



2" and 3" TP and TPL TURBO-METERS SAFETY INTERLOCK DEVICE

INTRODUCTION

The instructions packed with each Equimeter 2" and 3" TP and TPL Turbo-Meter caution users to relieve all pressure inside the meter body prior to attempting disassembly of the meter. Additionally metal caution badges are affixed to each of the meter half-clamps warning users to relieve pressure inside the meter before removing the half-clamps.

In spite of these warnings and established industry practices, Equimeter has been advised that some users have attempted meter disassembly with pressure inside the meter body.



**METER UNDER PRESSURE
DEATH OR PERSONAL INJURY
CAN RESULT IF HALF CLAMPS ARE
LOOSENED BEFORE PRESSURE IN
METER IS FULLY RELIEVED**



Equimeter has recently made available a Safety Interlock Device for 2" and 3" TP and TPL Turbo-Meters. When installed this device provides an audible warning of pressure inside the meter before disassembly occurs.

New 2" and 3" TPL Turbo-Meters shipped since January 1, 1985, have the Safety Interlock Device installed. Retro-fit kits are available for installation on 2" or 3" TP and TPL Turbo-Meters shipped in prior years. See Parts List MP-1081 for kit part numbers.

OPERATION

When installed, the Safety Interlock Device covers the meter half-clamps to prevent access to the half-clamp bolts while the meter is under pressure. In order to access the half-clamp bolts, it is first necessary to back off the safety relief valve stem, (#3 in drawing).

Doing so allows line pressure to be relieved to atmosphere through a restricted 1/16" opening causing a noise, thereby providing a warning to the operator of pressure inside the meter body. The operator then uses the piping system blow-down valve to relieve pressure in the meter body until such time as the noise through the relief valve no longer occurs.

With the relief valve stem backed off, the Safety Interlock Device can be moved toward the meter inlet flange, thereby exposing the half-clamp bolts. When all pressure inside the meter has been relieved, disassembly of the meter can proceed.

Following inspection and maintenance of the meter, the half-clamps and bolts are re-assembled on the meter in the normal manner. Prior to repressuring the meter, the Safety Interlock Device must be repositioned over the half-clamps. When this is done, the relief valve stem can be screwed into its body to provide a gas-tight seal.

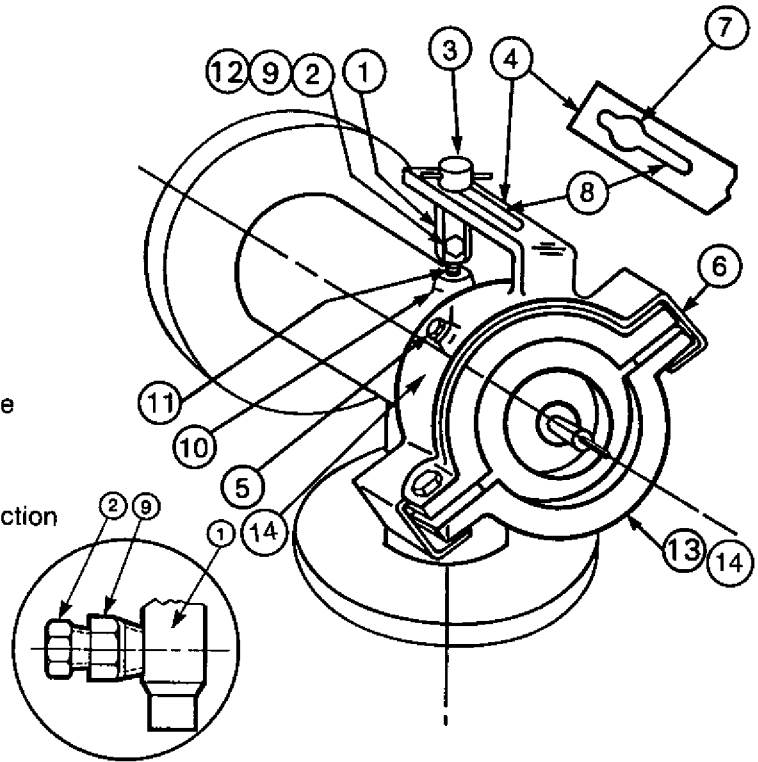
Following re-assembly, pressurize the meter and check all joints for leaks prior to leaving the meter site.

DESCRIPTION

The Safety Interlock Device was designed for use on Equimeter angle body Turbo-Meters to prevent accidental disassembly of the half-clamps before internal pressure has been fully relieved. The device was designed with your safety in mind; however, no device can be safer than the user. Therefore, it is important that these instructions be carefully followed and maintained for future reference.

PART IDENTIFICATION:

<u>ITEM NO.</u>	<u>DESCRIPTION</u>
1	Safety Relief Valve Body
2	1/4" NPT Pipe Plug
3	Safety Relief Valve Stem
4	Interlock Arm
5	Anti-Rattle Set Screw
6	Half Clamp Safety Cover
7	Valve Stem Locking Counter Bore
8	Interlock Arm Slot
9	1/4" to 1/8" Reducer
10	Meter Body Pressure Tap Connection
11	Loctite #277 (Red)
12	Roll Pin
13	Half Clamp
14	Danger Badges



<u>FIELD KIT ASSEMBLY NO.*</u>	<u>TURBO-METER MODEL DESIGNATION*</u>
00616-677-00000	2" TP-4
00616-677-01000	2" TPL-9
00620-677-00000	3" TPL-9 & TP-9

* Field kits must be ordered for the specific meter model on which they will be installed.



**Safety Interlock Device
Retrofit Field Kit**



**Safety Interlock Device installed
on 2" TP-4 Turbo-Meter**

IMPORTANT INSTRUCTIONS!

Equimeter TP & TPL Turbo-Meter Half Clamp Safety Interlock Device

Initial Installation: (For Retrofit Field Kits Only)

Make sure the model number of your safety device corresponds with the model of meter for intended use. (Model Stamped on item ④)

- A) **⚠ DANGER** For field installations. First shut-in the meter by closing inlet and outlet block valves. Then fully relieve line pressure from meter.
- B) Remove pipe plug or connection from pressure tap ⑩.
- C) Loosen relief valve stem ③ and slide relief valve assembly ① & ③ to the end of the slot away from counter bore ⑦. Note that valve stem ③ cannot be completely removed from valve ①.
- D) Apply Loctite ①① (as supplied to threads of valve ① as a sealant and to prevent removal. (Use only Loctite #277 (red)). Align relief valve ① with pressure tap ⑩. Place interlock device over body, and tighten relief valve ① into pressure tap ⑩.
- E) Pry off old caution badges and stick on new danger badges ⑭ on both half clamps ⑬.
- F) If necessary, loosen the half clamp retaining bolts and rotate the half clamps ⑬ to line up with clamp safety cover ⑥. Re-tighten half clamp bolts.
- G) Slide clamp safety cover ⑥ over the half clamps ⑬. It may be necessary to first loosen the anti-rattle set screw ⑤.
- H) Align locking counter bore ⑦ with relief valve stem ③. Then tighten down the valve stem ③.
- I) Tighten the anti-rattle set screw ⑤ to restrain the clamp safety cover ⑥ during shipment or from line vibrations.
- J) A pressure recording device can be connected to the 1/4" NPT pressure tap ⑨.
- K) Check for leaks at all connections.

OPERATING INSTRUCTIONS

Removal Instructions:

- A) **⚠ DANGER** Shut-in the meter by closing inlet and outlet block valves. Fully relieve line pressure from meter through the system blowdown valve. Then loosen the relief valve stem ③.
- B) Once pressure has been safely relieved. Continue to loosen valve stem ③ until completely out of counterbore ⑦. Loosen anti-rattle set screw ⑤. Which will allow the interlock arm ④ to slide in the slot ⑧. Note that valve stem ③ cannot be completely removed from valve ①.
- C) Slide the clamp safety cover ⑥ to uncover the half clamps ⑬. The half clamp retaining bolts may now be removed.

Re-Assembly Instructions:

- A) Align half clamps ⑬ with clamp safety cover ⑥ and tighten half clamp retaining bolts.
- B) Slide interlock arm ④ using slot ⑧ until the half clamps ⑬ are covered and the counter bore ⑦ lines up with the relief valve stem ③.
- C) Tighten the relief valve stem ③ and tighten the anti-rattle set screw ⑤.
- D) Check for leaks at all connections.



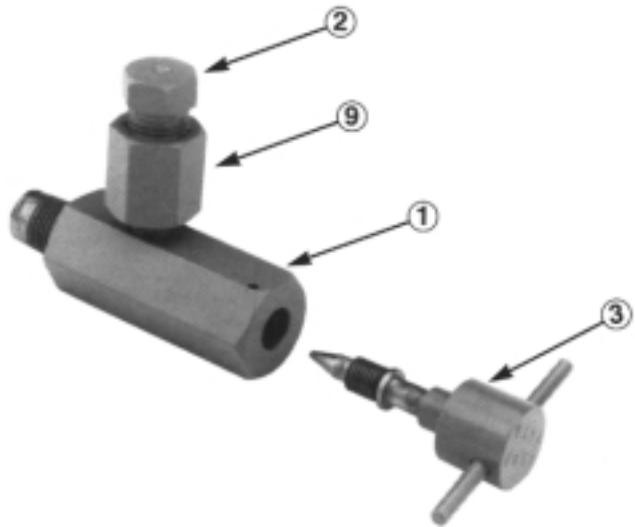
Safety Interlock Device installed on 2" TP-4 Turbo-Meter



Safety Interlock Device positioned to expose half-clamp bolts. Note: Index plate and housing removed for clarity.



Safety Interlock Device installed on 3" TPL-9 Turbo-Meter



Safety Interlock Device. Relief valve body (left) and valve stem (right). Refer to drawing.