

Gulfstream FLIGHT OPS

Operations Briefing

Pavement Weight Bearing Capacity (ACN/PCN)

05202020
Scope: All Aircraft
Briefing Owner: Flight Operations

All Aircraft | Pavement Weight Bearing Capacity

Executive Summary

If you have a question regarding Airport Classification Number (ACN) and Pavement Classification Number (PCN), reference the following sources:

- **Mid Cabin Aircraft:** QRH: Supplemental Data
- **GIV & GV:** QRH : Performance -> Landing Planning
- **G450/G550/G650:** Performance Handbook -> Landing Planning
- **GVII-G500/G600 :** Operating Manual >Supplemental Data

Once you have established your aircraft classification number, Gulfstream recommends you contact your flight plan provider as well as the appropriate airport authority/manager for an updated accurate advertised Pavement Classification Number as well as the latest assessment of permissible movement areas.

The PCN is calculated using the verbiage "unrestricted operations." While it has obviously a calculation of pavement strength, it also is derived to extend the life of the runway environment. While PCNs are published for repeated use, a one-time event (one takeoff/one landing) should be acceptable with the appropriate authorizations. *Caution must be given as PCN does not usually apply to taxiways or ramps and only within 50 feet of runway centerline.* When ACN/PCN is close, make sure to inquire from the airport manager about all movement areas, paying particular attention to the taxiways and ramp areas due to the runway PCN not always guaranteeing the taxiways.

Gulfstream

All Aircraft | Pavement Weight Bearing Capacity

Executive Summary (continued)

Keep in mind that even when obtaining the airport manager's approval for an exemption for operation, stay alert to the fact that the real concern is the weight bearing capability of the ramp and taxiways, as it is undoubtedly lower than the runway surface itself. Even with an exemption, tight turns and prolonged duration on the ramp would not help the situation.

If the airport you are operating into has a small number PCN, it may be prudent to acquire a copy of the engineering runway analysis, as well as an explanation as to why the PCN is valued so low. While the average PCN may be acceptable in many cases, some airport movement areas may contain weaker pavement, and as such a smaller PCN is published.

Your flight plan provider and the airport authority will also be able to help you establish confirmed prior aircraft type operated into and out of that particular airfield and whether operators are using surrounding airports for tech stop purposes to add additional fuel for the departure enabling lighter weights at the lower PCN airfield. Heavier weight aircraft historical value and confirming known design value for the runway from the airport manager will assist in making the decision. If there is any doubt, conservatism should always trump and operation should be avoided.

If you still require assistance, please forward your question via the submit your question in the appropriate aircraft section and our team of pilot advocates will be happy to provide further guidance to your situation.

Gulfstream

All Aircraft | Pavement Weight Bearing Capacity

Background Briefing

This briefing addresses the two most common forms of pavement weight bearing capacity metrics. A brief, top-level overview of weight bearing capacity is discussed. Where to find such data and how to conduct a pavement analysis follows. Additional factors are discussed at the conclusion.

What are the two most common ways to determine pavement weight bearing capacity?

- **Wheel Weight Bearing Limits (commonly used in the United States).**
- **ACN/PCN (ICAO Standard)**

All Aircraft | Pavement Weight Bearing Capacity

WISE

LONESOME PINE (LNP)(KLPN) 3 NE UTC-5(-4DT) N36°59.25' W82°31.80'

2684 B FUEL 100LL, JET A NOTAM FILE LNP

RWY 06-24: H5280X100 (ASPH-GRVD) S-42, D-55, 2D-100 MIRL

0.3% up NE

RWY 06: REIL. PAPI(P2L)—GA 3.0° TCH 34'. Trees.

RWY 24: ODALS (NSTD) REIL. PAPI(P2R)—GA 3.0° TCH 36'. Trees.

AIRPORT REMARKS: Attended Mon-Sat 1400-2300Z, unattended Sun. \$50

after hrs fee for fuel 276-328-9089. Wildlife on invof arpt. Rwy

06-24—three inch gradual dip starting 2000 ft from thld Rwy 24

continuing for 300 ft. Rwy 24 NSTD ODALS, 5 lgt configuration.

ACTIVATE MIRL Rwy 06-24, ODALS Rwy 24 and REIL Rwy 06 and

Rwy 24—CTAF.

AIRPORT MANAGER: 276-328-5300

WEATHER DATA SOURCES: AWOS-3 118.6 (276) 328-3727.

COMMUNICATIONS: CTAF/UNICOM 123.0

® INDIANAPOLIS CENTER APP/DEP CON 126.57

RADIO AIDS TO NAVIGATION: NOTAM FILE DCA.

GLADE SPRING (L) VOR/DME 110.2 118.6 (276) 328-3727.

W82°04.74' 296° 23.8 NM to fld. 4200/2W. HIWAS.

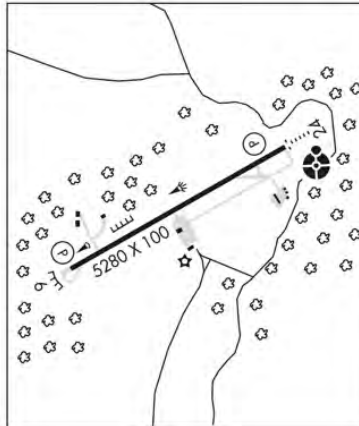
VOR portion unusable:

351°-004° byd 15 NM blo 8,000'

ILS/DME 110.7 I-OWN Chan 44 Rwy 24. LOC/DME unmonitored

when arpt unatndd.

CINCINNATI
H-9B, 12H, L-26H
IAP



Wheel Weight Bearing Limits

- FAA Wheel Weight Bearing Limits specify a maximum aircraft weight based on the number of wheels that the aircraft rests upon.
- This data is available in the Airport/Facility Directory.
- Add “000” to the numerical figure.
- It is imperative to emphasize that, per the FAA, this is based on total aircraft weight, **not weight per wheel.**

CURRENT	NEW	NEW DESCRIPTION
S	S	Single wheel type landing gear (DC3), (C47), (F15), etc.
D	D	Dual wheel type landing gear (BE1900), (B737), (A319), etc.
T	D	Dual wheel type landing gear (P3, C9).
ST	2S	Two single wheels in tandem type landing gear (C130).
TRT	2T	Two triple wheels in tandem type landing gear (C17), etc.
DT	2D	Two dual wheels in tandem type landing gear (B707), etc.
TT	2D	Two dual wheels in tandem type landing gear (B757, KC135).
SBT	2D/D1	Two dual wheels in tandem/dual wheel body gear type landing gear (KC10).
None	2D/2D1	Two dual wheels in tandem/two dual wheels in tandem body gear type landing gear (A340-600).
DDT	2D/2D2	Two dual wheels in tandem/two dual wheels in double tandem body gear type landing gear (B747, E4).
TTT	3D	Three dual wheels in tandem type landing gear (B777), etc.
TT	D2	Dual wheel gear two struts per side main gear type landing gear (B52).
TDT	C5	Complex dual wheel and quadruple wheel combination landing gear (C5).

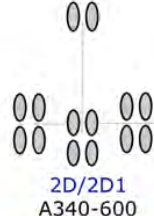
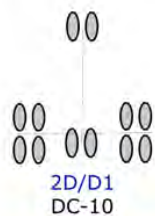
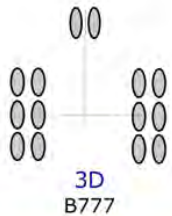
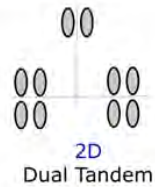
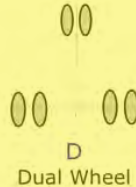
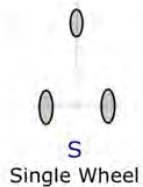
FAA Airport/Facility Directory Front Matter

Gulfstream

All Aircraft | Pavement Weight Bearing Capacity

Graphical Wheel Description (Examples)

Chapter 3 - Pavement Design -- Examples

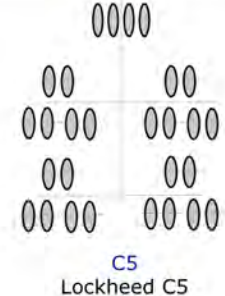
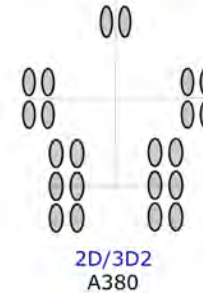
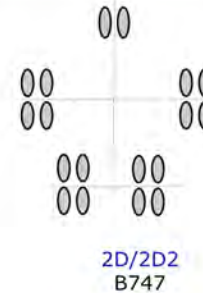


AC 150/5320-6E and FAARFIELD
March 2008



Federal Aviation
Administration

Chapter 3 - Pavement Design -- Examples



AC 150/5320-6E and FAARFIELD
March 2008



Federal Aviation
Administration

All Aircraft | Pavement Weight Bearing Capacity

EAST HAMPTON (HTO)(KHTO) 3 W UTC-5(-4DT) N40°57.57' W72°15.10'
55 B S4 FUEL 100LL, JET A TPA—See Remarks NOTAM FILE HTO
RWY 10-28: H4255X100 (ASPH-GRVD) S-60 MIRL 0.6% up W
RWY 10: REIL. PAPI(P2L)—GA 3.3° TCH 49'. Trees.
RWY 28: REIL. PAPI(P2R)—GA 3.0° TCH 54'. Pole.
RWY 16-34: H2060X75 (ASPH) S-8 0.6% up NW
RWY 16: Road.
RWY 34: Trees.

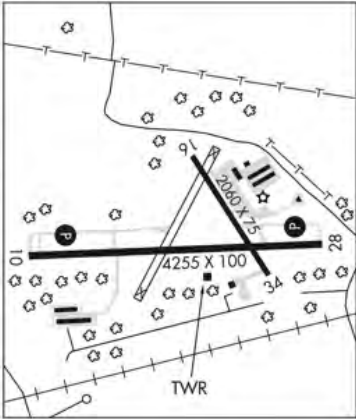
AIRPORT REMARKS: Attended continuously. Deer on and invof arpt. Rwy 16-34 cracked with vegetation growing through, standing water. NS ABTMT procedures in effect ctc arpt management for details at 631-537-1130. TPA—1000, jets—1500. Rwy 10 VGSI and RNAV glidepath not coincident. Ctl twr opr at arpt from May 23 thru Sept 14 (other times by NOTAM.) ACTIVATE MIRL Rwy 10-28, PAPI Rwy 10, PAPI Rwy 28, REIL Rwy 10, REIL Rwy 28—CTAF (PAPI and REIL 7 clicks CTAF). Ldg fee for all tran acct to include touch and go ops.

AIRPORT MANAGER: 631-537-1130
COMMUNICATIONS: CTAF 125.225
HAMPTON RCO 122.1R 113.6T 122.6 (NEW YORK RADIO)
NEW YORK APP/DEP CON 125.975 CLNC DEL 118.95
TOWER 125.225 (1200-0100Z±) GND CON 121.9

AIRSPACE: CLASS D svc 1200-0100Z± other times CLASS G.
RADIO AIDS TO NAVIGATION: NOTAM FILE HTO.

HAMPTON (H) VORTAC 113.6 HTO Chan 83 N40°55.14' W72°19.00' 064° 3.8 NM to fld. 22/13W. HIWAS.
HIWAS OTS indef
DME portion unusable:
280°-325° byd 35 NM blo 1,700'
325°-355° byd 30 NM blo 2,000'
TACAN AZIMUTH unusable:
280°-325° byd 35 NM blo 1,700'
325°-355° byd 30 NM blo 2,000'
VOR unusable:
055°-100° byd 22 NM
221°-231° blo 6,000'

NEW YORK COPTER
L-33C, 34I
IAP



What if the A/FD only includes information pertaining to a single-wheel gear configuration?

- Call the airport authority. They may have additional information.
- Most Gulfstream aircraft have a “Equivalent Single Wheel Loading (ESWL)” table. The G280 may have this information in the near future.

Performance Handbook

Gulfstream G450

G450 Equivalent Single Wheel Loading (ESWL)

OM 06-05-90

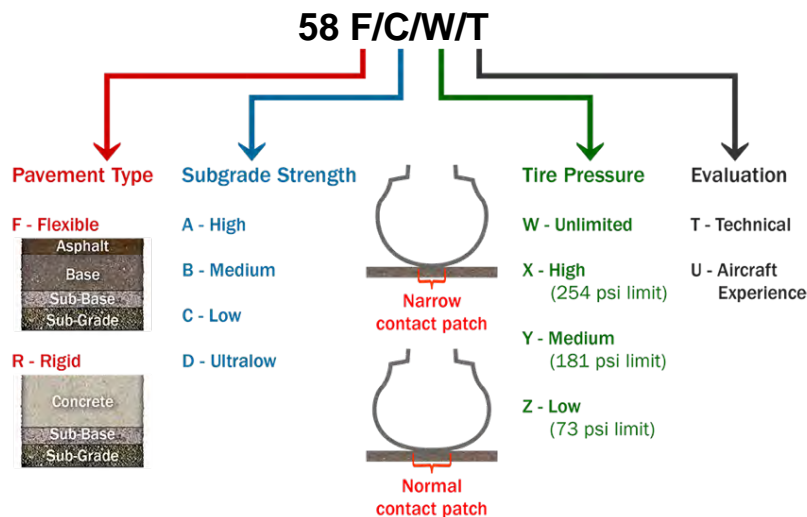
All Aircraft | Pavement Weight Bearing Capacity

ITHACA TOMPKINS RGNL (ITH)(KITH) 3 NE UTC-5(-4DT) N42°29.48' W76°27.52'	
1099 B S4 FUEL 100LL, JET A Class I, ARFF Index B	NOTAM FILE ITH
RWY 14-32: H6977X150 (ASPH-GRVD) S-100, D-192, 2S-114, 2D-574, 2D/2D2-1044 <u>PCN 58 F/C/W/T</u> HIRL 0.3% up SE	
RWY 14: PAPI(P4L)—GA 3.0° TCH 50'.	
RWY 32: MALSR. PAPI(P4L)—GA 3.2° TCH 53'. Trees.	

FAA Airport/Facility Directory

What is PCN?

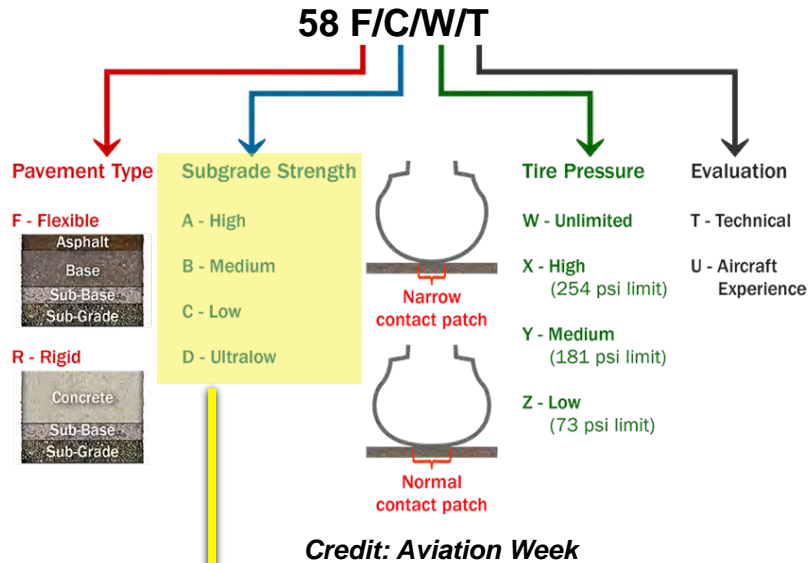
- Pavement Classification Number (PCN):** Single unique number to express the load-carrying capacity of a pavement, without specifying a particular airplane or pavement structure.



Credit: Aviation Week

- As shown in the graphic, tire pressure also affects the amount of force applied to a given portion of the pavement. This will be addressed later.

All Aircraft | Pavement Weight Bearing Capacity



What is PCN (continued)?

- Subgrade strength can be translated into **California Bearing Ratio (CBR)**, which is the ICAO-preferred unit.
- It can also be translated into a K-value.
- Many of these terms are present in Gulfstream performance guidance.

Subgrade Strength	CBR Value	K-Value
A	15	150
B	10	80
C	6	40
D	3	20

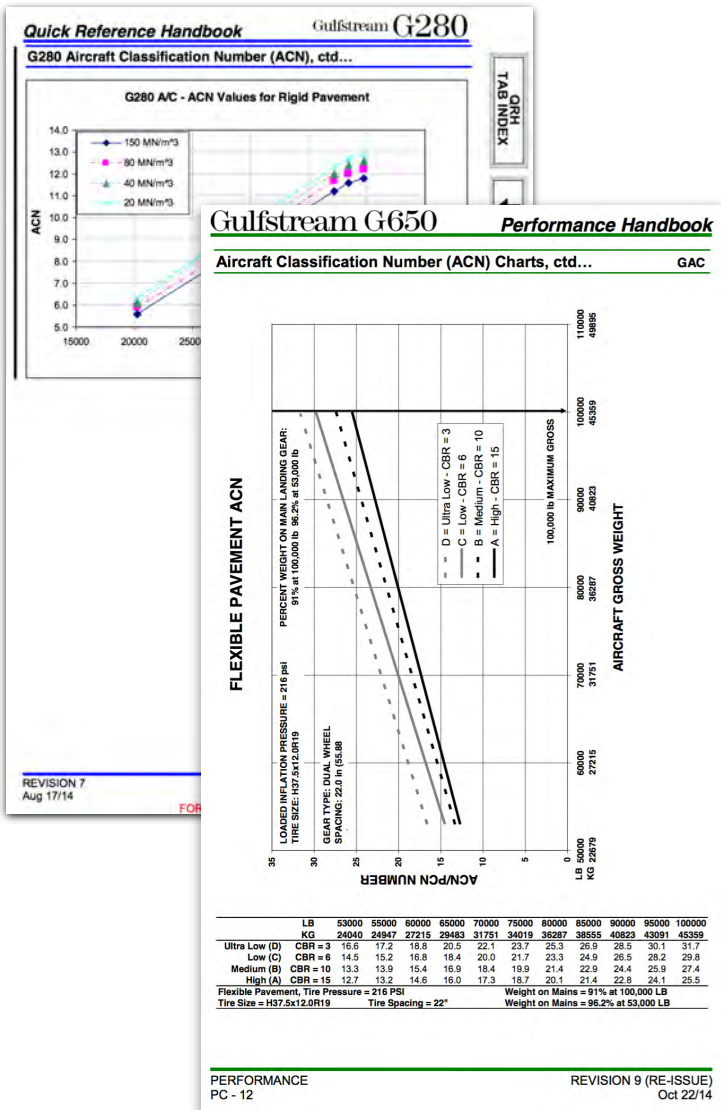
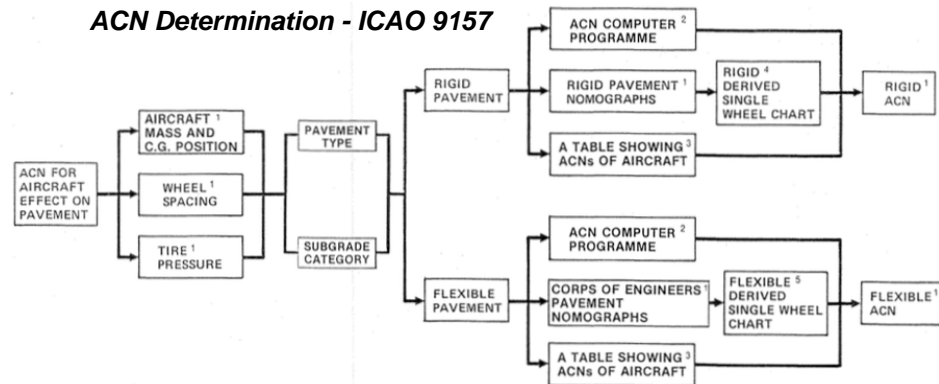
All Aircraft | Pavement Weight Bearing Capacity

What is ACN?

- Aircraft Classification Number (ACN): Single unique number to express effect of an individual airplane on *different pavements*.

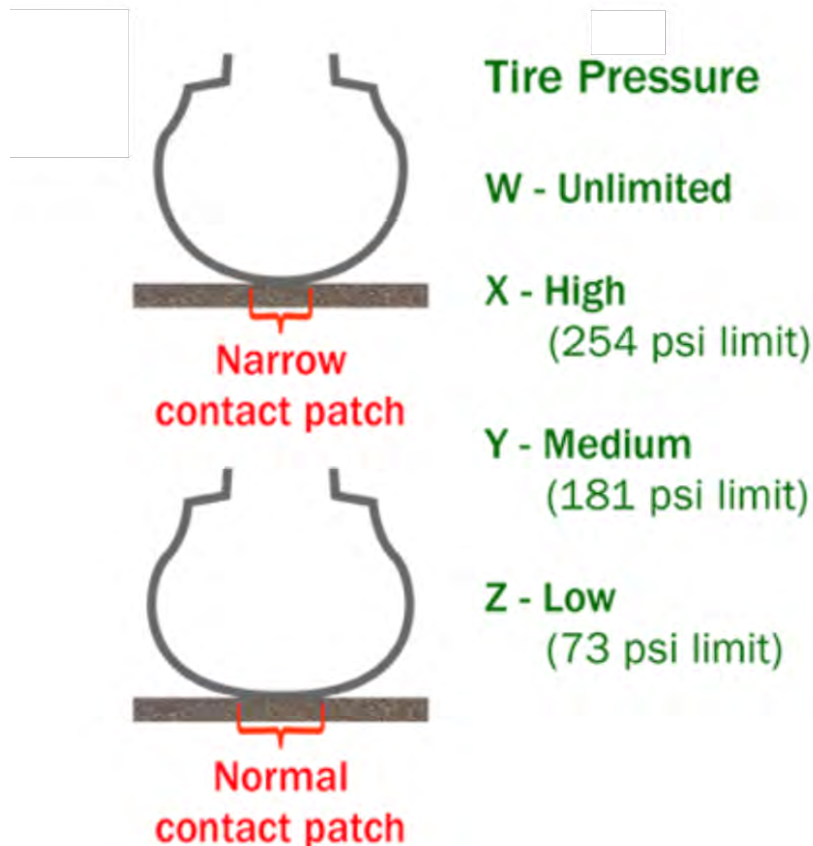
Generally, ACN must be less than or equal to PCN. Exceptions are discussed in the executive summary.

ACN Determination - ICAO 9157



All Aircraft | Pavement Weight Bearing Capacity

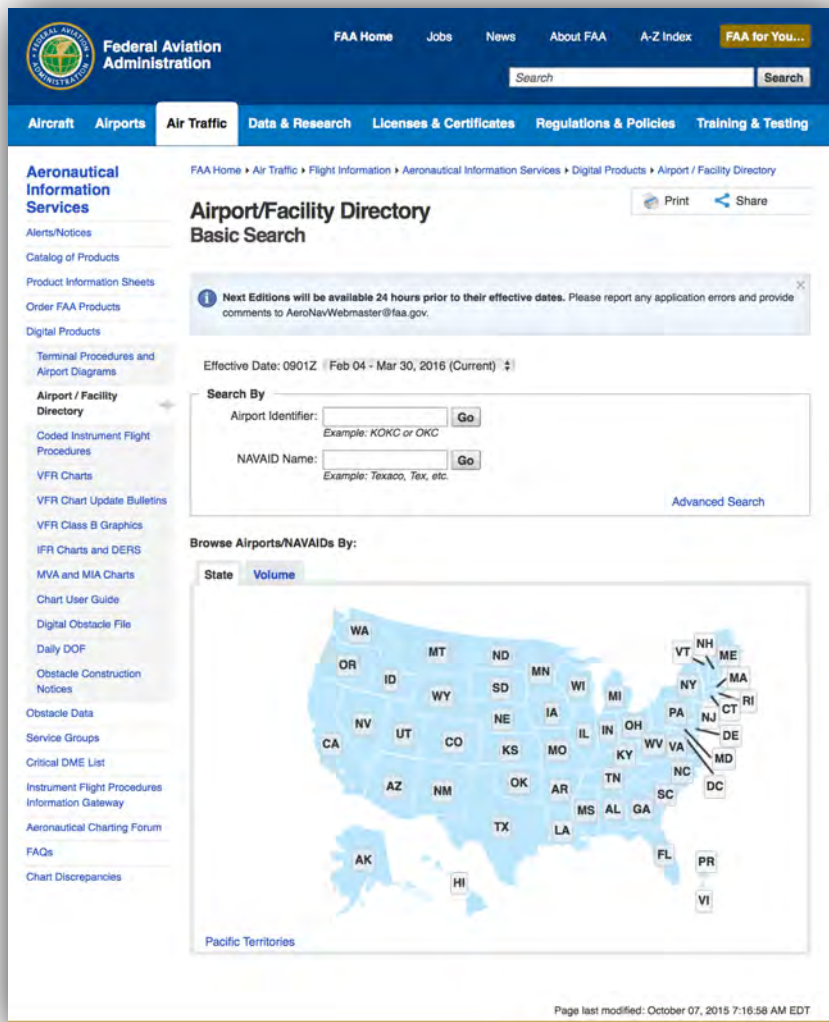
Tire Pressure



- Tire pressure effects effects the amount of contact a wheel has with a surface, thereby affecting how much weight a given amount of pavement is exposed to. Maximum pressure limits are assigned to pavement to ensure that a minimum amount of contact is provided.
- The codes and numbers in the graphic to the left are updated to reflect new ICAO standards, whereas the codes/numbers in Gulfstream publications reflect older standards (including a “very low” rating).
- *Due to further aircraft weight restrictions when lowering tire pressures, lowering tire pressure is not a recommended method for normal operations to meet a desired PCN and will not be addressed in this briefing.*

Gulfstream

All Aircraft | Pavement Weight Bearing Capacity



The screenshot displays the FAA's Airport/Facility Directory (A/FD) website. The top navigation bar includes links for FAA Home, Jobs, News, About FAA, A-Z Index, and FAA for You... A search bar is located in the top right. The main navigation menu includes Aircraft, Airports, Air Traffic, Data & Research, Licenses & Certificates, Regulations & Policies, and Training & Testing. The left sidebar lists various aeronautical information services. The main content area is titled 'Airport/Facility Directory Basic Search' and includes a search form with fields for 'Airport Identifier' (with an example 'KOKC or OKC') and 'NAVAID Name' (with an example 'Texaco, Tex, etc.'). Below the search form is a map of the United States with state abbreviations, and a 'Browse Airports/NAVAIDs By:' section with tabs for 'State' and 'Volume'. A footer note indicates the page was last modified on October 07, 2015.

Click image to access website

Where can I access PCN/Runway Weight Bearing information for US Airports?

- The Airport/Facility Directory (A/FD) is a good source for this information.

Gulfstream

All Aircraft | Pavement Weight Bearing Capacity



Where can I find PCN/Runway Weight Bearing information for International Airports?

Examples include:

- The Jeppesen Airport Directory, much like the FAA A/FD, contains PCN information.
- AC-U-KWIK also contains this data.
- NOTE: if wheel weight bearing capacity is listed in lieu of PCN for international airports, weights may be *per wheel*, not total aircraft weight (opposite of FAA numbers).

Gulfstream

All Aircraft | Pavement Weight Bearing Capacity

MID CABIN (G280) EXAMPLE

Quick Reference Handbook

Gulfstream G280

G280 Aircraft Classification Number (ACN)

Aircraft Classification Number (ACN) is a number expressing the relative effect of an aircraft on a pavement for a specified subgrade category. ACN values are calculated for both flexible and rigid pavement. If the aircraft gross weight and runway subgrade strength are known, the ACN value can be determined from the charts on the following pages.

General Data:

Main Tire Size: 26 x 6.6R14
 Main Tire Pressure: 203 psi (loaded), 195 psi (unloaded)
 Main Gear Wheels Configuration: Dual Wheel
 Main Wheel spacing: 375 mm

Percent Load on Gear Legs: See the attached tables. This input varies with the A/C weight, as the Aft C.G. is not constant. This is why the curves showing the ACN versus A/C weight are not linear.

Flexible Pavement - ACN

Aircraft Weight (lb) C.G. Location (%mac) % Reaction on MLG		Subgrade			
		High (CBR 15)	Medium (CBR 10)	Low (CBR 6)	Ultra Low (CBR 3)
Max Ramp Weight	39750 36.7%mac 90.0%	9.6	10.3	11.4	12.3
	38400 40.4%mac 92.0%	9.5	10.1	11.2	12.1
	37200 41.4%mac 92.4%	9.2	9.8	10.8	11.7
	28000 45.6%mac 94.0%	6.7	7.0	7.8	8.7
Min Operating Weight	20300 45.6%mac 94.2%	4.6	4.8	5.2	6.0

REVISION 7
Aug 17/14

SUPPLEMENTAL DATA
Page S-21

FOR TRAINING PURPOSES ONLY

QRH
TAB INDEX

BACK

FORWARD

PAGE UP

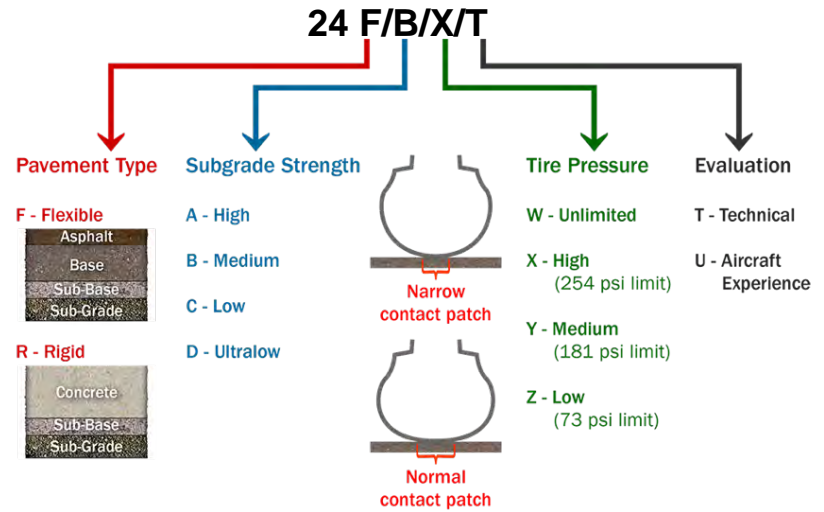
PAGE DOWN

CB

EVAC.

Example: Lake Placid, NY

• PCN: 24 F/B/X/T



Credit: Aviation Week

Note that the %MAC is at its rearward extreme, thereby placing the most weight possible on the main gear (92.4%). This is the most limiting condition. All Gulfstream ACNs are determined using this conservative methodology.



Entire weight band acceptable for PCN

Gulfstream

All Aircraft | Pavement Weight Bearing Capacity

LARGE CABIN (G650) EXAMPLE - PCN

96 CALIFORNIA

CARLSBAD

MC CLELLAN-PALOMAR (CRQ)(KCRQ) 3 SE UTC-8(-7DT) N33°07.70' W117°16.81' LOS ANGELES L-4H IAP, AD

331 B S4 FUEL 100LL, JET A OX 3, 4 TPA—See Remarks Class I, ARFF Index A

NOTAM FILE CRQ

RWY 06-24: H4897X150 (ASPH-GRVD) S-60, D-80, 2S-102, 2D-110
PCN 33 F/D/X/T HIRL

RWY 06: PAPI(P4L)—GA 3.0° TCH 35'. Thld dspld 297'.
RWY 24: MALSR. REIL. PAPI(P4L)—GA 3.2° TCH 54'. Rgt tfc.

RUNWAY DECLARED DISTANCE INFORMATION

RWY 06: TORA-4897 TODA-4897 ASDA-4897 LDA-4600
RWY 24: TORA-4897 TODA-4897 ASDA-4897 LDA-4897

AIRPORT REMARKS: Attended 1500-0600Z±. Rwy 24 hard to see two hrs prior to SS. Do not mistake S twy as rwy. Extensive bird activity in vicinity especially in spring. P-lines 2 miles W & SW. CLOSED to air carrier ops with more than 9 passenger seats from 0630Z± to 1400Z± except by PPR call arpt manager 760-431-4646. PPR for all military acft call arpt manager 760-431-4646. TPA—1003(672) helicopters, 1503(1172) small acft, 2003(1672) large acft. Rwy 06-24 south VFR tfc pattern clsd 0600-1500Z±. No jet acft training due to noise abatement and traffic congestion. Multiple apchs by large acft (including large helicopters) not authorized. All acft multiple practice apch and ldgs discourage 0600-1500Z±. Voluntary curfew, jets 0600-1500Z±, props 0800-1400Z±, emerg, lifeguard and law enforcement excepted. RVR touchdown Rwy 24 avbl. Rwy 24 is calm wind rwy. Arpt has noise abatement procedures ctc arpt manager 760-431-4646. Request jets fly the ILS apch. North side ramp limited to 12,500 lbs. Limited transient tie down space on public ramp. When twr clsd ACTIVATE HIRL Rwy 06-24, PAPI Rwy 06 and Rwy 24, REIL Rwy 24, MALSR Rwy 24—CTAF. U.S. Customs User Fee Arpt, ctc 877-848-7766.

AIRPORT MANAGER: 760-966-3272

WEATHER DATA SOURCES: ASOS (760) 930-0864 LAWRs.

COMMUNICATIONS: CTAF 118.6 ATIS 120.15 (760-438-2117)
OCEANSIDE RCO 115.3 T 122.1R (SAN DIEGO RADIO)

® SOCIAL APP/DEP CON 127.3


TOWER 118.6 (1500-0600Z±) GND CON 121.8
CLNC DEL 134.85 For clnc del when ATCT clsd call SOCIAL APP (800) 448-3724.

AIRSPACE: CLASS D svc 1500-0600Z± other times CLASS G.

RADIO AIDS TO NAVIGATION: NOTAM FILE CRQ.

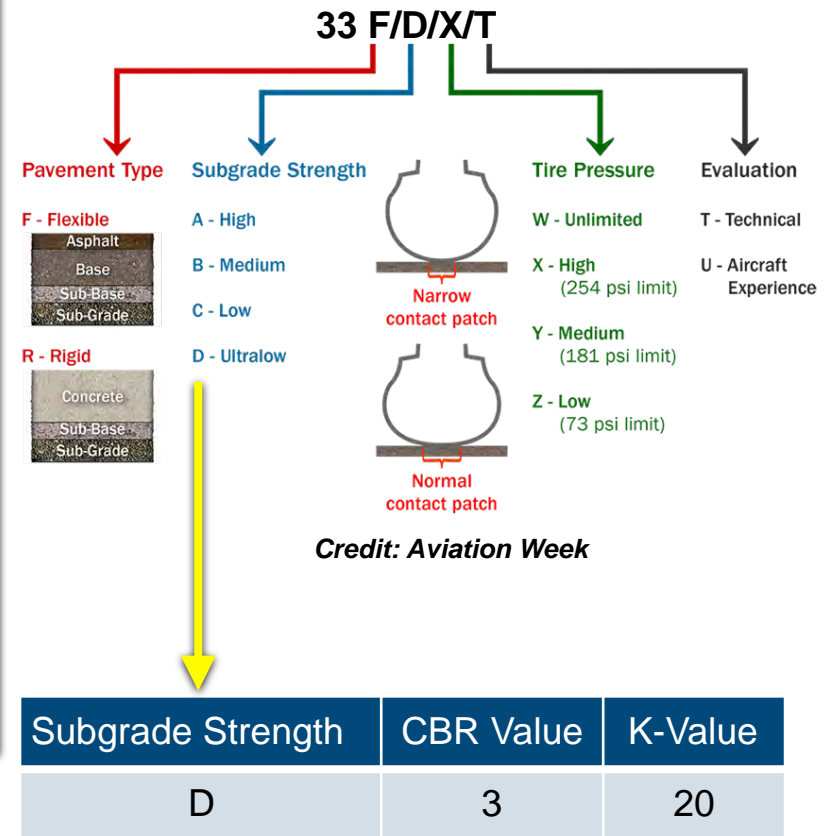
OCEANSIDE (H) VORTAC 115.3 OCN Chan 100 N33°14.44' W117°25.06' 119° 9.7 NM to fld. 52/15E.
VOR portion unusable:
227°-265° byd 20 NM

ILS/DME 108.7 I-CRQ Chan 24 Rwy 24. Unmonitored when ATCT clsd. Autopilot coupled approaches na below 960' MSL.



Example: Carlsbad, CA

• PCN: 33 F/D/X/T

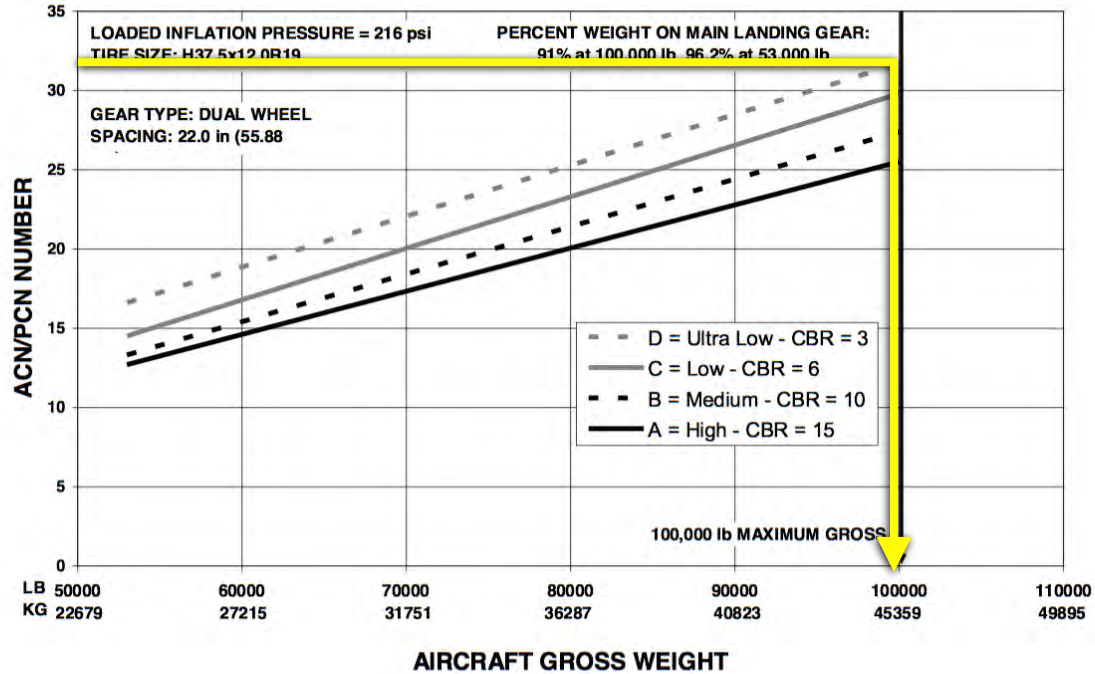


All Aircraft | Pavement Weight Bearing Capacity

LARGE CABIN EXAMPLE (G650) PCN

Gulfstream G650 *Performance Handbook*
 Aircraft Classification Number (ACN) Charts, ctd... **GAC**

FLEXIBLE PAVEMENT ACN



Entire weight band acceptable for PCN

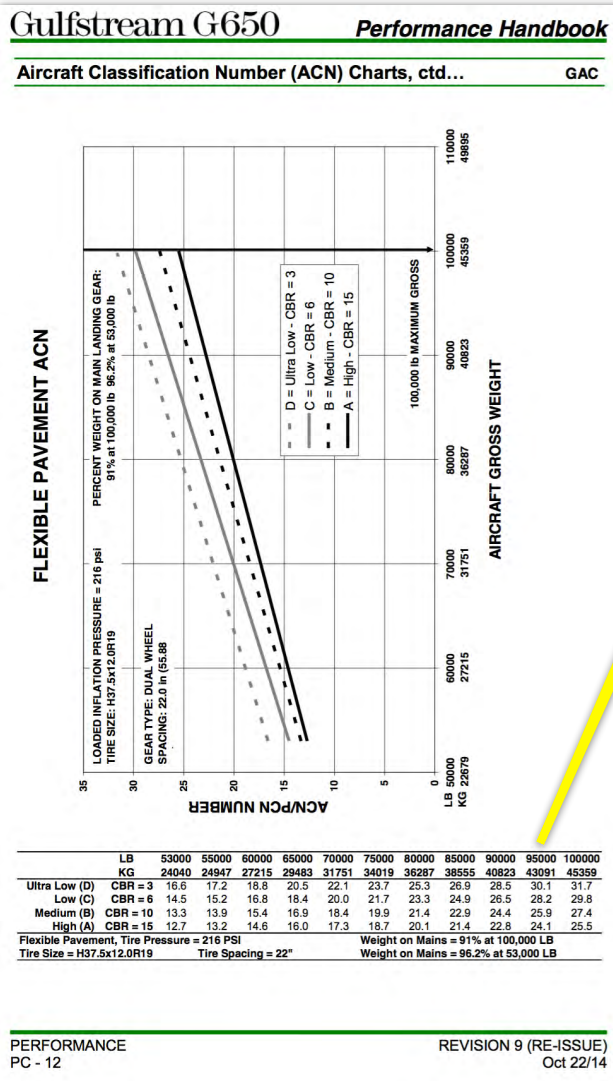
LB	53000	55000	60000	65000	70000	75000	80000	85000	90000	95000	100000
Ultra Low (D) CBR = 3	24040	24947	27215	29483	31751	34019	36287	38555	40823	43091	45359
Low (C) CBR = 6	16.6	17.2	18.8	20.5	22.1	23.7	25.3	26.9	28.5	30.1	31.7
Medium (B) CBR = 10	14.5	15.2	16.8	18.4	20.0	21.7	23.3	24.9	26.5	28.2	29.8
High (A) CBR = 15	13.3	13.9	15.4	16.9	18.4	19.9	21.4	22.9	24.4	25.9	27.4
Flexible Pavement, Tire Pressure = 216 PSI	13.2	13.2	14.6	16.0	17.3	18.7	20.1	21.4	22.8	24.1	25.5
Tire Size = H37.5x12.0R19	Tire Spacing = 22"		Weight on Mains = 91% at 100,000 LB Weight on Mains = 96.2% at 53,000 LB								

PERFORMANCE
PC - 12

REVISION 9 (RE-ISSUE)
Oct 22/14

All Aircraft | Pavement Weight Bearing Capacity

LARGE CABIN (G650) EXAMPLE - PCN



	LB	53000	55000	60000	65000	70000	75000	80000	85000	90000	95000	100000
Ultra Low (D) CBR = 3	16.6	17.2	18.8	20.5	22.1	23.7	25.3	26.9	28.5	30.1	31.7	
Low (C) CBR = 6	14.5	15.2	16.8	18.4	20.0	21.7	23.3	24.9	26.5	28.2	29.8	
Medium (B) CBR = 10	13.3	13.9	15.4	16.9	18.4	19.9	21.4	22.9	24.4	25.9	27.4	
High (A) CBR = 15	12.7	13.2	14.6	16.0	17.3	18.7	20.1	21.4	22.8	24.1	25.5	

PERFORMANCE
PC - 12

REVISION 9 (RE-ISSUE)
Oct 22/14

- As an alternative to consulting the line graph, the tables provided at the bottom of the page can be used to interpolate and find more accurate values.

All Aircraft | Pavement Weight Bearing Capacity

LARGE CABIN (G550) EXAMPLE - ESWL

VIRGINIA 345

MARION/WYTHEVILLE

MOUNTAIN EMPIRE (MKJ)(KMKJ) 9 NE UTC-5(-4DT) N36°53.69' W81°21.00' CINCINNATI
H-9B, 12H, L-261
IAP

2558 B S4 FUEL 100LL, JET A NOTAM FILE MKJ

RWY 08-26: H5252X75 (ASPH) S-20 MIRL 1.1% up W

RWY 08: REIL, PAPI(P2L)—GA 3.0° TCH 40'. Trees.

RWY 26: REIL, PAPI(P2L)—GA 3.75° TCH 47'. Road.

AIRPORT REMARKS: Attended Apr-Oct Sun 1800-2300Z†, Nov-May Mon-Sat 1300-2200Z†, Nov-May Sun 1800-2300Z†, April-Oct Mon-Sat 1300-2300Z†. After hrs ctc 276-685-1122. Rwy 26 previous markings showing through. Located 9 NM northeast Marion. MIRL Rwy 08-26 preset low ints, ACTIVATE higher ints—CTAF.

AIRPORT MANAGER: 276-783-8805

WEATHER DATA SOURCES: AWOS-3 123.875 (276) 686-6420. AWOS dp unrel.

COMMUNICATIONS: CTAF/UNICOM 122.7
 Ⓜ ATLANTA CENTER APP/DEP CON 127.85

RADIO AIDS TO NAVIGATION: NOTAM FILE PSK.

PULASKI (H) VORTAC 116.8 PSK Chan 115 N37°05.26' W80°42.77' 256° 32.7 NM to fld. 2120/6W. HIWAS.

TACAN AZIMUTH & DME unusable:
 034°-038° byd 25 NM
 135°-175° byd 25 NM blo 10,000'
 200°-225° byd 10 NM
 284°-286° byd 10 NM blo 10,000'
 287°-316° byd 25 NM blo 10,000'
 315°-335° byd 10 NM blo 10,000'
 334°-039° byd 25 NM blo 10,000'

DME unusable:
 250°-350° byd 25 NM blo 10,000'

TACAN AZIMUTH unusable:
 052°-100°
 234°-283°

SUZZE NDB (MHW/LOM) 335 MK N36°55.21' W81°14.60' 260° 5.4 NM to fld. NOTAM FILE MKJ. NDB unmonitored when arpt unatndd.

LOC 110.5 I-MKJ Rwy 26. LOM SUZZE NDB. LOC unmonitored when arpt unatndd. LOC unusable byd 15° left of course.

COMM/NAV/WEATHER REMARKS: AWOS dewpoint unreliable.

$(55,000\text{lbs}) \times (0.9) \times (0.5) / (1.25) =$

19,800lbs Equivalent Single Wheel Loading



Example: Mountain Empire, VA

- FAA Wheel Weight Bearing Limit: S-20
- Landing weight: 55,000lbs.

Performance Handbook **Gulfstream G550**

Equivalent Single Wheel Loading (ESWL) GV-GER-1212

1. Introduction:

One consideration in operating Gulfstream aircraft is the strength of runway and taxiway pavements in relation to aircraft operating weight. This can limit operational weights in some airports. One common method of evaluating an aircraft for a given runway is the Equivalent Single Wheel Loading (ESWL). ESWL accounts for the extra tire flotation for multi-wheel landing gear struts such as the dual wheel struts used on the Gulfstream aircraft. This section provides information on how to compute ESWL for the G550 and G500 airplanes.

2. G550 and G500 Main Landing Gear Parameters:

Max Ramp Weight (pounds)	MLG Tire Size (inches)	Tire Spacing (inches)	Max Tire Pressure (psi)	Reduction Factor -	Maximum ESWL (pounds)
91,400	35 X 11.0	18.5	198	1.25	32,904

The reduction factor in the table above assumes a rigid pavement with a radius of equivalent stiffness of 40 inches, roughly equivalent to a 13.5 inch thick concrete slab. Thinner pavements would give higher reduction factors, so the factors presented are conservative.

3. ESWL Computation for Lower Operating Weights:

ESWL can be computed for lower operating weights as follows:
 ESWL = (Gross Weight) x (0.9) x (0.5) / (Reduction Factor)

Gulfstream

Gulfstream FLIGHT OPS

Operations Briefing