



# ***F-16 System Program Office***



## **F-16 Systems Engineering Management Process**

**2 May 2023**

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# *Hill AFB, UTAH*



*F-16 System Program Office*

- Hill AFB, Utah is an Air Force Materiel Command base located in northern Utah. It is the Air Force's second largest base by population and geographical size.
- Ogden Air Logistics Complex (OO-ALC) is one of several tenants at Hill AFB.
- OO-ALC is known as the fighter depot with more than 8,500 military, civilian, and contract personnel in 155 different job series.

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# *Hill AFB, UTAH*



*F-16 System Program Office*

- **OO-ALC provides world-class logistics, support, maintenance, overhaul, distribution, and engineering management for F-35, F-22, F-16, A-10, and C-130 modification and repair.**
- **Hill AFB is also the Ground Based Strategic Deterrent Program (GBSD) center for mission integration, and hardware and software weapons testing.**
- **Hill AFB has one of the few full service landing gear overhaul facilities in the entire world that performs high strength steel failure analyses and rework, chrome, cadmium, zinc-nickel, and HVOF coatings.**

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# Hill AFB F-16 SPO



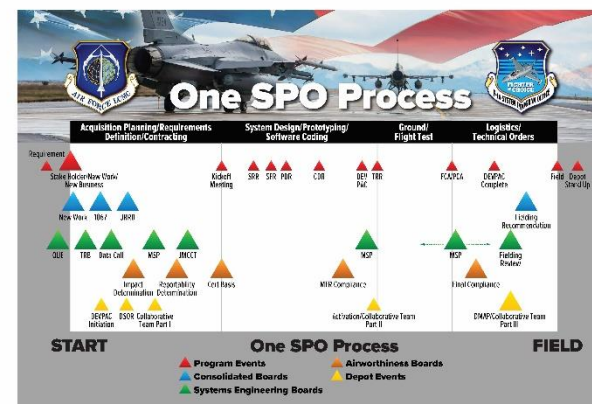
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## ■ F-16 Falcon

- Largest fleet in the world
- Over 3000 aircraft
- Over 25 countries

## ■ F-16 One SPO Process

- USAF systems engineering management process IAW MIL-STD-499
- Disciplined modification process
  - USAF/Guard/Reserve – same process
  - Foreign Military Sales – same process
  - Acquisition, Sustainment – same process
  - Permanent or Temporary – same process



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# Overview *continued*



*F-16 System Program Office*

- One SPO Process is:
- Five Integrated Processes
  - **Program Events** (DoD Acquisition Process)
  - **Consolidated Boards** (SPO leadership)
  - **Systems Engineering Boards** (OSS&E)
  - **Airworthiness Boards** (independent assessment of OSS&E)
  - **Depot & Mx Events** (Integration Boards and tasks)
- Different processes (teams) have some unique requirements and some have similar requirements. This process ensures all associated parties meet their reportability obligations.



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# One SPO Process



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## ■ Events:

- **Requirement:** Document
- **New Work/New Business/Stake Holder/ACSN:** MOD Start Approval
- **TRB:** Build MOD Plan
- **DEV PAC:** Depot Plan
- **1067:** Permanent MOD 1067 Approval
- **Data Call:** Build MOD Data Management Plan
- **JRRB:** Approval of MOD Contract and Funding
- **ADF:** Airworthiness (AW) MOD Impact/Reportability Approval
- **JMCCT:** Approval to execute MOD
- **Certification Basis:** MOD AW Basis Approval
- **MFR Compliance:** MOD AW Ready to Test Approval
- **MSP:** MOD Temporary Modification Approval
- **Final Compliance:** MOD AW Compliance Approval
- **Fielding Review:** MOD Fielding Recommendation
- **Fielding Decision:** MOD F-16 SPO Fielding Recommendation
- **Fielding:** TCTO Release



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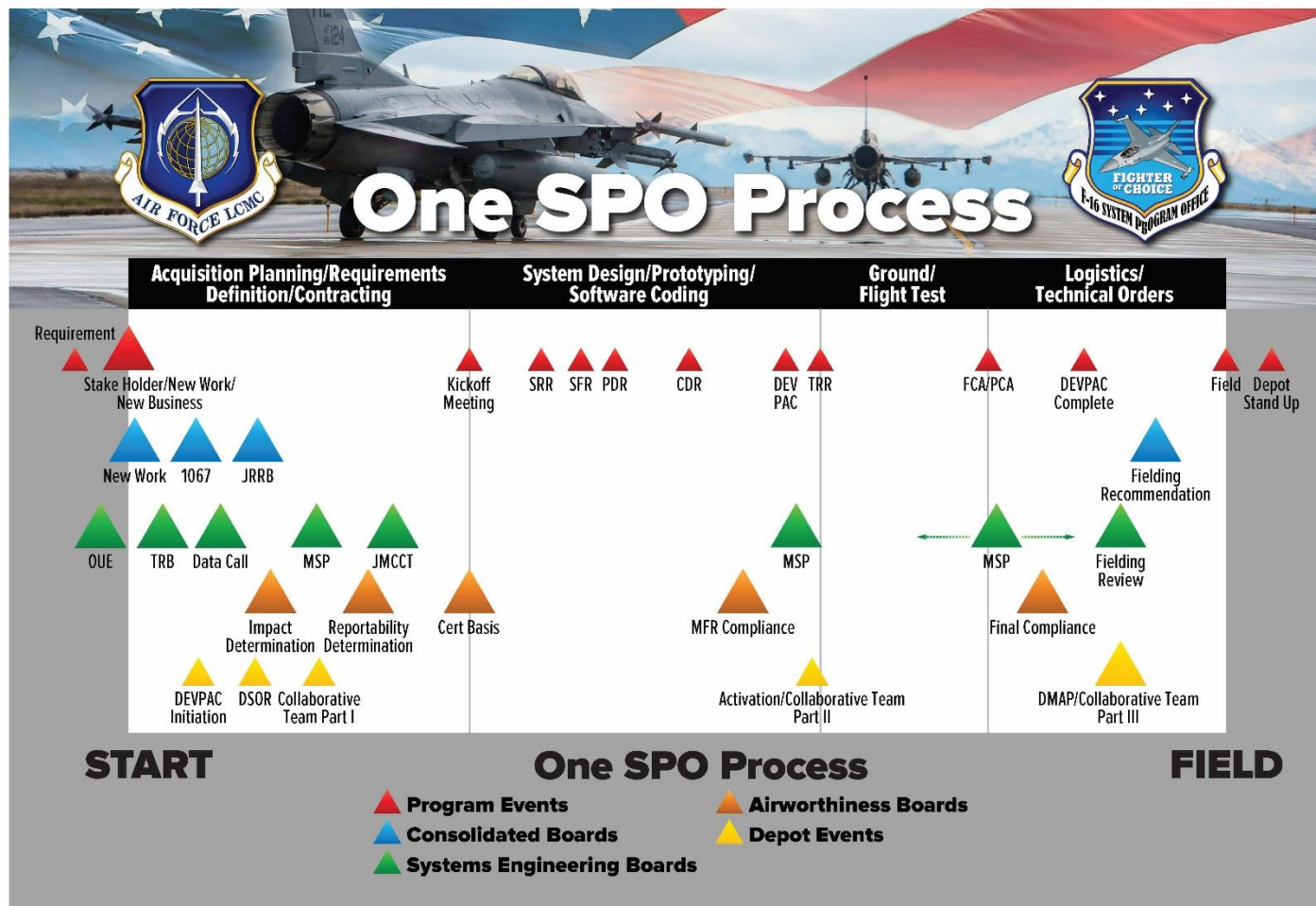




# One SPO Process



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Call Bart – 801-586-6194

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# One SPO Process Event Details



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## EVENT CRITERIA

### Entrance

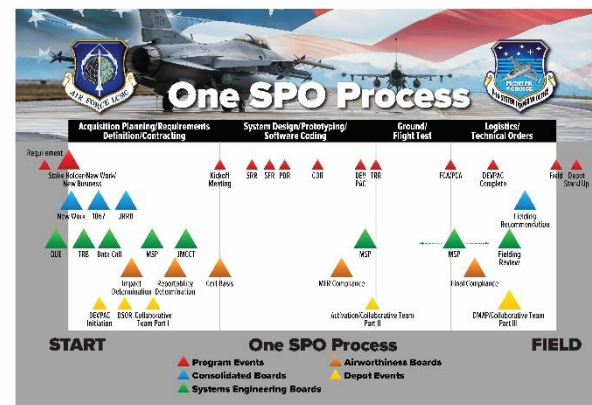
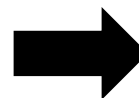
- Criteria One
- Criteria Two etc

### Exit

- Actions and results

## ■ Board Details

- Due date and other requirements
- Additional Data



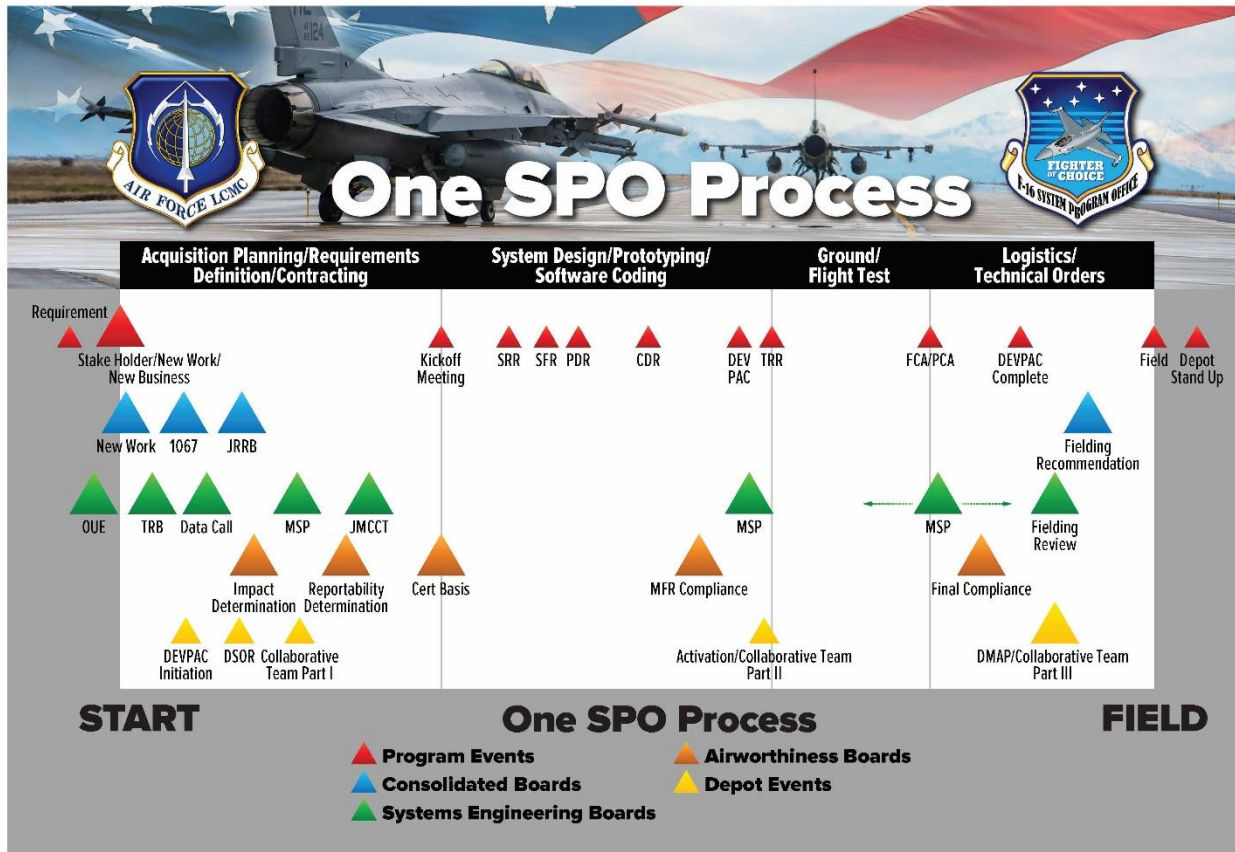
You are here graphic



# One SPO Process



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Call Bart – 801-586-6194, happy to help teams and individuals with your questions and tailor the One SPO Process to your program/Project Requirements

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# *Becoming a Qualified Vendor*



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- **For many contracts, Government contracts promotes small and diverse businesses as well as multiple sources**
- **Sole Source justification becomes more difficult for contractors that don't truly have a unique product or service or don't qualify as a small business**
- **Once your company becomes a qualified vendor, bidding on follow-on contracts becomes much easier**



# ***First Time Federal Contractor Opportunities***



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- **AMSC codes A,B,C,D,G,H, K, etc**
- **Certain AMSC codes are advantageous to becoming a first-time supplier (AMSC G code)**
- **Once a vendor successfully delivers a G coded item, the vendor can become a qualified vendor on additional C and B coded items**
- **Deliver a good product on time and the process to increase your company's qualified parts will grow**
- **Vendors can work with and Integrated Product Team to gain acceptance on a qualified vendors list**



# *Keys to Successful Long-Term Relationship with Government*



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- Most DoD components/assemblies are managed by Integrated Product Team (IPT)
- IPT has the following members
  - Program Manager
  - Engineer
  - Equipment Specialist
  - Item Manager
- Form a close working relationship of trust with IPT will benefit on both current and future contracts
- Trust and openness of any issues



## *Example: C-5 Lock Roller Fitting*



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- The C-5 Main Landing Gear (MLG) is one of 4 MLG that carry the 281,000 lb payload.
- The gear, fully assembled stands well over 9 feet



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## Example: C-5 Lock Roller Fitting



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- C-5 Lock Roller Fitting is small, but critical to the C-5 MLG correctly retracting and storing during takeoff.



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## *Example: C-5 Lock Roller Fitting*



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- A new vendor was awarded a contract to manufacture this assembly.
- In spite of running into some technical problems during the initial contract, this vendor was awarded two follow-on contracts for the same item.
- The vendor refused to communicate the technical problems with the Engineering Support Activity (ESA) and went silent.
- After several months, the fleet starting running into shortages threatening grounding of aircraft.



## *Example: C-5 Lock Roller Fitting*



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- After several attempts to contact the vendor, the contracts were subsequently cancelled.
- ESA developed an alternative part that could be locally machined out of 7075-T6 bar stock.
- Communicate technical issues with the ESA and Program Manager.
  - Form 1694 contractor waiver request
  - Form 196 also but slightly different routing

A dramatic photograph of a fighter jet, likely an F-16, on a runway at night. The jet is viewed from the front, with its cockpit canopy and landing gear visible. The background is a dark sky with several bright, jagged lightning bolts. The overall mood is intense and mysterious.

# QUESTIONS?

**One** SPO  
Process





# ***One SPO Process Backup Slide Details***



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## ■ **Events:**

- **Requirement:** Document
- **New Work/New Business/Stake Holder/ACSN:** MOD Start Approval
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- **Fielding Review:** MOD Fielding Recommendation
- **Fielding Decision:** MOD F-16 SPO Fielding Recommendation
- **Fielding:** TCTO Release

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# Requirement

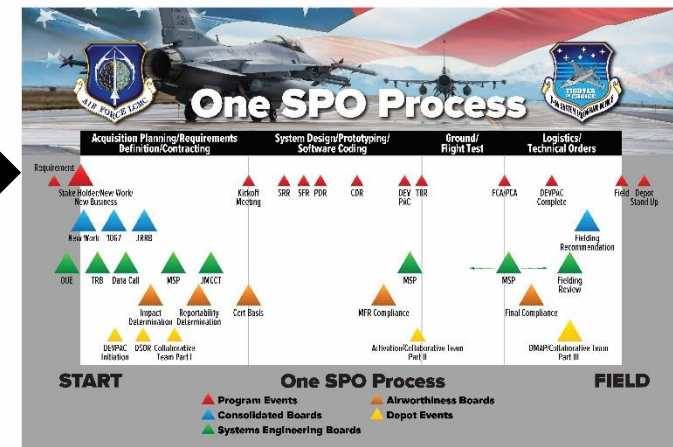


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## Requirement Criteria

Entrance	Exit
<ul style="list-style-type: none"> <li>USAF Requirement Document</li> <li>FMS Letter of Request</li> </ul>	<ul style="list-style-type: none"> <li>New Work / New Business / Stake Holder meeting scheduled</li> </ul>

## ■ Program Management







# New Work IAW OI 63-05 and 63-11



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## New Work Criteria

### Entrance

- Consolidated Board (CB) New Work Briefing
- 1067 Section III

### Exit

- Approval
- Deferred
- Hold

- **Consolidated Board**
  - Briefing due Friday prior
- **Program Management**
  - Stake Holder Meeting - FMS
  - New Work Meeting - USAF
  - New Business Meeting





# TRB IAW OI 63-28



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## TRB Criteria

### Entrance

- Requirement (1067/FMS LOR/DMS etc)
- Draft Plan
- Open Viper Change Request (VCR)
- TCG coordination
- TCTO baseline
  - AVDO aircraft transfer procedures
- FMS Applicability
- ORB 501 Mid Range Planning

### Exit

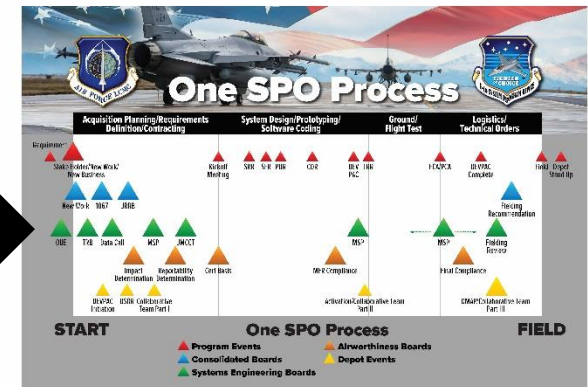
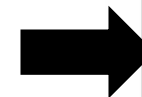
- Approval
- Action items
- TOMA – if applicable
- DEV PAC/LOM & SORA templates- if applicable

## ■ Systems Engineering Board

### ■ TRB Approval Options:

- Approve Class II changes
- Inspection TCTOs
- Approval to proceed

## ■ Initiate Assigned Tasks





# DEV PAC

## Part I – Proposed Requirement



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### DEV PAC Part I Criteria

#### Entrance

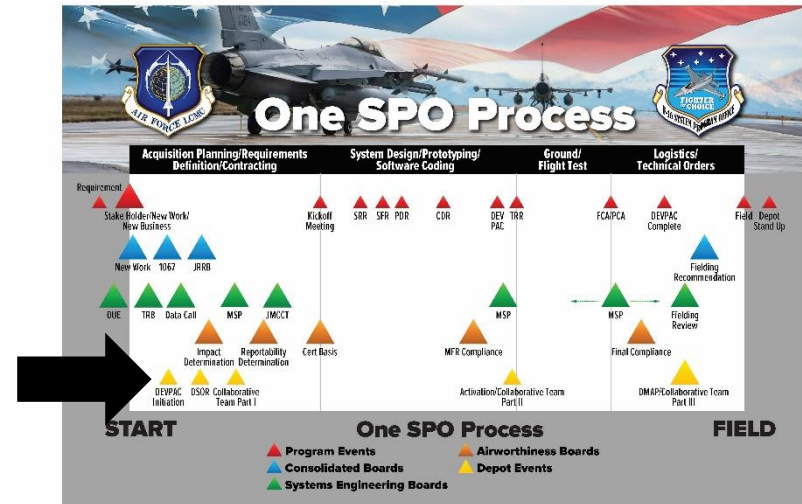
- Draft DEV PAC Part I
- Draft LOM
- Initiate DSOR
- Depot workload justification
- Coordinate with WWMEJ - Chris

#### Exit

- Signed 1<sup>st</sup> Level approval to conduct Depot Events
- Assigned Project Engineer
- Complete Part I Collaborative Team (CT) meeting

### ■ Depot Event

- Completed by Cognizant Engineer & SPO-ES
- ORB review / A4 assign TRC
- Briefing due Friday prior to CT meeting





# 1067 IAW OI 63-11



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## 1067 Criteria

Entrance	Exit
<ul style="list-style-type: none"> <li>1067 Consolidated Board (CB) Coordination Sheet</li> <li>CB 1067 Briefing</li> <li>1067 Section IV Draft</li> <li>CAFDEX (3400) /MP&amp;E (3010 3600) input</li> <li>DMAP started</li> </ul>	<ul style="list-style-type: none"> <li>1067 Section IV signed</li> </ul>

## ■ Consolidated Board

### ■ Briefing due Friday prior





# DATA CALL



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## DATA Call Criteria

### Entrance

- SOW/PWS
- Draft 585s

### Exit

- CDRLs
- Data Management Plan

## ■ Systems Engineering Board





# JRRB IAW OI 63-11



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## JRRB Criteria

### Entrance

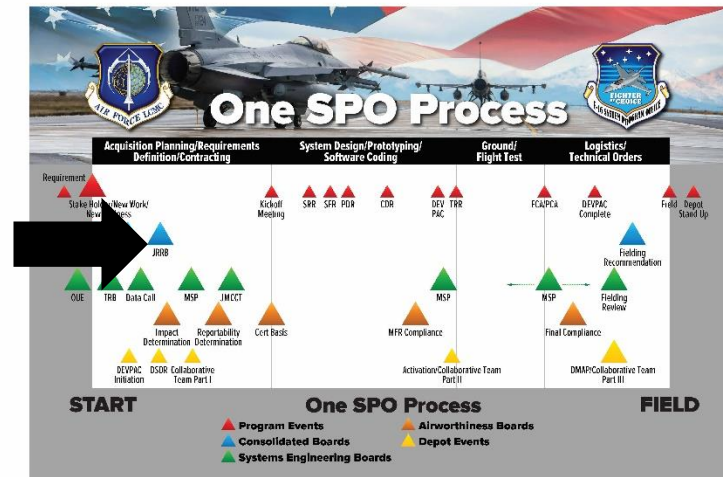
- Requirement (1067/FMS LOA/Sustainment etc)
- JRRB/ASP
- JRRB Briefing
- Requirement
- SOW/SOO/PWS
- Schedule
- Funding Type
- FMS Cost Share in work – create cost range

### Exit

- Contract Vehicle – approved
- Funding - approved

## ■ Consolidated Board

- Briefing due Friday prior







# Airworthiness Determination Form (ADF)



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## ADF Criteria

### Entrance

- ADF sections completed
- ADF subject matter expert peer review
- AW lead engineer review
- Include FMS possible partners

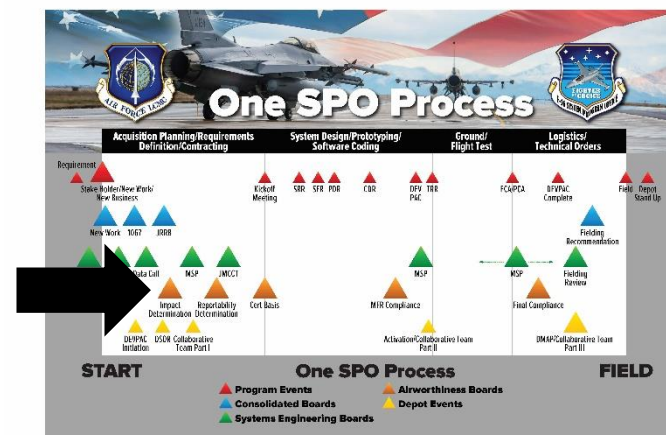
### Exit

- Approval Options:
- No Impact or Impact
- DOE Approval Options:
- Non-Reportable /Reportable
- DOE Delegation Options:
- MACC Basis
- MFR Compliance
- Final Compliance

## Airworthiness Board

### Approval Options:

- No Impact
- Impact – Non-Reportable
- Impact - Reportable







# JMCCT/B

## IAW OI 63-04 and 63-11



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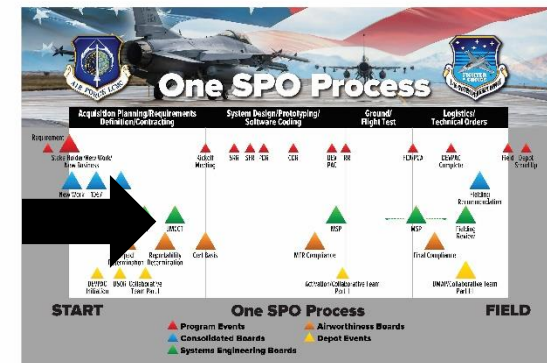
### JMCCT/B Criteria

Entrance	Exit
<ul style="list-style-type: none"> <li>SRD/TRD, Specification, FMS-RSAT Case Rqmt Letter</li> <li>SOW/SOO/PWS</li> <li>Schedule</li> <li>OSS&amp;E Guide Plan</li> <li>12 IPS Plan</li> <li>SRRB</li> <li>ADF</li> <li>1067/FMS LOA/PMD</li> <li>DEV PAC Section I signed, Collaborative Team/DMAWG TVI (As required)</li> <li>New Work approval</li> <li>USAF/FMS Logistics</li> <li>DSOR (installation and organic repair started)</li> <li>DMAW started</li> <li>Depot/Commodity Plan acceptance/501 return</li> </ul>	<ul style="list-style-type: none"> <li>Executable Plan – approved engineering release</li> <li>Contractual actions approved</li> <li>Directive and Log signed</li> </ul>

## ■ Systems Engineering Board

- Artifacts submitted and distributed two weeks prior to meeting for review
- Slides submitted 3 working days prior to pre-JMCCT

**Note:** Contracting will not issue PCOL to Contractor until JMCCT is complete and JMCCT/B Directive has been provided by CM. As stated in OI 63-05, para 5.4.1.



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# CERTIFICATION BASIS



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## MACC BASIS Criteria

### Entrance

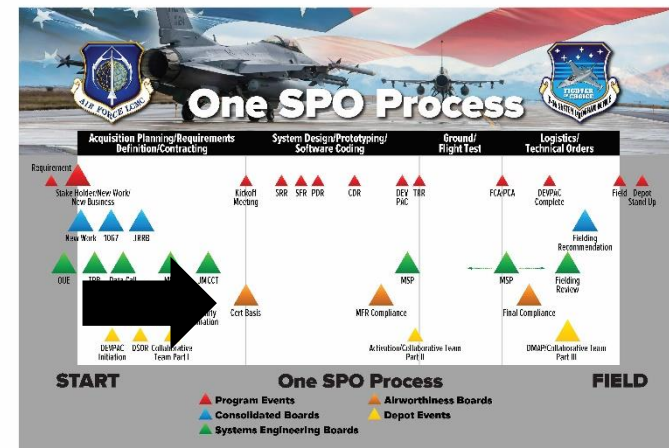
- Completed Modification Airworthiness Certification Criteria (MACC) Basis
- Columns C-F
- MACC SME peer review
- AW Lead Engineer review
- Certification basis slides (ADF WBS – add MACC WBS)

### Exit

- Approval IAW DOE delegation

## ■ Airworthiness Board

- Due Friday prior





# DEV PAC

## Part II – Defined Requirement



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### DEV PAC Part II Criteria

#### Entrance

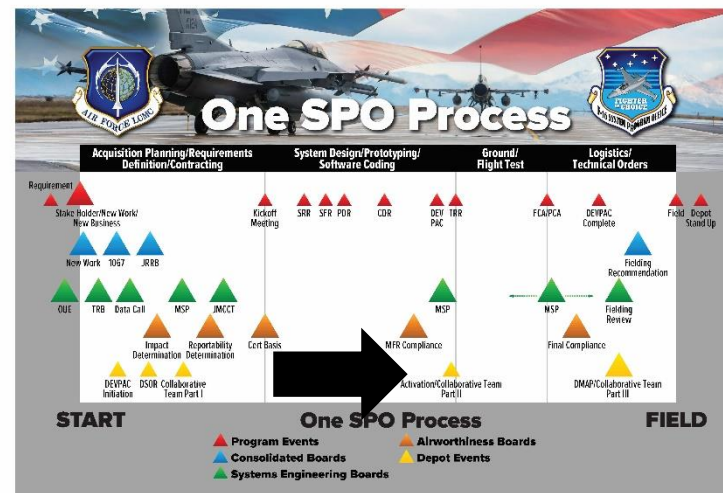
- Signed DEV PAC Part I
- Signed Part I CT meeting
- Final/Assessed LOM
- Draft DEV PAC Part II
- Any technical data or task revisions

#### Exit

- Completed TVI & VAL-VER
- Technical Data Package, TCTO, & drawings
- Work procedures
- DMAP

### ■ Depot Event

- Managed by SPO-PM
- Completed by Project Engineer & SPO-ES







# MFR Compliance



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## MFR Compliance Criteria

### Entrance

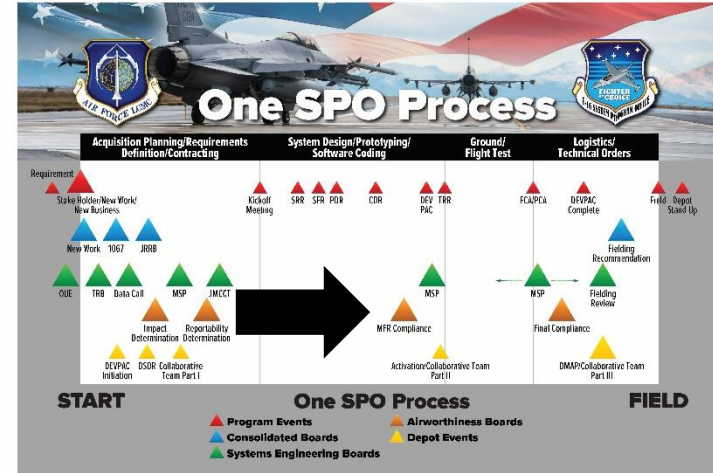
- Completed MACC Preliminary Compliance
- Columns G-J
- MACC SME peer review
- AW Lead Engineer Review
- MFR Compliance slides (ADF WBS – add MACC WBS)

### Exit

- Approval IAW DOE delegation
- MFR

## ■ Airworthiness Board

- Due Friday prior







# MSP



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## MSP Criteria

### Entrance

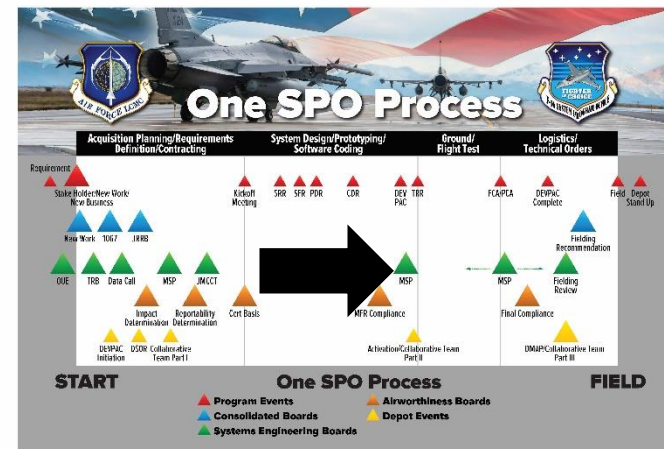
- Temp Mod package – drawings, specs, standards, Mod, DeMod, SW Flight Test Release Letter
- 12 IPS for test
- 1067/ FMS LOA/PMD
- Pre-test OSS&E Guide
- Test Plan
- Qual Test Results
- MFR Compliance
- MFR
- Test Recommendation
- DEV PAC Section II (In work) Collaborative Team/DMAWG TVI
- DSOR complete (install and/or organic)
- DMAP working

### Exit

- Signed Temporary Modification Package
- Signed Directive
- Start Depot Activation coordination

## ■ Systems Engineering Board

- Package submitted 1 week prior to meeting for review.





# DEV PAC

## Part II Collaborative Team (CT) Meeting



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### Part II CT Meeting Criteria

#### Entrance

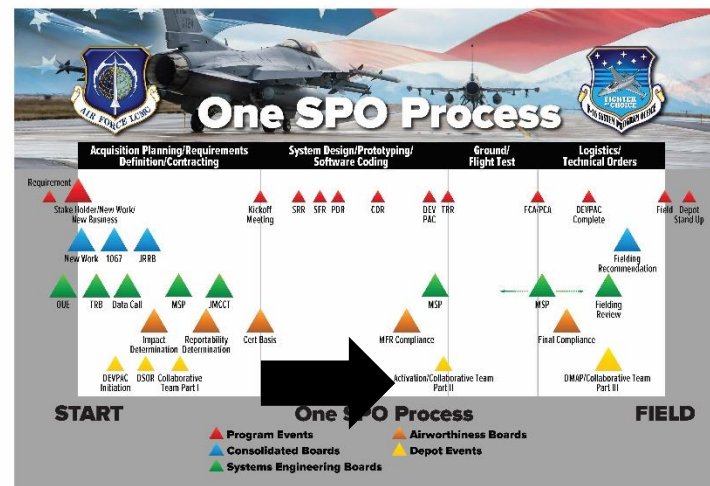
- Fully assessed LOM with parts demand history from DLA
- Fully developed Tech Data Package
- High Technical Risk mitigation plan
- Non-Parts supportability assessments
- DMAP complete

#### Exit

- Assessed Parts Supportability
- Step-by-Step work procedures
- Special tools, skills & facilities requirements
- Non-Parts supportability determination
- Initiates Depot Activation

### ■ Depot Event

- Completed after **MSP**
- Work Procedures
- Draft TCTO
- Parts Supportability
- **Depot Activation**





# FINAL COMPLIANCE



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## MACC Compliance Criteria

### Entrance

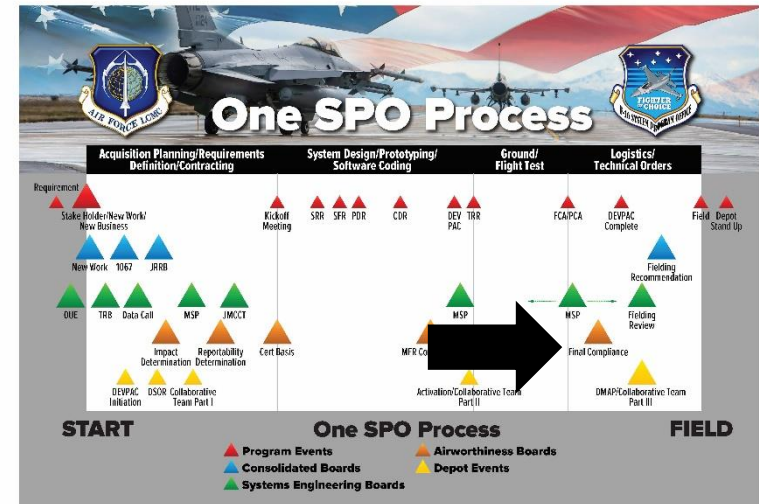
- Completed MACC
- Columns G-J
- MACC SME peer review
- AW Lead Engineer review
- MACC compliance slides (MACC WBS – add non-compliance issues and mitigation strategy)

### Exit

- Approval IAW DOE delegation
- MTC

## ■ Airworthiness Board

- Due Friday prior





# DEV PAC

## Part III – Approved Requirement



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### DEV PAC Part III Criteria

#### Entrance

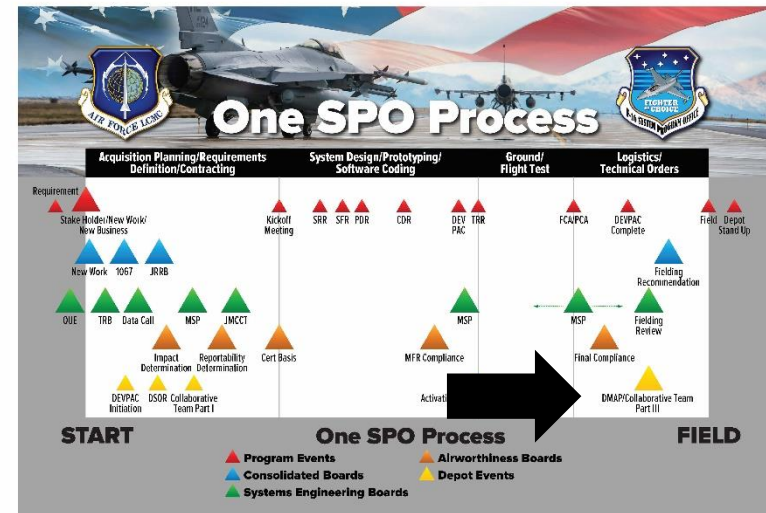
- Signed DEV PAC Part I & Part II
- Signed CT Meeting Part I & Part II
- Fully developed Tech Data Package
- Risk Assessment
- High Technical Risk mitigation plan
- Fully Assessed LOM
- Supportability Assessment

#### Exit

- Approved Requirement
  - DEV PAC to Complex
  - Update AMR Work Specs & Brochure
- Advance to Bill of Work (BOW) & Requirements Supportability (i.e. Bundle Assessments)

### ■ Depot Event / SE Board

- Requirement Review Board (RRB) Prior or Concurrent to CE **Fielding Review**
- Completed by Project Engineer, SPO-ES (may also include Collaborative Team)





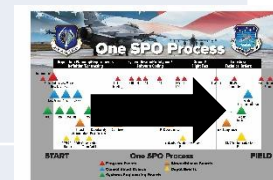
# Fielding Review



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## FIELDING Criteria

FIELDING Criteria		
Entrance	Entrance...continued	Exit
<ul style="list-style-type: none"> <li>FCA/VAL-VER</li> <li>CRD</li> <li>Final OSS&amp;E Guide</li> <li>12 IPS Elements</li> <li>FCA/PCA – open items identified with closure plan</li> <li>Tech Data               <ul style="list-style-type: none"> <li>TOs</li> <li>Final Drawings</li> </ul> </li> <li>Fielding Plan</li> <li>System Safety Risk Acceptances</li> <li>ATO</li> <li>Deficiency Report resolution report and status</li> </ul>	<ul style="list-style-type: none"> <li>Limitations and restrictions</li> <li>Test Report summary and MACC compliance</li> <li>MTC or FMS MFR (if required)</li> <li>Fielding Recommendation</li> <li>1067/FMS LOA/PDM</li> <li>DEV PAC Section III, Collaborative Team/DMAWG Production Installs</li> <li>Draft organic capability letter</li> <li>Unsigned Fielding Recommendation Letter</li> <li>USAF/FMS Logistic Plans</li> <li>DMAP complete</li> </ul>	<p>Exit</p> <ul style="list-style-type: none"> <li>Systems Engineering Board</li> <li>Approval for Consolidated Board/Fielding</li> <li>Sign Organic Capability letter</li> </ul>



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# Fielding Review



■ **F-16 System Program Office**

FIELDING Criteria		
Entrance	Entrance...continued	Exit
<ul style="list-style-type: none"> <li>• FCA/VAL-VER</li> <li>• CRD</li> <li>• Final OSS&amp;E Guide</li> <li>• 12 IPS Elements</li> <li>• FCA/PCA – open items identified with closure plan</li> <li>• Tech Data               <ul style="list-style-type: none"> <li>• TOs</li> <li>• Final Drawings</li> </ul> </li> <li>• Fielding Plan</li> <li>• System Safety Risk Acceptances</li> <li>• ATO</li> <li>• Deficiency Report resolution report and status</li> </ul>	<ul style="list-style-type: none"> <li>• Limitations and restrictions</li> <li>• Test Report summary and MACC compliance</li> <li>• MTC or FMS MFR (if required)</li> <li>• Fielding Recommendation</li> <li>• 1067/FMS LOA/PDM</li> <li>• DEV PAC Section III, Collaborative Team/DMAWG Production Installs</li> <li>• Draft organic capability letter</li> <li>• Unsigned Fielding Recommendation Letter</li> <li>• USAF/FMS Logistic Plans</li> <li>• DMAP complete</li> </ul>	<p>Exit</p> <ul style="list-style-type: none"> <li>• <b>Systems Engineering Board</b></li> <li>• Approval for Consolidated Board/Fielding</li> <li>• Sign Organic Capability letter</li> </ul>







■ **F-16 System Program Office**

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# Fielding – TCTO Release

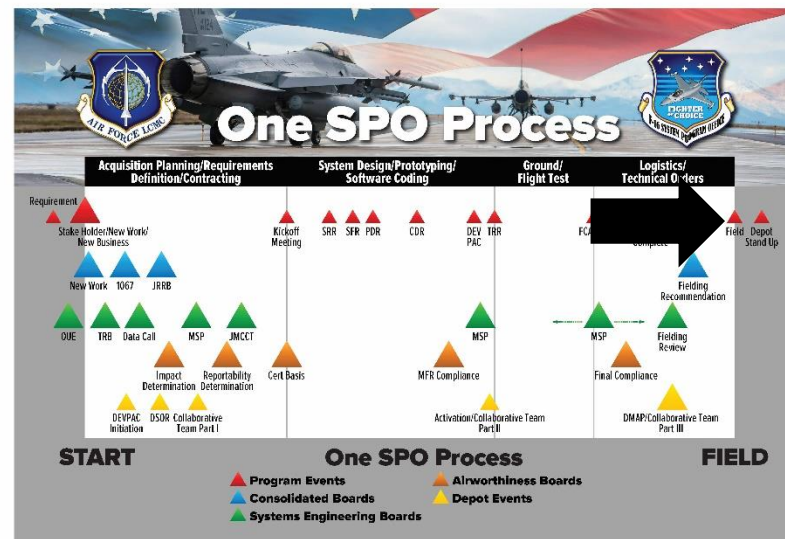


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## Requirement Criteria

Entrance	Exit
<ul style="list-style-type: none"> <li>Fielding Letter from MAJCOM</li> <li>FMS Fielding Letter from FMS Country</li> </ul>	<ul style="list-style-type: none"> <li>Release TCTO</li> </ul>

## ■ Program Management





# Fielding – Depot Stand Up



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## Requirement Criteria

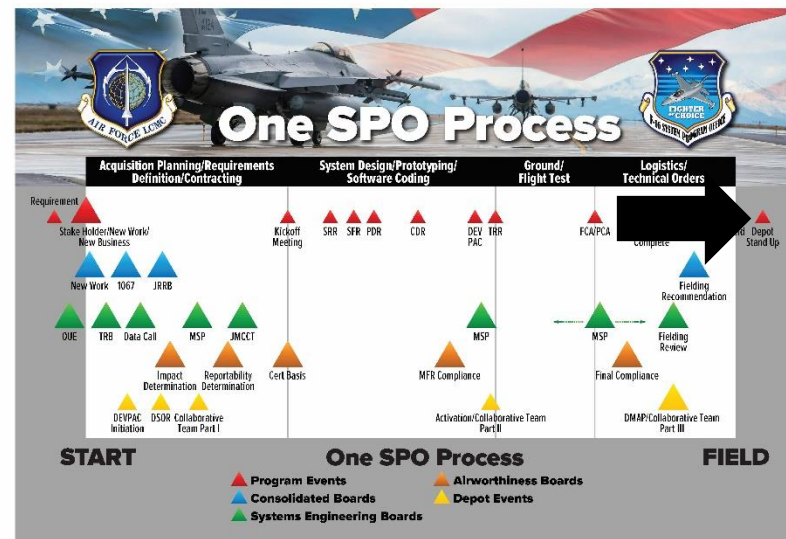
### Entrance

- Fielding Letter from MAJCOM
- FMS Fielding Letter from FMS Country

### Exit

- Release TCTO
- Depot Integration complete (Kits, Technical Data, Tools, and Command Summary coordination)

## ■ Program Management/ Depot Event





# Acronyms



***F-16 System Program Office***

- **Technical Review Board (TRB)**
- **Airworthiness (AW)**
- **Joint Multinational Configuration Control Team (JMCCT)**
- **Modification Airworthiness Certification Criteria (MACC)**
- **Military Flight Release (MFR)**
- **Modification Screening Panel (MSP)**
- **Mission Type Certificate (MTC)**
- **Development Package (DEV PAC)**
- **Depot Source of Repair (DSOR)**
- **Depot Maintenance Activation Plan (DMAP)**
- **Change Request Document (CRD)**
- **Integrated Product Support (IPS)**
- **Functional Configuration Audit (FCA)**
- **Physical Configuration Audit (PCA)**
- **Authority to Operate (ATO)**

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