**DEPARTMENT OF TRANSPORTATION**
**FEDERAL AVIATION ADMINISTRATION**

A45NM
Revision 6
328 Support Services GmbH
Dornier Model 328-100
March 26, 2007

# FAA TYPE CERTIFICATE DATA SHEET NO. A45NM

This data sheet which is part of Type Certificate No. A45NM prescribes conditions and limitations under which the product for which the Type Certificate was issued meets the airworthiness requirements of the US Federal Aviation Regulations.

Type Certificate Holder

328 Support Services GmbH
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D-82231 Wessling
Federal Republic Of Germany

Type Certificate Holder Record

Dornier Luftfahrt GmbH transferred TC A45NM to Fairchild Dornier GmbH, effective August 8, 2000.

Fairchild Dornier GmbH transferred TC A45NM to AvCraft Aerospace GmbH, effective July 28, 2003.

AvCraft Aerospace GmbH transferred TC A45NM to 328 Support Services GmbH, effective June 7, 2006.

Dornier 328-100 (Transport Category Airplane) approved November 10, 1993

Note: Major Modification "Mod 10" was approved November 3, 1994. Major Modification “Mod 20” was approved August 5, 1996. Pre "Mod 10" airplanes are designated by Dornier as "Mod 00." Type Design Definition Document TD-00300 is the basis for the definition of the type design. The information in this data sheet applies to all Dornier 328-100 airplanes, unless otherwise noted.

Engines

2 Pratt and Whitney of Canada Ltd. PW 119B turboprops. Refer to engine FAA-Type Certificate E20NE.

Mod 10: Same engines as the basic model.

Mod 20: Two (2) Pratt and Whitney of Canada Ltd. PW 119C. Refer to engine FAA Type Certificate E20NE

**Fuel**

(a) Specifications:
ASTM (D 1655) Jet A
ASTM (D 1655) Jet A1
ASTM (D 1655) Jet B
ASTM (D 1655) Jet A-2

(b) Additives:
According to latest version of Dornier 328 Aircraft Maintenance Manual.

**Oil**

Types of approved oils for use in PW 100 engines are:
- 5 Centistoke oils (conforming to specification PWA 521, Type II).
4 Centistoke oils.
- Third generation oils.

The following engine limits table applies to the Mod 00 airplane only.

| Page No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Rev. No. | 6 | 2 | 3 | 2 | 6 | 6 | 6 |

**Engine Limits (Mod 00 airplane only):**

| Conditions | Operating Limits | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | POWER | TQ | ITT | RPM | RPM | RPM | OIL | OIL |
| | % TQ at % $N_p$ | (%) | °C | High Press Rotor $N_H$ (%) | Low Press Rotor NL (%) | Prop $N_P$ (%) | Oil Press PSID | Oil Temp °C (8) |
| BEST PERF TAKEOFF(1) | 100 at 100 | 100 | 800 | 102.7 | 104.4 | 102.5 | 55 to 65 | 0 to 115 |
| MAX CONT. OPER. (2) | 85 at 100 | 100 | 800 | 102.7 | 104.4 | 102.5 | 55 to 65 | 0 to 115 |
| GND IDLE | - | - | - | min 64 | - | - | min 40 (3) | -54 to 115 |
| STARTING | - | - | 950 (4) | - | - | - | 200 | min -54 |
| TRANSIENT (5) | - | 120 | 850 | 104.2 | 105.9 | 110 | 40 to 100 | - |
| OTHER | - | - | - | - | - | 110 (7) | - | 125 (6) |

Table references:

(1) Operation is limited to 5 minutes.

(2) Power limit is 1851 SHP. Operation between 85% and 100% TQ with $N_P$ below 100% is not time limited provided the power limit is not exceeded. (Refer to Power Torque Setting Charts in Airplane Flight Manual (AFM) Section 6 - Performance).

(3) Up to 75% $N_H$ only.

(4) 5 seconds maximum starting only.

(5) 20 seconds maximum.

(6) 20 minutes maximum.

(7) In case of a propeller or propeller governor malfunction the flight can be completed with the indicated Np speed. Power must be set not to exceed 75% torque.

(8) Under icing conditions oil temperature must be maintained above 45°C to ensure intake strut deicing.

Mod 10; Mod 20: The following engine limits table applies to the Mod 10 and Mod 20 airplanes.

Engine Limits (Mod 10 and Mod 20 airplanes):

| Conditions | Operating Limits | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | POWER | TQ | ITT | RPM | RPM | RPM | OIL | OIL |
| | % TQ at % $N_p$ | (%) | °C | High Press Rotor $N_H$ (%) | Low Press Rotor $N_L$ (%) | Prop $N_P$ (%) | Oil Press PSID | Oil Temp °C (7) |
| BEST PERF TAKEOFF(1) | 100 at 100 | 100 | 800 | 102.7 | 104.4 | 102.5 | 55 to 65 | 0 to 115 |
| MAX CONT. OPER. | 85 at 100<br>100 at 85 or below | 100 | 800 | 102.7 | 104.4 | 102.5 | 55 to 65 | 0 to115 |
| GND IDLE | - | - | - | min 64 | - | - | min 40 (2) | -54 to 115 |
| STARTING | - | - | 950 (3) | - | - | - | 200 | min -54 |
| TRANSIENT (4) | - | 120 | 850 | 104.2 | 105.9 | 110 | 40 to 100 | - |
| OTHER | - | - | - | - | - | 110 (6) | - | 125 (5) |

Table references:

(1) Operation is limited to 5 minutes duration, but may be used up to 10 minutes for single engine operation.
(2) Up to 75% $N_H$ only.
(3) 850° C to 950° C for 5 seconds maximum.
(4) 20 seconds maximum.
(5) 20 minutes maximum.
(6) In case of a propeller or propeller governor malfunction maximum power is 75% torque provided $N_P$ does not exceed 110%.
(7) Under icing conditions oil temperature must be maintained above 45° C to ensure intake strut deicing.

Propellers and Propeller Limits

Mod 00: 2 Hartzell six bladed HD-E6C-3A
Diameter: 11 ft 6 in (3.5 m). Refer to propeller FAA-Type Certificate P34NE

Mod 10, Mod 20: 2 Hartzell six bladed HD-E6C-3B. Diameter: 11 ft 10 in (3.6 m). Refer to propeller FAA-Type Certificate P34NE

Mod 10, Mod 20: For propeller limits table refer to AFM 02-06-00, Page 2, April 25, 1996.

Airspeed Limits (I.A.S.)

| | | |
|---|---|---|
| $V_D$ | | 324 KIAS |
| $V_{MO}$ | | 270 KIAS |
| MMO | | .59 (above 20,000 feet pressure altitude) |
| $V_A$ (Maneuvering) (Mod 00) | | 170 KIAS |
| $V_A$ (Maneuvering) (Mod 10, 20) | | 180 KIAS |
| $V_{FE}$ (Flaps Extended) | 12° | 200 KIAS |
| | 20° | 180 KIAS |
| In addition for Mod 10, 20: | 32° | 160 KIAS |
| $V_{MC}$ (Minimum Control) | Refer to AFM | |
| VLE = VLO | | 200 KIAS |
| Tire Speed | | 165 KIAS |
| Windshield wiper operating speed | | 166 KIAS |

Datum: The aircraft reference zero datum point is located 375.39 in. forward of the fuselage frame 23, 98.425 in. under the fuselage centerline and the aircraft buttock line.

Leveling Means: Plumb line in rear open and latched baggage door.

Weight and Center of Gravity Limits: The following weight and center of gravity limits apply to the Mod 00 airplane only.

| | WEIGHT | CENTER OF GRAVITY LIMITS | | |
|---|---|---|---|---|
| | | Forward Limit | | Rear Limit |
| | | Flight | Takeoff/ Landing | |
| | | MAC ARM | MAC ARM | MAC ARM |
| MIN. FLIGHT WEIGHT | 9,600 kg<br>21,164 lb | 14.0 %<br>9.663 m<br>380.44 in | 16.0 %<br>9.704 m<br>382.04 in | |
| up to WEIGHT | 11,000 kg<br>24,251 lb | 14.0 %<br>9.663 m<br>380.44 in | | |
| up to WEIGHT | 10712 kg<br>23616 lb | | 16.0 %<br>9.704 m<br>382.04 in | |
| connected by line up to MAX. ZERO FUEL WEIGHT | 12,260 kg<br>27,029 lb | 16.4 %<br>9.711 m<br>382.34 in | 19.5 %<br>9.776 m<br>384.87 in | 40.0 %<br>10.193 m<br>401.29 in |

(cont'd)

| | WEIGHT | CENTER OF GRAVITY LIMITS | | |
|---|---|---|---|---|
| | | Forward Limit | | Rear Limit |
| | | Flight | Takeoff/ Landing | |
| | | MAC ARM | MAC ARM | MAC ARM |
| connected by line up to MAX LANDING WEIGHT | 13,230 kg 29,167 lb | 17.9 % 9.742 m 383.55 in | 21.3 % 9.812 m 386.31 in | |
| connected by line up to MAX. TAKEOFF WEIGHT | 13,640 kg 30,071 lb | 18.5 % 9.754 m 384.01 in | 22.0 % 9.826 m 386.85 in | |
| connected by line up to MAX. RAMP WEIGHT | 13,720 kg 30,247 lb | | 22.1 % 9.829 m 386.96 in | |

Note 1: The limits are valid for the allowable flap positions corresponding to the flight speeds for takeoff, climb, cruise, approach, and landing. The envelope may be limited for operational conditions due to "In-Flight Movement." Note that takeoff and landing have different limits than the flight limits.

Note 2: 0% MAC is located 369.213 in. from the datum line.
100% MAC is located 80.197 in. from 0% MAC.

Weight and Center of Gravity Limits: The following weight and center of gravity limits apply to the Mod 10 and Mod 20 airplanes.

| | WEIGHT | CENTER OF GRAVITY LIMITS | | | |
|---|---|---|---|---|---|
| | | Forward Limit | | Rear Limit | |
| | | Flight | Takeoff & Landing | Takeoff & Landing | Flight |
| | | MAC ARM | MAC ARM | MAC ARM | MAC ARM |
| MIN. FLIGHT WEIGHT | 9,400 kg 20,724 lb | 14.0 % 9.663 m 380.44 in | 16.0 % 9.704 m 382.04 in | | |
| up to WEIGHT | 10,712 kg 23,616 lb | 14.0 % 9.663 m 380.44 in | 16.0 % 9.704 m 382.04 in | | |
| up to WEIGHT | 11,000 kg 24,251 lb | | | | |
| connected by line up to MAX. ZERO FUEL WEIGHT | 12,610 kg 27,800 lb | 16.9 % 9.723 m 382.80 in | 20.2 % 9.790 m 385.42 in | 40.0 % 10.193 m 401.29 in | 44.0 % 10.274 m 404.50 in |
| connected by line up to MAX LANDING WEIGHT | 13,230 kg 29,167 lb | 17.9 % 9.742 m 383.55 in | 21.3 % 9.812 m 386.31 in | | |
| connected by line up to MAX. TAKEOFF WEIGHT | 13,990 kg 30,843 lb | 18.9 % 9.763 m 384.39 in | 22.5 % 9.837 m 387.30 in | | |
| connected by line up to MAX. RAMP WEIGHT | 14,070 kg 31,019 lb | | 22.7 % 9.840 m 387.39 in | | |

Note 1: The limits are valid for the allowable flap positions corresponding to the flight speeds for takeoff, climb, cruise, approach, and landing. The envelope may be limited for operational conditions due to "In-Flight Movement." Note that takeoff and landing have different limits than the flight limits.

Note 2: 0% MAC is located 369.213 in from the datum line.
100% MAC is located 80.197 in. from 0% MAC.

Minimum Crew: 2 - Pilot and copilot

Maximum Passengers: 33
Front row passenger seats must be equipped with integral three-point safety harnesses (reference change notice CN-00281, dated February 21, 1995)

Type of Baggage Compartment: Class "D" Compartment

Maximum Baggage: Total of 1653 lbs (750 kg) in the rear baggage compartment
- 882 lbs (400 kg) in the forward part
- 771 lbs (350 kg) in the aft part
- max. floor loading = 75 lb/ft$^2$

Fuel Capacity: 7531 lbs usable (gravity refueled)
7300 lbs usable (pressure refueled)

Oil Capacity: Oil capacity per Engine (incl. Propeller Oil System)

| | TOTAL OIL TANK | MIN to MAX ON SIGHT GLASS | TOTAL OIL SYSTEM |
|---|---|---|---|
| US Gallons | 4.70 | 0.75 | 5.60 |
| Liters | 17.70 | 2.84 | 21.00 |

Maximum Operating Altitude: 31,000 ft.

Control Surface Movements:

| | |
|---|---|
| Wing Flaps | 12° and 20° (Mod 00) |
| Wing Flaps | 12°, 20°, and 32° (Mod 10, 20) |
| Ailerons | 30° up (+1°), 25° down (+1°) |
| Elevator | 30° up (-2°), 25° down (-1°) |
| Stabilizer | fixed |
| Rudder | 18° right, 16° left (Mod 00) |
| Rudder | 24° right (+1°), 20° left (-1°) (Mod 10,20) |

Airplane Flight Manual: Refer to AM-AFM-050893-ENV.

Serial Numbers:

Mod 00: 3006 through 3030. All former Mod 00 airplanes are modified to Mod 10 in accordance with Service Bulletin SB 328-00-053

Mod 10: Production aircraft manufactured to the Mod 10 configuration begin at serial number 3031 and subsequent. Previous serial number aircraft are eligible to operate to the Mod 10 specifications if service bulletin SB328-00-053 is installed.

Mod 20: Mod 20 aircraft are produced by incorporation of Service Bulletin SB 328-00-175.

Import Requirements: The FAA can issue a U.S. airworthiness certificate based on an Export Certificate of Airworthiness (Export C of A) signed by a representative of the LBA on behalf of the European Community. The Export C of A should

contain the following statement: 'The aircraft covered by this certificate has been examined, tested, and found to conform with the Type Design approved under U.S. Type Certificate No. A45NM and to be in a condition for safe operation.'

Certification Basis

Mod 00: FAR Part 25 Effective February 1, 1965, including Amendments 25-1 through 25-61, plus Amendments 25-62, -63, and –64, which were requested to be added to the Certification Basis by Dornier, with the exception of Sections 25.21(b) and 25.205 (removed from Part 25 by Amendment 25-72). In addition, the following paragraphs apply:

Section 25.571(e)(3) as amended by Amendment 25-72, effective August 20, 1990, and Section 25.905(d), as amended by Amendment 25-72.

Section 25.729(e)(2) as amended by Amendment 25-75, effective November 26, 1991.

Section 25.365 as amended by Amendment 25-71, effective April 10, 1990.

FAA Special Condition 25-ANM-76 dated August 31, 1993 (Lightning and HIRF).

FAA Grant Of exemption No. 5785 regarding Section 25.161(d), granted November 5, 1993.

Equivalent Level of Safety Finding for flight crew top hatch emergency exit markings (FAR 25.811(f))

Dornier elected to comply with the following optional requirement: Section 25.1419 for icing.

FAR Part 36 effective December 1, 1969, including Amendments 36-1 through 36-20.

FAR Part 34 effective September 10, 1990. SFAR 27-5 has been recodified as FAR Part 34, which is intended to continue the enforcement of 40 CFR Part 87 and make Part 34 a permanent part in the FAR's.

Mod 10, Mod 20: The certification basis for the Mod 10 and Mod 20 airplanes is the same as for the basic Mod 00 airplane.

The Luftfahrt-Bundesamt (LBA) originally type certificated this aircraft under its type certificate Number 2534. The FAA validated this product under U.S. Type Certificate number A45NM. Effective September 28, 2003, the European Aviation Safety Agency (EASA) began oversight of this product on behalf of the Federal Republic of Germany.

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see the Certification Basis) must be installed in the aircraft for certification.

Service Information

Each of the documents listed below that contain a statement that it is approved by the European Aviation Safety Agency (EASA) – or for approvals made before September 28, 2003 – by the LBA, are accepted by the FAA and are considered FAA approved. Additionally, the type certificate holder has contracted with GCT Design Organization GmbH (GCTDO) as the EASA approved DOA holder. Approvals issued by GCTDO or by the TC holder under the authority of EASA approved design organization EASA.21J.033 – or for approvals made prior to September 28, 2003 – by the TC holder under the authority of LBA approved design organization LBA.JA.002, are considered FAA approved. These approvals pertain to the design data only.

- TC holder Service Bulletins, except as noted below,
- Structural repair manuals
- Vendor manuals referenced in TC holder Service Bulletins
- Airplane flight manuals
- Repair instructions.

Note: Design changes that are contained in TC holder Service Bulletins and that are classified as Level 1 Major in accordance with either the US/Germany or US/EASA Bilateral Aviation Safety Agreement – Implementation Procedures for Airworthiness, must be approved by the FAA.

**NOTES**

NOTE 1.

Current weight an balance report including a list of equipment included in certificated empty weight, and loading instructions when necessary must be provided for each aircraft at its delivery.

For further information see Weight & Balance Manual TM-WBM-190793-ALL

NOTE 2.

Airworthiness Limitations including structural inspections and retirement times for safe-life parts are listed in Dornier Airworthiness Limitations Document TM-ALD-010693-ALL.

NOTE 3.

Certification Maintenance Requirements (CMR) are listed in Document TM-CMR-010793-ALL.

NOTE 4.

Compliance with the optional ditching requirements of FAR 25.801, FAR 25.1411, and FAR 25.1415 has not been shown.

...END...