

STATEMENT OF ANDREW C DOVELL
IN REGARD TO THE VALIDITY OF THE 1998 IMS
CERTIFICATION FOR THE YACHT *NAIAD*.

Issued February 7, 2000

1.0 Introduction

- 1.1 During the process of reviewing the 1998 Sydney to Hobart race and the several incidents of severe knockdowns and or full inversions I reviewed the IMS certificates for all of the yachts involved that carried one. *Naiad* was one of these yachts.
- 1.2 On reviewing the certificate for this yacht it was my suspicion that the displacement and righting moment combination was inconsistent for a boat of this type. This suspicion was based on my experience with very similar boats on which I had consulted in regard to IMS ratings.
- 1.3 It is important to establish if the data on the *Naiad*'s 15 October 1998 IMS certificate was correct or not so that the inferences drawn from their experience in the 1998 Sydney to Hobart race are referenced to an accurate starting point. If the data was incorrect it is important to establish what the relevant parameters for the yacht were at the time of the incident so that any research is referenced to an accurate data point.

2.0 Displacement – Righting Moment Relationship

- 2.1 For a given yacht there is a set relationship between displacement and righting moment, (and similarly between displacement and limit of positive stability), when the only variable is the quantity of internal ballast carried.

- 2.2 This relationship can be quantified theoretically using intact static stability calculations, one of the most fundamental theories of naval architecture.
- 2.3 Using the *Naiad's* 1997 IMS certificate for the baseline data of displacement and righting moment and a set of hull lines faired to offsets provided by the Australian Yachting Federation, I have calculated the effect of reducing the internal ballast in several steps. The table and graph presented in annexure 1 shows the resulting theoretical relationship between displacement and righting moment for *Naiad*. The corresponding graph of displacement and limit of positive stability is shown in annexure 2.
- 2.4 The relationship between displacement and righting moment, (and limit of positive stability) for a given boat as a function of internal ballast can also be established experimentally by physically changing the quantity of internal ballast in several steps and measuring the freeboards and righting moment at each step. In fact this experimental procedure forms part of the IMS measurement process.
- 2.5 For an IMS certificate, floatation data, (freeboards and righting moment data measured on the water), is combined with hull lines file in the Velocity Prediction Program, (VPP) to calculate a whole range of pertinent performance variables. A subset of the output is the displacement and stability data including the righting moment and the limit of positive stability. The IMS certification process is the standard procedure used today to assess the stability characteristics of a racing yacht.
- 2.6 So by running a series of IMS certificates based on in water measurements taken with differing amounts of internal ballast in place in the boat, the information required to establish the displacement / righting moment relationship will fall out.

- 2.7 For sister ships, (boats of the same hull form and construction), this same set of data can be obtained by having each one set up with different amount of internal ballast for their IMS measurement.
- 2.8 In essence this situation exists in the present Australian IMS fleet. Several Farr 40's were built from one set of moulds during the late 1980's. Boats built from this tooling include *Nadia 4*, *Witchcraft*, *Indian Pacific*, *Midnight Rambler*, and several others.
- 2.9 While *Naiad* was a one off design, custom built in New Zealand, it is very similar in hull form to the Farr 40's built in Australia. The most significant difference is that the Australian 40's are approx. 7" longer on LBG than the *Naiad*, all of the other primary design parameters are almost identical. (Length Between Girths, or LBG, is the most significant measure of length for boats designed for the International Offshore Rule or IOR) The greater difference in overall length of 14 " is due to a longer transom scoop on the Australian 40's – which has little to no influence on the stability characteristics of the yachts.
- 2.10 Therefore for the purpose of this study the *Naiad* can be considered a sistership to the Farr 40's. Annexure 3 contains some additional supporting documentation for this argument, including a table of primary design parameters, and an overlay of the hull lines as faired to the offsets provided by the AYP.
- 2.11 Most of the production built Farr 40's have been measured for IMS at some point over the last 5 years. While these boats are all configured slightly differently in terms of fittings and fixtures, the primary difference between them is the quantity of internal ballast carried. So the IMS certificates for these boats provide a fairly good guide as to the displacement to righting moment and the displacement to positive limit of stability relationship for the Farr 40's as well as for the *Naiad*.

- 2.12 A table and graph of IMS derived stability data for these boats and the *Naiad* is presented in annexure 4. Several boats show up more than once as they have been re-configured with more or less internal ballast over the years. Copies of the IMS certificates from which this data has been extracted are presented in annexure 5.
- 2.13 The graph in annexure 4 shows good agreement between the theoretical displacement to righting moment relationship and that produced by the IMS data for the *Naiad* and the Farr 40's.

3.0 *Naiad* 1998 Certification

- 3.1 On 18 July 1998 the *Naiad* was re-measured in the water, (freeboards and inclination), for the 1998 sailing season. It is my understanding that the internal ballast was removed from the yacht for this measurement; a yacht does not need to be re-measured in the water between seasons unless it has undergone modifications that would alter its flotation. The amount of lead removed is unclear from the documents I have reviewed. After a fair volley of correspondence between the Tasmanian measurer and the AYF, a validated and final 1998 IMS certificate was issued for *Naiad* on the 15th of October 1998. It is my understanding that this was the certificate issued to the CYCA for entry to the Sydney to Hobart Yacht Race.
- 3.2 It is of note that there was a certificate issued by the AYF dated 29 September 1998 also based on the measurements taken on 18 July 1998; This certificate was superceded by the 15 October certificate. Copies of these two certificates are attached as annexures 6 and 7.
- 3.3 The October 1998 certificate does not appear to be consistent with the displacement to righting moment relationship discussed in the previous section of this report; neither in comparison with older stability data for the *Naiad* itself, nor with the other Farr 40's. This becomes very evident when the October 1998 data is plotted on the

displacement Vs righting moment graph with the other data; refer to the graph in annexure 8.

- 3.4 The inconsistency of *Naiad*'s October 1998 and 1997 IMS certificates also becomes apparent when considering the vertical centre of gravity for the two configurations.
- 3.5 As part of its stability data the IMS certificate also calculates the vertical centre of gravity for the given configuration. In the case of *Naiad*'s 1997 certificate the displacement was reported as 6020kg at 0.081m below the reference waterline. For the October 1998 certificate the displacement was documented to be 6278kg at 0.106m above the reference waterline; (refer to annexure 6 and 7).
- 3.6 To effect this change would require adding 258kg 4.1 m above the reference waterplane. This is not a realistic scenario.
- 3.7 Given both of these bits of evidence I suspect an error in either the floatation measurements (the freeboards) or the righting moment experiment associated with the October 1998 certificate.
- 3.8 Referring to the graph in annexure 8, if the reported displacement of 6280kg is correct, the righting moment appears significantly too low.
- 3.9 On the other hand if the righting moment of 130.7 kg*m/deg is correct, then the displacement of 6287 kg is too high; a displacement of approx. 5575kg would be more in keeping with the theory and with the fleet data presented in annexures 5 and 8.
- 3.10 I strongly suspect the latter to be the case based on Richard Fisher's, (the Tasmanian IMS measurer) notes and his correspondence with the AYF office in Sydney which took place during the measurement process leading to the 15 October 1998 certificate.

- 3.11 When Richard Fisher submitted his data sheets to the AYF for the in water measurements taken 18 July, (attached here as annexure 9), he notes in the comments section “boat re-inclined after removing internal ballast. He also makes note of this change on the 1998 measurement inventory which form the second page of the IMS certificate: “nil” internal ballast, “Previous ballast removed”; refer to the second page of annexure 6. Therefore it would be reasonable to expect the displacement of the boat to come down by some amount from the 1997 certificate value and for the righting moment to also come down by a corresponding amount.
- 3.12 The measurement inventory for *Naiad*'s 1997 certificate (dated 18/11/95 but remaining valid for the 96' and 97' certificates), noted “lead ingots (glassed in)”; but with no note as to the amount.
- 3.13 Regardless of the amount of lead removed, the displacement for the boat in 1998 should be less, by some amount, than for 1997, not more.
- 3.14 Going back to the correspondence leading to the October 1998 certificate, it appears that there was some confusion about the forward freeboard measurement taken on the 18th of July 1998. Eventually the original measured forward freeboard of 1.321m was changed by 90mm to 1.231, resulting in the final 1998 certificate for the boat dated 15 October 1998.
- 3.15 Mr. Fisher's initial submission to the AYF for a 1998 certificate based on his 18 July floatation was made somewhere between the 18th and 29th of September. Mr Fisher's notes and worksheets pertaining to this measurement are attached as annexure 9.
- 3.16 Based on this submission the AYF produced a certificate dated September 29, 1998. This certificate, (refer to annexure 6), reports a displacement of 5546kg, a righting moment of 130.7kg*m, and a limit of positive stability of 105.6°.

- 3.17 It is noteworthy that this data is consistent with that of 1997, and with that of her sisterships, refer to annexure 8. It is also of note that the displacement of 5546kg is down from the 1997 value of 6020kg by 474kg – in keeping with the notes regarding the removal of internal ballast.
- 3.18 On October 6th Mr. Fisher faxed the AYF regarding the 9/98 certificate with concerns about the new stability data and crew weight limits, and requests a re-run of the certificate with the forward and aft freeboards transposed.
- 3.19 It is my understanding that this was done by Tony Mooney at the AYF, but that the resulting certificate was unbelievable and never printed or released.
- 3.20 Subsequent to this Mr. Fisher concluded that it must not have been that he transposed the freeboards but rather must have transposed two of the digits in the forward freeboard measurement. And on October 15th he requested by fax that the AYF run a new certificate with a forward freeboard of 1.231m, (rather than 1.321m noted on his worksheet for the measurement), and an aft freeboard measurement as per the original submission of 1.037. A copy of this fax is attached as annexure 10.
- 3.21 Mr. Fisher told me on the day of the Nadia 4 experiments that before making this final request to the AYF he rowed out to the *Naiad* some time between the 6th and 15th of October to check the forward freeboard to determine if it were possible to have transposed the middle digits of the forward freeboard reading. From our conversation it is my understanding that he did not attempt to check the aft freeboard; this assumption is supported by Mr. Fisher's notes, (refer to page 3 of annexure 9) where there is no note of subsequent checks in relation to the aft freeboard.
- 3.22 It is very unlikely that the boat would have been in measurement condition at the time of this check. In fact it is very likely that there

were was significantly more weight onboard, than at the time of measurement, including several sails in the bow of the boat, (typically where sails are stored on a racing yacht). Also the mooring line would have been pulling the bow down.

3.23 All of these factors would combine to significantly reduce the freeboards, particularly the forward freeboard. These effects could quite easily accounting for the 90mm of reduction in the forward freeboard reported in his check, noted on his 18 July worksheet as “subsequent checks”, (refer to page 3 of annexure 9)

3.24 Given the poor conditions, and lack of preparation, and incomplete nature of this check I would consider it invalid.

4.0 Experiments with Nadia 4

4.1 Because of the confusion surrounding the 1998 certificate for *Naiad* described in the previous section of this report I proposed a series of inclining experiments be conducted on a yacht similar to *Naiad*.

4.2 The purpose of these experiments was to determine the relationship between displacement and righting moment for the Farr40's by physically modifying the internal ballast in steps and measuring freeboards and righting moment in each configuration.

4.3 A secondary goal was to evaluate the measurement procedures used by Richard Fisher in reference to the more practiced techniques of the New South Wales measurer, John Anderson.

4.4 A third objective was to see if it was physically possible to modify the internal ballast to achieve the changes implied by *Naiad's* 1997 and October 1998 certificate.

4.5 The Farr 40 Nadia 4 was offered to the NSW water police by its owner Teke Dalton, for these experiments. The yacht was towed up

to the Royal Prince Alfred Yacht Club where the experiments were conducted on 1 December 1999.

- 4.6 The initial plan was to remove the internal ballast from the boat, run an IMS flotation and inclining experiment in this trim, and then add internal ballast in several steps taking data at each step, up to a maximum displacement of around 6500 kg.
- 4.7 However it turned out that the internal ballast in Nadia 4 was glassed in to the point of being practically immovable. So instead we removed virtually everything from inside the boat in an effort to get the displacement down as low as possible for our starting point. Some 600kg of equipment and fit out was removed from the condition in which the boat was received from the owner.
- 4.8 This gave us a starting point displacement of 5982 kg. But because the effective centre of gravity of the removed weight was considerably higher than that of the internal ballast, we ended up with a righting moment of 152 kg*m/deg in this light condition; slightly higher than that of a boat from which the internal ballast had been removed.
- 4.9 The first group of experiments were conducted by John Anderson. These experiments were basically IMS type flotation and inclination measurements taken at the light displacement starting point, and at 3 heavier configurations each with an additional 200kg of internal ballast. The results of these experiments are presented in annexure 11 where righting moment and displacement are plotted along with the Farr40 and *Naiad* IMS data.
- 4.10 While the data for these experiments is shifted upwards approx. 10 kg*m/deg relative to the Farr 40 and *Naiad* data, it shows the same trend in terms of how the righting moment changes with displacement. In both cases the change is approximately 2.5kg*m/deg for each 100kg of additional internal ballast.

- 4.11 This result reinforces the theoretical calculations and fleet data for the righting moment to displacement relationship for the Farr 40's, and further supports the argument that the change in righting moment and displacement implied by the 1997 to October 1998 IMS certificates for *Naiad* was not possible.
- 4.12 After the initial 4 flotation and inclination experiments were complete, we had Richard Fisher repeat the final experiment at the heaviest displacement in order to compare the two measurers techniques.
- 4.13 While his final result for the experiment was very close to that of John Anderson's, (refer to annexure 11), I noted the following differences as significant.
1. Richard's freeboard measurement tape was truncated at approx. 100mm mark, where it was replaced with a light string with a knot tied near where the 0 would have been, and a lead sinker below that to hold the string and tape tight. This knot was not exactly 100mm from the 100mm mark on the tape; so a correction was necessary for accurate freeboards to be measured. In his first report of the freeboards I noted a significant difference to those taken by John Anderson. When I pointed this out to Richard he checked and found his correction for the string had been made incorrectly.
 2. Richard did not check his zero setting for the inclination manometer after the inclination; a standard procedure for John Anderson and all other measurers I am aware of. This check is intended to make sure that the manometer does not shift during the measurement process.
 3. Richard positioned the manometer on the transom of the boat as opposed to on the bow pulpit. It is more stable on the bow and much easier to read accurately.

- 4.14 It is my opinion that Richard Fisher is qualified to be an IMS measurer, but his lack of experience and practice increase the likelihood of an error being made during the measurement process. In the case of the *Naiad* his only error was allowing himself to think he made an error; perhaps something he would not have done with the confidence of more experience.
- 4.15 The last experiment was to see if we could recreate a ballast shift that would result in the change implied by the 1997 to October 1998 certificates. Annexure 8 illustrates that these two certificates imply a relationship between displacement and righting moment where adding 100kg causes the righting moment to go down by approx 5 kg*m/deg.
- 4.16 In our experiment we added 250kg to the boat relative to the starting point condition as high as was practical, this being on the top of the coach roof, directly over where we had been adding lead in the bilge for the first battery of tests.
- 4.17 The result was a righting moment of 156 kg*m/deg; which implies a rate of 1.65 kg*m/deg for an additional 100kg of internal ballast. This result is shown graphically in annexure 10.
- 4.18 The conclusion from this experiment is that if the October 98 certificate were valid, then the implied change of ballast is an increase of approx 250kg, and that it would have to have been added well up in the mast, as adding ballast even on top of the coachroof causes the righting moment to go up, albeit at a lesser rate than when it is added in the bilge.

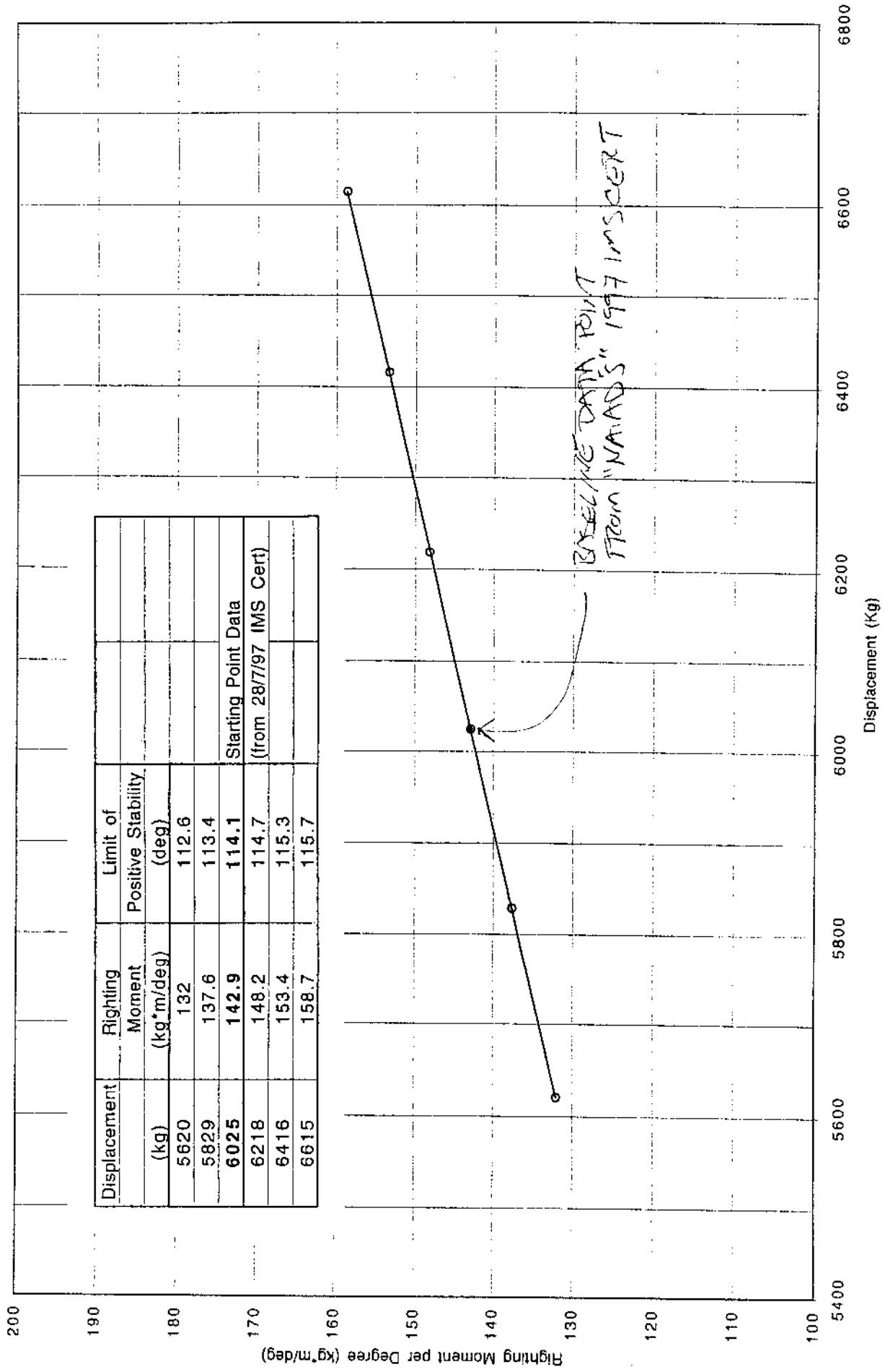
5.0 Overall Conclusions Regarding the Condition of the *Naiad* for the 1998 SHYR

- 5.1 The *Naiad*'s 1998 certificate dated 15 October 1998 was in error. The principal error was the forward freeboard measurement. This in turn produced false calculations for displacement and limit of positive stability as well as effecting other aspects of the certificate including allowable crew weight and rating.
- 5.2 The original measurements taken by Richard Fisher on 18 July and resulting in the September 98 certificate agree well with the theoretical calculations and the Farr 40 fleet data for righting moment at a displacement of 5550kg. Therefore I consider it most probable that these measurements were not in error and that the certificate dated 29 September 1998 was an accurate representation of the condition in which the yacht entered the 1998 Sydney to Hobart Yacht Race. The relevant parameters for the yacht in this condition are a displacement of 5547kg, a righting moment of 130.7 kg*m/deg, a limit of positive stability of 109.5deg, and a stability index of 105.6 deg.

Theoretical Displacement to Righting Moment Relationship Varying only Internal Ballast

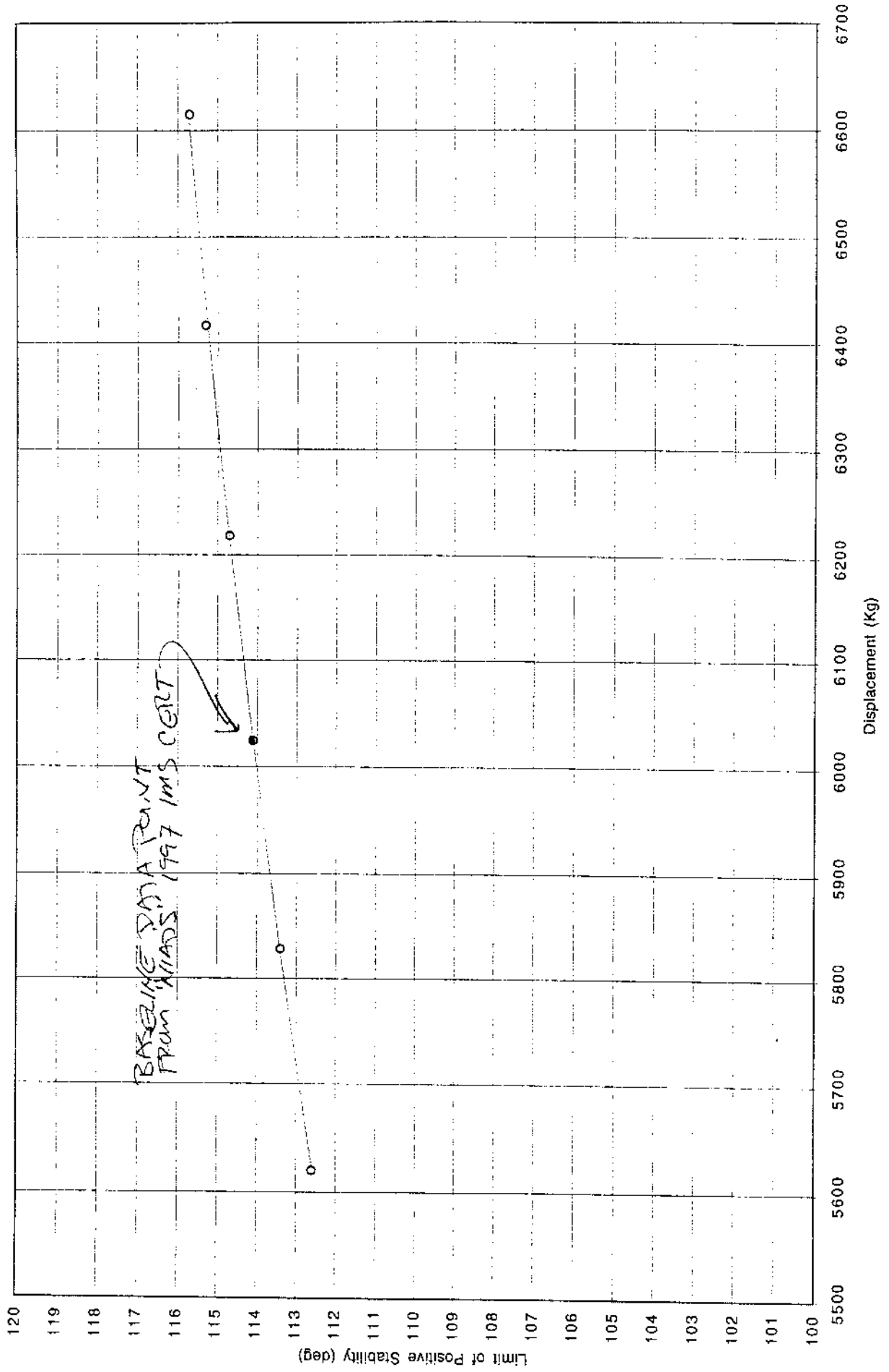
Displacement (kg)	Righting Moment (kg*m/deg)	Limit of Positive Stability (deg)
5620	132	112.6
5829	137.6	113.4
6025	142.9	114.1
6218	148.2	114.7
6416	153.4	115.3
6615	158.7	115.7

Starting Point Data
(from 28/7/97 IMS Cert)



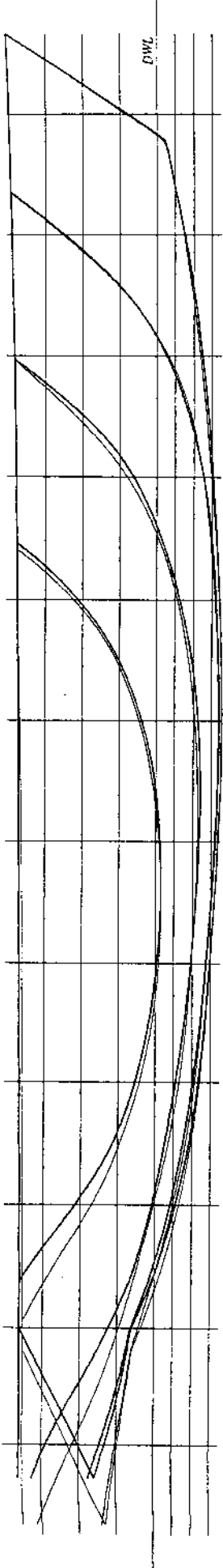
ANNEXURE 1

Theoretical Displacement to Limit of Positive Stability Varying only Internal Ballast

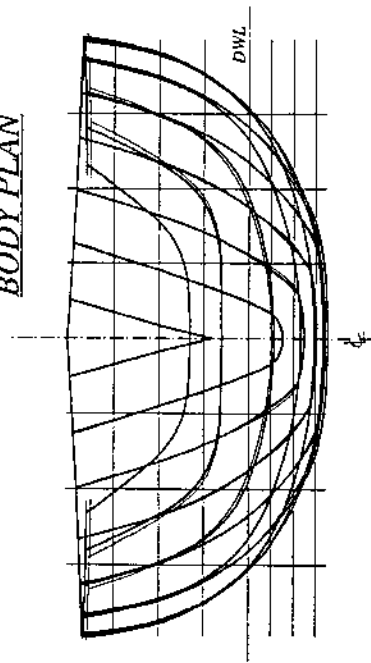


APPENDIX 2

PROFILE



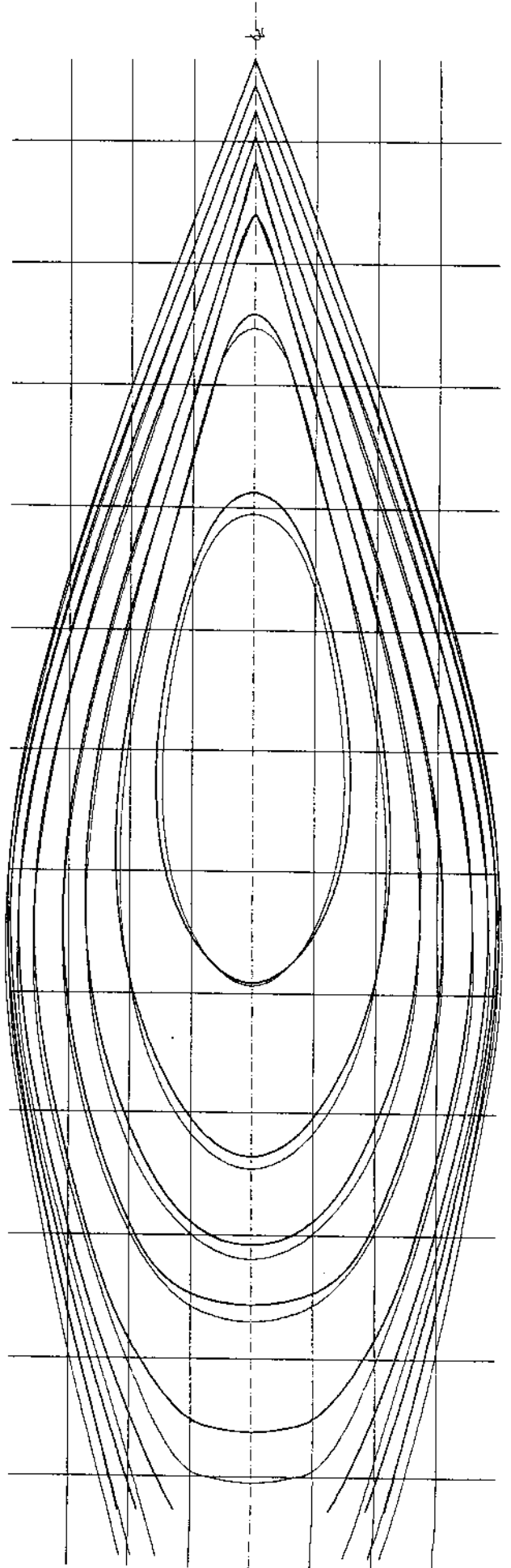
BODY PLAN



—— NAIAD LINES
- - - AUSTRALIAN FARR 40 LINES

COMPARISON OF HULL LINES
NAIAD VS. AUSTRALIAN FARR 40
Feb. 2, 2000
Scale = 1:50

PLAN



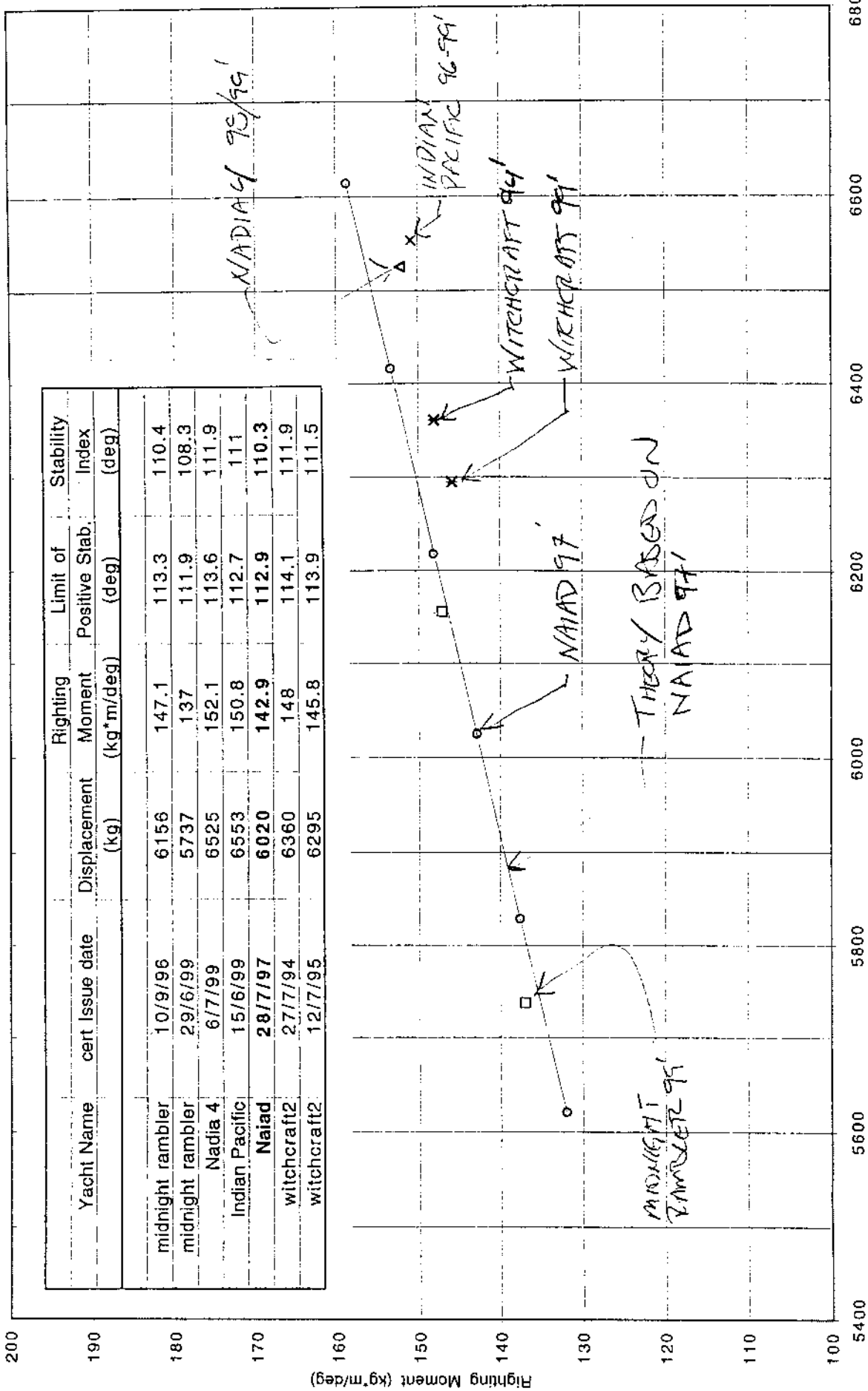
ANNEXURE 5 (PI)

Comparison of the basic hull design parameters for NAIAD and the Australian built Farr 40's

yacht	LOA (m)	LBG (m)	Bmax (m)	Effective Beam (m)	Hull Draft (m)	Displacement (kg)	Waterplane (m ²)	BM (m)
Naiad	11.895	9.97	3.992	3.084	0.534	6020	18.935	1.725
Australian Farr 40 (at equal displacement to Naiad)	12.245	10.156	4.035	3.095	0.535	6020	19.157	1.743
% difference relative to Naiad	2.9%	1.9%	1.1%	0.4%	0.2%	0.0%	1.2%	1.0%

ANNEXURE 3 (P2)

Farr 40 Fleet Data for Displacement and Righting Moment



ANNEXURE 4

ATT RICH
63 317188

INS AMENDED TO JANUARY 1977 VPP: 28/JUL/97 21:30:56
 Cert No 711500 7115.DAT 28/JUL/97 21:27:48
 OFF Reas'd: 10/JAN/90 MAILAD.OFF 24/OCT/95 17:08:08

CENTREBOARD AND DRAFT
 ECK 0.000 CBRC 0.000 CBRC 0.000 CBTC 0.000
 WCB4 0.0 CBDA 0.000 KCDA 0.000 ECE 0.000
 WCB8 0.0 CBDB 0.000 ENDPATE ADJ (KEDK) 0.000
 PRO 0.520 PBM 0.133 PHD 0.063 PHL 0.125 ESL 0.970
 STI 0.024 ST2 0.115 ST3 0.115 ST4 0.061 ST5 0.300
 PSA 19.300 PSD 0.025 PIPA 0.0052

FLOTATION DATA
 FFPS 1.102 AFPS 0.899 FGO 0.554 LBE 9.970
 FFM 1.198 FAF 1.088 FFPY 0.000 AFPY 0.000
 FF 1.198 FA 1.088 SG 1.027

INCLINING TESTS
 W1 20.900 P01 40.000 PLN 1625.000 PL 1618.769
 W2 41.700 P02 85.000 RSA 0.178 RSA 46.2
 W3 62.500 P03 133.000 SFB 7.043 W0 11.820
 W4 83.500 P04 187.000 RM 142.9 RMC 142.9
 RM2 150.1 R020 136.4 RMAD 114.6 RMC0 77.1
 R090 29.0 CREW ARM (CRN) 1.615

CALCULATED LIMIT OF POSITIVE STABILITY: 112.9 DEGREES
 RATIO STABILITY CURVE AREAS, POSITIVE/NEGATIVE 2.013

HYDROSTATICS MEASUREMENT TRIM--SKULLING TRIM--
 KEEL DRAFT (DHKD) 2.247 (DHKA) 2.295
 2ND MOMENT LENGTH (LSM2) 9.643 (LSM1) 9.835
 DISPLACEMENT (WEIGHT) (DSPW) 6020 (DSPS) 6920
 WETTED SURFACE (WSS) 25.72 (WSS) 27.27
 VCG FROM OFFSET'S DATUM (FOR CLUB RM) (VCGD) -0.081
 VCG FROM MEASUREMENT TRIM WATERLINE (VCGN) 0.064
 INTEGRATED BEAM ATTENUATED WITH DEPTH (B) 3.084
 MAXIMUM SECTION AREA (MSTR) 1.461
 BEAM/DEPTH RATIO (BTR) 4.535
 EFFECTIVE DRAFT (D) 1.990
 2° HEEL (LSM2) 9.837 25° HEEL (LSM3) 9.818
 SUNK (LSM4) 11.179 AVG LENGTH (L) 9.854
 TRIM: 1mm/8.450m-kg SINK: 1mm/19.332kg

SAIL AREA: MAIN + FORETRIANGLE + MIZZEN (SA) 79.00
 MAIN: 49.25 SPIN: 99.09 GORION: 46.35 ALZ'N: 0.00
 FORETRIANGLE MAIN & SPARS
 IG 14.381 SPL 4.108 MB 0.170 TL 4.130
 MV 0.124 J 4.108 MGT 1.20 MDT1 0.113
 GO 0.153 LPG 6.09 MGD 2.06 MDL1 0.172
 ZSP 14.433 FSP 0.068 MGH 3.43 MDL2 0.058
 IR 14.483 LP 6.16 MGL 4.52 MDL2 0.080
 HBI 1.106 SFJ 0.070 HSH 30.9 MWT 0.0
 MXSL 14.26 MXSM 7.39 P 15.250 MCG 0.000
 SL 14.20 SHW 7.39 E 5.595 BD 0.265
 SPS 3.640 LPIS 0.00 EC 5.595 CPW 2.080
 TH NO JR 0.00 BAS 1.820 BAL 0.150
 MIZZEN
 TY 0.000 PY 0.000 HBY 0.000 TLY 0.000
 EB 0.000 EY 0.000 HBTY 0.000 MDTTY 0.000
 YSD 0.000 ELY 0.000 HBTY 0.000 MDTTY 0.000
 YSF 0.000 EAST 0.000 HBTY 0.000 MDTTY 0.000
 YSMG 0.000 BALY 0.000 HBTY 0.000 MDTTY 0.000

INS AMENDED TO JANUARY 1997
 Offshore Racing Council
 19 St James's Place, London
 Copy right

RATING OFFICE: AUSTRALIAN YACHTING FED.
 Issued: 28/JUL/97
 Measured: 11/MAR/97
 Revalidation Authority: AYF
 Measurer: RICHARD FISHER

"I CERTIFY THAT I UNDERSTAND MY
 RESPONSIBILITIES UNDER THE IMS."
 OWNER: BRUCE BUY
 19 PITTEN CREEK
 LAURELSTON
 TAS. 7250
 OLD MAIN NOT TO BE USED FOR IMS RACE

LIMITS AND REGULATIONS
 Limit of Positive Stability: MEETS REG
 Minimum Displacement: 3125kg; REEFS REG
 Maximum Crew weight: 740 kg
 Stability Index: 140.3
 Measurement Inventory: 18/NOV/95
 Accommodation Length: 11.895m
 Accoa Certificate: C/R DAE 0.84Z
 Plan Approval: NONE FILED

NOTE TO OWNER: The range available to revise crew weight is 430-794 kg.

Wind Velocity:	6kt	8kt	10kt	12kt	14kt	16kt	20kt	CHECKSUM
BEAT ANGLES:	44.7°	43.7°	42.1°	41.1°	40.5°	40.5°	40.9°	(293.5)
BERT VPG:	997.5	848.2	783.5	750.8	733.7	724.8	717.4	(5353.9)
52°:	640.0	553.1	524.1	509.9	501.8	496.2	489.0	(3714.1)
R 60°:	596.4	525.8	501.6	489.7	482.1	476.3	468.2	(3340.1)
E 75°:	564.3	506.0	479.7	464.8	456.5	449.9	439.9	(3361.1)
A 90°:	583.3	498.9	472.6	458.7	443.9	432.7	419.5	(3289.6)
C 110°:	577.9	507.0	476.1	451.5	434.6	421.7	404.7	(3271.5)
H 120°:	618.4	526.6	486.4	459.3	438.1	420.3	392.8	(3341.9)
135°:	730.8	589.4	520.6	485.0	459.2	437.2	398.9	(3621.1)
150°:	884.9	702.8	592.2	526.7	490.1	463.8	421.2	(4081.7)
GBTB ANGLES:	1021.8	811.5	683.8	590.7	532.2	495.6	447.0	(4582.6)
	140.1°	143.7°	150.5°	165.4°	171.4°	174.6°	175.5°	(1121.0)

NOTE: To convert any time allowance above to speed in knots: Rt = 3600/TA

TIME ALLOWANCES FOR SELECTED COURSES

Wind/Lwd VPG	1100.2	883.3	764.6	693.6	648.8	619.4	583.7	(5293.6)
Olympic 6-leg	1028.4	834.3	731.5	672.6	636.9	613.9	585.3	(5102.9)
Circular Rndm	839.1	684.8	603.4	556.7	528.0	509.0	484.3	(4205.3)
Non-Spinnaker	913.5	736.3	640.8	584.8	550.0	527.2	499.0	(4451.6)
Ocean for PCS	971.3	763.0	645.8	573.2	525.0	490.7	443.1	(4442.1)

For Time-on-time method TME = 0.9666 ILC weighted Avg: 697.2

ANNEXURE 5 (PI)

1995

IMS MEASUREMENT DATA SHEET

Certificate No

KA 711500

Yacht Name NAIAD		Sail No(12) S466		Owners Name (36) BRUCE GUY													
Yacht Name (24) NAIAD		Builder (18) NAUTECH SYSTEMS		Address (36) 19 PITTEN CRIEF													
Designer (18) FARR		Class (18) FARR 40		Suburb (36) LAUNCESTON													
Measurer (18) RICHARD FISHER 7006		Class (18) FARR 40		Suburb (36) LAUNCESTON													
04 CertNo(6) 711500	Reval Auth(12)	Meas Date D H Y 11 3 97	Float Date D H Y	H P I TAS	State TAS	Postcode 7250											
05 Comment (36) NEW MAINSAIL			Comment (36)														
06 Comment (36)			Comment (36)														
07 File Off(12)	ECH	KCDA	VCBA	CBDA	WCBB	CBDB	CBRC	CBMC	CBTC	AGE DATE							
08 PT/PRO	ESL	PSA	PHD	PHL	PSD	ST1	ST2/APH	ST3/APT	ST4/APD	ST5	PBW						
FFH	FAM	FGO	LBG	SG	PLM	UMAIN											
						30.9											
10 W1	WD	PD1	W2	ZERO D.O	PD2	W3	GSA	PD3	W4	RSA	PD4						
11 IG	ISP	IHW	IGO	SPS	J	SPL/TPS	LPG	FSP	SHW	SL	HBS						
12 BAS	IP	IE	BAL	BD	IB	BLP	BL1	BL2	BL3	BL4	BL5						
						0.170	2.65	1.60	2.56	3.39	4.15	4.82					
13 HDT1	HDL1	HDT2	HDL2	TL	HDT1Y	HDL1Y	HDT2Y	HDL2Y	TLY	HGU	HGH						
										2.06	3.43						
14 BAY/BADS	PY/PSF	EY/EF	BALY/BALF	BDY/BDF	HBY/HBF	BLPY/BLPF	BY1/BS1	BY2/BS2	BY3/BS3	BY4/BS4	BY5/BS5						
15 IY/BADX	EB	IS	YSF/OF	HGTY/GF	HGLY/HF	YSD/S4	YSHG/S5	HGUY	HGHY	HGT	HGL						
										1.20	4.52						
16 CREW	SFJ	CPW	SPR	JMP	IB	IF	FST	REG	CNS	ACC	ABS	RUD	AGE	SPH	RIG	TUSC	LOA

MEASURERS SIGNATURE

Richard Fisher 7006

ANNEXURE 5 (P2)

THIS RACING CERTIFICATE No. 240400
 Based on: FULL MEASUREMENT (Metric)
 NOT VALID AFTER 30/06/99
 GPH 619.0

THIS AMENDED TO JANUARY 1998
 Offshore Racing Council
 Artdean House, Southampton UK
 Copyright 1998

THIS AMENDED TO JANUARY 1998 VPP: 01/JAN/96 00:23:37
 Cert No 240400 2404.DAT 01/JAN/96 00:14:48
 Off Meas'd: 17/APR/89 FAR40.OFF 21/DEC/93 16:02:06

YACHT DESCRIPTION
 Name: INDIAN PACIFIC
 Sail No: 3695
 Class: FARR 40
 LOA: 12.245m Beam(MB) 4.035m
 Designer: BRUCE FARR
 Builder: GLASS YACHTS
 Rfg: FRACTIONAL SLOOP 149% Jib
 Keel/CB: FIXED KEEL
 Propinat: EXPOSED FEATHERING
 FwdAccom: NO SPIH: SYMMETRIC
 HullCnst: LIGHT RodCnst: STIMRO
 Foresay: ADJUST AFT BoomHt: HEAVY
 Spreads: 3 Sets Inrfsty: NONE
 Runners: 2 Sets Jumpers: YES
 Dates: AGE: 0/0000
 COMMENTS:

RACING OFFICE:
 Issued: AUSTRALIAN YACHTING FED.
 01/JAN/96 LOCKED BAG 806,
 Measured: HILSON'S POINT,
 28/APR/90 N.S.W. 2061
 Revalidation Authority: A.Y.F.
 Measurer: GEN/P.E'S/ANDERSON
 "I CERTIFY THAT I UNDERSTAND MY
 RESPONSIBILITIES UNDER THE IHS."
 OWNER: RICHARD HUDSON
 26 WOLSELEY ROAD
 LINDFIELD
 NSW 2070

LIMITS AND REGULATIONS

Limit of Positive Stability: MEETS REQ
 Minimum Displacement: 3300kg; MEETS REQ
 Maximum Crew Weight: 815 kg
 Stability Index: 111.0
 Measurement Inventory: 14/DEC/95
 Accommodation Length: 12.245m
 Accoa Certificate: C/R DA= 0.68
 Plan Approval: NONE FILED

NOTE TO OWNER: The range available to revise crew weight is 442- 816 kg.

TIME ALLOWANCES IN SEC/MI BY TRUE WIND VELOCITY & ANGLE

Wind Velocity:	6kt	8kt	10kt	12kt	14kt	16kt	20kt	CHECKSUM
BEAT ANGLES:	42.9*	42.5*	41.1*	40.0*	39.2*	38.9*	39.2*	(283.8)
BEAT VEG:	988.6	839.4	768.7	731.4	710.6	699.7	693.5	(5431.9)
52°:	646.9	552.6	516.8	500.5	491.3	485.8	479.4	(3673.3)
R 60°:	609.0	526.2	494.2	480.3	472.0	466.4	459.2	(3507.3)
E 75°:	580.5	507.4	475.4	456.7	446.4	440.1	431.0	(3337.5)
A 90°:	576.5	498.2	466.2	449.6	438.4	425.9	410.3	(3265.1)
C 110°:	596.9	510.3	470.8	445.7	427.1	413.0	394.8	(3258.6)
H 120°:	641.1	535.0	485.8	455.1	432.3	413.7	384.8	(3347.8)
135°:	749.1	608.4	526.8	484.1	455.5	432.7	394.3	(3650.9)
150°:	905.7	721.0	607.7	533.3	490.2	460.9	417.5	(4136.3)
RUI VEG:	1045.8	832.5	700.1	604.0	539.6	498.1	445.4	(4665.5)
GYBE ANGLES:	140.3*	146.3*	161.3*	163.6*	168.2*	171.9*	174.3*	(1125.9)

NOTE: To convert any time allowance above to speed in knots: Kt = 3600/TA

Performance Line Scoring -- Time Factor: 0.753 Distance Factor: 63.7

TIME ALLOWANCES FOR SELECTED COURSES

Wind/Lvd VEG	1105.0	885.0	763.0	688.8	641.2	609.5	571.6	(5264.1)
Olympic 6-Leg	1028.7	831.9	726.0	664.0	625.6	600.8	571.1	(5048.1)
Circular Rndm	845.6	686.4	601.2	551.5	520.5	500.0	474.2	(4179.4)
Non-Spinnaker	924.9	742.4	642.8	583.4	545.8	520.8	490.1	(4450.2)
Ocean for PCS	973.3	761.9	642.8	567.8	518.2	483.0	434.6	(4381.0)

for Time-on-time method THF = 0.9760
 ILL Weighted Avg: 691.6

CENTERBOARD AND DRAFT

ECH	0.000	CBRC	0.000	CBMC	0.000	CBTC	0.000
VCBA	0.0	CBDA	0.000	KBDA	0.000	ECE	0.000
UCBB	0.0	CBDB	0.000	ENDPATE ADJ (KEDA)	0.000		
PRD	0.404	PBW	0.126	PHD	0.062	PHL	0.125
ST1	0.026	ST2	0.115	ST3	0.115	ST4	0.053
PSA	19.000	PSD	0.029	PIPA	0.0048		
FFPS	1.136	AFPS	1.089	SEFP	0.573	SAFP	10.763
FFH	1.112	FAM	1.100	FFPV	0.000	AFPV	0.000
FF	1.112	FA	1.100	SG		SG	1.025
W1	20.000	PD1	42.000	FLM	1510.000	PL	1505.437
W2	40.000	PD2	83.000	GSA	19.400	RSA	6400.0
W3	60.000	PD3	125.000	SHB	7.194	WD	11.890
W4	80.000	PD4	166.000	RH	150.8	RMC	150.8
RN2	159.4	RN20	145.3	RN40	122.2	RN60	81.5
RN90	29.4	CREW ARM (CRA)					1.619

CALCULATED LIMIT OF POSITIVE STABILITY: 112.7 DEGREES
 RATIO STABILITY CURVE AREAS, POSITIVE/NEGATIVE 2.074

HYDROSTATICS MEASUREMENT TRIM--SAILING TRIM--

KEEL DRAFT (DHKA)	2.270	(DHKA)	2.317
2ND MOMENT LENGTH (LSM2)	9.908	(LSM1)	10.089
DISPLACEMENT (WEIGHT) (DSPH)	6553	(DSPS)	7474
WETTED SURFACE (WS)	27.56	(WSS)	28.95
VCG FROM OFFSETS DATUM (FOR CLUB RH) (VCGD)		(VCGN)	0.079
VCG FROM MEASUREMENT TRIM WATERLINE (VCGM)		(B)	0.074
INTEGRATED BEAM ATTENUATED WITH DEPTH (B)		(AMS1)	3.095
MAXIMUM SECTION AREA (AMST)		(BTR)	1.388
BEAM/DEPTH RATIO (BTR)		(B)	4.438
EFFECTIVE DRAFT (E)		(0)	2.015
2° HEEL (LSM2) 10.098		25° HEEL (LSM3)	10.012
SUNK (LSM4) 11.892		AVG LENGTH (L)	10.246
TRIM: 1mm/9.095m/kg		SIBK:	1mm/20.190kg

SAIL AREA: MAIN + FORETRIANGLE + MIZZEN (SA) 77.00
 MAIN: 48.67 SPIN: 98.50 GENOA: 44.17 MIZEN: 0.00

FORETRIANGLE MAIN & SPARS

IG	13.715	SPL	4.110	MB	0.205	TL	4.500
NV	0.763	J	4.110	NGT	1.07	MDT1	0.104
GO	0.185	LPG	6.09	NGU	1.98	MDL1	0.170
ISP	13.800	FSP	0.050	MGN	3.40	MDT2	0.092
IH	13.789	LP	6.14	MGL	4.52	MDL2	0.091
MB1	1.052	SFJ	0.060	HSM	25.0	MWT	0.0
HSL	13.68	MSRW	7.40	P	15.270	MCG	0.000
SL	13.98	SHW	7.48	E	5.515	BD	0.268
SPS	2.270	LPTS	0.00	EC	5.515	CPH	2.720
TH	NO	JR	0.00	BAS	1.798	BAL	0.150

MIZZEN

IY	0.000	PY	0.000	HBY	0.000	ILY	0.000
EB	0.000	EY	0.000	MGY	0.000	MDLY	0.000
YSD	0.00	ECY	0.000	MGUY	0.000	MDLYY	0.000
YSF	0.00	BASY	0.000	MGY	0.000	MDTY	0.000
YSNG	0.00	BALY	0.000	MGLY	0.000	MDLYY	0.000
		HBY	0.000	BDY	0.000		

ANNEXURE 5 (P3)

IMS RATING CERTIFICATE No. 210700
 Based on: FULL MEASUREMENT (Metric)
 NOT VALID AFTER 30/06/96

IMS AMENDED TO JANUARY 1995
 Offshore Racing Council
 19 St James's Place, London
 Copyright 1995

IMS AMENDED TO JANUARY 1995 VPP: 12/JUL/95 10:25:38
 Cert No 210700 2107.DAT 12/JUL/95 10:24:40
 OFF Meas'd: 07/MAR/90 VCRAFT.OFF 06/JUL/94 09:10:06

YACHT DESCRIPTION
 Name: WITCHCRAFT II
 Sail No: 6057
 Class: 1 OFF FARR 40
 LOA: 12.237m Beam(MB) 4.032m
 Designer: FARR
 Builder: GLASS YACHTS
 Rig: FRACTIONAL SLOOP 150% Jib
 Keel/CB: FIXED KEEL
 PropInst: STRUT DRIVE FOLDING
 FwdAccom: NO SPIN: SYMMETRIC
 HullCnst: CORED RwdCnst: STNDRD
 Forestay: ADJUST AFT InrfSty: NONE
 Spreaders: 2 Sets Jumpers: YES
 Runners: 2 Sets Battens: SHORT
 Dates: AGE:12/1983

RATING OFFICE:
 Issued: AUSTRALIAN YACHTING FED.
 12/JUL/95 LOCKED BAG 806,
 Measured: MILSON'S POINT,
 17/DEC/94 N.S.W. 2061

Revalidation Authority: A.Y.F.
 Measurer: MARSHALL/ANDERSON

"I CERTIFY THAT I UNDERSTAND MY
 RESPONSIBILITIES UNDER THE IMS."

OWNER:
 B ELLIS/ B STAPLES
 PO BOX 51
 MT KURING-GAI
 NSW 2080

LIMITS AND REGULATIONS

Limit of Positive Stability: MEETS REG
 Minimum Displacement: 3132kg: MEETS REG
 Maximum Crew Weight: 796 kg.
 Stability Index: 111.5
 ABS Plan Approval: NONE FILED

NOTE TO OWNER: The range available to revise crew weight is 431-796 kg.

TIME ALLOWANCES IN SEC/MI BY TRUE WIND VELOCITY & ANGLE

Wind Velocity:	6kt	8kt	10kt	12kt	14kt	16kt	20kt
BEAT ANGLES:	45.9°	44.4°	43.0°	42.2°	41.7°	41.7°	42.2°
BEAT VMG:	1031.7	862.5	793.4	757.5	738.4	728.7	720.7
52°:	655.9	557.9	522.6	506.6	498.0	492.5	485.6
60°:	608.6	526.7	498.1	485.7	478.2	472.6	464.7
75°:	573.1	505.1	478.2	462.1	452.4	445.8	435.8
A 90°:	569.6	497.0	469.8	454.1	442.9	431.1	415.1
110°:	586.4	506.5	473.6	451.1	433.4	419.2	399.7
H 120°:	629.8	528.5	486.2	459.7	438.5	420.4	391.8
135°:	751.7	598.9	522.1	485.2	460.2	438.8	401.1
150°:	912.5	715.6	600.4	528.8	490.1	464.4	421.9
RUIN VMG:	1053.7	826.3	693.2	595.8	533.0	494.8	447.4
GVBE ANGLES:	139.9°	143.2°	151.1°	165.5°	170.5°	174.8°	175.9°

NOTE: To convert any time allowance above to speed in knots: Kt = 3600/TA

WIND-AVERAGED TIME ALLOWANCES FOR SELECTED COURSES

	1151.8	943.7	838.2	782.3	752.3	736.1	722.0	(5926.4)
Windward VMG	1151.8	943.7	838.2	782.3	752.3	736.1	722.0	(5926.4)
Leeward VMG	1098.2	849.9	705.0	611.8	548.9	505.1	449.2	(4768.1)
Olympic 6-leg	1053.6	849.6	740.9	678.6	641.0	617.0	587.9	(5168.6)
Circular Rndm	855.3	693.7	608.2	559.0	528.0	509.1	483.7	(4237.8)
Non-Spinmaker	936.0	750.6	650.0	590.7	553.7	529.6	500.4	(4511.0)
Ocean for PCS	986.9	772.2	651.0	575.8	525.8	490.3	440.9	(4442.9)

ANNEXURE 5 (P 41)

PIPA 0.0068

FLOTATION DATA
 FFH 1.105 FFPS 1.120 SFFP 0.562 SG 1.024
 FAM 1.118 AFPS 1.101 SAFFP 10.755 WD 11.900
 W1 20.000 PD1 43.000 PLM 1510.000 PL 1505.437
 W2 40.000 PD2 86.000 GSA 19.400 RSA 6400.0
 W3 60.000 PD3 129.000 RH 145.8 RMC 145.8
 W4 80.000 PD4 172.000
 RM2 154.0 RM20 140.4 RM40 119.5 RM60 81.7
 RM90 31.0 CREW ARM (CRA) 1.571
 CALCULATED LIMIT OF POSITIVE STABILITY: 113.9 DEGREES
 RATIO STABILITY CURVE AREAS, POSITIVE/NEGATIVE 2.117
 HYDROSTATICS MEASUREMENT TRIM--SAILING TRIM--
 KEEL DRAFT (DHKO) 2.272 (DHKA) 2.317
 2ND MOMENT LENGTH (LSMO) 9.638 (LSM1) 9.890
 DISPLACEMENT (WEIGHT) (DSPH) 6295 (DSPS) 7228
 WETTED SURFACE (HSH) 27.18 (WSS) 29.03
 VCG FROM OFFSETS DATUM (FOR CLUB RH) (VCGD) 0.033
 VCG FROM MEASUREMENT TRIM WATERLINE (VCGH) 0.036
 INTEGRATED BEAM ATTENUATED WITH DEPTH (B) 3.054
 MAXIMUM SECTION AREA (AMST) 1.431
 BEAM/DEPTH RATIO (BTR) 4.375
 EFFECTIVE DRAFT (D) 2.012
 2° HEEL (LSM2) 9.892 25° HEEL (LSM3) 9.822
 SUNK (LSM4) 11.275 AVG LENGTH (L) 9.920
 TRIM: 1mm/8.503m-kg SINK: 1mm/19.580kg

SAIL AREA: MAIN + FORETRIANGLE + MIZZEN (SA) 79.06
 MAIN: 50.92 SPIN: 94.42 GENOA: 44.11 MIZ'N: 0.00
 FORETRIANGLE MAIN MAST--BTNS--
 IG 13.692 SPL 4.062 HB 0.200 TL 3.515
 MH 0.184 J 4.085 MGT 1.16 MDT1 0.131
 GO 0.209 LPG 6.09 MGU 2.14 MDL1 0.196
 ISP 13.772 FSP 0.050 NGM 3.61 MDT2 0.083
 IM 13.776 LP 6.14 MGL 4.68 MDL2 0.090
 HBI 1.046 SFJ 0.065 HSW 32.0 BATX 0.000
 HXSL 13.66 HXSHW 7.35 P 15.255 BL1 0.860
 SL 13.66 SHW 7.35 E 5.652 BL2 0.860
 SPS 4.231 BAL 0.150 BAS 1.653 BL3 0.970
 LPS1 0.00 BD 0.260 BLP 3.34 BL4 0.970
 CPW 2.070
 MIZZEN--
 IY 0.000 PY 0.000 BY1 0.000 MDTTY 0.000
 EB 0.000 EY 0.000 BY2 0.000 MDL1Y 0.000
 YSD 0.000 BAY 0.000 BY3 0.000 MDL2Y 0.000
 YSF 0.000 BAYL 0.000 BY4 0.000 MDL2Y 0.000
 YSMG 0.000 BDY 0.000 BY5 0.000 TLY 0.000
 HBY1 0.000 HBY 0.000 HGUY 0.000 MGY 0.000
 ILC WEIGHTED AVERAGE: 706.9

WD 12.285
 12.285
 12.285

IHS RATING CERTIFICATE No. 213600
 Based on: FULL MEASUREMENT (Metric)
 NOT VALID AFTER 30/06/00
 GPH 613.4

IHS AMENDED TO JANUARY 1999
 Offshore Racing Council
 Southampton, England
 Copyright 1999

YACHT DESCRIPTION
 Name: NADIA IV
 Sail No: 4040
 Class: 1 OFF FARR 40
 LOA: 12.219m Beam(MB) 4.032m
 Designer: FARR
 Builder: MILNER
 Rig: FRACTIONAL SLOOP 146X Jib
 Keel/CB: FIXED KEEL
 PropJnst: EXPOSED FEATHERING
 FuelAccom: NO SPIN: SYMMETRIC
 HullCnst: HVMCORE RndCnst: STNDRD
 ForeStay: ADJUST AFT BoomMtl: HEAVY
 Spreaders: 2 Sets InrFsty: NONE
 Runners: 2 Sets Jumpers: YES
 Dates: AGE: 8/1984
 COMMENTS
 LOA 12.219

Issued: AUSTRALIAN YACHTING FEDR
 06/JUL/99 LOCKED BAG 806
 Measured: NILSONS POINT
 24/NOV/90 NSN 2061
 Revalidation Authority: A.Y.F.
 Measurer: G. MARSHALL
 "I CERTIFY THAT I UNDERSTAND MY
 RESPONSIBILITIES UNDER THE IHS."
 OWNER:
 T. DALTON
 P O BOX 9540
 DEAKIN
 A.C.T. 2600

LIMITS AND REGULATIONS
 Limit of Positive Stability: MEETS REQ
 Minimum Displacement: 3281kg: MEETS REQ
 Maximum Crew Weight: 650 kg
 Stability Index: 111.9
 C/R HeavyItems Pitch Adjust'm't 0.00000
 NOTE TO OWNER: The range available to revise crew weight is 443- 817 kg.

Measurement Inventory: 21/OCT/95
 Accommodation Length: 12.219m
 RACING
 Accom Certificate: NONE FILED
 Plan Approval: NONE FILED
 Anchor(s) Weight: 0 Oblet: 0.00
 Optional Age Allowance: 0.75X
 NOTE TO OWNER: The range available to revise crew weight is 443- 817 kg.

TIME ALLOWANCES IN SEC/MT BY TRUE WIND VELOCITY & ANGLE

Wind Velocity:	6kt	8kt	10kt	12kt	14kt	16kt	20kt
BEAT ANGLES:	43.0°	42.5°	41.1°	40.0°	39.0°	38.4°	38.0°
BEAT WNG:	975.3	834.9	765.4	726.3	701.7	686.2	672.9
52°:	635.3	549.9	517.5	500.4	489.4	482.0	474.4
R 60°:	596.7	524.3	497.0	482.2	472.1	465.1	457.2
E 75°:	568.2	505.9	477.2	460.5	450.3	442.7	432.9
A 90°:	566.5	497.6	468.8	453.9	440.8	429.2	415.0
C 110°:	582.6	506.2	471.1	447.5	430.0	416.8	399.9
H 120°:	623.6	527.3	483.9	455.4	433.8	416.0	388.4
135°:	731.9	593.6	520.3	482.1	455.0	432.7	395.4
150°:	883.8	705.9	595.4	526.7	487.8	460.1	417.6
RUW WNG:	1020.5	815.1	687.5	594.6	534.1	495.6	445.0
GYBE ANGLES:	140.6°	144.6°	150.5°	166.0°	169.4°	172.8°	174.7°

CHECKSUM

(282.0)
(3648.9)
(3494.6)
(3337.7)
(3271.8)
(3254.1)
(3328.4)
(3611.0)
(4077.5)
(6692.4)
(1116.6)

NOTE: To convert any time allowance above to speed in knots: Kt = 3600/Tk

TIME ALLOWANCES FOR SELECTED COURSES

Wind Vel:	6kt	8kt	10kt	12kt	14kt	16kt	20kt	CHECKSUM	PLT	PLD
Wind/Lyd	1087.2	872.5	753.3	690.3	632.8	600.7	560.9	(5187.7)	0.773	164.1
OL-6-Leg	1013.8	821.6	718.0	656.8	618.2	592.4	559.9	(4980.7)	0.916	262.8
Circ-Rnde	833.0	678.7	596.4	548.1	517.7	497.1	470.6	(4141.6)	1.155	274.8
Non-Spin	910.4	732.8	636.0	578.2	541.3	516.6	485.8	(4401.1)	0.971	201.6
Ocean C.	961.1	754.0	657.0	564.3	516.0	481.8	435.2	(4349.4)	0.771	71.7

Performance Line Corrected Time = (PLT x Elapsed Time) - (PLD x Distance)

NOV 15 '99 11:38 YACHTING RSSOC OF NSW

P 12

ANNEXURE 5 (PS)

IHS AMENDED TO JANUARY 1999 YPP: 06/JUL/99 17:54:58
 Cert No 213600 2136.DAT 06/JUL/99 17:54:14
 OFF Meas'd: 25/NOV/90 NADIA.OFF 26/MAY/93 13:07:46

CENTERBOARD AND DRAFT

ECM	0.000	CBRC	0.000	CBMC	0.000	CBTC	0.000
VCBA	0.0	CBDA	0.000	KCBA	0.000	ECE	0.000
VCBB	0.0	CBDB	0.000	ENDPLATE ADJ (KEDA)	0.000		

PROPELLER AND INSTALLATION

PRD	0.510	PBV	0.139	PHD	0.050	PHL	0.120	ESL	0.812
STI	0.025	ST2	0.112	ST3	0.130	ST4	0.055	ST5	0.270
PSA	18.000	PSD	0.032	PIPA	0.0040				

FLOTATION DATA

FFPS	1.113	AFPS	1.087	FGO	0.557	LBG	10.156
FFH	1.093	FAH	1.120	FFPV	0.000	AFPV	0.000
FF	1.095	FA	1.121			SG	1.020

INCLINING TESTS

AV	28.000	APD	30.000	AND	6.155	PL	459.943
BH	26.000	BPD	61.000	BND	6.155	SNB	7.198
CH	28.000	CPD	29.000	CND	6.130	RH	152.1
DH	56.000	DPD	60.000	DND	6.130	RMC	152.1
RH2	158.3	RH20	145.2	RH40	122.2	RH60	82.7
RH90	30.2	CREW ARM (CRA)	1.660				

CALCULATED LIMIT OF POSITIVE STABILITY: 113.6 DEGREES
 RATIO STABILITY CURVE AREAS, POSITIVE/NEGATIVE 2.135

HYDROSTATICS—MEASUREMENT TRIM—SAILING TRIM—

KEEL DRAFT	(DHKA)	2.280	(DHKA)	2.319
2ND MOMENT LENGTH	(LSM0)	9.871	(LSM1)	10.084
DISPLACEMENT (HEIGHT)	(DSPM)	6525	(DSPS)	7284
WETTED SURFACE	(WSR)	26.68	(WSS)	28.70
VCG FROM OFFSETS DATUM (FOR CLUB RK)	(VCG0)	0.041	(VCGH)	0.050
VCG FROM MEASUREMENT TRIM WATERLINE	(VCGH)	0.050		
INTEGRATED BEAN ATTENUATED WITH DEPTH (B)		3.096		
MAXIMUM SECTION AREA	(MHS1)	1.455		
BEAM/DEPTH RATIO	(BDR)	4.450		
EFFECTIVE DRAFT	(D)	2.015		
2° HEEL (LSM2)	10.093	25° HEEL (LSM3)	10.004	
SUNK (LSM4)	11.715	AVG LENGTH (L)	10.186	
TRIM: 1mm/8.939m-kg		SINK:	1mm/19.944kg	

SAIL AREA: MAIN + FORETRIANGLE + HIZZEN (SA) 78.41
 MAIN: 49.59 SPIN: 99.60 GENOA: 44.13 HIZZEN: 0.00

FORETRIANGLE MAIN & SPARS

IG	13.720	SPL	4.298	HB	0.220	TL	3.000
MH	0.125	J	4.170	MGT	1.10	NB11	0.100
GO	0.155	LPG	6.07	MGU	2.01	NB11	0.170
TSP	13.800	FSP	0.044	MGH	3.47	NB12	0.085
IM	13.819	LP	6.11	MGL	4.58	NB12	0.085
HBI	1.052	SFJ	0.000	NSU	32.0	NPT	200.0
HSL	13.70	MSRW	7.74	P	15.280	NGC	4.965
SL	13.60	SHU	7.68	E	5.640	BD	0.270
SPS	3.435	LPIS	0.00	EC	5.640	CPW	2.160
TH	NO	JR	NO	GAS	1.645	BAL	0.150

HIZZEN

IY	0.000	PY	0.000	HBY	0.000	TLY	0.000
EB	0.000	EY	0.000	HGY	0.000	NB11Y	0.000
YSD	0.00	ECY	0.000	HGYU	0.000	NB11Y	0.000
YSF	0.00	BASY	0.000	HGTY	0.000	NB12Y	0.000
YSNG	0.00	BALY	0.000	HGLY	0.000	NB12Y	0.000
		HBY1	0.000	BDY	0.000		

RATING CERTIFICATE MEASUREMENT INVENTORY
 (Part 1)

YACHT NAME: NADIA IV SAIL NUMBER: 4040

FOR THE INFORMATION OF OWNER AND CREW

When vessels exceed the JOR rating the yacht to be measured with gear and fittings aboard at which time the quantity, weight, and location. The validity of the Rating Certificate is dependent on a true and proper completion of this inventory form and consistent maintenance of the yacht in accordance with this Inventory. The complete rules pertaining are found in JOR 196, 187, 188, 189, 190 and 281.2.

The owner shall complete this inventory and together with the master, deck and initial each item. Chart, callout of any item may be made on the diagram at the bottom. If the owner is not present the following must be signed prior to measurement.

I authorize [Signature] at my representative and understand my responsibility as laid down in the International Offshore Rule.

Signed: [Signature] (Owner) [Signature] (Crew)

1 Interior Ballast Rule 102.21

Description	Weight	Distance from stem	Initials
LEAD BALLAST (POST)	377 KG	4.8 m	[Signature]
LEAD BALLAST (STB)	375 KG	9.5 m	[Signature]
LEAD BALLAST (UNDER ENGINE)	301 KG	9.5 m	[Signature]

2 Anchors at least one to be on board and chafes

1 x 30 lb	20 KG	6.1 m	[Signature]
1 x DANBORN	13 KG	6.1 m	[Signature]

3 Batteries

2 x 80 AH	25 KG	4.8 m	[Signature]
-----------	-------	-------	-------------

4 Tools

5 Engine (or o/b in fixed stowage)

Make	VALVO	Model	36 HP
------	-------	-------	-------

6 Tanks (including portable tanks) (Fuel, water, holding tanks, etc.)

Use	Type	Capacity	Distance from stem	Condition at time of measurement	Yes/No
WATER	PVC	100 Ltrs	7.00	Empty	
WATER	PVC	100 Ltrs	7.00	Empty	
FUEL	SPS	92 Ltrs	7.00	Empty	

List of items (excluding sails) normally forwarded but placed aboard the mast for measurement on the cabin sole

NIL

Portable deck equipment on the cabin sole shall be measured. Refer to Rule 202.2A.

WIPACK HANDLES, BLOCKS, ETC...

Description	Number	Weight from stem (Distance)	Weight
Other major items and items without in weight, quantity or location			

10 Sails on board for measurement. list: (See IOR 202.2C)

MAIN, NO 1, NO 2, NO 3, NO 4

2 x SPIN STORM JIB, TRYSAIL

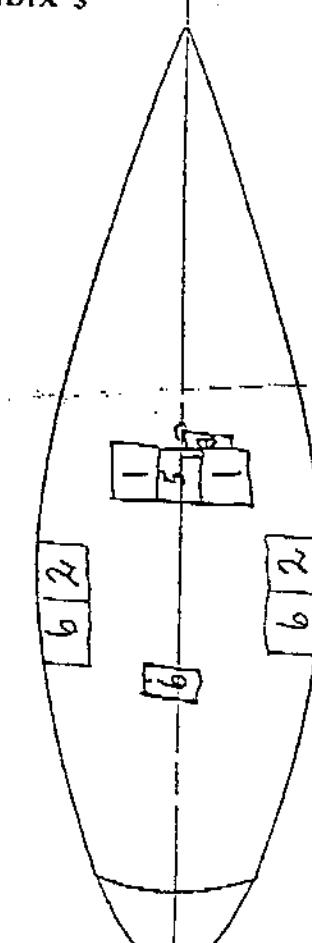
I certify that this is a true record of stowage at the time of measurement above.

Signed: [Signature] Date: 24/10/95

Measure of Name and Initials: [Signature]

AUSTRIAN YACHTING FEDERATION

[Signature]



APPENDIX 3

ANNEXURE 5 (P6)

IMS RATING CERTIFICATE No. 711500
 Based on: FULL MEASUREMENT (Metric)
 NOT VALID AFTER 30/06/99

IMS AMENDED TO JANUARY 1998
 Offshore Racing Council
 Ariadne House, Southampton UK
 Copyright 1998

YACHT DESCRIPTION
 Name: NAIAD
 Sail No: 5466
 Class: FARR 40
 LOA: 11.895m Beam(NB) 3.992m
 Designer: FARR
 Builder: NAUTECH SYSTEMS
 Rig: FRACTIONAL SLOOP 148% JIB
 Keel/CB: FIXED KEEL
 Proprietary: EXPOSED FEATHERING
 Fuel/Consum: YES
 Hull/Construct: CORED
 Forestay: ADJUST FND
 Spreaders: 2 Sets
 Runners: 1 Set
 Dates: AGE: 12/1984

RATING OFFICE:
 Issued: AUSTRALIAN SAILING FED.
 29/SEP/98
 Measured: LOCKED BAG 806,
 WILSON'S POINT,
 N.S.W. 2061
 Revalidation Authority: AIV
 Measurer: RICHARD FISHER

"I CERTIFY THAT I UNDERSTAND MY
 RESPONSIBILITIES UNDER THE IMS."
 OWNER:
 BRUCE GUY
 19 PITTEN CRIEF
 LAUNCESTON
 TAS. 7250

LIMITS AND REGULATIONS

Limit of Positive Stability: MEETS REQ
 Minimum Displacement: 2046kg
 Maximum Displacement: 11,895m
 Accommodation Length: 758 kg
 Stability Index: 105.6
 Plan Approval: NONE FILED

NOTE TO OWNER: The range available to revise crew weight is 411-758 kg.

TIME ALLOWANCES IN SEC/RI BY TRUE WIND VELOCITY & ANGLE

Wind Velocity:	6kt	8kt	10kt	12kt	14kt	16kt	20kt	CHECKSUM
BEAT ANGLES:	44.0°	43.2°	42.1°	41.5°	41.2°	41.4°	42.3°	(295.7)
BEAT WNG:	590.7	858.7	800.4	771.8	758.2	753.1	755.6	(5688.3)
52°:	640.0	560.6	532.5	519.2	512.3	507.9	504.4	(3776.9)
60°:	598.1	530.1	507.8	496.8	490.3	485.6	480.4	(3589.1)
A 75°:	566.3	507.3	482.1	469.9	462.5	456.7	448.7	(3393.5)
E 90°:	565.3	500.3	475.8	459.0	445.1	435.6	425.4	(3306.5)
C 110°:	581.4	507.0	473.5	451.3	435.3	424.3	407.9	(3280.7)
B 120°:	622.9	527.8	485.4	457.7	436.3	418.4	392.3	(3340.8)
135°:	732.8	592.9	520.8	483.5	456.9	434.1	393.3	(3614.3)
150°:	886.1	705.3	594.4	526.8	488.7	461.7	417.4	(4080.4)
RUN WNG:	1023.2	814.4	686.3	593.2	533.8	496.0	446.1	(4593.0)
GYBE ANGLES:	140.3°	144.7°	150.7°	164.3°	169.7°	173.3°	174.5°	(1197.5)

NOTE: To convert any time allowance above to speed in knots: Kt = 3600/TX

Performance Line scoring -- Time Factor: 0.773 Distance Factor: 84.4

TIME ALLOWANCES FOR SELECTED COURSES

Wind/Lux WNG	1103.8	890.6	774.5	705.4	662.3	634.6	602.7	(5373.9)
Olympic 6-Leg	1031.6	841.4	741.3	684.6	650.7	629.5	605.1	(5184.2)
Circular Ends	841.9	689.1	609.0	563.3	535.6	517.5	495.4	(4251.9)
Non-Spinlazer	917.8	741.8	647.3	592.1	556.1	536.1	510.1	(4503.3)
Ocean for PCS	977.0	769.0	652.1	579.7	531.6	497.3	449.6	(4456.3)

For Time-on-time method THF = 0.9535
 ILL Weighted Avg: 707.9

ANNEXURE 6 (PI)

IMS AMENDED TO JANUARY 1998 VPP: 29/SEP/98 10:04:58
 Cent No 711500 7115.DAT 29/SEP/98 10:03:06
 OFF Meas'd: 10/JAN/90 NAIAD.OFF 24/OCT/95 17:08:08

CENTERBOARD AND DRAFT
 ECB 0.000 CBRC 0.000 CBMC 0.000 CBTC 0.000
 WCB 0.0 CBDA 0.000 KCDA 0.000 ECE 0.000
 WCB 0.0 CBDB 0.000 ENDPLATE ADJ (KEDA) 0.000
PROPELLER AND INSTALLATION
 PRD 0.520 PBU 0.133 PHD 0.063 PHL 0.125 ESL 0.910
 STI 0.024 ST2 0.115 ST3 0.115 ST4 0.061 ST5 0.300
 P5A 19.300 PSD 0.025 PIPA 0.0052
FLotation DATA
 FFPS 1.102 AFPS 0.899 F60 0.554 LBS 9.970
 FFM 1.321 FAM 1.037 FFPV 0.000 AFPV 0.000
 FF 1.322 FA 1.037 S6 1.024

INCLINING TESTS
 U1 16.800 P01 44.000 PLN 1625.000 PL 1618.769
 U2 33.600 P02 88.000 GSA 0.178 RSA 46.2
 U3 50.300 P03 131.000 SWB 7.043 W 12.100
 U4 67.100 P04 176.000 RH 130.7 RMC 130.7
 RM2 138.9 RM20 124.3 RM40 102.5 RM60 67.4
 RM90 21.9 CREW ARM (GRA) 1.602
 CALCULATED LIMIT OF POSITIVE STABILITY: 109.5 DEGREES
 RATIO STABILITY CURVE AREAS, POSITIVE/NEGATIVE 1.651
HYDROSTATICS
 KEEL DRAFT (DMKD) 2.226 (DHKA) 2.270
 2ND MOMENT LENGTH (LSMO) 9.355 (LSRI) 9.368
 DISPLACEMENT (WEIGHT) (DSPM) 5546 (DSPS) 6405
 WETTED SURFACE (WSM) 25.08 (WSS) 26.75
 YCG FROM OFFSETS DATUM (FOR CLUB RM) (VCGD) 0.001
 YCG FROM MEASUREMENT TRIM WATERLINE (VCGM) 0.176
 INTEGRATED BEAM ATTENUATED WITH DEPTH (B) 3.073
 MAXIMUM SECTION AREA (ANST) 1.356
 BEAM/DEPTH RATIO (BTR) 4.822
 EFFECTIVE DRAFT (D) 1.976
 2° HEEL (LSM2) 9.569 25° HEEL (LSM5) 9.538
 SINK (LSM4) 11.361 AVG LENGTH (L) 9.741
 TRIM: 1mm/8.383mm-kg SINK: 1mm/19.169kg

SAIL AREA: MAIN + FORETRIANGLE + MIZZEN (SA) 79.00
MAIN: 49.25 SPIN: 99.40 GENOA: 45.98 MIZEN: 0.00
FORETRIANGLE MAIN & SPARS
 JG 14.381 SPL 4.108 H8 0.170 TL 4.130
 MV 0.124 J 4.108 MGT 1.20 MDT1 0.173
 GO 0.153 LPG 6.04 HGU 2.06 MBL1 0.172
 TSP 14.433 FSP 0.068 HGH 3.43 MDT2 0.058
 IM 14.483 LP 6.11 HBL 4.52 MBL2 0.080
 MH 1.170 SFJ 0.070 HSW 30.9 MDT 242.0
 KSL 14.26 MSW 7.39 P 15.230 MCG 4.675
 SL 14.30 SNW 7.39 E 5.595 BD 0.265
 SPS 3.660 LPS 0.00 EC 5.595 CPN 2.080
 TH NO JR 0.00 BAS 1.820 SAL 0.150
MIZZEN
 IY 0.000 PY 0.000 HBY 0.000 TLY 0.000
 EB 0.000 EY 0.000 HBY 0.000 MDTY 0.000
 YSD 0.000 EY 0.000 HBY 0.000 MDTY 0.000
 YSF 0.000 BAY 0.000 HBY 0.000 MDTY 0.000
 YSHG 0.000 BAY 0.000 HBY 0.000 MDTY 0.000

Aff Richard Fisher

MEASUREMENT INVENTORY (Rating Certificate - Page 2)

Measurement Inventory Date
Flotation Measured: 18/7/98

YACHT NAME NALAD
SAIL NUMBER 5466

FOR THE INFORMATION OF OWNER AND CREW:

With certain exceptions, the Rule requires the yacht to be measured with gear and fixtures aboard as when raced, in quantity, weight and location. The validity of the Rating Certificate is dependent on a true and proper completion of this inventory form and continued maintenance of the yacht in accordance with this inventory.

The owner shall complete this inventory together with the Measurer and check and initial each item. If the owner is not present the following must be signed prior to issuing the rating certificate.

I authorize _____ as my representative and understand my responsibilities under the Rule.

Signed _____ (Owner)

1. Interbar Ballast [302.2(b) & 402.2(a)]
Description Weight Distance from stem Initials Owner Measurer

a NIL (PREVIOUS BALLAST REMOVED)
b
c
d
e
f

2. Anchors at least one on board and chains [402.2(h)]

a COR 25 6.1
b DANFORTH 17 6.1

3. Batteries [402.2(h)]

a ZX TRUX 40 8.0
b

4. Tools

5. Engine (or odd in fixed storage) [402.2(o)]

Make NANNI Model 4.110H/ME 36HP

6. Tanks (including portable tanks, fuel, water, holding tanks, etc.) [402.2(f)] Owners declaration provided: Yes / No

Use	Type	Capacity	Distance from stem	Condition at time of measurement
a	<u>FUEL</u>	<u>5ks</u>	<u>60L</u>	<u>10L</u>
b	<u>WATER</u>	<u>BARRER</u>	<u>150L</u>	<u>DRY</u>
c	<u>WATER</u>	<u>BARRER</u>	<u>150L</u>	<u>DRY</u>
d				
e				
f				

Signed _____ (Owner)

7. List of items normally forward but placed on the cabin sole aboard the mast for measurement. [402.2(a) & 402.2(d)]

Total Weight

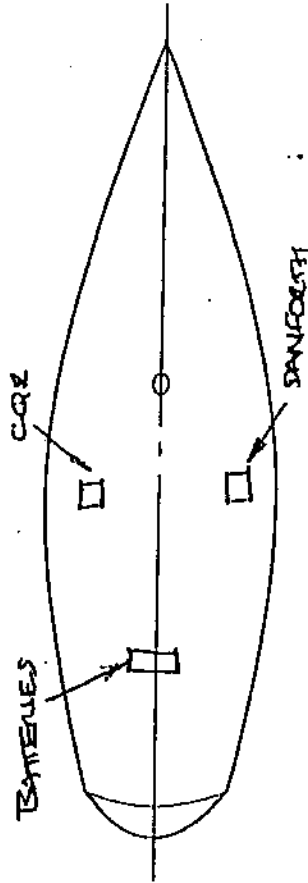
8. One set only of portable deck equipment on the cabin sole aboard the mast for measurement. [402.2(a)2]

Weight

9. Other major items and items unusual in weight, quantity or location [402.2(f)]
Description Number Weight Distance from stem

a
b
c
d
e
f
g
h
i

10. Diagram major fixed items: hullcut, tanks, etc. using line codes 1h, 6a, etc.



11. I, the Owner / Representative, certify that this is a true record of stowage at the time of measurement afloat

Block letters: BRUCE R. GUY

Signature: Bruce R. Guy

Date: 18/7/98

Measurer's Name and Signature
Andi Cole
7006

APPENDIX 6 (P2)

TEST IS \$50.00

IHS RATING CERTIFICATE No. 711500
 Based on: FULL MEASUREMENT (Hestley)
 HOT VAL19 AFTER 30/06/99

IHS AMENDED TO JANUARY 1998
 Offshore Racing Council
 Ariadne House, Southampton, UK
 Copyright 1998

YACHT DESCRIPTION
 Name: WALAD
 Sail No: 5466
 Class: FARR 40
 LOA: 11.895m Deam(HB) 3.972m
 Designer: FARR
 Builder: NAUTECII SYSTEMS
 Rig: FRACTIONAL SLOOP 148% Jib
 Keel/CB: FIXED KEEL
 Proplan: EXPOSED FEATHERING
 Swallow: YES
 Hull/Cnst: CORED
 Forestay: ADJUST FNB
 Spreaders: 2 Sets
 Runners: 1 Set
 Dates: AGE: 12/1986
 COMMENTS: JUMPS: YES

RATING OFFICE:
 Issued: 15/OCT/98
 Measured: 18/SEP/98
 Revalidation Authority: AYF
 Measurer: RICHARD FISHER
 *I CERTIFY THAT I UNDERSTAND MY RESPONSIBILITIES UNDER THE IHS.
 OWNER: BRUCE GUY
 19 PITTEN CREEK
 LAUNCESTON
 TAS. 7250

LIMITS AND REGULATIONS
 Limit of Positive Stability: MEETS REQ
 Minimum Displacement: 3134kg MEETS REQ
 Maximum Crew Weight: 766 kg
 Stability Index: 102.8
 NOTE TO OWNER: The range available to revise crew weight is 415-766 kg.

TIME ALLOWANCES IN SEC/MI BY TRUE WIND VELOCITY & ANGLE

Wind Velocity:	6kt	8kt	10kt	12kt	14kt	16kt	20kt
BEAT ANGLES:	44.0°	43.2°	41.9°	41.1°	40.8°	40.8°	41.6°
BEAT VNG:	995.2	857.4	796.5	766.3	751.3	745.2	745.6
52°:	642.7	560.0	531.7	518.3	511.3	506.8	502.7
R 60°:	600.5	530.7	508.1	497.1	490.5	485.8	480.4
E 75°:	569.1	509.2	483.9	471.4	464.1	458.4	450.6
R 90°:	567.9	502.2	477.7	462.0	448.4	438.9	429.1
C 110°:	585.0	509.5	476.3	454.5	438.8	428.2	413.1
H 120°:	628.1	530.2	488.1	460.9	440.2	423.3	398.6
135°:	740.7	596.6	523.2	486.2	460.2	438.4	400.2
150°:	896.6	710.7	597.5	529.0	491.2	464.6	422.4
GYBE VNG:	1035.3	820.7	690.0	595.7	535.8	498.2	449.5
GYBE ANGLES:	140.2°	144.3°	150.3°	164.2°	169.9°	173.5°	174.9°

NOTE: To convert any time allowance above to speed in knots: Kt = 3600/Tk

Performance Line Scoring - Time Factor: 0.771 Distance Factor: 84.7

TIME ALLOWANCES FOR SELECTED COURSES

Und/Lud VNG	1109.4	892.9	774.7	704.2	640.2	631.9	599.4
Olympic 6-Leg	1036.0	842.9	741.0	683.0	648.4	626.9	602.0
Circular Rndm	846.3	691.6	610.3	564.0	536.0	518.0	495.8
Non-Spinnaker	923.0	744.9	649.0	592.9	558.4	536.2	509.9
Ocean for PCS	980.9	771.4	653.7	581.0	532.9	499.0	452.3
For Time-on-time method Tnf = 0.9533							ILL Weighted Avg: 708.1

CENTERBOARD AND DRAFT
 ECM 0.000 CBRC 0.000 CBHC 0.000 CBTC 0.000
 NCBA 0.0 CBDA 0.000 KCDA 0.000 ECE 0.000
 WCB 0.0 CODB 0.000 ENDPLATE ADJ (KEDN) 0.000
 PROPELLER AND INSTALLATION
 PPD 0.520 PBD 0.133 PHD 0.063 PHL 0.125 ESL 0.910
 STI 0.024 ST2 0.175 ST3 0.175 ST4 0.061 ST5 0.300
 PSA 19.300 PSD 0.025 PIPA 0.0052

FLOTATION DATA
 FFPs 1.102 APPS 0.899 SFFP 0.545 SAFF 10.545
 FFM 1.231 FAR 1.037 FFPY 0.000 AFPY 0.000
 FF 1.232 FA 1.037

INCLINING TESTS
 V1 16.800 PD1 44.000 PLN 1625.000 PL 1618.769
 U2 33.600 PD2 88.000 65A 0.178 ASA 46.2
 W3 50.300 PD3 131.000 SMB 7.043 WD 12.100
 W4 67.100 PD4 176.000 RN 130.7 RMC 130.7
 RM2 137.5 RM20 124.0 RH40 101.7 RH60 63.5
 RM90 16.9

CREW AID (GRA) 3.804

CALCULATED LIMIT OF POSITIVE STABILITY: (104.7) DEGREES
 RATIO STABILITY CURVE AREAS: POSITIVE/NEGATIVE 1.296

HYDROSTATICS
 KEEL DRAFT (DHKD) 2.263 (DHKA) 2.307
 2ND MOMENT LENGTH (LSM2) 9.660 (LSM1) 9.859
 DISPLACENT (WEIGHT) (DSPH) 6287 (DSPS) 7161
 WETTED SURFACE (WSH) 26.19 (WSS) 27.82
 VCG FROM OFFSETS DATUM (FOR CLUB RM) (VCGD) 0.106
 VCG FROM MEASUREMENT TRIM WATERLINE (VCGH) 0.727
 INTEGRATED BEAM ATTENUATED WITH DEPTH (B) 3.126
 MAXIMUM SECTION AREA (AMST) 1.481
 BEAM/DEPTH RATIO (BTR) 4.573
 EFFECTIVE DRAFT (D) 1.999
 2° HEEL (LSM2) 9.661 25° HEEL (LSM3) 9.818
 SUNK (LSM4) 11.432 AVG LENGTH (L) 9.950
 TRIN: 1mm/8.738m-kg SINK: 1mm/19.744kg

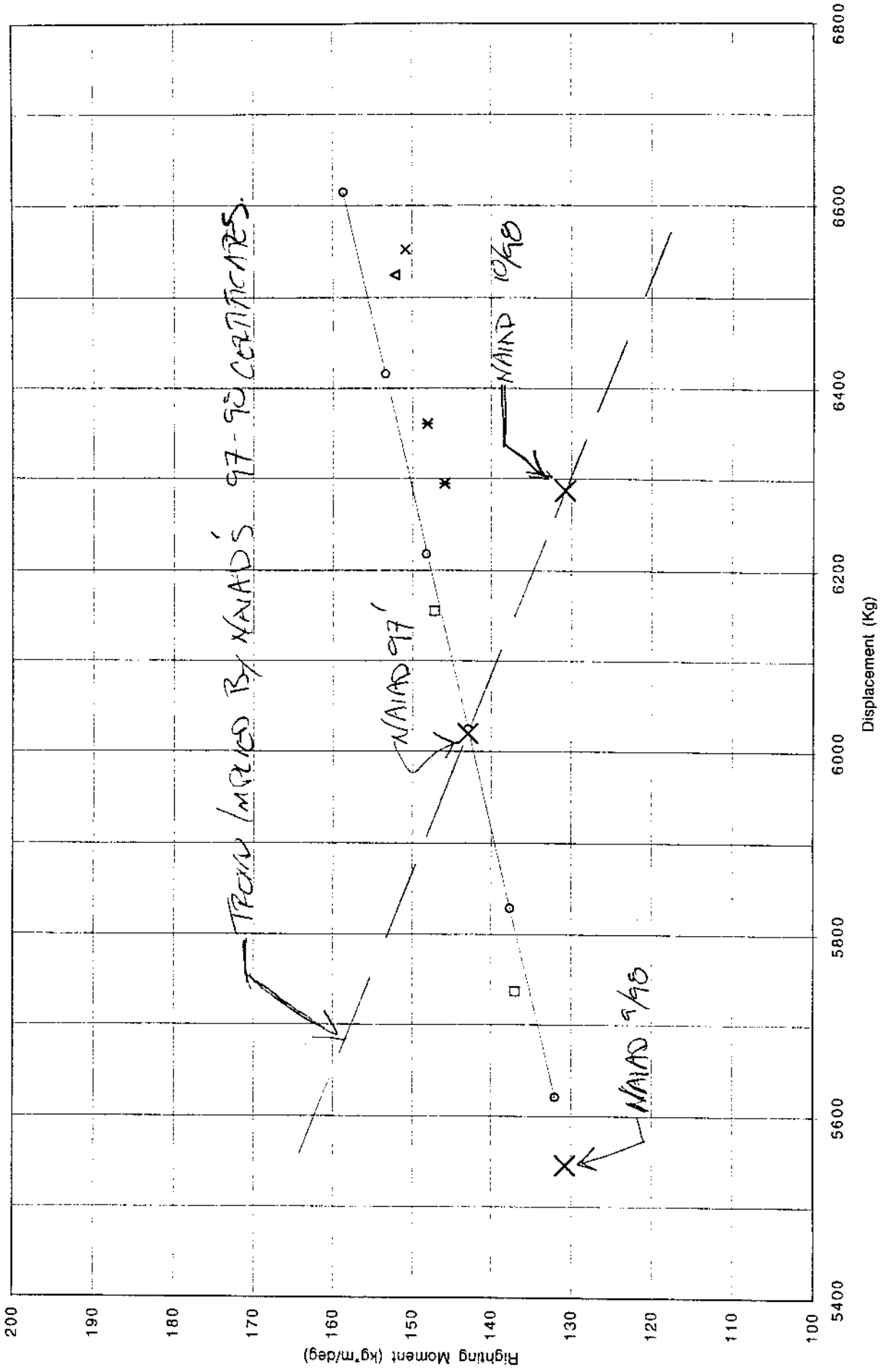
SAIL AREA: MAJ + FORETRIANGLE + MIZZEN (SA) 79.00
 MAJN: 49.25 SPIN: 99.40 GENDA: 45.98 MIZ'H: 0.00

FORETRIANGLE
 IG 14.381 SPL 4.108 HB 0.170 TL 4.130
 PH 0.124 J 4.708 MGT 1.20 ADT1 0.173
 GO 0.153 LFG 6.04 HGU 2.06 MOLT 0.172
 ISP 14.433 FSP 0.068 MGH 3.43 MOLT2 0.058
 JIN 14.483 LP 6.11 HGL 4.52 MOLT3 0.080
 HBI 1.172 SFJ 0.070 KSH 30.9 MVT 212.0
 HSL 14.26 KSHW 7.39 P 15.250 HEG 4.675
 SL 14.30 SHW 7.39 E 5.595 BD 0.265
 SPS 3.660 LPS 0.00 EC 5.595 CPW 2.080
 TH HD JR HIZZEN

MAJN & SPARS
 PY 0.000 PY 0.000 HBY 0.000 TLY 0.000
 EB 0.000 EY 0.000 IMGT 0.000 MNTY 0.000
 YSB 0.000 ELY 0.000 MGYU 0.000 MNTY2 0.000
 YSF 0.000 BABY 0.000 MGLY 0.000 MNTY3 0.000
 Y2MG 0.000 BAILY 0.000 MGLY2 0.000 MNTY4 0.000
 HBY 0.000 BDY 0.000

ANNEXURE 7

Business Post Naiad's Data with Farr 40 Fleet Data for Displacement and Righting Moment



ANNEXURE 8

Yacht Name

1996

Certificate No

NAIAD

IMS MEASUREMENT DATA SHEET

KA 7115

01 Yacht Name (24)	Sail No(12)	Owners Name (36)
NAIAD	S466	BRUCE GUY

02 Designer (18)	Builder (18)	Address (36)
FARR	NAUTEK SYSTEMS	19 PITEN CREEK

03 Measurer (18)	Class (18)	Suburb (36)
RICHARD FISHER 7006	FARR 40	LANNESTON

04 CertNo(6)	Reval Auth(12)	Meas Date	Float Date	H	PII	State	Postcode
	AYF	D M Y 18 9 98	D M Y 18 7 98			TAS	7250

05 Comment (36) Comment (36)

06 Comment (36) Comment (36)

BOAT RE-INCLINED AFTER REMOVING INTERNAL BALLAST
MIST WEIGHED, CREW WT ADJUSTED, HEADSAIL RE-MEASURE, NEW SPINAKER

07 File Off(12)	TECH	ICDA	WCDA	CBDA	WCBB	CBDB	CBRC	CBMC	CBTC	AGE DATE

08 IPT/PRD	ESL	PSA	PHD	PHL	PSD	ST1	ST2/APN	ST3/APT	ST4/APB	ST5	PBW

09 FFM	FAM	FGO	LBG	SG	PLM	WMAIN					
1321	1037			1024	1625						

10 WT	WD	PD1	W2	ZERO	PD2	W3	IGSA	PD3	W4	RSA	PD4
16.8	12.10	44.0	33.6	0.0	88.0	50.3	0.178	131.0	67.1	26.2	176.0

11 IG	ISP	HW	GO	SPS	J	SPL/TPS	LPG	FSP	SHW	SL	HBS
							6.04		7.39	14.30	-

BAS	P	E	BAL	BD	HB	BLP	BL1	BL2	BL3	BL4	BL5

13 MDT1	MDL1	MDT2	MDL2	TL	MDT1Y	MDL1Y	MDT2Y	MDL2Y	TLY	MGU	MGM

14 BAY/BADS	PY/PSF	EY/EF	BALY/BALF	BDY/BDF	MBY/HBF	BLPY/BLPF	BY1/BS1	BY2/BS2	BY3/BS3	BY4/BS4	BY5/BS5

15 IY/BADX	EB	ES	YSF/OF	MGTY/GF	MGLY/HF	YSO/S4	YSNG/S5	MGUY	MGMY	MGT	MGL

16 CREW	SFJ	CPN	SPR	JMP	IB	IF	FST	REG	CNS	ACC	ABS	RUD	AGE	SPN	RIG	TWSC	CM	NOR	HWL	IVCG	IBWT	LOA	
700																							

212 14-675 30

MEASURERS SIGNATURE
RUSSELL-7006

ANNEXURE 9

APPENDIX 2 -- MEASUREMENT CONDITION CHECK LIST & INVENTORY

This check list is intended to help the owner prepare the yacht for measurement. Each item checked will be initiated by the owner and Measurer. The completed document will be returned to the Rating Office for retention. The yacht shall be completed and equipped for sailing. There shall be no sails aboard at the time of the check below deck.

		Initials	
		Owner	Measurer
1.	All sails removed from the yacht.	RDY	EB
2.	Ballast sealed to hull structure and anchors, chain and batteries fixed in clearly marked stowage.	RDY	EB
3.	Heads, bowls, sinks, etc. are dry.	RDY	EB
4.	Bilges and other possible areas where water may collect are dry	RDY	EB
5.	Tankage and voids condition checked.	RDY	EB
6.	Navigational and cooking equipment stowed as specified.	RDY	EB
7.	No clothing, bedding, food or stores on board	RDY	EB
8.	Mattresses, cushions and pillows stowed in normal position (dry)	RDY	EB
9.	No portable equipment in front of the mast	RDY	EB
10.	Safety equipment stowed in normal position but not forward of the mast	RDY	EB
11.	All stowages opened and checked	RDY	EB
12.	No liferaft or dinghy on board	RDY	EB
13.	Centreboards raised unless to be locked down whilst racing		N/A
14.	Sheets, guys, etc. on cabin sole abaft the mast in accordance with 402.2(a)2.	RDY	EB
15.	Measurement bands PAINTED on spars	RDY	EB
16.	All standing rigging tight	RDY	EB
17.	Running rigging tight. Halyards led to the foot of the mast and tails to their normal operating position	RDY	EB
18.	Running backstays aft and tight, running forestays to the mast	RDY	EB
19.	Masts raked aft to the limit of adjustment, not forward of vertical	RDY	EB
20.	Boom at low point, horizontal, centred and secured against movement	RDY	EB
21.	Spinnaker pole(s) on deck in normal stowage. (No. 1, 2) (If a yacht's poles are not being used for inclination, they must be removed when inclining)	RDY	EB

Signed RDY (Owner) EB (Measurer)
 Dated: 18/7/98

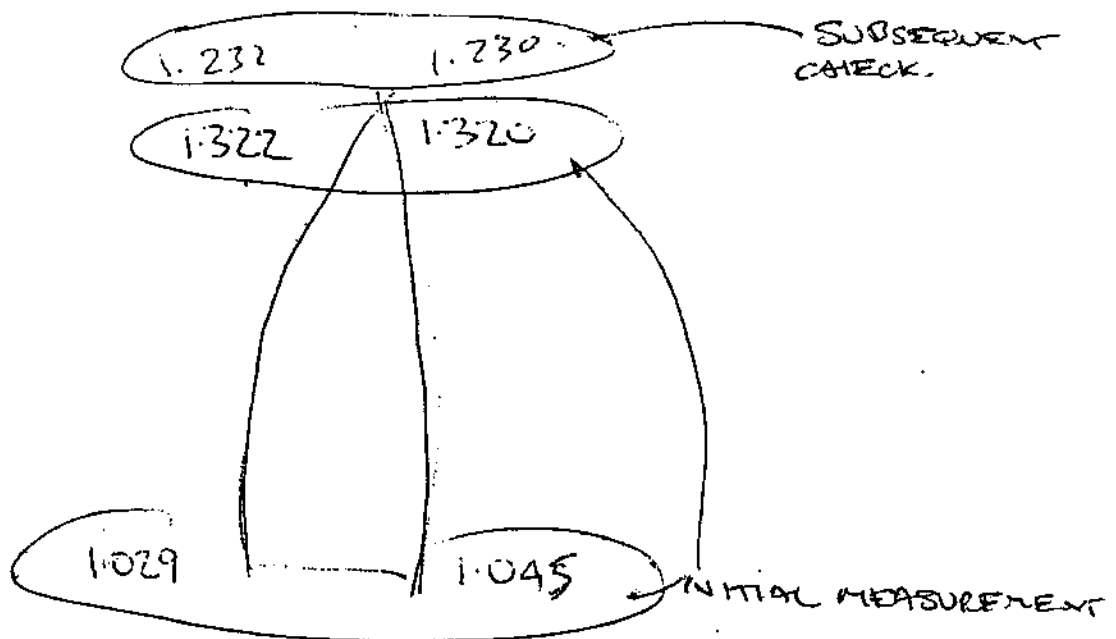
ANNEXURE 9 (P2)

112-100

12-7-98

P1	P2	RFI	
4x37 lbs	-	220	45
3	1	175	13
2	2	132	44
1	3	88	44
-	4	44	

WD 12.10



Fixed lead weights removed

ANNEXURE 9 (P3)



Chester G. Bullock and Associates

Consulting Engineers, Architectural Designers and Land Surveyors
A.C.N. 009 511 906 Phone (03) 6331 7100 Facsimile (03) 6331 7186

Facsimile Transmittal

To: **AYF**

Fax: **0299232883**

Attention: **TONY MOONEY**

Pages: **1**

From: **RICHARD FISHER**

Date: **15-10-98**

Project: **NAIAD MEASUREMENT**

Project No.:

Notes:

TONY

LOOKS LIKE I MIS-READ TAPE.

NUMBERS SHOULD BE:

FFM 1-231

FAM 1-037

**ALSO, ANOTHER OWNER HAS ENQUIRED
ABOUT COST OF TEST CERTIFICATES.
COULD YOU PLEASE FAX ME FEES?**

REGARDS

RICHARD

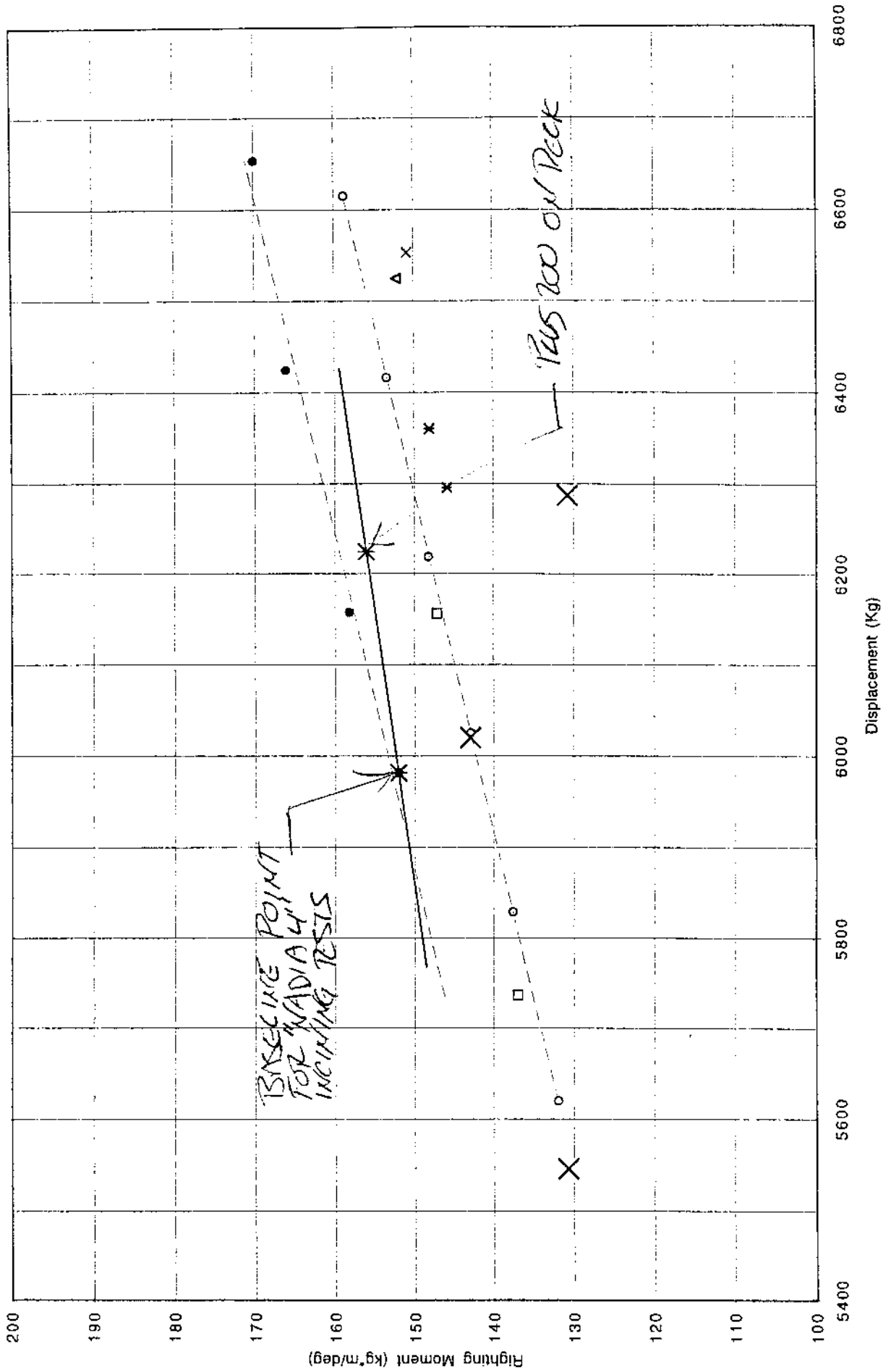
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ANNEXURE 10

Niad 4 Experiment Results for Added Weight on Deck



ANNEXURE 11