MLM-MU-90-66-0006

RELATIONAL GEISHA FORMAT (RGF)

July 26, 1990

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operated for the UNITED STATES DEPARTMENT OF ENERGY

Contract No. DE-AC04-88-DP43495

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EG&G Relational Geisha Format (RGF)

Analyst Reference Guide

Version 1.0

June 15, 1990

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Relational Geisha Format
(RGF)

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EG&G Relational Geisha Format (RGF) Analyst Reference Guide

OVERVIEW

Background of RGF RGF was developed at EG&G as an adaptation of the Universal Data Entry System called GEISHA (Generalized Edit Identification System Hollerith Assembly). GEISHA is a data system for external communication with DOE agencies within the weapons complex.

EG&G production and test data is recorded in the RGF data format and computer processed into historical master files, where the production data is retained for reporting and analyses.

Purpose of this Documentation The purpose of this documentation is to provide instructional and reference material to the persons involved in RGF data maintenance and the systems analysis and programming for the collection of RGF data.

Who should use this Documentation? Programmers, Systems Analysts, Systems Managers, and the PROCODE Database Administrator should use this documentation.

Anyone involved in the RGF data collection planning process would also benefit from a review of portions of this documentation.

Suggestions on using this Documentation Programmers, Systems Analysts, Systems Managers and the PROCODE Database Administrator should initially review the entire document to learn about the RGF capabilities and options.

Once familiar with RGF, refer to the Table of Contents to find the page(s) where the information you need to reference is located in the document.

People involved in the RGF data collection planning process may benefit from a review of the following sections:

<u>Section</u>	<u>Page(s)</u>
The RGF Record	14
RGF Field Descriptions	15 - 18
PN_SN Field Contents	19 - 31
RGF Database Files Utilization	36,37
RGF Data Reports	38
RGF Data Collection Planning Process	39,40

PROCEDURE DATA SYSTEMS CONFIGURATION

Following are descriptions and diagrams of the components of the PROCEDURE Data Systems configuration.

The sequence in which the components of the configuration are presented illustrates the flow of the RGF data records through the PROCEDURE System.

Stage	Component	Reference	Description
1.	Automated workstation (AW)	Diagram 1, Figure 1	<p>A personal computer which is located in the production area and utilized for the collection of production data.</p> <p>The AW is programmed to prompt for input of production data, then generate the RGF records containing the data values.</p> <p>Data is entered at the AW by production personnel using a bar code scanner or typing data at the keyboard.</p> <p>Data can also be entered automatically via an attached or remote instrumentation or measurement device, such as a scale.</p> <p>RGF data records generated at an AW are transmitted through a Transaction Manager (TM) to reach the Port Concentrator.</p> <p><u>Note:</u> Descriptions of the TM and Port Concentrator follow.</p>

PROCEDURE - HEMI PETN WEIGH STATION SCHEMATIC

Diagram 1

PROCEDURE DATA SYSTEMS CONFIGURATION, Continued

Stage	Component	Reference	Description
1., cont.	Transaction Manager	Diagram 2 Figure 1	<p>A small terminal, located in the production area and utilized for the collection of production data.</p> <p>The TM has a keyboard and a two line LCD display with 16 characters per line.</p> <p>The TM is utilized essentially the same as an AW.</p> <p>Data is entered at the TM by production personnel using a bar code scanner or typing data at the keyboard.</p> <p>Data can also be entered automatically via an attached or remote instrumentation or measurement device, such as a scale.</p> <p>RGF data records generated at an AW are transmitted through a Transaction Manager (TM) to the Port Concentrator.</p>
2.	Port Concentrator	Diagram 2, Figure 2	<p>A data buffer and concentrator that temporarily stores the data received from each TM.</p> <p><u>Note:</u> A date and time stamp is added by the Port Concentrator to each RGF data record as it is received.</p>

TRANSACTION MANAGER CONFIGURATION

Diagram 2

PROCEDURE DATA SYSTEMS CONFIGURATION, Continued

Stage	Component	Reference	Description
3.	Cell Supervisor	Diagram 3, Figure 1	<p>The personal computer attached to the Port Concentrator and located in the production area where the RGF data is being collected.</p> <p>The Cell Supervisor has two attached printers, a dot matrix log printer and an HP Laser for printing reports.</p> <p>The PROCEDURE Data Systems functions to Receive Data, Upload Data, Print Reports and Maintain files are executed at the Cell Supervisor.</p> <p>The Receive Data and Upload Data functions are described below.</p> <p>1. Receive Data</p> <p>a. Executes a program on the Procedure Data System network.</p> <p>The program does the following:</p> <ol style="list-style-type: none">1. receives a batch of production data from the port concentrator;2. appends an additional date and time stamp to each RGF record;

⑦

Fig. 1

TM = TRANSACTION MANAGER

PROCEDURE DATA SYSTEMS CONFIGURATION, Continued

Stage	Component	Reference	Description
3.	Cell Supervisor	Diagram 3, Figure 1	<p>Receive Data, continued</p> <p>3. sends a log of each RGF data record received to the log printer;</p> <p>4. writes the RGF records to a file named FILEA.TXT, in the Cell Supervisor "home" disk directory.</p> <p><u>Note:</u> Each Cell Supervisor has a unique "home" disk directory that identifies the production area in which it is located.</p>

PROCEDURE VOLUMES SCHEMATIC

Diagram 4

PVS1

PROCEDURE DATA SYSTEMS CONFIGURATION, Continued

Stage	Component	Reference	Description
3, cont.	Cell Supervisor	Diagram 4, Figure 1	<p>2. Upload Data, continued</p> <p>3. prints the Operation Upload Report; and</p> <p>4. after the upload is successful, renames the FILEA.TXT is to the next sequential filename in the format F####.TXT.</p> <p>For example, if the filename F3523.TXT exists in the data directory, the FILEA.TXT file is renamed F3524.TXT.</p>

PROCEDURE DATA SYSTEMS CONFIGURATION, Continued

Stage	Component	Reference	Description
4.	Internetwork	Diagram 5	<p>Internetwork is a Novell network of file servers.</p> <p>It provides access via any cell supervisor, network server or network node, to the RGF production data records which were uploaded and appended to the databases in the network production volume.</p> <p>RGF data reports can be printed by selecting the Report option from the Procedure Data Systems Main Menu.</p> <p>Refer to the RGF Data Reports section on page 38 for a description of the reports.</p> <p>Sample reports are provided on pages 47 through 63 of this documentation.</p>

PROCODE INTERNETWORK ACCESS SERVERS

Diagram 5

THE RGF RECORD

RGF Record Description

An RGF record consists of eight fields.

Four of the fields are automatically generated when the RGF record is transferred from the TM to the network storage volume.

The other four fields are programmed for inclusion in the RGF record by the programs that build RGF records.

RGF Record Format

RGF has a simple yet versatile record format.

The RGF record format is illustrated below.

Note: The number of characters in each field is defined using CHAR as an abbreviation for the word characters.

Example RGF Record

An example of an actual RGF Record is shown below:

RGF Record Format Rules

Follow the RGF record format rules below:

1. Position fields only in the sequence shown.
2. Separate each field by a comma.
3. The PORT, TMDATE, CSDATE, and CSTIME fields are automatically appended to the RGF record and need not be considered when writing the programs that build the RGF records.

RGF FIELDS DESCRIPTIONS

The RGF Fields Descriptions Table below describes the contents of each field in an RGF record.

Note: All field contents are alphanumeric unless otherwise indicated.

RGF Fields Descriptions Table

Field Name	Length	Contents
PORT	4 CHAR	<p>A one or two character code that identifies the TM where the production data was collected.</p> <p><u>Note:</u> The PORT can also identify the TM that the AW is connected to for transmitting RGF data collected at the AW, through the TM, to the port concentrator.</p> <p>The first Port code character identifies the main trunk line connected from the port concentrator to the TM.</p> <p>The second character identifies the multidrop line connecting the TM to the main trunk line.</p> <p>When the TM is connected directly to the main trunk line, the port code consists of only one character.</p> <p>Example: A</p> <p>When the TM is connected via a multidrop line to the main trunk line, the port code consists of two characters.</p> <p>Example: pD</p> <p><u>Note:</u> The port code is automatically generated by the TM and appended to each RGF record as it is transmitted to the port concentrator.</p>

RGF FIELDS DESCRIPTIONS, Continued

RGF Fields Descriptions Table, continued	Field Name	Length	Contents
	OPERATION	4 CHAR	A four <u>digit</u> code that identifies the production operation from which the RGF data is being collected.
	PART NO./ SERIAL NO. (PN_SN)	20 CHAR	<p>This field may contain one of the following:</p> <ol style="list-style-type: none"> 1. An alphanumeric code of up to 20 characters that identifies the unit, product component or production supply being used in the production or test phase, or 2. One of the following keywords: <p style="margin-left: 40px;">HDR</p> <p style="margin-left: 40px;">DETAIL</p> <p><u>Note:</u> Refer to the Options Tables beginning on page 19 for further explanation of the use of keywords in RGF.</p>
	DATA DESCRIPTION	20 CHAR	<p>A description of the contents of the Data Value field.</p> <p>This field may contain one of the following:</p> <ol style="list-style-type: none"> 1. A keyword associated with a specific PN_SN or Data Description keyword. <p><u>Note:</u> Refer to the Options Tables below for further explanation of the use of keywords in RGF.</p> 2. A description of the production or test data being collected.

RGF FIELDS DESCRIPTIONS, Continued

RGF Fields Descriptions Table, continued	Field Name	Length	Contents
	DATA VALUE	32 CHAR	<p>The Data Value can range from a temperature measurement to a Product AO Code.</p> <p>The data value contents further defines the contents of the Data Description and Part No./Serial No. fields.</p> <p>The data values are defined as parameters in the build RGF program or obtained via data entry in response to programed input prompts.</p>
	TMDATE	9 CHAR	<p>A nine character code that indicates the real time and date the RGF record was generated.</p> <p>The TMDATE format follows:</p> <p style="text-align: center;">>DD:HR:MM</p> <p>DD is the day of the month. HR is the hour of the day. MM is the minute of the hour.</p> <p><u>Note:</u> The TMDATE is automatically appended to the RGF record when the record is received at the port concentrator.</p>
	CSDATE	8 CHAR	<p>The date the Receive Data function is executed at the Cell Supervisor to transfer the RGF records from the port concentrator to the network storage volume. The CSDATE format follows:</p> <p style="text-align: center;">MM/DD/YY</p> <p>MM is the month. DD is the day of the month. YY is the year.</p>

RGF FIELD CONTENTS, Continued

RGF Fields
Descriptions
Table,
continued

Field Name	Length	Contents
CSDATE, cont.	8 CHAR	<u>Note:</u> The CSDATE is automatically appended to the RGF record when the record is received at the Cell Supervisor.
CSTIME	8 CHAR	The time the RGF data record is received at the Cell Supervisor after the Receive Data function is executed to transfer the RGF records from the port concentrator to the network storage volume. The CSTIME format follows: HH:MM:SS HH is the hour. MM is the minutes. SS is the seconds. <u>Note:</u> The CSTIME is automatically appended to the RGF record when the record is received at the Cell Supervisor.

Example RGF
Record

Below is an example of an actual RGF record, excluding the automatically generated fields:

	PN_SN		Data Value
	↓		↓
,1040,	SN 32133,	NET PBX WEIGHT,	0.73534,
↑	↑		
Operation	Data Description		

THE PN_SN FIELD CONTENTS

OVERVIEW

PN_SN Field Contents Options The PN_SN field may contain one of the following:

- the keyword HDR,
- the keyword DETAIL, or
- the part number or serial number which identifies the unit, product component, or production supply being used in the production or test phase.

The contents of the PN_SN field influence the data contents available for use in the Data Description and Data Value fields and the contents and format of the RGF data reports.

The keyword HDR The keyword HDR generally indicates that the Data Value in that record is included in report headings.

The keyword DETAIL The keyword DETAIL acts as place holder in the PN_SN field. When the contents of the PN_SN field is the keyword DETAIL, blank spaces print on the Electronic Traveler and Operations Data reports where the PN_SN field contents would have printed had there been a part number or serial number in the PN_SN field.

PN_SN Field Options Tables The PN_SN field content options and the related Data Description and Data Value field contents are defined in the Options Tables which follow.

Table Constraints Follow the Options Tables Constraints below:

The # Symbol A # symbol used in the syntax definition indicates that a numeric value is required.

KEYWORDS Any field contents which are shown in all capital letters are keywords. Keywords must be spelled exactly the same as shown or normal processing at the cell supervisor level may not occur.

Asterisk (*) An asterisk (*) as the first character of a Data Description prevents the RGF record from printing on the Electronic Traveler Report.

Note: Records which include an asterisk (*) as the first character of the Data Description are uploaded to the Operations.DBF file.

RGF Record Examples The RGF record examples are shown exclusive of the PORT, TMDATE, CSDATE and CSTIME fields.

THE PN_SN FIELD CONTENTS, Continued

PN_SN field The Data Description keywords, and Data Value
Containing the contents and syntax, used when the PN_SN field
Keyword HDR contains the keyword HDR, are defined in the HDR
Options Table below.

The HDR Data Description keywords are presented below in the sequence in which the related Data Value is normally prompted for input, by the program that builds the RGF records.

Comment: Each HDR Data Description keyword is a fieldname in the RGF database files, with the exception of the EXIT, DELETE and COMPLETE keywords.

HDR Options
Table

Op- tion	Data Description	Data Value
1.	PROD	The 6 character EG&G Product A0 Code. The Data Value for PROD defines the actual product being produced or tested. Syntax: A##### <u>Example:</u> ,1020,HDR,PROD,A06309, <u>Note:</u> The HDR,PROD record is the first line in each RGF data block.

THE PN_SN FIELD CONTENTS, Continued

HDR Options
Table,
continued

Op- tion	Data Description	Data Value
2.	LOT	<p>The 6 character EG&G Lot code.</p> <p>The Data Value for LOT defines the lot in which the finished product will be grouped.</p> <p>Syntax 1: L####</p> <p>Syntax 2: E####</p> <p>Example 1: L00075</p> <p>Example 2: E10334</p> <p><u>Example:</u> ,1020,HDR,LOT,L00001,</p>
3.	DRAWNO	<p>The 6 digit number that identifies the product drawing or blueprint.</p> <p><u>Note:</u> The DRAWNO is required only when requested by the product engineer in response to a requirement of the DOE design agency outside of EG&G.</p> <p>Syntax: XXXXXX</p> <p><u>Example:</u> ,1020,HDR,DRAWNO,123456,</p>
4.	DRAWIS	<p>The 2 or 3 digit issue or version number of the product drawing number.</p> <p><u>Note:</u> The DRAWIS is required only when a DRAWNO is required.</p> <p>Syntax 1: XX</p> <p>Syntax 2: XXX</p> <p><u>Example:</u> ,1020,HDR,DRAWIS,123,</p>

THE PN_SN FIELD CONTENTS, Continued

HDR Options
Table,
continued

Op- tion	Data Description	Data Value
5.	HP	A unique four digit code that identifies the employee operating the TM or AW where the RGF data is being collected. Syntax: ### <u>Example:</u> ,1020,HDR,HP,2422,

6.	GRPNAM	A keyword that describes the product storage device used for storing a group of production parts to be processed, or a production run, in which a group of production parts are processed. Syntax: The product storage device GRPNAMs are:
----	--------	---

REEL
TRAY
TUB

The production run
GRPNAMs are:

PCRN
PVD

Note: PCRN stands
for "Plasma Clean
Run #".

Note: PVD stands
for Physical Vapor
Deposition.

Example: ,1020,HDR,GRPNAM,TRAY,

Note: The HDR,GRPNAM RGF record is predefined in the Build RGF program, and is not the result of operator input.

THE PN_SN FIELD CONTENTS, Continued

HDR Options
Table,
continued

Op- tion	Data Description	Data Value												
7.	GRPVAL	<p>A numbering scheme that identifies the product storage device or production run.</p> <p>The GRPVAL Data Value syntax is dependent upon the GRPNAM Data Value contents.</p> <p>A list of the GRPVAL syntax for each GRPNAM follows:</p> <table><tr><th><u>GRPNAM</u></th><th><u>GRPVAL</u></th></tr><tr><td>REEL</td><td>R###-## Example: R290-08</td></tr><tr><td>TRAY</td><td>T### Example: T151</td></tr><tr><td>TUB</td><td>T### Example: T156</td></tr><tr><td>PCRN</td><td>C##### Example: C00097</td></tr><tr><td>PVD</td><td>##### Example: 12345</td></tr></table> <p><u>Example:</u> ,1020,HDR,GRPVAL,T179,</p>	<u>GRPNAM</u>	<u>GRPVAL</u>	REEL	R###-## Example: R290-08	TRAY	T### Example: T151	TUB	T### Example: T156	PCRN	C##### Example: C00097	PVD	##### Example: 12345
<u>GRPNAM</u>	<u>GRPVAL</u>													
REEL	R###-## Example: R290-08													
TRAY	T### Example: T151													
TUB	T### Example: T156													
PCRN	C##### Example: C00097													
PVD	##### Example: 12345													

THE PN_SN FIELD CONTENTS, Continued

HDR Options
Table,
continued

Op- tion	Data Description	Data Value
8.	DELETE	n
	<p>Issue the DELETE,n RGF record when the TM or AW operator types or scans "back" to delete their previous data input.</p> <p>The HDR,DELETE,n line marks n previous records for deletion. N dictates the number of previous records to delete as determined by the number of "back" statements received as a result of the operator typing or scanning "back".</p> <p><u>Note:</u> Used mainly when an invalid or incorrect RC code is entered.</p> <p>May be used to delete records that come after the initial HDR information.</p> <p><u>Comment:</u> Any initial HDR information should be deleted by issuing the EXIT,ALL record which is explained below.</p> <p><u>Example:</u> ,1020,HDR,DELETE,2,</p>	
9.	EXIT	ALL
	<p>Issue the EXIT,ALL RGF record when the TM or AW operator types EXIT or scans the "erase" bar code to abort the data collection operation.</p> <p><u>Example:</u> ,1020,HDR,EXIT,ALL,</p> <p><u>Note:</u> The EXIT,ALL record prevents the RGF records already collected during the operation, from being uploaded into the RGF database files, when the Upload function is executed.</p>	

THE PN_SN FIELD CONTENTS, Continued

HDR Options
Table,
continued

Op- tion	Data Description	Data Value
-------------	---------------------	------------

10.	COMM	An up to 32 character comment entered by the TM or AW operator.
-----	------	---

Syntax: The contents of the Data Value field for comments may contain spaces, but no commas.

Example: ,1020,HDR,COMM,DROPPED THE PARTS,

Notes: Any comment greater than 32 characters is truncated to 32 characters when it is uploaded to the RGF comment database file.

The TM or AW operator may enter as many 32 character comment lines per RGF block as necessary.

THE PN_SN FIELD CONTENTS, Continued

HDR Options
Table,
continued

Op- tion	Data Description	Data Value
-------------	---------------------	------------

11. COMPLETE 0 (zero)

Issue the COMPLETE,0 record when the TM or AW operator indicates that the production operation is complete by typing or scanning "done" at the TM or AW.

The COMPLETE,0 record is a required record and is the last record in each RGF data block.

Example: ,1020,HDR,COMPLETE,0,

Notes: Any RGF block that does not include the COMPLETE,0 RGF record as the last record in the data block, is interpreted as an incomplete RGF block by the Upload Data program.

The incomplete RGF block is printed on the Operation Upload Report as Fragmented Data and is not appended to the RGF Databases.

The incomplete block(s) are held in the DETAIL.DBF file until a COMPLETE,0 RGF record for the product and operation is received.

Refer to page 61 for a sample Operation Upload Report.

THE PN_SN FIELD CONTENTS, Continued

PN_SN field containing a PN or SN The Data Description and Data Value contents and syntax used when the PN_SN field contains a part number or serial number, are defined in the PN or SN Options Table below.

PN or SN Options Table	Op- Data tion Description	Data Value
	1. An up to 20 character description of the production, inspection, or test requirement.	An up to 32 character value related to the description. Can be a value, a QC#, or a second PN or SN that is associated with the first PN or SN in the record.
	<u>Notes:</u> The PN or SN Data Description should be consistent throughout the system for reporting, but is not enforced by the Cell Supervisor Upload function when the description refers to a specific PN or SN.	<u>Note:</u> A QC# identifies the component or supply used in the production or testing of the product. The QC# is a quality control number. Syntax: QC# #####-A1 <u>Note:</u> QC# is a literal. DO NOT substitute a digit for the single # after the QC.
	<u>Example 1:</u> ,1015,TL 23,LOADED WT (GRAMS), .2713, <u>Example 2:</u> ,1160,PN A0805,HOUSING,QC# 39407-A1, <u>Example 3:</u> ,1160,SN 12345,HEAD SN,SN 54321,	

THE PN_SN FIELD CONTENTS, Continued

PN or SN Options Table, continued	Op- Data tion Description	Data Value
	2. *ACCEPT	INITIAL
	Initialize the RGF operation database with the component being produced, inspected or tested.	The keyword INITIAL is the required data value in an RGF record where the Data Description contents is the keyword *ACCEPT.
	<u>Note:</u> The initialization data prints on the Operations Data Report but not the Electronic Traveler Report.	
	Therefore, the * is a required part of the keyword *ACCEPT.	
	<u>Example:</u> ,1020,TL 03,*ACCEPT,INITIAL,	
	3. REJECT	The Reject or Disposition code.
	Can indicate one of the following:	The reject code describes why the component was rejected.
	a. Upon inspection it was determined that the part was below standards.	Syntax: RC ####
	<u>Example:</u> ,1020,TL 28,REJECT,RC 0342,	
	b. It was decided to use the part in a test.	The disposition code describes how the part was disposed.
		Syntax: DC ####
	<u>Example:</u> ,1020,TL 29,REJECT,DC 0132,	

THE PN_SN FIELD CONTENTS, Continued

PN or SN
Options Table,
continued

Op- tion	Data Description	Data Value
-------------	---------------------	------------

4.	*VERIFY	REJECT or ACCEPT
----	---------	------------------

Some production procedures require that a verification of the status of the components, ACCEPT or REJECT, be performed before continuing to the next production phase.

The VERIFY requirement is determined and requested by the product Engineer.

The verification procedure is always performed at an AW. The component status previously collected and uploaded to the STAT.DBF RGF database file, for the product, must be downloaded to diskette then uploaded into the RAM memory at the AW PC for comparison during the verification procedure.

The steps in the verification procedure are listed below:

Step	Action
1.	The AW operator is prompted by the RGF data collection program to scan the PN or SN bar code and the Reject Code bar code, if any, on the component (or type or scan "done" when complete).
2.	The results of the scan are compared to the status recorded in the STAT.DBF file for the component.
3.	<div> <div>If the status ...</div> <div>then...</div> </div> <div> <div>matches</div> <div>repeat Step 1.</div> </div> <div> <div>does not match</div> <div> a. the RGF data collection program displays instructions such as, "reject the component with RC 1234". (The RC bar code may have come off the component, for example). b. repeat Step 1. </div> </div>

THE PN_SN FIELD CONTENTS, Continued

PN or SN
Options Table,
continued

Op- tion	Data Description	Data Value
-------------	---------------------	------------

4.	*VERIFY, continued	REJECT or ACCEPT
----	-----------------------	------------------

Notes: The results of the verification procedure print on the Check/Verify Report. A sample of the Check/Verify Report is included on page of this document.

The asterisk (*) is a required part of the keyword *VERIFY because the verification data should not print on the Electronic Traveler Report.

Example: ,1020,TL 03,*VERIFY,ACCEPT,

Example: ,1020,TL 28,*VERIFY,REJECT,

PN_SN FIELD CONTENTS, Continued

PN_SN Field Containing the Keyword DETAIL The keyword DETAIL acts as place holder in the PN_SN field. When the PN_SN field contains the keyword DETAIL, blank spaces print on the Electronic Traveler and Operations Data reports where the part number or serial number would have printed had there been a part number or serial number in the PN_SN field.

The Data Description and Data Value contents and syntax used when the PN_SN field contains the keyword DETAIL, are defined in the DETAIL Options Table below.

DETAIL Options Table

Op- tion	Data Description	Data Value
1.	Production or test detail description of up to 20 characters.	An up to 32 character value relating to the detail description.
<p><u>Example:</u> ,1020,DETAIL,*Tooling Factor,55,</p> <p><u>Note:</u> The method shown in the above example is useful when the product engineer requests that production detail information be gathered and stored, but not printed on the Electronic Traveler Report (just the Operations Data Report, as caused by the leading asterisk (*) in the Data Description field).</p>		
2.	OPERATION	PROCESSED
<p>Required as the second to last line in each RGF block, preceding the HDR,COMPLETE,0 record.</p> <p>This record indicates that the operation has been successfully processed.</p> <p><u>Example:</u> ,1020,DETAIL,OPERATION,PROCESSED,</p>		
3.	REJECT	RC ####
<p>Used when a part that is included in a bulk group of non serialized parts is rejected. It is useful for recording how many of the parts were rejected and why, even though the specific parts rejected cannot be tracked.</p> <p><u>Example:</u> ,1475,DETAIL,REJECT,RC 0800,</p>		

RGF DATABASE FILES

OVERVIEW

Introduction The Upload Data function executed from the Cell Supervisor appends RGF data to the RGF database files.

Note: The Upload Data function is described in detail on page 9 of this documentation.

The RGF database files are utilized to generate the RGF Data Reports. (Refer to the RGF Data Reports section on page 38 for a description of the RGF Data Reports.)

Data Flow The Cell Supervisor Flow diagram, Diagram 6 on page 33, shows all of the database files to which RGF data is appended by the Upload Data function.

The RGF Data Flow section on page 35 explains the data flow process.

File Structure The RGF database file structures are shown on page 34.

File Utilization Descriptions of the utilization of each file begin on page 36.

CELL SUPERVISOR DATA FLOW PROCEDURE PHASE 1.5

Diagram 6

RGF DATABASE FILE STRUCTURES

The structures of the main RGF database files accessed to print the RGF Data Reports are defined below.

Filename	Field Name	Type	Length
DETAIL.dbf	PORT	Character	4
	OPER	Character	4
	PN_SN	Character	20
	DATADESC	Character	20
	VALUE	Character	32
	TMDATE	Character	9
	CSDATE	Character	8
TRAV.dbf	TRAV	Character	6
	PROD	Character	6
	DRAWNO	Character	10
	DRAWIS	Character	6
	LOT	Character	6
	GRPNAM	Character	6
	GRPVAL	Character	9
OPER.dbf	PROD	Character	6
	LOT	Character	6
	GRPVAL	Character	7
	TRAV	Character	6
	OPER	Character	4
	HP	Character	4
	PN_SN	Character	20
	DATADESC	Character	20
	VALUE	Character	32
	CSDATE	Character	8
	TMDATE	Character	9
COMM.dbf	PROD	Character	6
	LOT	Character	6
	GRPVAL	Character	7
	TRAV	Character	6
	OPER	Character	4
	COMM	Character	32
	CSDATE	Character	8
	TMDATE	Character	8
STAT.dbf	PROD	Character	6
	LOT	Character	6
	GRPVAL	Character	7
	TRAV	Character	6
	LOPER	Character	4
	PN_SN	Character	20
	DISP	Character	6
	DISP_REASON	Character	32

RGF DATA FLOW

Data Flow

The RGF data flow process initiated by the Upload Data function is explained below. (Refer to the Cell Supervisor Flow diagram, diagram 6 on page for an illustration of the data flow).

Stage	Description						
1.	Data is read from FILEA.TXT in the Cell Supervisor home directory and copied to the Detail.DBF file in the product subdirectory on the network storage volume PROD1.						
2.	A Traveler ID is assigned to each RGF data block. <ul style="list-style-type: none">a. Each RGF data block is read from the Detail.DBF file.b. The PROD, LOT, and GRPVAL data values in each block are compared to the PROD, LOT and GRPVAL data values in the Traveler.DBF file.<table><tr><td>If...</td><td>Then...</td></tr><tr><td>a match is found</td><td>the matching traveler ID is assigned to the RGF block .</td></tr><tr><td>no match is found</td><td>1. the next sequential traveler ID is assigned to the RGF block. 2. the new traveler ID is added to the Traveler.DBF file.</td></tr></table>	If...	Then...	a match is found	the matching traveler ID is assigned to the RGF block .	no match is found	1. the next sequential traveler ID is assigned to the RGF block. 2. the new traveler ID is added to the Traveler.DBF file.
If...	Then...						
a match is found	the matching traveler ID is assigned to the RGF block .						
no match is found	1. the next sequential traveler ID is assigned to the RGF block. 2. the new traveler ID is added to the Traveler.DBF file.						
<p><u>Note:</u> The Traveler ID is used as the database key.</p>							
3.	The Traveler ID is appended to the RGF block.						
4.	The RGF records in each block are appended to the appropriate RGF database files according to the File Utilization description below.						

RGF DATABASE FILES UTILIZATION

File Utilization A description of the utilization of each of the RGF database files follows.

Filename	File Utilization
LOGFILE.txt	<p>Captures a log of the RGF records as they are received by the Cell Supervisor.</p> <p>Contains the same RGF record information that prints at the cell supervisor log printer during the Receive Data process.</p> <p>This is a historical file which is archived periodically.</p>
FILEA.txt	<p>Stores the RGF records as they are received at the cell supervisor from the port concentrator. (Refer to the explanation of the Receive Data and Upload Data functions on pages 7 through 11 for details.)</p>
EDTLOG.dbf	<p>Provides an audit trail of all of the RGF records modified by the System Manager.</p> <p>When any record in an RGF database file is modified, the original record is appended to the Edtlog.DBF.</p>
DETAIL.dbf	<p>The RGF records are stored in the Detail.DBF file before being appended to the other RGF database files.</p> <p>Any incomplete RGF data blocks (blocks missing the HDR,COMPLETE,0 record) are not appended to the other RGF database files.</p> <p>Incomplete data blocks remain in the Detail.DBF file until the HDR,COMPLETE record is received, or the Detail.DBF file is maintained by the System Manager.</p> <p>The Detail Report can be printed to list each record in the Detail.DBF file, sorted by Port.</p>

RGF DATABASE FILES UTILIZATION, Continued

Filename	File Utilization
TRAV.dbf	Stores the RGF block records that make up the Report Header information.
OPER.dbf	Stores the RGF block records that make up the information shown in the body of the Electronic Traveler and Operation Data reports.
COMM.dbf	Stores selected records from the RGF data blocks that contain the keyword COMM (comments) in the Data Description field. The contents of the Comm.DBF print on the Electronic Traveler Report.
STAT.dbf	Contains a snapshot of the status (ACCEPT or REJECT) of all of the serialized parts that have been initialized into the RGF database with the *ACCEPT,INITIAL record. The contents of the Stat.DBF file print on the Serial Number Acceptance Report (sometimes referred to as the Status Report).
PRODNAM.dbf	Stores the text descriptions of the EG&G Product AO codes. This database is updated as needed, by the Procode Database Administrator. The text descriptions of the Product AO codes print on the Report Headers.
OPERNAM.dbf	Stores the text descriptions of the EG&G Operation codes. This database is updated as needed, by the Procode Database Administrator. The text descriptions of the Operation codes print on the Report Headers.

RGF DATA REPORTS

Reports Produced using RGF Data Several reports are produced using RGF data. The RGF data reports are available for each product and are accessed via the Print Reports option on the Procode Data Systems Menu.

The RGF data reports are used by production workers and supervisors, Engineers, Technicians and Procode System Managers.

The main RGF Data Reports which are accessed via the PROCODE Data Systems menu are listed and described below:

- Traveler Report (or Electronic Traveler)
- Operation Data Report
- S/N Acceptance Report (or Status Report)
- Check/Verify Status Report

Traveler Report The Traveler Report includes all RGF data collected for a product, exclusive of the records which contain an asterisk (*) in the Data Description field, such as the *ACCEPT, INITIAL records.

Operation Data Report The Operation Data Report includes all RGF data collected for a product, exclusive of the operator comments.

S/N Acceptance Report The S/N Acceptance Report shows the status, (ACCEPT or REJECT) at the time of the report, of the serialized parts that were initialized into the database with an *ACCEPT, INITIAL record.

Check/Verify Status Report The Check/Verify Status Report shows the results of the verification procedure performed to verify the status of the serialized parts. (Refer to page 29 for an explanation of the verification procedure.)

Database Maintenance Reports Two additional reports, the Detail Report and the Upload Data Report are printed by the System Manager to aid in maintaining the integrity of the RGF database files. These reports are accessed via commands issued at the operating system prompt.

Sample Reports Samples of each of the reports listed above are included with this documentation on pages through .

RGF DATA COLLECTION PLANNING PROCESS

Data Collection Planning Guidelines

Follow the guidelines below to determine the data collection requirements for the production or testing process being automated for data collection.

Stage	Description
1.	Observe production processes. <ul style="list-style-type: none">a. Observe a production process that has been previously automated for RGF data collection.b. Next, observe the production process to be automated for data collection.
2.	Obtain a copy of the Technical Manual for the production process to be automated for data collection. <ul style="list-style-type: none">a. Contact the Product Engineer in charge of the product to get the Technical Manual number.b. Call the Technical Manuals and Publications department to request a copy of the manual.
3.	Review the technical manual to obtain information on the product production process and valid Product AO codes and product component QC#'s.
4.	Meet with key production personnel. <ul style="list-style-type: none">a. Technicians, product engineers and production managers can answer any questions related to the Technical Manual and data collection requirements.
5.	Meet with other programmer analysts writing code for data collection for the same production process. <ul style="list-style-type: none">a. Plan the production beginning and ending points for each data collection program.b. Verify that all data collection requirements are met by the combined data collection programs, in the proper sequence.

RGF DATA COLLECTION PLANNING PROCESS, Continued

Stage	Description
6.	Document the data collection requirement specifications for review by the key production personnel and the Procode Database Administrator. <u>Note:</u> An example of a data specifications document is provided in Exhibit 4, Sample Data Specifications for the Electrical Measurement Station, beginning on page 65.
7.	Once the data specifications are approved, programming for RGF data collection may begin.

PROGRAMMING FOR RGF DATA COLLECTION

OVERVIEW

Building RGF Records	<p>The software programs that build the RGF records at the TMs are written in the IRL programming language. The programs that build RGF records at the AWs are written in either the C, Clipper or BASIC programming languages. The programs are loaded locally on the TM or AW where they will run.</p> <p>The production procedures performed at each TM or AW are unique to the product being produced or tested there. Therefore, the programs that build RGF records are unique to the product and the production phase or test being performed at each TM or AW location.</p>
RGF Data Entry	<p>RGF data entry is accomplished by production personnel typing entries or scanning bar codes with bar code wands.</p> <p>Data is also obtained from automated testing equipment.</p> <p>Either way, the data entry is in response to data input prompts issued by the program being executed at the TM or AW.</p>
RGF Record Description	<p>An RGF record consists of eight fields.</p> <p>Four of the fields are automatically generated when the RGF record is transferred from the TM to the network storage volume.</p> <p>The other four fields are programmed for inclusion in the RGF record by the programs that build RGF records.</p>
RGF Block Description	<p>A variable number of RGF records make up an RGF block.</p> <p>The block begins with the RGF record that specifies the EG&G Product AO code being produced or tested, and ends with the RGF record that contains the keyword COMPLETE in the Data Description field.</p>
Programming Standards	<p>Certain programming standards must be followed to ensure that accurate, complete RGF production data is collected and processed.</p> <p>The programming standards and guidelines for fulfilling the standards are described in this section.</p>
Suggested Exhibits to Review	<p>A review of Exhibits 5 and 6 beginning on page 65 may provide you with some programming ideas and a better understanding of programming for RGF data collection.</p>

PROGRAMMING FOR RGF DATA COLLECTION, Continued

Programming Standards, continued

A sample IRL program written for RGF data collection is included as Exhibit 5, which begins on page 70.

The programming standards described here are utilized in the sample IRL program.

You may want to review the specific programming methods of error trapping used in the sample IRL program.

List of Error Trapping Techniques

Verification of valid data entry using the error trapping techniques listed below is an important part of programming for RGF Data Collection.

-
- Compare the data entry received in response to the current prompt with the previous data entries received for the current RGF data block.
 - The product (PROD) data value must be valid based on the operation code entered,
 - the data value for the LOT must be valid based on the product (PROD) entered,
 - the data value for the group name (GRPNAM) must be valid based on the data value received for the product (PROD), and
 - the data value for the group value (GRPVAL) must be valid based on the group name (GRPNAM).

Note: The GRPNAM is always programmed into the RGF Data Collection program and does not require operator input.

The GRPVAL entered by the TM or AW operator is compared for validity to the GRPNAM programmed into the RGF Data Collection Program.

PROGRAMMING FOR RGF DATA COLLECTION, Continued

List of Error Trapping Techniques, continued

- Check the syntax of each data value entry based on the contents of the Data Description field.

Note: A # symbol used in the syntax column indicates that a numeric value is required.

<u>Data Description</u>	<u>Data Value Syntax</u>
PROD	A#####
LOT	L#####
DRAWNO	#####
DRAWIS	###
HP	####
GRPNAM	REEL TRAY TUB PCRN PVD
GRPVAL	R###-## (for GRPNAM REEL) T### (for GRPNAM TRAY) T### (for GRPNAM TUB) C##### (for GRPNAM PCRN) ##### (for GRPNAM PVD)
Description of a component or production supply	A QC# may be used in the data value field when the PN_SN field contains a part number or serial number and the data description field contains a description of a component or a production supply.

Syntax: QC# #####-A1

Note: QC# is a literal. DO NOT replace the single # following the QC with a digit.

PROGRAMMING FOR RGF DATA COLLECTION, Continued

List of Error Trapping Techniques, continued

-
- Check for the reasonableness of the number of rejects entered in response to the "Any Rejects?" prompt.

Note: The number of rejects will normally be less than 1000 except in Tape processing.

- Check the comment (COMM) entries to verify that
 - the comment is less than 33 characters, and
 - does not include embedded commas

Note: If commas are embedded, replace them with blank spaces.

- Check for a COMPLETE record.
- Provide for a DELETE record option after the operator has completed entering the report header information, and especially when REJECT codes are being input.
- Provide for an EXIT,ALL option at any time during data entry.

Note: Issue a prompt asking the operator for verification of the EXIT,ALL function before executing it.

- Verify that the Data Descriptions used in the RGF Data Collection program do not exceed 20 characters.
 - Check that the spelling of the keywords used in the RGF Data Collection program is correct.
-

EXHIBIT 1

<u>Description</u>	<u>Page(s)</u>
Sample A RGF Data Blocks	46
Sample A Electronic Traveler Report	47, 48

PA,1251,HDR,PROD,A04236,>07:10:43,02/07/90,10:44:25
 PA,1251,HDR,LOT,L99999,>07:10:43,02/07/90,10:44:26
 PA,1251,HDR,HP,2635,>07:10:43,02/07/90,10:44:27
 PA,1251,HDR,GRPVAL,C99999,>07:10:44,02/07/90,10:44:29
 PA,1251,HDR,GRPNAM,PCRN,>07:10:44,02/07/90,10:44:29
 PA,1251,SN 12541,*UNIT,PROCESSED,>07:10:44,02/07/90,10:44:40
 PA,1251,SN 12542,*UNIT,PROCESSED,>07:10:44,02/07/90,10:44:53
 PA,1251,SN 12543,*UNIT,PROCESSED,>07:10:44,02/07/90,10:45:02
 PA,1251,SN 12544,*UNIT,PROCESSED,>07:10:44,02/07/90,10:45:08
 PA,1251,SN 12545,*UNIT,PROCESSED,>07:10:44,02/07/90,10:45:12
 PA,1251,SN 12544,REJECT CODE,RC 0258,>07:10:45,02/07/90,10:45:28
 PA,1251,DETAIL,OPERATION,PROCESSED,>07:10:45,02/07/90,10:45:39
 PA,1251,HDR,COMPLETE,0,>07:10:45,02/07/90,10:45:39
 PA,1295,HDR,PROD,A04236,>07:10:45,02/07/90,10:46:04
 PA,1295,HDR,LOT,L99999,>07:10:45,02/07/90,10:46:04
 PA,1295,HDR,HP,2635,>07:10:45,02/07/90,10:46:05
 PA,1295,HDR,GRPVAL,C99999,>07:10:45,02/07/90,10:46:07
 PA,1295,HDR,GRPNAM,PCRN,>07:10:45,02/07/90,10:46:08
 PA,1295,PN A04380,KAPTON,QC# 22222-A1,>07:10:46,02/07/90,10:46:29
 PA,1295,SN 12545,REJECT CODE,RC 0236,>07:10:46,02/07/90,10:46:39
 PA,1295,HDR,COMM,THIS IS A TEST,>07:10:46,02/07/90,10:46:54
 PA,1295,DETAIL,OPERATION,PROCESSED,>07:10:46,02/07/90,10:46:58
 PA,1295,HDR,COMPLETE,0,>07:10:46,02/07/90,10:46:59
 PA,1400,HDR,PROD,A04236,>07:10:46,02/07/90,10:47:22
 PA,1400,HDR,LOT,L99999,>07:10:46,02/07/90,10:47:23
 PA,1400,HDR,HP,2635,>07:10:46,02/07/90,10:47:23
 PA,1400,HDR,GRPVAL,C99999,>07:10:47,02/07/90,10:47:29
 PA,1400,HDR,GRPNAM,PCRN,>07:10:47,02/07/90,10:47:30
 PA,1400,SN 12365,*UNIT,PROCESSED,>07:10:47,02/07/90,10:47:48
 PA,1400,SN 12365,*UNIT,PROCESSED,>07:10:47,02/07/90,10:47:52
 PA,1400,SN 14526,*UNIT,PROCESSED,>07:10:47,02/07/90,10:47:55
 PA,1400,DETAIL,OPERATION,PROCESSED,>07:10:47,02/07/90,10:48:08
 PA,1400,HDR,COMPLETE,0,>07:10:47,02/07/90,10:48:08
 PA,1401,HDR,PROD,A04236,>07:10:48,02/07/90,10:48:29
 PA,1401,HDR,LOT,L99999,>07:10:48,02/07/90,10:48:30
 PA,1401,HDR,HP,2635,>07:10:48,02/07/90,10:48:31
 PA,1401,HDR,GRPVAL,C99999,>07:10:48,02/07/90,10:48:35
 PA,1401,HDR,GRPNAM,PCRN,>07:10:48,02/07/90,10:48:36
 PA,1401,SN 14526,*UNIT,PROCESSED,>07:10:48,02/07/90,10:48:43
 PA,1401,SN 12547,*UNIT,PROCESSED,>07:10:48,02/07/90,10:48:46
 PA,1401,SN 12587,*UNIT,PROCESSED,>07:10:48,02/07/90,10:48:49
 PA,1401,DETAIL,OPERATION,PROCESSED,>07:10:48,02/07/90,10:49:01
 PA,1401,HDR,COMPLETE,0,>07:10:48,02/07/90,10:49:02
 PA,1345,HDR,PROD,A04236,>07:10:48,02/07/90,10:49:22
 PA,1345,HDR,LOT,L99999,>07:10:48,02/07/90,10:49:23
 PA,1345,HDR,HP,2635,>07:10:48,02/07/90,10:49:23
 PA,1345,HDR,GRPVAL,C99999,>07:10:48,02/07/90,10:49:26
 PA,1345,HDR,GRPNAM,PCRN,>07:10:48,02/07/90,10:49:27
 PA,1345,SN 14526,REJECT CODE,RC 0258,>07:10:49,02/07/90,10:49:37
 PA,1345,SN 14587,REJECT CODE,RC 0145,>07:10:49,02/07/90,10:49:44
 PA,1345,DETAIL,OPERATION,PROCESSED,>07:10:49,02/07/90,10:49:53
 PA,1345,HDR,COMPLETE,0,>07:10:49,02/07/90,10:49:54
 PA,1200,HDR,PROD,A04236,>07:10:49,02/07/90,10:50:15
 PA,1200,HDR,LOT,L99999,>07:10:49,02/07/90,10:50:15
 PA,1200,HDR,HP,2635,>07:10:49,02/07/90,10:50:16
 PA,1200,HDR,GRPVAL,C99999,>07:10:49,02/07/90,10:50:18
 PA,1200,HDR,GRPNAM,PCRN,>07:10:49,02/07/90,10:50:19
 PA,1200,DETAIL,OPERATION,PROCESSED,>07:10:50,02/07/90,10:50:27
 PA,1200,HDR,COMPLETE,0,>07:10:50,02/07/90,10:50:28
 PA,1250,HDR,PROD,A04236,>07:10:50,02/07/90,10:50:47
 PA,1250,HDR,LOT,L99999,>07:10:50,02/07/90,10:50:48
 PA,1250,HDR,HP,2635,>07:10:50,02/07/90,10:50:49
 PA,1250,HDR,GRPVAL,C99999,>07:10:50,02/07/90,10:50:51
 PA,1250,HDR,GRPNAM,PCRN,>07:10:50,02/07/90,10:50:51
 PA,1250,SN 23698,REJECT CODE,RC 0256,>07:10:50,02/07/90,10:50:59
 PA,1250,DETAIL,OPERATION,PROCESSED,>07:10:50,02/07/90,10:51:06
 PA,1250,HDR,COMPLETE,0,>07:10:50,02/07/90,10:51:07

***** UNCLASSIFIED *****

PROCEDURE Electronic Traveler

PRODUCT : LONG CABLE
 PRODUCT AO : A04236
 DRAWING NO. :
 PCRN : C99999

LOT : L99999
 SUFFIX:

FRIDAY, FEBRUARY 9, 1990 3:26 PM
 PAGE NO: 1 TRAVELER ID: 38
 SYSTEM: SYSTEM UTILITY
 DSA# TEST VERSION DEVELOPMENT VERSION

OPERATION: 1200 LASER WELD CABLE

PN/SN	Data Description	Value	HP	Date	Time
	OPERATION	PROCESSED	2635	02/07/90	10:50

OPERATION: 1250 CLEAN & INSPECT WELD

PN/SN	Data Description	Value	HP	Date	Time
	OPERATION	PROCESSED	2635	02/07/90	10:50
SN 23698	REJECT CODE	RC 0256	2635	02/07/90	10:50

OPERATION: 1251 QC INSPECT WELD

PN/SN	Data Description	Value	HP	Date	Time
	OPERATION	PROCESSED	2635	02/07/90	10:45
SN 12544	REJECT CODE	RC 0258	2635	02/07/90	10:45

OPERATION: 1295 APPLY KAPTON

PN/SN	Data Description	Value	HP	Date	Time
	OPERATION	PROCESSED	2635	02/07/90	10:46
PN A04380	KAPTON	QC# 22222-A1	2635	02/07/90	10:46
SN 12545	REJECT CODE	RC 0236	2635	02/07/90	10:46

COMMENTS: THIS IS A TEST

OPERATION: 1345 VISUAL CURED KAPTON COVER

PN/SN	Data Description	Value	HP	Date	Time
	OPERATION	PROCESSED	2635	02/07/90	10:49
SN 14526	REJECT CODE	RC 0258	2635	02/07/90	10:49
SN 14587	REJECT CODE	RC 0145	2635	02/07/90	10:49

***** UNCLASSIFIED *****

***** UNCLASSIFIED *****

PROCEDURE Electronic Traveler

PRODUCT : LONG CABLE
PRODUCT AO : A04236
DRAWING NO. :
PCRN : C99999

LOT : L99999
SUFFIX:

FRIDAY, FEBRUARY 9, 1990 3:26 PM
PAGE NO: 2 TRAVELER ID: 38
SYSTEM: SYSTEM UTILITY
DSA# TEST VERSION DEVELOPMENT VERSION

OPERATION: 1400 MARK SUFFIX ON CABLE
=====

PH/SN	Data Description	Value	HP	Date	Time
	OPERATION	PROCESSED	2635	02/07/90	10:47

OPERATION: 1401 QC INSPECT MARKING
=====

PH/SN	Data Description	Value	HP	Date	Time
	OPERATION	PROCESSED	2635	02/07/90	10:48

***** UNCLASSIFIED *****

EXHIBIT 2

<u>Description</u>	<u>Page(s)</u>
Sample B RGF Data Blocks	50
Sample B Electronic Traveler Report	51
Sample B Operations Data Report	52

***** COMMUNICATION MODE ENTERED 04/30/90,10:03:14 *****

NA,1160,HDR,PROD,A04235,,04/30/90,10:03:15
>01:00:00,04/30/90,10:03:15
NA,1160,HDR,LOT,L88888,,04/30/90,10:03:16
NA,1160,HDR,HP,2635,,04/30/90,10:03:16
NA,1160,HDR,GRPVAL,C88888,>30:09:51,04/30/90,10:03:17
NA,1160,HDR,GRPNAM,PCRN,>30:09:51,04/30/90,10:03:17
NA,1160,PN A04381,ADHESIVE,QC# 12365-A1,>30:09:51,04/30/90,10:03:18
NA,1160,DETAIL,PVD RUN#,88888,>30:09:51,04/30/90,10:03:18
NA,1160,SN 77777,*ACCEPT,INITIAL,,>30:09:51,04/30/90,10:03:19
NA,1160,SN 77777,HEADER SN,SN 02589,>30:09:51,04/30/90,10:03:19
NA,1160,SN 77777,*PVD RUN#,88888,>30:09:51,04/30/90,10:03:20
NA,1160,SN 88888,*ACCEPT,INITIAL,,>30:09:51,04/30/90,10:03:20
NA,1160,SN 88888,HEADER SN,SN 02586,>30:09:51,04/30/90,10:03:21
NA,1160,SN 88888,*PVD RUN#,88888,>30:09:51,04/30/90,10:03:21
NA,1160,SN 99999,*ACCEPT,INITIAL,,>30:09:52,04/30/90,10:03:22
NA,1160,SN 99999,HEADER SN,SN 01254,>30:09:52,04/30/90,10:03:22
NA,1160,SN 99999,*PVD RUN#,88888,>30:09:52,04/30/90,10:03:23
NA,1160,DETAIL,OPERATION,PROCESSED,>30:09:52,04/30/90,10:03:23
NA,1160,HDR,COMPLETE,0,>30:09:52,04/30/90,10:03:24
NA,1862,HDR,PROD,A04242,>30:09:52,04/30/90,10:03:24
NA,1862,HDR,LOT,L88888,>30:09:52,04/30/90,10:03:25
NA,1862,HDR,HP,2635,>30:09:52,04/30/90,10:03:25
NA,1862,HDR,GRPVAL,88888,>30:09:52,04/30/90,10:03:26
NA,1862,HDR,GRPNAM,PVD,>30:09:52,04/30/90,10:03:26
NA,1862,SN 01236,REJECT CODE,RC 0012,>30:09:53,04/30/90,10:03:27
NA,1862,DETAIL,OPERATION,PROCESSED,>30:09:53,04/30/90,10:03:27
NA,1862,HDR,COMPLETE,0,>30:09:53,04/30/90,10:03:28
NA,1476,HDR,PROD,A04242,>30:09:57,04/30/90,10:03:28
NA,1476,HDR,LOT,L88883,>30:09:57,04/30/90,10:03:29
NA,1476,HDR,HP,2635,>30:09:57,04/30/90,10:03:29
NA,1476,HDR,GRPVAL,88888,>30:09:57,04/30/90,10:03:30
NA,1476,HDR,GRPNAM,PVD,>30:09:57,04/30/90,10:03:30
NA,1476,DETAIL,AMOUNT Fe (ppm),12,>30:09:57,04/30/90,10:03:31
NA,1476,DETAIL,AMOUNT Ni (ppm),05,>30:09:57,04/30/90,10:03:31
NA,1476,DETAIL,AMOUNT Cr (ppm),03,>30:09:57,04/30/90,10:03:32
NA,1476,DETAIL,AMOUNT Cl (ppm),04,>30:09:57,04/30/90,10:03:32
NA,1476,DETAIL,AMOUNT Cu (ppm),23,>30:09:57,04/30/90,10:03:33
NA,1476,DETAIL,AMOUNT C (ppm),21,>30:09:57,04/30/90,10:03:33
NA,1476,DETAIL,AMOUNT Al (%),89,>30:09:58,04/30/90,10:03:34
NA,1476,DETAIL,AMOUNT OTHERS (ppm),30,>30:09:58,04/30/90,10:03:34
NA,1476,DETAIL,SAMPLE ID,012345,>30:09:58,04/30/90,10:03:35
NA,1476,DETAIL,PVD RUN DISPOSITION,PASS,>30:09:58,04/30/90,10:03:35
NA,1476,DETAIL,OPERATION,PROCESSED,>30:09:59,04/30/90,10:03:36
NA,1476,HDR,COMPLETE,0,>30:09:59,04/30/90,10:03:36

***** UNCLASSIFIED *****

PROCEDURE Electronic Traveler

PRODUCT : SHORT CABLE
PRODUCT AO : A04235
DRAWING NO. :
PCRN : C88888

LOT : L88888
SUFFIX:

MONDAY, APRIL 30, 1990 10:30 AM
PAGE NO: 1 TRAVELER ID: 87
SYSTEM: SYSTEM UTILITY
DSA# TEST VERSION DEVELOPMENT VERSION

OPERATION: 1160 SWAGE PIN & INSPECT

PN/SN	Data Description	Value	HP	Date	Time
	PVD RUN#	88888	2635	04/30/90	09:51
	OPERATION	PROCESSED	2635	04/30/90	09:52
PN A04381	ADHESIVE	QC# 12365-A1	2635	04/30/90	09:51
SN 77777	HEADER SN	SN 02589	2635	04/30/90	09:51
SN 88888	HEADER SN	SN 02586	2635	04/30/90	09:51
SN 99999	HEADER SN	SN 01254	2635	04/30/90	09:52

ACCEPTABLE UNITS: 3 REJECTED UNITS: 0

***** UNCLASSIFIED *****

***** UNCLASSIFIED *****

Operation Data

PRODUCT : SHORT CABLE
PRODUCT AO : A04235
DRAWING NO. :
PCRN : C88888

LOT : L88888
SUFFIX:

MONDAY, APRIL 30, 1990 10:29 AM
PAGE NO: 1 TRAVELER ID: 87
SYSTEM: SYSTEM UTILITY
DSA# TEST VERSION DEVELOPMENT VERSION

OPERATION: 1160 SWAGE PIN & INSPECT

=====

PN/SN	Data Description	Value	HP	Date	Time
	PVD RUN#	88888	2635	04/30/90	09:51
	OPERATION	PROCESSED	2635	04/30/90	09:52
PN A04381	ADHESIVE	QC# 12365-A1	2635	04/30/90	09:51
SN 77777	*ACCEPT	INITIAL	2635	04/30/90	09:51
SN 77777	HEADER SN	SN 02589	2635	04/30/90	09:51
SN 77777	*PVD RUN#	88888	2635	04/30/90	09:51
SN 88888	*ACCEPT	INITIAL	2635	04/30/90	09:51
SN 88888	HEADER SN	SN 02586	2635	04/30/90	09:51
SN 88888	*PVD RUN#	88888	2635	04/30/90	09:51
SN 99999	*ACCEPT	INITIAL	2635	04/30/90	09:52
SN 99999	HEADER SN	SN 01254	2635	04/30/90	09:52
SN 99999	*PVD RUN#	88888	2635	04/30/90	09:52

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EXHIBIT 3
Sample Reports

<u>Description</u>	<u>Page(s)</u>
S/N Acceptance Report	54 - 58
Status Verification Report	59,60
Operation Upload Report	61
Detail Report	62,63

***** UNCLASSIFIED *****

Serial Number Acceptance Report

PRODUCT : MC3926 BRIDGE
 PRODUCT AO : A05764
 DRAWING NO. :
 REEL : R377-02

LOT : E10235
 SUFFIX:

TUESDAY, JUNE 5, 1990 3:09 PM
 PAGE NO: 1 TRAVELER ID: 1227
 SYSTEM: PROCODE SYSTEM
 DSA# 871860-G Version 5.0

SERIAL NUMBER	LAST OPERATION	STATUS	STATUS REASON
-----	-----	-----	-----
SN 157789	1180	ACCEPT	
SN 157790	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157791	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157792	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157793	1180	ACCEPT	
SN 157794	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157795	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157797	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157798	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157799	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157800	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157801	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157802	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157803	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157804	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157805	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157806	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157807	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157808	1180	ACCEPT	
SN 157809	1180	ACCEPT	
SN 157810	1180	ACCEPT	
SN 157811	1180	ACCEPT	
SN 157812	1180	ACCEPT	
SN 157813	1180	ACCEPT	
SN 157814	1180	ACCEPT	
SN 157815	1180	ACCEPT	
SN 157816	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157817	1180	ACCEPT	
SN 157818	1180	ACCEPT	
SN 157819	1180	ACCEPT	
SN 157820	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157821	1180	ACCEPT	
SN 157822	1180	ACCEPT	
SN 157823	1180	ACCEPT	
SN 157824	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157825	1180	ACCEPT	
SN 157826	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157827	1180	ACCEPT	
SN 157828	1180	ACCEPT	
SN 157829	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157830	1180	ACCEPT	
SN 157831	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157832	1180	ACCEPT	
SN 157833	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157834	1180	ACCEPT	
SN 157835	1115	REJECT	RC 600 COMPONENT/PART THICKNESS

***** UNCLASSIFIED *****

Serial Number Acceptance Report

PRODUCT : MC3926 BRIDGE
 PRODUCT AO : A05764
 DRAWING NO. :
 REEL : R377-02

LOT : E10235
 SUFFIX:

TUESDAY, JUNE 5, 1990 3:09 PM
 PAGE NO: 2 TRAVELER ID: 1227
 SYSTEM: PROCODE SYSTEM
 DSA# 871860-G Version 5.0

SERIAL NUMBER	LAST OPERATION	STATUS	STATUS REASON
SN 157836	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157837	1180	ACCEPT	
SN 157838	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157839	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157840	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157841	1180	ACCEPT	
SN 157842	1180	ACCEPT	
SN 157843	1180	ACCEPT	
SN 157844	1160	REJECT	RC 433 SCRATCHES ON BRIDGE
SN 157845	1180	ACCEPT	
SN 157846	1180	ACCEPT	
SN 157847	1180	ACCEPT	
SN 157848	1180	ACCEPT	
SN 157849	1180	ACCEPT	
SN 157850	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157851	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157852	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157853	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157854	1180	ACCEPT	
SN 157855	1180	ACCEPT	
SN 157856	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157857	1180	ACCEPT	
SN 157858	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157859	1180	ACCEPT	
SN 157860	1180	ACCEPT	
SN 157861	1160	REJECT	RC 433 SCRATCHES ON BRIDGE
SN 157862	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157863	1180	ACCEPT	
SN 157864	1180	ACCEPT	
SN 157865	1180	ACCEPT	
SN 157866	1180	ACCEPT	
SN 157867	1180	ACCEPT	
SN 157868	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157869	1180	ACCEPT	
SN 157870	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157871	1180	ACCEPT	
SN 157872	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157873	1180	ACCEPT	
SN 157874	1180	ACCEPT	
SN 157875	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157876	1180	ACCEPT	
SN 157877	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157878	1180	ACCEPT	
SN 157879	1180	ACCEPT	
SN 157880	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157881	1180	ACCEPT	

Serial Number Acceptance Report

PRODUCT : MC3926 BRIDGE
 PRODUCT AO : A05764
 DRAWING NO. :
 REEL : R377-02

LOT : E10235
 SUFFIX:

TUESDAY, JUNE 5, 1990 3:09 PM
 PAGE NO: 3 TRAVELER ID: 1227
 SYSTEM: PROCODE SYSTEM
 DSA# 871860-G Version 5.0

SERIAL NUMBER	LAST OPERATION	STATUS	STATUS REASON
SN 157882	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157883	1180	ACCEPT	
SN 157884	1180	ACCEPT	
SN 157885	1180	ACCEPT	
SN 157886	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157887	1180	ACCEPT	
SN 157888	1180	ACCEPT	
SN 157889	1180	ACCEPT	
SN 157890	1180	ACCEPT	
SN 157891	1180	ACCEPT	
SN 157892	1180	ACCEPT	
SN 157893	1180	ACCEPT	
SN 157894	1115	REJECT	RC 916 MARKING NOT LEGIBLE/UNIQUE
SN 157895	1180	ACCEPT	
SN 157896	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157897	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157897	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157897	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157897	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157897	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157898	1180	ACCEPT	
SN 157899	1180	ACCEPT	
SN 157900	1180	ACCEPT	
SN 157901	1180	ACCEPT	
SN 157902	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157903	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157904	1180	ACCEPT	
SN 157905	1180	ACCEPT	
SN 157906	1180	ACCEPT	
SN 157907	1180	ACCEPT	
SN 157908	1180	ACCEPT	
SN 157909	1180	ACCEPT	
SN 157910	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157911	1180	ACCEPT	
SN 157912	1180	ACCEPT	
SN 157913	1180	ACCEPT	
SN 157914	1180	ACCEPT	
SN 157915	1180	ACCEPT	
SN 157916	1180	ACCEPT	
SN 157917	1180	ACCEPT	
SN 157918	1180	ACCEPT	
SN 157919	1180	ACCEPT	
SN 157920	1180	ACCEPT	
SN 157921	1180	ACCEPT	
SN 157922	1180	ACCEPT	
SN 157923	1115	REJECT	RC 600 COMPONENT/PART THICKNESS

Serial Number Acceptance Report

PRODUCT : MC3926 BRIDGE
 PRODUCT AO : A05764
 DRAWING NO. :
 REEL : R377-02

LOT : E10235
 SUFFIX:

TUESDAY, JUNE 5, 1990 3:09 PM
 PAGE NO: 4 TRAVELER ID: 1227
 SYSTEM: PROCODE SYSTEM
 DSA# 871860-G Version 5.0

SERIAL NUMBER	LAST OPERATION	STATUS	STATUS REASON
SN 157924	1180	ACCEPT	
SN 157925	1180	ACCEPT	
SN 157926	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157927	1180	ACCEPT	
SN 157928	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157929	1180	ACCEPT	
SN 157930	1180	ACCEPT	RC 600
SN 157931	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157932	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157933	1180	ACCEPT	
SN 157934	1180	ACCEPT	
SN 157935	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157936	1180	ACCEPT	
SN 157937	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157938	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157939	1180	ACCEPT	
SN 157940	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157941	1180	ACCEPT	
SN 157942	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157943	1180	ACCEPT	
SN 157944	1180	ACCEPT	
SN 157945	1160	REJECT	RC 433 SCRATCHES ON BRIDGE
SN 157946	1120	REJECT	RC 428 BRIDGE WIDTH-TOLERANCE
SN 157947	1180	ACCEPT	
SN 157948	1180	ACCEPT	
SN 157949	1180	ACCEPT	
SN 157950	1180	ACCEPT	
SN 157951	1160	REJECT	RC 433 SCRATCHES ON BRIDGE
SN 157952	1160	REJECT	RC 433 SCRATCHES ON BRIDGE
SN 157953	1160	REJECT	RC 433 SCRATCHES ON BRIDGE
SN 157954	1180	ACCEPT	
SN 157955	1180	ACCEPT	
SN 157956	1180	ACCEPT	
SN 157957	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157958	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157959	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157960	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157961	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157962	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157963	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157965	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157966	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157967	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157968	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157969	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157970	1180	ACCEPT	

Serial Number Acceptance Report

PRODUCT : MC3926 BRIDGE
 PRODUCT AO : A05764
 DRAWING NO. :
 REEL : R377-02

LOT : E10235
 SUFFIX:

TUESDAY, JUNE 5, 1990 3:09 PM
 PAGE NO: 5 TRAVELER ID: 1227
 SYSTEM: PROCODE SYSTEM
 DSA# 871860-G Version 5.0

SERIAL NUMBER	LAST OPERATION	STATUS	STATUS REASON
SN 157971	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157972	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157973	1180	ACCEPT	
SN 157974	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157975	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157976	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157977	1180	ACCEPT	
SN 157978	1180	ACCEPT	
SN 157979	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157980	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157981	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157982	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157983	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157984	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157985	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157986	1160	REJECT	RC 234 SCRATCHES/DAMAGE COMPONENT
SN 157987	1115	REJECT	RC 600 COMPONENT/PART THICKNESS
SN 157988	1115	REJECT	RC 600 COMPONENT/PART THICKNESS

Serial Number Summary:

Good	:	105	51.98 %
Rejected	:	97	48.02 %
Dispositioned	:	0	0.00 %

Total		202	

Status Verification Report

PRODUCT : MC3926 BRIDGE
 PRODUCT AO : A05764
 DRAWING NO. :
 REEL : R377-02

LOT : E10235
 SUFFIX:

TUESDAY, JUNE 5, 1990 3:24 PM
 PAGE NO: 2 TRAVELER ID: 1227
 SYSTEM: PROCODE SYSTEM
 DSA# 871860-G Version 5.0

Serial Number -----	Status File -----	Verification File -----
SN 157835	REJECT	REJECT
SN 157836	REJECT	REJECT
SN 157837	ACCEPT	ACCEPT
SN 157838	REJECT	REJECT
SN 157839	REJECT	REJECT
SN 157840	REJECT	REJECT
SN 157841	ACCEPT	ACCEPT
SN 157842	ACCEPT	ACCEPT
SN 157843	ACCEPT	ACCEPT
SN 157844	REJECT	ACCEPT
SN 157845	ACCEPT	ACCEPT
SN 157846	ACCEPT	ACCEPT
SN 157847	ACCEPT	ACCEPT
SN 157848	ACCEPT	ACCEPT
SN 157849	ACCEPT	ACCEPT
SN 157850	REJECT	REJECT
SN 157851	REJECT	REJECT
SN 157852	REJECT	REJECT
SN 157853	REJECT	REJECT
SN 157854	ACCEPT	ACCEPT
SN 157855	ACCEPT	ACCEPT
SN 157856	REJECT	REJECT
SN 157857	ACCEPT	ACCEPT
SN 157858	REJECT	REJECT
SN 157859	ACCEPT	ACCEPT
SN 157860	ACCEPT	ACCEPT
SN 157861	REJECT	REJECT
SN 157862	REJECT	REJECT
SN 157863	ACCEPT	ACCEPT
SN 157864	ACCEPT	ACCEPT
SN 157865	ACCEPT	ACCEPT
SN 157866	ACCEPT	ACCEPT
SN 157867	ACCEPT	ACCEPT
SN 157868	REJECT	REJECT
SN 157869	ACCEPT	ACCEPT
SN 157870	REJECT	REJECT
SN 157871	ACCEPT	ACCEPT
SN 157872	REJECT	REJECT
SN 157873	ACCEPT	ACCEPT
SN 157874	ACCEPT	ACCEPT
SN 157875	REJECT	REJECT
SN 157876	ACCEPT	ACCEPT
SN 157877	REJECT	REJECT
SN 157878	ACCEPT	ACCEPT
SN 157879	ACCEPT	ACCEPT
SN 157880	REJECT	REJECT
SN 157881	ACCEPT	ACCEPT
SN 157882	REJECT	REJECT

*** ERROR ***

***** UNCLASSIFIED *****

Status Verification Report

PRODUCT : MC3926 BRIDGE
 PRODUCT A0 : A05764
 DRAWING NO. :
 REEL : R377-02

LOT : E10235
 SUFFIX:

TUESDAY, JUNE 5, 1990 3:12 PM
 PAGE NO: 1 TRAVELER ID: 1227
 SYSTEM: PROCODE SYSTEM
 DSA# 871860-G Version 5.0

Serial Number	Status File	Verification File
-----	-----	-----
SN 157789	ACCEPT	ACCEPT
SN 157790	REJECT	REJECT
SN 157791	REJECT	REJECT
SN 157792	REJECT	REJECT
SN 157793	ACCEPT	ACCEPT
SN 157794	REJECT	REJECT
SN 157795	REJECT	REJECT
SN 157796	SN MISSING	SN MISSING
SN 157797	REJECT	REJECT
SN 157798	REJECT	REJECT
SN 157799	REJECT	REJECT
SN 157800	REJECT	REJECT
SN 157801	REJECT	REJECT
SN 157802	REJECT	REJECT
SN 157803	REJECT	REJECT
SN 157804	REJECT	REJECT
SN 157805	REJECT	REJECT
SN 157806	REJECT	REJECT
SN 157807	REJECT	REJECT
SN 157808	ACCEPT	ACCEPT
SN 157809	ACCEPT	ACCEPT
SN 157810	ACCEPT	ACCEPT
SN 157811	ACCEPT	ACCEPT
SN 157812	ACCEPT	ACCEPT
SN 157813	ACCEPT	ACCEPT
SN 157814	ACCEPT	ACCEPT
SN 157815	ACCEPT	ACCEPT
SN 157816	REJECT	REJECT
SN 157817	ACCEPT	ACCEPT
SN 157818	ACCEPT	ACCEPT
SN 157819	ACCEPT	ACCEPT
SN 157820	REJECT	REJECT
SN 157821	ACCEPT	ACCEPT
SN 157822	ACCEPT	ACCEPT
SN 157823	ACCEPT	ACCEPT
SN 157824	REJECT	REJECT
SN 157825	ACCEPT	ACCEPT
SN 157826	REJECT	REJECT
SN 157827	ACCEPT	ACCEPT
SN 157828	ACCEPT	ACCEPT
SN 157829	REJECT	REJECT
SN 157830	ACCEPT	ACCEPT
SN 157831	REJECT	REJECT
SN 157832	ACCEPT	ACCEPT
SN 157833	REJECT	REJECT
SN 157834	ACCEPT	ACCEPT

*** ERROR ***

***** UNCLASSIFIED *****

Upload Filename: P:\TAPE\F3754.TXT

OPERATIONS UPLOADED

A06303 L00005 R744-02 1155
A05764 L00007 R397-04 1190
A05764 L00007 R397-04 1190
A05764 L00007 R397-04 1190
A05764 L00007 R397-04 1190
A05764 L00007 R397-04 1190
A05764 L00007 R397-04 1190
A05716 L00007 R009-00 1300
A05716 L00007 R009-00 1300

OPERATIONS NOT UPLOADED AND MISC. ERRORS

*** FRAGMENTED DATA RECOPIED FROM: oG , 1155

A05716 L00007 R021-00 1275

A05716 L00007 R021-00 1275

A05716 L00007 R022-00 1275

A05716 L00007 R009-00 1300 SN C16448 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R009-00 1300 SN C16411 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R009-00 1300 SN C16433 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R009-00 1300 SN C16454 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R009-00 1300 SN C16443 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R009-00 1300 SN C16446 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R009-00 1300 SN C16452 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R009-00 1300 SN C16410 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R009-00 1300 SN C16422 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R009-00 1300 SN C16407 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R009-00 1300 SN C16451 *** ERROR *** SERIAL NUMBER REJECTED TWICE

A05716 L00007 R005-00 1400

Detail Report - Procode System Manager

*** Engineering Evaluation Only ***

Port	Oper	PN_sn	Desc	Value	Tmdate	csdate
** Port mB						
mB	1275	HDR	PROD	A05716	>18:13:24	05/18/90
mB	1275	HDR	LOT	L00007	>18:13:24	05/18/90
mB	1275	HDR	HP	2522	>18:13:24	05/18/90
mB	1275	HDR	GRPVAL	R021-00	>18:13:24	05/18/90
mB	1275	HDR	GRPNAM	REEL	>18:13:24	05/18/90
mB	1275	PN A13627	RUBBER 1/8	QC# 52158-A1	>18:13:24	05/18/90
mB	1275	PN A13389	RUBBER ST	QC# 52194-A1	>18:13:24	05/18/90
mB	1275	PN A13654	RUBBER 1/32	QC# 51501-A1	>18:13:24	05/18/90
mB	1275	HDR	PROD	A05716	>18:14:22	05/18/90
mB	1275	HDR	LOT	L00007	>18:14:22	05/18/90
mB	1275	HDR	HP	5530	>18:14:22	05/18/90
mB	1275	HDR	GRPVAL	R021-00	>18:14:22	05/18/90
mB	1275	HDR	GRPNAM	REEL	>18:14:22	05/18/90
mB	1275	PN A13627	RUBBER 1/8	QC# 52158-A1	>18:14:22	05/18/90
mB	1275	PN A13389	RUBBER ST	QC# 52194-A1	>18:14:23	05/18/90
mB	1275	PN A13654	RUBBER 1/32	QC# 51501-A1	>18:14:23	05/18/90
mB	1275	HDR	PROD	A05716	>18:14:24	05/18/90
mB	1275	HDR	LOT	L00007	>18:14:24	05/18/90
mB	1275	HDR	HP	5530	>18:14:24	05/18/90
mB	1275	HDR	GRPVAL	R022-00	>18:14:24	05/18/90
mB	1275	HDR	GRPNAM	REEL	>18:14:24	05/18/90
mB	1275	PN A13627	RUBBER 1/8	QC# 52158-A1	>18:14:24	05/18/90
mB	1275	PN A13389	RUBBER ST	QC# 52194-A1	>18:14:24	05/18/90
mB	1275	PN A13654	RUBBER 1/32	QC# 51501-A1	>18:14:24	05/18/90
** Port oD						
oD	1160	HDR	EXIT	ALL	>31:10:25	05/31/90
** Port oG						
oG	1155	DETAIL	RES.LOWER.LIMIT	.051	>30:15:43	05/30/90
oG	1155	DETAIL	RES.UPPER.LIMIT	.059	>30:15:43	05/30/90
** Port pF						
pF	1400	HDR	PROD	A05716	>05:08:08	06/05/90
pF	1400	HDR	LOT	L00007	>05:08:08	06/05/90
pF	1400	HDR	GRPNAM	REEL	>05:08:08	06/05/90
pF	1400	HDR	GRPVAL	R005-00	>05:08:08	06/05/90
pF	1400	HDR	HP	2252	>05:08:08	06/05/90
pF	1400	DETAIL	OPERATOR #2	2522	>05:08:08	06/05/90
pF	1400	SN C16227	PART SN	SN 204340	>05:08:18	06/05/90
pF	1400	SN 204340	*FIXTURE#	A	>05:08:18	06/05/90
pF	1400	SN C16228	PART SN	SN 204337	>05:08:20	06/05/90
pF	1400	SN 204337	*FIXTURE#	B	>05:08:20	06/05/90
pF	1400	SN C16229	PART SN	SN 204335	>05:08:24	06/05/90

Detail Report - Procode System Manager

*** Engineering Evaluation Only ***

Port	Oper	PN_sn	Desc	Value	Tmdate	csdate
pF	1400	SN 204335	*FIXTURE#	C	>05:08:24	06/05/90
pF	1400	SN C16230	PART SN	SN 204334	>05:08:34	06/05/90
pF	1400	SN 204334	*FIXTURE#	A	>05:08:34	06/05/90
pF	1400	SN C16232	PART SN	SN 204333	>05:08:43	06/05/90
pF	1400	SN 204333	*FIXTURE#	B	>05:08:43	06/05/90
pF	1400	SN C16233	PART SN	SN 204331	>05:08:46	06/05/90
pF	1400	SN 204331	*FIXTURE#	C	>05:08:46	06/05/90
pF	1400	SN C16234	PART SN	SN 204330	>05:09:47	06/05/90
pF	1400	SN 204330	*FIXTURE#	A	>05:09:47	06/05/90
pF	1400	SN C16235	PART SN	SN 204329	>05:09:59	06/05/90
pF	1400	SN 204329	*FIXTURE#	B	>05:09:59	06/05/90
pF	1400	SN C16236	PART SN	SN 204327	>05:10:00	06/05/90
pF	1400	SN 204327	*FIXTURE#	C	>05:10:00	06/05/90
pF	1400	SN C16237	PART SN	SN 204326	>05:10:03	06/05/90
pF	1400	SN 204326	*FIXTURE#	A	>05:10:03	06/05/90
pF	1400	SN C16238	PART SN	SN 204325	>05:10:06	06/05/90
pF	1400	SN 204325	*FIXTURE#	B	>05:10:06	06/05/90
pF	1400	SN C16239	PART SN	SN 204321	>05:10:09	06/05/90
pF	1400	SN 204321	*FIXTURE#	C	>05:10:09	06/05/90
pF	1400	SN C16240	PART SN	SN 204314	>05:10:12	06/05/90
pF	1400	SN 204314	*FIXTURE#	A	>05:10:12	06/05/90
pF	1400	SN C16241	PART SN	SN 204312	>05:10:14	06/05/90
pF	1400	SN 204312	*FIXTURE#	B	>05:10:14	06/05/90
pF	1400	SN C16242	PART SN	SN 204311	>05:10:18	06/05/90
pF	1400	SN 204311	*FIXTURE#	C	>05:10:18	06/05/90
pF	1400	SN C16243	PART SN	SN 204309	>05:10:35	06/05/90
pF	1400	SN 204309	*FIXTURE#	A	>05:10:35	06/05/90
pF	1400	SN C16244	PART SN	SN 204308	>05:10:39	06/05/90
pF	1400	SN 204308	*FIXTURE#	B	>05:10:39	06/05/90
pF	1400	SN C16246	PART SN	SN 204307	>05:10:46	06/05/90
pF	1400	SN 204307	*FIXTURE#	A	>05:10:46	06/05/90
pF	1400	SN C16248	PART SN	SN 204267	>05:10:49	06/05/90
pF	1400	SN 204267	*FIXTURE#	C	>05:10:49	06/05/90
pF	1400	SN C16249	PART SN	SN 204266	>05:10:55	06/05/90
pF	1400	SN 204266	*FIXTURE#	A	>05:10:55	06/05/90
pF	1400	SN C16250	PART SN	SN 204264	>05:12:45	06/05/90
pF	1400	SN 204264	*FIXTURE#	C	>05:12:45	06/05/90
pF	1400	SN C16251	PART SN	SN 204262	>05:12:47	06/05/90
pF	1400	SN 204262	*FIXTURE#	A	>05:12:47	06/05/90
pF	1400	SN C16250	PART SN	SN 204264	>05:12:45	06/05/90
pF	1400	SN 204264	*FIXTURE#	C	>05:12:45	06/05/90
pF	1400	SN C16251	PART SN	SN 204262	>05:12:47	06/05/90
pF	1400	SN 204262	*FIXTURE#	A	>05:12:47	06/05/90

EXHIBIT 4

<u>Description</u>	<u>Page(s)</u>
Sample Data Specifications Document	65 - 68

4. SYSTEM DATA

4.1. ELECTRICAL MEASUREMENT DATA

The ELECTRICAL MEASUREMENT station will supply the follow data to the Cell supervisor:

- ☐ operation number
- ☐ cable product number
- ☐ cable lot number
- ☐ HP number of the operator
- ☐ cable serial number
- ☐ specification limits
- ☐ uncorrected resistance
- ☐ corrected resistance
- ☐ inductance
- ☐ room temperature
- ☐ 5-32 character lines for comments

4.2. DATA FORMAT

ELECTRICAL MEASUREMENT station data format for communications with the PROCODE System.

```
.operation #,HDR.PROD.product #,
operation #,HDR.LOT.lot #.
.operation #,HDR.HP.HP #.
.operation #,HDR.GRPNAM.PCRN.
.operation #,HDR.GRPVAL,#####.
.operation #.DETAIL.OPERATION.PROCESSED
.operation #.DETAIL.*UPPER_RESIST(Ohms),#####.
.operation #.DETAIL.*LOWER_RESIST(Ohms),#####.
.operation #.DETAIL.*UPPER_INDUCT(nH),#####.
.operation #.DETAIL.*LOWER_INDUCT(nH),#####.
.operation #.DETAIL.*UPPER_TEMP(Deg C),####.
.operation #.DETAIL.*LOWER_TEMP(Deg C),####.
.operation #.serial #.UNCORR_RESIST(Ohms),#####.
.operation #.serial #.INDUCTANCE(nH),#####.
operation # serial = CORR_RESIST(Ohms),#####.
```

.operation #.serial #.ROOM_TEMP(Deg C),#####.

.operation #.HDR.COMM.,#####.

.operation #.HDR.COMPLETE.0.

Note:

operation # = 1757
 cable product # = A04235 or A0CALB (Calibration)
 cable lot # = L00123 or E00123 (e-order)
 HP # = operator's HP number

4.3. PROCESS PARAMETERS

Three upper and lower specification limits are used by the automated workstation to determine the fitness of the part being tested. They are as follows.

Product	Resistance	Inductance	Corrected To	Alpha	Room Temperature
Actuator (MC 3738)	3.870 - 4.280 Ω	NA	25 °C	.003850	20 - 27 °C
Det Assembly (MC 3739)	55.000 - 85.000 m Ω	6.0 - 12.0 η H	23 °C	.003800	20 - 27 °C
Det Assembly (MC 3740)	105.000 - 135.000 m Ω	25.0 - 31.0 η H	23 °C	.003800	20 - 27 °C
Hemi-Det (MC3510)	0.071 - 0.187 Ω	30.0 - 38.0 η H	23 °C	.003746	20 - 27 °C
Hemi-Det (MC3510)	0.151 - 0.180 Ω	60.0 - 75.0 η H	23 °C	.003746	20 - 27 °C
MC 4094					
MC 4096					

Table 1. Electrical Measurement Specification Limits.

The above process parameters are controlled under the DSA revision number and are stored in an ASCII file (ELM.PRM).

4.3.1. MODIFYING PROCESS PARAMETERS

NOTE:

The following procedure is valid only when the system is in non "WR" mode. (The header information indicates calibration or engineering evaluation mode. see section 3.2 and 3.3.)

The electrical measurement specification limits may be modified if the process requires. The parameters may be changed by pressing the *F2* key while the command line is displayed. When the *F2* key is pressed, a left arrow may be seen to the right of the command menu. This must be followed by pressing *P* within six seconds or

the systems goes back to command mode. Enter the password at the prompt.

A screen is displayed, allowing the entry of new parameters. When input is complete the new parameters may be saved and the parameter file updated or the changed ignored (see figure 7).

A prompt will be displayed after the last parameter is entered. This allows the user to save (S), modify (M) or abort (A) the modifications to the specification file. Selecting save will update the test parameter file only (ELM.TST).

DSA NUMBER: 900066-A

P R O C O D E - H E M I
 E L E C T R I C A L M E A S U R E M E N T S T A T I O N

	Resistance	Inductance	Corrected To	Alpha
MC 3753	3.070	4.230 Oh	NA	0.03650
MC 4771	55.000	155.000 nH	12 rh	0.03300
MC J740	105.000	135.000 nH	25 rh	0.03300
MC 3510	0.071	0.037 Oh	33 rh	0.03746
MC 3511	0.151	0.180 Oh	60 rh	0.03746
MC 4094				
MC 4096				

Save Modify or Abort parameter changes? (S/M/A)

Password: XXXX
 CHANGING PARAMETERS

figure 7. Parameter Modification Screen.

4.4. EXAMPLE RECORDS

The following are examples of record which would be sent to the Cell Supervisor.

4.4.1. SYSTEM START-UP

1757.HDR.PROD.A04236.
 1757.HDR.LOT.L00123.
 1757.HDR.HP.5370.
 1757.HDR.GRPNAM.PCRN.
 1757.HDR.GRPVAL.C12346.

,1757,DETAIL,OPERATION,PROCESSED
,1757,DETAIL,*UPPER_RESIST(Ohms),#####.
,1757,DETAIL,*LOWER_RESIST(Ohms),#####.
,1757,DETAIL,*UPPER_INDUCT(nH),#####.
,1757,DETAIL,*LOWER_INDUCT(nH),#####.
,1757,DETAIL,*UPPER_TEMP(Deg C),####,
,1757,DETAIL,*LOWER_TEMP(Deg C),####,
,1757,HDR,COMPLETE,0,

4.4.2. DURING THE TESTING OPERATION

,1757,HDR,PROD.A04236,
,1757,HDR,LOT,L00123,
,1757,HDR,HP,5370,
,1757,HDR,GRPNAM,PCRN,
,1757,HDR,GRPVAL,C12346,

,1757,SN 12345,UNCORR_RESIST(Ohms),#####.
,1757,SN 12345,INDUCTANCE(nH),#####.
,1757,SN 12345,CORR_RESIST(Ohms),#####.
,1757,SN 12345,ROOM_TEMP(Deg C),#####.
or (For rejected parts)
,1757,SN 12345,REJECT CODE,RC 1234,
,1757,SN 12345,UNCORR_RESIST(Ohms),#####.
,1757,SN 12345,INDUCTANCE(nH),#####.
,1757,SN 12345,CORR_RESIST(Ohms),#####.
,1757,SN 12345,ROOM_TEMP(Deg C),#####.

,1757,HDR,COMPLETE,0,

4.4.3. SYSTEM SHUTDOWN

,1757,HDR,PROD,A04236,
,1757,HDR,LOT,L00123,
,1757,HDR,HP,5370,
,1757,HDR,GRPNAM,PCRN,
,1757,HDR,GRPVAL,C12346,
,1757,HDR,COMM.#####,
,1757,HDR,COMPLETE,0,

EXHIBIT 5

<u>Description</u>	<u>Page(s)</u>
RGF Data Collection Program - written in IRL	70 - 80

```

: Program Name      : HEMI03.IRL
: Drawing #         : DSA 891081
: Issue            : C
: Created By        : Suzanne M. Crabtree
: Creation Date     : 06-Jul-89
: Revised By        : Suzanne M. Crabtree (ACO 900066MD)
: Revision Date     : 01-Feb-90 - 4 digit reject codes
:                  : - add PVD run number prompt
:                  : - send record with cable SN/PVD Run association
:                  : - add Op 1862 (A04242) Head Handling
: Revised By        : Suzanne M. Crabtree (ACO 900282MD)
: Revision Date     : 18-Apr-90 - prompt for rejects on oper 1862

```

```

: Description       : This operation will prompt the operator for the relati
:                   : record of assembly information including product, lot,
:                   : operation, HP#, clean# and comments
:
:

```

: Numeric Registers ...

```

: #0 - not used
: #1 - used in .COMENT
: #2 - not used
: #3 - not used
: #4 - not used
: #5 - not used
: #6 - not used
: #7 - used in .SN to count # of Header SN's entered
: #8 - used in .SN to count # of cable SN's entered
: #9 - used in .REJN to count # of rejects entered

```

: String Resisters ...

```

: $0 - Input from Kbd, Terminal Port : The default register.
: $1 - not used
: $2 - used to build various strings
: $3 - string build to Xmit out modem

```

: File D usage description...

```

: D( 0) - Current Product
: D( 1) - Current Lot
: D( 2) - Current Operation
: D( 3) - Current HP #
: D( 4) - Current Prod/Lot/Oper
: D( 5) - Current Clean.#
: D( 6) - DSA Number - Issue
: D( 7) - IRL Program Name
: D( 8) - PVD Run #
: OD (10,16) : Open File For Product,Lot storage
: OR (1000,10) : file of rejects, format: Bytes 1 - 6 SN
:                  : Bytes 7 - 10 RC
: OS (1000,5) : file of entered cable serial numbers (bytes 1-5)
: OT (1000,5) : file of entered header serial numbers (bytes 1-5)
: D D(6) = "DSA891081-C" : Define DSA Number and Issue of this progra
: D D(7) = "HEMI03" : Define Name of this program

```

: S .CONFIG

.START

```

: D #7 = 0
: D #8 = 0 : Define number of SN entered to zero
: D #9 = 0 : Define number of rejects entered to zero

```

.HP

```

: D $0 = D(6) + " "
: D $0 = $0 + D(7)
: D $0 = $0 + " Scan HP"
: P $0
: D $0 = ""

```

:prompt for verification of


```

V B D E S
G $0 = "####" .HP1
G $0 = "DOWNLOAD" .D_LOAD
B 1010
G .HP
.HP1
  D D(3) = $0
  G .VERPI

.VERPI
  D $0 = "Does " + D(6)
  D $0 = $0 + "Match PI? (Y/N)!"
  P $0
  D $0 = ""
  A
  G $0 = "Y" .VERPIEN
  G $0 = "Y" .VERPIEN
  G $0 = "EXIT" .VERPI01
  G $0 = "BACK" .HP
  B 000
  P "*** Consult *** *** Manual ***"
  S .WAIT
  G .START
.VERPI01
  S .EXIT H
  G $0 = "Y" .START
  G $0 = "N" .VERPI
  P "Error In .VERPI Contact PC&DA "
  G .ERROR
.VERPIEN
  G .OPER

.OPER
  P "Scan Operation #From Menu "
  D $0 = ""
  U E D W
  G $0 = "O1160" .OPEREN :swage pin and inspect
  G $0 = "O1862" .OPEREN :head handling
  G $0 = "EXIT" .OPER01
  G $0 = "BACK" .VERPI
  B 1010
  G .OPER
.OPER01
  S .EXIT H
  G $0 = "Y" .START
  G $0 = "N" .OPER
  P "Error In .OPER Contact PC&DA "
  G .ERROR
.OPEREN
  D D(2) = $0 R 4
  G .PRLOT

.PRLOT
  P "Scan Product LotFrom Label "
  D $0 = ""
  U E D W
  G $0 = "A04235@#####".PRLOT02
  G $0 = "A04236@#####".PRLOT02
  G $0 = "A04242@#####".PRLOT02
  G $0 = "EXIT" .PRLOT01
  G $0 = "BACK" .OPER
  B 1010
  G .PRLOT
.PRLOT01
  S .EXIT H
  G $0 = "Y" .START
  G $0 = "N" .PRLOT
  P "Error In .PRLOT Contact PC&DA "
  G .ERROR

```

```

.PRLOT02
D D(0) = $0 L 6           : Save Product Code
D D(1) = $0 R 6           : Save Lot Number
D D(4) = $0 + D(2)        : Save Prod/Lot/Oper
G D(4) = "A042350#####1160" .PRLOT03
G D(4) = "A042360#####1160" .PRLOT03
G D(4) = "A042420#####1862" .PRLOT03
B 000
D $0 = "Cannot Perform Oper# " + D(2)
D $0 = $0 + " Here"
P $0
S .WAIT
G .PRLOT
.PRLOT03
D $3 = "HDR,PROD," + D(0) : Valid product, lot, oper scanne
S .SEND                   : send product record
D $3 = "HDR,LOT," + D(1)  : send lot record
S .SEND                   : send HP record
D $3 = "HDR,HP," + D(3)   : send HP record
S .SEND                   : goto PVD prompt
G D(0) = "A04242" .GPVD
G .PCNUM
.PCNUM
P "Scan Clean Run #From Label "
D $0 = ""
U E D W
G $0 = "C#####".PCNUM3   :only take valid plasma clean run
G $0 = "EXIT".PCNUM2
G $0 = "BACK".PCNUM1
B 1010
G .PCNUM
.PCNUM1
D #2 = 3
S .BACK
G .PRLOT
.PCNUM2
S .EXIT
G $0 = "Y" .START
G $0 = "N" .PCNUM
P "Error In .PCNUM Contact PC&DA "
G .ERROR
.PCNUM3
D D(5) = $0               : save CLEAN # in D(5)
D $3 = "HDR,GRPVAL," + D(5)
S .SEND

: Do operation sequence check here someday

D $3 = "HDR,GRPNAM,PCRN"
S .SEND
G .MAIN

.GPVD
P "Scan PVD Run # From Label."
D $0 = ""
U E D W
G $0 = "#####".GPVD2
G $0 = "EXIT".GPVD1
B 1010
G .GPVD
.GPVD1
S .EXIT
G $0 = "Y" .START
G $0 = "N" .GPVD
P "Error In .GPVD Contact PC&DA "
G .ERROR
.GPVD2
D D(8) = $0               : save PVD # in D(8)
D $3 = "HDR,GRPVAL," + D(8)

```

```

S .SEND
D $3 = "HDR,GRPNAM,PVD"
S .SEND
G .MAIN

.MAIN
G D(4) = "A04235@#####1160" .MAIN1
G D(4) = "A04236@#####1160" .MAIN1
G D(4) = "A04242@#####1862" .MAINEND

P "PRODUCT CODE      ERROR-GET HELP"
G .ERROR

.MAIN1
S .QC2706
S .PVD
S .SN00
G .MAINEND

.MAINEND
S .4SREJ
S .COMENT
S .OPERPRO
G .END

.QC2706
D $0 = ""
P "ADHESIVE A04381 Scan QC# "
A
G $0 = "#####-??" .QC2706A
G $0 = "EXIT" .QC2706B
B 1010
G .QC2706

.QC2706A
D $3 = "PN A04381,ADHESIVE,QC# " + $0
S .SEND
Q

.QC2706B
S .EXIT
G $0 = "Y" .START
G $0 = "N" .QC2706
P "Error In .QC2706Contact PC & DA "
G .ERROR

.PVD
P "Scan PVD Run #   From Label "
D $0 = ""
U E D W
G $0 = "#####".PVD2
G $0 = "EXIT" .PVD1
B 1010
G .PVD

.PVD1
S .EXIT
G $0 = "Y" .START
G $0 = "N" .PVD
P "Error In .PVD  Contact PC&DA   "
G .ERROR

.PVD2
D D(8) = $0
D $3 = "DETAIL,PVD RUN#," + D(8)
S .SEND
Q

.SN00
D $0 = "
D $0 = $0 + "Scan Cable SN  "
P $0

.SN01
D $0 = ""
A

```

```

G $0 = "#####" .SN03
G $0 = "DONE" .SNEND
G $0 = "" .SNEND
G $0 = "EXIT" .SN02
G $0 = "P" .SN13
B 1010
G .SN00
.SN02
S .EXIT
G $0 = "Y" .START
G $0 = "N" .SN00
P " Error In .SN Contact PC&DA "
G .ERROR
.SN03
D $2 = ""
D $2 = "SN " + $0
D #8 = #8 + 1
D S(#8) = $2R5
.SN04
D $0 = "Cable SN " + S(#8)
D $0 = $0 + " "
D $0 = $0 + "Scan Header SN "
P $0
.SN05
D $0 = ""
A
G $0 = "#####" .SN07
G $0 = "" .SN12
G $0 = "EXIT" .SN06
B 1010
G .SN04
.SN06
S .EXIT
G $0 = "Y" .START
G $0 = "N" .SN04
P " Error In .SN Contact PC&DA "
G .ERROR
.SN07
D $2 = ""
D $2 = "SN " + $0
.SN08
D #7 = #7 + 1
D T(#7) = $2R5
.SN09
D $0 = "C " + S(#8)
D $0 = $0 + " H "
D $0 = $0 + T(#7)
D $0 = $0 + " Yes or No"
P $0
D $0 = ""
A
G $0 = "Y" .SN10
G $0 = "N" .SN11
B 1010
G .SN09
.SN10
D $3 = "SN " + S(#8)
D $3 = $3 + ",*ACCEPT,INITIAL,"
S .SEND :build the dbase file with good
D $3 = "" :cable serial numbers
D $3 = "SN " + S(#8)
D $2 = $3 :save cable SN in $2 for 2nd record
D $3 = $3 + ",HEADER SN,"
D $3 = $3 + "SN "
D $3 = $3 + T(#7)
P " SENDING CABLE & HEADER SN's "
S .WAIT :send the cable/header SN relationship
S .SEND
D $3 = $2 + ",PVD RUN#," :send the cable SN/PVD Run relationship

```

```

D $3 = $3 + D(8)
S .SEND
G .SN00
.SN11
D $0 = "DELETING C " +S(#8)
D $0 = $0 + "      & H "
D $0 = $0 + T(#7)           :delete the last cable and header
P $0                       :serial numbers located in files
S .WAIT                   :S (cables) and T (headers)
D S(#8) = ""
D #8 = #8 - 1
D T(#7) = ""
D #7 = #7 - 1               :serial numbers were never sent to CS
G .SN00
.SN12
D $0 = "*** DELETING *** Cable SN "
D $0 = $0 + S(#8)
P $0
S .WAIT
D S(#8) = ""
D #8 = #8 - 1
G .SN00
.SN13
S .PVD
G .SN00
.SNEND
Q

.4SREJ           : enter serialized rejects using 4 digit reject codes
D $0 = ""
P "Any Rejects ?   (Y or N) "
A
G $0 = "Y" .4SREJ01
G $0 = "y" .4SREJ01
G $0 = "N" .4SREJEN
G $0 = "n" .4SREJEN
B 1010
G .4SREJ

.4SREJ01
G #9 < 1 .4SREJ08           : skip last SN stuff if first SN
C $0 = #9                   : #9 is number of rejects entered
G #0 = 0 .4SREJ02           : see if #9 converts properly to $0
B 1010
P "Bad Convert in .4SREJ get help"
G .4SREJ01

.4SREJ02
D #0 = [$0]                 : get length of # rejected integer
G #0 = 1 .4SREJ05
G #0 = 2 .4SREJ06
G #0 = 3 .4SREJ07
G #0 > 2 .4SREJ03           : complain if > 999 rejects
G #0 = 0 .4SREJ04

.4SREJ03                   : 1000 rejects is probably too many
B 1010                     : except maybe for Tape Processing
P "Too Many Rejects get help " : check for reasonableness
G .4SREJ02

.4SREJ04
B 1010
P "Bad Length in .SN get help "
G .4SREJ02

.4SREJ05                   : length = 1
D $0 = "0" + $0            : prepend 0
.4SREJ06                   : length = 2
D $0 = "0" + $0            : prepend 0
.4SREJ07                   : $0 is # of rejects w/length=3
D $0 = $0 + " "
D $0 = $0 + R(#9) L 6      : add last SN scanned
D $0 = $0 + " "
D $0 = $0 + R(#9) R 4      : add last reject code scanned

```

```

G .4SREJ09
.4SREJ08
D $0 = " "
G .4SREJ09
.4SREJ09
D $0 = $0 + "Scan Reject SN "
P $0
D $0 = ""
A
G $0 = "#####" .4SREJ13
G $0 = "DONE" .4SREJEN
G $0 = "" .4SREJEN
G $0 = "EXIT" .4SREJ10
G $0 = "BACK" .4SREJ11
B 1010
G .4SREJ01
.4SREJ10
S .EXIT
G $0 = "Y" .START
G $0 = "N" .4SREJ01
P "Error In .4SREJ Contact PC&DA "
G .ERROR
.4SREJ11
G #9 > 0 .4SREJ12 :only back if REJECTS have been en
B 1010
P "No Rejects - Cannot BACK"
S .WAIT
G .4SREJ01
.4SREJ12
D #2 = 1
S .BACK
B 000
D $0 = "*** DELETING ***SN " + R(#9) L 6
D $0 = $0 + " RC"
D $0 = $0 + R(#9) R 4
P $0
S .WAIT
D R(#9) = ""
D #9 = #9 - 1
G .4SREJ01
.4SREJ13
D $2 = "SN " + $0 :format SN (SN 123456)
.4SREJ14
D $0 = "Scan Reject Codefor:" + $2 R6
D $0 = $0 + " "
P $0
D $0 = ""
A
G $0 = "#####" .4SREJ16
G $0 = "BACK" .4SREJ01
G $0 = "EXIT" .4SREJ15
B 1010
G .4SREJ14
.4SREJ15
S .EXIT
G $0 = "Y" .START
G $0 = "N" .4SREJ14
P "Error In .4SREJ Contact PC&DA "
G .ERROR
.4SREJ16
D #9 = #9 + 1 : increment file R pointer
D R(#9) = $2R6 + $0 : save serial # w/o prefix + Re
D $3 = $1 + $2 : serial # with "SN " prefix
D $3 = $3 + ",REJECT CODE,RC "
D $3 = $3 + $0
S .SEND
G .4SREJ01
.4SREJEN
Q

```

```

.OPERPRO
D $3 = "DETAIL, OPERATION, PROCESSED"
S .SEND
Q

.COMENT
D $0 = ""
P "                Comments or DONE"
A
D #0 = [$0]
G #0 < 33 .COMENT2
P "Coment Too Long  Re-Enter "
.COMENT1
B 1010
S .WAIT
G. COMENT
.COMENT2
G $0 = "" .COMENT8
G $0 = "DONE" .COMENT8
D $2 = $0
D $0 = ""
D #1 = 0 : flag to check if spaces only entered
.COMENT3
G $2 = "" .COMENT6
D $3 = $2 L 1 : test left most character
G $3 = "," .COMENT4 : look for comma's
D $0 = $0 + $3 : no comma, use character
G $3 = " " .COMENT5 : set characters found flag to true
D #1 = 1
G .COMENT5
.COMENT4
D $0 = $0 + " " : replace commas with spaces
.COMENT5
D $2 = $2 M 128,2 : strip left most character off
G .COMENT3
.COMENT6
G #1 = 1 .COMENT7 : test valid characters found flag
P "Invalid Comment  Re-Enter "
G. COMENT1
.COMENT7
D $3 = "HDR, COMM," + $0
S .SEND
G .COMENT
.COMENT8
Q

.CLEARD : clear data in file D
D #5 = 0
.CLEARD1
Q D(#5) = ""
D D(#5) = ""
D #5 = #5 + 1
G .CLEARD1

.CLEARR : clear data in file R
D #9 = 0
.CLEARR1
Q R(#9) = ""
D R(#9) = ""
D #9 = #9 + 1
G .CLEARR1

.SEND
D $3 = "," + $3
D $3 = D(2) + $3 : prepend operation number
D $3 = "," + $3
D $3 = $3 + ","
X M P, $3 : xmit to concentrator

```

```

Q
.WAIT
W 4
Q
.BACK                                     : Subroutine to back up
C $3 = #2
D $3 = "HDR,DELETE," + $3
S .SEND
Q
.EXIT_H                                   : exit during header prompts
D $0 = ""
P "Are You Sure YouWant To EXIT? "
A
G $0 = "Y" .EXIT_H1
G $0 = "y" .EXIT_H1
G $0 = "N" .EXIT_H2
G $0 = "n" .EXIT_H2
B 1010
G .EXIT_H
.EXIT_H1
D $0 = "Y"
B 000
P "*** OPERATION ** ** ABORTED ***"
S .WAIT
G .EXITTHEN
.EXIT_H2
D $0 = "N"                                     : in case "n" was entered
G .EXITTHEN
.EXITTHEN
Q
.EXIT
D $0 = ""
P "Are You Sure YouWant To EXIT? "
A
G $0 = "Y" .EXIT1
G $0 = "y" .EXIT1
G $0 = "N" .EXIT2
G $0 = "n" .EXIT2
B 1010
G .EXIT
.EXIT1
D $0 = "Y"
D $3 = "HDR,EXIT,ALL"                         : build exit record
S .SEND
B 000
P "*** OPERATION ** ** ABORTED ***"
S .WAIT
G .EXITEN
.EXIT2
D $0 = "N"                                     : in case "n" was entered
G .EXITEN
.EXITEN
Q
.ERROR
D $0 = ""
A
G $0 = "ABORT" .START
G .ERROR
.END
D $3 = "HDR,COMPLETE,0"
S .SEND
P "Operation          Completed.      "
S .WAIT

```


G .START

```
.CONFIG          : execute reader options with Z command
Z "$+BV7$-"      : Loudest Level Beep
B 11
P "Setting PROCODE Standard Parm"
```

: Communication Parameters...

```
F 1000          : play with the status lights
Z "$+PA3$-"      : Enable Multi-Drop Protocol
F 0100
Z "$+IA6$-"      : 9600 Baud
F 0010
Z "$+IB1$-"      : Even parity
F 0001
Z "$+IC1$-"      : 1 stop bit
F 1000
Z "$+II7$-"      : 7 data bit word
```

: Bar Code Parameters...

```
F 0100          : play with the status lights
Z "$+CA6$-"      : Enable Interleaved 2-of-5 (6 character length)
F 0010
Z "$+CB10$-"     : Enable Code 3-of-9 Symbology
F 0001
Z "$+RB0$-"      : Disable Code 3-of-9 Full Ascii Option
F 1000
Z "$+CC000$-"    : Disable 2 of 5
F 0100
Z "$+CD00$-"     : Disable Codabar Symbology
F 0010
Z "$+CE0000$-"   : Disable All UPC Symbologies
F 0001
Z "$+CG0$-"      : Disable Code 11 Symbology
F 1000
Z "$+CF0$-"      : Disable Code 93 Symbology
F 0100
```

: Reader Operating Parameters...

```
F 0010
Z "$+ODO$-"      : Buffered Display Mode
F 0001
Z "$+DX0$-"      : US Ascii Character Set
F 1000
Z "$+PBO$-"      : Computer Response Not Required
F 0100
Z "$+OA0$-"      : Preamble A Not Required
F 0010
Z "$+SA0$-"      : Scanner Timeout - None
F 0001
Z "$+SB0$-"      : Scanner Operation - One Shot
F 1000
Z "$+SC0$-"      : Trigger Event - Level
F 0100
Z "$+PBO$-"      : Computer Response Not Required
F 0010
Z "$+DE0$-"      : Append Time - Disabled
F 0001
Z "$+XG1$-"      : Resume IRL (on Power Up) - Enabled

F 1000
F xxxx          : status lights default settings
B 00
```

```
.CONFIG1
Z "$+BV3$-"
```

```

B 1
Z "$+BV1$-"
B 0
Z "$+BV7$-" : Loudest Level Beep
P "Connect Drop Remove Laptop!"
D $0 = ""
V B D E K S; 200
G #0 = 0 .CONFIG2 : look for timeout
G .CONFIG3
.CONFIG2
:
P "** Scan Badge *** To Continue *"
D $0 = ""
V B D E K S; 200
G #0 = 0 .CONFIG1 : look for timeout
G .CONFIG4
.CONFIG3
G #0 = 6 .CONFIG5 : Accept code 3 of 9 scanner input only
G .CONFIG2
.CONFIG4
G #0 = 6 .CONFIG6 : Accept code 3 of 9 scanner input only
G .CONFIG1
.CONFIG5
G $0 = "####" .CFGEND : Accept HP format only
G .CONFIG2
.CONFIG6
G $0 = "####" .CFGEND : Accept HP format only
G .CONFIG1
.CFGEND
Q

.D_LOAD
Z "$+PA2$-" : Enable Polling Mode D Protocol for laptop download
Z "$+BV3$-"
B 1
Z "$+BV1$-"
B 0
F 1000
F 1100
P "Remove Drop WireConnect Laptop!"
F 1110
F 1111
V B D E K S; 200
F 1110
P "***** Scan ***** EXIT IRL ***"
F 1100
F 1000
F 0000
V B D E K S; 200
G .D_LOAD

```

EXHIBIT 6

<u>Description</u>	<u>Page(s)</u>
A portion of the MDS Tape User's Guide - instructions for the TM Operator	82 - 86

*DENOTES CHANGE

PROGRAM: MDS-TAPE USER'S GUIDE
OPERATION TITLE: General Operation

MANUAL NO. MD-70591
OPERATION: 01 ISSUE NO: 3
SHEET 1 OF 2

ECN(S) INCORPORATED: 890957MD-C
APPROVED BY: J. A. Thomes, 5-22-89

APPROVED BY: D. R. Reed, 5-22-89
EFFECTIVITY: See Publication Record

GENERAL OPERATION OF THE TRANSACTION MANAGER.

1. TURNING ON THE TRANSACTION MANAGER.
 - * 1.1. If the display is blank, depress the "power" button to turn on the Transaction Manager. The red "POWER" light will come on. The first program prompt will display the Drawing number and Issue of the IRL program and ask for verification "SCAN HP". If this prompt does not appear, contact your supervisor.
 - 1.2. If the Transaction Manager is displaying the Drawing number prompt, then it is available for use and does not need to be rebooted (turned on).
 - 1.3. If the Transaction Manager is displaying anything but the Drawing number prompt, it is already in use and can not be used until the current operation is completed.
2. SCANNING BAR CODES WITH THE WAND OR LASER GUN.
 - 2.1. When prompted to scan data into the Transaction Manager, either the wand or laser gun may be used.
 - 2.2. A single beep after a scan indicates a good read. If multiple beeps are heard, an entry error has occurred. In this case the user should examine the prompt and scan the appropriate code.
 - * 2.3. An operation may be aborted at any time by scanning the "ERASE" bar code. Scanning this bar code (or typing "EXIT" and pressing <Enter> from the keyboard) will abort all data scanned for this log-on of the operation.

*DENOTES CHANGE

PROGRAM: MDS-TAPE USER'S GUIDE
OPERATION TITLE: General Operation

MANUAL NO. MD-70591
OPERATION: 01. ISSUE NO: 3
SHEET 2 OF 2

3. ENTERING DATA THROUGH THE KEYBOARD.

- 3.1. Make sure the "CAPS" lock is turned on. If the red light on the "CAPS" key (far left side of keyboard) is not illuminated, then depress it. Having "CAPS" on capitalizes all letters that are entered through the keyboard.
- 3.2. Always press the <Enter> key after the appropriate data has been typed in. For example, if you are prompted to enter the "Quantity Of Parts Processed", you would type a number (for example: "123") and then press the <Enter> key.
- 3.3. If a typing error is made before the <Enter> key has been pressed, the error may be corrected by pressing either the "clr" key (top row) to clear all data entry, or by using the back arrow key (top row) to delete one character at a time.
- 3.4. Special characters (in white, above keys) may be typed by holding down the <Alt> key and at the same time depressing the required key from the keyboard. For example to type a hyphen, hold down the <Alt> key and depress the letter "U" (notice the "-" above the "U" key).

*DENOTES CHANGE

PROGRAM: MDS-TAPE USER'S GUIDE
OPERATION TITLE: Tape01

MANUAL NO. MD-70591
OPERATION: 10 ISSUE NO: 6
SHEET 1 OF 3

ECN(S) INCORPORATED: 890957MD-C

APPROVED BY: J. A. Thomes, 5-22-89APPROVED BY: D. R. Reed, 5-22-89

EFFECTIVITY: See Publication Record

PROGRAM: TAPE01 (STATION 1)

- * 1. DSA871817, Tape 01.
- * 1.1. The first program prompt will display the Drawing number and Issue number of the program along with "SCAN HP". If this prompt is not on the display, see "TURNING ON THE TRANSACTION MANAGER" in the "GENERAL OPERATION OF THE TRANSACTION MANAGER" section.
- * 1.2. Scan the bar code on the back of your employee badge if the correct program name and Drawing No. are displayed. Your four digit HP# must be scanned with a wand or laser gun, and cannot be entered from the keyboard. If either the name and/or Drawing No. are incorrect, inform your supervisor of the discrepancy.
- * 2. Does DSA871817, Match PI? (Y/N).
- * 2.1. Verify that the drawing number and issue displayed on the screen matches the drawing number and issue listed on the PI for this operation. Scan the "Y" bar code from the bar code menu if this is correct. If either the drawing number and/or the issue are incorrect, scan the "N" bar code and inform your supervisor of the discrepancy.

NOTE: You may also type "Y" or "N" from the keyboard, then press the <Enter> key.

*DENOTES CHANGE

PROGRAM: MDS-TAPE USER'S GUIDE
OPERATION TITLE: Tape01

MANUAL NO. MD-70591
OPERATION: 10 ISSUE NO: 6
SHEET 2 OF 3

- * 3. Scan Operation # from Menu.
 - * 3.1. Scan the appropriate Operation Number bar code from the bar code menu. The Operation Number must be of the format "Onnnn", where "n" is any number.
 - * 4. Scan Product Lot from Reel Label.
 - * 4.1. Scan the Product/Lot bar code from the label located on the reel. The bar code must be of the format "AnnnnnnLnnnnn", or "AnnnnnEnnnnn" where "n" is any number.
 - * 5. Scan Reel # from Reel Label.
 - 5.1. Scan the Reel # bar code located on the reel. The Reel # must be of the format "Rnnn-nn", where "n" is any number.
 - 6. Scan QC # or Tool # as Prompted.
 - 6.1. For all LAMINATE/RESIST operations, scan the appropriate QC # bar code for the displayed part number (Alnnnn). QC # must be of the format "nnnnn-an", where "n" is any number and "a" is any letter.
- NOTE: You may also type the QC # from the keyboard, then press the <Enter> key.
- 6.2. For all EXPOSE operations, scan the appropriate TOOL No. bar codes as prompted. Photo-Tool numbers must be preceded by the letters "PT" and Tool-Report numbers must be preceded by the letters "TR". (Examples: PT123-B; TR54321)

NOTE: You may also type the PT No. or TR No. from the keyboard, then press the <Enter> key.