

## Chapter 12

### P.T.F.E. CABLES

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#### Introduction

1. Cables insulated with P.T.F.E. (polytetrafluoroethylene) are designed for aircraft electrical wiring in areas where the temperature lies outside the limits catered for by the Pren and Glasil range of cables. They are primarily for use in high temperature zones between 150 deg. and 200 deg. C., and at low temperatures between -30 deg. and -75 deg. C., where a high degree of flexibility is required combined with good resistance to engine fuels, hydraulic fluids, and synthetic ester-based lubricants. The cables may be used on circuits where the potential between conductors does not exceed 250 volts (R.M.S.) 1,600 c/s.

#### DESCRIPTION

2. These cables, typical examples of which are shown in fig. 1, are made in single-core form only. Uni-ef cables, which are suitable for current ratings up to 24 amp., consist of a stranded nickel-coated copper conductor,

insulated with P.T.F.E., the insulation being coloured to give indication of current rating.

3. For current ratings from 35 to 200 amp., cables are of the Glasef type, with an outer covering of glass braiding, impregnated with silicone varnish, in a natural buff colour. Indication of current rating is given by black numbers on the outer surface of the cable. The range of P.T.F.E. cables is listed in Table 1.

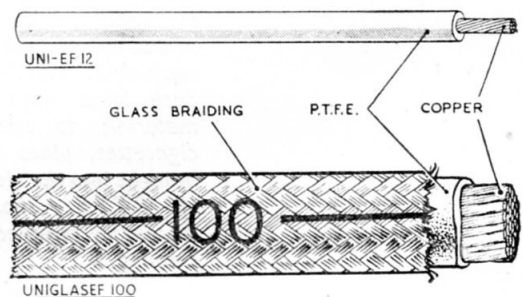


Fig. 1. Typical P.T.F.E. cables

(A.L.108, June 57)

**TABLE I**  
**Range of P.T.F.E. cables**

Cable	Stores Ref.	Colour of insulation	Overall dia. (in.) (max.)	Resistance at 60 deg. F (ohms per 1,000 yd.)	Size of conductor (No. of wires/in.)
Uni-ef					
4	5E/3728	Red	0.100	30.95	19/0.0076
9	5E/3729	Brown	0.120	15.90	37/0.0076
12	5E/3730	Yellow	0.145	8.41	70/0.0076
24	5E/3731	Green	0.220	3.23	73/0.012
Uniglasef					
35	5E/3748	—	0.270	1.97	119/0.012
50	5E/3304	—	0.310	1.30	182/0.012
100	5E/3305	—	0.445	0.517	203/0.018
150	5E/3306	—	0.550	0.325	323/0.018
200	5E/3307	—	0.680	0.204	513/0.018

#### INSTALLATION

4. When handling and installing these cables, care should be taken to avoid bending the cables on small radii, which is liable to cause cracking of the insulation. In general the bending radius should wherever possible be not less than twenty times the outside diameter of the cable. This is particularly applicable to Uni-ef cables.

#### WARNING

◀ When P.T.F.E. is heated above 400 deg. F. toxic compounds are evolved which can result in serious injury or death to personnel who do not treat this material with proper respect. P.T.F.E. cables should therefore be prepared only in well-ventilated rooms, and whenever possible within a room with an exhaust ventilation system. No smoking is permitted by personnel engaged in cutting or working P.T.F.E. in such a way as to produce loose chips or particles of the material; to avoid contamination, no cigarettes, pipes or tobacco should be brought into the vicinity, and all particles of P.T.F.E. should afterwards be thoroughly removed from the hands and clothing. ▶

**RESTRICTED**