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Encoder Instructions

K670

INACTIVE DESIGN
Replaced by Model **M628A**

The K670 is a mill-duty reluctance-type rotary pulse generator for use with Avtron digital measurement systems. Single and dual output units are available with rotors from 1 to 360 pulses per revolution. Standard units are rated for speeds to 5000 RPM.

I. INSTALLATION

The pulse generator should be driven by a positive drive rather than a friction drive. The following means of driving the pulse generator may be used when installed in accordance with the coupling manufacturer's recommendations: Direct Coupling, Timing Belt and Pulleys, Chain and Sprockets, Gears. If a direct drive is used, use a flexible coupling and align the shafts as accurately as possible. (Misalignment should not exceed 0.010 inches). The pulse generator should not be subjected to any axial thrust. Overhung loads should also be minimized. Installations using timing belts and pulleys should have just enough belt tension to insure proper engagement of teeth. Excessive tension will shorten belt and bearing service life.

CAUTION

Do not drive or force couplings or pulleys onto the shafts of the unit, otherwise damage to the bearing may result. Refer to coupling manufacturer's instructions for proper installation procedure. Allow clearance between the shaft ends or the hubs of the flexible coupling, as specified by the coupling manufacturer, to permit thermal expansion of the shaft in operation.

For electrical connection of Model K670 remove the cover from its conduit box. The magnetic transducer, located inside the conduit box, is provided with two wire leads. It is recommended that Belden #8412 or equivalent two-conductor shielded cable be used for interconnection of the pulse generator with the associated digital equipment. It is recommended (and national or local electric codes may require) that the interconnecting cable be run in conduit, even though the cable includes its own electrostatic shield. The conduit will protect the cable against damage and extend service life and reliability. The following procedure may be used for making cable and conduit connections at the pulse generator:

1. Remove knockout plug in the required conduit box side.
2. Run the two-conductor shielded cable through the conduit to the pulse generator,

3. Strip back the outer insulation about four inches.
4. Trim back and insulate the exposed shielding with electrical tape.
5. Remove the conduit box cover plate for access to the transducer leads. Install a suitable conduit fitting and connect the conduit.
6. Splice the two cable conductors to the two leads from the pulse generator. Use rosin core solder such as Ersin "Multicore" or Kester "Resin Five". Do not use acid core solder or paste fluxes.
7. Secure cover plate to the conduit box.

II. SERVICE INSTRUCTIONS:

A. Transducer replacement and adjustment:

1. The transducer should be replaced if its chisel-shaped tip has been damaged.
2. Remove the conduit box from the side of the pulse generator. Unsolder the transducer leads from the interconnecting cable and loosen the screw on the loop clamp holding the leads. Loosen the hex nut on the adapter around the transducer and remove the transducer.
3. Remove the back plate from the pulse generator to provide access for a feeler gage. Insert the replacement transducer into the adapter.

CAUTION

Do not allow the transducer tip to strike the rotor. Insert a 0.004 inch feeler gage between the rotor and the tip of the transducer. Gently holding the transducer against the feeler gage, rotate the transducer until its marker line is along the shaft centerline of the pulse generator. From this position rotate at an angle to coincide with the number of teeth as follows:

Up to 100 teeth incl. - - 45 °
160 to 240 teeth - - 15 °
above 240 teeth - - 0 °

Tighten the hex nut 1/4 turn beyond that required to make the transducer finger tight in the adapter. **DO NOT OVERTIGHTEN!** Carefully remove the feeler gage.

4. Feed the transducer leads through the loop clamp and tighten the clamp screw.
5. Connect the transducer leads to the interconnecting cable using crimp-type connections or rosin-core solder, and insulate the connections.

B. Inspection and Replacement of Bearing and Rotor Wheel

1. The pulse generator bearing and shaft assembly is sealed and permanently lubricated. Inspection and replacement schedule should be the same as for other sealed bearing equipment in use at the same location.
2. The bearing and shaft assembly should be replaced when worn or rough, or upon loss of grease.
3. The rotor wheel should be replaced if the teeth are severely nicked or gouged.
4. Avtron recommends that the entire rotor assembly (consisting of shaft and bearing assembly, bearing support, and rotor) be removed and returned to the factory if any repairs are necessary.
5. To remove the rotor assembly from the pulse generator.

CAUTION

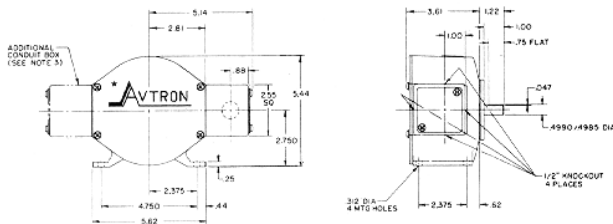
To avoid damage to the transducer or rotor teeth, remove transducer before proceeding.

- a. Remove screws and backplate from pulse generator.
- b. Pull synthetic rubber slinger off front end of shaft, exposing three cap screws, then remove cap screws.
- c. Remove rotor assembly by pushing on the outer race of the bearing, taking care to protect rotor teeth.

CAUTION

Do not press on shaft in this step.

6. If adequate facilities are available, the user can replace components of the rotor assembly by closely following this procedure:
7. Re-install the rotor assembly in the pulse generator housing, taking care to protect the rotor teeth, and secure with the three cap screws. Re-install slinger.



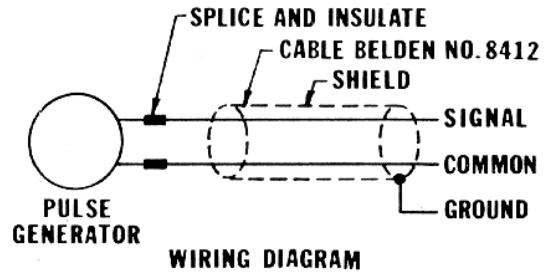
8. Re-install and adjust transducer as instructed in Paragraph II. A.

- a. Carefully press the shaft out of the rotor.
- b. Press the bearing out of the bearing support, applying pressure only on bearing outer race.
- c. Press the new bearing and shaft assembly into the support so that the long end of the shaft is on the side of the support with the three threaded holes. The bearing should be pressed into the support, applying pressure only on the outer race, until the short-shaft end of the bearing outer race is flush with the end of the support.
- d. Press the rotor onto the short end of the shaft, supporting only the long end of the shaft, until 0.12 inch of shaft protrudes.

CAUTION

Do not press on outer race of bearing in this step.

- e. Check the assembled rotor and bearing for damaged teeth and radial runout. Runout measured at toothed edge of the rotor (with bearing support held stationary) must not exceed 0.0005 inches T.I.R. If it is not within limits or rotor teeth are damaged, the teeth must be ground (with the rotor assembled to the shaft and bearing support held stationary). The ground surface should have a 63 micro finish.
- f. Carefully clean off the rotor with a mild solvent after grinding and coat with light machine oil.



PART NO.	DESCRIPTION	RECM'D. SPARES
* B5579 B5578 * A5227	Rotor Assembly ● Shaft and Bearing Assembly ● Bearing Support ● Rotor (Gear Wheel) Slinger, synthetic rubber	1
B9535 A8145 471767	Transducer (Magnetic Pickup) Gasket, conduit box Gasket, connector	1
* Order by supplying pulse generator part number to factory		