

July, 1960

EXPLANATION OF G-15 ECO's --- 970-1096

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MEMORANDUM

DIVISION OF BENDIX AVIATION CORPORATION

TO: J. R. Campbell

FROM: Norman R. Love

SUBJECT: G-15 ECO's (Revision 1)

DATE: 7 January 1960

The purpose of this memorandum is primarily to provide detail drawings of all wiring changes affecting the G-15 since machine Serial No. 210.

Part one describes all the changes and additions in logic incorporated in ECO's 970, 978, and 1010. The purpose of these changes was to allow the computer to use more accessories, namely the PR-2, CA-2, and the PA-2. These changes were effective with machine Serial No. 210.

Part two describes all the changes and additions in logic incorporated in ECO's 1020, 1029, 1038, and 1053. The purpose of these changes was to adapt the computer to the alphanumeric typewriter. These changes were effective with machine Serial No. 241.

The two major areas of change as detailed in part one and part two overlapped one another in the set and reset terms of the AS flip-flop. These changes are detailed at the end of part one.

Norman R. Love
Norman R. Love

NRL:rb

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PART ONE

(ECO 970, 978 and 1010)

Section I

The drawings contained in this section describe wiring changes incorporated in ECO's 970, 978 and 1010 which involved no changes in logic.

The reasons for these changes are as follows:

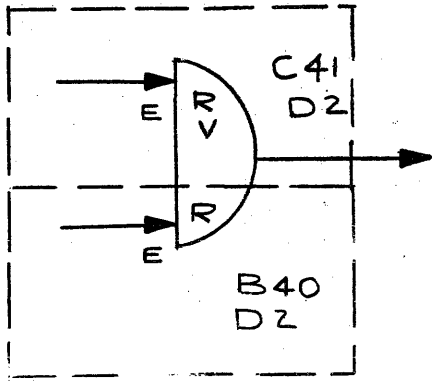
- 1) To provide additional diodes by replacing the following D2 packages with D1 packages:

B40, C40, C39, C37
- 2) To provide additional cathode followers by replacing the following CF1 packages with CF3 packages:

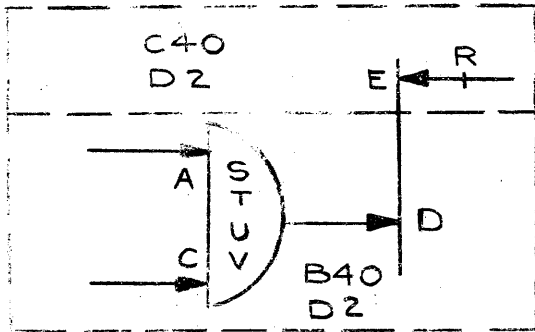
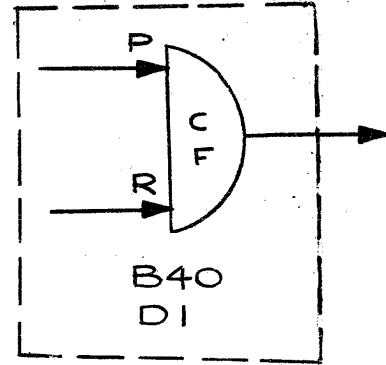
C4, C5 and K5.
- 3) To free cathode follower location B3 in order to replace it with a flip-flop which will be used to provide the AS and OH signal.
- 4) To rectify some minor errors which existed in previous ECO's.

BEFORE ECO 970

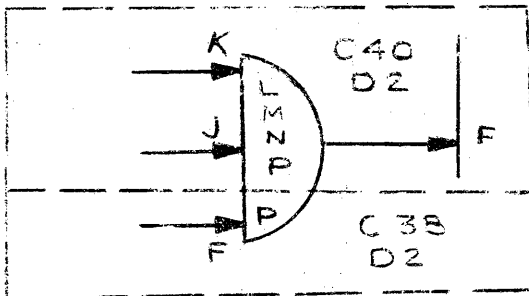
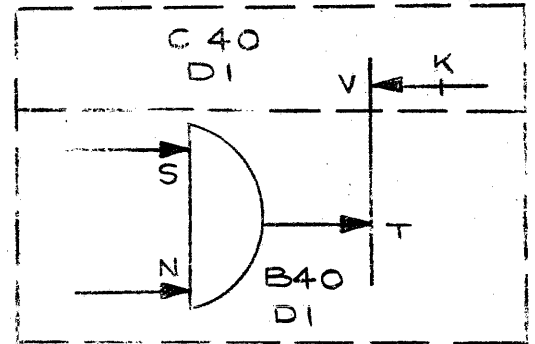
AFTER ECO 970



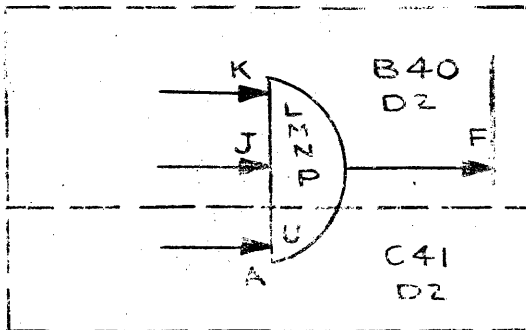
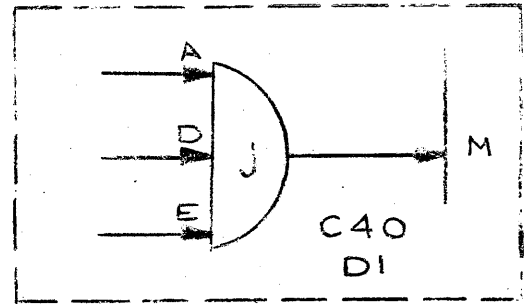
3D588-C
ZONE 3-B



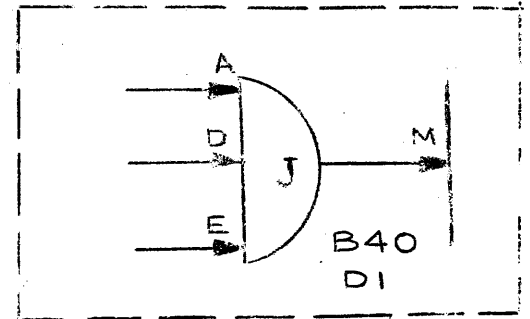
3D588-C
ZONE 3-A



3D588-C
ZONE 3-A



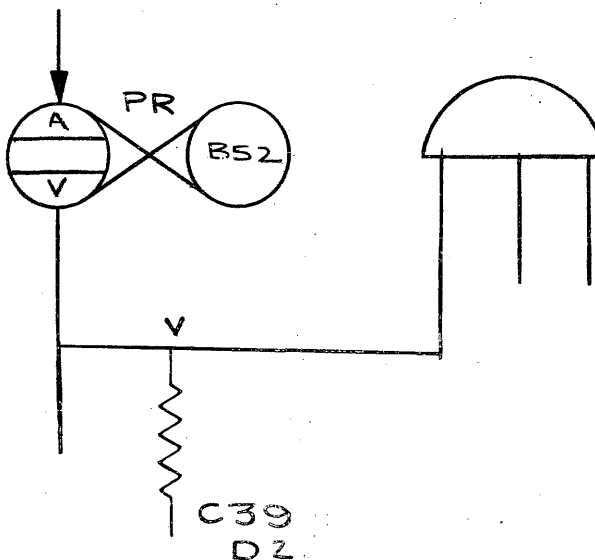
3D588-C
ZONE 3-B



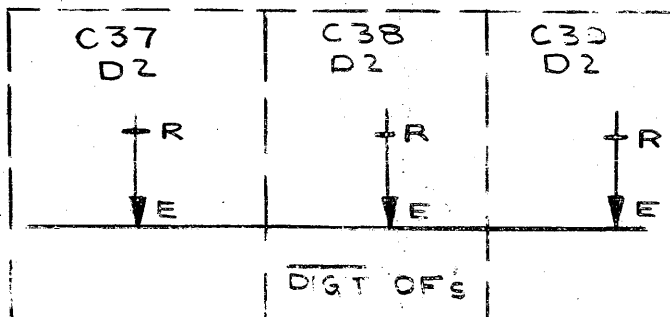
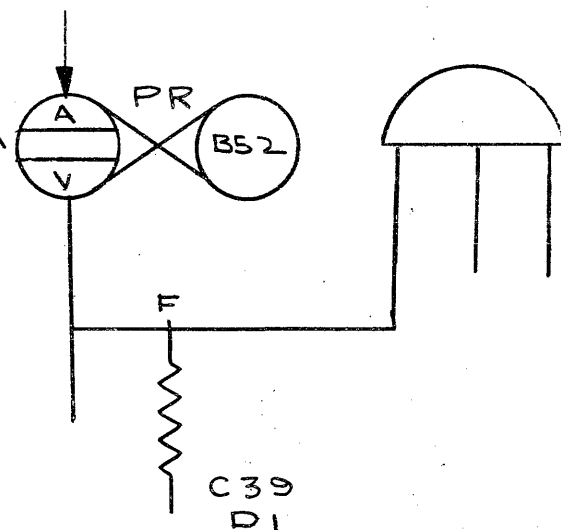
NO CHANGES IN LOGIC

OLD

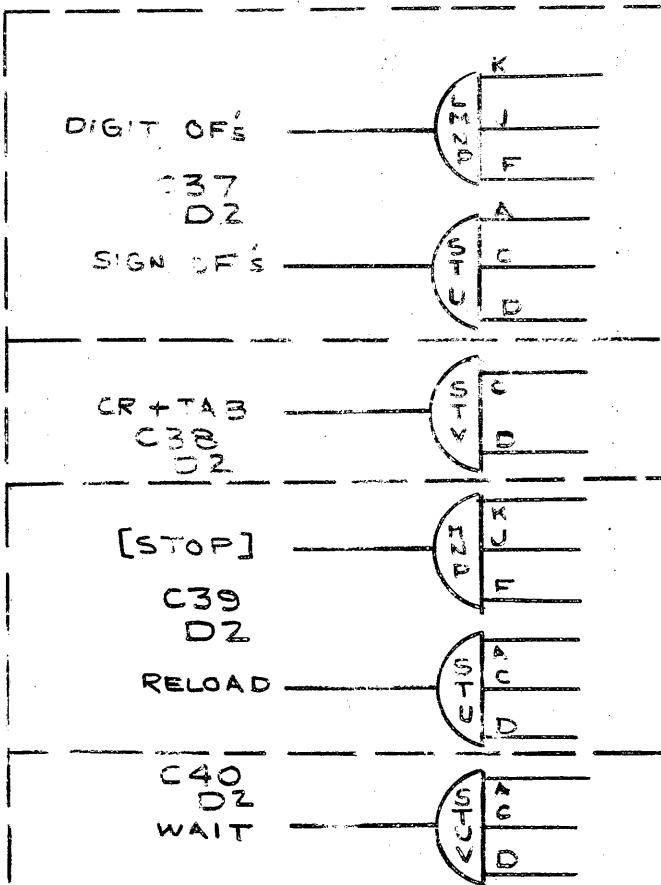
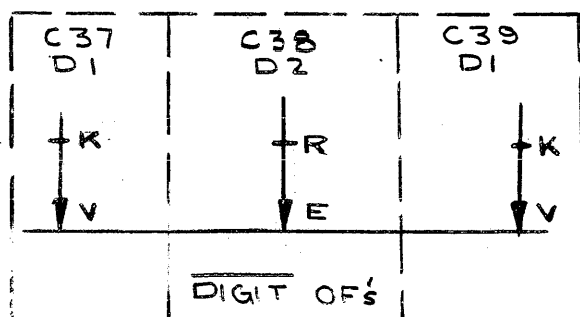
NEW



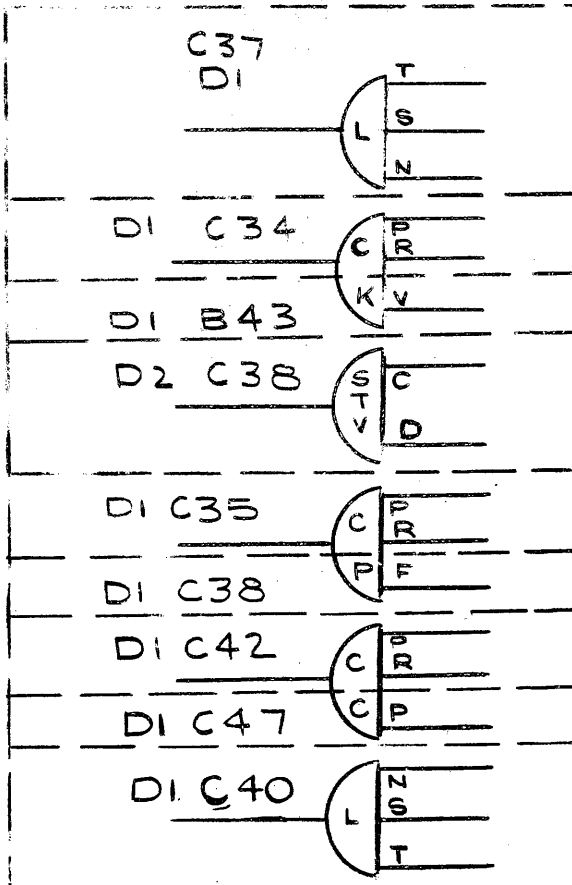
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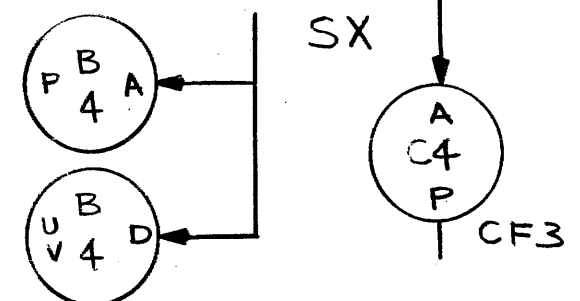
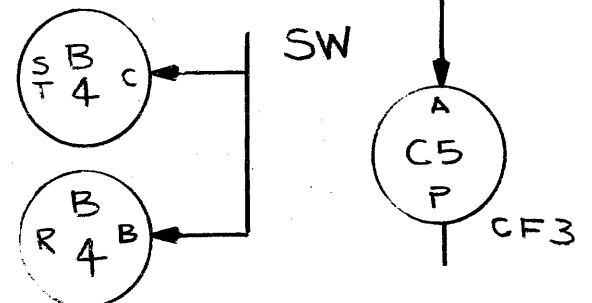
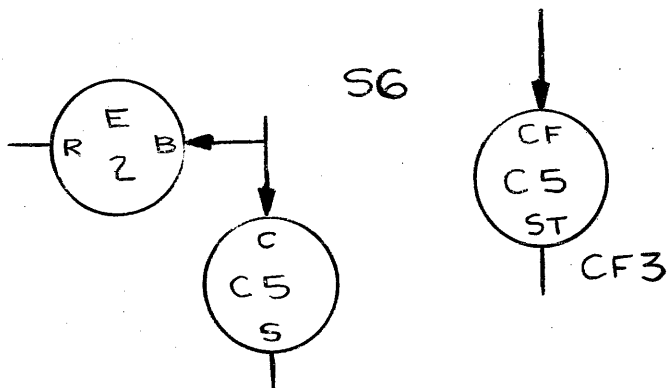
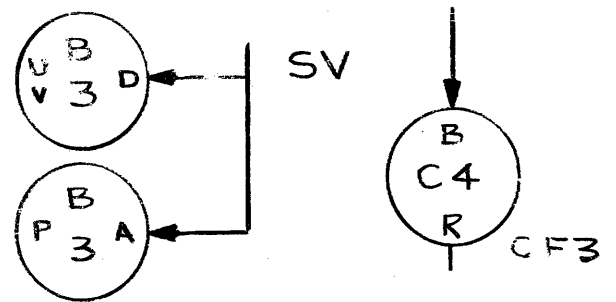
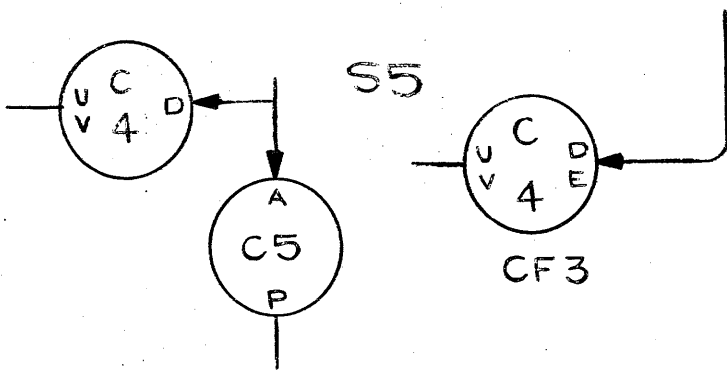
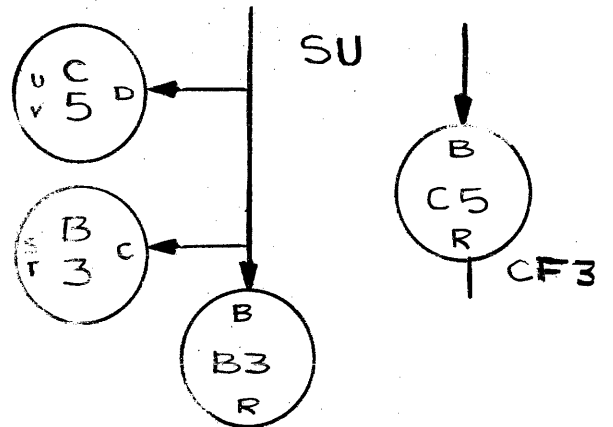
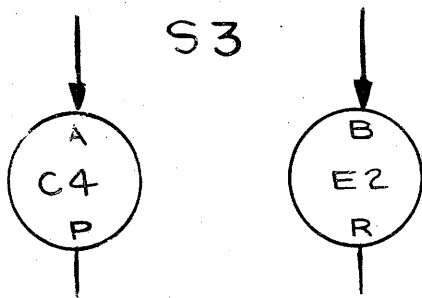
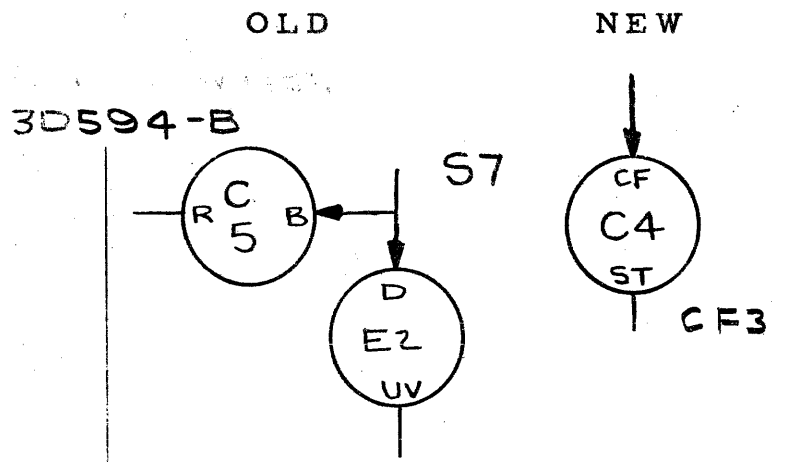
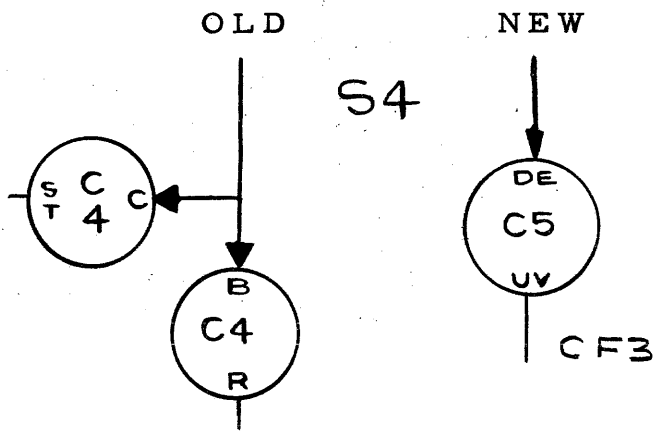


3D588-C



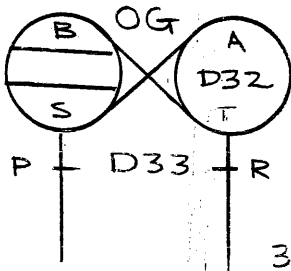
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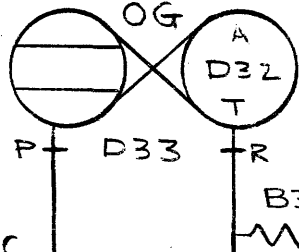


OLD

NEW



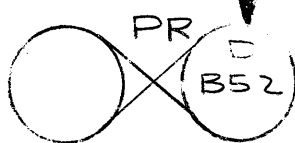
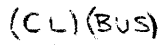
3D588-C



B38
B

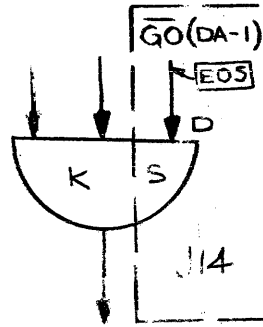


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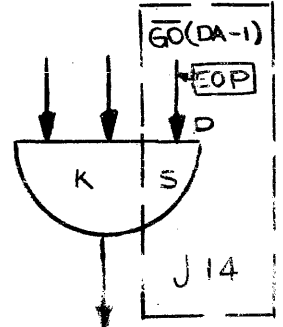


OLD

NEW

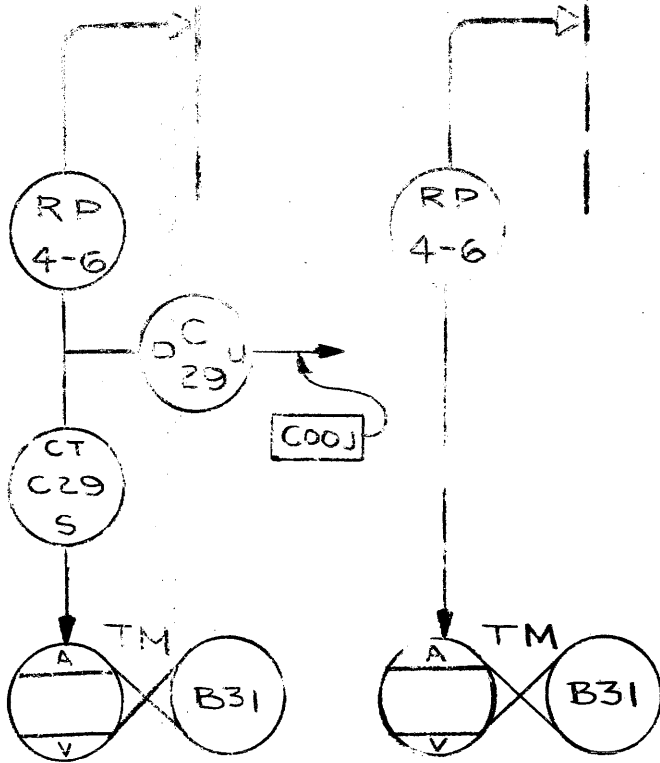


J14

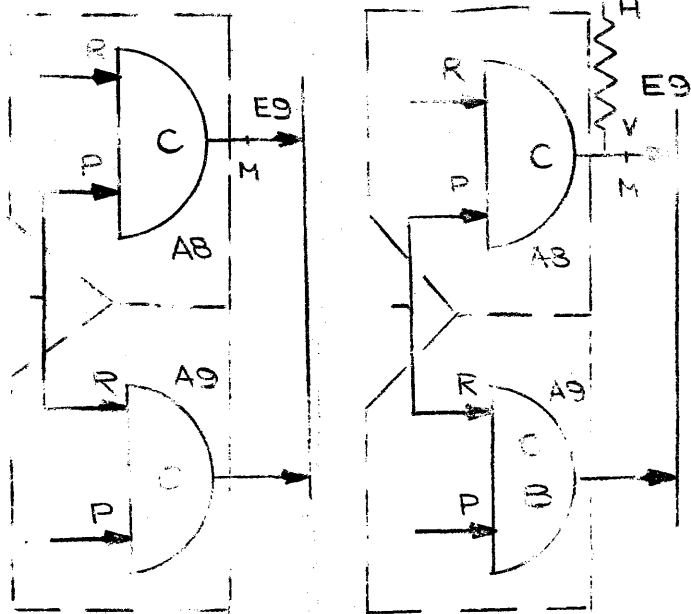


J14

3D593



3D596-B



PHILIPS ADDED

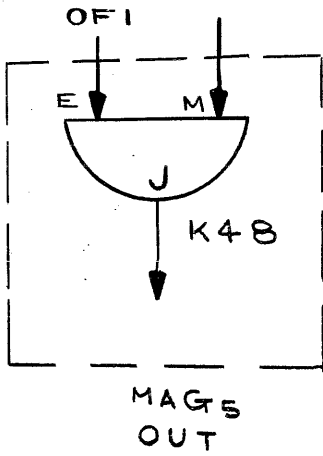
3D297-E

OLD

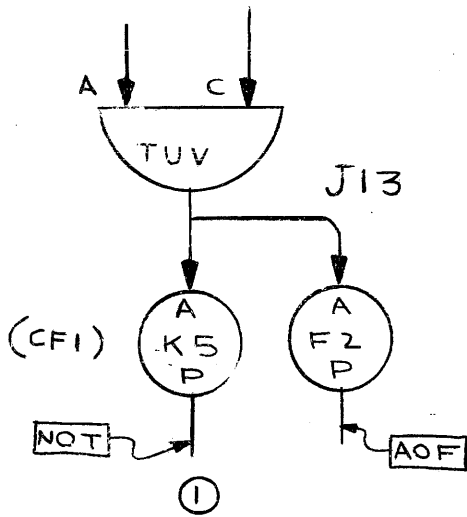
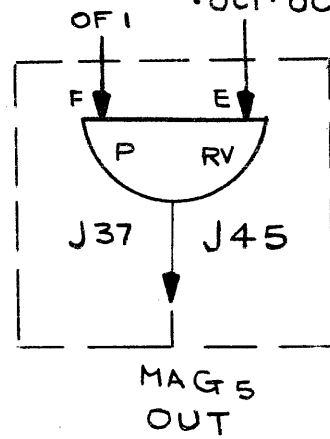
NEW

FAST OUT
•OC1-OC2-0Y-0G

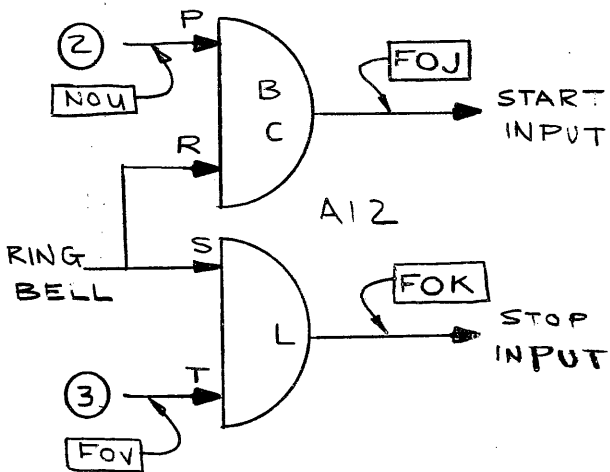
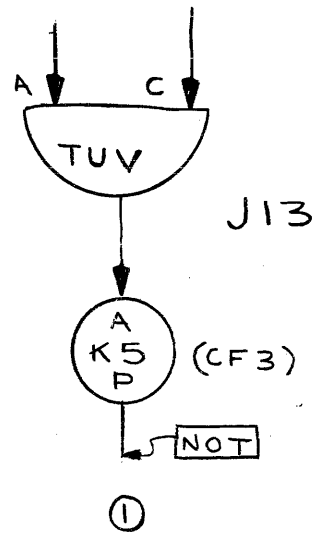
FAST OUT
•OC1-OC2-0Y-0G



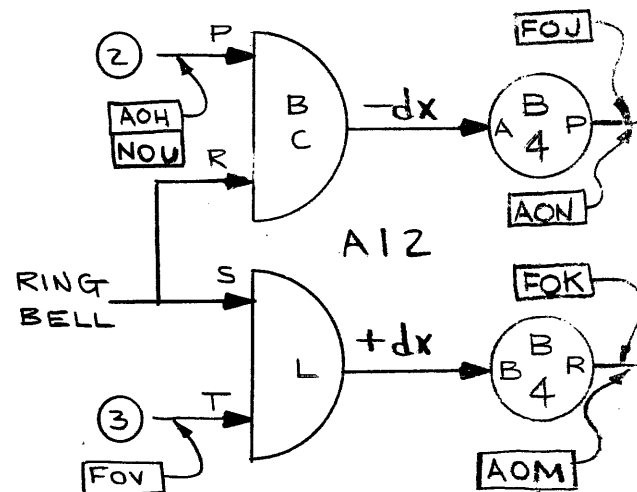
3D591-B



3D597



3D594



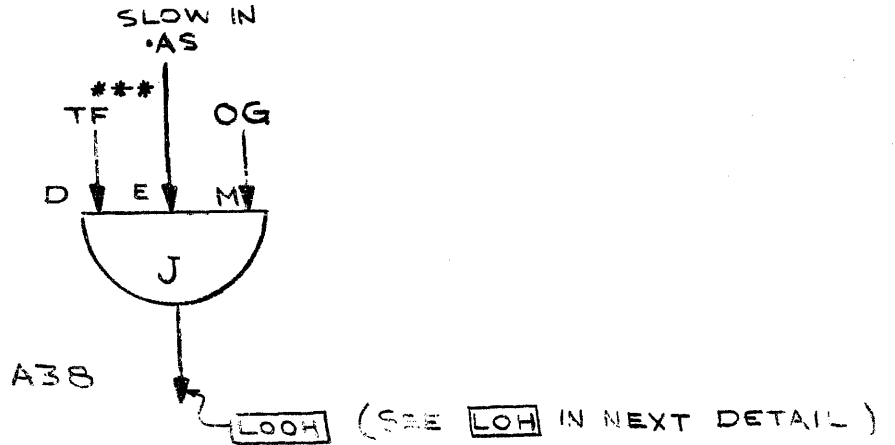
Section II

The logical changes and additions indicated in the section are all the changes included in ECO's 970, 978 and 1010, with the exception of the set and reset terms on the AS flip-flop. These changes are included in a separate section since they are a result of the ECO's mentioned above as well as those ECO's which adapt the computer to the alphanumeric typewriter, namely, 1020, 1038 and 1053.

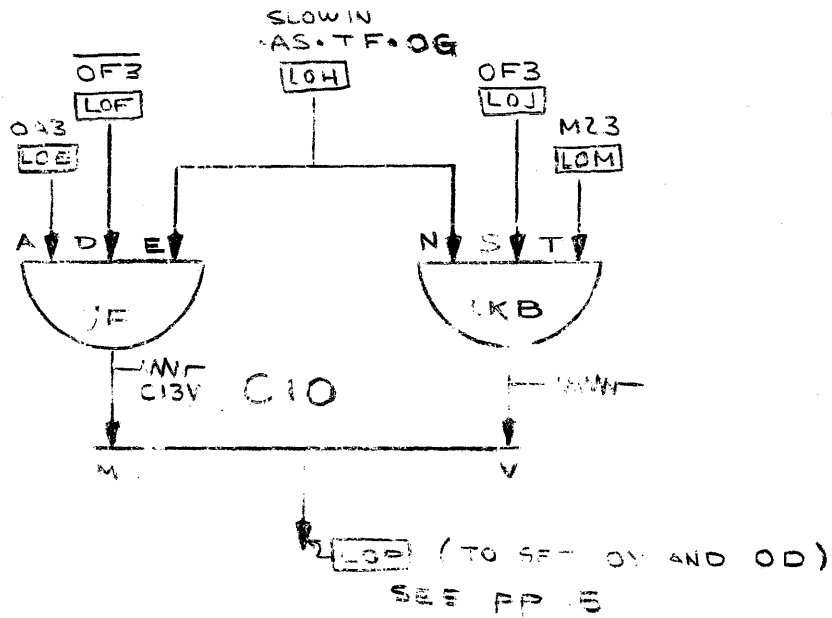
Throughout this section the heavy lines represent existing logic, and the light lines indicate additions to the existing logic.

NEW LOGIC

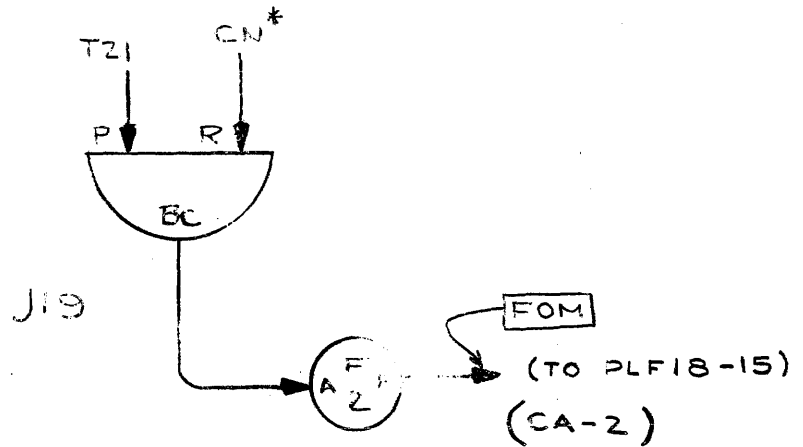
3D588-C



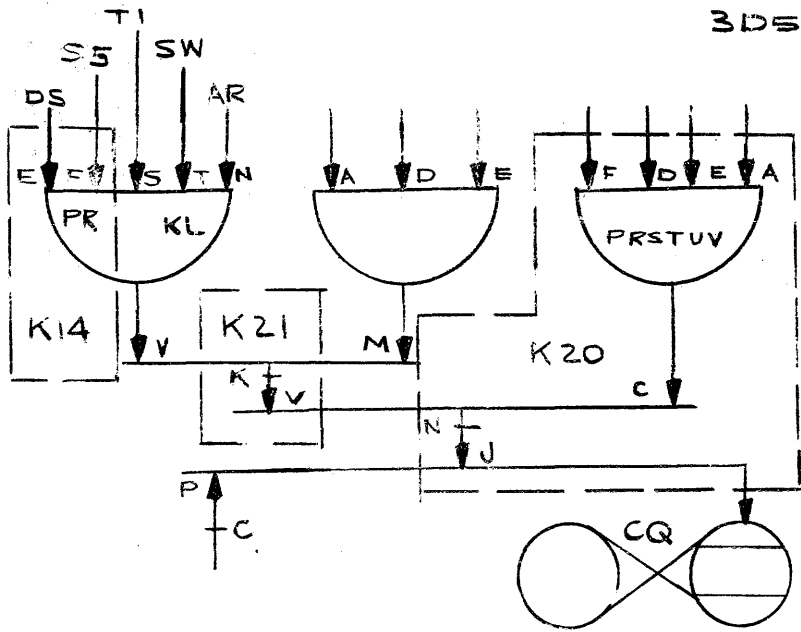
3D588-C



3D593

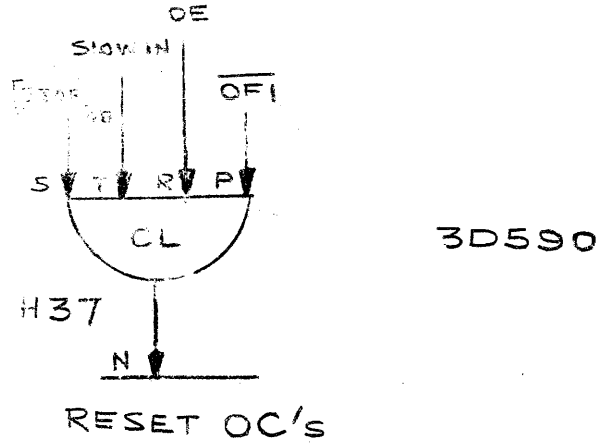
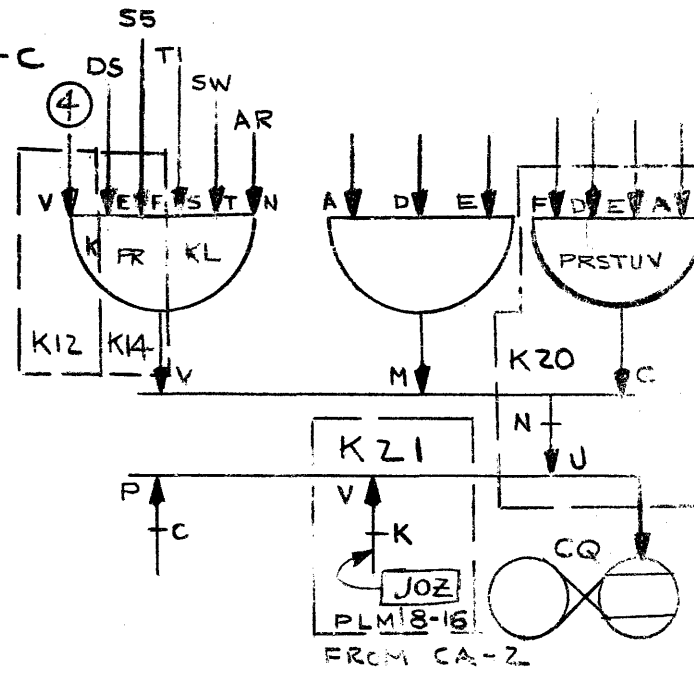


OLD



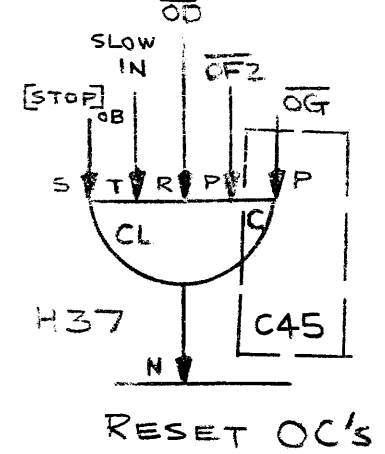
3D593-C

NEW

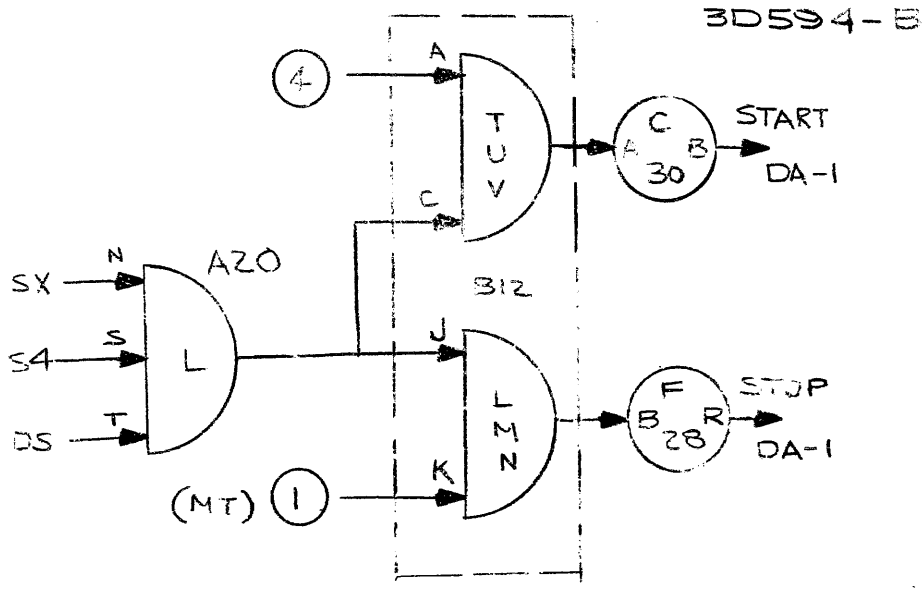


3D590

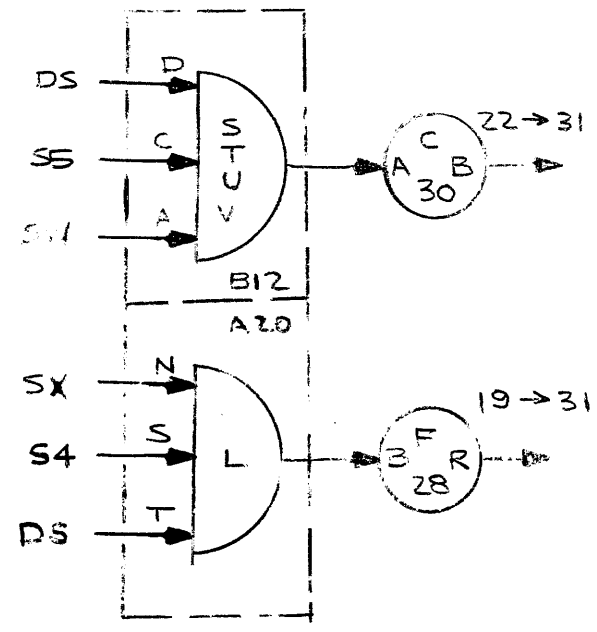
RESET OC's



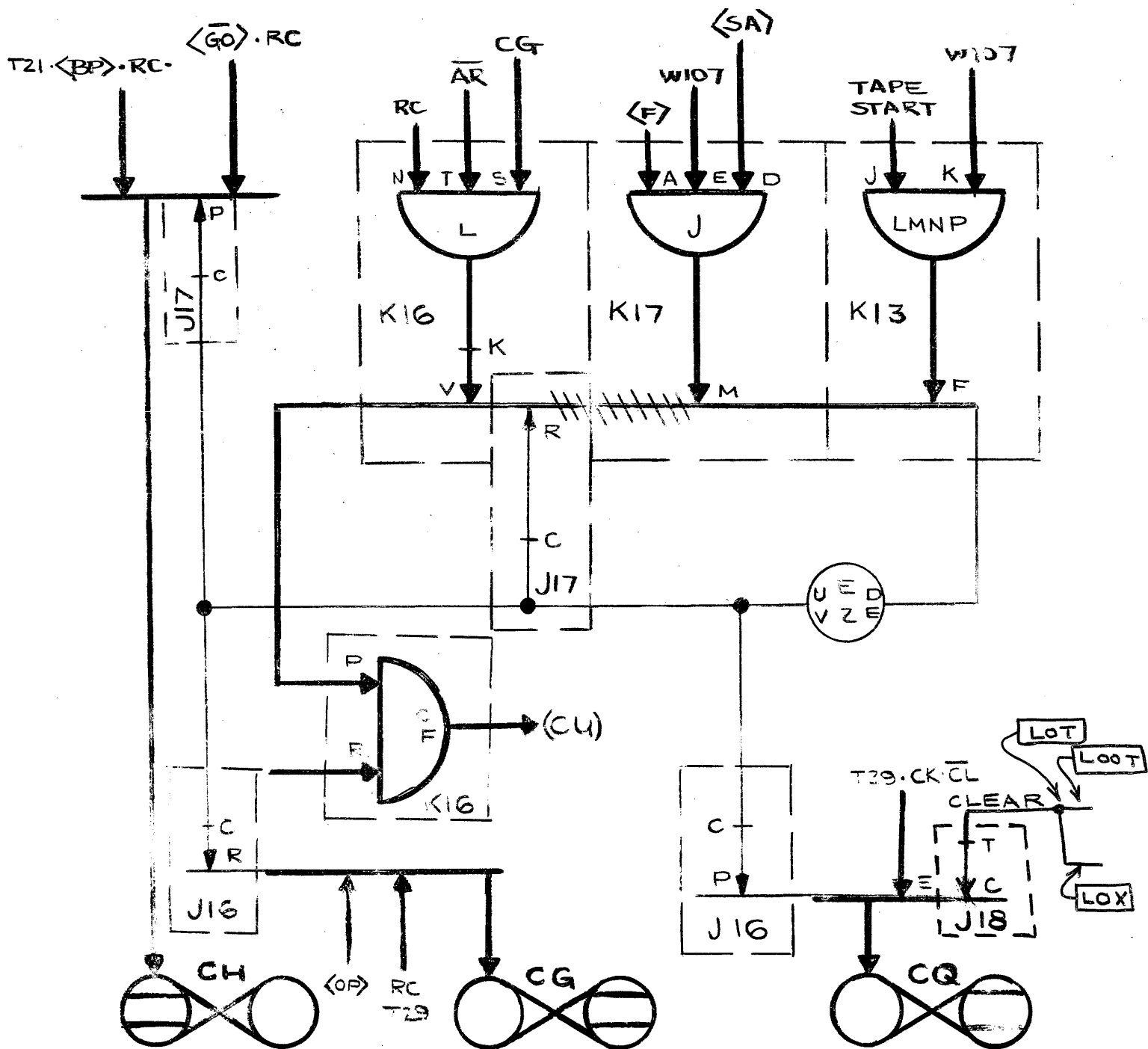
RESET OC's



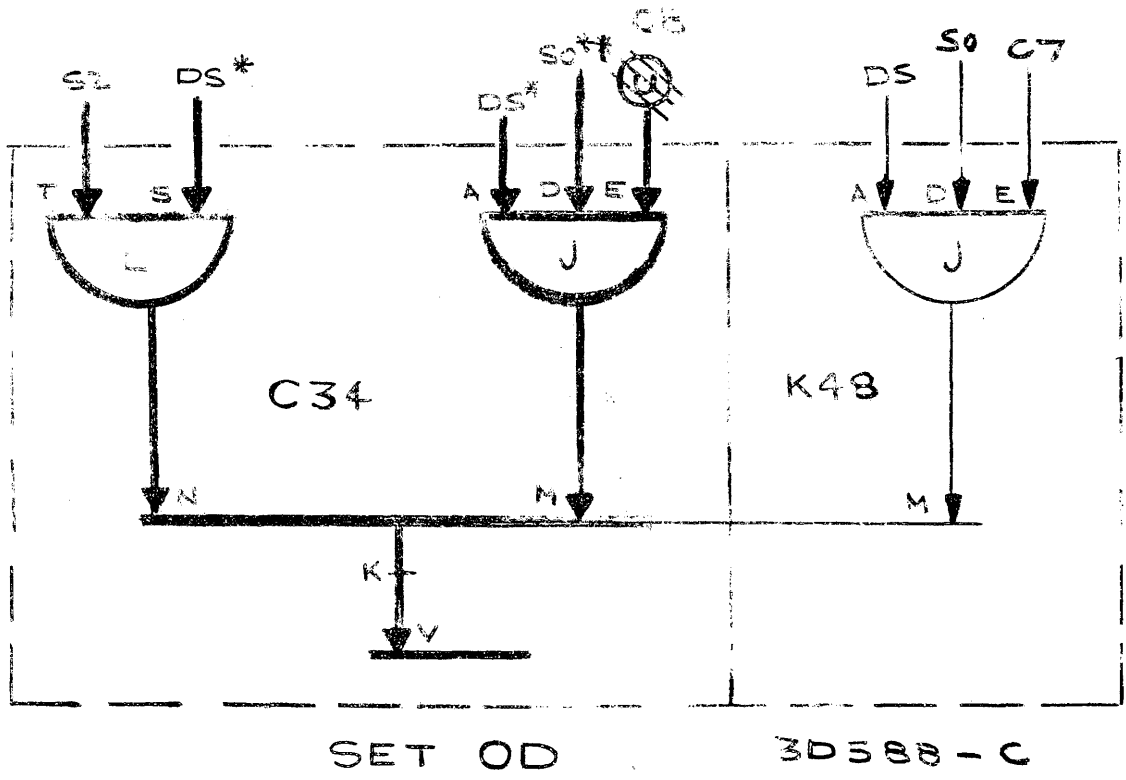
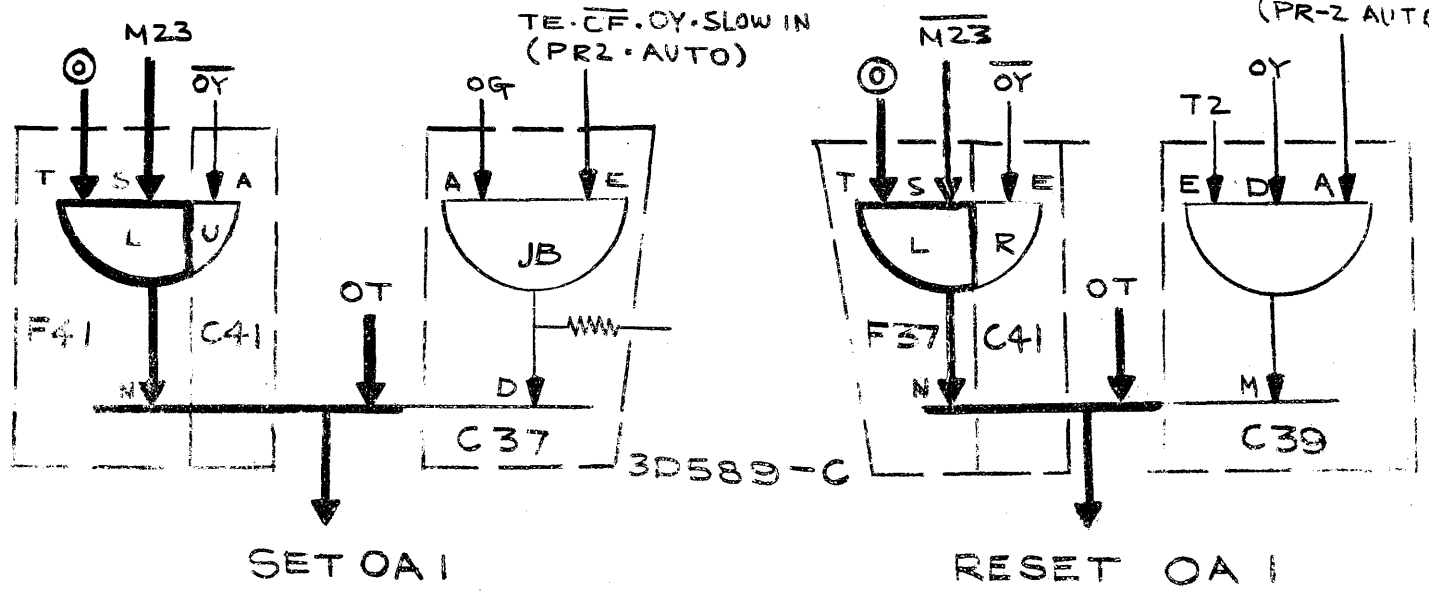
3D594-B



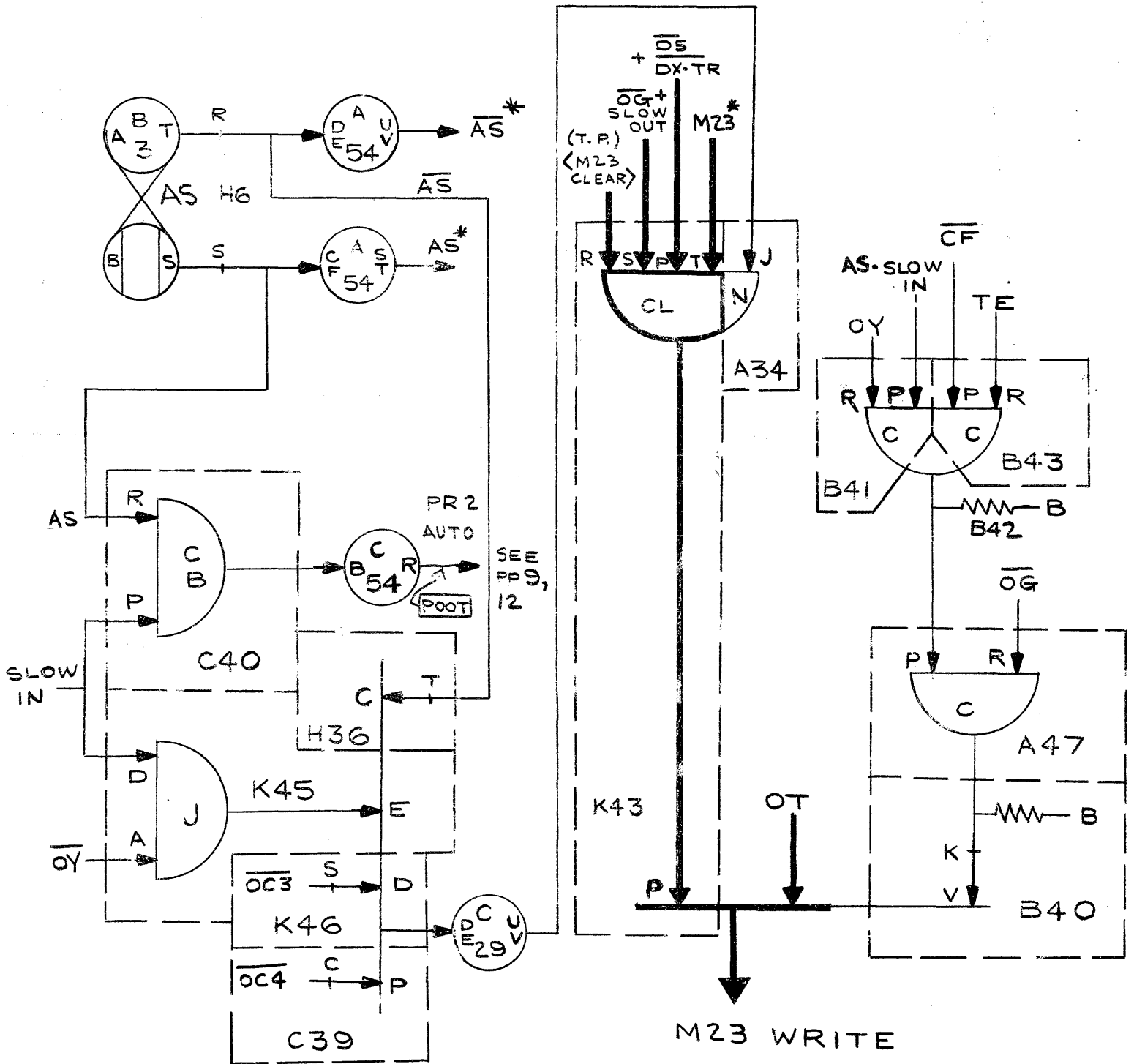
3D593 - C



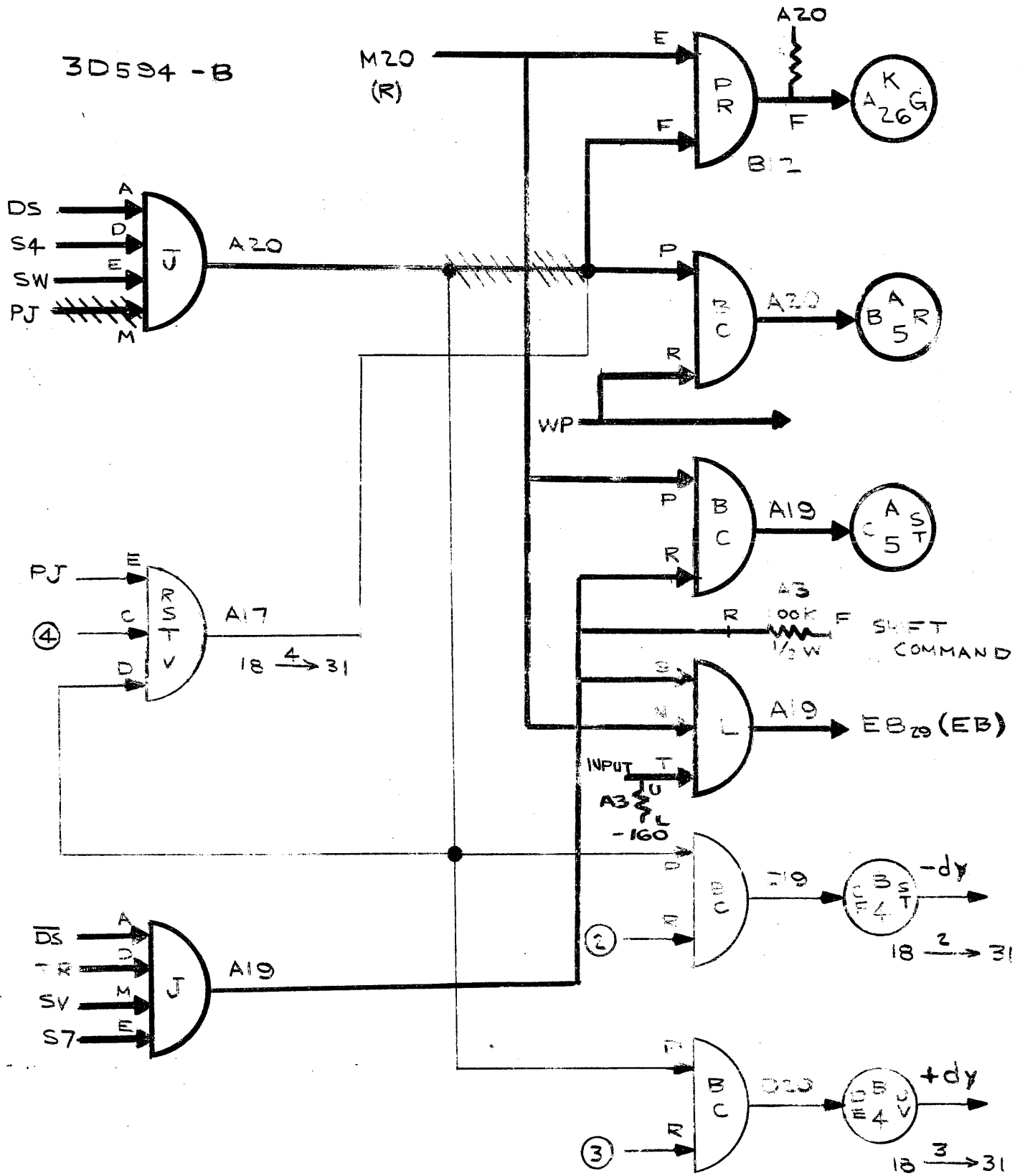
AS - SLOW IN
(PR-2 AUTO)



3D592-C

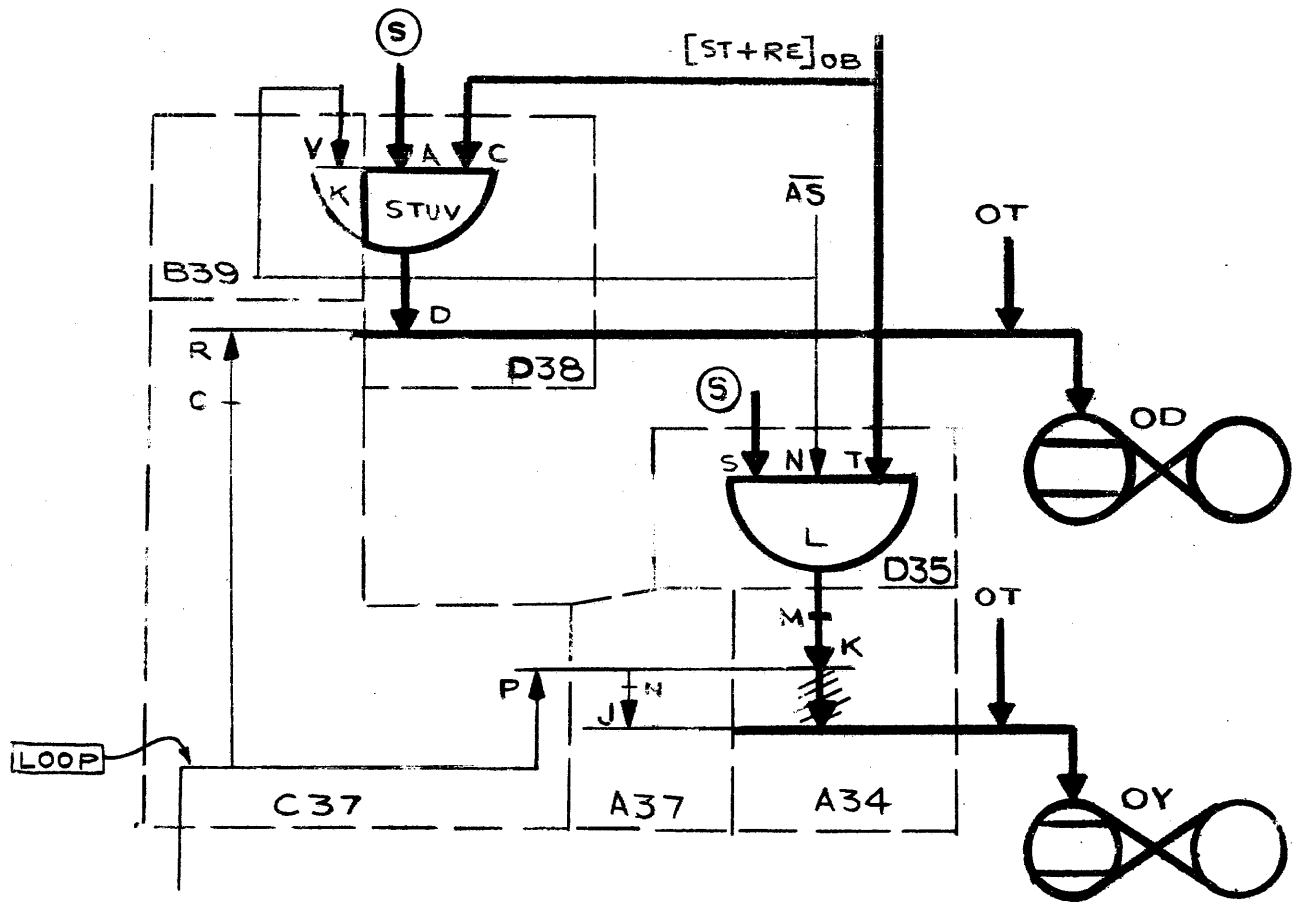


3D594 - B



The additions indicated in the drawing below were included in ECO 970 and 978. One other "AND" gate which set OY was also added but was later removed by ECO 1053.

This term was $AS \cdot \overline{STOPOB} \cdot [ST + RE]_{OB} \cdot (S) \cdot \overline{OD}$.



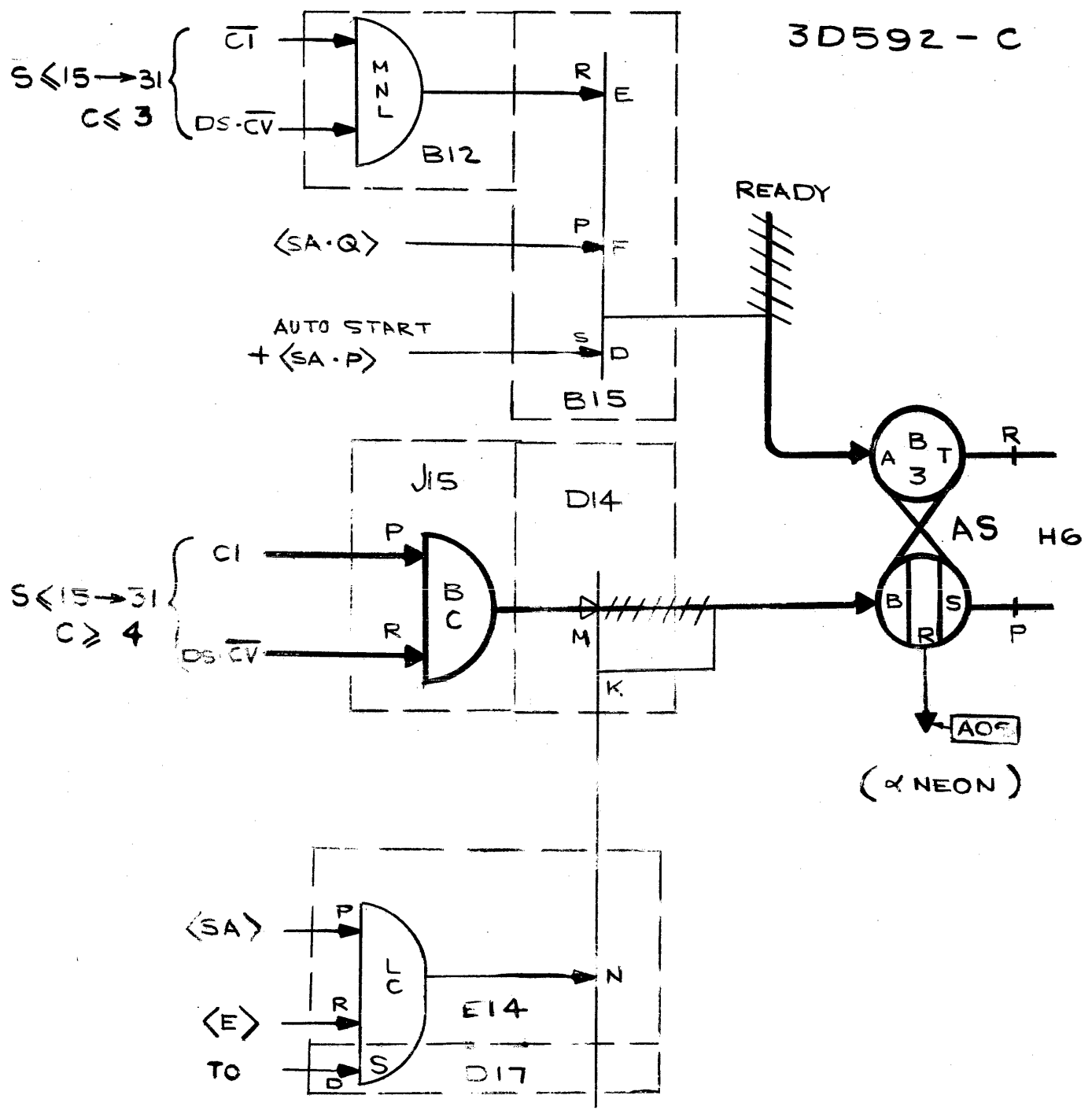
$O A 3 \cdot \overline{O F 3} \cdot S L O W I N \cdot A S \cdot T F +$
 $C F 3 \cdot M 2 3 \cdot S L O W I N \cdot A S \cdot T F$ (SEE PP 9)

Section III

The set and reset terms for the AS flip-flop are a result of the combined requirements of the PR-2 and the alphanumeric typewriter.

The detail drawing on the following page indicates the terms added by PR-2 and those added by alphanumeric. The ready signal used to reset AS was removed by the alphanumeric typewriter and applied to the reset of OH.

3D592 - C



——— ADDED BY PR-2
 ——— ADDED BY ALPHANUMERIC

PART TWO

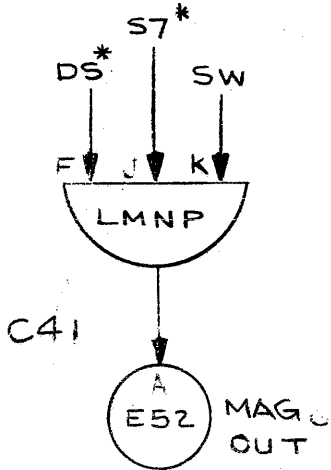
(ECO's 1020, 1029, 1038 and 1053)

Section IV

The drawings contained in this section describe wiring changes incorporated in ECO's 1020, 1029, 1038 and 1053 which involved no changes in logic.

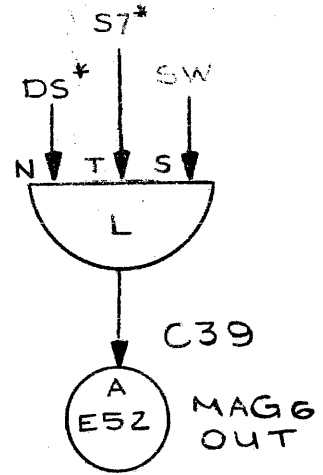
The purpose of these changes was to provide additional diodes and cathode followers.

OLD

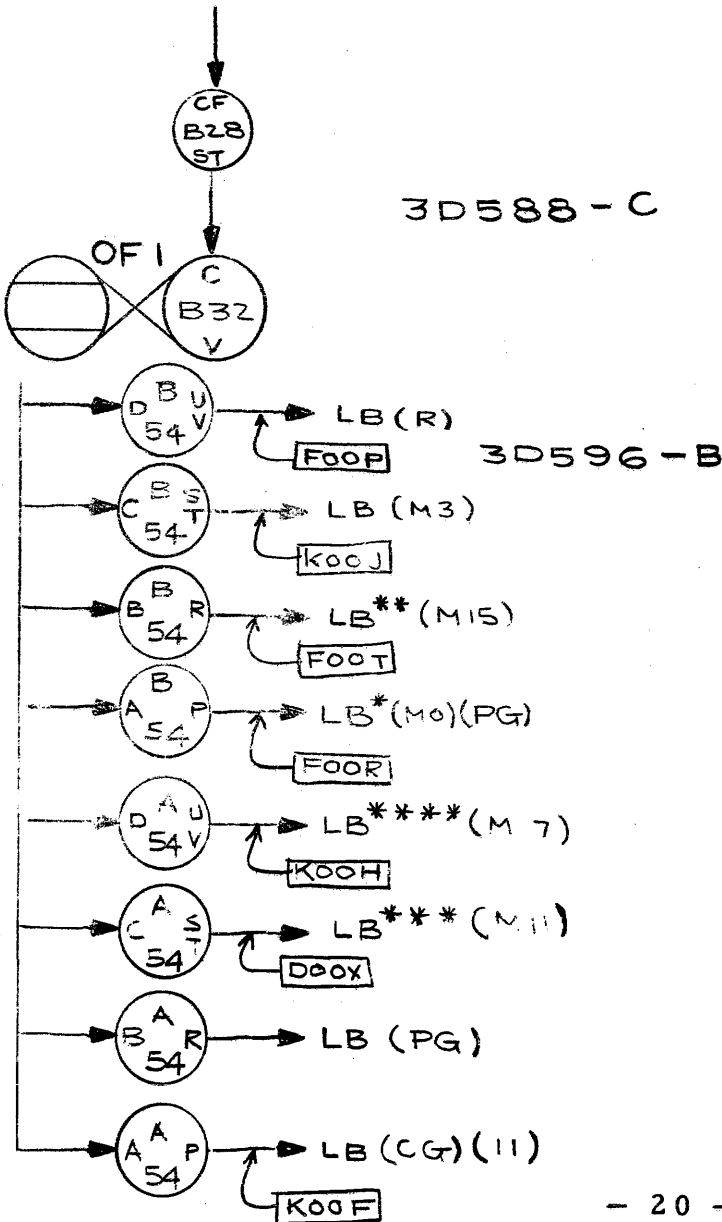


3D597 - A

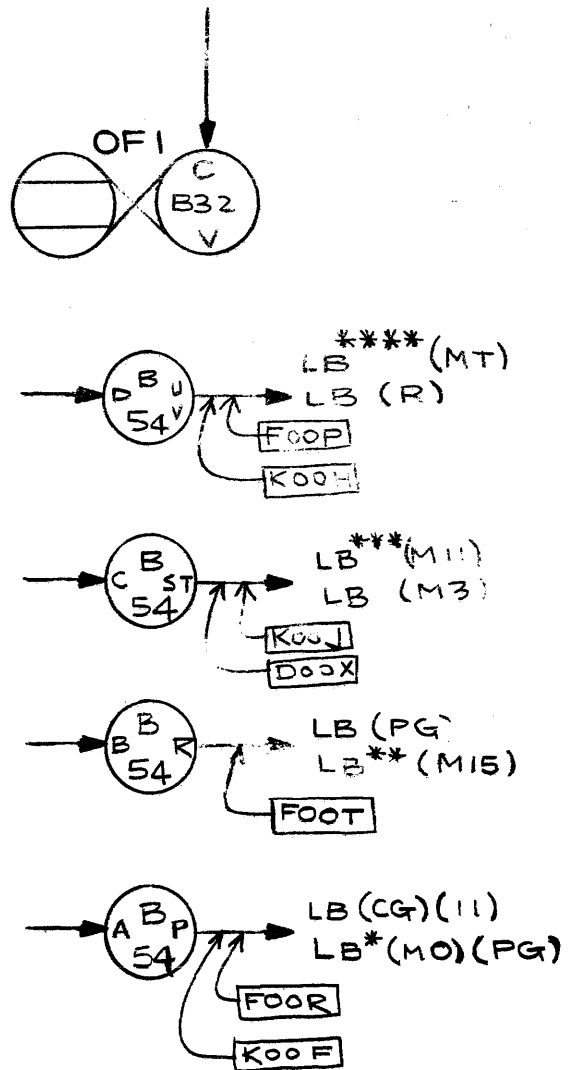
NEW



3D588 - C



3D596 - B

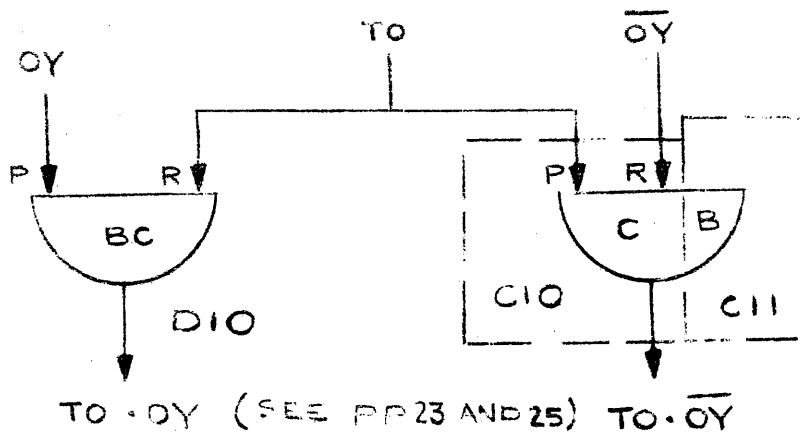
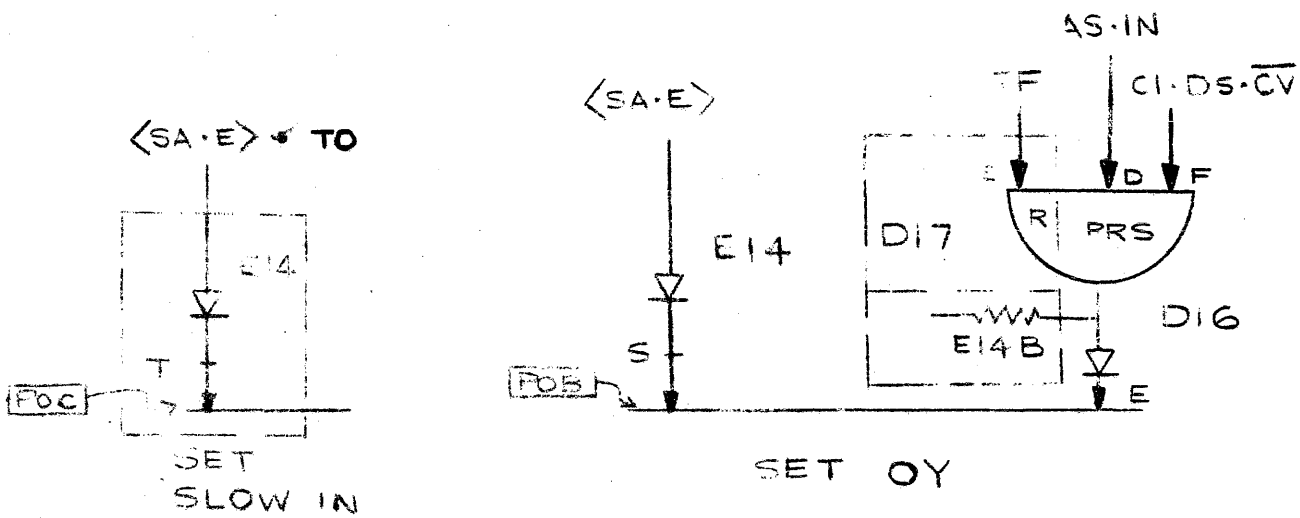
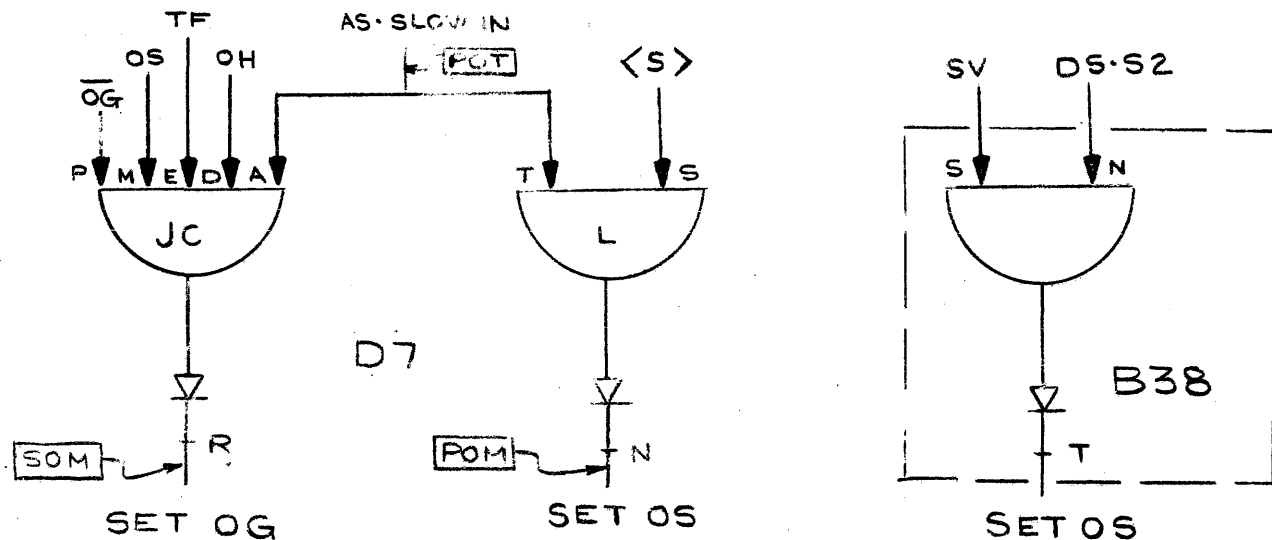


Section V

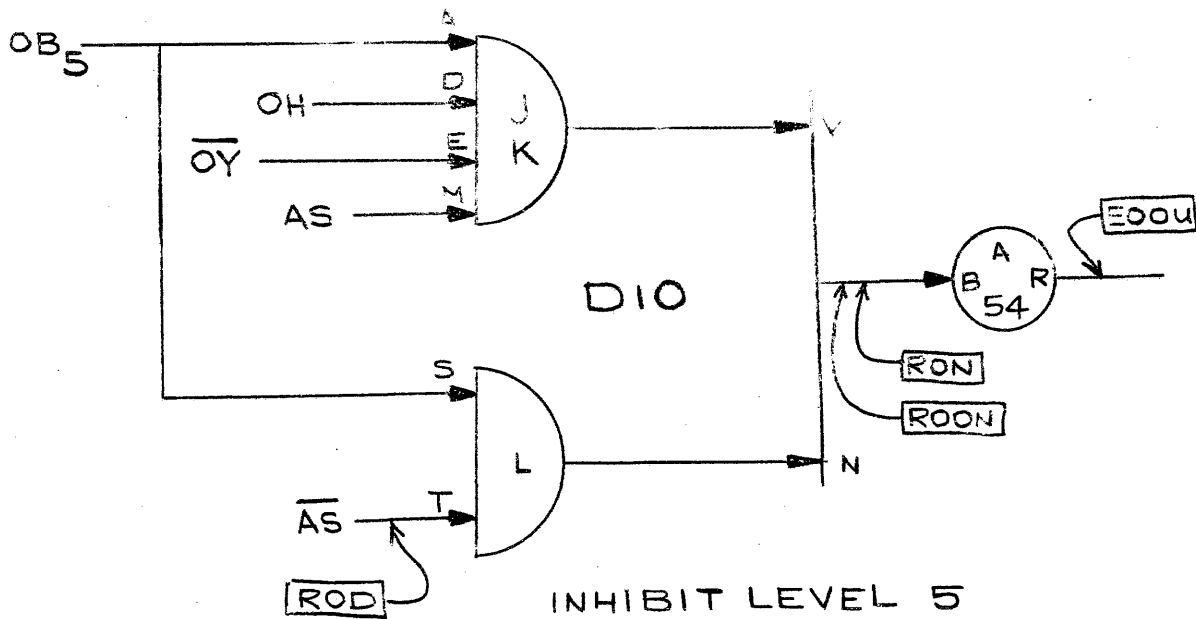
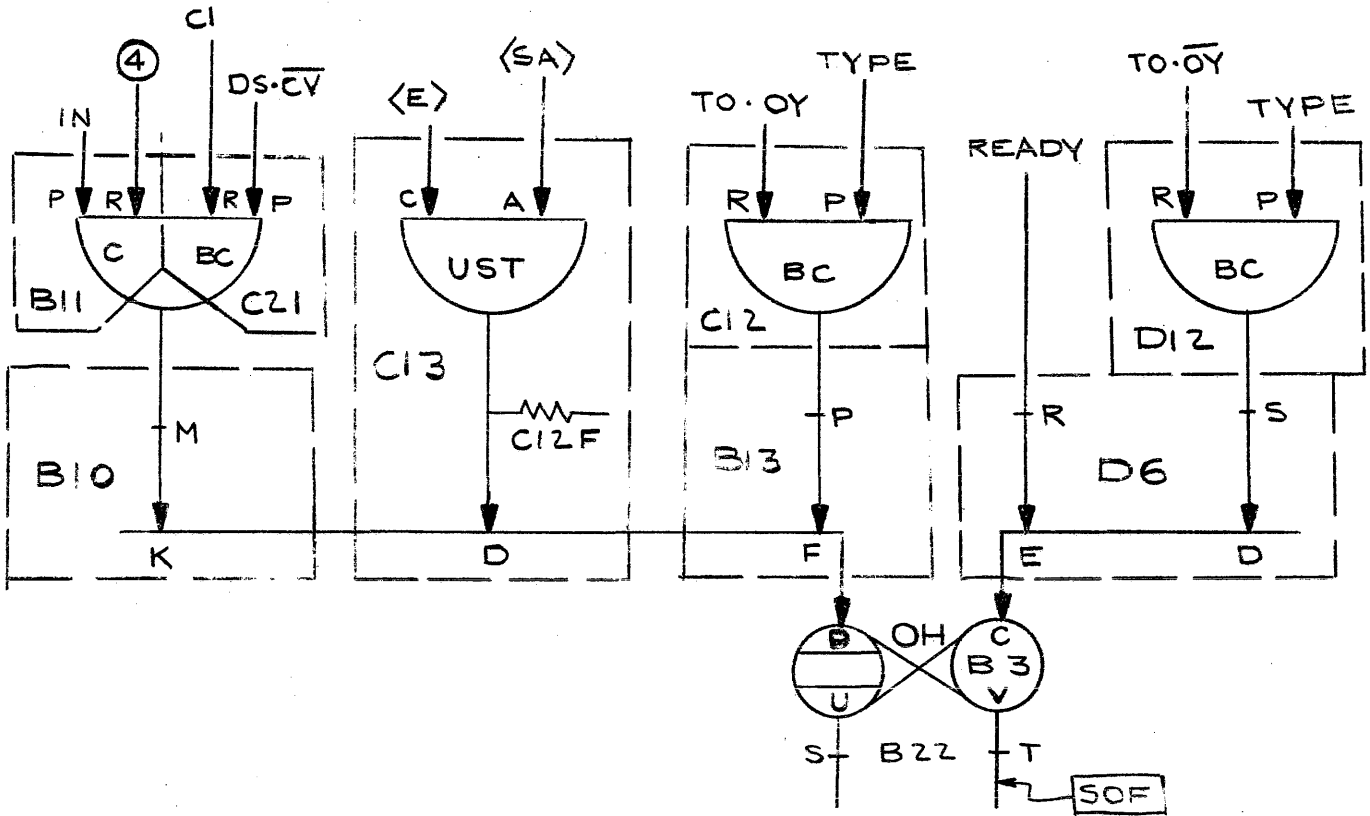
This section includes all the changes in logic incorporated in ECO's 1020, 1029, 1038 and 1053.

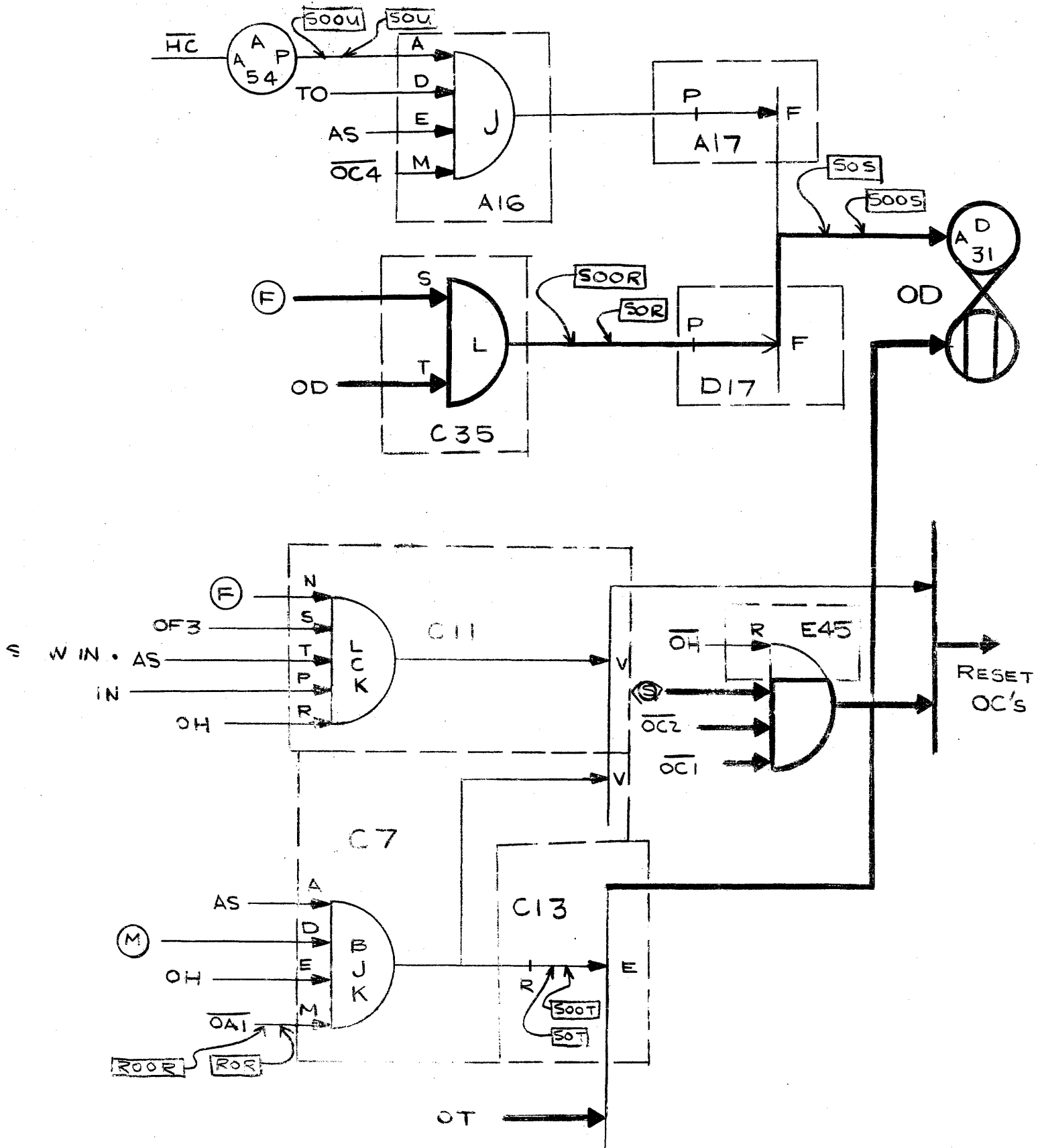
Throughout this section the existing logic is represented by heavy lines and the light lines indicate the additions to the existing logic.

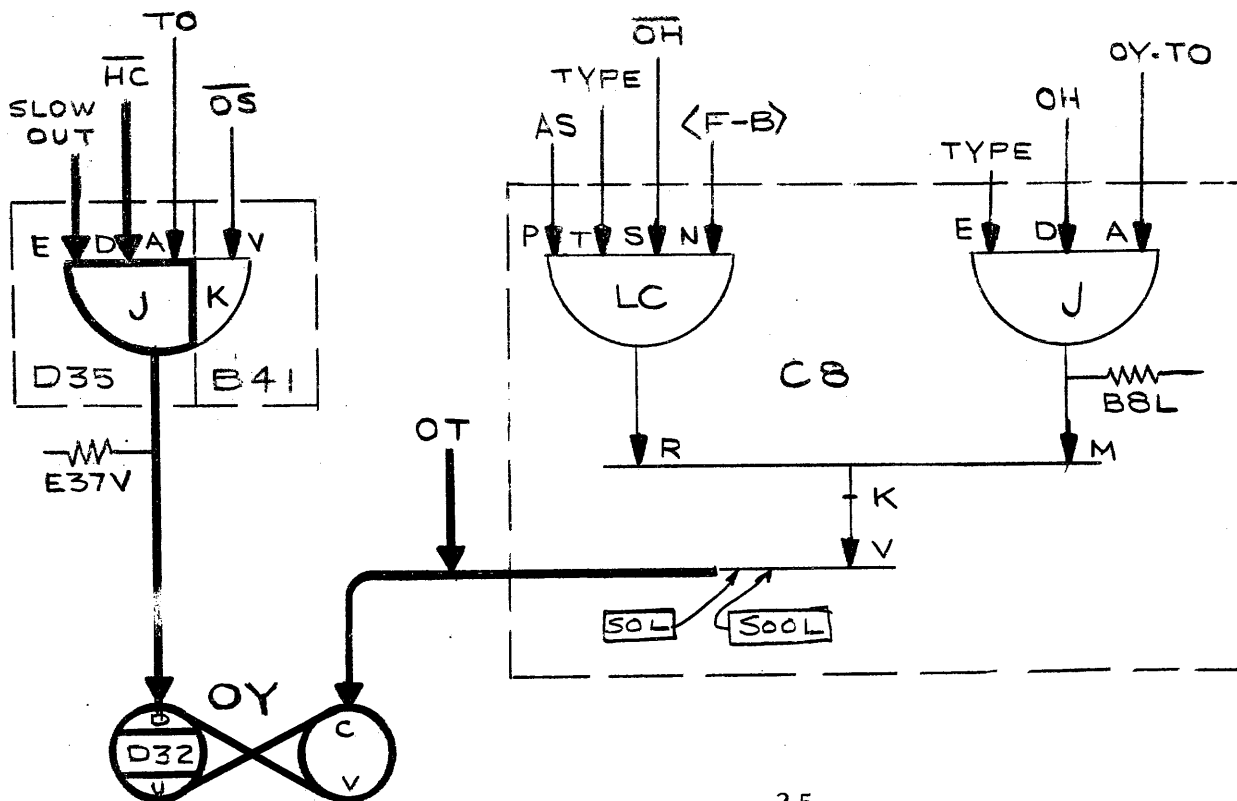
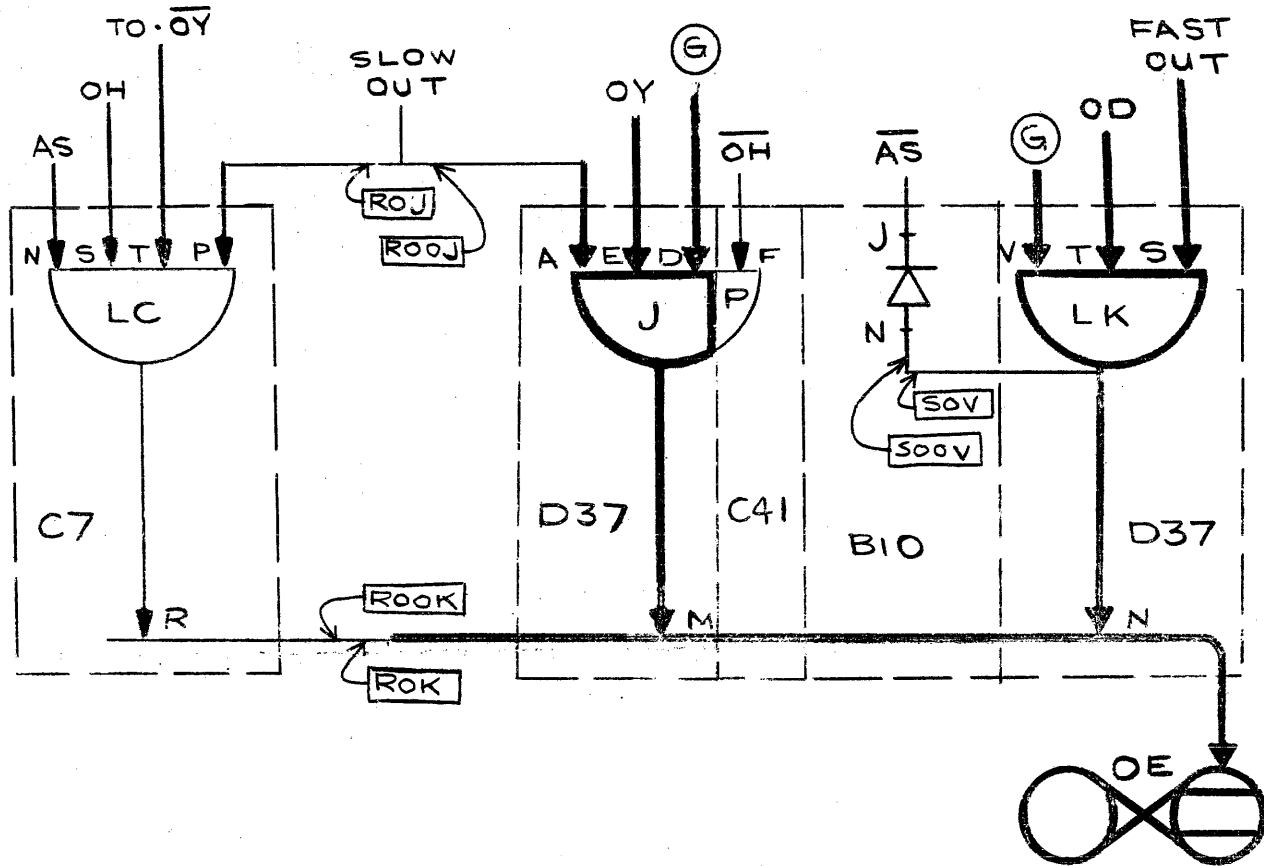
NEW LOGIC

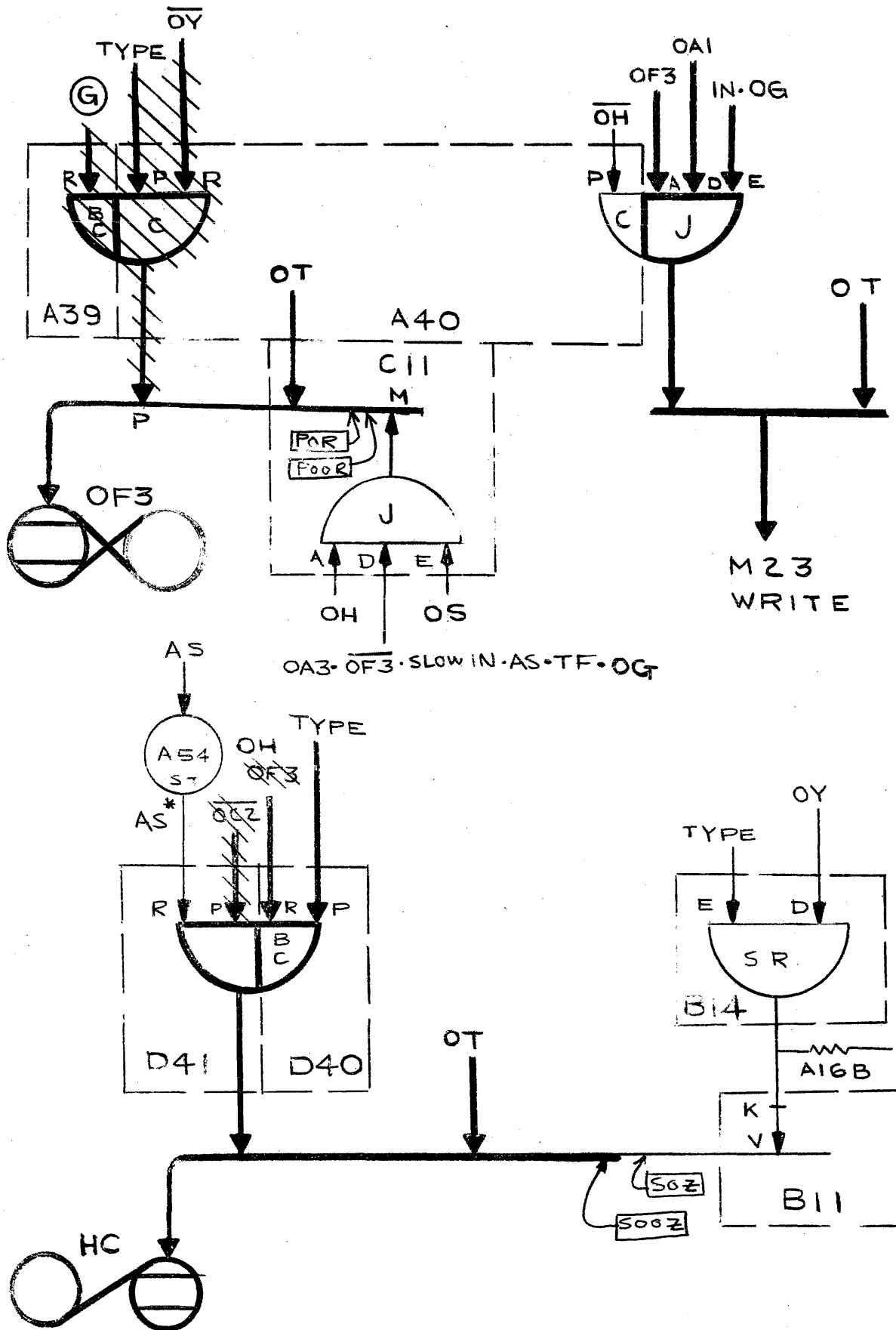


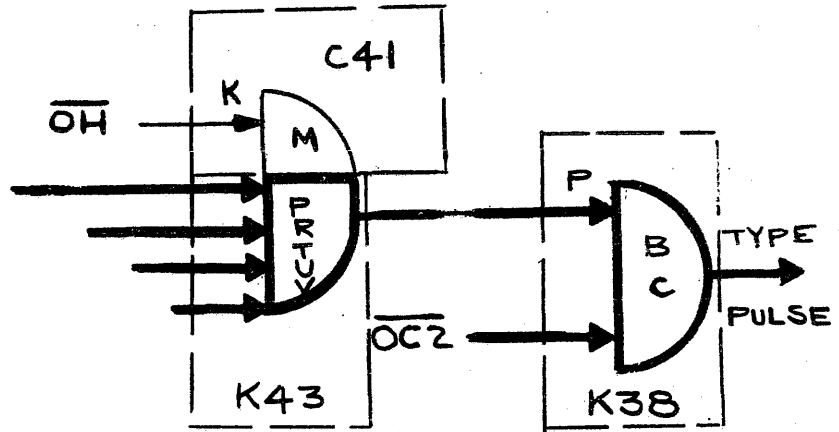
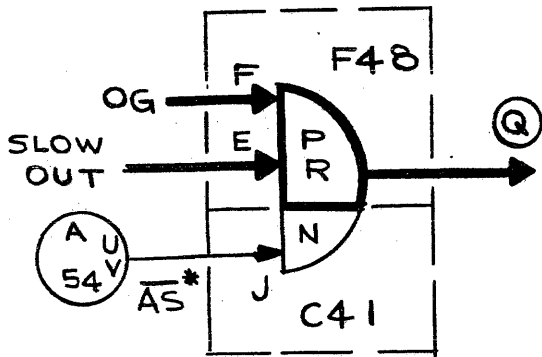
NEW LOGIC











INHIBIT FORMAT IN A/N

