1. The process of reading in a new order (OS operated) and carrying out each order (AS operated) have for convenience been based on a uniform repetition of a sequence of three steps. The three steps are controlled by the counting circuit of relays OX, OY, OZ when OS is operated, and by AX, AY and AZ when AS is operated. These counting circuits are similar in principle to the primary sequence relays OU, OV and OW although using different relay coils.

2. When OS operates, the L relay sets mark out the order source address and when this has been seized the DM relays corresponding to digits 2 and 3 operate. Earth from OS 22.23 - OZ 5.4 - $DM_2$22.23 - $DM_3$22.23 - OY 21.22 - OX ca operates OX. OX holds over OX 2.3.

3. The Order Intake Sequence diagram shows various routes by which earth via OX 25.26 selects the required digit storage and decoding unit and extends the earth via O 78 and/or O 27 to the "Step-on" line. If the alarm relay of "Single Step" key is not operated OS 5.6 extends the earth over OZ 28.27 26 25 and OG 5.4 to winding OY ba to operate OY. Until OY operates there is a parallel path over OY 5.4 to OX ba but as OX is already operated this is of no consequence. OY Holds over OY 2.3.

4. OY 22.23 connects the releasing winding OX de and OX releases. The Order Intake Sequence diagram now shows various routes by which earth via OX 2.1. and OY 25.26 performs several functions and returns to the "Step-on" line.

5. The cycling of relays OX, OY, OZ continues in this fashion and a subsidiary counting train OA, OB .... OG (not shown on this diagram) advances when OZ operates. Eventually the subsidiary train reaches the state where OG is operated, OG 5.4 prevents the next operation of OY, and with OZ normal and OX operated the primary sequence circuit operates OW and AS.

6. When AS operates, the DSA and DSB relays allow the address digits to be marked out (see Primary Sequence) simultaneously in the case of arithmetical orders or in sequence in the case of non-arithmetical orders. When the correct addresses have been seized and the DM relays operated earth from AS 2.3 - AZ 5.4 - DM relays operated - JGA 8.7 or JOA 8.9 - AY 21.22 - AX ca operates AX.

   (Read on)

   AX 25.26 routes earth by one of various paths to select, for instance, a shift relay which extends the earth to the step-on line. AY operates and releases AX.

7. AY and AZ continue the sequence and a subsidiary counter AA, AB .... AK and AL distributes the AX, AY and AZ outputs to the appropriate destinations until the arithmetical sequence is completed and the next earth from AX, AY or AZ is returned to the Order Completed line. The various paths by which the check earth from AX, AY and AZ returns to the step-on line are detailed on the arithmetical sequence diagrams. The following list is a cross-reference to these paths.

8. Addition and   AX earth returned via 11 N
    Subtraction   AY earth returned via O79 and O27

    Multiplica-   AX earth returned via 11 N
    tion   AY earth returned via O79 and O27
                       AX earth returned via O79 and O27 or
                           via E1.

    Division   AX earth returned via 11 N
                       AY and AZ earth returned via O79
                           and O27

    Read-in   AX earth returned via 11 N
                       AY earth returned via C1
                       AZ earth returned via O79 and O27

    Print-out   AX earth returned via 11 N
                       Ay earth returned via O79 and O27 or
                           via E1.
                       AZ earth returned via $P_1$18 or $P_2$18.

9. If the "Single-step" key KIS is operated the connec-
    tion between the Step-on line and the counting
    relays is interrupted and routed via JCL 2.3. At
    the same time the Single-shot jack and key KSP are
    connected to operate JCL through a condenser. Each
    closure of the Single-shot pear switch operates
    JCL over the ab winding. JCL 2.3 extends the
    earth on the step-on line and holds JCL over the
    dc winding. When the counting relays step there
    is a momentary interruption of the earth on the
    step-on line, JCL releases and can only be re-
    operated by releasing and re-operating the pear
    switch.

10. An earth fault on the Step-on line will cause the O or A
    counting train to re-cycle continuously. An
    alarm condition which operates JAL interrupts the
    Step-on circuit at JAL 24.25 so that the computer
    does not restart if the fault clears.

11. When the order intake sequence reads a digit into
    Storage group D_1 a check earth appears at $D_1$12 if
    the digit is O   or at $D_1$14 if the digit is 1 to
    9. Earth at $D_1$12 operates NCX and NCY, breaking
    the hold circuit of NA and BG if these are already
    operated. When NA and BG release NCX and NCY
    hold over NCY 3.2 and NA 2.1. NCY 5.6 and NA 4.5
    forward the earth to the step-on line. Similarly
    if earth appears at $D_1$14 it operates BG and NA
    which disconnect the hold circuit of NCX and NCY.
    BG and BA hold over NA 3.2 and NCY 2.1 and for-
    ward the earth to the step-on line via NCY 8.7
    and NA 6.5. These two groups of relays are a
    marker showing whether the new order calls for
    an arithmetical operation (BG and NA operated)
    or for a control operation (NCX and NCY operated).

ET   Single Transfer
EM   Multiple   „
ES   Print out
ER   Read in
EP   Positive Single Transfer
EN   Negative   „   „
ED   Store $\rightleftharpoons$ Acc.

FA   Addition
FS   Subtraction