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TURBO-JET [REDACTED]

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Engines

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ENGINE LISTING

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NOTICE: This report supersedes AMC Report No. TSEST-A6, EIGHTH EDITION, dated 15 October 1946. If not officially required, it shall be returned to this Command, Attention MCREOA-9, or destroyed in accordance with par 32, AF-205-1. No authorization is granted for downgrading of the superseded report.

INTRODUCTION

The publication entitled, "Model Designations of USAF Aircraft Engines" is designed to serve as a basic reference identifying and briefly describing each approved designation. Revised data or subsequent data covering newly assigned models will be provided in the form of semi-annual supplements.

This publication includes all prime movers designated for use in USAF Aircraft from the inception of the engine designation system (in the mid-nineteen-twenties) to date. The majority of prime movers are internal combustion reciprocating engines. In the last few years, internal combustion turbines (some geared to propellers), ram-jets,

and pulse-jets have been developed. These are classed under the general title of "Jets". Another development is the rocket engine using liquid or solid propellants. Rockets are differentiated from other movers in that they carry their own oxidizer, being thus independent of the medium through which they travel.

Data contained in this publication is based on and is consistent with that contained in engine model specifications as applicable (bid or contract). If the model specification is not available, data is based on engine manufacturer's estimates. All data is approved and released by the Power Plant Laboratory, Air Materiel Command.

DEFINITIONS GOVERNING ENGINE RATINGS ARE AS FOLLOWS:

RECIPROCATING:

- (a) Ratings are given at critical altitudes shown and are without ram.
- (b) Take-off, Military and Normal Ratings are defined in applicable Air Force - Navy specifications. Time limits of operation vary according to date of manufacture of respective engine models.

TURBO-JET:

- (a) Maximum Rated Thrust is defined as the maximum thrust which the contractor specified the engine will deliver for a duration of 5 minutes under Sea Level Static condition.
- (b) Military Rated Thrust is defined as the maximum thrust which the contract specified the engine will deliver for a duration of 30 minutes (without augmentation) under Sea Level Static condition.
- (c) Normal Rated Thrust is defined as the maximum thrust which the contractor specified the engine will deliver for continuous operation under Sea Level Static condition.

TURBO-PROP:

- (a) Take-off, Military and Normal Equivalent Shaft Horsepower,

Ratings are for a fixed duration under Sea Level Static condition as designated by the contractor and accepted by the Procuring Agency.

- (b) The following formula has been used to obtain ESHP:

Under Sea Level Static condition the
 $ESHP = SHP + Thrust \div 2.5$

RAM-JET:

Ratings are given in pounds thrust at design Mach Number and altitude shown.

PULSE-JET:

Ratings are given in pounds thrust at Sea Level at the speed indicated.

ROCKETS:

(Liquid) Power is given in pounds thrust and seconds duration at Sea Level.

(Solid) Power is given in pounds thrust and seconds duration, based on ambient temperatures ranging from 60° to 80°F.

USAF - NAVY
ENGINE MODEL DESIGNATION SYSTEM
RECIPROCATING ENGINES

All reciprocating engines are listed numerically by individual cubic displacement.

R ← 4360 → 15

Cylinder Arrangement

R = radial
V = "Vee"
I = inverted
L = inline
O = opposed
H = "H" type
X = experimental prefix
Y = service test prefix

Cubic Inches Displacement
(In round numbers)

Begins with 15. Engine displacement is computed by multiplying .7854 by the cylinder diameter squared by the piston stroke by the number of cylinders.

Arbitrary Number
Denoting Model

Even numbers indicate engine originally built for Navy; odd numbers for USAF.

JET ENGINES

(Turbo-Jet, Turbo-Prop, Ram-Jet and Pulse-Jet)

In accordance with ANA Bulletin No. 306b, the following listing presents the breakdown of assigned designation system used for type and model of aircraft turbine and jet engines which have approval for use on USAF and Navy Aircraft. Additional symbols will be added to the list when acceptability is determined. This system shall be retroactive. The type numerals are arbitrary, and do not represent any characteristics of the units involved. Even numbers will be assigned to the Bureau of Aeronautics to types approved by the Navy, and odd numbers to those assigned by AMC to those types approved by the USAF.

J ← 83 → GE → 3

Engine Type Letter

J = Turbo-Jet
(without external propeller)
T = Turbo-Prop
(with external propeller)
PJ = Pulse-Jet
(intermittent)
RJ = Ram-Jet (athodyd)
X = Experimental prefix
Y = Service Test prefix

Engine Type Number

Begins at 30. Even numbers indicate engines originally built for Navy; odd numbers for USAF.

Manufacturer

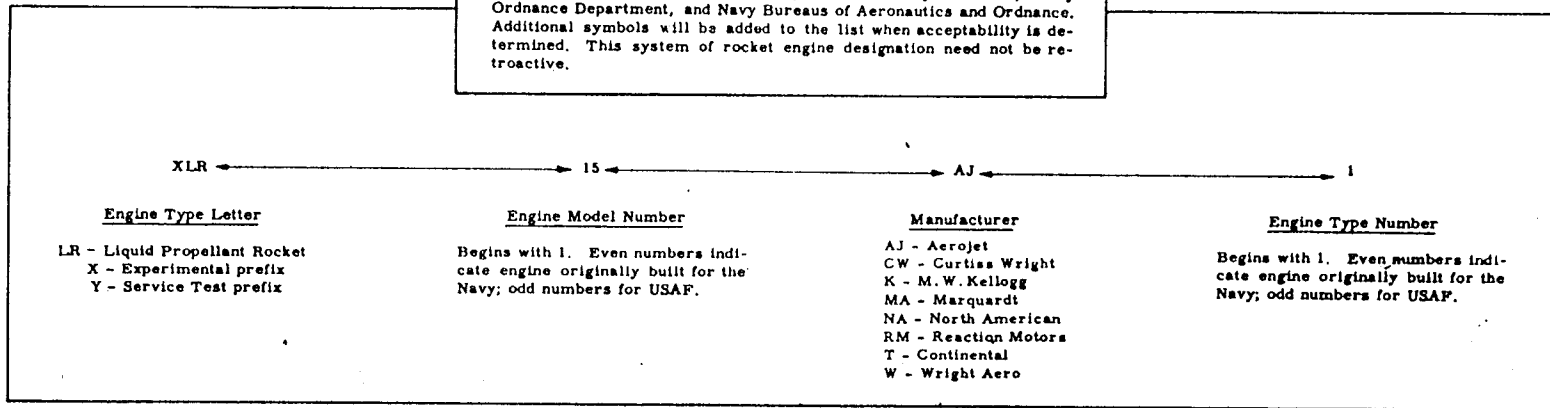
A - Allison
AC - Allis-Chalmers
AJ - Aerojet
BA - Bell
BD - Bodine
C - Chevrolet
D - Chrysler
DL - DeLaval
EE - Elliot
F - Ford
FF - Fredric Flader
FW - Kaiser Fleetwing
GA - Globe
GE - General Electric
GN - Gianni
HM - Harvey Machine
LA - Lockheed
MA - Marquardt
MC - McDonnell
MN - Menasco
NH - Northrop-Hensley
P - Pratt-Whitney
R - Ranger
RP - Radio Plane
T - Continental
TT - Taylor Turbine
V - Packard
W - Wright
WE - Westinghouse
WS - West Engineering

Engine Model Number

Even numbers indicate engine originally built for Navy; odd numbers for USAF.

USAF - NAVY
 MODEL DESIGNATION SYSTEM (CONT.)
LIQUID ROCKET ENGINES

In accordance with ANA Bulletin No. 352 the following listing presents the breakdown of assigned designation system used for type and model of Liquid Rocket engines which have approval for use by the USAF, Army Ordnance Department, and Navy Bureaus of Aeronautics and Ordnance. Additional symbols will be added to the list when acceptability is determined. This system of rocket engine designation need not be retroactive.



SOLID ROCKET ENGINES

AFN Solid Rocket motor designations are still in process of formulation. Following is the designation used by one contractor, and generally followed through by all contractors for Solid Rockets shown in this book.

