

INSTALLATION INSTRUCTIONS - MODEL 7-S

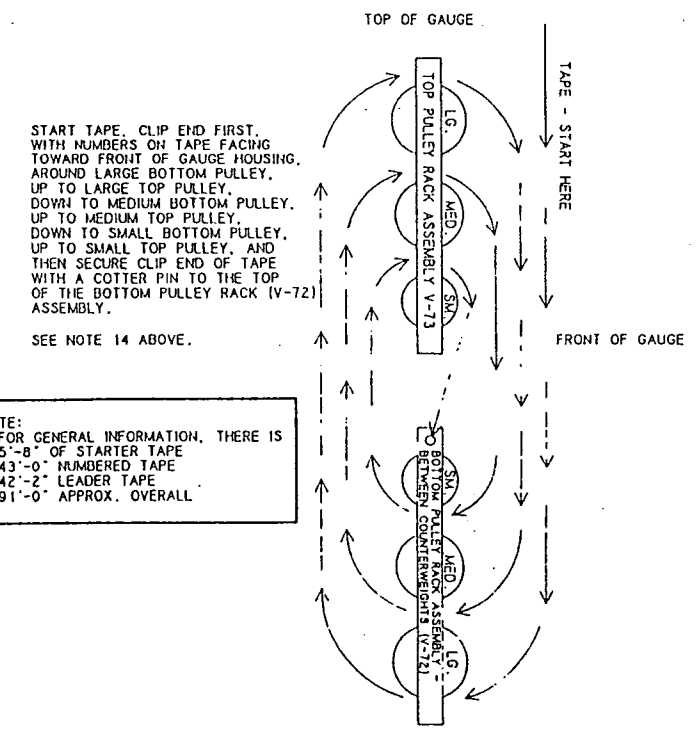
1. LOCATE GAUGE POSITION ON GROUND - MARK TOP EDGE OF TANK DIRECTLY ABOVE GROUND LOCATION.
2. MEASURE, CUT AND THREAD 2" PIPE (AS MARKED ON PRINT).
3. USE PIPE DOPE ON ALL CONNECTIONS.
4. ASSEMBLE BOTH A-30 ELBOWS AND 2" PIPE AS SHOWN ON PRINT.
5. SCREW (1) ELBOW A-30 ONTO 2" PIPE WITH REDUCING BUSHING, CLOSE NIPPLE AND UNION AS SHOWN ON PRINT; OTHER A-30 ELBOW ONTO 2" NIPPLE IN TANK THEN SCREW OTHER END OF 2" PIPE INTO TANK ELBOW. MAKE STRAIGHT WITH TANK MARKING.
6. LEVEL 2" PIPE. USE TEMPORARY WOOD BRACE OR ALIGNMENT FLANGE, IF NECESSARY.
7. SET GAUGE HOUSING WITH ECCENTRIC CAP ASSEMBLED ON GROUND DIRECTLY BELOW OVERHANGING ELBOW.
8. MEASURE FOR 1" PIPE (REDUCING BUSHING IN ELBOW TO ECCENTRIC CAP V-71 ON GAUGE HOUSING) ALLOW FOR THREADS, CUT AND THREAD 1" PIPE.
9. SCREW 1" PIPE INTO ELBOW. THEN REMOVE V-71 ECCENTRIC CAP FROM HOUSING AND PUT ON 1" PIPE. CAUTION - BE SURE ECCENTRIC CAP IS STRAIGHT AND 1" OUTLET IS FARTHEST AWAY FROM TANK.
10. FASTEN PULLEY RACK WITH LARGE PULLEY UP TO ECCENTRIC CAP USING STAINLESS STEEL PINS.
11. ASSEMBLE OTHER PULLEY RACK IN COUNTERWEIGHTS WITH LARGE PULLEY DOWN.
12. PLACE COUNTERWEIGHT ON GROUND DIRECTLY BENEATH ECCENTRIC CAP PULLEY RACK.
13. REMOVE A-33 CAPS FROM BOTH ELBOWS.
14. THREAD TAPE FROM TANK ELBOW WITH NUMBERS UP AND CLIP ENDS FIRST THROUGH 2" PIPE AND OVER ELBOW PULLEYS DOWN THROUGH 1" PIPE AND OUT ECCENTRIC CAP. STRAIGHT DOWN AND AROUND BOTTOM PULLEY IN C/W AND UP AND OVER TOP PULLEY IN ECCENTRIC CAP. DOWN TO MEDIUM PULLEY UP AND OVER MEDIUM PULLEY. DOWN AND AROUND SMALL PULLEY ON C/W AND UP AND AROUND SMALL PULLEY ON ECCENTRIC CAP. DOWN AND FASTEN TO LUG ON COUNTERWEIGHT PULLEY RACK - USE STAINLESS STEEL PIN. CAUTION - DO NOT THREAD TAPE OVER OR UNDER CROSS BARS IN PULLEY RACK. USE CAUTION - DO NOT KINK OR BEND TAPE.
15. FASTEN TAPE TO FLOAT WITH TAPE CLAMP (AS PER PRINT) CAUTION - DO NOT FASTEN TAPE CLAMP TOO TIGHT AS THIS MAY DAMAGE TAPE.
16. PLACE ECCENTRIC CAP GASKET ON HOUSING TOP AND INSERT COUNTERWEIGHT ASSEMBLY INTO HOUSING. CAUTION - DO NOT ALLOW C/W TO DROP OR JERK AS THIS MAY CAUSE DAMAGE TO BEARINGS. ALSO BE SURE THE TAPE IS IN GROOVE OF PULLEYS AND NOT ON THE EDGE.
17. FASTEN HOUSING TO ECCENTRIC CAP WITH OBSERVATION WINDOW DIRECTLY BELOW 1" PIPE.
18. PLACE OUTSIDE STRAND OF TAPE OVER TAPE GUIDE IN OBSERVATION WINDOW. CAUTION - DO NOT BEND OR KINK TAPE. AND PUT ONLY ONE(1) STRAND OF TAPE OVER THE TAPE GUIDE.
19. FIX BASE FOR HOUSING EITHER, CONCRETE, WOOD POST, OR STEEL PLATE WELDED TO TANK. - CAUTION - DO NOT WELD GAUGE HOUSING TO TANK.
20. PERFORM CALIBRATION AS DESCRIBED IN "CALIBRATION DETAILS - EMPTY TANK" (THIS DRAWING). IN PERFORMING THIS CALIBRATION, 1/2", 1/4" OR EVEN 1/8" IS NOT CLOSE ENOUGH. BE PARTICULAR; SET THE GAUGE AS CLOSE AS POSSIBLE TO THE CORRECT READING (1 3/8" FOR EMPTY TANK, TRUE FLUID LEVEL FOR NON EMPTY TANK).
21. CAUTION - LET FLOAT DOWN IN TANK EASILY. DO NOT LET IT DROP.
22. ASSEMBLE OBSERVATION FRAME AND LID A-34 & 38 PLACE ON HOUSING. TIGHTEN FOR VAPOR-PROOFING.
23. IN MOST CLIMATES, CONDENSATION FORMS INSIDE TANK AND GAUGE. A DRAIN PLUG HAS BEEN PROVIDED FOR DRAINING AT THE BOTTOM OF HOUSING. IN MOST CLIMATES THIS IS NECESSARY 2 TIMES A YEAR (SPRING & FALL). HOWEVER, IN EXTREME CASES DRAINING IS REQUIRED MORE OFTEN.

CALIBRATION DETAILS - EMPTY TANK

1. BEFORE CALIBRATION, COMPLETE INSTALLATION THROUGH STEP 19 OF INSTALLATION INSTRUCTIONS (THIS DRAWING).
2. IN ALL SUCCEEDING STEPS, BE CAREFUL NOT TO TWIST OR KINK THE TAPE.
3. THROUGH OPEN MANWAY AT THE TOP OF THE TANK, LOWER FLOAT SLOWLY AND LET IT COME TO REST GENTLY AT THE BOTTOM OF THE TANK, DIRECTLY BENEATH THE TANK ROOF FLANGE. BECAUSE THE TANK BOTTOM IS CONCAVE, THE FLOAT MAY TEND TO SIDESLIP TO THE CENTER OF THE TANK BOTTOM, THUS INTRODUCING ERROR INTO THE CALCULATION. GENTLY LOWERING THE FLOAT MINIMIZES THIS SLIPPAGE AND THE RESULTING ERROR.
4. DETERMINE THE REQUIRED TAPE ADJUSTMENT AS FOLLOWS: WITH THE FLOAT AT THE TANK BOTTOM DIRECTLY BENEATH THE ROOF FLANGE, RECORD THE TAPE READING AT THE OBSERVATION WINDOW. AN EMPTY TANK SHOULD READ 1 3/8" (THE FLOAT DRAFT). THE REQUIRED TAPE ADJUSTMENT CAN BE COMPUTED AS THE ACTUAL READING MINUS 1 3/8".
5. MARK THE TAPE AT THE POSITION AT WHICH IT IS FASTENED TO THE FLOAT. UNCLAMP THE TAPE FROM THE FLOAT. MEASURE OFF THE REQUIRED ADJUSTMENT USING A TAPE MEASURE AND MARK THE NEW POSITION. CUT THE TAPE TO SIZE, LEAVING ABOUT 2" EXCESS SLACK. THIS SLACK IS NECESSARY BECAUSE CUTTING OFF TOO MUCH TAPE WILL RENDER THE TAPE UNUSABLE. REFASTEN THE TAPE TO THE FLOAT AT THE NEWLY MARKED POSITION. DO NOT FASTEN THE TAPE CLAMP TOO TIGHTLY, AS THIS MAY DAMAGE THE TAPE.
6. REPEAT STEPS 3 & 4 TO CHECK THE CALIBRATION. IF THE ERROR IS LESS THAN 1", THE REMAINING ADJUSTMENT MAY BE MADE USING THE FINGER IN THE OBSERVATION WINDOW. FOR MAJOR ADJUSTMENTS (OVER 1"), REPEAT STEP 5.
7. WHEN CALIBRATION IS COMPLETE, CUT THE EXCESS TAPE AT FLOAT, LEAVING 6" FOR MINOR ADJUSTMENTS. LOWER THE FLOAT GENTLY TO THE TANK BOTTOM.

CALIBRATION DETAILS - NON-EMPTY TANK

1. DETERMINE THE REQUIRED TAPE ADJUSTMENT AS FOLLOWS:
 - A) USE A MEASURING STICK OR WEIGHTED LINE TO MEASURE THE TRUE FLUID LEVEL IN THE TANK. BECAUSE THE CONCAVE BOTTOM OF THE TANK RESULTS IN VARYING DEPTHS, THIS MEASUREMENT SHOULD BE PERFORMED AS CLOSE AS POSSIBLE TO THE ACTUAL POSITION OF THE FLOAT IN THE TANK.
 - B) RECORD THE TAPE READING AT THE OBSERVATION WINDOW.
 - C) THE REQUIRED TAPE ADJUSTMENT CAN BE COMPUTED AS THE TAPE READING MINUS THE TRUE FLUID LEVEL.
2. TO GAIN ACCESS TO THE FLOAT AND TAPE IN THE TANK, OPEN THE MANWAY AT THE TOP OF THE TANK. ALSO REMOVE THE A-33 CAP FROM A-30 ELBOW ASSEMBLY. IN ALL SUCCEEDING STEPS, BE CAREFUL NOT TO TWIST OR KINK THE TAPE.
3. GRASPING THE TAPE THROUGH THE OPEN MANWAY, CAREFULLY RAISE THE FLOAT OUT OF THE TANK. MARK THE TAPE AT THE POSITION AT WHICH IT IS FASTENED TO THE FLOAT. UNCLAMP THE TAPE FROM THE FLOAT. MEASURE OFF THE REQUIRED ADJUSTMENT USING A TAPE MEASURE AND MARK THE NEW POSITION. CUT THE TAPE TO SIZE, LEAVING ABOUT 2" EXCESS SLACK. THIS SLACK IS NECESSARY BECAUSE CUTTING OFF TOO MUCH TAPE WILL RENDER THE TAPE UNUSABLE. REFASTEN THE TAPE TO THE FLOAT AT THE NEWLY MARKED POSITION. DO NOT FASTEN THE TAPE CLAMP TOO TIGHTLY, AS THIS MAY DAMAGE THE TAPE. CAREFULLY LOWER THE FLOAT INTO THE TANK.
4. REPEAT STEP 1 TO CHECK THE CALIBRATION. IF THE ERROR IS LESS THAN 1" THE REMAINING ADJUSTMENT MAY BE MADE USING THE FINGER IN THE OBSERVATION WINDOW. FOR MAJOR ADJUSTMENTS (OVER 1"), REPEAT STEP 3.
5. WHEN CALIBRATION IS COMPLETE, CUT THE EXCESS TAPE AT THE FLOAT, LEAVING 6" FOR MINOR ADJUSTMENTS. LOWER THE FLOAT GENTLY INTO THE TANK. REPLACE THE A-33 CAP ON THE A-30 ELBOW ASSEMBLY. CLOSE THE MANWAY.



NOTE:
FOR GENERAL INFORMATION, THERE IS
5'-8" OF STARTER TAPE
43'-0" NUMBERED TAPE
42'-2" LEADER TAPE
91'-0" APPROX. OVERALL

MATERIAL LIST MODEL 7-S

FOR ALL VERTICAL TANKS UP TO & INCLUDING 35'

☐ MATERIAL SUPPLIED BY CONTRACTOR

1. GAUGE HOUSING BASE SUPPORT.
2. 1" GALVANIZED PIPE (CUT TO LENGTH).
3. TANK ROOF FLANGE.
4. 2" TANK OPENING PIPE.
5. 2" GALVANIZED PIPE (CUT TO LENGTH).
6. 1" GALVANIZED NIPPLE (ANY LENGTH).
7. 1" GALVANIZED UNION.

☐ MATERIAL SUPPLIED BY MOORMANN BROS. (SAFETY-KLEEN)

PART NAME	PART NO.	QUANTITY PER UNIT
8. OBSERVATION WINDOW ASSEMBLY	A-34-A-38	1
9. FLOAT	V-75	1
10. STAINLESS STEEL TAPE CLAMP & SCREWS	V-93	1
11. ELBOW ASSEMBLY COMPLETE	A-30, A-33	2
12. 2" TO 1" REDUCING BUSHING		1
13. ECCENTRIC CAP COMPLETE WITH NUTS & BOLTS	V-71	1
14. PULLEY RACK ASSEMBLY	V-73	2
15. LUFKIN STAINLESS STEEL HIGH VISIBILITY TAPE	V-49	1
16. RUST-PROOFED STEEL GAUGE HOUSING	V-77	1
17. COUNTERWEIGHT	V-72	2
18. CONDENSATION DRAIN PLUG		1
FRAME & LID ASSEMBLY FOR OBSERVATION WINDOW	A-34, A-38	1
GASKETS - SET FOR OBSERVATION WINDOW	V-81, V-82	1
GASKET - ELBOW CAP	V-83	2
GASKET - V-71 ECCENTRIC CAP	V-84	1
GLASS - WINDOW	V-86	1
STAINLESS STEEL INDICATOR FINGER FOR OBSERVATION WINDOW	V-94	1
WIRE PIN - STAINLESS STEEL	V-96	5

GENERAL NOTES

1. TANK GAUGE ASSEMBLY SUPPLIED BY SAFETY-KLEEN CORP.
2. SEE INDIVIDUAL SERVICE CENTER SITE PLANS FOR LOCATION OF THE INSTALLATION.
3. GAUGE MUST BE ORDERED WITH THE PERFORATED TAPE FOR FUTURE REMOTE READ-OUT SYSTEM.
4. ALL EXPOSED NON-PROTECTED STEEL IS TO BE PAINTED PER SAFETY-KLEEN SPECIFICATIONS.
5. IF REQUIRED, ADDITIONAL VERBAL INSTALLATION INSTRUCTIONS CAN BE OBTAINED BY CALLING MOORMANN BROS. MFG. CO., RUSHVILLE, INDIANA - (317) 932-3590 - ASK FOR: BOB GAINES OR JIM RAVENCRAFT

FIGURE 7

REV.	REVISION	BY	CHKD	DATE
1	REVISED FOR 10243	RD		2/8
2	REVISED FOR 10243 AND ADDITIONAL CALIBRATION INFORMATION	RD		1/12
3	REVISED FOR HI-LEV. ALARM INFO.	RD		7/5
4	ADDED SAFETY-KLEEN PART #5	RD		2/15
5	ADDED ADDITIONAL HI-LEVEL ALARM INFO.	RD		10/6
6	ADDED TAPE WINDING INFO.	WLJ		6/21
7	ADDED NOTE 5	WLJ		2/13
REVISIONS				
TITLE: MOORMANN BROS. TANK GAUGE INSTALLATION (DISHED BOTTOM TANKS ONLY)				
SAFETY-KLEEN CORP.				
777 810 TRADER ROAD, SLOAN, ILLINOIS 60120 PHONE 312/897-6440				
PROJ.	ENG.	APPR.	OPERATIONS	SCALE
				DATE
				10/7/74
BRANCH FOR SERVICE				

ENLARGED DETAIL SHOWING HOW TAPE IS WOUND ON PULLEY RACK ASSEMBLIES OF MOORMANN MODEL 7-S. CUT OFF EXCESS TAPE AT FLOAT.