4000XL / 4500 / 5000
WIDE BODY SERIES
CADMAN TRAVELLER

OPERATOR'S and PARTS MANUAL
2001 EDITION

Cadman
POWER EQUIPMENT
Limited
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WARRANTY POLICY

CADMAN POWER EQUIPMENT LIMITED warrants that each machine it manufactures shall be free from defects in materials and workmanship. The terms of this warranty are as follows:

- All components manufactured by **CADMAN POWER EQUIPMENT LIMITED** shall be warranted for a period of one (1) year from the date of delivery, except the lower frame, upper frame and hose drum structures which shall be warranted for a period of three (3) years.

- The polyethylene hose used on **CADMAN TRAVELLERS** will be warranted for a period of five (5) years from the date of delivery, on a pro-rata basis. The schedule for the polyethylene hose warranty is as follows:
  1st to **10th** month from the date of delivery is **100%,**
  11th to **60th** month from the date of delivery, **the warranty shall diminish from 100% to 0% at a rate of 2% per month.**

- **CADMAN POWER EQUIPMENT LIMITED** makes no warranty whatsoever in regard to tires, engines, and other trade accessories used on its equipment. The customer shall rely solely on the warranties offered (if any) by the respective manufacturer of these trade accessories.

The sole obligation to **CADMAN POWER EQUIPMENT LIMITED** under this warranty is limited to the repair or replacement of any part it manufactured, which, in the judgment of **CADMAN POWER EQUIPMENT LIMITED**, failed under normal and proper use and maintenance due to defective materials or workmanship. All freight charges incurred shall be the sole responsibility of the customer.

CADMAN POWER EQUIPMENT LIMITED and it's dealers (**who are neither authorized nor qualified to undertake any obligations on behalf of CADMAN POWER EQUIPMENT LIMITED**) **DO NOT**, under any circumstances, accept any responsibility for any losses or costs incurred due to parts failure and/or delays during the parts replacement process.

This warranty will be considered void if any alterations or modifications have been made to the machine without the express written consent of **CADMAN POWER EQUIPMENT LIMITED** outlining the nature and the extent of such modifications.

CADMAN POWER EQUIPMENT LIMITED, whose policy is one of continuous improvement, reserves the right to change specifications and designs without notice or incurring obligation.

The warranties expressed herein are non-transferable and replace any other warranties, either written or verbal, which may have been given or implied.

INDEX

INTRODUCTION

Congratulations on the purchase of your new CADMAN TRAVELLER !

This machine is designed to provide you with many years of service if it is used and maintained as prescribed by this manual.

READ and **UNDERSTAND** your responsibilities and the instructions in this manual **BEFORE** attempting to operate your machine for the first time.

OWNERS' RESPONSIBILITIES

1. **Read and understand the instructions in this manual**. If you are unclear on any point mentioned in this manual, contact your dealer or **Cadman Power Equipment Limited** for clarification.
2. **Understand the prescribed limits of this machine** and operate it within those limits.
3. **Train any person who will operate this machine** to do so as prescribed by this manual.
4. **Exercise caution and good judgment** with regard to the safe operation of this machine and the safety of operators and spectators, whether invited or not.
5. **Register your machine to validate the warranty**. Complete and mail the registration card accompanying this manual **within seven (7) days** of taking delivery. **Warranty claims will not be processed for unregistered machines.**

FEATURES

Some of the latest technology is combined with simple, field proven design features as standard equipment in your **Cadman Traveller**. These standard features include;

- Heavy duty chassis
- 360 degree turntable
- Engine drive system
- Positive chain drive
- Automatic retrieve stop
- PTO wind-in
- Mechanical hose guide
- Large, heavy wall plumbing
- 25 foot feeder hose
- Pressure gauges
- Dual hydraulic stabilizer jacks
- Three wheeled, heavy duty gun cart

Ask your Cadman representative about customizing options such as variable trajectory guns, sprinkler kits, automatic shut down devices, gauge protectors for waste water applications or any "made for your application" options that will make your job easier to manage.

SAFETY PRECAUTIONS

"SAFETY IS JUST A WORD UNTIL PUT INTO PRACTICE"

This symbol, the **safety-alert symbol**, indicates a hazard and conforms to ANSI / ASAE S350. When you come across the safety-alert symbol in this manual, make certain you fully understand and abide by the given instructions.

As the owner and / or operator it is ultimately **your** responsibility to insure personal safety and to operate this machine in a safe manner. Your good judgment and the following precautions will help you to avoid costly accidents and minimize personal risk.

- **DO NOT** move or operate this machine until you have **read and understand** the instructions in this manual.
- **NEVER** allow untrained persons to operate this machine.
- **DO NOT** attempt to service this machine while it is in operation.
- **MAKE CERTAIN** all mechanical and hydraulic tension has been released before attempting to service the machine.
- **CHECK** all nuts and bolts regularly for tightness.
- **PERFORM REQUIRED MAINTENANCE** as prescribed or as necessary to keep this machine in safe operating condition.
- **KEEP ALL SPECTATORS** at a safe distance.
- **STAY CLEAR** of high pressure supply lines, especially when first pressurizing the system.
- **DO NOT** remove or alter any of the shielding from this machine.
- **BE CERTAIN** that the machine is securely anchored (using the stabilizer legs) before unspooling the hose.
- **KEEP WELL CLEAR** of all moving parts.
- **NEVER** tow this machine at speeds greater than **10 MPH / 15 KPH** and be certain the tow vehicle has adequate braking capacity to maintain safe control at all times.

GENERAL PRECAUTIONS

Keep the chassis of the machine on firm and level ground. A **Cadman Traveller** has a high center of gravity. It is essential that it be operated from a stable position to prevent roll over.

Regular inspection of your pipe couplings, tubing and gaskets should be part of your regular set-up routine. Any defective parts should be replaced or taken out of service.

Pressurizing your **Cadman Traveller** must be done slowly and cautiously to purge all the air from the system before bringing the system up to full operating pressure. (see "**Field Set Up And Operation**" #16 on pg. 13 for further explanation)

SAFETY DECALS

The safety decals on this machine are intended to warn the operator of potentially hazardous areas. These decals must be properly maintained. This includes;

- keeping all safety decals legible
- replacing any decal that becomes illegible
- replacing any decal that is missing
- if applicable, include the current safety decal specified by **Cadman Power Equipment Ltd.** on any component installed during repair

Contact **Cadman Power Equipment Limited** to obtain replacement safety decals. When replacing safety decals reinstall them onto there proper locations.

SAFETY SHIELDS

⚠ WARNING

Operation of a *Cadman Traveller* without the shielding in place could result in serious personal injury or death!

The shielding installed on your **Cadman Traveller** is designed to help guard against accidental entanglement in the moving parts of the machine. These shields must be removed **ONLY** for the purpose of repair or periodic maintenance as described in the **"Required Maintenance"** section of this manual. The shielding **MUST** be immediately re-installed **BEFORE** putting the machine back in service.

STABILIZER LEGS

All **Cadman Travellers** are equipped with **two (2)** stabilizer legs. The stabilizer legs **MUST** be lowered each time the machine is used, **no matter how little hose is pulled out!**

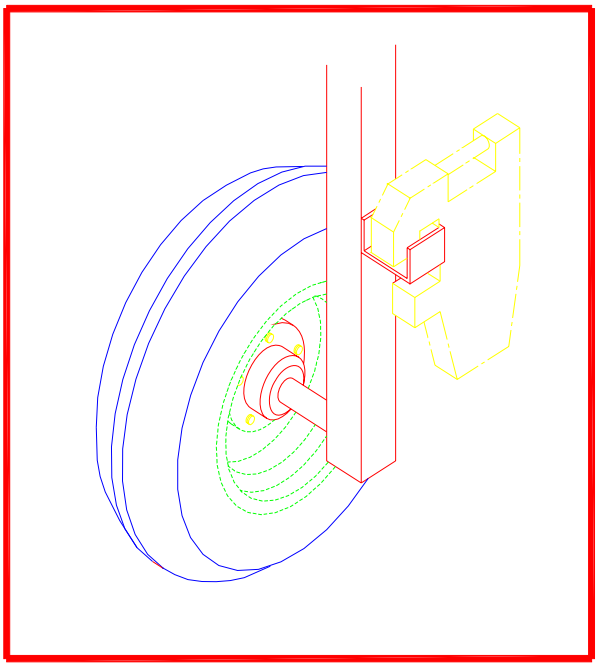
⚠ WARNING

Failure to properly use the stabilizer legs may result in unwanted frame movement or machine upset with the potential to cause serious injury or

GUN CART

The gun cart assembly of the **Cadman Traveller** has adjustable rear track widths as well as provisions for adding additional weight to the gun cart frame. The gun cart should be adjusted to the widest track width that row spacing will allow. This will provide greater stability for the gun cart.

With gun flows exceeding 240 gallons per minute, or when operating on uneven terrain, additional weight **MUST** be added to maintain gun cart stability and help prevent cart upset.



Additional weight may be gained by "loading" the rear gun cart tires and/or using tractor front end weights as required.

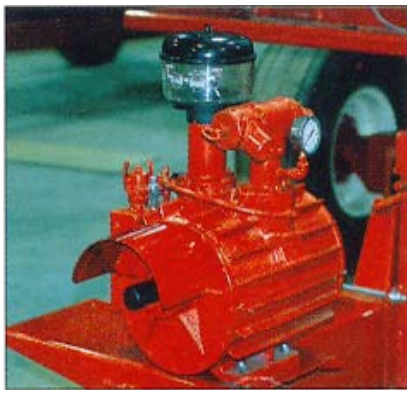
⚠ CAUTION

If the gun is set so that it rotates forward of the rear wheels of the cart (toward the reel), stop the retrieve cycle NO LESS than 10 FEET out from the machine in order to prevent gun damage caused by the gun hitting the cart lift assembly.

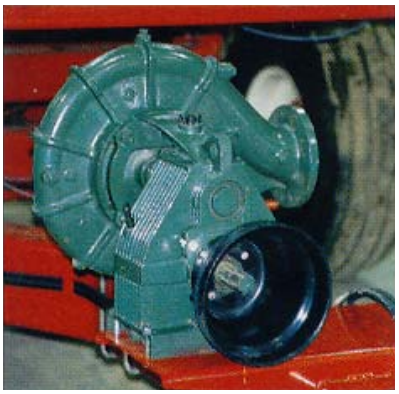
APPLICATORS AND ACCESSORIES

There are a variety of applicators available to be used with your **Cadman Traveller**. Ask a **Cadman Power Equipment Limited** representative about your options.

Cadman Power Pak



Air Compressor



Booster Pump

Many accessories are also available for use with a **Cadman Traveller** (i.e. **Cadman Power Pak**) Refer to there respective manuals before using any piece of equipment with your **Cadman Traveller**.

REQUIRED MAINTENANCE

Prevention of mechanical failure is the goal of any good maintenance schedule. Severe service uses such as liquid manure application, municipal and industrial uses, custom slurry applications, etc. require timely, trouble free operation of your equipment. The secret to preventing unwanted down time is to adhere to a maintenance schedule suited to the way you use the equipment. Your maintenance schedule should include the following minimum requirements;

EACH USE

1 *Check to be sure BOTH shut off switches and the safety shut off switch are working*. Repair or replace a defective switch **BEFORE** operating the machine. (see top of pg.14)

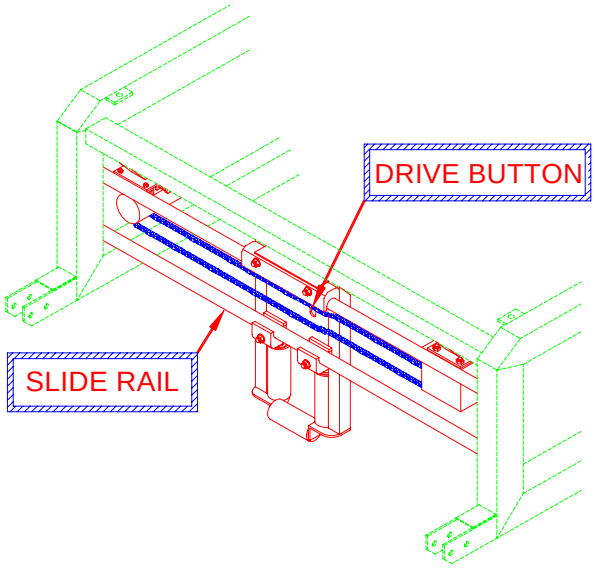
2 *Check to be sure the compensator safety switch is properly adjusted and working*. The engine must shut down before the shut off bar contacts the frame. (see top of pg. 14)

DAILY

1 Check the engine oil level and air filter condition.

2 Check to be sure that the indexer drive button and connecting link are in good condition. Insure that the slide rails are well greased. (see illustration)

3 Check the alignment and tension of the main drive chain. Adjust as necessary.



AFTER THE FIRST 25 HOURS

1 Change the oil in the Honda engine. Refer to the Honda engine manual for detailed maintenance instructions.

2 Change the oil in the transmission gearbox. See "**LUBRICANTS**" section for oil type and fill level.

EVERY 50 HOURS OF USE

- Check **ALL** wheel bolts (using a lug wrench) to insure tightness.

EVERY 100 HOURS OF USE

1 Change the engine oil. Consult the Honda engine manual for further information on oil requirements and change intervals as well as other required engine maintenance.

2 Lubricate the following;

- Turntable bearing ring
- Indexer slide rails
- Indexer idler block
- Main drive chain idler arm pivot
- Drive pulley lead screw

3 Lubricate all chains.

4 Check the oil level in the transmission gearbox. Replenish as necessary.

5 Check for oil level in the indexer gearbox.

6 Check the tire pressure and maintain from **36-40 PSI**.

EVERY 250 HOURS OF USE

Disassemble, clean, inspect and re-pack the gun cart wheel bearings. Replace any defective components as required.

BEFORE STORING

1 Drain the hose. This is easily done by pulling out all but one (1) coil of hose along a level path. Remove the drain plug from the gun cart. Use the Honda engine or a tractor PTO shaft to wind in the hose.

⚠ CAUTION

DO NOT leave the machine unattended during the hose draining process. Without fluid pressure present, the hose may flatten slightly causing it to lay improperly on the drum. It may be necessary to manually adjust the hose position on the hose drum during the draining process.

2 Disassemble and clean the variable speed pulley mounted on the engine. Remove the "moving face" of the pulley. Clean the bronze bushing and shaft of gum and belt dust and lubricate with a thin coat of light oil.

3 Disassemble, clean, inspect and re-pack the main chassis wheel bearings.

4 Lubricate all chains.

5 Prepare the Honda engine for storage. See the storage instructions provided in the Honda engine manual.

BEFORE START UP (After long term storage)

1 Review this manual to refresh your memory regarding the proper operation of this machine.

2 Fill the fuel system with fresh fuel.

3 Change the oil in both the transmission gearbox and the indexer gearbox.

4 Check and adjust the tire pressure to **36 - 40 PSI**.

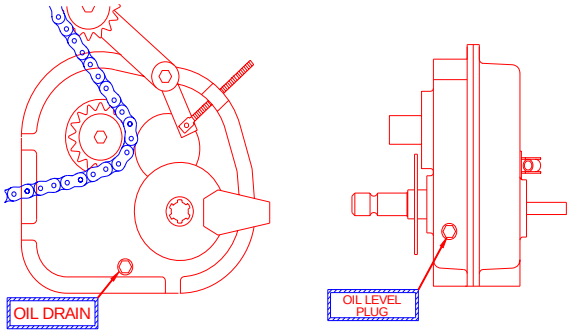
LUBRICANTS

Grease: Any good grade of multi-purpose, waterproof grease is acceptable.

Engine Oil: Consult the Honda owners' manual for oil recommendations.

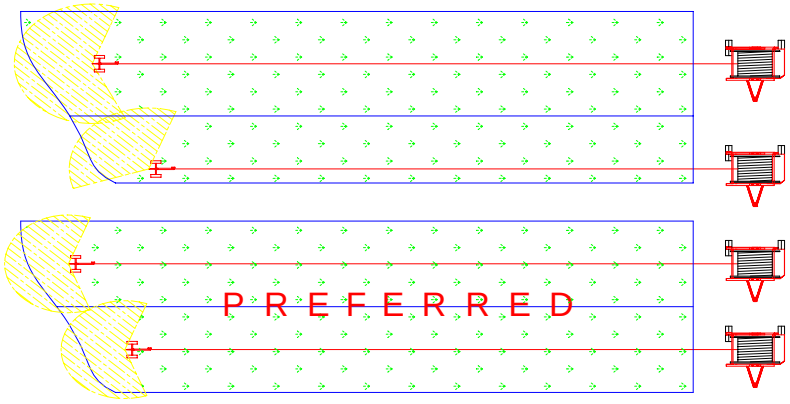
Transmission Gearbox: SAE 80W or 90W gear oil. (see illustration)

Right Angle Gearbox (Indexer)**:** SAE 80W or 90W gear oil.



FIELD PREPARATION AND OPERATING TIPS

1 If your field width is greater than can be irrigated in one (1) pull but narrower than two (2) pulls, divide the field into two (2) equal width pulls instead of one (1) full width pull and one half width pull. (see illustration below)



There are two (2) reasons for this.

- Even division of the field allows maximum versatility to combat rising winds from any direction.
- The gun cart will track straight and be less affected by gun thrust.

During quarter circle operation (from the edge of a field), gun thrust tends to steer the gun cart in the direction in which water is being thrown. This occurs when the gun is nearly perpendicular to the hose lane. If conditions dictate that a quarter circle pass is unavoidable, prepare the travel lane by preparing a shallow trench for the hose and the cart wheels to follow. Adding extra weight to the rear of the gun cart is also beneficial. If these preparations are not possible or prove inadequate, reduce the size of the gun nozzle to reduce the amount of thrust. Remember to adjust the retrieve rate to maintain your desired application rate.

During normal full pattern operation, (the gun operates to both sides of the cart) gun thrust will correct this steering action automatically. The side to side movement of the cart should be no more than the width of the cart's rear wheels.

2 If you typically hill your row crops and plan to leave open travel lanes, hill and cultivate your travel lanes as well. The absence of grass and weeds will dramatically reduce the amount of towing effort and traction required to pull out the hose. The hills will also help guide the hose and cart through the field.

3 Crops such as sod, alfalfa, potatoes and peas provide a great deal of resistance to pulling the hose. If you irrigate such a crop, consider uncoupling the feeder hose at the mainline valve and pulling out the hose slightly slower. This expels a good deal of the water from the P.E. hose, reducing the amount of towing effort required.

⚠ CAUTION

Several hundred gallons of water can be expelled. Exercise good judgement to prevent excessive muddying of the area near the chassis of the machine.

4 If a curved pull is necessary, **pull a minimum of <u>200</u> feet of hose** straight out from the machine chassis before beginning a long gradual curve.

5 Provide for ample head land (lane way) space to allow the machine chassis to be pivoted and setup.

6 Where field conditions permit, always attempt to pull the hose either up or down sloping terrain instead of operating on a side hill. If a side hill condition is unavoidable, provide a hilled trench as a guide for the hose and add extra weight to the gun cart to prevent upset.

WHEN APPLYING LIQUID MANURE . . .

Environmental concerns seem to be driving legislative agendas in many agricultural areas across the continent. Current and pending laws in many agricultural regions of North America are changing the ways in which the agricultural community is expected to manage their liquid animal waste products.

The changes in legislation typically target two main issues; run-off prevention during and after application and soil nutrient loading.

Run off seems to be the largest concern with nutrient application. Run off may result from several different factors, most of which are controllable. These factors include; exceeding the soil intake rate; nutrient application on steep grades; high application amounts; leaking mainline fittings and seals; sudden rainfall during or immediately after application; ground frost; etc. Constant watch must be kept and immediate action taken when necessary to prevent run off from occurring.

Soil nutrient loading depends on many variables. Some of these variables (but certainly not all) are soil type, type of crop being grown in the irrigated area, application timing, nutrient value of the material being applied (nutrient value should be assessed at the time of application as it can change throughout the year), etc.

Soil type will determine the intake rate at which liquid may be applied. Cultivation of the field just prior to application can improve the intake rate of some soils.

Great potential benefit lies in using the nutritional value of the product being applied to replace some or all of the traditional chemical fertilizer used. Application timing and amount are important considerations. Soil analysis taken prior to planting and during the growth periods of the crop will help determine if there is room for further application amounts to be added prior to crop maturity. A total management plan should include provisions to end the crop season without surplus nutrients left as residual. These excess nutrients typically end up in the ground water supply. Local colleges, universities and agricultural extension services are usually a good source of information. They can usually help you determine an application program that prevents soil nutrient overload due to excess application.

Cadman Power Equipment Limited cannot possibly provide up-to-date recommendations with regard to the legal obligations you must deal with in your particular area. However, as a manufacturer of equipment used in nutrient application (liquid manure, milk house run-off, etc.), we feel it necessary to make you aware that the municipal, regional and state governing bodies in your area may have recently enacted new legislation or revised existing legislation with regard to nutrient handling practices and procedures.

It is your responsibility to make yourself aware of and abide by the current legislation in your area. Please take the time to contact your local agricultural representative to obtain the latest information regarding legal nutrient application and handling.

FIELD SET UP AND OPERATION

BEFORE operating your new **CADMAN TRAVELLER**, inspect the machine for any damage or parts which may have come loose during shipping. **REPORT ANY DAMAGE TO YOUR DEALER IMMEDIATELY !**

⚠ CAUTION

Before moving a traveller at any time, be sure that the drive system is fully engaged, the engine fuel valve is in the OFF position and the transport brake is fully applied.

1. Tow the machine to the field. Park the traveller on the head land (lane way) at right angles to the rows to be irrigated.

NOTE : For the first use of a new machine or a machine which has been drained prior to storage, start in an area which will allow you to pull out the full length of hose (**EXCEPT** for one full coil). This will allow you to be sure that the hose is properly laid on the base layer and properly indexed.

If you are unable to pull out all of the hose in the area you are working, pull out enough hose to reach the base layer. This will allow you to see if the coils of hose in the base layer are stacked tightly together. If the hose is found to be improperly indexed (the hose tries to climb up on itself or gaps exist between the coils of hose), do the following:

- Set the hose drum so that the hose connection is at the six o'clock position (closest to the ground).
- Fully apply the brake to prevent further rotation of the hose drum.
- Manually move the coils of hose so that they are tightly stacked together all across the base layer of hose.

Check the position of the hose guide in relation to the hose. If the hose does not travel straight through the hose guide and lay snugly against the drum elbow, do the following (see following page):

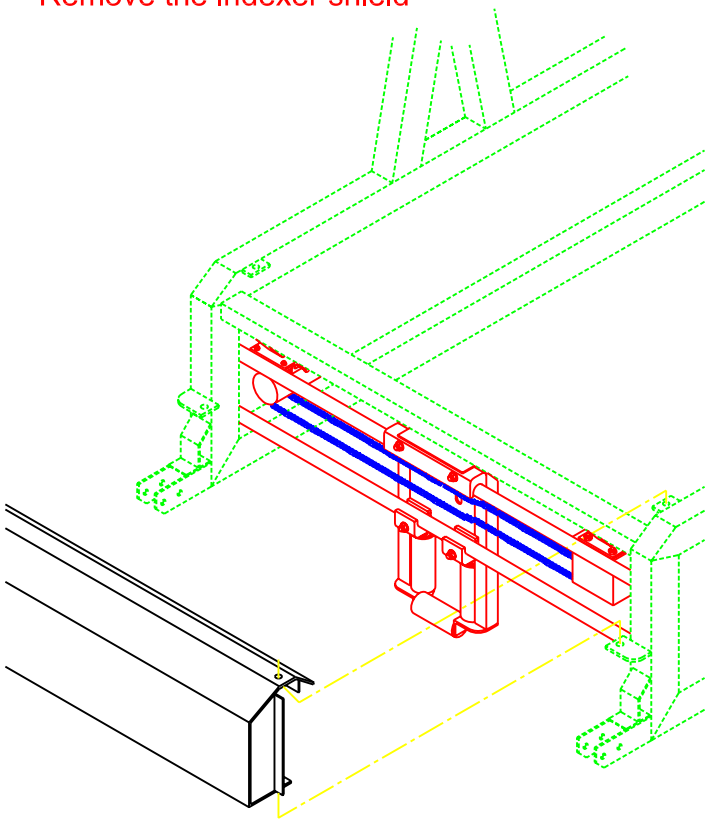
- Remove the indexer shield.
- Remove the # 50 chain which runs from the hose drum axle to the indexer gearbox.
- Manually adjust the hose guide position so that the hose travels in a straight line through the hose guide and lays snuggly against the drum elbow.
- Re-install the # 50 chain from the hose drum axle to the indexer gearbox.
- Re-install the indexer shield.

⚠ CAUTION

Low pressure operation can cause indexing problems. The hose indexing system of your Cadman traveller is set up to properly index the polyethylene hose onto the hose drum under most operating conditions. However, when operating at very low inlet pressures (110 PSI or less), the PE hose can flatten slightly causing the indexing system to appear to be either out of adjustment or not functioning properly. This is probably not the case in this circumstance.

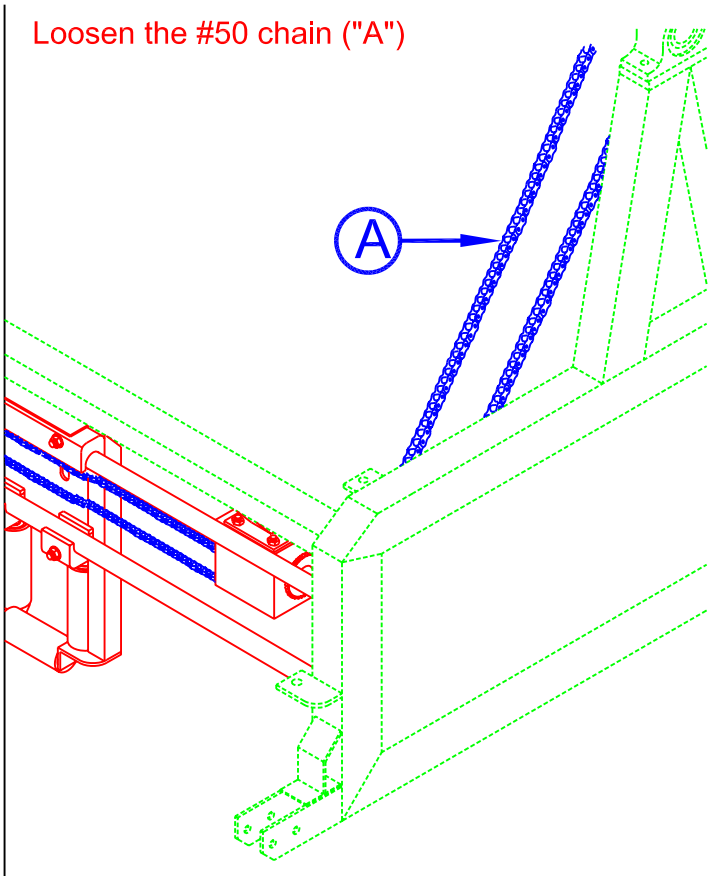
It is advisable to increase the inlet pressure at the machine to at least 110 PSI to help prevent further hose indexing problems related to low inlet pressures.

Remove the indexer shield



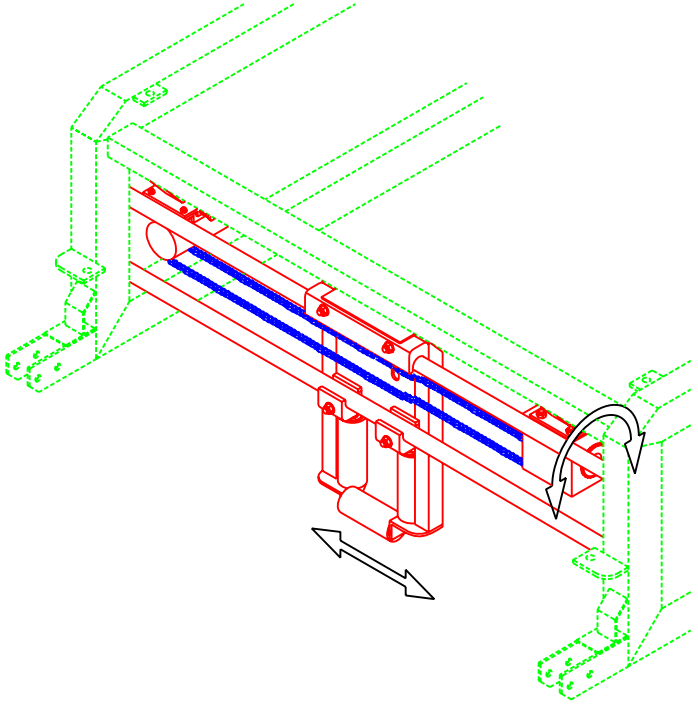
Remove the bolts (4) from the indexer shield and remove it.

Loosen the #50 chain ("A")

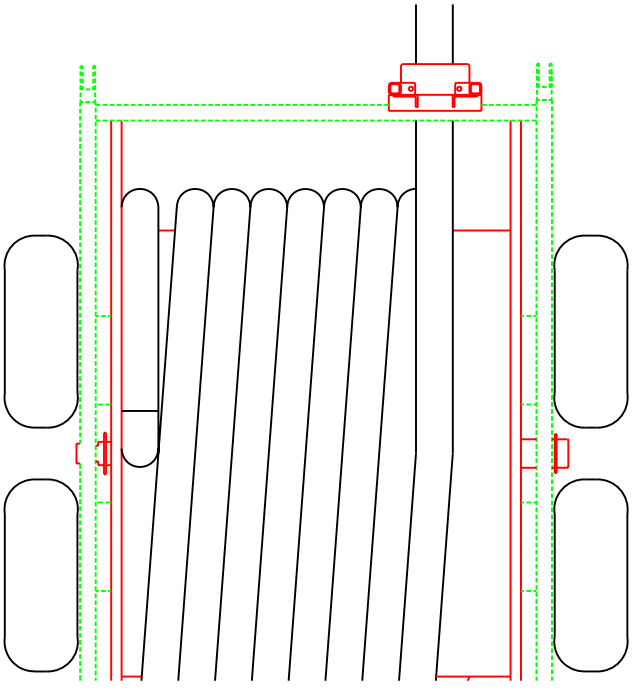


Loosen the upper idler sprocket, then remove the chain from the sprocket on the gear box.

Manually adjust the hose guide postion



Adjust the position of the hose guide by rotating the sprocket.

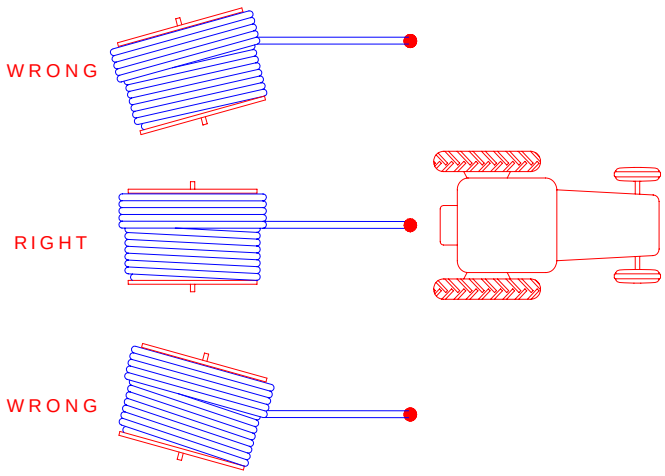


The hose should travel in a straight line through the hose guide and lay snugly against the drum elbow

Assembly: When reinstalling the chain hold pressure on the idler gear by pushing with a wrench on the inside nut. Make sure all the slack from the lower portion of the chain is taken up. Tighten the idler gear bolt while holding pressure. Properly reinstall all saftey shields!

2 Adjust the tongue jack for a level frame position during operation.

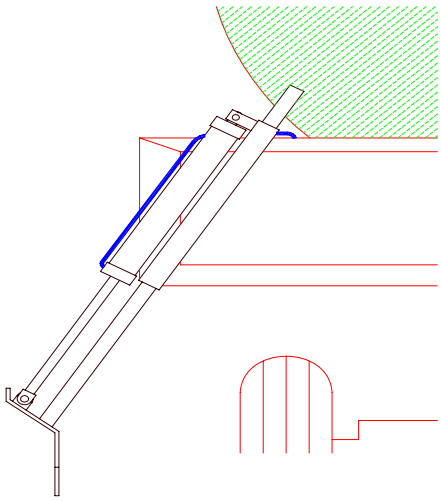
3 Release the turntable lock and rotate the upper frame to the desired operating position and re-engage the turntable lock.



⚠ CAUTION

The upper frame position MUST allow the hose to be pulled out straight from the machine. Adjust the upperframe position if necessary to insure proper unreeling of the hose.

4 Connect both hydraulic lines from the traveller to the tractor. Using the tractors hydraulic controls fully extend both stabilizer jacks

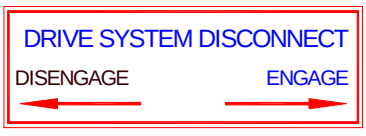


⚠ CAUTION

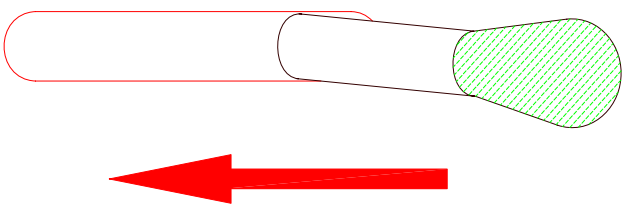
Never operate the machine with only one (1) stabilizer leg extended

⚠ WARNING

If a rear pull is needed, provisions MUST be made to leave the tractor attached to the tongue of hte machine. The tractor must be left in gear and the parking brake ingaged. This provides extra anchoring in addition to the stabilizer legs during the retrieve cycle.



5 Shift the transmission lever to the disengage position (arrow).



6 Adjust the brake handle position so that a slight amount of brake tension is applied. This tension should be enough to control the hose drum and prevent loosening of the hose on the drum when the tractor stops pulling the hose.

7 Set the track width of the gun cart as wide as possible. Lower the cart to the ground by operating the hand winch on the side of the machine. Disconnect the lift chain from the cart.

8 Move the tractor from the front of the machine, position it behind the gun cart and attach the gun cart tow chain to the tractor drawbar.

9 Pull the desired amount of hose. (see illustration on pg. 11)

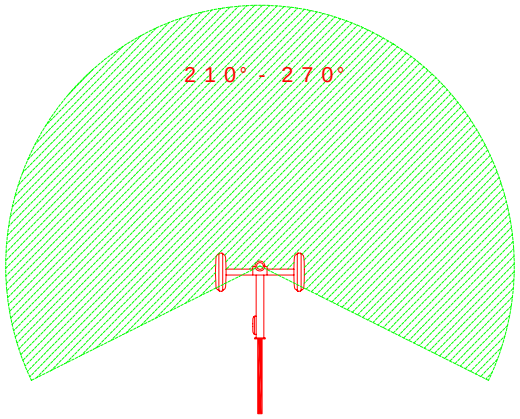
⚠ CAUTION

DO NOT exceed 3 MPH while pulling out the hose

DO NOT stop suddenly at the end of your travel lane. Slow gradually when nearing the end of the pull.

ALWAYS leave at least a 3/4 wrap of hose on the drum.

10 At this time, set the part circle stops on the gun. The gun should be set behind the cart so that the travel path remains dry until the cart passes. (see illustration)



11 Check the nozzle size and check that the nozzle cone is secure.

NOTE: Several nozzle sizes are supplied with the sprinkler gun. The “best” nozzle choice for your application may take some experimentation to determine. Typically, two nozzle sizes will perform well for each model. See the chart below for nozzles to try.

MODEL	NOZZLE SIZE
4000XL	1.2” or 1.3”
4500WB	1.3” or 1.4”
5000WB	1.5” or 1.6”

12 Remove the tractor from the gun cart and clear the area of operation.

13 Connect the feeder hose to the inlet on the traveller and lock it in place. Attach the other end to the mainline or mainline valve.

14 If the hose is loose on the drum, use the hand crank to rotate the drum to tighten the hose.

Insure that the hose coils are stacked tightly together.

⚠ WARNING

Never leave the hand crank on the driveshaft. REMOVE IT IMMEDIATELY after use.

15 Adjust the brake handle to the full "**ON**" position after insuring that the hose is tight.

16 GRADUAL pressurization of the system may now begin. Keep the pressure low (under 50 PSI) until **ALL** the air is purged from the system and a steady stream is flowing from the gun nozzle. **AFTER** all the air is purged from the system, pressure may be slowly raised to a maximum of **150 PSI** at the inlet of the machine.

NOTE: Ideally, operating pressures at the inlet will be between 120 PSI and 150 PSI. This will allow gun pressures ranging from approximately 50 PSI to 110 PSI (depending on nozzle size, hose size and length). Assuming proper nozzle selection has been made based on the pressure and flow volume available, proper droplet sizing and proper gun action, an even and uniform watering pattern will result.

⚠ CAUTION

Operation of the machine with the inlet pressure below 110 PSI will allow the hose to flatten slightly as it is rewound during the retrieve cycle. This flattening may cause the hose to lay improperly on the hose drum or make it impossible for all the hose to be rewound. In either case, the hose must be pulled out to correct the problem. If you are unable to provide a minimum of 110 PSI to the inlet of the machine contact your dealer for help in improving your system design.

17 Check the mainline and inlet elbow connections.

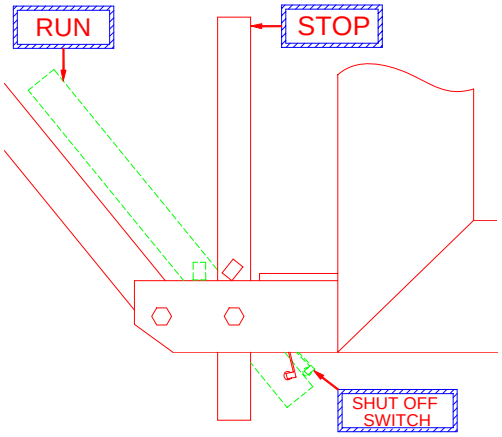
START UP OF THE RETRIEVE CYCLE

1 Check the engine oil and fuel levels.

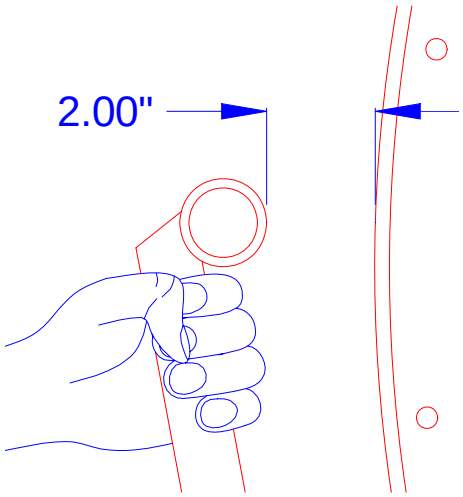
2 Open the fuel valve on the engine, move the **ON / OFF** switch to the "**ON**" position and start the engine.

NOTE: If after several attempts, the engine fails to start, check the shut off bar at the opposite end of the machine to insure that **BOTH** shut off switches are depressed. The engine **WILL NOT START** if either switch is released.

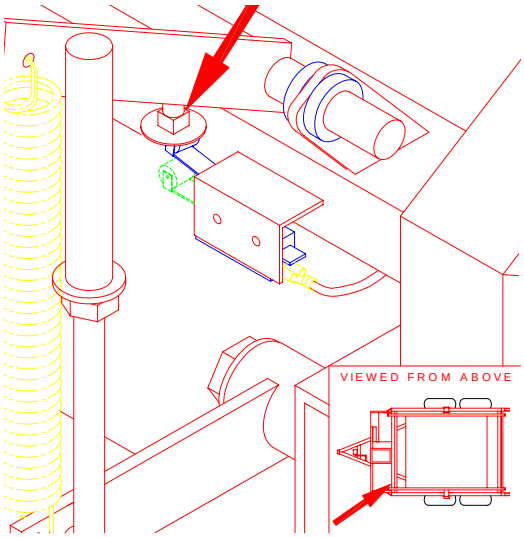
3 After the engine is running smoothly, check to insure that all three (3) engine shut off and safety switches are functioning properly.



- To check the shut off switches, lift the shut off bar to a vertical position, while manually holding one (1) of the two (2) switches in the depressed position. The engine should shut off as the opposite switch releases. Re-start the engine and repeat the test for the opposite switch.

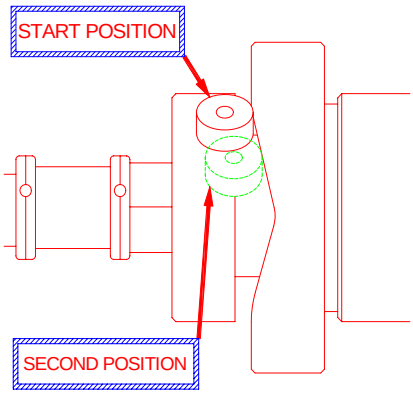


- Pull the compensator frame away from the hose drum. As the frame clears the outer edge of the drum, the engine should shut off.



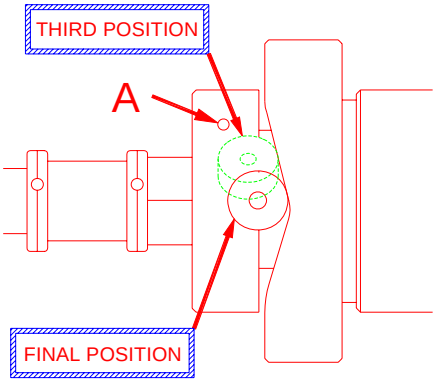
- If the engine does not shut off at this point, adjust the elevator bolt (arrow) so that the engine will.

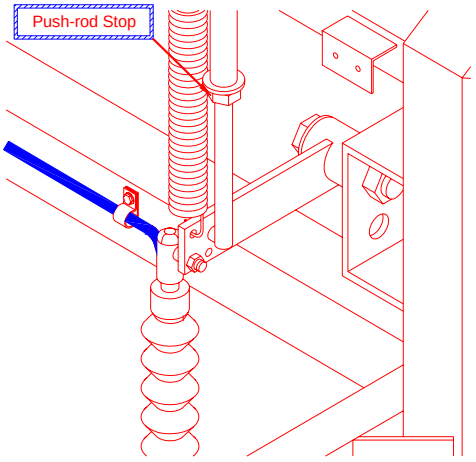
Check the adjustment of the compensator system when the machine is first put into service and periodically during normal use to insure accuracy. The following outlines the set-up routine and operation of the compensator system.



- When the engine is first started after pulling out the hose, the pulley cam should rotate, positioning it for the start of the retrieve cycle. The cam rollers should now be near the top of the ramp (see illustration)

During the hose retrieve cycle, the compensator frame rests against the hose on the drum. As each layer of hose is rewound, the compensator frame moves outward with the hose. This movement causes the pulley cam to rotate a measured amount, allowing the pulley to open slightly. This changes the diameter of the pulley. The change in pulley diameter changes the overall drive ratio which keeps the hose retrieve rate constant (compensating for the increase in net drum diameter). This process repeats for each layer of hose.





As the hose is un-spooled to prepare for the next irrigation cycle, the compensator frame will follow the hose level. At this time, the compensator control cable, the cable drive arm, and the pulley cam do not move (the engine pulley cannot close against the drive belt). As soon as the engine is started, the reset spring will cause the pulley cam to return to its' "**START**" position (at the top of the cam ramp). If the cam does not reposition properly it can be adjusted. This is accomplished by changing the length of the push-rod.

5 Select a retrieve rate to achieve the desired application rate. (see example on pg. 16)

- Determine the precipitation amount you require in inches.
- In the gun performance chart, pg. 17, **find the gallons per minute** you are pumping by crossing your nozzle size with the pressure you have **at the gun**.
- From the "**TIME REQUIRED TO WATER ONE (1) ACRE**" chart (chart #4, pg. 18), find the time required to cover one (1) acre by crossing your **GPM** (from the previous step) with your desired application amount.
- In the "**HOSE RETRIEVE RATE**" chart (chart #5, pg. 18), find the required hose retrieve rate by crossing the "**TIME REQUIRED**" (from the previous step) with the lane spacing you are using.

6 **With the engine running** adjust the pulley control knob until the speedometer reads the required retrieve rate (from step #5)

⚠ CAUTION

DO NOT adjust the pulley control knob unless the engine is running. Permanent damage to the pulley may result.

The control knob should maintain its position when released. If the control knob position changes on its own, an increase in drag on the control stem may be gained by tightening the drag adjustment screw (arrow "A", top illustration).