

MIL-STD-802

17 April 1970

SUPERSEDING

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MILITARY STANDARD

NUMBERS, AIRCRAFT ENGINES AND ENGINE CYLINDERS, COMBUSTION
CHAMBERS, FLAME TUBES, INNER LINERS, AND SIMILAR ITEMS



FSC MISC

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17 April 1970

DEPARTMENT OF DEFENSE
WASHINGTON, D. C. 20301

Numbers, Aircraft Engines and Engine Cylinders, Combustion Chambers, Flame Tubes,
Inner Liners, and Similar Items

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1. This Military Standard has been approved by the Department of Defense and is mandatory for use by all Departments and Agencies of the Department of Defense.

2. Recommended corrections, additions, or deletions should be addressed to the Aeronautical Systems Division (ASNPS-30), Wright-Patterson AFB, Ohio 45433.

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NUMBERS, AIRCRAFT ENGINES AND ENGINE CYLINDERS, COMBUSTION CHAMBERS, FLAME TUBES, INNER LINERS AND SIMILAR ITEMS

1. SCOPE

1.1 This standard is intended to designate unambiguously the position of aircraft engines and components.

2. APPLICABLE DOCUMENTS

There are no applicable documents.

3. REQUIREMENTS

3.1 Engine position numbering. Each engine position in a given aircraft shall have a different number. The position number of an engine which is capable of both horizontal and vertical thrust is based on the relative position of that engine in cruising flight.

3.1.1 Horizontal thrust engines (including vertical lift engines capable of providing horizontal thrust in normal flight). The positions of horizontal thrust engines and vertical lift engines capable of providing horizontal thrust in normal flight shall be numbered first. The positions shall be numbered sequentially in the order in which the axis of each engine meets a plane parallel to the symmetry plane of the aircraft when that plane is moved from left to right (port to starboard). When this plane simultaneously meets the axis of several engines, their positions shall be numbered starting fore and progressing aft. Where one engine position is directly below another position they shall be numbered from bottom to top.

3.1.2 Vertical thrust engines. The positions of engines having a purely vertical thrust capability shall be numbered sequentially according to the above convention starting with the next consecutive number after the horizontal thrust engines.

3.1.3 Booster engines. The positions of booster engines shall be numbered in accordance with the above convention starting with the next consecutive number after the vertical thrust engines.

3.1.4 Figures 1 through 6. Figures 1 through 6 are provided to show aircraft engine positions numbered in accordance with the preceding paragraphs. The positions of horizontal thrust engines including vertical thrust engines having a horizontal thrust capability in normal flight are numbered first. Positions of engines having only a vertical thrust capability are numbered second. Their position numbers in the figures are suffixed by a "V." Booster takeoff engine positions are numbered last. Their positions in the figures are suffixed by an "A." The "V" and "A" suffixes are added for clarification in the figures; they are not required in the numbering of engine positions.

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3.2 Detail numbering of the positions of similar components of engines. The following procedures for numbering of cylinders, combustion chambers, flame tubes (inner liners), and similar components shall apply to all aircraft engines. However, in the case of engines installed in a position where the axis of the main shaft is substantially vertical, the starting position of the rotating plane described in 3.2.1 (a) (2) and in 3.2.2 (a) (1) shall be selected by the manufacturer. In such case, the reference point of the cylinders, combustion chambers, etc, shall be visible when the engine is in place.

3.2.1 Numbering of cylinders of piston engines. The part which includes the propeller shaft or the power shaft shall be considered as the front of the engine; the opposite end shall be the rear of the engine. For the purposes of (a) and (b) below, the observer is placed at the rear of the engine and facing it.

(a) In-line cylinder engines

- (1) Single-bank cylinders (figure 7). For engines having one bank of cylinders in line, the numbering of cylinders shall start with the cylinder nearest to the observer, and cylinders will be numbered 1, 2, 3, etc.
- (2) Engines having two or more banks of cylinders (figures 8, 9, and 10). The banks of cylinders of engines having two or more rows of cylinders shall be lettered A, B, C, etc, respectively, in the order in which they would be placed in an imaginary rotating plane, rotating clockwise around the axis of the main shaft of the engine, starting at 12 o'clock. Each cylinder shall be designated by a letter, followed by a number. The letter indicates the bank in accordance with the above rule; the number indicates the position of the cylinder within its bank with respect to the observer.

(b) Radial piston engines

- (1) Single and double-row radial engines (figures 11 and 12). The cylinders of single and staggered double-row radial engines shall be numbered 1, 2, 3, etc, in the order in which they would be met by a rotating plane as shown in the applicable figure starting at the 12 o'clock position and rotating clockwise.
- (2) Staggered spiral and nonstaggered multirow radial engines (figures 13 and 14). Multirow radial engines will have rows lettered A, B, C, etc, starting with the radial row nearest to the observer. Each cylinder shall be designated by a letter followed by a number. The letter indicates the radial row according to the above rule; the number indicates the position of the cylinder within the radial row, numbered in accordance with the applicable figures.

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3.2.2 Numbering of similar components in turbine engines. The component which includes the compressor shall be considered as the front of the engine; the opposite end shall be the rear of the engine. When applying the following points, the observer will be placed at the rear of the engine and facing it.

(a) Combustion chambers, flame tubes, burners (figure 15)

- (1) The combustion chambers, flame tubes, burners, or other similar components placed around the engine shall be numbered 1, 2, 3, etc, consecutively, in the order in which they would be met by a plane limited to the main shaft of the engine, rotating clockwise, the reference point being at 12 o'clock.

4. INTERNATIONAL STANDARDIZATION. This standard is the subject of international standardization agreement (ASCC AIR STD 10/39, STANAG 3159, and STANAG 3593). When amendment, revision, or cancellation of this standard is proposed which will affect or violate the international agreement concerned, the preparing activity will take appropriate reconciliation action through international standardization channels including departmental standardization offices, if required.

Custodians:

Army - AV

Navy - AS

Air Force - 11

International interest (see 4.)

Preparing activity:

Air Force - 11

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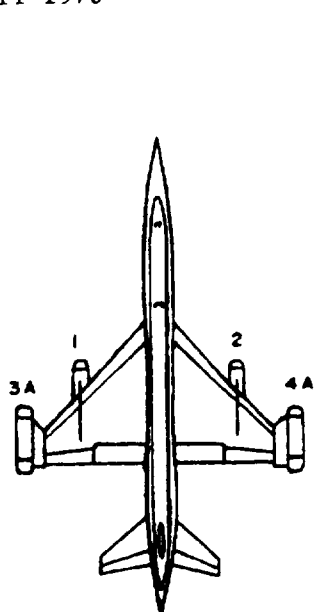


FIG 1

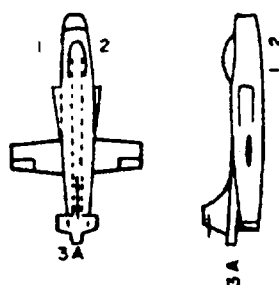


FIG 3

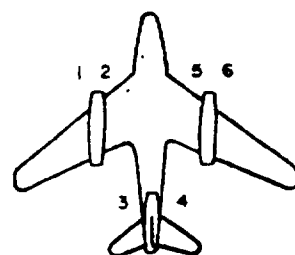


FIG 4

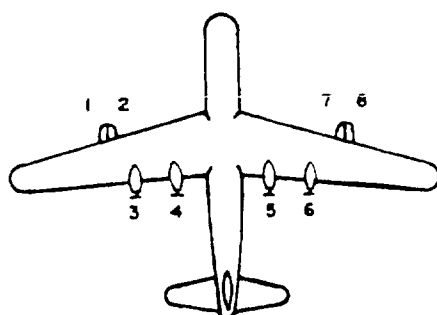


FIG 2

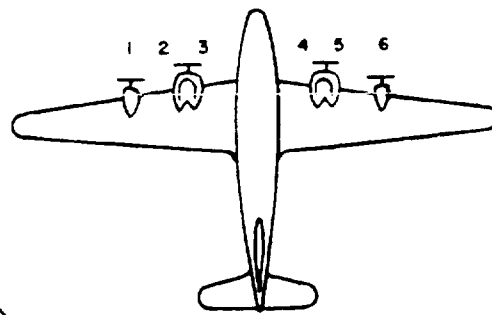


FIG 5

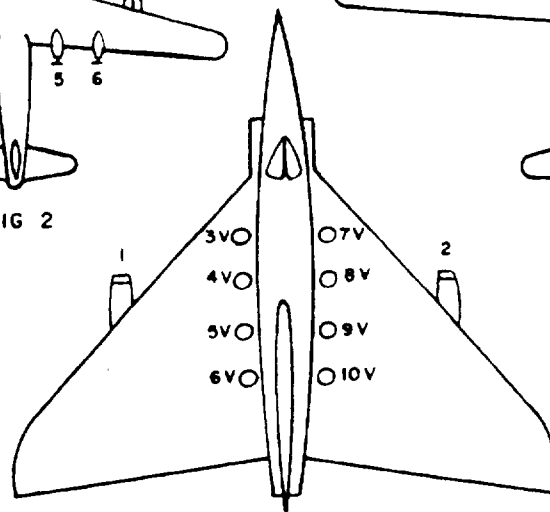
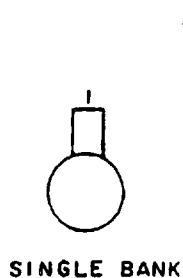
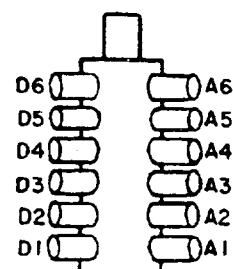
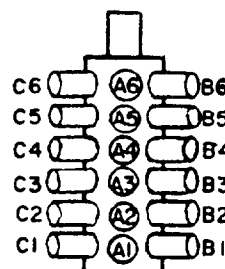
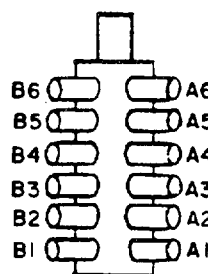
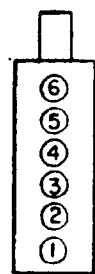


FIG 6

ENGINE POSITION NUMBERS

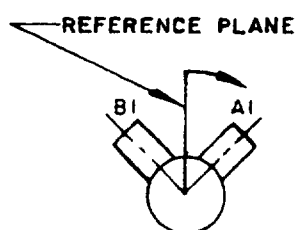
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IN LINE



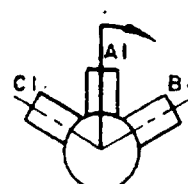
SINGLE BANK

FIG 7



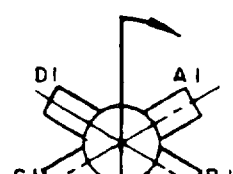
2-BANK
"V"

FIG 8



3-BANK
"W"

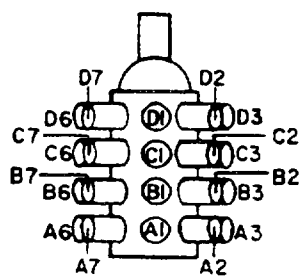
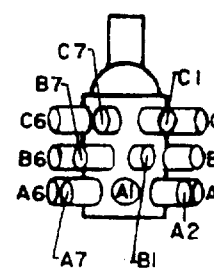
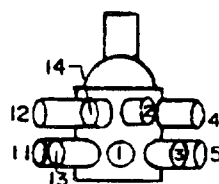
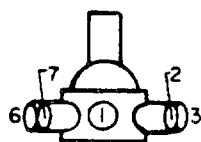
FIG 9



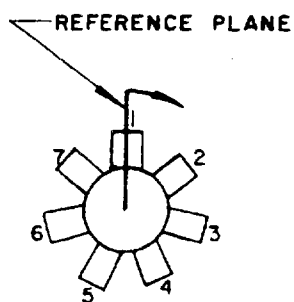
4-BANK
"X"

FIG 10

RADIAL

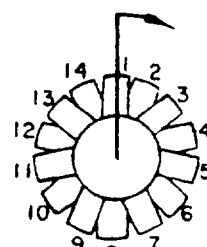


(NUMBER AS A RADIAL ENGINE)



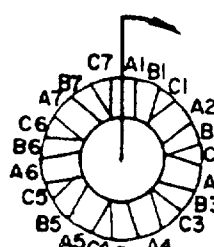
SINGLE ROW

FIG 11



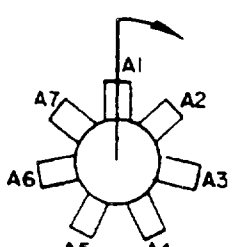
DOUBLE ROW
(STAGGERED)

FIG 12



MULTIROW
(STAGGERED)

FIG 13



MULTIROW
(NONSTAGGERED)

FIG 14

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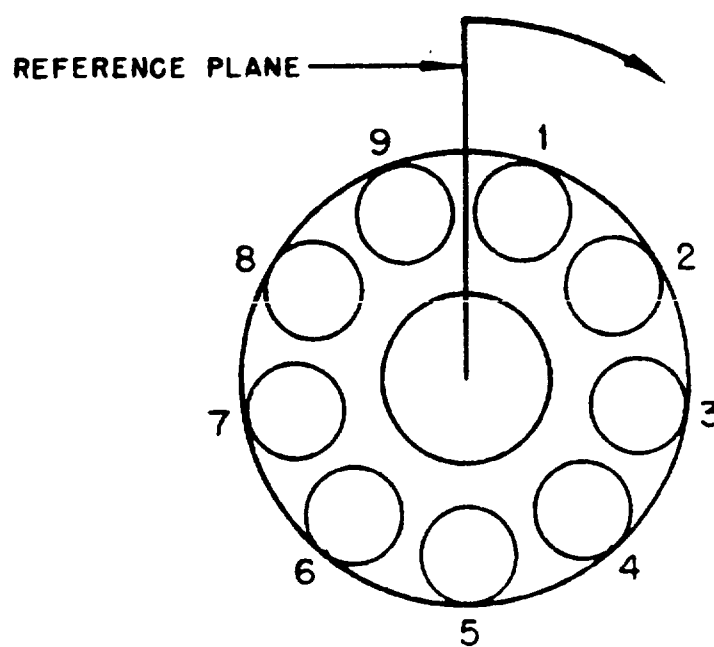


FIGURE 15. Numbering of Combustion Chambers