

# ***European Aviation Safety Agency***

---

## **EASA TYPE-CERTIFICATE DATA SHEET**

### **LEARJET MODEL 45**

#### **Manufacturer:**

#### **Learjet Inc.**

One Learjet Way  
Wichita,  
KS 67209-2942  
USA

| Issue 11, 17 June 2008

List of Effective Pages:

Page	1	2	3	4	5	6	7	8	9	10	11	12	13
Issue	10	9	9	9	9	11	9	9	9	10	9	9	9

Page	14	15	16
Issue	9	9	9

## TABLE OF CONTENT

<b>SECTION 1: GENERAL (ALL MODELS)</b> .....	<b>4</b>
<b>SECTION 2:</b> .....	<b>4</b>
<b>I. General</b> .....	<b>4</b>
1. Aeroplane: Learjet Model 45 .....	4
2. EASA Validation Application Date:.....	4
3. EASA Validation Date: .....	4
<b>II. Certification Basis</b> .....	<b>4</b>
1. Reference Application Date for FAA Certification: .....	4
2. Certification Date:.....	4
3. EASA Certification Basis:.....	4
4. Special Conditions: .....	5
5. Exemptions .....	5
6. Equivalent Safety Findings:.....	5
7. Environmental Standards:.....	6
8. Kinds of Operation: .....	6
<b>III. Technical Characteristics and Operational Limitations</b> .....	<b>6</b>
1. Learjet Model 45 (Learjet 45) (S/N 45-002 thru 45-2000) .....	6
1.1 Type Design Definition: .....	6
1.2 Dimensions.....	7
1.3 Engines.....	7
1.3.1 Engine Limits: .....	8
1.4 Auxiliary Power Unit (APU).....	9
1.4.1 APU Limits: .....	9
1.5 Fluids (Fuel /Oil/Additives).....	9
1.5.1 Fuel Capacity: .....	9
1.5.2 Oil Capacity (gal.) .....	9
1.6 Limit Speeds.....	9
1.7 Centre of Gravity Range.....	10
1.8 Maximum Certified Weights.....	10
1.9 Maximum Passenger Seating Capacity.....	11
2. Learjet Model 45 (Learjet 40), (S/N 45-2001 thru 45-4000) .....	11
2.1 Type Design Definition: .....	11
2.2 Dimensions.....	11
2.3 Engines.....	11
2.3.1 Engine Limits: .....	11
2.4 Auxiliary Power Unit (APU).....	13
2.5 Fluids (Fuel /Oil/Additives).....	13
2.5.1 Fuel Capacity: .....	13
2.5.2 Oil Capacity (gal.) .....	13
2.6 Limit Speeds.....	14
2.7 Centre of Gravity Range.....	14
2.8 Maximum Certified Weights.....	15
2.9 Maximum Passenger Seating Capacity.....	15
3. Data pertinent to all models .....	15
3.1 Minimum Flight Crew:.....	15
3.2 Baggage / Cargo compartment loading.....	15
3.3 Other Limitations .....	15
3.4 Equipment .....	16
3.5 All Weather Capabilities .....	16

3.6	Wheels and Tyres.....	16
<b>IV</b>	<b>Operating and Service Instructions .....</b>	<b>16</b>
<b>V</b>	<b>Notes .....</b>	<b>16</b>

## **SECTION 1: GENERAL (ALL MODELS)**

1. **Data Sheet No:** IM.A.020
2. **Airworthiness Category:** Large Aeroplanes
3. **Performance Category:** A
4. **Certifying Authority:** FAA
5. **Type Certificate Holder:** Learjet Inc  
One Learjet Way  
Wichita, KS 67209-2942  
USA
6. **ETOPS:** Not applicable.

## **SECTION 2:**

### **I. General**

1. **Aeroplane:** Learjet Model 45 (See Note 10.)
2. **EASA Validation Application Date:**  

21 July 1992	(Learjet Model 45 (Learjet 45), S/N 45-002 thru 45-2000)
25 January 2002	(Learjet Model 45 (Learjet 40), S/N 45-2001 thru 45-4000)
3. **EASA Validation Date:**  

8 July 1998*	(Learjet Model 45 (Learjet 45), S/N 45-002 thru 45-2000)
(JAA recommendation 22.June 1998)	
9 January 2004	(Learjet Model 45 (Learjet 40), S/N 45-2001 thru 45-4000)

\* Date of first TC issuance within EU MS, by the Irish Aviation Authority

### **II. Certification Basis**

1. **Reference Application Date for FAA Certification:**  

27 January 1992	(Learjet Model 45 (Learjet 45), S/N 45-002 thru 45-2000)
3 July 2001	(Learjet Model 45 (Learjet 40), S/N 45-2001 thru 45-4000)
2. **Certification Date:**  

22 September 1997	(Learjet Model 45 (Learjet 45), S/N 45-002 thru 45-2000)
11 July 2003	(Learjet Model 45 (Learjet 40), S/N 45-2001 thru 45-4000)
3. **EASA Certification Basis:**
  - JAR 25 Change 13 effective on 5 October 1989 including the following amendments:

Amendment (OP) 90/1	11 May 1990
Amendment (OP) 91/1	12 April 1991
Amendment (OP) 93/1	8 March 1993

- JAR 1 Definitions Change 4 dated 1 June 1987 including Amendment (OP) 1/92/1/ dated 1 January 1992.
- JAR AWO Change 1 dated 29 November 1985 including Amendment (OP) AWO/91/1 dated 28 November 1991
- Learjet elected to comply with the following standards, which became mandatory at TC:
  - NPA 25C-213 Issue 1 dated 4 April 1992 - Discrete Source Damage Due to Rotor Burst.
  - INT/POL/25/9 Issue 1 dated 22 July 91 - Fuel Tank Crashworthiness (replaces draft NPA 25D-222).
  - NPA 25B-238 Draft Issue 2 dated 3rd March 1993 - Flap Gates.
  - NPA 25B, D, G-244 dated February 1993 - Accelerate - Stop Distances and Related Performance. Ref. CRI B6
  - INT/POL/25/6 Issue 1 dated 10 February 1992, Worn Brakes.
  - TGM/25/04 Issue 1 dated 1 October 1995, Performance Information for Takeoff on a Contaminated Runway. Ref. CRI B3
  - NPA 25B-215 Issue 1 dated 19 February 1996, Stall, Stall Warning Speeds and Manoeuvre Capability. Ref. CRI B4
  - NPA 25G-255 Issue 1 dated 28 August 1992 - Flight Manuals - General. Ref. CRI G1

#### **4. Special Conditions:**

- SC LJ45/01 Protection from External High Intensity Radiated Fields (HIRF) Ref. CRI F1 & INT/POL/25/2
- SC LJ45/02 Protection from the Effects of Lightning Strikes Ref. CRI F2 & INT/POL/25/3 & INT/POL/25/4
- SC LJ45/04 Operation to 51,000 ft. Ref. CRI A10
- SC LJ45/05 Unsymmetrical Loads on Winglets and Delta Fins Ref. CRI C2

#### **5. Exemptions**

- JAR 25.783(h) Entry Door, Ref. CRI D3
- JAR-E890(b)(1)(i) Thrust Reverser Testing, Ref. CRI E3

#### **6. Equivalent Safety Findings:**

- JAR 25.841(b)(6) Operation at Airport Elevations in Excess of 8,000 ft., Ref. CRI D2
- JAR 25.811(d)(1) & (d)(2) Emergency Exit Signs, Ref. CRI D4
- JAR 25.1305(a)(4), (a)(6), (c)(3) & JAR 25.1549 Digital N2, Oil Pressure & Oil Temperature Indicators, Ref. CRI E2
- JAR 25.1305(d)(3) Vibration Indicators, Ref. CRI F12
- JAR 25.813(e) Lavatory Door, Ref. CRI D5

- JAR 25.1385, 25.1387, 25.1389, 25.1391 & 25.1397 External LED Navigation Lights, Ref. Post-TC CRI F-20

## 7. Environmental Standards:

- Noise: ICAO Annex 16, Volume I, Third Edition.
- Fuel Venting: ICAO Annex 16, Volume II, Second Edition.

## 8. Kinds of Operation:

Eligible for the following kinds of operations when the appropriate equipment and instruments required by the operating requirements are installed, approved and in operable condition:

- VFR (Visual)
- IFR (Instrument)
- Day
- Night
- Icing

Not eligible for the following kinds of operations:

- Extended Over-water Operations

Learjet have elected not to comply with JAR Part 25 provisions for:

- 25.801 Ditching

## **III. Technical Characteristics and Operational Limitations**

The Learjet Model 45 is a twin, aft mounted, turbo-fan aeroplane with a low swept-wing (with winglets) and T-tail.

### 1. Learjet Model 45 (Learjet 45) (S/N 45-002 thru 45-2000)

#### 1.1 Type Design Definition:

The definition of the JAA TC build standard is described in CRI A6, and is defined by the following Learjet Engineering Change Records (ECR's):

ECR	Title
4601	FAA Model 45 Type Design (Basic Aircraft)
4684	JAA Model 45 Type Design; Design Changes resulting from the JAA Certification basis and the Additional National Design Requirements for Type Certification.

Supplemented by ECR's for the following post FAA TC changes:

4889	Baggage Liner Installation
4890	Extended Baggage Liner Installation
6059	Short Baggage Compt. Instl (Shorts)
6130	Electric Foot Warmer Installation, Cockpit (LJ)
6131	Installation of Electric Foot Warmers (Shorts)
6348	HIRF required changes to M45 A/C Pitch Trim System

- 6444 No Locking Mechanism for A64P1 (Shorts)
- 6916 Partial Anti-Ice Systems Configuration Changes to Support Flight Into Known Icing
- 6926 Floor Register Installation, LH/RH-ECS (LJ)
- 6984 Alternate Nose Wheel Tyre
- 7042 Navigations Unit W/ADF Mod AG
- 7044 Baggage Bay Heat System (LJ)
- 7073 Repl of RCF Couplings in Anti-Ice Bleed Air System (SB)
- 7084 350 Degree Bond of Inlet & Perforated Skin Assy
- 7085 Instl of EG&G Coupling to Accommodate APU Instl (SB)
- 7112 Replacement of RCF Couplings in Anti-Ice System Wing Area (deHavilland)
- 7120 Relocation of Ice Detect Probe Installation (LJ)
- 7151 Alternator Cooling Improvement (LJ)
- 7153 Display Unit Red-Xing anomaly fix
- 8570 Fluid Fitting Anti-Spray Shielding
- 8575 Configuration Changes for Flight Into Known Icing (LJ)

## 1.2 Dimensions

Span	14.72 m	(47 ft. 10 in.)
Length	17.78 m	(58 ft. 4 in.)
Height	4.44 m	(14 ft. 5 in.)
Wing Area	28.95 m <sup>2</sup>	

## 1.3 Engines

Two Honeywell (AlliedSignal Engines) TFE731-20R or TFE731-20AR or TFE731-20BR-1B turbofan engines, TC E1NM. Eligible part numbers are listed below. Each engine is controlled by a single power lever and by Digital Electronic Engine Control (DEEC) software. Left and right engines must utilize common DEEC part numbers. Engine installation configuration is defined by Learjet Engineering Change Record (ECR) or ModSum as noted below.

Engine Configuration Designation	Model TFE731-()-1B	Engine P/N	DEEC P/N	ECR/Modsum	Engine Configurations* Interchangeable with
A	20R	3060020-8	2118882-1004	4601	A
B	20R	3060020-9	2118882-1004	8711	B
C	20R	3060020-10	2118882-1005	7266	C, J
D	20R	3060020-10	**2118882-1006	7821	D, K
E	20R	3060020-11	#2118882-1007	8778	E, F, G, H, L, M, N, P
F	20R	3060020-12	2118882-1007	***	E, F, G, H, L, M, N, P
G	20R	3060020-13	2118882-1008	****	E, F, G, H, L, M, N, P
H	20R	3060020-14	2118882-1008	****	E, F, G, H, L, M, N, P
J	20AR	3060082-2	2118882-1005	7323	C, J
K	20AR	3060082-2	**2118882-1006	7821	D, K
L	20AR	3060082-3	2118882-1007	8756	E, F, G, H, L, M, N, P
M	20AR	3060082-4	2118882-1007	7944	E, F, G, H, L, M, N, P
N	20AR	3060082-6	2118882-1008	045T020412	E, F, G, H, L, M, N, P
P	20AR	3060082-7	2118882-1008	****	E, F, G, H, L, M, N, P
R	20BR	3060084-1	2118882-1008	7772	R, S
S	20BR	3060084-2	2118882-1008	7772	R, S

- \* Listed Engine configurations in each row may be installed single or pairs.
- \*\* Installed by Service Bulletin SB 45-76-2 only for activation of Thrust Reversers to maximum reverse.
- \*\*\* Installed by Honeywell Engine and Systems Service Bulletin SB TFE 731-72-5149 to install Engine Fan Bypass Duct of Composite Material on fielded airplanes. Requires prior or concurrent incorporation of ECR 8778.
- \*\*\*\* Installed by Honeywell Engine and Systems Service Bulletin SB TFE 731-72-5120. Requires prior or concurrent incorporation of ECR 8778 or ECR 7599.
- # Installed by Service Bulletin SB 45-22-4 to incorporate Honeywell Avionics Phase III and -1007 DEEC on fielded airplanes.

### 1.3.1 Engine Limits:

#### Static thrust, standard day, sea level:

APR (5 min) *	1624 kN	(3650 lb.)
Takeoff (5 min) *	1557 kN	(3500 lb.)
Max. Continuous	1401 kN	(3150 lb.)

\*5 Minutes total at Takeoff or above

#### Maximum permissible engine rotor operating speed:

N <sub>1</sub> (Fan) steady state	100% N <sub>1</sub> = 21,000 RPM
N <sub>2</sub> (Gas gen.) steady state	100% N <sub>2</sub> = 31,173 RPM
N <sub>2</sub> (Gas gen.) APR	101% N <sub>2</sub> = 31,485 RPM
N <sub>1</sub> (Fan)	100.5% N <sub>1</sub> = 21,105 RPM*
N <sub>2</sub> (Gas gen.)	102.5% N <sub>2</sub> = 31,957 RPM*
N <sub>1</sub> (Fan) transient (10 sec.)	103.0% N <sub>1</sub> = 21,630 RPM
N <sub>2</sub> (Gas gen.) transient (10 sec.)	104.0% N <sub>2</sub> = 32,430 RPM

\* Reduce power to bring within steady state limits

#### Maximum permissible interstage turbine gas temperatures:

Engine Model (Part Number)	<u>TFE731-20R-1B</u> (P/N:3060020-8 and -9)	<u>TFE731-20R-1B</u> (P/N: 3060020-10) <u>TFE731-20AR-1B</u> (P/N: 3060082-2)	<u>TFE731-20R-1B</u> (P/N: 3060020-11) (P/N: 3060020-12) (P/N: 3060020-13) (P/N: 3060020-14) <u>TFE731-20AR-1B</u> (P/N: 3060082-3) (P/N: 3060082-4) (P/N: 3060082-6) (P/N: 3060082-7)	<u>TFE731-20BR-1B</u> (P/N: 3060084-1) (P/N: 3060084-2)
Takeoff (5 min.)	941°C	941°C	963°C (A/I ON) 941°C (A/I OFF)	991°C
APR (5 min.)	963°C	963°C	963°C	1013°C
Max. continuous	916°C	941°C (A/I ON) 916°C (A/I OFF)	941°C (A/I ON) 916°C (A/I OFF)	991°C
Maximum Cruise	900°C	900°C	900°C	974°C
Starting				
Starter assisted	941°C	941°C	941°C	991°C
Windmill	941°C	941°C	941°C	991°C



#### 1.4 Auxiliary Power Unit (APU)

Honeywell Engines and Systems RE100[LJ] APU (formerly AlliedSignal)

##### 1.4.1 APU Limits:

The APU is limited to ground operations only, up to field pressure altitudes of 10,000 ft., and must be shut down prior to takeoff. See AFM for additional limits.

#### 1.5 Fluids (Fuel /Oil/Additives)

See AFM FM-126 (EASA) for Approved Fluids.

##### 1.5.1 Fuel Capacity:

Usable	3424.6l (904.8 U. S. gal.)
Weight	2750 kg.(6,062 lb.)
Arm	460 in.

See NOTE 2 for data on unusable fuel.

##### 1.5.2 Oil Capacity (gal.)

Two engine mounted tanks: Total 3.8 (1.9 U. S. gal. each)(tank plus fuel system). Arm 519 in.

See NOTE 2 for data on unusable oil.

#### 1.6 Limit Speeds

$V_{MO}$ (Maximum Operating)	330 KIAS Sea Level to 25,000 ft.
$M_{MO}$ (Maximum Operating)	.785 Mach indicated at 25,000 ft. to .81 Mach indicated at 37,000 ft. .81 Mach indicated above 37,000 ft.

$V_A$ (Sea Level)	149 KIAS	5670 kg. (12,500 lb.)
	178 KIAS	7711 kg. (17,000 lb.)
	192 KIAS	8709 kg. (19,200 lb.)
	200 KIAS	9299 kg. (20,500 lb.)
	206 KIAS	9639 kg. (21,500 lb.)

See AFM for  $V_A$  variations with weight, altitude, aircraft serial numbers, and modifications.

$V_B$ (Speed for maximum gust intensity)	250 KIAS
------------------------------------------	----------

$V_{FE}$ (Flaps extended)	
Flaps 8°	250 KIAS
Flaps 20°	200 KIAS
Ldg. Position - Full Flaps (40°)	150 KIAS

$V_{MCA}$ (Minimum control speed) Air	
Flaps 8°	103 KIAS
Flaps 20°	100 KIAS

V <sub>MCG</sub> (Minimum control speed) Ground Rudder Boost On, APR On	103 KIAS
(Minimum control speed) Ground Rudder Boost On, APR Off	100 KIAS
V <sub>MCL</sub> (Minimum control speed) Landing Flaps 20°	105 KIAS
Flaps 40°	97 KIAS
V <sub>LO</sub> (Landing gear operating)	200 KIAS
V <sub>LE</sub> (Landing gear extended)	260 KIAS

Maximum tyre ground speeds:

Nose Gear Tyre	210 MPH
Main Gear Tyre	190 MPH

### 1.7 Centre of Gravity Range

AFT Flight Limit:

FS 435.57 (25.0% MAC) at 6350 kg (14,000 lbs) and tapers to FS 438.19 (28.0% MAC) at 6804 kg (15,000 lbs) and remains at FS 438.19 (28.0% MAC) up to and including 9412 kg (20,750 lbs) (Max Ramp Weight). For aircraft modified by SB 45-11-4, the aft c.g. limit of FS 438.19 (28% MAC) is extended to 21,000 lbs and then to FS 435.84 (25.3% MAC) at 9865 kg (21,750 lbs) (Max Ramp Weight). See AFM Section I for additional approved limits.

FWD Flight Limit:

FS 414.64 (1% MAC) for weights at 6350 kg (14,000 lb) up to and including 6804 kg (15,000 lb) and tapers to FS 419.87 (7% MAC) at 8165 kg. (18,000 lb) then to FS 427.87 (16.2% MAC) at 9412 kg (20,750 lb) (Max Ramp Weight). For aircraft modified by SB 45-11-4, the forward limit extends to FS 430.77 (19.5% MAC) at 9865 kg (21,750 lbs) (Max Ramp Weight). See AFM Section I for additional approved limits.

Datum: FS - 75.05 (75.05 inches in front of nose).

Mean Aerodynamic Chord (MAC): 87.215 inches (L.E. of MAC at FS 413.77)

Levelling Means: Lateral and longitudinal levelling marks are provided at FS 613.768. See Maintenance Manual or LES 1427 for levelling instructions.

### 1.8 Maximum Certified Weights

		A/C Modified by SB 45-11-4	A/C Modified by SB 45-11-5
Taxi and ramp	9412 kg. (20,750 lb.)	9865 kg (21,750 lbs.)	9412 kg. (20,750 lb.)
Takeoff	9299 kg. (20,500 lb.)	9752 kg. (21,500 lbs.)	9299 kg. (20,500 lb.)
Landing	8709 kg. (19,200 lb.)	8709 kg (19,200 lbs.)	8709 kg. (19,200 lb.)
Zero fuel	7258 kg. (16,000 lb.)	7258 kg. (16,000 lbs.)	7484 kg. (16,500 lb.)

See AFM, maximum weights vary with serial numbers and modifications.

### 1.9 Maximum Passenger Seating Capacity

9 (See Note 1)

<u>Emergency Exits:</u>	<u>No.</u>	<u>Type</u>	<u>Size</u>
R/H	1	III	.508 x .914 metres (20 x 36 in.)
L/H	1	III	.762 x .914 metres (30 x 36 in.)

## 2. **Learjet Model 45 (Learjet 40), (S/N 45-2001 thru 45-4000)**

### 2.1 Type Design Definition:

In addition to the Type Design Definition for the Learjet Model 45 (Learjet 45) S/N 45-002-2000 in Section 1.1 above, the Learjet Model 45 (Learjet 40) (S/N 45-2001 through 45-4000) is defined by Learjet Engineering Configuration Statement RAL-045-CP223.

### 2.2 Dimensions

Span	14.72 m	(47 ft. 10 in.)
Length	17.36 m	(56 ft. 5 in.)
Height	4.44 m	(14 ft. 5 in.)
Wing Area	28.95 m <sup>2</sup>	

### 2.3 Engines

Two Honeywell (AlliedSignal Engines) TFE731-20AR or TFE731-20BR-1B turbofan engines, TC E1NM. Eligible part numbers are listed below. Each engine is controlled by a single power lever and by Digital Electronic Engine Control (DEEC) software. Left and right engines must utilize common DEEC part numbers. Engine installation configuration is defined by Learjet Engineering Change Record (ECR) or ModSum as noted below.

Engine Configuration Designation	Model TFE731-()-1B	Engine P/N	DEEC P/N	ECR/Modsum	Engine Configurations* Interchangeable with
L	20AR	3060082-3	2118882-1007	8756	L, M, N, P
M	20AR	3060082-4	2118882-1007	7944	L, M, N, P
N	20AR	3060082-6	2118882-1008	045T020412	L, M, N, P
P	20AR	3060082-7	2118882-1008	****	L, M, N, P
R	20BR	3060084-1	2118882-1008	8266	R
S	20BR	3060084-2	2118882-1008	8266	S

\* Listed Engine configurations in each row may be installed single or pairs.

\*\*\*\*Installed by Honeywell Engine and Systems Service Bulletin SB TFE 731-72-5120. Requires prior or concurrent incorporation of ECR 8778 or ECR 7599.

#### 2.3.1 Engine Limits:

##### Static thrust, standard day, sea level:

APR (5 min) *	1624 kN	(3650 lb.)
Takeoff (5 min) *	1557 kN	(3500 lb.)
Max. Continuous	1401 kN	(3150 lb.)

\*5 Minutes total at Takeoff or above



Maximum permissible engine rotor operating speed:

N <sub>1</sub> (Fan) steady state	100% N <sub>1</sub> = 21,000 RPM
N <sub>2</sub> (Gas gen.) steady state	100% N <sub>2</sub> = 31,173 RPM
N <sub>2</sub> (Gas gen.) APR	101% N <sub>2</sub> = 31,485 RPM
N <sub>1</sub> (Fan)	100.5% N <sub>1</sub> = 21,105 RPM*
N <sub>2</sub> (Gas gen.)	102.5% N <sub>2</sub> = 31,957 RPM*
N <sub>1</sub> (Fan) transient (10 sec.)	103.0% N <sub>1</sub> = 21,630 RPM
N <sub>2</sub> (Gas gen.) transient (10 sec.)	104.0% N <sub>2</sub> = 32,430 RPM

\* Reduce power to bring within steady state limits

Maximum permissible interstage turbine gas temperatures:

Engine Model (Part Number)	<u>TFE731-20AR-1B</u> (P/N: 3060082-3) (P/N: 3060082-4) (P/N: 3060082-6) (P/N: 3060082-7)	<u>TFE731-20BR-1B</u> (P/N:3060084-1) (P/N:3060084-2)
Takeoff (5 min.)	963°C (A/I ON) 941°C (A/I OFF)	991°C
APR (5 min.)	963°C	1013°C
Max. continuous	941°C (A/I ON) 916°C (A/I OFF)	991°C
Maximum Cruise	900°C	974°C
Starting		
Starter assisted	941°C	991°C
Windmill	941°C	991°C

2.4 Auxiliary Power Unit (APU)

Not applicable.

2.5 Fluids (Fuel /Oil/Additives)

See AFM FM-132 (EASA) for Approved Fluids.

2.5.1 Fuel Capacity:

Usable	3035.9l (802 U. S. gal.)
Weight	2438 kg.(5375 lb.)
Arm	458 in.

See NOTE 2 for data on unusable fuel.

2.5.2 Oil Capacity (gal.)

Two engine mounted tanks: Total 3.8 (1.9 US gal. each)(tank plus fuel system).  
Arm 519 in.

See NOTE 2 for data on unusable oil.

## 2.6 Limit Speeds

$V_{MO}$ (Maximum Operating)	330 KIAS Sea Level to 25,000 ft.	
$M_{MO}$ (Maximum Operating)	.785 Mach indicated at 25,000 ft. to .81 Mach indicated at 37,000 ft. .81 Mach indicated above 37,000 ft.	
$V_A$ (Sea Level)	149 KIAS	5670 kg. (12,500 lb.)
	178 KIAS	7711 kg. (17,000 lb.)
	192 KIAS	8709 kg. (19,200 lb.)
	199 KIAS	9231 kg. (20,350 lb.)
	203 KIAS	9525 kg. (21,000 lb.)

See AFM for  $V_A$  variations with weight, altitude, aircraft serial numbers, and modifications.

$V_B$ (Speed for maximum gust intensity)	250 KIAS
$V_{FE}$ (Flaps extended)	
Flaps 8°	250 KIAS
Flaps 20°	200 KIAS
Ldg. Position - Full Flaps (40°)	150 KIAS
$V_{MCA}$ (Minimum control speed) Air	
Flaps 8°	103 KIAS
Flaps 20°	100 KIAS
$V_{MCG}$ (Minimum control speed) Ground	
Rudder Boost On, APR On	103 KIAS
(Minimum control speed) Ground	
Rudder Boost On, APR Off	100 KIAS
$V_{MCL}$ (Minimum control speed) Landing	
Flaps 20°	105 KIAS
Flaps 40°	97 KIAS
$V_{LO}$ (Landing gear operating)	200 KIAS
$V_{LE}$ (Landing gear extended)	260 KIAS

Maximum tyre ground speeds:

Nose Gear Tyre	210 MPH
Main Gear Tyre	190 MPH

## 2.7 Centre of Gravity Range

AFT Flight Limit:

FS 434.26 (23.5% MAC) at 6123 kg (13,500 lb) and tapers to FS 438.19 (28.0% MAC) at 6804 kg (15,000 lb) and remains at FS 438.19 (28.0% MAC) up to and including 9344 kg (20,600 lb) (Max Ramp Weight). For A/C modified by SB 40-11-1, the aft c.g. limit of 438.19 (28% MAC) is extended to 9525 kg (21,000 lb). It then extends to FS 437.41 (27.1% MAC) at 9639 kg (21,250 lb) (Max Ramp Weight). See AFM Section I for additional approved limits.

FWD Flight Limit:

FS 419.88 (7% MAC) for weights at 6123 kg (13,500 lb) up to and including 6804 kg (15,000 lb) and tapers to FS 425.98 (14% MAC) at 8391 kg. (18,500 lb) then to FS 427.35 (15.57% MAC) at 8709 kg (19,200 lb) then to FS 430.08 (18.7% MAC) at 9344 kg (20,600 lb) (Max Ramp Weight). For A/C modified by SB 40-11-1, the forward c.g. limit extends to FS 430.86 (19.6% MAC) at 9525 kg (21,000 lbs) and then to FS 431.35 (20.2% MAC) at 9639 kg (21,250 lbs) (Max Ramp Weight). See AFM Section I for additional approved limits.

Datum: FS – 99.56 (99.56 inches in front of nose).

Mean Aerodynamic Chord (MAC): 87.215 inches (L.E. of MAC at FS 413.77)

Levelling Means: Lateral and longitudinal levelling marks are provided at FS 613.768. See Maintenance Manual or LES 1427 for levelling instructions.

2.8 Maximum Certified Weights

		A/C modified by SB 40-11-1
Taxi and ramp	9344 kg. (20,600 lb.)	9639 kg. (21,250 lb.)
Takeoff	9231 kg. (20,350 lb.)	9525 kg. (21,000 lb.)
Landing	8709 kg. (19,200 lb.)	8709 kg. (19,200 lb.)
Zero fuel	7258 kg. (16,000 lb.)	7258 kg. (16,000 lb.)

See AFM, maximum weights vary with serial numbers and modifications.

2.9 Maximum Passenger Seating Capacity

7 (See Note 1)

<u>Emergency Exits</u>	<u>No.</u>	<u>Type</u>	<u>Size</u>
R/H	1	III	.508 x .914 metres (20 x 36 in.)
L/H	1	III	.762 x .914 metres (30 x 36 in.)

**3. Data pertinent to all models**

3.1 Minimum Flight Crew:

2

3.2 Baggage / Cargo compartment loading

Class	Volume	Max. Allowable Load
D	1.45 m <sup>3</sup> (51.2 ft <sup>3</sup> )	226.8 kg. (500 lb.)

3.3 Other Limitations

Maximum Operating Altitude: 51,000 ft.

### 3.4 Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) and defined in the Type Design Definition, (see above) must be installed in the aeroplane for certification.

### 3.5 All Weather Capabilities

Category I

### 3.6 Wheels and Tyres

<u>Tyre</u>	<u>Size (in.)</u>
Single (Dual Chine) Nose Wheel and Tyre	18 x 4.4 - 10 ply
Dual Main Wheels and Tyres (L/H & R/H)	22 x 5.75 - 12 ply

## **IV Operating and Service Instructions**

- 1 Airplane Flight Manual, Document No. FM-126 (EASA) for Learjet 45; FM-132 (EASA) for Learjet 40
- 2 Maintenance Manual, Document No. MM-104 and JAA Supplement MM-104-JAA for Learjet 45; MM-105 and EASA Supplement MM-105-EASA for Learjet 40
- 3 Service Letters and Service Bulletins: Infoservice Newsletter Model 45 Service Bulletins

## **V Notes**

Note 1: Customized Cabin Interior and Seating Configurations must be approved.

Note 2: The current weight and balance report, loading instructions (when necessary), and a list of equipment included in the certificated empty weight must be provided for each aeroplane at the time of original airworthiness certification.

The certified empty weight and corresponding centre of gravity location must include:

	<u>Weight</u>	<u>Arm</u>
Hydraulic Fluid	9.75 kg. (21.5 lb.)	473 in.
Unusable Fuel	42.23 kg. (93.1 lb.)	427 in.
Trapped Fuel	6.35 kg. (14.0 lb.)	425 in.
Engine Trapped Oil	1.82 kg. (4.0 lb.)	520 in.
Engine Drainable Oil	4.85 kg. (10.7 lb.)	520 in.

Note 3: EASA Approved Airplane Flight Manual: The aeroplane must be operated according to the appropriate Approved Airplane Flight Manual. Required placards are included in the Maintenance Manual, part number MM-104 for the Learjet 45 and MM-105 for the Learjet 40, (latest approved revision), Chapter 11, Placards and Markings.

Note 4: JAA/EASA Approved Airworthiness limitations for mandatory compliance retirement life or inspection are included in the Maintenance Manual (Instructions for Continued Airworthiness), Chapter 4, and in JAA Supplement MM-104-JAA for the Learjet 45 and EASA Supplement MM-105-EASA for the Learjet 40.

Note 5: Certification Maintenance Requirements (CMR) are found in Maintenance Manual MM-



104, Chapter 4, for the Learjet 45 and MM-105, Chapter 4, for the Learjet 40. Engineering approval of the CMR is documented in Learjet Report 45-D1503.

- Note 6: Moment Arm values are quoted in inches and have not been converted to Metric, as the Aircraft Datum is derived from inches.
- Note 7: The approved minimum aisle width below 25 inches from the floor is (9.5) inches in accordance with FAR 25.815. Approval of the minimum aisle width is documented in Learjet Report ER-221 (Rev B) - page 31, Section 6-10. The approved Type Design aisle width above 25 inches includes an intrusion due to the padding on the seat-backs as defined by Learjet Dwg. No. 4525203000, "Upholstery Assy, Passenger Seat". Any modifications to the interior that change the seats, aisle width, or layout shall be coordinated with the Wichita Aircraft Certification Office or substantiated with FAA approved compliance data from Learjet Inc.
- Note 8: High Altitude Operation Special Conditions were found acceptable with a fuselage opening of 1.9 sq. in. Any installations such as antennae, additional window or doors, changes to the environmental control system, etc. shall not exceed this opening size unless substantiated with additional testing or coordination with Learjet Inc. and the Wichita Aircraft Certification Office. Engineering Approval is documented in Learjet Report 45-D1185, Paragraph 3.16.
- Note 9: The Learjet 45 (Model 45 S/N 45-002 through 45-2000) and Learjet 40 (Model 45 S/N 45-2001 through 45-4000) have been shown to meet the airworthiness requirements for operations in Reduced Vertical Separation Minimum (RVSM) airspace between 29,000 and 41,000 feet. No Service Bulletin is associated with this requirement. All serial numbers are eligible. Airworthiness approval is documented in FAA/JAA approved ECR 7539 and Learjet Compliance Report 45-D1665, RVSM Compliance and Data Analysis, M45.
- Note 10: The certification designation is Learjet Model 45 (ref. FAA TC T00008WI). References throughout the data sheet to Learjet 45 and Learjet 40 should be considered a commercial designation, which identifies a specific configuration of the Learjet Model 45 aircraft.