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Flight Standardization Board Report

Revision: 3
Date: 09/01/2020

Manufacturer
Learjet, Inc.

| Type Certificate Data Sheet (TCDS) | TCDS Identifier | Marketing Name | Pilot Type Rating |
|------------------------------------|-----------------|---|-------------------|
| A10CE | 60 | Learjet 60XR: S/N 60-294, 60-307, 60-319 and on | LR-60 |

Approved by the Aircraft Evaluation Division

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TABLE OF CONTENTS

1. RECORD OF REVISIONS..... 3

2. INTRODUCTION..... 3

3. HIGHLIGHTS OF CHANGE 3

4. BACKGROUND 4

5. ACRONYMS..... 4

6. DEFINITIONS 5

7. PILOT TYPE RATING 6

8. RELATED AIRCRAFT 6

9. PILOT TRAINING..... 7

10. PILOT CHECKING 7

11. PILOT CURRENCY 8

12. OPERATIONAL SUITABILITY..... 8

13. MISCELLANEOUS 8

APPENDIX 1. DIFFERENCES LEGEND..... 9

APPENDIX 2. MASTER DIFFERENCES REQUIREMENTS (MDR) TABLE..... 11

APPENDIX 3. DIFFERENCES TABLES..... 12

**APPENDIX 4. CLASS 3 ELECTRONIC FLIGHT BAG OPERATIONAL
EVALUATION 22**

1. RECORD OF REVISIONS

| Revision Number | Section(s) | Page(s) Affected | Date |
|---------------------|-------------------------------------|---|------------|
| LR-60 Original | All | All | 04/13/1993 |
| LR-60XR Original | All | All | 06/07/2007 |
| LR-60XR 1 | 1, 4, 5, 6, 7, 8, 9, 10, A, C, D | 1, 3, 4, 5, 9, 10, 11, A-1, C-1, D | 05/07/2010 |
| LR-60XR 2 | 6, 8, 9, 10, 12, A, B, D | 1, 4, 9, 10, 11, 12, A-1, B-1, B-4, B-6, D-1, D-2, D-5, D-6 | 08/25/2011 |
| 3 | All | All | 09/01/2020 |

2. INTRODUCTION

Aircraft Evaluation Groups (AEG) are responsible for working with aircraft manufacturers and modifiers, during the development and Federal Aviation Administration (FAA) certification of new and modified aircraft to determine:

- 1) The pilot type rating,
- 2) Flightcrew member training, checking, and currency requirements, and
- 3) Operational suitability.

This report lists those determinations for use by:

- 1) FAA employees who approve training programs,
- 2) FAA employees and designees who certify airmen, and
- 3) Aircraft operators and training providers, to assist them in developing their flightcrew member training, checking and currency.

3. HIGHLIGHTS OF CHANGE

This entire report combined pertinent information from the original LR-60 Flight Standardization Board (FSB) report, dated 04/13/1993; the original LR-60XR FSB report, dated 06/07/2007; LR-60XR FSB report Rev. 1, dated 05/07/2010; and LR-60XR FSB report Rev. 2, dated 08/25/2011; into a single report including all Learjet Model 60 Aircraft including LR-60 and LR-60XR. This revision converted the document to comply with section 508. Change bars are not included in this document because the entire report is revised and updated.

4. BACKGROUND

The Small Aircraft AEG formed an FSB that evaluated the Learjet 60 as defined in FAA Type Certificate Data Sheet (TCDS) No. A10CE. The evaluation was conducted using the methods described in the current edition of FAA Advisory Circular (AC) 120-53, Guidance for Conducting and Use of Flight Standardization Board Evaluations.

5. ACRONYMS

- 14 CFR Title 14, Code of Federal Regulations
- AAP Attitude Awareness Panel
- AC Advisory Circular
- ACFT Aircraft
- ACS Airman Certification Standards
- AEG Aircraft Evaluation Group
- AFD Adaptive Flight Display
- AHS Attitude Heading System
- AIR Air Certification Service
- AIRMET Airmen's Meteorological Information
- ALTS Altitude Select
- ARP Air Data Reference Panel
- AV Audiovisual Presentation
- CCP Cursor Control Panel
- CHP Course Heading Panel
- CMU Communication Management Unit
- CPT Cockpit Procedures Trainer
- DCP Display Control Panel
- EFB Electronic Flight Bag
- EFIS Electronic Flight Instrument System
- EIS Engine Indicating System
- ESIS Electronic Standby Instrument System
- FAA Federal Aviation Administration
- FCP Flight Control Panel
- FFS Full Flight Simulator
- FLC Flight Level Change
- FMS Flight Management System
- FSB Flight Standardization Board
- FSTD Flight Simulation Training Device
- FSU File Server Unit
- FTD Flight Training Device
- HSA Heading Speed Altitude
- HSI Horizontal Situation Indicator
- HO Handout
- ICBI Interactive Computer-Based Instruction
- IFIS Integrated Flight Information System

- LED Light-Emitting Diode
- LRU Line Replaceable Unit
- MDR Master Differences Requirements
- METAR Aviation Routine Weather Report
- MFD Multifunction Display
- NAS National Airspace System
- NEXRAD Next Generation Weather Radar
- NOTAM Notice to Airmen
- PI Principal Inspector
- POI Principal Operations Inspector
- PPOS Present Position
- PTT Part Task Trainer
- RTU Radio Tuning Unit
- SDD Sensor Display Driver
- SDU Sensor Display Unit
- SELCAL Selective Call
- SID Standard Instrument Departure
- SIGMET Significant Meteorological Information
- SU Stand-Up Instruction
- TAF Terminal Aerodrome Forecast
- TCBI Tutorial Computer-Based Instruction
- TR Thrust Reverser
- TC Type Certificate
- TCDS Type Certificate Data Sheet
- V_{REF} Reference Landing Speed
- XM Satellite Radio

6. DEFINITIONS

These definitions are for the purposes of this report only.

- 6.1 Base Aircraft.** An aircraft identified for use as a reference to compare differences with another aircraft.
- 6.2 Current.** A crewmember meets all requirements to operate the aircraft under the applicable operating part.
- 6.3 Differences Tables.** Describe the differences between a pair of related aircraft, and the minimum levels operators must use to conduct differences training and checking of crewmembers. Differences levels range from A to E.
- 6.4 Master Differences Requirements (MDR).** Specifies the highest training and checking differences levels between a pair of related aircraft derived from the Differences Tables.

- 6.5 Mixed Fleet Flying.** The operation of a base aircraft and one or more related aircraft for which credit may be taken for training, checking, and currency events.
- 6.6 Operational Evaluation.** The AEG process to determine pilot type rating, minimum flightcrew member training, checking and currency requirements, and unique or special airman certification requirements (e.g., specific flight characteristics, no-flap landing).
- 6.7 Operational Suitability.** An AEG determination that an aircraft or system may be used in the National Airspace System (NAS) and meets the applicable operational regulations (e.g., Title 14 of the Code of Federal Regulations (14 CFR) parts 91, 121, 133, and 135).
- 6.8 Qualified.** A flightcrew member holds the appropriate airman certificate and ratings as required by the applicable operating part.
- 6.9 Related Aircraft.** Any two or more aircraft of the same make with either the same or different type certificates (TC) that have been demonstrated and determined by the Administrator to have commonality.
- 6.10 Seat-Dependent Tasks.** Maneuvers or procedures using controls that are accessible or operable from only one flightcrew member seat.
- 6.11 Special Emphasis Area.** A training requirement unique to the aircraft, based on a system, procedure, or maneuver, which requires additional highlighting during training. It may also require additional training time, specialized training devices, or training equipment.
- 6.12 Specific Flight Characteristics.** A maneuver or procedure with unique handling or performance characteristics that the FSB has determined must be checked.

7. PILOT TYPE RATING

- 7.1 Type Rating.** The Learjet 60 aircraft type rating designation is LR-60.
- 7.2 Common Type Ratings.** Not applicable.
- 7.3 Military Equivalent Designations.** Military aircraft that qualify for the LR-60 type rating can be found at www.faa.gov under “Licenses & Certificates,” “Airmen Certification,” “Online Services,” “Aircraft Type Rating Designators.” This webpage is kept up to date and can be found at https://www.faa.gov/licenses_certificates/airmen_certification/.

8. RELATED AIRCRAFT

- 8.1 Related Aircraft on Same TCDS.** The Learjet 60 and the Learjet 60XR are related aircraft.
- 8.2 Related Aircraft on Different TCDS.** Not applicable.

9. PILOT TRAINING

9.1 Airman Experience.

Airmen receiving initial Learjet 60 training should have previous experience in high-altitude operations in multiengine transport turbojet aircraft, new generation avionics, and flight management system (FMS) experience. Pilots without this experience may require additional training.

Airmen receiving upgrade Learjet 60 training are assumed to have previous experience in the Learjet 60, new generation avionics, high-altitude operations, and FMS. Pilots without this experience may require additional training.

9.2 Special Emphasis Areas. None.

9.3 Specific Flight Characteristics. Maneuvers or procedures required to be checked as referenced in the Airline Transport Pilot and Type Rating for Airplane Airman Certification Standards (ACS), as applicable. There are no specific flight characteristics.

9.4 Seat-Dependent Tasks. None.

9.5 Regulatory Training Requirements That Are Not Applicable to the Learjet 60. Part 135, § 135.345(b)(3): Ground Training, Propellers.

9.6 Flight Simulation Training Devices (FSTD). There are no specific systems, procedures, or maneuvers that are unique to the Learjet 60 that require a specific FSTD for training.

9.7 Training Equipment. There are no specific systems or procedures that are unique to the Learjet 60 that require specific training equipment.

9.8 Differences Training Between Related Aircraft. Pilots must receive differences training between variations of the Learjet 60. The level of training is specified in Appendix 3, Differences Tables.

10. PILOT CHECKING

10.1 Landing from a No-Flap or Nonstandard Flap Approach. The probability of flap extension failure on the Learjet 60 is not extremely remote due to system design. Therefore, demonstration of a no-flap approach and landing during pilot certification or a 14 CFR part 61, § 61.58 proficiency check, § 91.1065 competency check, or § 135.293 competency check is required. Refer to FAA Order 8900.1, Volume 5 when the test or check is conducted in an aircraft versus a full flight simulator (FFS).

10.2 Specific Flight Characteristics. Maneuvers or procedures required to be checked as referenced in the Airline Transport Pilot and Type Rating for Airplane ACS, as applicable. There are no specific flight characteristics.

10.3 Seat-Dependent Tasks. Pilots must receive checking in these seat-dependent tasks:
None.

10.4 Other Checking Items. Not applicable.

10.5 FSTDs. There are no specific systems, procedures, or maneuvers that are unique to the Learjet 60 that require a specific FSTD for checking.

10.6 Equipment. There are no specific systems or procedures that are unique to the Learjet 60 that require specific equipment.

10.7 Differences Checking Between Related Aircraft. Pilots must receive differences checking between the variations of the Learjet 60. The level of checking is specified in Appendix 3, Differences Tables.

11. PILOT CURRENCY

There are no additional currency requirements for the Learjet 60 other than those already specified in parts 61, 91, and 135.

11.1 Differences Currency Between Related Aircraft. Not applicable.

12. OPERATIONAL SUITABILITY

The Learjet 60 is operationally suitable for operations under parts 91 and 135. The list of operating rules evaluated is on file at the Small Aircraft AEG.

13. MISCELLANEOUS

13.1 Forward Observer Seat. Learjet 60 aircraft do not have a dedicated forward observer seat. No specific aircraft interior passenger seating configuration has been evaluated. A forward-facing passenger seat adjacent to the cabin entry door or side-facing passenger seat across from the cabin entry door may be acceptable for compliance with § 135.75(b).

13.2 Landing Minima Categories. Reference 14 CFR part 97 § 97.3. The Learjet 60 is considered Category “C” aircraft for the purposes of determining normal “straight-in” landing weather minima. This is based on the maximum certificated landing weight reference landing speed (V_{REF}) for “Flaps 40.” The minimum indicated airspeed is V_{REF} for the selected flap position and the actual gross weight of the aircraft, plus any additional speed additives for the conditions during the approach, until aligned with the landing runway. If operating at a speed in excess of the upper limit of the speed range for the aircraft’s category, the minimums for the higher category must be used.

13.3 Normal Landing Flaps. The Learjet 60 normal “final flap setting” per § 91.126(c) is “Flaps 40.”

APPENDIX 1. DIFFERENCES LEGEND

Training Differences Legend

| Differences Level | Type | Training Method Examples | Conditions |
|-------------------|---------------------------|---|--|
| A | Self-Instruction | <ul style="list-style-type: none"> • Operating manual revision handout (HO) • Flightcrew operating bulletin (HO) | <ul style="list-style-type: none"> • Crew has already demonstrated understanding on base aircraft (e.g., updated version of engine). • Minor or no procedural changes required. • No safety impact if information is not reviewed or is forgotten (e.g., different engine vibration damping mount). • Once called to attention of crew, the difference is self-evident. |
| B | Aided Instruction | <ul style="list-style-type: none"> • Audiovisual presentation (AV) • Tutorial computer-based instruction (TCBI) • Stand-up instruction (SU) | <ul style="list-style-type: none"> • Systems are functionally similar. • Crew understanding required. • Issues need emphasis. • Standard methods of presentation required. |
| C | Systems Devices | <ul style="list-style-type: none"> • Interactive (full-task) computer-based instruction (ICBI) • Cockpit Procedures Trainers (CPT) • Part task trainers (PTT) • Level 4 or 5 flight training device (FTD 4-5) | <ul style="list-style-type: none"> • Training can only be accomplished through systems training devices. • Training objectives focus on mastering individual systems, procedures, or tasks versus highly integrated flight operations or “real-time” operations. • Training devices are required to assure attainment or retention of crew skills to accomplish more complex tasks usually related to aircraft systems. |
| D | Maneuvers Devices | <ul style="list-style-type: none"> • Level 6 or 7 flight training device (FTD 6-7) • Level A or B full flight simulator (FFS A-B) | <ul style="list-style-type: none"> • Training can only be accomplished in flight maneuver devices in a real-time environment. • Training requires mastery of interrelated skills versus individual skills. • Motion, visual, control-loading, and specific environmental conditions may be required. |
| E | Level C/D FFS or Aircraft | <ul style="list-style-type: none"> • Level C or D full flight simulator (FFS C-D) • Aircraft (ACFT) | <ul style="list-style-type: none"> • Motion, visual, control-loading, audio, and specific environmental conditions are required. • Significant full-task differences that require a high fidelity environment. • Usually correlates with significant differences in handling qualities. |

Checking Differences Legend

| Differences Level | Checking Method Examples | Conditions |
|-------------------|---|---|
| A | None | None |
| B | <ul style="list-style-type: none"> • Oral or written exam • Tutorial computer-based instruction (TCBI) self-test | Individual systems or related groups of systems. |
| C | <ul style="list-style-type: none"> • Interactive (full-task) computer-based instruction (ICBI) • Cockpit Procedures Trainers (CPT) • Part task trainers (PTT) • Level 4 or 5 flight training device (FTD 4-5) | <ul style="list-style-type: none"> • Checking can only be accomplished using systems devices. • Checking objectives focus on mastering individual systems, procedures, or tasks. |
| D | <ul style="list-style-type: none"> • Level 6 or 7 flight training device (FTD 6-7) • Level A or B full flight simulator (FFS A-B) | <ul style="list-style-type: none"> • Checking can only be accomplished in flight maneuver devices in a real-time environment. • Checking requires mastery of interrelated skills versus individual skills. • Motion, visual, control-loading, and specific environmental conditions may be required. |
| E | <ul style="list-style-type: none"> • Level C or D full flight simulator (FFS C-D) • Aircraft (ACFT) | Significant full-task differences that require a high fidelity environment. |

APPENDIX 2. MASTER DIFFERENCES REQUIREMENTS (MDR) TABLE

These are the minimum levels of training and checking required, derived from the highest level in the Differences Tables in Appendix 3. Differences levels are arranged as training/checking.

| Related Aircraft ↓ | Base Aircraft → | Learjet 60 | Learjet 60XR |
|---------------------------|------------------------|-------------------|---------------------|
| Learjet 60 | | Not Applicable | C/B |
| Learjet 60XR | | C/C | Not Applicable |

APPENDIX 3. DIFFERENCES TABLES

This Design Differences Table, from the Learjet 60 to the Learjet 60XR lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

| FROM BASE AIRCRAFT: Learjet 60 TO RELATED AIRCRAFT: Learjet 60XR | DESIGN | REMARKS | FLT CHAR | PROC CHNG | TRAINING | CHECKING |
|---|------------------------|---|-------------|--------------|----------|----------|
| | 21 Air Conditioning | Engine Indicating System (EIS) Crew/Cabin Temp Control Valve Position Display replaces electromechanical Crew/Cabin Temp Control Valve Position Indicators. | No | Yes | A | A |
| | 22 Autoflight | Pro Line 21 Coupled Autopilot replaces Pro Line 4 Independent Autopilot. | No | Yes | C | B |
| | 22 Autoflight | Flight Control Panel (FCP) with Altitude Select (ALTS) and LVL CHG modes removed and SPD mode changed to Flight Level Change (FLC) replaces FCP with ALTS, LVL CHG and SPD modes. | No | Yes | B | A |

| FROM BASE AIRCRAFT: Learjet 60 | | | | | | |
|--|------------------------|--|-----------------|------------------|-----------------|-----------------|
| TO RELATED AIRCRAFT: Learjet 60XR | DESIGN | REMARKS | FLT CHAR | PROC CHNG | TRAINING | CHECKING |
| | 23 Communications | Radio Tuning Units (RTU) 4220 replace RTUs 870. | No | Yes | B | A |
| | 23 Communications | EIS Selective Call (SELCAL) Display replaces SELCAL Annunciator panel. | No | Yes | A | A |
| | 24 Electrical Power | EIS Electrical Display replaces Power Monitor. | No | Yes | A | A |
| | 27 Flight Controls | EIS Pitch, Aileron and Rudder Trim Display replaces Electromechanical Pitch, Aileron and Rudder Trim Indicators. | No | Yes | A | A |
| | 27 Flight Controls | EIS Flaps and Spoilers Display replaces electromechanical Flaps and Spoilers indicator. | No | Yes | A | A |
| | 32 Landing Gear | EIS Gear Display replaces Gear Annunciator Lamps. | No | Yes | A | A |
| | 33 Lights | Circuit Breaker and Integral cockpit panel lighting and some switch/lights changed to light-emitting diodes (LED). | No | No | B | A |

| FROM BASE AIRCRAFT: Learjet 60 TO RELATED AIRCRAFT: Learjet 60XR | DESIGN | REMARKS | FLT CHAR | PROC CHNG | TRAINING | CHECKING |
|---|------------------|---|----------|-----------|----------|----------|
| | 34 Navigation | Pro Line 21 Electronic Flight Instrument System (EFIS) 8x10 displays replace Pro Line 4 EFIS 6x7 displays. Air Data Reference Panel (ARP), Attitude Awareness Panel (AAP), Course Heading Panel (CHP) removed, replaced by Display Control Panel (DCP) (On-Side PFD), Cursor Control Panel (On-Side MFD), Heading Speed Altitude (HSA) Panel and Course Panel. | No | Yes | C | B |
| | 34 Navigation | Pro Line 21 Attitude Heading System (AHS) replaces Pro Line 4 AHS. | No | Yes | A | B |
| | 34 Navigation | Rockwell Collins Pro Line 21 FMS replaces Universal FMS. | No | Yes | C | C |
| | 34 Navigation | Pilot/Co-pilot EFIS Control Panel modified. | No | Yes | B | A |
| | 34 Navigation | Standby instruments, Electro-pneumatic standby Altitude/Airspeed and Attitude instruments replaced by an Electronic Standby Instrument System (ESIS). | No | Yes | A | A |

| FROM BASE AIRCRAFT: Learjet 60 | | | | | | |
|--|-------------------------|---|-----------------|------------------|-----------------|-----------------|
| TO RELATED AIRCRAFT: Learjet 60XR | DESIGN | REMARKS | FLT CHAR | PROC CHNG | TRAINING | CHECKING |
| | 34 Navigation | Backup RTU Horizontal Situation Indicator (HSI) display replaces Sensor Display Unit (SDU) and Sensor Display Driver (SDD). | No | Yes | A | A |
| | 34 Navigation | Integrated Flight Information System (IFIS)-5000. | No | Yes | C | C |
| | 34 Navigation | Capable of supporting optional: Enhanced map displays, satellite radio (XM)/Universal weather display, etc. | No | Yes | A | A |
| | 76 Engine Control | EIS Thrust Reverser (TR), Engine SYNC and APR annunciations replace TR, SYNC and APR annunciator Lamps in glare shield Warning Panel. | No | Yes | B | A |
| | 77 Engine Indicating | EIS Engine Display replaces electromechanical engine indicators (N1, N2, ITT, OP, OT and FF). | No | Yes | A | A |
| | 77 Engine Indicating | Backup Engine Indications on the RTU. | No | No | A | A |

This Maneuver Differences Table, from the Learjet 60 to the Learjet 60XR lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

| FROM BASE AIRCRAFT: Learjet 60 TO RELATED AIRCRAFT: Learjet 60XR | MANEUVER | REMARKS | FLT CHAR | PROC CHNG | TRAINING | CHECKING |
|---|-----------------|----------------|---------------------|----------------------|-----------------|-----------------|
| | ACS Maneuvers | No Changes. | No | No | A | A |

This Design Differences Table, from the Learjet 60XR to the Learjet 60 lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew member.

| FROM BASE AIRCRAFT: Learjet 60XR TO RELATED AIRCRAFT: Learjet 60 | DESIGN | REMARKS | FLT CHAR | PROC CHNG | TRAINING | CHECKING |
|---|------------------------|--|---------------------|----------------------|-----------------|-----------------|
| | 21 Air Conditioning | Electromechanical Crew/Cabin Temp Control Valve Position Display replaces EIS Crew/Cabin Temp Control Valve Position Indicators. | No | Yes | A | A |
| | 22 Autoflight | Pro Line 4 Coupled Autopilot replaces Pro Line 21 Independent Autopilot. | No | Yes | C | B |
| | 22 Autoflight | FCP with ALTS and LVL CHG modes added and FLC mode changed to SPD replaces FCP with FLC modes. | No | Yes | B | A |

| FROM BASE AIRCRAFT: Learjet 60XR | DESIGN | REMARKS | FLT CHAR | PROC CHNG | TRAINING | CHECKING |
|---|------------------------|--|-----------------|------------------|-----------------|-----------------|
| TO RELATED AIRCRAFT: Learjet 60 | 23 Communications | RTUs 870 replaces RTUs 4220. | No | Yes | B | A |
| | 23 Communications | SELCAL Annunciator panel replaces EIS SELCAL Display. | No | Yes | A | A |
| | 24 Electrical Power | Electrical Power Monitor replaces EIS Electrical Display. | No | Yes | A | A |
| | 27 Flight Controls | Electromechanical Pitch, Aileron and Rudder Trim Indicators replaces EIS Pitch, Aileron and Rudder Trim Display. | No | Yes | A | A |
| | 27 Flight Controls | Electromechanical Flaps and Spoilers indicator replaces EIS Flaps and Spoilers Display. | No | Yes | A | A |
| | 32 Landing Gear | Gear Annunciator Lamps replaces EIS Gear Display. | No | Yes | A | A |
| | 33 Lights | Circuit Breaker and Integral cockpit panel lighting and some switch/lights changed to bulbs and electroluminescent lighting. | No | No | B | A |

| FROM BASE AIRCRAFT: Learjet 60XR TO RELATED AIRCRAFT: Learjet 60 | DESIGN | REMARKS | FLT CHAR | PROC CHNG | TRAINING | CHECKING |
|---|------------------|---|----------|-----------|----------|----------|
| | 34 Navigation | Pro Line 4 EFIS 8x10 displays replaces Pro Line 21 EFIS, four 6x7 displays. ARP, AAP, CHP replaces, DCP (On-Side PFD), Cursor Control Panel (On-Side MFD), HSA Panel and Course Panel. | No | Yes | C | B |
| | 34 Navigation | Pro Line 4 AHS replaces Pro Line 21 AHS. | No | Yes | A | B |
| | 34 Navigation | Rockwell Collins Pro Line 21 FMS replaced by Universal FMS. | No | Yes | C | A |
| | 34 Navigation | Pilot/Co-pilot EFIS Control Panel modified. | No | Yes | B | A |
| | 34 Navigation | Standby instruments, Electro-pneumatic standby Altitude/Airspeed and Attitude instruments replaces ESIS. | No | Yes | A | A |

| FROM BASE AIRCRAFT: Learjet 60XR TO RELATED AIRCRAFT: Learjet 60 | DESIGN | REMARKS | FLT CHAR | PROC CHNG | TRAINING | CHECKING |
|---|-------------------------|--|----------|-----------|----------|----------|
| | 34 Navigation | Backup RTU HSI display replaced by SDU and SDD. | No | Yes | A | A |
| | 34 Navigation | Optional: Enhanced map displays, XM/Universal weather display, etc. not available. | No | Yes | A | A |
| | 76 Engine Controls | EIS TR, Engine SYNC and APR annunciations replaced by TR, SYNC and APR annunciator Lamps in glare shield Warning Panel. | No | Yes | B | A |
| | 77 Engine Indicating | L and R Engine controls relocated on pedestal EIS Engine Display replaced by electromechanical engine indicators (N1, N2, ITT, OP, OT and FF). | No | Yes | A | A |
| | 77 Engine Indicating | TFE731-40-BR engine mod - Increased thrust Backup Engine Indications on the RTU not available. | No | No | A | A |

This Maneuver Differences Table, from the Learjet 60XR to the Learjet 60 lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

| FROM BASE AIRCRAFT: Learjet 60XR TO RELATED AIRCRAFT: Learjet 60 | MANEUVER | REMARKS | FLT CHAR | PROC CHNG | TRAINING | CHECKING |
|---|-----------------|----------------|---------------------|----------------------|-----------------|-----------------|
| | ACS Maneuvers | No Changes. | No | No | A | A |

APPENDIX 4. CLASS 3 ELECTRONIC FLIGHT BAG OPERATIONAL EVALUATION

ROCKWELL COLLINS PROLINE 21

INTEGRATED FLIGHT INFORMATION SYSTEM (IFIS)-5000

1. PURPOSE AND APPLICABILITY

The following is provided for the benefit of FAA principal inspectors (PI) and aircraft operators for their use in determining the acceptance of Electronic Flight Bag (EFB) applications. As described in the current edition of AC 120-76, Authorization for Use of Electronic Flight Bags, the Collins IFIS-5000 is certified Type B.

This Appendix is applicable for operational approval of the IFIS-5000 system as an EFB in the following aircraft: Learjet, Inc. Model LR-60XR.

As previously noted, the Electronic Charts section has been certified as a situational awareness tool and is not intended to alleviate the crewmember from carrying primary navigational reference materials. The IFIS-5000 integration is approved “paperless” for a time limit of 0.5 hours (30 minutes) due to the main battery emergency capacity and no electronic chart backup. The aircraft must be able to descend and land at a suitable airport within this time period. The paperless time limit may be increased based on the individual aircraft’s approved electrical load analysis referencing Main Battery Capacity Analysis (Table 15 – Total Time Available in Hours). The FSB recommendation for unlimited (no time limit) paperless approval would require implementing at least one (1) of the following contingency recommendations:

- a) Redundant EFB application hosted on different/secondary EFB platform;
- b) Primary paper products carried by selected crewmember, (i.e., Trip Kit);
- c) Complete set of sealed paper backups in the aircraft accessible to flightcrew; or
- d) Procedural means to allow flightcrew access to charts in event of dual generator failure.

2. EFB DESCRIPTION

IFIS-5000 System. The IFIS provides supplemental information, such as weather and electronic charts, in the cockpit via Adaptive Flight Displays (AFD). The IFIS functions are intended to provide situational awareness only and do not provide alerts or warnings. The three major functions provided by the IFIS-5000 are; support for navigational charts, enhanced map overlays, and graphical weather images. The charts function allows the viewing of selected Jeppesen aeronautical charts. The Enhanced Maps function is split into an application and a server that together provide map overlays of geopolitical, airspace, airway data, and visual navigation information. The Graphical Weather function option provides various weather images. The Graphical Weather System is operator selected as either XM or Universal however, only a single graphical weather system is approved for installation at a time.

The following Rockwell Collins Pro Line 21 IFIS-5000 components are required as a minimum for “paperless” operational approval.

| Quantity | Description | Hardware/ Software | Part Number |
|----------|-------------|-----------------------|--------------|
| 2 | FSU-5010 | Hardware | 822-1543-XXX |
| 2 | ECU-3000 | Hardware | 822-1200-XXX |
| 2 | AFD-3010E | Hardware | 822-1753-XXX |
| 2 | CCP-3000 | Hardware | 822-1746-XXX |
| 2 | MMT-5000 | Hardware | 822-1811-XXX |
| 2 | FSA-5000 | Software | 822-0001-XXX |
| 2 | ECH-5000 | Software | 810-0002-XXX |

FSU-5010. The File Server Unit (FSU)-5010 is a dedicated Line Replaceable Unit (LRU) with three major functions that provide the processing platform for the IFIS: Solid-state memory, a processor capable of running one or more applications, and high-speed Ethernet communications with other avionics. The FSU provides the mass data storage within its mass storage hardware, necessary for uplinked graphical weather, enhanced map overlays, and electronic charts displayed on the multifunction display (MFD). Ethernet bussing provides the high-speed connection to the MFD. The high-speed Ethernet connection minimizes the time taken to respond to a display request from the pilot, while providing a level of integrity to the data being transmitted.

CCP-3000. The Cursor Control Panel (CCP)-3000 is mounted in the flight deck to provide additional pilot controls necessary for the chart function. These functions include:

- Selection and de-selection of the chart display on the MFD.
- Zooming a specific area of a chart to provide better readability.
- Panning a chart to view different areas of the chart while zoomed.
- Rotation of charts between landscape and portrait orientation.
- Selection of a specific chart from the thousands contained in the database.

IFIS-5000 Functions. Electronic Charts, Graphical Weather and Enhanced Map Overlays functions each require an active subscription. Rockwell Collins IFIS-5000 Operator’s Guide must be immediately available to the flightcrew.

Electronic Charts.

The Electronic Aeronautical Charts and Approach Plates are intended to provide ease of chart access and improved situational awareness by allowing the display of aircraft present position on Geo-referenced charts. The Electronic Charts function is NOT intended to alleviate the crew from carrying primary material in the form of paper charts. Operational Approval for EFBs is required to substitute Electronic Charts for Paper Charts.

The Electronic Charts feature will typically provide information to include (but is not necessary restricted to): the display of charts for arrival, approach, departure, airport and Notices to Airmen (NOTAM). Access to the Electronic Charts format is via a CCP chart button. Integration with the Rockwell Collins FMS flight plan data provides easy access to all

charts pertinent to the flight plan. Pilot entered station IDs are allowed. The Electronic Chart function provides aircraft position on all geo-referenced charts. The FMS transmits flight plan information (origin airport, destination airport, destination arrival, destination approach, and alternate airport) used by the electronic chart function. Charts associated with each flight plan element are listed on the MFD chart selection menu. A single action selects any of these charts for immediate display.

IFIS-5000 electronic chart feature includes:

- Approach Charts and Airport Diagrams.
- Terminal Area Arrival/Departure Charts.
- Chart NOTAMs.

If airport diagrams are referenced to geographical coordinates, an aircraft symbol is superimposed on the airport diagram to enhance position awareness. Approach charts referenced to geographical coordinates also have an aircraft symbol superimposed on the chart to enhance situational awareness.

Enhanced Map Overlays.

The FSU provides several map databases that contain additional data that can be overlaid on the MFD Present Position (PPOS) and Plan Maps. The additional map databases include:

- Geographic Data (lakes, rivers, and political boundaries).
- Airways (“Victor” airways and “jet” routes).
- Airspace depictions.

The Enhanced Map application does NOT serve as the primary means for positional information in the cockpit. The features provided by the Enhanced Map application are only considered to provide Minor Hazards in cruise. Enhanced Map overlays are advisory and not to be used for navigation. Navigation data related to approach is provided by the charts application.

Graphical Weather Function.

The IFIS-5000 system will support several graphical weather functions. The weather radar is the primary means for aiding “tactical” short-range navigation decisions, while the strategic planning can be performed using the longer-range graphical weather data. Graphical Weather may NOT be substituted for weather radar. Weather Radar provides thunderstorm detection and avoidance information in compliance with 14 CFR requirements.

The Graphical Weather function provides weather information to pilots to enhance awareness of the flight situation by providing a strategic meteorological overview. The intention is to improve operational safety and efficiency. The graphical weather feature provides the display of stored graphical weather images. A menu allows the pilot to select available graphical weather images that are stored in the FSU. Stored images are downlinked through the XM or Universal Communication Management Unit (CMU) receiver to the FSU. The data received is broadcast from a ground weather service provider. The graphical information can be panned

and zoomed using the Cursor Control Panel Joystick and Zoom buttons. The information provided is:

- Next Generation Weather Radar (NEXRAD) images.
- Echo Tops (Altitude, speed and direction of the tops of major storm cells).
- Graphical and textual Aviation Routine Weather Report (METAR).
- Graphical and textual Significant Meteorological Information (SIGMET) advisory.
- Textual Airmen's Meteorological Information (AIRMET) advisory.
- Textual Terminal Aerodrome Forecast (TAF).

3. EFB MOUNTING

EFB applications can be displayed on either pilot or co-pilot MFD and have been certified as part of the type design.

4. EFB DISPLAY AND REFLECTIVITY

The EFB has been evaluated in both low light and full sunlight. The display is readable under the full range of lighting without distraction.

5. EFB PROCEDURES AND DATABASE REVISIONS

The database effectivity format that is displayed on the MFD is designed to allow the flightcrew (or maintenance personnel) to ascertain the currency of the installed databases. The databases listed on this page include:

- FMS Database (28 day update cycle).
- Charts (14 day update cycle).
- Airspace (28 day update cycle).
- Geographic (update on user demand).
- Political (update on user demand).
- Graphical Weather (update on user demand).

The database effectivity format provides information regarding the begin date, end date, and currency status of each of the installed databases. When databases are selected on the page, the format also provides detailed information regarding the database regions of coverage. When an installed database is out of date, the flightcrew is provided a "CHECK DATABASE STATUS" annunciation (only when on the ground) in the Lower Format Window. When this annunciation is displayed, the operator can select the Database Effectivity page and a "NOT CURRENT" annunciation (in yellow) is displayed in the status column.

6. FSB SPECIFICATIONS FOR TRAINING

Training level is set at Level C. Level C training requires mastering the FMS and EFB functions. As a minimum, the crew should use the FMS to flight plan and the EFB electronic chart functions to pull up the airport depiction charts, Standard Instrument Departures (SID), Arrival Procedures, and approach charts. Pilots should master the graphic weather depiction functions to obtain METARs and TAFs for origin, destination, and alternate airports.

7. FSB SPECIFICATIONS FOR CHECKING

Checking level is set at Level C. Level C checking requires a demonstration of proficiency in a task or system. A check is required for Initial, Transition, or Initial Differences training. The check may be administered by a company chief pilot, company check airman, company instructor, a Designated Pilot Examiner, Training Center Evaluator, or other FAA representative. Recommended tasks include demonstrating competency in using the FMS to integrate use of the Electronic Chart functions to display departures, arrivals, approaches, and utilization of the graphical weather text functions.

8. FSB SPECIFICATIONS FOR DEVICES OR SIMULATORS

The Level C training specified above may be conducted in a LR-60XR FFS or aircraft that is equipped with the IFIS-5000 system. The Level C checking specified above (i.e., FMS, EFB) may be conducted in an FFS or aircraft that is equipped with the IFIS-5000 system. There have been no standalone FMS/IFIS trainers evaluated.