

Flt ID: 020221H	From: KPDX	To: KPDX
Flt No: 02-030	Blk In: 1635	ATA: ON 1631
ETD: 1000Z	Blk Out: 0948Z	ATD: OFF 1004Z
ETE: 9+00	Blk Time: 6.8	Flt Time: 6.5
Sponsor Org: NOAA/ETL	Program: PACJET OCEAN WINDS	Purpose: IOP 7

AC: TERREEST, R ✓	Sys Eng: SMITH, J ✓
CP: HALVERSON, H / TAGGART, B ✓	Data Sys: BARR, J ✓
Nav: ADLER, J ✓	Radar:
FE: FLOYD, J ✓	GPS/BT:
FD: SHEPHERD, T ✓	Cld Phys:
Avionics: ROGERS, M ✓	

Name (Last, First)	Activity on Aircraft	Affiliation
PERSSON, O	PI	NOAA/ETL CIRES
WHITE, D ✓	RADAR	NOAA/ETL CIRES
KNIEVEL, J ✓	RADAR	NOAA/NSSL
ZHANG, A ✓	PI	UMASS
ESTEBAN, D ✓	SFMR / CSCAT	UMASS
LEE, MARTIN ✓	COMMS	NWS
WATKINS, BRYAN ✓	MEDIA	KPDX Fox 49
NELSON, MARK ✓	MEDIA	KPDX Fox 49

Proposed/Actual Mission Remarks (Recco, Fixes, Storm, PENET, NHOP #)

1595
948
647

Flt ID: 020224H	Time Off: 1004Z	Time On: 1631Z
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Pressure	1021.9	30.19	30.22	1022.4
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	Number	Data Disposition / Date / Quality	
Flt Lvl Tapes	2	LAST FLIGHT	2
Radar Tapes	1		3
Cloud Physics Tapes	1 CD		1 CD
Video Tapes	4		4
AXBT			
AXCP			
AXCTD			
Dropsondes	2	good 2-ETL	0

	Forward	Left Side	Right Side	Down	Remarks
Time On					
Time Off					
Rate					

Remarks

Pacjet Ocean Winds 2002

Flight #7 020221H

<u>Sensor or system</u>	<u>Number or Name</u>
INE	2
Accelerometer	2
Temperature Probe	1
Dew Point Probe	1
Altitude (for vertical wind)	Radar Alt. (APN-159)
Static Pressure	Rosemount Fuselage
Dynamic Pressure	Rosemount Fuselage
Time Source	Micro 99
Constants File	CO2021.CON

Notes:

Takeoff: 1004Z

Land: 1631Z

There was a data gap from 103340 - 103352.

The radar altimeter (APN-159) was replaced by the APN-232 due to spiking during takeoff (100101 - 101230) and landing (160800 - 163400).

A spike was removed and patched in the RA-159 altimeter from 134430 - 134530.

During times when the aircraft was flying through heavy precipitation, the dew point temperature exceeded the ambient temperature resulting in humidities greater than 100%. This could also be due in part to wet bulbing effect on the total temperature sensor. No adjustments were made.

The vertical winds are calculated using the selected altimeter (radar altimeter for this flight). Therefore, the vertical wind speeds are erroneous at the beginning and end of the flight as the aircraft transited over mountainous terrain between the coast and KPDX.

	<u>Takeoff</u>	<u>Landing</u>
Aircraft static pressure	1021.9	1022.4
Corrected tower pressure	1022.4	1023.4

The aircraft INE positions were renavigated with respect to GPS.

SPECIAL NOTE!!!

Locations 80, 81, and 82 of record five on the standard tape contain vertical ground, vertical air, and vertical speeds reselectively, computed using Dave Jorgensen's vertical wind algorithm. It is recommended that these values be used for vertical wind analysis.

Flight Director: Tom Shepherd, (813) 828-3310 ext. 3053

020221 H

TT# 1

Takeoff: 1004

DP# 1

Landing: 1631

INE# 2

AZI# 2

Data gap

103340 - 103352

RA159 Spire

134505 - 134509

34-40

Sub RA 232 - for RA159

Takeoff: 100101 — 101230 ✓

Landing: 160800 — 163400 ✓

RENAV (OVER)

1) 102100	0.0	0.1	45 46.2	123 13.7 ✓
105000	0.0	0.0	45 52.7	125 43.1 ✓
111700	0.1	0.2	45 59.2	127 58.0 ✓
120300	0.4	0.0	44 2.0	128 31.2 ✓
5) 124700	1.0	0.3	44 8.0	128 19.1 ✓
133400	1.5	0.0	44 48.1	131 5.0 ✓
142000	2.4	0.3	45 3.4	128 33.5 ✓
150200	2.7	-0.5	45 40.4	130 36.7 ✓
153700	3.4	-0.4	45 40.4	127 20.8 ✓
10) 161900	4.3	-1.4	45 59.5	123 16.0 ✓
11) 163400	3.9	-2.2	45 35.2	122 34.8 ✓

Time	Lat	Long	Trk	Hdg	Wind Dir	Wind Spd	T _a	T _d	Press. Alt.	Geo. Alt.	Sfc Press.	Press. Sfc	Dyn. Press	Remarks
103250	4546	12414	268	264	231	36.1	-2.5	-2.2	2953	3037	1019.7	705.0	80.2	10000 RA
105000	4553	12543	272	266	235	47.8	-1.8	-2.4	2956	3015	1016.2	705.0	81.6	10000 RA
105911	4555	12630	278	271	236	50.6	-1.8	-2.7	2986	3033	1014.2	702.4	82.6	D1-ETL
112610	4558	12840	175	191	233	69.2	-2.2	-2.1	3015	3035	1011.5	699.8	70.9	Turn to New P
115203	4430	12832	180	190	227	54.5	-1.4	-1.6	3017	3075	1015.2	699.7	77.3	D2-ETL
120050	4400	12831		Spiral	↓ TO	1000 RA			TO	TRK	290			
121700	4407	12851	289	279	210	48.1	10.1	10.2	284	298	1015.1	979.6	83.8	1000 RA
122940	4422	12951		AT P3	climb	to 2000 RA								then → P4
123910	4414	12903	100	109	233	44.9	10.9	11.0	600	612	1014.5	943.3	75.2	2000 RA
124950	4404	12804		AT P4	descent	to 500'								then TRK 290 to P5
125350	4467	12820	292	282	201	38.8	10.2	10.2	127	149	1016.3	998.2	77.3	500 RA
131250	4435	12934		Spinning	↑	6000'								
131505	4431	12938		Touch	6000	Descent								on TRK TO 1000'
133040	4445	13049	284	274	210	43.1	9.6	9.9	317	294	1010.9	975.8	78.4	1000 RA ^{in precip}
134330	4457	13150		Turn	& Climb	TO								2000' to TRK 090
135545	4501	13043	089	096	236	45.3	8.9	9.3	627	604	1010.7	940.1	73.8	2000 R ^{in precip}
141500	4502	12844	093	102	232	48.6	10.3	10.8	621	624	1013.4	940.7	80.9	2000 RA
141630	4502	12834		Spiral	up TO	6000'								then ↓ to 500 TO TRK 297
142815	4505	12843	297	287	202	38.7	10.0	10.7	150	151	1013.4	995.4	79.5	500 RA ^{LT. precip}
145250	4542	13037		Spiral	↑	6000'								then spiral down to 3200' to TRK 110
151615	4534	12921	104	112	239	38.2	7.6	8.1	981	975	1012.4	900.9	72.6	3200 RA ^{LT. precip}
152525	4525	12829	073	078	234	46.9	9.2	9.4	712	717	1013.7	937.5	84.4	DESCENDING TO 1000 RA
155010	4555	12602		Postpone	to	5000								then ↓ to 500 then ↑ 1000
160600	4611	12420		@ P25	(just past it)				END					Sequence RTB

N42RF AVAPS DropSonde Log

N42RF Project: PACJET02 Flight 7 Flight ID 020221H

Mission: _____ Flight #: 7 System Status: ✓ JAS

Accounting
↓

Drop #	Sonde Serial Number	Chn. #	Time (Zulu)	Press. offset	Winds time	Operator Initials	Comments / Drop Status/ Failure Reason	GOOD ☒
1	003338132	1	1059	0	14	JAS		✓
2	993925253	4	1152	-3	10	JAS		✓
3	003338068						No DROP	
4								
5								
6								
7								
8								
9								
10								
11								
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14								
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32								
33								

P
P

Sonde Accounting - P-PACJET
N-Nessis

P-3 Chief Scientist Event/Radar Log

Flight: 020221H

Project: PACJET-2002

Aircraft: N42RF

Primary Mission: Validation of airborne scatterometer; low level jet, and NCFR (if we find one). Three modules: 1) Scatterometer, 2) low-level jet, and 3) Flux Stack

Alternative Mission: none

Scientists/Visitors

- **Chief Scientist: Ola Persson (ETL)**
- **Doppler Scientist: Dave White (ETL)**
- **Observer 1: M. Lee (NWS Portland)**
- **Observer 2: Jason Knieval (NSSL)**
- **Observer 3: D. Esteban (UMASS)**
- **Observer 4: A. Zhang (UMASS)**
- **Other Scientists/Visitors: M. Nelson (met at KPDX), B. Watkins (camera at KPDX)**

AOC Crew

- **A/C Commander: Tebeest**
- **Pilot: Taggart**
- **Flight Engineer: Floyd**
- **Flight Director: Thomas Shepherd**
- **Navigator: Adler**
- **Sys Tech: Rogers**
- **Data Tech: Smith**
- **Radar Tech: Barr**
- **Other AOC: Halverson**

Time (Latitude, Longitude), Track (deg), Static Pressure (mb), Radar Alt (m)	Event & Comments
093942Z (45.58611, - 122.58081) 164.900 deg, 1022.3 mb, -11.0 m	Pre-flight check of Eventlog.
094209Z (45.58608, - 122.58081) 107.199 deg, 1022.2 mb, -11.0 m	Start engines.

094822Z (45.58618, - 122.58105) 317.670 deg, 1022.3 mb, -10.0 m	Rolling. Light rain; wind from 298 at 4 kts; 9.4 deg C; 88% RH.
100428Z (45.58917, - 122.60611) 118.449 deg, 1024.7 mb, -11.0 m	Take off.
101455Z (45.77084, - 122.70145) 269.238 deg, 703.4 mb, 2991.0 m	Tracking 269 deg. No radar yet.
101918Z (45.76938, - 123.08444) 270.427 deg, 703.6 mb, 2605.0 m	Booting radars.
102011Z (45.77020, - 123.15947) 270.471 deg, 703.7 mb, 2643.0 m	Recording both radars (LF: lower fuselage, TA: tail)
102622Z (45.77343, - 123.68001) 270.190 deg, 703.7 mb, 2562.0 m	Flight level winds have been SW at 50 kts for about the last ten minutes.
103007Z (45.76973, - 123.99425) 268.541 deg, 703.9 mb, 3055.0 m	Passing over the coast line.
103159Z (45.76544, - 124.15622) 267.549 deg, 705.1 mb, 3038.0 m	Reset tilt on LF radar to 2.1 deg. Range rings at 50 nm.
103418Z (45.77162, - 124.36076) 277.141 deg, 705.0 mb, 3036.0 m	Track now 227 deg.
103742Z (45.79564, - 124.66122) 277.132 deg, 704.9 mb, 3033.0 m	Alignment of tail radar is slightly toward port. This was true on previous flights and probably will remain true for the rest of this project.
103921Z (45.80866, - 124.80489) 277.922 deg, 705.0 mb, 3030.0 m	Tom Shepherd has started sector scanning to block out a section in the scans of the LF radar. The blocked sector is toward the rear of the plane (roughly 75-105 from north). This prevents interference with scatterometer work.
105912Z (45.91887, - 126.50192) 277.749 deg, 702.4 mb, 3030.0 m	Dropsonde away. Aggregates and columns.
111214Z (45.98392, - 127.57588) 274.067 deg, 701.2 mb, 3031.0 m	Persson and Zhang are concerned about the lack of precipitation and are discussing a change of track.
111323Z (45.98866, - 127.67044) 273.537 deg, 701.2 mb, 3029.0 m	Changed track to 270 deg.
111714Z (45.98654, -	

127.98604) 269.997 deg, 701.4 mb, 3022.0 m	New destination: 46, -130 deg.
111954Z (45.98694, - 128.20145) 269.722 deg, 701.3 mb, 3021.0 m	Flight-level winds from 228 at 65 kts now.
112224Z (45.98740, - 128.39951) 271.544 deg, 701.4 mb, 3016.0 m	Decision made to hold off on next dropsonde.
112523Z (45.99805, - 128.63235) 275.419 deg, 699.5 mb, 3033.0 m	Turning left to track 175 deg.
112751Z (45.88171, - 128.64810) 177.090 deg, 699.9 mb, 3035.0 m	Changing sector scan to accomodate new track.
113421Z (45.51160, - 128.61063) 175.710 deg, 699.6 mb, 3045.0 m	Watching echo to our SW at range 175 nm.
113734Z (45.32666, - 128.59103) 176.004 deg, 699.8 mb, 3049.0 m	Passing through weak band of precipitation. Light turbulence.
115202Z (44.49982, - 128.53702) 179.639 deg, 699.7 mb, 3073.0 m	Second dropsonde released. Good drop.
115345Z (44.39894, - 128.53552) 179.984 deg, 699.7 mb, 3075.0 m	Echoes to our W and SW. Mostly 20 dBZ.
115855Z (44.08968, - 128.51004) 179.299 deg, 703.2 mb, 3043.0 m	Another change of plans. We're going to drop our altitude and begin doing flux stacks.
120042Z (43.98280, - 128.50690) 179.509 deg, 703.3 mb, 3043.0 m	Turning right and descending to 1000 ft.
121248Z (44.03326, - 128.54175) 291.768 deg, 978.0 mb, 319.0 m	Reached 1000 ft at way point 2. Changing tilt of LF radar to 2.0 deg. Current track is 293 deg.
121346Z (44.05357, - 128.60947) 292.089 deg, 990.9 mb, 208.0 m	Dropping to 500 ft. Winds from 199 deg. at 40 kts.
121438Z (44.07091, - 128.67200) 289.401 deg, 994.1 mb, 182.0 m	Starting climb to 1000 ft. Heading toward way point 3.
122055Z (44.19368, - 129.15366) 289.809 deg, 979.6 mb, 293.0 m	Echoes of 32 dBZ about 70 km away to the NNW.

122746Z (44.33250, - 129.68454) 288.900 deg, 979.7 mb, 285.0 m	LF range to full (rings at 50 nm).
122943Z (44.36768, - 129.83200) 285.246 deg, 979.7 mb, 283.0 m	Hit way point 3. Turning to the left (track 102 deg and climbing to 2000 ft).
124846Z (44.10580, - 128.15369) 103.302 deg, 944.3 mb, 616.0 m	Hit way point 4. Turning to the right to begin next leg of flux stacks, which will be at 500 ft.
125246Z (44.09824, - 128.24460) 291.750 deg, 997.5 mb, 157.0 m	At 500 ft. Track at 292 deg.
125826Z (44.22909, - 128.67581) 293.364 deg, 998.2 mb, 144.0 m	A bit of speckling has appeared on the TA displays.
131034Z (44.50735, - 129.59061) 292.171 deg, 997.4 mb, 133.0 m	Hit way point 5. Climbing to 1000 ft to begin spiral to 6000 ft.
131503Z (44.50716, - 129.61536) 291.882 deg, 814.6 mb, 1823.0 m	Reached 6000 ft. Will descend to 1000 ft en route to way point 6. This should take us between echoes to our WNW.
132133Z (44.61753, - 130.14441) 285.495 deg, 975.9 mb, 302.0 m	Reached 1000 ft. Slightly bumpy.
132304Z (44.64030, - 130.25952) 285.735 deg, 975.9 mb, 302.0 m	Approaching broad rainband to the west. No echoes over 24 dBZ.
132703Z (44.69944, - 130.55453) 286.027 deg, 976.0 mb, 295.0 m	TA radar registering good echoes both east and west of us. No preferred orientation to the bands, according to the LF radar.
132919Z (44.73305, - 130.72308) 285.419 deg, 975.8 mb, 295.0 m	Bright band visible in the TA data.
133129Z (44.76409, - 130.88834) 285.281 deg, 975.7 mb, 295.0 m	Ride is smooth. Wind speeds not as high as they were to the east (about 40-45 kts).
133308Z (44.78857, - 131.01563) 284.967 deg, 975.7 mb, 293.0 m	Speckling on TA display again.
133508Z (44.81763, - 131.17001) 284.862 deg, 975.8 mb, 291.0 m	Speckling on the TA display gone again. How? We don't know.
133659Z (44.84393, - 131.31238) 284.158 deg,	Speckling on TA display has reappeared.

975.6 mb, 291.0 m	
133949Z (44.88327, - 131.53058) 283.154 deg, 975.8 mb, 287.0 m	Speckling getting worse.
134233Z (44.92259, - 131.74457) 283.384 deg, 975.8 mb, 286.0 m	Speckling quite bad. Probably will have to reboot.
134359Z (44.96671, - 131.82791) 17.140 deg, 958.2 mb, 438.0 m	Rebooting TA radar.
134451Z (44.99123, - 131.75974) 86.336 deg, 940.1 mb, 598.0 m	TA radar back up.
134604Z (44.99516, - 131.63776) 88.111 deg, 940.2 mb, 596.0 m	Track is now 88 and altitude 2000 ft. Turned short of way point 6. Now heading to point 7. Turned at 44 57', 131 50'. Weakest winds (20 kts) of the flight were measured at the turnaround.
134822Z (45.00143, - 131.42294) 87.538 deg, 940.4 mb, 594.0 m	More speckling.
134921Z (45.00458, - 131.33350) 87.349 deg, 940.3 mb, 596.0 m	TA radar restarted to remove the speckles. That seems to do the trick.
140105Z (45.03169, - 130.19019) 89.620 deg, 940.1 mb, 612.0 m	Echoes greater than 28 dBZ to our SSW.
140230Z (45.03340, - 130.04391) 89.304 deg, 939.9 mb, 615.0 m	Flight-level winds increasing again (50+ kts).
140324Z (45.03451, - 129.95053) 89.238 deg, 939.9 mb, 614.0 m	TA radar down. LF radar down. Went down at 14:02.
140642Z (45.03640, - 129.60675) 90.031 deg, 941.0 mb, 609.0 m	Both radars back up.
141156Z (45.04485, - 129.05905) 90.002 deg, 940.8 mb, 619.0 m	Turned to the right a few degrees. New track is 92 deg.
141633Z (45.02923, - 128.58301) 93.333 deg, 940.8 mb, 624.0 m	Hit way point 7. Spiralling right and climbing to 6000 ft. TA radar display shows little echo at this point.
142027Z (45.05266, - 128.51367) 118.483 deg, 815.7 mb, 1813.0 m	Reached 6000 ft. Spiralling to 1000 ft, then descending to 500 ft on track 295 deg.

142706Z (45.05522, - 128.62146) 296.958 deg, 995.3 mb, 152.0 m	Reached 500 ft. Slightly bumpy.
142904Z (45.10844, - 128.77185) 296.470 deg, 995.4 mb, 150.0 m	TA display showing and increase in echoes. Turbulence has gotten a little worse.
143717Z (45.33543, - 129.39853) 296.869 deg, 995.5 mb, 138.0 m	Changed LF tilt to 1.5 deg.
144045Z (45.42921, - 129.66245) 296.348 deg, 992.2 mb, 160.0 m	Turning left a couple degrees and tracking 293 deg.
144711Z (45.57243, - 130.16324) 290.879 deg, 992.1 mb, 154.0 m	In weak rainband. Mainly 20 dBZ or lower.
145035Z (45.64579, - 130.43030) 291.859 deg, 992.0 mb, 152.0 m	Tech is changing some TA and LF parameters.
145429Z (45.77715, - 130.59485) 82.919 deg, 919.5 mb, 790.0 m	Reached WP 8. Climbing to 6000' in right spiral.
145730Z (45.66993, - 130.59558) 288.583 deg, 811.4 mb, 1818.0 m	Reached 6000'. Descending on spiral to 3200'.
150425Z (45.73942, - 130.49234) 100.191 deg, 898.2 mb, 982.0 m	Headed east on track 100 deg.
150556Z (45.72099, - 130.34567) 100.307 deg, 898.2 mb, 984.0 m	Tech is working on both radars
151121Z (45.64542, - 129.81384) 103.377 deg, 898.2 mb, 992.0 m	Both radars back up as of a few minutes ago.
152536Z (45.41898, - 128.46338) 82.339 deg, 907.1 mb, 931.0 m	Reached way point 9. Descending to 1000 ft.
152745Z (45.47099, - 128.23987) 70.077 deg, 976.7 mb, 310.0 m	Reached 1000 ft.
152859Z (45.50257, - 128.11606) 70.413 deg, 978.5 mb, 296.0 m	Tracking 72 deg. Heading for PDX.
154946Z (45.91313, - 126.10669) 72.081 deg, 981.0	Starting porpoise to 5000 ft at 1000 ft / min.

mb, 296.0 m	
155341Z (45.99413, - 125.69357) 71.733 deg, 846.4 mb, 1534.0 m	Reached 5000 ft and beginning descent to 4000 ft.
155626Z (46.04827, - 125.42496) 76.139 deg, 877.0 mb, 1240.0 m	Descending to 500 ft.
160207Z (46.14677, - 124.85429) 76.136 deg, 998.1 mb, 168.0 m	Reached 500 ft.
160226Z (46.15200, - 124.82565) 74.708 deg, 990.7 mb, 232.0 m	Ascending back to 1000 ft.
160500Z (46.19900, - 124.58788) 74.961 deg, 982.0 mb, 306.0 m	Beginning climb to higher altitudes.
160631Z (46.18042, - 124.45702) 108.557 deg, 909.6 mb, 951.0 m	Shutting the radars.
161251Z (46.14654, - 123.81255) 97.774 deg, 787.6 mb, 2136.0 m	Roughly over coast.
163105Z (45.58980, - 122.58282) 119.262 deg, 1019.4 mb, -10.0 m	Touch down.

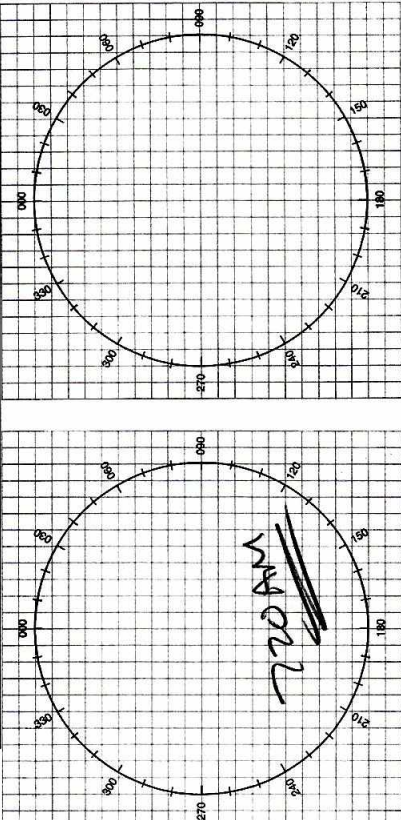
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MISSION LOG

PAGE _____ **OF** _____

POSITION REPORT

1. POSITION
2. TIME
3. ALTITUDE
4. NEXT POSITION
5. ETA
6. NEXT POSITION



EMERGENCY MESSAGE

TRANSMIT THE FOLLOWING MESSAGE TO ANY AGENCY ON THE AIR-GROUND
FREQUENCY IN USE. IF UNABLE TO ESTABLISH COMMS, ATTEMPT CONTACT ON
ANY OF THE FOLLOWING EMERGENCY FREQUENCIES:

UHF/VOICE	VHF/VOICE	MF/VOICE	HF/CW	MF/CW
243.0	121.5	2182 KHZ	8364 KHZ	500 KHZ

MAYDAY, MAYDAY, MAYDAY
THIS IS NOAA _____, NOAA _____

- POSITION _____ N/S _____
 _____ E/W AT _____ Z _____

- HEADING _____ TRUE/MAG _____
- AT _____ KTS TRUE/INDICATED _____

- FLIGHT LEVEL OR ALTITUDE
- WE ARE A P-3 AIRCRAFT WITH

- NATURE OF EMERGENCY
- ASSISTANCE DESIRED

- PILOT INTENTIONS
- WE HAVE _____ ENDURANCE REMAINING

[illegible]

2112 13152