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RIDE THE DUCKS

MO8227EF O.N. CG441083
HULL NUMBER: SD-1
INTACT STABILITY ANALYSIS

[redacted]

Digitally signed by Jerry DeWane Ray
DN: CN = Jerry DeWane Ray, C = US, O = J.D. Ray & Associates, INC
Reason: I am the author of this document
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INTACT STABILITY ANALYSIS
SD #1 O.N. CG441083

INTRODUCTION

Ride the Ducks, Inc. requested a stability analysis be conducted of the subject vessel to ascertain compliance with Coast Guard intact stability requirements. Federal Register Notice April 26, 2006 (doc USCG-200522732) requested Owners and Operators re-evaluate their vessels stability using an assumed passenger weight of 185 lbs/passenger. The vessel originally passed a simplified stability test conducted on October 13, 1998 assuming a passenger weight of 160 lbs/passenger.

LIGHTSHIP VALUES

An inclining experiment was conducted on the subject vessel on February 20, 2007 at Table Rock Lake, Branson, MO. The test procedure and test were approved and witnessed by the U.S. Coast Guard. The resulting lightship values were found:

Weight = 17,925 lbs
LCG = 15.939 feet fwd of stern
VCG = 3.314 feet above baseline

Note: Longitudinal Reference is at the stern
Transverse is centerline
Vertical is baseline tangent to bottom of tires

INTACT STABILITY

Calculations were made for 4 load conditions for a protected route. The load conditions were full load 38 passengers 2 crew, half load 19 passengers 2 crew loaded forward, half load 19 passengers 2 crew loaded aft, and no passengers 2 crew. Stability calculations were conducted to demonstrate compliance with 46 CFR 170.173 (Righting Energy), 46 CFR 170.170 (GM Weather) and 46 CFR 171.050 (Passenger Heel). The calculations indicate the subject vessel would meet all intact stability criteria for all load conditions for a protected route. The following is a summary of the results:

Summary of Stability Criteria

46 CFR 170.170 GM Weather

Load Condition	1	2	3	4
P	0.0025	0.0025	0.0025	0.0025
A (ft^2)	168.7	176.7	176.7	184.2
H (ft)	1.64	1.86	1.86	2.01
W (LT)	11	10	10	8
T (deg)	7.09	8.20	7.96	7.13
GM_{req}	0.49	0.58	0.60	0.90
GM_{att}	1.56	2.31	2.23	2.86
	PASS	PASS	PASS	PASS

46 CFR 171.050 Passenger Heel

Load Condition	1	2	3	4
N	38	38	38	38
b (ft)	1.78	1.78	1.78	1.78
T (deg)	14	14	14	14
K	18.16	18.16	18.16	18.16
W (lt)	11	10	10	8
Gmreq (ft)	1.31	1.53	1.53	1.81
Gmatt (ft)	1.56	2.31	2.23	2.86
	PASS	PASS	PASS	PASS

46 CFR 170.173 Righting Energy

Load Condition	1	2	3	4
(1) Angle from abs 0 deg to Flood > 25.00 deg	28.08	33.48	31.14	38.03
(2) Area from abs 0 deg to abs 40 or MaxRA >10.00 Ft-deg	21.24	28.72	28.2	36.85
(3) Area from abs 0 deg to abs 40 or Flood > 10.00 Ft-deg	10.55	20.45	17.16	33.5
	PASS	PASS	PASS	PASS

RECOMMENDED STABILITY GUIDANCE

The following are recommended operating restrictions for the vessel. The final operating restrictions will be given by the USCG in a stability letter.

1. ROUTE: Operation on Protected Waters only.

2. PERSONNEL: A maximum of 40 persons may be carried, of which 38 may be passengers. The personnel capacity is based on an assumed passenger weight of 185 pounds.

3. SPEED AND WAVE HEIGHT: This vessel is limited to a maximum speed of 6.9 knots and an operating environment with a maximum significant wave height of 2.5 feet.

4. FREEBOARD AND DRAFT: A freeboard of at least 2 feet 1-13/16 inches, as measured to the top of the bulwark at amidships, shall be maintained. This corresponds to a maximum baseline draft of 4 feet 3-5/8 inches. Amidships is located 15 feet 1-5/16 inches forward of the stern. Trim shall be minimized.

5. TANKS: Any cross-connections between port and starboard tank pairs shall be closed at all times when underway.

6. HULL OPENINGS: Any openings that could allow water to enter the hull should be kept closed when rough weather or sea conditions exist or are anticipated.

7. WEIGHT CHANGES Stability guidance is based upon the following lightship parameters:

Weight = 17,925 lbs
LCG = 15.939 feet fwd of stern
VCG = 3.314 feet above baseline

Note: Longitudinal Reference is at the stern
Transverse is centerline
Vertical is baseline tangent to bottom of tires

Any alteration resulting in a change in these parameters will invalidate this stability guidance. No fixed ballast or other such weights shall be added, removed, altered and/or relocated without reviewing the impact of the change on the vessels stability. This vessel is not fitted with permanent ballast.

8. BILGES: The vessel's bilges and voids shall be kept pumped to minimum content at all times consistent with pollution prevention requirements.

9. LIST: You should make every effort to determine the cause of any list of the vessel before taking corrective action.

10. FULL LOAD MARK: NVIC 1-01 requires all duck operators to provide a permanent loading mark at the stern to indicate the minimum freeboard at the maximum load the freeboard to this mark should be no less than 2 feet 0-5/8 inches.

CONCLUSIONS

Based on the study conducted SD-1 meets the intact stability requirements for operation on a protected route assuming passengers weigh 185 lbs/passengers, subject to the recommended stability guidance previously mentioned in this study.

APPENDIX OF SUPPORTING CALCULATIONS

A. Inclining Experiment Results

B. Intact Stability Calculation

C. Hydrostatic Modeling

Appendix A
Inclining Experiment Results

Stability Test Data

Description of Vessel: Stretch Duck, Amphibious Small Passenger Vessel (T)

Vessel Name: MO8227EF
Official Number: CG441083
Gross Tons: Not Documented

Type: Stretch Duck, Amphibious Small Passenger Vessel
Builder: AVM, LLC
Hull Number: SD-1
Hull: Steel
Machinery: Propulsion Gasoline

Classed by: Inspected
Route: Rivers, Protected

Vessel Inclined At: Table Rock Lake, State Park Marina, Branson, Missouri
Date: 2/20/2007 Time: 1500

Plans Furnished By: J.D. Ray , P.E.
Offsets Measured By: J.D. Ray , P.E
Curves of Form Computed by: J.D. Ray , P.E

Test Conducted by: J.D. Ray , P.E
Stability Calculations Made by: J.D. Ray , P.E
Sister Vessels: Stretch Duck Hulls (SD-) 2 through 11

Owner: Ride the Ducks, Branson
Owner's Address: 2320 West Highway 76 Branson, MO 65616

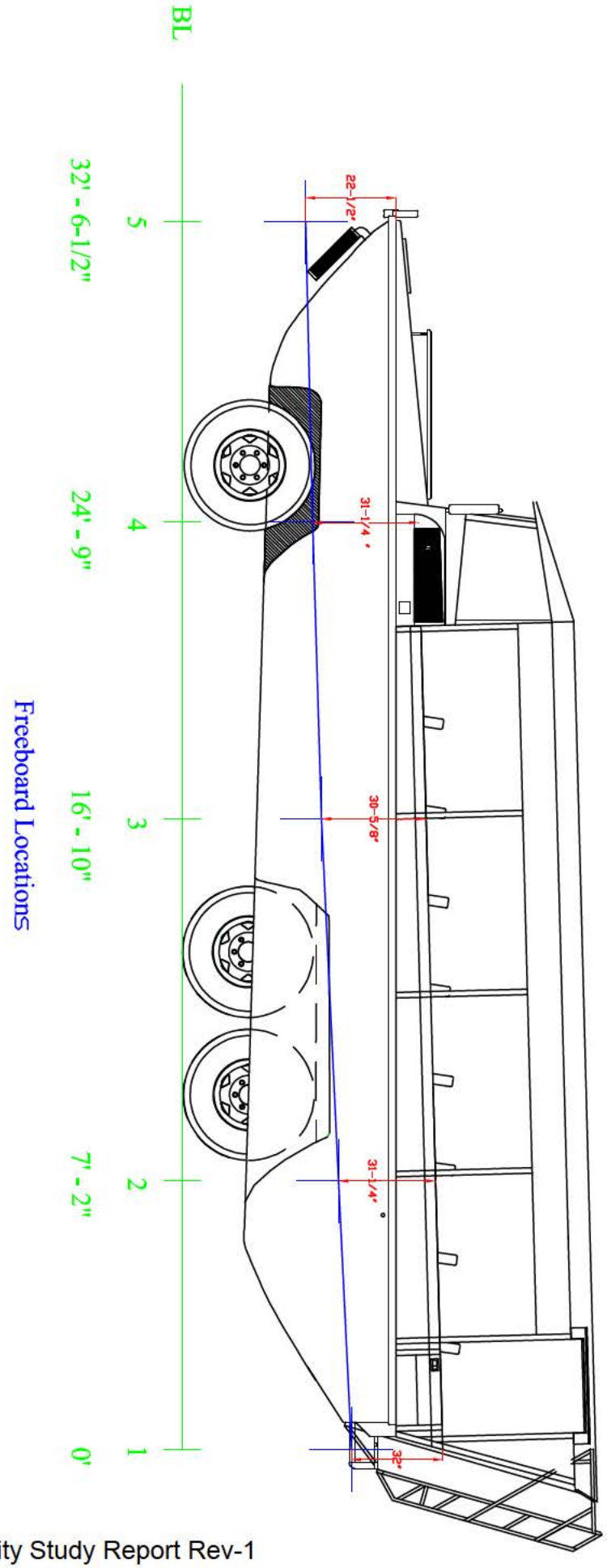
Principle Dimensions

Length over all	32 ft 10 in (32.83 ft)
Length Between Draft Marks	N/A
Breadth, extreme constant along length	7 ft 9-5/8 in (7.802 ft)
Breadth, molded (offsets include plate thickness) amidships	7 ft 9-5/8 in (7.802 ft)
Breadth at load water line	7 ft 9-5/8 in (7.802 ft)
Max Beam accessible to passengers (Bp)	7 ft 1-5/8 in (7.135 ft)
Depth amidships from baseline to top of gunnel	6 ft 5-3/8 in (6.448 ft)
Apparent full load draft at amidships (15.11 ft fwd)	4 ft 3-5/8 in (4.305 ft)
Displacement, sea water, tons (2240 lb) at above full-load draft	25,561 lbs
Freeboard amidships at above full-load draft	2 ft 1-13/16 in (2.14 ft)
Freeboard at low point of sheer (at stern)	2 ft 0-5/8 in (2.05 ft)

Location of Ports, in hull, which may affect stability: Gunnel of passenger compartment

General Information

Names and Duties of Official Observers: CWO2 [redacted]
Builder Represented by: Frank English
Owner Represented by: Frank English
Weather, tide and Mooring conditions: Clear 69 deg F, wind WSW 10 kts on Bow.



Freeboard Locations

Freeboard Readings

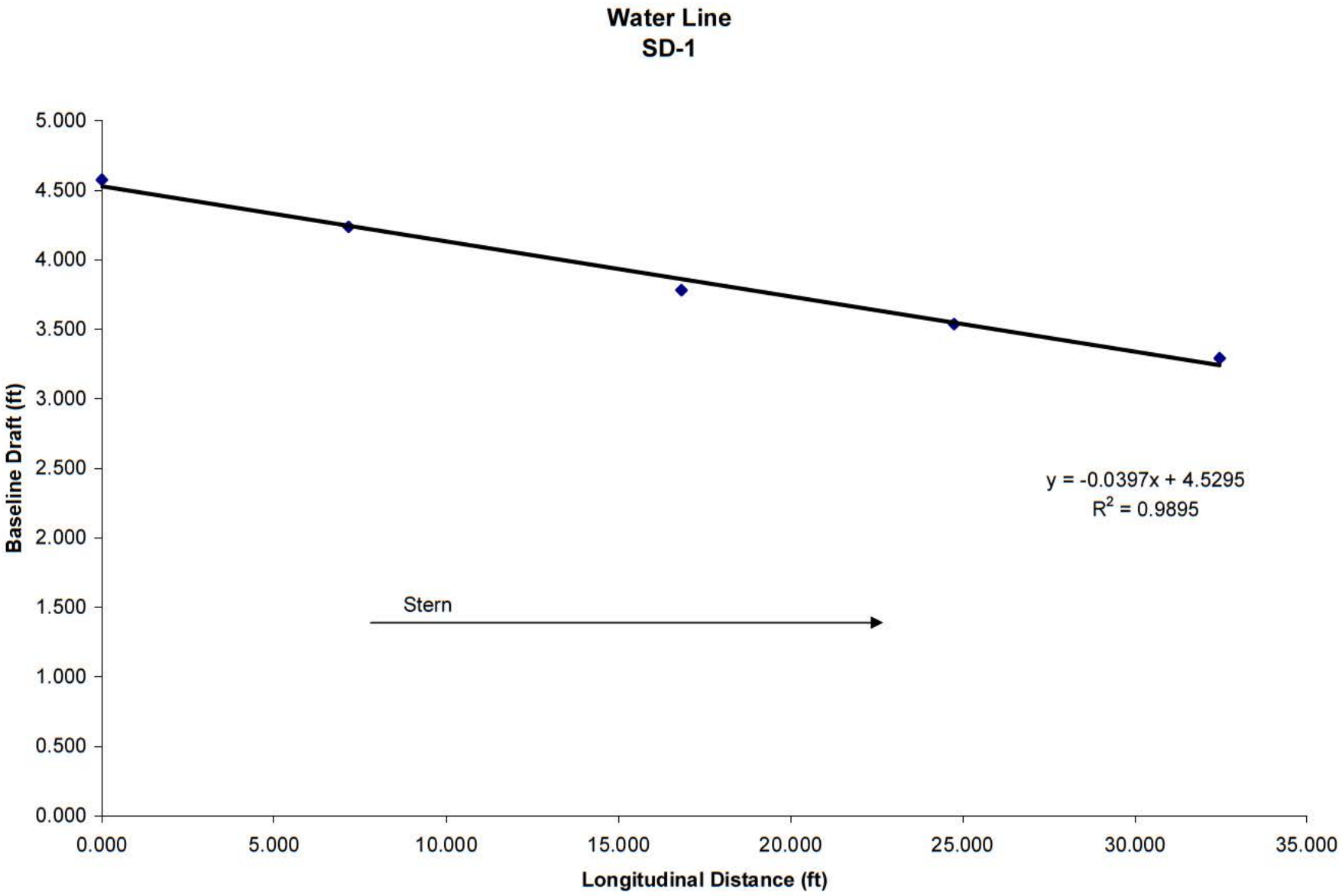
f= measured freeboard
t= deck thickness
D= molded depth from lines drawing
b= measured bulwark height
d= calculated molded draft

without Bulwark or side shell coaming
d=D+t-f

with bulwark or side shell coaming
d=D+t+b-f

Location	Dist from Ref (ft)		f (in)	t (in)	D (in)	b (in)	d (in)	d (ft)	Average d (ft)
1	0.000	P	32	0	86.92	0	54.916	4.576	4.576
		S	32	0	86.92	0	54.916	4.576	
2	7.17	P	31.25	0	82.29	0	51.04	4.253	4.238
		S	31.625	0	82.29	0	50.665	4.222	
3	16.833	P	30 5/8	0	76.05	0	45.42956	3.786	3.781
		S	30.75	0	76.05	0	45.30456	3.775	
4	24.750	P	31.25	0	73.70	0	42.4528	3.538	3.538
		S	31.25	0	73.70	0	42.4528	3.538	
5	32.458	P	22.5	0	62.00	0	39.5	3.292	3.292
		S	22.5	0	62.00	0	39.5	3.292	

*freeboard measurement included coaming


Water Line
SD-1
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
Baseline Draft (ft)
0.000
5.000
10.000
15.000
20.000
25.000
30.000
35.000
Longitudinal Distance (ft)
y = -0.0397x + 4.5295
R2 = 0.9895
Stern

Inclining Data Sheet

Pendulums No.	Location	Length to Batten Inches
1st	Bow	95 3/8
2nd	Midship	0.17
3rd	Stern	97 1/4

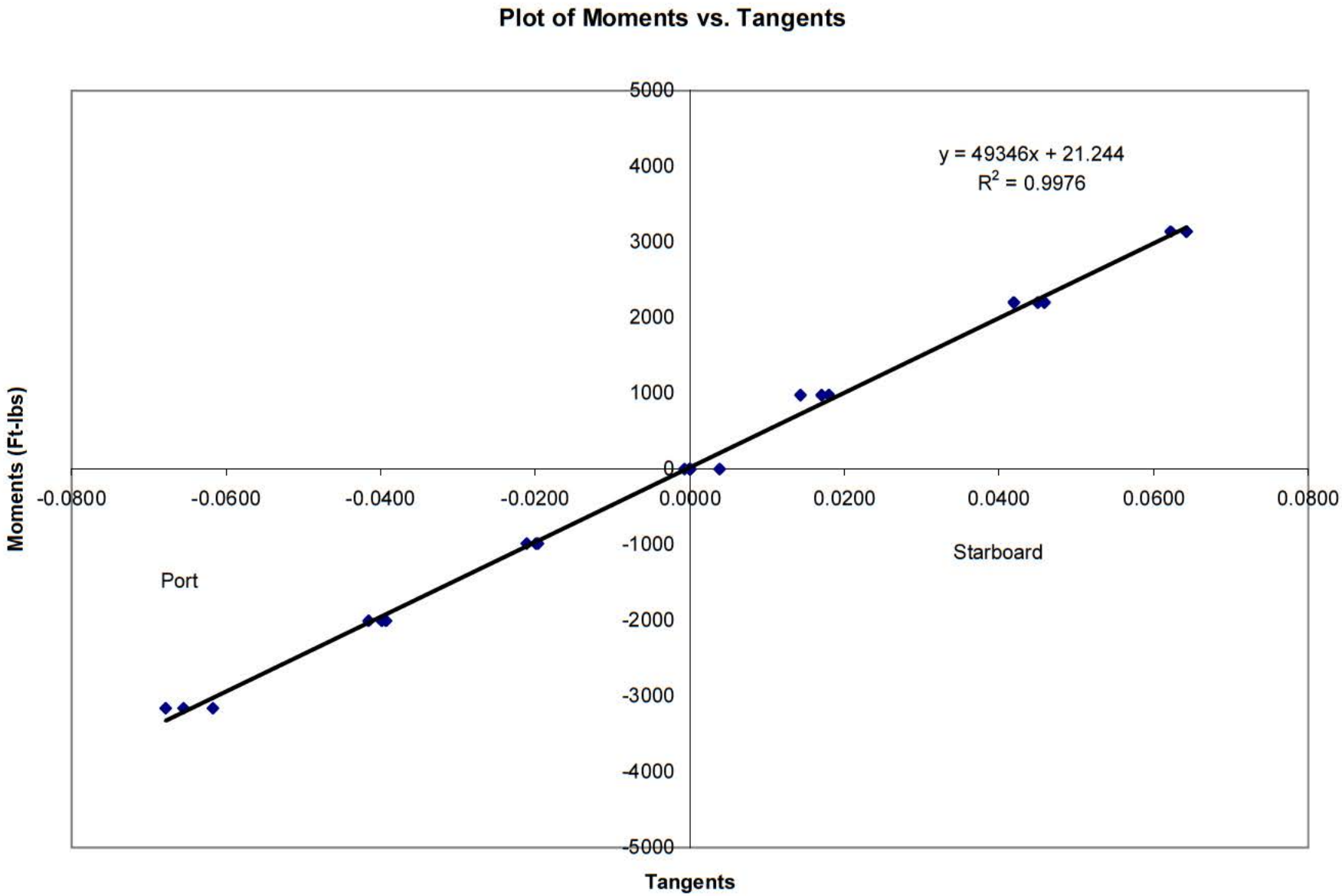
* number 2 digital inclinometer

Inclining Weight Location
Description: 40 lb salt bags

Starboard (+)
Port (-)

Weight No	lbs	Position Inches
1	161	35.5
2	82.23	0
3	81.41	35.5
4	164.95	-35.5
5	166.36	35.5
6	164.91	-35.5
7	172.21	35.5
8	158.48	-35.5
9	167.5	35.5

	Weight		Distance from Initial Positions		Total Inclining Moment			Pendulum Deflections			Tangents	
	No.	pounds	Port Feet	Star boar Feet	Moment Ft-lbs	Port Ft-lbs	Star-boar Ft-lbs	No.	Port Inches	Starboard Inches	Port	Starboard
1st Trial	2	82.23		3	246.7			1st		6.125	0.0000	0.0642
	4	164.95		5.9	976.5			2nd		3.56	0.0000	0.0622
	6	164.91		5.9	976.3	0	3138	3rd		6.25	0.0000	0.0643
	8	158.48		5.9	938.2							
	0	0		0	0							
2nd Trial	2	82.23		3	246.7			1st		4.375	0.0000	0.0459
	4	164.95		5.9	976.5			2nd		2.4	0.0000	0.0419
	6	164.91		5.9	976.3	0	2199	3rd		4.375	0.0000	0.0450
	0	0			0			4th				
		0			0			5th				
3rd Trial	6	164.91		5.9	976.3			1st		1.625	0.0000	0.0170
	0	0		0	0			2nd		0.82	0.0000	0.0143
	0	0		0	0	0	976	3rd		1.75	0.0000	0.0180
					0			4th				
					0			5th				
4th Trial	1	0		0	0			1st		0.00	0.0000	0.0000
	1	0		0	0			2nd		0.22	0.0000	0.0038
	2	0		0	0	0	0	3rd		0	0.0000	0.0000
	2	0		0	0			4th				
		0		0	0			5th				
5th Trial	3	41.13	-4		-165			1st	6.25		0.0655	0.0000
	5	166.36	-5.9		-985			2nd	3.88		0.0678	0.0000
	7	172.41	-5.9		-1021	-3162	0	3rd	6		0.0617	0.0000
	9	167.5	-5.9		-992			4th				
					0			5th				
6th Trial	5	166.36	-5.9		-985			1st	3.75		0.0393	0.0000
	7	172.41	-5.9		-1021			2nd	2.38		0.0416	0.0000
		0			0	-2006	0	3rd	3.875		0.0398	0.0000
		0			0							
		0			0							
7th Trial	5	166.36	-5.9		-985			1st	1.875		0.0197	0.0000
		0			0			2nd	1.21		0.0211	0.0000
		0			0	-985	0	3rd	1.9375		0.0199	0.0000
		0			0							
		0			0							
8th Trial	0	0	1.75		0			1st	0		0.0000	0.0000
	0	0	2.83		0			2nd	0.04		0.0007	0.0000
	0	0	6.13		0	0	0	3rd	0		0.0000	0.0000
	0	0	6		0			4th				
		0			0			5th				


Plot of Moments vs. Tangents
y = 49346x + 21.244
R2 = 0.9976
Moments (Ft-lbs)
Tangents
Port
Starboard
5000
4000
3000
2000
1000
0
-1000
-2000
-3000
-4000
-5000
-0.0800
-0.0600
-0.0400
-0.0200
0.0000
0.0200
0.0400
0.0600
0.0800

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SD-1 STABILITY ANALYSIS

Vessel Name: M08227EF
Vessel O.N.: CG441083
Hull Number: SD-1
Route: Protected
Owner: Ride the Ducks
Incline Location: Table Rock Lake, Branson MO
Incline Date and Time: February 20, 2007
Test Conducted by: J.D. RAY & Associates
Length: 32.5 FEET
Beam: 7.75 FEET
Depth: 5.46 FEET

Ship in Condition 0 As inclined

DRAFTS used to establish Waterline

Location	Given	Used	Error
0.00	4.576	4.530	0.046
7.17f	4.238	4.245	-0.007
16.83f	3.781	3.862	-0.081
24.75f	3.538	3.547	-0.009
32.46f	3.292	3.241	0.051

Distances in FEET.---Drafts from Baseline---

Slope of Tangents vs Moment Plot Used for VCG Calculations
Slope = 49346 FEET POUNDS

WEIGHT and DISPLACEMENT STATUS
Baseline draft: 4.530 @ Origin
Trim: Aft 2.27 deg., Heel: zero

Part	Weight(LB)	LCG	TCG	VCG	
LIGHT SHIP	17,857	16.00f	0.00	3.29	
Weights to delete	2,388	11.25f	0.00	6.48	
Total Weight-------->	20,245	15.44f	0.00	3.67	
	SpGr	Displ(LB)	LCB	TCB	VCB	RefHt
HULL	1.000	20,245	15.41f	0.00	2.89	-4.53
Righting Arms:			0.00	0.00		

Distances in FEET.

HYDROSTATIC PROPERTIES
Trim: Aft 2.27 deg., No Heel, VCG = 3.67

LCF Draft	Displacement Weight(LB)	Buoyancy-Ctr. LCB	VCB	Weight/ Inch	Moment/ LCF	Deg trim	GML	GMT
3.940	20,245	15.41f	2.89	1155	14.86f	16998	48.1	2.44

Distances in FEET.-------Specific Gravity = 1.000.-----------Moment in Ft-LB.
Draft is from Baseline.

Ship in Conditon 1

WEIGHT and DISPLACEMENT STATUS
Baseline draft: 4.239 @ Origin
Trim: Aft 1.81 deg., Heel: 0.00 deg.

Part	Weight(LB)	LCG	TCG	VCG
LIGHT SHIP	17,857	16.00f	0.00	3.29
WEIGHTS TO ADD	68	0.46a	0.00	8.83
Total Weight-------->	17,924	15.94f	0.00	3.31

	SpGr	Displ(LB)	LCB	TCB	VCB	RefHt
HULL	1.000	17,922	15.92f	0.00	2.75	-4.24
Righting Arms:			0.00	0.00		

Distances in FEET.

HYDROSTATIC PROPERTIES
Trim: Aft 1.81 deg., Heel: 0.00 deg., VCG = 3.31

LCF Draft	Displacement Weight(LB)	Buoyancy-Ctr. LCB	VCB	Weight/ Inch	Moment/ LCF	Deg trim	GML	GMT
3.767	17,922	15.92f	2.75	1063	14.92f	16015	51.2	2.67

Distances in FEET. Specific Gravity = 1.000. Moment in Ft-LB.
Draft is from Baseline.

Approved Lightship Values

Weight = 17925 POUNDS

LCG = 15.939 forward of stern

VCG = 3.314 above baseline

Note: Longitudinal Reference is at the Stern Negative forward
Transverse is centerline positive starboard
Vertical is baseline tangent to bottom of tires

Appendix B
Intact Stability Calculations

Load condition 1

Full Load 38 passengers and 2 Crew

Pax Weight	185				
		Weight (lb)	Lcg (ft)	TCG	Vcg
Light Ship	Passengers	17925	-15.94	0.00	3.31
Captain & Crew	2	370	-23.660	0	7.352
Row 1	4	740	-21.410	0	6.352
Row 2	4	740	-19.030	0	6.460
Row 3	4	740	-16.650	0	6.582
Row 4	4	740	-14.270	0	6.718
Row 5	4	740	-11.890	0	6.826
Row 6	4	740	-9.510	0	6.927
Row 7	4	740	-7.130	0	7.083
Row 8	4	740	-4.750	0	7.232
Row 9	6	1110	-0.708	0	7.377
Fuel (40 Gal) 100%		236	-4.750	-2.67	4.130
	40	25561	-14.624	0.0	4.357

Load Condition 2

50% Load 18 passengers and 2 Crew FWD trim loading

Pax Weight	185				
		Weight (lb)	Lcg (ft)	TCG	Vcg
Light Ship	Passengers	17925	-15.94	0.00	3.31
Captain & Crew	2	370	-23.660	0	7.352
Row 1	4	740	-21.410	0	6.352
Row 2	4	740	-19.030	0	6.460
Row 3	4	740	-16.650	0	6.582
Row 4	4	740	-14.270	0	6.718
Row 5	2	370	-11.890	0	6.826
Row 6	0	0	-9.510	0	6.927
Row 7	0	0	-7.130	0	7.083
Row 8	0	0	-4.750	0	7.232
Row 9	0	0	-0.708	0	7.377
Fuel (40 Gal) 100%		236	-4.750	-2.67	4.130
	20	21861	-16.138	0.0	3.886

Load Condition 3

50% Load 18 passengers and 2 Crew AFT trim loading

Pax Weight	185				
		Weight (lb)	Lcg (ft)	TCG	Vcg
Light Ship	Passengers	17925	-15.94	0.00	3.31
Captain & Crew	2	370	-23.660	0	7.352
Row 1	0	0	-21.410	0	6.352
Row 2	0	0	-19.030	0	6.460
Row 3	0	0	-16.650	0	6.582
Row 4	0	0	-14.270	0	6.718
Row 5	2	370	-11.890	0	6.826
Row 6	4	740	-9.510	0	6.927
Row 7	4	740	-7.130	0	7.083
Row 8	4	740	-4.750	0	7.232
Row 9	4	740	-0.708	0	7.377
Fuel (40 Gal) 100%		236	-4.750	-2.67	4.130
	20	21861	-14.470	0.0	3.971

Load Condition 4

Light Load no passengers 2 Crew

Pax Weight	185				
		Weight (lb)	Lcg (ft)	TCG	Vcg
Light Ship	Passengers	17925	-15.94	0.00	3.31
Captain & Crew	2	370	-23.660	0	7.352
Row 1	0	0	-21.410	0	6.352
Row 2	0	0	-19.030	0	6.460
Row 3	0	0	-16.650	0	6.582
Row 4	0	0	-14.270	0	6.718
Row 5	0	0	-11.890	0	6.826
Row 6	0	0	-9.510	0	6.927
Row 7	0	0	-7.130	0	7.083
Row 8	0	0	-4.750	0	7.232
Row 9	0	0	-0.708	0	7.377
Fuel (40 Gal) 100%		236	-4.750	-2.67	4.130
	2	18531	-15.951	0.0	3.405

Summary of Stability Criteria

46 CFR 170.170 GM Weather

Load Condition	1	2	3	4
P	0.0025	0.0025	0.0025	0.0025
A (ft^2)	168.7	176.7	176.7	184.2
H (ft)	1.64	1.86	1.86	2.01
W (LT)	11	10	10	8
T (deg)	7.09	8.20	7.96	7.13
GM_{req}	0.49	0.58	0.60	0.90
GM_{att}	1.56	2.31	2.23	2.86
	PASS	PASS	PASS	PASS

46 CFR 171.050 Passenger Heel

Load Condition	1	2	3	4
N	38	38	38	38
b (ft)	1.78	1.78	1.78	1.78
T (deg)	14	14	14	14
K	18.16	18.16	18.16	18.16
W (lt)	11	10	10	8
Gmreq (ft)	1.31	1.53	1.53	1.81
Gmatt (ft)	1.56	2.31	2.23	2.86
	PASS	PASS	PASS	PASS

46 CFR 170.173 Righting Energy

Load Condition	1	2	3	4
(1) Angle from abs 0 deg to Flood > 25.00 deg	28.08	33.48	31.14	38.03
(2) Area from abs 0 deg to abs 40 or MaxRA >10.00 Ft-deg	21.24	28.72	28.2	36.85
(3) Area from abs 0 deg to abs 40 or Flood > 10.00 Ft-deg	10.55	20.45	17.16	33.5
	PASS	PASS	PASS	PASS

J.D. Ray and Associates

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

FULL LOAD CONDITION 38 PASSENGERS 2 CREW

Assuming 185 lb/passenger

WEIGHT and DISPLACEMENT STATUS

Baseline draft: 5.196 @ Origin

Trim: Aft 3.37 deg., Heel: zero

Part	Weight(LB)	LCG	TCG	VCG
LIGHT SHIP	17,925	15.94f	0.00	3.31
(1) CAPTAIN & (1) CREW	370	23.66f	0.00	7.35
Row 1	740	21.41f	0.00	6.35
Row 2	740	19.03f	0.00	6.46
Row 3	740	16.65f	0.00	6.58
Row 4	740	14.27f	0.00	6.72
Row 5	740	11.89f	0.00	6.82
Row 6	740	9.51f	0.00	6.93
Row 7	740	7.13f	0.00	7.08
Row 8	740	4.75f	0.00	7.23
Row 9	1,110	0.71f	0.00	7.38
FUEL 40 GAL	236	4.75f	0.00	4.13
Total Weight--------->	25,561	14.62f	0.00	4.36

	SpGr	Displ(LB)	LCB	TCB	VCB	RefHt
HULL	1.000	25,556	14.55f	0.00	3.19	-5.19

Righting Arms: 0.00 0.00

Distances in FEET.

FREEBOARD STATUS

Baseline draft: 5.196 @ Origin

Trim: Aft 3.37 deg., Heel: zero

Least freeboard is 2.04 Ft located at 0.00

Least extra freeboard (to margin line) is 2.04 Ft located at 0.00

HYDROSTATIC PROPERTIES

Trim: Aft 3.37 deg., No Heel, VCG = 4.36

LCF Draft	Displacement Weight(LB)	Buoyancy-Ctr. LCB	VCB	Weight/ Inch	Moment/ LCF	Deg trim	GML	GMT
4.301	25,556	14.55f	3.19	1198	15.17f	18088	40.5	1.56

Distances in FEET.-------Specific Gravity = 1.000.----------Moment in Ft-LB.

Draft is from Baseline.

J.D. Ray and Associates

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

FULL LOAD CONDITION 38 PASSENGERS 2 CREW

Assuming 185 lb/passenger

46 CFR 170.170 GM WEATHER

HEELING MOMENT derivation

Wind pressure toward starboard

Baseline draft: 4.281

Trim: zero, Heel: zero

Part	LPA	HCP	Arm	Pressure	Moment
HULL	64.7	1.12	2.82	5.600	1,022.74
CANOPY	104.0	4.38	6.08	5.600	3,542.20
Total wind heeling moment to starboard---------->					4,565

Distances in FEET.-------Pressure in LB/SqFt-----------Moment in Ft-LB

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

LCG = 14.62f TCG = 0.00 VCG = 4.36

Origin Depth	Trim	Degrees of Heel	Displacement Weight(LB)	Residual Arms in Trim	in Heel -->	Area	Flood Pt Height
5.188	3.38a	0.00	25,556	0.00	-0.179s	0.00	2.04(2)
5.169	3.39a	5.00s	25,564	0.00	-0.043s	-0.55	1.70(2)
5.156	3.40a	6.60s	25,563	0.00	0.000s	-0.59	1.58(2)
5.118	3.42a	10.00s	25,558	0.00	0.093s	-0.43	1.33(2)
5.046	3.43a	14.00s	25,566	0.00	0.199s	0.15	1.03(2)
5.041	3.42a	14.18s	25,566	0.00	0.203s	0.19	Half Fbd.
4.938	3.41a	18.00s	25,561	0.00	0.300s	1.15	0.74(2)

Distances in FEET.------Specific Gravity = 1.000.---------Area in Ft-Deg.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from these moments (in Ft-LB):

Stbd. heeling moment = 4564.94 (constant)

Critical Point		LCP	TCP	VCP
(2) AFT PAX COAMING	FLOOD	0.00	3.87	7.24

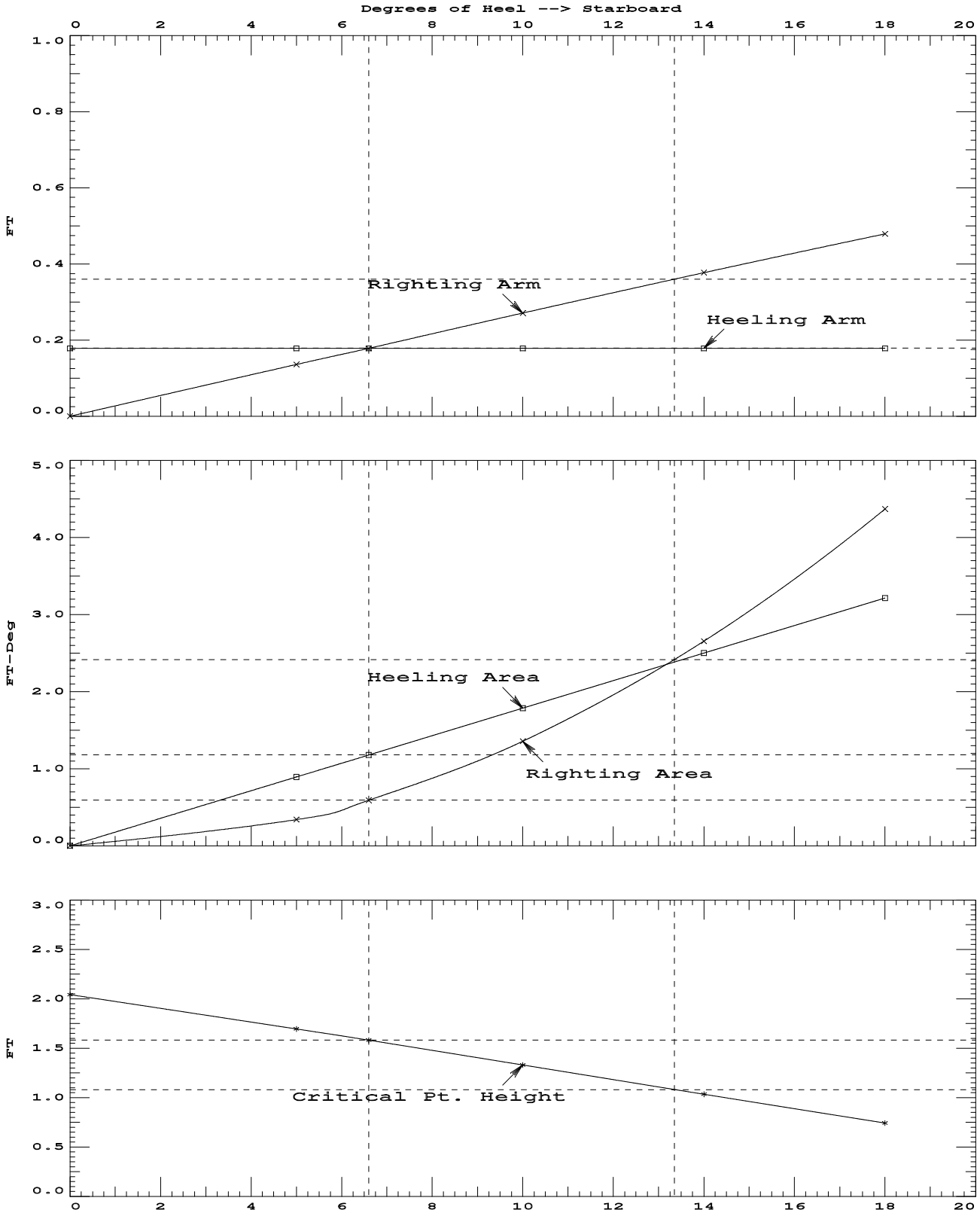
LIM 46 CFR 170.170 GM WEATHER CRITERION	Min/Max		Attained
(1) Angle from Equ. to Half Frbd. or abs 14 deg	>	0.00 deg	7.40 P
(2) Absolute Area Ratio from abs 0 deg to abs 14	>	0.492	1.061 P

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

FULL LOAD CONDITION 38 PASSENGERS 2 CREW

Assuming 185 lb/passenger



J.D. Ray and Associates

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

FULL LOAD CONDITION 38 PASSENGERS 2 CREW

Assuming 185 lb/passenger

46 CFR 171.055 PASSENGER HEEL

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

LCG = 14.62f TCG = 0.00 VCG = 4.36

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LB)	Residual Arms in Trim	in Heel	Flood Pt Height
5.185	3.37a	0.00	25,556	0.00	-0.327s	2.05(2)
5.168	3.39a	5.00s	25,561	0.00	-0.191s	1.70(2)
5.118	3.42a	10.00s	25,556	0.00	-0.056s	1.33(2)
5.083	3.42a	12.08s	25,558	0.00	0.000s	1.18(2)
5.046	3.43a	14.00s	25,561	0.00	0.050s	1.03(2)
4.938	3.41a	18.00s	25,561	0.00	0.152s	0.74(2)
4.804	3.38a	22.00s	25,560	0.00	0.256s	0.45(2)
4.649	3.35a	26.00s	25,560	0.00	0.368s	0.15(2)
4.559	3.33a	28.08s	25,566	0.00	0.430s	Deck Imm.
4.470	3.31a	30.00s	25,560	0.00	0.487s	-0.14(2)

Distances in FEET.---Specific Gravity = 1.000.----------

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from this moment (in Ft-LB):

Stbd heeling moment = 8355.26

Critical Point		LCP	TCP	VCP
(2) AFT PAX COAMING	FLOOD	0.00	3.87	7.24

LIM	46 CFR 171.055 PASSENGER HEEL	Min/Max		Attained
(1)	Angle from Equ. to Dk/marg. Imm. or abs 14 deg >	0.00	deg	1.92 P

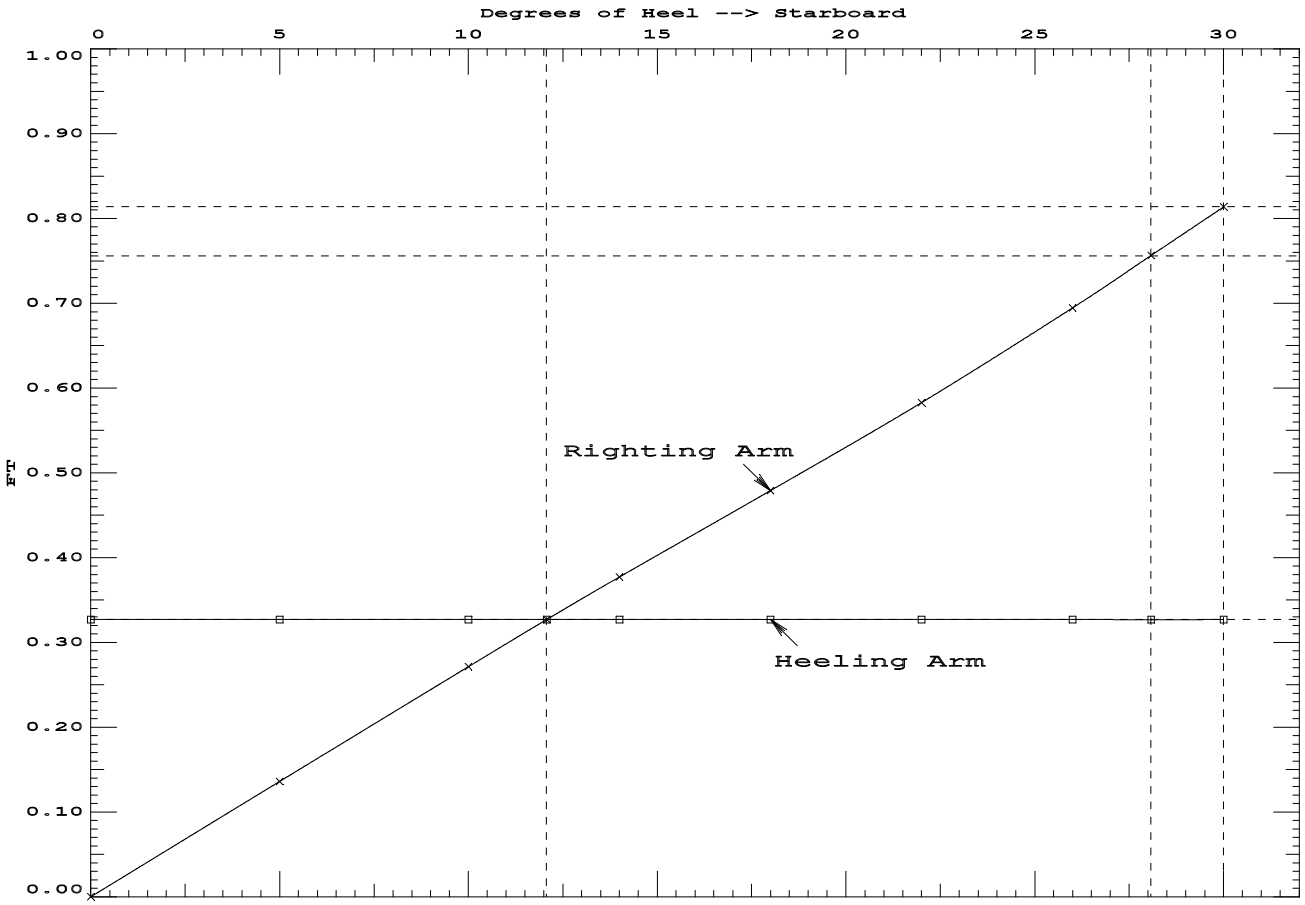
****NOTE HMMT MODIFIED TO REFLECT 185 LB PER PASSENGER ASSUMPTION K=18.16 ****

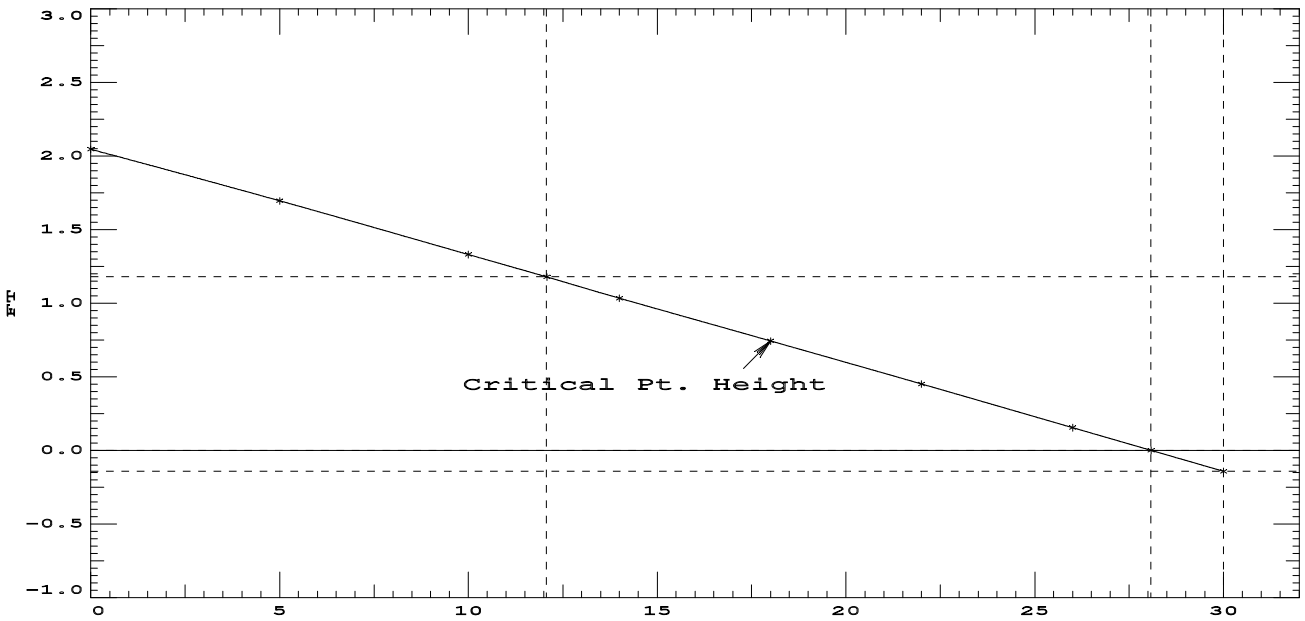
GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

FULL LOAD CONDITION 38 PASSENGERS 2 CREW

Assuming 185 lb/passenger





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GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

FULL LOAD CONDITION 38 PASSENGERS 2 CREW

Assuming 185 lb/passenger

46 CFR 170.173 Righting Energy

****NOTE CRITERIA MODIFIED TO REFLECT OPEN BOAT AND RA LOST AT FLD****

RIGHTING ARMS vs HEEL ANGLE

LCG = 14.62f TCG = 0.00 VCG = 4.36

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LB)	Righting Arms in Trim	in Heel	--> Area	Flood Pt --Height
5.185	3.37a	0.00	25,556	0.00	0.000	0.00	2.05(2)
5.170	3.39a	5.00s	25,561	0.00	0.136s	0.34	1.70(2)
5.120	3.43a	10.00s	25,563	0.00	0.271s	1.36	1.33(2)
5.020	3.42a	15.00s	25,560	0.00	0.403s	3.04	0.96(2)
4.874	3.39a	20.00s	25,558	0.00	0.530s	5.38	0.60(2)
4.690	3.36a	25.00s	25,557	0.00	0.666s	8.36	0.23(2)
4.559	3.33a	28.08s	25,566	0.00	0.756s	10.55	-0.00(2)
4.470	3.31a	30.00s	25,561	0.00	0.814s	12.06	-0.14(2)
4.233	3.30a	35.00s	25,559	0.00	0.929s	16.42	-0.53(2)
3.977	3.27a	40.00s	25,560	0.00	0.990s	21.24	-0.92(2)
3.733	3.22a	44.35s	25,565	0.00	1.006s	25.60	-1.27(2)
3.696	3.22a	45.00s	25,565	0.00	1.006s	26.25	-1.32(2)
3.406	3.19a	50.00s	25,561	0.00	0.990s	31.26	-1.72(2)
3.090	3.13a	55.00s	25,559	0.00	0.945s	36.10	-2.11(2)
2.718	2.96a	60.00s	25,563	0.00	0.859s	40.63	-2.45(2)

Distances in FEET.------Specific Gravity = 1.000.---------Area in Ft-Deg.

Critical Point		LCP	TCP	VCP
(2) AFT PAX COAMING	FLOOD	0.00	3.87	7.24

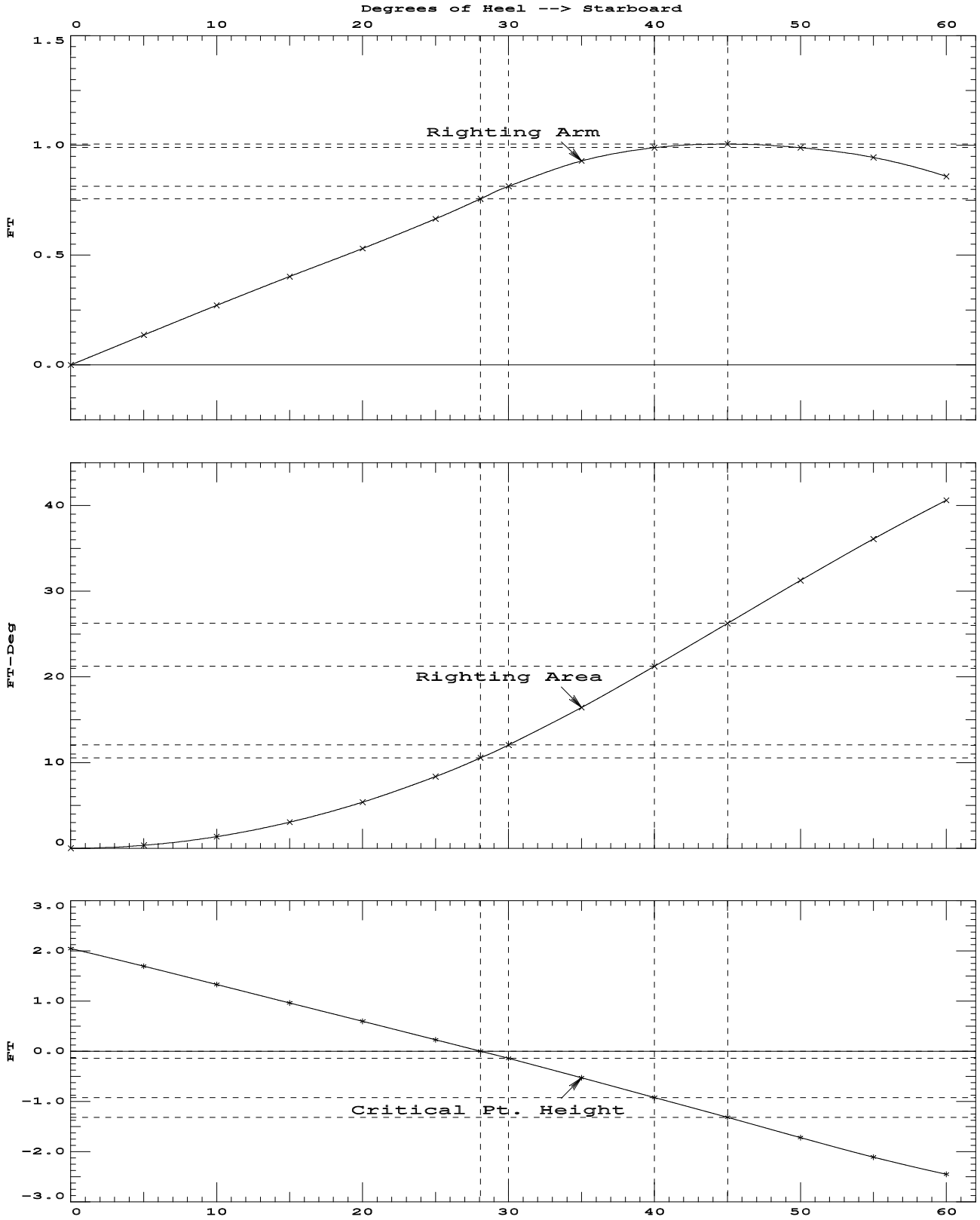
LIM 46CFR170.173 PROTECTED ROUTE		Min/Max		Attained	
(1) Angle from abs 0 deg to Flood	>	25.00	deg	28.08	P
(2) Area from abs 0 deg to abs 40 or MaxRA	>	10.00	Ft-deg	21.24	P
(3) Area from abs 0 deg to abs 40 or Flood	>	10.00	Ft-deg	10.55	P

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

FULL LOAD CONDITION 38 PASSENGERS 2 CREW

Assuming 185 lb/passenger



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GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED FORWARD
Assuming 185 lb/passenger

WEIGHT and DISPLACEMENT STATUS
Baseline draft: 4.416 @ Origin
Trim: Aft 1.42 deg., Heel: zero

Part	Weight(LB)	LCG	TCG	VCG
LIGHT SHIP	17,925	15.94f	0.00	3.31
(1) CAPTAIN & (1) CREW	370	23.66f	0.00	7.35
Row 1	740	21.41f	0.00	6.35
Row 2	740	19.03f	0.00	6.46
Row 3	740	16.65f	0.00	6.58
Row 4	740	14.27f	0.00	6.72
Row 5	370	11.89f	0.00	6.82
FUEL 40 GAL	236	4.75f	0.00	4.13
Total Weight-------->	21,861	16.14f	0.00	3.89

	SpGr	Displ(LB)	LCB	TCB	VCB	RefHt
HULL	1.000	21,861	16.11f	0.00	2.95	-4.41

Righting Arms: 0.00 0.00
Distances in FEET.

FREEBOARD STATUS
Baseline draft: 4.416 @ Origin
Trim: Aft 1.42 deg., Heel: zero
Least freeboard is 2.25 Ft located at 20.05f
Least extra freeboard (to margin line) is 2.25 Ft located at 20.05f

HYDROSTATIC PROPERTIES
Trim: Aft 1.42 deg., No Heel, VCG = 3.89

LCF Draft	Displacement Weight(LB)	Buoyancy-Ctr. LCB	VCB	Weight/ Inch	Moment/ LCF	Deg trim	GML	GMT
4.033	21,861	16.11f	2.95	1210	15.46f	18726	49.1	2.31

Distances in FEET.-------Specific Gravity = 1.000.----------Moment in Ft-LB.
Draft is from Baseline.

J.D. Ray and Associates

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED FORWARD
Assuming 185 lb/passenger

46 CFR 170.170 GM WEATHER

HEELING MOMENT derivation
Wind pressure toward starboard
Baseline draft: 4.027
Trim: zero, Heel: zero

Part	LPA	HCP	Arm	Pressure	Moment
HULL	72.7	1.23	2.81	5.600	1,144.44
CANOPY	104.0	4.63	6.21	5.600	3,615.11
Total wind heeling moment to starboard---------->					4,760

Distances in FEET.-------Pressure in LB/SqFt----------Moment in Ft-LB

RESIDUAL RIGHTING ARMS vs HEEL ANGLE
LCG = 16.14f TCG = 0.00 VCG = 3.89

Origin Depth	Trim	Degrees of Heel	Displacement Weight(LB)	Residual Arms in Trim	in Heel -->	Area	Flood Pt Height
4.415	1.42a	0.00	21,861	0.00	-0.218s	0.00	2.33(1)
4.400	1.44a	5.00s	21,861	0.00	-0.016s	-0.58	1.99(1)
4.396	1.44a	5.43s	21,856	0.00	0.000s	-0.59	1.96(1)
4.333	1.43a	10.00s	21,861	0.00	0.156s	-0.22	1.65(1)
4.245	1.41a	14.00s	21,857	0.00	0.290s	0.67	1.38(1)
4.183	1.39a	16.39s	21,858	0.00	0.374s	1.47	Half Fbd.
4.137	1.38a	18.00s	21,857	0.00	0.432s	2.12	1.09(1)

Distances in FEET.------Specific Gravity = 1.000.---------Area in Ft-Deg.

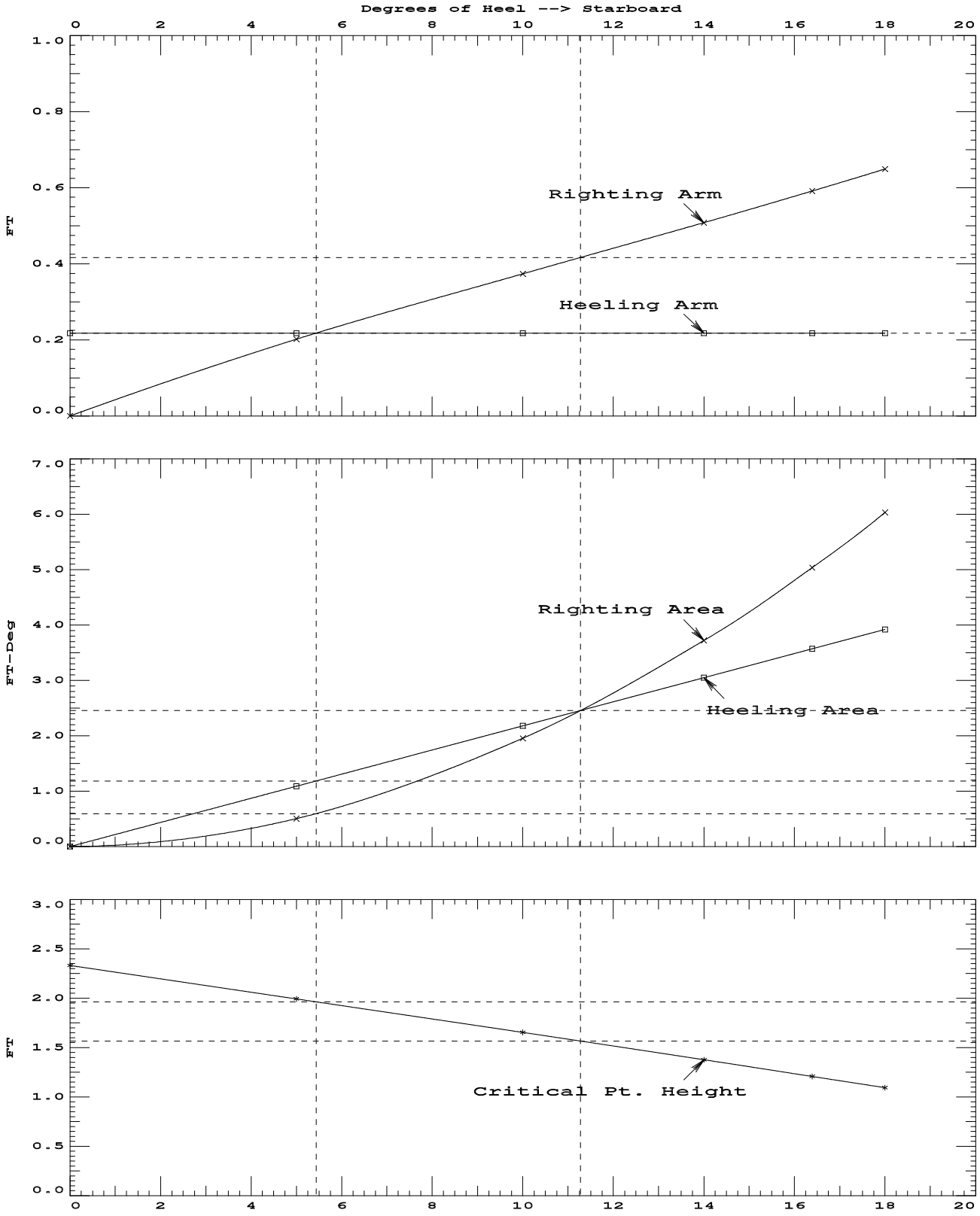
Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from this moment (in Ft-LB):
Stbd heeling moment = 4759.54

Critical Point		LCP	TCP	VCP
(1) FWD PAX COAMING	FLOOD	25.05f	3.87	6.13

LIM	46 CFR 170.170 GM WEATHER CRITERION	Min/Max		Attained
(1)	Angle from Equ. to Half Frbd. or abs 14 deg	>	0.00 deg	8.57 P
(2)	Absolute Area Ratio from abs 0 deg to abs 14	>	0.492	1.221 P

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED FORWARD
Assuming 185 lb/passenger



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GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED FORWARD
Assuming 185 lb/passenger

46 CFR 171.055 PASSENGER HEEL

RESIDUAL RIGHTING ARMS vs HEEL ANGLE
LCG = 16.14f TCG = 0.00 VCG = 3.89

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LB)	Residual Arms in Trim	in Heel	Flood Pt Height
4.414	1.42a	0.00	21,861	0.00	-0.382s	2.33(1)
4.400	1.44a	5.00s	21,861	0.00	-0.180s	1.99(1)
4.333	1.43a	10.00s	21,861	0.00	-0.009s	1.65(1)
4.327	1.43a	10.26s	21,858	0.00	0.000s	1.64(1)
4.245	1.41a	14.00s	21,855	0.00	0.126s	1.38(1)
4.137	1.38a	18.00s	21,859	0.00	0.267s	1.09(1)
4.010	1.36a	22.00s	21,860	0.00	0.415s	0.81(1)
3.855	1.32a	26.00s	21,860	0.00	0.565s	0.53(1)
3.661	1.23a	30.00s	21,860	0.00	0.705s	0.24(1)
3.515	1.15a	32.53s	21,863	0.00	0.783s	Deck Imm.
3.454	1.10a	33.48s	21,861	0.00	0.810s	0.00(1)
3.420	1.08a	34.00s	21,861	0.00	0.824s	-0.04(1)

Distances in FEET.---Specific Gravity = 1.000.----------

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from this moment (in Ft-LB):
Stbd heeling moment = 8355.26

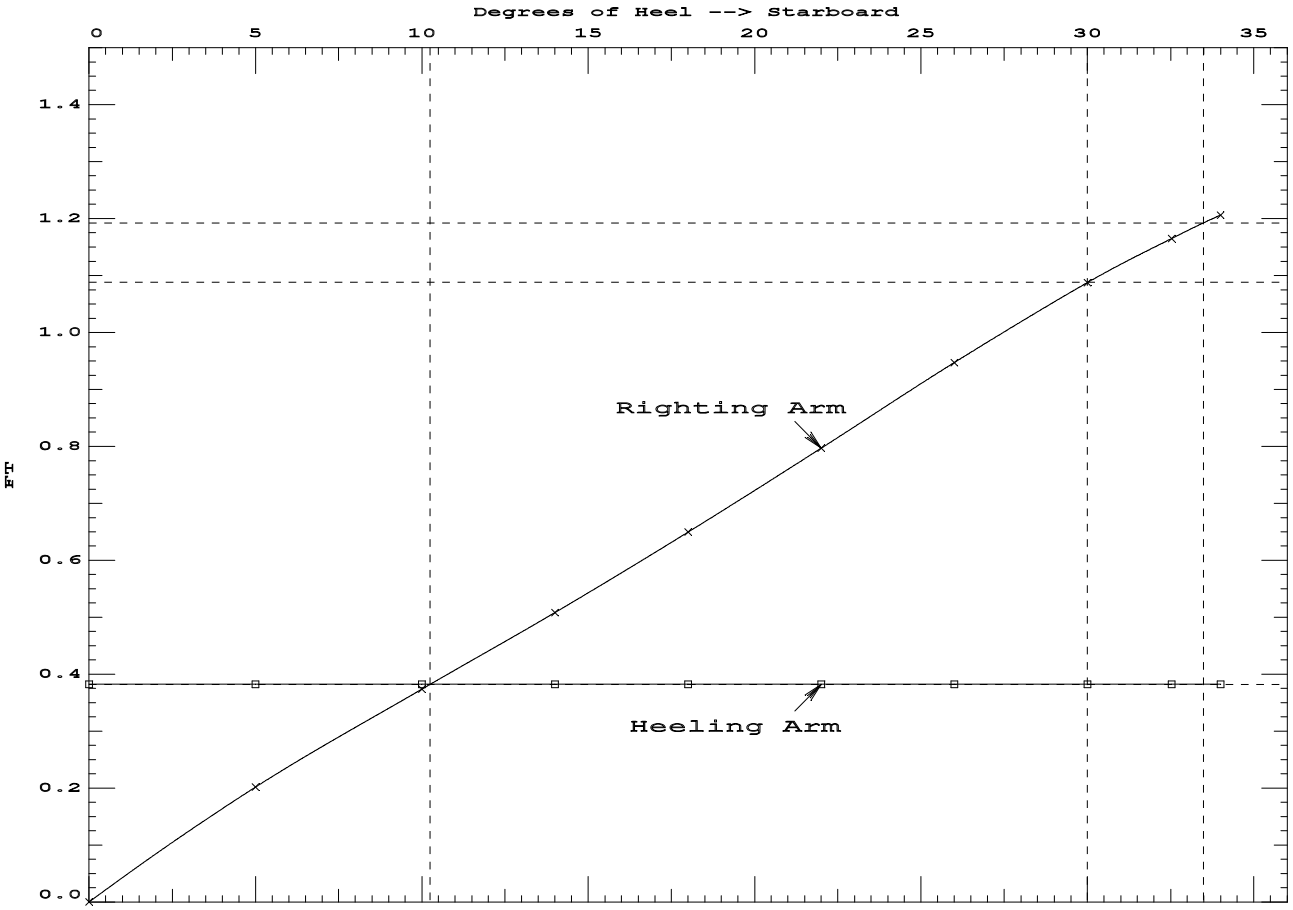
Critical Point		LCP	TCP	VCP
(1)	FWD PAX COAMING FLOOD	25.05f	3.87	6.13

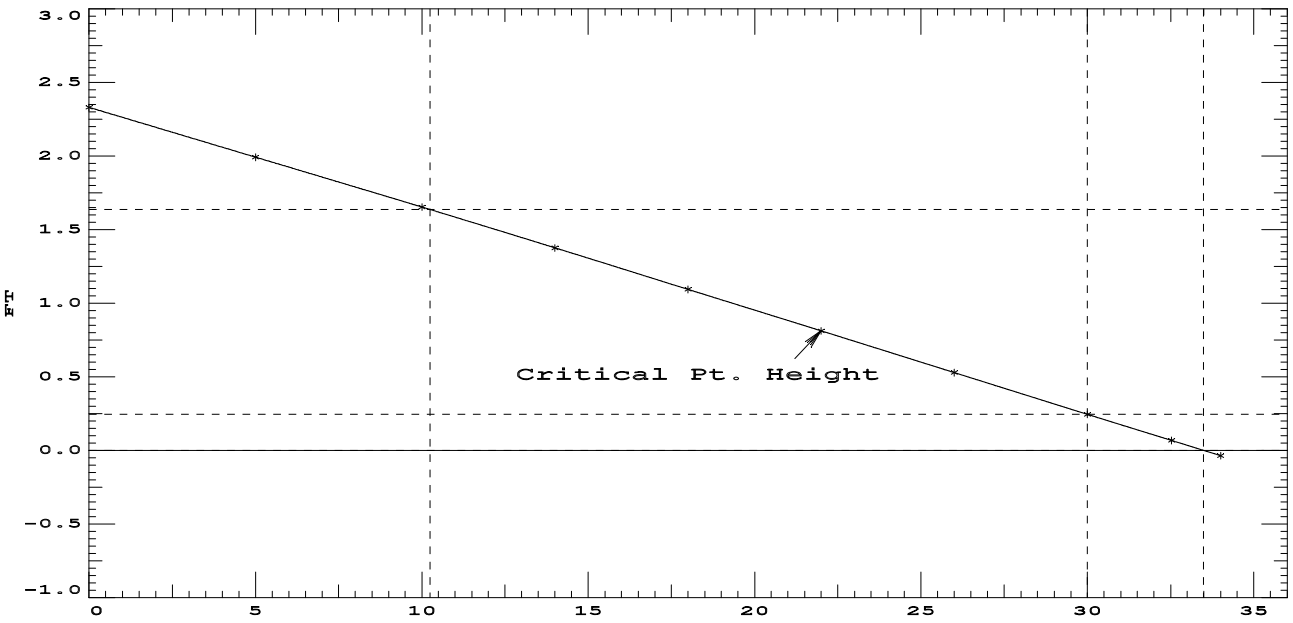
LIM	46 CFR 171.055 PASSENGER HEEL	Min/Max		Attained
(1)	Angle from Equ. to Dk/marg. Imm. or abs 14 deg >	0.00	deg	3.74 P

****NOTE HMMT MODIFIED TO REFLECT 185 LB PER PASSENGER ASSUMPTION K=18.16 ****

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED FORWARD
Assuming 185 lb/passenger





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GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED FORWARD
Assuming 185 lb/passenger

46 CFR 170.173 Righting Energy

****NOTE CRITERIA MODIFIED TO REFLECT OPEN BOAT AND RA LOST AT FLD****

RIGHTING ARMS vs HEEL ANGLE
LCG = 16.14f TCG = 0.00 VCG = 3.89

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LB)	Righting Arms in Trim	in Heel	--> Area	Flood Pt --Height
4.414	1.42a	0.00	21,861	0.00	0.000	0.00	2.33(1)
4.400	1.44a	5.00s	21,866	0.00	0.202s	0.50	1.99(1)
4.333	1.43a	10.00s	21,862	0.00	0.374s	1.96	1.65(1)
4.220	1.40a	15.00s	21,861	0.00	0.543s	4.25	1.31(1)
4.076	1.37a	20.00s	21,860	0.00	0.722s	7.41	0.95(1)
3.897	1.33a	25.00s	21,861	0.00	0.910s	11.48	0.60(1)
3.661	1.23a	30.00s	21,865	0.00	1.088s	16.48	0.24(1)
3.455	1.11a	33.48s	21,862	0.00	1.192s	20.45	0.00(1)
3.353	1.03a	35.00s	21,861	0.00	1.231s	22.29	-0.11(1)
2.981	0.70a	40.00s	21,859	0.00	1.334s	28.72	-0.47(1)
2.584	0.33a	45.00s	21,861	0.00	1.401s	35.58	-0.85(1)
2.453	0.21a	46.52s	21,861	0.00	1.406s	37.71	-0.96(1)
2.133	0.11f	50.00s	21,861	0.00	1.385s	42.58	-1.21(1)
1.644	0.60f	55.00s	21,861	0.00	1.314s	49.35	-1.57(1)
1.137	1.10f	60.00s	21,863	0.00	1.217s	55.69	-1.91(1)

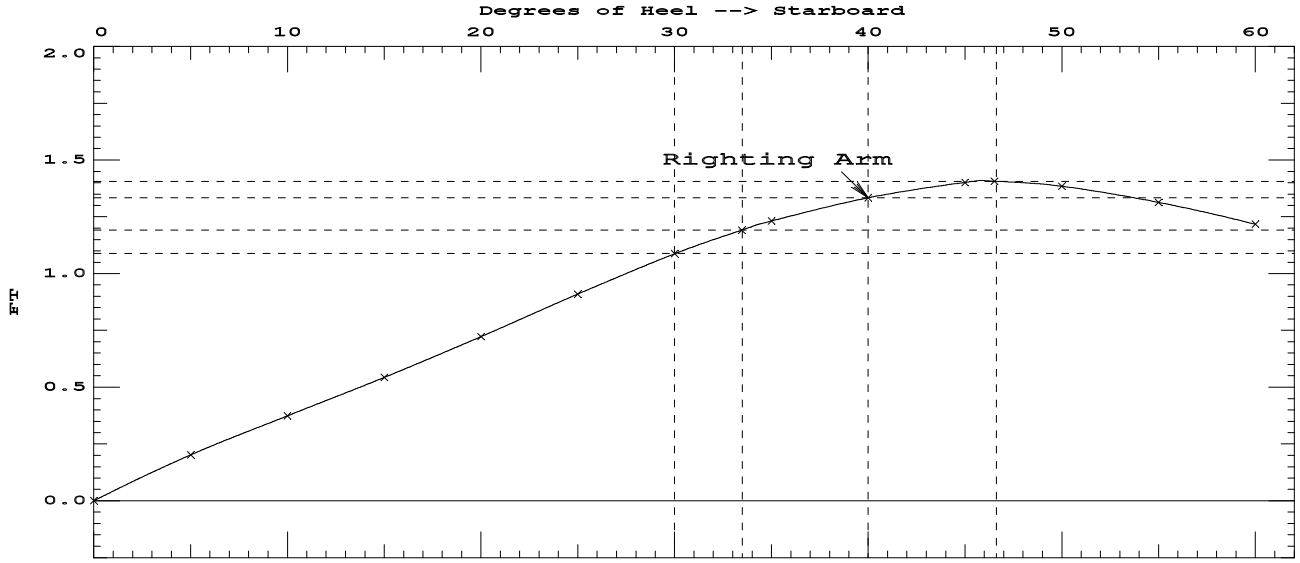
Distances in FEET.------Specific Gravity = 1.000.---------Area in Ft-Deg.

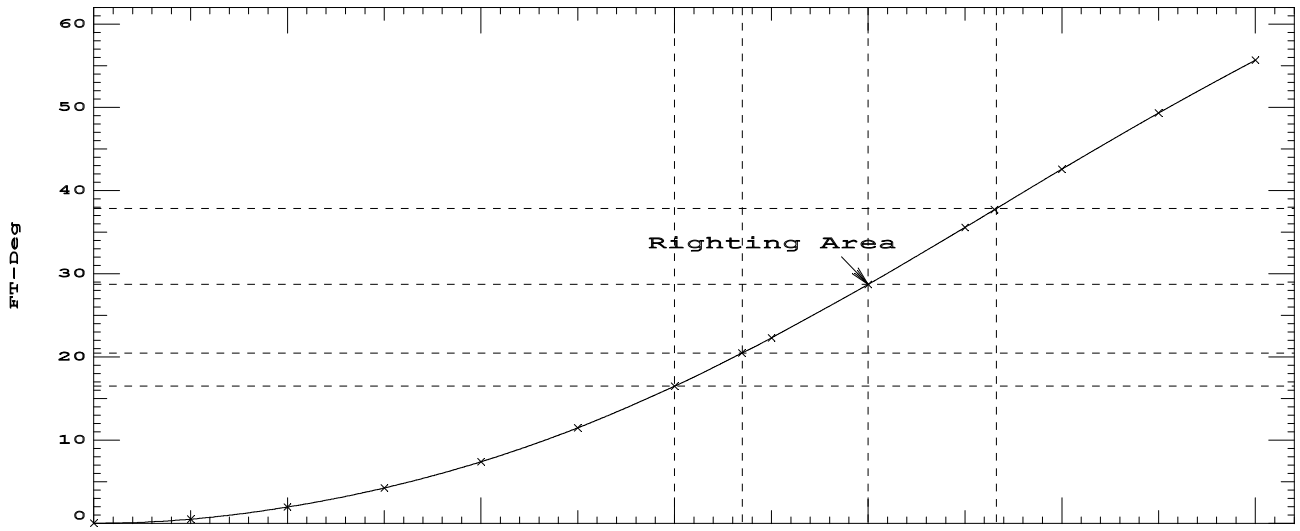
Critical Point		LCP	TCP	VCP
(1) FWD PAX COAMING	FLOOD	25.05f	3.87	6.13

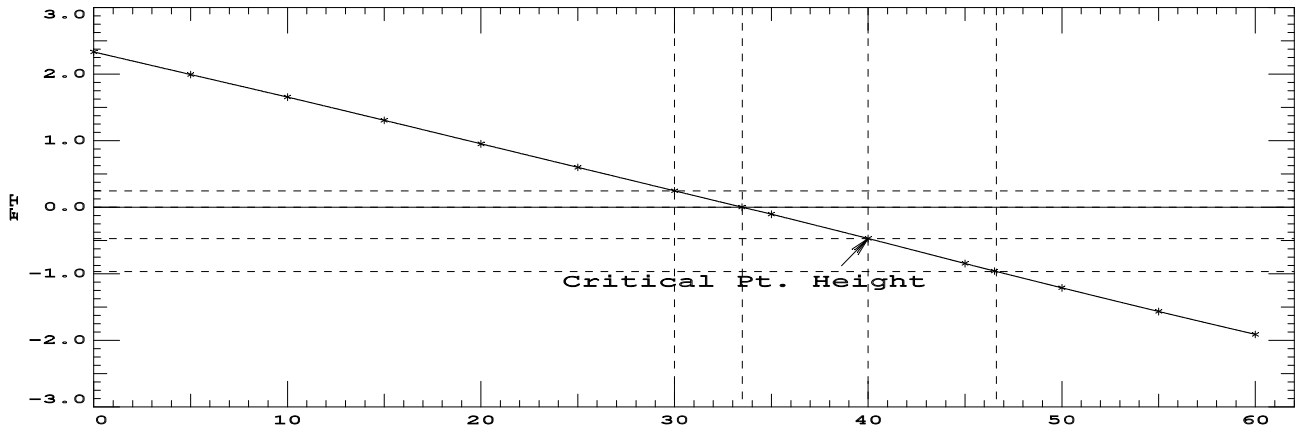
LIM 46CFR170.173 PROTECTED ROUTE		Min/Max		Attained	
(1) Angle from abs 0 deg to Flood	>	25.00	deg	33.48	P
(2) Area from abs 0 deg to abs 40 or MaxRA	>	10.00	Ft-deg	28.72	P
(3) Area from abs 0 deg to abs 40 or Flood	>	10.00	Ft-deg	20.45	P

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED FORWARD
Assuming 185 lb/passenger







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GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED AFT

Assuming 185 lb/passenger

WEIGHT and DISPLACEMENT STATUS

Baseline draft: 4.416 @ Origin

Trim: Aft 1.42 deg., Heel: zero

Part	Weight(LB)	LCG	TCG	VCG
LIGHT SHIP	17,925	15.94f	0.00	3.31
(1) CAPTAIN & (1) CREW	370	23.66f	0.00	7.35
Row 5	370	11.89f	0.00	6.82
Row 6	740	9.51f	0.00	6.93
Row 7	740	7.13f	0.00	7.08
Row 8	740	4.75f	0.00	7.23
Row 9	740	0.71f	0.00	7.38
FUEL 40 GAL	236	4.75f	0.00	4.13
Total Weight-------->	21,861	14.47f	0.00	3.97

	SpGr	Displ(LB)	LCB	TCB	VCB	RefHt
HULL	1.000	21,861	16.11f	0.00	2.95	-4.41

Righting Arms: 1.67f 0.00

Distances in FEET.

FREEBOARD STATUS

Baseline draft: 4.416 @ Origin

Trim: Aft 1.42 deg., Heel: zero

Least freeboard is 2.25 Ft located at 20.05f

Least extra freeboard (to margin line) is 2.25 Ft located at 20.05f

HYDROSTATIC PROPERTIES

Trim: Aft 1.42 deg., No Heel, VCG = 3.97

LCF Draft	Displacement Weight(LB)	Buoyancy-Ctr. LCB	VCB	Weight/ Inch	Moment/ LCF	Deg trim	GML	GMT
4.033	21,861	16.11f	2.95	1210	15.46f	18694	49.0	2.23

Distances in FEET.-------Specific Gravity = 1.000.----------Moment in Ft-LB.

Draft is from Baseline.

J.D. Ray and Associates

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED AFT
Assuming 185 lb/passenger

46 CFR 170.170 GM WEATHER

HEELING MOMENT derivation
Wind pressure toward starboard
Baseline draft: 4.027
Trim: zero, Heel: zero

Part	LPA	HCP	Arm	Pressure	Moment
HULL	72.7	1.23	2.81	5.600	1,144.44
CANOPY	104.0	4.63	6.21	5.600	3,615.11
Total wind heeling moment to starboard---------->					4,760

Distances in FEET.-------Pressure in LB/SqFt----------Moment in Ft-LB

RESIDUAL RIGHTING ARMS vs HEEL ANGLE
LCG = 14.47f TCG = 0.00 VCG = 3.97

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LB)	Residual Arms in Trim	in Heel -->	Area	Flood Pt Height
4.954	3.50a	0.00	21,861	0.00	-0.218s	0.00	2.28(2)
4.938	3.52a	5.00s	21,861	0.00	-0.039s	-0.64	1.93(2)
4.930	3.53a	6.05s	21,857	0.00	0.000s	-0.66	1.85(2)
4.883	3.55a	10.00s	21,861	0.00	0.142s	-0.38	1.56(2)
4.803	3.54a	14.00s	21,867	0.00	0.276s	0.46	1.28(2)
4.754	3.53a	15.92s	21,857	0.00	0.340s	1.05	Half Fbd.
4.696	3.53a	18.00s	21,861	0.00	0.411s	1.83	0.98(2)

Distances in FEET.------Specific Gravity = 1.000.---------Area in Ft-Deg.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from this moment (in Ft-LB):
Stbd heeling moment = 4759.54

Critical Point		LCP	TCP	VCP
(2) AFT PAX COAMING	FLOOD	0.00	3.87	7.24

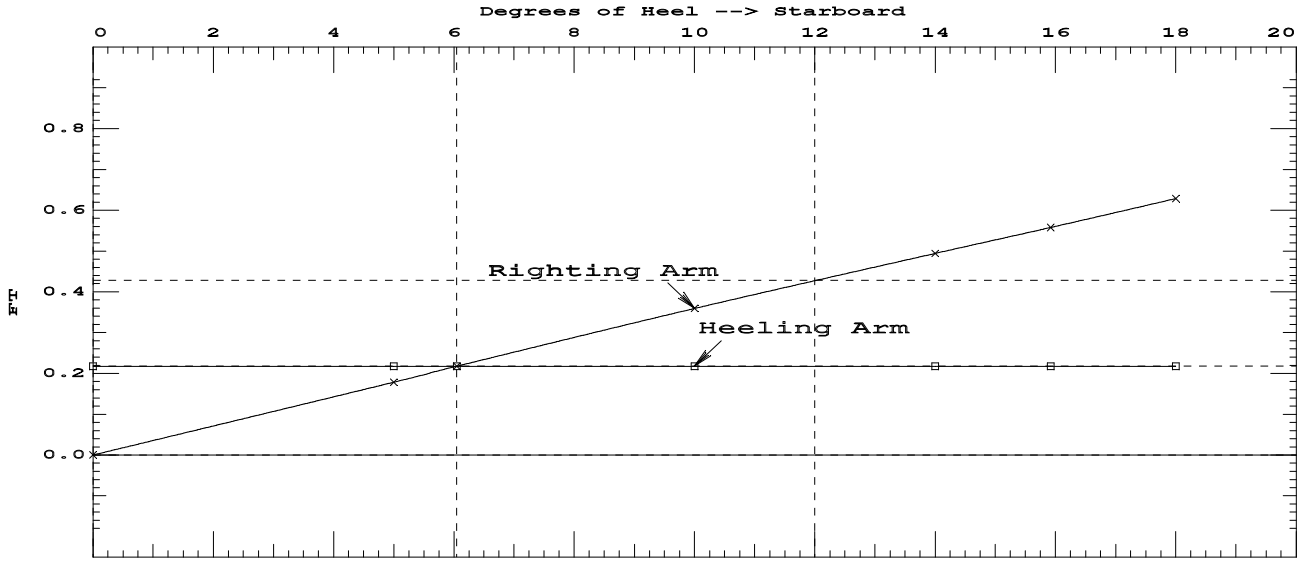
LIM	46 CFR 170.170 GM WEATHER CRITERION		Min/Max		Attained
(1)	Angle from Equ. to Half Frbd. or abs 14 deg	>	0.00	deg	7.95 P
(2)	Absolute Area Ratio from abs 0 deg to abs 14	>	0.492		1.150 P

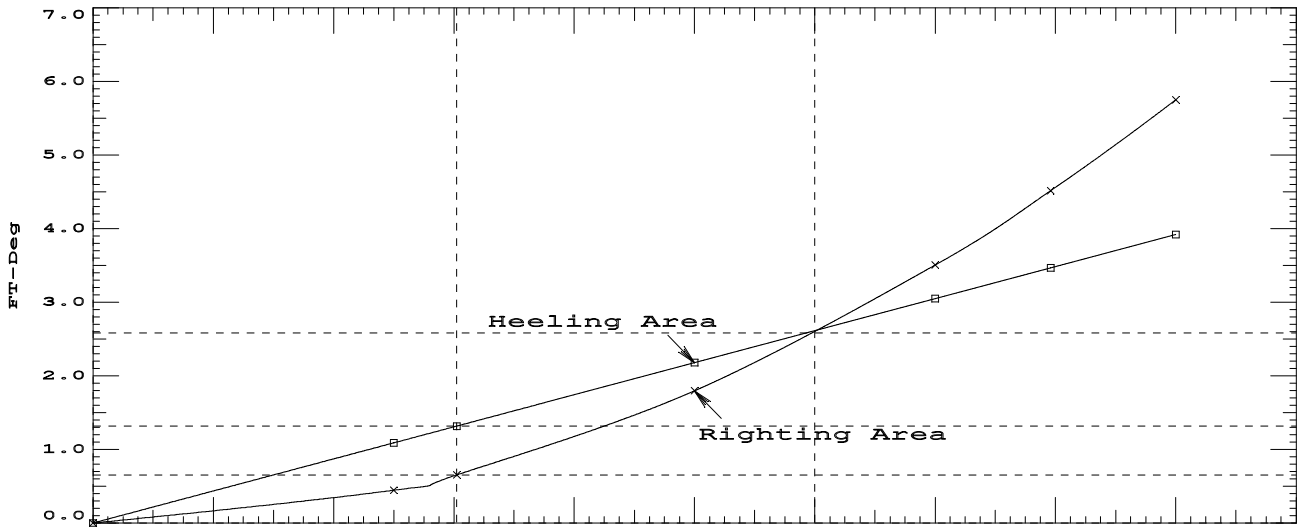
GHS 10.50A **SD-1 STABILITY ANALYSIS**

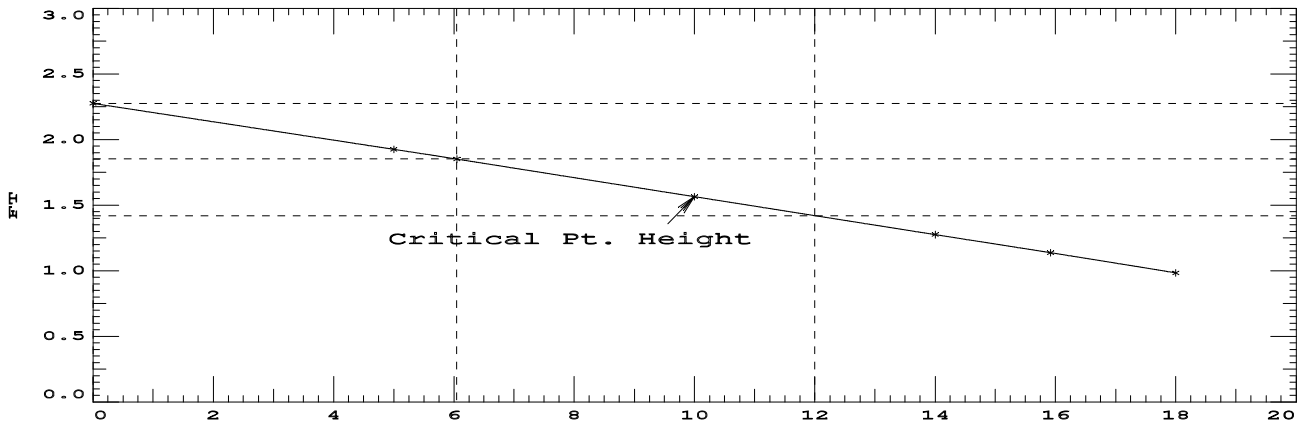
INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED AFT

Assuming 185 lb/passenger







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GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED AFT
Assuming 185 lb/passenger

46 CFR 171.055 PASSENGER HEEL

RESIDUAL RIGHTING ARMS vs HEEL ANGLE
LCG = 14.47f TCG = 0.00 VCG = 3.97

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LB)	Residual Arms in Trim	in Heel	Flood Pt Height
4.953	3.50a	0.00	21,866	0.00	-0.382s	2.28(2)
4.938	3.52a	5.00s	21,860	0.00	-0.204s	1.93(2)
4.883	3.55a	10.00s	21,860	0.00	-0.023s	1.56(2)
4.872	3.55a	10.67s	21,861	0.00	0.000s	1.52(2)
4.803	3.54a	14.00s	21,861	0.00	0.112s	1.28(2)
4.696	3.53a	18.00s	21,856	0.00	0.246s	0.98(2)
4.568	3.51a	22.00s	21,861	0.00	0.388s	0.69(2)
4.418	3.49a	26.00s	21,861	0.00	0.540s	0.38(2)
4.244	3.47a	30.00s	21,861	0.00	0.689s	0.08(2)
4.187	3.46a	31.15s	21,860	0.00	0.730s	Deck Imm.
4.036	3.42a	34.00s	21,863	0.00	0.826s	-0.20(2)

Distances in FEET.---Specific Gravity = 1.000.----------

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from this moment (in Ft-LB):
Stbd heeling moment = 8355.26

Critical Point		LCP	TCP	VCP
(2) AFT PAX COAMING	FLOOD	0.00	3.87	7.24

LIM	46 CFR 171.055 PASSENGER HEEL	Min/Max		Attained
(1)	Angle from Equ. to Dk/marg. Imm. or abs 14 deg >	0.00	deg	3.33 P

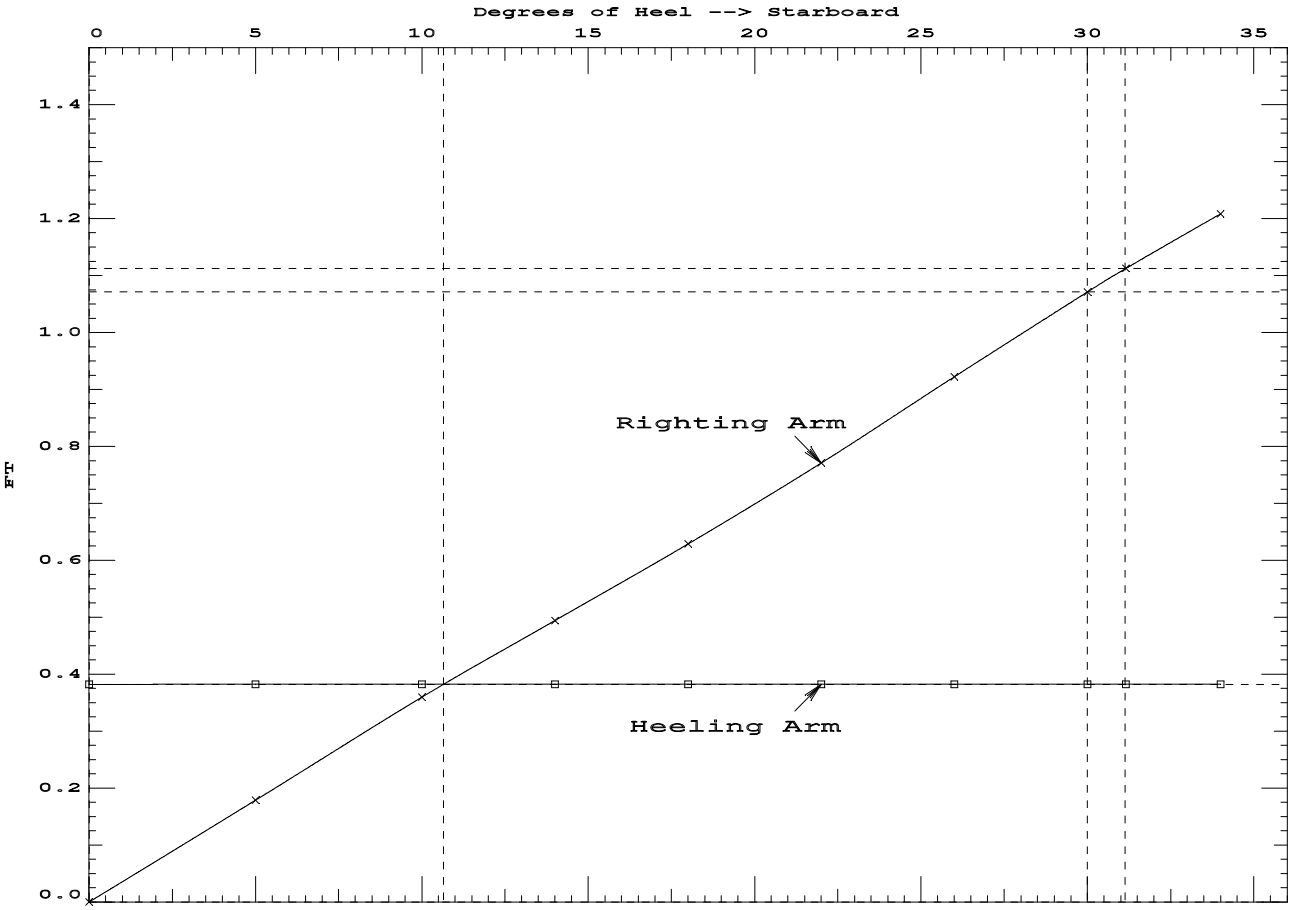
****NOTE HMMT MODIFIED TO REFLECT 185 LB PER PASSENGER ASSUMPTION K=18.16 ****

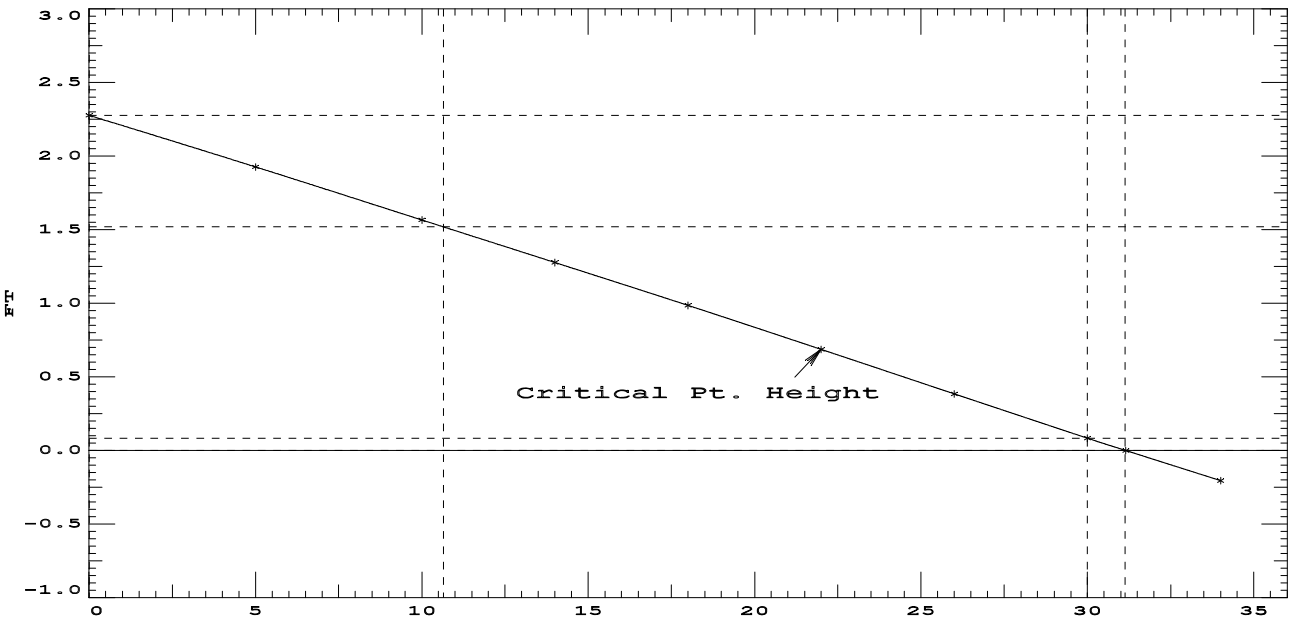
GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED AFT

Assuming 185 lb/passenger





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GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED AFT
Assuming 185 lb/passenger

46 CFR 170.173 Righting Energy

****NOTE CRITERIA MODIFIED TO REFLECT OPEN BOAT AND RA LOST AT FLD****

RIGHTING ARMS vs HEEL ANGLE
LCG = 14.47f TCG = 0.00 VCG = 3.97

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LB)	Righting Arms in Trim	in Heel	--> Area	Flood Pt --Height
4.953	3.50a	0.00	21,866	0.00	0.000	0.00	2.28(2)
4.939	3.53a	5.00s	21,858	0.00	0.179s	0.45	1.93(2)
4.883	3.55a	10.00s	21,859	0.00	0.360s	1.79	1.56(2)
4.778	3.54a	15.00s	21,860	0.00	0.527s	4.01	1.20(2)
4.635	3.52a	20.00s	21,859	0.00	0.698s	7.08	0.84(2)
4.458	3.49a	25.00s	21,858	0.00	0.884s	11.03	0.46(2)
4.244	3.47a	30.00s	21,858	0.00	1.071s	15.91	0.08(2)
4.189	3.46a	31.14s	21,859	0.00	1.112s	17.16	-0.00(2)
3.981	3.40a	35.00s	21,864	0.00	1.239s	21.70	-0.28(2)
3.689	3.33a	40.00s	21,861	0.00	1.356s	28.20	-0.64(2)
3.378	3.26a	45.00s	21,860	0.00	1.413s	35.15	-1.00(2)
3.144	3.21a	48.62s	21,861	0.00	1.428s	40.29	-1.27(2)
3.046	3.17a	50.00s	21,862	0.00	1.426s	42.27	-1.36(2)
2.653	2.98a	55.00s	21,861	0.00	1.374s	49.30	-1.67(2)
2.208	2.70a	60.00s	21,861	0.00	1.279s	55.95	-1.94(2)

Distances in FEET.------Specific Gravity = 1.000.---------Area in Ft-Deg.

Critical Point		LCP	TCP	VCP
(2) AFT PAX COAMING	FLOOD	0.00	3.87	7.24

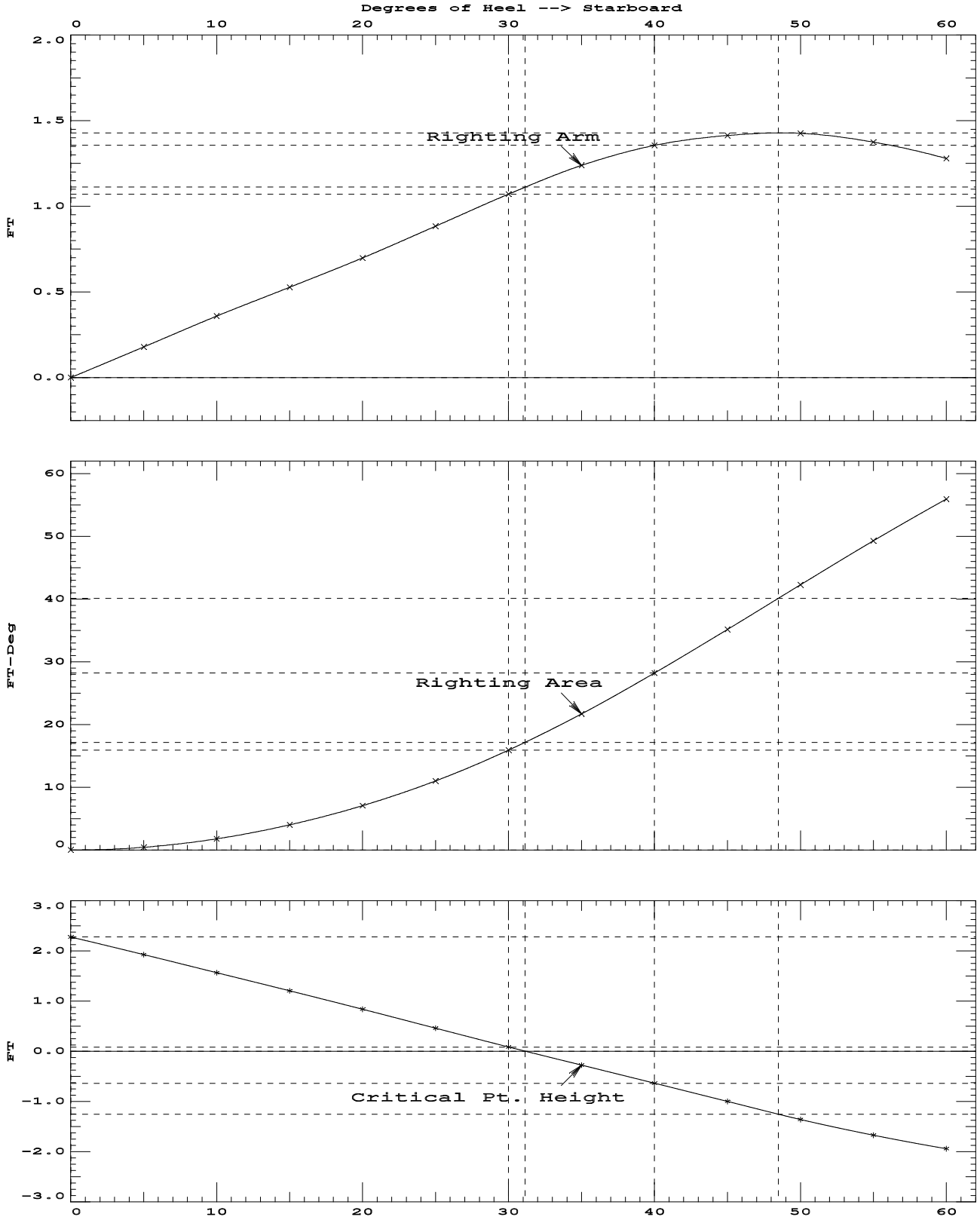
LIM 46CFR170.173 PROTECTED ROUTE		Min/Max		Attained
(1) Angle from abs 0 deg to Flood	>	25.00	deg	31.14 P
(2) Area from abs 0 deg to abs 40 or MaxRA	>	10.00	Ft-deg	28.20 P
(3) Area from abs 0 deg to abs 40 or Flood	>	10.00	Ft-deg	17.16 P

GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

50% LOAD CONDITION 18 PASSENGERS 2 CREW PASSENGERS LOADED AFT

Assuming 185 lb/passenger



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GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

LIGHT LOAD CONDITION NO PASSENGERS 2 CREW

Assuming 185 lb/passenger

WEIGHT and DISPLACEMENT STATUS

Baseline draft: 4.272 @ Origin

Trim: Aft 1.76 deg., Heel: 0.00 deg.

Part	Weight(LB)	LCG	TCG	VCG	
LIGHT SHIP	17,925	15.94f	0.00	3.31	
(1) CAPTAIN & (1) CREW	370	23.66f	0.00	7.35	
FUEL 40 GAL	236	4.75f	0.00	4.13	
Total Weight-------->	18,531	15.95f	0.00	3.41	
	SpGr	Displ(LB)	LCB	TCB	VCB	RefHt
HULL	1.000	18,529	15.93f	0.00	2.78	-4.27
Righting Arms:			0.00	0.00		

Distances in FEET.

FREEBOARD STATUS

Baseline draft: 4.272 @ Origin

Trim: Aft 1.76 deg., Heel: 0.00 deg.

Least freeboard is 2.51 Ft located at 20.05f

Least extra freeboard (to margin line) is 2.51 Ft located at 20.05f

HYDROSTATIC PROPERTIES

Trim: Aft 1.76 deg., Heel: 0.00 deg., VCG = 3.41

LCF Draft	Displacement Weight(LB)	Buoyancy-Ctr. LCB	VCB	Weight/ Inch	Moment/ LCF	Deg trim	GML	GMT
3.813	18,529	15.93f	2.78	1138	14.93f	16711	51.7	2.86

Distances in FEET.-------Specific Gravity = 1.000.----------Moment in Ft-LB.

Draft is from Baseline.

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GHS 10.50A **SD-1 STABILITY ANALYSIS**
INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS
LIGHT LOAD CONDITION NO PASSENGERS 2 CREW
Assuming 185 lb/passenger

46 CFR 170.170 GM WEATHER

HEELING MOMENT derivation
Wind pressure toward starboard
Baseline draft: 3.778
Trim: zero, Heel: zero

Part	LPA	HCP	Arm	Pressure	Moment
HULL	80.2	1.36	2.80	5.600	1,257.73
CANOPY	104.0	4.88	6.33	5.600	3,683.45
Total wind heeling moment to starboard---------->					4,941

Distances in FEET.-------Pressure in LB/SqFt----------Moment in Ft-LB

RESIDUAL RIGHTING ARMS vs HEEL ANGLE
LCG = 15.95f TCG = 0.00 VCG = 3.41

Origin Depth	Trim	Heel	Displacement Weight(LB)	Residual Arms in Trim	in Heel -->	Area	Flood Pt Height
4.270	1.76a	0.00s	18,529	0.00	-0.267s	0.00	2.62(1)
4.241	1.77a	5.00s	18,531	0.00	-0.027s	-0.73	2.30(1)
4.233	1.77a	5.61s	18,532	0.00	0.000s	-0.74	2.26(1)
4.163	1.75a	10.00s	18,531	0.00	0.201s	-0.30	1.96(1)
4.078	1.73a	14.00s	18,531	0.00	0.388s	0.88	1.68(1)
3.974	1.71a	18.00s	18,531	0.00	0.579s	2.81	1.40(1)
3.960	1.71a	18.48s	18,530	0.00	0.602s	3.10	Half Fbd.
3.846	1.68a	21.99s	18,532	0.00	0.773s	5.51	1.12(1)

Distances in FEET.------Specific Gravity = 1.000.---------Area in Ft-Deg.

Note: The Residual Righting Arms shown above are in excess of the wind heeling arms derived from this moment (in Ft-LB):
Stbd heeling moment = 4941.18

Critical Point		LCP	TCP	VCP
(1) FWD PAX COAMING	FLOOD	25.05f	3.87	6.13

LIM	46 CFR 170.170 GM WEATHER CRITERION		Min/Max		Attained
(1)	Angle from Equ. to Half Frbd. or abs 14 deg	>	0.00	deg	8.39 P
(2)	Absolute Area Ratio from abs 0 deg to abs 14	>	0.492		1.235 P

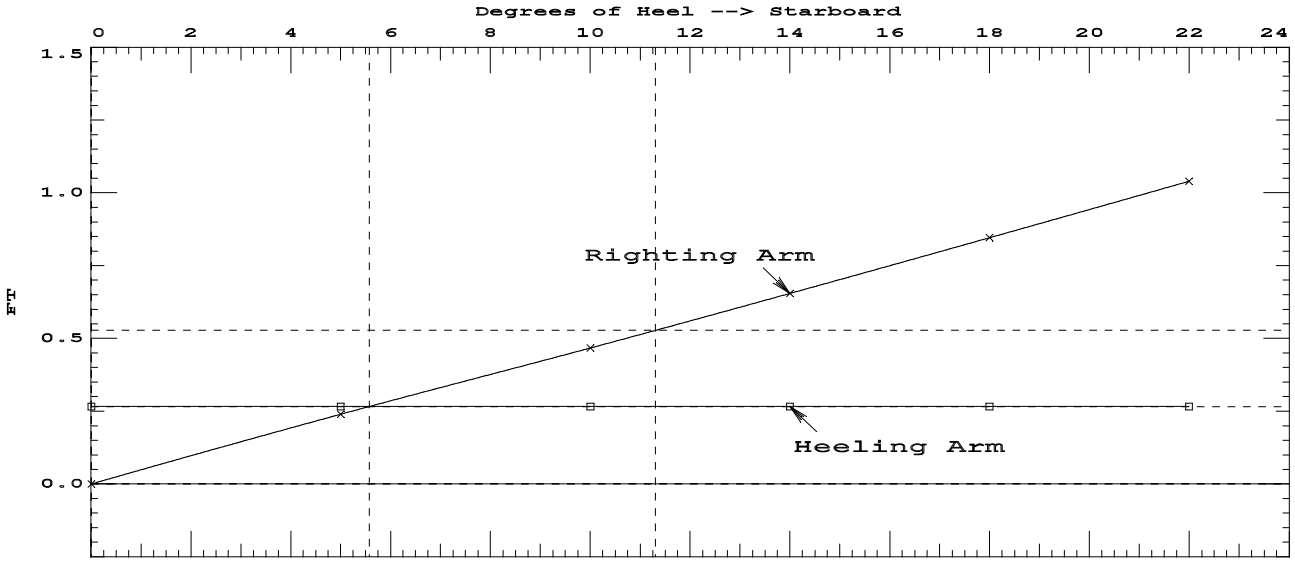
GHS 10.50A

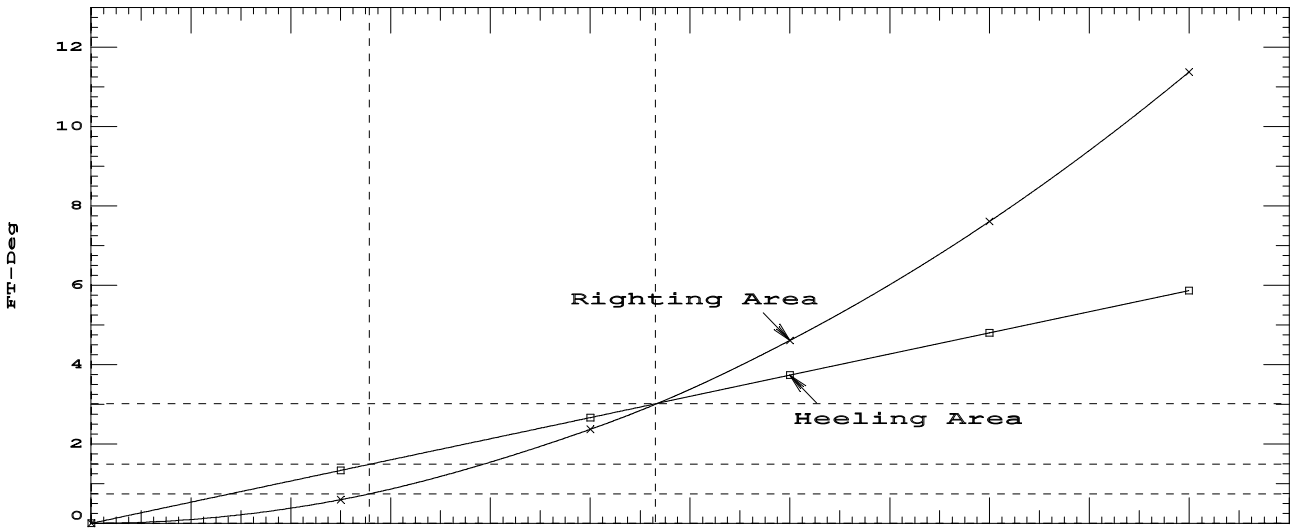
SD-1 STABILITY ANALYSIS

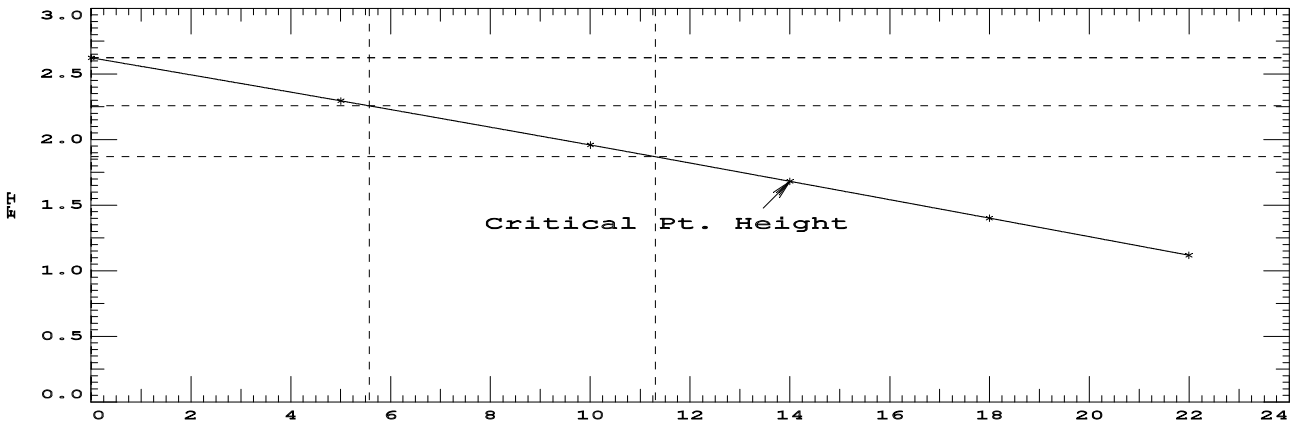
INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

LIGHT LOAD CONDITION NO PASSENGERS 2 CREW

Assuming 185 lb/passenger







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GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

LIGHT LOAD CONDITION NO PASSENGERS 2 CREW

Assuming 185 lb/passenger

46 CFR 171.055 PASSENGER HEEL

RESIDUAL RIGHTING ARMS vs HEEL ANGLE

LCG = 15.95f TCG = 0.00 VCG = 3.41

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LB)	Residual Arms in Trim	in Heel	Flood Pt Height
4.271	1.76a	0.00s	18,529	0.00	-0.451s	2.62(1)
4.239	1.76a	5.00s	18,531	0.00	-0.211s	2.30(1)
4.170	1.75a	9.65s	18,532	0.00	0.000s	1.98(1)
4.163	1.75a	10.00s	18,531	0.00	0.016s	1.96(1)
4.078	1.73a	14.00s	18,532	0.00	0.204s	1.68(1)
3.974	1.71a	18.00s	18,531	0.00	0.395s	1.40(1)
3.846	1.68a	21.99s	18,532	0.00	0.589s	1.12(1)
3.685	1.63a	25.99s	18,535	0.00	0.777s	0.83(1)
3.482	1.53a	29.98s	18,531	0.00	0.943s	0.56(1)
3.235	1.37a	33.98s	18,535	0.00	1.085s	0.28(1)
3.025	1.22a	36.92s	18,526	0.00	1.182s	Deck Imm.
2.946	1.15a	37.98s	18,526	0.00	1.216s	0.00(1)

Distances in FEET.---Specific Gravity = 1.000.----------

Note: The Residual Righting Arms shown above are in excess of the overturning arms derived from this moment (in Ft-LB):

Stbd heeling moment = 8355.26

Critical Point		LCP	TCP	VCP
(1)	FWD PAX COAMING FLOOD	25.05f	3.87	6.13

LIM	46 CFR 171.055 PASSENGER HEEL	Min/Max		Attained
(1)	Angle from Equ. to Dk/marg. Imm. or abs 14 deg >	0.00	deg	4.35 P

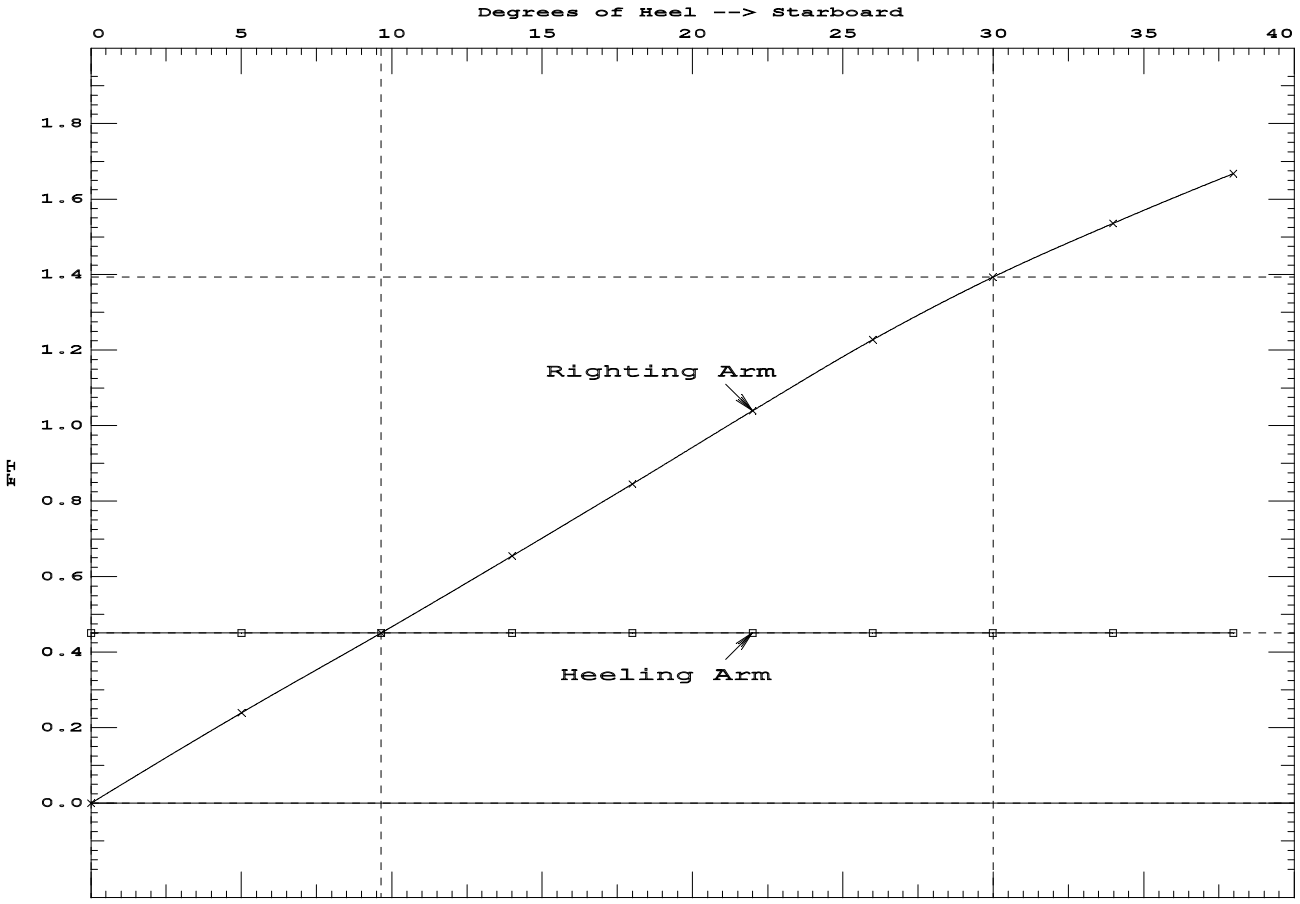
****NOTE HMMT MODIFIED TO REFLECT 185 LB PER PASSENGER ASSUMPTION K=18.16 ****

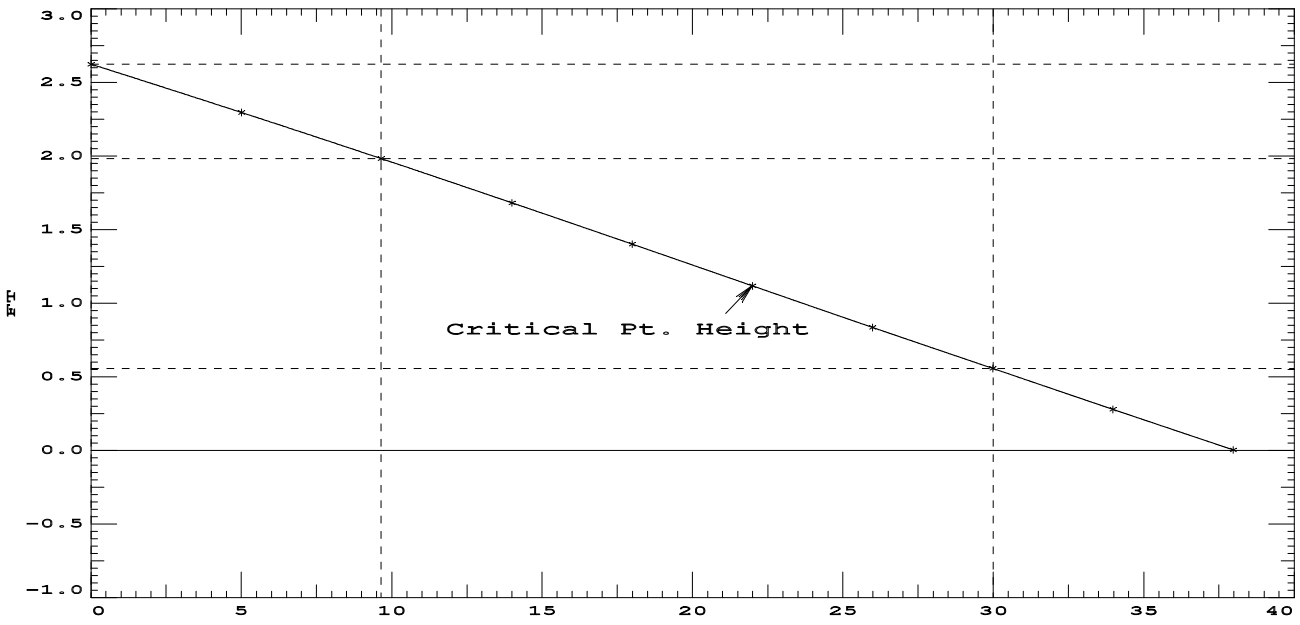
GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

LIGHT LOAD CONDITION NO PASSENGERS 2 CREW

Assuming 185 lb/passenger





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GHS 10.50A **SD-1 STABILITY ANALYSIS**

INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

LIGHT LOAD CONDITION NO PASSENGERS 2 CREW

Assuming 185 lb/passenger

46 CFR 170.173 Righting Energy

****NOTE CRITERIA MODIFIED TO REFLECT OPEN BOAT AND RA LOST AT FLD****

RIGHTING ARMS vs HEEL ANGLE

LCG = 15.95f TCG = 0.00 VCG = 3.41

Origin Depth	Degrees of Trim	Heel	Displacement Weight(LB)	Righting Arms in Trim	in Heel	--> Area	Flood Pt --Height
4.271	1.76a	0.00s	18,529	0.00	0.000	0.00	2.62(1)
4.241	1.77a	5.00s	18,536	0.00	0.239s	0.60	2.30(1)
4.163	1.75a	10.00s	18,534	0.00	0.467s	2.37	1.96(1)
4.054	1.72a	15.00s	18,534	0.00	0.702s	5.29	1.61(1)
3.913	1.70a	20.00s	18,534	0.00	0.943s	9.40	1.26(1)
3.728	1.64a	25.00s	18,531	0.00	1.183s	14.71	0.90(1)
3.481	1.53a	30.00s	18,531	0.00	1.394s	21.17	0.55(1)
3.164	1.32a	35.00s	18,531	0.00	1.570s	28.59	0.21(1)
2.943	1.15a	38.03s	18,533	0.00	1.669s	33.50	-0.00(1)
2.791	1.04a	40.00s	18,532	0.00	1.731s	36.85	-0.14(1)
2.364	0.68a	45.00s	18,535	0.00	1.829s	45.77	-0.48(1)
2.185	0.51a	46.88s	18,531	0.00	1.834s	49.21	-0.60(1)
1.876	0.22a	50.00s	18,530	0.00	1.821s	54.93	-0.81(1)
1.368	0.24f	55.00s	18,531	0.00	1.769s	63.93	-1.13(1)
0.849	0.70f	60.00s	18,531	0.00	1.683s	72.58	-1.45(1)

Distances in FEET.------Specific Gravity = 1.000.---------Area in Ft-Deg.

Critical Point		LCP	TCP	VCP
(1) FWD PAX COAMING	FLOOD	25.05f	3.87	6.13

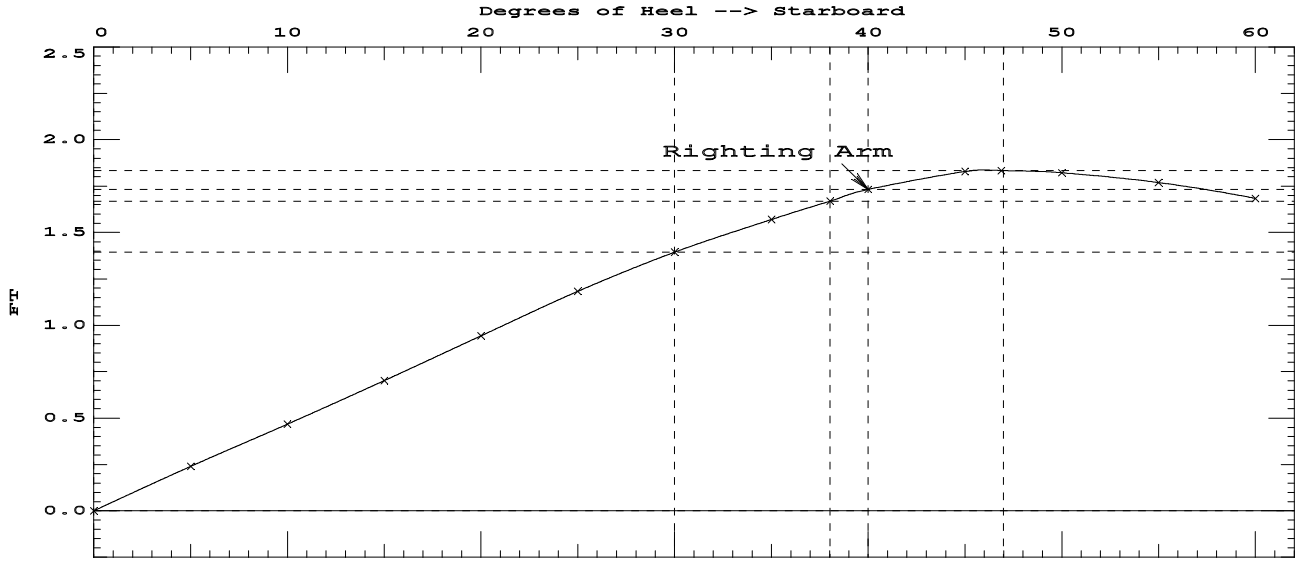
LIM 46CFR170.173 PROTECTED ROUTE		Min/Max		Attained
(1) Angle from abs 0 deg to Flood	>	25.00	deg	38.03 P
(2) Area from abs 0 deg to abs 40 or MaxRA	>	10.00	Ft-deg	36.85 P
(3) Area from abs 0 deg to abs 40 or Flood	>	10.00	Ft-deg	33.50 P

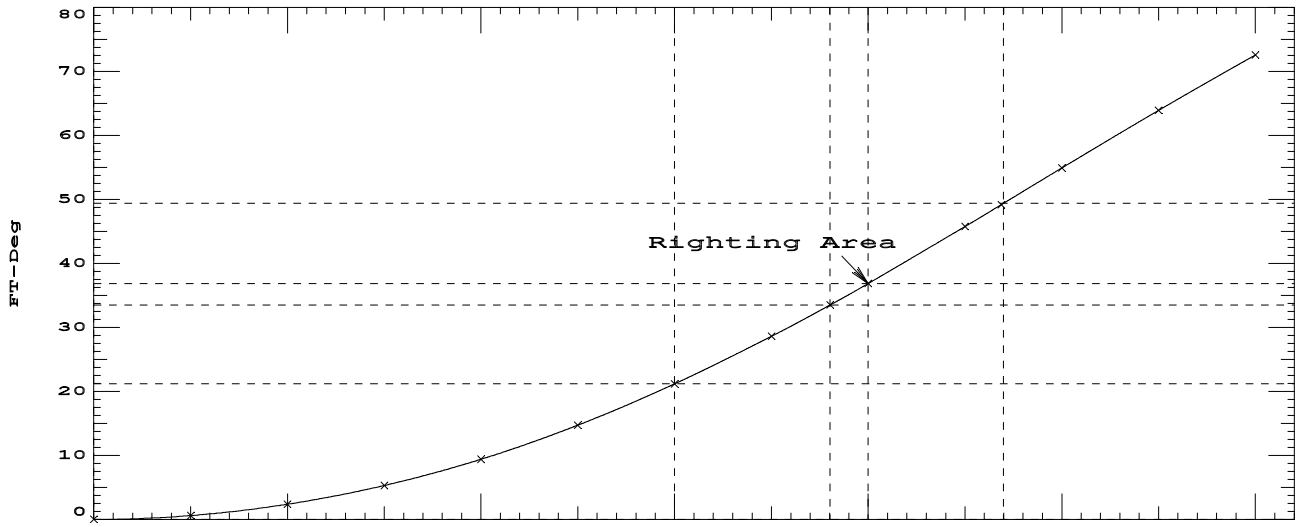
GHS 10.50A **SD-1 STABILITY ANALYSIS**

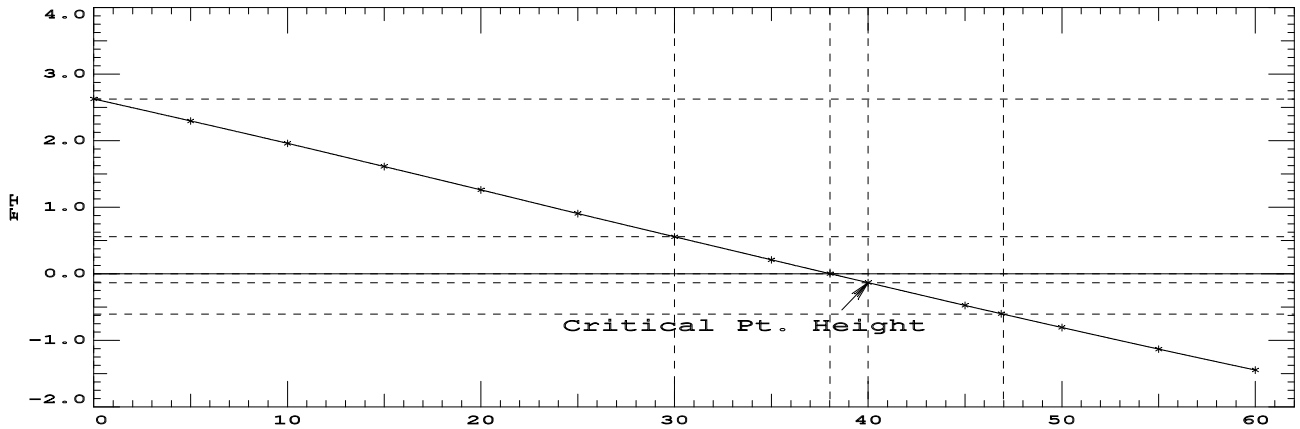
INTACT STABILITY CALCULATIONS FOR SUB (T) VESSEL, PROTECTED WATERS

LIGHT LOAD CONDITION NO PASSENGERS 2 CREW

Assuming 185 lb/passenger







Appendix C
Hydrostatic Modeling

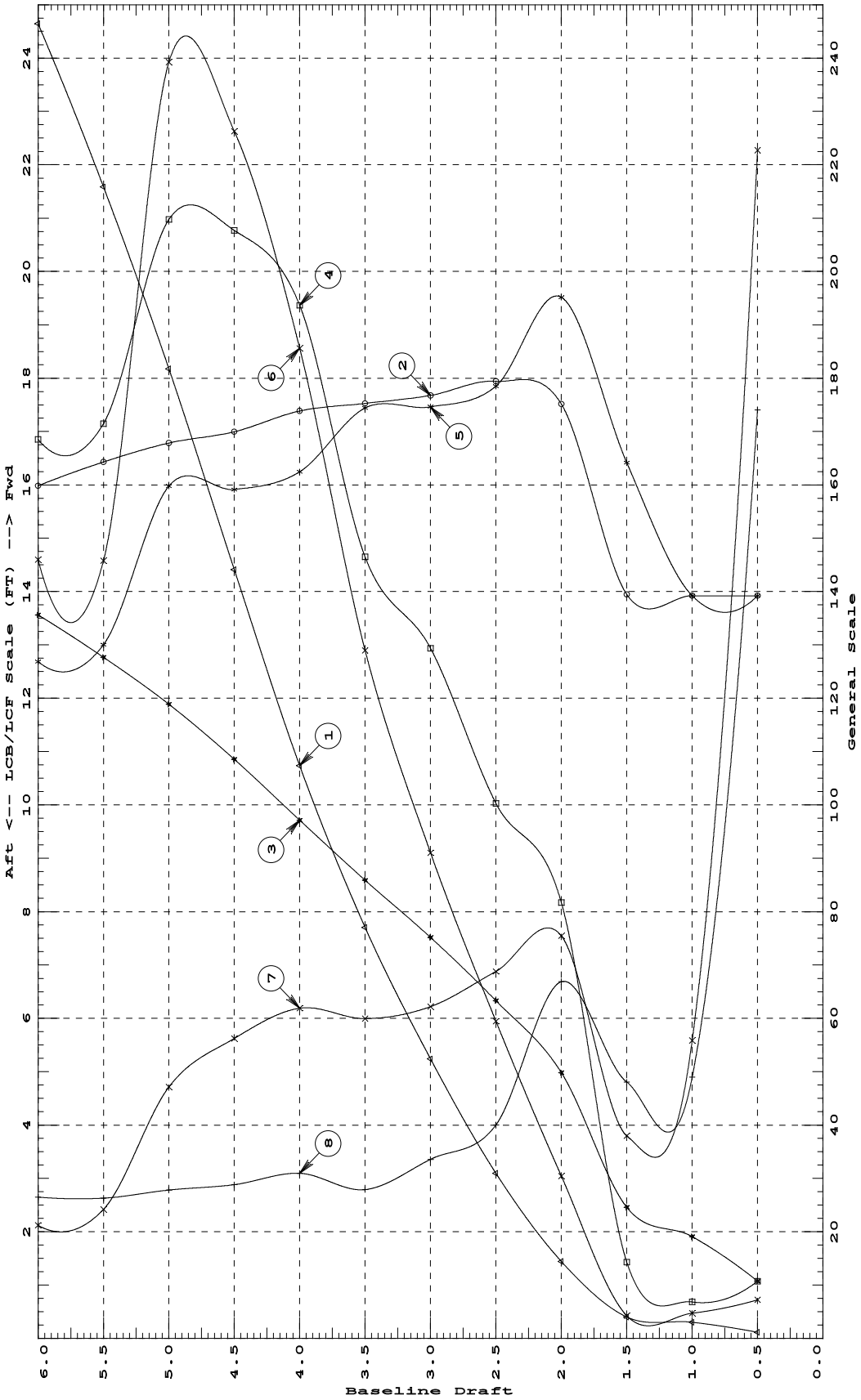
HYDROSTATIC PROPERTIES
No Trim, No Heel, VCG = 0.00

LCF / Draft	Displacement / Weight(LB)	Buoyancy-Ctr. LCB	VCB	Weight/ Inch	Moment/ LCF	Deg trim	KML	KMT
0.500	232	13.92f	0.32	64	13.92f	722.20	178.2	34.81
1.000	607	13.92f	0.57	41	13.92f	473.27	44.7	9.79
1.500	806	13.95f	0.74	86	16.42f	427.49	30.4	9.61
2.000	2,889	17.52f	1.50	490	19.52f	3043.98	60.4	13.38
2.500	6,190	17.94f	1.90	602	17.85f	5946.99	55.0	8.01
3.000	10,480	17.68f	2.26	776	17.46f	9103.43	49.8	6.71
3.500	15,409	17.53f	2.58	879	17.44f	12899	48.0	5.58
4.000	21,470	17.39f	2.91	1162	16.25f	18564	49.5	6.19
4.500	28,824	16.99f	3.26	1246	15.92f	22630	45.0	5.76
5.000	36,353	16.78f	3.57	1259	15.98f	23927	37.7	5.56
5.500	43,171	16.43f	3.83	1029	13.00f	14580	19.3	5.26
6.000	49,288	15.98f	4.07	1011	12.69f	14599	17.0	5.30

Distances in FEET.-------Specific Gravity = 1.000.----------Moment in Ft-LB.
Draft is from Baseline.

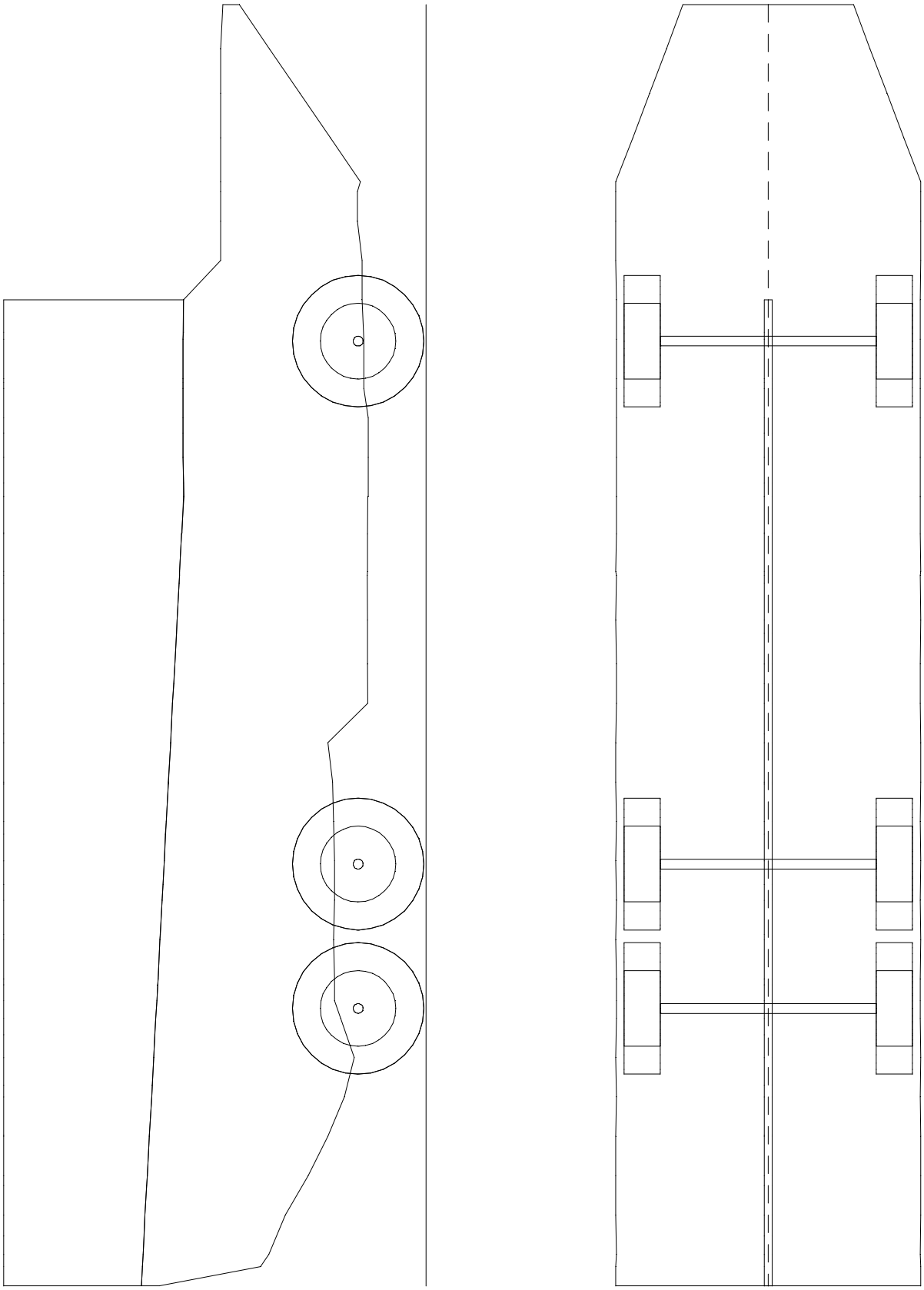
SD-1 STABILITY ANALYSIS

HYDROSTATIC PROPERTIES at LEVEL TRIM



(1) Displacement 1=200 LB
(2) LCB (use top scale)
(3) VCB (KB) 1=.03 FT
(4) Immersion 1=6 LB/IN
(4) WPA 1=1.15 Sq.FT
(5) LCF (use top scale)
(6) Moment/Trim 1=100 FT-LB/Deg
(7) KML 1=.8 FT
(8) KMT 1=.2 FT

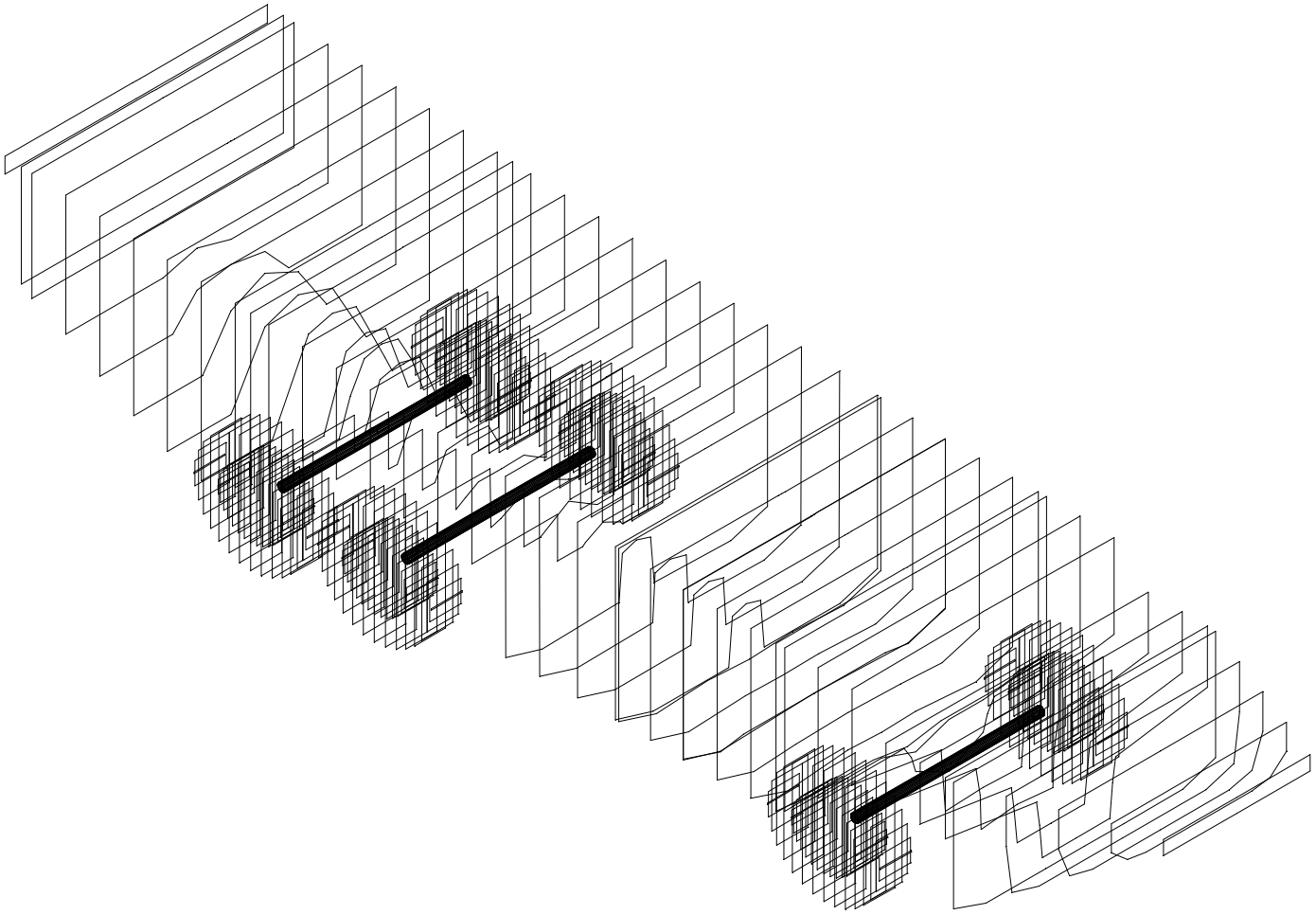
Specific Gravity = 1.000 Assumed KG = 0.00 FT
"K" = base plane



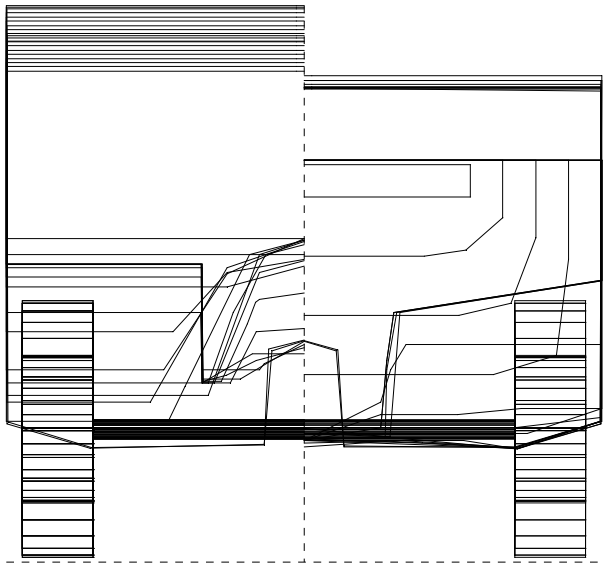
Scale = 1:45

Part Name	Class	Description	Location	Volume
HULL	HULL		32.55f to 0.00	
CANOPY	SAIL		25.05f to 0.00	

Locations in Feet fwd/aft of the origin. Volumes in cubic Feet.



HULL Isometric Projection



Stbd Stbd

HULL Body Plan (13 components)
Scale = 1:30

Component 1: HULL.C

Offsets in Feet. Read across --->

Section at	32.55 fwd						
trans:	0.00	2.17	2.17	0.00			
vert:	4.75	4.75	5.17	5.17			
Section at	31.42 fwd						
trans:	0.00	1.57	2.11	2.59	2.59	2.59	0.00
vert:	3.98	3.98	4.06	4.48	4.48	5.23	5.23
Section at	30.30 fwd						
trans:	0.00	2.02	2.70	3.02	3.02	0.00	
vert:	3.21	3.21	3.37	4.22	5.23	5.23	
Section at	29.17 fwd						
trans:	0.00	2.47	3.29	3.45	3.45	3.45	0.00
vert:	2.44	2.44	2.69	3.94	3.95	5.23	5.23
Section at	28.05 fwd						
trans:	0.00	1.15	2.91	3.88	3.88	0.00	
vert:	1.67	1.67	1.67	2.00	5.23	5.23	
Section at	27.80 fwd						
trans:	0.00	1.00	1.08	1.17	3.88	3.88	0.00
vert:	1.75	1.75	2.62	3.25	3.67	5.23	5.23
Section at	27.05 fwd						
trans:	0.00	1.00	1.08	1.17	3.88	3.88	0.00
vert:	1.75	1.75	2.62	3.25	3.67	5.23	5.23
Section at	26.05 fwd						
trans:	0.00	1.06	1.08	1.21	3.88	3.88	0.00
vert:	1.74	1.63	2.50	3.25	3.66	5.23	5.23
Section at	25.05 fwd						
trans:	0.00	1.12	1.25	3.87	3.87	0.10	0.00
vert:	1.67	1.63	3.25	3.66	6.13	6.17	6.17
Section at	24.05 fwd						
trans:	0.00	1.00	1.13	1.33	3.87	3.87	0.10	0.00
vert:	1.58	1.58	3.25	3.66	6.13	6.18	6.18	6.18

Section at	23.05 fwd									
trans:	0.00	1.00	2.00	2.83	3.87	3.87	0.10	0.00		
vert:	1.58	1.92	1.92	2.00	2.00	6.18	6.18	6.18		
Section at	22.80 fwd									
trans:	0.00	1.00	2.75	3.87	3.87	0.10	0.00			
vert:	1.58	1.75	1.75	1.88	6.18	6.18	6.18			
Section at	22.05 fwd									
trans:	0.00	1.00	2.78	3.87	3.87	0.10	0.00			
vert:	1.58	1.63	1.47	1.83	6.18	6.18	6.18			
Section at	21.05 fwd									
trans:	0.00	1.54	2.78	3.87	3.87	0.10	0.00			
vert:	1.59	1.55	1.47	1.80	6.18	6.18	6.18			
Section at	20.06 fwd									
trans:	0.00	2.08	2.78	3.87	3.87	0.10	0.00			
vert:	1.58	1.58	1.47	1.83	6.17	6.17	6.17			
Section at	20.05 fwd									
trans:	0.00	2.78	3.87	3.87	0.10	0.00				
vert:	1.58	1.48	1.80	6.17	6.17	6.17				
Section at	19.10 fwd									
trans:	0.00	1.08	2.76	3.87	3.87	0.10	0.00			
vert:	1.55	1.57	1.49	1.83	6.22	6.22	6.22			
Section at	18.15 fwd									
trans:	0.00	1.25	2.76	3.88	3.88	0.10	0.00			
vert:	1.50	1.58	1.49	1.83	6.27	6.27	6.27			
Section at	18.05 fwd									
trans:	0.00	0.42	0.52	2.75	3.87	3.87	0.10	0.00		
vert:	2.87	2.75	1.50	1.50	1.83	6.27	6.27	6.27		
Section at	16.92 fwd									
trans:	0.00	0.44	0.52	2.76	3.86	3.88	0.10	0.00		
vert:	2.88	2.76	1.51	1.49	1.83	6.33	6.33	6.33		
Section at	15.80 fwd									
trans:	0.00	0.46	0.52	2.77	3.86	3.87	0.10	0.00		
vert:	2.89	2.77	1.52	1.49	1.82	6.39	6.39	6.39		
Section at	14.80 fwd									
trans:	0.00	0.42	0.52	2.79	3.87	3.87	0.10	0.00		
vert:	2.88	2.75	1.53	1.48	1.80	6.45	6.45	6.45		
Section at	13.80 fwd									
trans:	0.00	0.52	0.58	1.33	1.34	3.88	3.88	0.10	0.00	
vert:	2.83	2.58	2.50	2.50	3.71	3.71	6.50	6.50	6.50	
Section at	12.80 fwd									
trans:	0.00	0.83	1.33	1.33	3.88	3.88	0.10	0.00		
vert:	2.87	2.38	2.38	3.88	3.88	6.56	6.56	6.56		
Section at	11.80 fwd									
trans:	0.00	0.62	1.01	1.31	1.34	3.87	3.87	0.10	0.00	
vert:	2.79	2.62	2.43	2.35	3.87	3.87	6.61	6.61	6.61	
Section at	10.80 fwd									
trans:	0.00	0.67	1.05	1.33	1.34	3.88	3.88	0.10	0.00	
vert:	2.71	2.71	2.49	2.33	3.88	3.88	6.66	6.66	6.66	
Section at	9.80 fwd									
trans:	0.00	0.62	0.96	1.33	1.33	3.87	3.87	0.10	0.00	
vert:	3.04	3.00	2.33	2.33	3.87	3.87	6.72	6.72	6.72	
Section at	8.80 fwd									
trans:	0.00	0.58	0.63	0.74	1.08	1.33	1.33	3.88	3.88	0.10	0.00
vert:	3.50	3.42	3.38	3.10	2.35	2.35	3.83	3.83	6.77	6.77	6.77
Section at	7.80 fwd									
trans:	0.00	0.58	1.17	1.33	1.35	3.87	3.87	0.10	0.00	
vert:	3.92	3.77	2.33	2.33	3.25	3.25	6.82	6.82	6.82	

Section at 7.25 fwd

trans:	0.00	0.50	0.92	1.25	3.87	3.87	0.10	0.00
vert:	4.13	4.00	3.25	2.33	2.33	6.85	6.85	6.85

Section at 6.80 fwd

trans:	0.00	0.58	1.25	3.87	3.87	0.10	0.00
vert:	4.19	4.00	2.17	2.17	6.88	6.88	6.88

Section at 5.80 fwd

trans:	0.00	0.71	1.55	1.77	2.10	3.88	3.88	0.10	0.00
vert:	4.19	4.00	2.28	1.83	1.83	1.83	6.93	6.93	6.93

Section at 4.80 fwd

trans:	0.00	1.00	1.88	2.00	3.87	3.87	0.10	0.00
vert:	4.17	3.83	2.29	2.08	2.08	6.98	6.98	6.98

Section at 3.80 fwd

trans:	0.00	1.00	1.83	3.88	3.88	0.10	0.00
vert:	4.21	3.75	2.50	2.50	7.04	7.04	7.04

Section at 2.80 fwd

trans:	0.00	1.00	1.71	3.88	3.88	0.10	0.00
vert:	3.94	3.77	3.00	3.00	7.09	7.09	7.09

Section at 1.80 fwd

trans:	0.00	1.00	3.88	3.88	0.10	0.00
vert:	3.85	3.58	3.58	7.15	7.15	7.15

Section at 0.80 fwd

trans:	0.00	3.87	3.87	0.10	0.00
vert:	4.00	4.00	7.20	7.20	7.20

Section at 0.49 fwd

trans:	0.00	3.88	3.88	0.10	0.00
vert:	4.21	4.21	7.22	7.22	7.22

Section at 0.00

trans:	0.00	3.88	3.88	0.10	0.00
vert:	6.78	6.78	7.24	7.24	7.24

Component 2: TIRE1.S

Offsets in Feet. Read across --->

Section at 8.72 fwd

trans:	2.75	3.67	3.67	2.75	2.75
vert:	1.71	1.71	1.75	1.75	1.71

Section at 8.69 fwd

trans:	2.75	3.67	3.67	2.75	2.75
vert:	1.40	1.40	2.05	2.05	1.40

Section at 8.59 fwd

trans:	2.75	3.67	3.67	2.75	2.75
vert:	1.09	1.09	2.37	2.37	1.09

Section at 8.44 fwd

trans:	2.75	3.67	3.67	2.75	2.75
vert:	0.80	0.80	2.66	2.66	0.80

Section at 8.23 fwd

trans:	2.75	3.67	3.67	2.75	2.75
vert:	0.55	0.55	2.91	2.91	0.55

Section at 7.98 fwd

trans:	2.75	3.67	3.67	2.75	2.75
vert:	0.34	0.34	3.12	3.12	0.34

Section at 7.69 fwd

trans:	2.75	3.67	3.67	2.75	2.75
vert:	0.18	0.18	3.27	3.27	0.18

```
Section at    7.38 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     0.09    0.09    3.37    3.37    0.09

Section at    7.05 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     0.06    0.06    3.40    3.40    0.06

Section at    6.72 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     0.09    0.09    3.37    3.37    0.09

Section at    6.41 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     0.18    0.18    3.27    3.27    0.18

Section at    6.12 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     0.34    0.34    3.12    3.12    0.34

Section at    5.87 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     0.55    0.55    2.91    2.91    0.55

Section at    5.66 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     0.80    0.80    2.66    2.66    0.80

Section at    5.50 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     1.09    1.09    2.37    2.37    1.09

Section at    5.41 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     1.40    1.40    2.05    2.05    1.40

Section at    5.38 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     1.71    1.71    1.75    1.75    1.71


   Component 3: c3.C (deducting)   47.00% effective

Offsets in Feet.  Read across --->

Section at    8.01 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     1.71    1.71    1.74    1.74    1.71

Section at    7.99 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     1.54    1.54    1.92    1.92    1.54

Section at    7.94 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     1.36    1.36    2.10    2.10    1.36

Section at    7.85 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     1.20    1.20    2.26    2.26    1.20

Section at    7.73 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     1.05    1.05    2.41    2.41    1.05

Section at    7.58 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     0.93    0.93    2.53    2.53    0.93

Section at    7.42 fwd
   trans:     2.75    3.67    3.67    2.75    2.75
    vert:     0.84    0.84    2.62    2.62    0.84
```

Section at 7.24 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.79 0.79 2.67 2.67 0.79

Section at 7.05 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.77 0.77 2.69 2.69 0.77

Section at 6.86 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.79 0.79 2.67 2.67 0.79

Section at 6.68 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.84 0.84 2.62 2.62 0.84

Section at 6.51 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.93 0.93 2.53 2.53 0.93

Section at 6.37 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.05 1.05 2.41 2.41 1.05

Section at 6.25 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.20 1.20 2.26 2.26 1.20

Section at 6.16 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.36 1.36 2.10 2.10 1.36

Section at 6.11 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.54 1.54 1.92 1.92 1.54

Section at 6.09 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.74 1.74 1.71

Component 4: TIRE1.P

Offsets in Feet. Read across --->

Section at 8.72 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.75 1.75 1.71

Section at 8.69 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.40 1.40 2.05 2.05 1.40

Section at 8.59 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.09 1.09 2.37 2.37 1.09

Section at 8.44 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.80 0.80 2.66 2.66 0.80

Section at 8.23 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.55 0.55 2.91 2.91 0.55

Section at 7.98 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.34 0.34 3.12 3.12 0.34

Section at 7.69 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.18 0.18 3.27 3.27 0.18

Section at 7.38 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.09 0.09 3.37 3.37 0.09

Section at 7.05 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.06 0.06 3.40 3.40 0.06

Section at 6.72 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.09 0.09 3.37 3.37 0.09

Section at 6.41 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.18 0.18 3.27 3.27 0.18

Section at 6.12 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.34 0.34 3.12 3.12 0.34

Section at 5.87 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.55 0.55 2.91 2.91 0.55

Section at 5.66 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.80 0.80 2.66 2.66 0.80

Section at 5.50 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.09 1.09 2.37 2.37 1.09

Section at 5.41 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.40 1.40 2.05 2.05 1.40

Section at 5.38 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.75 1.75 1.71

Component 5: TIRE2.S

Offsets in Feet. Read across --->

Section at 12.39 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.75 1.75 1.71

Section at 12.36 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.40 1.40 2.05 2.05 1.40

Section at 12.26 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.09 1.09 2.37 2.37 1.09

Section at 12.11 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.80 0.80 2.66 2.66 0.80

Section at 11.90 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.55 0.55 2.91 2.91 0.55

Section at 11.65 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.34 0.34 3.12 3.12 0.34

Section at 11.36 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.18 0.18 3.27 3.27 0.18

Section at 11.04 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.09 0.09 3.37 3.37 0.09

Section at 10.72 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.06 0.06 3.40 3.40 0.06

Section at 10.39 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.09 0.09 3.37 3.37 0.09

Section at 10.08 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.18 0.18 3.27 3.27 0.18

Section at 9.79 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.34 0.34 3.12 3.12 0.34

Section at 9.53 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.55 0.55 2.91 2.91 0.55

Section at 9.33 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.80 0.80 2.66 2.66 0.80

Section at 9.17 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.09 1.09 2.37 2.37 1.09

Section at 9.08 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.40 1.40 2.05 2.05 1.40

Section at 9.04 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.75 1.75 1.71

Component 6: c7.C (deducting) 47.00% effective

Offsets in Feet. Read across --->

Section at 11.68 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.74 1.74 1.71

Section at 11.66 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.54 1.54 1.92 1.92 1.54

Section at 11.60 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.36 1.36 2.10 2.10 1.36

Section at 11.52 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.20 1.20 2.26 2.26 1.20

Section at 11.40 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.05 1.05 2.41 2.41 1.05

Section at 11.25 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.93 0.93 2.53 2.53 0.93

Section at 11.08 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.84 0.84 2.62 2.62 0.84

Section at 10.90 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.79 0.79 2.67 2.67 0.79

Section at 10.72 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.77 0.77 2.69 2.69 0.77

Section at 10.53 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.79 0.79 2.67 2.67 0.79

Section at 10.35 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.84 0.84 2.62 2.62 0.84

Section at 10.18 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.93 0.93 2.53 2.53 0.93

Section at 10.04 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.05 1.05 2.41 2.41 1.05

Section at 9.92 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.20 1.20 2.26 2.26 1.20

Section at 9.83 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.36 1.36 2.10 2.10 1.36

Section at 9.77 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.54 1.54 1.92 1.92 1.54

Section at 9.76 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.74 1.74 1.71

Component 7: TIRE2.P

Offsets in Feet. Read across --->

Section at 12.39 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.75 1.75 1.71

Section at 12.36 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.40 1.40 2.05 2.05 1.40

Section at 12.26 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.09 1.09 2.37 2.37 1.09

Section at 12.11 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.80 0.80 2.66 2.66 0.80

Section at 11.90 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.55 0.55 2.91 2.91 0.55

Section at 11.65 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.34 0.34 3.12 3.12 0.34

Section at 11.36 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.18 0.18 3.27 3.27 0.18

Section at 11.04 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.09 0.09 3.37 3.37 0.09

Section at 10.72 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.06 0.06 3.40 3.40 0.06

Section at 10.39 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.09 0.09 3.37 3.37 0.09

Section at 10.08 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.18 0.18 3.27 3.27 0.18

Section at 9.79 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.34 0.34 3.12 3.12 0.34

Section at 9.53 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.55 0.55 2.91 2.91 0.55

Section at 9.33 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.80 0.80 2.66 2.66 0.80

Section at 9.17 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.09 1.09 2.37 2.37 1.09

Section at 9.08 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.40 1.40 2.05 2.05 1.40

Section at 9.04 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.75 1.75 1.71

Component 8: TIRE3.S

Offsets in Feet. Read across --->

Section at 25.67 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.75 1.75 1.71

Section at 25.64 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.40 1.40 2.05 2.05 1.40

Section at 25.55 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.09 1.09 2.37 2.37 1.09

Section at 25.39 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.80 0.80 2.66 2.66 0.80

Section at 25.18 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.55 0.55 2.91 2.91 0.55

Section at 24.93 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.34 0.34 3.12 3.12 0.34

Section at 24.64 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.18 0.18 3.27 3.27 0.18

Section at 24.33 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.09 0.09 3.37 3.37 0.09

Section at 24.00 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.06 0.06 3.40 3.40 0.06

Section at 23.67 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.09 0.09 3.37 3.37 0.09

Section at 23.36 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.18 0.18 3.27 3.27 0.18

Section at 23.07 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.34 0.34 3.12 3.12 0.34

Section at 22.82 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.55 0.55 2.91 2.91 0.55

Section at 22.61 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.80 0.80 2.66 2.66 0.80

Section at 22.45 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.09 1.09 2.37 2.37 1.09

Section at 22.36 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.40 1.40 2.05 2.05 1.40

Section at 22.33 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.75 1.75 1.71

Component 9: c11.C (deducting) 47.00% effective

Offsets in Feet. Read across --->

Section at 24.96 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.74 1.74 1.71

Section at 24.94 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.54 1.54 1.92 1.92 1.54

Section at 24.89 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.36 1.36 2.10 2.10 1.36

Section at 24.80 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.20 1.20 2.26 2.26 1.20

Section at 24.68 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.05 1.05 2.41 2.41 1.05

Section at 24.53 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.93 0.93 2.53 2.53 0.93

Section at 24.37 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.84 0.84 2.62 2.62 0.84

Section at 24.19 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.79 0.79 2.67 2.67 0.79

Section at 24.00 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.77 0.77 2.69 2.69 0.77

Section at 23.81 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.79 0.79 2.67 2.67 0.79

Section at 23.63 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.84 0.84 2.62 2.62 0.84

Section at 23.47 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.93 0.93 2.53 2.53 0.93

Section at 23.32 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.05 1.05 2.41 2.41 1.05

Section at 23.20 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.20 1.20 2.26 2.26 1.20

Section at 23.11 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.36 1.36 2.10 2.10 1.36

Section at 23.06 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.54 1.54 1.92 1.92 1.54

Section at 23.04 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.74 1.74 1.71

Component 10: TIRE3.P

Offsets in Feet. Read across --->

Section at 25.67 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.75 1.75 1.71

Section at 25.64 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.40 1.40 2.05 2.05 1.40

Section at 25.55 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.09 1.09 2.37 2.37 1.09

Section at 25.39 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.80 0.80 2.66 2.66 0.80

Section at 25.18 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.55 0.55 2.91 2.91 0.55

Section at 24.93 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.34 0.34 3.12 3.12 0.34

Section at 24.64 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.18 0.18 3.27 3.27 0.18

Section at 24.33 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.09 0.09 3.37 3.37 0.09

Section at 24.00 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.06 0.06 3.40 3.40 0.06

Section at 23.67 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.09 0.09 3.37 3.37 0.09

Section at 23.36 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.18 0.18 3.27 3.27 0.18

Section at 23.07 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.34 0.34 3.12 3.12 0.34

Section at 22.82 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.55 0.55 2.91 2.91 0.55

Section at 22.61 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 0.80 0.80 2.66 2.66 0.80

Section at 22.45 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.09 1.09 2.37 2.37 1.09

Section at 22.36 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.40 1.40 2.05 2.05 1.40

Section at 22.33 fwd
trans: 2.75 3.67 3.67 2.75 2.75
vert: 1.71 1.71 1.75 1.75 1.71

Component 11: AXLE1.C

Offsets in Feet. Read across --->

Section at 7.17 fwd
trans: 0.00 2.75 2.75 0.00
vert: 1.72 1.72 1.73 1.73

Section at 7.17 fwd
trans: 0.00 2.75 2.75 0.00
vert: 1.70 1.70 1.75 1.75

Section at 7.16 fwd
trans: 0.00 2.75 2.75 0.00
vert: 1.68 1.68 1.78 1.78

Section at 7.15 fwd
trans: 0.00 2.75 2.75 0.00
vert: 1.66 1.66 1.80 1.80

Section at 7.14 fwd
trans: 0.00 2.75 2.75 0.00
vert: 1.64 1.64 1.82 1.82

Section at 7.12 fwd
trans: 0.00 2.75 2.75 0.00
vert: 1.62 1.62 1.83 1.83

Section at 7.10 fwd
trans: 0.00 2.75 2.75 0.00
vert: 1.61 1.61 1.84 1.84

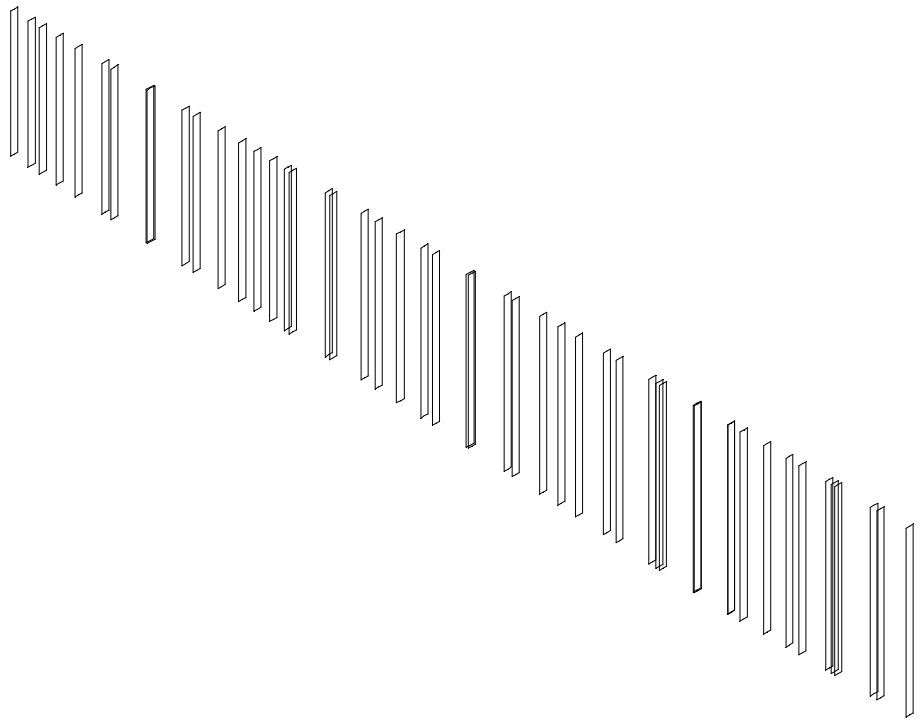
```
Section at    7.07 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.85    1.85

Section at    7.05 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.60    1.60    1.85    1.85

Section at    7.03 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.85    1.85

Section at    7.00 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.84    1.84

Section at    6.98 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.62    1.62    1.83    1.83

Section at    6.96 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.64    1.64    1.82    1.82

Section at    6.95 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.66    1.66    1.80    1.80

Section at    6.93 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.68    1.68    1.78    1.78

Section at    6.93 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.70    1.70    1.75    1.75

Section at    6.92 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.72    1.72    1.73    1.73
```

Component 12: AXLE2.C

```
Offsets in Feet.  Read across --->

Section at   10.84 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.72    1.72    1.73    1.73

Section at   10.84 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.70    1.70    1.75    1.75

Section at   10.83 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.68    1.68    1.78    1.78

Section at   10.82 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.66    1.66    1.80    1.80

Section at   10.81 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.64    1.64    1.82    1.82

Section at   10.79 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.62    1.62    1.83    1.83

Section at   10.76 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.84    1.84
```

```
Section at   10.74 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.85    1.85

Section at   10.72 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.60    1.60    1.85    1.85

Section at   10.69 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.85    1.85

Section at   10.67 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.84    1.84

Section at   10.65 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.62    1.62    1.83    1.83

Section at   10.63 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.64    1.64    1.82    1.82

Section at   10.61 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.66    1.66    1.80    1.80

Section at   10.60 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.68    1.68    1.78    1.78

Section at   10.59 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.70    1.70    1.75    1.75

Section at   10.59 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.72    1.72    1.73    1.73


   Component 13: AXLE3.C

Offsets in Feet.  Read across --->

Section at   24.13 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.72    1.72    1.73    1.73

Section at   24.12 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.70    1.70    1.75    1.75

Section at   24.12 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.68    1.68    1.78    1.78

Section at   24.10 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.66    1.66    1.80    1.80

Section at   24.09 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.64    1.64    1.82    1.82

Section at   24.07 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.62    1.62    1.83    1.83

Section at   24.05 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.84    1.84
```

```
Section at   24.02 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.85    1.85

Section at   24.00 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.60    1.60    1.85    1.85

Section at   23.98 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.85    1.85

Section at   23.95 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.61    1.61    1.84    1.84

Section at   23.93 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.62    1.62    1.83    1.83

Section at   23.91 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.64    1.64    1.82    1.82

Section at   23.90 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.66    1.66    1.80    1.80

Section at   23.88 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.68    1.68    1.78    1.78

Section at   23.88 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.70    1.70    1.75    1.75

Section at   23.88 fwd
   trans:     0.00    2.75    2.75    0.00
    vert:     1.72    1.72    1.73    1.73
```



CANOPY Isometric Projection

Stbd Stbd

CANOPY Body Plan (1 component)
Scale = 1:30

Component 1: CANOPY.C

Offsets in Feet. Read across --->

Section at	25.05 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.17	6.17	10.75	10.75
Section at	24.23 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.17	6.17	10.75	10.75
Section at	24.05 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.18	6.18	10.75	10.75
Section at	23.05 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.18	6.18	10.75	10.75
Section at	22.95 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.18	6.18	10.75	10.75
Section at	22.80 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.18	6.18	10.75	10.75
Section at	22.05 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.18	6.18	10.75	10.75
Section at	21.67 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.18	6.18	10.75	10.75
Section at	21.05 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.18	6.18	10.75	10.75
Section at	20.40 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.17	6.17	10.75	10.75
Section at	20.06 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.17	6.17	10.75	10.75
Section at	20.05 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.17	6.17	10.75	10.75
Section at	19.13 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.21	6.21	10.75	10.75
Section at	19.10 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.22	6.22	10.75	10.75
Section at	18.15 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.27	6.27	10.75	10.75
Section at	18.05 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.27	6.27	10.75	10.75
Section at	17.85 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.28	6.28	10.75	10.75

Section at	16.92	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.33	6.33	10.75	10.75
Section at	16.58	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.35	6.35	10.75	10.75
Section at	15.80	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.39	6.39	10.75	10.75
Section at	15.30	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.42	6.42	10.75	10.75
Section at	14.80	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.45	6.45	10.75	10.75
Section at	14.02	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.49	6.49	10.75	10.75
Section at	13.80	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.50	6.50	10.75	10.75
Section at	12.80	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.56	6.56	10.75	10.75
Section at	12.75	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.56	6.56	10.75	10.75
Section at	11.80	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.61	6.61	10.75	10.75
Section at	11.48	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.63	6.63	10.75	10.75
Section at	10.80	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.66	6.66	10.75	10.75
Section at	10.20	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.69	6.69	10.75	10.75
Section at	9.80	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.72	6.72	10.75	10.75
Section at	8.93	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.76	6.76	10.75	10.75
Section at	8.80	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.77	6.77	10.75	10.75
Section at	7.80	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.82	6.82	10.75	10.75
Section at	7.65	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.83	6.83	10.75	10.75
Section at	7.25	fwd		
trans:	0.00	0.10	0.10	0.00
vert:	6.85	6.85	10.75	10.75

Section at	6.80 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.88	6.88	10.75	10.75
Section at	6.38 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.90	6.90	10.75	10.75
Section at	5.80 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.93	6.93	10.75	10.75
Section at	5.10 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.97	6.97	10.75	10.75
Section at	4.80 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	6.98	6.98	10.75	10.75
Section at	3.83 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	7.04	7.04	10.75	10.75
Section at	3.80 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	7.04	7.04	10.75	10.75
Section at	2.80 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	7.09	7.09	10.75	10.75
Section at	2.55 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	7.11	7.11	10.75	10.75
Section at	1.80 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	7.15	7.15	10.75	10.75
Section at	1.27 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	7.17	7.17	10.75	10.75
Section at	0.80 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	7.20	7.20	10.75	10.75
Section at	0.49 fwd			
trans:	0.00	0.10	0.10	0.00
vert:	7.22	7.22	10.75	10.75
Section at	0.00			
trans:	0.00	0.10	0.10	0.00
vert:	7.24	7.24	10.75	10.75