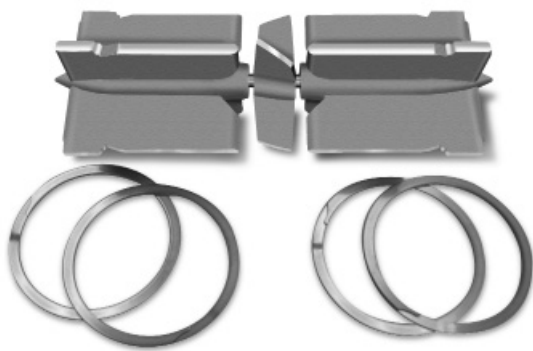


# HEDLAND®

## Model 1100 Turbine Meter Repair Kits

### INSTALLATION & INSTRUCTION MANUAL



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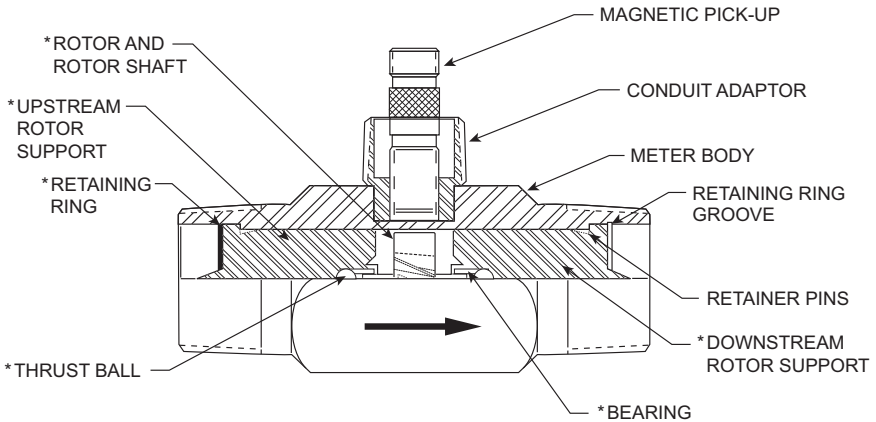
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**NOTE:** Hedland reserves the right to make any changes or improvements to the product described in this manual at any time without notice.

## INTRODUCTION

The Hedland Model 1100 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.

**NOTE:** If the meter repair kit part number ends in an "NCC" (no calibration), it was not factory calibrated. For these repair kits, use the nominal K-factor supplied.

## PART INFORMATION

<b>Repair Kit Part Number</b>	<b>Flow Meter Size</b>	<b>Repair Kit Fits Meter Model Number</b>
HB251-102	3/8"	HB110-375
HB251-105	1/2"	HB110-500
HB251-108	3/4"	HB110-750
HB251-109	7/8"	HB110-875
HB251-112	1"	HB111-110
HB251-116	1-1/2"	HB111-115
HB251-116	2" Low	HB111-121
HB251-120	2"	HB111-120
HB251-131	3"	HB111-130
HB251-141	4"	HB111-140
HB251-161	6"	HB111-160
HB251-181	8"	HB111-180
HB251-200	10"	HB111-200
HB111109	Standard Magnetic Pick-up	All Meter Sizes

# TURBINE METER REMOVAL

**WARNING:** High-pressure leaks are dangerous and may 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 **Figures 2, 3,** and **4** on pages 7, 8 and 9 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.

**Note:** 4 inch and larger meters have two retaining rings (one on either side of the rotor) that need to be removed before the rotor can be removed (see **Figure 4** on page 9).

5. Remove the retaining ring from the opposite side of the meter.
6. Remove the second rotor support.

## INSTALLATION OF NEW KIT

**IMPORTANT:** Before reassembly, note that an arrow is cast or engraved on each component (see Note on page 6). 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 it is to be used to ensure meter accuracy. **Figures 2, 3** and **4** on pages 7, 8 and 9 show the proper alignment and orientation of the repair kits.

**NOTE:** Fractional size rotors ( $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ " &  $\frac{7}{8}$ " ) do not contain a cast or engraved arrow. However a colored cap is provided 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.

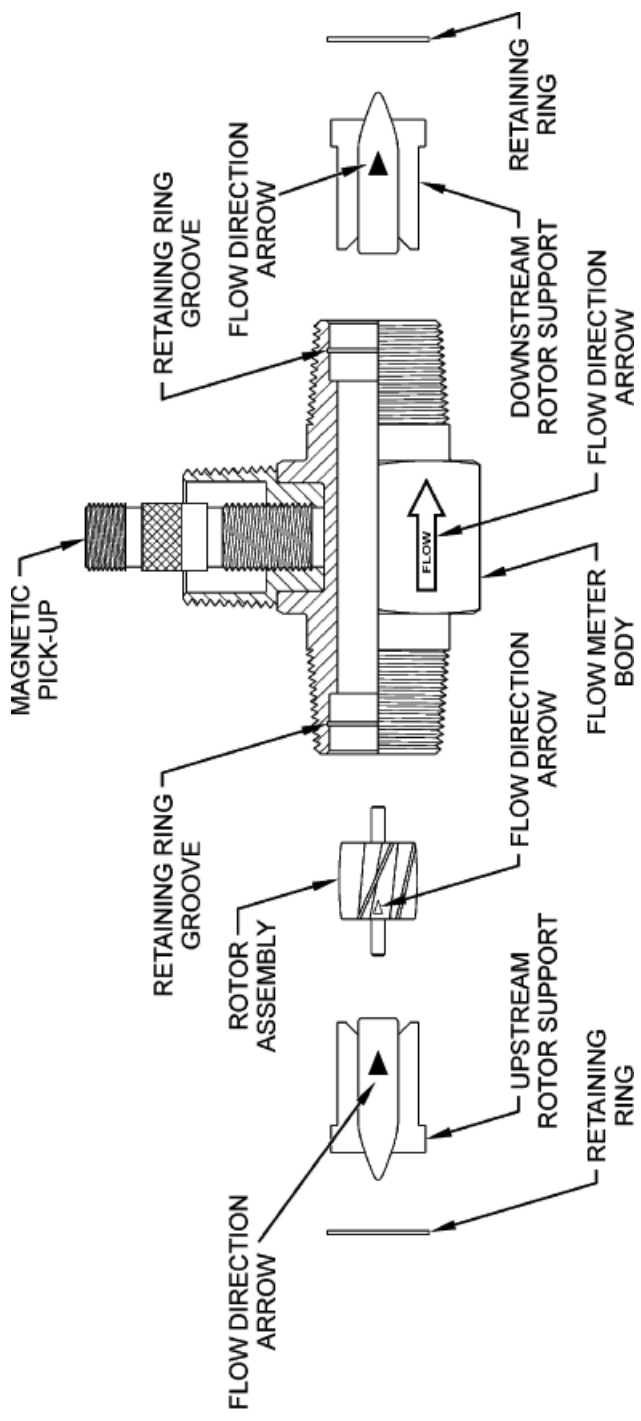
**Note:** 4 inch and larger meters have a retaining ring at both ends of the rotor (see **Figure 4** on page 9).

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.

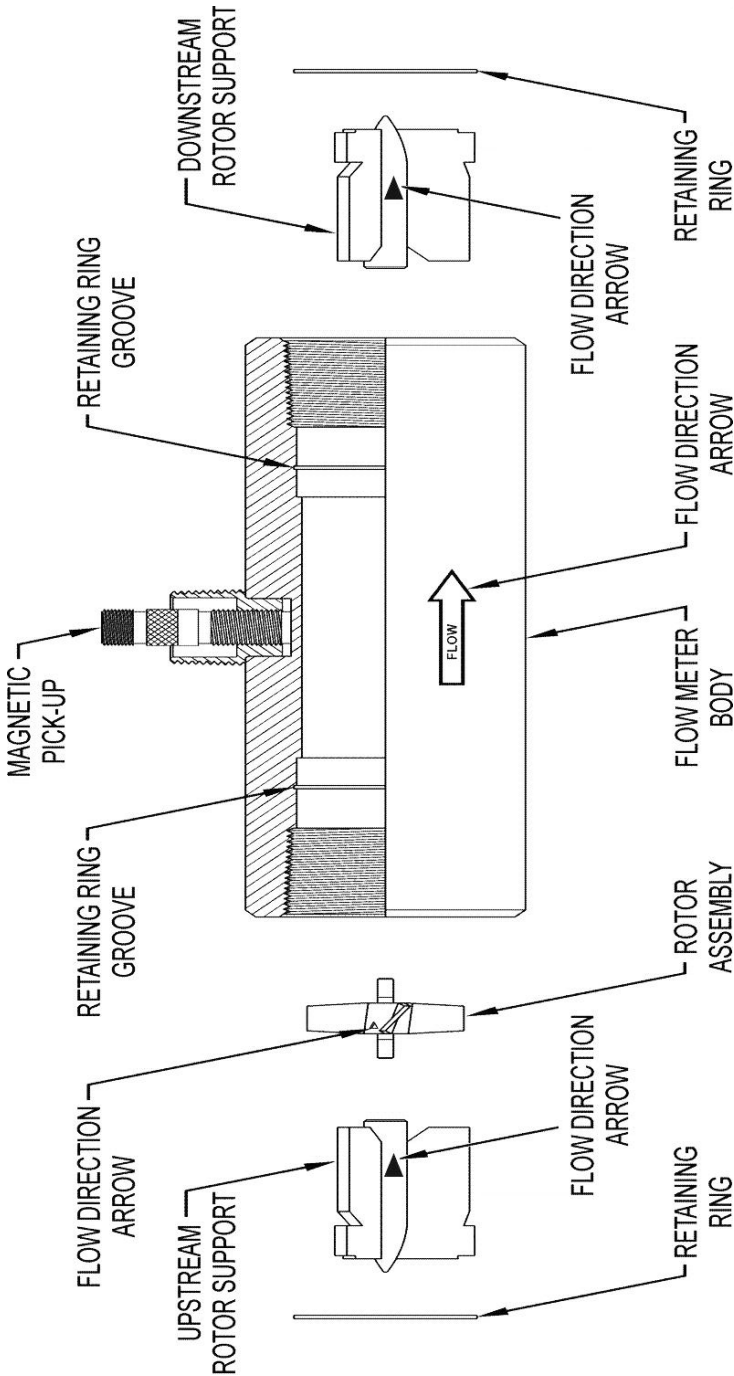
**CAUTION:** *Excess air pressure may damage the rotor and bearings by over spinning.*

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 the Hedland factory or the manufacturer of the associated electronics.*

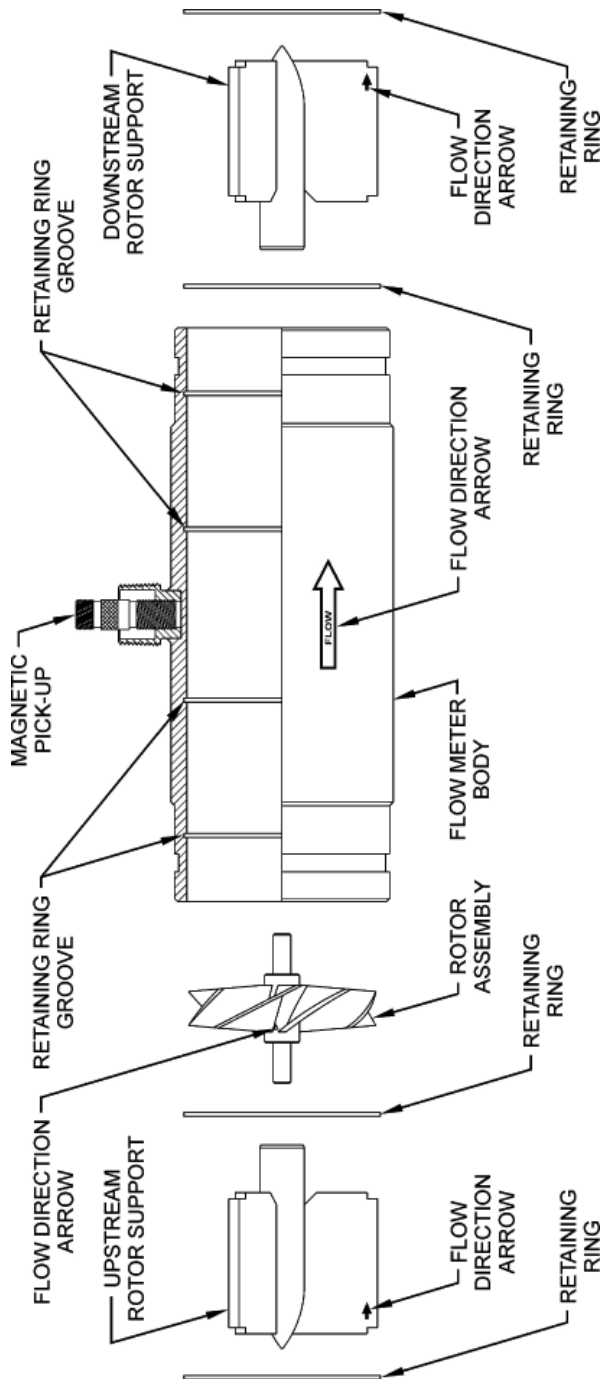


**FIGURE 2**  
*Relative Positions of Internal Components  
 for Turbine Meter Sizes B110-375 through B111-115 and B111-121*



**FIGURE 3**  
*relative Positions of Internal Components  
 for Turbine Meter Sizes B111-120 through B111-130*





**FIGURE 4**  
*Relative Positions of Internal Components  
 for Turbine Meter Sizes B111-140 through B111-200*

## STATEMENT OF WARRANTY

Hedland Flow Meters, Division of Racine Federated Inc. warrants to the end purchaser, for a period of one year from the date of shipment from the factory, that all flow meters manufactured by it are free from defects in materials and workmanship. This warranty does not cover products that have been damaged due to defects caused by misapplication, abuse, lack of maintenance, modified or improper installation. Hedland's obligation under this warranty is limited to the repair or replacement of a defective product, at no charge to the end purchase, if the product is inspected by Hedland and found to be defective. Repair or replacement is at Hedland's discretion. A return goods authorization (RGA) number must be obtained from Hedland before any product may be returned for warranty repair or replacement. The product must be thoroughly cleaned and any process chemicals removed before it will be accepted for return.

The purchaser must determine the applicability of the product for its desired use and assumes all risks in connection therewith. Hedland assumes no responsibility or liability for any omissions or errors in connection with the use of its products. Hedland will under no circumstances be liable for any incidental, consequential, contingent or special damages or loss to any person or property arising out of the failure of any product, component or accessory.

All expressed or implied warranties, including **the implied warranty of merchantability and the implied warranty of fitness for a particular purpose or application are expressly disclaimed** and shall not apply to any products sold or services rendered by Hedland.

The above warranty supersedes and is in lieu of all other warranties, either expressed or implied and all other obligations or liabilities. No agent or representative has any authority to alter the terms of this warranty in any way.



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