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Federal Aviation Administration  
Washington, D.C.

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## **Flight Standardization Board (FSB) Report**

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Revision: 8  
Date: 10/17/2014

### **McDonnell-Douglas DC9**

**McDonnell Douglas / DC9-10 through -87, MD80, MD88,  
MD90, MD-90EFD, 717-200, MD-87 Fire Tanker**

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**RECORD OF REVISIONS**

<b>Revision Number</b>	<b>Sections</b>	<b>Date</b>
0 (Original)	ALL	06/14/91
1	See Highlights	07/07/94
2	Adds MD-90	08/25/94
3	See Highlights	07/28/95
4	Adds MD-90EFD	03/10/98
5	Adds B-717	02/24/00
6	See Highlights	11/20/03
7	ALL	10/20/11
8	Adds Appendix 5	10/17/2014

**Highlights of Change:**

1. Addition of Appendix 5, DC-9-87 Fire Tanker with installation of Garmin G750. I
2. Updated references with no change in content. I

PURPOSE AND APPLICABILITY.

- 1.1 This FSB report specifies FAA master training, checking, and currency requirements applicable to crews operating DC-9 and MD-80 and MD-88 and MD-90 and 717 aircraft under 14 CFR part 121. This report also addresses certain issues regarding operations other than under 14 CFR part 121 (e.g. Type Rating Determination).

Provisions of the report include:

- 1.1.1 Assigning the same pilot "Type Rating" to the DC-9 and MD-80 related aircraft including the MD-88, MD-90, MD-90EFD, 717 and the DC-9-87 Fire Tanker.
- 1.1.2 Describing "Master Common Requirements" (MCRs) applicable to all DC-9/MD-80/MD-90 and 717 series aircraft.
- 1.1.3 Describing "Master Difference Requirements" (MDRs) for crews requiring differences qualification for mixed-fleet-flying or transition,
- 1.1.4 Providing examples of acceptable "Operator Difference Requirement" (ODR) Tables,
- 1.1.5 Describing an acceptable training program and device characteristics when necessary to establish compliance with pertinent MDRs,
- 1.1.6 Setting checking and currency standards including specification of those checks that must be administered by FAA or operators and,
- 1.1.7 Providing information for FAA Field Offices about DC-9, MD-80, MD-90 and 717 compliance with title 14 of the Code of federal regulations (14 CFR), Advisory Circulars, or other operational criteria.

- 1.2 This report also provides:

- 1.2.1 Minimum requirements which must be applied by FAA field offices, (e.g. MCRs, MDRs, Type rating designations, etc.),
- 1.2.2 Information which is advisory in nature, but may be mandatory for particular operators if the designated configurations apply and if approved for that operator (e.g. MDR footnotes, acceptable ODR tables), and
- 1.2.3 Information which is used to facilitate FAA review or an aircraft type or related aircraft proposed for use by an operator (e.g. compliance checklist for FAA Field Office use).

Note: Various sections within the report are qualified as to whether compliance (considering the provisions of AC 120-53B) is required, recommended, or advisory in nature.

- 1.3 This report addresses DC-9 related models including: DC-9-11, -12, -13, -14, -15, -15F, -21, -31 -32, (VC-9C), -32F, (C-9A C-9B), -33F, -34, -34F, -41, -51, and MD-80 related models including: DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), DC-9-87 (MD-87), MD-88, MD-90-30, MD-90EFD and 717. Refer to FAA Type Certificate Data Sheet A6WE.

DC9-10 through 87, MD80, MD88, MD-90, MD-90EFD,  
717-200, DC-9-87 Fire Tanker

- 1.4 Previous DC-9-10 through -87, MD-88, MD-90 and MD-90EFD reports are superseded. The provisions of this report are effective until amended, superseded, or withdrawn by subsequent revisions to this FSB report.
- 1.5 Terminology.

The term “must” is used in this report and certain MDR footnotes even though it is recognized that this FSB report, and AC 120-53B on which it is based, provides one acceptable means, but not necessarily the only means of compliance with 14 CFR 121 Subpart N and O requirements. This terminology acknowledges the need for operators to fully comply with this FSB report MDR and ODR provisions, if AC 120-53B is to be used by the operator as the means of complying with 14 CFR part 121.

## 1.6 ACRONYMS

ACB	Automatic Thrust Cutback
ACP	Audio Control Panel
AHARS	Attitude Heading and Reference System
ART	Automatic Reserve Thrust
ASU/UDT-III	Application Server Unit/Cockpit Display Terminal
ATR	Automatic Thrust Restoration
AVT	Audio Visual Training
CADC	Central Air Data Computer
CAWS	Central Aural Warning System
CBT	Computer Based Training
DFGC	Digital Flight Guidance Computer
EEDP	Electronic Engine Display Panel
EFB	Electronic Flight Bag
EFD	Enhanced Flight Deck
EFIS	Electronic Flight Instrument System
EFI-890R	Electronic Flight Instrumentation System
EOAP	Electronic Overhead Annunciator Panel
ESIS	Electronic Standby Instrument System
FMA	Flight Mode Annunciator
FMS	Flight Management System
FTD	Flight Training Device
GPWS	Ground Proximity Warning System
HUD	Heads-up Display
IRS	Inertial Reference System
LEC	Lecture
MFD	Multi Function Display
ND	Navigation Display
PMS	Performance Management System
RCU	Radio Control Unit
SIM	Simulator
SLF	Supervised Line Flying
SSDTU	Solid State Data Transfer Unit
TRI	Thrust Rating Indicator
TRP	Thrust Rating Panel
UNS-1Lw	Flight Management System
WSI AV-350	WSI InFlight Weather and Sirius Radio

DC9-10 through 87, MD80, MD88, MD-90, MD-90EFD,  
717-200, DC-9-87 Fire Tanker

2. PILOT "TYPE RATING" REQUIREMENTS.

In accordance with the provisions of 14 CFR parts 1 and 61, the same pilot "type rating" is assigned to all DC-9/MD-80/MD-90and 717 related aircraft listed in paragraph 1.3, and is designated "DC-9".

2.1 ORAL TEST.

Unless otherwise specified by ODR tables, the oral portion of a type rating practical test need only address the related aircraft to be flown.

3. “MASTER COMMON REQUIREMENTS” (MCR)

The following master common requirements for DC-9, MD-80, MD-90 and 717 series aircraft are set for training and checking for this aircraft type. All other requirements are provided in 14 CFR parts 61, 91, and 121.

3.1 LANDING MINIMA CATEGORIES (14 CFR 97.3)

Minima to be used are specified in operations specifications for each operator as follows:

3.1.1 For operators with Automated Standard Operations Specifications [Paragraph C53(c)], circling minima are determined by using the speed category appropriate to the highest speed used during the circling maneuver.

3.1.2 If automated operations specifications have not been issued, circling minima are designated by current Standard Operations Specifications and 14 CFR 97.3.

3.1.3 STRAIGHT-IN APPROACH

For the purpose of determining straight-in landing minima, the DC-9/MD-80/90/717 are considered Category C aircraft, when using 40 Degree Flaps.

For the purpose of determining straight-in landing minima, with 28 Degree Flaps, the categories for the DC-9/MD-80/90/717 are designated as follows:

For the purpose of determining straight-in landing minima, the DC-9 and 717 are Category C aircraft for all landing flap settings.

Aircraft	Landing Flap	Category C	Category D
DC-9, 717	All	All Aircraft	
MD-80	28 Degrees	All Aircraft with a certified MLW 137,000 lbs. or less	All Aircraft with a certified MLW more than 137,000 lbs.
	40 Degree	All Aircraft	
MD-90	28 Degree	All Aircraft with a certified MLW 137,000 lbs. or less	All Aircraft with a certified MLW more than 137,000 lbs.
	40 Degree	All Aircraft	

### 3.1.4 CIRCLING APPROACH.

For the purpose of determining circling approach minima, the minimums are based on the highest speed used during a circling maneuver. As depicted in the table below, the highest speed to be flown (speed category) during the circling maneuver must be used to determine the appropriate minimums. This will ensure that the aircraft will remain within the designated maneuver area and assure obstacle clearance.

Speed Category	Visibility in Statute Miles
Less than 91 kts.	1 Mile
91 to 120 kts.	1 Mile
121 to 140 kts.	1 1/2 Miles
141 to 165 kts.	2 Miles
Above 165 kts.	3 Miles

### 3.2 NO FLAP APPROACH

No-Flap approach and landing must be demonstrated in all related aircraft. Other non-normal flap conditions must also be addressed as they apply to the related aircraft.

### 3.3 REVERSE THRUST

The reverse thrust effects on ground handling are common to all the related aircraft. This includes rudder effectiveness and directional stability particularly as they relate to operations on contaminated runways.

### 3.4 CENTER FUEL PUMP

Training in Center Fuel Tank Pump failures should be conducted in a training device with the fuel system operative to the extent that the operators training program can be accomplished. Training should be structured so that failures of the Center Tank Pumps are encountered in "real time" during periods when other workload requirements may lessen the likelihood of the crew's recognition of the failure of the Center Tank Pump(s). This training should be accomplished during Initial, Transition, Recurrent and Requalification Training.

### 3.5 SPECIFIC FLIGHT CHARACTERISTICS per ATP/PTS section IV, Task E:

None

#### 4. "MASTER DIFFERENCE REQUIREMENTS" (MDR)

##### 4.1 MDR TABLES.

Requirements for particular DC-9 and MD-80 series aircraft and MD-90, and 717 related aircraft combinations are shown in Appendix 1. These provisions apply to crew qualification which pertain to differences between related aircraft, and specify the minimum acceptable difference levels between related aircraft. The MDR table groupings are established based on similar cockpit configurations.

##### 4.2 MDR FOOTNOTES.

Footnotes to MDR requirements define special situations that credit, constrain, or set alternative difference levels. A footnote can indicate requirements that are less restrictive or more restrictive than the basic designation, depending on the significance of the differences between related aircraft.

##### 4.3 GENERIC GROUPINGS OF RELATED AIRCRAFT MODELS.

To simplify the description of the base aircraft and the difference aircraft reference groups, the following generic titles are used in the MDR and ODR tables:

- a) DC-9-10 group includes DC-9-11 through the DC-9-15F models;
- b) DC-9 group includes DC-9-21 through DC-9-51 models;
- c) MD-80 group includes DC-9-81 (MD-81) through DC-9-87 (MD-87) models;
- d) The MD-88 is a stand alone group which includes only the MD-88 model;
- e) The MD-90 is a stand alone group which includes only the MD-90-30 model;
- f) The MD-90EFD is a stand alone group which includes only the MD-90EFD model.
- g) The 717 is a stand alone group which includes only the 717 model.

5. FAA APPROVED "OPERATOR DIFFERENCE REQUIREMENTS" (ODR) TABLES.

5.1 ODR TABLES.

ODR Tables must be developed by each individual operator proposing or conducting mixed fleet flying. Sample tables in the standard format are shown in Appendix 2. ODR operator proposals are normally reviewed by certificate holding district offices and the Principle Inspector for review and approval. When proposals do not clearly show compliance with the provisions of this FSB report and issues remain unresolved, the AEG/FSB should be consulted.

5.2 DISTRIBUTION OF FAA APPROVED ODR TABLES.

5.2.1 Original FAA-approved ODR tables are to be retained by the operator.

5.2.2 Copies of FAA-approved ODR tables are to be retained by the Certificate Holding District Office (CHDO), and provided to the DC-9/ MD-80/ MD-90/717 FSB Chair, Long Beach AEG.

## 6. FSB SPECIFICATIONS FOR TRAINING.

### 6.1 GENERAL

The provisions of this section of the report apply to programs for airmen who have previous experience in both 14 CFR part 121 air carrier operations, and multi-engine transport, Group II turbojet aircraft. For airmen not having such experience, additional requirements may be necessary as determined by the POI, FSB, and AFS-200.

#### 6.1.1 EXISTING SINGLE RELATED AIRCRAFT TRAINING PROGRAMS.

Principal Inspectors or operators initially introducing a single DC-9, MD-80, MD-90 or 717 related aircraft may approve programs consistent with training programs having previous FAA approval. When such new programs are approved, operators should be aware that if other related aircraft are later added or aircraft differences are introduced, that ODR table development and FAA approval is necessary prior to mixed fleet operation of related aircraft.

#### 6.1.2 EXISTING DC-9 AND MD-80/90 INTEGRATED TRAINING PROGRAMS.

Unless an initial or transition training program is completed for each related aircraft, programs with more than one related aircraft of DC-9, more than one related aircraft of MD-80 or MD-90, or combinations of DC-9, MD-80, MD-90, MD90EFD, and 717 require differences training programs meeting criteria specified by the MDR tables.

#### 6.1.3 INTEGRATED TRAINING PROGRAM REDUCTIONS.

Examples of special circumstances that may be considered for reductions include credit for previous applicable experience (e.g. operators implementing combined DC-9 and MD-80 fleets who have crews previously qualified on one related aircraft, as provided for in 14 CFR part 121, section 401(d) or an increase in the quality of effectiveness of the training process (e.g. new types of training devices).

### 6.2 INITIAL, TRANSITION OR UPGRADE TRAINING

Pilot Initial, Upgrade, and Transition Ground and Flight Training is accomplished in accordance with 14 CFR part 121, sections 419 and 424 respectively, or as contained in SFAR 58 Advanced Qualification Program (AQP) as appropriate. When more than one related aircraft is to be flown or transition from one related aircraft to another is to be accomplished, appropriate instruction in systems differences and adequate flight training that is consistent with the MDR provisions will be required to suitably address each related aircraft.

### 6.3 DIFFERENCES TRAINING (14 CFR part 121, section 418)

Differences training as provided in 14 CFR part 121, section 418, may be completed coincident with Initial, Upgrade, Transition, or Recurrent Training. The differences training requirements of Appendix 1 for a mixed-fleet assumes the crewmember has completed Initial, Transition, or Upgrade training and will subsequently receive differences training for other related aircraft groups.

- a) Before airmen serve as Pilot-in-Command (PIC) under 14 CFR part 121 in a related aircraft group other than that in which a type rating practical test was completed, differences checks in accordance with the MDR provisions must be completed. Operators qualifying aircrews in one or more related aircraft, and who conduct the “interior and exterior visual preflight inspection” portion of practical tests under provisions of ATA Exemption 4416 (as amended), may apply provisions of that exemption to DC-9 and MD-80/90 related aircraft.
- b) Where crewmembers fly several related aircraft and differences exist, such as in location and operation of doors, airstairs, exits, tailcone exit, and emergency equipment, operators should account for those differences in a manner acceptable to the FAA when applying provisions of Exemption 4416.

#### 6.3.1 HANDLING QUALITIES.

Qualification in any related aircraft of the DC-9, MD-80, MD-90, MD-90EFD, or 717 provides sufficient training to permit handling qualities credit for all other related aircraft. Any constraints to be applied for subsequent differences in flight characteristics are addressed in the Appendix 2 sample ODR tables.

#### 6.3.2 ENGINE INTERMIX.

Pratt & Whitney engine intermix operations as specified by AFM must clearly address intermix limits and performance (e.g. Vmcg, airport analysis, 14 CFR part 121, section 189 obstacle clearance, etc.). If this information is readily available to the flight crew and easily interpreted, then Level A/A/A is acceptable.

#### 6.3.3 FLAP ANOMALIES.

Training in Flap Anomalies is conducted in accordance with the provisions of Appendix 3, paragraph V.

#### 6.3.4 PASSENGER AND FREIGHTER RELATED AIRCRAFT.

Mixed flying of Passenger and Freighter Related aircraft within the same related aircraft group (e.g. DC-9-31 passenger and freighter configurations) or different related aircraft group (e.g. MD-80 passenger and DC-9-50 freighter) may require compliance with additional MDR footnote limitations (e.g. A/A/B). This is appropriate due to differences in doors, fire protection provisions, emergency evacuation, and other areas of differences.

### 6.3.5 FLIGHT MANAGEMENT SYSTEM (FMS).

Level C differences training requirements for the Flight Management System (FMS) must include “hands-on” training with the FMS and its associated components. These components include the Inertial Reference System (IRS) or AHARS, Multifunction Control and Display Unit (MCDU), mode annunciation, autopilot and auto throttles, and EFIS displays. Comprehensive treatment of this interrelated task training typically requires a MINIMUM of eight programmed hours of “hands-on” instruction. Approval of reductions below eight programmed hours, under the provisions of 14 CFR part 121, sections 401(d) or 405(d), by Principal Inspectors, should be coordinated with AFS-200.

### 6.3.6 PERFORMANCE MANAGEMENT SYSTEM (PMS).

Level C differences training requirements for the Performance Management System (PMS) must include “hands-on” training with PMS and its components. Comprehensive treatment of PMS typically requires a MINIMUM of four programmed hours of “hands-on” instruction.

### 6.3.7 EXTENDED RANGE OPERATIONS.

Training programs should include proper application of ETOPS procedures and requirements for aircraft and operations approved for ETOPS operations.

## 6.4 RECURRENT TRAINING

### 6.4.1 GROUND TRAINING.

Recurrent Ground Training must include appropriate training in accordance with 14 CFR part 121, section 427 for each related aircraft group (e.g. DC-9-30 or DC-9-82, etc.). Recurrent training must be in accordance with the items and levels specified by MDR and ODR tables for initial differences training.

### 6.4.2 FLIGHT TRAINING.

Recurrent Flight Training requires appropriate maneuvers and procedures identified in 14 CFR part 121 Appendix F or as contained in SFAR 58 Advanced Qualification Program (AQP) as appropriate. Maneuvers and procedures must address each related aircraft group operated.

## 6.5 OTHER TRAINING

### 6.5.1 OPERATING EXPERIENCE.

For Initial, Transition, Upgrade and Differences Training, except as described below, 14 CFR part 121, section 434 Operating Experience (OE) may be accomplished in any DC-9 related aircraft.

- a) When qualified in the DC-9-30 through -50 series and qualification is sought in any -80/90/717 series aircraft (with EFIS, EOAP, FMS) following differences training, additional OE must include a minimum of two line segments (takeoff to landing) in an -80/90/717 series related aircraft. For aircraft without EFIS, EOAP and FMS one line segment of OE is required.
- b) When qualified in the DC-9-30 through -50 series and qualification is sought in -10 series related aircraft, at least one OE line segment must be flown with at least one takeoff and landing for each crewmember. See Appendix 3 for additional DC-9-10 training requirements.
- c) When qualified in -80/90 series related aircraft and qualification is sought for series -20 through -50 related aircraft, following differences training, one OE line segment (takeoff to landing) in any DC-9-20 through -50 related aircraft must be accomplished.

### 6.5.2 LOFT PROGRAMS, 14 CFR part 121, section 409(b)(3).

When operators have Line-Oriented Flight Training (LOFT) programs and additional related aircraft are approved, Principal Operations Inspectors (POIs) must review those LOFT programs to assure applicability to each related aircraft.

### 6.5.3 FLIGHT ATTENDANTS.

Due to similarities in cabin configuration, Flight Attendants may be qualified in all related aircraft. Training programs, however, must address any differences in doors, slides, communications, and emergency equipment for all related aircraft. The FSB has determined that it is necessary for each flight attendant to be proficient with procedures for operation of the rear exit and tailcone jettisoning and tailcone slide. Related aircraft specific flight training device requirements are addressed in the ODR tables.

### 6.5.4 DISPATCHER TRAINING

POIs should assure that operators have complied with 14 CFR part 121, section 422, (Dispatcher Training) for all related aircraft as follows: Dispatchers may be qualified for all related aircraft. However, if related aircraft have different performance, procedures, or limitations (e.g. use "Flex" thrust ratings, ARTS, MMEL, CAT IIIa, Engine Intermix, or similar differences), dispatchers must be trained to suitably address those differences. Records should be kept for each related aircraft for which dispatchers are qualified.

## 7. FSB SPECIFICATIONS FOR CHECKING

### 7.1 GENERAL.

Checking specified by 14 CFR part 61 Practical Test Standards and 14 CFR part 121, Appendix F, Order 8900.1 and SFAR 58 apply to all related aircraft. For 14 CFR part 121, differences checking items are accomplished as specified by MDRs and ODRs.

### 7.2 PRACTICAL TESTS 14 CFR 121 OPERATIONS.

Airmen may complete the necessary practical test in any related aircraft for issuance of a "DC-9" pilot type rating.

7.2.1 Before airmen serve as Pilot-in-Command (PIC) under 14 CFR part 121 in a related aircraft group other than that in which a type rating practical test was completed, differences checks in accordance with the MDR provisions must be completed. Operators qualifying aircrews in one or more related aircraft, and who conduct the "interior and exterior visual preflight inspection" portion of practical tests under provisions of ATA Exemption 4416 (as amended), may apply provisions of that exemption to DC-9, MD-80/90, and 717 related aircraft.

7.2.2 Where crewmembers fly several related aircraft and differences exist, such as in location and operation of doors, airstairs, exits, tailcone exit, and emergency equipment, operators should account for those differences in a manner acceptable to the FAA when applying provisions of Exemption 4416.

### 7.3 PRACTICAL TEST 14 CFR PART 91 OR 125 OPERATIONS.

When possible, a practical test for an applicant intending to operate under 14 CFR part 91 or 125 should be conducted in a related aircraft of the same group intended to be flown (e.g. Test conducted using a DC-9-30 series aircraft for an applicant intending to fly a DC-9-31). In the event this is not possible or practical, or where a DC-9 Type Rating is sought and no specific DC-9 and MD-80/90/717 operation is planned or intended, the test may be conducted using any DC-9 or MD-80/90/717 related aircraft. In this instance, and following a successful test, the applicant should be advised of the desirability of completing subsequent differences training if other related aircraft are to be flown.

#### 7.4 AREAS OF EMPHASIS.

The following areas of emphasis should be addressed during checks as necessary:

##### 7.4.1 AUTOMATIC AND MANUAL FLIGHT.

Proficiency with manual and automatic flight in normal, abnormal and emergency situations must be demonstrated. This includes the use of automated equipment Electronic Flight Instrument System (EFIS), Digital Flight Guidance System (DFGS), Flight Management System (FMS), etc. and their associated reversionary modes (Compact Mode, IRS Only, etc.). The use of manual modes (Manual Approaches) and backup equipment must be demonstrated at proficiency checks by all crewmembers.

##### 7.4.2 UNIQUE DESIGN FEATURES AND PROCEDURES.

Proper use of features not commonly found on other transport aircraft such as "Dial-a-Flap", Flap and Center of Gravity (CG) readout, Automatic Reserve Thrust (ART), Heads up Display (HUD), the possible need to retract flaps following engine failure during approach, proper response to "spoiler float", or similar unique issues must be addressed.

##### 7.4.3 NOISE ABATEMENT.

When noise abatement procedures other than those specified by AC 91-53A are used, proper execution of the approved procedure should be observed. Operational approval of thrust cutback is required by the POI.

##### 7.4.4 FLAP ANOMALIES.

Checking in Flap Anomalies is conducted in accordance with the provisions of Appendix 3, paragraph V.

##### 7.4.5 ADDITIONAL TRAINING ADVISED.

Completion of a briefing of an applicant regarding the desirability of additional differences training prior to flying other DC-9/MD-80/90/717 related aircraft may be noted by the inspector adjacent to the "Inspector's Report" block of the FAA Form 8710-1. The inspector should recommend that at least one of the following provisions be met prior to serving as PIC of a related aircraft other than the one in which the original test was accomplished:

- a) Completion of differences training in accordance with or equivalent to that specified for 14 CFR part 121 (e.g. Compliance with MDRs),
- b) Completion of a check in accordance with 14 CFR part 61, section 58 completed in the related aircraft(s) to be flown, or
- c) Completion of a proficiency check in accordance with or equivalent to that specified by 14 CFR 121, a check conducted by a US military service or other equivalent check in an aircraft of the related aircraft group to be flown.

## 7.5 PROFICIENCY CHECKS.

### 7.5.1 GENERAL.

Proficiency Checks (PC) are administered as designated in 14 CFR part 121, section 441 and Appendix F for a particular DC-9, MD-80/90, or 717 related aircraft group.

- a) Satisfactory completion of a proficiency check may be substituted for recurrent flight training as permitted in 14 CFR part 121, section 433(c).
- b) Proficiency checks which may be required in accordance with 14 CFR part 61 section 58, but do not pertain to 14 CFR part 121 operations, should be administered using the related aircraft or a related aircraft within the same group as the aircraft intended to be flown unless otherwise authorized by the FAA.
- c) Guidance on specific maneuvers and devices necessary to address MDRs is provided in the sample ODR tables of Appendix 2 or by ODR tables of other FAA- approved programs.

### 7.5.2 FMS DEMONSTRATION OF COMPETENCY.

#### a) FMS CHECKS:

Checking for differences related to a related aircraft having FMS should include initialization, takeoff, departure, cruise, arrival, transition to a precision and non-precision approach, missed approach, holding, diversion to an alternate or route re-clearance, and pertinent non-normal's. FMS competency may be demonstrated in conjunction with other training/checking, or may be addressed separately using the procedures described in 14 CFR part 121, section 401(c).

#### b) CREDIT FOR EXPERIENCE.

When an airman being checked had previous experience with the same or similar FMS and demonstrates obvious competency with FMS operation, check airmen or FAA Inspectors may waive further demonstration.

#### c) DEVICES.

If an FMS equipped simulator or airplane is not used for a PC, an additional demonstration of proficiency on the FMS using a level 4 FTD or higher is required. The device used for this portion of the PC may be the same device used for training. Devices that may be used for this training/checking are defined in Section 10 of this report.

7.6 LINE CHECKS (14 CFR part 121, section 440).

Line Checks completed for a DC-9, MD-80, MD-90, or 717 may satisfy requirements for any of the aircraft.

7.7 QUALIFICATIONS OF FAA INSPECTORS, DESIGNATED EXAMINERS, AND CHECK AIRMEN.

FAA Inspectors, designated examiners, and check airman should have completed appropriate training for the related aircraft(s) to be flown. Unless otherwise specified by the FAA, airman certification for the DC-9/MD-80/MD-90/717 related aircraft groups should be conducted by individuals qualified in the respective related aircraft group. Check airmen assigned to more than one related aircraft group for the purposes of supervision of OE under 14 CFR part 121, section 434 should have completed at least two line segments or two takeoffs and landings in the respective related aircraft group(s) for which they will serve as check airman (e.g. DC-9-50 or MD-80 series).

## 8. FSB SPECIFICATIONS FOR CURRENCY.

### 8.1 GENERAL (Recent Experience) 14 CFR part 121, section 439.

#### 8.1.1 GENERAL.

Unless approved through ODR tables, currency required by 14 CFR part 121, section 439 is to be addressed separately for each related aircraft group as specified in MDR Tables. For programs approved through ODR tables, currency is specified in accordance with MDRs. Operators procedures should ensure that crewmembers will have significant exposure to all related aircraft groups to be flown.

#### 8.1.2 COMPLIANCE.

Any currency method approved requires some means for the operator and the FAA to assess the level of compliance, in order to assure that crewmembers are meeting currency objectives.

### 8.2 METHODS FOR RE-ESTABLISHING CURRENCY.

#### 8.2.1 LEVEL B.

Currency may be re-established by crewmember review of pertinent differences training materials per operator's guidelines.

#### 8.2.2 LEVEL C.

Currency is re-established by completing required items as shown in the ODR Table using a device equal to or higher than that specified for Level C differences training and checking.

#### 8.2.3 LEVEL D.

Currency is re-established by completing pertinent maneuvers as shown in the ODR Tables using a device equal to or higher than that specified for Level D differences training and checking.

### 8.3 ALTERNATIVE METHODS.

Alternative methods of re-establishing currency include flight with an appropriately qualified flight instructor or check airman during training or operations, completion of proficiency training, or a proficiency check.

9. 14 CFR 91 AND 121 OPERATING RULES COMPLIANCE CHECKLIST

9.1 OPERATING RULES COMPLIANCE CHECKLIST.

Due to the extensive operating experience of the entire DC-9/MD-80/MD-90 fleet, an Operating Rules Compliance Checklist has not been included in this report. Inspectors who need to establish compliance with operating rules for a new operator or related aircraft new to his or her operator are encouraged to coordinate with the POI of another carrier who is operating that related aircraft.

9.2 EMERGENCY EVACUATION.

All the listed emergency evacuation findings accomplished under simulated demonstration were completed in accordance with 14 CFR part 25.803 and are credited under 14 CFR part 121, section 291 for configurations and passenger capacities specified below and in FAA Order 8900.1, Vol.3, Chapter 30, Section 9. All the listed emergency evacuation findings determined by analysis are based on actual simulated emergency evacuation tests as indicated below. In general, a mini evacuation is not required if the particular operator's crews are currently qualified on a DC-9 related aircraft with the same or similar interior configuration, exit configuration and cabin crew complement and duties. If significant differences exist, the need for a mini evacuation is determined by the certificate holding district office.

- a) The DC-9-30 has demonstrated, under simulated emergency evacuation tests, successful evacuation of 127 passengers and 5 crew members.
- b) The DC-9-50 has demonstrated, under simulated emergency evacuation tests, successful evacuation of 139 passengers and 5 crew members.
- c) The DC-9-80 has demonstrated, under simulated emergency evacuation tests, successful evacuation of 172 passengers and 6 crew members.
- d) The DC-9-87 has demonstrated by analysis, based on simulated emergency evacuation tests for the DC-9-50 and the DC-9-80, successful evacuation of 139 passengers and 5 crew members.
- e) The MD-90 has demonstrated by analysis, based on simulated emergency evacuation tests for the DC-9-80, successful evacuation of 172 passengers and 6 crew members.
- f) The 717 has demonstrated by analysis, based on a), b), c), d), and e) above, successful evacuation of 134 passengers and 5 crew members.

## 10. FSB SPECIFICATIONS FOR DEVICES AND SIMULATORS.

### 10.1 DEVICE AND SIMULATOR CHARACTERISTICS.

Device and simulator characteristics pertinent to related aircraft are as designated in Advisory Circular 120-53B and must replicate the aircraft to the extent necessary to appropriately accomplish required training and checking. This includes sufficient detail to train for normal cockpit setup and appropriate system checks.

#### 10.1.1 FMS TRAINING.

FMS (includes IRS or AHARS) and EFIS training and checking must be conducted in a device which meets the criteria for a Level 4 FTD or higher. The device must include at least one MCDU, associated EFIS displays and controls and Navigation controls (AHARS or IRS), associated Flight Guidance Control Panel and Flight Mode Annunciators. Computer software used in the FMS and DFGS training must be the same as or equivalent to software utilized on the aircraft.

#### 10.1.2 ENGINE AND OVERHEAD DISPLAY.

When different engine display formats are used, crews should be trained using the different displays to assure proper display interpretation and use. In the case of the Electronic Engine Display Panels and Electronic Overhead Annunciator Panels, installed on some MD-80 series aircraft, level C training is required with a level 4 FTD or higher. POIs should ensure that these devices are used to adequately portray realistic scenarios, including normal, abnormal and emergency annunciation. The trainer should have the capability for the instructor to input system faults for training realism.

### 10.2 AIRCRAFT, SIMULATOR AND DEVICE COMPATIBILITY (Ref. 14 CFR part 121.407).

When related aircraft are flown in mixed fleets, the combination of simulators and training devices used to satisfy MDR and ODR provisions must match specific related aircraft flown by that operator in order to satisfactorily meet training, checking and currency requirements. The acceptability of differences between training devices, simulators, and aircraft must be addressed by the POI.

### 10.3 DEVICE APPROVAL.

Requests for device approval should be made to the POI. If device characteristics clearly meet established FAA criteria and have been qualified by the National Simulator Program (NSP), the POI may approve the use of those devices for that carrier. When devices do not clearly satisfy a given level, POIs should request advice from the FSB Chairman or NSP.

## 11. APPLICATION OF FSB REPORT.

### 11.1 OPERATORS WITH ANY ONE RELATED AIRCRAFT.

Operators must apply relevant parts of this report (e.g. Type Rating designation, checking maneuvers related to 14 CFR 121, etc.) following the effective date of this report.

### 11.2 OPERATORS WITH A MIXED FLEET.

Apply the provisions of paragraph 11.1 as described above. In addition, mixed fleet compliance with MDR, ODRs, and other relevant FSB report provisions is necessary. Compliance must be within a period of 90 days from the date of an operator's commencement of mixed-fleet flying, or obtain alternate compliance. Since FAA review and approval of training programs, training devices, training methods, and other items requires a reasonable period of time, and since many DC-9, MD-80/90, or 717 operators may need to apply for approval under the provisions of AC 120-53B, operators should plan to submit proposed ODR tables to POIs at least 30 days prior to the expected date of approval in order to assure timely review and approval of the operator's proposed program.

## 12. ALTERNATE MEANS OF COMPLIANCE.

### 12.1 APPROVAL LEVEL AND APPROVAL CRITERIA.

Alternate means of compliance to difference requirements of 14 CFR part 121 Subpart N and O for mixed fleet operations, other than as specified in provisions of this report, must be approved by AFS-200. If Alternate compliance is sought, operators will be required to establish that the proposed alternate means provides an equivalent level of safety to the provisions of AC 120-53B and this FSB report. Analysis, demonstrations, proof of concept testing, differences documentation, or other evidence may be required.

### 12.2 EQUIVALENT SAFETY.

In the event alternate compliance is sought, training program hour reductions, simulator approvals, and training device approvals, may be significantly limited and reporting requirements may be increased to assure equivalent safety. FAA will generally not consider relief through alternate compliance unless sufficient lead time had been planned by an operator to allow for any necessary testing and evaluation.

### 12.3 INTERIM TRAINING PROGRAMS.

In the event of clearly unforeseen circumstances in which it is not possible for an operator to comply with MDR provisions, the operators may seek an interim training program rather than a permanent alternate compliance method. Financial arrangements, scheduling adjustment, and other such reasons are not considered "unforeseen circumstances" for the purposed of this provision.

13. MISCELLANEOUS-RESERVED

APPENDICES

APPENDIX 1

MASTER DIFFERENCE REQUIREMENTS - DC-9/MD-80/MD-90/717

### MASTER DIFFERENCES REQUIREMENTS

TYPE RATING	FROM AIRCRAFT ( BASE AIRCRAFT )						
<u>DC-9</u>	<u>DC-9-10</u>	<u>DC-9</u>	<u>MD-80</u>	<u>MD-88</u>	<u>MD-90</u>	<u>MD90 EFD</u>	<u>B-717-200</u>
<u>DC-9-10</u>	<u>- / - / -</u> (10)	<u>D/B/D</u> (5)	<u>D/D/D</u> (5)	<u>D/D/D</u> (5)	<u>D/D/D</u> (5)(6)	<u>NOT EVALUATED</u>	<u>NOT EVALUATED</u>
<u>DC-9</u>	<u>D/D/D</u> (5)	<u>- / - / -</u>	<u>D/C/B</u>	<u>D/C/B</u>	<u>D/C/B</u>	<u>NOT EVALUATED</u>	<u>NOT EVALUATED</u>
<u>MD-80</u>	<u>D/D/D</u> (5)	<u>D/C/B</u>	<u>- / - / -</u> (1)(2)(3) (9)	<u>B/B/B</u>	<u>C/C/C</u>	<u>NOT EVALUATED</u>	<u>NOT EVALUATED</u>
<u>MD-88</u>	<u>D/D/D</u> (5)	<u>D/C/C</u>	<u>C/C/C</u> (1)(2)(3)	<u>- / - / -</u>	<u>B/A/B</u> (4)	<u>D/D/D</u>	<u>NOT EVALUATED</u>
<u>MD-90</u>	<u>D/D/D</u> (5)(6)	<u>D/C/C</u>	<u>C/C/C</u> (1)(2)(3)	<u>B/A/B</u> (4)	<u>- / - / -</u>	<u>D/D/D</u>	<u>D/C/C</u> (8)
<u>MD-90 EFD</u>	<u>NOT EVALUATED</u>	<u>NOT EVALUATED</u>	<u>NOT EVALUATED</u>	<u>D/D/D</u> (7)	<u>D/D/D</u> (7)	<u>- / - / -</u>	<u>NOT EVALUATED</u>
<u>B-717-200</u>	<u>NOT EVALUATED</u>	<u>D/D/D</u> (8)	<u>NOT EVALUATED</u>	<u>NOT EVALUATED</u>	<u>D/C/C</u> (8)	<u>NOT EVALUATED</u>	<u>- / - / -</u>

**NOTES:** Each cell of the MDR identifies the minimum training, checking, and currency requirement applicable to mixed fleet flying or transitioning between the referenced aircraft pair.

Currency interval is as required by 14 CFR and/or approved Recurrent Training Program unless otherwise noted in the ODR Tables.

- (1) With installation of any of the following systems in combination C / C / C:
  - Electronic Flight Instrument System . . . . .( EFIS )
  - Flight Management System . . . . .( FMS )
  - Performance Management System .. . . .( PMS )
  
- (2) With installation of either of the following systems in combination B / B / B:
  - Electronic Engine Display Panel.....( EEDP )
  - Electronic Overhead Annunciator Panel.....( EOAP )
  - Electronic Flight Instrument System . . . . .( EFIS )
  - Performance Management System . . . . .( FMS )
  
- (3) Credit is given for training accomplished with Electronic Display Systems, EFIS, PMS, or FMS installed on earlier model MD-80 airplanes provided any software or procedural questions between related aircraft are addressed.
  
- (4) Each Captain must receive one line segment of Operational Experience (OE) or equivalent Special Purpose Operational Training (AC 120-53B) in a Level C or higher simulator.
  
- (5) See Appendix 3, paragraph IX, for Special Training Requirements and specific Differences Training Requirements for the DC-9-10.
  
- (6) The FSB did not specifically evaluate the differences between the DC-9-10, MD-90 or MD-90EFD. Should an operator wish to operate DC-9-10, MD-90 or MD-90EFD aircraft in mixed fleet flying, with either aircraft being the “base” aircraft, consult the DC-9 / MD-80 / MD-90 FSB chairman and AFS-200.
  
- (7) Each Captain must receive two line segments of Operational Experience (OE) or equivalent (two legs) Special Purpose Operational Training (AC120-53B) in a Level C or higher simulator.
  
- (8) Each Captain must receive two line segments of Operational Experience or equivalent (four hours) Special Purpose Operational Training (AC 120-53B) in a Level 6 FTD or higher.
  
- (9) When transitioning between Electronic Flight Instrument Systems and Flight Management Systems: C / C / C
  
- (10) See Appendix 4 for specific training, checking and currency requirements for the Universal EFI-890R installation on the DC-9-10.

DIFFERENCE LEVELS

DIFFERENCE LEVEL	TRAINING	CHECKING	CURRENCY
A	Self Instruction	Not Applicable (Or integrated with next PC)	Not Applicable
B	Aided Instruction	Task or System	Self Review
C	Systems Device	Partial Check Using Device	Designated System
D	Maneuver Device	Full PC using Device*	Designated Maneuver
E	Simulator C/D or Aircraft #	Full PC using Simulator C/D or Aircraft*	Per 14 CFR (takeoffs & landings in simulator C/D or the aircraft)

# At level E = FAA Type Rating is Assigned.

\* = OE (Supervised Line Flying) or Special Purpose Operational Training is required.

PC = Proficiency Check.

APPENDIX 2

OPERATOR DIFFERENCES REQUIREMENTS (ODR) TABLES

**SAMPLE OPERATOR DIFFERENCES REQUIREMENTS TABLE**

DIFFERENCE AIRCRAFT:MD-80 ANALOG BASE AIRCRAFT: DC-9 APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char	Proc. Change	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CUR R
Airplane Configuration	Body extension 28.5 ft., Wing extension 14.5 ft., Dorsal fin 1.9 ft., Engine strakes, aft galley service door	No	No	-	AVT LEC CBT	-	-	A	-
Panel Layout	Addition of DFGS, Dial-A-Flap, CG Computer, FMA, Pressurization Control panel, Digital Fuel System, Hydraulic controls, auto-throttles, brake selector.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
Weights	Growth related changes.	No	No	-	AVT LEC CBT	-	-	A	-
Powerplant	-200 series engines (increased thrust)	No	Yes	-	AVT LEC CBT	-	-	A	-

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

**SAMPLE OPERATOR DIFFERENCES REQUIREMENTS TABLE**

DIFFERENCE AIRCRAFT:MD-80 ANALOG BASE AIRCRAFT: DC-9 APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. AIR COND & PRESS.	Automatic Controller, Radio Rack Cooling Fans, Manual Pressure controller handle.	No	Yes	-	AVT LEC CBT	-	-	-	-
22. AUTO FLIGHT	DFGS, Auto Throttles, Flight Mode Annunciator.	No	Yes	-	AVT LEC CBT	FTD 4	-	C	C 90 Days
24. ELECTRICAL	Minor changes in power distribution, location of cross-tie lockout switch, Battery SW lock	No	No	-	AVT LEC CBT	-	-	-	-
26. FIRE PROTECTION	Annunciator Lights, Lavatory Fire & Smoke Detectors.	No	No	TNG HND OUT	-	-	-	-	-
27. FLIGHT CONTROL	Auto Ground Spoiler (T.O./RTO made with Auto Brakes), Inboard Ground Spoiler Panel added Slat (mid position) Flap Handle & detents, stall warning computer, (includes Stick Pusher and Post stall Recovery Protection), Dial-A-Flap, Stabilizer takeoff position indicator.	No	Yes	-	AVT LEC CBT	-	SIM A/B ***	C	C 90 Days
28. FUEL	Digital Fuel Qty. and Totalizer Gauge Tank Capacities	No	Minor	TNG HND OUT	-	-	-	-	-

\*\*\*= A lower level device has not been evaluated

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

DC9-10 through 87, MD80, MD88, MD-90, MD-90EFD,  
717-200, DC-9-87 Fire Tanker

**SAMPLE OPERATOR DIFFERENCES REQUIREMENTS TABLE**

DIFFERENCE AIRCRAFT:MD-80 ANALOG BASE AIRCRAFT: DC-9 APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
29. Hydraulics	Transfer Pump function.	No	No	-	AVT LEC CBT	-	-	-	-
30. Ice and Rain	Nose Strakes (heated), Stall Warning Vane Heaters (Nomenclature), De-icing Switch control and function.	No	Minor	-	AVT LEC CBT	-	-	-	-
31. Indicating	Central Aural Warning System (CAWS).	No	Minor	-	AVT LEC CBT	-	-	-	-
32. Landing Gear	Uplatch check eliminated, brake selector handle removed, one brake press accumulator removed, 3 gear not safe lights eliminated, wheel not turning light. Added brake temp gauge, location of nose gear mechanical down lock indication.	No	Minor	-	AVT LEC CBT	-	-	-	-
34. Navigation	Flight instruments upgraded, pitot static system, CADC, attitude comparator system, instrument switching, terrain warning, PMS, HUD, OMEGA, TRI, and GPWS upgraded.	No	Yes	-	AVT LEC CBT	-	SIM A/B ***	C	C 90 Days
35. Oxygen	Oxygen generators vs. tank with manifold.	No	Yes	TNG HND OUT	-	-	-	-	-
36. Pneumatics	Minor changes.	No	Yes	TNG HND OUT	-	-	-	-	-
49. Auxiliary Power Unit	60 second time delay feature.	No	Minor	TNG HND OUT	-	-	-	-	-
52/53/56. Doors/ Fuselage	AFT service door added, aft door and slide operation gear viewing window eliminated.	No	Yes	-	-	FTD	-	-	-
73-80. Engines	Flight idle position, ART, Ignition system, Engine sync, thrust reverser (Landing Procedure), Starting procedures Engines - 200 series.	Minor	Yes	-	AVT LEC CBT	FTD 4	-	B	B 90 Days

\*\*\*= A lower level device has not been evaluated

**SAMPLE OPERATOR DIFFERENCES REQUIREMENTS TABLE**

DIFFERENCE AIRCRAFT: <b>MD-80 ANALOG</b> BASE AIRCRAFT: <b>DC-9</b> APPROVED BY POI:				COMPLIANCE METHOD					
Maneuver	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Performance	Changed	No	No	-	-	-	-	A	-
Limitations	Growth and system related changes.	No	Yes	-	-	-	-	A	B 90 Days
Takeoff, climb, cruise, instrument & missed approach	Use of DFGS, Auto-throttle, autopilot and flight director.	No	Yes	-	-	-	SIM A/B ***	C	C 90 Days

\*\*\*= A lower level device has not been evaluated

**SAMPLE OPERATOR DIFFERENCES REQUIREMENTS TABLE**

DIFFERENCE AIRCRAFT: <b>MD-88</b> BASE AIRCRAFT: <b>MD-80</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Airplane Configuration	None	-	-	-	-	-	-	-	-
Panel Layout	EOAP, EEPD	No	Yes	-	AVT LEC CBT	-	-	-	-
	FMS, AHARS, IRS	No	Yes	-	AVT LEC CBT	-	-	-	-
	EFIS	-	-	-	AVT LEC CBT	-	-	-	-
Weights	Increased to as high as 160,000 lbs. takeoff and 150,000 lbs. landing	No	Yes	-	AVT LEC CBT	-	-	-	-
Powerplant	-217c or -219 engines.	No	Yes	-	AVT LEC CBT	FTD 4	-	-	-

**SAMPLE OPERATOR DIFFERENCES REQUIREMENTS TABLE**

DIFFERENCE AIRCRAFT:MD-88 BASE AIRCRAFT: MD-80 APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Fit. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. Air Cond. & Pressurization	Digital pressurization control panel.	No	Minor	-	AVT LEC CBT	-	-	-	-
27. Flight Control	Flap speeds, Rudder travel unrestricted speed changes. Ground spoiler lock-out (Flap ext. beyond 6° in flight).	No	No	-	AVT LEC CBT	-	-	-	-
28. Fuel	Fuel tank configuration.	No	No	-	AVT LEC CBT	-	-	-	-
29. Hydraulics	Hyd. Pump control switches changed.	No	Yes	TNG HND OUT	-	-	-	-	-
31. Indicating & Recording	EEDP	No	No	-	AVT LEC CBT	FTD 4	-	-	-
33. Lights	EOAP	No	Yes	-	-	FTD 4	-	-	-
34. Navigation	FMS, EFIS, IRS	No	Yes	-	AVT LEC CBT	FTD 4	-	C	C 90 Days
73-80. Engines	Starting procedures - 217c or -219 EEDP	No	No	-	-	FTD 4	-	-	-

**SAMPLE OPERATOR DIFFERENCES REQUIREMENTS TABLE**

DIFFERENCE AIRCRAFT: <b>MD-88</b> BASE AIRCRAFT: <b>MD-80</b> APPROVED BY POI:				COMPLIANCE METHOD					
Maneuver	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Takeoff, Climb, Cruise, Instrument & Missed Approach	Use of FMS, AHARS, IRS	No	Yes	-	-	FTD 5	-	C	C 30 Days
	EOAP, EEDP	No	Yes	-	-	FTD 5	-	C	-
	EFIS	No	Yes	-	-	FTD 5	-	C	-
	Windshear Guidance (see Appendix 3)	No	Yes	-	-	FTD 6	-	-	-
	EFIS Compact Mode (see Appendix 3)	No	Yes	-	-	-	-	-	-
Abnormals	FMS, AHARS, IRS, EFIS	No	Yes	-	-	C	-	C	C 90 Days
Performance	Changed	No	No	-	AVT LEC CBT	-	-	-	-
Limitations	System related changes	No	No	TNG HND OUT	-	-	-	A	B 90 Days

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT:MD-90 BASE AIRCRAFT: MD-88 APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Airplane Configuration	Fuselage length, stabilizer plan form reduced, vertical stabilizer extended.	No	No	-	AVT LEC CBT	-	-	A	-
Panel Layout	Switches/Gauges additions and deletions, switch functions, switch locations, EFI, EEDP, ESDP, FMS, EOAP, TRP.	No	Yes	-	AVT LEC CBT	-	-	A	-
Weights	Growth related changes.	No	No	-	AVT LEC CBT	-	-	A	-
Powerplant	IAE V-2500 Increased thrust design changes.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT:MD-90 BASE AIRCRAFT: MD-88 APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Fit. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. Air Conditioning and Pressurization	A/C Pressure gauge replaced with flow gauge, Digital controller, Bleed Air sources.	No	No	-	AVT LEC CBT	-	-	A	B 90 Days
22 Auto Flight	DFGS/FMS Upgrades	No	No	TRN HND OUT	-	-	-	A	-
23. Communications	Audio control panels, Fault Light, Alternate Sw light.	No	Yes	-	AVT LEC CBT	-	-	A	
24. Electrical	VSCF System added, CSD gauges/switches and indicators deleted, redesigned system control panel, Emergency power "Armed" function added, AC Load meter calibration changed, Batteries (number, capacity and location), Battery direct BUS reset function, EOAP messages changed, Ground service BUS panel changed.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 DAYS
25. Equipment and Furnishings	Observer seat and peripheral equipment, various cabin furnishings.	No	No	TNG HND OUT	-	-	-	A	-
26. Fire Protection and Detection	Automatic fault detection and message, automatic loop switching, test switches and functions.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
27. Flight Controls	Mach Trim through autopilot trim system, pylon flap added, powered elevator and cable loop added, secondary rudder limiter added, Elevator at Limit annunciation, Elev. Lad Feel changed, Split Elevator msg.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT:MD-90 BASE AIRCRAFT: MD-88 APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Fit. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
28. Fuel	Return to tank system. Alternate Fuel burn system. Main Tank Fuel Pressure Low Message. Center tank Fuel Pressure Low Message. Fuel Heat Switches Removed.	No	Yes	-	AVT LEC CBT	-	-	A	-
29. Hydraulic	Hydraulic Control Switches changed. Quantities Limits changed. Powered Elevator system added.	No	Yes	TNG HND OUT	-	-	-	A	-
30. Ice and Rain	Strakes & VSCF Inlet Electrical Anti-ice system. Simultaneous Wing/Tail De-ice with Wing Flaps >28°. Single Anti-ice Valve for engines.	No	Yes	TNG HND OUT	-	-	-	A	B 90 Days
31. Indicating/Recording Systems	EOAP	No	No	TNG HND OUT	-	-	-	A	-
32. Landing Gear	Carbon brakes. Increased Brake Temp. Limits. Autobrake disconnect at 90% pedal travel.	No	No	TRN HND OUT	-	-	-	A	B 90 Days
33. Lights	O/W Exit Lights operation during Emergency power operation.	No	Minor	TRN HND OUT	-	-	-	A	-
34. Navigation	IRS	No	Yes	-	AVT LEC CBT	-	-	A	-
36. Pneumatics	L/R Tail Temp. High annunciations added. Added EOAP MSGs.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
49. APU	EGT gauge in % vs. RPM. Door switch deleted. Operational envelope expanded to FL370. Cool down timer increased to 90 seconds. In-flight Battery Start Capacity added.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-88</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
72. Engines	V-2500 Engines FADEC Engine Vibration Monitoring system added. Engine start switches changed. N1 default mode added. Auto Start. Engine Sync. Changed. Over Rated Thrust (ORT) Gate added. Oil Qtys. Limits changed. Thrust Rating Panel (TRP) changed.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
73. Fuel Control	Lever lock fuel SW (with light indicator)	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
74. Ignition	Ignition switch changed. Auto Ignition function added.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
77. Engine Indicating	Electronic Engine Display Panel added. Electronic Systems Display Panel added.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
78. Engine Exhaust	Cascade Thrust Reverser added. Reverser thrust Lever (detent) added.	No	No	-	AVT LEC CBT	-	-	A	B 90 Days

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-88</b> APPROVED BY POI:				COMPLIANCE METHOD					
Maneuver	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Walk-Around	Preflight Inspection VSCF Inlet Ducts	No	Yes	TNG HND OUT	-	-	-	A	B 90 Days
Takeoff, Climb, Cruise, Instrument & Missed Approach	Optional use of FMS.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
	EFIS compact Mode (see appendix 3)	No	Yes	-	-	-	-	-	-
Performance	Changed	No	No	TNG HND OUT	-	-	-	A	-
Limitations	Growth Related Changes	No	No	TNG HND OUT	-	-	-	A	B 90 Days

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-80 Analog</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Airplane Configuration	Fuselage Length stabilizer planform reduced. Vertical stabilizer extended	No	No	-	AVT LEC CBT	-	-	A	-
Panel Layout	Switches/Gauges additions and deletions. Switch Functions. Switch Location, EFIS, EEDP, ESDP, FMS, EOAP, TRP.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
Weights	Growth Related changes.	No	No	-	AVT LEC CBT	-	-	A	-
Powerplant	IAE V-2500 Increased thrust design changes.	No	No	-	AVT LEC CBT	-	-	A	B 90 Days

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-80 Analog</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. Air Conditioning and Pressurization	A/C Pressure gauge replaced with flow gauge. Digital Controller. Bleed Air sources.	No	No	-	AVT LEC CBT	-	-	A	B 90 Days
22. Autoflight	DFGS Upgrades. LNAV, VNAV added.	No	Yes	-	AVT LEC CBT	FTD 4	-	A	B 90 Days
23. Communications	Audio Control Panels. Fault Light alternate SW Light.	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
24. Electrical	VSCF System added. CSD's Gauges/Switches and Indicators deleted. Redesigned system control panel. Emergency Power "Armed" function added. AC Loadmeter calibration changed. Batteries (number, capacity and location), Battery Direct BUS reset function, EOAP messages changed, Ground service BUS panel changed.	No	Yes	-	AVT LEC CBT	-	-	B	B 90 Days
25. Equipment and Furnishings	Observer Seat and peripheral equipment. Various cabin furnishings.	No	No	TNG HND OUT	-	-	-	A	-
26. Fire protection and detection.	Automatic fault detection and message, Automatic Loop switching, Test switches and functions.	No	Yes	-	AVT LEC CBT	-	-	B	-

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-80 Analog</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Ft. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
27. Flight Controls	Mach Trim through autopilot trim system, pylon flap added, powered elevator and cable loop added, secondary rudder limiter added, Elevator At Limit Annunciation, Elevator load feel changed, Split Elevator MSG.	No	Yes	-	AVT LEC CBT	-	-	B	-
28. Fuel	Return to tank system.  Alternate fuel burn system.  Main Tank Fuel Level Low Msg.  Fuel tank boost pump switches changed for AFB.  Center Fuel tank Pressure Low Msg.  Fuel Heat Switches removed.	No	Yes	-	AVT LEC CBT	FTD 4	-	B	-
29. Hydraulics	Hydraulic switches changed.  Quantities Limits changed.  Powered Elevator system added.	No	Yes	-	AVT LEC CBT	-	-	A	-
30. Ice and Rain	Strake and VCSF inlet electrical anti-ice system.  Simultaneous Wing/Tail de-ice with flaps>28°.  Single anti-ice valve for engines.	No	Yes	-	AVT LEC CBT	-	-	A	-
31. Indicating / Recording Systems	EOAP	No	No	-	AVT LEC CBT	FTD 4	-	A	-

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-80 Analog</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Ft. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
32. Landing Gear	Carbon Brakes Increased brake Temp. Limits. Autobrake disconnect at 90% pedal travel.	No	No	-	AVT LEC CBT	-	-	A	-
33. Lights	O/W Exits Lights operation during Emergency Power operation.	No	Minor	TNG HND OUT	-	-	-	A	-
34. Navigation	IRS, EFIS, FMS	No	Yes	-	AVT LEC CBT	FTD 4	-	C	C 90 Days
36. Pneumatics	L/R Tail Temp. High Annunciations Added. Added EOAP msg.	No	Yes	-	AVT LEC CBT	-	-	A	-
49. APU	EGT Gauge in % vs. RPM. Door switch deleted. Operational envelope expanded. Cool down timer increased to 90 seconds. In-flight Battery Start capability added. Bleed air available in flight.	No	Yes	-	AVT LEC CBT	-	-	A	-

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-80 Analog</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Ft. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
72. Engines	V-2500 Engines. FADEC Engine Vibration Monitoring System changed. Engine Start switches changed. N1 Default mode added. Auto Start added. Engine Sync. Changed. Over Rated Thrust (ORT) gate added. Auto Start. Oil Quantities limits changed. Thrust Rating Panel (TRP) changed.	No	Yes	-	AVT LEC CBT	FTD 4	-	C	B 90 Days
73. Fuel Control	Lever Lock Fuel SW (with light indicator) added. ART switch deleted.	No	Yes	-	AVT LEC CBT	-	-	A	-
74. Ignition	Ignition SW change Auto Ignition function added.	No	Yes	-	AVT LEC CBT	-	-	B	-
77. Engine Indicating	Electronic Engine Display Panel added. Electronic Systems Display Panel added.	No	Yes	-	AVT LEC CBT	FTD 4	-	B	B 90 Days
78. Engine Exhaust	Cascade Thrust reverser added. Reverser Thrust lever (detent) added.	No	No	-	AVT LEC CBT	-	-	A	-

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: MD-90 BASE AIRCRAFT: MD-80 Analog APPROVED BY POI:				COMPLIANCE METHOD					
Maneuver	Remarks	Fit. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Walk Around	Preflight Inspection. VSCF Inlet Ducts.	No	No	-	AVT LEC CBT	-	-	A	-
Takeoff, Climb, Cruise, Instrument & Missed Approach	Optional Use of FMS. Optional Use of Auto Thrust Cutback.	No	Yes	-	-	FTD 5	-	C	C 30 Days
	Windshear Guidance (see appendix 3)	No	Yes	-	-	FTD 6	-	-	-
	EFIS Compact Mode (see appendix 3)	No	Yes	-	-	-	-	-	-
Performance	Changed	No	No	TRN HND OUT	-	-	-	A	-
Limitations	Growth Related Changes	No	No	TRN HND OUT	-	-	-	A	B 90 Days

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>DC-9</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Airplane Configuration	Fuselage length stabilizer planform reduced. Vertical stabilizer extended.	No	No	-	AVT LEC CBT	-	-	A	-
Panel Layout	Switches/Gauges additions and deletions. Switch functions Switch Location: EFIS, EEDP, ESDP, FMS, EOAP, TRP	No	Yes	-	AVT LEC CBT	-	-	A	B 90 Days
Weights	Growth related changes.	No	No	-	AVT LEC CBT	-	-	A	-
Powerplant	IAE V-2500 Increased thrust design changes.	No	Yes	-	AVT LEC CBT	-	-	A	-

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>DC-9</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. Air Conditioning and Pressurization	A/C Pressure Gauge replaced with flow gauge. Digital controller. Bleed Air sources.	No	Yes	-	AVT LEC CBT	-	-	B	B 90 Days
22. Autoflight	DFGS Upgrade LNAV, VNAV added.	No	Yes	-	AVT LEC CBT	FTD 4	-	C	C 90 Days
23. Communications	Audio Control Panel. Fault Light. Alternate SW Light	No	Yes	-	AVT LEC CBT	-	-	A	-
24. Electrical	VSCF system added. CSD's Gauges/Switches and Indicators deleted. Redesigned system control panel. Emergency Power "Armed" Function added. AC Loadmeter calibration changed. Batteries (number, capacity and location). Battery Direct BUS reset function. EOAP Messages changed. Ground Service BUS panel changed.	No	Yes	-	AVT LEC CBT	FTD 4	-	C	B 90 Days

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>DC-9</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
25. Equipment and Furnishings	Observer Seat and peripheral equipment.	No	No	TNG HND OUT	-	-	-	A	-
26. Fire Protection and Detection	Automatic Fault detection and message. Automatic Loop switching. Test switches and functions.	No	Yes	-	AVT LEC CBT	FTD 4	-	C	-
27. Flight Controls	Mach trim through autopilot trim system. Pylon flap added. Powered elevator and cable loop added. Secondary Rudder Limiter added. Elevator at Limit Annunciator. Elevator Load Feel changed. Split Elevator MSG.	No	Yes	-	AVT LEC CBT	FTD 4	-	C	C 90 Days

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>DC-9</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
28. Fuel	Return to tank system. Alternate fuel burn system. Main tank Fuel Level Low message. Fuel tank boost pump switches changed for AFB. Center Fuel Tank Pressure Low message. Fuel Heat switches removed.	No	Yes	-	AVT LEC CBT	FTD 4	-	B	-
29. Hydraulic	Hydraulic control switches changed. Quantities Limits changed. Powered Elevator system added.	No	Yes	-	AVT LEC CBT	-	-	A	-
30. Ice and Rain	Strake and VSCF inlet electrical anti-ice system. Simultaneous Wing/Tail de-ice with flaps >28°. Single anti-ice valve for engines.	No	Yes	-	AVT LEC CBT	-	-	A	-
31. Indicating / Recording Systems	EOAP	No	Minor	-	AVT LEC CBT	FTD 4	-	A	-

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>DC-9</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
32. Landing Gear	Carbon Brakes  Increased brake Temp. Limits.  Autobrake disconnect at 90% pedal travel.	No	Minor	-	AVT LEC CBT	-	-	A	-
33. Lights	O/W Exits Lights operation during Emergency Power operation.	No	No	TNG HND OUT	-	-	-	A	-
34. Navigation	IRS, EFIS, FMS	No	Yes	-	AVT LEC CBT	FTD 4	-	C	C 90 Days
36. Pneumatics	L/R Tail Temp. High Annunciations Added.  Added EOAP msg.	No	Yes	-	AVT LEC CBT	-	-	A	-
49. APU	EGT Gauge in % vs. RPM.  Door switch deleted.  Operational envelope expanded.  Cool down timer increased to 90 seconds.  In-flight Battery Start capability added.  Bleed air available in flight.	No	Minor	-	AVT LEC CBT	-	-	A	-
52/53/56. Doors	Aft entrance door has an Emergency Exit handle with automatic tailcone and tailcone slide deployment.	No	Yes	-	-	FTD	-	-	-

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>DC-9</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Ft. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
72. Engines	V-2500 Engines. FADEC Engine Vibration Monitoring System changed. Engine Start switches changed. N1 Default mode added. Auto Start added. Engine Sync. Changed. Over Rated Thrust (ORT) gate added. Auto Start. Oil Quantities limits changed. Thrust Rating Panel (TRP) changed.	No	Yes	-	AVT LEC CBT	FTD 4	-	C	B 90 Days
73. Fuel Control	Lever Lock Fuel SW (with light indicator) added. ART switch deleted.	No	Yes	-	AVT LEC CBT	-	-	A	-
74. Ignition	Ignition SW change Auto Ignition function added.	No	Yes	-	AVT LEC CBT	-	-	B	-

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>DC-9</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
System	Remarks	Flt. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
77. Engine Indicating	Electronic Engine Display Panel added. Electronic Systems Display Panel added.	No	Yes	-	AVT LEC CBT	FTD 4	-	B	B 90 Days
78. Engine Exhaust	Cascade Thrust reverser added. Reverser Thrust lever (detent) added.	No	No	-	AVT LEC CBT	-	-	A	-

**SAMPLE OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>DC-9</b> APPROVED BY POI:				COMPLIANCE METHOD					
Maneuver	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Walk Around	Preflight Inspection. VSCF Inlet Ducts.	No	No	-	AVT LEC CBT	-	-	A	-
Takeoff, Climb, Cruise, Instrument & Missed Approach	Optional Use of FMS. Optional Use of Auto Thrust Cutback.	No	Yes	-	-	FTD 5	-	C	C 30 Days
	Windshear Guidance (see appendix 3)	No	Yes	-	-	FTD 6	-	-	-
	EFIS Compact Mode (see appendix 3)	No	Yes	-	-	-	-	-	-
Performance	Increased thrust	No	No	TRN HND OUT	-	-	-	A	-
Limitations	Growth Related Changes	No	No	TRN HND OUT	-	-	-	A	B 90 Days

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>DC-9</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Airplane Configuration	Fuselage length. Wingspan Flaps and Slats Horizontal & Vertical surfaces. Turning radius	No	Yes	-	AVT LEC CBT	-	-	A	-
Panel Layout	Switches/Gauges Switches/Gauges additions and deletions. Cockpit Setup (pre-flight) Switch Location	No	Yes	-	AVT LEC CBT	-	-	A	-
Weights	Max Takeoff weight 98 to 121K.	No	No	-	AVT LEC CBT	-	-	A	-
Powerplant	JT8D Engines	No	Yes	-	AVT LEC CBT	-	-	A	-

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>DC-9</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. Air Conditioning and Pressurization	A/C OVRD function.  Single Analog Cabin Controller  Manual Press. Control lever  Single radio rack fan.  Bleed Air sources  Normal/Max/Relief Press. Limits.  Timer vs. Squat Sw. Initiates pressurization.  Significance of HP Bleed.  No Recirculation Fan.  Cockpit Gauges: Press. Vs. Flow  Cockpit control for cabin air temp. selector (label).  Reverse Pack Cutout.	No	Yes	-	AVT LEC CBT	-	-	B	B 90 Days
22. Autoflight	AFCS System. Analog Autopilot. Servo Switches. Yaw Damper. Mach trim functions. Flight Director. Approach only Auto Throttle. A/P Control Surface Indicators. Control Mode Annun. Vs. FMAs. Speed Command (part vs. full time) F/D only vs. Coupled A/P GA. Manual windshear A/P modes	No	Yes	-	AVT LEC CBT	-	Sim. A/B ***	B	B 90 Days

\*\*\*= A lower level device has not been evaluated.

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>DC-9</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
23. Communication	Audio control Panels P.A. Functions Emer. Function vs. fault switch function	No	Yes	-	AVT LEC CBT	-	-	A	-
24. Electrical	Power distribution thru 2 bus ties. EPCU. APU/EXT power switches. Ground service BUS switch. Direct Battery Bus reset function. CSDs and indicators. Battery Switch. Generator output. Pilot monitoring requirements. APU X-tie in auto mode. Dead bus relay protection. Batteries (number and capacity) Emergency Power switch functions. AC/DC emer. Power transfer relays. Auto throttle shoot (BITE) vs. crew monitoring. Gen. switches (3 position vs. 2 position)	No	Yes	-	AVT LEC CBT	FTD LVL 4	-	C	B 90 Days
25. Equipment and Furnishings	Observer Seat and peripheral equipment. Various Cabin Equip.	No	No	TNG HND OUT	-	-	-	A	-

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>DC-9</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Ft. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
26. Fire Protection and Detection	Test Functions. No Ground Fault Protection. No automatic loop switching. Lighted Fuel Switch removed. Tail Compartment Temp Hi messages and APU effects.	No	Yes	-	AVT LEC CBT	FTD LVL 4	-	C	B 90 Days
27. Flight Controls	2 Flight Spoilers per wing. NO ASE. No mid-slat position. Split Flap/Slat capability. No post-stall recovery system. No Dial-A-Flap. No Stabilizer T.O. Position Display. No Aux. Cont. Unit. No Pylon Flap. Number of flap/slat panels. Rudder Limiter functions. Cable Loop. No autospoiler for Rejected T.O. Flap settings/gates. No parallel rudder. No powered elevator hard over protection. Anti-float tab. No ELF. Elev. Pwr vs. Elev at Limit. Rudder travel characteristics. Strakes Split Elevator	No	Yes	-	AVT LEC CBT	-	SIM A/B ***	C	B 90 Days

\*\*\* = A lower device was not evaluated.

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>DC-9</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
28. Fuel	Analog Fuel Qty. Gauges. Smaller Center Tank Capacity. No Alt. Fuel Burn Fuel Qty. Test functions. Fuel Used Reset functions. No Return-to-Tank. No "CTR Fuel Press LOW" Annunciator. Fuel Temp Probe location. No Main Tank Fuel LVL Low Annunciator.	No	Yes	-	AVT LEC CBT	FTD LVL 4	-	C	B 90 Days
29. Hydraulic	Hydraulic switches. Smaller capacities. Alternate Pump. Priority Valve, Check Valve and Sump Features.	No	Yes	-	AVT LEC CBT	-	-	A	-
30. Ice and Rain	Number of engine anti-ice valves. Manual tail de-ice. No strake de-ice No VSCF inlet de-ice. Engine nose dome not de-iced. Ice FOD alert msg. removed. TRP "No Mode" provisions removed. Over wing Tufts or stripes missing.	No	Minor	-	AVT LEC CBT	-	-	A	-
31. Indicating / Recording Systems	No CAWS System. DFDR vs. DFDAU	No	No	TRN HND OUT	-	-	-	A	-

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>DC-9</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
32. Landing Gear	Up latch check. No Auto brakes Three green lights indicators. Three red light indicators. Alternate Hyd. Pump for gear. Nose Gear viewing port. No Brake Temp. info. Brake Selector handle. Brake pressure gauge. Anti-skid procedure. Gear Warning Horn function. Takeoff Warning Horn functions.	No	Minor	-	AVT LEC CBT	-	-	A	-
33. Lights	Landing Light auto retract feature. Auto NS/FSB lights. O/W Exit Lt. modes.	No	No	TNG HND OUT	-	-	-	A	-
34. Navigation	Electromechanical flight instruments. No DFSG No FMS No IRS Thrust Panel Windshear (EFIS vs. Non-EFIS presentations)	No	Yes	-	AVT LEC CBT	-	SIM A/B ***	C	B 90 Days
35. Oxygen	O2 Mask Types. Pax supply system generators crew monitoring requirements. Number/Location of walk around tanks.	No	Minor	-	AVT LEC	-	-	A	-
52/53/56. Doors	No emergency exit handle on aft entrance door. No automatic tailcone or tailcone slide deployment with door operation.	No	Yes	-	-	FTD	-	-	-

\*\*\*= A lower level device has not been evaluated.

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>DC-9</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
73-80. Engines / Engine Indicating	No engine Sync. No EVM Electro-mechanical engine instruments. Engine Thrust. Fuel Switches. Auto Start vs. Manual Start. Starter Duty Cycles. No Over speed protection. No N1 Mode. Manual fuel temp. control. Oil Quantities. Engine Limitations. Oil Temp. sensing pick up points. Flight Idle Mode. Auto Thrust cutback. Auto Thrust Restoration (ART) Thrust Lever blockers removed.	No	Yes	-	AVT LEC CBT	-	SIM A/B ***	B	B 90 Days

\*\*\*= A lower level device has not been evaluated.

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>DC-9</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
Maneuver	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Walk-Around	Preflight	No	Yes	-	AVT LEC CBT	-	-	A	-
Takeoff, Climb, Cruise, Instrument & Missed Approach.	Demonstrate proficiency in use of: Autopilot, Auto throttle, Flight Director, Operation of the aircraft in all normal operations including the flight manual.	No	Yes	-	AVT LEC CBT	-	SIM A/B ***	C	B 90 Days
Abnormal Procedures	Demonstrate proficiency in use of: Split Flap handle operation, Brake system failures, Rejected Takeoffs, Rejected Landings.	No	Yes	-	-	-	SIM A/B ***	C	B 90 Days
Performance	Decreased Thrust Related	No	No	TNG HND OUT	-	-	-	A	-
Limitations	System Related Changes	No	No	-	AVT LEC CBT	-	-	A	B 90 Days

\*\*\*= A lower level device has not been evaluated.

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90EFD</b> BASE AIRCRAFT: <b>MD-88</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Weights	Aircraft Related Changes	-	-	TNG HND OUT	-	-	-	-	A
Powerplant	IAE V2500 Related Design Changes.	-	-	-	AVT LEC CBT	-	-	-	B

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

ADDED NOTE: There was no FTD available for the MD-90EFD FSB evaluation. The full motion MD-90EFD simulator with motion, visual and sound turned off was used as being equivalent to a Level 6 FTD.

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90EFD</b> BASE AIRCRAFT: <b>MD-88</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Airplane Configuration	Fuselage Extension Stabilizer Platform Reduced Vertical Stabilizer Extended	No	No		AVT LEC CBT				B
Panel Layout	<p><u>Overhead:</u> Redesign and relocate: Hydraulic, Electric. Pneumatic, Fuel, APU, Ice/Rain, Lighting panels and controls. Fire Loop lights removed. Added ADF Control panel. FMS selector switch. Added Transponder. Gauges and Indicators removed and indications displayed on SD panel. Lighted push-button switches added. EOAP removed.</p> <p><u>Pedestal:</u> Transponder moved to overhead. Radar control moved. Audio control panels added. Standby Flight Instruments changed and relocated to forward pedestal.</p> <p><u>Instrument Panel:</u> PFD, ND, RA, Alt., A/S, V/S, FMA, integrated on one display. TRP integrated into FMS. EOAP functions integrated into EIS, EAD and SD displays.</p>	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90EFD</b> BASE AIRCRAFT: <b>MD-88</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Fit. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. Air Conditioning and Pressurization	Panel location and layout changes.  Switches changed to lighted push-button.  Temperature, pressure, valve position indicators on SD.  HP bleed off switch removed radio rack fan switch renamed.  Cabin Alt., and R/C gauges removed and data displayed on S/D.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
22. Auto Flight	FMA functions displayed on PFD	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
23. Communications	Audio Control Panels moved to Aft Pedestal  VHF communications #3 added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
24. Electrical	Volt Frequency Loadmeters removed. Data displayed on SD.  Panel relocated and redesigned.  VSCF converters added.  Battery switch changed.  Emergency Power "Armed" position added.  "Emergency Power Off" light added.  Generator reset switches changed to push-button.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B

\*\*\*= A lower level device has not been evaluated.

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90EFD</b> BASE AIRCRAFT: <b>MD-88</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Fit. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
26. Fire Protection and Detection	Fire/Fault test switches replace Loops A/B test switches. Fire Loop Lights removed. Automatic switching between loops when fault detected. Fire alert added to Alert Display.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
27. Flight Controls	New AC generators CSD Gauges, switches, indicators removed. Flap/Slat handle operation. Powered Elevator. Rudder Limiter changes. Low Profile control wheel configuration display.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
28. Fuel	Return to tank system for fuel tank heating. Wing ice alleviation alternate fuel burn automatic system. Main Tank Fuel Level Lo alert. Alternate Fuel Burn switch added. Fuel system test switch added. Fuel Quantity system A/B switch relocated. Fuel quantity gauges removed and indications displayed on system display. ZFW set in MDCU.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: MD-90EFD BASE AIRCRAFT: MD-88 APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
29. Hydraulics	Hydraulic Panel relocated to overhead.  Hydraulic switches rearranged.  Hydraulic pressure and quantities displayed on SD.  Switches changed to lighted push-button type.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
30. Ice and Rain Protection	Switches changed and relocated.  Wing Ice detection system added.  Ice detection system added.  Strakes Anti-Ice.  Engine Anti-Ice.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
31. Indicating / Recording Systems	EOAP removed and function integrated into Engine Alert Display.  Added Predictive Windshear.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
32. Landing Gear and Brakes	Brake Pedestal response improved.  Carbon Brakes. Autobrake disconnect at 90% pedal throw.  Brake Temperature indicator removed and function displayed on Systems Display.  Anti-skid controls changed and relocated.  Gear door light removed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B

**OPERATOR DIFFERENCES REQUIREMENT TABLE**

DIFFERENCE AIRCRAFT: <b>MD-90EFD</b> BASE AIRCRAFT: <b>MD-88</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
33. Lights	Some cockpit rheostats removed – switches relocated to overhead panel.	No	No	-	AVT LEC CBT	-	FTD 6	-	B
34. Navigation	Some changes in FMS. V-speeds set in MCDU.	No	No	-	AVT LEC CBT	-	FTD 6	-	B
36. Pneumatics	Panel redesigned and relocated.  Temperature and Pressure gauges removed and function integrated into System Display.  HP Bleed Off function removed.  System switches changed to lighted push-button type.  L/R Tail compartment temperature high sensing changed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
49. APU	Panel redesigned and relocated. Single position Master Switch. Push Button start switch. APU displays integrated into System Display. Third fire bottle installed for APU with dedicated Fire Handle. APU air switch and air cond. Colder switches relocated to Pneumatic Panel. Switches changed to push-button. Additional Battery power to support in flight APU starts.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B

DIFFERENCE AIRCRAFT: <b>MD-90EFD</b> BASE AIRCRAFT: <b>MD-88</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
72. Engines	N1 sync switch changed and relocated.  V-2500 engines.  Increased thrust.  FADEC.  Engine vibrator monitor.  Engine start switches changed.  ART function removed.  Automatic Thrust Restoration function.  Thrust rating panel removed and function integrated in FMC.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
73. Fuel Control	Lever lock fuel switch (with lights).	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
74. Ignition	Redesigned Ignition switch  Auto Ignition function.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
77. Engine Indicating	Electronic Indicating system, engine Alert display and Systems display.  Thrust Rating display.  EPR Digital display.  T Bug.  Thrust Mode display.  Engine Vibration.  Total Air Temperature.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
78. Engine Exhaust	Cascade Thrust reversers	Yes	Yes	-	AVT LEC CBT	-	FTD 6	-	B

DIFFERENCE AIRCRAFT: <b>MD-90EFD</b> BASE AIRCRAFT: <b>MD-88</b> APPROVED BY POI:				COMPLIANCE METHOD					
Maneuver	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Takeoff, Climb, Cruise, Descent & Instrument Approach.	Demonstrate proficiency in:  Cockpit Pre-flight procedures. Fire Detection test. Starting procedures. Auto thrust cutback. Normal systems operation.	No	Yes	-	-	-	FTD 6	D FTD 6	D 90 Days
Abnormal Procedures	Engine Fire/Severe Damage.  Tail Compartment Temp. High.  APU Fire  Electrical abnormal  Hydraulic abnormal	No	Yes	-	-	-	FTD 6	D FTD 6	D 90 Days
Performance	Increased Thrust related	No	No	-	TNG HND OUT	-	-	A	-
Limitations	Systems related changes	No	No	-	TNG HND OUT	-	-	A	B 90 Days

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-90EFD</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Weights	No Changes	-	-	-	-	-	-	-	-
Powerplant	No Changes	-	-	-	-	-	-	-	-

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-90EFD</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Airplane Configuration	No Change	-	-	-	-	-	-	-	-
Panel Layout	<p><u>Overhead:</u></p> <p>EOAP            Redesign and relocate:            Hydraulic, Electric,            Pneumatic, Fuel, APU,            Ice/Rain, Lighting panels            and controls.</p> <p>Fire Loop lights added.</p> <p>ADF Control Panel            removed            FMS selector switch and            transponder relocated.            Gauges and Indicators for            Pneumatics, Electric,            Hydraulic, Cabin            Pressurization.</p> <p>Toggle switches replace            push-button switches.</p> <p><u>Pedestal:</u></p> <p>Radar Control moved.</p> <p>Audio Control Panels            removed.            Standby flight instruments            relocated to pilot's panel.</p> <p><u>Instrument Panel:</u></p> <p>PFD, ND, Alt., A/S, VS            displayed on individual            instruments.</p> <p>FMA on separate panel.</p> <p>Thrust Rating Panel            Hydraulic System controls            on forward panel.            Brake temperature            indicators on forward            panel.</p>	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-90EFD</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
System	Remarks	Ft. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. Air Conditioning and Pressurization.	Panel location and layout changes.  Switches changed to lighted push-button.  Temperature, pressure, valve position indicators.  HP bleed off switch. Radio rack fan switch.  Cabin Alt. and R/C gauges installed on panel.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
22. Auto Flight	FMS changes	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
23. Communications	Audio Control Panels moved to sidewall panels.	No	Yes	TNG HND OUT	-	-	-	-	A
24. Electrical	Volt, Frequency, Loadmeters Installed on Overhead.  Location and layout of Electrical Panel changed.  Changed control switches.  Battery switch changed.  Emergency power Off light added.  Generator reset switches changed.  Galley Power switch changed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
26. Fire Protection and Detection	Fire Loop Lights installed on Overhead.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
27. Flight Controls	No configuration display.  Flap/slat handle operation.	No	No	-	-	-	FTD 6	-	B

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-90EFD</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
28. Fuel	Alternate Fuel Burn. Switches on Center Tank. Fuel system test switch deleted. Fuel system Quantity Gauges. ZFW set on Fuel Gauge. Fuel burned and flow gauges on EEDP.	No	No	-	-	-	FTD 6	-	B
29. Hydraulics	Hydraulic panel relocated to instrument panel. Hydraulic switches rearranged. Hydraulic pressure and quantities displayed on Systems Display. Switches changed to Toggle type.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
30. Ice and Rain Protection	Switches changed and relocated. No Ice detection system.	No	Yes	-	-	-	FTD 6	-	B
31. Indicating/Recording Systems	EOAP	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
32. Landing Gear and Brakes	Anti-Skid test relocated and switches changed. Brake Temperature. Indicator and Test function installed on forward panel.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
33. Lights	Cockpit light switches located on various panels.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
34. Navigation	Changes to FMS	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-90EFD</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
System	Remarks	Flt. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
36. Pneumatics	Panel location changed. Switches changed. Temp. and Valve position indicators. Air Conditioning Override switch. Radio Rack Fan switch. HP Bleed OFF function.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
49. APU	Panel changed and relocated. Additional functions on APU panel. Toggle type switches. No dedicated Fire Extinguisher. EGT & RPM gauge.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
72. Engines	Engine Sync. Switch changed to rotary type.	No	No	-	AVT LEC CBT	-	FTD 6	-	B
73. Fuel Control	Thrust Rating Panel.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
74. Ignition	Ignition switch changed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
77. Engine Indicating	Electronic Engine Display Panel (EEDP). System Display panel.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	B
78. Engine Exhaust	Location of reverse lights.	No	No	-	AVT LEC CBT	-	FTD 6	-	B

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>MD-90EFD</b> APPROVED BY POI:				COMPLIANCE METHOD					
Maneuver	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Takeoff, Climb, Cruise Descent and Instrument Approach.	Demonstrate proficiency in:  Cockpit pre-flight procedures, Normal system operations.	No	Yes	-	-	-	FTD 6	D FTD 6	D 90 Days
Abnormal Procedures	Engine Fire/Severe Damage.  Tail compartment Temperature High.  Electrical Abnormal.  Hydraulic Abnormal.	No	Yes	-	-	-	FTD 6	D FTD 6	D 90 Days
Performance	No Change	No	No	-	-	-	-	-	-
Limitations	No Change	No	No	-	-	-	-	-	-

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>DC-9-30</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
Design Feature	Remarks	Flt. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Weights	Changes related to 717-200.	No	No	TNG HND OUT	-	-	-	-	-
Powerplant	BR715 Related Design Changes	No	Yes	-	AVT LEC CBT	-	-	-	-

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>DC-9-30</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Airplane Configuration	Fuselage length. Flaps / Slats. Wingspan. Horizontal and vertical surfaces. Turning radius.	No	Yes	TNG HND OUT	-	-	-	-	-
Panel Layout	<p><u>Overhead:</u>            Redesign and relocate:            Hydraulic, Electric,            Pneumatic, Fuel, APU,            Ice/Rain, Oxygen, Lighting            panels and controls.            Speed and stall test removed.            Fire Loop lights removed.            IRU selector switches added.            Gauges and Indicators            removed and indications            displayed on SD panel.            Lighted push-button switches            added.            Annunciator Panel removed.            Source select panel removed.</p> <p><u>Pedestal:</u>            Various displays relocated.            Autopilot redesigned and            relocated.            RUD/AIL trim handle design            change.            Flap T/O selector added.            Stabilizer trim handles and            manual alt. wheel removed.            Rudder power lever removed.            Radar control added.            Longitudinal trim indicator            removed.            Longitudinal trim cut-out            switch relocated.</p> <p><u>Outboard Console:</u>            Audio control panels moved            to side panels.</p> <p><u>Instrument Panel:</u>            Flight Instruments integrated            into EIS displays.            Standby flight instruments            changed and relocated to            forward pedestal.            Switches removed or            relocated.            TRI integrated into FMS.            Annunciator panel integrated            into EIS, EAD and SD            displays.            Source select panel added.            RAT/EPR indicator removed.            Static Air Source removed.</p>	No	Yes	TNG HND OUT	-	-	-	-	-

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>DC-9-30</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
System	Remarks	Flt. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. Air Conditioning and Pressurization	Panel location and layout Changes. Pack fans removed. Temperature, pressure, valve position indicators removed and data displayed on SD. HP bleed off switch removed. Radio rack fan switch renamed. A/C Auto Shutoff switch relocated, and functional changes. Cabin Altitude and R/C gauges removed and data displayed on SD. Isolation valve added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
22. Autoflight	Auto flight panel changes. Yaw Damper switch removed Mach Trim switch removed. Flight Director changes. Auto throttle added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
23. Communications	Audio Control panels redesigned and relocated.	No	No	-	-	-	FTD 6	-	-
24. Electrical	Panel relocated and redesigned. Power distribution changes. Manual AC/DC X-tie controls removed Add Emer "Armed". APU/EXT power switches relocated. Ground Service Bus switch control redesigned. Direct Battery Bus reset function removed. CSCs and indicators removed. Locking battery switch added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>DC-9-30</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
System	Remarks	Flt. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
25. Equipment and Furnishings	Various cabin furnishings.	No	No	TNG HND OUT	-	-	-	-	-
26. Fire Protection and Detection	A/B loop test buttons replaced by fire/fault test switches. Automatic loop switching. Fire loop lights removed. Fire Alerts displayed on EAD.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
27. Flight Controls	No split flap/slat capability. Dial-A-Flap added. Flap gauges removed. Flight control position displayed on PFD/SD. Stabilizer position on SD. Flap handle design change. Stall Recovery System added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
28. Fuel	Return-To-Tank system for fuel tank heating added. Main tank Fuel Level Lo alert. Fuel system test switch added. Fuel quantity system A/B added. Fuel quantity gauges removed and indications displayed on SD. ZFW set in MDCU.	No	Minor	-	AVT LEC CBT	-	FTD 6	-	-
29. Hydraulics	Hydraulic panel relocated to overhead. Rudder power lever removed. Hydraulic pressure and quantities displayed on SD. Hyd. Cont. rudder switch added. Aux. pump override removed.	No	Minor	-	AVT LEC CBT	-	FTD 6	-	-

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>DC-9-30</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
System	Remarks	Flt. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
30. Ice and rain Protection	Ice protection and pitot static redesign and relocated. Airfoil bleed air changes. Ice detection system added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
31. Indicating / Recording Systems	Annunciator panel removed. Alerts display on EIS. Predictive windshear added. CAWS	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
32. Landing Gear and Brakes	Redundant Gear Warning system added. Brake selector handle removed. Landing gear position indicator viewports removed. Brake Temp indication added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
33. Lights	Cockpit light switches relocated on various panels.	No	No	-	AVT LEC CBT	FTD 6	-	-	-

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>DC-9-30</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
34. Navigation	FMS added. IRS added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	C 90 Days
35. Oxygen	Passenger O2 system relocated and redesigned. EROS system added.	No	Yes	-	-	FTD 6	-	-	-
36. Pneumatics	Flow switch added. Panel redesigned and relocated. Temperature and pressure on SD. PODS added. X-feed levers removed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
49. APU	Panel redesigned and relocated.	No	No	TNG HND OUT	-	-	-	-	-
52/53/56. Doors	Tail cone deployment automatic with aft door emergency operation.	No	Yes	-	-	FTD	-	-	-
73-80. Engines / Engine Indicating.	Engine thrust limits selected in FMS. Electronic Indicating System. FADEC added. Redesigned Ignition system. Reverser indication change. Throttles redesigned, gates added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>DC-9-30</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
Maneuver	Remarks	Flt. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Walk-Around	Preflight	No	Yes	TNG HND OUT	-	-	-	-	-
Takeoff, Climb, Cruise, Descent, Instrument Approach and LOFT	Demonstrate proficiency in:  Cockpit preflight procedures Fire Detection system Starting procedures Normal systems operation Use of FMS Use of Autopilot Use of Auto throttle Use of Flight Director.	No	Yes	-	-	-	FTD 6	D	D 30 Days
Abnormal Procedures	Demonstrate proficiency in:  Manual pressurization Electrical Abnormals Anti-Ice Abnormals	No	Yes	-	-	-	FTD 6	D	D 90 Days
Performance	Changes related to 717-200.	No	No	-	AVT LEC CBT	-	-	-	-
Limitations	Systems related changes.	No	No	TNG HND OUT	-	-	-	-	-

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>DC-9-30</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
Design Feature	Remarks	Flt. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Weights	Changes related to 717-200	No	No	TNG HND OUT	-	-	-	-	-
Powerplant	BR715 Related design changes	No	Yes	-	AVT LEC CBT	-	-	-	-

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Airplane Configuration	Fuselage length. Flap / Slats. Wingspan. Horizontal and Vertical surfaces. Turning radius.	No	No	TNG HND OUT	-	-	-	-	-
Panel Layout	<u>OVERHEAD:</u> Redesign and relocate: Hydraulic, Electric, Pneumatic, Fuel, APU, Ice/Rain, Lighting panels and controls Fire loop lights added FMS selector switch added Gages and Indicators removed and indications displayed on SD Engine Sync Selector removed Lighted push-button switches Added EOAP removed Source select panel removed	No	Yes	TNG HND OUT	-	-	-	-	-
	<u>PEDESTAL:</u> Stabilizer Trim handles added RUD/AIL trim handle design change Manual cabin pressure wheel removed Rudder Power Lever removed Stab cutout design changes Standby Flight instruments redesign and relocate	No	Yes	TNG HND OUT					
	<u>OUTBOARD CONSOLE:</u> Audio Control Panels added	No	No			FTD 6			
	<u>INSTRUMENT PANEL:</u> Flight instruments integrated Into EIS Displays TRP integrated into FMS EOAP functions integrated into EIS, EAD and SD displayed source select panel added. Brake Temperature indicator removed	No	Yes	TNG HND OUT					

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. Air Conditioning and Pressurization	Panel location and layout changes. Pack fans removed. Temperature, pressure, valve position indicators removed data on SD. HP bleed off removed. Radio rack fan switch renamed. Cabin Alt. and ARC gauges removed and data displayed on SD. ISO valve switch added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
22. Autoflight	Auto flight panel changes. Yaw damper switch added. Mach trim switch added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
23. Communications	Audio control panels redesigned and relocated.	No	No	TNG HND OUT	-	-	FTD 6	-	-
24. Electrical	Panel relocated and redesigned. Power distribution changes. AC X-Tie switch removed. APU/EXT power switches relocated. Ground Service bus control redesigned. VSCF converters removed. IDG system added. Volt, frequency, Loadmeters removed. Data on SD.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
25. Equipment and Furnishings	Various cabin furnishings.	No	Yes	TNG HND OUT	-	-	-	-	-
26. Fire Protection and Detection	Fire loop lights removed. Fire alerts displayed on EAD. Fire bell cutout switch removed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Ft. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
27. Flight Control	Inboard Ground Spoiler panels removed. Flap gauges removed. Flight control position displayed on PFD/SD Stabilizer position on SD. Flap handle design change. Flap detents changed. C.G. computer removed. Auto slats removed. Pylon flap removed Nose Strakes removed. Powered elevator removed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
28. Fuel	Panel relocated and redesigned. Alternate Fuel Burn system removed. Main tank Fuel Level Lo alert. Fuel system test switch added. Fuel quantity gauges removed, information on SD. ZFW set in MDCU.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
29. Hydraulics	Hydraulic panel relocated to overhead. Rudder power lever removed. Hyd. Cont. rudder switch added. Hydraulic pressure and quantities displayed on SD.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
30. Ice and Rain Protection	Airfoil system changes. Ice detection system added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
31. Indicating / Recording Systems	EOAP removed. Alerts displayed on EIS. Predictive Windshear added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-

DC9-10 through 87, MD80, MD88, MD-90, MD-90EFD,  
717-200, DC-9-87 Fire Tanker

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
System	Remarks	Fit. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
32. Landing Gear and Brakes	Steel Brakes Redundant Gear Warning system added. Nose Landing Position indicator removed. Brake temperature indicator on SD. Gear door light removed. Main gear viewport removed.	No	Yes	-	AVT LEC CBT	-	-	-	-
33. Lights	Cockpit light switches relocated on various panels.	No	No	-	-	FTD 6	-	-	-
34. Navigation	FMS change.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	C 90 Days
35. Oxygen	EROS system.	No	Yes	TNG HND OUT	-	-	FTD 6	-	-
36. Pneumatics	Panel redesigned and relocated. Temperature and pressure on SD. X-feed levers removed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
49. APU	Panel redesigned and relocated.	No	Yes	TNG HND OUT	-	-	-	-	-
52/53/56. Doors	Aft service door removed. Ventral stairs removed.	No	Yes	-	AVT LEC CBT	-	-	-	-
73-80. Engines / Engine Indicating	Engine thrust limits selected in FMS. Electronic Indicating System. Reverser design change. Engine sync switch removed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-

DIFFERENCE AIRCRAFT: <b>B-717-200</b> BASE AIRCRAFT: <b>MD-90</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
Maneuver	Remarks	Fit. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Walk-Around	Preflight	No	Yes	-	AVT	-	-	-	-
Takeoff, Climb, Cruise, Descent, Instrument approach and LOFT	Demonstrate Proficiency in: Cockpit preflight procedures Fire detection Test Starting procedures Normal systems operation Use of FMS Use of Autopilot Use of Auto throttle Use of Flight Director	No	Yes	-	-	-	FTD 6	C	C 90 Days
Abnormal Procedures	Demonstrate proficiency in: Manual pressurization Electrical Abnormal Pneumatic/anti-Ice Abnormal	No	Yes	-	-	-	FTD 6	C	C 90 Days
Performance	Changes related to 717-200	No	No	TNG HND OUT	-	-	-	-	-
Limitations	Systems related changes	No	No	TNG HND OUT	-	-	-	-	-

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>B-717-200</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
Design Feature	Remarks	Flt. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Weights	Changes related to MD-90	No	No	TNG HND OUT	-	-	-	-	-
Powerplant	V2500 Related Design Changes	No	Yes	-	AVT LEC CBT	-	-	-	-

**NOTE:** The following abbreviations are used in these tables:

AVT*	-	Audio Visual Tape presentation
CBT*	-	Computer Based Training
CHKG	-	Checking
CURR	-	Currency
FTD	-	Flight Training Device
FLT CHK	-	Flight Check
LEC*	-	Lecture
SIM	-	Simulator specifies minimum level
TNG HND OUT	-	Training Hand Out
* Any one form of presentation or any combination may be acceptable.		

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>B-717-200</b> APPROVED BY POI:				COMPLIANCE METHOD					
Design Feature	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Airplane Configuration	Fuselage length. Flaps / Slats. Wingspan. Horizontal and Vertical surfaces. Turning radius.	No	No	TNG HND OUT	-	-	-	-	-
Panel Layout	<u>OVERHEAD:</u> Redesign and relocate: Electric, Pneumatic, Fuel, APU, Ice/Rain, Lighting panels and controls. Fire loop lights added. FMS selector switch added Gauges and Indicators for Pneumatics, Electric, Hydraulic, and Cabin Pressurization relocated. Elevator power control added. Engine Sync Selector added. Lighted push-button switches EOAP added. Source select panel added.	No	Yes	Tng Hnd out	-	-	-	-	-
	<u>PEDESTAL:</u> Stabilizer Trim handles added Manual pressure controller added. T/O computer indicators added. Radar control moved. Rudder power lever added. Audio control panels added. Standby flight instruments relocated to instrument panel. Longitudinal trim indicator added. Stabilizer cut out switch relocated.	No	Yes	TNG HND OUT	-	-	-	-	-
	<u>OUTBOARD CONSOLE:</u>	No	Yes	TNG HND OUT	-	FTD 6	-	-	-
	<u>INSTRUMENT PANEL:</u> PFD and ND displayed on EFIS. Alt., AIS, v/S displayed on individual instruments. Engine systems display panels. FMA on separate panel. Thrust Rating Panel added Hydraulic system controls on forward panel. Brake Temperature indicators on forward panel. Source select panel removed.	No	Yes	TNG HND OUT	-	-	-	-	-

DIFFERENCE AIRCRAFT: <b>MD-90</b>	COMPLIANCE METHOD
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Revision 8  
 DC9-10 through 87, MD80, MD88, MD-90, MD-90EFD,  
 717-200, DC-9-87 Fire Tanker

10/17/2014

BASE AIRCRAFT: <b>B-717-200</b> APPROVED BY POI:				TRAINING				CHKG/CURR	
System	Remarks	Fit. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
21. Air Conditioning and Pressurization	Panel location and layout changes. Pack fans added. Temperature, pressure, valve position indicators added. HP bleed off added. Radio rack fan switch renamed. Cabin Alt and A/C gauges added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
22. Autoflight	Auto flight panel changes. Yaw Damper switch added. Mach Trim switch added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
23. Communications	Audio control panels redesigned and relocated.	No	No	TNG HND OUT	-	FTD 6	-	-	-
24. Electrical	Panel relocated and redesigned. Power distribution changes. AC X-Tie switch added. APU/EXT power switches relocated. Ground Service bus control redesigned. VSCF converters added. IDG system removed. Volt, Frequency, Loadmeters added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
25 Equipment and Furnishings	Various cabin furnishings.	No	No	TNG HND OUT	-	-	-	-	-

DIFFERENCE AIRCRAFT: <b>MD-90</b>	COMPLIANCE METHOD
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Revision 8  
 DC9-10 through 87, MD80, MD88, MD-90, MD-90EFD,  
 717-200, DC-9-87 Fire Tanker

10/17/2014

BASE AIRCRAFT: <b>B-717-200</b> APPROVED BY POI:				TRAINING				CHKG/CURR	
System	Remarks	Fit. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
26. Fire Protection and Detection	No automatic loop switching test function. Loop lights added. Fire bell cutout switch added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
27. Flight Controls	Inboard ground spoiler panels added. Flap gauges added. Stabilizer position added. Flap handle design change. Flap detents changed. C.G. computer added Auto slats added. Slat Mid Position. Pylon flap added. Nose strakes added. Powered Elevator added. Spoiler/SB redesign Stab. Trim brake relocated. Rudder trim redesign.	No	Yes	-	AVT LEC CBT	-	-	-	-
28. Fuel	Panel relocated and redesigned. Alternate fuel burn system added. Fuel system test switch removed. Fuel quantity gauges added. ZFW set on fuel panel. Fuel used and flow gauges located on Engine Panel Display.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
29. Hydraulics	Hydraulic panel relocated to instrument panel. Hydraulic pressure and quantities displayed on SD. Aux pump ovrdr. added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
30. Ice and Rain Protection	Ice Protection panel redesigned and relocated. Airfoil system changes. Ice detection system removed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>B-717-200</b> APPROVED BY POI:				COMPLIANCE METHOD					
System	Remarks	Flt. Char.	Proc. Chng.	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
31. Indicating / Recording Systems	EOAP added. Predictive Windshear removed.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
32. Landing Gear and Brakes	Carbon brakes. Redundant gear warning system removed. Nose Landing position indicator added. Brake temperature and pressure gauge added. Gear door light added. Main gear viewport added.	No	Yes	-	AVT LEC CBT	FTD 6	-	-	-
33. Lights	Cockpit light switches relocated on various panels.	No	No	TNG HND OUT	-	FTD 6	-	-	-
34. Navigation	FMS change.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	C 30 Days
35. Oxygen	Quick don mask.	No	Yes	TNG HND OUT	-	FTD 6	-	-	-
36. Pneumatics	Panel design and location changes. Switches changed. Temp. and valve position indicators added. X-feed levers added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-
49. APU	Panel redesigned and relocated.	No	Yes	TNG HND OUT	-	-	-	-	-
52/53/56. Doors	Ventral stairs added. Aft service door added.	No	Yes	-	AVT LEC CBT	-	-	-	-
73-80. Engines / Engine Indicating	Thrust rating panel added. Engine sys. Display panels added. Reverser design change. Reverser indication change. Engine sync. Switch added.	No	Yes	-	AVT LEC CBT	-	FTD 6	-	-

DIFFERENCE AIRCRAFT: <b>MD-90</b> BASE AIRCRAFT: <b>B-717-200</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
Maneuver	Remarks	Flt. Char.	Proc. Chng.	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Walk-around	Preflight	No	Yes	-	AVT	-	-	-	-
Takeoff, Climb, Cruise, Descent, Instrument approach, LOFT	Demonstrate Proficiency in: Cockpit preflight procedures Fire detection Test Starting procedures Normal systems operation Use of FMS Use of Autopilot Use of Auto throttle Use of Flight Director	No	Yes	-	-	-	FTD 6	C	C 30 Days
Abnormal Procedures	Demonstrate proficiency in: Manual pressurization Electrical Abnormal Pneumatic/anti-Ice Abnormal	No	Yes	-	-	-	FTD 6	C	C 30 Days
Performance	Changes related to MD-90	No	No	TNG HND OUT	-	-	-	-	-
Limitations	System related changes	No	No	TNG HND OUT	-	-	-	-	-

APPENDIX 3

SPECIAL TRAINING/CHECKING/CURRENCY REQUIREMENTS

ESCAPE MANEUVERS

TCAS

EFIS (including COMPACT MODE)

AUTOMATIC LANDINGS

FLAP ANOMALIES

FUEL MANAGEMENT

FLIGHT MANAGEMENT SYSTEM

AUTOMATIC THRUST RESTORATION

HAZARDOUS WEATHER AND WINTER OPERATIONS

EMERGENCY VISION ASSURANCE SYSTEM

DC-9-10 DIFFERENCES TRAINING

MD-90EFD TRAINING AND CHECKING

717 DIFFERENCES TRAINING AND CHECKING

#### WINDSHEAR

1. Many DC-9/MD-80/90 aircraft have been equipped with Honeywell Windshear Systems. Other manufacturers' systems may soon be approved. Some aircraft have detection only, while others have detection and guidance. On those systems which only offer detection, POIs should assure that training is in accordance with the FAA Windshear Training Aid and AC 120-50A, as amended.
2. On those systems which incorporate detection and guidance the FSB recommends that at least one hour of simulator training be required for each pilot. The simulator should have the same capability (equipment) as the aircraft in the operator's fleet. The training should consist of a series of windshears in both the takeoff and approach modes with emphasis on following the guidance provided by the windshear computer. The FSB has determined that this training is necessary due to the aggressiveness required to follow windshear pitch guidance, as well as the pitch extremes that may be commanded.
3. Ground training appropriate to the applicable windshear system should be accomplished in conjunction with or prior to the simulator training. If operators' fleets consist of both EFIS and non-EFIS aircraft, the ground and simulator training should address the differences between systems.
4. After appropriate initial training has been accomplished, POIs should ensure that during subsequent recurrent training periods, sufficient exposure is given to crewmembers to maintain proficiency with the windshear systems. POIs may also wish to consult AC 120-50A for additional guidance.

#### GROUND PROXIMITY

1. All DC-9 related aircraft share one manufacturers GPWS escape procedure (The Boeing Company, Long Beach Division, Flight Operations, All Operators Letter FO-AOL-9-060, FO-AOL-90-006, dated May 13, 1996). POIs should insure that their operators initial and transition training programs provide simulator training in the ground proximity escape maneuver.
2. Appropriate ground training should be accomplished prior to the simulator training. The FAA's Controlled Flight Into Terrain (CFIT) Training Aid can be found at [www.faa.gov/avr/afs/train.htm](http://www.faa.gov/avr/afs/train.htm)
3. The FSB sets the minimum training level for the GPWS escape procedure at level D. The training should consist of VFR and IFR encounters with closing terrain to a GPWS alert, or EGPWS (TAWS) alert if installed. Followed by the escape maneuver.
4. POIs should also insure that subsequent recurrent training periods should include exposure to the flightcrew of the ground escape maneuver in the simulator at least once every 24 months.
5. AQP qualification training and continuing qualification training should be in accordance with that operators approved AQP methodology.

## II. TCAS TRAINING.

Several TCAS II systems have been approved for use on DC-9/MD-80/90 aircraft. Generally, all of the systems are similar and should not require any significant differences training from one system to another.

Training in TCAS II should be in accordance with the provisions of the AC 120-55C, as amended. Should POIs wish to make inquiries as to AFM provisions for TCAS they may consult the FSB Chairman, LGB AEG.

## III. EFIS TRAINING REQUIREMENTS (including Compact Mode).

### A. EFIS TRAINING/CHECKING/CURRENCY REQUIREMENTS.

1. The EFIS training, checking and currency levels are set at C/B/B for initial, transition, and requalification training when not using the Compact Mode for the operations specified in Paragraph "B".
2. Currency will be concurrent with normal training cycles. Where mixed-fleet operators with significant numbers of EFIS equipped aircraft do not conduct the operations specified in Paragraph "B", and where crews have substantial exposure to EFIS during routine line operations, the operator need not address EFIS at re-current training periods.

### B. COMPACT MODE TRAINING/CHECKING/CURRENCY REQUIREMENTS.

1. The EFIS Compact Mode of the MD-80/90 series aircraft presents special training considerations for operators and for POI's who administer their training programs.
2. The training requirements for EFIS are increased when operating conditions require the use of the Compact Mode as a primary flight instrument. Training in a level 6 or higher Flight Training Device (FTD) is required and the training, checking, and currency levels are set at C/C/C (training checking and currency are concurrent with normal training cycles) when operations are predicated on the use of the Compact Mode during any one of the following operating conditions:
  - a. When using the Compact Mode to dispatch with an inoperative Navigation Display in accordance with MMEL provisions,
  - b. When conducting approaches to Category II or IIIa minimums with the Compact Mode displayed on one Primary Flight Display as a result of an in-flight Navigation Display failure in accordance with the limitations and procedures specified in the FAA Approved Airplane Flight Manual (AFM).
3. Each crewmember should be proficient in the use of the Compact Mode as a Primary Flight Instrument in all phases of flight including takeoffs, approaches to approved minimums and go-arounds.

#### IV. AUTOMATIC LANDINGS.

If an operator conducts automatic landings in the MD-80/MD-90 then appropriate training must occur. This training must be conducted in an MD-80/90 simulator (Level C or greater) or airplane. However, due to the similarity between MD-80/90 autoland systems, this training may occur in any MD-80/90 related aircraft.

#### V. FLAP ANOMALIES.

Differences training must include a demonstration of flap anomalies:

- A. A no-flap approach for the DC-9-10 series airplane.
- B. No-slats but normal flaps, and no-slats or flaps will be conducted in DC-9, -20, -30, -40, and -50 series aircraft with checking in one of these configurations. The Flap/Slat Control Handle can be split to control the flaps and slats separately on these aircraft.
- C. "No-Flap/No-Slat" approach for MD-80 series aircraft and MD-90 (flaps and slats cannot be controlled separately on MD-80 or MD-90 series aircraft). Training in other flap anomalies such as asymmetric flaps is also required.

#### VI. ALTERNATE FUEL BURN.

When the Alternate Fuel Burn System is installed on the operator's aircraft, or Sequential Auxiliary Tank Fuel Management procedures are to be used, training in a Level 4 FTD or higher training device should be required to demonstrate the difference in fuel usage and distribution and should address normal and abnormal procedures.

#### VII. FLIGHT MANAGEMENT SYSTEM (FMS).

Differences training requirements for the Flight Management System (FMS) must include "hands-on" training with the FMS and its associated components. These components include the Inertial Reference System (IRS) or AHARS, Multifunction Control and Display Unit (MCDU), mode annunciation, autopilot and auto throttles, and EFIS displays (see 10.1.1 for training device characteristics). Comprehensive treatment of this interrelated task training typically requires a MINIMUM of eight programmed hours of "hands-on" instruction. Approval of reductions below eight programmed hours, under the provisions of 14 CFR 121.401(d) or 121.405(d), by Principal Inspectors, should be coordinated with AFS-200.

#### VIII. AUTOMATIC THRUST RESTORATION (ATR).

POIs should assure that operators programs contain a demonstration of this feature during simulator training. The demonstration should differentiate between engine failures and surging engines (compressor stall). Those operators who utilize simulators not equipped with ATR logic should train crews through use of a video tape presentation. Operators utilizing MD-80 and MD-90 aircraft in mixed fleet operations should be familiar with the logic of each system since significant differences exist.

DC9-10 through 87, MD80, MD88, MD-90, MD-90EFD,  
717-200, DC-9-87 Fire Tanker

IX. HAZARDOUS WEATHER AND WINTER OPERATIONS.

Proper precautions and procedures regarding hazardous weather/winter operations which may be unique to DC-9, MD-80 series and MD-90 aircraft should be addressed. For example, topics such as use of reverse thrust, rudder effectiveness, and anti-skid braking characteristics when stopping on slippery runways, flight characteristics of the DC-9-10 with ice buildup on the leading edge of the wing, potential top surface wing icing due to cold-soaked fuel, proper use of engine anti-ice and tail de-ice and other topics are appropriate for incorporation in training programs.

X. EMERGENCY VISION ASSURANCE SYSTEM

- A. The Emergency Vision Assurance System (EVAS) has been certified for use on some models of the MD-80 series aircraft. EVAS, or Vision Safe as it is also referred to is a transparent inflatable bag which is deployed by one or both crewmembers should smoke present itself in the cockpit. The device allows limited view of the basic-T flight instruments and some vision through the windscreen should the smoke become so dense that vision within the cockpit becomes obscured.
- B. Training, checking, and currency for the EVAS system is set at D/D/D. Training must be accomplished in a level B or higher simulator, but can be conducted concurrently with other training events. It is not necessary to fill the simulator with smoke. Each crewmember must demonstrate one approach (with oxygen mask and smoke goggles donned) while manipulating the controls and using only that field of vision available through the EVAS bag. The scenarios used should address potential related failures such as total loss of AC power, lack of flight guidance, autopilot or auto throttles. There is no requirement for any specific related failures, however their inclusion provide realism. During training, emphasis should be placed on decision making as to when the bag should be deployed, positioning of the bag and re-assignment of crew duties if necessary.
- C. Currency for the vision safe unit is set at 24 months for each crewmember.

XI. DC-9-10 DIFFERENCES.

A. DC-9 DIFFERENCES.

Due to a lack of leading edge devices on the DC-9-10 series airplane, as well as other differences between this and other DC-9 related aircraft, special training, checking and currency requirements exist for this airplane. The most significant areas of concern are:

1. Recovery from approaches to stalls,
2. The approach and the landing maneuver,
3. Ice on the wing leading edges, and
4. the brake system.

B. RECOVERY FROM APPROACHES TO STALLS:

Differences training, checking and currency levels for the stall maneuver are set at B/A/A when the DC-9-30 series airplane is the operator's base airplane. Emphasis should be placed on training crews to begin stall recovery promptly at stick shaker onset or first indication of a stall. It is required that crews be knowledgeable of all installed stall recognition systems (SSRS, Shaker, etc.).

C. APPROACH AND LANDING:

1. The approach and landing flare attitudes on the DC-9-10 are different from those of other DC-9 related aircraft. These differences must be addressed during Initial, Transition, Recurrent and Re-qualification training. The FSB set training, checking and currency at level D\*/B/D\* for the approach and landing maneuver in the DC-9-10 series aircraft.

NOTE: Because of factors such as limited access to DC-9-10 simulators and the associated financial impact, the board evaluated use of a DC-9-30 series simulator to determine if it could be used to satisfy the Approach and Landing maneuver training requirements. The asterisk (\*) referenced in the training, checking and currency levels, above, denotes that a DC-9-30 series simulator may be used for the specified training and currency, in lieu of a DC-9-10 series airplane or simulator, but only within the context of item 6 – 8..

2. Although a DC-9-30 simulator does not have the same performance or handling characteristics as a DC-9-10, the FSB finds the DC-9-30 series simulator in certain configurations (i.e. with the slats retracted and flaps extended) demonstrates a similar pitch attitude "sight picture" as may be seen in the DC-9-10 during a normal approach and flare.
3. Approval of the DC-9-30 series simulator to demonstrate "sight picture" similarity with the DC-9-10 requires that the visual system be operative, the slats be locked out at the instructor panel and that DC-9-10 speeds and weights are used.
4. Crewmember may receive DC-9-10 approach and landing differences training in a DC-9-30 Level A or B simulator. However, pilots receiving differences in this manner must also accomplish one of the following activities:
  - a. Complete one takeoff and landing in a DC-9-10 Series aircraft during OE (Supervised Line Flying) with at least one landing as the sole manipulator of the controls, or
  - b. Complete one takeoff and landing in a DC-9-10 During aircraft training (Supervised Flying) as the sole manipulator of the controls, or

- c. For SIC only, complete two line segments in a DC-9-10 aircraft with a qualified DC-9 pilot-in-command during line operations. The first segment is to be flown by the pilot-in-command (PIC) and the second segment to be flown by the second-in-command (SIC) as sole manipulator of the controls.

#### D. ICE ON THE WING LEADING EDGES:

Special emphasis should be placed on the consequences of conducting takeoffs with small amounts of ice on the wing leading edges. This training should include discussion of previous DC-9 series -10 aircraft accidents caused by wing icing, discussion of Airworthiness Directives regarding wing leading edge ice, approved modifications to the airplane to allow the airfoil anti-ice system to operate on the ground (if installed), discussion of the possible lack of stick shaker activation in a stalled condition, possible compressor stall, and emphasis on the operator's procedures for inspecting and de-icing series -10 airplanes per 14 CFR 121.629.

#### E. BRAKE SYSTEM

1. Since the DC-9-10 series airplane brake system allows for selection of either Right or Left system as the source hydraulic pressure, operators' Flight Crew Operating Manuals and checklists should address failures of a single system. It is appropriate for abnormal or emergency checklists to contain a requirement that crews assure that the hydraulic brake selector is selected to the optimum system. Crews should be proficient at recognizing loss of brake effectiveness and potential need to reposition the brake selector during an aborted takeoff or landing rollout.
2. While no finding has been made by the board that the performance or handling characteristics of a DC-9-30 series simulator are the same as the DC-9-10, it does find that the DC-9-30 simulator with the brake selector placed to the LEFT or RIGHT system during hydraulic system training or testing, with a subsequent failure of the selected system, will satisfy the need for crew proficiency in the DC-9-10 series abnormal brake system operations. The FSB set training, checking and currency at level D\*/B/D\* in the DC-9-10 series aircraft.

#### F. MD-90 EVALUATION.

The FSB did not specifically evaluate the differences between the DC-9-10 and MD-90 aircraft in mixed fleet flying, with either aircraft being the "base" aircraft consult the DC-9/MD-80/MD-90 FSB Chair and AFS-200.

#### G. TRAINING RECORDS

Operator training records should document accomplishments of all such differences training.

## XII. MD-90EFD DIFFERENCES TRAINING AND CHECKING

- A. Differences training requirements for the MD-90EFD include a minimum of 18 hours in accordance with ODR tables with comprehensive treatment of interrelated tasks associated with the six screen display and redesigned overhead panel. Approval of reduction below 18 hours, under the provisions of 14 CFR 121.401(d), by Principal Inspectors, should be coordinated with AFS-200.

NOTE: There was no FTD available for the MD-90EFD FSB evaluation. The full motion MD-90EFD simulator with motion, visual and sound turned off was used as being equivalent to a Level 6 FTD.

- B. A partial PC must be administered in accordance with AC120-53B. The check should be limited to those items with ODR entries in the checking column. Level D checking. It is the board's intent that a partial PC occur as the final event in differences training. It is also the board's intent that an operator flying the MD-90EFD and the MD-88 or MD-90 baseline aircraft would conduct a check and a half (as outlined above) at the normal checking cycle.

## XIII. B-717 DIFFERENCES TRAINING AND CHECKING

- A. Differences training requirements for the DC-9-30 to the B-717 include a minimum of 22 hours in accordance with ODR tables with comprehensive treatment on interrelated tasks associated with the six screen display, redesigned overhead and "hands on" FMS training.

Note: There was no FTD available for the B-717 FSB evaluation. The full motion B-717 simulator with motion, visual, and sound turned off was used as being equivalent to a Level 6 FTD.

A partial check at Level D, in accordance with AC120-53B must be administered as the final event in differences training. It is the Boards intent that the check should be limited to those items with ODR entries in the checking column. A Level 6 FTD is the minimum level device that may be used for this check.

- B. Differences training requirements for the MD-90 Baseline to the B-717 include a minimum of 18 hours in accordance with the ODR Tables with comprehensive treatment of interrelated tasks associated with the six screen display, redesigned overhead panel and FMS differences.

Note: There was no FTD available for the B-717 FSB evaluation. The full motion B-717 simulator with motion, visual and sound turned off was used as being equivalent to a Level 6 FTD.

A partial check at Level C in accordance with AC 120-53B must be administered as the final event in differences training. It is the Board's intent that the check should be limited to those items with DR entries in the checking column. A level 6 FTD is the minimum level device that may be used for this check.

- C. Differences training requirements for the B-717 to the MD-90 Baseline include a minimum of 18 hours in accordance with the ODR tables with comprehensive treatment on interrelated tasks with “hands on” training in flight guidance, FMA and FMS.

A partial check at Level C in accordance with AC 120-53B must be administered as the final event in differences training. It is the Board’s intent that the check should be limited to those items with ODR entries in the checking column. A Level 6 FTD is the minimum level device that may be used for this check.

## APPENDIX 4

### UNIVERSAL AVIONICS EFI-890R PFD/ND INSTALLATION IN BOEING DC-9-10 AIRCRAFT

1. PILOT TYPE RATING REQUIREMENTS

In accordance with 14 CFR parts 1 and 61, the pilot type rating for the DC-9-10 EFI-890R is designated as “DC-9”. There has been no change to pilot type rating designation.

2. BACKGROUND

In August, 2011 the DC-9 Flight Standardization Board (FSB) received ground training from Universal Avionics on behalf of Airborne Maintenance and Engineering Services (AMES) for STC ST02993CH. This STC was for an installation of a Universal EFI-890R with dual UNS-1Lw FMS with WSI weather and Sirius radio, dual RCU's, ACP's and ESIS. The training was conducted at AirFlite in Long Beach, California. The training was conducted using courseware and FMS/Computer training aids. The aircraft was also used as a training device. The FSB conducted AC 120-53B test T3, which is essentially an evaluation of the maneuvers listed in the FAA ATP Practical Test Standards (PTS) for a pilot type rating. Appendix 4 of this document contains the results of this installation.

3. MASTER DIFFERENCES REQUIREMENTS (MDR's)

MDR's are as depicted in the following table. The base aircraft (from airplane) is the DC-9-10. The related aircraft (to airplane) is the DC-9-10 EFI-890R. In summary, the MDR for the DC-9-10 EFI-890R is C/B/C. This denotes C level training requires use of any of the following: Interactive Computer based Instruction, Cockpit System Simulators, Cockpit Procedures Trainers or the aircraft cockpit itself while utilizing ground or ship power. B Level checking requires a demonstration of knowledge and proficiency in the use of the EFI-890R system, and C Level currency requires operation of the DC-9-10 EFI-890R avionics system every 180 days.

<u>MASTER DIFFERENCES REQUIREMENTS (MDR) TABLE</u>			
AIRPLANE TYPE RATING DC-9		FROM AIRPLANE	
		DC-9-10	DC-9-10 EFI-890R
TO AIRPLANE	DC-9-10	Not applicable	Not Evaluated
	DC-9-10 EFI-890R	C/B/C	Not applicable

4. ACCEPTABLE OPERATOR DIFFERENCE REQUIREMENTS (ODR's)

ODR tables are included below. They consist of Design, Maneuver, and System Difference Tables.

DIFFERENCE AIRCRAFT: <b>DC-9-10 EFI-890R</b> BASE AIRCRAFT: <b>DC-9-10</b> APPROVED BY POI:				COMPLIANCE METHOD					
DESIGN	REMARKS	FLT. CHAR.	PROC CHNG	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Instrument Panel Layout	Replaced analog gauges with Flat Panel Primary Flight Displays (PFD) and Navigation Displays (ND)	No	Minor	X	-	-	-	A	A

DIFFERENCE AIRCRAFT: <b>DC-9-10 EFI-890R</b> BASE AIRCRAFT: <b>DC-9-10</b> APPROVED BY POI:				COMPLIANCE METHOD					
MANEUVER	REMARKS	FLT. CHAR.	PROC CHNG	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
None	Not applicable	No	-	-	-	-	-	A	A

DIFFERENCE AIRCRAFT: <b>DC-9-10 EFI-890R</b> BASE AIRCRAFT: <b>DC-9-10</b> APPROVED BY POI:				COMPLIANCE METHOD					
				TRAINING				CHKG/CURR	
SYSTEM	REMARKS	FLT. CHAR.	PROC CHNG	LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
22 Autoflight	Autopilot engage annunciation is displayed on Mode Status Panel.	No	Minor	X	-	-	-	A	A
23 Communications	Radio Control Units (RCU) installed	No	Minor	X	-	-	-	A	A
34 Navigation	1. Altitude Pre Select is displayed on the PFD. 2. Altitude Baro. Set is provided on PFD Display Controller. 3. Flight Director Mode is displayed on PFD. 4. Electronic Standby Instrument System.	No	Minor	X	-	-	-	A	A
34 Navigation	1. Analog instruments replaced by PFD: - Airspeed/Mach - Altimeter - Vertical Speed - Attitude Indicator - Horizontal Indicator - Radio Magnetic Indicator 2. Display of various navigation sources are centralized on the PFD and ND. 3. TCAS system integrated within PFD. 4. EPGWS and Windshear alerting system integrated within PFD. 5. Universal UNS-1Fw.	No	Minor	-	-	CPT ICBT	-	B	C 180 days

<p><b>ABBREVIATIONS</b></p> <p>CPT - Cockpit Procedures Trainer</p> <p>ICBT - Interactive Computer Based Training</p>
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5. FSB SPECIFICATIONS FOR TRAINING

Operators training programs should emphasize system differences utilizing methods prescribed in the ODR Tables here in Appendix 4. Training curriculums should include the use of Interactive Computer Based Training (ICBT) or a Cockpit Procedures Trainer (CPT) as the minimum medium for pilot training, supplemented by a review of the AFM Supplement and the EFI-890R Pilot's Manual. In addition, training using the DC-9-10 EFI 890-R aircraft flight deck with the EFI-890R system properly powered on the ground may be substituted for ICBT or CPT training.

6. FSB SPECIFICATIONS FOR CHECKING

Checking level is set at Level B. Level B requires some demonstration of knowledge and proficiency in the use of the DC-9-10 EFI-890R system. This check may include oral questioning, written testing, or demonstration of ability using a CPT or aircraft flight deck with ground power applied.

7. FSB SPECIFICATIONS FOR CURRENCY

Currency level is set at Level C. Operators should schedule crews to operate the DC-9-10 EFI-890R system at least every 180 days, or re-establish currency by completing the minimum requirements outlined in FSB Specifications for Training referenced in this report.

8. FSB SPECIFICATIONS FOR DEVICES OR SIMULATORS

Some training and checking should be accomplished in a Cockpit Procedures Trainer (CPT) that replicates the layout and functions of the EFI-890R system. Use of the airplane flight deck, with ground power operative is acceptable as a CPT.

9. ALTERNATE MEANS OF COMPLIANCE

Approval Level and Criteria – Alternate means of compliance to differences requirements of 14 CFR parts 121 and 125, other than specified in this report, must be approved by AFS-200. If alternate compliance is sought, operators will be required to establish that any proposed alternate means provides an equivalent level of safety to the provisions of AC 120-53B and this report. Analysis, demonstrations, proof of concept testing, differences documentation, and/or other evidence may be required.

10. SUPPLEMENTAL BOARD REPORT

Historical development information used to develop this FSB report is kept on file at the Long Beach Aircraft Evaluation Group, 3960 Paramount Blvd., Suite 100, Lakewood, CA 90712-4137.

11. COMPLIANCE CHECKLIST

Not Accomplished.

## APPENDIX 5

### ERICKSON AERO CONVERSION OF DC-9-87 FIRE TANKER

#### 1. PILOT TYPE RATING REQUIREMENTS

In accordance with 14 CFR parts 1 and 61, the pilot type rating for the DC-9-87 FIRE TANKER is designated as “DC-9”. There has been no change to pilot type rating designation.

2. BACKGROUND

In March, 2014 the DC-9 Flight Standardization Board (FSB) received ground training from Aero Air for STC ST14727LA-T. This STC was for an installation of a fire fighting aerial dispersant system and a field installation of the Garmin G750 GPS. The training was conducted at Aero Air in Hillsboro, OR. The training was conducted using courseware and the aircraft as a cockpit procedures trainer. The aircraft was also used as a training device. The FSB conducted AC 120-53B test T3, which is essentially an evaluation of the maneuvers listed in the FAA ATP Practical Test Standards (PTS) for a pilot type rating. Appendix 5 of this document contains the results of this installation.

3. MASTER DIFFERENCES REQUIREMENTS (MDR’s)

MDR’s are as depicted in the following table. The base aircraft (from airplane) is the DC-9-87. The related aircraft (to airplane) is the DC-9-87 Fire Tanker. In summary, the MDR for the DC-9-87 Fire Tanker is D/B/D. This denotes D level training requires use of any of the following: Interactive Computer based Instruction, Cockpit System Simulators, Cockpit Procedures Trainers or the aircraft cockpit itself while utilizing ground or ship power. B Level checking requires a demonstration of knowledge and proficiency in the use of the Aero Air Fire Tanker conversion system, and D Level currency requires operation of the DC-9-87 Aero Air Fire Tanker conversion system annually.

<u>MASTER DIFFERENCES REQUIREMENTS (MDR) TABLE</u>			
AIRPLANE TYPE RATING DC-9		FROM AIRPLANE	
		DC-9-87	DC-9-87 Fire Tanker
TO AIRPLANE	DC-9-87	Not applicable	Not Evaluated
	DC-9-87 Fire Tanker	D/B/D	Not applicable

ACCEPTABLE OPERATOR DIFFERENCE REQUIREMENTS (ODR’s)

DC9-10 through 87, MD80, MD88, MD-90, MD-90EFD,

717-200, DC-9-87 Fire Tanker

ODR tables are included below. They consist of Design, Maneuver, and System Difference Tables.

DIFFERENCE AIRCRAFT: <b>DC-9-87 Fire Tanker</b> BASE AIRCRAFT: <b>DC-9-87</b> APPROVED BY POI:				COMPLIANCE METHOD					
<u>DESIGN</u>	REMARKS	FLT. CHAR.	PROC CHNG	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Instrument Panel Layout	Drop switches on pilot yokes Panel switches added for Fire Tanker Operations. Garmin G750 installed.	No	Yes	-	-	LEC CPT	-	B	B

DIFFERENCE AIRCRAFT: <b>DC-9-87 Fire Tanker</b> BASE AIRCRAFT: <b>DC-9-87</b> APPROVED BY POI:				COMPLIANCE METHOD					
<u>MANEUVER</u>	REMARKS	FLT. CHAR.	PROC CHNG	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
Fluid Delivery	Callouts, Procedures and C.G. Shift	Yes	Yes	-	-	LEC CPT	ACFT	B	D

DIFFERENCE AIRCRAFT: <b>DC-9-87 Fire Tanker</b> BASE AIRCRAFT: <b>DC-9-87</b> APPROVED BY POI:				COMPLIANCE METHOD					
<u>SYSTEM</u>	REMARKS	FLT. CHAR.	PROC CHNG	TRAINING				CHKG/CURR	
				LVL A	LVL B	LVL C	LVL D	FLT CHK	CURR
22 Auto flight	Slight change due to installation of Garmin G750.	No	Minor	-	-	LEC CPT	-	B	B
23 Communications	Radio Control Units (RCU) installed as part of Garmin G750 installation	No	Minor	-	-	LEC CPT	-	B	B
34 Navigation	Installation of Garmin G750	No	Yes	-	-	LEC CPT	-	B	B

**ABBREVIATIONS**

CPT - Cockpit Procedures Trainer

LEC - Lecture

## 5. FSB SPECIFICATIONS FOR TRAINING

DC9-10 through 87, MD80, MD88, MD-90, MD-90EFD,  
717-200, DC-9-87 Fire Tanker

Operators training programs should emphasize system differences utilizing methods prescribed in the ODR Tables here in Appendix 5. Training curriculums should include the use of Interactive Computer Based Training (ICBT), lecture or a Cockpit Procedures Trainer (CPT) as the minimum medium for pilot training, supplemented by a review of the AFM Supplement. In addition, training using the DC-9-87 Fire Tanker aircraft flight deck with the Aero Air system properly powered on the ground may be substituted for ICBT or CPT training.

#### 6. FSB SPECIFICATIONS FOR CHECKING

Checking level is set at Level B. Level B requires some demonstration of knowledge and proficiency in the use of the DC-9-87 Fire Fighting system. This check may include oral questioning, written testing, and demonstration of ability using the aircraft with an actual aerial dispersant.

#### 7. FSB SPECIFICATIONS FOR CURRENCY

The highest currency level is set at Level D which requires an actual dispersant drop. Level B currency requirements are merely a self-review of previously trained systems and procedures. Operators should schedule crews to operate the DC-9-87 Fire Tanker at least annually, or re-establish currency by completing the minimum requirements outlined in FSB Specifications for Training referenced in this report.

#### 8. FSB SPECIFICATIONS FOR DEVICES OR SIMULATORS

Use of the airplane flight deck, with ground power operative is acceptable as a CPT.

#### 9. ALTERNATE MEANS OF COMPLIANCE

Approval Level and Criteria – Alternate means of compliance to differences requirements of 14 CFR parts 121 and 125, other than specified in this report, must be approved by AFS-200 and/or AFS-800. If alternate compliance is sought, operators will be required to establish that any proposed alternate means provides an equivalent level of safety to the provisions of AC120-53B and this report. Analysis, demonstrations, proof of concept testing, differences documentation, and/or other evidence may be required.

#### 10. SUPPLEMENTAL BOARD REPORT

Historical development information used to develop this FSB report is kept on file at the Long Beach Aircraft Evaluation Group, 3960 Paramount Blvd., Suite 100, Lakewood, CA 90712-4137.

#### 11. COMPLIANCE CHECKLIST

Not Accomplished.

