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MCDONNELL DOUGLAS TECHNICAL SERVICES COMPANY, INC.
HOUSTON ASTRONAUTICS DIVISION

ADVANCED CREW PROCEDURES DEVELOPMENT TECHNIQUES

DESIGN NOTE NO. 13

PROCEDURES AND PERFORMANCE PROGRAM TRAINING PLAN

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1.0 SUMMARY

This design note describes the Procedures and Performance Program (PPP) training plan. The plan has been developed to support the training of PPP users in the operations associated with PPP usage. This document contains an overview of the contents of each training session and a detailed outline to be used as the guideline for each session. The PPP Users Guide, MDC W0009 will also be used extensively to support training activities.

2.0 INTRODUCTION

The PPP is an automated procedures recording and crew/vehicle performance monitoring system. The heart of the system is a digital computer program which translates SPS data inputs into crew procedures. These procedures may be compared with a stored reference, thus providing a difference procedures capability. The program also monitors and records selected crew and vehicle performance parameters. These performance parameters may be compared to a set of established criterion, thus providing a performance evaluation capability. These procedures and performance data are available for CRT display according to user specified format in real-time, post-run, and on hardcopy output. The data may be transferred to the Generalized Document Processor (GDP) for formal documentation and distribution.

The PPP is now available as an operational SPS support program. This design note presents the plan for training the prospective PPP users to use the program to obtain the desired SPS data outputs. Details of PPP operations are contained in the PPP Users Guide, MDC W0009 which is used extensively in support of exercises contained in this training plan.

3.0 DISCUSSION

The PPP has been developed to provide SPS procedures and performance data outputs. The system is now available as an operational SPS support program. Various PPP operations are required to activate the PPP and access the desired data. This design note presents the plan for training potential PPP users in the detailed PPP operations. Presently, five different training sessions have been identified. Appendix A presents an overview of the contents of each session. The first three sessions are necessary to understand the PPP structure and operations for accessing the available PPP outputs. The fourth session deals with data transfer capabilities in support of FDF documentation and the fifth session presents the user interface for defining additional PPP formats and updating the PPP data base contents. Appendix B contains detailed outlines to be used as the guidelines for each training session. Each session will rely extensively on the PPP Users Guide, MDC W0009.

APPENDIX A

PPP Training Plan Overview

PPP Training Plan Overview

Session 1 - Systems Description and User Interface

- Hardware Interface
- Program Activation
- Display Structure
- Command Interface
- PPP Initialization
- Typical Formats (using all display selection commands)
- PPP Post-Run
- Program Termination

Session 2 - Data Output and Reconstruction

- SPS Program Activation
- Actual versus Simulated SPS Transfer Discussion
- Initial Crew Station Configuration
- Procedures Data Display
- Flight Display Unit
- Performance Output (alphanumeric and graphic)
- Reconstruction
- Hold Difference
- Training Data

Session 3 - Difference Procedures Output

- Switch Configuration Difference
- Sequence Configuration Difference
- Detailed Difference Listing
- Summary Procedures
- Summary Procedures Difference
- Reference Data Display Output
- Discussion on Difference Test Data

Session 4 - PPP/GDP Transfer

- PPP to GDP
- COPY=GDP
- Termination Sequence (discuss RITIT and tape transfer)
- GDP to PPP
- GDP STORE Tape (discuss tape transfer)
- Submission of Tape and Program CRIS
- GDPSTRT and GDPEXEC (tutorial operations)
- CREF

Session 5 - PPP Data Base and Format Construction

- F=PRO, F=PVL, F=PER, and F=TRN
- Termination Sequence
- RTOS and GRRTOS
- STOR and GRSTOR
- Data Base Structure and Content Discussion

APPENDIX B

PPP Training Plan Session Outlines

Training Plan Session 1 (Systems Description & User Interface)

OUTLINE	REMARKS
I. Hardware Discussion	CDC 211, 243, Function Key Box and Flight Display Unit
II. CDC 6400 Operations	SPS not required
A. Input Execute (PPP)	Discuss Interactive and Batch
3. Attach 211	
III. PPP Operations	
A. Display Trees	Discussion
B. Command Structure	
C. Initialization	
1. Required	Detailed
2. Optional	Discussion
D. Display Selection	
1. Command, Cue, and Error	↑,+,^,∇, CUE, COMMAND
2. Alphanumeric Menus (except 100)	DISPLAY, DISPLAY=,N,+,-,*,CLEAR
3. Graphical Menus	GRAPH, GRAPH=,N,+,-,*,CLEAR
4. Alphanumeric and Graphical Displays	Representative not all-DISPLAY, DISPLAY=,GRAPH, GRAPH=,N,+,-,*,CLEAR
E. Post-Run	
1. Required	Detailed
2. Optional	Discussion
3. Training Data	Script-Detailed; Status-general review
IV. CDC 6400 Operations	
A. Termination	
B. Obtain Lineprinter Output	

Training Plan Session 2 (Data Output and Reconstruction)

OUTLINE	REMARKS
I. CDC 6400 Operations	Actual SPS Transfer
A. Input Execute Decks (SPS & PPP)	SPS deck detail - PPP deck review
B. Attach 211 (SPS & PPP)	SPS detail - PPP review
II. PPP Operations	
A. Data Transfer Discussion	Actual versus Simulated (RUNPT)
B. Initial C/S Configuration	ICOMPARE
C. Procedures Data Displays	Input COPY=LM & MT commands, CUE key and FREEZE key operations
D. Flight Display Unit Operations	
E. Data Reconstruction in HOLD	
1. Procedures	Via CUE & REPEAT= - use CONTINUE and SPS OPERATE
2. Performance	Discussion
F. Hold Difference	
G. Data Reconstruction in Post-Run	(ENDRT)
1. Required Post-Run	
2. Reconstruction	
3. Reset PPP - Terminate SPS	Simulated SPS transfer
III. PPP Operations	
A. Performance Data Displays	
B. Performance Evaluation Displays	
C. Graphical Displays	
D. Data Reconstruction	Show different repeat times
1. Procedures	
2. Performance	
3. Graphics	
E. Post-Run	
1. Required	
2. Training Data	Script-general review; Status-detailed

Training Plan Session 2 (Data Output and Reconstruction) (Continued)

OUTLINE

REMARKS

IV. CDC 6400 Operations

A. Terminate

Review

B. Obtain Lineprinter Output

Training Plan Session 3 (Difference Procedures Output)

OUTLINE	REMARKS
I. CDC 6400 Operations	Simulated SPS transfer
A. Input Execute (PPP) B. Attach 211	
II. PPP Operations	
A. Data Transfer Discussion B. Switch Configuration Diff C. Sequence Configuration Diff D. Detailed Difference Listing E. Summary Procedures F. Summary Procedures Diff G. Reference Data Output	Actual versus Simulated (RUNRT) Preestablished and Random (COMPARE) Show inputs from B and C discuss Hold Diff inputs Show FMT and discuss output (/)
III. CDC 6400 Operations	
A. Terminate B. Obtain Lineprinter Output	
IV. Diff Procedures Test Data	Discussion of data base contacts examples of preestablished differences in these sessions

Training Plan Session 4 (PPP/GDP Transfer)

OUTLINE:	REMARKS
I. CDC 6400 Operations	Simulated SPS transfer
A. Input Execute (PPP) B. Attach 211	
II. PPP Operations	
A. PPP to GDP Discussion B. Data Displays	COPY=GDP discussion Input COPY=GDP commands
III. CDC 6400 Operations	
A. Termination	Show extra 211 inputs and discuss RITIT, tape transfer operations and return of CDC tape
IV. GDP STORE Tape Output	Discuss tape transfer
V. STORE Tape and Program CRIS Submission	Discuss return of GDP tape
VI. Transfer Input Operations	
A. Input GDPSTRT and GDPEXEC B. Tutorial Operations	Include erroneous input
VII. CDC 6400 Operations	
A. Termination B. Obtain Lineprinter Output	Show extra 211 inputs
VIII. Input CREF	
IX. CDC 6400 Operations	

Training Plan Session 4 (PPP/GDP Transfer) (Continued)

OUTLINE	REMARKS
X. PPP Operations	
A. Review Ref Options	
B. Review Ref Data	Use / Command
XI. CDC 6400 Operations	
A. Termination	
B. Obtain Lineprinter Output	
XII. Restore Ref Options	

Training Plan Session 5 (Data Base and Format Construction)

OUTLINE	REMARKS
I. CDC 6400 Operations	Simulated SPS transfer
A. Input Execute (PPP) B. Attach 211	
II. PPP Operations	
A. Input Format Descriptors (alphanumeric & graphical) B. Display Formats C. Data Base File Cleanup	Discussion of punch cards (SWITCH), resultant formats, 211 capabilities (show all different inputs at least once). Use simulated data input
III. CDC 6400 Operations	
A. Termination B. Obtain Lineprinter Output	Show extra 211 steps
IV. Discuss RTOS and GRRTOS	
V. Discuss and RUN STOR and GRSTOR	
VI. Data Base Structure and Content	Discuss
A. Hollerith Statements B. Data Base Parameters C. Data Base Update (under development)	