

budget backup exhibits. Because of differences in the composition of missile procurement between fiscal year 1963 and fiscal year 1965, fiscal year 1963 data were used for the categorization as the best approximation of the calendar year 1963 distribution required for interindustry applications. Methods used for deriving SIC distributions for each of the categories shown in table 23 are described below. Since fiscal year 1963 data at the required level of detail were not available for disaggregation of many of the categories, fiscal year 1964 and fiscal year 1965 data were used.

Flyaway.—Flyaway TOA was further divided into funding for ballistic missiles (ICBM's and Polaris) and for all other missiles. Ballistic missile funding was subdivided into TOA for airframe, assembly, and checkout, guidance, propulsion, and payload. TOA for all other missiles was divided into costs for guidance, control, and airframe, propulsion, and payload. The data for these subdivisions of missile flyaway costs were from budget backup exhibits.⁴⁰⁻⁵¹

An attempt was made to assign SIC codes to products directly procured by DOD. For ballistic missiles, examination of the Minuteman program indicated that major components are procured separately by DOD and shipped to a central location to be assembled. In the case of Minuteman, Boeing as prime contractor manufactures the airframe and performs assembly and checkout of the complete missile. Associate prime contractors produce the other major components for DOD (Autonetics—guidance; Thiokol, Aerojet General, and Hercules—propulsion; AVCO—reentry vehicle). It was assumed that DOD also procured major components separately for other ballistic missiles. The following SIC code assignments for ballistic missile funding were made: Assembly and checkout (including airframe), SIC 1925; guidance, SIC 3662; propulsion, SIC 3722; and payload, SIC 3729.

For all other missiles it was assumed for coding purposes that the guidance, control, and airframe portion of missile flyaway was procured as a unit from a prime contractor and that the propulsion system and payload were procured separately by DOD. Examination of Sparrow, Terrier, Pershing, Bullpup, and Shillelagh contracting patterns shown in the *Weapons Dictionary*^{21, 23, 24} indicated that this procedure is generally representative. Since SIC 1925 includes complete missiles, excluding propulsion and since nuclear warhead costs are not included in DOD funding, the following SIC code assignments were made: Guidance, control, and airframe, SIC 1925; propulsion, SIC 3722; and payload, SIC 3729.

Modifications. Modifications funding was divided into two categories for analysis: ICBM modifications and other missile modifications. Each category accounted for 50 percent of total TOA for missile modifications in fiscal year 1963. The two analyses are discussed in the next paragraphs.

ICBM modifications: A breakdown of Minuteman II modifications (fiscal year 1965) was used to represent all ICBM modifications. Identification of item and service components of the Minuteman II modifications program was based on unpublished tabulations obtained from Headquarters Air Force, Directorate of Production,⁴² and on Boeing⁵² and Autonetics⁵³ publications. The distribution derived for ICBM modifications is shown in the accompanying tabulation: