February 1969

Brief 69-10041

NASA TECH BRIEF

Weight Control System

The problem:

To maintain a complete, up-to-date weights file (by effectivity) and to obtain effective weight reports and working reports to be used for weight control and reporting on any transportation vehicle program.

The solution:

The Weight Control System is a set of linked computer programs which provides weight and balance reports from magnetic tape files. It is presently used for weight control and reporting on launch vehicle programs; but, with minor format modifications, it is applicable to aerospace industries, marine industries, and automotive and other land transportation industries.

How it's done:

The program maintains a complete, up-to-date weights file (by effectivity) and obtains six effective weight reports: (1) Detail Weight Listing, (2) Uniform Weight Distribution, (3) Actual Weight, (4) Cable Assembly, (5) Required Procedure Report, (6) Weight Status Report. In addition, working reports are generated for use by a Weight Control Group or its counterpart. This is an active and workable weight control program which guarantees that the vehicle dry weight will not exceed, any specification weight and shall otherwise be compatible with performance requirements.

The weights information is supplied by sources such as engineering design, vendors, and manufacturing organizations. All information is transferred to weight control data forms, keypunched, and run against the weights master files. The data is checked by an edit program for data errors and a merge action places the new information along with the old data on two new tapes. From these tapes a program checks all unit records for the desired effectivity and writes them on one combined tape. From this resulting tape all of the formal and working reports are generated.

There are certain limitations. The weight distributions are limited to those along the X-axis. Only five mass updates can be handled in one computer run, and the part data file is limited to 36 effectivities (vehicles). However, minor modifications can increase the vehicle capacity of the system of programs.

Notes:

1. This program will be useful in weight control and quality control of vehicle construction in aerospace, marine, plus automotive and other land transportation industries.
2. The program is composed of Fortran IV and MAP subroutines and is intended for use on the IBM 7094/7044 Direct Couple System with 32K storage.
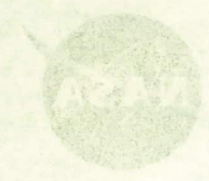3. Inquiries concerning this innovation may be directed to:

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> Athens, Georgia 30601
> Reference: B69-10041

Patent status:

No patent action is contemplated by NASA.

> Source: Alfred Dyer, Jr., Peter W. Ferrara,
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> under contract to
> Marshall Space Flight Center
> (MFS-15028)
> Category 06

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