

AXES		
CENTRE	CHASSIS/BUOYANCY INTERFACE, REAR FACE OF BUOYANCY	
		POSITIVE
	X - fore-aft	fore
	Y - vertical	down
	Z - port-starboard	starboard

ID	Component	Qty	Total Air wt kg	Sub wt kg	xbar mm	ybar mm	zbar mm
	Mechanical	1	635.40	431.27	1515.70	356.86	0.00
	Hydraulics	1	732.50	410.21	1510	330	
					1271	874	-24
					1257	1014	-49
	Electrical	1	377.00	158.00	1457	470	-40
					1462	500	-32
	ROV Components	1	1365.36	744.10	1453	795	-42
					1600	829	-64
	Buoyancy	1	1619.00	-1720.27	1500	-390	0
					1500	-390	0
Totals for VEHICLE IN AIR.			4729.26		1449.7	316.9	-18.9
Totals for VEHICLE Submerged.				23.32	1484.63	719.49	-41.72

Buoyancy not
included

Liftpoint distance fwd from datum **1435.00** mm (move by 75mm per hole.)

F/A Angle of Pitch (air) 0.83 Degrees **+ve = Nose Down**
F/A Angle of Pitch (submerged) -0.79 Degrees **+ve = Nose Down**

ID	Component	Qty	Single Air wt kg	Total Air wt kg	Sub wt kg	xbar mm	ybar mm	zbar mm
	CHASSIS							
	Chassis Basic Inventor calc	1	350	350	227.5	1430	670	
	Anodes (fitted to non-al parts)	4	0.1	0.4	0.3	1560		
	Misc / Fasteners new estimate	1	35	35	30.4	1500	600	
	Umbilical Pot Inventor calc	1	5	5	4.3	1050.00	-850	
	Lift Studs Inventor calc	4	2.5	10	8.7	1420	-350	
	Liftpoint assembly Inventor calc	1	100	100	75.0	1435.00	-700	
	Note Mech Term position linked to angle calcs on front sheet!!							
	Brackets Inventor calc	1	25	25	15.8	1500	600	
	ROV Instrument Frame (MBARI supply)	1	30	30	18.9	3100	-200	
	Misc	1	80	80	50.4	1450	500	
Totals for:		Air		635.4		1515.697	356.86	
		Submerged			431.3	1509.932	329.99	

ID	Component	Qty	Single Air wt kg	Total Air wt kg	Sub wt kg	xbar mm	ybar mm	zbar mm
	75HP Motor- 4 P (incl adaptor kits)	1	200	200	145	1290	730	
	Pump - 100cc	1	45	45	39	1290	730	-600
	Thruster PFH HTE 380BA-45	1	25	25	13	2540	300	
	Thruster SFH HTE 380BA-45	1	25	25	13	2540	300	
	Thruster PRH HTE 380BA-45	1	25	25	13	300	300	
	Thruster SRH HTE 380BA-45	1	25	25	13	300	300	
	Thruster SV HTE 380BA-45	1	25	25	13	2100	-115	
	Thruster PV HTE 380BA-45	1	25	25	13	2100	-115	
	Thruster RV HTE 380BA-45	1	25	25	13	240	-115	
	8-St Servo TCU	1	30	30	18	660	250	
	Oil Reservoir	1	21	21	13	500	800	-600
	12-St HCU	1	35	35	18	420	850	630
	HOSES & FITTINGS	1	40	40	25	1560	400	
	Pipes,fittings,manifolds,misc valves	1	35	35	30	1250	700	
	Oil	1	80	80	-8	1350	400	
	2.75L Compensator	4	11.5	46	20	1630	750	
	1 Pint Comp	1				980	500	
	Pressure Filter	1	10	10	6	750	900	
	Return Filter	1	5.5	5.5	3	900	900	
						900	900	
						900	900	
	Misc	1	10	10	8.7	1560	600	
Totals for:		Air		732.5		1271.3	874.23	-23.96
		Submerged			410.2	1256.8	1014.2	-48.6

ID	Component	Qty	Single Air wt kg	Total Air wt kg	Sub wt kg	xbar mm	ybar mm	zbar mm
	Main Electronics Pod	1	150	150	50	1380	300	-100
	Electrical Termination	1	70	70	35	680	650	
	Junction Box	1	30	30	14	1930	500	
	Junction Box	1	30	30	14	1930	500	
	Auxiliary Junction Box	1	15	15	10	2400	800	
	Gyro	1	1	1		2100		
	Lamp dimming box	1	21	21	8	2150	460	
	Harnesses (whole vehicle)	1	50	50	20	1600	600	
	MISC	1	10	10	7	1560	500	
Totals for:		Air		377.0		1456.9	469.92	-39.79
		Submerged			158.0	1461.8	499.56	-31.65

ID	Component	Qty	Single Air wt kg	Total Air wt kg	Sub wt kg	xbar mm	ybar mm	zbar mm
	CAMERA 1 HDTV	1	36.7	36.7	16.8	3000	500	
	CAMERA 2 Pilot	1	5.67	5.67	2.95	2800		
	CAMERA 3 Still	1	5.67	5.67	2.95	2800		
	CAMERA 4 Aux	4	0.4	1.6	1.12	2800		
	P & T Unit R.O.S. PT-25	2	9.8	19.6	11.4	2800		
	Tilt Unit R.O.S. PT-10	2	4.4	8.8	8.4	2800	1000	
	Internal P&T unit	1	11.8	11.8	6.4	3000		
	Still Strobe	1	5.67	5.67	2.95	3000		
	SONAR	1	6.4	6.4	3.3	3000		
	DEPTH SENSOR	1	1.33	1.33	1.3	1560		
	DVL	1	18	18	12.1	1560		
	Octans Gyro	1	18	18	9	1275	800	670
	Altimeter	1	5	5	2.7	1560		
	VHF beacon	1	1.6	1.6	0.95	1560		
	Xenon strobe	1	1.7	1.7	1	1560		
	LIGHTS 250w incandescent	4	1.35	5.4	2.544	2000		
	400W HMI LAMP	6	3.7	22.2	10.8	2000		
	HMI DUAL BALLAST UNIT	3	15.5	46.5	27.9	1850	650	
	RESPONDER 1	1	4.5	4.5	2.5	3000		
	Manipulator - Titan 2	1	90.9	90.9	76	3060	600	-650
	Titan 2 pod	1	11	11	8	2750	900	200
		1						
	Tool skid (MBARI supply)	1	614	614	235	1500	1100	
	CTD	1	13.7	13.7	8.6	1500		
	Clump weight latch	1	6.81	6.81	5.75	1500		
	Acoustic modem	1	2.75	2.75	2.1	3000		
	Emergency cutter	1	2.27	2.27	1.81	3000	800	
	VARIABLE BUOYANCY SYSTEM	1	92.42	92.42	3.28	1300		
	PAYLOAD (Lead carried)	1		300	273	1550	1050	
	Note!! This is a backwards calc from wet weight!!							
	MISC	1	5	5	3.5	3000	700	
Totals for:		Air		1365.4		1453.2	795.3	-41.7
		Submerged			744.1	1600.4	829.5	-64.2

ID	Component	Qty (m ³)	Single Air wt kg	Total Air wt kg	Sub wt kg	xbar mm	ybar mm	zbar mm
	Buoyancy (500m)							
	380 kg/m ³	0	0	0	0			
	Buoyancy (1000m)							
	425 kg/m ³		0	0	0	0	0	
	425 kg/m ³		0	0	0	0	0	
	Buoyancy (2000m)							
	Casting estimate 538 kg/m ³		0	0	0			
	450 kg/m ³		0	0	0			
	Buoyancy (3000m)							
	Casting estimate 535 kg/m ³		0	0	0			
	480 kg/m ³		0	0	0			
	Buoyancy (4000m)							
	575 kg/m ³	0	0	0	0			
	TG-28A - 485 kg/m ³	0	0	0	0			
	Seawater							
	1025 kg/m ³							
	Fasteners Top	1	10	10	8.7	1500	-390	
	Buoyancy Skin	1	0	0	0	1500	-390	
	Fasteners Bottom		0	0	0.0	0	0	
	Buoyancy Skin		0	0	0	0	0	
	ACTUAL VALUE			1609	-1729	1500	-390	
	Totals for: Air			1619.0		1500	-390	0
	Submerged				-1720.3	1500	-390	0