

OPERATOR'S MANUAL & PARTS LIST



MULTI-drill MODEL ND-72

FIRST PRODUCTS INC.
164 Oakridge Church Road
Tifton, Georgia 31794 U.S.A.
Phone (229) 382-4768
1-800-363-8780
Fax (229) 382-0506

Web: www.1stproducts.com Email: Sales@1stproducts.com

ND-72 SER. 1026 thru ____
Printed in U.S.A.
PBREV 0522

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 no-till and conventional 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.

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 19. 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.**

TABLE OF CONTENTS

INTRODUCTION.....1	<i>Changing Seed Plates</i> 15
TABLE OF CONTENTS.....2	CLEANING 17
GENERAL INFORMATION3	After Each Use..... 17
SPECIFICATIONS for ND-723	Periodic or Before Extended Storage 17
SAFETY SYMBOLS4	WARRANTY INFORMATION 18
SAFETY RULES.....5	Parts Book..... 23
Training.....5	Row Unit Group 23
Preparation5	Diamond Mount Group 27
Operation.....5	Presswheel Arm Group..... 28
Transportation6	Spring Rod Group..... 29
Maintenance6	Coulter Shaft Group..... 30
Storage6	Frame Group..... 31
SAFETY DECALS7	Frame to Hopper Group 35
OPERATION9	Hopper Group..... 37
Front Coulter Disc Shaft10	Agitator Group..... 41
Seed Disc Assembly10	Spout Tray Group..... 42
Seeders10	Auxiliary Seedbox (optional)..... 43
Attaching Multi-Drill11	Auxiliary Box Agitator Group 47
1. <i>Standard Cat. II 3-point hitch:</i>11	Auxiliary Box to Hopper Group..... 48
2. <i>Standard Cat. II Quick hitch:</i>11	Electrical 49
Seeder Setup.....12	Tow Hitch Group..... 53
<i>Seeder Calibration</i>12	Hydraulics Group 54
<i>Seed Depth Adjustment (ND-72)</i>14	Electrical (Micro-Trac)..... 55

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-72

Working Width	72"
Overall Width	92 ¼"
Disc Diameter	Coulter disc: 16" / Seed disc: 13.5"
Disc Spacing	9"
Hitch Category	CAT II
Quick Hitch Compatible	Yes
Hydraulic Lift Compatible	No
Towing Hitch Compatible	Yes
Guage Wheels	20 ½ X 8 X 10 (Implement Tire – 20 mph max)
Weight w/ all options	2400 Lbs
Primary Seedbox Capacity	10 Bushels
Auxiliary Seedbox Capacity	3 ½ Bushels
Primary Seed Distribution Method	Gravity metered into rows
Seed Depth Gauge Method	Gauge Wheel – Infinite screw adjustment

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.

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 attach safety chain to tractor drawbar when transporting unit.

Never exceed 25 mph (40.2 km/h) during transport. Multi-drill is not designed for highway transportation.

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).

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

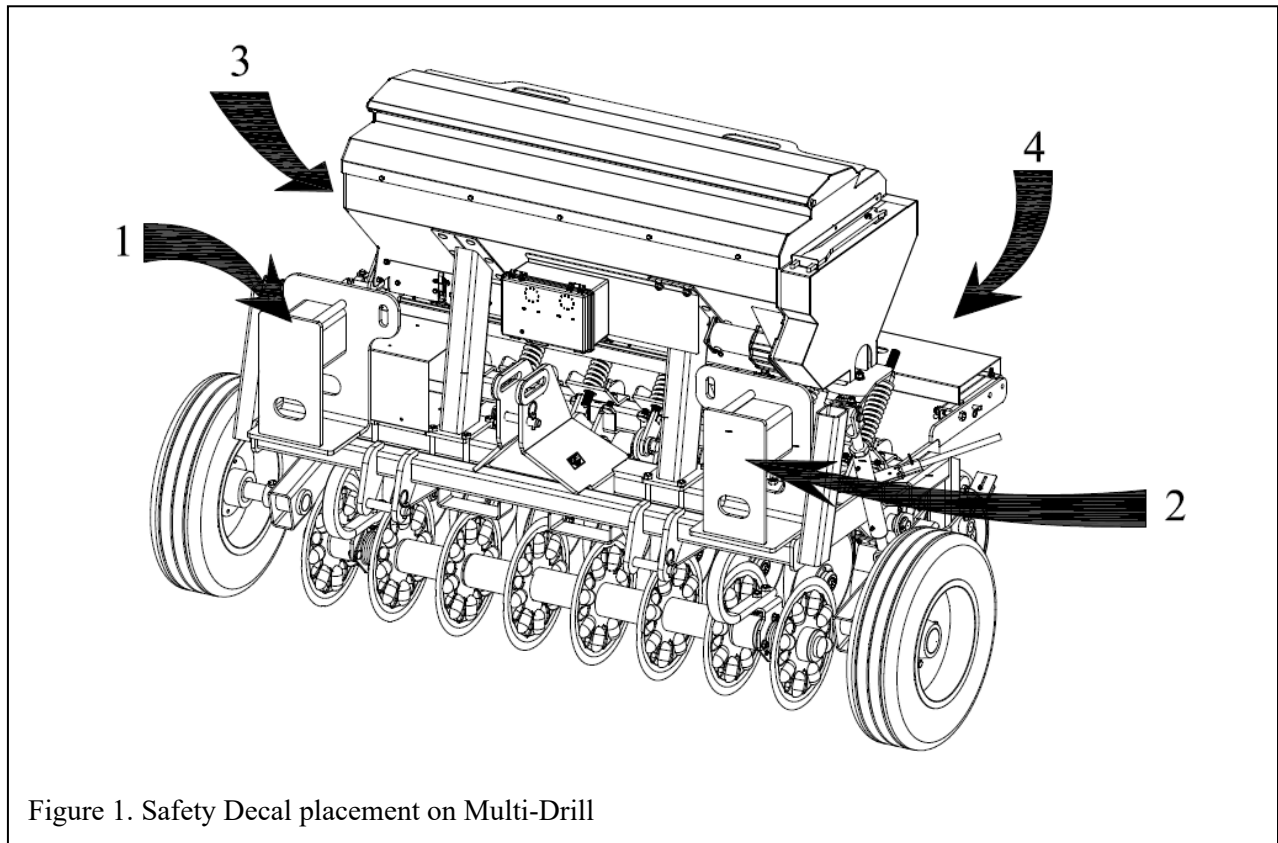
Your implement comes equipped with all safety labels in place. They were designed to help you safely operate your implement.

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.



⚠ 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 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)



⚠ DANGER

DO NOT STAND ON PLATFORM DURING MACHINE OPERATION

AG50-089

4 – 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 Coulter 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 ¼” 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.

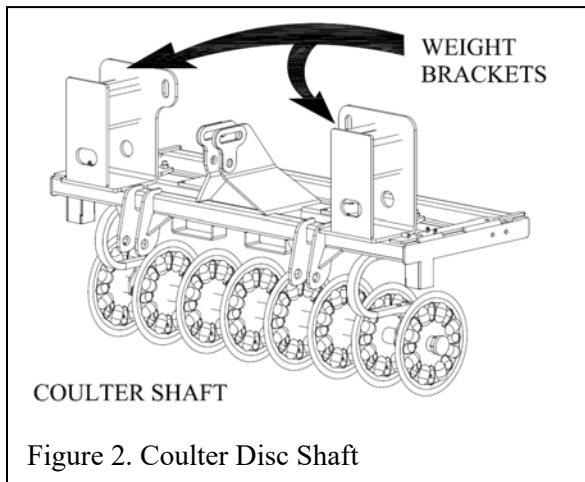


Figure 2. Coulter Disc Shaft

Seed Disc Assembly

Often referred to as double disc openers, the Multi-drill sports offset discs which follow directly behind each coultter disc 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. Shortening the turnbuckle shallows the seed

while lengthening the turnbuckle pushes the seed deeper into the slit cut by the coultter disc. 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.

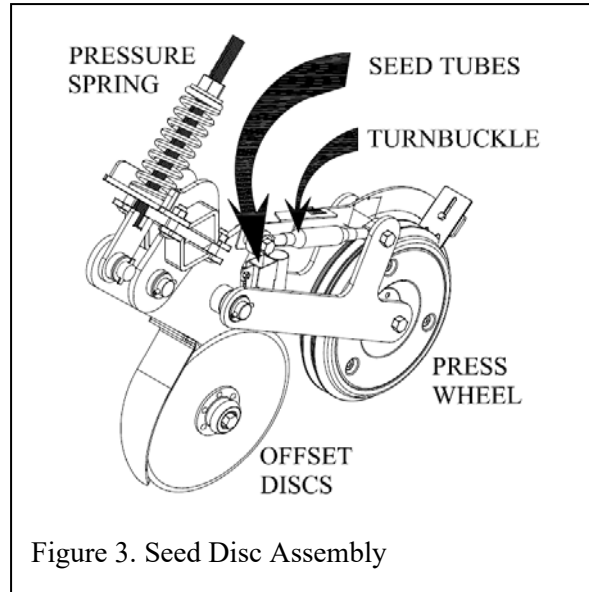


Figure 3. Seed Disc Assembly

Seeders

The Multi-drill 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

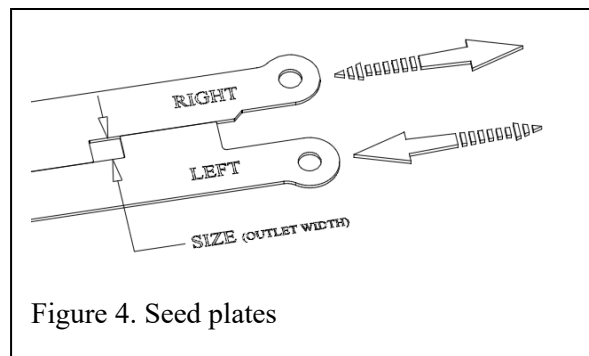


Figure 4. Seed plates

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 which are specified in the calibration instructions. A handheld control harness

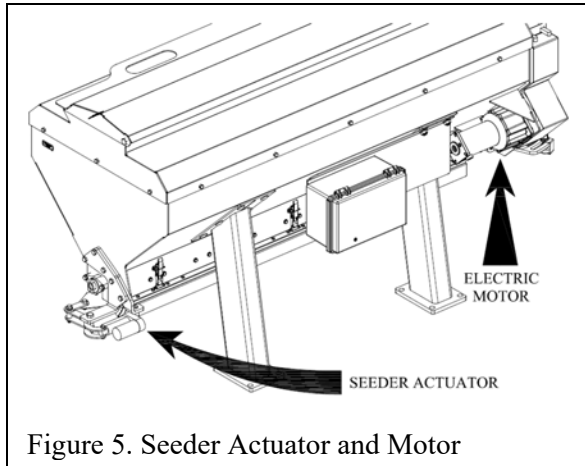


Figure 5. Seeder Actuator and Motor

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

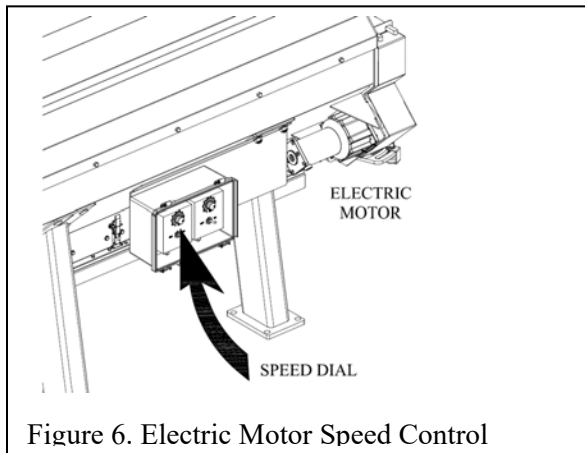


Figure 6. Electric Motor Speed Control

Figure 5. The speed of the electric motor is adjusted using the speed control box, Figure 6, mounted to the front of the hopper (some seed varieties and seed rates respond to electric motor speed).

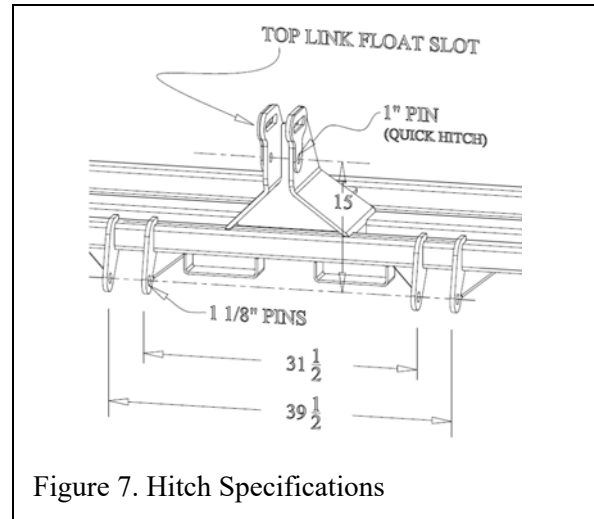


Figure 7. Hitch Specifications

Attaching Multi-Drill

Note: The ND-72 Model is designed to have two ways of attaching to power unit:

1. Standard Cat. II 3-point hitch
2. Standard Cat. II Quick hitch

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 7). 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.

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. Set seed plates and electric motor setting (use Figure 8 as starting point).
4. Use calibration chart to find target seed weight (Figure 10).
5. Position calibration trough to catch seed and only put enough seed in hopper to catch.
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.
10. Check for consistent seed metering.

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.

Quick Start Setting Guide						
Model ND-72						
Seed Type	Seed Rate (Lbs/Acre)	Plate Size	Motor Control Setting	Ground Speed (mph)	Plate Position	Weight Collected (Lbs/min)
Oats	105	3/4"	10	3	3	3.82
				4	3 2/3	5.10
				5	4 1/3	6.36
Rye	100	1/2"	5	3	2	3.64
				4	2 2/3	4.85
				5	3 1/3	6.06
Rye Grass	25	1/2"	5	3	2	0.91
				4	2 1/3	1.21
				5	2 2/3	1.51
Wheat	100	1/2"	5	3	2 1/3	3.64
				4	2 2/3	4.85
				5	3	6.06
Cow Peas	70	1/2"	5	3	3	2.55
				4	3 2/3	3.39
				5	4 1/3	4.24
Soybean	100	1/2"	5	3	3 1/3	3.64
				4	4	4.85
				5	4 2/3	6.06
Browntop Millet	20	1/4"	5	3	1 2/3	0.73
				4	2	0.97
				5	2 1/3	1.21
Clover	25	1/4"	5	3	1 2/3	0.91
				4	2	1.21
				5	2 1/3	1.51
Grain Sorghum	25*	1/4"	3	3	1 2/3	0.91
				4	2	1.21
				5	2 1/3	1.51

* Recommended

Figure 8. Quick Start Setting Guide - Step 3

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 8 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.

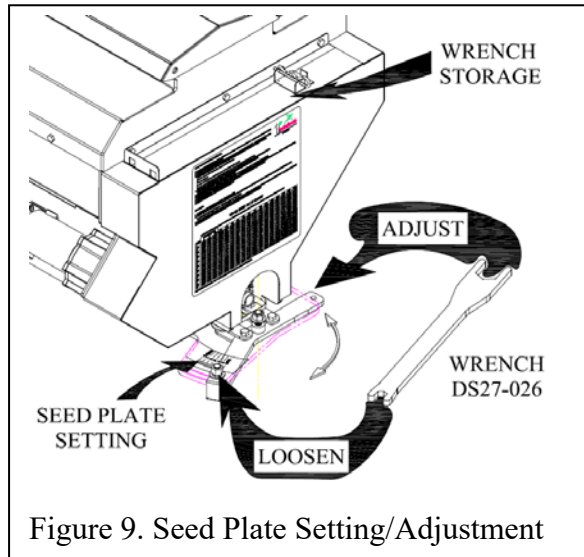


Figure 9. Seed Plate Setting/Adjustment

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 (**low rates**)

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

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

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 9. 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.

At this time, the electric motor control located on the front of the hopper, Figure 6, should be set to what the Quick Start Setting Guide recommends.

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.

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

If the weight of seed is within 10% of the target, the speed of the electric motor can be modified to finetune the rate. Otherwise, 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 increase; and likewise, the setting will decrease if the rate needs to be cut down.

ND-72 Calibration Chart

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

		Desired Seed Rate (Pounds/Acre) - STEP 2																
		3	5	10	20	30	40	50	60	70	80	90	100	120	140	160	180	200
Ground Speed (MPH) - STEP 1	1	0.04	0.06	0.13	0.26	0.38	0.51	0.61	0.73	0.85	0.97	1.10	1.22	1.46	1.70	1.94	2.19	2.43
	1.5	0.05	0.09	0.18	0.35	0.53	0.70	0.91	1.10	1.27	1.46	1.65	1.82	2.18	2.54	2.90	3.29	3.65
	2	0.07	0.13	0.26	0.51	0.77	1.02	1.22	1.46	1.70	1.94	2.19	2.43	2.91	3.39	3.87	4.38	4.86
	2.5	0.09	0.15	0.30	0.61	0.91	1.22	1.52	1.82	2.12	2.42	2.74	3.04	3.64	4.24	4.84	5.48	6.08
	3	0.11	0.18	0.37	0.74	1.10	1.47	1.82	2.18	2.54	2.90	3.29	3.64	4.37	5.09	5.81	6.58	7.30
	3.5	0.13	0.21	0.42	0.83	1.25	1.66	2.13	2.55	2.97	3.39	3.84	4.26	5.10	5.94	6.78	7.67	8.51
	4	0.15	0.24	0.48	0.96	1.44	1.92	2.43	2.91	3.39	3.87	4.38	4.86	5.82	6.78	7.74	8.77	9.73
	4.5	0.16	0.27	0.54	1.09	1.63	2.18	2.74	3.28	3.82	4.36	4.94	5.47	6.55	7.63	8.71	9.86	10.94
	5	0.18	0.30	0.61	1.22	1.82	2.43	3.04	3.64	4.24	4.84	5.48	6.08	7.28	8.48	9.68	10.96	12.16
	5.5	0.20	0.33	0.66	1.31	2.05	2.62	3.34	4.01	4.66	5.32	6.03	6.69	8.01	9.33	10.65	12.06	13.38
	6	0.22	0.36	0.72	1.44	2.16	2.88	3.65	4.37	5.09	5.81	6.58	7.30	8.74	10.18	11.62	13.15	14.59
	6.5	0.24	0.39	0.78	1.57	2.35	3.14	3.95	4.74	5.51	6.30	7.13	7.90	9.46	11.02	12.58	14.25	15.81
	7	0.26	0.42	0.85	1.70	2.54	3.39	4.26	5.10	5.94	6.78	7.67	8.51	10.19	11.87	13.55	15.34	17.02
	7.5	0.27	0.45	0.90	1.79	2.69	3.58	4.56	5.46	6.36	7.26	8.22	9.12	10.92	12.72	14.52	16.44	18.24
	8	0.29	0.48	0.96	1.92	2.88	3.84	4.86	5.82	6.78	7.74	8.77	9.73	11.65	13.57	15.49	17.54	19.46
	8.5	0.31	0.52	1.04	2.08	3.12	4.16	5.17	6.19	7.21	8.23	9.32	10.34	12.38	14.42	16.46	18.63	20.67
9	0.33	0.55	1.10	2.21	3.31	4.42	5.47	6.55	7.63	8.71	9.86	10.94	13.10	15.26	17.42	19.73	21.89	
9.5	0.35	0.58	1.17	2.34	3.50	4.67	5.78	6.92	8.06	9.20	10.42	11.55	13.83	16.11	18.39	20.82	23.10	
10	0.37	0.61	1.22	2.43	3.65	4.86	6.08	7.28	8.48	9.68	10.96	12.16	14.56	16.96	19.36	21.92	24.32	

Figure 10. ND-72 Calibration Chart used for Step 4

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.

10. Check for consistent seed metering

Particularly with large seed being metered with small Seed Plates, it is recommended to check for consistent seed metering to produce a good stand. To do so, simply make a short pass with the Multi-drill slightly lifted in the air so the seed can fall on the ground at the desired ground speed. If the seed appears to be dropping at even increments, the seeder is ready; however, if the seed placement is not consistent, adjusting the setting higher may need to be considered.

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

Seed Depth Adjustment (ND-72)

The ND-72 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 ¼” 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 coulter discs 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 Top Link (Figure 11) on each seed disc assembly can be rotated to lift or lower the seed within the trench made. The Scraper Gauge is used as a point of reference.
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.

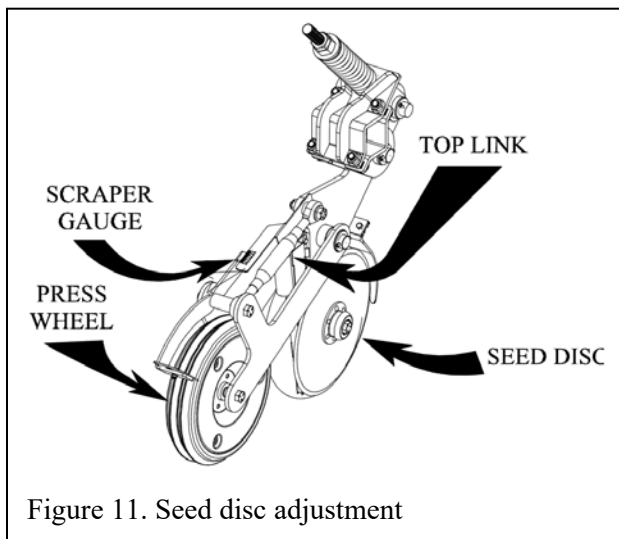


Figure 11. Seed disc adjustment

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.

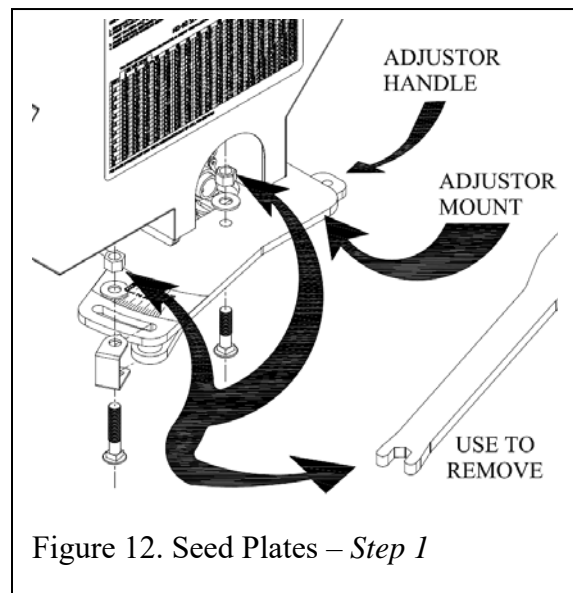


Figure 12. Seed Plates – Step 1

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. Clean hopper and remove any loose impediments or debris that may interfere with Seed Plates being removed from seeder.
2. 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 ½” carriage head bolts connecting the adjuster handle to the Adjuster mount as shown Figure 12.

3. Pull straight out on the adjuster handle and slide the seed plate assembly out of the seed box as shown in Figure 13.

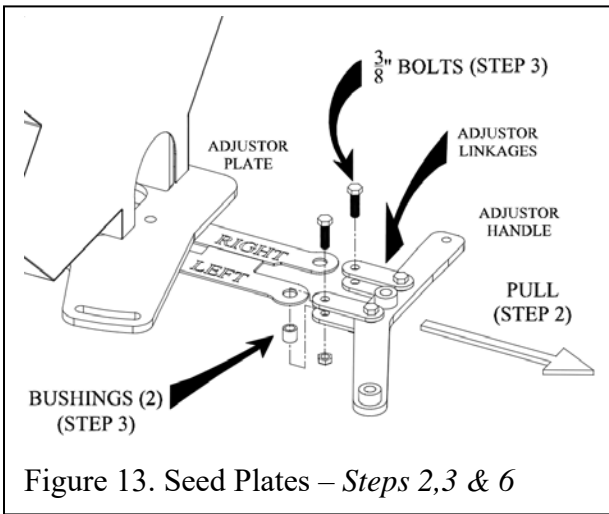


Figure 13. Seed Plates – Steps 2,3 & 6

4. Using the 9/16” wrenches, loosen and remove the 3/8” bolts connecting both seed plates to the adjuster linkages as shown in Figure 13.
5. Slide the plates and bushings out of linkages, set plates to the side, hold onto the bushings.

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.
7. Reassemble the seed plate assembly; be sure the left and right plates are oriented as shown in Figure 13.
8. 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 14.
9. Reattach the Adjuster Handle to the Adjuster Mount as shown in Figure 13, and fasten bolts.

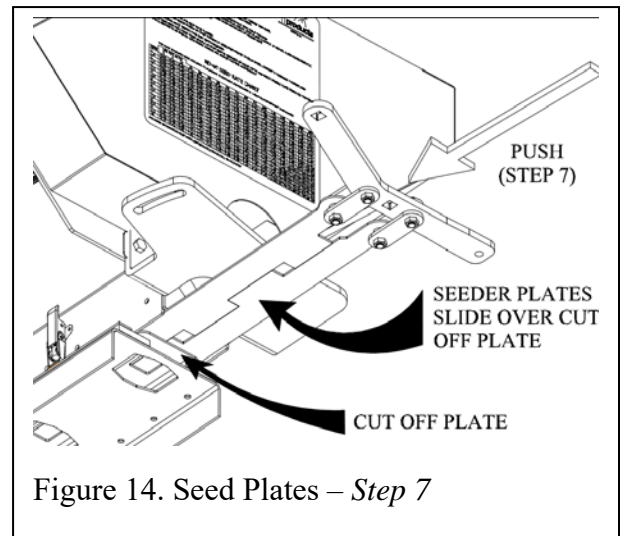


Figure 14. Seed Plates – Step 7

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

Replace any safety decals with that are missing or not legible. See Safety Decals section for location drawing.

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

NOTE: Occasionally, it may be necessary to lower the trough as illustrated in Figure 18 to thoroughly clean all the moving components in the hopper to promote easier calibration and functionality in the future.

1. Remove Seed Plates as explained in previous section.
2. Use the latches to lower and hold the trough in place while using water or compressed air to clean all moving parts and their corresponding surfaces. If water is used do not reassemble until everything is thoroughly dry.
3. It is best to use the latches on the front and back to simultaneously lift the trough back into place making sure not to pinch the Cut Off Plate between the trough and the hopper.
4. Install desired Seed Plates for future use.

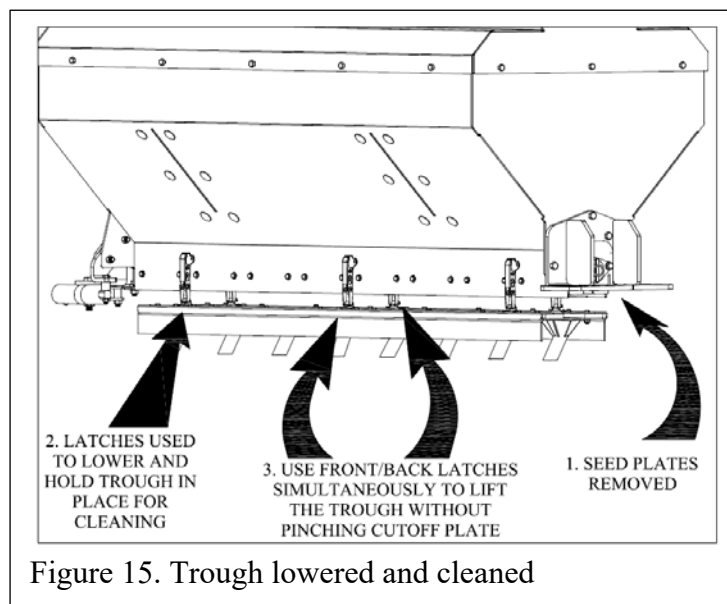


Figure 15. Trough lowered and cleaned

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 FIRST PRODUCTS 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.**

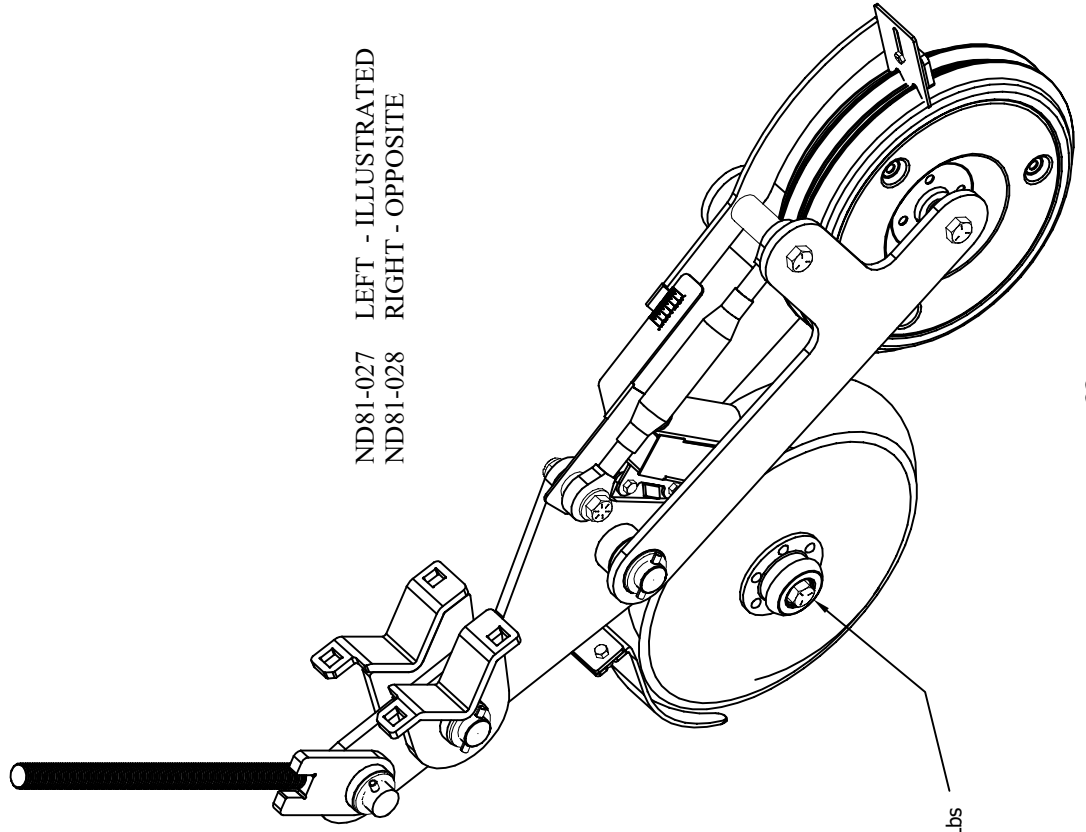
CUT ALONG LINE TO REMOVE

PLACE
STAMP
HERE

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

ROW UNIT GROUP

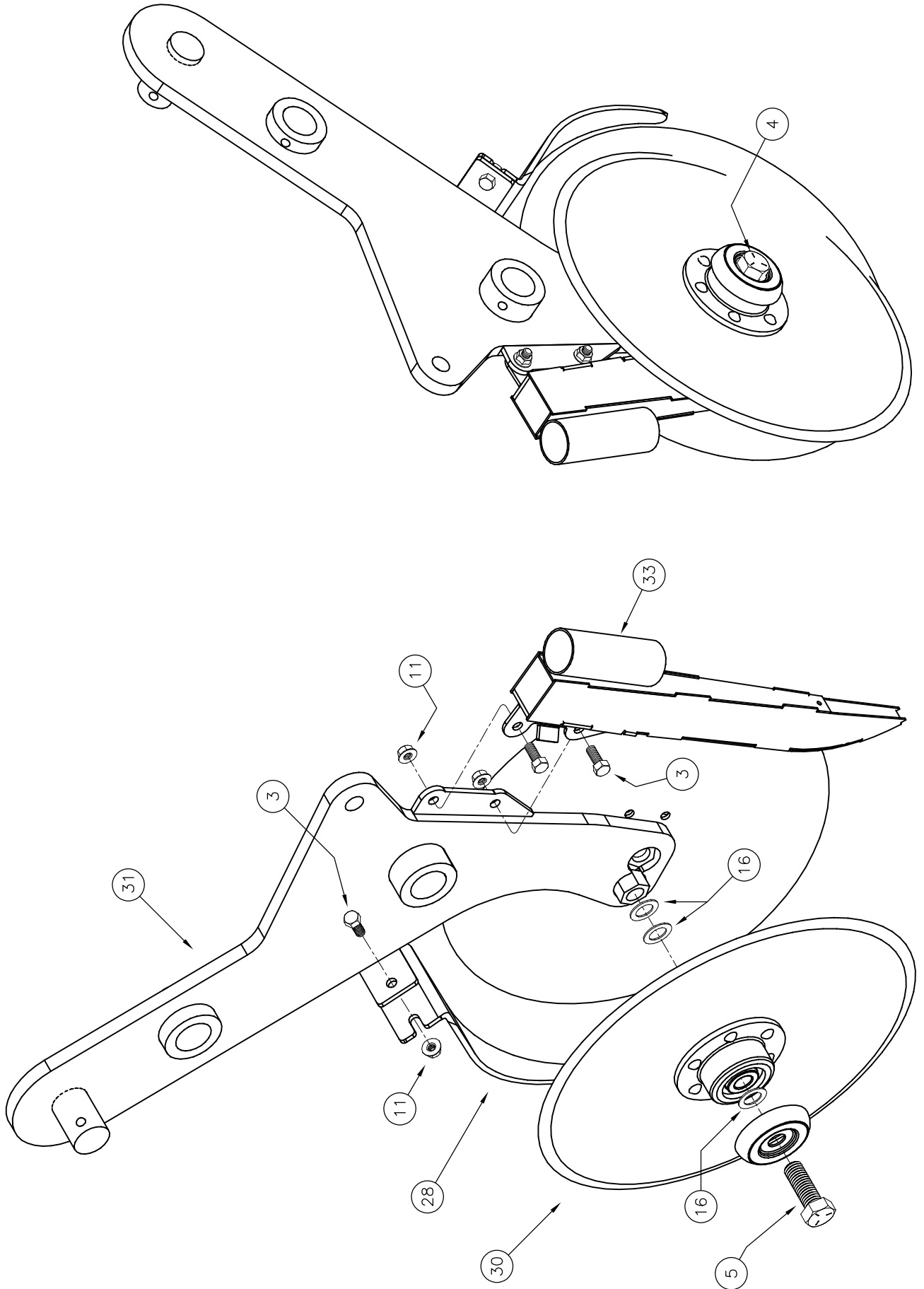
ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	FL50-008	CAT. 0 TOP LINK	1	14	HW32020TAZP	5/8 Lockwasher	2	27	ND27-071	SCRAPER GAUGE, RT (ND81-028)	1
2	HW01008024G2ZPC	1/4 X 3/4 HHCS	1	15	HW42010064ZP	5/16 X 2 ROLL PIN	5	28	ND27-076	No-Till Rock Guard 13.5"	1
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



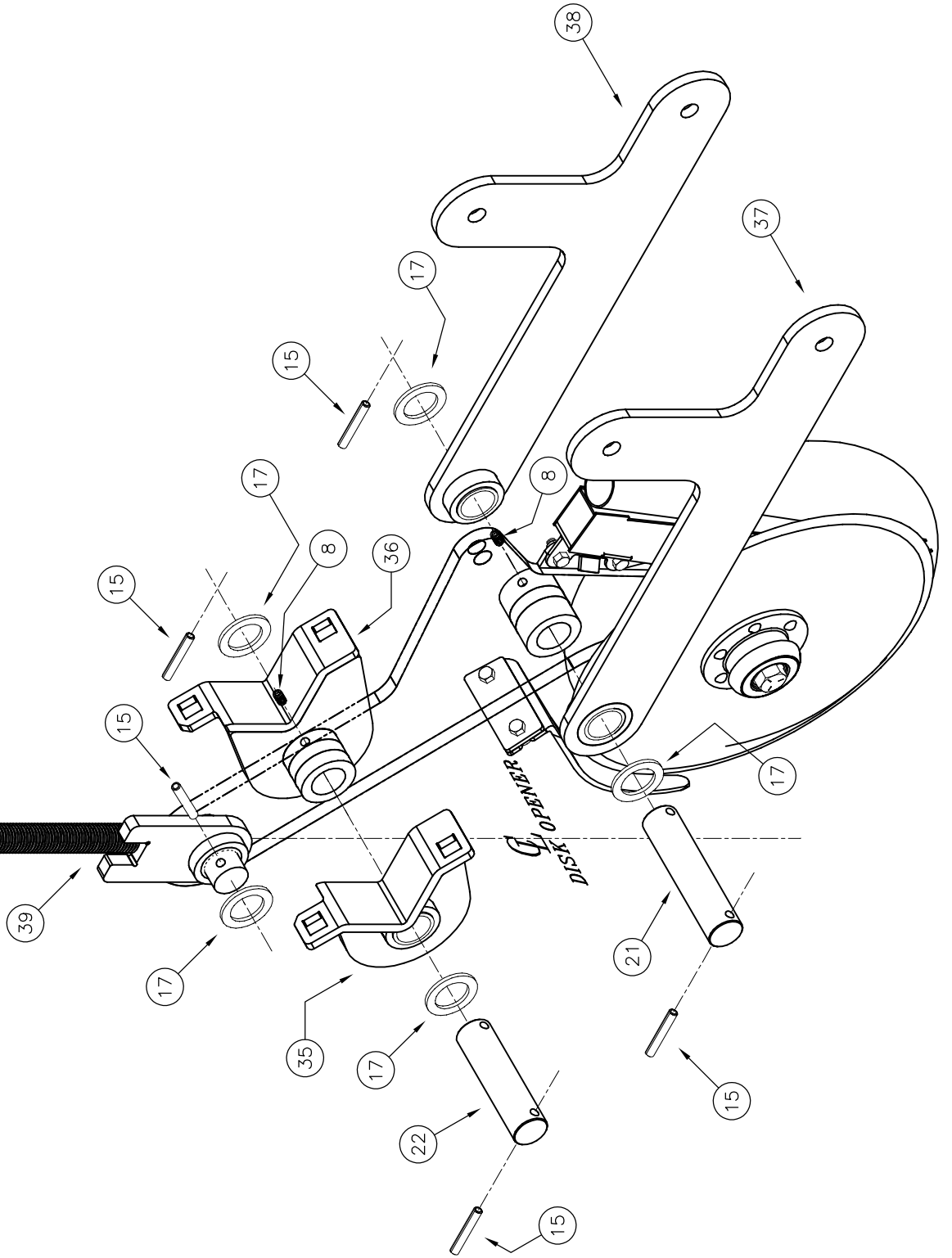
ND81-027 LEFT - ILLUSTRATED
 ND81-028 RIGHT - OPPOSITE

TORQUE SEED DISCS TO 128 Ft-Lbs

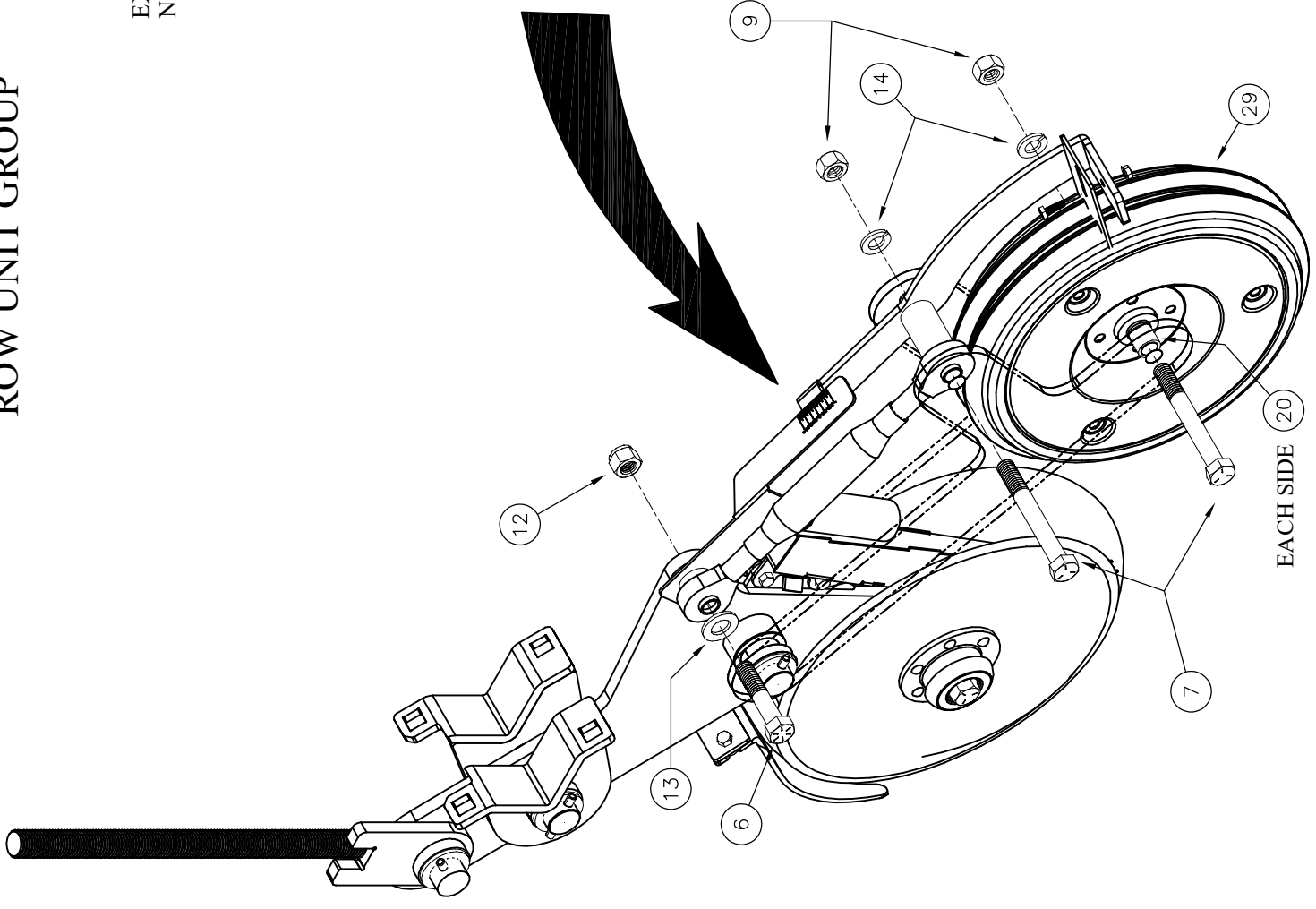
ROW UNIT GROUP



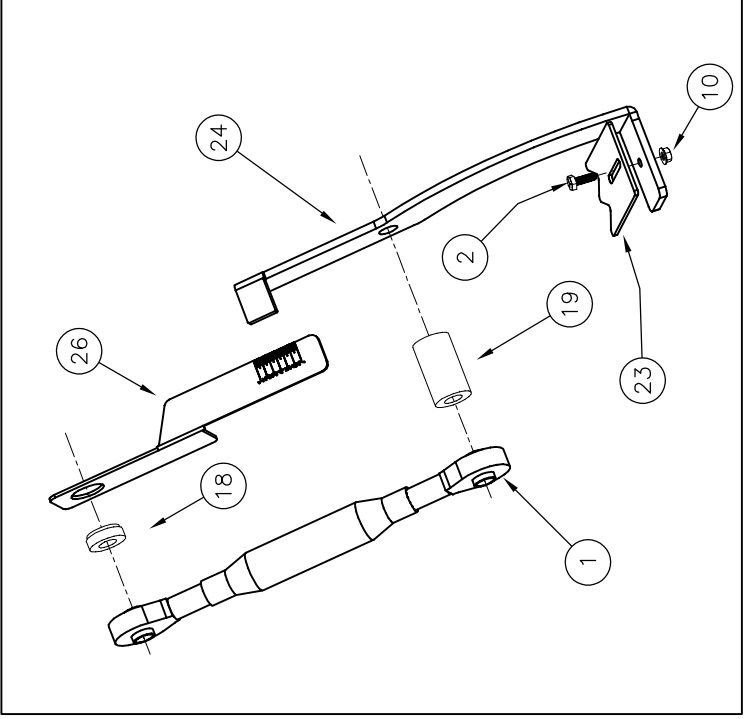
ROW UNIT GROUP



ROW UNIT GROUP



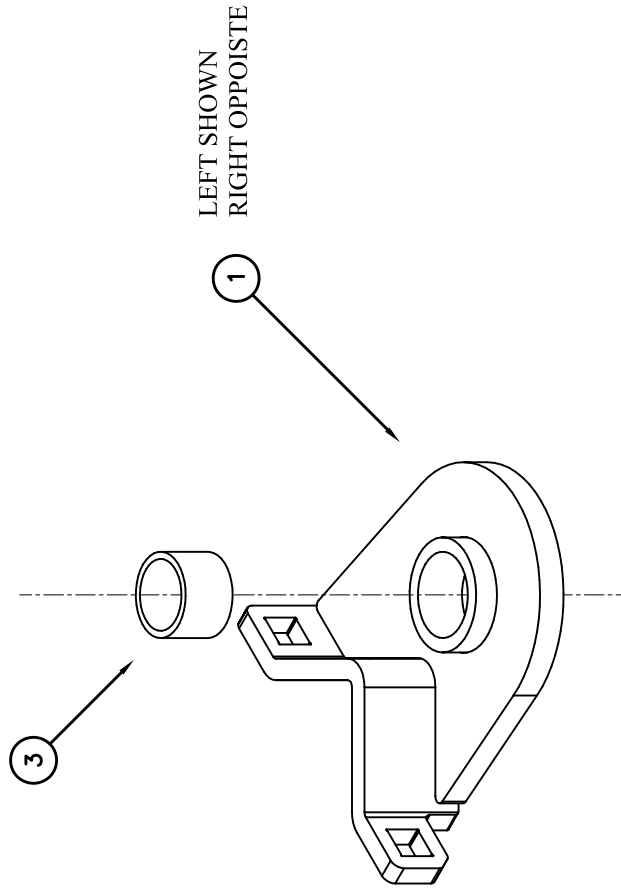
EXPLODED VIEW BETWEEN PRESS WHEEL ARMS:
NOTE SHOULDER OF SPACER ORIENTED INTO GAUGE ARM



EACH SIDE (20)

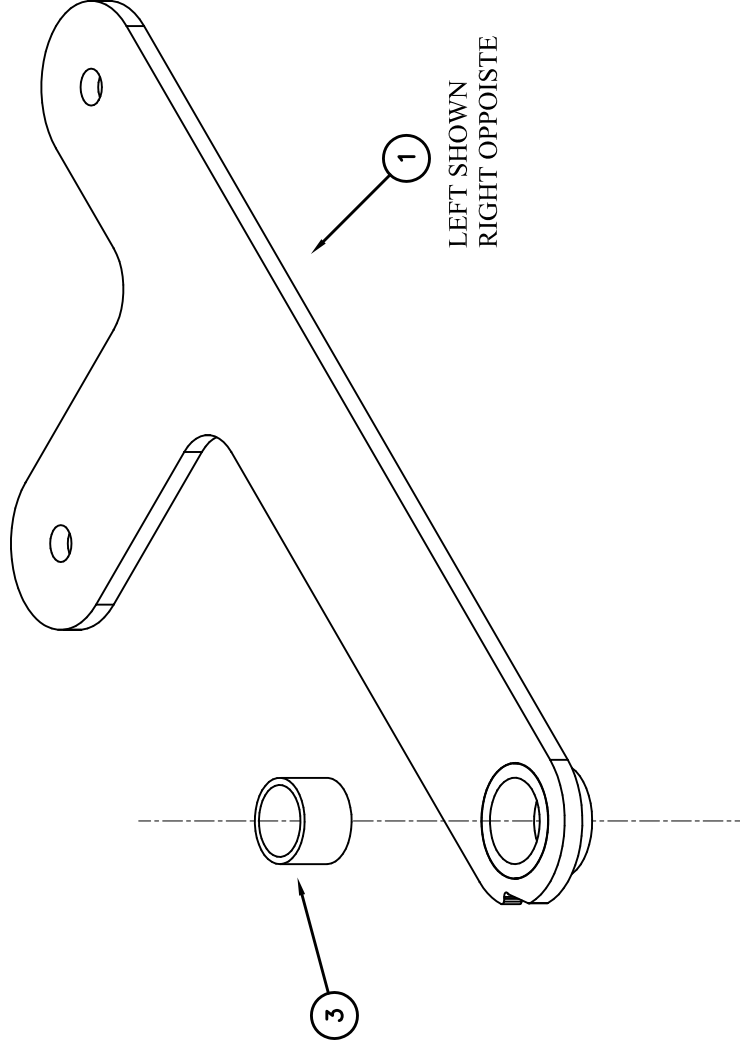
DIAMOND MOUNT GROUP

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



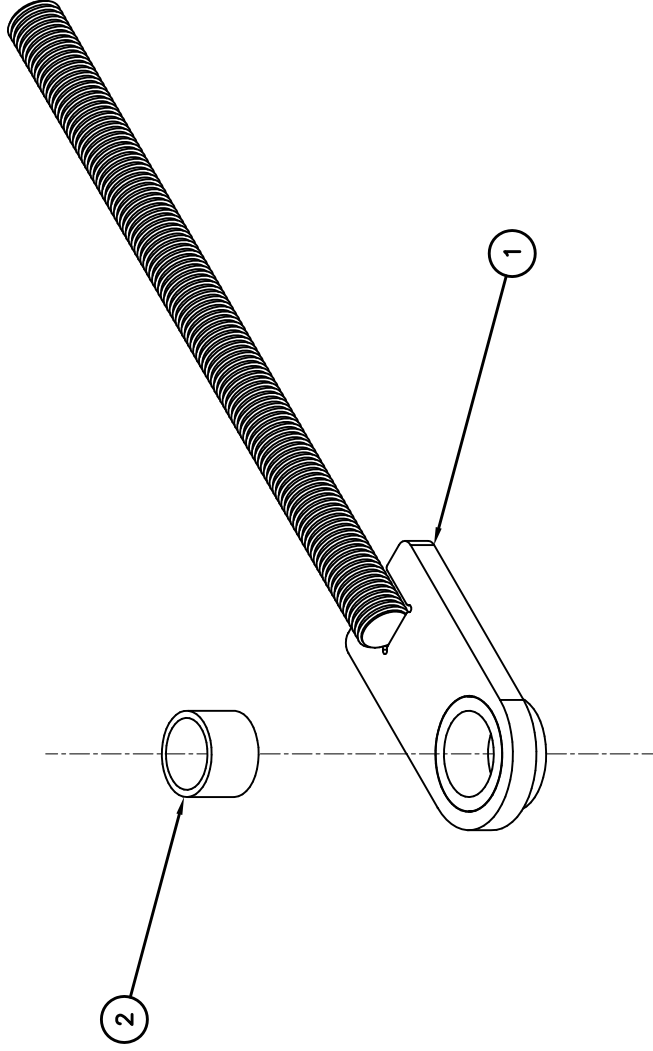
PRESS WHEEL ARM GROUP

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



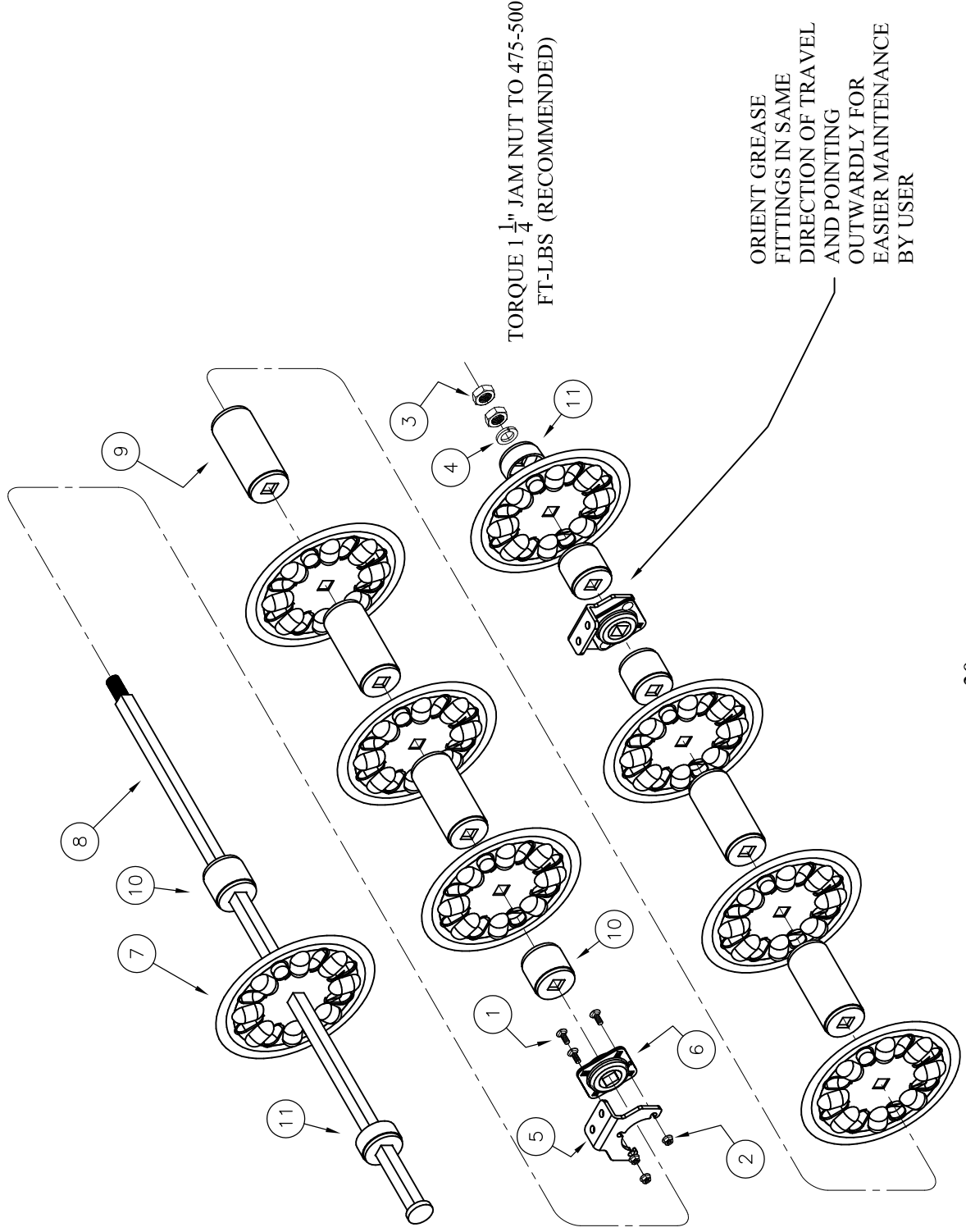
SPRING ROD GROUP

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



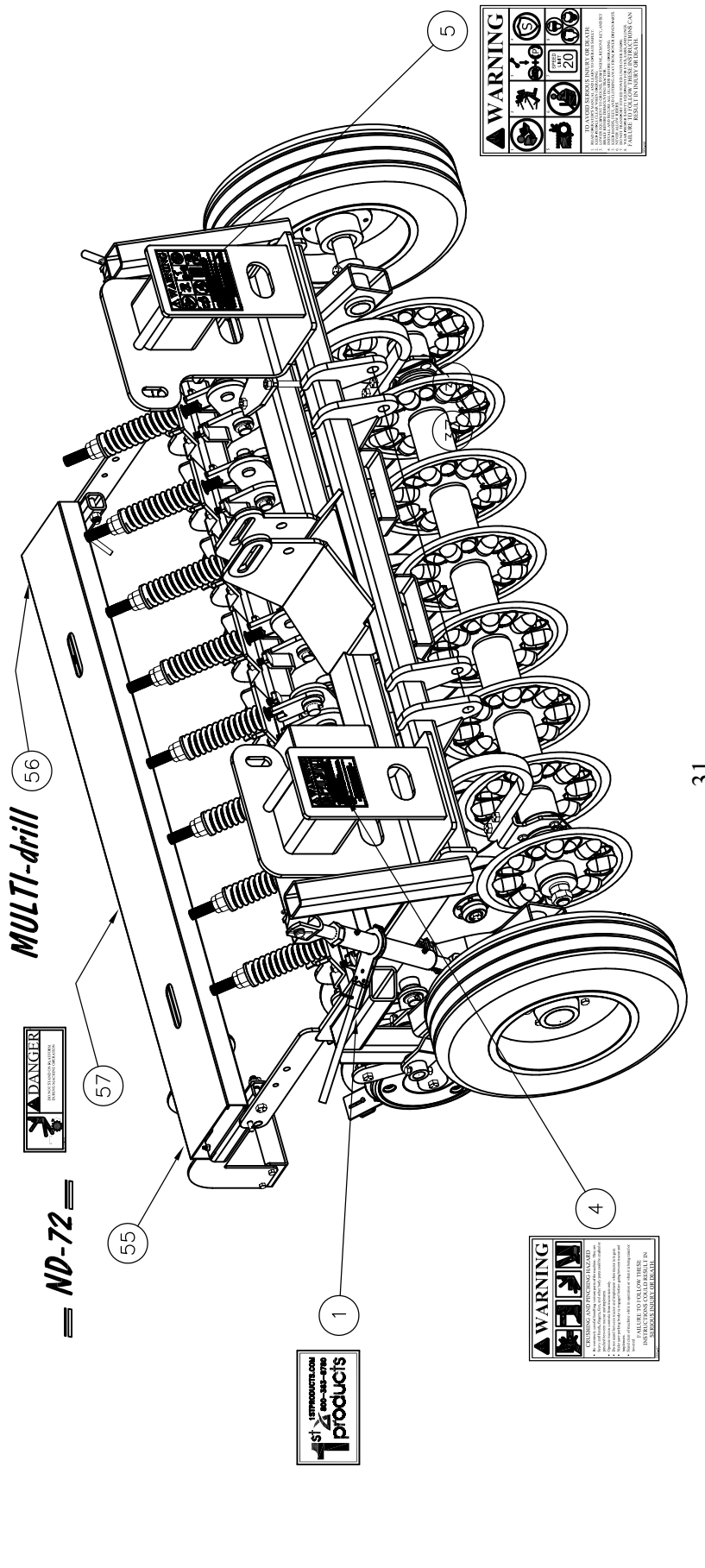
COULTER SHAFT GROUP

ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	HW03016040G5ZPC	1/2" X 1-1/4" CARR. BOLT	6	5	ND27-041	BEARING HANGER	2	9	ND80-029	9" SPACER	5
2	HW222016G5ZPC	1/2" FL. NUT	6	6	ND50-003	1-1/4" BORE BEARING	2	10	ND80-030	9" BEARING SPACER	4
3	HW25040G5ZPC	1-1/4" JAM NUT ZPL	2	7	ND50-007	16" BUBBLE COULTER	8	11	ND80-045	AXLE END CAP ND-72	2
4	HW33040G8ZP	1-1/4" LOCK WASHER HVY	1	8	ND50-010	8 OUTLET 9" SPAC. DISK AXLE	1				

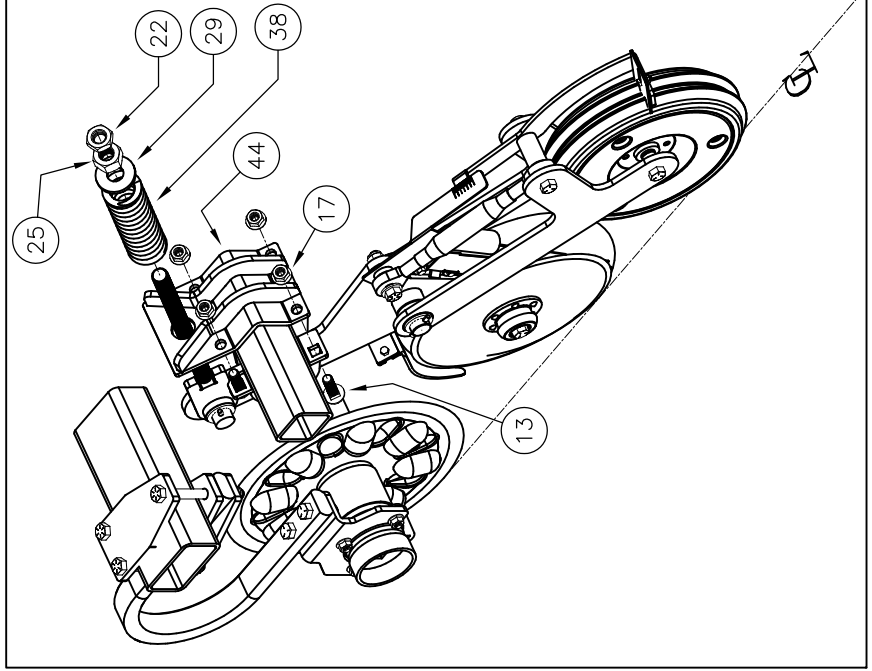
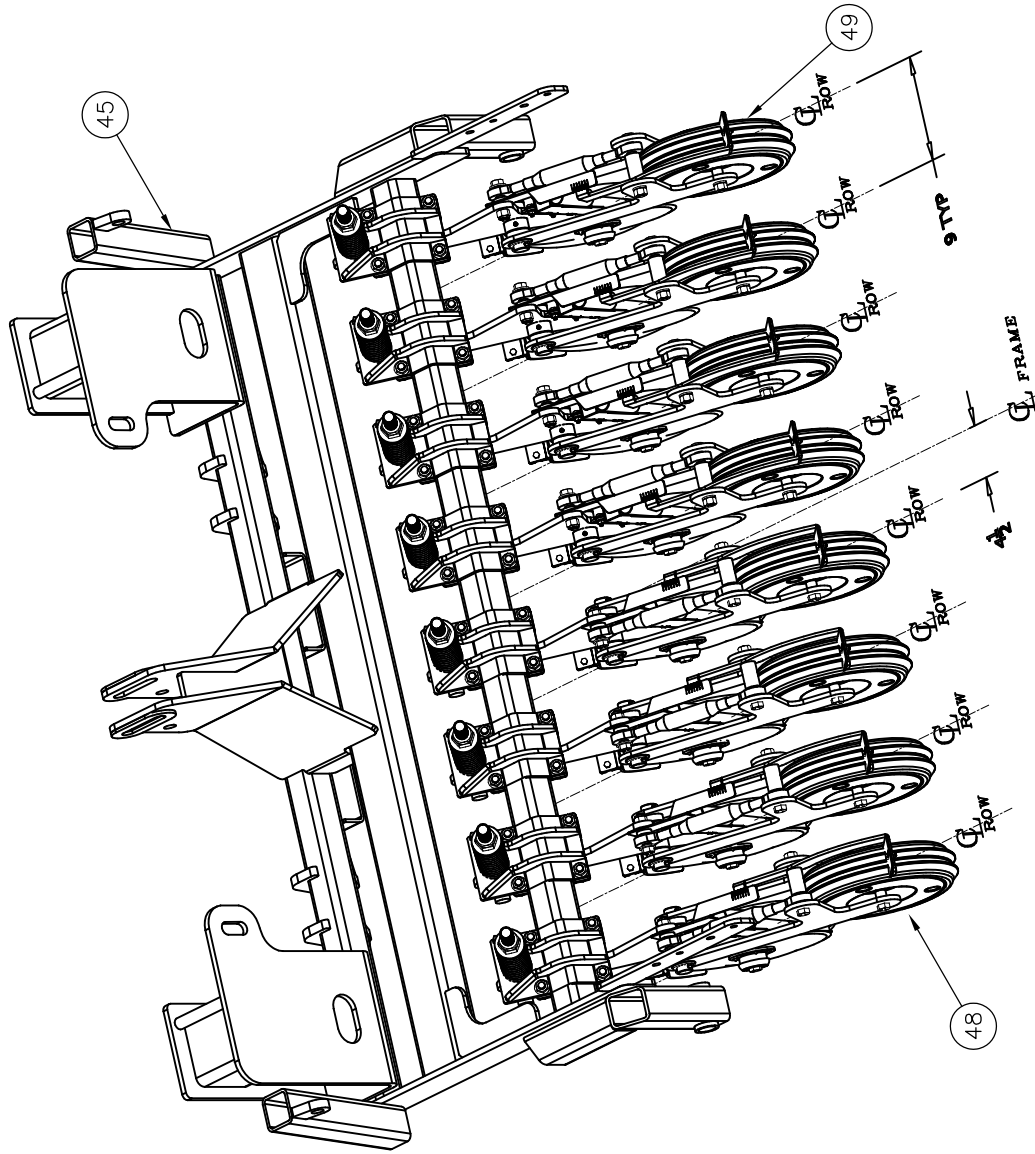


FRAME GROUP

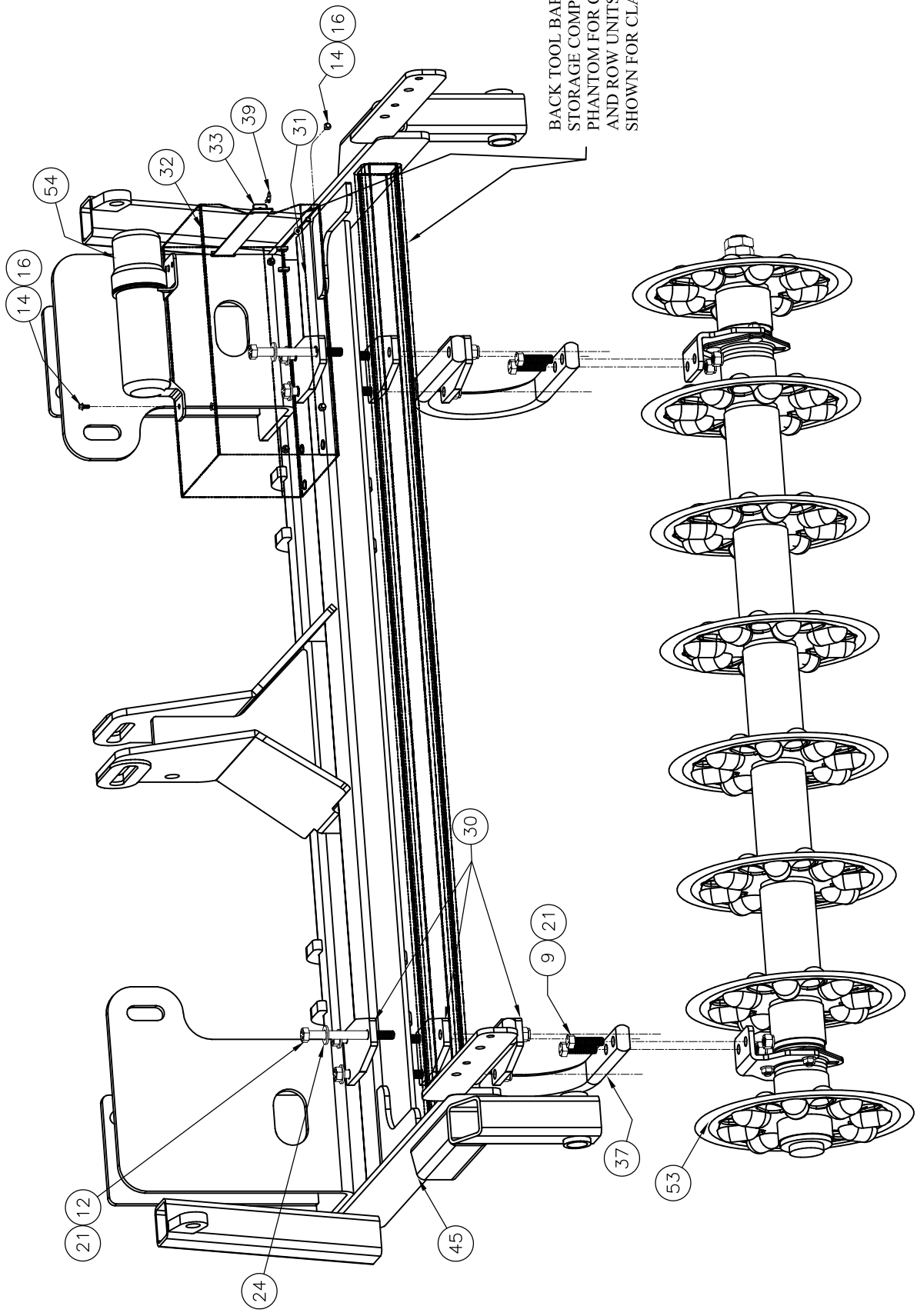
ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	AE50-059	SMALL FP DECAL	2	21	HW24020GBZPC	5/8 STOVER LOCK NUT	14	41	ND50-020	ND-96 GAUGE WHEEL HUB & SPINDLE KIT	2
2	AE50-156	BRIDGE PIN	2	22	HW25032G5ZPC	1" JAM NUT	8	42	ND50-021	20-28" RATCHET JACK	2
3	AG26-003	STAND PIN	2	23	HW30010FAZP	5/16 FLATWASHER	6	43	ND50-064	IGUS 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	8
5	DS50-068	DECAL - OPERATOR WARNING	1	25	HW36032G8ZPC	1" HEAVY HEX NUT ZINC PL.	8	45	ND80-053	ND-72 FRAME	1
6	HW01010096G5ZPC	5/16 X 3 HHCS	4	26	HW6201602G5ZPC	1/2 X 1 3/16 LUG BOLT	12	46	ND80-026	ND-96 GAUGE WHEEL ARM- LT	1
7	HW01012032G5ZPC	3/8 X 1 HHCS	4	27	ND24-013	WALK BOARD MOUNT	2	47	ND80-027	ND-96 GAUGE WHEEL ARM- RT	1
8	HW01016080G5ZPC	1/2 X 2 1/2 HHCS	4	28	ND26-011	ND-96 GAUGE WHEEL PIVOT PIN	2	48	ND81-027	SEE ROW UNIT GROUP	4
9	HW01020064G5ZPC	5/8 X 2 HHCS	4	29	ND27-016	SPRING WASHER	8	49	ND81-028	SEE ROW UNIT GROUP	4
10	HW01020112G5ZPC	5/8 X 3 1/2 HHCS	2	30	ND27-099	C-SHANK MOUNT PLATES	6	50	ND81-023	SEE WALK BOARD GROUP	1
11	HW01020128G5ZPC	5/8 X 4 HHCS	2	31	ND27-100	COVER BOX BOTTOM	1	53	ND81-042	SEE SHAFT GROUP	1
12	HW01020208G5ZPC	5/8 X 6-1/2 HHCS	6	32	ND27-101	COVER BOX TOP	1	54	UA50-009	OM CANISTER	1
13	HW03020072G5ZPC	5/8 X 2 1/4 CARR. BOLT	32	33	ND27-102	COVER BOX CATCH	1	55	ND50-051	ND-72 DECAL	1
14	HW06008016G5ZPC	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	HW06010024G5ZPC	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	HW2200805ZPC	1/4 FLANGE LOCK NUT	6	36	ND27-135	STEP - ND	1				
17	HW2202005ZPC	5/8 FLG. LOCK NUT	32	37	ND50-002	C-FLEX SHANK	2				
18	HW240100GBZPC	5/16 STOVER LOCK NUT	6	38	ND50-008	2.5" X 9.5" COMP. SPRING	8				
19	HW24012GBZPC	3/8 STOVER LOCK NUT	4	39	UA50-007	3/16 LYNCH PIN	1				
20	HW24016GBZPC	1/2 STOVER LOCKNUT	2	40	ND50-019	ND-96 GAUGE WHEEL	2				



FRAME GROUP



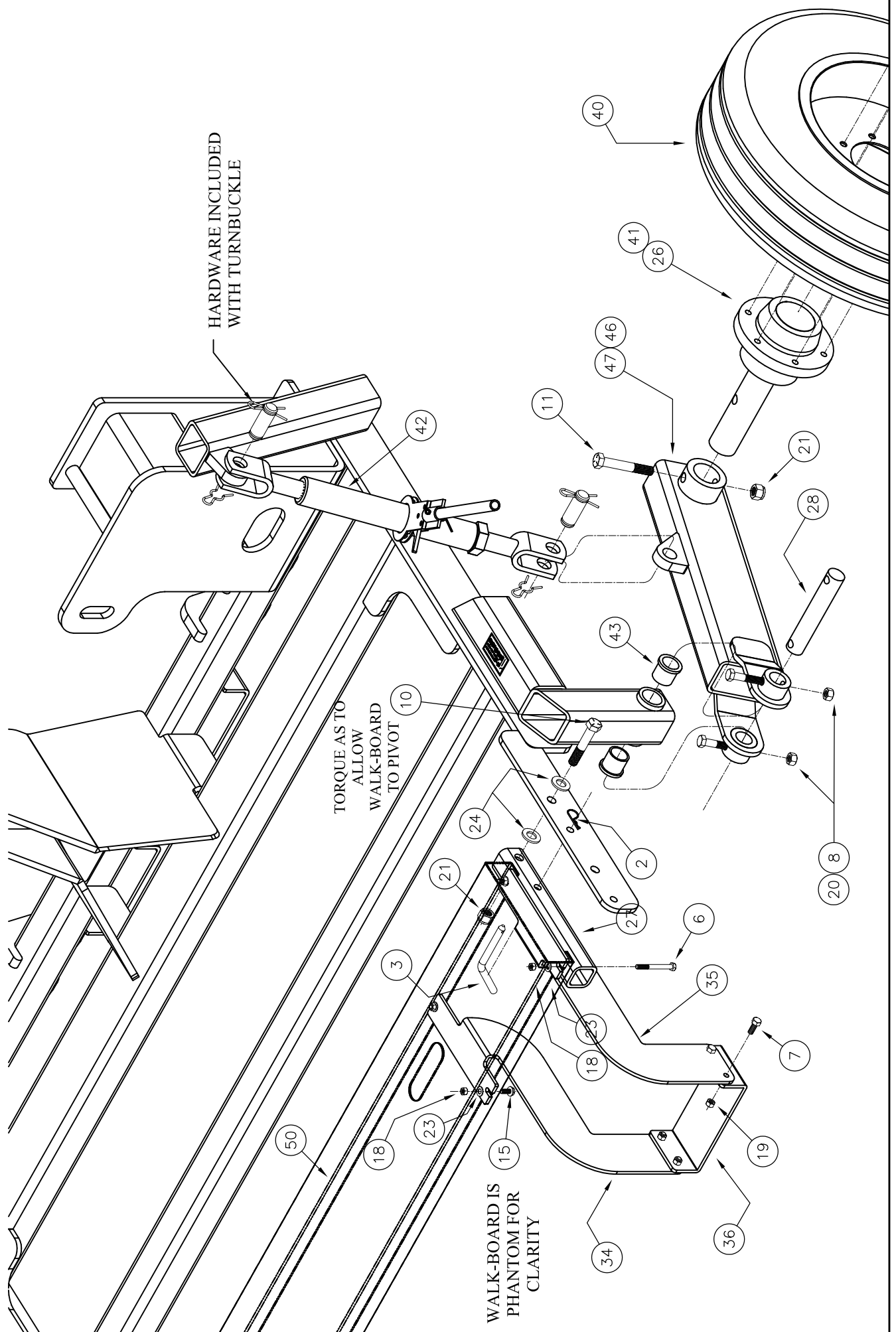
FRAME GROUP



BACK TOOL BAR AND
STORAGE COMPONENTS
PHANTOM FOR CLARITY
AND ROW UNITS ARE NOT
SHOWN FOR CLARITY

FRAME GROUP

ROW UNITS AND COULTER
DISC NOT SHOWN FOR
CLARITY



HARDWARE INCLUDED
WITH TURNBUCKLE

TORQUE AS TO
ALLOW
WALK-BOARD
TO PIVOT

WALK-BOARD IS
PHANTOM 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	ND50-081	ND-72 SERIAL # TAG	1	17	ND50-023	CAT-2 Toplink Pin	1
2	DS27-036	LEFT SEED PLATE 1/2	1	10	DS81-007	PRIMARY HOPPER - DS72	1	18	ND50-024	1" ID X 1 1/4" OD CVT	8
3	DS27-037	RIGHT SEED PLATE 1/2	1	11	HW01020160G5ZPC	5/8 X 5 HHCS	8	19	ND50-028	CAT-2 Bottom Link Pin	2
4	DS27-038	LEFT SEED PLATE 3/8	1	12	HW06008024G5ZPC	1/4 X 3/4 FLANGE LOCK SCREW	2	20	ND50-092	ND72 PARTSBOOK	1
5	DS27-039	RIGHT SEED PLATE 3/8	1	13	HW24008G5ZPC	1/4 STOVER LOCK NUT	2	21	ND80-032	ND-72 CALIBRATION TROUGH	1
6	DS27-040	LEFT SEED PLATE 1/4	1	14	HW24020G5ZPC	5/8 STOVER LOCK NUT	8	22	ND81-063	ND-72 FRAME ASSEMBLY	1
7	DS27-041	RIGHT SEED PLATE 1/4	1	15	HW310201AZP	5/8 SAE FLATWASHER	11	23	SB50-062	1.38 HOSE CLAMP	8
8	DS27-055	SEEDBOX BOTTOM MNT.	2	16	ND50-016	6 FT TARP	1	24	SE50-035	Hitch Pin	3

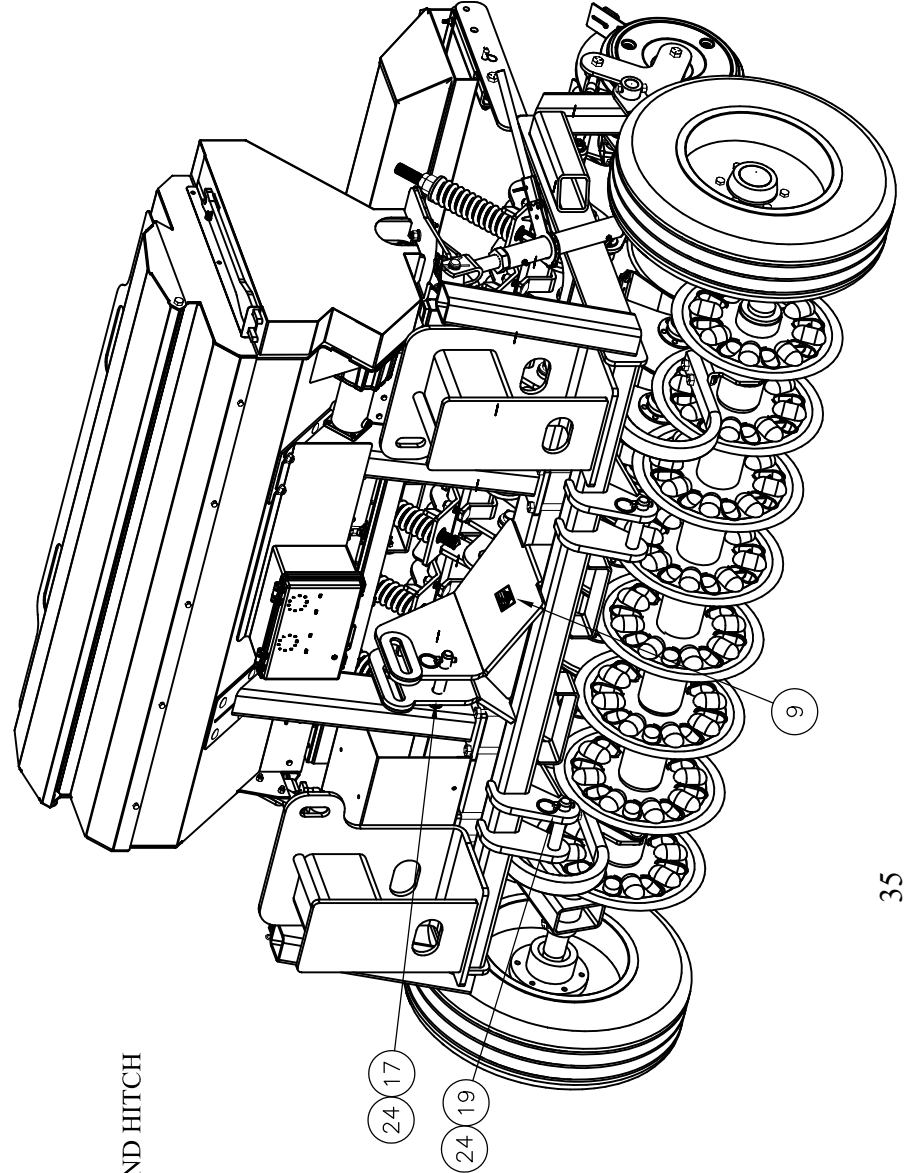
2
3
4
5
6
7

ADDITIONAL SEED PLATES

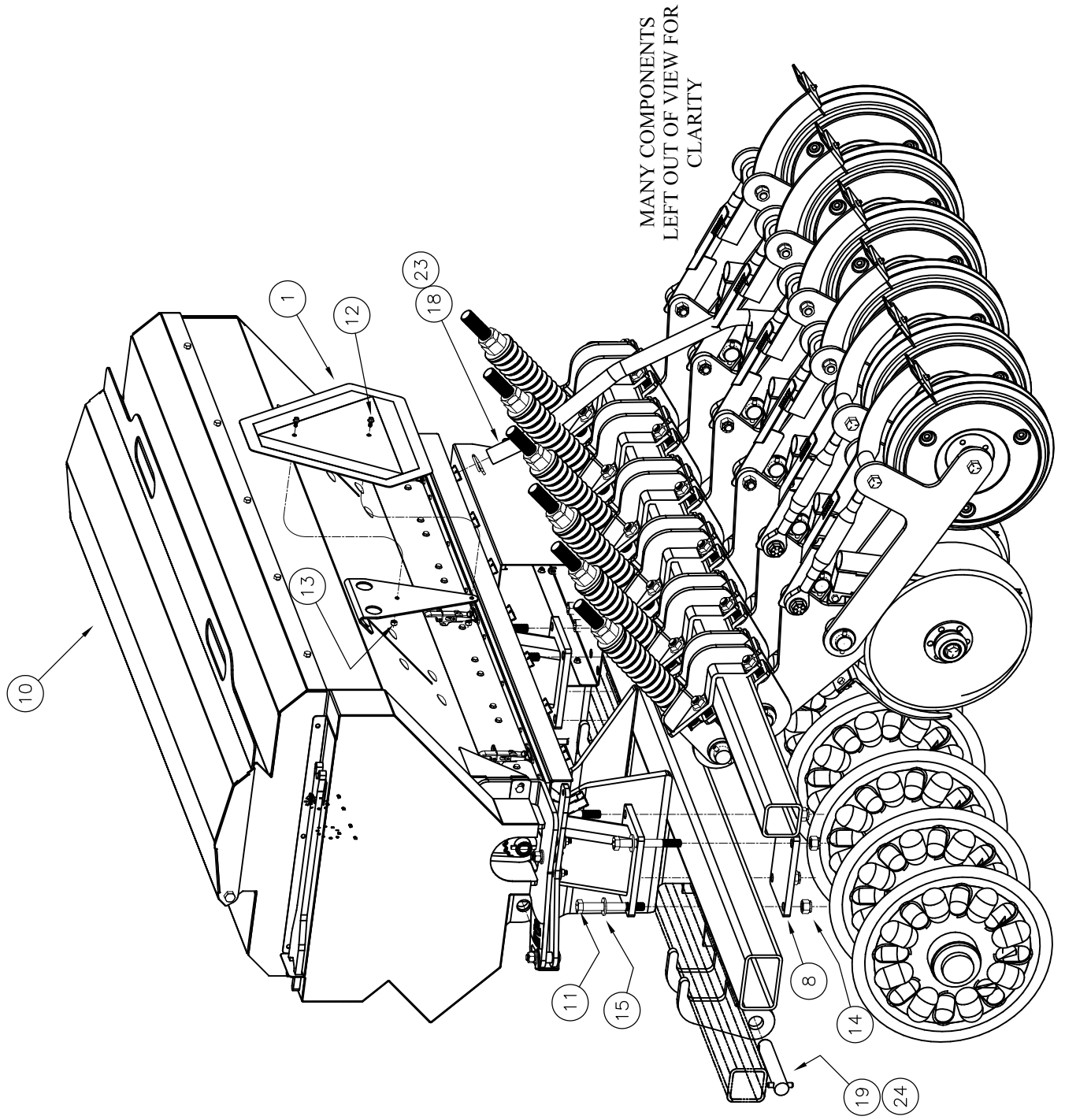
16 TARP IS STORED INSIDE ENCLOSURES AROUND HITCH

20 PARTS BOOK IS STORED IN OM CANISTER

21 CALIBRATION TROUGH

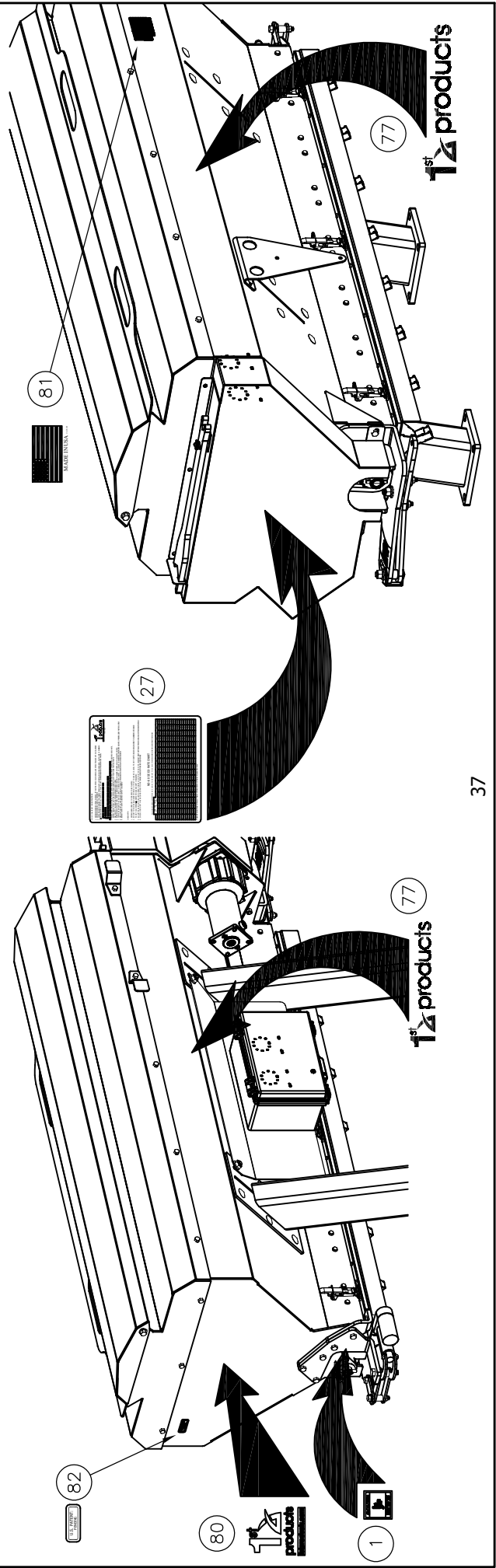


FRAME TO SEEDER GROUP

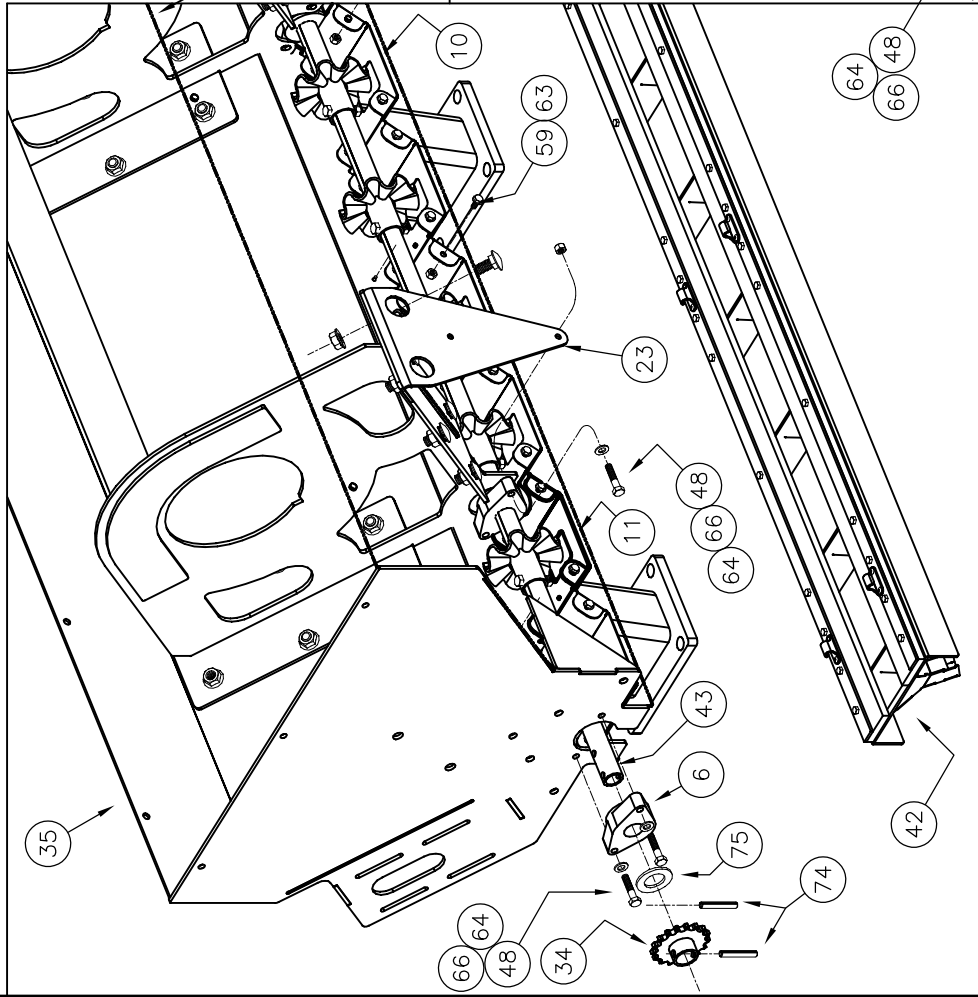


HOPPER GROUP

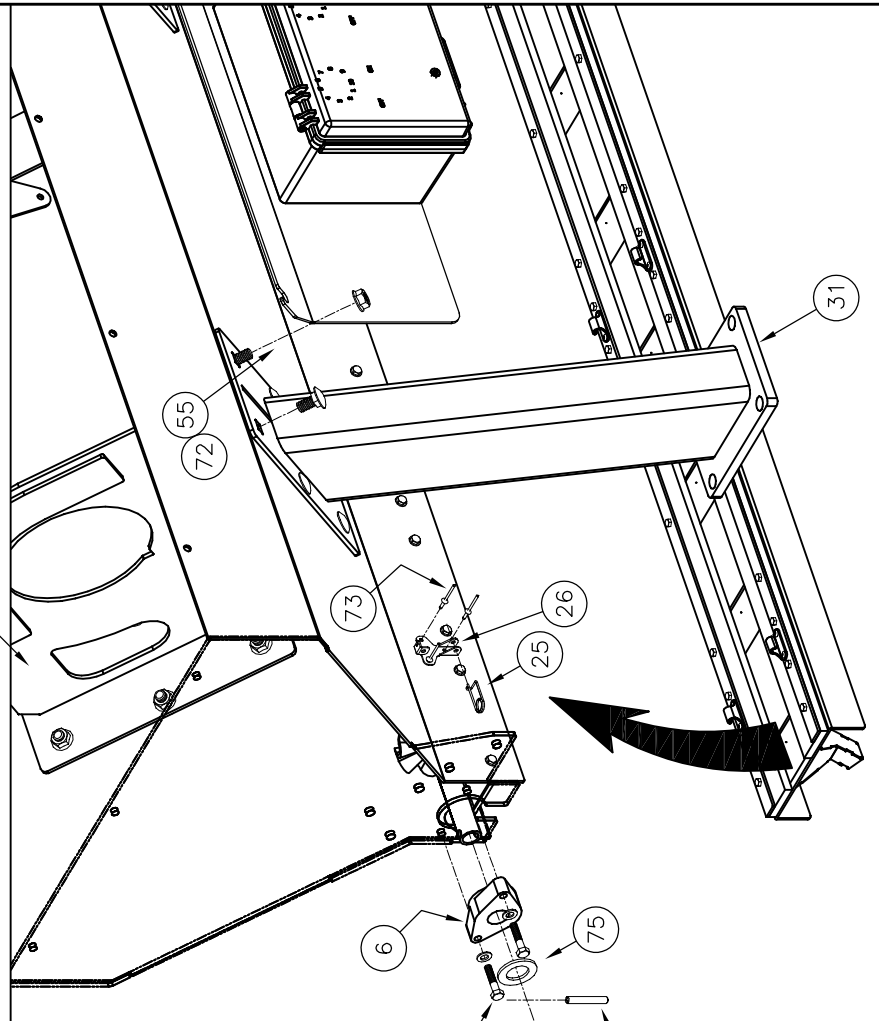
ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	A150-075	PINGH POINT CAUTION DECAL	1	29	DS50-044	ADJUSTER DECAL	1	56	HW03016040G5ZPC	1/2 X 1 1/4 CARRIAGE BOLT	2
2	DS24-004	METER PLATE BUSHINGS	4	30	DS80-006	Meter Adj. Bracket	1	57	HW03016072G5ZPC	1/2 x 2 1/4 CARRIAGE BOLT	1
3	DS24-011	CUT-OFF PLATE BUSHINGS	2	31	DS80-009	SEEDBOX MOUNT	2	58	HW03016080G5ZPC	1/2 X 2 1/2 CARRIAGE BOLT	1
4	DS24-016	IDLER SPACERS	2	32	DS80-019	CHAIN GAURD	1	59	HW06008016G5ZPC	1/4 X 1/2 FLANGE LOCK SCREW	32
5	DS24-028	LID BUSHING	2	33	DS80-035	METER ADJUSTER	1	60	HW06008024G5ZPF	1/4 X 3/4 HEX FLG LK SC. FINE	4
6	DS26-001	AGTATOR SHAFT BEARING	2	34	DS80-037	AGTATOR SPKT - DS	1	61	HW2001265ZPC	3/8 HEX NUT	2
7	DS26-003	ACTUATOR SPACER 1	1	35	DS80-050	DS-72 PRIMARY HOPPER	1	62	HW20016G5ZPC	1/2 HEX NUT	2
8	DS26-004	ACTUATOR SPACER 2	1	36	DS80-051	DS-72 CAP	1	63	HW24008GBZPC	1/4 Stover Lock Nut	34
9	DS26-005	ACTUATOR SPACER 3	1	37	DS80-003	DS-72 LID	1	64	HW24010GBZPC	5/16 Stover Lock Nut	24
10	DS27-012	SEED FUNNEL 1	6	38	DS80-053	DS-72 SPLASH GUARD	1	65	HW24012GBZPC	3/8 Stover Lock Nut	18
11	DS27-013	SEED FUNNEL 2	2	39	DS81-004	CONTROL WIREING HARNESS	1	66	HW31010TAZP	5/16 SAE Flat Washer	8
12	DS27-020	Actuator Mount	1	40	DS81-005	ACTUATOR ASSEMBLY	1	67	HW31012TAZP	3/8 SAE FLATWASHER	4
13	DS27-021	Actuator Linkage Pivot	1	41	DS81-006	MOTOR ASSEMBLY	1	68	HW31016TAZP	1/2 SAE FLATWASHER	5
14	DS27-022	METER PLATE LINKAGES	4	42	DS81-052	SPOUT TRAY - DS72	1	69	HW32012G5ZP	3/8 LOCKWASHER	2
15	DS27-024	CUT-OFF PLATE LEVER ACTION	2	43	DS81-053	AGTATOR - DS72	1	70	HW32016G5ZP	1/2 LOCK WASHER	2
16	DS27-026	METER ADJ. HANDLE COMBO WRENCH	1	44	DS50-144	CHAIN - PRIMARY - ELEC. DRIVE	1	71	HW34016G5ZPC	1/2 2-WAY LOCKUT	3
17	DS27-027	METER SCALE POINTER	1	45	HW01008048G5ZPC	1/4 X 1 1/2 HHCS	1	72	HW35016G5ZPC	1/2 FLANGE STOVER LOCKNUT	24
18	DS27-034	LEFT SEED PLATE 3/4"	1	46	HW01008072G5ZPC	1/4 X 2 1/4 HHCS	1	73	HW41005008SS	5/32 X 1/8 - 1/4 RIVETS SS	18
19	DS27-035	RIGHT SEED PLATE 3/4"	1	47	HW01010024G5ZPC	5/16 X 3/4 HHCS	16	74	HW42010048G5ZP	5/16" x 1 1/2" Roll Pin Zinc Plated	3
20	DS27-044	CUT-OFF PLATE	1	48	HW01010048G5ZPC	5/16 x 1 1/2 Hex Head Cap Screw	8	75	HW6003204810GZP	1" ID x 1 1/2" OD 10GA Machine Bushing	2
21	DS27-049	CONTROLLER PLATE DS-72	1	49	HW01012032G5ZPC	3/8 X 1 HHCS	8	76	UA50-007	3/16 LYNCH PIN	1
22	DS27-083	CUT-OFF PLATE BUSHING LINKAGE	1	50	HW01012048G5ZPC	3/8 X 1 1/2 HHCS	9	77	ND50-035	1st PRODUCTS DECAL - LONG - SPRING 2020	2
23	DS27-123	SMV BRACKET - ND	1	51	HW01012064G5ZPC	3/8 X 2 HHCS	1	78	SB50-023	#40 CHAIN IDLER	2
24	DS27-202	WIRE WRAP	2	52	HW01012144G5ZPC	3/8 X 4 1/2 HHCS	2	79	SB50-112	10 TOOTH SPROCKET	1
25	DS50-001	TOGGLE LATCH	6	53	HW01016080G5ZPC	1/2 X 2 1/2 HHCS	1	80	UA50-012	UA BELT COVER DECAL	1
26	DS50-003	TOGGLE LATCH RETAINING PIN	6	54	HW01016096G5ZPC	1/2 X 3 HHCS	2	81	UA50-180	USA FLAG DECAL	1
27	DS50-038	ND-72 CHART DECAL	1	55	HW03016032G5ZPC	1/2 X 1 Carriage Bolt	22	82	DS50-082	DS PATENT DECAL	1
28	DS50-129	ND-72 QUICK CHART DECAL	1								



HOPPER GROUP

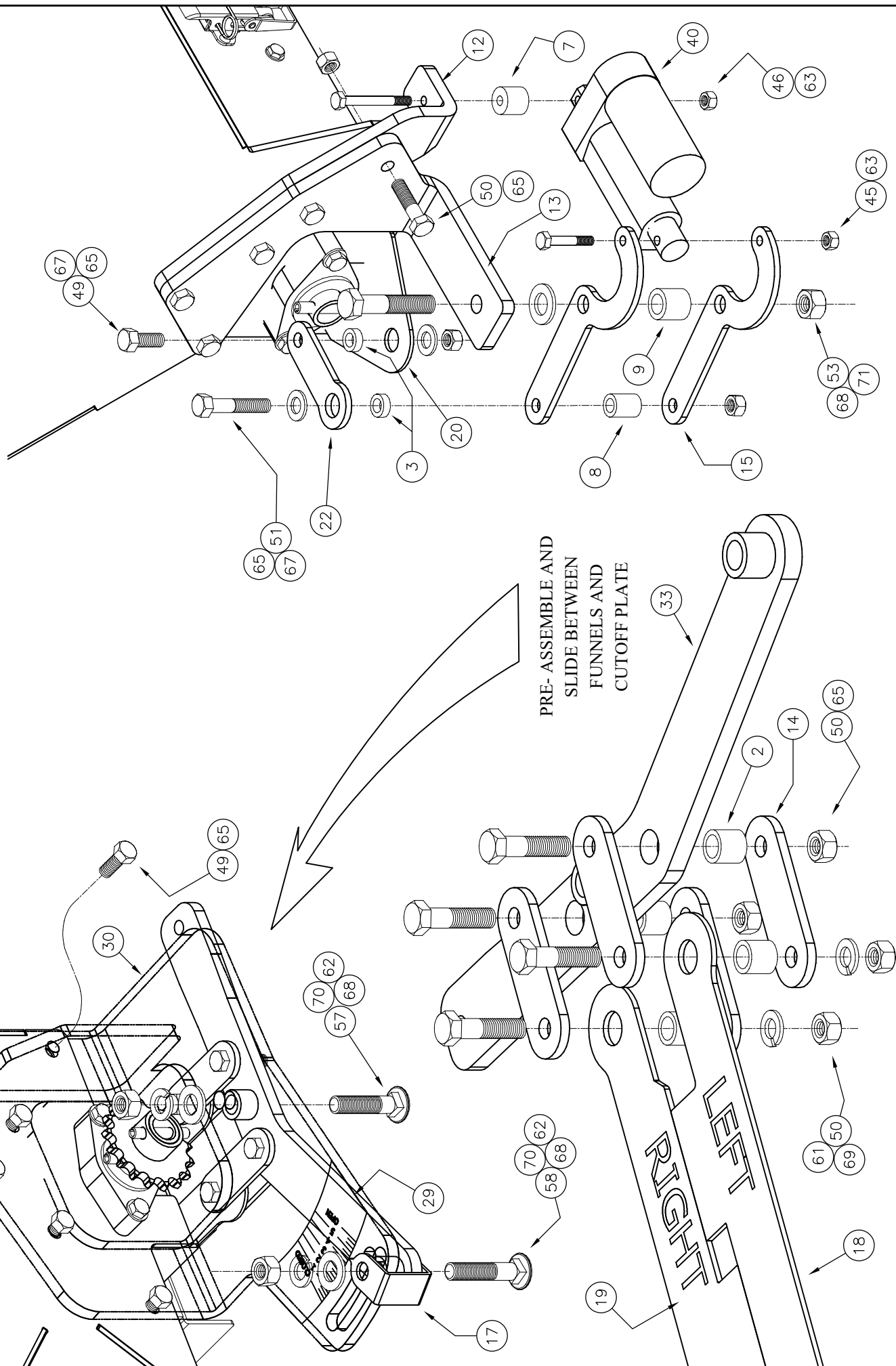


BACK PANEL PHANTOM FOR CLARITY

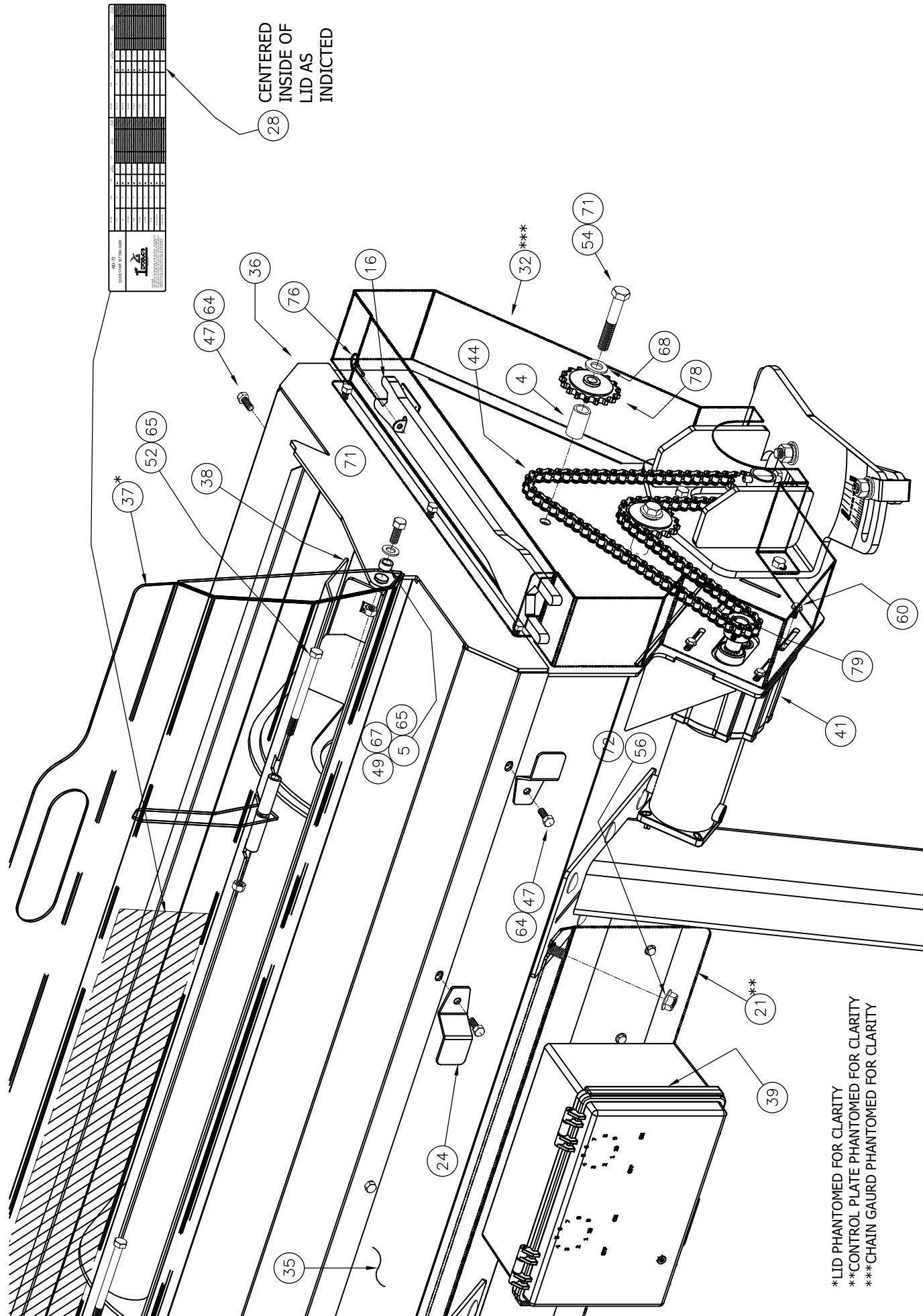


31

HOPPER GROUP



HOPPER GROUP

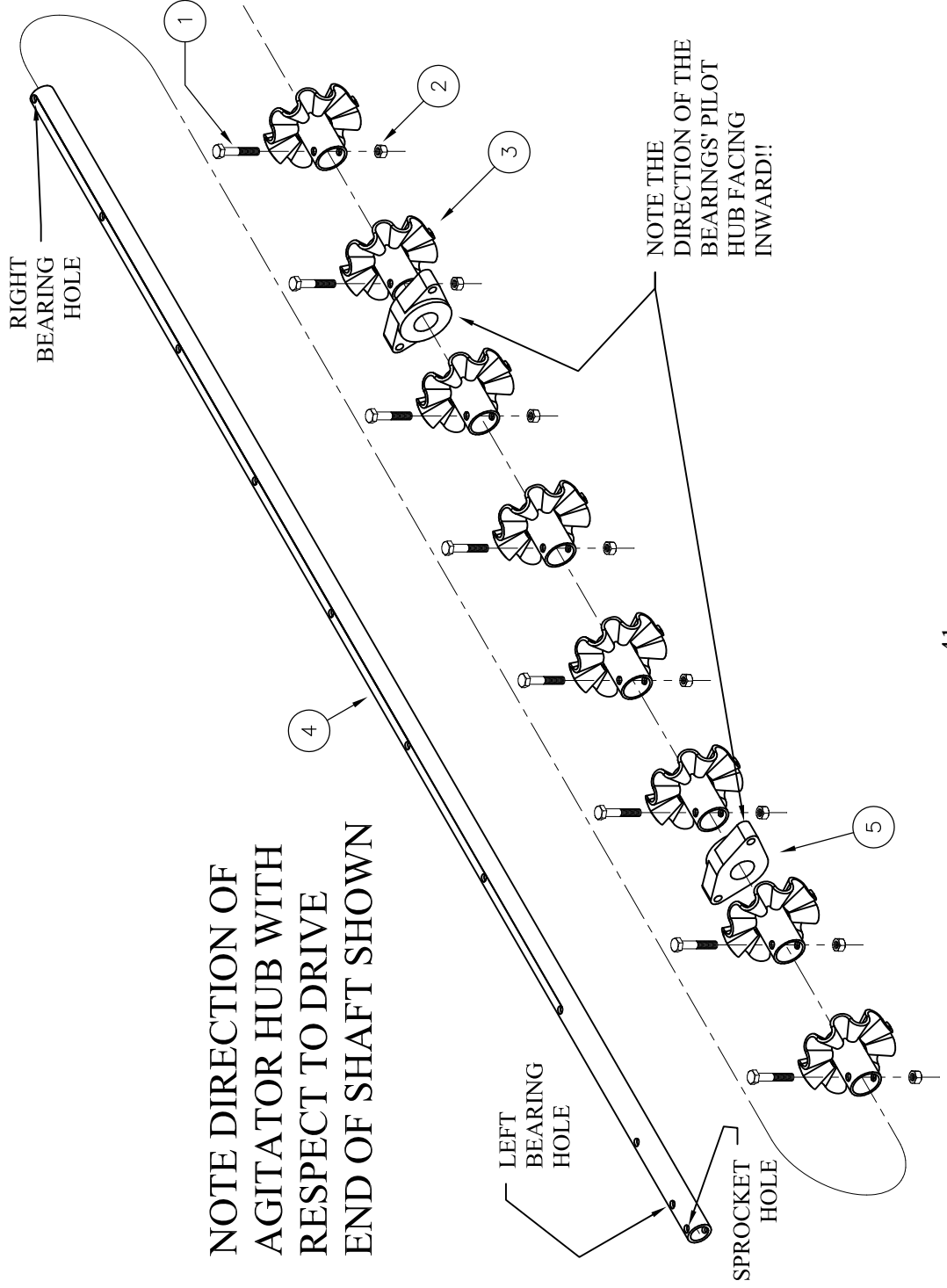


28
CENTERED
INSIDE OF
LID AS
INDICATED

*LID PHANTOMED FOR CLARITY
**CONTROL PLATE PHANTOMED FOR CLARITY
***CHAIN GAIRD PHANTOMED FOR CLARITY

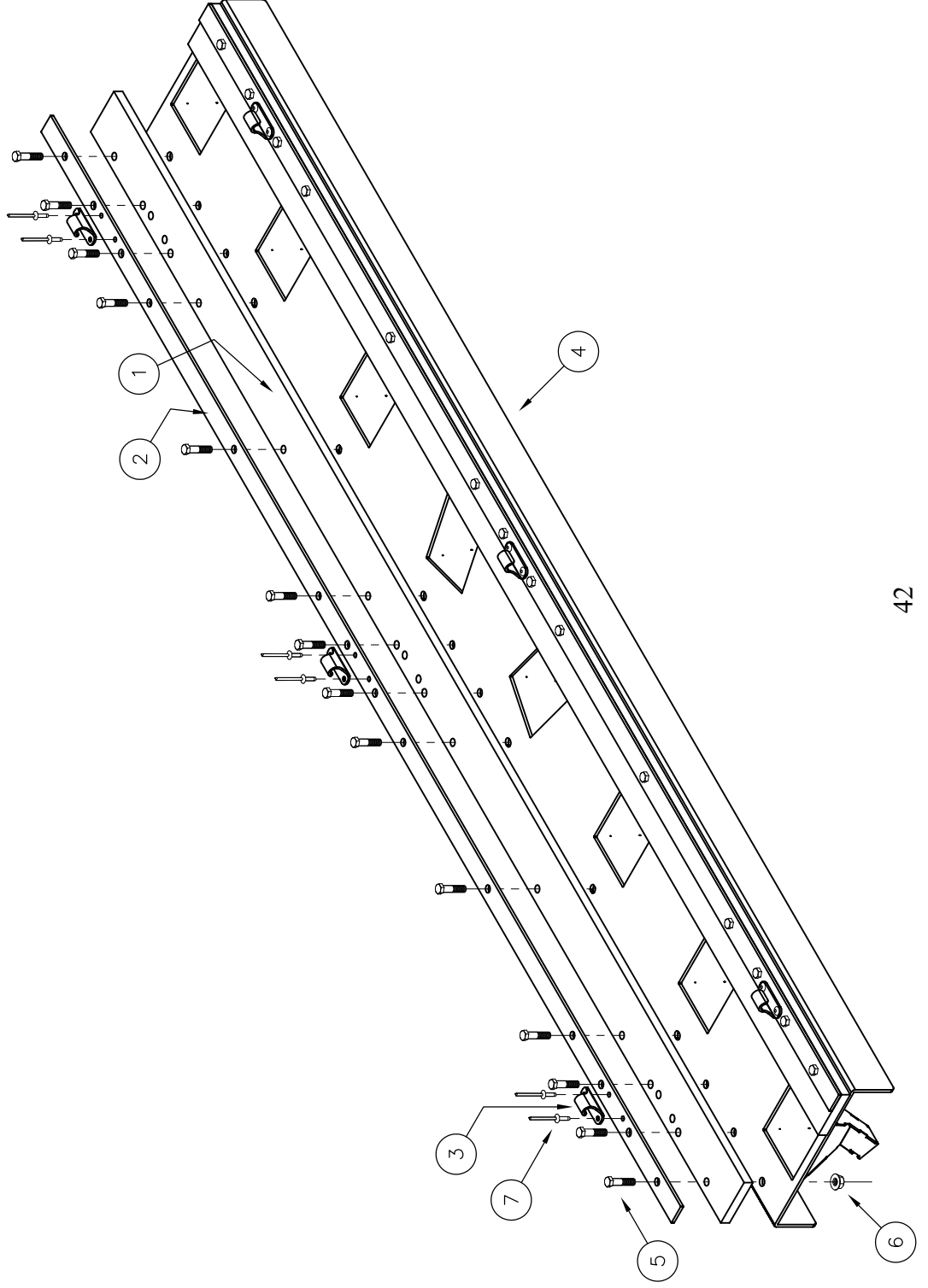
AGITATOR GROUP

ITEM	PART NO	DESCRIPTION	QTY
1	HW01010056G5ZPC	5/16 I 3/4 HHCS	8
2	HW24010GBZPC	5/16 STOVER LOCKNUT	8
3	DS80-010	AGITATOR	8
4	DS24-021	AGITATOR SHAFT - DS72	1
5	DS26-001	AGITATOR SHAFT BEARING	2



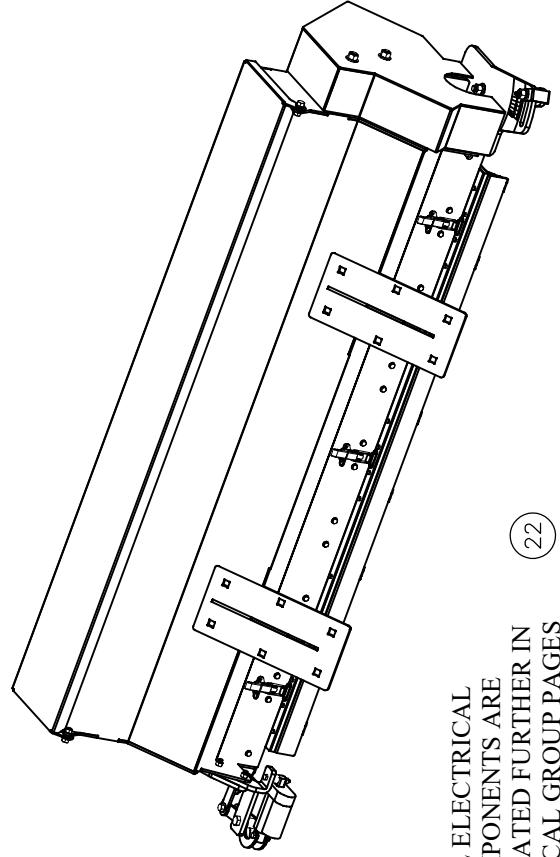
SPOUT TRAY GROUP

ITEM	PART NO	DESCRIPTION	QTY
1	DS26-002	8 OUTLET CUT OFF PLATE SLIDE	2
2	DS27-019	8 OUTLET CATCH PLATE SLIDE	2
3	DS50-002	TOGGLE LATCH PLATE	6
4	DS80-054	DS-72 SPOUT TRAY	1
5	HW01008032G5ZPC	1/4 X 1 HHCS	28
6	HW22008G5ZPC	1/4 FLANGE LOCK NUT	28
7	HW41005008SS	5/32 X 1/8-1/4 RIVET SS	12



AUXILIARY GROUP

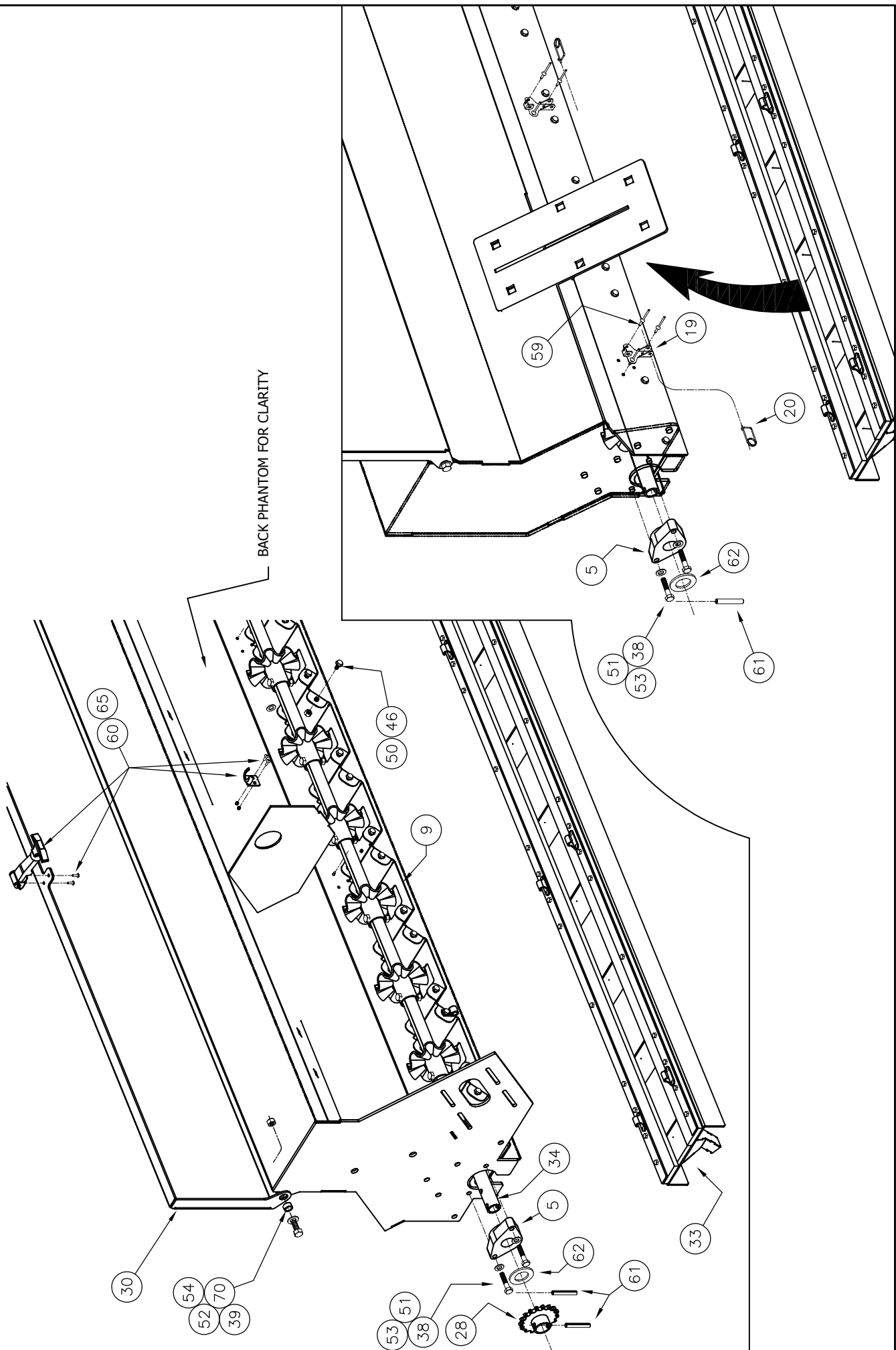
ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	AI50-075	PINGH POINT CAUTION DECAL	1	27	DS80-035	METER ADJUSTER	1	53	HW31010TAZP	5/16 SAE FLATWASHER	4
2	DS24-004	METER PLATE BUSHINGS	4	28	DS80-037	AGITATOR SPKT - DS	1	54	HW31012TAZP	3/8 SAE FLATWASHER	4
3	DS24-011	CUT OFF PLATE BUSHINGS	2	29	DS80-055	DS-72 SMALL HOPPER	1	55	HW31016TAZP	1/2 SAE FLATWASHER	7
4	DS24-016	IDLER SPACERS	4	30	DS80-056	SMALL HOPPER LID - DS72	1	56	HW32012G5ZP	3/8 LOCKWASHER	2
5	DS26-001	AGITATOR SHAFT BEARING	2	31	DS81-005	ACTUATOR ASSEMBLY (SEE ELECTRICAL)	1	57	HW32016G5ZP	1/2 LOCK WASHER	2
6	DS26-003	ACTUATOR SPACER 1	1	32	DS81-006	MOTOR ASSEMBLY (SEE ELECTRICAL)	1	58	HW34016G5ZPC	1/2 2-WAY LOCKOUT	3
7	DS26-004	ACTUATOR SPACER 2	1	33	DS81-052	SEE SPOUT TRAY GROUP	1	59	HW41005008SS	5/32 X 1/8 - 1/4 RIVETS SS	18
8	DS26-005	ACTUATOR SPACER 3	1	34	DS81-054	SEE SMALL BOX AGITATOR GROUP	1	60	HW41006008SS	3/16 X 1/16-1/8 RIVET	4
9	DS27-012	SEED FUNNEL 1	8	35	FA50-035	#40 Chain x 98P	1	61	HW42010048G5ZP	5/16 X 1 1/2 Roll Pin Zinc Plated	3
10	DS27-020	Actuator Mount	1	36	HW01008048G5ZPC	1/4 X 1 1/2 HHCS	1	62	HW6003204810GZP	1" ID x 1 1/2" OD 10GA Machine Bushing	2
11	DS27-021	Actuator Linkage Pivot	1	37	HW01008072G5ZPC	1/4 X 2 1/4 HHCS	1	63	ND50-035	1st PRODUCTS DECAL - LONG - SPING 2020	1
12	DS27-022	METER PLATE LINKAGES	4	38	HW01010048G5ZPC	5/16 x 1 1/2 Hex Head Cap Screw	4	64	SB50-023	#40 CHAIN IDLER	2
13	DS27-024	CUT OFF PLATE LEVER ACTION	2	39	HW01012032G5ZPC	3/8 X 1 HHCS	8	65	SB50-053	T-HANDLE DRAW LATCH	1
14	DS27-027	METER SCALE POINTER	1	40	HW01012048G5ZPC	3/8 X 1 1/2 HHCS	9	66	SB50-112	10 TOOTH SPROCKET	1
15	DS27-083	CUT OFF PLATE BUSHING LINKAGE	1	41	HW01012064G5ZPC	3/8 X 2 HHCS	1	67	HW16#10016G5ZPC	#10 X 1/2 CROSS HEAD SCREW	4
16	DS27-044	CUT OFF PLATE	1	42	HW01016080G5ZPC	1/2 X 2 1/2 HHCS	1	68	HW34#10G5ZPC	#10 2-WAY LOCKNUT	4
17	DS27-040	LEFT SEED PLATE 1/4"	1	43	HW01016160G5ZPC	1/2 X 5 HHCS	2	69	UA50-180	USA FLAG DECAL	1
18	DS27-041	RIGHT SEED PLATE 1/4"	1	44	HW03016072G5ZPC	1/2 x 2 1/4 CARRIAGE BOLT	1	70	DS24-028	LID BUSHING	2
19	DS50-001	TOGGLE LATCH	6	45	HW03016080G5ZPC	1/2 X 2 1/2 CARRIAGE BOLT	1				
20	DS50-003	TOGGLE LATCH RETAINING PIN	6	46	HW06008016G5ZPC	1/4 X 1/2 FLANGE LOCK SCREW	32				
21	DS50-044	ADJUSTER DECAL	1	47	HW06008024G5ZPF	1/4 X 3/4 HEX FLG LK SC. FINE	4				
22	DS50-140	MOTOR HARNESS-SB	1	48	HW20012G5ZPC	3/8 HEX NUT	2				
23	DS50-051	3/4" ID LOOP CLAMP	1	49	HW20016G5ZPC	1/2 HEX NUT	4				
24	DS50-069	3/8" ID LOOP CLAMP, INSULATED	2	50	HW24008GBZPC	1/4 Stover Lock Nut	34				
25	DS80-006	Meter Adj. Bracket	1	51	HW24010GBZPC	5/16 Stover Lock Nut	4				
26	DS80-027	SMALL BOX CHAIN COVER	1	52	HW24012GBZPC	3/8 Stover Lock Nut	16				



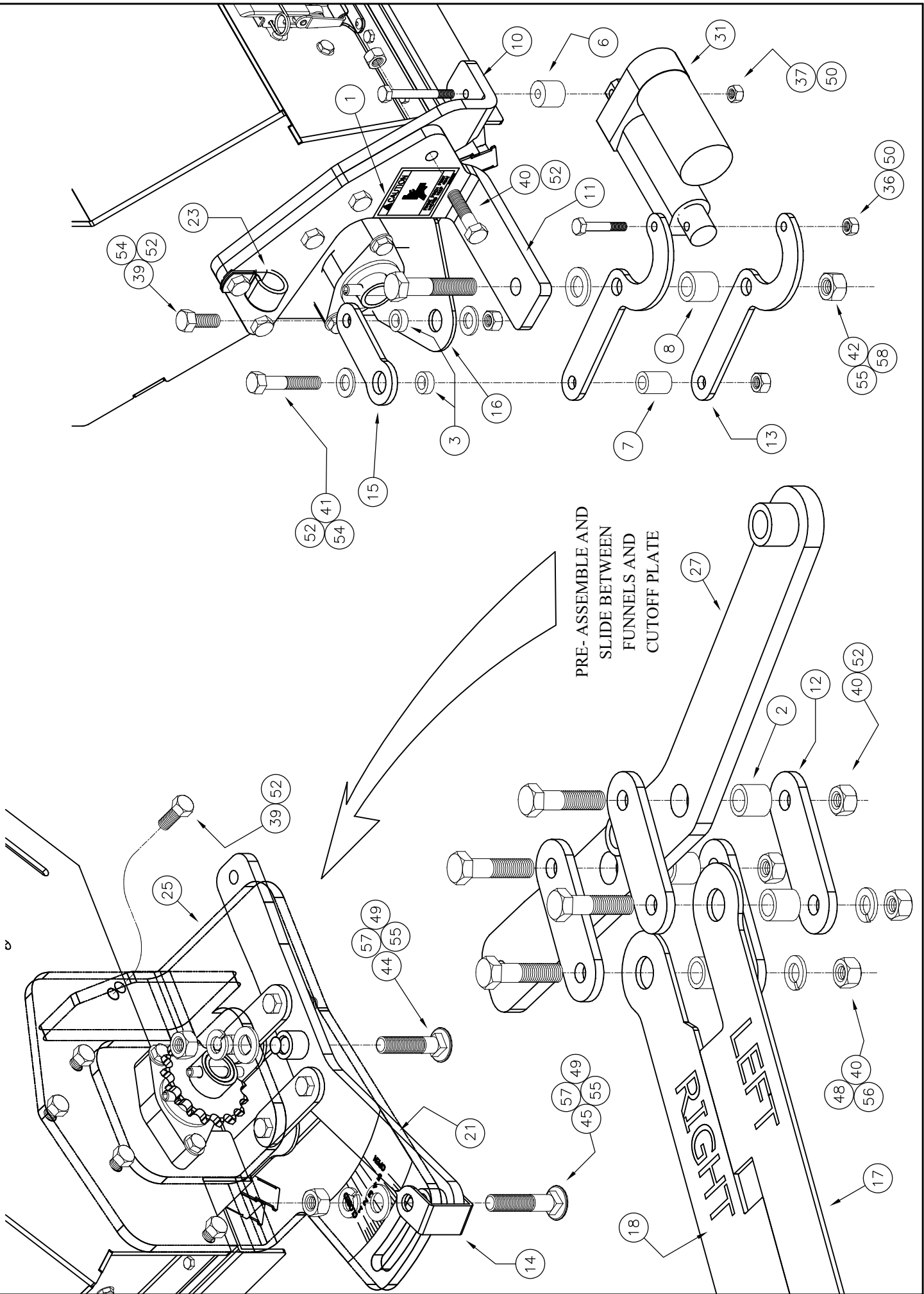
(22)

ALL ELECTRICAL COMPONENTS ARE ILLUSTRATED FURTHER IN ELECTRICAL GROUP PAGES

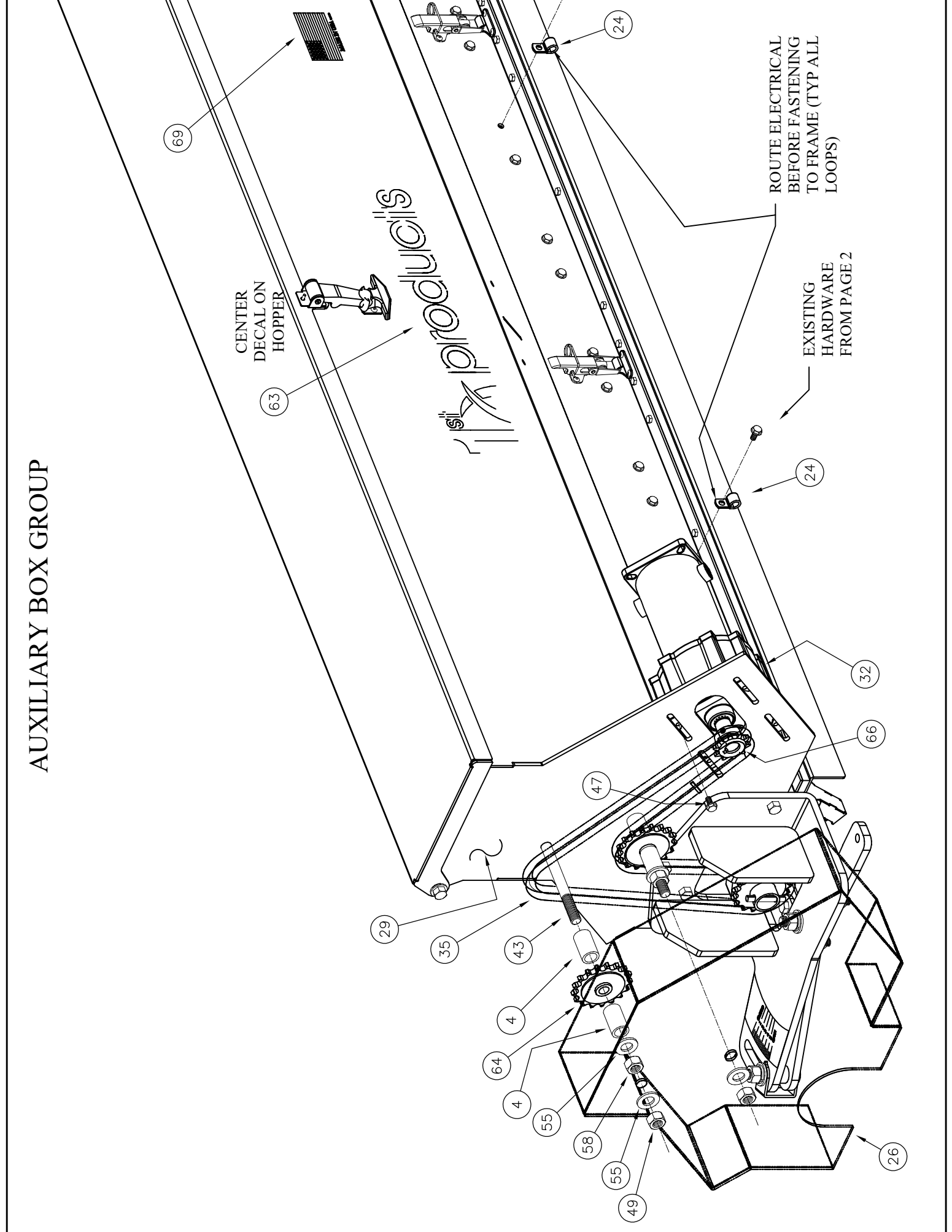
AUXILIARY BOX GROUP



AUXILIARY BOX GROUP



AUXILIARY BOX GROUP



CENTER
DECAL ON
HOPPER

ROUTE ELECTRICAL
BEFORE FASTENING
TO FRAME (TYP ALL
LOOPS)

EXISTING
HARDWARE
FROM PAGE 2

69

63

24

24

32

66

29

35

43

47

64

4

55

58

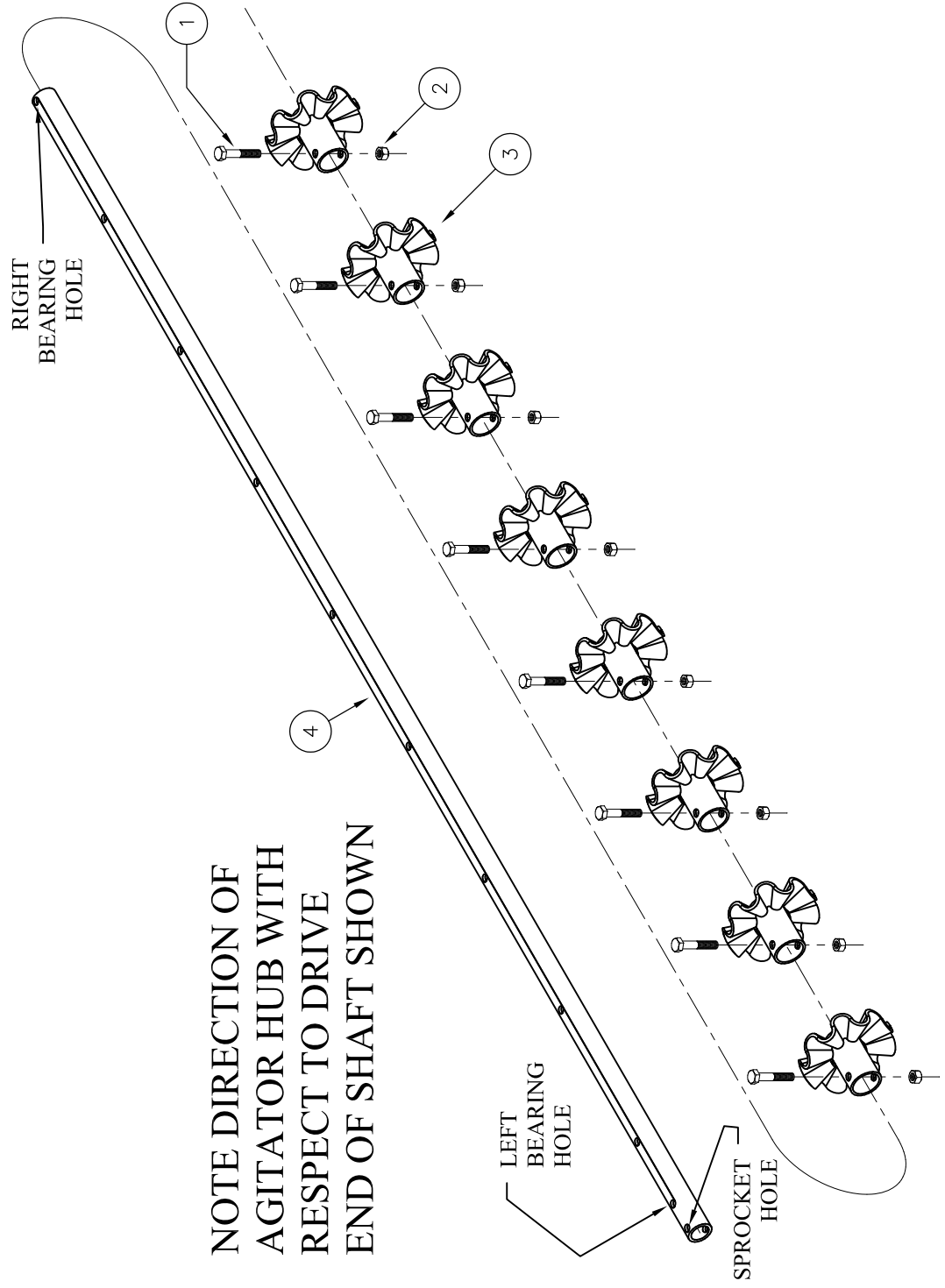
55

49

26

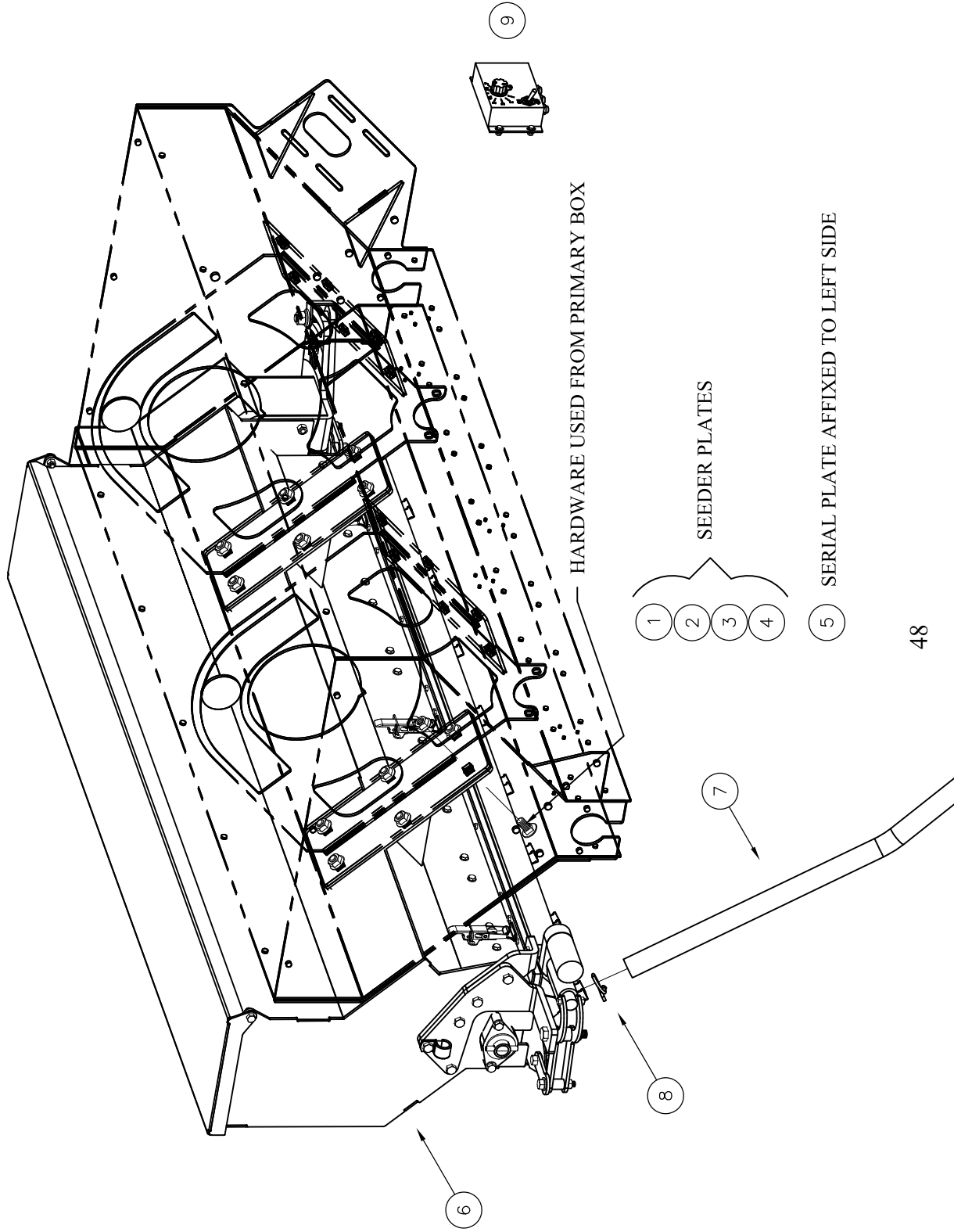
AUXILIARY BOX AGITATOR GROUP

ITEM	PART NO	DESCRIPTION	QTY
1	HW01010056G5ZPC	5/16 I 3/4 HHCS	8
2	HW24010GBZPC	5/16 STOVER LOCKNUT	8
3	DS80-010	AGITATOR	8
4	DS24-021	AGITATOR SHAFT - DS72	1



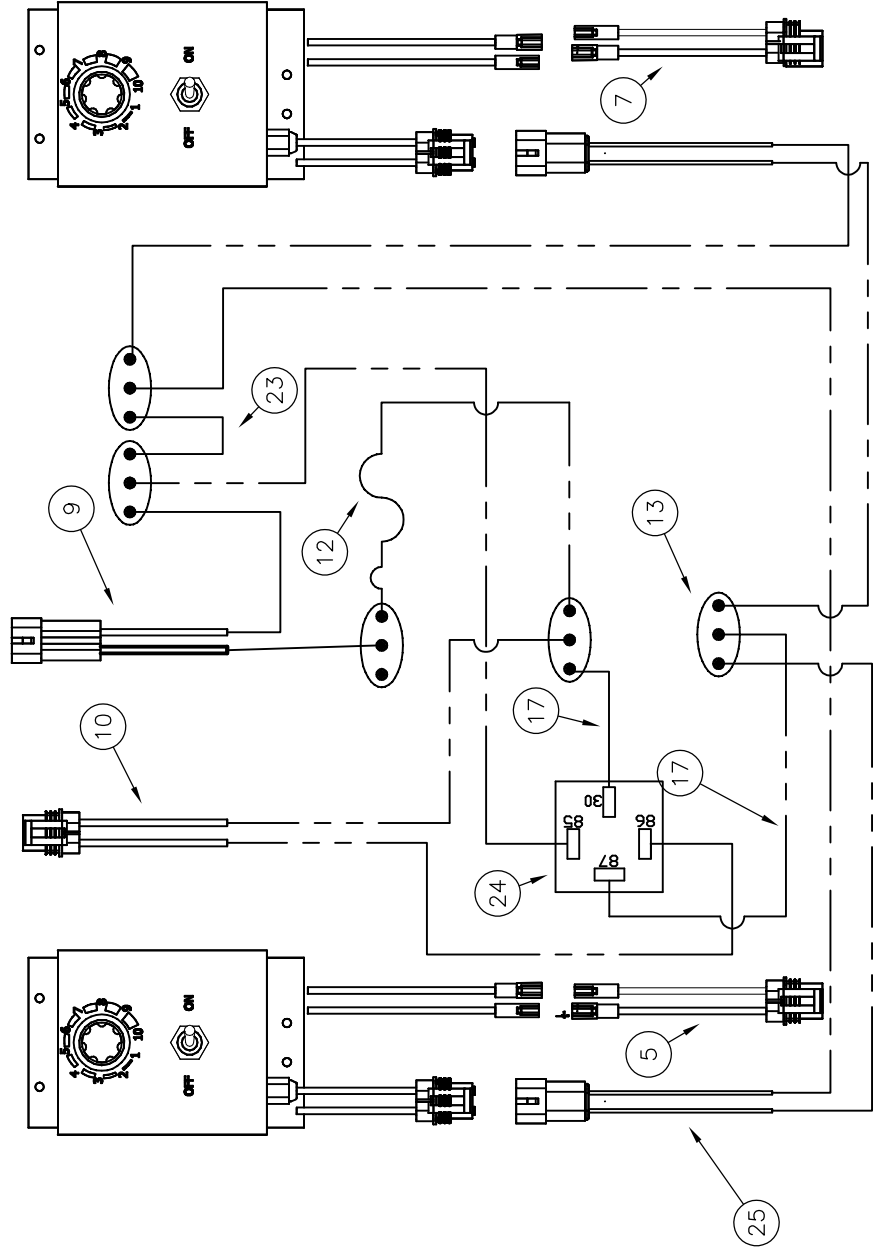
AUXILIARY BOX TO PRIMARY GROUP

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1	DS27-036	LEFT SEED PLATE 1/2	1	4	DS27-039	RIGHT SEED PLATE 3/8	1	7	ND50-102	1 ID. X 1 1/4 OD. CLEAR VINYL DS SB	8
2	DS27-037	RIGHT SEED PLATE 1/2	1	5	ND50-085	DS-72 SERIAL # TAG	1	8	SB50-062	1.38" HOSE CLAMP	8
3	DS27-038	LEFT SEED PLATE 3/8	1	6	DS81-025	SEE SMALL BOX GROUP	1	9	DS81-065	25 AMP MT CONTROLLER	1



ELECTRICAL GROUP

ITEM	PART NO	DESCRIPTION	QTY	ITEM	DESCRIPTION	PART NO	DESCRIPTION	QTY	ITEM	DESCRIPTION	PART NO	DESCRIPTION	QTY
1	AE50-129	2-7/8 TEST CLIP	2	18	MINI FUSE, 30 AMP	DS50-066		1	35	ON/OFF DECAL	ND50-100		1
2	AE50-130	RED INSULATOR	1	19	25 AMP CONTROLLER	DS50-073		1	36	FUZE, 5 AMP STANDARD	DS50-145		1
3	AE50-131	BLACK INSULATOR	1	20	RELAY, DPDT	DS50-074		2					
4	DS27-170	VARIABLE SPEED CONTROLLER MOUNT	1	21	CONTROL ENCLOSURE	DS50-075		1					
5	DS50-009	MOTOR POWER HARNESS, BOX 1	1	22	GLAND NUT	DS50-076		3					
6	DS50-013	ACTUATOR HARNESS, BOX 1	1	23	GROUND EXTENSION WIRE	DS50-077		1					
7	DS50-014	MOTOR POWER HARNESS, BOX 2	1	24	RELAY, 4 PIN	DS50-078		1					
8	DS50-015	CABLE GLAND	3	25	CONTROLLER POWER HARNESS	DS50-079		2					
9	DS50-016	CONTROL BOX POWER IN HARNESS	1	26	MOTOR EXTENSIN. HARNESS, BOX 1	DS50-139		1					
10	DS50-017	CONTROL BOX SWITCH HARNESS	1	27	MOTOR HARNESS, SMALL BOX	DS50-140		1					
11	DS50-018	ACTUATOR HARNESS, BOX 2	1	28	ACTUATOR WITH PLUG	DS81-005		1					
12	DS50-023	FUSE LINK	1	29	MOTOR WITH PLUG	DS81-006		1					
13	DS50-029	22-14 GA 3 COND PIGTAIL CONNECTOR	5	30	HW1671001GG5ZPC	HW1671001GG5ZPC		4					
14	DS50-030	RELAY GROUND WIRE ASSM	1	31	M5X.8 X 12 MM LG CROSS HEAD SCREW	M5X.8 X 12 MM LG CROSS HEAD SCREW		4					
15	DS50-033	RELAY POWER WIRE	1	32	#10 2-WAY LOCK NUT	HW3.4#10G5ZPC		4					
16	DS50-046	POWER HARNESS W/TEST CLIPS	1	33	#8 X 5/16 THREAD FORMING SCREW	HW62#08010ZP		4					
17	DS50-052	SYSTEM POWER WIRE	2	34	PIERCE ON/OFF SWITCH	ND50-095		1					



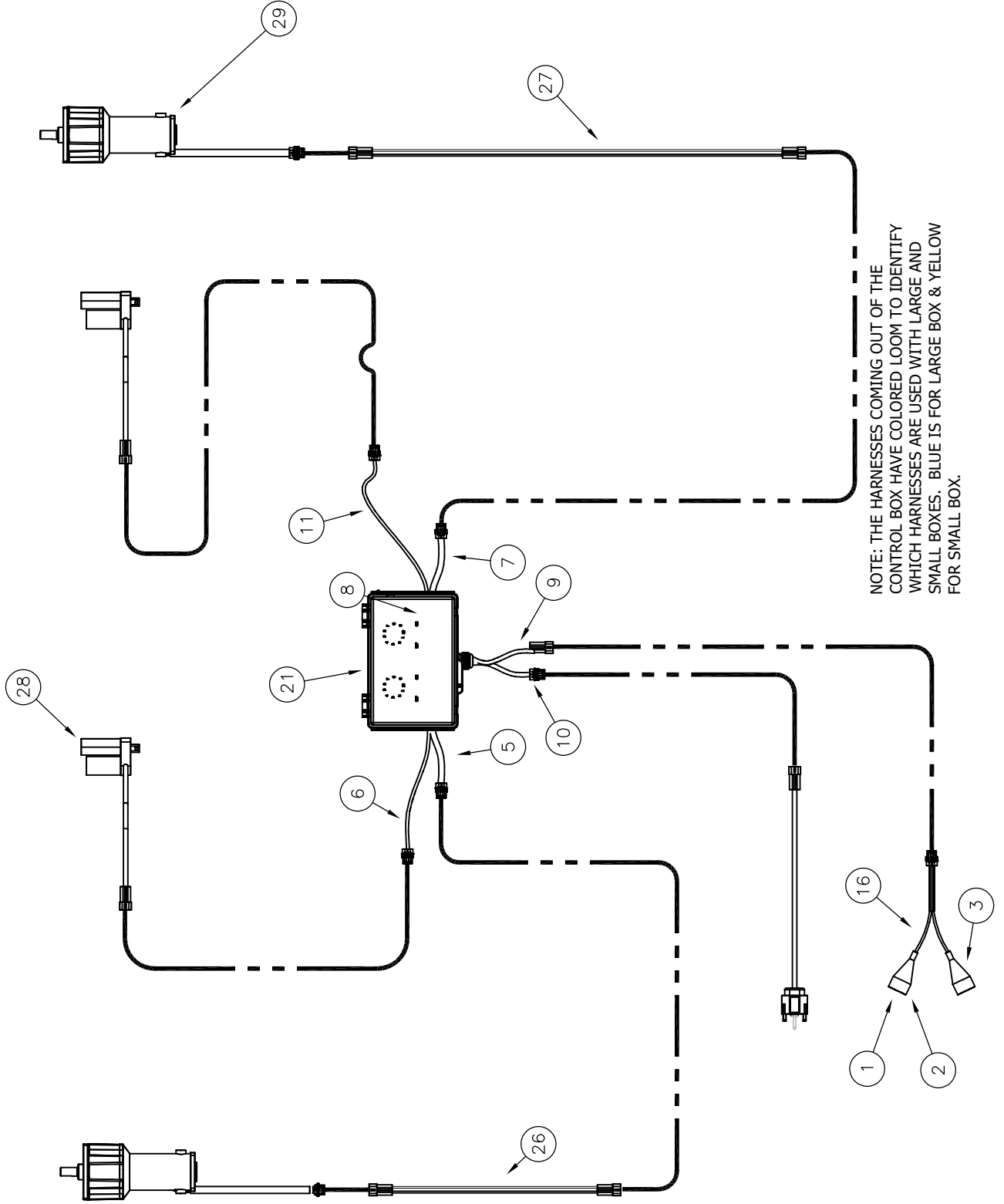
ELECTRICAL GROUP (BOX WIRE LAYOUT)

LARGE BOX

WIRES WRAPPED WITH BLUE LOOM ARE FOR THE LARGE BOX

SMALL BOX

WIRES WRAPPED WITH YELLOW LOOM ARE FOR THE SMALL BOX

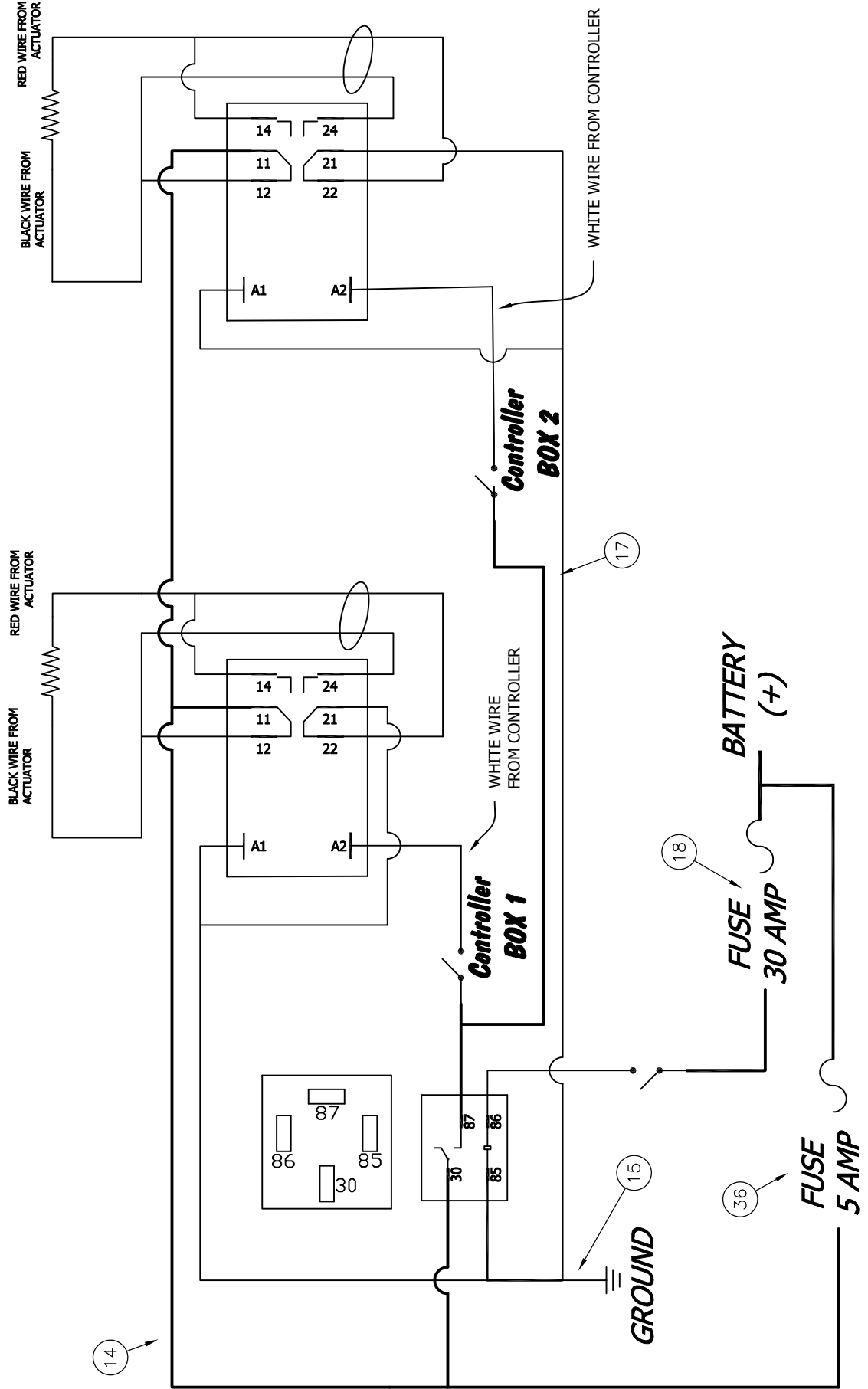


NOTE: THE HARNESSES COMING OUT OF THE CONTROL BOX HAVE COLORED LOOM TO IDENTIFY WHICH HARNESSES ARE USED WITH LARGE AND SMALL BOXES. BLUE IS FOR LARGE BOX & YELLOW FOR SMALL BOX.

ELECTRICAL GROUP (CONTROL BOX SCHEMATIC)

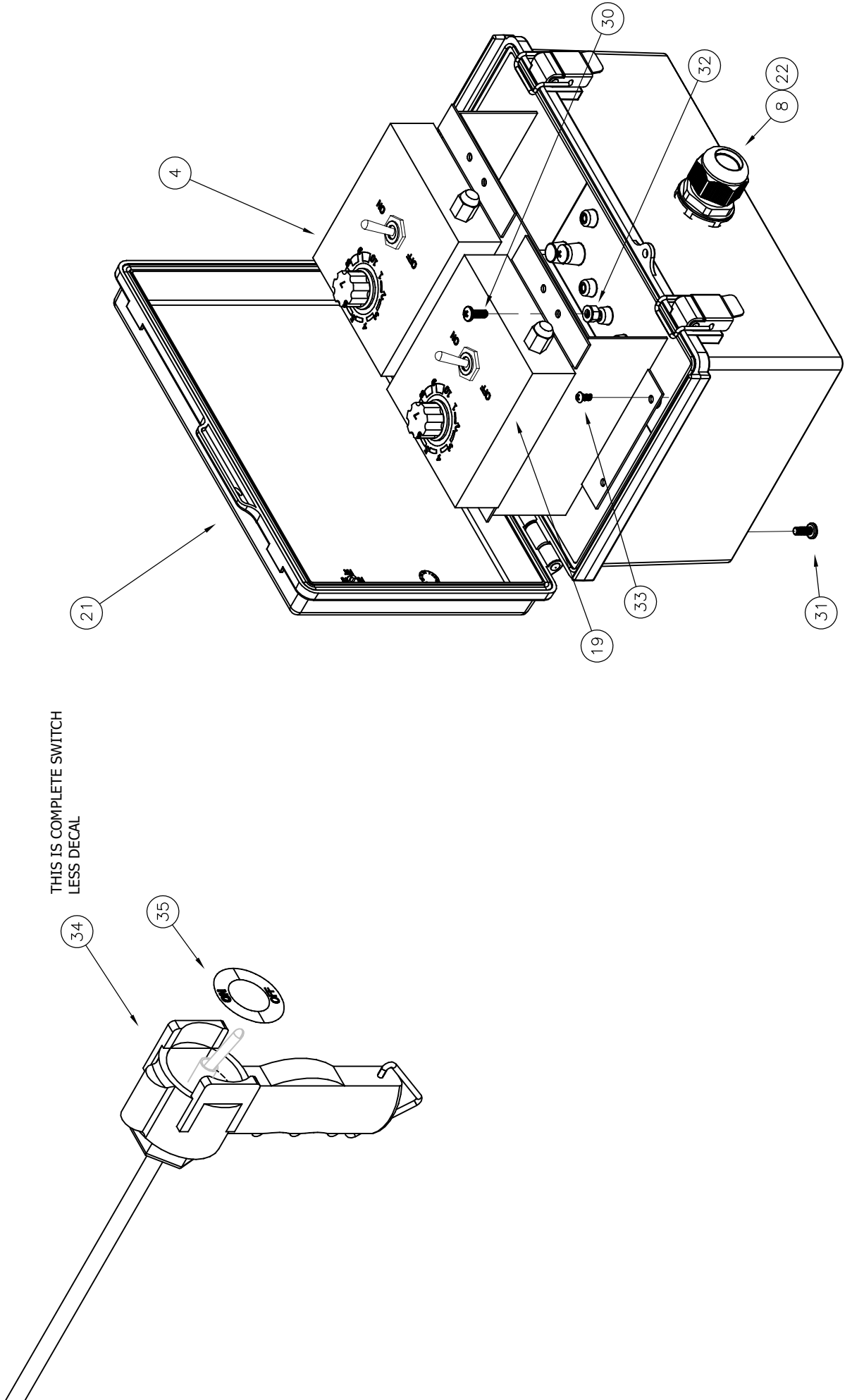
**BLACK WIRE ON ACTUATOR
EXTENDS ACTUATOR WHEN ON
POSITIVE TERMINAL**

ACTUATOR



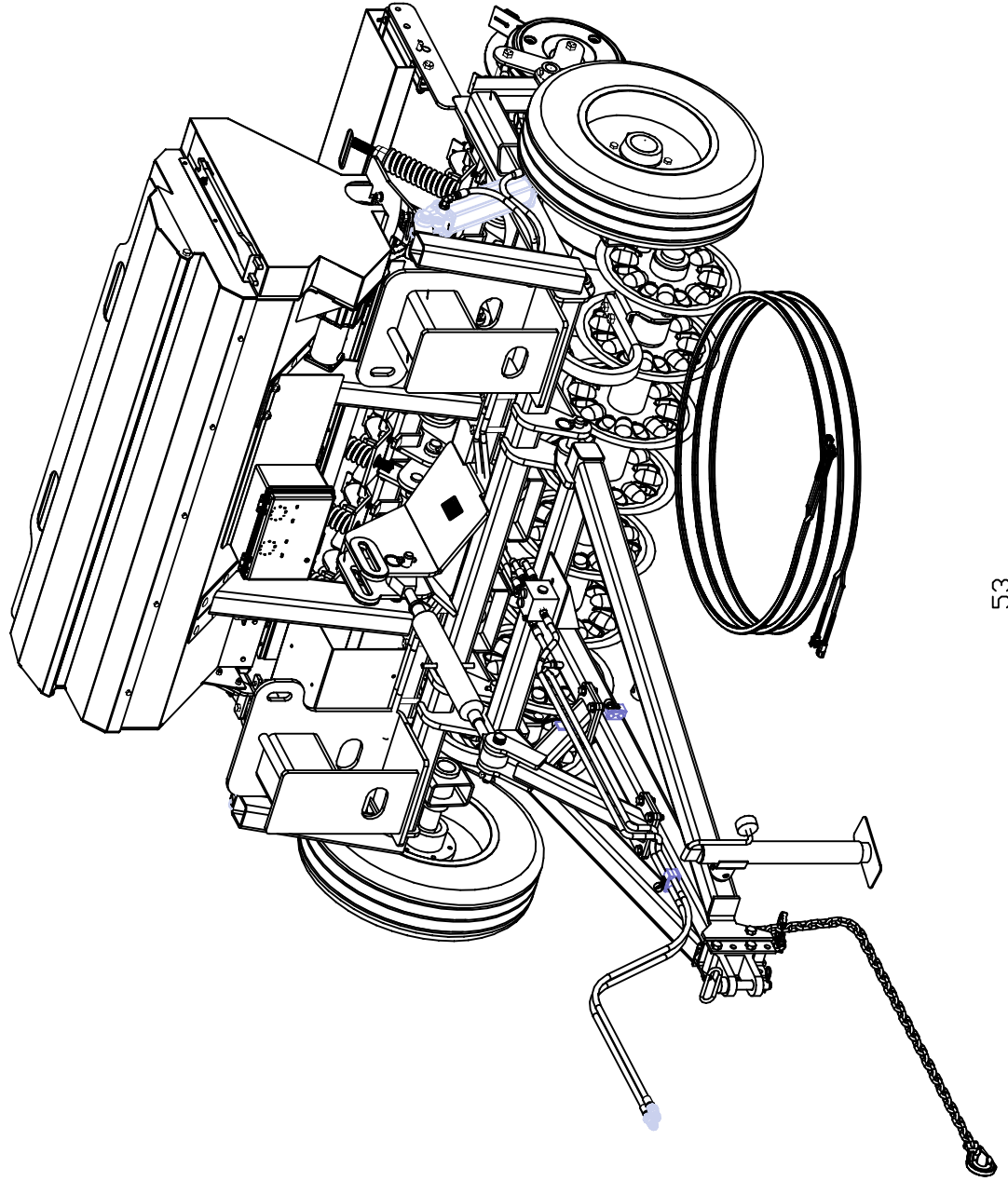
ELECTRICAL GROUP (BULK COMPONENTS)

THIS IS COMPLETE SWITCH
LESS DECAL

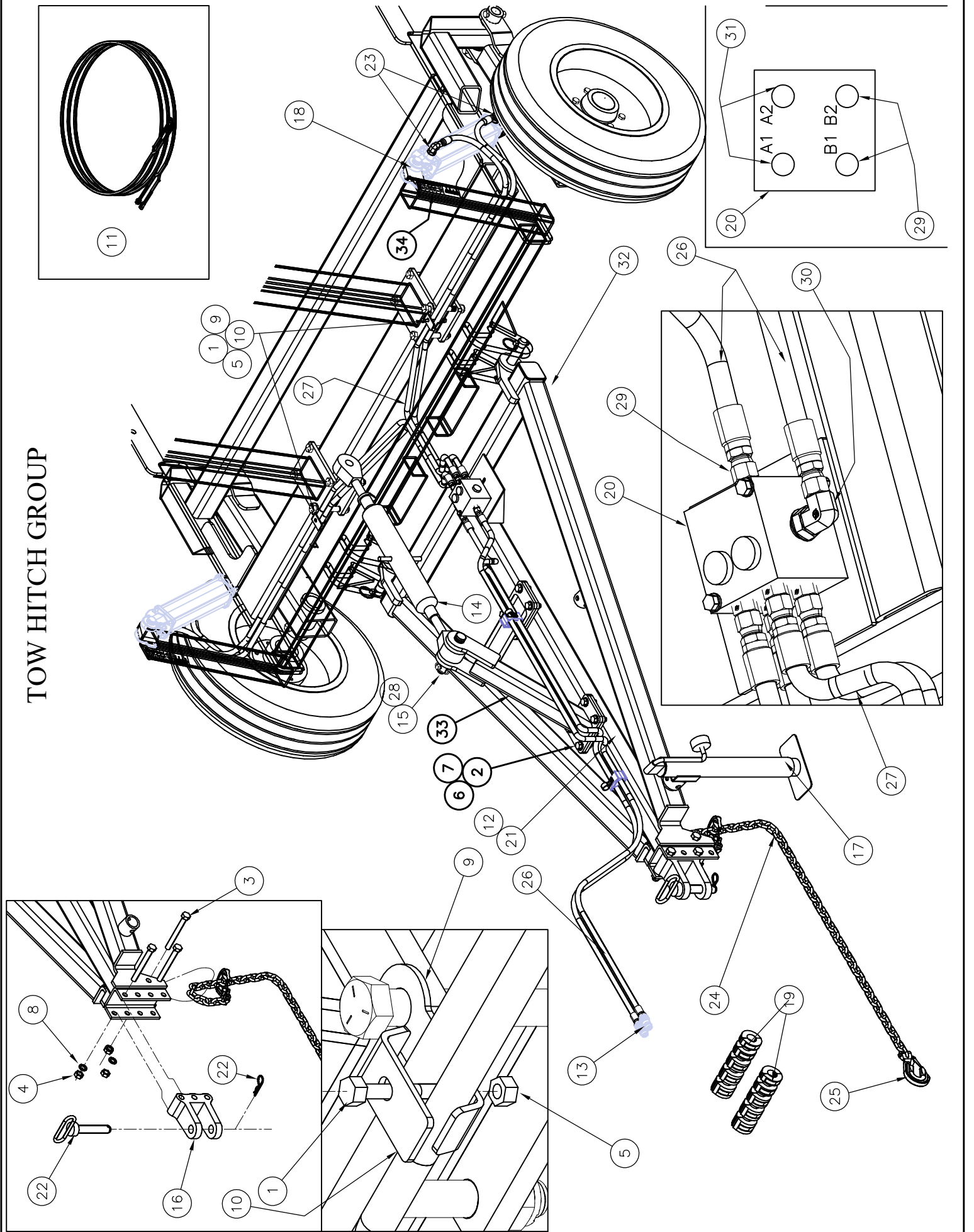


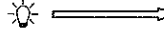
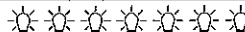

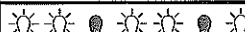

TOW HITCH GROUP

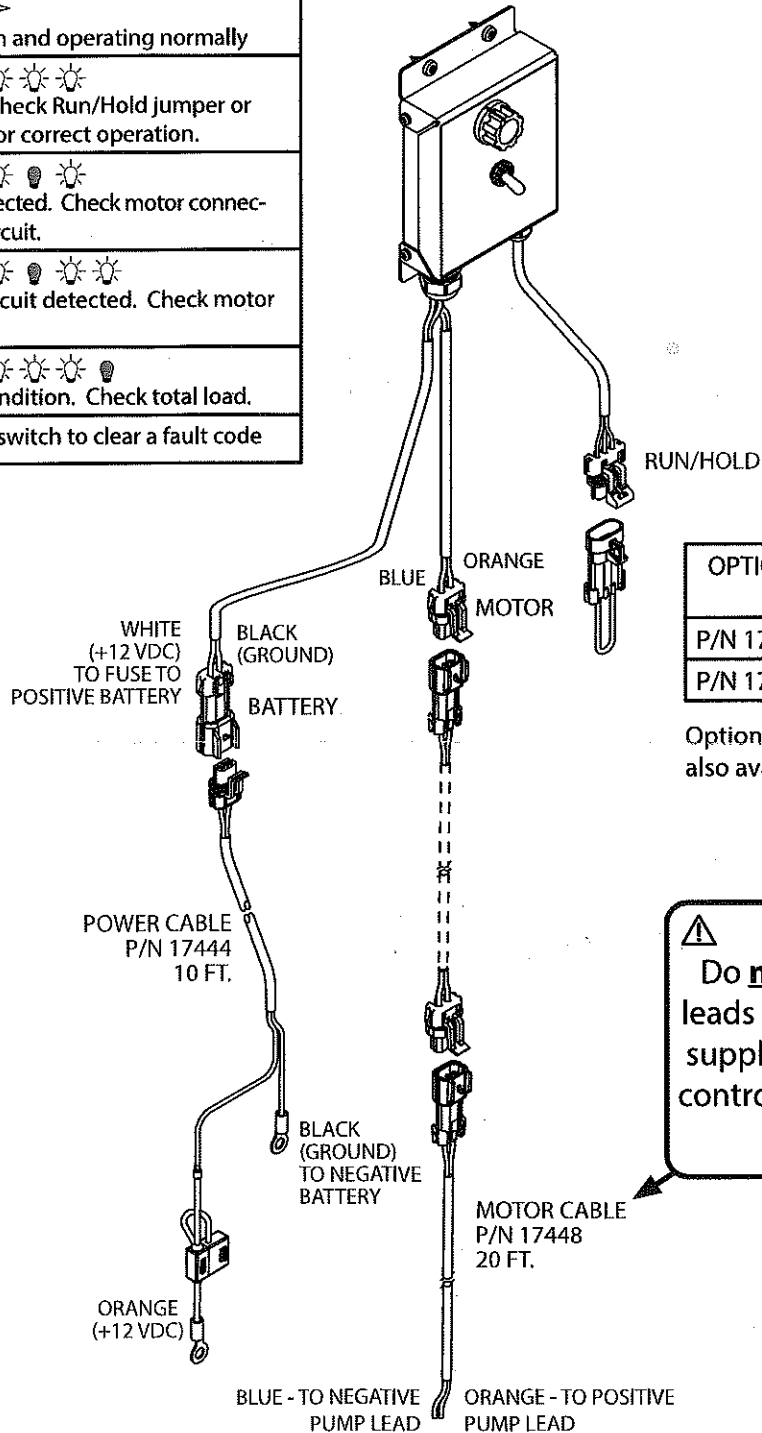
ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY	ITEM	PART NO	DESCRIPTION	QTY
1	HW010080405ZPC	1/4" x 1-1/4" HHCS	2	13	FA50-068	QUICK COUPLER	2	25	ND50-128	SAFETY CHAIN CLEVIS HOOK	2
2	HW010160405ZPC	1/2" x 1-1/2" HHCS	8	14	ND50-022	21-37 CAT 2 TOP LINK	1	26	ND50-129	HOSE PRESSURE/RET URN, SFPH	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	HW200805ZPC	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 HARNISS	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

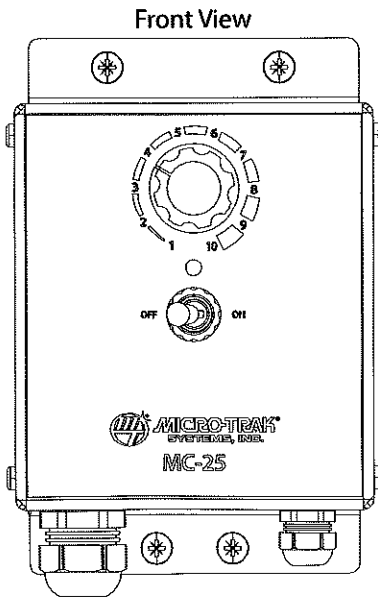


LED STATUS INDICATOR CODES	
Light on steady	 Unit is turned on and operating normally
Steady Flashing	 Unit in HOLD. Check Run/Hold jumper or remote switch for correct operation.
1 Flash/pause	 Open circuit detected. Check motor connections for open circuit.
2 Flashes/pause	 Output short circuit detected. Check motor wiring.
3 Flashes/pause	 Over-current condition. Check total load.
NOTE: Cycle power with the ON/OFF switch to clear a fault code	

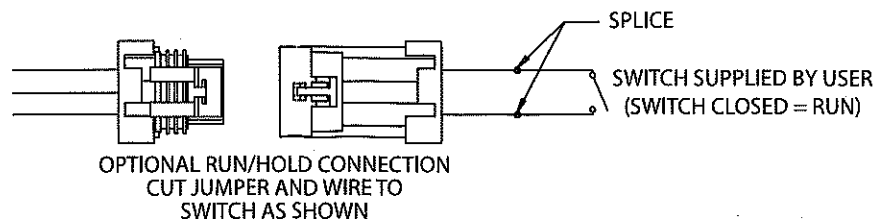


OPTIONAL 2-PIN M/P 280 MOTOR EXTENSION CABLES		
P/N 17445	10'	CABLE
P/N 17446	20'	CABLE

Optional Pressure Gauge Bracket also available - P/N 14799



IMPORTANT!
 Do **not** connect the motor leads to the battery or power supply. Resulting damage to controller will **not** be covered under warranty.



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