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Gregory Hamilton
President
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Acknowledged, agreed, and submitted by

______________________________ 5/24/2022

Nominee's Signature Date

Nominee's Name (please print): Ed Woodruff

Title (please print): Manager, Project Management Office

Company (please print): Top Aces Corp.

NOMINATION FORM

Name of Program: Top Aces F-16 Advanced Aggressor Fighter (AAF) Modification

Name of Program Leader: Ed Woodruff

Phone Number: 480-435-8198

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☒ Customer Approved

- Date: Not Applicable
- Customer Contact (name/title/organization/phone): Not Applicable

☒ Supplier Approved (if named in this nomination form)

- Date: 5/24/2022
- Supplier Contact (name/title/organization/phone): see below

Chris Cohn / Program Director / Elbit Systems of America, M7 Aerospace / 1-210-376-1416
Ian Gallimore / Chief Technology Officer / Coherent Technical Services, Inc. / 1-443-902-3281

PLEASE REFER TO PROGRAM EXCELLENCE DIRECTIONS
AS YOU COMPLETE THIS FORM.

EXECUTIVE SUMMARY: Make the Case for Excellence *(Value: 10 pts)*

Top Aces provides adversary training ("red air") and joint terminal attack controller (JTAC) training to the world's leading air forces and has the largest fleet of contractor owned, contractor operated fighter aircraft in active service. Our mission is to help develop tomorrow's combat leaders by providing the most advanced and realistic training available, while creating significant cost efficiencies and extending the aircraft lifecycle for our nation's military fleet. Top Aces recently became the first company in the world to privately own and operate a fleet of F-16 fighter aircraft. The F-16, a true fourth generation, supersonic fighter, is perfect for preparing the next-generation of U.S. fighter pilots flying 5th generation aircraft such as the F-35 Lightning II and F-22 Raptor.

AAF on Test Flight Approach (Photo Courtesy Kyler Noe)

The beginning of this project started several years ago with the concept to apply modern capabilities to early model--yet highly manueverable--F-16 aircraft and successfully transform them into highly capable adversary fighter aircraft known within Top Aces as the Advanced Aggressor Fighter (AAF). The project team's objective was to develop, integrate, and install a complex avionics package into former Israeli Air Force F-16A aircraft purchased by Top Aces. The AAF modification specifically integrates a modern active electronically scanned array (AESA) fire control radar, helmet-mounted cueing system (HMCS), Link-16 datalink capability, adversary air (ADAIR) operational flight program, and a tailored multi-function display, all powered by an open architecture mission system which also permits the rapid integration of additional sensors and functions that a customer wishes to use to improve their air combat readiness.

The project faced a number of challenges: limited technical information, movement of hardware from suppliers around the globe during times of geopolitical and COVID-related instability, FCC radar licensing requirements, work location changes driven by unforeseen regulatory restrictions, and supply chain challenges, among others. The team used several innovative tools and techniques to accomplish the project's objectives including concurrent engineering, scrum and agile project management techniques, rapid prototyping, innovative test equipment, and multi-organization team collaboration.

What makes this project's achievements especially unique is that despite these challenges, the team's overall design, engineering and fabrication work was accomplished in an extremely compressed timeline and at a significant cost reduction compared to similar DoD-sponsored integration efforts on other 4^{th} generation fighter platforms currently in service. The project required the development of the system architecture, subcomponent procurement, and the formation a highly capable multi-company engineering team to embody and produce the aircraft. To put it into perspective, the design, embodiment, and test flights were accomplished in less than 365 days from the date that the first F-16 arrived ***disassembled*** at Top Aces' headquarters in Mesa, AZ, on an Antonov An-124 cargo aircraft. With the help of Top Aces team members M7 Aerospace an Elbit Systems of America company, Coherent Technical Services Inc (CTSi), and several other key subcontractors, the collective team produced the first of a series of a highly capable and cost-effective fighter aircraft specifically designed for the adversary role.

These aspects make this effort worthy of the OEM Prime System Production Category 2022 Award.

VALUE CREATION *(Value: 15 pts)*

Please respond to the following prompt:

- Clearly define the value of this program/project for the corporation

The AAF project is valued by our corporation as its single greatest discriminator in an extremely competitive market. The greatly improved warfighter training capability it provides, coupled with the flexibility inherent in an open architecture mission system, allows the F-16 AAF to challenge modern fighter jets at a competitive cost per flight hour. The modification allows the corporation to balance capability and cost by modernizing early fourth generation fighter aircraft such as the F-16. One of the main benefits of the early model F-16 aircraft is that they employ complex fly-by-wire flight control systems making the aircraft much more capable and maneuverable than the preceding generations of fighter aircraft. However, due to the F-16A early design system architecture, their sub-systems are not as integrated into the core operational flight program (OFP) as is the case with fifth-generation fighters of the modern era. This means that many of the aircraft systems are stand-alone and function independently of each other. Therefore, modifications can be made to improve the pilot's data collection and situational awareness without impacting critical flight controls and aircraft safety aspects. This combination permitted the team flexibility during the design phase and simplified the airworthiness approval process, reducing cost, schedule, and overall risk which benefits the customer in meeting their requirements rapidly and cost-effectively while retaining a significantly high safety margin.

Top Aces F-16 Fleet

- Clearly define the value of this program/project to your customer

The overall primary value of Contracted Air Services (CAS) to the U.S. Air Force is the ability to remain the most capable and best trained in the world without consuming the life of their own modern and expensive aircraft or diluting their frontline combat pilots' focus with execution of red air tactics. In contrast, contracting the red air aggressor capability to industry allows the military to focus financial and manpower resources on the capability and skills critical in today's world of near-peer threats. The Top Aces F-16 AAF project is specifically critical in providing the advanced air capabilities and threat replication that the Combat Air Forces (CAF) need while preparing to meet the near-peer adversary they are likely to face in combat. Air Combat Command (ACC) has prioritized the fielding of this Top Aces F-16 AAF over all other CAF contractor aircraft upgrades due to its immediate relevance in today's world. The revolutionary capabilities of the fully integrated AESA radar, HMCS, Link-16 tactical datalink and Open System Architecture (OSA)—that is Open Mission System (OMS) compatible—ensures technical and tactical relevance to CAF training for decades to come. The same AAF systems integrated on Top Aces Douglass A-4N Skyhawks are already in operational use in Europe under a United States Air Forces in Europe (USAFE) contract that is actively training against USAFE F-15E and F-35 CAF aircrew, and which the customer is specifically requesting for training on a daily basis. The F-16 AAF will be the first contractor

Top Aces AAF Test Pilot with Helmet Mounted Queuing System owned, contractor operated aircraft to satisfy all CAF Contract Air Services (CAS) contract requirements for the highest threat replication capabilities requested, greatly enhancing the value of the air combat training for the most advanced USAF, USN and USMC weapon systems to reduce/eliminate friendly air combat losses against the near-peer threats they are most likely to face. Ultimately our mission is to deliver safe and highly professional air combat training solutions to ensure our customers' current and future operational readiness.

- Clearly define the value of this program/project to members of your team

The value of the program to the entire team cannot be overstated as it is quite literally the realization of a seven-year vision to provide the most advanced and trusted adversary air training solution to today's—and tomorrow's—warfighters. Throughout this journey there have been countless naysayers that simply did not believe we could fly these "old" F-16s at all, much less transform them into the most advanced training platform available to the CAF today, and in a cost-effective manner. Each member of the team from software developers to technicians over the past several years contributed countless hours, their expertise, and committed to do their best possible to turn this vision to a reality because they believe in the value this project brings to the company, our country, and our customers. The enormous investment of funding, time, intellectual capital, and sheer determination required to make the vision the reality it is today is a testament to the persistence, professionalism and ingenuity of the Top Aces project team and its internal and external stakeholders.

All of the Top Aces pilots are highly experienced elite graduates and instructors of the US Air Force Aggressor program, which was born of the lessons learned from poor air-to-air performance in Vietnam. Our pilots were all handpicked for their Aggressor assignment(s) during their Air Force careers, and all are still avid advocates of providing the CAF the best possible ADAIR training available for the sole purpose of ensuring the US maintains its combat edge in air warfare. These pilots are ultimately the ones that operate the aircraft to replicate our adversaries and provide realistic combat replication capability to US DoD combat aircrew The integration of the new technology working in concert with the legacy aircraft system to provide combat information displayed real-time to the pilot's helmet provided by incoming sensors such as the modern AESA radar, shared data from other aircraft through a tactical datalink, as well as other types of sensors allow our pilots to perform at a higher capability level despite flying an older aircraft with a lower operating cost. From a design perspective, the AAF system is easily tailorable to the pilot's needs, which allows for rapid improvement cycles to implement changes, features or upgrades. This in turn allows us to bring these changes to the customer sooner, enabling cutting-edge training where it is needed first and most.

The maintenance team also values the project since using modern component technology improves sustainment and maintenance compared to older and in many cases now obsolete components. One example of this is the use of a digital data recorder which is used to collect and record multiple cockpit video streams and audio instead of using Hi8 tapes which are nearly obsolete, and more complicated to manage, analyze, and archive. The modern AESA radar uses components with a much higher operational reliability and is overall a more sustainable component than the legacy forty-year-old radar system that came with the F-16A. Similarly, ground maintenance equipment associated with these components is also an improvement factor. By using newer systems, they also drive improvements in tools and diagnostic equipment when compared to the legacy components replaced. These factors combined further support the lower overall operating cost and allows our maintenance team to quickly return an aircraft to service when something does fail.

The engineering team values the flexibility of the system allow for rapid changes and improvements in software, firmware and hardware as customer requirements evolve. The open system architecture enables rapid plug-and-play integration of new and emerging sensors and systems that can better replicate the modern threat faster and at a much-reduced cost than those on operational USAF Aggressor F-16s.

- Clearly define the contribution of this program/project to the greater good (society, security, etc.)

(12 pt. Times Roman)

As outlined in the value identification to our customer above, the main purpose of our company is to train tomorrow's combat leaders who will ultimately be responsible for the security of our nation and its allies. The implementation of the Advanced Aggressor Fighter allows Top Aces to leverage the outstanding maneuverability and performance of the F-16 platform, with the improved detection and situational awareness capabilities of the AESA radar, data link, HMCS, and digital recording capabilities to train and teach our nation's pilots. By using these tools to perform better as adversary aggressor pilots, we in turn can better prepare our nation's military pilots for real life scenarios so that they will be successful in combat to support our nation's defense and return home to their families safely!

METRICS (Value: 15 pts)

Please respond to the following prompt:

- What are your predictive metrics?

The primary purpose of metrics is to measure what matters. The team used several key metrics to manage the project's progress:

The design team used an "Engineering Drawing Percent Complete" metric which monitored the progression of engineering drawing release and was managed by M7 Aerospace who served as the mechanical integrator. The team understood that in the overall design and development process, drawings were the first and most important document to start a series of sequential execution activities across the team, and that late releases impact multiple downstream activities. The document completion milestone marks that the engineering work was completed, and that procurement, modification documentation, and the actual modification work itself could begin. The team tracked every drawing and document required to ensure they were released in a sequenced, logical timeline. We used agile methodologies to schedule drawing releases to predict when we would have drawings complete, which then drove when parts would be available to the mechanics for install, and when engineers needed to be on site to support integration.

Key project milestones were the next metric tracked at the overall project level. The project was sub-divided into critical phases: return to service, removals, design & development, wiring harness assembly, modification installation by equipment bay, acceptance inspections, ground testing, flight testing, and reporting. The percent complete milestones became critical elements to monitor and track to ensure the work within each phase was progressing to plan. This was reported up to leadership and management for their awareness and—if necessary—action to apply any additional resources that may be needed to keep the project on track.

The software and systems engineering team at CTSi used a Scrum agile project methodology involving two-week sprints to develop the system architecture, material acquisition, support equipment design and development, and integration support. Each sprint was planned using stories to shape the task's requirements and start and end points. Sprints were initiated sequentially, and the work monitored during each sprint until completion at the end of the sprint. A retrospective was performed at the end of each sprint to evaluate what went well and didn't go well, allowing the team to collect additional qualitative data. This approach allowed larger tasks to be broken down into manageable tasks. The team also tied this with elements of earned value to monitor cost performance. The traditional top-down Earned Value metric was modified to connect to objective outcomes as a binary value (done or not done) at a high granularity versus the traditional subjective self-reported 'task percent complete'. EV computed this way is more accurate at the expense of being overly conservative if an outcome remains nearly complete for an extended time.

- How did you perform against these metrics?

The team understood that the desired completion timeline was aggressive and understood the challenges and risks which is why the metrics above were chosen since they served as a good measures of project progress across the team. Like most projects, unforeseen events such as those described in the VUCA section below attempted to push the project off track. For example, we saw as we progressed in the design phase, many drawings progressed up the high 80% to 90% complete mark when required, however the number of drawings advancing to 100% did not track at the same rate. From a project management perspective, we were able to investigate the causes, re-prioritize, and apply extra resources to improve the rate of completion. By monitoring the drawing % complete, we were able to see when the progress deviated from the plan and address it.

In another example, when material supply issues began impacting delivery of components, we identified that the tasks in the upcoming sprints could not be executed because of dependency on hardware. We used the sprint planning process to adjust the upcoming task scope and extending the total number of sprints. Sprint planning allowed us to assess and adjust what work needed to be completed and by when such that it kept the team in sync with each other between design, modification and testing activities.

The software development team at CTSi also monitored and reported their progress against their metrics. Three months into the project, these metrics showed the project would finish 23% over budget and three and a half months behind schedule. By driving corrective actions based upon trends collected from the 2-week sprints as listed in the examples below, the team was able to reduce this 23% over-run to 3% and finish on time.

In the end, the project completed the modifications and flew its first test flight by our year end goal.

- How do your predictive metrics drive action toward program excellence? Please provide examples.

(12 pt. Times Roman)

Using the metrics identified above allowed us early detection opportunities when the project was not progressing to plan, which in turn assisted in early correction to keep the project on track.

Monitoring drawing completion percentages helped us identify bottlenecks. As outlined above, when we observed the completion percentage lagging behind the plan, we were able to prioritize, plan and adjust resources to complete the drawings to minimize impact on the downstream processes including the modification team's work on the aircraft. The team also prioritized the less complicated designs first, and rescheduled designs missing technical information to keep the workflow moving forward towards the final goal to maximize resource loading and output efficiency, especially when it impacted onsite installation resources.

Key project milestone tracking allowed us to coordinate work among the integrated product team between Top Aces, M7 Aerospace, and CSTi. With each organization working toward the milestone schedule, we were able to help support each other, prioritize questions, answers, and design changes with a focus on the "right tasks" that kept the overall project on track.

Similarly, the sprint planning approach at CTSi allowed them to break work tasks down to smaller incremental tasks, monitor progress, identify issues, and adjust upcoming sprints to stay in lockstep with the overall team's progress. An example of this is related to a component that was designed by CTSi and being fabricated by a supplier. When the supplier could not deliver the component as discussed in the VUCA section below, the team determined the best course of action was for CTSi to build the component in-house using their resources. Their sprint plans over the course of the next several sprints were adjusted to acquire materials, complete documentation, produce and test the product, and deliver it. Without sprint planning, the integration or addition of this task would not have been as seamless and would not have been done with a high efficiency.

By monitoring earned value, CTSi's analysis of the quantitative metrics showed that more effort was going into the Pilot-Vehicle Interface (PVI) than was anticipated, and the features were more complex than anticipated. Analysis of the qualitative metrics showed a consistent pattern of complaints that the methods for building PVI elements was cumbersome. While each complaint at each retrospective was by itself not sufficient to raise the idea a wholesale redesign of the PVI subsystem, when combined with the quantitative metrics it became apparent that the inefficiency of the PVI subsystem was driving the projected cost and schedule overrun. Risk management was used to identify what parts of the system would eventually be cut to maintain budget, and that budget was put to rebuilding the PVI subsystem. The innovation generated by the team in this situation resulted in a dramatic reduction in the level of effort required to complete the software, and a huge boost in morale, so much that the projected overrun was reduced from 23% projected to 3% actual at project completion – almost entirely avoided. The team might not have even thought to do this or thought the return on investment to be worthwhile without the feedback via metrics.

DEALING WITH PROGRAM COMPLEXITY (VOLATILITY, UNCERTAINTY, COMPLEXITY, AMBIGUITY, OR VUCA) *(*Value: 25 pts*)*

Please respond to the following prompts:

- *10 pts:* Describe areas of VUCA faced by your program and why.

As mentioned in the above sections, this project faced a number of challenges, some right from the start. Details on how these project challenges were addressed is discussed in the next section.

The first significant challenge related to ambiguity was a lack of technical data required for the early design tasks at the project start. The engineering design required technical data in the form of dimensions, photos, measurements, material properties, and specifications. At the time the project started, Top Aces had not yet received their first delivery of aircraft and the technical data would not be available until the aircraft were delivered. This was the result of a complex regulatory and logistics process associated with purchasing the former U.S. manufactured aircraft from a foreign country and the associated import and export regulations required by both countries.

The second challenge of volatility occurred about a month from start of the modification phase when the team was required to relocate where modification work would be performed by 1,000 miles. The modification was planned for M7 Aerospace's primary facility at San Antonio's International Airport since this would co-locate their Engineering, Aircraft Technicians, Supply Chain, and Project Managers. Due to the aircraft operating under the Experimental Aircraft category and initial FAA restrictions imposing some unanticipated limitations on where the aircraft could operate, the local FAA office would not permit aircraft flight to into San Antonio International Airport to reach M7 Aerospace's facility. This also was true once the aircraft was modified, and the team would not be able to conduct test flights from the San Antonio location.

The third major challenge of volatility was associated with the fabrication of the CTSi-designed power distribution unit (PDU), a key component of the AAF modification. This component was in the process of being assembled by a supplier when it was destroyed by flooding along with the supplier's facility caused by hurricane Ida. After discussion with the supplier, it was clear that the component was not salvageable, and the supplier was unable to support the work in the timeframe needed due to the facility loss.

In addition to these major areas, the team also faced uncertainty from the licensing process involving sensitive information with the FCC (Federal Communications Commission) to be able to transmit and test the radar, operating the maintenance and engineering teams during Covid restrictions and periodic outbreaks, and extensive regulatory restrictions from various US Government agencies wholly unfamiliar and uncomfortable with the novelty of our company operating civilian F-16s.

- *15pts:* Explain how your team responded to these challenges.

(12 pt. Times Roman)

To resolve the lack of technical data concern, the team leveraged digital prototyping capabilities to improve agility and collaboration. To minimize the impact of this issue, M7 Aerospace performed a complete 3D laser scan of the areas of the aircraft that were to be modified. This allowed the engineers quick access to structure geometry allowing them to begin the design work and preliminary drawings. The 3D model of the actual aircraft allowed M7 Aerospace to quickly develop exact cockpit modifications. M7 Aerospace engineers also utilized the 3D CAD to route all wire harness and hoses, which aided in the prompt selection of appropriate material that reduced lead time and potential re-work during development. Close tolerances obtained by use of the scanner minimized rework/costs and allowed reuse of existing mounting plates and structure to reduce design modifications and analysis, which thereby reduced the overall modification times. Rapid prototyping was also used when 3D models of mission system LRUs were printed. This allowed quick evaluation and fit checks to be performed so that they could verify the engineering solutions before the drawings and hardware were finalized and received.

Related to the location of the modification work, the solution agreed to was to perform the operations at Top Aces Corp's MRO facility at the Phoenix Mesa Gateway Airport. The M7 Aerospace team developed a plan to setup a locally based modification team in Mesa comprised of aircraft technicians, engineering, quality, and project management to execute the design modifications. Due to the quick response to the unforeseen requirement to change locations, the team was able to adjust plans and continue execution of the modification as planned.

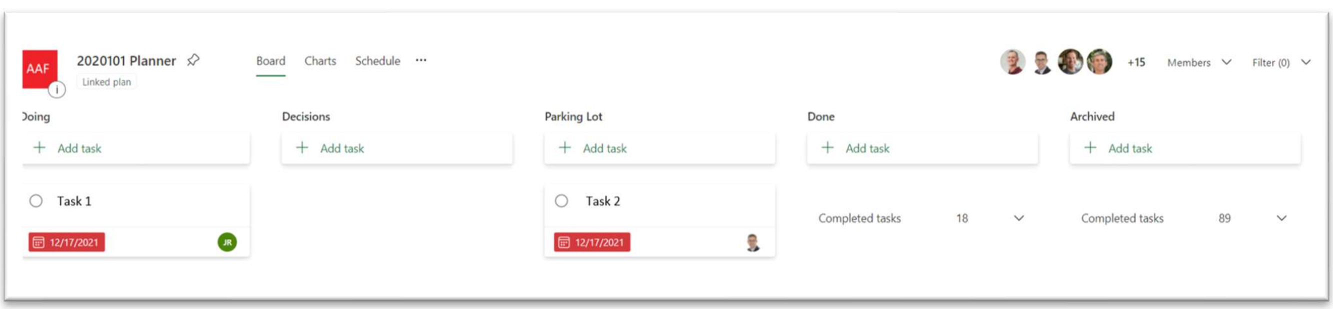
To address the third area related to the PDU supply challenge, the team (Top Aces, CTSi, and M7) resolved the supply issue by dividing the work and expediting fabrication. The PDU architecture was CTSi's design, and therefore could be manufactured in house. The project team quickly convened and developed a new plan based on each company contributing their areas of expertise. Like a runner in a relay race, M7 Aerospace quickly designed, analyzed, and fabricated the main housing for the internal components specified by CTSi. In parallel, CTSi ordered new off-the-shelf commercial components, integrated, and assembled the internal electrical components, performed acceptance testing, inspection, and shipped the parts to Top Aces Corp for installation where M7 Aerospace then integrated the final assembled component into the aircraft for a total turnaround of 4 weeks from problem to solution. Because of early identification of the issue, and a quick turnaround time, the team was able to resolve the problem with very little impact to the overall project.

ORGANIZATIONAL BEST PRACTICES AND TEAM LEADERSHIP *(Value: 35 pts)*

Please respond to the following prompts

- *15 pts:* Describe the innovative tools and systems used by your team

This project used a number of innovative tools. From a project management and execution perspective, the Top Aces team managed tasks using Microsoft Planner as an electronic Scrum Kanban board. Due to both remote working under Covid limitations as well as a team member located remotely, we used a process to hold a "virtual stand-up meeting" every other day. This board consisted of a "task queue", a "doing column" and a "done" column. A two-week sprint backlog was used where tasks were brought onto the board from a Microsoft Project schedule which was used largely as a sequential task list, then moved to the "doing" column when assigned to a team member. Once complete, the task moved to "done" column. By using this process, the team was able to perform virtually where this is normally a process that works well for in-person progress stand-up meetings. This also helped each teammate understand what the others are doing, where they are in the process, and reach out for assistance when there was a barrier to task completion. The project team also developed a virtual task "parking lot" to capture related, but lower priority tasks, ideas, or actions. This allowed the team to keep the higher priority important activities in the forefront yet capture the suggestions and miscellaneous activities or events.



Top Aces Project Kanban Scrum Board Example

The CTSi team developed a novel diagnostic and maintenance device for the modified aircraft. They developed a mobile test cart (MTC) which is effectively two PCs in a ruggedized mobile workstation with a MIL-STD-1553 and ethernet connection to the aircraft. By designing the AAF architecture with the mobile test cart in mind, CTSi was able to develop remote engineering support no matter where the aircraft is located as long as the MTC is located with the aircraft. Through a hardwired connection between the MTC and the newly added mission computer, and a secure connection to the internet, the CTSi engineers can remotely observe the cockpit's multi-function display, perform diagnostic tests, update software, and review real-time live ground test data. The use of the test cart had a tremendous impact on the efficiency of System Engineering support by creating a virtual on-site Engineer depending on the specialty required. Combined with Microsoft Teams, diagnostic sessions were performed real-time between on-site personnel located with the jet, and remotely located engineers during setup, testing and validation. The time and manpower saved by using this approach was significant to the progress of the project, and the device remains now as a diagnostic and maintenance tool. This same MTC and associated distributed SME network has been recognized by the US Navy as an innovative best practice.


CTSi's AAF Mobile Test Cart Connected to Top Aces F-16 AAF

The team managed meetings at several frequencies depending on the level and phase of the project. The broader team including M7 Aerospace, CTSi, and Top Aces utilized IPT meetings with all participants attending each week to stay coordinated between the three organizations. This collaboration was maximized by a well-managed pairing of team members to communicate directly with each other to work through the specific project deliverables associated with their assigned program responsibilities. Engineering, production, and quality SMEs all worked closely with each other company's counterparts to ensure good communication and coordination. The Top Aces team met every other day.

The team met on the hangar floor daily during the final production and integration phase to coordinate each day's tasks and developed a work stoppage board which was used to capture any issues that stopped the production team from making progress. By identifying a stoppage to the team, the right individuals were identified to resolve the stoppage, and status was provided back to the board to let everyone know when it was being worked and when a resolution as anticipated. This allowed the production team to shift their focus on other tasks that could be continued and allowed them to plan so they could maintain forward progress and efficiency.

- *10 pts:* Define how you developed, led and managed people

On the Advanced Aggressor Fighter project, Top Aces' approach has been to seek industry leaders in related technologies that support the work required and establish a respectful working relationship. One characteristic of each of the members of the team is that they are agile, able to execute quickly and adjust to changes. Like most teams, it has been extremely important to establish a good working relationship, establish trust in each other, and be open and honest in communications. Each team member is valued for their effort and their contribution. The Top Aces Project Manager had daily interactions with on-site M7 Aerospace counterparts and the remotely connected CTSi SME's and M7 Aerospace engineering team, enabling rapid and clear communications between all team members. Top Aces avionics maintenance technicians were brought into the project early to be part of design and integration discussions so that they could learn how the AAF systems worked and were installed, ensuring continuity among the Top Aces maintenance team for future maintenance and sustainment activities. These avionics technicians developed their skills in working with the latest modern mission components (AESA, HMCS, Link-16 MFD, etc.) and ensured positive transfer of knowledge to the rest of the Top Aces maintenance team responsible for maintaining and sustaining the AAF variants in the fleet.

➢ *10 pts:* How did you leverage skills and technologies of your suppliers?
(12 pt. Times Roman)

As outlined above in the various examples already given, the key to leveraging skills and technologies of our suppliers is to build an A-team of industry leaders with expertise in the fields needed, develop good relationships with the team from the leadership level down to the working level, and develop a strong network of suppliers to assist where possible. During the project and beyond the Top Aces, M7 Aerospace and CTSi team, additional suppliers and sub-contractors were used to fabricate parts, purchase materials, and consult on regulatory, communication, testing, and compliance related topics. Having the right individuals and resources on the team is truly required to successfully complete a project such as this modification, and even more important to have when risks become issues, and something does not go as planned. A high performing team will find solutions and relentlessly strive toward the finish line.