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Systems

DOS/VS OLTEP Logic

Release 29

IBM

First Edition (March, 1973)

This edition with Technical Newsletter SN28-2567 applies to Release 29 of the IBM Disk Operating System and to all subsequent releases until otherwise indicated in new editions or Technical Newsletters. Changes are continually made to the specifications herein; before using this publication in connection with the operation of IBM systems, consult the latest IBM System/360 and System/370 Bibliography, GA22-6822, for the editions that are applicable and current.

This edition includes support for message compatibility, data protection on new devices, and CDS equate support.

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Preface

This Program Logic Manual (PLM) is a detailed guide to the IBM Disk Operating System, On-Line Test Executive Program (OLTEP). It supplements the program listing by providing high level text, label list, tables, and flowcharts.

This manual is organized in nine sections consisting of:

- Introduction: Describes OLTEP functions, structure and relationship to the system.
- Text of Phases: A composition of each phase making up the executive program. The primary phases are in succession of use. The support modules are in numeric sequence.
- Charts of the Phases: Summarized blocks of coding within the program units depicted. The charts of the primary phases are in succession of use. The support module charts are in numeric sequence.
- APPENDIX A: Contains the message cross-references.
- Glossary of OLTEP Terms.

This sectional organization allows quick access of pertinent information required by the OLTEP program support personnel.

PREREQUISITE PUBLICATIONS

Effective use of this manual requires a thorough understanding of IBM System/370 programming concepts. The publications providing this information follow.

Note: Although titles of some DOS publications have been simplified, the change does not affect the contents of the publication.

- IBM System/370 Principles of Operation, GA22-7000.
- DOS/VS Data Management Guide, GC33-5372.
- DOS/VS System Control Statements, GC33-5376.
- Introduction to DOS/VS, GC33-5370.
- DOS/VS IPL and Job Control, SY33-8555
- DOS/VS Librarian, SY33-8557.
- DOS/VS Linkage Editor, SY33-8556.
- DOS/VS Logical Transients, SY33-8533
- DOS/VS Supervisor Logic, SY33-8551

RELATED PUBLICATION

- DOS CLTEP, GC33-5383.

Titles and abstracts of other related publications are listed in the IBM System/360 and System/370 Bibliography, GA22-6822.

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OLTEP FUNCTION

IBM provides a set of programs to test I/O units. These test programs and the On-Line Test Executive Program make up the On-Line Test System. The On-Line Test Executive Program (OLTEP) is an interface between the system and the test programs and communicates with the operator during the running of tests (Figure 1).

Some uses of DOS OLTEP are:

- Diagnosing I/O errors.
- Verifying I/O device repairs and engineering changes.
- Checking I/O devices.

Some features of DOS OLTEP are:

- Multiple device testing.
- Data security.
- Data protection.
- No re-IPL time required.
- Prompting.
- Recognize ASCII labels; restore ASCII labels.
- Accessing of error recording information.
- Line connection routine for remote terminal testing.
- SCSP support.
- RETAIN/370.
- Trace option -- will provide a trace of OLTEP modules entered from the OLT.
- Equate function -- provides the facility to use an existing configuration data set (CDS) to test a similar device for which no CDS has been generated.

OLTEP operates much like other problem programs in the Disk Operating System. It is cataloged into the core image library and called by standard job control statements. When OLTEP is executed, it

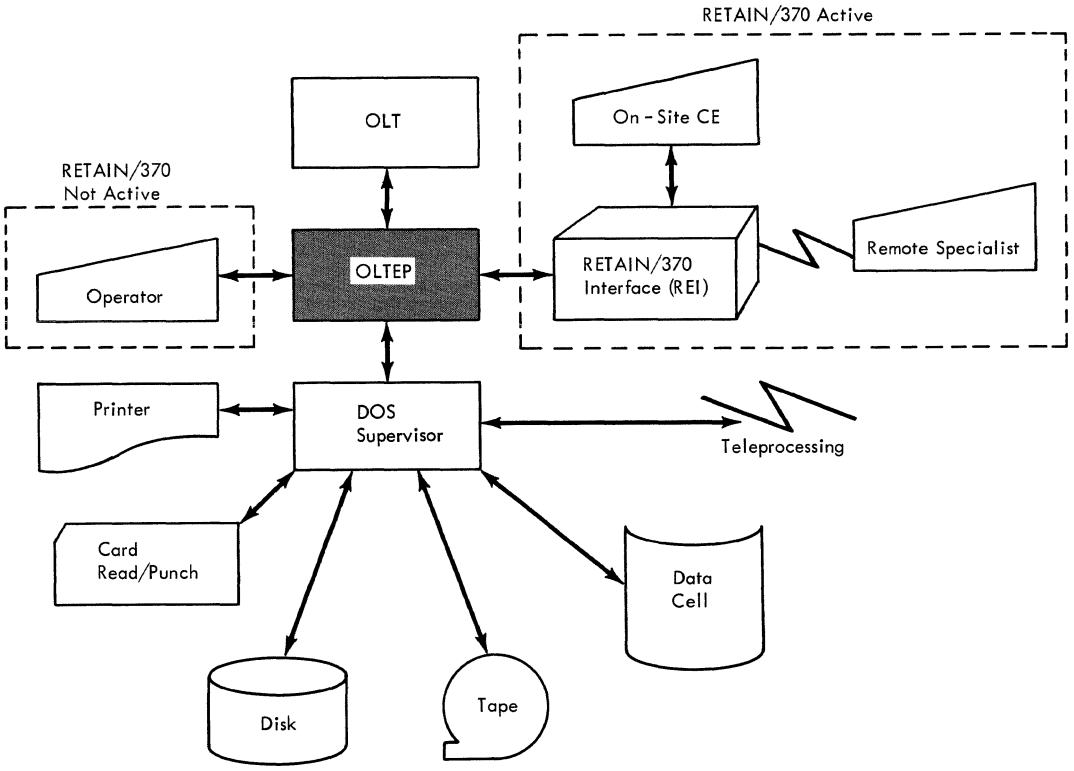


Figure 1. OLTEP System Relationship

notifies the operator that it is active and communicates with him during testing. OLTEP can run in a batch-only system or as a background program in a multiprogram environment. It requires a minimum partition size of 14K of real storage and a supervisor which supports OLTEP.

You can test an I/O unit with minimum interference to other programs running on the system. Testing an I/O device ordinarily does not interfere with system input and output. Any unit being tested, except for direct access devices, must not be assigned to the foreground partitions. Direct access devices, however, may be shared.

An OLTEP user language defines and controls the test. With this language the user selects the devices to test, the test sections to run, and the options to exercise. He enters this information via the console device or in the form of control records in the job input stream. This information is referred to as the test-run definition, and is common to CITEP components for all operating systems.

You can test multiple devices of the same type with no operator interventions other than those required for data protection and data security. OLTEP loads and executes the test sections one at a time until all the tests for one device are completed. The test sections then repeat for the next device if one is requested and is available. Testing continues in this manner until all units in the test-run definition are tested.

During testing under control of OITEP, the system error recovery procedures are bypassed on the device being tested. CITEP has built-in data integrity safeguards so that no data is destroyed and no security protected data is accessed during testing without permission of the operator.

OLTEP STRUCTURE

OLTEP requires a minimum of 14K in the real background partition and 18K with RETAIN/370 active (Figure 2). Because all the OLTEP and On-Line Test (OLT) functions exceed this allotted space, transient modules are loaded and executed as needed.

The background partition is divided into four areas:

- OLTEP Resident: The OLTEP resident area (nucleus) consists of tables, pointers, and coding that must reside in main storage during OLTEP execution.
- CITEP Transient: The transient area is reserved for modules that have limited use and need not be resident. One or more transient modules can be in main storage at a given time. These modules, when needed, overlay previously loaded modules that are no longer being used.
- OIT Area: One area of at least 4K is reserved for the OLT.
- RETAIN/370 Interface (REI): The RETAIN/370 interface, when active, occupies the last 4K of the background partition.

ON-LINE TESTS (CLTS)

CLTs are called into main storage for execution by the scheduler portion of the CLTEP nucleus. Tests normally do not exceed 4K. However, those that do are loaded if the allotted background partition is large enough. If an OLT requires greater than 4K and there is not sufficient space for the CLT, OLTEP generates a message and proceeds to run the next OLT (if any).

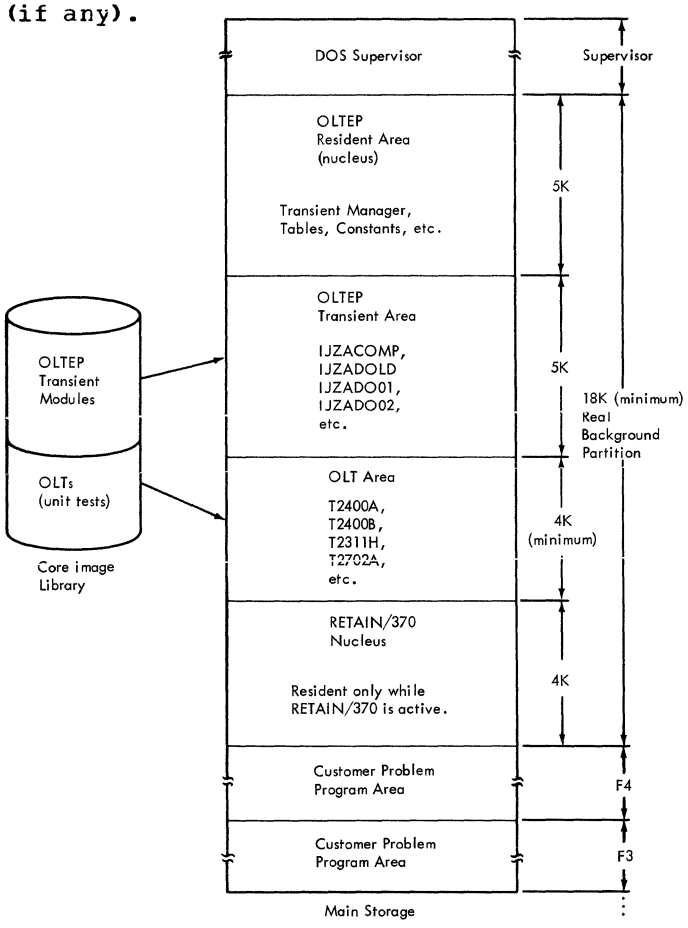


Figure 2. Storage Allocation

OLTEP allows the OLT to be divided into a root segment and associated test modules. Although the root segment must remain in main storage for the duration of a particular test, the supporting test modules can be loaded from the core image library as they are needed.

Information about individual tests appears in the writeup that accompanies them.

OPERATOR COMMUNICATION

OLTEP gives the operator maximum control in running the tests. If a console device is assigned to the system and you do not choose to enter the test-run definition by card, OLTEP will establish a communications interval. Once the communications interval is initiated, OLTEP issues a message requesting you to enter the test-run definition. At this time, you can enter or change the testing procedure or terminate OLTEP by entering CANCEL. The four methods of initiating a communications interval are:

1. The initial communications interval automatically occurs when OLTEP is first called in, unless the test-run definition is entered by card. At this time, the initial test-run definition is entered.

2. You can invoke an interrupt communications interval by pressing the interrupt key on the console.

3. The first-error communications interval occurs when an error is encountered during a test. The operator can suppress it by entering NFE (No First Error) as an option in the test-run definition.

4. The test completion communications interval automatically occurs when the specified testing procedure ends unless the test run definition was entered via card input and another card is present.

DATA PROTECTION

OLTEP assumes much of the responsibility for the protection of customer data. The data protection modules within OLTEP protect customer files and storage during the on-line tests. Objectives of the data protection modules in the order of their priority are to:

1. Protect customer data.

2. Allow effective testing within constraints of data protection.

3. Minimize manual interventions.

All requests for device testing are channeled through the data protection modules. The following sections show the data protection measures invoked for specific device types.

All Devices

A device ready check is performed on all devices to satisfy the ready requirement for the tests and to allow execution of the data protection checks. If the device is not ready, a message containing sense information and the channel status word (CSW) is issued. The operator is then given options to control further testing of the device.

> Note: For a detailed description of the messages and replies, see the DOS OLTEP publication listed in the Preface.

Tape Devices

Before a tape device is tested, OLTEP makes three checks:

1. Standard Label. OLTEP checks for a standard label to ensure a test volume is mounted. If a standard label is not recognized, OLTEP checks for a standard label in ASCII mode. If a standard label is not recognized at this time, a message is issued stating that a nonstandard labeled tape is mounted. The operator is then given the option to bypass the test, retry the test after mounting a different tape, or to proceed testing with the tape that is mounted.

   Note: If no bit pattern is read (tape is new or clean), OLTEP will read to the end of the reel, rewind, and retry. To avoid this, some bit pattern (e.g. tape mark) must be written on new or clean tapes.

2. Security. OLTEP checks the security byte in the VOL1 label. If on, a message is issued indicating this condition to the operator. The operator can bypass the test or retry the test after mounting a different tape.

3. Expiration Date. The expiration date is checked to determine if it has expired. If it hasn't, a message is issued stating the volume cannot be used as a scratch. Options are then available to bypass the test, retry the test after mounting another tape, or to proceed testing with that tape.

When testing of a tape device is completed or discontinued, and a standard label has been successfully read before testing, OLTEP rewinds the tape and writes a standard label. The following records are written:

VOL1	Volume S/N	70 bytes of zeros
HDR1	76 bytes of zeros	

OLTEP does not attempt to write a label if a standard label was not read at the beginning of the test.

Unit Record and TP Devices

The device ready check is the only data protection task performed on unit record and TP devices.

Direct Access Storage Devices

The device ready check is the initial data protection task performed on all direct access devices. If the device is ready, OLTEP determines the type of DASD being tested, and performs the data protection tasks for that device type.

IBM DASD DEVICES OTHER THAN 2321

A read command is issued by OLTEP to read the volume label. If the device is a 3330, bit 5 of the home address is checked. If the device is shared and bit 5 is on, testing proceeds file protect mode. If the device is not shared and bit 5 is on, testing proceeds in non-file protect mode. If the bit is off, or the device is not a 3330, the data protection checks (described in the following paragraphs) are performed.

For non-shared 2311/2314 devices, cylinder 6, track 0, record 0 is checked for F0FE. If it is present testing is allowed in non-FPM. Otherwise data protection checks are performed as described in the following paragraphs.

If the volume label is a standard label, a check is made to determine if the volume is security protected. If the volume is security protected, the volume cannot be used as a test volume and you are given the option to bypass or retry. If the volume is not security protected, a check is made to determine if the volume serial number is CEPACK. If it is not CEPACK, you are given the option either to bypass the test, retry after mounting a different pack, or proceed testing in the file protect mode (FPM) with the pack that is mounted. If the volume serial number is CEPACK and is not security protected, testing is allowed to proceed in non-file protect mode unless the volume is shared with another partition. In this case testing proceeds in FPM.

Note: System protection of system secure data sets is bypassed and system secure data sets may be destroyed if the volume is not security protected.

IBM 2321

If the device to test is an IBM 2321, OLTEP ensures that the CE volume is mounted in bin 0, then turns control over to the test section. If OLTEP finds that the volume mounted in bin 0 is not a CE volume, it gives the operator the option to bypass the test, or retry the test after mounting a CE data cell.

Space Allocation

Before write testing is performed on a volume other than a Customer Engineer volume or a scratch pack with a volume serial number of CEPACK, OLTEP issues a message asking if volume data can be destroyed. If the reply is YES and the device is not shared, testing proceeds in non-FPM. Otherwise, testing proceeds in FPM.

Note: If testing is in non-FPM, the test section may reformat the volume. Reformatted volumes are not recognized as usable by the operating system.

File Protect Mode (FPM)

File protect mode allows limited testing of a direct access device without destroying volume data. While in FPM, OLTEP scans the channel program for any Write commands that violate data security or protection. OLTEP can perform only a limited test when operating in this mode.

Non-File Protect Mode (non-FPM)

When operating in non-FPM, OLTEP allows the test to perform Write and Read Data operations on the device. Cylinders in the CE volume are allotted for this function. The same cylinders are used on both CE volumes and scratch volumes.

ACCESSING OF ENVIRONMENTAL RECORDING DATA

OLTEP can retrieve records from an environmental recording data set (Error Recording Environmental Procedures (EREP) history tape) for use by the OLT.

OLTEP has the ability to access any one of the following data sets:

1. DOS System Recorder File (SYSREC).
2. DOS History Tape.
3. OS History Tape.

Upon receiving a request from the CIT for this information, OLTEP checks to determine what media the data set resides on. If the operator responds to access the SYSREC file, OLTEP will perform all the necessary functions to access the file. If the EREP history tape is to be used, CITEP requests the operator to mount the tape on a free device and enter the device address. This device must be assigned to the background partition, but not included in the test-run definition.

The error recording data set is searched sequentially beginning from where the last record was retrieved. However, if the RESET=YES parameter in the LOGSCN macro is specified by the OLT, the search always starts at the beginning of the data set.

SVC 46 DOS-OLTEP SUPERVISOR CALL

The SVC 46 was designed for DOS OLTEP. When it is issued the supervisor checks that the request originates from the background partition. It then checks for OLTEP running in the background, by testing the OLTEP bit in the system communication region. This bit is set by a B-transient, $$BOLTEP, called by the OLTEP initializer (IJZADOLT).

By issuing the SVC 46, OLTEP is put into the supervisor state and is then able to issue privileged instructions or store data into the supervisor area. At the initial issuance of the SVC, register 1 contains an entry point in OLTEP, and register 7 contains an entry point into the supervisor, which is used to exit from the supervisor state. At the second issuance of the SVC, register 1 contains zeros. This forces task selection.

RETURN CODE USAGE

Because CITEP is a multiphase program, it must communicate between modules. Also, the results of operations requested by the CLTs must be passed back from OLTEP. To accomplish this, the possible results have been equated to hex codes. These hex codes are returned via general purpose register 15 for examination by the requesting phase.

REGISTER CONVENTIONS

Registers 0, 1, and 14, 15 can be used by the unit test but the contents will be destroyed by various macros.

Registers 4, 5, 6, 7, 8, 9, 10, 11 can be freely used.

Register 12 must be reserved for an additional base register.

Note: The CC set by an instruction preceding a macro call is not preserved through a macro call.

General register conventions of the operating systems are observed. They are:

GR	Usage
15,0	Supervisor parameter registers
1	Parameter list register
13	Pointer to save area
14	Return register
15	Entry point register

In addition, the following CLTS convention must be observed:

GR	Usage
2	Pointer to section control table (set by INTLZE macro).
3	First base register of CSECT, established as base register by the INTIZE macro instruction.
13	Must point to save area when issuing a MACRO call.
15	Return code register.

RETAIN/370

With the RETAIN/370 feature of OLTEP a remote specialist can control and obtain the results of the on-line tests. When the RETAIN/370 interface is active, OLTEP provides a communications path between the on-site customer engineer and the remote specialist via the remote analysis center.

Requirements and detailed operating procedures for RETAIN/370 are found in DOS CLTEP, GC33-5383.

OLTEP Primary Modules

The primary modules that perform the basic functions of OLTEP include:

1. Nucleus (IJZADOTM)
   Consists of the following CSECTS:

   a. Common Area (DOLTCOMN)

      - Defines collection of constants and routines which are available to all OLTEP modules.

   b. Transient Manager (IJZADOLT)

      - Loads requested modules and passes their entry point to the requester, or enters them as requested.
      - Remains resident; maintains a table of transient modules available in the transient area.

   c. I/O Interrupt Handler (IJZAD098)

      - Handles interrupts for devices on which an EXIO has been performed.

   d. External Interrupt Handler (IJZAD094)

      - Receives control from DOS when an external interrupt occurs.
      - Posts interrupt if it has an I/O operation active on the device.

   e. Initializer (IJZAINIT)

      - Sets up common area.
      - Initializes switches.

2. Communications Interval (IJZAD052).

   - Issues the ENTER DEV/TEST/OPT message.
   - Preliminary analysis of the operators response.

3. Data Protection.

   - Performs the necessary data protection tasks, on the test device, to ensure the customer's data is not destroyed.

4. Scheduler (IJZAD000).

   - Loads the requested OLT.
   - Returns control to the communications interval module after all the specified devices have been tested.

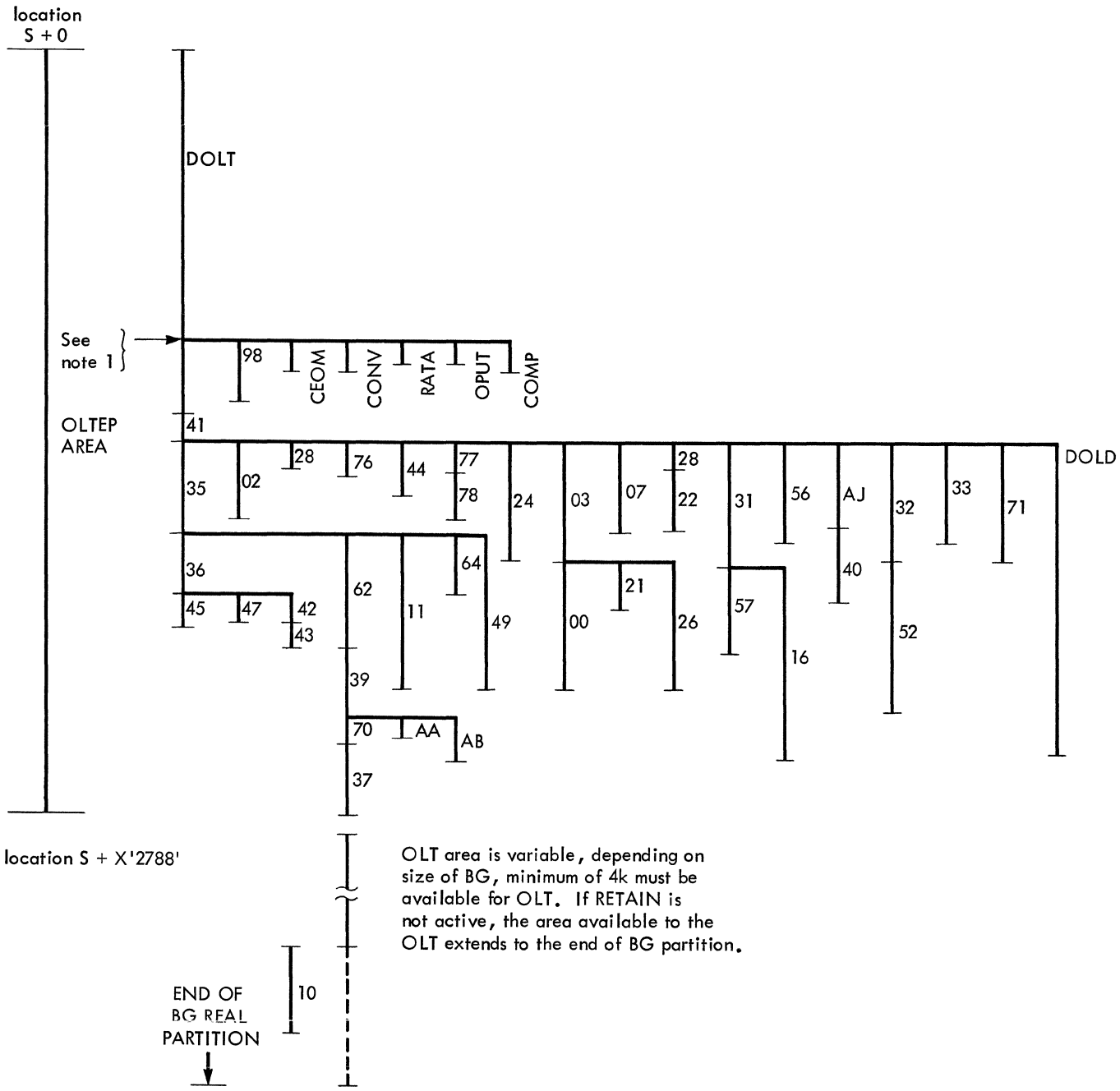
5. DECODE Modules.

   - Decode the reply to the ENTER DEV/TEST/OPT message.

With the exception of the NUCLEUS, the phases that make up OLTEP are of a transient nature. That is, they are called in as needed. A phase may be requested at different times by different phases. Thus, to ensure efficiency of core and to prevent reloading a loaded phase, all phases are loaded and monitored via the transient manager. The transient manager is a resident phase.

All the desired on-line tests are scheduled and loaded via the scheduler. Figure 3 shows the overlay structure of the OLTEP modules.

The detailed module descriptions that follow are in the order they are initially entered.



Notes:

1. Modules overlay IJZADO98 only if a P3116 Architecture OLT is active. IJZADO98 will be refreshed when an AR145 Architecture OLT is active.
2. Module IDs shown as 2 numeric digits are preceeded by "IJZADO."
3. Module IDs shown as 4 alphabetic characters are preceeded by "IJZA."
4. Module IJZADO10 is loaded 4K bytes before the end of the BG partition.
5. OLTEP module IJZADOLT is loaded at S + 0 (end of Supervisor).
6. OLTs are loaded at S + X'2788'.
7. OLTEP B-Transient modules IJZAOLTP ($$BOLTEP) and IJZATOLT ($$BTOLTP) are loaded into the Supervisors B-Transient area.

Figure 3. OLTEP Overlay Structure

IJZADOLT: Nucleus Chart AA

OBJECTIVES: This module, the Nucleus, is composed of 5 CSECTS. The Nucleus is the first module loaded by the system and consists of: The Initializer, Transient Manager, Interrupt Handlers (I/O and External), and Common Area. The CSECTS included in the module are:

- DOLTCOMN - Constants and common code available to all modules.
- IJZADOLT - Transient Manager.
- IJZADO98 - I/O Interrupt Handler.
- IJZADO94 - Device External Interrupt Handler.
- IJZAINIT - OLTEP Initializer.

CSECT DOLTCOMN: Constants and Common Code

OBJECTIVES: Contains tables and work areas common to all OLTEP modules plus linkages to commonly executed code as explained below.

ENTRY POINTS:

1. #EXIT--Common entry for calls to the transient manager.
2. $MODSIZE--Entered to determine size and presence of a phase in the core image library.
3. $DTRMLNK--Linkage to scheduler on return from an OLT.
4. #CECM--Entered to perform linkage to the CECOM module (IJZADO37).
5. #CONV--Entered to perform linkage to the CONVERT module (IJZADO41).
6. $IOENDLE--Entered from DOS supervisor on all I/O interrupts and prior to issuing all SIOs.
7. $POSTPIB--Called by the I/O and external interrupt handlers when an event occurs to post the SETIME TECB complete.

Note: Each numeric entry in the EXITS, INPUT, OUTPUT, and METHOD paragraphs below, relate to corresponding numeric entry in the ENTRY POINTS paragraph above.

EXITS:

1. To transient manager (CSECT IJZADO01 within IJZADOLT) if entry was via #EXIT.
2. To caller via R14 if entry point was $MODSIZE.
3. To the scheduler at S00DTERM if entry was $DTRMLNK.
4. To CECOM module (IJZADO37) if entry was #CECM.
5. To the CONVERT module (IJZADO41) if entry was #CONV.
6. To IJZADC98 if EXIO is active; otherwise to the DOS supervisor.
7. Return to caller (IJZADC98 or IJZADC94).

EXTERNAL ROUTINES:

1. None
2. SVC51
3.-7. None

INPUT:

1. Pointer to parameter list (R1) which is passed to the transient manager.
2. R1 points to an 8-byte module name.
3. R15 (for old OLT's) contains a return code to indicate success or failure for the execution of the OLT.
4. R14 points to a parameter list which contains:

   Byte 0--Character count of the message to the output.
   Byte 1--Character count of the field reserved for reply.
   Bytes 2-3--The address in the form of an 'S' type address constant (ADCON) which points to the message to be output.
   Bytes 4-5--The address in the form of an 'S' type ADCON which points to the buffer reserved for the reply.

5. Parameter list pointed to by R14 which contains:

   Byte 0--(Bit 0 =1) Conversion is from HEX to EBCDIC.
   Byte 0--(Bit 0=0) Conversion is from EBCDIC to HEX.

Byte 0 (Bits 1-7) and Byte 1--Contains count of bytes to be converted.
Bytes 2-3--Contains the 'from' address in the form of an 'S' type ADCON.
Bytes 4-5--Contains the 'to' address in the form of an 'S' type ADCON.

6. GPR 5 points to the return address in the supervisor.

7. GPR14 points to the return address of the caller.

OUTPUT:

1. None if call is to the transient manager.

2. R0 contains the high address of the selected module.
R1 contains the length of the selected module.

3. R0 contains the success/fail indicator if entered from an old OLT.

4. R1 points to a parameter list which becomes input to module IJZAD037.

5. R1 points to a parameter list which becomes input to module IJZAD041.

6. None

7. None

METHOD:

1. Loads R15 with entry point of transient manager and branches to this address.

2. Issues an SVC51 with R1 pointing to a work area which contains the phase name in the first eight bytes. The supervisor call returns the phase header in the work area. From this information, the module length is calculated and returned in R1 and the high address is calculated and returned in R0. R1 will be zero if the phase does not exist. The caller is returned to via R14.

3. The return code in R15 is placed in R0; the scheduler's registers are loaded from a save area in common; and the scheduler is loaded via the transient manager and entered at location $DTMADD.

4. A full parameter list required as input to IJZAD037 is constructed using the abbreviated parameter list passed as input. R14 is updated to point to the return address, then IJZAD037 is entered via a call to the transient manager.

5. A full parameter list as required for input to IJZAD041 is constructed using the abbreviated parameter list passed as input. R14 is updated to point to the return address, then IJZAD041 is entered via a call to the transient manager.

6. The $CCB1USD and $CCB2USD bits in the common area determine if OLTEP has outstanding OLT EXIOs. If there are outstanding EXIOs, IJZAD098 receives control; otherwise, a return to the supervisor occurs.

7. The TECB in common is posted complete for the SETIME issued in WAITIO.

TABLES AND WORK AREAS:

1. Section Control table.

2. Device Entry table.

3. Section List table.

4. Transient Manager Vector table.

5. $CITPARM table (Contains addresses of locations in common that are passed to the CIT).

6. CCB's for use by CITEP.

7. Program Information Block (PIB).

8. Timer Event Control Block (TECB).

9. CITEP flags in DOITCOMN.

CSECT IJZADOTM: Transient Manager

OBJECTIVES: Handles test section linkages to CITEP. Also, determines if supporting modules are resident or need to be loaded. Modules loaded will remain in core and are overlaid by another module.

ENTRY POINTS:

1. EXIO--to call IJZADOLD to issue OLT I/O.

2. WAIT--to call IJZADOLD to wait for I/O completion.

3. DPRT--to call IJZADOLD.

4. EPPADOTM--to process AR-145 OLT requests.

5. EPZADOTM--to process OLTEP requests.

EXITS: To module requested by caller's parameter list; or to caller if function is not supported or is a load only request; or to communications interval (IJZADO52) if operatior communication is desired.

EXTERNAL ROUTINES:

1. Trace (IJZADO45)--for trace function and return code handling.

2. $MODSIZE--to determine if requested module exists and fits into available storage.

INPUT:

1. GPR15--address of entry point.

2. GPR1--parameter list address; this list contains:
   - byte 0--transient manager flags.
   - byte 1--macro level.
   - bytes 2 and 3--module ID in EBCDIC.

OUTPUT:

1. GPR15--entry point address if calling requested module or return code if returning to caller.

2. GPR1--for calls to IJZADOLD parameter list which indicates an EXIO, WAIT, or DPRT request.

METHOD: Five entry points are used to control the contents of the transient area:

- Three are for P3116 OLTs.
- One is for AR-145 OLTs.
- One is for OLTEP requests.

The three entry points (#1, #2, and #3) for P3116 OLTs support EXIO, WAIT, and DPRT functions. IJZADOLT is called to calculate the entry point, determine the requested function, and pass a parameter list for the function to IJZADOLD. IJZADOLD then performs the function.

The AR-145 entry point (#4) saves data for return code handling and tracing. The return code is altered sc that when the function has been performed, the called module returns to the transient manager. The transient manager then call IJZADO45 to perform the trace and return code handling.

The OLTEP entry point (#5) initially processes internal OLTEP requests. Since modules in the transient area can exit to an overlaying module, the data in the registers cannct be saved in the callers save areas, and is stcred in a save area in the transient manager.

When the entry point is #4 cr #5, a check is first made tc determine if the operator has requested a ccmmunication interval by causing an external interrupt. If the interval is requested and OLT is not executing cleanup, IJZADO52 is called tc perform the communicatiens interval.

If the cperator communicatien interval is not requested or cannct be performed, the table cf modules currently in storage is searched fcr the requested module. If the module is in storage, ccntrol is passed to the requested module.

If the module is nct in storage, a load only request is returned tc the caller and an eight character phase name is generated. If the request is from an OLT, the $MODSIZE routine is called to determine if the module is in the core image library, and if it will fit intc the available storage. If it is not possible to lcad the module into available stcrage, a return code of 4 is passed to the caller stcred in GPR15; otherwise, the requested mcdule is loaded into storage and the table cf modules is updated to reflect the mcdules currently in storage. Ccntrol is then passed to the requested module.

When the module has ccmpleted its function, and ccntrol is returned to the transient manager, a check is made to determine if trace is active cr return code handling is required. If trace is active, the trace module (IJZADO45) is called. When trace is ccmpleted, cr if trace is not called, the CLT registers are restcred and control is returned tc the OLT.

CSECT IJZADO98: I/O Interrupt Handler

OBJECTIVE: This module receives control on all interrupts and SIOs when an OLT EXIO is oustanding. It determines if the interrupt or SIC is a result of an EXIC and, if so, posts relevant informatien in the TECB associated with the I/O request.

ENTRY POINT: Label EPZADO98.

EXIT: To caller via GPR5.

EXTERNAL ROUTINE: $IOHNDLE, $POSTPIB

INPUT: Device address in GPR2 on SIO.
CCB address in GPR1.
Return address in GPR5.

OUTPUT: Posting in IECB (sense data).

METHOD: IJZADO98 is a separately loadable phase which becomes a part of the NUCLEUS when a "NEW Architecture (AR-145)" OLT is being executed. IJZADO98 may be overlaid by IJZACEOM, IJZACONV, IJZARATA, IJZACPUT or IJZACOMP, as these functions are required, when "OLT Architecture (P3116)" OLTs are being executed. IJZADO00 (Scheduler) will reload IJZADO98 whenever a "NEW" OLT is being executed after execution of an "OLD" OLT.

This module receives control from the $IOHNDLE routine in common when an interrupt or SIO occurs and OLTEP has an outstanding EXIO.

When control is received, GPR5 contains the supervisor return address. The module checks the instruction at the return address. If the instruction is a SIO, the device address is retrieved from GPR2; otherwise, it is retrieved from the I/O old PSW.

The device table is searched for a matching device address with I/O active. OLTEP then determines if this is an interrupt or a SIO. If an interrupt, OITEP checks the device table to see if this entry is not accepting interrupts, in which case, control is returned to the supervisor at the proper return point. If the device is accepting interrupts, and if control unit end only is on is the status byte of the CSW, the status is posted to the TECB as a valid interrupt.

If the activity on the entry is a SIC, OLTEP further checks the CCB address to be sure that this is the correct entry, and returns to the device table search if not correct. If the CCB address does not match, a flag is set to indicate that this is an OLTEP SIO and the SIO is issued.

The following actions occur depending on the condition code specified:

- CC = 0 -- A bit is set to indicate that subsequent interrupts should be posted. The GOOD SIO bit in the device table is set. If the macro level of the EXIC was three, the condition code is posted in the TECB. In any case, the condition code in the PSW is set to zero with a SPM instruction. The registers are restored and the supervisor is returned to four past GPR5.

- CC = 1 -- If busy is on in the status, the condition code is set to one with a SPM instruction. The registers are restored and the supervisor is returned to four past GPR5. Otherwise the accept interrupt bit is reset on every entry in the device table with same device address. The accept interrupt and good SIO bits for this particular entry are set as is the event complete bit and then condition code is handled as an interrupt (See INTERRUPT HANDLING).

- CC = 2 -- The condition code is set to two and control is returned to the supervisor at four past GPR5.

- CC = 3 -- The condition code is posted in the TECB and the bit to accept subsequent interrupts is set. Event complete and interrupt occurred are posted in the device table. CE and DE are set in the CSW status, the condition code is set to one, and control is returned to the supervisor at four past GPR5.

In all cases where a condition code is posted, if the TECB is full, the counter is updated and no posting occurs. If the counter is also full, no posting occurs.

When all entries in the device table have been processed, a check is made to determine if this was a SIO or an interrupt. If an interrupt, OLTEP returns to the supervisor at the return register address and the interrupt is processed. If a SIO, a check is made to determine if the device is shared, in which case OLTEP issues the SIO to allow monitoring the result. The monitoring is done to prevent OLTEP's erroneous recording of supervisor data in the TECB, should the supervisor SIO be successful (condition code 2 or condition code 1 with busy bit on in status). Return is then to the supervisor at four past the return point so as to skip over the SIO that OLTEP has in fact executed. If the supervisor SIO is a success OLTEP steps through the device table turning off the $ACCINT flag in each entry where the unit address matches the SIO device address, and finally returns to the supervisor at four past the return point to skip the SIO instructions OLTEP executed for the supervisor.

Interrupt Handling

When an active device is found in the table and it is an interrupt passback rather than a SIO, the module determines if a good SIO has occurred. If it has not, the rest of the table is searched. When no devices are active that require posting, the supervisor is returned via GPR5. When a good match is found, the CSW status is check for CUE alone. (This status checking is done for

SIO CC1 and for interrupt status. If it is for SIO, the return is to four past GPR5 rather than zero past GPR5.) If CUE is found, control is returned to the supervisor via GPR5. Otherwise, the interrupt occurred bit is set and the $POSTPIB routine in common is executed. Then the CSW is posted in the TECB and the interrupt occurred bit is set. If unit check is on in the status, a sense is issued and the sense data posted in the TECB. Event complete is also turned on, unit check is turned off, and CE and DE are turned on in the CSW. If DE is present in the status, the device end occurred and device end bits are set for WAITIO. Event complete is also turned on unless ATTN=YES was specified in EXIO. In this case, event complete is posted on the first interrupt after device end.

Before returning to the supervisor, a check is made for program check, protection check, channel data check, channel control check, interface control check, and chaning check. Any bit that is on is turned off and CE and DE are turned on in the CSW.

After status checking is complete, control is returned to the supervisor via GPR5 for interrupts and four past GPR5 on SIO (after setting the SIO condition code with a SPM).

CSECT IJZADO94: External Interrupt Handler

OBJECTIVES: Receive control from DOS when an external interrupt occurs. Post the interrupt in the test section TECB if it has an I/O operation active on the device.

ENTRY POINT: Label EPZADO94.

EXIT: Return to DOS Supervisor via GPR5.

EXTERNAL ROUTINES: $POSTPIB

INPUT:

- External Interrupt code in low core location 134.
- Device table.

OUTPUT: Old external PSW Interrupt Code is stored in TECB.

METHOD: Upon entry to the module, standard linkage is performed to save the caller's registers. Next, the old external PSW is examined to pick up the interrupt code, which is used to search the device table for the external signal mask which matches the last byte of the interrupt code to identify the device that caused the interrupt. If no entry is found in the device table or if an entry is found and the device is not active, a return is made to the DOS supervisor via GPR5. Otherwise the old interrupt code portion of the old external PSW is stored in the TECB associated with the I/O request, and control returns to the supervisor via GPR7.

CSECT IJZAINIT: Initializer

OBJECTIVE: this module indicates to the operating system that OLTEP is active. It determines that SYSLST is assigned to a tape drive or a printer. If it is not, message E230I is issued to SYSLOG and OLTEP is cancelled. If SYSLST is properly assigned, message E102I(CLTS RUNNING) is issued to SYSLST and SYSLOG. A system macro is also issued to determine if OLTEP is running in real or virtual mode. If OLTEP has been initiated in virtual mode, message E245I is issued and OLTEP is cancelled. This module also checks to determine that the partition size is at least 14K; if it is not, message E232I is issued and OLTEP is cancelled. Once it has been determined that OLTEP can run, warning message E134I is issued to inform the operator that a DASD volume labelled "CE PACK" may have data destroyed if an OLT is executed against it. Then initialization is performed and module IJZADO52 is called.

ENTRY POINT: Label EPZADOLT.

EXIT: Normal--IJZADO52 (Communications Interval).
Error--ECJ macro.

EXTERNAL ROUTINES:

- $$BOLTEP--to set the OLTEP bit in the supervisor.
- $$BBYSWR--to deactivate system file protect.

INPUT: None.

OUTPUT: Messages E102I E232I, E134I, E245I, E265I, and E230I. GPR2 points to the common area.

METHOD: If a decision is made that OLTEP can run, the Initializer module (IJZAINIT):

- Establishes Register 2 as the base to common.
- Sets a bit if a console is available.
- Sets a bit if SYSLST=SYSLOG.
- Prints message E102I.
- Defines core image record length.
- Sees if card input is required.

- Sets-up operator communications.
- Calls $$BOLTEP to show OLTEP is active.
- Puts address of $IHONDLE routine in OLTEP address table in supervisor.
- If MICR support is on system, puts address of IJZADO94 (External Interrupt Handler) in OLTEP address table in supervisor.
- Gets CPU model number.
- Gets 1 second BCT count.
- Calculates high address and length of partition.
- Calculates size of OLT area in fullwords.
- Finds out if any CDS's are present.
- Sees if timer is available and working.

It then exits to module IJZADO52.

IJZADO52: Communication Interval Chart AE

OBJECTIVE: Communicate between operator, remote specialist, and OLTEP for the purpose of defining, changing, or terminating the testing sequence, or entering an OLTEP verb.

ENTRY POINT: EPZADO52.

EXIT:

1. A system EOJ is issued on a CANCEL request.
2. IJZADO31: If the DEV entry is used.
3. IJZADO32: If no DEV entry and a TEST entry is used.
4. IJZADC33: If neither the DEV nor TEST entry is used, and to issue message E107I.
5. IJZADC76, REI Initialize #1: If REI is entered.
6. IJZADC78, REI Terminate: If STOPREI is entered.
7. IJZADC71, Prompt function.
8. IJZADC00, Scheduler: If an OLT is active and EQU or a device change is entered.
9. IJZADC49, Equate: If an OLT is not active and EQU is entered.

INPUT: The reply from the message

01E105D ENTER DEV/TEST/OPT

or control statement if card input is used.

OUTPUT: Pointers to slashes. Messages E106I, E105D, E161I, E166I, E170I, E199D, E226I, E242I, and E250I.

EXTERNAL ROUTINES:

1. CECOM (IJZADO37) to issue messages.
2. PDUMP macro to dump OLTs partition.
3. Option decode (IJZADO33) is called to format and issue message E107I and E327I.

METHOD: If the "options are" message has not been issued, exit to IJZADO33 which issues message E107I. Otherwise, determine the source of input or need to terminate per chart below:

TYPE OF COMMUNICATION INTERVAL	ON SITE IN CONTROL			REMOTE
	CARD SPECIFIED	NO CONSOLE	CONSOLE	IN CONTROL
INITIAL	CARD	CARD	CONSOLE	N/A
FIRST ERROR	CONSOLE	TERMINATE OLTEP	CONSOLE	REMOTE
ON-SITE INTERRUPT	CONSOLE	TERMINATE OLTEP	CONSOLE	N/A
REMOTE INTERRUPT	N/A	N/A	N/A	REMOTE
END OF TEST	CARD	CARD	CONSOLE	REMOTE

Acceptable operator entries and resultant actions taken are as follows:

Operator Entry	Action Taken
CANCEL	A system EOJ is issued.
DUMP	OLTEP and the OLT area are dumped on the SYSIST device.
EQU	Terminate any active CIT and exit to Equate module (IJZAD049).
PROMPT XXX	Exits to the prompt module requested which prints examples of the device, test, or option entries.
DEV/TEST/OPT	Check to determine if three slashes were entered. If not, an error message prints and the E105D message is reissued.
REI	Exit to the REI Initialize #1 module (IJZAD076).
STOPREI	Exit to the REI Terminate module (IJZAD078).
TALK	Signifies dynamic CE communications is requested.

If this is the initial DEV/TEST/OPT entry, a test is made to determine if the device and test are specified. If not, an error message prints, and the 01E105D message is reissued. If both device and test were specified, the device decode module is called, and the fields are checked for validity. The device decode module exits to the test decode module to determine the tests to be run. The test decode module exits to the option decode module to determine the options to select. If there are any invalid entries in any field, this module is reentered at label IJZAD052, and the 01E105D message is issued again. If all the entries were valid, the option decode module exits to the scheduler (IJZAD000).

If this is not the first entry, any or all fields can be omitted. Entries made in the previous test definition are used in place of omitted entries. If a field is not present, its corresponding decode module is not entered, except for the option decode module, which is entered whether or not the DEV or TEST entry is used.

IJZAD057: Restore Label Routine Chart AG

OBJECTIVE: This module is called to write labels on any standard labeled tapes that were used in testing, if either all tests have been run on all devices, or testing has been terminated early for some reason. (When SCSPE is the active OLT, tape labels are not written.) This module also disables all enabled TP lines.

ENTRY POINT: EPZAD057.

EXIT: Return to caller via GPR14.

EXTERNAL ROUTINES:

1. CECOM (IJZAD037).
2. CONVERT (IJZAD041).

INPUT: The device entry table in the common area is used as the information source.

OUTPUT: Messages: E137I, E139D, E174I, E199I, E414I.
Updated device entry table.

METHOD: This module searches the device table for tape entries with the standard label bit on, and writes a standard label with the same volume serial number that it had when the test started unless the active OLT is SCSPE. If the device entry does not have the standard label bit on, the next device (if there is one) undergoes the same test. If an entry is found with the standard label bit on, the previous status for that device is cleared and a sense is performed. The module then checks to determine if the device is file protected or if intervention is required. If either condition exists, an information message is issued. If the tape is not file protected (ring in) or intervention is not required, the tape is rewound, the label is written, and pointers are updated. If the writing of the tape label is unsuccessful, the module issues message E174I which indicates that the label was not written. A test is then made to determine if Unit Check (UC) occurred. If Unit Check did occur, the sense data is formatted and appended to the E137I message. In either case, message E137I is printed if a console is available. If a console is not available, the next device is tested. If message E137I was printed, then message E139D is issued requesting to bypass or retry writing the

label. If bypass is specified, the pointers are updated to the next device. If the retry option is entered, a sense is performed and an attempt is made to write the label.

Message E199D is issued if a valid option is not selected. This indicates that an incorrect reply was made and that a valid reply is needed. Each time the device pointers are updated, a test is made to determine if the last device has been encountered. After the last device entry has been tested, a check is made to see if line connection has been invoked. If it has, message E414I is issued and all enabled lines are disabled. In either case, control is returned to the caller.

IJZAD031: Device Decode Chart AH

OBJECTIVE: Decode the data entered in the device field of the test definition. Checks availability of the devices and CDS information.

ENTRY: EPZAD031.

EXITS:

1. Test decode (IJZAD032).
2. Communications interval (IJZAD052), if there is an error.

EXTERNAL ROUTINES:

1. CONVERT (IJZAD041), to convert the entry from EBCDIC to hex.
2. GETCONFG (IJZAD016), to access the configuration data set (CDS).
3. CECOM (IJZAD037).
4. Restore tape labels (IJZAD057).

INPUT: Reply to message

01E105D ENTER DEV/TEST/OPT/ or, control statement if card input is used.

OUTPUT: Device addresses and/or symbolic names are put into the device entry table along with CDS information. Messages: E108I, E110I, E111I, E127I, E161I, E165I, E234I, E235I, E251I, and E252I.

METHOD: If response is from remote, the field is checked for •NDR. If it is •NDR, IJZAD057 is invoked to write tape labels and/or disable TP lines. Upon return from IJZAD057 if •NDR is followed by a slash(/), appropriate switches are set and control is passed to IJZAD032. If the entry is not •NDR, an error message is issued and control is passed to IJZAD052.

If response is not from remote, IJZAD057 is invoked to write tape labels and/or disable TP lines. Upon return from IJZAD057, if the entry is •NDR followed by a slash (/), exit is made to IJZAD032. If •NDR is not followed by a slash, an error message is issued and control is passed to IJZAD052. If entry is not •NDR, the field is scanned for one of the following types (mixed types not allowed):

1. A symbolic name of from 1-8 characters, the first of which must be A-Z, #, $, or @, followed by a slash or a comma (indicates another symbolic name follows).
2. A three- or four-digit numeric unit address followed by one of the following:
   a. Slash. End of device field.
   b. Dash. Another three or four-digit numeric follows defining a range of devices.
   c. Comma. Another three or four-digit numeric device address follows.

   Note: Up to 16 device entries are accepted.

If one of the above is not found, appropriate error messages are issued and exit to IJZAD052 is taken. For each device specified, IJZAD016 is invoked to obtain CDS information which is used to build the device table entry. A check is also made to assure that the device is assigned to the background and, if POWER is active, that device is not subject to spooling. If CDS information is not available or the device is not assigned, or if the device is subject to spooling by POWER, an error message is issued and scan of input continues. When a slash '/' is encountered, if at least one device is available for testing exit is to IJZAD032. Otherwise an appropriate message is issued and exit is to IJZAD052.

IJZADO32: Test Decode Chart AK

OBJECTIVE: Decode the data entered in the test field, build a test table, and set routine bits in SCT.

ENTRY POINT: Label EPZADO32.

EXITS:

1. Option Decode (IJZADO33).
2. Communications Interval (IJZADO52) on an error condition.

EXTERNAL ROUTINE: CECOM (IJZADO37) to output messages.

INPUT: Reply to message

01E105D ENTER DEV/TEST/OPT/ or, control statement if card input is used

OUTPUT:

- Routine bits set in SCT.
- Section IDs in the test table.
- Highest routine name in common.
- Messages: E112I, E155I, E161I, and E170I.

METHOD: A test is made on the first entry flag, then the information entered after the first slash is checked for:

1. Slash. Indicates use of the same tests as indicated in the previous test run definition (invalid on first request).
2. A test is made to determine if the entry is a valid SOSP name (ISOSPB/ or SOSPB/).
3. Alphabetic character. A test is made to determine if the first character is alphabetic. If so, the test field is checked for a valid alphabetic prefix (N, P, R, or T).

   Note: If entry contains a valid prefix, the next four characters are checked. A four-digit numeric following in this position denotes test type.

4. Four digit numeric. Indicating the test type and followed by:

   a. Slash. Indicates run of all available test within section range A-Z.

   b. One to three alphabetic characters. Indicates a test section to be run followed by:

      (1) Slash. End of test field.

      (2) Dash. Another one to three alphabetic characters follows to establish a range of test sections to run. The second one to three alphabetic characters can be followed by:

         (a) Slash. End of test field.

         (b) Comma. Another one to three alphabetic characters designating another test section to run.

      (3) Comma. Indicates additional test field entries follow. These can be:

         (a) Alphabetic character(s). Another test section to run (up to 26 one to three character entries separated by commas are accepted)

         (b) Numeric character. Routine in the section immediately preceding the comma is to be run. This can be followed by:

            - (Dash). Another numeric character follows designating a range of routines to be run (must not exceed 255).

            , (Comma). Another numeric character follows designating another routine within the section to be run.

Notes: Where routines are requested, only one test section is allowed in the test field entry. Finally, the program checks to ensure that the field is terminated by a slash. A mask of X'FF' is set after the last entry to mark the end of the test table. The device initial entry switch is reset in this module. A valid section entry can be up to three alphabetics (ZZZ). When a range is indicated by two values separated by a dash, the second value must be greater than the first. If any of the preceding rules are violated, an error message is issued and control is passed to IJZADO52. Otherwise, exit is to Option Decode (IJZADO33).

IJZADO33: Option Decode Chart AN

OBJECTIVE: Decode the data in the option field, sets option switches accordingly, and/or formats message E107I.

ENTRY POINT: Label EPZADO33.

EXITS:

- Normal.
  1. IJZADO00, or the on line test in progress. The program checks to determine if this is a communication interval during the execution of an OLT and that neither a device change nor test change is desired. If these conditions are met, control is given to the interrupted OLT. Otherwise, exit is to the scheduler.
  2. IJZADO52 after printing E107I and E327I.

- Error. When an invalid entry is found, the appropriate message is issued. Control is given to IJZADO52.

EXTERNAL ROUTINE: CECOM (IJZADO37).

INPUT: Reply to message

01E105D ENTER DEV/TEST/OPT/ or, control statement if card input is used.

OUTPUT:

1. Option bits in SCT.
2. Messages: E107I, E115I, E161I, E176I, E327I.

METHOD: This module is entered to either format the E107I message or decode the contents of the option field at test definition time. If entered to format the E107I message, no option switches are altered. If entered with option field entry, the module checks the information entered in the option field for:

1. Slash. Indicates no options are being altered. In the initial test run, the default options are supplied. Thereafter, unspecified options are not modified.
2. Alphabetic characters represent the options:

TL (value)	NTL	Test loop; defaults to 10, maximum value is 32,767.
EL (value)	NEL	Error loop; defaults to value specified in OLT.
EP	NEP	Error print
CP	NCP	Control print
PP (x)	NPP	(where x=level 0,1,2 or 3) Parallel print
FE	NFE	First error communication
MI	NMI	Manual intervention
PR	NPR	Print
RE	NRE	Remote
TR	NTR	Trace
EXT= Followed by up to 54 characters, which are placed in an area adjacent to the PASSON area of the CLTEP nucleus. EXT= must be entered last in option field.		
Commas	Separating the options.	

This module compares the last two characters of each option in the option field with an entry in a table of all options. When a match is found, a corresponding entry is selected from one of two tables of instructions depending on whether or not the option was preceeded by the character "N". The entry in this second table is now the target of an EXECUTE instruction. The table entries executed are CI, NI or BAL type instructions. The first two types of instruction, when selected, perform the function of setting or resetting the option flags. A return is then made to the instruction following the EXECUTE instruction. The third type instruction (BAI) allows linking to subroutines which perform further decoding of value fields (for TL, EL and PP). When the processing of the value field is complete, the next entry in the option field is selected. The EXT= entry is the only option which does not follow the above rule. The field between the EXT= and the last / will be placed in the EXT buffer following a one byte count of the number of EXT characters entered. All trailing unused bytes are zeroed. If EXT=/ is entered the entire buffer is zeroed. This allows the operator to clear the EXT field.

Notes: The test and option initial entry switches are reset in this module. If a slash occurs in the option field, the default values are used on the initial entry. MI and RE are mutually exclusive options and, if selected together, as with all other errors, a message is printed and control is passed to the Communications Interval module (IJZAD052).

IJZAD000: Scheduler Chart AP

OBJECTIVE: Schedule tests against devices using a device table and test table. Also, to loop through these tables if the test loop option has been specified.

ENTRY POINT: EPZAD000 (byte 2 of parameter list, pointed to by GPR1, will determine what routine will be executed).

EXIT, NORMAL: The OLT entry point
Communication interval (IJZAD052)
REI Initializer (IJZADC77)
$$BTOLTP
READD (IJZAD024)
Data protect (IJZAD056)
EQUATE (IJZAD049)

EXIT, ERROR: None.

EXTERNAL ROUTINES: Data protect (IJZAD056)
READD (IJZAD024)
CONVERT (IJZAD041)
CECOM (IJZAD037)
Communication interval (IJZAD052)
REI (IJZAD077)
$$BTOLTP

INPUT: GPR0 contains the return code.
GPR1 contains parameter list address.
GPR2 contains base address of common
Parameter list contains:
Byte 0 -- Transient manager flags
Byte 1 -- Action value (routine to be executed)
Value 0 - A00CLEAR - reset all pointers and begin scheduling.
Value 1 - A00TERM - terminate active CIT, continue scheduling.
Value 2 - A00DTERM - normal return from OLT.
Value 3 - A00IOERR - CECOM called for reply by CLTEP with no console. Cancel active OLT or continue scheduling next device if no OLT is active.
Value 4 - A00OCNTR - return from old OLT because CLT could not test primary device.
Value 5 - A00DPRET - normal return from data protection.
Value 6 - A00RDRET - normal return from READD to flush cards
Byte 2 and 3 -- Module ID

OUTPUT: Messages E117I, E127I, E158I, E198I, E201I, E227I, E231I, E238I, E239I, E501I.

METHOD: The scheduling is performed by a triple nested loop. The outer loop is the 'test loop' option counts, the middle loop is the device loop, and the inner loop is the test loop. The outer loop starts by clearing flags that may have been set, such as the 'Final' for a test, and it sets up the family name of the tests to be run. The middle loop sets up the SCT for the device that is being scheduled for test. If the 'Not Primary' bit is off, the device is considered able to be selected. A call to data protection is the final operation to get a device ready for use by an CLT. If the device passes data protection, it is marked as primary and the inner loop is entered. If the final bit is on for that section or if the section does not exist, the test is bypassed. It is also bypassed if the root module will not fit, or if the SCT level is higher than that which is supported, or if the test cannot run on the current primary device. If none of these conditions exist, message E158I is printed and the CLT is entered. Upon termination of the CLT, the remainder of any READD data set active is flushed and OLT CCBs are purged. If all selected routines were not run, message E198I is issued. If REI is initializing, the scheduler exits to module IJZADC77. If CLTEP is in cleanup, the scheduler returns to $$ETOLTP. All tests entered and all devices are stepped through in this manner.

If Equate is requested while an OLT is active the CLT is terminated and the Equate module (IJZAD049) is called.

IJZADO56: Data Protection (General) Chart AS

OBJECTIVE: Determine device type, check ready status, and call appropriate specific module for further data protection.

ENTRY POINT: EPZADO56.

EXITS:

1. Data protection module for tape (IJZADO03).
2. Data protection module for DASD other than 2321 (IJZADO07).
3. Data protection module for 2321 (IJZADO02).
4. Caller if unit record or TP device (IJZADO21 or IJZADO00).

EXTERNAL ROUTINES:

1. Convert module (IJZADO41) to convert binary data to EBCDIC before printing.
2. CECOM (IJZADO37) for communications.

INPUT: R8 points to entry in device table for device to be data protected.

OUTPUT: Messages: E130I, E137I, E138I, E139D, 04E113D, 04E139D, and 04E199D.

METHOD: If the device to be tested is a System/7, message 04E113D is issued. If the reply is "yes", the caller is returned with the data protection flag on; otherwise the caller is returned with the data protection flag off. If the device to be tested is shared (assigned to both background and foreground), a bit in the device table is set to indicate that testing can only proceed in file protect mode. If the device belongs exclusively to the background, full testing can be performed, provided that it fulfills all other data protection requirements.

The next check is for ready status. This is the only data protection task required for unit record or TP devices, because input/output for these devices is external and pertains only to a particular test section with no exposure to destruction of permanent data. If the device being tested is a tape, IJZADO03 is entered. If 2321, IJZADO02 is entered. If the device is a DASD and not a 2321, IJZADO07 is entered.

The data protection modules communicate with the Scheduler and the GRAB module by setting two bits in the device table.

1. Data protection bit:
   - OFF indicates testing of this device must be bypassed.
   - ON indicates the device meets data protection requirements.
2. File protect bit:
   - OFF. Full testing can be done on this device if data protection bit is ON.
   - ON. Test can only be run in file protect mode.

These bits are reset by the restore labels routine (IJZADO57).

IJZADO02: Data Protection, IBM 2321 Chart AU

OBJECTIVE: Protection of customer data while allowing effective testing of the IBM 2321.

ENTRY POINT: EPZADO02.

EXIT: Return to caller via R14.

EXTERNAL ROUTINES:

1. CECOM (IJZADO37) for two-way communications, and messages.
2. CONVERT (IJZADO41) to convert hex data to EBCDIC before printing.

INPUT: R8 is a pointer to entry in the device entry table.

OUTPUT: Messages: E126I, E130I, E131I, E132I, E137I, E139D, E199D.

METHOD: If the current test section is section "T," return to the caller with testing allowed in file protect mode (FPM), otherwise, a sense command is issued first to bin 0, subcell 18, then to bin 0, subcell 19. The CE bit should turn ON when subcell 18 is sensed to indicate that a CE cell is mounted. The bit should reset when the sense to subcell 19 is made. If both sense commands are successful, caller is reentered, and testing is allowed in file protect mode

(FPM) for sections S, U, or V. For all other sections, testing continues in non-file protect mode.

Any failure in the sense commands causes the printing of a message indicating the failure, followed by the sense and CSW information. A message is then issued giving the operator the option either to bypass the test or to mount another cell and retry the data protection.

IJZADO03: Data Protection, Tapes, Chart AV

OBJECTIVE: Protect customer data while allowing effective testing of tape devices.

ENTRY POINT: EPZADO03.

EXIT: Return to caller via R14.

EXTERNAL ROUTINES:

1. CECOM (IJZADO37) for two-way communications, and messages.
2. Convert (IJZADO41) to convert binary data to EBCDIC before printing.

INPUT: R8 is a pointer to device entry.

OUTPUT: Messages: E118I, E119I, E122I, E137I, E139D, E199D.

METHOD: Full testing is allowed on tape devices if a standard labeled tape is mounted, volume security protection is not specified, and the expiration date has expired. The standard label can be either EBCDIC or ASCII. Volume security is not specified if byte 11 of VOL1 label is not for an:

- EBCDIC label of hex '40', 'F0', or '00' and for an
- ASCII label of hex '20', '30', or '00'.

If the tape label is unreadable, the following messages print:

E118I UNREADABLE TAPE LABEL-XXXX

E137I CSW XXYYYYYYYYYYYYYY SNS XX...XX

04E139D REPLY B TO BYPASS,R TO RETRY,P TO PROCEED (MAY DESTROY DATA)

A bypass reply causes a return to the calling module. A retry reply causes the data protection checks (except the ready check) to repeat. A proceed reply allows the tape to be used for testing.

If the security bit in the label indicates the volume is security protected, the following messages are issued:

E122I VOL ON XXXX SECURITY PROTECTED

04E139D REPLY B TO BYPASS,R TO RETRY

The bypass reply causes a return to the calling module. The retry reply causes the data protection checks to repeat.

If the expiration date has not expired, the following messages are issued:

E122I VOL ON XXXX UNEXPIRED DATE

04E139D REPLY B TO BYPASS,R TO RETRY,P TO PROCEED (MAY DESTROY DATA)

If all the data protection measures are met or the proceed reply was given in response to the 04E139D message, the volume serial number is saved and control is returned to the caller. If a standard label was on the tape, a standard label with the previous volume serial is written by IJZADC57 at test completion.

IJZADC07: Data Protection, DASD (other than 2321) Chart AX

OBJECTIVE: Protect customer data while allowing effective testing of the DASD other than 2321.

ENTRY POINT: EPZADO07.

EXIT: Return to caller via R14.

EXTERNAL ROUTINES:

1. CECOM (IJZADO37) for two-way communications, and messages.
2. Convert (IJZADO41) to convert binary data to EBCDIC for printing.

INPUT: R8 points to device entry.

OUTPUT: Messages: E122I, E124I, E125I, E137I, E139D, E199D.

METHOD: If the device is a non-shared 3330 with the CE bit on in the home address, the caller is returned to with testing allowed in non-file protect mode. If the device is a shared 3330 with the CE bit on in the home address, the caller is returned to with testing allowed in file protect mode. For non-shared 2314 and 2311 drives, cylinder 6, track 0, record 0 is read and checked for a F0FE. This indicates a CE volume and allows testing to proceed in non-file protect mode. When F0FE is not found or the pack is not a 2311 or 2314, an attempt is made to read the volume label and home address. (If unsuccessful, there will be up to ten retries.) A check is made for a standard label (Volume 1). If a volume has a standard label and the volume security indicator is not X'F0', X'00', or X'40' the volume is considered secure; CIT accessing will not be allowed; and message E122I is issued. If the pack has a volume serial number of CEPACK and is neither security protected nor shared, testing is allowed to proceed in non-file protect mode. If the pack has a volume serial number of CEPACK and is not security protected but is shared, testing proceeds in file protect mode. If a pack has a standard label, but does not have a volume serial number of CEPACK and is not security protected, message E124I is issued and the file protect mode bit in the device table is set indicating that testing can proceed in file protect mode. If a volume does not have a standard label, message E125I is issued. Whenever messages E122I, E125I, and/or E124I are issued, message E139D follows giving the operator the following three options:

1. BYPASS. Bypasses the testing of this device and returns to caller.
2. RETRY. Reissues the read command.
3. PROCEED. Returns to caller. Testing is restricted to File Protect Mode (FPM).

If the label was unreadable, a message prints giving the sense and CSW information. This is followed by the bypass, retry, proceed message.

The OLTEP primary modules, the OLT, or other support modules can call the support modules. These support modules are loaded into the transient area by the transient manager, and entry is made into the module or the entry point is passed to the caller as requested. They perform functions such as printing messages, converting data from hexadecimal to EBCDIC, etc. A detailed description of each of these modules appears in the following sections.

IJZADO10: REI Nucleus Chart BA

OBJECTIVE: Control REI input/output.

ENTRY POINT: EPZADO10 -- to relocate module.
$REIREAD -- to read a message.
$REIWRIT -- to write a message.

EXIT: Return to caller.

INPUT: Messages from the remote location.

OUTPUT: CECOM and DPRINT messages to the remote location.
OLTEP messages E167I and E241I.

METHOD: This module is comprised of five parts:

1. This part is used only to relocate A and V type addcons. Because OLTEP can load the module at any address, the value for the constants cannot be defined until the module is loaded. An address is returned to the caller that serves as a base register when other modules require functions of the REI nucleus.

2. This part of the REI nucleus is the Interrupt Handler. Its address is put into the CCB, and DOS passes control to it when an interrupt is encountered. It determines from the CSW and sense information which CCW string is to be executed next. This information is then passed to the supervisor, or the CCB is posted. If CSW status is not channel end and device end, ERP's are called. Return is to the caller.

3. (Input) This part of the REI nucleus retrieves messages from the remote location that are in the input buffer. The message is translated to uppercase EBCDIC and given to the caller.

4. (Output) This part controls messages to the remote location. Because the input messages are buffered and are not handled immediately, the remote location must be informed if all the messages were not accepted. Control returns to the caller.

5. ERP's (Error Recovery Procedures) - Entered from the interrupt handler. Under error conditions, ERP's decide what the next operation is that is to be performed. Return is to the interrupt handler.

IJZADO11: TP Line Connection Chart AY

OBJECTIVE: Performs line connection function for a remote teleprocessing test.

ENTRY POINT: EPZADO11.

EXIT: Return to caller.

EXTERNAL ROUTINES: CECOM (IJZADO37).

INPUT: R3 points to EXIO parameter list.
R8 points to device table.

OUTPUT:

1. Return codes:

   00 = line connection successful.
   14 = line connection not performed.

2. Messages: E400I through E410I, and E412I through E413E.

METHOD: Line connection is attempted by executing a channel program which is dynamically built based on information contained in the CDS. If the line connection is successful, a return code of X'00' is sent to EXIO and no error messages are issued. If there is insufficient or inaccurate information in the CDS, line connection cannot be performed. In this case, appropriate diagnostic messages are issued and an error return code of X'14' is returned to the EXIO module. If an operator call is

required, an appropriate message is issued to the operator. The message includes the required telephone number if the number was available in the CDS. Six minutes are allowed for the call. If the operator does not complete the call in the alloted time, the line connection is not successful and exit is to EXIO with return code X'14' after issuing appropriate messages. An EXCP is issued to execute the CCW chain. System ERP's are bypassed and appropriate error recovery procedures take place in the module. Error conditions or time out are indicated by a diagnostic message. In the case of time out, the I/O request is purged and an error message code (X'14') is returned to the EXIO module. This indicates that line connection was not performed. If line connection is successful, the bit in the CDS requesting line connection is reset and a return code of X'00' is passed back to EXIO. Also, any devices on the same line address which had previously been connected are flagged as disabled.

IJZADO16: GETCONFG Chart BE

OBJECTIVE: Locate and load the desired Configuration Data Set (CDS) into the location specified.

ENTRY POINT: EPZADO16.

EXIT: Return to Caller

EXTERNAL ROUTINES:

- CONVERT (IJZADO41).

INPUT:

1. Buffer address, buffer size and address of CDS.

2. Local file (Phases IJZACOOO-IJZAC999).

3. CE/customer (remote) file (Phases IJZADOOO-IJZAD999).

4. New format local file (Phases IJZAEOOO-IJZAE999).

5. New format CE/Customer (remote) file (Phases IJZAFOOO-IJZF999).

OUTPUT: Return codes:

X'00' = Successful completion.
X'04' = Function not available.
X'08' = Buffer full or entry size greater than buffer size.
X'0C' = No entry found.

METHOD: The GETCONFG module obtains the desired CDS information specified by the caller. The first action taken by this module is to check the macro level. If correct, processing continues. Otherwise, a code of X'04' is returned to the caller. The module then determines if any CDS's exist in this system. If they do, processing continues. Otherwise, a code of X'0C' is returned to the caller. The module then determines whether the new format CDS (CDS length is variable) or the old format CDS (256 bytes in length) is to be processed. This is done by checking a bit in the common area ($NEWCDS). If the caller has not specified the address of a CDS, a default to primary device is assumed. This is done by testing the CDS ADDR parameter. If it is a zero, the default to the primary device is desired. If not zero, the caller has specified a desired CDS.

In the case in which the caller has specified a CDS in the CDS ADDR, a test is made to determine which type of CDS is desired. There are two general CDS's -- a local CDS family and a remote or Customer/CE defined CDS family. Each of these two families can be either in the new format (each CDS is condensed to its actual length) or the old format (each CDS is 256 bytes in length. If a local CDS is specified (Byte 9, Bit 6 of that portion of the CDS contained in the device entry table is off), the local CDS phases (IJZAC000-IJZAC999) are searched. If a remote or Customer/CE CDS is specified (Byte 9, Bits 4 and 6 are on), the remote file CDS phases (IJZAD000-IJZAD999) are searched. If the new format is indicated, the search is the same as just stated except that local phases (IJZAE000-IJZAE999) and remote phases (IJZAF000-IJZAF999) are used.

In the case in which the caller has not specified a CDS, the default is to obtain CDS information for the primary device. The primary device can be either a local CDS type or a remote or Customer/CE CDS type.

The GETCONFG module places the name of the phase to be loaded into a location (ALTPHASE) within the common area. Then starting with the first, the phases of the CDS file are loaded into a buffer within this module. The following sequence of testing is performed:

A check is made to determine if the desired CDS is within this phase. If not, a check is made for the keyword "NEXT" or "LAST". If the keyword "NEXT" is present, the next phase name is placed in the common area (ALTPHASE) and that phase of the CDSs will be loaded and the sequence repeated. If "LAST" is reached without finding the desired CDS, a return code of '0C' is passed to the caller.

The equate active bit ($EQTACT) in the common area is tested. If it is on, the EQUATE TABLE is used while searching the CDS entries before the normal search. If one is found, the unit address in the CDS is changed to allow the CDS to appear to belong to the actual device which had been equated (see Note).

If the desired CDS is found, the buffer is filled with CDS data. If the buffer was not large enough (requiring truncation of the CDS data passed) a return code of '14' is passed to the caller.

If the buffer was large enough, a return code of '00' is passed to the caller.

Note: The EQUATE FUNCTION is explained under IJZADO49.

IJZADO21: GRAB Chart BF

OBJECTIVE: Perform a search of the device table for the device to be used as a secondary device by the on-line test section. Data protects the device and returns its address to the caller.

ENTRY POINT: Label EPZADO21.

EXITS: Returns to the calling module.

EXTERNAL ROUTINES: Data Prctection (IJZADO56).

INPUT: Parameter list:

OUTPUT: Return codes:

X'00' = Successful grab.
X'04' = Facility not available.
X'08' = Device not found to satisfy GRAB requirements.
X'0C' = Only one device in entry list.
X'10' = Device descriptors not available.
X'14' = CDS indicater predefined information available, but was not passed.

METHOD: The grab module searches the device table for a secondary device starting at the entry following the last assigned secondary device, or the entry following the primary device (if no secondary device has been assigned). It scans to the end of the table, restarts at the beginning until a match or the starting point is found.

If there are no entries in the device table or if the GRAB macro is not compatible with the module, a code of X'04' is loaded into GPR15, the caller's registers are restored, and control returns to the caller. If there is only one entry in the device table, a code of X'0C' is loaded into GPR15, and control returns to the caller. If SOSP is active, grabbing of previously 'grabbed' devices is allowed. Next, the device is checked against the requirements specified by the caller. If it doesn't match, then the search continues. When a device is found that meets all the specifications (and if the device may be grabbed) it calls data protection (IJZADO56) if the device has not been data protected and sets the grab bit in the device table, the pointer to the next device entry available for grabbing is updated and device descriptors (if available) are moved into the caller's buffer along with the device address. A return code of X'00' is set in GPR15, and control returns to the caller.

If data protection does not allow the device to be grabbed, then the next entry in the table is checked, etc until the whole table is searched.

If the whole table is searched without finding an appropriate device, a return code of X'08' is loaded in GPR15 and control passes to the caller using standard linkage.

IJZADO22: ALLOCAT Chart BH

OBJECTIVE: Check to determine if write testing is allowed on a direct access device.

ENTRY POINT: EPZADO22.

EXIT: Return to caller.

EXTERNAL ROUTINES:

1. CECOM (IJZADO37).
2. CONVERT (IJZADO41).

INPUT: Parameter list

OUTPUT:

1. Return Codes:
   X'00' = Successful Allocation.
   X'04' = Function not available or device not a DASD.
   X'08' = Device not in device table, or not primary or grabbed.
   X'10' = Space not allocated.
2. Messages: 04E120D, 04E199D, and E145D.

METHOD: The local-print-only bit is set so that the remote location does not get any of the messages. The program then checks to determine if the macro level is version 2 or later. If not, a return code of X'04' is put in register 15, and control returns to the caller.

The program checks the CDS address to determine whether to use the device address in the SCT or the CDS. A search is made (by device address) of the device table to locate the specified device entry. If not in device table, a code of X'08' is returned to the caller. If it is in the table, a check is made to determine if the device is a DASD. If not, a code of X'04' is returned to the caller unless there is no CDS for this device, and SCSP is the active test, in which case allocation proceeds. If scratch was specified, then the ALOCAT bit in the device table is reset, and a return is made to the caller with a X'00' in GPR15. If device is not scratched, or grabbed and not primary, an X'08' is returned.

If the FPM bit is OFF and if data protection has already been performed, the ALOCAT bit is turned on, and X'00' is returned to the caller in GPR15. Otherwise, the operator is asked if the data on the volume may be destroyed. If it may, the FPM bit is turned off, the ALOCAT bit is turned on, the local-print-only bit is reset, and control returns to the caller with an X'00' in GPR15. If data may not be destroyed or if the device is shared, a X'10' is returned to the caller in GPR15.

IJZADC24: READD Chart BJ

OBJECTIVE: Provide for the reading of a record from an external data set, or flush the READD data set if called, when the OLT is not active.

ENTRY POINT: EPZADO24.

EXIT: Return to caller.

EXTERNAL ROUTINES:

1. CECOM (IJZADO37).
2. CONVERT (IJZADO41).

INPUT: Address of the device to be accessed.

OUTPUT:

1. Data that is read successfully.
2. Messages 04E197D, E236I, E237I and 04E199D.
3. Return codes:

   X'00' = Record read satisfactorily.
   X'04' = Facility not available.
   X'08' = Permanent error occurred while reading record.
   X'0C' = End of data set.
   X'10' = No record found.

METHOD: The local-print-only bit is set so that the remote location does not get any of the messages. If an OLT is not active, the current data set is flushed. Otherwise, the macro level is then checked to determine if it is version 2 or a later version. If it is not, a return code of X'04' is put in GPR 15, and control returns to the caller. The program then checks to determine whether card or tape is being used for input data. If the input is on card, OLTEP checks for the standard label (first two cards). If the data set resides on tape, it checks for a standard label. If no standard label is recognized, X'04' is put into register 15, and control returns to the unit test.

If this is the first request for this data set, message 04E197D is issued requesting a tape to be mounted on a free device. A 'NO' reply causes a return code of X'04' to be returned. If a tape is mounted, the device is checked to insure it is not a test device, and that it has a logical unit assignment. If the device is a test device, message E236I is issued. If the device does not have a logical unit assignment, message E237I is issued.

Next, the program checks the RESET and BACKSPACE parameters. If neither is active, the program issues an EXCP. If there are no errors, the data record reads from tape or card and goes into the input buffer area provided by the unit test.

If an error is encountered while reading, control returns to the unit text with X'08' in register 15.

If the RESET parameter is active and if tape is the data input device, the tape is positioned to the beginning of the data set and control returns to the unit test. If the device is not tape, control returns to the unit test with X'04' in register 15.

If the BACKSPACE is active, the program checks to determine if the device is tape or card. If card, control returns to the unit test with X'04' in register 15. If tape is the data input device, the following checks are made:

- Absence of a backspace integer results in the default of one record to be backspaced.
- When the integer is from 1 to 255, the tape backspaces the number of records indicated by the integer.

At end of file, the program checks to determine if the data set is on tape. If it is, it positions the tape to the beginning of the data set, the local-print-only bit is reset, and control returns to the unit test with X'0C' in register 15. If the data set was not on tape, the local-print-only bit is reset, and control returns to the unit test with X'10' in register 15.

IJZADO26: LOGSCAN Chart BI

OBJECTIVE: Search an error recording data set history tape or DOS SYSREC file for the next sequential recording of the specified record, class, or device type.

ENTRY POINT: EPZADO26.

EXIT: Return to caller.

EXTERNAL ROUTINES:

1. CONVERT (IJZADO41).
2. CECOM (IJZADO37).

INPUT: The parameter list passed by the LOGSCAN macro through register 1 is:

1. $LOGIEVL. Macro level.
2. $LOGSINA. The starting address into read, or the register containing the address of the area into which the records are to be read.
3. $LOGREC. Size of $LOGSINA.
4. $LOGSCLS. Device class (optional).
5. $LOGSTYP. Device type (optional).
6. $LOGDUAD. Device address.
7. One byte of flags.

OUTPUT:

1. Return codes:
   X'00' = Successful read.
   X'04' = Logscan facility or data set not available.
   X'08' = Read error.
   X'0C' = End of data set without encountering specified record.
   X'10' = No record found due to empty data set or record type not supported.
2. Messages: 04E199D, 04E324D, 04E323D, E236I, E237I, E306I.

METHOD: This module provides the facility for OITs to obtain the output from an active (DOS SYSREC file) or non-active (DOS or OS History tapes) error recording data set.

This module determines which data set is to be accessed via the reply(ies) to message(s) E323D and/or E324D. This module then sets up identifiers to be used when this module is re-entered.

If the data set chosen is the DOS SYSREC file (System Recorder file), the header record is read and the extents of the file are saved in CLTEP common area.

If the data set media is tape, the device address is tested for a LUB (Logical Unit Block) assignment. If a LUB is present, then a test is made to insure that the device was not a test device. If one of these tests failed, message E237I or E236I respectively would be given followed by message E324D.

After the initialization process is complete, the first record of the EREP data set is read into the OLT buffer. This record is tested for the specified record type and/or device class and/or unit type and/or device address. If the record fulfilled the request, LOGSCAN will place the record in callers buffer and return to the OLI with the appropriate return code. If the test fails, the next record is read and the pointers of the data set are updated.

For the initial read, the first record received is always at the beginning of the data set. Upon re-entry the subsequent records are read, or if reset option is specified, the data set is positioned back to the beginning.

IJZADO28: PLINK Chart BM

OBJECTIVE: Load and/or delete modules at the request of the OLT section.

ENTRY POINT: EPZADO28.

EXIT: Return to caller (OLT).

EXTERNAL ROUTINE: None.

INPUT: Parameter lists pointed to by R1 that contain pointers to the names of the modules to load and/or delete.

OUTPUT:

1. List of entry points for modules loaded.
2. Return codes:
   X'00' = Successful.
   X'04' = Facility not available.
   X'08' = Error encountered.
   X'0C' = No module found
   X'10' = No space in main storage.
3. Message E253I

METHOD: The caller's macro expansion is checked for the correct level (2). If the level is wrong, a return code of X'04' is set into register 15, and control returns to the user. If the level is correct, the caller's request is examined. A request for a delete causes a return code of X'00' to be set and control to pass back to the calling OLT.

If a load is requested, the program tests to determine if the number of modules to be loaded is zero. If so, the return code is set to X'08', and control returns to the calling OLT section. A request to load a module that is too large for the available storage causes a return code of X'10' to be set before returning. A request to load a module that does not exist causes a return code of X'0C' to be set before returning and message E253I to be printed.

Before loading a module, a check is made to see if plinking into the morecore area is desired. If plinking into the morecore area is requested by the OLT, a search is made to see if the module is already in the morecore area. If the module is already there, it is not reloaded; it's entry point is returned to the caller. If the module is not in the morecore area and space is available, it is loaded into the morecore area. If space is not available or plinking into the morecore area is not requested by the OLT, the original overlay structure established by the OLT is used.

When the requested module is loaded, its entry point is placed into the caller's entry point list, and the return code set to X'00'. Control then returns to the calling CLT section. The CLT section is responsible for making sure it doesn't overlay the path back to itself.

IJZADC35: EXIC Chart EN

OBJECTIVES: Converts the test section's request for an I/O operation into DOS format. If the device is a 2321 or file protect mode (FPM), the CCW string is searched for data protection violations (writes, TICs outside the chain, etc.) Line connection for TP is performed if required.

ENTRY POINT: Label EPZADO35.

EXIT: Return to caller via GPR14.

EXTERNAL ROUTINE: TP Line Connection (IJZADC11).

INPUT: Parameter list pointed to by R1. (Parameter List): TECB address CCW address and count, CDS address (optional), Flag Byte (contains indicators to show if ATTNIN=YES, BUSY=YES, and/or SENSE=NO are specified).

OUTPUT: Return codes:
   X'00' = EXCP issued.
   X'04' = Facility not available.
   X'08' = Device not available or TECB address missing; or device not primary; or not grabbed; or second CCB not available.
   X'0C' = DP error in CCW chain.
   X'10' = Processed all requests except SENSE=NO.
   X'14' = Line connection requested but not successful.

METHOD: The program checks the macro level to determine if it is 2 or 3. If not, the caller receives control with a return code of X'04'.

If CDSADR is specified, the device address is picked up from the caller's CDS. If not, it is picked up from the SCT.

The device table is then searched by unit address or symbolic name until the right device entry is found or the end of the table is reached. If the device is not found a code of X'08' is returned to the caller.

If the correct device is located in the device table and, if it is already active or not grabbed or primary, a code of X'08' is returned to the caller. A LUB pointer to the PUB will already be set up by the Device Decode. This establishes a programmer-logical-unit name to be specified in the CCB (Command Control Block). If the device entry is flagged as active and a WAITIO has not been issued, a code of X'08' is returned to the caller. If the device is active and a WAITIO has been issued, a purge is required. SVC 25 is issued and the purge bit is reset. Then a check is made to determine if CCB1 or CCB2 is available. If not, a code of X'08' is returned to the caller. If so, a pointer is set to the available CCB.

The first six bytes of the CCB are cleared. Further checks are made to determine if line connection is required. If so, the line connection module is called. If line connection is unsuccessful, a code of X'14' is passed back to the caller.

Next, the program checks the file-protect-mode bit in the device table. If it is on, or if the device is a 2321, the CCW chain is scanned for data protection violations. If any are found, a code of X'0C' is returned to the caller.

Next the CCB is built. The CCW address and LUB assignment are moved into the CCB. If ATTNIN=YES is specified, a bit is set in the device table. The active bit in the device table and a bit indicating the CCB in use are set. Another bit in common is set indicating that the CCB is in use. The CCW chain is then executed via the EXCP macro. Before returning to the caller a test is made to determine if SENSE=NO was specified. If it was, the return code is set to X'10'. Otherwise it is set to X'00'.

IJZADO36: WAITIO Chart BP

OBJECTIVES: Provide the facility for a test section to wait for any interrupt, device end, or completion of an I/O operation initiated through EXIO or to poll to determine if an interrupt has occurrd as a result of an active EXIO.

It also provides the facilities to purge an outstanding I/O request or to give up control for a specified minimum period of time.

ENTRY POINT: Label EPZADO36.

EXIT: Return to caller.

EXTERNAL ROUTINES: None.

INPUT: Parameter list pointed to by R1.

OUTPUT:
Return codes:

X'00' = Event complete (WAIT=YES, POLL=YES)
DE occurred (WAIT=DE), Purge done (PURGE=YES).
X'04' = Function not available.
X'08' = WAIT timed out or polled event has not occurred.
X'10' = Polled event occurred (POLL=YES)
Interrupt occurred (WAIT=ANY).
X'0C' = Program error (device not in table, not active, or TECB address is not equal to EXIO TECB address).

METHOD: The functions which the caller may request (via the parameter list) includes:

1. WAIT=YES -- a request of this function causes a check for event complete. If it has not yet occurred, a timing loop is set up for the number of seconds specified by the caller or a default of 30 seconds. Within the loop an interrogation is made to determine if the event is complete. Return codes are set as defined in OUTPUT above.

2. POLL=YES -- this causes a test to be performed to determine if an interrupt has occurred. Immediate return to the CIT is effected with a return code issued as specified in OUTPUT above.

3. WAIT=DE -- this function is the same as WAIT=YES except that control is returned to the caller on the occurrence of DE.

4. WAIT=ANY -- this function is the same as WAIT=YES except that control is returned to the caller on the occurrence of any interrupt on the specified device.

5. PURGE=YES -- I/O device specified in the CDS is purged.

6. TIME=Integer(alone) -- control is returned to the CIT when the specified time has elapsed. If Timer is available, a SETIME is used. Otherwise, timing is done with a GETIME loop.

Note: For items 1, 3, and 4 a SETIME and WAIT are used if the timer is assigned to the background partition. The WAIT will be posted complete by the I/O and External interrupt handlers when an event is posted in the TECB. If the timer is not assigned to the background, a GETIME loop is used.

IJZADO37: CECOM Chart BQ

OBJECTIVE: Provide communications between the unit test section (OLT) or OLTEP and the operator.

ENTRY POINT: Label EPZADO37.

EXIT: Normal:
Return to caller.
To IJZADO00 via $DTRMLNK (with action value=3) if entry is for an OLTEP request and SYSLOG is not a console.
REI interface.

EXTERNAL ROUTINES: IJZADO10.

INPUT: A pointer to a parameter list is supplied, in GPR1, by the caller. The parameter list contains four byte addresses of:

1. Address of the out message and its byte count.
2. Address of the in message and its byte count.
3. Flags indicating one way or two way message.

OUTPUT:

1. Return codes:
   X'00' = Successful.
   X'04' = Facility not available.
   X'08' = Error condition.

2. Messages: E100I, 04E101D, 01E175D, 04E175D.

3. All OLTEP CECOM messages.

METHOD: For two-way communications, an outgoing message is moved from the caller's area to the operator communications buffer, and its byte count is placed in the output CCW. All messages will have trailing blanks suppressed and, if an OLT message, an identification is prefixed to the message. Unless the print flags indicate SYSLST only, messages will be output to both SYSLOG and SYSLST.

Note: If SYSLOG is not a console device, two-way messages originating from CLTEP will result in a return to the scheduler at $DTRMLNK (with action value=3), and OLT requests will cause a return code of 04.

An incoming message is read into the operator communications buffer and translated to uppercase. The input must be R 0v,' in columns 1 through 6, where v the routing code is either 1 or 4 (when it is a communications interval message) or 3 (allowed only if RETAIN is active). The data must be followed by a single quote and cannot be longer than the request. If any of these conditions are not met, message E175I (SYNTAX ERROR) is issued and a read command is issued to SYSLOG to allow the operator to correct the response. If the routing code is 03, a bit is turned on telling the communications interval module to ignore the data. The message and its byte count are placed in the areas specified by the caller.

For one-way communications, an EXCP is issued.

All outgoing and incoming messages are also issued to the SYSLST device.

With RETAIN/370 active, all messages to or from the SYSLOG device also print on the remote specialist's console. The remote specialist will not be allowed to answer certain two-way messages that give the operator the option of destroying data (for instance, Data Protection). A reply code of '03' is available for communication between the onsite CE and the remote specialist. This reply can be entered at any communications interval while RETAIN is active without affecting the testing procedure.

IJZADO39: DPRINT ROOT Chart CE

OBJECTIVE: This module handles DPRINT requests from an on-line test.

ENTRY POINT: The label EPZADO39.

EXIT: Normal-To caller.
Error-To IJZADO52, if first error or catastrophic error.

EXTERNAL ROUTINES:

1. IJZADC62 -- CCW, CC, CSW, and PSW printing.

2. IJZADC64 -- SENSE and DATA printing.

3. IJZADO70 -- printing OLT messages (header descriptions and comments).

4. IJZADO41 -- converting data.

5. IJZADO37 -- printing E157I and E129I.

INPUT: Parameter list pointed to by register 1. Its form is as follows:

Word 1 - Transient Manager flags.

Word 2 - Address of control word (See Note on list extension below).

Word 3 - Message line address.

Word 4 - TECB address.

Word 5 - CC address.

Word 6 - Pointer to CCW list.

Word 7 - Pointer to expected CSW1.

Word 8 - Pointer to received CSW1.

Word 9 - Pointer to expected CSW2.

Word 10 - Pointer to receive CSW2.

Word 11 - Pointer to expected SNS.

Word 12 - Pointer to received SNS.

Word 13 - Pointer to expected data.

Word 14 - Pointer to received data.

Word 15 - Pointer to written data.

Word 16 - Pointer to description lines.

NOTE: The parameter list extension is pointed to by the ADCON in the parameter list. Its break-down is as follows:

Word 1 - Control Word.	BITS	BYTE
Bit 0, 1, and 2 - Forms control	0-2	1
Bit 3 - Header required	3	1
Bit 4 - Spare	4	1
Bit 5 - Spare	5	1
Bit 6 - Error print required (Asterisk * on message)	6	1
Bit 7 - REFNUM (Reference number) required	7	1
Bit 8 - Overlap on I/O	0	2
Bit 9 - CCW/ICW error required (Asterisk * on message)	1	2
Bit 10 - CSW1 error (Asterisk * on message)	2	2
Bit 11 - CSW2 error (Asterisk * on message)	3	2
Bit 12 - Spare	4	2
Bit 13 - Spare	5	2
Bit 14 - Sense error (Asterisk * on message)	6	2
Bit 15 - Message print required	7	2
Bit 16 - Description print required	0	3
Bit 17 - CCW print required	1	3
Bit 18 - Expected CSW1 print required	2	3
Bit 19 - Received CSW1 print required	3	3
Bit 20 - Expected CSW2 print required	4	3
Bit 21 - Received CSW2 print required	5	3
Bit 22 - Expected SNS print required	6	3
Bit 23 - Received SNS print required	7	3
Bit 24 - Expected data print required	0	4
Bit 25 - Received data print required	1	4
Bit 26 - Written data print required	2	4
Bit 27 - CCW if 1; ICW if 0 on CCW messages	3	4
Bit 28 - Received data error (Asterisk * on message)	4	4
Bit 29 - Condition code print required	5	4
Bit 30 - Error condition	6	4
Bit 31 - PSW if 1; CSW if 0 on CSW messages	7	4
Byte 5 - Message line count		
Byte 6 - Offset to message byte count		
Byte 7 - Expected condition code		
Bytes 8 and 9 - Reference number		
Bytes 10 and 11 - Device address		
Byte 12 - Number of CCWs		
Byte 13 - Number of failing CCWs		
Byte 14 - Expected CSW field		
Byte 15 - Expected SNS byte count		
Byte 16 - Received SNS byte count		
Byte 17 - Description line count		
Bytes 18 and 19 - Expected data count		
Bytes 20 and 21 - Received data count		
Bytes 22 and 23 - Written data count		
Byte 24 - Description byte count		

NOTE: Fields that are not used are not checked.

OUTPUT: On-line test section header, description, comment messages, E157I, and E129I catastrophic error message.

METHOD: The DPRINT function is subdivided as follows:

- Determine if printing should be suppressed.

  If NPR and either EL or TL options are active, all DPRINTS are suppressed.

  If NEP option is active, all error DPRINTS except first error and catastrophic error DPRINTS are suppressed.

  If NFE option is active, first error message (E129I) is suppressed.

- Process the OLT request to print. Each request can be broken down into 7 unique catagories. They are:

  1. Header: a one line test description message formatted by IJZADO39.
  2. Description-Multi-line EBCDIC message formatted by IJZADO39.
  3. CCW/CC-string of channel command words or condition codes (expected, received) formatted by IJZADO62.
  4. CSW/PSW-status words (expected,received) formatted by IJZADO62.
  5. Sense-(expected,received) formatted by IJZADO64.
  6. Data-(expected,received,written) formatted by IJZADO64.
  7. Comments-Multi-line EBCDIC OIT message formatted by IJZADO39.

  Note: All output is printed via calls to IJZADO70.

- Issue first error and/or catastrophic error message (if required) and exit to the communication interval module (IJZADO52). If neither is required, return to OLT.

IJZADO40: $Mode Chart BT

OBJECTIVE: Determines if it is possible to place the foreground partitions in a quiescent state; and if it is, waits until the foregrounds are quiesced.

ENTRY POINT: Label EPZADO40.

EXIT:

1. Scheduler (IJZADO00) if called by OLT.
2. To caller if called by an OLTEP module.

EXTERNAL ROUTINES:

CECOM (IJZADO37).

INPUT: Parameter list pointed to by R1.

OUTPUT: Messages: 04E199D, 04E221D, E222I, E229I, E233I.

METHOD: Upon entry into this module, standard linkage conventions are followed and the local-print-only bit is set. If it is an OLT request message (E229I) is issued to inform the operator that the section was canceled, and an exit is made to the scheduler. If running on a non-MPS system. the quiesce mode bit is turned on and a return to the caller is executed.

On MPS systems, this module determines if teleprocessing (TP) is active. If it is, the foreground cannot be quiesced. A return to caller is executed with the QUIESCE bit OFF.

When TP is not active, the operator is asked (via message E221D) if the foreground can be quiesced. If it can, message E222I is issued requesting the operator to issue the commands necessary to stop the foregrounds. The program information blocks are then checked until it is ascertained that all foreground partitions are quiesced. Then, message E233I is issued and the caller is returned to with Quiesce bit ON. If the answer is NO, a return to caller is executed with the QUIESCE bit OFF.

IJZADO41: Convert Chart BU

OBJECTIVE: Convert all hex digits to their equivalent EBCDIC characters or the EBCDIC characters to their equivalent hex digits 0-F.

ENTRY POINT: Label EPZADO41.

EXIT: Return to caller.

INPUT: R1 points to parameter list which contains:

- Address: Of characters to be converted.
- Address: Of the converted characters.
- Count: Number of bytes to convert.
- Type: Hex or EBCDIC (H/E).

OUTPUT: Return codes:

X'00' = Successful completion.
X'04' = Macro level not complete.
X'08' = Invalid hex to EBCDIC conversion. (The address of the failing character is in GPR1.)

METHOD: To determine which conversion is to be made, the module tests bit 0 of the fourth word of the parameter list passed by register 1. If the bit is on, conversion is from hex to EBCDIC (H/E); otherwise, from EBCDIC to hex (E/H).

In the Hex to EBCDIC conversion, four bits are converted at a time. Every hex character has an EBCDIC conversion. (2 bytes of EBCDIC per 1 hex)

If the conversion is from E/H, the program checks to determine if the byte count is odd. If so, a switch is turned on. Each EBCDIC character is converted into a hex character of four bits. Thus, it takes two EBCDIC characters to form a byte of hex characters.

Therefore, if the switch is on (indicates an odd number of EBCDIC characters) after the last conversion, this module also converts a F0 into a hex 0 to complete the last byte.

After each conversion is completed, successful or not, the registers are restored, and an appropriate return code is sent back to the caller.

IJZADO42: MORECORE Chart BV

OBJECTIVE: Provide available core space to the calling routine.

ENTRY POINT: The label EPZADO42.

EXITS: Return to the on-line test.

INPUT: MAXSIZE, maximum number of the bytes required. MINSIZE (optional), minimum number bytes required.

OUTPUT: Return codes:

X'00' = Successful core allocation.
X'04' = MORECORE facility not available.
X'08' = Core requested not available.
R0 = Size of allocated core.
R1 = Address of allocated core.

METHOD: The first time morecore is requested, the More/Free core chain is initialized by creating a "free" area from the end of the On-Line Test Section to the end of the partition ($ENDPART). The starting address of this area is put in the CLTEP common area at label $FSTFREE. If there is no core available, a return code of X'08' is given.

The More/Free core chain is searched for the smallest free area that will meet the maximum requirement, or if none is found, the smallest area that will meet the minimum requirement, or if PTWN=YES was specified (macro level 3), the largest area between maximum and minimum request.

If these requirements cannot be met, a return code of X'08' is given. If the amount of core allocated to the OLT is less than the area from which it was given, a new free area is entered in the chain.

A double word at the beginning of each More/Free area is reserved for management. The first word indicates the size of the area. This is always a multiple of eight bytes and the low order three bits may be used for flags. Bit 7 indicates a free area, if on, or a morecore allocated area if off. Bit 6 indicates that a morecore area was used for a plink module. The second word is a pointer to the next More/Free core area. This pointer is zero for the last entry in the chain. The address returned to caller is the address following the double word; and the size passed is the size minus the double word, if filling a PTWN request. Otherwise, it is the requested maximum or minimum size.

The section control table is accessed to get the CLT partition size. The Section Preface is referenced for the OLT Section size (Root and PLINK modules).

IJZAD043: FREECORE Chart CA

OBJECTIVES: Free up an area of core previously obtained by a MORECORE request.

ENTRY POINT: Label EPZAD043 from the CIT via transient manager.

EXIT: Return to the on-line test via the transient manager.

INPUT: The address of the area to be freed.

OUTPUT: Three possible return codes are passed to the caller in register 15:

1. X'00' = Indicates that the area has been successfully freed.
2. X'04' = Indicates that the FREECORE facility is not available. Given when macro level is incorrect.
3. X'08' = Indicates that the address specified does not correspond to any returned on a MORECORE request

METHOD: The More/Free core chain is searched for an entry matching the requested area to be freed. When that area is found, it is combined with any contiguous free areas to form a new free area. The FREE flag in the size field is set and a return code of X'00' is given.

Note: See IJZAD042 - MORECORE for a description of the More/Free core chain.

IJZAD044: DIO Chart CB

OBJECTIVES: Issues the required privileged instruction (HIO, TIO, or TCH) to the primary or secondary device for a calling routine by utilizing a SVC 46 and loading $$BOLTEP to allow the I/O for other partitions to complete.

ENTRY POINT: Label EPZAD044, A44TRY.

EXIT: Return to caller.

EXTERNAL ROUTINES:

1. $$BOLTEP (IJZAOLTP).
2. SVC46.

INPUT:

1. EPZADC44 -- R1 points to a parameter list which contains: CIS address, operation requested, TECB address.
2. A44TRY --
   - GPR0--parameter list address.
   - GPR1--Address of A44TRY.
   - GPR7--Return address of supervisor.

OUTPUT: Return codes:

X'00' = CC status, sense posted.
X'04' =
- From Entry EPZADC44 -- Wrong macro level, device not in device entry table, or request cannot be honored because the channel is busy and the CCB has an appendage.
- From entry A44TRY -- Byte 0 or parameter list is set to:
  0 -- Successful
  4 -- Unsuccessful
  Unchanged -- Retry.

METHOD: For the DIO request to be performed, the specified device must be grabbed or primary.

If TCH is requested, SVC46 is issued to enter supervisor state. The privileged operation is then executed and the resulting condition code posted.

If a TIC or HIO is requested, $$BOLTEP (IJZACLTP) is loaded to allow the I/O for all other partitions to complete on the same channel as the unit being tested. If the channel is busy and the CCB has an appendage, a return code of 4 is issued and the request is not performed. When all I/O activity on the channel has completed, the TIC/HIC is performed by module IJZAOLTP issuing a SVC46 and entering this module at A44TRY.

If a condition code (CC1) occurs on a TIC or HIC, the CSW is posted. If unit check occurs in the status, a sense is issued and the sense data is posted in the sense field of the TECB. If no sense field is available, the sense is issued with the suppress data transfer bit on.

After condition code posting and status examination (when necessary), control is returned to the OLT with a return code of X'00'.

Note: See IJZACLTP ($$BOLTEP) for interface with this module.

IJZADO45: Trace/Return Code Handling Module - Chart CC

OBJECTIVES: This module will provide a trace of all calls for OLTEP function made by the OLT when the option TR is active. If a return code produced by an OLTEP function is masked OFF by the OLT, this module will be entered to print the E450I message and cause termination of the OLT.

ENTRY POINT: The label EPZADO45

EXIT: Normal:
To caller - Always transient manager (no return code).

Error:
To $DIRMLNK to terminate OLT (with action value = 1).

EXTERNAL ROUTINES:

1. IJZADO41 - convert data.
2. IJZADO37 - print message.

INPUT: R1 points to the parameter list. The parameter list is as follows:

Byte 0	Transient manager flags
Byte 1	Filler
Bytes 2-3	Characters 45 (ID of this module)
Bytes 4-7	R14 of OLT. (return address to OLT)
Bytes 8-11	R15 for OLT. (return code in low order byte)
Bytes 12-15	R0 for OLT. (either data or previous value)
Bytes 16-19	R1 for OLT. (either data or previous value)
Bytes 20-23	R2 of OLT (previous value of OLT register)
Bytes 24-25	Character ID of called function

OUTPUT: Message E450I [*]RTN XXX,ID XX,AT XXXXXX, RC XX

Note: This message is output to the SYSLST device only.

METHOD: When return code handling is in effect, a mask byte in the SCT is set by the OLT to indicate the return codes the OLT wishes to handle. If a return code is given that has been masked off, or if the TR option was selected, this module will receive control from the Transient Manager. The data pointed to by register 1 (parameter list defined above as input) will be decoded and put into message E450I. The return code is checked, and an asterisk put in the message if this code has been masked OFF. (If the OLT is already in CLEANUP, the return code is not checked). A masked OFF return code will cause the E450I message to be printed and the OLT to be terminated. If the code is acceptable, or the OLT is in CLEANUP, and the TR option is in effect, the E450I message will be printed. Return is to the caller which is always the Trasient Manager.

If the TR option is ON, this module will receive control after every OLTEP function requested by the OLT, but will only terminate the OLT if the accompanying return code handling forces it.

IJZADO47: Routine Chart CD

OBJECTIVE: Determine whether a given routine should be run by checking the appropriate bits in the section control table.

ENTRY POINT: Label EPZADO47.

EXIT: To the calling routine. To the Routine following the calling routine, if the calling routine cannot be run.

EXTERNAL ROUTINE: CDCOM (IJZADO37).

INPUT: R1 points to a parameter list which contains:

- Address of next routine.
- Address of RTNTERM (if TERM=YES)
- Reference number used in header of error printed.

OUTPUT: Message: E210I.

METHOD: After the program verifies the correct macro level, a check is made for the MASK=MI parameter. This indicates a need for manual intervention. If this parameter is included, ROUTINE interrogates the MI bit in the section control table to determine if the CE selected this option.

If MASK=MI is specified and the CE has not selected this option, the following message is printed:

E210I ROUTINE XXX BYPASSED - MANUAL INTV REQUIRED

and a branch is taken to the next routine. If the MI bit is on or if MASK=MI is not indicated, the routine mask in the section control table is checked to determine if the bit corresponding to the calling routine is on. If not, the routine cannot be run and a branch is taken to the next routine. If the routine bit is on, the active routine number in the section preface is updated, the error bit in the section control table is reset, the reference number (if any) is moved into the section preface, and the routine is allowed to run.

The TERM=YES parameter designates the last routine of the module. In cases where this routine is not allowed to run, ROUTINE branches to RTNTERM, the address of termination code in the last routine.

IJZADO49: EQUATE Chart CE

OBJECTIVE: To set up a table of actual unit addresses that will use the CDSs of similar devices having different unit addresses.

ENTRY POINT: EPZADO49 - from scheduler IJZADO00 if OLT was active.
- from communication interval (IJZADO52) if CIT was not active.

EXIT: Communication Interval (IJZADO52)

EXTERNAL ROUTINES: CECOM (IJZADO37)
CONVERT (IJZADO41)

INPUT: Reply from message
04E394D ENTER DEV EQUATES/END/CLR

OUTPUT: Messages 04E199D, 04E394D, E395I, E396D, E397I, E398I
$FLAG2
$EQTACT - set on when table has an entry
- set off when table is empty
$EQUTAB - contains device addresses that have been equated.

METHOD: 'EQU' response to message 01E105D allows entry into the EQUATE module directly if an OLT is not active. If an OLT is active, the communication interval (IJZADO52) will give control to the scheduler (IJZADO00) to terminate the active OIT. The scheduler will then give control to the EQUATE module.

The Equate Table ($EQUTAB) will be cleared to X'FF' when 'CLR' is the response to message 04E394D. Entries are made in the table when device equates are entered. There are three different acceptable fields:

Multiple equates (for example, 180, 182, 184 = 290)
The result will be that each actual unit address on the left of the equal sign will be put into the Equate Table along with the unit address on the right of the equal sign. The unit address on the right side indicates the CDS that will be used.

Inclusive equates (for example, 180 - 183 = 290)
The inclusive units on the left of the equal sign will be put into the Equate Table along with the unit address on the right of the equal sign. The unit address on the right side indicates the CDS that will be used.

Simple equates (for example, 180 = 290)
The result will be that the actual unit address on the left of the equal sign will be put into the Equate Table along with the unit address on the right of the equal sign. The right unit address indicates the CDS that will be used.

If the field has both a comma and a dash, that field will be sent to the operator indicating an error. When END is the response to message 04E394D, the contents of the table will be sent to the operator. If the table contents are correct, a response of YES to message 04E396D will allow the exit to the communication interval (IJZADO52) to resume CLTEP operation. If the table contents are not correct, a response of NO to message 04E396D will allow a return to message 04E394D to correct the table entries.

The only exit from this module is a response of YES to message 04E396D. If there are entries in the table, the $EQTACT bit will be on to allow GETCONFIG (IJZADC16) to use the table. This bit is reset when 'CLR' is requested and set on when 'END' is requested, provided there is at least one entry in the Equate Table.

IJZADO62: CCW/CSW MESSAGES Chart CG

OBJECTIVE: Format the CAW, CCW, CSW, CC and PSW for the OLT into a message and call the output module to print the data.

ENTRY POINT: EPZADO62.

EXIT: Normal-to caller.
Error-none.

EXTERNAL ROUTINES:

1. IJZADO41 - for converting data.
2. IJZADO70 - for printing the messages.

INPUT:

1. General register 8 points to the DPRINT parameter.
2. General register 5 points to the parameter list extension.

OUTPUT: Formatted message lines to be printed by IJZADO70.

METHOD: This module will format CAW, CCW, CC, CSW, and PSW. If information is not supplied in the parameter list, the TECB specified will be searched.

This module actually has two sections. They operate as follows:

1. The first section formats the CCW and CC.

   CCW is printed if requested and the address of the CCW is provided. If the CCW is requested and the address is not provided, the return code is set to X'0C'.

   Expected CC is printed if requested and the address of the expected CC is provided. If printing of the expected CC is requested and the address is not provided, the return code is set to X'0C'.

   Received CC is printed if requested and either the address of the received CC is provided or the address of the TECB is provided. In the latter case, if a device address is provided, a CC for that device is printed. If the TECB has no entry for the requested device the return code is set to X'0C'. If the device address is not provided the TECB is searched for the first device for which the CC has been posted, and that CC is printed.

2. The second section formats the CSW.

   When printing of the CSW is requested, the expected CSW is composed only of those parts supplied in the DPRINT request. The received CSW contains all four items: key, address, status, and residual count. If the CSW address is not given, the TECB is searched, using the device address for the needed information. If the device address is not given, the primary device address is used. If the OLT makes the request, the output line may have an asterisk on it.

Note: If the TECB is searched and found to be empty, there is a check to see if a Timeout in Queue occurred. If a timeout occurred and RCVD CC is requested, the following is printed:

```
RCVD CC QUEUED
```

If the TECB is empty but no time out occurred,

```
RCVD CC 0
```

is printed. In either case, if the TECB is empty and RCVD CSW is requested, the following is printed:

```
RCVD CSW1 NONE
     or
RCVD CSW2 NONE
```

IJZADC64: SENSE/DATA Chart CK

OBJECTIVE: This module constructs sense data messages to be printed by module IJZADC70.

ENTRY POINT: EPZADO64.

EXIT: To caller.

EXTERNAL ROUTINES:

- IJZADC41 - To convert data.
- IJZADC70 - To print the messages.

INPUT:

1. General register 8 points to the DPRINT parameter list.
2. General register 5 points to the parameter list extension.

OUTPUT: Formatted message lines to be printed by IJZADO70.

METHOD: In the first part of this module, the expected and received sense messages are formatted. If the received sense field is specified in the parameter list, the data is formatted and printed without accessing the TECB. If the received sense field is not specified, the TECB is searched using the device address. If the

device address is not specified, the primary device address will be used. Upon request, the sense message can be preceeded by an asterisk.

The second part of this module constructs expected, received, and written data messages. The data is either EBCDIC or HEX and may be multiple lines if it is greater than the line limit. An asterisk will be added to the messages if a flag is ON in the parameter list.

Note: If the TECB is searched and found to be empty, the following message is printed if sense print is requested:

RCVD SNS NONE

IJZADO70: Output Writer Chart CM

OBJECTIVE: Provide the routing codes for LPRINT and some OLTEP messages and calls CECOM (IJZADO37) to print.

ENTRY POINT: Label EPZADO70.

EXIT: Return to caller.

EXTERNAL ROUTINES: CECOM (IJZADO37).

INPUT: A pointer to a parameter list is supplied, in GPR1, by the caller. The parameter list contains a:

1. Four-byte pointer to the message.
2. One-byte forms control character.
3. One-byte message length (in bytes).

OUTPUT: The message is printed on SYSLST and, if required, on SYSLOG devices.

METHOD: This module routes error messages (LPRINT) as follows:

The error messages are issued to SYSLST. These are also issued to SYSLOG if all the following are true:

1. A console keyboard is assigned to SYSLOG.
2. The parallel printer option is selected.
3. The message level agrees with the parallel printer level option specified by the operator.

CECOM (IJZAD037) is called to perform the required I/O to issue the message.

IJZADO71: Prompt Chart CN

OBJECTIVE: Output option messages, E147I, E148I, and E149I.

ENTRY POINT: EPZADO71.

EXIT: Normal to IJZADO52.

EXTERNAL ROUTINE: CECOM (IJZADO37) print module.

INPUT: R3 contains bit mask for messages (low order byte only)

Bit 0 not used
Bit 1 not used
Bit 2 not used
Bit 3 not used
Bit 4 not used
Bit 5 Print message E149I (Options message)
Bit 6 Print message E148I (test message)
Bit 7 Print message E147I (device message)

Note: Messages are printed in reverse order, that is, bit 7 message, bit 6 message, etc.

OUTPUT: Any combination of messages:

E147I - PROMPT DEVICE MESSAGE

E148I - PROMPT TEST MESSAGE

E149I - PROMPT OPTION MESSAGE

METHOD: The messages printed are multi-line and of variable length. A mask is passed to this module in general register 3. Each bit represents one of the messages to be printed. If less than 8 messages are present, the low order bits will be used first and unused bits will be ignored.

IJZADO76: REI Initialize #1 Chart CR

OBJECTIVE: Determines if RETAIN/370 can operate on the system.

ENTRY POINT: EPZADO76.

EXITS:

1. Communications Interval (IJZADO52) if unsuccessful.
2. REI Initialize #2 (IJZADO77) if successful.

EXTERNAL ROUTINES:

1. CECOM (IJZADO37) to issue messages.
2. Scheduler (IJZADO00) to cleanup for OLT removal via $DTRMLNK (with action value=1).

INPUT: None.

OUTPUT: Messages E163I and E164I.

METHOD: The module determines if REI is already in main storage. If it is, a message is issued and the Communications Interval module is entered. If the module isn't already in, the following checks are made to determine if it can be loaded:

- Does the supervisor support REI?
- Is the REI device (IBM 2955) assigned to SYS005?
- Is a console device available?
- Are console interrupts (FOPT OC= YES) allowed?
- Is the background partition at least 18K?

If the answer to any of these is no, message E164I is issued and exit is taken to the Communications Interval module. If all the conditions are met, the current OLT's cleanup routine is performed and the REI Initialize #2 module is entered.

IJZADO77: REI Initialize #2 Chart CS

OBJECTIVE: Establish communication with the remote analysis center.

ENTRY POINT: EPZADO77.

EXIT: Communications Interval (IJZADO52).

EXTERNAL ROUTINES:

1. CECOM (IJZADO37) to issue messages.
2. REI nucleus (IJZADO10).
3. REI Terminate (IJZADO78).

INPUT: None.

OUTPUT: Messages E163I and E164I.

METHOD: The core storage available to the CLT is reduced by 4K to be occupied by the REI nucleus. The REI nucleus is then loaded in the top 4K of the partition and ADCONs are resolved by calling the relocation routine in the nucleus (IJZADC10). The REI device (IBM 2955) is opened, and communications with the remote analysis center is attempted. If communications are established, and the proper response is received, the line is put in receive mode, message E163I is issued, and the Communications Interval module is entered. If communications cannot be established, or the proper response is not received, the borrowed 4K is returned, IJZADO78 is invoked, and on return from IJZADO78 the Communications Interval module is entered.

IJZADC78: REI Terminate Chart CT

OBJECTIVE: Deactivate RETAIN/370.

ENTRY POINT: EPZADO78.

EXIT: Return to caller.

EXTERNAL ROUTINE: CECOM (IJZADO37) to issue message.

OUTPUT: Messages E137I, E167I, and E169I.

METHOD: This module is entered if either the on-site CE or the remote specialist enters STOPREI at a communications interval, or if REI activation cannot be completed. The following actions are taken:

1. All active CCBs are canceled.
2. The REI device is closed.
3. Message E169I (RETAIN/370 TERMINATED) is issued.
4. All REI switches are reset.
5. The borrowed 4K is returned.

IJZADOAA: $DDate Chart DA

OBJECTIVE: Provide the calendar date to the requestor.

ENTRY POINT: Label EPZADOAA.

EXIT: Return to caller.

INPUT: Date field of Communications Region.

OUTPUT:

1. mm/d in EBCDIC - (GPR0).
2. d/yy in EBCDIC - (GPR1).
3. Return codes:
   X'00' = Date returned in GPRs.
   X'04' = Facility not available.

METHOD: This module provides the calendar date in registers 0 and 1, in the format MM/DD/YY. The date is retrieved from the communication region, reformatted (if necessary) and returned to the caller.

IJZADOAB: $DTIME Chart DB

OBJECTIVE: Provide the time of day to the requestor.

ENTRY POINT: Label EPZADOAB.

EXIT: Return to caller.

EXTERNAL ROUTINES: GETIME (SVC34).

INPUT: Not applicable.

OUTPUT: Return codes in GPR15:
X'00' = Operation successfully completed.
X'04' = Facility not available.
Time of day in packed decimal (GPR1).

METHOD: This module provides the time of day. The time is retrieved, using the system GETIME macro with the STANDARD parameter, and returned to the caller in GPR1 in packed decimal format.

Time is given in hours, minutes, and seconds military time in GPR1 packed decimal. The format is 0HHMMSSF. For example 3:45 PM would be represented by 0154500F in GPR1.

IJZADOAJ: $CUTEST Chart DJ

OBJECTIVES: Check ownership of devices when a test section needs exclusive use of a control unit for control unit testing. Call $MODE (IJZADO40) to quiesce foregrounds it required.

ENTRY POINT: The label EPZADOAJ.

EXIT: Return to caller.

EXTERNAL ROUTINES:

1. IJZAD016 - GETCONFG
2. IJZAD037 - CECOM
3. IJZAD040 - $MODE

INPUT: R1 points to a pointer to starting address and device extent for the control unit to be tested.

OUTPUT:

1. Messages 04E243D, E244I, E127I, 04E199D, E399I.
2. Return codes:

   A return code of X'0C' will be given if any of the following are true:

   There is no primary or grabbed device in the range.
   An invalid code was specified (not supported by DOS).

   A return code of X'08' will be given if any of the following are true:

   Device(s) within the range not assigned to the Background.

   Device(s) control unit may be accessed by another CPU.

   Device(s) within the range is a system unit. Foreground quiesce required but not available.

   A return code of X'04' is given if the macro level is invalid or if there are equates active.

   A return code of 0 is given if all the requirements are met.

Method: The PUB table is searched to determine if all the devices in the extent are assigned to the background and to verify that there are no system required devices in the extent, that is, SYSLST, SYSLOG, SYSVIS, SYSRES, SYSREC, SYSCLB. The CDSs are examined to determine if there are CPU shared devices in the extent.

If there are system devices, or devices not belonging to the background in the extent, message BG E244I will be issued. If there are CPU shared devices in the extent, messages BG E244I and BG 04E243D will be issued. A 'no' reply to the BG 04E243D message will result in a return code '00'. A 'yes' reply will result in a return code of X'08'. If DASD devices are in the extent, an attempt will be made to Quiesce the foregrounds. If quiesce is not available, a return code of X'08' is given.

IJZAOLTP: $$BOLTEP Chart DD

OBJECTIVE: Indicate to the system that OLTEP is active. Allow I/O activity to complete in other partitions so that IJZAD044 can issue a TIO or HIO.

ENTRY POINT: IJZAOLTP+8.

EXITS: Return to caller.

INPUT:
- One entry from IJZAD044, a pointer to A44TRY routine in IJZAD044 is passed.
- One return from A44TRY routine, a return code is set.

OUTPUT: OLTEP active bit is set.

METHOD: This module is a $$B transient called by IJZADOLT to set a bit in the supervisor indicating that OLTEP is active. This bit is examined by the supervisor when an SVC46 is issued, to ensure that it is OLTEP that issued the SVC46.

If a TIO/HIO has been requested, module IJZAD044 loads this module with the entry point A44TRY in a parameter list. IJZACLTP determines that it has been called by IJZAD044 by checking the OLTEP active bit. If it is on, a SVC22 is issued to seize the system but allow I/O interrupts, A SVC46 is then issued to execute the A44TRY routine to perform the TIO/HIO in module IJZAD044. Upon return from module IJZAD044, the return code is checked to see if the operation was completed. If the operation was not completed, return to module IJZAD044 by way of SVC46. If the return code indicates that the operation was completed, another SVC22 is executed to release the system and IJZADOLP issues a SVC11 to return to the caller.

IJZATCIT ($$PTCLTP): Terminate CLTEP Chart DE

OBJECTIVE: Perform cleanup functions for CLTEP if an abnormal termination occurs.

ENTRY POINT: EPBTOLTP.

EXIT: To the supervisor ($$BEOJ3).

EXTERNAL ROUTINES:

1. REI Terminate (IJZAD078) to deactivate the RETAIN/370 Interface.
2. Restore Labels (IJZAD057) to restore tape labels and disable TP lines.
3. The CIT cleanup routine if available.
4. The Scheduler (IJZAD000) for EXIO cleanup.

INPUT: IUBS and PUBS.

OUTPUT: None.

METHOD: Upon entry, the abnormal termination flag is set, EXIO cleanup is performed via the Scheduler and the OLT cleanup routine is perfored if one is available. If RETAIN/370 is active, the REI Terminate module is entered to terminate the RETAIN/370 Interface. Tape labels are restored and TP lines disabled if necessary by the Restore Labels module. Any remaining cards for card-input are flushed. The CLTEP Active flag is then reset and exit is taken to the DOS supervisor.

If this module is entered because of an error in cleanup, the CLTEP Active flag is reset, and exit is taken to the supervisor. All other cleanup procedures are bypassed.

Pre-Release 25 Support Modules

The OLTEP/CLT support modules that follow were used by CLTEP prior to release 25. They are retained as part of OLTEP to support previously written OLTs.

IJZACECM: CE Communication Chart EA

OBJECTIVE: Provide two-way communications between the P3116 OLT and the operator.

EXTERNAL ROUTINE: IJZAD037.

ENTRY POINT: EPZACEOM.

EXIT: Return to calling module.

INPUT: R1 points to parameter list.

OUTPUT: Re-formatted parameter list is passed to IJZAD037.

METHOD: When the macro is issued, a pointer indicates the message to be issued, the length of the message, and an area where the reply can be placed.

This module reformats the parameter list received, into one acceptable by IJZAD037 and issues a call to that module. On return from IJZAD037, exit is to the caller via R14.

IJZACOMP: Compare Chart ED

OBJECTIVE: Check received data against expected data.

ENTRY POINT: IJZACOMP.

EXIT: Return to OLT.

INPUT: R1 pointer to parameter list containing the address of check field and error return code.

OUTPUT: Bits 24-31 of R15 are error flags indicating the results of the compares.

METHOD: This module sets up a pointer to the checkfield that is used for the compare function. The checkfield contains the information to compare. The first test in the compare module determines whether or not the TECB is relevant. If it is, some portion of the TECB information must be checked. The entire TECB is checked to determine if the following are relevant:

- CC.
- CSW Address.
- Device Status.
- Channel Status.
- Residual Count.
- Sense Data.

All this information is initially entered in the TECB from the last seven bytes of the CSW and the last eight bytes of the Channel Command Block (CCB).

Once the program determines which portions of information are relevant, it compares them with the expected information found in the checkfield. In each case, if the received data does not compare favorably with the expected data, an error switch is set.

After these comparisons are completed or if the TECB is not relevant, the program checks the data to determine whether or not it is relevant. The relevant data is then compared to the expected data, and a switch is set if the comparison is unfavorable.

Finally, a test is made to determine if any error switches have been set. If any have been set, the error exit to the unit test is used. Otherwise, the return is normal.

IJZACONV: Convert Chart EE

OBJECTIVE: Convert data from hexadecimal to EBCDIC and vice versa.

ENTRY POINT: IJZACONV.

EXIT: Return to calling module.

INPUT: Pointer to parameter list (GPR1).

OUTPUT: Converted data.

METHOD: The convert macro works in the following way:

A pointer is initiated to point to the following table:

Word/ Byte	
0/1	Address of data to be converted
4/2	Address of data after conversion
8/3	Address of next word
12/4	Byte2 = FLAGS Bit 0 = convert from hexadecimal to EBCDIC Bit 1 = convert from EBCDIC to hexadecimal. Contains count of data to be converted.

If the characters to convert are EBCDIC, they are compared to a translate table of hexadecimal characters to make the conversion (vice versa if the conversion is from hexadecimal to EBCDIC).

If no match is found in an EBCDIC to hexadecimal conversion, an error code is inserted in general register 15, and the program returns to the entry point. No error indicator is used for hexadecimal to EBCDIC conversion because every hexadecimal character has an EBCDIC equivalent.

If the conversion is completed, the characters are placed in an output area, and control returns to the calling routine.

IJZADOLD: Old Support Chart EF

IJZADOLD is the consolidation of pre-release 25 support modules IJZAEXIC, IJZAWAIT, IJZADPRT, IJZACMNT, IJZAHEAD and IJZARSLT.

OBJECTIVE:

1. Initiates an I/O operation, or
2. Performs a wait operation and move results to OLTs TECB area, or
3. builds the print line(s) as requested by the caller to be issued by the output writer (IJZADO70).

ENTRY POINT: EPZADOLD

EXITS:

1. Return to OLT normally, i.e., request honored.
2. To IJZADO52 if a communication interval is required, i.e., message E129I or E157I was issued.
3. To scheduler (IJZADO00) via $DTRMINK with action value 1 to terminate OIT if request is to write on a file protected device.

EXTERNAL ROUTINES:

1. Output Writer (IJZADO70) to print.
2. Convert (IJZADO41)
3. IJZADO37 for message output.

INPUT: GPR1 points to a parameter list.

OUTPUT: Messages E313I, E129I, and E157I. Printable output lines are passed to IJZADO70. The unit test TECB is posted when a wait is requested.

METHOD: The second byte of the first word of the parameter list indicates the function - an EXIO, a WAIT or printing - to be performed by this module. The second word of the parameter list (the contents of GPR1 when the CLT made the call) points to a parameter list (in one of three formats) that contains the information necessary to carry out the function asked for.

If the function is EXIO this module checks the File Protect Mode (FPM) bit in the SCT. If on, all CCWs are scanned for DASD write commands. If any DASD write commands are found, message E313I is issued, a flag is set indicating to the Scheduler that this test is to be terminated, and an exit is made to the Scheduler via $DTRMLNK with action value 1. If not in FPM or no DASD write commands are found, the modules performs the following:

1. Clears the TECB
2. Sets up the CCB, or the TPCCB if the teleprocessing switch in on
3. Executes the CCW, or TPCCW.

After these steps have been completed, the EXCP is executed and control returns to the unit test.

If the function is a WAIT, the wait is performed by using the same CCB used by the EXIO, and issuing a SVC 7.

Once this has been satisfied, the following are posted in the TECB:

- CCW address
- CSW address
- CCW residual count
- Sense information (if the CSW contained a unit check)

The TECB must be aligned on a fullword boundary and must be exactly five words in length.

After these operations for the WAIT have been completed, control returns to the unit test.

If the function called for printing the options presently in force are checked to determine if printing should be supported:

a. If NPR and either EL or TL (or both) options active, all DPRINTs are suppressed.
b. If NEP option is active all error DPRINTs, except first error or catastrophic error DPRINTs are suppressed.
c. If NFE option is active first error message E129I is suppressed.

Printing can be broken down into three categories:

1. heading messages
2. comment messages
3. results received messages.

These three forms can be in any order and as many as needed.

After the lines are built and the specified data is put out, checks are made to determine if a first error or catastrophic error message is to be output. If this is an error DPRINT and the option PR is active and option EL and TL are not active and

a. If FE is active, the first error message E129I is printed (if this message has not previously been printed for an error DPRINT within this OLT) and an exit is made to the Communication module (IJZADO52).

b. If the catastrohpic error bit in the SCT has been set to 1, the catastrohpic error message E157I is issued and an exit is made to the Communication Interval module (IJZADO52).

c. If neither message is required, control is returned to the OLT.

IJZAOPUT: Output Chart EM

OBJECTIVE: Provide one-way communication from the program to the operator.

ENTRY POINT: IJZAOPUT.

EXIT: Return to caller.

EXTERNAL ROUTINE: CECOM (IJZADO37).

INPUT: Pointer to parameter list (GPR1).

OUTPUT: Pointer (GPR1) to a parameter list passed to IJZADC37.

METHOD: When the output writer module is entered, a pointer is initiated to point to the following table:

Address of data to be printed	Forms control character	Byte count of message

IJZADC37 is then called to issue the message. When IJZADO37 is finished, control returns to the caller.

IJZARATA: Random Data Generator Chart EN

OBJECTIVE: Generate the indicated number of random numbers, and store them in the requesting CLT.

ENTRY POINT: IJZARATA.

EXIT: Return to calling CIT.

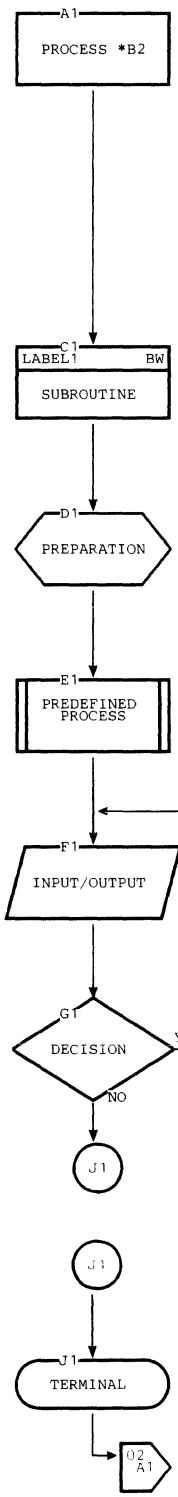
INPUT: Pointer to parameter list (GPR1).

OUTPUT: Random data in caller's buffer.

METHOD: This module uses the first two bytes in the SCT as the starting random number. Eight bytes are moved to a work area where random bits are generated and stored in the requesting CIT.

As each doubleword of random data is generated, the pointer is incremented by eight so that newly generated data does not overlay previous data. This process continues until the last eight bytes are reached. When less than eight bytes remain generation terminates and control returns to the OLT.

EXPLANATION OF FLOWCHART SYMBOLS



A GROUP OF PROGRAM INSTRUCTIONS THAT PERFORM A PROCESSING FUNCTION OF THE PROGRAM. THE LABEL, IF ANY, IS SHOWN ABOVE THE BLOCK.

*B2
IF ANY ADDITIONAL EXPLANATION IS REQUIRED, ITS LOCATION ON THE CHART IS IDENTIFIED BY AN ASTERISK AND BLOCK ID.

DESCRIPTION OR TITLE OF A ROUTINE THAT IS DETAILED ON ANOTHER FLOWCHART. THE STARTING LABEL OF THE ROUTINE AND THE FLOWCHART ID APPEAR ABOVE THE STRIPE.

AN INSTRUCTION, OR GROUP OF INSTRUCTIONS, THAT CHANGES PORTIONS OF A ROUTINE OR INITIALIZES A ROUTINE FOR GIVEN CONDITIONS.

A GROUP OF OPERATIONS NOT DETAILED IN THE FLOWCHARTS IN THIS MANUAL, SUCH AS USER'S ROUTINES.

ANY FUNCTION OF AN INPUT/OUTPUT DEVICE OR PROGRAM, USUALLY BRANCHING TO AN I/O ROUTINE TO PERFORM THE FUNCTION STATED IN THE BLOCK.

POINTS WHERE THE PROGRAM BRANCHES TO ALTERNATE PROCESSING, BASED UPON VARIABLE CONDITIONS SUCH AS PROGRAM SWITCH SETTINGS AND TEST RESULTS.

ON-PAGE CONNECTOR, AN ENTRY FROM, OR AN EXIT TO, ANOTHER FUNCTION ON THE SAME FLOWCHART. THE NUMBER IN THE CONNECTOR IDENTIFIES THE CORRESPONDING ENTRY OR EXIT ON THE CHART.

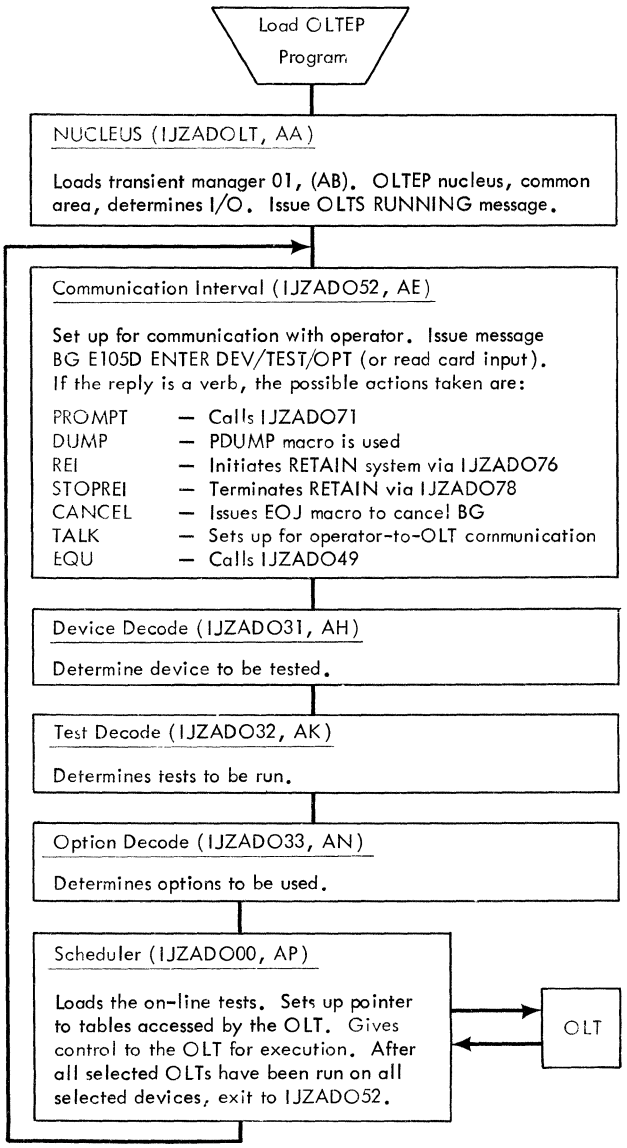
THE BEGINNING, END, OR POINT OF INTERRUPTION IN A PROGRAM

OFF-PAGE CONNECTOR, AN ENTRY FROM, OR AN EXIT TO, A GIVEN POINT ON ANOTHER FLOWCHART. THE CHARACTERS IN THE CONNECTOR IDENTIFY THE CHART AND BLOCK. FOR MULTIPLE ENTRIES AND EXITS, AN ASTERISK APPEARS IN THE CONNECTOR AND THE CHARACTERS ARE LISTED NEARBY.

FLOWCHART ABBREVIATIONS

ADDR	ADDRESS
AVAIL	AVAILABLE
BG	BACKGROUND
CAT	CATASTROPHIC
CC	CONDITION CODE
CDS	CONFIGURATION DATA SET
CHAN	CHANNEL
CHAR	CHARACTER
COMM	COMMUNICATION
COND	CONDITION
DE	DEVICE END
DESC	DESCRIPTOR
DEV	DEVICE
DISP	DISPLACEMENT
DP	DATA PROTECTION
EQ	EQUAL
ERR	ERROR
EXT	EXTERNAL
FLD	FIELD
FPM	FILE PROTECT MODE
GT	GREATER THAN
ID	IDENTIFICATION
INFO	INFORMATION
INIT	INITIALIZE
INT	INTERRUPT
LT	LESS THAN
LTH	LENGTH
MAX	MAXIMUM
MCT	MODULE CONTROL TABLE
MOD	MODULE
MSG	MESSAGE
OP	OPERATION
OPT	OPTION
PERM	PERMANENT
PRI	PRIMARY
PTR	POINTER
RCVD	RECEIVED
REG	REGISTER
REI	RETAIN/370 INTERFACE
REQ	REQUESTED
RTN	ROUTINE
SCT	SECTION CONTROL TABLE
SEC	SECONDARY
SW	SWITCH
SYM	SYMBOLIC
SYS	SYSTEM
TECB	TEST EVENT CONTROL BLOCK
TERM	TERMINATE
TP	TELEPROCESSING
TRANS	TRANSIENT
VOL	VOLUME
WRT	WRITE
XPTD	EXPECTED

Chart 00. General



EXTERNAL ROUTINES USED:

By the Initializer:

Output Writer (70), and
GETCONF (16).
COMREG, STXIT.

By the Communication Interval:

The PROMPT phase (71) assists the operator in replying to the DEV/TEST/OPT message, and CECOM (37), and DECODE Routines (31, 32, 33).

By Device Decode:

Get CONFG (16), Tape Label Restore (37) convert (41), and CECOM (37).

By Test Decode and Option Decode

CECOM (37).

By the Scheduler:

Data Protect (56), Convert (41), CECOM (37).

Chart 01. Main Flow

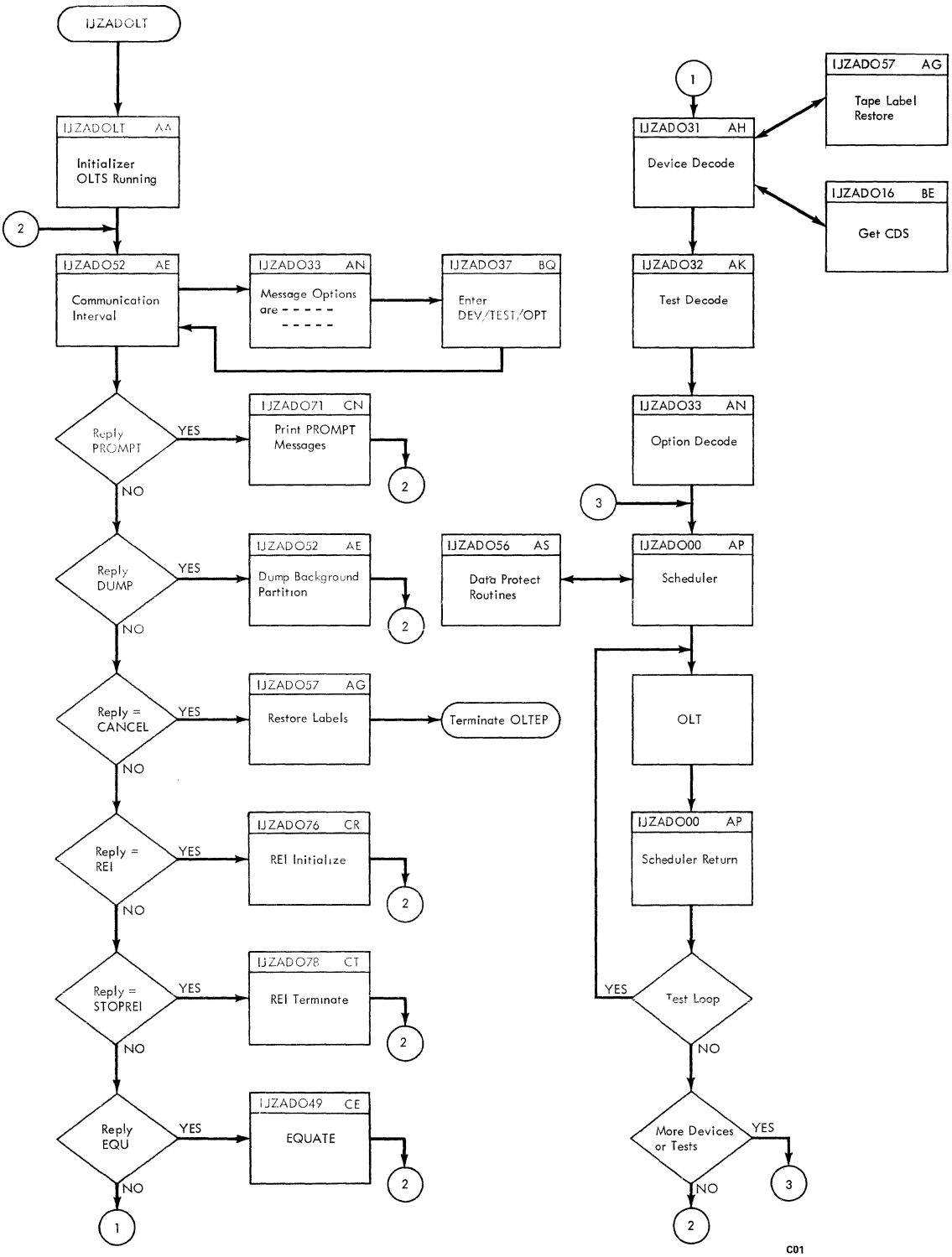


Chart AA. IJZADOLT: OLTEP NUCLEUS (Part 1 of 9)

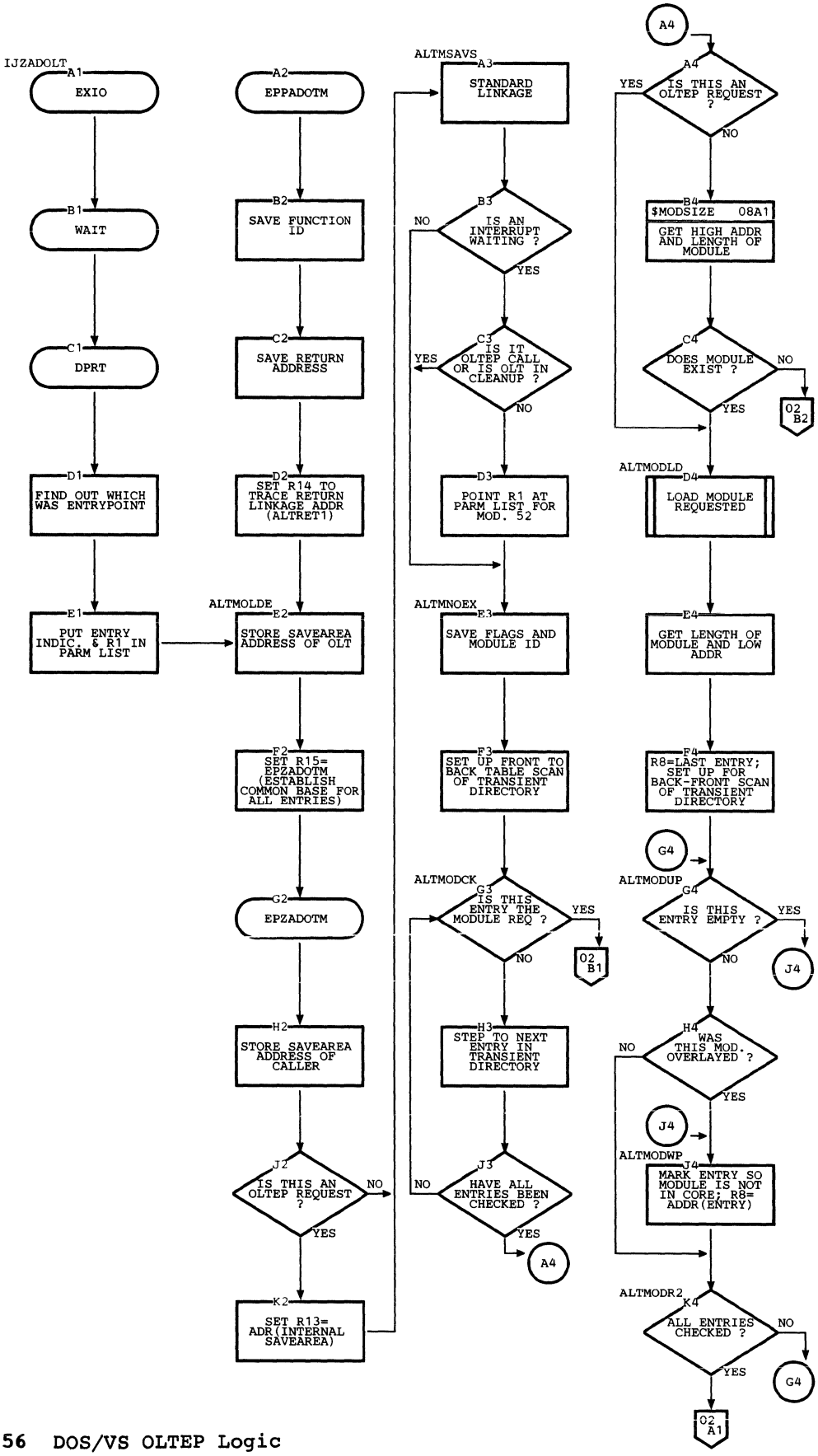


Chart AA. IJZADOLT: OLTEP NUCLEUS (Part 2 of 9)

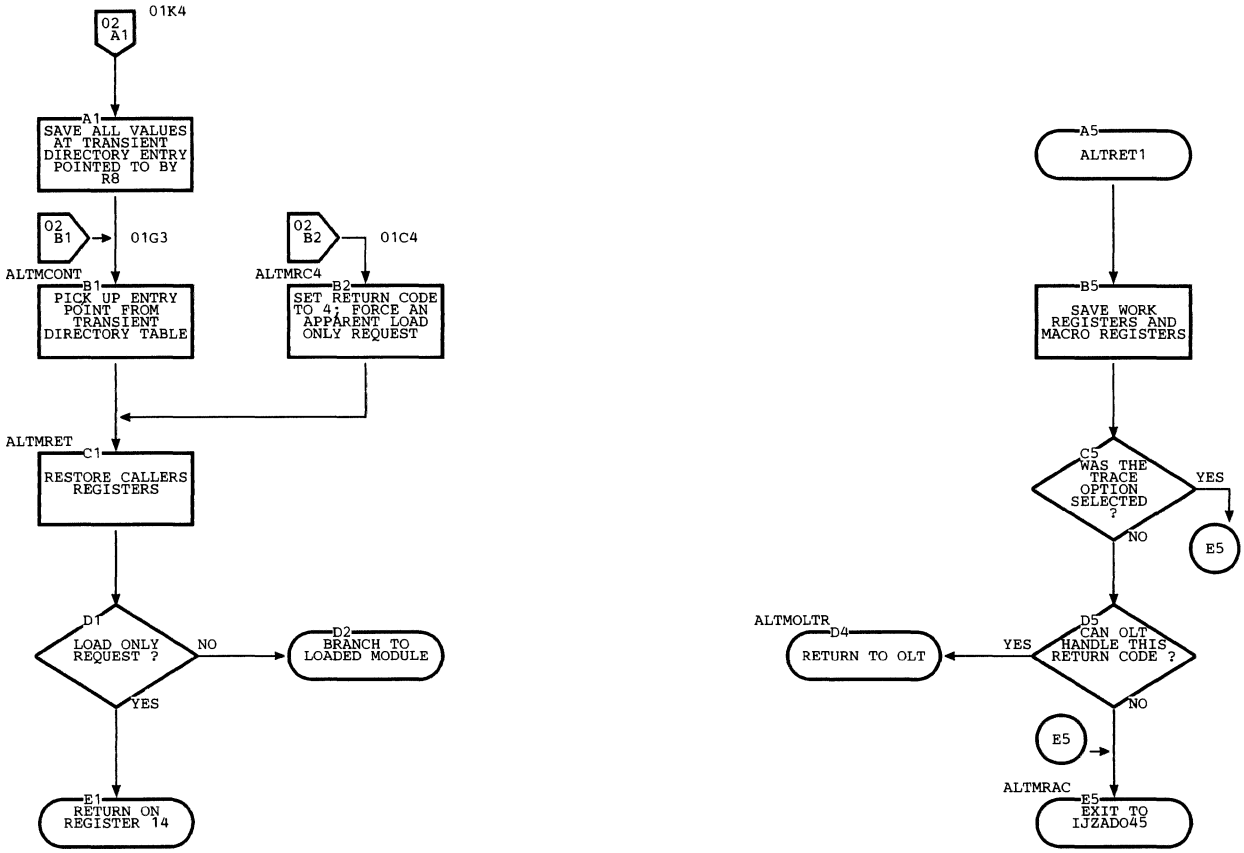


Chart AA. IJZADOLT: OLTEP NUCLEUS (Part 3 of 9)

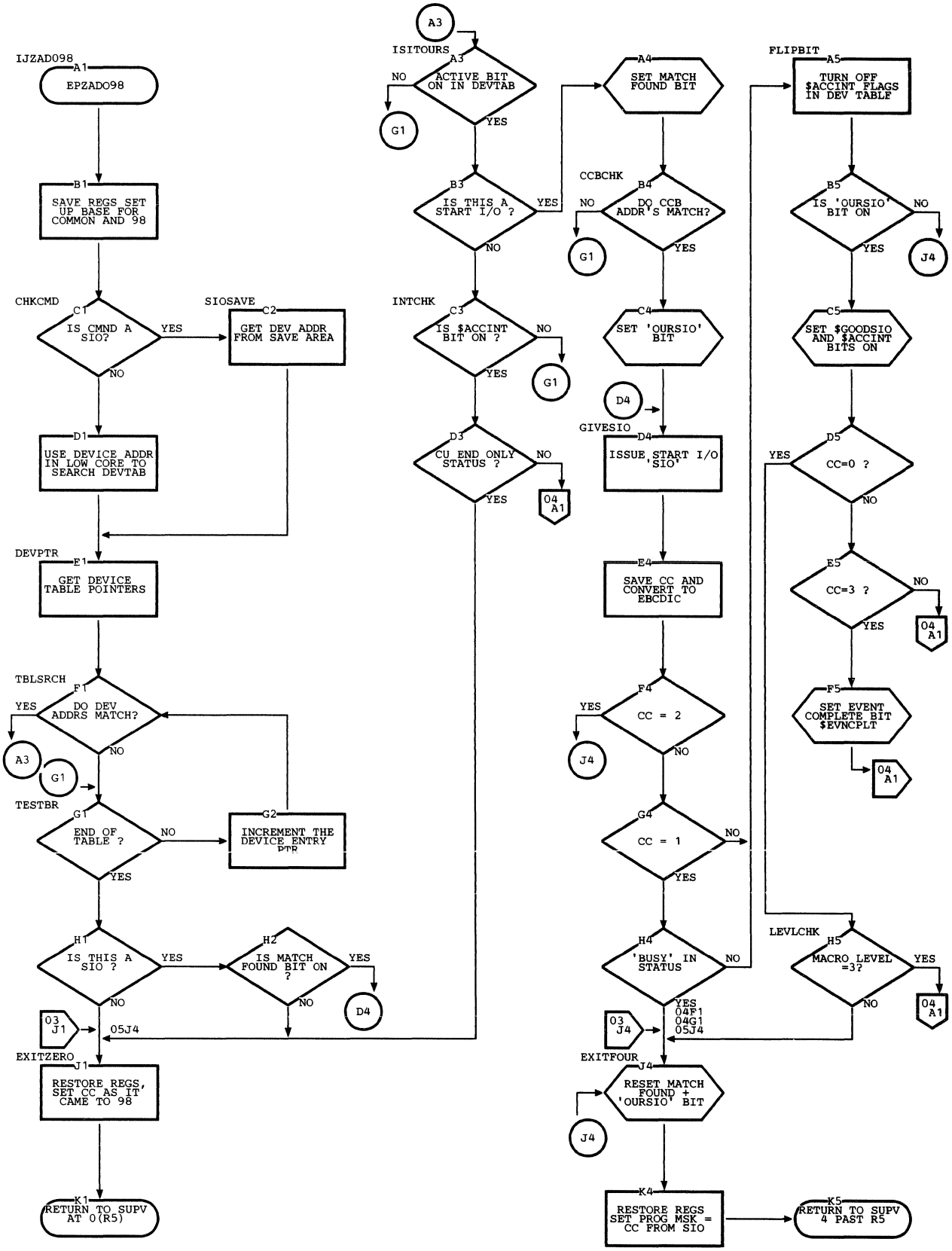


Chart AA. IJZADOLT: OLTEP NUCLEUS (Part 4 of 9)

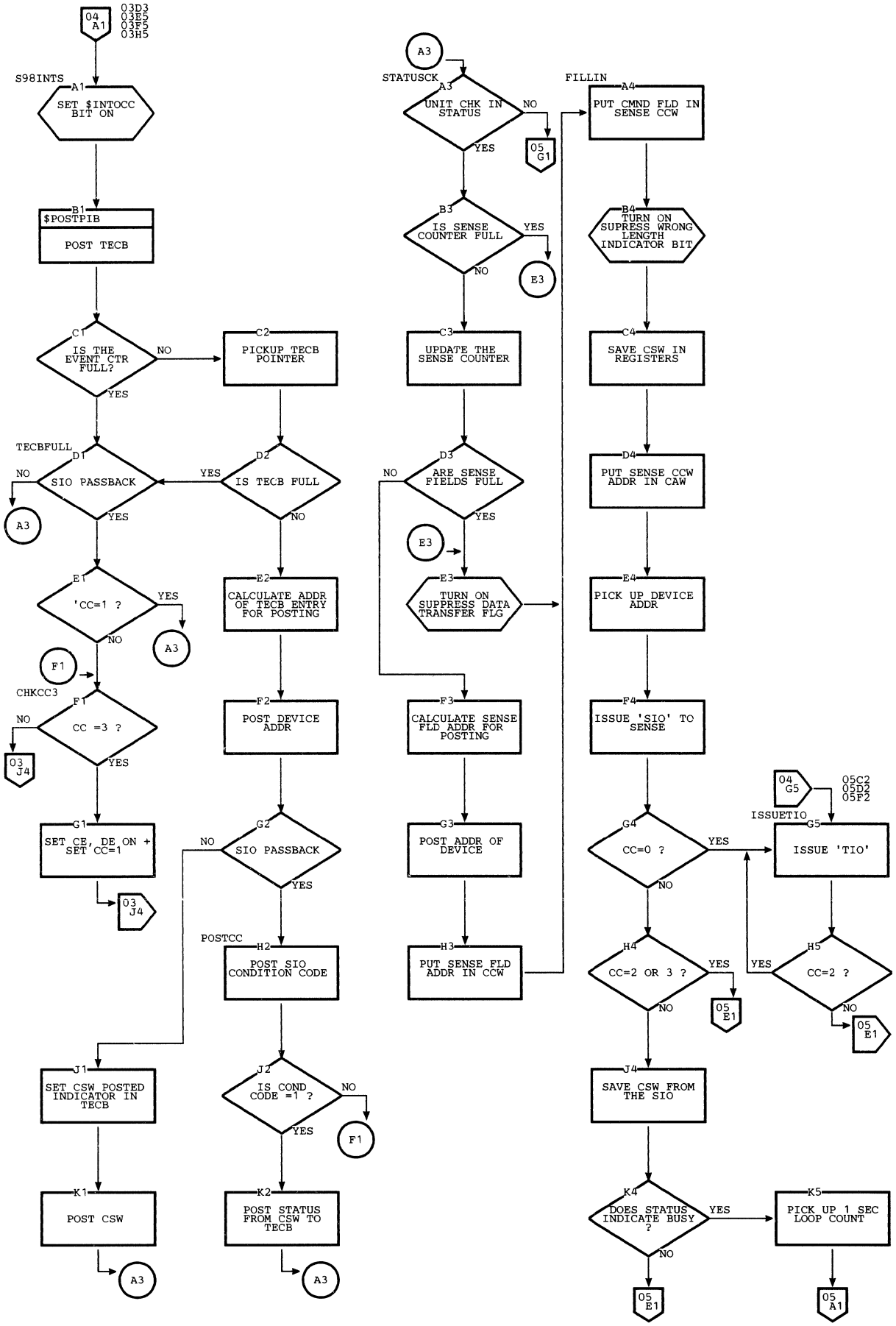


Chart AA. IJZADOLT: OLTEP NUCLEUS (Part 5 of 9)

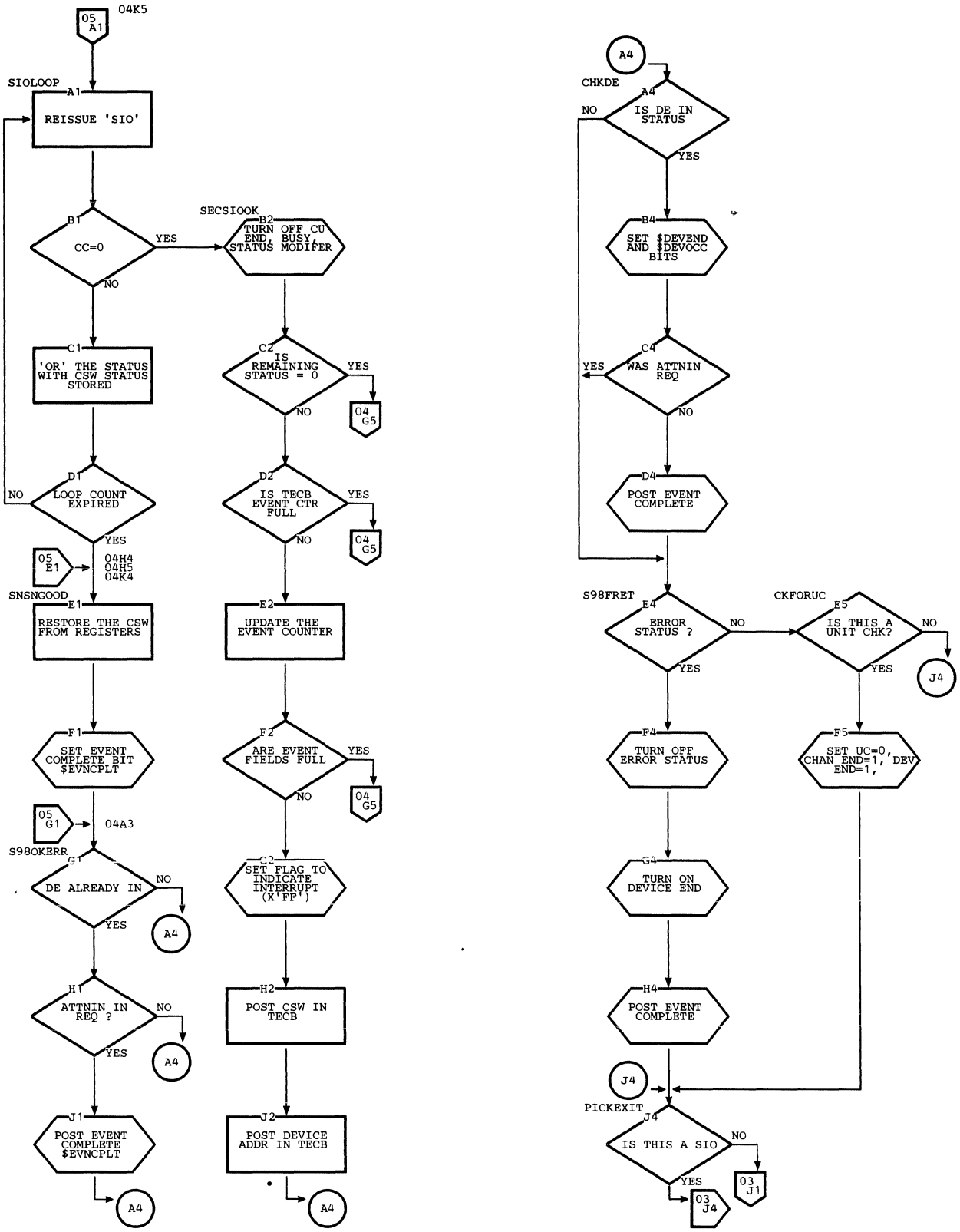


Chart AA. IJZADOLT: OLTEP NUCLEUS (Part 6 of 9)

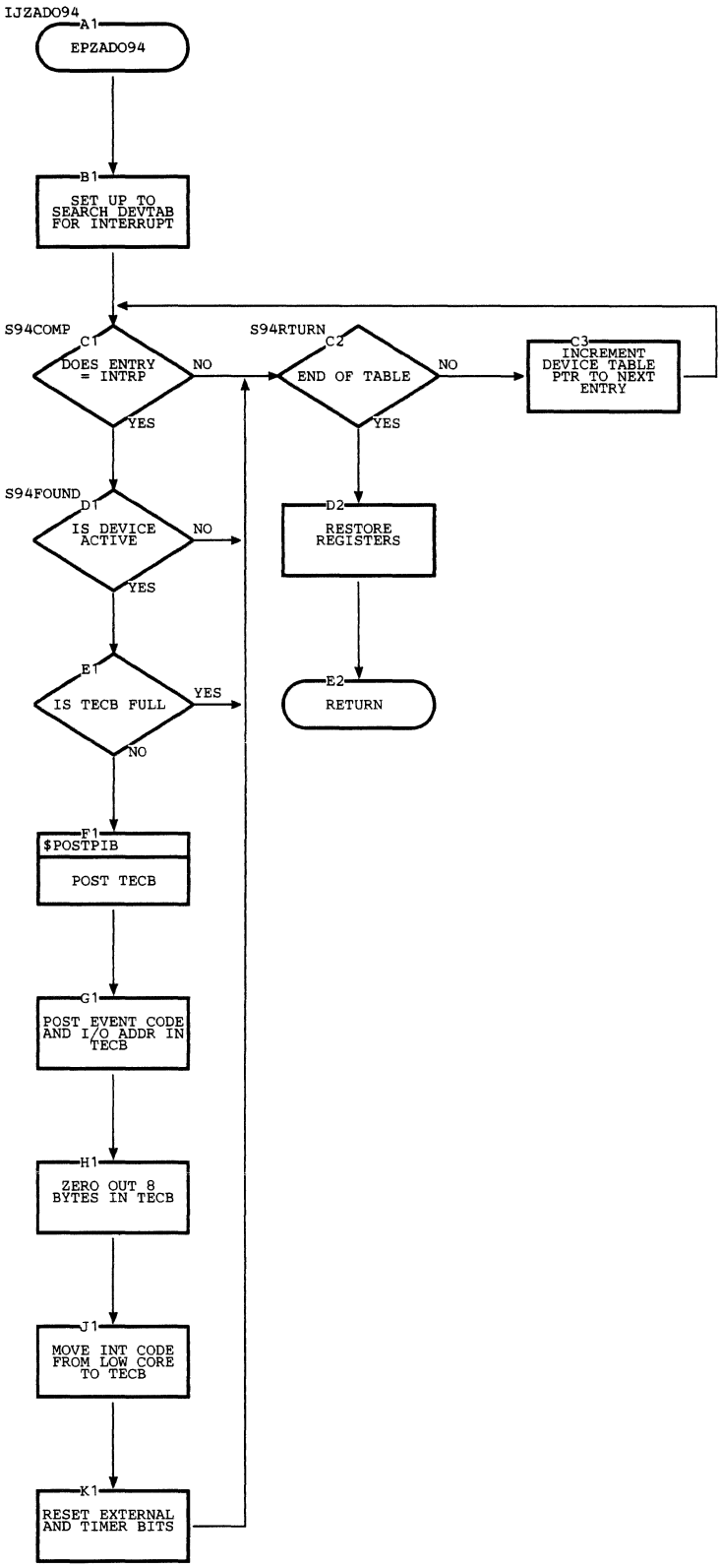


Chart AA. IJZADOLT: OLTEP NUCLEUS (Part 7 of 9)

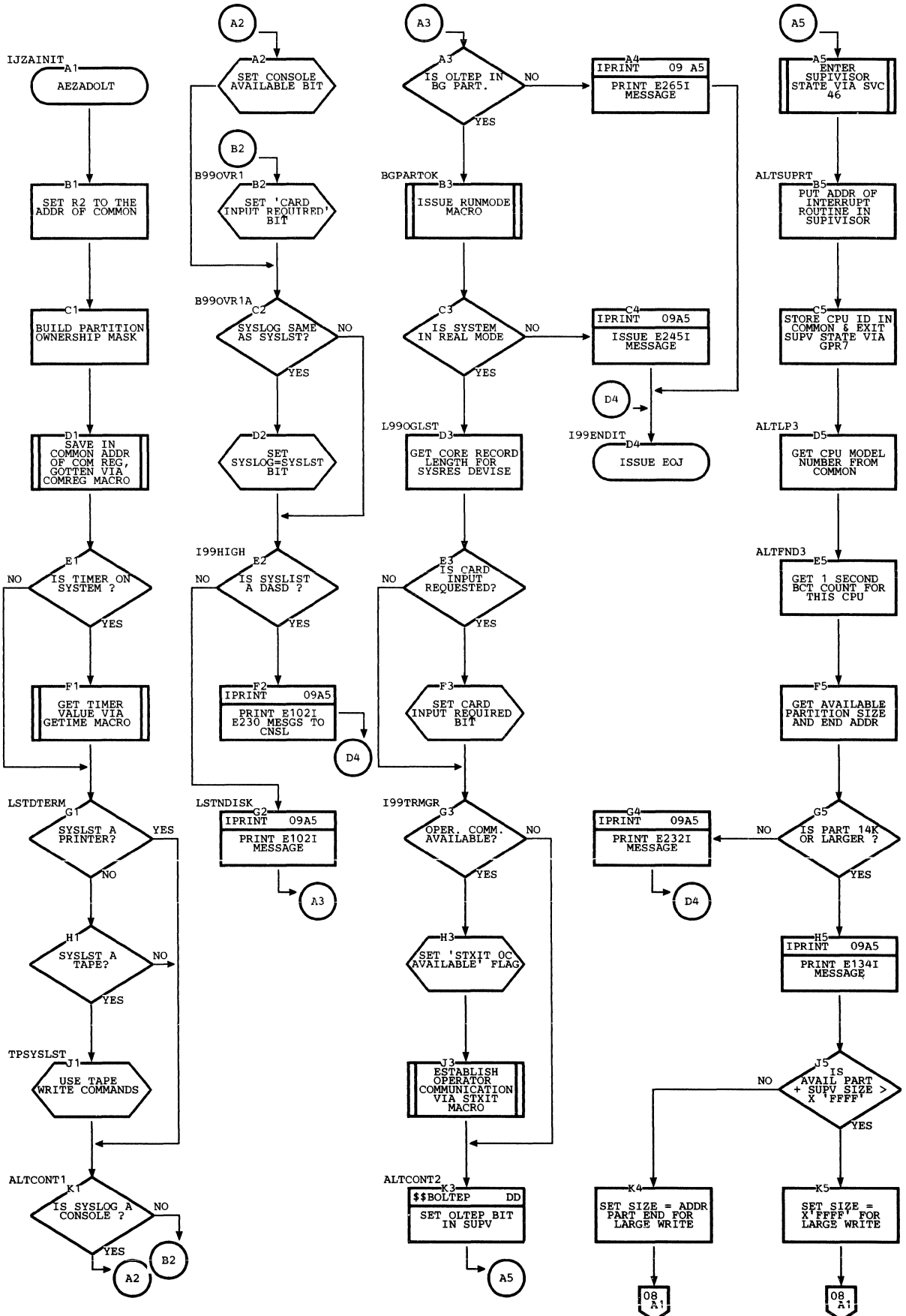


Chart AA. IJZADOLT: OLTEP NUCLEUS (Part 8 of 9)

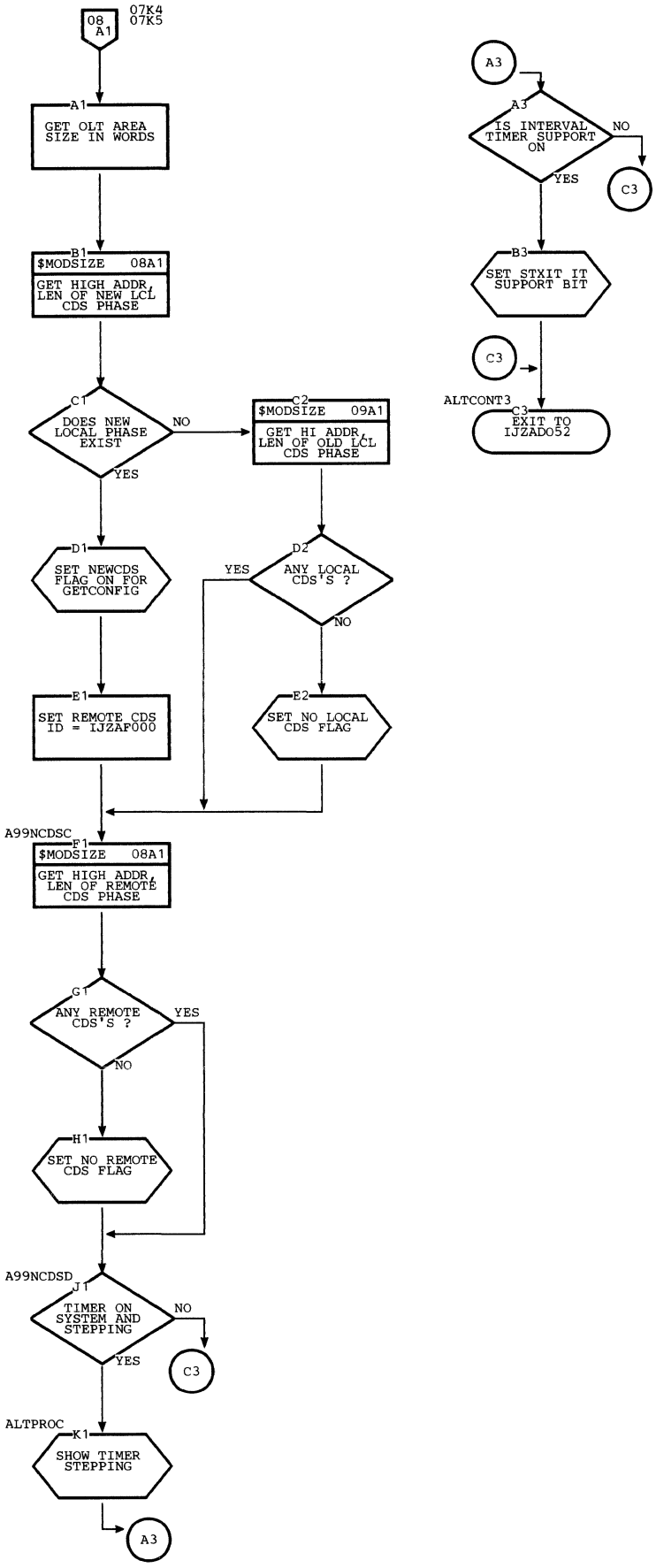


Chart AA. IJZADOLT: OLTEP NUCLEUS (Part 9 of 9)

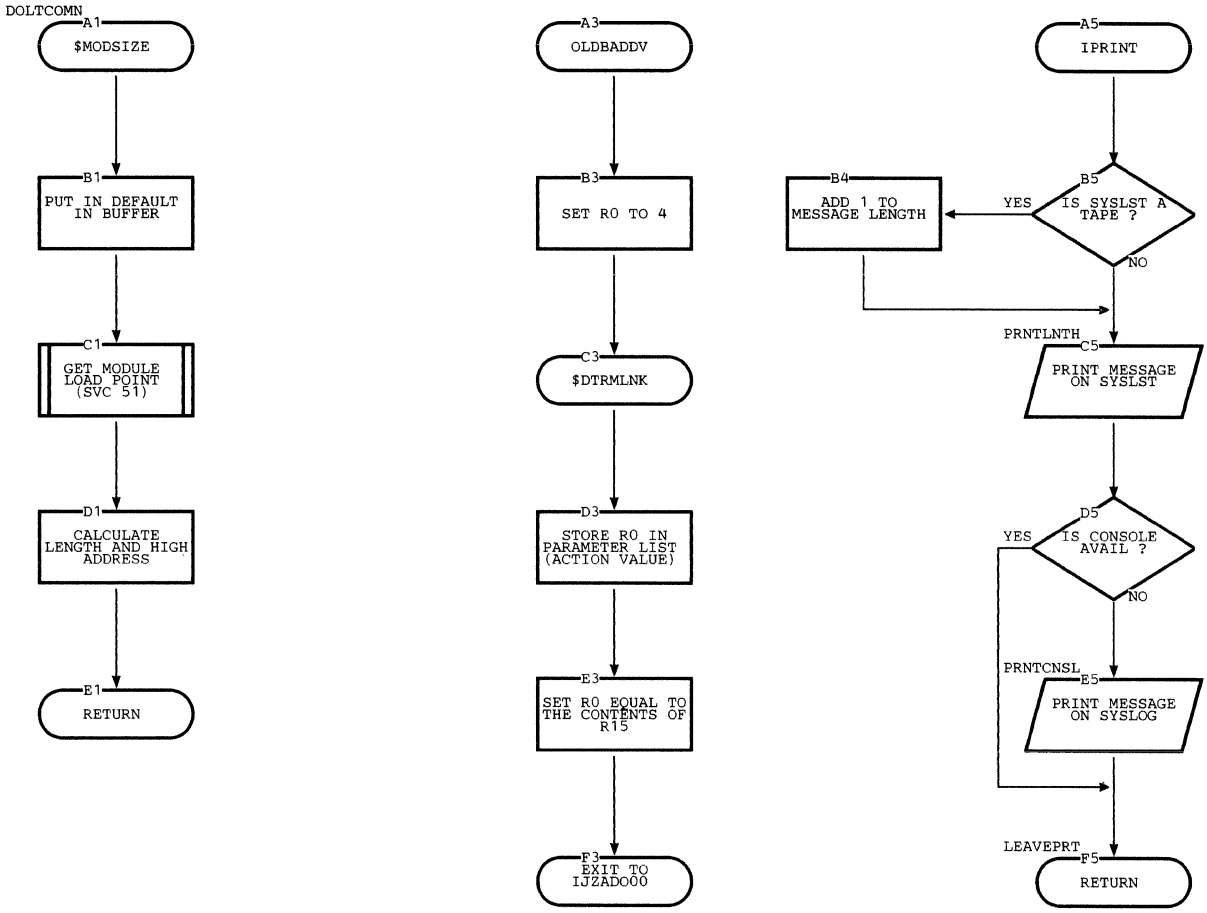


Chart AE. IJZADO52: Communications Interval (Part 1 of 3)

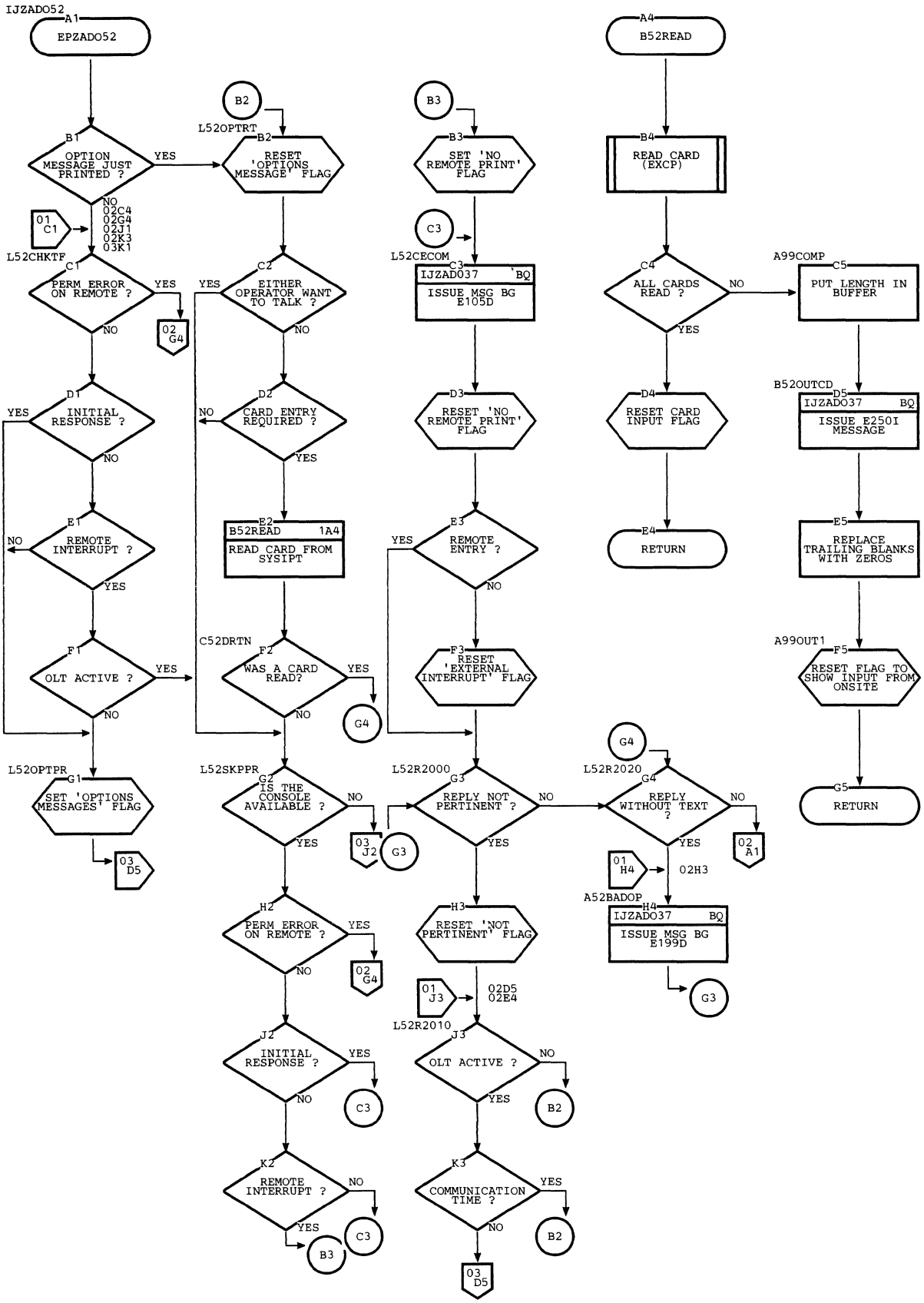


Chart AE. IJZADO52: Communications Interval (Part 2 of 3)

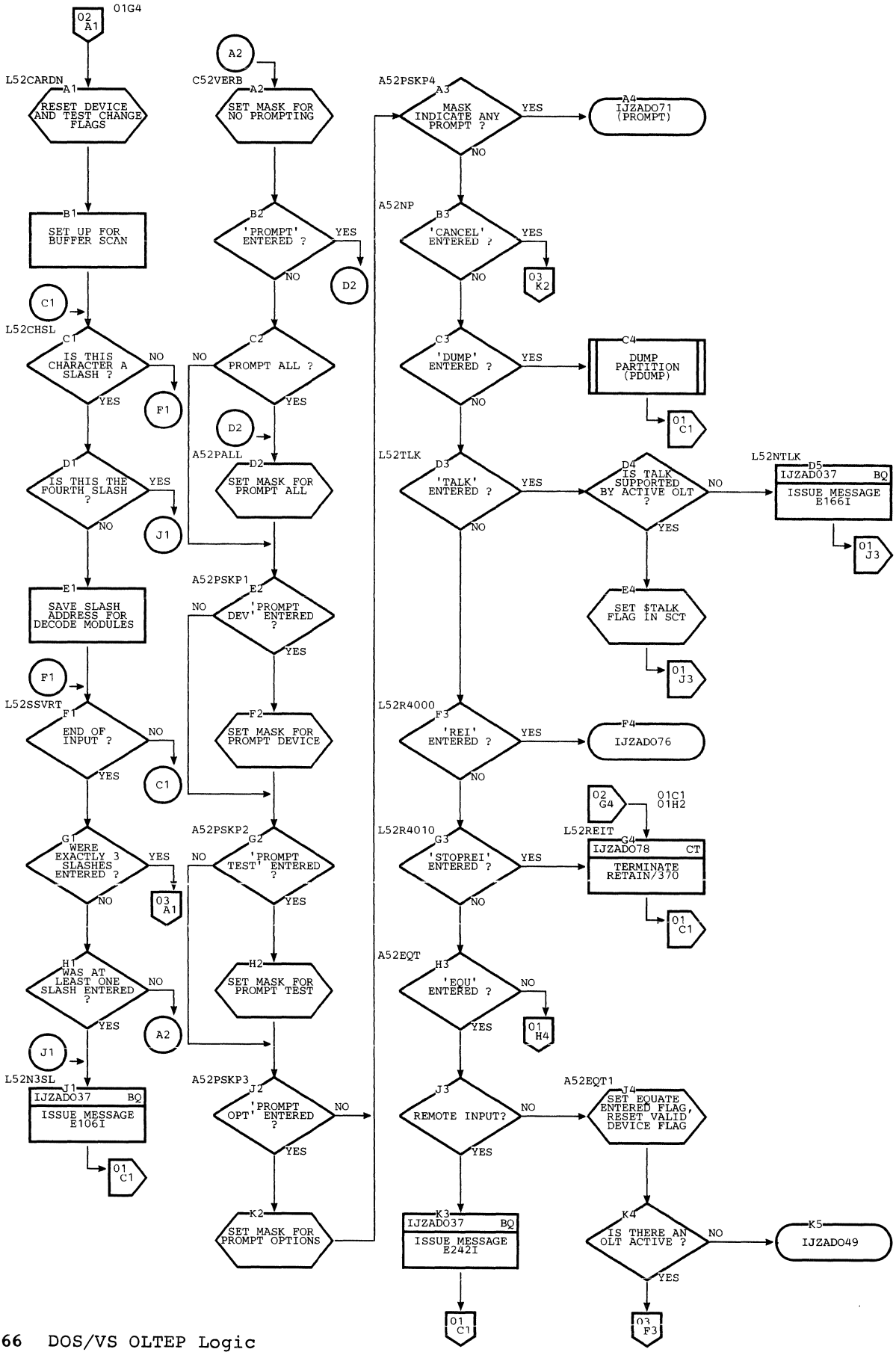


Chart AE. IJZADO52: Communications Interval (Part 3 of 3)

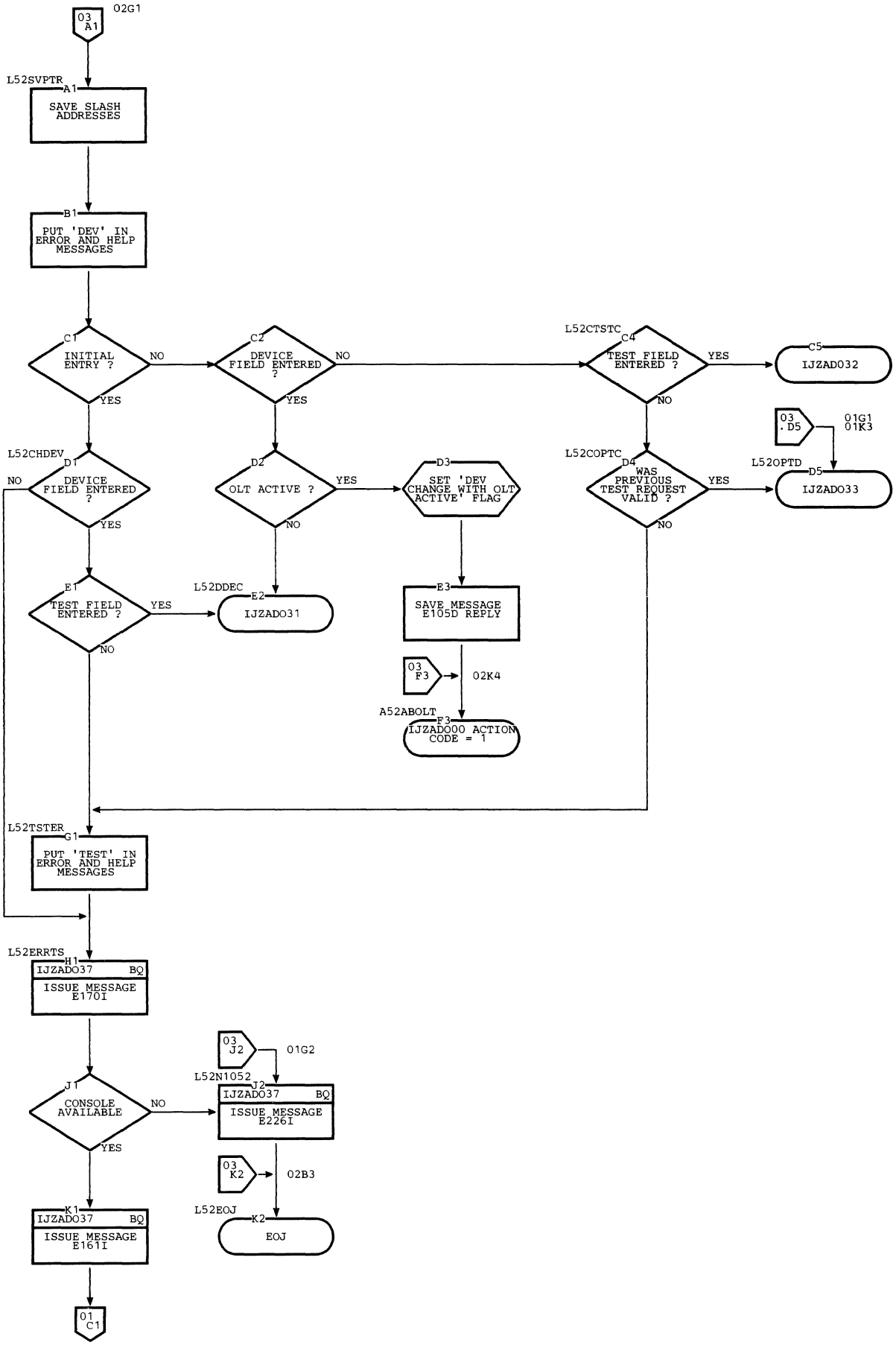


Chart AG. IJZAD057: Restore Tape Labels (Part 1 of 2)

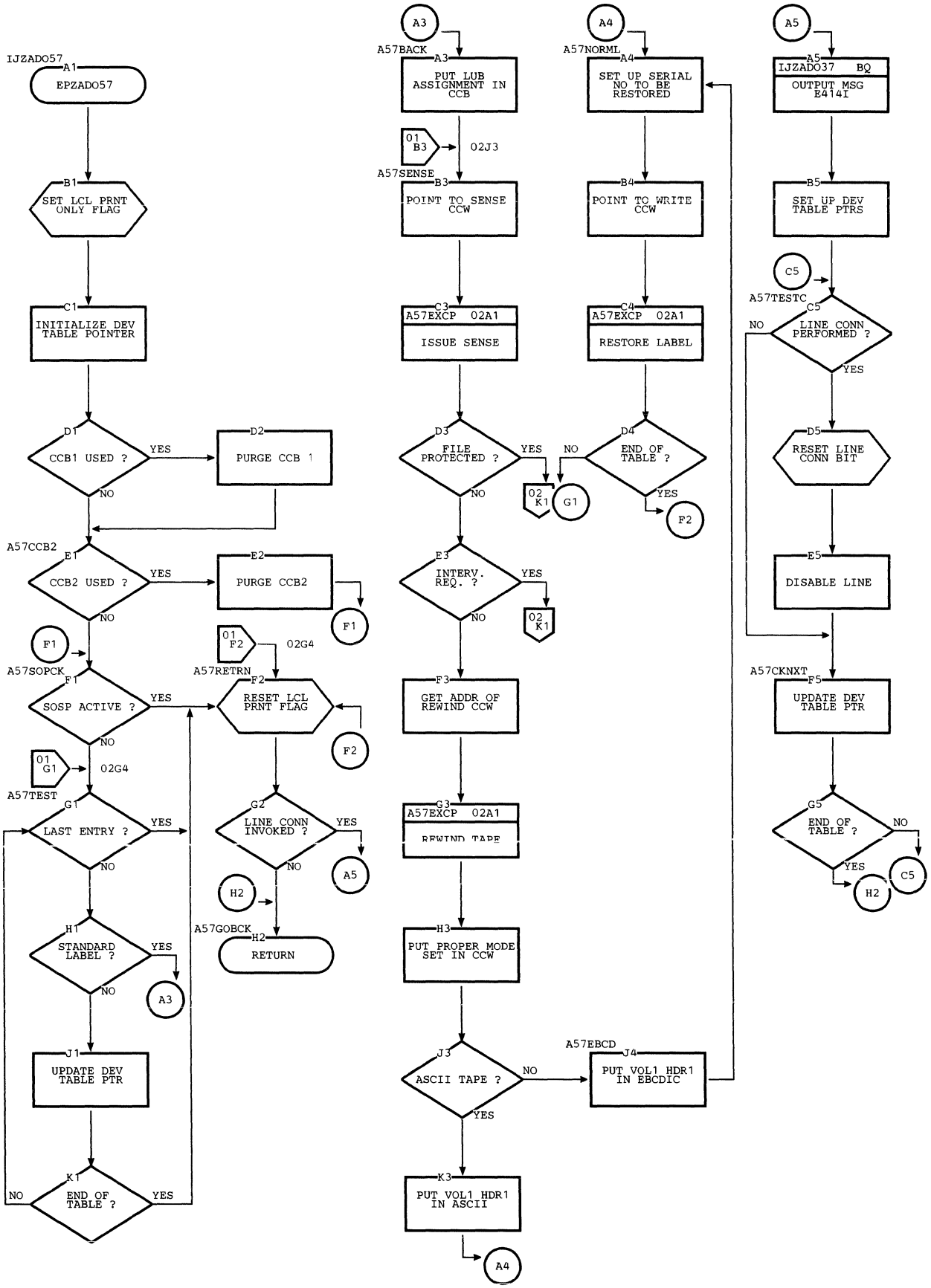


Chart AG. IJZAD057: Restore Tape Labels (Part 2 of 2)

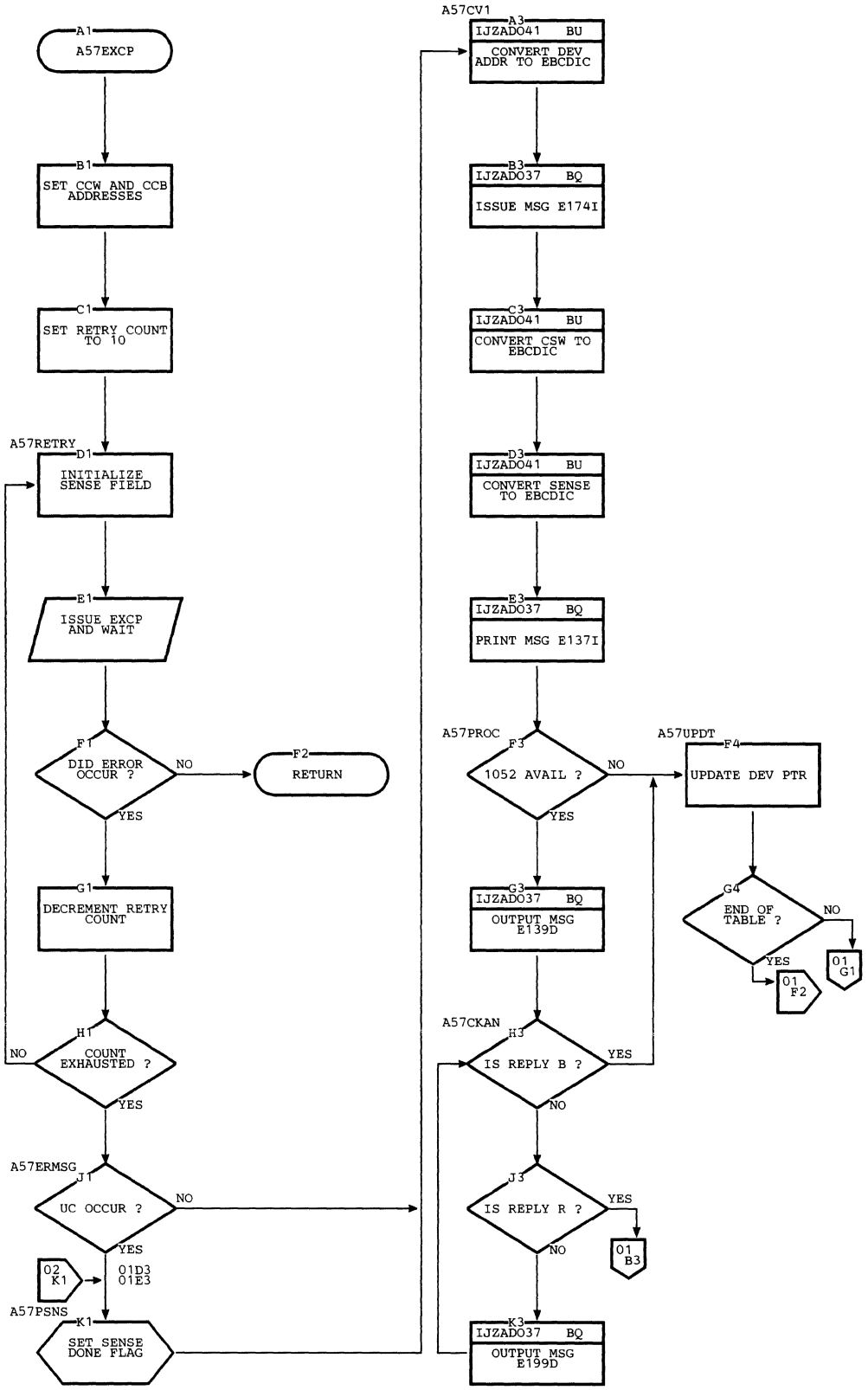


Chart AE. IJZADO31: Device Decode (Part 1 of 3)

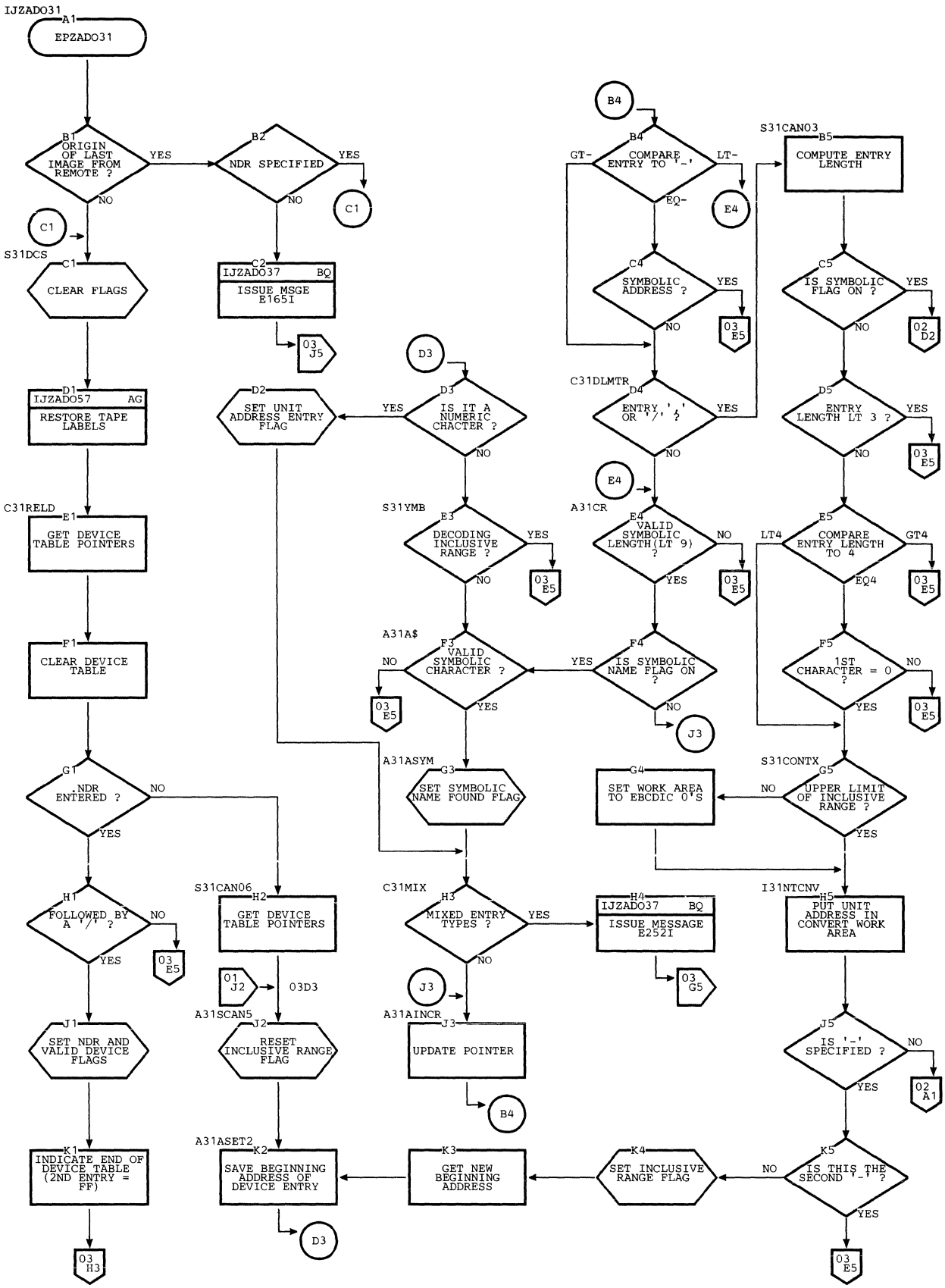


Chart AE. IJZADO31: Device Decode (Part 2 of 3)

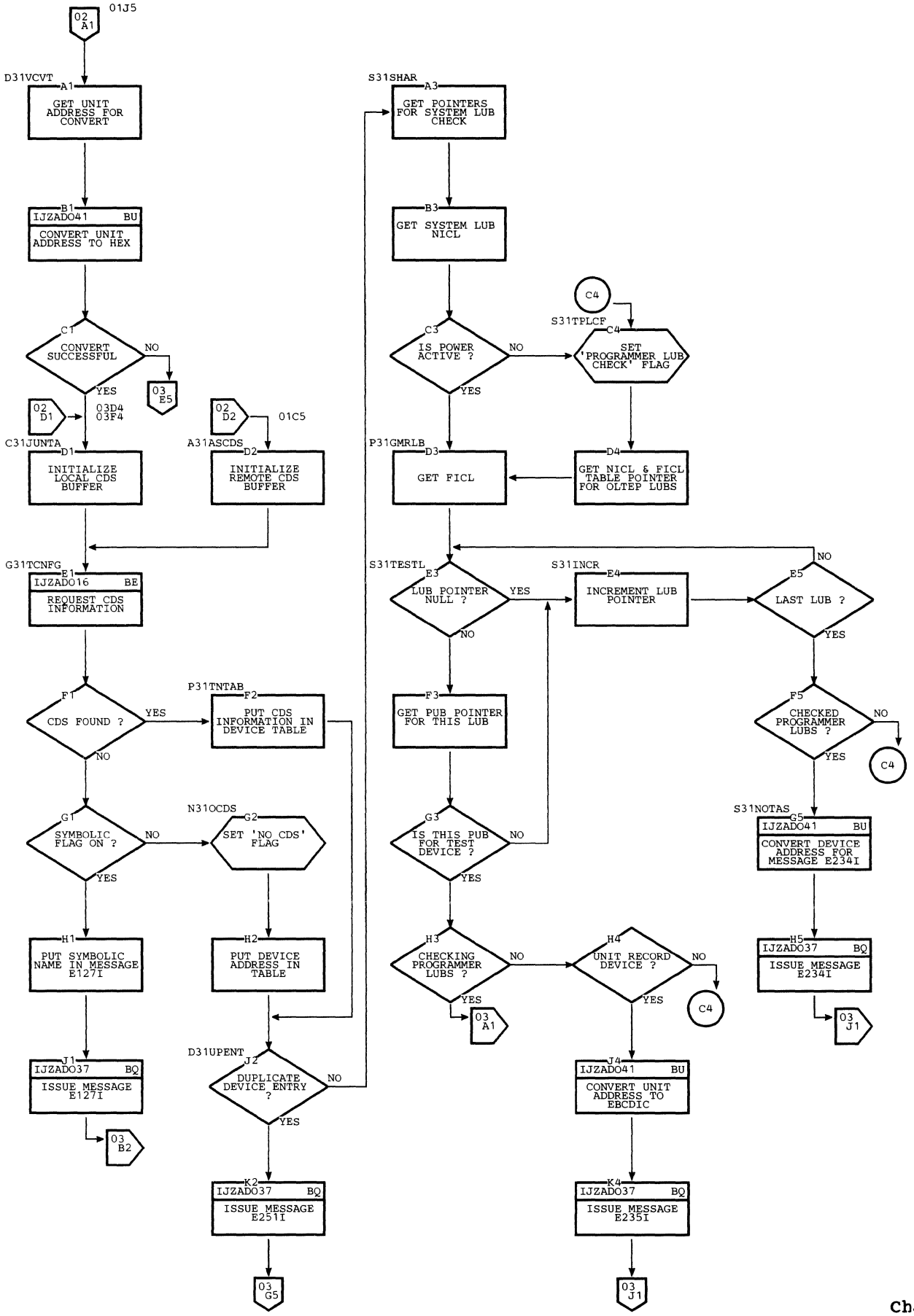


Chart AE. IJZADO31: Device Decode (Part 3 of 3)

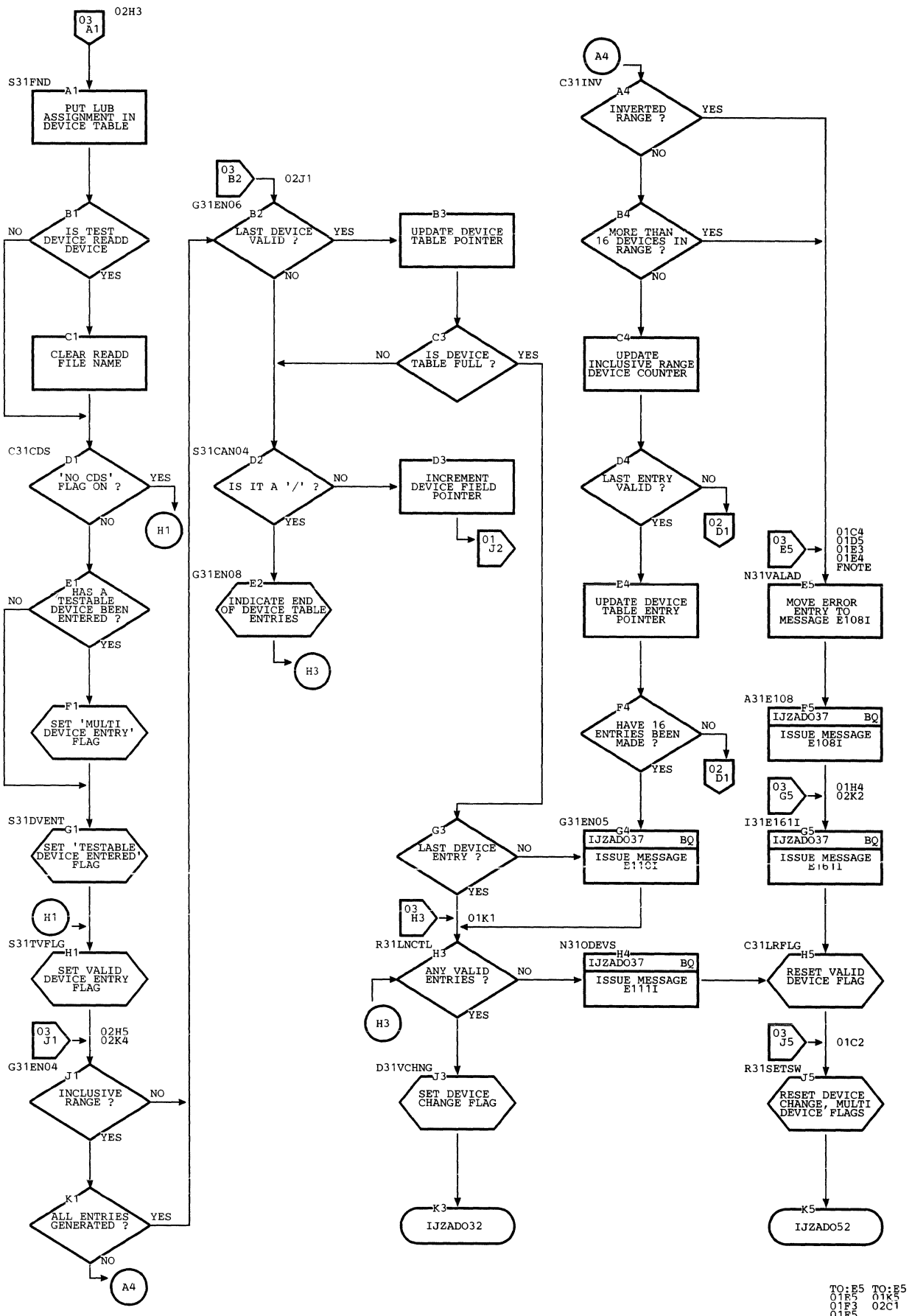


Chart AK. IJZAD032: Test Decode (Part 1 of 3)

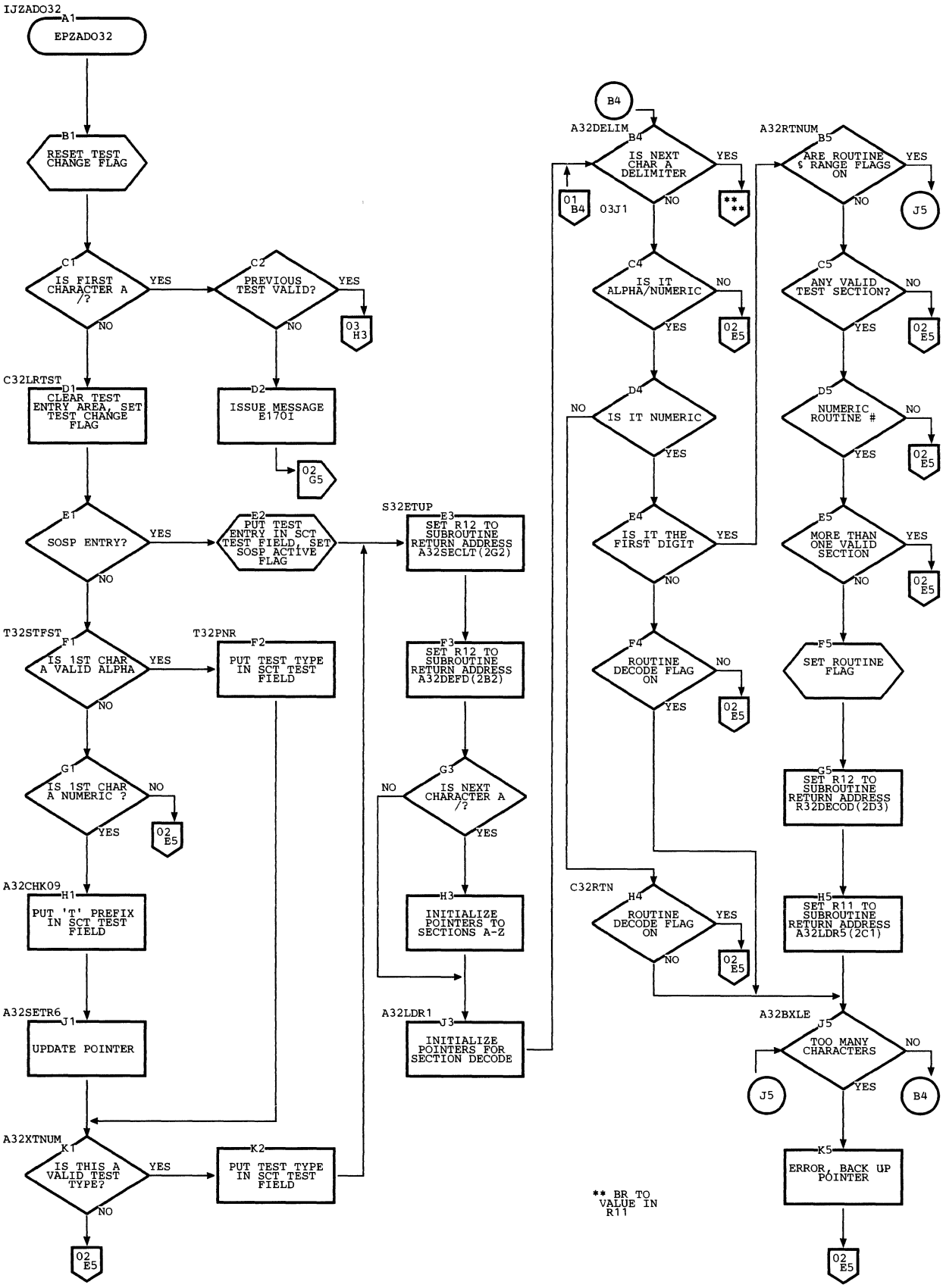


Chart AK. IJZADO32: Test Decode (Part 2 of 3)

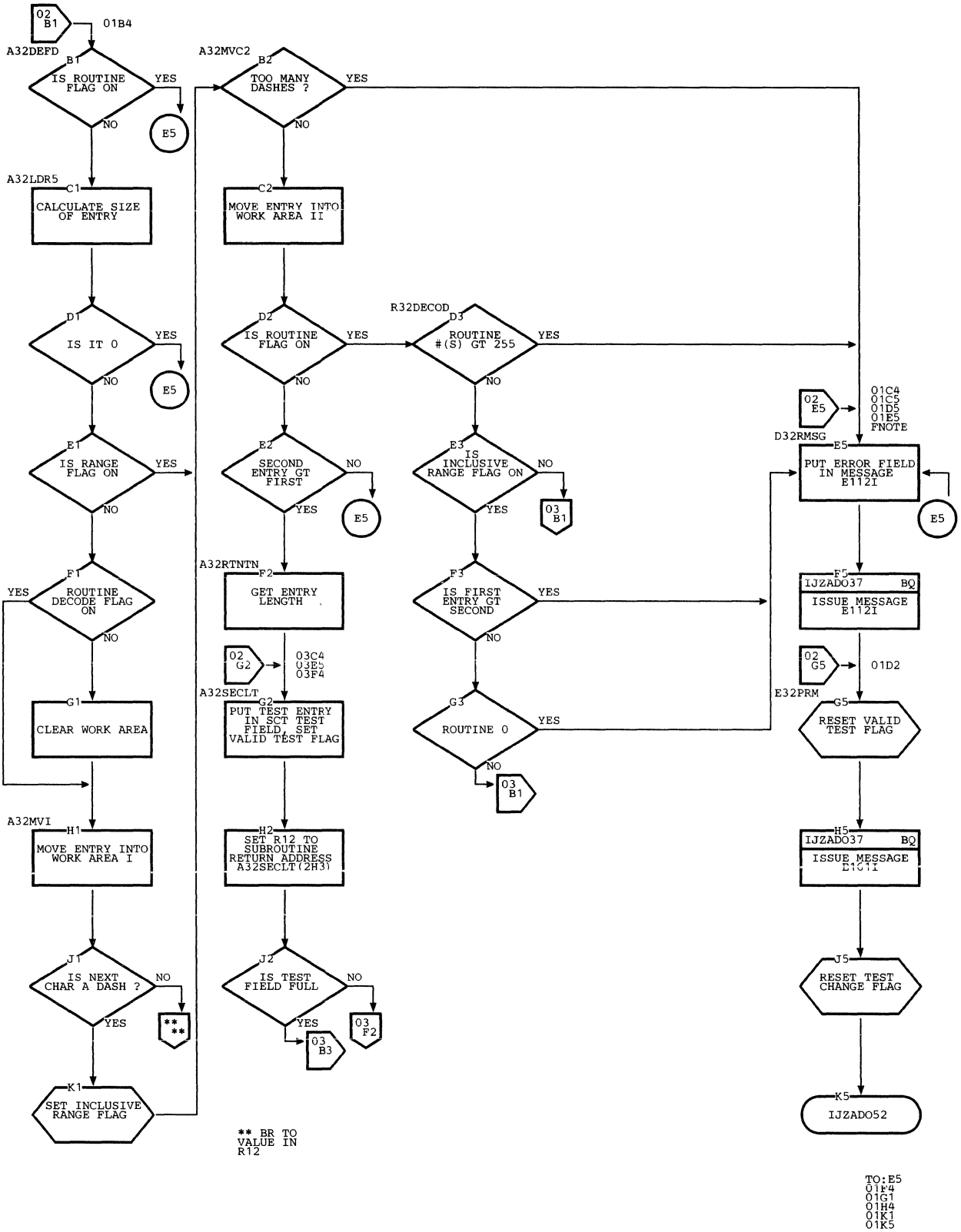


Chart AK. IJZAD032: Test Decode (Part 3 of 3)

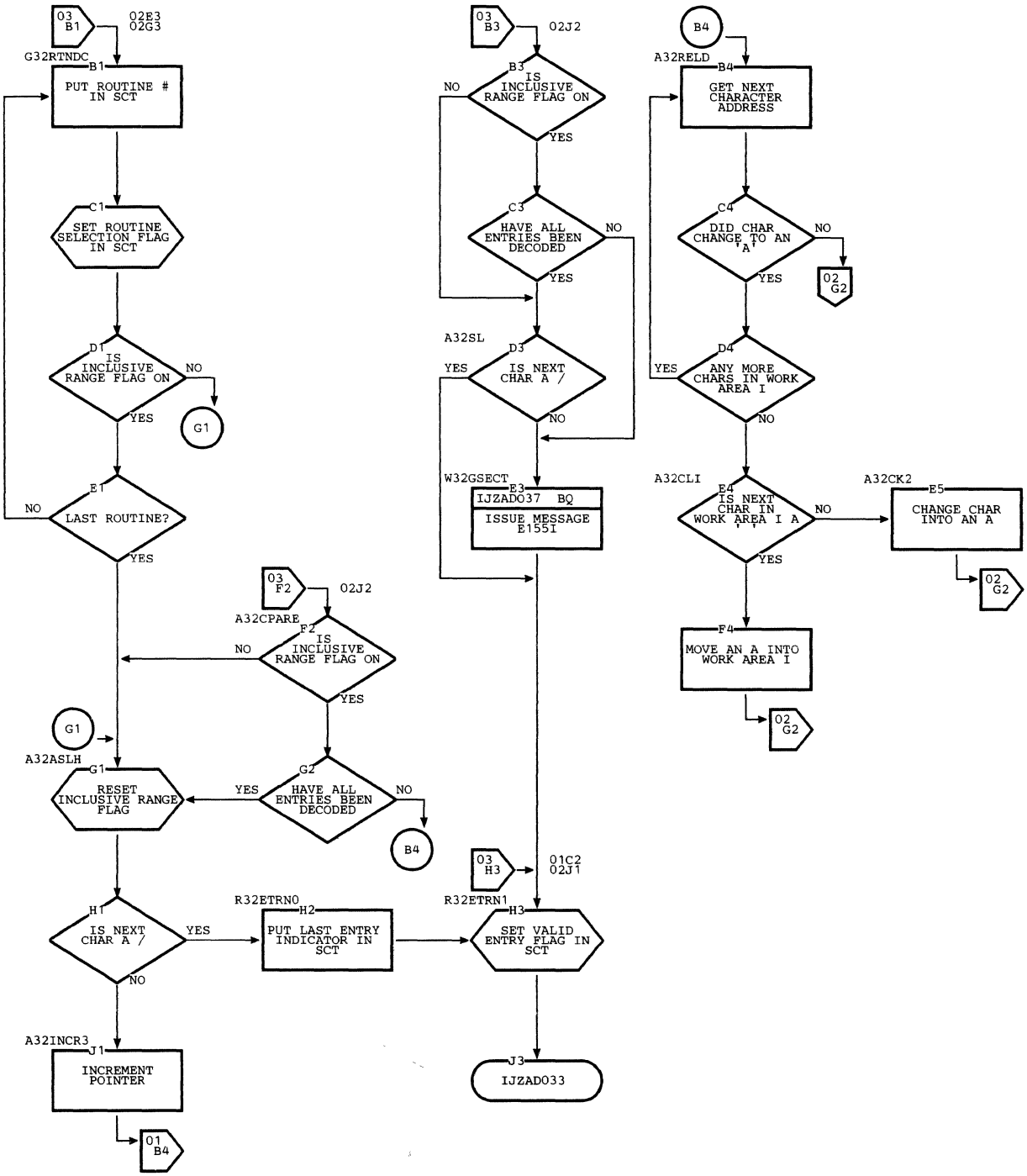


Chart AN. IJZADO33: Option Decode (Part 1 of 3)

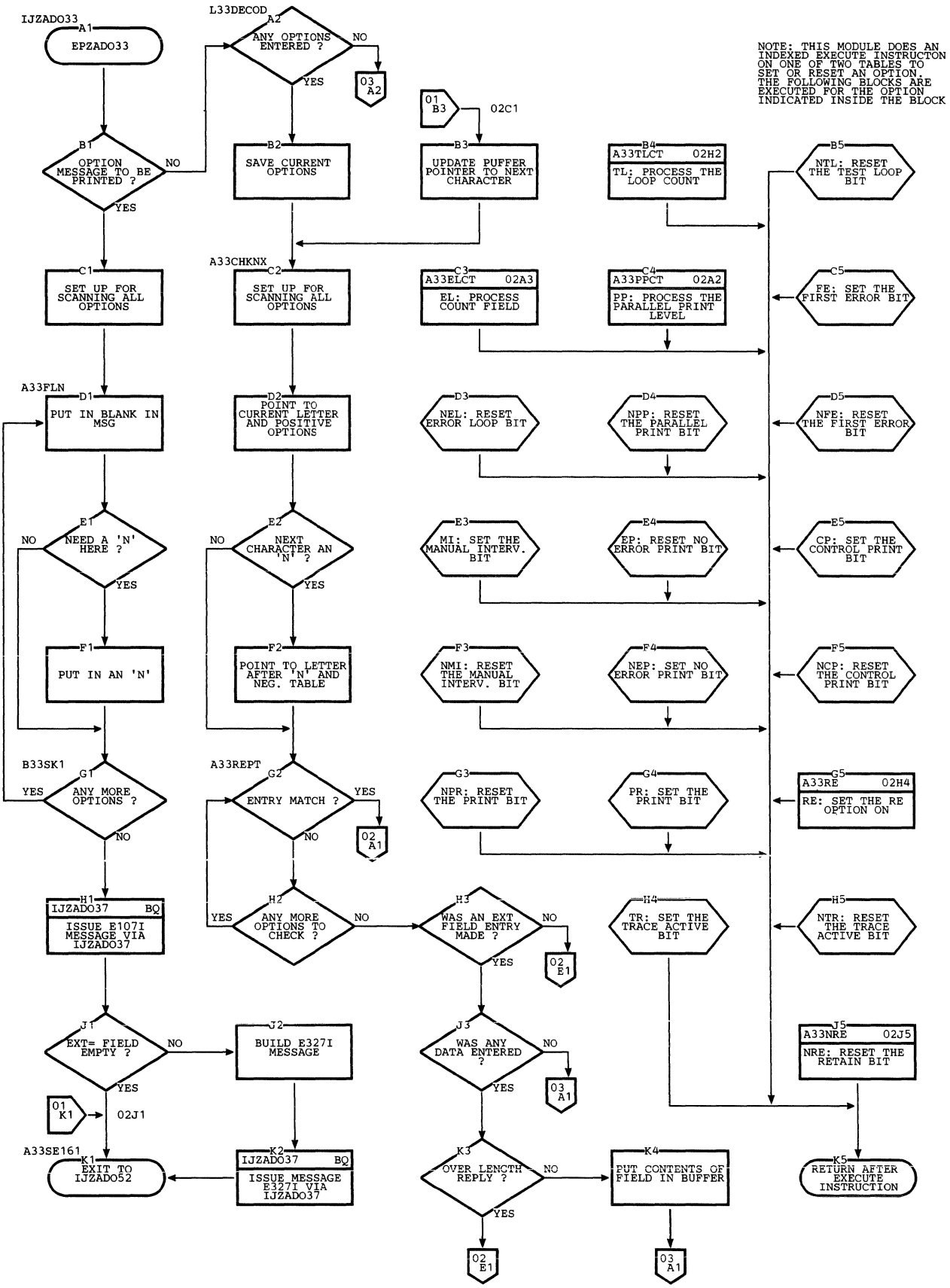


Chart AN. IJZADO33: Option Decode (Part 2 of 3)

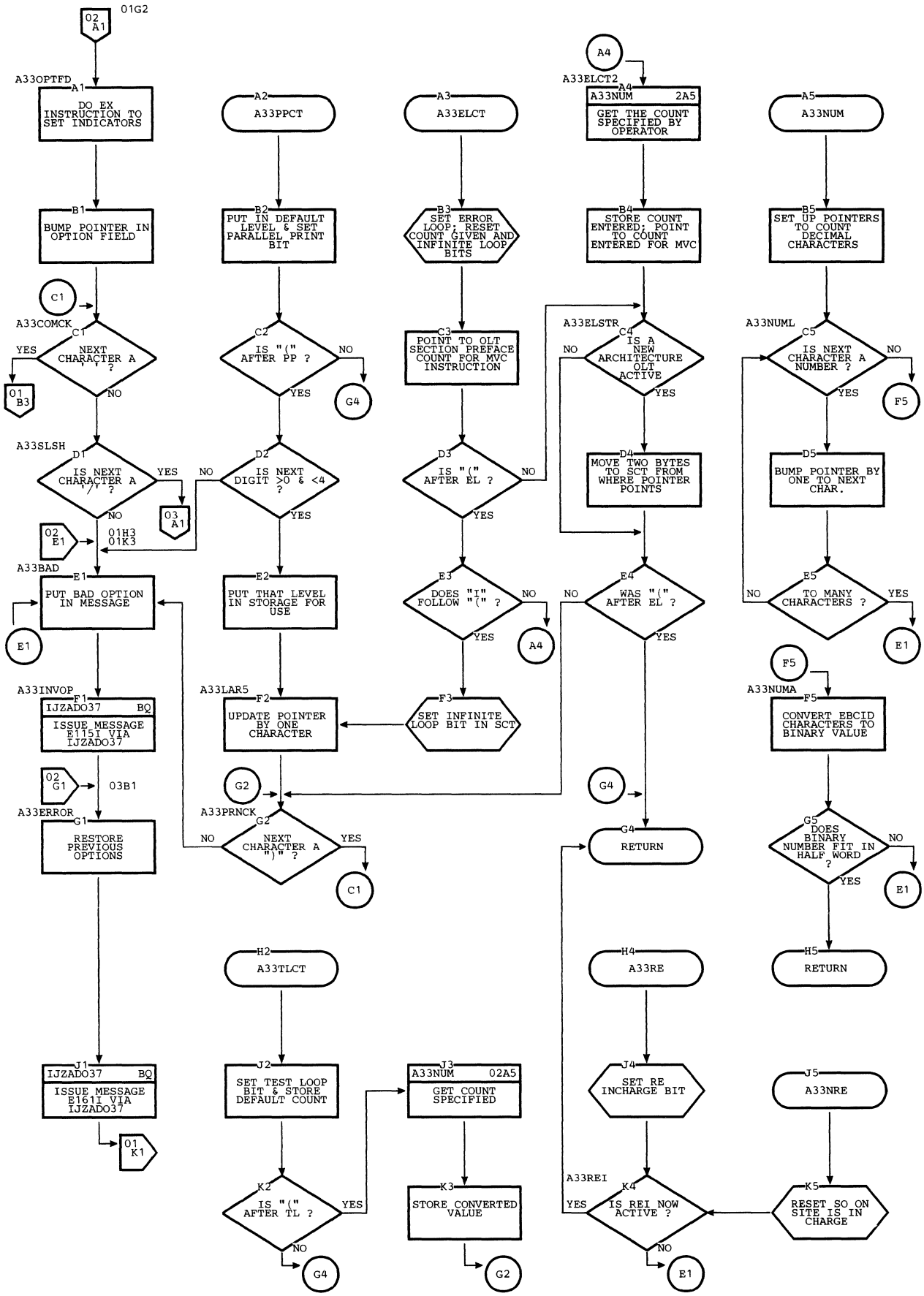


Chart AN. IJZADO33: Opticn Decode (Part 3 of 3)

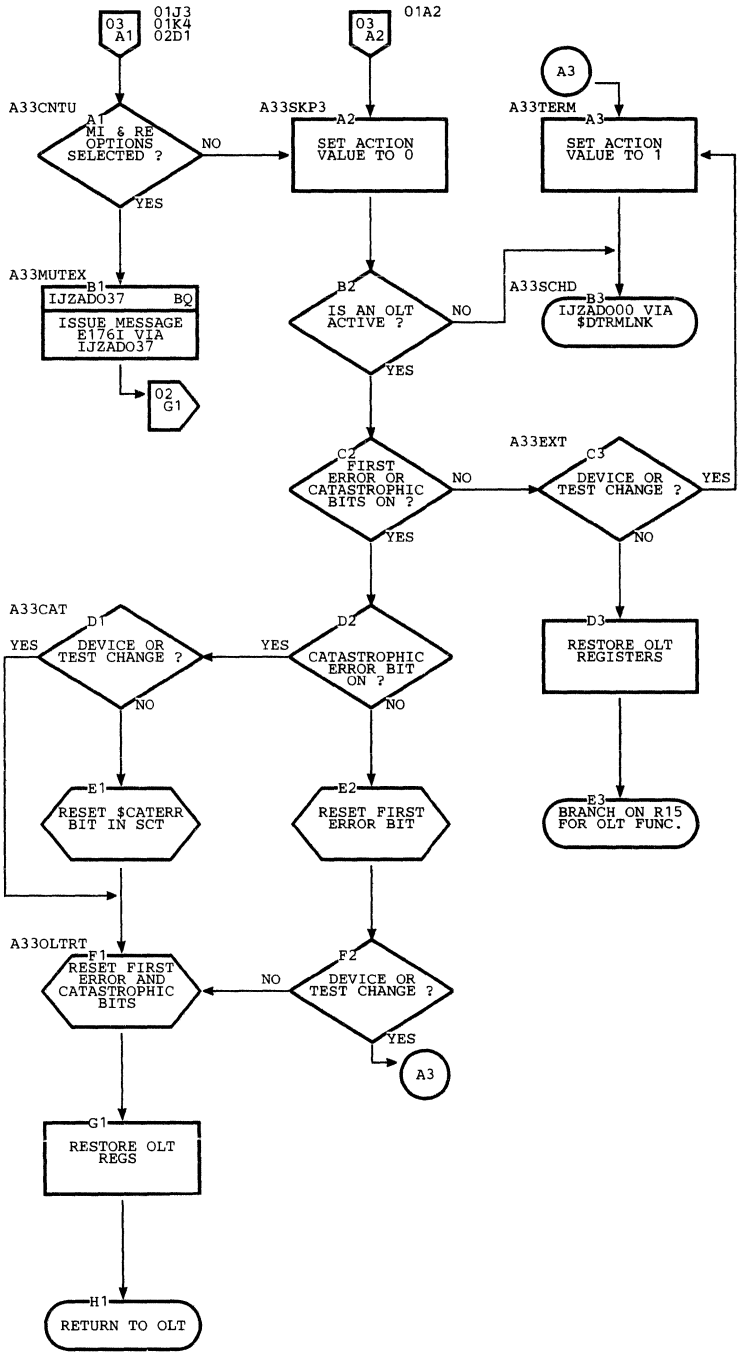


Chart AP. IJZADO00: Scheduler (Part 1 of 4)

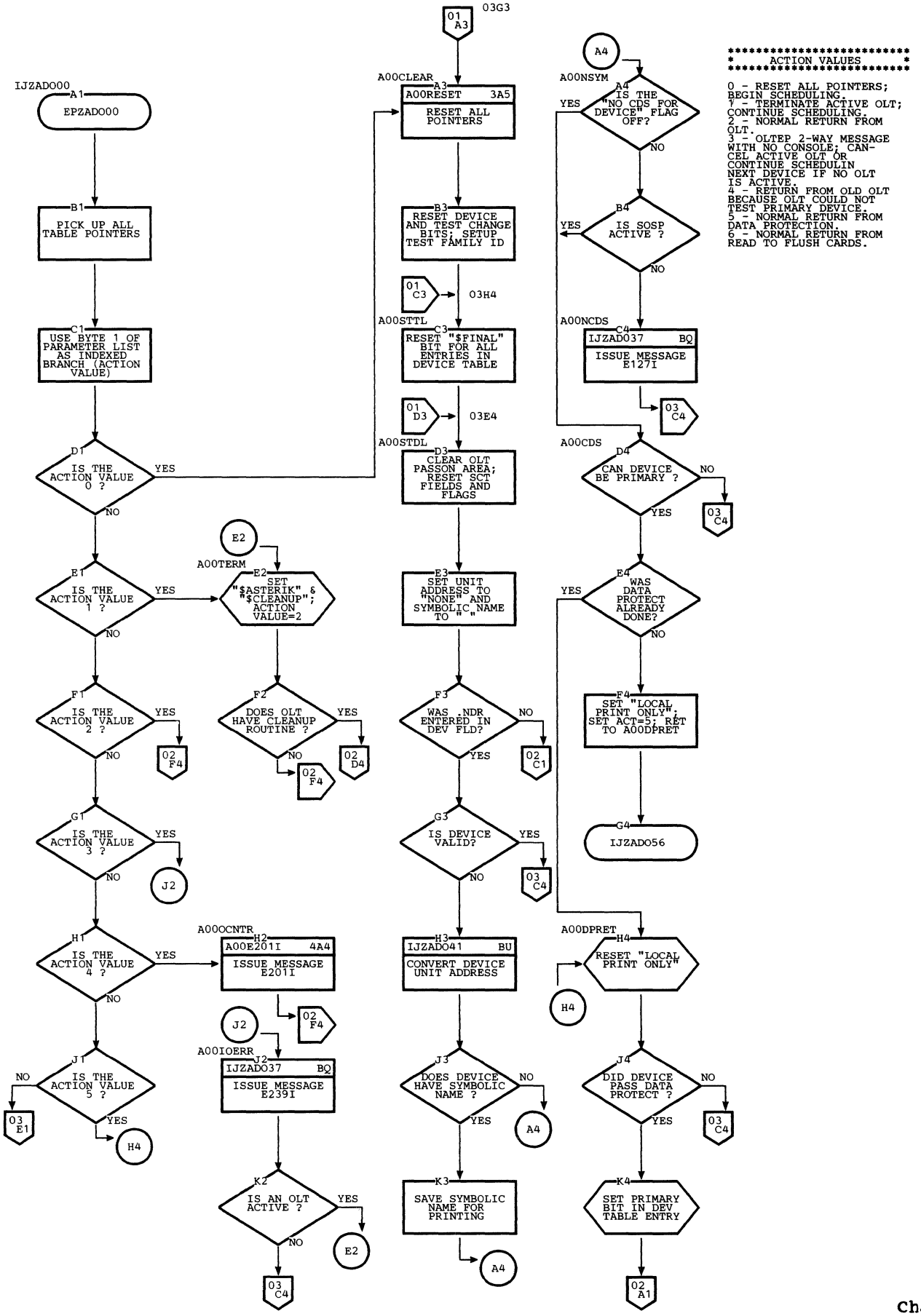


Chart AP. IJZADO00: Scheduler (Part 2 of 4)

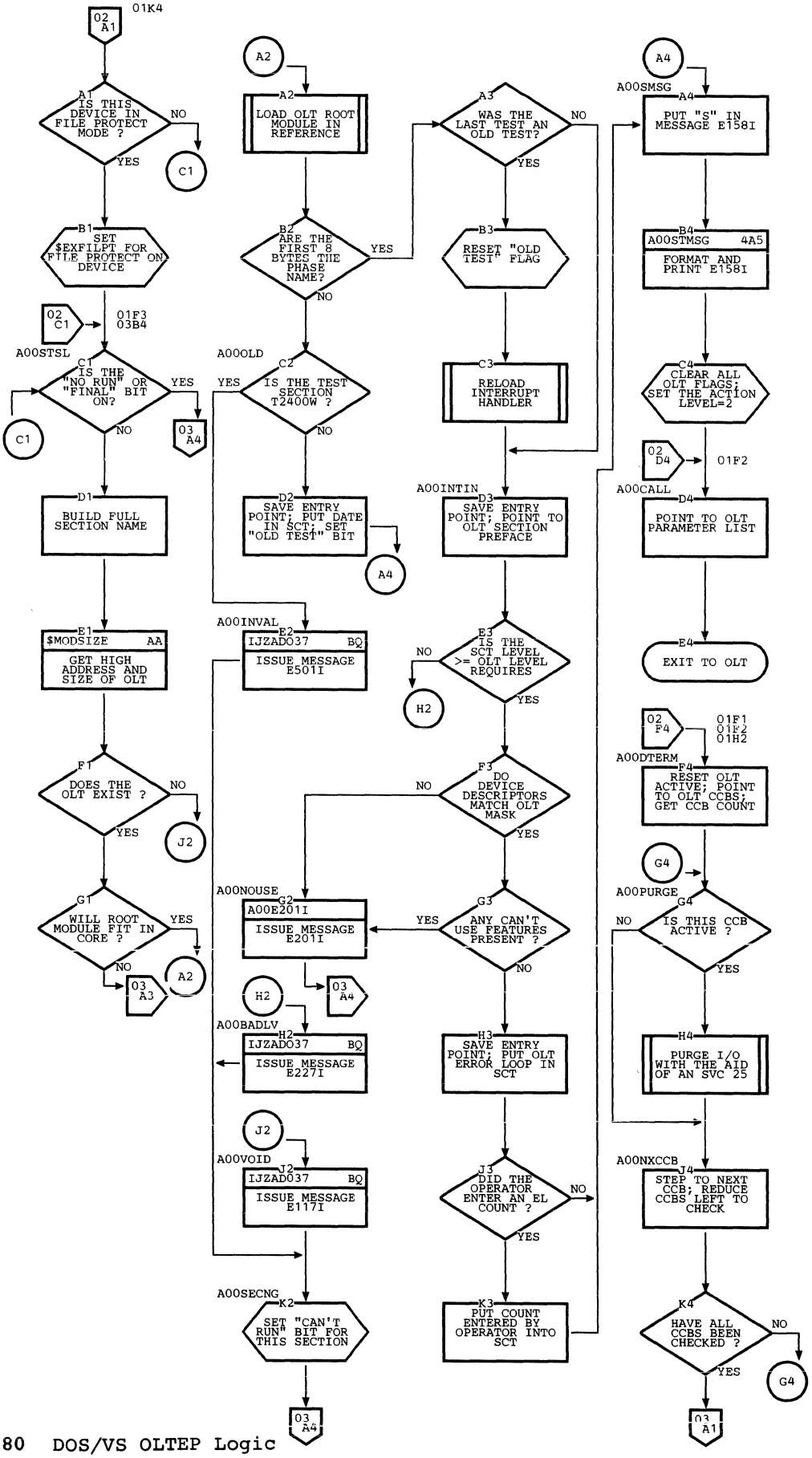


Chart AP. IJZADO00: Scheduler (Part 3 of 4)

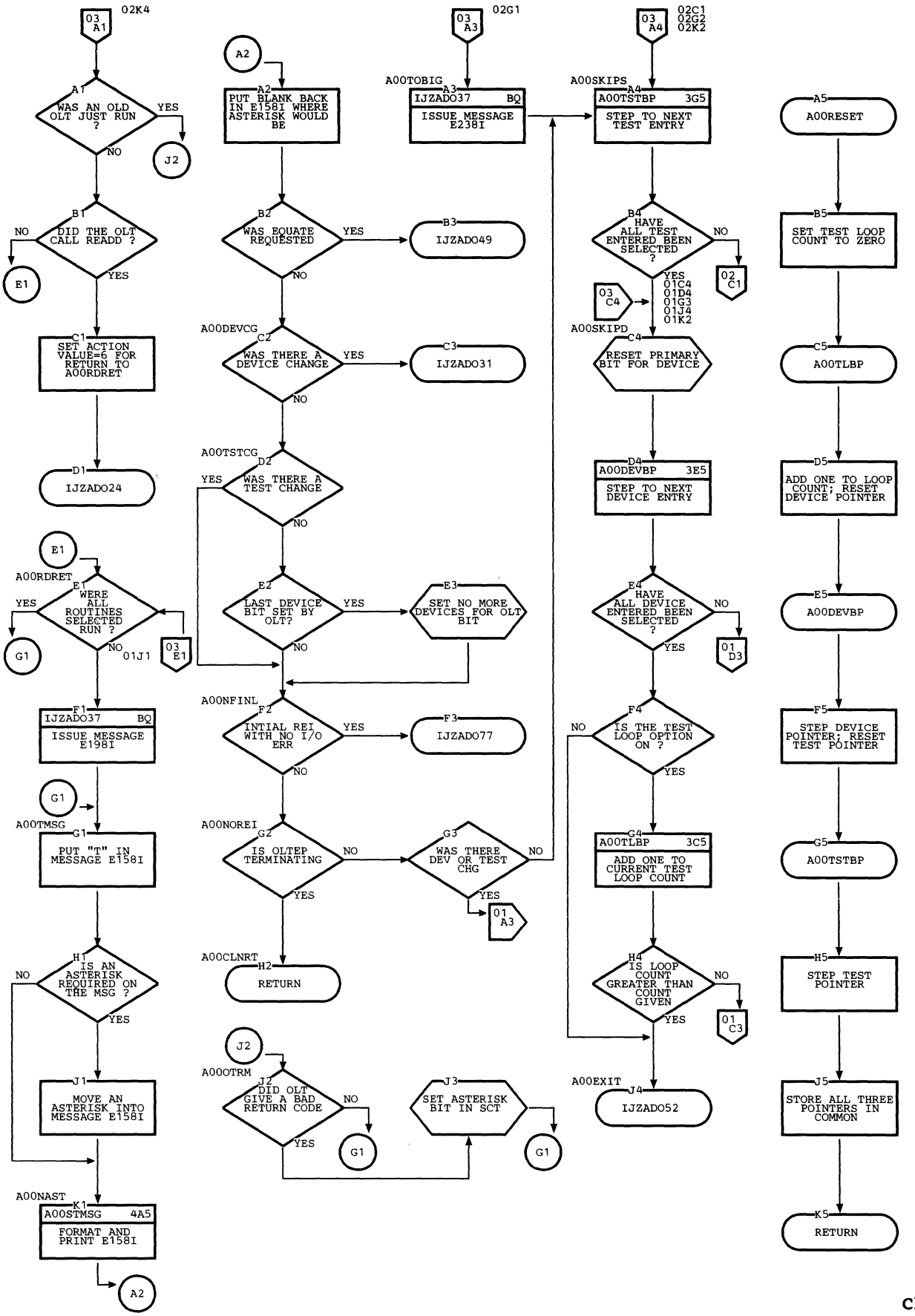


Chart AP. IJZADO00: Scheduler (Part 4 of 4)

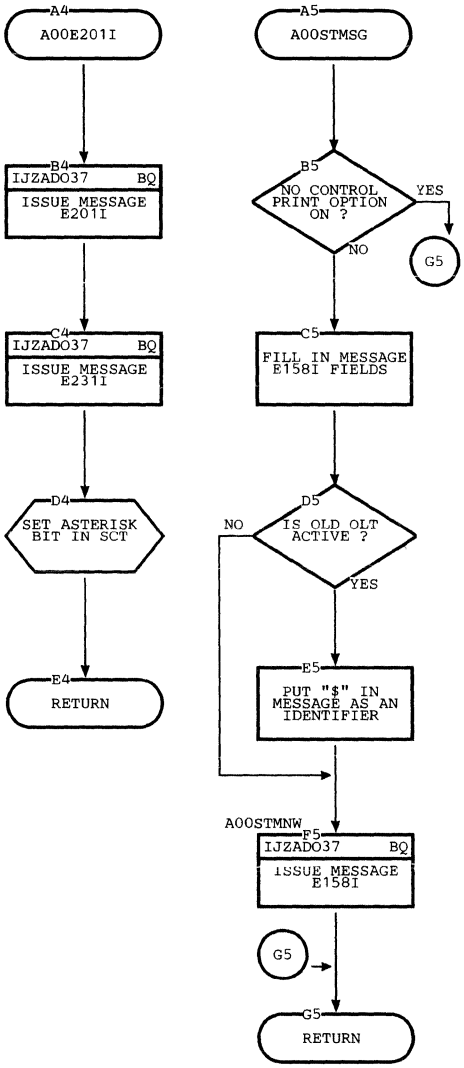


Chart AS. IJZAD056: Data Prctect (General) (Part 1 of 2)

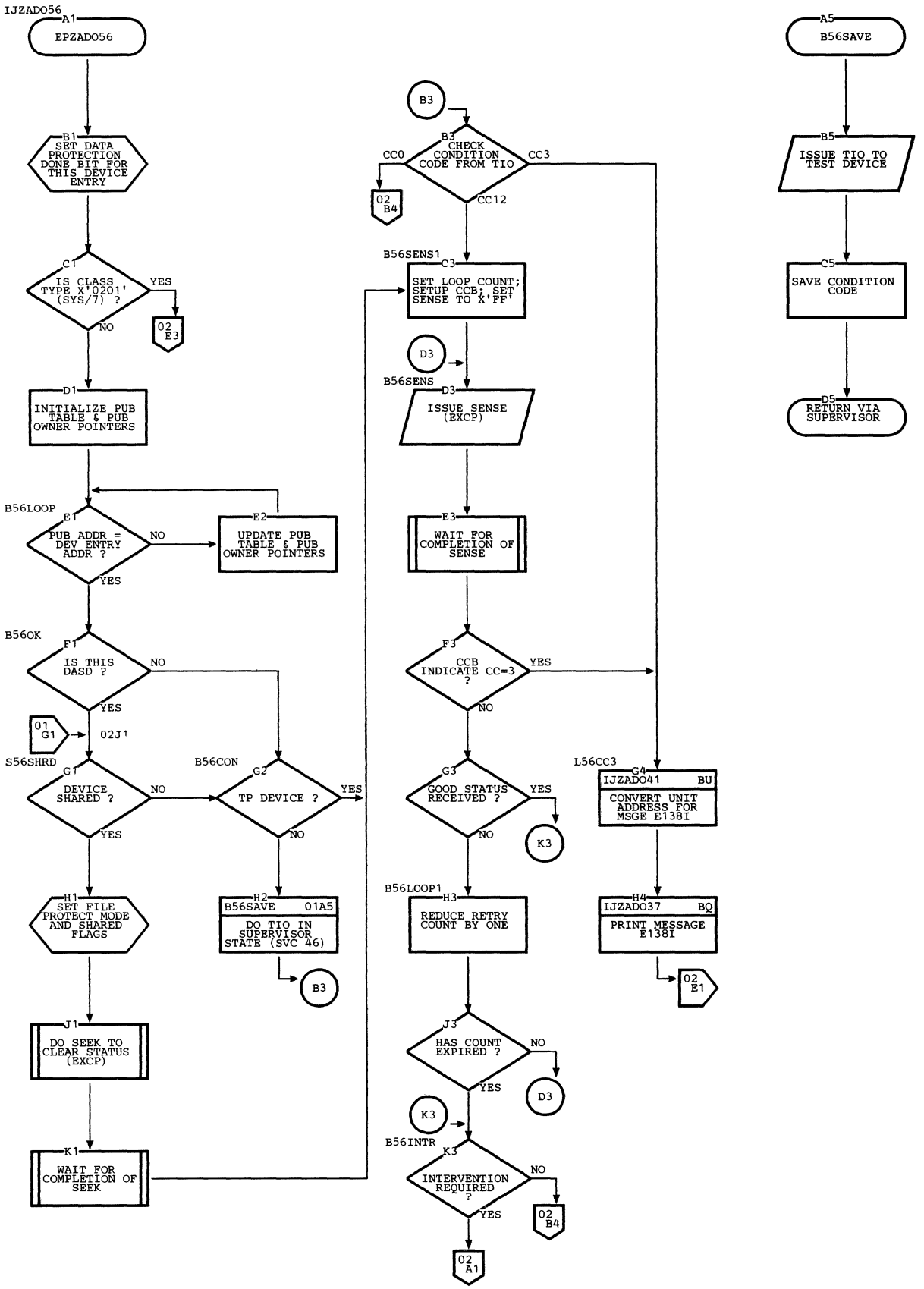


Chart AS. IJZADO56: Data Prctect (General) (Part 2 of 2)

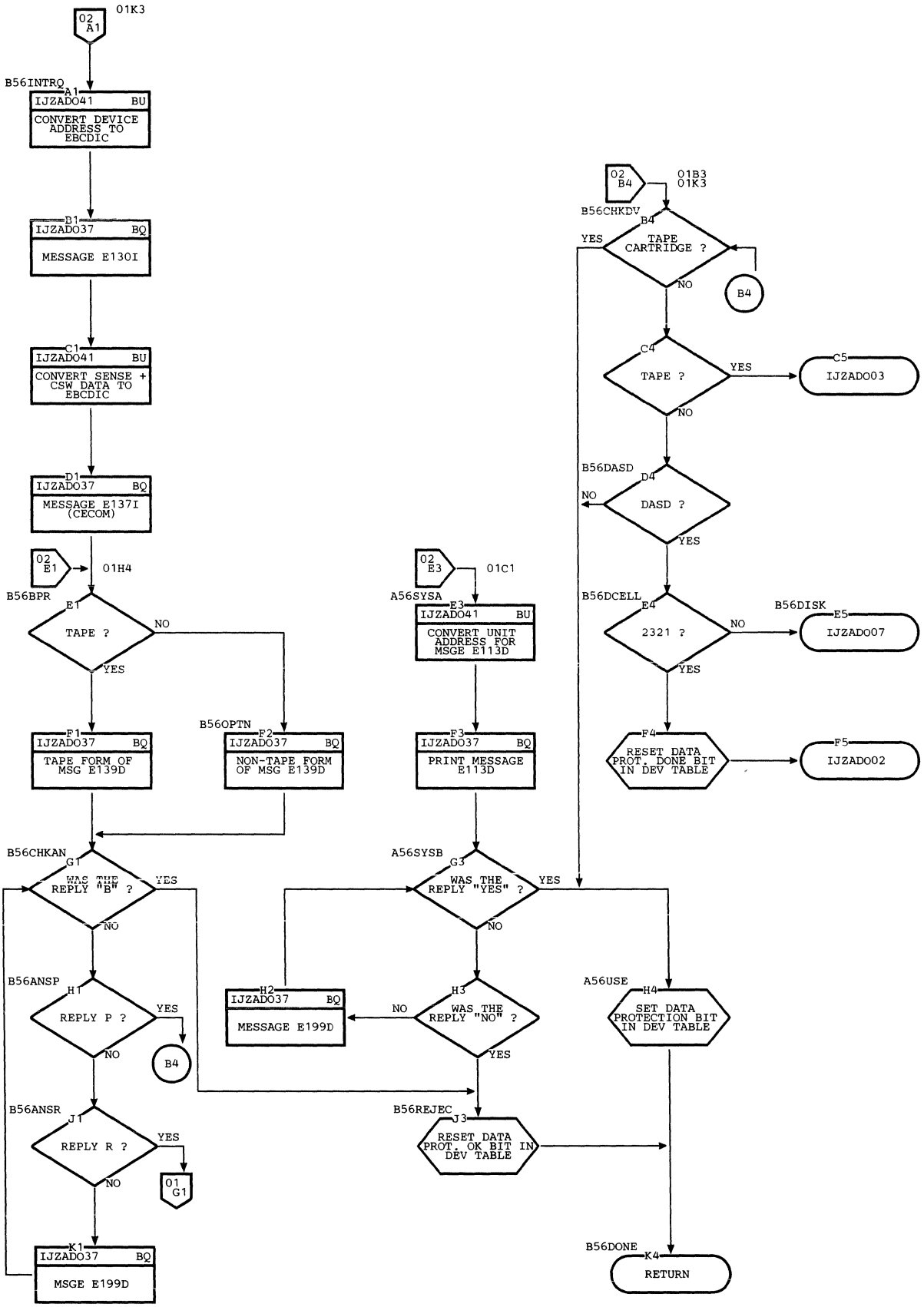


Chart AU. IJZADO02: Data Prctect (2321)

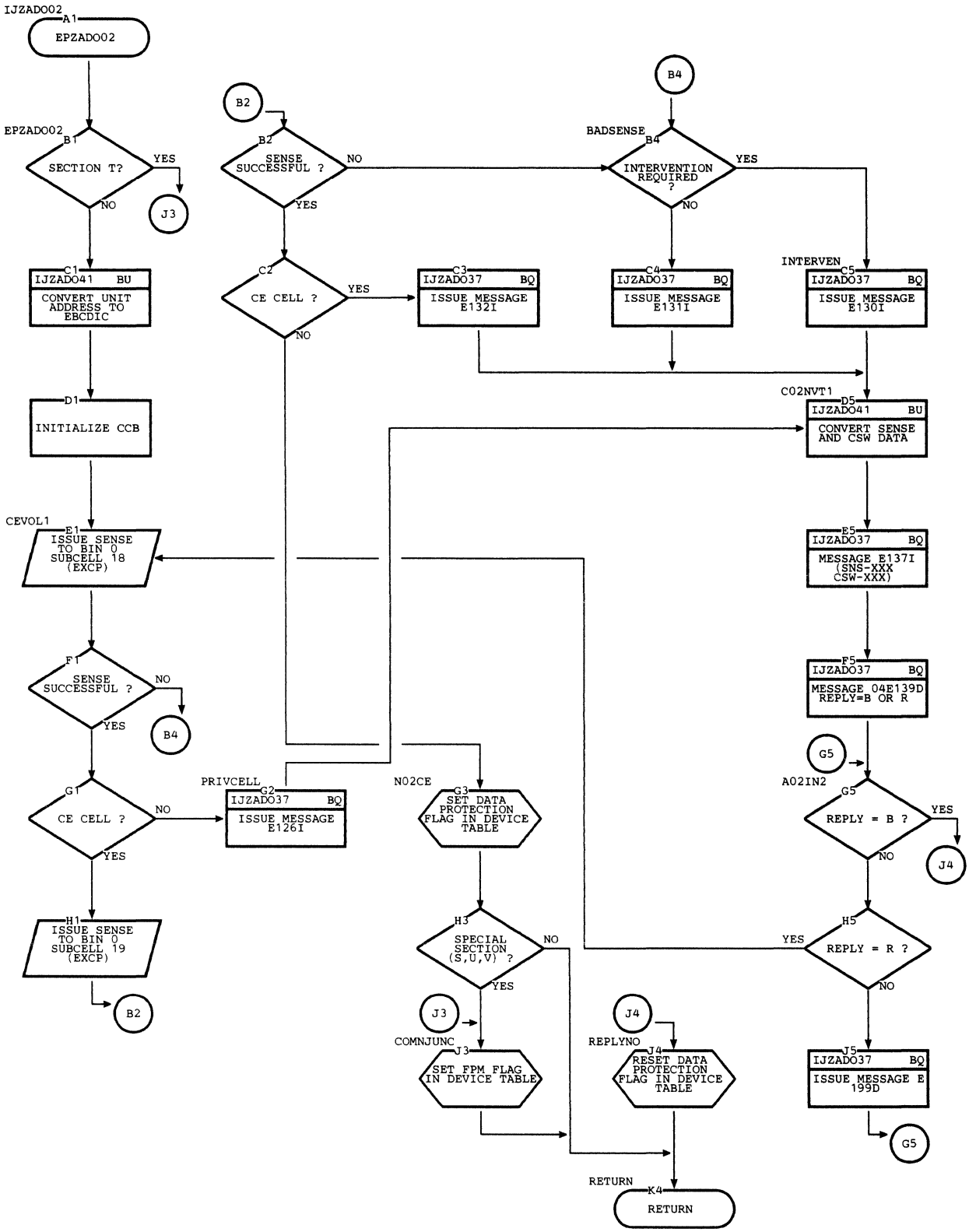


Chart AV. IJZADO03: Data Protect (Tape) (Part 1 of 2)

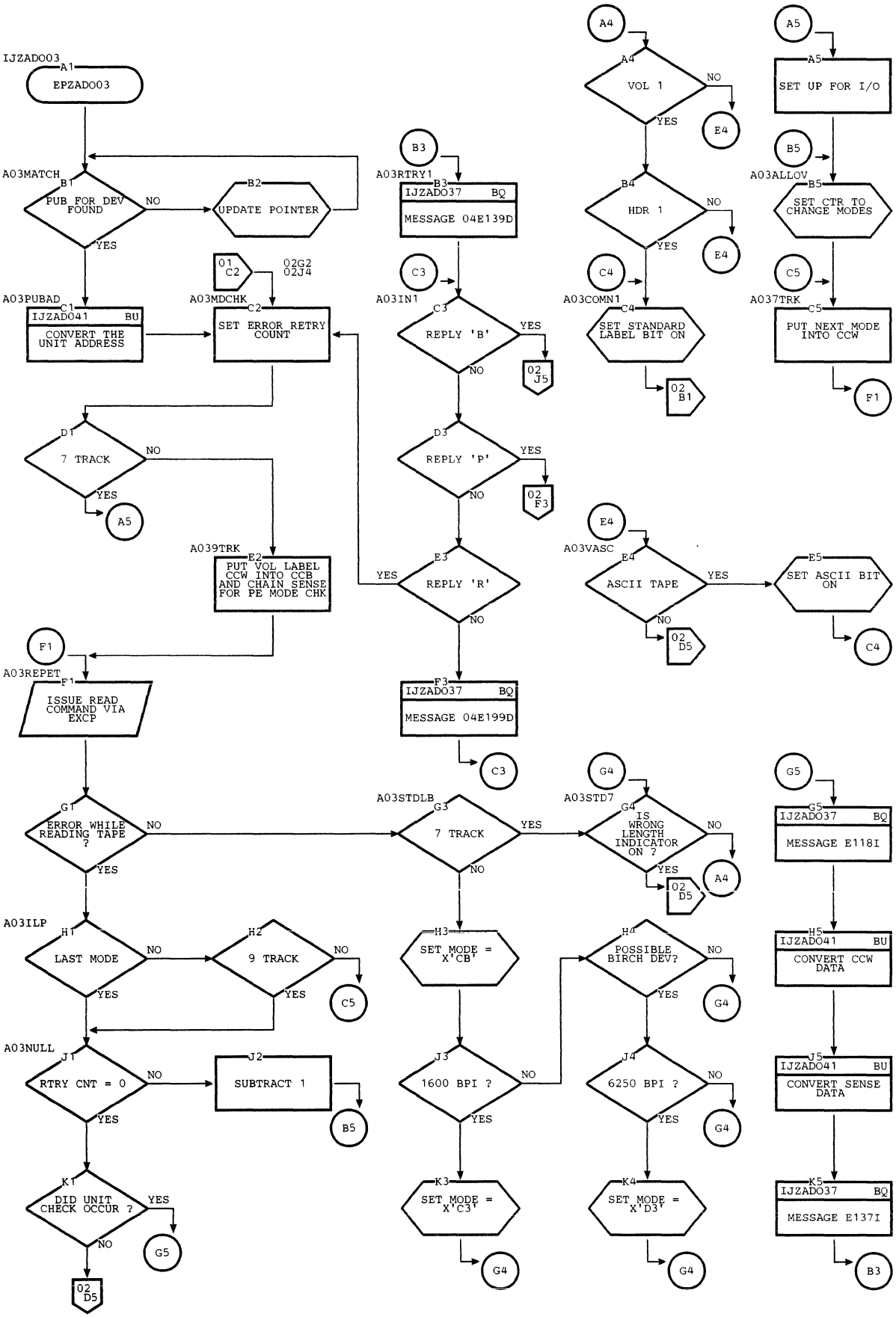


Chart AV. IJZADO03: Data Prctect (Tape) (Part 2 of 2)

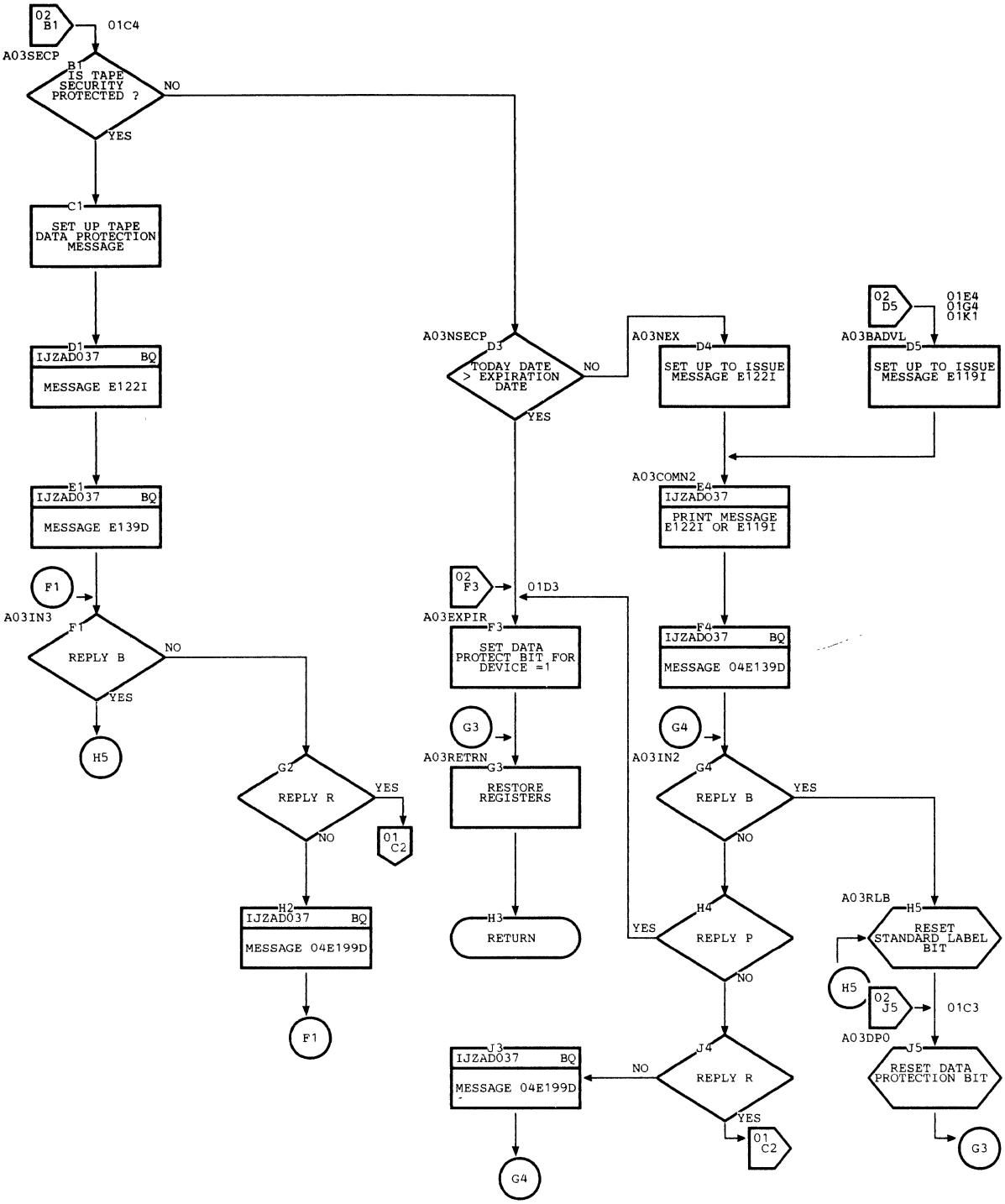


Chart AX. IJZADO07: Data Prctect (2311/2314)

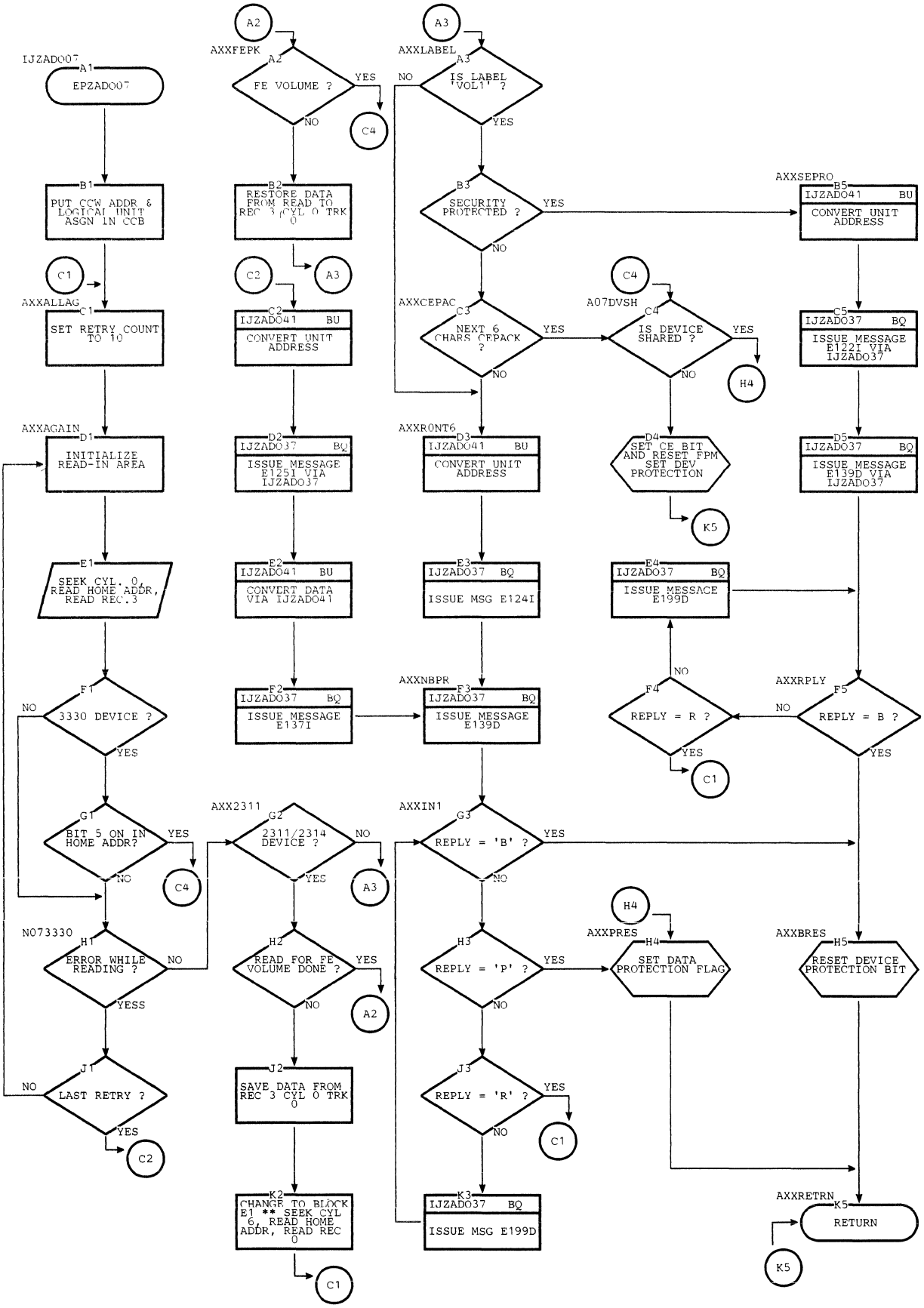


Chart AY. IJZADO11: TP Line Connection (Part 1 of 4)

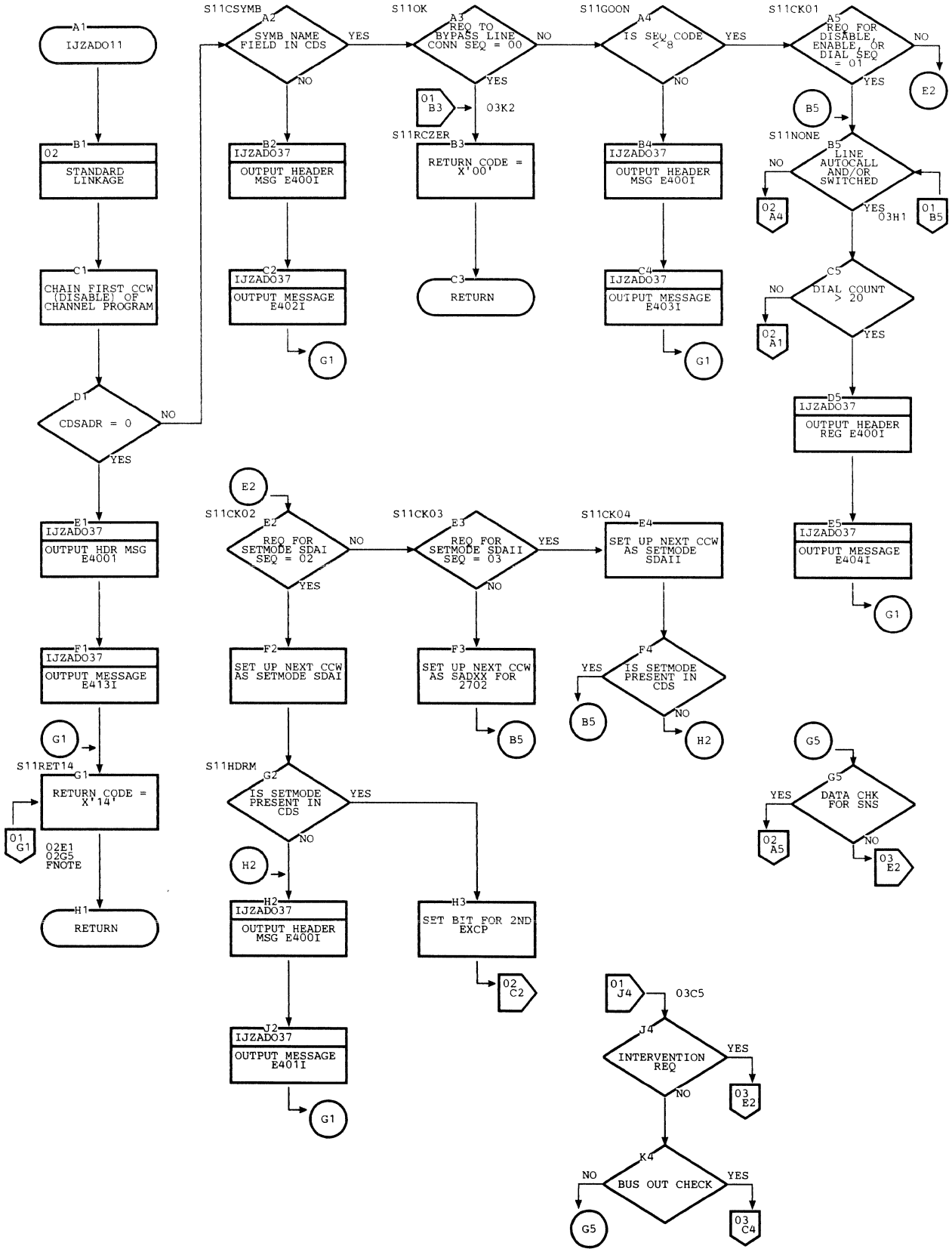


Chart AY. IJZADO11: TP Line Connection (Part 2 of 4)

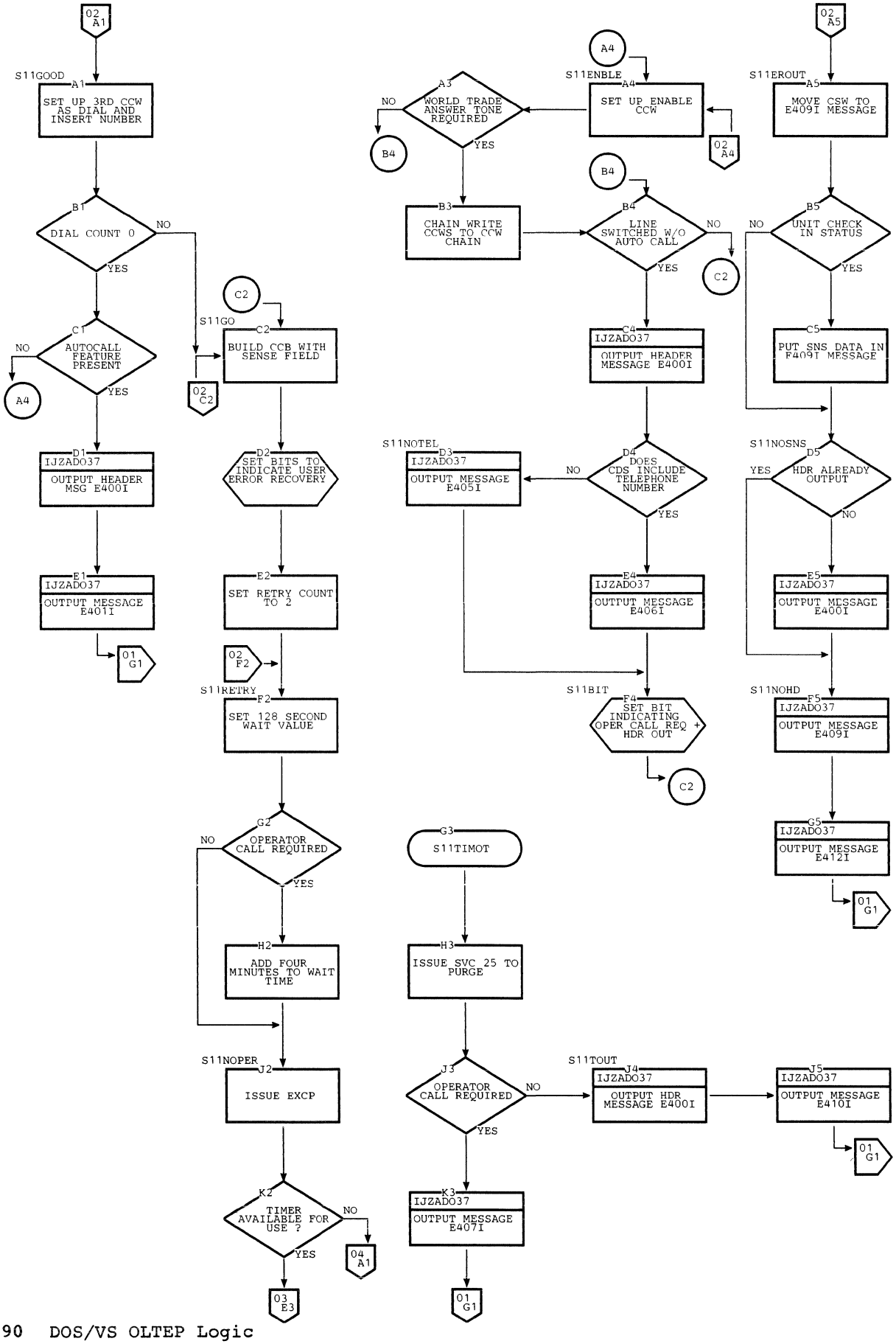


Chart AY. IJZADO11: TP Line Connection (Part 3 or 4)

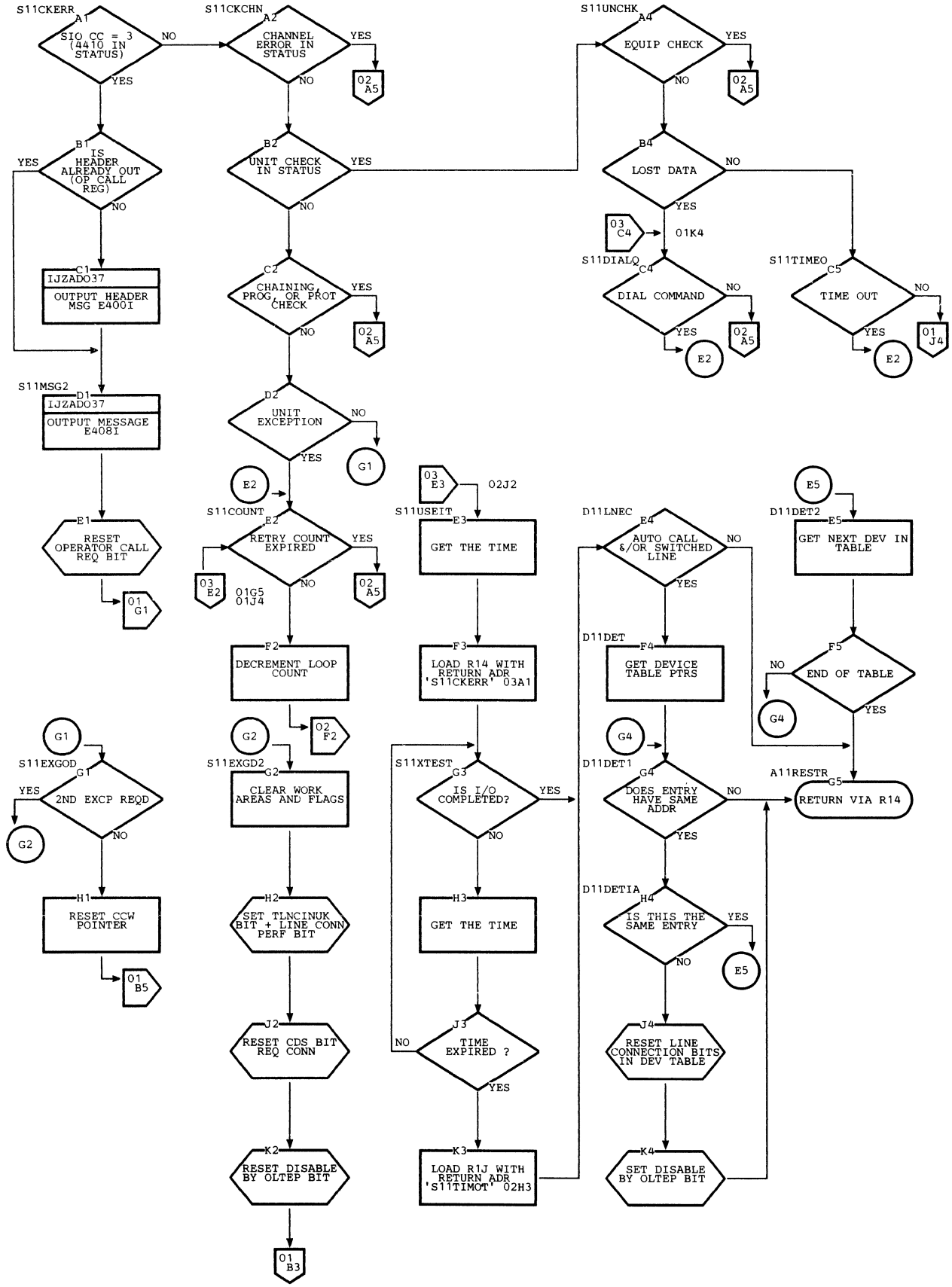


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Chart AY. IJZADO11: TP Line Connection (Part 4 of 4)

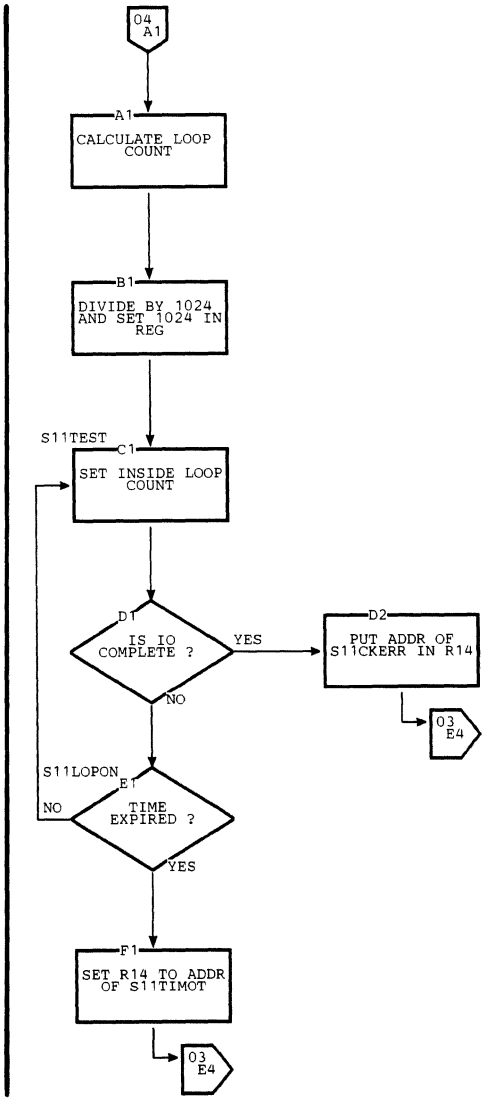


Chart BA. IJZADO10: REI Nucleus (Part 1 of 4)

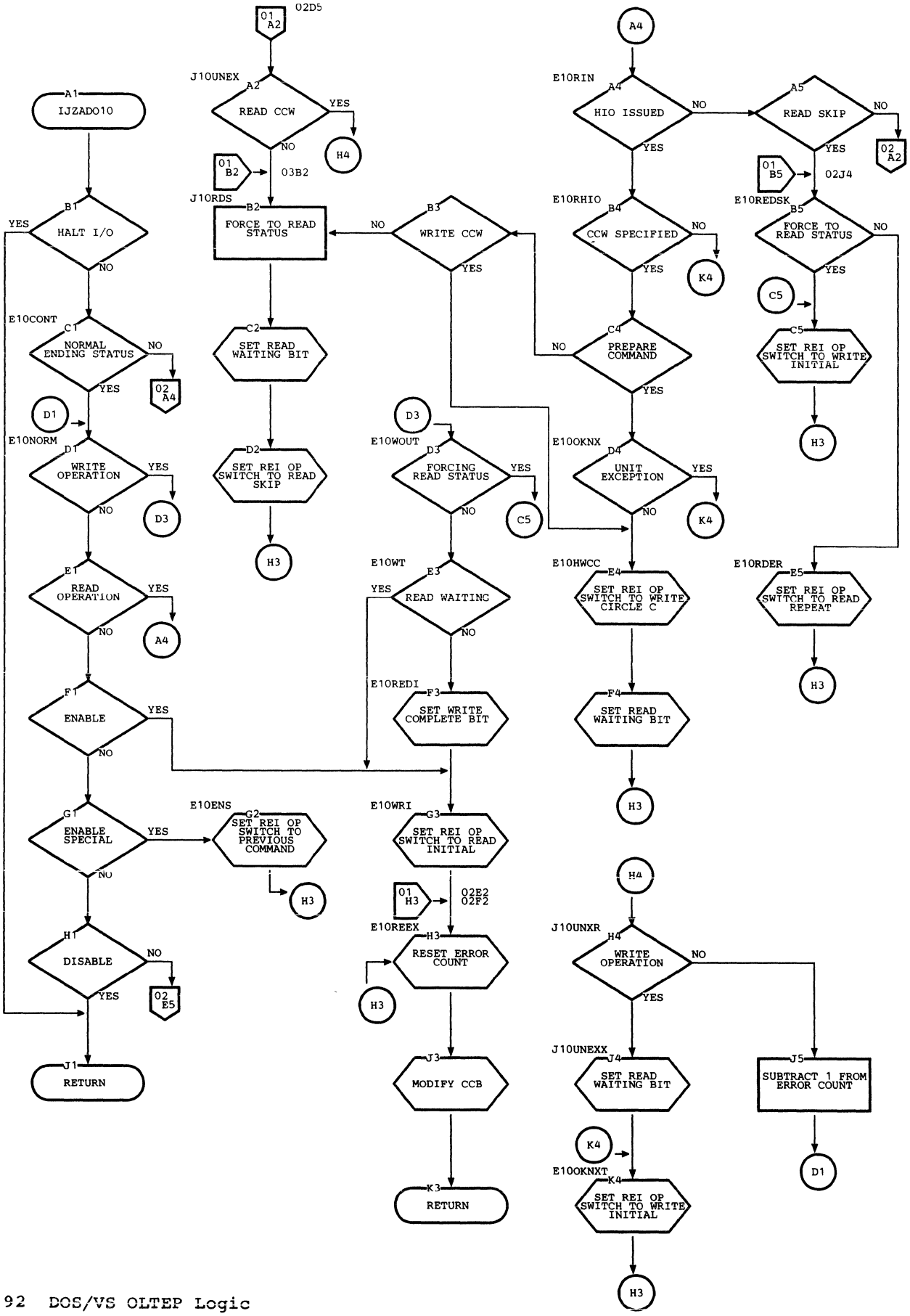


Chart BA. IJZADO10: REI Nucleus (Part 2 of 4)

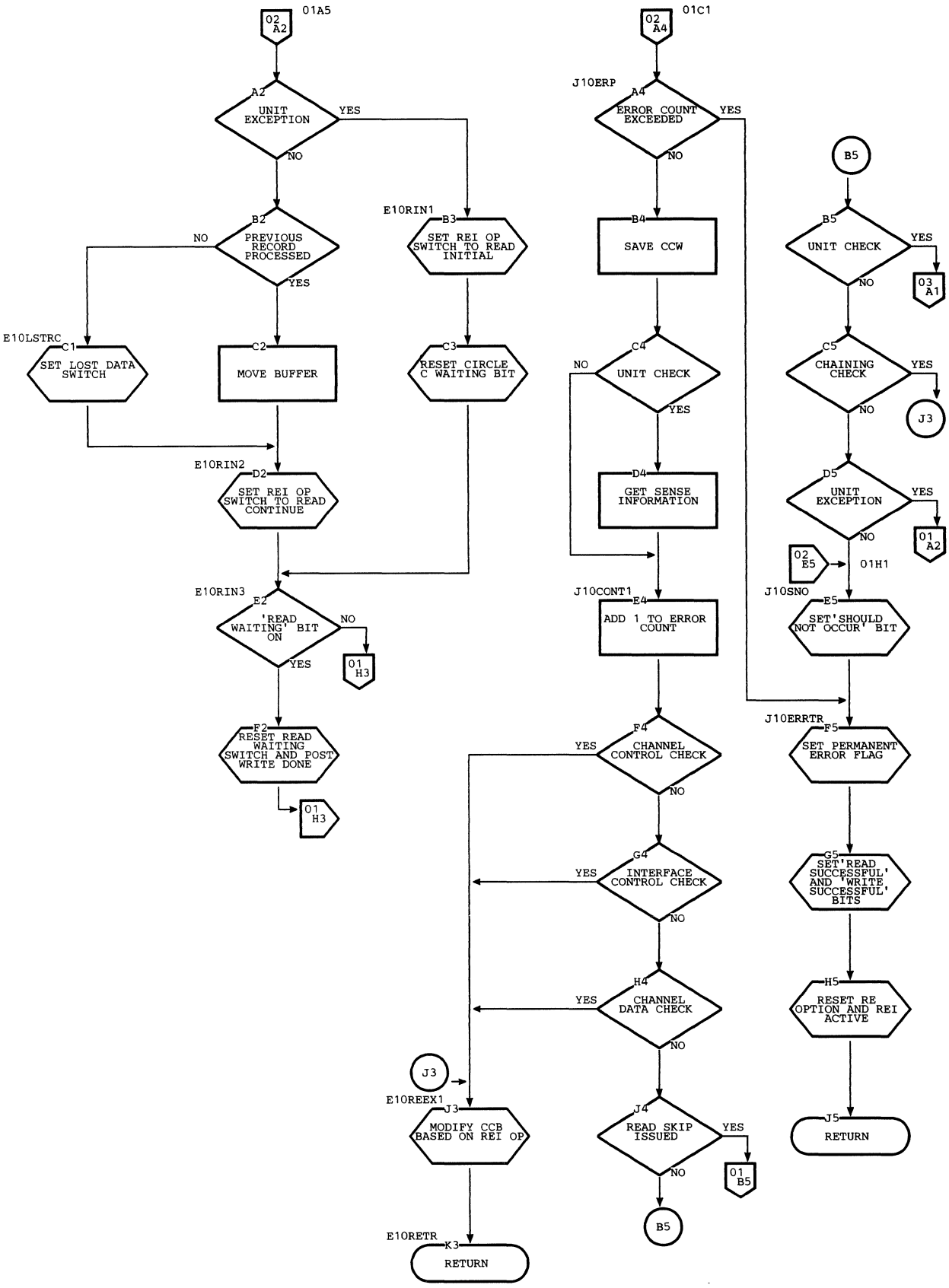


Chart BA. IJZADO10: REI Nucleus (Part 3 of 4)

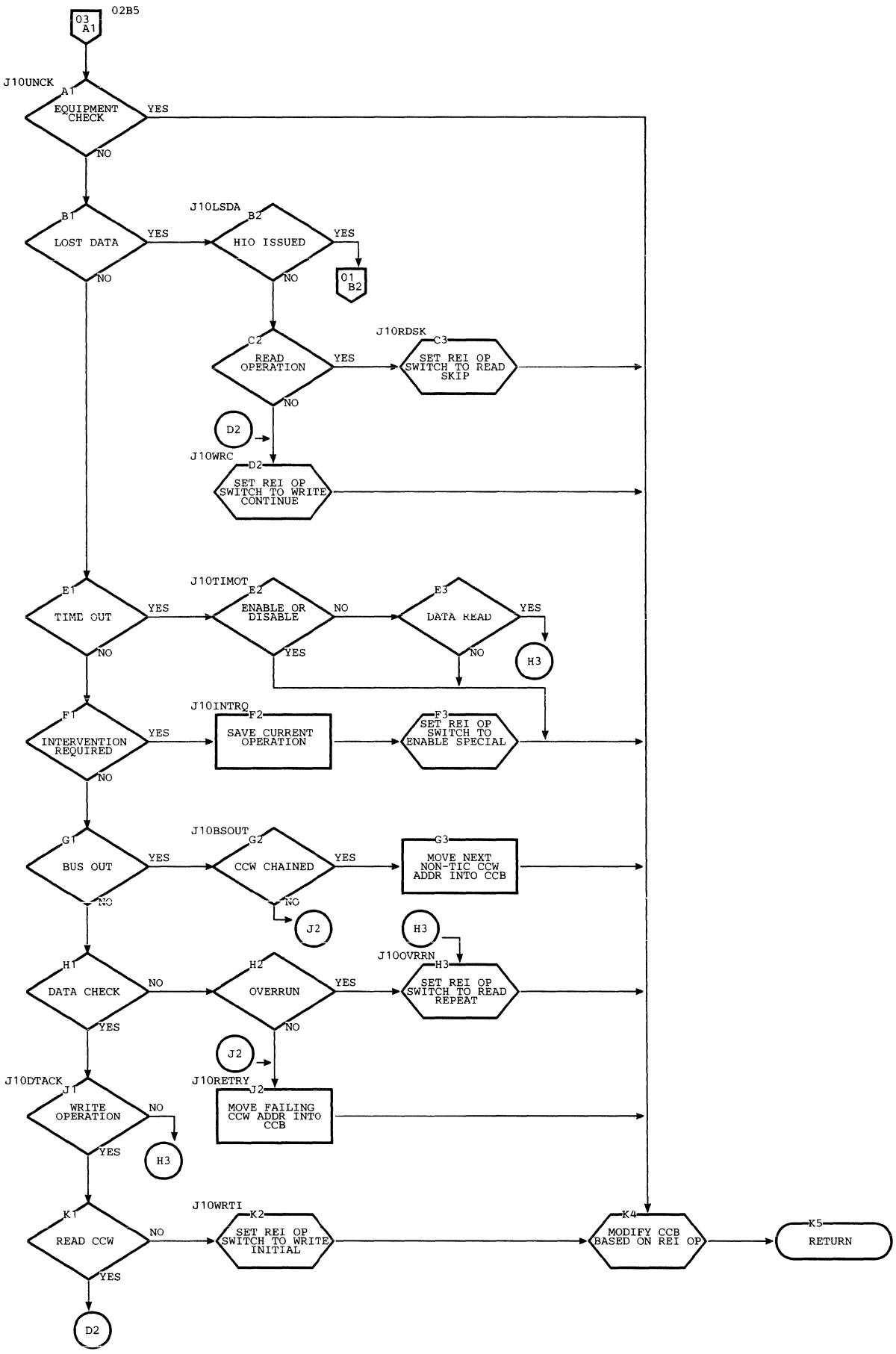


Chart BA. IJZADO10: REI Nucleus (Part 4 of 4)

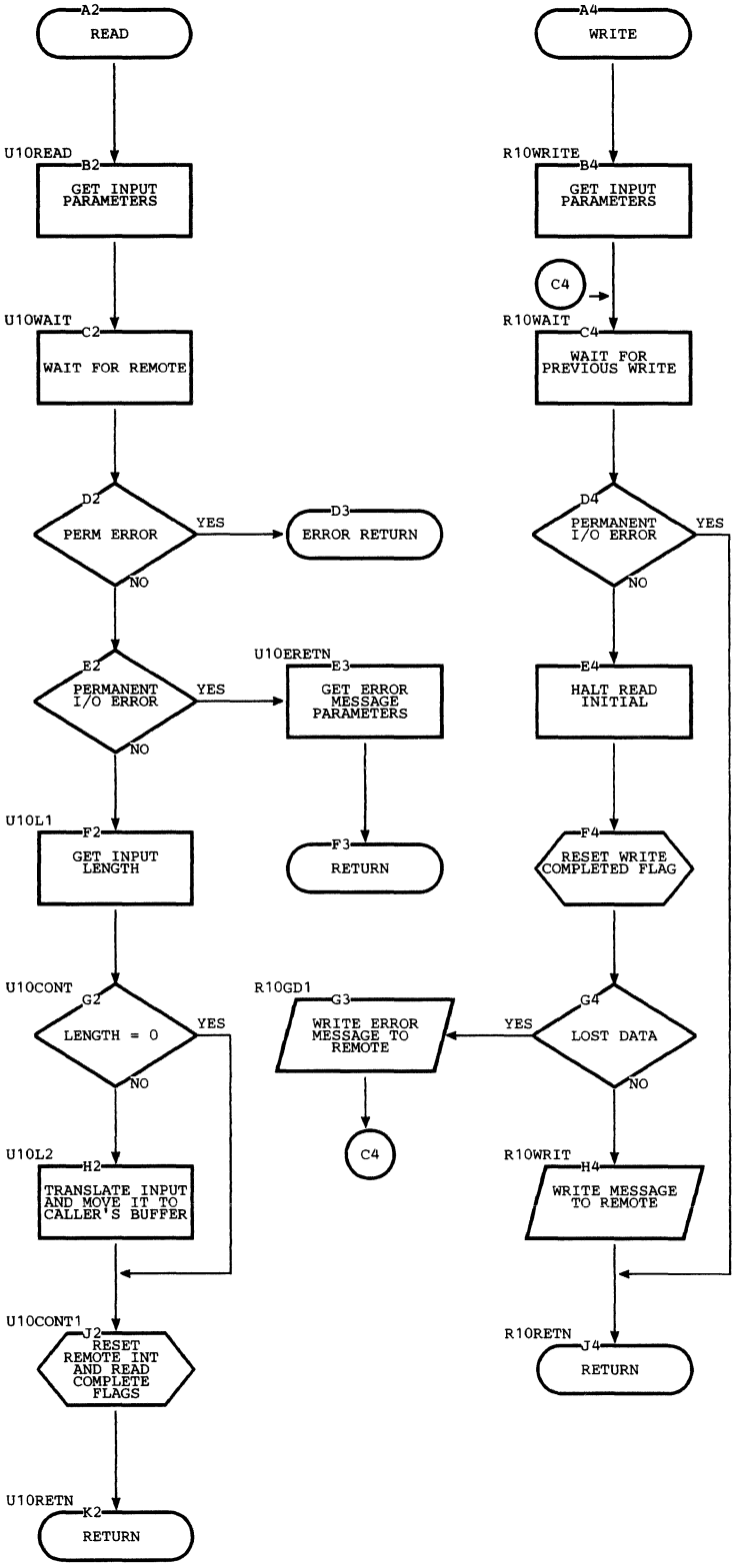


Chart BE. IJZADO16: GETCONFG (Part 1 of 2)

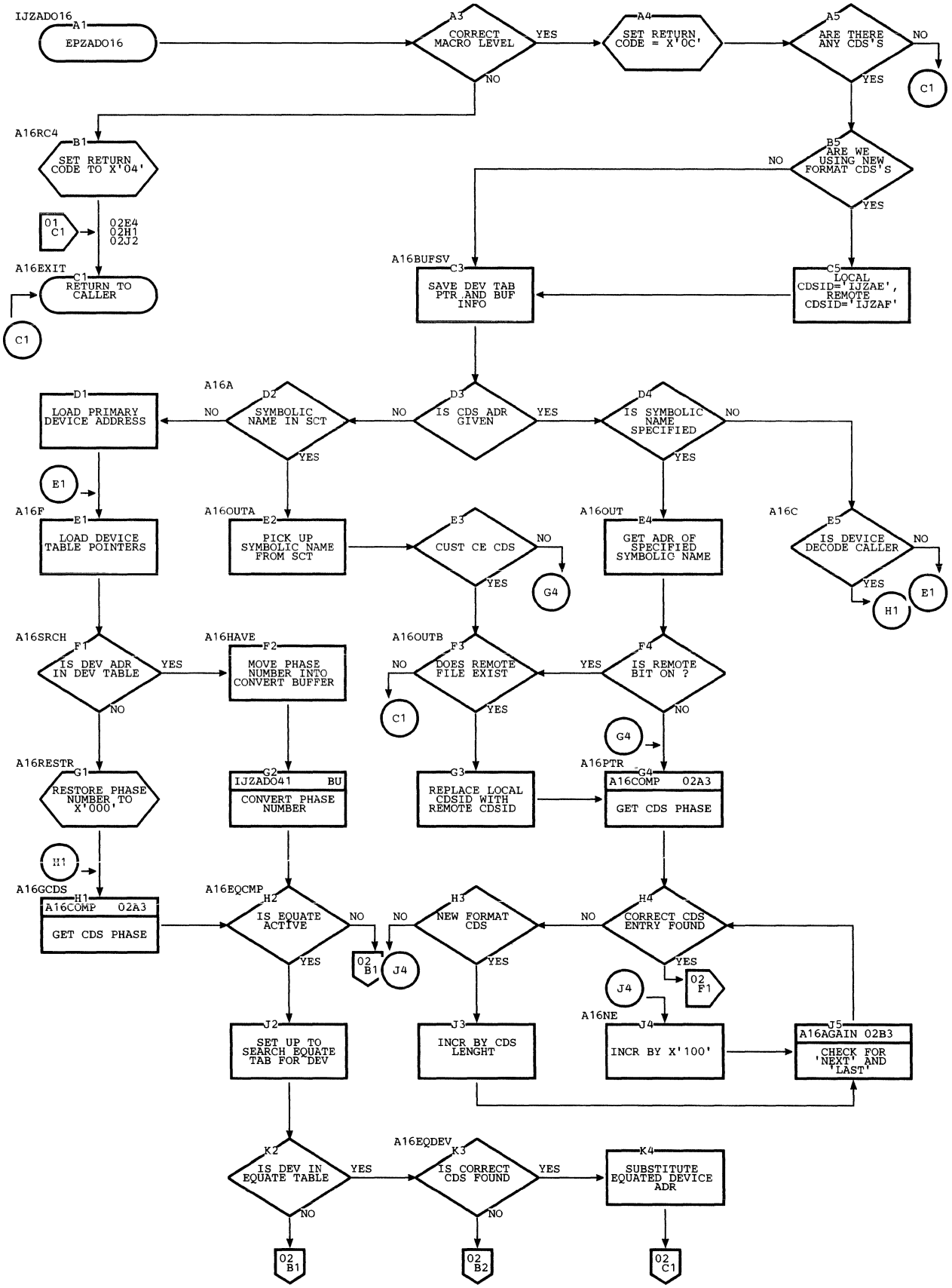


Chart BE. IJZADO16: GETCONFG (Part 2 of 2)

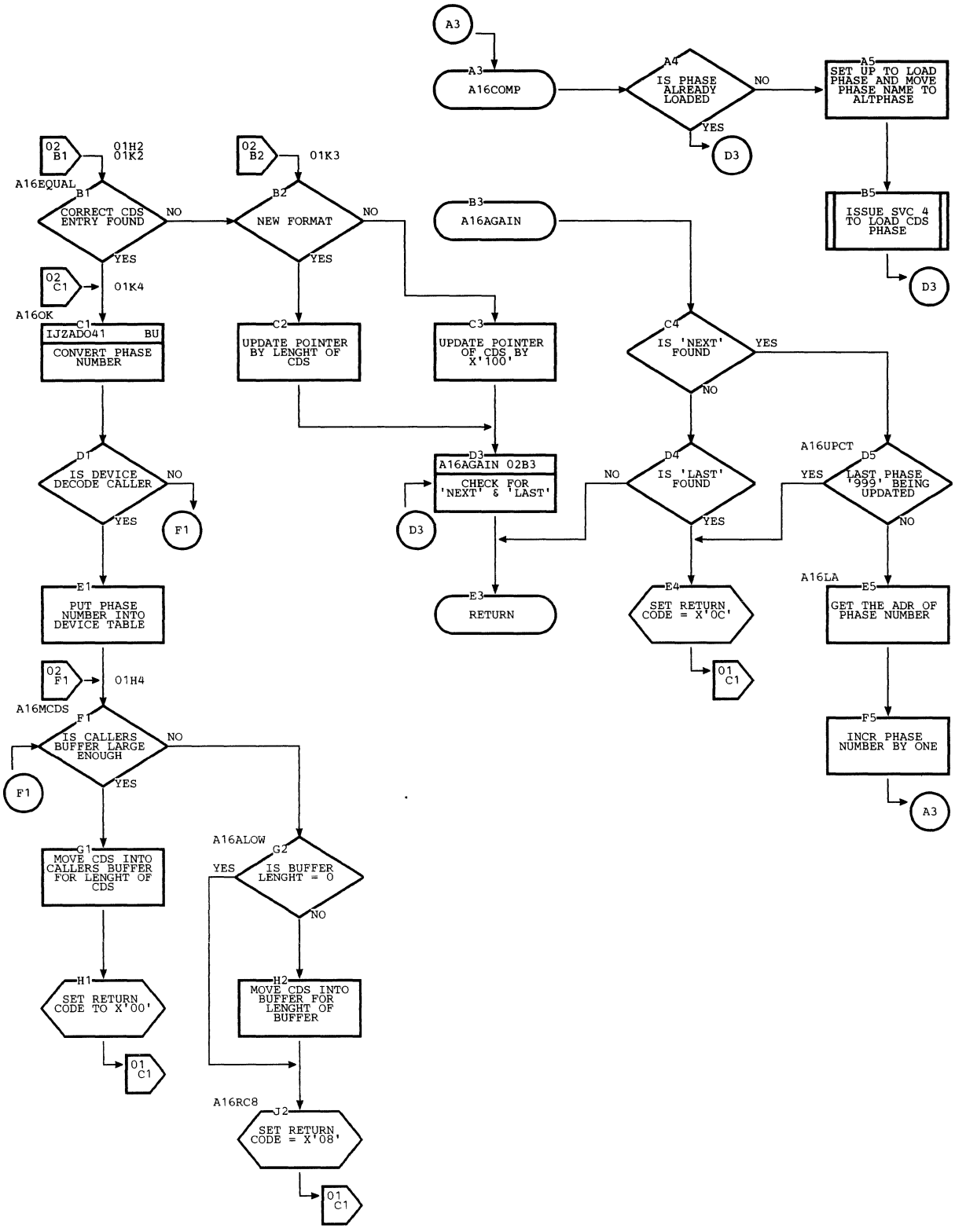


Chart BF. IJZADO21: GRAB (Part 1 of 3)

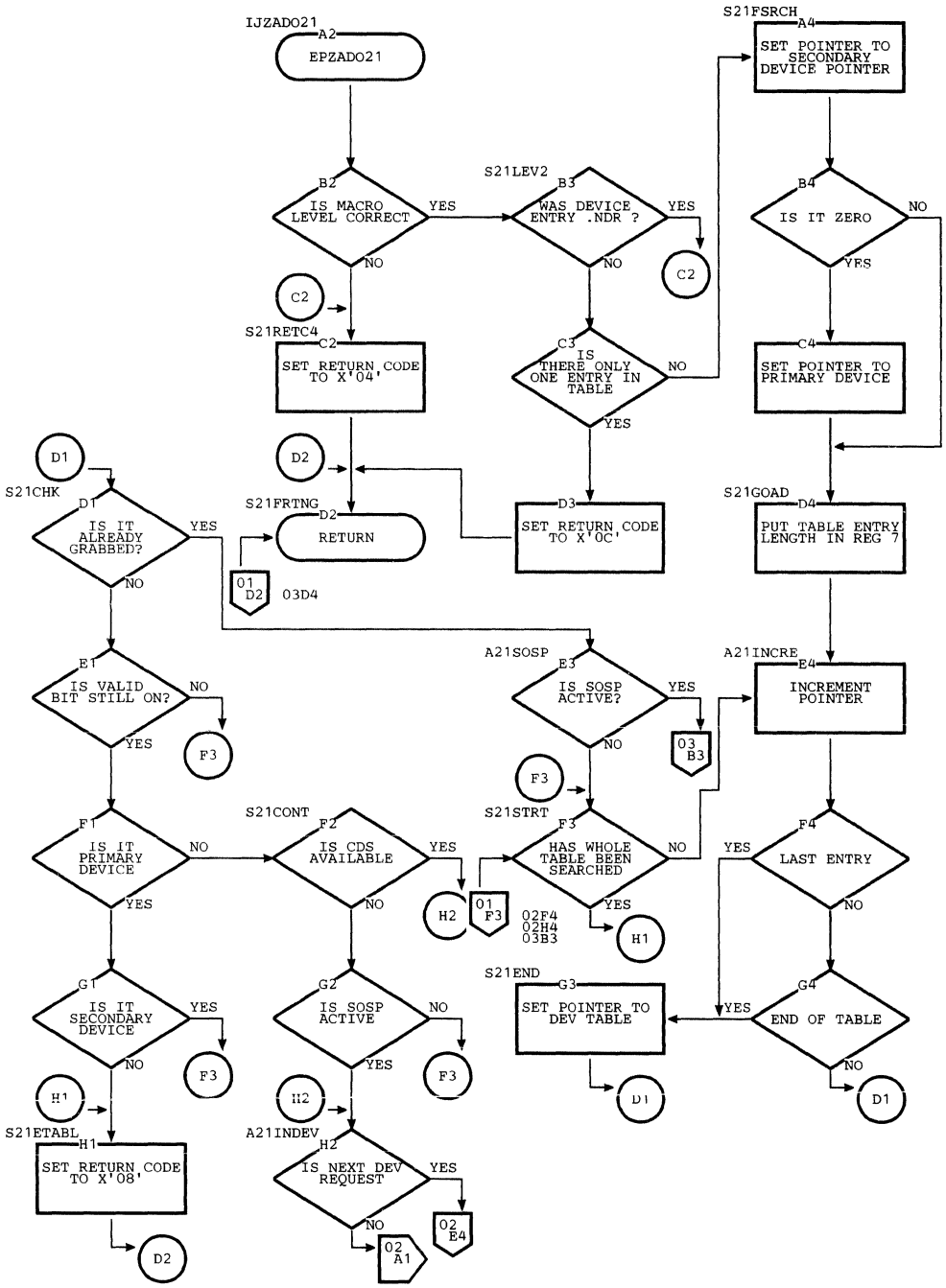


Chart BF. IJZADO21: GRAB (Part 2 of 3)

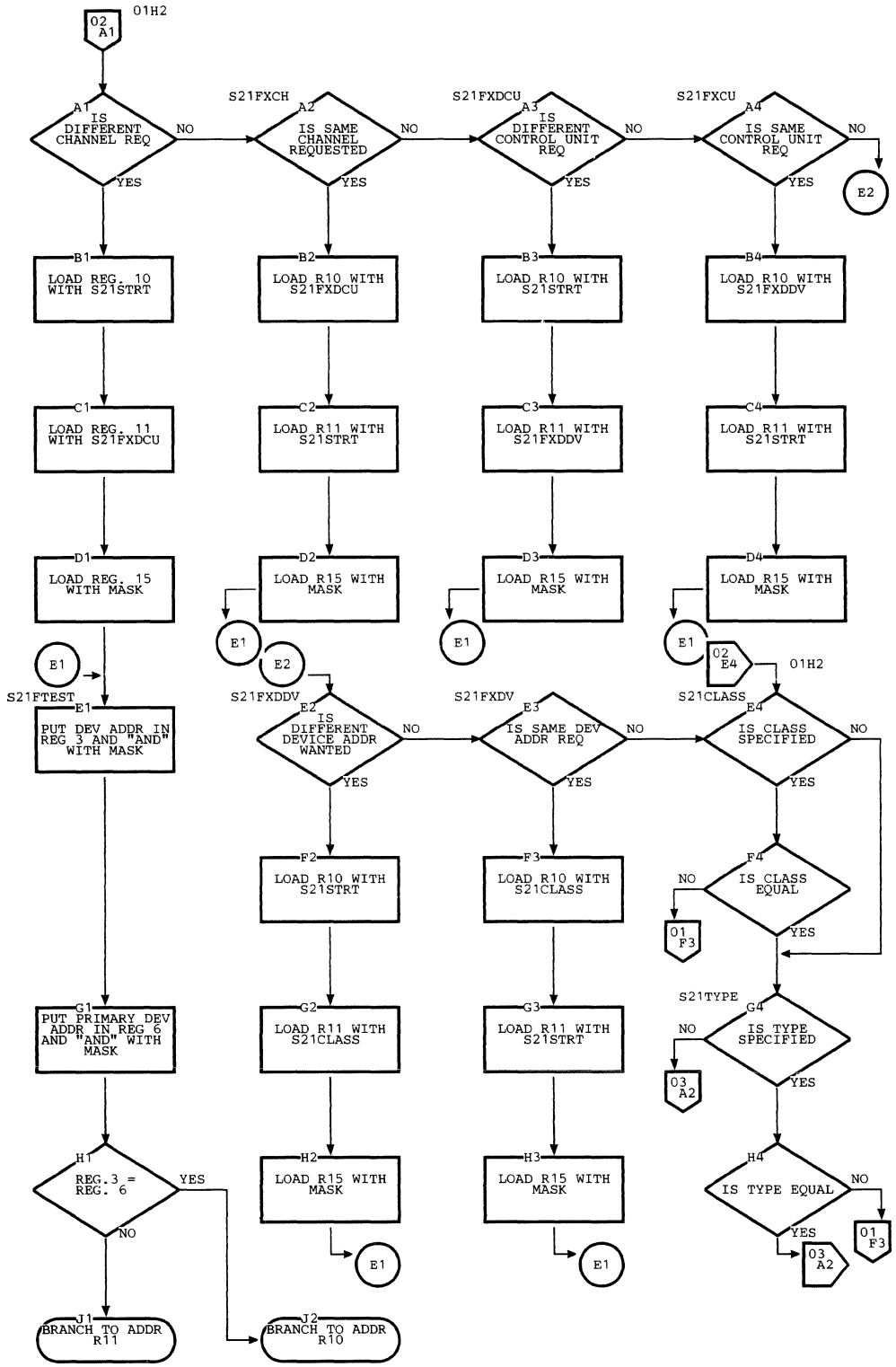


Chart BF. IJZADO21: GRAB (Part 3 of 3)

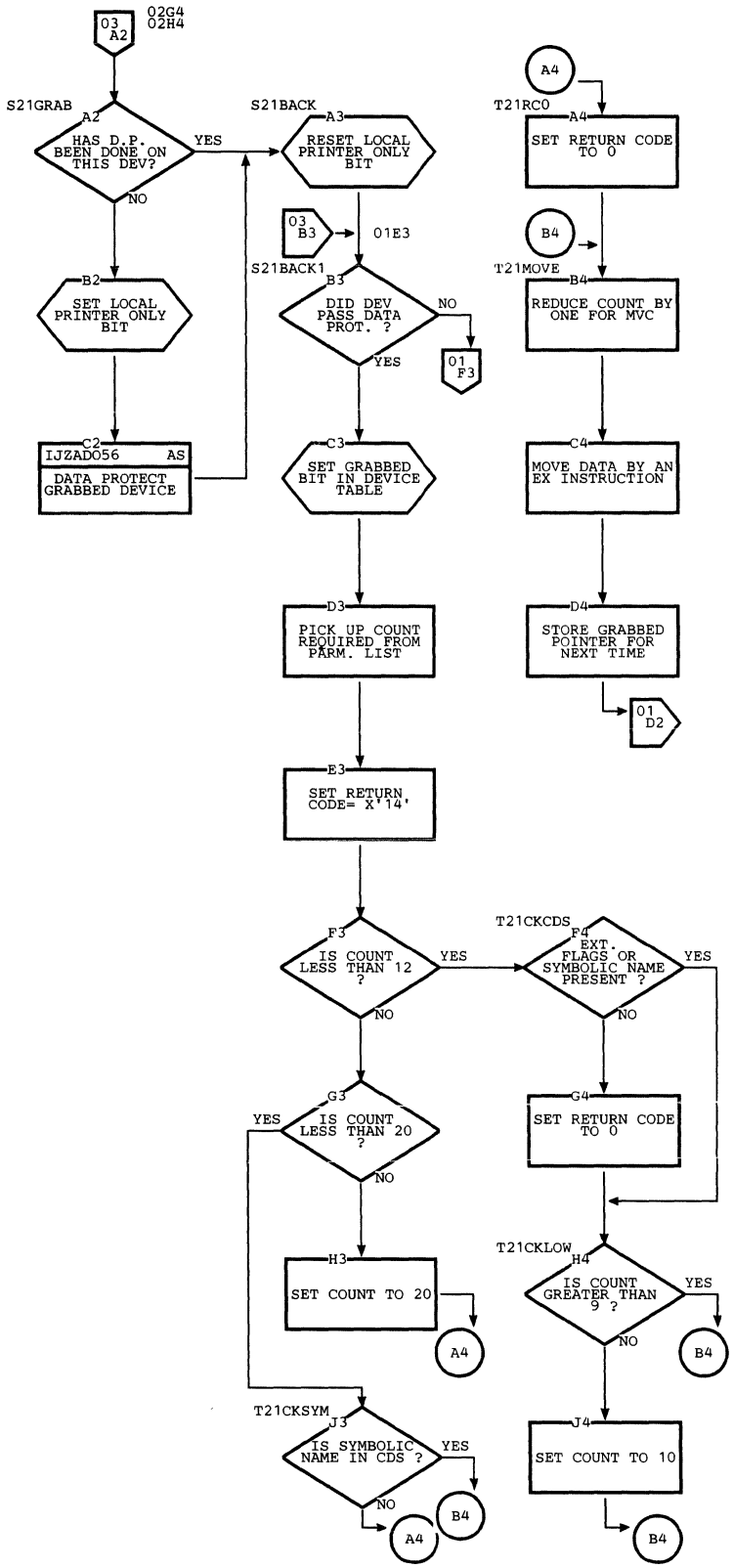


Chart BE. IJZADO22: ALOCAT

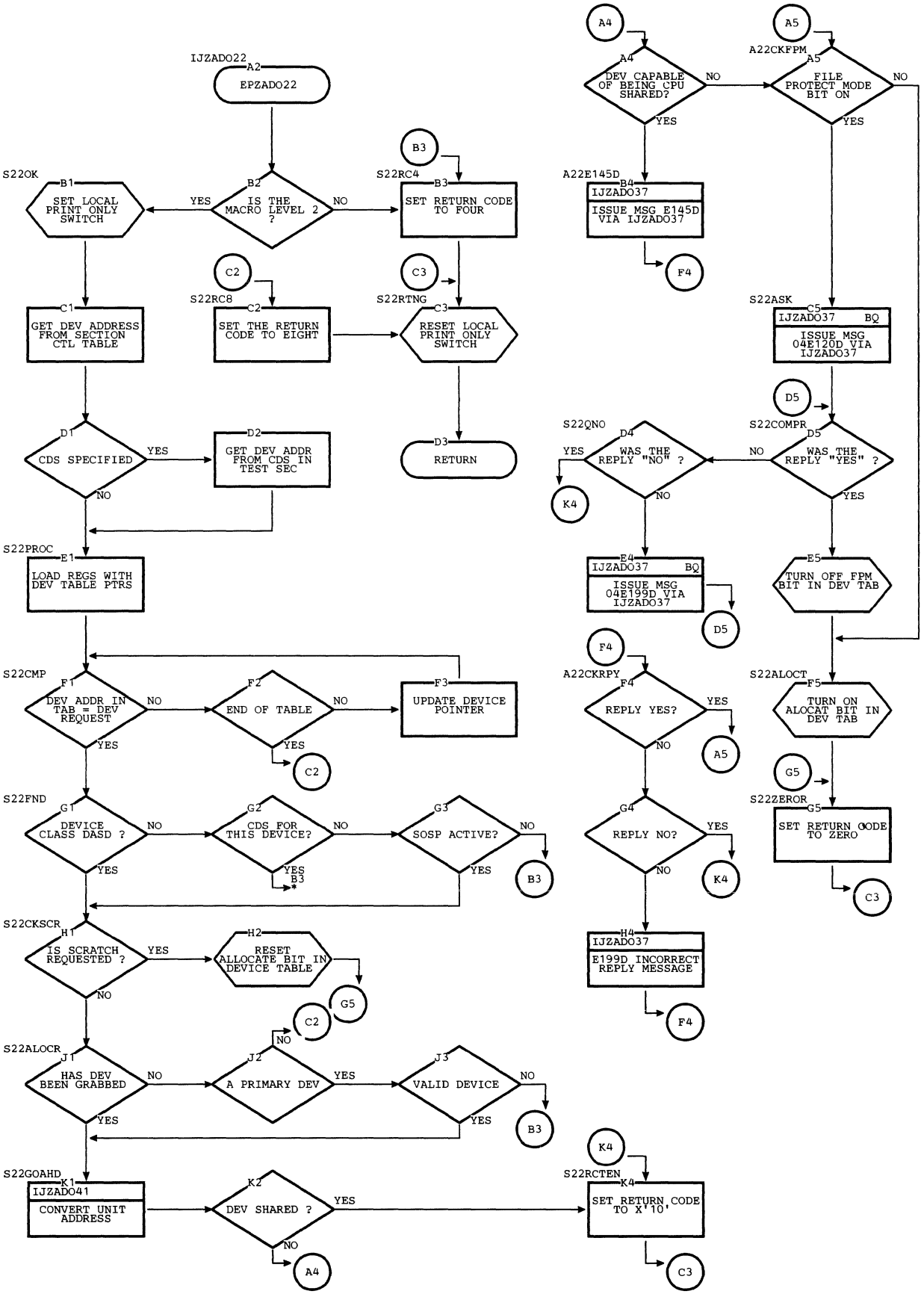


Chart BJ. IJZADO24: READD (Part 1 of 2)

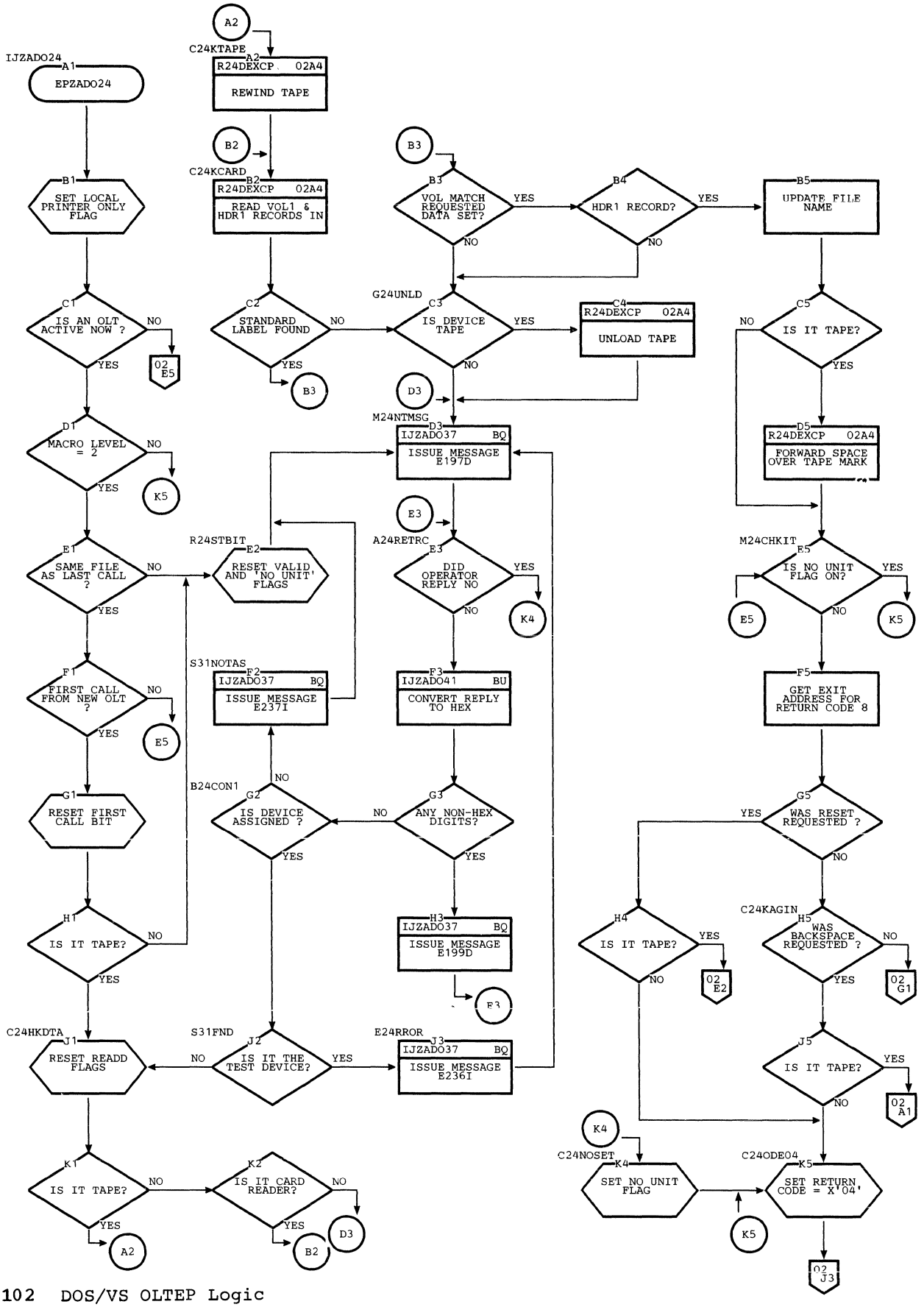


Chart BJ. IJZADO24: READD (Part 2 of 2)

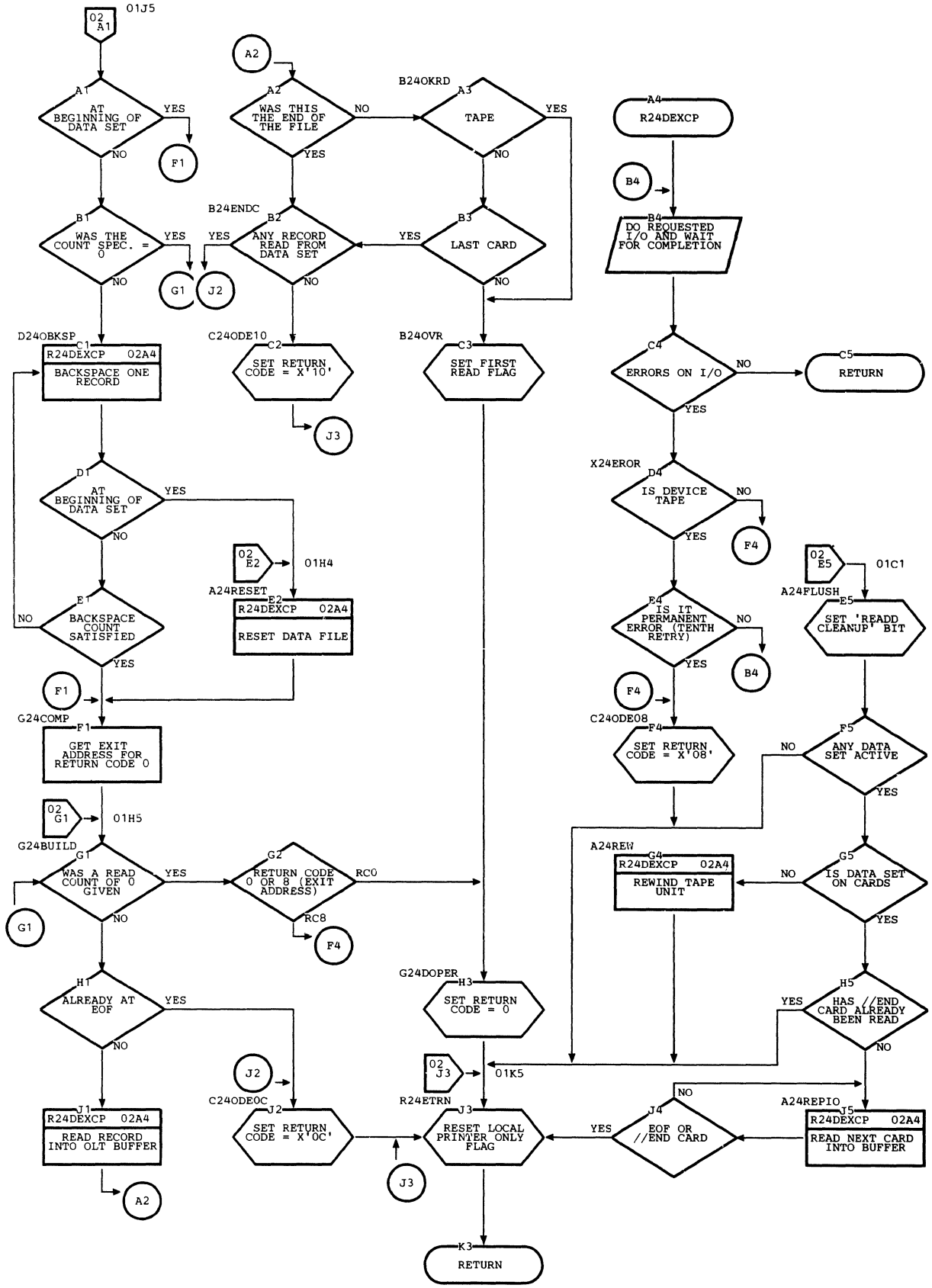


Chart BL. IJZADO26: LOGSCAN (Part 1 of 3)

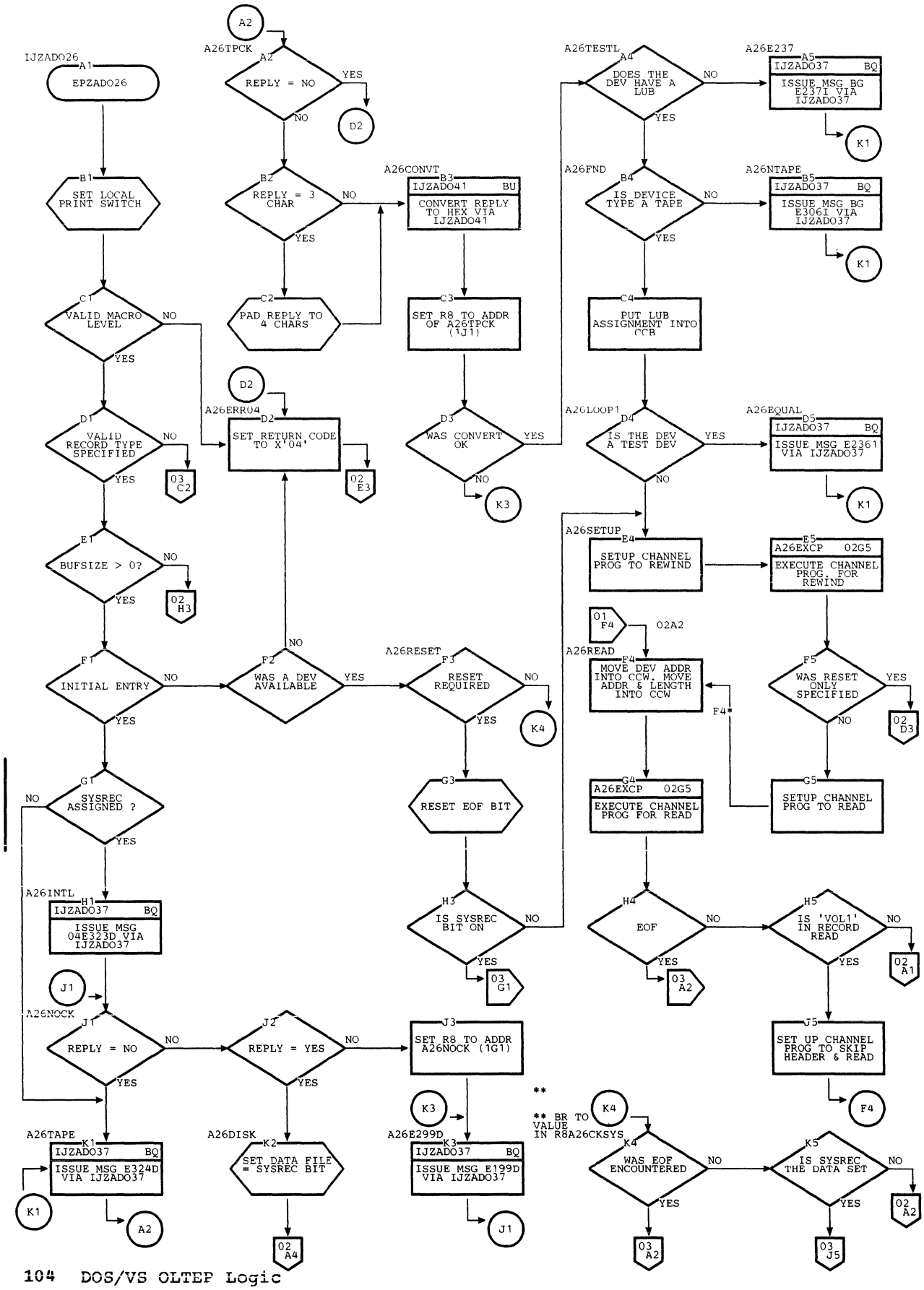


Chart BL. IJZADO26: LOGSCAN (Part 2 of 3)

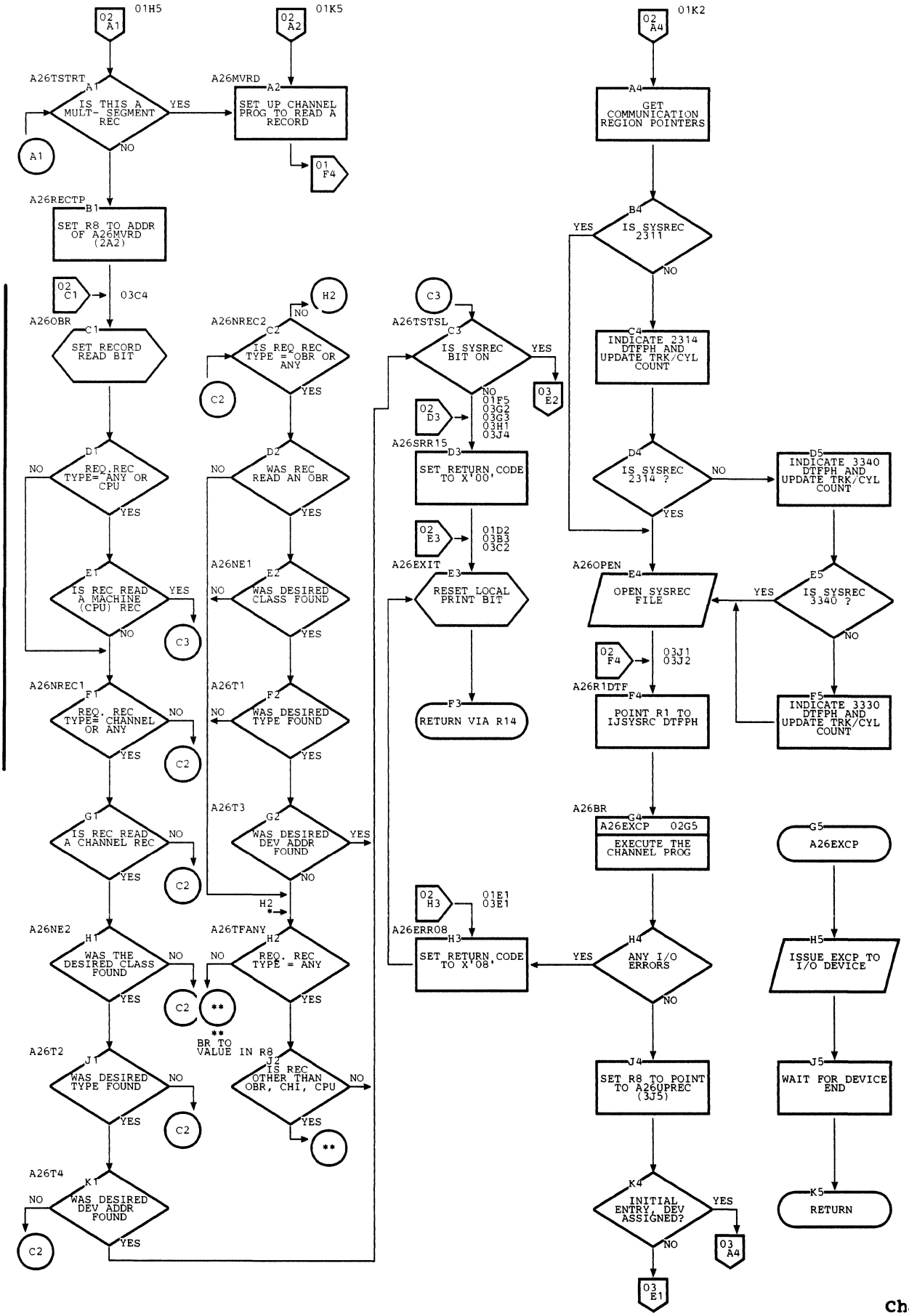


Chart BL. IJZADO26: LOGSCAN (Part 3 of 3)

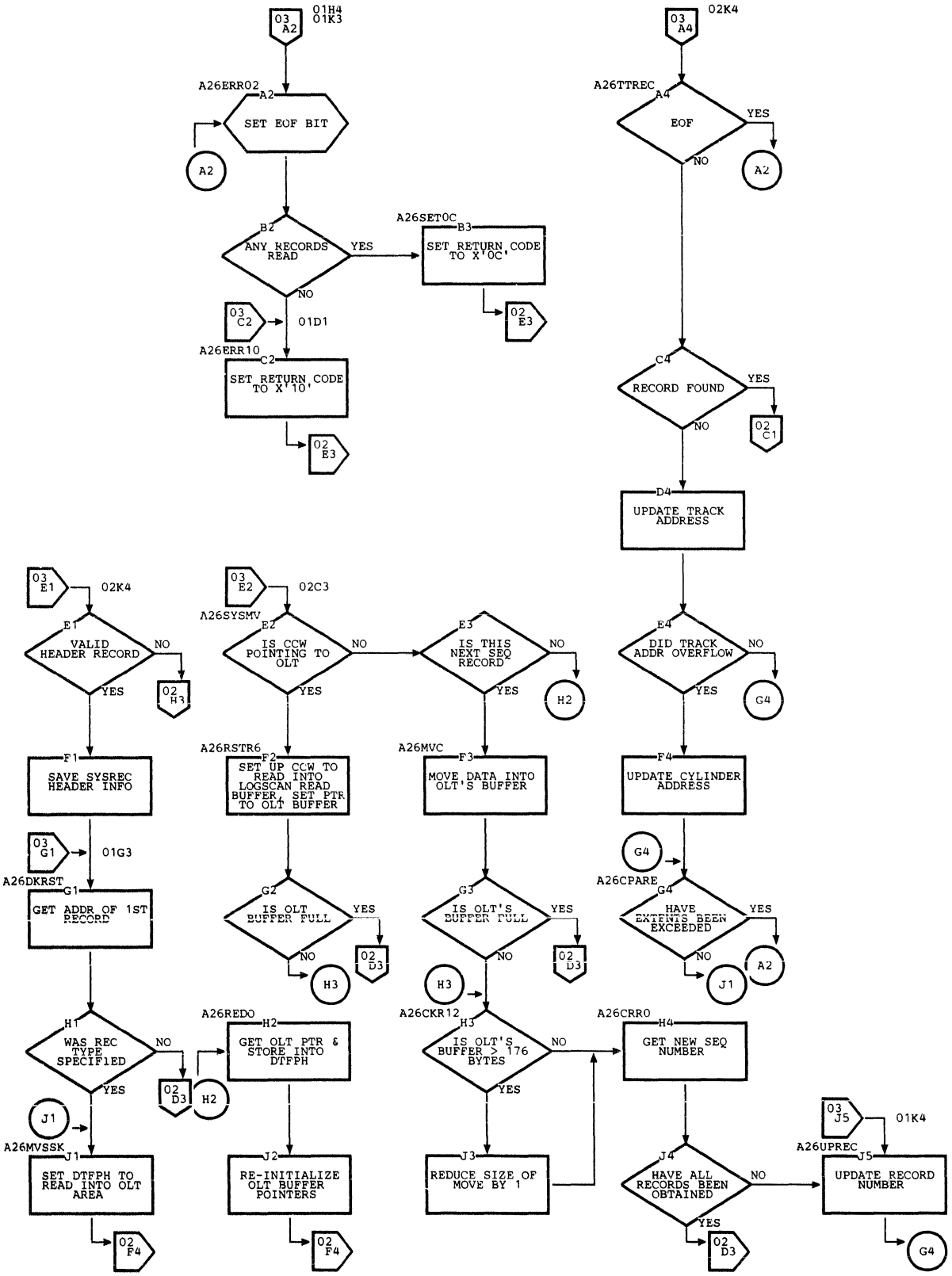


Chart BM. IJZADO28: PLINK

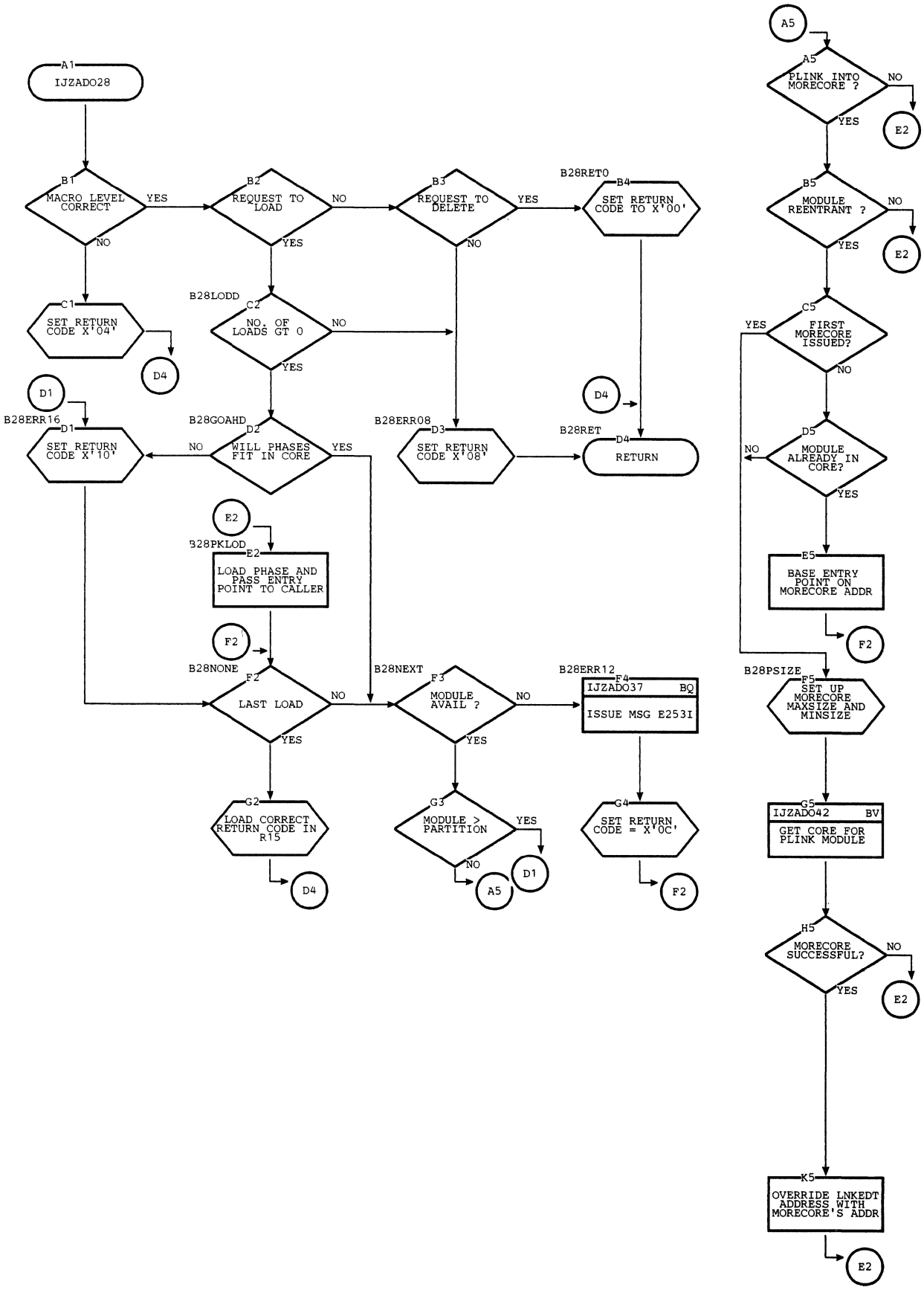


Chart BN. IJZADO35: EXIO (Part 1 of 3)

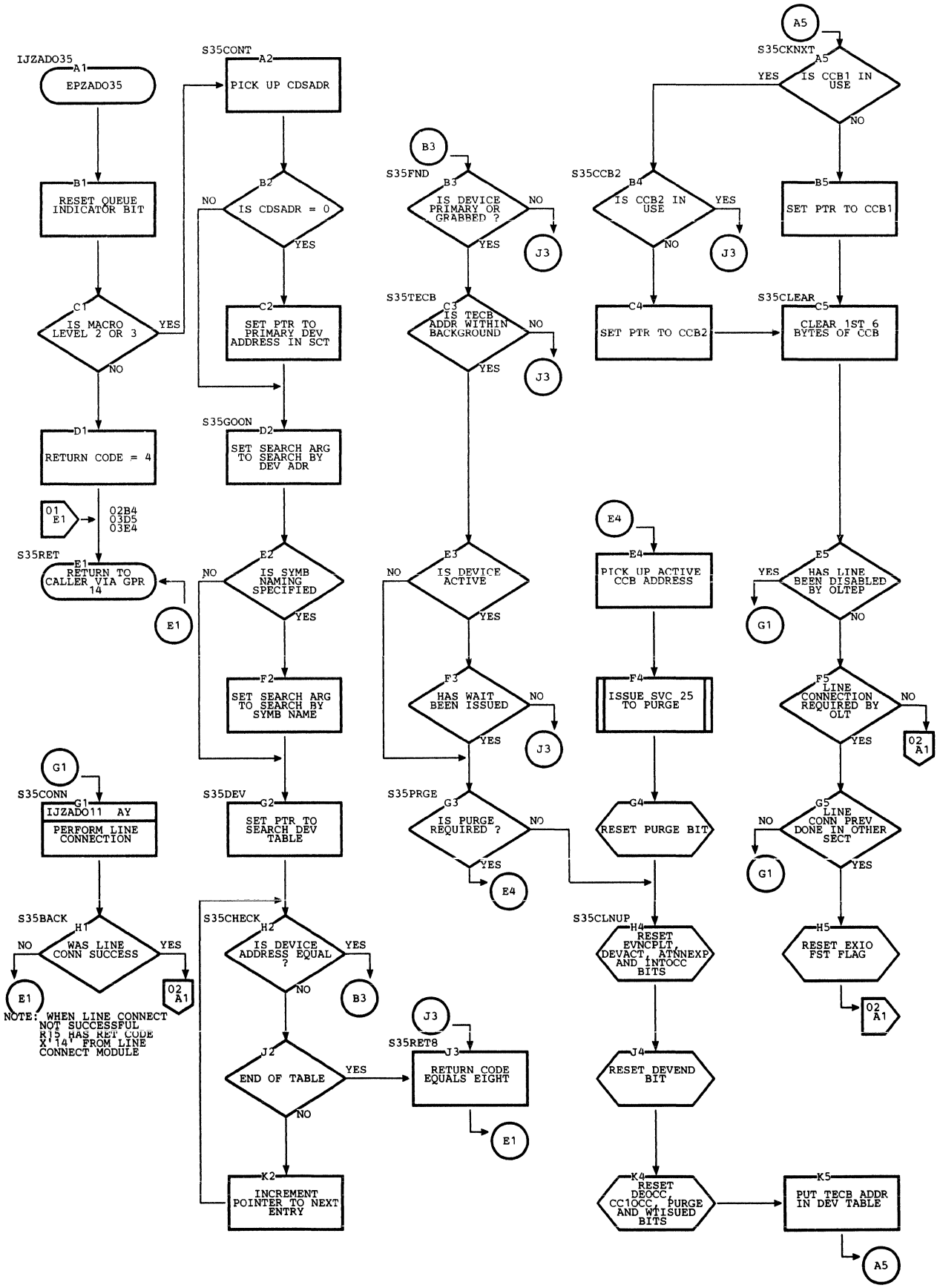


Chart BN. IJZADO35: EXIO (Part 2 of 3)

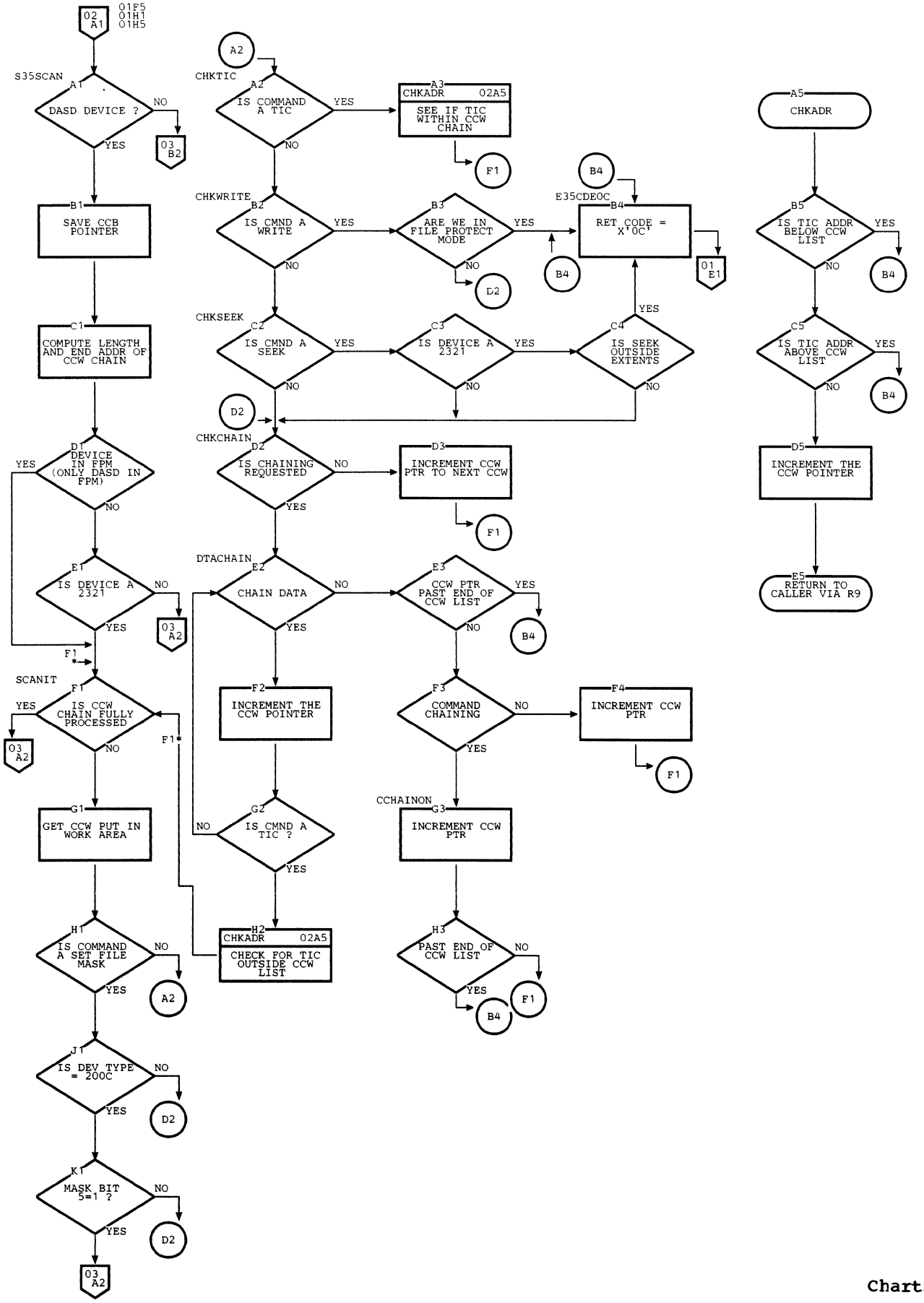


Chart BN. IJZADO35: EXIO (Part 3 of 3)

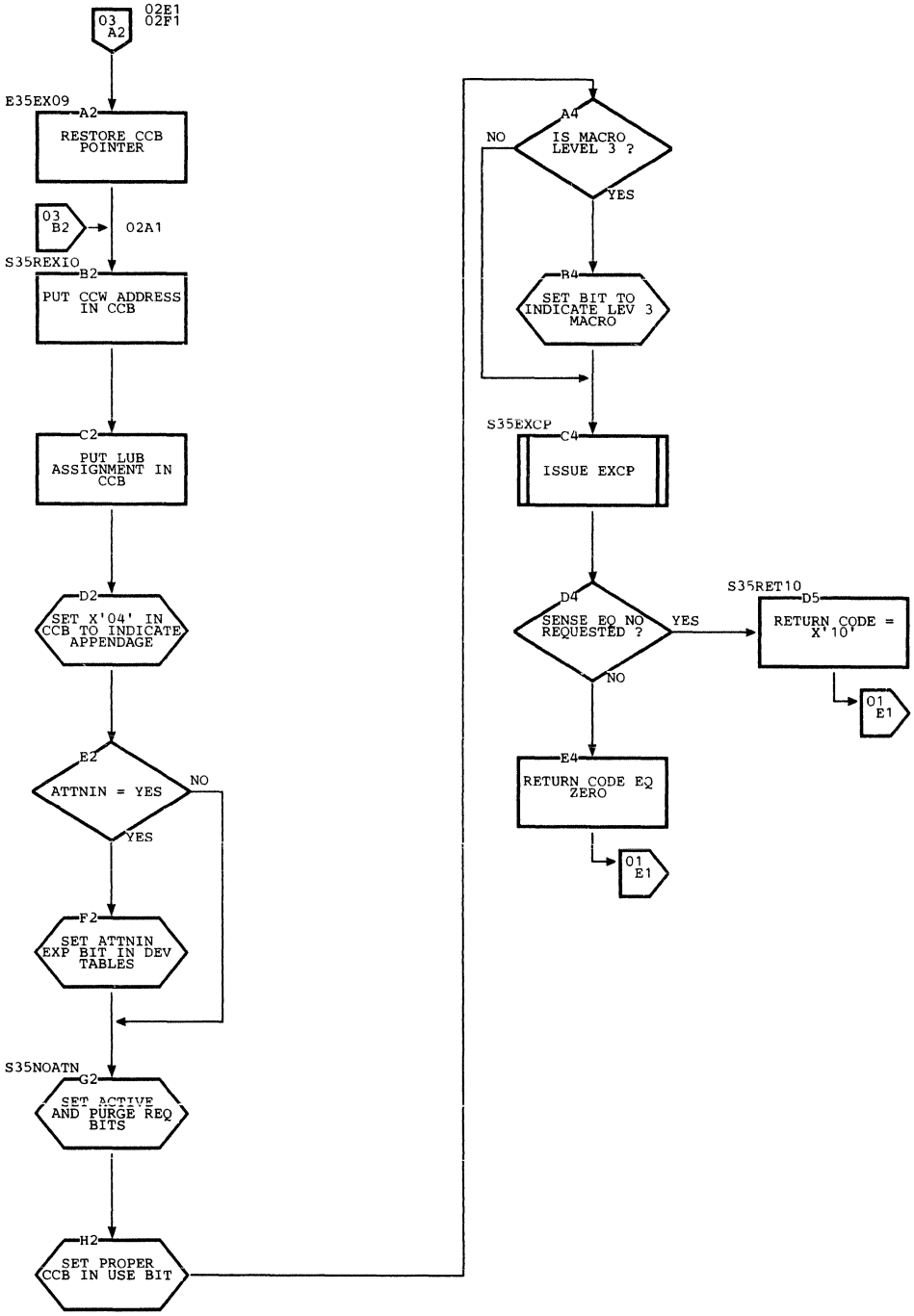


Chart BP. IJZADO36: WAITIO (Part 1 of 3)

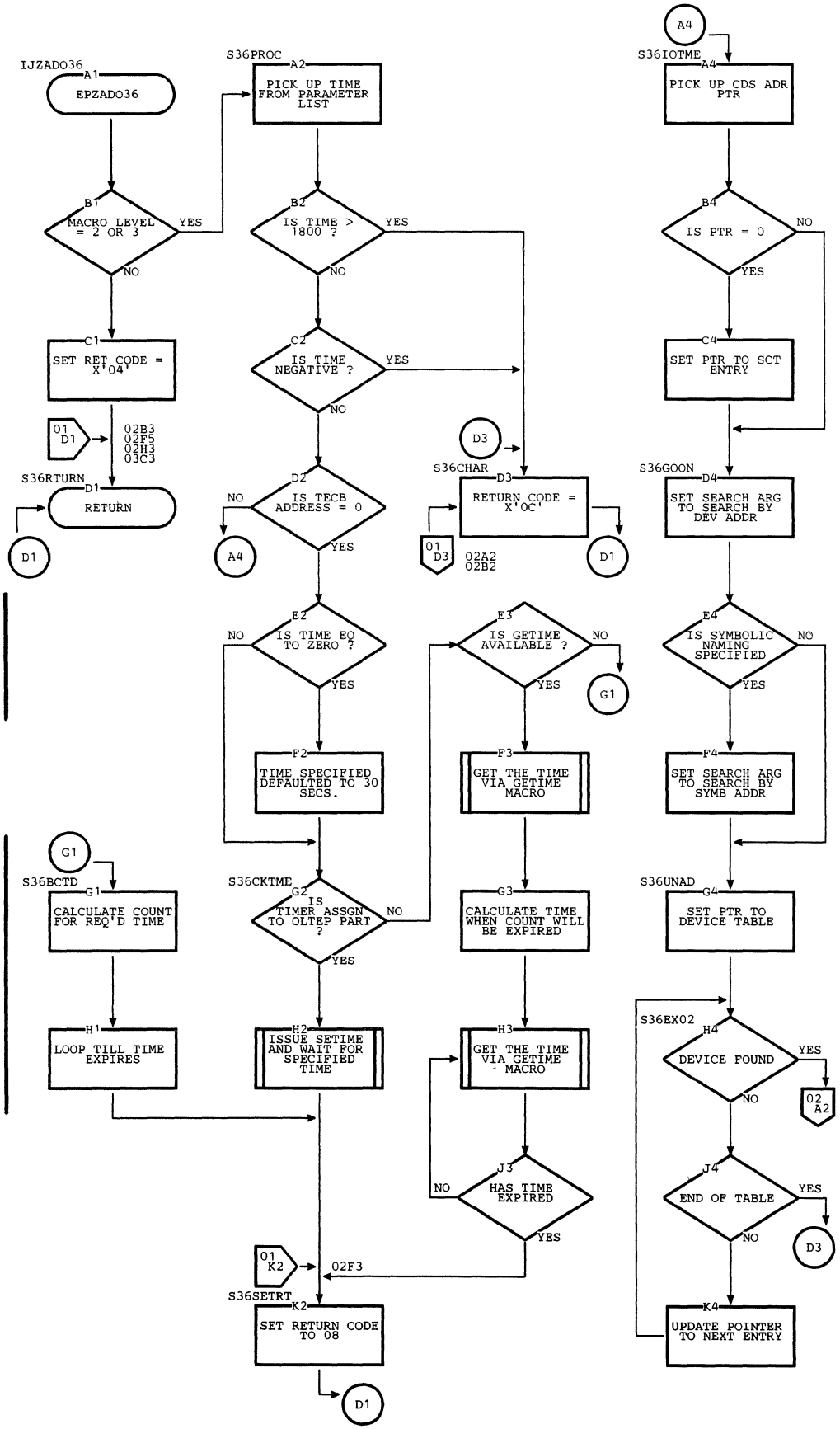


Chart BP. IJZADO36: WAITIO (Part 2 of 3)

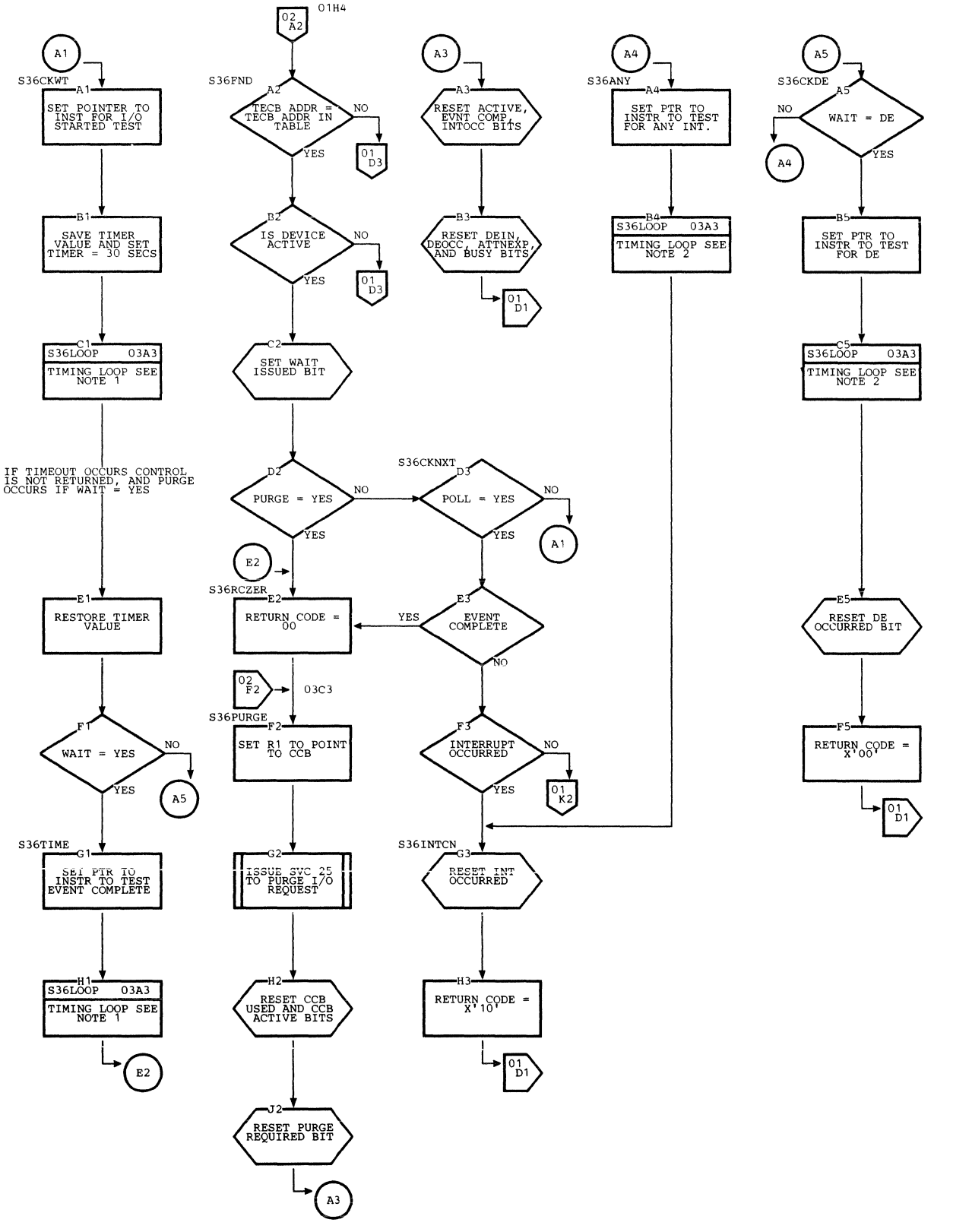


Chart BP. IJZADO36: WAITIO (Part 3 of 3)

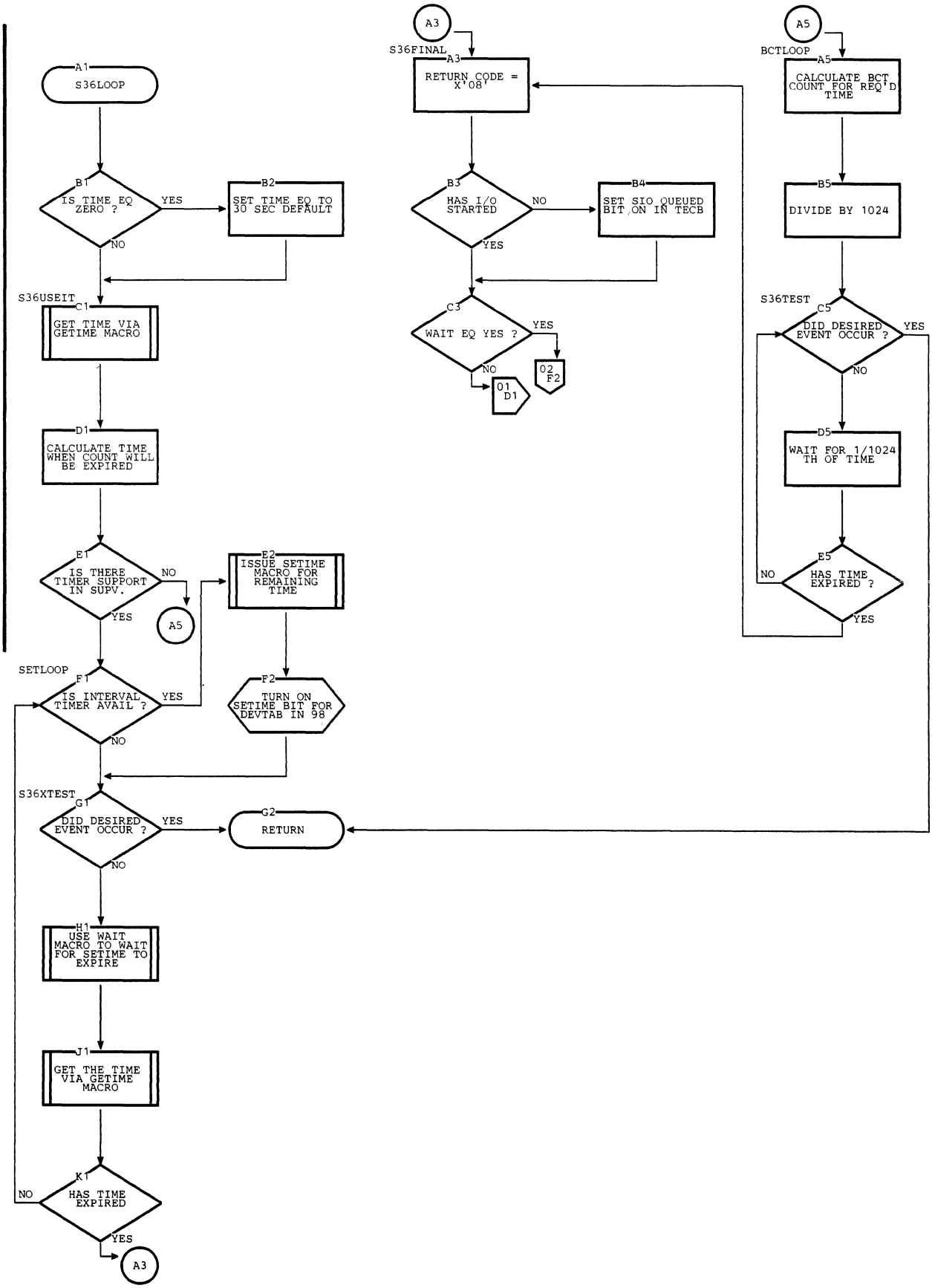


Chart BQ. IJZADO37: CECOM (Part 1 of 3)

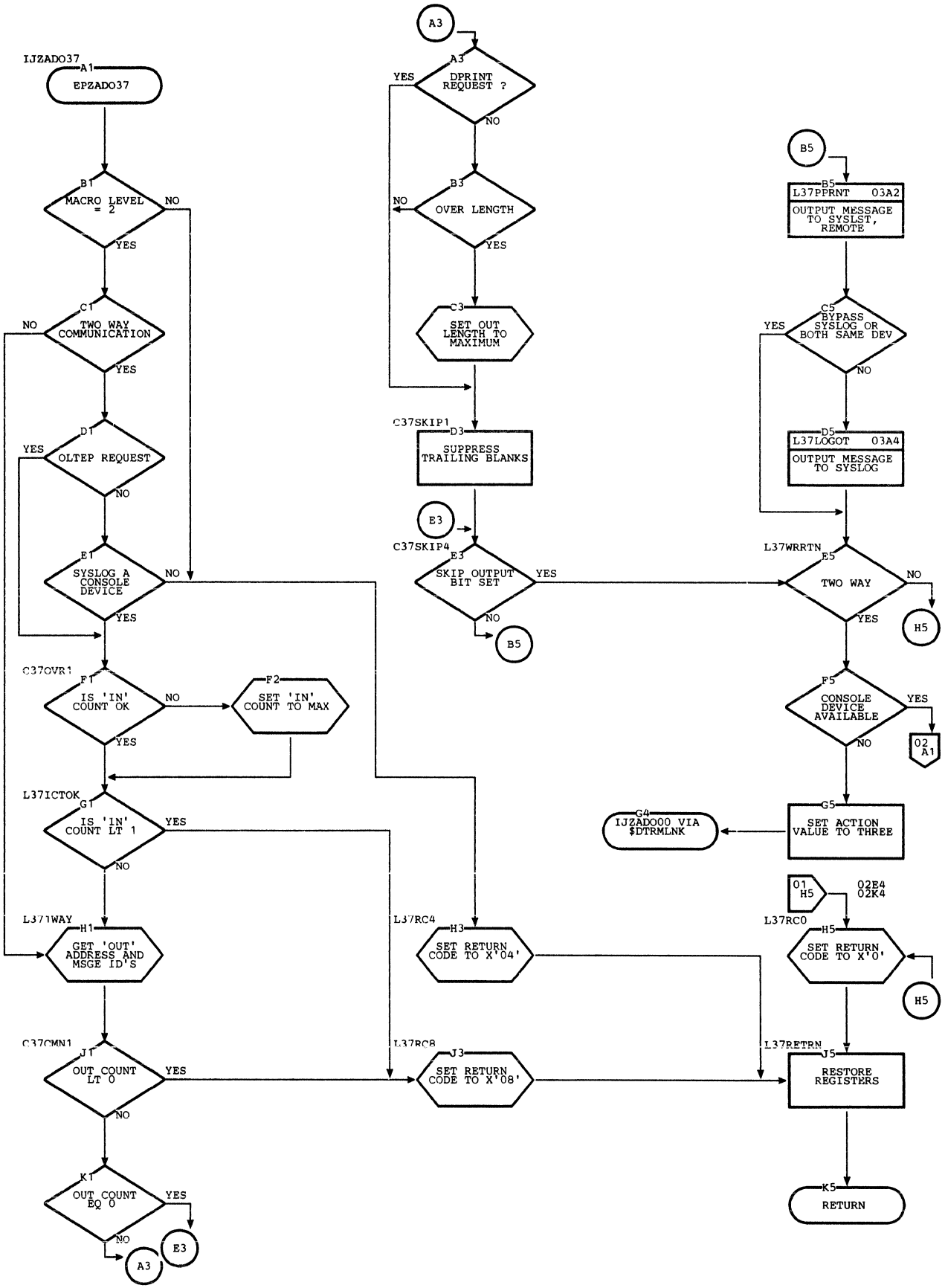


Chart BQ. IJZADO37: CECOM (Part 2 of 3)

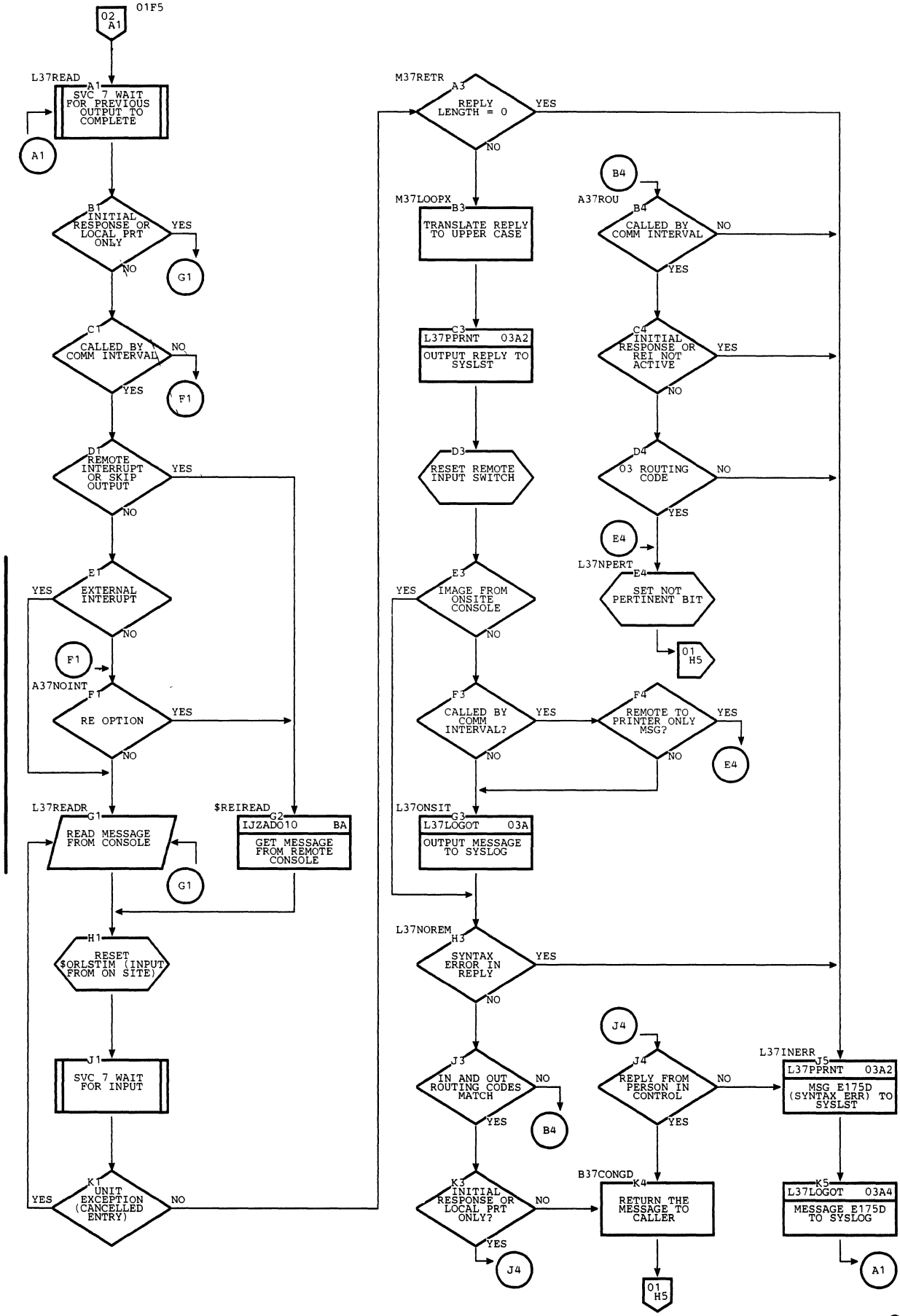


Chart BQ. IJZADO37: CECOM (Part 3 of 3)

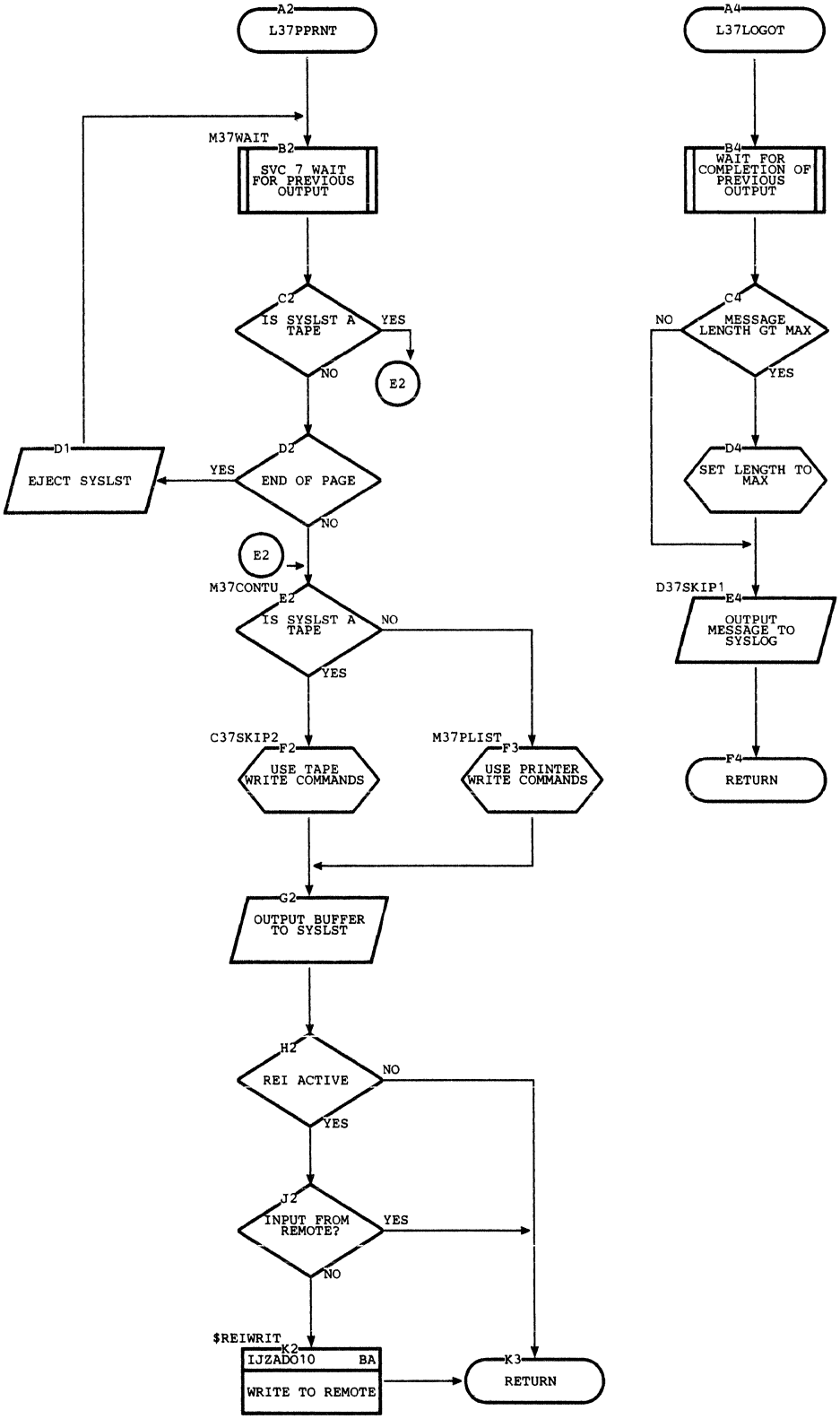


Chart BS. IJZADO39: DPRINT (Part 1 of 3)

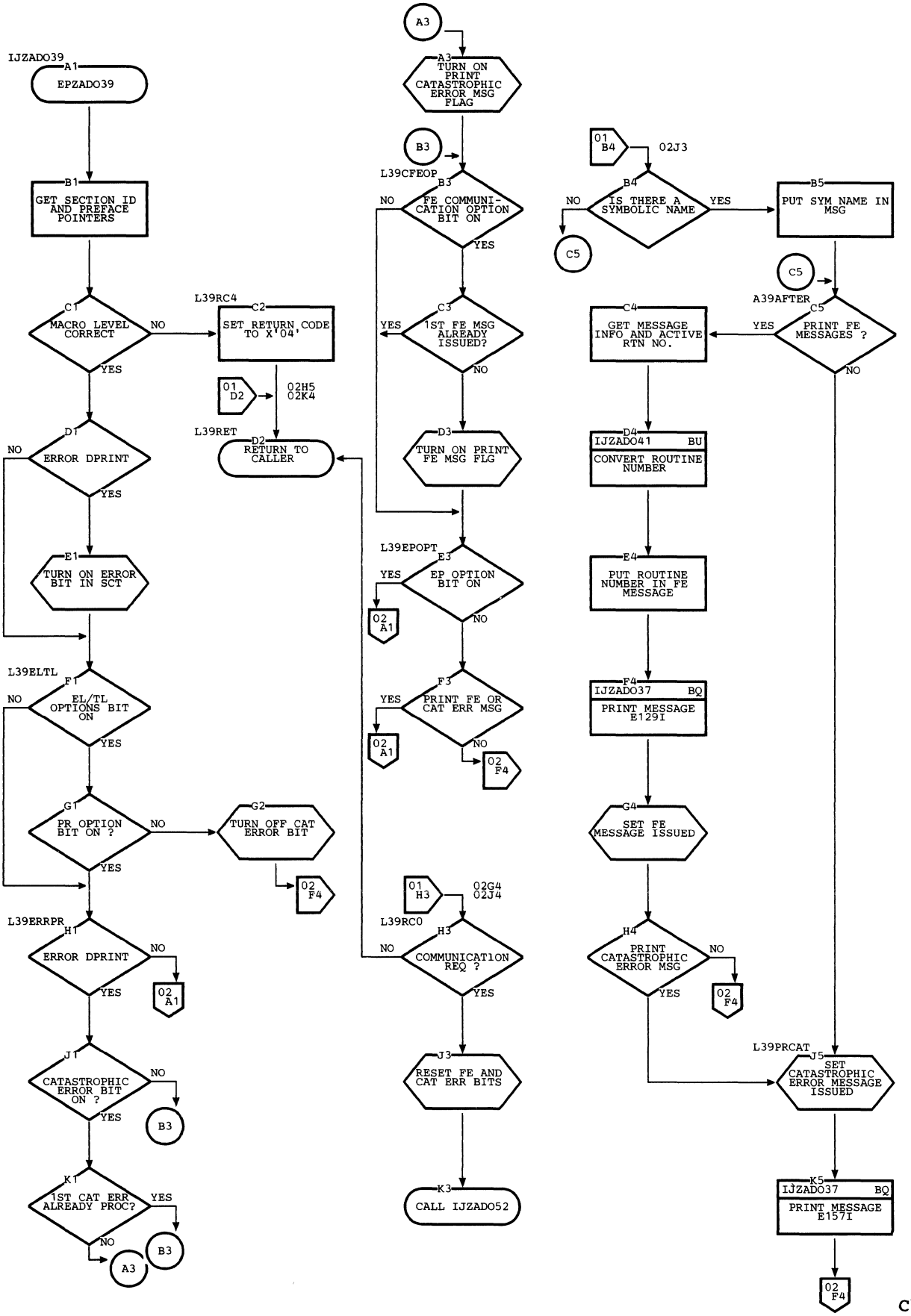


Chart BS. IJZADOo9: DPRINT (Part 2 of 3)

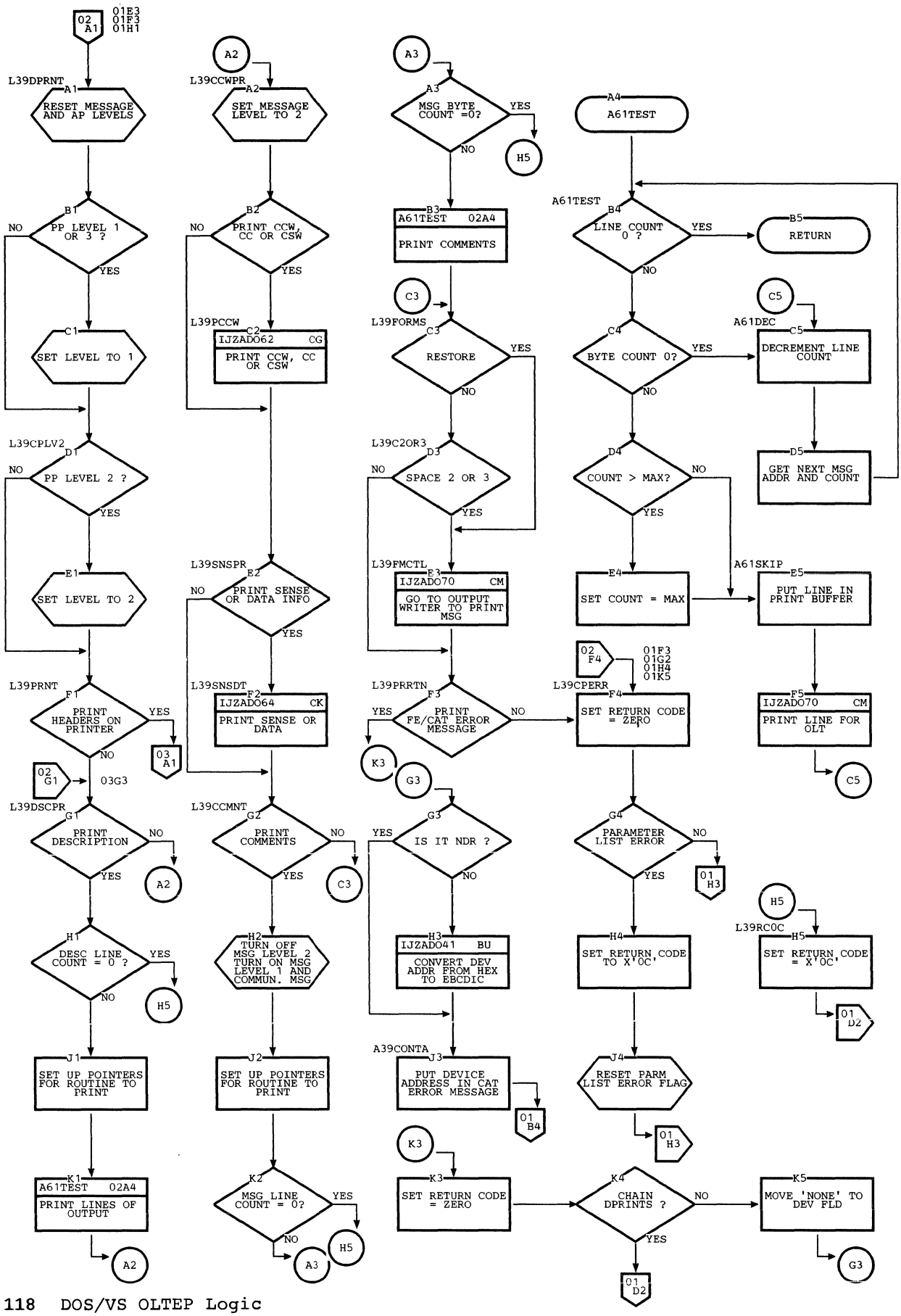


Chart BS. IJZADO39: DPRINT (Part 3 of 3)

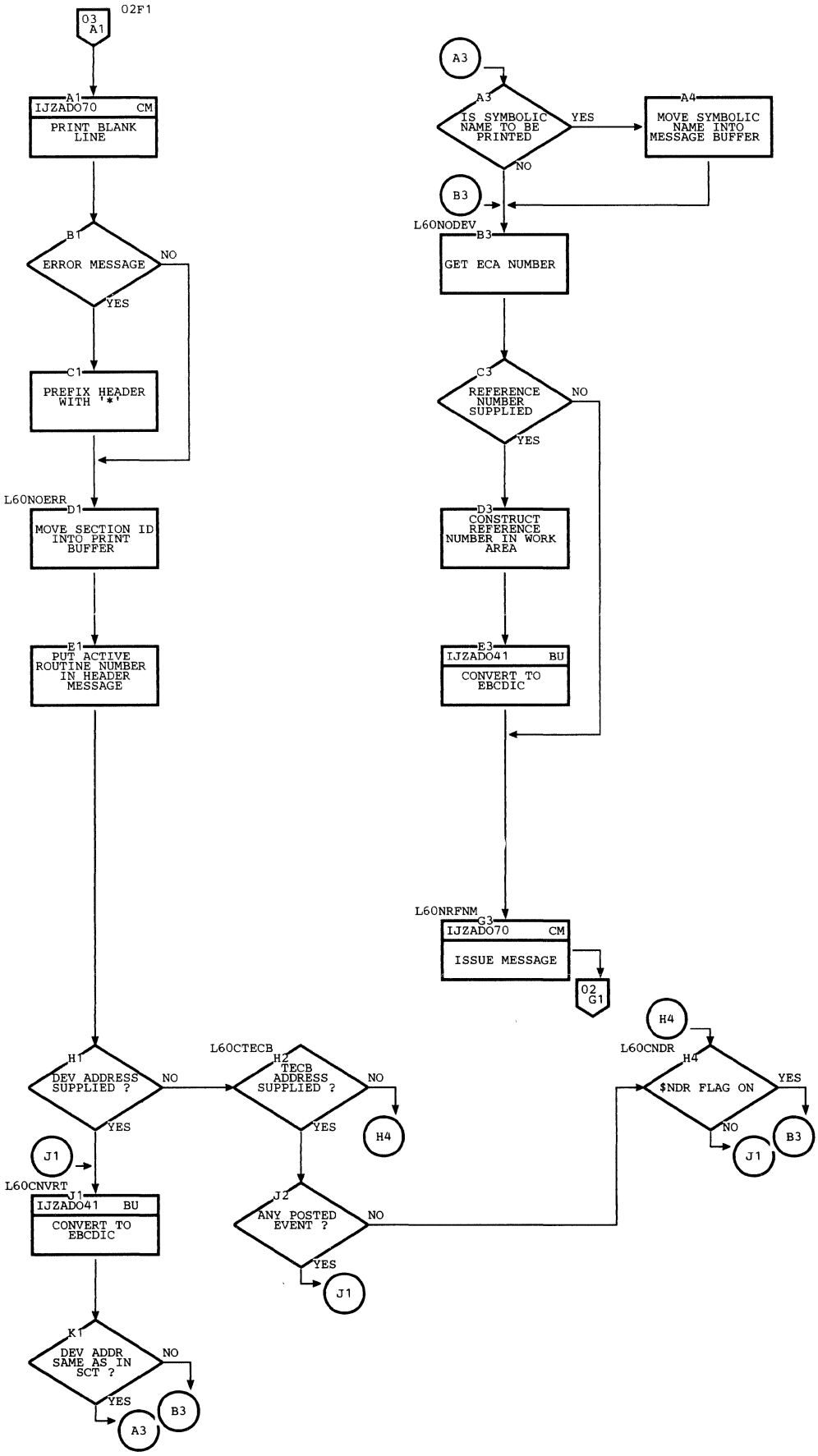


Chart BT. IJZADO40: $MODE

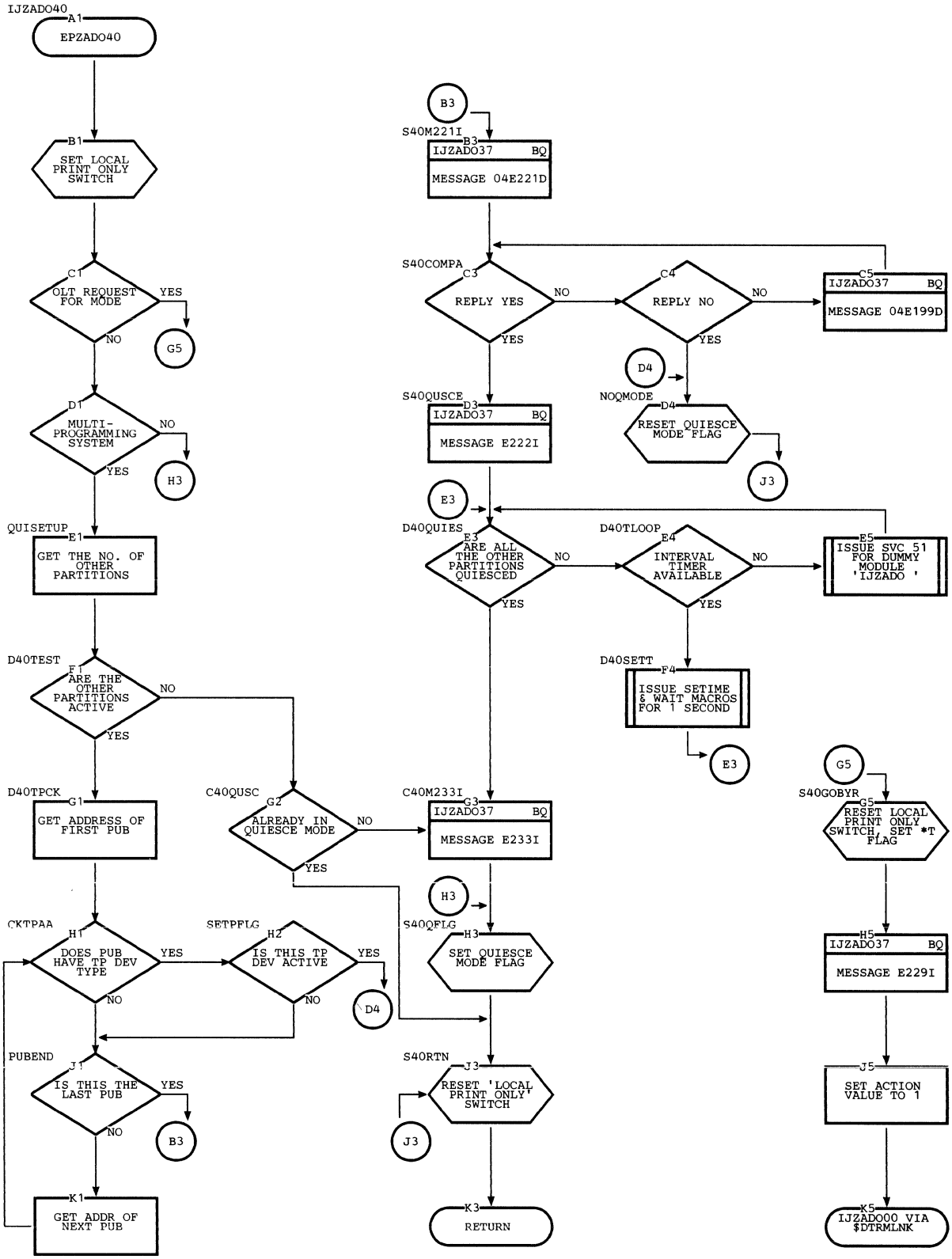


Chart BU. IJZADO41: CONVERT

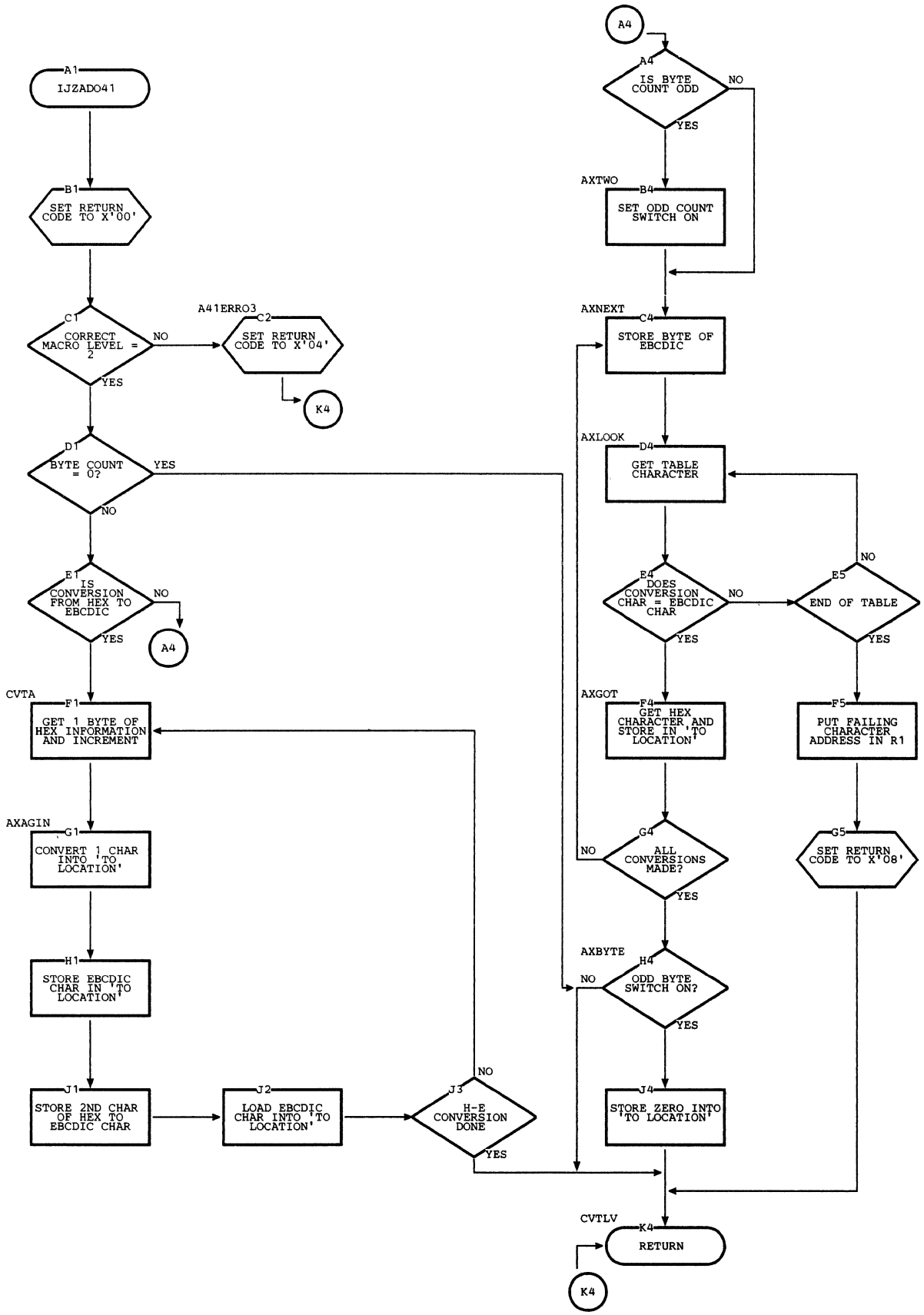


Chart BV. IJZADO42: MORECORE

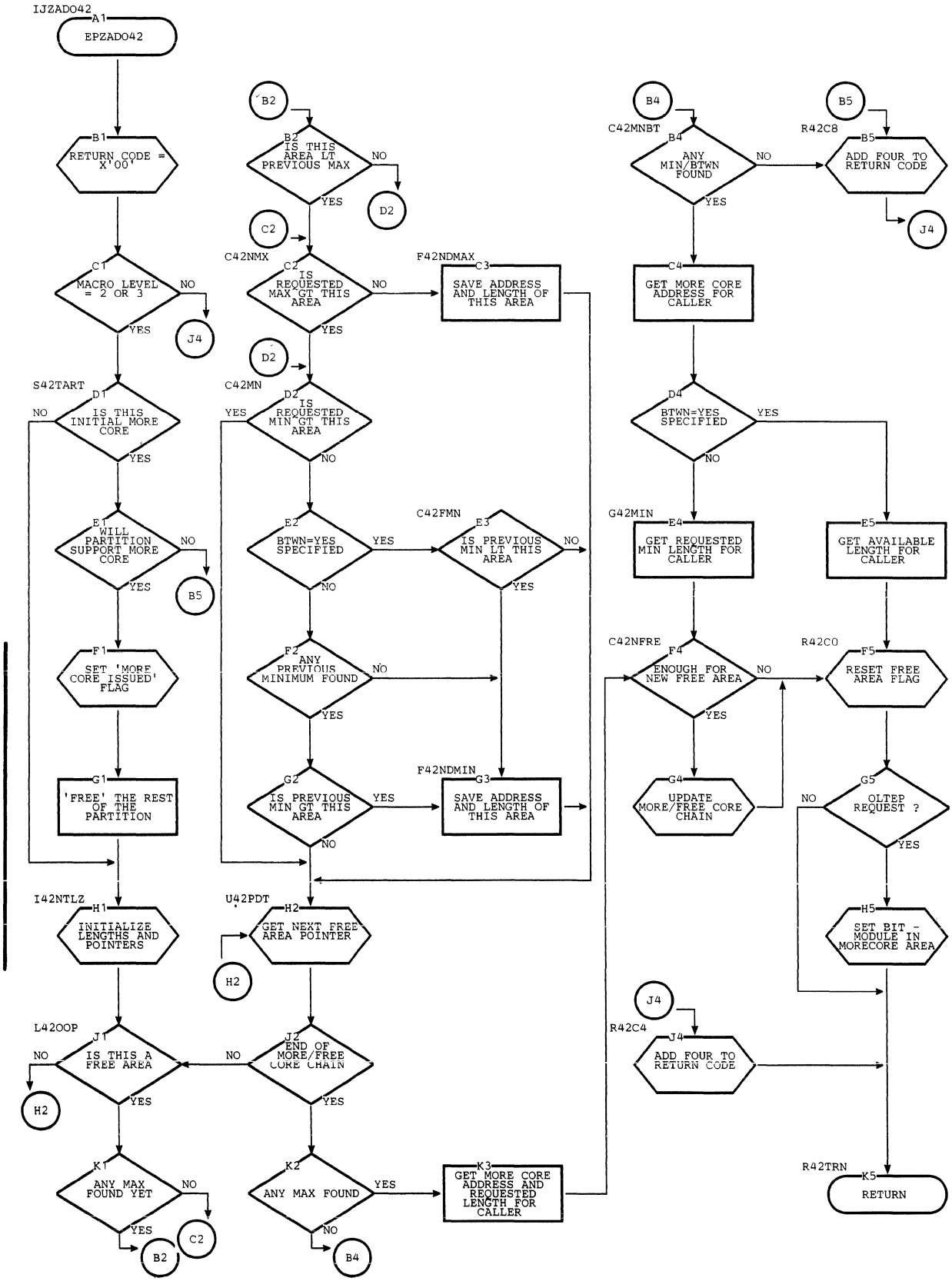


Chart CA. IJZADO43: FREECORE

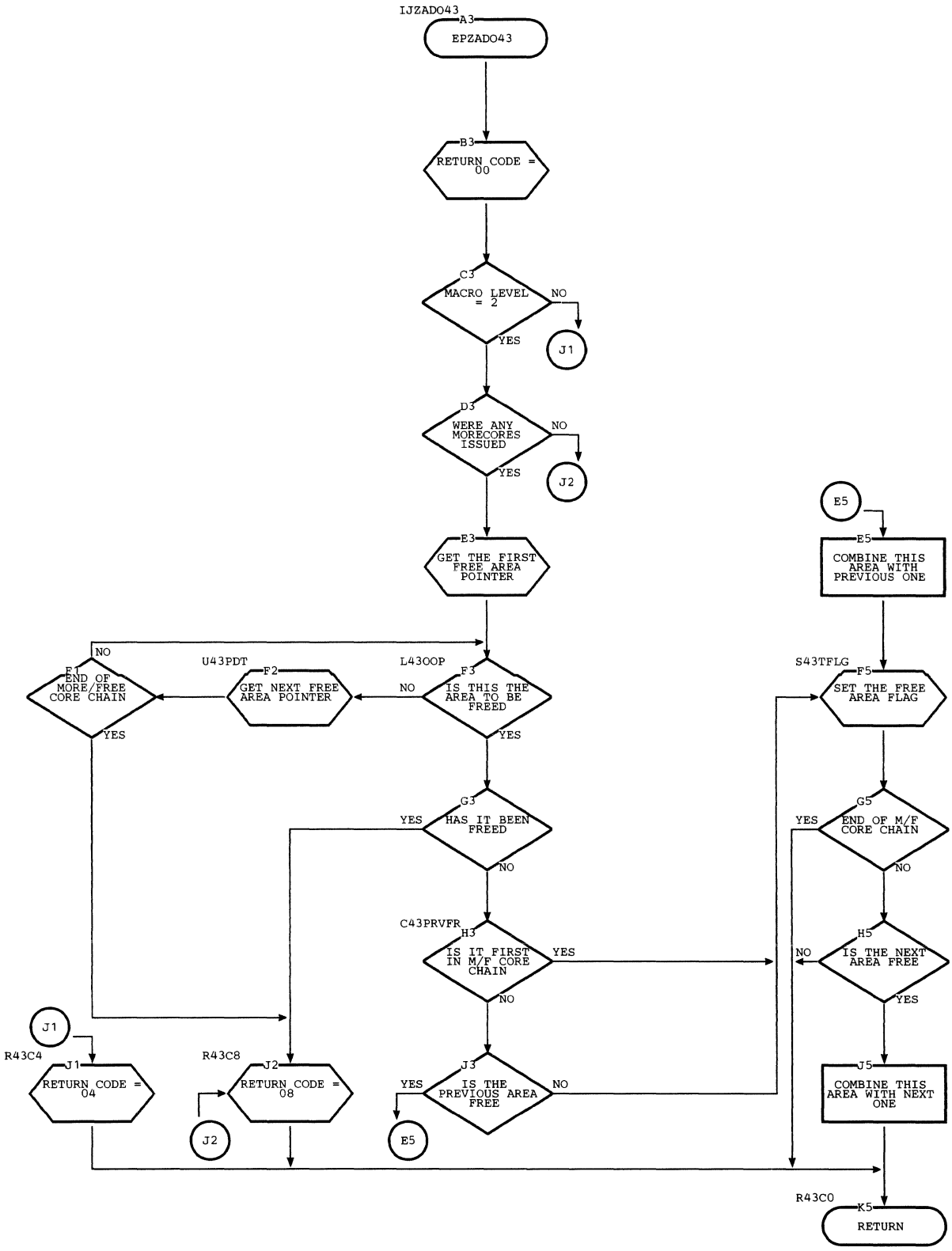


Chart CB. IJZADO44: DIO (Part 1 of 2)

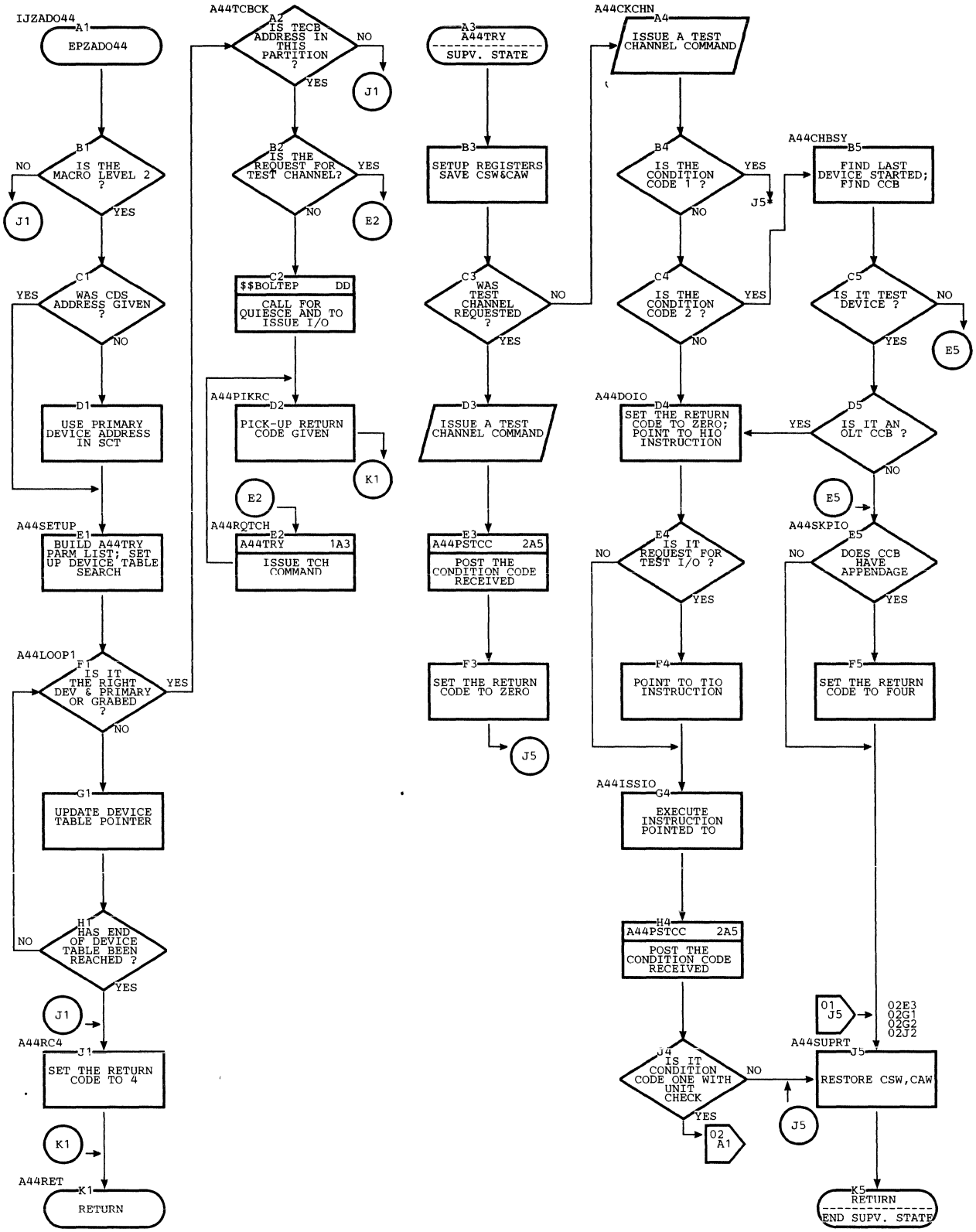


Chart CB. IJZAD044: DIO (Part 2 of 2)

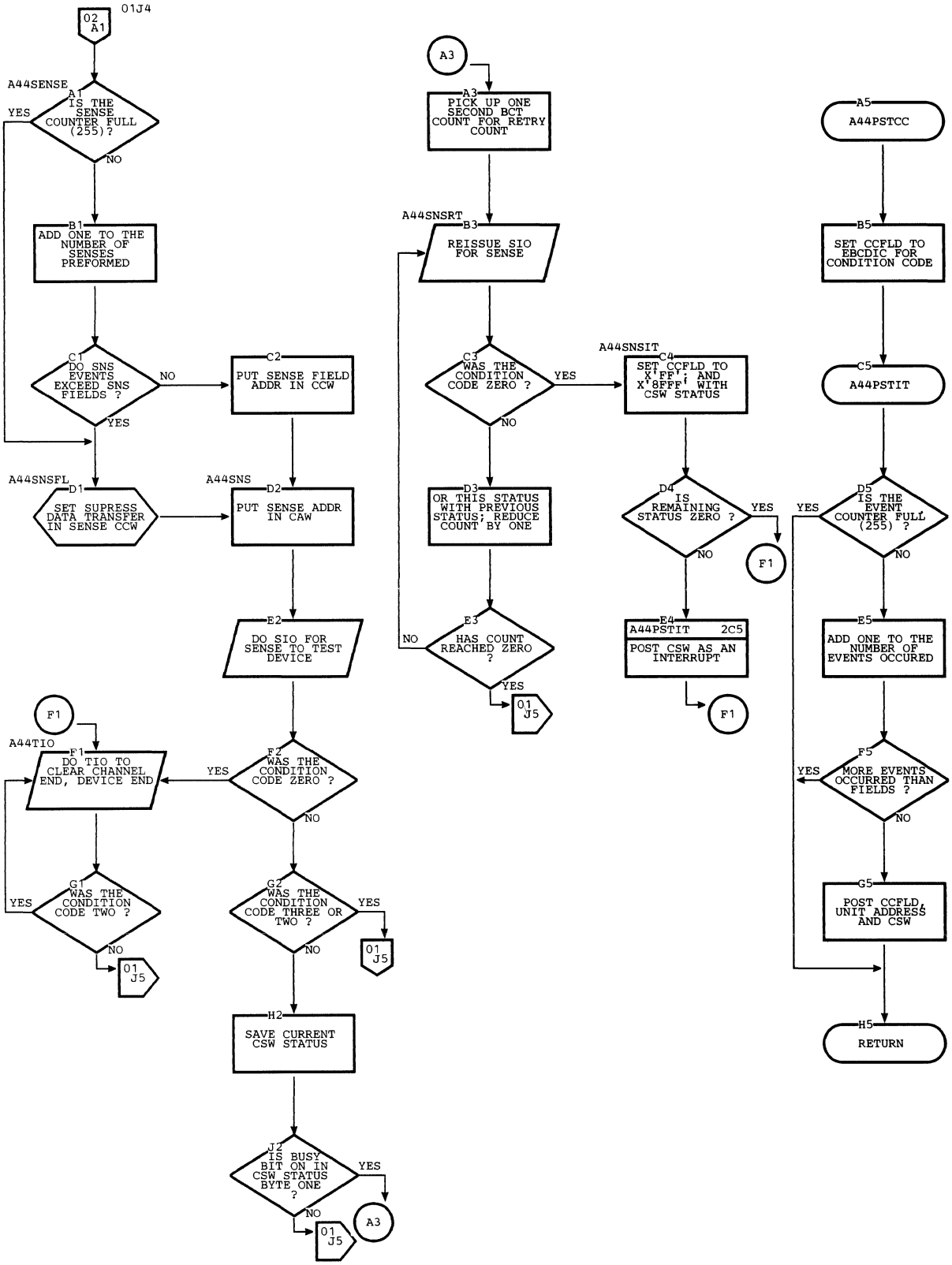


Chart CC. IJZADO45: Trace/Return Code Handling Module

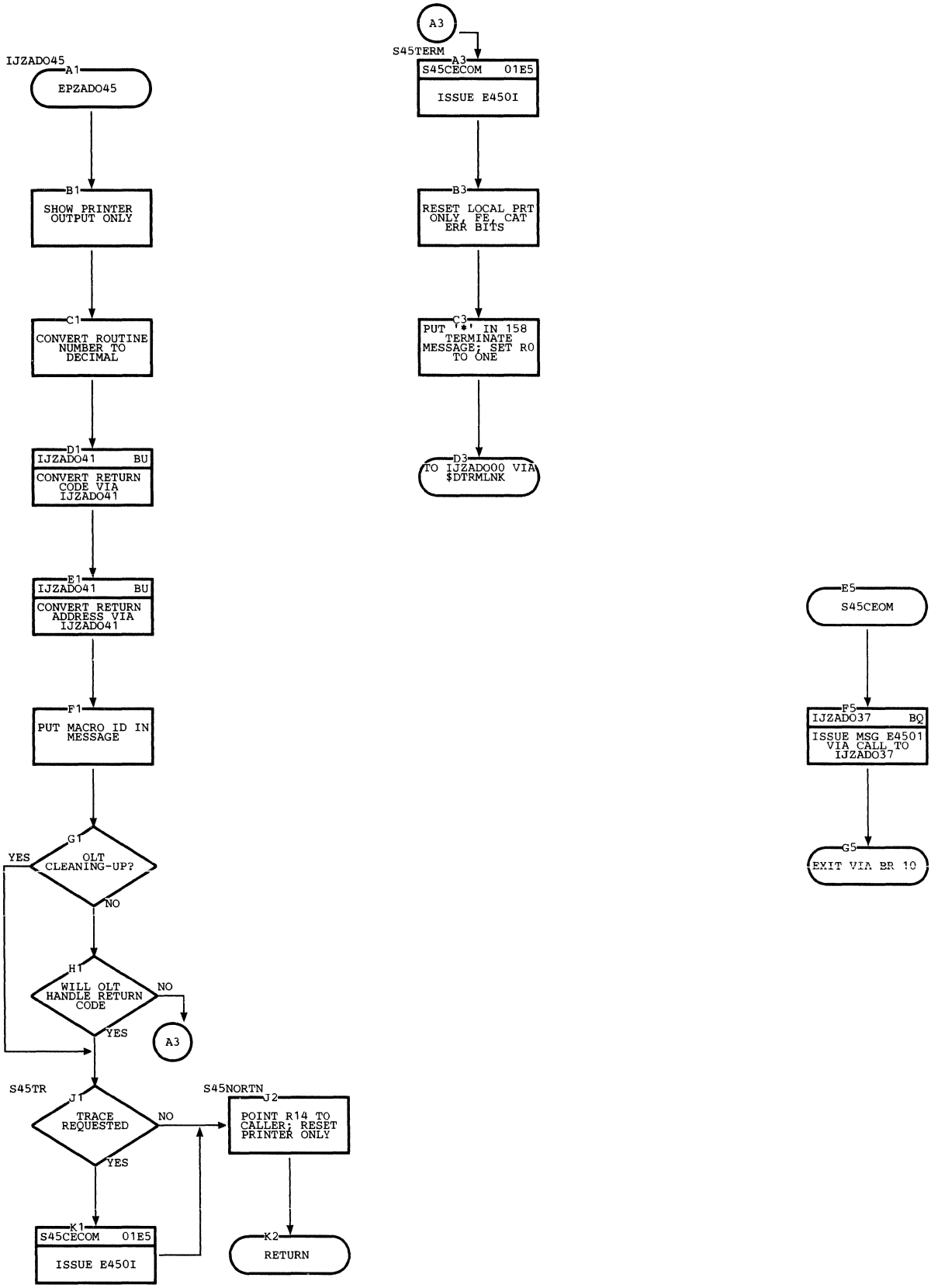


Chart CD. IJZADO47: Routine

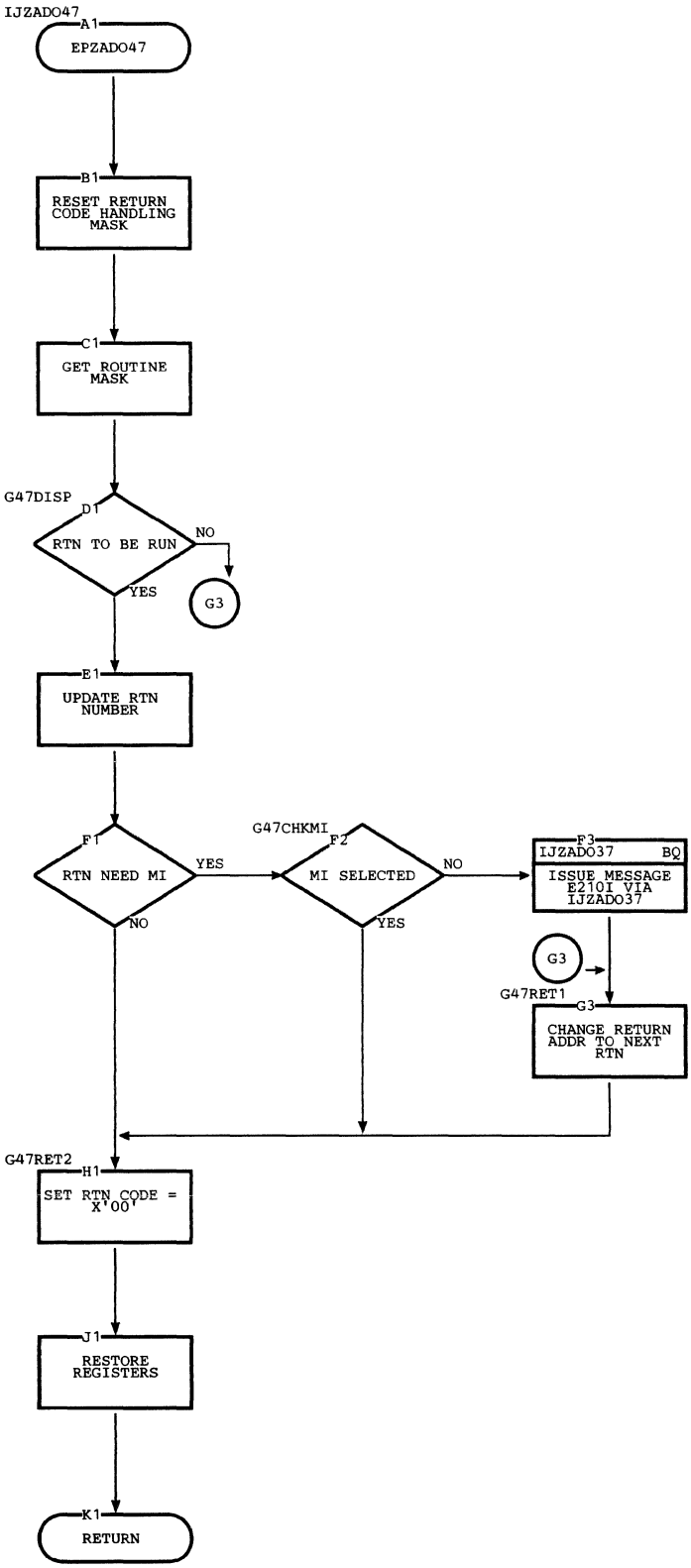


Chart CE. IJZADO49: Equate (Part 1 of 2)

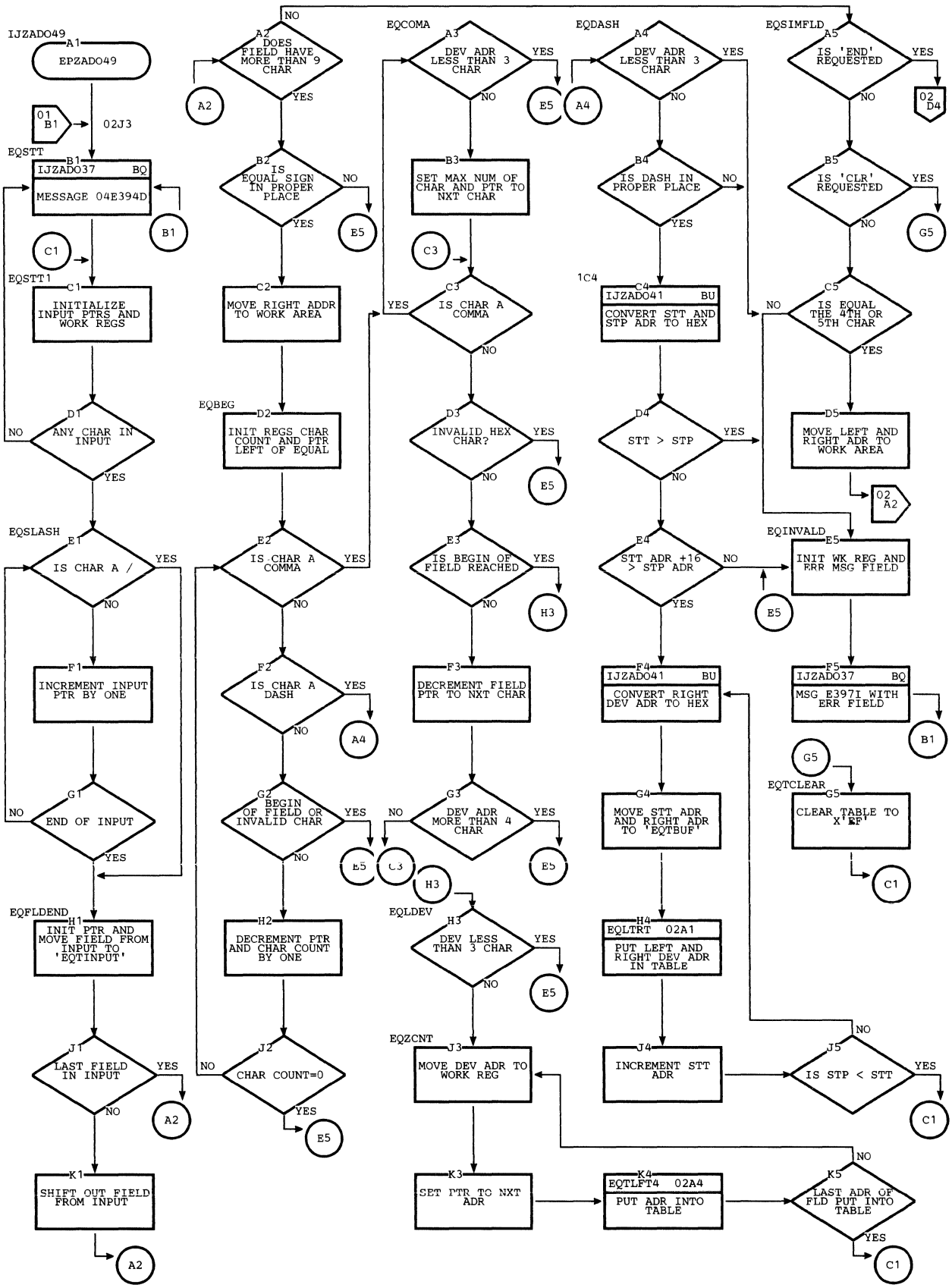


Chart CE. IJZADO49: Equate (Part 2 of 2)

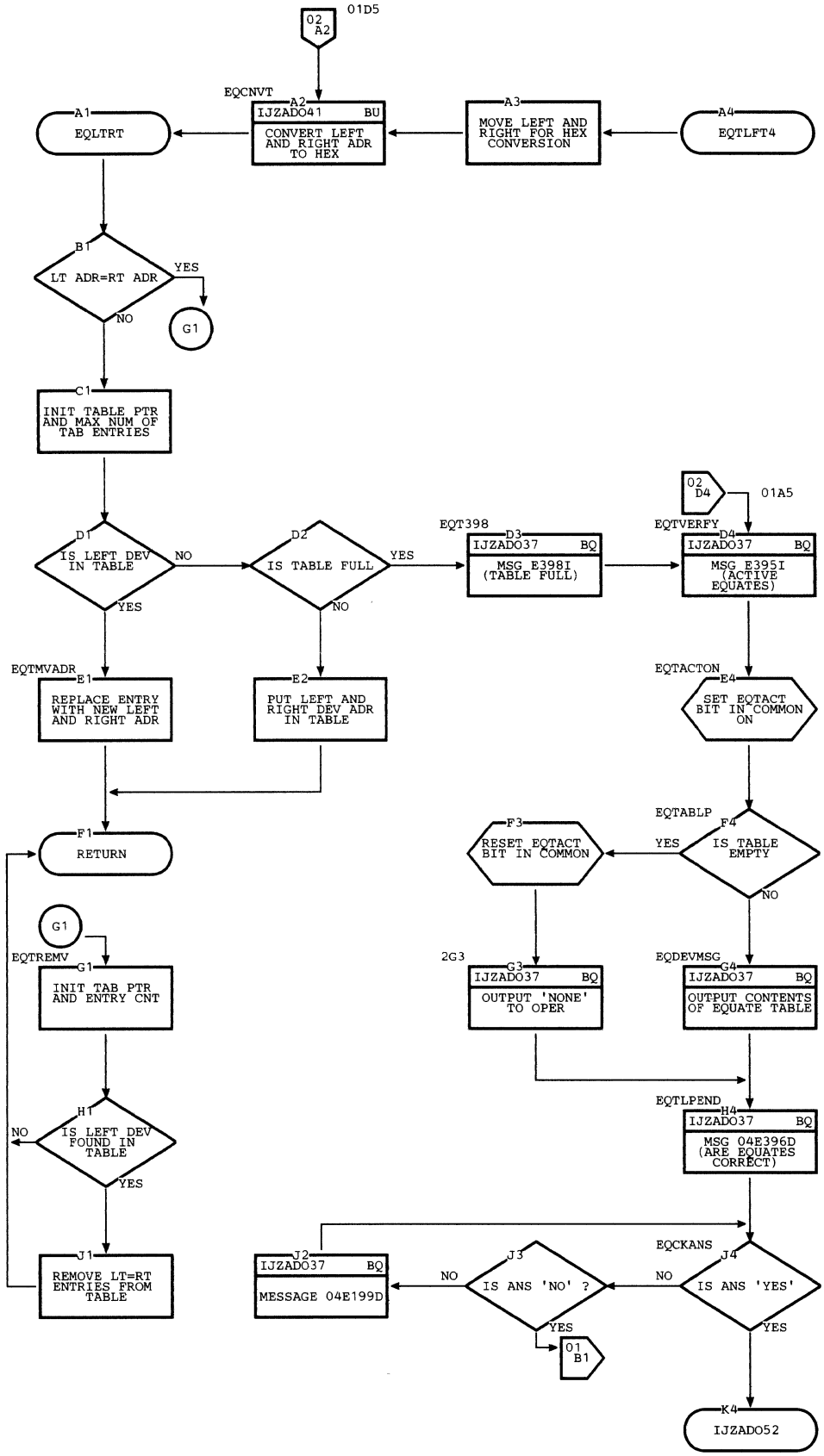


Chart CG. IJZADO62: CCW Message (Setup) (Part 1 of 4)

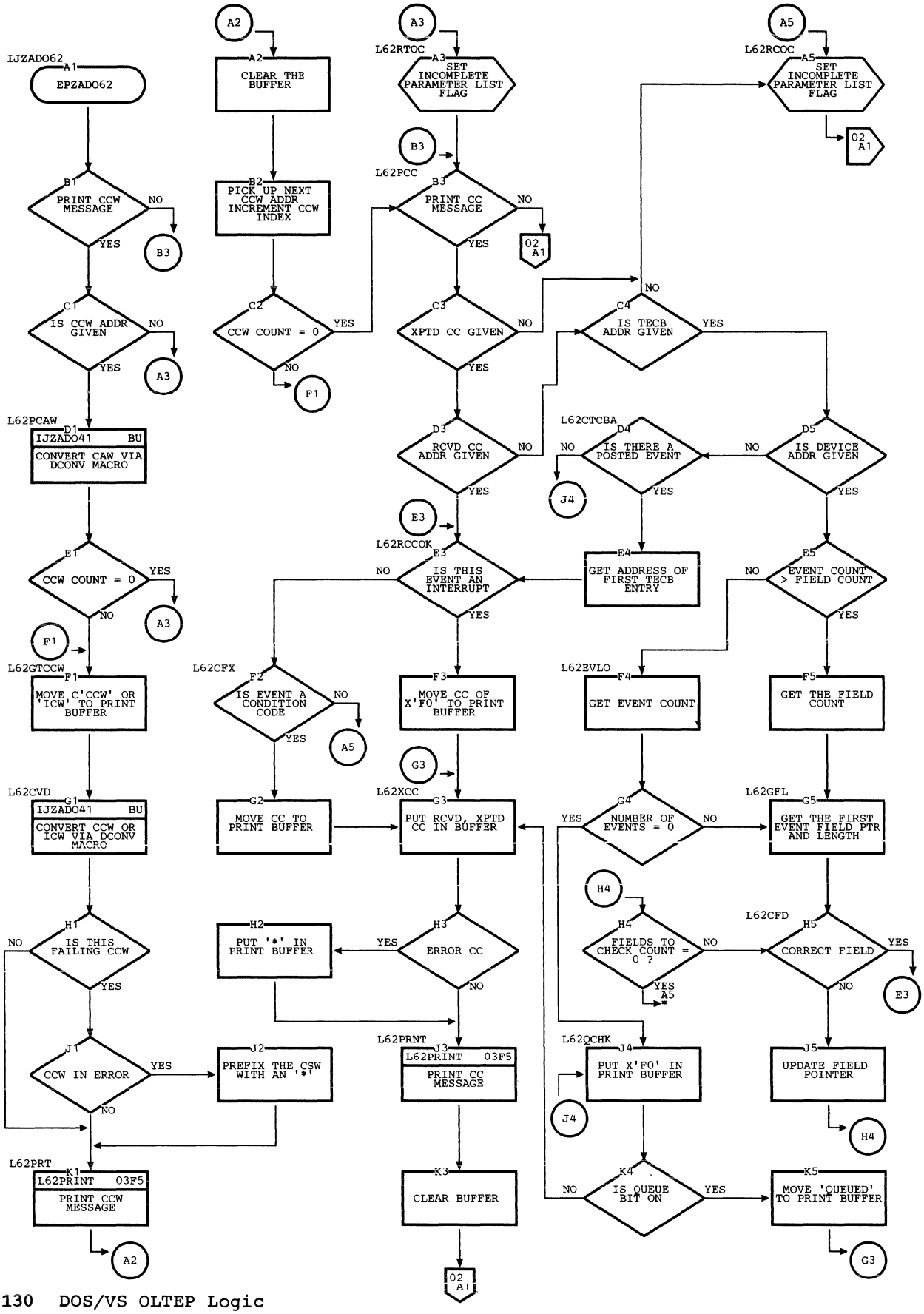


Chart CG. IJZADO62: CCW Message (Setup) (Part 2 of 4)

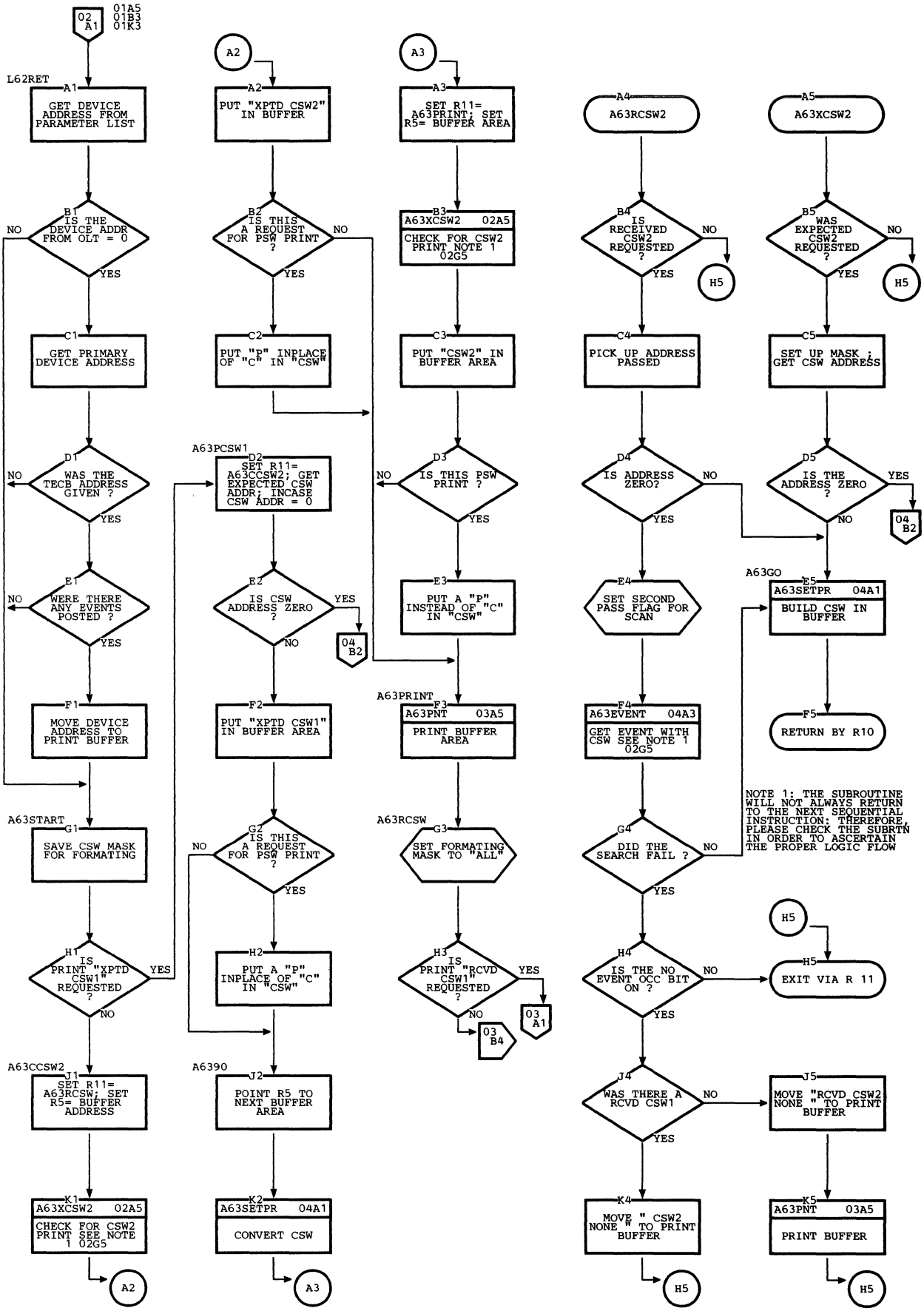


Chart CC. IJZADO62: CCW Message (Setup) (Part 3 of 4)

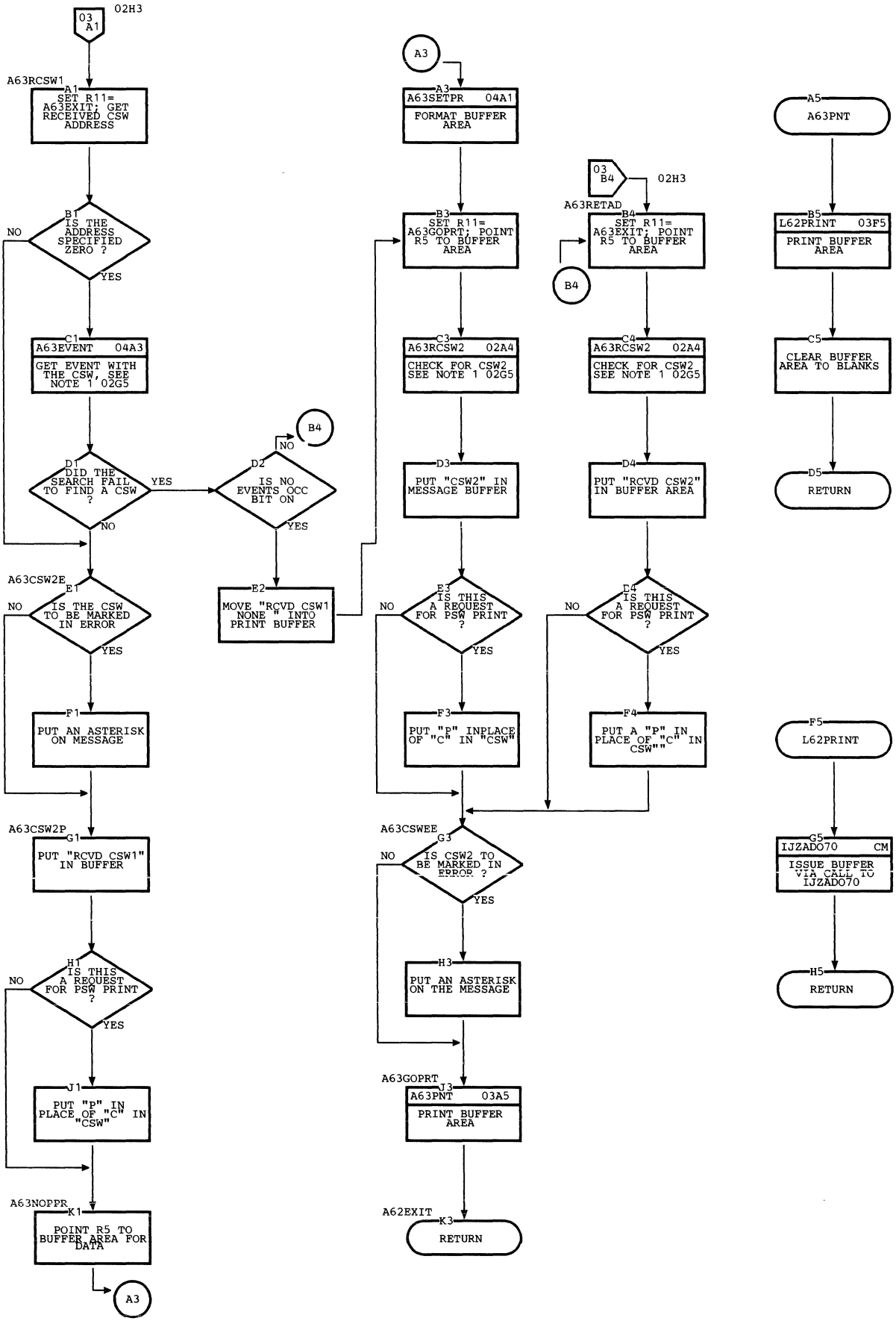


Chart CG. IJZADO62: CCW Message (Setup) (Part 4 of 4)

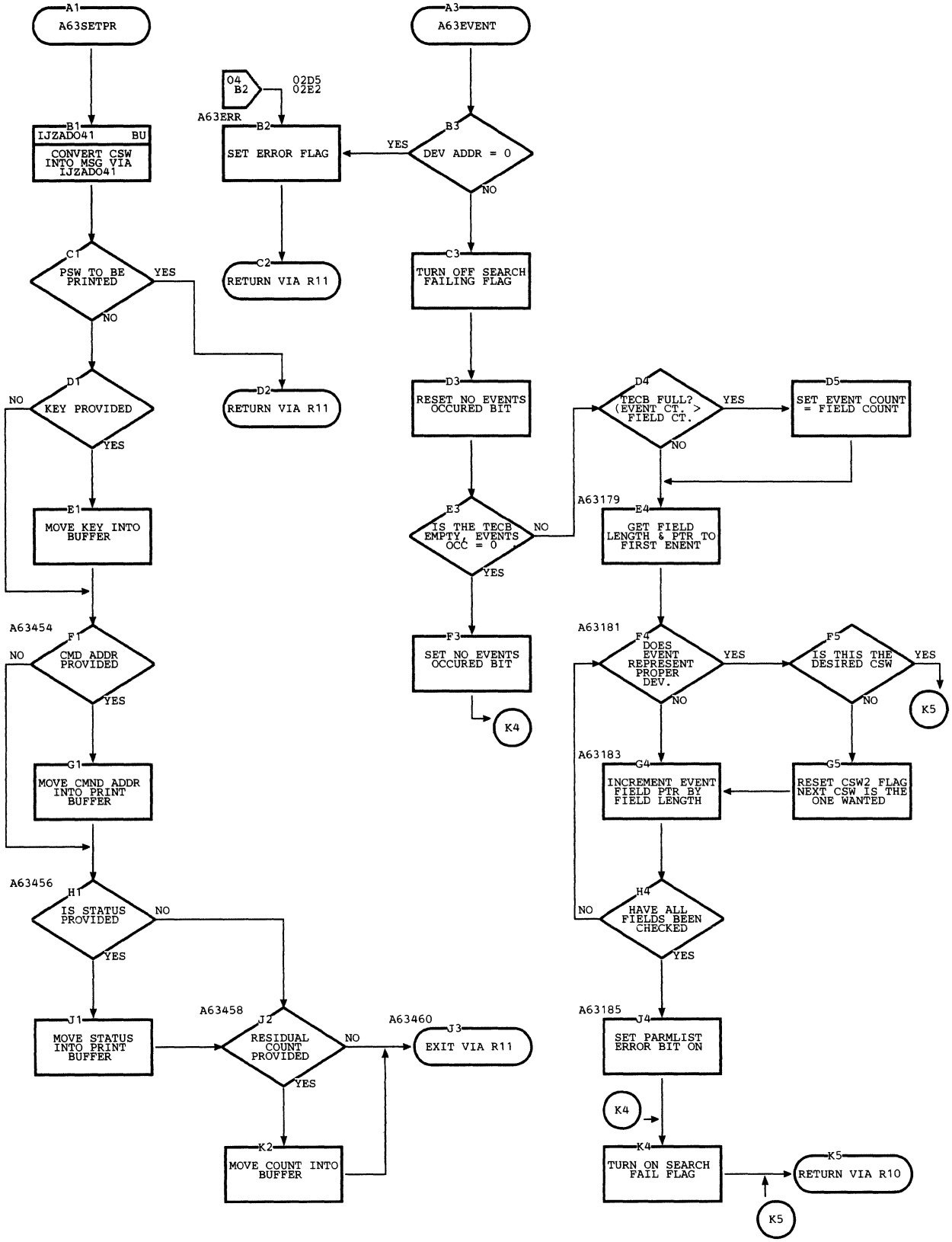


Chart CK. IJZADO64: Sense Data Message (Setup) (Part 1 of 2)

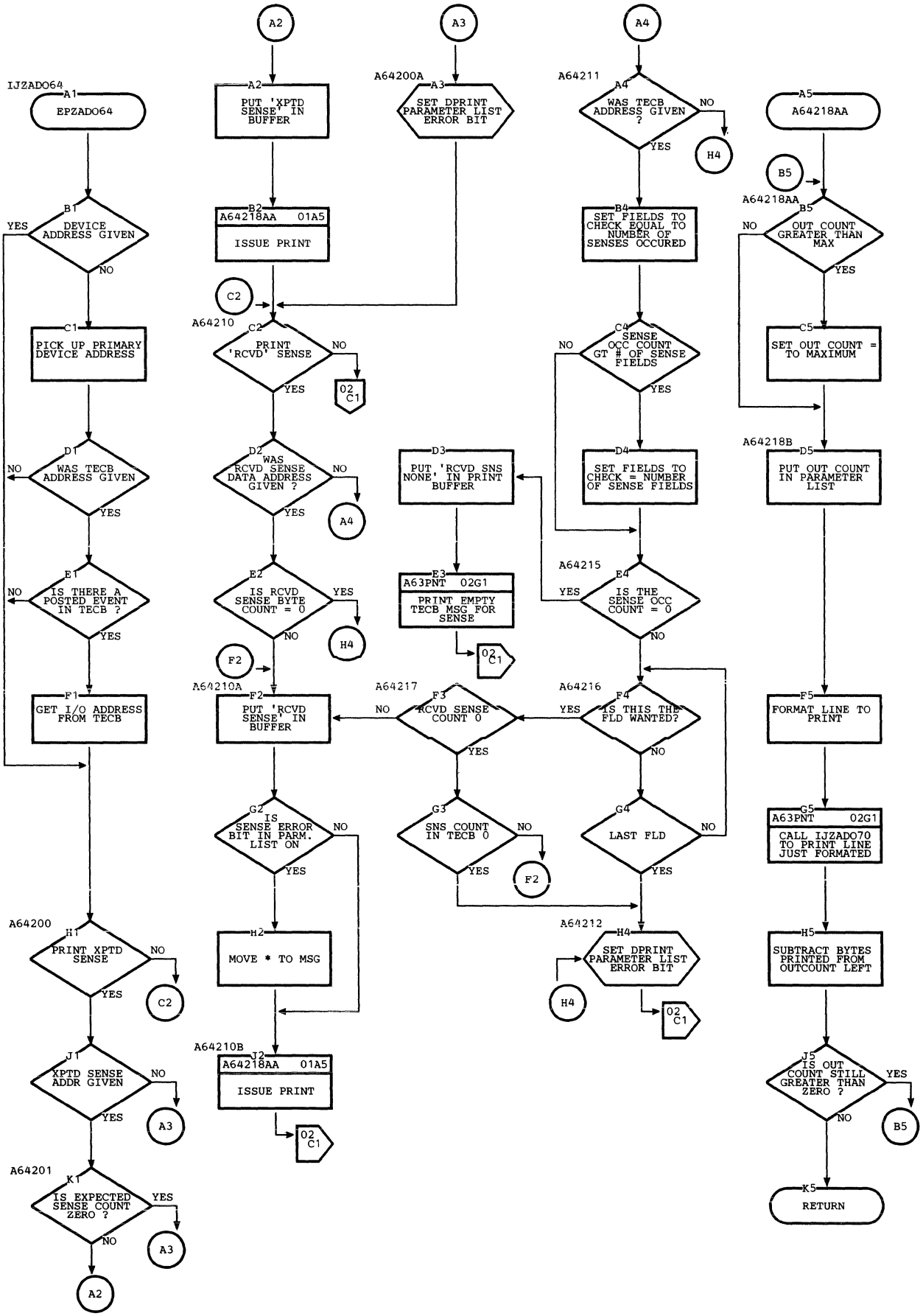


Chart CK. IJZADO64: Sense Data Message (Setup) (Part 2 of 2)

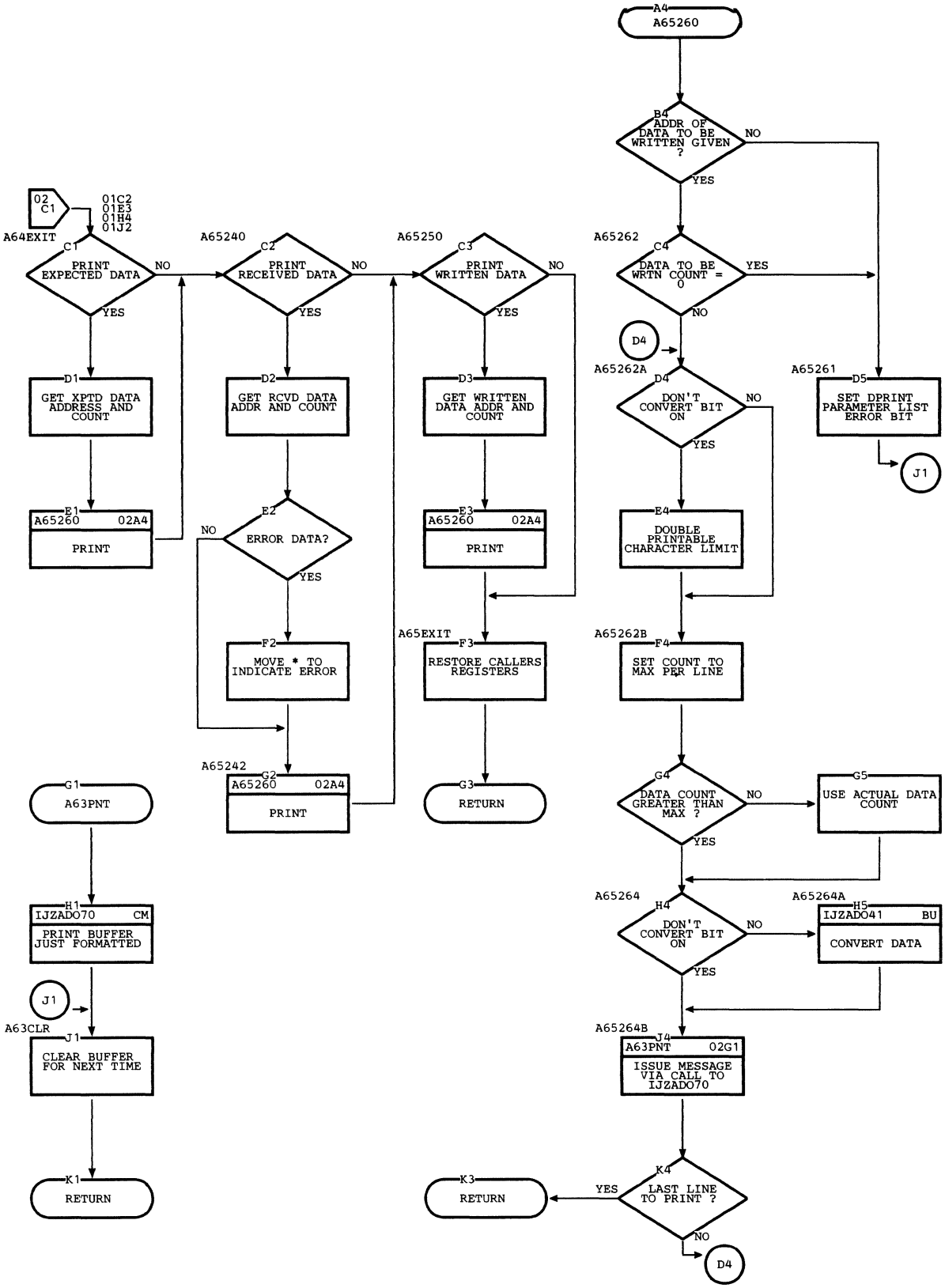


Chart CM. IJZADO70: Output Writer

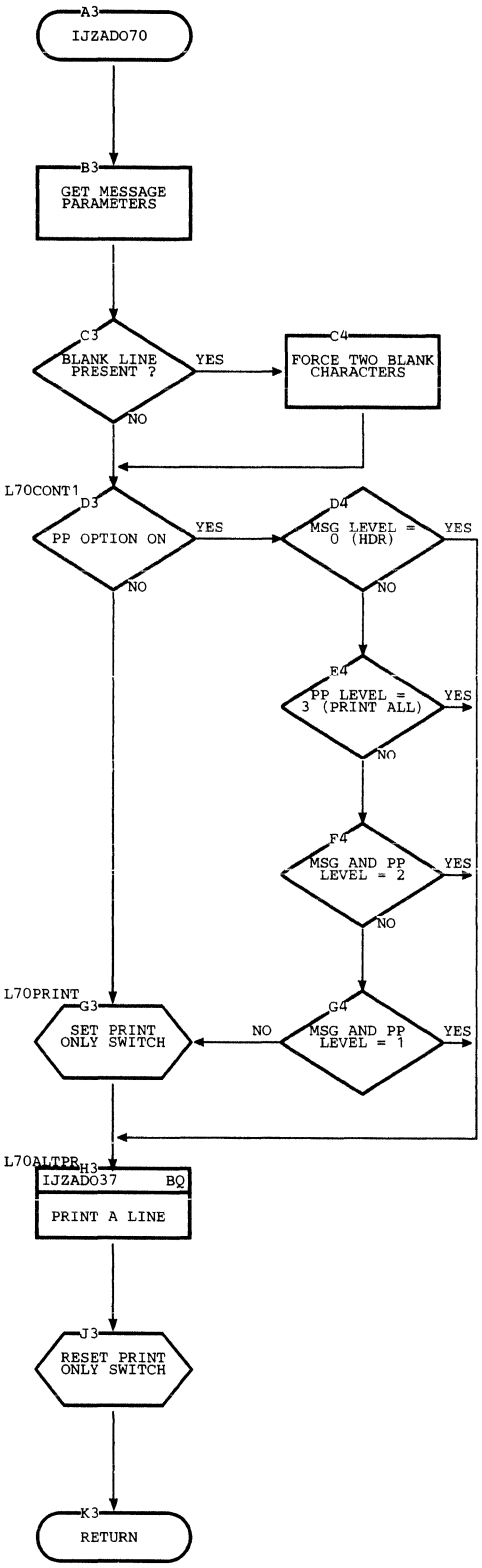


Chart CN. IJZADO71: Prcmpt Device

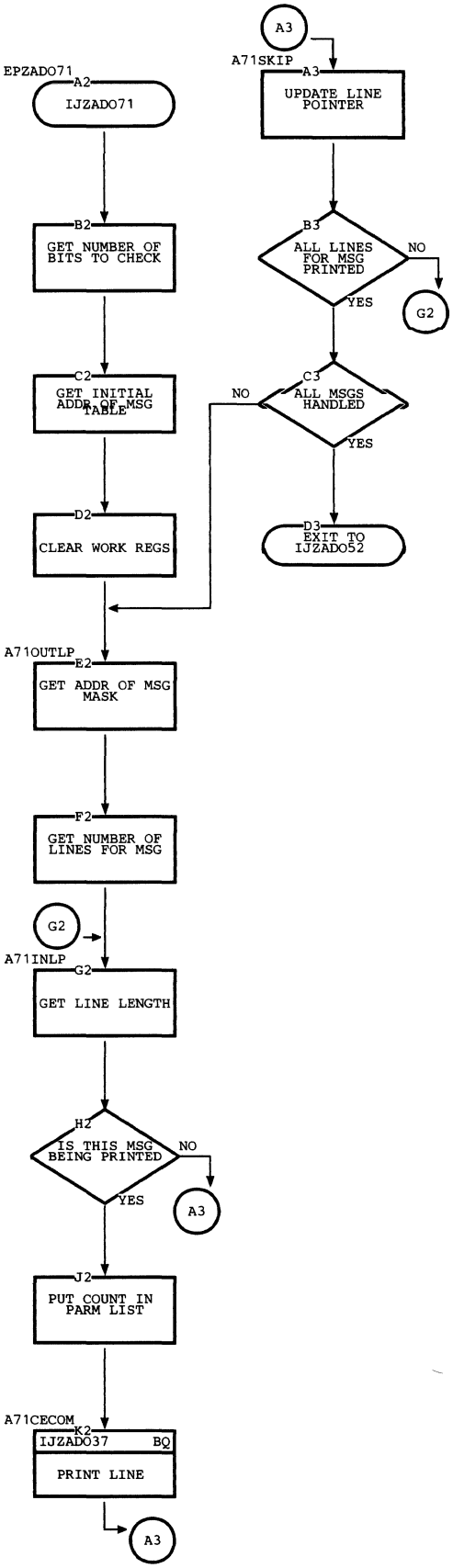


Chart CR. IJZADO76: REI Initializer #1

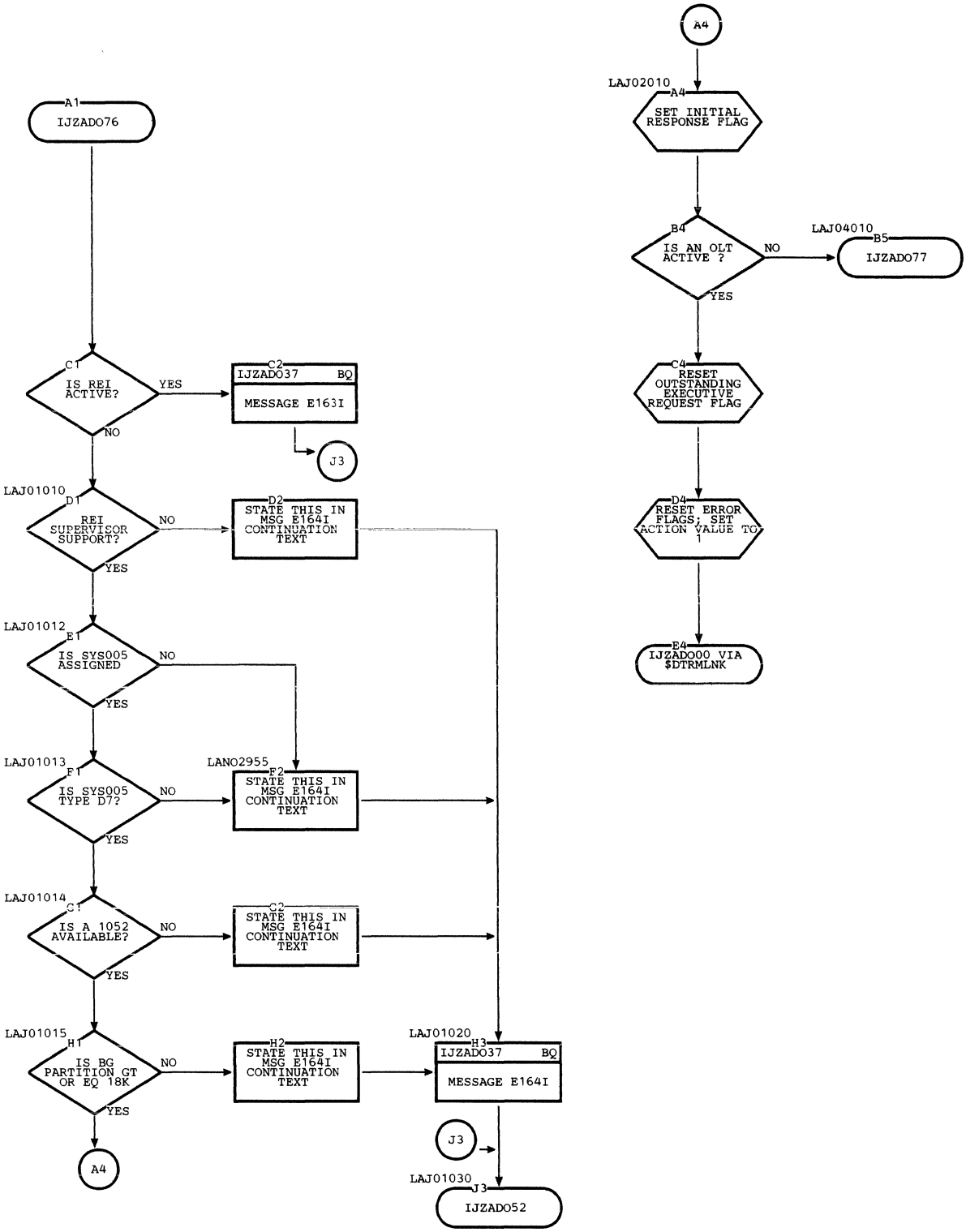


Chart CS. IJZADO77: REI Initializer #2

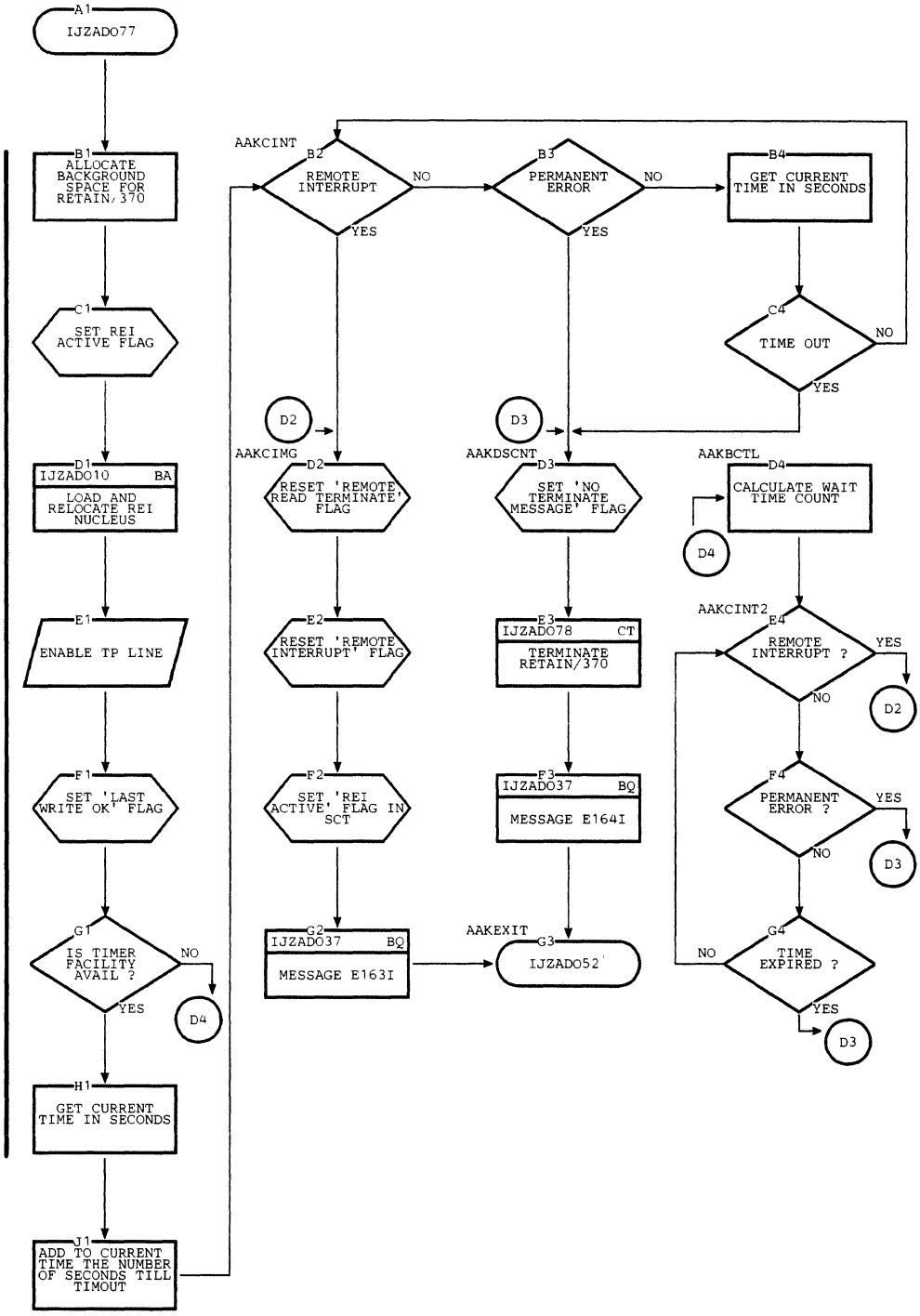


Chart CT. IJZADO78: RETAIN/370 Terminate

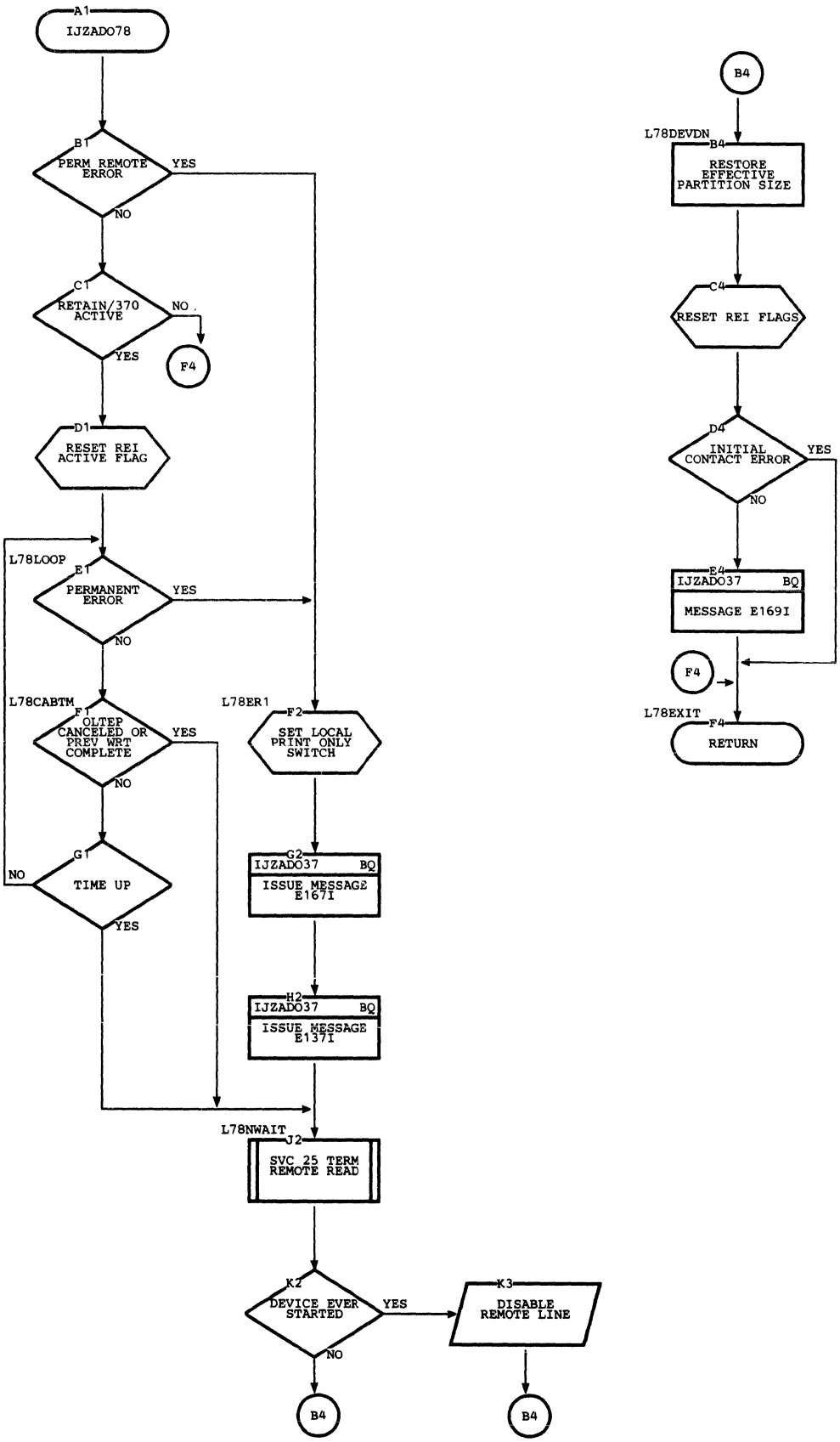


Chart DA. IJZADOAA: $DDATE

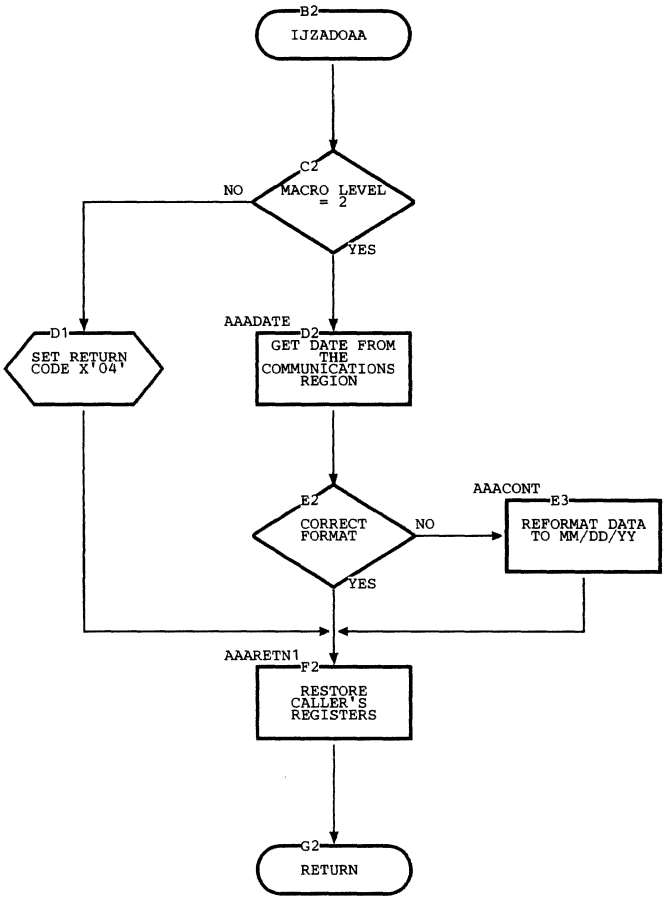


Chart DB. IJZADOAB: $DTIME

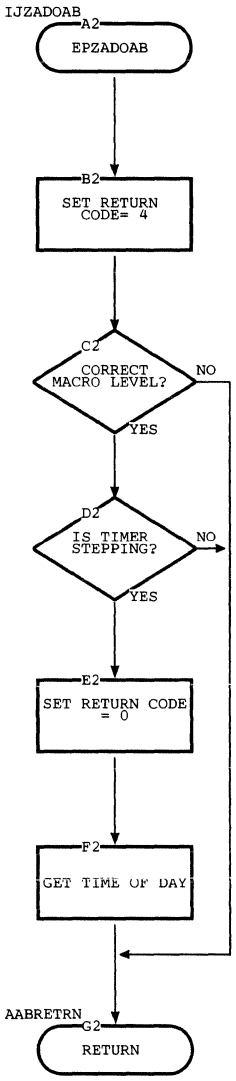


Chart DD. IJZAOLTP: $$BOLTEP

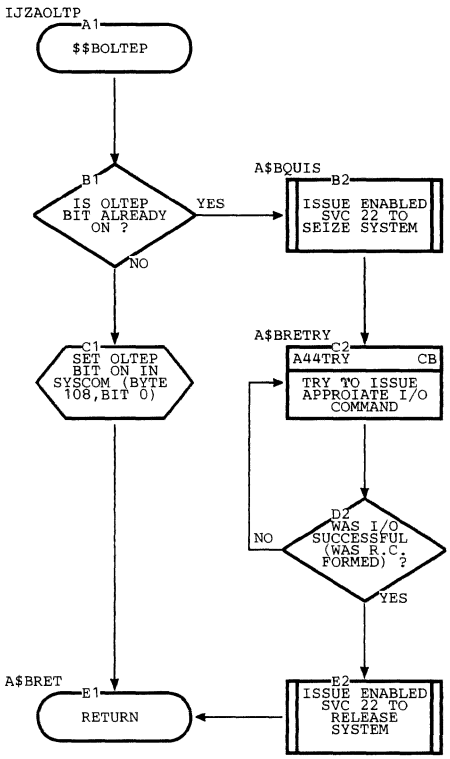


Chart DE. IJZATOLT: $$BTOLTP, Terminate OLTEP

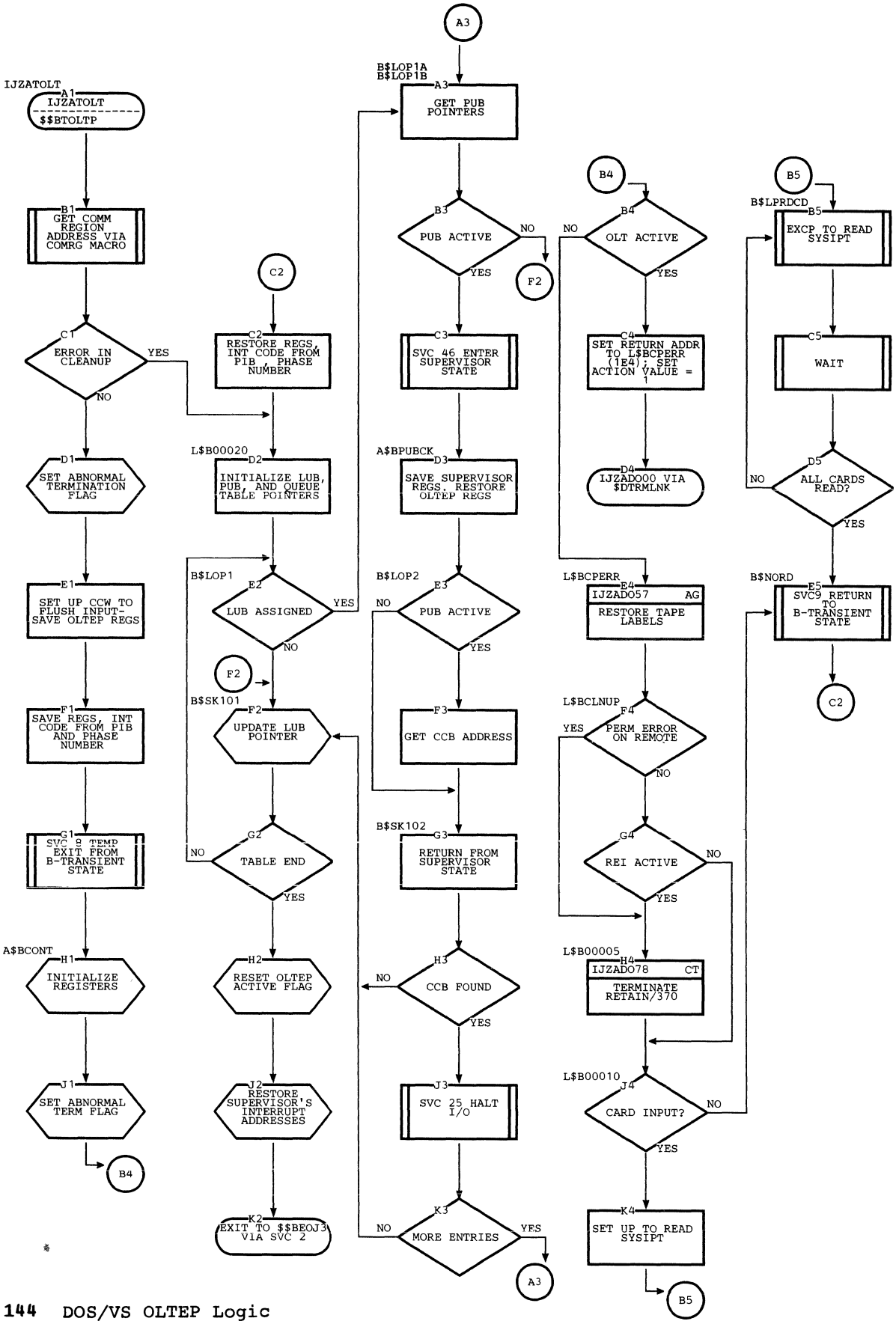


Chart DJ. IJZADOAJ: $CUTEST (Part 1 of 3)

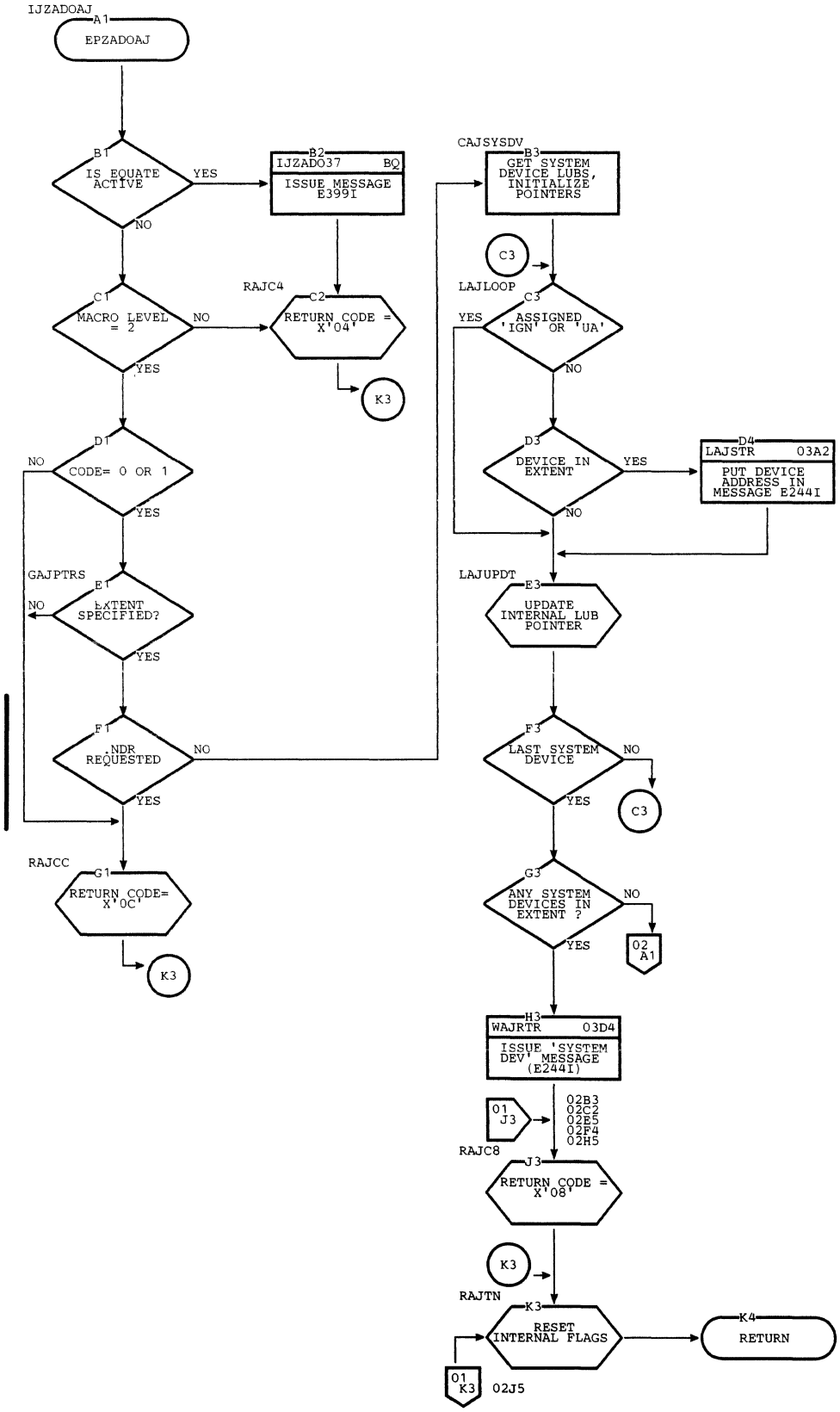


Chart DJ. IJZADOAJ: $CUTEST (Part 2 of 3)

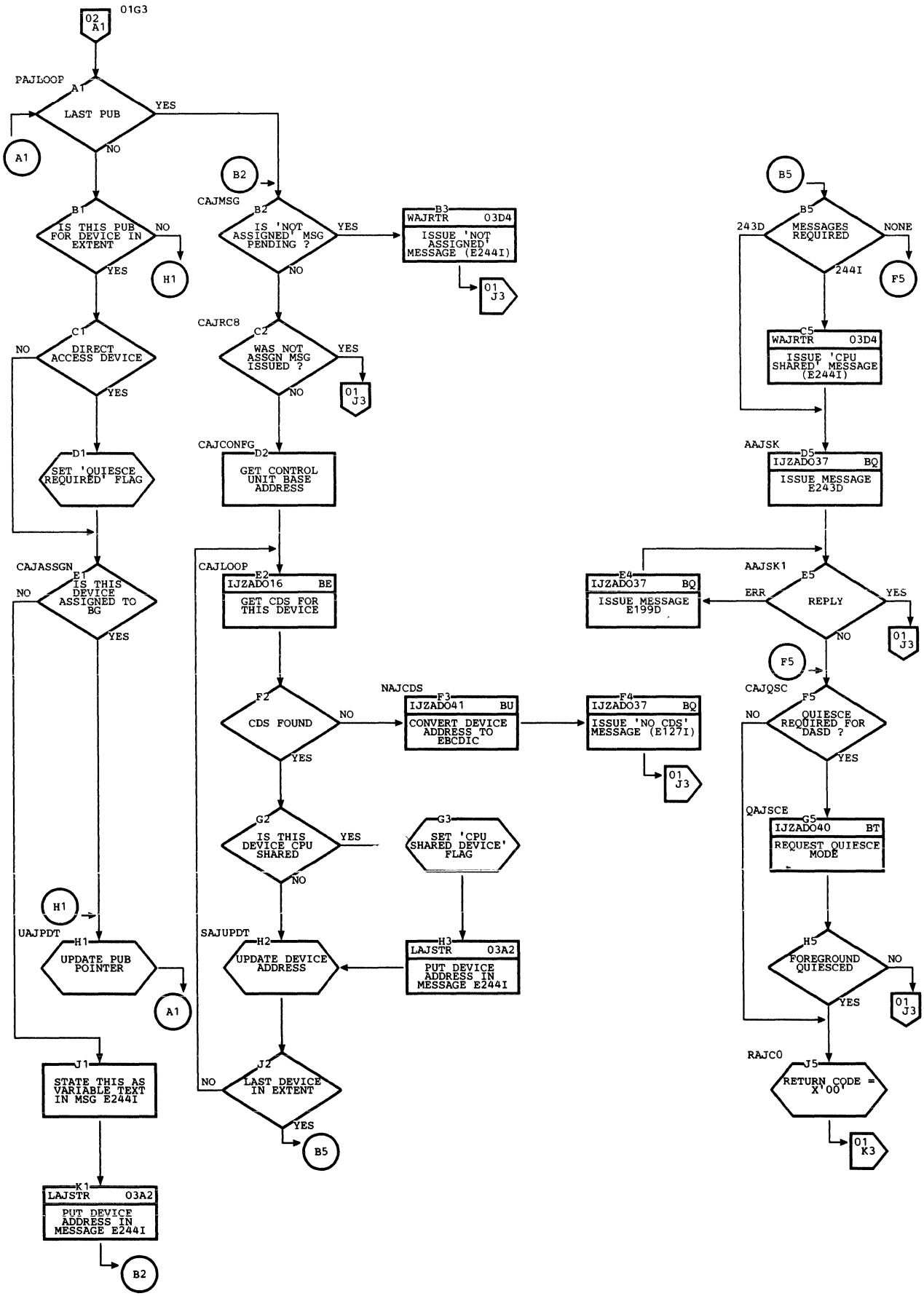


Chart DJ. IJZADOAJ: $CUTEST (Part 3 of 3)

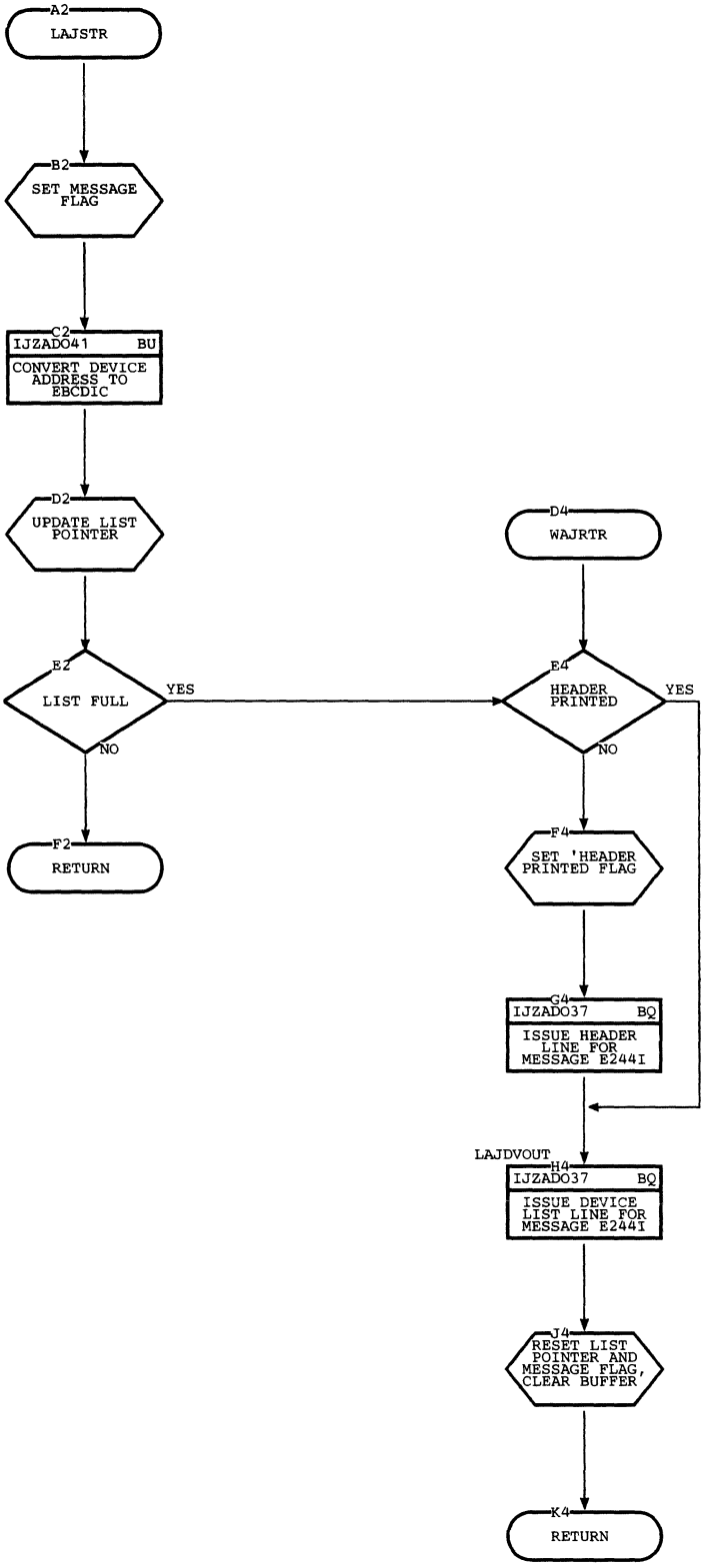


Chart EA. IJZACEOM: CE Communication

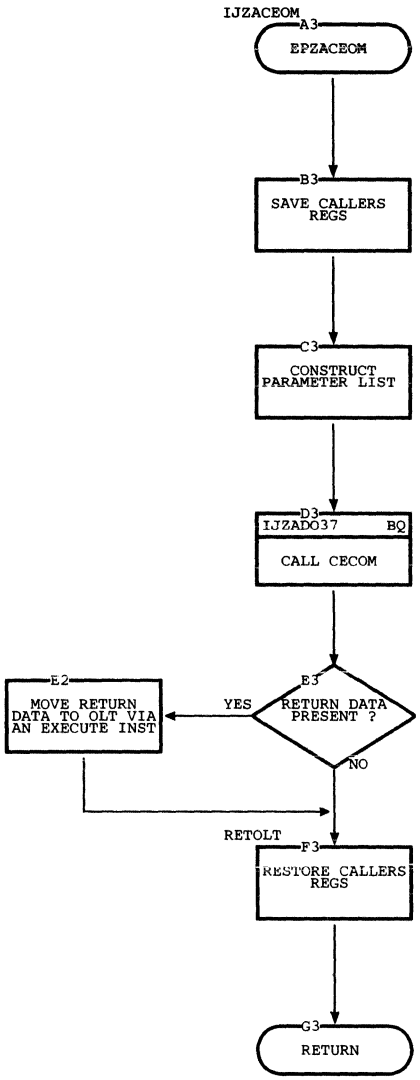


Chart ED. IJZACOMP: Compare

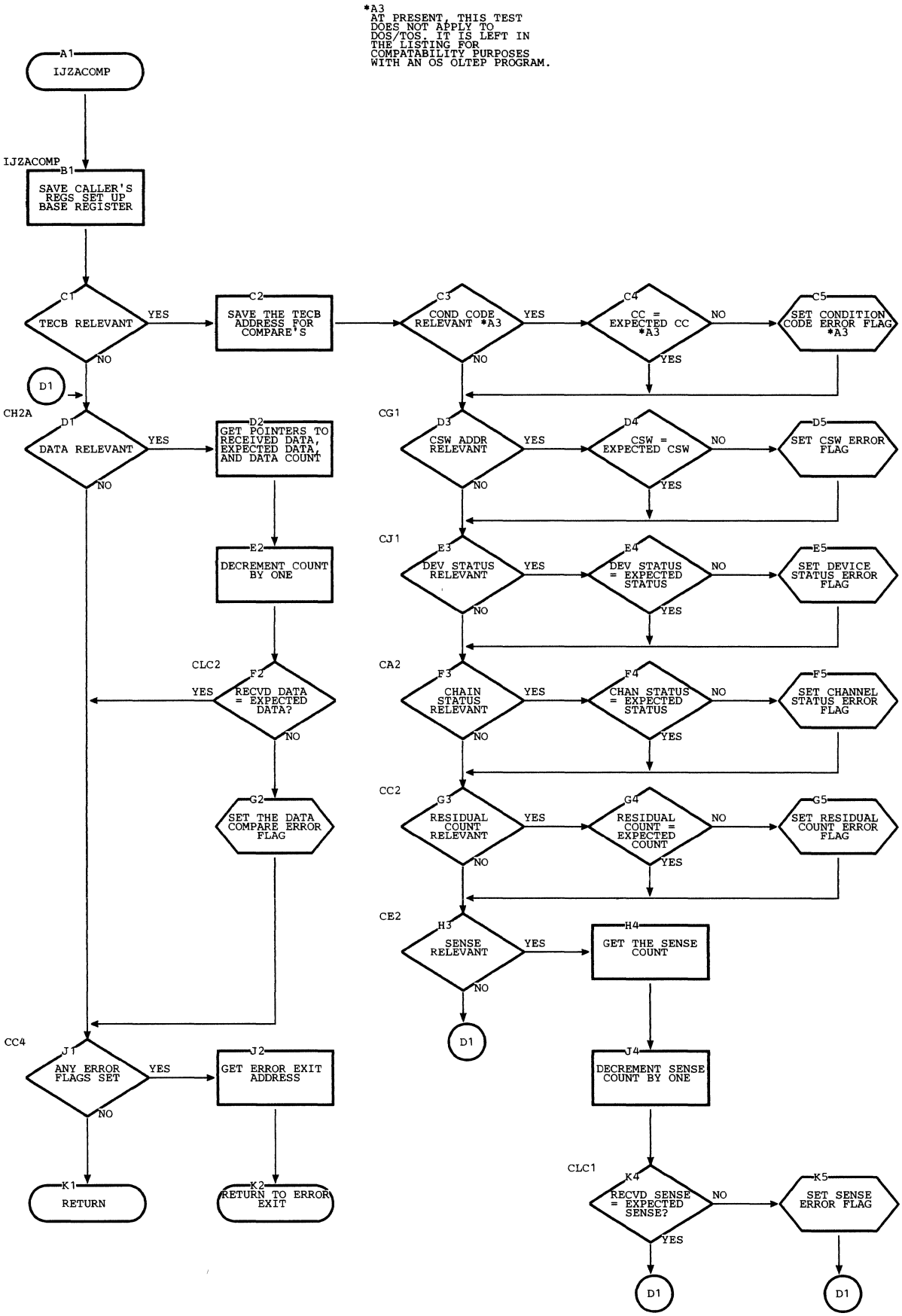


Chart EE. IJZACONV: Convert

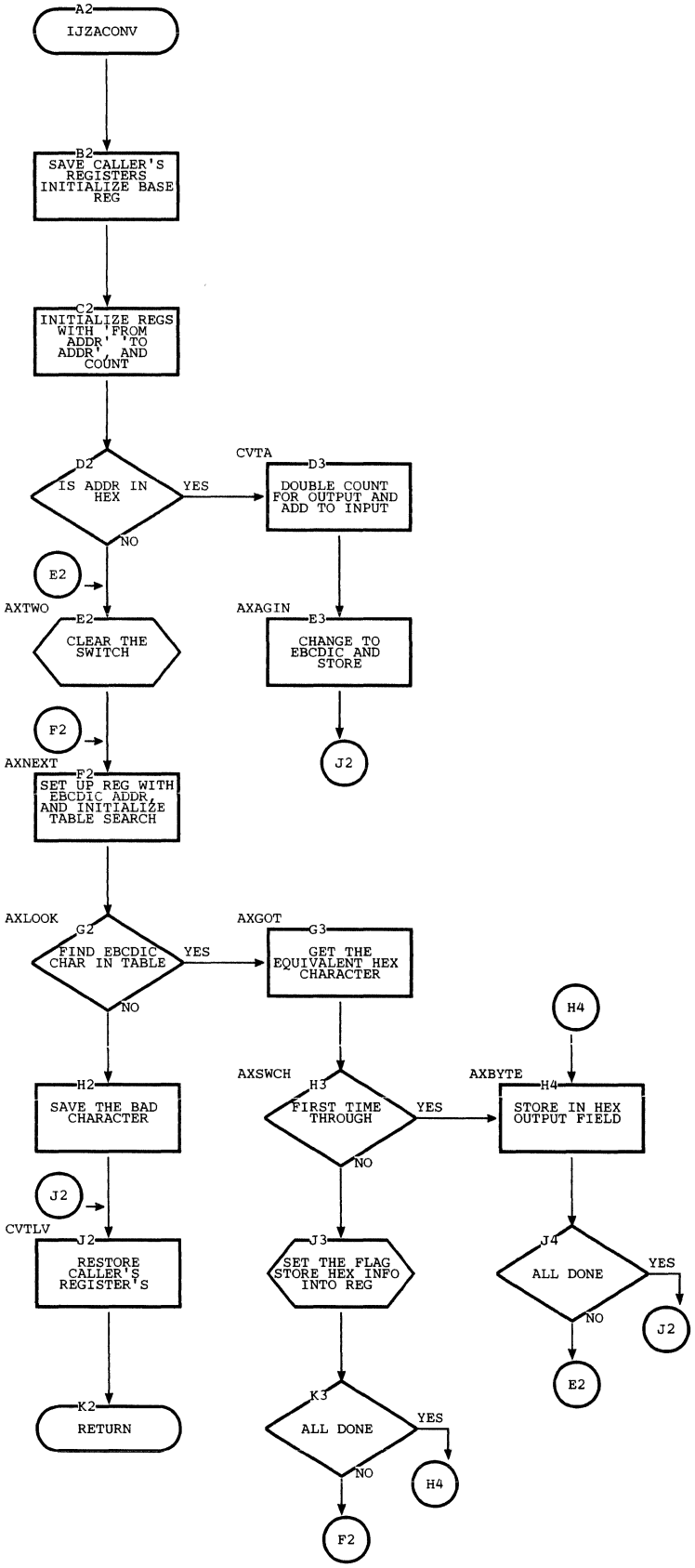


Chart FF. IJZADOLD: Old EXIO, WAITIC, DPRWT (Part 1 of 3)

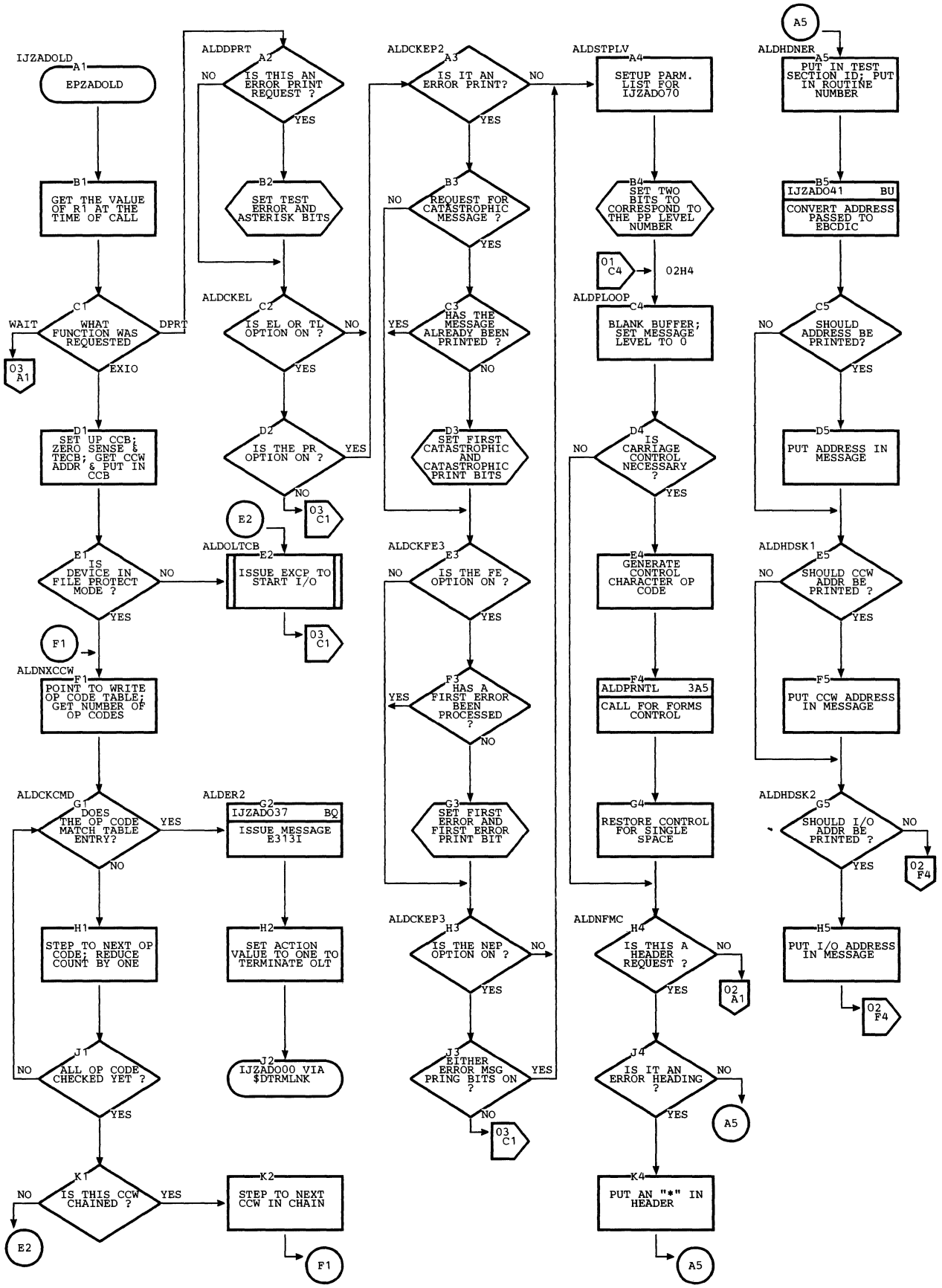


Chart EF. IJZADOLD: Old EXIO, WAITIC, DPRWT (Part 2 of 3)

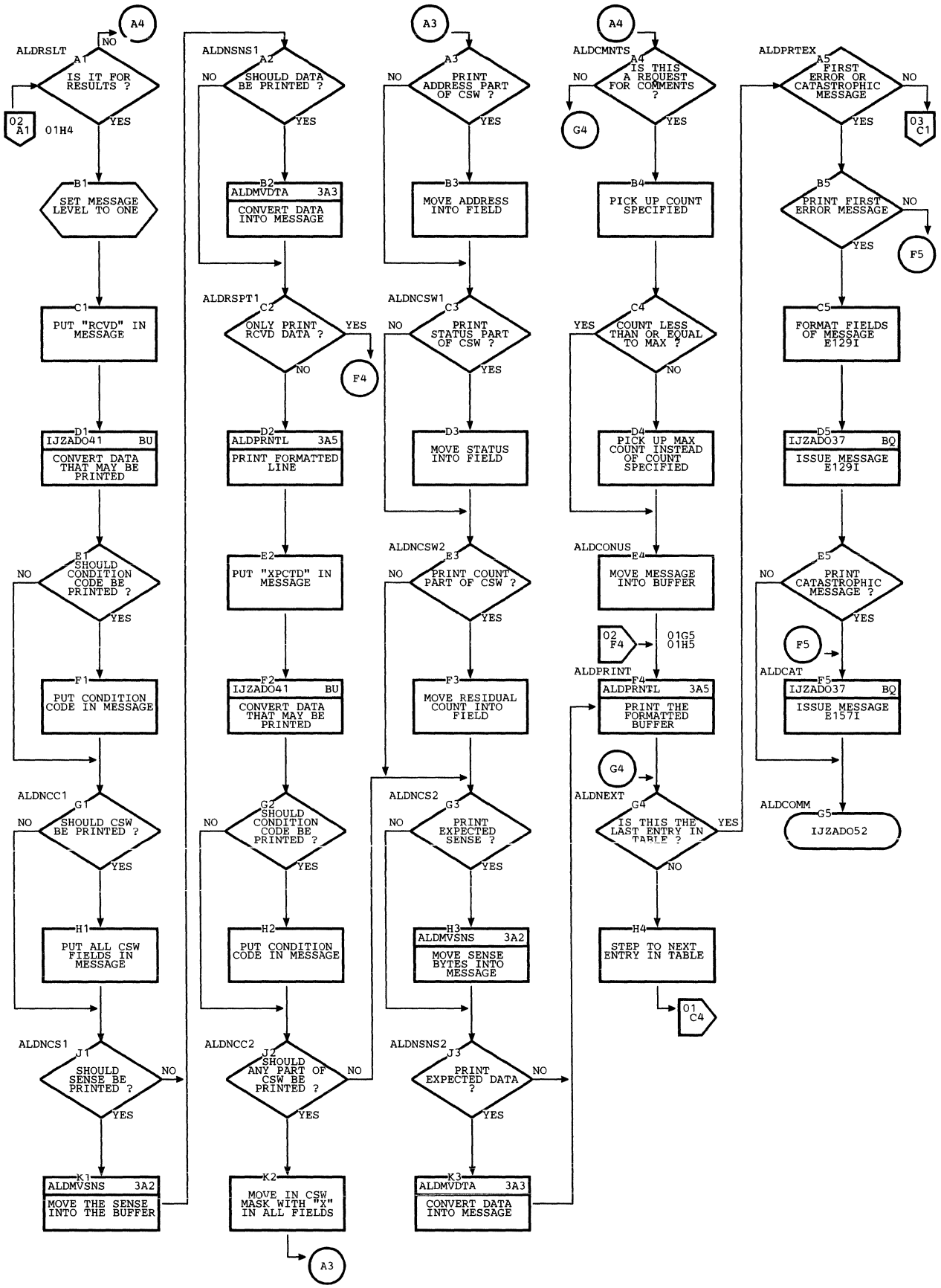


Chart FF. IJZADOLD: Old EXIO, WAITIC, DPRWT (Part 3 of 3)

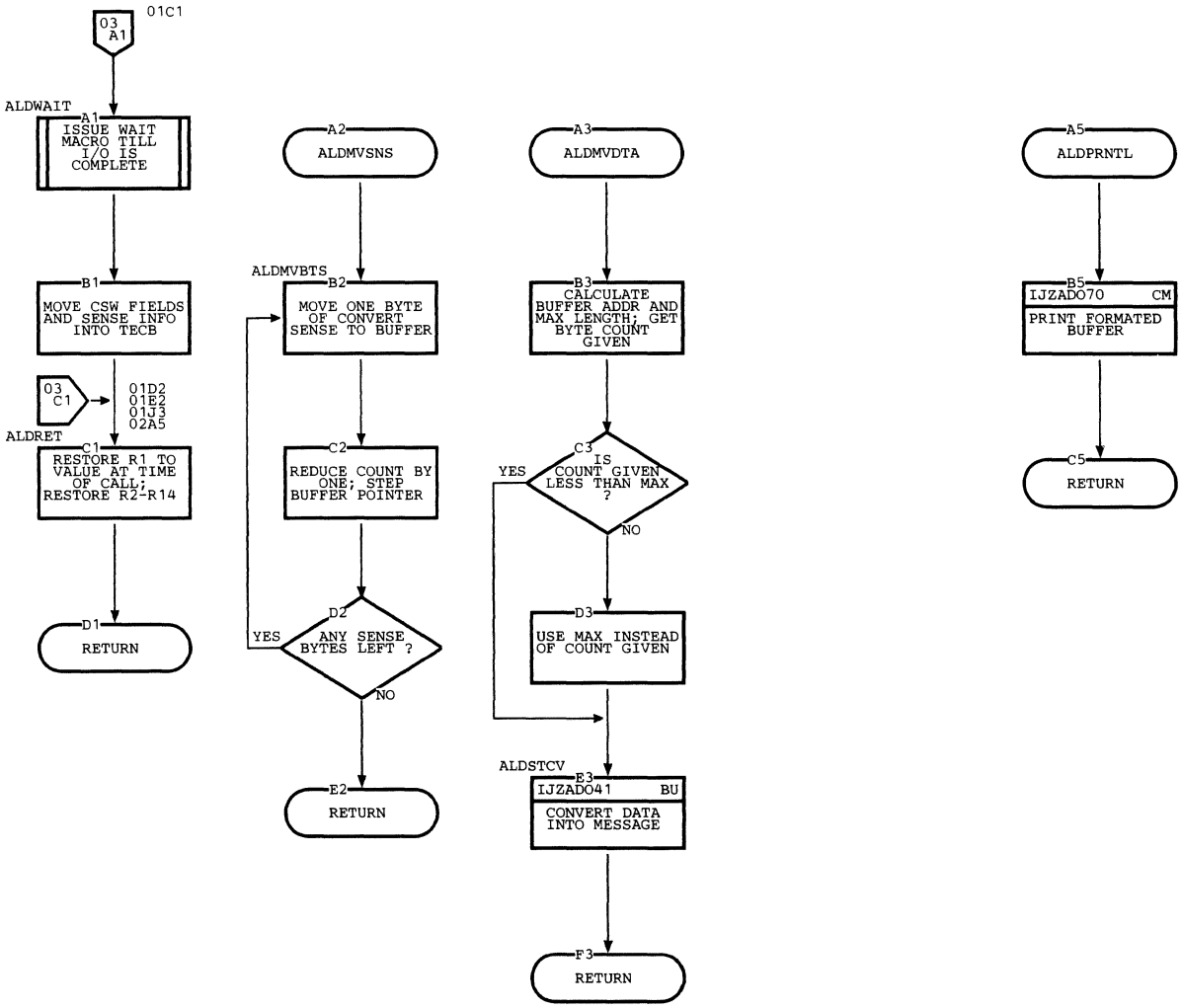


Chart EM. IJZAOPUT: Output

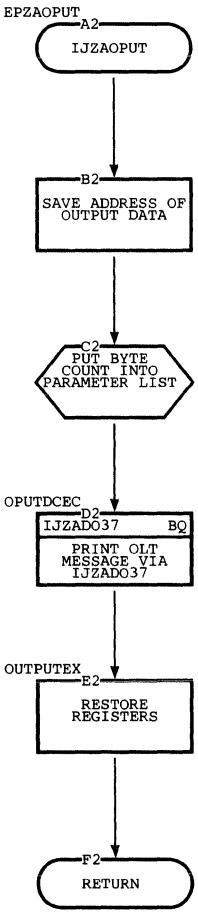
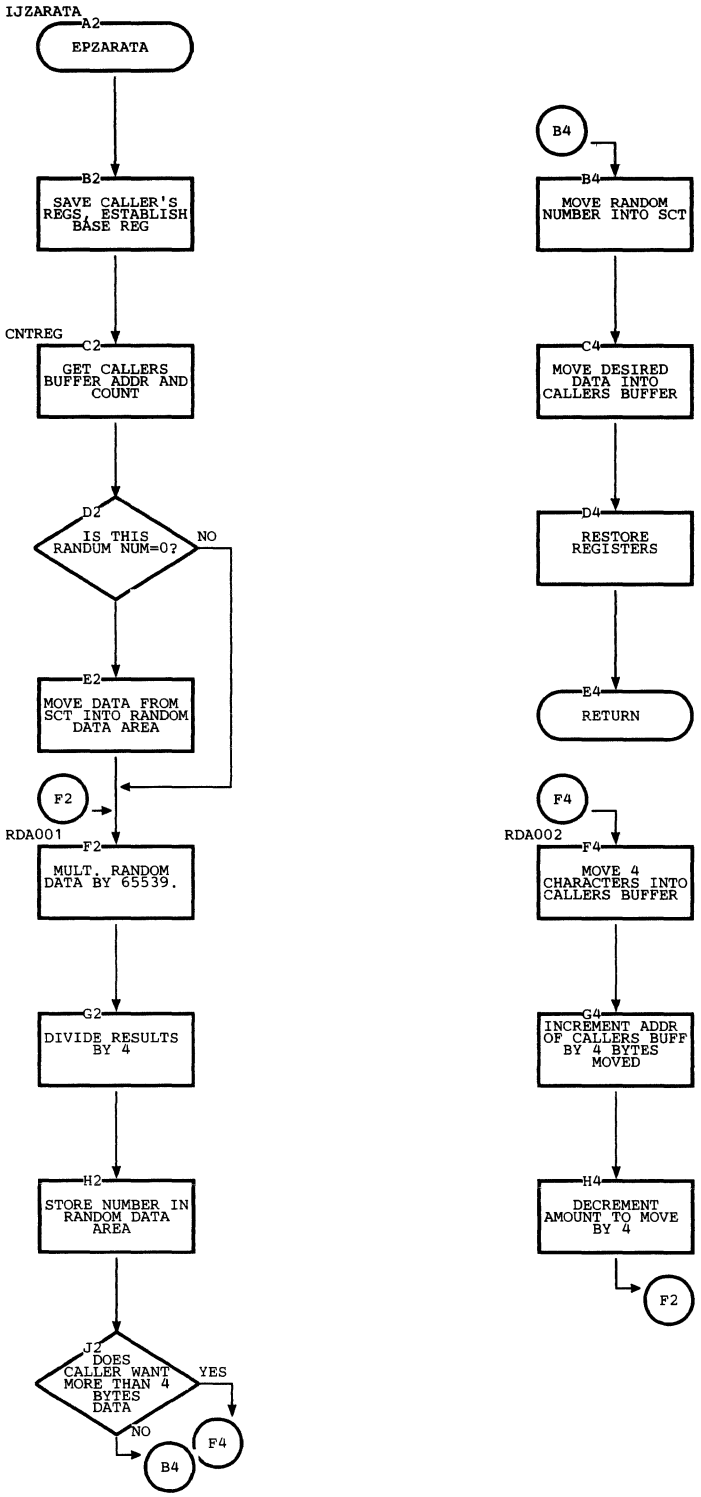


Chart EN. IJZARATA: Random Data Generator



Appendix A: OLTEP Message Cross Reference

For complete message and response, refer to the DOS CLTEP publication listed in the Preface.

Message Number	Message	Issuing Routine	Chart ID
E100I	information message from the olt	OLT	BS
04E101D	(request from the OLT)	OLT	
E102I	OLTS RUNNING	IJZADOLT	AA
01E105D	ENTER DEV/TEST/OPT	IJZADO52	AE
E106I	INPUT DATA DOES NOT CONTAIN 3 SLASHES	IJZADO52	AE
E107I	OPTIONS ARE XXX, XXX	IJZADO33	AN
E108I	INVALID ENTRY IN DEV FIELD-XXXXXXXX	IJZADO31	AE
E110I	TESTABLE DEVICES MAY NOT EXCEED 16	IJZADO31	AE
E111I	NO DEVICES AVAILABLE FOR TEST	IJZADO31	AE
E112I	INVALID ENTRY IN TEST FLD-XXXXXXXX	IJZADO32	AK
04E113D	CAN CTL PGM ON MULTI-ADDR DEV XXXX BE DESTROYED REPLY YES/NO	IJZADO56	AS
E115I	INVALID ENTRY IN OPT FIELD-XXXXXXXXXX	IJZADO33	AN
E117I	SECTION XXXXXXXX NOT FOUND	IJZADO00	AP
E118I	UNREADABLE TAPE LABEL-XXXX	IJZADO03	AV
E119I	NON-STANDARD TAPE LABEL-XXXX	IJZADO03	AV
04E120D	CAN VOL DATA ON XXXX BE DESTRCYED. REPLY, YES OR NO	IJZADO22	BE
E122I	VOL ON XXXX SECURITY PROTECTED	IJZADO03	AV
E122I	VOL ON XXXX SECURITY PROTECTED	IJZADO07	AX
E122I	VOL ON XXXX UNEXPIRED DATE	IJZADO03	AV
E124I	CEPACK NOT ON XXXX, VOLID=XXXXXX	IJZADO07	AX
E125I	UNREADABLE LABEL ON XXXX	IJZADO07	AX
E126I	BIN 0 OF XXXX DOES NOT INDICATE CE CELL	IJZADO02	AU
E127I	NO CDS FOR XXXXXXXX	IJZADO00	AP
E127I	NO CDS FOR XXXXXXXX	IJZADO31	AE
E127I	NO CDS FOR XXXXXXXX	IJZADOAJ	DJ

E129I	FIRST ERROR COMM XXXXXXXX XXXX UNIT ZZZ DDDDDDDD	IJZADO39	BS
E129I	FIRST ERROR COMM XXXXXXXX XXXX UNIT ZZZ DDDDDDDD	IJZADRPT	EF
E130I	INTERVENTION REQ XXXX	IJZADO56	AS
E130I	INTERVENTION REQ XXXX	IJZADO02	AU
E131I	SENSE TO XXXX FAILED	IJZADO02	AU
E132I	CE BIT WILL NOT BE RESET - XXXX	IJZADO02	AU
E134I	WARNING - DASD VOLUME LABELED CEPACK NOT PROTECTED FROM WRITE	IJZADCLT	AA
E137I	CSW-ZZ...Z SNS-XX...X	IJZADO56	AS
E137I	CSW-ZZ...Z SNS-XX...X	IJZADC02	AU
E137I	CSW-ZZ...Z SNS-XX...X	IJZADC03	AV
E137I	CSW-ZZ...Z SNS-XX...X	IJZADC07	AX
E137I	CSW-ZZ...Z SNS-XX...X	IJZADO57	AG
E137I	CSW-ZZ...Z SNS-XX...X	IJZADO78	CT
E138I	DEV XXXX NOT OPERATIONAL, CC=3	IJZADC56	AS
04E139D	REPLY B TO BYPASS, R TO RETRY, P TC PROCEED	IJZADC56	AS
04E139D	REPLY B TO BYPASS, R TO RETRY, P TC PROCEED	IJZADC02	AU
04E139D	REPLY B TO BYPASS, R TO RETRY, P TC PROCEED (MAY DESTROY DATA)	IJZADC03	AV
04E139D	REPLY B TO BYPASS, R TO RETRY	IJZADC03	AV
04E139D	REPLY B TO BYPASS, R TO RETRY, P TC PROCEED	IJZADC07	AX
04E139D	REPLY B TO BYPASS, R TO RETRY, P TC PROCEED	IJZADC57	AG
04E145D	IS XXXX OFFLINE TO ALL SHARING SYSTEMS? REPLY YES OR NO	IJZADC22	BH
E147I	EXAMPLES OF DEVICE FIELD	IJZADC71	CN
E148I	EXAMPLES OF TEST FIELD	IJZADC71	CN
E149I	TABLE OF OPTIONS	IJZADC71	CN
E155I	TEST SECTIONS MAY NOT EXCEED 26, WILL TEST XXX-XXX	IJZADC32	AK
E157I	CATASTROPHIC ERROR ON DEVICE XXXX DDDDDDDD	IJZADCID	EF
E157I	CATASTROPHIC ERROR ON DEVICE XXXX DDDDDDDD	IJZADC39	BS
E158I	S(T) XXXXXX ($) UNIT YYYY	IJZADC00	AP
E158I	S(T) XXXXXXXX UNIT YYYY DDDDDDDD	IJZADC00	AP
E161I	FOR HELP, ENTER PROMPT DEV TO NEXT DEV/TEST/OPT/MESSAGE	IJZADC31	AH
E161I	FOR HELP, ENTER PROMPT TST TO NEXT DEV/TEST/OPT/MESSAGE	IJZADC32	AK
E161I	FOR HELP, ENTER PROMPT OPT TO NEXT DEV/TEST/OPT/MESSAGE	IJZADC33	AN

E161I	FOR HELP, ENTER PROMPT XXX TO NEXT DEV/TEST/OPT/MESSAGE	IJZADC52	AE
E163I	RETAIN/370 READY	IJZADC76	CR
E163I	RETAIN/370 READY	IJZADC77	CS
E164I	CANNOT LINK TO RETAIN/370 CENTER	IJZADC76	CR
E164I	CANNOT LINK TO RETAIN/370 CENTER	IJZADC77	CS
E165I	ENTRY IN DEVICE FLD NOT ALLOWABLE BY REMOTE	IJZADC31	AH
E166I	OLT DOES NOT SUPPORT TALK	IJZADC52	AE
E167I	PERMANENT ERROR ON REI DEVICE	IJZADC10	BA
E167I	PERMANENT ERROR ON REI DEVICE	IJZADC78	CT
E170I	NO PREVIOUSLY SELECTED DEVICE	IJZADC52	AE
E170I	NO PREVIOUSLY SELECTED TEST	IJZADC52	AE
E169I	RETAIN/370 TERMINATED	IJZADC78	CT
E174I	UNABLE TO RESTORE LABEL ON DEVICE XXXX	IJZADC57	AG
E175I	SYNTAX ERROR	IJZADC37	BR
E176I	MUTUALLY EXCLUSIVE OPTIONS HAVE BEEN SELECTED	IJZADC33	AN
04E197D	MOUNT XXXXXX, REPLY DEV ADDR CR NC TC BYPASS	IJZADC24	BJ
E198I	NOT ALL ROUTINES SELECTED WERE RUN	IJZADC00	AP
04E199D	INCORRECT REPLY	IJZADC02	AU
04E199D	INCORRECT REPLY	IJZADC03	AV
04E199D	INCORRECT REPLY	IJZADC56	AS
04E199D	INCORRECT REPLY	IJZADC07	AX
04E199D	INCORRECT REPLY	IJZADC22	BE
04E199D	INCORRECT REPLY	IJZADC52	AE
04E199D	INCORRECT REPLY	IJZADC24	BJ
04E199D	INCORRECT REPLY	IJZADC26	BL
04E199D	INCORRECT REPLY	IJZADC57	AG
04E199D	INCORRECT REPLY	IJZADC40	BT
E201I	DEVICE DESCRIPTORS DO NOT MEET XXXXXXX REQUIREMENTS	IJZADC00	AP
E210I	ROUTINE XXXX BYPASSED, MANUAL INTV REQUIRED	IJZADC47	CD
04E221D	CAN FOREGROUND BE QUIESCED? REPLY YES OR NO	IJZADC40	BT
E222I	STOP FOREGROUND JOBS	IJZADC40	BT
E226I	OLTEP TERMINATED. CONSOLE KEYBOARD UNAVAILABLE	IJZADC52	AE
E227I	INSUFFICIENT SUPPORT FOR XXXXXXXX-01	IJZADC00	AP
E230I	OLTEP CANCELED - SYSLST AS DASD NOT SUPPORTED	IJZADCLT	AA

E229I	SECTION XX.XXXXX.X BYPASSED. MODE NOT AVAILABLE	IJZADO40	BT
E231I	XX..X CANNOT RUN ON YYYY	IJZADO00	AP
E232I	OLTEP CANCELED - BG PARTITION LESS THAN 14K	IJZADOLT	AA
E233I	DO NOT INITIATE ANY FOREGROUND JOBS	IJZADO40	BT
E234I	DEVICE XXXX NOT TESTED. NO LOGICAL UNIT ASSIGNMENT	IJZADO31	AE
E235I	DEVICE XXXX NOT TESTED. POWER ACTIVE	IJZADO31	AE
E236I	XXXX IS A TEST DEVICE - CANNOT BE USED	IJZADO24	BJ
E236I	XXXX IS A TEST DEVICE - CANNOT BE USED	IJZADO26	BL
E237I	DEVICE XXXX HAS NO LOGICAL UNIT ASSIGNMENT	IJZADO24	BJ
E237I	DEVICE XXXX HAS NO LOGICAL UNIT ASSIGNMENT	IJZADO26	BL
E238I	XXXXXXXX BYPASSED-CORE NOT AVAILABLE	IJZADO00	AP
E239I	KEYBOARD UNAVAILABLE	IJZADO00	AP
E241I	LOST DATA - RE-ENTER MESSAGE	IJZADO10	BA
E242I	EQU NOT ALLOWED FROM REMOTE	IJZADO52	AE
04E243D	WILL CPU SHARED DEVS BE USED BY OTHERS	IJZADOAJ	DJ
E244I	THE FOLLOWING CU TEST DEVS ARE CPU SHARED	IJZADOAJ	DJ
E244I	THE FOLLOWING CU TEST DEVS ARE NOT ASSIGNED TO BG	IJZADOAJ	DJ
E244I	THE FOLLOWING CU TEST DEVS ARE SYSTEM DEVS	IJZADOAJ	DJ
E245I	OLTEP CANCELED-CANNOT RUN IN VIRTUAL MODE	IJZADOLT	AA
E250I	when card input is used, selections are printed on SYSLST and SYSLOG	IJZADOLT	AA
E251I	DUPLICATE ENTRIES IN DEVICE FIELD	IJZADO31	AE
E252I	SYMBOLIC NAMES AND UNIT ADDRESSES MIXED IN DEVICE FIELD	IJZADO31	AE
E253I	OLT MODULE XXXXXXXX NOT FOUND IN LIBRARY	IJZAOO28	BM
E265I	OLTEP CANCELED - RUNS ONLY IN BG PARTITION	IJZADOLT	AA
E306I	INPUT DEVICE MUST BE A TAPE	IJZADO26	BL
E313I	UNIT TEST CANCELED, ATTEMPTED TO WRITE ON A FILE PROTECTED DEVICE	IJZADOLL	EF
04E323D	SHOULD RECORDER FILE BE USED, REPLY YES OR NO	IJZADO26	BI
04E324D	MOUNT LOGSCAN TAPE, REPLY DEV ADDR OR NO TO BYPASS	IJZADO26	BI
E327I	(contents of the EXT= field are printed)	IJZADO33	AN
04E394D	ENTER DEV EQUATES/END/CLR	IJZADO49	CE
E395I	ACTIVE EQUATES SELECTED	IJZADO49	CE
04E396D	ARE EQUATES CORRECT? YES/NO	IJZADO49	CE
E397I	INVALID ENTRY XXXXXX	IJZADO49	CE
E398I	EQUATED DEVICES EXCEED 16	IJZADO49	CE

E399I	EQUATED DEV ADDRESS AND $CUTEST ARE MUTUALLY EXCLUSIVE	IJZADCAJ	DJ
E400I	TP LINE CONNECTION, LINE=XXXX TERMINAL=XXXXXXXX	IJZADC11	AY
E401I	REQUIRED DATA NOT FOUND IN CDS FOR XXXXXXXX	IJZADC11	AY
E402I	SYMBOLIC NAME FIELD NOT PRESENT IN CDS	IJZADC11	AY
E403I	INVALID LINE CONN COMMAND SEQUENCE IN CDS	IJZADC11	AY
E404I	DIAL DIGIT COUNT EXCEEDS 20	IJZADC11	AY
E405I	OPERATOR CALL REQUIRED, TELEPHCNE NUMBER NOT PROVIDED IN CDS	IJZADC11	AY
E406I	OPERATOR CALL TERMINAL ON NUMBER XYZ	IJZADC11	AY
E407I	CPERATOR CALL NOT COMPLETED WITHIN TIME LIMITS	IJZADC11	AY
E408I	SIO RETURNED A CC=3, NOT OPERATIONAL	IJZADC11	AY
E409I	SIO FINAL STATUS ERROR CSW=XXXXXXXXXXXXXXXX SNS=YYYY	IJZADC11	AY
E410I	FINAL STATUS NOT RECEIVED FROM I/O CPERATION	IJZADC11	AY
E412I	CCW CHAIN TERMINATED ON XXXXXXXXXXXXXXXX	IJZADC11	AY
E413I	REQUIRED CDS POINTER NOT PRESENT	IJZADC11	AY
E414I	ALL TEST TP LINES WILL BE DISABLED	IJZADC57	AG
E450I	* RTN UUU, ID VV, AT WWWWWW, RC XX	IJZADC45	CC
E501I	T2400W BYPASSED, INVALID TEST	IJZADC00	AP

Glossary of OLTEP Terms

For a more complete list of data processing terms, refer to the IBM Data Processing Techniques, A Data Processing Glossary, GC20-1699.

ASCII (American National Standard Code for Information Interchange): A 128-character, 7-bit code. The high-order bit in the System/360 8-bit environment is zero.

CE cell: A data cell used to test an IBM 2321. A CE cell is recognized by a sense to bin 0, subcell 19. If the CE sense bit is on, the CE cell is mounted.

CE pack: A disk pack used to test an IBM 2311, 2314, or 3330. It has a volume label of VOL1CEPACK.

CE volume: A factory formatted pack designed for use only with On-Line Test Diagnostics.

communications interval: A period of communication between the console operator and OLTEP. The operator is requested by OLTEP to enter the test-run definition at this time.

data protection: A procedure invoked to prevent the loss or destruction of customer data.

data security: A safeguard invoked to prevent the accessing of customer data.

default value: A predetermined value used in place of an omitted entry.

Environmental Recording Error Procedures (EREP): A DOS system utility program used for processing system environmental records recorded on the Environmental Recording Data Set (ERDS) known as the IJSYSRC (SYSREC) file.

expiration date: A date within a tape label for Data protection. The tape may not be used as a scratch tape without operator permission until this date has expired.

File Protect Mode (FPM): A mode of operation that insures maximum protection and security of customer data. While in file protect mode, the system performs no write operations.

On-Line Test (OLT): A test program of the on-line test system. The tests reside in the core image library, and are brought into core storage by OLTEP when requested by the operator.

On-Line Test Executive Program (OLTEP): The control program of the on-line test system. OLTEP is the interface between the on-line test and the operating system.

on-line test system: A control program, OLTEP, and a series of tests (OLTs) designed to test I/O devices without interrupting normal system processing.

privileged instruction: An instruction that can be executed only while the CPU is in the supervisor state. Protection, I/O, direct control, and any instructions that manipulate the program status words are privileged.

prompting: A request for help made by the operator when entering the test-run definition. OLTEP prints examples of the field requested by the operator.

Quiesce Mode: A mode of operation that requires the foreground partitions to be stopped by the operator. The operator does this on the console by issuing the PAUSE EOJ and STOP commands when requested by OLTEP.

Recovery Management Support Recorder (RMSR): Gathers information about the reliability of the hardware which records the records produced onto the Environmental Recording Data Set (ERDS).

supervisor state: The state of CPU operation that allows execution of privileged instructions. When bit 15 of the PSW is zero, the CPU is in the supervisor state.

test-run definition: Information requested by OLTEP at the various communications intervals. This information consists of the device to be tested, the test or test routines to be executed, and the options to be exercised.

Index

Indexes to systems reference library manuals are consolidated in the publication DOS Master Index, GC24-5063. For additional information about any subject listed below, refer to other publications for the same subject in the Master Index.

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This Technical Newsletter, a part of release 29 of the IBM Disk Operating System, provides replacement pages for the subject publication. These replacement pages remain in effect for subsequent releases unless specifically altered. Pages to be inserted and/or removed are:

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A change to the text or to an illustration is indicated by a vertical line to the left of the change.

Summary of Amendments

- additional method of identifying a CE volume (pages 12, 30, 86, and 88).
- modified SVC 51 interface (page 18).
- definition of new Plink into Morecore support (pages 36, 41, and 107).
- deletion of a CUTEST restriction (pages 48 and 145).
- addition of new message (page 160).
- minor technical corrections and editorial changes.

Note: Please file this cover letter at the back of the manual to provide a record of changes.

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