

1. The computer repeats a basic rhythm of:

- (a) clearing down the previous order storage;
- (b) reading in a new order;
- (c) carrying out this new order.

The sequence is controlled by the counting circuit of relays OU, OV, OW.

2. When first switched on OU, OV and OW are normal and earth from OW 2.1, etc., is available at the start keys. Operating either start key causes QAA to operate. (QAA operated represents the fact that the computer has begun the first of its three "lives")

JPB operates when a time pulse is received from the clock (see Alarm circuit) and the start earth is extended to operate JGA and JGB, which hold over AS 21.22 normal. JGB 28.29 closes an operate circuit for OU over winding de.

3. With OU operated OU 22.23 closes an operate circuit for OR which is effectively a relief relay. OR breaks the hold circuits of the digit storage relay sets. When all the digit storage relays (DA, DB, etc.) are normal, high speed relay ON releases. Earth from OR 2.3 - ON 2.1 - OV ce operates OV which holds over OV 2.3.

4. OV 5.6 connects the hold earth of OU to winding ab. This winding is in opposition to the hold winding OU de and provides more ampere-turns. OU releases and disconnects the operate circuit of OR. Earth from OU 2.1 - OV 22.23 - OS ae operates OS which is effectively a relief on OV.  
✓ OS controls the order reading secondary sequence detailed on the Order Intake Sequence diagram. When this is completed earth from OS 22.23 is extended to OW ce and OW operates ad holds over OW 2.3.

5. OW 5.6 connects the release winding of OV. OV and OS release. Earth from OV 2.1 - OW 22.23 proves that both LS relays are normal (i.e. that the order source address is no longer marked out) and operates relays AS<sub>4</sub>. AS controls the arithmetical secondary sequence, the various forms of which are detailed on separate diagrams for:

|                          |       |            |
|--------------------------|-------|------------|
| Addition and Subtraction | ..    | C 47585    |
| Multiplication           | .. .. | .. C 47584 |
| Division                 | .. .. | .. C 47583 |
| Read In                  | .. .. | .. C 47582 |
| Print Out                | .. .. | .. C 47581 |

When the appropriate sequence is complete earth from an AS contact appears on the "Order Completed" line. If the test keys KIO and KIS are normal this earth re-operates OU and the sequence repeats itself.

6. The connections to the "Order Completed" line are used as follows:

- (a) from D<sub>5</sub>53. Conditional transfer of control abandoned when sign examination has stored "no".
- ✓(b) from A 2 via BSA 5.4 and NA 25.24. Gives an immediate "Order Completed" signal for those non-arithmetical orders which only require the selection of an address.
- (c) from A 2 via BSA 5.6 and BF 2.3. Search order completed.
- (d) from A 2 via E 3. A general purpose signal when the last possible step of the arithmetical sequence is reached.
- (e) via W 26. Addition or Subtraction complete.
- (f) from D<sub>5</sub>69. Allows order 00000 to be passed over. JRP 2.3 provides for abandoning the current order when a new life is claimed.
- (g) from D<sub>4</sub>59. Conditional search abandoned when sign examination has stored "no".
- (h) from D<sub>4</sub>61. Similar for reverse search. Now redundant.
- (i) from D<sub>5</sub>51. "Finish" indication acknowledged by either "Pass Finish" key.
- (j) from D<sub>5</sub>53. "Signal" indication acknowledged.
- (k) via Q 75. Read In completed.
- (l) via T 75 and T<sub>2</sub> 75. Print Out completed.

7. When AS operates, contact AS 22.23 closes the circuit to operate the DSA and DSB relays in digit storage units 1, 4 and 5. These relays mark out the corresponding order digits which seize appropriate addresses (see 1st, 4th, 5th digit selection diagrams) and operate the DM relays in these units.

For an arithmetical order NA is operated and AS 25.26 extends earth over NA 8.9 to operate the DSA and DSB relays in digit storage units 2 and 3.

For non-arithmetical orders except those involving transfer of control the 4th digit must be marked out and checked in order to operate DM<sub>4</sub> 22.23 and extend the AS 25.26 earth over NCS 21.22<sup>4</sup> to D<sub>2</sub> 7 and D<sub>3</sub> 7. For the non-arithmetical orders involving transfer of control NCS is operated and it is necessary to mark out and check the 4th and 5th digits, before the circuit from AS 25.26 - DM<sub>4</sub> 22.23 - DM<sub>5</sub> 22.23 - D<sub>2</sub> 7 and D<sub>3</sub> 7 is completed.

8. If the "Single Orders" key KIO is operated the connection between the "Order Completed" line and the operate winding of OU is interrupted and routed via the "Single Shot" jacks and the "Single Shot" key KSP.