



User's Guide

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Series FTB-1400*-RK Turbine Flow Meter Repair Kits



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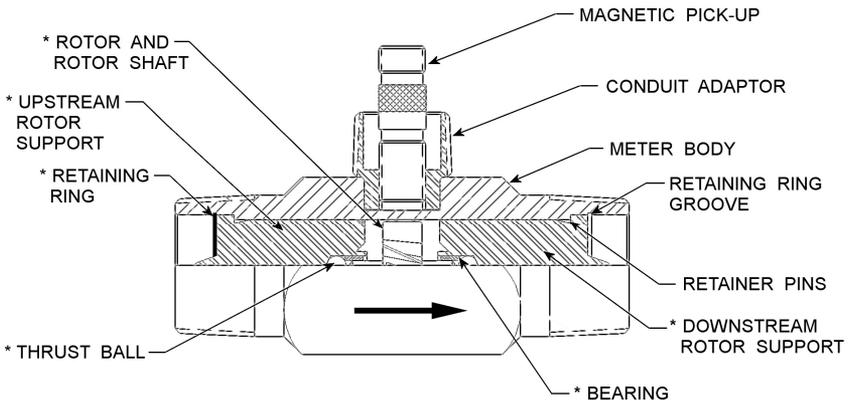
The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, human applications.

GENERAL DESCRIPTION

The Omega FTB-1400 Series turbine flow meter is designed with wear resistant moving parts to provide trouble-free operation and long service life. The turbine repair kit allows easy field repair of a damaged flow meter, rather than replacing the entire flow meter. Repair parts are constructed of stainless steel alloy and tungsten carbide.

Fluid moving through the turbine flow meter causes the rotor to turn at a speed proportional to the flow rate. The rotor blade cuts the magnetic field of the magnetic pick-up, which in turn generates a frequency output signal that is directly proportional to the speed. The signal is used to represent flow rate and/or totalization of fluid passing through the turbine flow meter. See **Figure 1** for typical turbine meter assembly.



NOTE: * INDICATES PARTS CONTAINED IN REPAIR KITS

FIGURE 1

Each turbine meter repair kit is factory calibrated to ensure accuracy throughout the entire flow range. Each kit is complete and includes a new K-factor, which is the calibrated number of pulses generated by each gallon of liquid. This K-factor will be used to recalibrate the monitor, or other electronics, to provide accurate output data.

PART INFORMATION

Repair Kit Part Number	Flow Meter Size	Repair Kit Fits Meter Model Number
FTB-1400A-RK	3/8"	FTB-1411, FTB-1421
FTB-1400B-RK	1/2"	FTB-1412, FTB-1422
FTB-1400C-RK	3/4"	FTB-1413, FTB-1423
FTB-1400D-RK	7/8"	FTB-1424
FTB-1400E-RK	1"	FTB-1425
FTB-1400F-RK	1-1/2"	FTB-1431
FTB-1400G-RK	2" Low	FTB-1441
FTB-1400-MP	Std. Magnetic Pick-up	All Meter Sizes

TURBINE METER REMOVAL

WARNING: *High-pressure leaks are dangerous and cause personal injury. Make sure that fluid flow has been shut off and pressure in the line released before attempting to remove the meter.*

DISASSEMBLY

Refer to **Figure 2** on page 7 for relative positions of repair kit components.

1. Remove the magnetic pick-up from the meter body to avoid damage during repair.
2. Remove the retaining ring from one end of the meter.
3. Remove the rotor support from the body. If the rotor support is jammed in the body, use a pair of pliers or vice-grips to break the rotor support free.
4. The rotor may also be removed at this time. Remove the retaining ring from the opposite side of the meter.
5. Remove the second rotor support.

INSTALLATION OF NEW KIT

IMPORTANT: Before reassembly, note that an arrow is cast or engraved on each component*. The arrow indicates the direction of flow. The meter must be reassembled with arrowheads pointed in the direction of fluid flow. The arrows are to be oriented in the up position on both rotor supports. The magnetic pick-up side of the body signifies the up position. This is the position that was used to calibrate the repair kit and this is the position that is to be used to ensure meter accuracy.

Figure 2 on page 7 shows the proper alignment and orientation of the repair kits.

* Fractional size rotors ($\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ " & $\frac{7}{8}$ ") do not contain a cast or engraved arrow, however Omega provides a colored cap on the **downstream side** of the rotor shaft to indicate flow direction. Remove this cap before assembly, noting flow direction.

1. Install one of the rotor supports into the body bore, noting the orientation of the arrow.
2. Secure a retaining ring in the groove provided. Be sure that retaining rings are completely installed in each groove.
3. Insert the rotor and second rotor support in the opposite side of the body, noting the orientation of the arrow.
4. Secure the second retaining ring in the opposite groove, as noted in Step 2 above.
5. Check the meter by blowing air through the assembly. If the rotor does not turn freely, the meter should be disassembled and checked for anything that would obstruct movement of the rotor.

CAUTION: Excess air pressure may damage the rotor and bearings by over spinning.

6. Install the magnetic pick-up.

Note: At this time electronics will need recalibration. Refer to the proper installation and operation manual. If there are any questions on recalibration, contact Omega.

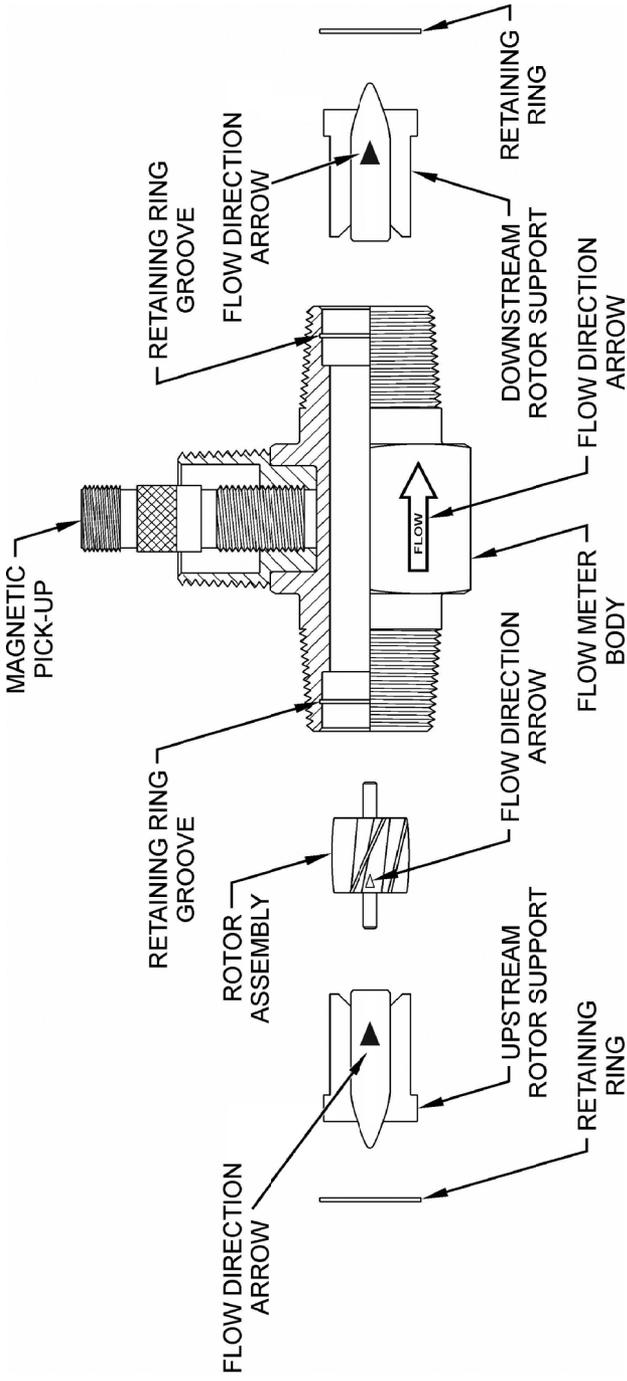


FIGURE 2
 Relative Positions of Internal Components
 for Turbine Meters

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WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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