

2007 PERSONAL AIR VEHICLE (PAV) CHALLENGE TEAM AGREEMENT  
BETWEEN  
COMPARATIVE AIRCRAFT FLIGHT EFFICIENCY FOUNDATION  
AND  
(INSERT NAME OF PAV CHALLENGE TEAM HERE.): 3-29-07

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.”

The purpose of this AGREEMENT is to establish the conditions for TEAM to qualify and participate in a technology demonstration competition that is called the 2007 Personal Air Vehicle (PAV) Challenge (“CHALLENGE”) and that presents monetary awards from FUNDERS to its winners. The CHALLENGE will be conducted from August 4-12, 2007 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 concurrent development in five essential technological capabilities in personal air vehicles so as to promote the popular use of self-operated, PAVs for safe, efficient, affordable, environmentally friendly, and comfortable on-demand transportation as a future solution to America's mobility needs. As such, the CHALLENGE is comprised of a series of five separate but inter-related competitions and each TEAM must participate, qualify and compete in all five competitions in order to win any prizes.

The PAV ("Vehicle") entered by each TEAM into the CHALLENGE must have 2 to 6 seats and be licensed as airworthy by the Federal Aviation Administration.

The winners of the CHALLENGE will be selected by a panel of judges, convened by CAFE, and whose decision will be based on objective criteria as further described in the CHALLENGE rules. CAFE has arranged for the following purse to be funded by a collection of one or more private or government organizations (“FUNDERS”): for the winner of the overall PAV Vantage Prize, US\$100,000 ( one hundred thousand U.S. dollars), for the winner of the PAV Noise Prize, US\$50,000 (fifty thousand U.S. Dollars), for the winner of the PAV Handling Qualities Prize, US\$25,000 (twenty-five thousand U.S. dollars), for the winner of the PAV Shortest Runway Prize, US\$25,000 (twenty-five thousand U.S. dollars), for the winner of the PAV CAFE Efficiency Prize, US\$25,000 (twenty-five thousand U.S. Dollars). The two vehicles with the highest speeds in the PAV Top Speed Prize will divide its US\$25,000 (twenty-five thousand U.S. Dollars) purse as \$15,000 for first place and \$10,000 for second place.

Unless TEAM wins one of the CHALLENGE prizes as determined by judges selected by CAFE, TEAM will not receive payment of any kind for preparation or participation by TEAM in the CHALLENGE.

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 \$1000 non-refundable application fee payable from TEAM to the CAFE Foundation. Immediately upon receipt and validation by CAFE of said application fee, and in the absence of any conditions 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.

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 to be used in this document:

AGL: Above Ground Level, referring to altitude above local ground

CAFE: Comparative Aircraft Flight Efficiency Foundation, Inc.

CFTC: CAFE Flight Test Center (at Charles M. Schulz Sonoma County Airport)

CG: Center of Gravity (of the Vehicle)

CNRR: Community Noise Runway Requirement, the runway length befitting the PAV's noise

CRS—CAFE Reference Standard, the performance level required to win the Vantage Prize

CTOL: Conventional Takeoff and Landing, referring to runway length needed

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: referring to the total trip time from departure doorstep to destination doorstep

eCFI: “electronic Certificated Flight Instructor”, flight deck intelligence with autopilot/alerts.

ESTOL: Extremely Short Takeoff and Landing, referring to runway length needed

FAA: Federal Aviation Administration

FAI: Federation Aeronautique Internationale, a record sanctioning body.

FAR: Federal Air Regulations (as maintained by FAA)

FTOP: Full Takeoff Power, the throttle and RPM settings used for takeoff and noise flyover flight attempts

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

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

GTC: Ground Travel Cost, in \$/mile, of ground transportation exclusive of taxiing and walking

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

MEQ: Metric equivalent

MPG: Miles Per Gallon referring to fuel consumption

mph: Speed in statute miles per hour

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

NASA: National Aeronautics and Space Administration

NRS: Normalized Reference Score, a non-dimensional score that relates scores in separate competitions

PAV: Personal Air Vehicle

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

RDC: Runway Distance Class, either VTOL, ESTOL, STOL, or CTOL  
STOL: Short Takeoff and Landing, referring to runway length needed  
SMD: Sound Measurement Distance, in feet, from PAV to noise meter  
V: Velocity in statute miles per hour  
VTOL: Vertical Takeoff and Landing, referring to runway length needed  
Wp: Cabin payload in pounds

## 2 DEFINITIONS

CHALLENGE – defined in Section 1 above.

FUNDERS – defined in Section 1 above.

TEAM – An individual, organization or corporation, or a group of individuals, organizations or corporations, that register to participate in CHALLENGE. TEAM is comprised of a TEAM LEADER and TEAM MEMBERS.

TEAM LEADER – A single individual, organization, or corporation, which is the sole agent representing TEAM regarding its participation in CHALLENGE. TEAM LEADERS that are individuals must be U.S. citizens. TEAM LEADERS that are organizations or corporations must be incorporated in the U.S. and majority-owned and controlled by U.S. citizens. Corporate or other organizational TEAM LEADERS must appoint an individual who is an officer of the Corporation or organization to represent the TEAM LEADER (“TEAM Responsible Officer”).

TEAM MEMBERS – The participants on the TEAM that are not the TEAM LEADER. If a TEAM consists of a single individual, then in this case the TEAM MEMBER is also 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/team, shall be a citizen or permanent resident of the United States. Acceptance of TEAM MEMBERS is subject to written request to and approval by CAFE.

## 3 CHALLENGE DETAILS

### 3.1 Overview

The CHALLENGE is intended to be the first of five annual competitions that will promote the popular use of self-operated personal aircraft for fast, safe, efficient, affordable, environmentally friendly, and comfortable on-demand transportation as a future solution to America’s mobility needs. The prize flight attempts for the PAV Noise Prize, PAV Top Speed Prize and PAV Shortest Runway Prize will begin at the CAFE Flight Test Center (CFTC) at Charles M. Schulz Sonoma County Airport on August 4, 2007. The CHALLENGE shall conclude with the Prize Flight Attempts for the CAFE Efficiency Prize at the CFTC on Saturday, August 11, 2007. After this prize is determined, the final official scores of all CHALLENGE prizes will be tallied and their winners announced.

These CHALLENGE rules are subject to change at the discretion of the CAFE Foundation. For 2007, a minimum of 5 and a maximum of 16 competitors will be accepted into the CHALLENGE. In general, priority for acceptance into the CHALLENGE will be given on a first come, first served basis to those who have submitted a NOTICE OF INTEREST letter (Appendix D). However, in the interest of diversity and progress in design, CAFE reserves the right to select competitors that best fit the purpose of the competition. 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 the two previous years in succession, a Vantage Prize-winning PAV and any PAV determined by judges to be a near-duplicate of it, shall be ineligible for any prize in the subsequent year's PAV 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 prize purse will be allocated as follows:

The PAV Vantage Prize - The PAV Vantage Prize will be awarded to the competitor that demonstrates the largest score when that competitor's scores, in NRS, from the Noise, Handling, Shortest Runway and CAFE Efficiency Prize competitions are combined. The highest Vantage Prize score achieved each year shall serve as the CRS for the subsequent year. For 2007, no CRS will be used.

The winning competitor must also meet all other rules, eligibility and minimum performance requirements of the competition. The minimum purse for the PAV Vantage Prize will be one hundred thousand U.S. dollars (US\$100,000.00).

The PAV Noise Prize - The PAV Noise Prize will be awarded to the competitor with the lowest combined cabin and community noise levels whose noise levels in each noise measurement category also meet the minimum eligibility requirements. The Community Noise scores will be measured at full takeoff power (FTOP). The cabin noise level will be the maximum noise level measured during the vehicle's maximum level speed demonstration in its Top Speed Prize flight attempt. The winning competitor must also meet all other rules, eligibility and minimum performance requirements of the competition, including those in Appendix C. The purse for the PAV Noise Prize will be fifty thousand U.S. dollars (US\$50,000.00).

The PAV Handling Qualities Prize - The PAV Handling Qualities Prize will be awarded to the competitor judged best while meeting or surpassing the minimum eligibility requirements of each category of Handling/Ease of Use and while meeting all other rules, eligibility and minimum performance requirements of the competition, including those in Appendix C. The purse for the PAV Handling Qualities Prize will be twenty-five thousand U.S. dollars (US\$25,000.00).

The PAV Shortest Runway Prize - The PAV Shortest Runway Prize will be awarded to the competitor that demonstrates the shortest PAV Runway Length (according to its takeoff distance

and its Community Noise Runway Requirement (CNRR), while meeting all other rules, eligibility and minimum performance requirements of the competition, including those in Appendix C. There will be no separate prize for each RDC. The purse for the PAV Shortest Runway Prize will be twenty-five thousand U.S. dollars (US\$25,000.00).

The PAV CAFE Efficiency Prize - The PAV CAFE Efficiency Prize will be awarded to the competitor that demonstrates the best overall CAFE Efficiency score, while meeting all other rules, eligibility and minimum performance requirements of the competition, including those in Appendix C. The purse for the PAV CAFE Efficiency Prize will be twenty-five thousand U.S. dollars (US\$25,000.00).

The PAV Top Speed Prizes - The PAV Top Speed Prizes will be awarded to the top two competitors that demonstrate the fastest speeds greater than or equal to 150 mph, while meeting all other rules, eligibility and minimum performance requirements of the competition, including those in Appendix C. The total purse for the PAV Top Speed Prizes will be twenty-five thousand U.S. dollars (US\$25,000.00), to be divided as follows: First Place will receive \$15,000, Second Place will receive \$10,000. The scores from the PAV Top Speed Prizes will not be used in determining the scores in the PAV Vantage Prize, or any other CHALLENGE Prizes.

### 3.2 Definitions Specific to CHALLENGE

a. Community Noise – Community Noise of the Vehicle will be based upon six Vehicle noise measurements from three points during FTOP operation. Two measurements will be taken from each of the three points and the highest noise level measured will be the score. Community Noise will be measured in dBA, slow scale. The first measuring point will be located sideways from the Vehicle's full power run-up/brake release point at the SMD (Sound Measurement Distance) for that Vehicle's flight-demonstrated RDC. The second measurement point will be at a point down the centerline of the runway at a distance of 50% greater than the Vehicle's RDC. The third measurement point will be that taken during a high speed level overflight using FTOP at 1125 MSL, 1000 feet above the measurement point. Measurements will be made at these three measurement points during the same takeoff roll, and two takeoff rolls will thus be required to obtain all six Vehicle Community Noise measurements. If a Vehicle's community noise measurement at the SMD appropriate to its flight-demonstrated RDC exceeds the CRS noise limit, then that Vehicle's RDC will be re-assigned to the next longer RDC at which the Vehicle can meet the CRS noise limit. Such re-assignment will cause that Vehicle's score in the PAV Runway Prize to default to the length of that longer RDC and will also cause its GTT, GTC and IMD, used to score the PAV CAFE Efficiency Prize, to become those of the longer RDC for which it qualifies (Appendix A). The longer RDC will also be used by the judges to help determine that Vehicle's score in the PAV Handling Prize.

b. Cabin Noise – Cabin Noise of the Vehicle will be measured at the right ear of the pilot during its high speed level flight at 4500 feet density altitude during its flight attempts in the Top Speed Prize competition. Cabin Noise will be measured in dBA, slow scale and will be the maximum noise measured during the Top Speed flight attempt.

c. Handling Qualities - The Handling Qualities that will be tested during the PAV Handling Qualities Prize Competition will be rated by judges using the Cooper-Harper Scale (see below.) The average of the judges' Cooper-Harper Scale rating number for each Quality tested will be converted to a raw score, which will in turn be converted to a final weighted score. The weighting of the raw score in each Quality below shall be either "A" triple, "B" double or "C" single according to the Letter that precedes each Quality to be tested, as shown below. The sum of the weighted points awarded for each of the 11 Handling Qualities will be added to the sum of points awarded from the Ease of Use Categories and the Consumer Jury to determine each Vehicle's overall Handling Qualities Prize Score:

- "A" -- Slow flight characteristics.
- "A" -- Takeoff and landing characteristics—Determined by the panel of judges.
- "A" -- Static longitudinal stability—Vehicle's tendency to remain at trim speed.
- "B" -- Maneuvering stability—The control force required to move Vehicle off trim speed.
- "B" -- Aerial agility---as measured by maneuvering Vehicle through a prescribed three dimensional course.
- "B" -- Directness of control authority---the lag or latency of response to any control input.
- "B" -- Taxiing---Vehicle's ability to taxi and turn smoothly in windy conditions and/or on irregular surfaces.
- "B" -- Parking---Including turning circle, field-of-view, and ability to back-up.
- "B" -- Ride Quality---Both in flight and on the ground.
- "C" -- Braking Effectiveness---in ground operations.
- "C" -- Spiral stability—The tendency of Vehicle to roll level from a banked attitude.

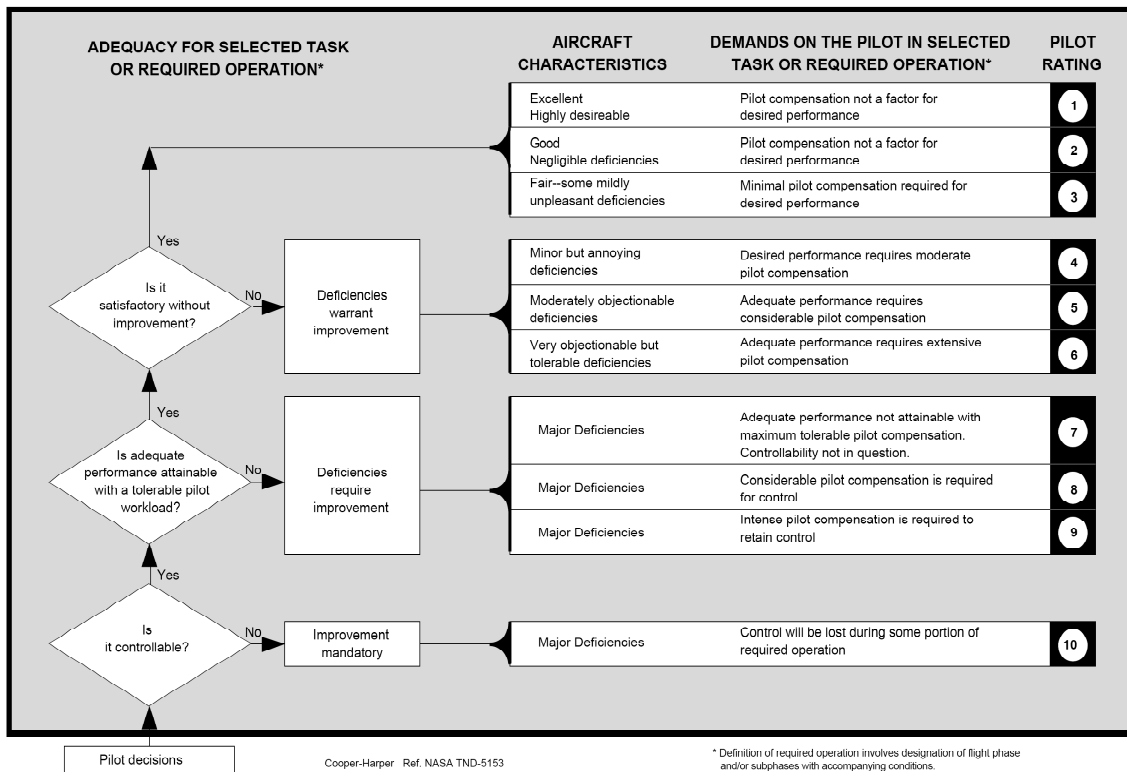
Cooper-Harper pilot ratings from 1 (excellent) to 6 (tolerable) will be modified by weighting. The Cooper-Harper rating in each quality tested must be 6 or better to avoid disqualification. A sample set of scores are presented below:

Quality tested	Cooper-Harper rating	raw score	weighting	weighted score
Slow flight characteristics	6	0	A	0
Slow flight characteristics	1	5	A	15
Spiral stability	5	1	C	1
Spiral stability	4	2	C	2
Aerial agility	3	3	B	6
Aerial agility	2	4	B	8

Maximum possible points in the 11 Handling Qualities: 15+15+15+10+10+10+10+10+10+5+5 = 115 points

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

## HANDLING QUALITIES RATING SCALE



d. Ease Of Use Score – The total points of Vehicle's Ease Of Use Score will be combined with its total points in Handling Qualities and the points awarded by the Consumer Jury to determine the winner of the PAV Handling Prize. The sum of the average points awarded by the judges in each the following rating categories will determine the Vehicle's total points in the Ease of Use Score:

- Ease of entry: 4 points available
- Ease of starting: 4 points available
- Ease of parking: 4 points available
- Ergonomics/flight deck design: 7 points available
- eCFI capabilities: 10 points available
- Manual control forces required: 5 points available
- Pilot workload: 9 points available
- Field of view: 5 points available, includes view while taxiing
- Crew and passenger safety: 10 points available
  - Bonus points for ballistic recovery parachute: 10 points
  - Bonus points for occupant airbags: 5 points
- Crew and passenger comfort: 8 points available
- All-weather capabilities (rain, de-ice and synthetic/enhanced vision): 10 points available
- Ease of baggage stowage: 4 points available
- Adequacy of CG range for safe loading: 7 points available
- Anticipated maintenance requirements: 6 points available

- Roadable credit: 10 points if fully roadable, 5 points if DOT 500 (25 mph)

Maximum possible points in the 14 rating categories for Ease of Use: 118 points

Consumer Jury points: A Consumer Jury will rate each Vehicle with a yes or no vote as to its "buy decision" to consumers at each of the following prospective purchase price points: \$30,000, \$50,000, \$75,000, \$100,000 and \$150,000. There will be 6 points awarded for each yes vote, making a total possible of 30 points from the Consumer Jury.

Maximum possible points in the Handling Qualities Prize competition will be:

Handling Qualities portion:	115 points
Ease of Use portion:	118 points
Consumer Jury portion:	30 points

e. Runway Lengths:

The scoring system for the CHALLENGE places a very high priority on short takeoff and landing capability.

2) PAV Runway Length – To determine the winner of the PAV Shortest Runway Prize, each Vehicle's PAV Runway Length will be determined and will be based upon the greater of the runway length required for a safe landing or takeoff. Vehicle PAV Runway Length is defined as, for takeoff, the minimum distance from the brake release point to clear a 50 foot obstacle on takeoff while at gross weight. Length required for landing is defined as 1.667 times the minimum distance for Vehicle to land over a 50' obstacle while at idle power and reach full stop with maximum braking, as determined by the Runway In The Sky (RITS) measurement system. 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 demonstrated runway length will be increased, if necessary, to match its RDC if the noise emissions of the vehicle so require.

3) Runway Distance Class (RDC): The RDC is a key factor in determining a Vehicle's score for the PAV Noise Prize, the PAV Shortest Runway Prize, the PAV Handling Qualities Prize and the PAV CAFE Efficiency Prize. Each Vehicle's RDC is determined by both its PAV Runway Length and by its community noise levels as determined at the appropriate Sound Measurement Distance (SMD). The CRS for Community Noise emission is 72 dBA, slow scale.

There will be four different Runway Distance Classes (RDCs) as follows:

VTOL RDC: PAV Runway Length  $\leq$  100 feet *and* noise  $\leq$  72 dBA at SMD of 125 feet

ESTOL RDC: PAV Runway Length  $\leq$  300 feet *and* noise  $\leq$  72 dBA at SMD of 250 feet

STOL RDC: PAV Runway Length  $\leq$  900 feet *and* noise  $\leq$  72 dBA at SMD of 500 feet

CTOL RDC: PAV Runway Length  $\leq$  2700 feet *and* noise  $\leq$  72 dBA at SMD of 1000 feet

Its RDC will determine each Vehicle's Ground Travel Time (GTT) Intermodal Delay (IMD) and Ground Travel Cost (GTC), which will be used in scoring the Vehicle's total time and energy costs in the CAFE Efficiency Prize. The RDC will also affect the score of the PAV Shortest

Runway Prize, the PAV Noise Prize and the PAV Handling Qualities Prize. . The matrix for GTT, IMD and GTC is found in Appendix A.

f. PAV CAFE Efficiency Prize -- This prize is predicated on a "doorstep to doorstep" trip covering a 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. This 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 score will be the quotient obtained from a numerator quantity consisting of total statute miles traveled (i.e., approximately 400) times the  $2/3$  root of the number of pounds of non-fuel payload---divided by a denominator quantity consisting of the sum of the dollar costs of the actual fuel burned during the flight plus the GTC (i.e., the ground travel cost in dollars USA necessary to go from the Vehicle to a simulated destination "doorway") plus the total travel time, which includes flight time, GTT and IMD. Maximum payload credit is 200 pounds per qualified seat and credit will be based upon the actual payload carried.

$$\text{CAFE Efficiency Score} = [\text{Miles traveled} \times (\text{Wp}^{0.667})] / [\text{flight fuel cost} + \text{GTC} + \text{total travel time}]$$

The flight fuel cost, whether avgas, mogas, diesel or jet A or surplus electricity (watt-hours not replenished by solar cells during the flight) shall be according to the amount of fuel consumed and the fuel's commercial retail purchase price in Northern California at the time of the CHALLENGE. 400 statute miles is the course length because that is the typical range of modern popular automobiles. Payload (denoted as  $W_p$ ) is in pounds, flight fuel cost is in dollars USA and total travel time is in minutes. Payload or  $W_p$  is taken to the 0.667 power to accommodate the scale effect advantage of larger Vehicles.

g. Flight Attempts – Only TEAMS whose Vehicles complete all flight attempts and meet all Minimum Eligibility Requirements will be eligible for CHALLENGE prizes. Prize Flight Attempts are those conducted at the CFTC to determine Vehicle's official score in one of the CHALLENGE prize categories. In some cases, a qualifying flight attempt may precede the prize flight attempt.

h. GTT and IMD - Ground Travel Times (GTT) and Intermodal Delays (IMD) are an estimate of any extra surface travel and waiting time necessary to complete DtD travel. GTT and IMD depend upon the RDC and are enumerated in Appendix A.

i. GTC -- Ground Travel Cost depends upon the RDC and accounts for the cost of ground travel based upon the \$/mile figures used by AAA and electric cart energy consumption. See Appendix A.

j. Minimum Eligibility Requirements – Minimum eligibility requirements are those performance requirements necessary to participate in the prize competition. Vehicles that fail to meet any one of the following constraints after qualifying flight attempts 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. Minimum eligibility requirements include, but are not limited to, all specifications and requirements as described below:

(1) Vehicle must fly and be licensed as airworthy by the Federal Aviation Administration (FAA) with either a standard airworthiness certificate (normal and utility categories only), a special airworthiness certificate (experimental-amateur-built, experimental-exhibition or experimental-market survey categories only), or a light sport aircraft certificate. In addition, the FAA license must be un-restricted so as to allow the Vehicle to travel day VFR with passengers anywhere in the 48 contiguous continental United States, within the FARs.

(2) 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).

(3) During full-power takeoff operation, the Vehicle must emit no more than 72 dBA at a sound measuring distance (SMD) located sideways from the brake release point. The distance to that SMD is related to the Runway Distance Class (RDC) of the Vehicle, as previously stated.

(4) Nothing may be jettisoned from the Vehicle at any time.

(5) Vehicle's Cabin Noise must not exceed 100 dBA at the right ear of the pilot at any time during the Top Speed Prize flight.

(6) From engine start until engine shut-down, there must not be appreciable visible smoke emitted from the Vehicle.

(7) Vehicle must demonstrate a Cooper-Harper rating of at least Pilot Rating Level 6 for all Flight Tasks selected for testing.

(8) The Vehicle must have usable and comfortable seat accommodations for all occupants and must provide enough seats for a minimum of two occupants and no more than a maximum of six occupants. Tandem seating is allowed.

(9) All seats in Vehicle must comfortably accommodate a 6 feet tall, 180 pound person with seatbelt and shoulder harness for same.

(10) For each seat in Vehicle there must be provided a space, load and CG range adequate for 20 pounds of airline standard carry on baggage.

(11) Every seat in Vehicle must meet maximum takeoff and landing acceleration and deceleration requirements imposed by the CHALLENGE when all other seats are likewise loaded to 180 pounds plus 20 pounds of baggage.

(12) For the CHALLENGE, the Vehicle must be equipped for night operation, though it need not be licensed for same.

(13) If Vehicle is roadable, the ground leg transportation mode must provide reasonable comfort during all weather operation (rain, snow, wind). For Roadable Vehicles the IMD will be 5 minutes and the GTT will be that demonstrated by the Vehicle over a surface travel distance commensurate with its RDC.

(14) Vehicle must meet all requirements of the CHALLENGE by flying all of its flight attempts with all credited seats fully loaded with the payload equivalent of 180 pounds plus 20 pounds of baggage and with fuel adequate for a range of 400 miles with a 30 minute fuel reserve. The reserve will be calculated based upon the steady level flight fuel flow that is demonstrated during its MPG qualifying flight. All flights must be made with loadings that fit Vehicle's weight and c.g. limitations. During the PAV Top Speed Prize competition, the Vehicle may fly with reduced but adequate fuel and reduced payload. If the Vehicle's limitations prevent it from achieving the payload equivalent of 180 pounds plus 20 pounds of baggage for any seat then that seat shall not be credited for any payload and shall not be counted as a seat for purposes of setting the Vehicle's minimum MPG requirement.

(15) The Payload credit in CHALLENGE will be limited to a maximum of 200 pounds per credited seat. 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.

(16) The center of gravity must remain within acceptable limits when a pilot weighing between 90 and 220 pounds flies the Vehicle solo from the pilot's seat without ballast and with fuel tanks either near empty or full. Permanent internal ballast (of non-varying weight) that is integral to the vehicle's normal empty weight and is safely designed to be located as needed for c.g. will be allowed.

(17) Vehicle's maximum allowed acceleration for all seat occupants on takeoff or landing are +0.75 g down or aft and -0.3 g forward or up.

(18) Vehicle must demonstrate a PAV Runway Length of less than or equal to 2700 feet.

(19) Vehicle's demonstrated minimum controllable airspeed as measured by the CAFE Barograph, shall be equal to or less than 52 statute mph CAS at gross weight at idle power in level flight.

(20) Vehicle's average rate of climb between 2500 and 3500 feet MSL (STD day) when at gross weight must be greater than 400 feet per minute, corrected to standard day atmospheric conditions.

21) Vehicle's minimum range, calculated based upon its measured fuel capacity and the steady level flight fuel flow that is demonstrated during its qualifying flight attempt(s), must be more than 400 statute miles with a 30 minute fuel reserve when loaded with a non-fuel payload of 200 pounds per credited seat. Each Vehicle must have a CAFE-compatible, pre-installed fuel flow transducer, the features of which will be defined upon registration. Vehicles able to demonstrate an RDC of VTOL are exempted from this range requirement, but if refueled during

the flight competition for the CAFE Efficiency Prize, the Vehicle's time spent in landing, refueling and taking off will be added to the total travel time.

(22) Vehicle's TOP Speed at 4500 feet density altitude must be at least 130 statute mph TAS as demonstrated with the CAFE Barograph in its Top Speed Prize. Each Vehicle must provide its own fiberglass CAFE Barograph wing cuff mount as specified by CAFE. Roadable vehicles that fail to meet this 130 mph minimum cruise speed qualification may be allowed a waiver.

(23) Vehicle's actual MPG during flight phase of the CAFE Efficiency Prize must average at least:

2 seat PAVs must average 21.8 MPG on the CAFE 400 course

3 seat PAVs must average 17.5 MPG on the CAFE 400 course

4 seat PAVs must average 14.8 MPG on the CAFE 400 course

5 seat PAVs must average 13.0 MPG on the CAFE 400 course

6 seat PAVs must average 11.3 MPG on the CAFE 400 course

These figures are for 100 LL avgas, whose cost at the time of the competition will determine the equivalence for Vehicles using other commercially available fuels. For example, if avgas costs \$4.25 per gallon, the 2 seat Vehicle must demonstrate that it can cruise at or below \$4.25 per 25 miles flown. If ethanol/mogas blend costs \$3.25 per gallon, the 2 seat Vehicle that uses ethanol/mogas blend must demonstrate that it can cruise at or below \$4.25 worth of ethanol/mogas blend per 25 miles flown. Hybrid electric Vehicles with partial solar power must demonstrate a net steady state cruise electric energy consumption rate whose equivalent cost in miles per commercial-rate kilowatt-hour meets the above energy cost limitations. Net steady state cruise electric energy use does not include the energy provided by the solar collectors, but does include any hydrocarbon fuel burned and the cost of fully recharging the battery pack.

24) Laden main landing gear weight of less than 6500 lb (A scale capacity limit).

25) Laden nose or tailwheel landing gear weight of less than 3000 lb (B scale capacity limit).

26) 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  $\leq 44$  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.

k. Takeoff Distance--The takeoff distance will be measured at Charles M. Schulz Sonoma County Airport (125 feet MSL), at gross weight using FTOP on a hard level surface from the point of brake release to the point at which the Vehicle reaches a height of 50 feet. Wind conditions must be less than 15 mph in any direction.

l. Landing distance will not be measured in the CHALLENGE.

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

- n. Vehicle – The personal air vehicle used as TEAM’s entry in the CHALLENGE.
- o. Vehicle may be required to carry a CAFE Flight Examiner on some Flight Attempts.

### 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 the Barograph wing cuff for its vehicle in advance, according to the instructions posted at: [http://cafefoundation.org/v2/pav\\_pavchallenge\\_rules.php](http://cafefoundation.org/v2/pav_pavchallenge_rules.php)
  - b. Vehicle must meet or exceed all Minimum Eligibility Requirements 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 constraints in Appendix C.
  - 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. Each TEAM shall pay a non-refundable application and testing fee of \$1000 payable to the CAFE Foundation. 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. The Vehicle that achieves the greatest Overall Score will be awarded the PAV Vantage Prize. The Vehicle's Overall Score will be the sum of its NRS in the following four prize competitions:
    - PAV Noise Prize
    - PAV Handling Qualities Prize
    - PAV Shortest Runway Prize
    - PAV CAFE Efficiency Prize
- Note that the PAV Top Speed Prize is not included in determining the PAV Vantage Prize. The relative weightings of the four separate prize competitions in NRS will be calculated so that the percentages applied toward a vehicle's total Vantage Prize Score are as follows:
- 30% PAV Noise Prize
  - 25% Handling Qualities Prize
  - 25% Shortest Runway Prize
  - 20% CAFE Efficiency Prize
- f. The Vehicle that completes all flight attempts, meets all eligibility and qualifying requirements, including those in Appendix C, and achieves the lowest Noise reading for its PAV

Noise Prize flight attempt will be awarded the PAV Noise Prize.

g. The Vehicle that completes all flight attempts, meets all eligibility and qualifying requirements, including those in Appendix C, and achieves the best Handling/Ease of Use Score for its PAV Handling Qualities Prize flight attempt will be awarded the PAV Handling Qualities Prize.

h. The Vehicle that completes all flight attempts, meets all eligibility and qualifying requirements, including those in Appendix C, and achieves the shortest runway length for its PAV Shortest Runway Prize flight attempt (corrected for noise emissions) will be awarded the PAV Shortest Runway Prize.

i. The Vehicle that completes all flight attempts, meets all eligibility and qualifying requirements, including those in Appendix C, and achieves the best CAFE Efficiency Score for its PAV CAFE Efficiency Prize flight attempt will be awarded the PAV CAFE Efficiency Prize.

j. The two Vehicles that complete all flight attempts, meet all eligibility and qualifying requirements, including those in Appendix C, and achieve the highest speeds for their PAV Top Speed Prize flight attempts will be awarded the PAV Top Speed Prizes.

k. For the purpose of maximizing CHALLENGE goal of promoting PAVs, TEAMS winning prizes agree to provide a representative to be present to formally accept their prize at the official CHALLENGE Award Ceremony, the time and place of which are to be determined by August 1, 2007.

### 3.4 Timeline

The CHALLENGE will be conducted in 2007 from August 4-12, inclusive. The PAV CAFE Efficiency Prize competition will occur on August 11, 2007, unless extended at CAFE's discretion. Upon completion of the PAV CAFE Efficiency Prize competition, CAFE will determine and announce 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

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, are ineligible to participate on or as a TEAM.

Any aircraft or vehicle whose design or construction is deemed by CAFE to have been principally or substantially funded by the Federal Government is ineligible to participate in the CHALLENGE.

U.S. Government employees (including employees of Federally Funded Research and Development Centers, Government-owned, contractor-operated facilities, and University Affiliated Research Centers) may not participate in the CHALLENGE on or as a TEAM.

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 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.

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 or service used to win the CHALLENGE.

b. This section does not guarantee a purchase of the resultant or derived product 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 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 PAV 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  
Tel: 707-544-0141  
Fax: 707-544-2734  
Email: brien@cafefoundation.org  
4370 Raymonde Way  
Santa Rosa, CA 95404-6231

Insert TEAM name here.

Insert TEAM Responsible Officer Name here.

Insert TEAM Responsible Officer Title here.

Tel: Insert TEAM Responsible Officer Tel Number here.

Fax: Insert TEAM Responsible Officer Fax Number here.

Email: 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 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 DELAY, CANCELLATION OR TERMINATION

TEAM acknowledges that circumstances 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, Appendices A, B, C and of Exhibit A, below.

---

Brien Seeley  
Comparative Aircraft Flight Efficiency Foundation  
President

Date: \_\_\_\_\_

---

Insert TEAM Leader Name here.  
Insert TEAM Name here.  
Insert TEAM Leader Title here.

Date: \_\_\_\_\_

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

The undersigned applies to register for the 2007 Personal Air Vehicle Challenge as a TEAM MEMBER and agrees to be bound by all the provisions of the attached 2007 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:

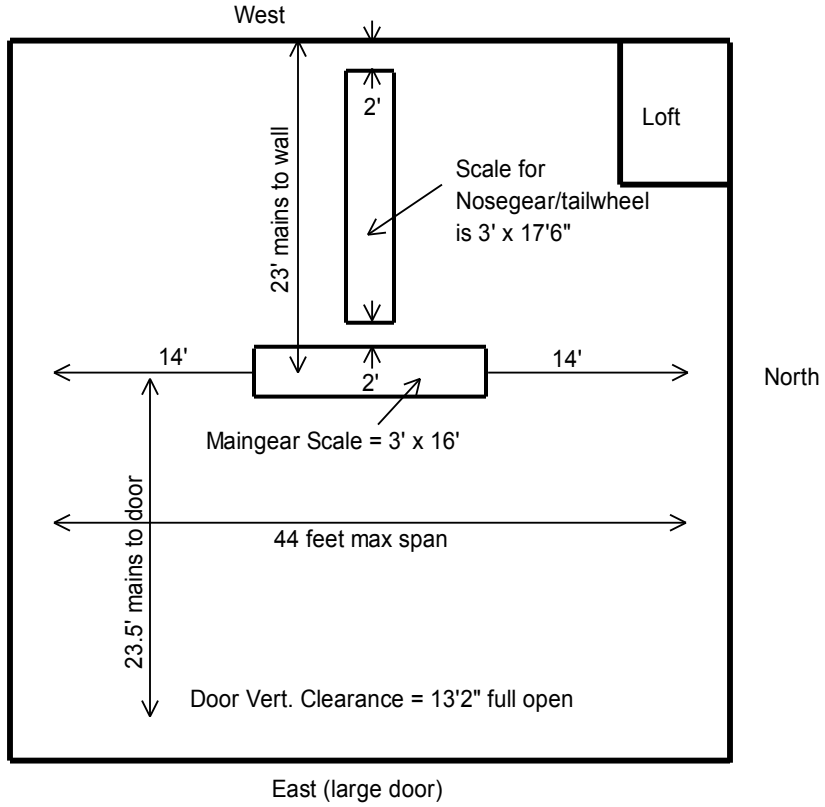
CAFE Signature \_\_\_\_\_

Date \_\_\_\_\_

## Appendix A: Ground Travel Matrix

GTT and IMD derivation	Runway Distance Class	100 ft	300 ft	900 ft	2700 ft	
DtD Distance as Crow Flies=400 mi.		Car, Walk VTOL, Walk ESTOL, golf cart STOL, DOT 500 CTOL, Rent Car				
Start in House, Residential AirPark						
Walk to Vehicle before departure	(min)	0.16	0.32	0.32	0.32	0.32
Brisk walking speed	Speed (mph)	3.75	3.75	3.75	3.75	3.75
Hangar adjacent to house for all	Distance (feet)	53	106	106	106	106
Pre-flight + load baggage	(min)	0.0	5.0	5.0	5.0	5.0
Taxi	(min)	0.2	0.2	1.5	2.0	2.0
Runup	(min)	0.2	0.5	0.5	0.5	0.5
Takeoff, (incl. with block speed)	(min)	0.0	0.0	0.00	0.0	0.0
Fly/Drive	(min)	523.6	210.5	205.1	192.0	153.8
Cruise speed of vehicle	Speed (mph)	55	124	127	135	166
Ground speed of vehicle	Speed (mph)	55	114	117	125	156
Main Vehicle Distance Traveled	Distance (mi)	480	400	400	400	400
Total refueling time cost		0.0	0.0	0.00	0.0	0.0
Landing						
1 mi. final @ 75 mph, straight-in	(min)	0.0	0.8	0.8	0.8	0.8
Land, incl. decel from 50' high	(min)	0.0	0.4	0.6	1.0	1.0
Taxi	(min)	0.2	0.2	1.0	1.8	2.0
Shutdown + Tie-down	(min)	0.0	0.0	2.0	2.0	2.0
Walk to terminal or doorstep	(min)	0.16	0.38	0.76	1.52	3.03
RDC is Runway Distance Class	Distance (feet)	53	125	250	500	1000
Brisk walking speed	Speed (mph)	3.75	3.75	3.75	3.75	3.75
Delay for Ground Rental	(min)	0.0	0.0	0.00	5.0	10.0
Ground Travel: Airfield to Destination	(min)	0.0	0.0	1.0	6.0	40.0
Average road speed with traffic	Speed (mph)	0.0	0.00	15.00	25.0	37.5
Ground \$/mile (per AAA and eCar data)			0.00	\$0.10	\$0.56	\$0.56
Ground travel cost			\$0.00	\$0.03	\$1.40	\$14.00
Distance from airport to doorstep	Distance (mi)	0.000	0.000	0.25	2.5	25.0
Walk to Doorstep	(min)	0.0	0.0	0.16	0.16	0.16
Brisk walking speed	Speed (mph)	0.00	0.00	3.75	3.75	3.75
Distance from car/cart to doorstep	Distance (feet)	0	0	53	53	53
IMD: Intermodal delays	(min)	0.0	<b>5.00</b>	<b>7.00</b>	<b>12.00</b>	<b>17.00</b>
Ground Travel Time (GTT), incl. walk, runup	(min)	524.5	<b>1.60</b>	<b>5.24</b>	<b>12.30</b>	<b>48.01</b>
Total Ground Minutes	(min)	524.5	<b>6.60</b>	<b>12.24</b>	<b>24.30</b>	<b>65.01</b>
Total Ground Minutes (roundoff)	(min)		<b>6.00</b>	<b>12.00</b>	<b>24.00</b>	<b>65.00</b>
IMD, if roadable	(min)		<b>5.00</b>	<b>5.00</b>	<b>5.00</b>	<b>5.00</b>
GTT, if roadable, incl. conversion	(min)		<b>demo</b>	<b>demo</b>	<b>demo</b>	<b>demo</b>
Hours	Total	8.74	3.63	3.63	3.61	3.63
	Ground	8.74	0.12	0.21	0.41	1.06
	Air	0.00	3.51	3.42	3.20	2.56
Block Speed DtD (mph)		45.8	110.1	110.1	110.8	110.3
DtD = Doorstep to doorstep						
NOTES:						
Car distance penalty for indirect road route		1.2				
PAV headwind + T.O./climb, mph			10	10	10	10
DtD Distance as Crow Flies	(mi)	400	400	400	400	400
Delays for Tie-Down + Ground Rental waived if roadable						
SMD is Sound Measurement Distance (see rules)						
SMD determines walking distance to and from the PAV						
Walking distance from doorstep to garage is 53 ft or 0.01 miles.						
Walking distance from doorstep to hangar is 0.02 miles or 106 ft						
CTOL walking distance to terminal is 1000 ft, (noise constraint).						
STOL walking distance to terminal is 500 feet, (noise constraint)						
ESTOL walking distance to terminal is 250 feet, (noise constraint)						
VTOL walking distance to doorstep is 125 feet, (noise constraint)						
Roadable shall demonstrate GTT (ground travel time), including conversion to roadable						

# Appendix B



CAFE Foundation Flight Test Center  
Floor Plan

## Appendix C

### CONSTRAINTS FOR WINNING CHALLENGE PRIZES:

The following constraints are necessary to win each individual CHALLENGE prize listed below. These constraints are more rigorous than the minimum eligibility requirements described elsewhere in this Agreement and will be made more challenging each succeeding year of the CHALLENGE.

To win the PAV Noise Prize:

Cabin Noise must be less than 95 dBA.

Community Noise: must be less than 70 dBA at the SMD of the RDC.

To win the PAV Handling Qualities Prize:

Cooper-Harper Pilot Rating (raw) must be 3 or better in all handling qualities

To win the PAV Shortest Runway Prize:

no constraint in 2007

To win the PAV CAFE Efficiency Prize:

DtD block speed must be  $\geq 110$  mph and flight MPG must be  $\geq$  qualifying requirement

To win the PAV Top Speed Prize:

to receive any prize, Vehicle must average  $\geq 150$  mph

To win the PAV Vantage Prize:

Vehicle must surpass the CRS set by prior year (none in 2007)

**Appendix D**

**NOTICE OF INTEREST LETTER**

By signature below, Responsible Party of TEAM indicates interest and intent to participate in the 2007 Personal Air Vehicle (PAV) 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 2007 PAV 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. gross weight, wingspan, etc.)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

TEAM address: \_\_\_\_\_

\_\_\_\_\_

Signature or Responsible Party: \_\_\_\_\_ Date: \_\_\_\_\_