

AWARD/CONTRACT

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350) RATING PAGE OF PGS
1 1

2. CONTRACT (Proc. Inst. Ident.) NO. **DTFAAC-06-D-00108** 3. EFFECTIVE DATE **September 25, 2006** 4. REQUISITION/PURCHASE REQUEST/PROJECT NO. **AC-06-00219**

5. ISSUED BY CODE
Center Acquisition Contracting Team (AMQ-310)
6500 South MacArthur Boulevard
P.O. Box 25082
Oklahoma City, OK 73125-4929

6. ADMINISTERED BY (If other than Item 5) CODE
FAA, Center Acquisition Contract Mgmt. Team (AMQ-340)
6500 South MacArthur Boulevard
P.O. Box 25082
Oklahoma City, OK 73125-4929

7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, State and ZIP Code)
NATIONAL TEST PILOT SCHOOL
1030 FLIGHTLINE
PO BOX 658
MOJAVE CA 93501

8. DELIVERY
 FOB ORIGIN OTHER (See below)

9. DISCOUNT FOR PROMPT PAYMENT
Net 30

10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ITEM
BLOCK 12.

11. SHIP TO/MARK FOR CODE FACILITY CODE
FAA AERO CENTER, AMA-260 Mark for:
PROG & CONT MGT BRANCH
6500 S MACARTHUR BLVD, OKLA. CITY, OK 73169

12. PAYMENT WILL BE MADE BY: CODE
FAA, Financial Operations Division (AMZ-100)
P.O. Box 25710
Oklahoma City, OK 73125-4913 (405) 954-4304

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:
 10 U.S.C. 2304(c) () 41 U.S.C. 253(c)

14. ACCOUNTING AND APPROPRIATION DATA
To be shown on delivery order(s) issued hereunder.

15A. ITEM NO. 15B. SUPPLIES/SERVICES 15C. QUANTITY 15D. UNIT 15E. UNIT PRICE 15F. AMOUNT

Accepted as to Items 0001-0002, Part I, Section B, Base Year only, Amendment A0001, per contractor's letter/offer dated 12/09/05 a pricing validation dated 8/11/06 incorporated and/or filed herein.

(estimated)
15G. TOTAL AMOUNT OF CONTRACT \$522,558.00

16. TABLE OF CONTENTS

(X)	SEC	DESCRIPTION	PAGE(S)	(X)	SEC	DESCRIPTION	PAGE(S)
PART I -- THE SCHEDULE				PART II -- CONTRACT CLAUSES			
X	A	SOLICITATION/CONTRACT FORM	1	X	I	CONTRACT CLAUSES	30-36
X	B	SUPPLIES OR SERVICES AND PRICES/COST	2-6	PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH.			
X	C	DESCRIPTION/SPECS/WORK STATEMENT	7-26	X	J	LIST OF ATTACHMENTS	36
X	D	PACKAGING AND MARKING	27	PART IV - REPRESENTATIONS AND INSTRUCTIONS			
X	E	INSPECTION AND ACCEPTANCE	27	X	K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	INCORPORATED
X	F	DELIVERIES OR PERFORMANCE	27-28	X	L	INSTRS., CONDS., AND NOTICES TO OFFERORS	BY REFERENCE
X	G	CONTRACT ADMINISTRATION DATA	28-29	X	M	EVALUATION FACTORS FOR AWARD	
X	H	SPECIAL CONTRACT REQUIREMENTS	29-30				

CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17. CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)

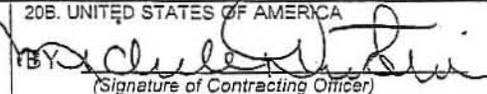
18. AWARD (Contractor is not required to sign this doc.) Your offer on Solicitation Number **DTFAAC-06-R-002196** including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.

19A. NAME AND TITLE OF SIGNER (Type or print)
Michele D. Mustin

20A. NAME OF CONTRACTING OFFICER
Michele D. Mustin

19. NAME OF CONTRACTOR
BY _____
(Signature of person authorized to sign)

19C. DATE SIGNED

20B. UNITED STATES OF AMERICA

(Signature of Contracting Officer)

20C. DATE SIGNED
9/12/06

SOLICITATION, OFFER AND AWARD		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350) >	RATING	PAGE OF 1 45
2. CONTRACT NO.	3. SCREENING INFORMATION REQUEST NO. DTFAAC-06-R-00219	4. TYPE OF SOLICITATION <input checked="" type="checkbox"/> NEGOTIATED (RFO)	5. DATE ISSUED 12/7/2005	6. REQUISITION/PURCHASE NO. (FAA Internal Use Only)
7. ISSUED BY FAA, AMT Acquisition Division (AMQ-310) 6500 South MacArthur Boulevard P.O. Box 25082 Oklahoma City, OK 73125-4931		8. ADDRESS OFFER TO (# other than item 7) FAA, Customer Service Desk (AMQ-140) Multi-Purpose Building, Room 321 6500 South MacArthur Boulevard Oklahoma City, OK 73169		

FIRM FIXED PRICE/REQUIREMENTS CONTRACT | SOLICITATION | Flight Test Pilot/Engineer Technical Training



9. Sealed offers in original and 2 copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in Room 321, Multi-Purpose Building until 3:30 p.m. local time 1/6/2006.
(Hour) (Date)

NOTE: If offers are hand carried, additional time should be allowed to access the depository facility due to heightened security requirements.

CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, AMS Provision No. 3.2.2.3-14. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL: >	A. NAME Michele D. Mustin, or michele.d.mustin@faa.gov	B. TELEPHONE NO. (include area code) (NO COLLECT CALLS) (405) 954-7879
-----------------------------	--	--

11. TABLE OF CONTENTS

SEC	DESCRIPTION	PAGE(S)	SEC	DESCRIPTION	PAGE(S)
PART I - THE SCHEDULE			PART II - CONTRACT CLAUSES		
X A	SOLICITATION/CONTRACT FORM	1	X I	CONTRACT CLAUSES	30-36
X B	SUPPLIES OR SERVICES AND PRICES/COSTS	2-6	PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH		
X C	DESCRIPTION/SPECS./WORK STATEMENT	7-26	X J	LIST OF ATTACHMENTS	36
X D	PACKAGING AND MARKING	27	PART IV - REPRESENTATIONS AND INSTRUCTIONS		
X E	INSPECTION AND ACCEPTANCE	27	K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS	
X F	DELIVERIES OR PERFORMANCE	27-28	X	OF OFFERORS	37-39
X G	CONTRACT ADMINISTRATION DATA	28-29	X L	INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS	39-43
X H	SPECIAL CONTRACT REQUIREMENTS	29-30	X M	EVALUATION FACTORS FOR AWARD	43-45

OFFER (Must be fully completed by offeror)

NOTE: Item 12 does not apply if the solicitation includes the provisions at 3.2.2.3-2, Minimum Offer Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.
N/A

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, AMS Clause No. 3.3.1-6) >	10 CALENDAR DAYS % <u>0</u>	20 CALENDAR DAYS % <u>0</u>	30 CALENDAR DAYS % <u>0</u>	CALENDAR DAYS % <u>NA</u>
--	--------------------------------	--------------------------------	--------------------------------	------------------------------

14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the REQUEST for offerors and related documents numbered and dated:	AMENDMENT NO.	DATE	AMENDMENT NO.	DATE

15A. NAME AND ADDRESS OF OFFEROR National Test Pilot School P.O. Box 65E, Bldg 72 1030 Flight Line, Mojave CA 93536	15B. TELEPHONE NO. (include area code) (661) 824-2999	15C. CHECK IF REMITTANCE ADDRESS <input type="checkbox"/> IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print) Gregory V. Lewis Deputy Director, NTPS
---	---	--	---

17. SIGNATURE 	18. OFFER DATE 29 Dec 2005
-------------------	--------------------------------------

AWARD (To be completed by Government)

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION
24. ADMINISTERED BY (if other than item 7) FAA, AMT Contract Management Team (AMQ-340) 6500 South MacArthur Boulevard, MPB Bldg, Rm. 321 P.O. Box 25082 Oklahoma City, OK 73125-4932	25. PAYMENT WILL BE MADE BY FAA, Financial Operations Division (AMZ-100) 6500 South MacArthur Boulevard P.O. Box 25082 Oklahoma City, OK 73125-4304	23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 COPIES UNLESS OTHERWISE SPECIFIED) ITEM
26. NAME OF CONTRACTING OFFICER (Type or print)	27. UNITED STATES OF AMERICA (Signature of Contracting Officer)	28. AWARD DATE

IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

PART I – SECTION B – SUPPLIES/SERVICES & PRICE/COST

PRICING SCHEDULE ~ Base Year
Period of Performance: 9/25/2006 – 9/24/2007

Provide all training equipment, training aids, course materials, supplies, instructors, classroom, and other facilities necessary to provide the training specified herein, in accordance with the attached clauses, which are attached hereto and incorporated herewith.

BASE YEAR

ITEM	SUPPLIES/SERVICES	ESTIMATED ANNUAL REQUIREMENTS	UNIT PRICE	TOTAL AMOUNT
0001	FLIGHT TEST PILOT INITIAL TRAINING (28083) 2 Classes/Year 8 students/class	2 Classes	[REDACTED]	[REDACTED]
0002	FLIGHT TEST PILOT RECURRENT TRAINING (28273) 6 Classes/Year 6 students/class	6 Classes	[REDACTED]	[REDACTED]

TOTAL ESTIMATE Flight Test Pilot Training ~ BASE YEAR \$522,558

PRICING SCHEDULE ~ 1st Option Year
Period of Performance: 9/25/2007 - 9/24/2008

Provide all training equipment, training aids, course materials, supplies, instructors, classroom, and other facilities necessary to provide the training specified herein, in accordance with the attached clauses, which are attached hereto and incorporated herewith.

1st Option YEAR

ITEM	SUPPLIES/SERVICES	ESTIMATED ANNUAL REQUIREMENTS	UNIT PRICE	TOTAL AMOUNT
0003	FLIGHT TEST PILOT INITIAL TRAINING (28083) 2 Classes/Year 8 students/class	2 Classes	[REDACTED]	[REDACTED]
0004	FLIGHT TEST PILOT RECURRENT TRAINING (28273) 6 Classes/Year 6 students/class	6 Classes	[REDACTED]	[REDACTED]

TOTAL ESTIMATE Flight Test Pilot Training ~ 1st Option YEAR \$538,236

PRICING SCHEDULE ~ 2nd Option Year
Period of Performance: 9/25/2008 - 9/24/2009

Provide all training equipment, training aids, course materials, supplies, instructors, classroom, and other facilities necessary to provide the training specified herein, in accordance with the attached clauses, which are attached hereto and incorporated herewith.

2nd Option YEAR

ITEM	SUPPLIES/SERVICES	ESTIMATED ANNUAL REQUIREMENTS	UNIT PRICE	TOTAL AMOUNT
0005	FLIGHT TEST PILOT INITIAL TRAINING (28083) 2 Classes/Year 8 students/class	2 Classes	[REDACTED]	[REDACTED]
0006	FLIGHT TEST PILOT RECURRENT TRAINING (28273) 6 Classes/Year 6 students/class	6 Classes	[REDACTED]	[REDACTED]

TOTAL ESTIMATE Flight Test Pilot Training ~ 2nd Option YEAR \$554,382

PRICING SCHEDULE ~ 3rd Option Year
Period of Performance: 9/25/2009 - 9/24/2010

Provide all training equipment, training aids, course materials, supplies, instructors, classroom, and other facilities necessary to provide the training specified herein, in accordance with the attached clauses, which are attached hereto and incorporated herewith.

3rd Option YEAR

ITEM	SUPPLIES/SERVICES	ESTIMATED ANNUAL REQUIREMENTS	UNIT PRICE	TOTAL AMOUNT
0007	FLIGHT TEST PILOT INITIAL TRAINING (28083) 2 Classes/Year 8 students/class	2 Classes	[REDACTED]	[REDACTED]
0008	FLIGHT TEST PILOT RECURRENT TRAINING (28273) 6 Classes/Year 6 students/class	6 Classes	[REDACTED]	[REDACTED]

TOTAL ESTIMATE Flight Test Pilot Training ~ 3rd Option YEAR \$571,010

PRICING SCHEDULE ~ 4th Option Year
Period of Performance: 9/25/2010 - 9/24/2011

Provide all training equipment, training aids, course materials, supplies, instructors, classroom, and other facilities necessary to provide the training specified herein, in accordance with the attached clauses, which are attached hereto and incorporated herewith.

4th Option YEAR

ITEM	SUPPLIES/SERVICES	ESTIMATED ANNUAL REQUIREMENTS	UNIT PRICE	TOTAL AMOUNT
0009	FLIGHT TEST PILOT INITIAL TRAINING (28083) 2 Classes/Year 8 students/class	2 Classes	[REDACTED]	[REDACTED]
0010	FLIGHT TEST PILOT RECURRENT TRAINING (28273) 6 Classes/Year 6 students/class	6 Classes	[REDACTED]	[REDACTED]

TOTAL ESTIMATE Flight Test Pilot Training ~ 4th Option YEAR \$588,138

C.1 General

(a) Provide the services, as referenced below, in accordance with Paragraph C.2, Performance Work Statement (PWS), for the Flight Test Pilot/Engineer Initial & Recurrent Technical Training Courses.

(b) If the low offeror is an accredited college, the Federal Aviation Administration (FAA) desires college credits be offered to trainees successfully completing the proposed training; however, it is not a mandatory requirement. This will not be used as an evaluation factor.

C.2 Performance Work Statement

Flight Test Pilot/Engineer Initial/Recurrent Technical Training Courses 28083/28273

Section 1 - General

1.1 Scope of Work

The contractor shall develop courses and Flight Test Pilot/Engineer technical training in both Initial and Recurrent and conduct classes of approximately 8 students in the initial and approximately 6 students in the recurrent as ordered by the Government. Students attending these courses will be FAA approved Flight Test Pilots and Certification Engineers. The contractor will develop all training. FAA technical experts will review all course material at least three times during development. A final review and acceptance will be conducted by the requiring organization 90 days after award of contract. The length of the initial course should not exceed six weeks including travel and the length of the recurrent should not exceed two weeks including travel and will accomplish the training outcomes listed in Section 5, Specific Tasks. The recurrent course shall have two course themes. One course will be the Airplane only course and the other will be a helicopter/fixed wing combined course.

1.1.1 The contractor may offer portions of the classroom instruction via an alternate delivery method i.e., CBI, web-based instruction, etc.

1.1.2 The minimum number of pilot flight hours will be 64 hours.

1.1.3 The classes shall not contain content or methodology likely to produce high levels of emotional response. The training content or methodology shall not be associated with religious, quasi-religious, or new age belief systems. The classes shall not include materials that could be viewed as attempts to change or influence an individual's personal values or lifestyle outside the workplace.

1.2 Qualifications of Personnel

1.2.1 Instructors

The contractor must have the following instructors. A Primary instructor with a minimum of three years experience in FAA Aircraft Certification (FAA, DOA, DER, DAS, etc.).

The contractor must also have qualified pilot-in-command with instructional experience in each aircraft being utilized in the training course.

1.3 Quality Assurance

1.3.1 Class Monitoring

An FAA technical representative shall be permitted to monitor classroom and laboratory sessions to assure that all training outcomes and contract specifications are met. The contractor will keep training material current for the duration of the contract. The FAA will supply new information or material on FAA applications to the contractor within 30 days upon acceptance.

1.3.2 Student Evaluation

At the conclusion of each course, each student will complete an end-of-course student evaluation form furnished by the FAA. The original of all completed forms shall be forwarded to the Contracting Officer's Representative (COR) within two weeks following completion of training.

1.4 Safety Program/Reporting

Safety Program, Reporting, and Accident Investigation System.

Prior to conducting the first class of either course the contractor shall have in place a safety program approved by the FAA course manager or his designee. The safety program must encompass both maintenance and operations and shall include an accident/incident reporting system, and a Risk Management-System in compliance with FAA order 4040.26, AIR Safety Program. The reporting system must notify the course manager, the course mentor, and the Aircraft Certification Service Flight Program Flight Safety Officer (FPFSO) immediately upon the occurrence of an accident or incident during class sessions. The AIR FPFSO retains the right to order an aircraft accident/incident investigation as deemed necessary in accordance with FAA Order 4040.26.

Section 2 - Definitions

Contracting Officer Technical Representative (COTR): The person authorized to act on behalf of the Government to negotiate and award contracts and modifications thereto, and to administer contracts through completion or termination. Except for certain limited authority delegated by the Contracting Officer to a technical representative, the Contracting Officer is the only individual with the authority to direct the work of the Contractor.

Contracting Officer's representative (COR): The authorized Government representative acting within the limits of their delegated authority for management of specific projects or functional activities.

DOT: United States Department of Transportation

FAA: Federal Aviation Administration, a component agency of the U.S. Department of Transportation.

Quality Assurance: Actions taken by the contractor to ensure compliance with the provisions of the Performance Work Statement.

Quality Control: A system developed by the contractor to ensure compliance with the provisions of the Performance Work Statement.

Training Materials: Course materials, equipment and supplies used by the Contractor in the development, presentation, practice and evaluation of training.

Training Outcomes: The total combination of skills and knowledge that the learner must acquire to perform a job assignment.

Section 3 - Government - Furnished Property and Services

N/A

Section 4 - Contractor Furnished Property and Services

4.1 Training Facilities: The following elements shall apply to contractor - furnished facilities:

- a. Not less than 30 gross square feet per student
- b. Sufficient presentation equipment for effective teaching shall be provided.
- c. The classroom shall be well lit. There shall be no less than 30 foot-candles of illumination at the student's desk or table.
- d. Students shall be seated at suitable tables and ergonomically suited chairs or provided with proper rest on the right-hand side of the chair for writing or note taking.
- e. The classroom shall be cleaned no less than two times each week of instruction.
- f. Sanitary restroom facilities shall be available within convenient distance of the classroom.
- g. The classroom facilities shall be adequately ventilated; heated in winter and cooled in summer. Temperature limits shall not exceed 68 to 70 degrees.
- h. Ambient noise shall be below the distraction point. At any position in the classroom, normal instructor voice levels should exceed the ambient noise level by 20 decibels.
- i. Contractor shall comply with safety standards specified by the National Electrical Code, the National Fire Code, and the United States of America Standards Institute in conducting contract training.
- j. Local environmental distractions adversely affecting student learning shall be eliminated.

4.2 Contractor Furnished Equipment: The contractor must own, lease, or rent the following equipment acceptable to the FAA.

- a. 14CFR Part 23 airplane approved for aerobatics.
- b. 14CFR Part 23 Single engine airplane for performance, stability and control with sufficient seating for student pilot and student engineer.
- c. 14CFR part 23 Multi-engine turboprop airplane for performance, stability and control.

- d. 14CFR part 23 Turbojet/turbofan multi-engine airplane.
 - e. 14CFR part 25 Turbojet/turbofan multi-engine airplane with thrust reversers for performance, stability and control.
 - f. 14CFR Part 27 Helicopter for performance, stability and control.
 - g. 14CFR Part 29 Helicopter for performance, stability and control.
 - h. 14CFR Part 27 or 29 multi-engine helicopter for CAT A performance.
 - i. One helicopter must have a SAS system.
 - j. Aircraft must be instrumented for data collection of performance, stability and control.
 - j-1 14CFR part 23 Aircraft will be instrumented and capable of meeting flight test requirements as outlined in current AC23-8.
 - j-2. 14CFR part 27/29 Aircraft will be instrumented and capable of meeting flight test requirements as outlined in current AC 27-2 and AC 29-2, respectively.
 - j-3 14CFR part 25 Aircraft will be instrumented and capable of meeting flight test requirements as outlined in the current AC 25-7
 - k. If a simulator is proposed it must be a level C or D for a 14CFR part 25 aircraft, glass cockpit with Cat II and Cat III, TCAS, auto-land and roll-out capabilities. The simulator must also incorporate Heads Up Display (HUD) Synthetic Vision (SVS), and Wind shear.
 - l. All civil aircraft utilized in the training program must be maintained in accordance with 14CFR Part 91.409.
 - m. All aircraft utilized in the training program must be maintained in accordance with 100 hour/annual inspections as outlined in 14CFR Part 43, Appendix D or an equivalent program acceptable to the Administrator.
 - n. The contractor shall make available copies of the CFR's (one for each student) and a reference library that includes an adequate supply of all applicable Advisory Circulars (not necessarily one per student).
 - o. The contractor shall make provisions to have each student's reference materials and notebooks, etc., mailed to his/her home base within two weeks upon completion of the training.
- 4.3 **Contractor Furnished Equipment:** It is required that the contractor have aircraft(s) equipped with the following: EFIS, EICAS, flight director, Autopilot, FMS, RNAV, and HUD.
- 4.4 It is desirable that the contractor has a fly-by-wire aircraft.

Section 5 - Specific Tasks

5.1.1 Daily Sessions

Training shall be conducted on a one-shift basis, eight hours per day. If possible training should start on Tuesday and end no later than Thursday for the initial course and the recurrent course. Training is to be continuous during these days except for weekends and federally established holidays. Local or state holidays shall not interrupt the training period. Normal hours of training should be from 8:00 am to 4:30 p.m., with a half hour for lunch. Should a requirement exist to change either the hours or days of training indicated, permission for this change must be approved in advance from the COR.

5.1.2 Students Grade and Reports

Each student's performance shall be graded with a numerical grade. The contractor shall, within two weeks after class completion, furnish a report (origin and two copies) to the COR reflecting the student's final grades, attendance records, and any additional comments deemed necessary concerning his/her attitude and ability. Each student shall receive a certificate of graduation, pending completion of required testing with a minimum average of 70 percent. All testing shall be conducted with open textbook reference.

5.1.3 FAA personnel are expected to perform at a level compatible with the highest standards (post-graduate) of the specialty. Accordingly, each course of instruction will be offered at a level consistent with this philosophy.

5.1.4 The contractor shall make provisions for the FAA to provide instructors to conduct a one-day workshop during the first week for the recurrent training and the third week for the initial training. The FAA at no cost shall provide the guest lectures service to the contractor. Coordination for the FAA guest lectures shall be made through the C.O.R.

5.2 Graduates of this course must be able to accomplish the following:

TRAINING OBJECTIVES Initial Course 28083

The course syllabus should be focused on the following objectives:

1. To provide the Flight Test Pilot and Flight Test Engineer a refresher in the primary subjects relating to flight-testing.
2. To provide the Flight Test Pilot and Flight Test Engineer an understanding of the pertinent Civil Air Regulations (CAR's), Code of Federal Aviation Regulations 14-CFR, technical guidance material relating to FAA Aircraft Certification, and the ability to apply rule compliance criteria.
3. To provide the Flight Test Pilot and Flight Test Engineer an understanding of standardized practices and procedures contained in current policy and guidance applicable to FAA flight test certification tasks.

4. To provide the Flight Test Pilot and Flight Test Engineer the requirements for approved safety policy and guidance for the execution of FAA flight test projects.
5. To provide the Flight Test Pilot and Flight Test Engineer an understanding of FAA flight test risk, risk management techniques and risk mitigation.
6. To provide the Flight Test Pilot and Flight Test Engineer an understanding of the applicable flight-test procedures and techniques used during FAA certification flight-testing. This instruction will be accomplished through the use of appropriate aircraft and/or aircraft simulators.
7. To emphasize the role of the Flight Test Pilot and Flight Test Engineer in planning, preparation and conduct of flight tests. This should also include the principles of crew resource and error management.
8. Practical application of the planning, preparation, conduct and reporting of a certification flight test program (STC Project). This will include coordination with appropriate disciplines from all stakeholders.

5.2.1 KNOWLEDGE AND PROFICIENCY CODE LEVEL KEY

The following code key is used to reflect the degree of training, which a course is designed to accomplish. Several descriptions of levels are included under each code key. The codes designated describe the knowledge and/or proficiency level of the trainee at the completion of training.

KNOWLEDGE LEVELS

K-1 Orientation Level

Review of concept and knowledge of general principles of lecture, discussion and/or demonstration with no application.

K-2 Basic Level

A survey of theory and principles by lecture, demonstration, discussion and limited application to present:

- a. A brief review of scientific basis.
- b. An explanation of principles for practical application.
- c. Only limited practical application by demonstration. No development of manipulative skill.

K-3 Analytical and Comprehension Level

A review of theory and principles by lecture, demonstration, discussion and practical application to assure:

- a. An understanding of the scientific theory upon which the subject is founded.
 - b. A basic knowledge of the principles for practical application.
 - c. The capability to perform the essential functions of practical application.
 - d. Sufficient manipulative skills to perform essential tasks.
- K-4 Application Level

An in-depth coverage by lecture, demonstration, discussion and practical application to assure:

- a. A detailed knowledge of the scientific basis and principles.
- b. The capability to perform a high degree of practical application.
- c. Sufficient manipulative skills to perform a high degree of task accomplishment.

5.2.2 TRAINING OUTCOMES RECURRENT COURSE 28273

----- Upon successful completion of this training the Flight Test Pilot/Engineer: -----

- * Will understand the primary subjects relating to aircraft flight-testing.
- * Will be able to apply Civil Air Regulations (CAR's), Federal Aviation Regulations 14CFR, and technical guidance material relating to FAA Aircraft Certification.
- * Will understand present standardized practices and procedures used during FAA flight test certification tasks.
- * Will understand accepted and approved safety policy and guidance for the execution of FAA flight test projects.
- * Will understand flight test procedures and techniques used during FAA certification flight-testing.
- * Will have the knowledge, skills, and ability to plan and conduct an FAA certification flight test program and understand coordination with appropriate disciplines from all stakeholders.

FAA FLIGHT TEST TECHNICAL TRAINING INITIAL COURSE 28083 SYLLABUS

This subject listing is represented as a basis for an initial flight test technical training course.

ATMOSPHERE

K-1 ATMOSPHERE PHYSICS
STANDARD DAY
GEOPOTENTIAL
FLUID MECHANICS
CONTINUITY
BERNOULLI EQUATIONS
EQUATION OF STATE

K-2 AIRSPEEDS
IAS
EAS
CAS
TAS
MACH

K-1 ALTITUDE
HP
HD
RADAR
GPS

K-1 TEMPERATURE
TAT
RAT
SAT

-ALL CLASS ROOM LECTURE

K-2 HUMIDITY

K-2 ICING
PHYSICAL
FAA REGULATIONS/POLICY
DETECTORS AND DATA
ACQUISITION
EFFECTS ON L/D
FLIGHT TESTING-NATURAL VS. TANKER TESTS, DRY AIR
TESTS, TESTING WITH SHAPES, ICE
SHAPE DESIGN

K-1 FALLING AND BLOWING SNOW
ROTORCRAFT COLD WEATHER TESTING

K-2 ANGLE OF ATTACK & SIDESLIP MEASUREMENT/RECORDING

REGULATORY FLIGHT TEST REQUIREMENTS OF THE FOLLOWING SUBPARTS:

K-2 SUBPART B - FLIGHT
K-2 SYSTEMS SUBPART C - STRUCTURE/STRENGTH REQUIREMENTS
K-2 SUBPART D - DESIGN AND CONSTRUCTION
SUBPART E - POWERPLANT
SUBPART F - EQUIPMENT
SUBPART G - OPERATING LIMITATIONS AND INFORMATION

K-2 PITOT-STATIC CALIBRATION, GROUND & FLIGHT
BOMB
CONE

BOOM
GPS
TOTAL PRESSURE REFERENCE
SPEED COURSE
RADAR METHOD
PACE
TOWER FLY-BY
TRAPPED STATIC
COMPENSATED PROBES
PILOTS & COPILOTS SYSTEM ISOLATION
ALTERNATE STATIC SOURCE CONSIDERATIONS
LAG CORRECTIONS
BALANCE SYSTEMS AND CALIBRATION
RVSM

SYSTEMS

PNEUMATIC

K-1 PRESSURIZATION, AIR CONDITIONING, INERTING, OXYGEN, AND PNEUMATIC INSTRUMENTS

ANTI-ICING AND DEICING

K-2 BLEED AIR, BOOTS, FLUID DISCHARGE, ELECTRICAL, MAGNETIC IMPULSE

HYDRAULIC

K-2 BRAKES-ANTISKID, AUTOBRAKES, AND WET AND CONTAMINATED RUNWAY TESTING
STEERING
FLIGHT CONTROLS/MANUAL REVERSIONS

ELECTRICAL AND AVIONICS

K-2 GENERATORS/CSD COOLING UNDER LOAD
K-2 AUTOPILOTS
K-2 TRIM SYSTEMS
K-2 CONTROL SYSTEMS DEVICES-STICK SHAKERS, PUSHERS, PULLERS
K-3 INSTRUMENTS - EFIS, HUD, EICAS, MARKINGS
K-2 COCKPIT LIGHTING
K-1 EXTERIOR LIGHTING
K-1 RAIN REMOVAL (PNEUMATIC, SOLUTIONS, AND MECHANICAL)
K-3 FLIGHT CONTROLS-INCLUDING FLY-BY-WIRE, FLY-BY-LIGHT, AND ENVELOPE LIMITING
K-2 TAWS, GPWS, HTAW
K-3 WINDSHEAR-PREDICTIVE
K-3 TCAS
K-2 NAV-FMS, INS, LASER, LORAN, MLS, GPS, VNAV, 4-D, PMS
K-2 FMS (NAVIGATION, PERFORMANCE AND RNP)
K-2 TAKEOFF PERFORMANCE MONITORS
K-2 CAT I AND BASIC ILS
K-2 CAT II-COUPLED AND FLIGHT DIRECTOR
K-2 CAT III AUTOLAND-INCLUDING GROUND ROLL-OUT
K-2 WING LOAD ALLEVIATION
K-1 AUXILIARY POWER UNITS
K-1 RADAR
K-2 ALL ENGINES INOPERATIVE FLIGHT CONTROL POWER
K-2 EVS, SVS, HUD, Etc.
K-2 LOW/HIGH SPEED AWARENESS SYSTEMS

FAR REQUIREMENTS

PROPULSION

RECIPROCATING

- K-1 POWER INDICATION
- K-2 FUEL CONTROLS-ELECTRONIC/MECHANICAL/FADEC
- K-2 DIESEL ENGINES
- K-3 POWER CHARTS & LIMITS
- K-1 HUMIDITY EFFECTS
- K-2 MINIMUM/MAXIMUM ENGINE POWER
- K-1 SUPERCHARGING
- K-2 INSTALLATION EFFECTS
- K-1 POWER CALIBRATION
- K-3 PROPELLER EFFICIENCY
- K-2 PROPELLER REVERSE-INCLUDING FAILURE MODE
- K-2 AUTO FEATHER
- K-2 HANDLING & OPERATING CHARACTERISTICS
- K-2 CARBURETOR HEAT RISE
- K-1 CARBON MONOXIDE
- K-2 COOLING

TURBOPROP/TURBOSHAFT

- K-1 POWER INDICATION
- K-3 POWER CHARTS AND LIMITS
- K-2 MINIMUM/MAXIMUM ENGINE POWER
- K-1 FIXED THROTTLE T.O. TORQUE LAPSE
- K-2 INSTALLATION EFFECTS
- K-2 PROPELLER REVERSE-INCLUDING FAILURE MODE
- K-2 AUTO FEATHER/NEGATIVE TORQUE
- K-2 HANDLING & OPERATING CHARACTERISTICS
- K-1 AUTO THROTTLE
- K-1 AIRSTART ENVELOPE
- K-2 FUEL CONTROLS-ELECTRONIC/MECHANICAL/FADEC
- K-1 SYNCHRONIZERS
- K-2 RUNWAY STANDING WATER INGESTION
- K-2 COOLING
- K-2 AUTOMATIC THRUST CONTROL SYSTEMS
- K-2 ATCS

TURBOJET/TURBOFAN

- K-2 THRUST SETTING-EPR, RPM
- K-3 THRUST CHARTS-RATINGS, LIMITS DERATING, AND REDUCED THRUST
- K-1 FACTORS AFFECTING THRUST
- K-1 THRUST-NET AND GROSS
- K-2 MINIMUM/MAXIMUM ENGINE
- K-1 FIXED THROTTLE T.O. LAPSE THERMAL AND MACH EFFECTS
- K-2 INSTALLATION EFFECTS
- K-1 ENGINE CALIBRATION
- K-2 THRUST REVERSERS-INCLUDING FAILURE MODES/IN FLIGHT TESTING
- K-2 COMPRESSOR STALL SURGE MAPS
- K-2 FUEL CONTROLS-ELECTRONIC/MECHANICAL/FADEC
- K-2 HANDLING & OPERATING CHARACTERISTICS-INCLUDING ACCEL.,

- DECEL AND BODIES
- K-1 SYNCHRONIZERS
- K-2 AUTO THROTTLES
- K-1 AIRSTART ENVELOPE/HIGH BYPASS FANS
- K-2 RUNWAY STANDING WATER INGESTION TESTING
- K-2 COOLING
- K-1 VIBRATION MONITORING

FAR REQUIREMENTS

PERFORMANCE

AIRPLANES

- K-1 LIFT & DRAG-INCLUDING WINDMILLING & CONTROL DRAG
- K-3 STALL SPEEDS- V_{S1G} AND V_{MIN} INCLUDING MACH EFFECTS
- K-3 TAKEOFF SPEEDS DEVELOPMENT
- K-4 V_{MC} , V_1 , V_{MAXKE} , V_R , V_{MU}
- K-3 V_{LOF} , V_{TIRE} , V_2
- K-2 TAKEOFF LIMITING PARAMETERS
- K-2 ROTATION TECHNIQUES-NORMAL & ABUSED
- K-2 GEOMETRY & PITCH AUTHORITY LIMITED
- K-2 ACCELERATE-GO DISTANCE ALL ENGINE AND ENGINE
- K-2 ACCELERATE-STOP DISTANCE-INCLUDING BRAKES, SPOILERS
- K-2 THRUST REVERSERS, AUTOMATIC DEVICES, TIME DELAYS & KE
- K-2 BALANCED & UNBALANCED FIELD LENGTH & MULTIPLE V_1
- K-2 TAKEOFF FLIGHT PATH INCLUDING LANDING GEAR RETRACTION TIME
- K-2 THRUST SETTING PROCEDURES
- K-2 REDUCED THRUST/FLEX THRUST/DERATED THRUST
- K-1 AUTOMATIC RESERVE THRUST
- K-1 ALTERNATE CONFIGURATIONS INCLUDING ENGINE INOPERATIVE FERRY & GEAR DOWN DISPATCH
- K-1 RUNWAYS-INCLUDING GROOVED, WET & UNIMPROVED
- K-2 CLIMB-INCLUDING CONFIGURATION CHANGES AFTER T.O, DRAG POLARS VS. CLIMBS, TRIM DRAG, WINGS LEVEL CRITERIA, LAND CLIMB THRUST, & LANDING GEAR DOORS POSITION
- K-2 LANDING-INCLUDING THRUST REVERSER, SPOILERS, & PROPELLER PITCH CONSIDERATIONS
- K-1 WHEEL FUSE PLUG INTEGRITY
- K-2 NOISE REFERENCE FLIGHT PATH-INCLUDING THRUST CUT BACK CONSIDERATIONS
- K-2 TESTING WITH ICE SHAPES-PERFORMANCE AND HANDLING QUALITIES
- K-1 DRIFT-DOWN CRUISE
- K-4 BUFFET BOUNDARY/WIND UP TURNS
- K-2 WEIGHT/CG & ALTITUDE EXTRAPOLATION LIMITS
- K-2 TEST WEIGHT/CG TOLERANCES
- K-1 CONTROL SURFACE RIGGING

ROTORCRAFT

- K-1 HOVER-IGE/OGE
- K-1 TAKEOFF SPEEDS DEVELOPMENT
- K-1 TAKEOFF-GO/STOP, CAT. A & B
- K-1 CLIMB PERFORMANCE
- K-2 GLIDING PERFORMANCE
- K-2 LANDINGS-CAT. A & B

- K-2 HOVER PERFORMANCE, IGE CONTROLLABILITY AND HEIGHT VELOCITY ENVELOPE, WEIGHT AND ALTITUDE EXTRAPOLATION LIMITS
- K-1 TEST WEIGHT/CG TOLERANCES
- K-1 ROTOR TIP MACH EFFECTS

FAR REQUIREMENTS

STABILITY & CONTROL

AIRPLANES

- K4 STALL CHARACTERISTICS INCLUDING STALL PREVENTION SYSTEM CONSIDERATIONS
- K-4 STALL WARNING & MANEUVER MARGINS
- K-3 LONGITUDINAL STABILITY STATIC AND DYNAMIC, INCLUDING FUEL SHIFT EFFECTS
- K-3 LATERAL/DIRECTIONAL DIHEDRAL EFFECTS, AND SPIRAL STABILITY
- K-3 SAS-INCLUDING HANDLING QUALITIES AFTER FAILURE IN STABLE & UNSTABLE AIRPLANES & CRITICALITY ASSESSMENT
- K-1 SIDE STICK CONTROL
- K-3 MACH EFFECTS
- K-2 HIGH SPEED MANEUVERING CHARACTERISTICS
- K-3 MANEUVERING STABILITY AND OUT OF TRIM CHARACTERISTICS
- K-3 $V_{MO}/M_{MO}-V_D/M_D$ SPEED SPREAD UPSETS
- K-3 V_{MCG} , V_{MCA} , AND V_{MCL}
- K-2 TAKEOFF TRIM ASSESSMENT & ABUSES
- K-2 RUNWAYS & JAMS
- K-2 CONTROLLABILITY CONFIGURATION CHANGES AND FLAP GATES
- K-1 ENVELOPE PROTECTION
- K-4 SPIN-TESTING, PRECAUTIONS & SAFETY EQUIPMENT
- K-1 ICE SHAPES AND BOOTS
- K-2 WATER AND GROUND HANDLING-CROSS WIND
- K-2 ABNORMAL SYSTEM CONFIGURATIONS-FUEL, SPOILERS, FLAPS, OTHER FAILURE SYSTEMS
- K-2 WEIGHT & ALTITUDE EXTRAPOLATION LIMITS
- K-2 TEST WEIGHT/CG TOLERANCES
- K-1 RIGGING-SURFACES AND SYSTEMS

ROTORCRAFT

- K-2 LONGITUDINAL STABILITY-VFR/IFR
- K-2 LATERAL-DIRECTIONAL STABILITY
- K-1 HOVER STABILITY AND CONTROL
- K-3 V_{NE}/V_D MANEUVERING, ROUGHNESS & CONTROL, POWER ON AND OFF*
- K-1 BLADE STALL & TIP-MACH CONSIDERATIONS
- K-2 AFCS & SAS-HANDLING QUALITIES AFTER FAILURE IN STABLE & UNSTABLE HELICOPTERS & CRITICALLY ASSESSMENT IFR/VFR
- K-2 TRIM-INCLUDING RUNAWAYS & JAMS
- K-1 EXTERNAL LOADS-RACK & HOOKS
- K-1 WATER & GROUND HANDLING CROSS-WINDS
- K-2 ICING
- K-2 WEIGHT & ALTITUDE EXTRAPOLATION LIMITS
- K-1 TEST WEIGHT/CG TOLERANCES
- K-1 RIGGING-ROTORS, SURFACE AND SYSTEMS
- K-2 THROTTLE CUTS AT VNE INCLUDING TIME DELAYS

FAR REQUIREMENTS

*=LECTURE ONLY

MISCELLANEOUS

K-1 BALLAST AND WEIGHING TECHNIQUES
SOLIDS AND LIQUID
JETTISONABLE
SECURING METHODS
INFLIGHT SHIFTABLE
VERTICAL AND LATERAL CG
WEIGHING NECESSITY

K-1 SMOKE DETECTION TESTING

FLIGHT CREW ESCAPE/AIRCRAFT RECOVERY

K-3 ESCAPE HATCHES AND CHUTES
K-2 DOOR RIP HINGES
K-3 STALL/SPIN RECOVERY PARACHUTES & JETTISON SYSTEMS /PROPER
SIZING
K-2 JETTISONABLE/SHIFTABLE BALLAST
K-3 INTERIOR ESCAPE AIDS
K-3 PRESSURIZATION CONSIDERATIONS
K-3 FLIGHT CREW SURVIVAL EQUIPMENT
K-3 PERSONAL PARACHUTES (HIGH/LOW SPEED)
K-3 PERSONAL/CREW FLOTATION EQUIPMENT
K-3 CLOTHING
K-3 HEAD PROTECTION
K-3 COMMUNICATIONS, INTERCOCKPIT & AIR-TO-GROUND
K-2 DESIRABILITY OF CHASE

OTHER

K-3 SAFETY
SYSTEM SAFETY PROCESS AS IT RELATES TO FLIGHT TEST
FLIGHT TEST RISK MANAGEMENT
FAA ORDER 4040.26
REVIEW OF FAA FLIGHT TEST ACCIDENT/INCIDENTS/SSEs
CREW RESOURCE MANGEMENT/ERROR MANAGEMENT AS RELATED TO FLIGHT TEST

K-3. CAR/FAR REVIEW CERTIFICATION -1, 21, 23, 25, 27, 29, 36, SFAR-41,
AND COMMUTER CATEGORY
OPERATIONAL -91, 121, 125, 133, 135
FAR PREAMBLES
CURRENT A.C'S & POLICY LETTERS
SPECIAL CONDITIONS
EQUIVALENT LEVEL OF SAFETY FINDINGS
ISSUE PAPERS
EXEMPTIONS
CERTIFICATION PLANS/PROJECT SPECIFIC CERTIFICATION PLAN (PSCP)
CONFORMITY & CONFIGURATION HISTORY
INSTRUMENT CALIBRATIONS
WEIGHT AND BALANCE
AIRCRAFT AIRWORTHINESS

- FLIGHT TEST PLAN REVIEW
APPLICANT FLIGHT TEST DATA REVIEW
SPECIAL INSTRUMENTATION REQUIREMENTS AND AVAILABILITY
- 1) TELEMETERING
 - 2) STANDING WATER RUNWAY FACILITIES
- K-1 PRODUCTION FLIGHT TESTING
MIDO FUNCTION
COMPANY FLIGHT TEST PROCEDURES
AUDITS
- K-3 DOCUMENTS
FLIGHT TEST PLAN
FLIGHT CARDS
TIA/RISK ASSESSMENT
FLIGHT MANUALS AND SUPPLEMENTS (GAMA SPEC 1)
CDL
TIR
- K-3 FLIGHT STANDARDS/AEG
MMEL
FOEB
FSB
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
OPERATIONAL SUITABILITY APPROVALS
- K-1 DATA COLLECTION METHODS AND SYSTEMS
GPS, LASER
SPACE POSITIONING INCLUDING DME, INS/IRS, RADAR
ON-BOARD ACQUISITION-PHOTO PANEL, MAG TAPE, VIDEO,
MANUAL RECORDING
TELEMETERING
- K-2 HUMAN FACTORS CONSIDERATIONS FOR VISUAL & AUDITORY DISPLAYS CONTROLS & FLIGHT DECK DESIGN
AUTOMATION
SYSTEM ALERTS
SYSTEM MONITORING
DISPLAY/CONTROL DESIGN
CONTROL/DISPLAY INTERRELATIONSHIP
TEST PROCEDURES
DISPLAY/AUDITORY/TACTILE INTEGRATION
COLOR
SITUATION AWARENESS DISPLAYS
PART AND FULL TIME DISPLAYS
PROBLEM AREAS
- K-2 OTHER HUMAN FACTORS CONSIDERATIONS
ERRORS AND ERROR MITIGATION
COCKPIT WORKLOAD & MINIMUM CREW DETERMINATION
COCKPIT FIELD-OF-VIEW ASSESSMENT
DAY/NIGHT BALANCE AND DISPLAY
NVG
FLIGHT CONTROL INCEPTORS AND CONTROL LAWS

K-2 DEDICATED WORKSHOP FOR STATE-OF-THE-ART UPDATE WITH INFORMATION PROVIDED BY THE FAA

**"K" DENOTES LEVEL OF TEACHING
REFER TO "KNOWLEDGE AND PROFICIENCY CODE LEVEL KEY" FOR REFERENCE**

FLIGHT TEST PILOT/ENGINEER RECURRENT COURSE 28273
TRAINING OBJECTIVES

5.2.A Graduates of this course must be able to accomplish the following:

TRAINING OBJECTIVES

The course syllabus should be focused on the following objectives:

1. To provide the Flight Test Pilot and Flight Test Engineer a refresher in the primary subjects relating to flight-testing.
2. To provide the Flight Test Pilot and Flight Test Engineer an understanding of the pertinent Civil Air Regulations (CAR's), Code of Federal Aviation Regulations 14-CFR, technical guidance material relating to FAA Aircraft Certification, and the ability to apply rule compliance criteria.
3. To provide the Flight Test Pilot and Flight Test Engineer an understanding of standardized practices and procedures contained in current policy and guidance applicable to FAA flight test certification tasks.
4. To provide the Flight Test Pilot and Flight Test Engineer the requirements for approved safety policy and guidance for the execution of FAA flight test projects.
5. To provide the Flight Test Pilot and Flight Test Engineer an understanding of the applicable flight-test procedures and techniques used during FAA certification flight-testing. This instruction will be accomplished through the use of appropriate aircraft and/or aircraft simulators.
6. To emphasize the role of the Flight Test Pilot and Flight Test Engineer in planning, preparation and conduct of flight tests. This should also include the principles of crew resource and error management.

5.2.1 A **KNOWLEDGE AND PROFICIENCY CODE LEVEL KEY**

The following code key is used to reflect the degree of training, which a course is designed to accomplish. Several descriptions of levels are included under each code key. The codes designated describe the knowledge and/or proficiency level of the trainee at the completion of training.

KNOWLEDGE LEVELS

K-1 Orientation Level
Review of concept and knowledge of general principles of lecture, discussion and/or demonstration with no application.