

**INSTALLATION AND  
OPERATIONS MANUAL**

**SPRING  
OPERATED  
TUBING STORAGE  
REEL**

**MODEL TSR-S**



**CAR-MON**  
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### SPRING OPERATED TUBING STORAGE REEL

#### INSPECTION AND PREPARATION

1. Check each unit to see that it is complete. The components of the system include:
  - A. Tubing Storage Reel (Reel may have attached CMW Exhaust Fan.)
  - B. Tubing assembly consisting of tubing with flange at one end, and exhaust adapter other end.
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 installation procedure thoroughly before proceeding.

#### REEL INSTALLATION

1. Tubing storage reels may be ceiling or wall mounted. Make sure the mounting surface is level and plumb and able to support the weight and stress of the reel and tubing which can weigh up to 200 lbs. Use all four mounting holes and make sure the bolts are suited for the weight of the reel. After mounting, make sure the reel is level. Hanging by threaded rods is not acceptable, vibration isolators are not necessary.
2. **CAUTION! FOLLOW THIS STEP CAREFULLY. THIS OPERATION SHOULD BE DONE BY TWO PERSONS.** The spring reel is shipped from the factory with tension applied to the spring mechanism. This is done by securing the reel in place with a bolt, marked in red, located about 10" above the discharge on the reel. (See photo at right.) BEFORE removing this bolt, place a clamp or vice grip on the discharge end side of the drum directly beneath the bearing mounting bar in the front to prevent the reel from any rotation. (See photo 2 below) Failure to hold the reel in place could cause damage to the reel or pose a hazard to the installer. If you have any questions on this procedure, please call the factory. After reel is secure, remove the locking bolt.
3. Attach the tubing assembly by using the bolts and gasket provided. Attach the flanged end of the tubing to the flange pocket, using the gasket in between the flanges. Attach securely bolting the flanges together. (See photo 3 below)
4. It is now time to release the tension on the reel and wind on the tubing. Grasp and hold the end of the tubing assembly (See photo 4) before releasing the clamp or vice grip. While holding the tubing, release the grip-the reel will start to pull the tubing assembly onto the reel. Slowly guide the tubing onto the reel from left to right, making sure there are no gaps between the wraps of the tubing. The tension pulling the tubing on the reel will subside as the tubing wraps on the drum. There will be 2-4 feet that will not wrap onto the tubing drum. This is normal. (Note: Some reels may be equipped with a longer than normal length of tubing, and may have over 5' of tube hanging off the reel.)
5. Attach the pull down cable to the ring on the exhaust adapter. Adjust the length so that the operator can reach the cable pull down ring at floor level.
6. Test the reel from ground level to make sure it unwraps and wraps correctly. Units were preadjusted at the factory. NOTE: When retracting tubing onto reel, always hang onto cable and "control" the speed of retraction. Never let go of the cable and let the tubing to wind on the reel uncontrolled. If your reel does not unwind or retract properly, a spring tension adjustment will be necessary. See pages 3 & 4.



**LOCKING BOLT**



Make sure gasket is in place between tube and reel flange

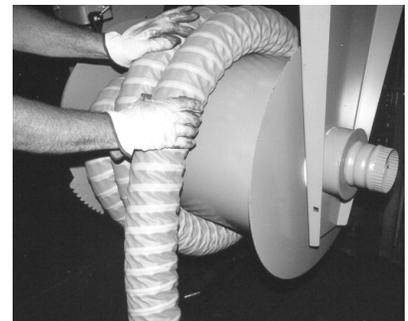


PHOTO 2

PHOTO 3

PHOTO 4

7. If tubing storage reel is equipped with attached CMW-F fan, it should now be wired and tested. Please refer to operation instructions that were included for fan. If reel is duct connected, make sure all connections are made to central fan.

### OPERATION

1. Using the pull down cable extend the tubing to the desired length. You will note an audible "click" as the tubing is extended. This is a normal sound of the ratchet mechanism. For the ratchet to hold the tube in an extended position, it is necessary to stop the drum within one of the ratchet gear ranges. The ratchet will automatically engage, holding the tubing in position. The tubing must be fully extended when the reel is in use. Leaving wraps on the reel while the fan is running and the tubing connected to the exhaust will impede air flow and possibly overheat and damage the system.
2. Attach the exhaust adapter to vehicle exhaust pipe-vehicle should not be running while this is being done. Before starting the vehicle, make sure the fan to the reel is in operation. NEVER start or run a vehicle when the system is connected and the fan is not running.
3. After servicing vehicle, turn vehicle off and leave tube connected and fan running for a few minutes to clear any exhaust in system and allow for exhaust adapter to cool. To retract the tube assembly, it is necessary to extend the tube a little further so that the drum rotates past the ratchet gear range. The ratchet will release and allow the gear to slide past the ratchet as the tube retracts. **Guide the tubing back onto the reel by holding the pull-down cable. Do not let the tube assembly rewind "wildly" by itself.**

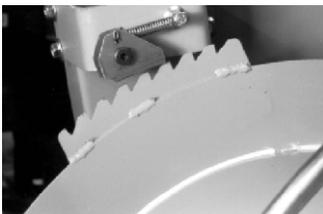
**NOTE: SEE PAGE 7 FOR ADDITIONAL INSTALLATION PHOTOS.**

### RATCHET AND DRUM POSITIONS



#### FULLY RETRACTED STOP POSITION

This is the position the drum and reel stop is in when the tubing is in the fully wound and up position.



#### FORWARD ROTATION POSITION

This is the position the reel stop mechanism is in as the tubing is being pulled of the reel.



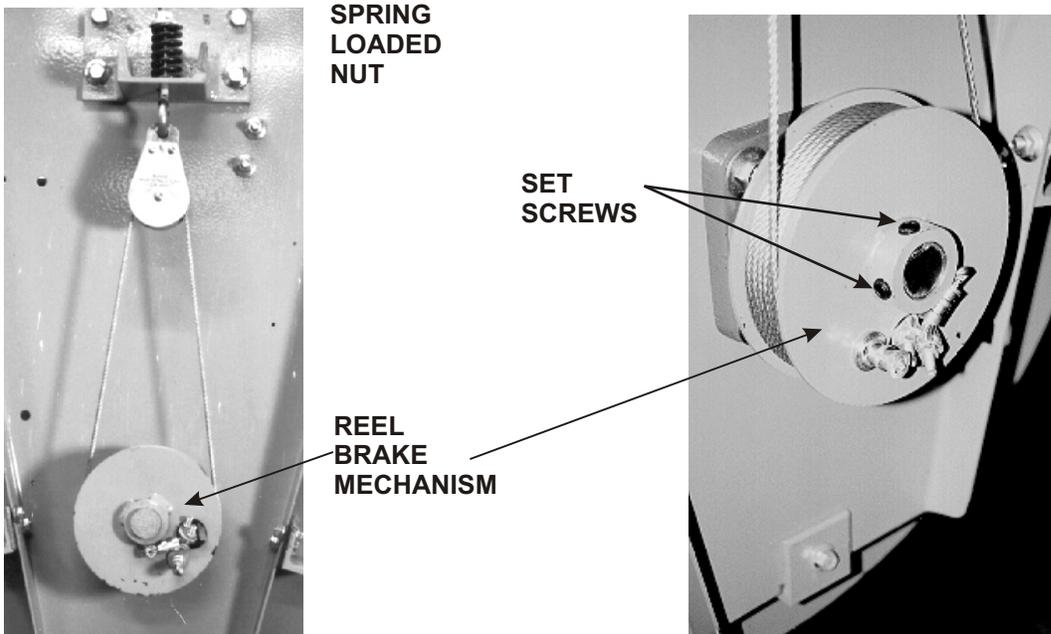
#### DESIRED LENGTH STOP POSITION

The position the reel stop mechanism is in when the tubing is in the extended down and locked position.

## INSTALLATION - OPERATION - MAINTENANCE

### PROCEDURE TO ADD TENSION TO SPRING OPERATED TUBING STORAGE REEL

1. With the tubing completely rewound on the reel, clamp the drum end plate to the frame on the discharge end of the reel with a clamp or vise grip to prevent rotation of the reel.
2. Locate the reel brake mechanism (see illustration) and loosen the set screws. Loosen the spring loading nut. Release the clamp while securely holding the tubing drum. NOTE: The spring drum is spring loaded. Make sure you have a good grip of the drum when you release the clamp.
3. Remove the brake mechanism from the shaft.
4. Carefully rotate the drum unwinding the tubing one complete rotation. Manually wrap the hanging tubing back around the drum. This may require clamping the drum end plate again to hold the drum steady.
5. Locate the flat spots on the shaft of the drum, and replace the brake mechanism, lining it up with the set screw positions. Tighten the set screws and re-tighten the spring loading nut. Test the unit for proper operation.
6. Repeat steps 1 thru 5 for additional tension.



### PROCEDURE TO SET TUBING STOP IN DOWN POSITION

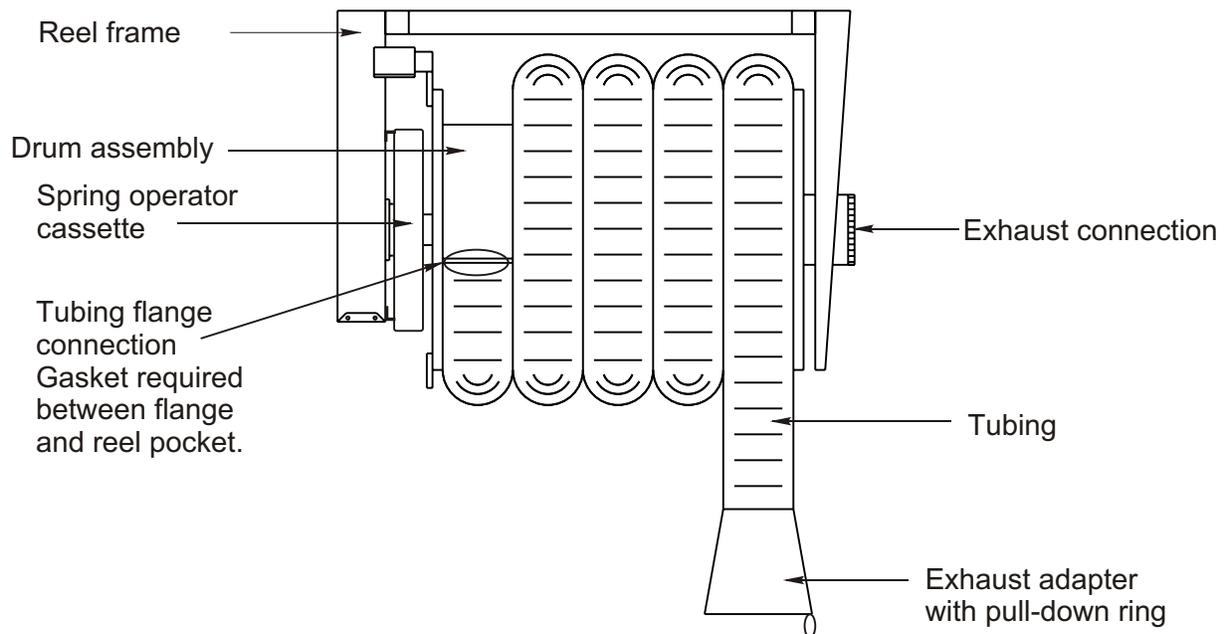
1. Start with tubing completely rewound on the reel, pull tubing down to desired stop height.
2. Clamp the drum end plate (see photo 2 on page 1) to the frame on the discharge end of the reel to prevent rotation of the reel.
3. Locate the reel brake mechanism and remove set screws. Note the shaft holes.
4. Rotate the reel brake mechanism one complete turn at a time to original stop position. NOTE: Set screws must be placed back into the original shaft holes.
5. Tighten the lock screws. Test the unit for proper operation.

## INSTALLATION - OPERATION - MAINTENANCE

### 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. Periodically wipe any excess dirt or grease from exhaust adapter and outside of tubing.
4. Follow maintenance procedures for fan.

## SERIES TSR-S REEL PARTS LIST



The above parts guide is given only as a reference to identify any problems that may develop. Due to the type of construction, most of the parts are not replaceable by the user. The reel is designed for heavy duty use and the main components including frame, drum assembly, and spring operator are designed to last for the life of the equipment. Replaceable parts may include tubing assembly and exhaust adapter



**VERY IMPORTANT!** When retracting the tubing grasp the tubing and guide it up onto the reel, making sure that the tubing does not overlap. After the tube starts to make the last wrap on the reel, let go of the tubing



When the tubing is fully retracted on to the spring reel. Approximately 5-7' of tube will hang down. This is normal to protect the tubing and adapter from being damaged.

