



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

IN REPLY REFER TO

OPNAVINST 3500.31G
N789F
01 February 2001

OPNAV INSTRUCTION 3500.31G

From: Chief of Naval Operations

Subj: READINESS REPORT ON TRAINING PROGRESS OF COMBAT AIRCREWS

Encl: (1) FRS Readiness Reporting (Cockpit Charts)
(2) Production Planning Factors
(3) Acronyms

1. Purpose. To formalize procedures for Fleet Readiness Squadrons (FRS) to report replacement aircrew training. This revision is a substantial revision and should be reviewed in its entirety.

2. Cancellation. OPNAVINST 3500.31F.

3. Policy. Chief of Naval Operations (CNO) policy is that all organizational components shall provide a continuing analysis of administrative and operational procedures to ensure maximum efficiency and effectiveness.

4. Background. In October 1997 CNO initiated the Naval Aviation Production Process Review (NAPPR). The effort is focused on improving the process of producing first tour naval aviators (NA) and Naval Flight Officers (NFO), targeting extended time-to-train (TTT), and identifying and eliminating the barriers to improvement. The Naval Aviator Production Team (NAPT) chartered three cross-functional teams (CFT) to oversee Naval Aviator Production Process Improvement (NAPPI) efforts covering the entire process from "street to fleet."

a. Reporting. In March 1998 the FRS readiness training progress report was discontinued and new monthly metrics were initiated. Integral to this new reporting system is the use of FRS Readiness Reports ("cockpit charts"), enclosure (1), as a reporting and management tool. These charts summarize at a glance those performance measures that best describe squadron training events and issues.

01 February 2001

b. Resourcing. Properly identifying and linking FRS resourcing to the training requirement is paramount. This is accomplished through implementation of Production Planning Factors (PPF) contained in enclosure (2). FRS shall review PPFs annually.

5. Objectives. The purpose of cockpit charts is to provide CNO (N789) and Headquarters United States Marine Corps (HQMC) Aviation Support and Manpower (ASM) and Marine Corps Combat Development Command (MCCDC) current and accurate data pertinent to readiness training. Specifically:

a. Provide planners with a management tool that will allow tracking and forecasting of NA/NFO production.

b. Provide planners with data to support requested changes in curricula, flight hour budget and allocation of manpower resources.

c. Provide timely performance monitoring to allow early identification of resource shortages or excess.

6. Syllabus Categories. Replacement Pilot (RP), Replacement Naval Flight Officer (RNFO) and Replacement Aircrew (RAC) syllabus category definitions are standardized and identified below. Assignment to refresher syllabi shall be based upon time out of the cockpit vice ultimate billet assignment. Minor variations in certain communities are acceptable if based upon CNO-approved syllabus considerations (USMC FRS governed by MCO P3500.14F T&R Vol. 1).

a. CAT I: Complete syllabus for first-tour in model, normally a newly designated NA, NFO, or RAC. Successful syllabus completion normally results in NATOPS qualification and awards Naval Enlisted Classifications/Military Occupation Specialty (NEC/MOS) for enlisted personnel.

b. CAT II: Transition syllabus assigned to a NA/NFO/RAC transitioning from another like aircraft (IE: F-14 to F/A-18E/F or CH-46 to CH-60S). Successful syllabus completion may award a new NEC.

c. CAT III: Refresher syllabus assigned to a NA/NFO/RAC with prior experience in model who has been out of the aircraft 18 months or longer (24 months for USMC).

01 February 2001

d. CAT IV: Abbreviated refresher syllabus for a NA/NFO with prior experience in model who has been out of the aircraft greater than 12 but less than 18 months (<24 months for USMC). It is also for miscellaneous non-fleet requirements. Successful completion results in NATOPS qualification. This category is not normally utilized for enlisted personnel.

e. CAT V: This is a special syllabus, varying according to circumstance. The FRS Commanding Officer is empowered to determine the unique requirements for each individual. New Course Identification Numbers (CINs) and Course Data Processing Numbers (CDPs) will be assigned to each curriculum upon approval. This category shall be used for all Foreign Military Training (FMT) for NA/NFO/RAC courses and pipelines.

7. Flight Hour Overhead. The Naval Aviation Flight Information Record System (NAVFLIRS) shall be the primary tool to document flight hour program execution. Overhead allowances, as a percentage of total flight hours, will be identified in the CNO-approved syllabi and PPFs and will be reported by category in the monthly cockpit charts. CNO(N789) will annually validate and adjust FRS syllabi overhead allowances based upon reported data. FRS flight hour overhead is divided into the following categories.

a. Incomp/Abort: Incomplete or aborted syllabus sortie.

b. IUT: Instructor under training (IUT) hours (does not include IUT warm-up flights). If RP/RNFO/RAC training occurs in the same flight as IUT the flight will be reported as syllabus support.

c. Test: Post maintenance check flight (PMCF).

d. Service: Service to fleet, Research Development Test & Evaluation (RDT&E), Search and Rescue (SAR), or drug interdiction.

e. Logistics: Logistics, administrative flights, detachment support, etc. Includes transport tasks previously considered as task hours.

f. Stan: Flights required to maintain instructor standardization or reestablishing instructor currency.

01 February 2001

8. Action

a. FRS Readiness Reports (Cockpit Charts) shall be submitted no later than the 10th calendar day of the month.

(1) USN FRS: Submit to Type Wing Commander, Type Commander (TYCOM) N8 and Community Class Desk / Readiness Officer, and CNO(N789F). TYCOM will perform a data integrity audit and ensure corrections, if any, are forwarded to CNO(N789F) by the 13th calendar day of the month. Enclosure (1) provides detailed instructions for report preparation.

(2) USMC FRS: Submit to ASM/MCCDC(C473) and CNO(N789F) via USMC chain-of-command.

b. Production Planning Factors (PPFs) and CAT 1 Aviator Production Plan shall be reviewed and submitted annually to CNO(N789)/MCCDC no later than 31 August. Submissions shall cover a three year period (e.g., FY04 PPF submission due by 31 Aug 01).

(1) USN FRS: Submit to CNO(N789) via Type Wing Commander and TYCOM.

(2) USMC FRS: Submit to MCCDC(C473) via USMC chain-of-command.

9. Report. The FRS Readiness Report (Cockpit Charts) is assigned symbol OPNAV 3500-10E and is approved per SECNAVINST 5214.2B.



N. G. PRESTON
By direction

Distribution: (See next page)

01 February 2001

Distribution:

SNDL A5 (Chief of Naval Personnel)
A6 (Headquarters, U. S. Marine Corps) (MMOA-2 and ASM-51, only)
21A (Fleet Commanders in Chief) (less CINCUSNAVEUR)
24 (Type Commanders) (COMNAVAILANT AND COMNAVIAIRPAC, only)
42E (Type Wing Commanders)
42L (Fighter Squadron (VF)) (FITRON 101, only)
42N (Sea Control Squadron (VS)) (SEACONRON 41, only)
42P (Patrol and Reconnaissance Wing and Squadron (VP) (VPU)) (PATRON 30, only)
42U (Helicopter Combat Support Squadron (HC)) (HC-2 and HC-3, only)
42Z (Electronic Attack Squadron (VAQ)) (VAQ-129, only)
42BB (Helicopter Anti-Submarine Squadron (HS)) (HELANTISUBRON 10, only)
42CC (Helicopter Anti-Submarine Squadron, Light (HSL)) (HSL-40 and HSL-41, only)
42DD (Carrier Airborne Early Warning Squadron (VAW)) (CARAEWRON 120, only)
42GG (Strike Fighter Squadron (VFA)) (VFA-106, VFA-122 and VFA-125, only)
45A1 (Fleet Marine Force Atlantic and Pacific) (CG, FMFLANT, AND CG, FMFPAC, only)
46B (Aircraft Wing) (CG, 2nd MAW, and CG, 3rd MAW, only)
46C1 (Marine Aircraft Group and Detachments) (MAG-11, MAG-14, MAG-26, MAG-29, only)
46P4 (Combat Crew and Helicopter Training Squadron) (HMM(T)-164, HMT-302, and HMT-303, only)
46T (Attack Training Squadron and Fighter Attack Training Squadron) (VMFAT-101, only)
46Z (Aerial Refueler Transport Training Squadron) (VMGRT-253, only)
FJA3 (Military Personnel Command) (NPC-433, NPC-432, NPC-404E, and NPC-211V, only)
V12 (CG MCTC) (Code C473)

FRS READINESS REPORTING (COCKPIT CHARTS)

1. Instructions for FRS Readiness Report submission (Cockpit Chart Metrics Roll-Up) are provided in this enclosure.
2. Format. Each FRS Readiness Report (Cockpit Chart) is identical in format to enable metrics roll-up of all pertinent data to higher level cockpit charts. This process, automated in EXCEL software, prevents the introduction of human data entry errors during roll-up, assuring an improved level of data integrity.
3. Submission. FRS Readiness Reports (Cockpit Charts) shall be submitted electronically no later than the 10th calendar day of the month.
 - a. USN FRS: Submit to Type Wing Commander, Type Commander (TYCOM) N8 and Community Class Desk / Readiness Officer, and CNO(N789F).
 - b. USMC FRS: Submit to Aviation Support and Manpower (ASM), Marine Corps Combat Development Command (MCCDC) (C473), and CNO(N789) via USMC chain-of-command.
4. Instructions. Specific cockpit chart data entry instructions are provided in figure 1.
5. This enclosure is presented in five sections:
 - a. Section I - Sample FRS Cockpit Charts
 - b. Section II - FRS Cockpit Chart Metrics Definitions
 - c. Section III - CNAP Metrics Roll-up
 - d. Section IV - CNAL Metrics Roll-up
 - e. Section V - CNO(N789) Metrics Roll-up

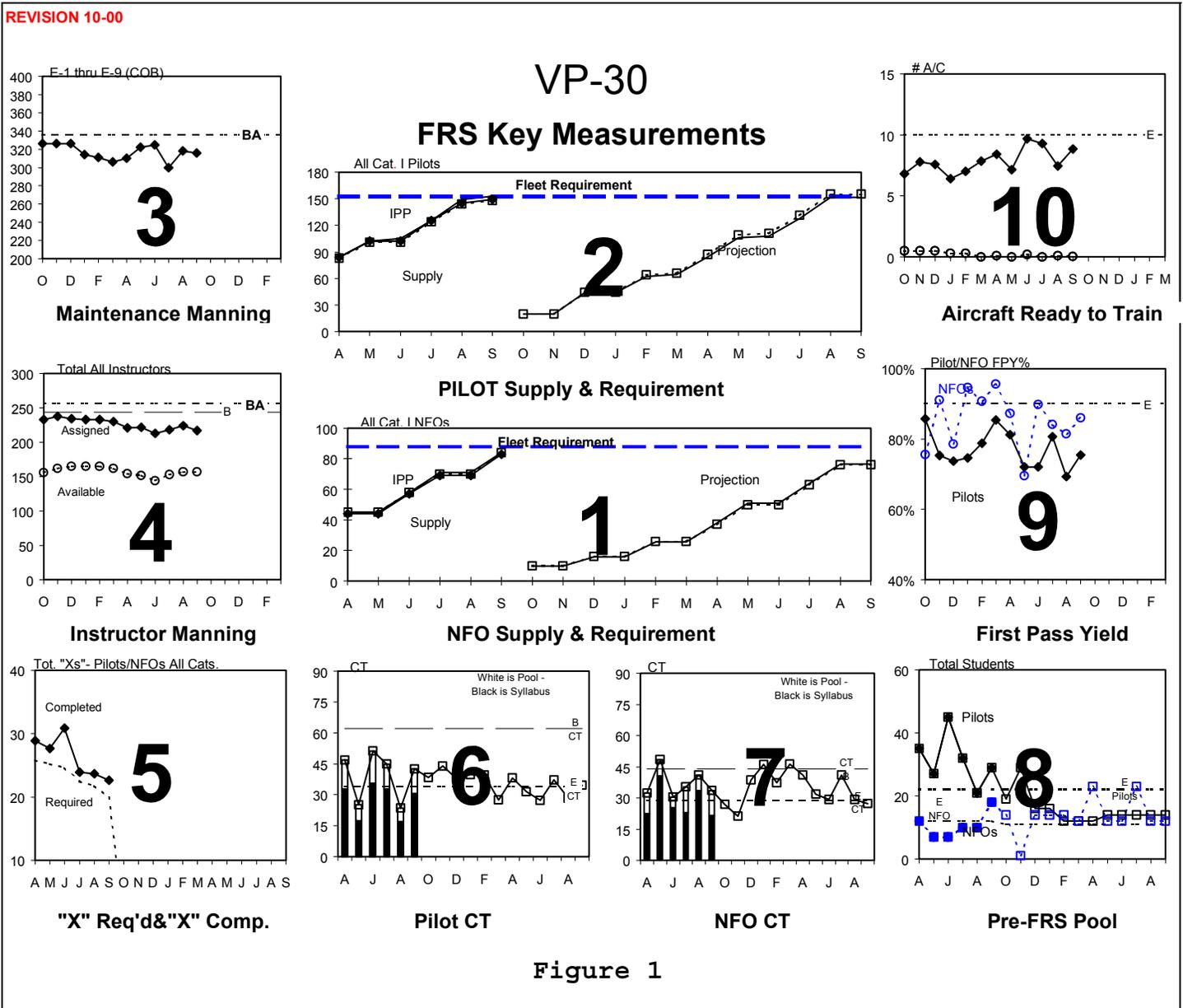
01 February 2001

COCKPIT CHART INSTRUCTIONS		
STEP	TAB	DATA ENTRY REQUIRED
1	TNG&OPS	a For pilots, NFOs, and aircrew instructors (as applicable), enter the actual on and the average number of instructors available to conduct
		b Average aircraft ready for training (RFT) (including those provided by the Fleet) average "rent-a-jet" aircraft RFT
		c Number of events cancelled or aborted by causal factor (maintenance, weather,
		d Total overhead flight hours and overhead flight hours by category (Abort, IUT,
2	"X" Planner	a Annual production requirement by pilot/NFO student
		b Number of syllabus simulator and flight events per student by student
3	Pilot "X's"	a Simulator days planned and actually executed by
		b Pilot simulator "X's" scheduled and actually completed by
		c Fly days planned and actually executed by
		d Pilot flight "X's" scheduled and actually completed by
4	NFO "X's" (as applicable)	a Simulator days planned and actually executed by
		b NFO simulator "X's" scheduled and actually completed by
		c Fly days planned and actually executed by
		d NFO flight "X's" scheduled and actually completed by
5	CT&Pool	a Number of Cat 1 pilots and NFOs that commenced a scheduled FRS class
		b Number of Cat 1 pilots and NFOs that completed the FRS course of instruction
		c Number of Cat 1 pilots and NFOs that attrited
		d Total number of Cat II through V pilot and NFO student on
		e Number of Cat 1 pilots and NFOs preload entries (CNATRA wingees) and
6	Projections	a Update historical projections for pilot and NFO INS, OUTS, and attrition to actual values as entered in "CT&Pool" tab
		b Update future projections for pilot and NFO INS, OUTS, and attrition as
7	3M Data	a All applicable data for each category listed in black in left-hand
8	Summary Ch.	a Review each chart for any anomalies representing data that may have been entered
	Acft Detail Ch. Manning Ch. WIP	b Modify chart axis scales (as necessary) to better illustrate
Note: DO NOT ATTEMPT TO ENTER DATA IN CELLS WITH RED NUMERALS		
Figure 1		

SECTION I

Sample FRS Cockpit Charts

- Sample FRS Cockpit Charts are depicted in figures 1-4: FRS Key Measurements (figure 1), FRS Key Measurements-Manning (figure 2), FRS Key Measurements-Aircraft (figure 3), and WIP (figure 4).



REVISION 10-00

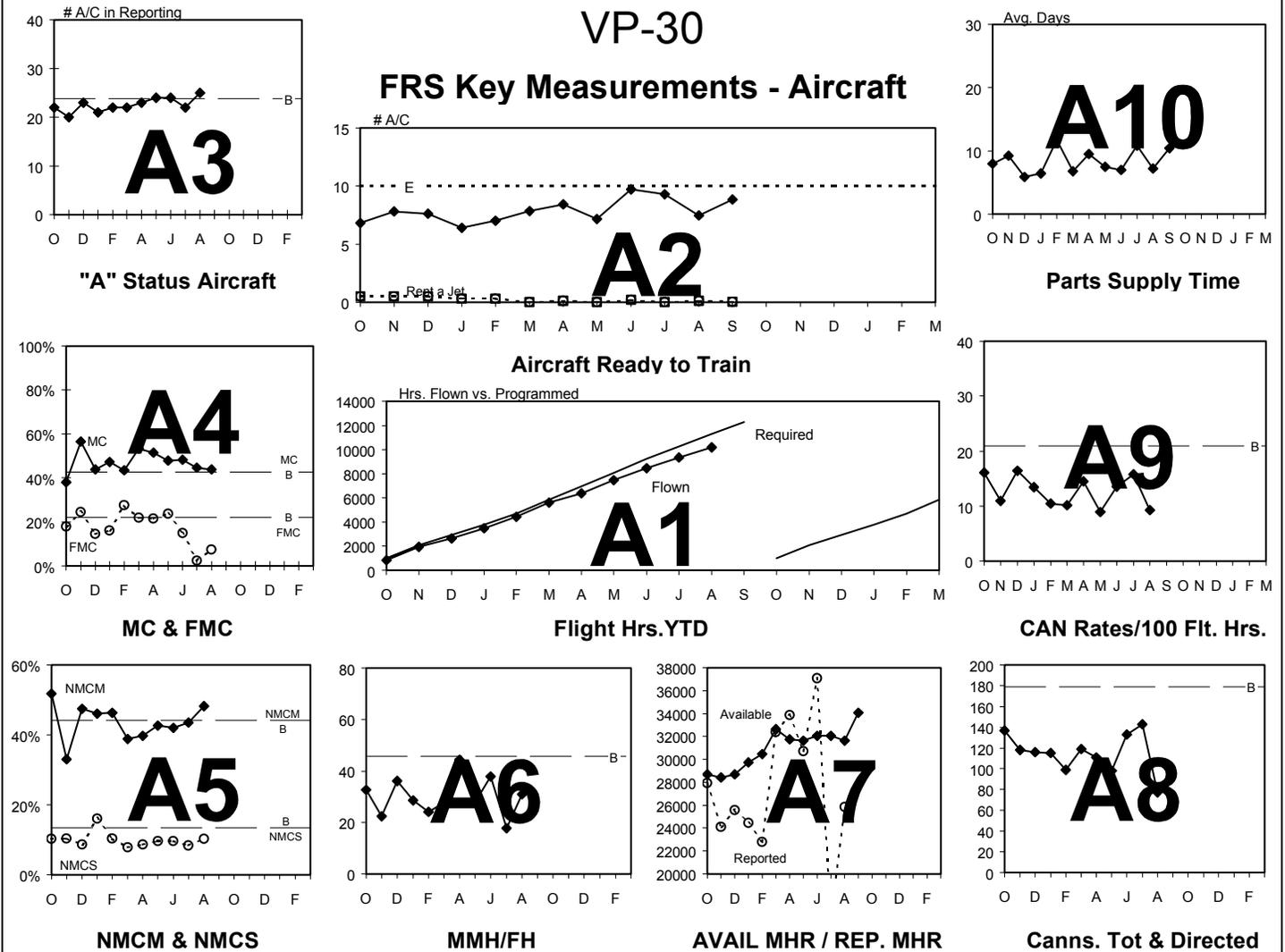


Figure 2

REVISION 10-00

VP-30

FRS Key Measurements - Manning

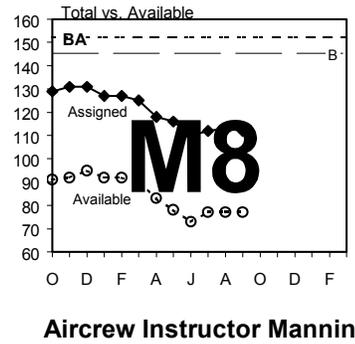
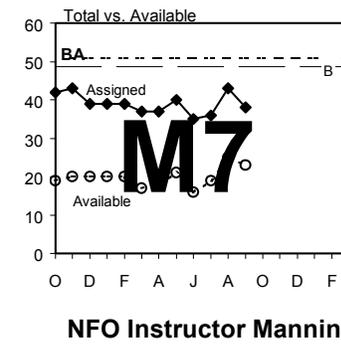
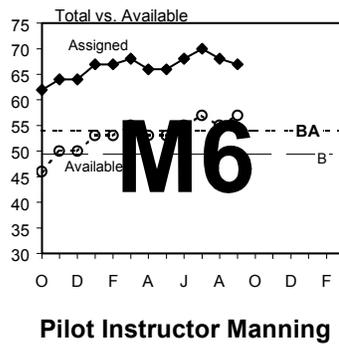
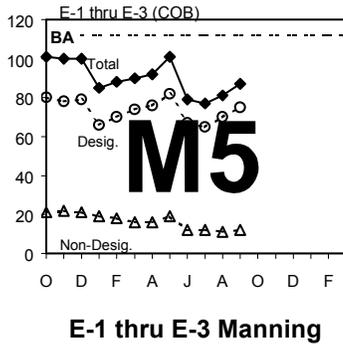
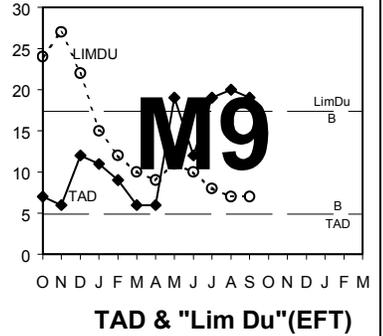
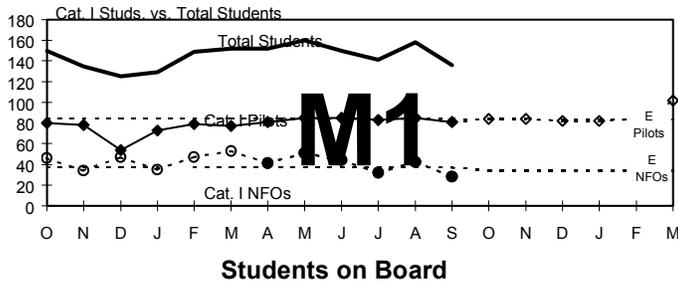
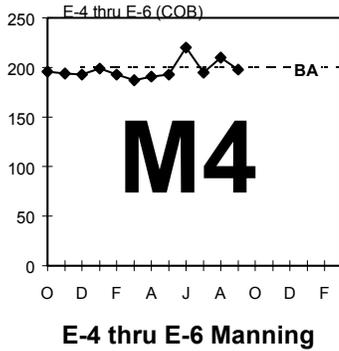
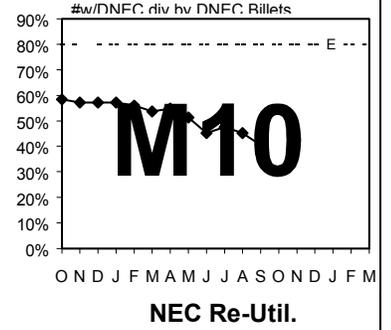
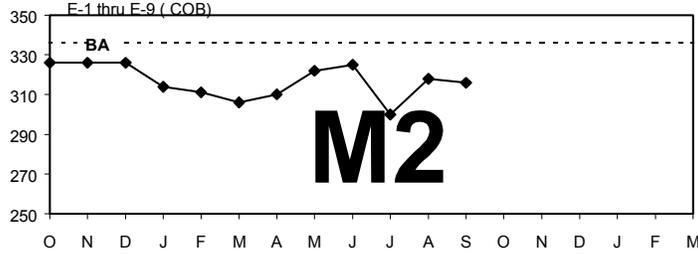
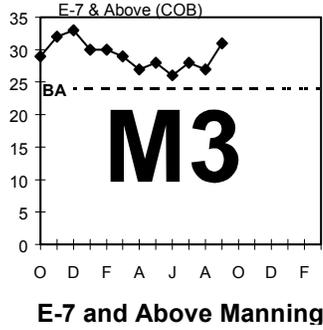
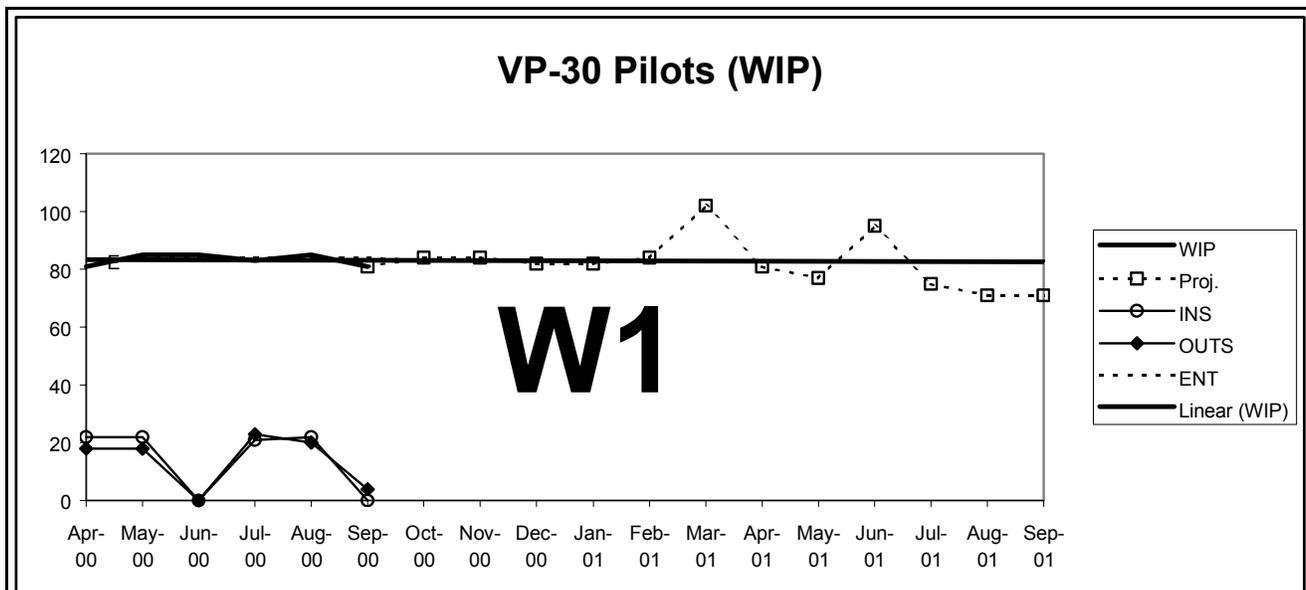
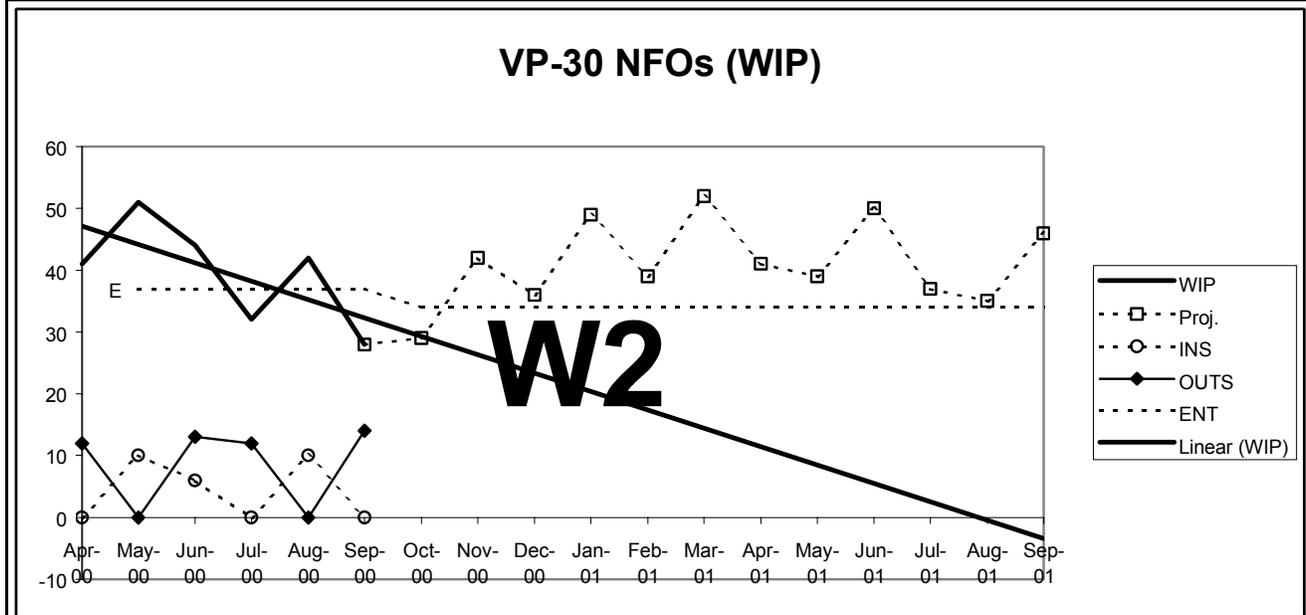


Figure 3



	A-00	M-00	J-00	J-00	A-00	S-00	O-00	N-00	D-00	J-01	F-01	M-01	A-01	M-01	J-01	J-01	A-01	S-01
WIP	81	85	85	83	85	81	#N/A											
Proj.						81	84	84	82	82	84	102	81	77	95	75	71	71
INS	22	22	0	21	22	0	#N/A											
OUTS	18	18	0	23	20	4	#N/A											
ENT	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83



	A-00	M-00	J-00	J-00	A-00	S-00	O-00	N-00	D-00	J-01	F-01	M-01	A-01	M-01	J-01	J-01	A-01	S-01
WIP	41	51	44	32	42	28	#N/A											
Proj.						28	29	42	36	49	39	52	41	39	50	37	35	46
INS	0	10	6	0	10	0	#N/A											
OUTS	12	0	13	12	0	14	#N/A											
ENT	37	37	37	37	37	37	34	34	34	34	34	34	34	34	34	34	34	34

REVISION 10-00

Figure 4

01 February 2001

SECTION II

FRS COCKPIT CHART METRICS DEFINITIONS

1. METRIC: FLEET REQUIREMENT

- a. CHART and PANEL: "Pilot, NFO, and Enlisted Aircrew Supply & Requirement" on FRS Key Measurements, Panel 1 and Panel 2 (enlisted aircrew displayed by NEC/MOS on separate tab for VP-30, VMGRT-253, and VQ-7).
- b. UNITS: Number of graduates, accumulated per year
- c. MEASUREMENT DEFINITION: The number of Navy and Marine CAT 1 trained flight officers and enlisted aircrew, required by the fleet on an annual basis to allow a 3-year first tour sea duty (4 years for enlisted aircrew).
- d. CALCULATION:

$$\text{Requirement} = \frac{(\text{Billet Requirement} - \text{CO-XO-DH-Dir-Cat1a}) * (1 + \text{AFA})}{\text{FSTL}}$$

BR = Number reflected in Bureau of Personnel (BUPERS) billet file or calculated as a factor of aircraft per squadron and crew seat ratio.

CO/XO/DH = Commanding Officer/Executive Officer/Department Head

Dir. = Other directed requirements such as OIC billets

CAT-1a = Second tour LT filling Air Combat Training Continuum Manager billet. Second tour LT filling Officer-in-Charge (OIC) billet in Rotary Wing community.

FSTL = First sea tour length in years. Standard is 3 years for officers and 4 years for enlisted aircrew.

AFA = Annual fleet attrition. Factor to account for fleet attrition which occurs after completion.

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

- (1) Source: CNO(N789), Aviation Community Manager CNO(N131V), PERS 4, CNO(N122C1), and Marine Corps Combat Development Command (MCCDC) C473.

01 February 2001

- (2) Frequency: Collect and report data annually. Update data if major change occurs. Data are based on transactions occurring during the budget review. Data due October 15th of each FY.

f. BASIS FOR BASELINE: N/A

g. BASIS FOR ENTITLEMENT: Fleet Requirement for current fiscal year.

2. METRIC: PILOT SUPPLY

a. CHART and PANEL: "Pilot Supply & Requirement" on FRS Key Measurements, Panel 1.

b. UNITS: Number of graduates accumulated per year.

c. MEASUREMENT DEFINITION: The number of Navy and Marine CAT 1 trained pilots supplied to the fleet on an annual basis in response to Fleet Requirement. IPP line indicates the FRS's pilot production plan as delineated in the Integrated Production Plan (IPP).

d. CALCULATION: *Supply = FRS Output to the Fleet*

FRS Output = Sum of the number of CAT1 students completing FRS or completing last intermediate assignment / training prior to reporting to the fleet.

e. Source Data and Reporting Frequency for Measurement:

- (1) Source: FRS (actual output) and IPP (IPP line).

- (2) Frequency: Collect and report data monthly based on transactions through close of business on the last calendar day of the month.

f. Basis for Baseline: N/A.

g. Basis for Entitlement: CNO(N789) promulgated Annual Fleet Requirement.

3. METRIC: NFO SUPPLY

a. CHART and PANEL: "NFO Supply & Requirement" on FRS Key Measurements, Panel 2.

01 February 2001

- b. UNITS: Number of graduates accumulated per year.
- c. MEASUREMENT DEFINITION: The number of Navy and Marine CAT 1 trained flight officers supplied to the fleet on an annual basis in response to Fleet requirement. IPP line indicates the FRS's NFO production plan as delineated in the Integrated Production Plan (IPP).

- d. CALCULATION: *Supply = FRS Output to the Fleet*

FRS OUTPUT = Sum of the number of CAT 1 students completing FRS or completing last intermediate assignment / training prior to reporting to the fleet.

- e. Source Data and Reporting Frequency for Measurement:

- (1) Source: FRS (actual output) and IPP (IPP line).
- (2) Frequency: Collect and report data monthly based on transactions through close of business on the last calendar day of the month.

- f. BASIS FOR BASELINE: N/A.

- g. BASIS FOR ENTITLEMENT: CNO(N789) promulgated Annual Fleet Requirement.

4. METRIC: ENLISTED AIRCREW SUPPLY

- a. CHART and PANEL: "Enlisted Aircrew Supply & Requirement" on FRS Key Measurements, Panel 2 (VP-30, VMGRT-253, and VQ-7 displayed on separate tab).

- b. UNITS: Number of graduates accumulated per year.

- c. MEASUREMENT DEFINITION: The number of Navy and Marine CAT 1 trained enlisted aircrewmen supplied to the fleet on an annual basis in response to Fleet requirement.

- d. CALCULATION: *Supply = FRS Output to the Fleet*

FRS OUTPUT = Sum of the number of FRS CAT 1 enlisted aircrew students completed.

- e. Source Data and Reporting Frequency for Measurement:

- (1) Source: FRS.

01 February 2001

- (2) Frequency: Collect and report data monthly based on transactions through close of business on the last calendar day of the month.

f. BASIS FOR BASELINE: N/A.

g. BASIS FOR ENTITLEMENT: CNO (N789) promulgated Annual Fleet Requirement.

5. METRIC: MAINTENANCE MANNING

a. CHART and PANEL: "Maintenance Manning" on FRS Key Measurements, Panel 3 and on FRS Key Measurements - Manning, Panel M1.

b. UNITS: Number of Maintenance Personnel.

c. MEASUREMENT DEFINITION: The total number of Navy and Marine E1 to E9 enlisted personnel designated as Sea, Shore, Neutral, TAR and Limited Duty assigned to the Maintenance Department. This includes ratings of AD, AE, AK, AM, AO, AT, AZ, PR, QA and Maintenance Control (and USMC equivalent) personnel.

d. CALCULATION: The arithmetic sum of Navy E1 to E9 enlisted personnel designated as Sea, Shore, Neutral, TAR and Limited Duty assigned to the Maintenance Department.

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

- (1) Source: EDVR (Enlisted Distribution Verification Record).

- (2) Frequency: Monthly as of the last day of the month.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: The number designated as BA in the EDVR for Navy E1 to E9 enlisted personnel designated as Sea, Shore, Neutral, TAR and Limited Duty assigned to the Maintenance Department.

6. METRIC: INSTRUCTOR MANNING

a. CHART and PANEL: "Instructor Manning" on FRS Key Measurements, Panel 4.

01 February 2001

- b. UNITS: Number of instructors.
 - c. MEASUREMENT DEFINITION: The sum of all instructors (excluding instructors under training, IUT) assigned to the FRS, as reflected on the Squadron Daily Muster on the last day of each month, whether they are Pilot, NFO, or Aircrew Instructors. Available instructors are the average number of instructors actually available to train during the month.
 - d. CALCULATION: None; data sheet automatically sums Pilot, NFO and Aircrew Instructor data
 - e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:
 - (1) Source: Squadron Daily Muster.
 - (2) Frequency: Monthly, based on close of business on the last calendar day of the month. Available instructor data averaged for the month.
 - f. BASIS FOR BASELINE: FY98 actual data.
 - g. BASIS FOR ENTITLEMENT: Total instructors (BA) allowed per the Activity Manning Document (AMD).
7. METRIC: X REQ'D / X COMP
- a. CHART and PANEL: "X Req'd & X Comp" on FRS Key Measurements, Panel 5.
 - a. UNITS: Number of simulator and/or flight training events per flying day.
 - b. MEASUREMENT DEFINITION: "X Req'd" is the average number of daily simulator or flight training events required until the end of the current Fiscal Year to meet Fleet requirement for all aviators as specified by N789. This measurement includes information for Category 1, 2, 3, 4 and 5 Replacement pilots and NFO, but excludes IUT events. "X Comp" is the average daily number of simulator or flight training events completed during the reporting month.
 - c. CALCULATION: None required. Calculations are performed in the source report.
 - d. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

01 February 2001

- (1) Source: Monthly Training Summary Report.
- (2) Frequency: Collect and report data monthly based on total X's completed versus total X's required to meet CNO(N789) approved production plan as presented in the Integrated Production Plan (IPP). No smoothing required, arithmetic average required.

e. BASIS FOR BASELINE: FY98 actual data.

f. BASIS FOR ENTITLEMENT: Entitlement displayed as the "X's Req'd" line, and equates to the total number of "X's" required to meet the FY production requirement.

8. METRIC: PILOT & NFO CYCLE TIME (CT)

a. CHART and PANEL: "Pilot CT" on FRS Key Measurements, Panel 6. "NFO CT" on FRS Key Measurements, Panel 7.

b. UNITS: Calendar Weeks.

c. MEASUREMENT DEFINITION: CT is depicted as a two-part column representing the sum of the Pre-Load CT (white, upper portion of column) and the FRS syllabus CT (black, lower portion of column). FRS syllabus CT represents the time from when a Cat 1 student starts class in the FRS until the student completes the FRS.

d. CALCULATION:

$$CT = \frac{(BOH + EOH)/2}{(Ins + Outs)/2}$$

Beginning Students On Hand (BOH) = Number of Cat 1 pilots (NFO) in the FRS at the beginning of the period.

Ending Students On Hand (EOH) = Number of Cat 1 pilots (NFO) in the FRS at the end of the period.

$EOH = (BOH + Ins) - (Outs + Attrites)$

Attrites = Number of student pilots that do not successfully complete training or fail to continue to the Fleet or next training site (e.g. medical).

Ins = Number of Cat 1 pilots (NFO) beginning class at the FRS during the period.

01 February 2001

Outs = Number of Cat 1 pilots (NFO) completing FRS or completing last intermediate assignment/training prior to reporting to the Fleet.

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

(1) Source: FRS

(2) Frequency: Collect and report data monthly based on transactions through close of business on the last calendar day of the month. A two-month rolling average is used to smooth data.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: CNO approved syllabus time plus entitled FRS Pre-Load cycle time.

9. METRIC: PILOT (& NFO) FRS PRE-LOAD CYCLE TIME (CT)

a. CHART and PANEL: "Pilot CT" on FRS Key Measurements, Panel 6. "NFO CT" on FRS Key Measurements, Panel 7.

b. UNITS: Calendar Weeks.

c. MEASUREMENT DEFINITION: Cycle time representing the period from Cat 1 pilot "winging" until the FRS class begins. Pilot (NFO) pre-load CT is added to Pilot (NFO) CT and plotted on panel 6 as the total CT.

d. CALCULATION:

$$CT = \frac{(BOH) + (EOH)}{Outs} / 2$$

Beginning Students On Hand (BOH) = Number of Cat 1 pilots (NFO) in the FRS Pre-load at the beginning of the period.

Ending Students On Hand (EOH) = Number of Cat 1 pilots (NFO) in the FRS Pre-load at the end of the period.

EOH = (BOH + Ins) - (Outs + Attrites).

Attrites = Number of student pilots (NFO) who do not continue to an FRS or leave for medical reasons, etc.

Ins = Number of Cat 1 pilots (NFO) "winged" (transferring to the FRS Pre-load) during the period.

01 February 2001

Outs = Number of Cat 1 pilots (NFO) starting the FRS class (exiting the FRS Pre-load) during the period. Average outs over preceding two months is used to compute pre-load CT.

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

- (1) Source: BUPERS and MCCDC (from CNATRA "winging" data).
- (2) Frequency: Collect and report data monthly based on transactions through close of business on the last calendar day of the month. A two-month rolling average is used to smooth data.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: Time allocated for SERE, CFET, PCS move, etc. Basis varies by pipeline and service.

10. METRIC: PILOT (&NFO) FIRST PASS YIELD (FPY)

a. CHART and PANEL: "First Pass Yield" on FRS Key Measurements, Panel 9.

b. UNITS: Percentage.

c. MEASUREMENT DEFINITION: FPY represents the percentage of Cat 1-5 pilot (NFO) training events (simulator and aircraft) successfully completed (generating an "X") verses the number of training events scheduled.

d. CALCULATION:

$$FPY = \frac{\text{Number of Training Events Completed Successfully}}{\text{Number of Training Events Scheduled}}$$

Training Events Completed Successfully = Number of simulator and flight training events during the measurement period that resulted in an "X". Events that are either incomplete or must be repeated (weather, A/C down, instructor or student incapacitation) are not considered complete regardless of reason. NOTE: The reasons for FPY failures should be collected and analyzed in order understand causal factors and improve FPY.

Training Events Scheduled: The sum of all training events scheduled (counted each time a Cat I pilot is scheduled for

01 February 2001

a training sortie in either a simulator or an aircraft regardless of whether the event was completed, cancelled, incomplete) during the reporting period.

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

(1) Source: FRS.

(2) Frequency: Collect and report data monthly based on transactions through close of business on the last calendar day of the month.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: Established as 90 percent.

11. METRIC: FRS PRE-LOAD

a. CHART and PANEL: "Pre-FRS Pool" on FRS Key Measurements, Panel 8.

b. UNITS: Number of Students.

c. MEASUREMENT DEFINITION: The number of CAT 1 winged pilots (NFO) that have not commenced their FRS class. Includes personnel conducting PCS moves, training en route (SERE, CFET, etc), and at the FRS awaiting class start.

d. CALCULATION: $Preload = (BOH + Ins) - (Outs + Attrites)$

Beginning Students On Hand (BOH) = Number of student pilots (NFO) in the Preload at the beginning of the period.

Ins = Number of student pilots (NFO) "winged" during the month.

Outs = Number of student pilots (NFO) who started an FRS Class during the month.

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

(1) Source: BUPERS/MCCDC report.

(2) Frequency: Collect and report data monthly based on transactions through close of business on the last calendar day of the month.

01 February 2001

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: Entitlement = (Production requirement for current FY) x (length of preload entitlement in weeks) / (50 weeks).

12. METRIC: AIRCRAFT READY FOR TRAINING

a. CHART and PANEL: "Aircraft Ready to Train" on FRS Key Measurements, Panel 10 and FRS Key Measurements - Aircraft, Panel A1.

b. UNITS: Number of aircraft (to one decimal place).

c. MEASUREMENT DEFINITION: The arithmetic average of the daily number of total aircraft designated available for scheduling on the "Smooth Schedule" report. If an aircraft status changes to not available during the day, the average for the day should be used. Aircraft ready to train, which have been borrowed from the Fleet are also shown as an additional line on this panel. This calculation is similar to the FRS owned "aircraft ready to train."

d. CALCULATION:

$$\text{AIRCRAFT RFT} = \frac{\text{Sum of Total Aircraft Available for Training For All Flying Days in Month}}{\text{Flying Days in Month (Days Scheduled)}}$$

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

(1) Source: Squadron "Smooth Schedule" Report.

(2) Frequency: Collect and report data monthly.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: RFT aircraft required to meet production requirements as delineated in the Integrated Production Plan.

13. METRIC: FLIGHT HOURS YTD

a. CHART and PANEL: "Flight Hrs. YTD" on FRS Key Measurements - Aircraft, Panel A2.

b. UNITS: Monthly hours (cumulative).

c. MEASUREMENT DEFINITION:

- (1) Hours flown: Total hours, including training and overhead flown by the squadron, accumulated YTD.
- (2) Programmed/required hours: OP20 hours budgeted for the year to meet the FRS production plan as delineated in the IPP.
- (3) Overhead hours: Total hours flown that are not directly attributable to completing a student event.

d. CALCULATION: Cumulative total of the monthly reported flight hours. Programmed hours are the cumulative sum of the planned hours to meet fleet requirement

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

- (1) Source: Squadron 3-M Summary as required by OPNAV Inst. 4790.4C. (Data extracted from NALCOMIS)
- (2) Frequency: Collect and report data monthly based on flight hours flown through close of business on the last calendar day of the month.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: Programmed Flight Hours - YTD. Derived from OP-20 funding data, the total flight hours (training and overhead) required to produce the FRS load plan (all categories).

14. METRIC: STUDENTS ON BOARD

a. CHART and PANEL: "Students on Board" on FRS Key Measurements - Manning, Panel M2

b. UNITS: Number of students.

c. MEASUREMENT DEFINITION: Total number of pilot and NFO students (all categories, excluding IUT) in the squadron and in training at the end of the month. In training includes all students having officially started, but not completed, an FRS class of instruction. This panel depicts 3 lines: total students, Cat 1 pilot students, and Cat 1 NFO students.

12 December 2000

d. CALCULATION: Roster count at the end of the month.

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

(1) Source: FRS.

(2) Frequency: Collect and report data monthly based on count at close of business on the last calendar day of the month.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: Cat 1 pilot and NFO entitlements based on annual production plan divided by 50 weeks multiplied by the CNO-approved syllabus time.

15. METRIC: MAINTENANCE MANNING: E-7 AND ABOVE

a. CHART and PANEL: "E7 and Above Manning" on FRS Key Measurements - Manning, Panel M3.

b. UNITS: Number of personnel.

c. MEASUREMENT DEFINITION - The total number of E7 to E9 enlisted personnel designated as Sea, Shore, Neutral, TAR and Limited Duty (regardless of rating) assigned to the Maintenance Department.

d. CALCULATION: The arithmetic sum of E7 to E9 enlisted personnel designated as Sea, Shore, Neutral, TAR and Limited Duty assigned to the Maintenance Department.

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

(1) Source: FRS headcount.

(2) Frequency: Collect and report data monthly based on count at close of business on the last calendar day of the month.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: Basic Allowance (BA) (or 90 percent USMC T.O.), as delineated in the Enlisted Distribution Verification Record (EDVR), of E7 to E9 enlisted personnel assigned to the Maintenance Department.

16. METRIC: MAINTENANCE MANNING: E-4 to E-6

- a. CHART and PANEL: "E4 thru E6 Manning" on FRS Key Measurements - Manning, Panel M4.
- b. UNITS: Number of personnel.
- c. MEASUREMENT DEFINITION - The total number of E4 to E6 enlisted personnel designated as Sea, Shore, Neutral, TAR and Limited Duty (regardless of rating) assigned to the Maintenance Department.
- d. CALCULATION: The arithmetic sum of E4 to E6 enlisted personnel designated as Sea, Shore, Neutral, TAR and Limited Duty assigned to the Maintenance Department.
- e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:
 - (1) Source: FRS headcount.
 - (2) Frequency: Collect and report data monthly based on count at close of business on the last calendar day of the month.
- f. BASIS FOR BASELINE: FY98 actual data.
- g. BASIS FOR ENTITLEMENT: Basic Allowance (BA) (or 90 percent USMC T.O.), as delineated in the Enlisted Distribution Verification Record (EDVR), of E4 to E6 enlisted personnel assigned to the Maintenance Department.

17. METRIC: MAINTENANCE MANNING: E-1 to E-3

- a. CHART and PANEL: "E1 thru E3 Manning" on FRS Key Measurements - Manning, Panel M5.
- b. UNITS: Number of personnel.
- c. MEASUREMENT DEFINITION - The total number of E1 to E3 enlisted personnel designated as Sea, Shore, Neutral, TAR and Limited Duty (regardless of rating) assigned to the Maintenance Department.
- d. CALCULATION: The arithmetic sum of E1 to E3 enlisted personnel designated as Sea, Shore, Neutral, TAR and Limited Duty assigned to the Maintenance Department.

01 February 2001

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

- (1) Source: FRS headcount.
- (2) Frequency: Collect and report data monthly based on count at close of business on the last calendar day of the month.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: Basic Allowance (BA) (or 90 percent USMC T.O.), as delineated in the Enlisted Distribution Verification Record (EDVR), of E1 to E3 enlisted personnel assigned to the Maintenance Department.

18. METRIC: PILOT INSTRUCTOR MANNING

a. CHART and PANEL: "Pilot Instructor Manning" on FRS Key Measurements - Manning, Panel M6.

b. UNITS: Number of pilot instructors

c. MEASUREMENT DEFINITION: The number of qualified pilot instructors assigned to the FRS (solid line on chart), as reflected on the daily muster on the last day of each month. Also depicted is the number of qualified pilot instructors available (dashed line on chart), representing the average number of pilot instructors available to teach each day. Both metrics exclude instructors under training (IUT).

d. CALCULATION: Simple count for assigned instructors. Arithmetic average for available instructors.

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

- (1) Source: FRS.
- (2) Frequency: Collect and report data monthly.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: Total number of pilot instructors allowed based on BA for USN and 90 percent T.O. for USMC.

01 February 2001

19. METRIC: NFO INSTRUCTORS

- a. CHART and PANEL: "NFO Instructor Manning" on FRS Key Measurements - Manning, Panel M7.
- b. UNITS: Number of NFO instructors.
- c. MEASUREMENT DEFINITION: The number of qualified NFO instructors assigned to the FRS (solid line on chart), as reflected on the daily muster on the last day of each month. Also depicted is the number of qualified NFO instructors available (dashed line on chart), representing the average number of NFO instructors available to teach each day. Both metrics exclude instructors under training (IUT).
- d. CALCULATION: Simple count for assigned instructors. Arithmetic average for available instructors.
- e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:
 - (1) Source: FRS.
 - (2) Frequency: Collect and report data monthly.
- f. BASIS FOR BASELINE: FY98 actual data.
- g. BASIS FOR ENTITLEMENT: Total number of NFO instructors allowed based on BA for USN and 90 percent T.O. for USMC.

20. METRIC: AIRCREW INSTRUCTORS

- a. CHART and PANEL: "Aircrew Instructor Manning" on FRS Key Measurements - Manning, Panel M8.
- b. UNITS: Number of enlisted aircrew instructors
- c. MEASUREMENT DEFINITION: The number of qualified Aircrew instructors assigned to the FRS (solid line on chart), as reflected on the daily muster on the last day of each month. Also depicted is the number of qualified Aircrew instructors available (dashed line on chart), representing the average number of enlisted aircrew instructors available to teach each day. Both metrics exclude instructors under training (IUT).

01 February 2001

- d. CALCULATION: Simple count for assigned instructors.
Arithmetic average for available instructors.
- e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:
 - (1) Source: FRS.
 - (2) Frequency: Collect and report data monthly.
- f. BASIS FOR BASELINE: FY98 actual data.
- g. BASIS FOR ENTITLEMENT: Total number of Aircrew instructors allowed based on BA for USN and 90 percent T.O. for USMC.

21. METRIC: NON PRODUCTIVE TAD AND LIMITED DUTY (LIM-DU)

- a. CHART and PANEL: "TAD & Lim Du" on FRS Key Measurements - Manning, Panel M9.
- b. UNITS: Limited duty is number of Personnel; TAD is full time equivalents (FTE).
- c. MEASUREMENT DEFINITIONS:
 - (1) Limited duty - total number of E1 to E9 enlisted personnel designated as Limited Duty and assigned to the Maintenance Department at the end of the month.
 - (2) TAD - total number of E1 to E9 enlisted personnel assigned TAD from the Maintenance Department to activities outside the Maintenance Department during the month.
- d. CALCULATIONS:
 - (1) Limited Duty - arithmetic sum of E1 to E9 enlisted personnel, designated as Limited Duty, assigned to the Maintenance Department at the end of the month.
 - (2) TAD:

$$\text{TAD FTE} = \frac{\text{Number of personnel TAD} \times \text{Number of days TAD}}{\text{Work days per month}}$$

- e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:
 - (1) Source: Enlisted Distribution Verification Record (EDVR) and Maintenance Department Muster Report.

01 February 2001

(2) Frequency: Collect and report data monthly.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: Limited Duty - zero; TAD - the sum of billets identified in the EDVR as TAD billets.

22. METRIC: NEC RE-UTILIZATION

a. CHART and PANEL: "NEC Re-Util." on FRS Key Measurements - Manning, Panel M10.

b. UNITS: Percentage (experienced vs. total maintainers).

c. MEASUREMENT DEFINITION - The percentage of E4 to E8 enlisted personnel (including Limited Duty) assigned to the Maintenance Department and holding an 83XX NEC with Type/Model/Series experience in one of their two previous duty stations, or six years prior to assignment to the FRS, as compared to the total number of 83XX DNEC allocated to the squadron per the activity manning document (AMD). USMC/USN FRS shall only report the NEC reutilization for USN personnel.

d. CALCULATION:

COB E4 TO E8 Holding 83XX NEC and prior T/M/S experience
Total 83XX Billets as depicted on AMD

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

(1) Source: AMD (Aircraft Manning Document) and local Maintenance Department records.

(2) Frequency: Collect and report data monthly.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: 80 percent of Navy E4 to E8 Enlisted personnel assigned to fill an 83XX billet in the Maintenance Department shall have prior Type/Model/Series experience in their previous two duty stations (6 years).

23. METRIC: "A" STATUS AIRCRAFT

a. CHART and PANEL: "A Status Aircraft" on FRS Key Measurements - Aircraft, Panel A3.

01 February 2001

- b. UNITS: Number of aircraft (to one decimal place).
- c. MEASUREMENT DEFINITION: Ratio of total hours in reporting status (EIS hours) for all aircraft to clock hours in the reporting month.
- d. CALCULATION:

$$"A" \text{ Status } A/C = \frac{\text{Sqdn Total Hours in Reporting Status (EIS Hours)}}{\text{Days in month } \times 24 \text{ hrs.}}$$

- e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

- (1) Source: Squadron 3-M Summary as required by OPNAV Inst. 4790.4C (Data extracted from NALCOMIS)
- (2) Frequency: Collect and report monthly based on data through the last calendar day of the month.

- f. BASIS FOR BASELINE: FY98 actual data.

- g. BASIS FOR ENTITLEMENT: NA.

24. METRIC: AIRCRAFT MISSION CAPABLE (MC) & FULLY MISSION CAPABLE (FMC)

- a. CHART and PANEL: "MC & FMC" on FRS Key Measurements - Aircraft, Panel A4.

- b. UNITS: Percentage.

- c. MEASUREMENT DEFINITION: MC - hours in reporting status as Mission Capable for all aircraft as a percentage of total EIS hours. FMC - hours in reporting status as Fully Mission Capable for all aircraft as a percentage of total EIS hours.

- d. CALCULATION:

$$MC = \frac{\text{Hours in Reporting as Mission Capable}}{\text{Total EIS hours}}$$

$$FMC = \frac{\text{Hours in Reporting as Fully Mission Capable}}{\text{Total EIS hours}}$$

- e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

01 February 2001

- (1) Source: Squadron 3-M Summary as required by OPNAV Inst. 4790.4C. (Data extracted from NALCOMIS)
- (2) Frequency: Collect and report monthly based on data through the last calendar day of the month.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: NA.

25. METRIC: AIRCRAFT NON-MISSION CAPABLE MAINTENANCE (NMCM)

- a. CHART and PANEL: "NMCM & NMCS" on FRS Key Measurements - Aircraft, Panel A5.
- b. UNITS: Percentage.
- c. MEASUREMENT DEFINITION: Percentage of hours in Non-Mission Capable reporting status due to maintenance for all aircraft compared to total EIS hours.
- d. CALCULATION:

$$NMCM = \frac{\text{Hours in Reporting as Non-Mission Capable due to Maint.}}{\text{Total EIS hrs.}}$$

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

- (1) Source: Squadron 3-M Summary as required by OPNAV Inst. 4790.4C. (Data extracted from NALCOMIS)
- (2) Frequency: Collect and report monthly based on data through the last calendar day of the month.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: NA.

26. METRIC: AIRCRAFT NON-MISSION CAPABLE SUPPLY (NMCS)

- a. CHART and PANEL: "NMCM & NMCS" on FRS Key Measurements - Aircraft, Panel A5.
- b. UNITS: Percentage.
- c. MEASUREMENT DEFINITION: Percentage of hours in Non-Mission Capable reporting status due to supply for all aircraft compared to total EIS hours.

01 February 2001

d. CALCULATION:

$$NMCS = \frac{\text{Hours in Reporting as Non-Mission Capable due to Supply}}{\text{Total EIS hrs.}}$$

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

- (1) Source: Squadron 3-M Summary as required by OPNAV Inst. 4790.4C. (Data extracted from NALCOMIS)
- (2) Frequency: Collect and report monthly based on data through the last calendar day of the month.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: NA.

27. METRIC: MAINTENANCE MANHOURS/FLIGHT HOUR (MMH/FH)

a. CHART and PANEL: "MMH/FH" on FRS Key Measurements - Aircraft, Panel A6.

b. UNITS: Maintenance man-hours per flight hour.

c. MEASUREMENT DEFINITION: Total maintenance man-hours required to support one flight hour in the current squadron environment.

d. CALCULATION: Total maintenance man-hours reported by the squadron divided by the total flight hours reported during the same reporting period.

$$MMH/FH = \frac{\text{Total Maintenance Manhours}}{\text{Total Flight Hours}}$$

e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:

- (1) Source: Squadron 3-M Summary as required by OPNAV Inst. 4790.4C. (Data extracted from NALCOMIS)
- (2) Frequency: Collect and report monthly based on data through the last calendar day of the month.

f. BASIS FOR BASELINE: FY98 actual data.

g. BASIS FOR ENTITLEMENT: NA.

01 February 2001

28. METRIC: AVAILABLE MANHOURS & REPORTED MANHOURS

- a. CHART and PANEL: "AVAIL MHR / RPT. MHR" on FRS Key Measurements - Aircraft, Panel A7.
- b. UNITS: Man-hours per month
- c. MEASUREMENT DEFINITIONS:
 - (1) AVAIL MHR (Available Maintenance Man-hours) - Total maintenance man-hours available for direct aircraft maintenance in the Maintenance Department. Available man-hours based on the number of E4 to E6 enlisted personnel designated as Sea, Shore, Neutral, or TAR Duty, assigned to the Maintenance Department with AD, AE, AM, AO, AT, or PR ratings.
 - (2) REP. MHR (Reported Man-Hours) - Total reported maintenance man-hours per NALCOMIS.
- d. CALCULATIONS
 - (1) AVAIL MHR = *(sum of E4-E6 COB in specified ratings) X 145*
 - (2) REP MHR: Maintenance man-hours as reported in NALCOMIS.
- e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:
 - (1) Source: Available man-hours (EDVR); reported man-hours (NALCOMIS 3M report).
 - (2) Frequency: Collect and report monthly based on data through the last calendar day of the month.
- f. BASIS FOR BASELINE: FY98 actual data.
- g. BASIS FOR ENTITLEMENT: Reported maintenance man-hours at 85 percent of available man-hours.

29. METRIC: CANNIBALIZATIONS (CANNS - TOT & DIRECTED)

- a. CHART and PANEL: "Canns. Tot & Directed" on FRS Key Measurements - Aircraft, Panel A8.
- b. UNITS: Number of cannibalization occurrences.

01 February 2001

- c. MEASUREMENT DEFINITION: Total aircraft cannibalizations completed by the squadron during the reporting period (solid line on chart). Total Wing directed cannibalizations also depicted (dashed line on chart).
- d. CALCULATION: Sum of all Cannibalizations and Wing directed cannibalizations during the month.
- e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:
 - (1) Source: Squadron 3-M Summary as required by OPNAV Inst. 4790.4C (data extracted from NALCOMIS).
 - (2) Frequency: Collect and report monthly based on data through the last calendar day of the month.
- f. BASIS FOR BASELINE: Actual FY98 data.
- g. BASIS FOR ENTITLEMENT: NA.

30. METRIC: CANNIBALIZATION RATES/100 FLT. HRS.

- a. CHART and PANEL: "CAN Rates/100 Flt. Hrs." on FRS Key Measurements - Aircraft, Panel A9.
- b. UNITS: Ratio of the number of cannibalizations per 100 flight hours (to one decimal place).
- c. MEASUREMENT DEFINITION: Total aircraft cannibalizations divided by total flight hours (in hundreds) during the reporting period.
- d. CALCULATION:
$$\text{Cann. Rate} = \frac{\text{Total Cannibalizations}}{\text{Total Flt. Hrs.} / 100}$$
- e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:
 - (1) Source: Squadron 3-M Summary as required by OPNAV Inst. 4790.4C. (Data extracted from NALCOMIS)
 - (2) Frequency: Collect and report monthly based on data through the last day of the calendar month.
- f. BASIS FOR BASELINE: Actual FY98 data.
- g. BASIS FOR ENTITLEMENT: NA.

31. METRIC: AIRCRAFT PARTS SUPPLY TIME

- a. CHART and PANEL: "Parts Supply Time" on FRS Key Measurements - Aircraft, Panel A10.
- b. UNITS: Calendar days per order.
- c. MEASUREMENT DEFINITION - Average time lapse, as entered into NALCOMIS, between the transmission and receipt of an order for repairable and/or consumable material.
- d. CALCULATION: Calculated by NALCOMIS

$$\frac{SUM (Julian Date Material Received - Julian Date Material Ordered)}{Total Number of Orders}$$

- e. SOURCE DATA and REPORTING FREQUENCY FOR MEASUREMENT:
 - (1) Source: NALCOMIS
 - (2) Frequency: Reported monthly based on data through the last calendar day of the month.
- f. BASIS FOR BASELINE: Actual FY98 data.
- g. BASIS FOR ENTITLEMENT: NA.

32. METRIC: NAVY STANDARD WORK MONTH

- a. CHART and PANEL: "AVAIL MHR / REP. MHR" on FRS Key Measurements - Aircraft, Panel A7.
- b. UNITS: Available man-hours per month.
- c. DEFINITION: Available maintenance man-hours per maintainer per month.
- d. CALCULATION: The Navy standard 40 hr. workweek is comprised of:

13.99 hours	Support Action
12.81 hours	Direct Maintenance
6.62 hours	Non Available
5.9 hours	Admin.
<u>1.58 hours</u>	<u>Other</u>
40.0 hours	Total

01 February 2001

Navy standard workweek = 40 - 6.62 non-available hrs. =
33.38 available work hours

Navy standard work month = 4.33*33.38 = 145 available work
hours.

33. METRIC: PILOT & NFO WORK IN PROCESS (WIP)

- a. CHART and PANEL: "Pilots (WIP)" and "NFOs (WIP)" on WIP, Panels W1 & W2.
- b. UNITS: Number of student pilots (NFO).
- c. REQUIREMENT: The number of CAT 1 pilots and NFOs required by the fleet on an annual basis to allow a 3 year first tour sea duty.
- d. PRODUCTION PLAN: The number of CAT 1 pilots and NFOs that FRS, CNATRA, or NASC commits to produce in a given time period relative to requirement. Represents a production commitment and is based upon capacity analysis and upon inventory balance. Production Plan may be greater than or less than Fleet requirement for any particular training unit.
- e. ENTITLED WIP (WIP e): The number of CAT 1 pilots and NFOs that should be on board in a given portion of training at any one time to meet Fleet requirement.
- f. PRODUCTION WIP (WIP p): The number of CAT 1 pilots and NFOs that should be on board in a given portion of training at any one time to meet the FRS production plan.

SECTION III

Instructions for COMNAVAIRPAC Cockpit Chart Roll-Up

1. This section provides CNAP FRS Cockpit Chart metrics update process information. Recommend duplicating and maintaining for ready reference.

2. DATA COLLECTION. Applicable computer files should be placed in one of two primary folders contained within a single common computer folder (figure 1).

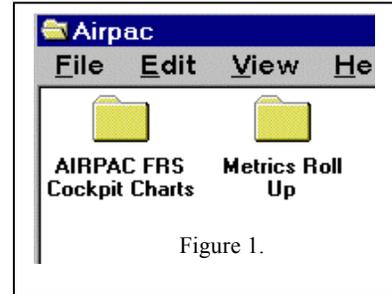


Figure 1.

a. AIRPAC FRS Cockpit Chart folder contains all CNAP FRS squadron charts (figure 2). FRS files should be named identical to previous files as exact syntax is required to ensure the automatic update software will locate the correct file. Each month, copy over the previous month's files and respond YES when the dialog box appears asking if you wish to replace the files with the same names. These files include:

- 1) HC3cpt.xls
- 2) HMMT-164.xls
- 3) HMT-303.xls
- 4) HS10cpt.xls
- 5) HSL41cpt.xls
- 6) VAQ129cpt.xls
- 7) VFA122.xls
- 8) VFA125cpt.xls
- 9) VMFATcpt.xls
- 10) VQ7.xls
- 11) VS41cpt.xls

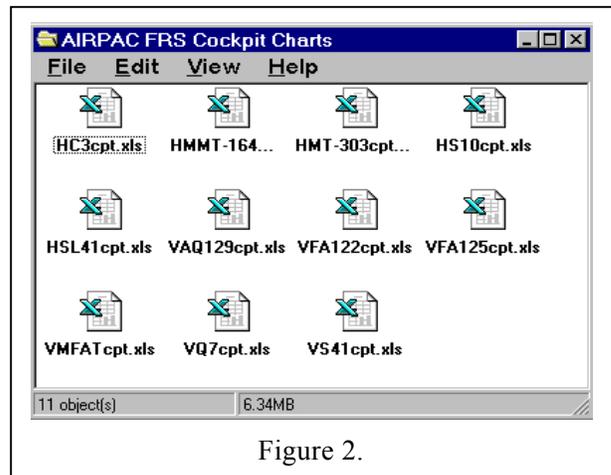


Figure 2.

b. Metrics Roll-Up folder contains all CNAP roll-up files for consolidation and reporting (figure 3). These files include:

- 1) PAC_CT.xls (CNAP FRS Cycle Time)
- 2) PAC_Helo.xls (all CNAP Helo FRS data)

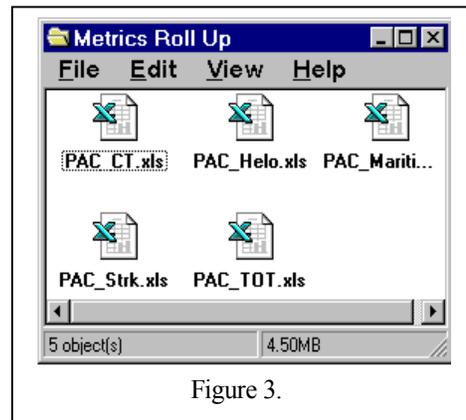


Figure 3.

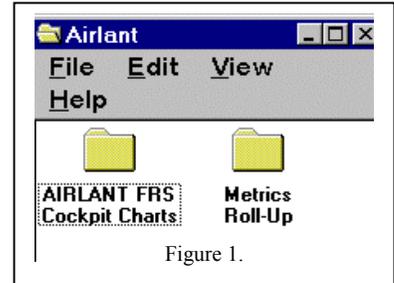
01 February 2001

- 3) PAC_Strk.xls (all CNAP Strike FRS data)
 - 4) PAC_Maritime.xls (VQ-7 data)
 - 5) PAC_TOT.xls (all CNAP FRS data)
3. MONTHLY UPDATE and ROLL-UP. Verify receipt of all CNAP squadron cockpit charts to ensure data is not lost during the roll-up.
 - a. Open the Metrics Roll Up Folder (figure 3).
 - b. Open the File - PAC_Helo.
 - c. The software will locate all helicopter squadrons, copy the Chart Data sheets, paste them on the PAC_Helo consolidated file, and remove external references.
 4. Open PAC_Strk and continue as before.
 5. Open PAC_Maritime and continue as before.
 6. Open PAC_TOT and continue as before. The software consolidates all Helo, Strike, and Maritime data into the AIRPAC Total Roll-Up.
 7. Open the PAC_CT File and review for obvious numeric inconsistencies.
 8. The COMNAVAIRPAC FRS metrics roll-up is complete.

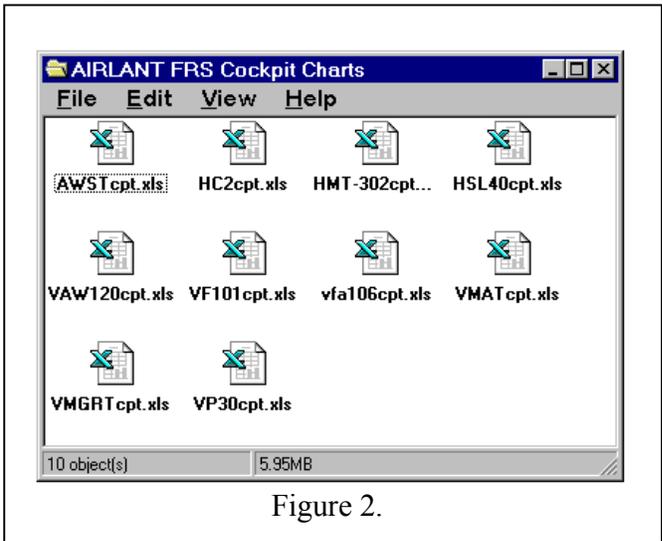
SECTION IV

Instructions for COMNAVAIRLANT Cockpit Chart Roll-Up

1. This section provides CNAL FRS Cockpit Charts Metrics update process information. Recommended duplicating and maintaining for ready reference.
2. DATA COLLECTION. Applicable computer files should be placed in one of two primary folders contained within a single common computer folder (figure 1).

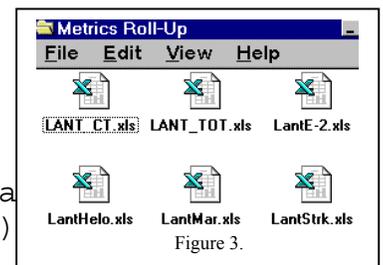


- a. AIRLANT FRS Cockpit Chart folder contains all CNAL FRS squadron charts (figure 2). FRS files should be named identical to previous files as exact syntax is required to ensure the automatic update software will locate the correct file. Each month, copy over the previous month's files and respond YES when the dialog box appears asking if you wish to replace the files with the same names. These files include:



- 1) AWSTcpt.xls
- 2) HC2cpt.xls
- 3) HMT-302cpt.xls
- 4) HSL40cpt.xls
- 5) VAW120cpt.xls
- 6) VF101cpt.xls
- 7) VFA106cpt.xls
- 8) VMATcpt.xls
- 9) VMGRTcpt.xls
- 10) VP30cpt.xls
- 11) VMMT204cpt.xls

- b. Metrics Roll-Up folder contains all CNAL roll-up files for consolidation and reporting (figure 3). These files include:



- 1) LANT_CT.xls (CNAL FRS Cycle Time)
- 2) LantE-2.xls (VAW-120 data)
- 3) LantHelo.xls (all CNAL Helo FRS data)
- 4) LantMar.xls (all CNAL Maritime FRS data)
- 5) LantStrk.xls (all CNAL Strike FRS data)

01 February 2001

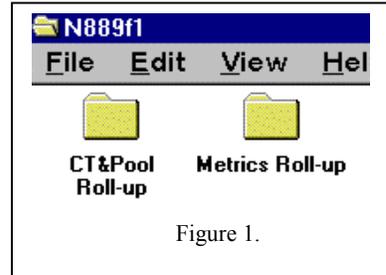
- 6) LANT_TOT.xls (all CNAL FRS data)
3. MONTHLY UPDATE and ROLL-UP. Verify receipt of all CNAL squadron cockpit charts to ensure data is not lost during the roll-up.
 - a. Open the Metrics Roll-Up Folder (figure 3).
 - b. Open the LantE-2.xls file.
 - c. The software will automatically locate the VAW-120 file, copy the Chart Data sheet, paste it on the LantE-2 consolidated file, and remove external references.
4. Open LantHelo and continue as before.
5. Open LantMar and continue as before.
6. Open LantStrk and continue as before.
7. Open LANT_TOT and continue as before. The software consolidates all E-2/C-2, Helo, Maritime, and Strike data into the AIRLANT Total Roll-Up.
8. Open the LANT_CT file and review for obvious numeric inconsistencies.
9. The COMNAVAIRLANT FRS metrics roll-up is complete.

SECTION V

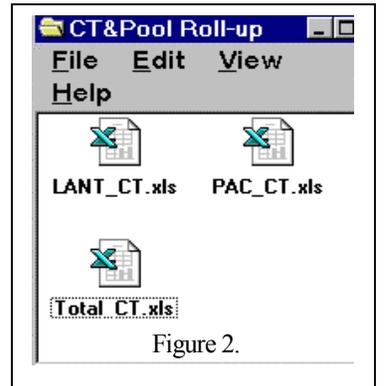
Instructions for CNO(N789) FRS Cockpit Chart Roll-Up

1. This section provides CNO(N789) FRS Cockpit Chart Metric update process information. Recommend duplicating and maintaining for ready reference.

2. DATA COLLECTION. Applicable computer files should be placed in one of two primary folders contained within a single common computer folder (figure 1).



3. CT & Pool Roll-Up folder contains all roll-up CT data for CNAP and CNAL FRS squadrons (figure 2). Files should be named identical to previous files as exact syntax is required to ensure the automatic update software will locate the correct file. Each month, copy over the previous month's files and respond YES when the dialog box appears asking if you wish to replace the files with the same names. These files include:



- a. LANT_CT.xls
- b. PAC_CT.xls
- c. Total_CT.xls

4. Monthly Cycle Time Roll-Up

- a. Open the CT&Pool Roll-up Folder (figure 2).
- b. Open the file Total_CT.
- c. The software will locate all reported Cycle Times from both the AIRPAC and AIRLANT, combine them by Pipeline and remove external references.

5. Monthly Total Data Roll-up.

- a. Open the Metrics Roll-up Folder (figure 3).

01 February 2001

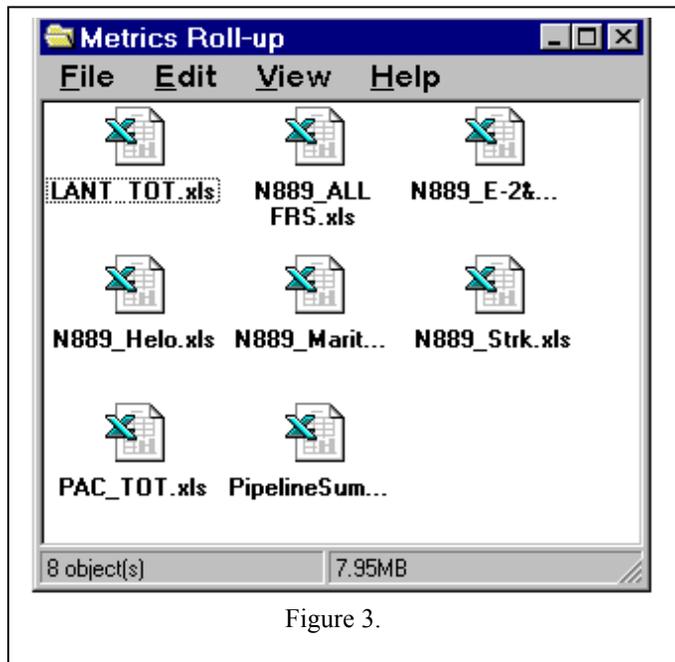
b. E2/C2 Roll-up.

- 1) Open N889_E-2&C2.
- 2) The software will locate and update applicable E-2/C-2 data, removing external references.

c. Follow same procedures listed in para 5.b. to update Helo, Maritime and Strike Roll-up files.

d. All FRS roll-up.

- 1) Open N889_ALL FRS.
- 2) The software will locate and update all reported AIRPAC and AIRLANT data, combine the data by pipeline, and remove external references.



6. Pipeline Summary

- a. Open the PipelineSum.xls file.
- b. The software will search all files by Pipeline and populate the updated Pipeline Summary automatically.
- c. Electronically forward the completed file to the N789 Data Analyst for completion of the NAPT Cockpit Charts.

7. CFT#3 Cockpit Charts review.

- a. Open the file N889_ALL FRS file.
- b. Select the "Summary" Tab and review the charts for obvious numeric anomalies and for format to ensure readability.
- c. Repeat process for CT Detail Chart, Supply & Requirement Cumulative, and Pre-Load FRS Tabs.

01 February 2001

PRODUCTION PLANNING FACTORS

1. INTRODUCTION. The primary mission of the Fleet Readiness Squadron (FRS) is to train naval aviators, including pilots, Naval Flight Officers, and aircrew, to fill fleet operational and support squadron manpower requirements. The goal is to produce the best quality aviator in the most effective, efficient, and economical way.

This section is a guide for FRS and other commands involved with training naval aviators and resourcing the training process. It is provided to cultivate a better understanding of Production Planning Factors (PPF), their derivation, basis, and utility in forecasting resource requirements. Thorough understanding and use of these concepts and the implementation of PPFs will facilitate economical and efficient accomplishment of the FRS mission of training the naval aviators.

2. BACKGROUND. The requirement to provide consistent, documented and coherent resource planning methodologies for the FRS has resulted in the development of FRS PPFs. PPFs facilitate identification of resource requirements in terms of instructors, aircraft, simulators and flight hours needed to accomplish the annual FRS student-training throughput for all categories of pilots, Naval Flight Officers and enlisted aircrew. By their very nature, planning factors are developed and reflect a steady state context. Adaptation of the planning factors and reevaluation of the basic assumptions are necessary to respond to transient circumstances. It also must be emphasized that although beneficial for short term "what-if analysis", PPFs form the basis for long range planning, programming and budgeting decisions, and resource determinations.

The PPF algorithms contained in this section shall be used where applicable in all management and resource determinations for the training component of the FRS missions. Other mission requirements and responsibilities assigned to the respective FRS that require additional manpower, aircraft or financial resources are not part of this PPF resource determination and must be calculated and allocated in addition to any resources required for the training mission. Determination of these additional manpower and resource requirements should be made using existing Navy standards, such as those contained in the Navy Manpower Manual. The additional manpower requirements should be documented in the additional manpower requirement page of the PPFs. If discrepancies are determined to exist, or if

01 February 2001

the information contained in this section becomes unsuitable or inaccurate, notify Chief of Naval Operations (N789F).

FRS PPFs cover every syllabus and training track of FRS operations. As such, these factors and algorithms are used as standard measurements against which training flow and performance can be judged and through which resource requirements for instructors, support personnel, aircraft, simulators and facilities are determined. It is critical that FRS PPFs accurately reflect individual FRS capabilities. In order to assist with the mathematical algorithms involved in PPF and other manpower requirement determinations, a spreadsheet or other tool will be provided and should be used by the FRS PPF action officer. This will not only make the entire PPF process easier but also better ensure standardized application of the concepts across all Navy and Marine Corps FRS.

PPFs provide the individual FRS, Type Wing, Type Commander (TYCOM), Commandant of the Marine Corps (CMC) and CNO staffs with a more efficient program planning and resource requirement determination process. Weather, resource availability, scheduled days, turn around times, brief and debrief allowances, sortie lengths, etc. all drive planned utilization of aircraft, simulators and instructors. Using these factors, the number of total aircraft, instructors, simulators and flight hours required to carry out the training requirement can be determined. Enlisted manning requirements, including required maintenance, administrative and other support personnel, and officer manning required to support other than the direct training mission are determined and provided in the Squadron Manning Document. PPFs provide an integral input into this document via the POE mod process. FRS PPFs also provide the fundamental basis for validating and updating CNO factors used in budget estimations for out-year inputs to the Planning, Programming, and Budgeting (PPBS) cycle.

Using PPFs and an annual production quota, it is possible to determine the following:

- a. Student loads and on-board time, expected attrition, and planned output.
- b. Aircraft, simulator and instructor requirements.
- c. Utilization and availability of students, instructors and aircraft.

01 February 2001

d. Training production plans by applying seasonal weather, student input, and utilization factors.

e. Other important factors such as additional manpower requirements above those required to accomplish the training mission.

3. PRODUCTION PLANNING FACTOR DEFINITION, RESPONSIBILITY, AND DERIVATION. The principal elements and algorithms used within the FRS PPM methodology are listed throughout the remainder of this enclosure. For each planning factor, the following data format is used:

a. Definition

b. Responsibility

b. Source of Data and/or Computation (if applicable)

d. Formula (if required)

4. AIRCRAFT HOURS PER COMPLETION FACTORS:

a. TYPE(s) OF AIRCRAFT

(1) Type/Model/Series (TMS) of aircraft currently employed or required in the syllabus

(2) Type Commander

(3) CNO-approved syllabus/Master Curriculum Guide

b. AIRCRAFT SYLLABUS FLIGHTS (Xs) (ASX)

(1) Number of aircraft flights/events called for by the syllabus

(2) Chief of Naval Operations

(3) CNO-approved syllabus/Master Curriculum Guide

c. AIRCRAFT SYLLABUS HOURS PER STUDENT (SYL)

(1) Approved curriculum flight hours exclusive of Extra Time (ET) or Warm-ups (WU), Lead/Safety Pilot requirements and other overhead.

(2) Chief of Naval Operations

(3) CNO-approved syllabus/Master Curriculum Guide

d. FLIGHT SYLLABUS WEEKS (TTT)

(1) Planned number of weeks to complete the prescribed syllabus

(2) Chief of Naval Operations

(3) CNO-Approved Syllabus/Master Curriculum Guide

01 February 2001

e. TOTAL TRAINING WEEKS (TTW)

(1) Planned total number of weeks to complete a phase, stage, or syllabus of training including any travel or planned delay time from previous phase of training

(2) Chief of Naval Operations

(3) CNO-approved syllabus/Master Curriculum Guide

f. AIRCRAFT STUDENT OVERHEAD AS A PERCENTAGE (SOP)

(1) Percent of total hours allotted for student Incomplete Flight Events, Re-flies, Extra Time Flights, Warm-up Flights, and Unsatisfactory Flight Events.

(2) Fleet Readiness Squadron

(3) Obtained by dividing total of Incomplete Flight Event Hours (INC), Re-fly Event Hours (REF), Extra Time Flight Hours (ETH), Warm-up Flight Hours (WUH), and Unsatisfactory Flight Event Hours (USH) flown during the last five years by Total Hours Flown (THF) flown over the same period.

$$(4) \quad SOP = \frac{INC + REF + ETH + WUH + USH}{THF}$$

g. AIRCRAFT SYLLABUS LEAD HOURS (SLH)

(1) Prorata share of total lead, bogie, etc., flight hours prescribed by the syllabus exclusive of Extra Time, Warm-up, and Incomplete events.

(2) Fleet Readiness Squadron

(3) Obtained from CNO-approved syllabus and computed by dividing each respective event's syllabus hours by the number of aircraft lead for that event and summing results for the entire syllabus.

$$(4) \quad SLH = \frac{LeadHours_1}{No.ofAcftLead} + \dots + \frac{LeadHours_n}{No.ofAcftLead}$$

h. AVERAGE STUDENT ATTRITION PERCENTAGE (ATR)

(1) Percentage of students who fail to complete the required syllabus.

(2) Fleet Readiness Squadron

(3) Obtained from CNO as a given planning number or computed by dividing the last 5 years total number of student attritions (ATT) by the sum of student completions (COM) and student attrites for the same period.

$$(4) \quad ATR = \frac{ATT}{COM + ATT}$$

01 February 2001

i. PERCENT SYLLABUS COMPLETED BY AVERAGE ATTRITE (PSC)

(1) The average percentage of syllabus that was completed by the average attrited student at the time of attrition.

(2) Fleet Readiness Squadron

(3) Obtained from historical data and computed by dividing the last 5 years' total syllabus events completed by the attrites (AXC) by the product of total aircraft syllabus flights (ASX) required times the number of student attritions over the same period (ATT). Unless otherwise noted, it is assumed to be 50 percent.

$$(4) PSC = \frac{AXC}{ASX \times ATT}$$

j. INSTRUCTOR TRAINING OVERHEAD AS A PERCENTAGE (IUT)

(1) Percentage of total hours flown that was required for instructor training flights not including annual or periodic requalifications.

(2) Fleet Readiness Squadron

(3) Obtained by dividing total instructor under training hours (ITH) flown during the last five years by total hours flown (THF) during the same period.

$$(4) IUT = \frac{ITH}{THF}$$

k. INSTRUCTOR INSTRUMENT, NATOPS, STANDARDIZATION REQUAL AND STASH OVERHEAD AS A PERCENTAGE (STN)

(1) The average percentage of Total Hours Flown that was required for periodic instructor requalification and currency. STASH flight hours should also include required hours to support wing and staff flight requirements unless identified in Other Task Flight Hours, service overhead hours, etc.

(2) Fleet Readiness Squadron

(3) Obtained by dividing total of Instrument (INST), NATOPS (NAT), Standardization/Requal (SRH) and Stash (STASH) flight hours flown during the last five years by Total Hours Flown (THF) flown over the same period.

$$(4) STN = \frac{INST + NAT + SRH + STASH}{THF}$$

l. MAINTENANCE/TEST OVERHEAD AS A PERCENTAGE (MOP)

01 February 2001

(1) Percentage of total hours flown that was required for all categories of maintenance/FCF flights.

(2) Fleet Readiness Squadron

(3) Obtained from last 5 years' yellow-sheet data and computed by dividing total Maintenance Flight Hours flown (MFH) by Total Flight Hours flown (THF).

$$(4) \quad MOP = \frac{MFH}{THF}$$

m. SERVICE OVERHEAD AS A PERCENTAGE (SRV)

(1) Percentage of total flight hours flown dedicated to service flights.

(2) Fleet Readiness Squadron

(3) Obtained from last 5 years' yellow-sheet data and computed by dividing total Service Hours flown (SFH) by Total Flight Hours flown (THF).

$$(4) \quad SRV = \frac{SFH}{THF}$$

n. LOGISTICS OVERHEAD AS A PERCENTAGE (LOP)

(1) Percentage of total flight hours flown that was required for logistics flights.

(2) Fleet Readiness Squadron

(3) Obtained from last 5 years' yellowsheet data and computed by dividing total Logistics flight hours (LFH) flown by Total Flight Hours flown (THF).

$$(4) \quad LOP = \frac{LFH}{THF}$$

o. TRANSIT/FERRY OVERHEAD AS A PERCENTAGE (TRN)

(1) Percentage of total flight hours that were flown in support of transit or ferry flights.

(2) Fleet Readiness Squadron

(3) Obtained from last 5 years' yellowsheet data and computed by dividing total transit and ferry flight hours (FFH) flown by total flight hours flown (THF) in the same period.

$$(4) \quad TRN = \frac{FFH}{THF}$$

01 February 2001

p. SIMULATOR OVERHEAD AS A PERCENTAGE (SOP)

- (1) Percentage of total simulator hours that were required for all non-x producing events including IUT, incompletes, reflys, SOD's, etc.
- (2) Fleet Readiness Squadron
- (3) Obtained from historical data by dividing simulator overhead hours (SOH) by simulator syllabus hours (SSH) completed over the same period.

$$(4) \quad SOP = \frac{SOH}{SSH}$$

q. PLANNED FLIGHT HOURS PER COMPLETION (HPS)

- (1) Planned syllabus plus prorata share of overhead flight hours per student.
- (2) Fleet Readiness Squadron
- (3) Obtained by multiplying the sum of aircraft syllabus hours per student (SYL) and aircraft syllabus lead hours per student (SLH) by one plus total overhead allowance (TOP). Total overhead allowance is the sum of the individual overhead percentages.

$$(4) \quad HPS = (SYL + SLH) \times (1 + TOP)$$

$$(5) \quad TOP = \frac{ATR}{2} + SOP + IUT + STN + MOP + SRV + LOP + TRN$$

5. INSTRUCTOR HOURS PER COMPLETION FACTORS - AIRCRAFT AND SIMULATORS:

a. SYLLABUS INSTRUCTOR HOURS (SIH)

- (1) Planned aircraft or simulator instructor hours to support the approved syllabus exclusive of lead/chase, overhead, etc.
- (2) Fleet Readiness Squadron
- (3) Obtained from the CNO-approved syllabus.

Requirements for Instructor Pilot (IP), Instructor NFO (IN), or Enlisted Instructors (IE) should be calculated separately.

b. LEAD INSTRUCTOR HOURS PER STUDENT (ILH)

- (1) Instructor hours (IP, IN, or IE) required for dedicated lead, chase, bogey, safety pilot/observer and other training support flights.
- (2) Fleet Readiness Squadron
- (3) Dedicated lead sorties are events accomplished in which no student syllabus requirements are completed in the lead

01 February 2001

aircraft. The lead aircraft is only providing a training platform for the other aircraft in the section/division. Planned Lead Instructor Hours (LIH) is obtained from the CNO-approved syllabus lead instructor hour requirement divided the number of aircraft in the respective flight.

$$(4) \quad LIH_{planned} = \frac{LIH_1}{No.ofAcft_1} \dots + \dots \frac{LIH_n}{No.ofAcft_n}$$

6. SORTIE LENGTH, STUDENT CONTACT TIME, INSTRUCTOR AVAILABILITY, AND WEATHER FACTORS:

- a. Students per sortie per instructor (sps)
 - (1) Number of students planned/possible on a given syllabus sortie.
 - (2) Fleet Readiness Squadron
 - (3) Determined by type of aircraft and syllabus requirements.

- b. AVERAGE SORTIE LENGTH (ASL)
 - (1) Average syllabus flight or simulator sortie length.
 - (2) Fleet Readiness Squadron
 - (3) Obtained from the CNO-approved syllabus and calculated by dividing aircraft or simulator syllabus hours per student (SYL) by syllabus events/flights (ASX). Actual data may be obtained from the last 5 years' yellowsheet or squadron data using actual completed syllabus events and syllabus hours flown (exclusive of lead, overhead, etc.).
$$(4) \quad ASL = \frac{SYL}{ASX}$$

- c. STUDENT CONTACT TIME (SCT)
 - (1) The average time the instructor spends with the student for each syllabus event exclusive of actual flight time or simulator time (i.e., brief and debrief).
 - (2) Fleet Readiness Squadron
 - (3) Actual data is obtained from empirical data at the training squadron using time study techniques. Actual data will be the average of such studies for the last 5 years. Planned allowance is from brief/debrief allowances contained in the CNO approved syllabus

01 February 2001

d. INSTRUCTOR AVAILABILITY FACTOR (IAF)

(1) Percentage of assigned effective instructors expected to be available to be scheduled to fly or conduct simulator instruction. Leave, sickness, watches, courts, boards, collateral and administrative requirements reduce the total work hours that an instructor is available to perform instructional duties.

(2) Fleet Readiness Squadron

(3) Calculated by dividing the instructor normal work day (IWH), normally 8 hours, by the instructor effective hours remaining after allowance for ground jobs, leave, duty, etc (IEH). Currently set as a standard 66.0 percent for FRS peacetime operations. Can also be obtained from historical data by dividing the average daily instructors available (AIA) by average assigned instructors (AAI).

$$(4) \quad IAF_{Planned} = \frac{IWH}{IEH} \qquad IAF_{Actual} = \frac{AIA}{AAI}$$

e. WEATHER FACTOR (WXF)

(1) Annual percentage of flyable weather days based upon historical observations.

(2) Fleet Readiness Squadron

(3) 5 year average of historical data; calculated by dividing the number of flyable days by the number of scheduled days.

$$(4) \quad WXF = \frac{AvgAnnualFlyDays}{AvgAnnualScheduleDays}$$

7. WORKING CONDITIONS, TURN AROUND TIME, AND HARDWARE AVAILABILITY

a. ANNUAL FLY/WORKING DAYS AVAILABLE - PEACETIME (DYP)

(1) Standard number of planned normal workdays per year. Based on a 50-week work year (52 less 2 weeks Christmas/New Year) and a 5-day workweek.

(2) Type Commanders

(3) Calculated by subtracting all planned non-flying days from the total number of days available. Holidays include: Martin Luther King Day, Presidents Day, Memorial Day, Independence Day, Veterans Day, Labor Day, Columbus Day, and Thanksgiving (including the following Friday). Christmas and New Years holidays included in the two non-workweeks allotted for holiday stand down.

01 February 2001

52 Wks per year Less 2 Wks Holiday Stand down	
50 Weeks @ 5 days per week	250 Days
Less: 9 Holidays	- 9 Days
Change of Command	- 1 Days
Unit Training (1Day/Mo)	-12 Days
Annual Fly Days	228 days

b. SCHEDULE EFFICIENCY INDEX (SEI)

(1) Factor to allow compensation for scheduling efficiency. Normally assumed to be 100 percent during peacetime operations with 5-day workweeks. Will be less during mobilization or wartime operations.

(2) Fleet Readiness Squadron

c. INSTRUCTOR WORK HOURS (IWH)

(1) Number of hours an instructor would normally work per day including flying and ground responsibilities. Normally assumed to be 8 hours in peacetime operations.

(2) Fleet Readiness Squadron

d. INSTRUCTOR GROUND SCHOOL INSTRUCTION PER DAY (IGS)

(1) Average hours per day instructors are required to be involved in ground instruction duties exclusive of any flight and simulator duties. Includes podium instruction requirements, lectures, monitoring duties, etc. This allowance reduces time available from the normal workday for flight, simulator, and other duties.

(2) Fleet Readiness Squadron

(3) Calculated based on CNO-approved syllabus academic, ground, and flight support requirements, average number of classes per year, instructor requirements, students per class, and training throughput requirement.

e. AIRCRAFT WORK DAY (AWP)

(1) Number of hours that an aircraft would normally be available per day. Set at 12 hours per day for peacetime operations.

(2) Type Commander

f. SIMULATOR WORK DAY (SWP)

(1) Number of hours that the respective CPT, OFT, WST, or other simulator would normally be available per day. Varies by FRS and simulator contract support provisions.

(2) Type Commander

01 February 2001

g. TURN AROUND TIME (TAT)

(1) Average time allocated for routine maintenance and crew changes required from the completion of a flight or simulator event (chocks) and availability or start of the next event.

(2) Fleet Readiness Squadron

(3) Obtained from empirical data over the last 5 years or through applicable maintenance requirement cards (MRCs).

h. READY FOR TRAINING AVAILABILITY FACTOR (RFT)

(1) Average percentage of assigned simulators or A-status aircraft that are in a condition to complete a required syllabus event.

(2) Fleet Readiness Squadron

(3) Obtained from applicable historical aircraft and simulator 3-M data and adjusted for individual syllabus requirements for Full (FMC) or Partial Mission Capable (MC) aircraft and simulators requirements and scheduled maintenance factors (ASM). Ready for Training (RFT) is equal to the number of syllabus events requiring an FMC asset (SEF) times the historical FMC rate (FMC) plus the number of syllabus events requiring only partial mission capable assets (SEM) times the respective historical partial mission capable rate (MC). The result is then divided by total syllabus events. This is then adjusted for the average number of "up" aircraft or simulators that are unavailable due to their being in scheduled maintenance (ASM) to arrive at estimated aircraft available for training.

$$(4) \quad RFT = \left\{ \frac{SEF \times FMC + SEM \times MC}{ASX} \right\} - ASM$$

8. APPLICATION OF PLANNING FACTORS. PPFs enable calculation of asset utilization, asset requirements, and student per asset ratios.

a. Asset Utilization. Annual utilization combined with respective levels of effort required will determine the number of each asset required to complete the training mission. From the basic factors presented earlier, an annual utilization of each asset can be calculated as follows.

(1) AIRCRAFT ANNUAL UTILIZATION (ACU). ACU is based on determining the number of sorties available per day and then flight hours available per year. Divide aircraft work day by the sum of average sortie length and turn around time. This is multiplied by average sortie length, aircraft estimated RFT rate, weather factor, scheduling efficiency, and planned annual

01 February 2001

fly days. The result is the estimated utilization of the average A-status aircraft given the constraints and assumptions provided.

$$ACU = \left(\frac{AWP}{ASL + TAT} \right) \times ASL \times RFT \times WXF \times SEI \times DYP$$

(2) INSTRUCTOR ANNUAL UTILIZATION (IPU). IPU is computed similar to ACU. Annual estimates are based on first determining average daily sorties available then computing annual flight hours. Divide instructor work day less any ground instruction requirement by the sum of average sortie length and student contact time. Then multiply the result by average sortie length, instructor availability, weather, schedule efficiency, and annual fly days. IPU represents the annual flight hours for those instructors required to complete the flight portion of the respective syllabus.

$$IPU = \left(\frac{IWH - IGS}{ASL + SCT} \right) \times ASL \times IAF \times WXF \times SEI \times DYP$$

(3) SIMULATOR ANNUAL UTILIZATION (SAU). Divide the simulator work hours per day by the sum of the average simulator sortie length plus simulator turn around time. Then multiply this by the average simulator sortie length, simulator ready for training rate, schedule efficiency factor, and annual fly days.

$$SAU = \left(\frac{SAW}{SAL + STA} \right) \times SAL \times SFT \times SEI \times DYP$$

b. Determining Total Asset Requirements. Given the previous calculations the following can be determined:

(1) ASSIGNED A-STATUS AIRCRAFT AND FLIGHT HOURS.

Step 1: Determine total flight hours required based on required training rate.

Multiply the assigned training output requirement (Demand) for each track by the syllabus/track planned flight hours per completion (HPC) (syllabus hours + lead hours + overhead)	$TFH_{Training} =$ Demand ₁ x HPC ₁ ... + ... Demand _n x HPC _n
--	--

Step 2: Add any other task flight hours.

01 February 2001

Add any flight hours associated or anticipated resulting from tasking other than training (OTH) (e.g., Air Demo's, Search and Rescue (SAR), etc.).

$$TFH = TFH_{\text{Training}} + OTH$$

Step 3: Determine A-status aircraft required for each Type, Model, Series.

Dividing Total Flight Hours (TFH) required by the estimated annual aircraft utilization - PPF results in the number of aircraft required to accomplish both the training and other missions allocated in Steps 1 and 2 for the specific TMS.

$$A_{\text{StatusAcft}} = \frac{TFH}{ACU}$$

$$Acft_{\text{WSPD}} = \frac{TFH}{WSPD}$$

Dividing Total Flight Hours (TFH) required by the annual WSPD rate would yield the total aircraft requirement based on WSPD utilization rates for the respective TMS. WSPD rates include allowance for pipe aircraft requirements and reflect estimated hours across the entire fleet not just A-status aircraft.

(2) COCKPIT PROCEDURE TRAINERS (CPTs), OPERATIONAL FLIGHT TRAINERS (OFTs), WEAPONS SYSTEM TRAINERS (WSTs), ETC.

Requirements for simulators and other trainers are computed in the same way as the requirement for aircraft. Simulator hours in support of syllabus training are determined using syllabus and overhead requirements per student and then multiplying by the annual training output requirement. Known additional task hours above annual training throughput requirements should also be included.

(3) INSTRUCTORS AND INSTRUCTOR FLIGHT HOURS REQUIRED FOR THE FLIGHT PORTION OF THE SYLLABUS.

Since the PPF methodology as presented here calculates instructor requirements for flight and simulator training demands separately, flight/aircraft instructor requirements will be addresses first. Individual requirements also need to be determined using this methodology for instructor pilots, instructor NFO/NAV, and enlisted instructors as appropriate.

01 February 2001

Step 1: Determine the number of instructor flight hours per student.

Start With:

Aircraft Syllabus Instructor Hours	SIH
Add Lead Instructor Hours	+ILH
This gives initial instructor flight hour requirement	SUB_1

Adjust for overhead by multiplying the initial instructor hours by the Total Overhead Percentage adjusted for additional instructor requirements ($TOP_{adjusted}$). $TOP_{adjusted}$ is a function of the total overhead percentage adjusted for those cases where more than one instructor is required (e.g., Rotary FCF flights).	$SUB_1 \times (1 + TOP_{adjusted})$ = Instructor Flight Hours Required per Student (IHS)
--	--

Step 2: Determine number of instructor flight hours based on student output requirements.

Multiply the assigned training output requirement (Demand) for each track by the Instructor Flight Hours per Student (IHS)	$TIH_{Training} = Demand \times IHS$
--	--------------------------------------

Step 3: Determine total instructor flight hour requirements after adjusting for other task hours.

Add additional instructor flight hours associated with tasking other than training (OTH) (e.g., Air Demo's, SAR, etc.). Again, adjustment needs to be made to Other Task Hours ($OTH_{Adjusted}$) to account for multi-instructor requirements.	$TIH = TIH_{Training} + OTH_{Adjusted}$
---	---

Step 4: Determine total number of instructors required for flight syllabus.

Dividing Total Instructor Flight Hours (TIH) required by the estimated instructor annual utilization (IPU) results in the number of instructors required (IPF) to accomplish both the flight portion of the training and other missions allocated in Steps 1, 2, and 3 for the specific TMS.	$IPF = \frac{TIH}{IPU}$
--	-------------------------

01 February 2001

(4) Simulator Instructor Requirements. Requirements for simulator instructors are calculated in the same way as the requirement for flight instructors using syllabus instructor requirements and simulator overhead planning factors.

(5) Total Instructor Requirements

Total Instructor requirements (IPR, INR, IER) are determined by the sum of flight and simulator requirements for each type of instructor (pilot, NFO, or enlisted.)

$$IPR = IPF_{Pilot} + IPF_{Sim}$$

$$INR = IPN_{Flight} + IPN_{Sim}$$

$$IER = IPE_{Flight} + IPE_{Sim}$$

9. STUDENT PER ASSET RATIOS. Given the annual utilization rates, total asset requirements and annual training output requirements it is possible to calculate "quick-look" ratios of resource requirements. These ratios are highly dependent on the various factors and assumptions used to provide and calculate the FRS Production Planning Factors provided above. It should also be noted that while these ratios supply a linear relationship between resources and student throughput it is unlikely that the actual relationships are linear across the entire continuum of possibilities of resource levels and student output. Regardless, the application and availability of the below ratios do provide insight into the respective resource-throughput relationships and facilitate short fused what-if calculations of capacity or resource requirements. It is also imperative to understand that since PPFs are calculated for each syllabus and training track, the ratios calculated for a particular track apply ONLY to that track. The ratios represent the marginal increase or decrease in student capacity associated with the addition or subtraction of one of the stated resources in that syllabus only.

Student : Aircraft

(PPF)

** Each TMS appropriate to the syllabus should be addressed.

$$SAR_{PPF} = \frac{\text{Student Output Req'd}}{\text{Acft Req}_{PPF}}$$

Student : Aircraft

(WSPD)

** Same note as above

$$SAR_{WSPD} = \frac{\text{Student Output Req'd}}{\text{Acft Req}_{WSPD}}$$

01 February 2001

Student : Instructor
Pilot (IP)

$$SPR = \frac{\textit{StudentOutputreq'd}}{\textit{IPR}}$$

Student : Instructor
NFO (IN)

$$SNR = \frac{\textit{StudentOutput Req}}{\textit{INR}}$$

Student : Enlisted
Instructor (IE)

$$SER = \frac{\textit{StudentOutput Req}}{\textit{IER}}$$

Student : Simulator
(OFT, etc.)
** Requirements/ratios
should be determined
for each type/model of
simulator or trainer.

$$SSR = \frac{\textit{StudentOutput Req}}{\textit{Sim Req}}$$

10. OTHER MANPOWER REQUIREMENTS. As an addendum to the PPFs, FRS should calculate manpower requirements resulting from additional duties and responsibilities outside of the training mission. Examples include duties such as Commanding/Executive Officer Billets, Department Head Billets (Maximum of 5 per FRS), Runway Duty Officer, NATOPS Model Manager and Evaluation, Instrument Ground School Instruction, Fleet Introduction Team (FIT), etc. These additional manpower requirements should then be added to those training resource requirements obtained through the use of PPFs and enlisted maintenance and administrative requirements from Navy Manpower Analysis Center (NAVMAC) analysis to better estimate total squadron manpower requirements.

01 February 2001

ACRONYMS

AMD	Activity Manning Document
ASM	Aviation Support and Manpower
BA	Basic Allowance
BOH	Beginning on Hand
BUPERS	Bureau of Personnel
CDP	Course Data Processing number
CFT	Cross Functional Team
CIN	Course Identification Number
CMC	Commandant of the Marine Corps
CNATRA	Chief of Naval Air Training
CNO	Chief of Naval Operations
COB	Current on Board
CPT	Cockpit Procedural Trainer
CT	Cycle Time
EDVR	Enlisted Distribution Verification Record
EOH	Ending on Hand
FH	Flight Hour
FIT	Fleet Introduction Team
FMC	Fully Mission Capable
FMT	Foreign Military Training
FPY	First Pass Yield
FRS	Fleet Readiness Squadron
HQMC	Head Quarters Marine Corps
IE	Enlisted Instructor
IN	Instructor Naval Flight Officer
IP	Instructor Pilot
IPP	Integrated Production Plan
IUT	Instructor Under Training
LIM-DU	Limited Duty
MC	Mission Capable
MCCDC	Marine Corps Combat Development Center
MHR	Man Hour
MMH	Maintenance Man Hour
MOS	Military Occupation Specialty
NA	Naval Aviator
NALCOMIS	Naval Aviation Logistics Command Maintenance Information System
NAPPI	Naval Aviator Production Process Improvement
NAPPR	Naval Aviation Production Process Review
NAPT	Naval Aviator Production Team
NAVFLIRS	Naval Aviation Flight Information Record System
NAVMAC	Navy Manpower Analysis Center
NEC	Naval Enlisted Classification
NMCM	Non-Mission Capable Maintenance
NMCS	Non-Mission Capable Supply

OPNAVINST 3500.31G

01 February 2001

NFO	Naval Flight Officer
OFT	Operational Flight Trainer
OIC	Officer-in-Charge
PMCF	Post Maintenance Check Flight
PPBS	Planning, Programming, and Budgeting System
PPF	Production Planning Factors
RAC	Replacement Aircrew
RDT&E	Research Development Test & Evaluation
RFT	Ready For Training
RNFO	Replacement Naval Flight Officer
RP	Replacement Pilot
SAR	Search and Rescue
TAD	Temporary Active Duty
TMS	Type/Model/Series
TO	Table of Organization
TTT	Time-to-Train
TYCOM	Type Commander
WIP	Work in Process
WST	Weapon System Trainer