



### Splicing Submersible Cables

When the drop cable must be spliced or connected to the motor leads, it is necessary that the splice be watertight. This splice can be made with commercially available potting, heat shrink splicing kits, or by careful tape splicing.

Tape splicing should use the following procedure.

- A) Strip individual conductor of insulation only as far as necessary to provide room for a stake type connector. Tubular connectors of the staked type are preferred. If connector outside diameter (OD) is not as large as cable insulation, build up this area with rubber electrical tape.
- B) Tape individual joints with rubber electrical tape, using two layers, with the first layer extending two

inches beyond each end of the conductor insulation end, and the second layer extending two inches beyond the ends of the first layer. Wrap tightly, eliminating air spaces as much as possible.

- C) Tape over the rubber electrical tape with #33 Scotch electrical tape, (3M) or equivalent, using two layers as in step "B" and making each layer overlap the end of the preceding layer by at least two inches.

In the case of a cable with three conductors encased in a single outer sheath, tape individual conductors as described, staggering joints.

Total thickness of tape should be no less than the thickness of the conductor insulation.

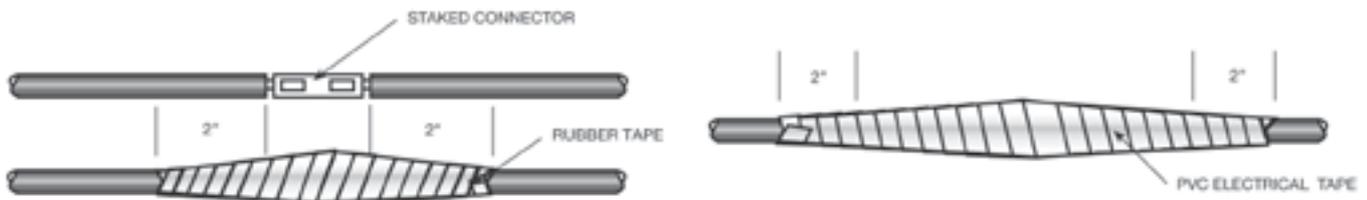


FIG. 12

### Submersible Leads and Cables

A common question is why motor leads are smaller than specified in Franklin's cable charts.

The leads are considered a part of the motor and actually are a connection between the large supply wire and the motor winding. The motor leads are short and there is virtually no voltage drop across the lead.

In addition, the lead assemblies **operate under water**, while at least part of the supply cable must **operate in air**. Lead assemblies running under water operate cooler.

**CAUTION:** Lead assemblies on submersible motors are suitable only for use in water and may overheat and cause failure if operated in air.

### Tightening Motor Lead Connector Jam Nut

- 4" Motors:**  
20 to 27 N-m (15 to 20 ft-lb.)
- 6" Motors:**  
68 to 81 N-m (50 to 60 ft-lb.)
- 8" Motors with 1-3/16" to 1-5/8" Jam Nut:**  
68 to 81 N-m (50 to 60 ft-lb.)
- 8" Motors with 4 Screw Clamp Plate:**  
Apply increasing torque to the screws equally in a criss-cross pattern until 9.0 to 10.2 N-m (80 to 90 in-lb.) is reached.

Jam nut tightening torques recommended for held assembly are shown. Rubber compression set within

the first few hours after assembly may reduce the jam nut torque. This is a normal condition which does not indicate reduced seal effectiveness. Retightening is not required, but is permissible and recommended if original torque was questionable.

A motor lead assembly should not be reused. A new lead assembly should be used whenever one is removed from the motor, because rubber set and possible damage from removal may prevent proper resealing of the old lead.

**All motors returned for warranty consideration must have the lead returned with the motor.**