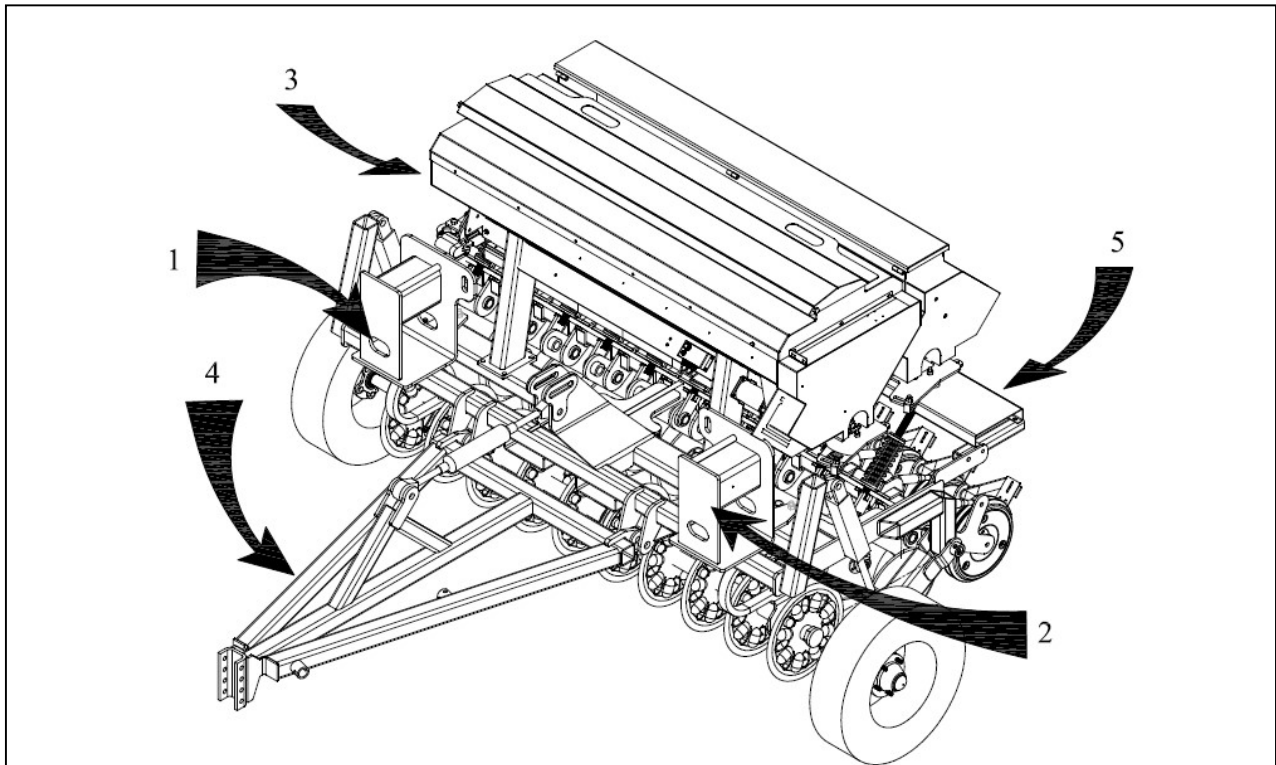


Figure 1. Safety Decal placement on Multi-Drill

⚠ WARNING



CRUSHING AND PINCHING HAZARD

- Be extremely careful handling various parts of the machine. They are heavy and hands, fingers, feet, and other body parts could be crushed or pinched between tractor and implement.
- Operate tractor controls from tractor seat only.
- Do not stand between tractor and implement when tractor is in gear.
- Make sure parking brake is engaged before going between tractor and implement.
- Stand clear of machine while in operation or when it is being raised or lowered.

FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH.

DS50-067

1 – General Warning (DS50-067)

⚠ WARNING



TO AVOID SERIOUS INJURY OR DEATH:


1. READ OPERATOR'S MANUAL AND LEARN TO OPERATE SAFELY.
2. KEEP PEOPLE CLEAR WHEN OPERATING.
3. LOWER EQUIPMENT TO GROUND, STOP ENGINE, REMOVE KEY, AND SET BRAKE BEFORE DISMOUNTING TRACTOR.
4. INSTALL AND SECURE ALL GUARDS BEFORE OPERATING.
5. KEEP HANDS, FEET, AND CLOTHING AWAY FROM POWER DRIVEN PARTS.
6. NEVER ALLOW RIDERS.
7. DO NOT TRANSPORT TOWED TOWED UNITS OVER 20 MPH.
8. WEAR PROPER SAFETY EQUIPMENT FOR EYES, EARS, AND LUNGS.

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

DS50-068

2 – Operator Warning (DS50-068)

⚠ CAUTION




FRAME PINCH POINT HAZARD KEEP AWAY

AE50-075

3 – Pinch Point (AE50-075)

⚠ WARNING

KEEP HANDS CLEAR



AE50-194

4 – Hydraulic Pressure (AE50-194)

⚠ DANGER



DO NOT STAND ON PLATFORM DURING MACHINE OPERATION

AG50-089

5 – No Riders (AG50-089)

OPERATION

The operator is responsible for the safe operation of this seeder. The operator must be properly trained. Operators should be familiar with the equipment, the tractor, and all safety practices before starting operation. Read the safety rules and safety decals provided in this operator's manual.

The Multi-Drill is an excellent primary seeder, food plot seeder, and conservation seeder. Its primary function is to deliver a variety of seed to the soil at the desired depth with minimal ground disturbance. The Multi-Drill does this utilizing a series of discs to cut narrow slits in the ground where seed is precisely positioned at the proper depth and packed down via closing wheels. The Multi-Drill is capable of planting multiple seed varieties at once due to its optional second seed box attachment. Seed plates are adjusted on the hoppers to achieve the desired seed rates while electric actuators shuttle the hopper outlets open and closed. When the electric actuators open the hopper outlets, an electric motor stirs the seed over every outlet to encourage the free flow of seed at the measured rate. The speed of the electric motor can be manipulated to finetune the seed rate.

WARNING

Power unit must be equipped with Roll Over Protection System (ROPS) or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in "locked up" position at all times.

Never allow children or untrained persons to operate equipment.

Keep bystanders away from equipment.

Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.

CAUTION

Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, set parking brake, remove key, inspect, and repair any damage before resuming operation.

Always wear relatively tight and belted clothing to avoid getting caught in moving parts.

Wear proper personal protective equipment for eyes, hair, hands, hearing, and head.

Front Coultter Disc Shaft

The Multi-Drill is equipped with a coultter disc shaft mounted to the front of the frame. The function of this shaft is to cut a narrow slit in the ground in preparation for the seed delivery to follow. The cutting depth of the shaft is manipulated using the gauge wheels on the sides of the frame. Whatever the desired depth of the final seed delivery may be, it is recommended that these coultter discs be set to cut 1/4" deeper to allow adequate room for the seed to easily fall in and be packed into place. If the ground is too hard for the coultter shaft to reach its target depth, weights can be added to the weight brackets located on both sides of the frame above the coultter disc shaft.

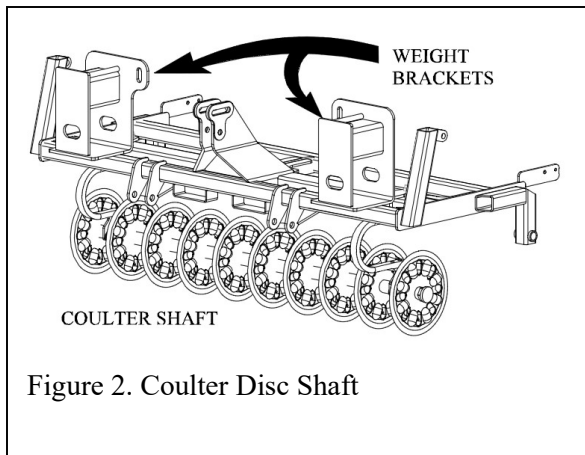


Figure 2. Coultter Disc Shaft

Seed Disc Assembly

Often referred to as double disc openers, the Multi-Disc sports offset discs which follow directly behind each coultter and are specifically designed to open the slit made by the preceded coultter and drop seed from the primary hopper in the trench made. Each seed disc assembly is comprised of two angled discs, pressure spring, turnbuckle, seed tube, and press wheel. The seed depth is adjusted utilizing the turnbuckle. The seed tube receives the hose from the primary box and drops the seed directly between the discs

at the measured depth created by the discs. The press wheel utilizes the force from the spring to firm up the soil over the seed.

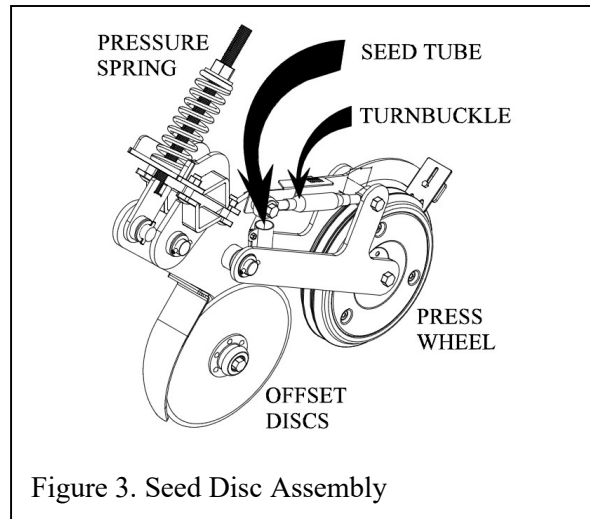


Figure 3. Seed Disc Assembly

Seeders

The Multi-Disc is equipped with a standard hopper, referred to as “primary”, while having the capability of adding a smaller hopper for simultaneous applications. The seeders are comprised of a hopper, seed plates, electric actuator, motor, and one handheld control harness. Each seeder utilizes the same metering principle and delivery system. The outlets on the bottom of the seeders have their sizes adjusted manually by sliding the seed plates past one another, Figure 4. There are different sizes of seed plates to account for the various seeds

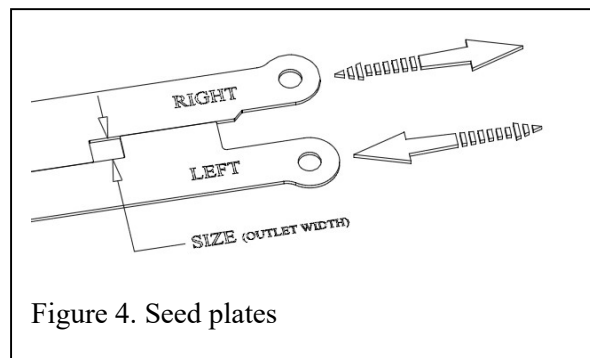


Figure 4. Seed plates

which are specified in the calibration instructions. A handheld control harness tethered to the seeders turns the seeder on and off. When the seeder is energized, an electric actuator opens the bottom of the seeder exposing the outlets while an electric motor stirs the seed inside the hopper as shown in

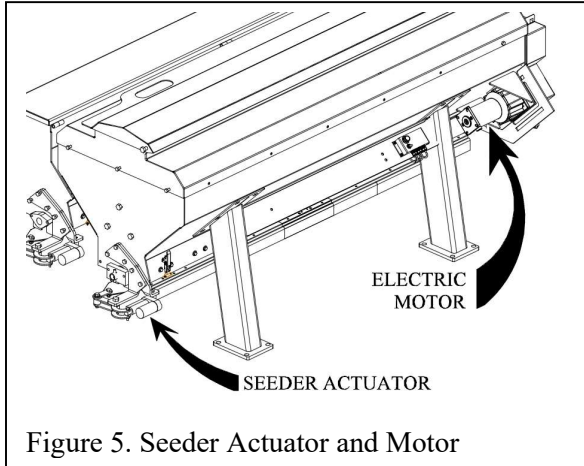


Figure 5. Seeder Actuator and Motor

Figure 5. The speed of the agitator is adjusted by changing sprockets in the Agitator Transmission, Figure 6, mounted on the Left Side of the hopper (some seed varieties and seed rates require agitation speed changes).

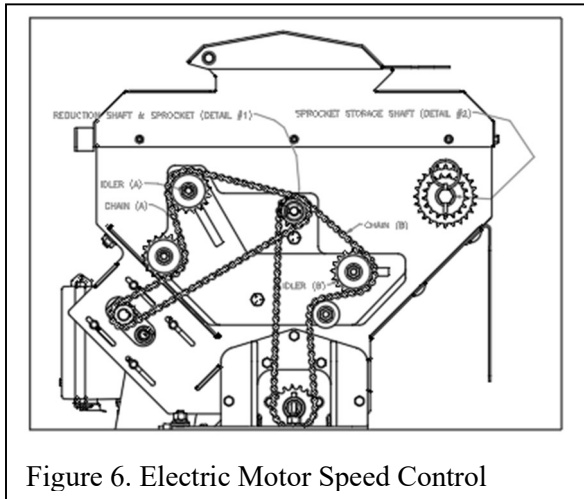


Figure 6. Electric Motor Speed Control

Attaching Multi-Drill

Note: The ND-96 Model is designed to have three ways of attaching to power unit:

1. Standard Cat. II 3-point hitch

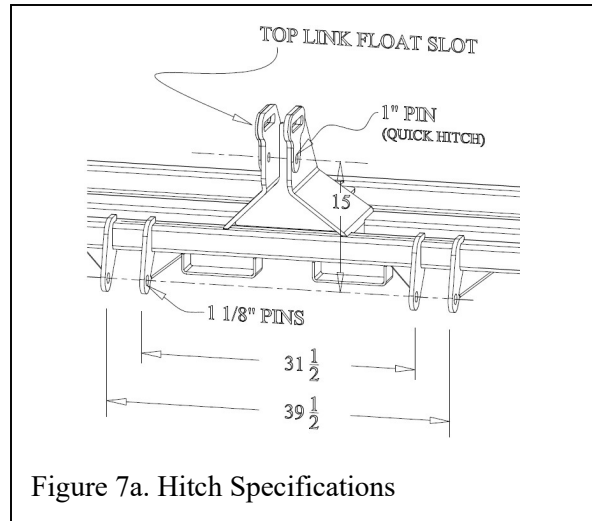


Figure 7a. Hitch Specifications

2. Standard Cat. II Quick hitch
3. Pull hitch w/ hydraulics

Figures 7a&b show hitch specifications and illustrations for these methods.

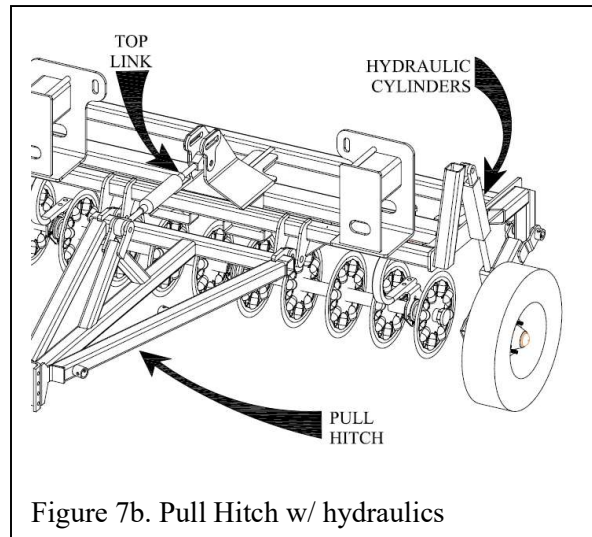


Figure 7b. Pull Hitch w/ hydraulics

1. Standard Cat. II 3-point hitch:

Attach the tractor's lower lift arms to the Multi-Drill's frame and secure with indicated hitch/lynch pins (Figure 7a). Attach the tractor's top link to the mast plates of the Multi-Drill.

For a rigid hitch connection, use the quick hitch hole location.

To enable the seeder to follow the contours of the uneven ground, install the tractor's top

link in the long slot in the top of the mast plates.

For proper float (up/down), the top link pin should be centered in the slot (for initial setup).

2. Standard Cat. II Quick hitch:

For quick hitch use, install the bushings with lower lift pins and appropriate top pin to receive upper hook. Note that the seeder will not float when quick hitch is utilized.

3. Pull hitch with hydraulic cylinders:

The pull hitch is illustrated in Figure 7b. This attachment allows the power unit to utilize a drawbar to pull the Multi-Drill while using hydraulics to lift, transport, and set seed depth.

Pin drawbar and hitch tongue and adjust the top link on the hitch until the Multi-Drill is level with the ground when in the operating position.

The hydraulic hoses connect to the power unit controls and are manipulated from there.

Seeder Setup

The Multi-Drill is capable of planting a wide variety of seeds over a wide range of seeding rates. Several variables have to be taken into account when planting: seed depth, ground speed, and seed rate. These all have to come together in order to achieve the optimum stand desired.

The Multi-drill seeder utilizes a gravity feed system combined with variable seed agitation and adjustable outlets to achieve consistent and precise seed rates. The size of the outlets is primarily a function of what size seed plate is used during calibration. The speed of the seed agitator is manipulated toward the end of the calibration process to finetune the desired rate.

Seeder Calibration

Before operating the seeder, calibration has to be done in order to take all variables into account and maximize efficiency of the seeder. The following steps must be done to calibrate the seeder:

1. Determine ground speed.
2. Select seed rate.
3. Select seed plates.
4. Use calibration chart to find target seed weight.
5. Position calibration trough to catch seed.
6. Operate seeder in air for 1 minute.
7. Compare weight of seed caught to the target weight in step 4.
8. Manipulate seed plates or electric motor speed to reach target weight.
9. Repeat steps 5 thru 8 until target weight is achieved.

Each of these steps is detailed below:

1. Determine ground speed

Determining ground speed usually depends on the terrain in which the seeding is done. In order to help set a ground speed, it is recommended the operator make a test pass without operating the seeder to determine a good starting point. If the tractor isn't equipped with a speedometer, a smartphone app may prove useful.

2. Select seed rate

Most seed varieties have a set standard for what rate works best. Investigate the seed and determine what the recommended rate would be for the particular application. The calibration chart uses pounds per acre.

3. Set seed plates and electric motor setting

Determine the seed plates needed to achieve the desired seed rate. The seed plates come in four different sizes identified with laser etching on one end. Figure 9 displays a Quick Start Setting Guide. This chart is used as a point of reference

to help select the proper seed plate, set them in the right position, and start the electric motor at the right speed.

If the Quick Start Setting Guide is not helpful for selecting a seed plate, below is a list of common seeds under the corresponding seed plates:

¼” Seed Plate: Clover, Grain, Sorghum, Canola

3/8” Seed Plate: Soybeans

½” Seed Plate: Wheat and Rye Grass Peas, Beans (**under 60 lbs/acre**)

¾” Seed Plate: Wheat and Rye Grass, Oats, Mixes, medium to large Grains, Peas, Beans (**over 60 lbs/acre**)

If the current plates inside the hopper are not the desired set to use, refer to “Changing Seed Plates” for step-by-step instructions.

To set the seed plates, the Multi-Drill is supplied with a wrench, DS27-026, to help as shown in Figure 8. Use the wrench to loosen the Setting Bolt sporting the arrow; the wrench also adds leverage for shifting the plates to the desired setting. When the setting is adjusted, retighten the Setting Bolt and store the wrench for future use.

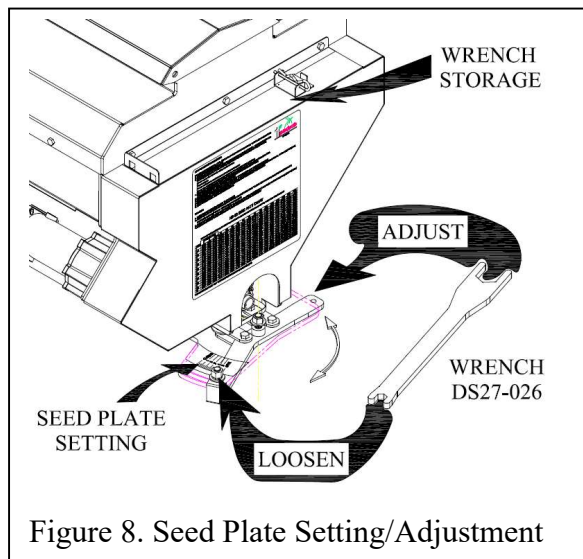


Figure 8. Seed Plate Setting/Adjustment

While checking the Quick Chart Setting Guide recommendations, determine the correct sprocket size needed for the seed you are planting. To

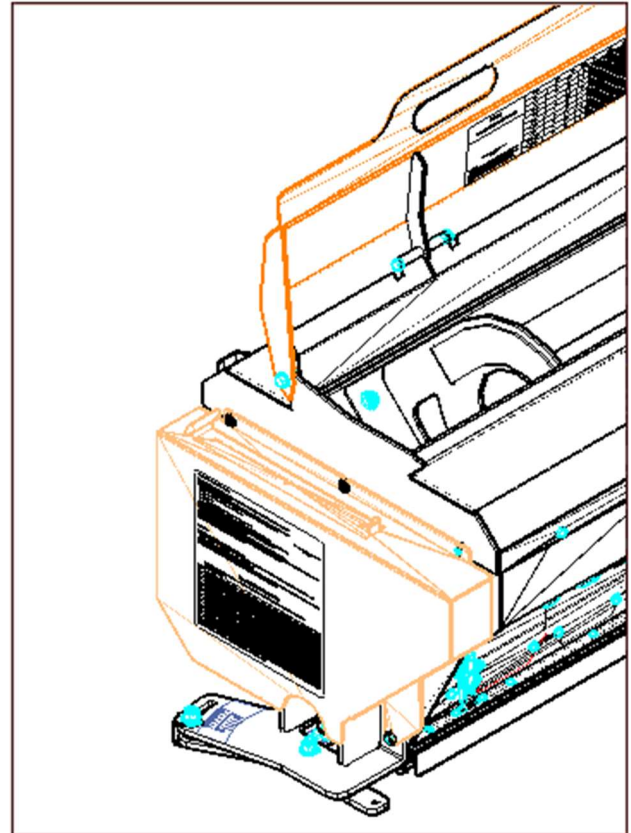


Figure 9. Quick Start Setting Guide - Step 3

change sprockets, disconnect the drill from power source, remove the chain guard, and follow instructions on decal inside of the chain guard. Most seeds use the 24 tooth sprocket, the 12 tooth is for Oats and high rates at high speeds of cereal grains. The 17 tooth is for fine tuning if needed

4. Find Target Seed Weight

Finding the Target weight is simply done using the calibration chart seen in Figure 10. Knowing the ground speed (left side of chart) and the desired seed rate (top of chart), a target weight to be caught can be selected.

5. Position Calibration Trough

Every Multi-Drill is equipped with calibration trough which is used to catch the seed. In order to do so, the trough should be positioned directly under the seed discs while the machine is lifted.

ND-96 Calibration Chart

This Chart Lists the Weight of Seed Captured for One Minute (Target Weight) - *STEP 4*

		Desired Seed Rate (Pounds/Acre) - <i>STEP 2</i>																
		3	5	10	20	30	40	50	60	70	80	90	100	120	140	160	180	200
Ground Speed (MPH) - <i>STEP 1</i>	1	0.05	0.08	0.16	0.32	0.48	0.64	0.76	0.91	1.06	1.21	1.37	1.52	1.82	2.12	2.42	2.74	3.04
	1.5	0.06	0.11	0.22	0.44	0.66	0.88	1.14	1.37	1.59	1.82	2.06	2.28	2.73	3.18	3.63	4.11	4.56
	2	0.09	0.16	0.32	0.64	0.96	1.28	1.52	1.82	2.12	2.42	2.74	3.04	3.64	4.24	4.84	5.48	6.08
	2.5	0.11	0.19	0.38	0.76	1.14	1.52	1.90	2.28	2.65	3.03	3.43	3.80	4.55	5.30	6.05	6.85	7.60
	3	0.14	0.23	0.46	0.92	1.38	1.84	2.28	2.73	3.18	3.63	4.11	4.55	5.46	6.36	7.26	8.22	9.12
	3.5	0.16	0.26	0.52	1.04	1.56	2.08	2.66	3.19	3.71	4.24	4.80	5.32	6.37	7.42	8.47	9.59	10.64
	4	0.19	0.30	0.60	1.20	1.80	2.40	3.04	3.64	4.24	4.84	5.48	6.08	7.28	8.48	9.68	10.96	12.16
	4.5	0.20	0.34	0.68	1.36	2.04	2.72	3.42	4.10	4.77	5.45	6.17	6.84	8.19	9.54	10.89	12.33	13.68
	5	0.23	0.38	0.76	1.52	2.28	3.04	3.80	4.55	5.30	6.05	6.85	7.60	9.10	10.60	12.10	13.70	15.20
	5.5	0.25	0.41	0.82	1.64	2.56	3.28	4.18	5.01	5.83	6.65	7.54	8.36	10.01	11.66	13.31	15.07	16.72
	6	0.28	0.45	0.90	1.80	2.70	3.60	4.56	5.46	6.36	7.26	8.22	9.12	10.92	12.72	14.52	16.44	18.24
	6.5	0.30	0.49	0.98	1.96	2.94	3.92	4.94	5.92	6.89	7.87	8.91	9.88	11.83	13.78	15.73	17.81	19.76
	7	0.32	0.53	1.06	2.12	3.18	4.24	5.32	6.37	7.42	8.47	9.59	10.64	12.74	14.84	16.94	19.18	21.28
	7.5	0.34	0.56	1.12	2.24	3.36	4.48	5.70	6.83	7.95	9.08	10.28	11.40	13.65	15.90	18.15	20.55	22.80
	8	0.36	0.60	1.20	2.40	3.60	4.80	6.08	7.28	8.48	9.68	10.96	12.16	14.56	16.96	19.36	21.92	24.32
	8.5	0.39	0.65	1.30	2.60	3.90	5.20	6.46	7.74	9.01	10.29	11.65	12.92	15.47	18.02	20.57	23.29	25.84
9	0.41	0.69	1.38	2.76	4.14	5.52	6.84	8.19	9.54	10.89	12.33	13.68	16.38	19.08	21.78	24.66	27.36	
9.5	0.44	0.73	1.46	2.92	4.38	5.84	7.22	8.65	10.07	11.50	13.02	14.44	17.29	20.14	22.99	26.03	28.88	
10	0.46	0.76	1.52	3.04	4.56	6.08	7.60	9.10	10.60	12.10	13.70	15.20	18.20	21.20	24.20	27.40	30.40	

Figure 10. ND-96 Calibration Chart used for Step 4

6. Operate Seeder for One Minute

With seed loaded in Multi-Drill, use the handheld control harness to operate the seeder in the air for one minute. The seed should flow through the seed discs and be captured by the calibration trough.

7. Weigh and Compare Seed Weight

The seed caught in the calibration trough from step 6 will need to be weighed on an accurate digital scale capable of producing pounds (in decimal form is preferred). If the scale displays pounds and ounces, divide the ounces by 16 and add the decimal to the pounds to get the complete weight.

8. Manipulate Seed Plates/Electric Motor

The seed plates can be repositioned to dial the seed rate in closer to the target using the same method outlined in step 3. If the rate needs to increase, the setting will be increased; and likewise, the setting will decrease if the rate needs to be cut down.

9. Repeat Steps as Necessary

Until the target weight is achieved, steps 5 through 8 should be repeated. In some instances, the seed plates may need to be changed during this process.

Once the seeder is metering the seed at the desired rate, it is time to set the seed depth.

Seed Depth Adjustment (ND-96)

The ND-96 Multi-Drill has two way to adjust the seed depth: 1) Hydraulic Cylinders 2) Turnbuckles. The method for setting the seed depth is as follows:

1. Lower the Multi-drill to the ground.
2. Adjust top link as necessary to ensure the Multi-drill is parallel to the ground.
3. The goal is to set the front coulter discs to cut 1/4" deeper than the seed depth. With the machine on the ground and the tires touching the

ground, whatever distance the tires are adjusted up from the ground is roughly the depth the coulters will cut ahead of the seeder discs.

Hydraulic Cylinder setup: Use cylinder stops to set the maximum height that the tires can be lifted while achieving proper seed depth.

Turnbuckle Setup: rotate top links to lift tires off the ground approximately the distance desired to achieve proper seed depth.

4. Test the gauge setting by operating the Multi-drill where seeding is desired. Observe the gauge wheels during the test; if they don't touch the ground, weights can be added to the Multi-Drill frame.
5. Measure the results of the test. For drastic changes, the gauge wheels can be further adjusted, but for small depth adjustments, the turnbuckle on each seed disc assembly can be rotated to lift or lower the seed within the trench made.
6. Repeat these last steps until desired seed depth is achieved and don't forget to occasionally verify seed depth during operation. Soil conditions can change over the course of operation.

Changing Seed Plates

The seed plates are strategically positioned between the hopper's outlet holes (seen when the hopper is empty) and the "cutoff plate" which the linear actuator shuttles back and forth to start and stop seed flow.

Each set of plates are labeled with laser etching on one side: "left", "right", and their respective sizes.

In order to change the seed plates, the hopper must be clean. If the plates are removed with

seed in the hopper, the seed can wedge between the "cutoff plate" and the hopper outlets making it impossible to slide the next set of plates into place.

The seed plates are changed using the following steps:

1. To change plates you will need two 9/16" wrenches and the Adjuster Wrench, DS27-026. Using the small end of the Adjuster Wrench, located on top of chain cover as shown in Figure 9. Loosen and remove the two 1/2" carriage head bolts connecting the adjuster handle to the Adjuster mount as shown Figure 11.

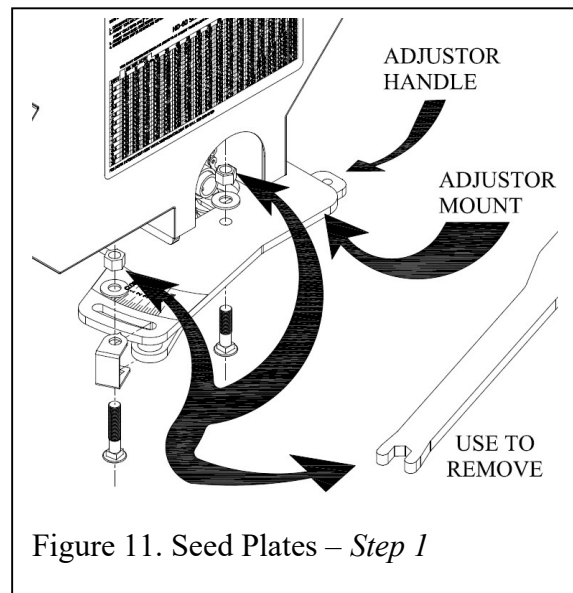


Figure 11. Seed Plates – Step 1

2. Pull straight out on the adjuster handle and slide the seed plate assembly out of the seed box as shown in Figure 12.
3. Using the 9/16" wrenches, loosen and remove the 3/8" bolts connecting both seed plates to the adjuster linkages as shown in Figure 12.

- Slide the plates and bushings out of linkages, set plates to the side, hold onto the bushings.

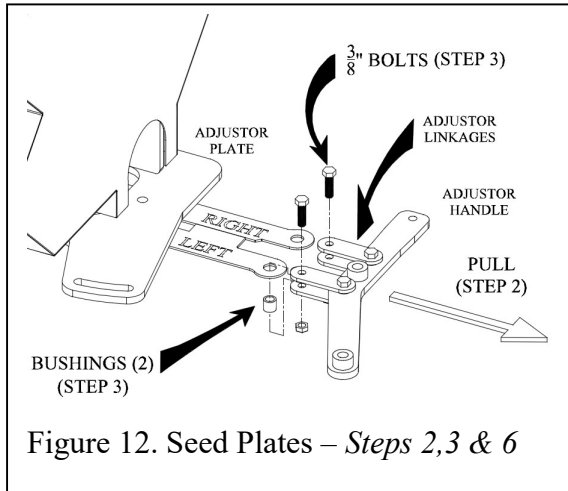


Figure 12. Seed Plates – Steps 2,3 & 6

- Select plates you want in machine and be sure to read etchings on plate ensuring both plates have the same size with corresponding sides.
- Reassemble the seed plate assembly; be sure the left and right plates are oriented as shown in Figure 12.

- Take seed plate assembly and slide back into machine; be sure to put seed plates on top of cut off plate when starting to push them into the machine as shown in Figure 13.
- Reattach the Adjuster Handle to the Adjuster Mount as shown in Figure 11, and fasten bolts.

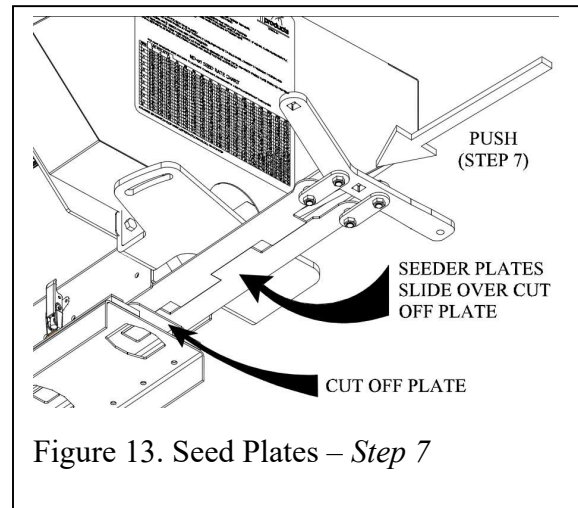


Figure 13. Seed Plates – Step 7

CLEANING

After Each Use

Remove large debris such as clumps of dirt, grass, crop residue, etc. from machine.

Inspect machine and replace worn or damaged parts.

Replace any safety decals that are damaged, missing, or not legible.

Periodic or Before Extended Storage

Remove large debris such as clumps of dirt, grass, crop residue, etc. from machine.

Remove the remaining debris with a low-pressure washer spray:

1. Be careful when spraying near scratched or torn safety decals or near edges of decals as water spray can peel decal off surface.
2. Be careful when spraying near chipped or scratched paint as water spray may lift paint.
3. If a pressure washer is used, follow the advice of the pressure washer manufacturer.

Inspect machine and replace worn or damaged parts.

Check all hardware and ensure proper torque is present.

Sand down scratches and the edges of area of missing parts and coat with First Products spray paint of matching color (purchase from your local dealer).

Replace any safety decals with that are missing or not legible (supplied by your First Products dealer). See Safety Decals section for location drawing.

Cover the seeder with supplied tarp when the Multi-drill is being stored.

WARRANTY INFORMATION

ONE YEAR LIMITED WARRANTY

FIRST PRODUCTS INC. WARRANTS THIS PRODUCT TO BE FREE OF DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF TWELVE MONTHS FROM THE ORIGINAL DELIVERY DATE. THIS WARRANTY DOES NOT COVER PARTS CAUSED TO BE DEFICIENT DUE TO NORMAL WEAR, MISUSE, ACCIDENTS, OR LACK OF PROPER MAINTENANCE.

ANY PARTS THOUGHT TO BE DEFECTIVE MUST BE RETURNED TO THE DEALER/DISTRIBUTOR FOR WARRANTY CONSIDERATION JOINTLY WITH FACTORY REPRESENTATIVES. A RETURN AUTHORIZATION NUMBER MUST BE OBTAINED AND CLEARLY MARKED ON ALL PACKAGES OF PARTS REQUIRING RETURN TO THE FACTORY.

THE OBLIGATION OF FIRST PRODUCTS INC. UNDER THIS WARRANTY SHALL BE EXCLUSIVELY LIMITED TO REPLACEMENT OF PARTS DETERMINED TO BE DEFECTIVE BY FIRST PRODUCTS INC. WITH FREIGHT PREPAID. IN NO EVENT SHALL FIRST PRODUCTS INC. BE LIABLE FOR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE USE OF THIS PRODUCT.

FIRST PRODUCTS INC. RESERVES THE RIGHT TO MAKE CHANGES OR ADD IMPROVEMENTS TO ITS PRODUCTS AT ANY TIME WITHOUT OBLIGATION TO MAKE SUCH CHANGES OR IMPROVEMENTS ON PRODUCTS SOLD PREVIOUSLY.

WARRANTY CLAIMS ARE PAID USING A JOB STANDARD (AUTHORIZING MAN HOURS) USING THE APPROPRIATE TIME FRAME ALLOWED FOR EACH PART REPLACED OR LABOR FUNCTIONS PERFORMED. THIS JOB STANDARD LIMITS THE MAN HOURS AUTHORIZED BY TASK. IT DOES NOT SET A SPECIFIC HOURLY RATE BUT LIMITS THE AUTHORIZED MAN HOURS THAT WILL BE PAID BY EACH TASK. MILEAGE IS NOT PAID.

FIRST PRODUCTS INC.

WARRANTY REGISTRATION CARD

WARRANTY VOID IF THIS CARD IS NOT ON FILE AT FIRST PRODUCTS INC.

DATE OF SALE _____

MODEL NUMBER _____ SERIAL NUMBER _____

CUSTOMER INFORMATION

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

ATTACHMENTS: TOW HITCH AUXILIARY BOX

UNIT TO BE USED IN WHAT APPLICATION (CHECK ALL THAT APPLY)

CITY/COUNTY EQUESTRIAN COM. LANDSCAPE

TURF/SOD FARM SPORTS FIELDS COVER CROP

FOOD PLOT PASTURE RENTAL

PLEASE HELP US DETERMINE THE BEST WAY TO ADVERTISE OUR PRODUCTS & BRIEFLY EXPLAINED WHERE YOU HEARD ABOUT THIS EQUIPMENT:

REAL TREE KILLIN THE GAME SOCIAL MEDIA

ORGANIC SEARCH WORD OF MOUTH OTHER _____

RETURN THIS PORTION

(warranty card can be mailed removing this page, emailing it to sales@1stproducts.com or faxed to 229-382-0506)

CUSTOMER'S RECORD

MODEL NUMBER _____

SERIAL NUMBER _____

DATE PURCHASED _____

FIRST PRODUCTS INC.

1-800-363-8780

E-mail: sales@1stproducts.com

**AFTER COMPLETING,
REMOVE MANUFACTURERS
CARD, FOLD, STAPLE
CORNERS, STAMP & MAIL.**

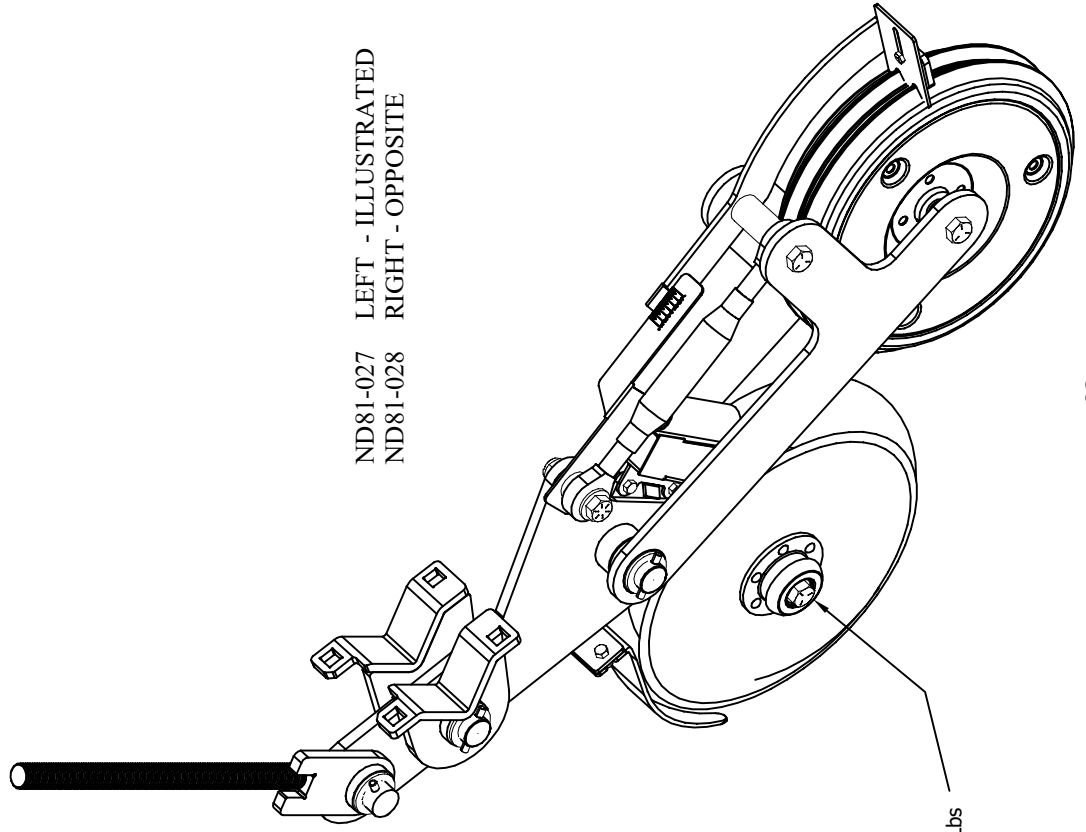
CUT ALONG LINE TO REMOVE

PLACE
STAMP
HERE

**FIRST PRODUCTS INC.
164 OAKRIDGE CHURCH RD.
TIFTON, GA 31794**

ROW UNIT GROUP

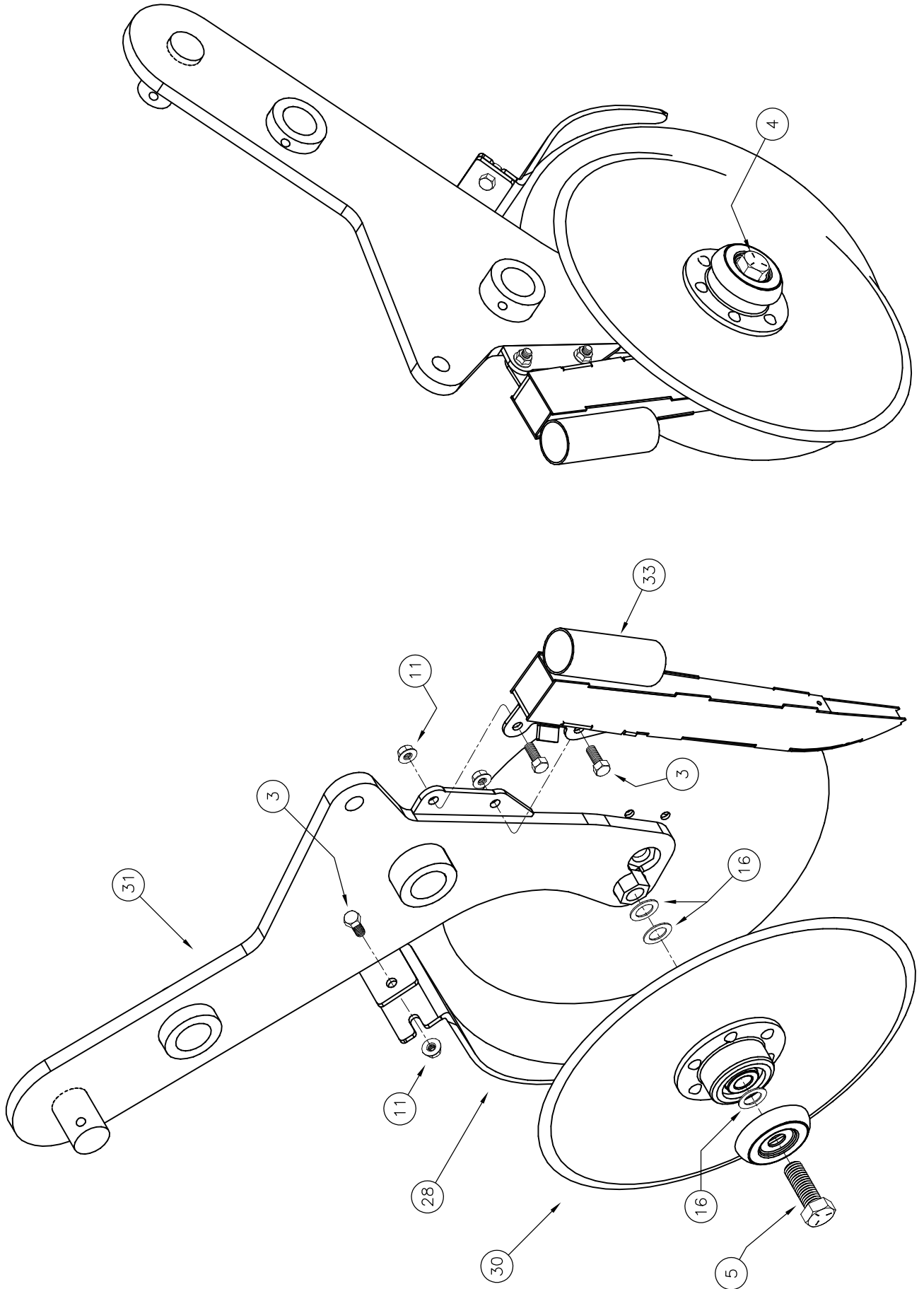
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1	FL50-008	CAT. 0 TOP LINK	1	14	HW32020TAZP	5/8 Lockwasher	2	27	ND27-071	SCRAPER GAUGE, RT (ND81-028)	1
2	HW01008024G2ZPC	1/4 X 3/4 HHCS	1	15	HW42010064ZP	5/16 X 2 ROLL PIN	5	28	ND27-076	No-Till Rock Guard 13.5"	1
3	HW01010024G5PLC	5/16 X 3/4 HHCS	4	16	HW6002003218GZP	5/8 ID X 1 O.D. 18 GA. M.B.	6	29	ND50-001	DUAL RIB PRESS WHEEL	1
4	HW01020056G5ZPC	5/8 x 1 3/4 HHCS G5	1	17	HW6004006010GZP	1 1/4 x 1-7/8 x 10 GA. M.B.	5	30	ND50-006	13.5" SEED DISK	2
5	HW01020096G5ZPD	5/8 x 1 3/4 HHCS G5 Left hand	1	18	ND24-005	GAUGE ARM SPACER 1	1	31	ND80-005	OFFSET DISK OPENER LEG; LT (ND81-027)	1
6	HW01020100G5ZPC	5/8 X 3 HHCS	1	19	ND24-006	GAUGE ARM SPACER 2	1	32	ND80-006	OFFSET DISK OPENER LEG; RT (ND81-028)	1
7	HW01020160G5ZPC	5/8 X 5 HHCS	2	20	ND24-007	PRESS WHEEL SPACER	2	33	ND80-046	SEED TUBE; Left (ND81-027)	1
8	HW08010016P1C	5/16 X 1/2 SET SCW	2	21	ND26-020	MASTER PIN; R.U.	1	34	ND80-047	SEED TUBE; Right (ND81-028)	1
9	HW20020035ZPC	5/8 HEX NUT	2	22	ND26-021	FULCRUM PIN; R.U.	1	35	ND81-001	SEE DIAMOND MOUNT GROUP	1
10	HW22008G5ZPC	1/4 FLG. LOCK NUT	1	23	ND27-015	SCRAPER	1	36	ND81-002	SEE DIAMOND MOUNT GROUP	1
11	HW22010G5P1C	5/16 FLG. LOCK NUT	4	24	ND27-068	SCRAPER ARM; LT (ND81-027)	1	37	ND81-003	SEE PRESS WHEEL ARM GROUP	1
12	HW24020C8ZPC	5/8 STOVER LOCK NUT	1	25	ND27-069	SCRAPER ARM; RT (ND81-028)	1	38	ND81-004	SEE PRESS WHEEL ARM GROUP	1
13	HW30020G8ZPC	5/8" Flatwasher G8	1	26	ND27-070	SCRAPER GAUGE, LT (ND81-027)	1	39	ND81-009	SEE SPRING ROD GROUP	1



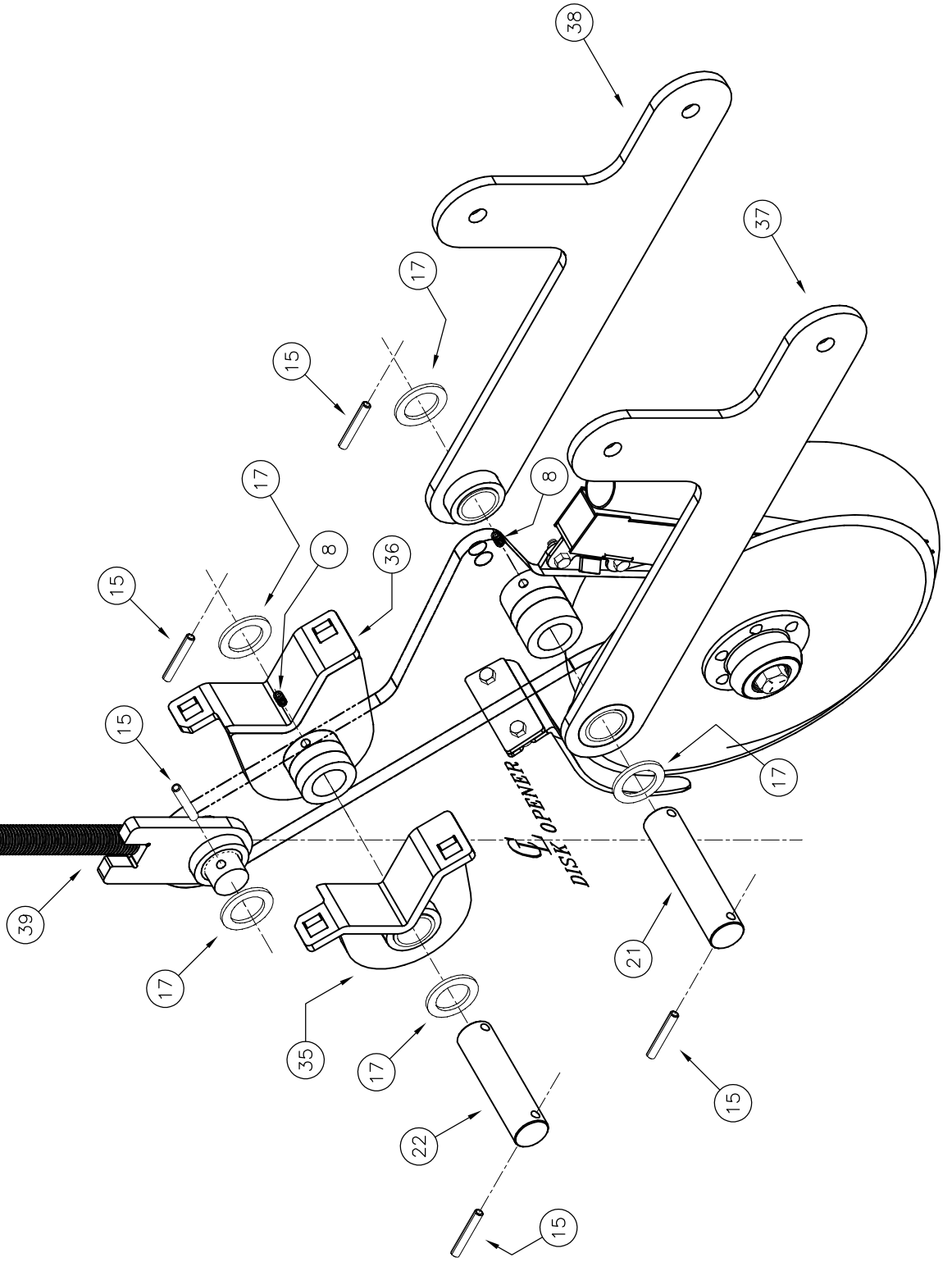
ND81-027 LEFT - ILLUSTRATED
 ND81-028 RIGHT - OPPOSITE

TORQUE SEED DISCS TO 128 Ft-Lbs

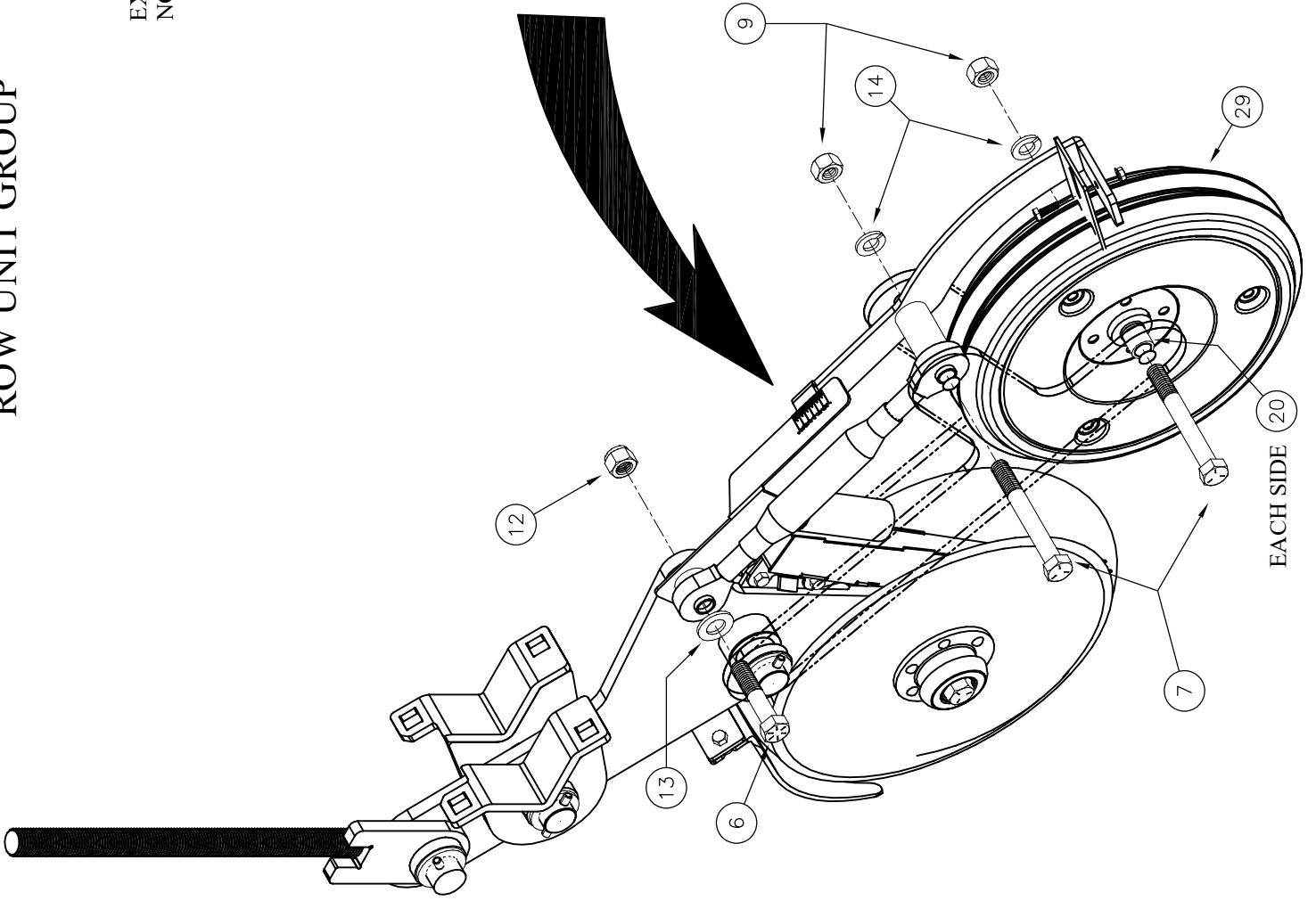
ROW UNIT GROUP



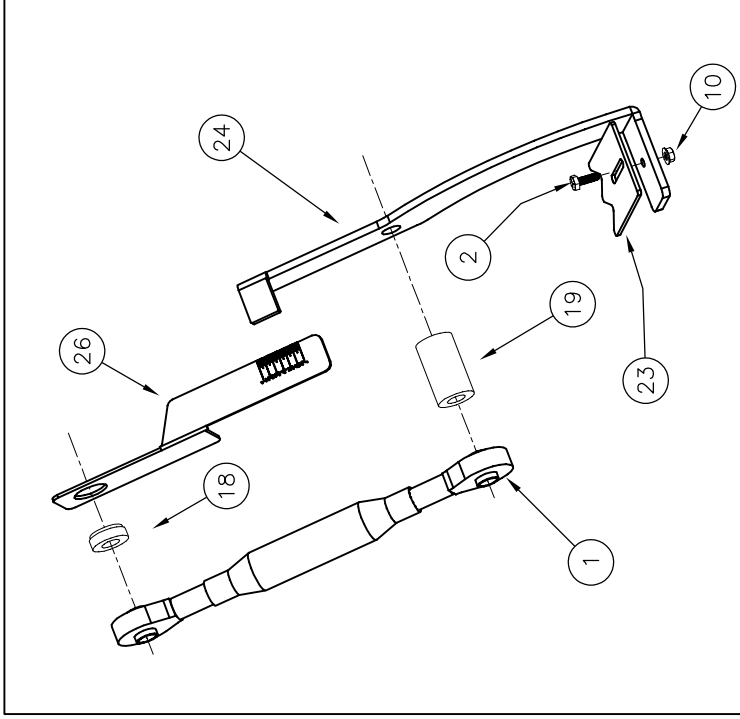
ROW UNIT GROUP



ROW UNIT GROUP



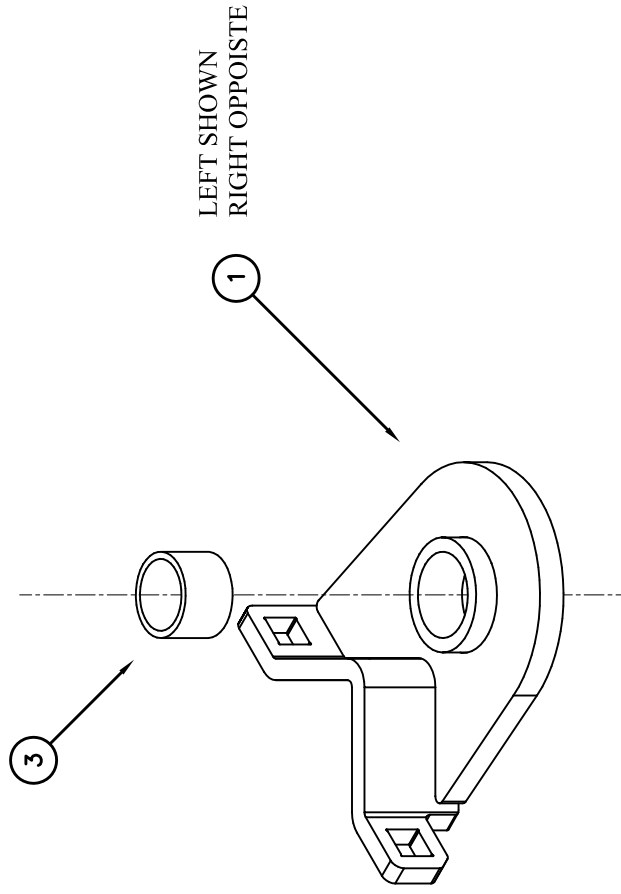
EXPLODED VIEW BETWEEN PRESS WHEEL ARMS:
NOTE SHOULDER OF SPACER ORIENTED INTO GAUGE ARM



EACH SIDE (20)

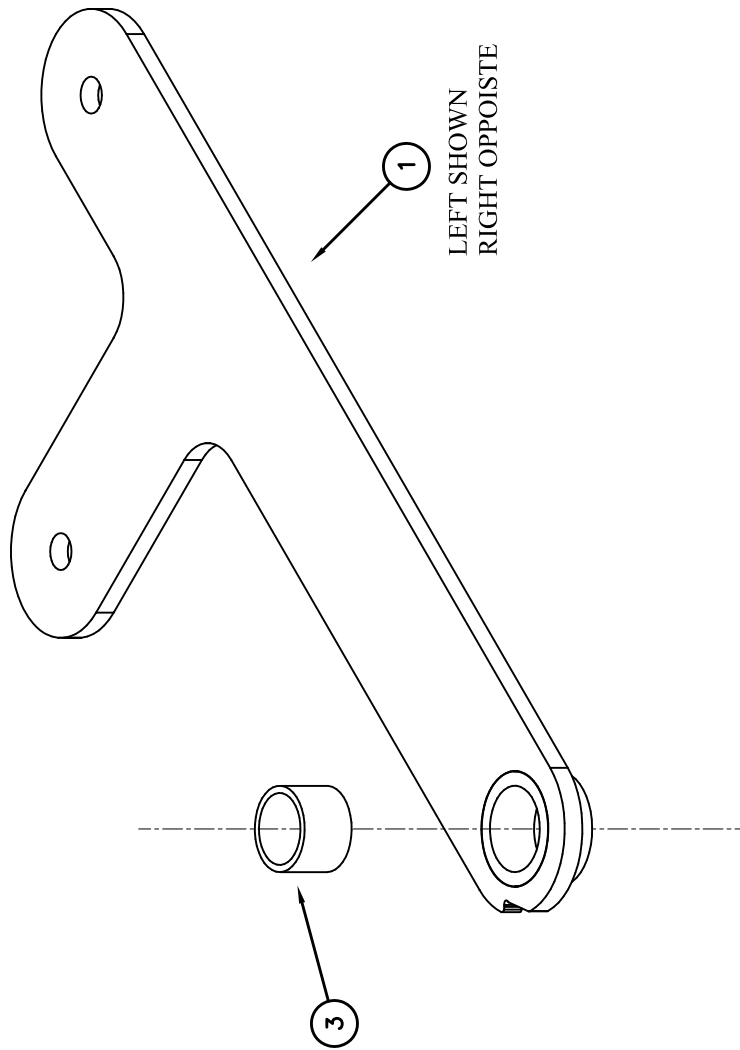
DIAMOND MOUNT GROUP

ITEM	PART NO	DESCRIPTION	QTY
1	ND80-007	BTTM. DIAMOND MT; LT (use 001)	1
2	ND80-008	BTTM. DIAMOND MT; RT (use 002)	1
3	ND50-009	1-1/4" ID PLASTIC BUSHING	1



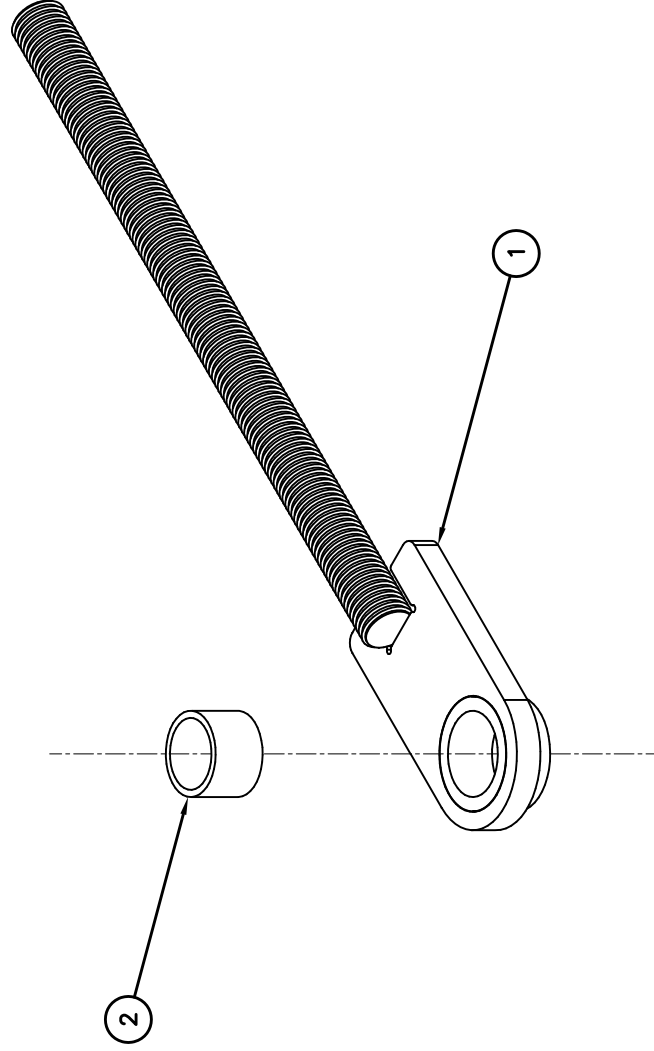
PRESS WHEEL ARM GROUP

ITEM	PART NO	DESCRIPTION	QTY
1	ND80-009	PRESS WHEEL ARM; LT (003)	1
2	ND80-010	PRESS WHEEL ARM; RT (004)	1
3	ND50-009	1-1/4" ID PLASTIC BUSHING	1



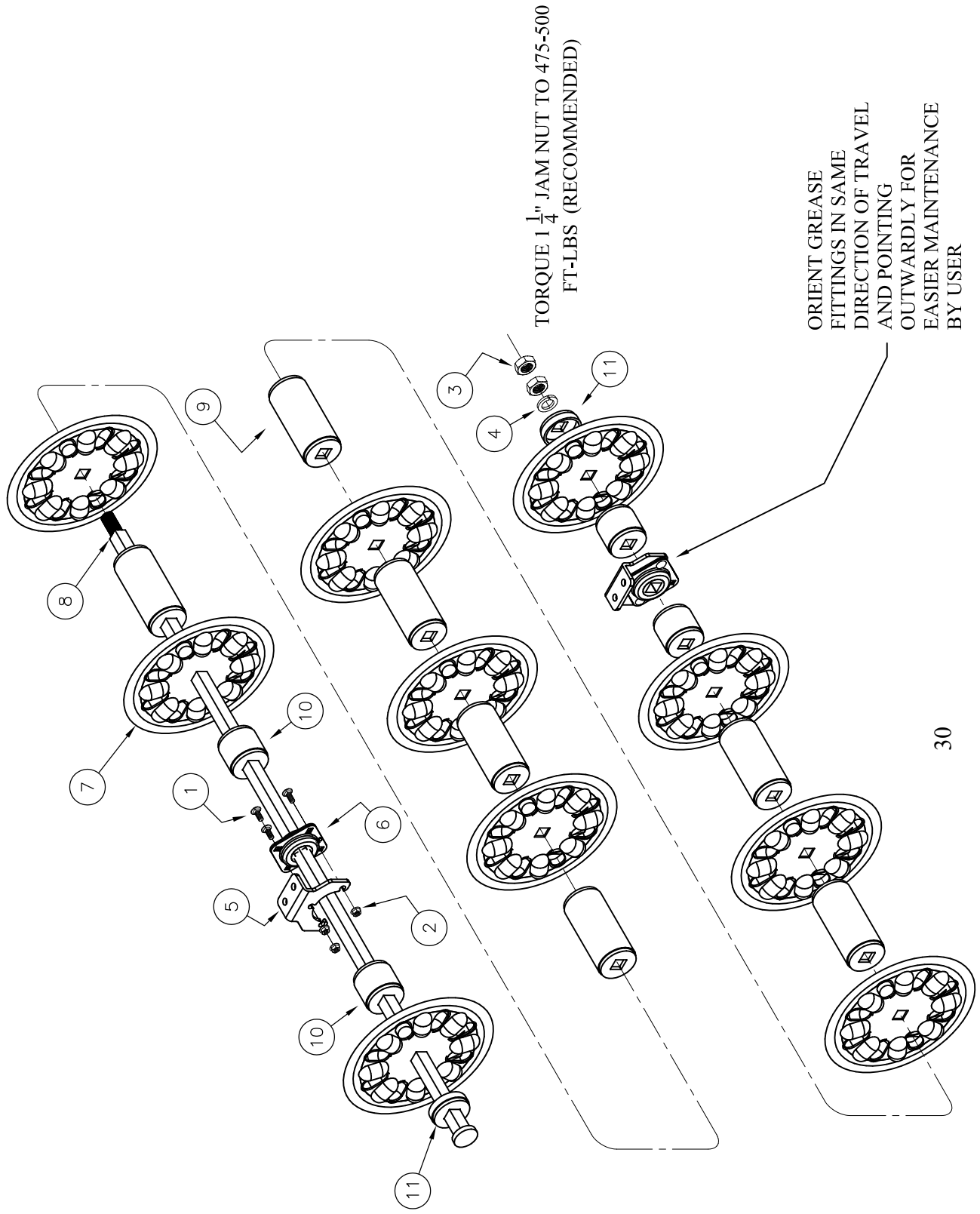
SPRING ROD GROUP

ITEM	PART NO	DESCRIPTION	QTY
1	ND80-004	SPRING ROD	1
2	ND50-009	1-1/4" ID PLASTIC BUSHING	1



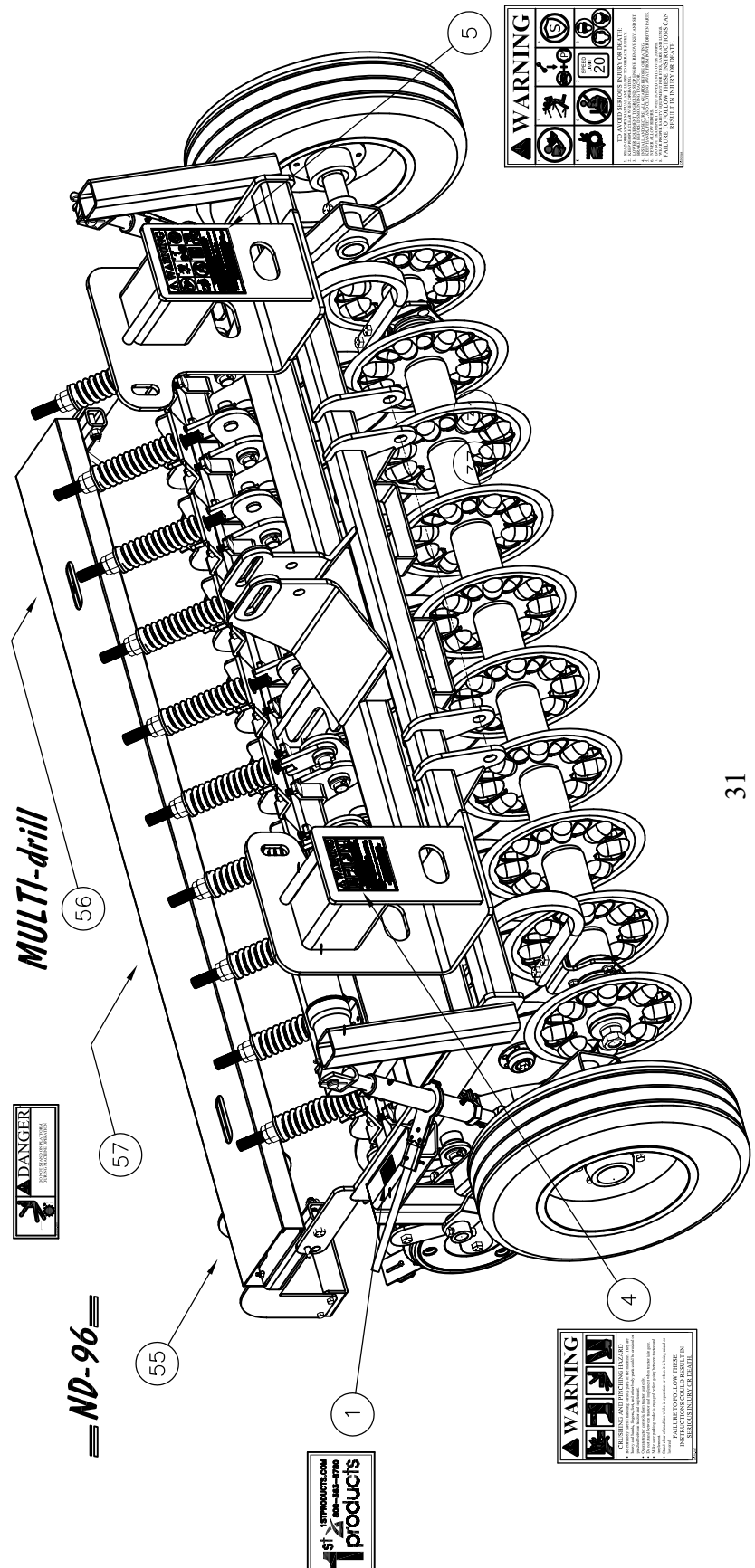
COULTER SHAFT GROUP

ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	HW03016040GSZPC	1/2" X 1-1/4" CARR. BOLT	6	5	ND27-041	BEARING HANGER	2	9	ND80-029	9" SPACER	7
2	HW22016GSZPC	1/2" FL. NUT	6	6	ND50-003	1-1/4" BORE BEARING	2	10	ND80-030	9" BEARING SPACER	4
3	HW25040GSZPC	1-1/4" JAM NUT ZPL	2	7	ND50-007	16" BUBBLE COULTER	10	11	ND80-031	AXLE END CAP	2
4	HW33040G8ZP	1-1/4" LOCK WASHER HVY	1	8	ND50-018	10 OUTLET 9" SPAC. DISK AXLE	1				

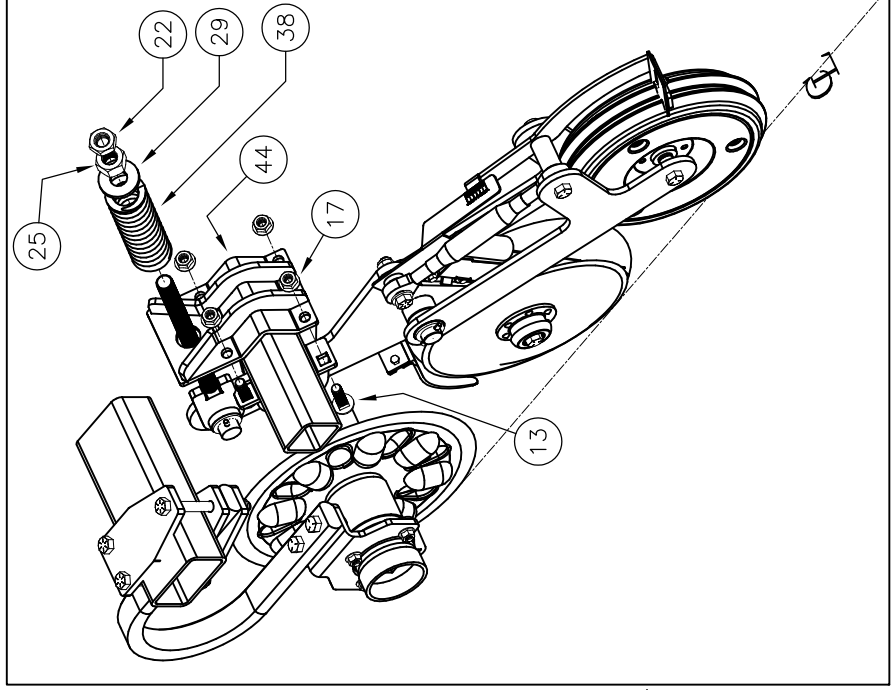
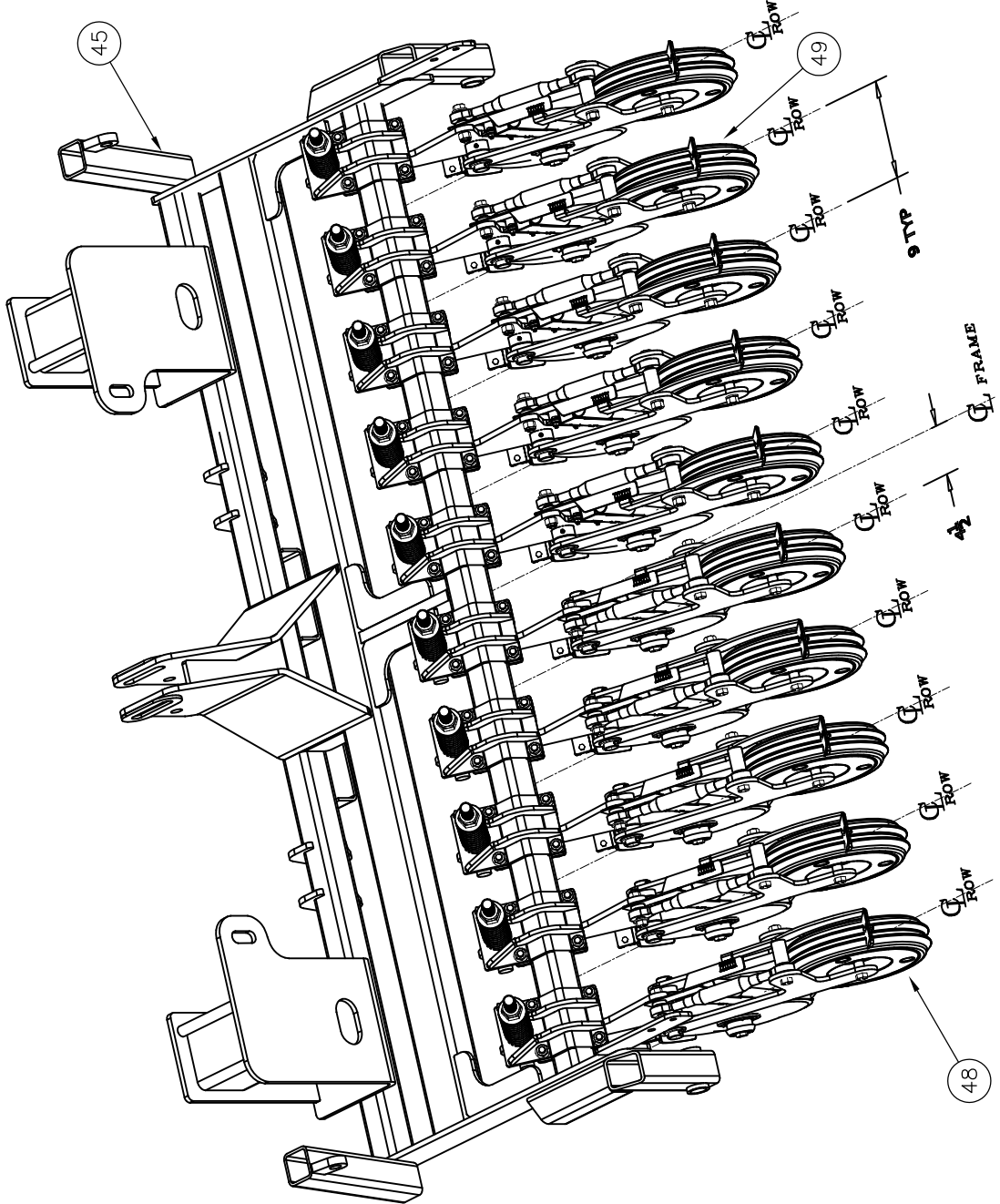


FRAME GROUP

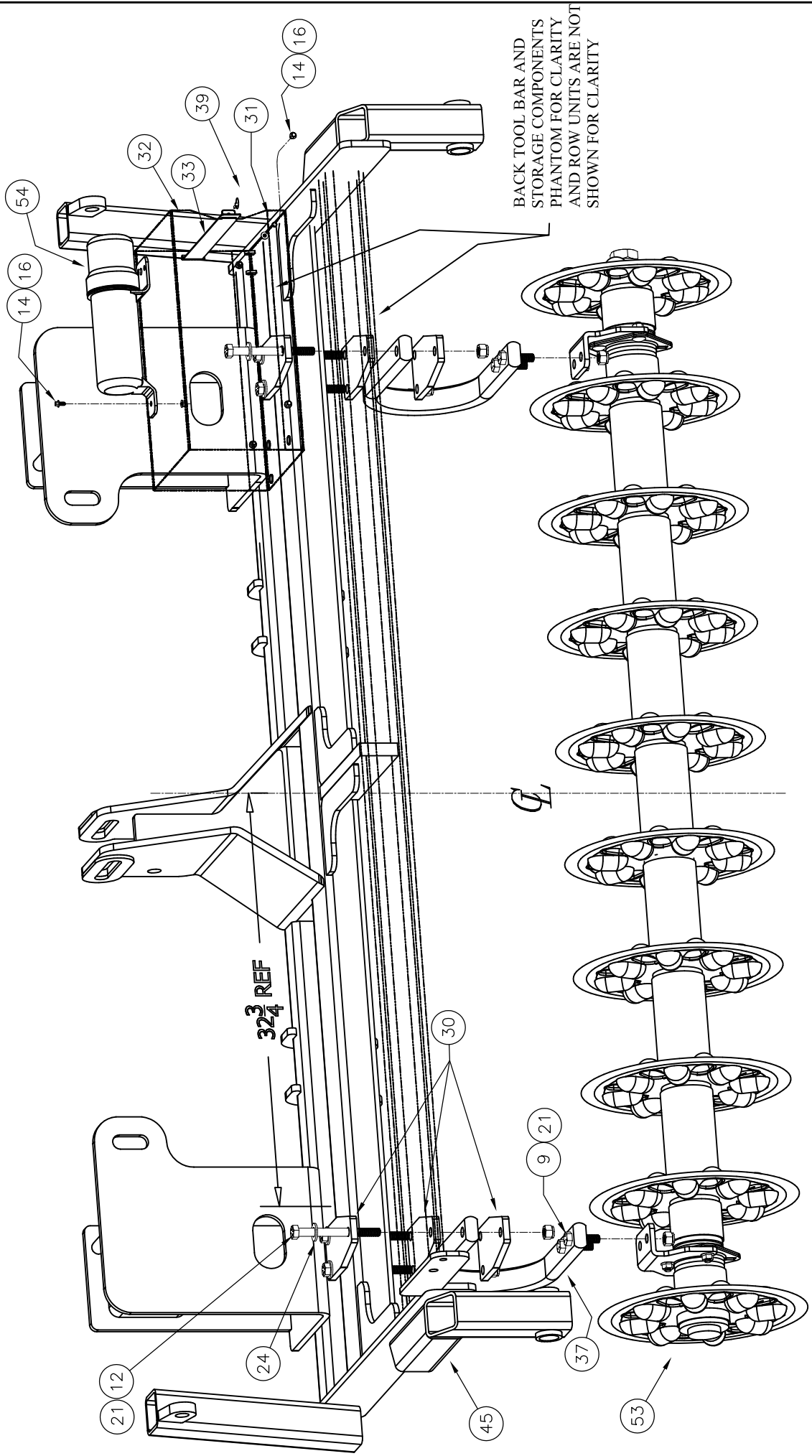
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1	AE50-089	SMALL FP DECAL	2	21	HW24020GBZPC	5/8 STOVER LOCK NUT	14	41	ND50-020	ND-96 GAUGE WHEEL HUB & SPINDLE KIT	2
2	AE50-156	BRIDGE PIN	2	22	HW25032GSZPC	1" JAM NUT	10	42	ND50-021	20-28" RATCHET JACK	2
3	AG26-003	STAND PIN	2	23	HW30010TAZP	5/16 FLATWASHER	6	43	ND50-064	GLS 1/4 FLANGE BUSHING	4
4	DS50-067	DECAL - GENERAL WARNING	1	24	HW31020TAZP	5/8 SAE WASHER	5	44	ND80-013	TOP DIAMOND BAR MOUNTS 3 X 3	10
5	DS50-068	DECAL - OPERATOR WARNING	1	25	HW36032GSZPC	1" HEAVY HEX NUT ZINC PL.	10	45	ND80-025	ND-96 FRAME	1
6	HW01010096GSZPC	5/16 X 3 HHCS	4	26	HW62016026GSZPF	1/2 X 13/16 LUG BOLT	12	46	ND80-026	ND-96 GAUGE WHEEL ARM: LT	1
7	HW01012032GSZPC	3/8 X 1 HHCS	4	27	ND24-013	WALK BOARD MOUNT	2	47	ND80-027	ND-96 GAUGE WHEEL ARM: RT	1
8	HW01016080GSZPC	1/2 X 2 1/2 HHCS	4	28	ND26-011	ND-96 GAUGE WHEEL PIVOT PIN	2	48	ND81-027	ND ROW UNIT: LEFT	5
9	HW01020064GSZPC	5/8 X 2 HHCS	4	29	ND27-016	SPRING WASHER	10	49	ND81-028	ND ROW UNIT: RIGHT	5
10	HW01020112GSZPC	5/8 X 3 1/2 HHCS	2	30	ND27-099	C-SHANK MOUNT PLATES	6	50	ND81-024	8" Walk Board ASSM.	1
11	HW01020128GSZPC	5/8 X 4 HHCS	2	31	ND27-100	COVER BOX BOTTOM	1	53	ND81-053	ND96 SHAFT ASSY - 16" DISC X 9"	1
12	HW01020208GSZPC	5/8 X 6-1/2 HHCS	6	32	ND27-101	COVER BOX TOP	1	54	UAS0-009	OM CANISTER	1
13	HW03020072GSZPC	5/8 X 2 1/4 CARR. BOLT	40	33	ND27-102	COVER BOX CATCH	1	55	ND50-052	ND-96 DECAL	1
14	HW06008016GSZPC	1/4 X 1/2 FLANGE LOCK SCREW	6	34	ND27-133	ND STEP SIDE: LEFT	1	56	ND50-054	MULTI-DRILL DECAL	1
15	HW06010024GSZPC	5/16 X 3/4 FLANGE LOCK SCREW	2	35	ND27-134	ND STEP SIDE: RIGHT	1	57	AG50-089	RIDER HAZARD DECAL	1
16	HW22008GSZPC	1/4 FLANGE LOCK NUT	6	36	ND27-135	STEP - ND	1				
17	HW22020GSZPC	5/8 FLG. LOCK NUT	40	37	ND50-002	C-FLEX SHANK	2				
18	HW24010GBZPC	5/16 STOVER LOCK NUT	6	38	ND50-008	2.5" X 9.5" COMP. SPRING	10				
19	HW24012GBZPC	3/8 STOVER LOCK NUT	4	39	UAS0-007	3/16 LYNCH PIN	1				
20	HW24016GBZPC	1/2 STOVER LOCKNUT	2	40	ND50-019	ND-96 GAUGE WHEEL	2				



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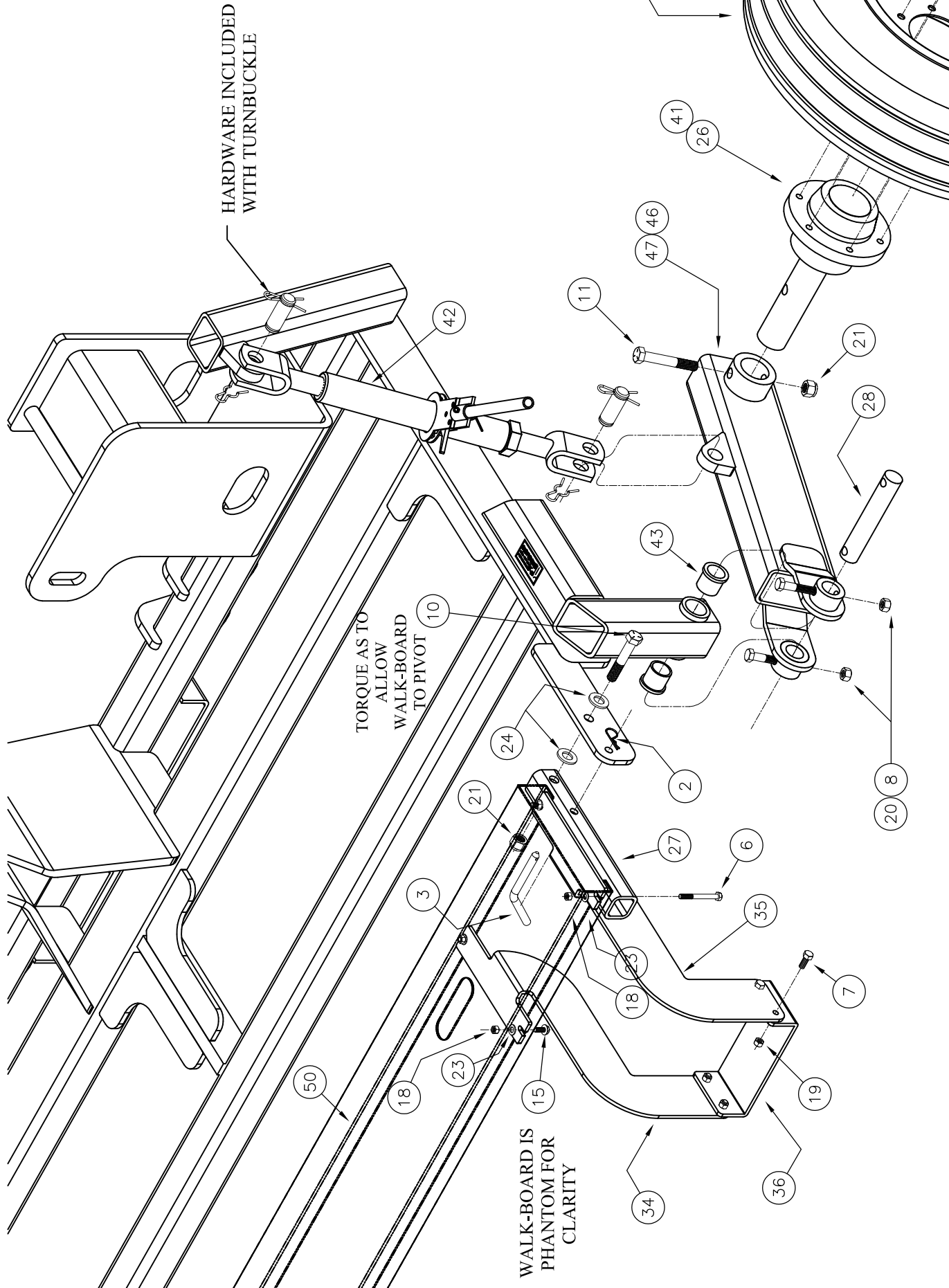


FRAME GROUP



FRAME GROUP

ROW UNITS AND COULTER
DISC NOT SHOWN FOR
CLARITY



FRAME TO SEEDER GROUP

ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	AG50-084	SMV SIGN	1	9	ND50-082	ND-96 SERIAL # TAG	1	17	ND50-023	CAT-2 Toplink Pin	1
2	DS27-055	SEEDBOX BOTTOM MNT.	2	10	DS81-016	PRIMARY HOPPER - DS96	1	18	ND50-024	1" ID X 1 1/4" OD CVT	10
3	DS27-086	10 OUTLET LEFT SEED PLATE 1/2	1	11	HW01020160G5ZPC	5/8 X 5 HHCS	8	19	ND50-028	CAT-2 Bottom Link Pin	2
4	DS27-087	10 OUTLET RIGHT SEED PLATE 1/2	1	12	HW06008024G5ZPC	1/4 X 3/4 FLANGE LOCK SCREW	2	20	ND50-093	ND96 PARTSBOOK	1
5	DS27-088	10 OUTLET LEFT SEED PLATE 3/8	1	13	HW24008G5ZPC	1/4 STOVER LOCK NUT	2	21	ND80-033	ND-96 CALIBRATION TROUGH	1
6	DS27-089	10 OUTLET RIGHT SEED PLATE 3/8	1	14	HW24020G5ZPC	5/8 STOVER LOCK NUT	8	22	ND81-015	ND96 FRAME ASSEMBLY	1
7	DS27-090	10 OUTLET LEFT SEED PLATE 1/4	1	15	HW31020TAZP	5/8 SAE FLATWASHER	8	23	SBS0-062	1.38 HOSE CLAMP	10
8	DS27-091	10 OUTLET RIGHT SEED PLATE 1/4	1	16	ND50-017	8 FT TARP	1	24	SES0-035	Hitch Pin	3

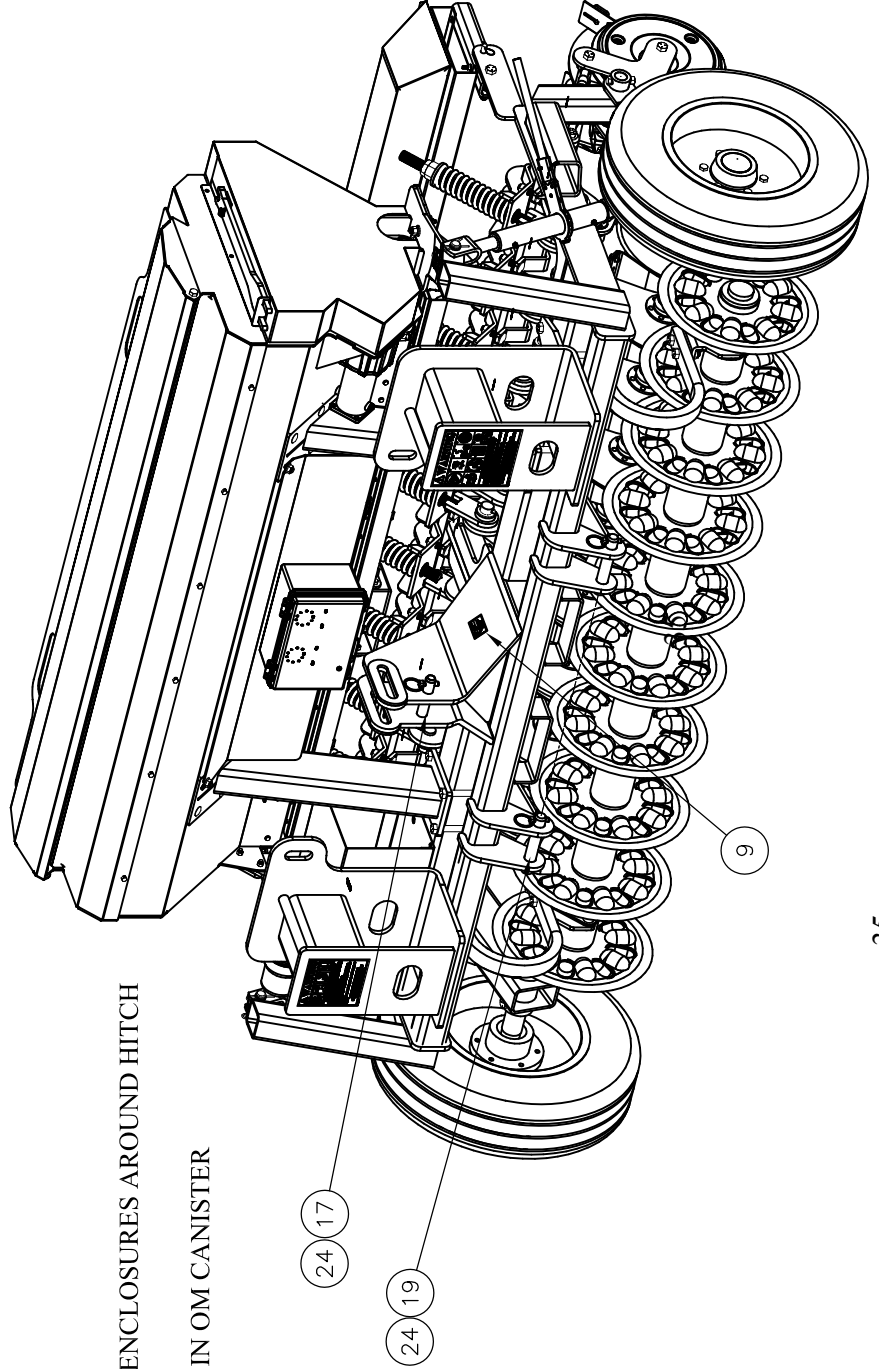
3
4
5
6
7
8

ADDITIONAL SEED PLATES

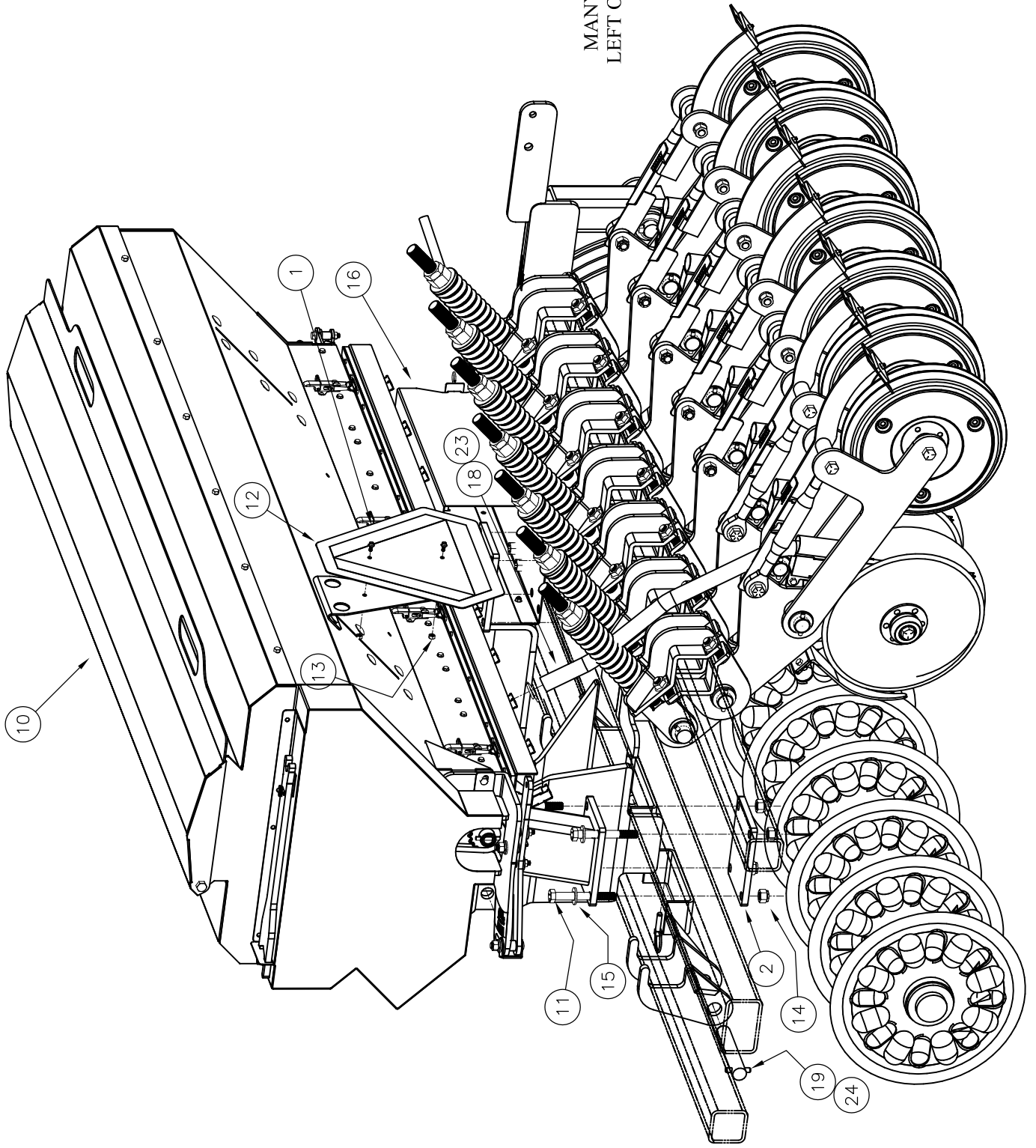
16 TARP IS STORED INSIDE ENCLOSURES AROUND HITCH

20 PARTS BOOK IS STORED IN OM CANISTER

21 CALIBRATION TROUGH



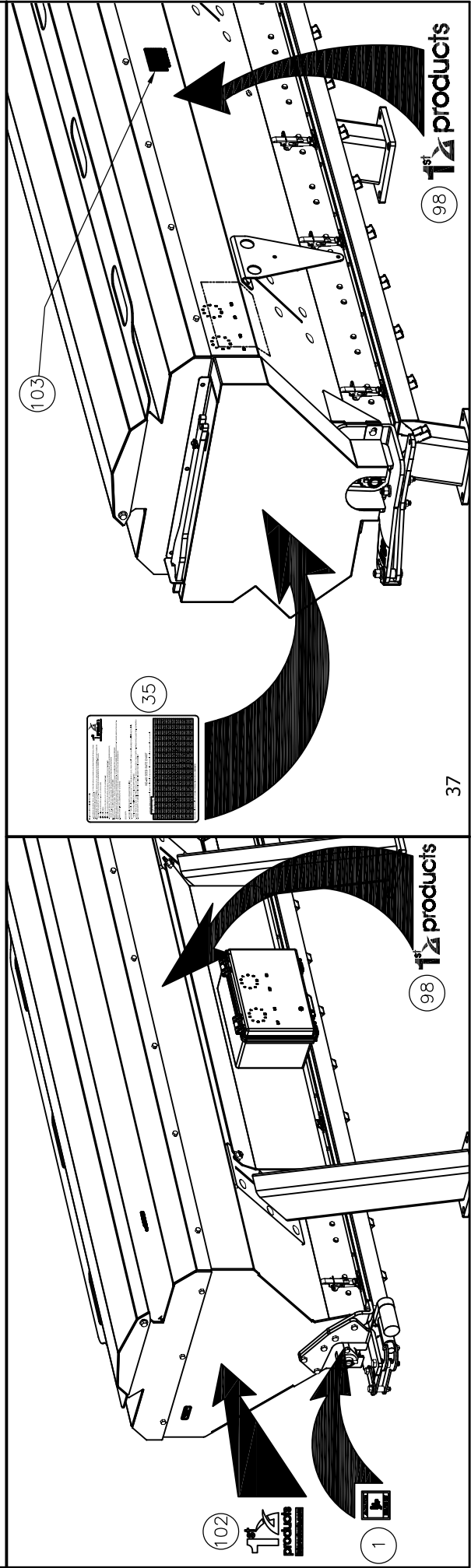
FRAME TO SEEDER GROUP



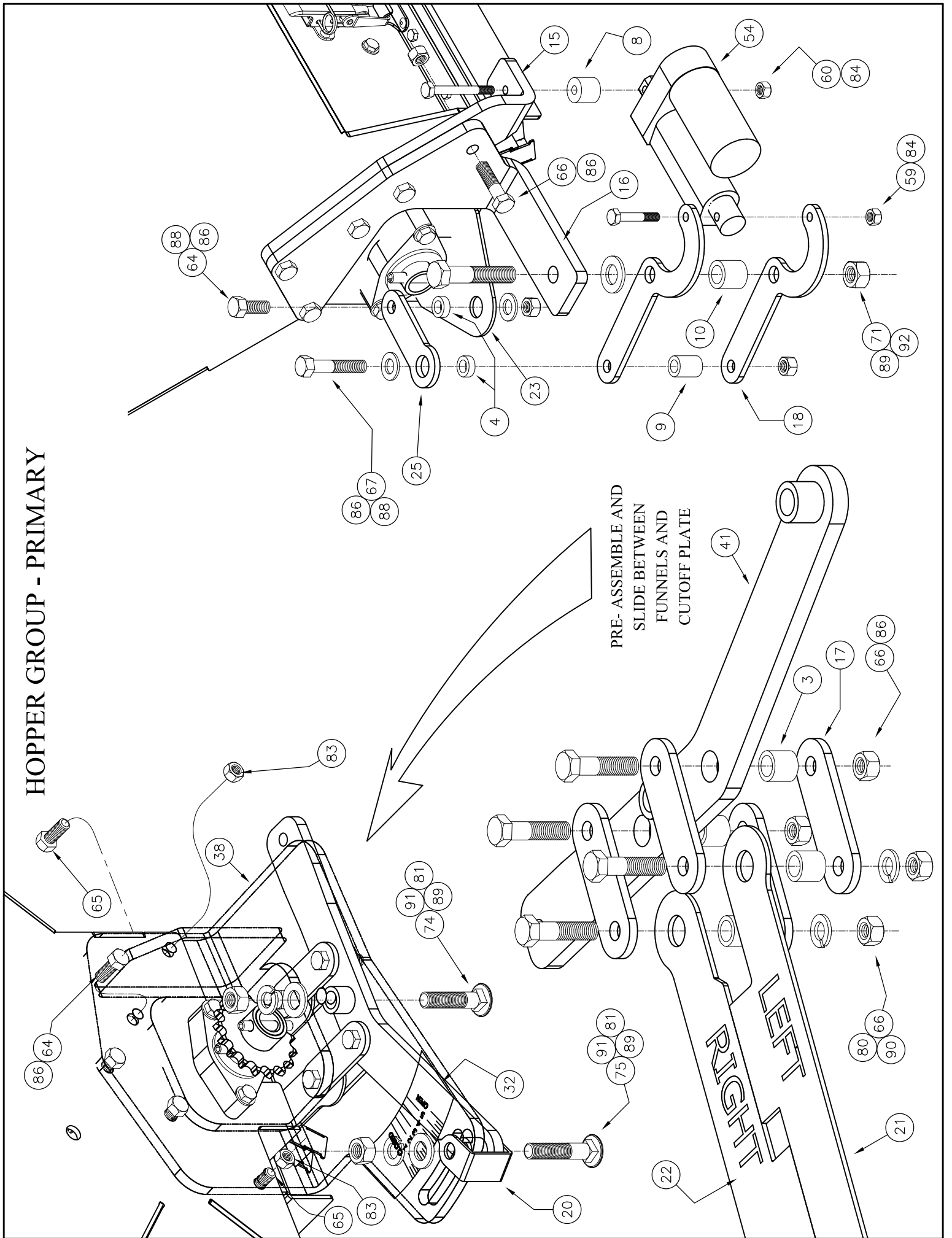
MANY COMPONENTS
LEFT OUT OF VIEW FOR
CLARITY

HOPPER GROUP - PRIMARY

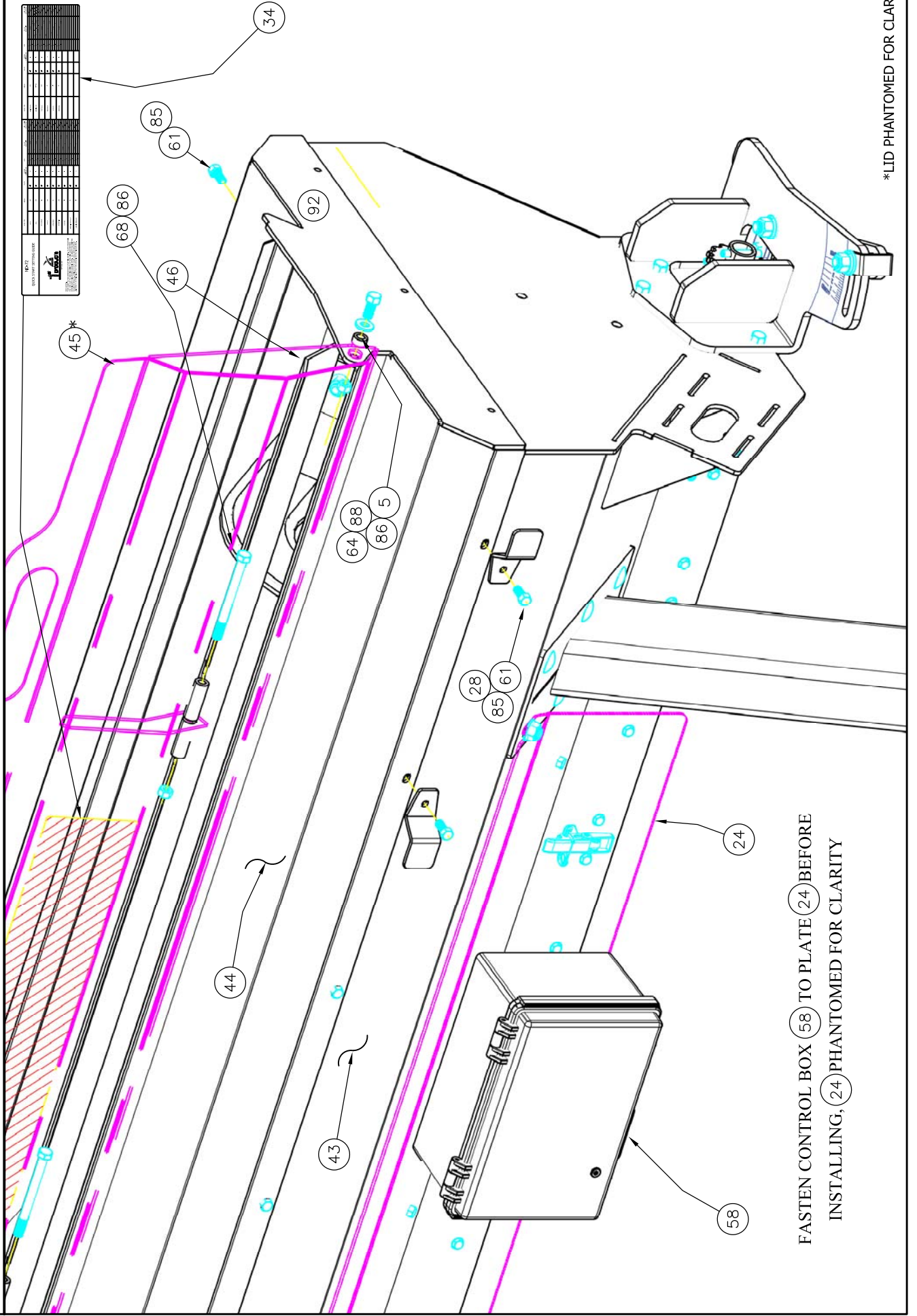
ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	AE50-075	PINCH POINT CAUTION DECAL	1	36	DS50-164	SPROCKET CHANGE DECAL - PRIMARY	1	70	HW01016048G5ZPC	1/2 x 1-1/2 HHCS	1
2	AE50-149	1/4 LYNCH PIN	1	37	DS50-166	#40 ROLLER CHAIN x 76 LINKS	2	71	HW01016080G5ZPC	1/2 X 2 1/2 HHCS	1
3	DS24-004	METER PLATE BUSHINGS	4	38	DS80-006	Meter Adj. Bracket	1	72	HW03016032G5ZPC	1/2 X 1 Carriage Bolt (Carr. Bolt)	1
4	DS24-011	CUT OFF PLATE BUSHINGS	2	39	DS80-009	SEEDBOX MOUNT	2	73	HW03016040G5ZPC	1/2 X 1 1/4 Carr. Bolt	22
5	DS24-028	LID BUSHING	2	40	DS80-019	CHAIN GAURD	1	74	HW03016072G5ZPC	1/2 x 2-3/4 Carr. Bolt	2
6	DS24-039	IDLER TUBE 1-1/16 LG	3	41	DS80-035	METER ADJUSTER	1	75	HW03016080G5ZPC	1/2 X 2 1/2 Carr. Bolt	1
7	DS26-001	AGITATOR SHAFT BEARING	2	42	DS80-037	AGITATOR SPKT - DS	1	76	HW03016088G5ZPC	1/2 x 2-3/4 Carr. Bolt	2
8	DS26-003	ACTUATOR SPACER 1	1	43	DS80-060	DS-96 PRIMARY HOPPER	1	77	HW06008016G5ZPC	1/4 X 1/2 FLANGE LOCK SCREW	40
9	DS26-004	ACTUATOR SPACER 2	1	44	DS80-061	DS-96 CAP	1	78	HW06008024G5ZPC	1/4 X 3/4 HEX FLG LK SC. FINE	4
10	DS26-005	ACTUATOR SPACER 3	1	45	DS80-016	DS-96 LID	1	79	HW06010024G5ZPC	5/16 x 3/4 HEX FLG. LOCK SCREW	1
11	DS26-020	IDLER 1-3/4 x 13/16 LG x 2-5/32 BORE	1	46	DS80-063	DS-96 SPLASH GUARD	1	80	HW20012G5ZPC	3/8 HEX NUT	2
12	DS26-021	SPROCKET STORAGE SHAFT	1	47	DS80-104	PRIMARY BOX AGITATOR TRANS. BASE	1	81	HW20016G5ZPC	1/2 HEX NUT	2
13	DS27-012	SEED FUNNEL 1	8	48	DS80-106	12 T DRIVE REDUCTION SHAFT	1	82	HW22010G5ZPC	5/16 HEX FLG. LOCK NUT	6
14	DS27-013	SEED FUNNEL 2	2	49	DS80-107	12 TOOTH REDUCTION SPROCKET	1	83	HW22012G5ZPC	3/8 HEX FLG. LOCK NUT	4
15	DS27-020	Actuator Mount	1	50	DS80-108	17 TOOTH REDUCTION SPROCKET	1	84	HW24008GBZPC	1/4 Stover Lock Nut	42
16	DS27-021	Actuator Linkage Pivot	1	51	DS80-109	24 TOOTH REDUCTION SPROCKET	1	85	HW24010GBZPC	5/16 Stover Lock Nut	30
17	DS27-022	METER PLATE LINKAGES	4	52	DS80-111	DS MOTOR SPROCKET	1	86	HW24012GBZPC	3/8 Stover Lock Nut	18
18	DS27-024	CUT OFF PLATE LEVER ACTION	2	53	DS80-112	AGITATOR DRIVE SPROCKET, LONG	1	87	HW310101TAZP	5/16 SAE Flat Washer	12
19	DS27-026	METER ADJ. HANDLE COMBO WRENCH	1	54	DS81-005	AGITATOR ASSEMBLY	1	88	HW31012TAZP	3/8 SAE FLATWASHER	4
20	DS27-027	METER SCALE POINTER	1	55	DS81-006	MOTOR ASSEMBLY	1	89	HW31016TAZP	1/2 SAE FLATWASHER	4
21	DS27-084	10 OUTLET LEFT SEED PLATE 3/4"	1	56	DS81-062	SPOUT TRAY - DS96	1	90	HW32012G5ZPC	3/8 LOCKWASHER	2
22	DS27-085	10 OUTLET RIGHT SEED PLATE 3/4"	1	57	DS81-063	AGITATOR - DS96	1	91	HW32016G5ZP	1/2 LOCK WASHER	2
23	DS27-092	10 OUTLET CUT OFF PLATE	1	58	DS81-004	CONTROL BOX	1	92	HW34016G5ZPC	1/2 2-WAY LOCKOUT	1
24	DS27-120	CONTROLLER PLATE ND-96	1	59	HW01008048G5ZPC	1/4 X 1 1/2 HEX HEAD CAP SCREW (HHCS)	1	93	HW35016G5ZPC	1/2 FLANGE STOVER LOCKNUT	30
25	DS27-083	CUT OFF PLATE BUSHING LINKAGE	1	60	HW01008072G5ZPC	1/4 X 2 1/4 HHCS	1	94	HW41005008SS	5/32 X 1/8 - 1/4 RIVETS SS	24
26	DS27-123	SMV BRACKET - ND	1	61	HW01010024G5ZPC	5/16 X 3/4 HHCS	19	95	HW42010048G5ZP	5/16" x 1 1/2" Roll Pin Zinc Plated	3
28	DS27-202	WIRE WRAP	2	62	HW01010048G5ZPC	5/16 x 1 1/2 HHCS	8	96	HW6003204810GZP	1" ID x 1 1/2" OD 10GA Machine Bushing	2
29	DS27-172	DS BEARING HANGER	2	63	HW01010040G5ZPC	5/16 x 1-1/4 HHCS	3	97	HW6003204810GZP	1/2 ID x 7/8 OD x 14 GA BUSHING	4
27	DS27-314	SPACER WASHER	1	64	HW01012032G5ZPC	3/8 X 1 HHCS	6	98	ND50-035	1st PRODUCTS DECAL - LONG - SPING 2020	2
30	DS50-001	TOGGLE LATCH	8	65	HW01012040G5ZPC	3/8 x 1-1/4 HHCS	2	99	SB50-019	1/2 x 1/2 FLG. BEARING	2
31	DS50-003	TOGGLE LATCH RETAINING PIN	8	66	HW01012048G5ZPC	3/8 X 1 1/2 HHCS	9	100	SB50-023	#40 CHAIN IDLER	1
32	DS50-044	ADJUSTER DECAL	1	67	HW01012064G5ZPC	3/8 X 2 HHCS	1	101	UA50-007	3/16 LYNCH PIN	2
33	DS50-082	DS PATENT DECAL	1	68	HW01012144G5ZPC	3/8 X 2 1/2 HHCS	2	102	UA50-012	UA BELT COVER DECAL	1
34	DS50-155	ND-96 QUICK CHART DECAL	1	69	HW01016040G5ZPC	1/2 x 1-1/4 HHCS	1	103	UA50-180	USA FLAG DECAL	1
35	DS50-158	ND-96 CHART DECAL	1								



HOPPER GROUP - PRIMARY



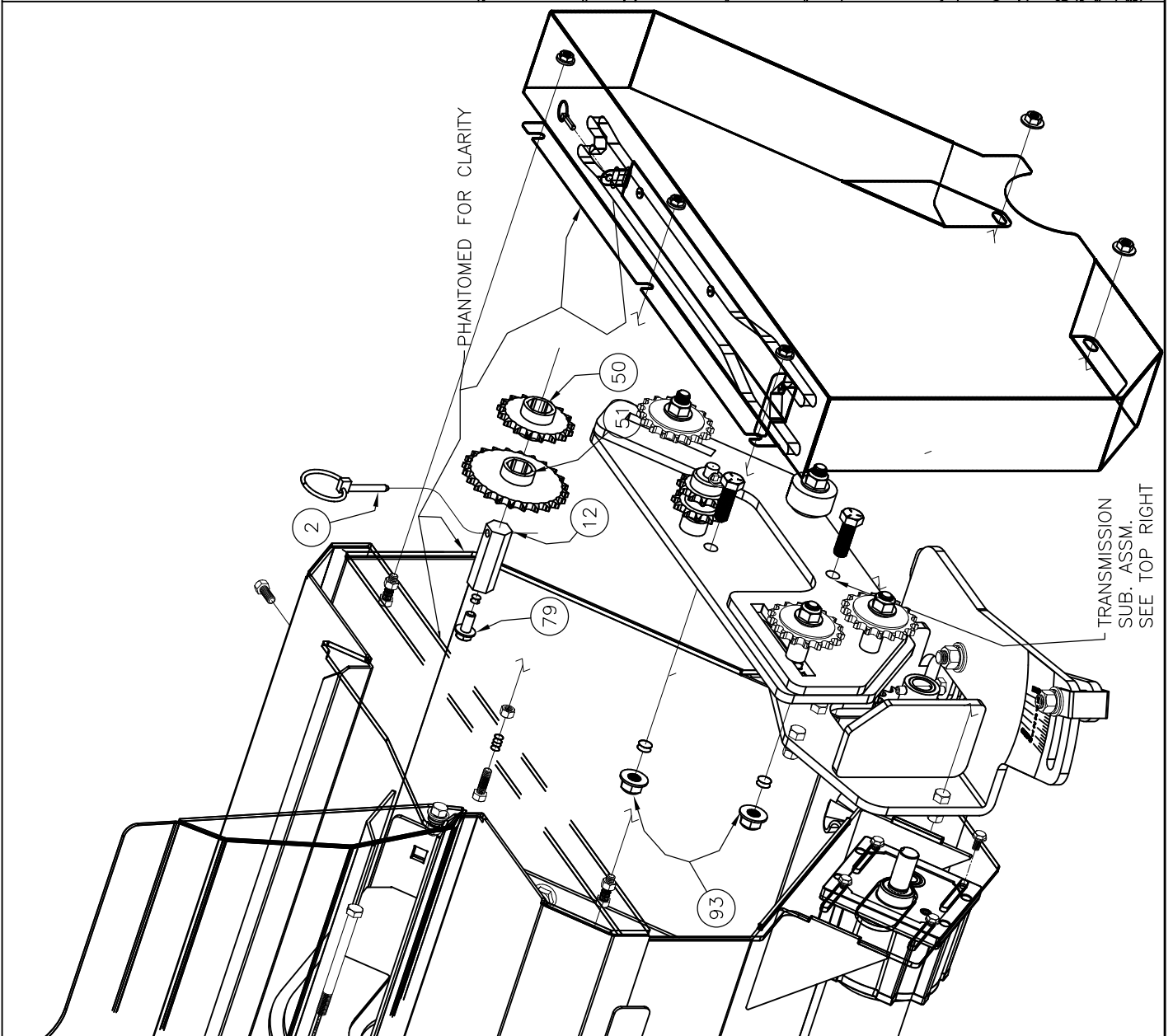
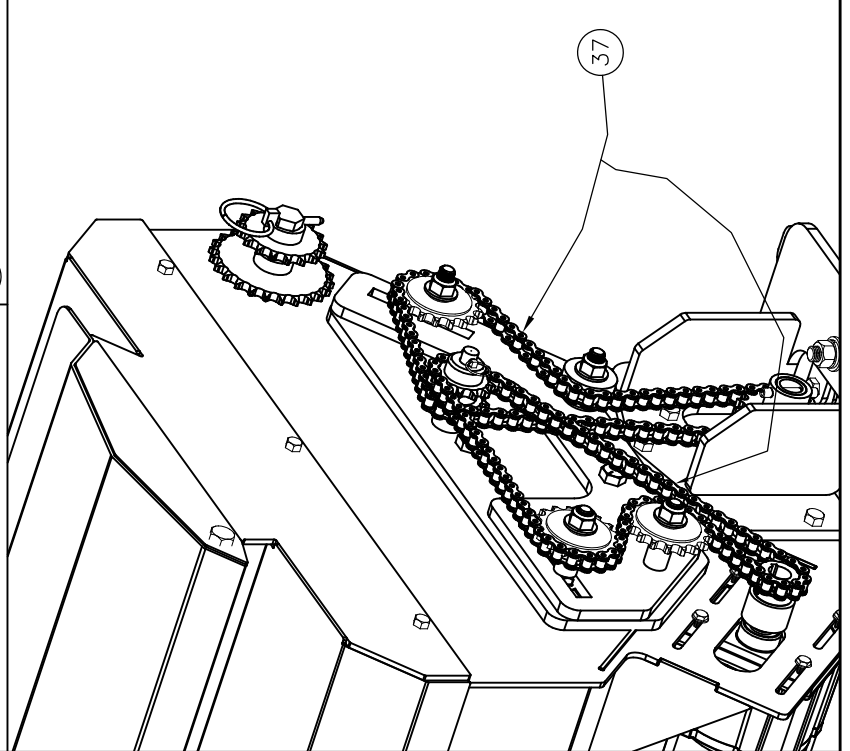
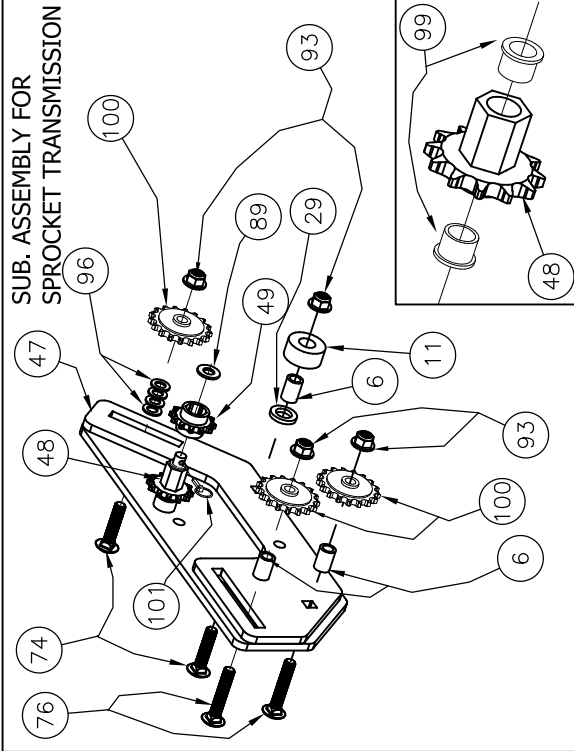
HOPPER GROUP - PRIMARY



FASTEN CONTROL BOX (58) TO PLATE (24) BEFORE INSTALLING, (24) PHANTOMED FOR CLARITY

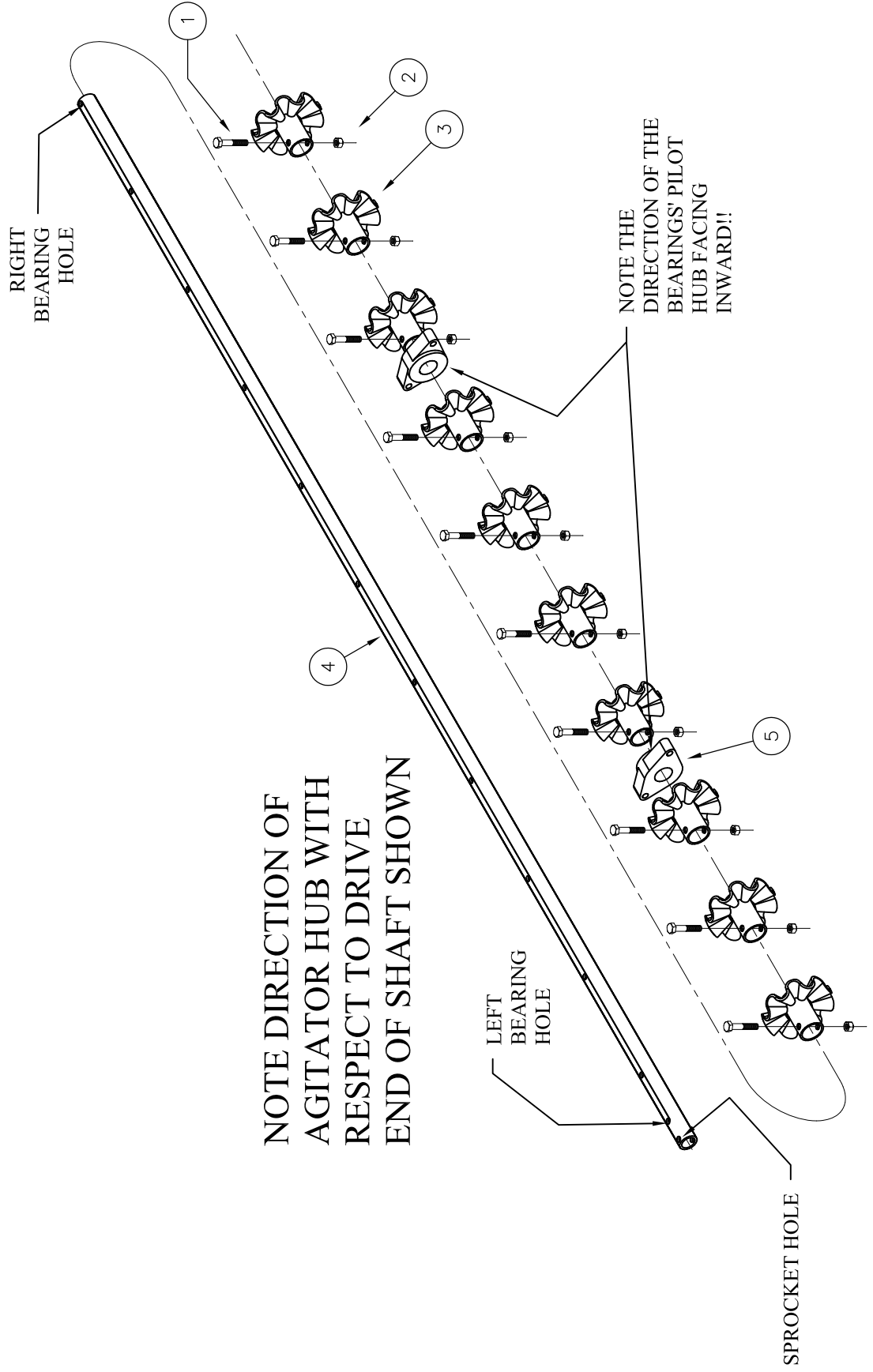
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HOPPER GROUP - PRIMARY



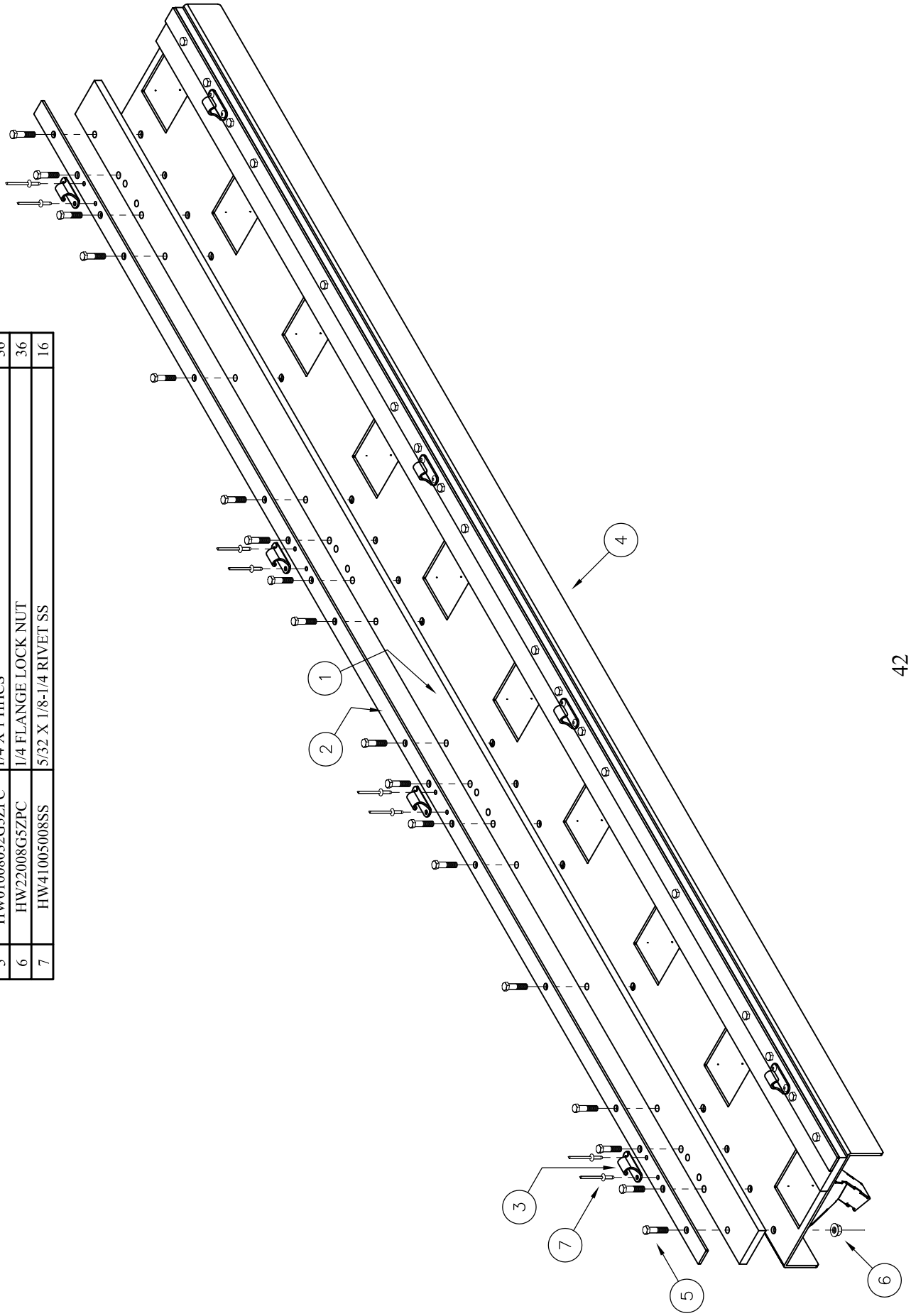
AGITATOR GROUP

ITEM	PART NO	DESCRIPTION	QTY
1	HW01010056G5ZPC	5/16 I 3/4 HHCS	10
2	HW24010GBZPC	5/16 STOVER LOCKNUT	10
3	DS80-010	AGITATOR	10
4	DS24-022	AGITATOR SHAFT - DS96	1
5	DS26-001	AGITATOR SHAFT BEARING	2



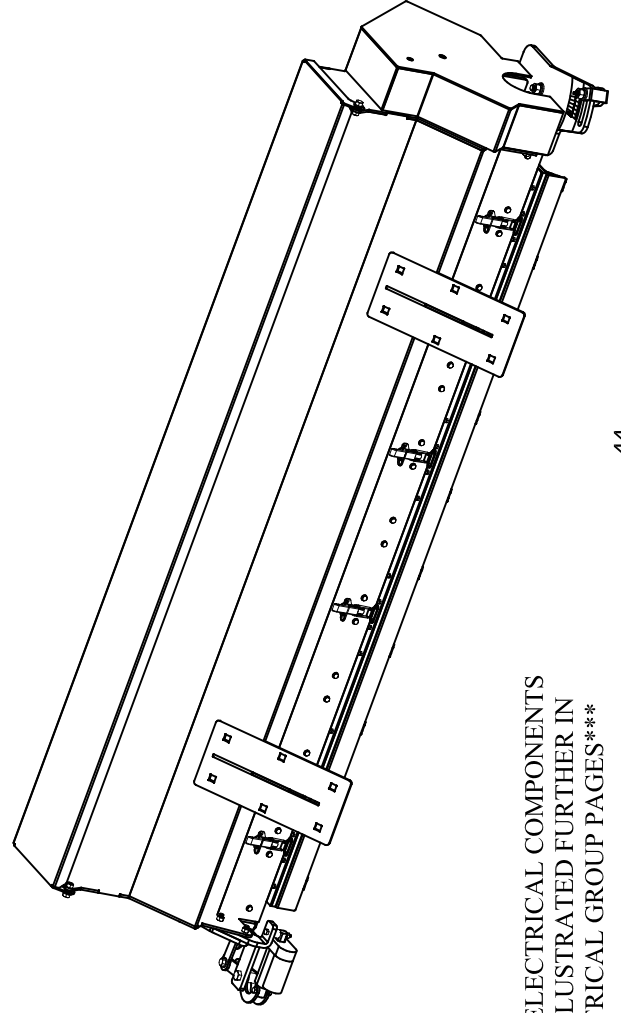
SPOUT TRAY GROUP

ITEM	PART NO	DESCRIPTION	QTY
1	DS26-009	10 OUTLET CUT OFF PLATE SLIDE	2
2	DS27-062	10 OUTLET CATCH PLATE STRIP	2
3	DS50-002	TOGGLE LATCH PLATE	6
4	DS80-064	DS-96 SPOUT TRAY	1
5	HW01008032G5ZPC	1/4 X 1 HHCS	36
6	HW22008G5ZPC	1/4 FLANGE LOCK NUT	36
7	HW41005008SS	5/32 X 1/8-1/4 RIVET SS	16



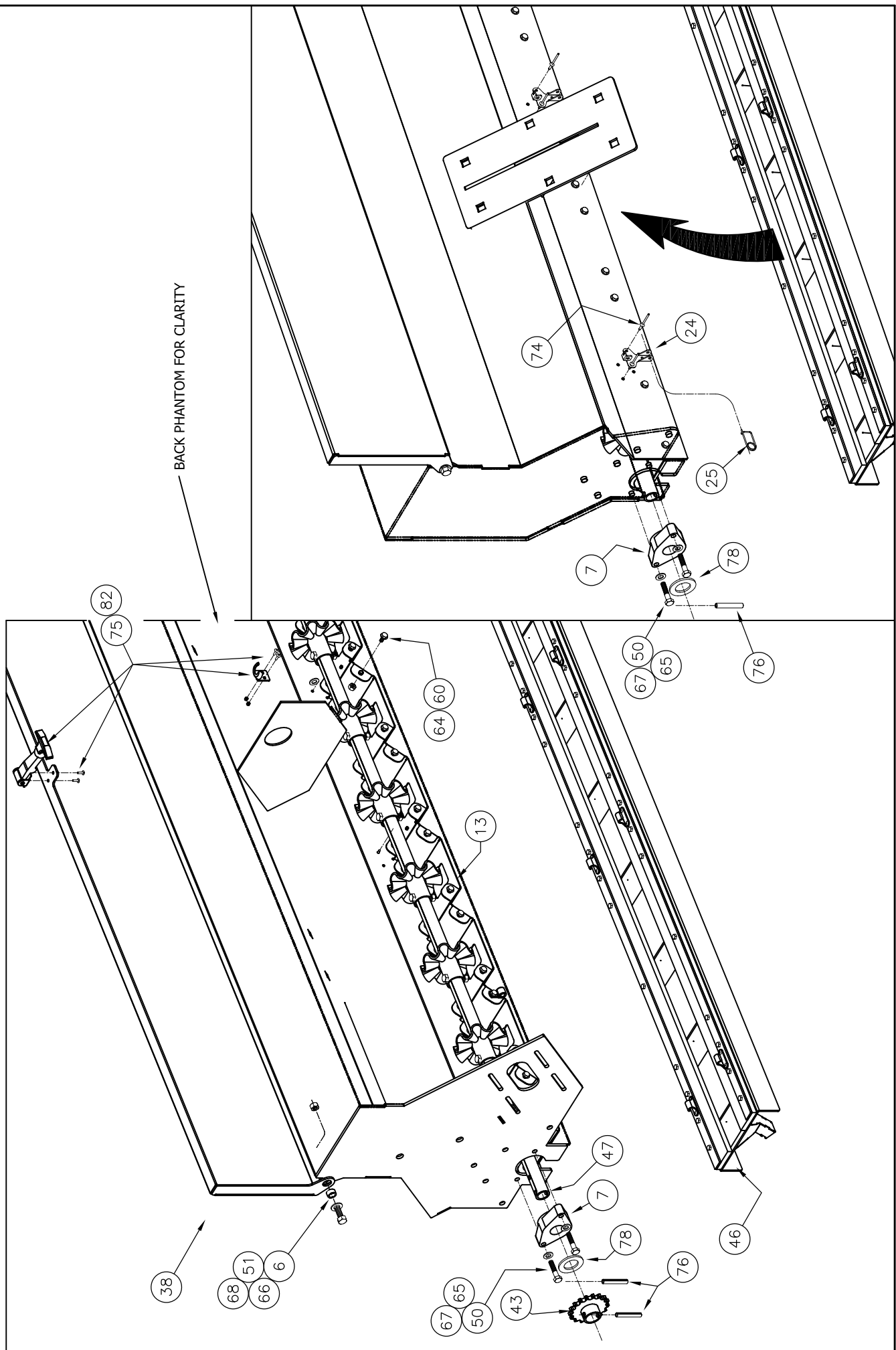
HOPPER GROUP - AUXILIARY

ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	AE50-075	PINCH POINT CAUTION DECAL	1	29	DS50-069	3/8" ID LOOP CLAMP, INSULATED	2	57	HW03016080G5ZPC	1/2 X 2 1/2 CARRIAGE BOLT	1
2	DS24-001	METER PLATE BUSHINGS	4	30	DS50-165	#40 ROLLER CHAIN x 72 LINKS	1	58	HW03016088G5ZPC	1/2 x 2-3/4 CARR. BOLT	1
3	DS24-011	CUT OFF PLATE BUSHINGS	2	31	DS50-167	#40 ROLLER CHAIN x 63 LINKS	1	59	HW03016096G5ZPC	1/2 x 3 CARR. BOLT	1
4	DS24-039	IDLER TUBE, 1-1/16 LG	3	32	DS50-173	SPROCKET CHANGE DECAL - AUX.	1	60	HW06008016G5ZPC	1/4 X 1/2 FLANGE LOCK SCREW	40
5	DS24-040	IDLER TUBE, 1-7/8 LG	1	33	DS50-177	RING SHIM	1	61	HW06008024G5ZPC	1/4 X 3/4 HEX FLG LK SC. FINE	4
6	DS24-028	LID BUSHING	2	34	DS80-006	Meter Adj. Bracket	1	62	HW20012G5ZPC	3/8 HEX NUT	2
7	DS26-001	AGITATOR SHAFT BEARING	2	35	DS80-027	SMALL BOX CHAIN COVER	1	63	HW20016G5ZPC	1/2 HEX NUT	2
8	DS26-003	ACTUATOR SPACER 1	1	36	DS80-035	METER ADJUSTER	1	64	HW24008GBZPC	1/4 Stover Lock Nut	4
9	DS26-004	ACTUATOR SPACER 2	1	37	DS80-065	DS-96 SMALL HOPPER	1	65	HW24010GBZPC	5/16 Stover Lock Nut	4
10	DS26-005	ACTUATOR SPACER 3	1	38	DS80-066	SMALL HOPPER LID - DS96	1	66	HW24012GBZPC	3/8 Stover Lock Nut	16
11	DS26-020	IDLER, 1-3/4 x 13/16 LG x 25/32 BORE	4	39	DS80-105	AUX. BOX AGITATOR TRANS. BASE	1	67	HW31010TAZP	5/16 SAE Flat Washer	4
12	DS26-022	CHAIN GAUARD MOUNT	2	40	DS80-106	12 T DRIVE REDUCTION SPROCKET	1	68	HW31012TAZP	3/8 SAE FLATWASHER	4
13	DS27-012	SEED FUNNEL 1	10	41	DS80-109	24 TOOTH REDUCTION SPROCKET	1	69	HW31016TAZP	1/2 SAE FLATWASHER	4
14	DS27-020	Actuator Mount	1	42	DS80-111	DS MOTOR SPROCKET	1	70	HW32012G5ZP	3/8 LOCKWASHER	2
15	DS27-021	Actuator Linkage Pivot	1	43	DS80-112	AGITATOR DRIVE SPROCKET - LONG	1	71	HW32016G5ZP	1/2 LOCK WASHER	2
16	DS27-022	METER PLATE LINKAGES	4	44	DS81-005	ACTUATOR ASSEMBLY	1	72	HW34016G5ZPC	1/2 2-WAY LOCKNUT	1
17	DS27-024	CUT OFF PLATE LEVER ACTION	2	45	DS81-006	MOTOR ASSEMBLY	1	73	HW35016GFZPC	1/2 STOVER FLANGE NUT	8
18	DS27-027	METER SCALE POINTER	1	46	DS81-062	SPOUT TRAY - DS96	1	74	HW41005008SS	5/32 X 1/8 - 1/4 RIVETS SS	24
19	DS27-083	CUT OFF PLATE BUSHING LINKAGE	1	47	DS81-064	AGITATOR - DS96 (small box)	1	75	HW41006008SS	3/16 X 1/16-1/8 RIVET	4
20	DS27-092	10 OUTLET CUT OFF PLATE	1	48	HW01008048G5ZPC	1/4 X 1 1/2 HHCS	1	76	HW42010048G5ZP	5/16" x 1 1/2" Roll Pin Zinc Plated	3
21	DS27-090	10 OUTLET LEFT SEED PLATE 1/4"	1	49	HW01008072G5ZPC	1/4 X 2 1/4 HHCS	1	77	HW60024040010GZP	3/4 x 1-1/4 x 10 GA BUSHING	1
22	DS27-091	10 OUTLET RIGHT SEED PLATE 1/4"	1	50	HW01010048G5ZPC	5/16 x 1 1/2 Hex Head Cap Screw	4	78	HW6003204810GZP	1" ID x 1 1/2" OD 10GA Machine Bushing	2
23	DS27-314	SPACER WASHER	2	51	HW01012032G5ZPC	3/8 X 1 HHCS	8	79	ND50-035	1st PRODUCTS DECAL - LONG - SPING 2020	1
24	DS50-001	TOGGLE LATCH	8	52	HW01012048G5ZPC	3/8 X 1 1/2 HHCS	9	80	SB50-019	1/2 x 1/2 FLG. BEARING	2
25	DS50-003	TOGGLE LATCH RETAINING PIN	8	53	HW01012064G5ZPC	3/8 X 2 HHCS	1	81	SB50-023	#40 CHAIN IDLER	1
26	DS50-044	ADJUSTER DECAL	1	54	HW01016080G5ZPC	1/2 X 2 1/2 HHCS	1	82	SB50-053	T-HANDLE DRAW LATCH	1
27	DS50-140	MOTOR HARNESS - SB	1	55	HW01016160G5ZPC	1/2 X 5 HHCS	2	83	UA50-007	3/16 x 1-1/4 LYNCH PIN	1
28	DS50-051	3/4" ID LOOP CLAMP	1	56	HW03016072G5ZPC	1/2 x 2 1/4 CARRIAGE BOLT	1	84	UA50-180	USA FLAG DECAL	1

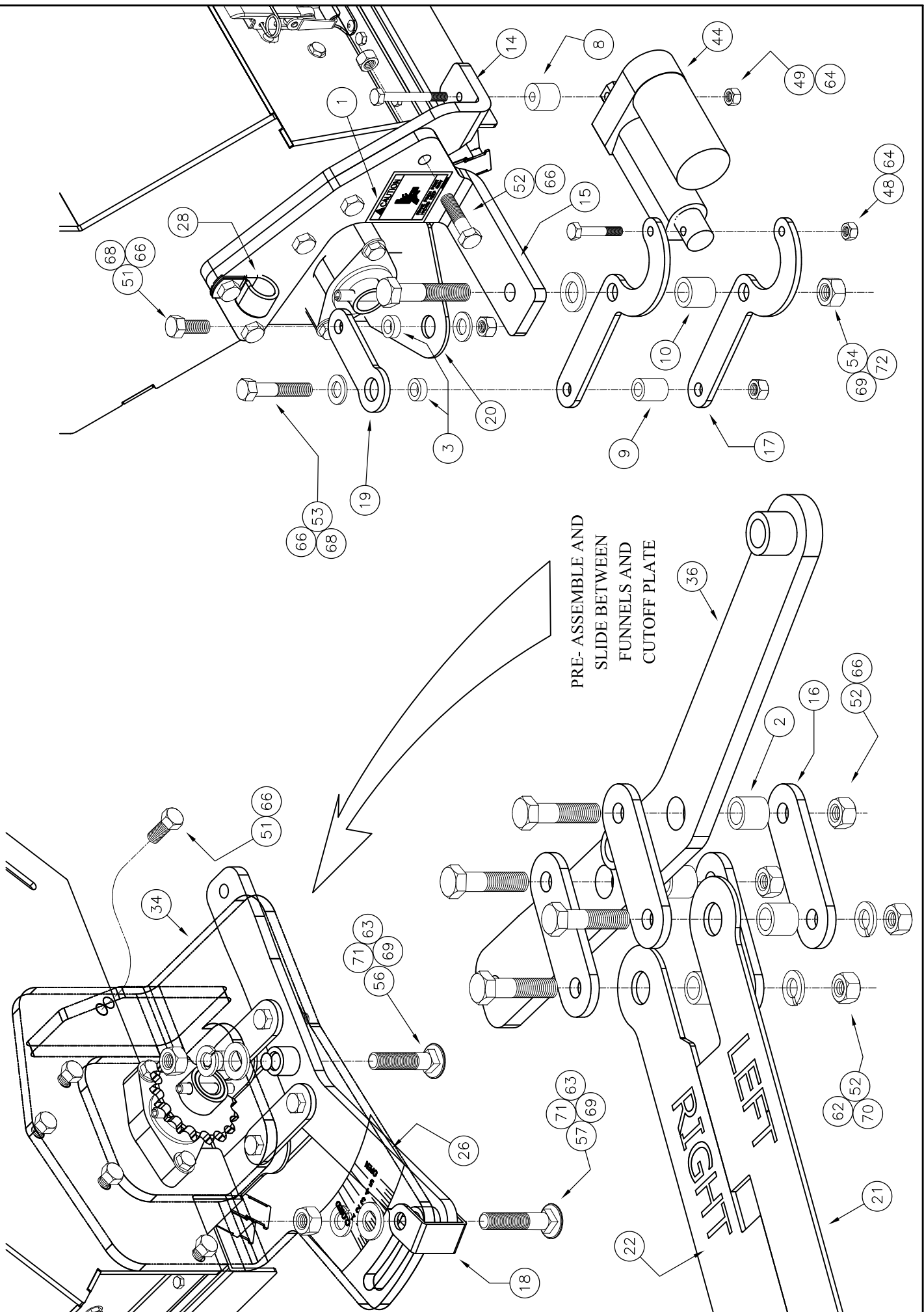


*** ALL ELECTRICAL COMPONENTS
ARE ILLUSTRATED FURTHER IN
ELECTRICAL GROUP PAGES ***

HOPPER GROUP - AUXILIARY

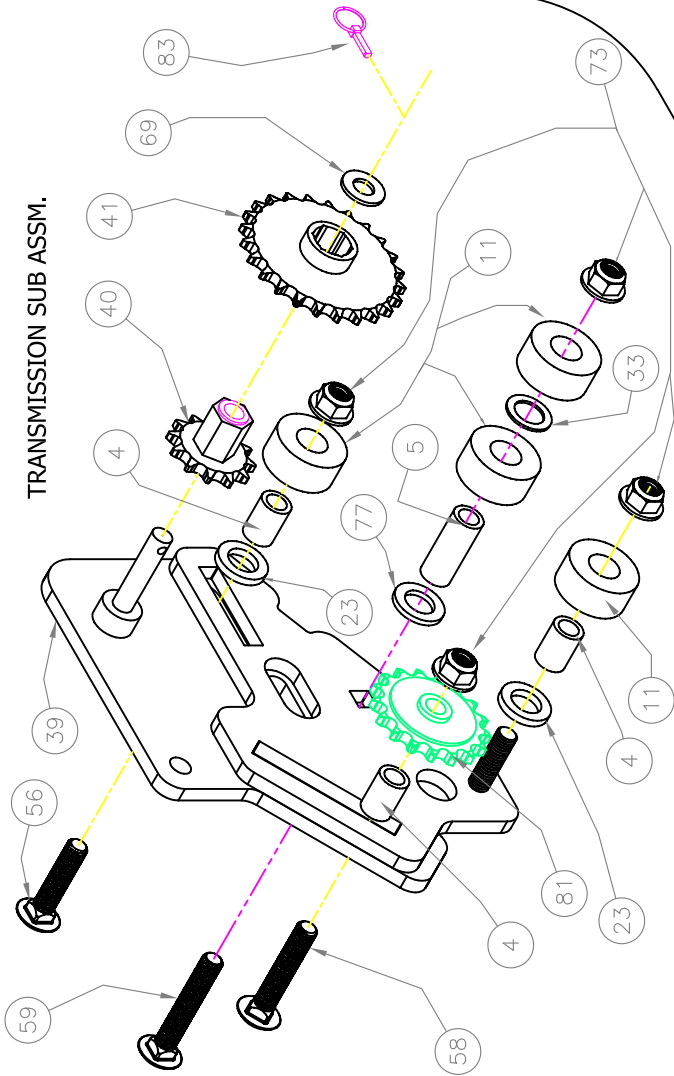


HOPPER GROUP - AUXILIARY

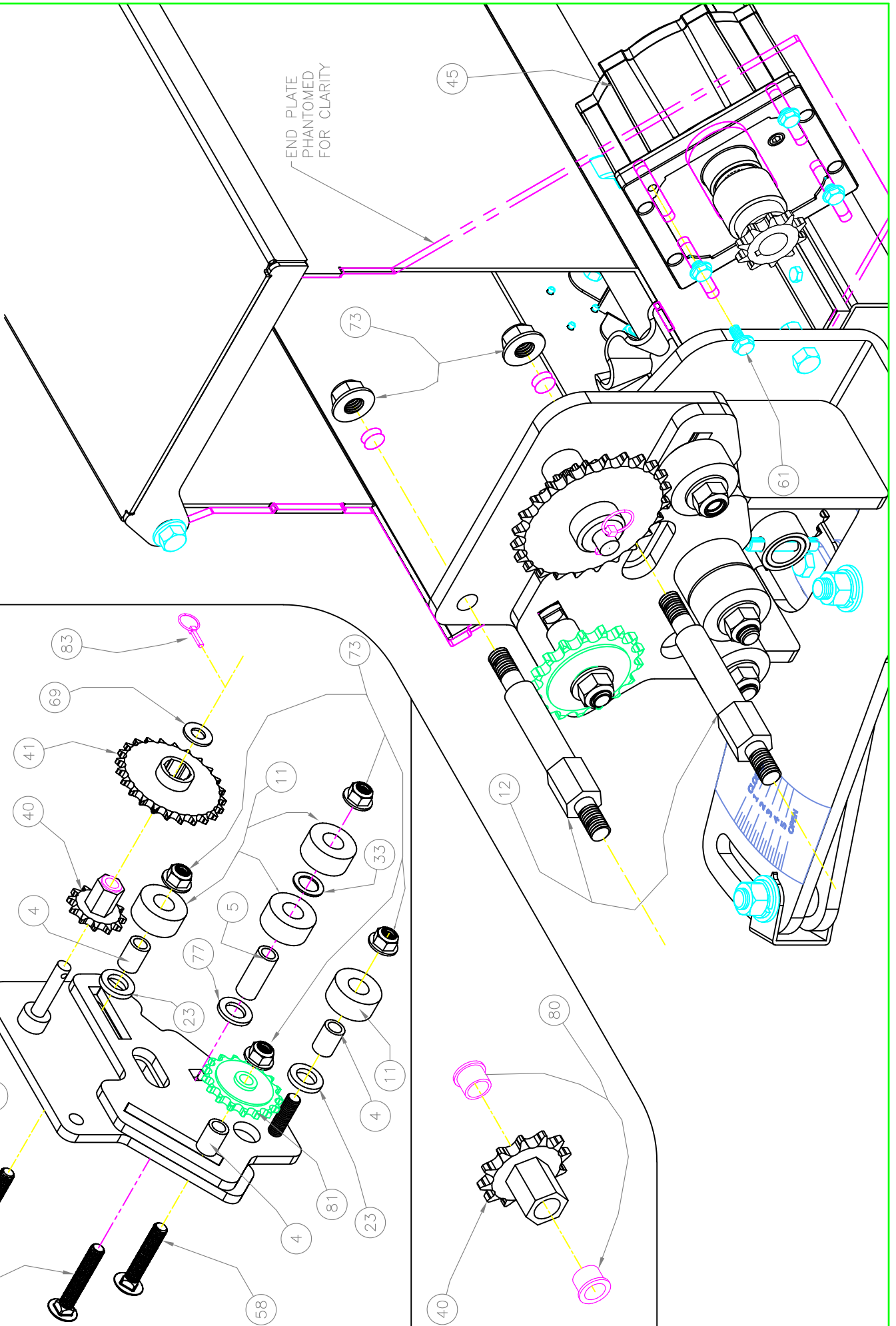


HOPPER GROUP - AUXILIARY

TRANSMISSION SUB ASSM.



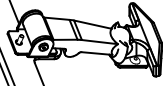
END PLATE
PHANTOMED
FOR CLARITY



HOPPER GROUP - AUXILIARY



84



STX products

79

37

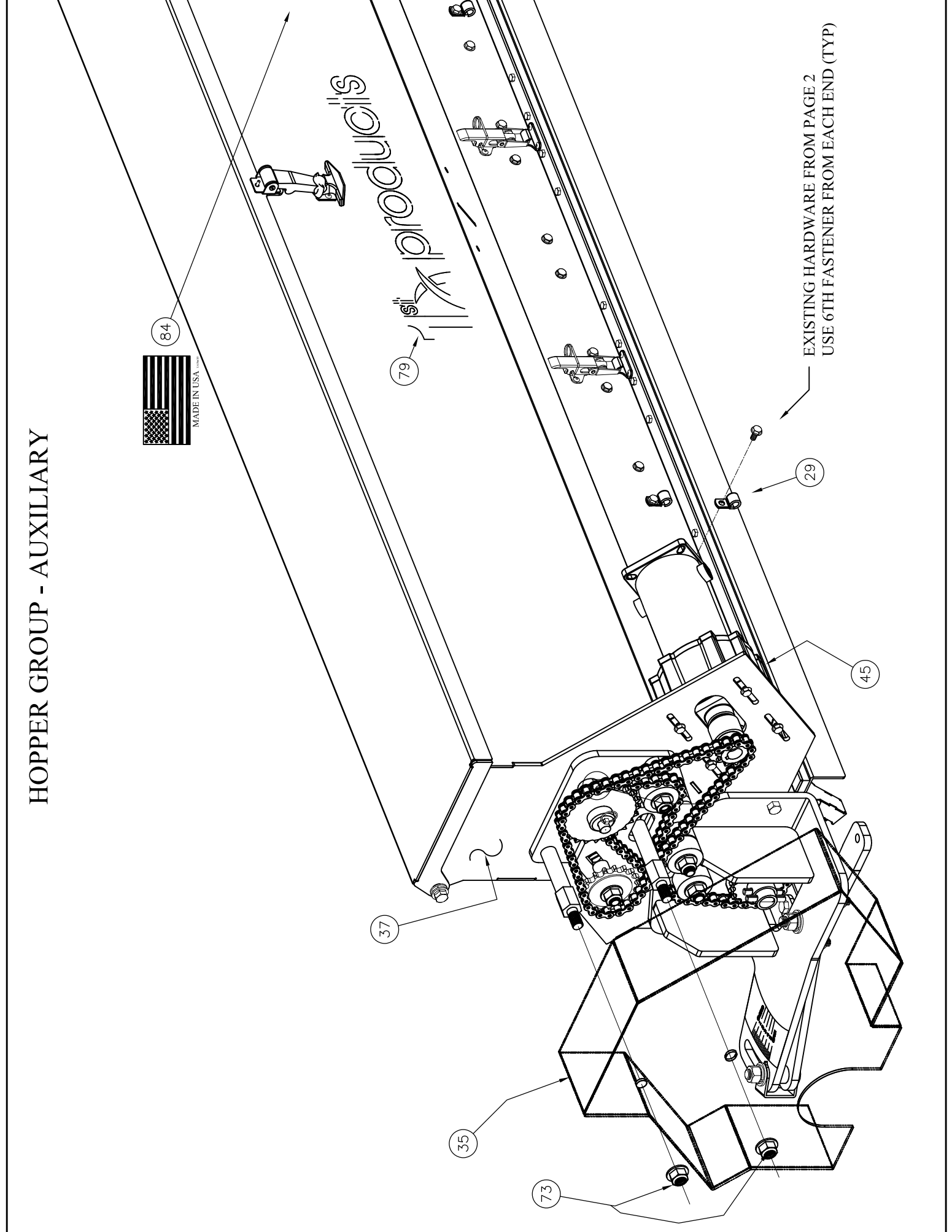
35

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EXISTING HARDWARE FROM PAGE 2
USE 6TH FASTENER FROM EACH END (TYP)

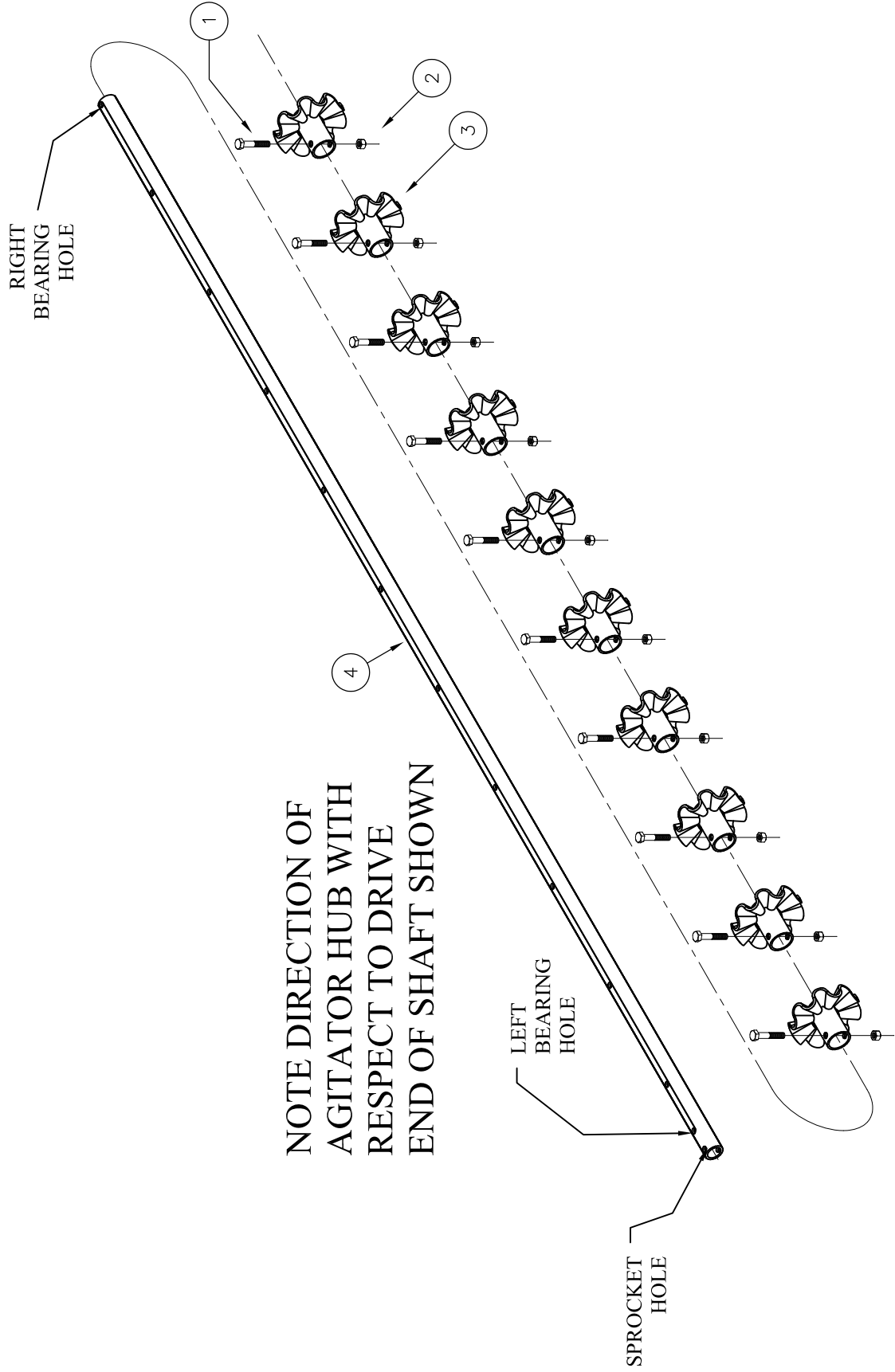
29

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AUXILIARY AGITATOR GROUP

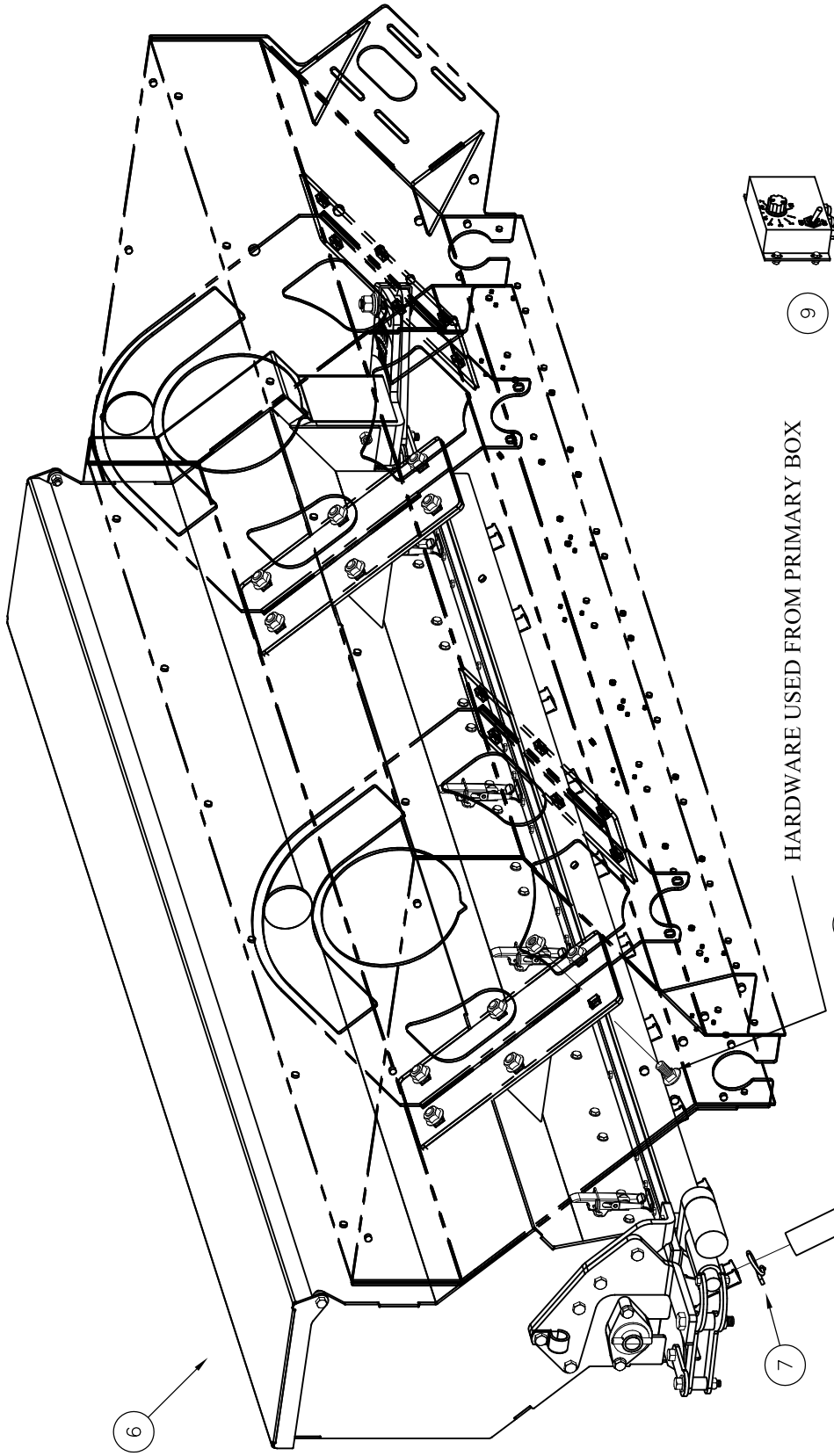
ITEM	PART NO	DESCRIPTION	QTY
1	HW01010056G5ZPC	5/16 1 3/4 HHCS	10
2	HW24010GBZPC	5/16 STOVER LOCKNUT	10
3	DS80-010	AGITATOR	10
4	DS24-022	AGITATOR SHAFT - DS96	1



NOTE DIRECTION OF
AGITATOR HUB WITH
RESPECT TO DRIVE
END OF SHAFT SHOWN

AUXILIARY BOX TO PRIMARY GROUP

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	DS27-086	10 OUTLET LEFT SEED PLATE 1/2	1	4	DS27-089	10 OUTLET RIGHT SEED PLATE 3/8	1	7	SB50-062	1 3/8 HOSE CLAMP	10
2	DS27-087	10 OUTLET RIGHT SEED PLATE 1/2	1	5	ND50-086	DS-96 SERIAL # TAG	1	8	ND50-102	1 ID X 1 1/4 OD CLEAR VINYL DS SB	10
3	DS27-088	10 OUTLET LEFT SEED PLATE 3/8	1	6	DS81-027	SMALL BOX - DS96	1	9	DS81-065	25 AMP MT CONTROLLER	1



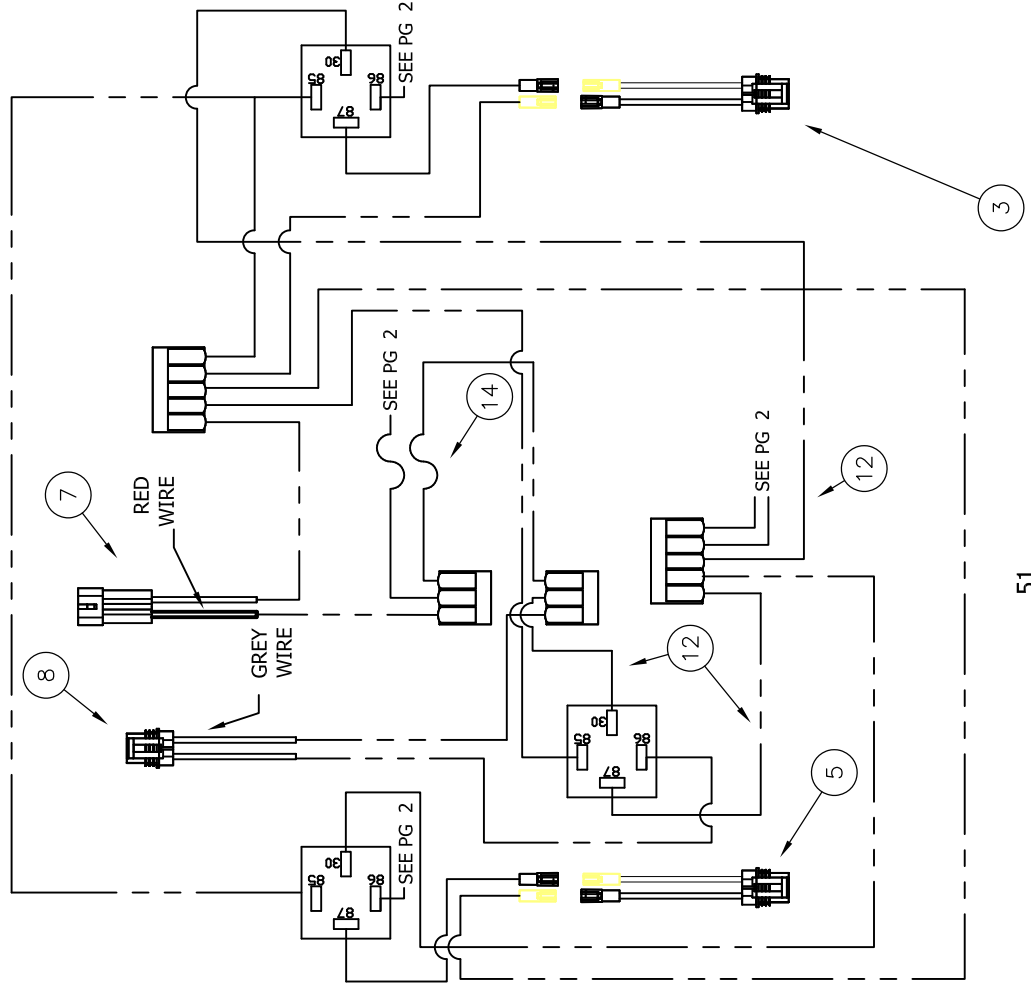
HARDWARE USED FROM PRIMARY BOX

SEEDER PLATES

SERIAL PLATE AFFIXED TO LEFT SIDE

ELECTRICAL GROUP

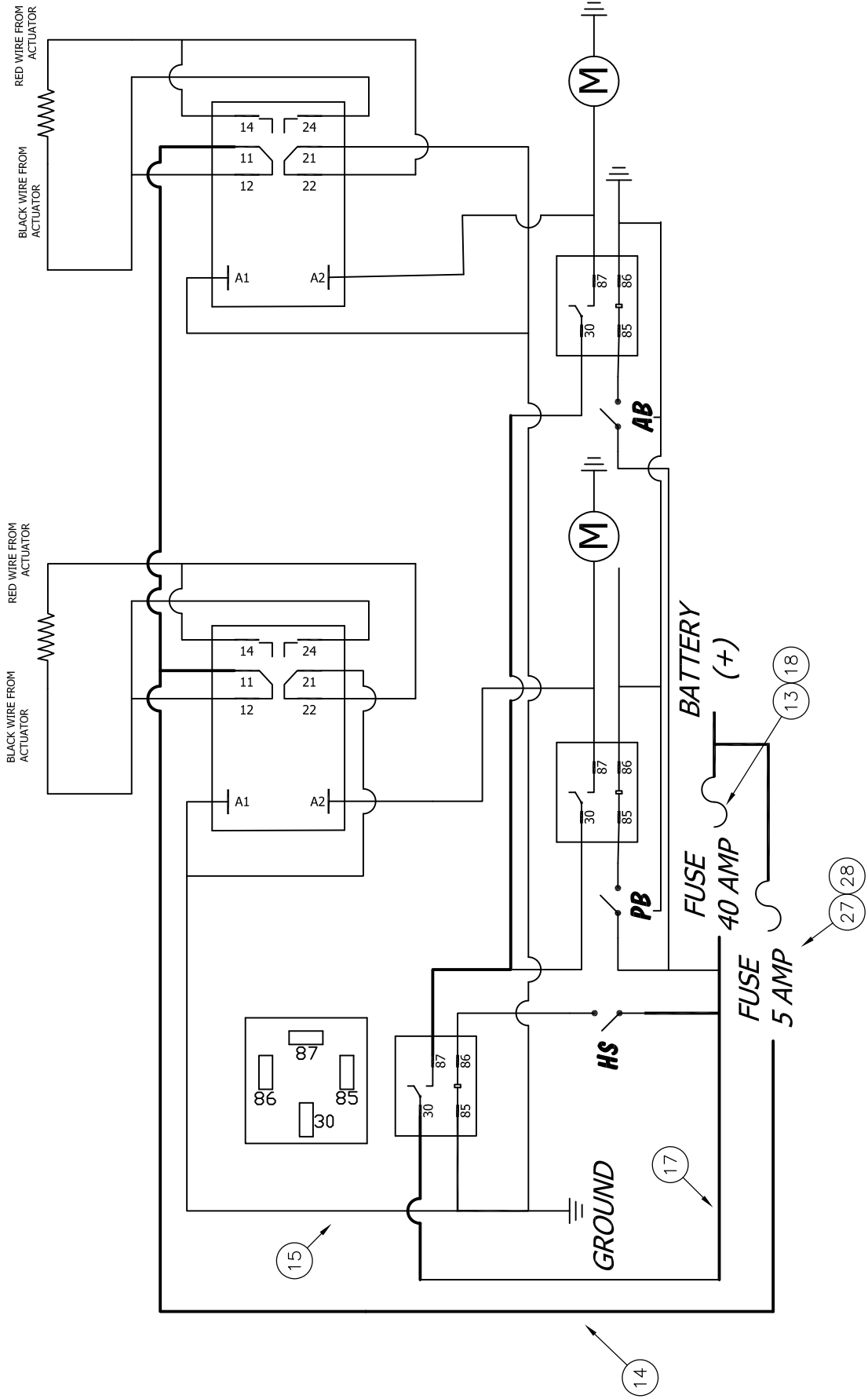
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	AE50-129	2-7/8 TEST CLIP	2	17	DS50-052	SYSTEM POWER WIRE	2	33	DS50-169	SWITCH POWER WIRE	2
2	AE50-130	RED INSULATOR	1	18	DS50-066	ATC FUSE, 40 AMP	1	34	DS50-170	RELAY SWITCH GROUND WIRE	1
3	AE50-131	BLACK INSULATOR	1	19	DS50-074	RELAY, DPDT	2	35	DS50-171	RELAY AMD MOTOR WIRE	2
4	DS27-309	SWITCH PLATE	1	20	DS50-075	CONTROL ENCLOSURE	1	36	DS50-172	MOTOR GROUND WIRE	2
5	DS27-315	FUSE STRAP	2	21	DS50-076	GLAND NUT	3	37	DS50-174	CONTROL BOX DECAL	1
6	DS50-009	MOTOR POWER HARNESS, BOX 1	1	22	DS50-077	GROUND EXTENSION WIRE	1	38	DS50-175	2 WAY LEVER LOCK CONNECTOR	1
7	DS50-013	ACTUATOR HARNESS, BOX 1	1	23	DS50-078	RELAY, 4 PIN	1	39	DS50-176	ON-OFF ILLUMINATED ROUND SWITCH RED	2
8	DS50-014	MOTOR POWER HARNESS, BOX 2	1	24	DS50-079	CONTROLLER POWER HARNESS	2	40	DS81-005	ACTUATOR WITH PLUG	1
9	DS50-015	CABLE GLAND	3	25	DS50-139	MOTOR EXTENSIN HARNESS, BOX 1	1	41	DS81-006	MOTOR WITH PLUG	1
10	DS50-016	CONTROL BOX POWER IN HARNESS	1	26	DS50-140	MOTOR HARNESS, SMALL BOX	1	42	HW16M10016G5ZPC	#10 X 1/2 GROSS HEAD SCREW	4
11	DS50-017	CONTROL BOX SWITCH HARNESS	1	27	DS50-145	FUSE, 5 AMP STANDARD	1	43	HW16M5012ZPC	M5X.8 X 1/2 MM LG CROSS HEAD SCREW	4
12	DS50-018	ACTUATOR HARNESS, BOX 2	1	28	DS50-146	FUSE LINK, 16 GA STRANDED	1	44	HW3#10G5ZPC	#10 X 5/16 THREAD LOCK NUT	4
13	DS50-023	FUSE LINK	1	29	DS50-147	3 WAY LEVER LOCK CONNECTOR	2	45	HW62#08010ZP	#8 X 5/16 THREAD FORMING SCREW	4
14	DS50-030	RELAY POWER WIRE	1	30	DS50-148	5 WAY LEVER LOCK CONNECTOR	2	46	NDS0-095	PIERCE ON/OFF SWITCH	1
15	DS50-033	RELAY GROUND WIRE ASSM	1	31	DS50-149	RELAY POWER WIRE	1	47	NDS0-100	ON/OFF DECAL	1
16	DS50-046	POWER HARNESS W/ TEST CLIPS	1	32	DS50-168	RELAY SWITCH WIRE	2				



ELECTRICAL GROUP (CONTROL BOX SCHEMATIC)

**BLACK WIRE ON ACTUATOR
EXTENDS ACTUATOR WHEN ON
POSITIVE TERMINAL**

ACTUATOR

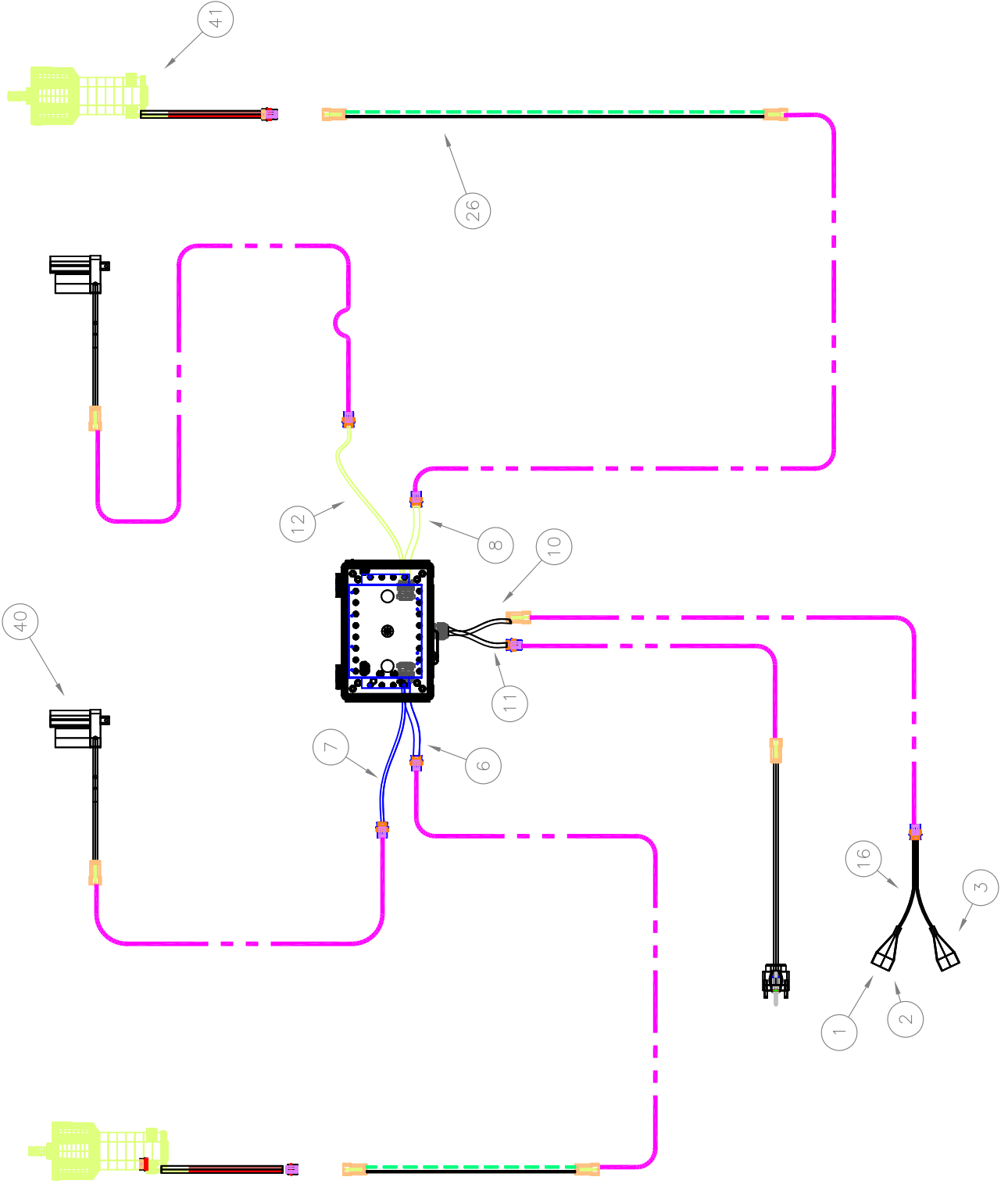


ELECTRICAL GROUP (BOX WIRE LAYOUT)

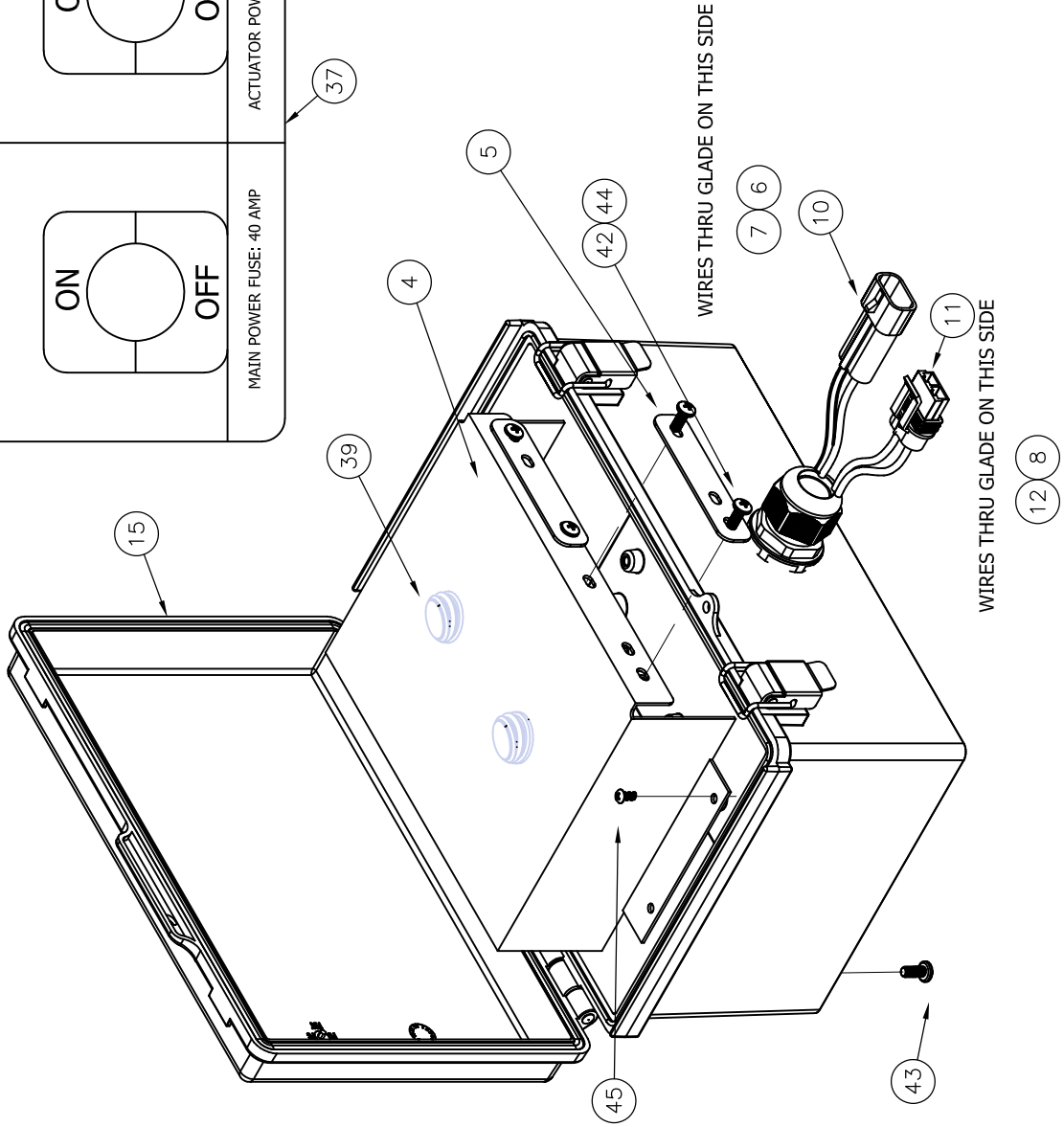
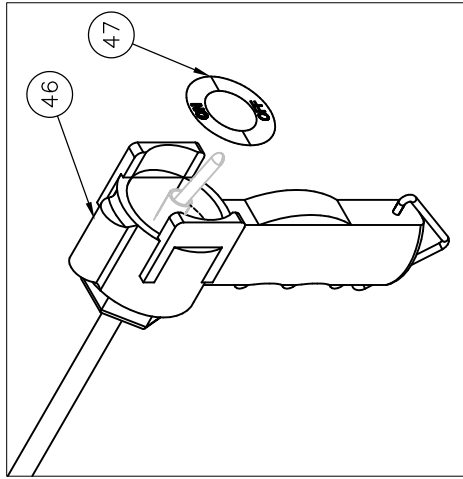
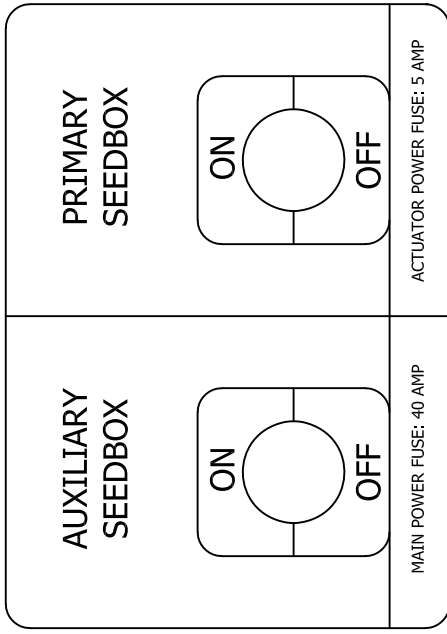
SMALL BOX

WIRES WRAPPED WITH YELLOW LOOM ARE FOR THE SMALL BOX

WIRES WRAPPED WITH BLUE LOOM ARE FOR THE LARGE BOX

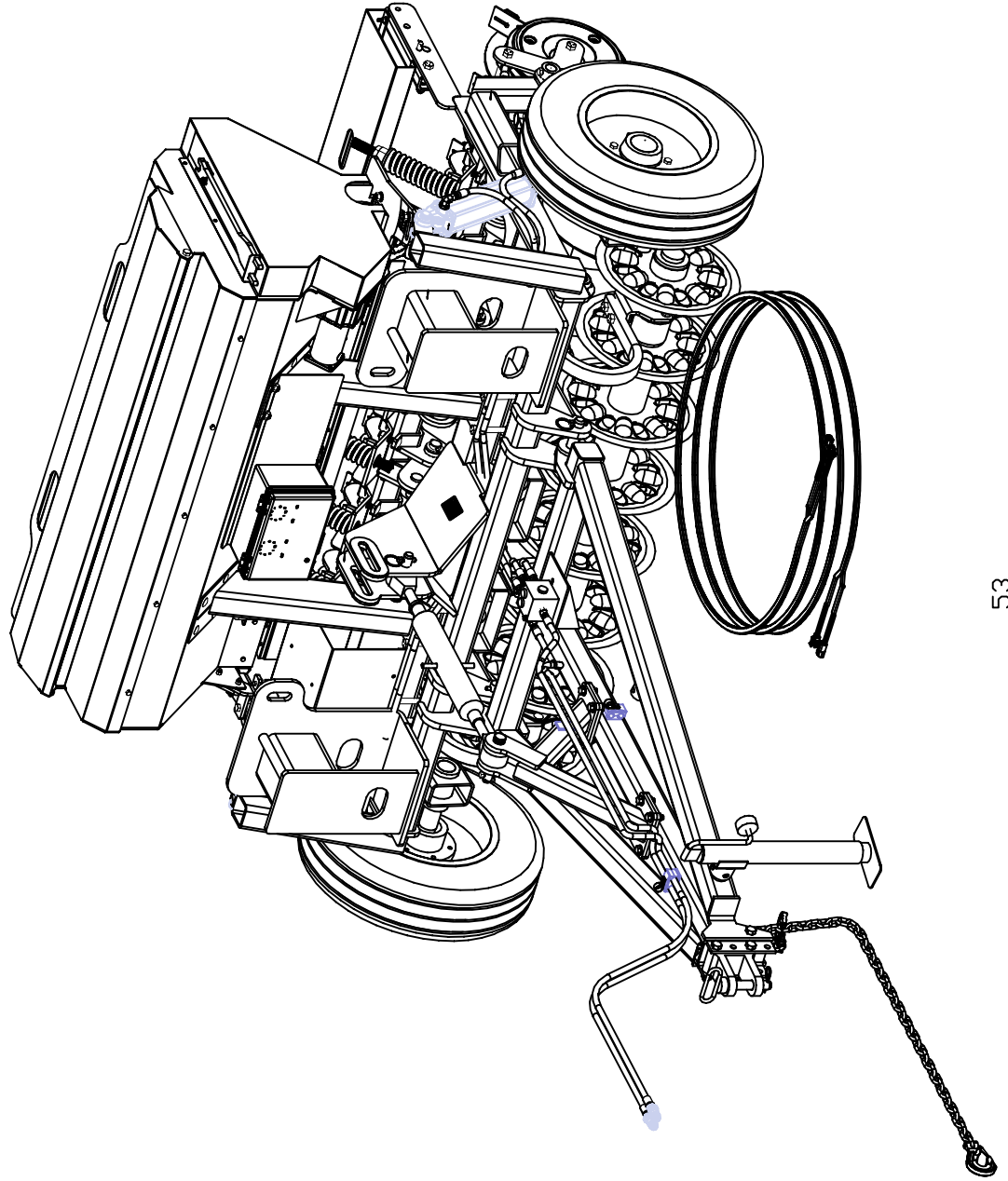


ELECTRICAL GROUP (BULK COMPONENTS)

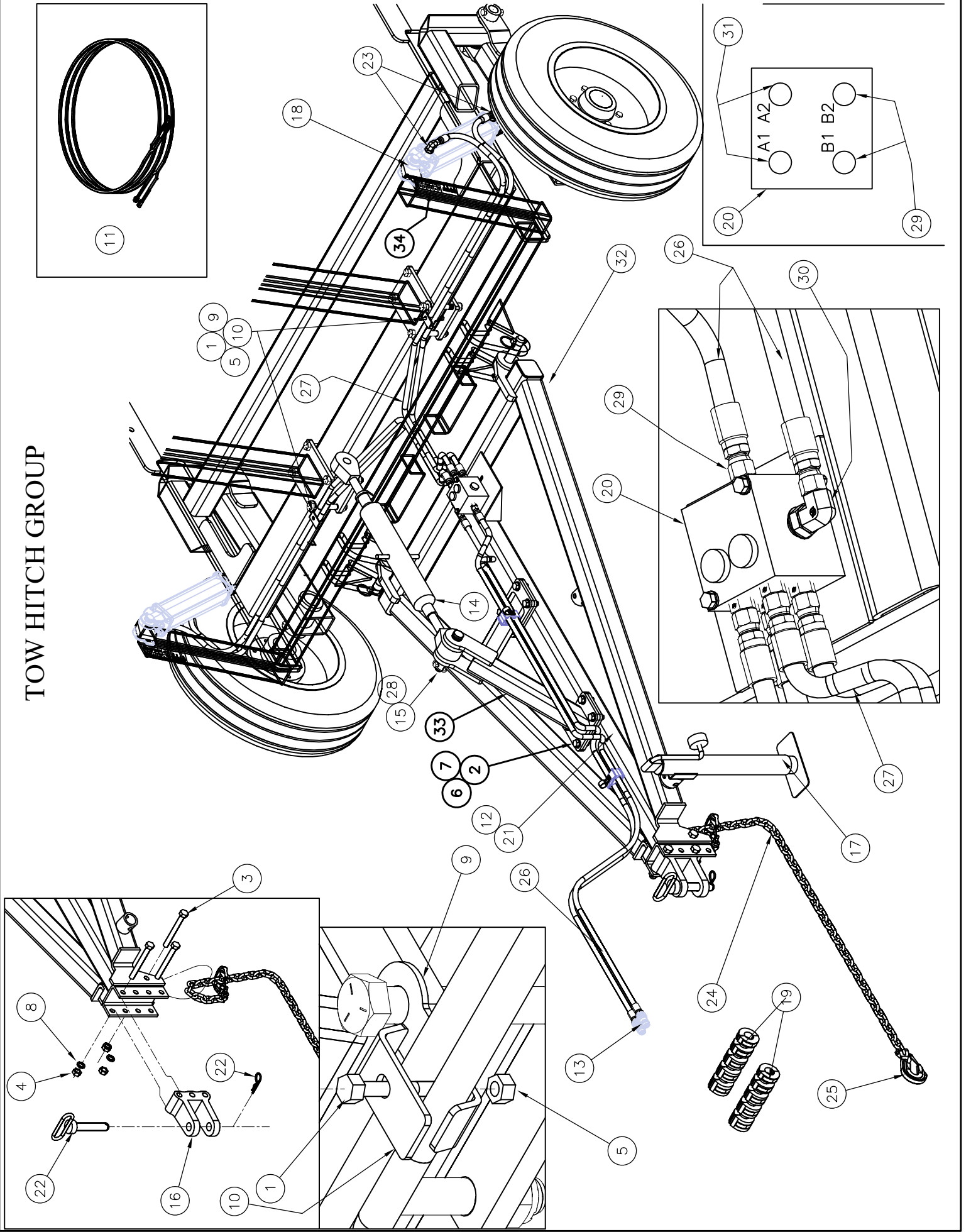


TOW HITCH GROUP

ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	HW010080405ZPC	1/4" x 1-1/4" HHCS	2	13	FA50-068	QUICK COUPLER	2	25	ND50-128	SAFETY CHAIN CLEVIS HOOK	2
2	HW010160405ZPC	1/2" x 1-1/2" HHCS	8	14	ND50-022	21-37 CAT 2 TOP LINK	1	26	ND50-129	HOSE PRESSURE/RET URN, SFPH	2
3	HW010201608ZPC	5/8 x 5" G8 HHCS	3	15	ND50-023	CAT 2 TOP LINK PIN	1	27	ND50-130	HOSE BLOCK TO CYLINDER, SFPH	4
4	HW2002005ZPC	5/8" HEX NUT	3	16	ND50-026	ADJUSTABLE CLEVIS	1	28	SES0-065	High Pin	1
5	HW2000805ZPC	1/4" STOVER LOCK NUT	2	17	ND50-027	5000LB TUBE MT. TOPWIND JACK	1	29	WBS0-029	ADAPTER, STRAIGHT #6MTC-#6MORB	3
6	HW2401605ZPC	1/2" STOVER LOCK NUT	8	18	ND50-029	2.5 x 10 x 1.125 rod THEROD CYL.	2	30	WBS0-031	ADAPTER, 90 DEG #6MTC-#6MORB	1
7	HW310161A2P	1/2" SAB WASHER	8	19	ND50-034	5 PIECE CYLINDER STOP KIT	2	31	ND50-134	ADAPTER, ORFICE 0.070	2
8	HW3302008ZPC	X.H.D. 5/8 LOCK WASHER	3	20	ND50-114	INTEGRATED FLOW DIVIDER AND PTOC	1	32	ND80-028	SMALL FRAME FULL HITCH	1
9	ND27-162	5/8 HOSE CLAMP BOTTOM	2	21	ND50-116	TWIN TUBE CLAMP 0.625" OD	2	33	ND80-065	BOLT ON TOP LINK MAST	1
10	ND27-163	5/8 HOSE CLAMP TOP	2	22	ND50-122	1" HITCH PIN RED HANDLE	1	34	ND50-162	SMPH DEPTH STOP DECAL	2
11	DS50-049	8 FT ND TONGUE EXTN HARNESS	1	23	ND50-123	ADAPTER, 90 DEG #6MTC-#6MORB	4				
12	DS50-051	3/4" ID LOOP CLAMP	2	24	ND50-127	SAFETY CHAIN	1				



TOW HITCH GROUP



ND-96 CORN PLATE KIT

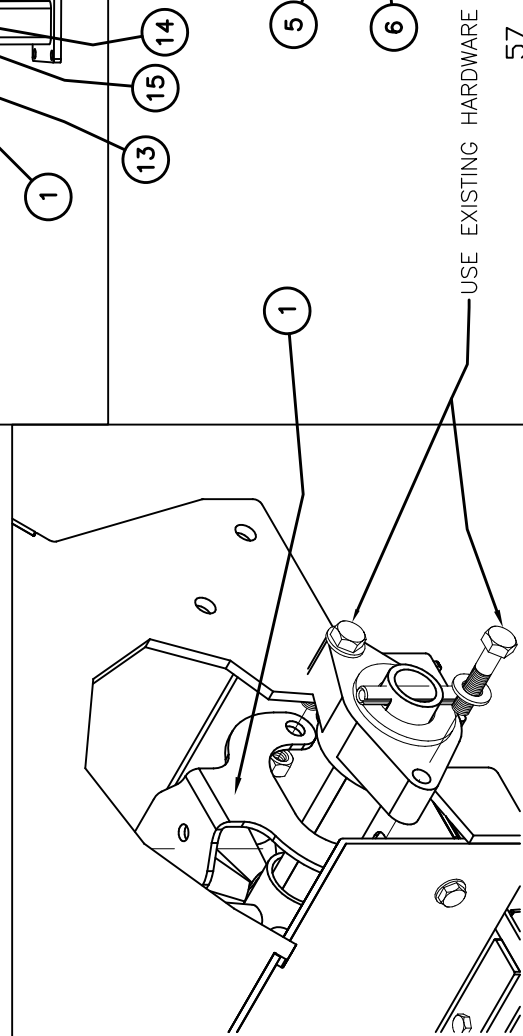
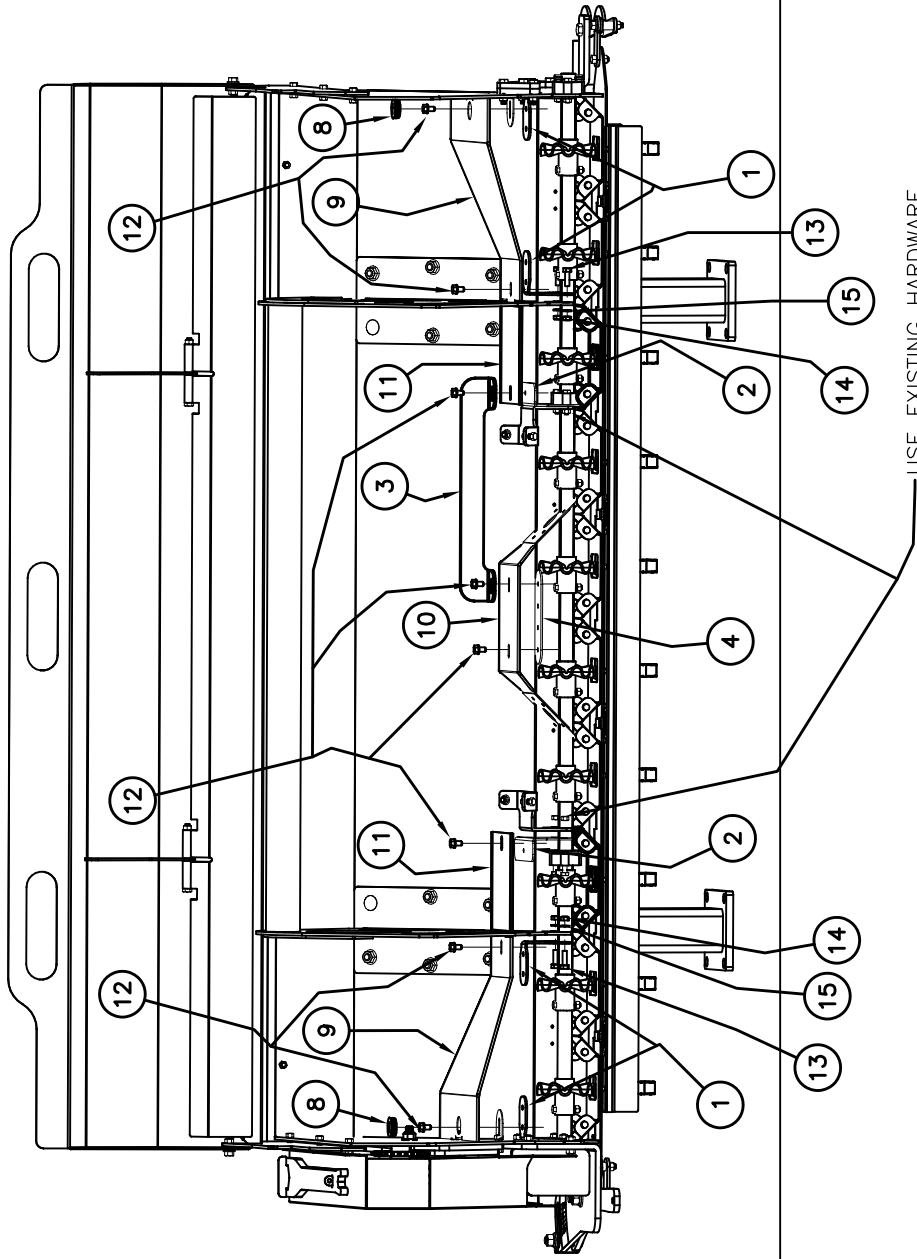
ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	DS27-316	CORN FUNNEL - MOUNT - END	4	6	DS27-330	ND-96 CORN PLATES - RIGHT	1	11	DS81-093	CORN FUNNEL-COVER PLATE-1 ASSM.	2
2	DS27-317	CORN FUNNEL - MOUNT - MID.	2	7	DS50-150	CORN QUICK START CHART	1	12	HW4101001GZPLC	5/16 x 1/2 SELF TAP. SCREW	7
3	DS27-318	CORN FUNNEL - BRIDGE	1	8	DS50-184	POP IN HOLE COVER	2	13	HW1010032G5ZPC	5/16 x 1 HHCS	4
4	DS27-319	CORN FUNNEL - BACKING PLATE	1	9	DS81-089	CORN FUNNEL-END-2 OUTLET ASSM.	2	14	HW24010GBZPC	5/16 STOVER LOCK NUT	4
5	DS27-329	ND-96 CORN PLATES - LEFT	1	10	DS81-090	CORN FUNNEL-MID-2 OUTLET ASSM.	1	15	HW30010GBZPC	5/16 FLAT WASHER	4

****MANY ITEMS PHANTOMED FOR CLARITY****

****CORN PLATE KITS ARE DESIGNED FOR USE IN PRIMARY BOXES ONLY. DO NOT INSTALL KITS IN AUXILIARY BOXES****

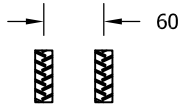
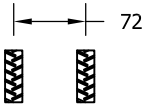

****AFTER USE REMOVE ALL PIECES EXCEPT DS27-316 & DS27-317 TO RETURN MULTI-drill TO NORMAL OPERATION****

****DS27-316 & DS27-317 ARE MEANT FOR PERMANENT MOUNTING IN BOX, ALL OTHER PARTS ARE MEANT TO BE REMOVEABLE****



USE EXISTING HARDWARE

CORN QUICK START GUIDE

CORN QUICK START CHART			 60" TRACTOR WHEEL SPACING		 72" TRACTOR WHEEL SPACING	
 TIFTON, GA			PLATE POSITION	LBS / MIN COLLECTED	PLATE POSITION	LBS / MIN COLLECTED
SMALL (2000 SEED/LB)	27,000	4	1	0.54	1 2/3	0.66
	30,000		1 1/3	0.60	2	0.73
	33,000		1 2/3	0.66	2 1/3	0.80
MEDIUM (1600 SEED/LB)	27,000	4	1 2/3	0.67	2 1/3	0.82
	30,000		2	0.75	2 1/3	0.91
	33,000		2 1/3	0.83	2 2/3	1.00
LARGE (1100 SEED/LB)	27,000	4	2 2/3	0.94	3 1/3	1.19
	30,000		3	1.05	3 2/3	1.32
	33,000		3 1/3	1.16	3 2/3	1.45

CALIBRATION INSTRUCTIONS

- 1) Install $\frac{5}{8}$ " 2 outlet plates, Install Corn Sprocket in Agitator Transmission
- 2) Calculate (LBS/MIN) to catch for correct population using steps A-D (see below)
- 3) Determine seed size using answer from step B (see below) compared to the CORN SEED SIZE RANGE CHART
- 4) Set plate position according to quick start chart (see left)
- 5) Perform catch procedure(see bottom right) and adjust if necessary

RECOMMENDED SPEED: 4 MPH
 RECOMMENDED POPULATION: 27,000 - 33,000 SEED/ACRE
 PLATES: 1/2" 2 OUTLET
 AGITATOR SPROCKET: 12 TOOTH

CORN SEED SIZE RANGE CHART

SMALL = 2200 - 1800 (SEED/LB)
 MEDIUM = 1750 - 1350 (SEED/LB)
 LARGE = 1300 - 900 (SEED/LB)

HOW TO CALCULATE (LBS/MIN)]

- A) WEIGH 100 SEED FOR YOUR (100 CWT) IN OUNCES
 - B) (SEED/LB) = 1600 / (100 CWT)
 - C) (LBS/AC) = (SEED/ACRE) / (SEED/LB)
 - D) (LBS/MIN) = (LBS/AC) / (MIN/AC) (SEE BELOW (MIN/AC))
- 60" TRACTOR WHEEL SPACING = 24.7 (MIN/AC)
 72" TRACTOR WHEEL SPACING = 20.6 (MIN/AC)

CATCH PROCEDURE

CATCH SEED FROM MACHINE FOR 5 MINUTES. DIVIDE LBS CAUGHT BY 5 TO DETERMINE THE AVERAGE (LBS/MIN)

SEED SELECTION AND MACHINE SETUP TIPS

When selecting Corn Seed to plant with a MULTI-drill, look for a **Small Round** or **Small Flat** corn seed for best spacing results.

Although many Corn Seed vendors will have the (seed/lb) noted on the information tag on the end of the bag, we recommend calculating for yourself to be sure you are getting as accurate of information as you can for the most accurate calibration.

After calibrating your MULTI-drill find a clean area and lower your multi drill till the row units are about an inch off the ground. Then drive at the speed you calibrated for and switch your drill on for 20-30 feet. Once stopped and with tractor or tow vehicle in park, walk behind your drill and see how far apart on average your seed is dropping and look for excessive skips or bunching of seeds. Excessive skips could mean bridging due to plates not being open enough for seed to fall through, and bunching of seed could mean the plates are to open and allowing to many seed out at once. For recalibration to reduce skips it is best to calibrate either for a higher rate at the same speed or the same rate at a higher speed by opening the plates to help flow seed more consistently. To recalibrate for excessive bunching it is best to calibrate for a lower rate at that speed or the same rate at a lower speed by closing the plates for more consistent seed flow.

If further analysis of spacing and population is desired count the amount of seed in a 20 foot long section of row to determine final population and spacing. For example, at a 30,000 seed population on 30" rows seed should average 7" apart and there should be 34 seed in 20ft of 1 row, on 36" rows seed should average 5.75" apart and there should be 41 seed in 20ft of 1 row. Due to the MULTI-drill metering system, seed doubles, skips, and irregular spacing can occur often. Therefore we do not recommend using a MULTI-drill to plant corn as a production cash crop.

For correct seed depth consult with your local extension agent or seed supplier. Once desired seed depth is determined set the MULTI-drill front coulters at 1/4" to 1/2" below desired seeding depth the machine frame running level. Then fine tune the row units that are to be used to plant with for correct planting depth.

BOLT TORQUE SPECIFICATIONS

DIAMETER	THD/INCH	GRADE 2	GRADE 5	GRADE 8
1/4	20	37 IN-LBS	86 IN-LBS	122 IN-LBS
5/16	18	75	178	251
3/8	16	11 FT-LBS	26 FT-LBS	37 FT-LBS
7/16	14	18	42	59
1/2	13	27	64	90
9/16	12	39	92	130
5/8	11	54	128	180
3/4	10	96	227	320
7/8	9	155	365	515
1	8	232	547	772
1 1/4	7	463	952	1545
1 1/2	6	806	1657	2688
1/4	28	42 IN-LBS	99 IN-LBS	139 IN-LBS
5/16	24	83	197	278
3/8	24	13 FT-LBS	30 FT-LBS	42 FT-LBS
7/16	20	20	47	66
1/2	20	31	72	102
9/16	18	44	103	146
5/8	18	61	144	204
3/4	16	107	253	357
7/8	14	171	403	568
1	14	260	614	867
1 1/4	12	513	1055	1710
1 1/2	12	907	1865	3024

COURSE

FINE