

**2008 GENERAL AVIATION TECHNOLOGY CHALLENGE TEAM
AGREEMENT
BETWEEN
COMPARATIVE AIRCRAFT FLIGHT EFFICIENCY FOUNDATION
AND**

(INSERT NAME OF CHALLENGE TEAM HERE.): rev.12.23.07

1 INTRODUCTION

This Agreement (“AGREEMENT”) is entered into by the Comparative Aircraft Flight Efficiency Foundation, Inc. (“CAFE”) and:

(Insert name of individual and/or name of company here.) (“TEAM”) located at

(Insert address of individual or company here.). CAFE and TEAM are collectively referred to as “the Parties.” To execute this agreement, TEAM must complete all of the forms below including the EXECUTION portion, the EXHIBIT A portion and the NOTICE of INTEREST LETTER, and then submit those documents to CAFE.

The purpose of this AGREEMENT is to establish the rules and conditions for TEAM to qualify and participate in a technology demonstration flight competition that is called the 2008 General Aviation Technology Challenge (“CHALLENGE”) and that presents monetary awards from FUNDERS to its winners. The rules and conditions for the 2008 CHALLENGE are intended, in so far as possible, to remain the same for the 2009, 2010 and 2011 CHALLENGEs. The 2008 Challenge will be conducted from August 2-10, 2008 by CAFE at the CAFE Flight Test Center at Charles M. Schulz Sonoma County Airport in Santa Rosa, California.

The CHALLENGE is intended to bring about the development of new aviation technologies which can improve the community acceptance, efficiency, door-to-door speed, and safety of future air vehicles. The CHALLENGE is not intended to simply demonstrate the integration of existing technologies, but encourage the development of new technologies and breakthroughs which will enable new flight capabilities. As such, the CHALLENGE is comprised of a series of separate but inter-related flight competitions and each TEAM must participate in all flight competitions in order to win any prizes.

The winners of the CHALLENGE will be determined by 1) their Vehicle's demonstrated flight performance as measured by CAFE and 2) by a panel of judges and test pilots, convened by CAFE, and whose decisions will be based as much as possible on objective criteria and metrics as further described herein.

CAFE has arranged for the following total prize purses to be funded by a collection of one or more private or government organizations ("FUNDERS"):

- \$300,000 for the flight competition in 2008
- \$400,000 for the flight competition in 2009
- \$500,000 for the flight competition in 2010
- \$550,000 for the flight competition in 2011

The 2008 prize purse that pertains to this AGREEMENT shall be divided as follows:

Main Prizes:

- 1) For the winner of the Community Noise Prize, a maximum of US\$ 150,000.00 (one hundred fifty thousand U.S. dollars)
- 2) For the winner of the Green Prize (aka Environmental Efficiency Prize), a maximum of US\$ 50,000.00 (fifty thousand U.S. Dollars)
- 3) For the winner of the Aviation Safety Prize (aka Vehicle Safety Prize), US\$ 50,000.00 (fifty thousand U.S. dollars)
- 4) For the winner of the CAFE 400 Prize (aka Decathlon Prize), a maximum of US\$ 25,000.00 (twenty-five thousand U.S. dollars)
- 5) For the winner of the Quietest LSA Prize (aka the Sustainable Airports Prize), US\$ \$10,000 (ten thousand U.S. dollars)

Individual "Showcase" Prizes: Winner of each of the following five prizes will receive US\$ 3750.00:

- 1) Quietest Cabin Prize
- 2) Best Angle of Climb Prize
- 3) Shortest Takeoff Prize
- 4) Best Glide at 100 mph Prize

Execution of this AGREEMENT by TEAM LEADER, as agent for the TEAM, indicates the willingness and intent of TEAM to participate in the CHALLENGE and to follow and abide by all the terms of this AGREEMENT.

This AGREEMENT must be accompanied by a registration fee, as described below, payable from TEAM to the CAFE Foundation. This registration fee will be refunded in full if CAFE declines to accept the TEAM's entry into the competition. Upon receipt and validation by CAFE of said application fee, and in the absence of any conditions deemed by CAFE to be unacceptable, contrary or forbidden to this AGREEMENT, CAFE shall execute this AGREEMENT by signature, with time and date to initiate the Effective Date of this AGREEMENT.

Registration fees: An "Early Bird" discounted registration fee of \$2000 will be accepted from those TEAMS whose completed AGREEMENT is delivered to CAFE at 4370 Raymonde Way, Santa Rosa, California 95404, on or before midnight February 14, 2008. From that date through and until midnight June 1, 2008, the registration fee will be \$3000. After June 1, late registration fees will be \$4000. Registration closes on July 1, 2008.

After being officially accepted into the CHALLENGE, TEAMS will receive a partial registration refund of \$500 *if* all of the necessary documentation, Vehicle flight test modifications, wing cuff fabrication, log book records and proof of required insurance are completed, submitted and found by CAFE to be in order before June 15, 2008. TEAMS that fail to so complete and submit these necessary items by July 1, 2008 will be subject to disqualification from the CHALLENGE.

A short description of the technology advancement to be demonstrated must be included as part of the entry submission. If more TEAMS apply for the CHALLENGE than the accepted limit, entries will be prioritized based on the potential impact of their proposed technologies as described in the write-up.

A list of all TEAMS registered to compete in the 2008 CHALLENGE will be announced and posted on the CAFE website at cafefoundation.org after July 15, 2008.

All interactions by TEAM regarding CHALLENGE will be directly with CAFE. TEAM MEMBERS will communicate with CAFE through a TEAM LEADER to be designated by each TEAM.

ABBREVIATIONS/DEFINITIONS to be used in this document:

- AGL: Above Ground Level, referring to altitude above local ground
- CAFE: Comparative Aircraft Flight Efficiency Foundation, Inc.
- CAS: Calibrated airspeed, as that obtained by the CAFE ÜberBarograph
- CFTC: CAFE Flight Test Center (at Charles M. Schulz Sonoma County Airport)
- C.G. (or c.g.): Center of Gravity (of the Vehicle)
- CTOL: Conventional Takeoff and Landing, referring to runway length needed
- CW: Competition Weight, the Vehicle weight, fuel and payload pre-chosen by TEAM for use in all CHALLENGE flight attempts including the 400-mile flight prize competitions (including 200 lb per seat payload and 30 minute fuel reserve for 400 mile flight).
- CP: Competition Power, the power level, pre-chosen by TEAM and approved and monitored by CAFE, in terms of manifold pressure, propeller RPM, and/or kilowatts, that must be used in all HPFAs. Allowance will be made for fixed pitch propeller RPMs to spool up on Takeoff Distance Flight Attempts.
- dB: decibels, used in noise measurement
- dBa slow : Equivalent noise power in dB weighted on the "A" slow scale
- DOT 500: Department of Transportation specifications for limited use Vehicle for 25 mph travel on residential streets

DtD: "door to door", the total trip time from departure doorstep to destination doorstep
eCFI: "electronic Certificated Flight Instructor", an intelligent flight deck that provides electronic pilot assistance and envelope protection.

FAA: Federal Aviation Administration

FAR: Federal Air Regulations (as maintained by FAA)

FUNDERS: CAFE-approved businesses, agencies or individuals that provide CHALLENGE prizes.

g: The amount of acceleration due to gravity at the earth's surface

GTT: Ground travel time, in minutes, spent on ground transportation and its delays

Glide Ratio: The measured feet horizontally-traveled divided by the feet of altitude lost while gliding power-off.

HPFA: High Power Flight Attempt, the CHALLENGE competition flight attempt(s) that require Competition Power (high power levels) and which include Takeoff Distance, Rate of Climb, Angle of Climb, 500 foot AGL Community Noise flyover, Top Speed, and Cabin Noise. The Handling Qualities flights, Aviation Safety Prize familiarization flights and the CAFE 400 Prize flight of 400 miles are not HPFAs.

IMD: Intermodal Delay, minutes of time spent transitioning from between modes of Travel

MEQ: Metric equivalent

MERs: Minimum ELIGIBILITY requirements, the capabilities that must be demonstrated in order to qualify to compete in the CHALLENGE

MPRs: Minimum PRIZE Requirements, the capabilities that must be demonstrated in order to win any cash prizes in the CHALLENGE. See Prize Matrix in Appendix.

MPG: Miles Per Gallon referring to fuel consumption

MPGe: Miles Per Gallon equivalent, referencing MPG relative to the price of mogas, See Appendix

mph: Speed in statute miles per hour

MSL: Mean sea level, referring to altitude above sea level

NASA: National Aeronautics and Space Administration

PIC: Pilot in command, the licensed, qualified pilot operating the aircraft

RITS: Runway In The Sky, a virtual runway and landing measurement tool

STOL: Short Takeoff and Landing, referring to runway length needed

SMD: Sound Measurement Distance, in feet, from vehicle to noise meter

TAS: True airspeed

V: Velocity in statute miles per hour

Vmax: Top speed in level flight

Vne: Velocity to never exceed, in indicated airspeed

VTOL: Vertical Takeoff and Landing, referring to ≤ 100 foot Takeoff Distance

Wp: Cabin payload in pounds

2 DETAILED DEFINITIONS

Section 2 has been removed from this version of the document and text has been relocated to section 3.8 of this document.

3 CHALLENGE DETAILS

3.1 Overview

The 2008 CHALLENGE is intended to be the second of five annual competitions that will demonstrate new technologies for General Aviation aircraft that are applicable to a wide range of future aviation missions, including Unmanned Aerial Vehicles, Air-Taxi operations, homeland security surveillance, personal transportation, etc. The official Prize Flight Attempts for the 2008 competition will begin at the CAFE Flight Test Center (CFTC) at Charles M. Schulz Sonoma County Airport on Saturday August 2nd, 2008. A series of Prize Flight Attempts will take place on the succeeding days. The CHALLENGE shall conclude with the Prize Flight Attempts for the Green Prize and the CAFE 400 Prize at the CFTC on Saturday, August 9, 2008, to be followed by the Awards Banquet that evening, at which the final official scores of all CHALLENGE prizes will be announced. Sunday August 10, 2008, from 9:00 AM to 1:00 PM will be "Public Exposition Day" at the airport, consisting of a static display of all of the competing teams and their Vehicles and the Technology Pavilion.

Though intended to remain the same for all future CHALLENGEs, these CHALLENGE rules are subject to change at the discretion of the CAFE Foundation. For 2008, a minimum of 5 and a maximum of 16 competitors will be accepted into the CHALLENGE. In general, priority for selection into the CHALLENGE will be given on a first come, first served basis to those who have submitted a NOTICE OF INTEREST letter (Appendix). However, in the interest of the CHALLENGE main focus for the development of new technologies for community acceptance, environmental efficiency, door-to-door speed effectiveness, and vehicle safety, CAFE reserves the right to evaluate and select competitors that best fit the purpose of the competition and to find unacceptable those that do not. CAFE will limit the acceptance of Vehicles of the same model/type to no more than two of that type. CAFE also reserves the right to exclude Vehicles that it deems unsafe, of poor quality construction, or incompatible with the above stated goals of the competition. In addition, if it has won any previous CHALLENGE Prize during both of the two previous years in succession, that vehicle entry or any vehicle entry determined by judges to be a near-duplicate of it, shall be ineligible for any prize in the subsequent year's CHALLENGE, though it may compete in the subsequent year's CHALLENGE for exhibition purposes.

All testing in the CHALLENGE will be conducted by CAFE.

The 2008 CHALLENGE Prize Purse will be awarded as follows:

The **Community Noise Prize** will be the largest prize and will be awarded to the one team that meets or surpasses all of the MERs and pertinent MPRs given in the Appendix, AND achieves the lowest average Community Noise Level among all teams in the Challenge. The maximum purse for the Community Noise Prize will be one hundred fifty thousand U.S. dollars (US\$150,000.00). The actual prize amount will be determined by the following matrix, based upon the average noise level measured from the Takeoff and

flyover Flight Attempts of each team Vehicle. Community Noise Prize Amounts:

- \$ 5,000 for ≤ 68 dBA average
- \$ 10,000 for ≤ 66 dBA average
- \$ 20,000 for ≤ 64 dBA average
- \$ 30,000 for ≤ 62 dBA average
- \$ 40,000 for ≤ 60 dBA average
- \$ 60,000 for ≤ 58 dBA average
- \$ 80,000 for ≤ 56 dBA average
- \$150,000 for ≤ 54 dBA average

The **Green Prize** (aka Environmental Efficiency Prize) will be awarded to the one team that meets or surpasses all of the MERs and pertinent MPRs and whose MPGe score as measured on the CAFE 400 race course surpasses by the largest percentage the prize levels defined for this prize and given in the Appendix. The maximum purse for the Green Prize will be fifty thousand U.S. dollars (US\$50,000.00). The actual prize amount will be determined by the following matrix:

Green Prize Amounts: 2 seat guidelines:

- \$10,000 for ≥ 30 MPGe (based on mogas price, Appendix)
- \$20,000 for ≥ 40 MPGe (based on mogas price, Appendix)
- \$30,000 for ≥ 50 MPGe (based on mogas price, Appendix)
- \$50,000 for ≥ 60 MPGe (based on mogas price, Appendix)

Guidelines for other seat categories are also given in Appendix.

The **CAFE 400 Prize** (aka Decathlon Prize) will be awarded to the one team that meets or surpasses all of the MERs and pertinent MPRs and whose DtD speed in the CAFE 400 Prize race is ≥ 100 mph and is highest among all competitors. The DtD speed in this race will be computed based upon the measured flight time demonstrated in the air race plus the Takeoff Distance-related ground travel time (GTT) published in the Appendix. The maximum purse for the CAFE 400 Prize will be twenty-five thousand U.S. dollars (US\$25,000.00). The actual prize amount will be determined by the following CAFE 400 Prize matrix:

- \$2,000 for ≥ 100 mph DtD (3x car speed, 2x airlines if ≤ 250 mi.)
- \$3,000 for ≥ 120 mph DtD
- \$5,000 for ≥ 130 mph DtD (4x car speed)
- \$8,000 for ≥ 140 mph DtD (2x airline speed if ≤ 500 mi.)
- \$12,000 for ≥ 150 mph DtD
- \$20,000 for ≥ 160 mph DtD
- \$25,000 for ≥ 180 mph DtD

See Appendix for ground travel times.

The **Aviation Safety Prize** (aka Vehicle Safety Prize) of \$50,000.00 will be awarded to the one team that meets or surpasses all MERs and scores the highest points total including the discretionary judgment points from the Jury. The points total will be based primarily upon its achievement in offering electronic pilot assistance (eCFI) and the points achieved in the Handling Qualities and Ease of Use assessments of the Vehicle. To a lesser extent, score will consider its Performance Summary. Jurors will allocate their discretionary judgment points according to the Vehicle's significance as a technologic achievement. Handling Qualities and Ease of Use assessment will be made by CAFE test pilots accompanied by team pilot as Pilot In Command. The points awarding system for the Aviation Safety Prize is found below in Section 3.2 c, d and e. .

The **Quietest LSA Prize** of \$10,000.00 will be awarded to the one team whose LSA demonstrates the lowest Community Noise level while meeting all of the MERs, and achieves ≤ 64 dBA as its average Community Noise level measured from the Takeoff and flyover Flight Attempts. There must be at least two LSA TEAMS in the CHALLENGE in order for this prize to be awarded. If a tie score occurs, that LSA TEAM that has tied and has demonstrated the shortest Takeoff Distance over a 50 foot obstacle shall be awarded the prize. A flyover speed of ≥ 120 mph TAS is required for the LSA's Flight Attempt.

Four individual "**Showcase**" Prizes, of \$3,750.00 each, will be awarded to the teams that meet or surpass all MERs, and fulfill the pertinent MPRs as shown in the Appendix, while achieving the single highest score in one of the following competitions:

- Quietest Cabin Prize—a tie goes to the Vehicle with shortest Takeoff Distance
- Best Angle of Climb Prize
- Shortest Takeoff Prize
- Best Glide Prize, based upon measured Glide Ratio, power off, at 100 mph CAS

Each Vehicle's performance in all of the Showcase Prizes as well as that in Top Speed, Slowest Level Flight Speed and Rate of Climb will be compiled into a Performance Summary that is a factor in determining the winner of the Aviation Safety Prize .

3.2 CHALLENGE Flight Competition Methods, Rules and Scoring

a. Community Noise

The one team that fulfills all MERs and pertinent MPRs and demonstrates the lowest Community Noise during its Community Noise Flight Attempts shall win the Community Noise Prize. Community Noise will be measured in dBA, slow scale. Community Noise of the Vehicle will be based upon Vehicle's maximum noise emission measurements on both Takeoff and 500 foot AGL flyover while operating at Competition Weight.

The Takeoff noise will be measured from two separate points during CP** operation at Competition Weight. The two measuring points for Takeoff noise will be located on open ground 500 feet on either side of the runway centerline and near the brake release point..

Noise measurements from these points on the left and right sides of the Vehicle will be averaged to obtain the Takeoff noise measurement.

The Flyover Noise measurement point will be on level open ground that is 500 feet directly below the flyover path of the Vehicle and will measure the Vehicle's noise during its Top Speed level flyover while operating at CP and CW**.

The Community Noise Flight Attempts will include the HPFAs of Takeoff distance, Takeoff Community Noise, Angle of Climb, Cabin Noise level, Top Speed and 500 foot AGL Flyover Community Noise measurements. These will occur after each Vehicle has completed its Speed Calibration Flight. After one initial test flight to determine power settings, three (3) separate Community Noise Flight Attempts will be performed and the measurements from the valid attempts will be averaged. Valid attempts are those that are conducted at the altitudes, CP power settings and locations required and defined in the official pilot's briefing given prior to the Flight Attempt.

Top Speed and Cabin Noise will be determined while flying level at CW and at CP and at the same exact time during the 500 foot AGL Flyover Community Noise Flight Attempts when the Vehicle is passing directly over the noise microphone 500 feet below.

The Takeoff Distance measurements obtained during the Community Noise Flight Attempts will have a profound effect in determining the winners of the other Challenge Prizes. **After liftoff, the Cabin Noise level must remain below 95 dBA during both the Flyover/Top Speed and Angle of Climb portions of the Community Noise Flight Attempts or the Vehicle is disqualified. See MERs.**

**CP is intended to be maximum available power. To discourage a strategy of inappropriate, unrealistic or atypical use of reduced power during the Community Noise Flight Attempts, CP is defined as the highest power level, as measured by CAFE's monitoring equipment, used during *any* of the test portions of the HPFAs, including Flight Attempts to demonstrate Vehicle's Takeoff Distance, Takeoff Community Noise, Cabin Noise/Top Speed, Rate of Climb, Angle of Climb and the 500 foot AGL Flyover Community Noise measurements. Aircraft that are compelled by FAR regulation to use reduced power in order to obey limitations of Vne or peak RPM or any other FAA limitation during any test portion of these Flight Attempts will be limited to using no more than that same reduced power level throughout all of that Vehicle's HPFAs and its test portions of any valid Community Noise Flight Attempts.

b. Cabin Noise

The one team that fulfills all MERs and pertinent MPRs and demonstrates the lowest Cabin Noise during its Cabin Noise Flight Attempts shall win the Quietest Cabin Noise Prize. Cabin Noise will be measured in dBA, slow scale with a microphone positioned near the right ear of the pilot. Cabin Noise will be the average of two peak noise measurements, both taken while flying at Competition Weight and CP, during the three (3) separate Community Noise Flight Attempts.

The first Cabin Noise measurement will be taken during the 500 foot AGL Community Noise Flyover/Top Speed Flight Attempt and will be made in level flight at Competition Weight while flying at CP.

The second Cabin Noise measurement will be during the Maximum Angle of Climb portion of the Flight Attempt, and will be made at Competition Weight while flying at CP between standard density altitudes of 2500 feet and 3500 feet.

Prior to the Community Noise Flight Attempts, each Vehicle will perform its Pitot-static System Calibration Flight by flying at Competition Weight with dual CAFE ÜberBarographs, one mounted on the wing cuff and one mounted in the cabin. During this calibration flight, the Vehicle will perform the Maximum Rate of Climb at CP (between standard density altitudes of 2500 feet and 3500 feet), the Best Glide Ratio at 100 mph CAS and the Slowest Level Flight Speed Flight Attempts.

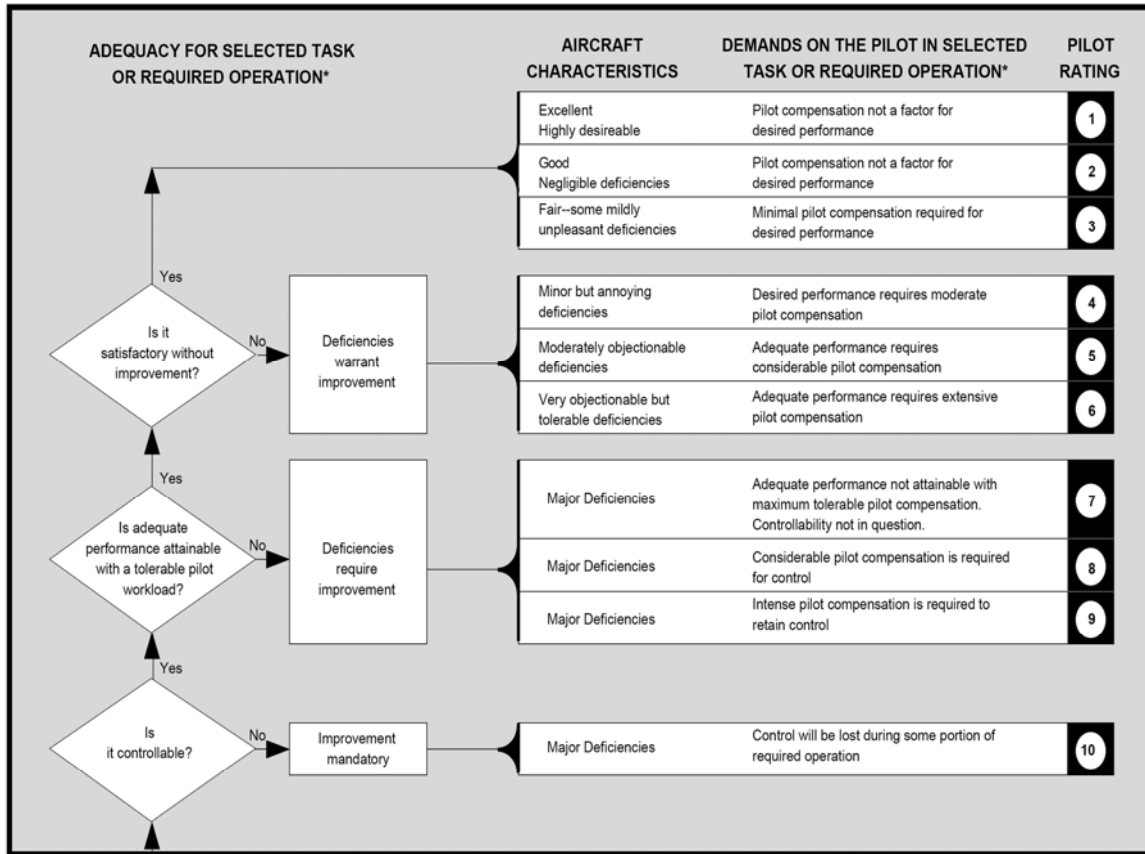
c. Handling Qualities

Handling Qualities tasks will be rated by highly skilled, qualified test pilots using the Cooper-Harper Scale (see below.) The test pilot will perform the Handling Qualities tasks with the TEAM's designated pilot aboard and with a video camera recording the test pilot's comments and a view of the Vehicle's flight deck. The Handling Qualities Flight Attempts will be made at Competition Weight. The average of the test pilots' Cooper-Harper Scale rating numbers for each task tested will be compiled to create a total score. **The Cooper-Harper rating number in each flight characteristic tested must be ≤ 6 to avoid disqualification. The Aviation Safety Prize winner must achieve a Cooper-Harper rating number of ≤ 3 in each flight characteristic tested.**

The total points achieved in Handling Qualities will be a main determinant of the Aviation Safety Prize. The sum of all points achieved by a Vehicle in the Handling Qualities scoring will be included along with its points achieved in the eCFI tasks in the determination of its points total toward the Aviation Safety Prize.

The Cooper-Harper Rating Scale for Handling Qualities is shown below:

HANDLING QUALITIES RATING SCALE



Pilot decisions

Cooper-Harper Ref. NASA TND-5153

* Definition of required operation involves designation of flight phase and/or subphases with accompanying conditions.

Table of Handling/Ease of Use Characteristics

Handling Qualities/Ease of Use
1) Slow flight characteristics
2) T.O and landing characteristics
3) Static longitudinal stability
4) Yaw stability
5) Maneuvering stability (lb/g)
6) Control authority (lag, oversteer)
7) Spiral stability
8) Control harmony
9) Taxiing (in wind, rough ground)
10) Parking (FOV, turn circle)
11) Aerial agility (pitch, roll, yaw rate)
12) Ride quality (in flight, on ground)
13) Braking effectiveness
14) Vibration level
15) C.g. range adequacy
16) Entry/Exit ease
17) Ease of starting
18) Flight deck ergonomics
19) eCFI capabilities
20) Pilot workload
21) Field of view (FOV)
22) Crew/passenger safety
23) Crew/passenger comfort
24) All-weather capabilities SVS, de-ice
25) Ease of baggage stowage
26) Anticipated maintenance needs
27) Bonus: ballistic parachute
28) Bonus: occupant airbags
29) Bonus: fully roadable (freeway legal)
30) Bonus: DOT 500 roadable (25 mph)
Total points possible:

Only the closed-loop flight characteristics 1 (one) through 11 (eleven) will be rated using the Cooper-Harper method. The other factors (items 12 through 26) will be given a points score in direct proportion to their quality. Bonus points for items 27 through 30 will be all or none. Total points achieved will be added to the points from the eCFI tasks and the Performance Summary (below) and the judges discretionary points (see below), in order to determine the winner of the Aviation Safety Prize.

d. Performance Summary points

Each Vehicle's measured performance will be awarded points toward the Aviation Safety Prize interpolated in proportion to the following ranges of performance:

Performance Summary, points	High									Low
Cabin Noise, dBA	78	80	82	84	86	88	90	92	94	95
points	20.0	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0
Community Noise, dBA	54	56	58	60	62	64	66	68	70	72
points	20.0	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0
CAFE 400 Prize, mph DtD	190	180	170	160	150	140	130	120	110	100
points	20.0	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0
Rate of Climb, fpm	2200	2000	1800	1600	1400	1200	1000	800	600	400
points	20.0	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0
Takeoff Distance over 50'	100	400	700	1000	1300	1600	1900	2200	2500	2700
points	20.0	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0
Top Speed 500' AGL, mph TAS	200	180	170	160	150	140	130	120	110	100
points	20.0	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0
Slowest Level Flight Speed, mph*	0	15	20	25	30	35	40	45	50	52
points	20.0	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0
2 seat MPGe (mogas)	60	55	50	45	40	35	30	25	20	15
points	20.0	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0
Angle of Climb, degrees	25	22.5	20	17.5	15	12.5	10	7.5	5	2.5
points	20.0	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0
Glide Ratio at 100 mph IAS	24	22	20	18	16	14	12	10	8	6
points	20.0	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0

The Table above gives the Performance Summary and the points available using the linear points calculation method. A maximum of two hundred (200) are available. (10 x 20).

* Slowest Level Flight Speed will be measured in CAS while flying at Competition Weight, and must be sustained for 10 seconds. The Slowest Level Flight Speed will allow use of power.

e. Aviation Safety Prize -- eCFI tasks points

The goal of the envelope protection element (eCFI tasks) of the Aviation Safety Prize is elimination of loss of control events. Loss of control is one of the primary causes of fatal accidents in small aircraft and typically results from two disparate causes. The first is the unnoticed entry into an unsafe flight condition (e.g. graveyard spiral) due to pilot distraction or inattention. The second cause is inappropriate control inputs at the extremes of the flight envelope where the correct control strategy is significantly different from routine operations (e.g. low-speed stall/spins due to overuse of ailerons and lack of rudder). Envelope protection systems will be evaluated according to their ability to prevent unsafe flight conditions due to pilot inattention and "naive" or simple misuse of the controls. Concepts may include both passive (e.g. visual and auditory displays or aerodynamic limiting) and active (e.g. autopilot intervention) elements.

Concepts will be evaluated according to their ability to maintain safe flight in the absence of any pilot inputs, maintenance of safe flight in the presence of typical control misuses, and overall integration and harmony with routine maneuvering. Systems should provide full-time protection with no pilot inputs or activation required. During unattended operations, airplanes will be evaluated according to the ability to maintain safe and steady flight for periods of 4 minutes while flying through light to moderate turbulence. During the Challenge, in the absence of actual turbulence, transient control inputs will be used to simulate turbulence and pilots may intentionally phase inputs to explore system stability concerns. Systems will be scored based on the ability to 1) prevent unsafe flight conditions, and 2) maintain the airplane in the proximity of the original flight condition (e.g. heading or turn rate, speed, altitude or VS).

Resistance to misuse of controls will be evaluated by assessing the resistance of the system to control forces that would nominally cause a departure in an unprotected aircraft. Scoring will be based on a combination of allowable control abuse, the "safeness" of the resulting trajectory, and the ability of the pilot to perceive the "error of their actions" and the maneuvering limits of the airplane. Overall system integration will be assessed by evaluating the flying qualities of the airplane throughout the flight envelope with special attention to maneuvers requiring rapid attainment and maintenance of maximum performance.

Judges will be provided with the eCFI tasks and Handling Qualities scores from the test pilots, along with the test pilot's impression of each Vehicle. Each judge will then be given the opportunity to make a very brief familiarization flight in each Vehicle with team pilot or test pilot as PIC. Judges may decline this opportunity at their discretion. Two CAFE Board members will be included as judges.

After their familiarization flights, the judges will be given a Performance Summary and instructions from the CAFE Board regarding the voting process and criteria for awarding points. Judges will then award discretionary points to each of the competing team Vehicles. Each judge will be able to award up to 200 (two-hundred) discretionary points

for any Vehicle. Judges can award a lesser number of points to those Vehicles that they deem to merit less recognition.

Judges will award discretionary points according to their assessment of each Vehicle on the following criteria:

- The Vehicle's achievement in offering electronic pilot assistance (eCFI tasks)
- The Vehicle's scores in Handling Qualities and Performance Summary, and;
- The Vehicle's significance as a technologic breakthrough.

Each Judge will provide a brief explanation of their allocation of points to each Vehicle.

The final official number of Judge's discretionary points awarded to a Vehicle will be the sum of all the Judges' discretionary points it receives divided by the number of Judges. That final official number will be added to the other points earned by the Vehicle in the Handling Qualities scores, eCFI tasks and the Performance Summary to determine the Vehicle with the most total overall points. The one Vehicle that fulfills all MERs and pertinent MPRs and earns the most total overall points will be awarded the Aviation Safety Prize.

f. Takeoff Distance

The overall scoring system for the CHALLENGE places a very high priority on short Takeoff capability. The one team that fulfills all MERs and pertinent MPRs and demonstrates the shortest Takeoff distance over a 50 foot obstacle during its Community Noise Flight Attempt shall win the Shortest Takeoff Prize. Each Vehicle's demonstrated Takeoff Distance will also determine its Ground Travel Time (GTT). GTT will be used in scoring the Vehicle's total DtD speed in the CAFE 400 Prize. The matrix for GTT and prizes are found in Appendix.

Each Vehicle's Takeoff Distance will be determined at Competition Weight from a smooth runway surface that is ≤ 500 feet MSL. The Takeoff Distance shall be defined as the minimum distance from the brake release point to clear a 50 foot obstacle on Takeoff while at Competition Weight using CP (for definition, see section 3.2a). VTOL Vehicles must remain outside the "deadman's zone" (vulnerability to crash in the event of engine failure) during all Takeoff and landing operations. Vehicle's Takeoff Distance will profoundly affect the scores of the other Challenge Prizes. See MPRs in Appendix.

g. CAFE 400 Prize

The one team that fulfills all MERs and pertinent MPRs and demonstrates the highest DtD speed during the CAFE 400 Prize Flight Attempt shall win the CAFE 400 Prize. This prize is predicated on a "doorstep to doorstep" (DtD) trip covering a roughly 400 mile distance "as the crow flies". Each Vehicle shall complete its Prize Flight Attempt by flying the prescribed closed pylon course of approximately 400 statute miles at Competition Weight which will include a payload of 200 (two-hundred) pounds per

credited seat and fuel sufficient for VFR reserves. This does not necessarily require flying at Gross Weight. The CAFE 400 Prize race course will entail climb and descent segments and will include at least one mountaintop pylon that is above 7000' MSL. Each Vehicle's payload, speed and fuel burn during the Flight Attempt will be measured. The CAFE 400 Prize score will be the computed DtD speed of the Vehicle, as determined by its actual flight speed around the course plus its GTT from the Appendix.

h. Green Prize

The one team that fulfills all MERs and pertinent MPRs and demonstrates the highest MPGe during the CAFE 400 Prize Flight Attempt shall win the Green Prize. MPGe will be measured relative to a set of national market fuel prices whose baseline standard is the price of 87 octane regular mogas purchased at an airport. This set of fuel prices is given in the Appendix and it proportions MPG according to the number of seats in accordance with the data compiled in the historic CAFE 400 races. These prices have been chosen to reflect both current market cost as well as expected future cost and they include a preference for renewable fuels.

Each Vehicle's MPGe will be determined by weighing on the CAFE Scales before and after its CAFE 400 Prize Flight Attempt. The gallons used will be computed using the fuel densities listed in the Appendix. In the case of electric-powered aircraft, the total KWh consumed during the CAFE 400 Prize Flight Attempt will be measured. Re-fueling (or re-charging) during the CAFE 400 Prize Flight Attempt is allowed but will impose the time penalty on trip speed attendant to the time spent refueling and the fuel consumption attendant to the extra fuel used.

The fuels allowed in the competition must be standard as sold from retail dealers and must be unaltered with user additives. The allowed fuels are:

- Mogas: automobile fuel as found a service station pumps.
- Avgas (100 LL):
- #2 Petro-Diesel:
- Bio-diesel as B20 to B100, from 20% to 100% bio-diesel:
- Jet-A:
- Electricity:

i. Angle of Climb

The one team that fulfills all MERs and pertinent MPRs and demonstrates the best angle of climb during its Community Noise Flight Attempt shall win the Best Angle of Climb Prize. Each Vehicle's angle of climb between standard density altitudes of 2500 feet and 3500 feet will be measured while flying at CW and CP with the CAFE ÜberBarograph as described above in b).

j. Glide Ratio

The one team that fulfills all MERs and pertinent MPRs and demonstrates the best glide ratio at 100 mph CAS during its Speed Calibration Flight Attempt shall win the Best Glide Prize. The Best Glide Flight Attempt will be performed at CW, at 100 mph CAS, \pm 5 mph, beginning at 4500 feet density altitude with power off. Power off means closed throttle or electrical power off. Closed throttle is determined by CAFE's Manifold Pressure sensor. A coarse pitch setting for the propeller may be used.

k. eCFI

Team will demonstrate eCFI tasks and capabilities during its Handling Qualities Flight Attempt. Points earned will apply toward the Aviation Safety Prize.

l. Quietest LSA

The one LSA that fulfills all MERs and pertinent MPRs, completes all Flight Attempts, demonstrates the lowest Community Noise during its Community Noise Flight Attempt and achieves \leq 64 dBA average Community Noise with a 500' AGL flyover Top Speed of \geq 120 mph TAS shall win the Quietest LSA Prize.

m. Flight Attempts

Only TEAMS whose Vehicles complete **all** Flight Attempts and meet all Minimum Eligibility Requirements (MERs, Appendix) will be eligible for CHALLENGE prizes. Prize Flight Attempts are those conducted at the CAFE CFTC and its attendant venues to determine Vehicle's official score in one of the CHALLENGE prize categories. In some cases, a qualifying or practice Flight Attempt may precede the actual prize Flight Attempt. In so far as possible, CAFE officials will communicate via aircraft comm. radio to advise TEAM PILOT of need to repeat a flight attempt or revise power setting.

n. GTT – Ground Travel Times

Ground Travel Times (GTT) is an estimate of the extra surface travel and waiting time necessary to complete DtD travel. GTT depends upon Vehicle's measured Takeoff Distance and is detailed in the Appendix. GTT is zero for VTOL Vehicles.

o. Minimum Eligibility Requirements

Minimum eligibility requirements (MERs) are those performance requirements necessary to participate in the CHALLENGE prize competition. Vehicles that fail to meet any one of the MERs **will be disqualified** from any further participation in CHALLENGE Flight Attempts and will be ineligible for any CHALLENGE prizes. Disqualified TEAM(s) may be required to remove their Vehicle and TEAM from the CFTC grounds and leave the CFTC premises. In select cases and at its sole discretion, CAFE may allow a disqualified TEAM and its Vehicle to continue participation in CHALLENGE Flight Attempts for Exhibition purposes. MERs are given in the Appendix.

p. Barograph Wing Cuffs

Each Vehicle must provide its own fiberglass CAFE Barograph wing cuff mount as specified by CAFE. Instructions for fabricating the wing cuff are posted on the CAFE website at cafefoundation.org.

m. Payload/Seat Credit

The Payload/seat credit in the CHALLENGE will be ≥ 200 pounds per credited seat. If a seat and the attendant c.g. resulting cannot support 200 pounds, it will not be counted as a seat and Vehicle's seat count will be reduced accordingly. This may include up to 20 pounds per seat as baggage. Baggage credited as Payload shall not include equipment essential to the flight such as headsets, portable GPS receivers or Communication transceivers, etc. If taken on the flight, these items are considered part of the Vehicle's empty weight.

q. Team Pilot

Each TEAM LEADER shall designate a TEAM PILOT, who will be authorized to fly the VEHICLE in the Flight Attempts of the CHALLENGE and who must have the minimum qualifications of 10 hours in type and 500 hours total time as pilot in command.

3.3 CHALLENGE Rules

a. Additional technical specifications, rules and other details not already covered in this Agreement may be provided by CAFE to TEAM at the time of registration. Technical specifications, rules and other details covered in this Agreement may be subject to future changes and updates by CAFE at its sole discretion.

IMPORTANT: Each Team must build two wing cuffs for its Vehicle in advance, according to the detailed instructions [posted on the CAFE Foundation Website:](http://CAFefoundation.org/v2/pav_pavchallenge_rules.php)
(http://CAFefoundation.org/v2/pav_pavchallenge_rules.php)

This wing cuff must be shipped to CAFE by June 15, 2008 in order for CAFE to inspect and modify it as needed.

In addition, before arrival at the CAFE Flight Test Center for the 2008 CHALLENGE, TEAM must:

- 1) Pre-install and obtain FAA-approval for cabin camcorder mount, sealed-off "T" fittings to the pitot tube, static port and manifold pressure hoses and belly mount BlueBox whip antenna. (Detailed instructions for which will be provided by CAFE to registered TEAMS.)
- 2) Obtain appropriate FAA and log-book documentation of any required equipment list changes, transponder/encoder certification, A-D compliance, annual inspections and modifications.

b. Vehicle must meet or exceed all Minimum Eligibility Requirements (MERs) during its Flight Attempts at the CFTC. To be eligible for any prize(s), Vehicles must successfully complete all Flight Attempts and demonstrate performance that meets or exceeds the pertinent MPRs in the Appendices.

c. Design Freeze: Vehicle shall be disqualified and shall not compete in any subsequent Flight Attempt if it is modified in any significant way after its first successful qualifying Flight Attempt.

d. Up to 16 Vehicles will be permitted to compete in the CHALLENGE. At the sole discretion of CAFE, Vehicles that narrowly fail to qualify during a Flight Attempt may be accorded a repeat qualifying Flight Attempt.

e. All fuel used in the competition is subject to tracing and inspection by CAFE.

f. TEAMS winning prizes agree to provide a representative to be present to formally accept their prize at the official CHALLENGE Award Ceremony, scheduled for August 9, 2008. In addition, at least one TEAM member shall be present for the Sunday August 10, 2008, from 9:00 AM to 1:00 PM "Public Exposition Day" at the airport, consisting of a static display of all of the competing teams and their Vehicles.

3.4 Timeline

The CHALLENGE will be conducted in 2008 from August 2-10, inclusive. The PAV CAFE 400 Prize competition will occur on August 09, 2008, unless extended at CAFE's discretion. Upon completion of the CAFE 400 Prize competition, CAFE will determine the winners of all CHALLENGE prizes as soon as possible. Cash prizes will be awarded within 60 days of their announcement.

3.5 Financing

TEAM shall not obtain federal government funding for purposes of participation in CHALLENGE.

3.6 Uses of Federal Resources

TEAM is permitted to use or pay for the use of U.S. Government facilities, personnel, hardware, or information previously developed by the U.S. Government if access to such is available on an open, cooperative, nonexclusive, or reimbursable basis.

3.7 Government Regulations and Licensing

TEAM will comply with all U.S. laws, regulations and policies, including those relating to export control and nonproliferation, and the laws of relevant state and local jurisdictions that pertain to or govern any activities conducted by TEAM in connection with the CHALLENGE.

3.8 Eligibility

A TEAM is an individual or private entity, or a group of individuals or private entities, that register to participate in CHALLENGE. A TEAM is comprised of a TEAM LEADER and TEAM MEMBERS. A TEAM LEADER is, by definition, also a TEAM MEMBER

The TEAM LEADER is a single private entity or individual which is the sole agent representing TEAM regarding its participation in CHALLENGE. In the case of the TEAM LEADER that is a private entity, it must appoint an individual who is an officer of the private entity to represent the TEAM LEADER.

TEAM MEMBERS are participants on the TEAM that are not the TEAM LEADER. To be eligible to win the CHALLENGE prize, an individual or entity, a) in the case of a private entity, shall be incorporated in and maintain a primary place of business in the United States, and b) in the case of an individual, whether participating individually or as a member of a group, shall be a citizen or permanent resident of the United States.

All TEAM MEMBERS will apply to CAFE to register for the CHALLENGE through TEAM LEADER and must receive written acceptance by CAFE in order to participate with their TEAM.

All TEAM MEMBERS must execute an "Adoption of Agreement", as set forth in Exhibit A, committing to all terms of this AGREEMENT. By signing below, TEAM LEADER represents that all TEAM MEMBERS have executed the Adoption of Agreement and that no one else will become a member of the TEAM or participate in the CHALLENGE until such new TEAM MEMBER has signed this Agreement. CAFE may disqualify any TEAM if it discovers that a person is acting as a TEAM MEMBER who has not signed an "Adoption of Agreement". TEAM LEADER will provide CAFE with a copy of the "Adoption of Agreement" signed by each TEAM MEMBER.

Any U.S. Government organization or any organization principally or substantially funded by the Federal Government, including Federally Funded Research and Development Centers, Government-owned, contractor operated (GOCO) facilities, and University Affiliated Research Centers, must have their eligibility to compete in the CHALLENGE determined by CAFE. The principle to be used in such determination is to assure no unfair advantage to any team.

Any aircraft or Vehicle whose design or construction is deemed by CAFE to have been principally or substantially funded by the Federal Government may be ineligible to participate in the CHALLENGE, other than as a possible exhibition. Determination of such eligibility will be made by CAFE. The principle to be used in such determination is to assure no unfair advantage to any team.

U.S. Government employees (including employees of Federally Funded Research and Development Centers, Government-owned, contractor-operated facilities, and University

Affiliated Research Centers) must have their eligibility to compete in the CHALLENGE determined by CAFE. The principle to be used in such determination is to assure no unfair advantage to any team.

To be eligible to participate in the CHALLENGE, an individual or entity shall not be a Federal entity or Federal employee acting within the scope of their employment.

Employees of CAFE are not eligible to participate in the CHALLENGE.

TEAM MEMBERS may participate in the CHALLENGE on more than one TEAM.

3.9 Liability

By competing in the CHALLENGE, TEAM agrees to assume any and all risks and waive claims, whether in contract or tort, against CAFE and its contractors and related entities, including FUNDERS (who may be named later), NASA, County of Sonoma, EAA Chapter 124, and the U.S. Government and its related entities, for any injury, death, damage, loss of property or revenue or profits, whether direct, indirect, or consequential, arising from its participation in a competition, whether such injury, death, damage or loss arises through negligence or otherwise, except in the case of willful misconduct. Upon request by CAFE, TEAM further agrees to add as additional named insureds to its liability insurance policy the CAFE Foundation and any other entities named by CAFE as requested.

TEAM also acknowledges that CAFE has entered into agreement with FUNDERS to pay the purse and agrees that the obligation for payment of the purse to declared winners belongs to FUNDERS and not to CAFE.

3.10 Purse Payment

FUNDERS have agreed to issue purse payments no later than 60 days after the announcement of the winner of the CHALLENGE. Checks will be payable to the TEAM LEADER. Each TEAM MEMBER acknowledges that FUNDERS shall only be obligated to make purse payments to the TEAM LEADER. TEAM MEMBERS hereby acknowledge that any failure of the TEAM LEADER to make payments of any kind to TEAM MEMBERS is the responsibility of the TEAM LEADER, and not the responsibility of CAFE or FUNDERS.

3.11 Disclosure of Confidential Information

CAFE may request information from TEAM on its CHALLENGE designs and other technical information for safety purposes only. If requested, CAFE will enter into a confidentiality agreement prior to receiving such information, on such terms and conditions as the TEAM LEADER and CAFE may agree. If the parties are unable to agree on a confidentiality agreement, CAFE reserves the right to terminate the participation of a TEAM in the CHALLENGE.

4 SAFETY

CAFE reserves the right to deem any TEAM or individual TEAM MEMBER “unsafe” at any time and eliminate the TEAM or any individual member from the competition. CAFE is willing to provide a non-binding safety audit to TEAM, subject to time and availability constraints. CAFE will answer any safety related questions promptly, and will dispense safety related advice when it sees fit.

The CAFE Flight Test Facility and its ramp, surroundings and grounds are no-smoking areas.

5 RIGHTS

5.1 Use of Names, Trademarks and Insignias

TEAM may not use the name, trademark or insignia of CAFE, its contractors, collaborators, or FUNDERS on its hardware and printed materials related to the participation of TEAM in the CHALLENGE without CAFE's or its contractor's, collaborator's, or FUNDER's prior written consent, whichever party is applicable.

TEAM agrees that unauthorized use of such names, trademarks and insignias shall result in removal from participation in the CHALLENGE if TEAM continues unauthorized use after being notified to cease and desist.

5.2 Media Rights

TEAM retains all Media Rights related to the story of its participation in the CHALLENGE.

TEAM agrees that CAFE will retain all Media Rights related to the story and conduct of the CHALLENGE.

Each TEAM MEMBER agrees to let CAFE use the name and likeness of such TEAM MEMBER (without charge) as may be reasonably required in connection with the media material prepared and distributed by CAFE relating in any way to the CHALLENGE.

TEAM agrees to provide CAFE reasonable amounts of video footage or access for recording activities related to participation of TEAM in the CHALLENGE and the right to use said footage for public affairs and/or educational purposes. CAFE is granted the right to furnish said footage and the right to use said footage to FUNDERS.

TEAM agrees that its failure to furnish video footage or access for recording purposes based on CAFE's reasonable requests may result in TEAM's removal from participation in the CHALLENGE.

5.3 Purchase and Sales Rights

- a. TEAM agrees that CAFE and FUNDERS retain the non-exclusive right to purchase from TEAM the resultant or derived product, innovation or service used to win the CHALLENGE.
- b. This section does not guarantee a purchase of the resultant or derived product, innovation or service and is subject at all times to the parties reaching mutual agreement after the CHALLENGE.
- c. TEAM otherwise retains all rights to sell the resultant or derived product, innovation or service used to win the CHALLENGE to whomever they wish, provided they abide by all local, state, and federal laws and regulations regarding the sale and export of technology.
- d. TEAM agrees that failure to meet this purchasing requirement may result in its removal from participation in the CHALLENGE.

5.4 Intellectual Property Rights

To the extent TEAM owns intellectual property resulting from its participation in CHALLENGE, TEAM agrees to negotiate in good faith with FUNDERS the grant of a nonexclusive, nontransferable, irrevocable, license to practice or have practiced the intellectual property throughout the world, at reasonable compensation, if FUNDERS choose to pursue such a license.

6 GENERAL PROVISIONS

6.1 Governing Law

The Parties hereby designate United States Federal Law to govern this AGREEMENT for all purposes, including, but not limited to, determining the validity of the AGREEMENT, the meaning of its provisions, and the rights, obligations, and remedies of the Parties.

6.2 Acceptance and Removal

By executing this AGREEMENT, CAFE accepts TEAM for CHALLENGE.

CAFE has the right to eliminate TEAM from the CHALLENGE at any time if TEAM fails to meet any term of this AGREEMENT.

Removal of the TEAM from participating in the CHALLENGE eliminates the possibility of TEAM winning the CHALLENGE.

TEAM agrees to abide by a decision for removal made by CAFE, without contest, legal recourse, or any other action of protest of the decision.

6.3 Reporting

For the purposes of measuring the CHALLENGE's effectiveness in leveraging investment in general aviation technologies, on a quarterly basis, TEAM agrees to provide CAFE with a written total (a single amount) of the following: TEAM's incremental and cumulative financial, property (capital), personnel, and any other investments, and/or expenditures (direct or in-kind) made to conduct any and all activities related to or required by participation of TEAM in the CHALLENGE. CAFE will not make this information public except in aggregate form for all TEAMS competing in the CHALLENGE.

TEAM agrees that failure to meet this reporting requirement within 30 days of a request from CAFE may result in its removal from participation in the CHALLENGE.

6.4 Effective Date

The Effective Date of this AGREEMENT is the later date on which the Parties execute this AGREEMENT.

6.5 Responsible Officers

The following are Responsible Officers (or their designee) for each party for purposes of providing periodic TEAM updated information, to coordinate planning of the CHALLENGE, and to perform other interfacing functions between TEAM and CAFE as necessary. When questions arise about CHALLENGE rules, the Responsible Officer may contact CAFE for a case-by-case interpretation and ruling.

Comparative Aircraft Flight Efficiency Foundation
Brien Seeley, President
4370 Raymonde Way
Santa Rosa, CA 95404-6231
Tel: 707-544-0141
Fax: 707-544-2734
Email: brien@CAFEfoundation.org

Insert TEAM name here.

Insert TEAM Responsible Officer Name here.

Insert TEAM Responsible Officer Title here.

Insert TEAM Responsible Officer Tel Number here.

Insert TEAM Responsible Officer Fax Number here.

Insert TEAM Responsible Officer Email here.

Insert TEAM Mailing Address here.

6.6 Complete Agreement

This AGREEMENT represents the full and complete understanding and agreement between the parties regarding their relationship and the CHALLENGE. It merges and supersedes all previous AGREEMENT or agreements, oral or written, express or implied including related communications and representations. Any modifications to this AGREEMENT must be in writing and signed by the Parties to be effective.

6.7 Invalidity

The invalidity, in whole or in part, of any part of this AGREEMENT herein shall not affect the validity or enforceability of any other part of this AGREEMENT.

6.8 Assignment

This AGREEMENT may not be assigned by TEAM to any party without the prior approval of CAFE. CAFE may assign this AGREEMENT to a FUNDER or its designated agent.

6.9 Insurance

TEAM agrees to investigate and obtain any and all insurance policies or coverage required by its local, state, or federal governments to conduct any and all activities related

to or required by participation of TEAM in the CHALLENGE. In addition, CAFE shall, in its sole and absolute discretion, require that each TEAM procure reasonable liability insurance and require proof of such insurance as a requirement to participate in the CHALLENGE. Such insurance limits TBA. Team will be required to obtain documentation that their insurance includes the CAFE Foundation, the County of Sonoma, EAA Chapter 124, and any other affiliated entity that may be required by CAFE, as named insureds.

TEAM agrees that failure to meet this insurance requirement may result in TEAM's removal from participation in the CHALLENGE.

6.10 Waiver and Acknowledgement

In return for the opportunity to participate in this CHALLENGE, TEAM agrees to waive any and all claims against CAFE, its officers, board members, volunteers and contractors and FUNDERS, including but not limited to claims in contract and tort, related or arising from participation of TEAM in the CHALLENGE. Team further agrees to hold CAFE its officers, board members, volunteers and contractors and FUNDERS harmless for any and all such claims of its TEAM MEMBERS, contractors, agents and related parties.

Commitments by the federal government to provide purses for this CHALLENGE are subject to the availability of appropriated funds, and no provision in this AGREEMENT shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C 1341.

6.11 Payment

FUNDERS have committed to pay TEAM LEADER of winning TEAM within 60 days of winning the CHALLENGE. TEAM will not hold CAFE responsible for any failure of FUNDERS to disburse funds.

6.12 Additional Rules

CAFE may, in its sole and absolute discretion, implement such additional rules or requirements as it deems appropriate to administer the CHALLENGE. Failure to adopt or follow such additional rules or requirements shall be grounds to terminate a TEAM and all TEAM MEMBERS from the CHALLENGE.

7 DELAYS, CANCELLATION OR TERMINATION

TEAM acknowledges that circumstances (e.g. weather) may arise that require the CHALLENGE to be delayed indefinitely or cancelled. Such delay or cancellation, and/or the termination of this AGREEMENT, shall be within the full discretion of CAFE or its assignee, and TEAM accepts any risk of damage or loss due to such delay, cancellation, and/or termination.

8 DISPUTES

The Responsible Officers will attempt to resolve all issues and disputes arising under this Agreement. If the Parties are unable to resolve any dispute after having made good faith efforts, the dispute will be referred to higher-level officials of CAFE and TEAM, as appropriate. If the Parties are unable to resolve the disputes after exhausting the above procedures, either Party may pursue any appropriate remedies. Pending resolution of any disputes pursuant to this article, the Parties agree that performance of all other obligations shall be pursued diligently in accordance with the Agreement unless the Agreement is terminated pursuant to Section 7 above.

9 EXECUTION

The undersigned agree to all terms of this AGREEMENT, all Appendices and of Exhibit A, below.

_____ Date: _____
Brien Seeley, President
Comparative Aircraft Flight Efficiency Foundation

_____ Date: _____
(Signature TEAM Leader)

Print TEAM Leader Name here.

Print TEAM Name here.

Print TEAM Leader Title and email here.

Print TEAM Pilot Name and email here (if other than TEAM Leader).

EXHIBIT A: APPLICATION FOR APPROVAL OF TEAM MEMEBERSHIP AND ADOPTION OF AGREEMENT

The undersigned applies to register for the 2008 Personal Air Vehicle Challenge as a TEAM MEMBER and agrees to be bound by all the provisions of the attached 2008 Personal Air Vehicle Challenge Team Agreement which TEAM MEMBER acknowledges having read. In particular, but without limitation of other responsibilities under the Agreement, applicant TEAM MEMBER, agrees:

- In return for the opportunity to participate in this Challenge, to waive any and all claims against CAFE its officers, board members, volunteers and contractors and FUNDERS, including but not limited to claims in contract and tort, related to or resulting from any and all activities under or arising from participation as a TEAM MEMBER.

- Abide by all Team Agreement provisions, including but not limited to 3.5 “Financing”, 3.7, “Government Regulations,” 5.2 “Media Rights”, 6.3 “Reporting”, 6.10 “Waiver and Acknowledgement”, and to submit all questions and issues to CAFE through the TEAM LEADER.

- Having read and understood all provisions of the Team Agreement.

Team Member Name: _____

Team Member Citizenship: _____

Team Member Signature: _____
(For Companies, an authorized corporate officer must sign)

Date: _____

Application endorsed by:

Team Leader Signature _____

Date _____

Application Approved by CAFE:

CAFE Signature _____

Date _____

APPENDICES

MINIMUM ENTRY REQUIREMENTS (MERs): required to compete.

2-6 seats, as defined below.

When loaded to Competition Weight, at least 200 lb per seat payload capacity with adequate fuel for 400 miles plus 30 min reserve. No partial seat credit will be given.

c.g. range sufficient to allow safe use of all seats. Safely designed, movable internal weight(s) (of non-varying weight) as part of the Vehicle's normal empty weight are permissible for adjusting c.g. (e.g. sliding seats).

Minimum level flight speed of ≤ 52 mph, in CAS per CAFE ÜberBarograph. Minimum (Slowest) Level Flight Speed must be sustained for 10 seconds and will allow use of power.

≤ 2700 feet runway requirement, as measured by Takeoff over a 50' obstacle.

≤ 6 rating in all Cooper-Harper tasks.

Cabin noise level of ≤ 95 dBA during all phases of the Top Speed and Angle of Climb Flight Attempts. VTOL vehicles will be allowed ≤ 100 dBA.

≤ 72 dBA noise on Takeoff, at brake release, measured 500 feet sideways. (6 dBA tougher than FAA GA standards). VTOL vehicles will be allowed ≤ 78 dBA.

A valid FAA airworthiness certificate that allows the Vehicle to travel day VFR with passengers anywhere in the 48 contiguous continental United States. An LSA license is sufficient for LSAs.

If Vehicle is roadable, it must comply with all Department of Transportation (DOT) regulations for mass-produced Vehicles of its type (automobile, motorcycle, or DOT section 500) or be fully licensed by NHTSA for freeway use. **For Roadable Vehicles the GTT will be the time demonstrated for the Vehicle to convert from flyable to roadable mode.**

Nothing may be jettisoned from the Vehicle at any time.

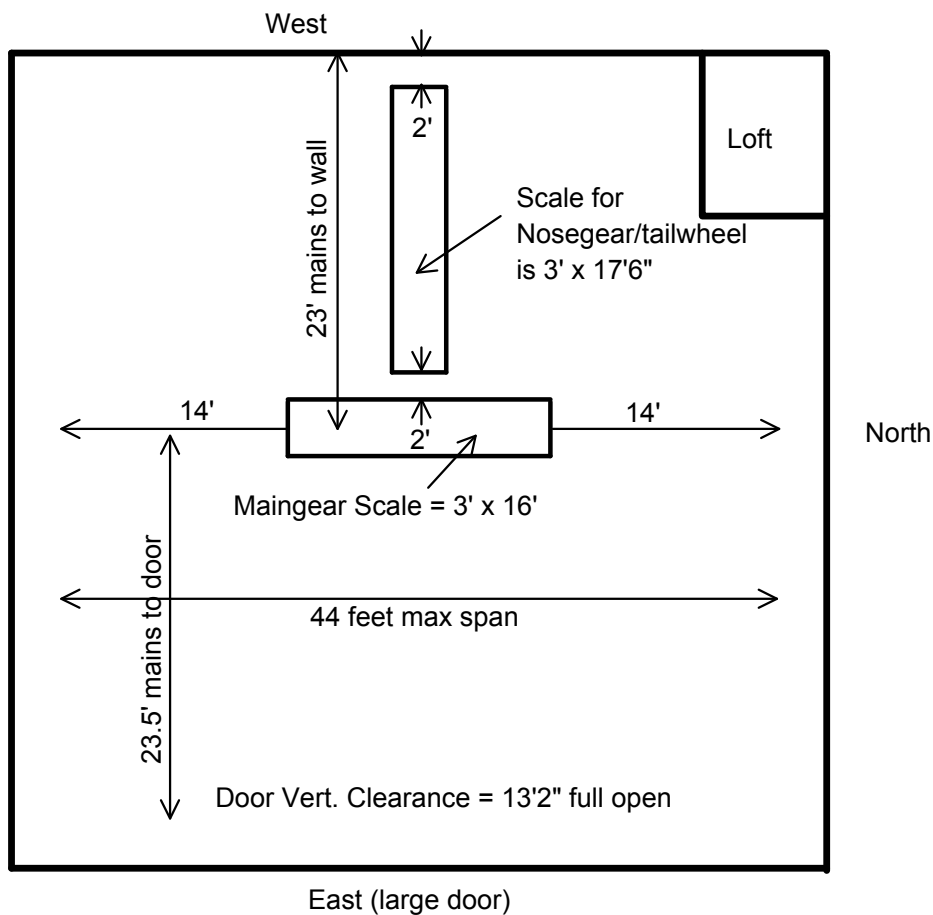
Tandem seating is allowed but due to its reduced attractiveness to consumers and inherent drag advantage, it will earn significantly reduced points ratings in the Handling/Ease of Use scoring and will have 5% MPGe penalty.

For each seat in Vehicle there must be provided seatbelts and shoulder harness and a comfortable space, load and CG range adequate for a 6' tall, 180 lb person and 20 pounds

of airline standard carry on baggage. A solo flight with pilots of as low as 90 pounds and high or low fuel levels must be feasible within c.g. range.

Laden main landing gear weight of less than 6500 lb and laden nose or tailwheel landing gear weight of less than 3000 lb (CAFE scale capacity limits) is required.

Vehicle footprint, length, height and span dimensions must fit inside CFTC and onto scales, per CFTC floorplan shown in Appendix B. Maximum wing span is 44 feet. Wing spans greater than 44 feet are allowed only if wing folding down to a span of ≤ 44 feet can be accomplished and reversed within 30 minutes and the wing-folded condition maintains the same c.g. as in the wing extended condition. See below:



CAFE Foundation Flight Test Center
Floor Plan

Minimum qualifications for Team Pilot will be 10 hours in make and model and 500 hours total time as pilot in command.

Vehicle may be required to carry a CAFE Flight Examiner on some Flight Attempts.

MINIMUM PRIZE REQUIREMENTS (MPRs): Required to win:

GAT Challenge: Prize Requirement Matrix

Name of Prize	<--- Prize Requirements --->							
	MERs	≥ 100 mph DtD	≥ 130 mph Vmax	MPGe's	≤ 1200 foot T.O.	≤ 3 C-Harper	≥ 600 fpm Climb	eCFI tasks
Community Noise	+	+	+	+	+		+	
Green Prize	+	+		+				
CAFE 400 Race	+	+		+				
Aviation Safety	+					+		+
Quietest Cabin	+		+				+	
Shortest Takeoff	+		+		+			
Best Glide 100 mph	+							
Best Angle of Climb	+							
Quietest LSA	+		≥ 120 mph					

The Quietest LSA must achieve a Community Noise level of ≤ 64 dBA with a 500' AGL flyover Top Speed of ≥ 120 mph TAS.

The Table above shows the interrelationship of each Prize with the MERs and MPRs and the performance level required to win cash prizes. Failure to meet the MERs will cause automatic disqualification from the entire CHALLENGE, but failure to meet any of the other prize requirements above only eliminates the Vehicle from eligibility for the particular prize(s) that require such requirements.

MPGe REQUIREMENTS:

**CHALLENGE Minimum MPGe Requirements
for CAFE 400, Green and Community Noise Prizes:**

MPGe matrix	2008-2011	Fuel type	2 seats	2 tandem	3 seats	4 seats	5 seats	6 seats	Price/ gal	lb/gal
			MPGe	MPGe	MPGe	MPGe	MPGe	MPGe	national ave.	density
		mogas (at airport)	21.8	22.9	17.5	14.8	13	11.3	\$3.40	6.09
	MPG scalar	# 2 petro-diesel	20.5	21.5	16.5	13.9	12.2	10.6	\$3.20	7.09
2 seats	1.0000	avgas 100LL	29.7	31.2	23.9	20.2	17.7	15.4	\$4.63	6.02
3 seats	0.8049	Bio-diesel B20 to B100	18.6	19.5	15	12.6	11.1	9.6	\$2.90	7.34
4 seats	0.6789	Jet-A	28.1	29.5	22.6	19.1	16.7	14.6	\$4.38	6.76
5 seats	0.5963	electricity: mi/KWh	0.61	0.64	0.49	0.41	0.36	0.31	\$0.09	per KWh
6 seats	0.5183									
tandem seats	1.0500									

MPGe = Miles per gallon equivalent, based upon the price of mogas.

Example: PAV achieving 30 MPG on avgas 100 LL will be credited with $(\$3.40/\$4.63) \times 30 = 22$ MPGe for the PAV Challenge. The score scales the vehicle's actual MPG to that of equivalent cost in mogas. See Appendix.

[source, fuel prices](http://www.eere.energy.gov/afdc/progs/fuel_compare.php) (http://www.eere.energy.gov/afdc/progs/fuel_compare.php)

[source, electric rates](http://www.neo.ne.gov/statshtml/115.htm) (<http://www.neo.ne.gov/statshtml/115.htm>)

[source, Jet-A](http://www.experimentalaircraft.info/homebuilt-aircraft/aviation-fuel-1.php) (<http://www.experimentalaircraft.info/homebuilt-aircraft/aviation-fuel-1.php>)

GREEN PRIZE: WINNING LEVELS OF MPGe VERSUS FUEL TYPE AND # OF SEATS:

≥ 30 MPGe Prize Level: \$10,000.00

Fuel type	2 seats	tandem2	3 seats	4 seats	5 seats	6 seats
mogas (at airport)	30.0	31.5	24.1	20.4	13.0	11.3
# 2 petro-diesel	28.2	29.6	22.7	19.2	16.8	14.6
avgas 100LL	40.9	42.9	32.9	27.7	24.4	21.2
Bio-diesel B100 or B20	25.6	26.9	20.6	17.4	15.3	13.3
Jet-A	38.6	40.6	31.1	26.2	23.0	20.0
electricity: mi/KWh:plug	0.84	0.88	0.67	0.57	0.36	0.31

≥ 40 MPGe Prize Level: \$20,000.00

Fuel type	2 seats	tandem2	3 seats	4 seats	5 seats	6 seats
mogas (at airport)	40.0	42.0	32.2	27.2	13.0	11.3
# 2 petro-diesel	37.6	39.5	30.3	25.6	22.4	19.5
avgas 100LL	54.5	57.2	43.8	37.0	32.5	28.2
Bio-diesel B100 or B20	34.1	35.8	27.5	23.2	20.3	17.7
Jet-A	51.5	54.1	41.5	35.0	30.7	26.7
electricity: mi/KWh:plug	1.11	1.17	0.90	0.76	0.36	0.31

≥ 50 MPGe Prize Level: \$30,000.00

Fuel type	2 seats	tandem2	3 seats	4 seats	5 seats	6 seats
mogas (at airport)	50.0	52.5	40.2	33.9	13.0	11.3
# 2 petro-diesel	47.1	49.4	37.9	31.9	28.1	24.4
avgas 100LL	68.1	71.5	54.8	46.2	40.6	35.3
Bio-diesel B100 or B20	42.6	44.8	34.3	29.0	25.4	22.1
Jet-A	64.4	67.6	51.8	43.7	38.4	33.4
electricity: mi/KWh:plug	1.39	1.46	1.12	0.95	0.36	0.31

≥ 60 MPGe Prize Level: \$50,000.00

Fuel type	2 seats	tandem2	3 seats	4 seats	5 seats	6 seats
mogas (at airport)	60.0	63.0	48.3	40.7	13.0	11.3
# 2 petro-diesel	56.5	59.3	45.5	38.3	33.7	29.3
avgas 100LL	81.7	85.8	65.8	55.5	48.7	42.3
Bio-diesel B100 or B20	51.2	53.7	41.2	34.7	30.5	26.5
Jet-A	77.3	81.2	62.2	52.5	46.1	40.1
electricity: mi/KWh:plug	1.67	1.75	1.35	1.13	0.36	0.31

TAKEOFF DISTANCE VS. GTT:

T.O. Distance over 50'	GTT, minutes, incl. IMD
100	0
200	9
300	11
400	18
500	20
600	22
700	24
800	26
900	28
1000	35
1100	37
1200	39
1300	41
1400	43
1500	45
1600	47
1700	54
1800	56
1900	58
2000	60
2100	62
2200	64
2300	66
2400	68
2500	70
2600	72
2700	74

CAFE 400 Prize GTT Table:

CAFE 400 Prize, Community Noise Prize, and Green Prize winners must achieve \geq 100 mph DtD and minimum MPGe's in the CAFE 400 Prize Race. (See Appendix.)

GTT = Ground Travel Time

DtD = "Door to door" trip speed

GTT will be added to actual flight time to determine DtD speed in CAFE 400 Race

GTT exerts far greater effect as flight speeds increase and flight time decreases

GTT = 0 for VTOL

GTT = conversion time if roadable

T.O. Distance is Takeoff Distance over a 50 foot obstacle at FTOP

T.O. Distance will be interpolated. For example, T.O. of 250 feet will be given a GTT of 10 minutes.

GTT will determine Vehicle's CAFE 400 Race departure delay--shortest GTT departs first.

NOTICE OF INTEREST LETTER

By signature below, Responsible Party of TEAM indicates interest and intent to participate in the 2008 General Aviation Technology Challenge according to the rules described in the attached preceding Agreement. This letter is non-binding and does not constitute an Agreement to participate nor confer a right to participate. In accepting TEAMS to participate in the 2008 CHALLENGE, CAFE will give priority to TEAMS submitting this signed NOTICE OF INTEREST LETTER, according to the date of receipt of signed said letter at the following address:

CAFE Foundation
4370 Raymonde Way
Santa Rosa, CA. 95404. phone: 707-544-0141 FAX: 707-544-2734

Please neatly print to fill in the following information:

TEAM name:

Responsible Party name, phone and email:

Vehicle name:

Vehicle description: (engine and fuel type, # of seats, approx. Competition Weight, wingspan, etc.)

IMPORTANT: Include a short description of the technology advancement to be demonstrated on a separate sheet.

TEAM address: _____

Signature or Responsible Party: _____ Date: _____