



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, DC 20350-2000

IN REPLY REFER TO
OPNAVINST 13700.2
N432A1
AUG 07 2007

OPNAV INSTRUCTION 13700.2

From: Chief of Naval Operations

Subj: PROPULSION, ENGINE AND ENGINE MODULE READINESS

Ref: (a) DoD Directive 4140.1-R dated 23 May 03
(b) OPNAVINST 4442.3C dated 5 May 06
(c) OPNAVINST 3000.15 dated 31 August 06
(d) CNO letter serial N880G10/6S663861 dated 17 Apr 96
(e) Propulsion Management Board Charter dated 18 Nov 98

Encl: (1) Readiness Responsibilities Map
(2) Readiness Indicators and MOEs

1. Purpose. The purpose of this instruction is to establish policy, roles, and responsibilities for developing, validating, and updating whole engine and engine module requirements as National Military Strategy (NMS) changes and as improved management processes become available.

2. Scope. This instruction applies to total inventory management of Navy and Marine Corps whole engines and modules.

3. Material Management. Reference (a) provides procedures for the uniform management of Department of Defense (DoD) materiel. The DoD components shall establish and pursue the goal of provisioning sufficient support items to meet end item readiness objectives.

4. Inventory Control. Primary authorized aircraft (PAA) and Backup Authorized Aircraft (BAA) inventory are governed by the A-II budget exhibit. Spare engine and module inventory procurement is calculated based on the Retail Inventory Model for Aviation (RIMAIR) model as outlined in reference (b). Inventory deviations from the A-II and RIMAIR model will be adjusted by Chief of Naval Operations via the Planning, Programming, Budgeting and Executing (PPBE) process.

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5. CNO Goal. Ready for Issue (RFI) whole engines and modules must be available to execute the Fleet Response Plan (FRP), reference (c). Achievement of the engine goal will be aligned with the current flight hour program and engine depot readiness assessment models. RFI spares pool sufficient to sustain surge as governed by planning guidance must be maintained. The following elements sum to the total requirement for whole engines and modules:

a. RFI whole engines to fill 100 percent Flight Line Entitlement (FLE) aircraft firewalls.

b. RFI spare whole engines to support aircraft depot production schedules.

c. RFI spare whole engines and modules at production and non-production pool sites will be equal to peacetime demand placed on that site.

d. RFI spare whole engines and modules required to support wartime utilization derived from National Military Strategy and obtained from reference (d).

6. Risk Thresholds. Risk thresholds will be documented in readiness indicators, Measures of Effectiveness (MOE), and FRP requirements. The readiness indicators and MOEs will be consistent with the Defense Readiness Reporting System - Navy (DRRS-N).

7. Responsibilities

a. The Propulsion Readiness Steering Committee (PRSC) will be established with membership from OPNAV (N432 and N881), Commander Naval Air Forces (CNAF N421), Naval Air Systems Command (NAVAIR AIR-4.4, AIR-6.7 and AIR-6.8), and Headquarters Marine Corps (HQMC ASL). PRSC will at a minimum, annually review NMS and new management concepts, and update the engine and module requirements and processes (as illustrated in enclosure (1)) used to compute goals.

b. Operational commands evaluate wartime scenarios compared to the readiness goals and provide inputs and/or concerns to CNAF Requirements Cell (N8) and CNAF Engine Class Desk (N421M).

c. Type Commanders (TYCOM)

(1) Apply risk management practices to RFI and Non-RFI (NRFI) whole engines and modules to achieve readiness goals.

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(2) Plan and manage execution year and out year depot maintenance requirements.

(3) Determine location and size of pools.

(4) Establish and manage RFI pools for operational commanders to maintain readiness in support of NMS in peace and war.

(5) Solicit and assess operational commander inputs of impact for wartime scenarios on engine readiness goals.

(6) Manage NRFI retrograde return to ensure timely repair.

d. OPNAV

(1) OPNAV N88 validate and resource Research, Development, Test and Evaluation (RDT&E) and aircraft procurement, Navy (APN) 5, 6, and 7 accounts.

(2) OPNAV N43 will validate and resource repair requirements via the Operations and Maintenance Navy (O&MN) accounts.

(3) OPNAV N43, in coordination with the TYCOM engine class desk, will annually review and update readiness indicators and MOEs (enclosure (2)]. The results of the annual review will be briefed to the PRSC.

e. NAVAIR

(1) Per reference (e), establish and maintain a Propulsion Management Board (PMB) that produces and executes a readiness-based propulsion management system.

(2) Develop and maintain an engine and module readiness risk assessment tool.

(3) Establish and document processes to quantify, measure, and maintain goals (i.e. AIRSpeed, Global Engine Management (GEM), etc.).

(4) Annually, each propulsion system team must document and update a propulsion systems management plan (PSMP) which includes a type/model specific value stream map, mean engine flight hours between removal (MEFHBR) goals, and identifies technical as well as programmatic risks.

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8. Definitions

a. Fleet Readiness Training Program (F RTP) - Program which delineates the aircraft readiness requirements by type/model/series per month during the planned training and deployment cycle.

b. Fleet Response Plan (FRP) - Accelerates the Navy advantage in responding whenever the Commander in Chief needs our Navy forces and harness the Navy's enhanced speed and agility to ensure we arrive with overpowering force when needed.

c. Flight Line Entitlement (FLE) - Total number of aircraft authorized during the F RTP in order to meet FRP. Marine Corps PAA will be their FLE.

d. National Military Strategy (NMS) - The overarching requirements for war, surge, or contingency operations will be found in the defense planning guidance, strategic planning guidance and joint planning guidance.

e. Net Bare Firewalls (BFW) - FLE plus %BAI less the sum of RFI installed and RFI uninstalled whole engines [i.e., $(FLE + \%BAI) - (RFI_{INST} + RFI_{UNINST})$].

f. Non-production site pool - A quantity of RFI whole engines, at a location that does not have engine and/or module repair capability.

g. OP20- Budget exhibit which provides peacetime flight hours for future year defense planning (FYDP).

h. Production site pool - A quantity of RFI whole engines, at a repair location.

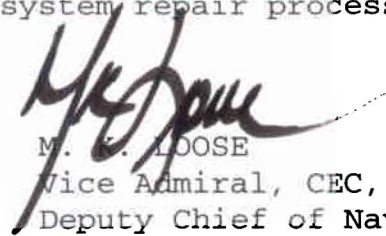
- (1) Developed in response to national security strategy.
- (2) Institutionalizes enhanced surge capability.
- (3) Accomplished largely with resources already planned.
- (4) Provides presence with a purpose.

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i. RFI whole engines and modules - Those whole engines and modules in a material condition (installed or uninstalled) that is available for operational use.

j. Surge - Unplanned increase in demand caused by significant changes in flight operations, industrial capabilities, and/or propulsion reliability.

k. Value Stream Map (VSM) - Identifies inefficiencies and constraints in the propulsion system repair process.



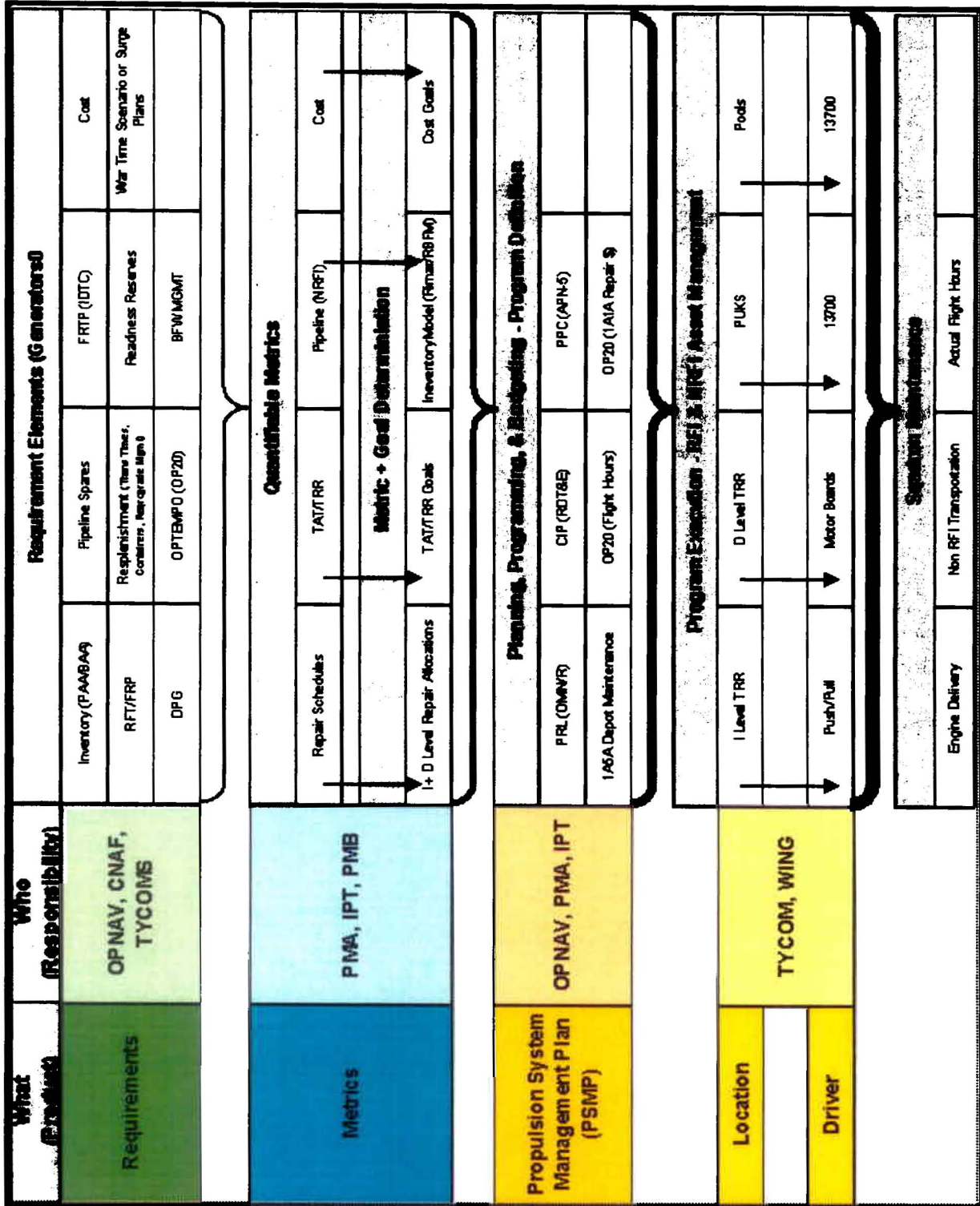
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Readiness Responsibilities Map



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Readiness Indicators

Sustainability - A measure of production to demand during any snapshot in time. Cited as the number of days remaining until the global RFI pool is exhausted even though production and replenishment/resupply of the pool continues.

Sustainability = total uninstalled RFI units ÷ (daily production - daily demand)
Daily production = repair site AIRSpeed buffer ÷ time to reasonably repair (TRR)
Daily demand = (daily OP20 engine flight hours (EFH) ÷ MEFHBR_a) + (SPG OPTEMPO daily FH ÷ MEFHBR_g)

SUSTAINABILITY (although replenishment is considered, the number of days until pool assets reach zero)	
Rating	MOE
1	90
2	60
3	40
4	20
5	0

Data drawn from:

1. AIRSpeed buffer from NAVAIR 6.8.
2. TRR from NAVAIR 6.8 for repair sites and UMMIP standard for non-repair sites.
3. Daily demand determined by converting OP20 daily FH to EFH and dividing EFH by actual MEFHBR (MEFHBR_a).
4. Goal MEFHBR (MEFHBR_g) from PMB common metrics section of navy propulsion online (NAPOL) website.
5. SPG OPTEMPO as identified in OPNAV letter "Naval Aircraft Wartime Utilization Planning Data".

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RFI Inventory - A measure of the total number of installed and uninstalled RFI whole engines available as compared to the number of RFI whole engines necessary to support the NMS required.

$$\text{RFI Inventory} = (\text{total RFI} - [\text{FLE} + \% \text{BAI}]) \div (1-4-2-1 + \text{GEM spares})$$

Data drawn from:

1. Total RFI determined by combining the installed and uninstalled RFI from aircraft engine management system (AEMS).
2. FLE as provided by CNAF Requirements Section.
3. %BAI as provided by CNAF N421M.
4. 1-4-2-1 and GEM spares from NAVAIR 6.8.

RFI INVENTORY (spare pools, as set by GEM model)	
Rating	MOE
1	100% pools
2	80% pools
3	50% pools
4	20% pools
5	Net BFW

Enclosure (2)

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Reliability - Each

Type/Model/Series (TMS) will be measured as a percent (%) deviation of the actual MEFHBR achieved (MEFHBR_a) from the PMB approved goal MEFHBR (MEFHBR_g).

$$\text{Reliability} = (\text{MEFHBR}_g - \text{MEFHBR}_a) \div \text{MEFHBR}_g$$

Data drawn from:

1. Actual MEFHBR (MEFHBR_a) and goal MEFHBR (MEFHBR_g) from PMB common metrics section of NAPOL website.

Turnaround time (TAT) - Each TMS will be measured as the percent (%) difference of actual TAT (TAT_a) and the establish TAT goal (TAT_g). Depot TAT goals are the engine/module negotiated TAT. The TAT goals for the intermediate level are the same the AIRSpeed time to reasonably replenish (TRR). TAT is measured in accordance with COMNAVAIRFORINST 4790.2.

$$\text{TAT \%} = \text{TAT}_a \div \text{TAT}_g$$

Data drawn from:

1. TAT goal from negotiated TAT at the Depot or AIRSpeed time to reasonably replenish (TRR) at the AIMD.
2. TAT actual from AEMS.

RELIABILITY (% deviation between MEFHBR achieved and PMB approved MEFHBR goal)	
Rating	MOE
1	+/- 5%
2	+/- 15%
3	+/- 25%
4	+/- 35%
5	+/- 45%

TAT (% difference from established number of maintenance days, 12 month rolling average)	
Rating	MOE
1	<94%
2	102%
3	110%
4	118%
5	122%

Enclosure (2)