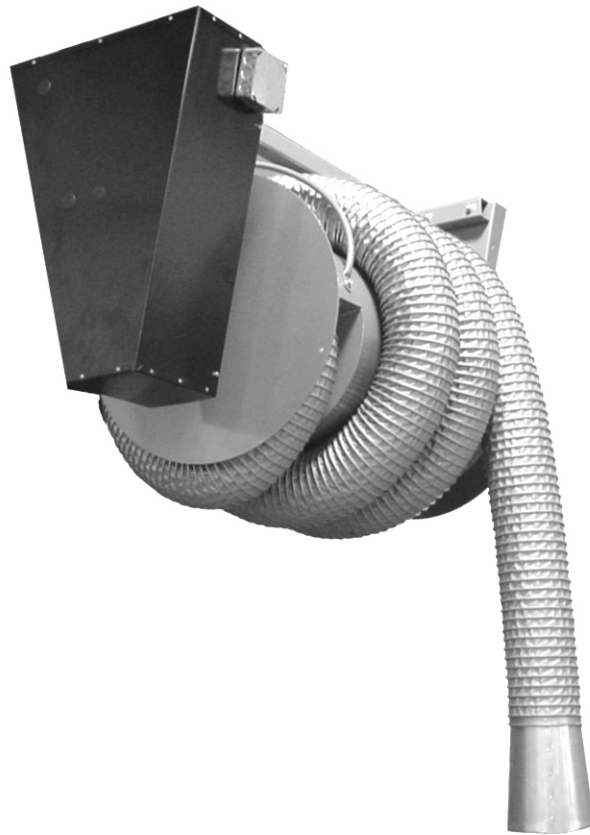


INSTALLATION AND OPERATIONS MANUAL

POWER OPERATED TUBING STORAGE REEL

MODEL TSR-P



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 tubing with flange one end, exhaust adapter other end, hardware and gasket to attach tubing to reel.
 - C. Electrical controls which may include an up/down control, hanging pendants, or control boxes for single point wiring and starters. Note: up/down control jumper must be removed
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.

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 200 pounds when the tubing 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, check to make sure the reel is level.
2. Connect the power to the reel. There are many options for wiring and include the basic wiring for the up/down movement of the reel and the on/off functions of the fan. The basic connections and diagrams are located in this publication. If the system has a control box, starters, single point wiring or other connections that are non-standard, please check the supplementary wiring diagrams that were packed with the reels. (Also see additional information on control boxes on page 5.) Once the 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. The hose assembly can now be attached.
4. Push the down button on the control till the reel stops. The hose must be installed when the reel is in the down position. All reels have been tested and preset to the length of hose supplied. If different lengths of tubing were ordered, make sure to match the tubing length to the correct reel.

Attach the flanged end of the tubing 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 which was preset at the factory. If for any reason the reel is not in this approximate position, it will have to be adjusted using the down limit switch. (See page 4 for adjustment of limit switches)



After the hose has been attached, push the up button till the hose stops. The reel should stop with about three feet of tubing, 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 tubing that is not designed to wind onto the reel. In this case, more than three feet may hang down. Standard reels will hold 25' of tubing.

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.

CAR-MON PRODUCTS, INC.

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

INSTALLATION CONTINUED

6. Put tubing in the complete down position. Tubing should always be in the complete down position when operating the system. Leaving wraps on the reel will increase static pressure and cut air flow and possibly cause damage to the tubing 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. Hose should be cool before retracting.

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 service is finished, 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. Follow maintenance procedures for fan.

INSPECTION AND CLEANING

1. Periodically inspect the tubing for damage and wear. Check the connection at the adapter and the flange to make sure it is sound. Check the tubing for any cracks or holes.
2. Brush off any accumulated dust and grime.

TROUBLESHOOTING

Upon initial use.

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 jumper has been removed from the up/down control.

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 4)

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 motor and gear assembly is functioning. If problem persists, contact factory-customer service.

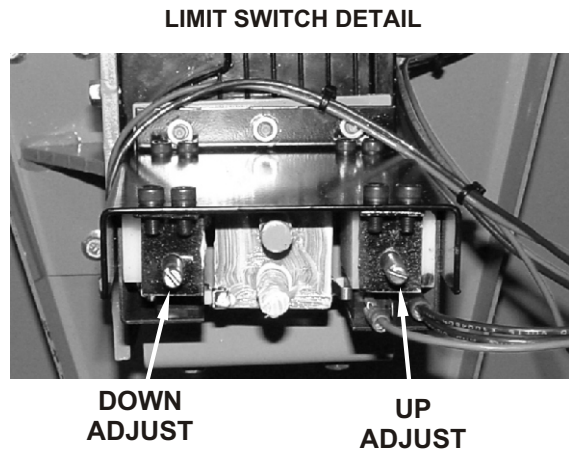
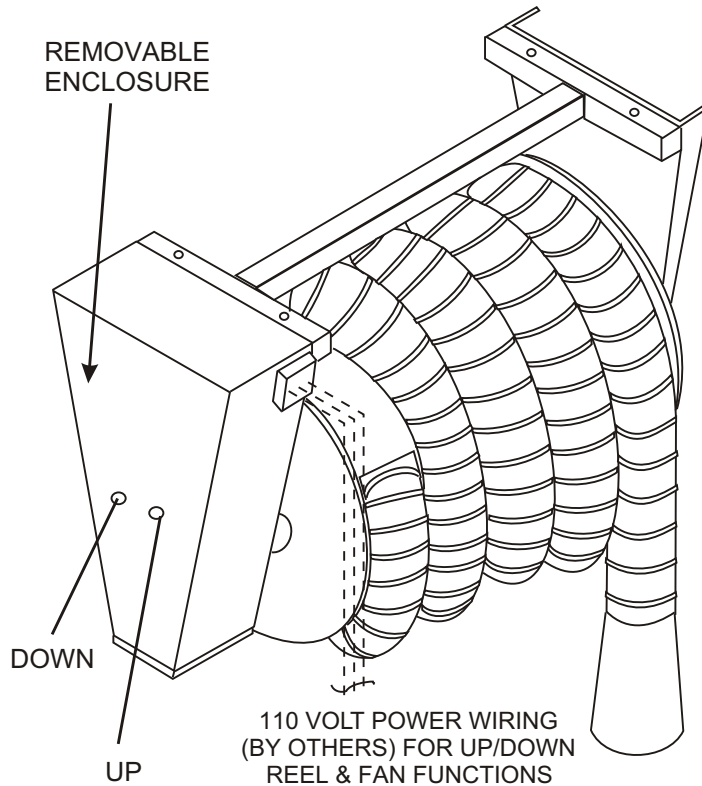
Tubing gets very hot or scorched

Check to make sure tube is clear and that no foreign object is lodged in tube. Make sure exhaust conditions have not changed. (A larger motor or increased RPM testing).

CAR-MON PRODUCTS, INC.

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

FIELD WIRING AND LIMIT SWITCH ADJUSTMENTS FOR
POWER OPERATED TUBING STORAGE REEL



LIMIT SWITCH ADJUSTMENTS

IMPORTANT! BEFORE MAKING ADJUSTMENTS, MOVE DRUM WITH UP OR DOWN BUTTON ONE HALF TURN, THEN ADJUST LIMIT SWITCH ¼ TURN AT A TIME, THEN RETEST-DO NOT ADJUST MORE THAN ¼ TURN AT ONE TIME.

UP POSITION

1. TO INCREASE HOSE STORAGE TURN SCREW COUNTERCLOCKWISE.
2. TO REDUCE HOSE STORAGE TURN SCREW CLOCKWISE.

DOWN POSITION

1. TO REDUCE HOSE STORAGE TURN SCREW CLOCKWISE.
2. TO INCREASE HOSE STORAGE TURN SCREW COUNTERCLOCKWISE.

FIELD WIRING OF TSR-P REEL

All wiring internal in the motor operating assembly is done at the factory. The only field wiring that is required consists of the 115/1/60 power wiring to the electrical junction box mounted on the assembly, and the electric wiring between the UP/DOWN push button station. Please see wiring diagram in this booklet.

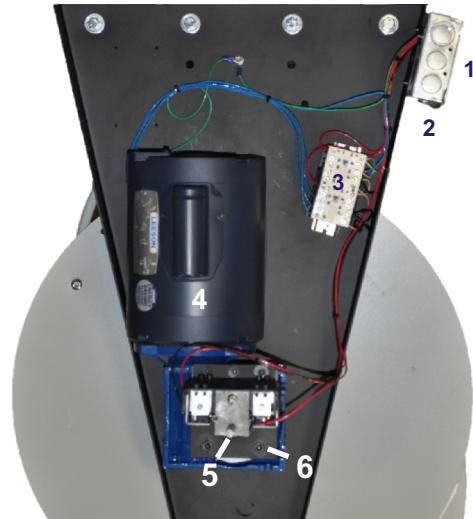
NOTE: If the hanging pendant option is supplied, the black & red wires are for the up control. The green & white wires are for the down control.

CAR-MON PRODUCTS, INC.

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

POWER OPERATOR PARTS DETAIL

1. Input power connection
2. Cable (not shown) to optional hanging pendant.
3. Reversing contactor.
4. Motor and gear box assembly
5. Limit switch assembly (Controls the length of up & down movement of the tubing assembly).
6. Gear box
7. Motor and gear box enclosure cover.



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.

CAR-MON PRODUCTS, INC.

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