Report To ATSRAC

Enhanced Training Program For Wiring System

WG-8

October 24-25, 2001

Spencer Bennett
FedEx Maintenance Technical Training

DATE: October, 2001

WORKING GROUP / TASK 8:	**CO-CHAIRS:** Spencer BENNETT FEDEX Gunter FRIEDRICH LUFTHANSA TECHNICAL TRAINING

MEMBERS:

NAME	ORGANIZATION	NAME	ORGANIZATION
Baker, Sam	American Trans Air	Sobeck, Fred	FAA
Capo, Jean-Pierre	Airbus	Lapwood, Paul	Flight Safety Boeing
Conahan, Michael T.	Boeing	Campell, Lance	Goodrich
Hove, Terje	Civil Aviation Authority Norway	Block, Edward	IASA
		Jones, Richard	FAA

	DATE	LOCATION
PAST MEETINGS:	06.06-06.06. 2001	Memphis (co-chairs only)
	26.06-27.06. 2001	Memphis
	07.08-08.08. 2001	Toulouse
	18.09-18.09. 2001	Seattle
FUTURE MEETINGS:	06.11-08.11. 2001 Additional meetings will be scheduled at Longbeach meeting.	Longbeach

OVERVIEW:			
SUB-TASK#	**DESCRIPTION**	**ESTIMATED COMPLETION DATE**	**STATUS (RED/GREEN/YELLOW)**
TASK 8.1	**Establish Harmonization Working Group (HWG)**	**June 2001**	**Green / Done**
TASK 8.2	**Coordination with other ATSRAC HWG's**	**July 2001**	**Green**
TASK 8.3	**Develop Guidance for Wire System Training Program**		
	Start	**June 2001**	**Green**
	Technical Agreement	**November 2001**	**Green/Yellow**
	Final Agreement	**January 2002**	**Yellow**
	Include Updates from other WG's	**August 2002**	**Yellow**
TASK 8.4	**SWPM Recurrent Training**		
	Start	**June 2001**	**Green**
	Technical Agreement	**November 2001**	**Green/Yellow**
	Final Agreement	**January 2002**	**Yellow**
	Include Updates from other WG's	**August 2002**	**Yellow**
Assistance Needed:	**TASK 8.3 and TASK 8.4** More guidance from ATSRAC/FAA is required		

Sub-Task #8.3	Description: Develop Guidance for Wire System Training Program

Concept:

- Based on the results of WG 5 identify different target groups for receiving the training
- Identify the content of the minimum required training for every target group (depending what they do on the aircraft)
- Present the WG proposals to ATSRAC for approval

Work Plan:

- Identifying the target groups depending from their tasks on the aircraft
- Select the detailed minimum training items for every target group
- Presentation of the proposal to ATSRAC for approval
- Update of the results depending on the inputs of ATSRAC or other WGs

Deliverables:

- Detailed training program for each target group

Status:

- 5 different target groups are identified
- Minimum training content for each target group is selected

  Note: 5th target group was added at TLS to cover engineering personnel and maintenance planners. This group was tasked with the greatest amount of training, yet does the least work on the aircraft. This needs to be reviewed by WG8 at LGB as there was considerable discussion of it @ SEA.

Roadblocks:

- Clearer definition of target groups needs to be made.
- Decision from ATSRAC/FAA on whether training will be detailed in course objectives or seat days?

Assistance Needed:

- Decision from ATSRAC/FAA on Objective vs. Seat Days Based Training.

Sub-Task #8.3	Description: Develop Guidance for Wire System Training Program
Results ◆ Target groups identified.	

Sub-Task # 8.4	Description: SWPM Recurrent Training

Concept:

- Based on the "Specific Tasking Assignments 6 through 9" from ATSRAC identify different minimum training items for recurrent training.
- Identify different target groups (depending what they do on the aircraft).
- Identify the training items for the target groups.
- Present the WG proposals to ARSRAC for approval.

Work Plan:

- Identifying the different minimum training items for recurrent training.
- Identify different target groups.
- Select the detailed minimum training items for every target group.
- Presentation of the proposal to ATSRAC for approval.
- Update of the results depending on the inputs of ATSRAC or other WG's.

Deliverables:

- Detailed training program for each target group for the SWPM recurrent training.

Status:

- Work started in June 2001

Sub-Task # 8.4	**Description: SWPM Recurrent Training**

Roadblocks:

- Clearer understanding of what ATSRAC/FAA expect with regard to recurrent training.
- Updates from other HWG's (August 2002)

Assistance Needed:

- More detailed specification on what ATSRAC/FAA expects with regard to "Recurrent" SWPM" Training. IE:
  Recurrent or Refresher?
  * Standard package across industry or dependent on employee assignment?
  * Pre-test to isolate knowledge gaps and tailor training?
  * Annual, Bi-annual, as needed?
  * The issue of whether training should be objective driven or time driven will need to be resolved in regard to Recurrent/Refresher SWPM

.

Results

- No results

Questions for ATSRAC/FAA

Course Drivers

Will time be the only course driver or will course content, based on sound training objectives, be allowed to determine the programs length?

Will Delivery methodology be specified in A-C or will each operator be allowed to make this decision based on their needs/abilities?

HIRF & Lightning

Bonding covered in item 29 of training program. Training program will cover the Manufacturer's Recommendations, what else would ATSRAC/FAA like to see addressed?

Enhanced Zonal Inspection Procedure

Presently found in Section C Item 13 of training program. Will be addressed by each operator. What else does ATSRAC/FAA wish to see about this?

WIRING SYSTEMS MINIMUM INITIAL TRAINING PROGRAM

Target group A:	**Qualified staff performing maintenance on aircraft (may incl. LRU change)**
	Qualified staff performing general maintenance/inspections not involving wire maintenance. (LRU change is not considered wire maintenance)
Target group B:	**Qualified staff performing maintenance on aircraft including involving electric/avionic maintenance work (e.g. wire repair)**
Target group C:	**Qualified staff performing maintenance inspections on wiring systems**
Target group D:	**Other service staff with duties in proximity to wire (e.g. cleaners, cargo loaders)**
Target group E:	**Qualified staff performing engineering or planning work on in service aircraft**

Minimum required time period	2 days	5 days	4 days	1 day	5 days
Estimated module number :	A	B	C	D	E
A – INTRODUCTION **Demonstrate the safe handling of airplane electrical systems, Line Replaceable Units (LRU's), tooling, troubleshooting procedures, and electrical measurement.**					
1. Safety practices	X	X	X	X	X
2. Electrostatic Discharge Sensitive (ESDS) Device handling and protection	X	X	X		X
3. Tools, special tools and equipment		X	X		X
4. Verify calibration/certification of instruments, tools, and equipment		X	X		
5. Required wiring checks using the Troubleshooting Procedures and Charts		X			X
6. Measurement and troubleshooting using meters.		X	X		X
7. LRU replacement general practices	X	X			X
B – CHAPTER 20 STRUCTURE WIRING PRACTICES **Know the construction and navigation of the applicable airplane wiring system overhaul or wiring practices manual**					
8. Chapter 20 structure/overview		X	X		X
9. Chapter cross-reference Index		X	X		X
10. Important Data and Tables		X	X		X
C – INSPECTION **Understand the General Visual Inspection and Detailed inspection procedures, human factors in inspection, zonal areas, and typical damage that can occur.**					
11. General Visual Inspection (GVI), Detailed Inspection (DI) and Special Detailed Inspection (SDI), criteria and standards (details see attachment)	X GVI only	X GVI only	X		X
12. Human factors in inspection			X		X
13. Zonal areas of inspection			X		X
14. Wiring system damage	X	X	X		X
D – HOUSEKEEPING: **Know the contamination sources, materials, cleaning and protection procedures**					
15. Airplane external contamination sources	X	X	X	X	X
16. Airplane internal contamination sources	X	X	X	X	X
17. Other contamination sources	X	X	X	X	X
18. Contamination protection planning	X	X			X
19. Protection during airplane maintenance and repair	X	X			X

20. Cleaning processes	X	X		X	X
E – WIRE: **Demonstrate the correct identification of different wire types, their inspection criteria, and damage tolerance, repair and preventative maintenance procedures**	A	B	C	D	E
21. Identification, type and construction		X			X
22. Insulation qualities damage limits		X	X		X
23. Inspection criteria and standards of wire and wire bundles			X		X
24. Wire bundle installation practices		X	X		X
25. Typical damage and areas found (airplane specific)	X	X	X	X Low level	X
26. Maintenance and repair procedures		X			X
27. Sleeving		X			X
28. Unused wires-termination and storage		X			X
29. Electrical bonding and grounds/HIRF/Lightning	X Bond	X	X		X
F – CONNECTIVE DEVICES: **Know the procedures to identify, inspect and find the correct repair for typical types of connectors found on the technician's airplane.**					
30. General types and identification		X			X
31. Cautions and protections		X			X
32. Visual inspection procedures		X	X		X
33. Typical damage found		X	X		X
34. Repair procedures		X			X
G – CONNECTIVE DEVICE REPAIR (AIRBUS): **Demonstrate the procedures to replacement of all parts for typical types of connectors found on the technician's airplane.**	A	B	C	D	E
35. Circular Connectors Types NAS 1599, MIL-C-83723, EN2997		X			X
36. Circular Connectors Types MIL-C-26482 & MIL-C-26500					
37. Circular Connectors Types MIL-C-5015 & EN6047					
38. Rectangular Connectors-ARINC 404 & ARINC 600		X			X
39. Rectangular Connectors-Types EN3545 & Sub-D Type MIL-C-24308					
40. Terminal Blocks-Modular Type NSA93/901 ASNE0457		X			X
41. Terminal Blocks- Non-modular Type NSA93/905, ASNE0457		X			X
42. Grounding Modules Type ASNE0425		X			X
43. Pressure Seals-DTP Types		X			X
44. Pressure Seals-Compound filled shell types					
H – LINE REPLACEABLE UNITS (LRU): **Know the removal, testing and repair of LRU's and connective devices.**	A	B	C	D	E
45. Removal and replacement techniques	X	X			
46. Testing of LRU rack connectors					
47. "No Fault Found" Company Policy	X	X			
48. Troubleshooting procedures.		X			