

INSTRUCTIONS FOR REPACKING THE NO. 175 MGM TANK GAUGE
WHEN TANK IS UNDER PRESSURE

CAUTION: DO NOT STAND OR LEAN OVER GAUGE AT ANY TIME

The NO. 175 MGM Tank Gauge is designed so that the gauge can be repacked when the tank is under pressure. (There are two parts, the check valve and the repack gasket that, when not working properly, will prevent this gauge from being repacked when under pressure.) This will be discussed in the repack procedure. When any of these parts cannot be properly removed, due to lack of proper maintenance, the gauge should be sent back to MGM for inspection and repair, which shall be expedited as quickly as possible.

Tools needed to repack the NO. 175 MGM Tank Gauge.

1. 2 3/4" open end wrench with special handle.
2. One small pipe wrench and pair of vise grip pliers.
3. One MGM Maintenance Kit, NO. CT-1.

Two workers are needed for this procedure.



DIAGRAM A

STEP 1. (DO NOT STAND DIRECTLY OVER THE GAUGE AT ANY TIME.) Grip handles and lift up to remove housing. (See diagram A)

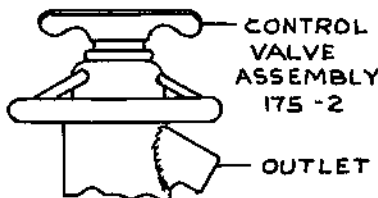


DIAGRAM B

STEP 2. Make sure the control valve has been closed. Set to finger tight only. (Turn clockwise to close.) (See diagram B)

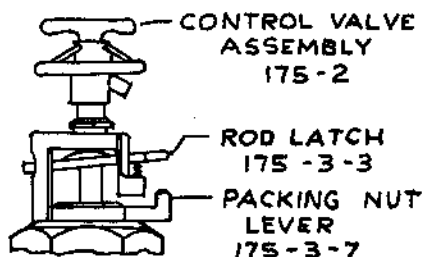


DIAGRAM C

STEP 3. Hold onto control valve and move packing nut lever in a counterclockwise direction to loosen packing nut which will free the tension on the grip ring. Continue to hold on to the control valve and push down on rod latch and raise the gauge rod to a handy height for removing the control valve. Release pressure on rod latch so that rod latch will hold gauge rod and tighten packing nut with packing nut lever (turn clockwise). This will put tension on the grip ring to help hold gauge rod in this position. (See diagram C)

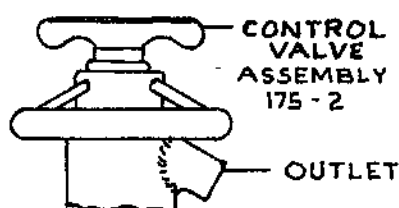


DIAGRAM D

STEP 4. Open control valve three full turns (counterclockwise). Three turns counterclockwise will not open the check valve on the bottom end of the gauge rod. If there is no pressure coming from the outlet of the control valve, this is evidence that the check valve is operating properly and you can continue with repacking procedures. (If pressure is coming from control valve, close control valve one turn clockwise. If pressure continues DO NOT CONTINUE with repacking procedures.) The tank should be depressurized, the tank gauge removed and the check valve repaired. (See diagram D)

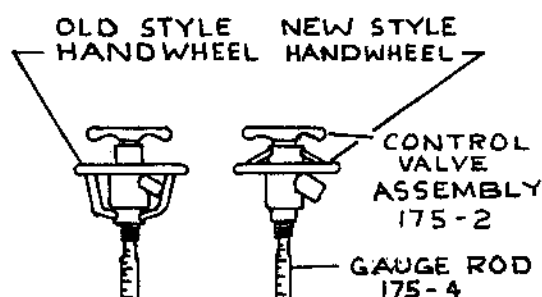


DIAGRAM E

STEP 5. If the control valve has the old style control valve handwheel, loosen the handwheel set screw and drop handwheel down on top of pointer cage. The new style control valve handwheel does not have to be removed from the control valve to repack the tank gauge. (DO NOT use tool on control valve handwheel to remove or attach control valve to gauge rod.) Attach a pair of vise grip pliers or pipe wrench to the bottom of the control valve, then attach a pair of vise grip pliers or pipe wrench to the gauge rod as close to the bottom end of the control valve as possible. (If this is the new style gauge rod, use an open end wrench or an adjustable wrench on the milled wrench flats on the gauge rod and remove the control valve from gauge rod. (Turn counterclockwise to remove.) (See diagram E)

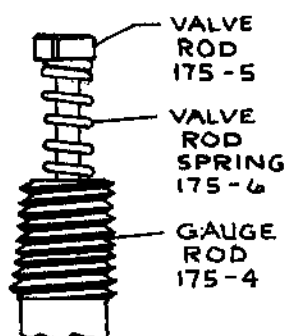


DIAGRAM F

STEP 6. Carefully remove the spring and valve rod from the gauge rod. (DO NOT let the valve rod fall back into the gauge rod as this will open the check valve momentarily where enough pressure could blow the valve rod and spring out of the gauge rod.) After the control valve has been removed, one worker should hold onto the gauge rod until the tank gauge has been repacked and the control valve put back on the gauge rod. (DO NOT HAVE ANY PART OF YOUR BODY OVER THE GAUGE ROD AT ANY TIME.) (See diagram F)

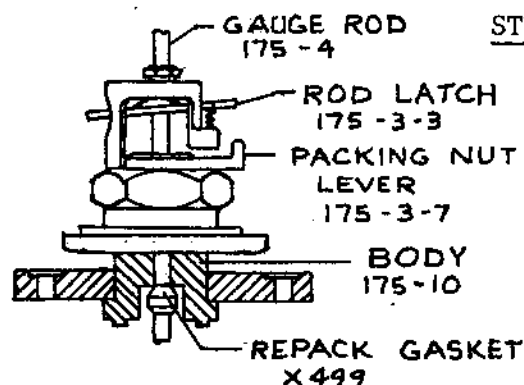
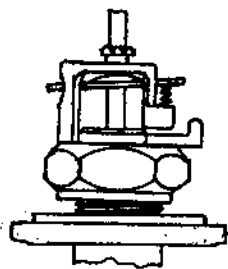


DIAGRAM G

STEP 7. Move the packing nut lever in a counterclockwise direction to loosen the packing nut to release the tension on the grip ring. Press the rod latch down and raise the gauge rod as high as it will go to make sure the repack gasket on the gauge rod has seated up against the seat in the bottom of the tank gauge body. The worker holding the gauge rod will have to hold an upward tension on the gauge rod until the packing procedure is complete. (See diagram G)

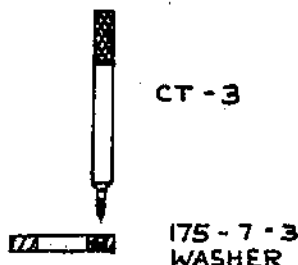


POINTER
CAGE
ASSEMBLY
175-3

DIAGRAM H

STEP 8. Place a wrench on the hexagon flats on the pointer cage and unscrew about 5 turns. (Turn counterclockwise to remove.) Check to make sure there are no leaks of pressure coming from around the pointer cage. If there is pressure coming from around the pointer cage, have the operator put more upward tension on the gauge rod to seat the repack gasket. If this does not stop the leak the repack gasket is not working properly and the tank gauge cannot be repacked under pressure and the tank will have to be depressurized, the tank gauge removed and the repack gasket replaced. If there are no leaks around the pointer cage, repacking procedures can be continued. (See diagram H)

Hold down on rod latch and remove the pointer cage assembly from the tank gauge body and up and off of the gauge rod. Make sure not to lose the rod latch spring and the packing nut lever and the rod latch when removing the pointer cage assembly.

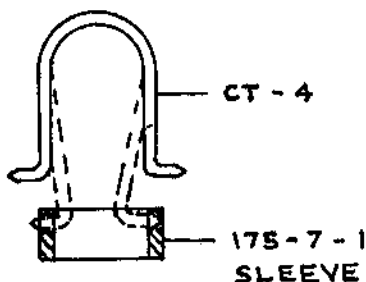


CT-3

175-7-3
WASHER

DIAGRAM J

STEP 9. After removing the pointer cage assembly, take the Tool CT-3 and screw the end that is threaded into the threaded hole in the 175-7-3 Washer and lift washer out of body and remove from gauge rod. (See diagram J)

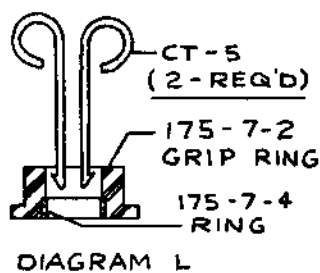


CT-4

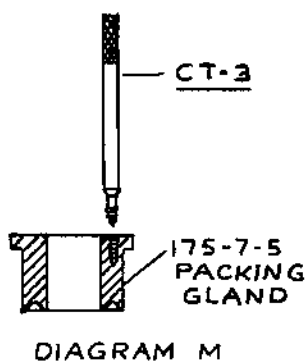
175-7-1
SLEEVE

DIAGRAM K

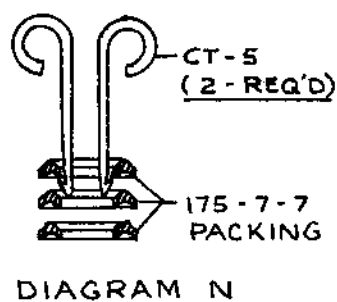
9A. Grip Tool CT-4 and squeeze together to where the two ends of the tool will go into the inside diameter of the Sleeve, Part 175-7-1; place ends of tool over the two holes in the sleeve and release pressure so that the ends will go into the holes. Lift and remove from the body and gauge rod. In some cases when the sleeve is removed, the Grip Ring, Part 175-7-2 and the ring, Part 175-7-4 may stick to the sleeve and will be removed at the same time the sleeve is removed. (See diagram K)



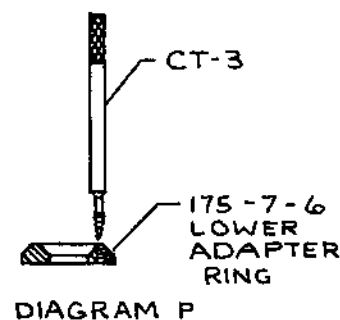
9B. If the grip ring and ring do not come out with the sleeve, use the two Tools CT-5 to fish and lift out the grip ring. The ring will most generally be removed with the grip ring. (See diagram L)



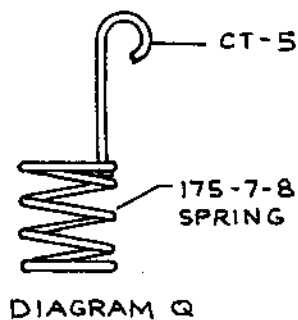
9C. Take Tool CT-3 and screw the end that is threaded into the threaded hole in top of Packing Gland, Part 175-7-5. Lift and remove packing gland from body and gauge rod. (See diagram M)



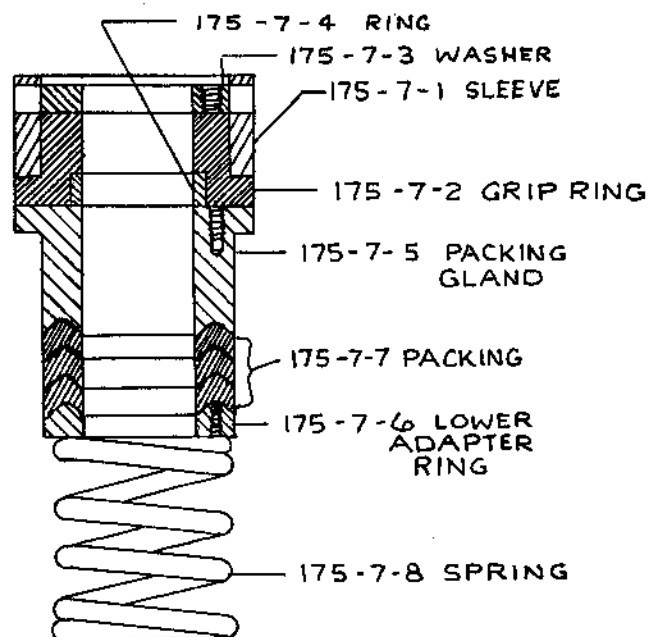
9D. Take Tool CT-5 and fish out old packing. (See diagram N)



9E. Use Tool CT-3 and screw threaded end in tapped hole in lower adapter ring and lift out and remove from the tank gauge body and and gauge rod. (See diagram P)



9F. Remove spring with CT-5 Tools. (see diagram Q)



PACKING ASSEMBLY
PART 175-7

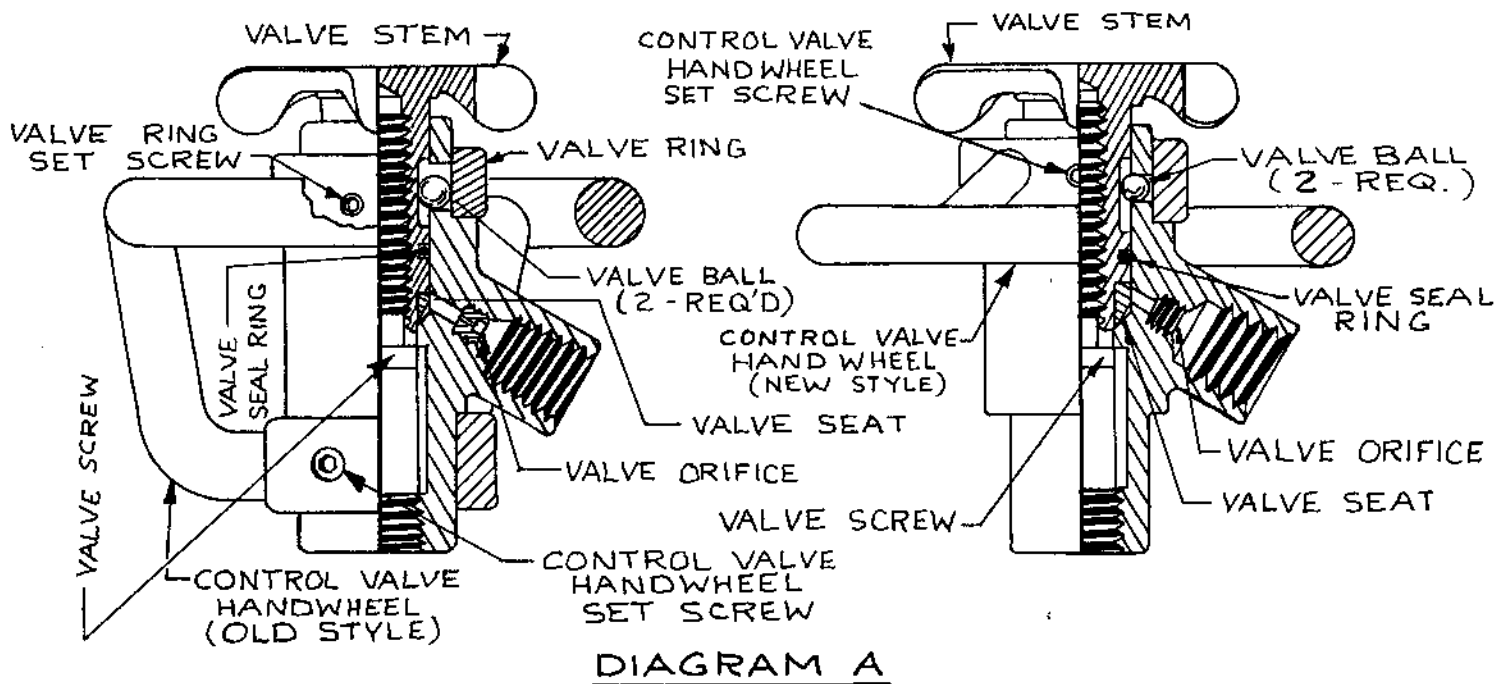
- STEP 10. Clean inside diameter with fine emery cloth, and a clean cloth. Inspect and clean all metal parts in packing assembly. Remove rod latch from pointer cage and make sure that the hole that goes over the gauge rod is round and has not worn to an elliptical shape. It is recommended that packing and rod latch be replaced every two years.
- STEP 11. Place spring over gauge rod and drop down in place in body.
- STEP 12. Replace lower adapter ring (angle side up).
- STEP 13. Replace packing (one at a time, angle side up).
- STEP 14. Replace packing gland (flange end up). Use packing gland to push packing down into chamber in body.
- STEP 15. Assemble ring into recessed bore in bottom of grip ring. Slip sleeve down over grip ring. These three parts can be assembled together and then slipped over gauge rod and down into grip ring chamber in body.
- STEP 16. Replace washer.
- STEP 17. Replace pointer cage assembly down over gauge rod and down on threads on tank gauge body. Turn clockwise and tighten securely down against the aluminum housing flange. Hold down on rod latch while replacing pointer cage.
- STEP 18. Replace valve rod and valve spring into gauge rod. (Do not drop valve rod into gauge rod as this could open check valve and could blow valve rod out of the gauge rod.)
- STEP 19. If the control valve has the old style handwheel, place handwheel down over gauge rod and place on top of pointer cage.

- STEP 20. Place teflon tape or pipe thread dope of your choice on thread on gauge rod and replace control valve (turn clockwise) and tighten, securely to gauge rod. If control valve has the old style hand-wheel it can be replaced at this time.
- STEP 21. To check for leaks around threads on gauge rod and control valve, plug outlet on control valve with 1/4" pipe plug. Open control valve (turn counterclockwise) several turns to make sure control valve and check valve are open. Then check for leaks. If there are no leaks, close control valve, remove pipe plug.
- STEP 22. Press down on rod latch and push gauge rod down as far as it will go. Release pressure on rod latch and tighten packing nut with packing nut lever (turn clockwise) then replace housing assembly.

END

The control valve should be checked at the time the tank gauge is being repacked.

INSTRUCTIONS FOR REPAIRING 175-2 CONTROL VALVE THAT HAS BEEN REMOVED FROM THE GAUGE ROD



To disassemble the control valve, screw the valve stem upward (counterclockwise) as far as it will go and then turn it downward about one turn. Loosen the set screw in the valve ring or new style control valve handwheel, and slip it upward which will allow the two valve balls to be removed. If they do not, of themselves, roll out of the holes in the valve body, turn the valve stem counterclockwise until the balls are forced out. The valve stem now can be turned counterclockwise until it completely releases from valve screw and can be lifted out of the valve body. Remove valve seal ring (o-ring) and valve seat.

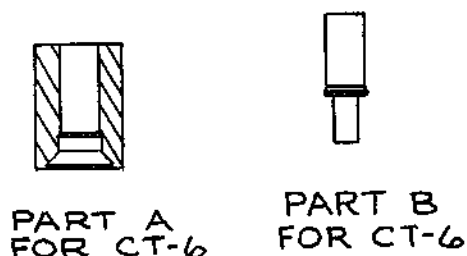
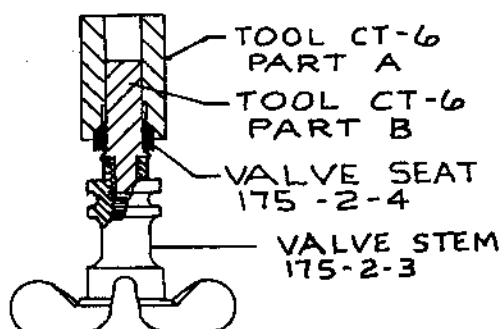


DIAGRAM B

(See diagram B) for replacing valves seat and seal ring (o-ring). For replacing valve seat use tools CT-6 (Part A and B) as shown in diagram B. We suggest that the valve seat be replaced first, then replace the seal ring (o-ring) as shown. Slip valve seat up on large O.D. of tool. CT-6 (Part B) as shown in diagram B and place on tool CT-6 (Part A) with angled end down, and lightly hammer down only to shoulder of valve stem as shown in diagram A. Make sure the valve parts are clean and that orifice hole is not plugged up.

Replace valve ring or new style control valve handwheel in place. DO NOT tighten screw. Then replace valve stem, press downward and turn clockwise to engage valve stem onto valve screw in valve body. Continue to turn valve screw and press downward and hold upward on valve ring or new style handwheel until groove in valve stem can be seen and one ball can be dropped in place. Hold this ball in and turn valve body about 180° and drop in other ball. Push valve ring or new style handwheel over balls down against shoulder on valve body. Make sure that set screw in valve ring or new style handwheel is not over either of the balls before tightening set screw snugly.

END