9121 Service Training
(Course Code 13740)

9121 Simulator Notebook

Atlanta Service Education
Department 460
3100 Windy Hill Road
Marietta, Georgia 30067

Education

IBM Internal Use Only

This publication was produced with IBM Publishing Systems products:

- The text was created and the files were managed under **Publishing Systems ProcessMaster**.
- The text was marked up and illustrations were merged with text using **Publishing Systems BookMaster**.
- The camera-ready copy was printed on the IBM 3820.

Third Edition (Nov 02, 1992)

Comments concerning this notebook and its usefulness for its intended purpose are welcome. You may send written comments to:

Atlanta Service Education
Department 460
3100 Windy Hill Road
Marietta, Georgia 30067

Attention: Marty Garner (**VNET Node:** DALVM3 **User ID:** GARNER)

Contents

Exercises

9121 Model 260 (SEC C23074)

Exercise 1. Console Familiarization

What This Exercise is About

This lab project familiarizes you with the System and the Service consoles and their usages.

What You Should Be Able to Do

After completing this exercise, you should be able to use the consoles effectively along with the maintenance documentation to effectively service the 9121 processor complex.

Introduction

In order to use the maintenance package effectively, it is important to become familiar with the consoles. The objective of this lab project is to practice your skills of displaying frames.

Answers to **questions** in this Lab Exercise are at the end of this exercise.

Required Materials

You will need the following materials to complete this exercise:

- *D01 9121 Service Information: Service Language Commands*, SY27-2615
- *D02 9121 Service Information: Frames, Part 1*, SY27-2617
- *D03 9121 Service Information: Frames, Part 2*, SY27-2622

Directions to the Student

Prerequisites: Have your Instructor start the 9121 simulator at your desk.

Assigning and Activating A Logical Console.

_ **Step 1** Your display currently has the Console Assignment frame displayed (contact your Instructor if it is not).

Q A. What Physical Device Port is your display attached to?

_____

_ **Step 2** Assign the System console to your display by entering ***A1*** on the **COMMAND= = >** line. Then press the ***Enter*** function key.

NOTE

When a logical console is assigned to this physical display an arrow points to the console selection and the following statement appears on the lower part of the frame:

```
To activate the      System      console press END.
To switch between assigned consoles, press SWAP CONS.
```

The area where the word **System** appears is referred to as the window. If no consoles were assigned to this physical display, the sentences would not appear. Since you assigned the System console, **System** is displayed in the window.

__ **Step 3** Activate the System console by pressing the ***End*** function key. You now have **One** logical console assigned and activated to your physical display.

Q B. What frame is currently displayed?

System Console Index Frame

NOTE

This frame has two parts. To view part 2, press the ***Fwd*** function key (use the ***Bkwd*** function key to see part 1 again).

Q C. What else identifies this frame as a System console frame?

Index 0

__ **Step 4** From the System Console Index frame select the CONFIG frame by entering ***05*** on the **COMMAND==>** line. Then press the ***Enter*** function key.

__ **Step 5** Now return to the Console Assignment frame by pressing and holding the ***Shift*** and ***Ctrl*** function keys, then press the ***Assgn Cons*** function key (the Shift and Ctrl function keys pressed at the same time act as the "Alternate" function key).

__ **Step 6** Remove the System console assignment by entering ***A1*** at the **COMMAND==>** line. Then press the ***Enter*** function key. Notice that the arrow next to the System console assignment is removed.

__ **Step 7** Once again assign and activate the the System console.

Q D. What frame is currently displayed now?

Configuration

NOTE

When you activate the System console, you will be returned to the last frame displayed before the System console deactivation.

Q E. Which function key on the keyboard will select the System Console Index?

PF2

__ **Step 8** Use that function key to invoke the System Console Index.

Assigning Another Logical Console

__ **Step 1** Select the Console Assignment frame again.

__ **Step 2** Assign and activate the Service-Monitor console (do NOT remove the System console assignment).

Q F. What frame is currently displayed?

Service Console Frame

Q G. What else identifies this frame as a Service console frame?

Label

__ **Step 3** Attempt to select the ACCESS frame.

NOTE

No frame selection can be made from the Service-Monitor console. It is only a monitor of the Service console. The Assgn Cons, Swap Cons and Reset function keys are the only operational keys.

At this point there are now **Two** logical consoles assigned to **One** physical display (the System and Service-Monitor consoles).

Swapping Between Logical Consoles

__ **Step 1** Press the ***SwCon*** function key (remember to use the Shift and Ctrl function keys).

Q H. What frame is currently displayed now?

System Console Frame

_ **Step 2** Use the ***SwCon*** function key a few more times. Notice every time you press the SwCon function key, the physical display's screen image changes from one activated logical console to another.

_ **Step 3** Invoke the Console Assignment frame.

_ **Step 4** Assign the Program-Mode console (do not activate).

_ **Step 5** Now press and hold the ***Shift*** and ***Ctrl*** function keys, then press the ***SwCon*** function key several times.

Q I. What happens?
Console Swaps (Can Activate different Consoles)

SLCs, Messages and the Console Log.

SLC (Service Language Commands) are bottom line commands entered at the command line to perform various functions. The ***F*** in front of a frame name (eg. ***F CONFIG***) is a SLC used to select frames. ***TOD*** is another SLC used to set the Time of Day clock in the CP.

Messages will appear from time to time on the 9121 displays and you will have to interpret what they mean using 9121 documentation. These messages can be re-displayed by viewing the Console Log.

The Console Log (Conlog) is a file in which console messages and commands are logged chronologically. The Conlog can be accessed by pressing the View Log function key. Scrolling while in Conlog is performed with the Fwd and Bkwd keys. The End function key will exit the Conlog file and return to the previously selected frame. There is a Conlog for each console (System and Service).

_ **Step 1** Assign and activate the System console.

_ **Step 2** Invoke the System Configuration frame by entering the SLC ***F CONFIG*** at the command line.

_ **Step 3** Now invoke the SCP Manual Control frame by entering the SLC ***F SYSCTL*** at the command line.

NOTE

You didn't need to go back to the System Console Index frame to invoke this frame. Any frame can be selected using the SLC ***F*** "FNAME" when you know the frame name.

_ **Step 4** Invoke the SCPMSG frame.

Q J. What happened?

Service [illegible] displayed [illegible]

_ **Step 5** Look up message number 199 in the Messages volume and perform the operator response (press ***View Log***).

Q K. Why didn't the SCPMSG frame display?

No [illegible] pending SCPMSG from [illegible] displayed

SCP

NOTE

The SCPMSG (System Control Program Message) frame permits the SCP (System Control Program) to communicate with the System console when a condition requiring immediate operator intervention is detected. MVS sends the message to the operator console. If no response is received within 125 seconds, then the message is sent to the System console's SCPMSG frame.

This frame can be selected ONLY if such a message is present.

_ **Step 6** While in the Console Log use the ***Bkwd*** function key to scroll backward. Scan the Console Log and note the contents. You should see:

- SLCs and responses
- Command line entries
- Messages

_ **Step 7** Exit the Console Log by pressing the ***End*** function key.

_ **Step 8** Use the SLC TOD to enable and secure the Time of Day Clock by entering ***TOD***.

_ **Step 9** Once again you can re-display the TOD messages by viewing the Console Log.

_ **Step 10** Invoke the Operator Control frame.

_ **Step 11** Use the SLC ***LOGFRAME*** to copy this frame to the Console Log. This can be very useful if you need to refer back to a frame.

_ **Step 12** Invoke the System Console Index frame.

_ **Step 13** View the Console Log. Notice that the Operator Control frame is displayed in the Console Log.

Screen Indicators

_ **Step 1** Assign and activate the Service console

_ **Step 2** Invoke the Operator Index frame.

> **NOTE**
>
> The Operator Index frame is <***INDEX1***> from the Service console.
>
> To the right of the frame title, you have ***(1 of 2)***. This means that there is not enough room to display all of the selections on one screen.

_ **Step 3** Press the ***Fwd*** function key.

> **NOTE**
>
> Now look to the right of the frame title, you now have ***(2 of 2)***.

_ **Step 4** Display the Maintenance Procedure Index frame.

> **NOTE**
>
> Here, you will see that you have access to A1, A2 and the A3 options.

_ **Step 5** Enter ***A1*** on the command line and press the ***Enter*** function key to see if any AQEIDs exist.

_ **Step 6** From the AQ frame, enter ***A1*** and press the ***Enter*** function key.

_ **Step 7** More options now appear on the AQ frame. Simply press the ***Enter*** function key using the default option of ***ALL***.

_ **Step 8** Press the ***Index*** function key to get back to the INDEX0 screen.

_ **Step 9** Press the ***SwCon*** function key. You should now be on the System console INDEX0 frame (providing you did not deselect the System console in a previous step).

> **NOTE**
>
> If you did not get the System console after you pressed the SwCon function key, then assign and activate the System console now.

Q L. Is this a complete listing of all the menu selections available from the System's console INDEX0 frame?

No

Q M. What function key must you press to display the second half of this frame?

Push

Access Levels

_ **Step 1** Activate the Service console.

_ **Step 2** From the Service console, access the INDEX0 frame.

_ **Step 3** Select the MANSVC frame by entering ***05*** on the command line.

_ **Step 4** Try to access the RSFTRC frame by entering ***05*** on the command line.

Q N. Why was the frame not displayed?

Access Level 2 is required

Q O. What is the current Access Level?

2

_ **Step 5** Invoke Access Level 1 from the Console Access Control Level frame.

> **NOTE**
>
> **Note:** The Console Access Level Control menu gives you the ability to select Access Level 1. Typically Access Level 1 is used by System Programmers or by CEs, under the direction of the RSC (Remote Support Center), for the purposes of in depth trouble-shooting.

Q P. What does the system request?

Access Code

_ **Step 6** Enter Access Code ***IBMSVC***.

_ **Step 7** Now try to select the RSFTRC frame again (you should be successful this time).

_ **Step 8** Do the necessary selections to put your console back to Access Level 2.

_ **Step 9** Now go to the System console and invoke the INDEX0 frame.

_ **Step 10** Press the ***Fwd*** function key to view the second half of the INDEX0 frame.

Q Q. Are you allowed to select the IOCDS Display frame?

No

Q R. Why not?

Level 1 Access is required

_ **Step 11** Enter the appropriate commands to allow access to the IOCDS Display frame.

> **NOTE**
>
> You don't need an Access Code for the System console.

_ **Step 12** Now try to select the IOCDS frame again (you should be successful this time).

_ **Step 13** Do the necessary selections to put your console back to Access Level 2.

SERVMODE

_ **Step 1** Display the Service console INDEX0 frame and observe the upper center portion of the screen.

> **NOTE**
>
> Two indications are very important.
>
> | Current Access Level | Service Mode |
> |---|---|
> | 2 | OFF |
>
> Two SLCs can change the status of Service Mode.
>
> **SERVMODE** and **SERVPART**

Q S. What is the bottom line command that you would enter to invoke the Maintenance Procedures Index frame?

03 or F MPINDX

_ **Step 2** Enter that command now.

Q T. Observe the menu. Why don't you have access to all of the Menu's selections?

Service Mode OFF

_ **Step 3** From the Service console INDEX0 frame, enter the SLC ***SERVMODE***.

Q U. Was it successful?

No

> **NOTE**
>
> To turn service mode on, you have to be at INDEX0 on both the System and the Service console and you can only turn it on from the System console INDEX0 frame.

__ **Step 4** Invoke the System console INDEX0 frame and enter the SLC ***SERVMODE***.

Q V. Was it successful?

Yes

__ **Step 5** Press the ***Enter*** function key to clear the priority message.

__ **Step 6** Observe the System console INDEX0 frame.

Q W. What happened to the available selections?

Some are now unavailable

NOTE

At this point, ownership of the operating configuration has been transferred to the Service console. This means that you could start diagnostics on any part of the machine, regardless of customer operation and you will lose the POR (Power On Reset) condition. Never use SERVMODE while the customer is running unless directed by the Maintenance Procedures.

__ **Step 7** Return to the MPINDX frame and observe that selections for Repair Actions and Manual Diagnostics are now available.

__ **Step 8** From the Service console, enter ***SERVMODE***, to turn service mode off (don't forget, you must be at the INDEX0 frame).

__ **Step 9** When you get the priority message, press the ***Enter*** function key.

__ **Step 10** Press the ***Clear*** function key when directed.

Q X. Why did the PRPSEL frame display?

CERF

NOTE

The PRPSEL frame is displayed whenever SERVMODE or SERVPART is turned off and the CE Reporting Facility (CERF) panels normally should be completed. For now we will not complete the frames, you will get an opportunity to do so later.

__ **Step 11** Press the ***End*** function key until the INDEX0 frame is displayed.

Exercise Summary

This lab project gave you an opportunity to practice your console skills, and also see a few new screens and added features of the consoles.

This Completes This Lab Exercise.

Answers to questions in this exercise

Q A. Port A

Q B. System Console Index (1 of 2)

Q C. (.....) around the frame name

Q D. The Configuration Frame

Q E. The PF2 (Index) key

Q F. The Service Console Index frame

Q G. <.....> around the frame name

Q H. The System Console Index frame

Q I. The console to be activated (displayed in the window) will alternate between 3 logical consoles

Q J. Received message: SCPMSG frame is not displayed. Press VIEW LOG (199)

Q K. No SCP messages are pending (35134)

Q L. No

Q M. The Fwd function key

Q N. 5 not a valid selection. Access Level 1 is required

Q O. ACCESS level 2

Q P. An Access Code

Q Q. No

Q R. You must be at Access Level 1

Q S. F MPINDX

Q T. SERVMODE must be turned on

Q U. NO

Q V. Yes

Q W. The selections have been Xed out or disabled

Q X. SERVMODE was turned off

Exercise 2. Display FRU Information

What This Exercise is About

This exercise familiarizes you with the FRU tables available on the service console.

What You Should Be Able to Do

After completing this exercise, you should be able to use consoles and maintenance documentation to effectively locate FRUs by location, FEID, or P/N.

Introduction

In order to use the maintenance package effectively, it is important to be able to locate FRUs easily. The objective of this exercise is to practice your skills of displaying FRU information.

Answers to **questions** in this Lab Exercise are at the end of this exercise.

Required Materials

You will need the following materials to complete this exercise:

- Vol D01 Service Language Commands
- Vol D02 Processor Complex Frames Manual Part 1
- Vol D03 Processor Complex Frames Manual Part 2

Directions to the Student

Prerequisites: Have your instructor start the 9121 simulator at your desk.

Display FRU Locations

_ **Step 1** Make the correct console entries to select the MPINDX frame.

_ **Step 2** Select the correct entry to view FRU data.

Q A. What selection under Management Operations will display FRU data?

_____

_ **Step 3** Make the correct entries to display FRUs by location. For example: if just 01 was entered, all the FRUs for frame 1 would be displayed.

Q B. What are the part numbers for the FRUs at location:

01EA1B2?

_____

01KA1C2?

_____

_ **Step 4** Select the correct entries to display FRUs by part number (eg: P/N 57f9840).

Q C. In how many locations can P/N 73F4073 be found?

_____

_ **Step 5** Now make the correct entries to display FRUs by FEID (eg: EF00).

Q D. How many FRUS are associated with FEID 0101 (CP1)?

_____

__ **Step 6** Now return to Index 0 on both consoles.

Exercise Summary

This exercise gave you an opportunity to practice your FRU location skills, and also see a few new screens and added features of the consoles.

This Completes This Lab Exercise

Answer to questions in this exercise

Q A. A3

Q B. 73F5328

89F7436

Q C. 24

Q D. 41

Exercises

9021 Model 900 (SEC 120)

Exercise 3. Patch Apply

What This Exercise is About

This lab project familiarizes you with the Patch Apply procedure.

What You Should Be Able to Do

After completing this exercise, you should be able to successfully apply patches.

Introduction

In order to maintain the 9121 hardware effectively, it is essential to maintain the 9121 microcode. Patches are a very important part of this process, designed to fix problems currently being experienced, as well as reducing exposures to potential problems. Service and performance enhancements are also updated by patches. It is recommended that patches be pulled weekly, via service update, and applied monthly, if possible.

Answers to **questions** in this Lab Exercise are at the end of this exercise.

Required Materials

You will need the following materials to complete this exercise:

- *C01 9121 Service Information: Processor Controller Element Service Guide*, SY27-2613

Directions to the Student

Prerequisites: Have your Instructor start the 9021 simulator at your desk.

Scenario: You are on a 9021 model 900, PP mode simulator for this exercise. The 9121 simulator does not support the Patch Apply lab project yet. Other than some system size and features differences on the CONFIG frame, the Patch frames and their usages are the same.

The Customer always operates the 9121 system in a Physically Partitioned configuration. The Customer is only capable of giving up one side at a time on the weekend for maintenance due to a heavy work load. This weekend you can get side 0 for microcode updates (Patch Apply). The Service Update was already done, all you need to do is apply the patches.

Patch Apply

__ **Step 1** Assign and activate the Service console.

Q A. Before you start the Patch Apply procedure, the Customer must stop all operations and release the system to you, True of False?

True

__ **Step 2** Perform the Patch Task "Apply patches" using *C01 9121 Service Information: Processor Controller Element Service Guide*, SY27-2613, Chapter 3, and answer questions in this exercise as you progress through the procedure.

NOTE

Do NOT select the Apply Patch ALL option, you will be applying patches individually for this Lab Exercise.

_ **Step 3** Apply **ONLY** patch ZFIL0073, using *C01 9121 Service Information: Processor Controller Element Service Guide*, SY27-2613, Chapter 3 as a reference.

Q C. Was the patch apply successful?

_____

Q D. Why wasn't the apply successful?

_____

_ **Step 4** Now apply patch ZFIL0070, then apply ZFIL0073.

_ **Step 5** View all unapplied patches.

Q E. How many patches are left?

_____

_ **Step 6** Apply patch ZFIL0072.

_ **Step 7** Look at the Conlog.

Q F. How many patches were applied and why?

_____

_ **Step 8** Continue with the patch apply procedures until the PCE has come back online.

NOTE

The Exit session (D1) option will activate the patches. The system will perform an IML and then a POR. The IML and POR takes several minutes, just as on the real machine.

There were no PCE patches applied, so do not select the LIC Load Processor Controller (C2) option. PCE patches are prefixed with a (P).

_ **Step 9** Request the special simulation frame ET3LAB by entering ***F ET3LAB***.

_ **Step 10** Tab the cursor down to the **COMMAND ==>** field and do a SIM RESTART by entering ***A4***. Then press the ***Fwd*** function key when requested.

Exercise Summary

This lab project gave you an opportunity to apply patches individually. This provided you with the opportunity to experience applying patches that need a prereq and patches that are coreqs.

This Completes This Lab Exercise.

Answers to questions in this exercise

Q A. True, because this is a 9121 MP in PP mode

Q C. NO

Q D. A prereq (ZFIL0070) is required to be applied first

Q E. 2

Q F. 2, one was a coreq and was automatically applied.

Exercise 4. Service Update and Bad Patch Apply

What This Exercise is About

This lab project familiarizes you with the Service Update and the errors which could occur when you apply bad patches.

What You Should Be Able to Do

After completing this exercise, you should be able to successfully complete a service update and take appropriate action when bad patches are received and applied.

Introduction

Patches are pulled weekly, via an automatic service update. Options D1 and D2 on the RSFCNF frame are used to select the date and time of the link. It is also possible to perform an immediate service update, using the D3 option on the RSFCNF frame. Theoretically bad patches are never sent, but if they are, then it will be necessary to take appropriate actions, indicated either by the messages displayed on the screen or by the Remote Support center directions.

Answers to **questions** in this Lab Exercise are at the end of this exercise.

Required Materials

You will need the following materials to complete this exercise:

- *C01 9121 Service Information: Processor Controller Element Service Guide*, SY27-2613
- *D04 9121 Messages-Part 1*, GA23-0377

Directions to the Student

Prerequisites: Have your Instructor start the 9021 simulator at your desk.

Scenario: You are on a 9021 model 900, PP mode simulator fo theis exercise. The 9121 simulator does not support the Service Update and Bad Patch Apply lab project yet. Other than some size and features differences on the CONFIG frame, the Patch frames and their usages are the same.

The Customer always operates the 9121 system in a Physically Partitioned configuration. The Customer is only capable of giving up one side at a time on the weekend for maintenance due to a heavy work load. This weekend you can get side 0 for microcode updates (Patch Apply).

Immediate Service Update

_ **Step 1** Assign and activate the System console.

_ **Step 2** Invoke the RSFCNF frame and start an Immediate Service Update (***D3***).

_ **Step 3** Once the service update has completed successfully, have a look at the System Console Log.

> **NOTE**
>
> It may not be obvious from the System Console Log which files are patches. Here is another place to look; from the Service console, select the PATCH frame. Now select the function field ***B1*** (List current unapplied patches).

Q A. How many patches were transmitted for this service update?

__ **Step 4** Record the list of patches to be applied.

BAD Patch Apply

__ **Step 1** Assign and activate the Service console.

Q B. Before you start the Patch Apply procedure, the Customer must stop all operations and release the system to you, True of False?

__ **Step 2** Perform the Patch Task "Apply patches" using *C01 9121 Service Information: Processor Controller Element Service Guide*, SY27-2613, Chapter 3, and answer questions in this exercise as you progress through the procedure.

Q C. Was the selection successful?

Q D. Why wasn't the selection successful?

NOTE.

Use *D04 9121 Messages-Part 1*, GA23-0377, to get detailed information.

__ **Step 3** Enter *A2* again.

__ **Step 4** View all unapplied patches.

Q E. Which patch is missing and why?

__ **Step 5** Apply ALL patches.

Q F. Was the patch apply successful?

No

Q G. Why wasn't the patch apply successful?

> **NOTE.**
>
> Use *D04 9121 Messages-Part 1*, GA23-0377, to get detailed information.

__ ***Step 6*** The Remote Support center directed you to erase the patch after you contacted them. Use the Conlog to verify the bad patch number and that you erased it.

__ ***Step 7*** Continue with the patch apply procedure.

Q H. Was the patch apply successful?

Q I. Why wasn't the patch apply successful?

> **NOTE.**
>
> Use *D04 9121 Messages-Part 1*, GA23-0377, to get detailed information.

__ ***Step 8*** Again the Remote Support center directed you to erase the patch after you contacted them. Use the Conlog to verify the bad patch number and that you erased it.

__ ***Step 9*** Continue with the patch apply procedure.

Q J. Was the patch apply successful?

No

Q K. Why wasn't the patch apply successful?

NOTE.

Use *D04 9121 Messages-Part 1*, GA23-0377, to get detailed information.

_ **Step 10** Once again the Remote Support center directed you to erase the patch after you contacted them. Use the Conlog to verify the bad patch number and that you erased it.

_ **Step 11** Continue with the patch apply procedure.

Q L. What message did you receive?

NOTE.

Since there were no unapplied patches left to apply, this indicates a sucessful patch application.

Q M. How many patches were applied? Hint, select option ***B2*** (List current applied patches).

_ **Step 12** Return to the EC/PATCH frame and Exit the Patch Session (***D1***) to end the patch apply procedure.

NOTE.

There were no PCE patches applied, so do not select the LIC Load Processor Controller (C2) option. PCE patches are prefixed with a (P).

Q N. What error message is displayed?

_ **Step 13** Wait at least 1 minute until the EC/PATCH frame returns (this is the end of a WARM START).

_ **Step 14** Restart the Patch Apply procedure (option ***A2***).

_ **Step 15** Erase the patch SEG00008 as directed bt the Remote Support center.

Q O. Why was the erase not successful?

_ **Step 16** Perform a patch backout.

_ **Step 17** Select option ***B2*** (List current applied patches) and make sure that patch SEG00008 has been backed out.

_ **Step 18** Continue with the patch apply procedures until the PCE has come back online.

> **NOTE**
>
> The Exit session (D1) option will activate the patches. The system will perform an IML and then a POR. The IML and POR takes several minutes, just as on the real machine.
>
> There were no PCE patches applied, so do not select the LIC Load Processor Controller (C2) option. PCE patches are prefixed with a (P).

_ **Step 19** Request the special simulation frame ET3LAB by entering ***F ET3LAB***.

_ **Step 20** Tab the cursor down to the **COMMAND ==>** field and do a SIM RESTART by entering ***A4***. Then press the ***Fwd*** function key when requested.

Exercise Summary

This lab project gave you an opportunity to perform a service update and apply patches, of which five patches were bad. This provided you with the experience of how to recover from five different types of bad patches. If you follow directions provided to you from the Messages and from the Remote Support center, you should be able to recover from almost all types of bad patches.

This Completes This Lab Exercise.

Answers to questions in this exercise

Q A. 5

Q B. True, because this is a 9121 MP in PP mode

Q C. NO

Q D. ZFIL0370 checksum error. ERASE called. Reselect A2 (29585)

Q E. ZFIL0370. It was erased when you selected A2 again

Q F. NO

Q G. System error. Verify failure on patch SEG00006 (29550)

Q H. NO

Q I. System error. Patch file SEG00011 processing failure (29552)

Q J. NO

Q K. System error, No str. match in ZFIL9999, rel 4. HALT used (29653)

Q L. No UNAPPLIED patch files found. Frame not changed. (29513)

Q M. 5

Q N. DMKDMP908I SYSTEM FAILURE Abend= PCV001 ID= ECPT

Q O. You must first BACKOUT the patch

Exercise 5. Logical Partition

What This Exercise is About

This lab project familiarizes you with LPAR (Logical PARtition) initialization procedures and frame usages.

What You Should Be Able to Do

After completing this exercise, you should be able to perform a POR in LPAR mode and understand the usages of the LPAR frames and LPAR SLCs.

Introduction

Many Customers operate their 9121 systems in LPAR mode. It is important in todays system environment to understand LPAR functions. In LPAR mode there are many frames that are partition sensitive and you must be able to move from one logical partition to another.

When operating in LPAR mode there are essentially independent processors operating separate SCPs (System Control Programs) under the covers of one physical 9121. Instead of having to install more System console displays or adding more console assignment options to the Console Assignment frame, the System console will be used in conjunction with LPAR SLCs to target a specific partition for an IPL and other functions.

Answers to **questions** in this Lab Exercise are at the end of this exercise.

Required Materials

You will need the following materials to complete this exercise:

- *B04 9121 Service Information: Processor Service Guide Part 3, Input/Output*, SY27-2612
- *D01 9121 Service Information: Service Language Commands*, SY27-2615
- *D02 9121 Service Information: Frames, Part 1*, SY27-2617
- *D03 9121 Service Information: Frames, Part 2*, SY27-2622

Directions to the student

Prerequisites: Have your Instructor start the 9021 simulator at your desk.

Scenario: You are on a 9021 model 900, PP mode simulator for this exercise. The 9121 simulator does not support LPAR mode yet. Other than some system size and features differences on the CONFIG frame, the LPAR frames and their usages are the same.

POR in LPAR Mode

In a PP configuration, both sides of the complex are independent of the other. The Customer can operate both sides in Basic mode or LPAR mode, or one side in Basic mode and one side in LPAR mode. If both sides are operated in LPAR mode, then up to seven logical partitions may be defined on each side, giving a total of up to 14 logical partitions.

_ **Step 1** From the System Console Index frame select the CONFIG frame.

Q A. What is the CP MODE?

_____

NOTE

All modes other than LPAR mode are considered Basic mode.

_ **Step 2** POR is Complete for the system, make the necessary entries to release POR.

_ **Step 3** Change the CP MODE to LPAR.

_ **Step 4** You will need to select an LPAR IOCDS.

Q B. Which selection from the CONFIG frame should you take?

_____

_ **Step 5** Select the IOCDSM frame now.

_ **Step 6** You need to select the PCSIM LPAR IOCDS.

Q C. What entries would you enter to select the PCSIM LPAR IOCDS?

_____

_ **Step 7** Return to the CONFIG frame and initiate a Power-On Reset.

Q D. Why did the POR fail?

_____

_ **Step 8** After the PCSIM LPAR IOCDS has been selected, you will need to activate the **Enable Automatic TOD Setting**.

Q E. On which frame is the Enable Automatic TOD Setting function selected?

_____

_ **Step 9** Make the necessary entries to activate the Enable Automatic TOD Setting.

Note

The **Enable Automatic TOD Setting** must be active to allow a POR in LPAR mode. This causes the different logical partitions to derive their TOD clock values from the PCE's BOC. The System time will be set relative to Greenwich Mean Time (GMT). Example: The Eastern Standard Time zone is offset 05:00 hours WEST of GMT.

_ **Step 10** Now select the CONFIG frame and perform a POR.

_ **Step 11** At the completion of the POR and LPAR Initialization:

a. Any previously activated partitions will be automatically activated
   - With the same processor and storage resources

- With the assigned CHPIDs (including reconfigured CHPIDs)

b. The LPDEF frame is displayed
   - Partitions identified by a **P** (Pending) will be activated
   - The Operator can interrupt the automatic activation within 10 seconds (Enter - Reset - Cncl)

c. The IPL will be automatic if it is defined for the partition

Q F. What is the indication that the logical partitions were successfully activated?

_____

Q G. Was this system set up for automatic IPLs of all the partitions after the partitions were activated? (Select the VIEW option on the LPDEF frame for the Auto IPL settings.)

_____

NOTE

There should have been an Automatic IPL completion message for each logical partition. If you happened to miss the messages that scrolled by, then look at the Conlog (press the **View Log** function key).

LPDEF Frame

The LPDEF frame is used to Activate, Deactivate, Update, or View logical partitions that are defined by the currently active IOCDS.

NOTE

The IOCDS defines the number and the corresponding name of each logical partition. The partition number and name can NOT be changed by any frame option or SLC: these can only be changed within the IOCDS.

_ ***Step 1*** Take some time now to read about the LPDEF frame in *D03 9121 Service Information: Frames, Part 2*, SY27-2622 and answer the following questions.

Q H. The LPDEF frame can only be invoked while in LPAR mode, True or False?

Q I. What does a **D** in a logical partition status (S) field indicate?

Q J. What does a **L** in a logical partition (L/U) field indicate?

_ ***Step 2*** Make sure you understand what all the fields indicate.

_ ***Step 3*** Select some other **C= VIEW** options and answer the following questions.

Q K. How much ES is initialized for logical partition PART6?

Q L. Under the ES Total field for the C= VIEW Storage option, how can there be more Defined ES than Configured ES?

NOTE

The RSVD ES or CS field shows the number of Megabytes of additional ES or CS requested for a logical partition. This space only becomes available to that logical partition when no other logical partition has this storage online. This reserved storage space is contiguous to and above the initial area of ES or CS.

Q M. Do any logical partitions have a dedicated processor assigned?

SLC DEACTLP and ACTLP

SLC DEACTLP deactivates a logical partition and returns its resources to the processor complex. SLC ACTLP activates a logical

partition and allocates the customer-defined resources to that logical partition.

NOTE

Deactivation and Activation of a logical partition is normally the Operator's responsibility. Deactivation of a logical partition will disrupt that Partition's SCP (System Control Program).

_ **Step 1** From the LPDEF frame, enter ***A1 B2*** to deactivate logical partition PART1.

Q N. What SLC would perform the same function?

_____

_ **Step 2** Using that SLC, deactivate logical partition PART2.

NOTE

If the logical partition was in the operating state, you would be required to use the the SLC DEACTLP with the FORCE option.

_ **Step 3** From the LPDEF frame, enter ***A1 B1*** to activate logical partition PART1.

Q O. What SLC would perform the same function?

_____

_ **Step 4** Using that SLC, activate logical partition PART2.

SLC SETLP

SLC SETLP sets a target partition or displays a list of all the partitions in the active IOCDS. The target logical partition is that logical partition to which partition-sensitive function keys, display frames, and SLCs apply. The target partition name would normally be displayed on line 25 of the &hx. System console. (Line 25 is NOT displayed on the simulator.)

NOTE

Setting the target logical partition is normally the Operator's responsibility. In the LPAR environment, it is IMPORTANT to be aware of which partition is selected!

_ ***Step 1*** Make logical partition PART2 the "target partition" by entering ***SETLP PART2***.

NOTE

This makes the hardware System console in session with your commands! The hardware System console in now "assigned" to logical partition PART2.

_ ***Step 2*** Select the following frames and notice they are associated with the target partition:

- OPRCTL This frame displays Operator functions for only the target partition.
- ALTCP This frame allows alter/display functions for only the target partition.
- IOPD Be aware that some selections (such as Channel Summary) display the ENTIRE &hx. System; while others (such as Device Status) are partition sensitive (they relate to only the target partition).

SLC LOCKLP and UNLOCKLP

The SLC LOCKLP is used to "lock" one or all logical partitions. The SLC UNLOCKLP "unlocks" a logical partition that was locked by the LOCKLP command. The LOCKLP helps prevent an Operator from inadvertently sending a command to the wrong logical partition. The Operator functions are locked; whether entered by SLCs, function keys, or display frame options (they are X'd out).

NOTE

The unlocking or locking of a logical partition is normally the Operator's responsibility. Locking all partitions, then unlocking only the partition(s) you are working with is a "safe" practice!

_ ***Step 1*** Select the SYSCTL frame from logical partition PART2.

Q P. Why is the Initiate SCP Initialization (A3) selection inhibited (**X**)?

_____

_ ***Step 2*** Enter the SLC to perform a system reset clear.

Q Q. Did the system reset clear command function properly?

_____

Q R. To list the locked partitions in the system log, what command is entered at the hardware System console?

_____

_ ***Step 3*** Enter the SLC to list all the locked partitions now.

_ ***Step 4*** Enter the SLC to unlock logical partition PART2.

Q S. To list the unlocked partitions in the system log, what command is entered at the hardware System console?

_____

_ ***Step 5*** From logical partition PART2's SYSCTL frame, enter ***A3*** (Initiate SCP Initialization). This action is most commonly called an IPL.

NOTE

You should see a load complete message on the SYSCTL frame and normally you would see the following message on the MVS Master console:

```
IEA110A SPECIFY SYSTEM PARAMETERS
```

Additional LPAR Frames

_ ***Step 1*** Put the System console in ACCESS LEVEL 1 and select the second index frame (press the ***Fwd*** function key).

_ ***Step 2*** Additional frames used in LPAR can now be displayed. Select these frames to become familiar with their format and usages.

- LPCHND
- LPCTL
- LPSEC
- LPSMAP

Q T. What frame is used to prevent a reconfigurable CHPID from becoming available to other logical partitions when that CHPID is deconfigured?

_____

Q U. What frame is used to change or display the logical partition controls?

_____

NOTE

The LPCTL frame would be used for defining "dedicated processors."

Reconfiguring a CHPID

If a CHPID is defined as **R** (Reconfigurable) in the IOCDS, the Customer can configure that CHPID OFF from one logical partition and reconfigure it ON to any other logical partition.

NOTE

Reconfiguring a CHPID is normally the Operator's responsibility.

_ ***Step 1*** Select the LPCHNA frame and verify CHPID 10 is assigned to the partition PART5.

Q V. How many of the CHPIDs are reconfigurable for this processor?

_____

_ ***Step 2*** Enter the SLC to make logical partition PART5 the target partition.

_ ***Step 3*** Remove CHPID 10 from logical partition PART5 by entering ***CHPID 10 OFF RELEASE***. (Unlike a real &hx., the Simulator CHNCFA frame does not show the CHPID off.)

NOTE

Not only does this take the CHPID off, but also releases it from the logical partition (Reference *ES/9000 Operating Guide*, GA23-0375, Service Language Commands).

When a CHPID is to be reconfigured from a logical partition that is IPLed and operating, SCP commands should always be used to configure the CHPID offline from the SCP before using the CHPID SLC (eq. the SCP command for MVS is "CF CHP(10),OFF").

_ **Step 4** Enter the SLC to make logical partition PART2 the target partition.

_ **Step 5** Enter ***CHPID 10 ON*** and refresh or re-display the LPCHNA frame.

Q W. How can you tell CHPID 10 was reconfigured to logical partition PART2?

_____

_ **Step 6** Perform the procedures again, but this time, put CHPID 10 back to logical partition PART5.

System Console Functions Not Available in LPAR Mode

The following function keys are not available in LPAR mode:

- ISTEP
- TOD

The following display frames are not available in LPAR mode:

- SCE Address Compare (ADRSC)
- Alter/Display Vector (ALTVE)

The following service language commands are not available in LPAR mode:

- IOCP
- ISTEP
- SETIAR
- SYSIML
- TOD

Summary of System Console Functions

Partition Sensitive Display Frames

- OPRCTL
- ALTCP
- SCPMSG
- IOPD
- SYSCTL

Partition Sensitive Function Keys

- INTRPT
- RESTRT
- START
- STOP

Partition Sensitive SLCs

- ALTSYSF
- CHPID
- DISSYSF
- INTRPT
- LOAD
- RESTART
- START
- STOP
- STORSTAT
- SYSRESET
- PSW

Exercise Summary

In this lab project you became familiar with how to perform a POR in LPAR mode, the usages of LPAR frames and the usages of some LPAR SLCs. You determined whether a logical partition was active or not, how to properly assign the hardware console to a target partition and which CHPIDs belonged to a logical partition and if they are reconfigurable. You also got an opportunity to reconfigure a CHPID between logical partitions.

This Completes This Lab Exercise.

Answers to questions in this exercise

Q A. ESA/390 tm

Q B. A4, Select IOCDS MGMT.

Q C. A1 and C1

Q D. Automatic TOD not enabled

Q E. The SYSDEF frame

Q F. A successful activation message on the LPDEF frame

Q G. Yes

Q H. True

Q I. That the logical partition is inactive

Q J. That the logical partition is currently Locked

Q K. 400 Megabytes

Q L. Because Reserved ES is defined

Q M. No

Q N. DEACTLP

Q O. ACTLP

Q P. This logical partition is locked

Q Q. No, again the logical partition is locked

Q R. LOCKLP

Q S. UNLOCKLP

Q T. The LPSEC frame-ISO option.

Q U. LPCTL

Q V. All 128 of them

Q W. LPCHNA frame now displays 2 below CHPID 10

Exercises

9121 IOCP

Exercise 6. IOCP Editor

What This Exercise is About

This lab project familiarizes you with the IOCP Editor and its usages.

What You Should Be Able to Do

After completing this exercise, you should be able to create a new IOCDS using the IOCP Editor.

Introduction

The 9121 IOCP Editor differs from the 3090 IOCP Editor, mainly in the area of editing. The DISPLAY, ALTER, DELETE and ADD functions have been replaced by the EDIT function. While in the EDIT function the TEST command allows you to verify your inputs before writing the IOCDS onto the disk.

Answers to **questions** in this Lab Exercise are at the end of this exercise.

Required Materials

You will need the following materials to complete this exercise:

- Vol A04, IOCP User Guide (Chap 6, Service Representative Procedures)

Directions to the student

Prerequisites: Have your Instructor start the 9121 IOCP Simulator at your desk.

Scenario: You have just installed the 9121. The customer has prepared an IOCDS tape and has asked you to load it into IOCDS A3. The starter IOCDS does not match the hardware configuration.

Note

There are two solutions to prepare an IOCDS to allow the load of the Customer's IOCDS tape:

- Change the starter set.
- Create a mini-IOCDS, which describes the path to one tape unit only.

Changing the existing IOCDS starter set can be quite difficult, and may cause more headaches than it is worth. A simpler solution is to create a mini-IOCDS; you only need to define one tape drive address.

Starting the Stand-alone IOCP Program on the &hx.

Because you are using a Simulator, you will get a pseudo Service Console Index menu with all the prerequisites completed. Those prerequisites are:

Service console with SERVMODE ON

POR complete (Basic mode with IOCDS "D0" selected)

CPs in stop state

_ **Step 1** From the Service console enter ***IOCP CP1***. Then press the ***Enter*** function key.

_ **Step 2** Press the ***Assgn Cons*** function key.

_ **Step 3** Define your console to Program Mode (***A3***).

__ **Step 4** Press the ***End*** function key.

__ **Step 5** The I/O Configuration Program Primary Menu is now displayed.

The IOCDS Editor

The goal is to create a mini-IOCDS that will support one tape unit that will be used to load the customer's IOCDS tape.

To describe a path to one tape unit, the minimum to be defined is:

- One channel path ID
- One control unit
- One device

__ **Step 1** Select menu option *5* (Edit).

A template is given by the IOCP Editor:

- 3 lines for message information
- 1 line for channel definition
- 2 lines for control unit definition
- 2 lines for device definition

NOTE

The template has a tape drive and a printer already defined. All you have to do is modify the existing lines. This template is automatically given each time the stand-alone version of the IOCP is loaded.

```
IOCP STAND-ALONE EDITOR ------------------------------------------------------
COMMAND ==>                                                  SCROLL ===> HALF
****** ***************************** TOP OF DATA ****************************
000001  ID MSG='IOCDS NAME GOES IN FIRST EIGHT BYTES',                       X
000002              MSG2='EXTRA INFORMATION CAN BE PLACED HERE',             X
000003              SYSTEM=(9121,2)
000004  CHPID PATH=((11)),TYPE=BL
000005  CNTLUNIT CUNUMBR=0001,PATH=(11),UNIT=3480,PROTOCL=D,SHARED=N,        X
000006               UNITADD=((80,016))
000007  IODEVICE ADDRESS=(0180,016),UNITADD=80,STADET=N,UNIT=3480,TIMEOUT=N, X
000008               CUNUMBR=(0001)
000009  CHPID PATH=((12)),TYPE=BL
000010  CNTLUNIT CUNUMBR=0002,PATH=(11),UNIT=3203,PROTOCL=D,SHARED=N,        X
000011               UNITADD=((0E,001))
000012  IODEVICE ADDRESS=(000E),UNITADD=0E,STADET=N,UNIT=3203,TIMEOUT=N,     X
000013               CUNUMBR=(0002)
****** **************************** BOTTOM OF DATA ****************************
```

Figure 6-1. IOCP Stand-Alone Editor

There are two types of commands:

- Primary Commands and PF keys

  These commands are used to perform program functions, such as "TEst." Primary commands must be entered in the command field above the data area.

- Line Commands

  These commands are used to control operations regarding the lines of data being edited. The line commands are entered in the left position(s) in the line number area of the affected line.

Please take some time right now and read about these commands. Refer to Vol A04, IOCP User Guide, Chapter 6, topic "Editing the Card-Image File." The IOCP editor is a full screen editing program very similar to others you may be familiar with such as XEDIT or ISPF. The arrow keys (← → ↑ ↓) are used to position the cursor anywhere on the screen. Any character can be over-typed by keyboard entries.

Q A. Which PF key will move the cursor to the primary command area?

Q B. Which **LINE** command is used to copy a block of lines?

Q C. Line command ***F*** is used in conjunction with the block copy command to specify the location to which you want the data to follow for the block copy command, True or False?

SYNTAX NOTE

Any statement which is continued on the next line, must contain the continuation character **X** in the last position of the line. This can be rather tricky when using the Insert or Delete function keys for editing.

LINE COMMAND EXAMPLES

```
IOCP STAND-ALONE EDITOR ------------------------------------------------------
COMMAND ==>                                                  SCROLL ===> HALF
****** ***************************** TOP OF DATA ****************************
000001  ID MSG='IOCDS NAME GOES IN FIRST EIGHT BYTES',                       X
000002              MSG2='EXTRA INFORMATION CAN BE PLACED HERE',             X
000003              SYSTEM=(9121,2)
cc0004  CHPID PATH=((11)),TYPE=BL
000005  CNTLUNIT CUNUMBR=0001,PATH=(11),UNIT=3480,PROTOCL=D,SHARED=N,        X
000006               UNITADD=((80,016))
000007  IODEVICE ADDRESS=(0180,016),UNITADD=80,STADET=N,UNIT=3480,TIMEOUT=N, X
cc0008               CUNUMBR=(0001)
000009  CHPID PATH=((12)),TYPE=BL
b00010  CNTLUNIT CUNUMBR=0002,PATH=(11),UNIT=3203,PROTOCL=D,SHARED=N,        X
000011               UNITADD=((0E,001))
d20012  IODEVICE ADDRESS=(000E),UNITADD=0E,STADET=N,UNIT=3203,TIMEOUT=N,     X
000013               CUNUMBR=(0002)
****** ************************** BOTTOM OF DATA ***************************
```

For Illustration Purposes Only:

This is an example of a **block copy**, defined by the line command "cc" on line 4 and line 8, which will be copied **before** line 10. The newly copied lines would be numbered 10 through 14 which could then be modified. All subsequent lines would be renumbered accordingly (original line 10 becomes line 15, etc.). This copy function could have also been accomplished by using a "c5" (copy 5 lines) on line 4 instead of the "cc" on lines 4 and 8. An "a" or "b" would still be required for the "copy to" destination.

Also shown; the "d2" on line 12 would cause 2 lines (12 and 13) to be deleted.

Figure 6-2. IOCP Editor Example

Edit the IOCDS Data

_ **Step 1** Enter information to define the following configuration:

CHPID = **30**
CHPID type = **CVC** (ESCON Conversion Channel)
Control unit and device = **3480**
Unit address = **60**

(Reference Appendix D of Vol A04, IOCP User Guide, for information on these entries).

_ **Step 2** Before saving the data onto the IOCDS data set (disk), try the TEst command to make sure your entries were correct.

_ **Step 3** If you made a mistake, it will show up as a ***IXP IXPxxxx** IOCP message. Use the IOCP User Guide to help you correct any errors.

Ending the IOCDS Editing

_ **Step 1** Make sure all errors have been corrected.

_ **Step 2** Press the ***End*** function key (this will now end the editing and invoke the I/O Configuration Program Primary Menu).

_ **Step 3** Write the edited IOCDS onto the PCE DASD by selecting menu option ***4*** and entering the following information:

IOCDS # = ***A3***
LPAR mode = ***N***
Press the ***Enter*** function key.

Q D. What is does the IXP512A message indicate?

_____

Editing IOCDS from the PCE DASD

_ **Step 1** Enter ***MENU***

_ **Step 2** Select menu option *3* (Read IOCDS).

_ **Step 3** Enter ***A3*** for the IOCDS selection. Press ***Enter***.
The A3 IOCDS you previously created will be read into processor storage from the PCE DASD.

_ **Step 4** Enter ***MENU***, then select menu option *5* (Edit).

> **NOTE**
>
> Observe that the IOCP has sorted the IOCDS file by statement type.

_ **Step 5** Induce an error by copying the CHPID PATH=(30) line to a line just BEFORE an IODEVICE statement.

_ **Step 6** Without altering this copied line, try the ***TEST*** command.

Q E. What is the IOCP message?

_____

_ **Step 7** Instead of correcting the error, press the ***End*** function key and follow the previously used procedure to write the file to the PCE DASD as IOCDS "A3."

Q F. What is the IOCP message received from this operation?

_____

> **NOTE**
>
> This demonstrates that an error is also detected during the write operation and that the IOCP program will not let you write an IOCDS that has errors in it.

_ **Step 8** Return to the Edit function and correct the error.

- **Optional:** For additional practice, define another CVC CHPID as the second path to the 3480.

When you have finished editing the data, once again write the file to the PCE DASD as IOCDS "A3."

_ **Step 9** After returning to the Primary Menu, end the IOCP program by entering ***END***.

NOTE

The ATTENTION message is a warning. If the edited IOCDS has not been written to PCE DASD before ending the program, all changes will be lost.

_ **Step 10** Exit the IOCP program by entering ***END***.

NOTE

Because you are using a Simulator the ending is different but all the functions of the IOCP Editor are exactly the same.

If you were on a real machine, you would have continued by doing the following:

1. Unassign the PROGRAM console.
2. Do a POR with the new IOCDS (A3) selected.
3. Display and verify your newly created IOCDS.
4. Start the Stand-alone IOCP program.
5. Load the Customer's IOCDS tape, using option **1** (Build IOCDS from cards), from the 3480 you have defined.

Although the IOCP editor has found no errors with your definitions, the system could fail during a Power-On Reset with this IOCDS if the physical configuration does not match the IOCDS. In this exercise, if CHPID 30 is not a Conversion Channel as defined, this mismatch will not be detected until a POR failure occurs.

Exercise Summary

This lab project was used to teach the basics of using the IOCP Editor and to create a simple IOCDS to define a CHPID, CU, and a device. This device will then be used to read in the Customer's IOCDS tape.

This Completes this Lab Exercise.

Answer to questions in this exercise

Q A. PF12, PF24 key

Q B. CC on the first and last lines of the block

Q C. False, line command A (after) is used

Q D. The write operation was successful.

Q E. IXP200A

Q F. IXP506A

3090/9021/9121 PATCHAID PACKAGE
PATCH ASSISTANCE GUIDE
VERSION 4.03

Document Number LSIT-0012-01
Binder Number Volume 1

September 20, 1992

Wayne Smith

IBM Canada Ltd
3600 Steeles Avenue
Markham, Ontario
416-946-5555
T/L 886-5555
WSMITH at CANVM2

IBM Internal Use Only

Acknowledgments.

- To The Field CSR's who have sent me notes and there experiences to keep the document current.
- Poughkeepsie DSD & PE for their patience and replies to the many questions and especially to Randy Tackett, Paul Harder and Brent Thompson.

Any questions about the PATCHAID GUIDE or its contents just send a note or call.
Thanks.

Wayne Smith.

Where to get this document.

The PATCHAID GUIDE document is available either as a LIST3820 file from the PATCHAID package on the LEXVMIC1 SERVTOOL Tools disk or as a BOOK file from the PTCHAIDB PACKAGE also on the LEXVMIC1 SERVTOOL Tools disk.

To Get the Package from SERVTOOL
TOOLS SENDTO LEXVMIC1 TOOLS SERVTOOL GET PATCHAID PACKAGE
or
TOOLS SENDTO LEXVMIC1 TOOLS SERVTOOL GET PTCHAIDB PACKAGE

To Subscribe to the Package of your choice to be kept automatically updated with the new files do the following
TOOLS SENDTO LEXVMIC1 TOOLS SERVTOOL SUB PATCHAID PACKAGE
or
TOOLS SENDTO LEXVMIC1 TOOLS SERVTOOL SUB PTCHAIDB PACKAGE

Contents

Introduction and Overview

Known Patch Issues for 3090/9021/9121 since 1JUN90

From segments of RETAIN tips H005593, H044149 (3090), H005163, H054269 (9021), H054086 (9121). Warnings as per MHV Alerts, Alerts from POKI/MOP/YASU PE/LSSC and also covers the following:

- Patch sent to CPU but later put into T or M-STATUS.
- Patch not applicable to a specific model or SEC but sent erroneously by URSF.
- Patch really in ERROR (MSG 29527, 29550, 29564, 29610, 29653, 29701 etc.).
- Special sequence handling of patch applies.
- Other problems encountered with a specific patch like Pre-Reqs/Co-Reqs.
- SSB bulletins released as a patch.

Patch Apply Notes

1. If using a previously created PATCH TAPE, it is loaded after the EC PATCH 'BEGIN PATCH' (A2) COMMAND completes.
2. ALWAYS RECORD Customer options that are SET on the CONFIG, OPRCTL, LPDEF and SYSDEF frames before starting.
3. After PATCH APPLY in the following sections you must ALWAYS do a SERVICE UPDATE after EC PATCH exit (D1). If more patches received from RETAIN, follow the section for the SEC level again from the beginning.
4. If on APPLYING a single PATCH in the 'APPLY SEQUENCE' sections, you get a MESSAGE of "NOT EXIST" the PATCH is already applied or missing. It can only be missing if you didn't do a SERVICE UPDATE or load a current patch tape first.
5. On APPLY or ERASE of a patch that has Co-Reqs, these Co-Reqs will automatically be Applied/Erased at the same time.
6. Patches that list Pre-Reqs, these Pre-Reqs have to be applied first and will not be automatically Applied by the patch that requires it as a Pre-Req.
7. Always use the PREALIST file in this package to determine the need to create a PATCH TAPE for the SEC. It also shows how many UNAPPLIED patches are on the TAPE1 and from RETAINs URSF how many are to be applied in total.

Common Error Messages Notes

Warning: During any patch session or while exiting a patch session a message appears on the screen it must be investigated as to the cause.

1. Always use VIEWLOG in ECPATCH CONLOG to look for ERROR messages as they may not produce a highlighted one. An example...
   - PATCH APPLY HALT USED (PATCH IS IN ERROR)
2. If you see for example messages 29527, 29550, 29564, 29610, 29653, 29701 then review the TEXT related to the message in the SFUG. NORMAL Procedure will be to BACKOUT and ERASE any patch that causes these errors. COMMON CAUSES of these error messages are MISSING CO-REQs, and VERIFY ERRORs.

   Note: I didn't list every PATCH that may cause the above messages as the PATCH is easily identified to be backed out and ERASED before continuing patch apply.

Reference to SEC and CPU Model

CPU	SEC[1]	Available[2]	Models
3090	223630B	No	150, 180, 200, 400, 12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223633	Yes	150, 180, 200, 400
3090	223660	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223665	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223670	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223675	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223675D	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223675G	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223675H	Yes	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	230394	Yes	VEC
3090	228894	No	11S, 12S, 15S, 17S, 25S
3090	228895	No	11S, 12S, 15S, 17S, 25S
3090	230387	No	11S, 12S, 15S, 17S, 25S
3090	230389	Yes	11S, 12S, 15S, 17S, 25S
3090	223770	No	18S, 20S, 25S, 28S, 30S, 38S, 40S, 50S, 60S
3090	223775	No	18S, 20S, 25S, 28S, 30S, 38S, 40S, 50S, 60S
3090	228852	No	18S, 20S, 25S, 28S, 30S, 38S, 40S, 50S, 60S
3090	228862	No	18S, 20S, 25S, 28S, 30S, 38S, 40S, 50S, 60S
3090	227570	Yes	18S, 20S, 25S, 28S, 30S, 38S, 40S, 50S, 60S
3090	229790	No	15JH, 17JH, 25JH
3090	230395	Yes	11J, 12J, 15J, 17J, 25J
3090	230359	No	15T, 17T, 25T
3090	227540	No	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J
3090	227570	No	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J
3090	227572	No	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J
3090	227574	No	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J, 15T, 17T, 25T, 18T, 28T
3090	227576	No	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J, 15T, 17T, 25T, 18T, 28T
3090	227578	Yes	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J, 15T, 17T, 25T, 18T, 28T
9021	229900X	No	340, 500, 580, 620, 720
9021	229905	No	340, 500, 580, 620, 720
9021	229910	No	330, 340, 500, 580, 620, 720
9021	229914	Yes	330, 340, 500, 580, 620, 720
9021	228104A	No	820, 900
9021	228110	No	520, 640, 660, 740, 820, 860, 900
9021	228112	No	520, 640, 660, 740, 820, 860, 900
9021	228120	Yes	520, 640, 660, 740, 820, 860, 900
9021	228150	No	520, 640, 660, 740, 820, 860, 900

Reference to SEC and CPU Model continued..

CPU	SEC	Available[2]	Models
9121	A72355B	No	190, 210, 260, 320, 440, 480
9121	A72357	No	190, 210, 260, 320, 440, 480
9121	C23070	No	190, 210, 260, 320, 440, 480
9121	C23074B	No	190, 210, 260, 320, 440, 480
9121	C22822	No	190, 210, 260, 320, 440, 480
9121	C22827	No	190, 210, 260, 320, 440, 480
9121	C22830A	No	190, 210, 260, 320, 440, 480, 490, 570, 610
9121	C22835	No	190, 210, 260, 320, 440, 480, 490, 570, 610
9121	C22840	No	180, 190, 210, 260, 320, 440, 480, 490, 570, 610
9121	C35674	Yes	180, 190, 210, 260, 320, 440, 480, 490, 570, 610

1 The SEC levels for a Model are in descending order from the first Generally Avaiable (GA) Release to the Latest Release.

2 Shows the status for the CPU model in what is currently the highest (GA) SEC as a FBM EC or via a RPQ Media request.

Common Code Load Instructions

	CPU	APPLICABLE MODELS	PCE TYPE	DOC P/N	DOC LEVEL	LATEST DOC LEVEL
	3090	150, 180, 200, 400, 12E, 15E, 18E, 20E, 30E, 40E, 60E	3092 M1, 2	5542811	223630B	MFG002
	3090	150, 180, 200, 400	3092 M1, 2	5542811	223633	MFG002
	3090	12E, 15E, 18E, 20E, 30E, 40E, 60E	3092 M1, 2	5542811	223675H	MFG002
)	3090	12E, 15E, 18E, 20E, 30E, 40E, 60E	3092 M4, 5	5542811	MFG002	MFG002
	3090	10S, 12S, 15S, 17S, 25S	3092 M1, 2,3	18F5000	230389	MFG001
	3090	10S, 12S, 15S, 17S, 25S	3092 M4, 5	18F5900	230389	230389G
	3090	18S, 20S, 28S, 30S, 38S, 40S, 50S, 60S	3092 M1, 2	18F5000	227570	227570R
	3090	18S, 20S, 28S, 30S, 38S, 40S, 50S, 60S	3092 M5	18F5900	227570	227570V
	3090	15T, 17T, 25T	3092 M1	69F0513	227576	227576T
	3090	15T, 17T, 25T	3092 M1	69F0513	227578	227578
	3090	15T, 17T, 25T	3092 M5	69F0514	227576	MFG003
)	3090	15T, 17T, 25T	3092 M5	69F0514	227578	MFG001
	3090	11J, 12J, 15J, 17J, 25J	3092 M1, 2	34F9600	230395	MFG001
)	3090	11J, 12J, 15J, 17J, 25J	3092 M4, 5	34F9500	230395	230395D
	3090	18J, 20J, 28J, 30J, 38J, 40J, 50J, 60J, 18T, 28T	3092 M1, 2	34F9600	227576	MFG001
	3090	18J, 20J, 28J, 30J, 38J, 40J, 50J, 60J, 18T, 28T	3092 M1, 2	34F9600	227578	227578
	3090	18J, 20J, 28J, 30J, 38J, 40J, 50J, 60J, 18T, 28T	3092 M5	34F9500	227576	MFG003
)	3090	18J, 20J, 28J, 30J, 38J, 40J, 50J, 60J, 18T, 28T	3092 M5	34F9500	227578	MFG002
	9021	330, 340, 500, 580, 620, 720	9022 1A	35F1859	229910W	MFG001
)	9021	330, 340, 500, 580, 620, 720	9022 1A	35F1859	229914	MFG003
	9021	520, 640, 660, 740, 820, 860, 900	9022 1A	69F2745	228104A	MFG001
	9021	520, 640, 660, 740, 820, 860, 900	9022 1A	69F2745	228110	MFG001
	9021	520, 640, 660, 740, 820, 860, 900	9022 1A	69F2745	228112	MFG002
)	9021	520, 640, 660, 740, 820, 860, 900	9022 1A	69F2745	228120	MFG002
	9121	190, 210, 260, 320, 440, 480		73F4164	C22822	MFG001
	9121	190, 210, 260, 320, 440, 480		73F4164	C22827	C22827
	9121	190, 210, 260, 320, 440, 480		73F4164	C22835	C22835A
!	9121	180, 190, 210, 260, 320, 440, 480		73F4164	C22840	C22840A
!	9121	180, 190, 210, 260, 320, 440, 480		73F4164	C35674	MFG002

Instruction tips on CODE LOAD instructions

The following MFG levels are the minimum levels of CODE LOAD documentation that have a "FIX" in the procedure. It is now OK to load code concurrent with Customer operations if using these minimum listed levels of documentation. Higher levels of SEC/MFG also contain the altered procedure.
The problem has been corrected by instructing the CE to Save Customer Data (SID tape) after loading SP/PU/IOP code.[3]

CPU	APPLICABLE MODELS	PCE TYPE	CHANGE	DOC P/N	DOC LEVEL	LATEST DOC LEVEL
3090	18J, 20J, 28J, 30J, 38J, 40J, 50J, 60J	3092 M5	FBM to 227576	69F2563	227576R	MFG001
3090	18J, 20J, 28J, 30J, 38J, 40J, 50J, 60J	3092 M5	227540->227576	69F2727	227576L	MFG003
9021	340, 500, 580, 620, 720	9022 1A	FBM to 229910	69F2700	229910	MFG006
9021	330, 340, 500, 580, 620, 720	9022 1A	CODE LOAD	35F1859	229910	MFG006
3090	15T, 17T, 25T	3092 M5	CODE LOAD	69F0514	227576	MFG001
3090	18J, 20J, 28J, 30J, 38J, 40J, 50J, 60J, 18T, 28T	3092 M5	CODE LOAD	34F9500	227576	MFG003
9021	520, 640, 660, 740, 820. 860, 900	9022 1A	CODE LOAD	69F2745	228110	MFG001

[3] MHV Service Planning broadcast (6JAN92).

Patch Tape Create tips.

Applies to 3090/9021, but related to 9121.

1. PATCH tape to be created within 48 hours of SEC/MES start and is concurrent to Customer operation.
   - This avoids any possibly of lost time working on MODEM/RSF/RETAIN/CCPF problems during customer SYSTEM TIME.
   - Avoids surprises of large releases of patches in days prior to install.
   - Have available PATCHAID PACKAGE and MEDIA to write patch file to.
   - Obtain Customer permission after explaining the benefits to them.
2. Create a Patch tape even if there were no patches to Pre-Ship. The SEC BM file created for the requested SEC/VERSION will be later then the file on TAPE1.
   - This is important if patches have been removed from the SEC/VERSION BM file after the TAPE1 release.
   - The SEC/VERSION BM file is transferred to the 'R-DISK' at EC/PATCH menu load Patch Tape option 'D1'.
3. Use the PREALIST SCRIPT in the PATCHAID package to determine from the REA number (9100xxx) the following:
   - The number of TOTAL patches on this level of TAPE1.
   - The number of APPLIED patches in the TOTAL.
   - The number of UNAPPLIED patches in the TOTAL.
   - The MAXIMUM number of patches possible for the SEC in RETAIN.

   Subtract the TOTAL from the MAXIMUM and this is the approximate number that will be pulled from RETAIN.

   Note: PATCH apply time of an unapplied patch averages 30 seconds so use this to EFFECTIVELY plan time. For example: 150 unapplied patches = 75 minutes.
4. To create MAXIMUM possible room on the patch disk to receive Pre-pull patches
   - ASSIGN URSF CONSOLE
   - Select OPTION 4
   - ERASE ALL the patches shown (FILETYPE name ends in OFF)

   Note: The date of the PATCH file is when is was received from URSF.
5. To PRE-PULL patches for SEC.
   - ASSIGN URSF CONSOLE
   - Select OPTION 3
   - ENTER the following required information.
   - SEC LEVEL, VERSION, REA of tape 9100xxx

   Notes on #4:

   a. DO NOT ENTER IOCP LEVEL
   b. DO NOT BLANK REA LINE as will get every patch for SEC/VER. The REA number flags to RETAIN what patches will be already on the TAPE1.
   c. PATCHES will be received from RETAIN if they match the entered criteria ~~AND the FEATURE MASK of the CPU.~~[4]
      It is then VERY IMPORTANT to do a SERVICE update on the target CPU serial if you Pre-pulled on a different CPU serial as ~~FEATURE~~ and SERIAL dependant patches may be missing.

d. If you did create a Patch Tape on a donor CPU that is not at the same SEC of the target CPU or the CPU is not having a SEC LEVEL change soon, follow the actions in Step #4 to erase these pulled-patches to prevent possible problems with Patch Disk (R-DISK) becoming full.

6. Attaching the PATCH TAPE on 3092 M1, M2, M3.
   - On a 3092 M1, M2, M3 if the physical BMPX interface has to be opened to attach the tape unit a glitch on the TAG interface will cause a PCE Warmstart (see H005357). Circumvention is to take PCE Offline or have the PCE BMPX permanently cabled to a tape control unit.
   - You cannot use the 3A0 to 3AF address range.
   - You cannot use a 3490 E-Model.
7. Attaching the PATCH TAPE on 3092 M4, M5 or 9022 1A.
   - Ensure the Data Device Switch is ON on the Front PCE panel.
   - Load an Optical Disk (doesn't have to be a new one) in the PCEA 3363.
   - On the PS/2 start the Disk Emulator (QZ) and assign a name to the tape image required. For example.. 576V8000 as this implies SEC227576 VER8000 which makes it easy to START the correct image at LOAD patch disk time.
8. CREATE the PATCH tape with the SERVICE CONSOLE in ACCESS LEVEL 1.
   - For all 3092/9022 models go to F PATCH frame on SERVICE console.
     - Enter SEC and VER. LEAVE IOCP information blank.
     - Enter P/N of tape as any 7 digit numeric digit i.e. 6666666
     - You will get a message of tape being written.
     - When complete, hit PF2, and set ACCESS LEVEL back to 2.
9. Loading the patch tape.
   a. If 3092 M4/5 or 9022 load patch tape in PCEA 3363.
   b. Start disk emulator (QZ) and load the correct tape image.
   c. From patch menu, Load patch tape then use this PATCHAID guide to SELECTIVELY APPLY some key patches first (or as like SEC 227576 you may have to ERASE) before doing patch apply ALL.
   d. Look in ECPATCH CONLOG as per PATCHAID instructions for warning messages that may appear that are not normally presented.

General notes:

a. SEC level presented at loading PATCH TAPE is the SEC LEVEL of the CPU the patch tape was created on. It is not related to file contents. The same applies to the given P/N of the patch tape.

b. 3490E CANNOT be used to load patches or code to the PCE. Exception is that if you are at SEC 227570, 227576 or 227578 and you have patch PCPF0096 applied, the 3490E will be fully supported on the 3092 BMPX channel.[5]

c. When using 3480/3490 the IDRC feature should be disabled. See H016544. If due to shared 3480/3490 control units the IDRC cannot be easily disabled note that the REWIND/UNLOAD CCW of 0F will have to be done manually. The IPL of Tape 1 may fail.

---

4 New code in URSF in MAY92 allowed sending of Feature patches to any CPU for requested SEC and VER on Pre-Patch pull.

5 Patch allows the 3490 to Vary-on to 3092 as a 3480 (H103796).

PATCH TYPE description

PATCH	Area being patched
Note:	PCC Patch types
CMSM	CMS Modules
CMSS	CMS Saved System
CMSG	CMS Shared Segment
NSHR	Non-Shared programs. Full Replace/add of Textlib member
PCPF	VM/CP Nucleus programs. Like VM00 but different patch apply method.
SHAR	Shared program, CP, or CMS area ZAP.
SEG0	Nucleus Shared Segment
STXT	Full Text replace of Modules in Shared program area
VM00	VM/CP Nucleus programs
ZFIL	Any CMS file ZAP/Full replace
Note:	CHANNEL patch types
CXL1	CHAN XA Block 2K
CXY1	CHAN XA Byte 2K
C3L1	CHAN 370 Block 2K
C3Y1	CHAN 370 Byte 2K
ZXL1	CHAN XA Block 3K
ZXY1	CHAN XA Byte 3K
Z3L1	CHAN 370 Block 3K
Z3Y1	CHAN 370 Byte 3K
EXL1	CHAN XA Block 3K
EXY1	CHAN XA Byte 3K
E3L1	CHAN 370 Block 3K
E3Y1	CHAN 370 Byte 3K
MXL1	CHAN XA Block 8K (MIN-E)
MXY1	CHAN XA Byte 8K (MIN-E)
M3L1	CHAN 370 Block 8K (MIN-E)
M3Y1	CHAN 370 Byte 8K (MIN-E)
Note:	CHANNEL exerciser patch types
XL10	CHAN Exerciser Block
XY10	CHAN Exerciser Byte
Note:	CP patch types
CPH0	CP Horizontal 370
CPHX	CP Horizontal XA
CPHD	CP Duel Density Ros
CPHE	CP PR/SM
CPHG	CP Horizontal diagnostic mode
CPHH	CP Horizontal 16K
CPHI	CP Horizontal 16K
Note:	IOP patch types
IOPG	IOP General
IOPE	IOP General
Note:	IOCP patch types
IOCP	IOCP patches
Note:	PCE patch types
PCE0	PCE/SP/PU
PCE1	PCE/SP/PU

PATCH	Area being patched
Pnnn	PCE Model 4/5
Note:	TRAP patches
TRAP	Special program traps for PR/SM
Note:	FRU TABLE patch types
FRUT	FRU table patching
Note:	PC TOOLS patch types
PCT0	New Segment for PC tools

PATCH status description

There are Eight types of Patch Status

Type	Status Description
G	Released. Sent on SERVICE UPDATE if SEC and VER match feature mask.
P	Released. Sent on SERVICE UPDATE if SEC and VER match feature mask.[6]
M	Manual. Sent via Remote Console only. To apply the SEC and VER must match feature mask.[7]
U	Untested. Sent via Remote Console only under PE direction.[8]
S	Serial. Sent on SERVICE UPDATE only if SEC, VER, SERIAL match feature mask. PE has to authorise the serial.[9]
T	Test. Patch still in TEST by DSD/PE.[10]
H	Hold. Patch was G Status. Fix/Problem under investigation by PE/DSD.
C	Cancelled. Patch no longer required.

6 Used on OLD SEC levels only.

7 Tested Patch for unique conditions. Can be sent to Customer having the symptoms. PE authorisation not required.

8 Requires PE authorisation to transmit to CPU.

9 Tested Patch. Will not be available on TAPE1s or Pre-Ship of SEC. Requires PE authorisation to transmit to CPU.

10 If the Patch has TST SEC levels (DSC display on URSF) it has not been tested yet. If real SEC levels it is available for field test on Test Serials only.

Patch Transfer from URSF

On a Service update the USRF PAP code in RETAIN controls the collecting/transmitting of various files for product tracking with the Processor Controller. A major function of this data transfer is the LIC Patches and associated files.

Files in a Service Update related to the Patch transfer process are read/sent by USRF in the following order and can only be viewed from the System Console.

Note: Tracking files before this point...

RSF reading	SEC	NUMBER	H	The installed SEC and VERSION
RSF writing	228112	BM9200	R1	Listing of ALL the Patches that could be applied to the SEC (e.g. 228112) and VERsion (e.g. 9200) level.
RSF writing	233751	BMIOCP	R1	Listing of ALL the Patches that could be applied to the IOCP standalone program (e.g. MEC 233751).
RSF reading	RSFLIST	DATA	A	Listing of all the Patches on the Patch disk (R-DISK).
RSF writing	patch...	...OFF	R	First patch written to Patch disk (R-DISK) from RSF staging file. **If a Patch is very large** this could take up to an hour before a message is seen (Do not restart link or PCE).
RSF writing	patch...	...OFF	R	Last patch written to Patch disk (R-DISK) from RSF staging file.
RSF reading	RSFLIST	DATA	A	Listing of all the Patches on the (R-DISK).
RSF reading	DRAIN	HISTORY	A	Patch history file.

Note: Service Update patch transfer complete message then other files continue to be transmitted.

Notes:

1. Patches are transmitted in Alphanumeric order to the R-DISK by Patch Name starting with the low order. File name ends in 'OFF' to reflect the unapplied status.
2. If RSF looses communication with URSF PAP for over 5 minutes the data link will be dropped. If the RSF is hung the URSF PAP will detect it within 12 minutes and drop the data link.

Magic Patches

'Magic Patch' is a term that is used by Poughkeepsie Development and Product Engineering for a patch function which logically makes the Patch Disk (R-Disk) appear larger than it physically is. This logical size increase allows more patches to be installed on a SEC level where the initial Total size of the contents on the R-Disk have exceeded initial SEC design criteria.

On SEC levels where 'Magic Patches' have been released an additional process to the normal Service Update patch transfer is added. After reading the first RSFLIST DATA file, if the designated Patch in the 'Magic Table' is not in **Applied** status on the R-DISK, then only a few select patches will be sent and **not all possible** patches. In effect until the 'Magic Patches' are applied this CPU will not receive any additional patches **which may give a false indication** on how many patches are really outstanding.

General comments:

1. After installing a 'Magic Patch' always do a Service Update to receive Patches that weren't sent because the Magic check Patch was in un-applied status.
2. If you Pre-Pull patches via the URSF console for a SEC/VER which has a 'Magic Patch' the full set of patches for the SEC/VER are sent regardless of the status of the 'Magic Patches'.
3. If you install patches on a SEC that has a 'Magic Patch' in un-applied status and load patches from a Patch Tape or did a Pre-Pull on the SEC/VER level you are going to patch, **you are guaranteed to have problems** applying/exiting **unless** you follow the steps of singly applying the referenced patches for the SEC and in the sequence listed if they were previously un-applied. i.e. You need to install the patches which logically increase the size of the R-Disk first before applying all the remaining patches.

SEC	Magic Check Patch	Number of Patches sent if 'Magic check Patch' is in OFF status
227570	ZFIL1608	7
229905	ZFIL1286	25
229910	ZFIL1482	9
228104A	ZFIL1523	11
228110	ZFIL1457	5

3092 M4/5, 9022 SP/PU/IOP

Note: Refer to H037663, H085811 if loading SP/IOP/PU code.

PROBLEMS identified with IOP on SECs 227574, 227576, 229900X, 229905, 229910.

PCE MEC[11]	QFC[12]	SEC	CPU	STATUS
230995	230285	227574	3090	BAD
232225	230288	227576	3090	BAD
230970A	230278	229900X	9021	BAD
230970A	230278	229905	9021	BAD
230970C	230286	229905	9021	BAD
232233	230287	229910	9021	BAD
232219	230284	223675H	3090	GOOD
232219	230284	230389	3090	GOOD
232219	230284	227570	3090	GOOD
232219	230284	230395	3090	GOOD
232225A	231311	227576	3090	GOOD
233722	230293	227578	3090	GOOD
232233A	231312	229910	9021	GOOD
233720	231318	229914	9021	GOOD
232255A	231313	228104A	9021	GOOD
232255A	231313	228110	9021	GOOD
233732	231319	228112	9021	GOOD
234825	231322	228120	9021	GOOD

Warning: Don't install these CARRIER EC's

- EC232648 (SEC227574), Mandatory Shipped
- EC232649 (SEC227576), Mandatory Shipped
- EC234129 (SEC227576), As Required
- EC234130 (SEC229910), As Required

11 The PCE MEC level that is displayed from the 'F PATCH or 'F ECSTAT' will only be six alphanumeric characters in length, although the level loaded may be seven. i.e. 230970A will show as 230907, as will 230970C. Use the QFC command to determine what level is loaded.

12 The EC level shown from the QFC command on the PS/2 is the SP/PU level loaded and not the IOP level.

3092 M4/5, 9022 PCE Patches

On the 3092 Model 4/5 and 9022 Model 1A there are three areas of LIC for the PCE; SP, PU, IOP. There is no generally available technique to distinguish a patch to one of the three areas.
I have listed in the table the patch and what type of patch it is for convenience i.e. SP, PU, IOP.

1. To activate a SP or IOP patch requires you to apply the patch via the normal EC/PATCH process and do a C2 option (EC/PATCH forces you) to force a TEST IML on EC/PATCH exit.
2. To fully activate a PU patch requires you to apply the patch via the normal EC/PATCH process, do a C2 option (EC/PATCH forces you) to force a TEST IML on EC/PATCH exit, and THEN do a Initialize (DUMMY) IOP load.

   Points to Remember:

   a. If you receive a PCE patch via Service update it is placed on the the EC/PATCH disk (R-DISK).

   b. If a PCE patch is loaded via Patch Tape during EC/PATCH the patch is copied to the R-DISK.

   c. When you apply the SP/PU/IOP patch via EC/PATCH the patch is copied to the C-DRIVE (SP/PS2) and also via SP<->SP communication (if SI mode) to the the C-DRIVE on the other SP/PS2. Patch is not copied if in PP-MODE or if other SP/PS2 is not operational.

   d. If a PU Patch has to be fully activated after applying via EC/PATCH follow the procedure of "Initialize PCE (IOP) LIC on DASD 240/241 and 250/251" in Manual B03 (3092) or Manual C03 (9022). **Don't trip CB01 during this procedure as 'things can happen' to DASD.**

   e. If you have to copy a PCE patch via 3.5" diskette from one PCE-SP to the other PCE-SP refer to the procedure "PCE-SP Hard File Patch Copy Procedure" in Manual B03 (3092) or manual C03 (9022). To see if patch exists on the PCE-SP use the following SP/PS2 command QBJLTC: and look for patch name.

   f. If you copy a PCE patch from one PCE to another via diskette you have to activate the patch via QBJLPxxxxxxx. A Initialize (Dummy) IOP load on a PU patch will not work until this occurs.

   g. On Exit from EC/PATCH it requires one TEST IML to alter the code file on the C-DRIVE for a SP, PU patch, but a IOP patch causes another TEST/IML to occur on reaching the end of STEP 11 on the first TEST IML. Initialize (Dummy) IOP load still required for PU patch after these TEST IMLs.

   h. A Initialize (Dummy) IOP load is required on both PCEs to activate a PU patch.

   i. If you reload SP/PU/IOP on a PCE which had PCE patches applied from Service Updates on RETAIN or were copied from diskette to the C-DRIVE and D-DRIVE are lost from the C-DRIVE and D-DRIVE.

   j. To check that a IOP patch applied correctly on each SP/PS2 display the patch via QBJLTD: and the status of the patch will show as ACTIVE regardless of the status on the C-DRIVE.

   k. To check that a SP patch applied correctly on each SP/PS2 display the patch via QBJLTC: and the status of the patch will show as ACTIVE.

   l. To display if a PU patch applied correctly requires looking for the modified PU code on the C-DRIVE and there is no easy/reliable of doing this (requires support PCE mode to be 100% sure). If it shows as ACTIVE on QBJLTC: does not mean the patch is fully applied i.e. Initialize (Dummy) IOP may not have been done. Recommended you contact LSSC if you are in doubt.

   m. After performing a Dummy IOP load you will have to set up the QFI4 and QFI430 frames to reflect the desired Modem configuration. i.e. V.25 (4800) or V.25B (2400). If these frames were altered a TEST IML is required to active the changes.

   n. It takes approximately 45 minutes for the Initialize (Dummy) IOP load process and an additional 20 minutes if you have to change the Modem configuration settings and activate via TEST IML.

3092 M4/5, 9022 PCE Patches continued...

The following table lists current 3092 M4/5 and 9022 PCE patches

SEC	PATCH NAME	TYPE	RETAIN TIP	COMMENTS
230389	P9446054	PU	H031411, H036775	M-Status.
230395	P9446054	PU	H031411, H036775	M-Status.
228862	P9446054	PU	H031411, H036775	M-Status.
227540	P9446054	PU	H031411, H036775	M-Status.
227576	P1311A07	PU	H085896	Was G now T-Status.
227578	P1317A11	PU	H097833	G-Status
229905	P1312A07	PU	H042449	M-Status.
229910	P1312A07	PU	H042449	M-Status.
229910	P1312A08	SP	H096777	G-Status.
229910	P1312A09	SP	H096778	G-Status.
229910	P1312A11	PU	H096381	G-Status.
229914	P1318A08	SP	H096777	G-Status.
229914	P1318A09	SP	H096778	G-Status.
229914	P1318A11	PU	H097834	G-Status.
228110	P1313A11	PU	H096381, H097834	G-Status.
228112	P1319A11	PU	H096381, H097834	G-Status.

High-level overviews of applying PCE patches on 3092 M4/M5, 9022

Option #1.Install patches but with no LIC load on 3092 M4/5, 9022 (Non MP models or MP in SI mode).

Note: Steps 1 to 18, 21 to 27 are Concurrent with Customer operation.

1. Verify that PCEA is Online and PCEB is Backup from PCENF frame.
2. Take PCEA Offline for EC/PATCH install and PCEB will become active.
3. On the EC/PATCH menu enter do the 'A2' command.
4. Do the 'D1' if you have a Patch tape mounted and tape unit ready.
5. Do the 'B4' to singly apply patches if required.
6. Use the Patch name ALL after all the steps to singly apply patches and special comments for the SEC have been completed.
7. PF3 to step back to EC/PATCH menu.
8. Press PF5 to view EC/PATCH Conlog for this Patch apply session and look for Patches which have the word HALT in the message text or are named Pxxxxxxx (PCE patches).
9. Do the 'B2' Patch complete. If prompted do the 'C2' option which forces a PCE IML.
10. Set Resynch to NO via the C4 option.
11. If PCE Patches applied and there was a PU patch (see table) a Initialize (Dummy) IOP load is required.

Note: Do not Trip CB01 OFF/ON during a Dummy IOP load.

12. Set up the QFI4, QFI430 frames if required to alter modem settings.
13. If modem settings were altered a TEST IML is required now on PCEA.
14. PCE Patches have to be Deactivated to copy i.e. QBJLDPxxxxxxx
15. Copy newly applied PCE patches to the SP/PU/IOP boot diskette. i.e. QBJLAC:PxxxxxxxA:
16. Reactivate any PCE patches deactivated to allow patch copy i.e. QBJLAPxxxxxxx
17. Verify Resynch = NO.
18. IPL-240 and EC/PATCH menu will reappear.
19. At Customer Handover (if not previously done), do the D1-Exit.
20. Once POR has been completed OK and Diagnostics running, action on PCEB can now start (PCEB left untouched until PCEA looks OK).
21. Verify PCEB is OFFLINE via PCEB Service console status line i.e. B:O
22. Verify the newly applied patches are on PCEB, and are active i.e. QBJLTC:
23. If PCE Patches applied on PCEA and there was a PU patch (see table) a Initialize (Dummy) IOP load is also required on PCEB.

Note: Do not Trip CB01 OFF/ON during a Dummy IOP load.

24. Set up the QFI4, QFI430 frames if required to alter modem settings.
25. If modem settings were altered a TEST IML is required now on PCEB.
26. From F PCECNF on PCEA Service console PCEB can now be varied Online.
27. Check that a R/O and R/W resynch occurs.

Option #2.Install patches but WITH LIC load on 3092 M4/5, 9022 (Non MP models or MP in SI mode).

Yet to be completed....

3090 SECs

MSG22577 on ALL SECs

Logout Analysis disabled message 22577 may occur during or exiting Patch Session due to corrupted LAMTHRSH table on the CNTL 191 disk. Without Logout Analysis, PCC LIC code will not generate RSF calls, AQE's or REFCODEs on hardware failures.

Warning: Recovery is disruptive to Customer operations. Support Centre assistance is required to recover.

- System power OFF and ON (Buttons on PCE front panel)
- IML of active PCE (Clock-Stop backup PCE first)
- ADSTOP IPL of active PCE side
- ERASE LAMTHRSH TABLE from CNTL 191/192 disks

CPHD0037, CPHE0042

These patches should only be applied on 12E and 15E models at SEC223675H. If applied on any other 3090 models VM performance is affected causing Abends. Recovery action is to backout and erase patches.

All Patches backed out

- If ZFIL0849 is applied a new patch session file is built. Now when Backout option (B6) is entered all previously applied patches will get backed out.
- If another patch session was performed after ZFIL0849 was applied the problem will not exist.
- Affected SECs are 223670, 223675, 223675D, 223675G, 223675H, 223770, 223775, 227540, 227570, 227572, 228852, 228862, 228895, 229790, 230387, 230389, 230395.

223675, 223675D, 223675G

ZFIL0621, ZFIL0647, ZFIL0665

Warning: Patch shows as NON-Disruptive but really is DISRUPTIVE.

Note: Has to be applied to BOTH sides if in PP-MODE before merge into SI-MODE can occur.[13]

MAP

001

Is ZFIL0861 or NSHR0663 applied?[14]

Yes **No**

002

– Erase ZFIL0861 and NSHR0663.

003

Will Customer use LPAR mode?

Yes **No**

004

No further action required.

005

– Patches cannot be backed out. Format of the DASD is required.

1. Create Customer save data (SID) tape
2. Create patch tape
3. Format DASD
4. Load Code tapes 1,2,3,4,5
5. Load SID and Patch tape
6. ERASE ZFIL0861 and NSHR0663
7. Apply remaining Patches

Note: Other comments that apply to SEC see page 17.

[13] Patch alters the Pristine MCT (H034714).

[14] For more detail refer to H024254. Customer will get MSG35716 on IPL in LPAR mode, or CONFIG CHPID OFFLINE crashes LPAR.

223675H

ZFIL0621, ZFIL0647, ZFIL0655

Warning: Patch shows as NON-Disruptive but really is DISRUPTIVE.

Note: Has to be applied to BOTH sides if in PP-MODE before merge into SI-MODE can occur.[15]

MAP

001

Is ZFIL0861 or NSHR0663 applied?[14]

Yes **No**

002

— Erase ZFIL0861 and NSHR0663.

003

Will Customer use LPAR mode?

Yes **No**

004

No further action required.

005

— Patches cannot be backed out. Format of the DASD is required.

1. Create Customer save data (SID) tape
2. Create patch tape
3. Format DASD
4. Load Code tapes 1,2,3,4,5
5. Load SID and Patch tape
6. ERASE ZFIL0861 and NSHR0663

MSG29610

If during patch apply you get MSG29610 RC=20 FSWRITE ERROR.

1. BACKOUT and ERASE STXT2259[16]
2. Apply remaining patches

Note: Other comments that apply to SEC see page 17.

[15] Patch alters the Pristine MCT (H083693, H034714).

[16] STXT2259 is replaced by STXT2382 (H044149).

230389

MSG29610

If during patch apply you get MSG29610 RC=20 FSWRITE ERROR.

1. BACKOUT and ERASE STXT2259[16]
2. Apply remaining patches

Note: Other comments that apply to SEC see page 15 and 17.

230395

ZFIL0869

Warning: Patch shows as NON-Disruptive but really is DISRUPTIVE.

Note: Has to be applied to BOTH sides if in PP-MODE before merge into SI-MODE can occur.[17]

MSG29610

If during patch apply you get MSG29610 RC=20 FSWRITE ERROR.

1. BACKOUT and ERASE STXT2259[16]
2. Apply remaining patches

Note: Other comments that apply to SEC see page 15 and 17.

228862

MSG29610

If during patch apply you get MSG29610 RC=20 FSWRITE ERROR.

1. BACKOUT and ERASE STXT2259[16]
2. Apply remaining patches

Note: Other comments that apply to SEC see page 15 and 17.

[17] Patch alters the Pristine MCT (H031975).

227540

ZFIL0770

Warning: Patch shows as NON-Disruptive but really is DISRUPTIVE.

Note: Has to be applied to BOTH sides if in PP-MODE before merge into SI-MODE can occur.[18]

MSG29610

If during patch apply you get MSG29610 RC=20 FSWRITE ERROR.

1. BACKOUT and ERASE STXT2259[16]
2. Apply remaining patches

Note: Other comments that apply to SEC see page 15 and 17.

[18] Patch alters the Pristine MCT (H083693).

227570

PE ALERT 3APR92

Warning: After patches ZFIL1602 thru ZFIL1608 are applied the next patch apply session will give you MSG 56071 stating "MSG 29058 not found in message library" IF the PATCH01 TXTLIB is greater than 20,000 records (PE only procedure to show size). This is because Patches ZFIL1538, ZFIL1539 and ZFIL1577 are missing.
The RSC/LSSC have a workaround procedure should you have MSG 56071.

ZFIL0850

Warning: Patch shows as NON-Disruptive but really is DISRUPTIVE.

Note: Has to be applied to BOTH sides if in PP-MODE before merge into SI-MODE can occur.[19]

PREA 9100393

Warning: TAPE1 PREA must be at 9100393 or HIGHER.[20]

- 9100393 was supplied by Mandatory FBM EC to fix MAJOR problems.
- Call Quality Hotline if necessary to get a new TAPE1

Apply Sequence is on next page..

[19] Patch alters the Pristine MCT (H083693).

227570 continued...

Apply Sequence

ERASE ZFIL1318 -> ZFIL1324[21] via USRF console option #4 if they exist.

1. Apply ZFIL1142, ZFIL1145, ZFIL1189[22]
2. Apply ZFIL1608[23] , ZFIL1278[26] , CMSM0148[26] , ZFIL1398[24] , ZFIL1577[25] , ZFIL1538[25]

Until ZFIL1608 is applied no more patches will be received from RETAIN on service updates.

3. PF3 to END EC/PATCH session
4. Enter 'B2' option to Patch Complete EC/PATCH session
5. Perform a PCE Restart. EC/PATCH menu will reappear.
6. Enter 'A2' option to BEGIN EC/PATCH session

Patch session may be extended by 25 minutes if you get the message. Requires an X1 to continue.

7. Apply remaining patches

Note: Other comments that apply to SEC see pages 17 and 11.

---

[20] Patches STXT2209 and STXT2301 will not Apply and PCE Warmstarts may occur (H053048, H062305).

[21] May get MSG29650 when you apply ZFIL1324. D2-EXIT is first line of recovery, otherwise have to alter STATINFO tracks (H044149). ZFIL1608 is the fix.

[22] Fixes XEDIT hang DMSXSU587I when applying STXT2149 (H086592).

[23] MAGIC Check Patch. Until applied no more patches sent from RETAIN on Service update.

[24] Un-listed Pre-Req to ZFIL1577. If ZFIL1577 applied before ZFIL1398 your CLSS/LSSC/PE group are required to get ZFIL1398 and Co-Req ZFIL1399 applied.

[25] D-Disk recovery patches. Prevents problems with PATCH01 TXTLIB size after ZFIL1602 thru ZFIL1608 are applied. PE Alert 3APR92 and tip H097353, H097354, H097356. Until ZFIL1538/1539 are applied successfully you cannot apply STXT3333. See H097354 for more on ZFIL1577.

[26] On TAPE1 before PREA 9100438 you'll get MSG29527. Bypass is to erase STXT1769 and STXT1947 (H086202).

227574

Recommendation

Warning: Strongly RECOMMENDED to await/get SEC 227576 or SEC 227578 instead.

- SEC 227576 is a Mandatory FBM EC ship, SEC 227578 is a Mandatory/As Required ship to all 3090 J and T models.

Apply Sequence

1. Apply ZFIL1142, ZFIL1145, ZFIL1190[27]
2. Apply ZFIL0990[28]
3. Apply ZFIL1185, ZFIL1244[29]
4. PF3 to END EC/PATCH session
5. Enter 'B2' option to Patch Complete EC/PATCH session
6. Perform a PCE Restart. EC/PATCH menu will reappear.
7. Enter 'A2' option to BEGIN EC/PATCH session
8. Apply ZFIL1278, CMSM0148[30]
9. Apply remaining patches

Note: Other comments that apply to SEC see page 13 and 17.

[27] Fixes XEDIT hang with MSG DMSXSU587I. Bypass is to backout and erase STXT2158, STXT2244, STXT2274 (H086592).

[28] Compress function on R-Disk to create more room.

[29] Allow for successful loading of duplicate SSB Patches from Patch Tape (H082311).

[30] On TAPE1 before PREA 9100443 you'll get MSG29527. Bypass is to erase STXT2229 (H086202).

227576

EMEA Countries

Patch apply is STOPPED except with LSSC or PE concurrence.

3092 M4,5

Warning: Special handling required for P1311A07. Refer to Section on 3092 SP/PU/IOP.[31]

PREA Level

Do not install a PREA lower then 9100478 as significant time will be required to PULL ESCON patches from URSF.

STXT3395

If PATCH STXT3395 was received from RETAIN URSF between dates of 20JAN92 and 12FEB92 Backout and Erase.[32]

Apply Sequence

1. Apply ZFIL1469, ZFIL1541[33]
2. Apply remaining patches

If get MSG29527 on processing patch STXT3200[34] . Erase STXT3200 then continue with PATCH apply.

Note: Other comments that apply to SEC see pages 13, 15 and 17.

[31] Fixes 2 PCE sides down problem, but requires DUMMY IOP load (H085896).

[32] For a period patch was corrupt and causes PCVMLSSB Warmstarts (H044149).

[33] ZFIL1469 causes IPCS (T-DISK corruption) which ZFIL1541 fixes (H066653).

[34] If on applying patches get 'MSG29527 System Error. PATCH file STXT3200 processing failure'. Erase patch and continue.

227578

RAS Recommendation

1. Ensure MXL10302 is applied to provide a RAS[35] enhancement to the Customer.

Note: Patch P1317A11 requires a Initialize (Dummy) IOP load to install. See page 15.

Note: Other comments that apply to SEC see page 17.

[35] Fixes High I/O device times on units connected via channels defined as CVC (9034). PE/MHV Alert 8APR92 and H097116.

9021 330/340/500/580/620/720 SECs

MSG22577 on ALL SECs

Logout Analysis disabled message 22577 may occur during or exiting Patch Session due to corrupted LAMTHRSH table on the CNTL 191 disk. Without Logout Analysis, PCC LIC code will not generate RSF calls, AQE's or REFCODEs on hardware failures.

Warning: Recovery is disruptive to Customer operations. Support Centre assistance is required to recover.

- System power OFF and ON (Buttons on PCE front panel)
- IML of active PCE (Clock-Stop backup PCE first)
- ADSTOP IPL of active PCE side
- ERASE LAMTHRSH TABLE from CNTL 191/192 disks

229900X

MP Models only

Warning: Ensure you have STXT2613 applied before going PP->SI MODE.[36]

CPHI0019

If CONFIG POR fails at the end of 'CP RESETS FOR PROCESSOR CPxx' with a PCVMSCPE abend (RC38460), Backout and Erase CPHI0019 (H054269).

Apply Sequence

1. Apply ZFIL1142, ZFIL1145, ZFIL1191[37]
2. Apply ZFIL0990[28]
3. PF3 to END EC/PATCH session
4. Enter 'B2' option to Patch Complete EC/PATCH session
5. Perform a PCE Restart. EC/PATCH menu will reappear.
6. Enter 'A2' option to BEGIN EC/PATCH session
7. Apply remaining patches[38]

Note: Other comments that apply to SEC see page 13 and 27.

[36] Without patch MP-Models may be unable to power off a boundary when a critical error occurs (H086105).

[37] Fixes XEDIT hang with MSG DMSXSU587I. After PCE RESTART to recover VIEWLOG EC/PATCH CONLOG. Backout and erase the last patch applied (H086157).

[38] If you get MSG29527 then, PCE RESTART, 'A2' BEGIN PATCH, backout and erase STXT1878 (H061633). Continue patch apply.

229905

Recommendation

Warning: Strongly RECOMMENDED to order SEC 229914 instead.

- SEC 229914 is a Mandatory FBM EC ship to all 330/340/500/580/620/720 models.

EMEA Countries

Patch apply is STOPPED except with LSSC or PE concurrence.

MP Models only

Warning: Ensure you have STXT2613 applied before going PP->SI MODE.[36]

PREA Level

Do not install a PREA lower then 9100460 as significant time will be required to PULL ESCON patches from URSF.

Blank screen with PC READ

During apply you get a blank screen with PC READ. Backout and Erase NSHR0817/NSHR0816.[39]

Apply Sequence is on next page..

[39] (H054269).

229905 continued...

Apply Sequence

BACKOUT and ERASE ZFIL1035 if it exists as it doesn't apply to this SEC (H054269).

1. Apply ZFIL1142, ZFIL1145, ZFIL1188[40]
2. Apply ZFIL1185, ZFIL1244[41]
3. Apply ZFIL0990, ZFIL1238, ZFIL1207, ZFIL1286[42]
4. Apply CMSM0149[43], ZFIL1344[44]

If ZFIL1286 was applied you'll get MANY patches on next SERVICE UPDATE.

5. PF3 to END EC/PATCH session
6. Enter 'B2' option to Patch Complete EC/PATCH session
7. Perform a PCE Restart. EC/PATCH menu will reappear.
8. Enter 'A2' option to BEGIN EC/PATCH session
9. Apply remaining patches

Note: Other comments that apply to SEC see page 11, 13 and 27.

[40] Fixes XEDIT hang with MSG DMSXSU587I. After PCE RESTART to recover VIEWLOG EC/PATCH CONLOG. Backout and erase STXT1968 (H086157).

[41] Allow for successful loading of Patches from Patch Tape (H08552).

[42] Increases R-DISK space. If MSG29550, MSG29653 on apply see H082199 (ZFIL1299, CMSM0151). ZFIL1286 Magic Check Patch.

[43] Allows STXT1878 to apply by forcing ZFIL patches on early. MSG29527 Bypass is to backout and erase NSHR0586 and STXT1878 (H061633).

[44] If ZFIL1344 isn't applied a XEDIT hang may occur on applying NSHR or STXT patches (H091260). Recovery is to RELOAD tapes 1->5 as minidisks may have been corrupted.

229910

MP Models only

Warning: Ensure you have STXT2613 applied before going PP->SI MODE.[36]

PREA Level

Do not install a PREA lower then 9100480 as significant time will be required to PULL ESCON patches from URSF.

IOPE0161

Warning: If applying IOPE0161 **ensure** that IOPE0169 is also applied, otherwise 'Channel Subsystem Down' will occur (RC06xx01B7) on machines running ESCON channels.[45]

Apply Sequence

1. Apply ZFIL1432, ZFIL1433, ZFIL1482

Until ZFIL1482[46] is applied no more patches will be received from RETAIN on service updates.

2. Apply ZFIL1523[47]
3. Apply ZFIL1576[48]
4. PF3 to END EC/PATCH session
5. Enter 'B2' option to Patch Complete EC/PATCH session
6. Perform a PCE Restart. EC/PATCH menu will reappear.
7. Enter 'A2' option to BEGIN EC/PATCH session

Patch session may be extended by 25 minutes if you get the message.

If you applied ZFIL1482, on next SERVICE UPDATE you will get 100 plus patches.

8. Apply patches pulled in SERVICE UPDATE or from PATCH TAPE if you installed ZFIL1482
9. Apply NSHR1528[49]
10. Apply remaining patches

    Note: Patch P1312A11 requires a Initialize (Dummy) IOP load to fully activate. See page 15.

Note: Other comments that apply to SEC see pages 11, 13, 15 and 27.

---

45 Causes Channel Subsystem down on CPUs with ESCON channels. Ensure IOPE0169 is installed which has a Pre-Req of IOPE0161. Refer to PE Alert 21JUL92 and H054269.

46 Fixes XEDIT hang with MSG DMSXSU587I. Bypass is to backout and erase STXT3119 (H086157). Magic Check Patch.

47 Ensures erase of R-DISK has occurred correctly (H096742).

48 Prevents Patch apply corrupting Mini-Disks (H097354).

49 Fix for patch NSHR1435 and STXT3302 (PCE goes offline) (H017336).

229914

RAS Recommendation

Ensure MXL10302 is applied[50] as fixes High I/O device connect times on units connected via 9034's.

Note: Patch P1318A11 requires a Initialize (Dummy) IOP load to install. See page 15.

Note: Other comments that apply to SEC see pages 15 and 27.

[50] Fixes High I/O device times on units connected via channels defined as CVC (9034). PE/MHV Alert 8APR92 and H097117.

9021 520/640/660/740/820/860/900 SECs

MSG22577 on ALL SECs

Logout Analysis disabled message 22577 may occur during or exiting Patch Session due to corrupted LAMTHRSH table on the CNTL 191 disk. Without Logout Analysis, PCC LIC code will not generate RSF calls, AQE's or REFCODEs on hardware failures.

Warning: Recovery is disruptive to Customer operations. Support Centre assistance is required to recover.

- System power OFF and ON (Buttons on PCE front panel)
- IML of active PCE (Clock-Stop backup PCE first)
- ADSTOP IPL of active PCE side
- ERASE LAMTHRSH TABLE from CNTL 191/192 disks

228104A

MHV Alert 4AUG92

Strongly recommended that SEC 228120 is ordered and installed to obtain **Major fixes** provided at this level.[51]

RAS Recommendation

1. Ensure the following patches are installed to provide RAS[52] enhancements to the Customer. CPHX0071[53] , CPHX0078[54] , CPHX0081[55] , CPHX0083[56] , CPHX0086[57] , NSHR1677[58] , STXT3314[59] , STXT3445[60] .

   Note: Some Pre-Req patches may be required to apply these patches.

2. Strongly recommended to ensure CPHX0094[61] is applied if a PATCH APPLY all cannot be done. They fix many Channel related problems for the customer.

   Note: Some Pre-Req patches may be required to apply these patches.

Apply Sequence is on next page..

[51] MHV Alert 4AUG92 on LPAR Abends fixed at EC228120 (H101353).

[52] Mid-Hudson Valley PE Alert DEC91.

[53] Fixes abends on MVS guest on VM under LPAR (H09131).

[54] Fixes memory hang on MVPG instruction (H095904).

[55] Fixes LPAR SAD summary incorrect (H09625).

[56] Fixes BCE/SCE hang (H095878).

[57] Fixes instruction showing as BCE error (H095875).

[58] Improves systems performance running in LPAR mode (H096095) and (H096268).

[59] Fixes PCE Switchover no working (H09119).

[60] Patches restore CP concurrent maintenance (H09120).

[61] Mid-Hudson Valley Planning Field Alert 6MAR92.

Apply Sequence

! In EMEA Patch apply is stopped except with LSSC or PE concurrence.

1. Apply ZFIL1428[62]
2. Apply ZFIL1523[63]

Until ZFIL1523 is applied no more patches will be received from RETAIN on service updates.

3. PF3 to END EC/PATCH session
4. Enter 'B2' option to Patch Complete EC/PATCH session
5. Perform a PCE Restart. EC/PATCH menu will reappear.
6. Enter 'A2' option to BEGIN EC/PATCH session

Patch session may be extended by 25 minutes if you get the message. Requires an X1 to continue.

If you applied ZFIL1523, on next SERVICE UPDATE you will get 100 plus patches.

7. Apply ZFIL1540[64]
8. Apply patches pulled in SERVICE UPDATE or from PATCH TAPE

Note: Other comments that apply to SEC see pages 11 and 33.

[62] Fixes XEDIT hang with MSG DMSXSU587I (H085269) and (H096268). Magic Check Patch.

[63] Ensures erase of R-DISK/TXTLIB has occurred correctly (H096742).Magic Check Patch.

[64] ZFIL1468 causes IPCS (T-DISK corruption) which ZFIL1540, and NSHR1562 (T-Status) fix (H093270).

228110

! **MHV Alert 4AUG92**

! Strongly recommended that SEC 228120 is ordered and installed to obtain **Major fixes** which are
! provided at this level.[51]

ZFIL1522

Warning: Patch shows as NON-Disruptive but really is DISRUPTIVE.

Note: Has to be applied to BOTH sides if in PP-MODE before merge into SI-MODE can occur.[65]

RAS Recommendation

1. Ensure the following patches are installed to provide RAS[52] enhancements to the Customer. CPHX0079[54] , CPHX0082[55] , CPHX0084[56] , CPHX0085[57] , NSHR1820[66] , STXT3235[67] , STXT3316[59] , STXT3446[60] , STXT3448[60] , ZFIL1517[68] , ZFIL1540[69] .

   Note: Some Pre-Req patches may be required to apply these patches.

2. Strongly recommended the following patches are at least installed if a PATCH APPLY ALL cannot be done. They fix many Channel related problems for the Customer[61] . CPHX0092[70] , STXT3504[71] , NSHR1668[58] , NSHR1694[72] , NSHR1688[73] , NSHR1689[73] .

   Note: Some Pre-Req patches may be required to apply these patches.

Apply Sequence is on next page..

65 Patch alters the Pristine MCT (H092718).

66 MHV Field Alert 5MAY92. Corrects LPAR abends (H097502).

67 MVS Vary-Off of Storage on Side fails (H09188).

68 Fix incorrect display on IOCDS device frame (H096412).

69 ZFIL1468 causes IPCS (T-DISK corruption) on PCE Switchover which ZFIL1540 and NSHR1563 fix (H093270) and (H093395).

70 Fixes various instructions causing REF codes (H096149).

71 Fixes CRH checkstop on vary on of broken serial channel (H096085).

72 If ETR installed fixes LPAR abend when Vary On of CPx is issued (H096282).

228110 continued...

Apply Sequence

Erase SEG00161, SEG00162, SEG00163[74] via URSF console option #4, if they exist.

1. Apply ZFIL1457,[75]

Until ZFIL1457 is applied no more patches will be received from RETAIN on service updates.

2. PF3 to END EC/PATCH session
3. Enter 'B2' option to Patch Complete EC/PATCH session
4. Perform a PCE Restart. EC/PATCH menu will reappear.
5. Enter 'A2' option to BEGIN EC/PATCH session

Patch session may be extended by 25 minutes if you get the message. Requires an X1 to continue.

6. Apply ZFIL1540, NSHR1563[69]
7. Apply MXL10297[76]
8. Apply STXT3446, STXT3448[77]
9. Apply remaining patches

Note: Patch P1313A11 requires a Initialize (Dummy) IOP load to install. See page 15.

Note: Other comments that apply to SEC see pages 11, 15 and 33.

73 Provide support for greater than 256 ESCON Subchannels (H092693).

74 Patches will not apply due to verify error (H096786).

75 Fixes XEDIT hang with MSG DMSXSU587I (H085269). Magic Check Patch.

76 MXL10278 causes IFCCs, MXL10297 corrects (H054269).

77 STXT3446 and STXT3448 fix bad patch STXT3227 (H09120).

228112

! **MHV Alert 4AUG92**

! Strongly recommended that SEC 228120 is ordered and installed to obtain **Major fixes** which are
! provided at this level.[78]

RAS Recommendation

1. Ensure the following patches are installed to provide RAS[52] enhancements to the Customer. CPHX0079[54] , CPHX0087[57] , STXT3505[71] , NSHR1661[58] , NSHR1821[79] , STXT3447[60] ,

   Note: Some Pre-Req patches may be required to apply these patches.

2. Strongly recommended the following patches are at least installed if a PATCH APPLY ALL cannot be done. They fix many Channel related problems for the Customer[61] . CPHX0093[70] , STXT3505[71] , NSHR1649, NSHR1650[73] , NSHR1661[58] , MXL10280, MXL10296[80] .

3. Ensure NSHR1908 is installed to prevent LPAR abends[78].

   Note: Some Pre-Req patches may be required to apply these patches.

Note: Patch P1319A11 requires a Initialize (Dummy) IOP load to install. See page 15.

Note: Other comments that apply to SEC see pages 15 and 33.

78 MHV Alert 4AUG92 on LPAR Abends (H101353).

79 MHV Field Alert 5MAY92. Corrects LPAR abends (H097502).

80 MXL10280, MXL10281, MXL10282, MXL10283 cause IFCCs, MXL10296 corrects (H054269).

228120

! **MHV Alert 4AUG92**

! Strongly recommended that RAS Patch NSHR1915[78] be applied with all other outstanding unapplied
! patches at this SEC to prevent known LPAR Operational issues.

- No Reported Patch Apply issues.

9121 SECs

MSG22577 (ALL SECs)

Logout Analysis disabled message 22577 may occur during or exiting Patch Session due to corrupted LAMTHRSH table on the CNTL 191 disk. Without Logout Analysis, PCC LIC code will not generate RSF calls, AQE's or REFCODEs on hardware failures.

Warning: Recovery is disruptive to Customer operations. Support Centre assistance is required to recover.

- System power OFF and ON (Buttons on PCE front panel)
- IML of active PCE (Clock-Stop backup PCE first)
- ADSTOP IPL of active PCE side
- ERASE LAMTHRSH TABLE from CNTL 191/192 disks

General notes

1. If you get a Panel Code, call LSSC/CLSS
2. If you end up at the 'System Operator Functions', IPL the PSP.
3. Make sure you have 2 BACKUP tapes (DID TAPES) prior to continuing

SSBP0024

After installing 9121 PCE patches and option 'C2' is entered prior to the option 'B2' (Patch Complete), a manual IPL may be required to get you back the EC/PATCH frame. This can be accomplished as follows..

1. Press the SVC/PCE key
2. Select option 1 (For the PCE oper. Main Menu)
3. Select option 4 (PSP load)
4. Select option 3 (IPL PSP Memory xxxx)

This problem can occur on 9121 systems at SEC levels C23074B, C22822, C22827.

A72355B

Apply Sequence

1. Apply ZFIL1037[81]
2. Apply P5032018[82]
3. PF3 to END EC/PATCH session
4. Enter 'B2' option to Patch Complete EC/PATCH session
5. Perform a PCE Restart. EC/PATCH menu will reappear.
6. Enter 'A2' option to BEGIN EC/PATCH session
7. Apply ZFIL1142, ZFIL1145, ZFIL1192[83]

If ZFIL1192 did apply in this session do 6,7 otherwise skip to 8.

8. PF3 to END EC/PATCH session
9. Enter 'B2' option to Patch Complete EC/PATCH session
10. Perform a PCE Restart. EC/PATCH menu will reappear.
11. Enter 'A2' option to BEGIN EC/PATCH session
12. Apply remaining patches

Note: Other comments that apply to SEC see page 41.

[81] Patch apply 'ALL' will loop until this patch is applied (H05546).

[82] IOSP directory may be corrupted when patch is applied. Apply patch singly (H054086).

[83] Fixes XEDIT hang with MSG DMSXSU587I. After PCE RESTART, enter option 'A2' BEGIN EC/PATCH. Backout and erase STXT2571, STXT2572, STXT2573 (H005933).

A72357

Apply Sequence

1. Apply ZFIL1037[81]
2. Apply P5032018[82]
3. PF3 to END EC/PATCH session
4. Enter 'B2' option to Patch Complete EC/PATCH session
5. Perform a PCE Restart. EC/PATCH menu will reappear.
6. Enter 'A2' option to BEGIN EC/PATCH session
7. Apply ZFIL1142, ZFIL1145, ZFIL1193[83]

If ZFIL1193 did apply in this session do 6,7 otherwise skip to 8.

8. PF3 to END EC/PATCH session
9. Enter 'B2' option to Patch Complete EC/PATCH session
10. Perform a PCE Restart. EC/PATCH menu will reappear.
11. Enter 'A2' option to BEGIN EC/PATCH session
12. Apply remaining patches

Note: Other comments that apply to SEC see page 41.

C23070

Apply Sequence

1. Apply P5032018[82]
2. PF3 to END EC/PATCH session
3. Enter 'B2' option to Patch Complete EC/PATCH session
4. Perform a PCE Restart. EC/PATCH menu will reappear.
5. Enter 'A2' option to BEGIN EC/PATCH session
6. Apply ZFIL1142, ZFIL1145, ZFIL1194[83]

If ZFIL1194 did apply in this session do 5,6 otherwise skip to 7.

7. PF3 to END EC/PATCH session
8. Enter 'B2' option to Patch Complete EC/PATCH session
9. Perform a PCE Restart. EC/PATCH menu will reappear.
10. Enter 'A2' option to BEGIN EC/PATCH session
11. Apply remaining patches

Note: Other comments that apply to SEC see page 41.

C23074B

PREA Level

Do not install a PREA lower then 9100488 as significant time will be required to PULL ESCON patches from URSF.

Missing Pre/Co Reqs

There was a problem with NSHR1373[84] in that SERVICE UPDATE would terminate prematurely. This has been corrected. Before applying patches check for MSG47013 RSF SERVICE UPDATE PATCH TRANSFER COMPLETE in the System Conlog.

Exit EC/PATCH

After installing patches and 'C2' is entered prior to the 'B2' (Patch complete), a manual IPL might be required to get back to the EC/PATCH frame (H041717).

XEDIT HANG

If on Patch apply you get XEDIT hang with message DMSXSU587I[85]

1. Do PCE RESTART
2. Enter 'A2' option to BEGIN EC/PATCH session
3. Backout and Erase STXT2571, STXT2572, STXT2573
4. Apply remaining patches

IOPE0161

Warning: If applying IOPE0161 **ensure** that IOPE0169 is also applied, otherwise 'Channel Subsystem Down' will occur (RC06xx000000) on CPUs running ESCON channels.[86]

Apply Sequence is on next page..

Apply Sequence.

1. P5037021 is a BAD IOSP Patch[87]
   a. If Patch is applied do the following, otherwise go to Step #2.
   b. From EC/PATCH menu use option 'B5' to Backout Patch.
   c. Hit SVPCE key, Select option '1'. Enter 'S' and when requested the password 'SERVMODE'.
   d. Type QBJLT to list patch directory.
   e. If Patch P5037021 is active, type 'QBJLDPC65037021'.
   f. If Patch inactive or idisabled type 'QBJLRPC65037021' and press enter to erase.
   g. Enter 'QH', hit SVPCE key, Select option '2', Hit PF3 to return to EC/PATCH menu.
   h. Select Option 'C2', then Enter 'B2' before entering other EC/Patch options.
2. Apply P5037010[88]
3. Apply ZFIL1618[89]
4. PF3 to END EC/PATCH session
5. Enter 'B2' option to Patch Complete EC/PATCH session
6. Perform a PCE Restart. EC/PATCH menu will reappear.
7. Enter 'A2' option to BEGIN EC/PATCH session

Patch session may be extended by 25 minutes if you get the message. Requires an X1 to continue.

8. Apply remaining patches

Note: Other comments that apply to SEC see page 41.

84 (H095832).

85 No patches to correct (H005933).

86 Causes Channel Subsystem down on CPUs with ESCON channels. Ensure IOPE0169 is installed which has a Pre-Req of IOPE0161. Refer to PE Alert 21JUL92 and H054086.

87 After Patch Apply a IML of PSP fails with RC1017A801 (H007018, H054086).

88 Fixes unit check on Tape 1 load. Panel code of 3420, 3421 on patch apply (H093254). MHV Alert 16MAR92.

89 Correct XEDIT hang during patch apply (H097382, H097381).

C22822

Missing Pre/Co Reqs

There was a problem with NSHR1373[84] in that SERVICE UPDATE would terminate prematurely. This has been corrected. Before applying patches check for MSG47013 RSF SERVICE UPDATE PATCH TRANSFER COMPLETE in the System Conlog.

Exit EC/PATCH

After installing patches and 'C2' is entered prior to the 'B2' (Patch complete), a manual IPL might be required to get back to the EC/PATCH frame (H041717).

IOPE0161

Warning: If applying IOPE0161 **ensure** that IOPE0169 is also applied, otherwise 'Channel Subsystem Down' will occur (RC06xx000000) on CPUs running ESCON channels.[86]

Apply Sequence.

1. P5037021 is a BAD IOSP Patch[87]
   a. If Patch is applied do the following, otherwise go to Step #2.
   b. From EC/PATCH menu use option 'B5' to Backout Patch.
   c. Hit SVPCE key, Select option '1'. Enter 'S' and when requested the password 'SERVMODE'.
   d. Type QBJLT to list patch directory.
   e. If Patch P5037021 is active, type 'QBJLDPC65037021'.
   f. If Patch inactive or idisabled type 'QBJLRPC65037021' and press enter to erase.
   g. Enter 'QH', hit SVPCE key, Select option '2', Hit PF3 to return to EC/PATCH menu.
   h. Select Option 'C2', then Enter 'B2' before entering other EC/Patch options.
2. Apply P5037010[88]
3. Apply ZFIL1618[89]
4. Apply remaining patches

Note: Other comments that apply to SEC see page 41.

C22827

DID tapes

DID tapes manufactured prior to 13JAN92 are missing 179 patches as of 10JAN92. CREATE a patch tape before committing Customer system time.

Missing Pre/Co Reqs

There was a problem with NSHR1373[84] in that SERVICE UPDATE would terminate prematurely. This has been corrected. Before applying patches check for MSG47013 RSF SERVICE UPDATE PATCH TRANSFER COMPLETE in the System Conlog.

Exit EC/PATCH

After installing patches and 'C2' is entered prior to the 'B2' (Patch complete), a manual IPL might be required to get back to the EC/PATCH frame (H041717).

Apply Sequence.

1. P5037021 is a BAD IOSP Patch[87]
   a. If Patch is applied do the following, otherwise go to Step #2.
   b. From EC/PATCH menu use option 'B5' to Backout Patch.
   c. Hit SVPCE key, Select option '1'. Enter 'S' and when requested the password 'SERVMODE'.
   d. Type QBJLT to list patch directory.
   e. If Patch P5037021 is active, type 'QBJLDPC65037021'.
   f. If Patch inactive or idisabled type 'QBJLRPC65037021' and press enter to erase.
   g. Enter 'QH', hit SVPCE key, Select option '2', Hit PF3 to return to EC/PATCH menu.
   h. Select Option 'C2', then Enter 'B2' before entering other EC/Patch options.
2. Apply P5037010[88]
3. Apply ZFIL1618[90]
4. PF3 to END EC/PATCH session
5. Enter 'B2' option to Patch Complete EC/PATCH session
6. Perform a PCE Restart. EC/PATCH menu will reappear.
7. Enter 'A2' option to BEGIN EC/PATCH session

Patch session may be extended by 25 minutes if you get the message. Requires an X1 to continue.

8. Apply remaining patches

Note: Other comments that apply to SEC see page 41.

[90] Correct XEDIT hang during patch apply (H097382, H097381).

C22830A

SSBP0022

There is a disk corruption problem that may occur when exiting EC/PATCH after applying LIC patches. The problem only occurs in SI mode.

To avoid the problem please follow these steps..

1. Enter option 'B2' (Patch complete) from the EC/PATCH control frame. If you receive the following message, wait 10 minutes before you enter option 'C2' (LIC load Processor Controller).
2. Select C2 before B2. Correct and re-enter.

If in SI mode one side of the PCE must be active before entering option 'C2'. If the side in not active disk corruption is possible. Waiting 10 minutes allows the side NOT in EC/PATCH to become active. A permanent fix for this problem is forthcoming.

Apply Sequence.

1. Apply P1001010[88]
2. Apply remaining patches

Note: Other comments that apply to SEC see page 41.

C22835

SSBP0022

There is a disk corruption problem that may occur when exiting EC/PATCH after applying LIC patches. The problem only occurs in SI mode.

To avoid the problem please follow these steps..

1. Enter option 'B2' (Patch complete) from the EC/PATCH control frame. If you receive the following message, wait 10 minutes before you enter option 'C2' (LIC load Processor Controller).
2. Select C2 before B2. Correct and re-enter.

If in SI mode one side of the PCE must be active before entering option 'C2'. If the side in not active disk corruption is possible. Waiting 10 minutes allows the side NOT in EC/PATCH to become active. A permanent fix for this problem is forthcoming.

Apply Sequence

1. Apply MXL10275 , ~~MXL10303~~[91]
2. Apply remaining patches

Note: Other comments that apply to SEC see page 41.

C22840

RAS Recommendation

1. Ensure the following patches are installed to provide RAS enhancements to the Customer. MXL10302[92] .

Note: Other comments that apply to SEC see page 41.

C35674

- No Reported Patch Apply issues.

[91] Fixes High I/O device times on units connected via channels defined as CVC (9034). PE/MHV Alert 8APR92 and H097170. Patch still in T-Status 2JUL92.

[92] Fixes High I/O device times on units connected via channels defined as CVC (9034). PE/MHV Alert 8APR92.

Index

Numerics

C

D

E

F

I

M

P

Patch Names *(continued)*

Patch Names *(continued)*

Q

R

S

T

V

3090/9021/9121 PATCHAID PACKAGE
PREA Tape Listings
3 Sep 1992

Document Number LSIT-0011-01

September 3, 1992

Wayne Smith

IBM Canada Ltd
3600 Steeles Avenue
Markham, Ontario
416-946-5555
US T/L 886-5555
WSMITH at CANVM2

IBM Internal Use Only

Acknowledgments.

- Guy Donny (MOP LSSC) for the initial tracking and documenting of PREA lists that we built this Model from.
- Dave Lutz (TOR LSSC) who wrote the code to automate this PREA Tape listing model.
- Poughkeepsie DSD & PE for their patience and replies to the many questions and especially to Randy Tackett, Paul Harder and Brent Thompson.

Any questions about the PREALIST report or the Theory of Operation in its creation please contact Dave Lutz or myself.

Wayne Smith.

Where to get this document.

The PREA Tape Listing document is available either as a LIST3820 file from the PATCHAID package on the LEXVMIC1 SERVTOOL Tools disk or as a BOOK file from the PTCHAIDB PACKAGE also on the LEXVMIC1 SERVTOOL Tools disk.

To Get the Package from SERVTOOL
TOOLS SENDTO LEXVMIC1 TOOLS SERVTOOL GET PATCHAID PACKAGE
or
TOOLS SENDTO LEXVMIC1 TOOLS SERVTOOL GET PTCHAIDB PACKAGE

To Subscribe to the Package of your choice to be kept automatically updated with the new files do the following
TOOLS SENDTO LEXVMIC1 TOOLS SERVTOOL SUB PATCHAID PACKAGE
or
TOOLS SENDTO LEXVMIC1 TOOLS SERVTOOL SUB PTCHAIDB PACKAGE

PREA TAPE LISTING Overview

The PREA Tape listings file is created 06:00 Thursday morning automatically by a Programmed Operator routine in Toronto. The output is then automatically placed on the LEXVMIC1 TOOLS disk SERVTOOL. Thursday was selected as this will give timely and accurate PATCH and PAMCIT (TAPE #1) status before the period of highest patch activity i.e. The weekend.

Data used by the automated routines to create the PREA LIST file comes from the Mid-Hudson Valley (MHV) database of PEARL which is controlled by DSD. PEARL contains all the SEC/VER/PATCH information for a LIC level on the MHV CPU products. RETAINs URSF application sources all its patch information from PEARL.

Dates of the PREA GA Release come from Release Engineering in POK.

Data Fields in a SEC Table

TERM	DESCRIPTION
SEC	System Engineering Change level of the CPU.
** **Vxxxx**	Vxxxx is the Version ID (VER) of the SEC indicated. The VER indicated is picked because it contains the maximum possible patches (worst case scenario) to be applied to the SEC level of all the possible VERs for the SEC. This picked VER may change on a weekly basis.
PREA	The level of the PREA (TAPE #1) is read from the Tape #1 label.
DATE	The date Release Engineering in the MHV released the PREA for GA distribution.
TOTAL	The Total number of patches that are on the TAPE #1 PREA in APPLIED or UN-APPLIED status.
ON	The number of patches that are in APPLIED status on the TAPE #1 PREA.
OFF	The number of patches that are in UN-APPLIED status in the TAPE #1 PREA.
DELTA	The number of patches to be applied for the SEC and VER of the PREA selected that have to be transmitted/pulled from RETAINs URSF, and on the date indicated in the RETAIN row.
Time	The approximate time required to download just patch files to the PCE on a RSF link working at full speed (4800 or 2400bps support). Time shown is the best possible and have seen upto 50% greater caused by RSF dataline retries and high PCE cycle activity on 'other things'.
***RETAIN**	The number of G and P status patches in RETAIN URSF that would be transmitted on a Service Update for the SEC and VER indicated, on the date indicated.

The Total in DELTA is calculated as follows:

1. RETAINs URSF total is subtracted from the TOTAL on the TAPE #1 PREA selected.
2. If the Delta count is a Negative value, this usually implies that patches on the PREA are now T, M or H Status.

MODEMS: Regardless of whether you have a 4800bps Half-Duplex modem (e.g. 3864-002) or a 2400bps Full-Duplex modem (e.g. 5853/585X) configured to the PCE, the data transfer rate is almost identical (585X faster..) due to the difference in turnaround times on the modems and the RETAIN/TCAM data block-size interface into the URSF application code.

Reference to SEC and CPU Model

CPU	SEC[1]	Available[2]	Models
3090	223630B	No	150, 180, 200, 400, 12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223633	Yes	150, 180, 200, 400
3090	223660	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223665	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223670	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223675	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223675D	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223675G	No	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	223675H	Yes	12E, 15E, 18E, 20E, 28E, 30E, 40E, 50E, 60E
3090	230394	Yes	VEC
3090	228894	No	11S, 12S, 15S, 17S, 25S
3090	228895	No	11S, 12S, 15S, 17S, 25S
3090	230387	No	11S, 12S, 15S, 17S, 25S
3090	230389	Yes	11S, 12S, 15S, 17S, 25S
3090	223770	No	18S, 20S, 25S, 28S, 30S, 38S, 40S, 50S, 60S
3090	223775	No	18S, 20S, 25S, 28S, 30S, 38S, 40S, 50S, 60S
3090	228852	No	18S, 20S, 25S, 28S, 30S, 38S, 40S, 50S, 60S
3090	228862	No	18S, 20S, 25S, 28S, 30S, 38S, 40S, 50S, 60S
3090	227570	Yes	18S, 20S, 25S, 28S, 30S, 38S, 40S, 50S, 60S
3090	229790	No	15JH, 17JH, 25JH
3090	230395	Yes	11J, 12J, 15J, 17J, 25J
3090	230359	No	15T, 17T, 25T
3090	227540	No	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J
3090	227570	No	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J
3090	227572	No	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J
3090	227574	No	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J, 15T, 17T, 25T, 18T, 28T
3090	227576	No	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J, 15T, 17T, 25T, 18T, 28T
3090	227578	Yes	18J, 20J, 25J, 28J, 30J, 38J, 40J, 50J, 60J, 15T, 17T, 25T, 18T, 28T
9021	229900X	No	340, 500, 580, 620, 720
9021	229905	No	340, 500, 580, 620, 720
9021	229910	No	330, 340, 500, 580, 620, 720
9021	229914	Yes	330, 340, 500, 580, 620, 720
9021	228104A	No	820, 900
9021	228110	No	520, 640, 660, 740, 820, 860, 900
9021	228112	No	520, 640, 660, 740, 820, 860, 900
9021	228120	Yes	520, 640, 660, 740, 820, 860, 900
9021	228150	No	520, 640, 660, 740, 820, 860, 900

Reference to SEC and CPU Model continued..

CPU	SEC	Available[2]	Models
9121	A72355B	No	190, 210, 260, 320, 440, 480
9121	A72357	No	190, 210, 260, 320, 440, 480
9121	C23070	No	190, 210, 260, 320, 440, 480
9121	C23074B	No	190, 210, 260, 320, 440, 480
9121	C22822	No	190, 210, 260, 320, 440, 480
9121	C22827	No	190, 210, 260, 320, 440, 480
9121	C22830A	No	190, 210, 260, 320, 440, 480, 490, 570, 610
9121	C22835	No	190, 210, 260, 320, 440, 480, 490, 570, 610
9121	C22840	No	180, 190, 210, 260, 320, 440, 480, 490, 570, 610
9121	C35674	Yes	180, 190, 210, 260, 320, 440, 480, 490, 570, 610

1 The SEC levels for a Model are in descending order from the first Generally Avaiable (GA) Release to the Latest Release.

2 Shows the status for the CPU model in what is currently the highest (GA) SEC as a FBM EC or via a RPQ Media request.

Contents

PREA Tapes for 9021 330 340 500 580 620 720

SEC 229905

SEC	PREA	Date	Total	ON	OFF	Delta	Time
229905	9100378	90/09/06	47	45	2	362	8.1 hrs
	9100381	90/09/27	82	77	5	328	7.3 hrs
	9100390	90/10/10	100	82	18	308	5.8 hrs
	9100396	90/10/29	117	97	20	293	5.5 hrs
	9100398	90/11/07	123	103	20	287	4.9 hrs
	9100404	90/11/21	154	115	39	254	4.5 hrs
	9100410	90/12/13	163	121	42	248	4.5 hrs
	9100418	91/01/22	188	142	46	223	4.2 hrs
	9100421	91/02/05	202	146	56	209	4.0 hrs
	9100426	91/02/28	225	169	56	186	3.6 hrs
	9100439	91/03/20	246	179	67	165	3.3 hrs
	9100448	91/04/08	265	198	67	146	2.1 hrs
	9100460	91/05/06	304	231	73	107	1.5 hrs
	9100464	91/05/31	313	240	73	98	1.4 hrs
	9100467	91/06/12	372	266	106	39	29.2 mins
	9100479	91/08/21	402	292	110	9	4.4 mins
	9100482	91/09/03	403	293	110	8	2.2 mins
** V90V0	*RETAIN	92/06/24	407				

SEC 229910

SEC	PREA	Date	Total	ON	OFF	Delta	Time
229910	9100441	91/03/25	57	51	6	396	7.6 hrs
	9100445	91/04/01	79	73	6	374	7.3 hrs
	9100450	91/04/10	89	83	6	364	7.2 hrs
	9100454	91/04/18	108	102	6	345	6.3 hrs
	9100456	91/04/26	147	110	37	306	5.7 hrs
	9100477	91/08/07	173	135	38	280	5.3 hrs
	9100480	91/08/20	184	146	38	269	4.3 hrs
	9100484	91/09/04	248	210	38	205	3.1 hrs
	9100490	91/11/01	315	272	43	138	2.4 hrs
	9100503	91/11/12	343	300	43	110	2.0 hrs
	9100520	92/01/14	353	309	44	100	2.0 hrs
	9100522	92/01/22	366	318	48	87	1.8 hrs
	9100529	92/02/11	379	331	48	74	1.5 hrs
Canceled	9100533	92/02/19	426	372	54	27	23.9 mins
	9100541	92/03/03	426	372	54	27	23.9 mins
	9100547	92/03/13	440	382	58	13	15.9 mins
	9100555	92/04/03	445	387	58	8	14.2 mins
** V90V0	*RETAIN	92/09/03	453				

SEC 229914

SEC	PREA	Date	Total	ON	OFF	Delta	Time
229914	9100536	92/02/21	13	12	1	61	58.2 mins
	9100560	92/04/16	21	20	1	53	47.1 mins
	9100565	92/04/24	46	37	9	28	25.9 mins
	9100585	92/07/24	63	51	12	11	15.8 mins
** V9C30	*RETAIN	92/09/03	74				

PREA Tapes for 9021 520 640 660 740 820 860 900

SEC 228104

SEC	PREA	Date	Total	ON	OFF	Delta	Time
228104	9100469	91/07/01	32	32	0	39	2.0 hrs
	9100471	91/07/09	32	32	0	39	2.0 hrs
	9100472	91/07/16	51	44	7	20	1.7 hrs
** V9200	*RETAIN	92/06/24	71				

SEC 228104A

SEC	PREA	Date	Total	ON	OFF	Delta	Time
228104A	9100475	91/08/05	19	12	7	243	6.4 hrs
	9100481	91/08/26	62	24	38	200	5.7 hrs
	9100486	91/09/11	126	79	47	136	3.7 hrs
	9100492	91/10/08	167	95	72	95	3.2 hrs
	9100499	91/10/29	199	124	75	63	2.8 hrs
** V9200	*RETAIN	92/06/24	262				

SEC 228110

SEC	PREA	Date	Total	ON	OFF	Delta	Time
228110	9100491	91/10/04	8	6	2	244	7.3 hrs
	9100495	91/10/22	16	13	3	236	7.2 hrs
	9100501	91/11/05	50	41	9	202	6.8 hrs
	9100504	91/11/15	83	51	32	169	5.6 hrs
	9100506	91/11/22	93	59	34	159	5.4 hrs
	9100509	91/12/03	102	68	34	150	5.2 hrs
	9100512	91/12/26	148	113	35	104	3.4 hrs
Canceled	9100531	92/02/20	176	139	37	77	2.2 hrs
	9100537	92/02/26	175	138	37	78	2.3 hrs
	9100546	92/03/13	193	152	41	63	2.0 hrs
	9100548	92/03/17	190	152	38	63	2.0 hrs
	9100557	92/04/09	202	162	40	53	1.9 hrs
	9100569	92/05/05	215	173	42	40	1.8 hrs
	9100574	92/05/26	234	188	46	21	53.0 mins
	9100582	92/07/23	243	191	52	12	5.1 mins
** V9200	*RETAIN	92/09/01	252				

SEC 228112

SEC	PREA	Date	Total	ON	OFF	Delta	Time
228112	9100513	92/01/02	27	26	1	178	5.9 hrs
	9100517	92/01/09	27	26	1	178	5.9 hrs
	9100521	92/01/21	52	49	3	153	5.5 hrs
	9100525	92/01/31	74	71	3	131	5.1 hrs
Canceled	9100534	92/02/20	90	87	3	115	3.9 hrs
	9100538	92/02/27	86	83	3	119	4.2 hrs
	9100544	92/03/19	98	94	4	107	3.9 hrs
	9100556	92/04/07	110	102	8	99	3.8 hrs
	9100568	92/04/29	128	117	11	81	2.6 hrs
	9100576	92/06/03	144	128	16	65	2.4 hrs
	9100583	92/07/15	161	145	16	48	1.2 hrs
Canceled	9100589	92/08/25	184	160	24	25	51.9 mins
** V9200	*RETAIN	92/09/03	204				

SEC 228120

SEC	PREA	Date	Total	ON	OFF	Delta	Time
228120	9100572	92/05/21	17	15	2	66	2.7 hrs
	9100584	92/07/31	40	33	7	45	1.4 hrs
Test	9100588	92/08/12	54	39	15	31	1.2 hrs
** V9200	*RETAIN	92/09/03	81				

PREA Tapes for 3090

SEC 223630B

SEC	PREA	Date	Total	ON	OFF	Delta	Time
223630B	9100112	90/05/31	131	80	51	239	3.2 hrs
	9100155	88/09/28	232	164	63	239	3.2 hrs
** V2000	*RETAIN	92/09/03	239				

SEC 223633

SEC	PREA	Date	Total	ON	OFF	Delta	Time
223633	9100154	88/09/27	194	144	50	25	12.4 mins
	9100175	88/12/13	208	157	51	9	4.3 mins
	9100176	89/01/03	208	157	51	9	4.3 mins
** V2000	*RETAIN	92/09/03	197				

SEC 223670

SEC	PREA	Date	Total	ON	OFF	Delta	Time
223670	9100157	88/10/07	76	58	18	224	3.7 hrs
	9100161	88/10/18	87	67	20	213	3.4 hrs
	9100165	88/11/04	96	70	26	205	3.3 hrs
	9100169	88/11/22	101	74	27	200	3.2 hrs
	9100170	88/11/28	113	76	37	188	3.1 hrs
	9100173	88/12/05	120	83	37	180	3.0 hrs
	9100178	89/01/12	136	92	44	164	2.8 hrs
	9100180	89/01/24	145	97	48	154	2.5 hrs
	9100195	89/03/23	181	119	62	120	1.8 hrs
	9100201	89/03/31	191	129	62	110	1.5 hrs
	9100207	89/04/14	207	133	74	94	1.4 hrs
	9100215	89/05/05	217	139	78	87	1.3 hrs
	9100221	89/06/01	222	143	79	82	1.2 hrs
	9100238	89/07/21	232	149	83	72	1.1 hrs
	9100249	89/08/14	237	150	87	67	1.1 hrs
	9100264	89/09/14	254	154	100	51	55.2 mins
	9100291	89/12/13	273	157	116	32	39.2 mins
	9100303	90/01/18	286	164	122	19	26.8 mins
	9100340	90/05/08	299	172	127	10	5.3 mins
** V6M00	*RETAIN	92/08/27	297				

SEC 223675

SEC	PREA	Date	Total	ON	OFF	Delta	Time
223675	9100183	89/02/06	56	51	5	223	3.7 hrs
	9100186	89/02/20	67	60	7	212	3.3 hrs
	9100190	89/03/09	93	85	8	186	2.9 hrs
	9100194	89/03/20	101	92	9	178	2.9 hrs
	9100198	89/03/31	119	102	17	160	2.5 hrs
	9100203	89/04/06	126	109	17	153	2.3 hrs
	9100205	89/04/14	139	110	29	140	2.3 hrs
	9100210	89/04/27	152	122	30	127	2.2 hrs
	9100216	89/05/05	159	128	31	120	2.1 hrs
	9100224	89/06/12	169	137	32	110	2.0 hrs
	9100228	89/06/16	169	137	32	110	2.0 hrs
	9100234	89/07/11	179	142	37	100	1.7 hrs

SEC	PREA	Date	Total	ON	OFF	Delta	Time
	9100243	89/08/01	182	145	37	97	1.7 hrs
	9100252	89/08/22	185	148	37	94	1.7 hrs
	9100259	89/09/08	212	153	59	68	1.2 hrs
	9100273	89/10/19	218	159	59	62	1.1 hrs
	9100292	89/12/15	243	168	75	37	45.7 mins
	9100341	90/05/09	264	183	81	16	13.7 mins
** V6M00	*RETAIN	92/08/27	279				

SEC 223675D

SEC	PREA	Date	Total	ON	OFF	Delta	Time
223675D	9100233	89/08/07	172	136	36	105	1.9 hrs
	9100253	89/08/30	188	143	45	89	1.5 hrs
	9100260	89/09/11	201	143	58	77	1.4 hrs
	9100272	89/10/19	207	149	58	71	1.3 hrs
	9100285	89/11/28	212	153	59	66	1.2 hrs
	9100293	89/12/19	239	164	75	39	49.8 mins
	9100326	90/03/28	256	176	80	22	27.7 mins
** V6M00	*RETAIN	92/08/27	277				

SEC 223675H

SEC	PREA	Date	Total	ON	OFF	Delta	Time
223675H	9100294	89/12/19	203	146	57	68	1.1 hrs
	9100315	90/02/20	211	149	62	61	1.0 hrs
	9100331	90/04/11	217	155	62	54	53.9 mins
	9100353	90/06/07	222	158	64	51	53.0 mins
	9100363	90/07/30	228	164	64	45	39.8 mins
	9100387	90/10/02	241	177	64	32	10.7 mins
	9100423	91/02/06	252	182	70	21	4.0 mins
	9100562	92/04/17	268	197	71	7	0.9 mins
** V6M00	*RETAIN	92/09/01	271				

SEC 227540

SEC	PREA	Date	Total	ON	OFF	Delta	Time
227540	9100269	89/10/13	9	7	2	290	5.8 hrs
	9100275	89/10/20	26	19	7	274	4.8 hrs
	9100278	89/10/26	41	26	15	261	4.6 hrs
	9100283	89/11/27	63	46	17	239	4.3 hrs
	9100297	90/01/05	99	67	32	217	4.0 hrs
	9100302	90/01/18	113	80	33	203	3.9 hrs
	9100306	90/01/30	122	92	30	190	3.7 hrs
	9100310	90/02/12	144	109	35	168	3.2 hrs
	9100327	90/04/02	176	132	44	136	2.5 hrs
	9100332	90/04/11	183	139	44	129	2.1 hrs
	9100335	90/04/23	188	145	43	127	2.0 hrs
	9100339	90/05/03	186	140	46	118	1.8 hrs
	9100343	90/05/15	203	156	47	101	1.6 hrs
	9100350	90/05/31	226	159	67	78	1.4 hrs
	9100354	90/06/11	234	166	68	70	1.4 hrs
	9100366	90/08/07	251	182	69	51	1.1 hrs
	9100372	90/08/23	265	186	79	37	53.6 mins
	9100408	90/12/03	280	195	85	22	32.2 mins
	9100433	91/03/13	291	204	87	11	10.0 mins
** V8000	*RETAIN	92/08/27	299				

SEC 227570

SEC	PREA	Date	Total	ON	OFF	Delta	Time
227570	9100347	90/05/25	37	34	3	390	6.5 hrs
	9100356	90/06/12	67	61	6	361	5.3 hrs
	9100362	90/07/23	86	68	18	342	4.8 hrs
	9100384	90/10/01	111	87	24	317	4.6 hrs
	9100391	90/10/15	149	92	57	280	4.1 hrs
	9100393	90/10/30	167	125	42	267	4.0 hrs
	9100401	90/11/07	179	136	43	256	3.8 hrs
	9100407	90/11/29	200	151	49	237	3.4 hrs
	9100412	91/01/07	232	154	78	205	3.0 hrs
	9100420	91/01/30	237	159	78	200	3.0 hrs
	9100424	91/02/11	259	161	98	180	2.8 hrs
	9100425	91/02/27	285	170	115	164	2.5 hrs
	9100431	91/03/11	289	174	115	159	2.4 hrs
	9100438	91/03/20	297	182	115	151	2.3 hrs
	9100457	91/05/01	333	197	136	115	1.6 hrs
	9100463	91/05/17	338	197	141	110	1.6 hrs
	9100465	91/07/09	357	203	154	95	1.4 hrs
	9100474	91/08/02	396	236	160	56	38.2 mins
	9100516	92/01/09	417	254	163	35	24.0 mins
	9100543	92/05/19	431	265	166	24	14.8 mins
Canceled	9100587	92/08/20	490	308	182	6	0.9 mins
Canceled	9100591	92/08/28	489	308	181	6	0.9 mins
** V8000	*RETAIN	92/08/27	427				

SEC 227574

SEC	PREA	Date	Total	ON	OFF	Delta	Time
227574	9100371	90/08/21	25	24	1	240	6.9 hrs
	9100375	90/08/31	38	37	1	227	6.7 hrs
	9100383	90/09/27	66	61	5	202	5.1 hrs
	9100399	90/11/09	89	71	18	177	3.9 hrs
	9100403	90/11/20	102	79	23	169	3.6 hrs
	9100409	90/12/13	114	92	22	157	3.5 hrs
	9100419	91/01/22	126	104	22	145	3.2 hrs
	9100422	91/02/05	136	114	22	138	3.1 hrs
	9100427	91/02/28	148	126	22	126	3.0 hrs
	9100432	91/03/12	196	131	65	75	2.2 hrs
	9100437	91/03/20	203	138	65	68	2.1 hrs
	9100443	91/03/23	208	143	65	63	1.9 hrs
	9100452	91/04/10	223	158	65	48	42.0 mins
	9100462	91/05/14	244	179	65	26	18.9 mins
	9100470	91/07/10	255	188	67	15	7.0 mins
** V8000	*RETAIN	92/08/27	264				

SEC 227576

SEC	PREA	Date	Total	ON	OFF	Delta	Time
227576	9100442	91/03/22	26	19	7	285	10.2 hrs
	9100446	91/04/01	42	34	8	270	9.3 hrs
	9100453	91/04/17	98	90	8	214	6.8 hrs
	9100455	91/04/19	103	95	8	209	6.6 hrs
	9100478	91/08/08	118	109	9	194	5.1 hrs
	9100487	91/09/12	151	142	9	161	3.6 hrs
	9100493	91/10/08	174	165	9	138	3.2 hrs
	9100497	91/10/24	206	197	9	106	2.7 hrs
	9100502	91/11/05	221	212	9	91	2.3 hrs

SEC	PREA	Date	Total	ON	OFF	Delta	Time
	9100519	92/01/14	233	223	10	79	2.0 hrs
	9100524	92/01/29	264	248	16	48	1.2 hrs
	9100552	92/03/23	276	255	21	36	1.0 hrs
	9100554	92/04/02	300	279	21	12	24.3 mins
** V8000	*RETAIN	92/09/03	311				

SEC 227578

SEC	PREA	Date	Total	ON	OFF	Delta	Time
227578	9100535	92/02/21	14	13	1	51	48.6 mins
	9100570	92/05/14	28	27	1	37	35.9 mins
	9100581	92/06/22	47	46	1	18	14.8 mins
** V8000	*RETAIN	92/09/03	65				

SEC 228852

SEC	PREA	Date	Total	ON	OFF	Delta	Time
228852	9100230	89/06/23	2	2	0	249	3.4 hrs
	9100236	89/07/11	5	5	0	246	3.4 hrs
	9100246	89/08/07	13	9	4	238	3.2 hrs
	9100251	89/08/21	32	22	10	219	2.9 hrs
	9100256	89/09/01	39	29	10	212	2.8 hrs
	9100266	89/09/28	69	58	11	182	2.5 hrs
	9100274	89/10/30	107	75	32	144	2.0 hrs
	9100284	89/11/27	114	80	34	137	2.0 hrs
	9100288	89/12/07	130	95	35	121	1.9 hrs
	9100299	90/01/10	160	118	42	91	1.5 hrs
	9100308	90/02/07	173	131	42	78	1.2 hrs
	9100316	90/02/26	196	143	53	55	47.0 mins
	9100324	90/03/27	212	157	55	39	29.8 mins
	9100348	90/05/25	223	165	58	28	16.3 mins
	9100360	90/07/10	228	170	58	23	14.0 mins
	9100389	90/10/10	241	172	69	10	3.9 mins
** V7A00	*RETAIN	92/08/27	251				

SEC 228862

SEC	PREA	Date	Total	ON	OFF	Delta	Time
228862	9100276	89/10/25	18	10	8	297	4.8 hrs
	9100282	89/11/13	43	31	12	272	4.3 hrs
	9100287	89/12/06	63	51	12	252	4.2 hrs
	9100296	90/01/04	96	63	33	235	4.1 hrs
	9100301	90/01/17	121	82	39	211	3.9 hrs
	9100307	90/01/31	122	92	30	206	3.8 hrs
	9100311	90/02/13	144	110	34	184	3.3 hrs
	9100319	90/03/06	172	126	46	157	2.8 hrs
	9100323	90/03/22	185	137	48	143	2.6 hrs
	9100330	90/04/11	200	150	50	128	2.1 hrs
	9100336	90/04/24	204	154	50	127	2.0 hrs
	9100342	90/05/09	206	167	39	113	1.8 hrs
	9100349	90/05/30	242	192	50	79	1.4 hrs
	9100355	90/06/11	250	200	50	71	1.4 hrs
	9100358	90/07/02	260	210	50	60	1.3 hrs
	9100364	90/08/01	264	213	51	55	1.2 hrs
	9100369	90/08/15	274	223	51	45	1.0 hrs
	9100386	90/10/02	288	226	62	31	49.6 mins
** V7A00	*RETAIN	92/08/27	311				

SEC 230387

SEC	PREA	Date	Total	ON	OFF	Delta	Time
230387	9100255	89/08/25	30	24	6	59	1.0 hrs
	9100270	89/10/16	37	32	5	51	56.8 mins
	9100298	90/01/08	58	43	15	32	37.3 mins
	9100314	90/02/19	76	57	19	14	11.5 mins
	9100333	90/04/18	81	61	20	10	1.7 mins
	9100352	90/06/06	83	62	21	8	1.0 mins
** V7500	*RETAIN	92/08/27	87				

SEC 230389

SEC	PREA	Date	Total	ON	OFF	Delta	Time
230389	9100322	90/03/16	39	27	12	76	1.8 hrs
	9100325	90/03/27	70	48	22	46	41.5 mins
	9100346	90/05/21	98	75	23	19	6.1 mins
	9100392	90/10/16	100	77	23	16	4.3 mins
	9100414	91/01/09	105	81	24	11	1.8 mins
	9100435	91/03/14	108	84	24	8	0.9 mins
** V7500	*RETAIN	92/09/01	110				

PREA Tapes for 9121

SEC A72355B

SEC	PREA	Date	Total	ON	OFF	Delta	Time
A72355B	9100379	90/09/14	8	8	0	137	3.3 hrs
	9100388	90/10/05	51	38	13	95	2.1 hrs
	9100400	90/11/08	68	47	21	78	1.7 hrs
	9100417	91/01/16	79	58	21	67	1.2 hrs
	9100436	91/03/14	96	67	29	50	42.7 mins
** VL300	*RETAIN	92/06/24	145				

SEC A72357

SEC	PREA	Date	Total	ON	OFF	Delta	Time
A72357	9100397	90/10/31	40	25	15	118	2.1 hrs
	9100406	90/11/21	57	40	17	101	1.9 hrs
	9100416	91/01/16	66	47	19	92	1.4 hrs
	9100430	91/03/05	86	58	28	72	55.0 mins
	9100449	91/04/10	106	77	29	52	43.9 mins
	9100459	91/05/06	120	77	43	38	25.8 mins
	9100468	91/06/24	147	101	46	11	1.9 mins
** VL300	*RETAIN	92/06/24	157				

SEC C22822

SEC	PREA	Date	Total	ON	OFF	Delta	Time
C22822	9100476	91/08/06	50	49	1	210	3.3 hrs
	9100485	91/09/12	83	78	5	177	2.6 hrs
	9100489	91/09/24	97	92	5	163	2.2 hrs
	9100498	91/10/28	107	102	5	153	2.0 hrs
	9100507	91/11/26	135	126	9	125	1.8 hrs
	9100515	92/01/10	177	168	9	83	1.4 hrs
	9100527	92/02/06	194	185	9	66	1.1 hrs
	9100542	92/03/03	202	193	9	58	33.9 mins
	9100551	92/03/23	214	205	9	46	23.8 mins
	9100566	92/04/28	240	214	26	20	13.5 mins
** VL300	*RETAIN	92/09/03	260				

SEC C22827

SEC	PREA	Date	Total	ON	OFF	Delta	Time
C22827	9100518	92/01/13	164	158	6	75	45.5 mins
	9100532	92/02/13	180	174	6	59	29.7 mins
	9100553	92/04/02	196	189	7	43	16.3 mins
	9100567	92/04/28	222	198	24	17	5.9 mins
** VL300	*RETAIN	92/09/03	239				

SEC C22830A

SEC	PREA	Date	Total	ON	OFF	Delta	Time
C22830A	9100494	91/10/31	40	39	1	62	45.6 mins
	9100500	91/11/01	41	40	1	61	44.5 mins
	9100510	91/12/19	70	55	15	32	21.9 mins
	9100530	92/02/12	97	77	20	17	7.2 mins
** VL500	*RETAIN	92/06/24	102				

SEC C22835

SEC	PREA	Date	Total	ON	OFF	Delta	Time
C22835	9100523	92/01/28	19	18	1	146	1.6 hrs
	9100528	92/02/06	45	43	2	121	1.2 hrs
	9100540	92/03/02	69	67	2	97	1.0 hrs
	9100550	92/03/19	77	75	2	89	55.1 mins
	9100559	92/04/22	117	98	19	50	33.3 mins
	9100580	92/07/16	129	108	21	39	26.1 mins
	9100586	92/08/04	138	114	24	30	13.0 mins
Test	9100590	92/08/18	153	126	27	15	2.4 mins
** VL300	*RETAIN	92/09/03	165				

SEC C22840

SEC	PREA	Date	Total	ON	OFF	Delta	Time
C22840	9100558	92/04/14	36	34	2	14	14.8 mins
	9100561	92/04/16	41	37	4	9	9.2 mins
	9100564	92/04/23	43	41	2	7	1.1 mins
** VL300	*RETAIN	92/07/30	50				

SEC C23070

SEC	PREA	Date	Total	ON	OFF	Delta	Time
C23070	9100411	90/12/19	44	30	14	99	2.0 hrs
	9100415	91/01/10	50	34	16	93	1.6 hrs
	9100429	91/03/08	66	45	21	77	1.0 hrs
	9100440	91/03/20	73	52	21	70	1.0 hrs
	9100451	91/04/10	83	58	25	60	51.9 mins
	9100458	91/05/06	103	64	39	40	30.4 mins
	9100466	91/06/05	130	91	39	13	9.1 mins
** VL300	*RETAIN	92/06/24	143				

SEC C23074B

SEC	PREA	Date	Total	ON	OFF	Delta	Time
C23074B	9100444	91/04/01	21	20	1	239	4.7 hrs
	9100461	91/05/07	32	31	1	228	4.6 hrs
	9100473	91/07/30	51	49	2	210	3.3 hrs
	9100483	91/09/03	74	68	6	187	2.8 hrs
	9100488	91/09/19	97	92	5	163	2.2 hrs
	9100496	91/10/22	107	102	5	153	2.0 hrs
	9100508	91/11/26	135	126	9	125	1.8 hrs
	9100514	92/01/10	177	168	9	83	1.4 hrs
	9100526	92/02/05	194	185	9	66	1.1 hrs
	9100539	92/02/25	204	193	11	58	33.9 mins
	9100549	92/03/19	216	205	11	46	23.8 mins
	9100563	92/04/22	242	214	28	20	13.5 mins

SEC	PREA	Date	Total	ON	OFF	Delta	Time
** VL300	*RETAIN	92/09/03	260				

SEC C35674

SEC	PREA	Date	Total	ON	OFF	Delta	Time
C35674	9100573	92/05/22	26	24	2	18	10.8 mins
	9100575	92/05/28	26	24	2	18	10.8 mins
	9100577	92/06/05	32	29	3	12	7.1 mins
** VL400	*RETAIN	92/09/02	44				