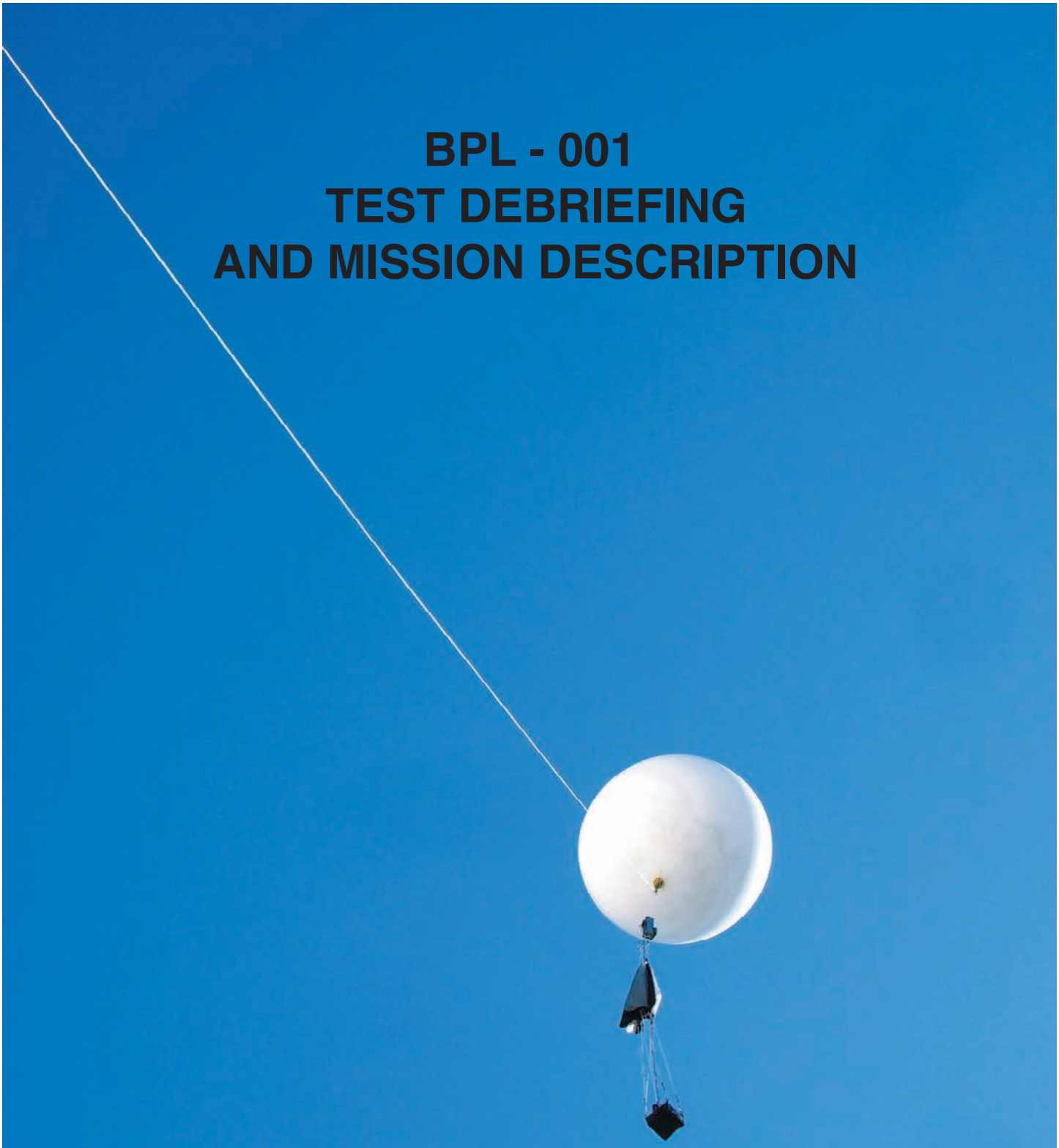
BPL - 001
TEST DEBRIEFING
AND MISSION DESCRIPTION



BPL

Brower Propulsion Laboratory

Rev. A, 10 September, 2007

BPL TEST DEBRIEFING

Contents

Mission Description

The first launch of a BPL vehicle will take place on Saturday, 29 September, 2007, in Llangollen, Wales. Vehicle 001, carrying the remains of fallen Astronaut - Handyman Conrad Carpenter, will take off from the Royal International Pavilion at noon. The vehicle will be composed of an 8' diameter weather balloon, a Flight Termination Unit, a subcapsule containing Carpenter's ashes, and a capsule containing flight electronics and cameras. At approximately 120,000 feet above sea level, the subcapsule will release Carpenter into the atmosphere, getting him closer to outer space than he was ever able to approach in life. The rest of the vehicle will return to the surface of the Earth via parachute, to be found and returned by citizenry.

Mission Background

The death of Conrad Carpenter early in 2007 drew attention to this obscure, former astronaut's strange career. Originally trained to go to the moon in the early 1960's, Carpenter never made it into space, his mission being cancelled due to budget cuts. After a long period of wandering and

introspection, he embarked on what he called his most important 'mission'. Working as a handyman, he decided to carry out all his tasks in his space suit. His thinking was that if he could devote the concentration and commitment he had mustered to train for space exploration to his everyday tasks, he could not only extract from these jobs a sense of great accomplishment, but also inspire his clients. Information can be obtained at http://www.conradcarpenter.com.

Mission Details

BPL took possession of the estate as well as the remains of Conrad Carpenter soon after his demise. Since no relatives are living, it was decided by BPL management to implement research of his ancestry. Since Carpenter's great grandparents came from Wales, and as BPL management just happened to be invited to Wales, the mission began to organize itself. BPL thinks the best final resting place for Conrad Carpenter is in the upper atmosphere of Wales, and is also happy that such a mission is within its budgetary and intellectual constraints, which are prodigious. See Appendix F for a description of the Memorial Service.

Mission Timeline

Testing

July 2007

Development of subcapsule A and design phase.

August 2007

18 August, 08:00 p.m. Balloon and capsule test, Nelson, NH.
19 August, 06:45 a.m. Tethered balloon test, Nelson, NH.
22 August, 05:54 p.m. Tethered duration and refill test, Nelson, NH.
24 August, 04:51 p.m. Parachute test, Nelson, NH.
26 August, 02:41 p.m. Static drop test, Nelson, NH.
28 August, 12:49 p.m. Flight termination system and filler test, Nelson, NH.

September 2007

03 September, 11:05 a.m. Launch, systems test, Nelson, NH.
03 September, 11:55 a.m. Launch, systems test, Nelson, NH.
03 September, 12:25 p.m. Launch, systems test, Nelson, NH.
03 September, 12:35 p.m. Launch, systems test, Nelson, NH.
03 September, 12:59 p.m. Launch, systems test, Nelson, NH.
03 September, 01:51 p.m. Launch, systems test, Nelson, NH.
03 September, 02:00 p.m. Launch, systems test, Nelson, NH.
03 September, 02:28 p.m. Launch, systems test, Nelson, NH.
03 September, 03:10 p.m. Launch, systems test, Nelson, NH.
03 September, 03:30 p.m. Launch, systems test, Nelson, NH.
03 September, 03:40 p.m. Launch, systems test, Nelson, NH.
03 September, 03:57 p.m. Launch, systems test, Nelson, NH.
05 September, 12:04 p.m. Remote location test, Nelson, NH.
05 September, 01:13 p.m. Full up test, Lead Mine Farm, Nelson, NH.

05 September, 01:50 p.m. Full up test, Lead Mine Farm, Nelson, NH.
05 September, 02:50 p.m. Full up test, Lead Mine Farm, Nelson, NH.
05 September, 03:12 p.m. Full up test, Lead Mine Farm, Nelson, NH.
05 September, 03:28 p.m. Full up test, Lead Mine Farm, Nelson, NH.
05 September, 03:45 p.m. Mission termination test, Lead Mine Farm, Nelson, NH.

Launch Sequence (TBD)

September 2007
25 September
26 September
27 September
28 September
29 September
30 September

Vehicle 001 Equipment

Balloon
VENDOR: EDMUND SCIENTIFIC, TEL. 800.728.6999 ITEM 3060568
6’ DIAMETER, 200 GRAM, 18.9” UNINFLATED, 3.9’ INFLATED, 8.9’ BURST

Parachute 001
36” DIAMETER, 72” LONG FURLED, WITH LINES 7 OUNCES
RIPSTOP NYLON DRAG LINES AND HARDWARE
DOM: AUGUST, 2007

Subcapsule 001
4” X 2” X1” 1 OUNCE
ALUMINUM ‘ALTOIDS’ BOX WITH DEPLOYMENT MECHANISM
DOM: AUGUST, 2007

Capsule 001
5” X 3” X 2” 12 OUNCES
ALUMINUM BOX
FLIGHT TERMINATION DEVICE (CIRCUIT BOARD, CONNECTORS, CABLE)
DOM: AUGUST, 2007

Capsule 003
6.75” X 6.75” X 4.5” 5 OUNCES
NYLON AND MYLAR SOFT BOX
FLIGHT RECOVERY DATA
SUSPENSION HARDWARE
DOM: AUGUST, 2007

Digital Camera 002
3.5” X 3” X 1.5” 1 OUNCE
DIGITAL CAMERA
INSULATION
ELECTRICAL CONNECTIONS
DOM: SEPTEMBER, 2007

Video Camera 001
4” X 3” X 2” 1 OUNCE
WIRELESS VIDEO CAMERA
9V BATTERY
INSULATION, MOUNTING STRAPS
DOM: SEPTEMBER, 2007

Note on weight: original weights of hardware taken with a scale that would not register less than 4 ounces. Weights listed as “1 ounce” are probably anywhere between 0 and three ounces.

Appendicies

Appendix A

Launch and Flight Support Equipment

Tarp, at least 8’ x 10’
Stack (Capsules, Linkages, Parachute)
Helium tank with filler and fittings (400 cubic feet)
Tape, good kind
Zip ties
250# test woven Dacron cord
Lighter, bic or zippo
Gloves- no latex
Balloon (s), 5.5’ diameter (8.1’ burst); one flight and one backup
scale, for fish, 50#
Note materials (pens, paper, books, mini t.v., digital camera)
Batteries (9v and 1.5v flight and backup)
Multitester
Extra rings, links, shrink tube
Multitool
Diagonal cutters
Coffee w/ milk
Screwdriver for FTD
Tape measure
Computer and cables
Tether, 100’ cord, with snap links
Ziplock bags
Twist Ties
Bag for transporting vehicle
Box for transporting equipment

Appendix B

Testing Documentation

Compendium of Test Notes

18 August, 2007, 08:00 p.m. Nelson, NH.
Trial balloon flight with prototype capsule (uncatalogued watertight container 6” X 3.5” X 5”, 16 ounces) and 36” diameter balloon.

capsule and hardware weight	1 lb.
payload (fishing weights)	1 lb.
	2 lb. total

capsule- waterproof box 6” X 3.5” X 5”.
balloon- 3’ diameter (3.3’ burst), lift 6 ounces.
removed fishing weights 1 lb. total vehicle weight

09:12 p.m. balloon hovers. Don’t want to overfill. Lines seem to stay untangled and payload is kept horizontal- no wind. I assume it will lift more in the sunlight- its attached to a 12 lb. weight tied off with about 6’ of lead.

19 August, 2007, 06:45 a.m. Nelson, NH.
added helium until lift = 1 lb. Played out tether to approx. 40 feet. Will leave it for a couple of days.

22 August, 2007, 05:54 p.m. Nelson, NH.
after four days- Balloon circumference approx. 94” (29.9” diameter).
Negligible lift (less than 1 ounce), although it holds itself above ground.
Capsule dry and intact despite light rain.

06:12 p.m. Begin to reinflate. Will let it hold at 102” circumference (32.47” diameter).

06:14 p.m. Balloon bursts while still on cylinder. One quadrant completely separated from body of balloon followed generally where I’d drawn a line down its center with a sharpie - in contraction, material bunches along sharpie line, looking raised. Weakened there?

24 August, 2007, 04:51 p.m. Nelson, NH.
parachute 001 07 ounces
capsule 001 13 ounces
36” balloon
85 degrees, F. light wind.
Test aborted when lift determined to be inadequate. Also balloon/parachute separation mechanism needs to be reconfigured.

26 August, 2007, 02:41 p.m. Nelson, NH.
Static drop test, 12” height, indoors, from gantry.
parachute 001 07 ounces
capsule 001A 11 ounces
(capsule 001A is a temporary relocation of battery and timer to capsule 002).

capsule 002 10 ounces
total stack 33 ounces

02:41 p.m. Drop occurred normally. Line was cut by Flight Termination Device after approximately 40 seconds. Sarcophagus did not open. Shot video from ground.

28 August, 2007, 12:49 p.m. Nelson, NH.
Flight Termination System, Large Balloon and Filler Test.
80 degrees, F., sunny, no wind.
parachute 001 07 ounces
capsule 003 16 ounces
capsule 001A
capsule 002 (inside 003)
total stack 36 ounces
6’ diameter used balloon (unknown source).

1:23 p.m. Test aborted. Balloon developed two holes during filling, which otherwise took place as expected.

3 September, 2007, Nelson, NH.
Launch, Systems tests, 50’ tether.
85 degrees, F., light wind.
parachute 001
capsule 003

digicam 001
timer for ftd
BS2 computer
audio beacon
2- 9v batteries
1- 6v battery pack
24 ounce total
FTD (capsule 001) 09 ounce total
40 ounce total stack weight (discrepancy due to links and cables).

11:05 a.m. start.

11:29 a.m. Abort test. Chute did not deploy, photos not taken. *Forgot to turn on alarm switch* Reset test.

11:55 a.m. balloon cut, parachute deployed successfully. Sarcophagus did not open. Retrieved 78 photos. Shot video from ground.

12:25 p.m. Reset test.

12:35 p.m. Launch.

12:57 p.m. Abort test *forgot timer was set for 1:00 p.m.* *forgot lid to capsule 002*.

12:59 p.m. Relaunched for same test.

01:00 p.m. Successful deployment. Sarcophagus did not open. Retrieved photos. Everything else working. Reset test.

01:51 p.m. Launch test without flight computer to test sarcophagus deployment mechanism.

02:00 p.m. Chute deployed, lines tangled, opened briefly, then fell unhindered. Capsule 001 found inside chute rather than below it. Reset test. Wind picking up.

02:28 p.m. chute deployed after payload was slammed against porch roof (lines remain untangled), vehicle dropped onto roof and bounced onto ground. 6v battery pack found 2 feet from vehicle. Everything still works though. Reset test.

03:10 p.m. chute deployed properly, sarcophagus did not. Reset test.

03:25 p.m. Launch. Wind picking up. Sarcophagus reoriented 180 degrees, lines adjusted.

03:30 p.m. chute deployed properly, sarcophagus opened properly. Reset test.

03:40 p.m. Launch.

03:42 p.m. deployment. Chute partially collapsed, then opened again at last second; rough landing but lines untangled; balloon was quite low at deployment. Reset test.

03:57 p.m. deployment too close to ground (< 6’). Tests concluded.

5 September, 2007, 12:04 p.m. Nelson, NH.
125’ tethered test of entire system from remote location (Lead Mine Farm, Nelson, NH). 83 degrees, F., winds calm.

12:08 p.m. pack up vehicle and launch support equipment. Will attempt to bring still inflated balloon from tests of 3 September.

12:33 p.m. balloon bursts in back of truck at speed of 10-15 mph. (have 1 spare).

01:13 p.m. launch.

01:45 p.m. chute did not deploy as anticipated. Did not separate from balloon. Reset test.

01:50 p.m. chute did not deploy again. Vehicle inspection revealed power to FTD connector bent, probably from rough landing during 3 September tests. Bent connector back into place, removed signal connector and twisted signal wires together, taped everything down, reset test.

02:30 p.m. drop worked perfectly. Sarcophagus opened. Reset test.

02:50 p.m. Deployment nominal; sarcophagus did not open. Reset test.

03:12 p.m. Deployment nominal; sarcophagus did not open. Reset test.

03:28 p.m. Deployment nominal; sarcophagus did not open. Reset test

03:45 p.m. End of test. 3 hours on inflated balloon, which is very thin on top now; probably would not last for another launch.

Appendix C

Sequence of Events

TBD

Appendix D

BPL Background

Brower Propulsion Laboratory was officially created in 2007, although it operated for several years previously in secret. Recently relieved of the strictures of certain contracts, BPL has been able to organize itself publicly. BPL originates, develops, and prosecutes space missions with little or no money and very little know-how. Its various departments, offices, positions, and assets are all represented by one person, for the sake of convenience. BPL seeks to underwrite and subsidise petty entertainments for the affluent or their proxies, and positions itself at the forefront of the redefinition of space, whatever that means. Try and find out at http://www.browerpropulsionlab.com

Appendix E

Conrad Carpenter Memorial Service

The Memorial Service will take place at noon, 29 September, 2007, at the Royal International Pavilion, Llangollen, Wales, UK, in the Monsanto Suite. The launch of Carpenter’s remains will take place at the end of the service in front of the Pavilion.

Memorial Service Details: A black registry will be available at the entrance to the Monsanto Suite. Guests will be able to enter their names and annotations. The entrance will be decorated with yew or cypress branches. The lectern or other centrally located podium will be covered with white. On it or an adjacent table of sufficient height will be placed a small proposed monument to Carpenter, to be erected somewhere in Wales, along with the capsule containing Carpenter’s remains. A dvd will be playing with images from Carpenter’s life, unaccompanied by music, on an appropriate screen set up behind or to one side of the lectern, for visual interest. To the right or left of the podium will be situated

one or two gospel-type singers, dressed in black or white or black and white. Opposite them, on the left or right of the podium will be situated one "mute", with a particularly sad face. After a five minute recap of Carpenter's life, the singer or singers will recite "Yeah, Yeah, Oh-Yeah (what condition my condition was in)" by Kenny Rogers (written by Mickey Newbury), in a slow, mournful dirge that belies the drug - induced fantasy of the singer-cum-chicken mogul. The guests and the mute and the singers will be thanked for their participation and invited to watch the launch.

"Disembarkation Mission" Details: The termination of the memorial service will lead to the setting up of the launch of the funeral balloon. The "Editor" (BPL official who read and directed the memorial service) will quickly change from his black suit to a short sleeved collared shirt with many pens in the pocket. He will consult a wristwatch frequently and seem generally schedule conscious. The singers will be allowed to leave or stay, but the Mute will remain in character and hover around the scene, imparting a sense of loss. A crew of two technicians will help in the launch of the balloon, and they will be dressed in similar 60's slide-rule fashions. The capsule, parachute, camera module, computer module and balloon will be assembled and the balloon filled with helium. With a particularly mournful final expression, the vehicle will, after a brief explanation about the mission, its intentions, and tribulations is offered, finally be launched. Fanfare will ensue and mark the conclusion of the ceremony. Then someone will clean everything up. The capsule will ascend over the next 2 hours to a height of around 120,000 feet. It will then burst, sending Carpenter's ashes into the atmosphere. The capsule will parachute back to Earth and a beacon will be activated. If someone finds it, they will be able to return it to authorities for a reward. If this happens, the photographs of the deployment of Carpenter's remains will be retrieved and distributed.

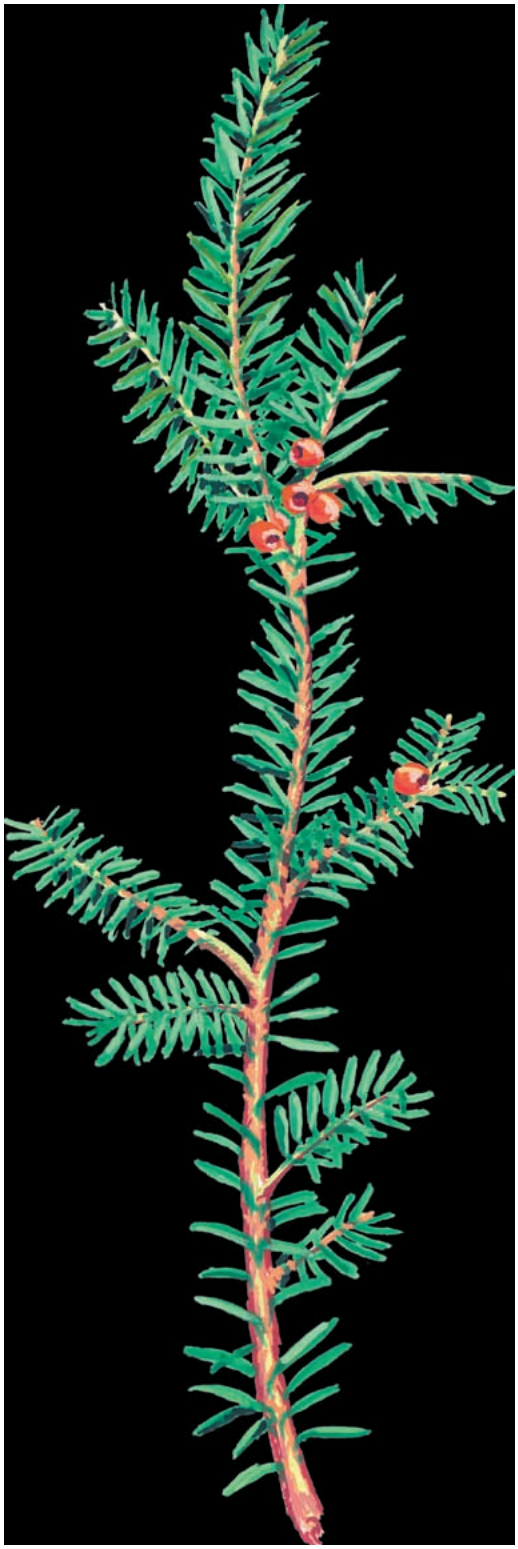
Appendix F

Procedures

Procedures should be carried out with hands gloved at all times to avoid damaging balloon.

1) Assemble materials in checklist.
2) Spread tarp out on flat, open space away from structures and vertical hazards.
3) Lay Helium tank on ground and connect filler. Ensure tank is immobilized and is not a hazard.
4) Prepare stack:
    a) untangle chute and certify its connections.
    b) open capsule(s) and access to settings and power connections.
    c) have coffee.
5) Prepare balloon:
    a) have several strips of duct tape close by.
    b) have several zip ties close by.
    c) have closed ring ready (for untethered launches, make ring from woven Dacron cord).

d) connect tether to heavy object (inanimate) by snap link.
e) have other end of tether with its snap link ready to connect to closed ring.
6) Slide closed ring over neck of balloon.
7) slide neck of balloon over filler and tape in place.
8) connect tether to closed ring.
9) Adjust length of tether so that balloon when filled will be about 6 feet above the ground.
10) Begin to fill balloon by opening valve. keep it from touching anything on the tarp that might damage it.
11) When balloon is full, pull neck off filler, fold it over the closed ring and tape in place. Close a zip tie over neck above ring. Attach scale to ring and check lift of balloon.
12) Open FTD (capsule 001) by removing four screws.
13) String cord through hole at one end of cover, heater coil, and out other end of cover. Tie a loop at both ends of cord outside cover. Replace cover.
14) Attach split ring to top FTD loop and connect this to ring on balloon.
15) Attach other end of FTD loop to split ring on top of parachute.
16) Attach long drag line on capsule 001 to split ring on one corner of capsule 003.
17) Replace all batteries with fresh ones.
18) Connect signal and power cords from FTD to timer and 6v battery pack inside capsule 003 (removing if necessary, depending on configuration).
19) Set timer, record time set in notes, double check alarm on.
20) Turn on camera(s), and reset computer according to configuration.
21) replace any subcapsules, close capsules, tape split rings and ensure no lines or cords are tangled.
22) Double check procedures up to this point.
23) More coffee.
24) Create a temporary tether about 12 feet long.
25) Run two open ends of tether through two split rings on lowest capsule, and hold ends together.
26) Disconnect snap ring from balloon.
27) Hold tether up and release one end, allowing balloon to ascend.



In Memoriam:
Conrad Carpenter
Handyman-Astronaut
1934 - 2007

BPL requests your attendance at memorial services, 29 September, 2007, 11:00 a.m. - 5:00 p.m.
at
The Royal International Pavilion, Llangollen, Wales, UK.

Mr. Carpenter's Earthly remains will be scattered in the upper atmosphere via high altitude balloon after the service. Individuals with dust allergies are advised to keep their distance.

A copy of this invitation will accompany Mr. Carpenter on his final mission. If the empty capsule is found after its return to Earth, BPL requests that the Real Institute be contacted:
Real Institute
Y Fflat, 19 Ffordd Yr Orsaf
Llanrwst, LL26 0EP
Wales
UK
Tel. + 44(0)7765147680
Please do not touch any of the mechanisms or electronics inside the capsule.
A reward is promised for its return.

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Brower Propulsion Laboratory

Rêl Institiwt
Real Institute