GBW 16900

1.0 GENERAL

1.1 These notes describe the operation of relay set GBW 16900 for use at U.A.X. No. 13 exchanges.

1.2 The R/S is only associated with a C.C.B. line.

1.3 Attention is drawn to relay symbol RR. This is a Rotary Relay with mechanically operated spring sets which are operated by two cams N & S. Care is required when "tracing out" this circuit diagram via these springsets.

1.4 This explanatory is unofficial and will be superseded by the official one when it comes to hand.

2.0 FACILITIES

2.1 Discrimination of Lev. 0 & 1 C.C.B. calls.

2.2 Route barring on 2nd or 3rd Digits with digit 1 dialled as 1st figure.

2.3 Concentration of C.C.B. lines via junction relay set to parent exchange group selector level '0'.

3.0 CIRCUIT OUTLINE

3.1 Access is gained to the circuit via the subscriber's line circuit.

The circuit in turn extends a loop condition to seize the Line finder and group selector circuits.

To call Toll the U.A.X. GS is stepped to level '0' from the initial digital train, and the circuit provides for an additional 10 pulses to be sent forward to the parent exchange group selector to provide access to the T.M.X. via level '0', ref. clause 2.3.

Route barring is provided for on second and third figures when preceded by 1st digit 1.

4.0 CIRCUIT DETAIL - Digit '0' Dialled

Sub. extends loop. LA ops via H3 & H4.

4.1 LA

LA1 provides op. circuit for B.

LA2 prepares loop circuit to Line Finder.

4.2 B.

Ops. via LA1.

B1 provides op. circuit for BB.
B2 prepares drive circuit for R.R.
B3 opens release fail lamp circuit.
B4 prepares op. circuit for H and barring earth.
B5 prepares locking circuit for IPD and NU.
B6 Spare.
B7 Extends loop circuit to line finder.

4.3 BB

Ops. via B1 eth.

BB1 prepares op. circuit for PU.
BB2 prepares op. circuit for GS.
BB3 provides LA eth against CA op.
BB4 prepares op. circuit for DSA.
BB5 prepares guard circuit in P-wire.
BB6 provides ring M/C start.

Loop extended to Line finder and subsequently to group selector earth returned on P-wire and sub. secures dial tone from U.A.X. group selector.

4.4 GS

Ops. via P-wire eth.

GS1 prepares circuit for NRD.
GS2 Spare.
GS3 prepares barring earth.
GS4 prepares drive circuit for RR and op circuit of CD.
GS5 leaves loop circuit dependant on LA2.
GS6 prepares circuit for RDO.

Sub. dials '0', U.A.X. group selector steps to Lev. '0' and junction 16900 seized, with LA pulsing RR is also operated and steps 10 positions.

LA pulses.

4.5 CD

Ops. on 1st release and holds over pulse train.

CD1 provides op. circuit for CA.
CD2 removes drive eth from DS.
CD3 prepares op. circuit for NU.
CD4 provides short for CD.
CD5 closes pulsing loop.

4.6 CA

Operates via eth CD1 CA 500 ohm coil Batt.

CA1 provides 820 ohm loop termination.
CA2 prepares cct for release fail lamp.

4.7 CD

Operating provides a circuit to step RR in sequence with LA pulses.

RR steps via LA1, RDO1, H1, B2, GS4, NU1, contacts, Diode D2, NRD2, RR coil, CA coil Batt.

RR is stepped to 10th position, RRS1 and, RRN3 now provide a circuit for RDO.

CD releases slowly and in turn releases CA.

LA remains operated to loop and opens RR operate circuit.

4.8 RDO - operating provides a circuit to operate pulsing relay PU which in turn provides a circuit to step DS.

RDO1 opens RR stepping circuit.
RDO2 prepares circuit to operate PU.
RDO3 provides operate eth for PU.
RDO4) close fundamental pulsing loop to CAX.
RDO5)

4.9 PU - operating provides timed pulsing sequence and steps DS to 6th terminal where a circuit is provided to operate relay IDP.

PU1 provides stepping circuit for DS via Eth RDO3, NRD4 DS3 bank common, Diode 6, BB1, NRD1, PU1 DS coil, CA coil Batt.

PU2 provides pulse train to fundamental loop.
Note - this is short circuited until IDP operates.

4.10 DS3 - on reaching pos. 6 provides a circuit to operate IDP via eth RDO3 DS3 term 6, BB7, IDP1, NRD3, IDP coil Batt.

IDP - operating removes S/C from fundamental impulse loop and pulses are sent forward to line.

IDP1 provides 6th step drive circuit for DS.
IDP2 prepares op. circuit for relay H.
IDP3 provides lock circuit for IDP.
IDP4 removes S/C from pulsing loop.

4.11 Pulsing circuit continues to drive DS, until DS3 returns to the 8th Position where a circuit is provided to operate relay H on 10th onstepped pulse.

H operates via RDO3, NRD4, DS3 term 8 IDP2, B4, H2, Diode 9 H coil Batt.

- H1 opens RR stepping circuit against release of LA and RDO.
- H2 locks H relay to P-wire eth.
- H3) H4) external subs. loop and disconnect LA.
- H5 Spare.
- H6 disconnects pulsing loop and extends neg. legs forward.

4.12 Subscriber is now extended forward to T.M.X. via Lev. '0' of I/C C.A.X. selector, relays LA, B, BB, CD, CA and GS are released, leaving the H relay holding to the P-wire guard eth.

Relay GS releasing provides a homing circuit for RR via eth CD1, RRN1, GS1, RRdm, RR coil, CA coil Batt.

Relays CD, RDO, and BB releasing open PU circuit and provide homing circuit for DS.

5.0

Assume 114 Dialled.

Digit 1 dialled as 1st figure.

5.1 Relays LA, B, BB, CD, CA and GS operate as previously described and RR is stepped according to the pulses received at the end of the pulse train CD releases and provides an operate circuit for NRD via eth CD1, RRN1 (pos.9) GS2, RRS2 (pos.9), NRD coil Batt.

NRD Operating -

- NRD 1 opens PU op. circuit and provides drive circuit for DS.
- NRD 2 opens RR circuit and steps DS1 position (11th term).
- NRD 3 opens IPD op. circuit and prepares DS drive.
- NRD 4 changes over DS homing drive path.
- NRD 5 provides barring eth circuit to DS1 and DS2.
- NRD 6 provides locking circuit for NRD, DSA and DSB.

5.2 Sub deals 2nd Fig., i.e., Digit 1.

LA pulses and steps DS nine further pulses to term 2, on release of a circuit, is provided to operate DSA via eth. CD3, GS3, NRD5, DS1 O/L O to SCA 14 strapping Diode 4, DSA1, DSA coil Batt.

DSA ops. -

DSA 1 opens op. circuit and provides locking circuit.

DSA 2 prepares circuit for DSB.

DSA 3 changes over op. path for NU.

DSA 4 prepares op. circuit for 'H' relay.

DSA 5 prepares homing circuit for DS.

DSA provides homing circuit for DS via eth CD2, DSA5, DSB3, NRD4, DS3, mult., diode 6, BB1, NRD1, DS dm, DS coil CA coil Batt.

5.3 When DS restores to home position, a circuit is provided to operate DSB, via DS1, DSA2, DSB2.

DSB ops -

DSB 1 provides eth to DS2

DSB 2 opens op. circuit and provides locking circuit.

DSB 3 opens homing circuit of DS.

5.4 Sub. deals 3rd Fig. (4), 6 pulses to DS to give O/L 4 which is strapped to SCA 19 and provides an operate circuit for NU.

NU term. returned to sub.

Any other unbarred 2nd or 3rd fig. dialled would result in the operation of relay 'H' and the switching through of the subs. loop circuit.

6.0

Digits 2 - 9 Dialled as 1st Fig.

6.1 With any digit other than '0' or '1' dialled as a 1st figure with the release of CD at the end of etn pulse train a circuit is provided to operate relay 'H' via eth CD1, RRN2, RRS3, B4, H2, Diode 9, 'H' coil Batt.

'H' relay operating extends subs. loop forward and disconnects pulsing circuits from loop.