

The New Post Office Relay

THE RELIABILITY OF PALLADIUM-SILVER CONTACTS

The British Post Office recently has extended greatly the use of miniature relays which were designed originally for portable items of equipment. They have proved so reliable that they are to be installed generally in printed circuit boards and all equipment now using standard 3000-type relay mounting plates. A detailed specification of the performance required from them is discussed by W. L. Scott and J. Paterson in *Post Office Electrical Engineers Journal*, 1971, 46, (2), 123-125.

The relays are rated to handle up to 1 amp at 100 volts with a maximum resistive load of 50 watts and must work with a contact force of at least 10 grams. The contact material is 60 per cent palladium-silver. This choice of contact material for such an important and extensive application is interesting and represents a notable divergence from modern American practice as described recently by Morton Antler of Bell Telephone Laboratories in *Gold Bulletin*, 1971, 4, (3), 42-46.

The American telephone industry for some years has made wide use in relays of bimetal

contacts in which one is made of solid palladium and the other of palladium plated with a coating of 20 μm of 22 carat hard gold alloy. The claim is that this combination is the best known for resisting erosive wear, sliding damage and the formation of friction polymer.

The 60-40 palladium-silver alloy is certainly as tarnish-resistant in air as pure palladium but it may not be quite so resistant to polymer formation as the gold/palladium combination. At first sight it might appear that the British Post Office is being content with a less sophisticated contact material than their American counterparts, with a significant saving in cost. However, in the British relays a design step is introduced which greatly improves reliability and probably, by an added complication, about evens up the cost. Twin contact-units are specified instead of the usual single contacts - thus very considerably reducing the chances of contact failure.

The relative performance of the differing relays in service no doubt will be followed with interest by telephone engineers.

The new Type 23 relay specified by the British Post Office incorporates twin contact-units with 60 per cent palladium-silver contact points. This Size A Varley relay made by Oliver Pell Controls Ltd. to the new specification is so small that it can be freely used in restricted spaces.

