



Department of Consumer and Corporate Affairs
STANDARDS BRANCH

S.WA-739

APPROVED : LIQUID CONTROLS CORPORATION - BULK METERS

distributed by: R.N.G. Equipment Limited, Toronto and Montreal.

Apparatus Listed: Bulk liquid meters for vehicle tank, loading rack, and pipe line installations, model numbers as listed below:

<u>Model No.</u>	<u>Capacity GPM Refined Petroleum Products</u>	<u>Capacity GPM Other Products</u>	<u>Size</u>
M-7	100	85	2"
M-15	200	165	2½" or 3"
M-30	350	290	3" or 4"
M-60	600	500	4" or 6"
M-70	700	585	4" or 6"
M-120	1000	830	6" - 150 psig
MA-120	1000	830	6" - 300 psig
MA-145	1500	1245	8" - 300 psig

Rating of Apparatus: The manufacturer has re-rated these meters for use on refined petroleum products to 120% of the maximum capacities shown in SDWA-368, but has retained the original maximum capacities for use on other products which have poor lubricating qualities. Refined petroleum products are all considered to have adequate lubricating qualities except liquefied petroleum gases such as propane and butane. Many industrial liquids such as chemicals, chemical solutions, and liquid foodstuffs have inadequate lubricating properties.

The minimum meter rating is generally 20% of the stamped maximum, but it can be 10% of the stamped maximum for some combinations of meter construction and measured liquids.

Application: The measurement in wholesale and retail trade of petroleum products, liquefied gases, and through prior arrangement with the Standards Branch, of industrial liquids such as: chemicals (e.g., caustics, acids), chemical solutions (e.g., aqua ammonia, bleaches), and liquid foodstuffs (e.g., vinegar, syrups).

Conditions: When M-7 and M-15 meters are installed on fuel oil delivery trucks and aircraft refuellers, etc., the close-coupled air eliminator as shown in the illustration overleaf is generally adequate. The close-coupled air eliminator is also generally adequate when the M-30 and M-60 meters are installed on vehicle tanks for delivery by gravity only, at rates of flow greatly below the maximum meter capacity. On gravity head meters, the air eliminator must be connected to the discharge side of the meter.

When the M-15 and larger meters are installed at loading racks, bulk type deaerators will generally be required close to the meter, in addition to the close-coupled air release. The bulk type deaerator should be installed as close to the loading rack as possible, and at a high point in the piping.

Existing installations of loading rack meters may be re-rated to the higher capacity (120% of the capacity on SDWA-368) only after piping plans showing the supply tanks, pumps, deaerators and meters are approved by the Chief of Weights and Measures. New nameplates with the higher rating may be installed only after verification at the new maximum.

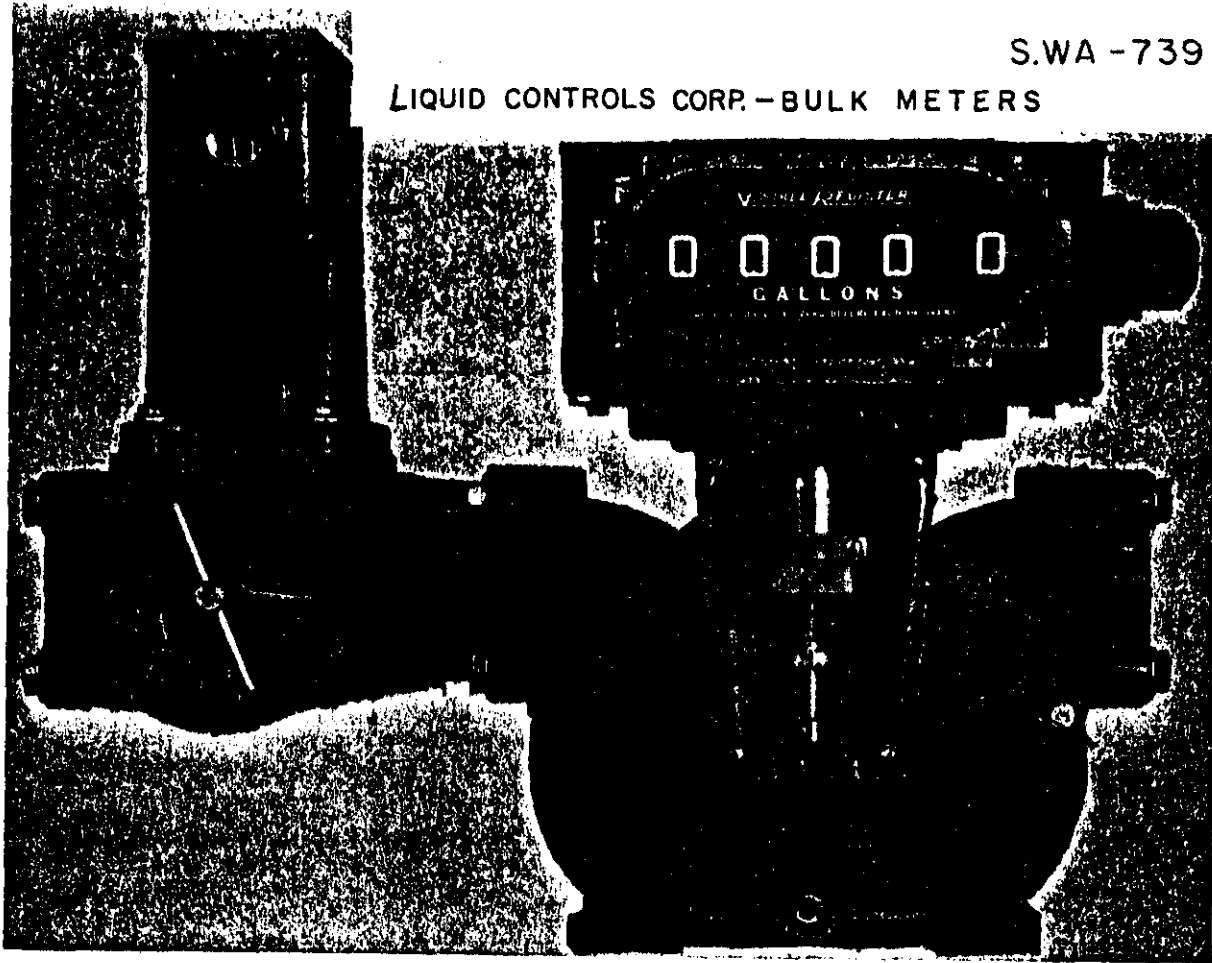
Plans for installations of 4", 6" and 8" meters are to be submitted for approval in advance of construction, in view of the high cost of any piping alterations, should an installation made without prior approval require modifications to meet the Regulations.

Note: Approval is granted under the Weights and Measures Act, Chapter 292, and Regulations thereunder (P.C. 6894) for use in Canada under the general conditions of P.C. 6894, and under any special conditions listed above.

G. B. Anderson
for Chief, Weights and Measures Division,
Standards Branch.

R. W. MacLean
R. W. MacLean,
Director,
Standards Branch.

LIQUID CONTROLS CORP. - BULK METERS



MODEL M-7

Description: These meters incorporate rotary positive displacement metering elements. The moving parts in the measuring chamber consist of a blocking rotor whose movement is synchronized by gears with that of two displacement rotors which revolve at twice the speed of the blocking rotor. The rotation of the blocking rotor is transmitted by a spindle and gear to the register. The calibrator is a cone-ball type of mechanism and therefore provides a continuous (as opposed to a stepwise, as obtained with gears) adjustment, and is graduated in percent.

The metering chamber (i.e., the meter housing) is of aluminum on models M-7, M-15, M-30, M-60 and M-120, and is of steel on models MA-120 and MA-145. The metering chamber and rotors may also be made of stainless steel and other special alloys, as required for service on chemicals and foodstuffs.

Inspection and Testing: The installation should be examined to check that adequate air elimination is provided, and a flow control device installed if required. A non-return check valve should be installed (may be equipped with pressure relief valve) in installations where reverse flow can occur but the meter is not equipped with a reversing (subtracting) type register.

A register with 1/10 gallon figures will generally be required on the M-7, M-15 and M-30 meters. A Lockheed register may be used on any of the listed models. A model "X" air-actuated check valve (flow stop valve) may be used with model M-7 meters.

The slow speed test is to be made at 1/3 of maximum stamped rating for meters marked with 20% minimum or at 1/6 of rating for meters marked with 10% minimum. Both high and slow speed tests must be made after each adjustment of the calibrator, as it is found that the percent adjustment as read from the calibrator may not be correct for all rates of flow.

Meters used on chemicals, etc., which have been factory-calibrated with mineral spirits or fuel oil must be calibrated with the product metered as soon as possible after installation. R.N.G. Equipment Limited will notify District Offices of shipments of such meters, so that an "in situ" inspection and test can be arranged.