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WILD GOOSE ASSOCIATION

NEWSLETTER

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1982-2

ITEM - 11th ANNUAL WGA CONVENTION

Please submit your papers soon to the technical chairman, Commander Dave Amos, ESD/OCN-1, Hanscom AFB, MA 01731. This is the second call for papers - it only takes about one-half hour to prepare an abstract. The first call for papers and instructions were attached to the last newsletter. The convention will be held at the Capitol Holiday Inn, Washington, DC, on 13 to 15 October 1982. Be sure and reserve the above dates for this year's convention. Commander Dave Amos and other committee members are working hard towards another successful convention. This year's theme is: "Loran-C: Accurate Positioning at a Reasonable Price."

ITEM - 1981 CONVENTION PROCEEDINGS

Walt Dean reports a good response of orders for the convention 1981 proceedings. A cutoff date has not been set yet, but if you want a copy, send the \$8.00 soon. The address is on the outside of the Newsletter.

ITEM - 1980-81 JOURNAL

WGA President Barney Ambroseno indicated there are several copies of the 1980-81 Journal available at a nominal cost of \$4.50 per copy. Mail your check to the address shown on the outside of the newsletter.

ITEM - FEDERAL REGISTER/Vol. 47, No 29/Thursday, February 11, 1982/Rules and Regulations (see Page 6269)

This final rule delays for two years the requirement for installation of a continued complementary system to satellite navigation receivers.

"Vessels meeting the requirement for carriage of an electronic position fixing device by having satellite navigation receivers installed before June 1, 1984, need not install a continual tracking complementary system until June 1, 1987. Vessels meeting the rule by having satellite navigation receivers installed on or after June 1, 1984, must have the continual tracking complementary system installed at the same time. By delaying the requirement, there will be sufficient time for the Coast Guard to complete a

study on the incidence of groundings of vessels that use satellite navigation receivers, and, if appropriate, to propose rules that would eliminate the requirement for the complementary system. The delay will also allow vessel owners considering installation of the complementary system to avoid spending funds on a requirement that may be eliminated by such rulemaking.

EFFECTIVE DATE: *This final rule becomes effective on March 29, 1982.*

SUPPLEMENTARY INFORMATION: *The present rule was published as an interim final rule in the Federal Register issue of May 31, 1979 (44 FR 31592) because of an expansion of the area of applicability. The final rule was published without change in the Federal Register issue of January 10, 1980 (45 FR 2027).*

Drafting Information: *The principal persons involved in drafting this rule are Mr. Tom Falvey, Project Manager, Office of Marine Environment and Systems, and Mr. Stanley Colby, Project Attorney, Office of Chief Counsel.*

Discussion: *The requirements for carriage of electronic position fixing devices became effective for all vessels 10,000 gross tons (grt) or more on June 1, 1980. Vessels 1600 grt to 10,000 grt are required to carry this equipment on June 1, 1982. Under current requirements acceptable electronic position fixing devices include LORAN C (Type I or II as defined in the Radio Technical Commission for Marine Services (RTCM) Paper 12-78/DO-100 (12/20/77) entitled, "Minimum Performance Standards (MPS) Marine LORAN-C Receiving Equipment"), and a hybrid satellite navigation receiver integrated with a continual tracking, complementary system, such as satellite-OMEGA, satellite-LORAN C, and satellite-doppler. Vessels having "stand alone" satellite systems that are installed before June 1, 1982 are not required to have the complementary tracking system until June 1, 1985. Vessels having satellite systems that are installed on or after June 1, 1982, must have the complementary system installed concurrently."*

For more details see the referenced "Federal Register" document identified at the start of this item.

ITEM - NEW LORAN-C RECEIVER WITH SPECIAL NAVIGATOR FEATURES

The latest model in the CLX Series has been announced by SRD LABS. Called the CLX-95, this NEW LORAN-C RECEIVER has all the features of the current CLX Navigators plus:

- 100 Waypoints (TD's or Lat/Long)
- Reverse Course
- Parallel Tracking
- Anchor Watch

Giant Hi-Intensity LED Displays
Automatic Routing of Waypoints
Cross Track Error Alarm
User Selectable Display Filtering
Course Made Good
Speed Along Track
Mode Annunciators
Lat/Long Correction for ASF Errors
Automatic Magnetic Variation Correction

Special features, of course, made good and speed along track are useful to all navigators but are particularly handy when under sail. Reverse course and parallel tracking modes enable trawl or search patterns to be easily established.

Ruggedly built and enclosed in the proven CLX housing the CLX-95 will be displayed for the first time at the Miami International Boat Show. For further information contact SRD LABS, 381 McGlincey Lane, Campbell, CA 95008 (408-371-2666).

ITEM - INTERNAV CHANGE OF ADDRESS

INTERNAV's new location is:

66 Cummings Road
Woburn, MA 01801
Phone Number is (617)953-3000.

ITEM - LORAN-C USER HANDBOOK

Due to budgetary constraints the Loran-C User Handbook can no longer be distributed free of charge by the U.S. Coast Guard. Those desiring a copy of the Handbook may obtain it from:

Supt of Documents
U.S. Government Printing Office
Washington, DC 20402

The stock number is 050-012-00171-5 at a price of \$3.50 per copy.

ITEM - GAO REPORT ON LORAN-C (Reference: Radionavigation Bulletin, No. 8, USCG/DOT, March 1982)

The General Accounting Office (GAO) report titled, "DOT Should Terminate Further Loran-C Development and Modernization and Exploit the Potential of the NAVSTAR/Global Positioning System," dated 18 September 1981, has caused concern and inquiries regarding the future of Loran-C in the United States.

The GAO report, addressed to the Secretary of Transportation, questioned the economics of Loran-C improvements and suggested a schedule for Loran-C phase

out in favor of the NAVSTAR/GPS system. The Coast Guard provided the Department of Transportation with a complete economic analysis of planned Loran-C improvements. The Coast Guard also pointed out that there was no new data available to support any change to Loran-C phase out plans as they are stipulated in the Congressionally approved Federal Radionavigation Plan. The Office of the Secretary of Transportation's response to the GAO report was fully supportive of the Coast Guard's Loran-C improvement plans and the radionavigation system decisions published in the Federal Radionavigation Plan. There is no reason to believe that the Loran-C system will be phased out sooner than projected in the Federal Radionavigation Plan.

The GAO report and the Coast Guard's economic analysis of Loran-C improvements did highlight some economics that could be taken in Loran-C operation without a loss in service. The House and Senate Conference Committee on DOT appropriations, in their approval of new transmitters for Loran-C stations (Congressional Record, 13 November 1981, page 8), directed the Coast Guard to submit a comprehensive plan for taking economics by making improvements that permit reducing the manning level at Loran-C transmitting stations. The Coast Guard has submitted such a plan.

The GAO report directed considerable high-level attention to the Loran-C system. The results will be an improved system that operates at a lower cost.

ITEM - RADIOBEACON - DIFFERENTIAL OMEGA, SAN JUAN, PUERTO RICO

A recent study concluded that although no configuration of Loran-C could be justified on a cost/benefit basis, Differential OMEGA would be cost beneficial in that region. A one-year evaluation of Differential Omega is being initiated by the Coast Guard. A European company called Sercel Corporation is providing the transmitter and installation at San Juan. The report steering this effort is entitled, "Benefits and Costs of Loran-C Expansion into the Eastern Caribbean."

ITEM - REPORT ENTITLED, "FLIGHT EVALUATION OF LORAN-C IN THE STATE OF VERMONT," by F.D. MACKENZIE AND C.K. LYTLE

This report has excellent long-term Loran-C data. It is well worth a comprehensive review. For further information contact F.D. MacKenzie, Transportation Systems Center, Cambridge, MA 02142.

ITEM - NAVIGATION IN THE NINETIES BY DAVID UNDERWOOD

An excellent article appeared in Airport Services (February 1982) by Dave Underwood. Dave's article begins as follows:

"If you think the change from following railroad tracks to following VOR signals was a big jump, you may be in for some future shock. The question now before us is: Will the navigation system of tomorrow be Loran-C or satellite-based GPS?"

This article by Underwood is stimulating.. Technical, congressional, and cost are accurately mentioned. The nine-billion dollar question is addressed: Who buys the satellites? The attributes and limitations of both systems for the near- and long-term are evaluated. The article concludes that satellite navigation will turn out to be the aid of the future (1990s) but the transition will be very lengthy (well beyond 1995) and some systems are protected until 1995 by law (VOR system for example will remain until 1995 because it is a world standard).

ITEM - DOT-FAA SUPPLEMENTAL TYPE CERTIFICATE

"Use of the system is limited to enroute IFR operations while using the MXW Triad of the Northeast (9960) Loran-C chain...." This excerpt is based on the FAA ruling of October 9, 1981, that awarded the State of Vermont an STC for enroute IFR operations with Loran-C. Other approvals including RNAV approaches, could be on the way. Bill Polhemus (Consultant) and J.A. Hillard (Teledyne Systems) report remarkable along track and cross track error:

<u>Segment</u>	<u>Along Track Error (nm)</u>	<u>Cross Track Error (nm)</u>
Enroute	0.13	0.15
Terminal	0.15	0.16
Approach	0.16	0.15

Each value is based on samples exceeding 11,000 data points. The data includes transmitter, propagation, airborne receiver, and RNAV equipment errors. Flight technical error or the accuracy with which the pilot controls the aircraft is not included. The Teledyne TDL-711 Loran-C airborne receiver was used for flight tests.

ITEM - TEXAS INSTRUMENTS FILES FOR STC

The TI 9100 Loran navigator is eligible for enroute and terminal IFR operations. The FAA approval was won after TI verified Loran-C coverage and the ability of its 9100 receiver to comply with enroute and terminal accuracy of Advisory Circular 90-45A (1.5 nm enroute and 1.1 nm terminal).

ITEM - SUEZ CANAL LORAN-C INSTALLED

A new Loran-C chain, operating on a GRI of 4990, has been established by the Suez Canal Authority. Radiated power for this new chain is 6.4 KW.

The Suez Canal chain consists of a master and two secondaries. See the table below for station locations and coding delays:

SUEZ CANAL LORAN-C CHAIN (GRI 4990)

<u>Station</u>	<u>Position</u>	<u>Coding Delay</u>
Bilbeis (Master)	30°20'08.69"N 31°33'31.60"W	
Shalabi El Rudi	31°23'28.03"N 32°33'31.60"W	10986.512
Ras El Sudr	29°43'59.96"N 32°42'01.23"W	24988.666

ITEM - TUTORIAL ARTICLES ON THE LORAN-C RADIO NAVIGATION SYSTEM BY ROBERT L. KOCHER

Several worthwhile articles for the Loran-C beginner have been published. These include:

1. "A Beginners' Guide to How Loran-C Navigation Systems Work," Page 1 (*National Fisherman*, January 1980).
2. "Nature Can Sneak Errors into Your Loran-C Set," Page 11 (*National Fisherman*, February 1980).
3. "Poor Loran-C Reception is Inevitable in Some Spots," Page 20 (*National Fisherman*, March 1980).

ITEM - PRESIDENT BARNEY AMBROSENO

All members are very happy to hear that Barney has fully recovered and going strong again after his recent illness. Barney plans to conduct the next Board of Directors meeting in the middle of June on the West Coast. WGA members are always invited to attend these meetings whenever time permits.

ITEM - WGA members are encouraged to submit Newsletter ITEMS. Your newsletter editor wishes to thank the following members for submitting "items" of interest this quarter: CDR Dave Amos (USCG-ESD), U.S. Coast Guard Headquarters - Washington, DC, U.S. Coast Guard (COMLANTAREA), Barney Ambroseno (WGA-President), and Mr. Walt Dean (WGA-Vice President). If you have any items of interest for the Loran-C navigation community, please mail them to your newsletter editor:

John D. Illgen
 Manager, Field Test and Technology
 Kaman Tempo
 P.O. Drawer QQ
 Santa Barbara, CA 93102

or call them in to Sharon Garland on (805)963-6460.