



Doyle Ground Wheel Drive Pull Type Spreader

5 Ton Mid-Clearance, 5 Ton, and 6 Ton



Owner's Instruction and Operation Manual for GWD Pull Type Spreaders

- ___ 5 Ton Mid-Clearance, 304 SS (Model No. GWD5T-HC)
- ___ 5 Ton Mid-Clearance, 409 SS (Model No. GWD5T-HC4)
- ___ 5 Ton, 304 SS (Model No. GWD5T-ST)
- ___ 5 Ton, 409 SS (Model No. GWD5T-ST4)
- ___ 6 Ton, 304 SS (Model No. GWD6T-ST)
- ___ 6 Ton, 409 SS (Model No. GWD6T-ST4)

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Warranty

Doyle Equipment Mfg. Co., Inc. ("Doyle") has manufactured or is distributing the equipment to which this warranty is attached, and warrants to its original reseller including Dealers, Distributors and Original Equipment Manufacturers. This warranty will, under normal conditions of use and service, ensure that equipment will be free from material defects and faulty manufacturing for a period of one (1) year from date of delivery to the original user. For any equipment that does not conform to the aforesaid warranty within one (1) year from the date of delivery to the original user, Doyle will, at its option, repair, or replace parts. If Doyle determines that the defect is due to Doyle's material or workmanship, Doyle will repair such defect during normal working hours. Doyle will be specifying repair locations. This warranty includes only the original equipment manufactured by Doyle, and not any parts that may be added to the equipment or replaced by the dealer or user. The installation of any non-Doyle manufactured parts in the equipment will void this basic Warranty in its entirety. In the event of a repair or replacement, the warranty period shall not be extended beyond the original warranty period.

The above warranties do not cover:

1. Equipment that is damaged by abuse, neglect, accident, or modification.
2. Fluids, towing, telephone, travel and cleaning cost.
3. Consequential damages, inconvenience, or commercial loss.
4. The equipment itself if non-Doyle manufactured parts is installed on the equipment.

The above warranties do not apply under the following conditions

1. When equipment is used for purposes for which it was not originally designed or intended.
2. When equipment is used under abnormal operating conditions
3. When the user fails to follow Doyle instructions regarding the equipment.

These warranties are extended only to the original dealer and are not transferable. In the event of a warranty claim, you should promptly notify Doyle by calling 1-800-788-8085, and provide the following:

1. Model number of the equipment
2. Date of delivery to the original user
3. Description of the difficulty encountered.

A representative of Doyle will contact you regarding instructions for repair, replacement, or refund, if the warranty claim can be validated.

Doyle Equipment Mfg. Co., Inc.

P.O. Box 3024

Quincy, IL 62305

Fax: 217/223-3655

Warranty Registration

This form must be filled out and signed by the owner or manager of the company receiving the equipment to make the warranty effective. The warranty begins on the delivery date.

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Be sure to list all the models that you purchased.

Model: _____ Serial: _____

Model: _____ Serial: _____

Model: _____ Serial: _____

Model: _____ Serial: _____

Model: _____ Serial: _____

Model: _____ Serial: _____

Model: _____ Serial: _____

I have received the above equipment, and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Owner's signature: _____ Date: _____

Only one form needs to be filled out. Be sure all equipment is included on the same form. Make a copy of the completed form and mail or fax to:

Doyle Equipment Mfg. Co., Inc.

P.O. Box 3024

Quincy, IL 62305

Fax: 217/223-3655

Introduction / Preface

Congratulations on your purchase of the Doyle Pull Type Spreader. This unit has been designed and manufactured with the highest standards of quality and efficiency.

The Doyle Pull Type Spreader is a hopper type spreader intended for spreading free flowing granular agricultural materials, such as fertilizers. It is intended to be pulled by a vehicle, which provides its means of power.

The conveyor runs the full length of the hopper bottom, to deliver material to the spinner dishes, through an adjustable metering gate, at the rear of the hopper. The conveyor is driven by the ground wheel drive unit, which supplies the gearbox with power, through the belts. The gearbox in turn runs the conveyor and the spinner motors. The standard conveyor chain is a stainless steel chain belt style that is 8 inches wide.

The spinners are 19 inch diameter dishes. Each dish has four formed fins that are adjustable. The spinner dishes are powered by individual spinner motors, which connect to the gearbox.

This manual covers the Doyle 5 Ton High Clearance, Doyle 5 Ton, & Doyle 6 Ton Ground Wheel Drive unit. The capacity is based on product weighing 60 pounds per cubic foot.

The goal of this manual is to familiarize the person / persons using this unit with the information necessary to properly install, operate, and maintain this unit. Be sure that you, and everyone else who will be using or maintaining this unit, read and understand all of the information contained in this manual. However, these instructions cannot replace the following: the fundamental knowledge that must be possessed by the operator, the clear thinking necessary to operate this unit. Since the life of any machine depends largely upon care it is given, we suggest that this manual be read thoroughly and referred to often. If for any reason you do not understand the instructions, please call Doyle Equipment Mfg. Co. at (800) 788-8085.

It has been our experience that by following these instructions, and by observing the operation of the spreader, you will have sufficient knowledge of the machine, enabling you to troubleshoot and correct all normal problems that you may encounter. Again, we urge you to call Doyle if you find the unit is not operating properly, or if you are having trouble with repairs.

We urge you to protect your investment by using the original Doyle parts for all work other than routine care and adjustments. All replacement parts are available from the Doyle Equipment Mfg. Co... Always give part number, part name and machine serial number when ordering parts. The serial number is located on the top of the tongue, near the hitch.

Doyle Equipment Mfg. Co. reserves the right to make alterations or modifications to this unit at any time. The manufacturer shall not be obligated to make such changes to machines already in the field.

The safety section should be read thoroughly and referred to frequently.

This product is intended for commercial use only.

PLEASE! Always Think Safety First!!

Safety Information



SAFETY FIRST

The design shown on the left was proposed as a safety alert by the Farm and Industrial Equipment Institute (FIEI) and approved by the American Society of Automotive Engineers (ASAE) and others for the purpose of calling attention to safety precautions which if not heeded might lead to bodily injury. Please read instructions carefully and follow the instructions exactly wherever this symbol appears in this manual or on the equipment.

In this manual and on the safety decals located on the unit, the words “DANGER”, “WARNING”, “CAUTION”, and “IMPORTANT” are used to indicate the following:

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

-WARNING- Indicates a potentially hazardous situation, which, if not avoided, **could** result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

-CAUTION- Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

The need for safety cannot be stressed strongly enough in this manual. We urge you to make safety your top priority when operating any equipment. We firmly advise that anyone allowed to operate this machine be thoroughly trained and tested, to prove they understand the fundamentals of safe operation.

Wear the appropriate protective gear when operating and maintaining this unit. The list should include, but not limited to: protective goggles, protective gloves, respirator or filter mask, appropriate boots, and Suitable ear protection.

Safety Decal Installation & Maintenance

Maintenance Instructions

Keep safety decals clean and legible at all times.

Replace safety decals that are missing or have become illegible.

Safety decals are available from the Doyle Equipment Mfg. Co...
(Have the decal part number and description ready when ordering.)

Installation Instructions

Clean Surface – Wash the installation surface with a synthetic, free-rinsing detergent. Avoid washing the surface with a soap containing creams or lotions. Allow to dry.

Position Safety Decal – Decide on the exact location before application. Application marks may be made on the top or side edge of the substrate with a lead pencil, marking pen, or small pieces of masking tape. Note: Do not use caulk line, china marker, or grease pencil. Safety decals will not adhere to these.

Remove the Liner – A small bend at the corner or edge will cause the liner to separate from the decal. Pull the liner away in a continuous motion at a 180 degree angle. If liner is scored, bend at score and remove.

Apply Safety Decal – Tack decal in place with thumb pressure in upper corners. Using firm initial squeegee pressure, begin at the center of the decal and work outward in all directions with overlapping strokes. Note: Keep squeegee blade even – nicked edges will leave application bubbles. Pull up tack points before squeegeeing over them to avoid wrinkles.

Remove Pre-mask – If safety decal has a pre-mask cover remove it at this time by pulling it away from decal at a 180 degree angle. Note: It is important that the pre-mask covering is removed before the decal is exposed to sunlight to avoid the pre-mask from permanently adhering to the decal.

Remove Air Pockets – Inspect the decal in the flat areas for bubbles. To eliminate the bubbles, puncture the decal at one end of bubble with a pin (never a razor blade) and press out entrapped air with thumb moving toward puncture.

Re-Squeegee All Edges

General Safety Rules - Operation

The following guidelines are intended to cover general usage and to assist you in avoiding accidents. There will be times when you will run into situations that are not covered in this manual. At those times the best standard to use is common sense.

Before attempting to operate this unit, read and be sure you understand the operation and maintenance manual. Locate all control points and determine the operation of each. *Know What You Are Doing.*

When leaving the unit unattended for any reason, be sure to:

No Vehicle Connected –

- Disengage ground wheel drive.
- Block wheels, if on grade.

Vehicle Connected –

- Leave ground wheel assembly in the disengaged position.
- Shut off vehicle engine.
- Place transmission of vehicle in “neutral” or “park”, set parking brake.
- Lock ignition and take keys with you.
- Lock vehicle cab.
- Block wheels, if on grade.

These actions are recommended to avoid unauthorized uses, runaways, vandalism, theft, and unexpected operation during start up.

Do not read, eat, talk on cell phone or take your attention away while operating unit. Operating is a full time job.

Do not allow anyone to ride on any part of the unit, for any reason.

Read, understand, and follow instructions and precautions given by the manufacturer or supplier of materials to be spread. Improper selection, applications, use or handling may be hazardous to people, animals, plants, crops, or property.

Cover all loads that can spill or blow away. Do not spread dusty materials where dust may cause pollution or a traffic visibility problem.

Turn slowly and be careful when traveling on rough surfaces and side slopes, especially with a loaded spreader. Load may shift causing unit to tip.

General Safety Rules - Maintenance

Maintenance includes all lubrication, inspection, adjustments (other than operational adjustments such as opening metering gate), part replacement, repairs, and such up keep tasks cleaning and painting.

When performing any maintenance work, wear proper protective gear – always wear eye protection, safety steel toe shoes, gloves, and a hard hat. Use proper tools for the job required. Use of improper tools (such as a screwdriver instead of a pry bar, a pair of pliers instead of a wrench, a wrench instead of a hammer) not only can damage the unit being worked on, but can lead to serious injuries. **USE THE PROPER TOOLS.**

Inspect spinner fins, spinner motor mounting, and spinner fin nuts and bolts everyday. Look for missing fasteners, looseness, wear, and cracks. Replace immediately if required. Use only new SAE grade 5 or grade 8 bolts and new self locking nuts.

Inspect all bolts, screws, fasteners, chain drives, hopper mounting hardware and other attachments periodically. Replace any missing or damaged parts with proper specification items. Tighten all bolts, nuts, and screws to the specified torque according to the torque chart in this manual.

Some parts and assemblies are quite heavy. Before attempting to unfasten any heavy part or assembly, arrange to support it by means of a hoist, by blocking or by use of adequate arrangement to prevent it from falling, tipping, swinging, or moving in any manner which may damage it or injure someone. Always use lifting device that is properly rated to lift the unit. Do not lift a loaded spreader. Never lift the unit over people.

If repairs require use of a torch or electric welder, be sure that all flammable and combustible materials are removed. The gearbox must be emptied, steam cleaned, and filled with water, before attempting to cut or weld. Do not weld or cut on any tank containing oil, gasoline, their fumes, or other flammable materials, or any container whose contents or previous contents are unknown.

Keep a fully charged fire extinguisher readily available at all times. It should be type ABC or a type BC unit.

Cleaning solvents should be used with care. Petroleum based solvents are flammable and present a fire hazard. Do not use gasoline. All solvents must be used with adequate ventilation, as their vapors should not be inhaled.

Initial Checklist / Road Testing

Initial Checklist

- 1.) Check over entire unit to be sure all fasteners are in place and properly tightened per torque chart in this manual.
- 2.) Check to see that no loose parts are in the body or on conveyor or spinners. Be sure to remove any loose pieces.
- 3.) Open feed gate until it is completely clear of the conveyor, checking to make sure it operates freely.
- 4.) Engage ground wheel drive, making sure it is in contact with the back left tire. Disengage ground wheel drive.

Road Testing

Prior to first use, prior to each spreading season's use, and following repair work, unit should be road tested to verify that all components are functioning properly. Road testing may be done over any suitable course which will allow vehicle and unit to be driven at speeds to be used while spreading.

The following procedure is a guide.

Be sure unit has been properly serviced, the gearbox has oil, and the metering gate is open. Do not put a load in spreader.

To observe conveyor and spinner operation, proper safety precautions should be observed. These include use of suitable mirrors clamped to permit observation by a safety seated observer, following the spreader in another vehicle at a safe distance, or other suitable means. Do not stand on unit as there is a danger of falling off spreader into moving parts.

General Operating Procedures

- 1.) Be sure unit has been properly serviced and is in good operating condition.
- 2.) Connect unit to a properly equipped vehicle, capable of towing unit.
- 3.) Hook safety chains to vehicle, make sure they are securely fastened.
- 4.) Make sure ground wheel drive is disengaged.
- 5.) Fill hopper w/ desired material.
- 6.) Drive to location where spreading is to be done.
- 7.) Adjust metering gate to desired position, according to material being spread

The feed door at rear of hopper adjusts by use of the jack, located above gear box assembly. Jack screws up or down for desired amount of fertilizer to be applied. Door has a pointer riding over an indicating sticker. For 100 lbs. per acre set pointer on No. 1. For 200 lbs. per acre set pointer on No. 2, and so on. Setting may vary a little depending on weights of materials being applied.

- 8.) Engage ground wheel drive unit.

Never pull spreader in gear, except when fertilizer is being applied. Always pull gear lever forward and lock in neutral position. Never back spreader up in gear, with fertilizer in hopper.

- 9.) Drive at speeds that will allow unit to operate at proper RPM's.



CAUTION – If spreading unit is used to transport chemicals, check with your Supplier regarding D.O.T. (Department of Transportation) requirements.



CAUTION - Drive only at speeds which permit good vehicle control.

Lubrication and Maintenance

Preventative Maintenance Pays

The handling and spreading of commercial fertilizers is a severe operation, with respect to metal corrosion. Unless a frequent, periodic preventative maintenance program is established, rapid damage to spreading unit can occur. Proper cleaning, lubrication, and maintenance will give you longer life, more satisfactory service and more economical use of your unit.

Conveyor Gearbox

The new oil in the unit should be drained at the end of the first two weeks (or not more than 100 hours) of operation. The gearbox should be thoroughly flushed with light oil. Refill gearbox with the recommended lubricant, to the required oil level.

After the initial change, the oil should be changed every 2000 hours of operation or annually, whichever ever occurs first.

Check oil level of the gearbox monthly.

Conveyor Chain

Hose down the machine, and remove any material build up on the sprockets or beneath the chain. If material is allowed to build up, the chain will ride up on the material instead of the hopper floor. The more material allowed to build, the closer the chain will come to the chain shield and, or body. If the chain should catch the chain shield, it could distort chain, chain shield, or body. In the same manner, if material is allowed to build up on the sprockets, the chain will have a larger diameter to follow. The more material allowed to build up, the closer the chain will run to the chain shield, until damage occurs. Proper chain tension is a factor in chain and sprocket life. Be sure the chain is tensioned equally on both sides; this adjustment is made on each side of the unit at the idler bearings.

Conveyor chains that are too tight will tend to stretch. This will cause excess sprocket wear and eventually cause breakage. Excess slack presents the possibility of the chain catching on the sub frame parts.

Lubrication of Bearings

Grease in a bearing acts to prevent excessive wear of parts, protects ball races, and balls from corrosion and aids in preventing excessive heat within the bearing. It is very important that the grease maintain its proper consistency during operation. It must not be fluid, and it must not channel.

Bearings should be lubricated by pumping grease in slowly until a slight bead forms around seals. This bead indicates adequate lubrication and also provides additional protection against the access of dirt.

Be sure that all fittings are thoroughly cleaned before grease is injected. Points to be lubricated by means of a grease gun have standard fittings.

Clean Up

For maintaining a minimal maintenance operation, this unit should be thoroughly washed every two or three days during the operational season. Hose unit down under pressure to free all sticky and frozen material.

It is important that the machine be thoroughly cleaned at the end of each operation season. All lubrication and maintenance instructions listed in this section be closely followed. For longer life, repaint worn spots to prevent formation of rust.

Fasteners

Tighten all screw fasteners to recommended torque's after first week of operation and annually thereafter. If loose fasteners are found at anytime, tighten to recommended torque's. Replace any lost or damaged fasteners or other parts immediately upon finding such damage or loss. Check body mounting hardware every week.

Lubricant Specifications

Gearbox Lubricant

Use Chevron AIO ISO 68 Industrial or equivalent.

Grease Gun Lubricant

Use a ball and roller bearing lithium base lubricant with a minimum melting point of 300 degrees F. This lubricant should have a viscosity which assures easy handling in the grease gun at prevailing atmospheric temperatures. The lubricant must be waterproof. The grease should conform to NLGI No. 2 consistency.

Important !

The lubricant distributor and or supplier is to be held responsible for the results obtained from their products. Procure lubricants from distributors and/or suppliers of unquestioned integrity, supplying know and tested products. Do not jeopardize your unit with inferior lubricants. No specific brands of oil are recommended. Use only products qualified under the recommended oil viscosity specifications and classifications found in this manual.

Lubrication and Maintenance

Location	No. of Places	Method	Frequency
Conveyor			
<i>Idler Bearings</i>	<i>2</i>	<i>Grease Gun</i>	<i>Weekly</i>
<i>Drive Bearings</i>	<i>2</i>	<i>Grease Gun</i>	<i>Weekly</i>
<i>Take Up Screws</i>	<i>2</i>	<i>Hand Grease</i>	<i>Weekly</i>
Ground Wheel Assembly			
<i>Bearing</i>	<i>1</i>	<i>Grease Gun</i>	<i>Weekly</i>
<i>Pivot Bushings</i>	<i>3</i>	<i>Grease Gun</i>	<i>Weekly</i>
Spinner Motors			
<i>Spinner Motor Base</i>	<i>2</i>	<i>Grease Gun</i>	<i>Weekly</i>
Gearbox Oil			
<i>Gearbox Oil</i>	<i>1</i>	<i>Oil</i>	<i>Check Weekly, Change Annually</i>
Trailer Jack			
Metering Gate Jack			
<i>Jack</i>	<i>1</i>	<i>Grease Gun</i>	<i>Weekly</i>
Axles			
<i>Axle Bearings</i>	<i>4</i>	<i>Hand Grease</i>	<i>Check Monthly, Change Annually</i>

Note: Unusual conditions, such as excessive dust, temperature extremes or excessive moisture may require more frequent lubrication of specific parts.

*** See *Lubricant Specification* page for types of lubricants and oils to be used.

Torque Chart

Standard Torques – National Course Cap Screws

Cap Screw Size	Torque – in Foot Pounds					
	Grade 2 & Stainless Steel		Grade 5		Grade 8	
	Dry	Lube	Dry	Lube	Dry	Lube
1/4"	5	4	8	6	12	9
5/16"	11	8	17	13	25	18
3/8"	20	15	30	23	45	35
7/16"	30	24	50	35	70	55
1/2"	50	35	75	55	110	80
9/16"	65	50	110	80	150	110
5/8"	90	70	150	110	220	117
3/4"	100	120	260	200	380	280
7/8"	140	110	400	300	600	460
1"	220	160	580	440	900	650

Cap Screw Grade Identification – Markings on Head of Bolt



SAE Grade 2 – No Markings



SAE Grade 5 – 3 Marks, 120 Degrees Apart



SAE Grade 5 – 6 Marks, 60 Degrees Apart

DOYLE
Manufacturing
4001 Broadway
Quincy, Illinois 62305
Toll Free 1-800-788-8085

Operation and Maintenance Instructions

- 1.) Never pull spreader in gear, except when fertilizer is being applied. Always pull gear lever forward and lock in neutral position. Never back spreader up in gear.
- 2.) Spreader is equipped with Kevlar belts. They will need very little attention. Proper adjustment of belts is very important. Should belts be adjusted too tight, power wheel will not drop low enough to maintain proper friction on ground wheel.
- 3.) To replace belts, loosen pillow block bearing anchor bolts, and slide bearings towards gear box. Remove old belts, replace with new belts, adjust bearings, and tighten bearing anchor bolts. (USE Kevlar B-112 Belts)
- 4.) Keep conveyor chain properly adjusted. Chain adjustments are made on the front sprocket and shaft. Loosen pillow block bearing anchor bolts, and adjust take-up bolts. (IF CHAIN IS ALLOWED TO RUN TOO LOOSE, IT WILL LOCK UP.)
- 5.) Gear box assembly is a completely enclosed unit, with gears running in gear oil. Check oil levels in gear boxes often, inspection plugs are located at rear of all gear boxes. Oil should be kept at inspection plug level. (USE CHEVRON AIO ISO 68 INDUSTRIAL OR EQUIVALENT FOR MAIN GEAR BOX. USE MOBIL SHC634 OR EQUIVALENT FOR SPINNER GEAR BOXES.)
- 6.) The feed door at rear of hopper adjusts by use of the jack, located above gear box assembly. Jack screws up or down for desired amount of fertilizer to be applied. Door has a pointer riding over a ruler marking gage. For 100 lbs. per acre pointer should be over No. 1. For 200 lbs. per acre set pointer over No. 2, and so on. Settings may vary a little depending in weights of material being applied.
- 7.) Never leave fertilizer in spreader for long periods of time. Always clean spreader thoroughly after using (by washing down). When cleaning hopper, remove anchor pin at front end of tarp bow, pivot bow to one side, lift baffle at bottom of hopper by lifting from the front of baffle.
- 8.) Tire pressure should be kept at 30 lbs. air pressure at all times on the ground tires. Grease and adjust wheel bearings annually.
- 9.) Should conveyor chain shaft and sprocket assembly be removed, when replacing make sure that center sprocket on shaft is directly in center, over chemical bridge.
- 10.) After each season, clean and oil spreader, using a mixture of diesel fuel and motor oil, before storing. This will prevent rusting.