



SYNCHRONISM CHECK RELAY TYPE IJS52A4, 5 AND 6

INTRODUCTION

These instructions in conjunction with GEH-1791B form the instructions of the IJS relay which is normally used as a cut-off relay for the Type GES automatic synchronizing relay.

APPLICATION

The IJS52A4, -5, and -6 relays are especially adapted for determining the maximum frequency difference in connection with the Type GES synchronizing relay. For this purpose, they are adjustable to close as early as 45° in advance of synchronism, at the maximum (cutoff) frequency difference for which synchronizing is desired. The interlocking in the GES is such that if the IJS has not completed the 5-10 circuit by the instant when D of the GES energizes B of the GES to initiate breaker closure if permitted by the IJS, E of the GES becomes de-energized by the operation of B, and unseals itself. Then it is necessary for E to be energized again by A of the GES before breaker closure again becomes possible.

The cutoff limit provided by the C relay of the GES should be adjusted for approximately the same value as that provided by the IJS, since the two are affected differently by voltage magnitude relations, and therefore, supplement each other.

The choice of a cutoff setting is a compromise between the desire for closure at the first instant of zero angle, and the desire for closure with zero interchange current both at and after the instant of closure. This compromise can best be made at the time of placing in service, since it depends on the speed adjusting and speed regulating systems and on the acceptable magnitude of power swing at the time of synchronizing. Figure 1 shows the time dial setting (TDS) for any given desired cutoff setting with the GES relay set for a given advance time corresponding to the expected breaker closing time. The 100 mark on the C relay of the GES corresponds to the maximum frequency difference for which a particular GES relay is set. For the GES11F this maximum is set with the specified breaker time for which the GES is calibrated. For the GES11G, this maximum is set with the shorter of the 2 specified breaker times.

CONSTRUCTION

These forms of the IJS relay are the same as the basic IJS52A relay with the exception that the relay has been adjusted to have an 80 degree closing angle and a time of 1.6 seconds to close its contacts from the #10 TDS for an in phase condition of rated applied voltages. The same procedures as for the standard IJS relays as noted in GEH-1791B should be followed keeping in mind the difference in closing angle and time. Figures 2 and 3 show the time characteristics of these relays.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

POWER SYSTEMS MANAGEMENT DEPARTMENT

GENERAL  ELECTRIC

PHILADELPHIA PA.

GEK-1255 Synchronism Check Relay Type IJS52A

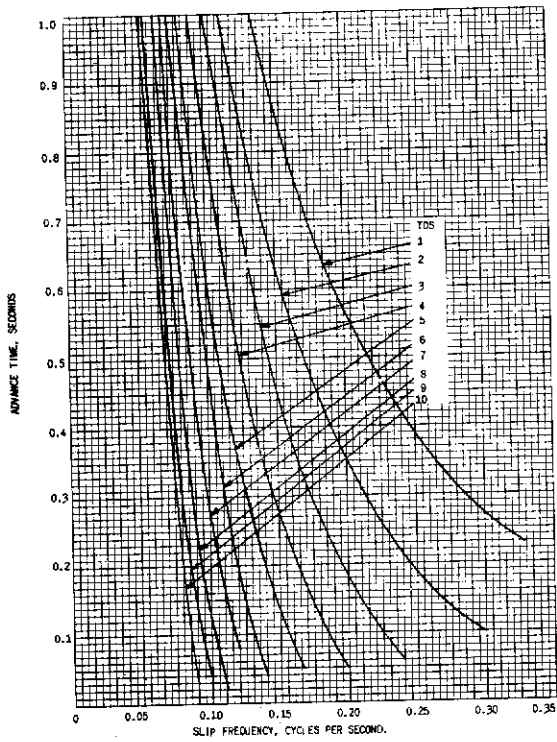


Fig. 1 (0178A8191-0) Advance Time Vrs. Slip Frequency, Type IJS52A Relay

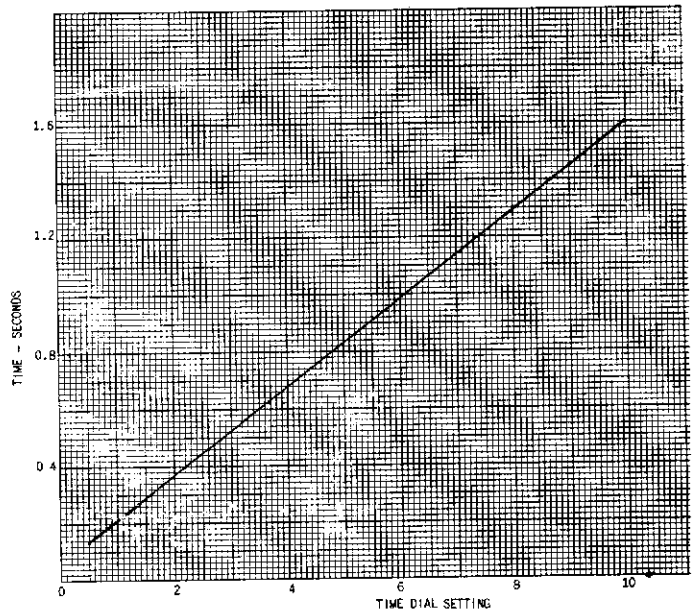


Fig. 2 (0165A7617-0) Operating Time Curve With 80° Closing Angle Time At 0 Degrees 115 Volts - 60 Cycle On Both Circuits

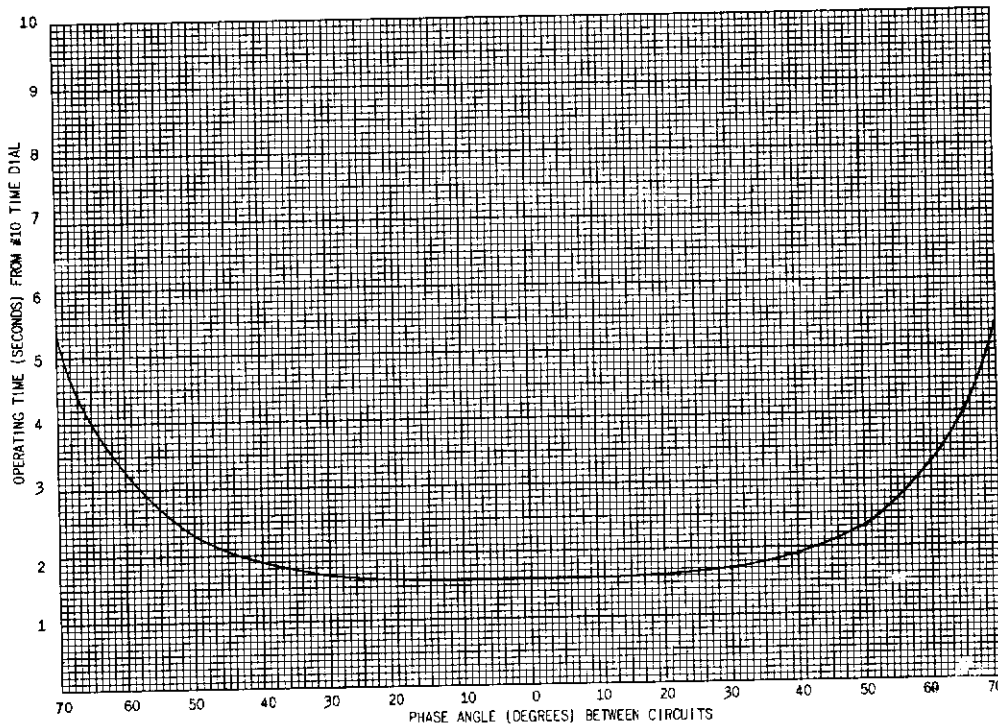


Fig. 3 (0178A9107-0) Time-Phase Angle Characteristic Of Relay Type IJS52A Set For 80° Closing Angle