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| Nota di contenuto | Introduction -- Purpose and organization of this report -- Calculating optimum landing weight -- Boeing C-17A analysis -- Conclusions. |
| Sommario/riassunto | Aircraft operations on soft fields are limited due to field rutting. Each subsequent aircraft pass, defined as one takeoff and one landing, increases field rutting until the field reaches a point where further aircraft operations are no longer permissible. The ability of aircraft to operate on soft fields is often expressed as a function of aircraft landing weight and the California Bearing Ratio (CBR) of the field, which measures the ability the soil to resist compressive loads. Because soft fields can support only a limited number of takeoffs and landings, it is important to understand how to maximize the cargo throughput at these soft fields. This document shows that there exists an optimum landing weight that allows for maximum cargo delivery. This optimum landing weight is found to be constant and independent of field CBR. One of the three objectives of this study was to inform important analytic tradeoffs. Understanding the ability of aircraft to operate from soft fields is one of these important trade-offs. This document details the mathematical calculations used to determine the optimum landing weight that allows for maximum cargo delivery. |