Annex A

Moon Clipper's manual passenger log

6 MANUAL PASSENGER LOG - CORRECT VESSEL NAMES MUST BE ENTERED!

DATE 5 10 11 | MASTER [redacted] | CSA [redacted] | AIS SYSTEM COMMENTS

MATE [redacted] | DECKHAND N A | PRINT NAME & SIGNATURE [redacted]

VESSEL	Pier	NGP	GNWCH	MHT	GLAND	CW	TOW	LBC	BANKS	BLKFR	EMBK	WLOO	BLKFR	BANKS	LBC	TOW	CW	GLAND	MHT	GNWCH	NGP
	Dep	1115	1123	1126	1129	1133	1142	1146	1150	....	1203	1208	1214	1217	1221	1225	1234	1238	1241	1245	1253
	Off		0	0	0	2	4	5	8		19	10	0	0	3	4	5	2	0	25	0
	On	3	8	5	9	7	18	1	0		12	6	0	3	9	9	0	0	0	0	
	Total	3	11	16	25	30	44	40	32		25	21	21	24	30	32	27	25	25	0	

VESSEL	Pier	NGP	GNWCH	MHT	GLAND	CW	TOW	LBC	BANKS	BLKFR	EMBK	WLOO	BLKFR	BANKS	LBC	TOW	CW	GLAND	MHT	GNWCH	NGP
	Dep	1315	1323	1326	1329	1333	1342	1346	1350	....	1403	1408	1414	1417	1421	1425	1434	1438	1441	1445	1453
	Off		5	0	0	1	0	4	12		10	9	5	4	6	2	8	0	0	16	9
	On	8	1	0	1	6	12	16	2		14	9	7	4	7	3	0	2	0	6	
	Total	8	4	4	5	10	22	34	24		28	28	30	33	34	35	27	25	25	9	

VESSEL	Pier	NGP	GNWCH	MHT	GLAND	CW	TOW	LBC	BANKS	BLKFR	EMBK	WLOO	BLKFR	BANKS	LBC	TOW	CW	GLAND	MHT	GNWCH	NGP
	Dep	1515	1523	1526	1529	1533	1542	1546	1550	....	1603	1608	1614	1617	1621	1625	1634	1638	1641	1645	1653
	Off		2	0	0	2	5	3	6		22	7	2	6	8	0	14	8	1	16	10
	On	8	22	1	2	11	5	0	0		16	9	0	3	10	16	5	0	0	0	
	Total	8	28	29	31	40	40	37	31		25	27	29	26	28	44	35	27	26	10	

VESSEL	Pier	NGP	GNWCH	MHT	GLAND	CW	TOW	LBC	BANKS	BLKFR	EMBK	WLOO	BLKFR	BANKS	LBC	TOW	CW	GLAND	MHT	GNWCH	NGP	WWCH
	Dep	1740	1748	1751	1754	1758	1807	1811	1815	1818	1828	1833	1839	1842	1846	1850	1859	1903	1906	1910	1918	1926
	Off		1	0	0	2	2	13	0	5	20	7	0	0	5							
	On	3	11	1	4	24	2	2	4	0	7	19	13	5	15							
	Total	3	13	14	18	38	38	27	31	26	13	25	38	43	53							

Annex B

Emergency procedure checklist

EMERGENCY PROCEDURE
COLLISION

COLLISION WITH ANOTHER VESSEL

Select CCTV
Consider own vessel stability / condition
Assess Damage
Offer assistance to other vessel if capable
Exchange vessel's details

COLLISION WITH A FIXED STRUCTURE

Consider own vessel stability / condition
Stem Damage
Inform PLA via VTS Channel 14

COLLISION WITH UNDERWATER OBJECT

Consider own vessel stability / condition
Assess Damage
Broadcast Navigation Warning
Inform PLA via VTS Channel 14

CONSIDER THE FOLLOWING

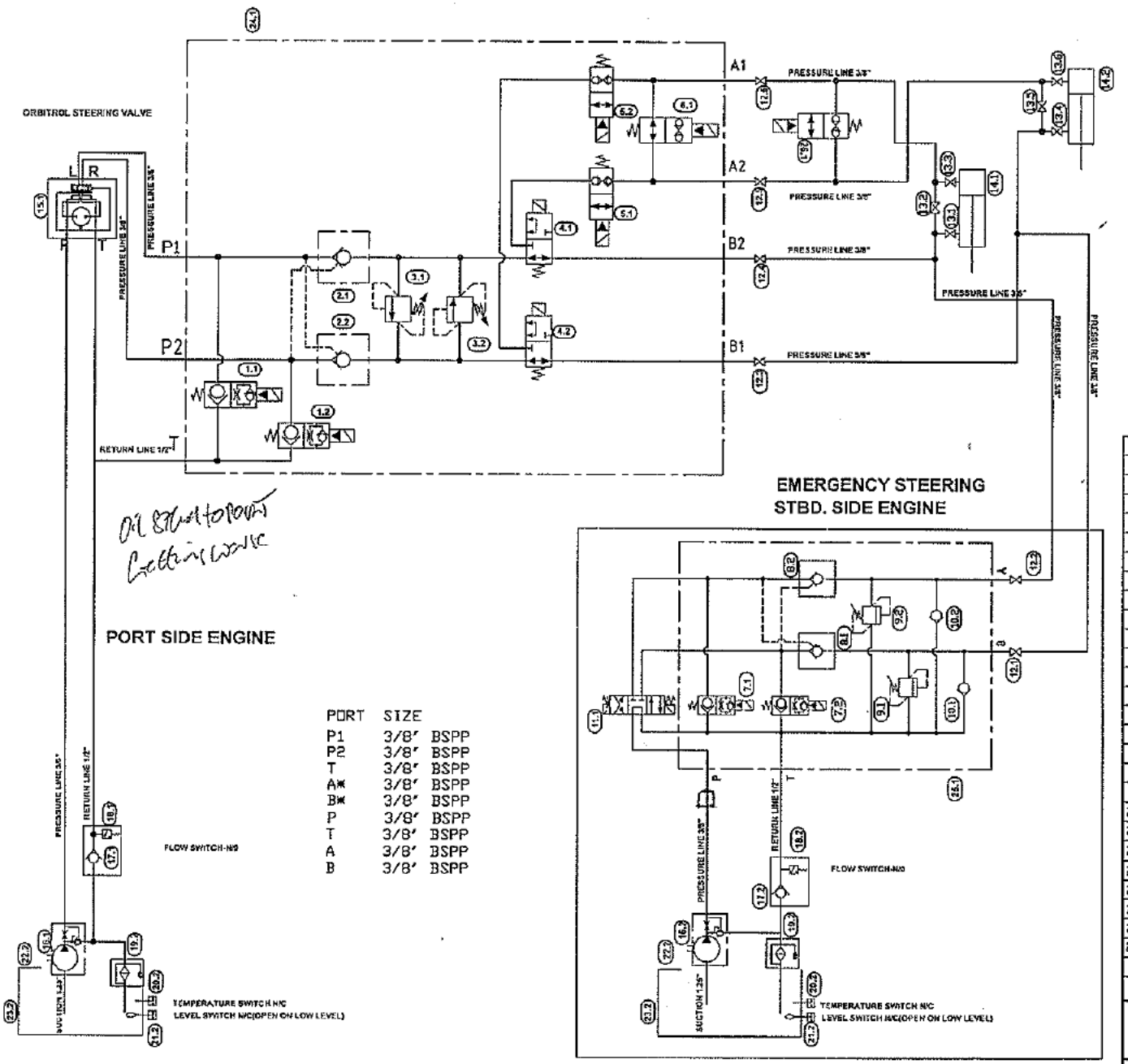
Remove Passengers away from the damaged area
Passengers Mustered
Passenger Count
Lifejackets On
Nearest Landing Platform
Assess damage (Is stability affected?)
Start Bilge pumps
LIFERAFTS Deployed (Last Resort)

AIDE-MEMOIR

Number of Passengers on Board: .....
Number of Crew: .....
Vessel's Location: .....
Nature of medical emergency: .....
Inform: London VTS .....
Inform Fleet Control VHF Channel 14
Inform Designated Person Ashore VHF P Zero
Complete Incident Report (Witness, Photographic evidence)
Complete MAIB/PLA report as required

River Runner 150 Mk3 steering gear

REVISION			
REV	DESCRIPTION	APPROVED	DATE



PORT	SIZE
P1	3/8" BSPP
P2	3/8" BSPP
T	3/8" BSPP
A*	3/8" BSPP
B*	3/8" BSPP
P	3/8" BSPP
T	3/8" BSPP
A	3/8" BSPP
B	3/8" BSPP

SOL 1.1 , 1.2 AND 7.1,7.2 ARE UNLOADING VALVES AND ARE ACTIVATED BY LIMIT SWITCHES POSITIONED NEAR END OF STROKE OF STEERING CYLINDERS.
SOL.26.1 SHALL BE ENERGIZED ALL THE TIME WHEN THE EMERGENCY STEERING IS OPERATIONAL
SOL.VALVE 11.1 IS OPERATED BY EMERGENCY STEERING TOGGLE SWITCH.
FOR SYNCHRONIZING PROCEDURE REFER TO DWG.1002/2000.

1. *	C10-2	POPPET VALVE	SV1-10-C -0 /565534
2. *	C10-3S	LOCK VALVE	POC1-10 -F-0-030/02-173179
3. *	C10-2	RELIEF VALVE	RV1-10 -S-0-36/565563
4. *	C10-3	SOLENOID VALVE	SV1-10-3 -0/565546
5. *	C8-2	POPPET VALVE	SBV11-8-C-0/02-177582
6. 1	C8-2	POPPET VALVE	SBV11-8-0-0/02-177581
7. *	C10-2	POPPET VALVE	SV1-10-C-0/565534
8. *	C10-3S	LOCK VALVE	POC1-10-F-0-030/02-173179
9. *	C10-2	RELIEF VALVE	RV1-10 -S-0-36/565563
10. *	C10-2	CHECK VALVE	CV1-10-B-0-15/565614
11. 1	CETOP 3	DIRECTIONAL VALVE	DG4V-3-8C-MUH760/02-145162
12. *		3/8" BALL VALVE	BKHG3/8-1125
13. *		3/8" BALL VALVE S/S	9030-2-06P
14. *		HYDRAULIC CYLINIER	3"x1.5"x275mm-QMN S/S ROD
15. *		STEERING SERVO VALVE	HKU200/4+KK75
16. *		HYDRAULIC PUMP	V10F-1S2S-38C-26-20L
17. *		CHECK VALVE	S10A30
18. *		PRESSURE SWITCH	VR2FD
19. *		RETURN FILTER	RFBN/HC60G10F1.X
20. *		TEMP. SWITCH 80 DEG.	TS80
21. *		LEVEL SWITCH	FSK-127-2.X/0/TS80
21. *		LEVEL SWITCH	FSK-127-2.X/0/TS80
22. *		FILLER BREATHER	FB3
23. *		OIL TANK 70 L.	
24. 1		MANIFOLD BLOCK	VICK654/L
25. 1		MANIFOLD BLOCK	VICK655/L
26. 1		POPPET VALVE	SBV4-10-C-00
Item	Cavity	Description	Part number

Designed by	Checked by	Approved by - date	File name	Date	Scale
EDWARD PIEKROWSKI				18-07-2000	N/A

58 COMPORT STREET
CAIRNS 4870
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fax.07-40352265

email:info@tescorp.com.au
TESCORP PTY LTD

450 INGHAM ROAD
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ph.07-47251588
fax.07-47795583

NQEA
00-046-3510

JOB NQE 337

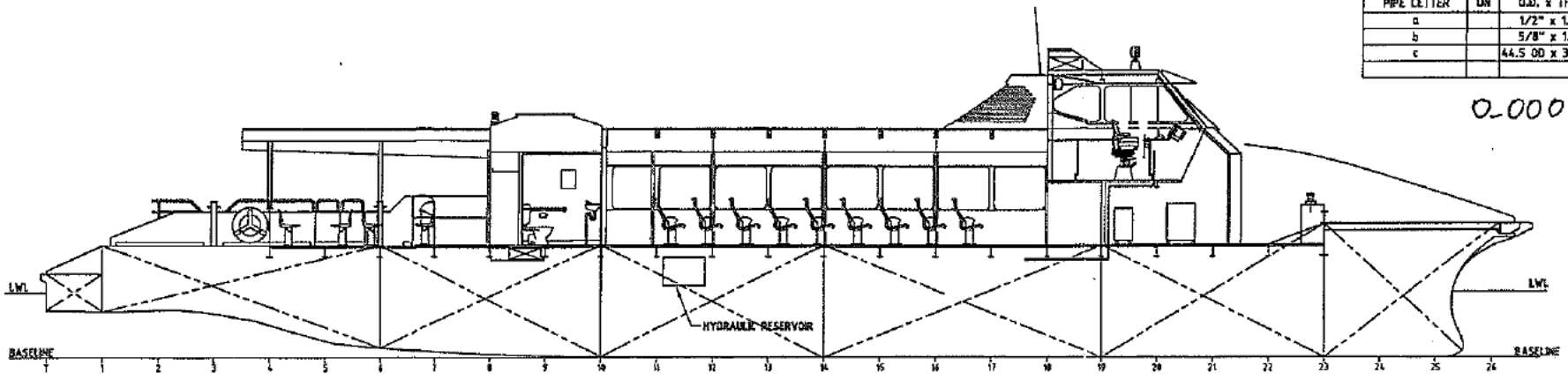
HYDRAULIC CIRCUIT DIAGRAM
STEERING SYSTEM-RIVER RUNNER150 MK III

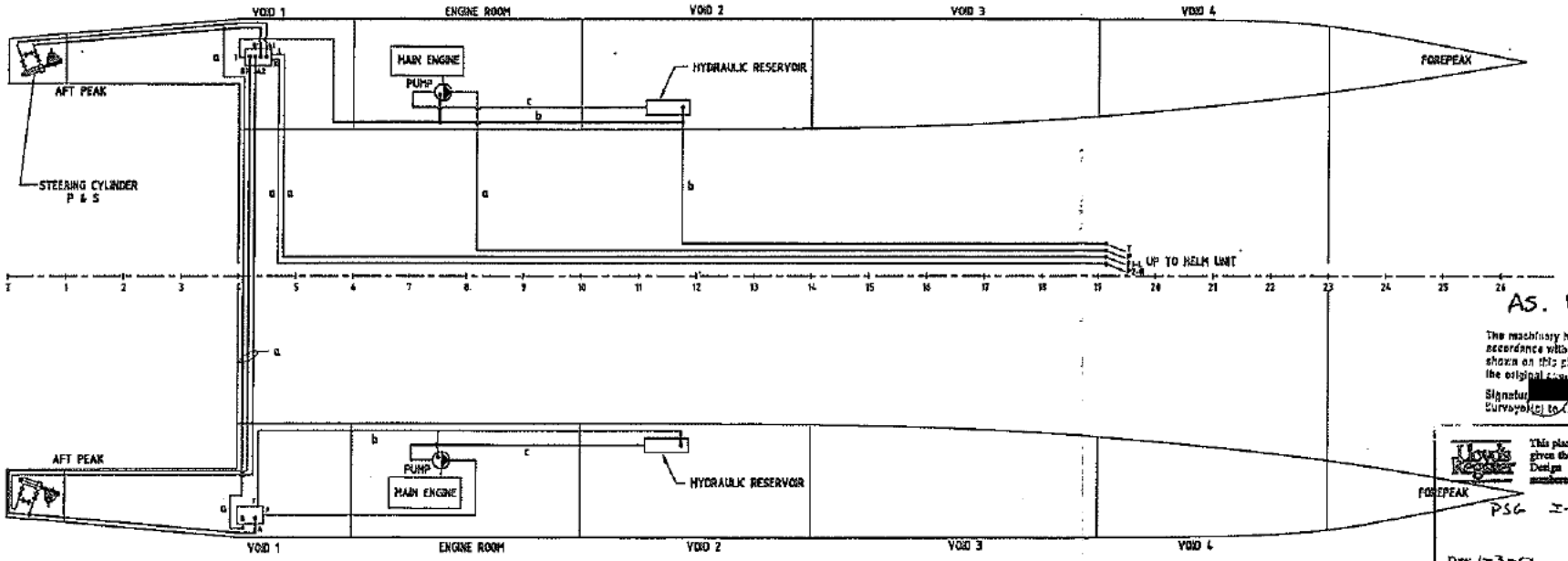
DRAWING 1001/2000 | Edition | Sheet

YARD 210

PIPE LIST				
PIPE LETTER	DN	O.D. x THK	MATERIAL	GRADE
a		1/2" x 1.2	S.S. TUBE	316 L
b		5/8" x 1.6	S.S. TUBE	316 L
c		44.5 OD x 3.2 WT	ALUM. TUBE	6063 T591

0_0005.TIF





S

AS. FITTED.

The machinery has been constructed installed in accordance with the details and arrangements shown on this plan. There are no deviations from the original approval.

Signature [redacted] Date 06 SEP 2001

Surveyor(s) to Lloyd's Register of shipping

Lloyd's Register

This plan has been examined and given the status as shown in the Design Appraisal Document numbered below:

PSG 1-28785

Date: 1-3-01 Initials [redacted]

Lloyd's Register of Shipping

YARD 210

REV	DESCRIPTION	DRN	CHKD	APPD	DATE

SCALE: n.t.s.
DRN: 28-7-00 [redacted]
CHKD: 2-10-00 [redacted]
APPD: 2-10-00 [redacted]

60-92 COOK STREET
P.O. BOX 1165, CAIRNS, 4870
QUEENSLAND, AUSTRALIA

NQEA AUSTRALIA PTY LTD
ENGINEERS & SHIPBUILDERS
ACN 010 671 227

TELEPHONE: (07) 40 527 222
FACSIMILE: (07) 40 352 520
EMAIL: design@nqea.com.au

TITLE: HYDRAULIC ARRANGEMENT

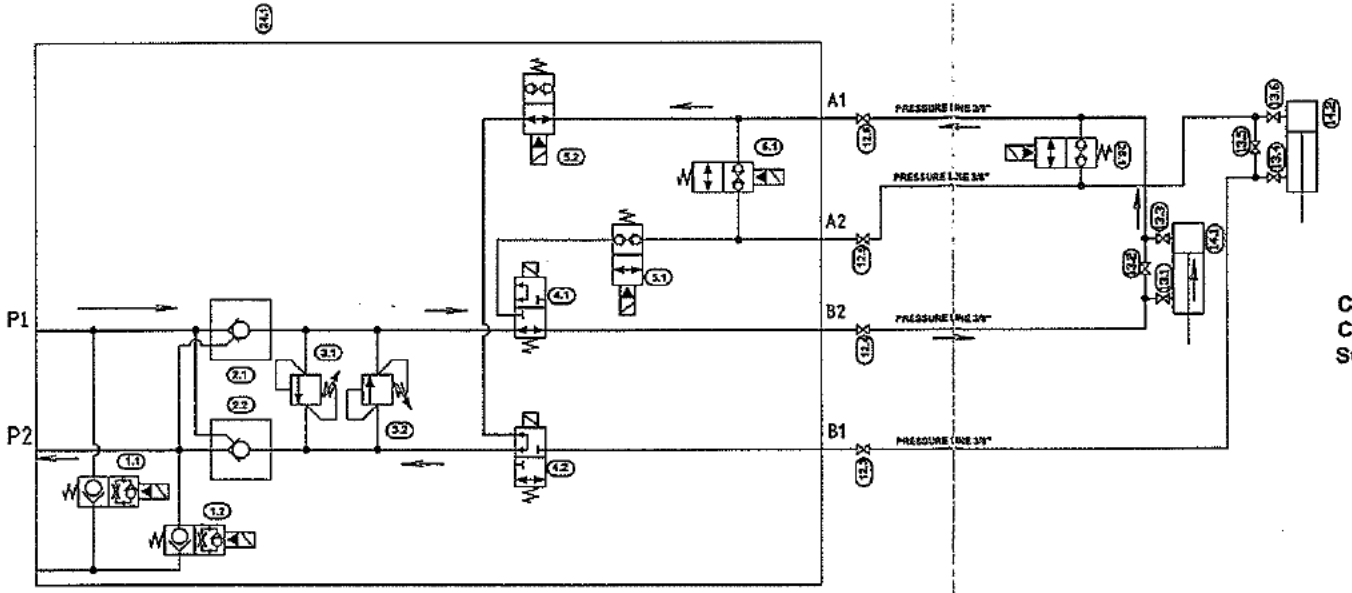
PROJECT: RIVER RUNNER 150 Mk III
PROJECT NUMBER: NQE337
CAD: 000465008
CLIENT: NQEA
DRG NO: 00-046-5008
A2

PLOT SCALE 1:5

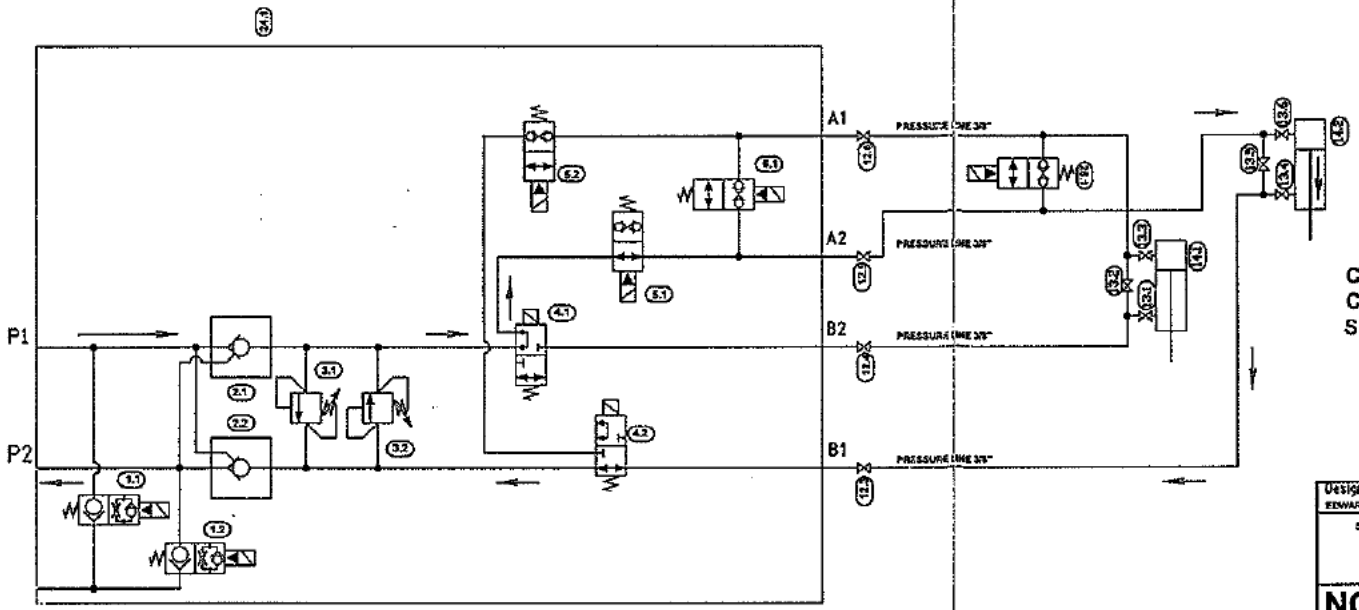
J:\NQE337\000465008.dwg, 29/05/00 10:57:07

SYNCHRONIZATION OF CYLINDERS-MAIN STEERING

3



CYLINDER "14.2" LOCKED
CYLINDER "14.1" OPERATIONAL
SOL(4.2),(5.2)AND(6.1)ENERG.



CYLINDER "14.1" LOCKED
CYLINDER "14.2" OPERATIONAL
SOL(4.1),(5.1)AND(6.1)ENERG.

The machinery has been constructed installed in accordance with the details and arrangements shown on this plan. There are no deviations from the original approval. 05 SEP 2001

Signature [redacted] Date .....

Surveyor(s) to Lloyd's Register of Shipping

Lloyd's Register

This plan has been examined and given the status as shown in the Design Appraisal Document numbered below:

PSA H-28585

Date: 1/3/01 Initials [redacted]

Lloyd's Register of Shipping

Designed by	Checked by	Approved by - date	File name	Date	Scale
EDWARD PIORKOWSKI				11-07-2000	N/A

58 COMPORT STREET
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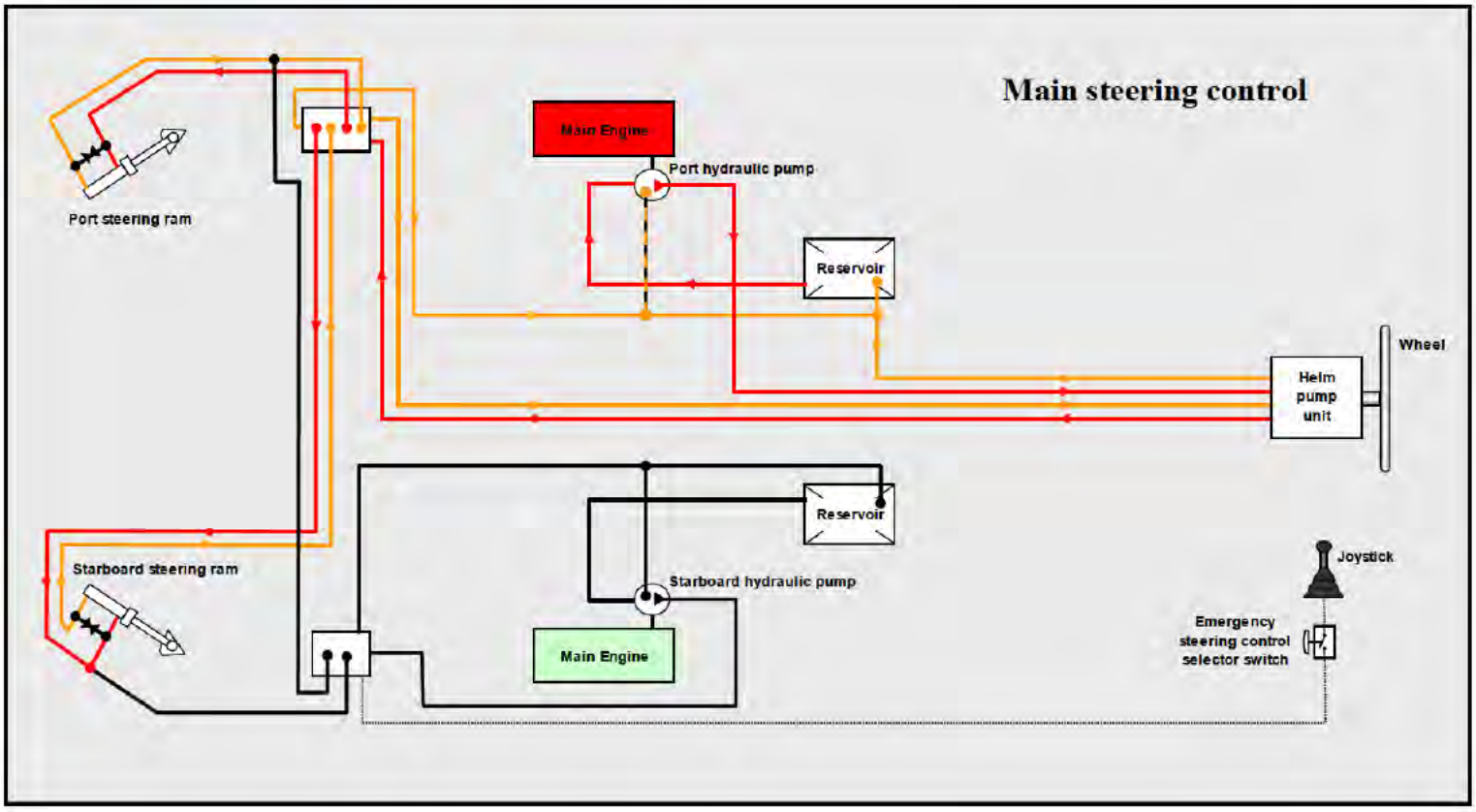
NQEA JOB NQE 337

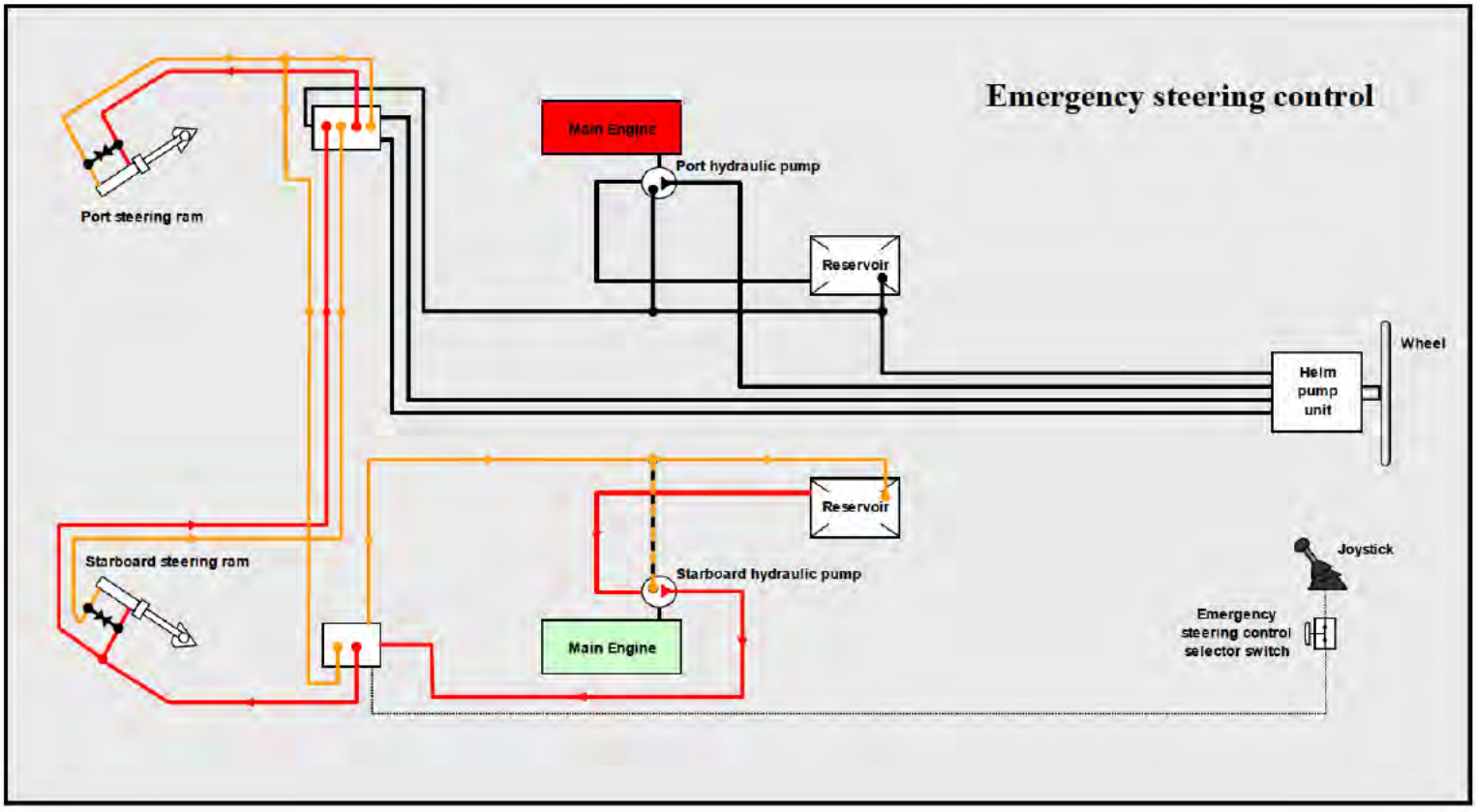
CYLINDERS SYNCHRONIZING METHOD
RIVER RUNNER 150 MK III

YARD 210 00-046-5054

DRAWING 1502/2000 | Edition | Sheet

AS FITTED


Main steering control
Main Engine
Port hydraulic pump
Port steering ram
Reservoir
Wheel
Helm pump unit
Reservoir
Starboard steering ram
Starboard hydraulic pump
Joystick
Main Engine
Emergency steering control selector switch


Emergency steering control
Main Engine
Port hydraulic pump
Port steering ram
Reservoir
Wheel
Helm pump unit
Reservoir
Starboard steering ram
Starboard hydraulic pump
Joystick
Main Engine
Emergency steering control selector switch

Annex D

Fleet operational memo: steering control system changeover

Ops Memo

To: All Captains & Crews/CSA.

From: [redacted]

CC: [redacted] Fleet Controllers, Senior Masters.

[redacted]

Date: 24.07.09

Re: **DM 00529: Sun & Moon steering controls**

With immediate effect and until further notice, please use the joy stick control as the **MAIN** steering & the wheel as emergency back up.

Thank you for your help.

[redacted]

Head of Safety & Fleet Operations.

Annex E

River Runner 150 craft steering system defect summary

NO	DATE	VESSEL	DEF / PRIORITY	DEFECT LOG	COMMENTS	Notes
142	19-Sep-08	MOON	DEF	Problems with port side steering	All ok	19-Sep-08
2528	29-Apr-09	MOON	CR	Emergancy steering when going hard over to starboard makes banging noise.	need further investigstion	18-Sep-09
2970	29-May-09	MOON	DEF	Steering low flow hydraulic blocked filter, stbd side keeps going off	being investigated, 12/06-R 25/07 - cleaned hyd filter	25-Jul-09
3377	25-Jun-09	MOON	DEF	Stbd side steering ram lid found broken holding strap to be welded	28/06 - steering tested - stbd rudder ram leaking hydraulic oil through seal - removed ram awaiting spares	18-Sep-09
3379	25-Jun-09	MOON	DEF		Pulled out hyd steering ram p&s and fitted into sun	25-Jun-09
3380	27-Jun-09	MOON	DEF		steering tested + rudder indicator set along side	27-Jun-09
3463	26-Jun-09	MOON	DEF		Replaced port + stbd steering rams with those from the sun moon steering rams are now on the sun (stbd steering ram has new seal fitted on it on this boat) steering needs to be tested before boat goes to service	18-Sep-09
3625	26-Jul-09	MOON	DEF	Steering low flow blocked filter	new filter fitted	26-Jul-09
3626	27-Jul-09	MOON	DEF	Steering hyd low flow + blocked filter stbd alarm still going off	electrician will investigate	06-Nov-09
4067	10-Aug-09	MOON	DEF	Steering Hyrdraulic low flow & blocked	R - 11/08/09, new filter fitted	13-Nov-09
4096	28-Aug-09	MOON	DEF	Steering hydraulics low flow and blocked filter stbd	Oil topped up	28-Aug-09
4104	30-Aug-09	MOON	DEF	Stbd steer hydraulic low flow & blocked filter alarm	Checked filter + level - ok. Operated steering a few times and fault cleared.	30-Aug-09
4107	01-Sep-09	MOON	DEF	DC system under voltage VHF steering hydraulic low & blocked filter stbd	All checks ok. To be within voltage specification oil level is ok. Started engines to check operation. No alarms. To be monitored.	01-Sep-09
4120	27-Sep-09	MOON	DEF	Port Steering indicatorlight out	To replace lamp; 26/10 new lamp fitted	26-Oct-09
4121	27-Sep-09	MOON	DEF	Steering hydraulics low flow and blocked filter stbd	Levels - ok, filter ok - to investigate -R- 06/10/09; 26/10 - new filter fitted	26-Oct-09
4130	30-Sep-09	MOON	DEF	Main steering still u/s	Wheel used as back up, joystick has to be used as main steering. 27/10 - Main steering u/s - steering ok - joystick used for primarly - 28/10 - R	16-Nov-09
4777	20-Oct-09	MOON	DEF	Stbd steering hatch cover damage noticed	reported at time of accident 29/04 - engine room access packing repaired	29-Apr-10
4872	29-Oct-09	MOON	DEF	Steering low flow/blocked filter port	New filter fitted	29-Oct-09
4873	29-Oct-09	MOON	DEF	Steering low flow/blocked filter stbd	New filter fitted	29-Oct-09
5371	19-Nov-09	MOON	DEF	Light on emergency steering u/s	20/11 - r - changed bulb	20-Nov-09
6444	03-Feb-10	MOON	DEF	Joystick steering button light u/s	04/02 R replaced bulb	04-Feb-10
6897	05-Mar-10	MOON	M	Joystick steering very temp sticky when steering to stbd	new joystick to be ordered and fitted; 06/03 - R checked and everything looks fine needs to be monitored; 06/03 - new joystick on order for steering to be fitted once parts arrive; 09/03 - new joystick installed & tested ok	09-Mar-10
7758	28-Apr-10	MOON	DEF	Stbd rudder indicator u/s	corroded and broken cable in steering comp cut back and reconnected	28-Apr-10
7763	02-May-10	MOON	DEF	Steering hyd low flow + blocked filter stbd	replaced hyd filter with new + added hyd oil - ok	02-May-10
7764	03-May-10	MOON	DEF	Stbd steering hyd block sensor	hyd filter replaced with new - req further investigation; 24/05 - steering hyd low flow & blocked filter stbd alarm 09/06 cleared	09-Jun-10
8428	19-Jun-10	MOON	DEF	Steering hyd low oil	checked both sides ok	19-Jun-10

8646	25-Jul-10	MOON	DEF	Wheel doesn't work	24/08 steering wheel tested ok	24-Aug-10
9122	06-Aug-10	MOON	DEF	Steer hyd low flow blocked filter stbd	filter to be replaced tonight 15/08 r replaced	15-Aug-10
9211	16-Aug-10	MOON	DEF	Stbd steering indicator not working properly	elect to check; 28/08 - centered rudders	28-Aug-10
9214	17-Aug-10	MOON	DEF	Steering only turns 10deg to stbd when using wheel	steering checked ok	17-Aug-10
9424	28-Aug-10	MOON	DEF	Steering low flow + blocked filter stbd	26/09 - cleaned filter	26-Sep-10
9428	30-Aug-10	MOON	DEF	Steering hyd low flow alarm sounding	cleaned filter, monitor and report if no change new filter will be install 26/09 cleaned filter	26-Sep-10
10036	09-Oct-10	MOON	DEF	Steering hyd low flow alarm stbd blocked filter alarm	levels checked by night eng	09-Oct-10
11951	24-Feb-11	MOON	DEF	Steeriing hyd low flow & blocked filter alarm stbd	monitor + report 06/03 new filter placed	06-Mar-11
12279	17-Mar-11	MOON	DEF	Steering malfunction	called twice for engineer - no one showed up - tightened joystick and connections; replaced joystick; monitored on a full run and checked ok	17-Mar-11
12287	29-Mar-11	MOON	M	Steering gearstick broke	replaced with used joystick with new micro switches kobelt joystick to order 06/04 - replaced steering joystick for kobelt model	20-Apr-11
12288	29-Mar-11	MOON	DEF	Emergency steering button stuck on	replaced button	29-Mar-11
12302	07-Apr-11	MOON	DEF	Steering indicators 7deg out	adjsuted	07-Apr-11
12705	29-Mar-11	MOON	M	steering gearstick broke	replaced with used joystick with new micro switches, kobelt joystick to order; steering gearstick not steering to port - 2nd joystick mechanism not operating properly, fitted kobelt lever, no other joystick in stock, new lever fitted, wheel 1 main steering joystick 2nd 14/05 replaced	14-May-11
12865	06-May-11	MOON	DEF	Steering hydraulic low flow alarm	inform electrician	14-May-11
12956	12-May-11	MOON	DEF	Steering hydraulic low flow & blocked	filter cleaned, monitor and report	12-May-11
13065	20-May-11	MOON	DEF	Steering out of sync	done, advised to use sync buttons to do this 13/06 ok	13-Jun-11
13131	24-May-11	MOON	DEF	Bilge high aft void for steering hyd low flow and blocked filter	to be investigated possible elect fault; 25/05 - steering low flow - no fault found when checked, general inspection carried out - pls report any furhter alarms 02/06 - steering hyd low flow & blocked filter port side - checked ok	02-Jun-11
13365	11-Jun-11	MOON	DEF	Steering hyd low flow + block filter port	problem with sensor; 20/06r both tanks checked advised to check for more info 17/07r tightened sensor connections 23/07r ok once warm 03/08r hyd oil rises with engine revs topped up 5ltr oil suspect filters? Level rises and drops with engine revs 09/08r 27/08r 05/09r ongoing on fault under investigation 13/09r checked flow and filter still ok, alarm will normaly appear when cold oil circulate the system in the morning	
13744	10-Jul-11	MOON	DEF	Helm angle indicator 12deg out	steering sync; 11/07r relined up	11-Jul-11

NO	DATE	VESSEL	DEF / PRIORITY	DEFECT LOG	COMMENTS	Notes
402	13-Oct-08	SUN	DEF	Steering hyd low level light flashing	Oil topped up	
1288	18-Jan-09	SUN	DEF	Stbd steering low oil level	Topped up	
2125	26-Mar-09	SUN	DEF	Stbd steering warning light		
2252	06-Apr-09	SUN	CR	Steer Hyd low level stb side	Top up and transferred o/s from port to stbd	
2257	06-Apr-09	SUN	DEF	STBD steering sync button doesn't work	parts on order (plugs on corroded), R:22/07 - stering sender unit sync - parts on order, it has been synchronised port +stbd rudder by valve isolation + limit switch adjustment - now ok	22-Jul-09
2470	25-Apr-09	SUN	DEF	Stbd steering hydraulic low level light / alarm activating. 26/04/09: Hydraulic oil stb low level	Transferred oil from port to stbd - 15ltr. 26/04/09: transferred 15 Ltr from port tank to stbd tank	26-Apr-09
2562	02-May-09	SUN	DEF	Hydraulic oil (steering) low alarm, oil topped up earlier in the evening	Oil topped up: 13/05 -Port side low hydro steering alarm (Repeated 14/05/09) - Port side low hydro steering alarm (Repeated 14/05/09) - Port hydraulics replenished as required. 14/05/09: Oil levels checked. Possible faulty alarm. To be monitored15/05: oil transfering from stbd to port when using emergancy steering. 19/05: Oil re-filled 13/05 - Stbd side -- low hydraulic steering oil alarm - 13/05:As required. Stbd side topped up.14/05:Stbd steering hydrolic oil low not transferring from port side (Repeat of 13/05/09?)-Oil topped up. Transferred 20lt from port to stbd hydraulics 14/05 - Stbd steering hydrolic oil low not transferring from port side (Repeat of 13/05/09?)-Oil topped up. Transferred 20lt from port to stbd hydraulics,20/05- Stbd hyd steering alarm side still going off - steering fluid top up; 22/05:low level port steer hydr. - port + stbd topped up 23/05 - Steering Hydr low level port side -top up 7ltrs 26/05 - Steering hydraulics lower level port alarm oil level replanished as required;steering hydraulcs lower level stbd filled 10ltrs;Hydraulic oil in void 2 port Transferred 10ltrs port - stbd 28/05:Steering hydraulics low level stbd alarm activating excesive transfer from stbd tqank to port this need to be	18-Sep-09
2798	13-May-09	SUN	DEF	Port side low hydro steering alarm (Repeated 14/05/09)	see:2562	19-May-09
2799	13-May-09	SUN	DEF	Stbd side -- low hydraulic steering oil alarm	see:2562	13-May-09
2811	14-May-09	SUN	DEF	Stbd steering hydrolic oil low not transferring from port side (Repeat of 13/05/09?)	see: 2562	14-May-09
2891	20-May-09	SUN	DEF	Stbd hyd steering alarm side still going off	see:2562	20-May-09
2938	22-May-09	SUN	DEF	low level port steer hydr.	see:2562	22-May-09
2942	23-May-09	SUN	DEF	Steering Hydr low level port side	see:2562	23-May-09
2947	24-May-09	SUN	DEF	Emergency steering port	please explain	18-Sep-09
3305	15-Jun-09	SUN	DEF	Steering oil in port / mid void	req cleaning when out of service, 16/07 - hyd oil and fuel in void at bar-to be cleaned, 30/07 - hyd oil in 2 void stbd + port	30-Dec-09
3506	01-Jul-09	SUN	DEF	Emergency steering button broken	30/07 - emergency steering button is broken 31/07 - emergency steering button u/s - will repair when time allows - new uber button fitted	31-Jul-09
3507	01-Jul-09	SUN	DEF	Emergency steering not working	hydraulic pump bled, works fine	15-Sep-09
3979	13-Aug-09	SUN	DEF	Steering failed temp lost of hyd both bilge	on break or when it's being cleaned	16-Nov-09
4012	14-Sep-09	SUN	M	Rudder angel only showing 10deg to port 30deg to stbd	stbd rudder indicator to change 15/09 - Stbd rudder indicator u/s; intermittent - cant recreate fault loose connection on frequency meter motor on order 16/09 - stbd steering indicator - to be rectified when parts available 16/11 - stbd rudder sync button not working, port rudder out of sync 17/11 - rudder gauges not sunc with rudders 19/11 r 20/11 r - rudder indicator dont match rudders steer 10deg to stbd to maintain a straight line course 03/02 - 1 potentiometer - port side rudder angle feedback unit on order to be replaced 09/02 r 22/02 r - ref to captain 16/03 - rudder re-set	16-Mar-10
4892	03-Nov-09	SUN	DEF	Boat steering to port not repsonding causing it out of service - rectified failure due to limit switch seized uo	04/11 - electric steering not going over to port - changed port limit switch on stbd side	04-Nov-09
5361	16-Nov-09	SUN	DEF	Still using back up steering		27-Nov-09

5788	05-Dec-09	SUN	DEF	Steering getting stuck in joystick mode does not go port	oil levels ok engineer to monitor during run; 27/01 - steering joystick not good as new - good for operation, new joystick to order; 27/01 r - steering joystick has become sticky and has developed a false stop - will have to acquire new joystick, good for service untill new one arrives 02/02 - r potentiometer to be replaced 02/02 new joystick 04/02 port rudder indicator petentiometer changed	04-Feb-10
6534	03-Feb-10	SUN	DEF		Replaced 2 limit switches - steering port side	03-Feb-10
6535	03-Feb-10	SUN	M	1 limit switch - steering stbd side to be replaced	part on order	08-Mar-10
7547	16-Apr-10	SUN	M	Joystick control steering has came loose & needs replacing	will be put on order	12-May-10
8295	10-Jun-10	SUN	DEF	Steering low hyd oil stbd	transferred 20 ltrs port - stbd	10-Jun-10
8517	26-Jun-10	SUN	DEF	steering hyd low level stbd side 4 ltr added	transferred 25ltrs fron port side ok	26-Jun-10
8568	04-Jul-10	SUN	DEF	Steering stick not going to port	broken cable on joystick - repaired	04-Jul-10
8569	07-Jul-10	SUN	DEF	Steering hyd low start	transferred 15ltr from port, pls use joystick as emargency steering to avoid loosing oil from stbd hyd tank; 05/08 hyd low oil steering alarm stbd side - transferred 15ltrs port to stbd	05-Aug-10
8624	20-Jul-10	SUN	DEF	Elect steering joystick loose	tightened up	20-Jul-10
8636	26-Jul-10	SUN	DEF	Steering joystick loose	tightened up	26-Jul-10
9063	28-Jul-10	SUN	DEF	Steering joystick u/s	repaired loose connection	28-Jul-10
9204	21-Aug-10	SUN	DEF	Steering hyd low level stbd - alarm sounding @ intervals	found hyd oil stbd tank empty + topped up - ok	21-Aug-10
9206	23-Aug-10	SUN	DEF	Steering system broken	checked and tested seems ok, no reported failure from night crew	23-Aug-10
9395	24-Aug-10	SUN	WELD	stbd aft steering compartment having a collision damage, cause unknown, require welding	25/08 - temp reshaping of the hole stbd stern steering gear corner; 26/08 r 06/12 - damage to aft steering compartment stbd side - dd job - it on the edge	28-Jan-11
9417	28-Aug-10	SUN	DEF	Elect steering fault	elect to check, replaced joystick	28-Aug-10
9420	27-Aug-10	SUN	DEF	Steering hyd low oil level alarm	checked both oil tank and level ok	27-Aug-10
10069	11-Oct-10	SUN	DEF	Steering Hyd low level stbd	transferred oil from port to stbd	11-Oct-10
10191	21-Oct-10	SUN	DEF	Steering Hyd low level stbd	topped up	21-Oct-10
10217	22-Oct-10	SUN	DEF	Steering indicates 5deg to port when helm in midship	reset	22-Oct-10
11017	16-Dec-10	SUN	DEF	Steering hyd level alarm stbd	transferred to port, port steering only for emergency to avoid oil transfer from stbd to port	24-Jan-11
11099	28-Dec-10	SUN	DEF	Port engine hard steering when very cold in the mornings	31/12 r 24/01 no fault	24-Jan-11
11630	02-Feb-11	SUN	DEF	steering out 10deg port	to realligned at start up 03/02 to adjust when time permits 06/02 r - to be corrected, captain to sync rudder 08/02 - helm both sides out 10deg syn has made it worse - adjusted both indicators to midship	08-Feb-11
11637	04-Feb-11	SUN	DEF	Steering hyd low level stbd	top up level	04-Feb-11
11729	09-Feb-11	SUN	DEF	Hydraulic leak found port side steering ram pipe fittings may be the cause of steering out of sync	rectified leak	09-Feb-11
11732	09-Feb-11	SUN	M	steering indicators need urgent attention	to check when time is available 10/02 RAI showing different angles- alligned rudders to centre, different makes of feedback unit causing different readings, 2 standard feedback units to be ordered and fitted 15/02 ordered new part 24/02r parts has been ordered 27/02r 06/03 - parts received carry work out when time permits 14/03 - to fit new feedback control unit for rudder angle indicators when welder available 02/04 - steering rudder out - parts on order 05/04 - steering indicator 15deg out - new units in stock need brackets, 08/08 adjusted	08-Aug-11

12268	29-Mar-11	SUN	DEF	Steering hydraulic level starboard alarm	refilled 10ltrs of hyd oil	29-Mar-11
12632	19-Apr-11	SUN	DEF	Steering hyd low level stbd	transferred hyd oil from port to stbd 15ltrs	19-Apr-11
12679	20-Apr-11	SUN	DEF	Steering Hyd low level stbd	topped up 15ltrs from port use main steering joystick back up wheel, hyd oil level on stbd tank was full this morning the steering wheel transferred 15ltrs in 1 hrs - pls use joystick 23/04r refilled 7ltrs from port 24/4 - steering hyd low flow and blocked filter stbd - cleaned filter topped up with hyd oil to be monitored 10/05 topped up	10-May-11
12935	10-May-11	SUN	DEF	kobelt steering joystick fitted		10-May-11
13016	17-May-11	SUN	DEF	Steering low flow hyd oil alarm	to be investigated; 07/06r topped up tank 20ltrs	07-Jun-11
13438	17-Jun-11	SUN	DEF	Steering joystick feels wobbly	repaired	17-Jun-11
13441	20-Jun-11	SUN	DEF	port helm indicator 10deg out	advised sync with push button steering controls to zero	20-Jun-11
13979	01-Aug-11	SUN	DEF	hyd steering low level stbd	transferred 20ltrs of hyd oil from port to stbd	01-Aug-11
14013	02-Aug-11	SUN	DEF	Steering Hyd low level	transferred 20ltrs; 05/08r 09/08 topped up 11/08r transferred oil 14/08r 22/08r 1	08-Sep-11
14543	11-Sep-11	SUN	DD	A) port cables for 1) aft void fan 2)bilge pump 3)steering hyd block 4) RAI 5) limit switches disconnected and pulled back through e/r aft void bulk head B) reconnected steering hyd blaock cables, changed junction box and repositioned (unable to run and connect other cables due to welding taking place) * NB RAI cable has been cut by accul;ent and needs re-joining		
14544	15-Sep-11	SUN	DD	elect steering sticking hard over to port - unloading valves repaired; port bilge pump u/s - connected up; port aft void fan u/s -new fan to be sourced; bilge sensor checked; engine room hatch sensor arms replaced; stbd hyd void j Box repaired; ships hell found an fitted,		15-Sep-11
14547	16-Sep-11	SUN	DEF	steering out of line by 8deg to port	21/09 - both steering indicates 10deg out - adjusted	21-Sep-11
14558	24-Sep-11	SUN	DEF	Steering about 10deg out	25/09 - steering indicator off to about 10deg - reset	25-Sep-11

Kobelt model 7165 compact single axis joysticks

KOBELT MANUFACTURING COMPANY LIMITED

Shown with potentiometer

Shown with switch

MODEL 7165
COMPACT SINGLE AXIS JOY STICK

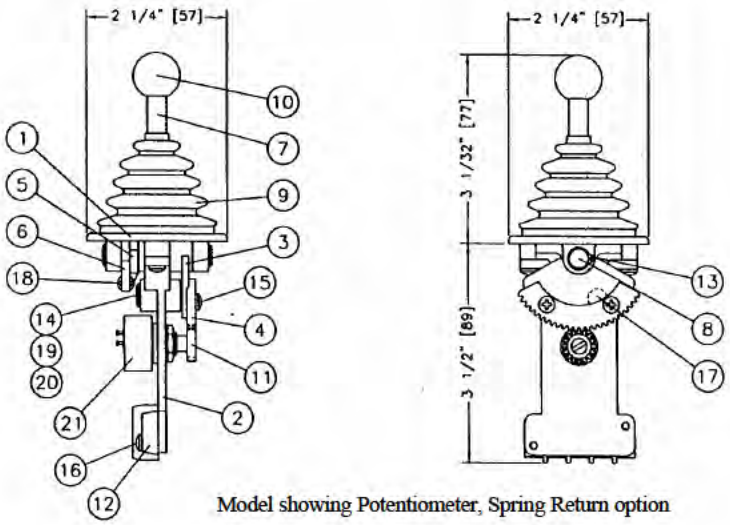
This unit is especially designed to control positioning devices for either on/off or infinite positioning. It can be equipped with either 2 micro switches or a potentiometer. The micro switches would give an off/on signal in either direction while the potentiometer can provide infinite control in both directions. This unit is available either with spring return or with detent and/or friction. The potentiometer is available in either 1K or 5K ohms. The entire unit is constructed mainly in bronze and stainless steel. Its compact design allows the unit to be installed on virtually any small space.

OPTIONS

A	Detent
B	Spring Return
E	Terminal Strip
D	1K Potentiometer
G	Jog Switches
H	5K Potentiometer
W	Friction

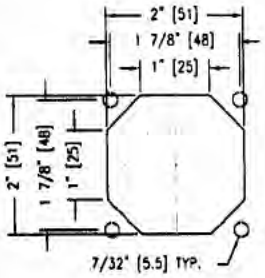
Approx. weight: 1 lb. (0.5 kg)

DIMENSIONS AND PARTS LIST
MODEL 7165

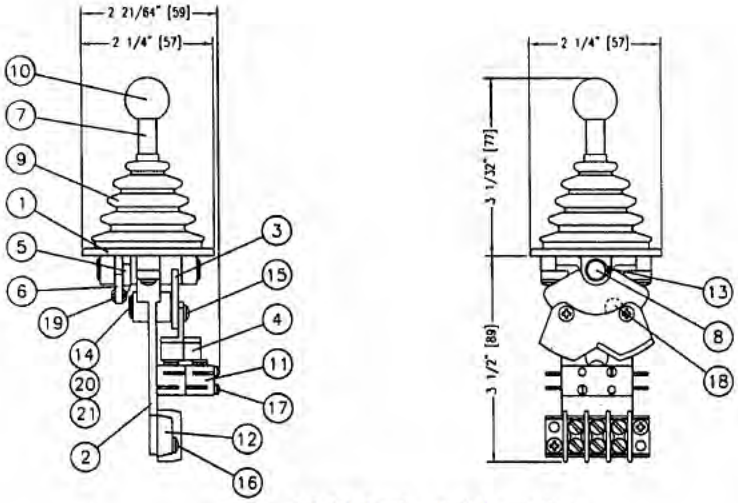


Model showing Potentiometer, Spring Return option

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	7165-0001	Frame
2	1	7165-0002	Support
3	1	7165-0003	Frinction-Detent Cam
4	1	7165-0005	Drive Gear
5	1	7165-0006	Spring Lever
6	1	7165-0007	Spring Lever
7	1	7165-0008	Handle Shaft
8	1	7165-0009	Hinge Pin
9	1	7165-0010	Boot
10	1	6654-0036	Knob
11	1	Y-3216	Gear
12	1	6009-0003	Connector
13	2	1029-1031	Snap Ring
14	2	1016-1204	Hex Set Screw
15	4	1012-0604	Pan Hd. Phillips Screw
16	2	1012-0606	Pan Hd. Phillips Screw
17	1	2016-0011	Friction Pad
18	1	1202-1008	Spring
19	2*	1201-0002	Spring
20	1*	2009-0011	Detent
21	1	POT-1	Potentiometer – 1K



"CUT-OUT" DIMENSIONS



Model showing Switches option

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	7165-0001	Frame
2	1	7165-0002	Support
3	1	7165-0003	Frinction-Detent Cam
4	1	7165-0004	Microswitch Cam
5	1	7165-0006	Spring Lever
6	1	7165-0007	Spring Lever
7	1	7165-0008	Handle Shaft
8	1	7165-0009	Hinge Pin
9	1	7165-0010	Boot
10	1	6654-0036	Knob
11	2	6001-0104	Microswitch
12	1	6009-0003	Connector
13	2	1029-1031	Snap Ring
14	2	1016-1204	Hex Set Screw
15	4	1012-0604	Pan Hd. Phillips Screw
16	2	1012-0606	Pan Hd. Phillips Screw
17	2	1006-0320	Pan Hd. Slotted Screw
18	1	2016-0011	Friction Pad
19	1	1202-1008	Spring
20	2*	1201-0002	Spring
21	1*	2009-0011	Detent

Annex G

High-speed Craft Safety Certificate and Permit to Operate

HIGH-SPEED CRAFT SAFETY CERTIFICATE

This Certificate should be supplemented by a Record of Equipment

Issued under the provisions of the International Code of Safety for High Speed Craft, 2000 (Resolution MSC.97 (73)) under the Authority of the Government of the United Kingdom of Great Britain and Northern Ireland by the the Maritime and Coastguard Agency an Executive Agency of the Department for Transport.

CERTIFIED TRUE COPY OF ORIGINAL DOCUMENT
Signature [redacted]
Date 17-03-11
Maritime and Coastguard Agency

PARTICULARS OF CRAFT

Name of Craft	MOON CLIPPER		
Manufacturer's model and hull number	210		
Port of Registry	LONDON		
Distinctive number or letters	905004	IMO Number	9245586
Gross Tonnage	98.00	Sea Areas (GMDSS)	
Category	Cat. A Passenger Craft		
Craft Type	CATAMARAN		

Design waterline corresponding to a height of [ ] m below the reference line at the longitudinal centre of flotation, and draughts the draught marks of [1.130] m forward and [1.630] m aft.

The upper edge of the reference line is [ ] at [ ] mm ~~below uppermost deck at side~~ / above the underside of keel at the longitudinal centre of flotation.

Date on which keel was laid or craft was at a similar stage of construction or on which a major conversion was commenced [ ]

This is to certify:

1. That the above-mentioned craft has been duly surveyed in accordance with the applicable provisions of the International Code of Safety for High Speed Craft, 2000.
2. That the survey showed that the structure, equipment, fittings, radio station arrangements and materials of the craft and the condition thereof are in all respects satisfactory and that the craft complies with the relevant provisions of the Code.
3. That the life-saving appliances are provided for a total number of [141] persons and no more as follows:

2 x 65 Man open reversible inflatable liferafts
1 x 14 Man buoyant apparatus

SMS DOCUMENT UNCONTROLLED COPY IS TO BE USED ONBOARD

4. That, in accordance with 1.11 of the Code, the following equivalents have been granted in respect of the craft:

Paragraph	Equivalent Arrangements

This certificate is valid until **25 January 2016**

Completion date of the survey on which this Certificate is based 11 February 2011

Date of Issue 17 March 2011

Signed [redacted]
(Signature of authorised official issuing certificate)

Issued at Orpington Marine Office
(Place of issue of the certificate)

Name [redacted]

MAIB AND COASTGUARD AGENCY mca Official Stamp

Endorsements for Periodical Surveys

This is to certify that at a survey required by 1.5 of the Code, this craft was found to comply with the relevant provisions of the Code

Periodical Survey

Place _____ Signed .....
(Signature of authorised official)

Date _____ Name _____ Official Stamp

Periodical

Place _____ Signed .....
(Signature of authorised official)

Date _____ Name _____ Official Stamp

Periodical

Place _____ Signed .....
(Signature of authorised official)

Date _____ Name _____ Official Stamp

Periodical

Place _____ Signed .....
(Signature of authorised official)

Date _____ Name _____ Official Stamp

Endorsement to extend the Certificate if valid for less than 5 years where 1.8.8 of the Code applies

This craft complies with the relevant requirements of the Code, and this certificate should, in accordance with 1.8.8 of the Code, be accepted as valid until _____

Place _____ Signed .....
(Signature of authorised official)

Date _____ Name _____ Official Stamp

Endorsement where the renewal survey has been completed and 1.8.9 of the Code applies

The craft complies with the relevant requirements of the Code, and this certificate should, in accordance with 1.8.9 of the Code, be accepted as valid until

Place

Signed .....
(Signature of authorised official)

Date

Name

Official Stamp

Endorsement to extend the validity of the Certificate until reaching the port of survey where 1.8.10 of the Code applies

This Certificate should, in accordance with 1.8.10 of the Code, be accepted as valid until

Place

Signed .....
(Signature of authorised official)

Date

Name

Official Stamp

Endorsement where the renewal survey has been completed and 1.8.12 of the Code applies

In accordance with 1.8.12 of the Code, the new anniversary date is

Place

Signed .....
(Signature of authorised official)

Date

Name

Official Stamp

In accordance with 1.8.12 of the Code, the new anniversary date is

Place

Signed .....
(Signature of authorised official)

Date

Name

Official Stamp

PERMIT TO OPERATE HIGH-SPEED CRAFT

Issued under the provisions of the International Code of Safety for High Speed Craft, 2000 (Resolution MSC.97(73))
under the Authority of the Government of the United Kingdom of Great Britain and Northern Ireland
by the the Maritime and Coastguard Agency,
an Executive Agency of the Department for Transport

PARTICULARS OF CRAFT

Name of Craft	**MOON CLIPPER**
Manufacturer's model and hull number	210
Distinctive number or letters	905004
IMO Number	9245586
Port of Registry	**LONDON**
Category of craft	Cat. A Passenger Craft
Name of operator	COLLINS RIVER ENTERPRISES

Areas or routes of operation

RIVER THAMES - PUTNEY TO MARGARETNESS

Baseport(s) :- TRINITY BUOY WHARF

Maximum distance from place of refuge :- 1 Miles

Maximum number of passengers permitted :- 138

Minimum manning scale required :- 3

Operational restrictions :-

1. Craft must not operate in sea conditions when the significant wave height exceeds 1.2 m.
2. Subject to the conditions specified in the attached Annex.

This permit confirms that the service mentioned above has been found to be in accordance with the general requirements of 1.2.2 to 1.2.7 of the Code.

THIS PERMIT is valid until **25 January 2016** subject to the High Speed Craft Safety Certificate remaining valid

Place: Orpington Marine Office (Place of Issue of Permit)

Signed: [redacted] (Signature of duly authorised official issuing the permit)

Date: 17 March 2011 (Date of Issue)

Name: [redacted] (Name of authorised official)

MARITIME AND COASTGUARD AGENCY mca Official Stamp

Permit No. 214

MSF 1511 / REV 110

Name of Craft	MOON CLIPPER
Permit No.	214

CONDITIONS

CONDITION 1: OPERATING LIMITS

See Permit to Operate Certificate

CONDITION 2: NUMBER OF PERSONS

1) The total number of persons on board shall not exceed 141 with a maximum of 138 passengers,but excluding children under the age of 1 year.

CONDITION 3: CREW COMPLEMENT

1) The member of the operating crew nominated as Captain by the operator shall hold a Boatmasters Licence Tier 1 Level 2 with High speed Craft endorsement.

2) The member of the operating crew nominated as Mate/Navigator by the operator shall be suitably trained for the position held.

3) All Captains shall be subject to an annual assessment of their craft handling procedures and their local knowledge of the route on which they are employed. A senior captain appointed by the operator shall be responsible for undertaking such assessment.

4) It shall be the duty of every operator and every employer and of the master of the craft to ensure, so far as it is reasonably practical, that the master and crew do not work more than is safe in relation to the safety of the craft and crew's performance of their duties, and in compliance with Statutory Instrument 1997 No 1320.

5) One person, who must hold a VHF Operators Licence as a minimum, shall have responsibility for radio communication during distress incidents.

CONDITION 4: OPERATIONAL

1) The Captain shall pay due regard to the information and handling instructions contained in the Type Operating Manual.

2) The craft shall not be deliberately operated in sea conditions beyond those specified in this permit.

3)The craft may not be operated in restricted visibility ie when the far bank is not visible.

4) Due regard shall be paid to any condition or regulations affecting the operation which may be imposed by an authority having jurisdiction over any part of the operational area.

5) During each voyage the Captain shall report by radio as per port (PLA) requirements

6) The Captain of the craft shall be responsible for indicating his acceptance of the craft following any maintenance carried out during a layover by completing the pre-departure checklist.

7) The Captain of the craft shall make a report to the Maritime and Coastguard Agency of any defect which affects the seaworthiness of the craft.

8) Except in an emergency, operations should only take place in the area specified in this permit.

9) The craft shall be maintained in accordance with the requirements of this permit and the builder's maintenance manual.

10) Practice emergency drills shall be held at intervals of not more than 7 days to ensure that the crew understand and are drilled in the duties assigned to them in the event of an emergency.

11) Dedicated procedures for maintaining all round lookout should be present in the operating compartment at all times when the craft is under way.

Name of Craft	**MOON CLIPPER**
Permit No.	214

CONDITIONS

12) Two officers must be on duty in the operating compartment when the craft is under way, one of whom may be the master.

CONDITION 5: RECORDS

1) A record of passenger numbers for each voyage shall be maintained.

2) A record of reported defects and maintenance of the craft shall be maintained.

3) A record of emergency drills shall be maintained.

4) A record of hours of rest shall be maintained.

Annex H

Moon Clipper's daily operational log and defects sheet

thames clippers

DAILY OPERATIONAL LOG AND DEFECTS

Date: 5/10/11

Vessel Name: MOON

Maintenance sign off	Tick
Vessel serviceable	✓
Previous day's Post Op checks completed as per form TCPM002	✓
Previous day's defects rectified (if critical)	✓
M/E's running and checked	✓
Any PM's carried out?	X
Yellow copy removed?	✓
Name [redacted]	
Time and date 0600 5/10/11	

Captain's acceptance	Tick
Reviewed yesterday's defects and rectification	✓
Vessel Accepted	✓
Name [redacted]	
Time and date 0620 . 5/10/11	

Oil/Coolant/Hyd added	
M/Engines	
G/boxes	
Steering	
Coolant	

Main engines at power	Port	Stbd
RPM	2129	2120
Oil pressure	520	360
Jacket water	81	81
G/B oil pressure	2030	2100
G/B oil temp	53	41
Engine hours	19868	19998
Generator Hours	6418	
Fuel quantity	Port	Stbd
Start of the day	68	69.
End of the day		

	Daily defects	Time	Status	Name	Rectification action, reasons for deferral	Name
1	Joy Stick. Jamming	1200		[redacted]	BOAT OUT OF SERVICE REPLACEMENT JOYSTICK	
2	Hook	1900			ON ORDER 1234	
3						
4						
5						
6						
7						
8						
9						
10						

Original copy to be retained on board. Yellow copy to be removed by maintenance Supervisor AFTER the following day sign off and passed to the maintenance office.

All Post Op checks carried out

[redacted] Name and Time

Annex I

Electronic propulsion control system alarm log printout

All 3BG021 Logs

Twin Disc, Inc.
File Name: All 3BG021 Logs
Boat Name: Moon Clipper Stbd
Serial Number: 3BG021
Date: 06/10/2011
Time: 14:44:12

EC300 Marine Controller Field Support Tool
EC300 Software Version 1.12

Total Logs: 52
Short Logs: 47

Log Summary

1 05/10/2011 19:19 Bad serial comm address (no heads) Fault.
2 05/10/2011 19:06 Transmission Input Sensor Fault.
3 05/10/2011 06:17 Bad serial comm address (no heads) Fault.
4 04/10/2011 17:51 Bad serial comm address (no heads) Fault.
5 04/10/2011 07:28 Bad serial comm address (no heads) Fault.
6 01/10/2011 11:02 Bad serial comm address (no heads) Fault.
7 30/09/2011 11:00 Bad serial comm address (no heads) Fault.
8 29/09/2011 21:53 Bad serial comm address (no heads) Fault.
9 28/09/2011 06:57 Bad serial comm address (no heads) Fault.
10 26/09/2011 17:24 Bad serial comm address (no heads) Fault.
11 26/09/2011 13:41 Bad serial comm address (no heads) Fault.
12 22/09/2011 10:28 Bad serial comm address (no heads) Fault.
13 21/09/2011 08:26 Bad serial comm address (no heads) Fault.
14 19/09/2011 17:45 Bad serial comm address (no heads) Fault.
15 18/09/2011 10:50 Bad serial comm address (no heads) Fault.
16 08/09/2011 22:25 Bad serial comm address (no heads) Fault.
17 07/09/2011 13:16 Bad serial comm address (no heads) Fault.
18 07/09/2011 10:15 Bad serial comm address (no heads) Fault.
19 04/09/2011 11:03 Bad serial comm address (no heads) Fault.
20 03/09/2011 15:30 Bad serial comm address (no heads) Fault.
21 03/09/2011 15:30 Bad serial comm address (no heads) Fault.
22 31/08/2011 06:50 Bad serial comm address (no heads) Fault.
23 20/08/2011 14:23 Transmission Input Sensor Fault.
24 17/08/2011 10:36 Bad serial comm address (no heads) Fault.
25 16/08/2011 06:33 Bad serial comm address (no heads) Fault.
26 15/08/2011 10:32 Bad serial comm address (no heads) Fault.
27 14/08/2011 22:39 Bad serial comm address (no heads) Fault.
28 10/08/2011 10:54 Bad serial comm address (no heads) Fault.
29 09/08/2011 11:46 Bad serial comm address (no heads) Fault.
30 07/08/2011 09:02 Bad serial comm address (no heads) Fault.
31 29/07/2011 14:46 Bad serial comm address (no heads) Fault.
32 13/07/2011 20:55 Bad serial comm address (no heads) Fault.
33 13/07/2011 20:54 Bad serial comm address (no heads) Fault.
34 09/07/2011 11:11 Bad serial comm address (no heads) Fault.
35 05/07/2011 21:51 Transmission Input Sensor Fault.
36 25/06/2011 10:59 Bad serial comm address (no heads) Fault.
37 08/06/2011 10:08 Bad serial comm address (no heads) Fault.
38 01/06/2011 01:43 Bad serial comm address (no heads) Fault.
39 29/04/2011 17:11 Bad serial comm address (no heads) Fault.
40 28/04/2011 12:57 Bad serial comm address (no heads) Fault.
41 28/04/2011 06:55 Bad serial comm address (no heads) Fault.
42 19/04/2011 17:26 Transmission Input Sensor Fault.
43 05/04/2011 10:47 Bad serial comm address (no heads) Fault.
44 31/03/2011 10:43 Bad serial comm address (no heads) Fault.
45 28/03/2011 17:49 Bad serial comm address (no heads) Fault.
46 28/03/2011 10:52 Bad serial comm address (no heads) Fault.
47 18/03/2011 17:49 Throttle Power Fault.
48 18/03/2011 00:03 Transmission Input Sensor Fault.
49 17/03/2011 20:26 Transmission Input Sensor Fault.
50 13/03/2011 17:54 Bad serial comm address (no heads) Fault.
51 10/03/2011 10:46 Station 1 Fault.
52 10/03/2011 10:46 Illegal Mode Selected Fault.

CCTV
1847
DIFF 9 mins

Log Number 1

Time Stamp	05/10/2011 19:19
Entry Type	Newest / Short Log
Fault Code(114)	Bad serial comm address (no heads) Fault.
Status Code(0)	NA Fault.

Input Switch Status

Diagnostic Mode	Open
Remote Lever Enable	Closed
Oil Filter	Open
Low Oil Pressure	Open
Shaft Brake	Open
Coil Power Relay	Open
Station 1 Fwd.	Open
Station 1 Rev.	Open
Station 2 Fwd.	Open
Station 2 Rev.	Open
Station 3 Fwd.	Open
Station 3 Rev.	Open

Forward Valve Coil

Enable	Off
Coil Fault	No Fault
Coil Current	150 mA
Coil Command %	0 %
Short Circuit AD Counts	0

Reverse Valve Coil

Enable	Off
Coil Fault	No Fault
Coil Current	150 mA
Coil Command %	0 %
Short Circuit AD Counts	0

Analog Sensor Values

Control Stations

Pos. Current	106 mA
Neg. Current	-42 mA
Active Station	1
Mode Switch	Cruise

Lever

Direction	Neutral
Position %	0.0%

Station 1

Axis 1	0.10 V
Axis 2	5.86 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	-7.98 V
Pos. Voltage	7.94 V

Station 2

Axis 1	0.00 V
Axis 2	5.82 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	4.44 V
Pos. Voltage	0.00 V

Station 3

Axis 1	0.00 V

Axis 2	5.86 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	4.44 V
Pos. Voltage	0.00 V
Primary Power	24.73 V
Auxiliary Power	0.00 V
Rectified Voltage	23.87 V
Reference Voltage	2.50 V
Main Power Current	156 mA
Internal Temperature	31.9°C
Transmission Oil Temperature	38.9°C
Trans Input Speed Continuity	2.58 V, OK
Propeller Speed Continuity	3.30 V, OK
Excite Sensor	3.01 V
Station Select Switch 1	0.08V
Station Select Switch 2	4.77V
Station Select Switch 3	4.77V

Speed Sensor Values

Transmission Input Speed RPM	0
Propeller Speed RPM	0

Present State(19)	Undefined
Previous State(19)	Undefined
Previous Path	1

Log Number 2

Time Stamp	05/10/2011 19:06
Entry Type	Short Log
Fault Code(78)	Transmission Input Sensor Fault.
Status Code(8)	Station / Sensor Missing Fault.

Input Switch Status

Diagnostic Mode	Open
Remote Lever Enable	Closed
Oil Filter	Open
Low Oil Pressure	Open
Shaft Brake	Open
Coil Power Relay	Open
Station 1 Fwd.	Open
Station 1 Rev.	Closed
Station 2 Fwd.	Open
Station 2 Rev.	Open
Station 3 Fwd.	Open
Station 3 Rev.	Open

Forward Valve Coil

Enable	Off
Coil Fault	No Fault
Coil Current	150 mA
Coil Command %	6 %
Short Circuit AD Counts	0

Reverse Valve Coil

Enable	On
Coil Fault	No Fault
Coil Current	924 mA
Coil Command %	100 %
Short Circuit AD Counts	276

Analog Sensor Values

Control Stations

Pos. Current	109 mA

Neg. Current	-46 mA
Active Station	1
Mode Switch	Cruise
Lever	
Direction	Reverse
Position %	100.0%
Station 1	
Axis 1	7.78 V
Axis 2	5.86 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	-7.98 V
Pos. Voltage	7.98 V
Station 2	
Axis 1	0.00 V
Axis 2	5.82 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	4.34 V
Pos. Voltage	0.00 V
Station 3	
Axis 1	0.00 V
Axis 2	5.86 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	4.34 V
Pos. Voltage	0.00 V
Primary Power	26.67 V
Auxiliary Power	0.00 V
Rectified Voltage	25.81 V
Reference Voltage	2.50 V
Main Power Current	391 mA
Internal Temperature	38.2°C
Transmission Oil Temperature	38.9°C
Trans Input Speed Continuity	2.58 V, OK
Propeller Speed Continuity	2.70 V, OK
Excite Sensor	3.01 V
Station Select Switch 1	3.97V
Station Select Switch 2	4.77V
Station Select Switch 3	4.75V
Speed Sensor Values	
Transmission Input Speed RPM	0
Propeller Speed RPM	280
Present State(4)	Cruise
Previous State(4)	Cruise
Previous Path	1

FULL ASTERN.

STALLED

Log Number 3

Time Stamp	05/10/2011 06:17
Entry Type	Short Log
Fault Code(114)	Bad serial comm address (no heads) Fault.
Status Code(0)	NA Fault.
Input Switch Status	
Diagnostic Mode	Open
Remote Lever Enable	Closed

355 2011

Twin Disc, Inc.
File Name: All 3BG021 Logs
Boat Name: Moon Clipper Stbd
Serial Number: 3BG021
Date: 18/03/2011
Time: 11:45:06

EC300 Marine Controller Field Support Tool
EC300 Software Version 1.12

Total Logs: 52
Short Logs: 52

DIFF 2 K
ECT @ 190F

Log Summary

TIME OF ENGINE STALL

1 18/03/2011 00:03 Transmission Input Sensor Fault.
2 17/03/2011 20:26 Transmission Input Sensor Fault.
3 13/03/2011 17:54 Bad serial comm address (no heads) Fault.
4 10/03/2011 10:46 Station 1 Fault.
5 10/03/2011 10:46 Illegal Mode Selected Fault.
6 08/03/2011 07:46 Bad serial comm address (no heads) Fault.
7 07/03/2011 07:24 Bad serial comm address (no heads) Fault.
8 17/02/2011 08:47 Bad serial comm address (no heads) Fault.
9 12/02/2011 20:53 Bad serial comm address (no heads) Fault.
10 12/02/2011 20:52 Transmission Input Sensor Fault.
11 19/01/2011 00:51 Bad serial comm address (no heads) Fault.
12 19/01/2011 00:50 Bad serial comm address (no heads) Fault.
13 18/01/2011 20:23 Bad serial comm address (no heads) Fault.
14 18/01/2011 10:30 Bad serial comm address (no heads) Fault.
15 18/01/2011 10:29 Transmission Input Sensor Fault.
16 15/01/2011 10:20 Bad serial comm address (no heads) Fault.
17 13/01/2011 20:49 Bad serial comm address (no heads) Fault.
18 13/01/2011 20:48 Bad serial comm address (no heads) Fault.
19 11/01/2011 07:50 Bad serial comm address (no heads) Fault.
20 07/01/2011 08:03 Bad serial comm address (no heads) Fault.
21 23/12/2010 10:25 Bad serial comm address (no heads) Fault.
22 22/12/2010 18:38 Bad serial comm address (no heads) Fault.
23 22/12/2010 07:28 Bad serial comm address (no heads) Fault.
24 15/12/2010 18:44 Bad serial comm address (no heads) Fault.
25 11/12/2010 10:41 Bad serial comm address (no heads) Fault.
26 30/11/2010 06:46 Bad serial comm address (no heads) Fault.
27 24/11/2010 02:17 Bad serial comm address (no heads) Fault.
28 24/11/2010 02:17 Bad serial comm address (no heads) Fault.
29 24/11/2010 02:16 Bad serial comm address (no heads) Fault.
30 22/11/2010 23:40 Bad serial comm address (no heads) Fault.
31 21/11/2010 03:07 Bad serial comm address (no heads) Fault.
32 20/11/2010 02:24 Bad serial comm address (no heads) Fault.
33 20/11/2010 02:18 Bad serial comm address (no heads) Fault.
34 10/11/2010 12:26 Bad serial comm address (no heads) Fault.
35 07/11/2010 20:29 Bad serial comm address (no heads) Fault.
36 06/11/2010 20:47 Bad serial comm address (no heads) Fault.
37 08/10/2010 12:35 Bad serial comm address (no heads) Fault.
38 20/09/2010 16:14 Transmission Input Sensor Fault.
39 11/09/2010 19:04 Bad serial comm address (no heads) Fault.
40 07/09/2010 05:35 Bad serial comm address (no heads) Fault.
41 04/09/2010 11:03 Bad serial comm address (no heads) Fault.
42 28/08/2010 23:54 Bad serial comm address (no heads) Fault.
43 28/08/2010 23:27 Bad serial comm address (no heads) Fault.
44 28/08/2010 16:29 Bad serial comm address (no heads) Fault.
45 03/08/2010 06:53 Bad serial comm address (no heads) Fault.
46 25/07/2010 18:21 Bad serial comm address (no heads) Fault.
47 07/07/2010 10:05 Bad serial comm address (no heads) Fault.
48 19/06/2010 15:58 Bad serial comm address (no heads) Fault.
49 15/06/2010 19:27 Transmission Input Sensor Fault.
50 12/06/2010 09:23 Bad serial comm address (no heads) Fault.
51 11/06/2010 19:43 Bad serial comm address (no heads) Fault.
52 08/06/2010 06:36 Bad serial comm address (no heads) Fault.

355 2011

Log Number 1

Time Stamp	18/03/2011 00:03
Entry Type	Newest / Short Log
Fault Code(78)	Transmission Input Sensor Fault.
Status Code(8)	Station / Sensor Missing Fault.

Input Switch Status

Diagnostic Mode	Open
Remote Lever Enable	Closed
Oil Filter	Open
Low Oil Pressure	Open
Shaft Brake	Open
Coil Power Relay	Open
Station 1 Fwd.	Open
Station 1 Rev.	Closed
Station 2 Fwd.	Open
Station 2 Rev.	Open
Station 3 Fwd.	Open
Station 3 Rev.	Open

Forward Valve Coil

Enable	Off
Coil Fault	No Fault
Coil Current	150 mA
Coil Command %	6 %
Short Circuit AD Counts	0

Reverse Valve Coil

Enable	On
Coil Fault	No Fault
Coil Current	921 mA
Coil Command %	100 %
Short Circuit AD Counts	256

Analog Sensor Values

Control Stations

Pos. Current	109 mA
Neg. Current	-42 mA
Active Station	1
Mode Switch	Cruise

Lever

Direction	Reverse
Position %	2.7%

Station 1

Axis 1	1.78 V
Axis 2	5.86 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	-7.98 V
Pos. Voltage	7.94 V

Station 2

Axis 1	0.00 V
Axis 2	5.82 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	4.44 V
Pos. Voltage	0.00 V

Station 3

Axis 1	0.00 V

Axis 2	5.82 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	4.44 V
Pos. Voltage	0.00 V
Primary Power	26.88 V
Auxiliary Power	0.00 V
Rectified Voltage	26.02 V
Reference Voltage	2.50 V
Main Power Current	391 mA
Internal Temperature	25.7°C
Transmission Oil Temperature	34.4°C
Trans Input Speed Continuity	2.56 V, OK
Propeller Speed Continuity	2.68 V, OK
Excite Sensor	3.01 V
Station Select Switch 1	3.97V
Station Select Switch 2	4.79V
Station Select Switch 3	4.79V

Speed Sensor Values

Transmission Input Speed RPM	0
Propeller Speed RPM	380

Present State(4)	Cruise
Previous State(4)	Cruise
Previous Path	1

Log Number 2

THE TIME ON THE EC300 CONTROL IS 1 HOUR 13 MINUTES & 23 SECS AHEAD OF GMT

Time Stamp	17/03/2011 20:26
Entry Type	Short Log
Fault Code(78)	Transmission Input Sensor Fault.
Status Code(8)	Station / Sensor Missing Fault.

Input Switch Status

Diagnostic Mode	Open
Remote Lever Enable	Closed
Oil Filter	Open
Low Oil Pressure	Open
Shaft Brake	Open
Coil Power Relay	Open
Station 1 Fwd.	Open
Station 1 Rev.	Closed
Station 2 Fwd.	Open
Station 2 Rev.	Open
Station 3 Fwd.	Open
Station 3 Rev.	Open

Forward Valve Coil

Enable	Off
Coil Fault	No Fault
Coil Current	150 mA
Coil Command %	6 %
Short Circuit AD Counts	0

Reverse Valve Coil

Enable	On
Coil Fault	No Fault
Coil Current	924 mA
Coil Command %	100 %
Short Circuit AD Counts	264

Analog Sensor Values

Control Stations	
Pos. Current	109 mA

Neg. Current	-42 mA
Active Station	1
Mode Switch	Cruise
Lever	
Direction	Reverse
Position %	60.8%
Station 1	
Axis 1	5.34 V
Axis 2	5.86 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	-7.98 V
Pos. Voltage	7.94 V
Station 2	
Axis 1	0.00 V
Axis 2	5.82 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	4.44 V
Pos. Voltage	0.00 V
Station 3	
Axis 1	0.00 V
Axis 2	5.82 V
Axis 3	5.86 V
Mode	0.03 V
Back	0.00 V
Neg. Voltage	4.44 V
Pos. Voltage	0.00 V
Primary Power	26.67 V
Auxiliary Power	0.00 V
Rectified Voltage	25.81 V
Reference Voltage	2.50 V
Main Power Current	391 mA
Internal Temperature	31.9°C
Transmission Oil Temperature	34.4°C
Trans Input Speed Continuity	2.56 V, OK
Propeller Speed Continuity	2.68 V, OK
Excite Sensor	3.01 V
Station Select Switch 1	3.97V
Station Select Switch 2	4.77V
Station Select Switch 3	4.77V
Speed Sensor Values	
Transmission Input Speed RPM	0
Propeller Speed RPM	260
Present State(4)	Cruise
Previous State(4)	Cruise
Previous Path	1

MODE SWITCH IN CRUISE POSITION

LEVER IN REVERSE @ 60.8% POSITION

BOTH INPUT & OUTPUT SPEED SENSORS CHECK OK

PROPELLER SPEED @ 260 RPM WHEN REVERSE SELECTED CAUSING ENGINE STALL.

Log Number 3

Time Stamp 13/03/2011 17:54
Entry Type Short Log
Fault Code(114) Bad serial comm address (no heads) Fault.
Status Code(0) NA Fault.

Input Switch Status	
Diagnostic Mode	Open
Remote Lever Enable	Closed

Annex J

Fleet operational memos: engine installs

Ops Memo

To: All Captains & Crews

From: [redacted]

CC: [redacted] Fleet Controllers, [redacted] [redacted] Senior Masters.

Date: 17.10.08

Re: **DM 005008: Meteor & Aurora Clipper Emergency stops**

IMPORTANT INFORMATION

The above vessels will only operate in emergency stop mode when the vessels are16 knots or below. I.e. straight through the gearbox.

This will be rectified next week & I will send out an update.

Thank you for your help.

[redacted]

[redacted]

Head of Safety & Fleet Operations

Ops Memo

To: **All Masters, Crews**

From: [redacted]

CC: [redacted] Fleet Controllers, [redacted] Senior Masters.

Date: 24th November 2008

Re: **DM 058 08 Emergency Stops-** **Information update:**

Further to ops memo 05408, both the Meteor & Aurora Clippers are now fully operational in relation to Emergency Stops.

Thank you for your help.

[redacted]

[redacted]

Head of Safety & Fleet Operations

Thames Clippers

Ops Memo

To: **All Masters, Crews**

From: [redacted]

CC: [redacted] Fleet Controllers, [redacted] Senior Masters.

Date: 8th November 2008

Re: **DM 054 08 Emergency Stops Incident information update:**

Further to the steering failure incident with the Cyclone Clipper on final approach to Greenwich Pier.

The investigation shows the Master engaged the vessels main engines into astern gear before the vessels speed had dropped below the safe operational shaft speed perimeters to conduct an emergency stop

Emergency stops will only work from full ahead to full astern, (not stopping in neutral).

A full report will be issued shortly

Thank you for your help.

[redacted]

[redacted]

Head of Safety & Fleet Operations

Thames Clippers

Ops Memo

To: All Captains & Crews

From: [redacted]

CC: [redacted] Fleet Controllers, Senior Masters.

[redacted]

Date: 23.04.09

Re: **DM 003009: Meteor Clipper Emergency stop**

IMPORTANT CRAFT OPERATIONAL INFORMATION

The **Meteor Clipper** will stall if you carry out an emergency stop.

I.e. straight through the gearbox.

This will be rectified shortly & I will send out an update.

Thank you for your help.

[redacted]

[redacted]

Head of Safety & Fleet Operations

Ops Memo

To: All Captains & Crews

From: [redacted]

CC: [redacted] Fleet Controllers, Senior Masters.

[redacted]

Date: 18.06.09

Re: **DM 004409: METEOR Clipper Emergency stop UPDATE**

IMPORTANT CRAFT OPERATIONAL INFORMATION

The Meteor Clippers Emergency stop stalling problem has now been rectified

Thank you for your help.

[redacted]

[redacted]

Head of Safety & Fleet Operations

Ops Memo

To: All Captains & Crews

From: [redacted]

CC: [redacted] Fleet Controllers, Senior Masters.

[redacted]

Date: 08.06.09

Re: **DM 004209: Aurora Clipper Emergency stop**

IMPORTANT CRAFT OPERATIONAL INFORMATION

The **Aurora Clipper** will stall if you carry out an emergency stop.

I.e. straight through the gearbox.

This will be rectified shortly & I will send out an update.

Thank you for your help.

[redacted]

[redacted]

Head of Safety & Fleet Operations

Ops Memo

To: All Captains & Crews

From: [redacted]

CC: [redacted] Fleet Controllers, Senior Masters.

[redacted]

Date: 18.06.09

Re: **DM 004409: Aurora Clipper Emergency stop UPDATE**

IMPORTANT CRAFT OPERATIONAL INFORMATION

The Aurora Clippers Emergency stop stalling problem has now been rectified

Thank you for your help.

[redacted]

[redacted]

Head of Safety & Fleet Operations

FLEET OPERATIONS MEMO

(MT 023-2010)

TYPHOON CLASS – EMERGENCY STOPS - UPDATE

TO: **All Captains & Crews**
DATE ORIGINATED: **8 April 2010**

This Fleet Operations Memo updates and supersedes MT 021-2010.

Please be aware that a number of Typhoon Class vessels have been identified as having issues with main engines stalling under emergency stop conditions.

Whilst these vessels remain safe to operate, Masters are reminded that they must operate these vessels with this known operational issue in mind and to be aware of the potential for the main engines to stall if the throttles are moved directly from full ahead to full astern.

The vessels and engines concerned are:

Monsoon Clipper	Port Main Engine
Meteor Clipper	Port & Starboard Main Engines
Aurora Clipper	Starboard Main Engine

The Cyclone, Typhoon and Tornado Clippers are not affected by this issue.

The engineering department have identified the cause of the problem and will be taking steps to rectify the problem as soon as possible.

Emergency stops tests put an enormous strain on the main power train and therefore Masters are to refrain from carrying out such tests whilst in service. A programme of emergency stop tests will be implemented with Senior Masters carrying out such tests with the co-operation of the engineering department.

Please be guided accordingly.

[redacted]

[redacted]
Head of Fleet Operations

FLEET OPERATIONS MEMO

(MT 031-2010)

TYPHOON CLASS – EMERGENCY STOPS - UPDATE

TO: **All Captains & Crews**
DATE ORIGINATED: **20 May 2010**

This Fleet Operations Memo updates and supersedes MT 023-2010.

Please be aware that a number of Typhoon Class vessels have been identified as having issues with main engines stalling under emergency stop conditions.

Whilst these vessels remain safe to operate, Masters are reminded that they must operate these vessels with this known operational issue in mind and to be aware of the potential for the main engines to stall if the throttles are moved directly from full ahead to full astern.

The vessel and engine concerned are:

Aurora Clipper Starboard Main Engine

The Meteor, Monsoon, Cyclone, Typhoon and Tornado Clippers have been rectified and are not affected by this issue.

The engineering department have identified the cause of the defect and will be taking steps to rectify the problem as soon as possible.

Emergency stops tests put an enormous strain on the main power train and therefore Masters are to refrain from carrying out such tests whilst in service. A programme of emergency stop tests will be implemented with Senior Masters carrying out such tests with the co-operation of the engineering department.

Please be guided accordingly.

[redacted]

[redacted]
Head of Fleet Operations

FLEET OPERATIONS MEMO

(MT 052-2010)

TORNADO – EMERGENCY STOP

TO: **All Captains & Crews**
DATE ORIGINATED: **13 October 2010**

Please be aware that Tornado Clipper has been identified as having an issue with the port main engine stalling under emergency stop conditions.

Whilst this vessel remains safe to operate, Masters are reminded that they must operate this vessel with this known operational issue in mind and to be aware of the potential for the port main engine to stall if the throttle is moved directly from full ahead to full astern or moved into gear astern with too much way on her.

The engineering department has identified the cause of the problem and will be taking steps to rectify the problem as soon as possible.

Please be guided accordingly.

[redacted]

[redacted]
Head of Fleet Operations