U.S.G.S.
INTEGRATED NAVIGATION SYSTEM
AND
NORTHSTAR LORAN-C NAVIGATION LOG

GYRE 83-14
83013NAV

SHIP GYRE

CRUISE NO. 83-14

DATE 3 NOV. 83 - 20 NOV 83

CHIEF SCIENTIST MATTICK.

83-14
GYRE
83013
103606

GMT DAY	GMT MO	GMT YR	GMT TIME +6	LINE #	SHIPS COURSE	SHIPS SPD	NAVIGATION FIX TIME	LATITUDE N ±DEGREES ± MINUTES	LONGITUDE W ± DEGREES ± MINUTES	TYPE	QUAL.
03	10	83	1600					29 18.77	94 49.09		
JD307			1601					.	.		
			1643					.	.		
			1653					.	.		
			1750					.	.		
			1811					.	.		
			????					.	.		
			1937					.	.		
			2206					.	.		
								.	.		
04	10	83	0456					.	.		
JD308			1119					.	.		
			1121					.	.		
			1428					.	.		
			1543				1530	29 03.59	93 40.14		
			1550					.	.		
			1555					.	.		
			1557					.	.		
			1654	001	255	3.6		29 03.53	93 46.02		
			1657					.	.		
			1802		249	3.6		29 02.40	93 50.44		
			1840				1828	29 01.91	93 52.08		
			1844					.	.		
			1900		242	3.4		29 01.06	93 53.98		
			1914					.	.		
			2004		254	4.3		28 59.62	93 58.32		
			2103					28 58.29	94 02.67		
			2157				2144	28 57.52	94 05.50		
			2202					28 57.2	94 06.7		
							2226	28 56.7	94 08.4		

TAPE #	START	END	COMMENTS AND OBSERVATIONS (PAGE 1)
1	X		LEAVE GALVESTON DOCK (10 AM LOCAL)
			FIRST TAPE WRITE (FIRST DATA ON TAPE IS 1559)
		X	TAPE WRITE ERROR.
	X		MORE TAPE WRITE ERRORS - AFTER A FEW TRIES - FIRST DATA IS 1651Z.
			LOSING POWER ON UPS LINE - INTERMITTENT - LOSE TIME, GRAN, SAT, LORAN.
			TIME APPROX - PROBABLY 5 MIN LATE - SWITCH OFF UPS.
		X	COMPUTER HANG UP - RESTART
1 1	X		TIME APPROX. START TAPE 1 LOEAN 7980 - WX
			REFRIGERATION PROBLEMS - RETURNED TO GALV. - JUST CALL TAPE 3-#1
			DOP (2ND TIME) GALVESTON (10:56 local)
			GRAN COMPUTER SPOOLED 'NO TRANSMISSION' - SET TO TRANSMIT.
			TR1 SETTING LEFT TO 60/90 - VEL. VARIATION AFFECTING SAT. RECEIV.
			CHANGE CORA = 1.3 CORB = 1.8
			SAT. UPDATE - EL = 20° RMS = 4.4 MISS = -191/78/206 NO CHANGE TO CORA/CORB.
			SLAVE A OUT (BLINK) ON RHO-RHO LORAN.
			MAGNETOMETER DATA COMING IN.
			LORAN IS BACK ON HYP. NAV. PRIM = 3.
			START OF LINE 1
			UMAP SET TO 5.5
			SP 300
			SAT. UPDATE - EL = 20° RMS = 7.0 MISS = 242/-96/261 SEE NEXT NOTE ✓
			CORB UPDATED TO 1.9 (WAS 1.8) FROM BARRY'S PROGRAM.
			SP 550
			INCREASE SPEED OVER GROUND TO 4.0 KTS (HAS BEEN 3.4-3.6)
			SP 850
			SP 1150
			SAT. UPDATE - EL = 31° RMS = 7.9 MISS = -179/-61/190 NO CHANGE TO CORA/CORB.
			SP 1425
			SAT 190 MSG 60° 26.7 RMS -213/43/218

GMT DAY	MO	YR	TIME +6	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE N ± DEGREES	± MINUTES	LONGITUDE W ± DEGREES	± MINUTES	TYPE	QUAL.
04	10	83	2300	1	249	3.9		28	56.07	94	10.76		
	JD 308						2330	28	55.4	94	12.9		
05	10	83							.		.		
JD 309			0000					28	54.8	94	15.0		
			0101					28	53.3	94	19.4		
			0107						.		.		
			0110						.		.		
			0546					28	52.9	94	19.7		
			0601		278	4.9		28	53.17	94	21.01		
			0620						.		.		
			0623						.		.		
			0625						.		.		
			0703		243	4.9		28	51.80	94	26.34		
			0803		246	4.8		28	49.62	94	31.32		
			0903		247	4.8		28	48.02	94	36.55		
			0937						.		.		
							0934	28	47.19	94	39.37		
			1000		256	5.1		28	46.6	94	41.8		
			1100					28	45.1	94	46.5		
							1120	28	44.5	94	48.1		
			1200		252	4.6		28	43.5	94	51.3		
							1222	28	42.9	94	53.2		
			1300		251	4.9		28	42.0	94	56.6		
			1325						.		.		
			1349						.		.		
									.		.		
			1802						.		.		
			1926						.		.		
			2109						.		.		
			2112						.		.		

TAPE #	START	END	COMMENTS AND OBSERVATIONS PAGE 2
1			S.P. 1700
			SAT 140 30° 6.1 RMS -141/-107/177
			SP 1991
			SP 2300
			SP 2325 last good - shut down compressor for repairs
			CIRCLING BACK ON LINE FOR RESTART
			On line, SP 2326 - CONTINUATION OF LINE 1
			SP 2400 - CROSSING LINE AT ~30° - MAKE SOME 10° C/C TO GET BACK TO 250° TRAFFIC KEEPS US OFF LINE.
			LORAN NOISY - SPEED JUMPS OVER 6.5 KT (VMAX) SWITCH TO SPEED LOG (PRIM 4)
			BACK TO PRIM = 3 WITH VMAX CHANGED TO 6.0 KTS.
			TRY INCREASING LFLT TO 100/120 FOR NOISY LORAN.
			SP 2760 SLOWLY COMING BACK TO LINE.
			SP 3120
			SP 3480
			BRIDGE SAYS - DUE TO TRAFFIC MAY HAVE TO CHANGE COURSE.
			SAT 140 25° 11.5 RMS -471/74/477 NO UPDATE BECAUSE OF HIGH RMS.
			SP 3834
			SP 4164
			SAT 140 40° 9.5 RMS -478/219/526
			SP 4500
			SAT #200 MSG 35° 8.4 RMS -246/-47/250
			SP 4852
			Changed CORB 1.9 → 1.8 new values CORA 1.3 CORB 1.8
			SP 5151 END LINE - SP 5185
			HAULING GEAR - HEADING TO PORT to FIX COMPRESSOR
			CHANGE CORA TO 1.4 CORB TO 2.1 (FROM BARRY'S PROGRAM).
			" " " 1.5 " " 2.2 " " "
1		X	EOF ON TAPE 1 COMING INTO GALVESTON.
			SET CORA = 1.8 CORB = 2.05 - FROM GALV. DOCK READINGS.

GMT DAY	MO	YR	TIME +6	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE N ± DEGREES ± MINUTES	LONGITUDE W ± DEGREES ± MINUTES	TYPE	QUAL.
05	1	83	2200					.	.		
								.	.		
								.	.		
07	1	83	0336					29 18.76	94 49.11		
JD	311		0340					.	.		
								.	.		
			0400					.	.		
			0815					.	.		
			0921					.	.		
			1025					.	.		
								.	.		
			1328	2	161	4.0		29 03.3	93 46.9		
			1402			4.5		29 01.0	93 46.1		
			1500			4.6		28 57.0	93 44.5		
		~	1556					28 53.3	93 43.4		
		~	1600					28 52.9	93 43.3		
			1603					28 52.9	93 43.3		
			1700	1	683	4.1		28 48.8	93 42.3		
			1800		171	4.3		28 44.82	93 41.41		
			1804				1748	28 45.64	93 41.58		
			1856					.	.		
			1900		165	4.1		28 40.85	93 40.51		
			2000		169	4.1		28 36.82	93 39.29		
			2100		170	4.2		28 32.65	93 38.44		
							2144	28 29.6	93 37.8		
			2200		167	4.3		28 28.5	93 37.5		
*			2208					.	.		
							2238	28 25.8	93 36.8		
			2300		166	4.5		28 24.28	93 36.32		
							2330	28 22.13	93 35.79		

TAPE #	START	END	COMMENTS AND OBSERVATIONS (PAGE 3)
			ARR GALVESTON - TEXAS A&M PELICAN IS
			4PM LOCAL
			RESTART PROGRAM AFTER SWITCH TO SHIP'S POWER.
2	X		FIRST TAPE WRITE. DATA STARTS AT 0338Z.
			Dep (10PM LOCAL) GALVESTON RECALIB GRAVITY meter
			CHANGE CORA to 1.4 & CORB to 2.1 - FROM BARRY'S PROGRAM.
			INC. LEFT TO 90/120 - LORAN FADING IN AND OUT.
			SLOW TO DEPLOY STREAMER
			SP 1 SOL 2
			SP 180
			SP 487
			Speed down to ~ 3knots sp ~ 770
			Speed up to ~4 knots sp ~ 805
			Sp 805
			Sp 1108
			Sp 1410
			SAT. UPDATE EL = 37° NOISE = 5.3 MISS: -25/0/25 CORA/CORB ARE FINE.
			SET VMAX = 5.5 JUST IN CASE.
			SP 1710
			SP 2017
			SP 2330
			SAT 190 32° 9.2 RMS MSG 213/-9/213
			SP 2646
			changed CORA/CORB ⇒ 1.2 1.7
			SAT 140 64° 2.4 RMS -47/3/47
			SP 2964
			SAT 190 27° 4.4 RMS -88/-132/159

GMT +6 DAY	MO	YR	TIME	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE N ± DEGREES	± MINUTES	LONGITUDE W ± DEGREES	± MINUTES	TYPE	QUAL.
08	11	83	0000	2	164	4.3		28	20.04	93	35.12		
* JD	312		0004						.		.		
			0101		176	5.0		28	15.49	93	35.08		
*			0107						.		.		
			0134						.		.		
*			0143						.		.		
			0203		151	4.4		28	11.46	93	33.72		
			0217					28	10.58	93	33.20		
			0250					28	08.29	93	32.38		
			0300		166	4.2		28	07.59	93	32.16		
			0316		171	4.1		28	06.43	93	31.92		
			0327		166	4.5		28	05.59	93	31.67		
			0347		169	4.0		28	04.19	93	31.29		
			0400		165	4.7		28	03.23	93	31.00		
					164	4.8	0416	28	01.88	93	31.00		
			0500		168	5.0		27	58.70	93	29.80		
			0505		177	3.9		27	58.30	93	29.74		
			0600		166	4.9		27	54.06	93	28.92		
			0620						.		.		
			0634						.		.		
			0655						.		.		
			0700		164	5.4		27	49.52	93	27.69		
			0705						.		.		
			0800		169	4.4		27	44.94	93	26.66		
			0900		170	4.4		27	40.47	93	25.64		
			0900						.		.		
			0903						.		.		
			1000		168	4.4		27	36.00	93	24.72		
							1030	27	33.89	93	24.27		
			1100					27	31.79	93	23.79		

TAPE #	START	END	COMMENTS AND OBSERVATIONS	PAGE 4
2			SP 3287 note – Bridge IN CONTROL UNTIL PAST OIL RIG	
			changed CORA/CORB ⇒ 1.1 1.6	
			changed CORA/CORB ⇒ 1.0 1.5	
			PASSED RIG – NAV HAS CONTROL	
			changed CORA/CORB ⇒ .9 1.4	
			SP 3926	
			changed CORA/CORB ⇒ .8 ; 1.3	
			changed CORA/CORB ⇒ .7 ; 1.2	
			SP 4227	
			Turn 6° to left. Oil rigs	
			Changed CORA/CORB ⇒ .6 ; 1.1	
			Changed CORA/CORB ⇒ .5 ; 1.0	
			SP 4560	
			SAT 480, 62° 6.3 RMS -993/-1966/2203	
			SP 4903	
			Changed CORA/CORB ⇒ .4 ; .9	
			SP 5250	
			LORAN MASTER SNR GOES LOW (~110) AND STAYS THERE. - UNLIKE USUAL NIGHTTIME OSCILLATION.	
			MASTER COMING BACK (~700) – NEVER LOST IT COMPLETELY.	
			START OF ANOTHER EXTENDED LOW PERIOD FOR THE LORAN MASTER.	
			SP 5592	
			LORAN MASTER BACK AGAIN.	
			SP 5940	
			SP 6276	
			LOSE HYPERBOLIC FOR TWO MINUTES (INTERRUPT PROBLEM) – SPEED JUMPS UP. SWITCH PRIM TO 4.	
			SWITCH PRIM BACK TO 3.	
			SP 6613	
			SAT 140 78° 7.1 RMS -65/-44/79	
			SP 6929	

GMT DAY	MO	YR	TIME +6	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE N ± DEGREES	± MINUTES	LONGITUDE W ± DEGREES	± MINUTES	TYPE	QUAL.
08	11	83		2	170	4.2	1048	27	32.64	93	23.99		
JD	312		1152						.		.		
			1200					27	27.44	93	22.67		
							1226	27	25.53	93	22.16		
			1300		162	4.2		27	23.37	93	21.26		
			1400		171	4.3		27	19.18	93	20.39		
			1416		171	4.4		27	18.09	93	20.18		
			1500		162	4.8		27	14.73	93	19.34		
			1601		169	4.9		27	09.87	93	18.28		
			1700		168	4.9		27	05.10	93	17.07		
			1800		169	5.5		26	59.91	93	15.86		
			1901		167	5.5		26	54.50	93	14.62		
			1934						.		.		
			1957						.		.		
			2000		164	5.1		26	49.38	93	13.03		
			2040						.		.		
			2100		172	5.1		26	44.59	93	12.04		
			2152						.		.		
			2205					26	38.47	93	11.02		
			2223						.		.		
							2148	26	40.63	93	11.47		
			2301		166	6.2		26	33.69	93	09.70		
							2334	26	30.43	93	08.88		
09	11	83	0000		169	6.0		26	27.84	93	08.26		
JD	313		0100		167	5.9		26	21.87	93	06.85		
							0122	26	19.72	93	06.35		
			0201		167	6.0		26	15.91	93	05.39		
			0301		166	6.0		26	09.95	93	03.99		
			0400		168	5.7		26	04.27	93	02.69		
					168	5.9	0352	26	05.07	93	02.94		

TAPE #	START	END	COMMENTS AND OBSERVATIONS	PAGE 5
2			SAT 190 65° 7.2RMS MSG -21/-13/25	
			Changed CORA/CORB ⇒ .3 .8	
			SP 7260	
			SAT 200 55° 3.5RMS MSG -355/65/361	
			SP 7574	
			SP 7879	
			SAT 200 17° 6.1 RMS 370/206/424	
			SP 8224	
			SP 8589	
			SP 8950	
			SP 9341	
			SP 9750	
			LAB ASKS BRIDGE TO CUT SPEED BY ½ KT.	
			SET VMAX TO 5.6 KB - ANY FASTER & DFS 5 CAN'T RECORD SHOTS THAT OFTEN.	
			SP 10142	
			LAB ASKS BRIDGE TO INCREASE SPEED BY ½ KT.	
			SP 10502	
			SP 10835 ~10840 Restart SHOT #1 @ #850 with 50 meter BPS *	
			SP 875 Speed changes - in/out on port air gun	
			incr speed ½ knot (water current changing direction thru here)	
			SAT 140 50° 7.3RMS MSG 116/387/429	
			SP 1080	
			SAT 140 18° 2.1RMS (7INT) -84/-99/130	
			SP 1301	
			SP 1526	
			SAT 200 46° 3.8 RMS -8/-93/94	
			SP 1752	
			SP 1977	
			SP 2192	
			SAT 480 44° 3.6RMS 20/-330/331	

GMT +6 DAY	MO	YR	TIME	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE N ± DEGREES	± MINUTES	LONGITUDE W ± DEGREES	± MINUTES	TYPE	QUAL.
09	11	83	0416	2	167	5.8		26	02.74	93	02.18		
JD	313		0500		170	6.1		25	58.53	93	01.33		
			0554				0542	25	54.63	93	00.40		
			0600		169	5.5		25	52.98	92	59.98		
			0617						.		.		
			0618				0602	25	52.76	93	00.00		
			0700		169	4.7		25	47.75	92	58.93		
			0800		167	4.9		25	42.83	92	57.70		
			0900		169	5.0		25	37.83	92	56.49		
			0940						.		.		
			0948				0936	25	34.82	92	55.81		
			1000		170	4.9		25	32.83	92	55.36		
							0958	25	33.02	92	55.41		
END LINE		2	1024					25	30.98	92	54.91		
									.		.		
			1115						.		.		
									.		.		
									.		.		
									.		.		
START LINE 3			1300	3	344	3.6		25	31.01	92	54.95		
							1302	25	31.13	92	55.00		
			1400		350	3.9		25	34.71	92	55.80		
			1500		347	3.6		25	38.37	92	56.64		
			1526		349	3.5		25	39.91	92	57.00		
			1600		346	3.4		25	41.84	92	57.45		
			1619		349	3.4		25	42.87	92	57.69		
			1700	3	311	4.0		25	44.62	93	00.07		
			1714		312	4.1		25	45.26	93	00.87		
			1800		308	4.1		25	47.27	93	03.55		
			1802				1750	25	46.86	93	02.96		

TAPE #	START	END	COMMENTS AND OBSERVATIONS	PAGE 6
2			SAT. 130, 43° Rms 3.45 -222/287/363	
			SP 2408	
			SAT. UPDATE EL=23° RMS=4.9 MISS= -44/-78/90 ±0.5 KT.	
			SP 2619 - SPEED LOG READINGS HIGH AND ERRATIC - DUE TO SHIP'S GREATER THAN NORMAL ROLL?	
			SPEED THROUGH WATER UP 5.0 KTS SOMETIMES - ASK BRIDGE TO SLOW BY 1/2 KT.	
			EL=21° RMS=7.1 MISS= -279/-311/418 NO UPDATE.	
			SP 2816	
			SP 3002	
			SP 3191	
			SPEED THROUGH WATER UP A BIT - ASK BRIDGE TO SLOW BY 1/2 KT.	
			SAT. UPDATE EL=41° RMS=6.9 MISS= -64/-217/226	
			SP 3379	
			SAT 190 52° 4.9 RMS -98/-95/137	
			SP 3450 — ALL GUNS DOWN — EOL 2 3537	
			Turning 180° C-348° to start Line 3	
			reshooting last 2 HRS line 2 w/ water guns then	
			continuing on Line 3	
			SP 1 SOL 3	
			SAT 200 65° 3.3 RMS MSG 115/-54/127	
			SP 0140	
			SP 0278	
			SAT 0480 27° 2.3 RMS 233/-85/249	
			SP 0409	
			SP 0448 turn to new course = 310° = line 3	
			SP 0549	
			SAT 480 38° 3.00 RMS 217/-127/252 ±0.5 KT	
			SP 0701 - SPEED LOG READINGS CONTINUE HIGH / ERRATIC - BARRY FEELS XDUCER NEEDS CLEANED. UNDER HULL PORTION.	
			SAT. 130 EL=26° RMS=2.0 144/-100/176	

GMT DAY	MO	YR	TIME +6	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE N ± DEGREES ±	MINUTES	LONGITUDE W ± DEGREES ±	MINUTES	TYPE	QUAL.
09	11	83	1900	3	313	4.4		25	50.01	93	07.16		
JD	31	3	2000		307	4.0		25	52.75	93	10.71		
			2100		313	4.6		25	55.34	93	14.28		
			2144						.		.		
			2200					25	58.05	93	17.60		
			2210						.		.		
			2213						.		.		
			2225						.		.		
							2240	25	59.68	93	19.78		
			2300		310	4.1		26	00.52	93	20.93		
10	11	83	0003					26	03.32	93	24.62		
JD	314		0100		310	4.1		26	05.79	93	27.97		
			0200		309	4.0		26	08.40	93	31.91		
			0300		310	4.1		26	10.97	93	34.86		
			0324		309	4.0		26	12.00	93	36.27		
			0400		310	4.0		26	13.51	93	38.31		
			0500		311	4.0		26	16.02	93	41.67		
			0510		311	4.0		26	16.49	93	42.26		
			0600		308	4.1		26	18.62	93	45.05		
			0636						.		.		
			0640						.		.		
			0700		314	3.4		26	20.83	93	48.30		
END	LINE	3	0738	3					.		.		
			0800		347	2.1		26	22.94	93	50.41		
			0900		350	1.0		26	24.10	93	50.24		
			1000		046	2.3		26	24.80	93	49.73		
			1650						.		.		
			1702				1650	26	42.78	93	41.85		
			1721						.		.		
11	11	83	0200						.		.		

8 30 | 484 / 184 / 184

TAPE #	START	END	COMMENTS AND OBSERVATIONS	PAGE 7
2			SP 0859	
			SP 1015	
			SP 1167	
			ASK BRIDGE TO CUT SPEED BY 1/2 KT.	
			SP 1317	
			SP 1340 STOP Prog Restart @ 25 meter shot spacing	
			SP 1341 Restart	
			Incr speed +.5	
			SAT 140 50° 3.5 Rms 190/-117/223	
			SP 1569	
			SP 1890	
			SP 2178.	
			SP 2478	
			SP 2777	
			SAT 130, 15° Rms 4.6 160/-159/226	
			SP 3074	
			SP 3364	
			SAT 130 58° Rms 5.5 268/-212/342	
			SP 3660	
			THUNDERSTORMS COMING INTO THE AREA. - SET VMAX TO 5.0 IN CASE WE LOSE LORAN.	
			WINDS UP SUDDENLY - PUSHING US LEFT - MANY SMALL C/C TO RIGHT TO KEEP LINE.	
			SP 3931	
			END LINE 3 - SP 4078 - PULLING IN GEAR DUE TO ROUGH SEA. SP 4080	
			HAULING IN STREAMER.	
			GEAR ALL IN - WAITING OUT STORM. HOVE TO	
			SET TIME ON THIS SAT. PASS - 1 SECOND FAST.	
			SAT. UPDATE EL=59° RMS=3.6 MASS = -59/24/63	
			SPEED GOES ABOVE 5 KTS. - INCREASE VMAX TO 11.0 KTS.	
			DUE TO CONTINUED BAD WEATHER - HEAD IN TO GALVESTON.	

GMT +6 DAY	MO	YR	TIME	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE N ± DEGREES	± MINUTES	LONGITUDE W ± DEGREES	± MINUTES	TYPE	QUAL.
11	11	83	0420						.		.		
JD	31	5	0424						.		.		
			0426						.		.		
			0537						.		.		
			0621						.		.		
			0647						.		.		
			1044						.		.		
			1800		ARR Galveston (noon local)				.		.		
									.		.		
									.		.		
12	11	83	1654					28	18.76	94	49.11		
JD	31	6	1656						.		.		
			2044		Dep Galveston 1800 (noon local)				.		.		
			2120						.		.		
			2158						.		.		
13	11	83	0000						.		.		
JD	31	7	0218						.		.		
			0433		228	3.5		28	58.45	94	10.24		
13	11	83	0504	GMT-1	224	3.8		28	57.09	94	11.85		
			0600		225	3.8		28	54.69	94	14.64		
			0700		236	3.8		28	52.18	94	17.85		
			0800		227	3.9		28	49.65	94	21.08		
			0900		223	3.8		28	47.11	94	24.14		
			0931						.		.		
			0950						.		.		
			1002					28	45.05	94	26.95		
			1008						.		.		
			1015						.		.		
			1025						.		.		
			1038						.		.		

TAPE #	START	END	COMMENTS AND OBSERVATIONS
2			CHANGE CORA/CORB TO 0.7/1.2 FROM BARRY'S PROGRAM.
			RE-INIT LORAN
			BACK ON HYPERBOLIC NAV.
			CORA/CORB → 1.0/1.5
			CORA/CORB → 1.1/1.6
			CORA/CORB → 1.2/1.7
2		X	READ ERROR - END TAPE #2.
			ARRIVE TEXAS A&M DOCK - GALVESTON 1200 LOCAL. END LOG 1
			START TWO SHIP OPS ↓
			RESTART PROGRAM AFTER SWITCH TO SHIP'S POWER - CORA = 1.8 - W CORB = 2.05 - X
3	X		FIRST TAPE WRITE - DATA STARTED AT 1654Z
			SWITCH TO HYP. NAV - CORA = 1.4 CORB = 2.1
			SLOW TO DEPLOY STREAMER.
			SWITCH PRIM TO 4 TO RE-INIT LORAN & NORTHSTAR ASF'S FROM BARRY'S 'ASF 1' PROGRAM CORA = 0.6 CORB = 0.25
			still working on streamer
			Putting Guns in Water
			Changed CORA/CORB => .58; .45 wrong! changed back again
			Start on line 1 SP 1 Start GMT-1
			SP 127
			SP 267
			SP 408
			SP 545
			GUN PROBLEM - SLOWING SHIP
			SLOW DOWN 1 KT MORE.
			Program Stopped SP 668
			Restart SP 669
			incr Speed 4.0 knots there water (missing ~10 min data on NAV tape)
			Slow - data not recording properly
			Incr Speed 4.0 knots

GMT DAY	MO	YR	TIME +6	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES ±	MINUTES	LONGITUDE ± DEGREES ±	MINUTES	TYPE	QUAL.
13	11	83	1100	6MT-1	224	3.7		28	43.04	94	29.45		
JD317			1200		231	3.6		28	40.58	94	32.28		
			1300		220	3.5		28	38.21	94	35.35		
			1400		234	3.4		28	35.79	94	38.45		
			1500		229	3.7		28	33.28	94	41.57		
			1546		227	3.6		28	31.08	94	43.94		
			1600		230	3.9		28	30.81	94	44.68		
			1700		232	3.6		28	28.38	94	47.70		
			1748						.		.		
			1800		227	3.9		28	25.77	94	50.82		
			1812	GMT-1	228	3.8		28	25.22	94	51.50		
			1819						.		.		
			2014						.		.		
			2022						.		.		
14	11	83	0000					28	05.26	95	06.19		
JD318									.		.		
									.		.		
			0937						.		.		
			0941						.		.		
			0943						.		.		
									.		.		
			1800		314	4.2		27	40.83	95	14.07		
			1900		020	4.8		27	45.31	95	14.78		
			1930						.		.		
			1950						.		.		
			2015	GMT-3	087	4.0		27	47.05	95	09.92		
			2100		090	4.2		27	47.24	95	06.41		
			2124						.		.		
			2159		084	4.0		27	47.60	95	01.91		
			2300		080	4.0		27	47.85	94	57.22		

TAPE #	START	END	COMMENTS AND OBSERVATIONS
3			SP 0765
			SP 0894
			SP 1027
			SP 1162
			SP 1300
			SAT480, 45° Rms 1.1 -1936/11/1936
			SP 1436
			SP 1570
			GUN NOT FIRING - PROBLEM. - START AGAIN 1751 Z
			SP 1710
			END LINE GMT-1 - SP 1740
			START TURN TO HEAD FOR GMT-2.
			ADJUST CORB TO MATCH NORTHSTAR - CORB = 0.3 CORA STAYS AT 0.58
			TRY CHANGING CORA TO 0.50 - STILL OFF IN LAT.
			in transit
			PROGRAM OFF TO RE-LOAD.
			PROGRAM RUNNING AGAIN.
			BACK ON HEADING N.N. CORA = 0.5 CORB = 0.3 (TO MATCH NORTHSTAR)
			LOOPING TO START NEXT LINE. - SEAS QUITE HEAVY (5-7')
			GETTING CLOSER TO LINE, WANT TO BE BETWEEN -2 NMI & 0 ON LINE TO START.
			DECREASE SPEED TO WAIT FOR MOORE. (TO 3.5 KT)
			TIME APPROX - INCREASE SPEED ½ KT - STREAMER TOO DEEP.
			START LINE GMT-3 SHOT POINT 1.
			SP 46
			SPEED UP TO 4.4 KTS. ASK DRIVER TO DECREASE BY ½ KT.
			SP 105 Weather - Rough
			SP 166

GMT DAY	MO	YR	TIME (+6)	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES	± MINUTES	LONGITUDE ± DEGREES	± MINUTES	TYPE	QUAL.
14	11	83	2304	GMT-3									
JD-318			2310										
			2314										
15	11	83	0000		086	4.0		27	48.16	94	52.61		
JD319			0100		090	4.3		27	48.28	94	47.91		
			0112										
			0122					27	48.53	94	45.83		
			0200		056	4.6		27	50.25	94	42.75		
			0600		070	4.6		27	47.45	94	46.61		
			0650										
			0700		084	5.2		27	48.64	94	41.31		
			0800		086	5.0		27	48.98	94	35.79		
			0900		081	5.2		27	49.21	94	29.96		
			1000		088	5.3		27	49.73	94	24.05		
			1030					27	49.85	94	21.10		
			1100		087	5.2		27	49.87	94	18.08		
			1115										
			}										
			1300										
			1400										
16	11	83	0000					27	02.99	94	14.35		
JD320			0430		275	4.6		26	50.78	94	25.49		
			0441	GMT-5	292	4.2		26	50.91	94	26.38		
			0500		276	3.2		26	51.27	94	27.66		
			0502										
			0506					26	51.25	94	28.15		
			0600		293	4.8		26	52.64	94	32.55		
			0700		290	4.9		26	53.94	94	37.51		
			0800		290	5.2		26	55.26	94	42.60		

TAPE #	START	END	COMMENTS AND OBSERVATIONS	PAGE 10
3			RESET SYS-TRON CLOCK - IT WAS FAST 1 SEC.	
			ASK BRIDGE TO SPEED UP SLIGHTLY (LESS THAN 1/2 KT)	
			TOO MUCH SPEED - DRIVE IT BACK A BIT.	
			SP 226 Weather - Rough	
			SP 286	
			MOORE IN SIGHT / BRIDGE HAS CONTROL	
			SP 308 // Switch MOORE FIRING AIR GUNS / GYRE RECORDING	
			SP327	
			Turning around: Rendezvous point with MOORE 27°48.4N 94°46.4W	
			START SHOOTING AGAIN - SP 341 - INC SPEED 1/2 KT - MAINTAIN 5 KTS.	
			SET VMAX TO 5.5 KTS.	
			SP 401	
			SP 461	
			SP 521	
			SP 581	
			SP 610 — END OF LINE BUT NO CONTACT W/ MOORE SO CONTINUING	
			SP 641	
			TURNING IN TO SEA C/C to 270°	
			AIRGUNS ONBOARD // LORAN OUT RAIN SQUALL PRIM 0	
			TRANSIT to ESP3	
			"	
			SP 001 Start time GMT -5 Gyre recording	
			Restart SP 001 time GMT -5	
			SP20 WEATHER CONTINUES ROUGH - COURSE IN THE TROUGH.	
			CORA/CORB WRONG - PRIM=0 WHILE RE-INITIALIZING LORAN CORA= .65 CORB= .30	
			LORAN BACK ON - PRIM= 3 - NOTHING LAT/LON CORRECTIONS OK.	
			SP 80	
			SP 140	
			SP 200	

GMT +6 DAY	MO	YR	TIME	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES	± MINUTES	LONGITUDE ± DEGREES	± MINUTES	TYPE	QUAL.
16	11	83	0900	GMT-5	293	4.9		26	56.78	94	47.64		
			0950					26	58.61	94	51.44		
			1000					26	59.00	94	52.23		
			1020					26	59.75	94	53.76		
			1100		110	3.8		26	58.58	94	54.98		
			1132	GMT-6	107	3.0		26	58.05	94	52.80		
			1200					26	57.47	94	50.73		
			1248						.		.		
			1300		102	4.2		26	56.22	94	46.02		
			1305						.		.		
			1400					26	54.93	94	41.15		
			1500		104	4.5		26	53.63	94	36.30		
			1513		102	4.4		26	53.36	94	35.25		
			1600		111	4.0		26	52.40	94	32.02		
			1606		107	3.9		26	52.31	94	61.31		
			1652		107	4.0		26	51.51	94	28.55		
			1654		109	4.1		26	51.46	94	28.40		
~ 1721			1700	GMT-7	110	4.4		26	51.33	94	27.96		
			1727		111	4.4		26	50.71	94	25.87		
			1743		102	4.7		26	50.35	94	24.53		
			1800		104	4.8		26	49.96	94	23.04		
			1809						.		.		
			1901		085	4.6		26	49.69	94	17.39		
			1908						.		.		
			1917						.		.		
			1945					26	49.63	94	13.47		
			2000		093	4.9		26	49.60	94	12.16		
			2033						.		.		
			2200						.		.		
									.		.		

TAPE #	START	END	COMMENTS AND OBSERVATIONS	PAGE 11
3			SHOT POINT 260 - GYRE TO MOVE OFF LINE TO PASS PORT-PORT BY 1.0 NMI - BRIDGE CONTROLLING LINE.	
			PASSING FRED MOORE - CONTINUE FOR 3 MI THEN TURN - (WHEN RANGE = 18.22 MI)	
			SP 320	
			STARTING TURN (180°) TO FOLLOW MOORE BACKDOWN LINE	
			TURN COMPLETE	
			SP1 START GMT-6	
			SP 29	
			Stopped SP's for Streamer adjustment SP 77	
			restart SP's SP 78	
			SP 132	
			SP192	
			Slowed down speed by 0.5 knot (SP 205)	
			SP252	
			Slowed down speed by 0.5 knot (SP 258)	
			Restart SP-'s	
			Speed up 0.5 knot (SP Ø3)	
			SP Ø9	
			speed up 0.5 knot (SP Ø36)	
			Speed up 0.3 knot (SP Ø52)	
			SP 69.	
			START CHANGING COURSE TO FOLLOW THE MOORE - C/C LEFT 10°	
			SP 130	
			MOORE IS OFFSET 2 MI TO STARBOARD - BRIDGE CHANGING COURSE TO GET IN LINE.	
			BRIDGE CALLS TO SAY WE'RE BEHIND THE MOORE NOW.	
			END OF LINE GMT-7 SP 174	
			CONTINUE ON COURSE TO CATCH UP WITH MOORE.	
			START COURSE CHANGE TO HEAD FOR PT. G - SINGLE SHIP LINE G → H.	
			TRANSIT // WORKING ON STREAMER	

GMT DAY	MO	YR	TIME (+6)	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES	± MINUTES	LONGITUDE ± DEGREES	± MINUTES	TYPE	QUAL.
17	11	83	0000					26	40.85	94	04.26		
JD	321		0432		154	4.6		26	28.53	94	01.37		
			0600		060	3.4		26	26.69	93	56.99		
			0629	GMT-9	051	3.4		26	27.53	93	55.46		
			0700		042	4.4		26	28.86	93	53.87		
			0708					26	29.26	93	53.37		
			0710						.		.		
			0900		312	4.5		26	27.35	93	52.39		
			0940		035	4.5		26	30.35	93	52.38		
			1000					26	31.31	93	51.19		
			1013						.		.		
			1018						.		.		
			1058	~					.		.		
			1100		044	3.9		26	34.11	93	47.67		
			1102	~					.		.		
			1140						.		.		
			1200		045	3.4		26	36.67	93	44.74		
			1300					26	38.97	93	42.01		
			1314						.		.		
			1318						.		.		
			1334	ESP4					.		.		
			1400		22	5.8		26	42.60	93	38.55		
			1503		45	4.6		26	46.00	93	33.95		
			1600		46	4.3		26	48.96	93	30.63		
			1703		48	4.3		26	52.21	93	26.74		
			1800		049	4.3		26	55.17	93	23.39		
			1900		047	4.2		26	58.16	93	19.91		
			1912		046	4.2		26	58.73	93	19.20		
			1922		047	4.2		26	59.21	93	18.64		
			2000		122	6.0		26	59.30	93	15.15		

TAPE #	START	END	COMMENTS AND OBSERVATIONS
3			DRIFTING AGAIN
			Changed CORA/CORB => .55; .3 GMT-9 => ESP-4 preshoot
			TURNING ONTO LINE
			START LINE GMT-9 - ESP-4 PRESHOOT - GYRO ONLY - FIRING & RECORDING - SP 1
			SP 72
			SP 95 - STOP SHOTS - WILL LOOP TO RIGHT TO ALLOW MOORE TO PASS - WILL RESTART LINE.
			START TURNING TO RIGHT.
			COMING BACK TO THE LINE.
			START LINE GMT-9A SP 1
			SP53
			CPU STOPPED
			Restart
3	X		- Tape error etc. NO DATA FROM 10:11 TO 10:59
			SP 199
4	X		- start tape #4
			decr speed 4L → 3.5
			SP 335
			SP 459
			incr speed ⇒ 5.0
			SP 499 EOL (GMT-9A) Switching to Remote firing
			SP8 SOL ESP4
			SP27. Turn to pass MOORE
			SP 90
			SP 147
			SP 210
			SP 267
			SP 327
			SP 339 - SHIP OVER END POINT - SOME BAD TAPE WRITES BUT NO ERRORS.
			SP 349 - LAST SHOT ON LINE ESP-4 - START TURN TO HEAD TO NEXT LINE.
			STILL IN TURN.

GMT DAY	MO	YR	TIME +6	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES ±	MINUTES	LONGITUDE ± DEGREES ±	MINUTES	TYPE	QUAL.
17	11	83	2113				2102	26	54.29	93	15.07		
JD	321		2200					26	50.5	93	18.6		
									.		.		
18	11	83	0000		222	5.2		26	42.64	93	25.64		
JD	322		0100					26	38.66	93	29.41		
			0200					26	34.81	93	32.99		
			0300					26	31.02	93	36.38		
			0400					26	27.54	93	39.93		
			0500		229	4.2		26	24.48	93	43.53		
			0600		231	3.2		26	22.22	93	46.49		
			0700		228	3.1		26	20.19	93	49.21		
			0800		234	3.0		26	18.00	93	51.80		
			0900		219	3.3		26	15.76	93	54.18		
			0901				0848	26	16.20	93	53.64		
			0934						.		.		
			0948				0936	26	14.48	93	55.62		
			1000					26	13.32	93	56.45		
			1100					26	10.11	93	58.57		
			1200					26	06.74	94	00.46		
									.		.		
									.		.		
			1244						.		.		
									.		.		
			1256						.		.		
									.		.		
			1335						.		.		
			1400					26	00.54	93	59.68		
			1446	GMT-12	087	4.5		25	59.68	93	56.98		
			1500		080	4.6		25	59.87	93	55.81		
			1538		091	4.3	1538	26	00.23	93	52.80		

TAPE #	START	END	COMMENTS AND OBSERVATIONS
4			SAT #140 El=41° RMS=4.4 MISS -43/-241/245 ONLY 7 2-min INTERVALS
			CORA / CORB ⇒ .2/.6
			Transport.
			"
			"
			"
			"
			"
			"
			"
			"
			"
			SAT #142 MSG CHG El=31° RMS=4.8 MISS=-76/187/202 MOST OF FIRST DOPPLERS MISSING.
			ASK DRIVER TO INCREASE SPEED SO WE CAN GET TO POINT I BY 7:30-8:00 LOCAL
			SAT #190 El=63° RMS=7.3 MISS=77/-54/94
4	X		SOF Stopped program & reloaded
			Sypt Position not updating
5	X		Restart ok - but program load not correct
			BACK TO North Star CORA/CORB .55/.3
			SP ØØ1 Starting time GMT-12
			SP Ø15
			SAT480 64° Rms 3.9 miss 1253/-153/1262

GMT DAY	MO	YR	TIME (+6)	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES ±	MINUTES	LONGITUDE ± DEGREES ±	MINUTES	TYPE	QUAL.
18	11	83	1600	GH7-12	091	4.3		26	00.03	93	51.03		
JD322			1700		087	4.9		25	59.98	93	46.04		
			1800		092	4.3		25	00.05	93	41.15		
			1810						.		.		
			1832						.		.		
			1838						.		.		
			1842						.		.		
			1900		114	3.7		25	59.67	93	37.25		
			2000		118	4.2		25	58.20	93	33.52		
			2028						.		.		
			2031		080	4.4		25	57.94	93	31.20		
			2035						.		.		
			2048						.		.		
			2100		044	4.0		25	59.00	93	29.26		
			2108						.		.		
			2140				2128	26	00.02	93	27.54		
			2200					26	59.95	93	24.98		
			2204						.		.		
			2223						.		.		
			2300		083	4.2		25	59.98	93	20.33		
									.		.		
19	11	83	0000					25	59.99	93	15.61		
JD323									.		.		
									.		.		
			0036						.		.		
									.		.		
			0100					26	01.91	93	16.86		
			0200		288	4.9		26	03.00	93	21.42		
			0300		281	4.5		26	04.09	93	26.06		
			0400		280	4.4		26	05.04	93	38.83		

TAPE #	START	END	COMMENTS AND OBSERVATIONS
5			SP Ø75
			SP 135
			SP 195 - ASK DRIDGE TO INC SPEED 1/2 KT.
			ASK DRIDGE TO DEC SPEED BY 1 KT (MOORE HAVING STREAMER PROBLEMS AND IS STOPPED) D ON ≈ 15.5 mi
			" " " " " " 1/2 "
			TO CUT SPEED ALONG COURSE - ZIG ZAG ALONG LINE - 20° RT.
			STREAMER DROPPING TOO LOW - INC SPEED BY 1/2 KT.
			SP 255 - CAN'T ZAG BACK BECAUSE OF WEATHER BUOY ON THE LINE.
			SP 315 - INC. SPEED ABOUT 15 MIN AGO TO GET AROUND BUOY
			COMING LEFT 10°.
			MID POINT OF ESP LINE GMT-12 - MOORE ABREAST.
			20° C/C LEFT TO GET BACK TO LINE.
			10° C/C LEFT " " " " "
			SP 375 COMING BACK TO LINE - STILL 1 mi RIGHT.
			MIXTURE OF 10 & 15 DEGREE C/C TO RIGHT TO GET BACK TO LINE UNTIL 2125
			SAT #190 MSG CHG EL=54° RMS=7.0 MISS=1222/-159/1232 NO DATA FROM 22:03 TO 22:23
			SP 435
			Prog Stopped ⇒ Reload SAME Problem w/ tape
			Restart tape ↳ CPU NOT STOP
			SP 495 Run ON / TAPE STOPPED
			Program restarted anyway
			SP 555 EOL
			Transit to constant offset line
			Reload & Start new program - loaded ok
			using wrong Prog tape above
			Transport
			"
			"

GMT DAY	MO	YR	TIME (x6)	LINE #	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES ±	MINUTES	LONGITUDE ± DEGREES ±	MINUTES	TYPE	QUAL.
19	11	83	0505	GNT-13	321	3.9		26	07.47	93	35.10		
JD323			0543		347	4.3		26	07.07	93	35.98		
			0600		344	4.9		26	11.26	93	36.30		
			0704		348	3.8		26	15.44	93	37.44		
			0800		348	4.4		26	19.48	93	38.64		
			0820						.		.		
			0832						.		.		
			0840						.		.		
			0844						.		.		
			0900		346	5.0		26	23.90	93	39.98		
			0901				0848	26	22.91	93	39.73		
			0954				0942	26	27.25	93	41.02		
			1000		342	4.6		26	28.64	93	41.43		
			1059					26	33.3	93	42.9		
			1200		340	4.5		26	38.12	93	44.51		
			1300					26	42.87	93	46.00		
			1400		343	5.4		26	47.60	93	47.64		
									.		.		
			1550						.		.		
20	11	83	0000		359	8.0		27	54.06	94	24.14		
JD324									.		.		
									.		.		
			1400						.		.		
									.		.		
									.		.		
			1427					29	18.76	94	49.12		
									.		.		
									.		.		
									.		.		
									.		.		

TAPE #	START	END	COMMENTS AND OBSERVATIONS
5			SP ØØ7 on line GMT-13
			Restart line GMT-13 SP 1 FOLLOW TDX = 25580.0
			SP 33
			SP 160
			SP 272
			TIME APPROX. - MOORE HAVING STREAMER PROBLEMS (AGAIN) SLOW BY ½ KT.
			SET CORMCORD TO VALUES FROM BARRY'S PROGRAM - CORA = 0.3 CORB = 0.8
			INCREASE SPEED ½ KT. - MOORE APPARENTLY DIDN'T SLOW DOWN.
			" " " "
			SP 392
			SAT # 190 EL = 26° RMS = 8.5 MISS = -135/-222/260.
			SAT # 140 EL = 79° RMS = 6.6 MISS = 247/-336/417
			SP
			SP 630
			SP 752
			SP 872
			SP 992 End of line. GMT-13
			GEAR IN
			TRANSIT GALVESTON
			85 miles to go
			ARR GALVESTON (8 AM local)
			ATCM Pier
5		X	LAST TAPE WRITE - EOF