



## ***Description of the International Civil Aviation Organization (ICAO) ACN/PCN Pavement Strength Rating System***

The following information is provided to assist operators in using the main pavement strength rating systems used at commercial airports to determine allowable operating weights.

**ACN / PCN** - In the early 1980s, ICAO and the member states (countries) agreed to adopt the ACN/PCN (Aircraft Classification Number / Pavement Classification Number) method of reporting pavement strength for airports pavements with bearing strengths greater than 12,500 pounds. Not all airports have converted to this system however with each passing year more and more are doing so. The ACN / PCN methodology takes into account variables that are not included in other methods. The PCN reports the relative bearing strength of an airport pavement and the ACN expresses the relative effect of an airplane on the pavement.

The number in the PCN string relates to the allowable weight of the aircraft. The first letter refers to (F)lexible or (R)igid pavement. The second letter relates to the bearing strength of the subgrade soil beneath the pavement. The third letter gives a range of allowable tire pressures, and the fourth letter is the evaluation method. If the fourth letter is a "T", that means that a technical evaluation of the pavement was conducted. A "U" indicates that the "Using Aircraft" method of evaluation was used. That is to say that the equivalent ACN of the highest gross weight of the largest airplane currently using the airport is reported as the pavement strength for the pavement. (The coding that is used is more fully described in Section 7 of each of the Planning manuals.)

The ACN calculation takes into account the location of the Center of Gravity (CG) of the aircraft, the tire pressure, tire size, and tire spacing for any particular aircraft. When calculating an ACN, we are required by ICAO guidelines to use the maximum aft CG at the maximum ramp weight.

If the ACN for an airplane is lower than or equal to the reported PCN for an airport pavement, the airplane can operate without weight restriction on that pavement. For example, if you have a PCN of 81/F/B/W/T and you have an ACN of 53 for a 388,000 lb 767-300ER on a flexible pavement with a B subgrade, that airplane can operate at that airport at 388,000 lbs for an unlimited number of annual operations. On the other hand, if the PCN happened to be 51, the 767-300ER could not operate at that airport at 388,000 lb for unlimited operations. It may, however, be able to operate at a lower weight or be able to operate on a limited number of operations at the higher weight. This would have to be coordinated with the airport authority.

Please refer to Section 7 – "Pavements" of the respective Airplane Characteristics for Airport Planning documents for the ACN / PCN charts and additional examples of how to calculate operating weights.