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|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--|
| U.S. DEPARTMENT OF TRANSPORTATION<br><br>FEDERAL AVIATION ADMINISTRATION<br><br>TYPE CERTIFICATE DATA SHEET E2GL | TCDS NUMBER E2GL<br>REVISION: 11*                                                                                               |  |
|                                                                                                                  | DATE: April 5, 2007                                                                                                             |  |
|                                                                                                                  | CFM INTERNATIONAL, S.A.                                                                                                         |  |
|                                                                                                                  | MODELS:<br><br>CFM56-2                      CFM56-3<br>CFM56-2A                  CFM56-3B<br>CFM56-2B                  CFM56-3C |  |

Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E2GL) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Federal Aviation Regulations, provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

TYPE CERTIFICATE (TC) HOLDER: CFM International, S.A.  
2 Boulevard du General Martial Valin  
75015 Paris, France

| I. MODELS (See NOTE 12)                                           | CFM56-2                                                                                                                                                          | CFM56-2B                  | CFM56-2A                  | CFM56-3                                  | CFM56-3B                                 |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|------------------------------------------|------------------------------------------|
| TYPE                                                              | High bypass turbofan; coaxial front fan/booster driven by multi-stage low pressure turbine, multi-stage compressor with one stage turbine and annular combustor. |                           |                           |                                          |                                          |
| RATINGS (See NOTE 4)                                              |                                                                                                                                                                  |                           |                           |                                          |                                          |
| Takeoff (5 min., see NOTE 16), sea level, static thrust, lb./daN. | 24,000/10,676                                                                                                                                                    | 22,000/9,786              | 24,000/10,676             | 20,100/8,941                             | 22,100/9,830                             |
| Maximum continuous, sea level static thrust, lb.                  | 23,000/10,230                                                                                                                                                    | 21,580/9,599              | 23,405/10,411             | 18,900/8,407                             | 20,500/9,118                             |
| Flat rating                                                       | AMBIENT TEMPERATURE                                                                                                                                              |                           |                           |                                          |                                          |
| Takeoff                                                           | 86°F / 30°C                                                                                                                                                      | 90°F/32.2°C               | 95°F / 35°C               | 86°F / 30°C                              | --                                       |
| Maximum continuous                                                | 77°F / 25°C                                                                                                                                                      | --                        | --                        | --                                       | --                                       |
| FUEL SYSTEM                                                       | See NOTE 8 for approved fuels                                                                                                                                    |                           |                           |                                          |                                          |
|                                                                   | GE PART NO.                                                                                                                                                      |                           |                           |                                          |                                          |
| Fuel Control, Woodward                                            | 9378M47<br>9275M73                                                                                                                                               | 9278M96                   | 1323M36                   | 9368M57                                  | 9387M15                                  |
| CIT Sensor, Woodward                                              | 9178M37                                                                                                                                                          | --                        | --                        | 9334M96                                  | --                                       |
| Power Management Control, GE                                      | 7076M20<br>7157M60<br>7045M91                                                                                                                                    | 7084M61<br>7157M61<br>--- | 7129M23<br>7157M64<br>--- | 7090M98<br>7139M84<br>7157M62<br>7157M66 | 7125M15<br>7139M91<br>7157M63<br>7157M67 |

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LEGEND: "--" INDICATES "SAME AS PRECEDING MODEL"

"—" NOT APPLICABLE

NOTE: SIGNIFICANT CHANGES ARE BLACK-LINED IN THE LEFT MARGIN.

| II. MODELS (See NOTE 12)                                         | CFM56-3C                                                                                                                                                         |  |  |  |  |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| TYPE                                                             | High bypass turbofan; coaxial front fan/booster driven by multi-stage low pressure turbine, multi-stage compressor with one stage turbine and annular combustor. |  |  |  |  |
| RATINGS (See NOTE 4)                                             |                                                                                                                                                                  |  |  |  |  |
| Takeoff (5 min., see NOTE 16), sea level, static thrust, lb./daN | 23,515/10,460                                                                                                                                                    |  |  |  |  |
| Maximum continuous, sea level static thrust, lb.                 | 21,850/9,719                                                                                                                                                     |  |  |  |  |
| Flat rating                                                      | AMBIENT TEMPERATURE                                                                                                                                              |  |  |  |  |
| Takeoff                                                          | 86°F / 30°C                                                                                                                                                      |  |  |  |  |
| Maximum continuous                                               | 77°F / 25°C                                                                                                                                                      |  |  |  |  |
| FUEL SYSTEM                                                      | See NOTE 8 for approved fuels                                                                                                                                    |  |  |  |  |
|                                                                  | GE PART NO.                                                                                                                                                      |  |  |  |  |
| Fuel Control, Woodward                                           | 1459M27<br>9387M15                                                                                                                                               |  |  |  |  |
| CIT Sensor, Woodward                                             | 9334M96                                                                                                                                                          |  |  |  |  |
| Power Management Control, GE                                     | 7147M10<br>7157M68                                                                                                                                               |  |  |  |  |

| I. MODELS (Continued)                            | CFM56-2            | CFM56-2B      | CFM56-2A      | CFM56-3       | CFM56-3B |
|--------------------------------------------------|--------------------|---------------|---------------|---------------|----------|
| FUEL SYSTEM (Cont.)                              | SNECMA PART NUMBER |               |               |               |          |
| Fuel Pump, TRW                                   | 301-776-101-0      | 301-776-101-0 | 301-779-101-0 | 301-778-801-0 | --       |
| Combined boost and single element gear type pump | 301-776-102-0      | 301-776-102-0 | 301-779-102-0 | 301-778-802-0 | --       |
|                                                  | 301-776-103-0      | 301-776-104-0 | 301-779-103-0 | 301-778-804-0 | --       |
|                                                  | 301-776-104-0      | 301-776-105-0 | --            | 301-778-805-0 | --       |
|                                                  | 301-776-105-0      | 301-776-106-0 | --            | 301-778-806-0 | --       |
|                                                  | 301-776-106-0      | 301-776-109-0 | --            | 301-779-001-0 | --       |
|                                                  | 301-776-108-0      | 301-776-111-0 | --            | 301-779-002-0 | --       |
|                                                  | 301-776-109-0      | 301-776-112-0 | --            | 301-779-005-0 | --       |
|                                                  | 301-776-110-0      | 301-776-113-0 | --            | 301-779-006-0 | --       |
|                                                  | 301-776-111-0      | 301-776-114-0 | --            | 301-779-007-0 | --       |
|                                                  | 301-776-112-0      | 301-776-115-0 | --            | --            | --       |
|                                                  | 301-776-113-0      | 301-779-001-0 | --            | --            | --       |
|                                                  | 301-776-114-0      | 301-779-005-0 | --            | --            | --       |
|                                                  | 301-776-115-0      | 301-779-007-0 | --            | --            | --       |
|                                                  | 301-778-801-0      | 301-779-101-0 | --            | --            | --       |
|                                                  | 301-778-802-0      | 301-779-102-0 | --            | --            | --       |
|                                                  | 301-778-804-0      | 301-779-103-0 | --            | --            | --       |
|                                                  | 301-778-805-0      | --            | --            | --            | --       |
|                                                  | 301-778-806-0      | --            | --            | --            | --       |
|                                                  | 301-779-001-0      | --            | --            | --            | --       |
|                                                  | 301-779-002-0      | --            | --            | --            | --       |
|                                                  | 301-779-005-0      | --            | --            | --            | --       |
|                                                  | 301-779-006-0      | --            | --            | --            | --       |
|                                                  | 301-779-007-0      | --            | --            | --            | --       |
| Fuel/Oil Heat Exchanger                          | 301-771-402-0      | 301-771-402-0 | 301-779-401-0 | 301-776-401-0 | --       |
|                                                  | 301-771-403-0      | 301-779-401-0 | 301-779-402-0 | 301-776-402-0 | --       |
|                                                  | 301-771-404-0      | 301-779-402-0 | --            | 301-776-403-0 | --       |
| Servo Fuel Heater                                |                    |               |               | 301-780-501-0 | --       |
|                                                  | 301-772-901-0      | 301-772-901-0 | 301-779-501-0 | 301-776-501-0 | --       |
|                                                  |                    | 301-779-501-0 | 301-779-502-0 | 301-776-502-0 | --       |
|                                                  |                    | 301-779-502-0 | --            | --            | --       |

| I. MODELS (Continued)                                                     | CFM56-2                                                                                                                                                                                  | CFM56-2B                       | CFM56-2A             | CFM56-3              | CFM56-3B             |
|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------|----------------------|----------------------|
| <b>OIL</b>                                                                |                                                                                                                                                                                          |                                |                      |                      |                      |
| Models CFM56-2/-2B/-2A                                                    | Synthetic type conforming to GE Specification D50TF1, Type 1 or 2. CFM Service Bulletin (CFM56-2) 79-0001 lists approved oil brands.                                                     |                                |                      |                      |                      |
| Models CFM56-3/-3B/-3C                                                    | Synthetic type conforming to GE Specification D50TF1, Type 1 or 2. CFM Service Bulletin (CFM56-3/-3B/-3C) 79-0001 lists approved oil brands.                                             |                                |                      |                      |                      |
| <b>IGNITION SYSTEM</b>                                                    | GE PART NO.                                                                                                                                                                              |                                |                      |                      |                      |
| Two ignition units                                                        | 9238M66<br>1538M69<br>9101M52                                                                                                                                                            | --                             | --                   | --                   | --                   |
| Two igniter plugs                                                         | 1153M38<br>1374M12<br>1153M38<br>1374M13                                                                                                                                                 | 9275M71<br>--<br>9276M36<br>-- | --<br>--<br>--<br>-- | --<br>--<br>--<br>-- | --<br>--<br>--<br>-- |
| <b>PRINCIPAL DIMENSIONS</b>                                               | INCHES / MILLIMETERS                                                                                                                                                                     |                                |                      |                      |                      |
| Length, (fan case forward flange to LPT rear frame aft flange)            | 95.7/2430                                                                                                                                                                                | --                             | --                   | 93.1/2364            | --                   |
| Width, (fan casing forward flange diameter)                               | 72.04/1830                                                                                                                                                                               | --                             | --                   | 63.39/1610           | --                   |
| Height, (bottom of accessory gearbox to top of fan casing forward flange) | 84.25/2140                                                                                                                                                                               | --                             | --                   | 66.61/1692           | --                   |
| <b>WEIGHT (dry)</b>                                                       | Includes basic engine accessories and optional equipment as listed in manufacturers engine specification, including engine mounted portions of the condition monitoring instrumentation. |                                |                      |                      |                      |
| Pounds / Kilograms                                                        | 4711/2139                                                                                                                                                                                | --                             | 4850/2200            | 4309/1954            | 4334/1966            |
| <b>CENTER OF GRAVITY LOCATIONS</b>                                        | STATION, ENGINE ONLY (REFER TO INSTALLATION DRAWING)                                                                                                                                     |                                |                      |                      |                      |
| Inches                                                                    | 206+1                                                                                                                                                                                    | --                             | 205+1                | 209+1                | --                   |
| Millimeters                                                               | 5233+25                                                                                                                                                                                  | --                             | 5220+25              | 5319+25              | --                   |

| II. MODELS (Continued)                           | CFM56-3C                                                                                                                                     |  |  |  |  |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| <b>FUEL SYSTEM (Cont.)</b>                       | SNECMA PART NUMBER                                                                                                                           |  |  |  |  |
| Fuel Pump, TRW                                   | 301-778-802-0                                                                                                                                |  |  |  |  |
| Combined boost and single element gear type pump | 301-779-001-0<br>301-779-002-0                                                                                                               |  |  |  |  |
| Fuel/Oil Heat Exchanger                          | 301-776-401-0<br>301-776-402-0<br>301-776-403-0<br>301-780-501-0                                                                             |  |  |  |  |
| Servo Fuel Heater                                | 301-776-501-0<br>301-776-502-0                                                                                                               |  |  |  |  |
| <b>OIL</b>                                       |                                                                                                                                              |  |  |  |  |
| Models CFM56-2/-2B/-2A                           | Synthetic type conforming to GE Specification D50TF1, Type 1 or 2. CFM Service Bulletin (CFM56-2) 79-0001 lists approved oil brands.         |  |  |  |  |
| Models CFM56-3/-3B/-3C                           | Synthetic type conforming to GE Specification D50TF1, Type 1 or 2. CFM Service Bulletin (CFM56-3/-3B/-3C) 79-0001 lists approved oil brands. |  |  |  |  |
| <b>IGNITION SYSTEM</b>                           | GE PART NO.                                                                                                                                  |  |  |  |  |
| Two ignition units                               | 9238M66<br>1538M69                                                                                                                           |  |  |  |  |
| Two igniter plugs                                | 9275M71<br>1374M12<br>9276M36<br>1374M13                                                                                                     |  |  |  |  |

| II. MODELS (Continued)                                                    | CFM56-3C                                                                                                                                                                                 |  |  |  |  |
|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| <b>PRINCIPAL DIMENSIONS</b>                                               | <b>INCHES / MILLIMETERS</b>                                                                                                                                                              |  |  |  |  |
| Length, (fan case forward flange to LPT rear frame aft flange)            | 93.1/2364                                                                                                                                                                                |  |  |  |  |
| Width, (fan casing forward flange diameter)                               | 63.39/1610                                                                                                                                                                               |  |  |  |  |
| Height, (bottom of accessory gearbox to top of fan casing forward flange) | 66.61/1692                                                                                                                                                                               |  |  |  |  |
| <b>WEIGHT (dry)</b>                                                       | Includes basic engine accessories and optional equipment as listed in manufacturers engine specification, including engine mounted portions of the condition monitoring instrumentation. |  |  |  |  |
| Pounds / Kilograms                                                        | 4334/1966                                                                                                                                                                                |  |  |  |  |
| <b>CENTER OF GRAVITY LOCATIONS</b>                                        | STATION, ENGINE ONLY (REFER TO INSTALLATION DRAWING)                                                                                                                                     |  |  |  |  |
| Inches                                                                    | 209±1                                                                                                                                                                                    |  |  |  |  |
| Millimeters                                                               | 5319±25                                                                                                                                                                                  |  |  |  |  |

**CERTIFICATION BASIS**

Code of Federal Regulations Part 33 effective February 1, 1965, with Amendments 33-1 through 33-6 thereto. In addition, the engines are in compliance with the emissions requirements of Special Federal Aviation Regulation No. 27-5. Exemption No. 2641 from compliance with 14 CFR §33.88 issued Nov. 20, 1978, Exemption No. 2850 from compliance with 14 CFR §33.7 issued October 31, 1979, and Exemption No. 83-ANE-001E from compliance with 14 CFR §33.14 issued July 27, 1983.

| MODEL    | APPLICATION DATE | TYPE CERTIFICATE ISSUED/AMENDED | TYPE CERT. WITHDRAWN |
|----------|------------------|---------------------------------|----------------------|
| CFM56-2  | AUG 07, 1975     | NOV 08, 1979                    |                      |
| CFM56-2B | JUL 28, 1981     | JUN 25, 1982                    |                      |
| CFM56-3  | SEP 17, 1980     | JAN 12, 1984                    |                      |
| CFM56-3B | MAR 05, 1984     | JUN 19, 1984                    |                      |
| CFM56-2A | DEC 15, 1983     | JUN 06, 1985                    |                      |
| CFM56-3C | APR 07, 1986     | DEC 18, 1986                    |                      |

**PRODUCTION BASIS**

Production Certificate No. 108 for engines produced in the United States by General Electric under license from CFM International, S.A. (See NOTE 11).

**IMPORT REQUIREMENTS**

See NOTE 11

**NOTES**

| MODELS                            | CFM56-2                                                                                                                                                       | CFM56-2B | CFM56-2A | CFM56-3 | CFM56-3B | CFM56-3C |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---------|----------|----------|
| <b>NOTE 1.</b>                    | <b>MAXIMUM PERMISSIBLE TEMPERATURES</b>                                                                                                                       |          |          |         |          |          |
|                                   | For engine configurations designated by a suffix for specific installation (see NOTE 12), refer to the appropriate S.O.I. for maximum operating temperatures. |          |          |         |          |          |
| <b>TURBINE EXHAUST GAS (T495)</b> | As measured by a harness of six or nine thermocouples located at the second stage low pressure turbine vanes.                                                 |          |          |         |          |          |
| Takeoff (5 min., see NOTE 16)     | 905°C                                                                                                                                                         | --       | 930°C    | --      | --       | --       |
| Takeoff Transient (20 sec.)       | --                                                                                                                                                            | --       | --       | 940°C   | --       | --       |
| Maximum continuous                | 870°C                                                                                                                                                         | --       | 895°C    | --      | --       | --       |
| Starting                          |                                                                                                                                                               |          |          |         |          |          |
| Time temperature envelope         |                                                                                                                                                               |          |          |         |          |          |
| Refer to model's S.O.I.           | TP.01.6                                                                                                                                                       | TP.01.7  | TP.01.10 | TP.01.9 | --       | --       |
| <b>OIL (See NOTE 15)</b>          | Refer to the appropriate installation manual and S.O.I.                                                                                                       |          |          |         |          |          |
| Continuous Operation              | 140°C                                                                                                                                                         | 160°C    | 140°C    | 160°C   | --       | --       |
| Transient (15 minutes)            | 155°C                                                                                                                                                         | 175°C    | 155°C    | 165°C   | --       | --       |

| MODELS                                                                                             | CFM56-2                                                | CFM56-2B | CFM56-2A | CFM56-3      | CFM56-3B | CFM56-3C |
|----------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------|----------|--------------|----------|----------|
| <b>NOTE 2.</b>                                                                                     | <b>FUEL AND OIL PRESSURE LIMITS</b>                    |          |          |              |          |          |
| Fuel limits                                                                                        | Refer to the appropriate installation manual           |          |          |              |          |          |
| Oil limits                                                                                         |                                                        |          |          |              |          |          |
| Refer to model's S.O.I.                                                                            | TP.01.6                                                | TP.01.7  | TP.01.10 | TP.01.9      | --       | --       |
| <b>NOTE 3.</b>                                                                                     | <b>ACCESSORY DRIVE PROVISIONS (see also next page)</b> |          |          |              |          |          |
| <b>STARTER</b>                                                                                     |                                                        |          |          |              |          |          |
| Rotation (1)                                                                                       | CW                                                     | CW       | CW       | CCW          | --       | --       |
| Speed ratio to core                                                                                | 1.343:1                                                | 1.343:1  | 1.343:1  | 0.996:1      | --       | --       |
| Maximum torque (in-lbs)                                                                            |                                                        |          |          |              |          |          |
| Continuous                                                                                         | 4,150                                                  | 4,150    | 4,900    | 5,400        | --       | --       |
| Static                                                                                             | 10,444                                                 | 10,444   | 9,700    | 13,370       | --       | --       |
| Maximum overhung moment (in-lbs)                                                                   | 300                                                    | 300      | 340      | 300          | --       | --       |
| <b>ELECTRICAL</b>                                                                                  |                                                        |          |          |              |          |          |
| Rotation (1)                                                                                       | CW                                                     | CW       | CW       | CW           | --       | --       |
| Speed ratio to core                                                                                | 0.561:1                                                | 0.561:1  | 0.5823:1 | 0.562:1      | --       | --       |
| Maximum torque (in-lbs)                                                                            |                                                        |          |          |              |          |          |
| Continuous                                                                                         | (125 kw)                                               | (125 kw) | 165 hp   | 2,500/135 kw | --       | --       |
| Static                                                                                             | 10,900                                                 | 10,900   | 7,000    | 8,800        | --       | --       |
| Maximum overhung moment (in-lbs)                                                                   | 2,100                                                  | 2,100    | 1,600    | 2,500        | --       | --       |
| <b>FORWARD HYDRAULIC PUMP</b>                                                                      |                                                        |          |          |              |          |          |
| Rotation (1)                                                                                       | CCW                                                    | --       | CW       | CW           | --       | --       |
| Speed ratio to core                                                                                | 0.254:1                                                | --       | 0.255:1  | 0.255:1      | --       | --       |
| Maximum torque (in-lbs)                                                                            |                                                        |          |          |              |          |          |
| Continuous                                                                                         | 1,500                                                  | --       | 1,000    | 1,500        | --       | --       |
| Static                                                                                             | 6,398 (2)                                              | --       | 4,400    | 4,400        | --       | --       |
| Maximum overhung moment (in-lbs)                                                                   | 500                                                    | --       | 400      | 500          | --       | --       |
| <b>AFT HYDRAULIC PUMP</b>                                                                          |                                                        |          |          |              |          |          |
| Rotation (1)                                                                                       | CW                                                     | CW       | --       | --           | --       | --       |
| Speed ratio to core                                                                                | 0.254:1                                                | 0.254:1  | --       | --           | --       | --       |
| Maximum torque (in-lbs)                                                                            |                                                        |          |          |              |          |          |
| Continuous                                                                                         | 1,000                                                  | 2,390    | --       | --           | --       | --       |
| Static                                                                                             | 6,398 (2)                                              | 6,398    | --       | --           | --       | --       |
| Maximum overhung moment (in-lbs)                                                                   | 400                                                    | 400      | --       | --           | --       | --       |
| (1) Facing Drive Pad CW = CLOCKWISE / CCW = COUNTERCLOCKWISE                                       |                                                        |          |          |              |          |          |
| (2) Total torque for forward and aft hydraulic pump drives must not exceed 6,398 in-pounds static. |                                                        |          |          |              |          |          |

**NOTE 4.**

Engine ratings are based on calibrated stand performance under the following conditions:

For the CFM56-2/-3/-3B/-3C, takeoff thrust is nominally independent of ambient temperature (flat rated) up to ambient temperature of Std + 15°C; for the CFM56-2B, Std +17.2°C; and for the CFM56-2A, Std +20°C;

Maximum continuous is nominally independent of ambient temperature (flat rated) to Std +10°C;

Zero customer bleed and horsepower extraction;

No scrubbing drags;

100% inlet recovery; and

Based on CFM International referee separate flow exhaust system.

**NOTE 5.**

Fan exhaust/reverser system models CFM56-FR02B and CFM56-FR03B are approved for incorporation on CFM56-2 and CFM56-2A engine models, respectively, in accordance with 14 CFR Part 33.

**MODELS****NOTE 6.**

Low pressure rotor (N1), rpm  
High pressure rotor (N2), rpm

| CFM56-2                                 | CFM56-2B | CFM56-2A | CFM56-3      | CFM56-3B | CFM56-3C |
|-----------------------------------------|----------|----------|--------------|----------|----------|
| MAXIMUM PERMISSIBLE ENGINE ROTOR SPEEDS |          |          |              |          |          |
| 5,280 (102%)                            | --       | --       | 5,490 (106%) | --       | --       |
| 15,183 (105%)                           | --       | --       | --           | --       | --       |

**NOTE 7.**

Maximum permissible air bleed extraction: Refer to the appropriate Installation Manual.

**NOTE 8.**

Approved fuel conforming to GE Specification D50TF2. MIL-T-5624, Grades JP-4 or JP-5, ASTM D1655, Jet A, A1, and B are consistent with this GE specification.

**PRIMARY FUEL**

For the CFM56-2/-3/-3B/-3C, the primary fuel is Jet A.  
For the CFM56-2A/-2B, the primary fuel is JP4.

**AVIATION GASOLINE, MOTOR GASOLINE, EMERGENCY FUELS, AND FUEL ADDITIVES**

For the CFM56-2/-3/-3B/-3C use of aviation gasoline is not authorized. Consult appropriate Operating Manual for additive usage.

For the CFM56-2B and -2A use of aviation gasoline and motor gasoline is authorized for periods not to exceed six hours. Consult appropriate Operating Manual for action following use of emergency fuels and for additive usage.

For limitations on use of emergency fuels with the CFM56-2B and -2A, consult the appropriate Installation Manual.

**NOTE 9.**

Life limits established for critical rotating components are published in each model's Shop Manual.

**NOTE 10.**

Power setting, power checks and control of engine thrust output in all operations is to be based on CFM engine charts referring to fan speed. Fan speed sensors are included in the engine assembly for this purpose.

**NOTE 11.**

The type certificate holder, CFM International, S.A., is a company established and jointly owned by Societe Nationale d'Etude et de Construction de Moteurs d'Aviation (SNECMA) of France and the General Electric Company for the certification, sale, and support of CFM56 series engines. With respect to the benefits of type certification for production, SNECMA and General Electric function as licensees of CFM International, S.A.

This type certificate applies only to engines produced in the United States under Type Certification No. E2GL. Engines of the same model designation produced in France and imported under Type Certificate No. E21EU are identical to and fully interchangeable with engines produced under this type certificate. Similarly, modules, assemblies, or parts produced in France are eligible for use in engines produced under this type certificate, provided an airworthiness approval tag, (EASA Form 1- Authorized Release Certificate or JAA Form 1), issued by SNECMA under authority of the European Aviation Safety Agency (EASA) Production Certificate No. FR.21G.0007 attached to each item or invoice covering a shipment of similar items (reference 14 CFR § 21.502). Engines and parts produced prior to September 28, 2004 were produced by SNECMA under French production certificate P03.

CFM56-2 engines produced by General Electric are identified by the serial number prefix "692"; those produced by SNECMA are identified by the prefix "693".

CFM56-2B engines produced by General Electric are identified by the serial number prefix "710", "712" and "714"; those produced by SNECMA are identified by the prefix "711", "713" and "715".

CFM56-3/-3B/-3C engines produced by General Electric are identified by the serial number prefix "720, 722, 724, 726, 856, 858 and 860"; those produced by SNECMA are identified by the prefix "721, 723, 725, 727, 857, 859 and 861".

CFM56-2A engines produced by General Electric are identified by the serial number prefix "782"; those produced by SNECMA are identified by the prefix "783".

**NOTE 12.**

A suffix may be added to the basic engine model number on the engine nameplate to identify minor variations in engine configuration, installation components or reduced ratings peculiar to aircraft installation requirements. For example: CFM56-2-xx.

Engines that have a suffix added to the basic model number are identified in CFM International Service Bulletins, and are summarized below:

| <u>Engine Model</u> | <u>Service Bulletin No.</u> | <u>Application</u>        |
|---------------------|-----------------------------|---------------------------|
| CFM56-2-C1/-C5      | 72-0001 (CFM56-2)           | DC8-71/-72/-72F/-73       |
| CFM56-2-C2          | 72-0001 (CFM56-2)           | None                      |
| CFM56-2-C3/-C6      | 72-0001 (CFM56-2)           | DC8-72F                   |
| CFM56-2A-2/-3       | 72-0001 (CFM56-2A)          | No Commercial Application |
| CFM56-2B-1          | 72-0001 (CFM56-2B)          | No Commercial Application |
| CFM56-3-B1          | 72-0001 (CFM56-3/-3B/-3C)   | 737-300/-500              |
| CFM56-3B-2          | 72-0001 (CFM56-3/-3B/-3C)   | 737-300/-400              |
| CFM56-3C-1          | 72-0001 (CFM56-3/-3B/-3C)   | 737-300/-400/-500         |

**NOTE 13.**

For the CFM56-3/-3B/-3C models, the throat area of the inlet installed on the engine shall not exceed 2700 sq. in. (1.742 sq. meters) of area.

**NOTE 14.**

For inflight operation during icing conditions:

For the CFM56-2 series engines, the minimum permissible N1 RPM is 37 percent. However, momentary N1 excursions below 37 percent, not to exceed 60 seconds duration, are permissible for approach and landing operation below 10,000 feet pressure altitude.

For CFM56-2 series engines which are equipped with 43 percent rich pilot fuel nozzles, in accordance with CFM56-2 Service Bulletin Number 73-0047, the minimum permissible N1 RPM for inflight operation is 29 percent.

For CFM56-3/-3B/-3C engines, the minimum permissible N1 RPM for inflight operation during icing conditions is 21.8 percent.

**NOTE 15.**

The oil temperature for the CFM56-2B, CFM56-3, CFM56-3B, and CFM56-3C is measured at the scavenge pump discharge. The oil temperature for the CFM56-2A and CFM56-2-C series engines is measured at the supply pump discharge.

The transient limit is defined as 15 minutes for all models except for the CFM56-2B. The transient limit is defined as 10 minutes for the CFM56-2B.

The continuous operation and transient oil temperature limits for the CFM56-2-C1, -2-C3, -2-C5, and -2-C6 is 140°C and 155°C respectively. The continuous operation and transient oil temperature limits for the CFM56-2-C2 is 150°C and 155°C respectively. Refer to S.O.I. TP.01.6.

**NOTE 16.**

The normal 5 minute takeoff rating may be extended to 10 minutes for engine out contingency for the CFM56-3/-3B/-3C.

**NOTE 17.**

Installation Manuals, Specific Operating Instructions, Service Bulletins, Overhaul and Maintenance Manuals, Repair Manuals, Vendor Manuals, and Design Changes which contain a statement that the document is EASA approved or approved under authority of DOA No. EASA.21J.086 or for approvals made before September 28, 2003 by DGAC are accepted by the FAA and considered FAA approved. Repair data and related instructions are considered FAA approved or accepted as applicable. These approvals pertain to the type design only.

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