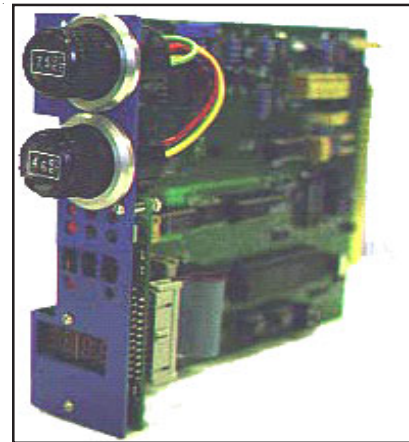


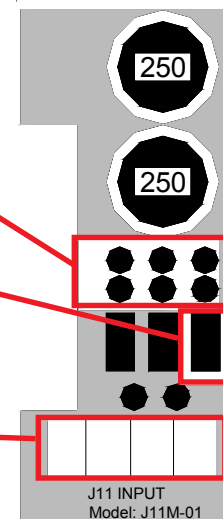
TOV Transducer J11M Board

The Mansco Products TOV System is the leading in-line viscosity control instrument. As part of Mansco's continuing effort to provide the most effective and reliable in-line viscosity equipment in the world, an electronics upgrade was released in 1999 with changes to the TOV Transducer including a newly developed J11M Board. This new board includes microprocessor technology along with other market leading enhancements.



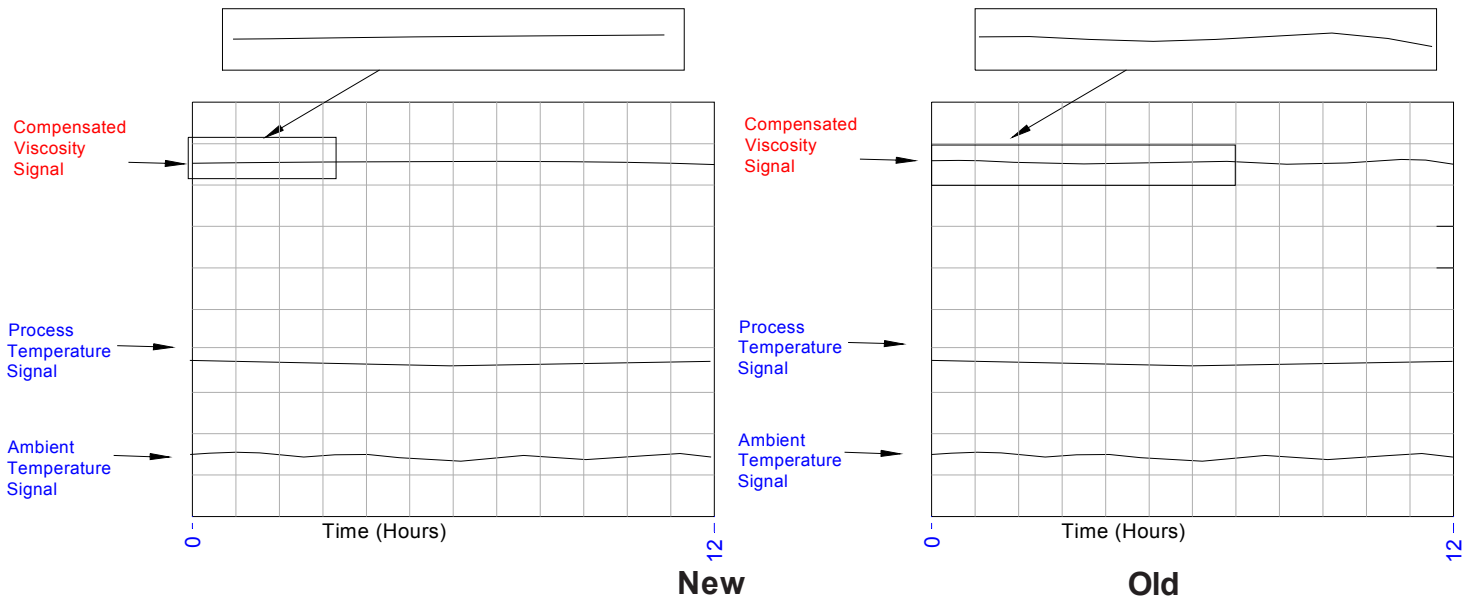
Key Features of the J11M Board:

- ✓ In-line Probe Performance Tests For testing Probe operating parameters:
 - T ½ (measures functionality)
 - Frequency
 - Count (measures reliability)
- ✓ Built-in Calibrations features.
- ✓ Built-in Simulator feature for simulating a probe signal without disconnecting the Probe from the Transducer.
- ✓ More simplistic, user-friendly start-up features with complete front panel access to all adjustment pots.
- ✓ New LED Readouts of Probe performance tests.
- ✓ Microprocessor system with diagnostic features.
- ✓ Improved stability (see "Stability Charts" on next page).



NEW J11M Input Board

THE J11 BOARD OFFERS IMPROVED STABILITY FEATURE



New components improve the stability under same condition testing between the Old J11A Board for the TOVE Transducer and the New J11M Board for the TOVM Transducer

J11 BOARD DATA MEASUREMENT SPECIFICATIONS				
MODE	AIR		OIL	
	Accuracy	Repeatability	Accuracy	Repeatability
T 1/2	1%	1%	1%	2%
Frequency	.1%	.1%	.1%	.1%
Display	.5%	.1%	.5%	.1%
Count	1%	1.25%	1%	1.25%

Note: All percentages are displayed as a percentage of the indicated reading.

© 1998, Mansco Products, Inc., All Rights Reserved

THE J11 BOARD PROVIDES ONLINE TESTING CAPABILITY

- ✓ Quick and easy check of TOV Probe function.
- ✓ Comparative test between the current state and the previously stored state of the probe under control conditions.
- ✓ Eliminates concern about the operating condition of the probe, thereby saving costly probe removal and disassembly to determine its condition.
- ✓ Immediate test results indicating TOV performance.

THE MANSCO PRODUCTS TOV VISCOMETER SYSTEM™

The Torsional Oscillatory Viscometer (TOV) system was developed over 38 years ago to measure in-line viscosity. Today, after 38 years of field experience and 3 system upgrades, the TOV System is the most sensitive stand-alone device available for measuring viscosity and temperature in an in-line environment. The TOV Probe's superior performance in measuring viscosities continues to be convincing. Plants have experienced excellent viscosity control with a repeatability factor of 99.5%.

The temperature measurement is accurate to within $\pm 0.1^\circ\text{C}$ of the balance point enabling extremely precise temperature compensation. The overall performance and reliability continue to provide low maintenance process solutions.

For more information, please contact the
Mansco Products Marketing Hotline:
+215.674.4395
 or visit our web site at:
<http://www.ManscoProducts.com>