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Flight Standardization Board Report

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Manufacturer
Aircraft Industries a.s. (LET)

Type Certificate Data Sheet (TCDS)	TCDS Identifier	Marketing Name	Pilot Type Rating
A42CE	L-420	L-410 Turbolet	L-420
A42CE	L 410 UVP-E20 & L 410 UVP-E20 Cargo	L-410 Turbolet	L-420
A42CE	L 410 NG	L-410 Turbolet	L-420

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1. RECORD OF REVISIONS

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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 is the original L-420, L 410 UVP-E20 & L 410 UVP-E20 Cargo, and L 410 NG Flight Standardization Board Report (FSBR).

4. BACKGROUND

The AEG formed a Flight Standardization Board (FSB) that evaluated the L-420, L 410 UVP-E20 & L 410 UVP-E20 Cargo, and L 410 NG as defined in FAA Type Certificate Data Sheet (TCDS) No. A42CE. The evaluation on the L 410 NG model was conducted during April 2019 using the methods described in FAA Advisory Circular (AC) 120-53, Guidance for Conducting and Use of Flight Standardization Board Evaluations. This FSBR also includes unpublished FSB activity conducted on the L-420 and the L 410 UVP-E20 & L 410 UVP-E20 Cargo model aircraft. The FSB has determined that the L-420, L 410 UVP-E20 & L 410 UVP-E20 Cargo, and L 410 NG models share the same L-420 Pilot Type Rating. Training and checking requirements are listed in Appendices 2, Master Differences Requirements (MDR) Table, and 3, Differences Tables.

5. ACRONYMS

- 14 CFR Title 14 Code of Federal Regulations
- ABC Automatic Bank Control
- AC Advisory Circular
- ACFT Aircraft
- ACS Airman Certification Standards
- ADC Air Data Computer
- ADI Attitude Direction Indicator
- AEG Aircraft Evaluation Group
- AFM Airplane Flight Manual
- AFMS Airplane Flight Manual Supplement
- ALT Altimeter
- ASI Airspeed Indicator
- ATP Airline Transport Pilot
- AV Audiovisual Presentation
- CDI Course Deviation Indicator
- COMM Communications (Radio)
- CPT Cockpit Procedures Trainer
- CVR Cockpit Voice Recorder
- DME Distance Measuring Equipment
- EFB Electronic Flight Bag
- EFIS Electronic Flight Instrument System
- EIS Engine Indication System
- ELU Electronic Limiter Unit
- ESI Electronic Standby Indicator
- FAA Federal Aviation Administration
- FDR Flight Data Recorder
- FFS Full Flight Simulator
- FMS Flight Management System
- FSB Flight Standardization Board
- FSTD Flight Simulation Training Device
- FTD Flight Training Device
- GPS Global Positioning System
- HO Handout
- HSI Horizontal Situation Indicator
- ICBI Interactive Computer-Based Instruction
- KIAS Knots Indicated Airspeed
- LED Light-Emitting Diode
- LNAV Lateral Navigation
- LPV Localizer Performance With Vertical Guidance
- NAS National Airspace System
- MDA Minimum Descent Altitude
- MDR Master Differences Requirements

- MFD Multifunction Display
- MFF Mixed Fleet Flying
- NAV Navigation
- NAS National Airspace System
- OAT Outside Air Temperature
- OEI One-Engine-Inoperative
- PCL Propeller Control Lever
- PFD Primary Flight Display
- PIC Pilot in Command
- PTT Part Task Trainer
- SU Stand-Up Instruction
- TAWS Terrain Awareness and Warning System
- TC Turn Coordinator
- TC Type Certificate
- TCAS Traffic Alert and Collision Avoidance System
- TCBI Tutorial Computer-Based Instruction
- TCDS Type Certificate Data Sheet
- TCL Throttle Control Lever
- VAC Voltage in Alternating Current
- VNAV Vertical Navigation
- VSI Vertical Speed Indicator
- WAAS Wide Area Augmentation System
- WX Weather

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 flightcrew members. Differences levels range from A to E.

6.4 Master Differences Requirements (MDR). Specifies the minimum levels of training and checking required between a pair of related aircraft, derived from the highest level in the Differences Tables.

6.5 Mixed Fleet Flying (MFF). 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. The 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 flight simulation training devices (FSTD) 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 L-420, L 410 UVP-E20 & L 410 UVP-E20 Cargo, and L 410 NG type rating designation is “L-420.”

7.2 Common Type Ratings. Not applicable.

7.3 Military Equivalent Designations. Military aircraft that qualify for the L-420 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.

- L-420,
- L 410 UVP-E20 & L 410 UVP-E20 Cargo, and
- L 410 NG.

8.2 Related Aircraft on Different TCDS. Not applicable.

9. PILOT TRAINING

9.1 Airman Experience.

9.1.1 Airmen receiving initial L-420, L 410 UVP-E20 & L 410 UVP-E20 Cargo, or L 410 NG training should have previous experience in multiengine turbo-propeller-powered airplanes, including various avionics and navigation system experience. Airmen receiving initial L-420 training should have previous experience with traditional (individual) mechanical flight instruments. Airmen receiving initial training in the L 410 UVP-E20 & L 410 UVP-E20 Cargo, and L 410 NG should have experience with new generation avionics and flight management systems (FMS). Pilots without this experience may require additional training.

9.1.2 Airmen receiving differences L-420, L 410 UVP-E20 & L 410 UVP-E20 Cargo, or L 410 NG training are assumed to have completed initial, upgrade, or transition training and be qualified as pilot in command (PIC) in one related aircraft to receive differences training in another related aircraft consistent with the MDR table.

9.2 Special Emphasis Areas.

9.2.1 Pilots must receive special emphasis on the following areas during initial ground training. Pilots receiving differences training must receive special emphasis on new applicable areas not covered during initial training:

a) Primary Flight Instruments and Interface. The L-420 comes with traditional mechanical flight instruments. The L 410 UVP- E20 & L 410 UVP-E20 Cargo is equipped with a Universal EFI-890R Electronic Flight Instrument System (EFIS). The L 410 NG is fitted with a Garmin G3000 Integrated Flight Deck. Pilots transitioning from traditional mechanical flight instruments to a primary flight display (PFD) or from a PFD to traditional mechanical flight instruments may require additional training. Recognition of reversionary modes and display failures and appropriate corrective action to be taken should be addressed in aircraft with PFDs.

b) Automatic Bank Control (ABC) System. An operational understanding of the ABC system’s operation is required.

c) Electronic Limiter Unit (ELU). An operational understanding of the function of the ELU and associated signal cells and associated pilot actions is required.

d) Fuel Stop Cock/Emergency Throttle Lever. An operational understanding and use of the Emergency Throttle function is required.

e) Propeller Control System. Pilots should have an understanding of the propeller preflight requirements and the different means to manually feather the engine. Knowledge of the propeller operation, control, and malfunction, including Pitch Lock is required.

f) Stall Characteristics. Under certain conditions, the aircraft may momentarily pitch slightly up prior to pitching down in a full stall.

9.2.2 Pilots must receive special emphasis on, and perform the following areas during initial flight training. Pilots receiving differences training must receive special emphasis on new applicable areas not covered during initial training:

a) Primary Flight Instruments and Interface. The L-420 comes with traditional mechanical flight instruments. The L 410 UVP- E20 & L 410 UVP-E20 Cargo is equipped with a Universal EFI-890R EFIS. The L 410 NG is fitted with a Garmin G3000 Integrated Flight Deck. Pilots transitioning from traditional mechanical flight instruments to a PFD or from a PFD to traditional mechanical flight instruments may require additional training. Recognition of reversionary modes and display failures and appropriate corrective action to be taken should be addressed in aircraft with PFDs.

b) Nosewheel Steering System. Pilot's should practice nosewheel steering actuated manually (by a lever on the left control column – left seat only) and by pedals.

c) ABC System. Recommend demonstrating ABC activation in order for pilots to experience control inputs required to maintain optimum one-engine-inoperative (OEI) parameters.

d) Fuel Stop Cock/Emergency Throttle Lever. Recommend demonstrating use of Emergency Throttle function in flight.

e) Ground Spoilers. Due to the location of the ground spoiler activation switch on the yoke, the FSB found that it took practice adjusting control grip to properly activate the ground spoilers. Recommend emphasis on activating the ground spoilers during pilot training.

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

9.4 Seat-Dependent Tasks. Pilots must receive initial, upgrade, transition, and differences training as applicable in these seat-dependent tasks:

a) Nosewheel steering actuated manually by lever on the left control column (left seat).
b) Cockpit and cabin temperature controls (left seat).
c) Electrical system abnormal procedures (left and right seat).

d) Fire extinguishing system - front baggage compartment (right seat).
e) Anti-ice and deice systems (right seat).
f) Parking brake and emergency brake procedures (right seat).
g) Emergency landing gear and flap operation (right seat).
h) Emergency evacuation using right-hand emergency exit door (right seat).

9.5 Regulatory Training Requirements Which Are Not Applicable to the L-420 Type Rated Aircraft. None.

9.6 FSTDs. There are no specific systems, procedures, or maneuvers that are unique to the L-420 type rated aircraft that require a specific FSTD for training.

9.7 Training Equipment. There are no specific systems or procedures that are unique to the L-420 type rated aircraft that require specific training equipment.

9.8 Differences Training Between Related Aircraft. Differences training requirements between the base model and related models are specified in Appendices 2 and 3.

9.9 Special Considerations for Training in the Actual Aircraft. The FSB has identified the following special considerations when conducting L-420 type rated aircraft flight training:

a) Emergency Gear and Flap Extension. Activation of the emergency gear and flap system should not be accomplished in the aircraft during training. If the emergency gear system is activated, the landing gear should not be operated normally and the aircraft must be landed and inspected in accordance with the Airplane Maintenance Manual.

b) Engine Shutdown in Flight. For an intentional engine shutdown in flight, if the Manual Feather Pushbutton is engaged, the associated circuit breaker must be reset prior to commencing IN FLIGHT ENGINE STARTING Procedures, or the propeller will not come out of feather. Therefore, the board recommends feathering the propeller with the propeller control lever.

10. PILOT CHECKING

10.1 Landing from a No-Flap or Nonstandard Flap Approach. The probability of flap extension failure on the L-420 type rated aircraft is not extremely remote due to system design. Therefore, demonstration of a no-flap approach and landing during pilot certification or a § 61.58 proficiency check, § 91.1065 competency check, or § 135.293 competency check is required. Refer to Order 8900.1, Volume 5, Airman Certification, 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 ATP and Type Rating for Airplane ACS, as applicable. There are no specific flight characteristics for this aircraft.

10.3 Seat-Dependent Tasks. Pilots must be checked in the oral or practical test as appropriate in these seat-dependent tasks:

a) Nosewheel steering actuated manually by lever on the left control column (left seat).
b) Cockpit and cabin temperature controls (left seat).
c) Electrical system abnormal procedures (left and right seat).
d) Fire extinguishing system - front baggage compartment (right seat).
e) Anti-ice and deice systems (right seat).
f) Parking brake and emergency brake procedures (right seat).
g) Emergency landing gear and flap operation (right seat).
h) Emergency evacuation using right-hand emergency exit door (right seat).

10.4 Other Checking Items. Not applicable.

10.5 FSTDs. There are no specific systems, procedures, or maneuvers that are unique to the L-420 type rated aircraft that require a specific FSTD for checking.

10.6 Equipment. There are no specific systems or procedures that are unique to the L-420 type rated aircraft that require specific equipment.

10.7 Differences Checking Between Related Aircraft. Differences checking requirements between the base model and related models are specified in Appendices 2 and 3.

10.8 Special Considerations for Checking in the Actual Aircraft. The FSB has identified the following special considerations when conducting L-420 type rated aircraft checking in flight:

a) Emergency Gear and Flap Extension. Activation of the emergency gear and flap system should not be accomplished in the aircraft during checking. If the emergency gear system is activated, the landing gear should not be operated normally and the aircraft must be landed and inspected in accordance with the Airplane Maintenance Manual.

b) Engine Shutdown in Flight. For an intentional engine shutdown in flight, if the Manual Feather Pushbutton is engaged, the associated circuit breaker must be reset prior to commencing IN FLIGHT ENGINE STARTING Procedures, or the propeller will not come out of feather. Therefore, the board recommends feathering the propeller with the propeller control lever.

11. PILOT CURRENCY

There are no additional currency requirements for the other than those already specified in 14 CFR parts 61 and 135.

11.1 Differences Currency Between Related Aircraft. Not applicable.

12. OPERATIONAL SUITABILITY

The L-420 type rated aircraft is operationally suitable for operations under parts 91 and 135. The FSB determined operational compliance by conducting an evaluation of the L-420 type rated aircraft. The list of operating rules evaluated is on file at the Small Aircraft AEG.

13. MISCELLANEOUS

13.1 Forward Observer Seat. The aircraft has the option for an observer seat on the forward left side of the cabin immediately behind the left pilot seat. This observer seat has limited cockpit visibility due to aircraft structure, and occupancy is prohibited during takeoff and landing due to inability to provide a suitable strike area to certify the seat without limitation. Therefore, the most forward available passenger seat must also be available to the observer during takeoff and landing. The combination of both seats have been evaluated and determined to meet requirements of § 135.75(b) in accordance with the table below with the following limitations:

a) The observer must be supplied and use a headset with a boom microphone for three-way crew communications when seated in the forward observer seat as well as the passenger seat during takeoff and landing.

b) Emergency oxygen must be available to the observer when seated in the forward observer seat as well as the passenger seat during takeoff and landing.

c) Outside view limitations are mitigated by use of Traffic Alert and Collision Avoidance System (TCAS), Garmin SafeTaxi, or Garmin SurfaceWatch, if installed.

TYPE OF CHECK	FORWARD OBSERVER SEAT
§ 135.299, §135.339	YES
§ 135.293/297	NO*
ATP/TYPE RATING	NO*
COCKPIT ENROUTE INSPECTION	YES
PROVING/VALIDATION TEST	YES

* Checks may need to be conducted with an FAA-qualified examiner in the right seat or in an FAA-approved FFS at the discretion of the Administrator.

13.2 Landing Minima Categories. The L-420 type rated aircraft is considered Category A for the purposes of determining “straight-in landing weather minima.” Normal straight-in approaches are configured Flaps 42º for stabilized approach criteria, but high drag and additional engine power required for Flaps 42º make early configuration inappropriate. For circling approaches, the L-420 type rated aircraft is considered Category B by normal operating procedures and the highest actual approach speed to be used for a circling maneuver in this configuration. Normal circling approaches are configured Flaps 18º until leaving minimum descent altitude (MDA) with landing assured.

13.3 Normal Landing Flaps. The L-420 type rated aircraft normal “final flap setting” per § 91.126(c) are Flaps 42º for normal conditions and Flaps 18º for operations in icing conditions or crosswind conditions per the Airplane Flight Manual (AFM).

13.4 Electronic Flight Bag (EFB). The FSB evaluated the Garmin G3000 EFB installed in the L 410 NG model. The integrated avionics system contains a navigation database, approach charts, and an electronic checklist. It is noted that the operator/PIC is responsible for ensuring that the latest revision of all required charts and checklists are onboard the aircraft prior to flight. AC 120-76D, Authorization for Use of Electronic Flight Bags, was utilized in the review of installed EFB. This system was found to be operationally suitable for all approved operations.

APPENDIX 1. DIFFERENCES LEGEND

Training Differences Legend

Differences Level	Type	Training Method Examples	Conditions
A	Self-Instruction	• Operating manual revision (handout (HO)) • Flightcrew operating bulletin (HO)	• 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	• Audiovisual presentation (AV) • Tutorial computer-based instruction (TCBI) • Stand-up instruction (SU)	• Systems are functionally similar. • Crew understanding required. • Issues need emphasis. • Standard methods of presentation required.
C	Systems Devices	• 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)	• 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	• Level 6 or 7 flight training device (FTD 6-7) • Level A or B full flight simulator (FFS A-B)	• 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	• Level C or D full flight simulator (FFS C-D) • Aircraft (ACFT)	• 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	• Oral or written exam • Tutorial computer-based instruction (TCBI) self-test	Individual systems or related groups of systems.
C	• 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)	• Checking can only be accomplished using systems devices. • Checking objectives focus on mastering individual systems, procedures, or tasks.
D	• Level 6 or 7 flight training device (FTD 6-7) • Level A or B full flight simulator (FFS A-B)	• 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	• 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.

To Related Aircraft ↓	**From Base Aircraft →**	**L-420**	**L 410 UVP-E20 & L 410 UVP-E20 Cargo**	**L 410 NG**
L-420		Not applicable	D/D	Not evaluated
L 410 UVP-E20 & L 410 UVP-E20 Cargo		Not evaluated	See Note 1	D/D
L 410 NG		Not evaluated	Not evaluated	Not applicable

NOTE: The differences between the L 410 UVP-E20 & L 410 UVP-E20 Cargo are addressed in AFM, Supplement No. 94, with the primary differences being the Cargo version's lack of emergency exits under the wings and passenger cabin equipment in the aft cabin. Refer to §§ 91.1083, 135.331, and 121.417 for the specific crewmember emergency training requirements.

APPENDIX 3. DIFFERENCES TABLES

This Design Differences Table, from the L 410 UVP-E20 & L 410 UVP-E20 Cargo to the L-420, was proposed by Aircraft Industries (LET) and validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo **TO RELATED AIRCRAFT: L-420**	**DESIGN**	**REMARKS**	**FLT CHAR**	**PROC CHNG**	**TRAINING**	**CHECKING**
	Airworthiness Limitations	Refer to AFM & Airplane Flight Manual Supplement (AFMS).	No	Yes	B	B
	Placards and Markings	Refer to AFM & AFMS.	No	No	B	B
	Instrument Panel Layout	L 410 UVP-E20 (& Cargo) has Universal EFI-890R Primary Flight Instruments vs. L-420 has mechanical flight instruments.	No	Yes	D	D
	21 Air Conditioning	Location of Cabin Temp and Duct Temp Indicator.	No	No	A	A
	23 Communications	L 410 UVP-E20 (& Cargo) has GNS-430 vs. L-420 has Bendix King Navigation (NAV)/Communications (COMM).	No	Yes	C	C

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo TO RELATED AIRCRAFT: L-420	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	24 Electrical Power	• L 410 UVP-E20 (& Cargo) has 26 voltage in alternating current (VAC) inverter for EFI-890R vs. L-420 has 115 VAC Inverters. • L 410 UVP-E20 (& Cargo) has Circuit Breakers plus Panel designations for EFIS vs. L-420 has Covered Electrical Distribution Panel with Fuses. • Battery Temp Indicators on Left L-420 Instrument panel.	No	Yes	B	B
	25 Equipment/Furnishings	L-420 does not have option for Cargo kit, Ambulance kit and Parachuting kit as Type Design	No	Yes	B	B
	27 Flight Controls	• Spoiler Lock Out on landing gear of L-420 only. • L-420 ABC limited by 111 knots indicated airspeed (KIAS) only vs. L 410 UVP-E20 (& Cargo) has addition of 6 second limit.	No	Yes	D	D

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo TO RELATED AIRCRAFT: L-420	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	28 Fuel	L-420 has Fuel Temperature Signal Cell on forward pedestal. L 410 UVP-E20 (& Cargo) has no Fuel Temp Display.	No	Yes	B	B

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo TO RELATED AIRCRAFT: L-420	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	33 Lights	L 410 UVP-E20 (& Cargo) Cockpit Display Dimming for EFI-890R vs. L-420 analog dimming for mechanical instruments.	No	No	B	B
	34 Navigation	Primary Flight Instruments: • L 410 UVP-E20 (& Cargo) has EFI-890R vs. L-420 has individual mechanical Attitude Direction Indicator (ADI), Horizontal Situation Indicator (HSI), altitude (ALT), Airspeed Indicator (ASI), Vertical Speed Indicator (VSI), Turn Coordinator (TC) & Course Deviation Indicator (CDI). • L 410 UVP-E20 (& Cargo) has outside air temperature (OAT) indicator on EFIS vs. L-420 analog on central overhead. • L-420 Turn & Bank and Gyro switches added.	No	Yes	D	D

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo TO RELATED AIRCRAFT: L-420	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	34 Navigation	• L 410 UVP-E20 (& Cargo) has Garmin GNS-430 Global Positioning System (GPS)/NAV/COMM vs. L-420 has Bendix King NAV/COMM. • L 410 UVP-E20 (& Cargo) distance measuring equipment (DME) display on EFI-890R vs L-420 has Separate DME indicator. • L-420 does not have GROB stop clock.	No	Yes	D	D

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo TO RELATED AIRCRAFT: L-420	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	34 Navigation	L 410 UVP-E20 (& Cargo) Weather (WX) Radar, TCAS, Terrain Awareness and Warning System (TAWS) display on EFI-890R vs. L-420 Bendix King (Honeywell) displays. L 410 UVP-E20 (& Cargo) Radar Altimeter displayed on EFI-890R vs. L-420 analog Radar Altimeter Indicator.	No	Yes	D	D
	45 Maintenance Computer	L-420 does not have EFI-890R diagnostics.	No	No	A	A
	46 Information Systems	L-420 flight data recorder (FDR) and cockpit voice recorder (CVR).	No	Yes	B	B
	53 Fuselage	Exterior Antennas for NAV/COMM.	No	Yes	B	B
	61 Propellers	L 410 UVP-E20 (& Cargo) has AVIA AV-725 propeller vs. L-420 has AVIA V-510. L 410 UVP-E20 (& Cargo) has mechanical lock on throttle control lever (TCL) only vs. L-420 also has BETA Lock on landing gear.	No	Yes	B	B

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo TO RELATED AIRCRAFT: L-420	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	72 Engine (turbine)	L 410 UVP-E20 (& Cargo) has GE H80-200 (No water injection option for H80-200) vs. L-420 has Walter M601F engines.	No	Yes	B	B

This Maneuver Differences Table, from the L 410 UVP-E20 & L 410 UVP-E20 Cargo to the L-420, was proposed by LET and validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo **TO RELATED AIRCRAFT: L-420**	**MANUEVER**	**REMARKS**	**FLT CHAR**	**PROC CHNG**	**TRAINING**	**CHECKING**
	Preflight	Avionics Preflight checks.	No	Yes	C	B
	Engine Start	L-410-UVP-E20 (& Cargo) GE H80-200 start procedure and limits vs. L-420 Walter M-601F procedure and limits.	No	Yes	C	B
	Taxi	L-410-UVP-E20 (& Cargo) Flight Instrument Checks for EFI-890R PFD vs. L-420 Flight Instrument Checks for individual mechanical instruments.	No	Yes	C	B
	Takeoff	L-410-UVP-E20 (& Cargo) V-speed and Altitude Bugs on EFI-890R vs. L-420 mechanical flight instruments.	No	Yes	C	B
	Rejected Takeoff or Engine Failure on Takeoff	L-410-UVP-E20 (& Cargo) Airspeed Indication and Low Speed Awareness cues/tape format on PFD vs. L-420 mechanical flight instruments.	No	Yes	D	D

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo TO RELATED AIRCRAFT: L-420	MANUEVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Climb Cruise Decent	L-410-UVP-E20 (& Cargo) PFD Flight Instrument format: instrument scan techniques and selection/display of NAV Sources vs. L-420 mechanical flight instruments and Bendix King NAV/COMM.	No	Yes	C	C
	In-Flight Maneuvers	L-410-UVP-E20 (& Cargo) PFD tape format for Altitude and Airspeed with Low Speed Awareness cues during stall prevention and recovery (approach to stalls) and steep turns vs. L-420 mechanical flight instruments.	No	Yes	D	D

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo TO RELATED AIRCRAFT: L-420	MANUEVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Instrument Approaches	L-410-UVP-E20 (& Cargo) GNS-430 NAV Source selection & NAV Display format, NAV Instrument scan for PFD format, addition of GPS wide area augmentation system (WAAS) Lateral Navigation (LNAV)/VNAV & localizer performance with vertical guidance (LPV), and selecting minimums (RAD vs. BARO) vs. L-420 Bendix King NAV/COMM and mechanical flight instruments.	No	Yes	D	D
	Landing	L-410-UVP-E20 (& Cargo) V-speed and Altitude Section on EFI-890R vs. L-420 mechanical flight instruments.	No	Yes	C	C
	Normal Procedures	L 410 UVP-E20 (& Cargo) has EFI-890R vs. L-420 has individual mechanical ADI, HSI, ALT, ASI, VSI, TC, & CDI. L 410 UVP-E20 (& Cargo) has Garmin GNS-430 GPS/NAV/COMM vs. L-420 has Bendix King NAV/COMM.	No	Yes	D	D

FROM BASE AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo TO RELATED AIRCRAFT: L-420	MANUEVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Abnormal Procedures	L 410 UVP-E20 (& Cargo) has EFI-890R vs. L-420 has individual mechanical ADI, HSI, ALT, ASI, VSI, TC, & CDI. L 410 UVP-E20 (& Cargo) has Garmin GNS-430 GPS/NAV/COMM vs. L-420 has Bendix King NAV/COMM.	No	Yes	D	D
	Emergency Procedures	L 410 UVP-E20 (& Cargo) has EFI-890R vs. L-420 has individual mechanical ADI, HSI, ALT, ASI, VSI, TC, & CDI. L 410 UVP-E20 (& Cargo) has Garmin GNS-430 GPS/NAV/COMM vs. L-420 has Bendix King NAV/COMM.	No	Yes	D	D

This Design Differences Table, from the L 410 NG to the L 410 UVP-E20 & L 410 UVP-E20 Cargo, was proposed by LET and validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: L 410 NG **TO RELATED AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo**	**DESIGN**	**REMARKS**	**FLT CHAR**	**PROC CHNG**	**TRAINING**	**CHECKING**
	General Airplane Configuration	L 410 UVP-E20 (& Cargo) shortened nose section and reduced baggage compartment.	No	Yes	B	B
	Weights	L 410 UVP-E20 & L 410 UVP-E20 Cargo has decreased Maximum Ramp, Takeoff, Landing, and Zero Fuel Weight – refer to AFM & AFMS.	No	No	B	B
	Airworthiness Limitations	Refer to AFM & AFMS.	No	Yes	B	B
	Placards and Markings	Refer to AFM & AFMS.	No	No	B	B
	Instrument Panel Layout	L 410 NG has Garmin G3000 Integrated Flight Deck vs. L 410 UVP-E20 (& Cargo) has Universal EFI-890R Primary Flight Instruments.	No	Yes	D	D
	21 Air Conditioning	L 410 UVP-E20 (& Cargo) Air Conditioning Control Panel & Automatic Temperature Control Panel.	No	Yes	B	B

FROM BASE AIRCRAFT: L 410 NG TO RELATED AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	23 Communications	L 410 NG has Garmin G3000 Integrated Flight Deck vs. L 410 UVP-E20 (& Cargo) has GNS-430.	No	Yes	C	C
	24 Electrical Power	L 410 UVP-E20 (& Cargo) adds one additional 36V/400Hz Inverter used to feed analogue equipment.	No	No	B	B
	25 Equipment/Furnishings	L 410 UVP-E20 (& Cargo) passenger cabin is not updated with composite panel interior and light-emitting diode (LED) lights.	No	No	A	A
	26 Fire Protection	L 410 UVP-E20 (& Cargo) has a shorter nose baggage compartment, and a fewer number of extinguishing collectors than L 410 NG.	No	No	A	A
	27 Flight Controls	L 410 NG Ground Spoiler System can be activated by any flightcrew members vs. L 410 UVP E-20 (& Cargo) can only be activated from the left seat.	No	Yes	D	B
	28 Fuel	L 410 NG has integrated (wet) wing fuel tank with extended range and endurance vs. L 410 UVP-E20 (& Cargo) has rubber fuel tanks in the wing.	No	No	B	B

FROM BASE AIRCRAFT: L 410 NG TO RELATED AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	30 Ice/Rain	L 410 UVP-E20 (& Cargo) does not have the modernized control box for Airframe De-icing System and Pitot/Static Heating System nor does it have the added a static ice detector and inspection light on the right-hand side.	No	Yes	C	B
	31 Indicating/Record	L 410 NG displays on G3000 multifunction display (MFD)/PFD vs. L 410 UVP-E20 (& Cargo) displays on EFI-890R.	No	No	A	A
	34 Navigation	Primary Flight Instruments: L 410 NG has G3000 vs. L 410 UVP-E20 (& Cargo) has EFI-890R Display.	No	Yes	D	D
	34 Navigation	L 410 NG has Garmin G3000 vs. L 410 UVP-E20 (& Cargo) has Garmin GNS-430 GPS/NAV/COMM.	No	Yes	D	D
	34 Navigation	L 410 NG has Electronic Standby Indicator (ESI)-2000 vs. L 410 UVP-E20 (& Cargo) has mechanical standby instruments.	No	Yes	D	D

FROM BASE AIRCRAFT: L 410 NG TO RELATED AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	34 Navigation	L 410 NG has WX Radar, TCAS, TAWS, and Radar Altimeter Indicator on G3000 vs. L 410 UVP-E20 (& Cargo) displays on EFI-890R. L 410 UVP-E20 (& Cargo) does not have option for Satellite Communications, XM Weather, and Wind Shear Alert capability.	No	Yes	D	D
	45 Maintenance Computer	L 410 NG G3000 vs. L 410 UVP-E20 (& Cargo) EFI-890R diagnostics.	No	No	A	A
	46 Information Systems	L 410 UVP-E20 (& Cargo) FDR and CVR.	No	Yes	B	B
	53 Fuselage	L 410 UVP-E20 (& Cargo) shortened nose section and reduced baggage compartment – refer to AFM.	No	No	B	B
	72 Engine (turbine)	L 410 NG GE has H85-200 engines vs. L 410 UVP-E20 (& Cargo) has GE H80-200 engines.	No	No	B	B

FROM BASE AIRCRAFT: L 410 NG TO RELATED AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo	DESIGN	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	76 Engine Controls	L 410 UVP-E20 (& Cargo) TCLs, Propeller Control Lever (PCL), and Fuel Stop Cock/Emergency Throttle Levers in slightly different positions on Center Console to accommodate different avionics suites.	No	Yes	D	D
	77 Engine Indicating	L 410 NG G3000 Engine Indication System (EIS) display vs. L 410 UVP-E20 (& Cargo) engine instrument displays.	No	Yes	C	C

This Maneuver Differences Table, from the L 410 NG to the L 410 UVP-E20 & L 410 UVP-E20 Cargo, was proposed by LET and validated by the FSB. It lists the minimum differences levels operators must use to conduct differences training and checking of flightcrew members.

FROM BASE AIRCRAFT: L 410 NG **TO RELATED AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo**	**MANUEVER**	**REMARKS**	**FLT CHAR**	**PROC CHNG**	**TRAINING**	**CHECKING**
	Normal Procedures	L 410 UVP-E20 (& Cargo) TCLs, PCL, and Fuel Stop Cock/Emergency Throttle Levers in slightly different positions on Center Console to accommodate different avionics suites. L 410 NG G3000 procedures and displays vs. L 410 UVP-E20 (& Cargo) avionics and instruments.	No	Yes	D	D

FROM BASE AIRCRAFT: L 410 NG TO RELATED AIRCRAFT: L 410 UVP-E20 & L 410 UVP-E20 Cargo	MANUEVER	REMARKS	FLT CHAR	PROC CHNG	TRAINING	CHECKING
	Abnormal Procedures	L 410 UVP-E20 (& Cargo) TCLs, PCL, and Fuel Stop Cock/Emergency Throttle Levers in slightly different positions on Center Console to accommodate different avionics suites. L 410 NG G3000 procedures and displays vs. L 410 UVP-E20 (& Cargo) avionics and instruments.	No	Yes	D	D
	Emergency Procedures	L 410 UVP-E20 (& Cargo) TCLs, PCL, and Fuel Stop Cock/Emergency Throttle Levers in slightly different positions on Center Console to accommodate different avionics suites. L 410 NG G3000 procedures and displays vs. L 410 UVP-E20 (& Cargo) avionics and instruments.	No	Yes	D	D