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Systems

IBM System/360 Operating System TCAM Serviceability Aids: Program Logic Manual

Program Number 360S - CQ - 548

This publication describes the internal logic of the Operating System Telecommunications Access Method Serviceability Aids. It is intended for use by IBM Program Systems Representatives and system programmers who are altering the program design.

IBM

Preface

This publication is divided into two major sections:

I. *Telecommunications On-Line Test Executive (TOTE)* contains the internal logic for the on-line tests that operate as part of the TCAM System. This section is further subdivided into six chapters.
   1. *Introduction to on-line testing* explains the concept of on-line testing used in connection with TCAM.
   2. *Method of Operation* explains, in big-picture form, the way in which TOTE handles on-line tests.
   3. *Program Organization* contains descriptions of the TOTE modules, a listing of the modules by number, and a diagram showing how TOTE functions internally.
   4. *Data Area Layouts* contains diagrams of the TOTE control blocks.
   5. *Diagnostic Aids* contains tables of register usage, module cross-reference tables, tables of operator and system messages, and a table of macros used by TOTE modules.
   6. *Flowcharts* contain diagrams of internal logic flow in TOTE modules.

II. *Field Engineering Service Aids* contains the internal logic for the service aids that are used as a debugging tool by Field Engineering Program Support Representatives. This section is further subdivided into five chapters.
   1. *Introduction to Service Aids* explains the concept of the FE Service Aids supplied with TCAM.
   2. *Service Aids Flow Diagram* shows the relation of the various service aid modules to TCAM and to each other.
   3. *Module Descriptions* describe each service aid module internally.
   4. *Diagnostic Aids* contains tables of register usage by module and tables of messages.
   5. *Flowcharts* are diagrams of internal logic flow in the Service Aid modules.

This publication is designed to be a reference guide to IBM Field Engineering Program Systems Representatives and to system programmers who may need to modify the system.

Effective use of this manual is based on an understanding of System/360 machine concepts, operational knowledge of the devices supported, and a knowledge of the following IBM System/360 publications.

- *IBM System/360 Telecommunications Access Method (TCAM) Programmer's Guide and Reference Manual,* Order No. GC30-2024.
- *IBM System/360 Telecommunications Access Method (TCAM) Concepts and Facilities,* Order No. GC30-2022.
- *IBM System/360 Telecommunications Access Method (TCAM) Program Logic Manual,* Order No. GY30-2029.

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This edition is a part of Release 20.0 of the System/360 Operating System in conjunction with the Telecommunications Access Method (TCAM).

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*Dummy Module

Section One
Telecommunications On-Line Test Executive

The On-Line Test (OLT) function is an optional TCAM facility. It permits either a system console operator or a remote control station user to test transmission control units and remote stations to find out if they work properly. Uses of the OLT function are: diagnose hardware errors; verify repairs; verify engineering changes; or check devices periodically.

The inclusion or exclusion of the On-Line Test facility and the amount of core required for this function are specified through the OLTEST operand of the INTRO macro in the Message Control Program (MCP) of TCAM. The operand is coded "OLTEST=0" to specify the exclusion of On-Line Testing, or "OLTEST=integer" where "integer" specifies the amount of core in 1K bytes to be reserved in the MCP region or partition for the OLT function. The default value if this operand is not coded is "OLTEST=10". The minimum value that may be specified is 10. This allocates space for TOTE (Telecommunications On-Line Test Executive) and one 4K device test section. Device test sections for display and BSC devices will exceed 4K. The local FE Branch Office should be consulted to determine the exact requirements for these devices.

Asynchronous On-Line Testing, the running of two or more On-Line Tests during the same time interval, is not explicitly supported by Release 1 of TCAM/TOTE. However, the design of module IEDQWA does allow for asynchronous testing. All that is required for implementation is the allocation of sufficient storage. See the description of module IEDQWA for an algorithm that may be used to calculate the core requirements.

Note 1: Asynchronous testing is available only with MVT.

Note 2: It is strongly advised that the manager of the customer's system programming department be consulted before attempting to implement the asynchronous capability.

Note 3: If the MCP is assembled with OLTEST=0 in the INTRO macro, the On-Line Test facility can still be selected by specifying 0=10 in response to:

ENTER TCAM PARAMETERS

at TCAM initialization.

On-Line Tests

The On-Line Test (OLT) facility permits either a system console operator or a remote control station user to test transmission control units and remote stations to find out if they work properly. Uses of the OLT function are:

Diagnose Hardware Errors
Verify Repairs
Verify Engineering Changes
Check Devices Periodically

The OLT function consists of three parts—a Telecommunications On-Line Test Executive (TOTE) program, a configurator, and device tests.

TOTE is the interface between TCAM and the device tests. It conveys messages to the test user about the test. It schedules and controls the tests. TOTE also prompts the user when he requests help, when he makes an invalid request or when a test needs more data.

The Configurator obtains data that TOTE needs about stations and transmission control units (TCUs). Data is obtained from system, TCAM control tables, and the user. If the user wishes to re-define this data, he requests TOTE to call the Configurator. Configurator data is recorded in TCAM's OLT Library.

Device tests run under the control of TOTE. The test routines are transient, and reside in either a private library or SYS1. LINKLIB. Device tests will not be discussed in detail in this document. Detail information can be obtained from the local IBM Branch Office.

Initialization for using the On-Line Test facility is accomplished through the "OLTEST" operand of the INTRO macro. INTRO specifies if this facility is to be included and how many 1K sections of core are to be reserved for the device tests. The OLT size value is stored in the AVT.

The TOTE task is attached in the same partition as the MCP by the Attach routine (IEDQ0S) during the execution of the INTRO initialization functions if there is enough core. The TOTE Resident Module (IEDQWA) is the only module that is attached as a resident routine. The on-line test task runs at a priority one level lower than the other tasks in the MCP partition.

The TOTE task, in the form of a control module, is activated when its ECB is posted. This allows TOTE to vie with other tasks to be activated by OS Job Management. The ECB is defined in the TCAM AVT. The TOTE ECB is posted whenever a Test Request Message (TRM) or a Request For Test (RFT) Message is issued.

Processing a TRM (or RFT) from a Remote Station

When a TRM (or RFT) is entered from a remote station, it is handled just like any other incoming message until it reaches the STARTMH macro-expansion in the INHDR Subgroup. The STARTMH macro-expansion first activates IEDQAA, which compares the acceptable TRM prefix characters in the SCT with the first data field in the input buffer. If the fields do not match, the buffer is not a TRM (or RFT), so it is returned to the next instruction in the MH. If a character match is found, the TOTE Interface routine tposts the buffer to the TOTE QCB (AVTOLTCB) by exiting to the DSPPOST entry point of the TCAM Dispatcher.

When the element (buffer) gets to the top of the ready queue, the TCAM Dispatcher recognizes that it is tposted to a QCB that represents an attached task (the MCPL field of the STCB is equal to X'12'). The TCAM Dispatcher, as a result, issues an OS POST to the ECB for that task. The element that was on the ready queue, in this case the Test Request Message, remains on the element chain of the TOTE QCB, and the TOTE task can begin vying for control of the system.

When the On-Line Test task gains control, the TOTE resident module (IEDQWA) is activated. This module moves the TRM from the buffer to the OLTCB. Then the resident module links to the TRM Analysis module (IEDQWC) to analyze the TRM. If TRM input is in error, or if the user has requested prompting, control is turned over the TRM Prompter (IEDQWJ). When all TRM input has been correctly entered, the TRM Analysis Module calls the TOTE Dispatcher (IEDQWD). The Dispatcher sets up all the controls necessary to execute the requested OLT, as determined by the TRM Analysis Module. Control is then transferred to the OLT TEST Control Module (IEDQWE).

The OLT Test Control module loads the requested OLT root module and causes it to be executed. When all test requests are satisfied, any GETMAIN areas are freed, any still loaded modules are deleted and return is made to the TOTE Resident module.

When a Configuration request is identified by the TRM Analysis Module, the Configurator Scheduler (IEDQWI) is called. This module prompts the user for configuration data and records the data as Device Characteristic Block (DCHB) records. Upon completion control is returned to the TOTE Resident Module.

If all TRM's have been processed, the resident module issues a WAIT to OS. This WAIT terminates processing by the OLT task. Figure 01 depicts the functional flow for processing a TRM.

Processing a TRM from the System Console

The OLTEST operand of the MODIFY operator control command is used to enter TRM's from the system console. This command is placed in a Command Input Buffer (CIB) and chained off the low order three bytes of the first word of the Communication Parameter List, which is pointed to from the AVT. When the keyword OLTEST is found, the buffer is posted to the QCB in the same way as for remote stations. Once TOTE gains control the TRM is handled in an identical manner as a TRM from a remote station.

On-Line Test Processing Routines

The On-Line processing routines include the following.

- IEDQWA–TOTE Resident Module–to call in and establish the functions necessary to execute an On-Line Test.
- IEDQWB–Resource Management Module–to determine the resources available to TOTE and handle the setup and close-down of TOTE.
- IEDQWC–TRM Analysis Module–to analyze TRM's and turn over control to the appropriate routine for further processing.
- IEDQWC1–TRM Analysis Module 1–to analyze the test device entry in the TRM.
- IEDQWC2–TRM Analysis Module 2–to verify the Test and Option fields of the TRM.
- IEDQWD–TOTE Dispatcher–to set up all the tables and flags necessary for the correct execution of the requested OLT as determined by the TRM Analysis module.
- IEDQWE–OLT Test Control Module 1–to schedule the OLT's requested in the TRM and to clean up after the execution of each OLT.
- IEDQWF–OLT Test Control Module 2–to free core required by IEDQWE during OLT execution and handle control of the OLT root module.
- IEDQWH–Numeric TRM Handler–to get a TRM from a numeric entry terminal.
- IEDQWI–TOTE Configurator Scheduler–to open DCHB data set, link configurator sub-module, link TCU Configurators, link Terminal Configurators, and write Terminals DCHB Records.
- IEDQWIA–Configurator add scheduler module–to handle setup for adding a line to the DCHB.
- IEDQWID–Configurator delete scheduler module–to handle setup for deleting a line from the DCHB.
- IEDQW15–Configurator Submodule 1–to ask user if this is an initial configuration or an update.
- IEDQWI5D–Configurator delete submodule–to find the address of the line to delete.
- IEDQWI5U–Configurator change submodule–to find the address of the line to update or add.
- IEDQWI6–Configurator Submodule 2–to find the address of the TP line, the TCU type, and the adapter type.
- IEDQWI7–Configurator Submodule 3–to determine line type, line translation code and enabling sequence.
- IEDQWI8–Configurator Submodule 4–to ask the user for Terminal Name as specified in TCAM and to verify it.
- IEDQWI9–Configurator Submodule 5–to get terminal type and special characteristics information from SCT.
- IEDQWJ–TRM Prompter Module 1–to analyze the OLTCB flag bytes to determine why the PROMPTER was called.
- IEDQWJ1–TRM Prompter Module 2–to prompt user for TESTS and OPTION field entries in the TRM.
- IEDQWJ2–TRM Prompter Module 3–to prompt for alternate printer (AP) location.
- IEDQWK–TOTE Message Module–to provide both input and output communication between TOTE and the operator.
- IEDQWL–TOTE Message Submodule–to properly position messages and to process items such as standard headers.
- IEDQWM1–TOTE SERVICE Module–To provide the ability to cancel a test and to share a multipoint line.
- IEDQWN–EXIO Service Module–to initiate I/O operations.
- IEDQWO–Access Manager–to determine the destination output device and print if output is SYSOUT or SYSCON.

- IEDQWP–DPRINT Service Module–to service DPRINT macro by formatting the output message.
- IEDQWP1–DPRINT Service Module 1–to continue the servicing of the DPRINT macro.
- IEDQWP2–DPRINT Service Module 2–to continue the servicing of the DPRINT macro.
- IEDQWQ–CECOM Service Module–to service requests for communication with the control terminal.
- IEDQWR–PLINK Service Module–to load or delete modules.
- IEDQWS–WAITIO Service Routine–to cause the on-line test routine to wait until the initiated I/O Event has been completed.
- IEDQWV–GRAB Service Module–to service the GRAB macro and assign a secondary device to the unit test.
- IEDQWX–CONVERT Service Module–to convert data from hex to EBCDIC, or from EBCDIC to hex, as specified by the macro.
- IEDQWY–GETCONFG Service Module–to get a DCHB record for TCU or Terminal when a GETCONFG macro is issued.
- IEDQ30–Remote Access Error Module–to notify the system operator that a terminal failed when TOTE attempted to use it.
- IEDQ31–Enabling Module–to enable a transmission line.
- IEDQ32–BSC Remote Print Module–to service CECOM and DPRINT requests directed to remote BSC terminals.
- IEDQ33–Start-Stop Remote Print Module–to service CECOM and DPRINT requests directed to remote 2740 terminals.
- IEDQ34–BSC Remote Print Submodule–to read CECOM responses from remote BSC terminals.
- IEDQ35–Start-Stop Remote Print Module–to service CECOM and DPRINT requests directed to remote 1050 and 1060 systems.
- IEDQ36–Start-Stop Remote Print Module–to service CECOM and DPRINT requests directed to remote 1030 systems.
- IEDQ37–Start-Stop Remote Print Module–to service CECOM and DPRINT requests directed to 2260 and 2265 display stations.
- IEDQ38–Start-Stop Remote Print Module–to service CECOM and DPRINT requests directed to 2741 terminals.

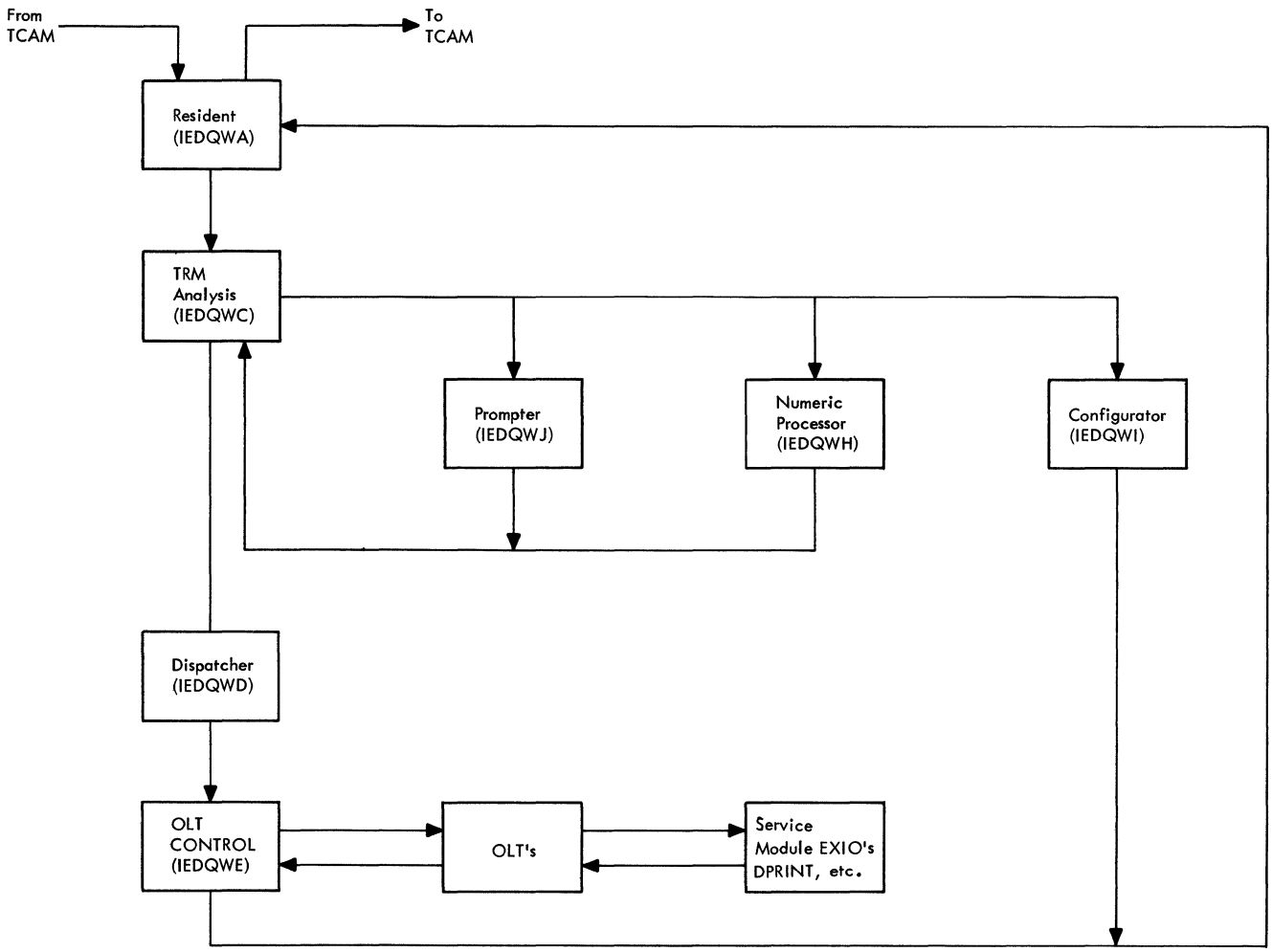


Figure 01. OLT Functional Flow

Tote Resident Module (Chart QWA)

Module Name	IEDQWA
Entry Point	IEDQWA—Entered by TCAM at INTRO time.
Functions	The purpose of this routine is to call in and establish the functions necessary to execute an On-Line Test.

On entry from TCAM, IEDQWB is called to initialize TOTE.

The TRM queue is scanned to determine if any On-Line Test Request needs servicing. If yes and TOTE has enough free core, IEDQWB is called to initialize the OLT.

The On-Line Test Control Block (OLTCB) queue is scanned to determine if any active OLTs need servicing. IEDQWB is called if any active OLTs need additional core or if any active OLT has completed execution and should be terminated.

The TCAM Closedown bit is monitored to determine if TCAM Closedown is in progress. If yes IEDQWB is called to clean up TOTE resources and return them to the Operating System. IEDQWA then returns to IEDQOS.

The OLT Service Module Manager routine receives requests from active On-Line Tests for various service functions. The appropriate TOTE module is then called to service the request. If a SIO is requested on a test device, IEDQWN is called. If communication with the On-Line Test operator is requested IEDQWP or IEDQWQ is called. If an OLT sub-module is to be LOADed or DELETEd, IEDQWR is called. If the OLT wishes to WAIT for the completion of an I/O operation, IEDQWS is called. If an additional test device is required, IEDQWV is called. If data conversion is required, IEDQWX is called. If configuration data is requested, IEDQWY is called.

If an invalid service request is made by an OLT, IEDQWK is called to report it to the On-Line Test Operator.

External Routines

IEDQWB–TOTE Resource Management Module
IEDQWK–TOTE Message Module
IEDQWN–EXIO Service Module
IEDQWP–DPRINT Service Module
IEDQWQ–CECOM Service Module
IEDQWR–PLINK Service Module
IEDQWS–WAITIO Service Module
IEDQWV–GRAB Service Module
IEDQWX–CONVERT Service Module
IEDQWY–GETCONFG Service Module
IEDQWE–OLT Test Control Module
IEDQWM1–TOTE Service Module

Tables/Work Areas

OLTCB, AVT

Attributes

enabled, problem program mode, resident

Note: Asynchronous testing is available with MVT only. No changes are required in this module or any other module to implement asynchronous on-line testing. All that is required for implementation is the allocation of sufficient storage. The following is a formula which may be used to calculate the core required for this capability. Even though this is not an explicitly supported function of TCAM/TOTE, APARs will be accepted.

The formula for determining the number of 1K bytes of storage to substitute for the OLTEST operand of the INTRO macro is:

$$n\,(6 + MTS)$$

where: n=number of tests to be run
MTS = Maximum on-line test size. This will be 4K except for display and BSC devices. The local FE Branch Office will provide assistance in determining the MTS value for these devices.

Resource Management Module (Chart QWB)

Module Name

IEDQWB

Entry Point

IEDQWB–Entered by IEDQWA

Functions

This module services requests from IEDQWA.

It initializes TOTE by setting up TOTE ECBs determining core available to TOTE, determining if the version of OS is MFT or MVT and if MVT is used, determining the number of asynchronous tests that can be serviced.

It closes down TOTE by cleaning up any OLTs in execution and returning the buffers from TRMs not yet serviced.

It initializes OLTCBs for newly received TRMs by allocating the core required and setting up required control fields.

It allocates core to the OLTs as required.

It inserts and removes OLTCBs in the OLTCB queue.

It exits to IEDQWC to execute the requested OLTs.

External Routines — IGC00059

Tables/Work Areas — AVT, CVT, OLTCB

Attributes — enabled, problem program mode, transient

TRM Analysis Module 1 (Chart QWC)

Module Name — IEDQWC

Entry Point — IEDQWC—called by IEDQWA (TOTE Resident Module) when a TCAM buffer is posted to TOTE, or by IEDQWH (Numeric Test Request Message Analysis Module) after IEDQWH builds a Test Request Message (TRM).

Functions — The purpose of this module is to analyze TRMs and turn over control to the appropriate routine for further processing.

This routine translates the TRM from Line code and then determines the source of the TRM. If the requesting line is not the same as the specified Control Terminal Line, the requesting line is returned via a STARTLINE. When there is an error in the Control Terminal entry, the systems operator is informed that a TRM was received but ignored because of an error. If there are any other errors in the TRM, control is transferred to the Test Request Prompter (IEDQWJ).

If the control terminal is not the systems console, this module reads the DCHB data set and gets the DCHB for the control terminal. The Options field of the TRM is checked for the APterm options. If the Alternate Printer (APterm) option is specified, this module verifies the name of the alternate printer to be SYSCON, SYSOUT, or a valid operand TCAM terminal. If the alternate printer is a terminal this module gets the DCHB for the alternate printer.

If the Control Terminal is not SYSCON and is on another line different from the request line, the Control Terminal line is gotten via a STOPLINE.

External Routines — IEDQWQ—CECOM Service Module
AVTUI—TCAM Binary Search Routine
IEDQCU—TCAM Start Line Routine
IEDQCV—TCAM Stop Line Routine

Tables/Work Areas — CVT, AVT, TERMNAME TABLE, Terminal Table, OLTCB, LCB, DCB, SCB, TCB, and IEDQWC Work Area.

Attributes — enabled, problem program mode, transient

TRM Analysis Module 2 (Chart WC1)

Module Name	IEDQWC1
Entry Point	IEDQWC1—called by TRM Analysis Module 1 (IEDQWC)
Functions	The purpose of this module is to analyze the test device field of the Test Request Message (TRM). Control is passed from IEDQWC with TRM in the OLTCB. The test device field is checked for valid symbolic names or line addresses (CUU). If the entry is valid the line address of the entry is plugged into the OLTCB. If any entry is invalid, the TRM Prompter (IEDQWJ) is called.
External Routine	IEDQWQ—CECOM Service Module AVTUI—TCAM Binary Search IEDQCV—TCAM Stop-Line Routine
Tables/Work Areas	CVT, AVT, TERMNAME Table, Terminal Table, OLTCB, LCB, QCB, DCB, SCB, TCB
Attributes	enabled, problem program mode, transient

TRM Analysis Module 3 (Chart WC2)

Module Name	IEDQWC2
Entry Point	IEDQWC2—called by IEDQWC1 to analyze the Test and Option fields.
Functions	The purpose of this module is to verify the Test and Option fields of the Test Request Message (TRM). The Test field is verified for valid syntax. If an error is found, control is passed to the prompter module (IEDQWJ). The Option field is verified for valid syntax and requested options are set in the OLTCB. If an error is found in the Option field, control is passed to the prompter module (IEDQWJ). This module also checks the Option field to see if NCM was specified. If NCM was specified, the module asks the system operator for permission to use the lines in NCM mode. If permission is denied, the Control Terminal is notified and the TRM is rejected.
External Routine	None
Tables/Work Areas	None
Attributes	enabled, problem program mode, transient

Dispatcher (Chart QWD)

Module Name	IEDQWD
Entry Point	IEDQWD—called by the TRM Analysis module (IEDQWC)

Functions	The purpose of this module is to set up all the tables and flags necessary for the correct execution of the requested OLT, as determined by the TRM Analysis module. If the control terminal is the System Console, the SYSCON flag is set in OLTCB. If the test devices are terminals, the terminal names are placed in the Terminal Name Table in OLTCB. A Stop Terminal request is posted to TCAM Operator Control for each terminal. If the test devices are TCUs, the physical addresses are placed in the 'Physical Address' Table in the OLTCB. A Stop Line request is posted for each test line. UCB addresses are placed in UCB Address Table in OLTCB. If routine selection is specified, the selected routine flags are set in OLTCB. Any selected option flags are set in OLTCB. If Test Loop is selected, the test loop count is placed in OLTCB. If Error Loop is selected, the error loop count is placed in OLTCB. IOBs, DEBs, and DCBs are initialized. Any service module fields not set up by resident control are initialized and control is transferred to the TEST CONTROL MODULE (IEDQWE).
External Routine	IGC00059
Tables/Work Areas	OLTCB, UCB, IOB, DEB, DCB.
Attributes	enabled, problem program mode, transient

OLT Test Control Module I (Chart QWE)

Module Name	IEDQWE
Entry Point	IEDQWE called by the TOTE DISPATCHER module IEDQWD on return from IEDQWF. IEDQWF.
Functions	The purpose of this module is to schedule the OLTs requested in the TRM and to clean up after the execution of each. If the section-terminate flag is set, required cleanup is done and immediate return is made to the TOTE resident module. Register pointers are initialized for Section, UCB and Device tables. The size of the OLT root module is obtained by BLDL macro. If BLDL was unsuccessful, a message is sent to the control terminal and a check made for another module requested. If successful, module size is checked against available core. If total core is insufficient, a message is sent to control terminal and a check made for another module requested. If allocated core is insufficient, IEDQWA is POSTed for the assignment of additional core.

If core is sufficient, a section start message is sent to the control terminal and the module XCTLs to IEDQWF. Upon return from IEDQWF, a terminate message is sent to the control terminal and a check is made for another module requested.

When another OLT module is requested, it will be executed as described above. If a new module is not required, a check is made for another device required. If a device is required, tables and pointers are updated, and the OLT module is executed again.

When an OLT is finished with all requested devices, a check is made for Test Loop requested. If yes, the loop count is decremented and the OLT module is re-executed until the count is exhausted.

When the test request is satisified, any still loaded modules are DELETEd. If the test devices are terminals, a start terminal request is POSTed to Operator control for each. If they are TCUs, a startline request is POSTed for each. Return is made to IEDQWA.

External Routines

IEDQWK–TOTE Message Module
IGC00059
IEDQCU–TCAM STARTLINE
IEDQCV–TCAM STOPLINE

Tables/Work Areas

OLTCB, UCB

Attributes

enabled, problem program mode, transient

OLT Test Control Module II (Chart QWF)

Module Name

IEDQWF

Entry Point

IEDQWF–called by OLT Test Control Module I–(IEDQWE).

Function

To free the core required by IEDQWE during OLT execution; to pass control to the OLT root module, and receive control from it.

External Routines

Device Tests (OLTs)

Tables/Work Areas

OLTCB

Attributes

enabled, problem program mode, transient

Numeric TRM Handler (Chart QWH)

Module Name

IEDQWH

Entry Point

IEDQWH–called by IEDQWC upon recognition of seven 9's.

Functions

The purpose of this module is to process a TRM from a numeric entry terminal

This module takes the initial TRM that is passed to it by IEDQWC. The initial TRM is already translated from the line code and the seven 9's have been stripped off.

The DCHB data set is searched for a DCHB record for the requesting terminal. If none is found, the systems operator is notified and the TRM is rejected.

The module determines the length of the message received. If it is odd, the last character is saved. The TRM is then translated from the special numeric code to EBCDIC. The translated TRM is searched for an End-of-TRM character (M). If an End-of-TRM is found, control is passed back to IEDQWC for TRM validity checking.

If no End-of-TRM character is found, the program issues a read to the terminal for more of the TRM. The new message is translated from line code to numeric and from numeric to EBCDIC. This process is repeated until an End-of-TRM character is found.

External Routines

IEDQWQ–CECOM Service Module
AVTUI–TCAM BINARY SEARCH

Tables/Work Areas

CVT, OLTCB, AVT, DCB, TERMNAME Table

Attributes

enabled, problem program, transient

TOTE Configurator Scheduler (Chart QWI)

Module Name

IEDQWI

Entry Point

IEDQWI–called by IEDQWC upon recognition of Configuration Request.

Functions

The purpose of this module is to link IEDQWI5 to find out what kind of configuration is wanted. For an initial configuration request, this module remains in control. For delete requests, this module transfers control to the Delete Scheduler (IEDQWID). For add requests, this module transfers control to the Add Scheduler (IEDQWIA).

When this module remains in control, it opens the DCHB data set, links configuration submodules, links TCU configurators, links terminal configurators, writes DCHB records and closes the DCHB data set.

External Routines

IEDQWI5U–Configurator Change Sub-module
IEDQWI5–Configurator Sub-module 1
IEDQWI6–Configurator Sub-module 2
IEDQWI7–Configurator Sub-module 3
IEDQWI8–Configurator Sub-module 4
IEDQWI9–Configurator Sub-module 5
TCU Configurators
Device Configurators

Tables/Work Areas

DCHB Workarea

Attributes

enabled, problem program, transient

Configurator Add Scheduler Module (Chart WIA)

Module Name

IEDQWIA

Entry Point

IEDQWIA–called by IEDQWI upon recognition of an add request.

Function

The purpose of this module is to schedule the addition of a line to the DCHB data set.

The module links IEDQWI5U to find the line address to add. Then the module rewrites the DCHB data set until an end-of-file is found. When an end-of-file is found, the module

	links configurator submodules and device configurator modules to build DCHB records for the new line. The new DCHB records are written at the end of the DCHB data set.
External Routines	IEDQWI5U–Configurator Change Sub-Module IEDQWI7–Configurator Sub-Module 3 IEDQWI8–Configurator Sub-Module 4 IEDQWI9–Configurator Sub-Module 5 Unit Configurators IEDQWR–PLINK Service Module IEDQWQ–CECOM Service Module
Tables/Work Area	DCHB Workarea
Attributes	enabled, problem program mode, transient

Configurator Delete Scheduler Module (Chart WID)

Module Name	IEDQWID
Entry Point	IEDQWID–called by IEDQWI upon recognition of an delete request.
Functions	The purpose of this module is to schedule the deletion of a line from the DCHB data set. This module links IEDQWI5D to find the address of the line to delete. Then the module rewrites the DCHB data set omitting this line address.
External Routines	IEDQWI5D–Configurator Delete Sub-Module IEDQWR–PLINK Service Module IEDQWQ–CECOM Service Module
Tables/Work Areas	None
Attributes	enabled, problem program mode, transient

Configurator Sub-Module 1 (Chart WI5)

Module Name	IEDQWI5
Entry Point	IEDQWI5–called by Configurator Scheduler (IEDQWI)
Functions	The purpose of this module is to notify the Control Terminal that the On-Line Test configurator is running. This module asks if it is an initial, add, or delete run and sets a flag accordingly.
External Routine	IEDQWI5D–Configurator Delete Submodule IEDQWQ–CECOM Service Module IEDQWR–PLINK Service Module
Tables/Work Area	DCHB Work Area
Attributes	enabled, problem program mode, transient

Configurator Delete Sub-Module (Chart I5D)

Module Name	IEDQWI5D
Entry Point	IEDQWI5D–linked by the Configurator Delete Scheduler Module (IEDQWID)
Functions	The purpose of this module is to prompt for the line address of the TP line to delete. When the CUU is obtained, it is placed in WORK5 or the DCHB workarea.
External Routines	IEDQWQ–CECOM Service Module IEDQWR–PLINK Service Module
Tables/Work Areas	DCHB Work Area, UCB
Attributes	enabled, problem program mode, transient

Configurator Change Sub-Module (Chart I5U)

Module Name	IEDQWI5U
Entry Point	IEDQWI5U–linked by IEDQWIU or IEDQWIA.
Function	The purpose of this module is to prompt for the TP line address to update, and determine whether the address is for communication or graphic devices. Next, the module gets the TCU adapter type. This information is placed into the DCHB and WORK5.
External Routine	IEDQWQ–CECOM Service Module IEDQWR–PLINK Service Module
Tables/Work Areas	DCHB Work Area, UCB
Attributes	enabled, problem program mode, transient

Configurator Sub-Module 2 (Chart WI6)

Module Name	IEDQWI6
Entry Point	IEDQWI6–called by Configurator Scheduler (IEDQWI) or IEDQWIA.
Function	The purpose of this module is to prompt for the address of TP line, and determine whether the address is for communication or graphic devices. Next, the module gets the TCU adapter type. This information is placed in the DCHB record.
External Routine	IEDQWQ–CECOM Service Module IEDQWR–PLINK Service Module
Tables/Work Areas	UCB, DCHB Work Area
Attributes	enabled, problem program mode, transient

Configurator Sub-Module 3 (Chart WI7)

Module Name	IEDQWI7
Entry Point	IEDQWI7–called by Configurator Scheduler (IEDQWI) or IEDQWIA.
Function	The purpose of this module is to determine line type and line translation code for the line.
External Routines	IEDQWQ–CECOM Service Module IEDQWR–PLINK Service Module
Tables/Work Areas	UCB, DCHB Work Area
Attributes	enabled, problem program mode, transient

Configurator Sub-Module 4 (Chart WI8)

Module Name	IEDQWI8
Entry Point	IEDQWI8–called by Configurator Scheduler (IEDQWI) or IEDQWIA
Function	The purpose of this module is to ask CE for Terminal Name as specified in TCAM and verify it. The module also obtains the polling and addressing characters from the terminal table.
External Routine	AVTUI–TCAM Binary Search IEDQWQ–CECOM Service Module IEDQWR–PLINK Service Module
Tables/Work Areas	TERMNAME TABLE, TERMINAL TABLE, UCB, DCHB Work Area
Attributes	enabled, problem program mode, transient

Configurator Sub-Module 5 (Chart WI9)

Module Name	IEDQWI9
Entry Point	IEDQWI9–called by Configurator Scheduler (IEDQWI) or IEDQWIA.
Function	The purpose of the module is to ask the CE for the terminal type. If the line is BSC, the translation code of the terminal is determined. This module also obtains the special characteristics information from the Special Characteristics Table of the OLTCB.
External Routine	IEDQWQ–CECOM Service Module IEDQWR–PLINK Service Module
Tables/Work Areas	OLTCB, DCHB Work Area
Attributes	enabled, problem program, transient

IEDQWJ–TRM Prompter Module 1 (Chart QWJ)

Module Name

IEDQWJ

Entry Point

IEDQWJ–Called by one of the TRM Analysis modules when a prompt request is entered, or when an error in the TRM is detected.

Function

The purpose of this module is to analyze the OLTCB flag bytes to determine why the PROMPTER was called.

If the IEDQWJ module is called as the result of a prompt request, the operator at the control terminal will be prompted for the 'Test Device' field of the TRM. When a valid 'Test Device' field is entered, control is transferred to IEDQWJ1.

If entry to IEDQWJ is the result of erroneous information in the TRM, the operator at the control terminal is given the option of re-entering the TRM or being prompted. If prompting is selected, this module will check to see if the error was in the 'Test Device' field or the AP term option of the TRM. If the error was in neither of these fields, control is transferred to IEDQWJ1. Otherwise, this module prompts for the 'Test Device' field and then transfers control to IEDQWJ1 to prompt for 'Tests' and 'Options' fields.

When entry is from a prompt request, the CE is prompted for each of the TRM fields except the Control Terminal. When entry is the result of an error in trying to determine if APTERM is specified, then the CE is prompted for each of the TRM fields except the Control Terminal.

If the prompter is called as the result of any other error, only the remainder of the TRM is prompted.

All validity checking performed on a normal TRM is performed by this module.

This module only prompts for the Test Device field and then transfers control to IEDQWJ1 to prompt for TESTS and OPTIONS fields.

External Routines

AVTUI–TCAM Binary Search Module
IEDQWQ–CECOM Service Module

Attributes

enabled, problem program mode, transient

TRM Prompter Module 2 (Chart WJ1)

Module Name

IEDQWJ1

Entry Point

IEDQWJ1–called by TRM Prompter Module 1 (IEDQWJ) to Prompt Test and Options fields.

Functions

The purpose of this module is to prompt the CE for the Test and Options fields of the TRM.

The CE is first prompted for the test ID. The CE is then asked if he wants to select routines in this test. If he answers yes, he is prompted for routine numbers. If he answers no, he is asked if he wants to run other tests on these same devices.

All test, routines, and additional test entries are checked for syntax.

After prompting for the Test field the CE is then prompted for the Options field. First the CE is told the default options, then the valid options. All options are checked for validity.

If the AP Option is entered, a flag is set to call IEDQWJ2 to prompt for the AP location.

If at any time during Test and Option fields prompting the CE makes an error, he is given a chance to cancel prompting and reject the TRM.

External Routines — IEDQWQ—CECOM Service Module

Tables/Work Areas — OLTCB

Attributes — enabled, problem program mode, transient

TRM Prompter Module 3 (Chart WJ2)

Module Name — IEDQWJ2

Entry Point — IEDQWJ2 called by IEDQWJ1 if Alternate Printer Option was specified.

Functions — The purpose of this module is to prompt for the alternate printer terminal.

The CE is prompted for the AP location. AP location can be SYSOUT, SYSCON, or any TCAM terminal with a printer. If the entry is not SYSCON or SYSOUT, it is verified to be a valid TCAM terminal. If it is a TCAM terminal, the DCHB data set is read for the terminal's DCHB. If no DCHB exists, the CE is given a chance to stop prompting, enter a new terminal, or enter the NAP option.

If non-concurrent mode was selected, the system operator is asked for exclusive use of the necessary lines.

External Routines — AVTUI—TCAM Binary Search
IEDQWQ—CECOM Service Module

Tables/Work Areas — OLTCB, CVT, UCB, AVT, TERMNAME Table

Attributes — enabled, problem program mode, transient

TOTE Message Module (Chart QWK)

Module Name — IEDQWK

Entry Point — IEDQWK—called by any TOTE module requiring message service.

Functions — The purpose of this module is to provide both input and output communication between TOTE and the operator.

Upon entry, the module LINKs to IEDQWM1 if any Start Line requests are outstanding. The Module then links to the submodule IEDQWL to move messages and byte counts to OLTCB and to insert such variable data as terminal name, section identity, etc.

	Upon return from IEDQWL, the module links to the TOTE Access Method module, IEDQWO, to print a message if output is requested. If input is expected, it will link to IEDQWO to read a message. Return is via register 14 to the calling module.
External Routines	IEDQWL–TOTE Message Sub-Module IEDQWO–TOTE Access Manager IEDQWM1–TOTE Service Module
Tables/Work Areas	OLTCB
Attributes	enabled, problem program, transient

TOTE Message Sub-Module (Chart QWL)

Module Name	IEDQWL
Entry Points	IEDQWL called by Tote Message module IEDQWK.
Functions	The purpose of this module is to move the requested output message to the output buffer and insert variable information such as; OLT Section I.D., test device name, etc. Upon entry, an output message is moved to OLTCB and the message length is set in OLTCB. Return is to IEDQWK.
External Routines	None
Tables/Work Areas	OLTCB
Attributes	enabled, problem program mode, transient

TOTE Service Module (Chart WM1)

Module Name	IEDQWM1
Entry Point	IEDQWM1–from IEDQWA or IEDQWK when a TOTE Service function is required.
Functions	The TRM queue is scanned to determine if a request has been made to CANCEL an On-Line Test. If a Start Line is requested, the Start Line Request Element is built and POSTed to Operator Control.
External Routines	IGC00059
Tables/Work Areas	OLTCB, AVT, TERMNAME Table, LCB, DCB
Attributes	enabled, problem program mode, transient

EXIO Service Module
(Chart QWN)

Module Name	IEDQWN
Entry Point	IEDQWN–called by OLT Service Manager Routine in IEDQWA
Functions	The purpose of this module is to initiate I/O operations. The module initially obtains the address of the required I/O control blocks, then initializes the OLT TECB for this operation. If at this point a HIO request is recognized, the IOHALT macro is issued, and a return code of X'08' is returned to OLT. A further check is made for unavailable functions requested. If there are any, a message is printed and return is via register 14. Next the IOB is set up. The IOB unrelated flag is set, the channel program address is inserted, 'FF' is set in the restart address and the channel program is inspected. Chaining flags are set as determined by CCW flag bits. The DCB flags are set to bypass ERP's and the permanent error flag is cleared. Then the EXCP macro is executed. When the I/O Operation has been started, the condition code received is placed in the TECB, registers are restored, and return is via register 14.
External Routines	IEDQWO–Access Manager IGC00059
Tables/Work Areas	OLTCB, TECB, IOB, DCB, ECB
Attributes	enabled, problem program mode, transient

Access Manager
(Chart QWO)

Module Name	IEDQWO
Entry Point	IEDQWO–from IEDQWN when a remote terminal line must enabled or a line must be stopped. IEDQWO–from IEDQWP, IEDQWP1, IEDQWP2, IEDQWQ and IEDQWK where communication with the On-Line Test operator is required.
Functions	The purpose of this routine is to determine the destination output device. On entry to IEDQWO a check is made to see if the entry is from EXIO, DPRINT, or CECOM. If neither EXIO, DPRINT, nor CECOM is specified, an error message is printed and control is returned to the calling routine. If the entry is from EXIO and output is to a terminal device, control is passed to the IEDQ31 module to enable the line. If the request is to a local device, the DCB is opened if it has not been opened, and the I/O operation is performed. With CECOM, output is directed to the system console or to the control terminal console. If the control terminal console option is specified, control is passed to the IEDQ31 module.

If the entry is from DPRINT, the proper output device is selected. Control is passed to the IEDQ31 module if a terminal device is specified, or else output is directed to the system output device or to the system console. Control is then returned to the calling routine.

External Routine — None

Tables/Work Areas — OLTCB

Attributes — enabled, problem program mode, transient

DPRINT Service Module (Chart QWP)

Module Name — IEDQWP

Entry Point — IEDQWP—called when a DPRINT macro is issued by TOTE or the unit test.

Functions — The purpose of this routine is to service the DPRINT macro by formatting the output messages.

The calling routine's DPRINT parameter list is examined. If a header and/or description lines are required, the lines are formatted one at a time and IEDQWO (Access Manager) is called to route the formatted lines to the proper output device.

If results are required, the CAW, CCW, and CC lines are formatted and passed to IEDQWO. Control is then transferred to IEDQWP1 (DPRINT Service Module 1) to continue processing the DPRINT macro.

If no results lines are required, the comment lines are formatted (if required) and passed to IEDQWO. Control is then returned to the calling routine.

At the completion of this routine register 15 will contain X'00' return code.

External Routines — IEDQWO—Access Manager—to route the output message line.

Tables/Work Areas — OLTCB, SECTION PREFACE.

Attributes — enabled, problem program mode, transient

DPRINT Service Module 1 (Chart WP1)

Module Name — IEDQWP1

Entry Point — IEDQWP1—called by IEDQWP

Functions — The purpose of this routine is to continue the servicing of the DPRINT macro.

The calling routine's DPRINT parameter list is examined. If expected and/or received CSW lines are required, the lines are formatted one at a time and IEDQWO (Access Manager) is called to route the formatted line to the proper output device.

Control is transferred to IEDQWP2 (DPRINT SERVICE MODULE 2) to continue processing the DPRINT macro.

External Routines — IEDQWO—Access Manager—to route the output message line

Tables/Work Areas	OLTCB
Attributes	enabled, problem program mode, transient

DPRINT Service Module 2 (Chart WP2)

Module Name	IEDQWP2
Entry Point	IEDQWP2—called by IEDQWP1
Functions	The purpose of this routine is to continue servicing of the DPRINT macro. The calling routines DPRINT parameter list is examined. If sense, data, or comment lines are required, the lines are formatted one at a time and IEDQWO (Access Manager) is called to route the formatted line to the proper output device. Control is then returned to the calling program. At the completion of this routine register 15 will contain X'00' return code.
External Routines	IEDQWO—Access Manager—to route the output message line.
Tables/Work Areas	OLTCB
Attributes	enabled, problem program mode, transient

CECOM Service Module (Chart QWQ)

Module Name	IEDQWQ
Entry Point	IEDQWQ—called when a CECOM macro is issued by TOTE or the unit test.
Functions	The purpose of this module is to service requests for communication with the control terminal. The CECOM service module processes the calling routines parameter list and routes output requests to the control terminal via the Access Manager Routine. If a reply to the output message is required, the Access Manager routine moves the reply message to a buffer specified by IEDQWQ before returning control. IEDQWQ translates the reply message to upper case and then moves it to the calling routines input buffers. At the completion of this routine, one of the following return codes is placed in register 15: X'00'—normal completion of CECOM function X'04'—requested function not available
External Routines	IEDQWO—Access Manager Routine to output and input messages. IEDQWK—Error Message Module to print 'function not available' message and place an X'04' return code in register 15.
Tables/Work Areas	OLTCB
Attributes	enabled, problem program mode, transient

PLINK Service Module (Chart QWR)

Module Name	IEDQWR
Entry Point	IEDQWR—called when a PLINK macro is issued by the Configurator or unit test.
Functions	The purpose of this routine is to load or delete modules. The PLINK macro requests modules be deleted and/or loaded. IEDQWR examines the calling routines PLINK parameter list. If a DELETE is requested, the module(s) is deleted via a DELETE macro. If a LOAD is requested, a BLDL macro is issued to verify the availability of the module and core space required. The module is then loaded via a LOAD macro. The load module entry point address is placed in the calling program's parameter list. As modules are loaded and deleted, IEDQWR updates memory space available to the calling program and active module ID's. At the completion of this routine register 15 contains a return code: • X'00'—normal completion of the PLINK function • X'08'—I/O error during a LOAD request • X'10'—Memory space not available for requested load module(s) • X'0C'—Requested load module not found in library
External Routine	None
Tables/Work Areas	OLTCB
Attributes	enabled, problem program mode, transient

WAITIO Service Module (Chart QWS)

Module Name	IEDQWS
Entry Point	IEDQWS—called when a WAITIO macro is issued by an On-Line Test Routine.
Functions	The purpose of this routine is to cause the On-Line Test Routine to wait until the initiated I/O event has been completed, at which time the final CSW and sense data (if unit check) are stored in the TECB. If poll is requested, an XCTL to IEDQWK is issued. IEDQWK then sends the message "Macro Function Not Available" to the control terminal and a X'04' return code is returned to the OLT. If poll is not requested, a wait time interval is set. The main routine then determines how many events must be completed before continuing. If the wait times out, control will be returned to the calling routine with an error indicator. After the wait time has elapsed, control is passed to the Timer Completion Routine, which determines if the ECB has been posted complete. If the ECB has been posted complete, control is returned to the calling program.

At the completion of this routine, one of the following return codes is placed in register 15:

X'00'—Normal completion of WAITIO function
X'08'—The WAIT timed out.

External Routine — IEDQWK—to output 'Macro Function Not Available' message

Tables/Work Areas — OLTCB, IOBLOCKS, TECB, UCB

Attributes — enabled, problem program mode, transient

GRAB Service Module (Chart QWV)

Module Name — IEDQWV

Entry Point — IEDQWV—called when a GRAB macro is issued by the unit test.

Functions — The purpose of this routine is to assign a secondary device to the unit test.

The GRAB macro requests that a secondary device meeting specified requirements be assigned to the unit test.

The device entry list built from the Test Request Message is searched to find a device meeting the specified requirements. If a proper device is found, it is assigned as a test device to the unit test.

At the completion of this routine, one of the following return codes is placed in register 15:

X'00'—normal completion of the GRAB function
X'08'—No (more) devices in the entry list meet the specified requirements.
X'0C'—Device entry list contains only one device.

External Routine — None

Tables/Work Areas — OLTCB

Attributes — enabled, problem program mode, transient

CONVERT Service Module (Chart QWX)

Module Name — IEDQWX

Entry Point — IEDQWX—called when a CONVERT macro is issued by TOTE or the unit test.

Functions — The purpose of this routine is to convert data from hex to EBCDIC or EBCDIC to hex as specified by the macro parameter list.

If a non-EBCDIC character is requested to be converted to hex, an error return is provided and the address of the non-EBCDIC character is loaded in R1.

At the completion of this routine, one of the following return codes is placed in register 15:

X'00'—normal completion of the CONVERT function
X'08'—a non-EBCDIC character was requested to be converted to hex.

External Routine — None

Tables/Work Areas — None

Attributes — enabled, problem program mode, transient

GETCONFG Service Module (Chart QWY)

Module Name — IEDQWY

Entry Point — IEDQWY—called when GETCONFG macro is issued by a unit test.

Functions — The purpose of this routine is to read the DCHB data set to get a DCHB record for a TCU or Terminal.

At completion of this module one of the following return codes is placed in register 15:

X'00'—normal completion
X'08'—buffer size too small
X'0C'—DCHB not found.

External Routine — None

Tables/Work Areas — OLTCB, Program Work Area, Unit Test Parameter List

Attributes — enabled, problem program mode, transient

Remote Access Error Module (Chart Q30)

Module Name — IEDQ30

Entry Point — IEDQ30—called by IEDQ31—IEDQ38 when an error has occurred in the remote access module

Functions — The purpose of this routine is to notify the system operator that a terminal failed when TOTE attempted to use it.

The failing terminal is identified in a message at the system console and the On-Line Test is canceled.

External Routines — None

Tables/Work Areas — OLTCB

Attributes — enabled, problem program mode, transient

Enabling Module (Chart Q31)

Module Name — IEDQ31

Entry Point — IEDQ31—called by the Access Manager Routine when a line has been enabled.

Functions

The purpose of this routine is to enable the transmission line.

The appropriate DCHB is selected and base registers are set up for the DCHB and the OLTCB DSECTS. The terminal name is obtained and control is passed to "TABLE" which determines the addresses of the AVT and of the user routine table. On return from "TABLE" the length of the terminal name is determined and placed in a parameter list which also contains the terminal name. Then control is passed to "NAMESRCH" which uses the parameter list to get the terminal table entry. If the line is enabled, control is returned to the calling routine.

If the line is not enabled, preparations are made to enable the line. An IOB is constructed. If this is an auto dial line, a dial command is built in the IOB and control is passed to "STARTLIN" to dial the terminal. Control is then returned to the calling routine.

If the line is not an auto dial line and the TCU is a 2702, a SAD command is built. The line is enabled and control is returned to the calling routine. If the TCU is a 2701 with an IBM Type III Adapter, control is returned to the calling module. If the device is SDA the channel program for the BSC device is built. The line is enabled and control is returned to the calling routine.

If the device is a 2260 Local, no channel program is built.

At the completion of this routine register 15 contains a return code:

X'00'–Normal completion of the line enabling function
X'04'–A hardware error has occurred.
X'08'–An I/O error has occurred.

If an error has occurred and the return code is not X'00', return is to IEDQ30 via XCTL.

External Routine

IEDQUI
IEDTNT

Tables/Work Areas

OLTCB, DCHBWRK, AVT, CVT, DCB, DEB, UCB, QCB

Attributes

enabled, problem program mode, transient

BSC Remote Print Module (Chart Q32)

Module Name

IEDQ32

Entry Point

IEDQ32–called by the enabling module to communicate with remote terminals on binary synchronous lines.

Functions

The purpose of this module is to service CECOM and DPRINT requests directed to remote BSC terminals.

Base registers are set up for the OLTCB and DCHB control blocks. The text to be transmitted is obtained from the OLTCB control block. If the text is not EBCDIC, it is translated using TCAM's translation tables.

If point-to-point line control is used, an ENQ is transmitted first. If multipoint line control is used, the select address is transmitted first. The ACK0 response is received, the text is transmitted, ACK1 is received, and finally EOT is transmitted. Line control and error recovery are in accordance with Document CP-AR-000658-00-RAL, Binary Synchronous Communication Specification, dated June 17, 1968.

If a reply is expected and no error has occurred, control is transferred via XCTL to IEDQ34; if no reply is expected, return is to the calling module. If an error has occurred, control is transferred via XCTL to IEDQ30.

At completion, register 15 contains one of the following return codes:

X'00'—Normal completion of the BSC Remote Print function
X'04'—A hardware problem was detected during routine execution.
X'08'—A control or data error has occurred while trying to communicate with a remote terminal.

External Routine: None

Table/Work Areas: TCAM Translation Tables, DCHB, OLTCB, AVT, CVT

Attributes: enabled, problem program mode, transient

Start-Stop Remote Print-2740 (Chart Q33)

Module Name: IEDQ33

Entry Point: IEDQ33—called by the enabling module to communicate with remote 2740 terminals.

Functions: The purpose of this module is to handle CECOM and DPRINT request directed to remote 2740 terminals.

Base registers are set up for the OLTCB and DCHB control blocks. The text to be transmitted and addressing characters are obtained from the OLTCB control block. If the text is not EBCDIC, it is translated using TCAM's translation tables.

Depending upon whether the remote device has record checking or not, appropriate line control characters are set up for the particular device. CCW lists are built to handle the transmitting of text. If an error is detected, the I/O operation is repeated a fixed number of times. If the error persists, a return code indicating an error has occurred is returned to the calling module.

If a reply is expected, a CCW list is constructed to receive the incoming text. The text is translated if necessary.

At the completion of this routine, one of the following return codes is placed in register 15:

X'00'—Normal completion of the Start-Stop Remote Print function
X'08'—An I/O error has occurred.
X'04'—A hardware error has occurred.

If an error has occurred and the return code is not X'00', return is to IEDQ30 via XCTL.

External Routine: None

Tables/Work Areas: TCAM translation tables, DCHB, OLTCB, AVT, CVT

Attributes: enabled, problem program mode, transient

BSC Remote Print Sub-Module (Chart Q34)

Module Name

IEDQ34

Entry Point

IEDQ34—called by the Bisync Remote Print Module (IEDQ32) to read an expected CECOM response.

Functions

The purpose of this submodule is to read an expected CECOM response from remote BSC terminals.

Base registers are set up for the OLTCB and DCHB control blocks. Up to ten attempts to read the response are initiated. With point-to-point line control, an ENG is read first, ACKO is transmitted and text is read. With multipoint line control, the terminal is polled until text is received in response. ACK1 is transmitted in response to the text and EOT read. If EOT is not received from the terminal, and EOT will be transmitted. The received text will be translated, if necessary, to EBCDIC. Line control and error recovery are in accordance with Document CP-AR-000658-00-RAL, Binary Synchronous Communications Specification, dated June 17, 1968.

If no error has occurred, return is to the calling module. If an error has occurred, control is transferred via XCTL to IEDQ30. At completion, register 15 contains one of the following return codes:

X'00'—Normal completion of the BSC Remote Print and reply function
X'08'—A control or data error has occurred while trying to read a response from a remote terminal.

External Routines

None

Table/Work Areas

TCAM translation tables, DCHB, OLTCB, AVT, CVT

Attributes

enabled, problem program mode, transient

Start-Stop Remote Print-1050 and 1060 (Chart Q35)

Module Name

Entry Point

IEDQ35—called by the Enabling module to communicate with remote 1050 and 1060 systems.

Functions

The purpose of this module is to handle CECOM and DPRINT requests directed to remote 1050 and 1060 systems.

Base registers are set up for the OLTCB and DCHB control blocks. The text to be transmitted and addressing characters are obtained from the OLTCB control block. If the text is not EBCDIC, it is translated using TCAM's translation tables.

Appropriate line control characters are set up for the particular device. CCW lists are built to handle the transmitting of text. If an error is detected, the I/O operation is repeated a fixed number of times. If the error persists, a return code indicating an error has occurred is returned to the calling module.

At the completion of this routine, one of the following return codes is placed in register 15:

X'00'—Normal completion of IEDQ35 function

X'08'—An I/O error has occurred.
X'04'—A hardware error has occurred.

If an error has occurred and the return code is not X'00', return it to IEDQ30 via XCTL.

External Routine — None

Table/Work Areas — TCAM translation tables, DCHB, OLTCB, AVT, CVT

Attributes — enabled, problem program mode, transient

Start-Stop Remote Print-1030 (Chart Q36)

Module Name — IEDQ36

Entry Point — IEDQ36—called by the Enabling module to communicate with a remote 1030 system.

Function — The purpose of this module is to handle CECOM and DPRINT requests directed to remote 1030 systems.

Base registers are set up for the OLTCB and DCHB control blocks. The text to be transmitted and addressing characters are obtained from the OLTCB control block. If the text is not ECBDIC, it is translated using TCAM's translation tables. Then idle characters are inserted between each character of text.

Appropriate line control is set up for the device. CCW lists are built to handle the transmitting and receiving of text. If an error is detected, the I/O operation is repeated a fixed number of times. If the error persists, a return code indicating an error has occurred is returned to the calling module.

At the completion of this routine, one of the following return codes is placed in register 15:

X'00'—Normal completion of IEDQ36 function
X'08'—An I/O Error has occurred.
X'04'—A hardware error has occurred.

If an error has occurred and the return code is not X'00', return is to IEDQ30 via XCTL.

External Routine — None

Table/Work Areas — TCAM Translation Tables, DCHB, OLTCB, AVT, CVT

Attributes — enabled, problem program mode, transient

Start-Stop Remote Print-2260 and 2265 (Chart Q37)

Module Name — IEDQ37

Entry Point — IEDQ37—called by the Enabling module to communicate with a remote 2260, a local 2260, or a 2265 display.

Functions — The purpose of this module is to handle CECOM and DPRINT requests directed to 2260 and 2265 display stations.

Base registers are set up for the OLTCB and DCHB control blocks. The text to be transmitted and addressing characters are obtained from the OLTCB control block. If the text is not EBCDIC, it is translated using TCAM's translation tables.

If necessary, the appropriate line control is set up for the display. CCW lists are built to handle the transmitting and receiving of text. If an error is detected, the I/O operation is repeated a fixed number of times. If the error persists, a return code indicating an error has occurred is returned to the calling module.

At the completion of this routine, one of the following return codes is placed in register 15:

X'00'—Normal completion of IEDQ37 function
X'08'—An I/O error has occurred.
X'04'—A hardware error has occurred.

If an error has occurred and the return code is not X'00', return is to IEDQ30 via XCTL.

External Routine — None

Table/Work Area — TCAM Translation Tables, DCHB, OLTCB, AVT, CVT

Attributes — enabled, problem program mode, transient

Start-Stop Remote Print-2741 (Chart Q38)

Module Name — IEDQ38

Entry Point — IEDQ38—called by the enabling to communicate with remote 2741 terminal.

Functions — The purpose of this module is to handle CECOM and DPRINT request directed to remote 2741 terminals.

Base registers are set up for the OLTCB and DCHB control blocks. The text, if any, to be transmitted is obtained from the OLTCB control block. If the text is not EBCDIC, it is translated using TCAM's translation tables.

A test is made to determine whether or not the terminal is in receive mode. If the terminal is not in receive mode, and the function to be performed is a read only operation, then the text is read. Control is then returned to the calling module.

If the terminal is in receive mode and the function to be performed is a read only operation, an EOT character is written to the terminal to place it in text mode. The text is then read. Control is then returned to the calling module.

If there is text to be transmitted to the terminal, a read operation is performed. If the read times out, a Halt I/O is issued, and an attempt is made to write the text. If a timeout does not occur, a check is made to see if an EOT character has been read. If no EOT has been read, the read operation is repeated a fixed number of times. IEDQ38 aborts after finding no EOT character.

If a reply is expected the text is read and control is returned to the calling program. If a reply is not expected, the operator is notified to depress the Carriage Return after the text has been written. A read operation is repeated until an EOT character is read. If an EOT character is not detected after several tries, the section is aborted.

All received text is translated if necessary, and placed in the OLTCB. Control is then returned to the calling module. At the completion of this routine, one of the following return codes is placed in register 15:

X'00'—Normal completion of the Start-Stop Remote Print function
X'08'—An I/O error has occurred.
X'04'—A hardware error has occurred.

If an error has occurred and the return code is not X'00', return is to IEDQ30 via XCTL.

External Routines — None

Table/Work Areas — TCAM translation tables, DCHB, OLTCB, AVT, CVT

Attributes — enabled, problem program mode, transient

This section contains a description of the two major control blocks used by the Terminal On-Line Test Executive, the OLTCB and the DCHB.

On-Line Test Control Block

The On-Line Test Control Block (OLTCB) contains those buffers, pointers, flags, parameter lists and data fields which must be preserved after the modules that set them up have been deleted. It also contains control fields and queue pointers to allow the TOTE parent task to communicate with and control the On-Line Tests subtasks.

Offset		No. of Bytes	Field Name	Field Description
Dec.	Hex			
0	0	2	CECOUNT	Loop Count-Specified by C. E.
2	2	1	TESTOP1	1st Byte of Option Bits
				TESTOP1 Bit Meanings
			ERRFLG	X'80' Error Bit for Loop on Error
			SPLATFLG	X'40' Error Bit for * in Terminate Msg
			CATFLG	X'20' Catastrophic Failure Bit
			ALTPFLG	X'10' Alternate Printer Selected Flag
			NCPFLG	X'08' No Control Print Flag
			NEPFLG	X'04' No Error Print Flag
			ELOOPFLG	X'02' Loop on Error Flag
			TLOOPFLG	X'01' Testing Loop Flag
3	3	1	TESTOP2	2nd Byte of Option Bits
				TESTOP2 Bit Meanings (None Assigned)
4	4	2	ROUTRUN	Routine Run Flags (1-16)
6	6	2		SPARE
8	8		PRIMDEV	Primary Device Area
8	8	2		SPARE
10	A	1	PRFLGS	Primary Device Flags
11	B	1		SPARE
12	C	4	PRADDR	Primary Device Physical Address
16	10	4	PRDESC	Primary Device Descriptors
20	14		SECDEV	Secondary Device Area
20	14	2		SPARE
22	16	1	SEFLGS	Secondary Device Flags
23	17	1		SPARE
24	18	4	SEADDR	Secondary Device Physical Address
28	1C	4	SEDESC	Secondary Device Descriptors
32	20	1		SPARE
33	21	1	TOTEFLGS	TOTE FLAGS
				TOTE FLAG Bit Meanings
			OUTWTOR	X'80' Outstanding WTOR Flag
			MULTDEV	X'40' Operator Entered More Than One Test Device
			ROUTSEL	X'20' OPERATOR Made Routine Selection

Offset		No. of Bytes	Field Name	Field Description
Dec.	Hex			
			ERRLOOP	X'10' Operator Indicated Loop on Error
			FINAL	X'08' Final Device Flag
			CLEANUP	X'04' Clean Up Flag
34	22	2	OLTCORE	Amount of Core Available for OLT
36	24	1	FUNFLG1	Functional Flags 1 Bit Meanings
			FUNMINT	X'80' Manual Intervention
			FUNCLEAN	X'40'
37	25	1	FUNFLG2	Functional Flag 2
38	26	1	FUNFLG3	Functional Flag 3
39	27	1	FUNFLG4	Functional Flag 4
40	28	30	EXTROUT	Extended Routine Mask
70	46	2		UNUSED
72	48	72	SAVE1	First Save Area
144	90	72	SAVE2	Second Save Area
216	D8	72	SAVE3	Third Save Area
288	120		SAVEND	End of OLTCB Save Areas
288	120		CBPRIOBK	Primary I/O Control Blocks
288	120	4	CBPRIECB	Primary Event Control Block
292	124	4	CBPTECBA	Pointer to Primary TECB
296	128	32	PRIIOB	Primary Device IOB
328	148	30	CBDEVTBL	Device Address Table
358	166	6		SPARE
364	16C	36	PRIDEB	Primary Device DEB
400	190	72	PRIDCB	Primary Device DCB
472	1D8		CBSCIOBK	Secondary I/O Control Blocks
472	1D8	4	CBSECECB	Secondary Event Control Block
476	1DC	4	CBSTECBA	Pointer to Secondary TECB
480	1E0	32	SECIOB	Secondary Device IOB
512	200	4	CBACDEBA	Address of Access Method DEB
516	204	16	CBSMLINK	Service Manager LINK Parameter List
524	20C	8	CBLINKNM	Entry Point Name
532	214	8	CBNAMSPL	Parameter List for Binary Search Routine
535	217	1	CBNAMLNT	Length of Symbolic Name
536	218	4	CBNAMPTR	Pointer to Symbolic Name
540	21C	3		SPARE
543	21F	1	CBREQRLN	Request Line Relative Line Number
544	220	4	CBRQUCBA	Request Line UCB Address
548	224	36	SECDEB	Secondary Device DEB
584	248	72	SECDCB	Secondary Device DCB
656	290	136	CTDCHB	Control Terminal DCHB
792	318	136	PRDCHB	Alternate Printer DCHB
792	318	88	MYDCB	Alternate Printer DCB
880	370	20	CBPECB	DCB for Printer = SYSOUT
900	384	28		RESERVED
928	3A0	128	OLTTRM	Test Request Message Buffer
				EQUATES
			TRMPREF	EQU OLTTRM TRM Prefix
			TRMBUF	EQU OLTTRM + X'2A' TRM Buffer
1056	420	1	MSGCNT	Length of Text in TRM
1057	421	3		SPARE

Offset		No. of Bytes	Field Names	Field Description
Dec.	Hex			
1060	424	2	BLKSASSN	Core Blocks Assigned to this OLT
1062	426	2	BLKSREQD	Core Blocks Required by this OLT
1064	428	2	CBTSTCNT	Test Loop Count
1066	42A	1	CBDPCNT	Display Count
1067	42B	1	CBDPFLG	Display Flags
			FRSPASS	EQU X'80' Past First Flag
1068	42C	4	MEMSPACE	Memory Space Currently Available
1072	430	110	MODINDX	Table of Loaded OLT Modules
1080	438	3		Module Length
1083	43B	99		Space for 9 Additional Modules
			MODINDXE	EQU *
1182	49E	2		SPARE
1184	4A0	62	BLDLLIST	Parm List for BLDL Macro
1246	4DE	2		SPARE
1248	4E0	8	CBWAITIN	Wait Interval (HHMMSSTH)
1256	4E8	4	CBPRECBA	Pointer to Primary ECB
1260	4EC	4	CBSCECBA	Pointer to Secondary ECB
1264	4F0	1	CBRTCODE	Return Code Buffer
1265	4F1	1	CBMSGCD	Error Message Code
1266	4F2	1	CBSTLFLG	Start/Stop Line Flags
				FLAG Bit Meanings
			PTSTSTRT	X'80' Primary Line Start Flag
			STSTSTRT	X'40' Secondary Line Start Flag
			CHKSIZE	X'20' Core Size Check Requested
			OUTOPTS	X'10' Check Output Options Flag
			CTSTART	X'08' Control Terminal Start Flag
			PRSTART	X'04' Printer Terminal Start Flag
			CHKTRM	X'02' Check TRM Queue Flag
			STOPCNT	X'80' Control Terminal Stopped Flag
			STOPPRNT	X'40' Alt. Printer Stopped Flag
			STOPTPRI	X'20' Primary Test Device Stopped Flag
			STOPSEC	X'10' Secondary Test Device Stopped Flag
			STOPREQ	X'08' Request Line Stopped Flag
1267	4F3	1	CBOLTSVI	Service Module Flags
1268	4F4	4	TUCBAD1	Active UCB Address
1272	4F8	36	CBUCBTBL	List of UCB Addresses
1308	51C	4	TUCBAD2	Secondary UCB Address
1312	520	8	CBWTORPL	Parm List for WTOR
1320	528	4	CBWTOPL	Parm List for WTO
1324	52C	80	CBOTBUF	Out Message Buffer
1404	57C	80	CBINBUF	In Message Buffer
1484	5CC	4	CBECB1	Event Control Block
1488	5D0	16	CBPRGLST	Purge Parm List for SCV
1500	5DC	4	GRABPTR	Pointer to Current Secondary Device
1504	5E0	4	CBSMNAME	Pointer to Current Symbolic Name
1508	5E4	4	OLTCBECB	OLT Event Control Block
1512	5E8	72	CBSMNTBL	Symbolic Name Table
1584	630	128	WORKAREA	Executive Work Area
1712	6B0	1	TRMFLGS1	

Offset		No. of Bytes	Field Name	Field Description
Dec.	Hex			
				EQUATES
			APERROR	EQU X'80' AP Error Flag
			TDERROR	EQU X'40' Test Device Error Flag
			TERROR	EQU X'20' Test ID Error Flag
			OPTERROR	EQU X'10' Option Field Error Flag
1713	6B1	1	TRMFLGS2	
				EQUATES
			NUM	EQU X'80' Numeric Entry Flag
			CTDIAL	EQU X'08' CT Switched Flag
			RTDIAL	EQU X'04' Req Line Switched Flag
			CANCELRQ	EQU X'02' Cancel Request Message Flag
			TTDIAL	EQU X'01' Switched Test Terminal Flag
1714	6B2	1	OLTFLGS1	
				EQUATES
			PRINT	EQU X'80' Access Method Print Flag
			CECOM	EQU X'40' Access Method CECOM Flag
			REPLY	EQU X'20' Access Method CECOM with Reply Flag
			NOTAVL	EQU X'10' Function Not Available Flag
			TDEVSTRT	EQU X'08' Start Test Devices Flag
			TIMEOUT	EQU X'04' Wait Timeout Flag
			EXIO	EQU X'02' Access Method EXIO Flag
			ENDMSGOK	EQU X'01' Send Cancel or Terminate Message
1715	6B3	1	OLTFLGS2	
				EQUATES
			SECTTERM	EQU X'80' Section Terminate Flag
			SECTSTRT	EQU X'40' Section RESTART Flag
			SECT4KMX	EQU X'20' 4K Maximum Size Flag
			SECTNCMF	EQU X'10' Non-Concurrent Mode Flag
			TRMXLATD	EQU X'08' TRM Translated Flag
			CANCEL	EQU X'04' Cancel Testing Flag
			OLTACT	EQU X'02' OLT Active Flag
			NPERMERR	EQU X'01' No Permanent Error Flag
1716	6B4	1	OLTFLGS3	
				EQUATES
			PRIMARY	EQU X'80' Primary Flag for EXIO and WAITIO
			SECOND	EQU X'40' Secondary Flag for EXIO and WAITIO
			TERMNAME	EQU X'20' Terminal Name Flag
			DCBOPEN	EQU X'10' Output Writer DCB Open Flag
			MSGCEC	EQU X'08' TOTE MSG Source Flag CECOM
			MSGREP	EQU X'04' TOTE MSG Source Flag Reply

Offset		No. of Bytes	Field Name	Field Description
Dec.	Hex			
			MSGPRT	EQU X'02' TOTE MSG Source Flag DPRINT
			APENBLD	EQU X'01' Alt. Printer Enabled Flag
1717	6B5	1	OLTFLGS4	
1718	6B6	1	CBACFLGS	
				EQUATES
			PRSYSCON	EQU X'80' Printer = System Console
			PRSYSOUT	EQU X'40' Printer = System Output
			CTSYSCON	EQU X'20' CNTL Term = System Console
			PRTTERM	EQU X'10' Printer = Remote Terminal (Not CT)
			PRIENBLD	X'08' Primary Line Enabled Flag
			SECENBLD	X'04' Secondary Line Enabled Flag
			PREQCT	X'02' Printer Equals Control Terminal Flag
			CTENBLD	X'01' Control Terminal Enabled Flag
1719	6B7	1	CBTCNTF1	Test Control Flags
				EQUATES
			TERMFLG	EQU X'80' Test Devices = Terminals
			FIRSTUCB	EQU X'40' First Device in TRM Flag
			INCLENT	X'20' Inclusive Entry Flag
			FREEDEB	X'10' Free DEB on Terminate Flag
			ACCDEB	X'08' Free Access Method DEB Flag
			OLTENDED	X'04' On-Line Test Ended Flag
			OLTWAIT	X'02' On-Line Test Waiting Flag
			OLTRSTRT	X'01' On-Line Test Restart Flag
1720	6B8	4	CBLDPNTR	Pointer to Active Section
1724	6BC	80	CBOLTTBL	Table of OLT Sections
1804	70C	1	CBOLTEND	END OF TABLE
1805	70D	1		SPARE
1806	70E	2	CBTNMLEN	Length of TERMNAME Table of Entries
1808	710	72	TOTESAV1	TOTE Save Area
1880	758	72	TCNTSAVE	Test Control Register Save Area
1952	7A0	4	RESRSAVE	Resident Save Area Pointer
1956	7A4	4	CBCURDEV	Pointer to Active Device
1960	7A8	12	PARMLIST	OLT Parameter List
1972	7B4	12	DIAGLIST	Parameter List for SVC 59
1984	7C0	24	CBRQELE	Operator Control Request Element
2008	7D8	4	CBCTUCBA	Address of Control Terminal UCB
2012	7DC	4	CBAPUCBA	Address of Alternate Printer UCB
2016	7E0	8	CBSLPL	Parameter List for Start/Stop Line
2024	7E8	4	CBRESPL	Address of Resident Parameters
2028	7EC		OCTCBEND	End of OLTCB

DCHB

Offset		No. of Bytes	Field Name	Field Description
Dec.	Hex			
0	0	2	DCHBCUU	Line Address in Hex
2	2	1	DCHBDESC	DCHB Descriptor X'00' TCU DCHB X'01' First Terminal DCHB X'FF' Last Terminal DCHB
3	3	4	DCHBTCU	TCU Type in EBCDIC
7	7	8	DCHBNAME	Symbolic Name in EBCDIC
15	F	4	DCHBTTYP	Terminal Type in EBCDIC
19	13	1	DCHBADAP	TCU Adapter Type X'10' IBM I X'20' IBM II X'30' IBM TTY X'40' TTY I X'50' TTY II X'60' WTCTTY X'70' SDA I X'80' IBM III X'90' SDA II
20	14	1	DCHBTYPE	Line Type X'01' Leased Point to Point X'02' Leased Multipoint X'03' Switched No AUTODIAL X'04' Switched AUTODIAL X'05' Local
21	15	1	DCHBCODE	Line Code X'01' 6 Bit BCD X'02' INT TEL Alphabet 2 X'03' Code Shifted BAUDOT X'04' 8 Level TWX X'05' USASCII 8 X'06' Four Out of Eight X'07' EBCDIC X'08' TRANSCODE
22	16	5		SPARE
27	1B	1	DCHBPOL #	Hex Number of Poll Characters
28	1C	7	DCHBPOLL	Poll Characters in Line Code
35	23	1	DCHBC #	Hex Number of Adressing Characters

Offset		No. of Bytes	Field Name	Field Description
Dec.	Hex			
36	24	10	DCHBCOMP	Addressing Characters in Line Code. Escape Sequence (Framed by STX . . . ETB) for BSC Contention Devices.
46	2E	1	DCHBD #	Hex Number of Dial Digits
47	2F	20	DCHBDIAL	Dial Digits. First 4 Bits of Each Byte Equal Zero.
67	43	30	DCHBCONT	Line Control Characters. First 8 Bytes are Offset to Byte Count of Number of Characters. Control Characters Follow the Byte Count. Byte 1 Offset to EOT SEQ Byte 2 Offset to EOA SEQ Byte 3 Offset to Even ACK SEQ Byte 4 Offset to Odd ACK SEQ Byte 5 Offset to NAK SEQ Byte 6 Offset to PAD CHARS Byte 7 RESERVED Byte 8 RESERVED
97	61	1	DCHBBS #	Hex Number of CPU I.D. Characters
98	62	15	DCHBBSID	I.D. Characters in Line Code of Host CPU
113	71	8		SPARE
121	79	10	DCHBDEV	Device Configurator Bytes. Defined by Unit Configurator Sections.

The following section contains information designed to aid the Program Systems Representative or system programmer in cross-referencing modules in the Terminal On-Line Test Executive. The chapter is divided into tables of register usage by module, cross-referencing tables between modules, messages generated, and a table of macro usage by module.

Table of Register Usage by Module

Module Name	Entry Point	Register	I, W, or O*	Use
IEDQWA	IEDQWA	0	–	Not Used
		1	W	Work Register
			O	Parameter List Address
		2	O	OLTCB Pointer
		3	–	Not Used
		4	–	Not Used
		5	–	Not Used
		6	W	Work Register
		7	–	Not Used
		8	W	Work Register
		9	W	Work Register
		10	–	Not Used
		11	W	Base Register
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWB	IEDQWB	0	I	Parameter Register
		1	O	Parameter List Address
			W	Working Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	I	AVT Address
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	Base Register
		12	W	Link Reg., Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code

*Input, Work, or Output Register

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWC	IEDQWC	0	–	Not Used
		1	W	Work Register
			I	Parameter List Address
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Base Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	OLT-TRM ADDRESS-PRF-BASE
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
			W	Work Register
		15	I	Entry Point Address
			W	Work Register
IEDQWC1	IEDQWC1	0	–	Not Used
		1	W	Work Register
			I	Parameter List Address
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Base Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	Work Register
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWC2	IEDQWC2	0	–	Not Used
		1	I	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Base Register
		7	W	Work Register
		8	–	Not Used
		9	–	Not Used
		10	W	Work Register
		11	–	Not Used
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWD	IEDQWD	0	W	Work Register
			O	Parameter
		1	O	Parameter List Address
		2	I	OLTCB Pointer
		3	W	TRM Pointer
		4	W	Base Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	Work Register
		12	W	Link Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWE	IEDQWE	0	O	Parameter Register
		1	O	Parameter List Address
		2	I	OLTCB Pointer
		3	W	AVT Address
		4	W	Base Register
		5	W	Test Device Address Table Pointer
		6	W	Test Table Pointer
		7	W	Work Register
		8	W	Work Register
		9	W	UCB Table Pointer
		10	W	Test Device Name Table Pointer
		11	W	Work Register
		12	W	Link Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWF	IEDQWF	0	–	Not Used
		1	O	Parameter List Address
		2	I	OLTCB Pointer
		3	–	Not Used
		4	W	Base Register
		5	–	Not Used
		6	–	Not Used
		7	–	Not Used
		8	–	Not Used
		9	–	Not Used
		10	–	Not Used
		11	–	Not Used
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code: X'00'–No Errors X'01'–Errors Detected

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWH	IEDQWH	0	–	Not Used
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Base Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	–	Not Used
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWI	IEDQWI	0	–	Not Used
		1	O	Parameter List Address
		2	I	OLTCB Pointer
		3	O	Parameter Register for Device Configurators
		4	–	Not Used
		5	–	Not Used
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	Work Area Address
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWIA	IEDQWIA	0	–	Not Used
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	–	Not Used
		4	–	Not Used
		5	–	Not Used
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	–	Not Used
		10	W	Work Register
		11	–	Not Used
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWID	IEDQWID	0	–	Not Used
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	–	Not Used
		4	–	Not Used
		5	W	Work Register
		6	–	Not Used
		7	W	Work Register
		8	–	Not Used
		9	–	Not Used
		10	W	Work Register
		11	–	Not Used
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWIU	IEDQWIU	0	–	Not Used
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	O	Pointer to No. Table for Device Configurator
		4	–	Not Used
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	–	Not Used
		9	–	Not Used
		10	W	Work Register
		11	–	Not Used
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWI5	IEDQWI5	0	–	Not Used
		1	I	Parameter List Address
		2	I	OLTCB Pointer
		3	W	Base Register
		4	–	Not Used
		5	–	Not Used
		6	–	Not Used
		7	–	Not Used
		8	–	Not Used
		9	W	Work Register
		10	–	Not Used
		11	W	DCHB and Work Area Base
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWI5D	IEDQWI5D	0	–	Not Used
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	–	Not Used
		4	–	Not Used
		5	W	Work Register
		6	W	Work Register
		7	–	Not Used
		8	–	Not Used
		9	–	Not Used
		10	–	Not Used
		11	W	DCHB Base Register
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWI5U	IEDQWI5U	0	–	Not Used
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	–	Not Used
		4	–	Not Used
		5	W	Work Register
		6	W	Work Register
		7	–	Not Used
		8	–	Not Used
		9	–	Not Used
		10	–	Not Used
		11	W	DCHB Base Register
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWI6	IEDQWI6	0	–	Not Used
		1	O	Parameter List Address
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	O	UCB Address
		6	W	Work Register
		7	–	Not Used
		8	–	Not Used
		9	W	Work Register
		10	–	Not Used
		11	I	DCHB and Work Area Base
		12	I	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWI7	IEDQWI7	0	–	Not Used
		1	O	Parameter List Address
		2	I	OLTCB Pointer
		3	W	Work Register
		4	–	Not Used
		5	I	UCB Address
		6	–	Not Used
		7	–	Not Used
		8	–	Not Used
		9	W	Work Register
		10	–	Not Used
		11	I	Calling Routine Work Area
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWI8	IEDQWI8	0	–	Not Used
		1	W	Work Register
			O	Parameter List Address
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	I	UCB Address
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	–	Not Used
		11	I	Calling Routine Work Area
		12	–	Not Used
		13	W	Save Area Address
		14	I	Return Address
			O	Return from AVTUI
		15	O	AVTUI Address
			I	Entry Point Address
IEDQWI9	IEDQWI9	0	–	Not Used
		1	O	Parameter List Address
		2	W	Work Register
			I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	–	Not Used
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	–	Not Used
		11	I	Calling Routine Work Area
		12	–	Not Used
		13	W	Save Area Address
		14	I	Return Address
			W	Work Register
		15	I	Entry Point Address

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWJ	IEDQWJ	0	–	Not Used
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	I	Base Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	–	Not Used
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	W	Work Register
			I	Entry Point Address
IEDQWJ1	IEDQWJ1	0	–	Not Used
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	I	Base Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	–	Not Used
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
IEDQWJ2	IEDQWJ2	0	–	Not Used
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Base Register
		7	W	Work Register
		8	–	Not Used
		9	W	Work Register
		10	W	Work Register
		11	–	Not Used
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	W	Work Register
			I	Entry Point Address

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWK	IEDQWK	0	–	Not Used
		1	I	Parameter List Address
		2	I	OLTCB Pointer
		3	–	Not Used
		4	W	Base Register
		5	–	Not Used
		6	–	Not Used
		7	–	Not Used
		8	–	Not Used
		9	–	Not Used
		10	–	Not Used
		11	–	Not Used
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code: X'00'–Normal Completion X'04'–Unavailable Function
IEDQWL	IEDQWL	0	–	Not Used
		1	–	Not Used
		2	I	OLTCB Pointer
		3	–	Not Used
		4	W	Base Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Test Table Pointer
		9	W	Test Device Name Table Pointer
		10	–	Not Used
		11	–	Not Used
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code: X'00'–Normal Return Code X'08'–Error Return Code

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWM1	IEDQWM1	0	O	Parameter Register
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Base Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	Work Register
		12	W	Link Register
		13	I-O	Save Area Address
		14	I-O	Return Address
		15	I	Entry Point Address
IEDQWN	IEDQWN	0	O	Parameter Register
		1	I	Parameter List Address
		2	I	OLTCB Pointer
		3	I	Test Module Base Address
		4	W	Base Register
		5	W	Test Event Control Block Address
		6	W	Work Register
		7	W	I/O Blocks Address
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	–	Not Used
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code: X'00'–Normal Completion X'04'–Function Not Available X'08'–Error

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWO	IEDQWO	0	–	Not Used
		1	O	Parameter List Address
			W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Base Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	Work Register
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code: X'00'–Normal Completion X'08'–Error in Enabling X'0C'–Stop Line Failed
IEDQWP	IEDQWP	0	–	Not Used
		1	I	DPRINT Parameter List Address
		2	I	OLTCB Pointer
		3	I	Section Preface Address
		4	W	Base Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	I	Work Register
		12	W	Address or Parameter List Control Word
		13	I	Save Area Address
		14	I	Return Address
			W	Work Register
		15	I	Entry Point Address
			W	Work Register
			O	Return Code: X'00'–Normal Completion

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWP1	IEDQWP1	0	–	Not Used
		1	I	DPRINT Parameter List Address
		2	I	OLTCB Pointer
		3	I	Section Preface Address
		4	W	Base Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	Work Register
		12	W	Address of Parameter List Control Word
		13	I	Save Area Address
			W	Work Register
		14	I	Return Address
			W	Work Register
		15	I	Entry Point Address
			W	Work Register
			O	Return Code: X'00'–Normal Completion
IEDQWP2	IEDQWP2	0	–	Not Used
		1	I	DPRINT Parameter List Address
		2	I	OLTCB Pointer
		3	I	Section Preface Address
		4	W	Base Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	Work Register
		12	W	Address of Parameter List Control Word
		13	I	Save Area Address
			W	Work Register
		14	I	Return Address
			W	Work Register
		15	I	Entry Point Address
			W	Work Register
			O	Return Code: X'00'–Normal Completion

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWQ	IEDQWQ	0	–	Not Used
		1	I	CECOM Parameter List Address
		2	I	OLTCB Pointer
		3	–	Not Used
		4	W	Base Register
		5	W	Work Register
		6	W	Work Register
		7	–	Not Used
		8	–	Not Used
		9	W	Output Message Count
		10	W	Output Message Address
		11	W	Work Register
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code: X'00'–Normal Completion X'04'–Requested Function Not Available
IEDQWR	IEDQWR	0	W	Entry Point Address of Module Loaded
		1	I	PLINK Parameter
		2	I	OLTCB Pointer
		3	–	Not Used
		4	W	Base Register
		5	W	Address of PLINK Control Word
		6	W	Work Register
		7	W	Work Register
		8	W	Address of Entry Point List
		9	W	Work Register
		10	W	Work Register
		11	W	Save Register for Register 1
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code: X'00'–Normal Completion X'08'–I/O Error During X'10'–Memory Space Not Available for Requested Load Module(s) X'0C'–Requested Load Module Not Found in Library

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWS	IEDQWS	0	–	Not Used
		1	I	Parameter List Address
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Base Register
		5	W	TECB Address
		6	–	Not Used
		7	W	I/O Blocks Address
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	Work Register
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address Register
		15	I	Entry Point Address
			O	Return Code: X'00'–Normal Completion X'08'–Timeout
IEDQWV	IEDQWV	0	–	Not Used
		1	I	GRAB Parameter List Address
		2	I	OLTCB Pointer
		3	–	Not Used
		4	W	Base Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	UCB Address of Secondary Device
		10	W	UCB Address of Primary Device
		11	W	Address of GRAB Flags
		12	–	Not Used
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code: X'00'–Normal Completion X'08'–No (More) Devices in the Entry List Meet the Specified Requirements X'0C'–Device Entry List Contains Only One Device

Module Name	Entry Point	Register	I, W, or O	Use
IEDQWX	IEDQWX	0	–	Not Used
		1	I	CONVERT Parameter List Address
			O	Address of Non-EBCDIC Character
		2	I	OLTCB Pointer
		3	–	Not Used
		4	W	Base Register
		5	W	Address of Input Data
		6	W	Address of Output Data
		7	W	Data Count
		8	W	Address of Parameter List Flags and Count
		9	W	Work Register
		10	W	First or Second Byte Indicator
		11	W	Work Register
		12	W	Work Register
		13	I	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code: X'00'–Normal Completion X'08'–Requested Conversion of Non-EBCDIC Character
IEDQWY	IEDQWY	0	–	Not Used
		1	W	Work Register
			O	Parameter List Address
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	I	Base Register
		7	W	Work Register
		8	–	Not Used
		9	W	Work Register
		10	W	Work Register
		11	–	Not Used
		12	W	Work Register
		13	W	Save Area Address
		14	I	Return Address
		15	I	Entry Point Address
			O	Return Code: X'00'–Normal Completion X'08'–Buffer Size Too Small X'0C'–DCHB Not Found or DCHB Data Set Could Not be Opened

Module Name	Entry Point	Register	I, W, or O	Use
IEDQ30	IEDQ30	0	–	Not Used
		1	–	Not Used
		2	I	OLTCB Pointer
		3	–	Not Used
		4	I	Base Register
		5	–	Not Used
		6	–	Not Used
		7	–	Not Used
		8	–	Not Used
		9	–	Not Used
		10	–	Not Used
		11	–	Not Used
		12	I	DCHB Pointer
		13	I	Save Area Address
		14	I	Return Address
		15	W	Work Register
			O	Return Code: X'00'–Normal Return
IEDQ31	IEDQ31	0	–	Not Used
		1	–	Not Used
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	AVT Dsect Base Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	I	Base Register for IEDQ31 CSECT
		12	I	DCHB Base Register
		13	I	Save Area Address
		14	I	Return Address
		15	O	Return Code: X'00'–Normal Completion X'04'–Hardware Problem X'08'–Invalid Terminal Table Entry, Line Not Open, or Invalid Line Address

Module Name	Entry Point	Register	I, W, or O	Use
IEDQ32	IEDQ32	0	W	Work Register
		1	W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	I	Base Register
		12	I	DCHB Pointer
		13	I	Save Area Address
		14	I	Return Address
		15	O	Return Code: X'00'–Normal Completion X'04'–Hardware Problem X'08'–Control or Data Error Occurred
IEDQ33	IEDQ33	0	–	Not Used
		1	–	Not Used
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	I	Base Register
		12	I	DCHB Pointer
		13	W	Save Area Address
		14	I	Return Address
		15	O	Return Code: X'00'–Normal Completion X'04'–Hardware Error X'08'–I/O Error

Module Name	Entry Point	Register	I, W, or O	Use
IEDQ34	IEDQ34	0	W	Work Register
		1	W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	I	Base Register
		12	I	DCHB Pointer
		13	I	Save Area Address
		14	I	Return Address
		15	O	Return Code: X'00'–Normal Completion X'04'–Hardware Problem X'08'–Control or Data Error Occurred
IEDQ35	IEDQ35	0	–	Not Used
		1	–	Not Used
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	I	Base Register
		12	I	DCHB Pointer
		13	W	Save Area Address
		14	I	Return Address
		15	O	Return Code: X'00'–Normal Completion X'04'–Hardware Error X'08'–I/O Error

Module Name	Entry Point	Register	I, W, or O	Use
IEDQ36	IEDQ36	0	W	Work Register
		1	W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	I	Base Register
		12	I	DCHB Pointer
		13	I	Save Area Address
		14	I	Return Address
		15	O	Return Code: X'00'—Normal Completion X'04'—Hardware Problem X'08'—Control or Data Error Occurred
IEDQ37	IEDQ37	0	—	Not Used
		1	—	Not Used
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	I	Base Register
		12	I	DCHB Pointer
		13	W	Save Area Address
		14	I	Return Address
		15	O	Return Code: X'00'—Normal Completion X'04'—Hardware Error X'08'—I/O Error

Module Name	Entry Point	Register	I, W, or O	Use
IEDQ38	IEDQ38	0	–	Not Used
		1	W	Work Register
		2	I	OLTCB Pointer
		3	W	Work Register
		4	W	Work Register
		5	W	Work Register
		6	W	Work Register
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	I	Base Register
		12	I	DCHB Pointer
		13	I	Save Area Pointer
		14	I	Return Address
		15	O	Return Code: X'00'–Normal Completion X'04'–Hardware Error X'08'–I/O Error

Tables of Cross References Between TOTE Modules

Module Name	Entry Point	Entered From	Call	Exit Points	Exits To
IEDQWA	IEDQWA	IEDQOS	IEDQWB	Br after 'RES01A'	IEDQOS
	SMGR	OLT'S	IEDQWN IEDQWP IEDQWQ IEDQWR IEDQWS IEDQWV IEDQWX IEDQWY IEDQWK IEDQWM1 IEDQWE	Br after 'RETURN'	OLT'S
IEDQWB	IEDQWB	IEDQWA	IGC00059	Br after 'RETURN1' XCTL after 'RES052'	IEDQWA IEDQWC
IEDQWC	IEDQWC	IEDQWA IEDQWH	IEDQWQ AVTUI IEDQCU IEDQCV	XCTL after 'TRM090' XCTL after 'TRMERR3' XCTL after 'TRMCHK7' XCTL after 'TRM11CA' XCTL after 'TRMPT' XCTL after 'RFTEST1'	IEDQWC1 IEDQWE IEDQWH IEDQWI IEDQWJ IEDQWD
IEDQWC1	IEDQWC1	IEDQWC	IEDQWQ AVTUI IEDQCV	XCTL after 'TDERR' XCTL after 'TRM1099' XCTL after 'GETOUT'	IEDQWJ IEDQWC2 IEDQWE
IEDQWC2	IEDQWC2	IEDQWC1	None	XCTL after 'TRM259' XCTL after 'GETOUT' XCTL after 'TEST1A'	IEDQWD IEDQWE IEDQWJ
IEDQWD	IEDQWD	IEDQWC IEDQWJ1 IEDQWJ2	IGC00059	XCTL after 'DISPEXIT' XCTL after 'DISP21A'	IEDQWE IEDQWK
IEDQWE	IEDQWE	IEDQWA IEDQWC IEDQWD IEDQWH IEDQWJ IEDQWJ1 IEDQWJ2	IEDQWK IEDQCU IEDQCV	XCTL after 'TCNTL06'	IEDQWF
	IEDQWE1	IEDQWF	IEDQWK IGC00059	Br after 'RETURN4'	IEDQWA

Module Name	Entry Point	Entered From	Call	Exit Points	Exits To
IEDQWF	IEDQWF	IEDQWE	OLT's	Br after 'ESUB00'	IEDQWE1
IEDQWH	IEDQWH	IEDQWC	IEDQWQ AVTUI	XCTL after 'EXIT'	IEDQWC
				XCTL after 'TRMERR'	IEDQWE
IEDQWI	IEDQWI	IEDQWC	IEDQWI5 IEDQWI5U IEDQWI6 IEDQWI7 IEDQWI8 IEDQWI9 TCU Configurators Device Configurators	XCTL after 'DONE2'	IEDQWE
				XCTL after 'ADDON'	IEDQWIA
				XCTL after 'DELETE'	IEDQWID
IEDQWIA	IEDQWIA	IEDQWI	IEDQWQ IEDQWR IEDQWI5U IEDQWI7 IEDQWI8 IEDQWI9 Unit Configurators	XCTL after 'DONE4'	IEDQWE
				XCTL after 'AGAIN'	IEDQWI
IEDQWID	IEDQWID	IEDQWI	IEDQWI5D IEDQWR IEDQWQ	XCTL after 'DONE4'	IEDQWE
				XCTL after 'AGAIN'	IEDQWI
IEDQWI5	IEDQWI5	IEDQWI	IEDQWQ IEDQWI5D IEDQWR	Br after 'OPEN'	IEDQWI
IEDQWI5D	IEDQWI5D	IEDQWI5	IEDQWQ IEDQWR	PLINK at 'ADAPTER'	IEDQWI5
IEDQWI5U	IEDQWI5U	IEDQWIU IEDQWIA	IEDQWQ IEDQWR		
				PLINK at 'ADAPTER'	IEDQWIA
IEDQWI6	IEDQWI6	IEDQWI IEDQWIA	IEDQWQ IEDQWC	Br after 'ADAPTER'	IEDQWI
IEDQWI7	IEDQWI7	IEDQWI IEDQWIA	IEDQWQ IEDQWR	Brafter 'ENABENE'	IEDQWI
IEDQWI8	IEDQWI8	IEDQWI IEDQWIA	IEDQWQ IEDQWR AVTUI	Br after 'PLRET'	IEDQWI
IEDQWI9	IEDQWI9	IEDQWI IEDQWIA	IEDQWQ IEDQWR	Br after 'PLRET'	IEDQWI

Module Name	Entry Point	Entered From	Call	Exit Points	Exits To
IEDQWJ	IEDQWJ	IEDQWC IEDQWC1 IEDQWC2	IEDQWQ AVTUI	XCTL after 'GETOUT' XCTL after 'TDDONE1'	IEDQWE IEDQWJ1
IEDQWJ1	IEDQWJ1	IEDQWJ	IEDQWQ	XCTL after 'GETOUT' XCTL after 'APROUT' XCTL after 'TOOLONG2'	IEDQWE IEDQWJ2 IEDQWJ
IEDQWJ2	IEDQWJ2	IEDQWJ1	IEDQWQ AVTUI	XCTL after 'PMT259' XCTL after 'GETOUT'	IEDQWD IEDQWE
IEDQWK	IEDQWK	IEDQWD IEDQWE IEDQWA IEDQWN IEDQWQ IEDQWS IEDQ31	IEDQWL IEDQWO IEDQWM1	Br after 'EMSG03'	IEDQWN IEDQWS IEDQWP IEDQWQ IEDQWR IEDQWV IEDQWX IEDQWY IEDQWD IEDQWE IEDQWA
IEDQWL	IEDQWL	IEDQWK	None	Br after 'STMSGR1'	IEDQWK
IEDQWM1	IEDQWM1	IEDQWA IEDQWK	IGC00059	Br after 'RETURN1'	IEDQWA IEDQWK
IEDQWN	IEDQWN	IEDQWA	IEDQWO IGC00059	Br after 'XIO011' XCTL after 'XIO007F' XCTL after 'XIO015'	IEDQWA IEDQWK IEDQWK
IEDQWO	IEDQWO	IEDQWN IEDQWQ IEDQWP IEDQWK IEDQWP1 IEDQWP2	None	XCTL after 'ACCESS02' Br after 'RETURN'	IEDQ31 IEDQWK IEDQWN IEDQWQ IEDQWP IEDQWP1 IEDQWP2
IEDQWP	IEDQWP	IEDQWA	IEDQWO	XCTL after 'DPR085' Br after 'DPR500'	IEDQWP1 IEDQWK
IEDQWP1	IEDQWP1	IEDQWP	IEDQWO	XCTL after 'DPR170'	IEDQWP2
IEDQWP2	IEDQWP2	IEDQWP1	IEDQWO	Br after 'DPR500'	IEDQWA
IEDQWQ	IEDQWQ	IEDQWA	IEDQWO	Br after 'CEC050' XCTL at 'CEC002'	IEDQWA IEDQWK

Module Name	Entry Point	Entered From	Call	Exit Points	Exits To
IEDQWR	IEDQWR	IEDQWA	None	Br after 'PLK050'	IEDQWA
IEDQWS	IEDQWS	IEDQWA	IEDQWK	Br after 'NOPECB4'	IEDQWA
IEDQWV	IEDQWV	IEDQWA	None	Br after 'GRB070'	IEDQWA
IEDQWX	IEDQWX	IEDQWA	None	Br after 'CNV018'	IEDQWA
IEDQWY	IEDQWY	IEDQWA	None	Br after 'NOPEN' or 'GC003' or 'GC009'	IEDQWA
IEDQ30	IEDQ30	IEDQ31 IEDQ32 IEDQ33 IEDQ34 IEDQ35 IEDQ36 IEDQ37 IEDQ38	None	Br after 'ERR024'	IEDQWK IEDQWN IEDQWP IEDQWP1 IEDQWP2 IEDQWQ
IEDQ31	IEDQ31	IEDQWO	IEDQUI IEDQTNT	Br after 'OUT' XCTL after 'REMOTE' XCTL after 'REM1' XCTL after 'REM2' XCTL after 'STSTOP' XCTL after 'REM3' XCTL after 'OUTERR' XCTL after 'REM1A'	IEDQWK IEDQWP IEDQWQ IEDQ32 IEDQ33 IEDQ35 IEDQ36 IEDQ37 IEDQ30 IEDQ38
IEDQ32	IEDQ32	IEDQ31	None	XCTL after 'XMITD' XCTL after 'ERTN' Br after 'RETURN1'	IEDQ34 IEDQ30 IEDQWK IEDQWN IEDQWP IEDQWP1 IEDQWP2 IEDQWQ
IEDQ33	IEDQ33	IEDQ31	None	Br after 'RETURN1' XCTL after 'OUTERR'	IEDQWK IEDQWN IEDQWP IEDQWP1 IEDQWP2 IEDQWQ IEDQ30
IEDQ34	IEDQ34	IEDQ32	None	XCTL after 'ERTN' Br after 'RETURN1'	IEDQ30 IEDQWK IEDQWN IEDQWP IEDQWP1 IEDQWP2 IEDQWQ

Module Name	Entry Point	Entered From	Call	Exit Points	Exits To
IEDQ35	IEDQ35	IEDQ31	None	Br after 'RETURN1'	IEDQWK IEDQWN IEDQWP IEDQWP1 IEDQWP2 IEDQWQ
				XCTL after 'OUTERR'	IEDQ30
IEDQ36	IEDQ36	IEDQ31	None	Br after 'RETURN1'	IEDQWK IEDQWN IEDQWP IEDQWP1 IEDQWP2 IEDQWQ
				XCTL after 'OUTERR'	IEDQ30
IEDQ37	IEDQ37	IEDQ31	None	Br after 'RETURN1'	IEDQWK IEDQWN IEDQWP IEDQWP1 IEDQWP2 IEDQWQ
				XCTL after 'OUTERR'	IEDQ30
IEDQ38	IEDQ38	IEDQ31	None	Br after 'RETURN1'	IEDQWK IEDQWN IEDQWP IEDQWP1 IEDQWP2 IEDQWQ
				XCTL after 'OUTERR'	IEDQ30

	System Messages	Origin	Destination
IED126I	OLT Request Rejected, No DCHB for Control Terminal	IEDQWC IEDQWH	System Console
IED127I	OLT Request Rejected, Control Terminal Unidentified	IEDQWC	System Console
IED128I	Alternate Printer Requested by OLT Already in Use	IEDQWC	System Console
IED129I	OLT Request Rejected, C. T. Line cannot be Started	IEDQWC	System Console
IED130I	OLT Request Rejected, Control Terminal Not Open	IEDQWC	System Console
IED131I	TRM Canceled, Not Entered From Switched C.T.	IEDQWC	System Console
IED132D	Can OLT Use for Non-Concurrent Mode–Lines XXX	IEDQWCZ IEDQWJ2	System Console
IED134I	XXXXXXXX Terminal Failed, OLT Cancelled	IEDQ30	System Console
IED135I	message *	TOTE OLT's	Control Terminal
IED136D	message *	TOTE OLT's	Control Terminal
IED135I	Macro Function Not Supported	IEDQWK	Control Terminal
IED135I	Macro Not Supported	IEDQWK	Control Terminal
IED135I	On-Line Testing Active	IEDQWK	Control Terminal
IED135I	OLT Module XXXXXXXX Not Loadable	IEDQWK	Control Terminal
IED135I	S XXXXXXXX Unit YYYYYYYY	IEDQWK	Control Terminal
IED135I	T XXXXXXXX Unit YYYYYYYY	IEDQWK	Control Terminal
IED135I	Dev Class/Type Unequal to Sect	IEDQWK	Control Terminal
IED135I	No UCB for Device XXXXXXXX	IEDQWK	Control Terminal
IED135I	Error in Enabling	IEDQWK	Control Terminal
IED135I	Invalid TRM–Re-enter	IEDQWK	Control Terminal
IED135I	Line XXXXXXXX cannot be Started	IEDQWK	Control Terminal
IED135I	Not Enough Core for Section XXXXXXXX	IEDQWK	Control Terminal
IED135I	On-Line Testing Terminated	IEDQWK	Control Terminal
IED135I	Section cannot be Executed	IEDQWK	Control Terminal
IED135I	Start or Stop Line Failed–Abort	IEDQWK	Control Terminal
IED135I	Too Many Tests Selected, Only 10 will be Run	IEDQWK	Control Terminal
IED135I	I/O Path Busy. SIO Request Rejected	IEDQWN	Control Terminal
IED135I	1060 cannot be Control Terminal for Prompt or Config	IEDQWC	Control Terminal
IED135I	DIAGMSG DD Card Missing from JCL	IEDQWC	Control Terminal
IED135I	XXXXXXXX Not Opened	IEDQWC1	Control Terminal
IED135I	TRM must be Entered from Test Device if Switched	IEDQWC1	Control Terminal
IED135I	Only One Switched Test Device can be Entered in TRM	IEDQWC1	Control Terminal
IED136D	Enter Next Message Segment	IEDQWH	Control Terminal
IED135I	Prompting Not Allowed on 1060, Re-enter TRM	IEDQWJ	Control Terminal
IED135I	TRM Prompter Running	IEDQWJ	Control Terminal

*Listed below are the possible messages associated with either the IED135I or the IED136D message identifier.

	System Messages	Origin	Destination
IED135I	Error in Test Device Field	IEDQWJ	Control Terminal
IED135I	Error in Test Field	IEDQWJ	Control Terminal
IED135I	Error in Option Field	IEDQWJ	Control Terminal
IED135I	Error in TRM	IEDQWJ	Control Terminal
IED136D	Enter Symbolic Name of Terminal or CUU of TCU to be Tested	IEDQWJ	Control Terminal
IED136D	Are There Any More Test Devices? Answer Yes or No	IEDQWJ	Control Terminal
IED135I	Invalid Response Please Enter Yes or No	IEDQWJ	Control Terminal
IED135I	Already Have 9 Test Devices–Test Device Prompting Finished	IEDQWJ	Control Terminal
IED135I	Invalid Test Device Entry	IEDQWJ	Control Terminal
IED136D	Do You Want to Continue Prompting–Answer Yes or No	IEDQWJ	Control Terminal
IED135I	Invalid Response	IEDQWJ	Control Terminal
IED135I	TRM must be Entered from Test Device if Switched	IEDQWJ	Control Terminal
IED135I	Dial Test Terminal Not Allowed with Leased Ones	IEDQWJ	Control Terminal
IED136D	Do You Want to be Prompted? Answer Yes or No	IEDQWJ	Control Terminal
IED136D	TRM Rejected, Please Re-enter	IEDQWJ	Control Terminal
IED135I	XXXXXXXX Not Opened	IEDQWJ	Control Terminal
IED136D	Enter Test to be Run–Format NNNA–Example 2700A	IEDQWJ1	Control Terminal
IED136D	Do You Want to Select Routines in this Test? Answer Yes or No	IEDQWJ1	Control Terminal
IED136D	Enter Routine Numbers Separated by Commas	IEDQWJ1	Control Terminal
IED136D	Do You Want Other Test Sections Run on this Device? Answer Yes or No	IEDQWJ1	Control Terminal
IED136D	Enter Alpha Characters Separated by Commas for Other Sections	IEDQWJ1	Control Terminal
IED135I	Invalid Test Name	IEDQWJ1	Control Terminal
IED135I	Invalid Routine Entry	IEDQWJ1	Control Terminal
IED135I	Invalid Entry for Additional Tests–Valid Entries are A-ZZZ	IEDQWJ1	Control Terminal
IED135I	Default Options are CP, NTL, NEL, CM, NAP, NMI, and EP Valid Options are TLNNNN, NTL, ELNNNN, NEL, CP, NCP, NMI, MI, CM, NCM, NEP, AP, NAP–NNNN is a 4-Digit Decimal Number EPN–Where N is Level of Printed Output Wanted Enter One Option or None	IEDQWJ1	Control Terminal
IED135I	Option Entry Invalid	IEDQWJ1	Control Terminal
IED135I	Error in Test Loop or Error Loop Number	IEDQWJ1	Control Terminal
IED136D	Invalid EP Level–Enter 1, 2, 3, or 4	IEDQWJ1	Control Terminal
IED135I	TRM Buffer Too Small for Last Entry	IEDQWJ1	Control Terminal
IED136D	You Can Re-enter (R), Cancel (C), or Use TRM as is (GO)	IEDQWJ1	Control Terminal
IED136D	Make Entry from Appropriate Parentheses	IEDQWJ1	Control Terminal
IED135I	Invalid Response	IEDQWJ1	Control Terminal
IED136D	Do You Want to Continue Prompting? Answer Yes or No	IEDQWJ1	Control Terminal
IED136D	Enter Alternate Printer Location. Valid Entries are SYSOUT–SYSCON–Symbolic Terminal Name	IEDQWJ2	Control Terminal
IED135I	Terminal Assigned to Another OLT	IEDQWJ2	Control Terminal
IED135I	Invalid Terminal Name for Alternate Printer	IEDQWJ2	Control Terminal
IED135I	Alternate Printer Terminal Has Not Been Configured	IEDQWJ2	Control Terminal
IED136D	Enter Different Terminal, SYSOUT, SYSCON or NAP	IEDQWJ2	Control Terminal
IED136D	Do You Want to Continue Prompting? Answer Yes or No	IEDQWJ2	Control Terminal
IED135I	Invalid Response	IEDQWJ2	Control Terminal

Operator Messages

Description Codes							OPERATOR MESSAGES		Routing Codes									
1	2	3	4	5	6	7	IED		1	2	3	4	5	6	7	8	9	10	1
						X	IED126I	OLT Request Rejected, No DCHB For Control Terminal		X								X	
						X	IED127I	OLT Request Rejected, Control Terminal Unidentified		X								X	
						X	IED128I	Alternate Printer Requested by OLT Already In Use		X								X	
						X	IED129I	OLT Request Rejected, C.T. Line Cannot Be Started		X								X	
						X	IED130I	OLT Request Rejected, Control Terminal Not Open		X								X	
						X	IED131I	TRM Cancelled, Not Entered From Switched C.T.		X								X	
	X					X	IED132D	Can OLT Use For Non-Concurrent Mode - Lines XXX	X									X	
						X	IED134I	XXXXXXXX Terminal Failed, OLT Cancelled		X								X	
						X	IED135I	message		X								X	
						X	IED136D	message		X								X	

Table of Macro References in On-Line Test Facility Modules

Module \ Macro	CECOM	CVT	DCBD	DCHB	DCHBD	DIAG	IEFUCBOB	IOBLOCKS	MSG	OLTCB	PLINK	RESPL	TAVTD	TCONV	TDEBD	TLCBD	TOTMSG	TPRFD	TQCBD	TSCBD	TTECB	TTNTD	TTRMD
IEDQWA										X			X					X				
IEDQWB						X				X		X	X					X					
IEDQWC	X	X	X		X		X			X		X	X		X	X		X	X	X		X	
IEDQWC1	X	X	X				X			X			X		X	X		X	X			X	
IEDQWC2							X			X								X					
IEDQWD		X	X			X	X			X			X	X	X	X	X	X				X	X
IEDQWE		X	X		X	X	X			X		X	X		X		X						X
IEDQWF										X													
IEDQWH	X	X	X				X			X			X			X		X	X	X		X	X
IEDQWI	X			X					X		X												
IEDQWIA	X			X					X		X												
IEDQWID	X			X					X		X												
IEDQWI5	X			X					X														
IEDQWI5D	X			X					X														
IEDQWI5U	X			X					X														
IEDQWI6	X			X					X														
IEDQWI7	X			X					X														
IEDQWI8	X			X					X														
IEDQWI9	X			X					X														
IEDQWJ	X	X	X		X		X		X	X			X		X			X	X	X		X	
IEDQWJ1	X	X	X				X		X	X			X		X			X	X	X			
IEDQWJ2	X	X	X				X		X	X			X		X	X		X	X	X		X	
IEDQWK					X					X													
IEDQWL										X													
IEDQWM1		X	X		X					X		X	X		X	X		X				X	
IEDQWN						X		X		X											X		
IEDQWO			X							X			X										
IEDQWP										X													
IEDQWP1										X													
IEDQWP2										X													
IEDQWQ										X													
IEDQWR										X													
IEDQWS							X	X		X											X		
IEDQWV										X													
IEDQWX										X													
IEDQWY			X							X													
IEDQW9										X													
IEDQ30										X													
IEDQ31			X			X				X			X										
IEDQ32			X			X				X			X										
IEDQ33			X			X				X			X										
IEDQ34			X			X				X			X										
IEDQ35			X			X				X			X										
IEDQ36			X			X				X			X										
IEDQ37			X			X				X			X										
IEDQ38			X			X				X			X										

Chart QWA TOTE RESIDENT MODULE

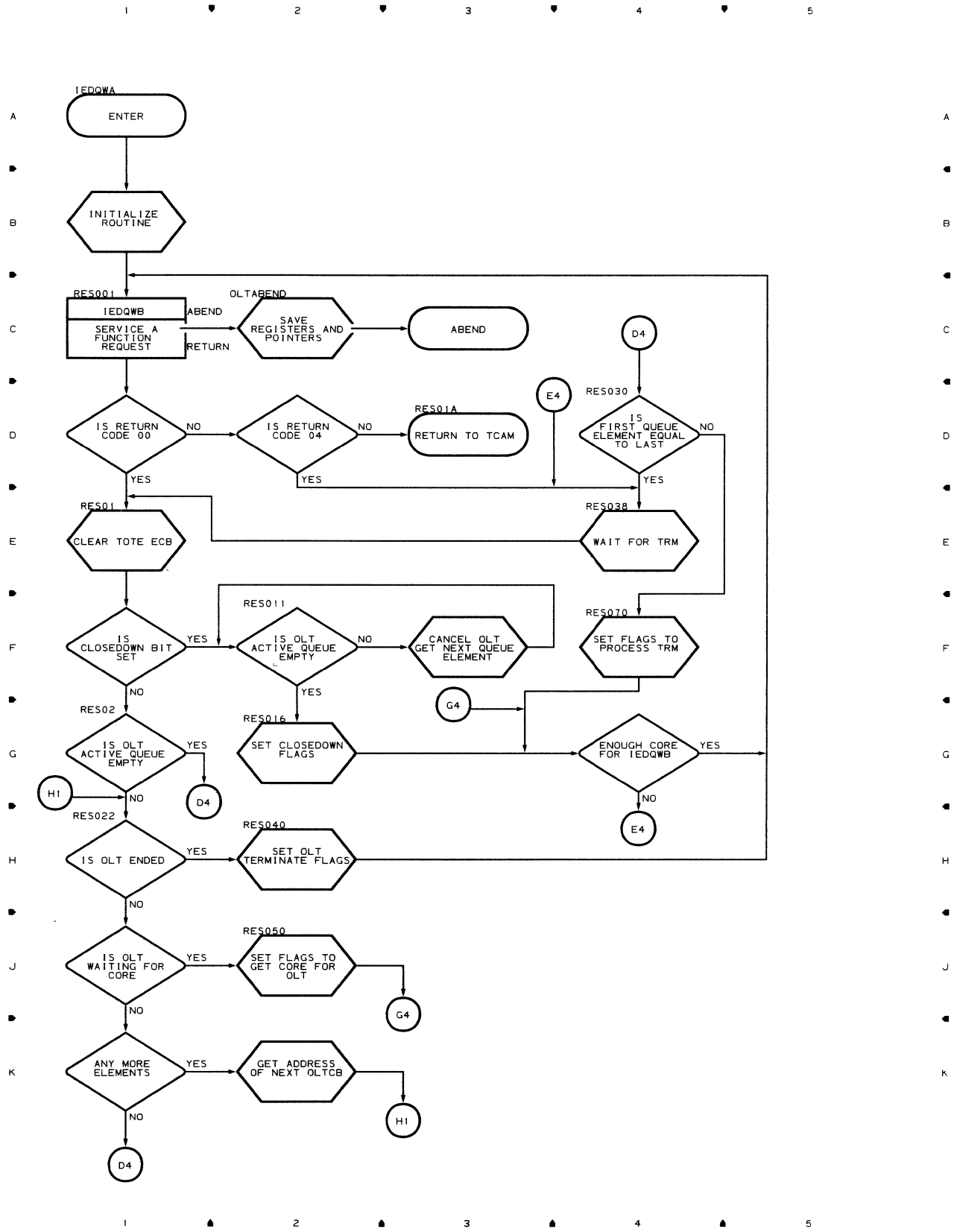


Chart QWB RESOURCE MANAGEMENT MODULE (PART 1 OF 2)

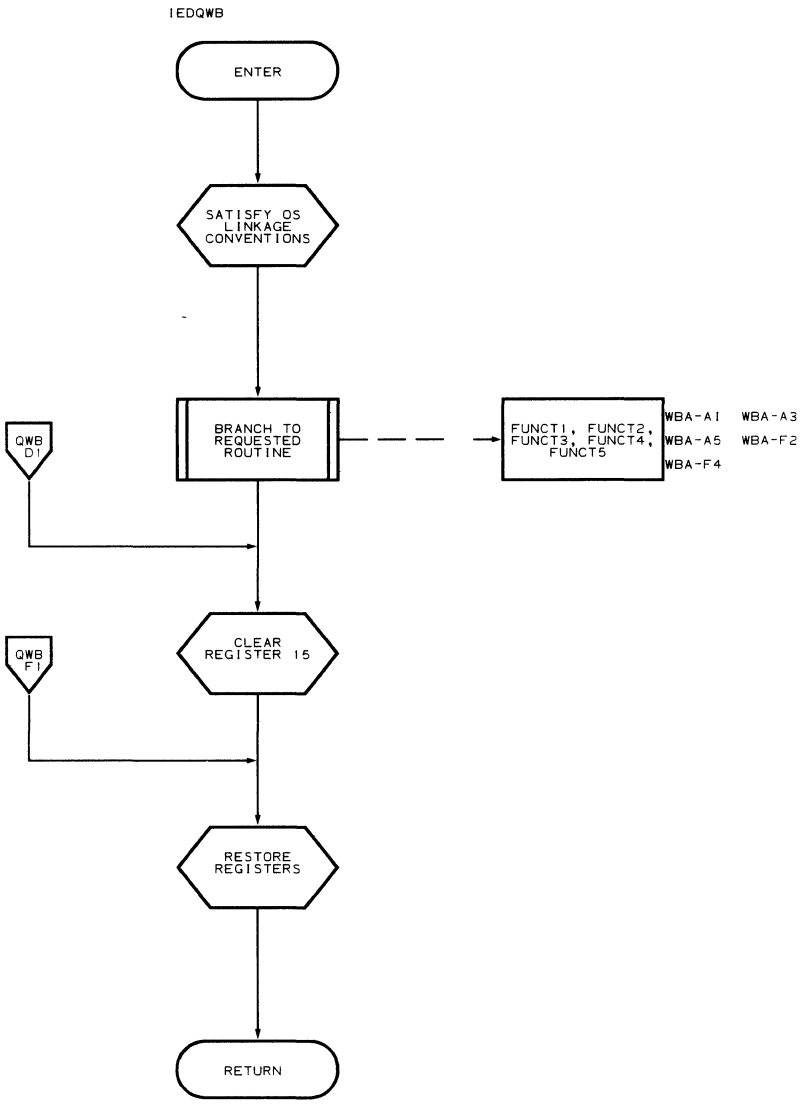


Chart WBA RESOURCE MANAGEMENT MODULE (PART 2 OF 2)

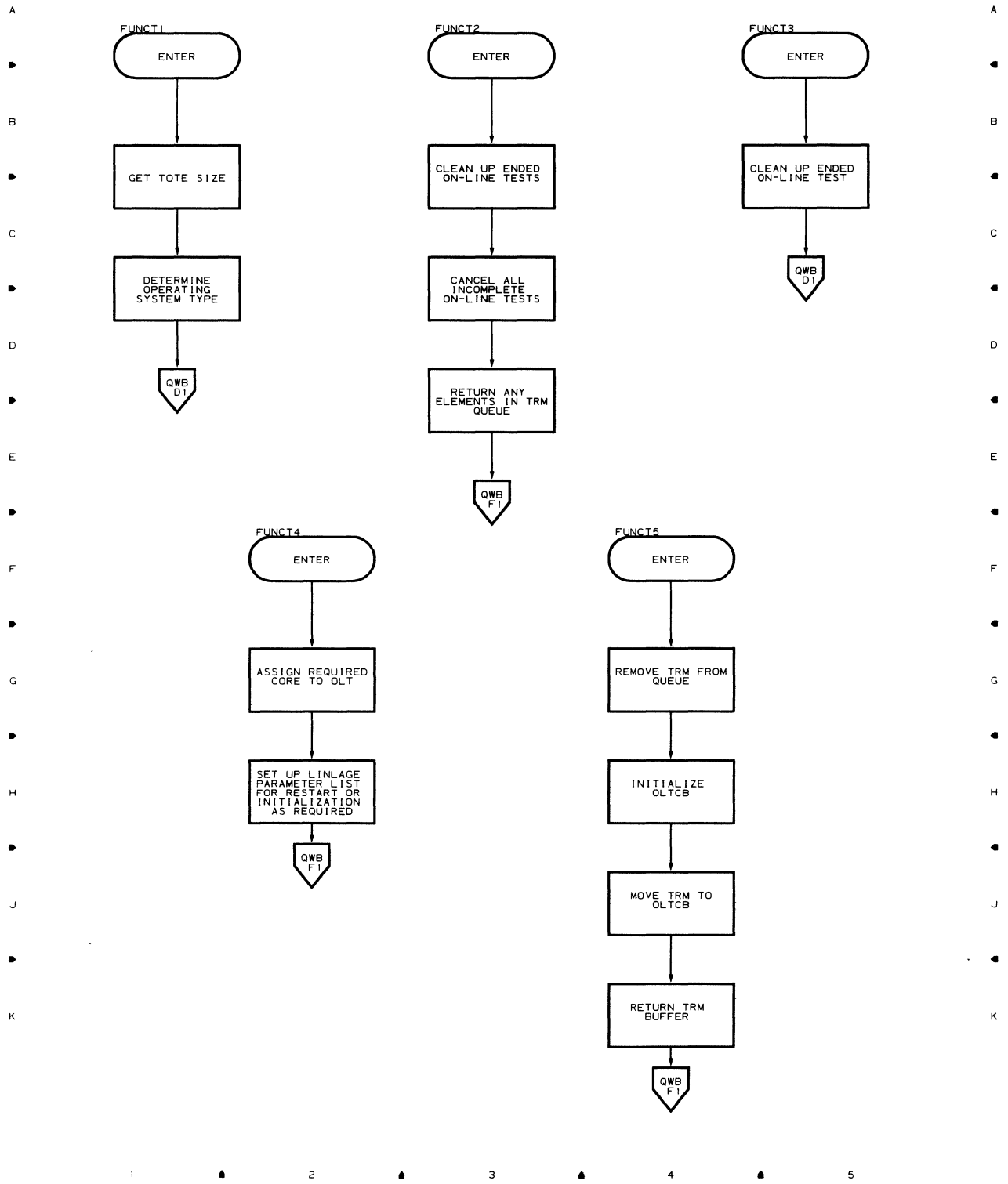


Chart QWC TRM ANALYSIS MODULE (PART 1 OF 2)

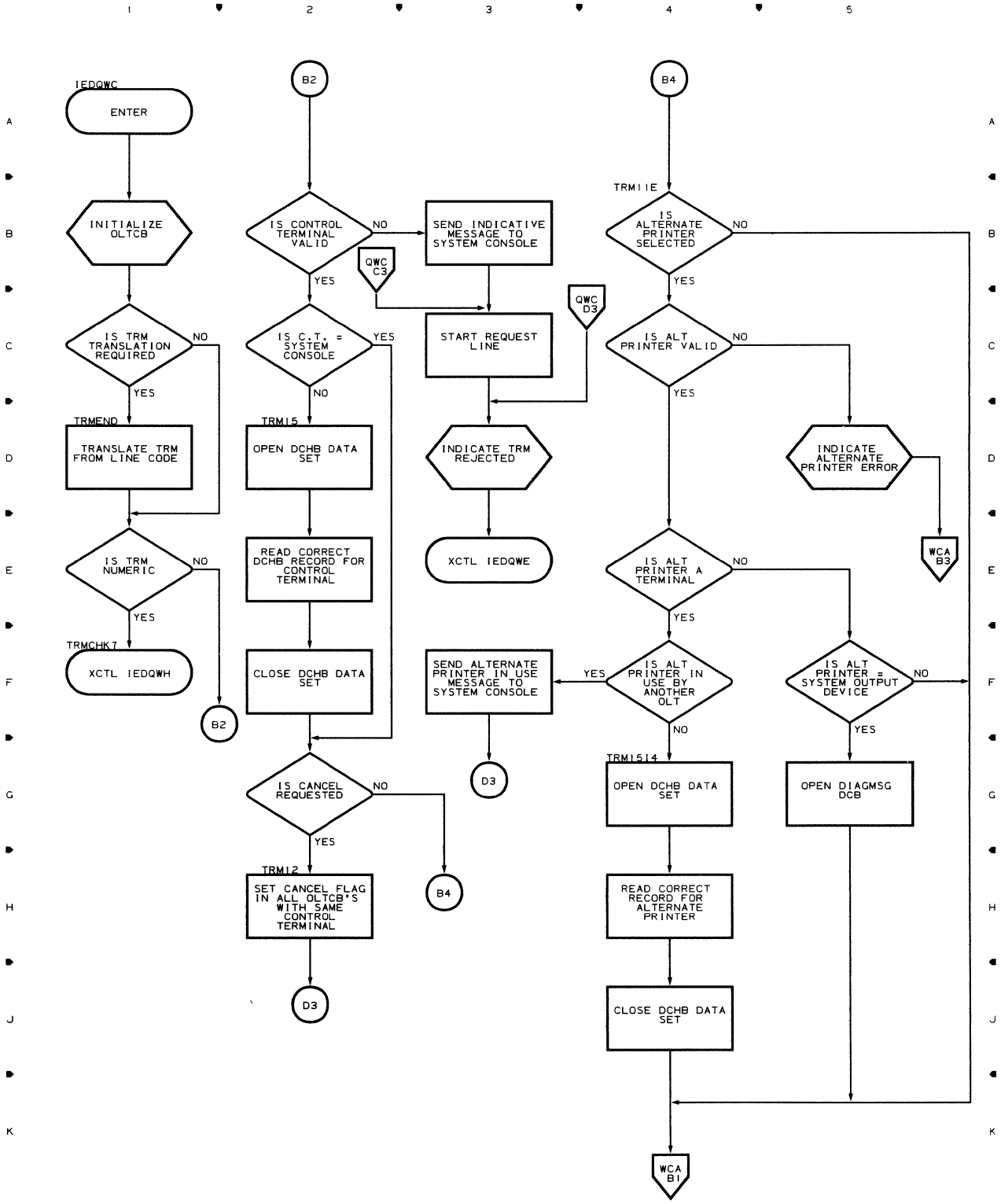


Chart WCA TRM ANALYSIS MODULE (PART 2 OF 2)

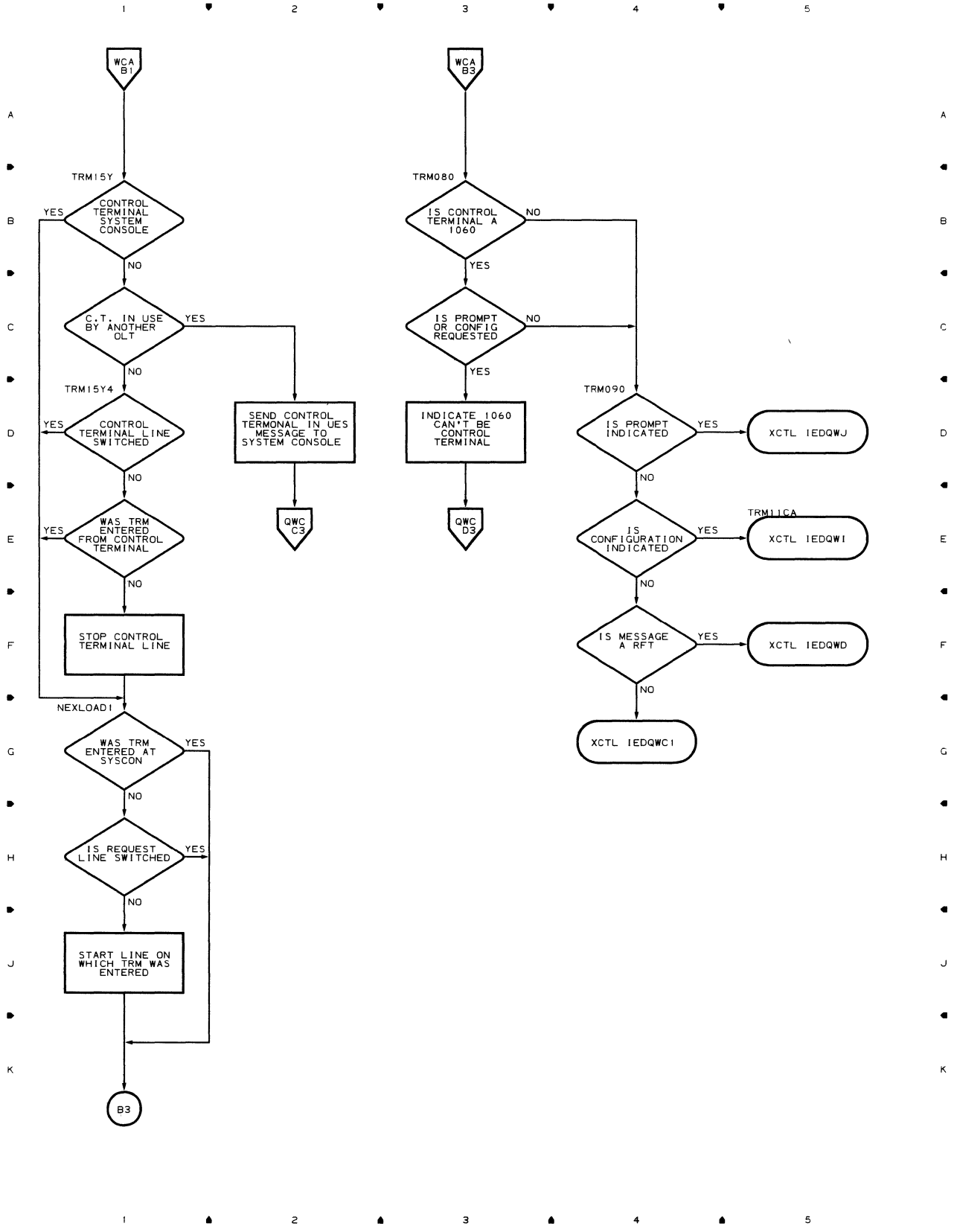


Chart WC1 TRM ANALYSIS MODULE 1

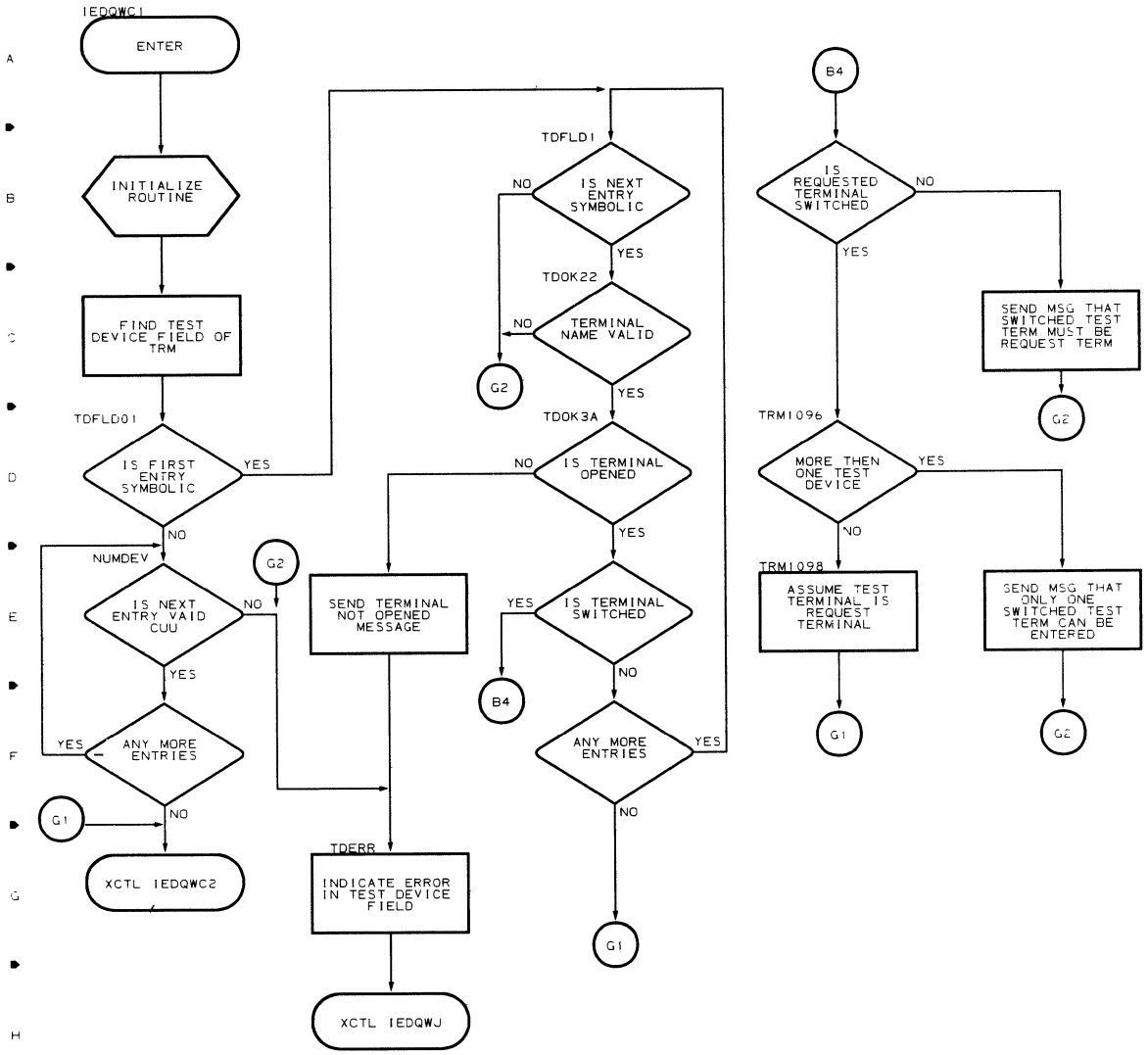


Chart WC2 TRM ANALYSIS MODULE 2

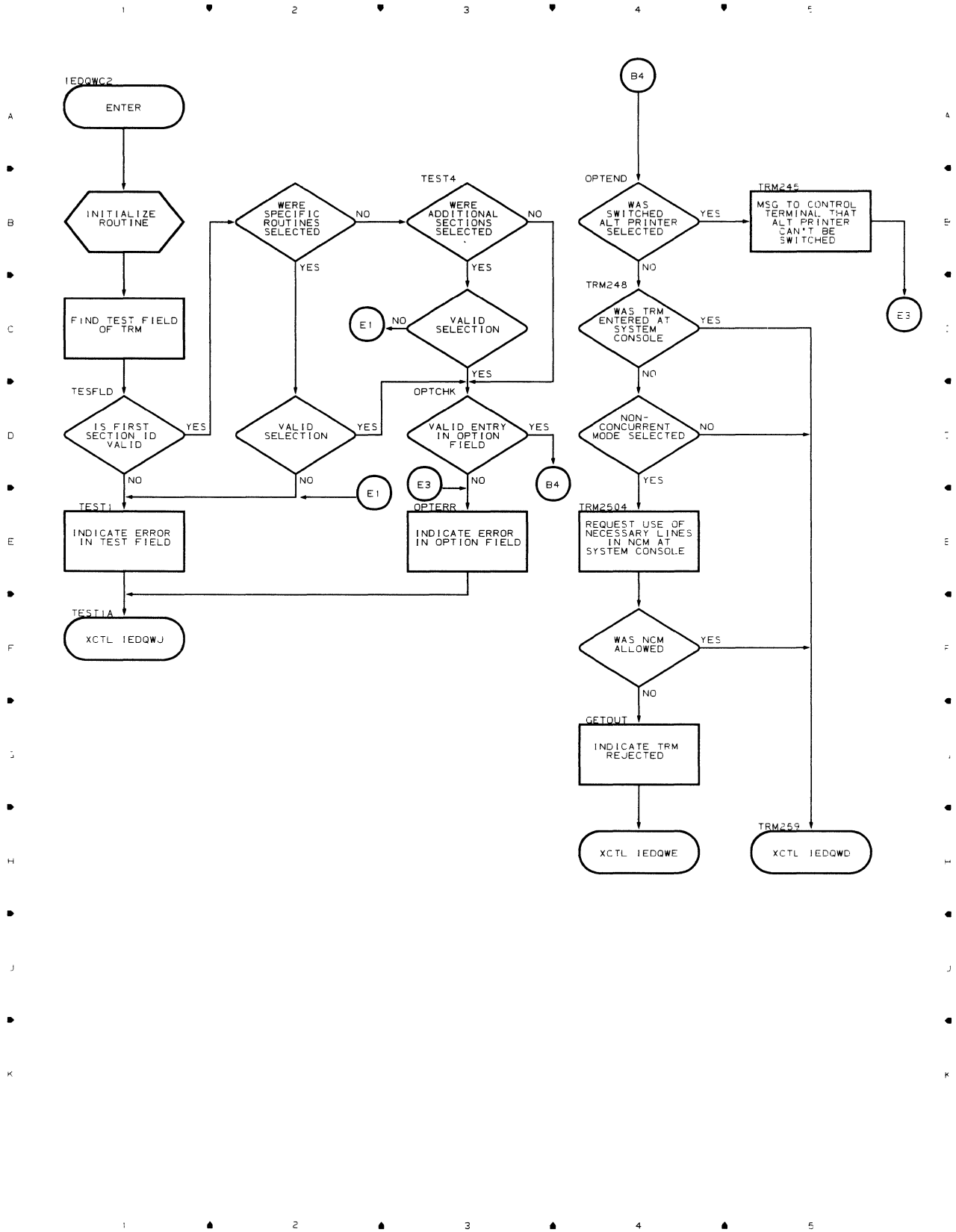


Chart QWD TOTE DISPATCHER (PART 1 OF 2)

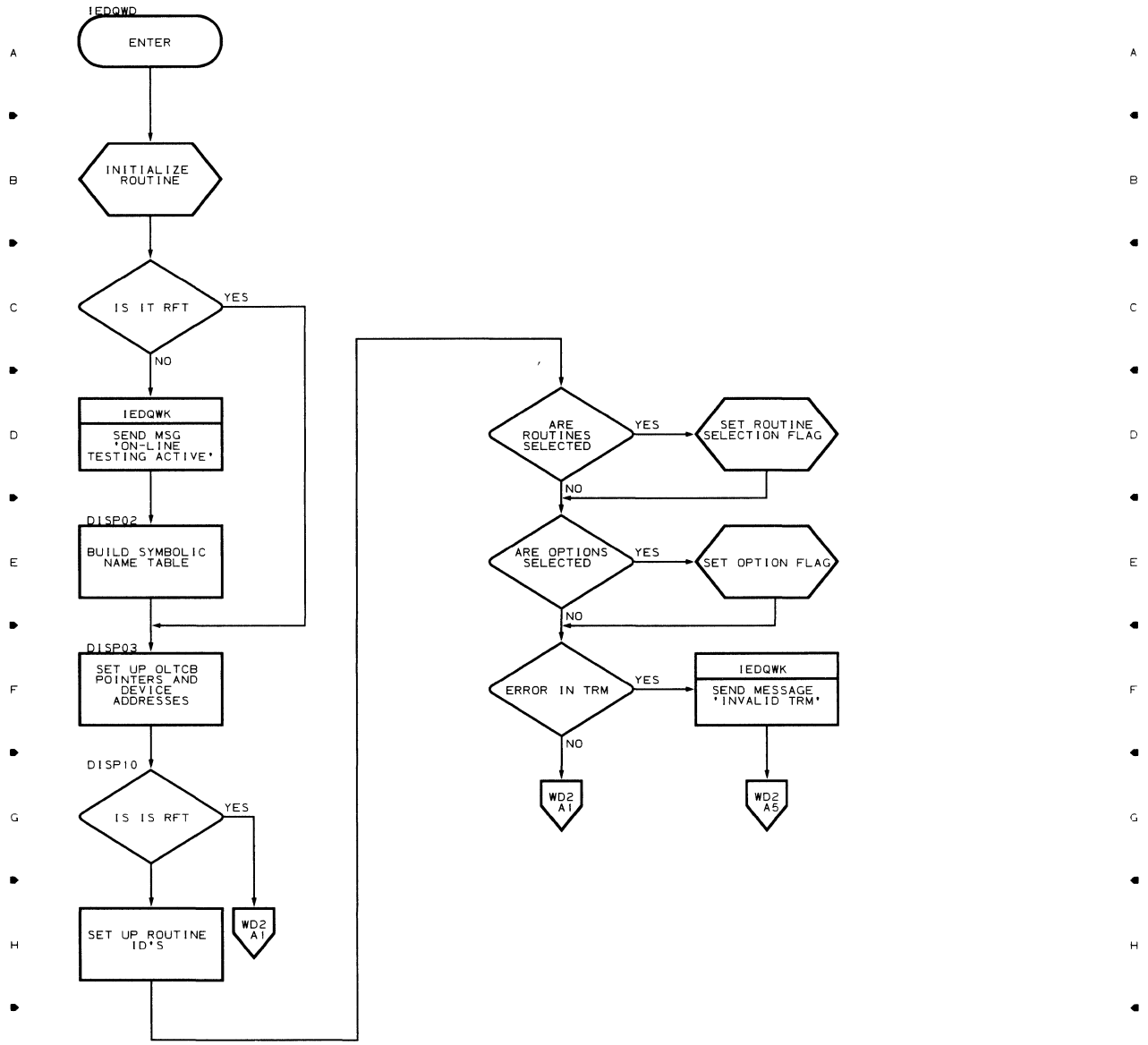


Chart WD2 TOTE DISPATCHER (PART 2 OF 2)

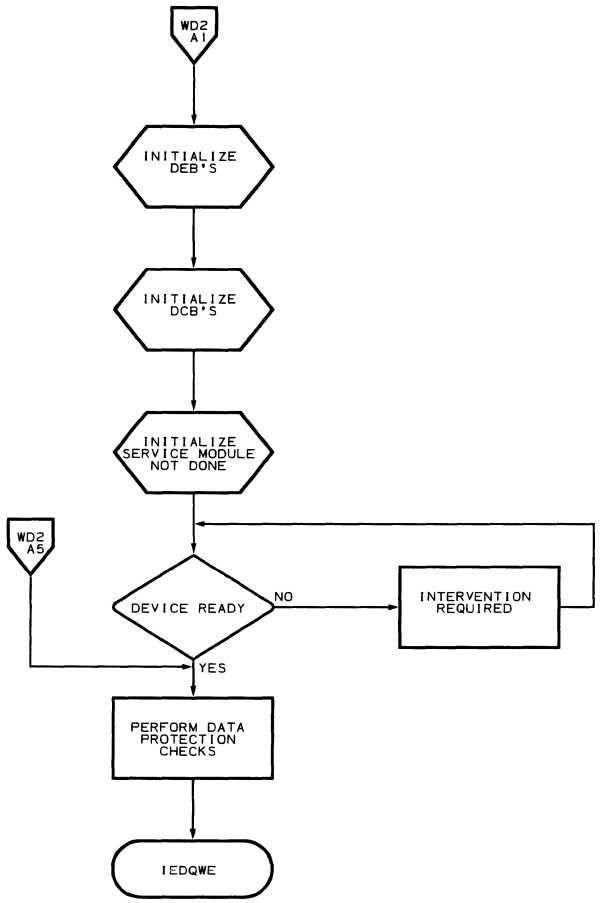


Chart QWE OLT TEST CONTROL MODULE 1 (PART 1 OF 2)

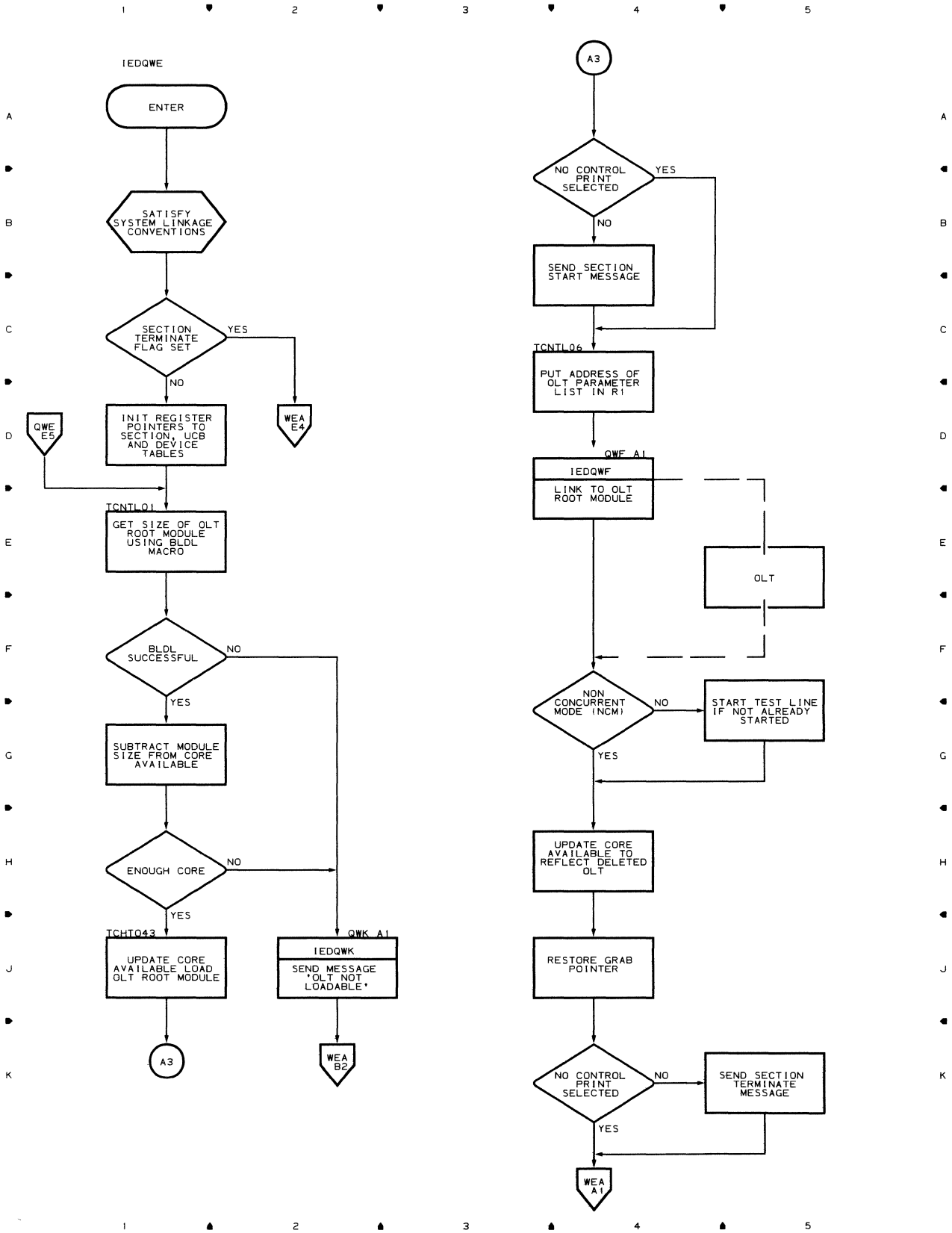


Chart WEA OLT TEST CONTROL MODULE 1 (PART 2 OF 2)

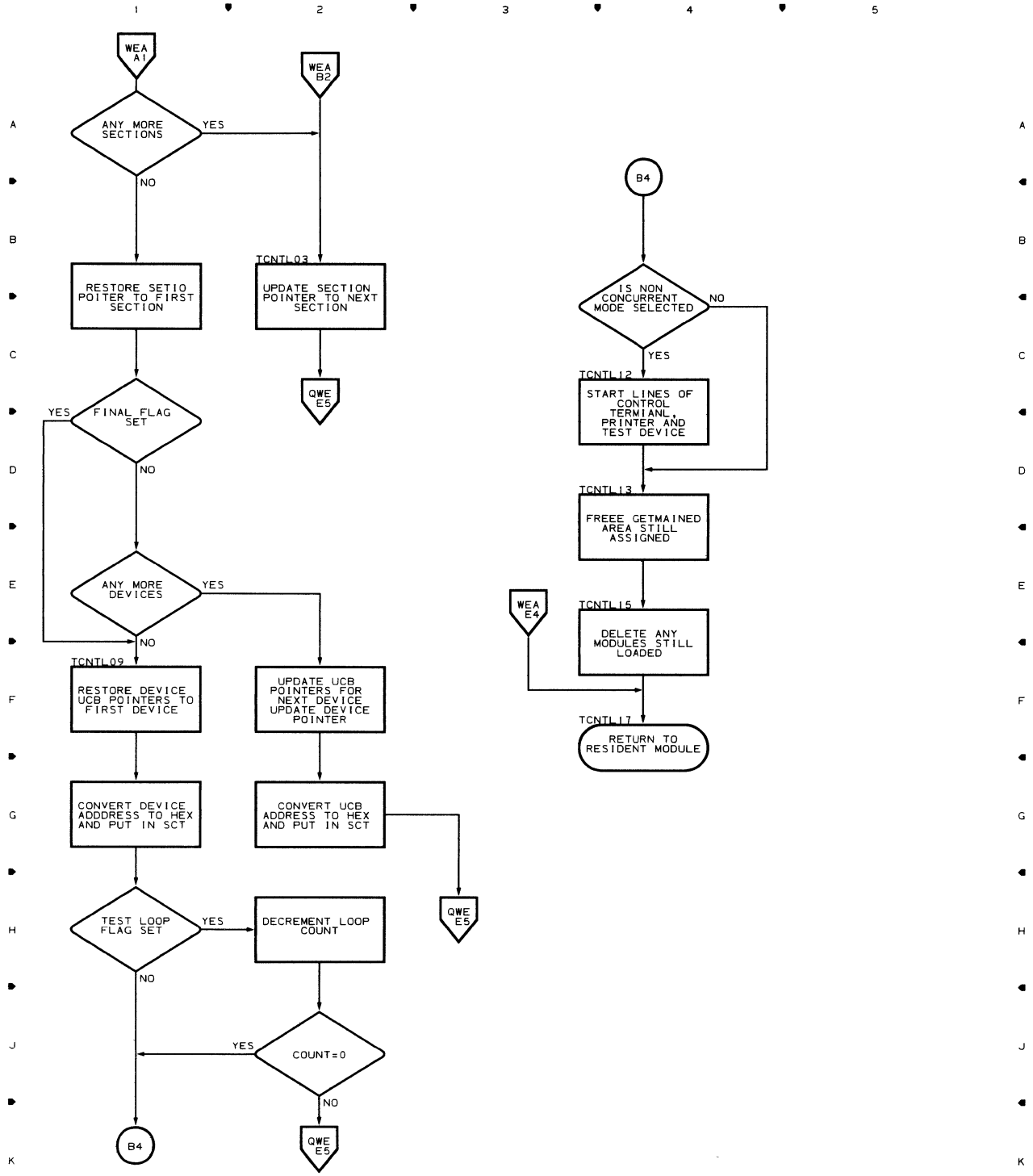


Chart QWF OLT TEST CONTROL MODULE 2

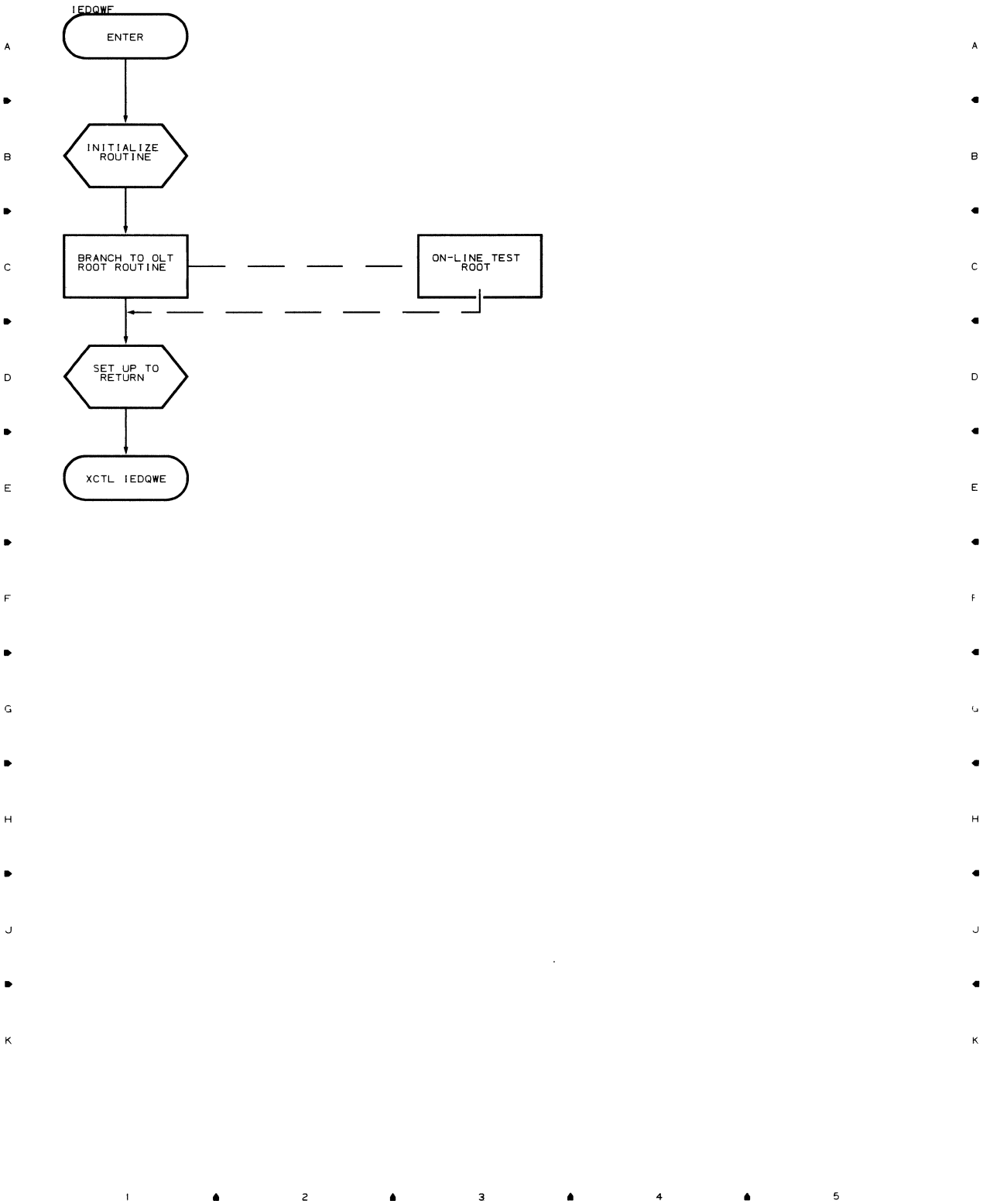


Chart QWH NUMERIC TRM HANDLER (PART 1 OF 3)

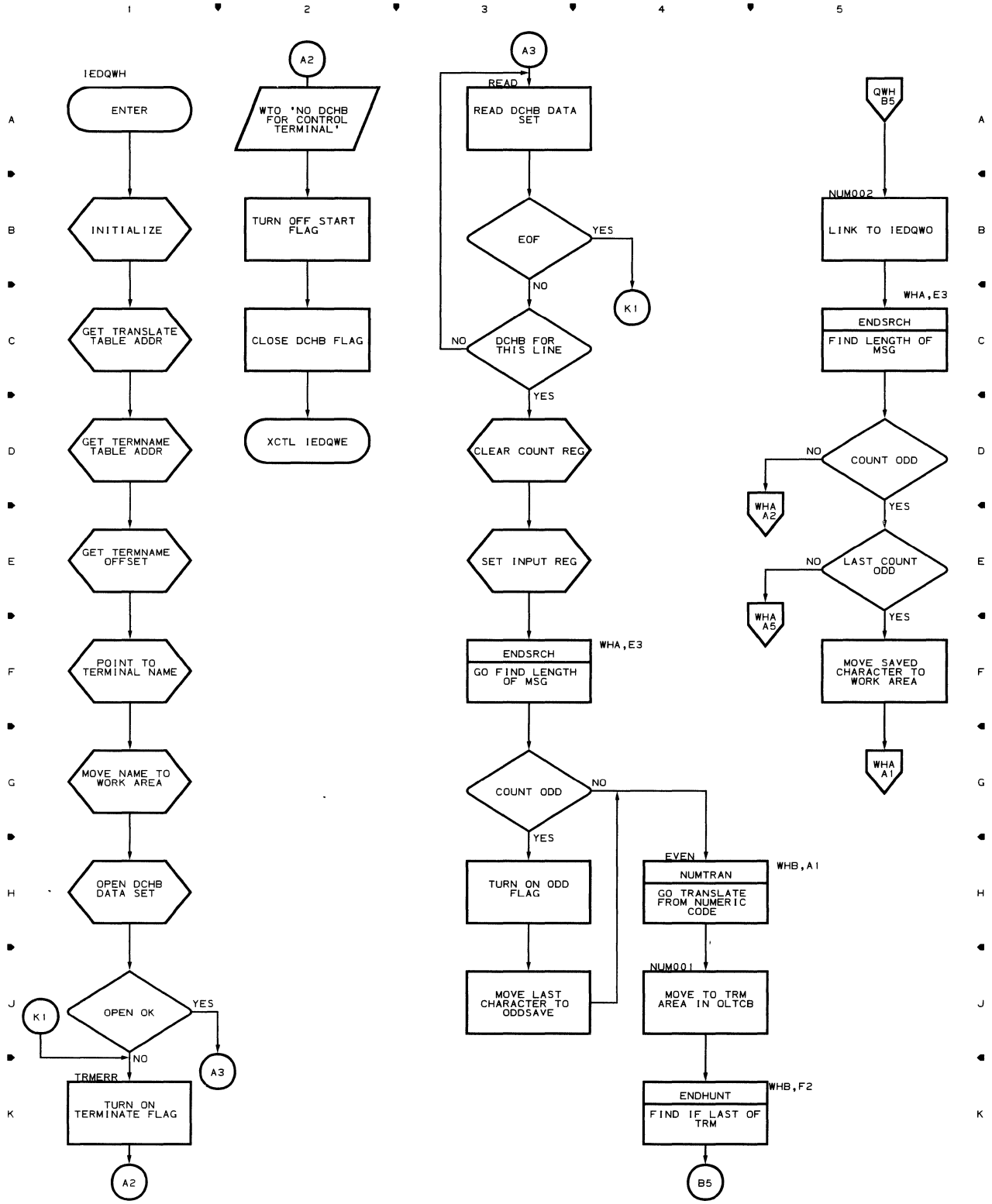


Chart WHA NUMERIC TRM HANDLER (PART 2 OF 3)

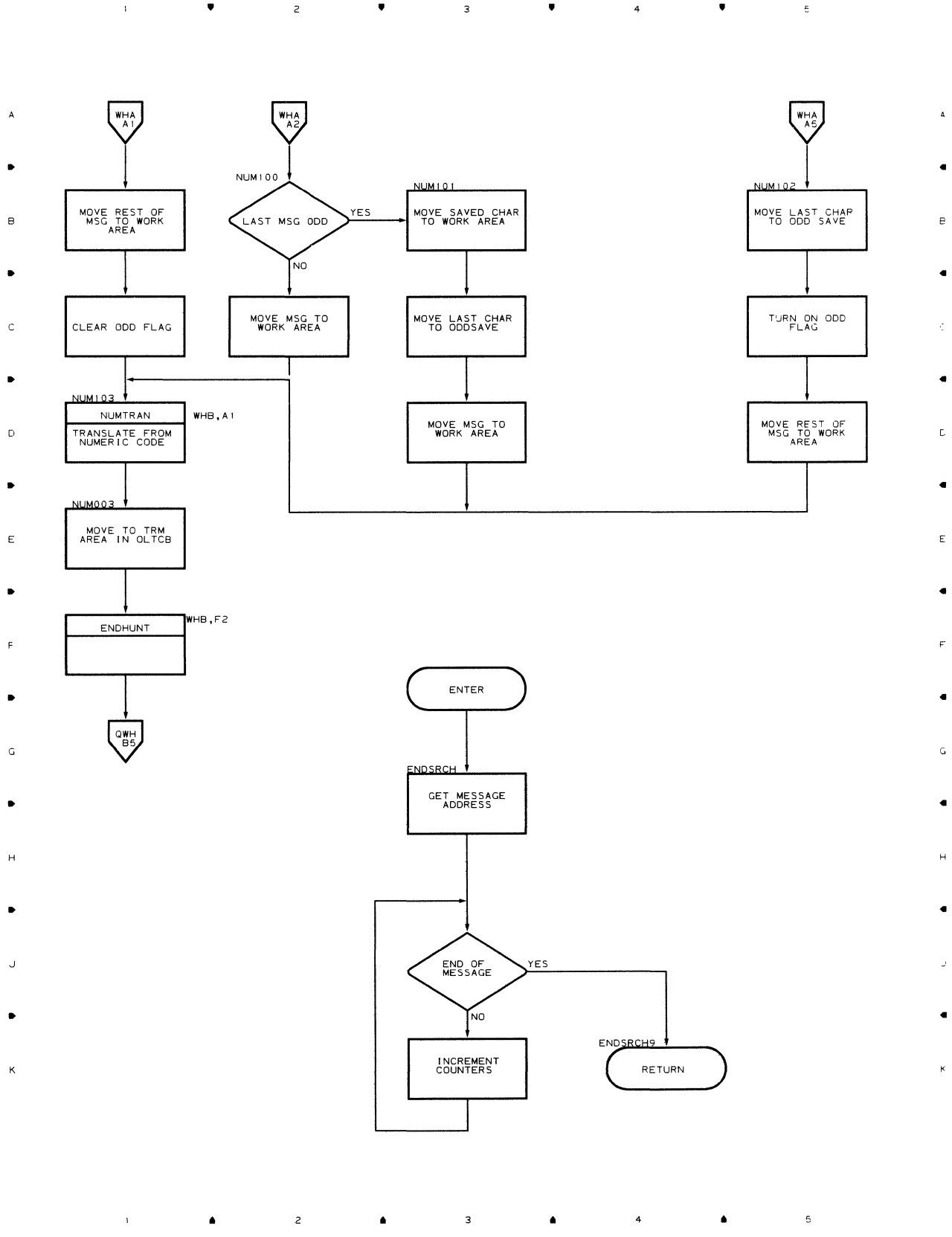


Chart WHB NUMERIC TRM HANDLER (PART 3 OF 3)

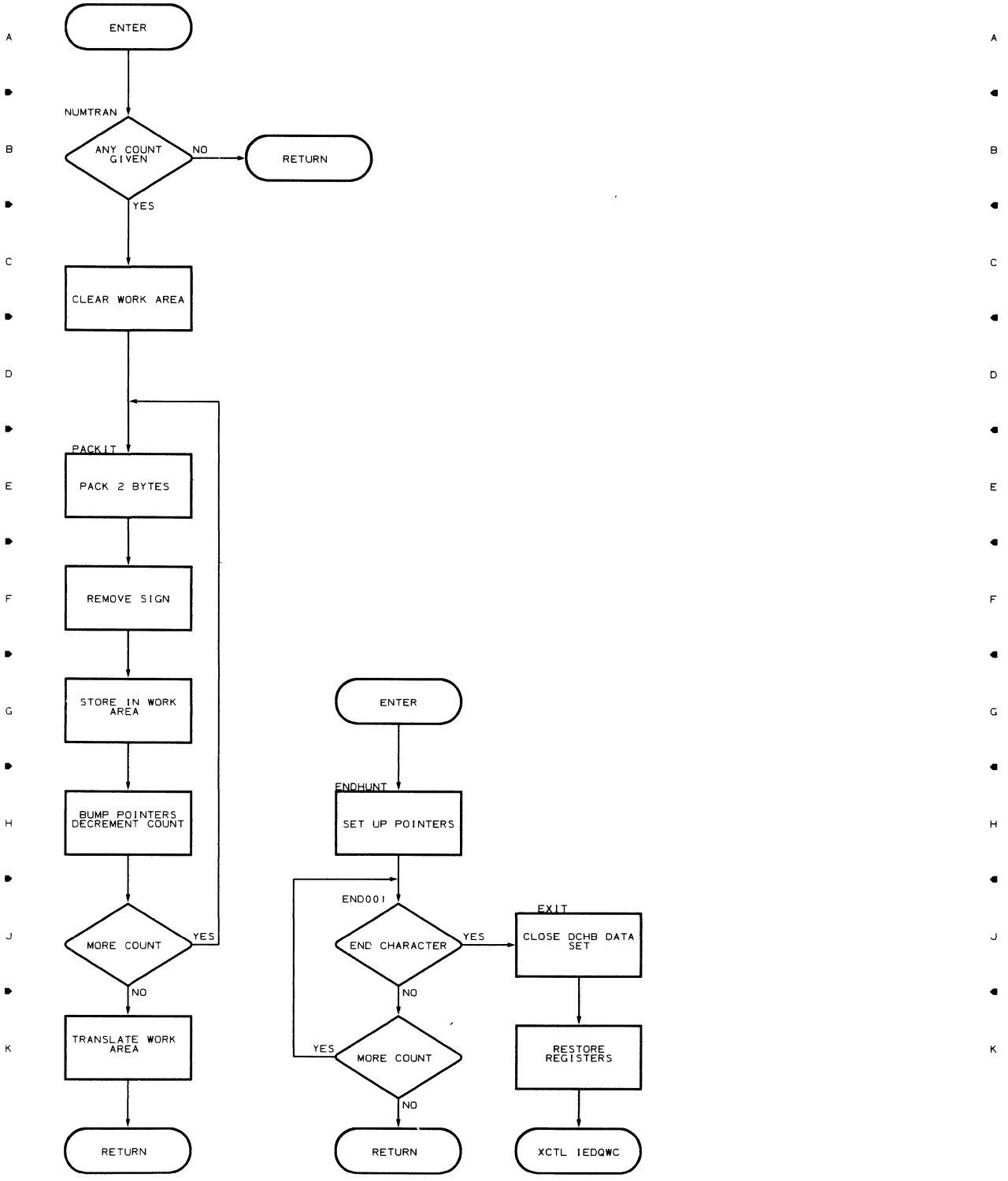


Chart QWI TOTE CONFIGURATOR SCHEDULER (PART 1 OF 3)

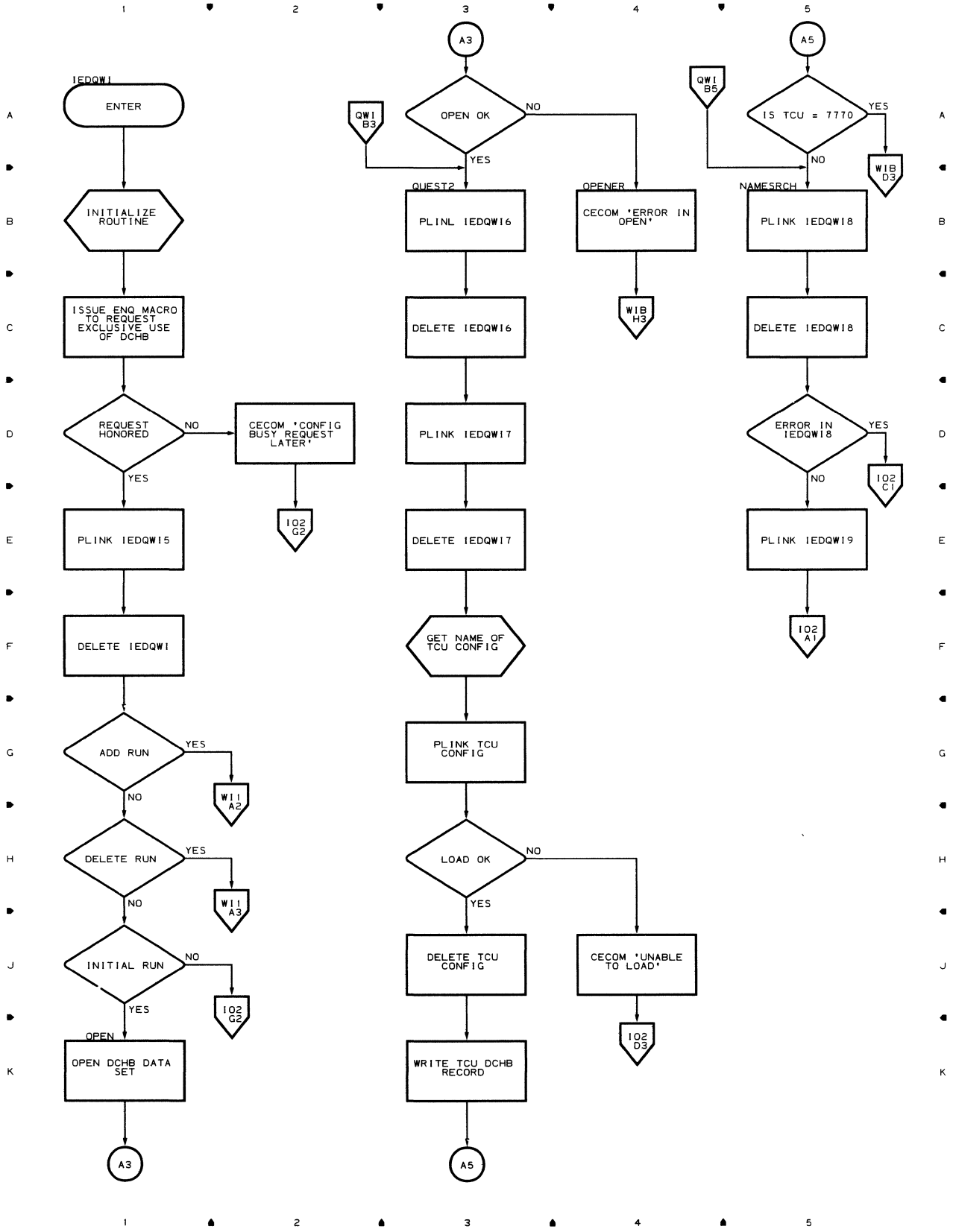


Chart IO2 TOTE CONFIGURATOR SCHEDULER (PART 2 OF 3)

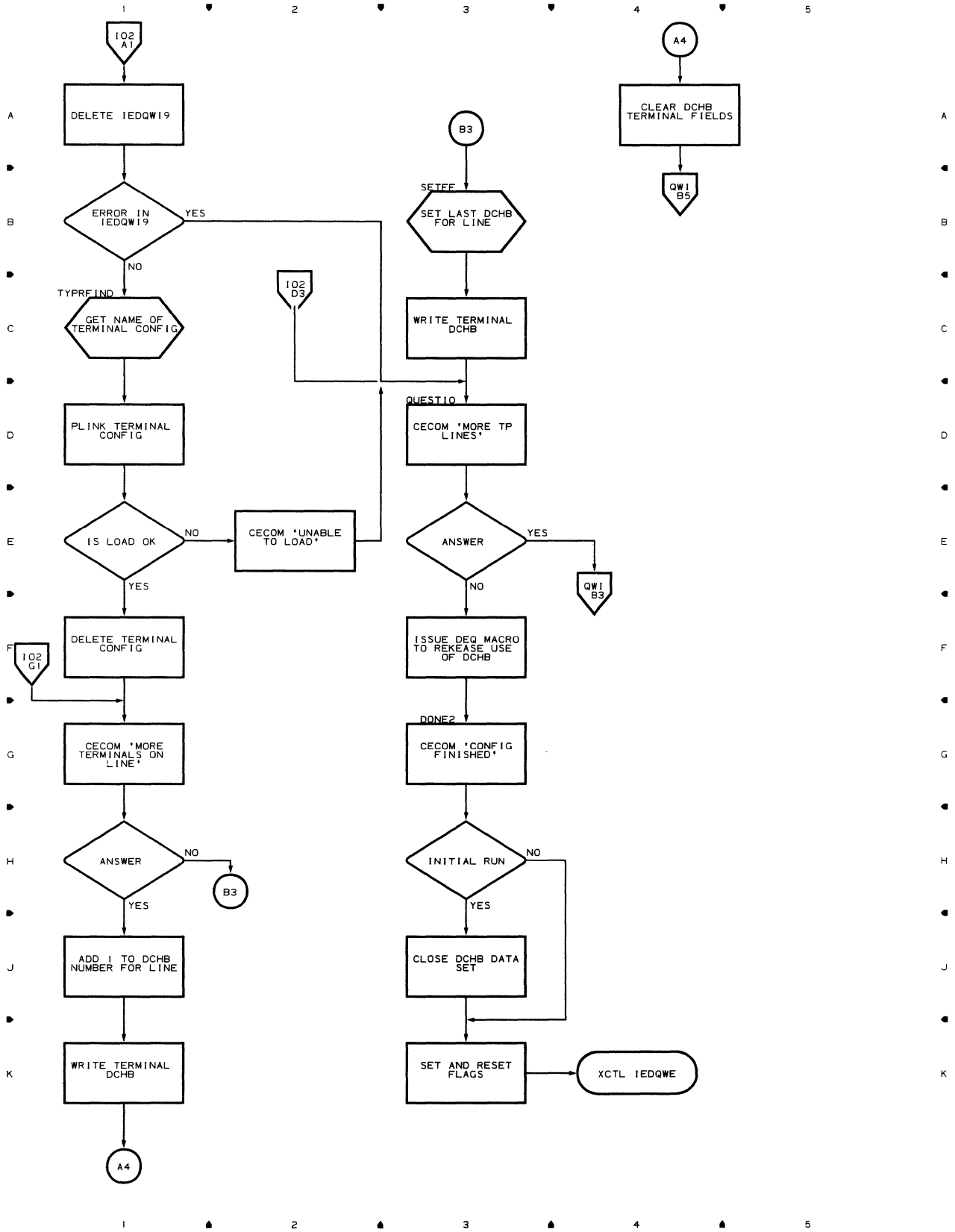


Chart WI1 TOTE CONFIGURATOR SCHEDULER (PART 3 OF 3)

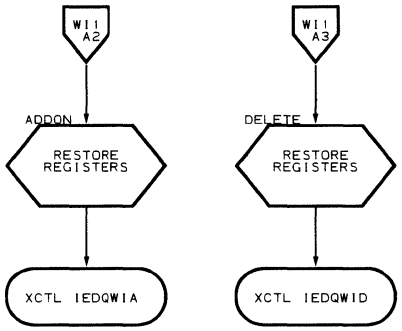


Chart WIA CONFIGURATOR ADD SCHEDULER MODULE (PART 1 OF 2)

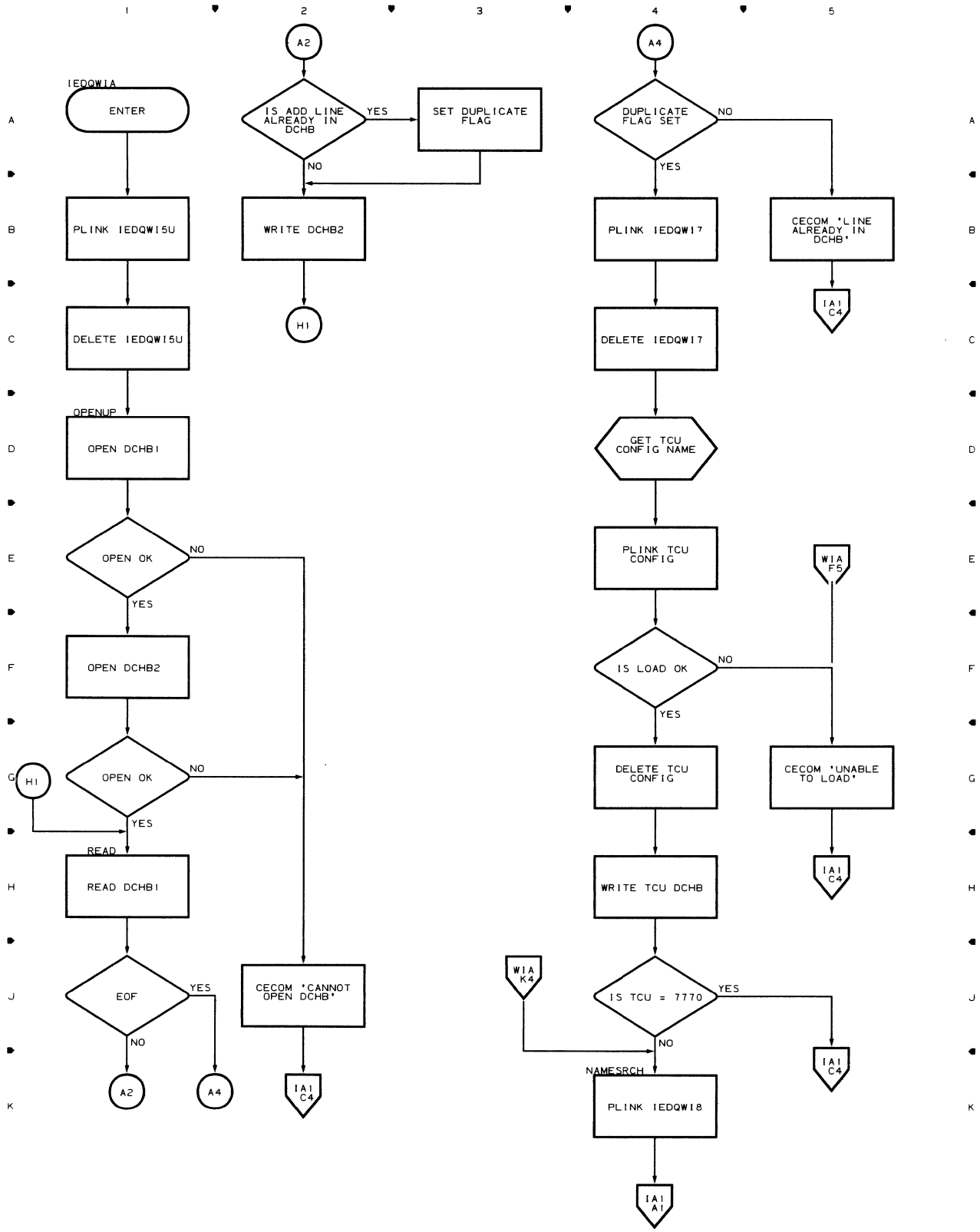


Chart IA1 CONFIGURATOR ADD SCHEDULER MODULE (PART 2 OF 2)

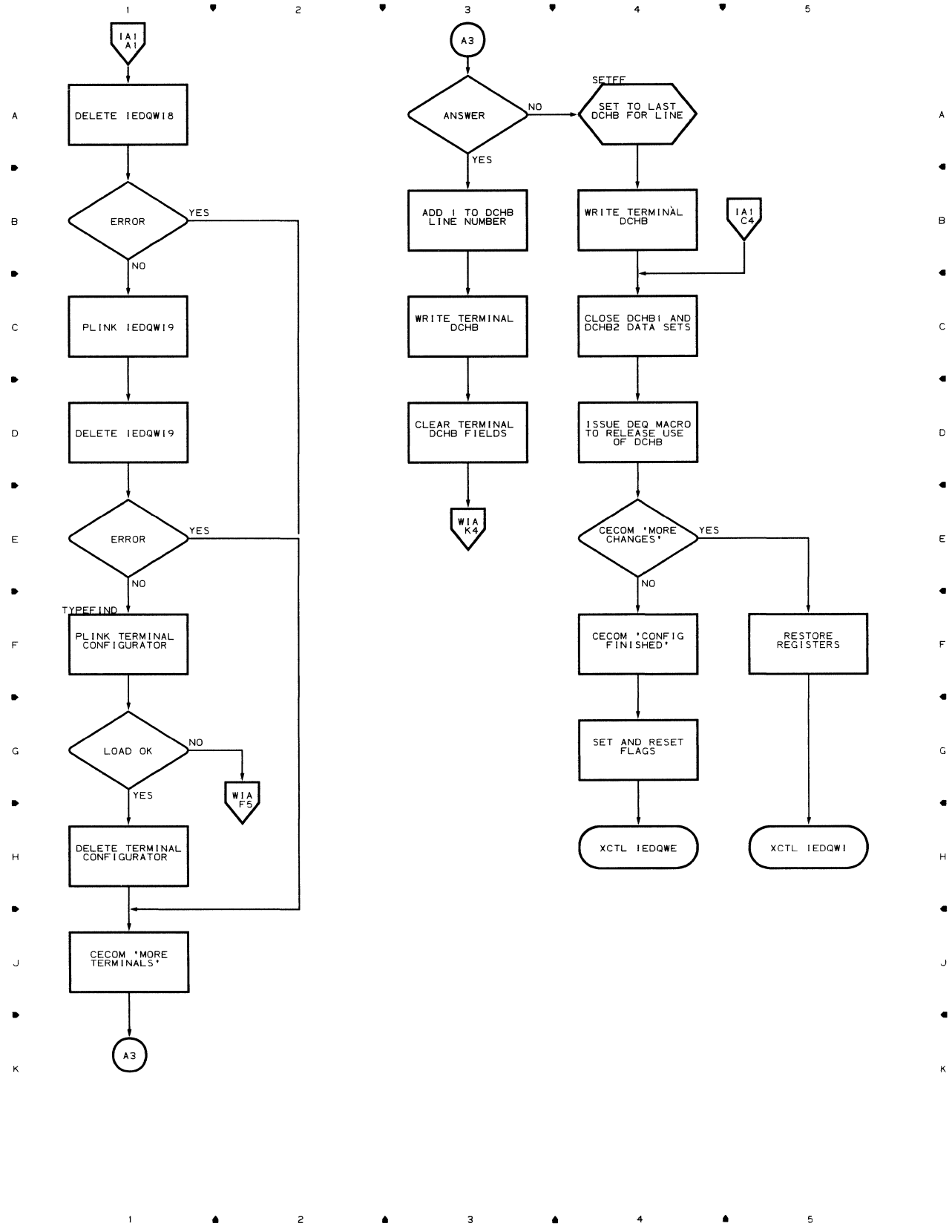


Chart WID CONFIGURATOR DELETE SCHEDULER

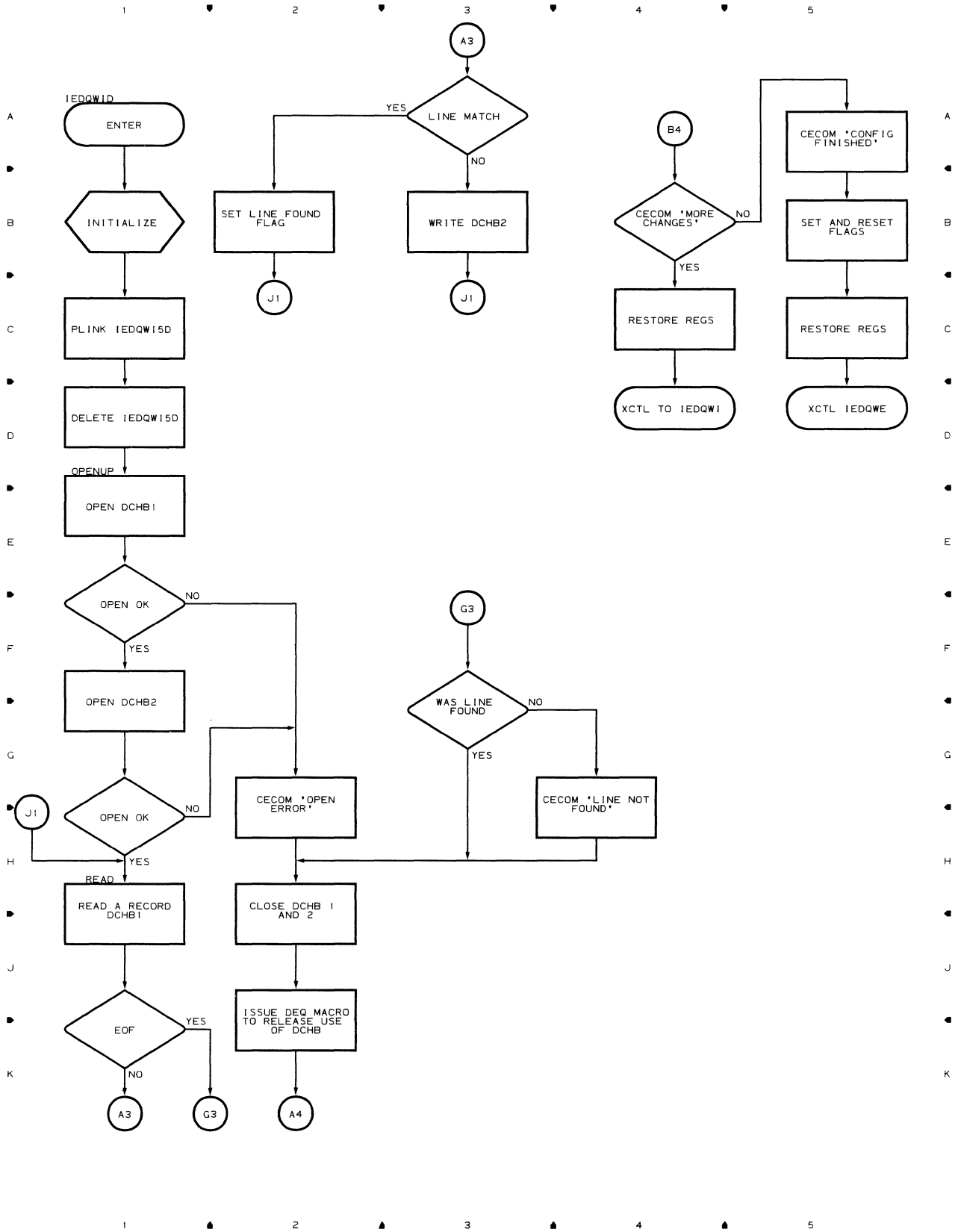


Chart WI5 CONFIGURATOR SUBMODULE 1

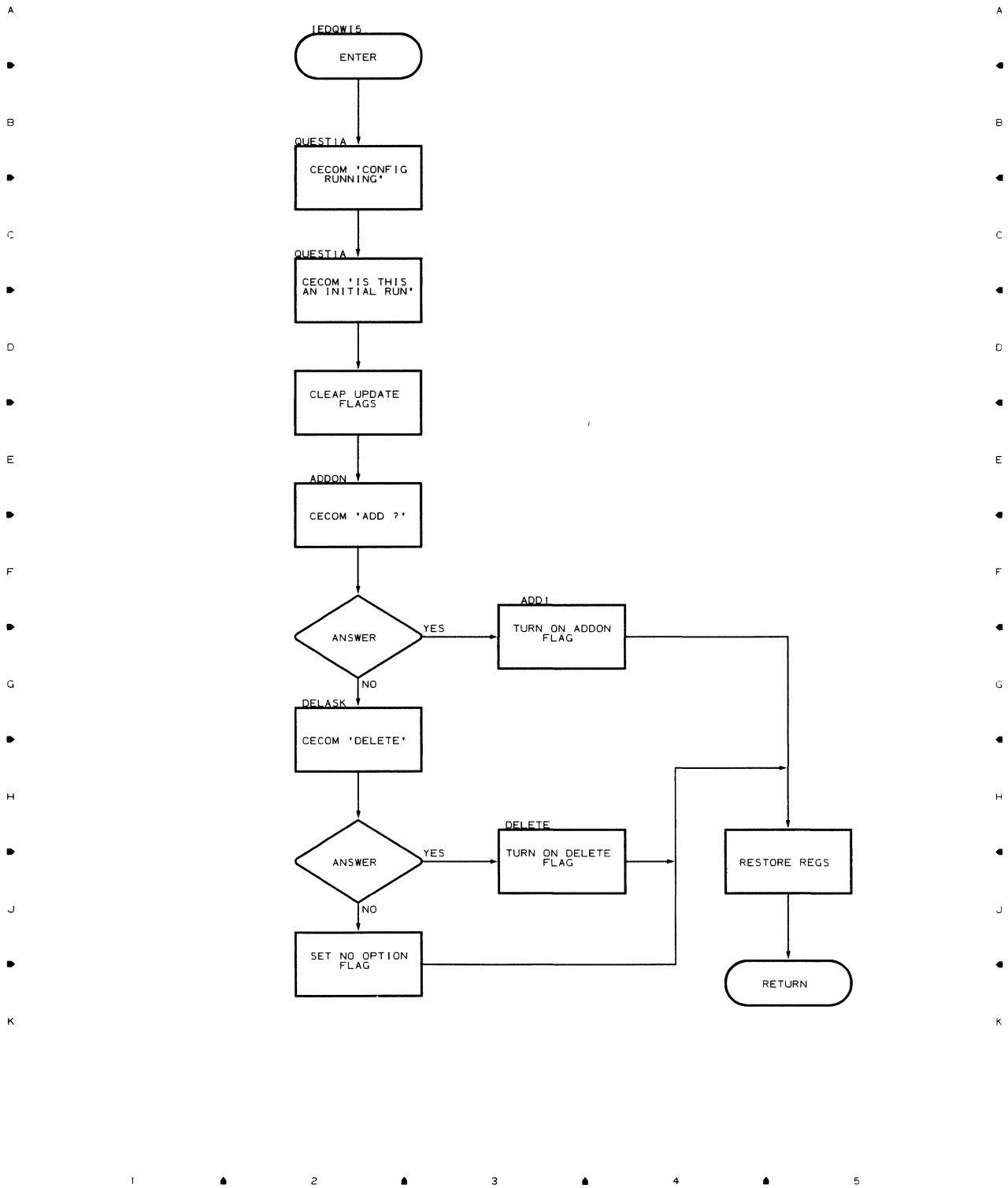


Chart I5D CONFIGURATOR DELETE SUBMODULE

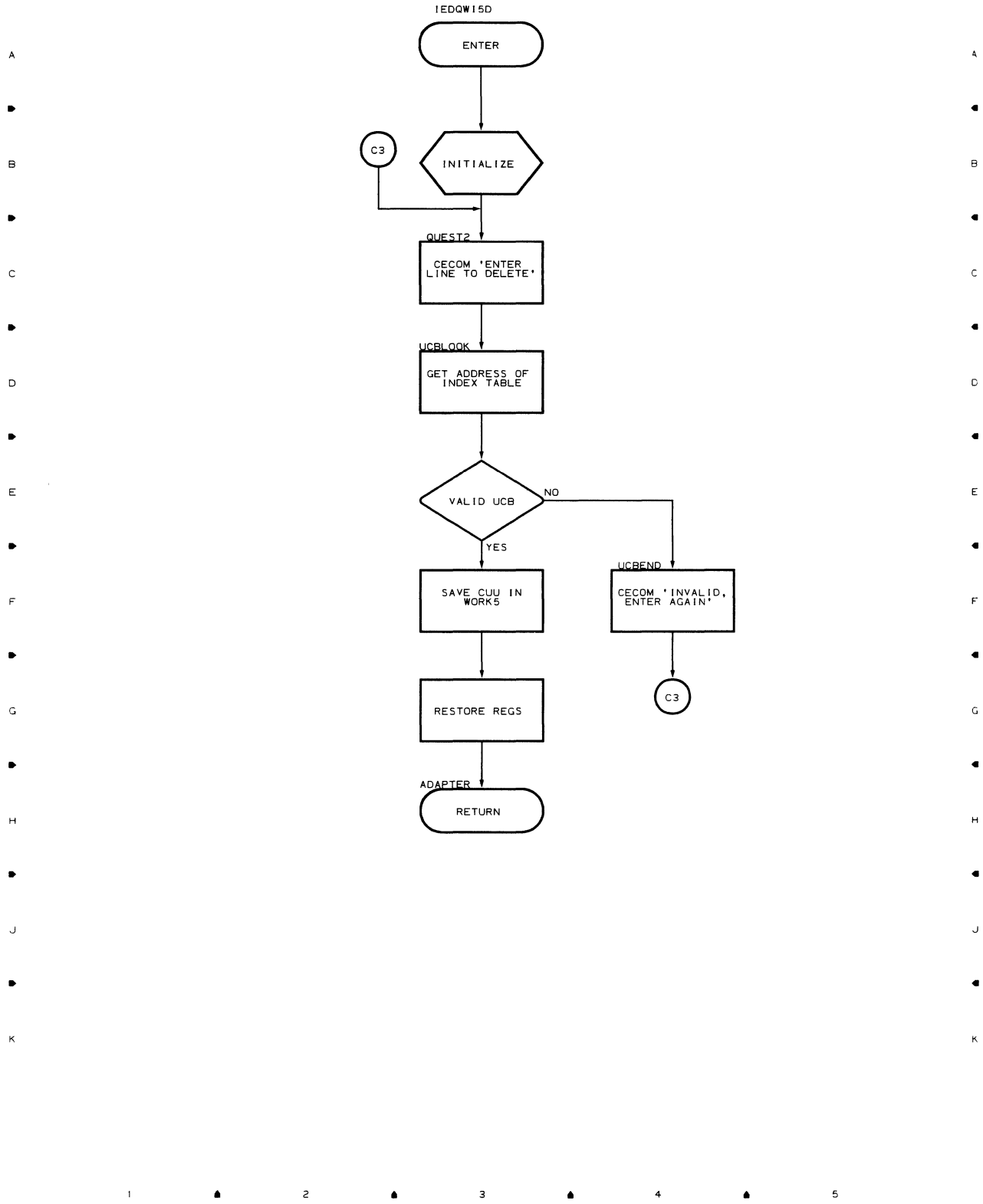


Chart I5U CONFIGURATOR CHANGE SUBMODULE

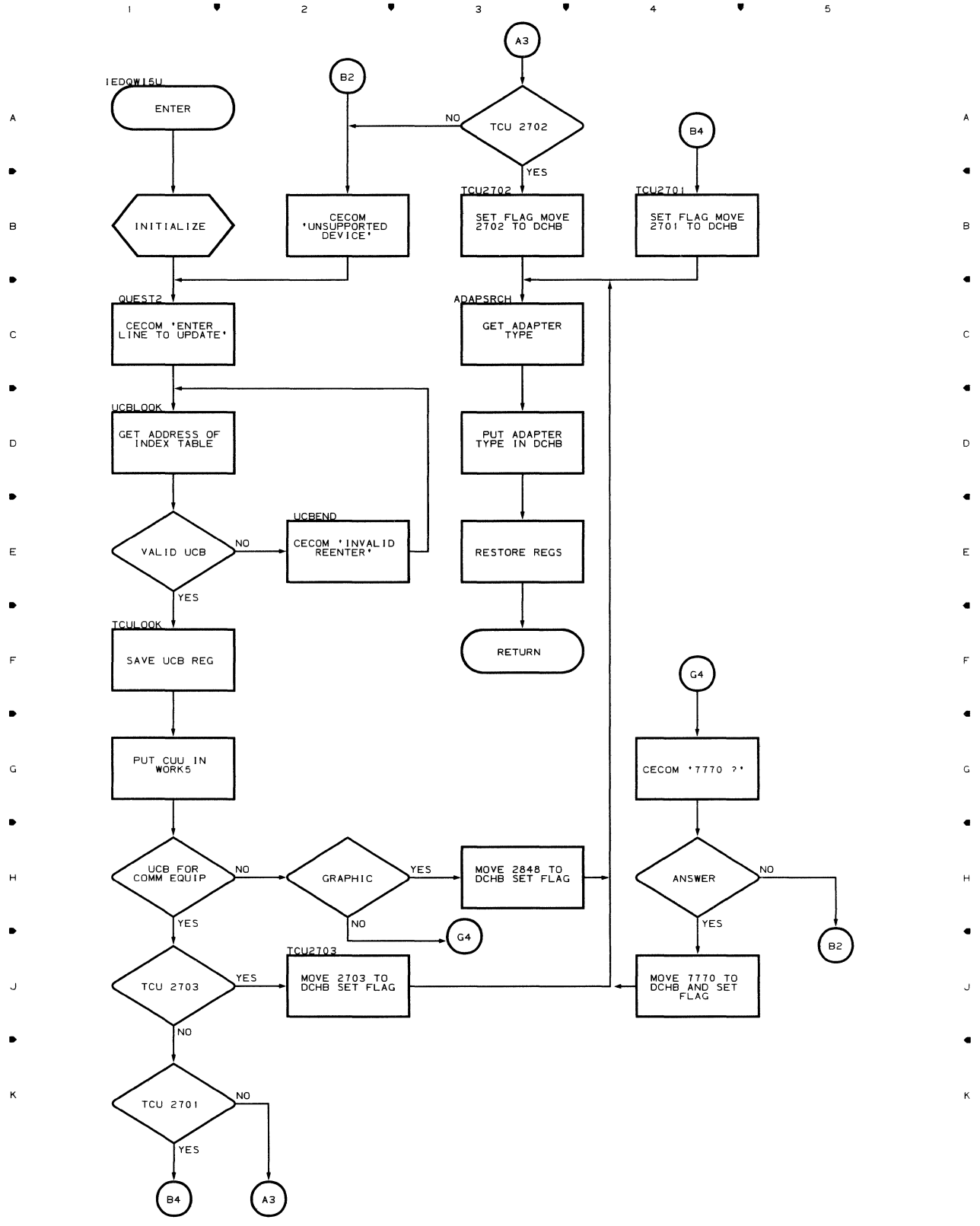


Chart WI6 CONFIGURATOR SUBMODULE 2

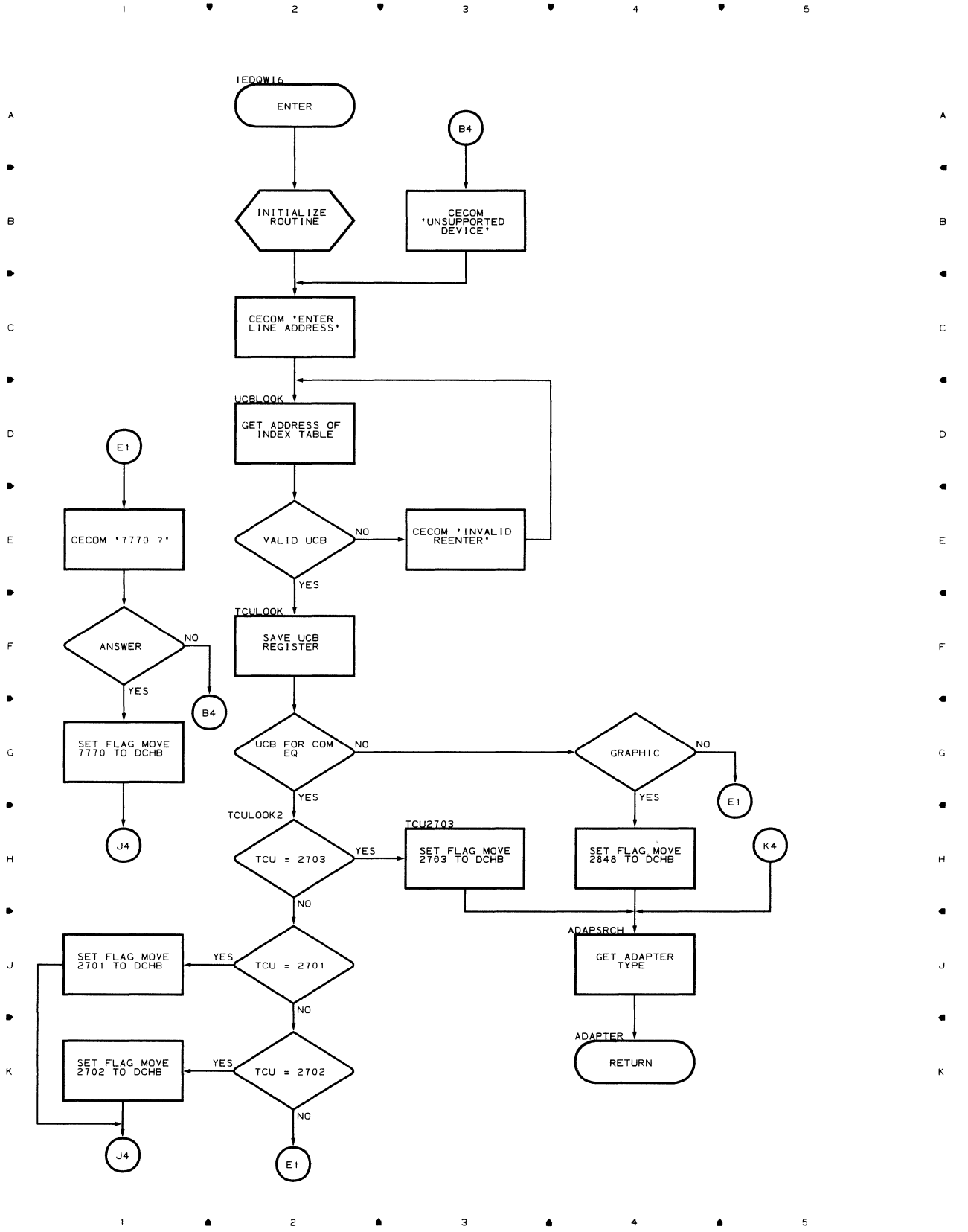


Chart WI7 CONFIGURATOR SUBMODULE 3 (PART 1 OF 2)

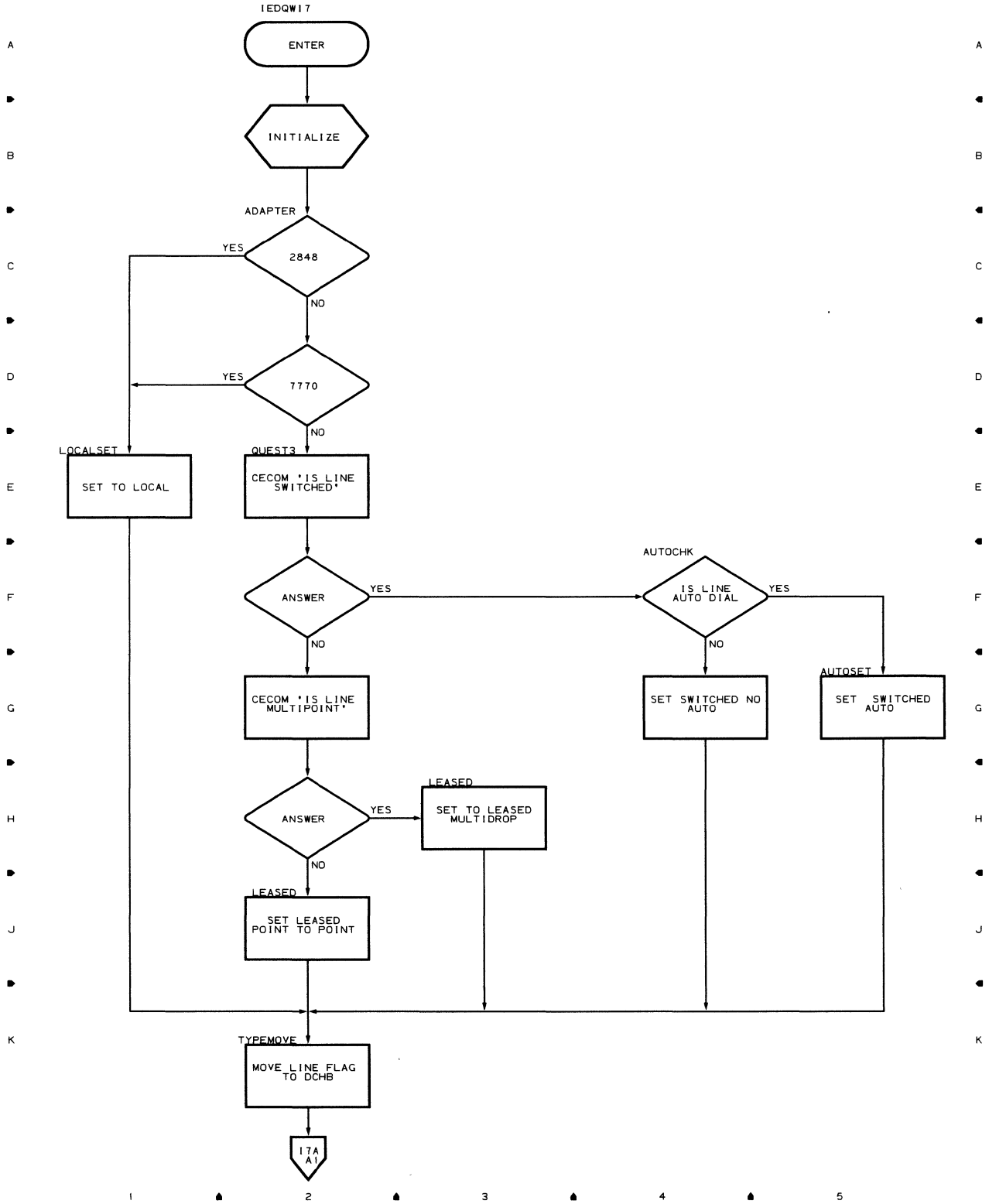


Chart I7A CONFIGURATOR SUBMODULE 3 (PART 2 OF 2)

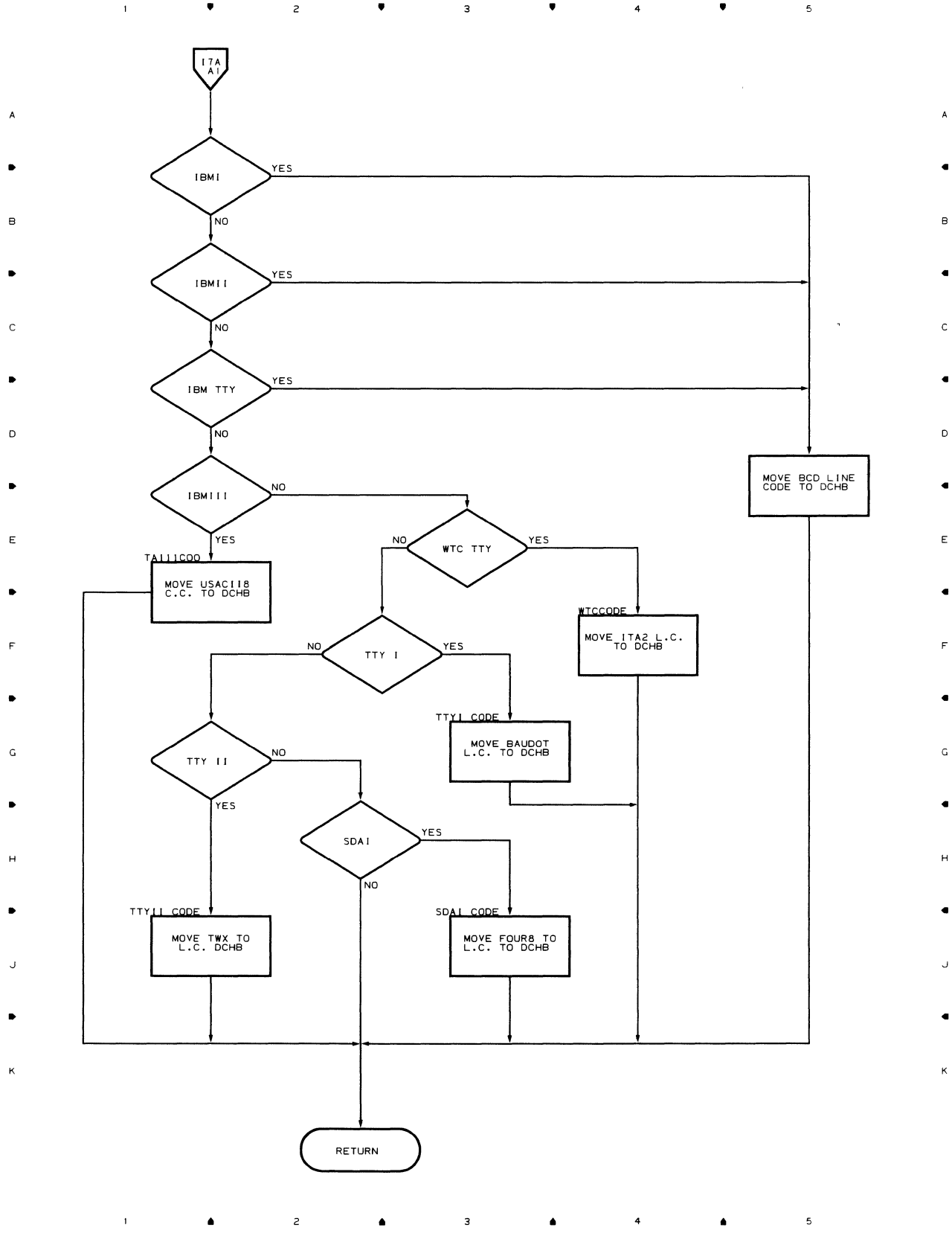


Chart WI8 CONFIGURATOR SUBMODULE 4

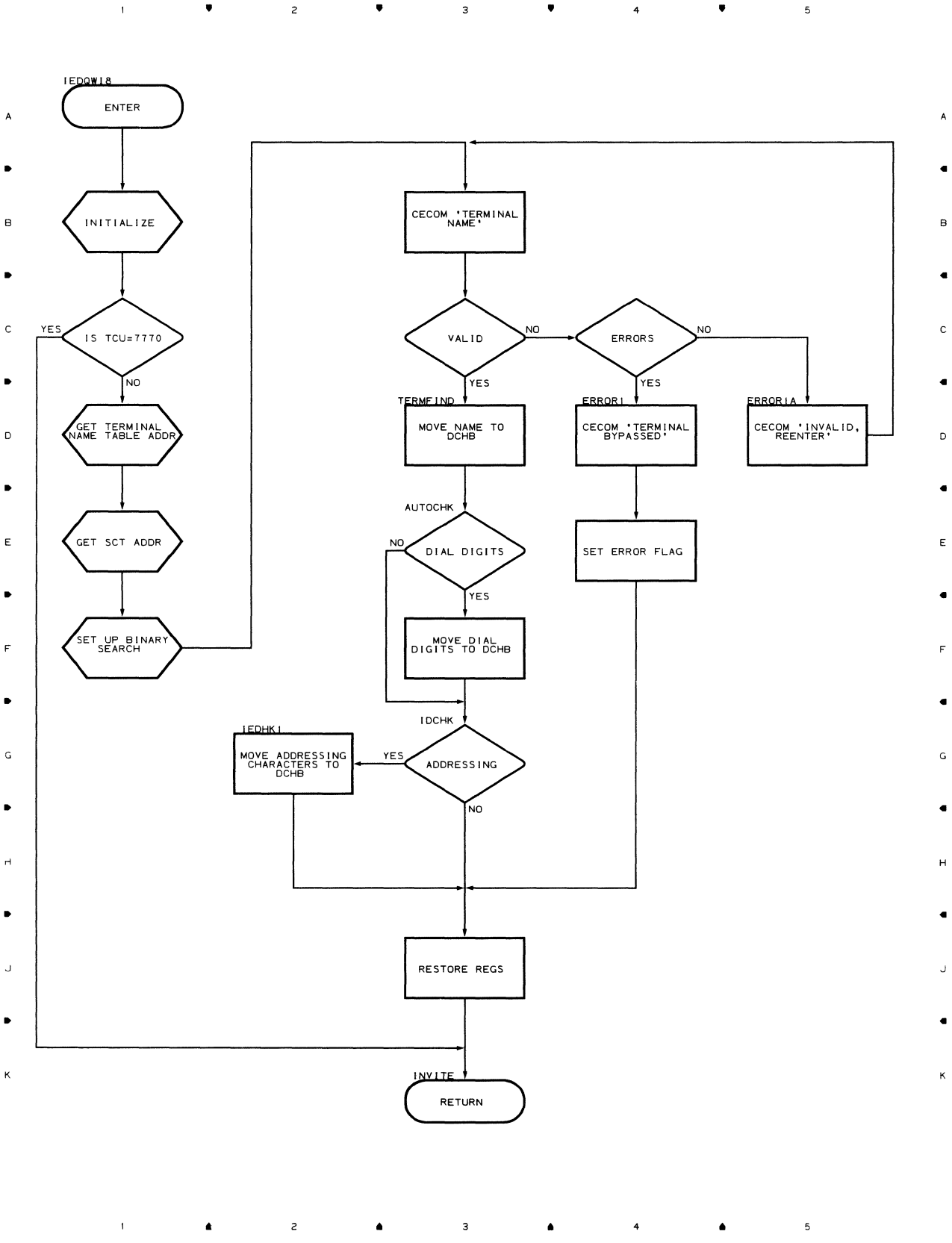


Chart WI9 CONFIGURATOR SUBMODULE 5

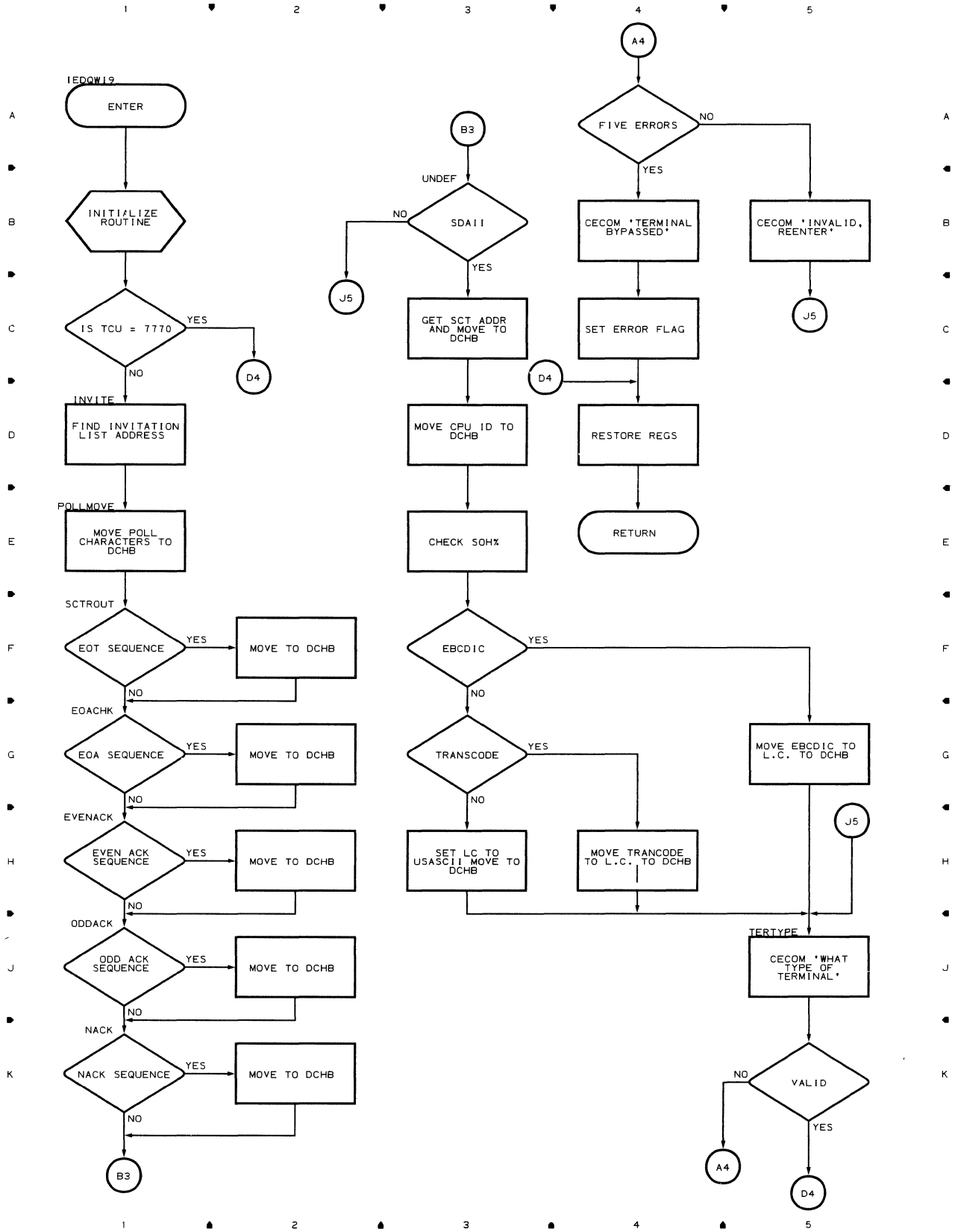


Chart QWJ TRM PROMPTER MODULE 1 (PART 1 OF 7)

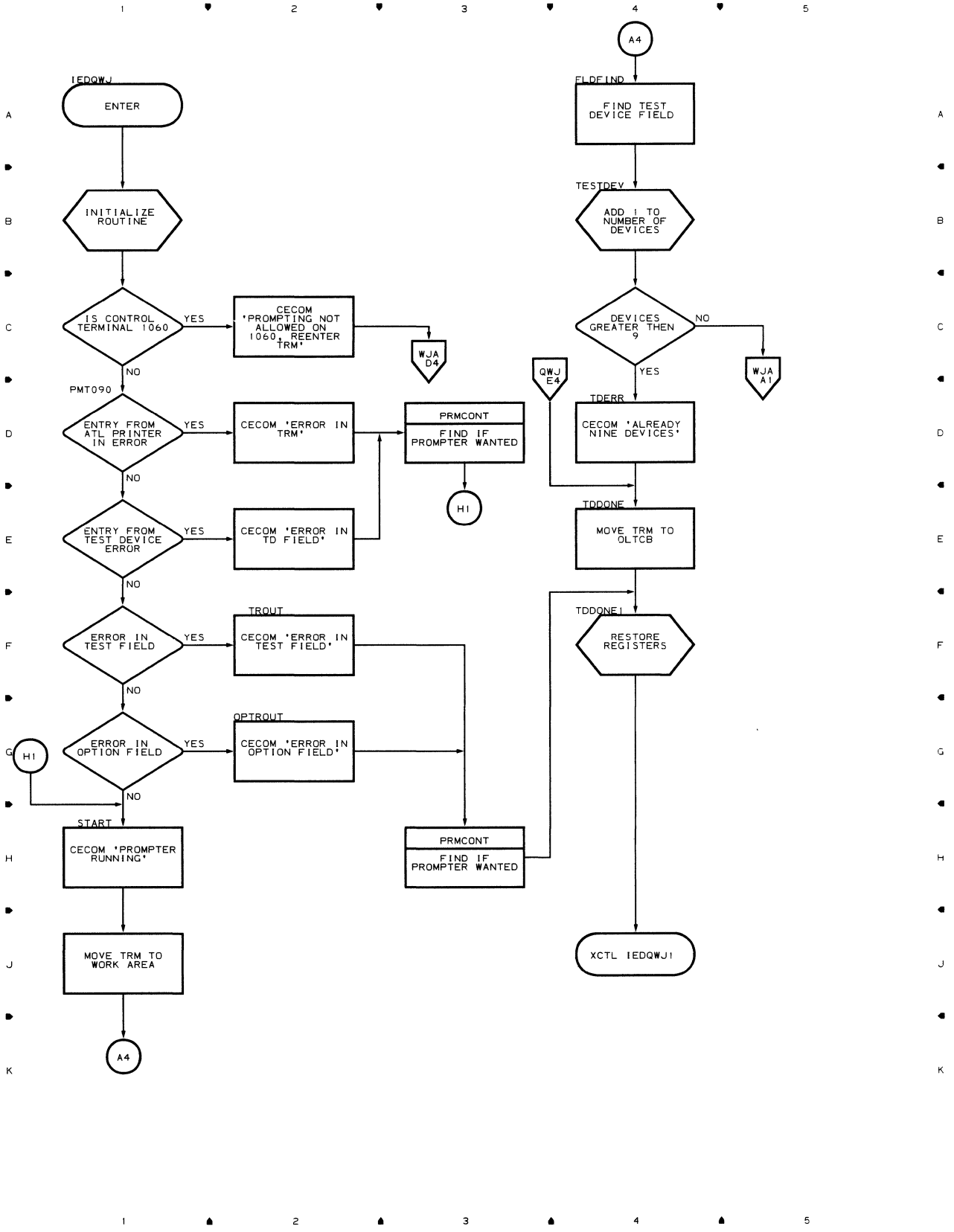


Chart WJA TRM PROMPTER MODULE 1 (PART 2 OF 7)

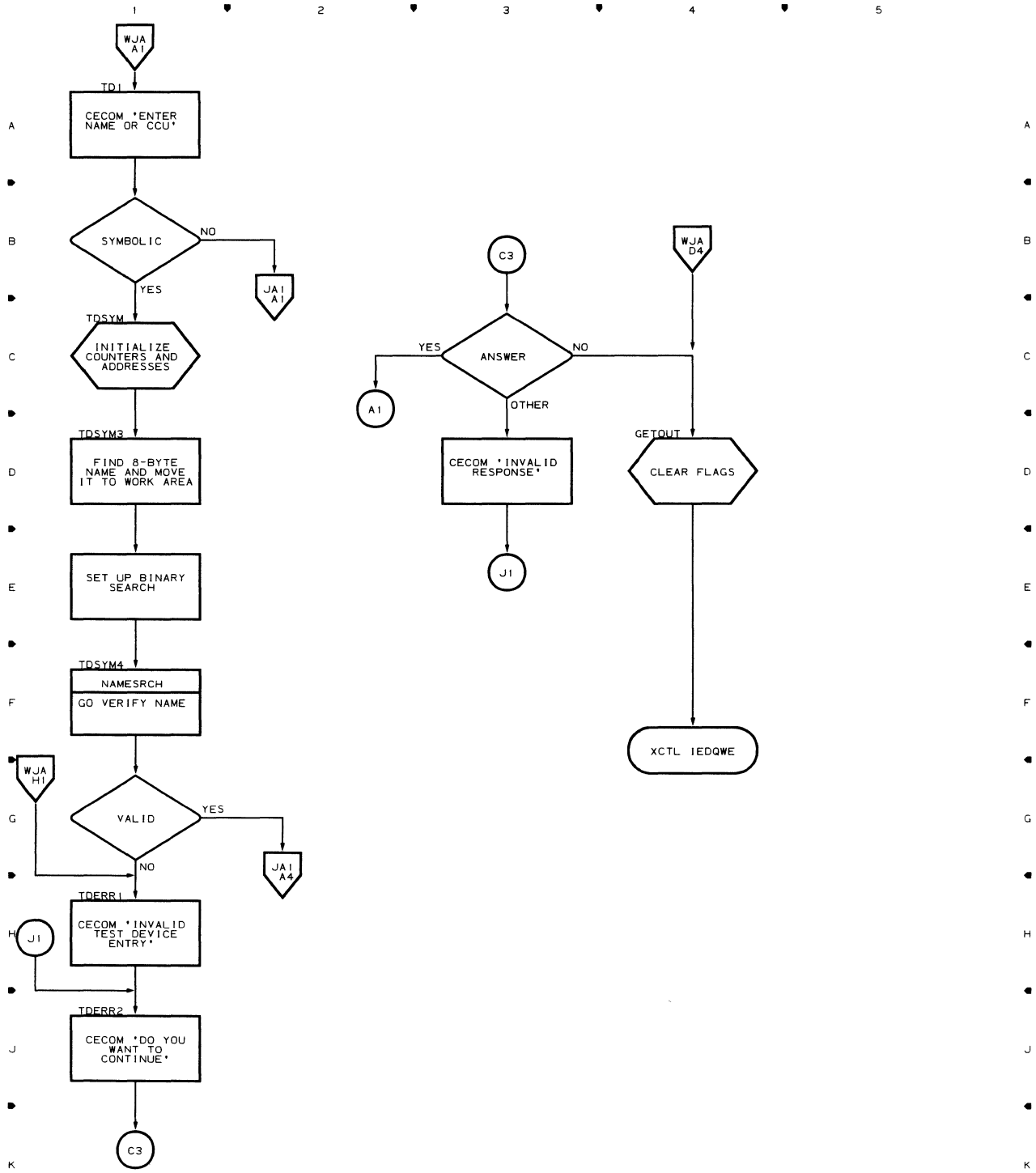


Chart JA1 TRM PROMPTER MODULE 1 (PART 3 OF 7)

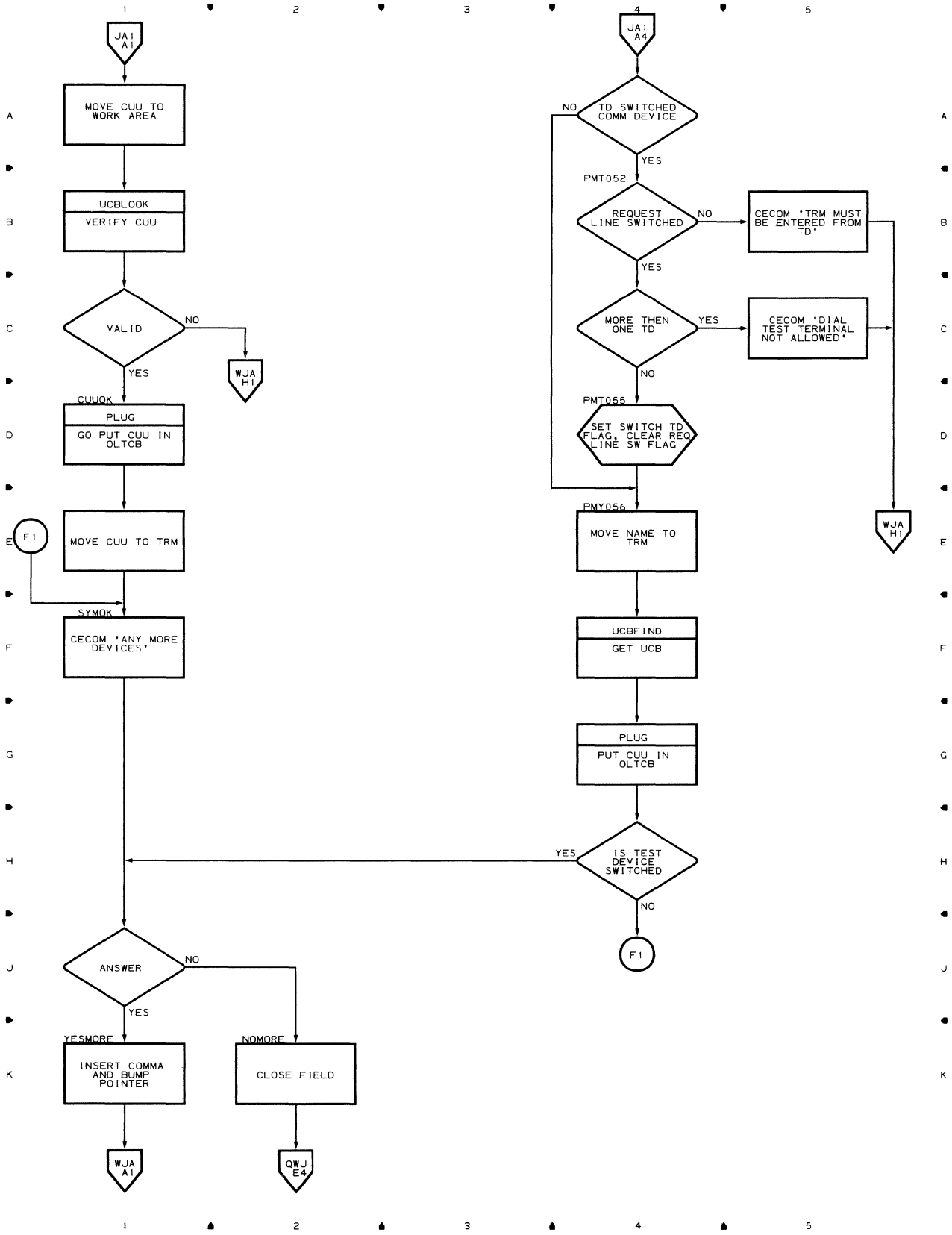


Chart WJB TRM PROMPTER MODULE 1 (PART 4 OF 7)

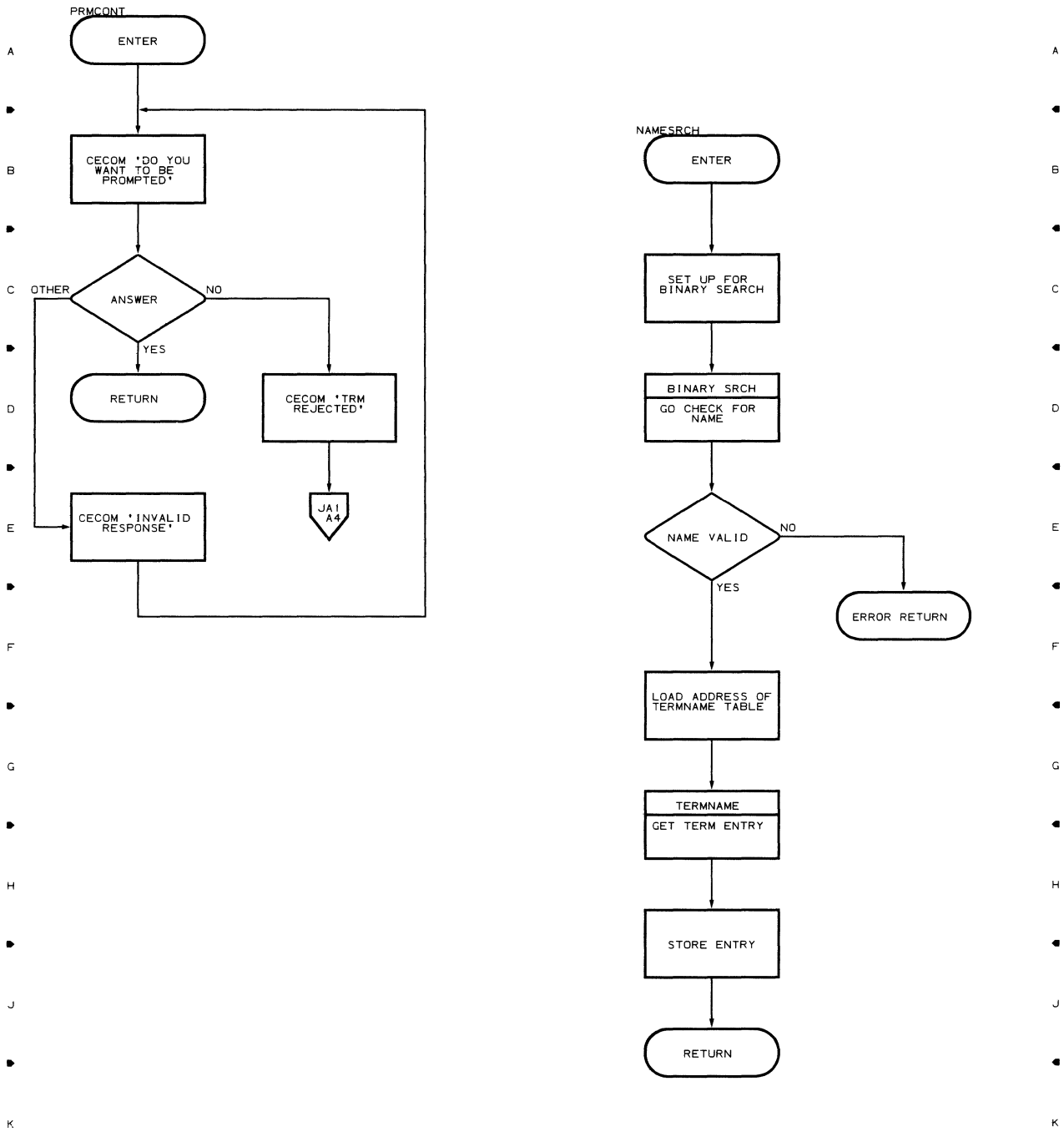


Chart WJC TRM PROMPTER MODULE 1 (PART 5 OF 7)

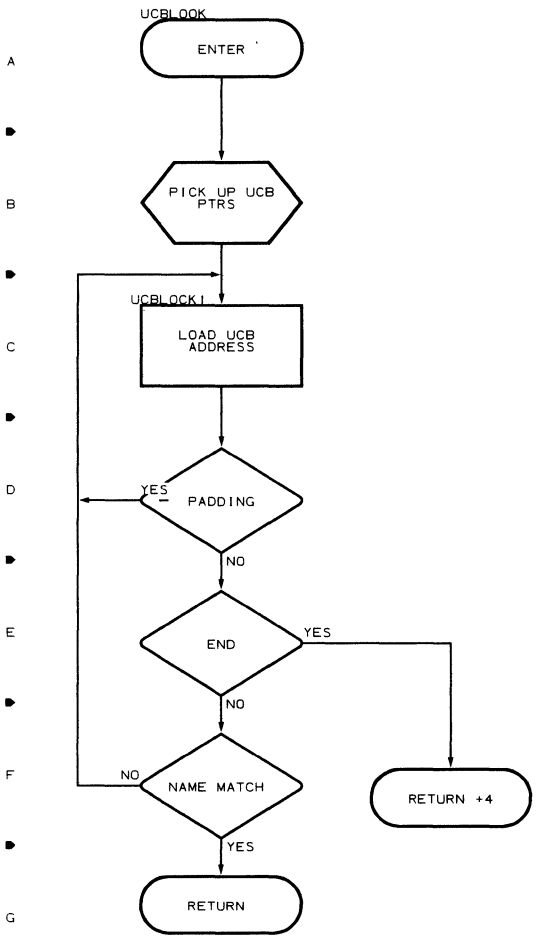


Chart WJD TRM PROMPTER MODULE 1 (PART 6 OF 7)

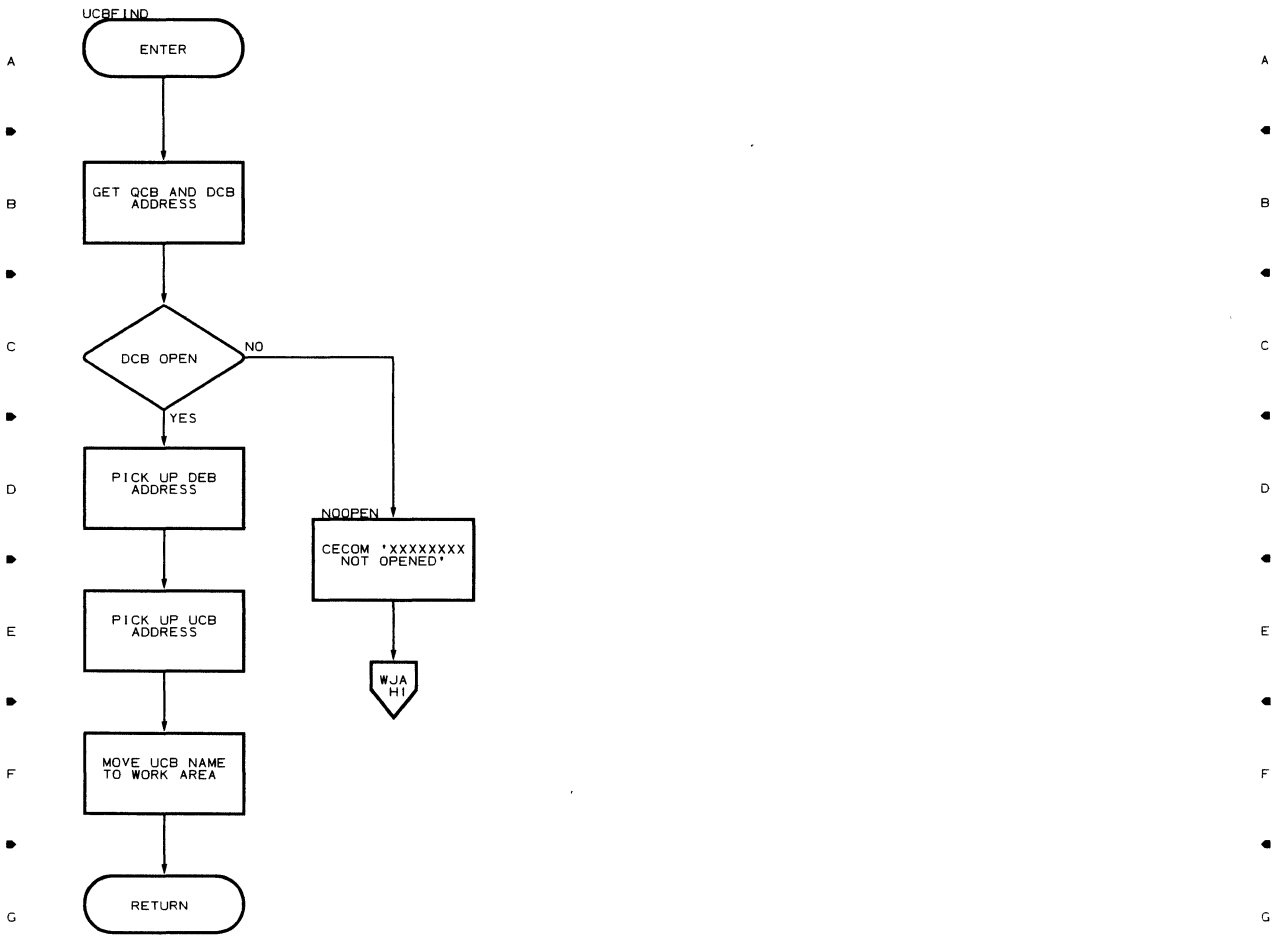


Chart WJE TRM PROMPTER MODULE 1 (PART 7 OF 7)

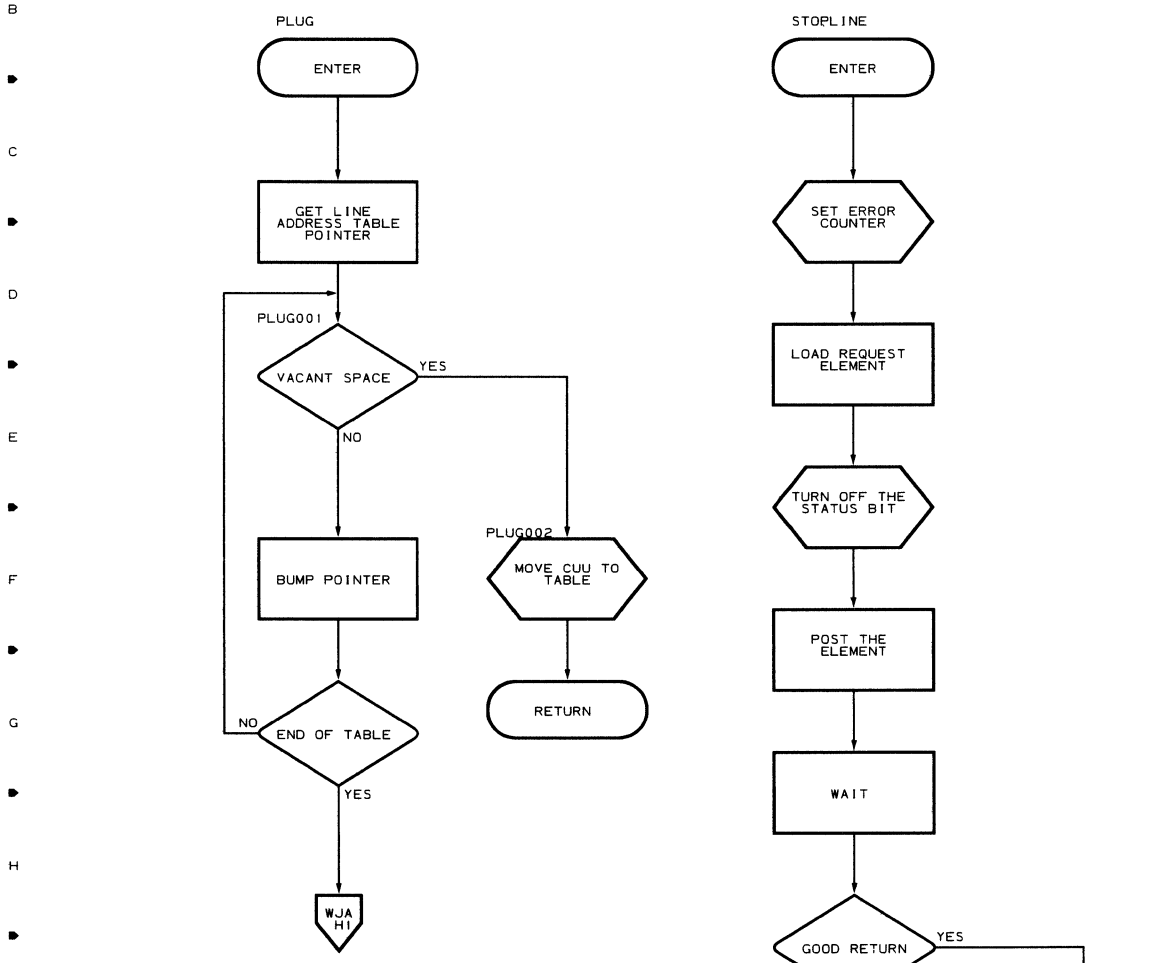


Chart WJ1 TRM PROMPTER MODULE 2 (PART 1 OF 5)

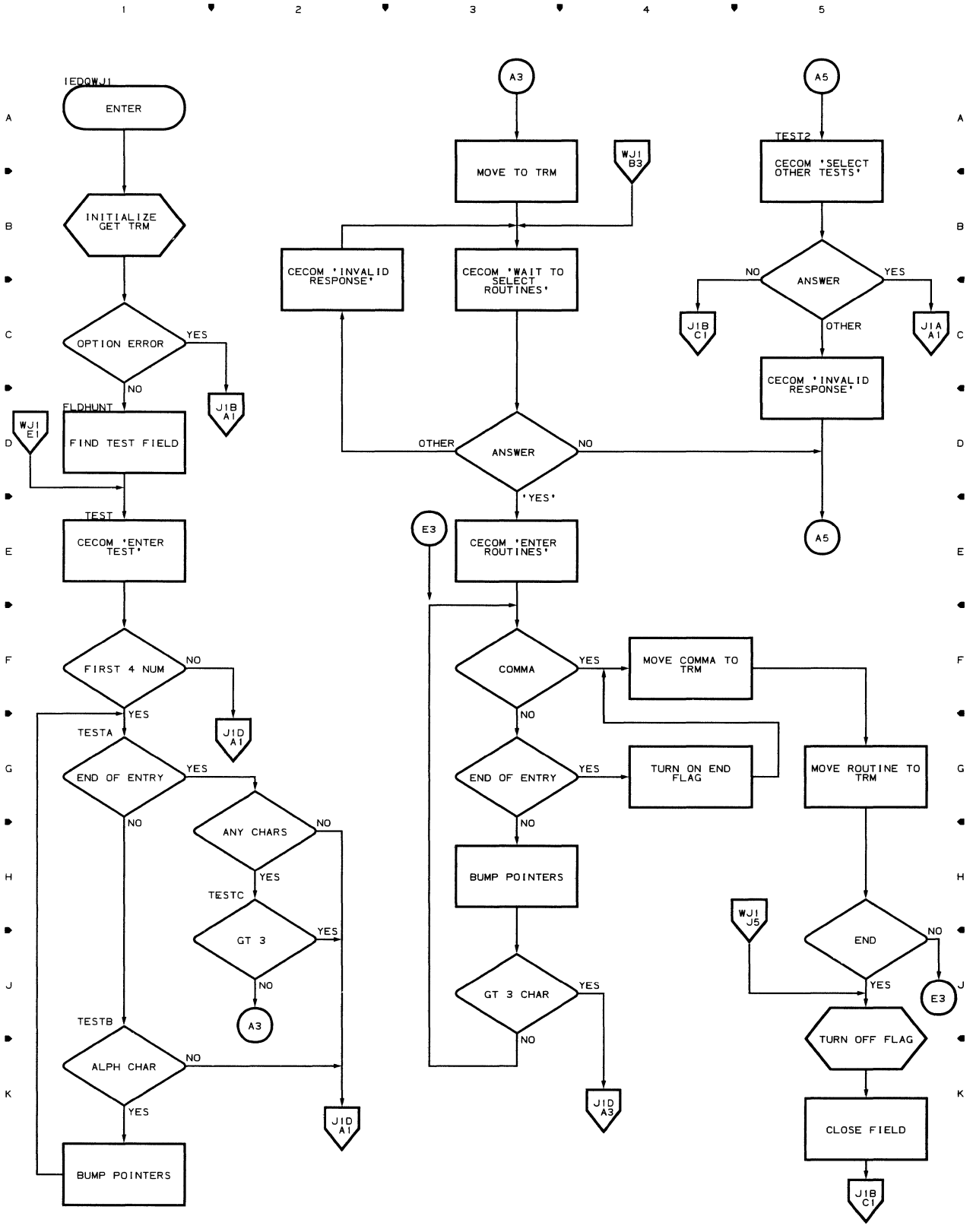


Chart J1A TRM PROMPTER MODULE 2 (PART 2 OF 5)

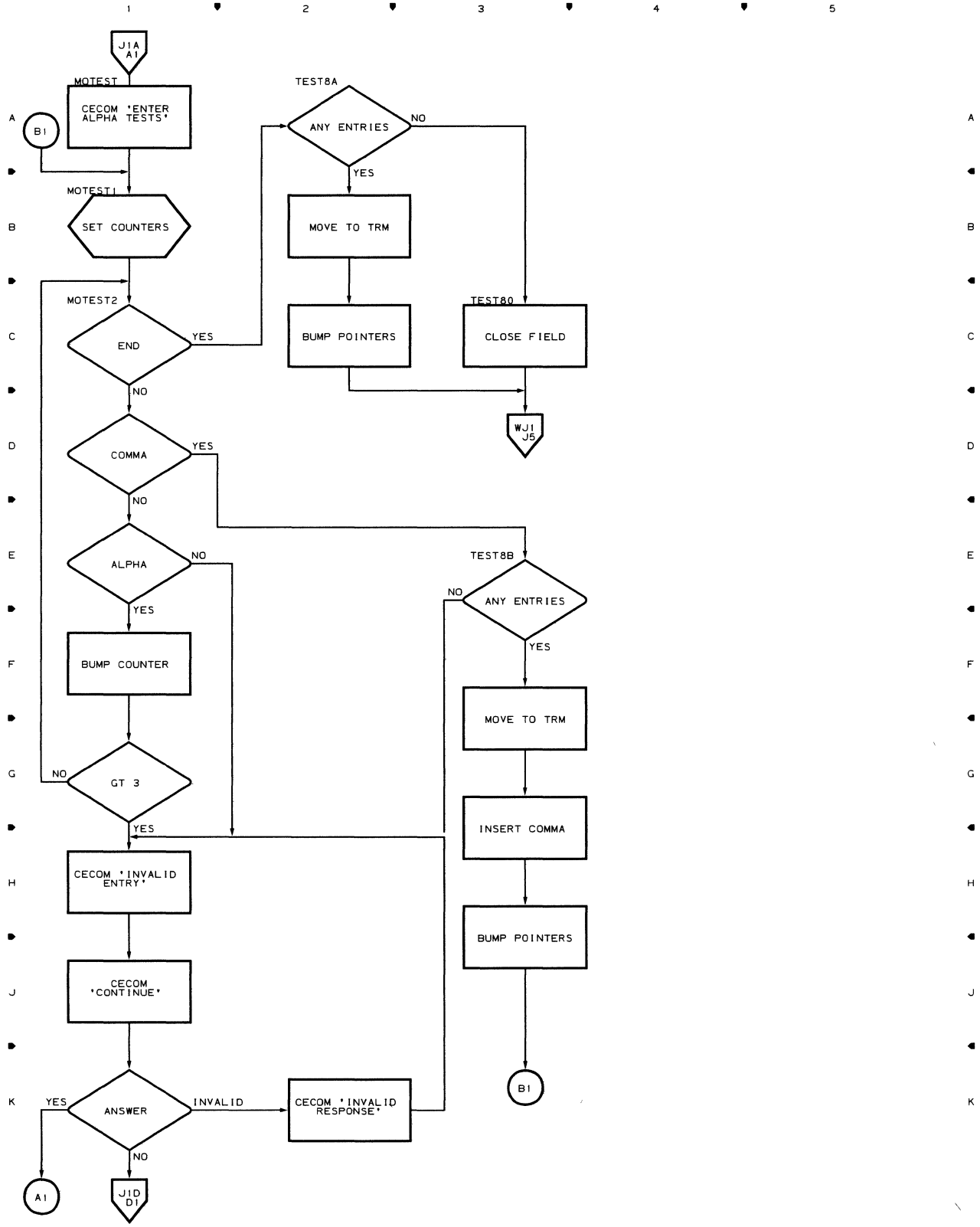


Chart J1B TRM PROMPTER MODULE 2 (PART 3 OF 5)

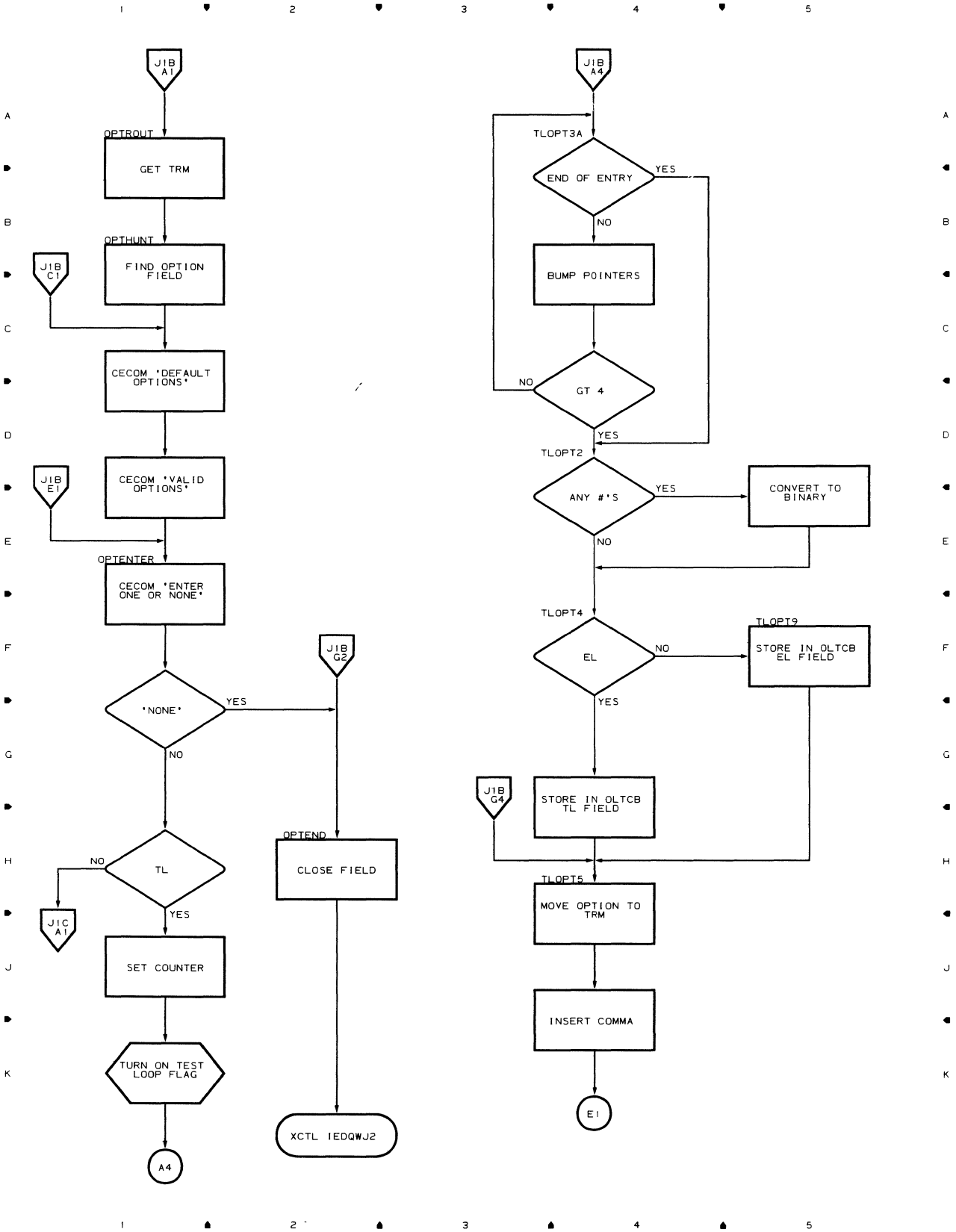


Chart J1C TRM PROMPTER MODULE 2 (PART 4 OF 5)

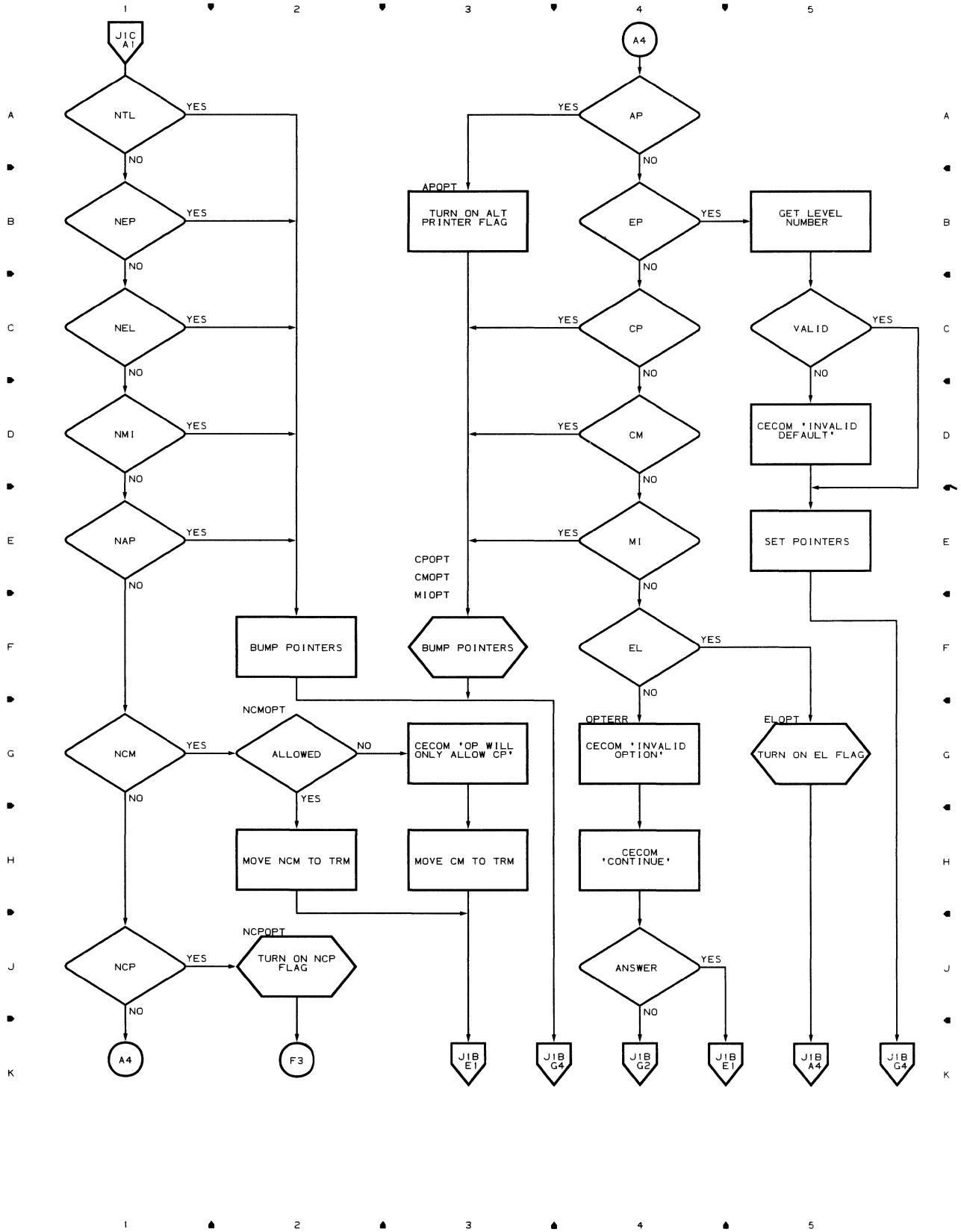


Chart J1D TRM PROMPTER MODULE 2 (PART 5 OF 5)

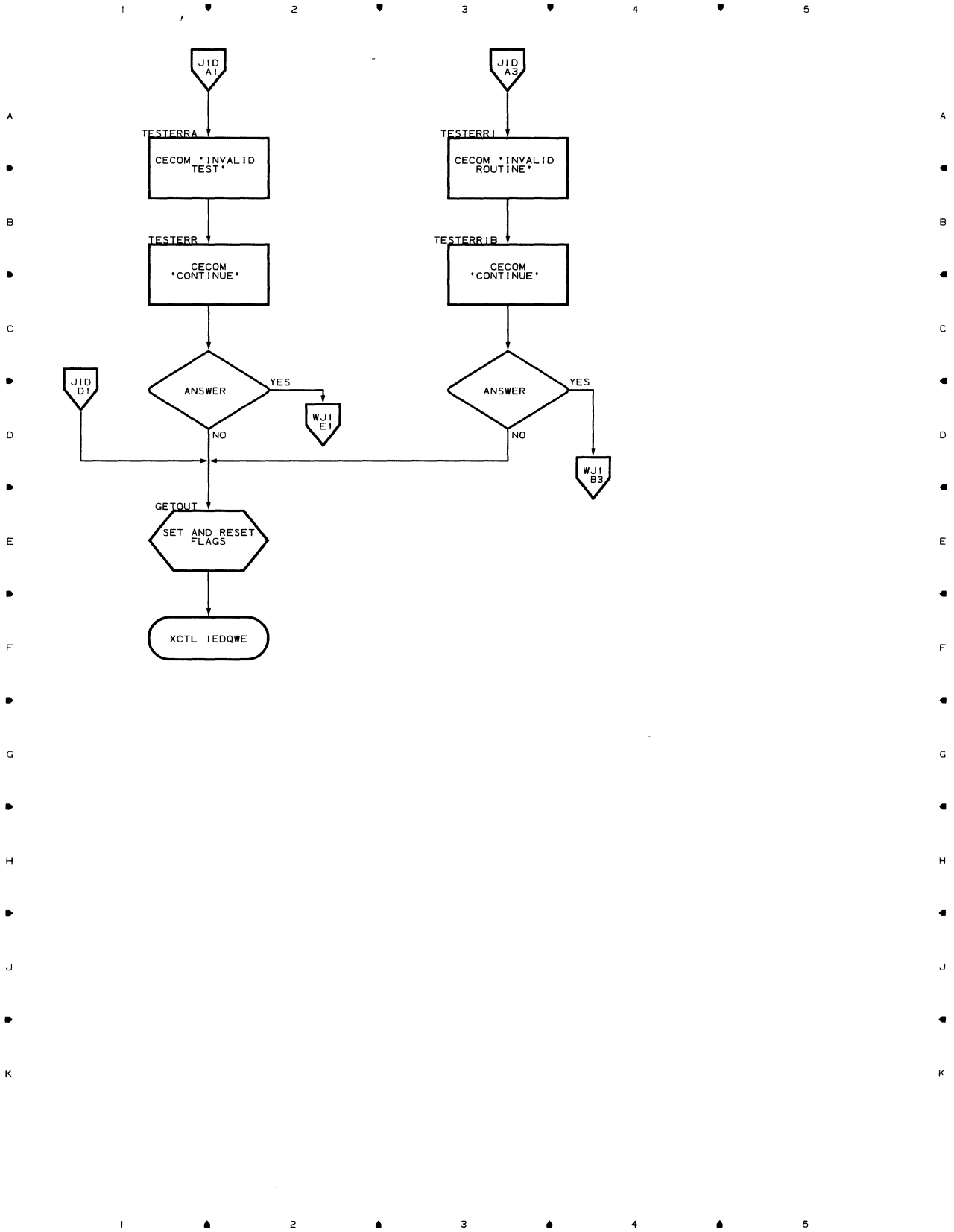


Chart WJ2 TRM PROMPTER MODULE 3 (PART 1 OF 2)

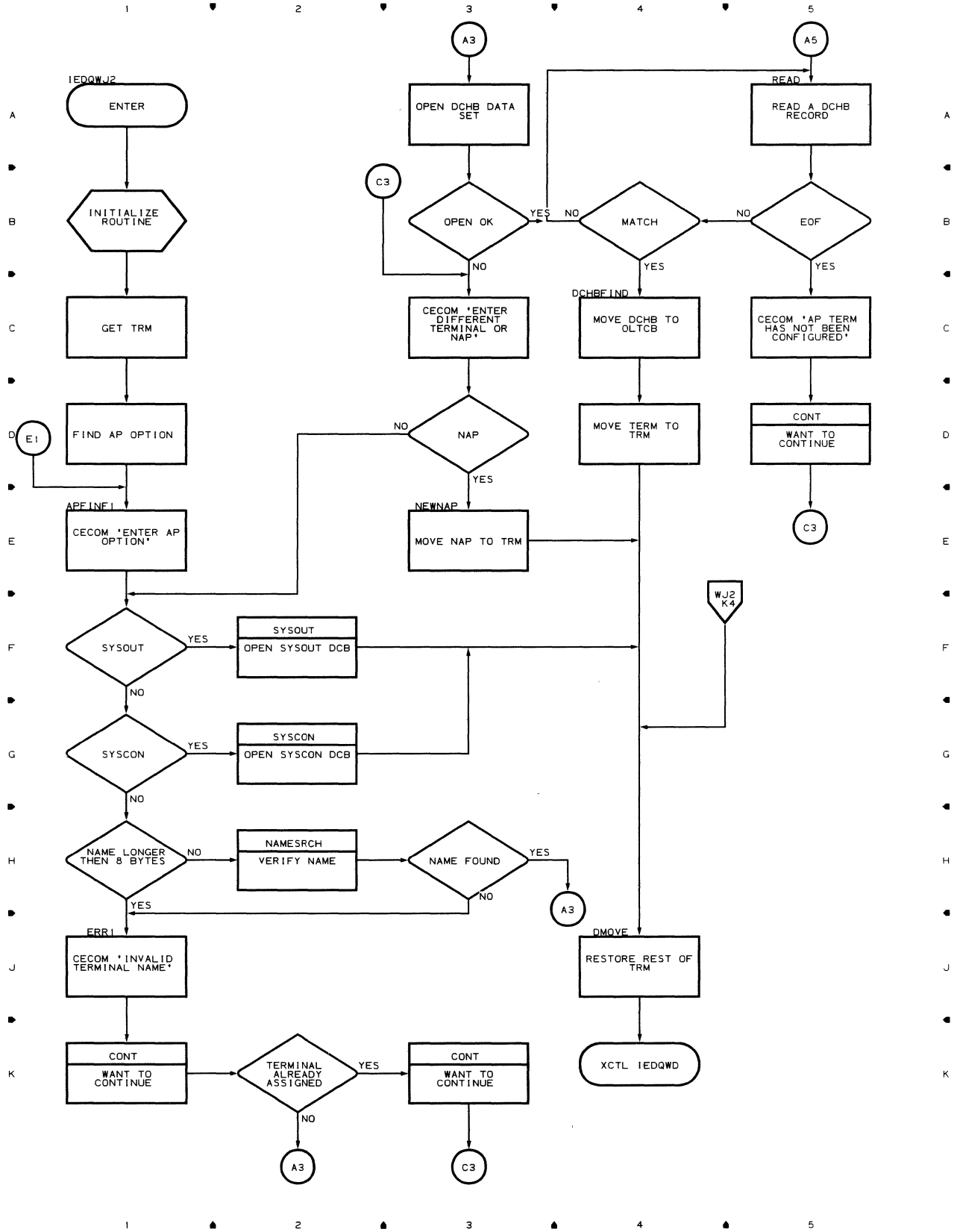
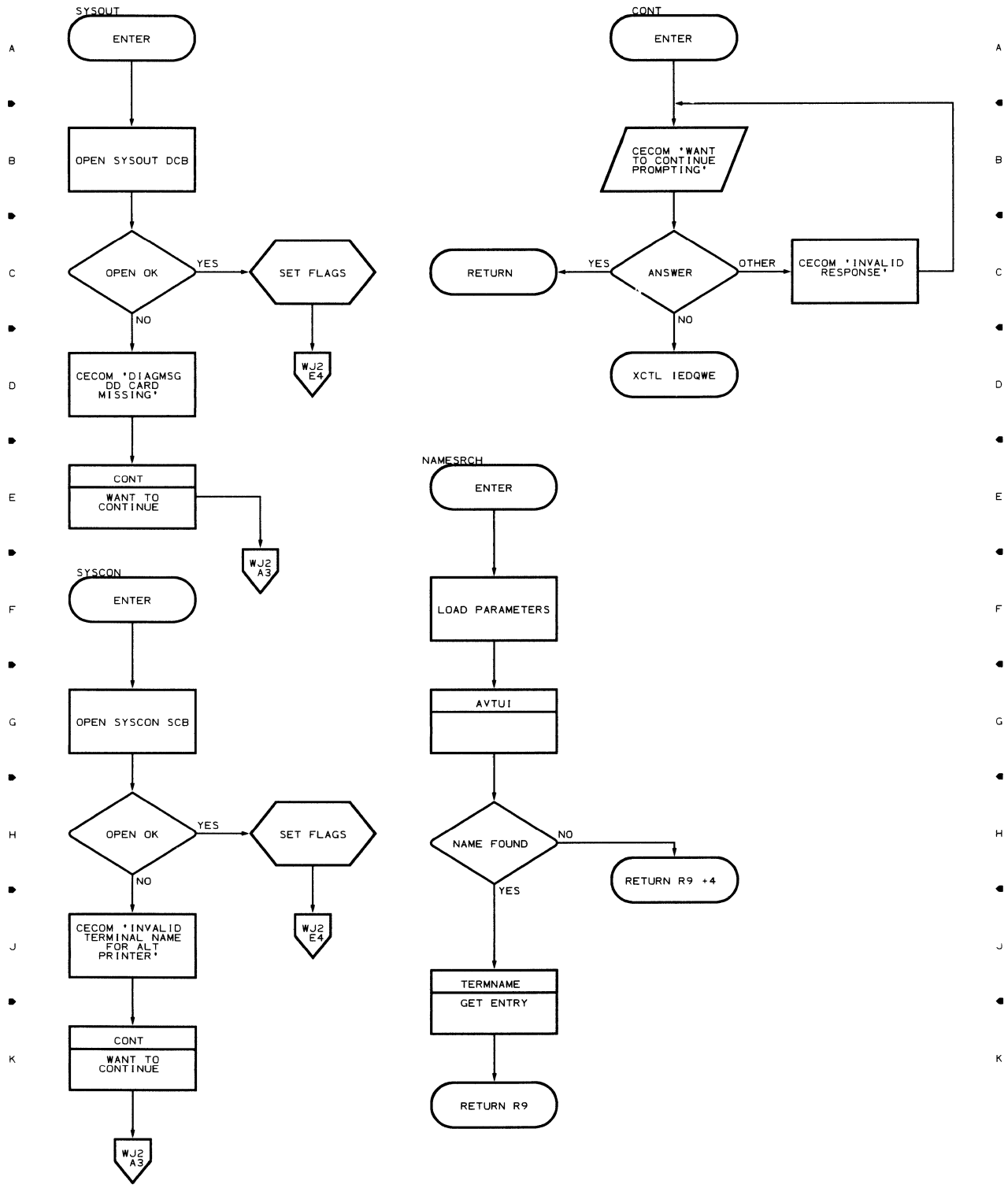


Chart J2A TRM PROMPTER MODULE 3 (PART 2 OF 2)



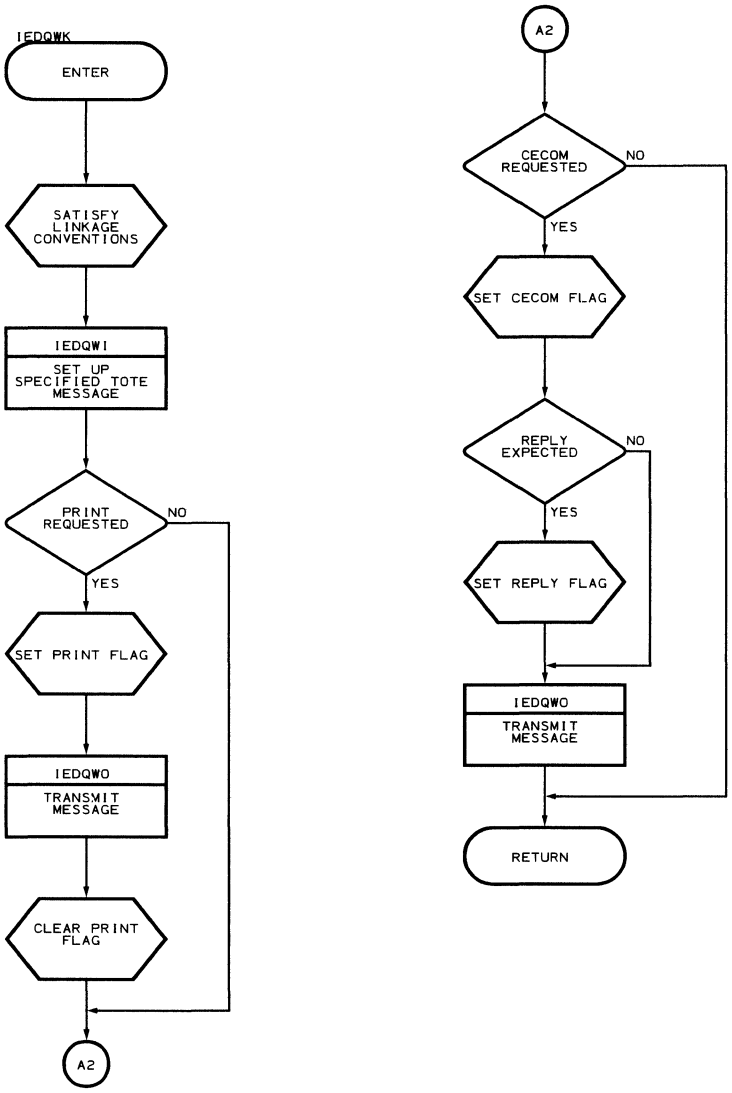
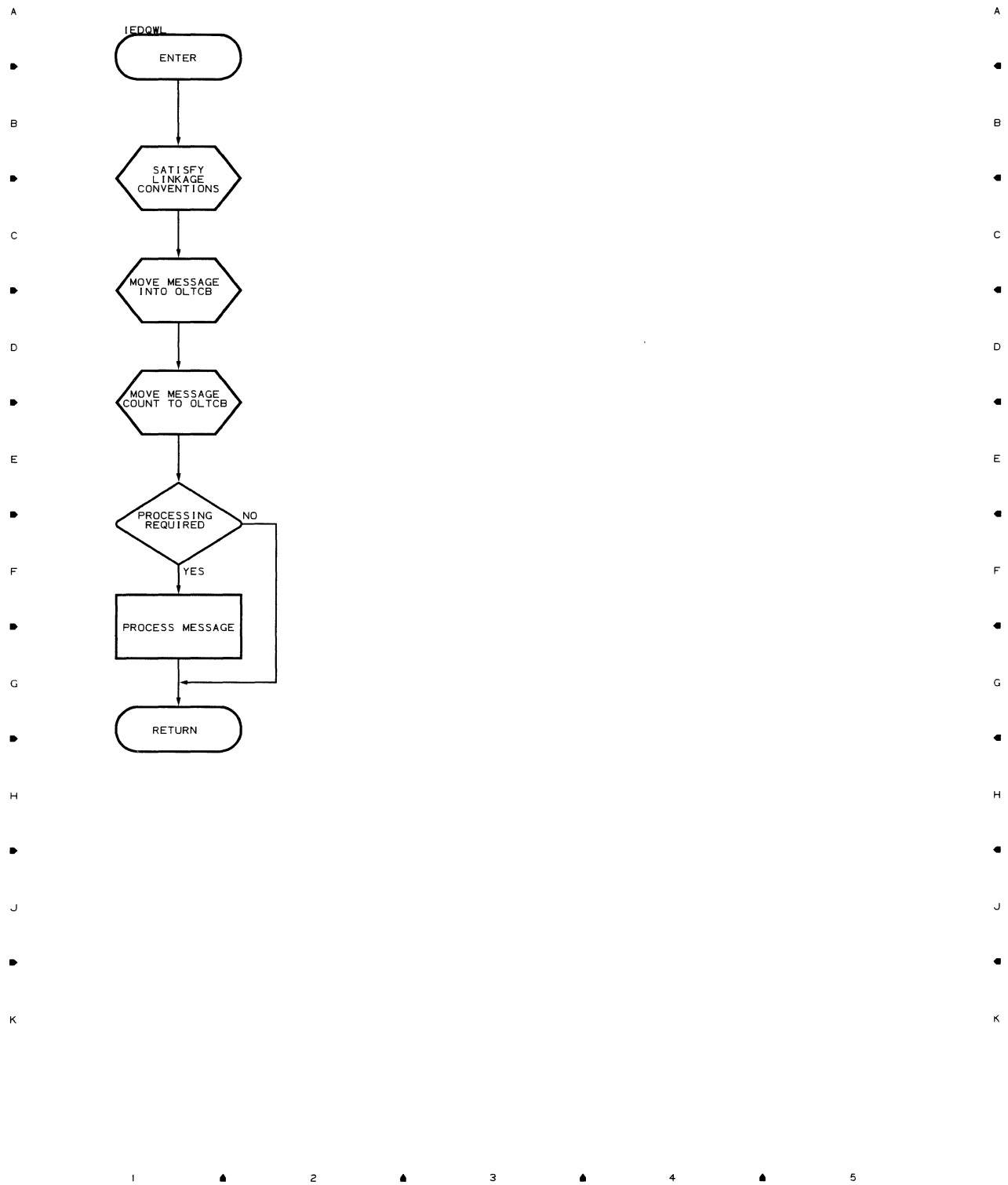

IEDQWK
ENTER
SATISFY LINKAGE CONVENTIONS
IEDQWI
SET UP SPECIFIED TOTE MESSAGE
PRINT REQUESTED
NO
YES
SET PRINT FLAG
IEDQWO
TRANSMIT MESSAGE
CLEAR PRINT FLAG
A2
A2
CECOM REQUESTED
NO
YES
SET CECOM FLAG
REPLY EXPECTED
NO
YES
SET REPLY FLAG
IEDQWO
TRANSMIT MESSAGE
RETURN

Chart QWL TOTE MESSAGE SUBMODULE



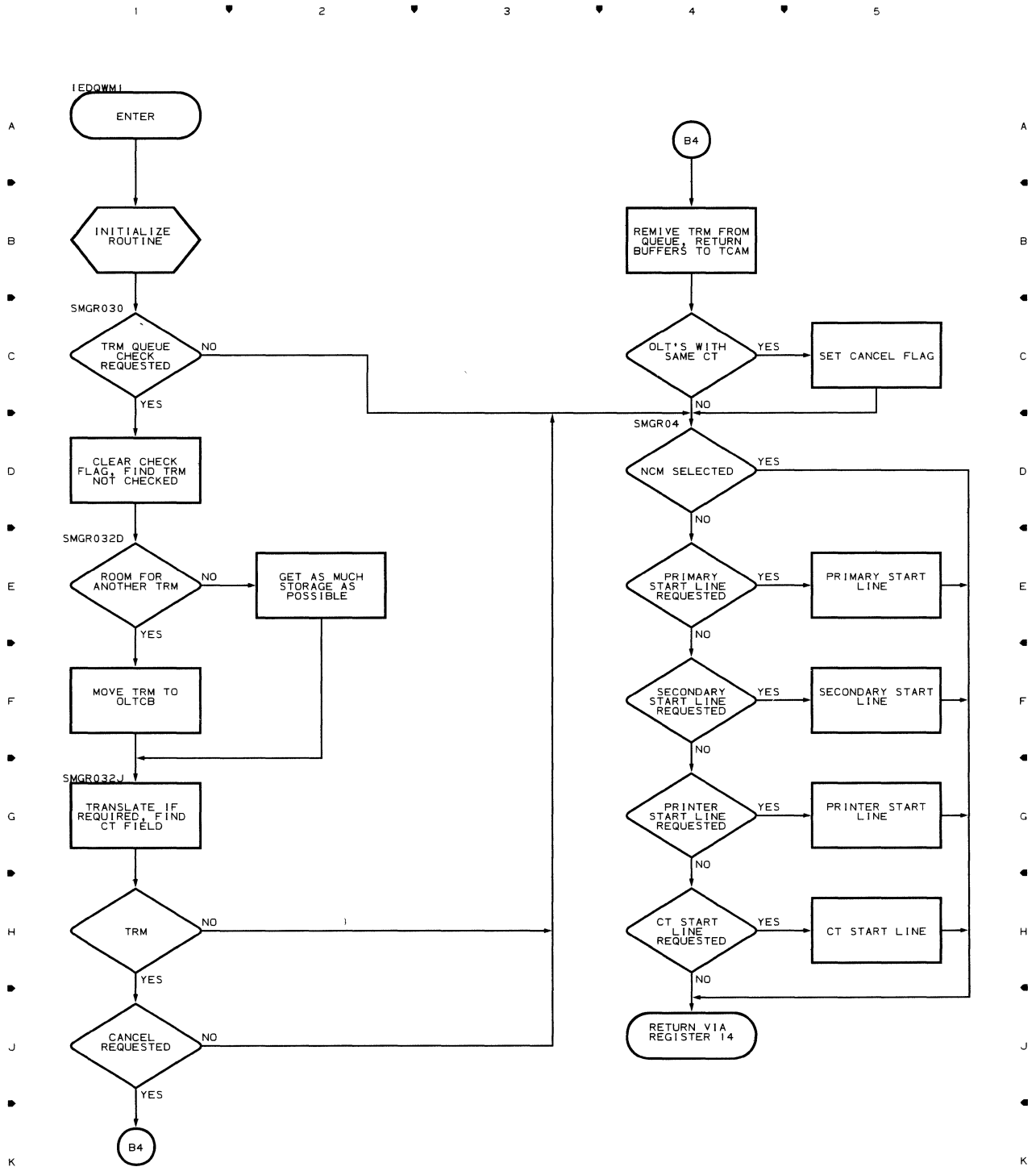

IEDQWM1
ENTER
INITIALIZE ROUTINE
SMGR030
TRM QUEUE CHECK REQUESTED
NO
YES
CLEAR CHECK FLAG, FIND TRM NOT CHECKED
SMGR032D
ROOM FOR ANOTHER TRM
NO
GET AS MUCH STORAGE AS POSSIBLE
YES
MOVE TRM TO OLTCB
SMGR032J
TRANSLATE IF REQUIRED, FIND CT FIELD
TRM
NO
YES
CANCEL REQUESTED
NO
YES
B4
B4
REMIVE TRM FROM QUEUE, RETURN BUFFERS TO TCAM
OLT'S WITH SAME CT
YES
SET CANCEL FLAG
NO
SMGR04
NCM SELECTED
YES
NO
PRIMARY START LINE REQUESTED
YES
PRIMARY START LINE
NO
SECONDARY START LINE REQUESTED
YES
SECONDARY START LINE
NO
PRINTER START LINE REQUESTED
YES
PRINTER START LINE
NO
CT START LINE REQUESTED
YES
CT START LINE
NO
RETURN VIA REGISTER 14

Chart QWN EXIO SERVICE MODULE (PART 1 OF 2)

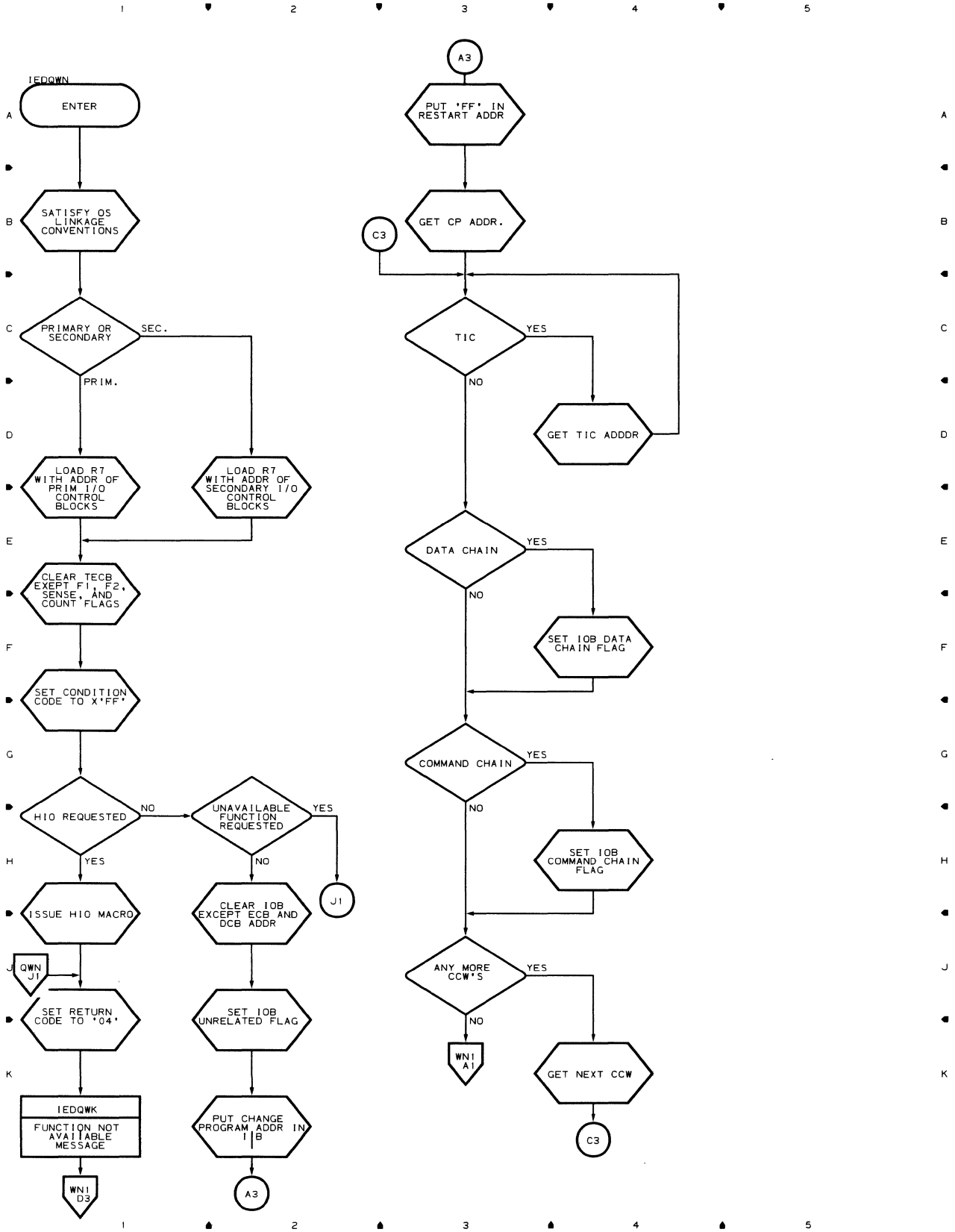


Chart WN1 EXIO SERVICE MODULE (PART 2 OF 2)

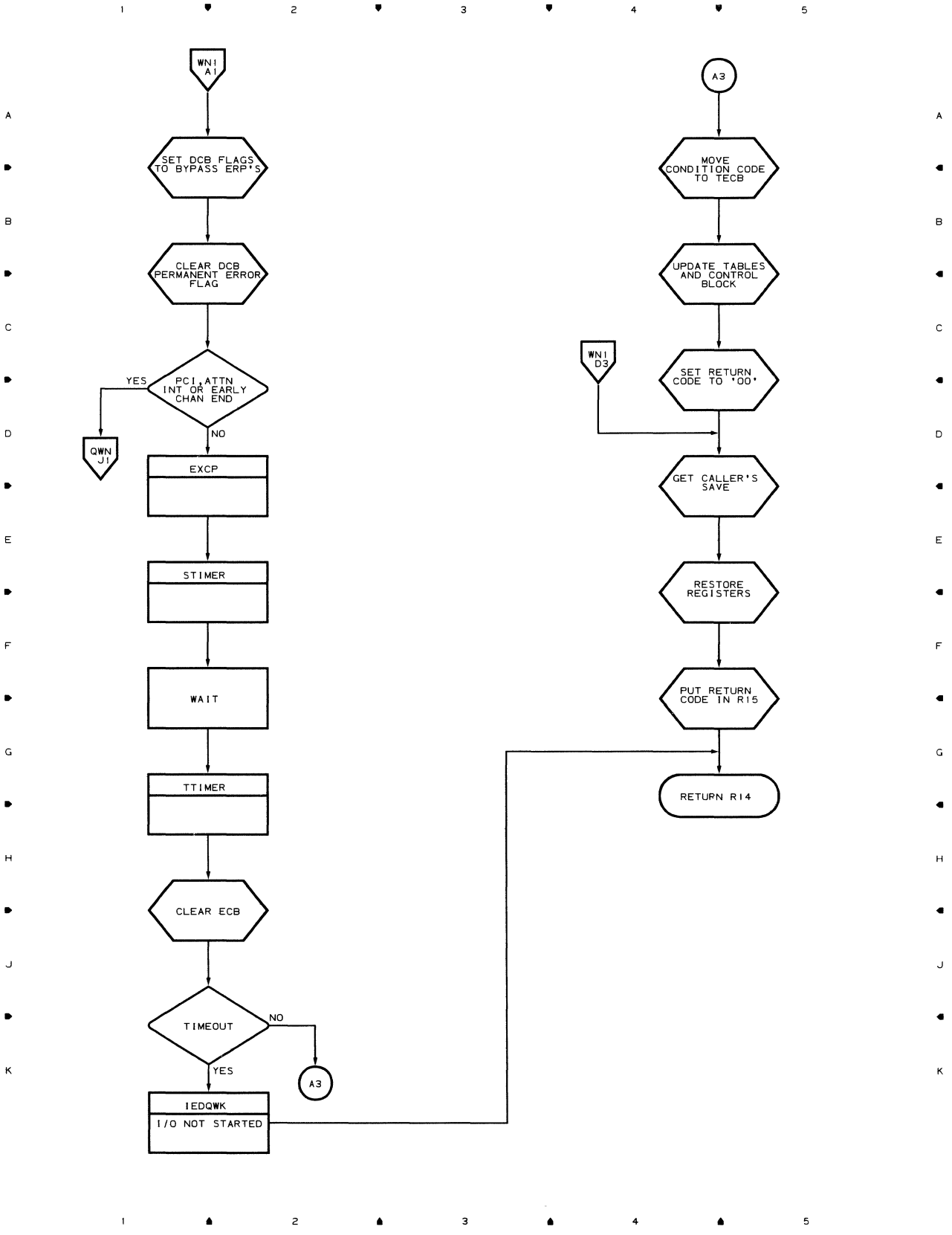
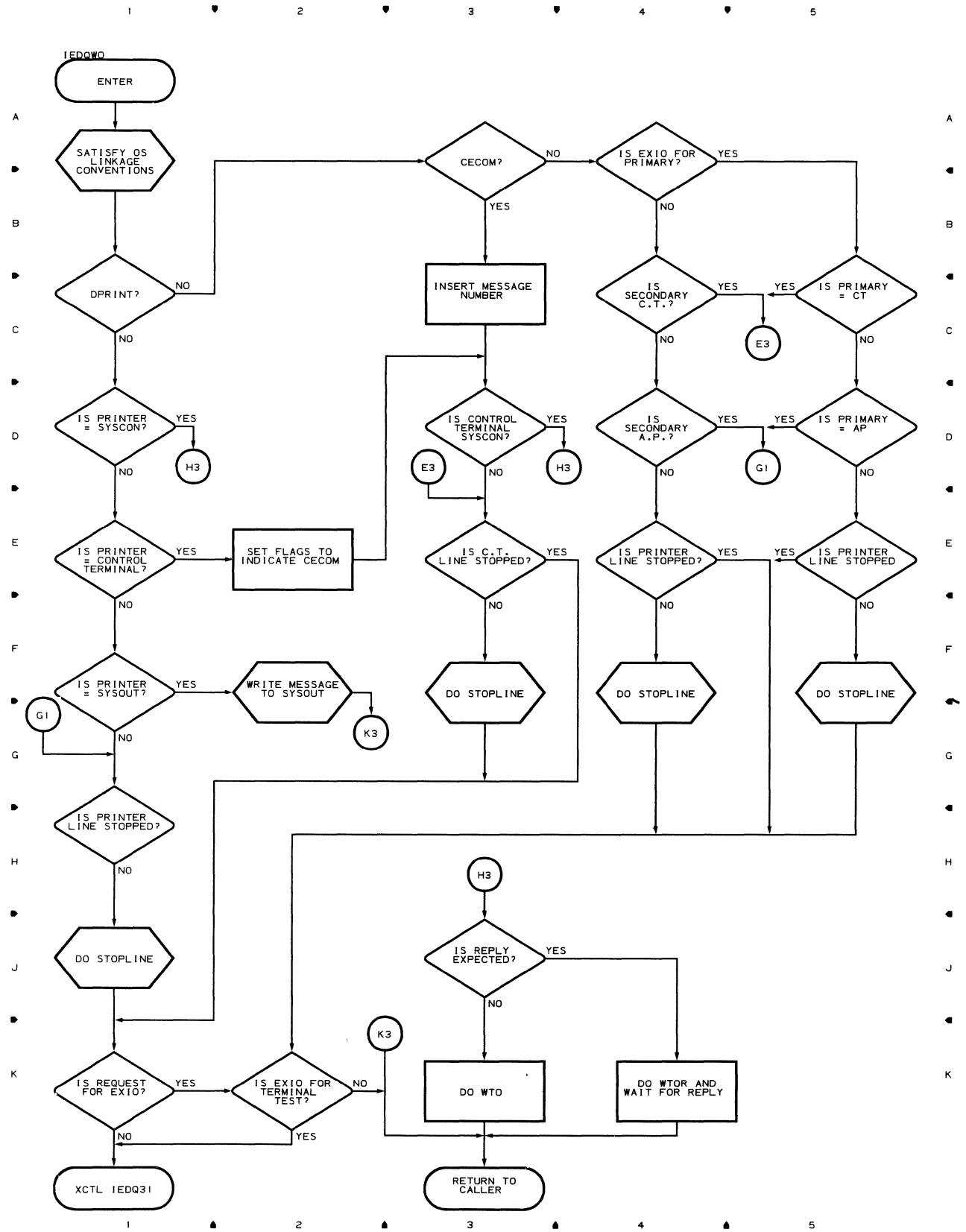


Chart QWO ACCESS MANAGER



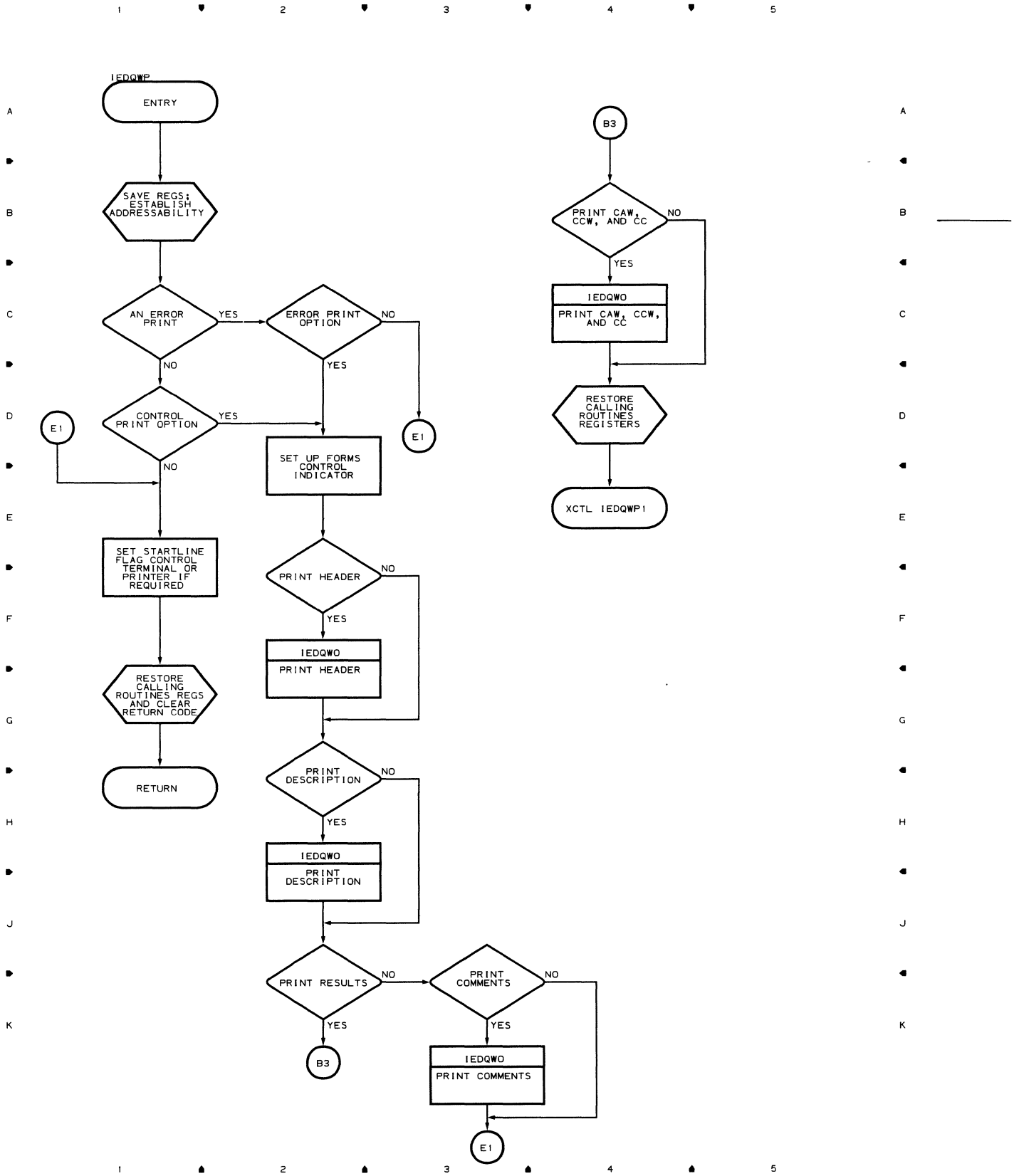

IEDQWP
ENTRY
SAVE REGS; ESTABLISH ADDRESSABILITY
AN ERROR PRINT
YES
ERROR PRINT OPTION
NO
YES
NO
CONTROL PRINT OPTION
YES
NO
E1
E1
SET UP FORMS CONTROL INDICATOR
SET STARTLINE FLAG CONTROL TERMINAL OR PRINTER IF REQUIRED
PRINT HEADER
NO
YES
IEDQWO
PRINT HEADER
RESTORE CALLING ROUTINES REGS AND CLEAR RETURN CODE
RETURN
PRINT DESCRIPTION
NO
YES
IEDQWO
PRINT DESCRIPTION
PRINT RESULTS
NO
YES
B3
PRINT COMMENTS
NO
YES
IEDQWO
PRINT COMMENTS
E1
B3
PRINT CAW, CCW, AND CC
NO
YES
IEDQWO
PRINT CAW, CCW, AND CC
RESTORE CALLING ROUTINES REGISTERS
XCTL IEDQWP1

Chart WP1 DEPRINT SERVICE MODULE 1

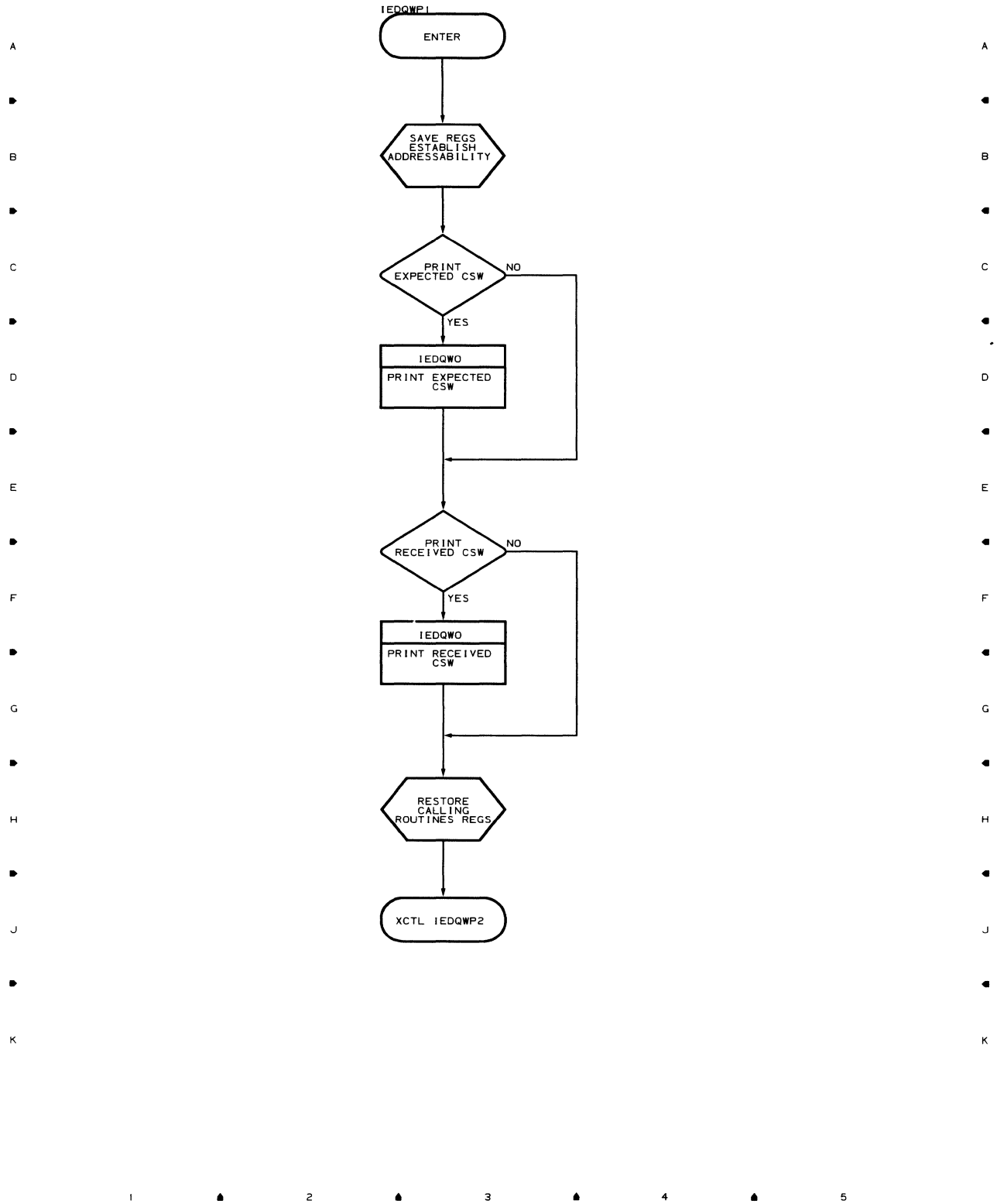


Chart WP2 DEPRINT SERVICE MODULE 2

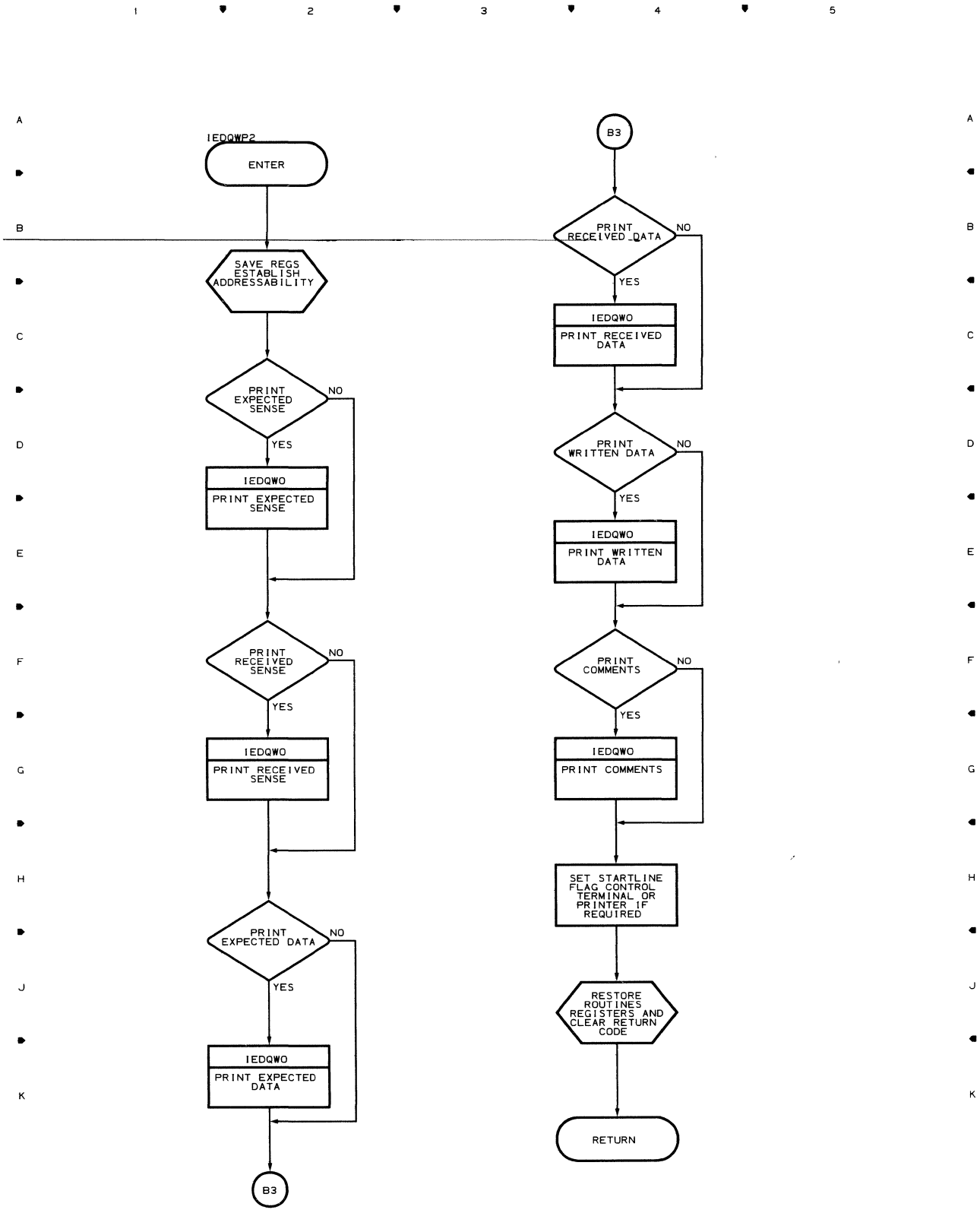
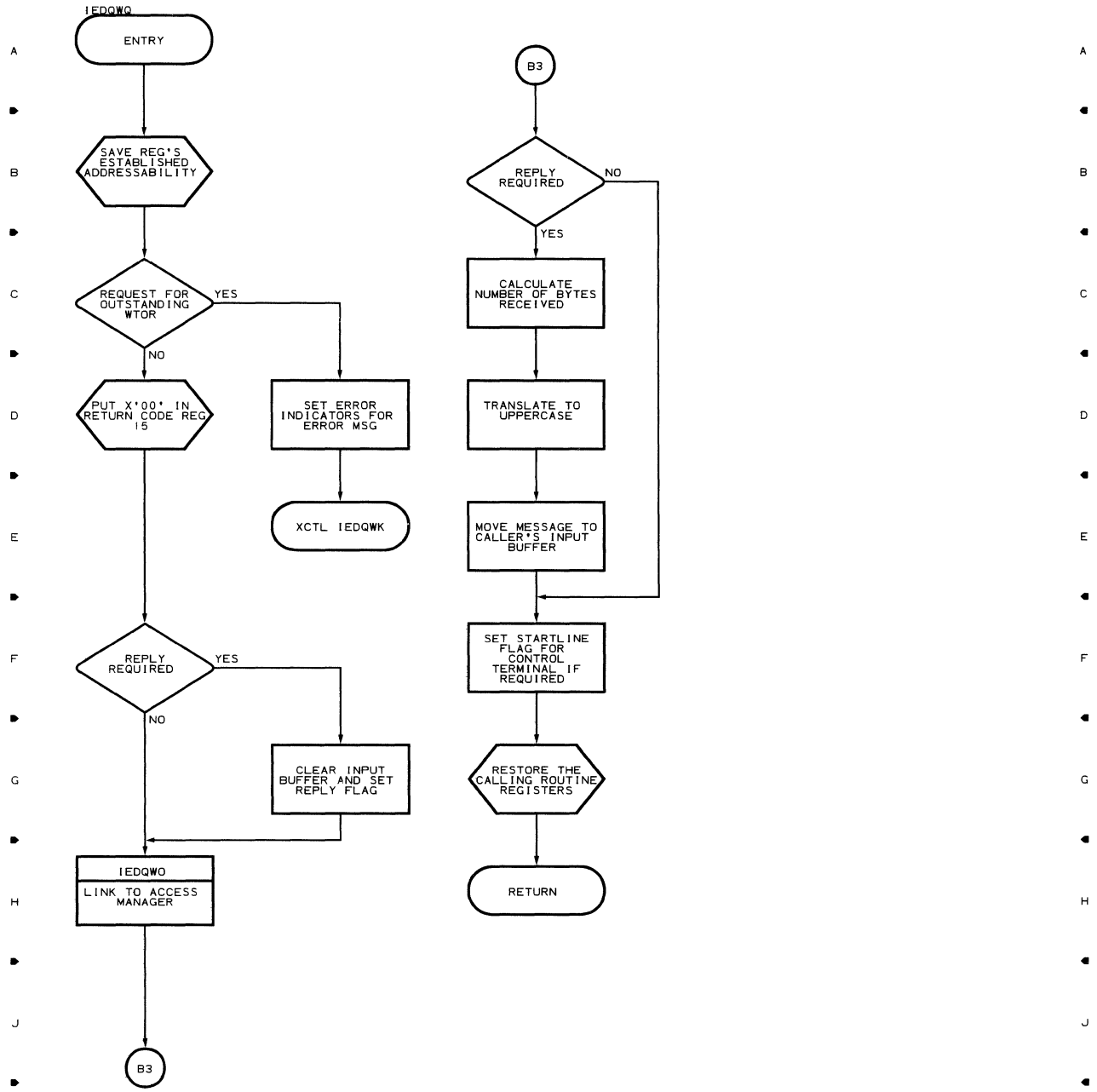


Chart QWQ CECOM SERVICE MODULE



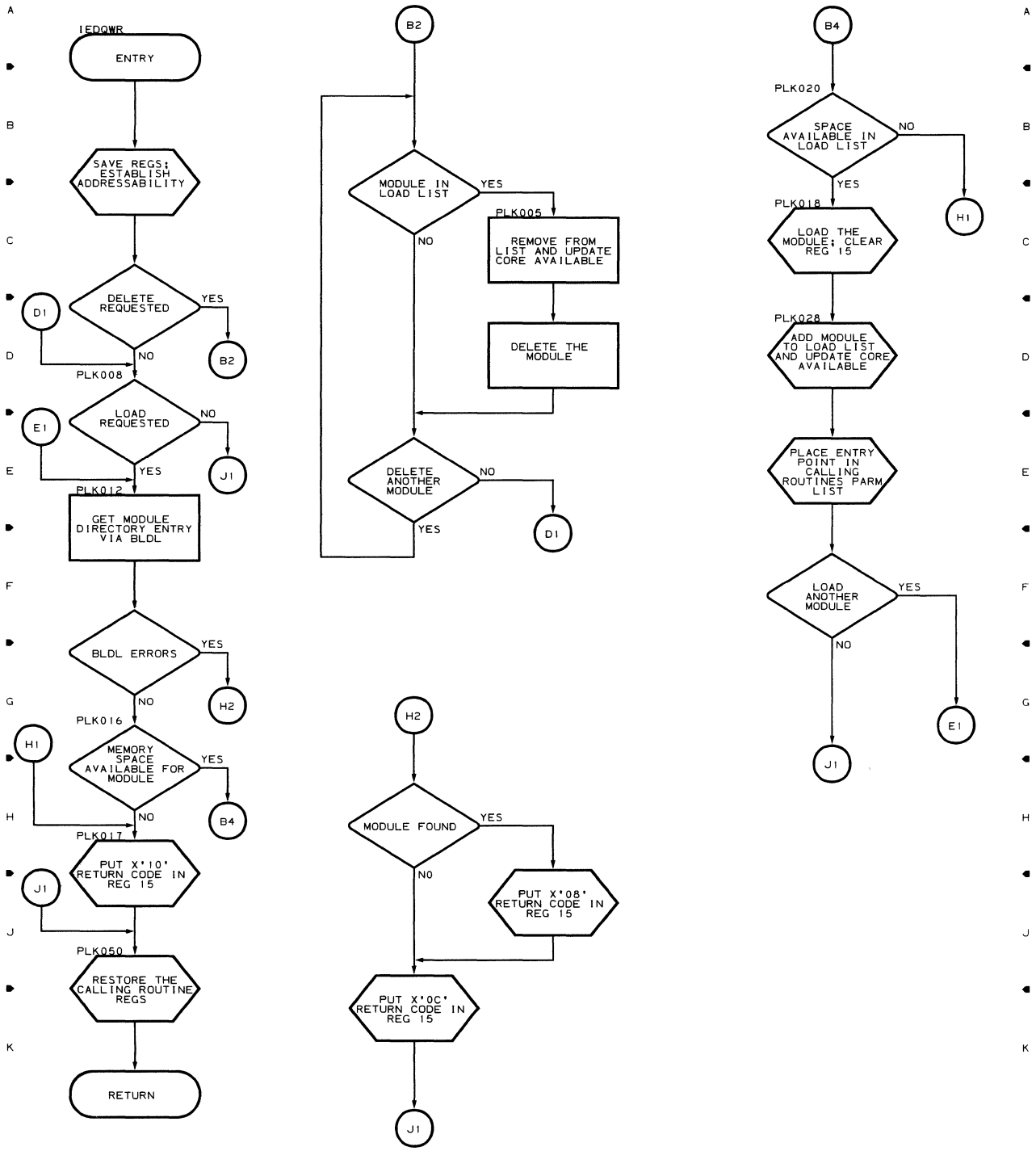

IEDQWR
ENTRY
SAVE REGS; ESTABLISH ADDRESSABILITY
DELETE REQUESTED
YES
NO
D1
B2
PLK008
LOAD REQUESTED
NO
YES
E1
J1
PLK012
GET MODULE DIRECTORY ENTRY VIA BLDL
BLDL ERRORS
YES
NO
H2
PLK016
MEMORY SPACE AVAILABLE FOR MODULE
YES
NO
H1
B4
PLK017
PUT X'10' RETURN CODE IN REG 15
J1
PLK050
RESTORE THE CALLING ROUTINE REGS
RETURN
B2
MODULE IN LOAD LIST
YES
NO
PLK005
REMOVE FROM LIST AND UPDATE CORE AVAILABLE
DELETE THE MODULE
DELETE ANOTHER MODULE
NO
YES
D1
H2
MODULE FOUND
YES
NO
PUT X'08' RETURN CODE IN REG 15
PUT X'0C' RETURN CODE IN REG 15
J1
B4
PLK020
SPACE AVAILABLE IN LOAD LIST
NO
YES
H1
PLK018
LOAD THE MODULE; CLEAR REG 15
PLK028
ADD MODULE TO LOAD LIST AND UPDATE CORE AVAILABLE
PLACE ENTRY POINT IN CALLING ROUTINES PARM LIST
LOAD ANOTHER MODULE
YES
NO
E1
J1

Chart QWS WAITIO SERVICE ROUTINE (PART 1 OF 3)

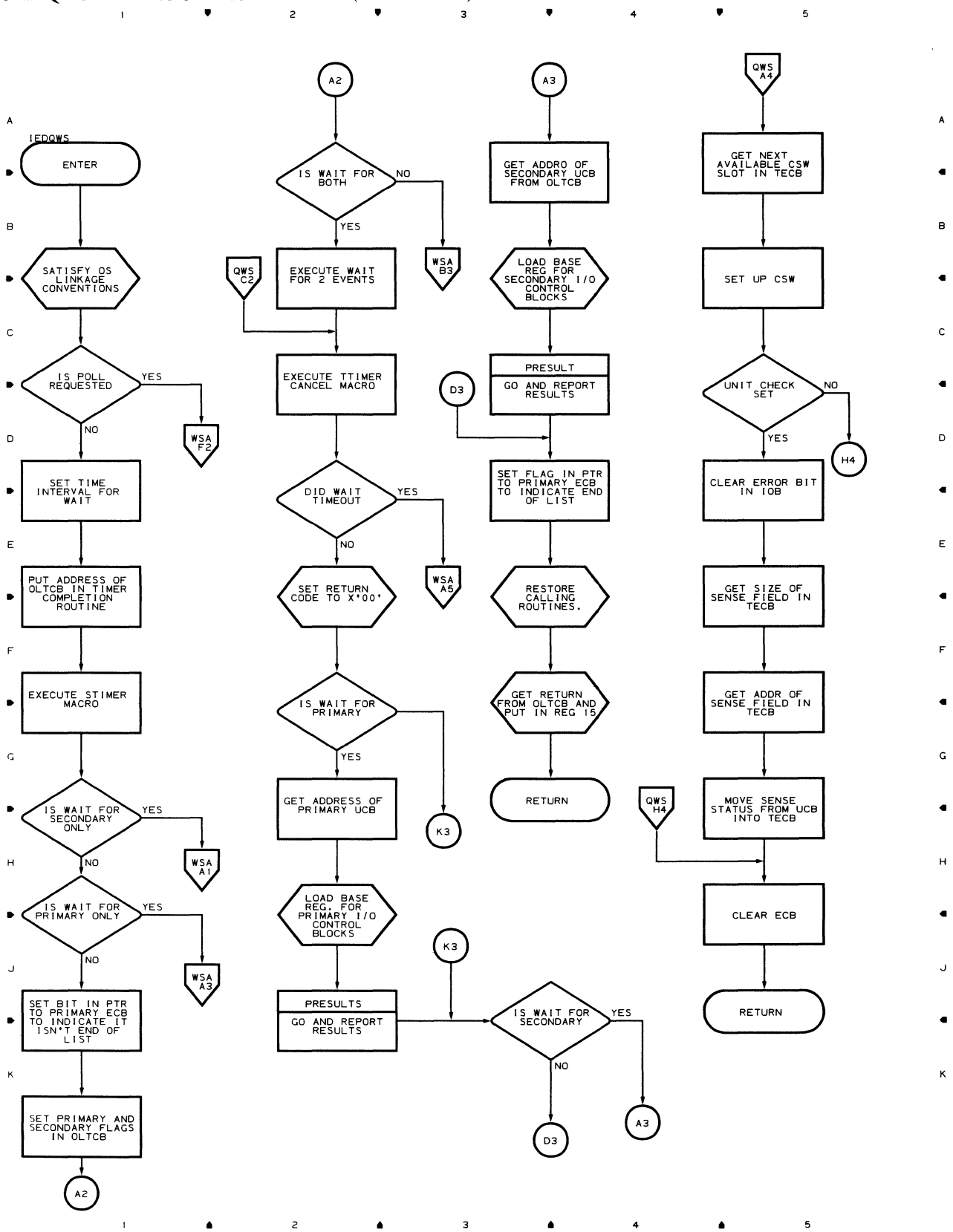


Chart WSA WAITIO SERVICE ROUTINE (PART 2 OF 3)

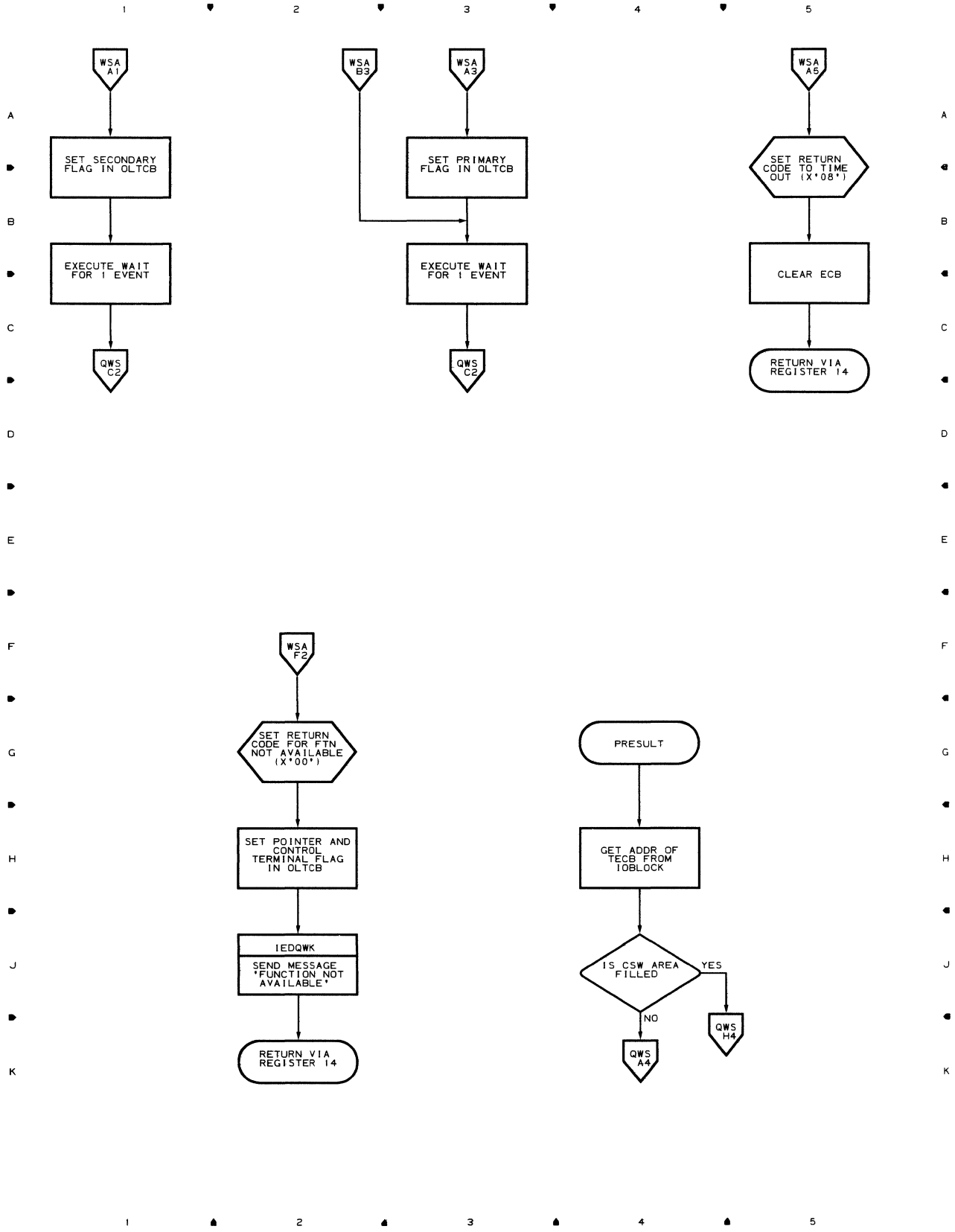
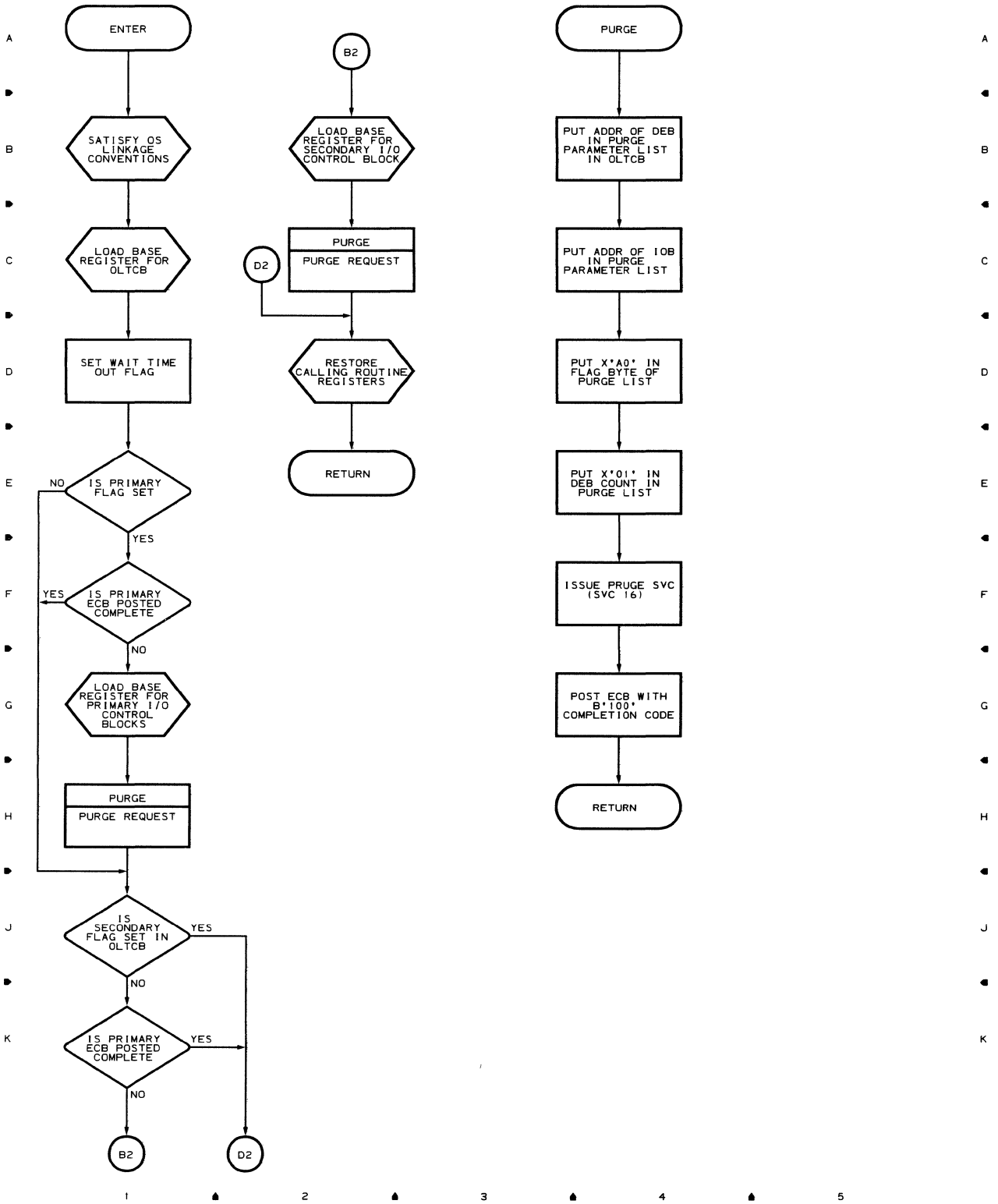


Chart WSB WAITIO SERVICE ROUTINE (PART 3 OF 3)



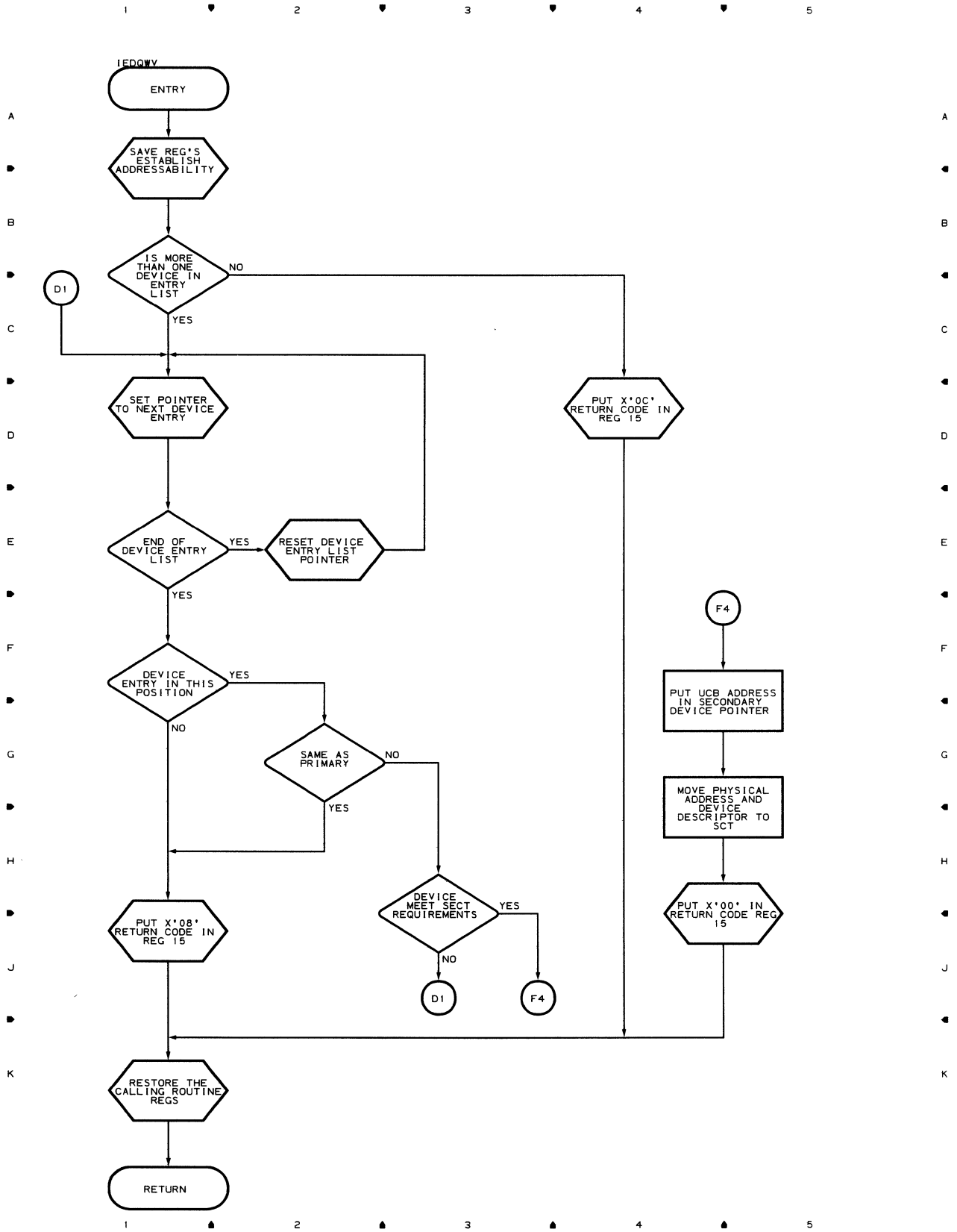

IEDQWV
ENTRY
SAVE REG'S ESTABLISH ADDRESSABILITY
IS MORE THAN ONE DEVICE IN ENTRY LIST
NO
YES
D1
SET POINTER TO NEXT DEVICE ENTRY
PUT X'0C' RETURN CODE IN REG 15
END OF DEVICE ENTRY LIST
YES
RESET DEVICE ENTRY LIST POINTER
YES
F4
DEVICE ENTRY IN THIS POSITION
YES
NO
PUT UCB ADDRESS IN SECONDARY DEVICE POINTER
SAME AS PRIMARY
NO
YES
MOVE PHYSICAL ADDRESS AND DEVICE DESCRIPTOR TO SCT
DEVICE MEET SECT REQUIREMENTS
YES
NO
PUT X'08' RETURN CODE IN REG 15
PUT X'00' IN RETURN CODE REG 15
D1
F4
RESTORE THE CALLING ROUTINE REGS
RETURN

Chart QWX CONVERT SERVICE MODULE

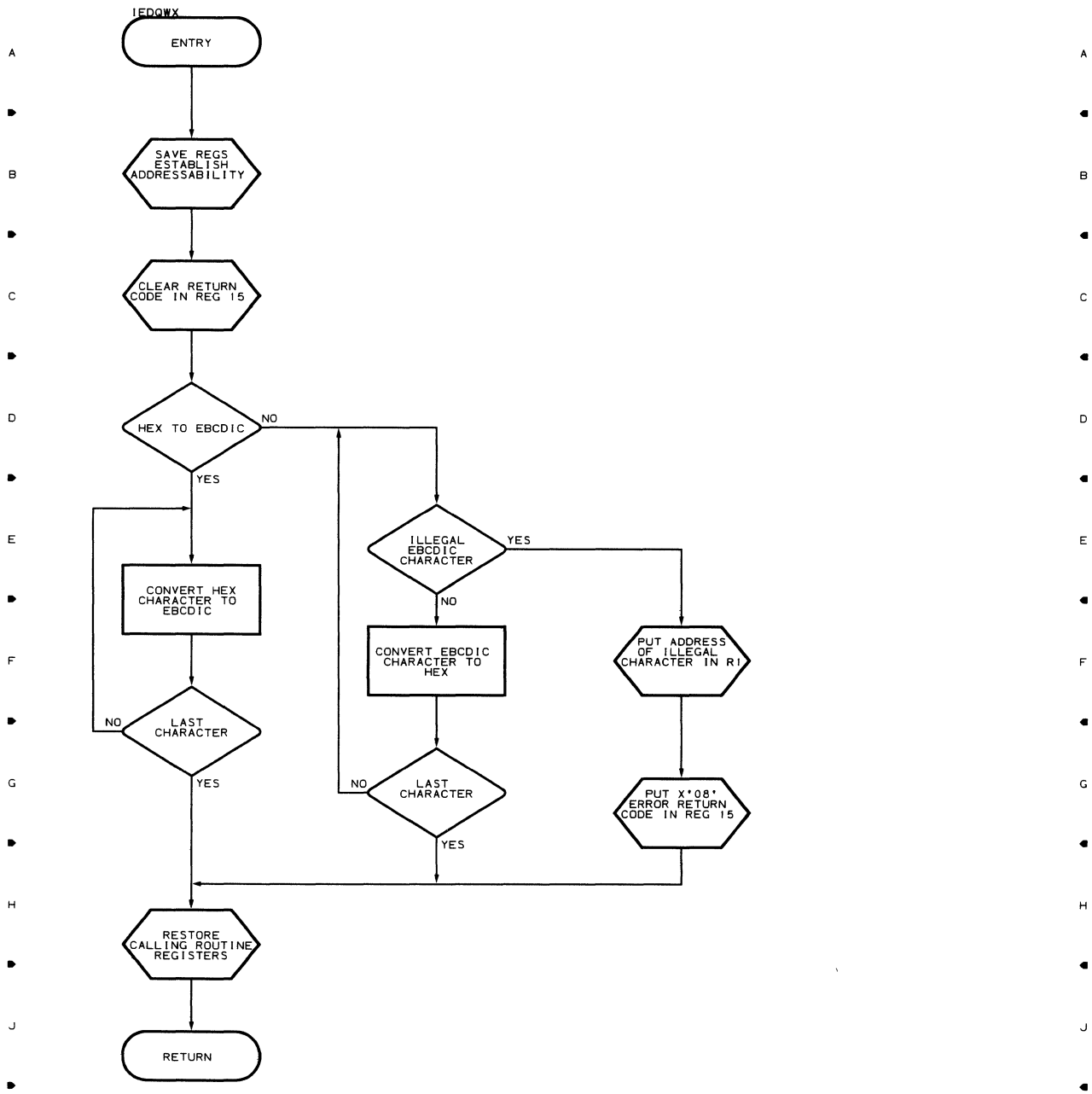


Chart QWY GETCONFG SERVICE MODULE

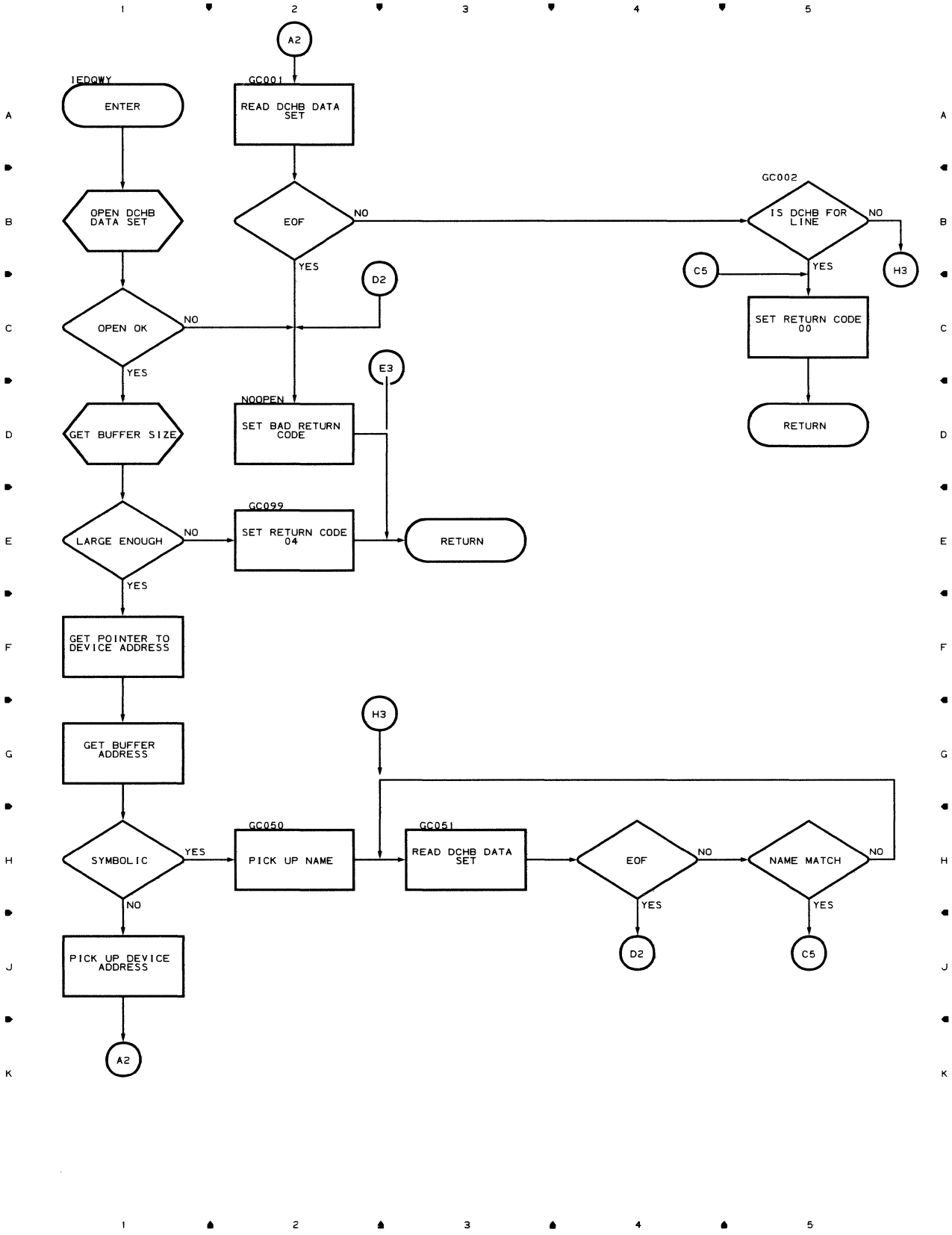


Chart Q30 REMOTE ACCESS ERROR MODULE

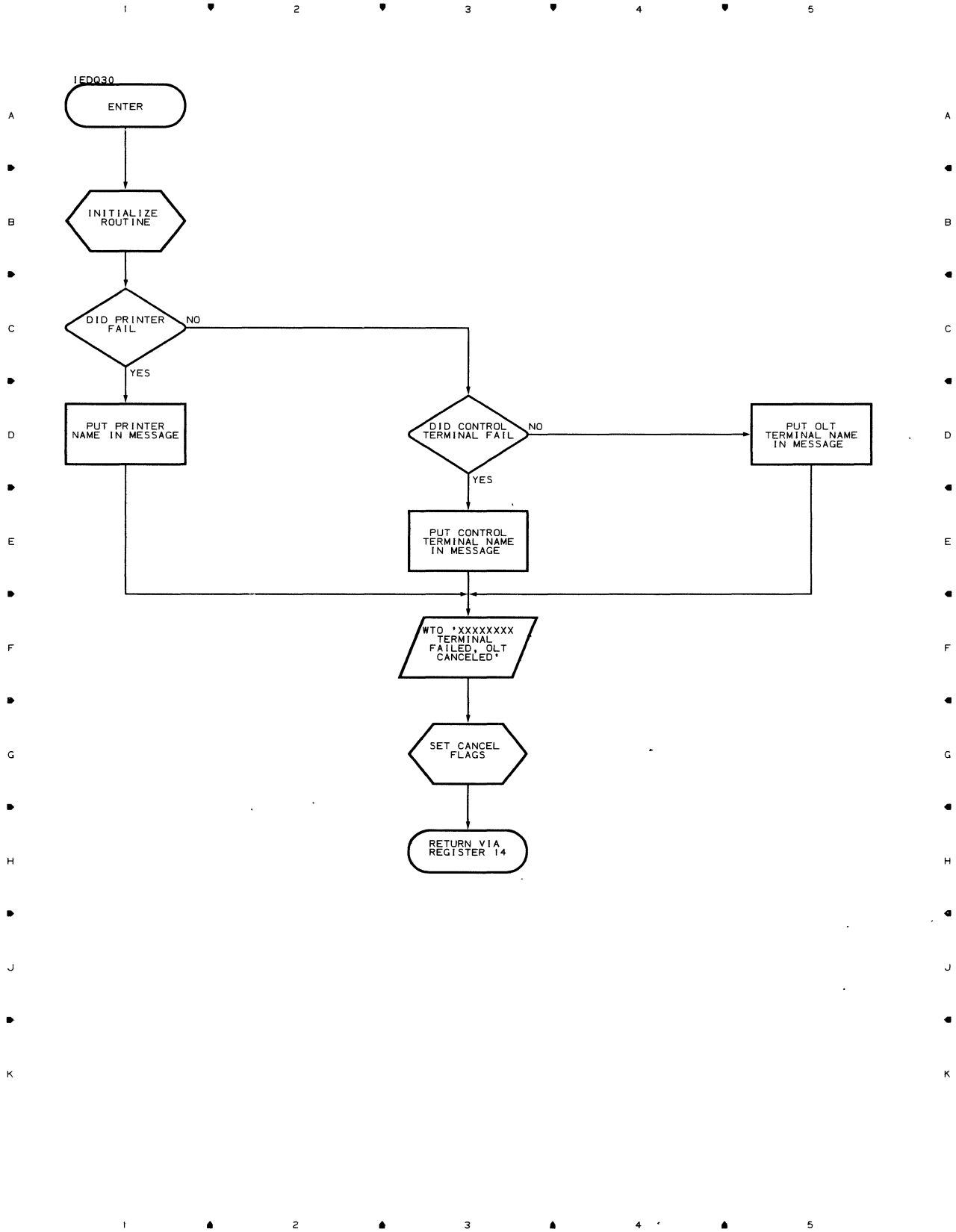


Chart Q31 ENABLING MODULE (PART 1 OF 7)

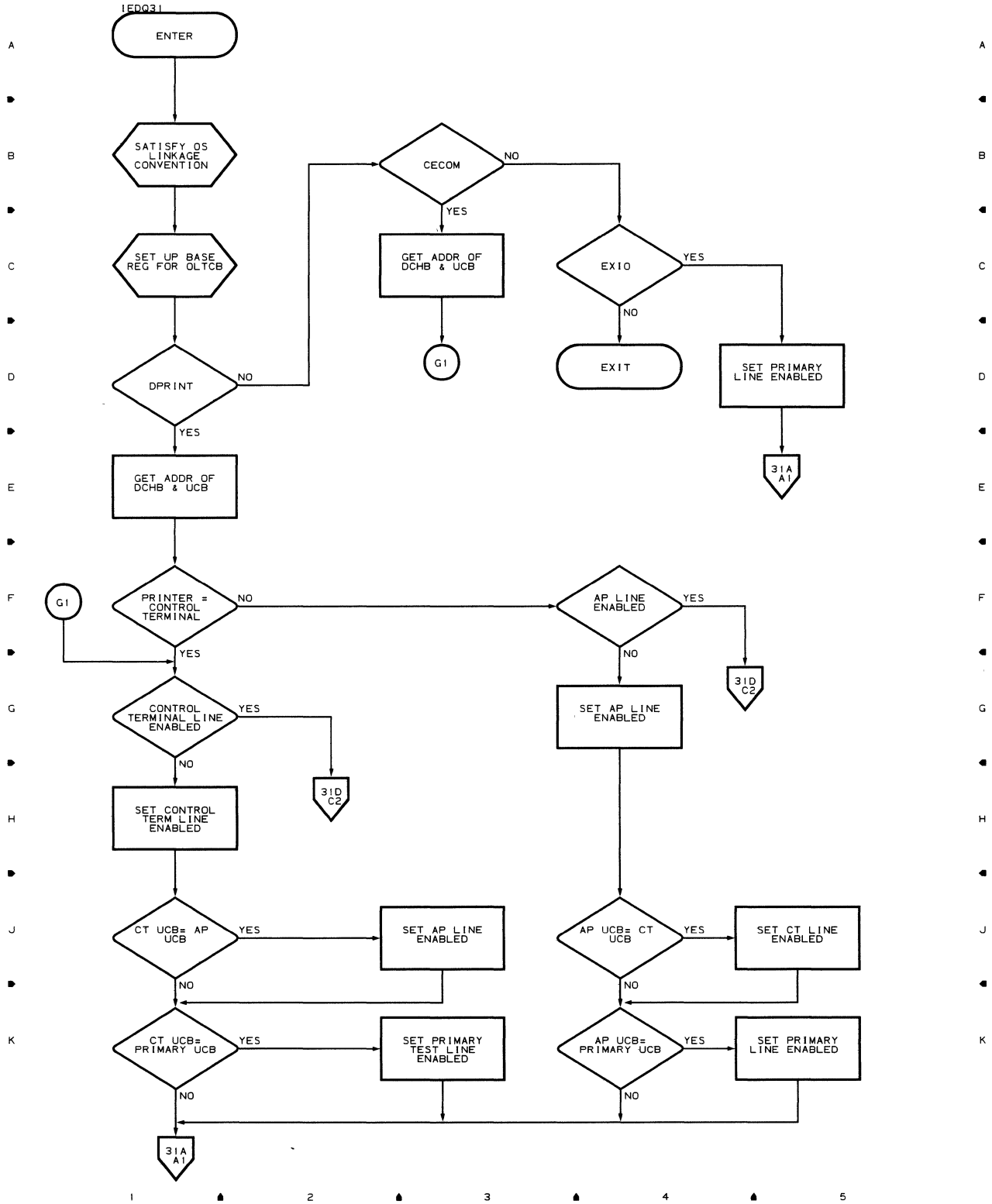


Chart 31A ENABLING MODULE (PART 2 OF 7)

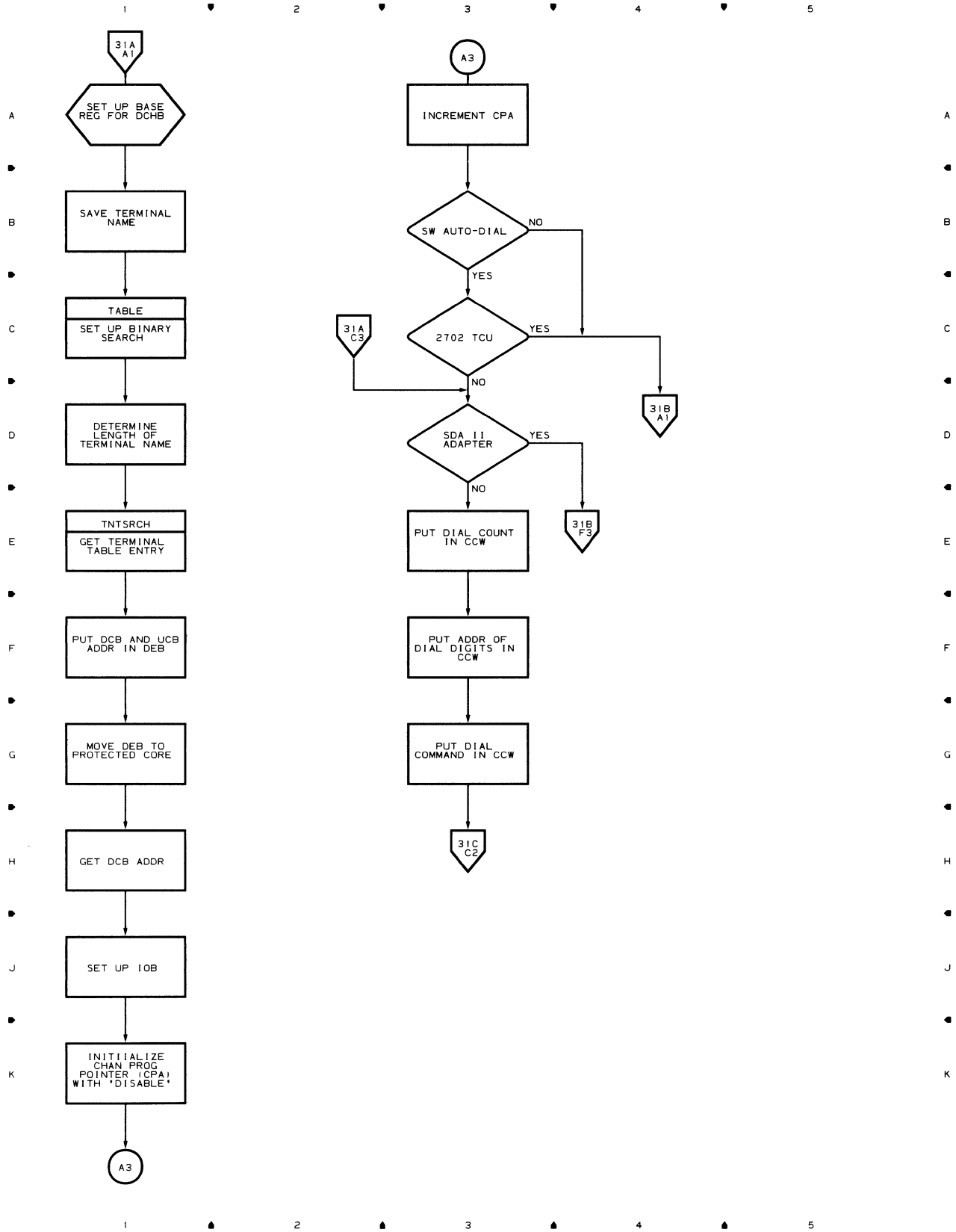


Chart 31B ENABLING MODULE (PART 3 OF 7)

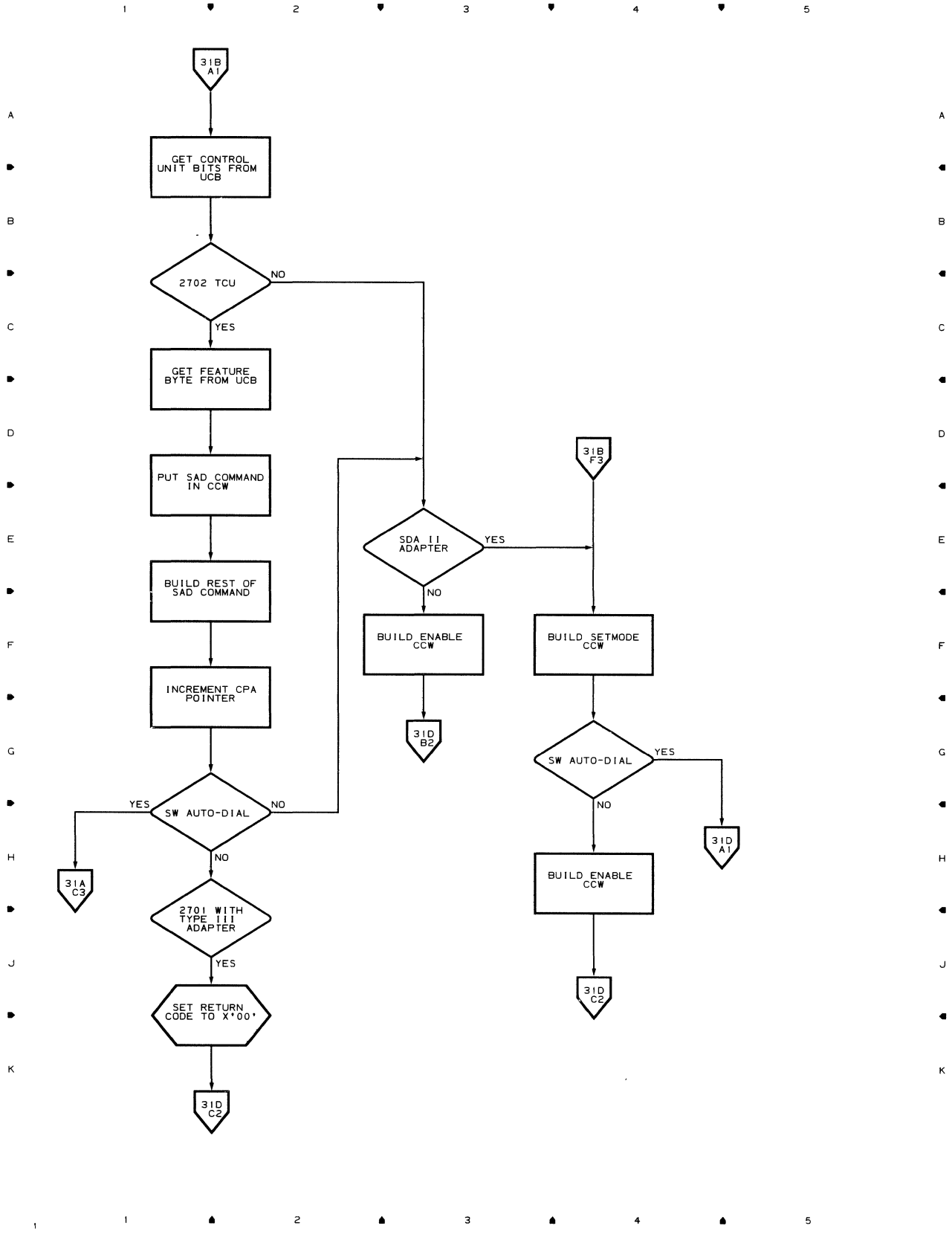


Chart 31C ENABLING MODULE (PART 4 OF 7)

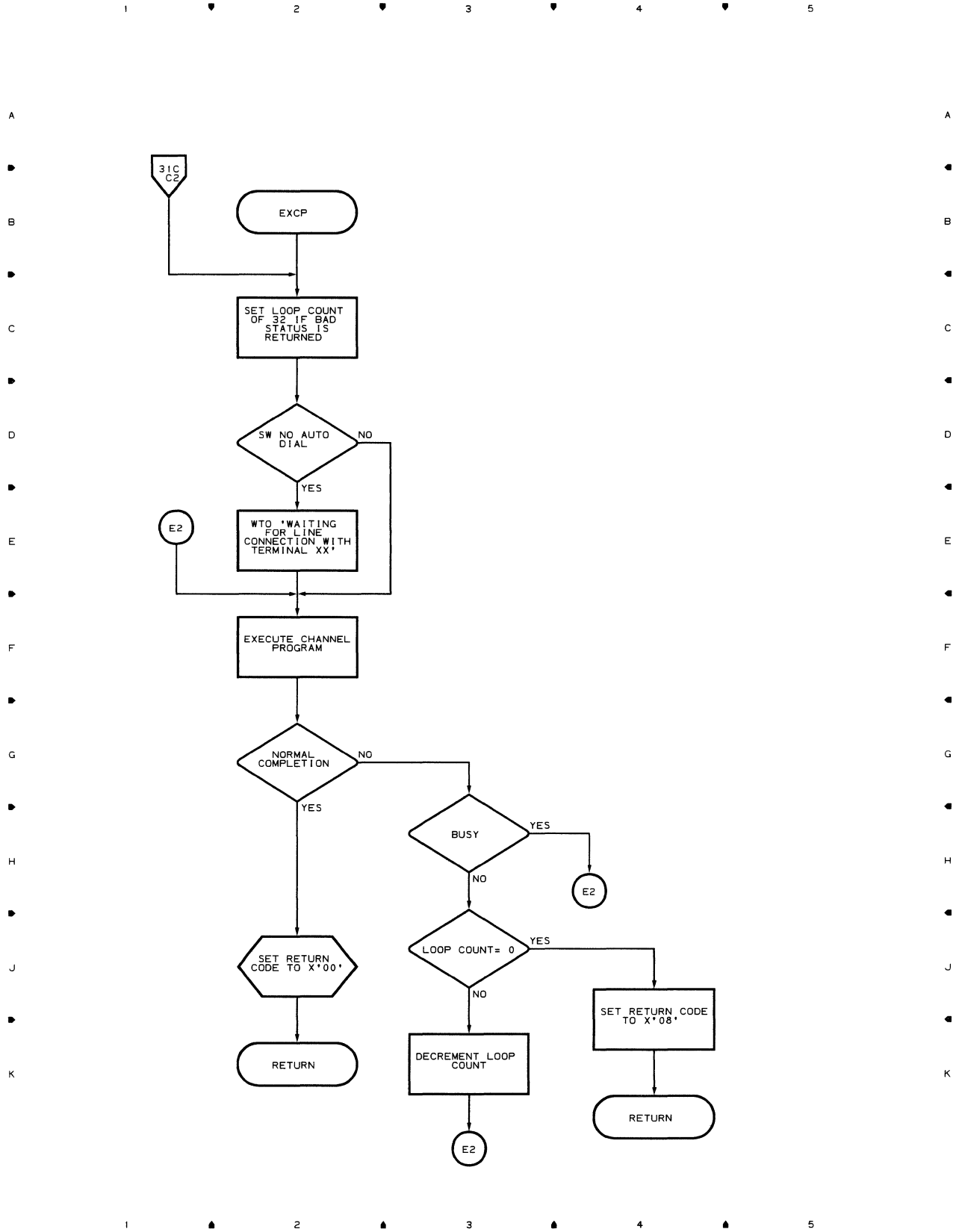


Chart 31D ENABLING MODULE (PART 5 OF 7)

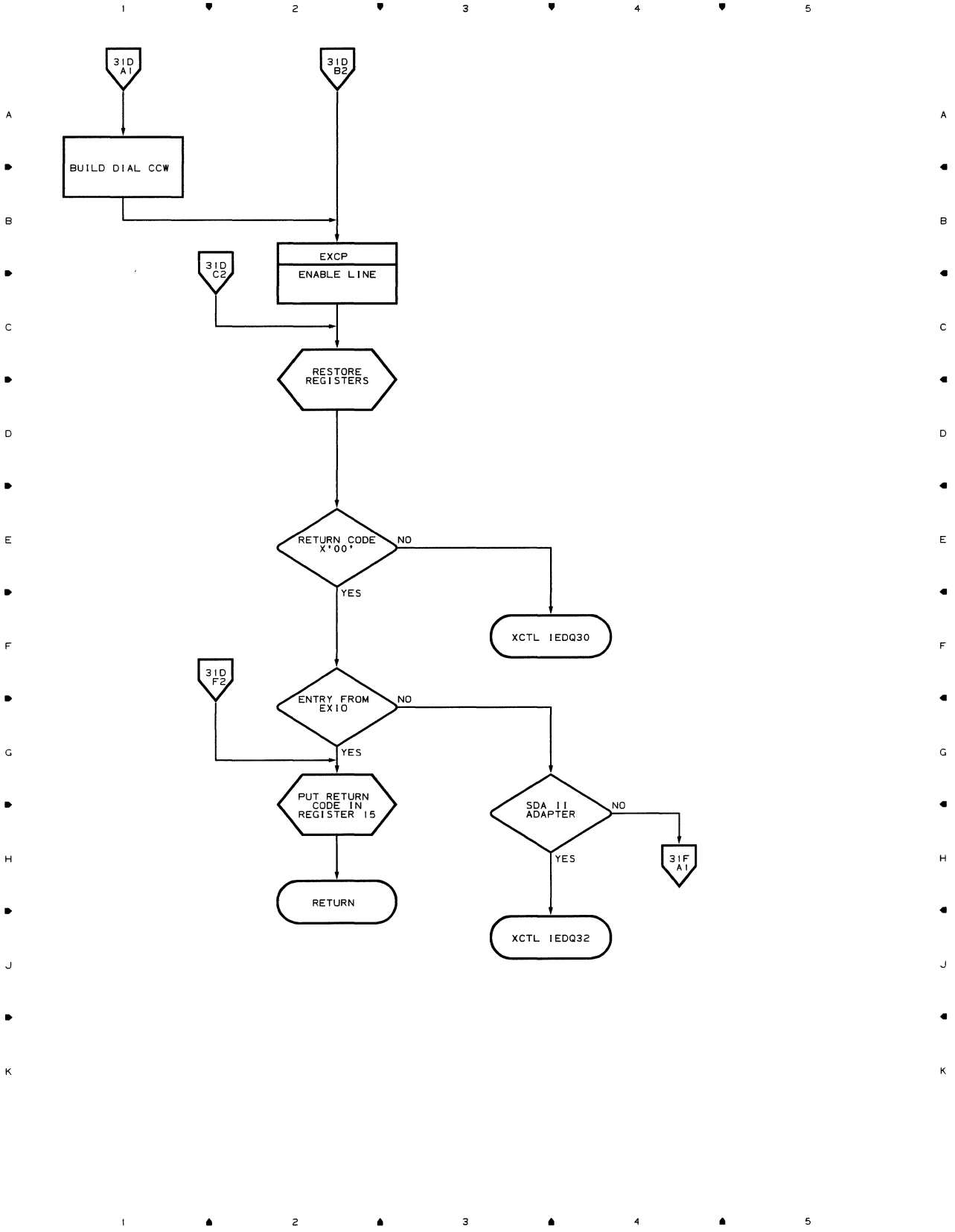


Chart 31E ENABLING MODULE (PART 6 OF 7)

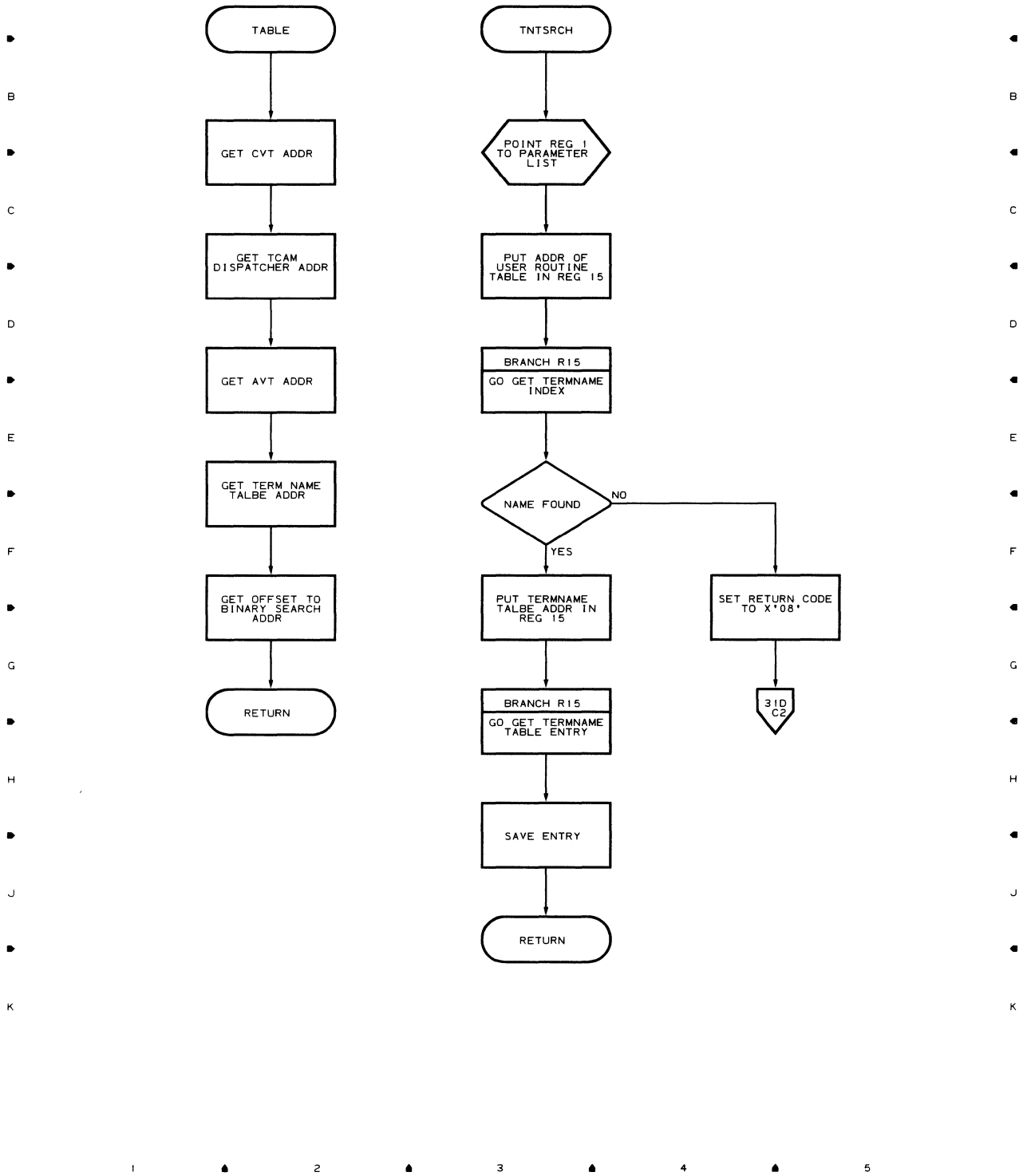


Chart 31F ENABLING MODULE (PART 7 OF 7)

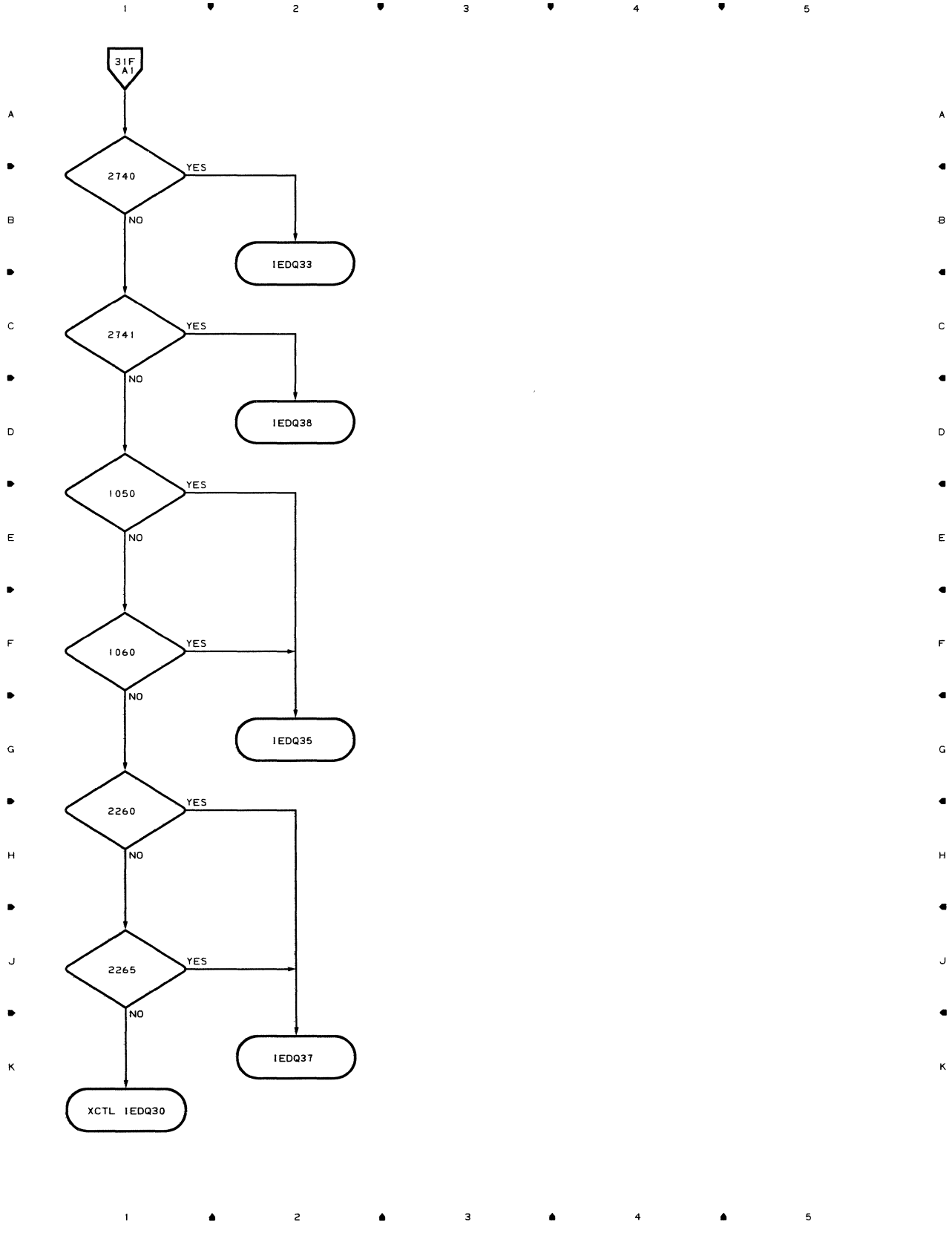


Chart Q32 BSC REMOTE PRINT MODULE (PART 1 OF 2)

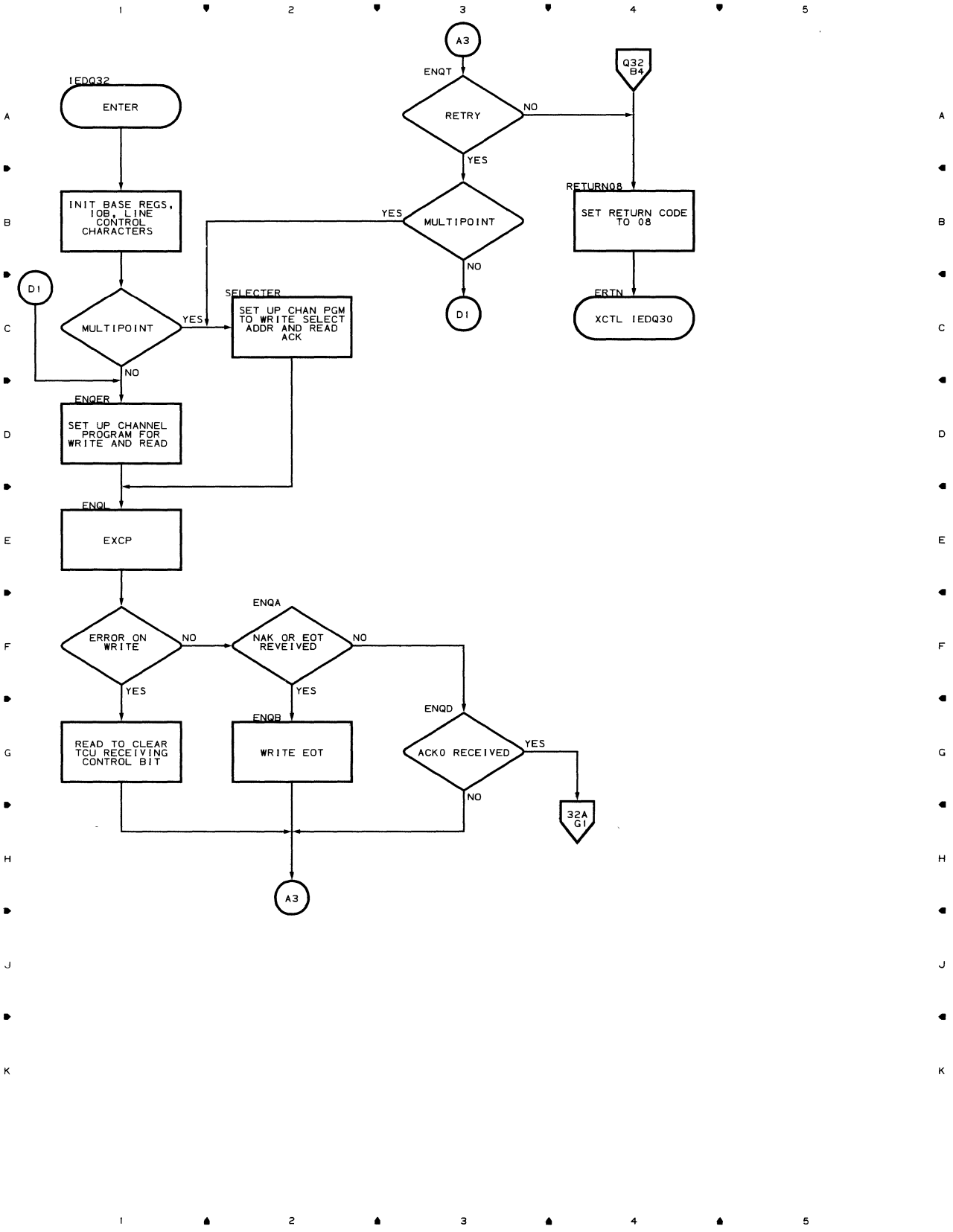


Chart 32A BSC REMOTE PRINT MODULE (PART 2 OF 2)

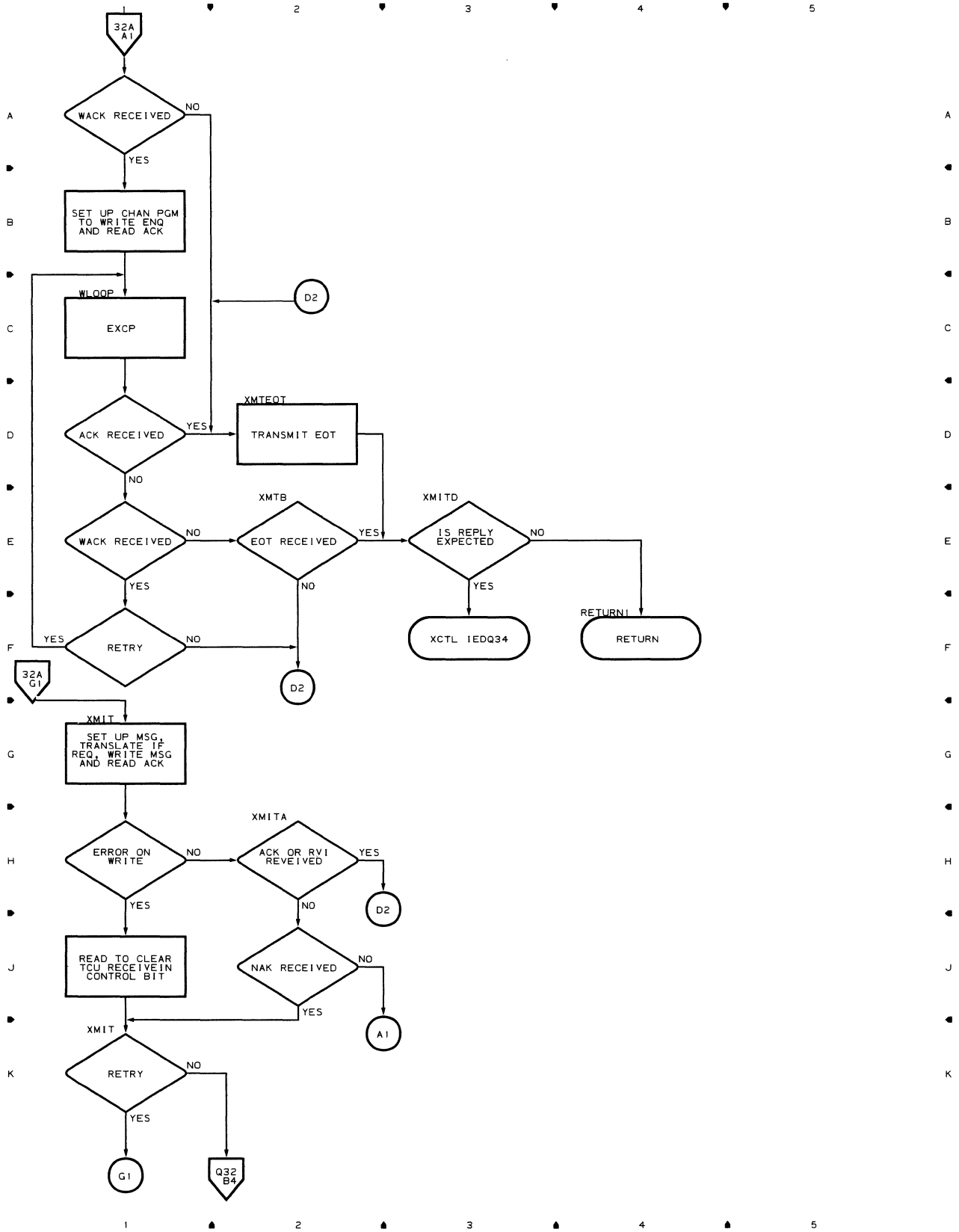


Chart Q33 START-STOP REMOTE PRINT - 2740 (PART 1 OF 4)

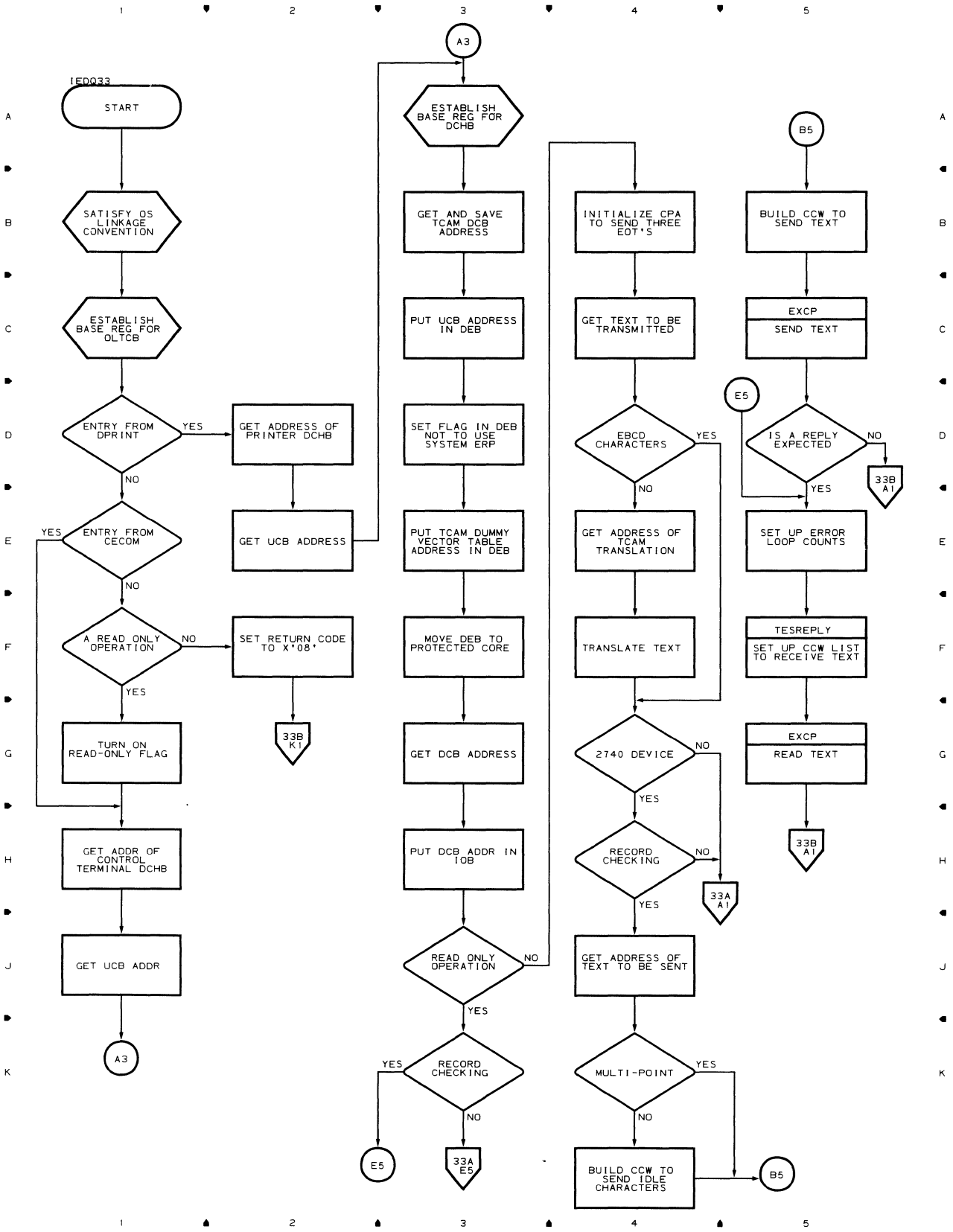


Chart 33A START-STOP REMOTE PRINT - 2740 (PART 2 OF 4)

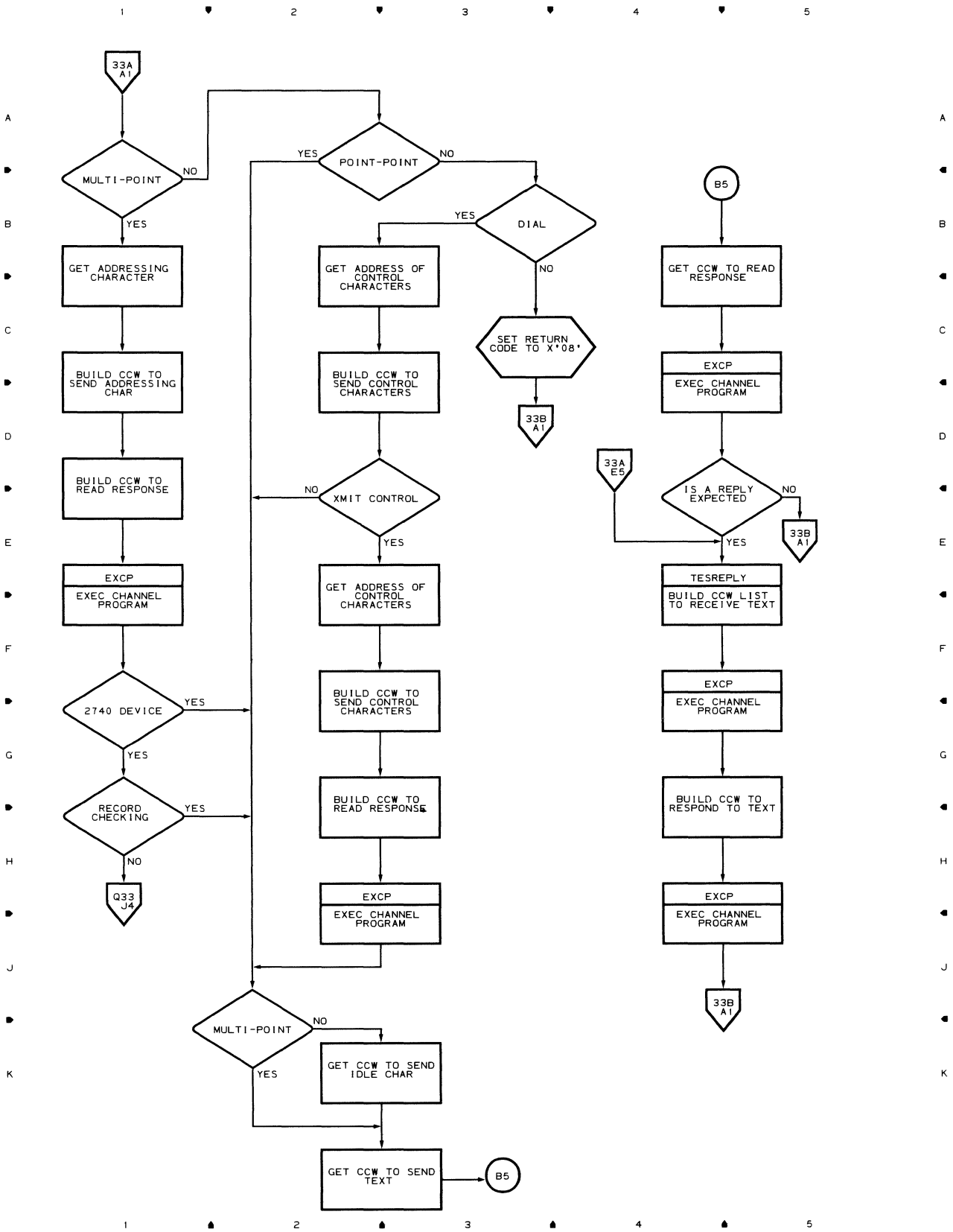


Chart 33B START-STOP REMOTE PRINT - 2740 (PART 3 OF 4)

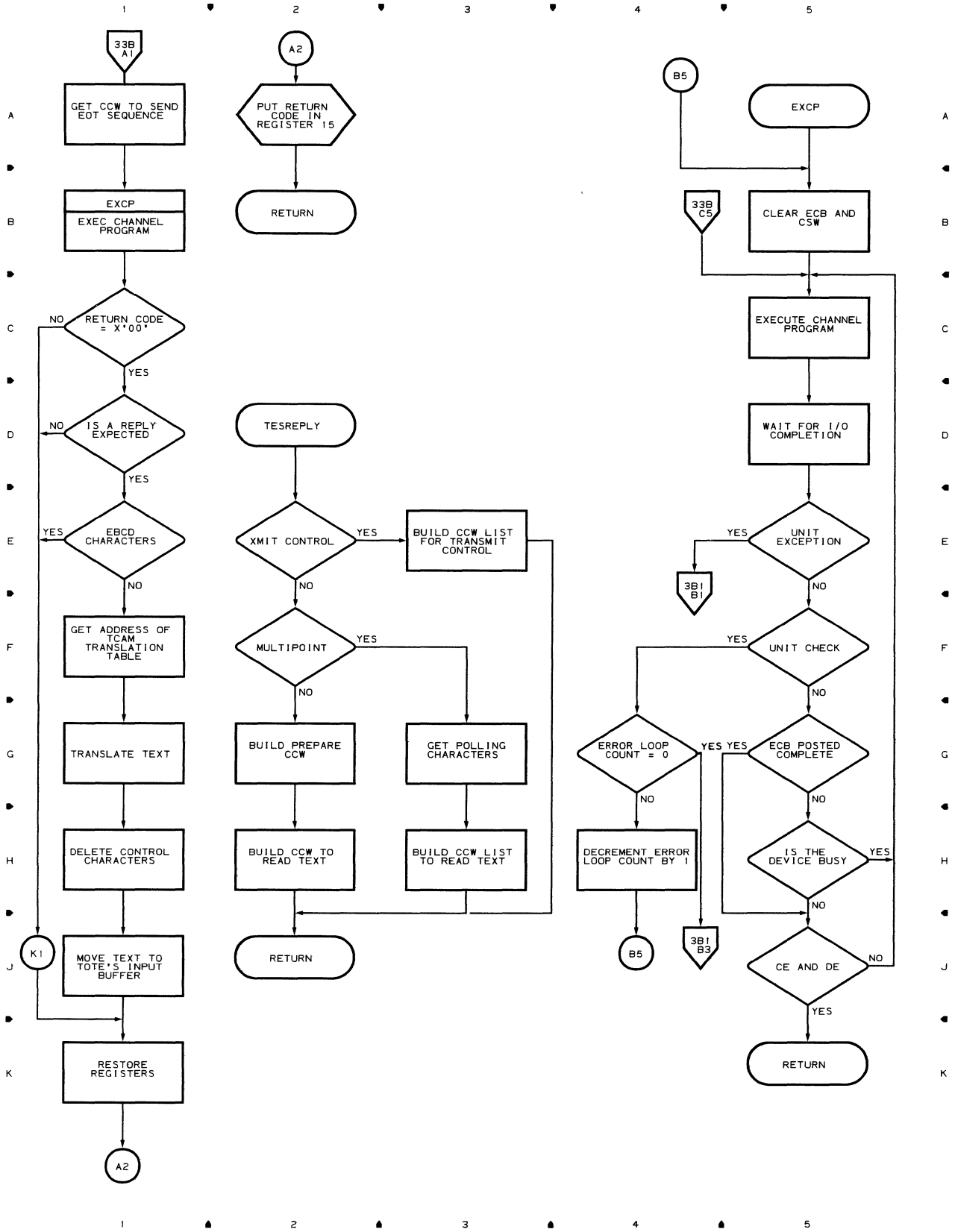


Chart 3B1 START-STOP REMOTE PRINT - 2740 (PART 4 OF 4)

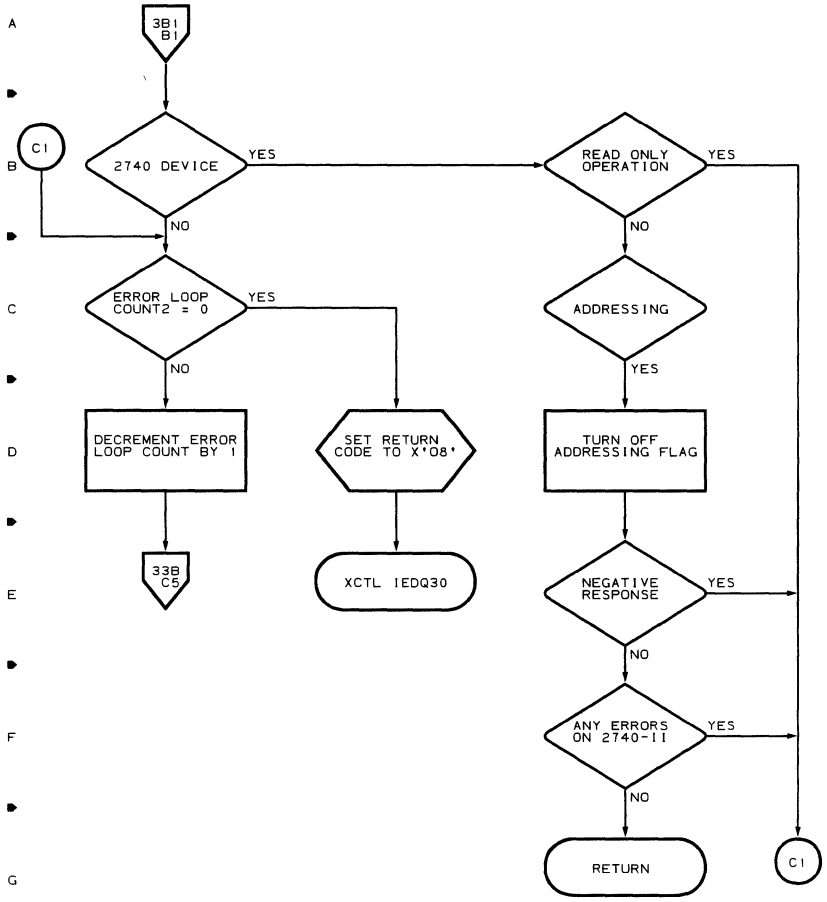


Chart Q34 BSC REMOTE PRINT SUBMODULE (PART 1 OF 2)

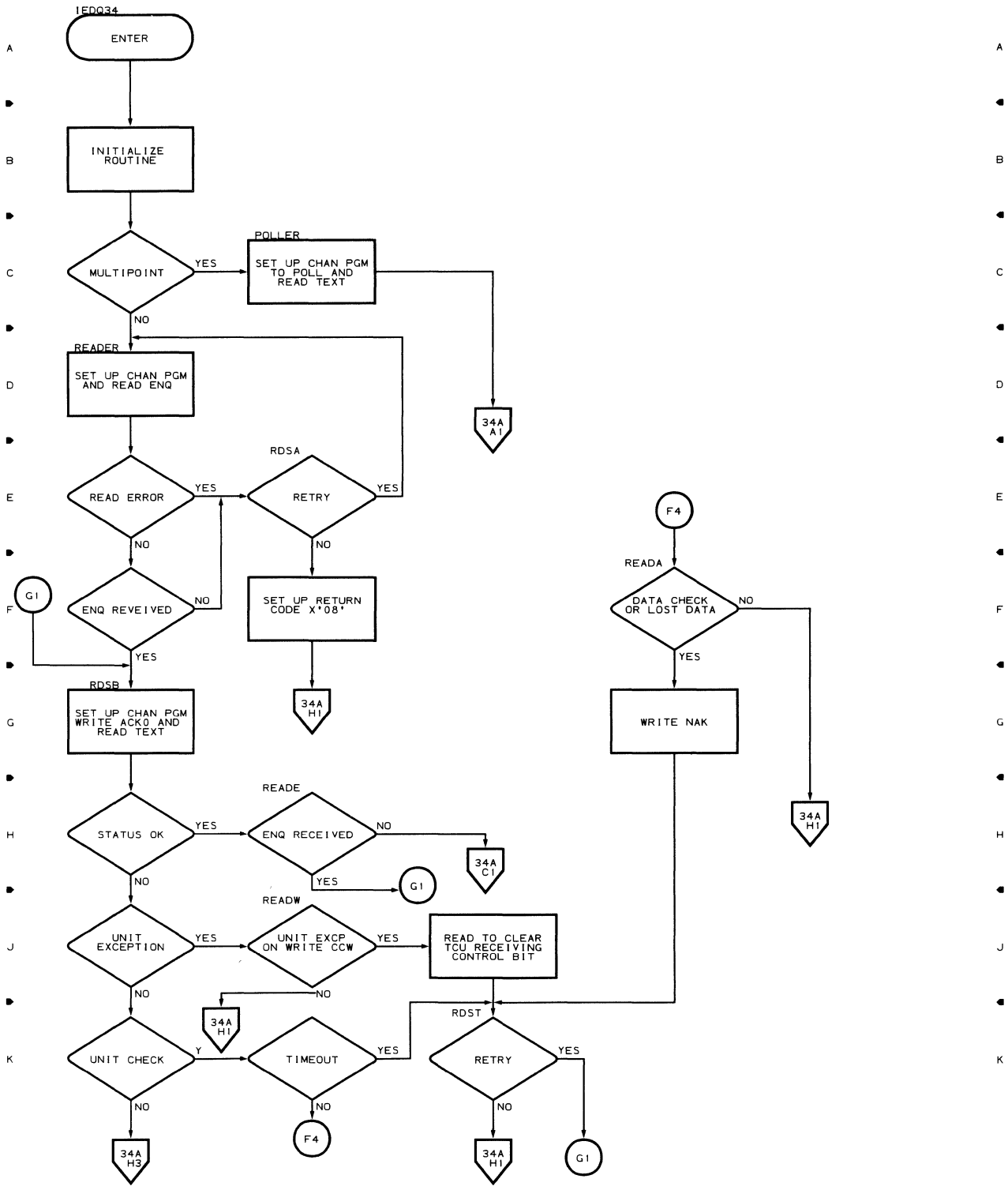


Chart 34A BSC REMOTE PRINT SUBMODULE (PART 2 OF 2)

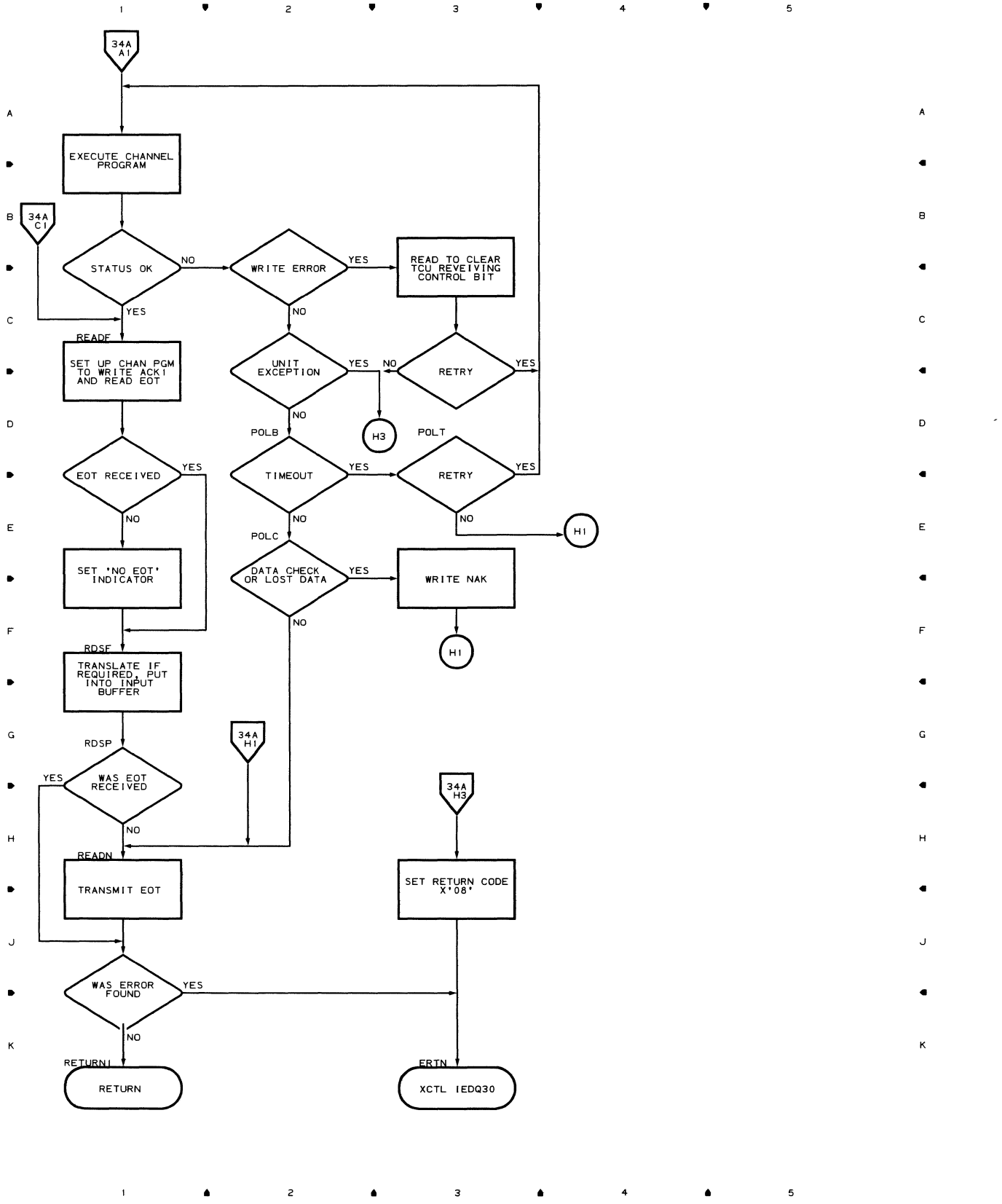


Chart Q35 START-STOP REMOTE PRINT - 1050 AND 1060 (PART 1 OF 3)

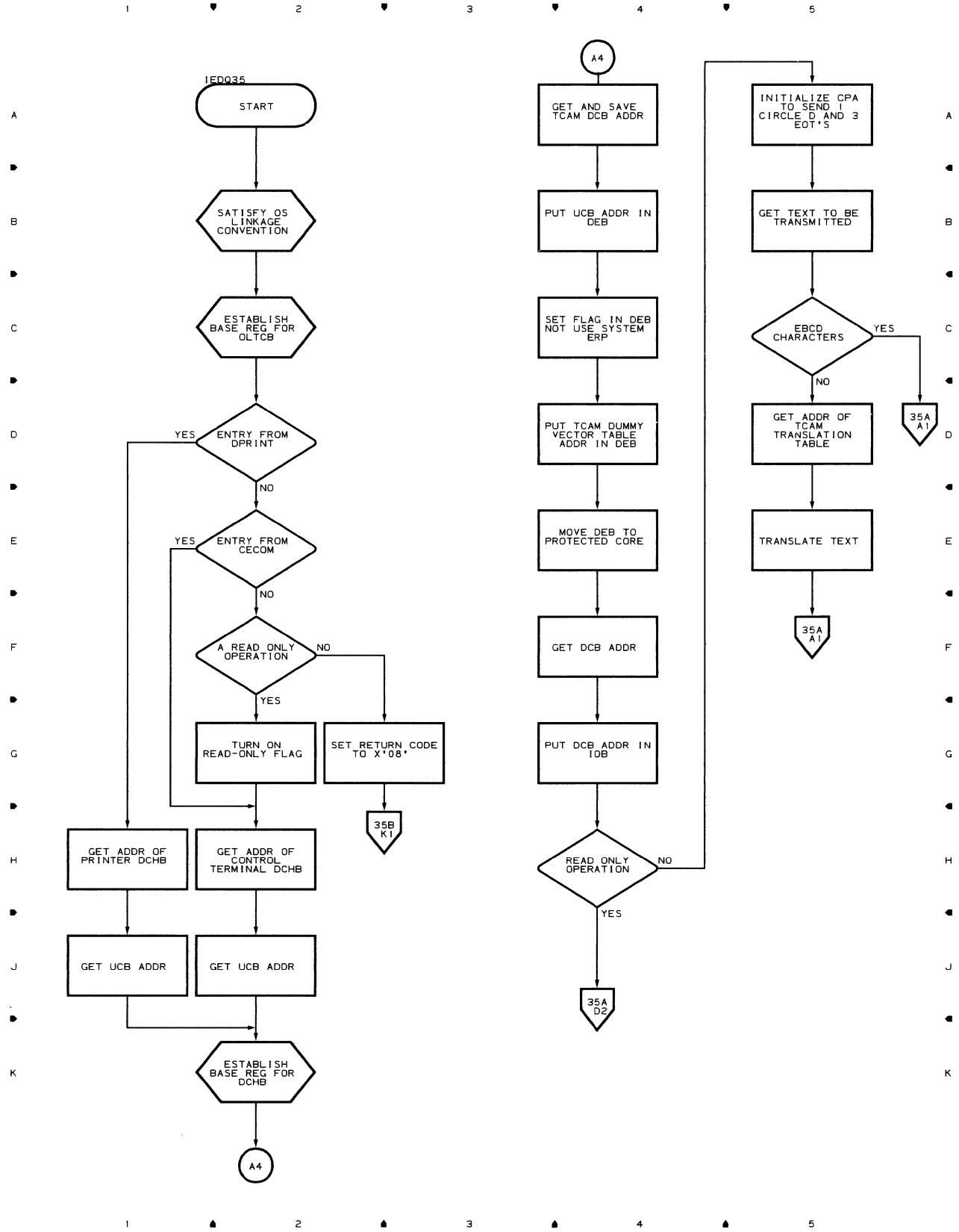


Chart 35A START-STOP REMOTE PRINT - 1050 AND 1060 (PART 2 OF 3)

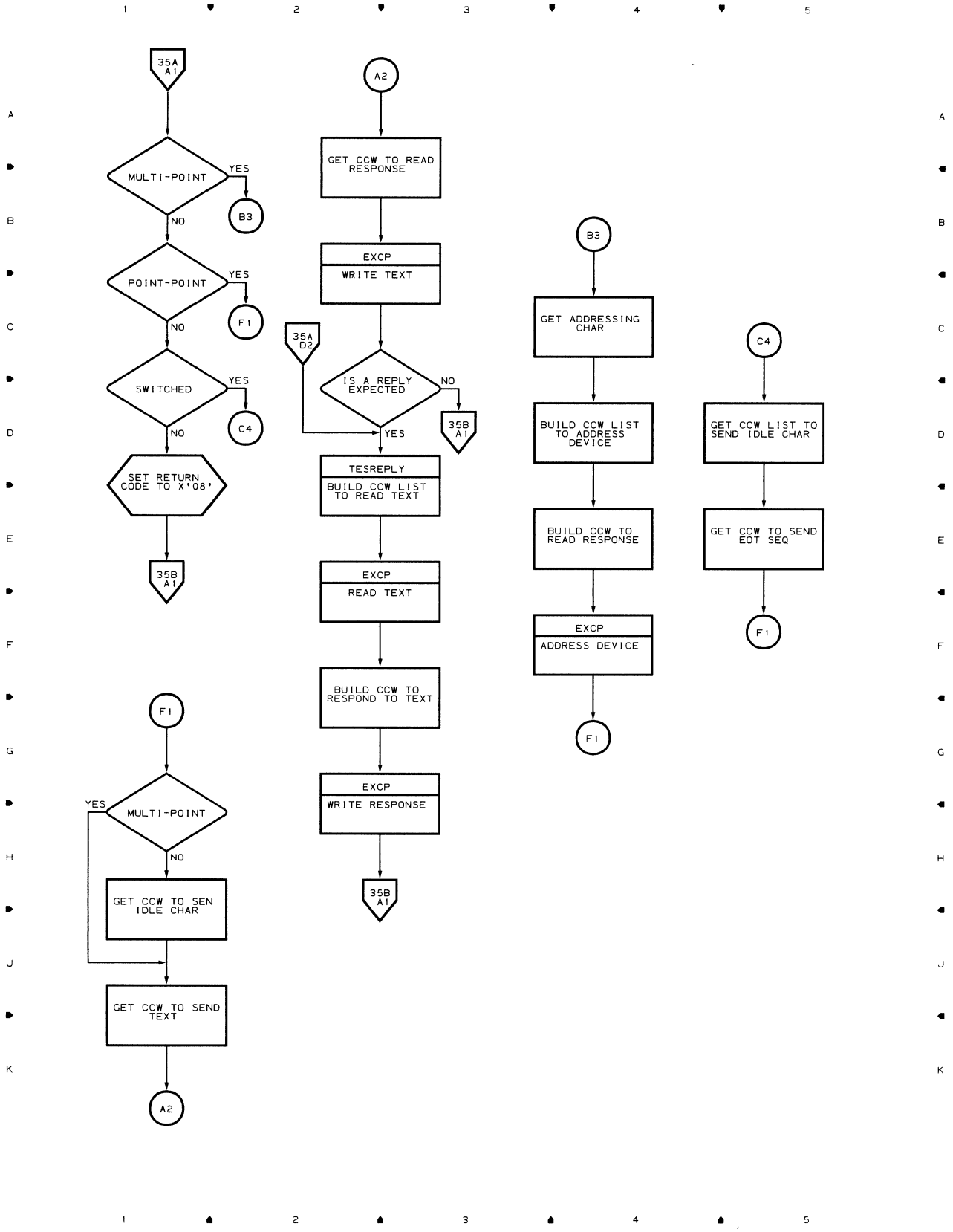


Chart 35B START-STOP REMOTE PRINT - 1050 AND 1060 (PART 3 OF 3)

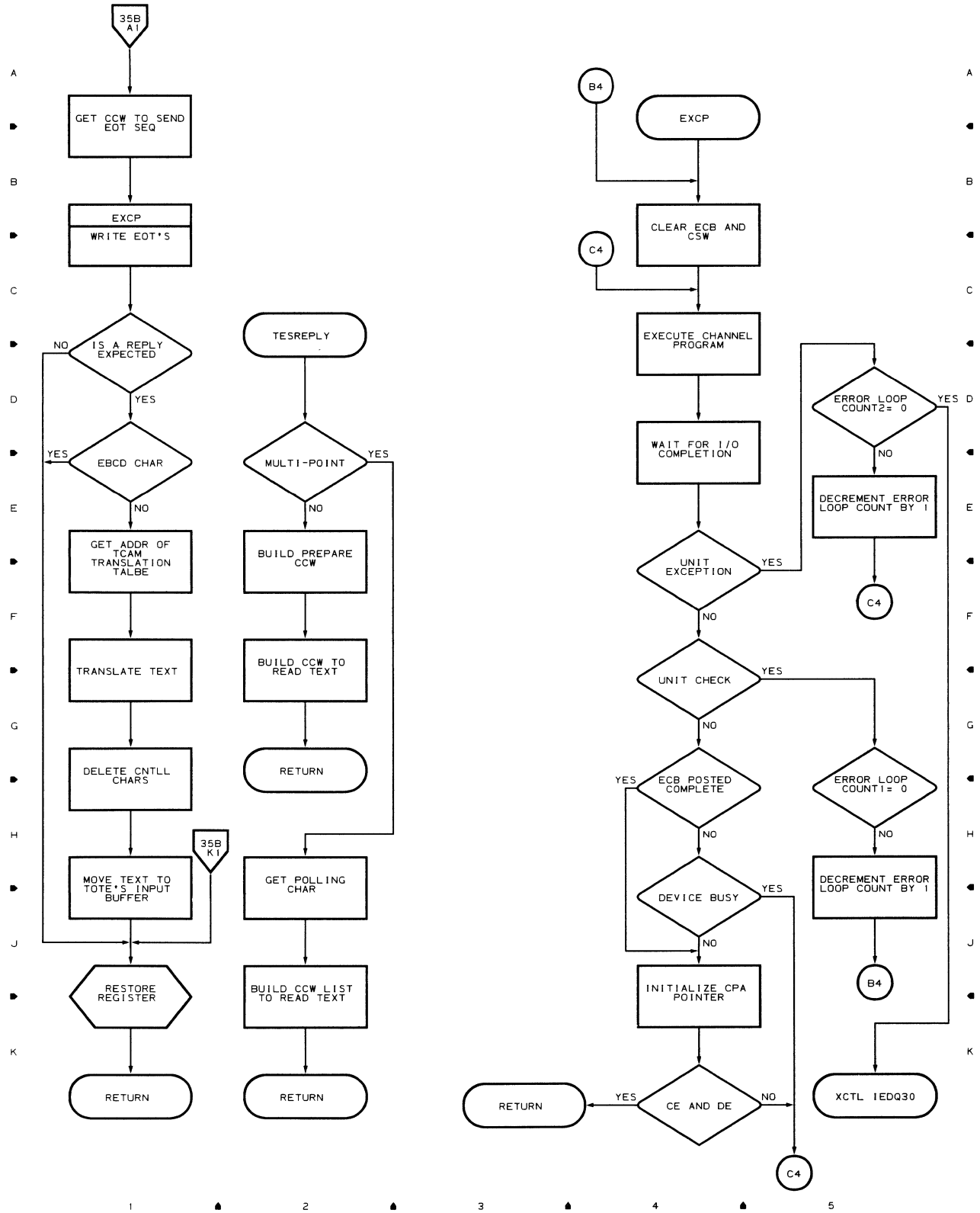


Chart Q36 START-STOP REMOTE PRINT - 1030 (PART 1 OF 3)

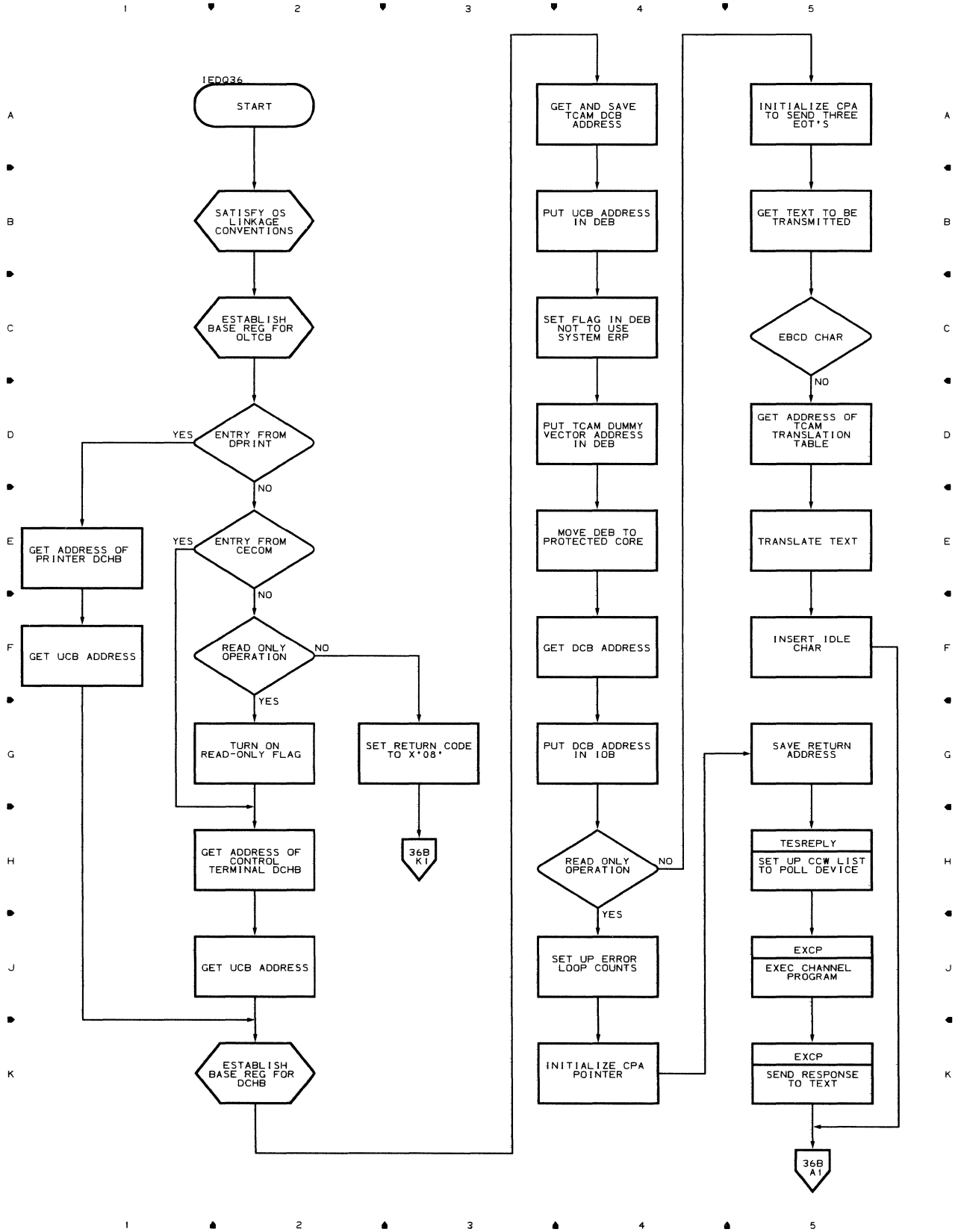


Chart 36A START-STOP REMOTE PRINT - 1030 (PART 2 OF 3)

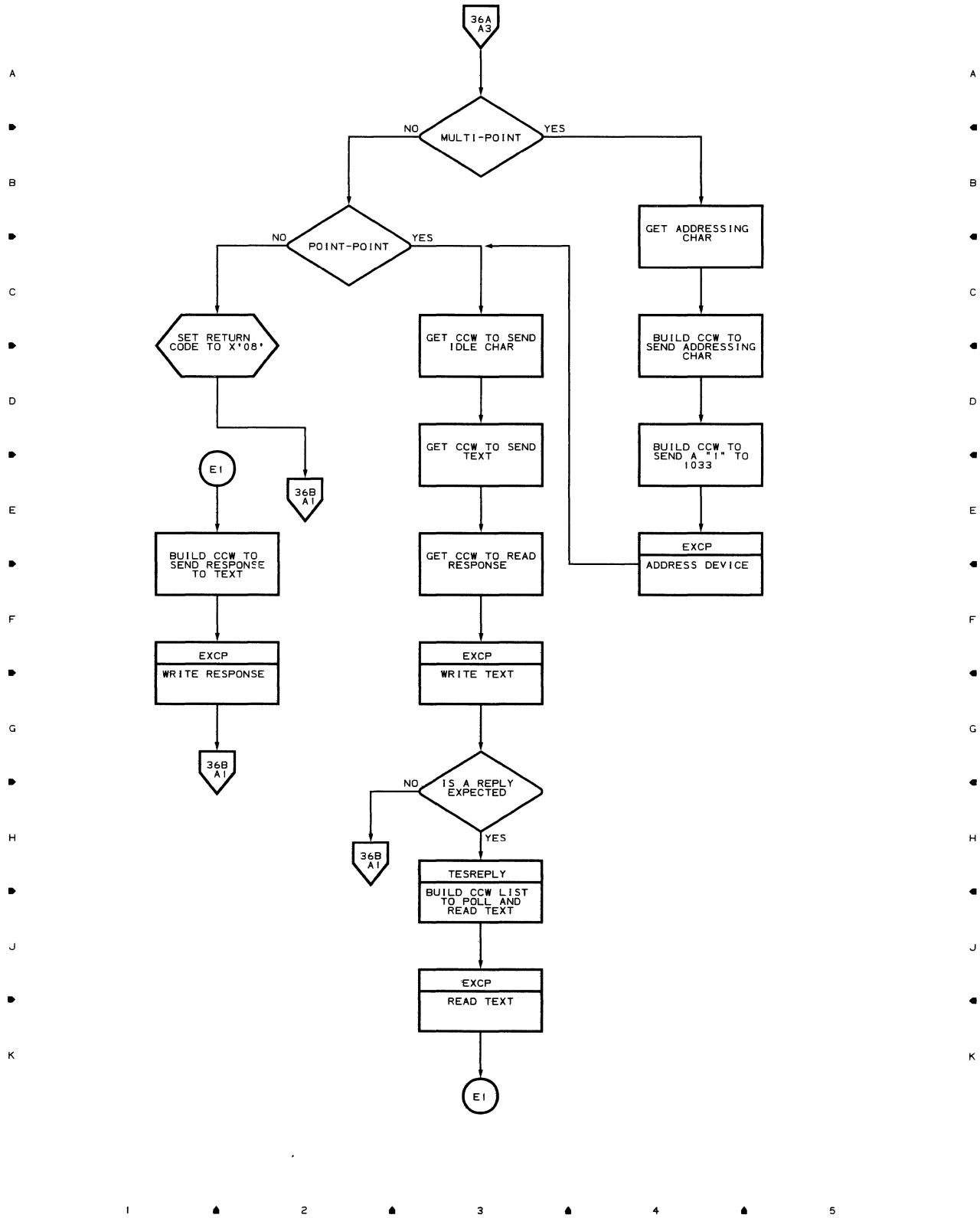


Chart 36B START-STOP REMOTE PRINT - 1030 (PART 3 OF 3)

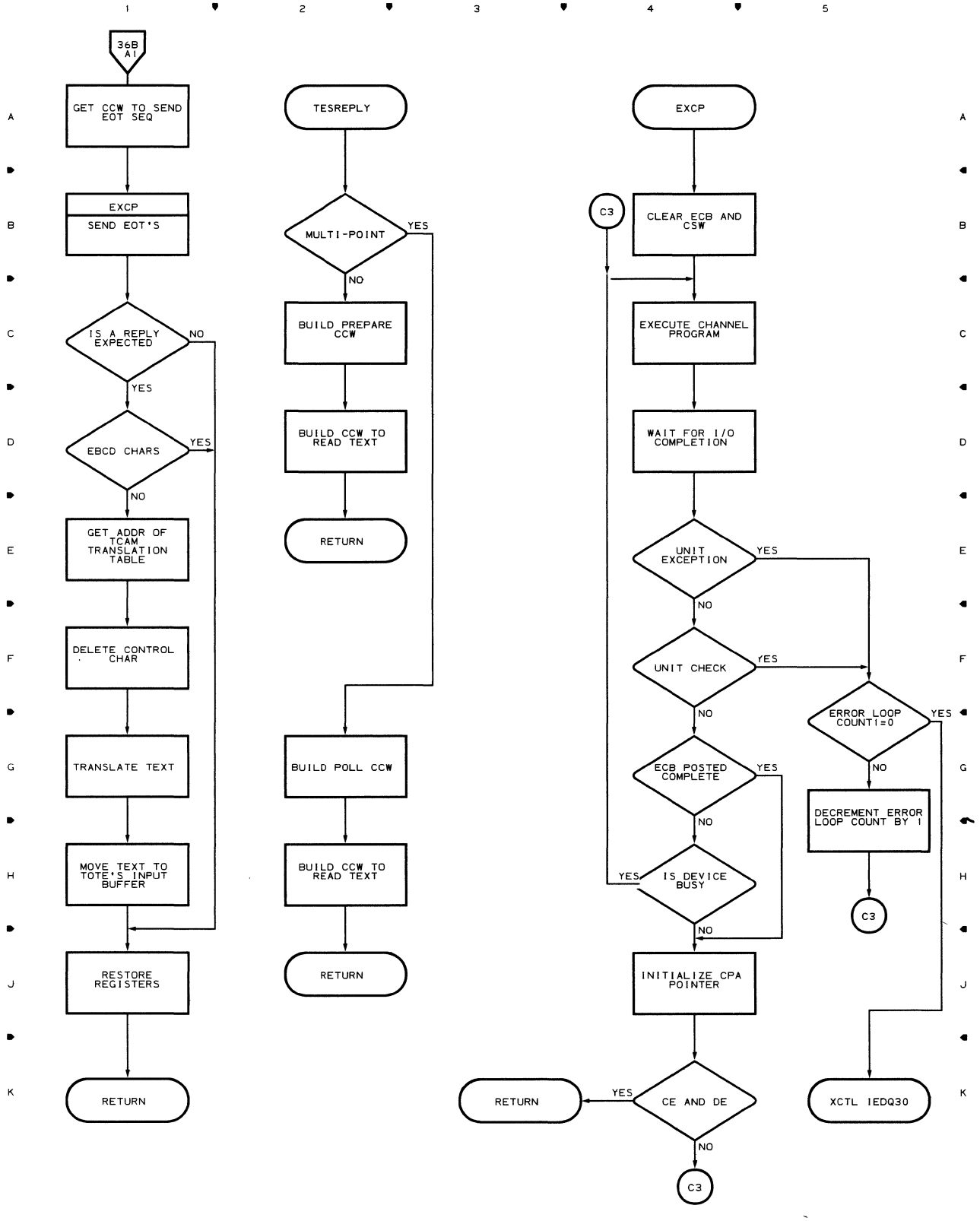


Chart Q37 START-STOP REMOTE PRINT - 2260 AND 2265 (PART 1 OF 2)

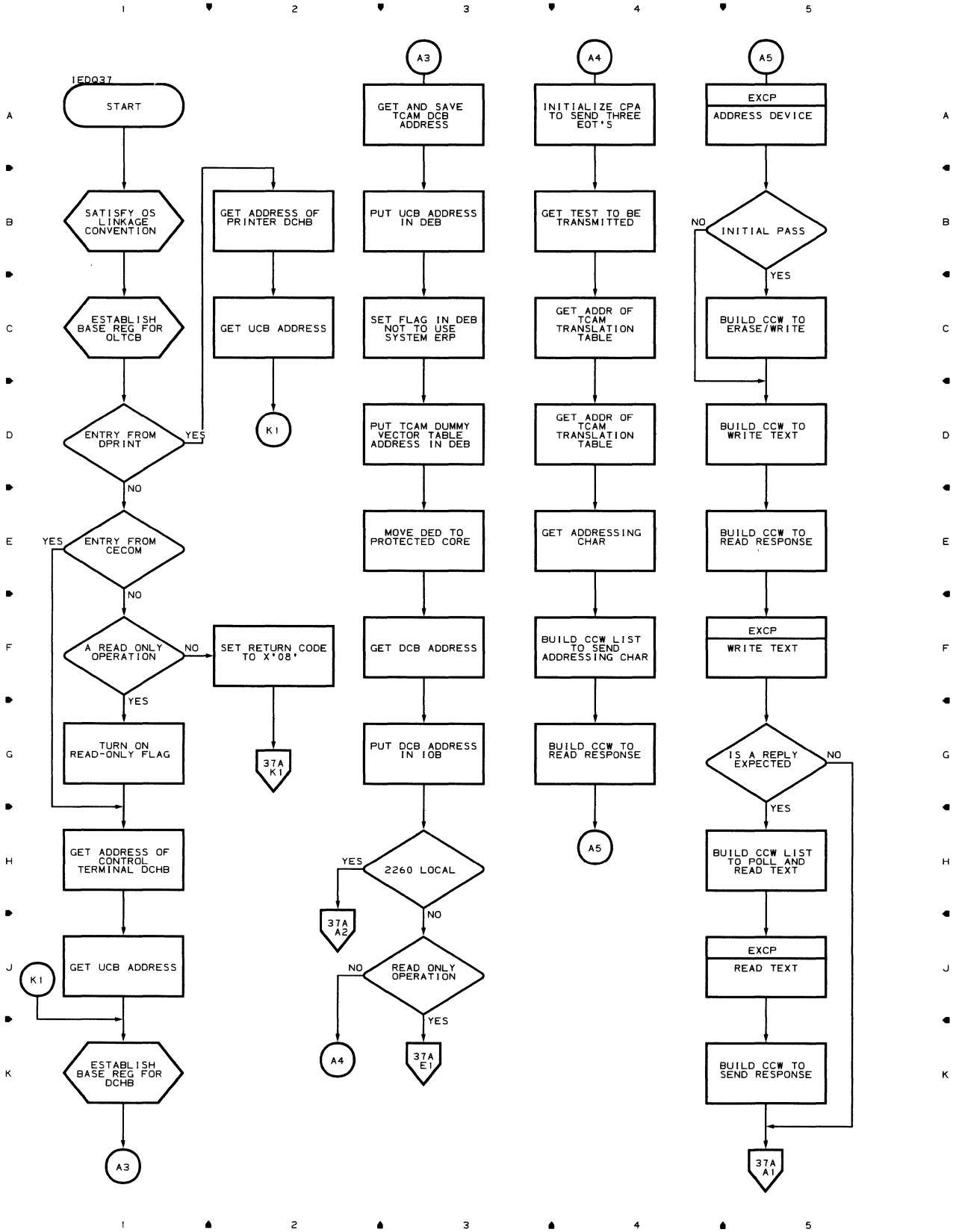


Chart 37A START-STOP REMOTE PRINT - 2260 AND 2265 (PART 2 OF 2)

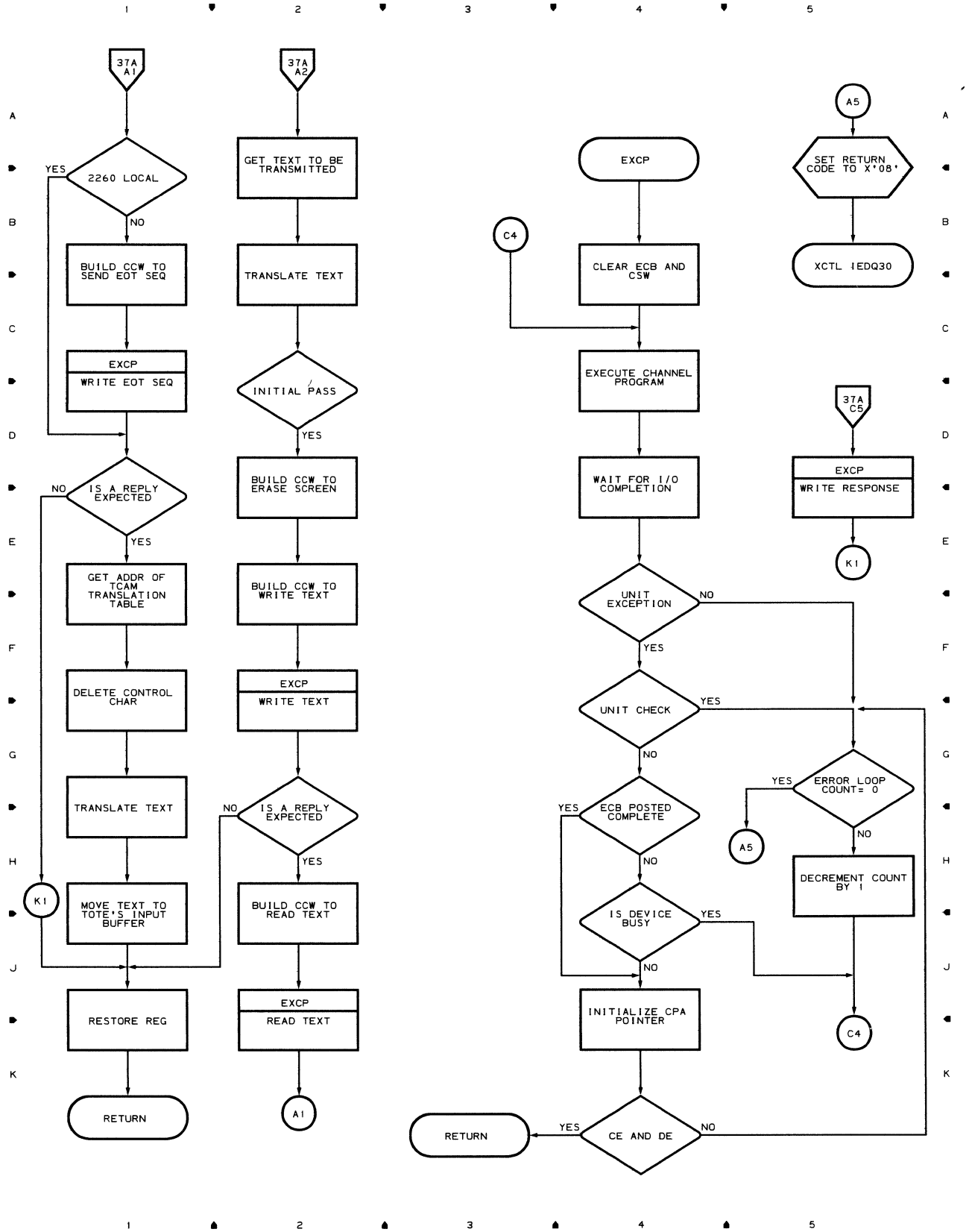


Chart Q38 START-STOP REMOTE PRINT - 2741 (PART 1 OF 3)

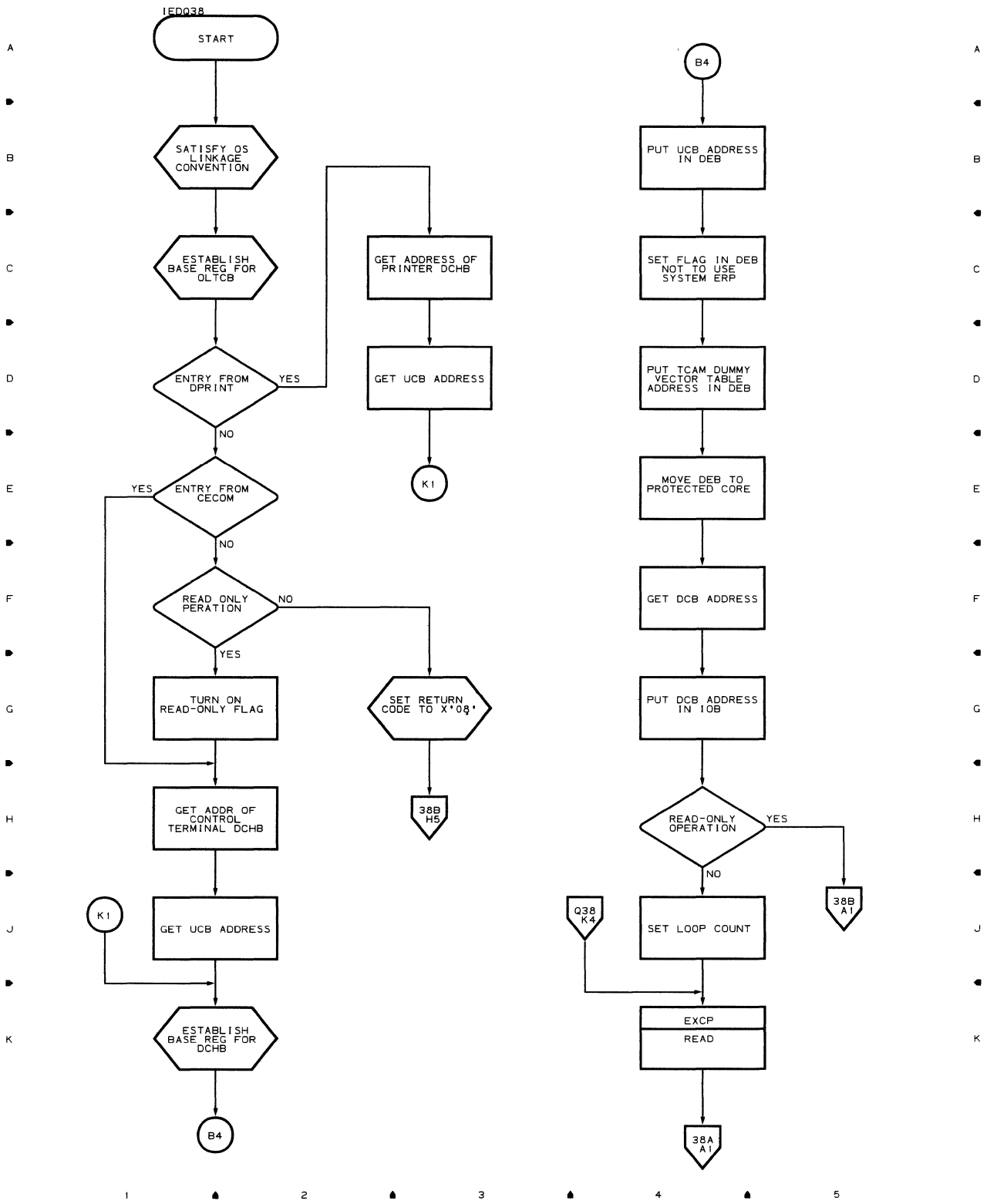


Chart 38A START-STOP REMOTE PRINT - 2741 (PART 2 OF 3)

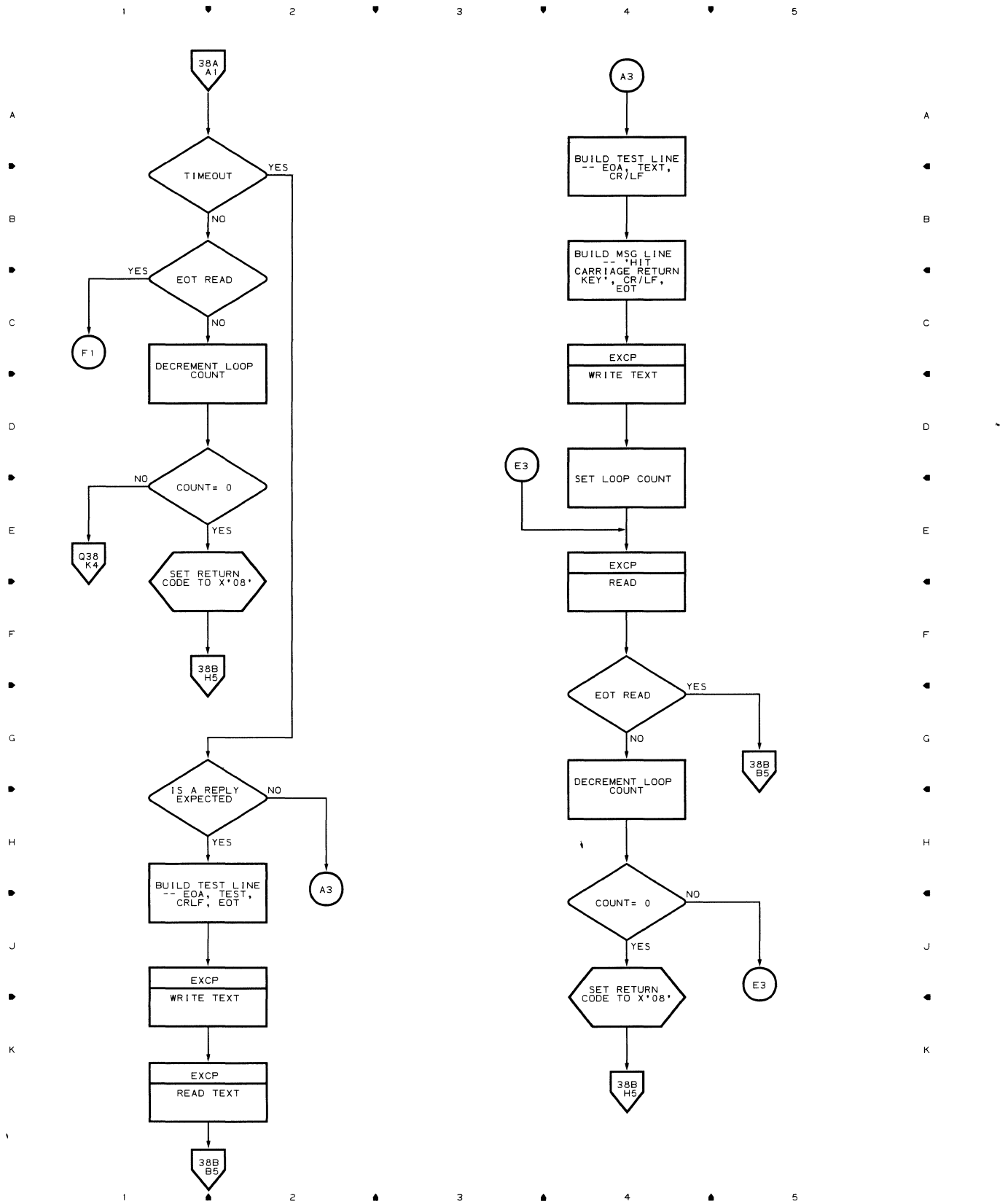
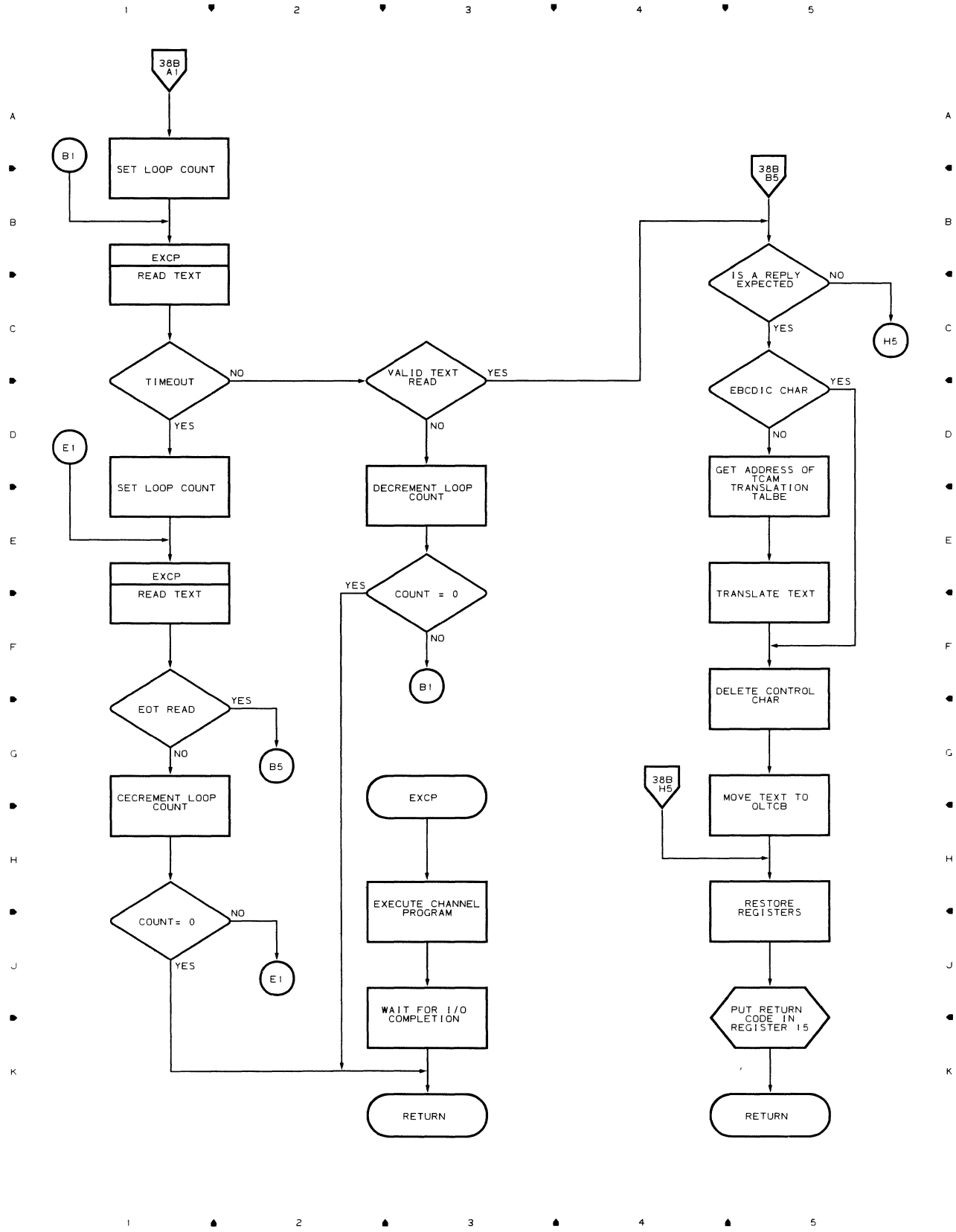


Chart 38B START-STOP REMOTE PRINT - 2741 (PART 3 OF 3)



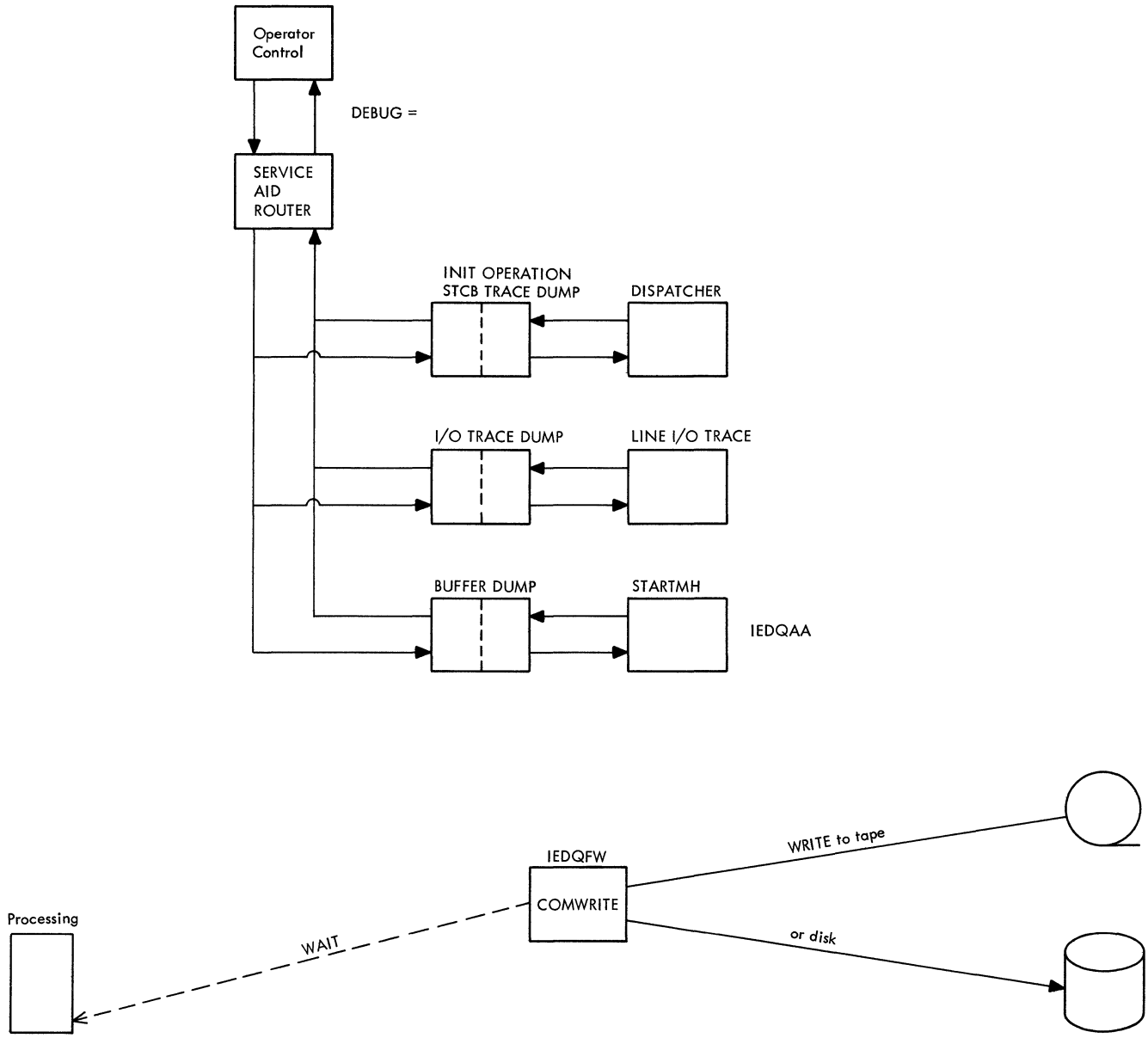
Section Two
Field Engineering Programming Service Aids

The Service Aids Programs are an optional TCAM facility. They provide the Customer Engineer and customer programming personnel with the ability to save portions or all of the following TCAM tables and buffers:

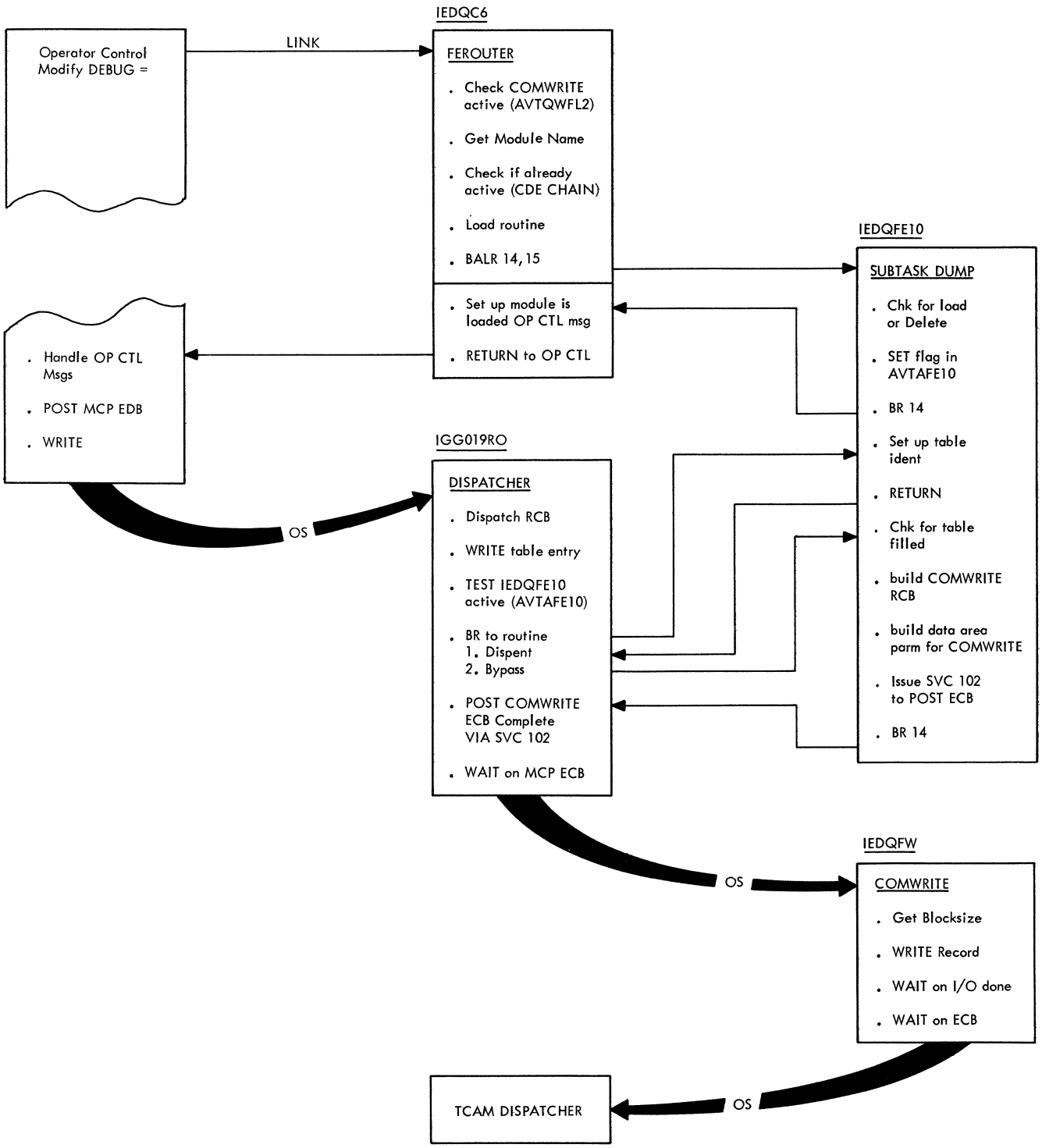
- Subtask Control Block Trace Table
- Line I/O Trace Table
- Message Buffers (Main Storage and Secondary Storage)

These areas are stored, using programs from the Service Aids, on either tape or direct access devices and may be edited and printed in a formatted form to be used as a debug tool.

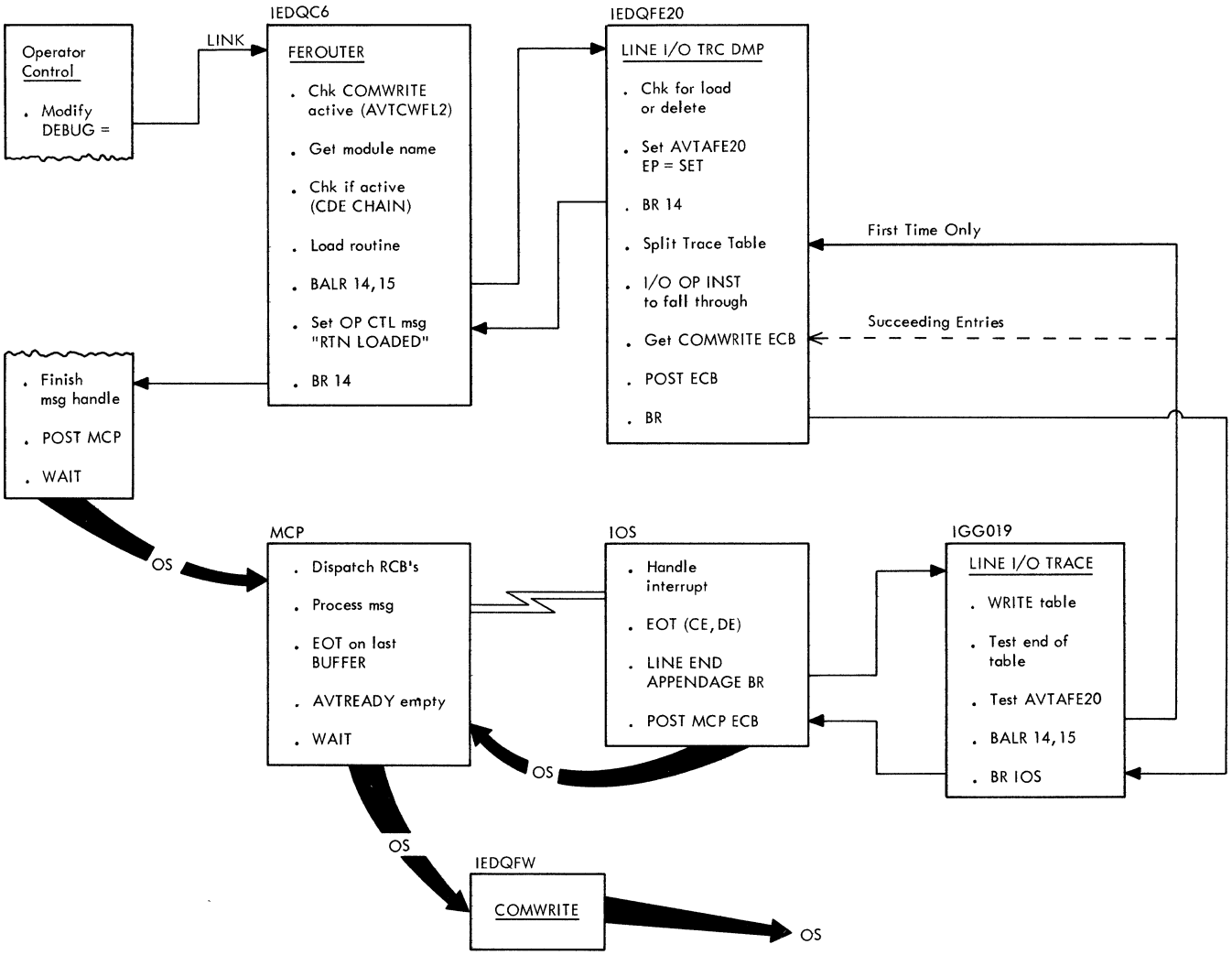
Service Aids Flow



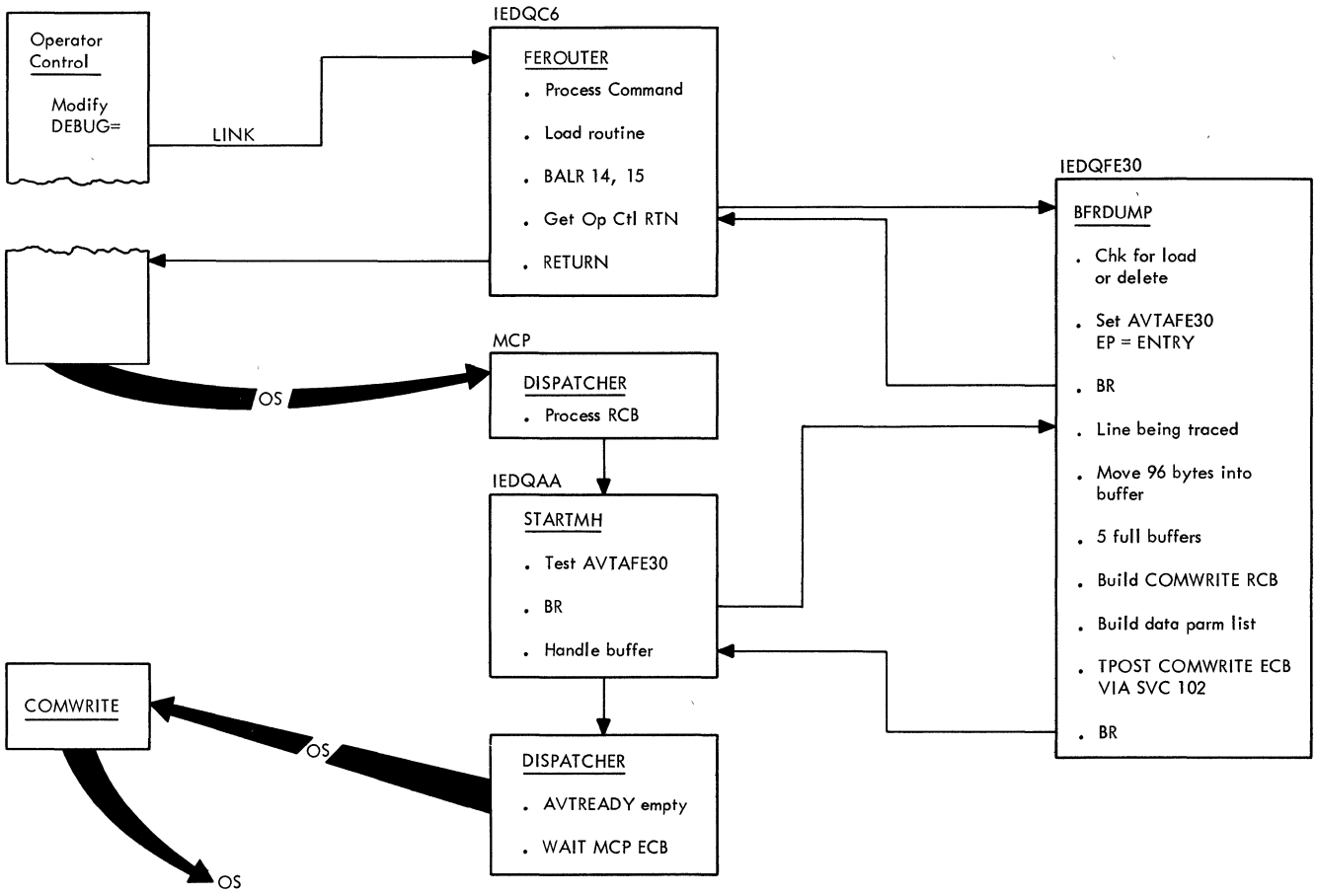
IEDQFE10 Subtask Control Block Trace Table Dump Flow



IEDQFE20 I/O Trace Dump Flow



IEDQFE30 Buffer Trace Dump Flow



DEBUG Service Aid Router
(Charts QC6 and C62)

Module Name

IEDQC6

Entry Point

IEDQC6–activated by the Operator Control Module (IGC0110D) to process operator control commands that request a service aid processing function. The command that caused this routine to be activated is as follows:

$$[\text{control chars}]\ \left\{\begin{matrix}\text{MODIFY}\\ \text{F}\end{matrix}\right\}\ \text{ident, DEBUG = data}$$

Functions

The purpose of this module is to process operator control commands that request the handling of service aid modules. If the operator control command is valid, the DEBUG Service Aid Router returns a response message after executing the initialization or de-activation section of the service aid routine that was either loaded or is to be deleted.

The DEBUG Service Aid Router determines whether the COMWRITE routine is present in the system. If COMWRITE is not in the system or if a restart is in process, the Router generates a message (IED107I) and returns control to the calling routine. If COMWRITE is in the system and a restart is not in process, the Router uses the Scan Function of operator control to obtain the first DEBUG operand. If this is not a load or delete request, the Router generates a message (IED107I) and returns to the calling routine. If the operand is a load or delete request, the Router again uses the Scan Function of operator control to obtain the second DEBUG operand. This operand is checked to see if it is a valid name and executes the requested function. This is done by checking the first six characters of the second DEBUG operand for IEDQFE. If the operand is not a valid name, the Router generates an error message (IED107I) and returns to the calling routine.

When the operator control command requests that a service aid routine be loaded, the DEBUG Service Aid Router checks the load list to determine the current status of the requested service aid routine; that is, whether the routine is active or inactive in the system. If the routine is already active, the DEBUG Service Aid Router returns control to the calling routine with a response message (IED103I). If the requested routine is not currently active, a BLDL is performed on LINKLIB and JOB/STEP LIBS to determine if the service aid exits; if not, message IED102I is issued. The DEBUG Service Aid Router then issues a GETMAIN to determine whether there is enough main storage to load the routine. If main storage is not available, the Router tests to determine how much more storage is needed to load the requested routine and prepares a message to inform the operator of the problem. If main storage is available, the Router loads and gives control to the service aid routine. Upon return from the service aid routine, the DEBUG Service Aid Router checks the return code. If the code indicates good initialization of the service aid, the Router returns control to the calling routine with an appropriate response message (IED099I). If the return code indicates an unsuccessful load, the DEBUG Service Aid Router prepares a message (IED105I or IED106I), deletes the service aid, and passes control to the calling routine.

When the operator control command requests the deletion of a service aid routine, again the DEBUG Service Aid Router checks the load list for the status of the service aid. If that routine is active in the system, the DEBUG Service Aid Router passes control to the service aid routine. Upon return, the DEBUG Service Aid Router checks the return code; if the code is good, the Router prepares a deactivation message (IED100I), deletes the

service aid routine, and passes control to the calling routine. If the load list shows that the service aid routine is not active, the DEBUG Service Aid Router prepares a message (IED1C4I) and returns control to the calling routine.

External Routines

IGC00100–Operator Control control module–The Operator Control Scan subroutine, to serially search the input command for the requested FE Service Aid to cause activation or deactivation.

Tables/Work Areas

AVT, Operator Control AVT, work areas that contain the fixed portion of each response message and space for insertion of the variable data.

Attributes

problem program mode

Exits

Normal–To IGC0110D (Operator Control) with a good message
Error–To IGC0110D with an error message

Subtask Control Block Trace Dump

Module Name

IEDQFE10

Entry Points

IEDQFE10–To initialize a Load operation or to deactivate the routine if a Delete operation is requested
DISPENT–From Dispatcher to complete initialization
BYPASS–From Dispatcher to write current trace table

Functions

This module writes the STCB trace table to a sequential data set using the COMWRITE routine (IEDQFW). At entry from IEDQC6, a test is made to determine whether this is a Load or Delete request.

On a Load operation, if at least four entries are not found in the trace table, an error message (IED110I) is prepared and control is returned to the calling routine. If there is no trace table in the system, an error message (IED111I) is prepared and control is returned to the calling routine. The flags at AVTAFE10 are tested for X'FF'. If these flags are already set, return is to the calling routine with a return code of four. After the above tests are completed successfully, the Subtask Control Block Trace Dump routine divides the trace table in half, with separate current pointers to the first and last entries in each half, stores its entry point address in AVTAFE10 and turns the flags on to indicate that the routine is active. The routine then returns to the calling routine with a return code of zero.

If a delete function is requested, the flags in AVTAFE10 are turned off to indicate that the routine is not active, and the trace table pointers are restored to their original condition and control is passed to the calling routine.

The Subtask Control Block Dump routine is entered from the Dispatcher at DISPENT, at which time the two trace tables are set up with identifying headers. All subsequent entries to this routine from the Dispatcher will be at BYPASS where a count of the number of tables filled is updated. A test is made to determine if the previous table has been written. If not, return is made to the Dispatcher and the current table will be used again. A test is then made to determine if the parameter pointers in the AVT are free. If one is found available, header information is completed at the beginning of the current table. The parameter list for COMWRITE is completed to print the current table and control is returned to the Dispatcher. When no parameters are available, control is passed to the Dispatcher, and the current table is reused.

External Routines

SVC 102

Tables/Work Areas

Parameter list used by COMWRITE (IEDQFW); parameter list used by AQCTL (SVC 102); dsects of the AVT.

Exits

(For entry at IEDQFE10)
Normal–Return to the calling routine with a return code of zero.
Error–Return to the calling routine with a return code of four and an error message (IED110I) indicating that there were less than four entries in the trace table or (IED111I) indicating that there was no trace table.

For entry at DISPENT or BYPASS return to the Dispatcher.

Line I/O Trace Table

Module Name

IEDQFE20

Entry Points

IEDQFE20 from IEDQC6
SET from IGG0190

Functions

IEDQFE20 is used to write the TCAM Line I/O trace table onto a sequential data set using the COMWRITE routine.

At entry from IEDQC6, this routine checks to determine if a Load or Delete function is requested and checks the flags in AVTAFE20. If a load is requested and the flags are off, this routine stores its entry point address in AVTAFE20 and turns the flags on to indicate that the routine is active. The routine then returns to IEDQC6 with a return code of zero. If the flags are already on, the return code is four. If a delete function is requested, the flags in AVTAFE20 are turned off to indicate that the routine is not active.

Module IGG019Q0 tests the flags at AVTAFE20 each time the I/O trace table is half-full and full. If the flags are on, IGG019Q0 branches to this routine. On entry from IGG019Q0, registers are saved, a block count is updated and stored in the third and fourth bytes of the first entry in the I/O trace table, and the Comwrite flags are tested to determine if COMWRITE has written the table for any previous request. If the previous request has not been satisfied, the current table is reused and control is returned to the calling routine. The ID characters I and O are put into bytes two and ten, respectively, of the first entry of the trace table. The parameter list is set to point to the proper half of the table, and the Comwrite ECB is posted via SVC 102 to write the table to the COMWRITE data set. The routine then returns to the calling routine.

External Routines

Supervisor branch to post Comwrite ECB

Tables/Work Areas

I/O trace table

Exits

Normal–Go to IEDQC6 with zero in register 15.
Error--Go to IEDQC6 with four in register 15.

Attributes

serially reusable

Buffer Dump

Module Name

IEDQFE30

Entry Points

ENTER–from IEDQC6 for initialization
ENTRY–from IEDQAA

Functions

IEDQFE30 is used to accumulate buffer information for a line being traced by the line I/O trace facility (IEDQFE20) and to print the buffers and selected status information to a sequential tape or disk data set using the COMWRITE facility (IEDQFW).

On entry from IEDQC6, this routine checks to determine if this is a Load or Delete request. If it is a load, the flags at AVTAFE30 are tested; if they are off, this routine stored its entry point address in AVTAFE30 and turns the flags on to indicate that the routine is active. The routine then returns to IEDQC6 with a return code of zero. If the flags are already on, return is to IEDQC6 with a return code of four. If the request is for a delete, the flags in AVTAFE30 are turned off to indicate that the routine is not active.

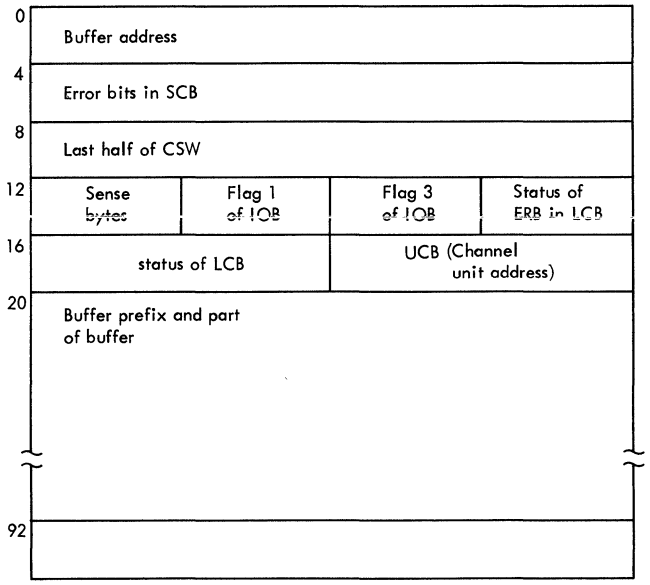
Each time module IEDQAA is entered, the flags at AVTAFE30 are tested. If they are on a branch is taken to this routine. On entry from IEDQAA, the LCB and SCB are found. A test is made on LCBTRACE to determine if the line is being traced. If the line is not being traced, appropriate data is moved into the internal trace table and return is made to IEDQAA. When five buffers have been collected in the internal trace table, the Comwrite ECB is posted via and SVC 102 to have the table written to the COMWRITE data set.

External Routines

branch to entry of POST

Tables/Work Areas

Buffer trace table



Exits

At entry point ENTER
Normal–R15=0
Error–R15=4

At entry point ENTRY
Return to IEDQAA

Attributes

serially reusable

Common Write Routine

Module Name

IEDQFW

Entry Points

IEDQFW

Functions

COMWRITE is designed to write data to the COMWRITE data set. This output may be any combination of entries from the STCB trace table, the I/O interrupt trace table, and buffer and status information.

On entry a DEVTYPE macro is issued to obtain the maximum block size for the output device. The output DCB is opened and tested for a successful open. Comwrite flags in the AVT are initialized and the DECBs are marked as inactive. COMWRITE then goes into a wait state to await the posting of either of the two ECBs in COMWRITE.

When an ECB is posted, the parameter list is checked to determine if it is on the required fullword boundary. If it is not, a message (IED116I) is written to the COMWRITE data set. If the boundary alignment is correct, a flag in the parameter list is tested for close-down. If close is requested, COMWRITE closes; if not, a test is made to determine if the data to be written will exceed the maximum block size of the device. If the block size is too large, message (IED115I) is written to the COMWRITE data set. A test is then made to determine whether the block to be written will exceed main storage. If true, a message (IED115I) is written to the COMWRITE data set. If all the tests meet requirements, the record is written and COMWRITE issues a WAIT for either ECB.

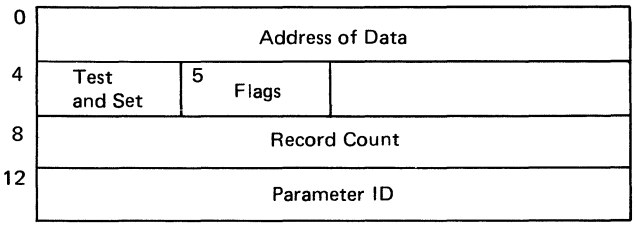
A further test is made to see if the record provided has a prefix space reserved for a time stamp. This is indicated by a flag being off in the parameter list. If a prefix does exit, the record will be time stamped, and a timer interval will be set for 15 seconds. If another record is written before the 15-second interval, the time-stamp area will be cleared to binary zeros.

External Routines

None

Tables/Work Areas

Parameter list



Bytes 0-3 address of data to be logged

4-7 test and set flags for use of caller

Bit 0 1=terminate COMWRITE after specified record count has expired

Bit 1 1=parmlist complete (set by COMWRITE when parmlist functions are completed)

0=parmlist in use by COMWRITE

Bit 2 1=request immediate termination of COMWRITE

Bit 3 1=output data is mandatory. If data cannot be written as specified, terminate COMWRITE with a S044 ABEND with a return code of three in register 3.

0=output data not mandatory. If data cannot be written as specified, write error message in output.

Bytes 6-7 must be between 18 and 32,760 decimal and must not exceed the maximum block size of the output device.

AVT

AVTCWFL2

Bit 0 1=COMWRITE active (set by COMWRITE)
Bit 1-5 Not used
Bit 6 0=reuse of same volume allowed
1=reuse of same volume not allowed (invokes volume switching, which requires operator intervention)
Bit 7 1=COMWRITE closedown requested by user in parmlist or TCAM closedown (set by COMWRITE)

Exits

Normal–SVC–invoked by TCAM closedown or requested by user in parameter list
Error–System ABEND 044 with register 3 containing a code indicating the reason for the abend

Register 3 = 1 permanent I/O error on output device. Message IED113I also sent. Register 7 contains user ID; register 8 contains address of failing DECB.
2 STAE routine failed. Register 15 contains the return code.
3 user parameter list incorrect and output required was specified in parmflag. Register 7 contains address of parameter list saved in COMWRITE. Register 11 contains address of error message.
4 DEVTYPE SVC failed. Register 15 contains the return code.
5 open failed on the output DCB

Messages returned are:

IED112I
IED113I
IED114I
IED115I
IED116I
IED117I

Attributes

resident, problem program mode

TCAM Trace Format Routine

Module Name

IEDQXB

Entry Points

IEDQXB

Functions

IEDQXB runs as a job step in the batch environment of System/360 Operating System as a utility program independent of TCAM. The purpose of the IEDQXB routine is to format the output of the COMWRITE routine. If the output is residing on magnetic tape, this routine optionally searches the tape by time and date to reduce the amount of output. The BLOCK keyword in the PARM field of the EXEC statement specifies the location where the search is to begin. The format of the PARM field is as follows:

PARM = '(OPTIONS)'

where the options available are:

STCB provides a formatted printout of the control blocks
IOTR provides a formatted printout of the I/O trace entries

BUFF provides a hexadecimal and EBCDIC formatted printout of buffers and any trace records other than STCB and I/O, found in the trace data set.

[DEFAULT] The default will format all blocks and provide an hex dump of unknown records

BLOCK=HHMMDDD defines the starting point for the formatting action. A search will be initiated on the trace data set, until a date and time higher than the one specified are found. This keyword is valid only for a tape data set.

Where: HH–hour of day in continental time
MM–minutes of the hour in one minute intervals
DDD–day of the year in Julian days

LINECNT=XX specifies the number of lines per page to be printed. The default is 60.

The parameters may be coded in any order and as often as desired. If keyword parameters are specified more than once, only the last duplicate parameter will be honored. If a parameter is coded incorrectly, the entire parameter list will be printed on the SYSPRINT data set and the location of the parm scan pointer will be shown, indicating the approximate location of the erroneous parameter.

If the unit is a tape device, the routine checks the PARM field in an EXEC statement for correct format. If no PARM field exists, the routine begins the edit operation at the first record. If a valid PARM field is specified, the routine searches for the record pointed to by the PARM field. When the required record is found, the record is examined for the characters IOTR, STCB, and BUFF (this also determines whether the record has a time stamp area). If a time stamp area exists, it is tested for non zero. A non zero value is unpacked and moved to the current time area. By use of a branch table, the proper formatting routine is entered.

External Routines: None

Tables/Work Areas: AVT expanded from TAVTD macro
DSECT of input record

Exits: Normal–EOF
Error–Return to calling routine with a console and/or SYSPRINT error message.

Attributes: serially reusable, problem program mode

TCAM Message Queue Print Routine

Module Name: IEDQXC

Entry Points: IEDQXC

Functions: IEDQXC runs as a job step in the batch environment of OS/360 as a utility program independent of TCAM. The message queue data set can be directed to a printer, tape, or disk for later printing.

On entry, the PARM field of the EXEC statement is checked for validity and for the type of output desired. The options available are:

Q=DMP dump messages sequentially

xxx, DMP — where xxx is the number of logical queues on the message queues data set

xxx, ALL — list number of queues specified in xxx

xxx, AAA, BBB, CCC, DDD, EEE — series of three-digit queue numbers, up to 5, separated by commas.

Omission of the PARM field on the EXEC card will result in a default to PARM=Q=DMP. The type of device the queue resides on is determined and the data set is opened. The output data set is opened and a header line is written denoting the meaning of the special characters. The proper queue is determined and the next header line is written.

After the record is read, the prefix is checked and formatted before printing. The program uses the header prefix to chain each message so that the message will be printed in its proper sequence, even though it may extend over more than one volume. This is not done if the default is taken or PARM=Q=DMP is coded.

External Routines

None

Tables/Work Areas

Header prefix expanded from TPRFD macro.

Exits

Normal–at completion of processing parameters
Error–return to calling routine with message sent to console indicating reason for termination.

Attributes

serially reusable

The following chapter contains a table of register usage by module, a record prefix example, and messages generated by the Field Engineering Service Aids.

Table of Register Usage by Module

Module Name	Entry Point	Register	I, W, or O*	Use
IEDQC6	IEDQC6	0	O	Function Register
		1	I-O	Parameter Pointer
		2	W	Operator Control AVT Base Register
		3	W	Input Base
		4		AVT Base Register
		5	W	Work Register
		6		Local Return Register
		7	W	Work Register
		8	W	Index Register
		9	–	Not Used
		10	–	Not Used
		11	–	Not Used
		12	W	Base Register
		13	W	Save Area Pointer
		14	I	Return Register
		15	I	Entry Point Register
IEDQFE10	IEDQFE10	0	I	Function Register
		1	W	Parameter Pointer
		2	I	AVT Base Register
		3	W	Work Register
		4	I	Address of AVT
		5	I	Address of Trace Table Pointers
		6	–	Not Used
		7	W	Work Register
		8	W	Work Register
		9	W	Work Register
		10	W	Entry Point from IGG019R0
		11	–	Not Used
		12	W	Base Register
		13	I	Save Area Pointer
		14	I	Return Register
		15	I-O	Return Code Register Entry Point Register

*Input, Work, or Output Register

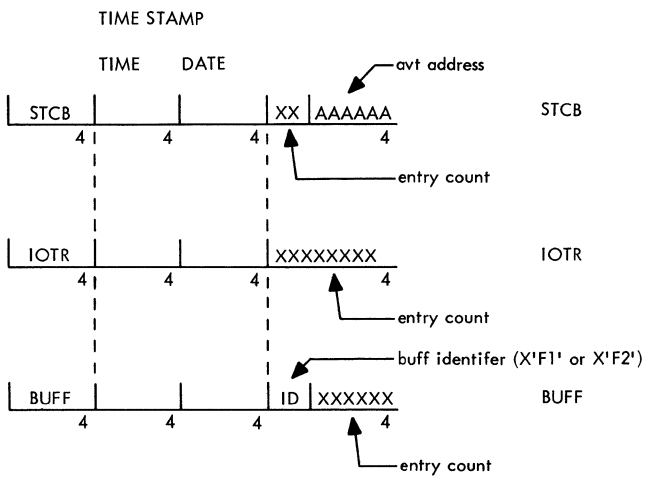
Module Name	Entry Point	Register	I, W, or O	Use
IEDQFE20	IEDQFE20	0	I	Function Register
		1	–	Not Used
		2	W	Trace Table Count
		3	W	Table Pointer
		4	–	Not Used
		5	–	Not Used
		6	W	I/O Trace Pointer
		7	W	Work Register
		8	–	Not Used
		9	W	Internal Base Register
		10	W	Work Register/Parm Post
		11	W	Address of AVT
		12	W	Base Register
		13	I	Save Area Pointer
		14	I	Return Register
		15	I-O	Entry Point Register Return Code Register
IEDQFE30	IEDQFE30	0	I	Function Register
		1	I	Buffer Pointer
		2	W	Trace Table Ctr/Base Register
		3	W	Int. Base Reg/Addr of SCB
		4	W	AVT Addr/Addr of LCB
		5	W	Addr of Current Trace Entry
		6	W	Buffer Address Register
		7	W	Work Register
		8	W	Work Register
		9	–	Not Used
		10	I	Pointer to IEDQAA
		11	–	Not Used
		12	W	Base Register
		13	I	Save Area Pointer
		14	I	Return Register
		15	I-O	Entry Point Register Return Code Register

Module Name	Entry Point	Register	I, W, or O	Use
IEDQFW	IEDQFW	0	W	Parm Reg/STAE Work Reg
		1	I-W	AVT Register
				Work Register
		2	W	Work Register
		3	W	CVT Register
		4	W	AVT Register
		5	W	Base Register
		6	W	Internal Return Register
		7	W	Index Register
				ECB Register
		8	W	DECB Pointer
		9	–	Not Used
		10	W	Parameter Register
		11	W	Area Address Register
		12	W	Length Register
		13	I	Save Area Register
		14	I	Return Register
		15	I-W	Return Code Register
IEDQXB	IEDQXB	0	W	Work Register
		1	I-W	Parm Reg/Work Reg
		2	W	Pointer to Field
		3	W	Record Length Register
		4	W	Work Register
		5	W	Work Register
		6	W	Index Register
		7	W	Current Record Register
		8	W	Work Register
		9	W	Work Register
		10	W	Work Register
		11	W	Secondary Base Register
		12	W	Base Register
		13	I	Save Area Pointer
		14	I	Return Register
		15	I	Entry Point Register
IEDQXC	IEDQXC	0	W	Work Register
		1	I-W	Parm Reg/Work Reg
		2	W	Work Register
		3	W	Work Register
		4	W	Internal Return Register
		5	W	Base Register
		6	W	Data Block Pointer
		7	W	Absolute Record Number Register
		8	W	Base Register for Buffer Prefix
		9	W	Record and Track Number
		10	W	Cylinder Number
		11	W	Work Register
		12	W	Work Register
		13	I-W	Save Area Pointer
		14	I-W	Return Register
		15	I-W	Entry Point Register

Table of Message Origins and Codes for TCAM Serviceability Aids

Message	Issued by	Descriptor Codes							Routing Codes										
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	10	11
IED101I RESTART IN PROGRESS	IEDQC6				X											X			
IED102I INVALID OPERAND	IEDQC6			X												X			
IED103I ROUTINE ALREADY ACTIVE	IEDQC6						X									X			
IED104I ROUTINE NOT ACTIVE	IEDQC6						X									X			
IED105I RETURN CODE = xx	IEDQC6						X									X			
IED107I COMWRITE NOT ACTIVE	IEDQC6						X									X			
IED109I ROUTINE NOT DELETED	IEDQC6						X									X			
IED110I LESS THAN 4 ENTRIES	IEDQFE10						X									X			
IED111I NO TRACE TABLE							X									X			
IED112I TCAM REQUESTED COMWRITE CLOSEDOWN	IEDQFW						X									X			
IED113I I/O ERROR, addr, statsens, record type COMWRITE CLOSING	IEDQFW				X											X			
IED114I Sxxx ABEND, COMWRITE CLOSING	IEDQFW						X									X			
IED115I userid DATA AREA EXCEEDS CORE	IEDQFW						X									X			
IED116I userid PARMLIST NOT ON FULLWORD BOUNDARY	IEDQFW						X									X			
IED117I tablename BLKSIZE EXCEEDS DEVICE SPECS	IEDQFW						X									X			
IED118I PERMANENT I/O ERROR ON TRACE UNIT	IEDQXB				X					X									X
IED119I UNABLE TO OPEN ddname	IEDQXB IEDQXC							X		X									
IED120I 'BLOCKS' PARM REQUIRES TAPE INPUT	IEDQXB							X											X
IED121I REQUESTED TIME NOT FOUND	IEDQXB							X											X
IED122I INVALID MESSAGE CHAIN	IEDQXB							X											X
IED123I INVALID PARAMETERS	IEDQXB IEDQXC							X											X
IED124I QUEUE HAS BEEN WRAPPED	IEDQXC							X											X
IED125I xxxx BYTES NEEDED	IEDQC6						X									X			
IED099I ROUTINE LOADED	IEDQC6						X									X			
IED100I ROUTINE DEACTIVATED	IEDQC6						X									X			

Record Prefix



Messages

This section contains messages issued by modules in the service aids portion of TCAM. For a more complete listing of the message meanings, refer to *IBM System/360 Operating System: Messages and Codes, GC28-6631.*

IED099I ROUTINE LOADED

Explanation: The routine called by the DEBUG operator command has been loaded and initialized.

IED100I ROUTINE DEACTIVATED

Explanation: The routine designated in the DEBUG operator command has been deactivated and deleted.

IED101I RESTART IN PROGRESS

Explanation: The requested operation can not be processed because TCAM is being restarted by either a checkpoint warm or cold restart.

IED102I INVALID OPERAND

Explanation: The DEBUG operator command is incorrect as entered and was not processed. It is unacceptable for one or both of the following reasons:

1. A value other than 'L' or 'D' was specified as the DEBUG parameter, or
2. The routine name specified is not valid for the DEBUG command.
   A. First six characters were not IEDQFE.
   B. Name was not found in LINKLIB or TAB/STEP LIB.

IED103I ROUTINE ALREADY ACTIVE

Explanation: A request was made to activate a serviceability aid routine which is already active in the system.

IED104I ROUTINE NOT ACTIVE

Explanation: A request was made to deactivate a serviceability aid routine which is not active in the system.

IED105I RETURN CODE = xx

Explanation: A user-written routine has probably encountered an exceptional condition. This condition is noted by the routine passing a return code to the COMWRITE task.

IED106I MULTIPLE REQUEST

Explanation: The service aid returned a code of four. The AVT flag was already set.

IED107I COMWRITE NOT ACTIVE

Explanation: A request was made to activate a serviceability aid which requires the COMWRITE routine when it is not active in the system (COMWRITE=YES was not specified at INTRO time).

IED109I ROUTINE NOT DELETED

Explanation: A request was made to deactivate a serviceability aid and the SVC 9 (delete) function failed.

IED110I LESS THAN 4 ENTRIES

Explanation: An attempt was made to activate the STCB trace, but there are less than 4 STCB trace entry slots in the STCB trace table.

IED111I NO TRACE TABLE

Explanation: An attempt was made to activate the STCB trace, but there is no STCB trace table.

IED112I TCAM REQUESTED COMWRITE CLOSEDOWN

Explanation: TCAM is in a closedown status and is closing the Comwrite subtask.

IED113I I/O ERROR, addr, statsens, recordtype, COMWRITE CLOSING

Explanation: A permanent error has been detected on the indicated device. This will also result in the Comwrite task abending with a system code of 004.

addr–hardware line address
statsens–CSW sense and status bytes
recordtype–type of record being written when the I/O error occurred
–BUFFER, IOTR, STCB–

IED114I Sxxx ABEND, COMWRITE CLOSING

Explanation: The Comwrite task has abended with the code indicated by xxx.

IED115I userid DATA AREA EXCEEDS CORE

Explanation: Probable program error in service aid using COMWRITE.

IED116I userid PARMLIST NOT ON FULLWORD BOUNDARY

Explanation: Probable program error in service aid using COMWRITE.

IED117I tablename BLKSIZE EXCEEDS DEVICE SPECS

Explanation: A parameter list passed to the Comwrite task describes a block of data whose length exceeds the maximum that the device containing the Comwrite data sets can handle.

IED118I PERMANENT I/O ERROR ON TRACE UNIT

Explanation: A permanent I/O error has occurred while reading the SYSUT1 data set.

IED119I UNABLE TO OPEN ddname

Explanation: The system was unable to open the data set ddname.

IED120I BLOCK=PARM REQUIRES TAPE INPUT

Explanation: The BLOCK keyword parameter was specified in the EXEC card for the IEDQXB routine, but the SYSUT1 DD card specified a direct access device.

IED121I REQUESTED TIME NOT FOUND

Explanation: The time specified in the BLOCK=parameter was not found on the tape data set described by the SYSUT1 DD card. Two conditions may cause this error.

1. There were no STCBs on the trace data set.
2. The time specified is later than the latest time recorded in the trace data set. No printout is provided.

IED122I INVALID MESSAGE CHAIN

Explanation: The chaining sequence of the message queues data sets has been found to be invalid.

IED123I INVALID PARAMETERS

Explanation: While scanning the EXEC card parameters an error has been detected. If the IEDQXB utility program is being used, the error is noted on the SYSPRINT data set.

IED124I QUEUE HAS BEEN WRAPPED

Explanation: The message queue data set has been wrapped. Formatting is unreliable. The IEDQXC utility program will terminate.

IED125I xxx BYTES NEEDED

Explanation: Insufficient main storage exists to load the requested service aid.

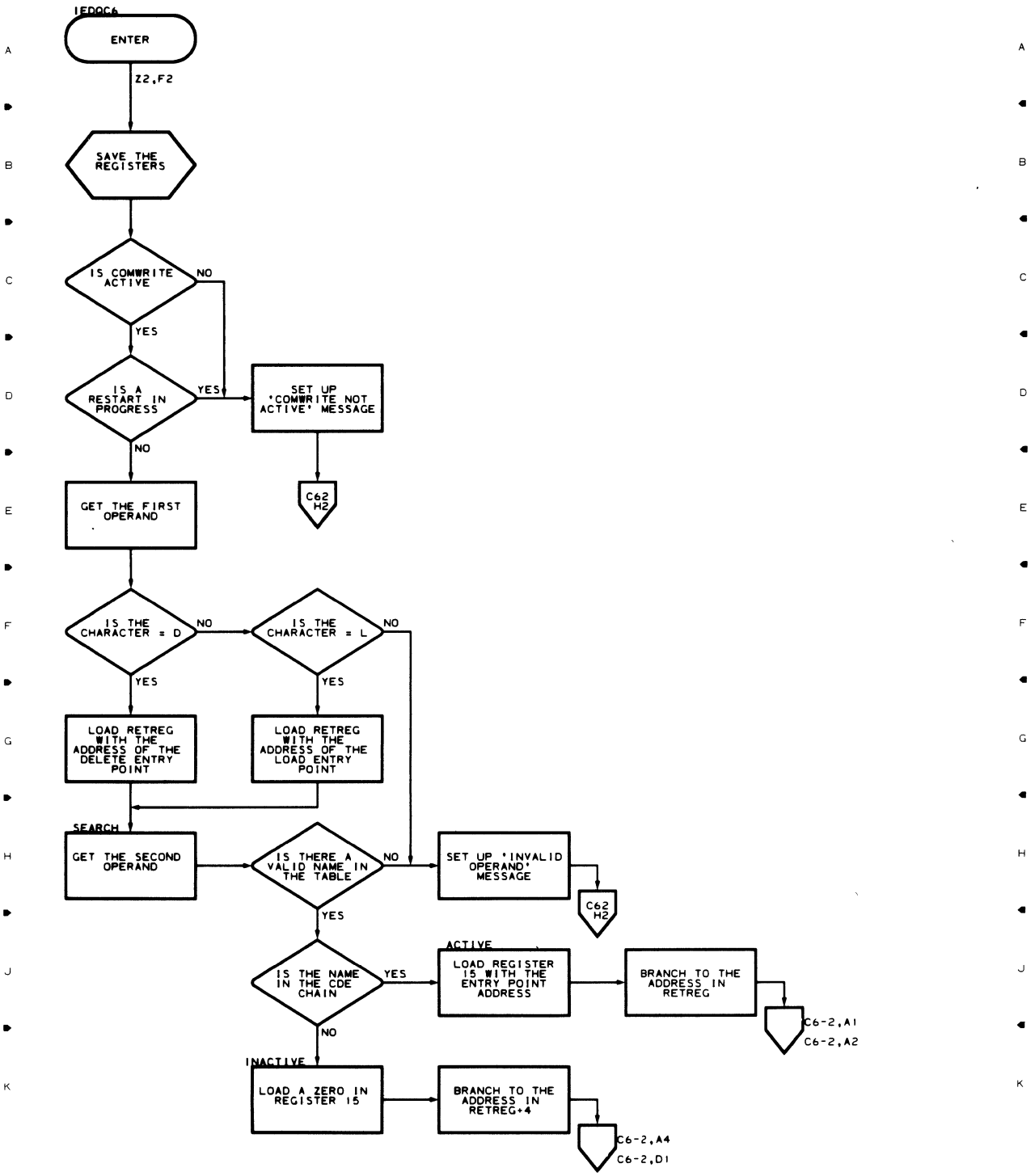

IEDQC6
ENTER
Z2,F2
SAVE THE REGISTERS
IS COMWRITE ACTIVE
NO
YES
IS A RESTART IN PROGRESS
YES
SET UP 'COMWRITE NOT ACTIVE' MESSAGE
C62 H2
NO
GET THE FIRST OPERAND
IS THE CHARACTER = D
NO
IS THE CHARACTER = L
NO
YES
YES
LOAD RETREG WITH THE ADDRESS OF THE DELETE ENTRY POINT
LOAD RETREG WITH THE ADDRESS OF THE LOAD ENTRY POINT
SEARCH
GET THE SECOND OPERAND
IS THERE A VALID NAME IN THE TABLE
NO
SET UP 'INVALID OPERAND' MESSAGE
C62 H2
YES
ACTIVE
IS THE NAME IN THE CDE CHAIN
YES
LOAD REGISTER 15 WITH THE ENTRY POINT ADDRESS
BRANCH TO THE ADDRESS IN RETREG
C6-2,A1
C6-2,A2
NO
INACTIVE
LOAD A ZERO IN REGISTER 15
BRANCH TO THE ADDRESS IN RETREG+4
C6-2,A4
C6-2,D1

Chart C62 DEBUG SERVICE AID ROUTER

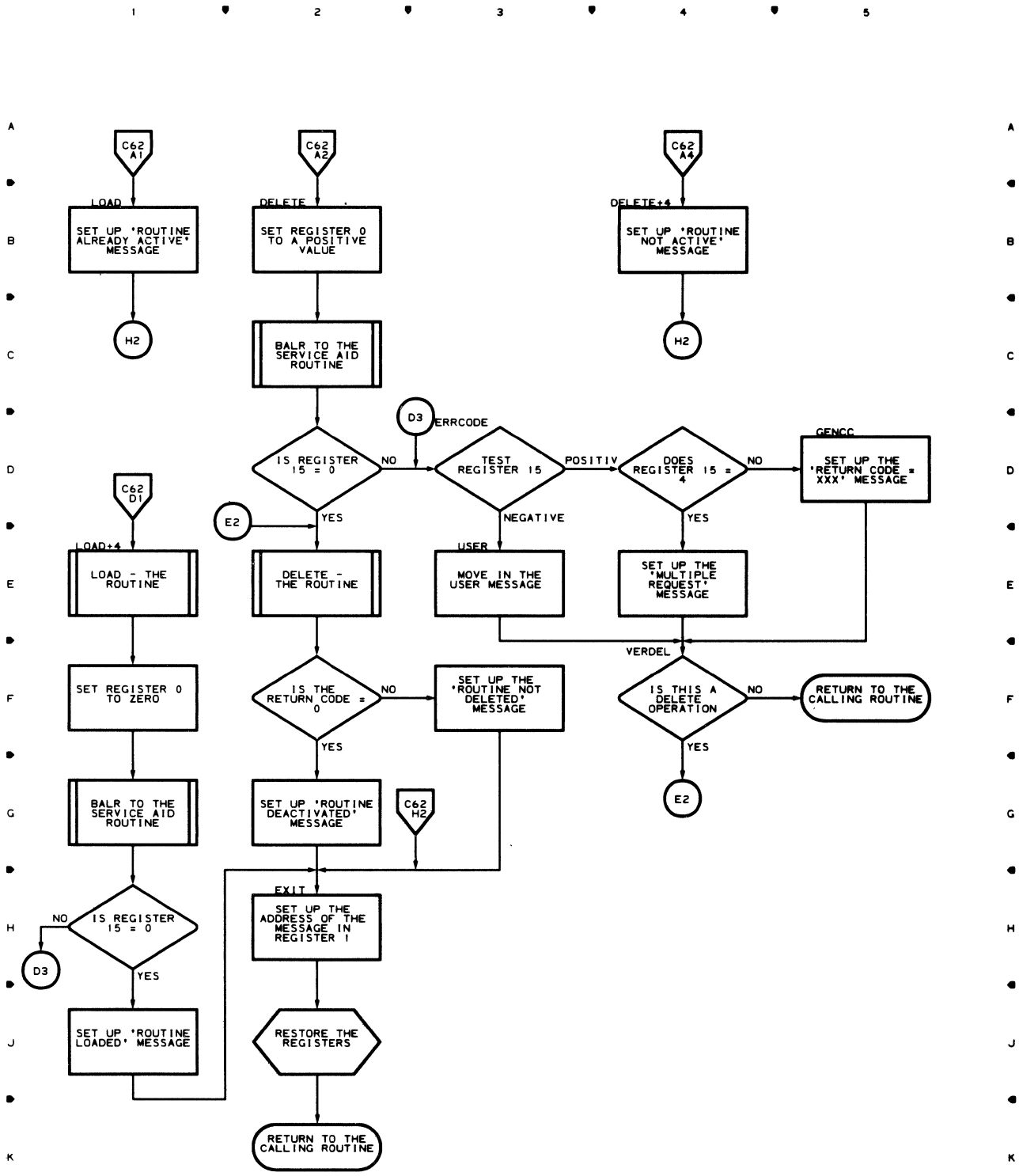


Chart E10 SUBTASK CONTROL BLOCK TRACE DUMP

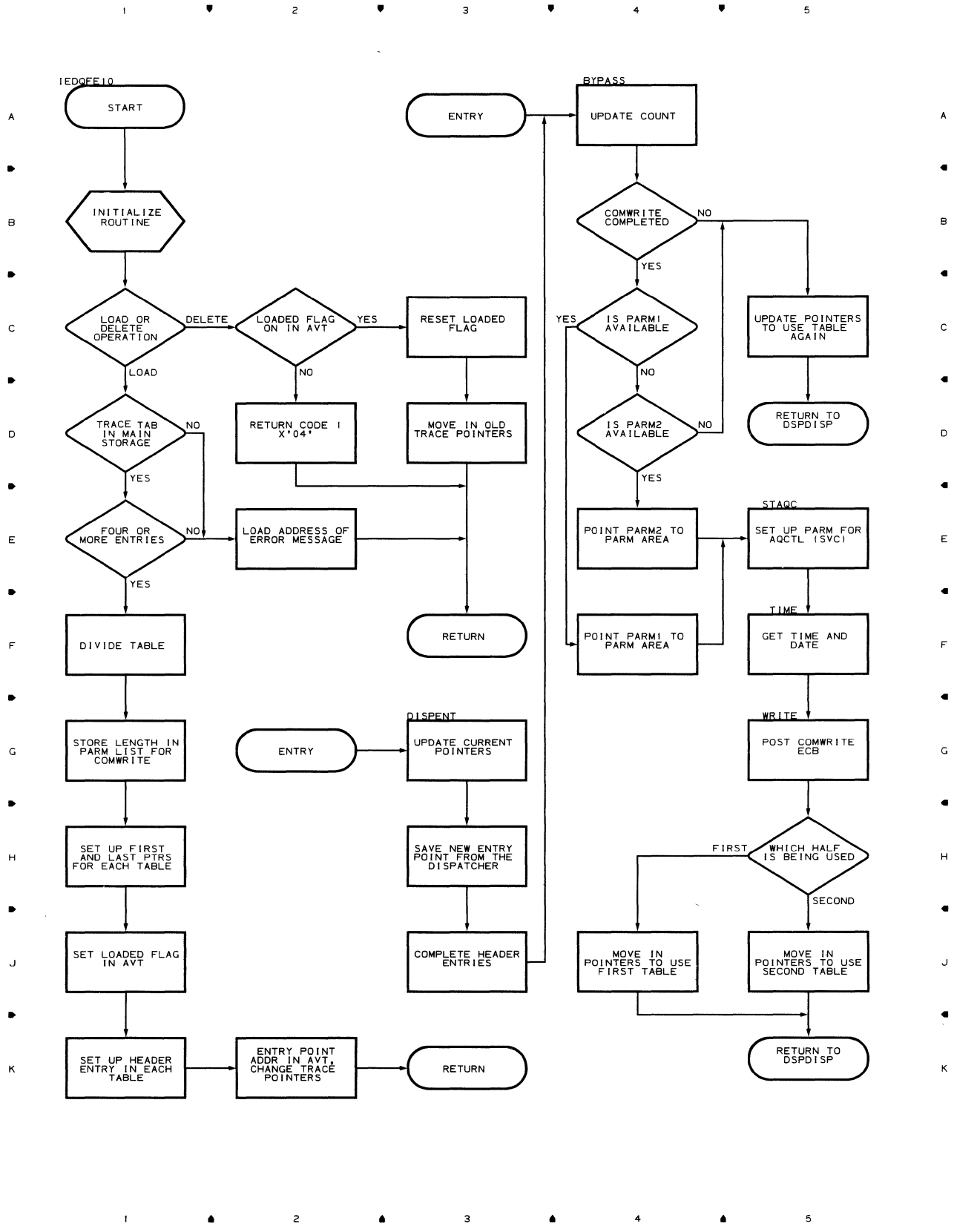


Chart E20 LINE I/O TRACE DUMP

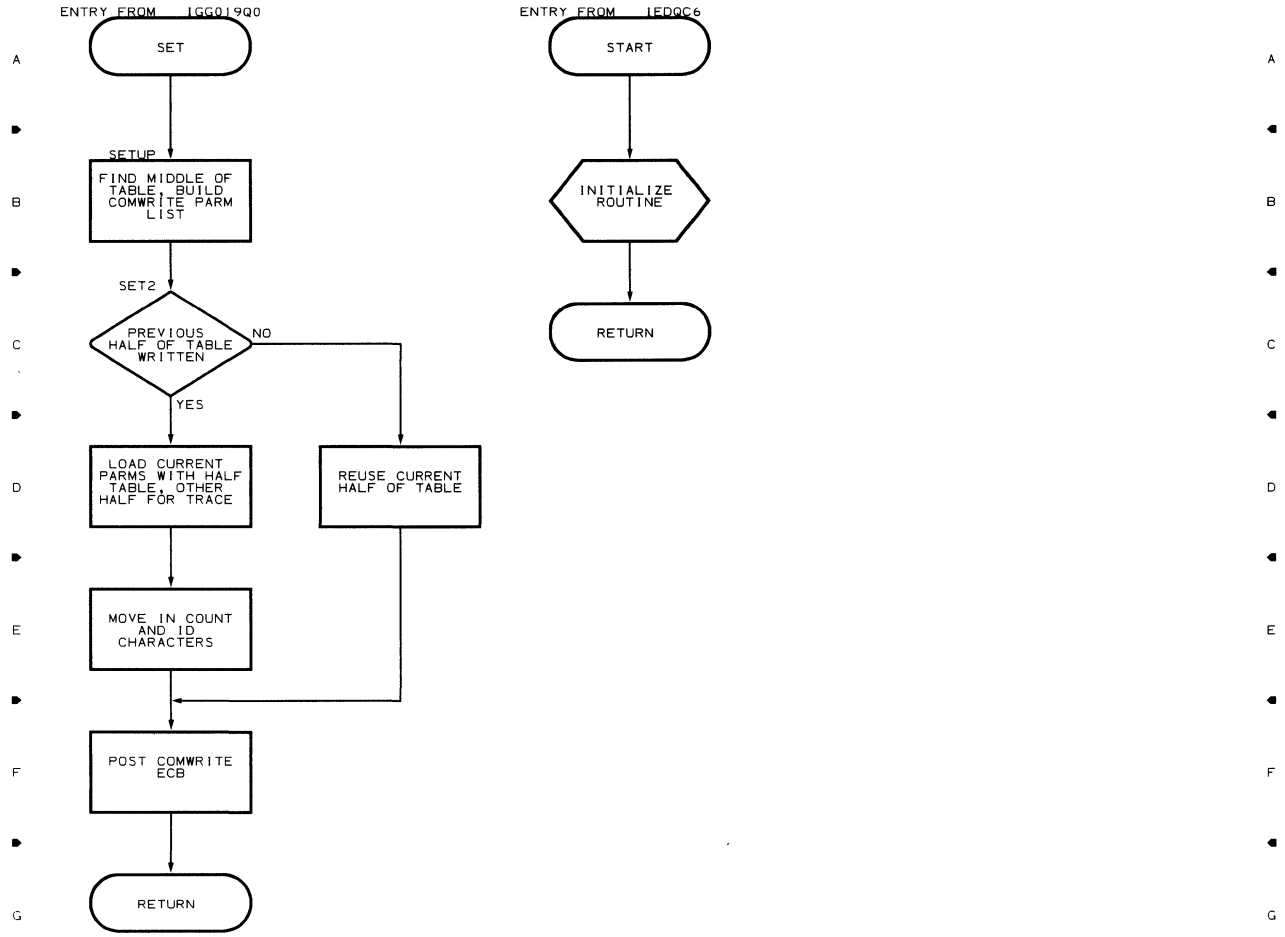


Chart E30 BUFFER DUMP

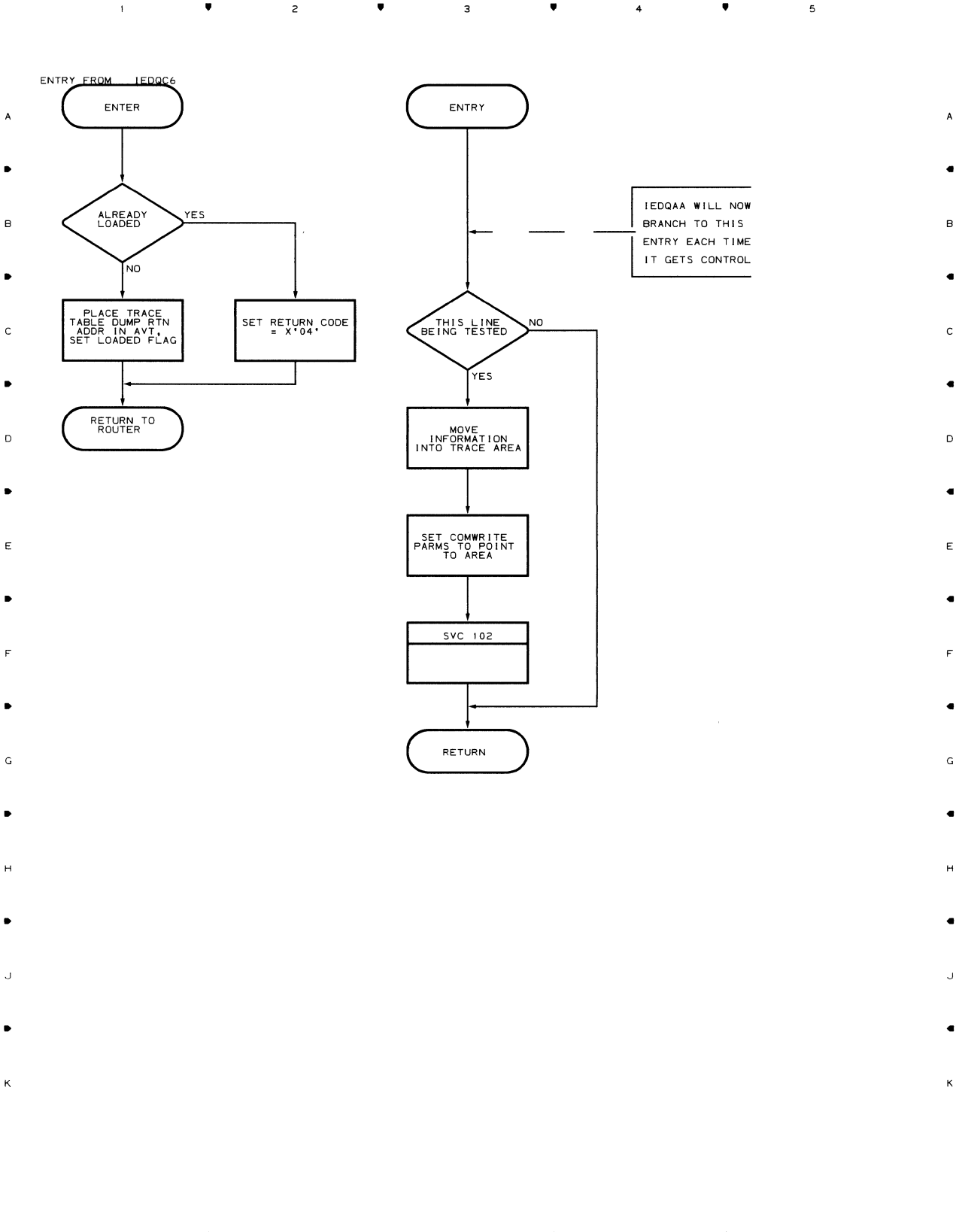


Chart FW1 COMMON WRITE ROUTINE (PART 1 OF 3)

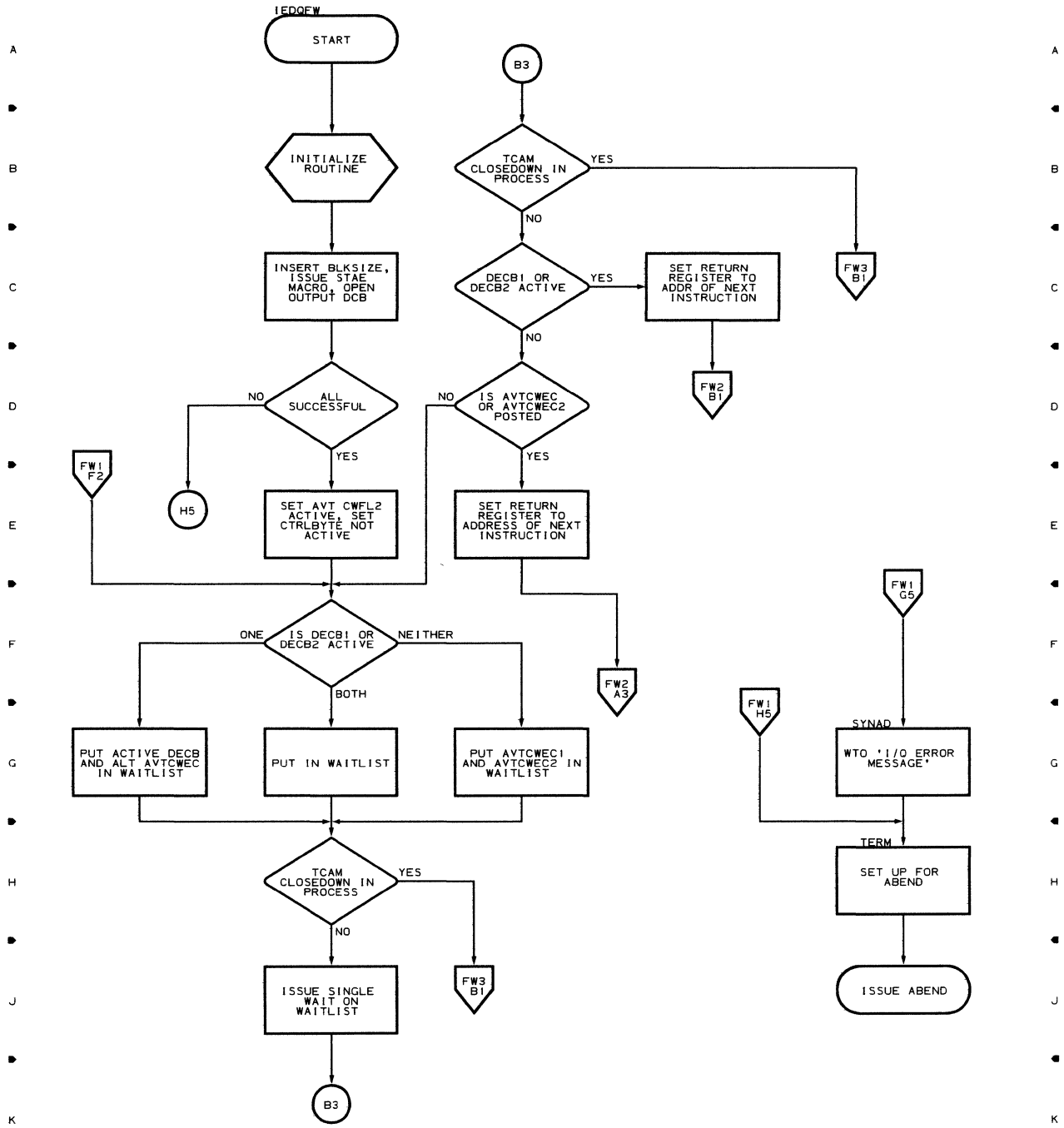
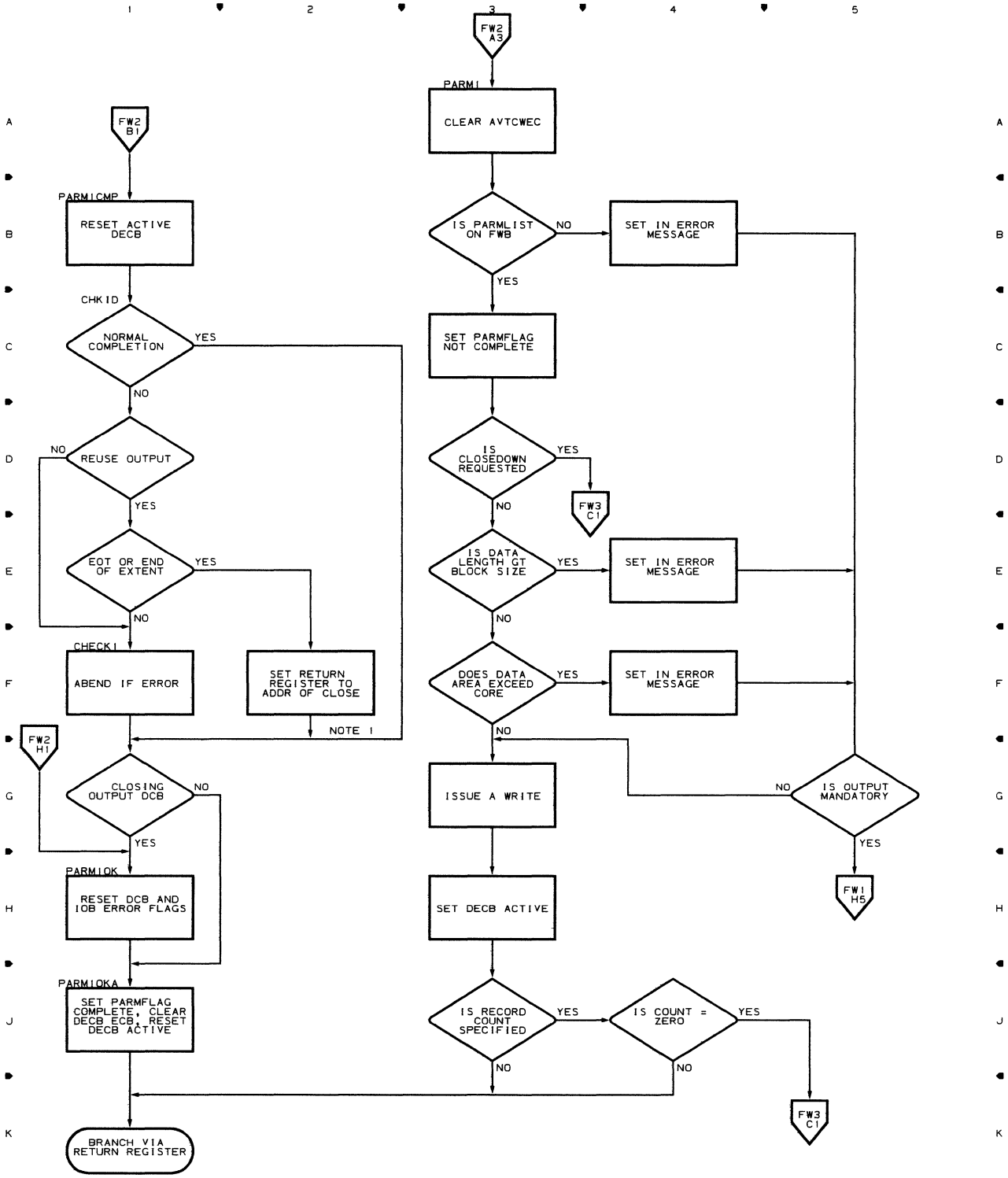


Chart FW2 COMMON WRITE ROUTINE (PART 2 OF 3)



NOTE 1: CLOSE IS LOCATED AT CHART FW3,D1

Chart FW3 COMMON WRITE ROUTINE (PART 3 OF 3)

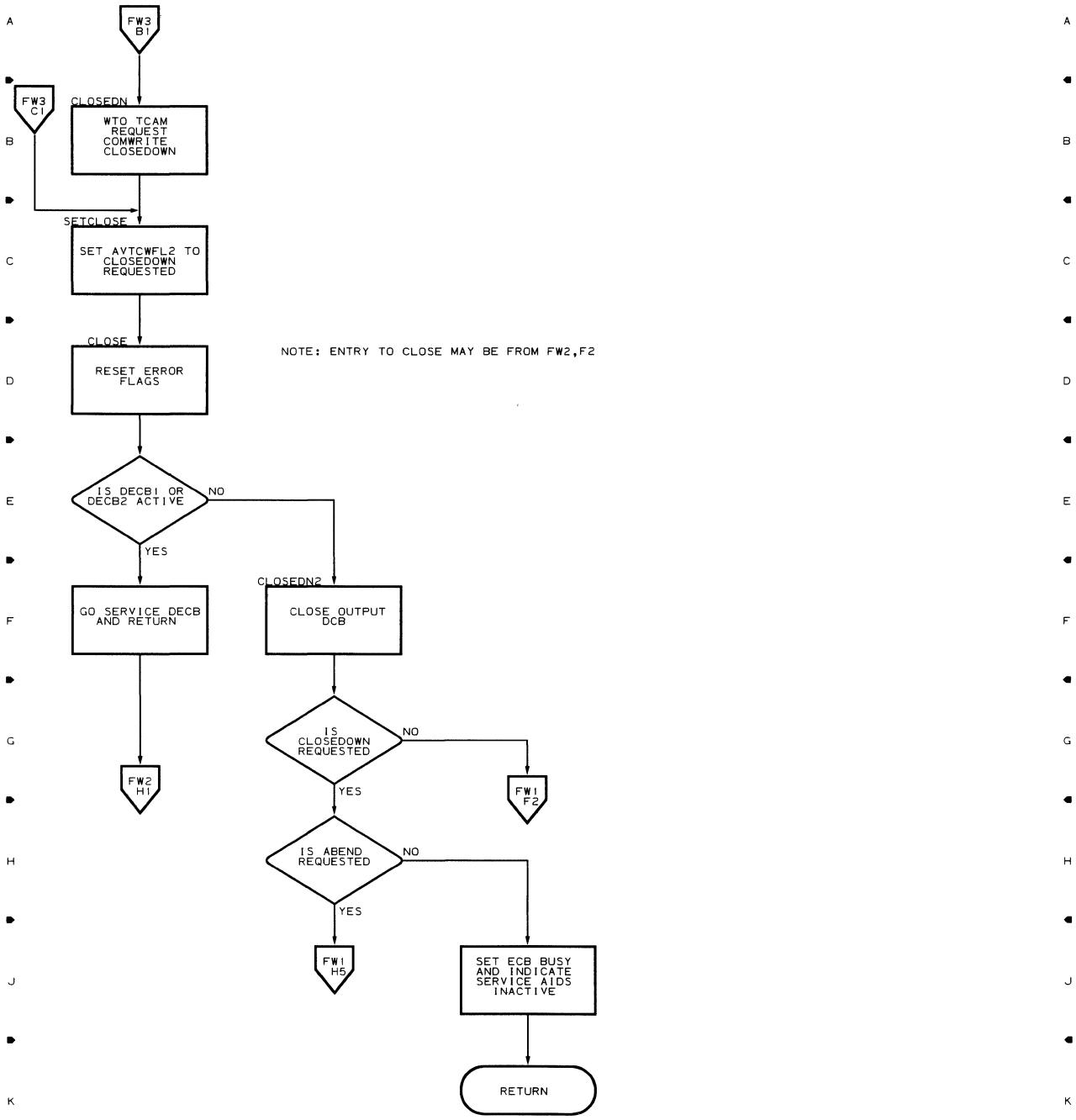


Chart QXB TCAM TRACE FORMAT ROUTINE

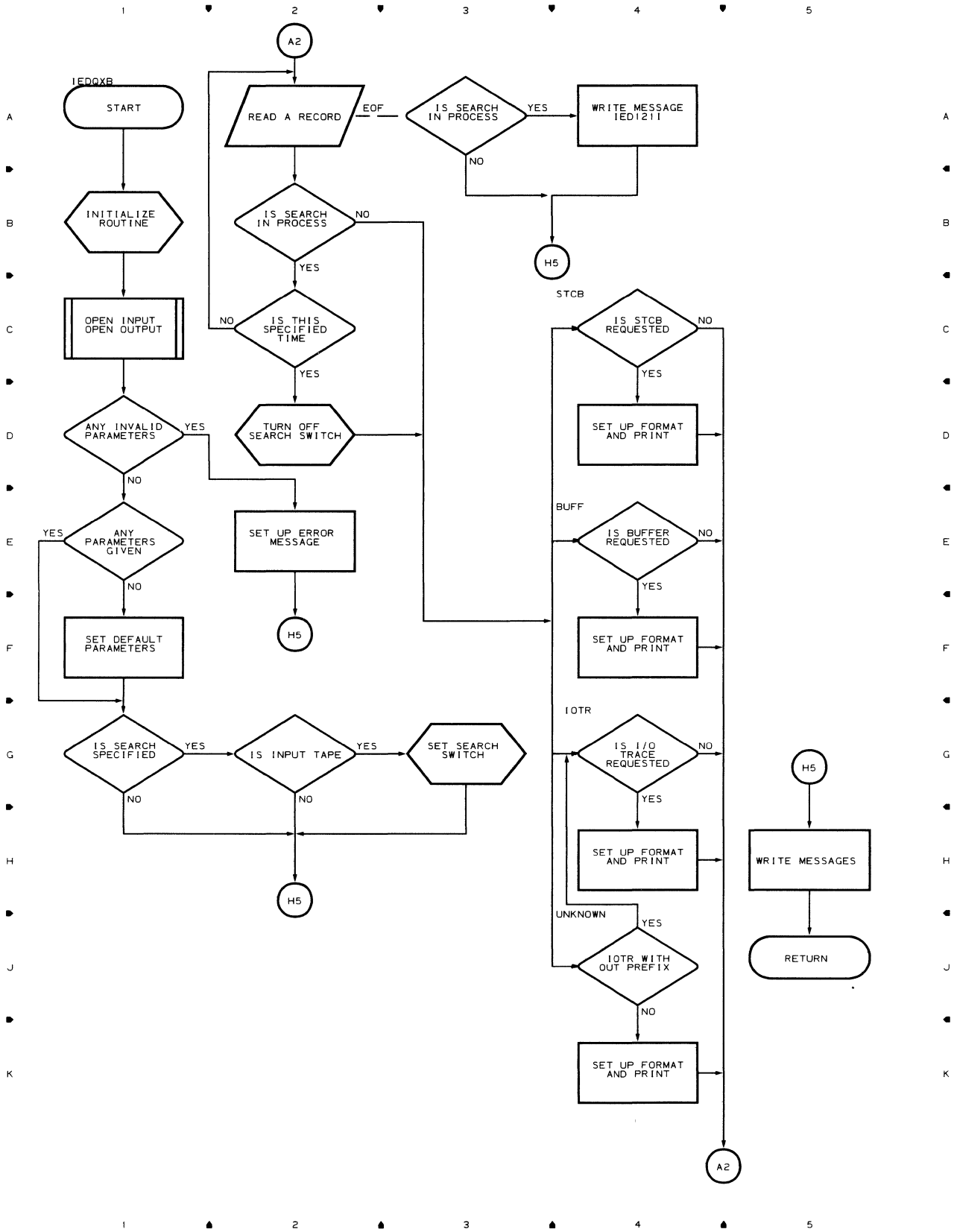


Chart XC1 TCAM MESSAGE QUEUE PRINT (PAGE 1 OF 2)

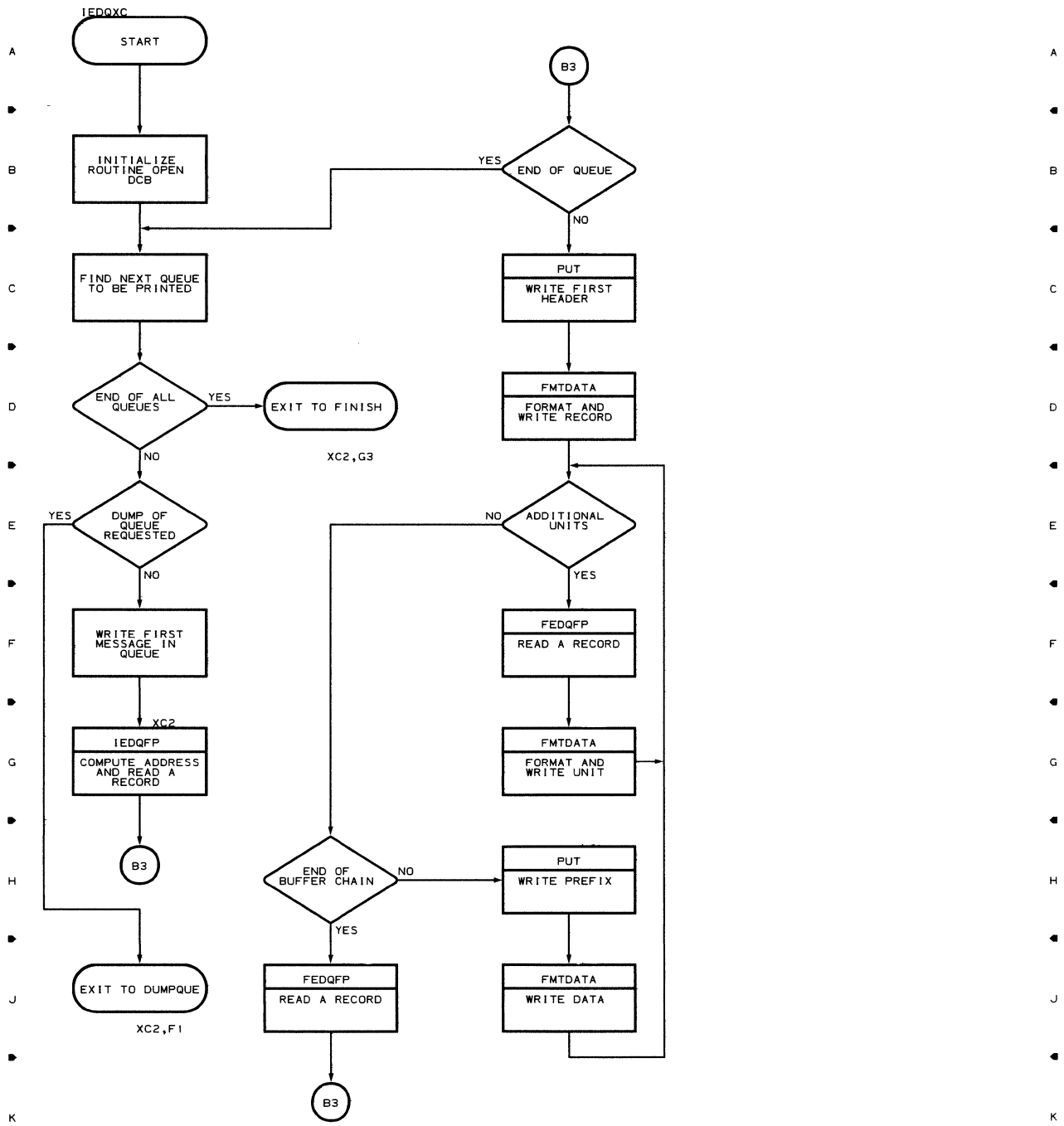
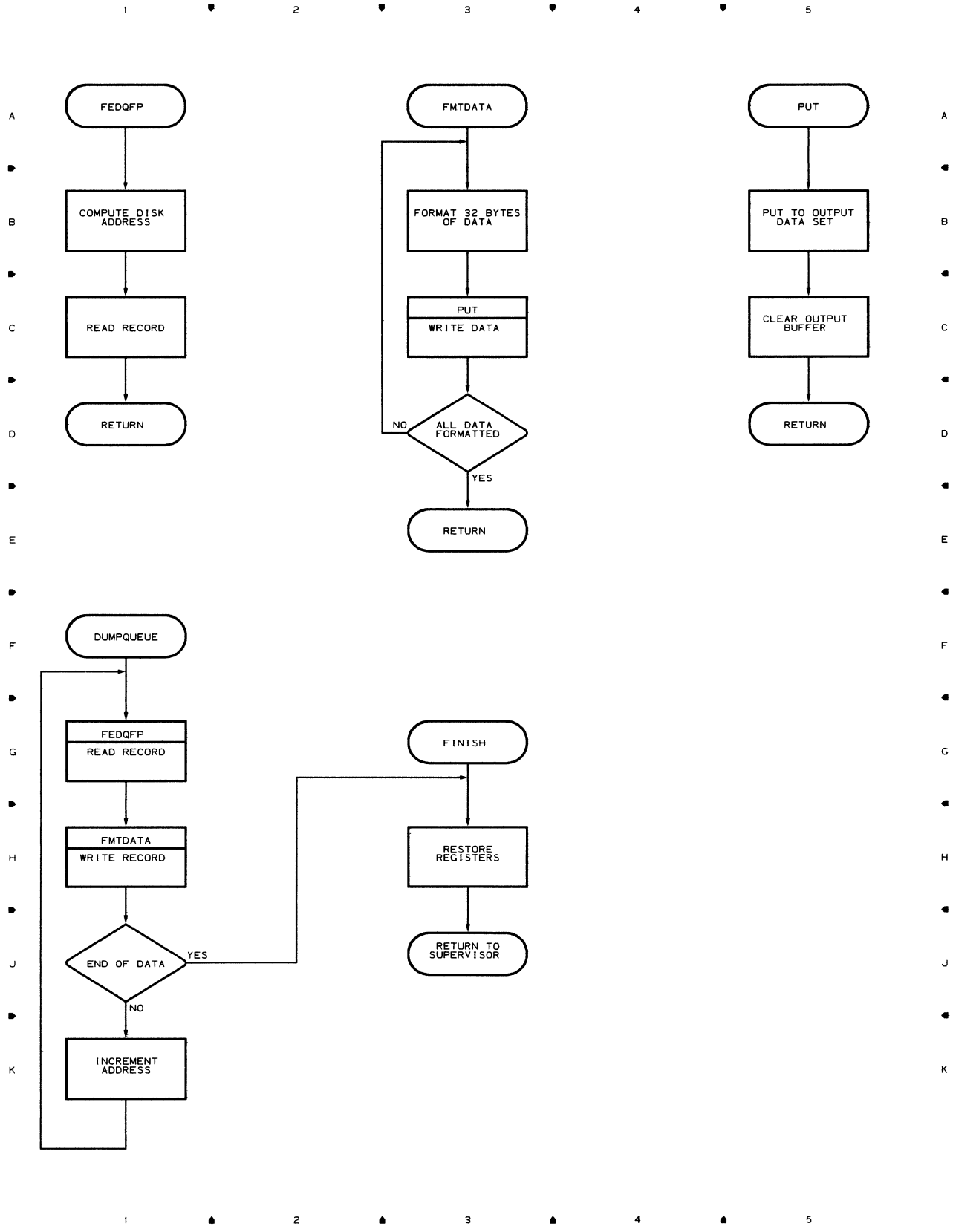


Chart XC2 TCAM MESSAGE QUEUE PRINT (PART 2 OF 2)



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