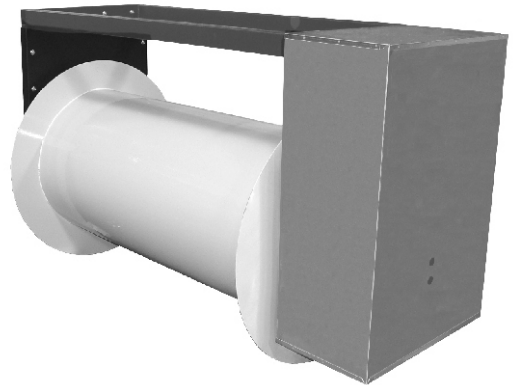


INSTALLATION AND
OPERATIONS MANUAL

POWER
OPERATED
TUBING STORAGE
REEL

MODEL TSR-P

18" DIAMETER OVERSIZE DRUM



CAR-MON
PRODUCTS, INC.

1225 Davis Road Elgin, IL 60123
Phone (847) 695-9000 Fax (847) 695-9078

TUBING STORAGE REEL-POWER OPERATED

INSPECTION AND PREPARATION

1. Check each unit to see that it is complete. The components of the system include:
 - A. Tubing Storage Reel. Reel also may have an attached CMW fan.
 - B. Hose assembly consisting of hose with flange one end, exhaust adapter other end, hardware and gasket to attach hose to reel.
 - C. Up/down control, either wall mounted or a hanging pendant and any optional components.
2. Check for any damage that may have been caused by shipping. If concealed damage is found, report it to the carrier immediately. Car-Mon cannot be responsible for any damage not reported to the carrier in a timely manner.
3. Review the instruction sheets before proceeding with the installation.

NOTE: FOR REELS WITH ATTACHED CMW OR DXi FAN, SEE SEPARATE MANUAL FOR FAN OPERATION

REEL INSTALLATION

1. Tubing storage reels may be wall or ceiling mounted. Make sure the mounting surface is level and plumb and able to support the weight of the reel which can weigh up to several hundred pounds when the hose is attached. Use all four mounting holes with bolts that are capable of withstanding the weight and stress of the reels. After the reel is mounted, verify the reel is level. Extra large reels may have additional mounting supports.
2. Connect the power supply. There are several different options that can be supplied with a power reel with options for different up/down controllers and fan options. The wiring diagram in this manual is only for single phase, 120v supply with the standard up/down wall mounted switch. If other options are supplied, a diagram will be enclosed. If not, contact the factory immediately before proceeding with wiring. If there is any question as to the correct diagram supplied, do not connect unit to power source. **NOTE: Any damage caused to reel electrical components caused by improper wiring will be the responsibility of installer and not covered by the factory warranty.**
3. After power is connected, push the "up" button on the up/down control. The drum should turn counterclockwise when viewed from the motor end enclosure of the reel. If it does not turn in that direction, recheck the wiring connections. If it is turning properly, use the up/down controls to run the reel from stop to stop position two or three times to assure it is operating properly.
4. The hose assembly can now be attached. Push the down button control till the reel stops. The hose must be installed when the reel is in the fully down position. All reels have been tested and preset to the length of hose supplied. If different lengths of hose were ordered, make sure to match the hose length to the correct reel.

Attach the flanged end of the hose to the pocket of the reel using the gasket supplied between the flange and the pocket. When attaching, the reel pocket should be in the 11-12 o'clock position. If for any reason the reel is not in this approximate position, it will have to be adjusted using the up limit switch. (See page 3 for adjustment of limit switches)



After the hose has been attached, push the "up" button until the hose stops. The reel should stop with about three feet of hose, including the adapter, hanging down from the reel. (If hose appears not to stop and the adapter is about to go onto the reel, release the up button immediately.) Please note that some reels are shipped with an extra length of hose that is not designed to wind onto the reel. In this case, more than three feet may hang down.

5. Connect duct work to crimped discharge collar for models without a connected fan. Recheck all connections and make sure all wiring is complete. Unit is now ready for final test.
6. Put hose assembly in the complete down position. Hose should always be in the complete down position when operating the system. Leaving tubing on the reel will increase static pressure and cut air flow and possibly cause damage to the hose and reel. Turn on the fan and make sure a good air flow is going through the tube. Let system run for a few minutes. Fan should be off before retracting hose.

INSTALLATION - OPERATION - MAINTENANCE

OPERATION

1. When the vehicle to be serviced is in position, push the down button and lower the tubing completely. There should be no tubing wound on the reel when system is in operation. Vehicle should not be running. Attach the exhaust adapter to the exhaust pipe.
2. IT IS VERY IMPORTANT THAT THE FAN IS RUNNING BEFORE THE VEHICLE IS STARTED. If fan is not running and vehicle is started, damage can be done to the system and could create an unsafe condition for the operator.
3. When service is finished, turn off vehicle and leave fan running. The adapter will be HOT! It is best to wait a few minutes with the fan running before removing the exhaust adapter. Leaving the fan running will also clear the system of any carbon dioxide in the tube and the reel.
4. After several minutes, remove the adapter, turn off the fan and retract the tubing completely. If reel has attached fan and internal control option, tubing must be fully rewound before fan will shut off.

MAINTENANCE

1. Periodically check and lubricate the discharge duct bearing with a lithium based grease.
2. The heavy duty cast steel flange bearing should be checked and greased periodically.
3. Check chain drive and sprockets to make sure the chain is fully tensioned.
4. Check hose assembly, flange connection, and adapter. Check carefully to insure there are no tears or cracks in hose. Wipe off any excess dirt or grease. Make sure flange connection and adapter connection are sound.
3. Follow maintenance procedures for fan.

TROUBLESHOOTING

Up/Down switch does not work

Check all electrical connections and make sure the connection to the reel is correct. Review the connections diagram. Make sure the chain drive is in place and connected to the sprocket drives at gear box and at reel.

Tubing does not extend or retract to proper length.

The reel should have been in the fully down position when the tubing was attached. Reels are fully adjusted to the tubing before they leave the factory. If correct procedures were followed, and tubing is still not winding properly, a limit switch adjustment may be necessary. (See page 3)

During continued use.

Tubing stops retracting or rewinding

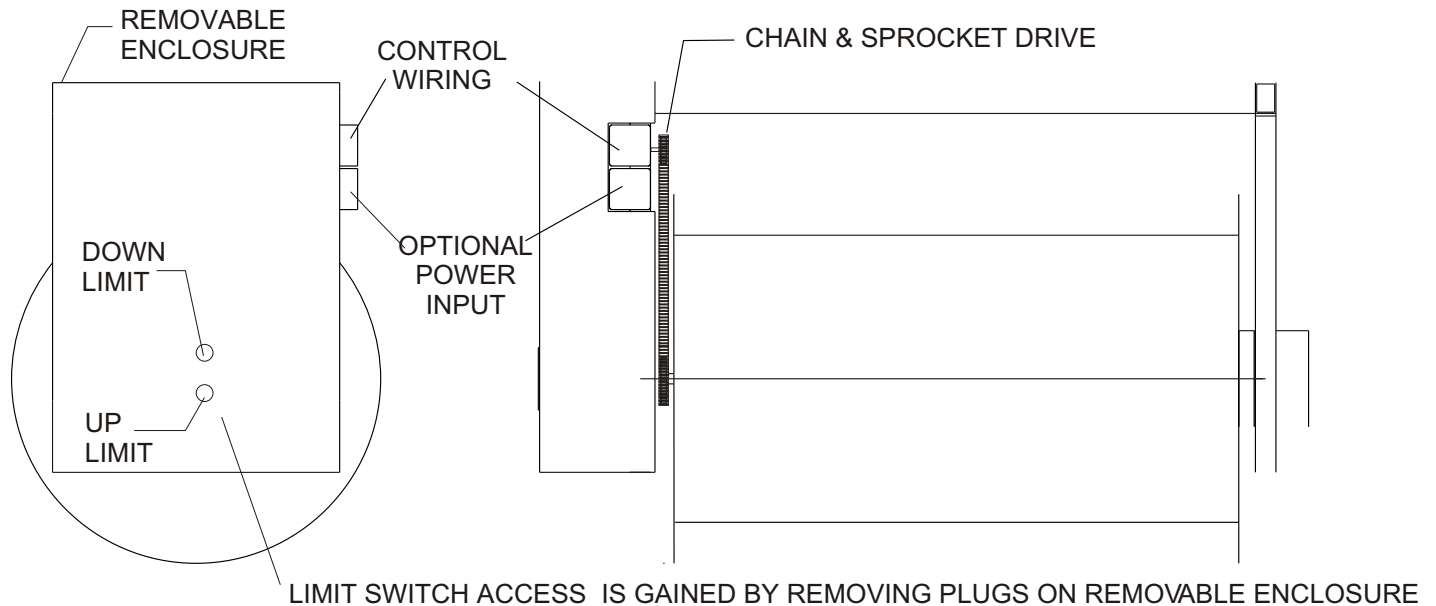
Check electrical connections, making sure they are intact. Remove motor end cover of reel. Check to see that the chain and gear assembly is functioning. If problem persists, contact factory-customer service.

Tubing gets very hot or scorched

Check to make sure tube is clear and that no foreign object is lodged in tube. Make sure exhaust conditions have not changed. (Attaching to a larger engine different from the original specification or increased RPM testing).

INSTALLATION - OPERATION - MAINTENANCE

FIELD WIRING AND ADJUSTMENTS FOR TUBING STORAGE REEL POWER OPERATED



LIMIT CONTROL ADJUSTMENTS

UP POSITION

1. TO INCREASE LENGTH TURN SCREW CCW.
2. TO REDUCE LENGTH TURN SCREW CW.

DOWN POSITION

1. TO INCREASE LENGTH TURN SCREW CCW.
2. TO REDUCE LENGTH TURN SCREW CW.

FIELD WIRING OF TSR-P REEL

The only field wiring that is required is power wiring to the electrical junction box mounted on the assembly, and the wiring between the "UP/DOWN" push button station. (Furnished by Car-Mon Products) Please see wiring diagram.

NOTE: If hanging pendant option is supplied, the black & red wires are for the up control. The green & white wires are for the down control.

(See photo detail of parts on next page)

LIMIT SWITCH ADJUSTMENTS

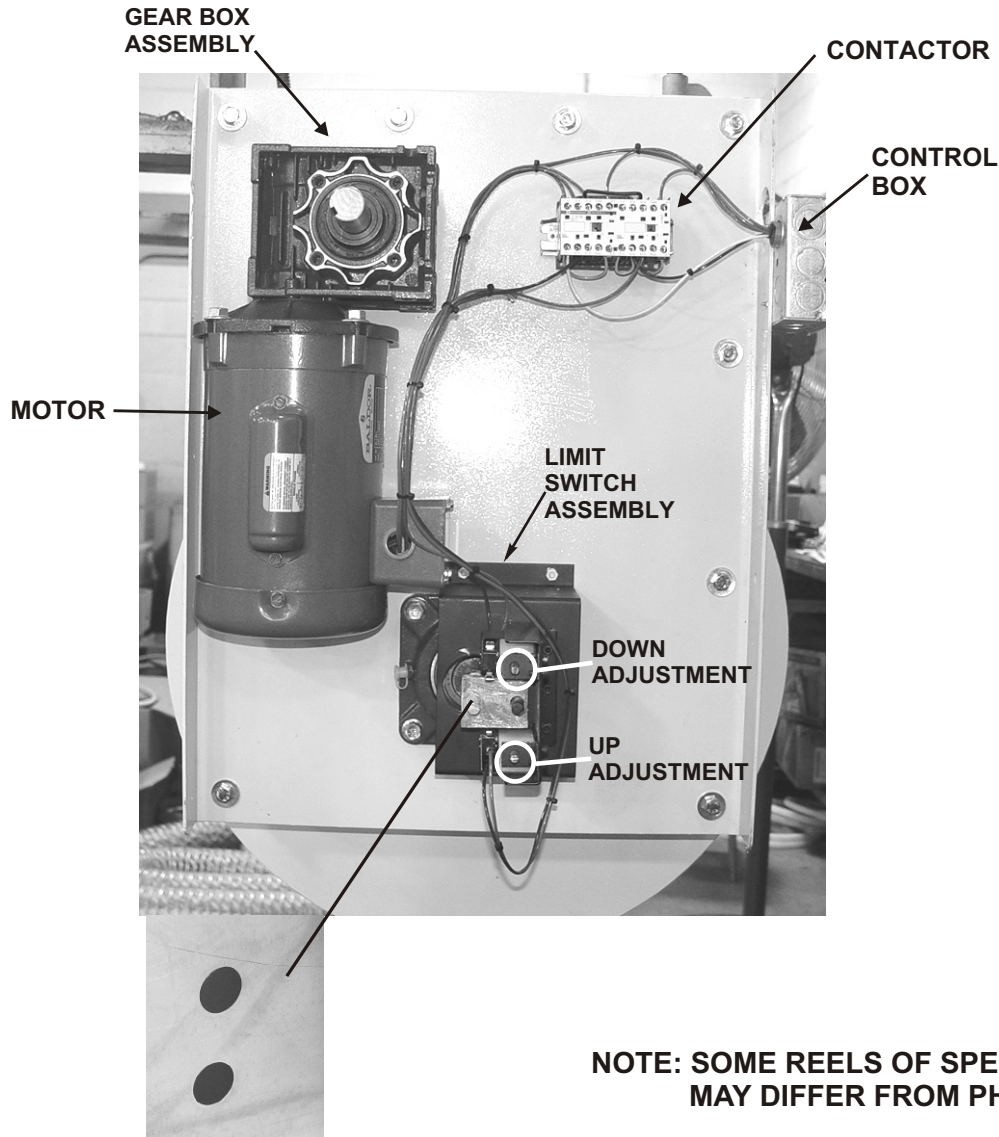
1. Run the reel to the end of travel for the side that needs to be adjusted (Run reel all the down, if you need to change how far the tube hangs off the reel)
2. Estimate length of change desired.
3. Rotate the drum 2 full turns off the limit switch. This is crucial. If this is not done, it is possible to overdrive the limit switch which can cause extreme damage to the drive assembly.
4. Each quarter turn of the adjustment screw will result in approximately one foot of travel. It is advisable to make several smaller adjustments rather than one large one. Working on one adjustment at a time will help eliminate confusion.
5. Once the desired change has been achieved, run the reel from stop-to-stop several times to verify repeatability.
6. Replace black plug covers.

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PARTS DESCRIPTION FOR OVERSIZED
EXTENDED DRUM REEL

NOTE: THE CHAIN DRIVE IS FULL TENSIONED AT THE FACTORY AND SHOULD NOT NEED ANY FURTHER ADJUSTMENT UNLESS A REPLACEMENT PART IS INSTALLED.



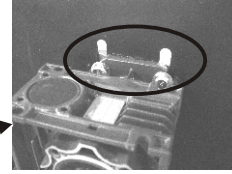
LIMIT SWITCH ADJUSTMENT
BEHIND REMOVABLE PLUGS

NOTE: SOME REELS OF SPECIAL CONSTRUCTION
MAY DIFFER FROM PHOTO ABOVE.

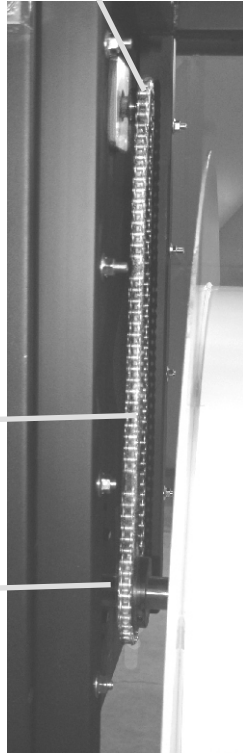
INSTALLATION - OPERATION - MAINTENANCE

**GEAR BOX SPROCKET
(ADJUSTABLE FROM
GEAR BOX SIDE)**

**ADJUSTMENT SLOTS
FOR TENSIONING
CHAIN DRIVE
(4 BOLTS)**



**GEAR BOX
ASSEMBLY**

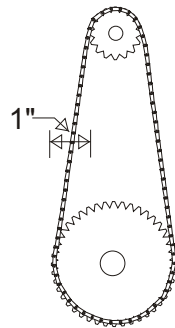


CHAIN AND SPROCKET DRIVE

There is a small sprocket drive on the gear box assembly and a larger one on the storage reel, and a chain connecting the two. If the chain ever needs re-tensioning it can be done by loosening the four bolts in the adjustable slots behind the gear box (see above) and re-applying the tension. There should be enough tension on the chain to keep it from jumping the sprocket.

CHAIN DRIVE

**REEL DRUM
SPROCKET**



The chain is properly tensioned when there is about a 1" deflection at mid-point on the chain.

DRIVE CHAIN DETAIL

LIMITED WARRANTY

Car-Mon Products, Inc. shall replace or repair at its discretion any products or components sold or manufactured which prove to be defective in workmanship or materials within 1 year from date of shipment.

The foregoing is in lieu of all warranties, expressed or implied, and all other obligations or liabilities on behalf of the company, regarding products it may manufacture or sell. Except as otherwise provided herein, the purchaser accepts the product "as is".

No warranty is made regarding the suitability or compatibility of any Car-Mon product for a particular application or purpose unless specifically stated. The Customer is responsible for the final selection and utilization of Car-Mon products for their use. The Customer assumes all liability for the consequences of performance, application, use and/or misuse by employees of products purchased from Car-Mon Products, Inc.

In no event shall Car-Mon Products, Inc. be liable for consequential or special damages; for transportation, labor, or other charges for adjustment, replacement, installation, incorrect electrical connections, overloading of motor, performance at low voltage, or other alterations which may be performed in connection with such products. The warranty specified herein is waived in the event that the Distributor, Contractor, or Purchaser perform any unauthorized repairs or modifications to the product.

With regard to products or components which are furnished by Car-Mon, Inc. but not manufactured by Car-Mon, Inc., the warranty obligation of Car-Mon shall be limited to and be the same as that of its supplier.

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