

## BOARD OF DIRECTORS

C. S. ANDREN . . . . . President  
E. L. McGANN . . . . . Vice President  
L. F. FEHLNER . . . . . Secretary  
D. A. CARTER . . . . . Treasurer  
J. ALEXANDER  
B. AMBROSENO  
J. F. CULBERTSON  
W. N. DEAN  
L. D. HIGGINBOTHAM  
J. D. ILLGEN  
V. L. JOHNSON  
A. W. MARCHAL  
J. P. VAN ETTEN  
V. I. WEIHE



# WILD GOOSE ASSOCIATION

9 April 1985

## MINUTES OF THE 68th MEETING OF THE BOARD OF DIRECTORS

The 68th meeting of the Board of Directors was held as scheduled Tuesday, 9 April 1985 in Conference Room 8236, Nassif Building, 400 Seventh Street, NW Washington, DC.

The following attended:

<u>Directors</u>	<u>Members</u>
C. S. Andren, President	None
J. Alexander	
B. Ambroseno	
D. A. Carter	
W. N. Dean	
L. F. Fehlner	
V. L. Johnson	
J. P. VanEtten	
V. I. Weihe	

The number of Directors present met the requirement for a quorum.  
The agenda is presented at Exhibit (1).

### Item 1 - Call to Order

The meeting was called to order by President Carl Andren at 0925, 9 April 1985.

### Item 2 - Secretary's Report

The minutes of the 67th Meeting of the Board were corrected by interchanging Exhibits 6 and 7. VanEtten moved to approve the minutes as corrected. Dean seconded. Motion carried.

The Secretary reported on the state of the membership. The 1 December 84 dues notices were sent to 548 members, 41 overseas and 507 U.S. and Canada. Approximately 390 members renewed membership for 1985 leaving 158 who did not reply. This included approximately 50 members who did not reply because they had no corrections to submit, and/or did not owe dues, i.e. paid in advance or life members. Returns dwindled by the end of March at which time the state of the membership was archived. The disc archived was copied to a new working disc and all members whose dues expired at the end of 1982 were purged. This left 488 members, 50 overseas, 423 U.S. and Canada and 15 organizations. Since that time we have 30 new members making a total of about 518. On 1 April 1985, last call for 1985 dues was mailed to 110 83/84 members.

We were informed by the Commonwealth of Massachusetts by an undated letter received during the last week of March that our Annual Report had been returned because the WGA clerk (secretary) is not a resident of Massachusetts. Therefore we are required to appoint a Resident Agent of the WGA so that our Report could be accepted. A \$10.00 filing fee is also required. Ed McGann volunteered to be our Resident Agent. Ambroseno therefore moved to adopt the resolution recorded at Exhibit 2. VanEtten seconded. The motion carried unanimously.

#### Item 3 - Treasurer's Report

The Treasurer's report is presented at Exhibit 3. Carter reported that an additional \$1000 was required by the Sheraton, Santa Barbara to finalize the Convention contract. Carter will forward a check to cover. Carter initiated a discussion of ways to spend some of our funds for the benefit of members or for the support of Ioran. It was decided to procure a new supply of small logo decals for distribution to members. However, it was found to be quite difficult in the time available to conceive of more substantial undertakings. (Sec. note: Please let us know if you get any ideas on this subject). Carter also suggested the possibility of investing some of our funds. Action on this was deferred pending an assessment of the effect of earnings of this sort on our tax exempt status. Dean moved to accept the Treasurer's report. Ambroseno seconded. Motion carried.

#### Item 4 - Standing Committee Reports

a. Constitution and By-Laws - Johnson reported that the resolution to amend the Constitution regarding the term of office of Directors was approved by a vote of 202 to 4. The Constitution is therefore amended. See Johnson's report at Exhibit 4.

Johnson reported on the recommendation of his Committee regarding Frank's proposals on awards recorded at Exhibit 9 in the minutes of the 66th meeting of the Board. The Committee recommended retaining the provision of the By-Laws requiring an even number of appointees to committees. This was accepted by the Board. The Committee reported favorably on Frank's proposal

regarding the Paper Award and the Service Award. Johnson presented the two proposed motions for By-Laws changes as shown in Exhibit 5. Dean moved to accept the proposed Paper Award change. Alexander seconded. Motion carried. Dean moved to accept the proposed Service Award change. VanEtten seconded. Motion carried.

b. Conventions - Regarding the 1984 Convention, no formal report of the Convention accounts has yet been made to the Board. However, the Westin Hotel has contacted Carter indicating that accounts have not yet been settled with the Hotel. It was agreed that Carter will settle accounts with the Hotel on Friday, 12 April 1985, unless it is determined that Sartin has settled before that time.

Regarding the 1985 Convention, Illgen submitted a written report. See Exhibit 6. The Board noted that Illgen is well organized. The Board expressed the hope that Illgen's efforts would lead to a "Practices and Procedures" Manual for future conventions. The Board requests that Illgen take this possibility under advisement and report to the Board on the feasibility of submitting a draft at a future Board meeting. Andren reported briefly on the difficulties of having a classified session.

Regarding the 1986 Convention, Andren reported that Marchal has been advised as to the decision of the Board to convene in New Orleans and that Marchal has accepted chairmanship. The Hotel has not yet been selected.

c. Journal - Ambroseno's letter of resignation (Exhibit 7) as Managing Editor was accepted reluctantly by President Andren. The Board extended warm thanks to Ambroseno for a job exceptionally well done.

Alexander recommended that Culbertson be invited to be Managing Editor of the 1985 Journal. Andren took this for action.

d. Membership - Johnson reported on a large volume of correspondence welcoming new members and filling orders for Proceedings and Journals. See Exhibit 8.

Johnson reported that the matter of filing an affidavit showing that the WGA logo is still in use is actively being pursued. This filing will prevent cancellation in December 1986 of the registration of this logo as our trademark.

Fehlner inquired as to the status of the group of WGA members in Europe who have been corresponding as the Wild Goose Association Europe. Andren indicated that he had discussed the formation of a Europe Chapter in a meeting he had attended in Europe. See Exhibit 9. In view of the interest expressed by a letter received from J. H. Boettcher, Exhibit 10, the Board requested Johnson to advise Boettcher of procedures for establishing a chapter.

The Board recommended that the Fact Sheet (Exhibit 11) should be revised to provide a more complete description of the WGA, e.g. criteria for classes of membership, benefits of membership in good standing, latest dues, difference between dues and invitation fee, etc.

Fehlner pointed out the disparity between the initiation cost of new membership and the dues owed by a member at the end of 2 years of suspension, i.e. \$15 versus \$36. The Board agreed that members in suspension or otherwise not in good standing shall not be sent our publications. This does not rule out distribution of advertisements, e.g. Convention notices, etc. to members not in good standing.

e. Newsletter - Andren discussed a proposal stemming from the previous Board meeting that Sartin would chair the Newsletter Committee and Culbertson would be Publisher. The Board felt that the impediment of distance could be counterproductive to maintaining a reasonable frequency of newsletter publications. Andren was therefore requested to ask Sartin to withdraw as Chairman and appoint Dean as chairman. Dean agreed to appoint Culbertson as a committee member/publisher. Dean will appoint at least one more member of the Committee in accordance with the By-Laws to serve as a reporter.

f. Nominations and Election - VanEtten submitted a written report. See Exhibit 12. After a review of the report, the consensus of the Board was to approve the report with no changes. Alexander moved to approve the slate of candidates listed in the report. Ambroseno seconded. Motion carried.

g. Congressional - No report

#### Item 5 - New Business

a. Loran Standards - Andren introduced for discussion the subject of establishing a Loran Standards Committee as recommended by McCullough at the previous Board meeting. See Exhibit 8 of minutes of the 67th Board meeting. Fehlner pointed out that there had been previous requests for standards and handed out Exhibit 13 in which Captain Mayo expressed his frustration with receivers. Alexander emphasized that Captain Mayo is not the only user frustrated with user equipment. Many are disappointed users on the West Coast. Fehlner then handed out Exhibit 14 from which it was argued that the loran transmitters are also frustrating, and their control needs improvement. Fehlner then handed out Exhibit 15 as a possible approach to the complex problem of improved transmitter control and the standardization of both transmitter and user equipment parameters. Fehlner then submitted a draft of a letter to the Coast Guard suggesting that some action should be taken to improve the timing control of the transmitters. See Exhibit 16. After much discussion, it was decided to defer the establishment of a "Standards Committee" and all other related actions pending an agreement on a Committee charter which reflects all the pertinent issues alluded to above. Andren, Dean, VanEtten and Fehlner volunteered to evolve such a charter. Other concerned persons are invited to contribute.

b. Dual-Rating Port Clearance - Dean reported dual rating funds are included in the 1986 budget. (Ref. Deans letter to Directors dated 17 December 1984) Also, see Exhibit 17.

c. Mid-Continent Loran - Andren reviewed the current plans for mid-continent coverage and submitted Exhibits 17 and 18 for the record.


d. Awards - Fehlner proposed changes to the Awards Committee Report of 1 November 1976 regarding procedures for awarding the Medal of Merit, and regarding changes necessitated by the By-Laws changes affecting the Paper and Service Awards. Action was deferred to the next Board meeting.

Item 6 - Meeting Date

It was agreed to hold the next meeting on 13 August 1985 at a time and place to be announced by Andren.

Item 7 - Adjourn

The meeting adjourned on a motion by Alexander at 1345, 9 April 1985.

  
Leo F. Fehlner  
Secretary

Distribution:

Officers  
Directors  
LESartin  
RLFrank  
JRMcCullough  
MJMayo

## BOARD OF DIRECTORS

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Exhibit 1



# WILD GOOSE ASSOCIATION

March 26, 1985


TO: WGA Directors and Committee Chairmen  
FROM: WGA President  
SUBJECT: 68th Meeting of the Board of Directors

The next Board of Directors meeting will be held Tuesday, April 9, 1985 at 9:00 AM in Conference Room 8236, Nassif Building, 400 Seventh Street, S.W. Washington, D. C.

## AGENDA

1. Call to Order
2. Secretary's Report
  - a. Corporate Filing - State of Massachusetts
3. Treasurer's Report
4. Standing Committee Reports
  - a. Constitution Johnson  
    1. Constitution Amendment - Directors term of office
  - b. Conventions Sartin  
    1. 1984 Convention Report Illgen
    2. 1985 Convention Report Marchal
    3. 1986 Convention Status
  - c. Journal Ambroseno  
    1. 1984
    2. 1985

- d. Membership Johnson
- e. Newsletter Sartin
- f. Nominating and Election VanEtten
  - 1. Additions, Deletions and Approval to the  
    slate of candidates for 1985.
- g. Congressional McGann
- 5. New Business
  - a. Loran Standards McCullough
- 6. Establish next meeting date

  
Carl S. Andren  
President

**The Commonwealth of Massachusetts**  
**MICHAEL JOSEPH CONNOLLY**

Exhibit 2

*Secretary of the Commonwealth*  
 State House, Boston, Mass. 02133

FEDERAL IDENTIFICATION  
 NO. 04-263055

**CERTIFICATE OF APPOINTMENT OF RESIDENT AGENT**  
**General Laws, Chapter 180, Section 10A**

1, Leo F. Fehlner ..... Clerk / Assistant Clerk of  
Wild Goose Association .....  
 (Name of Corporation)  
 located at P. O. Box 556, Bedford, MA 01730 .....  
 (Principal Office in the Commonwealth: Number and Street, City or Town)

hereby certify, in compliance with the provisions of law, that said Corporation has appointed the following individual / corporation its Resident Agent, to be its true and lawful attorney upon whom all lawful processes in any action or proceeding against it may be served:

Name: Edward L. McGann

Residence (if an individual): 18 Wolcott Avenue, Andover, MA 01810

Business Address: 8 Preston Court, Bedford, MA 01730

I further certify that the following is a true copy of the vote of the directors, duly adopted, appointing said Resident Agent: Whereas the applicable law requires the appointment of a Resident Agent in the Commonwealth of Massachusetts, be it resolved that Edward L. McGann shall be appointed Resident Agent of the Wild Goose Association. Moved for adoption by B. Ambroseno. Seconded by J. P. VanEtten. Motion carried unanimously. and that, to the best of my knowledge and belief, the residence and business addresses stated above are those of such Resident Agent on date hereof.

This certificate and the appointment evidenced by it supersede all prior such certificates and appointments, if any.

IN WITNESS WHEREOF AND UNDER THE PENALTIES OF PERJURY, I have hereunto signed my name this 11th day of April, 1985.

Leo F. Fehlner  
 Clerk / Assistant Clerk

NOTE: If an individual is appointed resident agent he must be both a resident of and have a business address in the Commonwealth; if a corporation is appointed, it must be a domestic corporation or a foreign corporation which has complied with General Laws, Chapter 181, Section 4 and which has an office in the Commonwealth.



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 J. F. CULBERTSON  
 W. N. DEAN  
 L. D. HIGGINBOTHAM  
 J. D. ILLGEN  
 V. L. JOHNSON  
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 V. I. WEIHE

ORIGINAL

Exhibit 3



WILD GOOSE ASSOCIATION

TREASURER'S REPORT  
 April 9, 1985

Balance from 1-11-85

\$ 13,476.87

TRANSACTIONS

RECEIPTS

Dues	\$ 3,222.60	
Journal Proceedings Sales	390.00	
1983 Journal Ad	125.00	
	<hr/> 3,737.60	\$ 17,214.47

EXPENSES

Bank charges for foreign exchange	17.21	
Newsletter printing/mailing	697.04	
Membership Chairman advance	300.00	
1984 Journal expenses	140.70	
P.O. Box Rental	29.00	
1984 Journal postal expenses	608.10	
Dues overpayment refund	18.00	
Secretary expenses, advance	200.00	
	<hr/> 2,010.05	\$ 15,204.42

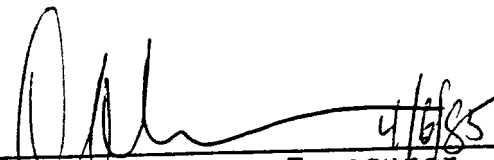
WGA Account Balance as of April 9, 1985

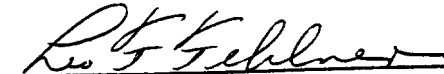
\$ 15,204.42

Submitted:

Approved:  
 Board of Directors

Date 9 April 85

  
 David A. Carter, Treasurer

  
 Leo F. Fehlner, Secretary

## BOARD OF DIRECTORS

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Exhibit 4



# WILD GOOSE ASSOCIATION

5 April 1985

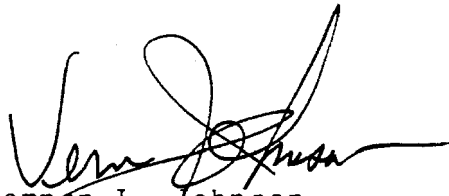
Memorandum To: Secretary, WGA  
From: Chairman, Constitution Committee  
Subject: Membership Vote on Constitution Amendment

In accordance with direction by the Board of Directors at its 67th meeting held on 17 January 1985; a resolution to amend the WGA Constitution in regard to the term of office by Directors was placed on ballot to the WGA membership. The ballot, as attached hereto, was mailed to the membership in February 1985.

As of 1 April 1985, 206 signed ballots and 1 unsigned ballot had been returned. The ballot count is as follows:

202 for the amendment  
4 against the amendment

This amendment to the Constitution is therefore approved by the membership in accordance with the requirements of Article XII.

  
Vernon L. Johnson  
Chairman, Constitution Committee

## BOARD OF DIRECTORS

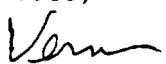
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# WILD GOOSE ASSOCIATION

Memorandum To: All WGA Members 21 February 1985  
From: Chairman, Constitution Committee  
Subject: Membership Vote on Constitution Amendment

The WGA Constitution, Article XII, requires that proposed changes to the Constitution be placed on ballot for membership vote following approval by the Board of Directors. The proposed amendment as stated below was approved by the Board of Directors at their meeting on 17 January 1985. Members are requested to detach the ballot below, indicate their vote, and return their signed ballot in the enclosed envelope.

  
Vern Johnson  
Chairman, Constitution Committee

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### Resolution To Amend The WGA Constitution

Where as: circumstances may arise which interrupt the prescribed sequence of terms of office for officers and directors.

Where as: the constitution of the Wild Goose Association (W.G.A.) provides for such contingencies for officers.

Where as: such contingencies could cause the W.G.A. to find itself without duly constituted directors.

Therefore be it resolved that: the following amendment shall be submitted to the members for approval:

Replace sentence one and two (1 and 2) of Article VI section four (4) of the constitution in their entirety with the following sentence: "There shall be twelve (12) directors elected by the membership of the association to serve for a period of three (3) years and thereafter until their successors have been duly chosen."

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### WILD GOOSE ASSOCIATION MEMBERSHIP BALLOT

Amendment to the Constitution - Article VI, Section Four

For

☐

Against

☐

Member's Signature

Date

Return in ballot envelope provided  
by March 30

4/9/85

PROPOSED AMENDMENT TO THE BY-LAWS

ARTICLE XI    AWARDS

Paper Award

PRESENT TEXT:

To be awarded to a member of the Wild Goose Association for the best paper published on the general subject of loran.

PROPOSED TEXT:

To be awarded to a person or persons for the best paper published on any aspect of loran. The field of consideration shall be:

- a. Papers published by member(s) or non-member(s) in publications of the Wild Goose Association.
- b. Papers published by member(s) in other publications.

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Service Award

PRESENT TEXT:

This award will be given to members who distinguish themselves by service to the Wild Goose Association.

PROPOSED TEXT:

This award will be given to persons who distinguish themselves by service to the Wild Goose Association.

# WILD GOOSE ASSOCIATION

## FOURTEENTH ANNUAL CONVENTION

P.O. DRAWER QQ

SANTA BARBARA, CALIFORNIA 93102



Exhibit 6

2 April 1985

To: WGA Board of Directors and 1985 Convention Committee Chairmen

From: John D. Illgen

Subj: 14th Annual Convention, Santa Barbara, California

A WGA convention committee planning meeting was held 16 March at J. Illgen's residence, 7819 Langlo Ranch Road, Goleta, California (10 km north of Santa Barbara). John Illgen started by reviewing meeting objectives for each committee. These included:

1. Reports from each committee chairman
2. Action items and schedule for each committee
3. Identification of any problem areas
4. Near-term costs (printing)
5. Budget plan (and estimate)

1. Symposium Chairman Report (John Illgen)

John Illgen reviewed hotel accommodations and contract. Presently we have blocked 25 single and 25 double rooms for Wednesday (10/23/85) and Thursday (10/23/85) at Convention Headquarters (Sheraton, 1111 East Cabrillo Boulevard, Santa Barbara, CA 93103). The hotel representative, Antoinette Chartier, has recently informed John Illgen that the WGA must provide a \$1000 check to the Sheraton to finalize the contract (we are overdue). Second installment was due 15 February. No further deposits will be required. After the \$1000 check is sent, the Sheraton will have a total of \$1500 representing our deposit. Please provide Dave Carter an urgent action item to send the check to the Sheraton (address cited above) to the attention of Ms. Chartier.

Rooms at the Sheraton are priced as follows:

Single (king or queen)	\$65/night
Double (king or queen)	\$70/night

The sessions and WGA functions will be in the following rooms:

23 October 1985 (Wednesday)

1. Vista Del Monte  
Afternoon Session (1:15 to 5:30)  
(coffee\*, soda\*, and visual aids to be provided)
2. La Cantina  
Cocktail Reception (6:00 to 8:00)  
Hospitality Chairman (Larry Cortland) to work with Financial Chairman (Dave Gledhill) to be sure all costs are offset based on donations from manufacturers.

24 October 1985 (Thursday)

1. Vista Mar Monte  
Morning and Afternoon Sessions (9:00 to 5:00)  
(coffee, etc same as PM session on Wednesday)
2. El Cabrillo (Luncheon)  
Guest Speaker will be Ludwig VanDenberg (astronaut-to be in May 1985 Space Shuttle)
3. El Cabrillo  
(Reception/Dinner) (6:30 to Midnight)  
Guest Speaker is tentatively Fess Parker (to be confirmed in April)

25 October 1985 (Friday)

1. Vista Mar Monte
2. Morning and Afternoon Sessions (9:00 to 5:00)
3. Coffee etc as in earlier sessions
4. El Cabrillo (Luncheon)  
Speaker will be Adm A. Manning

The opening of this year's Convention will include Colour Guard from Vandenberg AFB. Flags from countries represented at convention will be displayed.

2. Technical Chairman (Jim Culbertson)

Jim Culbertson is preparing an intensive agenda that is focused on responding to the new Loran-C initiatives. Session Chairman and Panel Members are being contracted by Jim. Jim's goals are:

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\* Local companies in Santa Barbara are being solicited to pay for coffee/soda.

- o Papers will be in early (before convention)
- o Call for Papers (released in April 1985 - letterhead has been developed for convention)
- o Abstracts due 1 June 1985
- o Notify authors of acceptance/rejection by 1 July 1985

Sessions to include:

p3

Aviation (users/providers)

Maritime (users/providers)

Natural Sciences/Loran Technology

Panel

Special DOD (will be concurrent with unclassified session - unclassified session to be video-taped and played back for those interested).

3. Financial Chairman (Dave Gledhill - New WGA member - works at Kaman Tempo)

Spread sheet has been developed. All bills (original plus 1 copy to be sent to Dave Gledhill), anticipation of costs of any kind (no matter how trivial) please alert Dave immediately (by phone: 805-963-6487 or in writing). Dave will be keeping me closely informed of all expenses. Our goal is to have an affordable and successful symposium at no cost to the WGA. Presently Dave is busily working out costs for the convention so we can develop symposium fees (basic symposium fee, banquet, luncheons, golf, and tennis tournaments). Additionally, a total cost is being developed by Larry Cortland (Hospitality Chairman) so he is aware of his goal in soliciting manufacturers for cocktail/reception/hospitality room donations. Monthly financial reports for the 1985 Convention will be provided to Board of Directors monthly starting in June 1985. Carter should provide \$3,000 advance to Gledhill to open account on West Coast for near-term expenses (they will be offset).

4. Hardware Exhibits (Jim Alexander)

Jim was not present at the Convention meeting. However, Larry Cortland will provide Jim back-up as required. Jim Alexander and Larry Cortland plan to interface soon. A special exhibit area (size\*) must be established soon. Plans for the activity are due by 15 May 1985. Exhibit room will be adjacent to hospitality suite but not in same room.

5. Gulf Tournament (Burt Gambill)

Burt has arranged for use of Montecito Country Club Golf course. The tournament will be Tuesday, 22 October. Burt plans to work up a price for green fees and awards. Dave Gledhill will include this as a line item for registration form.

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\* Must make decision on 1 or 2 rooms by 15 May 1985.

6. Tennis Tournament (Dave Gledhill)

Dave Gledhill will reserve courts at Santa Barbara Municipal Tennis Club (Muni). This tournament will also be on 22 October. Dave will establish court and award fees for registration forms.

Burt and Dave are quite well known for their golf and tennis play, respectively. These tournaments should be quite enjoyable as either a player or spectator. Both locations are near the Sheraton hotel.

7. Hospitality (Larry Cortland)

Larry plans to solicit donations early from Loran-C manufacturers. Letters are now being formulated. Larry was a strong contributor at the convention committee meeting in all areas but especially exhibits and hospitality.

8. Guest Speakers (Dave Foxwell)

Letters to guest speakers (luncheons and banquets) will go out in April 1985. Verbal contact has already been achieved.

9. Events for Ladies (Susanne Illgen)

My wife will be working with the Chamber of Commerce to have available at the registration desks brochures focusing on sights, tours, and shopping.

10. Security (Roberta Young)

Contact has been made with OSD/DOD. We expect an answer to our request to conduct a classified DOD Loran-C session soon. The contact at the Pentagon is LTC Phil Baker. Six papers have been already identified for a classified session. A classified meeting room has been identified near the hotel (at Kaman Tempo Hq). Security check-in, administration will be handled at KT if DOD provides the WGA approval for this session. I will keep you informed of progress.

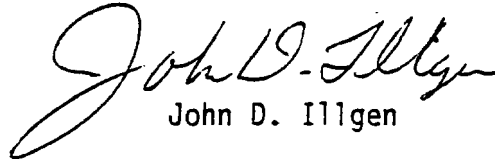
Miscellaneous

Badges (with larger print - so names can be seen) will be provided. The convention meeting included Cox Printers. Cox Printers provided the printing and mail out of our last newsletter. We reviewed prices for "Call for Papers," registration forms, letters to manufacturers (exhibits, hospitality), symposium programs, etc. Many other miscellaneous items were also discussed at this convention committee meeting (including publicity, press releases, etc). Another meeting will be established in June 1985 (date to be announced - same place).



We have a great group of committee members and look forward to the October 1985 Convention. All committee members welcome comments from the Board of Directors and membership. Don't assume anything - if you think we are overlooking anything call me or the appropriate committee chairman ASAP.

Sincerely,

A handwritten signature in cursive script that reads "John D. Illgen". The signature is fluid and stylized, with the first letters of each word being capitalized and prominent.

John D. Illgen

Attachments:

1. Convention Committee List
2. Preliminary Financial Spread Sheet

JDI/sg

## 1985 WILD GOOSE ASSOCIATION CONVENTION

LOCATION: Beautiful Santa Barbara, California

CONVENTION HEADQUARTERS: Sheraton Santa Barbara Hotel and Spa  
1111 East Cabrillo Boulevard (on the beach)  
Santa Barbara, California 93103  
Phone: 805-963-0744  
Single: \$65.00/night  
Double: \$70.00/night

PLEASE REGISTER AT HOTEL SOON (REGISTRATION CARDS AND BROCHURES AVAILABLE TODAY)

FIRST CALL FOR PAPERS AND CONVENTION THEME TO BE RELEASED DECEMBER 1984

SPECIAL SESSIONS TO INCLUDE ONE CLASSIFIED (DOD) SESSION CONCURRENT WITH AN UNCLASSIFIED SESSION

RELATED SCIENCES SESSION TO INCLUDE GEOLOGISTS, METEOROLOGISTS, AND SOLAR SCIENTISTS

SPECIAL BANQUET AND LUNCHEON SPEAKERS BEING PLANNED

IF YOU HAVE ANY QUESTIONS PLEASE TELEPHONE THE APPROPRIATE COMMITTEE CHAIRMAN

John D. Illgen	Symposium Chairman	(805)963-6458
James Culbertson	Technical Chairman	(714)432-0516
David Gledhill	Financial Chairman	(805)963-6487
Jim Alexander	Hardware Exhibits	(714)432-0516
Burt Gambill	Golf Tournament	(805)963-6430
David Gledhill	Tennis Tournament	(805)963-6487
Larry Courtland	Hospitality	(818)886-2211
David G. Foxwell	Speakers	(805)963-6410
Susanne Illgen	Events for Ladies	(805)968-3995
Roberta Young	Security	(805)963-6405

	Quantity	@	Unit Cost	Total
<hr/>				
<b>I. ESTIMATED EXPENSES</b>				
<b>A. Technical Sessions:</b>				
Room				
Wednesday	[	] @ [	] [	]
Thursday	[	] @ [	] [	]
Friday	[	] @ [	] [	]
Audio-Visual Equipment	[	] @ [	] [	]
Coffee Breaks				
Wednesday AM	[	] @ [	] [	]
Wednesday PM	[	] @ [	] [	]
Thursday AM	[	] @ [	] [	]
Thursday PM	[	] @ [	] [	]
Friday AM	[	] @ [	] [	]
TOTAL TECH SESSIONS:				\$0
<b>B. Speakers:</b>				
Lunch (Wednesday)	[	] @ [	] [	]
Breakfast (Thursday)	[	] @ [	] [	]
Breakfast (Friday)	[	] @ [	] [	]
TOTAL SPEAKERS:				\$0
<b>C. Luncheons:</b>				
Thursday	[	] @ [	] [	]
Friday	[	] @ [	] [	]
TOTAL LUNCHEONS:				\$0
<b>D. Hospitality:</b>				
Suite	[	] @ [	] [	]
Bartender	[	] @ [	] [	]
Liquor	[	] @ [	] [	]
Food	[	] @ [	] [	]
Other	[	] @ [	] [	]
TOTAL HOSPITALITY:				\$0
<b>E. Banquet:</b>				
Meals	[	] @ [	] [	]
Entertainment	[	] @ [	] [	]
Flowers	[	] @ [	] [	]
Bartender	[	] @ [	] [	]
Photographer	[	] @ [	] [	]
Other	[	] @ [	] [	]
TOTAL BANQUET:				\$0

	Quantity	@	Unit Cost	Total
-----				
F. Administrative:				
Printing				
Proceedings	[	] @ [	] [	]
Call for Papers	[	] @ [	] [	]
Program	[	] @ [	] [	]
Stationary	[	] @ [	] [	]
Other [	] [	] @ [	] [	]
Mailings				
Proceedings	[	] @ [	] [	]
Call for Papers	[	] @ [	] [	]
Program	[	] @ [	] [	]
Other [	] [	] @ [	] [	]
Registration Assistance	[	] @ [	] [	]
Secretarial Assistance	[	] @ [	] [	]
Awards	[	] @ [	] [	]
Signs/Decorations	[	] @ [	] [	]
Badges	[	] @ [	] [	]
Misc. Supplies	[	] @ [	] [	]
Other [	] [	] @ [	] [	]
TOTAL ADMINISTRATIVE:				\$0
TOTAL EXPENSES:				\$0

////////////////////////////////////

## II. ESTIMATED RECEIPTS

### A. Registration:

Advance	[	] @ [	] [	]
On Site	[	] @ [	] [	]
TOTAL REGISTRATION:				\$0

### B. Luncheons:

Thursday	[	] @ [	] [	]
Friday	[	] @ [	] [	]
TOTAL LUNCHEONS:				\$0

C. Banquet:	[	] @ [	] [	]
-------------	---	-------	-----	---

D. Contributions:	[	] @ [	] [	]
-------------------	---	-------	-----	---

TOTAL RECEIPTS:				\$0
-----------------	--	--	--	-----

////////////////////////////////////

BOARD OF DIRECTORS

C. S. ANDREN . . . . . President  
E. L. McGANN . . . . . Vice President  
L. F. FEHLNER . . . . . Secretary  
D. CARTER . . . . . Treasurer  
J. ALEXANDER  
B. AMBROSENO  
J. M. BEUKENS  
J. F. CULBERTSON  
W. N. DEAN  
L. D. HIGGINBOTHAM  
J. D. ILLGEN  
V. L. JOHNSON  
J. P. VAN ETEN  
V. I. WEIHE

Exhibit 7



WILD GOOSE ASSOCIATION

8 March 1985

Mr. Carl S. Andren  
President  
Wild Goose Association  
734 15th Street, N.W.  
Walker Building, Suite 400  
Washington, DC 20005

Dear Carl:

I regret that I must resign as editor of the Wild Goose Journal. I have enjoyed the responsibility as editor, but feel that it's time for someone else. I do hope that I've contributed to the Wild Goose Association in a manner that expresses my appreciation in being a member.

The 1984 Journal has been completed and mailed to members. I would have informed you sooner but it was a difficult decision to make because I enjoyed doing something for the Wild Goose Association.

Sincerely,

*B. Ambroseno*  
Bernard Ambroseno

BA/bja

*Copy to Leo Fehner*

## BOARD OF DIRECTORS

C. S. ANDREN ..... President  
E. L. McGANN ..... Vice President  
L. F. FEHLNER ..... Secretary  
D. A. CARTER ..... Treasurer  
J. ALEXANDER  
B. AMBROSENO  
J. F. CULBERTSON  
W. N. DEAN  
L. D. HIGGINBOTHAM  
J. D. ILLGEN  
V. L. JOHNSON  
A. W. MARCHAL  
J. P. VAN ETEN  
V. I. WEIHE

Exhibit 8



# WILD GOOSE ASSOCIATION

5 April 1985

Memorandum To: Secretary, WGA  
From: Chairman, Membership Committee  
Subject: Committee Report

Activity in 1985 to date is summarized below:

1. New Member Applications - 26 were processed as follows:

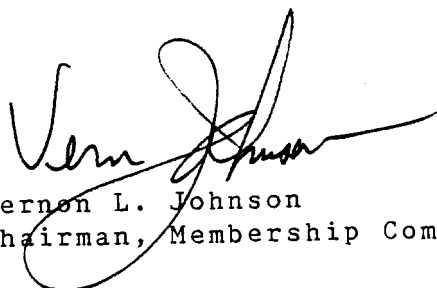
20 were sent 1983 Proceedings  
5 were sent 1983 Journals  
1 was sent 1980-1981 Journal (special request)

2. Publication Orders Filled

60 - 1983 Proceedings  
24 were paid for  
36 were invoiced

1 - 1980 Proceedings

1 - 1979 Proceedings

  
Vernon L. Johnson  
Chairman, Membership Committee



Mr Bernard Ambrosius  
411, Providence Highway  
Westwood MA 02090  
U S A



**WILD GOOSE ASSOCIATION EUROPE**  
SCHIFFBRÜCKE 27  
2390 FLENSBURG FRG.

Exhibit 9



GENERAL ANNOUNCEMENT  
WILD GOOSE ASSOCIATION EUROPEAN SECTION

LORAN-C SYMPOSIUM

24 - 26 JANUARY 1985

WESTERLAND - PUAN KLINT

ISLAND SYLT

F.R.G.

RECEIVED

JAN 1985

EPSCO MARINE

THEME

"THE EXPANDING WORLD OF LORAN-C IN EUROPE  
AND MIDDLE EAST"

In the 70s, Loran-C was chosen as the prime radio aid to navigation for the United States and Canadian Coastal confluence, off-shore waters, and the Great Lakes. The system was expanded, automated, updated with reliable Solid State Equipment - and has become the accurate reliable, mature system of today. Now in the 80s, with rumors of NAVSTAR GPS (by GPS) eliminating other navigation aids, we find the LORAN - C system expanding again both internationally and within the US civilian aviation community. It appears that LORAN - C is rapidly becoming more than an attractive accurate alternative to GPS. Our theme "The Expanding World of Loran-C" is most appropriate for our European Symposium. This symposium offers an excellent opportunity for manufacturers, users and government personnel to discuss the necessity of expanding LORAN-C in Europe for a navigation system of total coverage all over Europe for marine aviation and land navigation.

The Committee warmly invites you to attend this Symposium on the Island of Sylt.

All you need to know about attending this Symposium is contained in the information that follows.

Sincerely,

Joh. H. Böttcher  
Symposium Chairman



The mailing address of the Wild Goose Association is:

WILD GOOSE ASSOCIATION ROPE  
Chairman Joh. H. Böttcher  
Schiffbrücke 27, D - 2390 Flensburg, FRG  
Telex (17) 461 106 TEFLEX D  
Telephone 49 - 461 - 2 74 05  
Denmark Office: 45 - 4 - 46 74 99

LORAN - C SYMPOSIUM  
WESTERLAND - PUAN KLINT,  
ISLAND SYLT.

A detailed program will be sent early January after we have received your participation form.

#### PRELIMINARY LIST OF SPEAKERS

Adrian de Bruin, Holland  
William Jones, Jeddah, Saudi Arabia  
Andreas Stenseth, Norway  
M. Macgall, Megapulse, USA  
R. Admiral Theodore Wojnar, USCG, USA,  
Chief of the Office of Navigation  
Jean Paul Renoux, Secretariat D'État  
Auprès Du Ministre de l'Urbanisme  
Lt. Keith Johnson, USCG  
Loran-C Station at Sylt  
Walt Sears, II Morrow, Salem, Oregon, USA

#### HOTEL-ACCOMODATION

Is available from DM 65,- incl. breakfast  
to DM 120,- incl. breakfast per night

#### SYMPOSIUM REGISTRATION

The registration fee for WGA Members DM 100,-  
- - - - Non-Members DM 150,-  
Free for Government Officials  
- - - - Personnel  
- - - - Press

Non-Members: If membership form with fee is attached to Registration form, then member rate applies. Membership forms are attached.

#### SYMPOSIUM REGISTRATION FORM

-----  
We/I participate the SYMPOSIUM Name .....  
Address .....  
Company .....  
Telephone-No. ....

WILD GOOSE ASSOCIATION EUROPE  
SCHIFFBRÜCKE 27  
D-2390 FLENSBURG  
FRG

Exhibit 10

WILD GOOSE ASSOCIATION  
MR. CARL S. ANDREN  
SUITE 400  
WALKER BUILDING  
734 15TH ST. N.W.  
WASHINGTON, DC 20005  
(202) 628-2436

1ST FEBRUARY 1985  
JHB/vi

ATT.: PRESIDENT CARL ANDREN.

DEAR CARL,

AS A RESULT OF THE WESTERLAND SYLT SYMPOSIUM WE HAVE THE ENCLOSED APPLICATIONS FOR MEMBERSHIP TO WGA.

I EXPECT TO GET SOME MORE THE NEXT FEW WEEKS AND A LIST OF PAYMENTS IS ATTACHED AS WELL AS A CHEQUE.

WE HAVE ESTABLISHED AN ACCOUNT WITH AKTIVBANKEN, PADBORG. REG.No. 7055 -949012-6 FOR ALL ACTIVITIES CONCERNING WILD GOOSE ASSOCIATION EUROPE.

WE PROPOSE THAT ALL PAPERS AND PUBLICATIONS TO THE MEMBERS IN EUROPE WILL BE POSEED CENTRAL FROM WGA OFFICE IN FLENSBURG. THIS WILL SAVE POSTAGE AND OTHER COSTS.

IN EUROPE MEMBERS OF ASSOCIATION EXPECT TO GET CONSTITUTIONS AND MEMBERSHIP CARDS (CREDIT CARD SIZE).

PLEASE REMEMBER TO SEND A COMPLETE LIST OF EUROPEAN MEMBERS.

TO WHAT EXTEND WILL YOU RECOMMEND TO FORCE COMPANIES AND CORPORATIONS TO SIGN THE APPROPRIATE MEMBERSHIP INSTEAD OF LETTING INDIVIDUALS GET ALL THE PUBLICATIONS FOR THEM AT THE \$ 15,- RATE?

I WILL COME TO MIAMI BOAT SHOW THE 20TH OF FEBRUARY AND THEREFORE I WOULD APPRECIATE IF ALL OPEN POINTS COULD BE DISCUSSED AT THAT TIME. WILL YOU BE THERE OR ANYBODY ELSE OF THE BOARD OF DIRECTORS OF WGA?

AS I AM TAKING A WEEK VACATION FROM SUNDAY 24TH FEBRUARY TO 3RD MARCH AND GOING BACK TO EUROPE A WEEK LATER IT WOULD BE MOST CONVENIENT FOR ME TO HAVE THIS LITTLE WGA CONFERENCE IN MIAMI. IF YOU REGARD IT NECESSARY I AM PREPARED TO COME UP TO THE NORTH EAST.

WILL YOU PLEASE EXPRESS THE WGA EUROPE BRANCH APPRECIATIONS TO YOUR COMPANY. IT DID HELP CONSIDERABLY TO SUPPORT THE EVENT.

UNTIL WGA UNITED STATES OR THE EUROPEAN MEMBERS HAVE APPOINTED OR ELECTED AN EUROPEAN COORDINATOR I AM PREPARED TO DO THIS JOB AND HAVE MY OFFICE AND STAFF FOR WGA DISPOSAL. EXPENSES CAN BE DISCUSSED AND WILL BE AT COST PRICE. OFFICE MACHINES AND OFFICE WILL BE FREE OF CHARGE.

SINCERELY YOURS,

*Udo Böttcher*  
J.H. BÖTTCHER  
(LEFT AFTER DICTATE)

ENCL. MEMBERSHIP APPLICATIONS: 12

## BOARD OF DIRECTORS

J.M. BEUKERS ..... President  
L.F. FEHLNER ..... Vice President  
W. POLHEMUS ..... Secretary  
B. UTTAM ..... Treasurer  
R.J. ABRACZINSKAS  
W.N. DEAN  
L.D. HIGGINBOTHAM  
W.H. HILBUN  
V. JOHNSON  
E.L. MCGANN  
A. PANKOPF  
R.A. PASCIUTI  
P.R.J. REYNOLDS  
J.P. VAN ETEN

Exhibit 11



# WILD GOOSE ASSOCIATION

## FACT SHEET

### WHAT IS THE WGA?

The Wild Goose Association (WGA) is a professional organization of individuals and organizations having an interest in loran (long range navigation). It is named after the majestic birds that navigate thousands of miles with unerring accuracy. The WGA was organized in 1972 and its membership now includes hundreds of professional engineers, program managers, scientists and operational personnel from all segments of government, industry and the user community throughout the world, working for the advancement of loran.

### WHAT ARE THE AIMS & PURPOSES OF THE WGA?

The aims and purposes of the Wild Goose Association are:

- (1) To foster and preserve the art of loran;
- (2) To promote the exchange of ideas and information in the field of loran;
- (3) To recognize the advances and contributions to loran;
- (4) To document the history of loran.

### OFFICIAL PUBLICATIONS OF THE WGA

Official publications of the Wild Goose Association include:

- (1) Radio Navigation Journal - The Journal is a compendium of current Association and loran information and related topics. It is intended that the Journal will be updated and published annually, after the annual elections, to provide to the membership an annual report of the significant activities, accomplishments and objectives of the Association. Further, the Journal provides a compendium of loran information and reference data deemed to be of interest to the community at large.

(2) Newsletter - The Newsletter is intended to provide to the membership of the WGA a means of frequent communications covering information pertinent to the activities of the Association, the Board of Directors, the individual members and the loran community at large. It is intended that the Newsletter will complement the Radio Navigation Journal and be published at quarterly intervals as a minimum and monthly intervals as a maximum.

(3) WGA Proceedings - The Proceedings document the papers presented at the Technical Symposium of the Wild Goose Association Annual Convention held in October.

#### MEMBERSHIP

There are five classes of membership: regular, honorary, life, associate and corporate. Any individual organization that has an interest in the field of loran is eligible for membership. Regular membership is \$10.00 for the 1st year and \$7.50 per year thereafter. Additional information may be obtained by contacting:

Wild Goose Association  
4 Townsend Road  
Action, Ma. 01720

## BOARD OF DIRECTORS

C. S. ANDREN ..... President  
E. L. McGANN ..... Vice President  
L. F. FEHLNER ..... Secretary  
D. A. CARTER ..... Treasurer  
J. ALEXANDER  
B. AMBROSENO  
J. F. CULBERTSON  
W. N. DEAN  
L. D. HIGGINBOTHAM  
J. D. ILLGEN  
V. L. JOHNSON  
A. W. MARCHAL  
J. P. VAN ET TEN  
V. I. WEIHE

Exhibit 12



-- COPY --

# WILD GOOSE ASSOCIATION

April 8, 1985

To: Mr. Carl Andren, President  
Wild Goose Association

Subject: Nominations for President and Directors

The Nomination Committee of the WGA, consisting of John Buekers, Jim Culbertson, Charlie Kenney, Ed McGann, and Jim Van Etten, Chairman, nominate the following members of the WGA to run for President and Directors:

President -- Dave Carter  
Walt Dean

Directors -- \*B. Ambroseno  
\*J. Illgen  
J. McCullough  
\*E. McGann  
W. Polhemus  
W. Schorr  
J. Toms  
\*J. Van Etten  
R. Warren  
\*V. Weihe

\* Directors seeking reelection

All of the above candidates have been contacted and, if elected, are willing to serve.

---

J. P. Van Etten  
Chairman, Nominations & Election Committee

Exhibit 13

WILD GOOSE ASSOCIATION  
INVOICE No. 283

MICHAEL J. MAYO  
FISHERMAN  
P.O. BOX 3027  
SITKA AK 99835

1 December 1984

Dear Michael,

It is time to pay dues for 1985. Your membership expired, or expires, at the end of 1984. Therefore, please remit \$ 12.00 in USA dollars if you wish to continue your membership. Make checks payable to the WILD GOOSE ASSOCIATION.

If you are a member because you have been nominated by a Corporate Member, your sponsor is shown below. Please remind your sponsor that 1985 dues are now due. Your sponsor will receive an invoice.

If you move, remember to tell us or you will become a lost WILD GOOSE! Send dues and/or corrections or comments with this letter to:

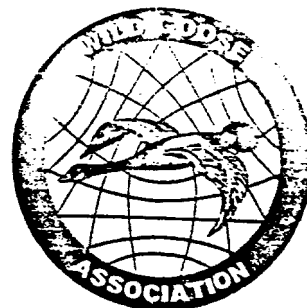
WGA Secretary  
118 Quaint Acres Drive  
Silver Spring MD 20904 USA

Leo F. Fehlner  
Secretary

I NEVER GOT A REPLY TO MY LETTER STATING THAT I  
THOUGHT IT WOULD BE GOOD TO RATE THE LOANS. SORT OF AN UNFORMAL  
LABORATORY. ~~SOME~~ THE LOANS THAT DO NO WORK SHOULD NOT BE  
ADVERTISED IN OUR PUBLICATIONS.  
WOULD APPRECIATE A REPLY.

BOARD OF DIRECTORS

C. S. ANDREN . . . . . President  
E. L. McGANN . . . Vice President  
L. F. FEHLNER . . . . . Secretary  
D. CARTER . . . . . Treasurer  
J. ALEXANDER  
B. AMBROSENO  
J. M. BEUKERS  
J. F. CULBERTSON  
W. N. DEAN  
L. D. HIGGINBOTHAM  
J. D. ILLGEN  
V. L. JOHNSON  
J. P. VAN ETEN  
V. I. WEIHE



**WILD GOOSE ASSOCIATION**

118 Quaint Acres Drive  
Silver Spring, MD 20904

April 25, 1984

TO: WGA Directors  
FROM: WGA Secretary  
SUBJECT: User Comment  
REFERENCE: (a) Letter from Michael J. Mayo, Sitka, AK, April 1984

We thought you may be interested in Reference (a) which reads as follows:

"I am deeply concerned with the way we have in the past allowed manufacturers with shoddy or marginal equipment to advertise in our Radionavigation Journal. It is time we set some standards not just for the Coast Guard but private industry. I realize there can be some serious economic outfalls of any action like this, but I would rather be a member of Wild Goose than Wild Ostrich.

Sincerely,

Captain Michael J. Mayo".

Please let us know if you would like to support updating the WGA standards and test procedures for receivers which are published in the 1976 Journal, and if so, what are your thoughts on ways to promote the use of the standards and procedure?

Very truly yours,

Leo F. Fehlner  
Secretary

LFF:jp

L-098  
January 18, 1985

TO: William Schorr

FROM: Leo Fehlner

SUBJECT: Observations of Out-of-Tolerance Operation of the  
Southeast U. S. Loran-C Chain

REFERENCE: (a) Telephone conversation, 14 January 1985, L. Fehlner  
and W. Schorr

ENCLOSURE: (1) Observations of the Performance of the Southeast  
U. S. Loran-C Chain, Preprint, Wild Goose Association  
Technical Symposium, October 1983

During our recent telephone conversation (Reference (a)) we discussed the unusual performance of the Southeast U. S. Loran-C Chain. This memorandum provides the evidence of this performance which you requested.

At the 1983 Wild Goose Convention, we presented many observations of the chain's performance during a four year period ending in 1983. A preprint of the paper is enclosed. None of these observations show Malone, Jupiter or Carolina Beach operating outside of published tolerances for time differences (TDs). Unpublished samples since 1983 show performance well within tolerance until December 1984. Exhibits 1 through 3 show the deviations in time differences, computed as described in Enclosure (1), for the periods 4, 5 December 1984; 13, 14 December 1984; and 15, 16 December 1984. The periods 4, 5 December and 15, 16 December include the periods during which the Coast Guard had been requested by Navy messages to refrain from any transmitter maintenance procedures etc., which might disturb the timing of emissions.

Note that for Exhibits 1, 2, and 3 the scale factors are the same for the Malone-Jupiter (M-J) and the Carolina Beach-Jupiter (C-J) time differences deviations, but the scale for C-J is shifted 160 nanoseconds so as to show the large negative deviations. On 4, 5 December, C-J exceeded published tolerance for about 9 hours continuously, and again on 15, 16 December for about 25 hours. For about 6 hours on 13 December the 15-minute mean C-J deviations continuously averaged about -200 nanoseconds with two standard deviations of these means of about 20 nanoseconds. For about 4 hours on 15 December, C-J mean deviation averaged about -180 nanoseconds and during a later hour averaged about -220 nanoseconds.



We regret the necessity to report these findings since the record of performance til now has been superb. We hope that the cause of this atypical performance can be identified and preventive measures brought to bear to minimize the probability of any recurrence. However, these out-of-tolerance conditions were not known in real time. Therefore some method of detecting and communicating out-of-tolerance conditions when they occur may have to be devised.



Leo F. Fehlner

LFF:jp

L File

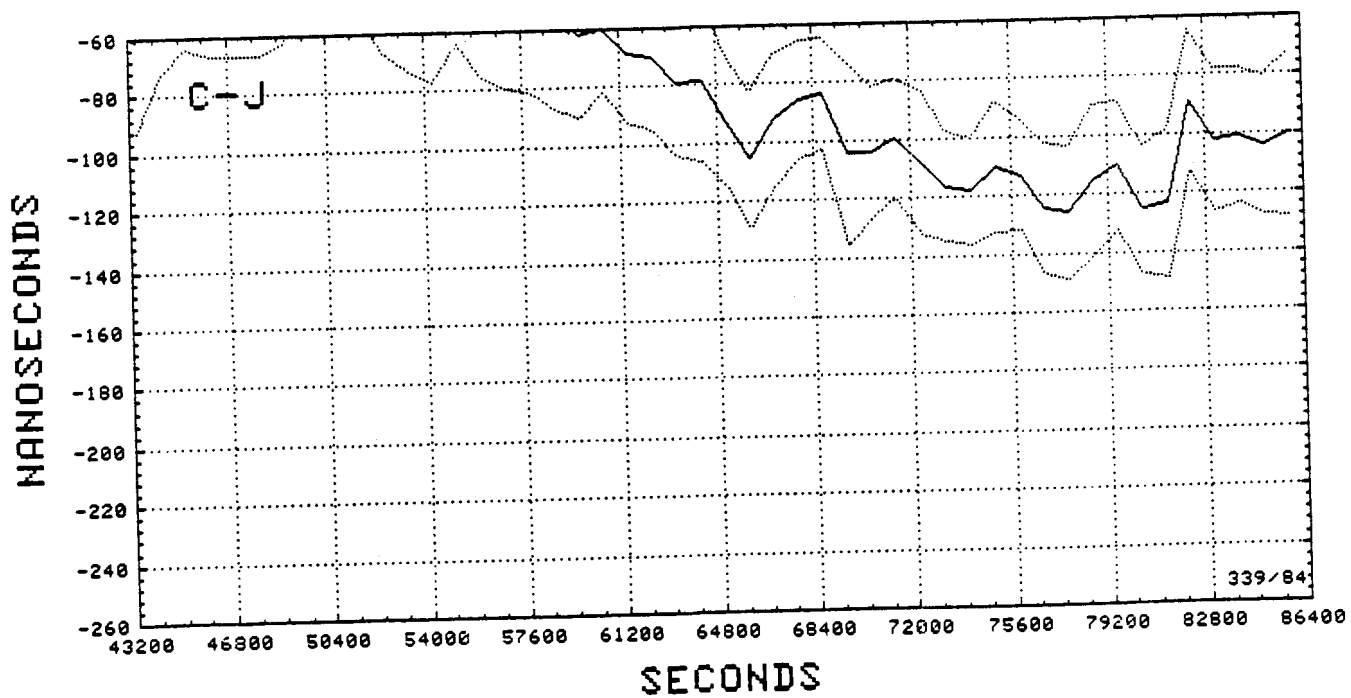
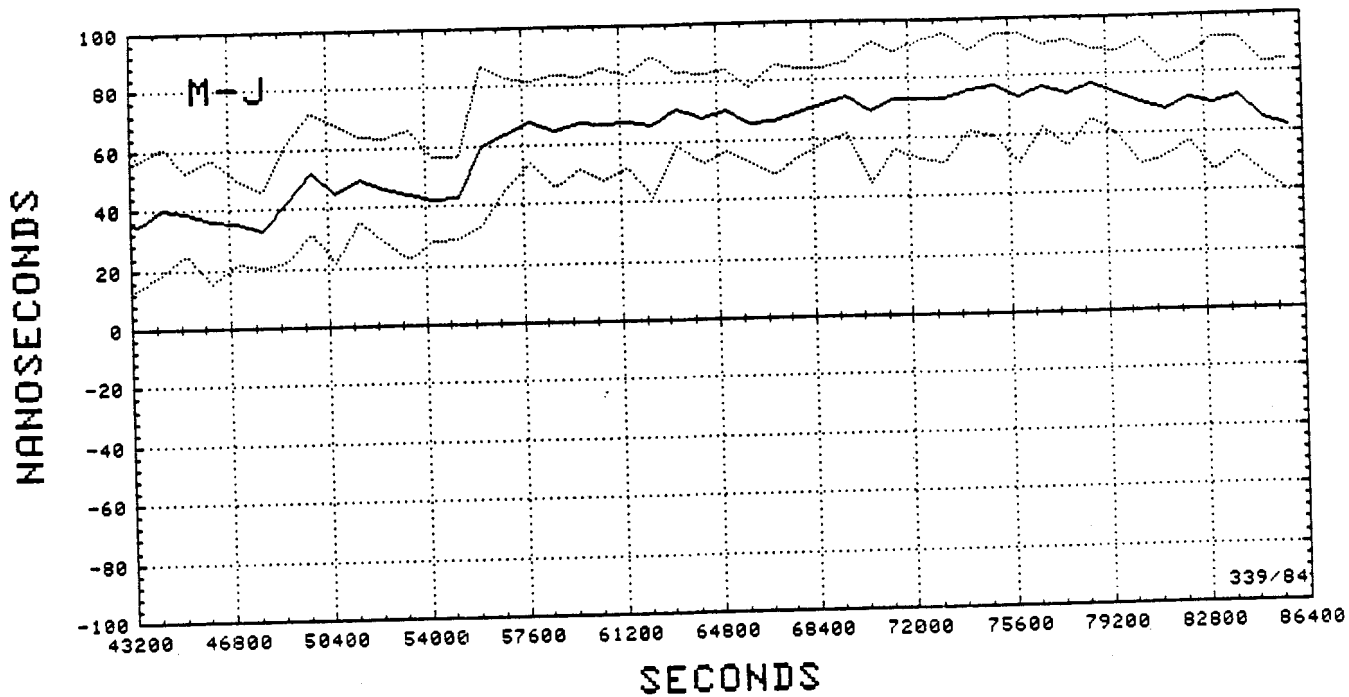


Exhibit 1. Variation of mean time differences and means  $\pm$  two standard deviations. 4 December 1984

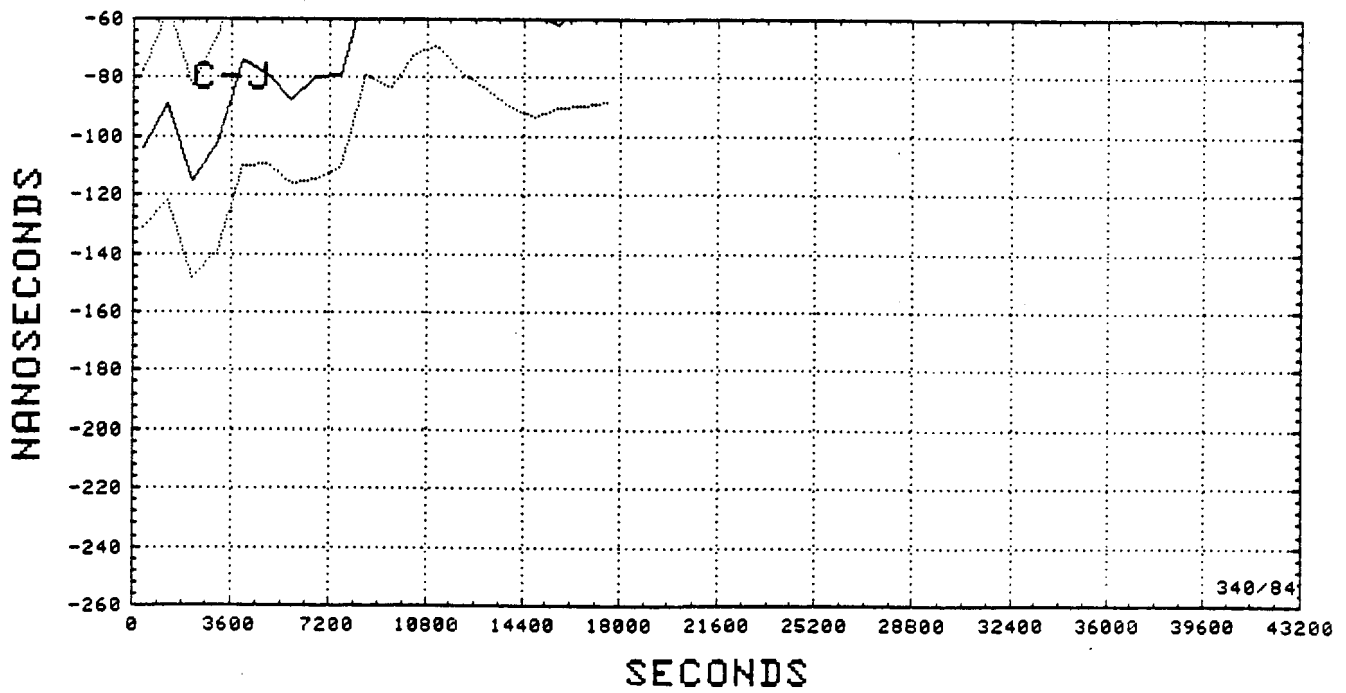
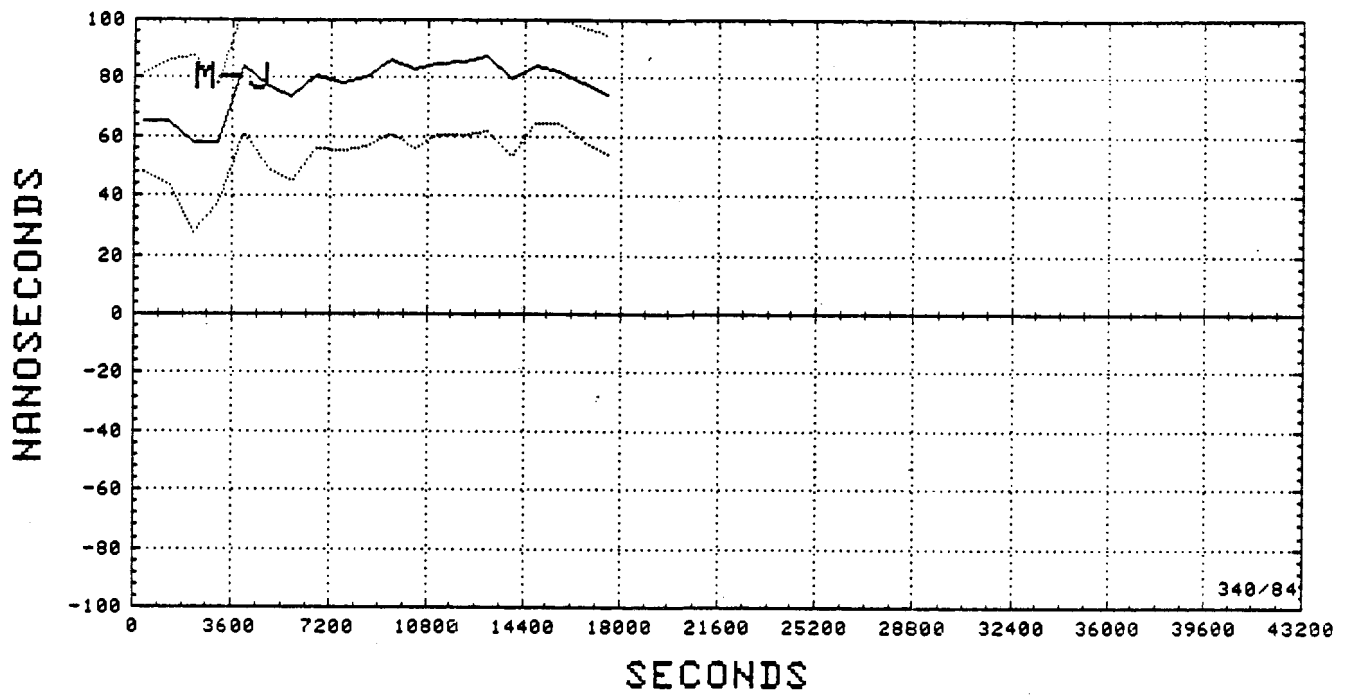


Exhibit 1. (concluded)

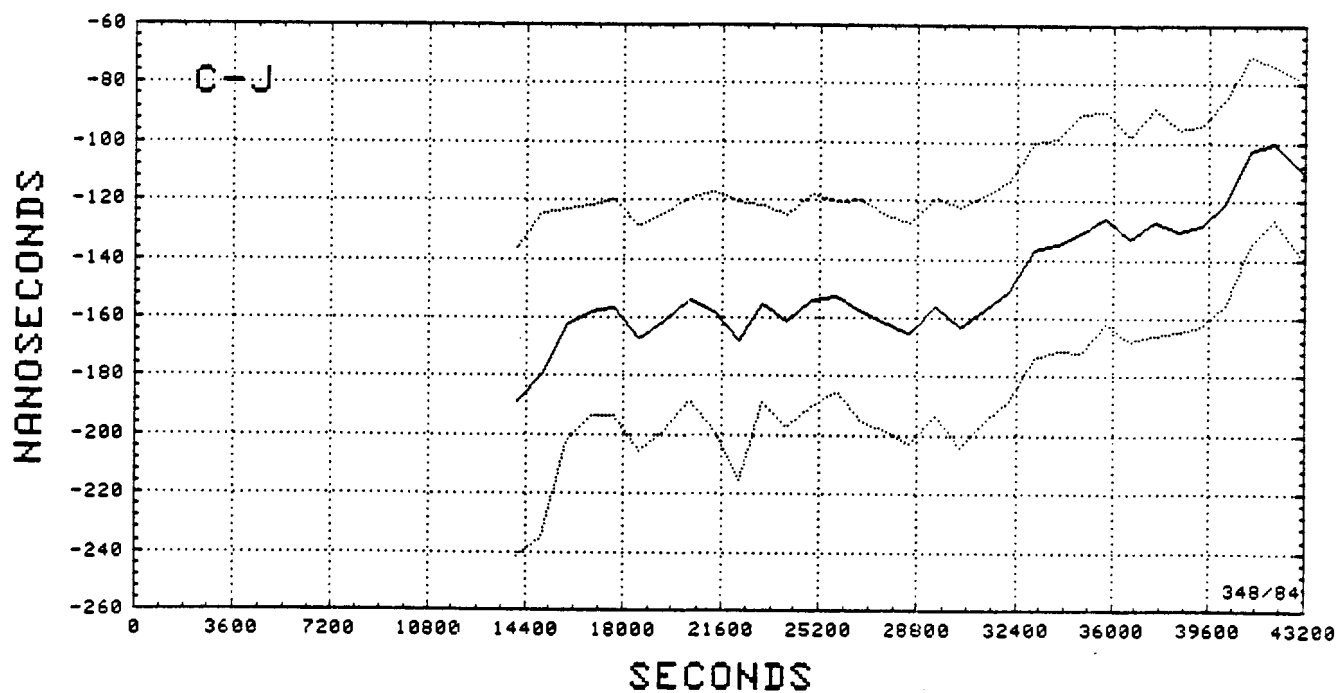
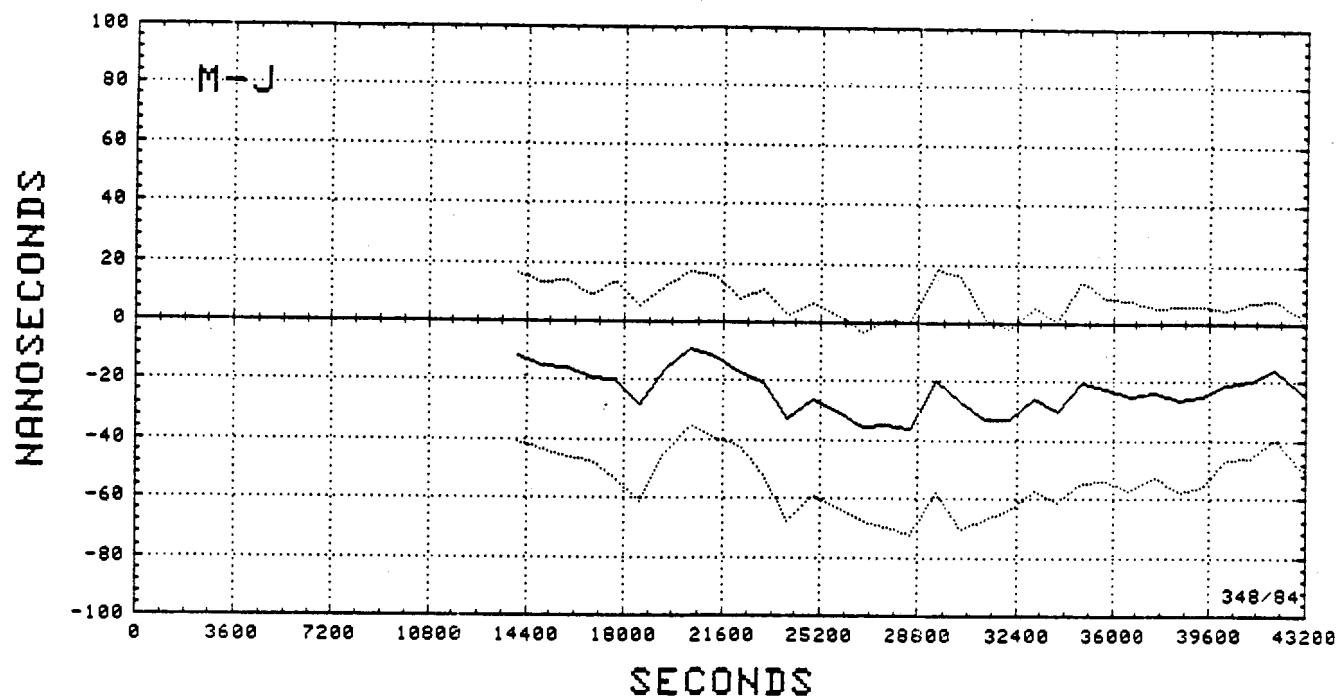


Exhibit 2. Variation of mean time differences and means  $\pm$  two standard deviations. 13 December 1984

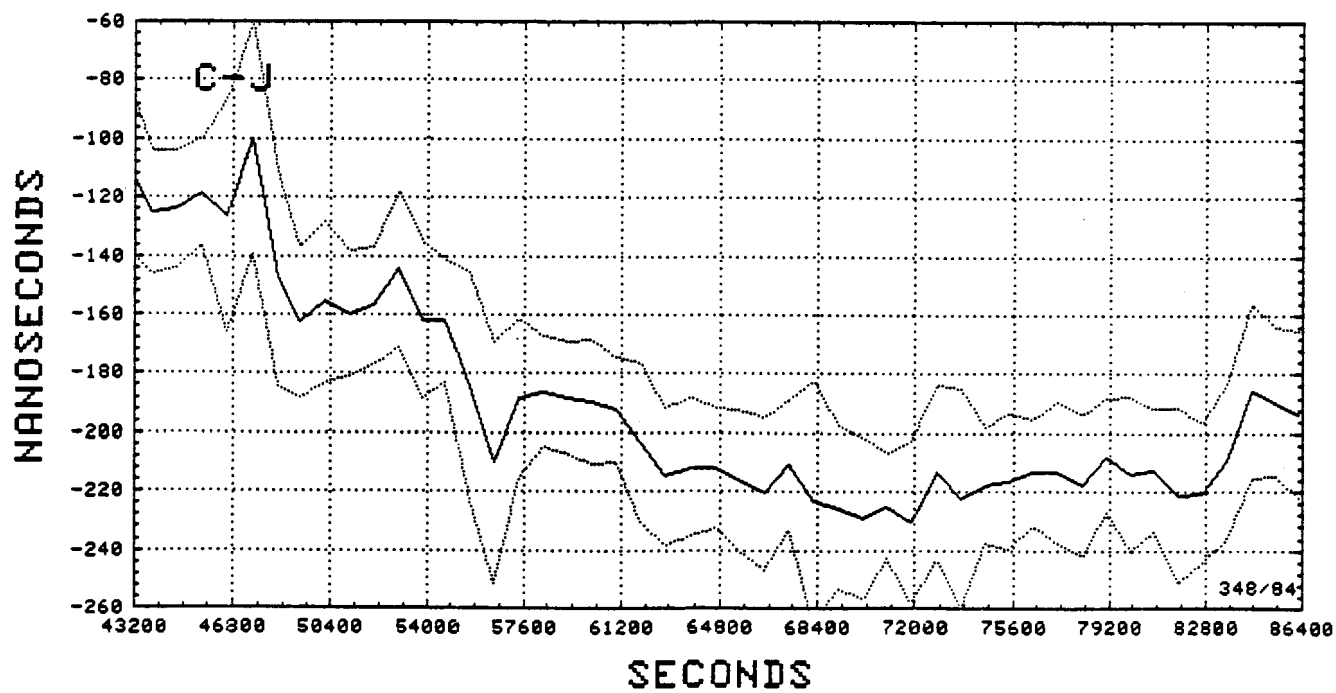
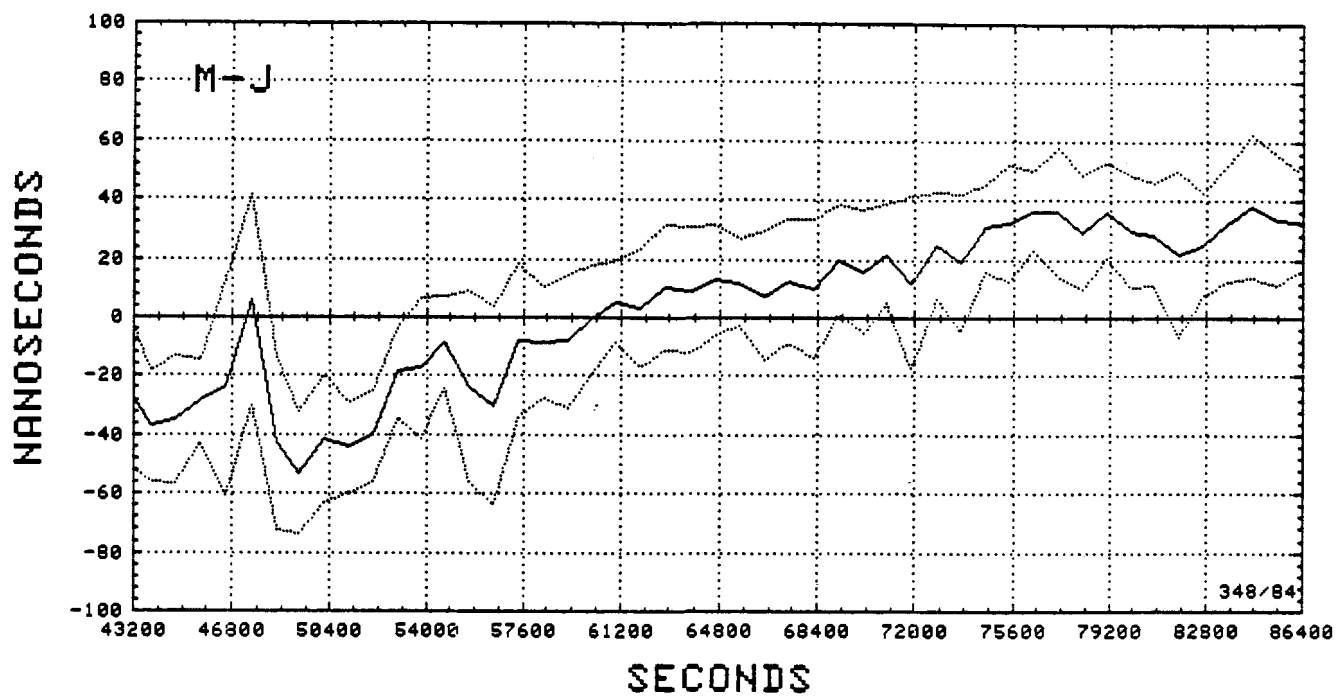


Exhibit 2. (continued)

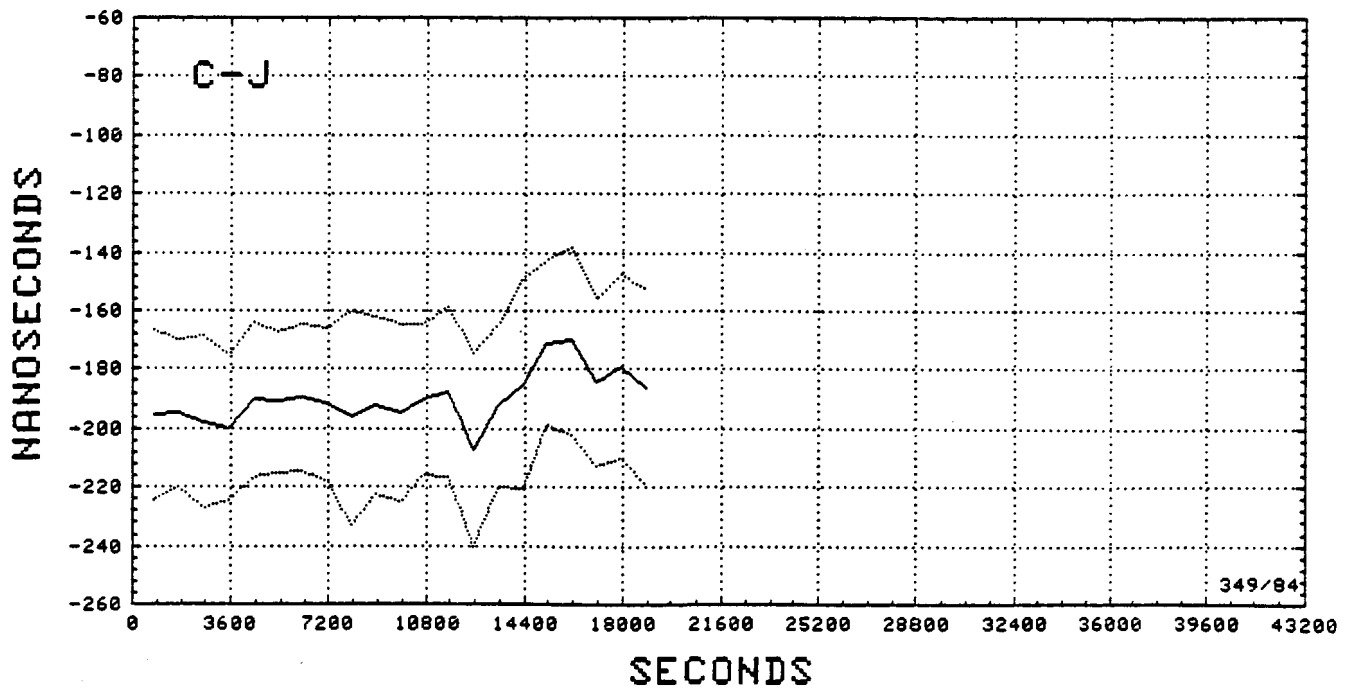
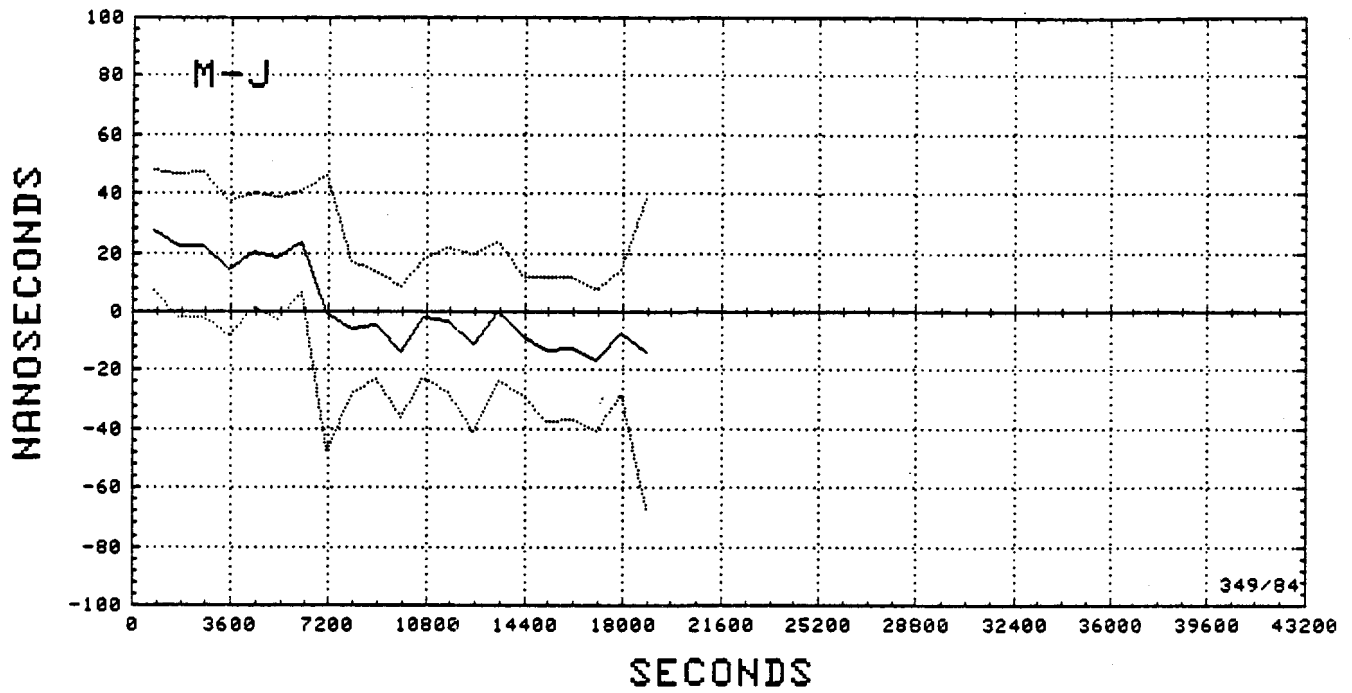


Exhibit 2. (concluded)

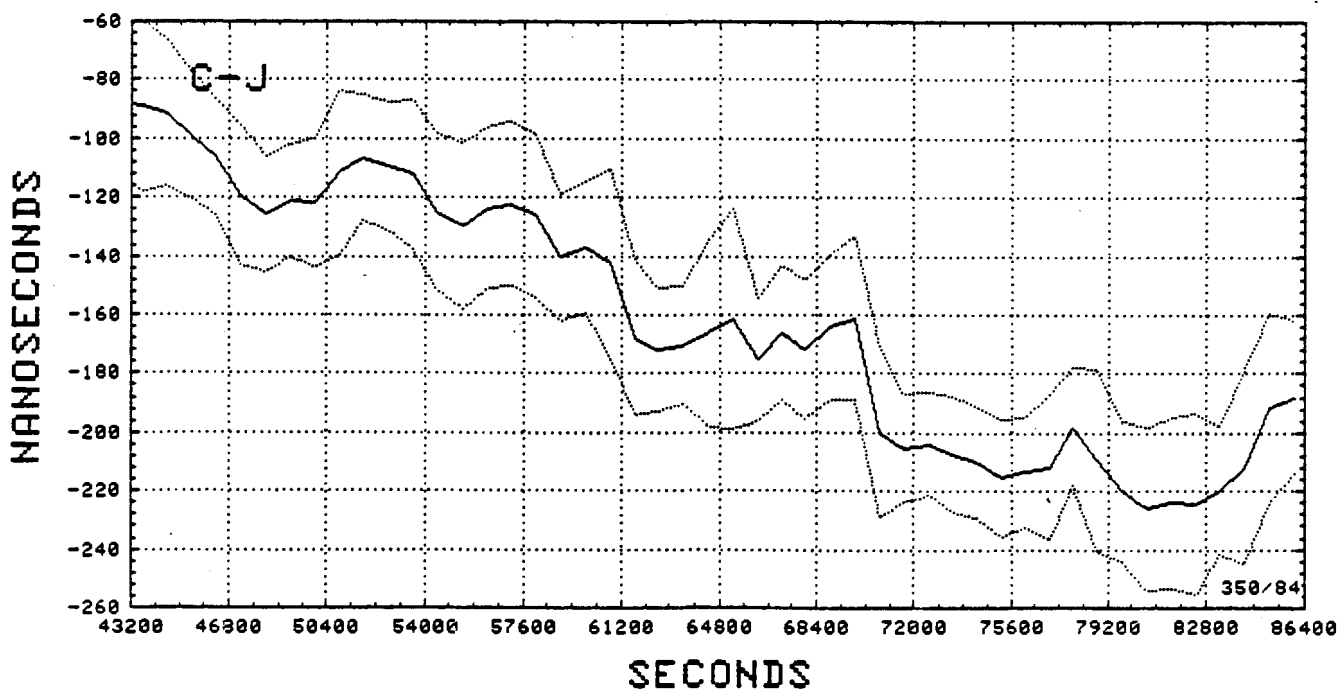
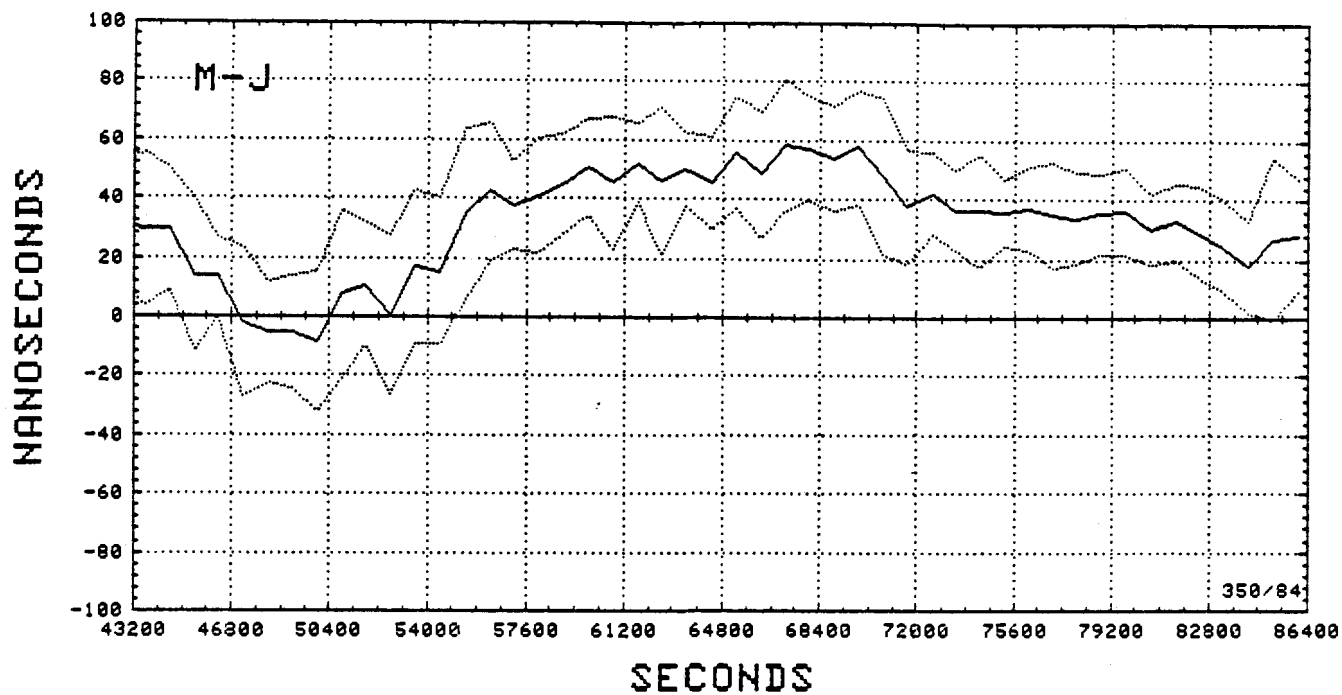


Exhibit 3. (continued)

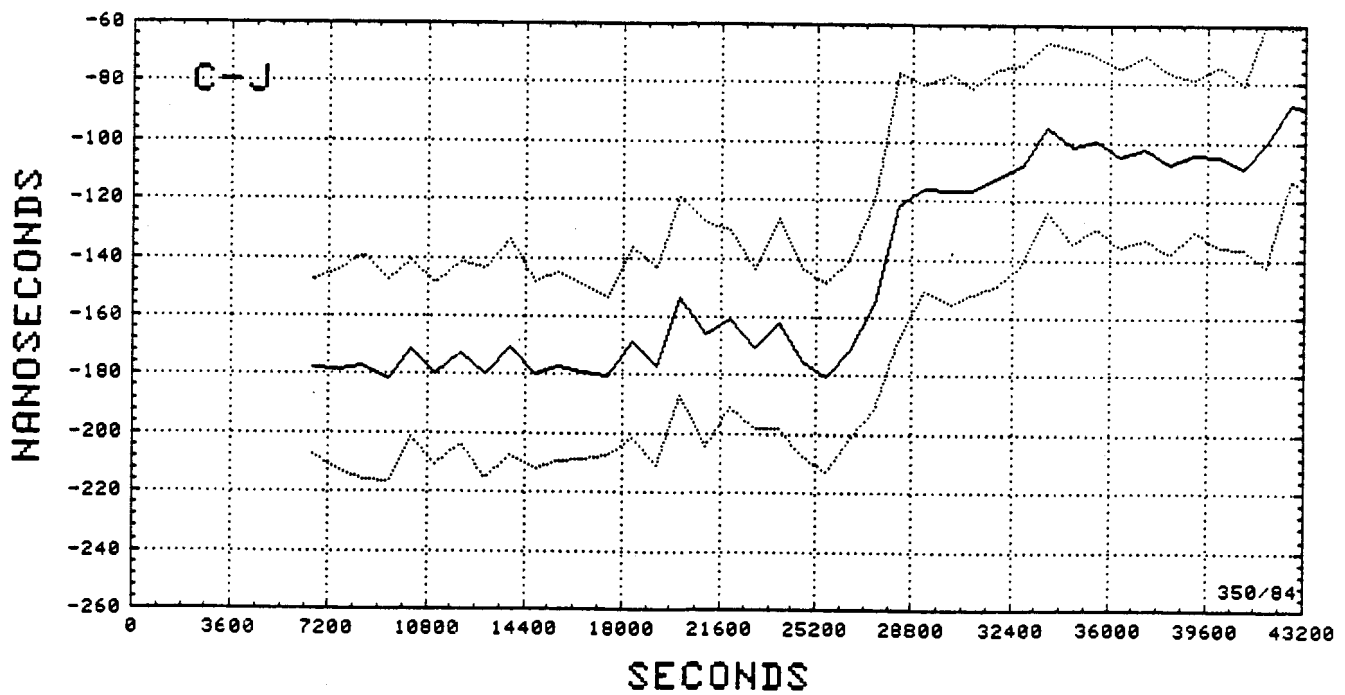
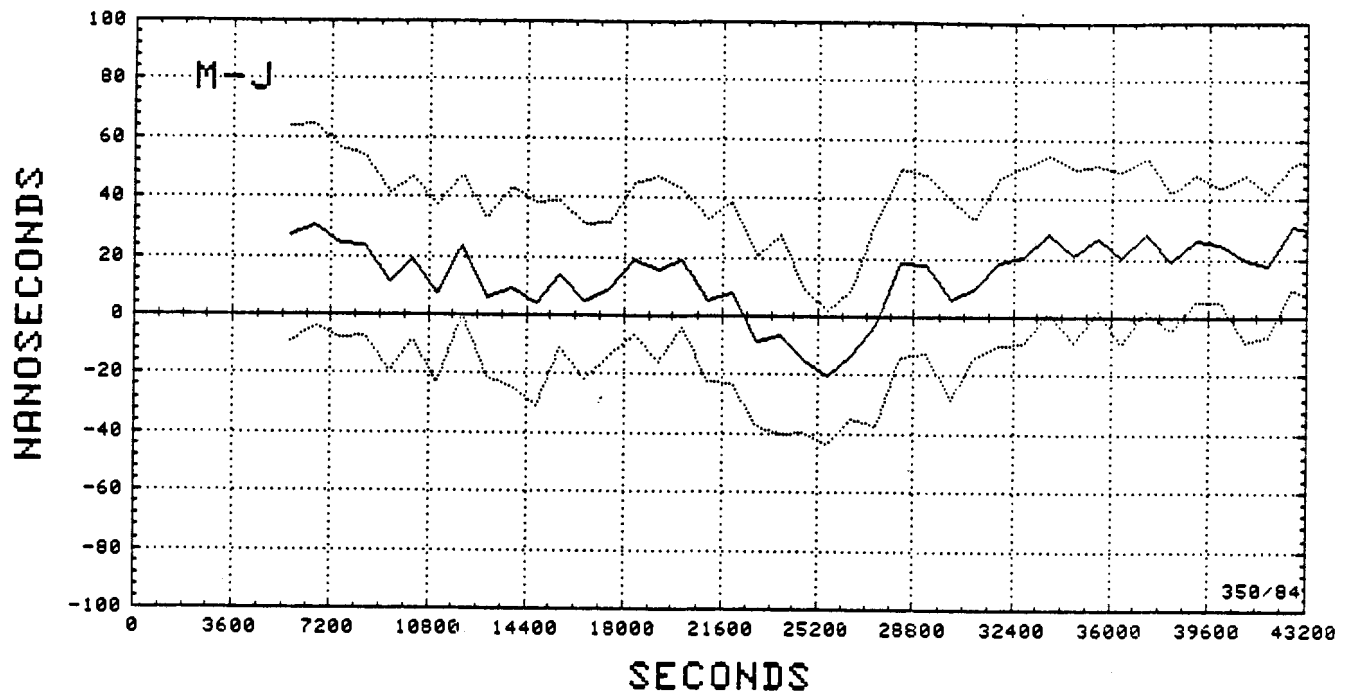


Exhibit 3. Variation of mean time differences and means  $\pm$  two standard deviations. 15 December 1984



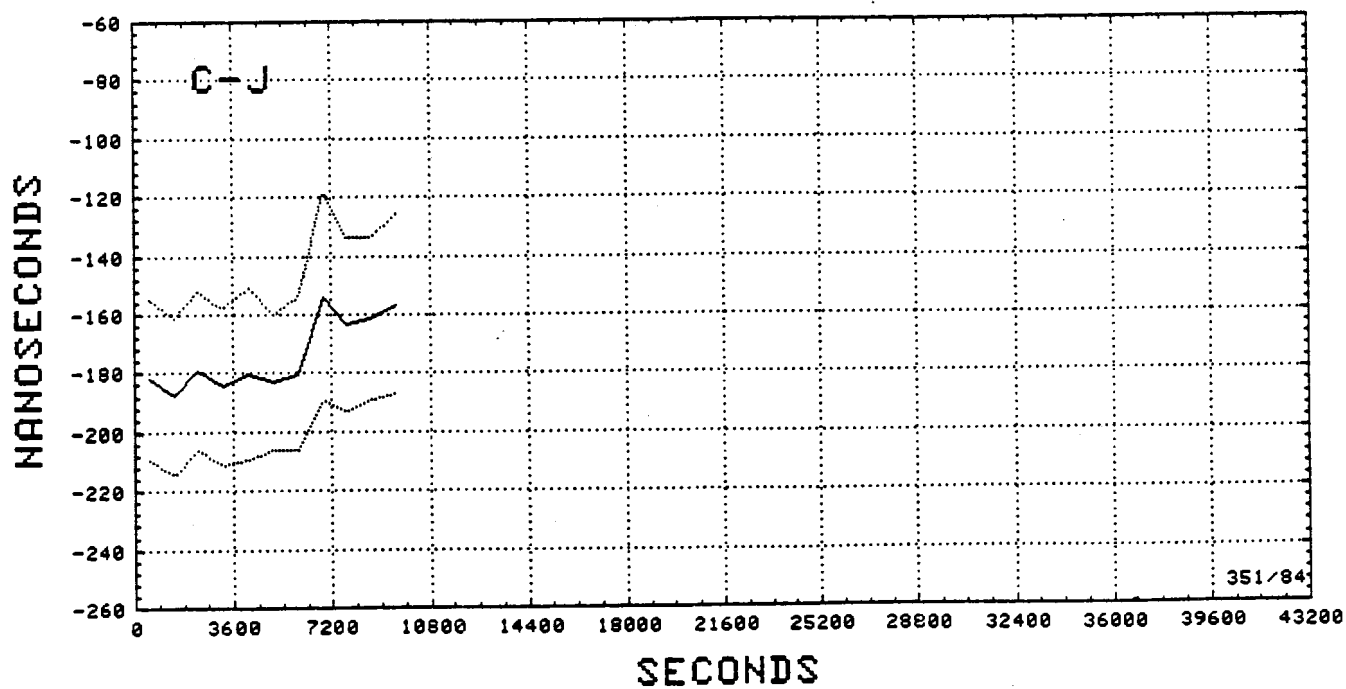
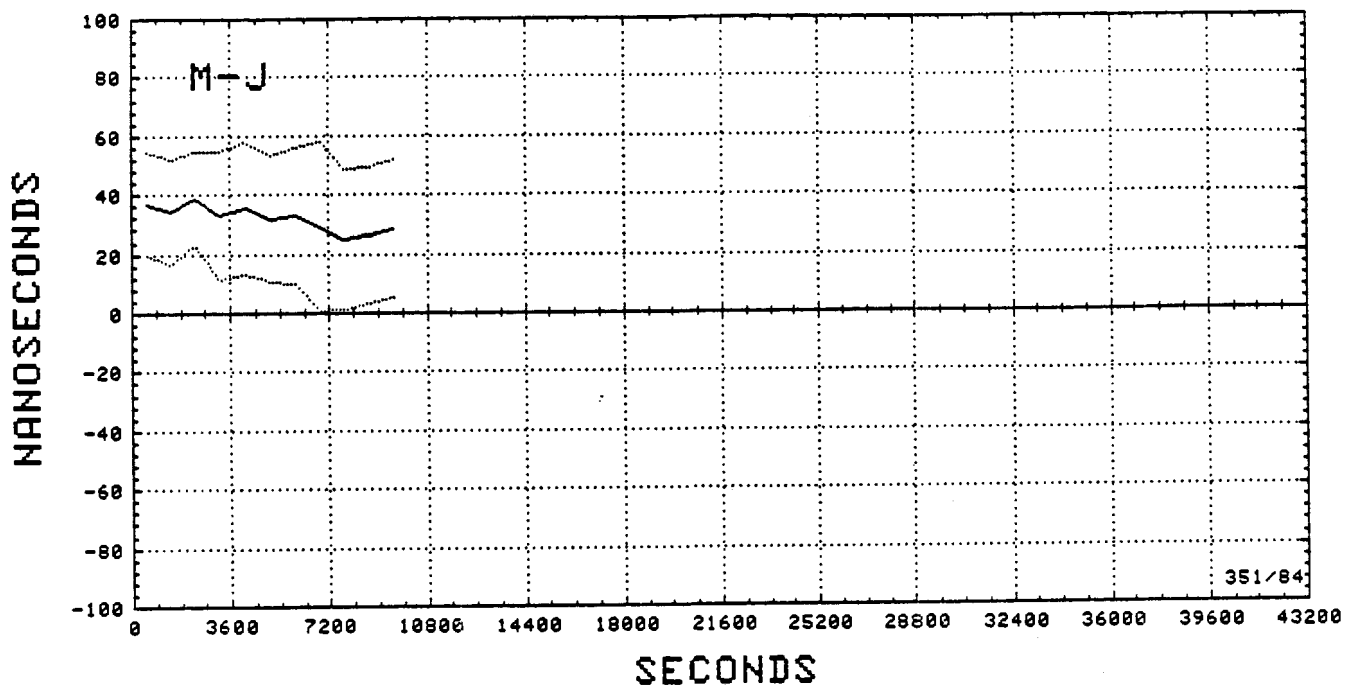


Exhibit 3. (concluded)

118 Quaint Acres Drive  
Silver Spring, MD 20904

Exhibit 15

February 7, 1985

James R. McCullough  
Office of Energy and Marine Biology  
Woods Hole, MA 02543

Dear Jim,

I have just read your letter to John Illgen dated 28 November 1984, which requests that the WGA establish a standards activity. Yours is not the first request for such an activity, but so far it has not happened largely because of the nature of voluntary organizations. The closest we've come is the 7-year WGA effort that resulted in the Loran-C Signal Specification.

However, I'm not writing to you on behalf of the WGA. I'm writing to stimulate your interest in a different way to approach the problems you address in your writings about standards. The approach I am suggesting is to improve the timing control of the transmitters such that each transmitter emits at its assigned times in UTC. This has the following beneficial effects:

1. There is no doubt about emission delay.
2. There is no jockeying of the transmitters to cope with mother nature.
3. There is no need for the "Coast Guard Calibration".
4. If there really is diurnal/seasonal/meteorological variability along a path, it would be discernable. (Currently, transmitter control is the biggest deviator.)
5. Having stabilized the transmitters, users could develop and share a pool of propagation data which would rest on a solid physical base.
6. Any user could calibrate or otherwise qualify his positioning algorithm to any degree of his own choosing.
7. The potential precision of TD's would be improved by at least a factor of 10.

If such a system were adopted, the role of the system monitors (suitably relocated) would be different and there would not be any loran phase adjustments (LPAs). Instead, the monitor data would allow a matrix solution for the drift of the cesiums of the transmitters being monitored, which in turn would allow the drift rate to be compensated via micro-phase-steppers so that the secondaries would maintain UTC time as the masters do now through the monitoring done by the Naval Observatory.

So what does this do for standards? The most important loran characteristic is the shape of the loran pulse. The standard template for the current pulse at the antenna feed should be changed to one which minimizes the frequency modulation of the pulse in the near far-field and standardizes its ECD.

From the user standpoint, whether or not the template is changed, the general subject of standards should be divided into three classes, say coarse, medium and fine.

Probably, there will always be an interest in charts. Charts are candidates for the coarse class. Let them continue to be produced the way they are and 1/4 mile accurate; and don't worry about salt water spheres, standard atmospheres, geology, integral equations, and the SPF and ASPF bandaids. For the applications for which charts are useful, they need not be any more accurate. But, it should be noted that it is the charts that are 1/4 mile accurate, not loran.

The medium class applies to positioning systems which use computerized algorithms to obtain position fixes having good, but not necessarily best accuracy. The pool of solid propagation data made possible by stabilizing the transmitters would contribute to the quality of the solutions. However, about 15 years ago I was a participant in a government sponsored effort to standardize this process for military receivers, built by a number of companies, suitable for accurate use by both the Air Force and Army. This experience convinced me of the futility of achieving standardization of algorithms and their embodiment. The alternative is to establish performance standards and a standard procedure for certifying the performance of receivers.

The fine class applies to positioning systems which attempt to convert the fine precision of the loran service to best accuracy. In addition to drawing on the general pool of data, calibration of the positioning algorithms would be required to achieve best accuracy in the area of interest. Again, as for the medium class, standardization of techniques would be difficult to achieve, but reliance could be placed on performance certification.

Please do not consider this an attempt to dictate how things should go, nor that this is an unnegotiable subject. There are many details to consider. But, I do hope to see loran evolve in the direction I've tried to describe. To steer its evolution is a formidable non-technical task but, we might be able to pull it off if we can come up with the "right" approach and an eager group of promoters. Applying the available technology is the easy part.

Very truly yours,



Leo F. Fehlnner

LFF:jp

cc: C. S. Andren

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Exhibit 16



# WILD GOOSE ASSOCIATION

RADM T. J. Wojnar  
Chief, Office of Navigation  
U. S. Coast Guard Headquarters  
2100 Second Street, S. W.  
Washington, D. C. 20593

**DRAFT**

Dear Sir,

The Constitution of the Wild Goose Association (WGA) declares that we are an advocacy group partial to loran. It is not surprising therefore that we are very pleased by developments in loran in the last few years, especially regarding its expanded service area, its acceptance for use in aviation, and its expanding acceptance world wide. Ever increasing sophistication in the fields of electronics and computers has certainly played a major role in supporting such expansion, but an even more important factor may be the sustained, excellent loran service provided by the Coast Guard.

Considering the pace at which significant events are occurring in the world of loran, it is not too early (and hopefully not too late) to share with you some ideas for further enhancement of the service, which have been developing within the WGA for some time. Until recently, the service has been provided almost exclusively for the support of navigation at sea except for the few years the Coast Guard provided superb loran service in support of precision operation of military aircraft in Southeast Asia. As a consequence (with few exceptions), the strategy and methods for the control of the loran transmitters needed to be no better than that required to support the routine navigation of ships at sea. With loran signal monitor stations oriented to support ocean navigation, transmitter control could be kept well within safe limits for ships at sea using present methods. Unfortunately, the application of the latest state-of-the-art in electronic technology to the development of the new solid-state transmitters was not accompanied by its application to transmitter timing control, presumably because better control was not needed to support ship navigation in open water.

Considering the diversity of users which loran now enjoys, we suggest that the strategy and associated methods of controlling transmitter timing should be reconsidered. The current tolerance of plus or minus 100 nano-seconds (approximately plus or minus 100 feet) is not compatible with

**DRAFT.**

accuracy constraints on aircraft approaching runways, nor is it compatible with ships maneuvering in confined waters. We suggest that present state-of-the-art technology and improved control strategy can make it possible to significantly reduce timing tolerances and ensure a higher probability of maintaining operation within the reduced tolerance; all at an affordable and cost effective price.

If you would like to explore these ideas in more detail, we would be happy to confer with you at any time convenient to you. You may contact us by phone by calling Carl S. Andren at telephone 628-2436 or Leo F. Fehlner at 953-5000, extension 8262.

Very truly yours

---

Leo F. Fehlner  
Secretary

---

Carl S. Andren  
President

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## United States Senate

COMMITTEE ON APPROPRIATIONS  
WASHINGTON, DC 20510

Exhibit 17

J. KEITH KENNEDY, STAFF DIRECTOR  
FRANCIS J. SULLIVAN, MINORITY STAFF DIRECTOR

March 15, 1985

MARK O. HATFIELD, OREGON, CHAIRMAN

Carl M. Warfield  
General Manager  
Aviation Electronics, Inc.  
1704 E. 5th Avenue  
Anchorage, Alaska 99501

Dear Carl:

Enclosed are copies of the responses from the Federal Aviation Administration and the Coast Guard regarding efforts to improve the LORAN-C system program in Alaska.

Thought you'd be interested in these comments.

With best wishes,

Cordially,

*Ted Stevens*  
TED STEVENS

Enclosure

CG. "Loran"

One Loran step for LORAN.

*Carl*



16562

The Honorable Ted Stevens  
United States Senate  
Washington, DC 20510

MAR 12 1985

Dear Senator Stevens:

I am responding to your letter dated January 30, written on behalf of your constituents regarding LORAN-C coverage in Alaska.

LORAN-C has historically been a system operated by the Coast Guard for the purpose of providing vital navigation information to mariners in the U.S. Coastal Confluence Zone. In recent years there has been increasing realization on the part of the Federal Aviation Administration (FAA) that LORAN-C offered significant benefits for the aviation community and Alaskan coverage has received considerable attention. The FAA and the U.S. Coast Guard have been working together with respect to dual rating the Port Clarence Station since it is an obvious solution to part of the Alaskan coverage problem. It is feasible. Contrary to the suggestions of some of your constituent's letters you sent us however, it is not a no cost solution and the benefit may be less than some enthusiastic supporters of LORAN believe. The Coast Guard can provide the technical expertise to dual rate the station when the FAA provides the necessary funds to complete the proposal.

The close association of the Coast Guard and the FAA on LORAN-C matters was recently enhanced when the FAA Administrator took a strong advocacy position on the issue of aviation use of the system. That advocacy position served to validate the efforts of the FAA and Coast Guard over the past several months to investigate various long and short term actions for improving aviation navigation in Alaska. Included in those investigations was the concept of dual rating Port Clarence. The estimated cost for accomplishing the dual rating is in the range of \$0.9-1.4 million. Such an action cannot be done with little or no impact on the Coast Guard as has been suggested. It will require that we draw down our inventory of equipment (which will then have to be replenished) and also the procurement of additional new equipment not currently in inventory. In the long term we are working with the FAA regarding the need for additional inland coverage in Alaska, required equipment changes to ensure the integrity of the existing system throughout its projected life, and the potential for expanded coverage in the Mid-Continent region of the lower 48. All of these long term efforts are closely interrelated in that all of them point to the use of current technology as a means to provide continued/enhanced radionavigation systems at minimal costs.

An FAA analysis has indicated that approximately 93,000 square miles, a 15 percent increase to the existing coverage area, will be added to the Alaskan land mass coverage as a result of dual rating Port Clarence. The analysis indicated that LORAN-C would then be available to about 98 percent of the State's population and 93 percent of its airports. That analysis was



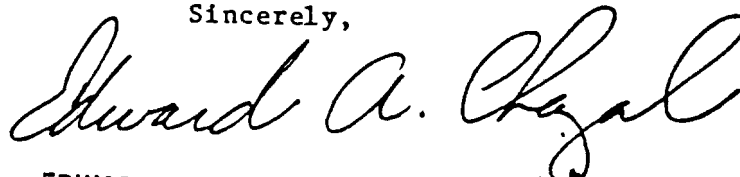
MAR 12 1985

based primarily on coverage diagrams developed by the Department of Transportation's, Transportation Systems Center (TSC). While the Coast Guard generally supports the analysis, past experience with LORAN-C in Alaska such as the installation of the station at Tok have taught us the value of caution. Our predictions are normally based on higher atmospheric noise levels than the TSC coverage diagrams, and we tend to use nearly the worst case conditions for planning. We, therefore, believe that the coverage predicted in the FAA analysis and by some of your constituents' letters you sent us is somewhat optimistic.

In spite of those notes of caution expressed above, I believe that the dual rating proposal for Port Clarence offers a great opportunity for enhanced inland LORAN-C coverage and a commensurate improvement in navigation safety at a very reasonable cost.

If we can be of further assistance to you or your constituents, please contact me directly.

Sincerely,



EDWARD A. CHAZAC  
Commander, U.S. Coast Guard  
Acting Chief, Congressional Affairs Staff



U.S. Department  
of Transportation

Federal Aviation  
Administration

Office of the Administrator  
1000 ...

800 Independence Ave., S.W.  
Washington, D.C. 20591

MAR 4 1985

The Honorable Ted Stevens  
United States Senate  
Washington, D.C. 20510

Dear Senator Stevens:

This is in reply to your letter dated January 30 in which you enclosed letters from several constituents regarding long-range navigation (LORAN-C). I am pleased to be of assistance by addressing the current Federal Aviation Administration's (FAA) LORAN-C system program.

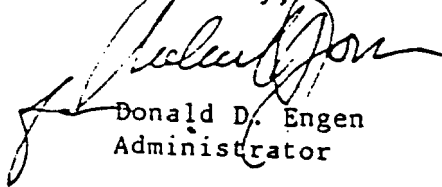
Since I directed the FAA to take an advocacy position, several positive actions have been taken. One item of particular interest to the State of Alaska is the investigation by the United States Coast Guard (USCG) and the FAA of dual-rating the Port Clarence LORAN-C station. This item was first recommended by Mr. W. Dean as a quick and inexpensive method of increasing coverage for Alaska. The preliminary results of our investigation are that the change will cost approximately \$1 million (due mainly to the stringent costs of power-conditioning equipment), and the improvement in coverage is estimated to encompass 94,000 square miles for an additional 16 percent of the Alaskan land mass. This results in 76 percent of Alaska having LORAN-C service and includes the area between Anchorage and Fairbanks not presently covered. As a result of this increased coverage, the number of airports with LORAN-C coverage is increased by 22 percent to 93 percent of the airports in Alaska, and the population living within LORAN-C coverage is increased by 11 percent to 98 percent of the State's population. Based upon these findings, we plan to request that the USCG dual-rate the Port Clarence LORAN-C station.

The installation of additional LORAN-C stations to provide coverage for the entire State of Alaska is also being investigated. We will determine the number of new stations required, their costs, and implementation schedule. This information will then be compared to similar information on the Global Positioning System (GPS) to determine if expanding LORAN-C service is cost effective and timely. GPS, which is scheduled to be available in the late 1980's, is initially expected to be approved as an en route navigation supplement with excellent coverage over all of Alaska. Then, as experience is gained and additional features are incorporated, GPS may be approved for nonprecision approaches and possibly for sole means air navigation.

2

Other FAA LORAN-C activities include investigating the possibility of providing coverage for the so-called midcontinent gap and implementing nonprecision approaches where practical.

Sincerely,

A handwritten signature in dark ink, appearing to read "Donald D. Engen", is written over the typed name and title.

Donald D. Engen  
Administrator

Enclosure  
Transmitted Correspondence

13 Nov 84

DOD/DOT POLICY  
FOR THE  
FUTURE RADIONAVIGATION SYSTEMS MIX

PURPOSE: This statement sets forth the policy for Federally funded radionavigation systems to be supported for the remainder of this century and into the early part of the next.

BACKGROUND: Section 507 of the International Maritime Satellite Communications Act of 1978 (PL 95-564) requires the development of a plan to determine the most cost effective method of reducing proliferation and overlap of Federally funded radionavigation systems. That plan, the Federal Radionavigation Plan (FRP), was developed through the joint efforts of the Departments of Defense and Transportation. The FRP (current edition March 1982) cites key events in selecting radionavigation systems to be used in the future. One of these events is publication of a DOD/DOT policy statement that sets forth a preliminary selection of Federally funded radionavigation systems. This policy statement will provide the basis for revising the FRP. Subsequent reviews of the FRP will be undertaken at least biennially or more frequently, if necessary.

All common user systems currently operating or planned were considered in reaching this selection for the future mix of Federally funded radionavigation systems. This policy statement addresses how and for what period each system should be a part of the Federal radionavigation system mix. When a decision is made to terminate a navigation system, an appropriate transition period will be provided.

The Department of Transportation (DOT) is responsible for ensuring safe and efficient transportation. Radionavigation systems play an important role in carrying out this responsibility. The two main elements within DOT that operate radionavigation systems are the United States Coast Guard and the Federal Aviation Administration (FAA).

The Coast Guard has the statutory responsibility to define the need for, and to provide aids to navigation and facilities needed for safe and efficient navigation. The FAA has the responsibility for development and implementation of radionavigation systems to meet the needs for safe and efficient navigation and control of all civil and military aviation, except for those needs of military agencies which are peculiar to air warfare and primarily of military concern. The FAA also has the responsibility to operate aids to air navigation required by international treaties.

The Department of Defense (DOD) is responsible for developing, testing, evaluating, implementing, operating, and maintaining aids to navigation and user equipment required for National Defense and ensuring that

military vehicles operating in consonance with civil vehicles have the navigational capabilities required to operate in a safe and expeditious manner.

#### DEFINITIONS:

**Sole Means Air Navigation System:** An approved navigation system that can be used for specific phases of air navigation in controlled airspace without the need for any other navigation system.

**Supplemental Air Navigation System:** An approved navigation system that can be used in controlled airspace of the National Airspace System in conjunction with a sole means navigation system.

**Predictable Accuracy:** The accuracy of a position with respect to the geographic, or geodetic, coordinates of the earth.

**Repeatable Accuracy:** The accuracy with which a user can return to a position whose coordinates have been measured at a previous time with the same navigation system.

**2 drms:** The radius of a circle that contains at least 95 percent of all possible fixes that can be obtained with a system at any one place.

#### POLICY

**RADIOBEACONS:** Maritime and aeronautical radiobeacons serve the civilian user community with low cost navigation. They will remain part of the radionavigation mix well into the next century.

**LORAN-C:** LORAN-C provides navigation for both civil and military air and surface users. It is the Federally provided navigation system for the U.S. Coastal Confluence Zone (CCZ) and in the differential mode has been demonstrated capable of meeting the 8-20 meter 2 drms navigation accuracy requirements in harbor and harbor approach areas. LORAN-C is also approved as a supplemental air navigation system in some areas. DOD will phase out military use of overseas LORAN-C by 1992. The United States will discontinue LORAN-C transmitting stations established for military use that do not serve the North American continent, as military LORAN-C users become GPS equipped. The LORAN-C system serving the continental United States and its coastal areas will remain a part of the navigation system mix into the next century.

**OMEGA:** OMEGA is a global navigation system serving maritime and aeronautical users. It is a sole means of air navigation in some oceanic areas. DOD will phase out military air use of OMEGA by 1992. However, some naval receivers may continue in operation after that date. OMEGA will remain a part of the radionavigation system mix until at least 2000.

VOR/DME: VOR/DME provides users with a sole means of air navigation in the National Airspace System. DOD will phase out military support and use of VOR/DME by 1997. VOR/DME, as the international standard for civil air navigation in controlled airspace, will remain the short distance aviation navigation system well into the next century.

TACAN: TACAN is a short range navigation system used primarily by military aircraft. DOD will phase out land-based TACAN by 1997 assuming GPS, integrated with other onboard aircraft systems, proves acceptable as a sole means radionavigation system for military use in controlled airspace. Shipboard TACAN systems will continue in operation after that period.

ILS/MLS/PDME: These are precision approach systems for aircraft. MLS will replace ILS.

TRANSIT: TRANSIT is a satellite based radionavigation system operated by the DOD. It will be replaced with GPS by 1994. TRANSIT will not be operated by or transferred to a civilian agency of the U. S. Government.

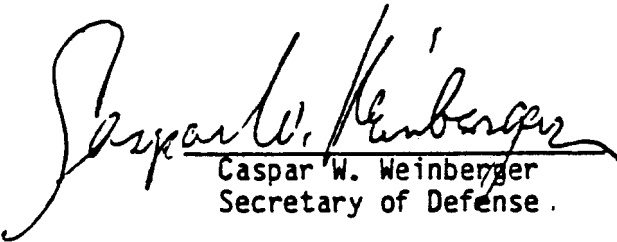
GPS: GPS is a DOD developed worldwide satellite based radionavigation system that is scheduled to be operational with three dimensional coverage in 1988. The GPS Precise Positioning Service (PPS) will be restricted, due to national security considerations, primarily to the military. The GPS Standard Positioning Service (SPS) will be made continuously available to all users, worldwide, and will provide 100 meter 2 drms navigation accuracy.

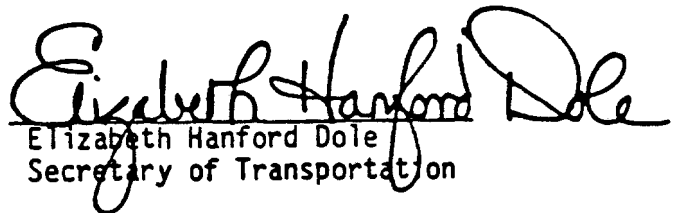
AIR USE: GPS has the potential to become a sole means air navigation system for the United States. The adequate control of aircraft in national and international controlled airspace must be assured if GPS is relied upon, and those agencies with safety and operational responsibilities will determine when GPS, properly integrated with other aircraft navigation systems, is acceptable. Approval of civil navigation receivers to operate with the GPS system is initially expected to be on a supplementary system basis. Resolution of coverage and integrity issues is needed in order to certify GPS as a sole means system.

SURFACE USE: The GPS SPS, as currently proposed, provides better accuracy than the predictable accuracy of LORAN-C. It does not, however, have the capability of LORAN-C in the repeatable mode, and it cannot provide as good accuracy as LORAN-C in some locations. It is possible that some enhanced form of GPS may provide accuracy equivalent to existing systems for harbor and harbor approach areas, and for coastal and land radionavigation. Several enhancement techniques are currently being investigated.

CIVIL USER CHARGES: There should be no direct charges to civil users of GPS service. GPS costs should be underwritten through other mechanisms such as those provided for by existing statute(s).

PHASE OUT OF EXISTING SYSTEMS: It is the goal of the DOD to phase out use of TACAN, VOR/DME, OMEGA, LORAN-C and TRANSIT in military aircraft and other platforms. Civil user phase out of LORAN-C and OMEGA would be keyed to (a) resolution of GPS accuracy, coverage, integrity, and financial issues; (b) GPS meeting civil air, marine, and land needs currently met by LORAN-C and OMEGA; (c) GPS civil user equipment being available at prices that would be economically acceptable to LORAN-C and OMEGA users; (d) a transition period of 15 years; and (e) resolution of international commitments in the case of LORAN-C and OMEGA.

  
Caspar W. Weinberger  
Secretary of Defense.

  
Elizabeth Hanford Dole  
Secretary of Transportation