

MIL-STD-815A(USAF)
30 September 1970
Superseding
MIL-STD-815(USAF)
14 June 1962

MILITARY STANDARD
TYPE DESIGNATION SYSTEM FOR ROCKET ENGINES, MOTORS
AND HYBRIDS



FSC 2845

MIL-STD-815A(USAF)
30 September 1970

DEPARTMENT OF THE AIR FORCE
AIR FORCE SYSTEMS COMMAND
AIR FORCE ROCKET PROPULSION LABORATORY

Type Designation System for Rocket Engines, Motors and Hybrids

MIL-STD-815A(USAF)

1. This Military Standard was approved 30 September 1970 and is mandatory for use by the Department of the Air Force.

2. Recommended corrections, additions, or deletions should be addressed to: Air Force Rocket Propulsion Laboratory (RPOIS), Edwards, California 93523.

MIL-STD-815A(USAF)
30 September 1970

FOREWORD

The purpose of this standard is to provide a type designation system, and uniform procedures for type designation and item identification in accordance with MIL-STD-842(USAF). The system as identified herein has been developed to standardize the identification of rocket engines, motors, and hybrids as used by the Air Force. Provisions have been provided in the standard for its use by the other Defense Departments when appropriate.

The type designation system as defined herein for rocket engines was adopted 25 June 1958 for the Department of the Air Force and the Department of the Navy, Bureau of Aeronautics use as Air Force-Navy Aeronautical Bulletin 352. Similarly, the designation system as defined herein for rocket motors (then known as jet thrust units) was adopted 22 July 1948 as Air Force-Navy Aeronautical Bulletin 353. This standard was developed by the Air Force and approved 14 June 1962 to meet military standard format as prescribed by standardization policy. It modernizes and expands the designation systems of ANA Bulletins 352 and 353 to provide an improved type designation for modern and future rocket propulsion systems.

This standard is intended to serve as an authoritative guide for Air Force activities and associated contractors who prepare nomenclature requests for rocket engines, motors and hybrids designations. Included are instructions to insure that request forms are properly completed, that the proper number of requests are submitted, and the routing that should be followed.

MIL-STD-815A(USAF)
30 September 1970

CONTENTS		Page
Paragraph 1	SCOPE.	1
1.1	Purpose.	1
1.2	Application.	1
1.3	Objectives	1
2	REFERENCED DOCUMENTS	1
3	DEFINITIONS.	2
3.1	Type designations.	2
3.2	Rocket engine.	2
3.2.1	Hybrid	2
3.3	Rocket motor	2
3.4	Rocket motor cluster	2
3.5	Nomenclature	2
3.6	Item name.	2
3.7	Department Control Point	2
3.8	Department of Defense Control Point.	2
4	GENERAL REQUIREMENTS	2
4.1	New designation.	2
4.2	Assigned designation	3
4.3	Application.	3
4.4	Cancellation	3
4.5	Security classification.	4
5	DETAIL REQUIREMENTS.	4
5.1	Submission of request for nomenclature	4
5.1.1	Department of the Army	4
5.1.2	Department of the Navy	4
5.2	Use of assigned type designation	4
5.3	Replacement.	4
5.4	Numbering.	5
5.5	Coordination	5
5.6	Item name.	5
5.7	Technical data requirements for assignment of type designation.	5
5.8	Preparation of DD Form 61, Request for Nomenclature	5
5.9	Method of assigning type designation	8
5.9.1	Type designation	8
5.9.1.1	Type indicator	8
5.9.1.1.1	Prefix letter.	8
5.9.1.1.2	Letter symbol.	8
5.9.1.1.3	Type number.	9
5.9.1.2	Contractor's symbol.	9
5.9.1.3	Model indicator.	10
5.9.1.3.1	Suffix letter.	10

MIL-STD-815A(USAF)
30 September 1970

MILITARY STANDARD

TYPE DESIGNATION SYSTEM FOR ROCKET ENGINES, MOTORS, AND HYBRIDS

1. SCOPE

1.1 Purpose. The purpose of this standard is to provide a uniform type designation system for use by the Department of the Air Force in identifying a rocket engine, motor, motor cluster and hybrid; hereinafter referred to as propulsion devices. The use of this system by other defense Departments is permitted when officially requested by the Department Control Point (DCP), in accordance with the requirements specified herein.

1.2 Application. The type designation system described herein shall be applicable to all propulsion devices (3.2, 3.3, and 3.4), regardless of thrust, duration rating, and mission function.

1.3 Objectives. To provide a type designation system which is sufficiently broad in scope to permit the assigned type designation system to identify the propulsion device throughout the Department of Defense (DOD), and for the entire life of the item without conveying classified performance parameters or restriction to usage.

2. REFERENCED DOCUMENTS

2.1 The issues of the following documents, in effect on date of invitation for bids, form a part of this standard to the extent specified herein:

PUBLICATIONS

Cataloging Handbooks

H2-3	Federal Supply Classification - Alphabetic Index
H6-1	Federal Item Identification Guides for Supply Cataloging - Alphabetic Index of Names
H6-2	Federal Item Identification Guides for Supply Cataloging - Description Patterns

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

MIL-STD-815A(USAF)
30 September 1970

3. DEFINITIONS

3.1 Type designation. The letter and number indicators combined in a specific sequence to provide a short significant method of identifying the equipment by type.

3.2 Rocket engine. A non-air-breathing reaction propulsion device that consists essentially of an injector, thrust chamber(s) and exhaust nozzle(s), and utilizes liquid fuels and oxidizers at controlled rates from which hot gases are generated by combustion and expanded through a nozzle(s).

3.2.1 Hybrid. The approved item name and definition for a hybrid (liquid-solid) propulsion device is as specified in 3.2.

3.3 Rocket motor. A non-air-breathing reaction propulsion device that consists essentially of a thrust chamber and exhaust nozzle and that carries it's own solid oxidizer-fuel combination from which hot gases are generated by combustion and expanded through a nozzle.

3.4 Rocket motor cluster. A grouping of two or more rocket motors fastened together and designed to function as a single propulsion unit.

3.5 Nomenclature. A combination of an authorized item name and a type designation.

3.6 Item name. The name authorized and published in the Federal Cataloging Handbook H6-1, or that name developed and subsequently approved for use by the Defense Logistics Service Center.

3.7 Department Control Point. The official control point within a military department authorized to obtain type designations for propulsion devices from the Department of Defense Control Point (DODCP).

3.8 Department of Defense Control Point. As used herein, the DODCP is the Aeronautical Systems Division, Attn: ASNPD-10, Wright-Patterson Air Force Base, Ohio 45433 (5.1.3).

4. GENERAL REQUIREMENTS

4.1 New designation. Type designations for propulsion devices shall be assigned when, in the judgement of the cognizant department or agency, any one of the following conditions exists:

(a) A need (either administrative or technical) exists for reference to, or definition of, a particular propulsion device configuration or design which has not previously been assigned a designation. Normally, this will occur as a result of new development programs, or upon initial

MIL-STD-815A(USAF)
30 September 1970

entry into the DOD Inventory of "off the shelf" propulsion devices.

(b) A propulsion device configuration or design with an existing designation, is so revised that performance, installation, or interchangeability of the complete propulsion device in the vehicle is affected, and the change is not made immediately retroactive to all propulsion devices of the same designation previously delivered. Ordinarily, this will involve the assignment of a new model number only. However, when the design change alters the propulsion device fundamentally, a new type indicator shall be assigned.

(c) Design changes are made to a propulsion device, with an existing designation, to the extent that a substantial number of parts or subassemblies (or both) are no longer interchangeable with the corresponding parts or subassemblies furnished in accordance with the approved parts list for the original model, but the changes do not affect the performance, installation, or interchangeability of the complete propulsion device in the vehicle. Ordinarily, this will involve only the addition or change of the suffix letter in the model indicator, although change of the model number may be indicated if the quantity of parts is sufficiently large.

4.2 Assigned designation. A specific propulsion device configuration or design shall have only one designation. Should one department desire to use a propulsion device developed by another department without change, the original designation assigned shall be used. In the case where minor production changes are required, the designation shall remain unchanged except for change in the model indicator.

4.3 Application. The procedures set forth in this standard are applicable to developmental, pre-production, and production of propulsion devices. A type designation assigned is definitive in itself in that it will never be duplicated. The type designation shall always apply to one specific propulsion device or subsequent models thereof, as indicated by the model indicator.

4.4 Cancellation. Type designations may be cancelled upon request by the originating department or agency when:

- (a) There has been no procurement of the propulsion device.
- (b) There are no experimental models in field use.
- (c) No further use of the designation is required for development purposes.
- (d) Certified that the designation has not been used in documentation or on hardware or will not be so used.

MIL-STD-815A(USAF)
30 September 1970

4.4.1 Cancelled designations shall not be reused under any conditions for other propulsion devices.

4.5 Security classification.

4.5.1 All type designations shall be unclassified to facilitate identification in correspondence and other means of communication.

4.5.2 All requests for assignment of nomenclatures (5.8), shall include the security classification of the propulsion device described (hardware), and the security classification of the information (data), contained thereon in accordance with Departmental procedures for military or industrial security.

5. DETAIL REQUIREMENTS

5.1 Submission of request for nomenclature. Request for nomenclature assignment for propulsion devices shall be submitted on DD Form 61. When applicable to the Department of the Air Force, the completed form shall be submitted directly to the DODCP (3.8). Request for nomenclature related to other department responsibilities; the completed form shall be submitted as follows:

5.1.1 Department of the Army. All requests to be forwarded to Commanding General, U.S. Army Material Command, Attn: AMCRD-C, Washington, D.C. 20315.

5.1.2 Department of the Navy. All requests to be forwarded to Chief, Naval Material, Department of the Navy, Attn: Code MAT-233, Washington, D.C. 20360.

5.1.3 Each DCP shall forward these requests to the Aeronautical Systems Division, Attn: ASNPD-10, Wright-Patterson Air Force Base, Ohio 45433. This activity, as the official assigning agency for the DOD, is responsible for the assignment of nomenclatures for all propulsion devices and is identified herein as the DODCP.

5.2 Use of assigned type designation. The authorized type designation shall be used strictly as assigned. An assignment may be changed upon the request of the initiating activity, provided that such a change is not contrary to established policy. Where necessary, item names may be omitted from identification markings on equipment at the discretion of the responsible Department.

5.3 Replacement. Other departmental type designations now in use on existing propulsion devices shall be replaced by a newly assigned type designation of the system herein upon:

MIL-STD-815A(USAF)
30 September 1970

(a) Request of the cognizant activity.

(b) Request of the using activity, with the concurrence of the cognizant activity.

5.4 Numbering. The passing over of numbers in assignment of a type designation shall be avoided. Reservation of blocks of numbers shall not be permitted.

5.5 Coordination. Any action requested by a DCP, against an existing type designation under design cognizance of another DCP, shall be coordinated by the DODCP with the originating DCP for concurrence before making the assignment or confirmation. Internal coordination within the respective Departments shall be accomplished prior to submission to the DODCP.

5.6 Item name. Item names listed in Cataloging Handbook H6-1, or in consonance therewith, shall be used in nomenclature assignments. The assignment of the type designation portion of the nomenclature shall, however, be based on the submitted technical data rather than the item name selected by the requesting Department.

5.7 Technical data requirements for assignment of type designation.

5.7.1 After an appropriate item name has been selected by the requestor, a description of the propulsion device, including all technical data required by the applicable description pattern, shall be included in the request for assignment of type designation.

5.7.2 All data requirements for assignment of a type designation shall be submitted on DD Form 61 in accordance with 5.8.

5.8 Preparation of DD Form 61, Request for Nomenclature.

5.8.1 The DD Form 61 shall be prepared for submission to the DODCP in accordance with the following instructions and each submission shall consist of not less than three (3) copies; one (1) copy will be retained by DODCP, one (1) copy will be returned to the requesting activity by DODCP, and the original will be returned to the originating DCP. A submission may include additional copies as requested by the requestor.

Block 1 - Name and address of the military agency requesting designation assignment.

MIL-STD-815A(USAF)
30 September 1970

- Block 2 - Name and address of DCP.
- Block 3 - Name and address of DODCP.
- Block 4 - Self Explanatory.
- Block 5 - Description pattern number selected from Cataloging Handbook H6-1.
- Block 6 - A control number that must consist of (a) letters representing the requesting activity, (b) the last two digits of the current calendar year, (c) the number of the request which shall be serially and continue consecutively, starting with the number 1 each calendar year.
- Block 7 - Enter the security classification of the equipment (hardware) only, including appropriate group number. The security classification of the information (data) contained on the DD Form 61 shall be stamped at both the top and bottom, each side, of the request. The request document shall also bear the appropriate group stamp on the front side only. Unclassified requests covering classified equipment shall be stamped unclassified, top and bottom.
- Block 8 - As selected from Cataloging Handbook H2-3 series.
- Block 9 - Self explanatory.
- Block 10- Check appropriate block(s).
- Block 11- Check appropriate block(s). NOTE: changes in security classification must be submitted as separate actions and shall not be combined with changes to item names, technical data, or type designations.
- Block 12- Check appropriate block(s).
- Block 13- Enter the approved item name selected from Cataloging Handbook H6-1 (3.2, 3.3 and 3.4), or item name in consonance therewith and the recommended type designation elements, leaving sufficient space for the entry of the type and model numbers or modification letters when appropriate.

MIL-STD-815A(USAF)
30 September 1970

- Block 14 - Enter the descriptive data, prepared in tabular form, in accordance with applicable description patterns (DP 11335, DP 12309 and DP 12310), for the approved item name selected from Cataloging Handbook H6-1. When an approved description pattern does not exist, the descriptive data shall be as complete as possible, showing type of propulsion device, duration time, propellant type, performance ratings, pounds of thrust, weights and dimensions, manufacturer's name, location, model number and any peculiar data as applicable.
- Block 15 - Enter a brief functional description (in narrative form) of the propulsion device capabilities and intended use.
- Block 16 - Self explanatory.
- Block 17- Self explanatory.
- Block 18 - Self explanatory.
- Block 19 - Leave blank - to be filled in by DODCP.
- Block 20 - Self explanatory.
- Block 21 - Self explanatory.
- Block 22 - Self explanatory.
- Block 23 - Check appropriate block, depending on degree of interchangeability maintained or non-interchangeability, and include the type designation of previous model(s) or item. Complete details concerning similarities, differences, and interchangeability shall be stated in the remainder of space available in this block and block 24 as applicable.
- Block 24 - Enter any other information which would aid in the assignment of type designation.
- Block 25 - Self explanatory.
- Block 26 - Self explanatory.
- Block 27 - Leave blank - to be filled in by DODCP.

MIL-STD-815A(USAF)
30 September 1970

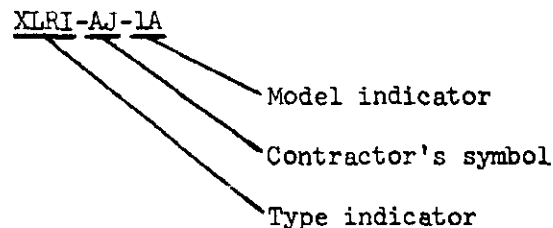
Block 28 - Leave blank - to be filled in by DODCP.

Block 29 - Leave blank - to be filled in by DODCP.

5.9 Method of assigning type designation.

5.9.1 Type designation. The type designations shall consist of three parts. These are the type indicator, the contractor's symbol, and the model indicator. Following is a graphical illustration breakdown of a typical rocket engine type designation.

Type Designation



5.9.1.1 Type indicator. The type indicator of the designation shall consist of the appropriate prefix letter in accordance with 5.9.1.1.1, the appropriate letter symbol selected from 5.9.1.1.2, and a type number assigned in accordance with 5.9.1.1.3.

5.9.1.1.1 Prefix letter. The first part of the type indicator shall consist of the prefix letter "X" or "Y" for the purpose of signifying experimental or service test of restricted service propulsion devices, respectively. Such letters shall precede the letter symbols. The letter "X" shall be used to denote an experimental model under development which has not reached the stage of successfully completing an official preliminary flight rating test (PFRT). The prefix "Y" shall be used to denote a propulsion device still in development status, but which has been cleared for limited flight test by successfully completing the PFRT. The prefix "X" and "Y" shall remain a part of the designation until the propulsion device is fully qualified for flight service use or production, as applicable. Omission of the letters "X" or "Y" signifies that the propulsion device has been qualified for flight service use and production.

5.9.1.1.2 Letter symbol. The second part of the type indicator

MIL-STD-815A(USAF)
30 September 1970

shall consist of a letter symbol indicating the type of propulsion device. These letter symbols are given below:

<u>Letter symbol</u>	<u>Type</u>
LR	Liquid propellant rocket engine
SR	Solid propellant rocket motor
LSR	Hybrid propellant rocket engine (liquid-solid)

5.9.1.1.3 Type number. The type number shall be assigned progressively by the DODCP. The type number is arbitrary and does not represent any characteristics of the propulsion device involved. These numbers shall begin with the lowest number not previously assigned to a propulsion device.

5.9.1.2 Contractor's symbol. The contractor's symbol shall consist of a dash and letter(s) as follows: (a) for liquid propellant rocket engines the contractor's symbol shall indicate the engine manufacturer; (b) for solid propellant rocket motors, the contractor's symbol shall indicate the motor manufacturer or propellant loader; and (c) for hybrid propellant rockets the contractor's symbol shall indicate the contractor having the prime propulsion contract. Contractor symbols are given below. These symbols are not to be confused with those codes established by the "Navy Code of Manufacturer's Names", which covers code identification symbols of principle manufacturers of aeronautical parts. No new contractor symbols shall be added to this list unless prior approval is obtained from the Air Force Rocket Propulsion Laboratory.

CONTRACTOR SYMBOLS

<u>Contractor's Name</u>	<u>Letter Symbol</u>
Aerodyne Corp.	AD
Aerojet-General Corp.	AJ
Aeronutronics Corp.	AN
Allegany Ballistics Lab.	AB
Allison Div., General Motors Corp.	A
AMOCO Chemicals Corp.	AC
Astropower, Inc.	AI
Astrosystems, Inc.	AS
Atlantic Research Corp.	AR
Bell Aerosystems Co.	BA
B. F. Goodrich Co.	G
Curtiss-Wright Corp.	CW
General Electric Co.	GE
Hercules Powder Co.	HP

MIL-STD-815A(USAF)
30 September 1970

CONTRACTOR SYMBOLS (CONT'D)

<u>Contractor's Name</u>	<u>Letter Symbol</u>
Hughes Tool Co.	HT
Lockheed Propulsion Co.	LP
Marquadt Corporation	MA
Naval Missile Center	NM
Naval Weapons Center	NW
Naval Propellant Plant	NP
North American Rockwell Corp. (Rocketdyne)	NA
Northrup Carolina Corp.	NC
Olin Mathieson Co.	OM
Picatinny Arsenal	PA
Pratt & Whitney Aircraft Div., United Aircraft Corp.	P
Reaction Motors Div., Thiokol Chemical Corp.	RM
Rocket Power, Inc.	RP
Rocket Research Corp.	RR
Thiokol Chemical Corp.	TC
TRW Systems	TR
United Technology Center	UT

5.9.1.3 Model indicator. The model indicator shall consist of a model number and when required, a suffix letter. The model number shall consist of a dash and a number indicating the model of that particular type of propulsion device. The model number shall be assigned progressively by DODCP. These model numbers shall be for each type of propulsion device beginning with 1 and continuing consecutively as requests are received.

5.9.1.3.1 Suffix letter. Suffix letters shall be assigned following the model number when the conditions of 4.1 (c) apply. Suffix letters shall be assigned consecutively, starting with the letter A, B, C, etc. The letters I and O shall not be used.

Custodian:

Air Force - 12

Preparing Activity:

Air Force - 12

Review Activities:

Air Force - 11, 13, 19, 70

Project No. 2845 FO18