

Joint Strike Fighter – Lightning II Monthly Assessment Report

Prepared for the Joint Strike Fighter Program Office
Prepared by DCMA Lockheed Martin Fort Worth



May 2009

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Program Summary

Flight Test: A A-1 successfully deployed to Eglin AFB, returning to LM Fort Worth 7 May 09. BF-1 finished hover pit testing at LM Fort Worth on 7 May 09 and has entered a modification period.

SDD/LRIP Production Status (As of 10 May 09)	
Forward Fuselage	12 – Assembly 8 – Mate/Sub-Systems/Final
Center Fuselage	16 – Assembly/On-Dock 8 – Mate/Sub-Systems/Final
Aft Fuselage	10 – Assembly/On-Dock 8 – Mate/Sub-Systems/Final
Wing	12 – Assembly 8 – Mate/Sub-Systems/Final
Fuselage Structure Mate (EMAS)	4 – (BF-5, CF-3, CF-2 & BH-1)
Final Assembly/Sub-Systems/Systems Test/Labs	8 – (CG-1, CF-1, AF-2, AF-3, BF-3, AG-1 AJ-1 & BG-1)
Field Ops/Ground Test/ITF	5 – (AA-1, BF-1, BF-2, AF-1 & BF-4)

Interchangeability/Replaceability (I/R):

As a result of late to need design engineering changes, the aircraft manufacturing processes of special tooling and production planning has a backlog. Late to need design engineering configuration changes are being experienced at the supplier level as well as in-house fabrication, resulting in numerous part shortages. Short term Work-Around Plans are being generated to support special tooling and production planning until long term corrective actions can be obtained. The aforementioned production inefficiencies are resulting in massive out of station tasks being accomplishing at Mate, Final Assembly and Flight operations. Movement of manufacturing tasks to the Flight Operations environment, significantly increases the potential for build nonconformance and cost escalation, (as well as the control of additional personnel, tooling, parts movement/tracking, work-in-process, visibility into impending changes, etc), this work is intended to be accomplished within the plant. The production schedule recovery surge is LM Aero's priority, at this stage of the contracts in work today (SDD, LRIP I & II). LM Aero has established focus teams in efforts to mitigate current issues as well future challenges.

LM Aero is in the process of increasing production touch labor, quality assurance engineers and manufacturing engineers in an effort to reduce/resolve daily production constraints. Special Tooling that was procured to support rate production for the Forward Fuselage arrived and is being validated to meet design engineering requirements prior to release to production. New Wing Special Tooling purchase orders have been released to resolve the Wing overlap inefficiencies, presently experienced. F-35 production processes lack stability and have yet to be proven for production rates. The integrated corrective action system backlog continues to grow.

Integrated Corrective Action System (ICAS): Review of F-35 non-conformance data and the associated corrective action efforts raise concerns in the following areas:

Report Scope

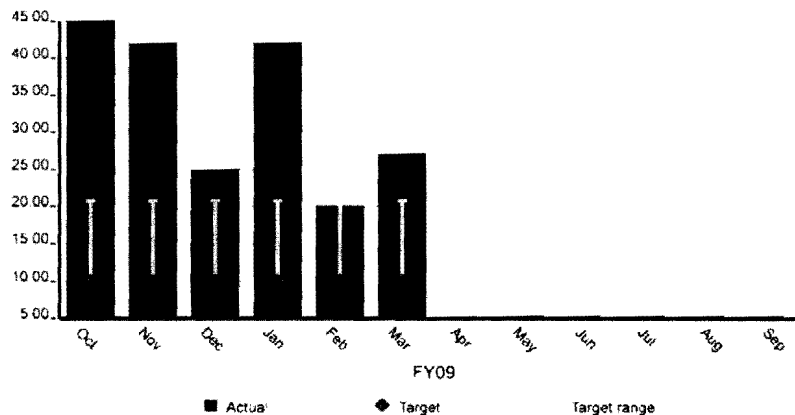
The Joint Strike Fighter – Lighting II Monthly Assessment Report (MAR) is focused on reporting the status of Customer Outcomes and associated Performance Commitments identified in the Memorandum of Agreement with the JSF Program Office. Interdisciplinary teaming between DCMA personnel is used to ensure customer outcomes are ascertained; risks to outcomes are identified and assessed.

Title	Performance Commitment	Metric Rating Criteria	Rating
Maintain LRIP Aircraft Delivery Rate	Maintain LRIP aircraft delivery to within 10 M-days of contract delivery date	Green: ≤10 M-day variance to delivery date Yellow: 11 – 21 M-day variance Red: >21 M-day variance to contract delivery date	
Improve Supplier Delivery Rate	JSF Key Suppliers have an average delivery rating of greater than or equal to 96%	Green: 100.0 to 96.0% Yellow: 95.9 to 87.0% Red: ≤86.9%	
Improve Supplier Quality Rate	Each delegated supplier has quality ratings >96%	Green: ≥ 96% Yellow: 87%-95% Red: <87%	Y
Maintain Cost and Schedule	Resource requirements are aligned in support of funding and budget allocations. IEAC data and projections match actual performance within + / - 10% of contractors budget at completion	Green: 1.0 to 0.95 variance (5%) Yellow: 0.95 to 0.90 variance (5% to 10%) Red: 0.90 or greater variance (>10%)	G
Reduce Schedule Variation	Reduce the average Wing touch labor variance "at move to mate" to within 10% by SDD completion	Green: < -10% Yellow: -10% to -15% Red: > -15%	Y
Non-Conformance Reduction	10% reduction in MRB discrepancies per year	Green: < the goal of 21 Yellow: within 10% of the goal Red: >10% above the goal of 21	G
Safety of Flight (SoF)	Number of SOF inspections accepted on first attempt to the number of SOF inspections conducted	Green: 100% Yellow: 95%-99.9% Red: <94.9%	
Improve Software Productivity	Defect phase containment (DPC) will be improved at least 10% over the Block 0.5 value (73.2% DPC) when progress is 98% complete for Block 1.0	Green = Block 1.0 DPC ≥83% Yellow = Block 1.0 DPC at least 73% but less than 83% Red = Block 1.0 DPC <73%	G
Improve Minor Variance	Maintain at least a 95% correct classification rate of variances	Green: % of properly classified minor variances is ≥95% Yellow: 90% up to but not including 95% Red: <90%	G
Improve FCA/PCA	Ensure that at least 95% of systems reviewed in interim FCA/PCAs meet the design requirements	Green: % of parts meeting design requirements is ≥ 95% Yellow: 90-94% Red: <90%	G
Improve Minor Change	Ensure that 95% of minor changes are correctly classified	Green: >95% Yellow: ≥90% to ≤95% Red: <90%	G
Maintain Assist Audit Request Timing	Process contractor/PCO requests for domestic/international Assist Audits within 2 business days 85% of the time	Green: >84% Yellow: 75%-84% Red: <75%	G
Maintain FAR Requests for Contract Closeout	Maintain 94% contract closeout actions within the Federal Acquisition Regulation (FAR) mandated timeframes	Green: >93% Yellow: 85%-93% Red: <85%	G
Reduce Cancelling Funds	90% of canceling funds will be billed and/or de-obligated before the end of the fiscal year	Green: >89% Yellow: 80%-89% Red: <80%	G

Maintain LRIP Aircraft Delivery Rate

PC – NSF198AJ17: Description: Maintain LRIP aircraft delivery to within 10 M-days of contract delivery date. The Maintain LRIP Delivery Rate is an Integrated Master Schedule (IMS) based metric of the monthly average (+/-) float manufacturing days (M-days) of all reported LRIP aircraft to their contract delivery schedule (DD-250). Goal is to maintain delivery of LRIP aircraft to within 10 M-days of contract delivery date. **Note: Float M-days are entered as positive values, but represent behind schedule status.** Monthly IMS LRIP CDRL data is directly used as data source. Data shall be updated NLT the 20th of each month. Total Float of all reported aircraft that have passed their baseline start date will be averaged monthly for metric. Green: ≤10 M-day variance to delivery date, Yellow: 11 – 21 M-day variance, Red: >21 M-day variance to contract delivery date.

YS-AJH DCMA LMFW F-35 NSF198AJ17 Maintain LRIP Acft Delivery



Metric Status: Red

Trend: Degrading

Summary of Metric Status: Metric is -27 Mdays for month end March.

Root Causes: A F-6 critical path driver is the 0.5-v05.100 FCR being received late from SDD. A F-7 driver is the [REDACTED] BF-5 Assembly Jig unloading late. LRIP 2 impacts to the metric average are AF-11 Wing pre-assembly [REDACTED] activities, AF-13 Vertical Box delivery to LMAero, and BF-6 Wing pre-assembly [REDACTED].

There are 49 LRIP 1 past due items for month-end March, the majority of which continue to be in the Forward and Wing build areas, as well as ALIS. There are 83 past due LRIP 2 items, the majority are also in the Forward and Wing build areas.

Future drivers – [REDACTED] In an attempt to recover from schedule slippages, [REDACTED] is currently operating under yet another recovery schedule which should bring them in line with the first recovery schedule (SOP 7 Issue 3) sometime in June 2009.

Aft Component Assembly – [REDACTED] proposed 75 Mdays Assembly Span Time (AST) for each AFT assembly for the remainder of SDD and throughout LRIP 2 – [REDACTED] is not meeting the 75 Mdays AST. Instead, they are averaging 91 Mdays AST per AFT (last 3 units). The late line completions are the result of jig availability, intensive gauging process, increased line yields required to make up for late starts, late interdivisional (composites) parts delivery to the production line and engineering changes. Planned Production Intervals (PI) for the AFT line during SDD varies depending on an aircraft version, but averages about 24 Mdays. LRIP 1 and 2 PI's average ~17 Mdays. The actual PI during SDD is averaging about 29 Mdays – due mainly to late line starts caused by late interdivisional parts supply at station 0.

According to Recovery Schedule (SOP 7 Issue 3) [REDACTED] will be Green to the purchase order delivery schedule, MS6.1 by AF-12 (LRIP 2) on 14 Sep 09. This will be a very difficult to accomplish based on the historical actuals for AST and PI – DCMA [REDACTED] projects AFT delivery of November/December 2009.

Empennage Component Assembly – [REDACTED] proposed 60 Mdays Assembly Span Time (AST) for each VT and HT assembly, starting with CF-2 to the remainder of SDD. LRIP 1 and 2 were proposed at 56 Mdays AST. Instead, they are averaging 103 Mdays AST per VT and 117 Mdays AST per HT (over SDD). The late line completions are the result of jig availability, intensive gauging process, increased line yields required to make up for late starts, late interdivisional (composites) parts delivery to the production line and engineering changes. Proposed Production Intervals (PI) for the Empennage line during SDD is as follows: 29 Mdays PI between each VT assembly and 31 Mdays PI between each HT assembly. LRIP 1 and 2 are proposed 16 and 15 PI between each VT/HT. The actual PI during SDD is averaging about 36 Mdays PI for the VT and 38 Mdays PI for the HT, exceeding planned estimates – increased PI caused by late line starts as a result of late interdivisional parts supply at Station 0. According to the Recovery Schedule, [REDACTED] will be “Green” to the purchase order delivery schedule by early LRIP 3 – there is no margin for error.

Contractor Actions: The Production Operations Recovery Plan has been implemented into all LRIP 2 files in the IMS. Mitigation activities such as the selective use of overtime, minimum spans on each SWBS, and out of station installations for late parts for the abovementioned drivers continues.

The initial LRIP 2 Schedule Risk Assessment indicates the following major risk areas:

- Timely availability of tooling (SDD/LRIP 1 units completing on time)
- Late part deliveries to various SWBS’s continue to be a concern

The assessment also indicated a 50% probability of AF-8 being 13 M-Days late to contract DD-250 date, and BF-6 being 19 M-Days late.

Actions taken by [REDACTED]

- Obtaining more jigs and tooling for the AFT line – line capacity increase and output now expected within May 2009
- Engineering issue resolution is on going objective
- Daily performance reviews have been implemented
- Obtaining outside sources to relieve the composites backlog – recovery is expected by week 16 for Major Units and week 23 for Planned Omissions
- Parts supply to the production line – [REDACTED] is currently revamping the supply chain to improve the kit supply process
- [REDACTED] reluctance to provide repeated requests for production information and associated updates – [REDACTED] has been very accommodating in our approach to obtain needed data from key [REDACTED] personnel. The request is acknowledged but not delivered.

DCMA Actions: DCMA LMFV P/SI, PA Production and PA D&I Team members continue to mature performance commitment sub-metrics to assess key build event progress on LRIP aircraft. These metrics will utilize data from the IMS and various shop floor systems.

DCMA LMFV and LM Aero have agreed to Joint Process Reviews (JPR) for 2009, as part of our strategy to influence LRIP aircraft deliveries. DCMA’s purpose during these reviews is to assess the contractor’s processes for suitability, adequacy, adherence, and effectiveness, as well as assessing the contractor’s corrective action performance.

As part of a joint DCMA/PI Audit of the Forward Fuselage area in March 2009, DCMA focused on Product Discipline (PD) adherence. A Management System Notification (MSN) was issued against AC-5974 Product Discipline. A requirement within AC-5974 is to communicate opportunities for improvement and take appropriate actions where adverse trends are developing. Additionally, management will determine appropriate actions for employees with repeat findings. Resolution is expected by mid-May 2009. A DCMA/PI Audit of the Wing area will be conducted in May.

Estimate when PC will achieve goal: TBD – Part deliveries to various SWBSs continue to impact build activities.

The table below includes the total SCOPs planned for LRIP aircraft, the number of SCOPs completed as of the reporting period, the percentage of SCOPs completed relating to the total planned for the specific test article and the percentage of testing completed prior to test article rollout from the factory to the flight line (Rollout).

SCOP testing starts at the trailing end of S WBS 240. The current IMS baseline finish dates for AF-6 through AF-10 are annotated below. Fourteen (14) SCOPs have had planning formally released against aircraft AF-6, thirteen (13) against AF-7, AF-8, AF-9 and eight (8) for AF-10. No formal testing has been started on any LRIP aircraft as of this report.

SCOP Completions per Aircraft (A/C)

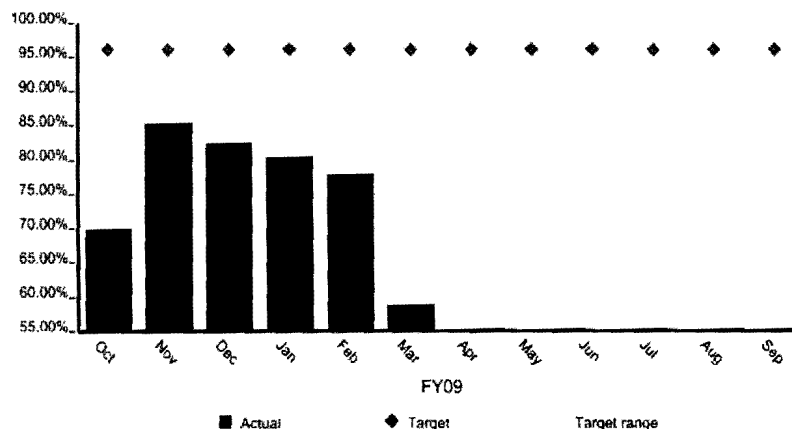
Aircraft Effectivity	Baseline Finish Date (SWBS 240)	Total SCOPs Planned	SCOP Completed	%Complete (Total A/C)	% Complete prior to Rollout
AF-6	19 Jan 09	91	-	-	Est. Oct 09
AF-7	9 Feb 09	91	-	-	Est. Nov 09
AF-8	2 Mar 09	91	-	-	Est. Dec 09
AF-9	23 Mar 09	91	-	-	Est. Jan 10
AF-10	20 Apr 09	91	-	-	Est. Feb 10

Currently 100 SCOPs and 13 AEI's (Aerospace Equipment Instructions) are formally released against AF-6, AF-7, AF-8, AF-9 and AF-10 aircraft.

Improve Supplier Delivery Rate

PC – NSF198AJ21: Description: JSF Key Suppliers have an average delivery rating of greater than or equal to 96 percent. JSF Key Suppliers are determined by analyzing category 3 and 4 shortages to jig load. JSF Key Suppliers may be adjusted on a quarterly basis as new issues emerge. This metric is a monthly average percent of lots delivered on-time for JSF Key Suppliers. The goal is to achieve an average of 96 percent or greater on-time lot delivery rate. Supplier delivery data is obtained from LM Aero's Supplier Quality Management and Procurement Quality Network databases. These databases are updated on approximately the 15th of each month. The monthly data from each database is reflective of the previous month's performance. This metric will be updated within one week of the LM database updates. Green: 100.0 to 96.0%, Yellow: 95.9 to 87.0%, Red: ≤86.9%.

YS-AJH DCMA LMFW F-35 NSF198AJ21 Imp Supplier Delivery Rate

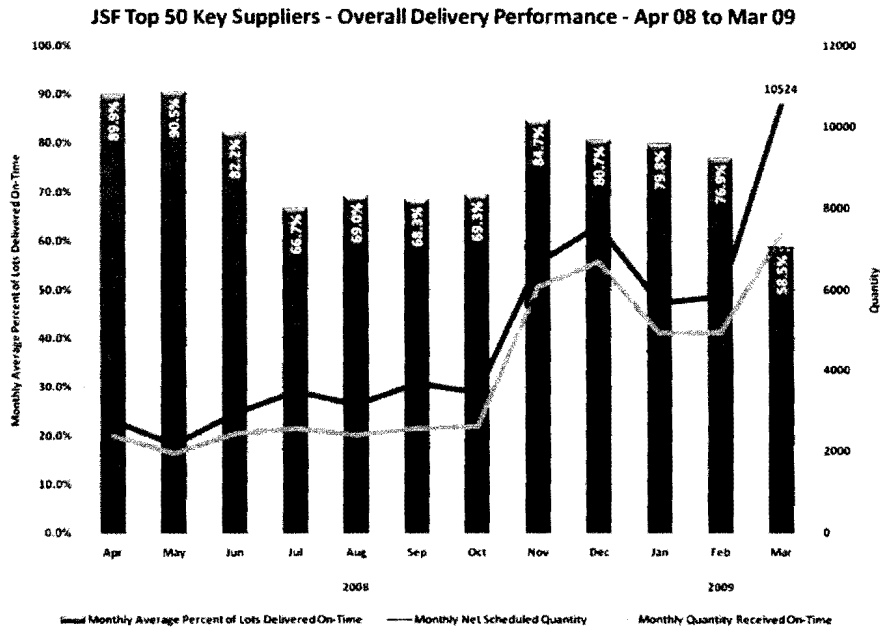


Metric Status: Red

Trend: Degrading

Summary of Metric Status: The delivery rate declined 18.4% to a monthly average of 58.5% and showed a steep decline for the month.

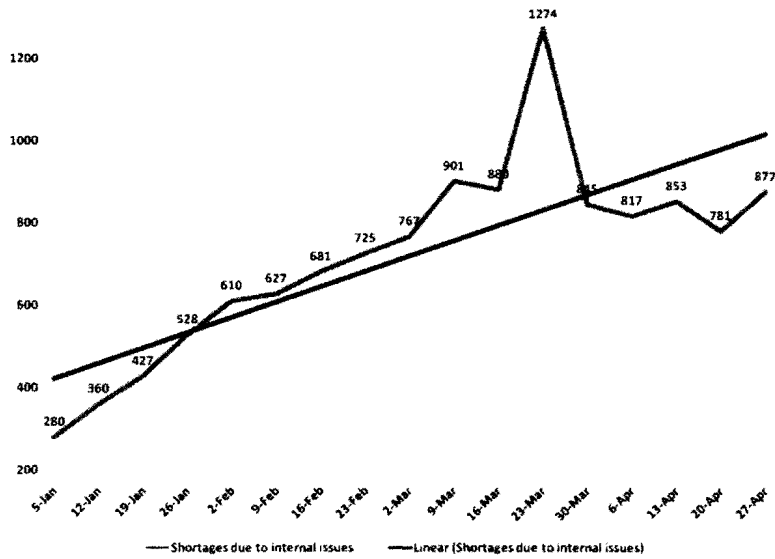
The chart below shows the overall delivery performance over the past 12 months for the top 50 DCMA JSF Key Suppliers. The blue vertical bars represent the monthly average percent of lots delivered on-time. The upper red line represents the monthly net scheduled quantity of parts which were to be delivered by these 50 suppliers, and the lower green line represents the monthly quantity of parts received on-time from these 50 suppliers.



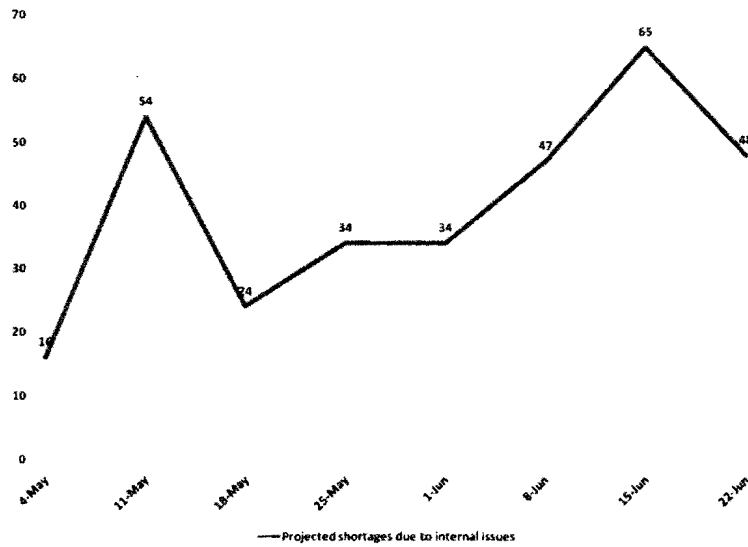
Root Causes: The root causes of the poor delivery performance continue to be late requirements to suppliers, rapidly changing requirements due to engineering changes, schedule pressures, and Bill of Material errors (22% of total shortages).

Contractor Actions: To correct the negative delivery performance, Lockheed Martin has now deployed 34 Supply Chain Managers to focus suppliers with the intent of deploying more. Additionally, they initiated a "Change War Room" to directly address the negative impact of engineering changes on suppliers.

DCMA Actions: DCMA has initiated approximately 25 Letters of Delegation to monitor and report on JSF Key Suppliers with significant negative impact on the delivery rate. DCMA Lockheed Martin Fort Worth is continuing their analysis of "unplanned shortages." These are shortages that result from design issues, supplier quality assurance reports, and parts that are either scrapped during installation or "lost in shop." The chart below shows the overall negative trend in unplanned shortages for 2009.



The chart below shows the projected shortages due to internal issues

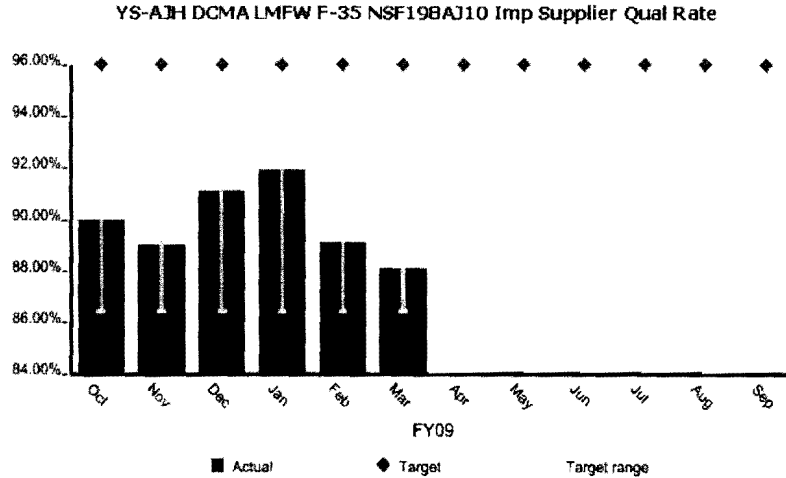


Based on the data presented in the first chart, DCMA believes that Lockheed Martin's projections for internal issues are inadequate. Overall shortages from both anticipated projections and unplanned shortages are expected to rise significantly in the 2 months.

Estimate when PC will achieve goal: LRIP 3 to LRIP 4 (2011 to 2013).

Improve Supplier Quality Rate

PC – NSF198AJ10: Description: Each delegated supplier has quality ratings greater than 96 percent. The total LM Quality rating for key suppliers (areas of consideration are: cost, issues, technical, criticality). The top suppliers are summed and divided by quantity which gives an average QA rating per month. The goal is to achieve an average of greater than 96%. Supplier quality data is obtained from LM Aero's Procurement Quality Assurance database and metric updated no later than the 20th of each month. Green: ≥96%, Yellow: 87 to 95%, Red: <87%.

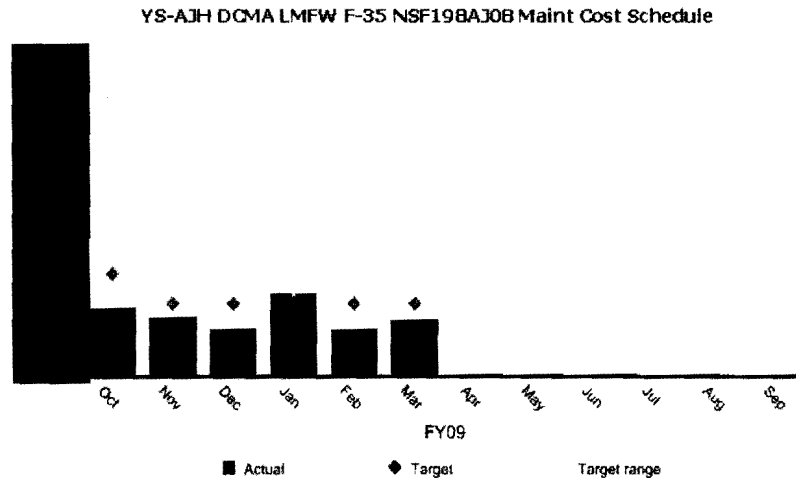


Metric Status: Yellow

Trend: Degrading

Maintain Cost and Schedule

PC – NSF198AJ08: Description: Resource requirements are aligned in support of funding and budget allocations. IEAC data and projections match actual performance within + / - 10% of contractors budget at completion. DCMA Independent EAC is measured against the prime contractor's BAC. DCMA includes risk, pressures, cost and schedule variances as compared to LM Aero BAC. The source of EV data comes from the monthly JSF SDD Cost Performance Report which lags by 1 month. Metric is updated in Metrics Manager as soon as data is received from contractor (approximately 45-60 days after end-of-month). This is represented as the contractor's BAC as the Numerator divided by DCMA's IEAC as the Denominator - with a 10 percent tolerance band. Green: 1.0 to 0.95 variance (5%), Yellow: 0.95 to 0.90 variance (5% to 10%), Red: 0.90 or greater variance (>10%).



Metric Status: Green

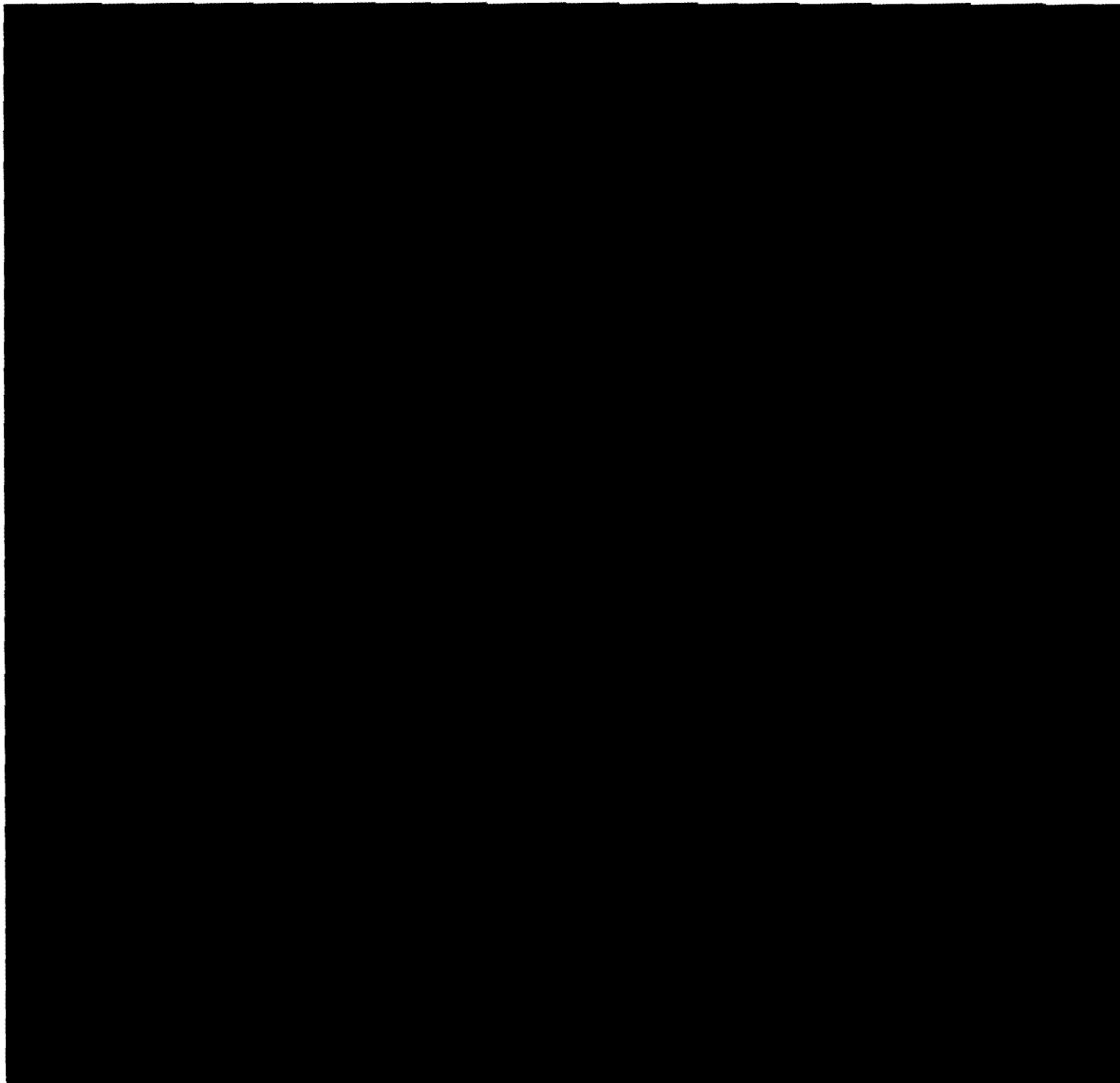
Trend: Degrading

Summary of Metric Status: DCMA's IEAC is 5.3% over LM Aero's BAC

Lockheed Martin is now reporting to an Over Target Baseline of [REDACTED] reported in the March 2009 Cost Performance Report (CPR).

DCMA IEAC is [REDACTED] for the SDD contract. This DCMA IEAC is based upon the March 2009 CPR report. LM Aero has expended an average of [REDACTED] per month over the last six months. Assuming a continuance of this expenditure rate, DCMA projects the existing SDD budget with OTB will be depleted in FY2011, (BAC of [REDACTED] - ACWP of [REDACTED] = [REDACTED] remaining).

The LM EAC MR is close to 5.0% of Estimate-to-Complete based on March 09 CPR. Using the Standard formula based on cumulative SPI and CPI yields an SDD increase of [REDACTED] over current LM Aero BAC. With the addition of risk factors such as, Supplier Costs, Late to Need parts, Schedule Impacts, Production Delays, Change Requirements, Flight Test, DCROM data, etc. the DCMA IEAC totals [REDACTED] vs. the LM Aero BAC of [REDACTED]. The graph below illustrates the DCMA's past projections of IEAC against LM's BAC and LRE.



The March 2009 SDD cost summary and program status is as follows:

	BAC	LM EAC CPR	DCMA IEAC
Performance Measurement Baseline (PMB)			
Management Reserve (MR)			
Total:			

Budget Baseline and EAC Summaries

Contract Data	KT 1	KT 2	KT 3	KT 4
Contract #	N00019-02-C-3002	N00019-06-C-0291	N00019-07-C-0097	N00019-08-C-0028
Name	JSF SDD	LRIP 1	LRIP 2	LRIP 3
Contract Type	Cost Plus Award Fee	Cost Plus Award Fee	Cost Plus Award Fee	Cost Plus Award Fee
Obligated Amount				
ULO				
Performance Start/End	Oct 2001/Oct 2014	May 2007/Feb 2010	Apr 2010/Feb 2011	Mar 2011/Dec 2011

Primary Trip Wires				Secondary Trip Wires				
System Indicator	Baseline Indicator	Cum BEI	SPI	Cum CPLI	CPI	CPI/TCPI 10%	Contract Mods 10%	Baseline Revs 5%
		0.98	0.973	0.94	0.958	7.1%		N/A

Primary Trip Wires –

(a) System Indicator: Please see EV section of report.

(b) Baseline Indicators: A baseline assessment shows the contractors BAC and EAC to be optimistic. To complete the contract within the CBB, the contractor needs to be about 6.3 percent more efficient. The BAC has increased by 40% since the start up in Oct of 2001. The cost growth is likely to increase due to inherent engineering risks in the first versions of STOVL and CV aircraft. The contractors DCROM database for the corresponding month shows a net cost growth of threats and pressures exceeding [REDACTED]

Secondary Trip Wires –

- Baseline Execution Index (BEI): Cumulative tasks from October 2001 thru April 2009: Cum BEI = 139,321 Completed Tasks/142,506 Planned Tasks = 0.98
- Monthly (April 2009) Tasks: 429 Completed Tasks vs. 1101 Baselined to Complete Tasks
- SPI (since replan) = BCWP/BCWS= 0.973
- CPLI= (1370 + (82)/1370 = 0.94 (Time Now = 26 Apr 09)
- CPI (since replan) = BCWP/ACWP= 0.958
- CPI/TCPI= 0.958/1.031=.929
- Contracts Mods – (BAC now)/original BAC 10/01= [REDACTED] / [REDACTED] =1.40

The DCMA Risk Rating for E VMS at the total program level is rated Yellow using the agreed to parameter of VAC (-4.56%).

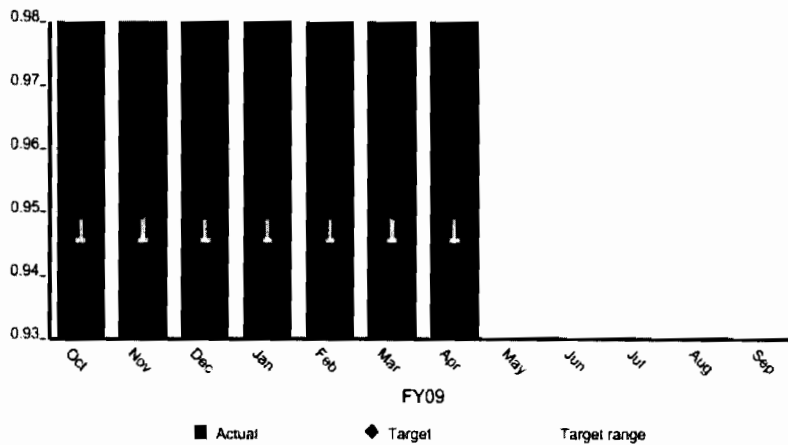
Similarly, the $TCPI_{EAC}$ is different when using the DCMA IEAC versus the contractor's EAC:

$$\begin{aligned} TCPI_{DCMA\ IEAC} &= 0.872 \\ TCPI_{LM\ EAC} &= 1.031 \end{aligned}$$

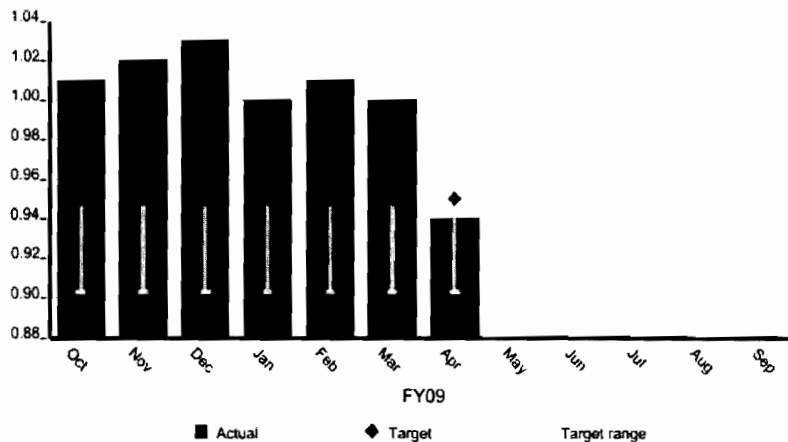
NSF198AJ08 Sub-Metrics: Description: The SDD Baseline Execution Index (BEI) metric is an Integrated Master Schedule (IMS) based metric that calculates the efficiency with which actual work has been accomplished when measured against the baseline. The BEI provides insight into the realism of program cost, resource, and schedule estimates. For BEI, an index of <.95 is used as a warning indication of schedule execution under performance. Goal is to achieve BEI value of .95. Cumulative BEI equals actual tasks/activities completed divided by the baseline total tasks/activities.

The SDD Critical Path Length Index (CPLI) indicates whether or not the program schedule can be completed on time. This is an Integrated Master Schedule (IMS) based metric that utilizes the critical path methodology definition being: the longest, continuous sequence of tasks through the network schedule with the least amount of float, from contract start to contract completion. After contract start, the critical path is always measured from "time now" until contract completion. For CPLI, an index of <.95 is used as a warning indication that the program will not complete on time. Goal is to maintain CPLI value of .95. Critical Path Length Index (CPLI) equals the Critical Path Length (CPL) plus or minus the Total Float (TF) divided by the Critical Path Length (CPL). The target efficiency ratio for both metrics is 1.00. An index greater than 1.00 is favorable, and an index less than 1.00 is unfavorable. .95 = Green .90 to <.95 = Yellow <.90 = Red

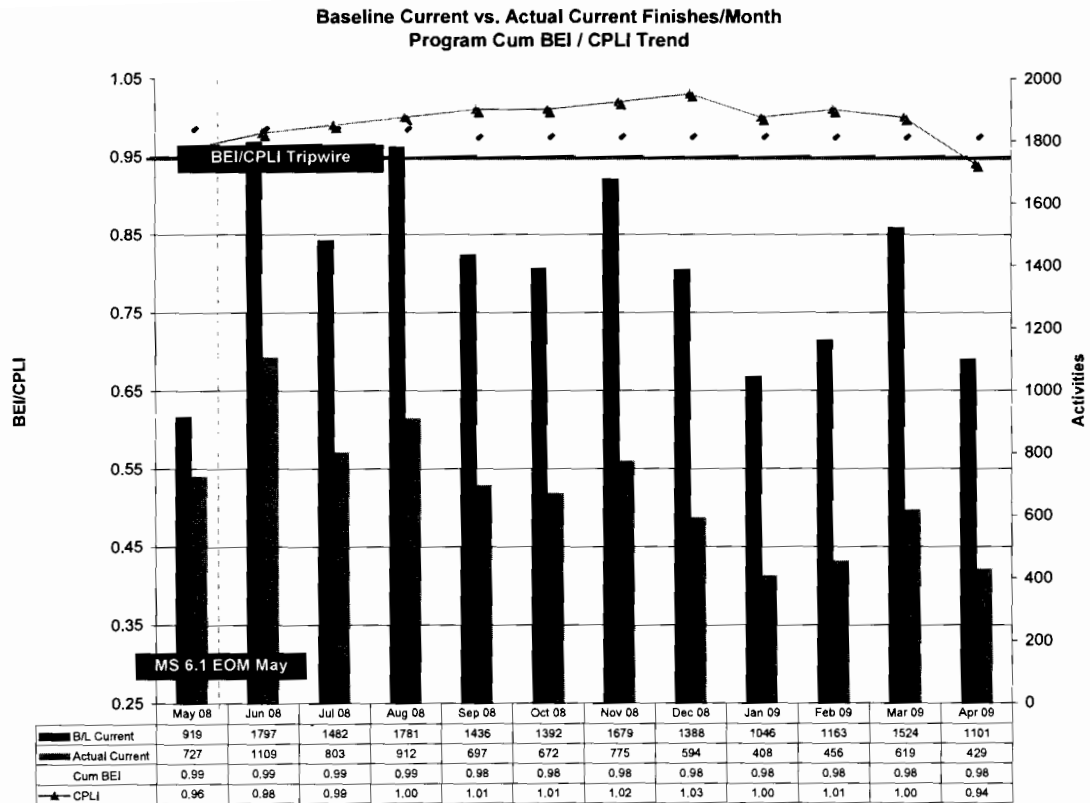
YS-AJH DCMA LMFV F-35 SDD IMS BEI



YS-AJH DCMA LMFV F-35 SDD IMS CPLI



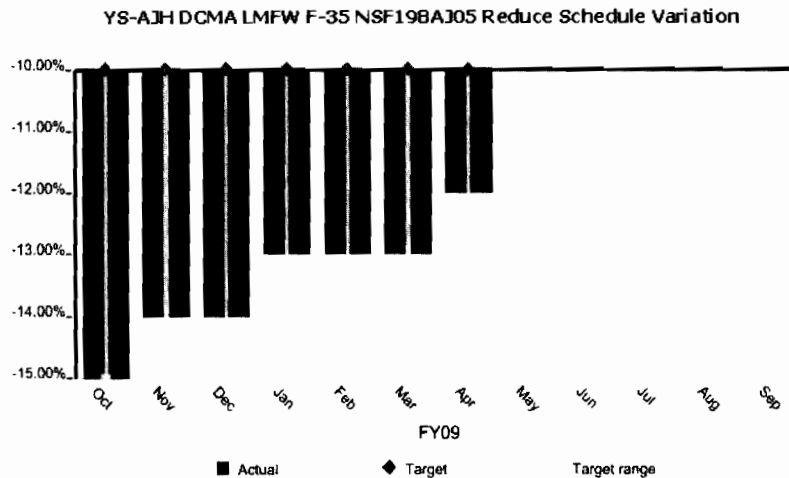
Cumulative SDD Program BEI sub-metric is rated Green, while the CPLI sub-metric has dropped below the tripwire and is rated Yellow for this period. Cum BEI is at .98 and CPLI is at .94 for month end April.



MS-6.1 baseline replan dates were incorporated into the IMS month-end May 2008.

Reduce Schedule Variation

PC – NSF198AJ05: Description: Reduce the average Wing touch labor variance "at move to Mate" to within 10% by SDD completion. In addition to monthly performance indicators, linear trend lines are used to project out subsequent Wing builds that have not moved to mate yet – projection is used to access current and predict future Wing variance performance. Metric will be updated NLT the 20th of the following month. Green: <-10% variance, Yellow: -10% and -15% variance, Red: >-15% variance.



Metric Status: Yellow – Performance Commitment is rated Yellow this period with a current overall Wing average touch labor variance to schedule at -12%.

Trend: The variation average did not change, but the BF-5 Wing moved with only a 5% variance to its schedule.

Summary of Metric Status: Chart 1 (below) is a breakout of the Wings which build up the -12% variation average metric. The Wing has gradually reduced their out of station tasks traveled to Mate. This is very important since history has shown that Mate and Final Assembly performance has been significantly affected by the condition (maturity) and timing of the Wing delivery. This has contributed to the overall average schedule variance reduction. DCMA does not include “ground” aircraft performance in its variance calculations.

The CF-2, CF-3, CG-1, BH-1 and BF-5 wings are in structural mate undergoing permanent fastener installation and joint drill of mate critical parts with CF-1 moving to the Moving Line in early April 2009. The last SDD aircraft Wings (CJ-1 and AF-4) are in various stages of Wing build. Late component deliveries to Mate are significant drivers impacting Mate schedule variances. Part shortages continue to create significant negative schedule. Some data adapted from program Format 5 CPR report.

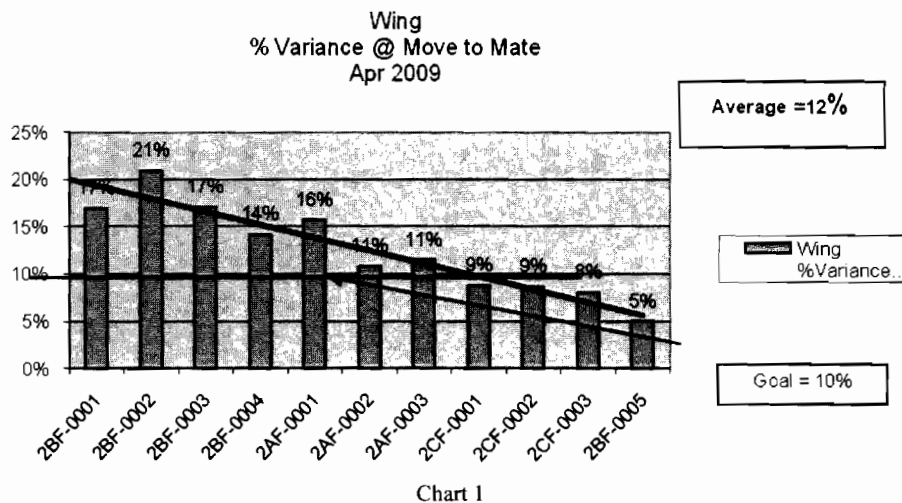


Chart 2 (sub-metric) below is a breakout of some of the aircraft that have either gone through or are in Mate and Final Assembly along with their associated % variance to schedule. Mate thru Delivery build performances continue to be under pressure to meet schedule requirements. Mate’s cost and schedule variances continue to be driven by part shortages, late planning and late Wing component delivery to Mate. WAM (Wing at Mate) Team is working with the Mate Team to mitigate the planned out of station work schedule impact to Mate through communication of the impacts to the daily assigned tasks and being able to capture these in crew boards for wing sequence issues. Some data adapted from program Format 5 CPR report.

Both our charts use SPI data for variance projections on wings/aircraft that haven’t moved to mate/flight line yet. Per Lockheed Martin, “The data used in the charts is from shop floor systems and is not auditable data or official EV data. It is for status purposes only.”

**Mate-Final Assembly
% Variance @ Move to Flight Line
APR 2009**

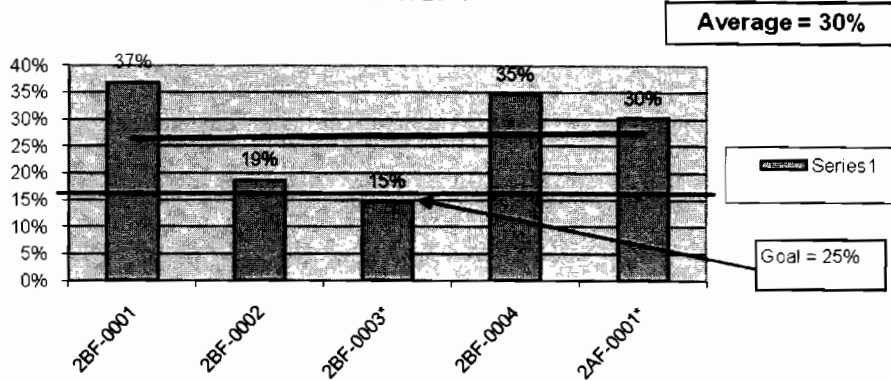


Chart 2

Root Causes: In general, inefficiencies of out of station work are driven by late parts and planning throughout the build cycle. This has created significant workarounds and rework requirements downstream. DCMA continues to be concerned with the amount of “out-of-station” tasks traveling to Mate and the Flight Line (at “roll out”). In order to have a positive impact on overall throughput (“roll out”), LM must find a way to simultaneously continue to reduce “out-of-station” tasks and improve their ability to start and finish on plan.

Contractor Actions: LM Aero continues to put emphasis on Value Stream recovery initiatives such as: a Shortage Resolution Process with consulting company (), Tiger Teams for on-site subcontract management support at critical suppliers, advanced workable set up teams to review job packages prior to major assembly start, continued tool design/rework to mature tooling, WAM (Wing at Mate) Teams to mitigate planned out of station work impacting Mate (showing progress), process improvement initiatives (such as bracket locating/bulkhead marking and portable/perishable tools), increased manpower and outsourcing to reduce planning backlog, as well as span time, crew size and schedule compressions in the factory and Flight Line areas including the new Focused Flight Line Support Team.

DCMA Actions: Regular interface with LM Aero project teams to: assess progress on recovery initiatives look for process review or corrective action opportunities, monitor impacts on Mate, update metrics and report progress in monthly report to customers.

Estimate when PC will achieve goal: Every first new Variant disrupts the overall PC performance with each subsequent A/C showing improvement. Goal may not be reached until after SDD completion (2014) when Wing and Mate overlap is eliminated.

The following table depicts the SCOP completions per test article/aircraft. The table includes the total SCOPs planned per A/C, the number of SCOPs completed as of this reporting period (5 May 09), the percentage of SCOPs completed relating to the total planned for the specific test article and the percentage of testing completed prior to test article rollout from the factory to the Fuel Barn.

SCOP Completions per Test Article / Aircraft (A/C)

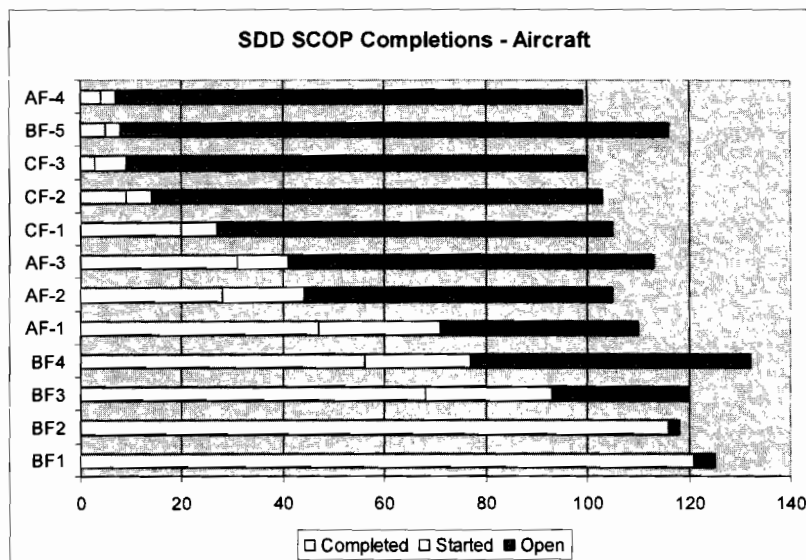
Test Article	Total SCOPs Planned	SCOP Completed	%Complete (Total A/C)	% Complete prior to Rollout
BF-1	125	121	96.8%	28.0% (18 Dec 07)
BF-2	118	116	98.31%	51.6% (16 Aug 08)
BF-3	120	68	56.7%	
BF-4	132	56	42.4%	30.8% (1/21/09)
AF-1	110 ¹	47	42.7%	38.1% (2/5/08)
AF-2	105	28	26.7%	
AF-3	113	31	27.4%	
CF-1	105 ¹	20	19.1%	
CF-2	103 ¹	9	8.7%	6/24/09
CF-3	100 ¹	3	3.0%	7/1/09

¹ Newly released SCOPs added to effectivity during this reporting period

² SCOPs removed from the effectivity during this reporting period

Note that AF-2 has left the factory floor and moved to the Calibration Lab on 18 Mar 09. It is due to be returned to the factory early May 09 with subsequent Rollout to the Fuel Barn currently projected for 23 Jul 09.

The chart below depicts the current SCOP completion status for all flight test articles in SDD. List is organized by current firing order as depicted in Master Schedule 6.1.



The following are for SCOP's which have not been formally completed on flight certified test articles. Each SCOP was reviewed and contains the particular test article's effectivity. Obtaining status of these tests is currently in work.

BF-1: [REDACTED]

Testing per [REDACTED] been completed on BF-1. The documents are similar in most testing requirements. [REDACTED] has incorporated changes pertaining to the allowable aircraft testing configuration, the addition of several operator "Notes" and new requirements for performing Tow Mode testing (Section 5.8).

Presently attempting to determine if the regression test has been performed to support the new testing requirement.

[REDACTED]

[REDACTED]

This table is provided to track Wing specific SCOP testing prior to move to mate and percentage of testing completed prior to test article moving from the Factory Floor to the Fuel Barn.

SCOP Completions on Wing Assemblies

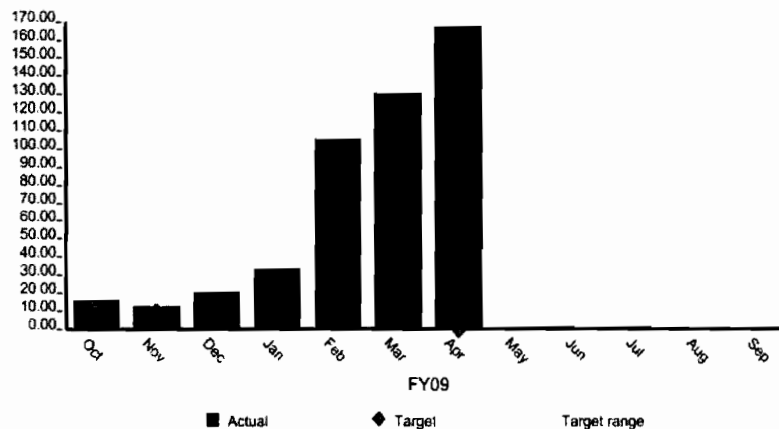
Test Article	Total SCOPs Planned to Date	% Complete (No. SCOPs Completed)	% Complete Prior to Rollout	Avg Days Behind MS 6.1 (for Completed Tests)
BF-1	15	100% (15)	40% (6)	-170
BF-2	18	100%(18)	83.3% (15)	-216
BF-3	18	66.7%(12)	-	-226*
BF-4	19	63.2%(12)	42.1% (8)	-207*
AF-1	15	73.3%(11)	68.8% (11)	-176*
AF-2	14	50.0%(7)	-	-161*
AF-3	16	56.3%(9)	-	-129*
CF-1	18 ¹	22.2%(4)	-	-105*
CF-2	17 ¹	5.9%(1)	-	-108*
CF-3	15	0%(0)	-	-

¹ New wing specific SCOPs added this reporting period

* Wing testing is still in-work. Travel work from [REDACTED] will be in effect until LRIP 2? Value is not final until all testing is completed.

NSF198AJ05 Sub-Metric: Description: Reduce monthly average of negative float manufacturing days (Mdays) of key variant First Flight dates over baseline aircraft's (AA-1) delayed (~80Mdays) First Flight date. BF-4 (STOVL - Mission Systems Article) targets a 50% reduction in negative float over baseline, incorporating a 20% reduction each month in negative float Mdays. AF-1 (CTOL - Optimized vs. AA-1) targets a 50% reduction in negative float over baseline, incorporating a 15% reduction each month in negative float Mdays, 12 months out from Master Schedule First Flight date. (Note: Mdays are displayed as positive values, but represent behind schedule status).

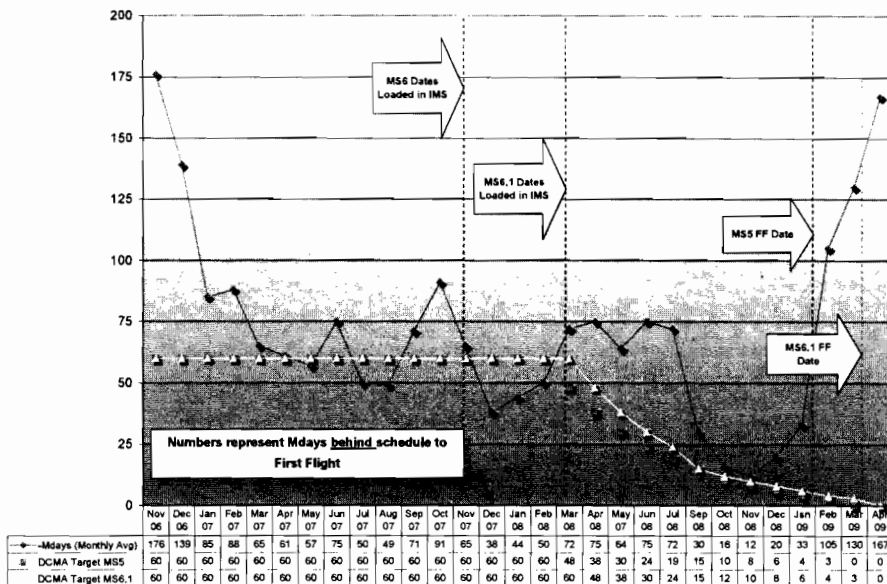
YS-AJH DCMA LMFW F-35 BF-4 First Flight Date



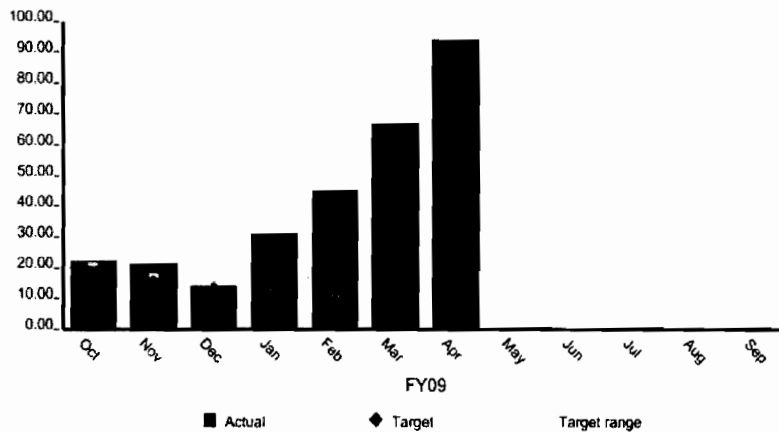
BF-4 sub-metric is rated Red, with an April average of 167 M days late calculated to MS 6.1 first flight date of 24 Mar 09. BF-4 baseline rollout was 21 Oct 08 – rollout occurred on 21 Jan 09. Projected first flight is late August – additional build period to complete the aircraft continues.

BF-4 First Flight (24 March 09 - MS6.1) Total Slack Trend

MS6 dates in IMS 4 Nov 07 / MS6.1 dates in IMS 9 Mar 08

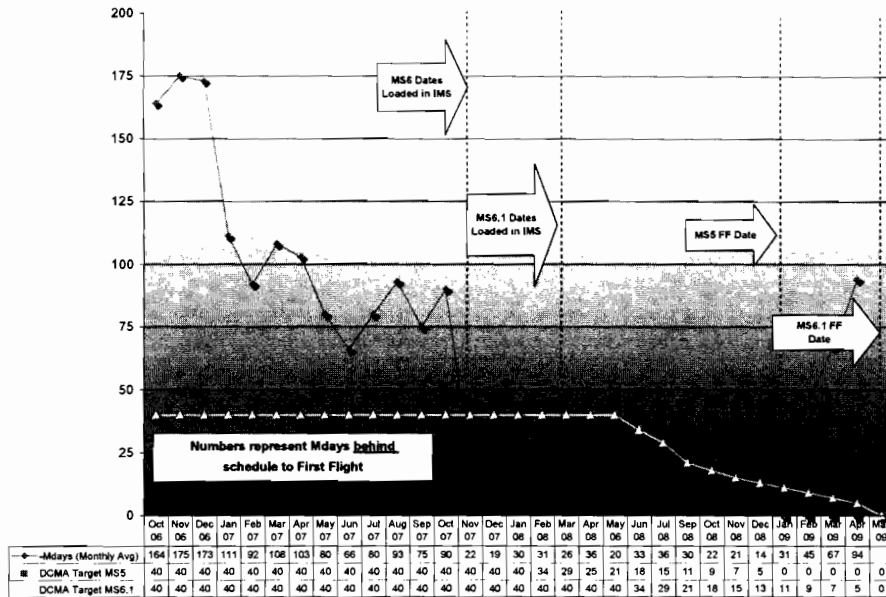


YS-AJH DCMA LMFW F-35 AF-1 First Flight Date



AF-1 sub-metric is rated Red, with an April average of 94 Mdays late to first flight date of 14 May 09. Baseline rollout date was 25 Nov 08 – aircraft rolled on 5 Feb 09. Projected first flight is September.

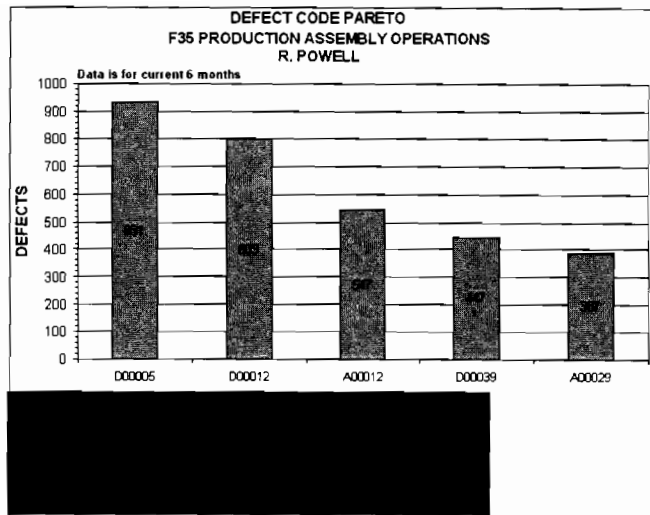
AF-1 First Flight (14 May 09 - MS6.1) Total Slack Trend
 MS6 dates in IMS 4 Nov 07 / MS6.1 dates in IMS 9 Mar 08



Non-Conformance Reduction

PC – NSF198AJ06: Description: 10% reduction in MRB discrepancies per year. Metric shows the average number of MR defects per 1000 actual manufacturing hours. The goal is to reduce MR defects per 1000 actual manufacturing hours by 10% per year. Metric is based on contractor provided data that is collected updated in metrics manager NLT the 20th of each month and averaged against all prior months to illustrate normalized trend. Green: <goal of 21, Yellow: within 10% of the goal, Red: >10% above the goal of 21.





Metric Status: Green

Trend: Improving with approximately [REDACTED] per 1000 HRS for FY 09. [REDACTED]

Summary of Metric Status: Metric illustrates improving trend – maintained for the last 12 months.

Contractor Actions: LM Aero has reduced their goal for MR actions for 2009, meeting the goal so far this year.

DCMA Actions: Reducing the goal to reflect an effort to further reduce the amount of MRB actions for this year. DCMA is evaluating the new LM Aero goal to see if a more than 10% reduction in MRB actions is warranted.

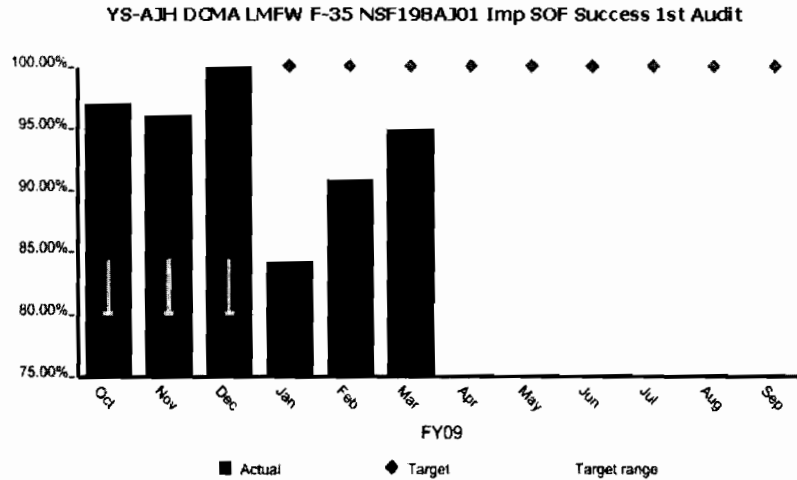
Estimate when PC will achieve goal: PC has achieved goal as set last year.

Related MR Issue – Update: DCMA LMFW has reviewed a sample of Quality Assurance Reports (QAR's) [REDACTED]

DCMA Actions: Review QAR database – perform process reviews and audits.

Safety of Flight (SoF)

PC – NSF198AJ01: Description: Measures contractor capability to present a successful Safety of Flight inspection on first attempt. It is a measure of quality where the target is 100%. Normally, SOF metrics measure the number of SOF escapes to the customer. We are measuring the contractor's ability to present DCMA SOF inspections capable of passing an inspection or test the first attempt. This allows us to prepare the contractor for SOF expectations once production begins. We will adopt a traditional SOF metric based on customer reported escapes once delivery of aircraft begins. This metric has been re-adjusted as of January 2009 to reflect a more accurate account of what is being presented to DCMA. The contractor's processes are not mature enough (currently SDD) to present to DCMA for passable SOF inspections on the first attempt. Data is updated in Metrics Manager NLT the 20th of the following month. Performance data obtained from local DCMA quality data base as a result of DCMA inspections. Green: 100%, Yellow: 95%-99.9%, Red: <94.9%.



Metric Status: Red

Trend: Improving

Improve Software Productivity

PC – NSF198AJ07: [Redacted]

[Redacted]

Metric Status: Green

Trend: No Change

Summary of Metric Status: Current performance is exceeding our target of 83%. The value this month is 90.54 which is a small negative change over last month's value of 91.1%.

Root Causes: DCMA LMFV performed a risk assessment for this revised PC. Process areas of focus include Software Product Evaluation (SPE) and Interface Work Package (IWP) processes. Another focus area is improved communication through consistent use of developmental software configuration management practices.

Contractor Actions: The contractor's process includes process improvement activities (Kaizens, Tiger Team Efforts, Value Stream Mapping, Lean Events, etc).

DCMA Actions: DCMA-LMFV Report and Exec Summary-April 2009 – DCMA received the SPE Process Review Corrective Action Plan (CAP). DCMA has reviewed the plan and determined that CAP presented by the contractor is unsatisfactory and lacks definitive completion dates. A response to the contractor regarding their corrective action plan is in work. DCMA has also participated in the contractor's software safety process review and observed an SQT.

DCMA [REDACTED] Prognostics and Health Management (PHM) Requirements [REDACTED] [REDACTED] – Requirements] – All block 1.0 RWP's have been signed off and closed. Effectively 114A (Requirements) 1.0 Design is complete. Comments against converted documents are slowly being received. It is anticipated that the final Block 1.0 conversion sign off will be in the beginning of May. Recently there have been some unanticipated personnel shortfalls – it is likely that the Block 2.0 sign-off previously anticipated to be in August will not be met, but rather that this document will be delivered in October instead. Efforts needed to further quantify the expected number of SPARs and opportunities to limit them and/or more efficient methods of processing SPARs.

[REDACTED] Input: Block 2.0 RWP completions - ETC review planned Friday, 22 May, to assess the pressure. The "comments . . . slowly being received" is a contentious issue between the teams (design & SW) - but it is accurate that the overall effort is behind where they expected to be. [REDACTED] has initiated an action item to reduce the SPAR costs (e.g. relative to the suggestion we figure out how to limit the number of SPARs or process SPARs more efficiently).

DCMA [REDACTED] Prognostics and Health Management (PHM) Software [REDACTED] [REDACTED] – Software] – There is an emerging pressure from a planned "new architecture" to be incorporated in Block 1.0. This is a large redesign involving unplanned changes to the S/W – concurrence on its proposed scope is pending.

[REDACTED] Input: There is a re-architecture effort initiated to get PHM to conform to throughput limits. This is not perceived to be a significant pressure to software - as long as the requirements are available by 1 August (they can incorporate within Block 1 at minimal cost if they get requirements in time). However, the requirements / design team has a few weeks of pressure against the 1 August date. The pressure for the design team will be assessed during the week of 18 May. PHM SW EAC pressure assessment ECD is 10 June.

DCMA [REDACTED] [REDACTED] – External Communications Domain] – There appears to be an FTP STOR problem which is requiring the use of an older CPSW version to get through testing since the latest version does not seem to allow successful operation. The problem is currently being worked

[REDACTED] Input: The FTP problem is with an older version of the Maintenance Information Broker (MIB). The problem is close to resolution.

DCMA [REDACTED] – Mission Domain] – The Block 0.5 Flight Test Update is facing a delay due to infrastructure software and security changes. This is expected to affect all application teams, pushing the ECD for final development test build delivery for the PCD to 27 May 09.

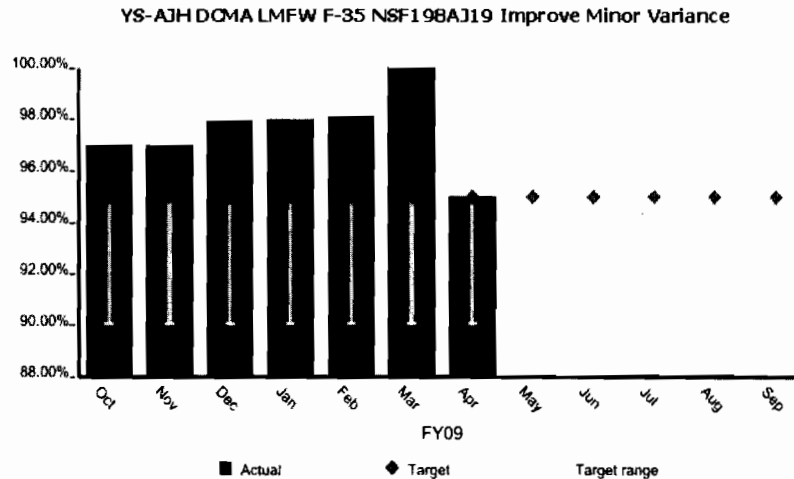
[REDACTED] Input: The current ECD for CPSW is 1 June and final DT delivery 16 June - and if the trend continues, 1 June won't be met.

DCMA [REDACTED] – [REDACTED] – Integrated Core Processor (ICP)] – During April the scheduling process were reviewed on the JSF-ICP program. LMAero participated in this Joint Earned Value Surveillance along with DCMA Twin Cities. Four CARs are planned to be issued as a result of the surveillance.

Estimate when PC will achieve goal: Current performance exceeds target.

Improve Minor Variance

PC – NSF198AJ19: Description: Maintain at least a 95% correct classification rate of variances. Cumulative number of minor variances classified correctly divided by the cumulative number of minor variances reviewed. Metric should be updated at the end of each month but no later than the twentieth of the following month. Green: % of properly classified minor variances is ≥95%, Yellow: 90% up to but not including 95%, Red: <90%.



Metric Status: Green

Trend: Degrading

Summary of Metric Status: The contractor had a correct classification rate of 95% this month and the goal is to maintain at or above 95%, therefore, the goal has been met. There were 20 minor variances reviewed during the month of April 2009 and 19 of these were classified correctly. Last month the rate was 100%.

Root Causes: No root causes identified at this time.

Contractor Actions: No contractor actions required at this time.

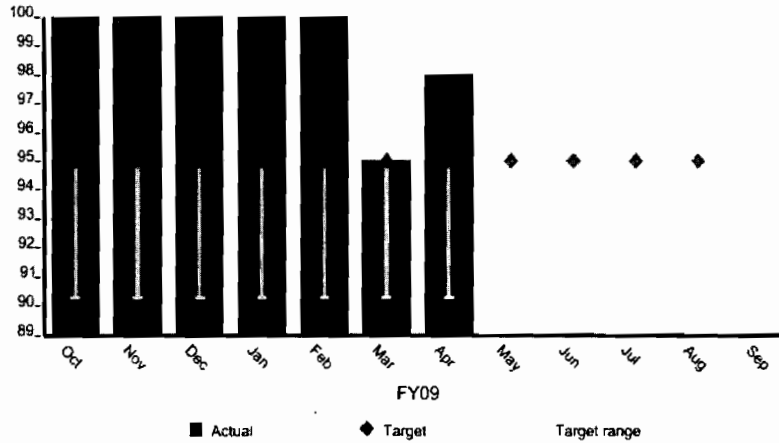
DCMA Actions: None at this time other than to continue to review Minor Variances for correct classifications. Ensure the contractor takes the necessary corrective actions to preclude any incorrect classifications in the future.

Estimate when PC will achieve goal: The PC has currently achieved its goal by being at or above a correct classification rate of 95%.

Improve FCA/PCA

PC – NSF198AJ20: Description: Ensure that at least 95% of systems reviewed in interim FCA/PCAs meet the design requirements. Technical Description: Verification of the F-35's physical configuration to the design requirements by performing PCAs (physical configuration audits). Percentage of part and assembly numbers reviewed in interim audits in accordance with engineering drawings divided by total population of parts and assemblies assessed. The data used to assess this comes from interim audits from suppliers. Green: % of parts meeting design requirements is $\geq 95\%$, Yellow: 90-94%, Red: $< 90\%$.

YS-AJH DCMA LMFW F-35 NSF198AJ20 Improve FCA/PCA



Metric Status: Green

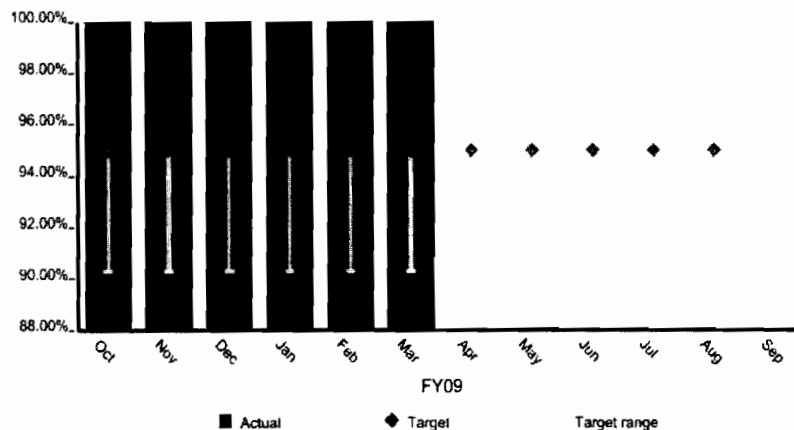
Trend: Improving

Contractor Actions: Meetings with DCMA personnel.

Improve Minor Change

PC – NSF198AJ18: Description: Ensure that 95% of minor changes are correctly classified. A Minor Change is defined as a change to an item which remains interchangeable with the same item in which the change has not been incorporated (form/fit/function interchangeable), has little or no impact to any downstream functions and has no effect on any criteria governing Major A and/or Major B type changes. Criteria for classification of changes are presented in PD-44. Data Source(s): PDM, JDL and weekly CIB meetings participation. Metric is calculated by the number of minor changes correctly classified + by the total number of minor changes reviewed during the month. Data is updated in Metrics Manager NLT the 20th of the following month. Green: $> 95\%$, Yellow: $\geq 90\%$ to $\leq 95\%$, Red: $< 90\%$.

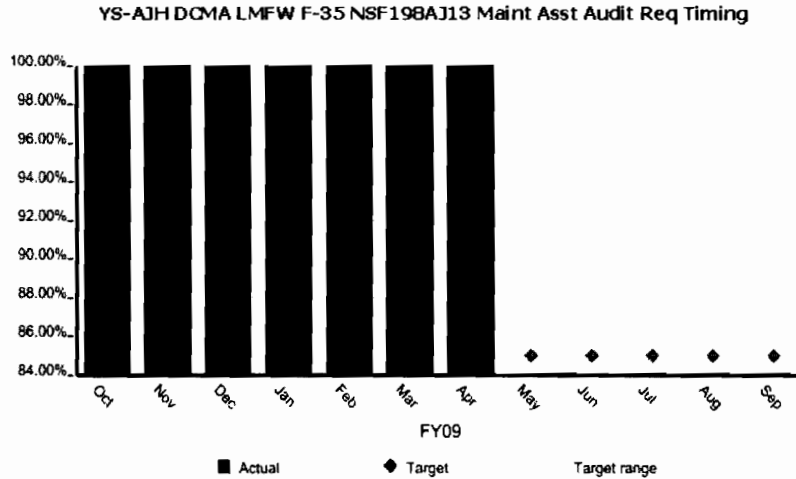
YS-AJH DCMA LMFW F-35 NSF198AJ18 Improve Minor Change



Metric Status: Green

Maintain Assist Audit Request Timing

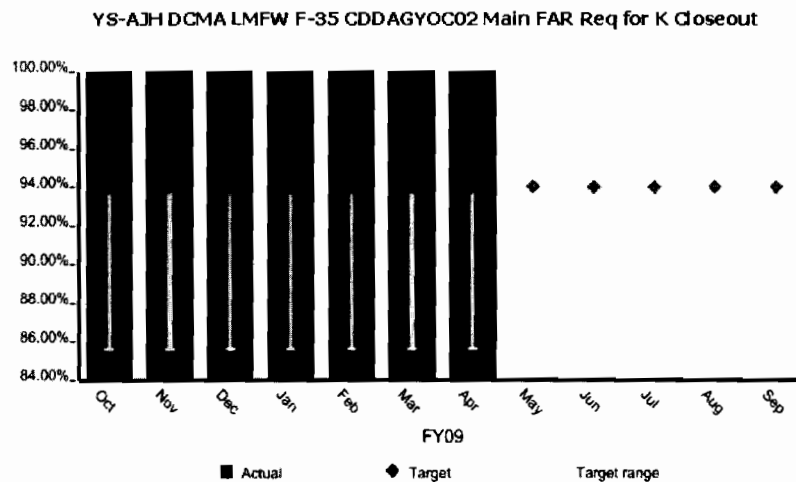
PC – NSF198AJ13: Description: Process contractor/PCO requests for domestic/international Assist Audits within 2 business days 85% of the time. The percentage will be calculated by dividing the number of Assist Audits processed within 2 business days by the total number of Assist Audits requested. Source data will be obtained prior to the 15th of the following month and updated in Metrics Manager NLT the 20th of the following month. Green: >84%, Yellow: 75-84%, Red: <75%.



The performance commitment is rated Green for this period.

Maintain FAR Requests for Contract Closeout

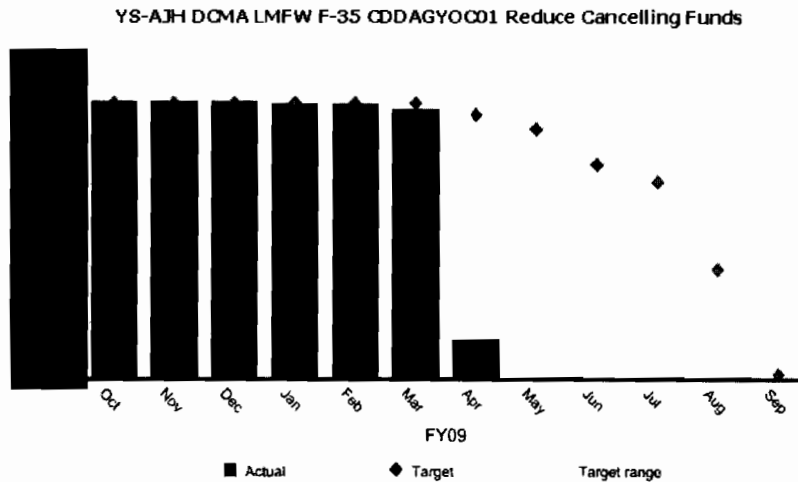
PC – CDDAGYOC02: Description: Maintain 94% contract closeout actions within the Federal Acquisition Regulation (FAR) mandated timeframes. The percentage will be calculated by dividing the number of on time contracts closed by the total number of contracts closed. Source data will be obtained prior to the 15th of the following month, and updated in Metrics Manager NLT 20th of the following month. Green: >93%, Yellow: 85-93%, Red: <85%.



The performance commitment is rated Green for this period.

Reduce Cancellng Funds

PC – CDDAGYOC01: Description: 90% of canceling funds will be billed and/or de-obligated before the end of the fiscal year. Attainment of the goal will be calculated by dividing the total dollar amount of canceling funds billed and/or de-obligated by the total amount of canceling funds identified. Source data will be obtained prior to the 15th of the following month, and updated in Metrics Manager NLT the 20th of the following month. Green: >89%, Yellow: 80-89%, Red: <80% of the funds identified to cancel at year end.



The performance commitment is rated Green for this period.

Earned Value

The complete EV report is attached:



Appendix A – EV Assessment Criteria

Rating Criteria is based on the DCMA VAC% and when possible should include MR in the DCMA IEAC

Green - VAC%>-5%

Yellow - -10%<VAC%<-5%

■ - VAC%<-10%

N/R - Not Rated or Not Reported