

Team Leader: Lt Col Joel Carey  
 Team Members: Lt Col David Eaglin, Lt Col Chad Cook, Capt Benjamin Gilluly, Capt Brandon Bert, Capt Angela Edmondson, SMSgt Joseph Dowd, SMSgt Brian Deno, SMSgt Thomas Warren, TSgt Marc Pato  
 Facilitators: Lt Col Matthew Cox, SMSgt Erik Wagus, MSgt Stephen Middleton

# 18 Wing F-15 Flying Hour Program

## Kadena AB, Japan, 8-11 Jun 10

Approval Information/Signatures  
 18 WG/CC: Brig Gen Kenneth S. Wilsbach  
 18 OG/CC: Col Ronald L. Banks - Approved, 11 Jun 10  
 18 MXG/CC: Col David W. Brown - Approved, 11 Jun 10

### 1. Clarify & Validate the Problem

OODA

#### Problem Statement:

- There is a delta between F-15 FY11 training requirements and the maintenance capability to produce the necessary training. Need a flying and training program that delivers 100% of pilots fully combat ready (RAP and proficiency), and an F-15 fleet that meets the 78% combat mission capable standard. Need machines that work and people that can fly them. Has to include a health of fleet balance. Given the status quo, we are under resourced to achieve both. Proficiency is subjective, RAP is objective, Squadron Commanders decide. (RAP - Ready Airman Program)
- VOC: Sorties and effective RAP; Effective training; More blue air and less red air; More time doing tactical debriefs; Less time doing additional duties; More effective/reliable debriefing media; More stability with the contract (plan what you fly, fly what you plan); More lead time for TDYs and deployments; More weapons (9Xs); and Range Training Officers (RTOs).
- Key Process: Annual and Monthly Flying Hour Program Scheduling Process
- Tools Used: SWOT, SIPOC, VOC, VSM (See Block 4 Diagrams)

### 2. Break Down the Problem/Identify Performance Gaps

OODA

- Indepth performance gap analysis was the result of the Flying Hour Program First Look Process, Ops RAP Model, and Maintenance Capability Model.
- Extensive data gathering occurred prior to the event, and was compiled.

MEASURE	REQUIREMENT	CAPABILITY	DELTA
Sorties (RAP) (1)	8,736	8,200	-536
Hours (RAP) (1)	10,920	10,250	-669
Mission Effectiveness	100%	metric not defined	
Health of Fleet (2)	78%	78.4%	+.4%

Notes: 1 – 1.25 ASD; 2 – MC Rate Std.

- KPIs/Metrics: Purpose: to measure our progress against the plan; Top Level: Sorties, Hours, RAP, Mission Effectiveness, and Aircraft Health of Fleet
- Tools Used: KPI/Metrics, Gap Analysis

### 3. Set Improvement Target

OODA

- 100% Mission Effectiveness
- 536 Sorties
- 10% or greater decrease in red air sorties (red/blue air ratio)
- Future State Concepts: Need to build flexibility into the schedule (not demand it during execution, too late); During modeling Mx and Ops must work together to close any potential delta between requirements and capability; Consider (simultaneously) manning, experience levels, facilities, aircraft, personnel, and related factors; Consider acceptance of risk as appropriate/assessed; Ensure there is an acceptable balance between: Requirements and Capabilities; Risk and Reward; Cost and Benefit; Investment and Return; CMR Rate and Mx Production
- Tools Used: Ideal State, Future State, Kaizen Burst, SMART (See Block 4 Diagrams)

### 4. Determine Root Cause

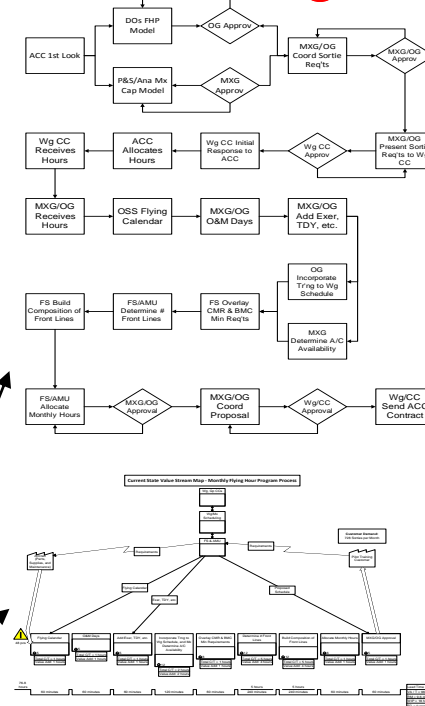
OODA

#### Root Cause – Themes:

- Manning (mx-down, ops-up)
  - Aircraft age
  - Experience Levels
  - Turnover (lack of continuity)
  - Not enforcing timeline(s)
  - Poor planning & coordination
  - Reliance upon outside agencies
  - Lack of focus
  - Competing objectives
  - No Playbook (standard work)
  - Too flexible
  - No dedicated planning time
  - Lack of coordinated training plan
- Tools Used: 5-Whys, Brainstorming

Annual FHP Process Flow

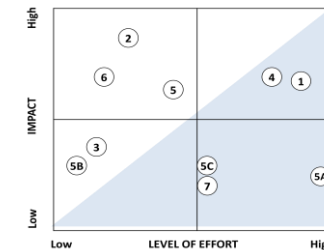
Monthly Schedule Process VSM



### 5. Develop Countermeasures

OODA

1. Develop a coordinated mx training plan
2. Establish an annual & quarterly FHP workshop
3. Synchronize the wing calendar to capture events that impact FHP development & execution
4. Increase DACT/Bi-Lat Ops/Joint Ops to maximize blue air
5. Create a playbook – develop alternatives for planning and execution of the FHP; Potential Plays: 5A - Fly Saturday; 5B - Surge Mondays; 5C - Trip goes without pits; Purple hot pit ops; Monday training days equals Friday 2-go days; Wing surge (purple); Purple red air; 12x10 Monday (increase fronts); Incentive Tuesday through Friday (not just on Fridays); Trip go with lower fronts; 2 go + 2 pits; Bulge (Surge Lite, 12p10x8p6; 12p12; 10p10x8p8); Straight config (set time or cross squadron)
  - 5A. Playbook Play - What: Saturday flying
  - 5B. Playbook Play - What: Start surge on Monday
  - 5C. Playbook Play – What: Trip turn days
6. Develop CONOPS for increased purple flying operation
7. Define Mission Effectiveness and create slide and metric
8. Run some plays from Playbook (dry run prior to full implementation)
9. Wing focus on mission support (outside mx/ops focus)
10. Add ops mission effectiveness slide to mx group meeting
11. Mx purple ops
12. Explore opportunities in maintenance capability (SCP, AFETS, etc.)
13. Develop methods to improve translating and understanding (common language) between ops and maintenance (mid-level officers, ops, mx)



### 6. See Countermeasures Through

OODA

- Implement via guidance in Countermeasures and Action Plan -- Methods include:
  - Separate AFSSO 21 Event for #1 Maintenance Training (Tentatively scheduled for end of Jul 10); Project for # 3, 4, 6, 7, 9, 11; Workgroup for # 5; JDI for # 8, 10, 12, 13
- Tools Used: Visual Mgt, Standard Work, Variation Reduction, RIE, JDI, Project, Workgroup
- **RESULTS SUMMARY: Potential impact to sortie delta and mission effectiveness (sample playbook applications using 5A-C alone; with other plays to be developed in the Action Plan):**
  - O&M optimization: 155 sorties (yr)
  - Surge optimization: 216 sorties (yr)
  - Trip turn optimization: 40 sorties (yr)
  - Low O&M month application: 88 sorties (recovered) (mo)
  - DACT: 10% decrease in red air

### 7. Confirm Results & Process

OODA

- KPI/Metrics:
  - Purpose: to measure our progress against the plan
  - Sorties (number of sorties) (Monthly, Quarterly, Semi-Annually, Tracked Weekly)
  - Hours (number of hours) (Monthly, Quarterly, Semi-Annually, Tracked Weekly)
  - RAP (Weekly – for scheduling, Monthly – for progress reporting, Quarterly – for progress reporting, Semi-Annual – for review and course corrections, and Annually – look back and alibi shortfalls)
  - Maintenance Health of Fleet (HOF) Indicators (MC, AA, Fix, Break, Abort, Repeat Recur, CANN, M/FSE, NMCM, NMCS, NMCD, Aircraft Possessed)
  - Mission Effectiveness (FS mission effectiveness tracker) (Student Performance, ATC, Airspace, Weather, others...)
  - Integration of Flying Squadron Mission Effectiveness Tracker into the Weekly and Monthly Maintenance Scheduling and Health of Fleet Meetings
- Tools Used: KPIs/Metrics, Performance Mgt, SA&D, Standard Work, Audit

### 8. Standardize Successful Processes

OODA

- 30, 60, and 90 day Event Followups Scheduled/Performed by MXG AFSSO 21 Office
- Implement via selected changes to the 18 Wg Supplements to AFIs 21-101 and 21-165
- Implement via 18 Wg F-15 FHP Playbook (Guide)
- Standardization Check at the Annual and Quarterly Scheduling Workshop
- Standard Template use during Weekly Scheduling Process Milestones on Tue, Wed, and Thu each week
- Standard Template use during and Monthly FHP execution when the Monthly Schedule is being built, and when the Group Commanders, and Wing Commander signs the Monthly Contract
- Tools Used: Checkpoints, Supplements, Published Guide, Audit

**OODA – Observe, Orient, Decide, & Act**  
8-Step Problem Solving Model

# Air Force Problem Solving Process & Related Toolsets

Approval Information/Signatures

## 1. Clarify & Validate the Problem

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- Does this problem, when solved, help meet needs identified by the organization?
  - Is it linked to the SA&D of organization?
  - Does it help satisfy customer needs (VOC)?
- Does this problem, when solved, address key issues identified during SWOT analysis?
- Has this problem been identified and directed by a Value Stream Map at the appropriate level?
  - What does the “Future State” need?
  - What resources have been identified to address this issue?
- What opportunities were identified or observed by the process or problem area “walk”?
  - Will addressing or improving these issues deliver results that relate to #a or #b?
  - Will addressing or improving this problem deliver the desired future state from #c?

**TOOLS:** SA&D, Voice of Customer, VSM, Go & See

## 2. Break Down the Problem/Identify Performance Gaps

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- Does the problem require more analysis or does leadership have enough information to execute a solution?
  - Is this simply a leadership directive?
- If more data is needed, how do we measure performance now?
  - What are the KPIs? What is the performance gap?
- Does other “non-existent” data need to be gathered?
- What does the data indicate are the potential root causes?
- Does the data review indicate a bottleneck or constraint?

**TOOLS:** KPI/Metrics, Performance Gap Analysis, Bottleneck Analysis

## 3. Set Improvement Target

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- Is the improvement target measurable? Is it concrete? Is it challenging?
- Is the target “Output Oriented”?
  - What is the desired output?
  - Should be “things to achieve”; should avoid “things to do”
    - Will be addressed by Action Plans (Step 5)
- The desired target should:
  - Do what? By how much? By when?
- If it is a Process Problem, what is the future state?
  - How will it be realized?

**TOOLS:** Ideal State, Future State Mapping, SMART

## 4. Determine Root Cause

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- What root cause analysis tools are necessary?
  - Why are these tools necessary?
  - What benefit will be gained by using them?
  - Who will need to be involved in the root cause analysis?
    - 10 heads are better than one
    - Remember “cultural” issues related to problem
- What is (are) the root cause(s) according to the tools?
- How will the root cause be addressed?
- Will addressing these address the performance gap?
- Can the problem be turned on or off by addressing the root cause?
- Does the root cause make sense if the 5 Whys are worked in reverse?
  - Working in reverse, say “therefore” between each of the “whys”

**TOOLS:** 5 Whys, Brainstorming, Pareto, Affinity, Fishbone, Control Charts

## 5. Develop Countermeasures

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- Develop potential countermeasures
  - Tools and philosophies from Lean, TOC, 6 Sigma and BPR as appropriate
- Select the most practical and effective countermeasures
- Build consensus with others by involving all stakeholders appropriately
  - Communicate, communicate, communicate
- Create clear and detailed action plan
  - SMART actions
  - Reference Facilitation Techniques as appropriate

**TOOLS:** A3, Action Plans, Timelines, FM Tool

## 6. See Countermeasures Through

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- Which philosophy best prescribes tools that address root cause(s)?
- Which tools best address root cause(s)?
- Which method for implementation fits the tool and improvement need?
  - Rapid Improvement Event?
  - Improvement Project?
  - Point Improvement or “Just Do It”?
- If RIE or Project, create “Charter” and communicate
- What training or education is needed? By Whom?

**TOOLS:** 6S & Visual Mgt, Standard Work, Cell Design, Variation Reduction, Error Proofing, Quick Changeover, TPM, RIE

## 7. Confirm Results & Process

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- How are we performing relative to the Observe phase (Steps 1 & 2)?
- How are we performing relative to Step 3?
- How are we performing relative to FM Tool projections?
- If we are not meeting targets, do we need to return to Step 4?
  - Most problem solving “breakdowns” occur relative to improper root cause identification

**TOOLS:** KPIs/Metrics, Performance Mgt, SA&D, Standard Work, Audit

## 8. Standardize Successful Processes

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- What is needed to Standardize Improvements?
  - Tech Order changes?
  - Air Force Instruction changes?
  - Official Instruction changes?
- How should improvements and lessons learned be communicated?
  - PowerSteering
  - Key meetings?
- Were other opportunities or problems identified by the Problem Solving Process?
  - Restart OODA Loop

**TOOLS:** Checkpoints/Standardization Table, Report Out Theme Story, Broad Implementation, CPI Mgt Tool