ROCHESTER INSTITUTE OF TECHNOLOGY
MICROELECTRONIC ENGINEERING

MESA HELP

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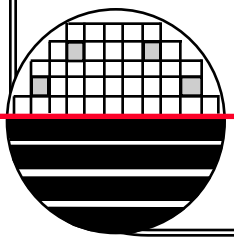

OUTLINE

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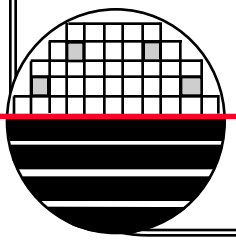


SYSTEM OVERVIEW

MESA – Manufacturing Execution System Application, Sold by Camstar Inc., an IBM Partner.

MESA is an integrated relational database system for discrete part manufacturing (a computerized record-keeping system). A relational database system is a database in which the data is perceived by the user as tables (and nothing but tables)

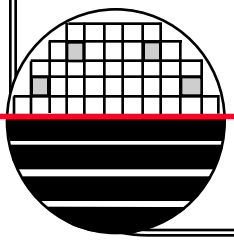
The software is installed on our AS400 computer located in the Gleason building at RIT. It is connected by Ethernet LAN to networked file servers and PCs on the RIT campus. Supporting PowerPoint documents are stored on network drive \\kgcoe-file\morbo-jdrive\ in the Mesadoc folder. Each PC that is used with MESA also has NWA Quality Analyst 5.1 installed which is used to create and view statistical process control (SPC) charts. The data files, header files and run files for NWA are stored on the network drive morbo-jdrive in the QA folder. Each PC is automatically connected to the network drive when rebooted.

MESA - TERMINOLOGY

AS/400 – *the IBM computer that is used for the MESA software*.
Ethernet – *Local area network*.
Exit F3 – *quit out of function.*
Cancel F12 – *go back to previous screen.*
User ID – *individual identification code = RIT computer account name.*
Operator – *lowest level of security….least amount of access to MESA.*
Integrated Relational Database – *data base in which everything is a table with predefined fields (columns)*
Resource – *tool, supplies or people*
Work Center – *physical location of a tool*
Operation – *something that is done in a tool*
Department – *group of work centers and/or tools*
Plant – *manufacturing location. Like Motorola MOS-11 in Austin, TX.*
Resource Type – *Tool or Operator*
Resource Sub Type – *type of tool or skill level of operator*
Resource ID – *individual tool name.*
Unit of Measure – *basic unit of the product we are making i.e. wafers*
User Defined Units of Measure – *other units like micrometers, angstrom, etc.*
Start Code – *product or engineering run eg PROD, ENG*
Scrap Code - *why a lot was scrapped, eg. PHOTO, METL,*
Bonus Code - *why extra wafers were added.*
Yield Loss Code – *why wafers were scrapped, eg. BWOP, BWEQ*
Hold Code - *why a lot is put on hold, eg SPEC, TIME*
Operation – *something that is done to the wafers like RCA clean.*
Process – *list of steps each with associated operation, instructions, parameters and documents.*
Specification – *links instruction, parameters, documents for each step in a process.*
Product – *defined by maskset and stepper job*
Product Class – *analog, digital, MEMs etc.*
Mask ID – specific identification for a mask.
Mask Level Name – *mask level name is generic for a process. Like CMOS there level names like well, active, channel stop, etc.*
Mask Set – *specific group of masks*
Document – *text or graphical information*
Step – *what a process is made up of*
Instruction Group - *instructions*
Parameter Group – *specifics about the data to be collected*
Report – *pre defined query that is printed*
Listing – printed to printer
Inquiry – *printed to screen*
Query – *generic extraction of data from the data base*
Transaction – *do something to wafers, lot or group of lots*

ADDING STUDENTS TO EMPLOYEE TABLE

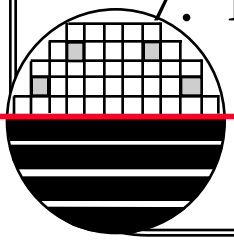
1. Sign-on to MESA as an engineer with plant RIT, User ID ENGINEER and password WAFER
2. Select Files and Tables (2)
3. Select Files and Tables Maintenance (1)
4. Select Table Data Master Maintenance (6)
5. Action 1=create, 2=change, 4=delete.
   Table Name = EMPLOYEE
   Code = ritusername or use F4 for change and delete
6. Code Description is the students full name
   Display Sequence =0.0
   Authorize Override = N
   Display Name = nickname or first name
7. Enter



PRINT OUT OF EXISTING PROCESSES

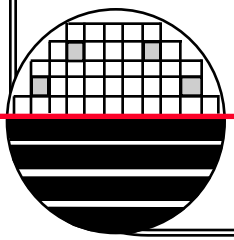
A common request from faculty concerning MESA is how to print out the step-by-step instructions for a particular process.

1. Sign-on to MESA as a faculty with plant RIT, User ID FACULTY and password_____.
2. Select Files and Tables (2)
3. Select Files and Tables Listing (3)
4. Select Process Master Listing (3) shortcut (PCMSRPT)
5. Select the process name using F4 prompt function. Enter on both the "From" and "To" line (example: From: CMOS, To: CMOS Revision PW-1), then press enter.
Change instruction detail and parameter detail from N to Y.
Then press Enter
6. Select N for batch processing and select 2 to change report description and print text. Enter returns to print screen.
7. Press enter again and the document will print in the printer next to Sara's desk.



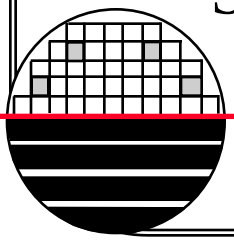
PRINTED LOT HISTORY

1. Sign-on to MESA as a faculty with plant RIT, User ID FACULTY and password_____.
2. Select WIP-tracking Menu (1)
3. Select Lot Status Report Menu (3)
4. Select Lot History Report (10)
5. Press F11 and select Y for instructions and Move-out parameter data. Enter.
6. Select N for batch processing and select 2 to change report description and print text. Set output option to 1, 2 or3. Enter return to print. The printer is the networked laser printer in the MicroE Office.



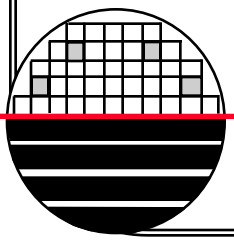
MESA YIELD LOSS CODES

ALGN- alignment problem
ASH- can not ash resist
BCOT- bad resist coating
BWEQ- broken wafer by equipment
BWOP- broken wafer by operator
CD- critical dimension problem
ENG- wafer removed by engineering
FURN- furnace problem
IMPD- implant damage to resist from high current
IMPL- implant wrong side of wafer
MADH-metal adhesion problem
PADH- photoresist adhesion problem
RIE- improper Reactive Ion Etch (over etch)
SINT-sinter error (above 575 °C)



MESA HOLD CODES

SPEC-Data out of spec
TIME- Did not have time to finish move

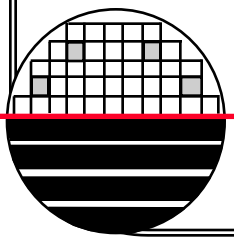


RELEASE A LOT FROM HOLD

To release a lot that is on hold.

1. Sign-on to MESA as a faculty with plant RIT, User ID FACULTY and password_____.
2. Select WIP-tracking Menu (1)
3. Select Transaction Processing Menu (1)
4. Select Transaction Processing Menu #2 (31)
5. Select Release shortcut (RELS)
6. Enter Employee Name: _____
   Lot Number: _____
   Operation: _____

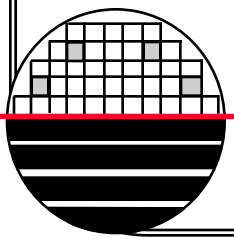
Comments:_____



TRANSACTION REVERSAL

To undo a move-in or a move-out.

1. Sign-on to MESA as a faculty with plant RIT, User ID FACULTY and password_____.
2. Select WIP-tracking Menu (1)
3. Select Transaction Processing Menu (1)
4. Page down Select Transaction Menu #3 (32)
5. Select Transaction Reversal (8)
   shortcut (TREV)
6. Enter Employee Name: _____
   Lot Number: _____



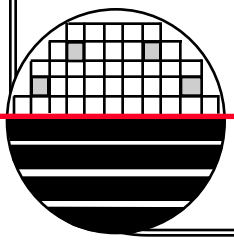
CORRECTING DATA PREVIOUSLY STORED IN MESA

To change data stored in MESA.

1. Sign-on to MESA as a faculty with plant RIT, User ID FACULTY and password_____.
2. Select Quality Data Collection Menu (3)
3. Select Quality Data Menu (2)
4. Select QDC Maintenance (2)
   shortcut (QDCFMNT)
5. Enter Lot Number:_____ Operation: _____
   Process Step: _____

Then Page Down to advance to Move-Out data collection.

6. Change values (2 in front of value to be changed) and Update (F17)



STARTING NEW LOT FOR EXISTING PRODUCT/PROCESS

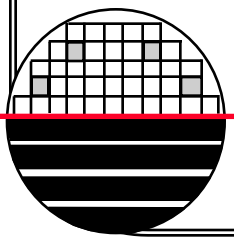
These instructions tell how to START a new lot.

1. Sign-on to MESA as a faculty with plant RIT, User ID FACULTY and password_____.
2. Select WIP-tracking Menu (1)
3. Select Transaction Processing Menu (1)
4. Select START shortcut (START)
5. Enter Employee Name _____
   Lot Number _____

Use F for Factory Lots and L for class Lots and YYMMDD
ex: L020123 for a lot start on January 23, 2002 for a class product

Use F4 and select existing product
Process Step ___1_____
Operation ___ID01___
Due Date/Time _MM/DD/YY HH:MM:SS__

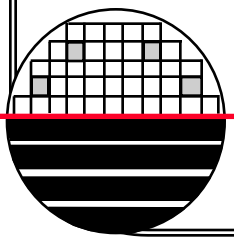
Press Enter
Enter Customer Name _____
Press Enter
Press Enter



SHIPPING A LOT

When a lot is completed the last move-out is really a SHIP transaction. These instructions tell how to do the SHIP transaction.

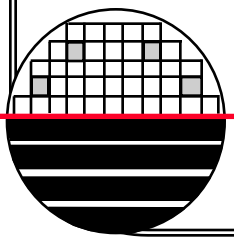
1. Sign-on to MESA as a faculty with plant RIT, User ID FACULTY and password_____.
2. Select WIP-tracking Menu (1)
3. Select Transaction Processing Menu (1)
4. Select Shipment (7) shortcut (SHIP)
5. Enter
   - Employee Name _____
   - Lot Number _____
   - From Operation _____
   - Quantity Out _____
   - Ship to Code _____
   - Run Time _____



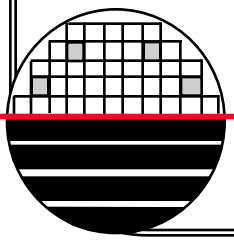
DISPLAY CONTROL CHARTS

DISPLAY CONTROL CHARTS / UPDATE SPC QUERY

1. Be sure to load QEMM Quarterdeck Expanded Memory Manager during reboot.
2. Be sure that the PC organizer is running. If it is running then Alt0 should do nothing. If Alt0 take you to DOS prompt then PC organizer is not running. Type STARTPCS.
3. From the MESA Custom Menu select SPC QUERY.
4. Select the parameter of interest
5. Select CONTROL CHARTS
6. Select the parameter of interest



VIEW SPC QUERY



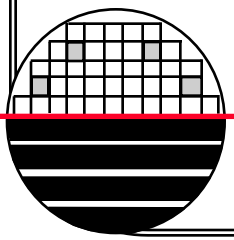
CREATING AND DISPLAYING TEXT AND GRAPHIC DOCUMENTS

To create text and graphic documents that can be viewed from inside MESA.

Create a MESA Document ID. (DMMSMNT)

F3 to get to MESA Main Menu
Select Files/Tables Menu
Files/Table Maintenance
Document Master Maintenance

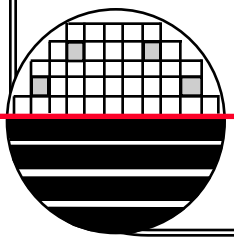
Give the document a unique ID (use the F4 prompt to see other document ID's). Give a description. Give Folder J:/MESADOC/. Give creator name = your last name. If you are updating an existing file you may only need to change creator name.



CREATING AND DISPLAYING TEXT AND GRAPHIC DOCUMENTS

Attach the document now on the J: drive with a specific MESA instruction.

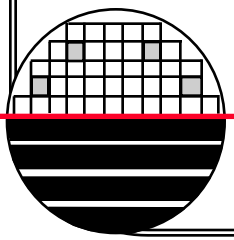
Select Files/Tables Menu
Files/Tables Maintenance
Process Master Maintenance - change, process name (use F4), enter, enter
Maintain Instruction (type MI in front of step of interest), enter.
Select 2 to change an instruction.
Insert or change the document ID
F10 to view the document
Save F17 (or F8 if you don't want to make changes)
F3, etc., etc., etc.,



SETTING NEW CALENDAR (EACH NEW YEAR)

These instructions tell how to set up the new calendar year.

1. Sign-on to MESA with plant RIT, User ID ENGINEER and password_____.
2. Select Systems functions Menue (18)
3. Select calendar maintenance Menu (5)
4. Select Maintain Work Calendar (1) Initialize
   Work Center leave Blank
   Year to update 20XX
   enter then set all days to work days
5. Select Calendar/Shift file
   (F6) Initialize Calendar Year
   Set 01/01/XX as first day of the year
   also as first day of the quarter
   also as first day of the week



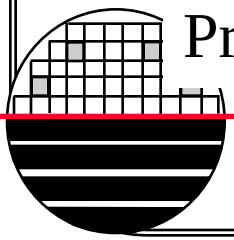
REBOOT AS400 COMPUTER

Sometimes it is necessary to reboot the AS400 to establish communications with the various PC's and Workstations in the Lab. The error is CWBC01003 - winsock error, function returned 10060 HOST400

Access the AS400 in the closet near ISE office
(see Trent White, TAWHelp@rit.edu)

Turn on the monitor and sign on to AS400
Username: **must be system administrator**
Password: **************

At the command prompt type **pwrdwnsys**
Press **F4** and select ***IMMED**
Select Restart **Yes**, wait time **30** seconds, **IPLP**, **Panel**
Press **enter** and wait 10-20 minutes



RECOVER FROM MSG-2061 ERROR

Deleting and Recreating your Public Data Queues

To ensure all invalid records are removed from the data queues, the most effective solution is to create new data queues. Sign on to the AS/400 with profile QPGMR to ensure proper authority to perform this function. The following commands assume that your database is called MESADB. If this is not the case, substitute the correct database name in the commands.

Note: In all cases 'vm' refers to the MESA version/modification (e.g., 20 for version 2 modification 0).

1) Sign on to the AS/400 using QPGMR profile. Use QSECOFR username

2) ~~End the Real-Time Production Monitor (required ONLY if you have the RTPM Module):~~

AS/400 Command

ADDLIBLE ~~MESAvmA~~ (for the duration of this function)

~~*MESA Command*~~ MESA20A

~~RTPMSTP~~

3) Sign off from MESA and check to ensure all users are signed off:

AS/400 Command

```
WRKOBJLCK OBJ(MESADB/LTPSL100) OBJTYPE(*FILE)
```

4) End the MESA subsystems:

AS/400 Command

```
ENDSBS MESA *IMMED
ENDSBS MESATP *IMMED
ENDSBS MESACP *IMMED
ENDSBS MESASP *IMMED
```

Skip third command

RECOVER FROM MSG-2061 ERROR

5) Change the dedicated mode data area (LTADM100) to prevent MESA access while you maintain the data queues:

AS/400 Command

```
CHGDTAARA MESADB/LTADM100 VALUE('MAINT')
```

6) Delete and re-create your data queues:

MESA Command

```
INSTALL DTASET(XXXX) BCKGND(*YES)
```

(Where XXXX is the name of your 4 character dataset ID)

Where XXXX is DATA

The following screen displays. Set the values as shown below:

```
                Create Work Management Objects (CRTWRKMGTO)

Type choices, press Enter.

Dataset ID . . . . . . . . . . . > XXXX          Name
Accept all default values  . . .   *NO           *YES, *NO
Replace existing data queues . . > *YES          *YES, *NO
Batch processing . . . . . . . .   *NO           *YES, *NO
Transaction processing . . . . . > *YES          *YES, *NO
Service processing . . . . . . . > *YES          *YES, *NO
Communications processing  . . . > *YES          *YES, *NO
```

Set as shown

7) Start the MESA subsystems:

AS/400 Command

```
STRSBS MESA20U/MESASP
STRSBS MESA20U/MESATP
STRSBS MESA20U/MESACP
STRSBS MESA20U/MESA
```

← Skip third one

8) Change dedicate mode data area (LTADM100) to allow access to MESA:

AS/400 Command

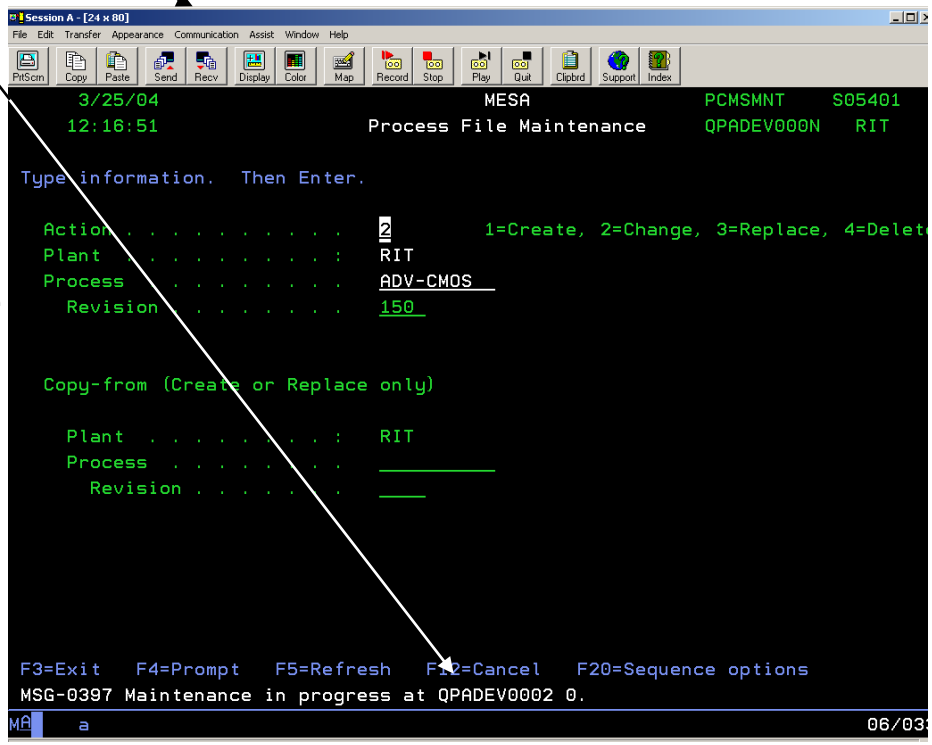
```
CHGDTAARA MESADB/LTADM100 VALUE('  ')
```

9) For RTPM implementations, the monitor will start up when the batch subsystem MESA is started.

PROCESS RECOVERY FROM INCORRECT EXIT

Prior to logging onto the AS/400 try clicking on communications Then select configure and workstation ID…type in the ID Shown in the message at the bottom of the screen. Then try to maintain the process.

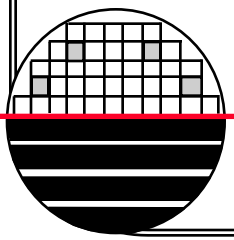
If that does not work sign on to the AS/400 as security officer, 3 General Systems Tasks, 8 Device Operations, 1 Work with Device Status, and make the device ID shown available



RECOVER FROM MSG-0397 MAINTENANCE IN PROGRESS

Another approach for recovery from incorrect exit during process maintenance is as follows

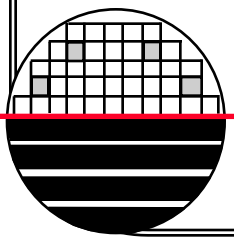
1. Sign-on to AS400 as security officer, User ID _____ and password_____.
2. On a command line type CLRPFM (press F4)
3. Physical file …….LTPPH800
   Library……..MESADB
   ENTER
4. Repeat 3. for LTPPO800
5. Exit



USER STUDENT HAS BEEN DISABLED

To re-enable the account from the console. Log in as QSECOFR then run: CHGUSRPRF STUDENT STATUS(*ENABLED), "You can use the CHGUSRPRF command to enable a profile that has been disabled. You must have *SECADM special authority and *OBJMGT and *USE authority to the profile to change its status. The topic "Enabling a User Profile" on page 104 of the reference below shows an example of an adopted authority program to allow a system operator to enable a profile." -pg 62 (84) "You can always sign on with the QSECOFR (security officer) profile at the console, even if the status of QSECOFR is *DISABLED. If the QSECOFR user profile becomes disabled, sign on as QSECOFR at the console and type CHGUSRPRF QSECOFR STATUS(*ENABLED)." -pg 104 (126)

Reference: fom the iSeries Security Reference @
http://publib.boulder.ibm.com/infocenter/iseries/v5r4/index.jsp
pages 62 and 104 (PDF file page 84 and 126).



REFERENCES

1. Camstar Systems Inc, 900 E. Hamilton Ave, Suite 400, Campbell, CA 95008, RL Phone 408 559-5709