



Armament Directorate



USAF Advanced Concept Ejection Seat (ACES) II Components



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Integrity - Service - Excellence



Overview



- **ACES II CAD/PAD Health Outlook**

- **Advanced Concept Ejection Seat (ACES) II Ejection Seat Components**
 - JAU-8 Ejection Initiator
 - Harness Release Cartridge
 - Drogue Gun Cartridge
 - CKU-5 Rocket Catapult
 - Trajectory Divergence Rocket Motor (TDRM)
 - Reefing Line & Locking Cord Cutters
 - Modern ACES Seat Sequencer (MASS) TCTO



ACES II CAD/PAD Health Outlook



Platform	STATUS						ISSUES
ACES II (two medium risk HRAs - DRS, Harness Release Cartridges)	Yellow	Light Green	Green	Green	Green	Green	Reefing Line Cutters, Trajectory Divergence Rocket Motors, Harness Release Cartridges, and DRS are majority of components on a temporary life extension for lack of parts affecting F-15 and F-16 aircraft. Late contract awards, manufacturer production problems, LAT failures and delinquent contract deliveries
	FY19	FY20	FY21	FY22	FY23	FY24	



ACES II JAU-8 Ejection Initiator



▪ **Issue:**

- Production delays on three (3) contracts; components late to need

▪ **Cause:**

- Administrative lead times and processes delayed contract award and replacement component deliveries by 13 months
- Late acquisition/delivery of hardware from sub-tier suppliers

▪ **Impact:**

- Temporary life extensions supportable up to 24 months beyond original expiration to accommodate delivery and installation of replacement components

▪ **Get Well:**

- FY14; 1,212ea original delivery due November 2016
 - ✓ Lot 1; 538ea – Shipped March 2018
 - Lot 2; 654ea – Estimated ship June 19
- FY15; 415ea original delivery due June 2017
 - Estimated ship date December 2019 – January 2020
- FY16; 887ea original delivery due March 2019
 - Estimated ship date February 2020 – April 2020
- FY17; 858ea – Original delivery due September 2019
 - Estimated ship date August 2020 – October 2020
- FY18; 571ea – Delivery due November 2020



ACES II Harness Release Cartridge



- **Issue:**
 - Production delays on three (3) contracts; components late to need
- **Cause:**
 - Manufacturer relocated production facility (2015) – Required First Article Test (FAT) for qualification
 - Alternate supplier output charge cups meet drawing; performance characteristics differ (swelling)
- **Impact:**
 - Three (3) delinquent contracts need to be rebuilt; 1,936ea
 - Temporary life extensions supportable up to 12 months beyond original expiration to accommodate delivery and installation of replacement components
 - Fighter Bomber Program Office Hazard Risk Assessment (Medium Risk), dated Aug 2014
- **Get Well:**
 - FY14; 1,372ea original delivery due June 2016
 - Estimated ship date June 2019
 - FY16; 356ea original delivery due June 2018
 - Estimated ship date July 2019
 - FY17; 208ea – Original delivery due February 2019
 - Estimated ship date July 2019
 - FY18; 280ea – Delivery due April 2020



ACES II Drogue Gun Cartridge



- **Issue:**

- Production delays on three (3) contracts; components late to need

- **Cause:**

- Administrative lead times and processes affecting FY15 procurement package and Military Inter-agency Purchase Requests (MIPR) delayed contract award by 13 months
- Manufacturer relocated production facility (2015) – Required First Article Test (FAT) for qualification
- Alternate supplier output charge cups meet drawing; performance characteristics differ (swelling)

- **Impact:**

- Temporary life extensions supportable up to 24 months beyond original expiration to accommodate delivery and installation of replacement components

- **Get Well:**

- FY15; 1,764ea original delivery due July – November 2017
 - Lot 1; 1,370 – Estimated ship date June 2019
 - Lot 2; 393 – Estimated ship date June 2019
- FY17; 943ea – Original delivery due March 2019
 - Estimated ship date August 2019
- FY18; 214ea – Delivery due April 2020



ACES II CKU-5 Catapult



- **Issue:**
 - Production delays on two (2) contracts; components late to need
- **Cause:**
 - Administrative lead times/processes affecting FY14/FY15 procurement packages and MIPRs delayed contract awards by 13 months and 12 months respectively
 - Lot Acceptance Test (LAT) failures; de-certification of digital x-ray equipment (damaged detector), need for submission/approval of many minor waiver requests; and Ammunition Data card (ADC) approval process delays
- **Impact:**
 - Temporary life extensions supportable up to 24 months beyond original expiration to accommodate delivery and installation of replacement components
- **Get Well:**
 - FY14/FY15; 892ea
 - ✓ Lot 1; (196ea) - Original delivery due Jan 2017; Shipped May 2018
 - ✓ Lot 2; (196ea) – Original delivery due Apr 2017; Shipped June 2018
 - ✓ Lot 3; (196ea) – Original delivery due Jun 2017; Shipped June 2018
 - ✓ Lot 4; (198ea) – Original delivery due Aug 2017; Shipped October 2018
 - ✓ Lot 5; (82ea) – Original delivery due Oct 2017; Shipped October 2018
 - Lot 6; (24ea) - Original delivery due Oct 2017; now June 2019
 - FY16/FY17; 517ea
 - Lot 1; 286ea – Original delivery due by January 2019; now December 2019
 - Lot 2; 231ea – Original delivery due by April 2019; now March 2020
 - FY18; 633ea - Estimate delivery date August 2020



ACES II Trajectory Divergence Rocket Motor



▪ Issue:

- No contract in-place to deliver replacement components since 2012

▪ Cause:

- Original contracted manufacturer's stockpiled Butarez propellant binder/fuel material became unsuitable after initial contract award (2013)
- Follow-on contract award delayed 48+ months due to administrative processes and errors with purchase requests (joint buy through US Navy)
 - Five (5) years worth of requirements (FY13-FY17)

▪ Impact:

- Temporary life extensions supportable up to 24 months beyond original expiration to accommodate delivery and installation of replacement components

▪ Get Well:

- FY13/FY14/FY15/FY16/FY17 Contract; 1,019ea
 - ✓ Lot 1; (213ea) – Delivered October 2018
 - Lot 2; (148ea) – Estimate delivery date June 2019
 - Lot 3; (180ea) – Estimate delivery date July 2019
 - Lot 4; (179ea) – Estimate delivery date August 2019
 - Lot 6; (267ea) – Estimate delivery date September 2019
- FY18; 104ea – Estimate delivery date August 2020



ACES II Parachute Reefing Line Cutter & Survival Kit Locking Cord Cutter



- **Issue:**
 - Multiple delinquent contracts; Sole Source manufacturer backlogged
- **Cause:**
 - Non-availability of M42 Primers; explosive mishap and investigation; production capacity limitations; competing commercial contract priorities; production backlog
- **Impact:**
 - Temporary life extensions supportable up to 24 months beyond original expiration to accommodate delivery of replacement components and installation
- **Get Well:**
 - **1.15 Second Reefing Line Cutters:**
 - ✓ FY14; (898ea) – Original delivery due September 2014; now January 2019
 - FY15; (185ea) – Original delivery due March 2016; now July 2019
 - FY16; (533ea) – Original delivery due January 2017; now September 2019
 - FY17; (584ea) – Original delivery due August 2017; now December 2019
 - FY18; (1,158ea) – Contract award estimated September 2019
 - **4.0 Second Locking Cord Cutters:**
 - FY15; (506ea) – Original delivery due October 2015; now June 2019
 - FY16; (403ea) – Original delivery due September 2016; now July 2019
 - FY17; (371ea) – Original delivery due by March 2017; now December 2019
 - FY18; (454ea) – Contract award estimated September 2019



ACES II Parachute Reefing Line Cutter & Survival Kit Locking Cord Cutter



- **Qualify second source manufacturer by Apr 2019**
 - Solicitation released October 2017
 - Source Selection – Estimate contract award June 2018
 - Contract awarded July 2018
 - Deliveries due September 2021
 - Reefing Line Cutter; 1,677ea
 - Locking Cord Cutter; 1,090ea



ACES II Modernized ACES Seat Sequencer (MASS)



▪ **Issue:**

- MASS replaces the DRS by attrition via TCTO at DRS service life expiration
- Production delays on one (1) contract; components late to need

▪ **Cause:**

- HQ ACC identified requirement to replace environmental sensor on ACES II Ejection Seat (12 July 2009) - Environmental sensor and TTU-415/E tester are inconsistent
- USAF Safety Center recommendation from 2012 mishap to “replace environmental sensor and current recovery sequencer with a more reliable component to optimize the probability of correct ejection mode selection.”
- Electronics Obsolescence
- Administrative/Legal delays concerning Government Use data rights with FY16 procurement delayed contract award/delivery by 12 months
- Late acquisition of the Pressure Transmission System (PTS) from sub-tier suppliers

▪ **Impact:**

- Environmental Sensor replaced with Pressure Transmission System (PTS)
- Improved ejection mode determination
- Eliminates need for field-level TTU-415/E Test Set
- Temporary life extensions of DRS supportable up to 15 months beyond original expiration to accommodate delivery and installation



ACES II Modernized ACES Seat Sequencer (MASS)



Pressure Transmission System (PTS) PTS replaces the current Environmental Sensor



Pressure Transmission System



PTS and
MASS
installed
in ACES II
seat



Photos approved for public release by AFLCMC/EBHJ 2014



ACES II Modernized ACES Seat Sequencer (MASS)



▪ **Get Well:**

- ✓ Qualification completed March 2015
- ✓ Airworthiness certification complete - F-16 (Jan 2017); F-15 (Jun 2017)
- ✓ 13A5-56-11 Technical Order and TCTO procedures released Jun 2017
- ✓ FY14; 220ea – Shipped in-place April 2016
- ✓ FY15; 283ea – Shipped in-place August 2016
- ✓ FY16; (4-piece Kit); 106ea – Shipped in-place November 2017
- FY16; (2-piece Kit); 1,150ea – 88 remaining to ship – Estimated delivery June 2019
- FY17; 469ea - Original delivery due August 2017; now October 2019
- Award 5-Year IDIQ contract by June 2019 (Delivery Order 1 will include FY18/19 requirements)
 - FY18; 340ea – Estimate delivery date September 2020
 - FY19; 331ea – Estimate delivery date September 2020



QUESTIONS?