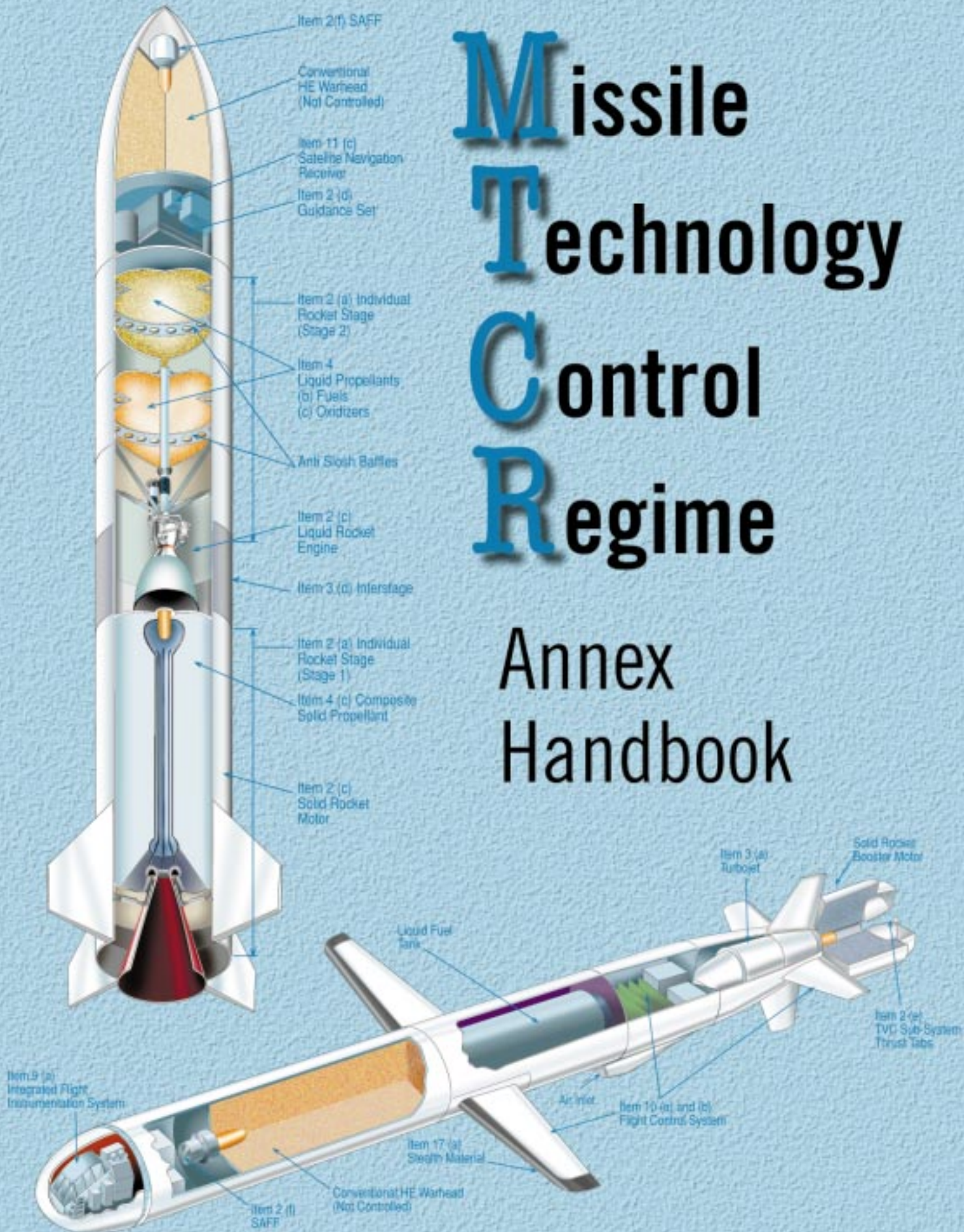


Missile Technology Control Regime

Annex Handbook



Introduction

The Missile Technology Control Regime

The Missile Technology Control Regime (MTCR) is an informal political arrangement to control the proliferation of rocket and unmanned air vehicle systems capable of delivering weapons of mass destruction and their associated equipment and technology. The MTCR was formed in 1987 by Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. Membership has expanded to 29 countries, as of June 1998. The Regime's controls are applicable to such rocket and unmanned air vehicle systems as ballistic missiles, space launch vehicles, sounding rockets, unmanned air vehicles, cruise missiles, drones, and remotely piloted vehicles.

The MTCR is not a treaty but a voluntary agreement among member countries sharing a common interest in controlling missile proliferation. MTCR members meet at least once a year in a plenary session to exchange information, discuss policy issues, and examine ways to improve the Regime. In January 1993, the MTCR revised its guidelines to address delivery systems for all types of weapons of mass destruction—biological, chemical, or nuclear weapons. Originally, the MTCR Guidelines only addressed nuclear weapons delivery systems.

The Regime's documents include the Guidelines and the Equipment and Technology Annex (copies of each are annexed to this publication). The Guidelines define the purpose of the MTCR and provide overall guidance to member countries and those adhering unilaterally to the Guidelines. Each country implements the Guidelines according to its own national legislation. The Guidelines state that the Regime “is not designed to impede national space programs or international cooperation in such programs as long as such programs could not contribute to delivery systems for weapons of mass destruction.”

The Equipment and Technology Annex is divided into two sections:

- Category I Annex items include complete rocket and unmanned air vehicle systems, capable of delivering a payload of at least 500 kg to a range of at least 300 km, and their major subsystems and related technology. Exports of Category I items are to be subject to a strong presumption of denial, except that transfers of specially designed production facilities for Category I items are prohibited.

MTCR Members

Original Members in Alphabetical Order

- Canada
- Federal Republic of Germany
- France
- Italy
- Japan
- United Kingdom
- United States

Additional Members in Order of Admission

- Spain
- Netherlands
- Belgium
- Luxembourg
- Australia
- New Zealand
- Denmark
- Norway
- Austria
- Sweden
- Finland
- Portugal
- Switzerland
- Greece
- Ireland
- Argentina
- Iceland
- Hungary
- Russia
- South Africa
- Brazil
- Turkey

- Category II Annex items include propulsion and propellant components, launch and ground support equipment, various other missile-related components, and related technology, as well as certain other missile systems. Exports of Category II items are to be subject to case-by-case review against specified nonproliferation factors.

The Equipment and Technology Annex is modified from time-to-time to improve its clarity and reflect evolving technologies.

The MTCR Annex Handbook

This document is designed to assist in implementing export controls on MTCR Annex items. It explains what MTCR-controlled equipment and technologies are, how they are used, how they work, what other uses they may have, and what they look like.

The MTCR Annex covers an extremely broad range of items. This document emphasizes technologies most critical to missile design and production.

The Handbook is organized like the MTCR Annex, by item and subitem. Each section follows the same format: the actual MTCR Annex text is reproduced in a highlighted section, followed by the elaboration and pictures. Any MTCR Annex “Notes” relevant to a particular subitem have been moved up with the actual text to allow easier reading. In some cases, the Notes themselves have been elaborated.

Each subitem is discussed separately. When reviewing subitems, the reader should pay attention to the header text in the Item, which may contain additional descriptors for each subitem.

NOTE: The photos included in this handbook are intended to illustrate types of equipment similar to those that the MTCR Equipment and Technology Annex describes. The equipment shown in a specific photo may or may not be MTCR controlled.

Definitions

For the purpose of this Annex, the following definitions apply:

(a) “Development” is related to all phases prior to “production” such as:

- design
- design research
- design analysis
- design concepts
- assembly and testing of prototypes
- pilot production schemes
- design data
- process of transforming design data into a product
- configuration design
- integration design
- layouts

(b) A “microcircuit” is defined as a device in which a number of passive and/or active elements are considered as indivisibly associated on or within a continuous structure to perform the function of a circuit.

(c) “Production” means all production phases such as:

- production engineering
- manufacture
- integration
- assembly (mounting)
- inspection
- testing
- quality assurance

(d) “Production equipment” means tooling, templates, jigs, mandrels, moulds, dies, fixtures, alignment mechanisms, test equipment, other machinery and components therefor, limited to those specially designed or modified for “development” or for one or more phases of “production.”

- (e) “Production facilities” means equipment and specially designed software therefor integrated into installations for “development” or for one or more phases of “production.”
- (f) “Radiation Hardened” means that the component or equipment is designed or rated to withstand radiation levels which meet or exceed a total irradiation dose of 5×10^5 rads (Si).
- (g) “Technology” means specific information which is required for the “development,” “production” or “use” of a product. The information may take the form of “technical data” or “technical assistance.”
 - (1) “Technical assistance” may take the forms such as:
 - instruction
 - skills
 - training
 - working knowledge
 - consulting services
 - (2) “Technical data” may take forms such as:
 - blueprints
 - plans
 - diagrams
 - models
 - formulae
 - engineering designs and specifications
 - manuals and instructions written or recorded on other media or devices such as:
 - disk
 - tape
 - read-only memories

NOTE:

This definition of technology does not include technology “in the public domain” nor “basic scientific research.”

- (i) “In the public domain” as it applies to this Annex means technology which has been made available without restrictions upon its further dissemination. (Copyright restrictions do not remove technology from being “in the public domain.”)
- (ii) “Basic scientific research” means experimental or theoretical work undertaken principally to acquire new knowledge of the fundamental principles of phenomena and observable facts, not primarily directed towards a specific practical aim or objective.

(h) “Use” means:

- operation
- installation (including on-site installation)
- maintenance
- repair
- overhaul
- refurbishing

Terminology

Where the following terms appear in the text, they are to be understood according to the explanations below:

- (a) “Specially Designed” describes equipment, parts, components or software which, as a result of “development,” have unique properties that distinguish them for certain predetermined purposes. For example, a piece of equipment that is “specially designed” for use in a missile will only be considered so if it has no other function or use. Similarly, a piece of manufacturing equipment that is “specially designed” to produce a certain type of component will only be considered such if it is not capable of producing other types of components.
- (b) “Designed or Modified” describes equipment, parts, components or software which, as a result of “development” or modification, have specified properties that make them fit for a particular application. “Designed or Modified” equipment, parts, components or software can be used for other applications. For example, a titanium coated pump designed for a missile may be used with corrosive fluids other than propellants.
- (c) “Usable In” or “Capable Of” describes equipment, parts, components or software which are suitable for a particular purpose. There is no need for the equipment, parts, components or software to have been configured, modified or specified for the particular purpose. For example, any military specification memory circuit would be “capable of” operation in a guidance system.