# SECTION 2

# LIMITATIONS

## Table of Contents

## KINDS OF OPERATION

This airplane is eligible for certification in the Transport Category and is approved for the following kinds of operation when the appropriate instruments and equipment required by the airworthiness and/or operating certificate are installed and approved and are in operable condition.

- Atmospheric icing conditions
- Day and night VFR
- IFR
- RVSM

However, the certificate of airworthiness may restrict this airplane to some other category and to a particular use.

## WEIGHT LIMITATIONS

Maximum Taxiing (Ramp) Weight..... 28,120 lb (12,755 kg)
Maximum Take-off Weight ..... 28,000 lb (12,701 kg)
Maximum Landing Weight ..... 23,350 lb (10,591 kg)
Maximum Zero Fuel Weight..... 18,450 lb (8369 kg)
Minimum Zero Fuel Weight..... 14,120 lb (6405 kg)

## PERFORMANCE LIMITATIONS

### Take-off Weight

Maximum Take-off Weight is limited by the most restrictive of the following:

- 28,000 lb (12,701 kg).
- As shown on the MAXIMUM TAKE-OFF WEIGHT FOR ALTITUDE AND TEMPERATURE graphs (see Sub-section 5.15).
- The maximum permitted by field length considerations (see Sub-section 5.20).
- The maximum permitted by maximum brake energy considerations (see Sub-section 5.20).
- The maximum permitted by obstacle clearance considerations (see Sub-section 5.25).

### Landing Weight

Maximum Landing Weight is limited by the most restrictive of the following:

- 23,350 lb (10,591 kg).
- As shown on the MAXIMUM LANDING WEIGHT FOR ALTITUDE AND TEMPERATURE graph (see Sub-section 5.45).
- The maximum permitted by field length considerations (see Sub-section 5.50).

### Take-off Field Length

The take-off weight shall not exceed the maximum permitted by field length considerations as described in Sub-section 5.20 for the restricted range of conditions listed.

When complying with the above, the following conditions shall be met:

- The take-off distance used in the graphs shall not be greater than the length of runway plus the length of clearway if present, except that the length of clearway shall not be greater than one-half of the length of the runway.
- The take-off run used in the graphs shall not be greater than the length of the runway.

## OPERATIONAL LIMITATIONS

### Altitude

Maximum/Minimum field pressure altitudes
for takeoff or landing.....13,000 ft and -2000 ft

*NOTE: Performance appropriate to the lowest published elevation shall be used when the field pressure altitude is below the lowest published elevation.*

### Maximum Permissible Altitude

Maximum permissible operating altitude is 41,000 ft.

Maximum permissible altitude with flaps lowered or landing gear extended is 20,000 ft.

### Air Temperature

Maximum

All Flight Regimes ..... ISA +35° C

Ground (prior to engine start):

Flight compartment exposed to direct sunlight (sky with less than 10% cloud cover)

- With flight compartment sunshields..... ISA +35° C
- Without flight compartment sunshields..... ISA +31° C

Flight compartment exposed to indirect sunlight (sky with more than 10% cloud cover)

- ISA +35° C

*NOTE: If sunshields are utilized, a sufficient quantity shall be installed to protect the entire flight compartment.*

Minimum

- Takeoff/Landing..... -40° C
- Enroute..... -75° C

*NOTE: When the temperature is below the lowest scheduled, performance appropriate to the lowest scheduled temperature shall be used.*

### Wind Component

The maximum tailwind component for takeoff and landing appropriate to a height of 33 ft (10.1 m) is 10 knots.

### Runway Slope

The maximum effective runway slopes for takeoff are 2% uphill and 2% downhill.

### Airplane Configurations

The airplane configurations as stated in Sub-section 5.05 must be observed.

## COMPARTMENT LOADING LIMITATIONS

The airplane must be loaded in accordance with Section 6 - WEIGHT & BALANCE of this Airplane Flight Manual and as provided on placards in the Baggage/Stowage Compartments.

## LOAD LIMITATIONS

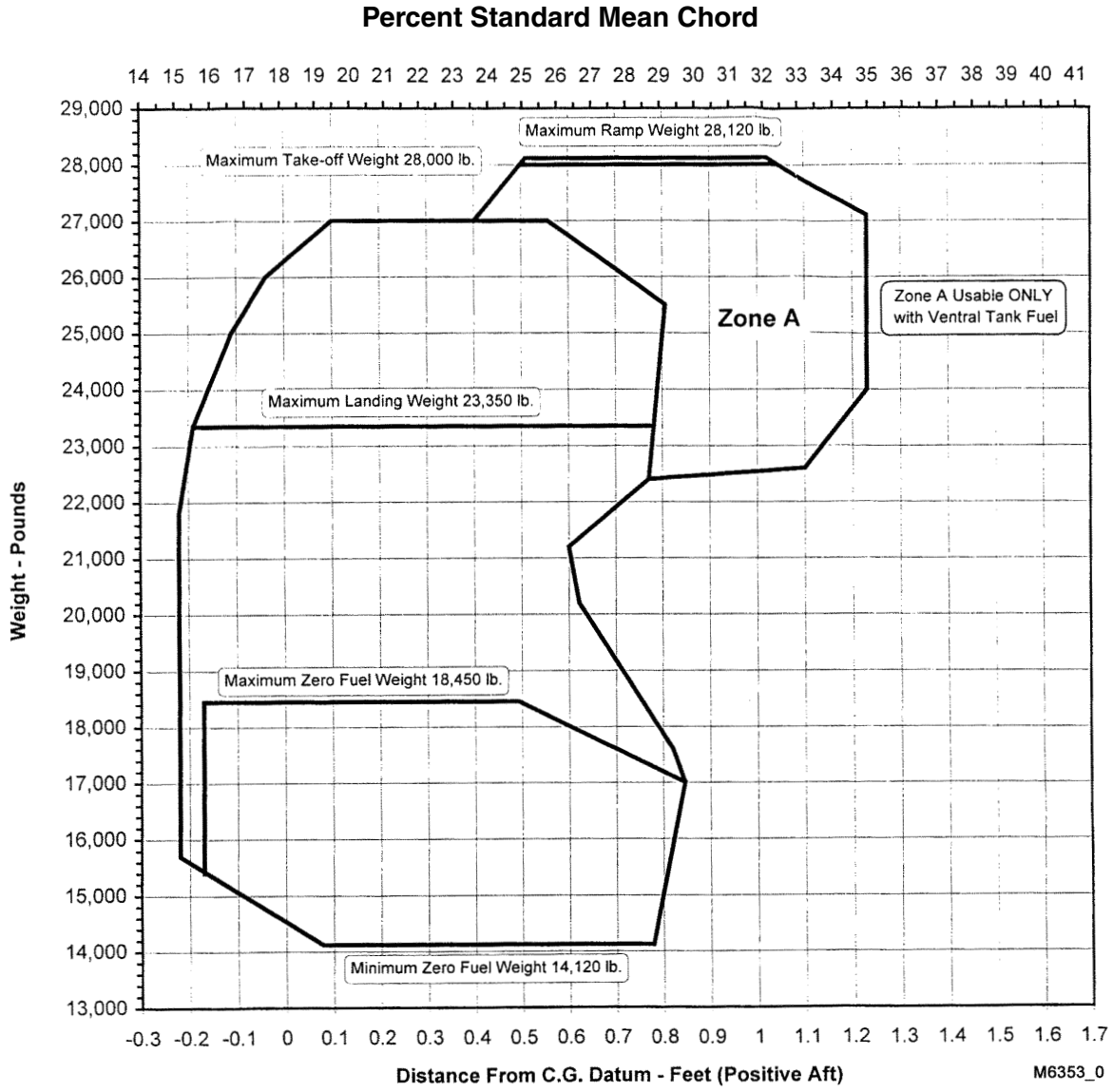
### Center Of Gravity Limitations

The center of gravity must always lie between the forward and aft limits as defined in the envelope shown in Figures 2.1 and 2.2.

The limits apply with the landing gear up. The effect of the landing gear in the down position is negligible.

The center of gravity datum is 11 ft (3.4 m) forward of the reference point on the fuselage. The reference point is defined by a screw on the fuselage skin located beneath the right engine pod.

## LOADING and FLIGHT ENVELOPE - POUNDS/FEET




**(Landing Gear Retraction Moment Change is Negligible)**

**Figure 2.1**

## LOADING and FLIGHT ENVELOPE - KILOGRAMS/METERS

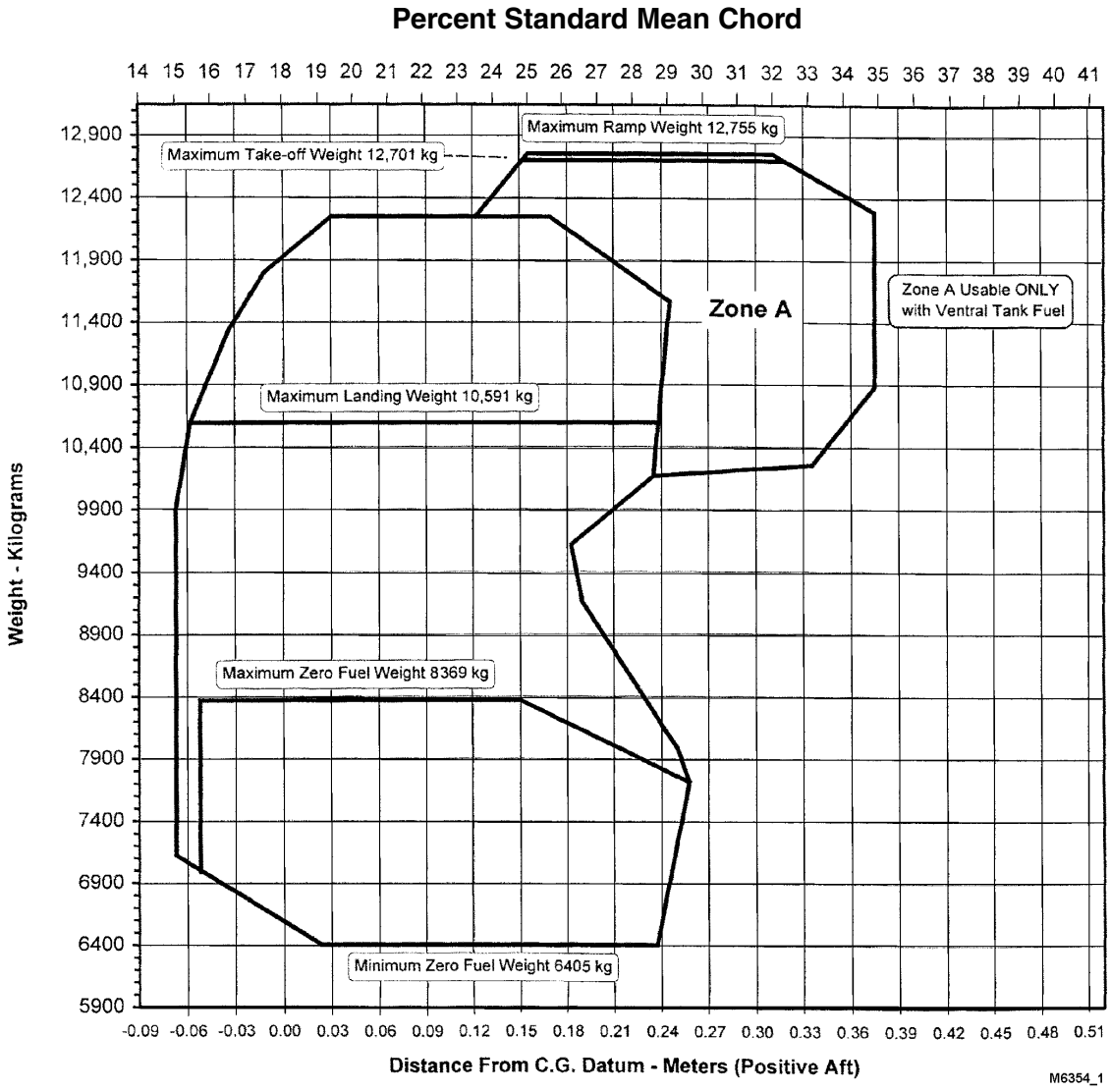



**Figure 2.2** **(Landing Gear Retraction Moment Change is Negligible)**

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# SECTION 2 - LIMITATIONS

## ICE PROTECTION LIMITATIONS

***Read the following information in place of the existing information under Icing General on Page 9:***

**Icing General**

Icing conditions exist when Outside Air Temperature (OAT), on the ground and during takeoff, is 10° C SAT or below and visible moisture in any form is present (e.g. clouds, fog with visibility of 1 mile (1600 meters) or less, rain, snow, sleet and ice crystals).

Icing conditions also exist when the OAT, on the ground and for takeoff, is 10° C or below when operating on ramps, taxiways, or runways where surface snow, ice, standing water or slush may be ingested by the engines or freeze on the engines, nacelles or engine sensor probes.

***Read the following information in place of the existing information under Airframe Icing on Page 9:***

**Airframe Icing**

Takeoff is prohibited with frost, ice, snow or slush adhering to the wings, control surfaces, engine inlets or other critical surfaces, with the exception of the following areas:

- Frost is allowable on the underside of the wings over the general area of the fuel tanks provided that the depth does not exceed 1/8 inch (3 mm).

  If frost is present in this region, the WAT limited take-off weight must be reduced by 1000 lb (454 kg) and the net flight path reference and fourth segment climb gradients must be obtained using a weight 1000 lb (454 kg) higher than the actual weight.

- Frost is allowable on the fuselage provided the layer is thin enough to distinguish the surface features such as paint lines or markings underneath, but all vents, probes and ports must be clear of frost.

A visual and tactile (hand on surface) check of the wing leading edges and the wing upper surface must be performed to ensure the wing is free from frost, ice, snow or slush when the outside air temperature is less than 50° F (10° C) or if it cannot be ascertained that the wing fuel temperature is above 32° F (0° C) and;

- There is visible moisture (rain, drizzle, sleet, snow, fog, etc.) present;
  **or**
- Water is present on the wing;
  **or**
- The difference between the dew point and the outside air temperature is 5° F (3° C) or less;
  **or**
- The atmospheric conditions have been conducive to frost formation.

## ICE PROTECTION LIMITATIONS

### Icing General

Icing conditions exist when Outside Air Temperature (OAT) on the ground and during takeoff, or Total Air Temperature (TAT) in flight is 10° C or below, and visible moisture in any form is present (e.g. clouds, fog with visibility of 1 mile (1600 meters) or less, rain, snow, sleet and ice crystals).

Icing conditions also exist when the OAT on the ground and for takeoff is 10° C or below when operating on ramps, taxiways, or runways where surface snow, ice, standing water or slush may be ingested by the engines or freeze on the engines, nacelles or engine sensor probes.

### Airframe Icing

The airplane must be clear of snow, ice and frost before takeoff with the exception of the following areas:

- Frost is allowable on the underside of the wings over the general area of the fuel tanks provided that the depth does not exceed 0.125 inch (3.175 mm).

  If frost is present in this region, the WAT limited take-off weight must be reduced by 1000 lb (454 kg) and the net flight path reference and fourth segment climb gradients must be obtained using a weight 1000 lb (454 kg) higher than the actual weight.

- Frost is allowable on the fuselage provided the layer is thin enough to distinguish the surface features such as paint lines or markings underneath, but all vents, probes and ports must be clear of frost.

### Wing/Tail Antice System

Only de-ice fluids TKS80, R328 or fluid to specification DTD 406B must be used.

*NOTE: A tank indicating FULL provides priming and protection for a period of at least 85 minutes.*

### Engine Icing

**Refer to ENGINE LIMITATIONS** - this section.

## SEVERE ICING CONDITIONS LIMITATIONS

**WARNING: SEVERE ICING MAY RESULT FROM ENVIRONMENTAL CONDITIONS OUTSIDE OF THOSE FOR WHICH THE AIRPLANE IS CERTIFICATED.**

**FLIGHT IN FREEZING RAIN, FREEZING DRIZZLE, OR MIXED ICING CONDITIONS (SUPERCOOLED LIQUID WATER AND ICE CRYSTALS) MAY RESULT IN ICE BUILD-UP ON PROTECTED SURFACES EXCEEDING THE CAPABILITY OF THE ICE PROTECTION SYSTEM, OR MAY RESULT IN ICE FORMING AFT OF THE PROTECTED SURFACES.**

**THIS ICE MAY NOT BE SHED USING THE ICE PROTECTION SYSTEMS, AND MAY SERIOUSLY DEGRADE THE PERFORMANCE AND CONTROLLABILITY OF THE AIRPLANE.**

During flight, severe icing conditions that exceed those for which the airplane is certificated shall be determined by the following visual cues.

If one or more of these visual cues exists, immediately request priority handling from Air Traffic Control to facilitate a route or an altitude change to exit the icing conditions:

- Extensive ice accumulation on the airframe in areas not normally observed to collect ice.
- Accumulation of ice on the wing aft of the protected area.

Since the autopilot may mask tactile cues that indicate adverse changes in handling characteristics, use of the autopilot is prohibited when any of the visual cues specified above exist, or when unusual lateral trim requirements or autopilot trim warnings are encountered while the airplane is in icing conditions.

## ENGINE LIMITATIONS

### Engine Type

Two Allied Signal TFE731-5BR-1H turbofan engines.

### Engine Limitations

| CONDITION | % RPM | | MAX ITT °C | TIME LIMIT |
|---|---|---|---|---|
| | $N_1$ | $N_2$ | | |
| **Start or Relight *** | ---- | ---- | 978<br>996<br>over 996 | Unrestricted<br>10 Seconds<br>5 Seconds |
| **Takeoff *** | 100 | 100.8 | 978<br>1006<br>1016 | 5 Minutes<br>5 Seconds<br>2 Seconds |
| **Maximum Take-off Thrust * (APR Operating) (see NOTE 1)** | 100 | 100.8 | 996<br>1006<br>1016 | 5 Minutes<br>5 Seconds<br>2 Seconds |
| **Initial Maximum Take-off Thrust (APR Not Operating)** | 100 | 100.8 | 978<br>1006<br>1016 | 5 Minutes<br>5 Seconds<br>2 Seconds |
| **Maximum Continuous *** | 100 | 100.8 | 968 | Unrestricted<br>(see NOTE 2) |
| **Maximum Overspeed *** | 103 | 103 | ---- | 5 Seconds |

*** These conditions appear on placards.**

***Oil Temp***

- Maximum ..... 127° C up to 30,000 ft
- Maximum ..... 140° C above 30,000 ft
- Transient Maximum.....149° C (2 minutes)
- Minimum (Starting) .....-40° C
- Minimum (Takeoff) .....30° C

***Oil Press***

- Takeoff and Maximum Continuous and Climb .....38 lb/in$^2$ (262 kPa) to 46 lb/in$^2$ (317.2 kPa)
- Idle.....25 lb/in$^2$ (172.4 kPa) minimum
- Transient Maximum.....55 lb/in$^2$ (379.2 kPa) (3 minutes)

*NOTES:*

1. *Initial maximum take-off thrust is selected by the pilot on takeoff. When the Automatic Performance Reserve (APR) System is operative, maximum take-off (APR) thrust will be obtained automatically on one engine if the other engine fails during takeoff.*

   *The five minute limit of maximum APR thrust must include the duration of operation at initial maximum take-off thrust prior to the operation of APR. Any normal take-off limitations exceeded during APR operation must be recorded in the technical log.*

2. *This is not a normal cruise setting.*

**Approved Engine Oils**

| *Airplanes which have not accomplished Honeywell Service Bulletin 72-3597 or 72-3662* | *Airplanes which have accomplished Honeywell Service Bulletin 72-3597 or 72-3662* |
|---|---|
| Aeroshell/Royco Turbine Oil 500 | Mobil 254 |
| Aeroshell/Royco Turbine Oil 560 | Exxon 2197 |
| BP Turbo Oil 2197 | BP Turbo Oil 2197 |
| BP Turbo Oil 2380 | |
| Castrol 5000 | |
| Exxon/Esso 2380 Turbo Oil | |
| Exxon 2197 | |
| Mobil Jet Oil II | |
| Mobil 254 | |
| *NOTE: Engine oils in this column can be mixed.* | *NOTE: Engine oils in this column can be mixed. Do not mix these oils with any other oils.* |

**Engine Oil Consumption**

The maximum permissible oil consumption rate of an engine during any flight is 0.01 U.S. gallons (0.036 liters) per hour.

**Engine Fuel Computer**

Flight must not be initiated with an engine fuel computer inoperative.

**Engine Synchronizer**

The ENG SYNC switch must be selected OFF for takeoff.

**Automatic Performance Reserve (APR)**

The Automatic Performance Reserve (APR) system must be armed for takeoff, except for crew training only, when it need not be armed.

**Engine Instrument Markings**

Red Indications ..... A maximum or minimum limit has been exceeded.

Yellow Indications ..... Cautionary operations permissible for short duration or in special circumstances - refer to individual limitations.

Green or White Indications ..... Normal operations.

**Thrust Reversers**

- Deployment of either thrust reverser is restricted to ground operations only.
- The thrust reverse levers must not be selected until the airplane is on the ground.
- Engine starts with thrust reversers deployed are prohibited.
- Reverse thrust must not be used to taxi backwards.
- Thrust in excess of reverse idle must not be selected below speeds of 50 KIAS, except in an emergency.
- When operating on unpaved surfaces, reverse idle thrust must not be exceeded except in an emergency.
- If the thrust reverser system is known to be inoperative or unserviceable, it must be disabled and locked in the forward thrust position.

**Engine Ice Protection System**

The ENG ANTICE switches may be selected ON at any engine speed. If engine anti-icing is required during takeoff, it is recommended that they should be turned ON prior to setting take-off power.

Engine inlet anti-icing should be used in flight continuously during expected icing conditions.

When icing conditions do not exist, the inlet anti-icing should not be used above 50° F (10° C) ambient conditions for more than 10 seconds.

## FUEL LIMITATIONS

The following fuels and additives are approved for use with this engine installation.

**Fuel Specifications**

*Aviation kerosene to the current approved issue of the following specifications:*

| | |
|---|---|
| British | DEF STAN 91-87 (D.E.R.D. 2453)<br>DEF STAN 91-91 (D.E.R.D. 2494) |
| American | ASTM D1655/JET A<br>ASTM D1655/JET A-1<br>MIL-T-83133/JP8 |
| Canadian | CAN/CGSB 3.23/JET A<br>CAN/CGSB 3.23/JET A-1 |
| Russian | GOST 10227-86 TS-1<br>GOST 10227-86 T-1<br>GOST 10227-86 RT |
| Chinese | GB 6537-94/No. 3 JET FUEL |

*Aviation wide-cut fuel to the current approved issue of the following specifications:*

| | |
|---|---|
| British | DEF STAN 91-88 (D.E.R.D. 2454) |
| American | ASTM D1655/JET B<br>MIL-T-5624/JP4<br>MIL-T-5624/JP5 |
| Canadian | CAN/CGSB 3.22/JET B |
| Russian | GOST 10227-86 T-2 |

**Fuel Additives**

*Anti-static*

STADIS 450 additive may be used in concentrations not exceeding 3 parts per million (ppm) by volume.

SIGBOL additive TU38-101741-78 may be used in concentrations not exceeding 0.0005% by volume.

*Anti-icing and biocidal additives*

For anti-icing and preventative continuous Biocidal treatment DEF STAN 68-252, MIL-I-27686 or MIL-I-85470 may be used in concentrations not exceeding 0.15% by volume.

*NOTE: The above additives should not be added to fuel to specification DEF STAN 91-87, MIL-T-5624 and MIL-T-83133 as they are already present in these fuels.*

TGF to GOST 17477-86; TGF(M) to TU 6-10-1457-79; I to GOST 8313-88; I(M) to TU 6-10-1458-79 may be used in concentrations not exceeding 0.3% by volume.

Biobor JF may be used at concentrations not exceeding 135 parts per million by weight, as preventative biocidal treatment.

For biocidal shock treatment, Biobor JF may be used at concentrations not exceeding 270 ppm by weight, provided it is subsequently off-loaded prior to engine start (135 ppm is the maximum concentration for engine operation).

*Anti-corrosive Additive*

Fuels may contain additives complying with DEF STAN 68-251 or MIL-I-25017 at concentrations permitted by the fuel specification.

*NOTE: Fuel to specification DEF STAN 91-87 already includes HITEC E515.*

### Maximum Fuel Temperature

The maximum permissible fuel temperature is 57° C.

### Minimum Fuel Temperature

To avoid the possibility of fuel freezing or exceeding engine limitations, the following ambient air and indicated fuel temperature limitations should be observed:

| FUEL | MINIMUM FUEL OR AMBIENT AIR TEMP AT TAKEOFF | MINIMUM FUEL TEMP IN FLIGHT | FUEL FREEZING TEMP |
|---|---|---|---|
| DEF STAN 91-91 (D.E.R.D 2494)<br>DEF STAN 91-87 (D.E.R.D 2453)<br>ASTM D1655/JET A-1<br>MIL-T-83133/JP8<br>CAN/CGSB 3.23/JET A-1 | -42° C | -45° C | -47° C |
| ASTM D1655/JET A<br>CAN/CGSB 3.23/JET A<br>GB 6537-94/No. 3 JET FUEL | -35° C | -38° C | -40° C |
| DEF-STAN 91-88 (D.E.R.D 2454)<br>MIL-T-5624/JP4<br>MIL-T-5624/JP5 | -53° C<br>-35° C | -54° C<br>-38° C | -58° C<br>-40° C |
| ASTM D1655/JET B<br>CAN/CGSB 3.22/JET B | -45° C | -48° C | -50° C |
| GOST 10277-86 TS-1<br>GOST 10277-86 T-1<br>GOST 10277-86 T-2 | -54° C | -54° C | -60° C |
| GOST 10277-86 RT | -50° C | -53° C | -55° C |

### Fuel Quantity

The usable fuel capacity of each tank when gravity filled is as follows:

| LOCATION | U.S. GALLONS | EQUIVALENT LITERS |
|---|---|---|
| Wing tank (either side) | 634 | 2400 |
| Ventral tank | 233 | 882 |

Credit shall not be taken for any fuel remaining in the tanks when the fuel quantity indicators read zero in level flight.

After pressure refueling, the contents of each wing tank will be 2.4 US Gallons (9.1 Liters) less and the contents of the ventral tank will be 3.6 US Gallons (13.6 Liters) less.

The contents of the ventral tank are reduced by 4.8 US Gallons (18.2 Liters) for airplanes which have an external toilet servicing facility.

### Fuel Loading

Fuel tanks may be replenished in any sequence provided that the appropriate refueling instructions are observed and that the following preflight fuel loading conditions are achieved:

1. Fuel contained in the wing tanks shall be equally disposed between the two wing tanks.

2. Fuel must not be carried in the ventral tank unless each main wing tank contains at least 3450 lb (1565 kg) of fuel.

3. Before flights on which it is to be utilized, the ventral tank must be filled completely. For other flights it must be empty.

### Pressure Refueling

Takeoff must not be initiated if the amber FUEL annunciator on the MWS panel and the amber REFUEL ON annunciator on the roof panel are illuminated.

Flight with the Refuel Power Switch ON is prohibited.

### Fuel System Management

1. During flight, including takeoff and landing, the difference in fuel quantity between the two wing tanks must not exceed 500 lb (227 kg).

2. Fuel carried in the ventral fuel tank shall be transferred into the wing tanks when the fuel level in the wing tanks has fallen to 3300 lb (1497 kg) per side.

3. Overweight landing procedure and inspection is required for any landing with fuel in the ventral tank.

## ELECTRICAL LIMITATIONS

### Battery Limitations

Maximum battery charge on the main airplane batteries (B1 and B2) immediately before takeoff shall not be greater than 20 AMPS.

### Generator Limitations

Maximum continuous engine generator load: 300 AMPS

*NOTE: Transient excursions, up to a maximum of 400 AMPS, are permitted for a maximum of 2 minutes.*

### Main Engine Starter Duty Cycle

On the ground, the maximum permitted starter operating time is 30 seconds. After an aborted start, a minimum of 1 minute cooling time must be allowed before making another attempt to start. A further 1 minute is required before making a third attempt. The cycle may be repeated after a further period of 30 minutes.

### Operation of Electrical Circuit Breakers

If, during flight, a systems failure is accompanied by a circuit breaker operation, no attempt must be made to reset the circuit breaker unless specified in the appropriate Emergency or Abnormal procedure or, if deemed necessary for the continuation of safe flight, a circuit breaker may be reset once.

## AVIONICS LIMITATIONS

### General

1. The following documents must be carried onboard the airplane at all times:

   - Collins Pro Line 21 Avionics System for the Hawker 800XP Pilot's Guide P/N 523-0780409, 1st Edition dated May 31, 2001 or later revision.
   - Collins FMS-6000 Flight Management System for the Hawker 800XP Pilot's Guide, P/N 523-0780705, 1st Edition dated April 17, 2001 or later revision.
   - Mk V Enhanced Ground Proximity Warning System Pilot Guide, P/N 060-4241-0000, Rev D, dated March 2000 or later revision.

These publications contain the description and operation of the Collins Pro Line 21 avionics, the FMS-6000, TCAS II and EGPWS installations and must be available for use.

2. The pilot's and copilot's Air Data Computers must be operative for takeoff.

3. AHRS 1 and 2 must be operative for takeoff.

### HF Radio

1. When the ADF is being used for approaches, the use of the HF radio is prohibited.

2. Fuel quantity indications are not to be used during HF radio transmissions.

### Electronic Standby Instrument System (ESIS)

1. The red airspeed warning on the ESIS airspeed tape does not provide an associated aural warning.

2. During operations solely with references to the ESIS, the standby $V_{MO}/M_{MO}$ indication must not be exceeded, as the ESIS altitude and airspeed indications are not corrected for static error.

### Flight Management System

1. IFR enroute and terminal navigation is prohibited unless the pilot verifies either the currency of the database or the accuracy of each selected waypoint and navaid by reference to current approved data.

2. The FMS position must be checked for accuracy prior to use as a means of navigation and under the following conditions:

   - At or prior to arrival at each enroute waypoint during FMS navigation along approved RNAV routes.
   - Prior to requesting off-airway routing and at hourly intervals thereafter during FMS navigation off approved RNAV routes.
   - Prior to each compulsory reporting point during IFR operation when not under radar surveillance control.

3. During periods of dead reckoning, the FMS shall not be used for navigation.

4. All FMS navigation operations are approved within the U.S. National Airspace System and latitudes bounded by 60° North latitude and 60° South latitude at any longitude.

   - Operation to 70° North latitude is acceptable East of 75° West longitude and West of 120° West longitude.
   - Operation to 80° North latitude is acceptable East of 50° West longitude and West of 70° East longitude.
   - Operation to 70° South latitude is acceptable except for the 45° between 120° East and 165° East longitude.
   - The WGS-84 coordinate reference datum in accordance with the criteria of AC 20-130A, AC 91-49, and AC 120-33 must be used. Satellite navigation data is based upon use of only the Global Positioning System (GPS) operated by the United States.

5. FMS-based Instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the FMS-6000 data base.

   - Instrument approaches must be conducted in the approach mode and GPS integrity monitoring (RAIM) must be available at the Final Approach Fix.
   - Accomplishment of ILS, LOC, LOC-BC, LDA and SDF approaches are not authorized utilizing the FMS.
   - When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS navigation, the airplane must have operational equipment capable of using that navigation aid, and the required navigation aid must be operational.
   - FMS based approaches that are retrieved from the navigation database with an approach name of RNVxxx may be flown provided the VHF navigation receiver is tuned to the reference facility.

6. Provided the FMS is receiving adequate usable sensor inputs, it has been demonstrated capable of and has been shown to meet the accuracy specifications of:

   - VFR/IFR enroute RNAV operation in accordance with the criteria of AC 20-130A.
   - GPS primary means of navigation in oceanic and remote airspace in accordance with AC 20-130A, when used in conjunction with the Collins Fault Detection and Exclusion software, dual Collins FMS-6000 Flight Management Systems and dual GPS-4000A receivers or a single FMS-6000 Flight Management System and/or Collins GPS-4000A receiver when operating on routes approved for single GPS navigation.

     This does not constitute an operational approval.

   *NOTE: With single Flight Management System operation, cross reference must be made to the Airplane Flight Manual for operating procedures and performance data.*

# TEMPORARY CHANGE

**P/N 140-590032-0005TC12 (Issue 2)**

| | |
|---|---|
| **PUBLICATION AFFECTED:** | FAA Approved Airplane Flight Manual, P/N 140-590032-0005, Dated Nov 30, 2001, or later revision for Hawker 800XP airplanes equipped with Pro Line 21 avionics. |
| **AIRPLANE SERIAL NUMBERS AFFECTED:** | Hawker 800XP 258541, 258556, 258567 and After. |
| **DESCRIPTION OF CHANGE:** | Revised the required operational equipment installation for operations in European P-RNAV airspace. |
| **FILING INSTRUCTIONS:** | Remove and destroy existing Temporary Change 12 Page 1 of 1 dated January 7, 2005 from Section 2 - LIMITATIONS Page 19.<br><br>Insert this Temporary Change 12 (Issue 2) Page 1 of 1 to face page 19 in Section 2 - LIMITATIONS. |

## SECTION 2 - LIMITATIONS

## AVIONICS LIMITATIONS

***The following additional information applies to the Flight Management System on Page 19:***

**P-RNAV**

Provided the FMS is receiving adequate usable sensor inputs, it has been demonstrated capable of and has been shown to meet the accuracy specifications of Operation in European P-RNAV airspace in accordance with JAA Temporary Guidance Material, Leaflet No. 10, provided the following equipment is operational:

| *Quantity* | *Description* |
|---|---|
| 2 | CDU-6200 Control Display Unit |
| 1 | DBU-4100 Data Base Unit |
| 2 | VIR-432 / NAV-4000 / NAV-4500 Navigation Receiver (any 2 of the listed) |
| 2 | DME-442 / DME-4000 DME Transceiver (any 2 of the listed) |
| 2 | GPS-4000A Global Positioning System |

This does not constitute an operational approval.

Approved By: .....

for Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas
USA

Approval Date: 11/8/05

# TEMPORARY CHANGE

**P/N 140-590032-0005TC15**

| | |
|---|---|
| **PUBLICATION AFFECTED:** | FAA Approved Airplane Flight Manual, P/N 140-590032-0005, Dated Nov 30, 2001, or latest revision for Hawker 800XP airplanes equipped with Pro Line 21 avionics. |
| **AIRPLANE SERIAL NUMBERS AFFECTED:** | Hawker 800XP 258541, 258556, 258567 and After. |
| **DESCRIPTION OF CHANGE:** | Autopilot Flight Director Limitation. |
| **FILING INSTRUCTIONS:** | Insert this Temporary Change Page 1 of 1 to face Page 19 in Section 2 - LIMITATIONS, |

## SECTION 2 - LIMITATIONS

### AVIONICS LIMITATIONS

#### Autopilot

Do not push a vertical mode Flight Director button (FLC, VNAV or VS) while the altitude preselector control is being rotated.

Approved By: .....

for Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas
USA

Approval Date: 12/15/05

- Operation in European B-RNAV/RNP-5 airspace in accordance with AC 90-96 and AC 20-130A. This does not constitute an operational approval.

- Minimum Navigation Performance Specification (MNPS) airspace when equipped with dual Collins FMS-6000 Flight Management Systems and dual Collins GPS-4000A GPS receivers, or a single FMS-6000 Flight Management System and/or single GPS-4000A receiver on routes approved for single GPS navigation. This does not constitute an operational approval.

- VFR/IFR enroute, terminal and approach VNAV operation in accordance with AC 20-129.

7. Use of FMS to capture and track a DME arc outside the published end points is prohibited.

8. Fuel management parameters are advisory only and do not replace the primary fuel quantity indications.

**Autopilot**

1. A satisfactory preflight check of the system must be performed before the first flight of the day and after any power up or maintenance activity.

2. During autopilot operations, a pilot must be seated at the controls with seat belt and shoulder harness fastened.

3. The autopilot and yaw damper must not be used for takeoff and landing.

4. Do not manually override the autopilot during normal flight.

**WARNING: OVERRIDING THE AUTOPILOT IN PITCH DOES NOT CANCEL THE AUTOPILOT AUTOMATIC TRIM. IF A FORCE IS APPLIED TO THE COLUMN WITH THE AUTOPILOT ENGAGED, THEN AUTOMATIC TRIM WILL RUN TO OPPOSE THE APPLIED FORCE. THIS CAN LEAD TO A SEVERE OUT-OF-TRIM CONDITION DURING ANY PHASE OF FLIGHT.**

5. Maximum airspeed for operation of the autopilot system must not exceed the airplane indicated maximum speed $V_{MO}/M_{MO}$.

6. Operation of the autopilot system with a pitch trim malfunction is prohibited.

7. Do not use the autopilot or yaw damper below 200 ft above terrain during non-precision or Category I precision approach operations, or 600 ft above terrain during all other operations.

8. The maximum demonstrated adverse wind conditions for autopilot coupled approaches are 17 knots crosswind component and 11 knots tailwind component.

9. Nav and localizer captures must be accomplished with an intercept angle of less than 90°.

10. Category II approaches must be executed while coupled to the autopilot with the following limits:

    Runway Visual Range (RVR) ..... 1200 ft minimum

    Decision Height (DH) ..... 100 ft minimum

    Headwind ..... 17 knots

    Tailwind ..... 11 knots

    Crosswind ..... 17 knots

    Autopilot must be disengaged at ..... 80 ft

    Two engine operations only

11. During a Category II approach, if the autopilot malfunctions or disengages below 1000 ft AGL, the Category II approach must be discontinued. Hand flying the approach to Category I minimums is allowable.

**VNAV**

1. When using the VNAV system, the barometric altimeters must be used as the primary altitude reference for all operations.

2. Use of VNAV guidance for a V-MDA approach that includes a step-down fix between the final approach fix and missed approach point is prohibited.

3. VNAV altitudes must be displayed on the MFD map page or CDU legs page when utilizing VNAV for flight guidance.

4. Use of VNAV while conducting a missed approach procedure is prohibited.

5. Provided the FMS is receiving adequate usable sensor inputs, it has been demonstrated capable of and has been shown to meet the accuracy specifications of VNAV operation in accordance with the criteria of AC 20-129. Such VNAV approaches must be flown utilizing either the flight director or autopilot.

6. VNAV approach guidance to a DA is not authorized if the reported surface temperature is below the Baro-VNAV minimum temperature limitation specified on the applicable RNAV approach procedure chart.

   *NOTE: Barometric VNAV guidance during approach including the approach transition, final approach segment and the missed approach procedure is not temperature compensated. Operating at uncompensated minimum IFR altitudes will not provide expected terrain and obstacle clearance for temperatures below ISA.*

**EGPWS**

1. Navigation must not be predicated upon the use of the TAD. The Terrain Display is intended to serve as a situational awareness tool only and may not provide the accuracy and/or fidelity on which to solely base terrain avoidance maneuvering.

2. Pilots are authorized to deviate from their current air traffic control (ATC) clearance to the extent necessary to comply with an EGPWS warning.

3. In order to avoid giving unwanted alerts, the Terrain Awareness alerting must be inhibited by selecting the TERR INHIB switchlight when within 15 nautical miles of takeoff, approach or landing at an airport not contained in the EGPWS Airport Database. Refer to Honeywell document 060-4326-000 for airports contained in the installed EGPWS Terrain Database.

4. When the FMS is operating in the DR mode, the Terrain Awareness alerting must be inhibited by selecting the TERR INHIB switchlight.

*NOTE: The terrain database, displays and alerting algorithms currently account for limited cataloged human-made obstructions in North America and Europe. If obstacle data is not in the database for a particular obstacle, the Obstacle Awareness alerting is not available for that obstacle.*

**TCAS II**

Pilots are authorized to deviate from their current ATC clearance to the extent necessary to comply with a TCAS resolution advisory.

If ATC requires the transponder altitude reporting to be disabled, TCAS II must be turned off.

## AIRSPEED LIMITATIONS

### Maximum Operating Speed

$V_{MO}$ ..... 280 KIAS
(Ventral fuel tank not empty, Flaps 0°)

$V_{MO}$ ..... 335 KIAS (Ventral fuel tank empty, Flaps 0°)
Sea Level to 12,000 ft, reducing by 1 kt per 680 ft to 310 KIAS at 29,000 ft.

### Maximum Operating Mach Number

$M_{MO}$ ..... 0.80 IMN

$M_{MO}$ ..... 0.73 IMN with Mach Trim System Fail/ Inoperative and Autopilot disengaged.

*NOTE: The maximum operating speeds and operating Mach numbers as given above shall not be deliberately exceeded in any regime of flight (climb, cruise or descent) except for the purpose of pilot training or routine test flights in accordance with Section 5, Sub-section 2 of the Pilot's Operating Manual (POM).*

*If the limits are inadvertently exceeded, speed shall be reduced to or below the limiting values as quickly as possible.*

### Maneuvering Speed

$V_A$ ..... 196 KIAS

*NOTE: Maneuvering speed is the speed below which full application of aerodynamic controls will not result in excessive airplane loads. Maneuvers involving angles of attack near the stall should be confined to speeds below $V_A$.*

*Avoid rapid and large alternating control inputs, especially in combination with large changes in pitch, roll or yaw (e.g. large slip angles) as they may result in structural failures at any speed, including below $V_A$.*

### Wing Flaps Extended/Operating Speed

$V_{FE}/V_{FO}$ ..... 220 KIAS (Flaps 15°)
175 KIAS (Flaps 25°)
165 KIAS (Flaps 45°)

### Procedural Use of Flaps 15° for Descent and Holding

The maximum airspeed for procedural use of flaps 15° for descent and holding is 220 KIAS.

The maximum altitude for use is 15,000 ft. Such use of wing flaps is not permitted in icing conditions.

### Air Brakes

Air Brakes (Flaps 0° Only) ..... No Limit

### Landing Gear Extended/Operating Speed

$V_{LE}/V_{LO}$ ..... 220 KIAS

### Bird Strike Speed

Under normal conditions the maximum permissible airspeed to meet bird strike requirements is 280 KIAS up to 8000 ft.

Following an airplane ground soak at temperatures below -10° C, the windscreen heat should be operative and selected ON for a minimum of 5 minutes prior to takeoff in ambient temperatures of below -10° C and for a minimum of 15 minutes prior to takeoff when ambient temperatures are below -20° C.

If the minimum times for windscreen heat operation have not been achieved or in the case of windscreen heat failure followed by flight in ambient temperature below -10° C, the maximum permissible airspeed is 257 KIAS up to 8000 ft.

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# TEMPORARY CHANGE

**P/N 140-590032-0005TC13**

| | |
|---|---|
| **PUBLICATION AFFECTED:** | FAA Approved Airplane Flight Manual, P/N 140-590032-0005, Dated Nov 30, 2001, or later revision for Hawker 800XP airplanes equipped with Pro Line 21 avionics. |
| **AIRPLANE SERIAL NUMBERS AFFECTED:** | Hawker 800XP 258541, 258556, 258567 and After. |
| **DESCRIPTION OF CHANGE:** | Addition of ditching information and procedures. |
| **FILING INSTRUCTIONS:** | Insert this Temporary Change Page 1 of 1 to face Page 25 in Section 2 - LIMITATIONS. |

## SECTION 2 - LIMITATIONS

## MISCELLANEOUS LIMITATIONS

***Read the following information as an addition to Section 2:***

**Ditching**

After ditching, do not open the main cabin door.

Approved By: .....

Margaret Kline, Manager
Aircraft Certification Office
Federal Aviation Administration
Wichita, Kansas
USA

Approval Date: 3/14/05

## MISCELLANEOUS LIMITATIONS

### Air Brakes

In flight, the air brakes must not be operated when the flaps are extended to any position.

### Cabin Emergency Overwing Exit

The internal cabin emergency overwing exit locking pin, if installed, must be removed and stowed before each flight.

### Cabin High Datum

Cabin High Datum shall only be selected when operating into airfields greater than 9000 ft elevation.

### Crew Seats

Both crew seats shall be locked in position during takeoff and landing. When installed and in use, the 3rd crew member seat shall be locked in position; when not in use, it shall be folded and stowed or removed from the airplane.

### Inter-compartment Door

When a door is provided between the crew and passenger compartments, it shall be secured in the open position during takeoff and landing.

### Lift Dump

Lift dump is to be used only when the airplane is on the ground.

### Maneuvering Load Factor Limitations

Operation is limited to normal flying maneuvers and aerobatic maneuvers are not permitted.

The maximum accelerations (i.e. load factors) for which the structure is approved are 2.0g with flaps extended and 2.73g with flaps fully retracted.

Maneuvers exceeding these values can cause permanent distortion of the structure and must be avoided.

### Minimum Flight Crew

The minimum crew is two pilots.

### Nosewheel Tires

The airplane must be installed with chined nosewheel tires.

### Number of Occupants

The total number of persons carried shall not exceed 17 nor that for which approved seating accommodation is provided.

### Pressure Cabin

The cabin shall not be pressurized during takeoff and landing. Maximum pressure differential for normal operations is 8.55 $lb/in^2$.

*NOTE: The safety valve is set to operate between 8.6 to 8.8 $lb/in^2$ (59.3 to 60.7 kPa).*

### Rudder Bias

The rudder bias switches must be ON and the systems operative during each takeoff.

**Smoking**

When the airplane is being operated in the Transport Category (Passenger), smoking in the toilet compartment is prohibited.

Placards summarizing this limitation shall be provided inside and outside each toilet and shall not be obscured.

**System Gage Markings**

Red Arc/Red Radial..... Maximum or minimum limit.

Yellow Arc ..... Cautionary range permissible for short duration or in special circumstances - refer to individual limitations.

**Weather Radar**

Do not use the weather radar in the vicinity of ground personnel. A hazardous area extends up to 2 feet in front of the radar dish.

**Wheel Brakes**

*NOTE: If any of the wheels' fusible plugs blow, the brakes must be inspected and certified serviceable before the next takeoff.*

After the airplane has made a normal landing or a stop from a rejected takeoff, a waiting period should be established to make sure the brakes are both sufficiently cool and in a serviceable condition for a further rejected takeoff (critical case).

*After Rejected Takeoff*

Required period from completion of taxi-in following a rejected takeoff from a speed of 90 KIAS or less, to before start of taxi-out for takeoff.

After a single rejected takeoff .....25 minutes

After two or more successive rejected takeoffs .....45 minutes

If the rejected takeoff is made from a speed greater than 90 KIAS, the brakes must be inspected and certified to be serviceable before the next takeoff.

*After Normal Landing*

The required waiting period from completion of taxi-in from landing to before start of taxi-out for takeoff is 5 minutes, except when the take-off weight exceeds the values given in Table 1.

When the weight exceeds these values, a period of 30 minutes must be allowed. The table is based on still air and a downhill slope not exceeding 1/2%.

Corrections for more adverse conditions are given in the *NOTES* below Table 1.

**Table 1 - Take-off Weights for Wheel Brakes Waiting Period**

| Field Pressure Altitude ft | Temperature °C | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | -20 | -10 | 0 | 10 | 20 | 30 | 40 | 50 |
| | Take-off Weight | | | | | | | |
| 14,000 | 21,100 lb 9570 kg | 20,500 lb 9298 kg | 20,000 lb 9071 kg | 19,500 lb 8845 kg | 19,300 lb 8754 kg | 19,100 lb 8663 kg | | |
| 13,000 | 21,600 lb 9797 kg | 21,000 lb 9525 kg | 20,400 lb 9253 kg | 19,900 lb 9026 kg | 19,700 lb 8935 kg | 19,500 lb 8845 kg | | |
| 12,000 | 22,100 lb 10,014 kg | 21,500 lb 9752 kg | 20,900 lb 9480 kg | 20,400 lb 9253 kg | 20,000 lb 9071 kg | 19,900 lb 9026 kg | | |
| 11,000 | 22,600 lb 10,251 kg | 22,000 lb 9979 kg | 21,400 lb 9706 kg | 20,900 lb 9480 kg | 20,400 lb 9253 kg | 20,300 lb 9208 kg | | |
| 10,000 | 23,100 lb 10,478 kg | 22,500 lb 10,205 kg | 21,900 lb 9933 kg | 21,300 lb 9661 kg | 20,800 lb 9434 kg | 20,600 lb 9344 kg | | |
| 9000 | 23,800 lb 10,795 kg | 23,100 lb 10,478 kg | 22,400 lb 10,160 kg | 21,800 lb 9888 kg | 21,200 lb 9616 kg | 21,000 lb 9525 kg | 21,000 lb 9525 kg | |
| 8000 | 24,500 lb 11,113 kg | 23,700 lb 10,750 kg | 22,900 lb 10,387 kg | 22,300 lb 10,115 kg | 21,700 lb 9843 kg | 21,400 lb 9706 kg | 21,300 lb 9661 kg | |
| 7000 | 25,100 lb 11,385 kg | 24,400 lb 11,067 kg | 23,500 lb 10,659 kg | 22,900 lb 10,387 kg | 22,200 lb 10,069 kg | 21,700 lb 9843 kg | 21,700 lb 9843 kg | |
| 6000 | 25,600 lb 11,612 kg | 25,000 lb 11,339 kg | 24,000 lb 10,886 kg | 23,500 lb 10,659 kg | 22,700 lb 10,296 kg | 22,000 lb 9979 kg | 22,000 lb 9979 kg | |
| 5000 | 26,300 lb 11,929 kg | 25,600 lb 11,612 kg | 24,800 lb 11,249 kg | 24,200 lb 10,977 kg | 23,400 lb 10,614 kg | 22,700 lb 10,296 kg | 22,400 lb 10,160 kg | |
| 4000 | 27,000 lb 12,247 kg | 26,200 lb 11,884 kg | 25,500 lb 11,566 kg | 24,900 lb 11,294 kg | 24,100 lb 10,931 kg | 23,200 lb 10,523 kg | 22,800 lb 10,342 kg | 22,800 lb 10,342 kg |
| 3000 | 27,600 lb 12,519 kg | 26,800 lb 12,156 kg | 26,100 lb 11,838 kg | 25,500 lb 11,566 kg | 24,700 lb 11,203 kg | 23,900 lb 10,840 kg | 23,200 lb 10,523 kg | 23,200 lb 10,523 kg |
| 2000 | 28,000 lb 12,700 kg | 27,500 lb 12,473 kg | 26,700 lb 12,111 kg | 26,000 lb 11,793 kg | 25,400 lb 11,521 kg | 24,500 lb 11,113 kg | 23,700 lb 10,750 kg | 23,600 lb 10,704 kg |
| 1000 | 28,000 lb 12,700 kg | 28,000 lb 12,700 kg | 27,300 lb 12,383 kg | 26,700 lb 12,111 kg | 26,000 lb 11,793 kg | 25,200 lb 11,430 kg | 24,300 lb 11,022 kg | 23,900 lb 10,840 kg |
| Sea Level | 28,000 lb 12,700 kg | 28,000 lb 12,700 kg | 28,000 lb 12,700 kg | 27,300 lb 12,383 kg | 26,600 lb 12,065 kg | 25,800 lb 11,702 kg | 24,900 lb 11,294 kg | 24,300 lb 11,022 kg |

*NOTES:*

1. *In 1 - 5 knot tailwind subtract 1500 lb (680 kg).*
2. *In 6 - 10 knots tailwind subtract 3000 lb (1360 kg).*
3. *If the downhill slope exceeds 1/2%, subtract 250 lb (113 kg).*
4. *Take-off weight as limited by climb requirements may be more restrictive when operating in shaded areas.*
5. *Performance appropriate to sea level shall be used when the field pressure altitude is below sea level.*